MINUTES OF THE

BEAR RIVER COMMISSION

REGULAR MEETING

November 21, 1988

1:00 p.m.

First Floor Auditorium
Department of Natural Resources Building
1636 West North Temple
Salt Lake City, Utah

THOSE PRESENT

WYOMING COMMISSIONERS
- Gordon W. Fassett
- S. Reed Dayton
- J. W. Myers
- John Teichert (Alternate)

IDAHO COMMISSIONERS
- R. Keith Higginson
- Don W. Gilbert
- Daniel Roberts
- Rodney Wallentine

CHAIRMAN
- Kenneth T. Wright

UTAH COMMISSIONERS
- D. Larry Anderson
- Blair R. Francis
- Calvin Funk
- Dean Stuart (Alternate)
- J. Glen Nelson (Alternate)

LEGAL COUNSEL
- E. J. Skeen

ENGINEER-MANAGER
- Wallace N. Jibson

SECRETARY
- Nancy Fullmer

OTHERS IN ATTENDANCE

UTAH

Robert L. Morgan, State Engineer, Division of Water Rights
Robert M. Fotheringham, Division of Water Rights
William Atkin, Division of Water Rights
Bert Page, Division of Water Resources
Lloyd Austin, Division of Water Resources
Norman Stauffer, Division of Water Resources
Barry Saunders, Division of Water Resources
Brent Jones, Automated Geographic Reference Center
Robert W. Hill, Utah State University
Harvey Lee Case, U.S. Geological Survey/Utah Dist.
Carly Burton, Utah Power and Light
Jody Williams, Utah Power and Light
Les Dixon, Corps of Engineers

WYOMING

John W. Shields, State Engineer's Office
Sue Lowry, State Engineer's Office
Mike Ebsen, Board of Control
Marvin Bollschweiler, Evanston
Jim Kircher, U.S. Geological Survey/Wyoming Dist.

IDAHO

Hal N. Anderson, Department of Water Resources
Pete Peterson, Watermaster - Dist. #11
Allen Harrison, Bear Lake Regional Commission/Idaho-Utah
Craig Thomas, Bear Lake Regional Commission/Idaho-Utah

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Chairman Kenneth Wright called the meeting to order at 1:00 p.m.

CHAIRMAN: Wally Jibson has informed us he would like to retire in April of next year. We don't want to see that happen, but it is Wally's wish. So when you look at the budget for next 1990, etc. you are going to see a significant increase in cost and you might be wondering why that is. It is because we will have to get a replacement for Wally. I met earlier with Wally and Larry to be sure this is really what he wants to do and it is indeed Wally's wish that he exit sometime after April. The thought is to have a new man or person on board sometime in April and Wally could work with him for two or two and half months and then leave the Commission as of July. I don't know if it is appropriate, but we have some special plans in mind to honor Wally, right now he deserves a standing ovation.

WALLY JIBSON: I was figuring the other day that I have been working for about 52 years. I may not be old enough to retire but you could get tired in that time. Even with this organization, I started to count on my fingers that I have worked with at least six state engineers in the State of Utah and five in Idaho, four in Wyoming. That spans quite a considerable time. My wife says it is time I get clear out of the water works anyway.

Approval of Minutes

WALLY JIBSON read a summary of the last minutes of the Annual Meeting held April 18, 1988. (Copy attached).

CHAIRMAN: Are there any additions or corrections to the minutes?

CALVIN FUNK: I move that we adopt those minutes.

RODNEY WALLENTINE: I'll second.

CHAIRMAN: Motion carried.

Treasurer's Report

LARRY ANDERSON: Mr. Chairman I have asked Bert Page of our office to summarize the Treasurer's Report very quickly for you. (Copy attached).

BERT PAGE: While those are being passed around, you will notice you also have a copy of the audit of the Bear River Commission. It is for your information and there should be one for each of you. We got the books done early so we could pass them out to you.

Wally mentioned at the April meeting there was a financial statement given. You will notice one of those you have has a date of June 30, 1988. That is the one we are talking about now for the period July 1, 1987 to June

30, 1988. There is not a lot more to go on there. We did have approximately the $17,000 expenditures that Wally was talking about and ended up with a balance in the bank of $128,362.38. On the back we have listed the checks that were written and the bank reconcilliation. These are the figures that the audit was based upon. On the other sheet is the period of time from July 1 to now. As it indicates we started off with the same ending balance we had last year. We have received $4600 interest this fiscal year. All three states have paid their $25,000 assessment. We have spent $50,000 so far this year and have $157,000 still in the bank. On the back you will notice the checks (five) that have been written. The cash balance indicates $157,000 plus. Are there any questions?

LARRY ANDERSON: I would like to ask all Commission members if you would like the financial statement presented in a different format. If the financial statement is confusing in any way to you, we are willing to modify the way it is presented. We try to keep it simple. The accounting procedure isn't all that difficult so we have kept track of every check that is signed and sent out so we know exactly where the moneys are being spent. If you would like any changes, let us know.

CHAIRMAN: We need a motion to accept the Treasurer's Report.

DON GILBERT: So move.

CALVIN FUNK: Second.

CHAIRMAN: Motion passed.

Report of Engineer-Manager

WALLY JIBSON handed out copies and read the written Engineer-Manager Report. (Copy attached). He said his report is a usual summary of one year's operation. In addition to reading his report, he made the following comments.

(A) I am not criticizing the USGS at all on this. This was a new gage and I have been in the stream gaging business for enough years to know that to establish high water end of ratings sometimes takes more than one year, especially when you have a dry year and the high water came and went in a matter of 10 days or two weeks. It did show something like 110% of normal, and I didn't dare present that to a bunch of water users here so I didn't use it.

(B) Last night I tried to reconcile this with my own observations and water masters and figure how we could have an increased flow in the upper Bear River. I took a look at my 1987 figures in the table and then pulled out the published water supply paper for 1987 and I found the answer to this problem. I had used a very provisional type figure a year ago at this time of 48,800 for the May-September flow from the Upper Bear River, Utah-Wyoming Stateline. Looking at the water supply paper that was published I found this was 89,700, almost double. Now this makes sense that we had 89,700 in 1987 that dropped to 69,100 in 1988. The other two gaging stations, Smiths Fork and Logan River, the change was very negligible. I should have checked that earlier. So write in on your copy 89,700 under 1987 for the Upper Bear River.

(C) You can see the contrast in the water supply we have by taking a look at the 1986 record which was one of the highest on record and comparing the irrigation season runoff with 1987-88. So percentagewise, if the provisional records are correct for the two areas, we hit about 58% and 52% for the upper river and the lower river respectively.

(D) Carly, I am sure you noticed a big increase in evaporation in October and early November of this year over other years if you tabulated that.

CARLY BURTON: In fact I would like to add to what you have said. We had a very difficult time regulating the Bear River this year because of the drought condition. We do a calculation at the end of the water year which we call the Bear Lake net runoff, which is just a calculated number of taking the outlet in the Lake change below Stuart and Dingle. The average is about 313,000 acre-feet. This year that number is about -79,000 acre-feet, which means the evaporation off Bear Lake was greater than the runoff to the Bear Lake Basin. By comparison the lowest year of record occurred in 1934, which was about -87,000 acre-feet so we are comparable to that year. By contrast the net runoff to Bear Lake in 1986 was over one million acre-feet. It is incredible.

(E) I might say on the stream gaging estimates. I talked to Larry Herbert a few days ago and then Lee Case mentioned it to me before the meeting. If you checked back with the previous reports, you will notice the figure is a little smaller in FY ending 6-30-90 than we had before. The reason for that you will notice in the footnote this includes 50 percent cost of 16 stations at $4600 which was the firm figure that was given us plus one at $2300 or just half of that, plus the three Cutler stations at $300 for just publication. The one at $2300 is Bear River below Pixley Dam which is just a part-year record. So USGS reduced the full station cost there by half on that record so our cost is lower in 1990.

CARLY BURTON: On the first page under reservoirs, you indicate the September 30 elevation was 6.5 feet below 1987. That is too much, it seems to me it was less than 3 feet.

WALLY JIBSON: It was less than 3 feet during the season. Let me see if it should have been another year. The 1987 hydrograph starts with September 30, 1986. That should be changed.

CHAIRMAN: Any other questions on Wally's report. Do I have a motion to approve it?

WALLY JIBSON: As far as approving this budget, I would suggest we hold off on any of that until the other things are brought up in the meeting today. This isn't our regular budget meeting so we may not want to approve it.

CHAIRMAN: That is a good idea to discuss the other things that have an effect on this budget before we approve or not approve the budget. We may want to postpone it until April.

REED DAYTON: I make a motion to approve the Engineer-Manager's report, excluding the Budget.

CALVIN FUNK: Second.

CHAIRMAN: Motion passed.

Bear Lake Regional Commission Activities

CHAIRMAN: We would like to change the order of the agenda. Allen Harrison would like to get in and out so we agreed to move him up.

ALLEN HARRISON: I appreciate the opportunity to come here before you. Wally called me a few weeks ago and asked me if I would report to the Bear River Commission. I feel like we have had a good relationship with the Commission over the years. We don't meet with you on a regular basis but we have been in the background listening to what is going on and what is happening. I wanted to tell you about the Bear Lake Regional Commission and I know you are pressed for time so we will make it short and sweet. We have a short video we would like to start with and then I will give a brief report.

A video about the Bear Lake was shown. Studies have shown water quality of the lake is deteriorating. The Bear Lake Regional Commission has devised the Bear Lake Preservation Project, which is a 5-year plan for monitoring the factors affecting the water quality of Bear Lake and lessening their impacts. The four major problems include: Upper Bear River Impacts, Existing Watershed and Land Use Impacts, Misuse of Resources, and Alteration of Aquatic Habitats.

ALLEN HARRISON: We wanted to show you that brief film to give you an indication of what the Bear Lake Regional Commission is and what it attempts to do at Bear Lake. This film is part of the information and education portion of our preservation efforts so we can inform people about what they need to do and how they can become involved and what kind of resources we are dealing with. To better help you understand who the Regional Commission is it is an organization formed by the states of Idaho and Utah with an 8-man commission made up of county commissioners, mayors, and people at large in both of those counties of Bear Lake in Idaho and Rich in Utah. The funding sources are from the state of Idaho and the state of Utah. The funding in Idaho comes through Keith Higginson's office and through Dee Hansen's office in Utah and through the county commissions in Rich and Bear Lake Counties, and also we have participation from the Utah Power and Light Corporation as they are the managers of the Bear Lake effort. We have basically a 3-person staff that has been the core staff for the past 15 years. We have not grown in size but we continue to do our work. We are dealing basically with water quality issues at Bear Lake and have attempted to develop a Bear Lake Preservation plan. We have a brochure that is a little more technical.

In addition over the past 10 years a $4.5 million sewer system was installed along the west shore of the lake in Utah, which is now up and functional, and a $1 million sewer system has been installed in the Fish Haven area that goes to St. Charles in Idaho. This means all of the west shore of Bear Lake is now under public sewer system. This summer we went through an environmental evaluation with the Health Department to attempt to install a public sewer on the south part of Bear Lake. If we are successful that will conclude the major areas of Bear Lake that need sewer systems at this time. By installing sewers we hope to solve some of the pollution problems of Bear Lake.

In addition to collecting water quality data, since the 1970's, we have a number of other projects. We have done some work on the Big Creek area dealing with pollution and working with some of the local ranchers and agricultural people. We are working with the BLM in Wyoming, especially at the Bridger Creek drainage which is a major tributary in Wyoming to the upper Bear River. In the brochure there is a picture of some of the silt-laden water that we are getting in the springtime inthe Bear River and ultimately into Bear Lake that is heavy in phosphorous. That is one of the problems we have at Bear Lake. In addition as I indicated the information and education is a big part of our program, clueing people in on what they can do to become part of the solution to the problems. Our consultant who has been with us for a number of years, Vince Lamara of Eco Systems Research Institute out of Logan, has recently told us that the Bear Lake water quality has improved over the past two years. According to Mr. Lamara, we have 20 percent less phosphorous entering the Lake now than we did during the 1981-1986 period, and 50 percent less chlorophyll coming into the Lake. The clarity of the lake went from 20 feet that you could see during the 1981-86 period to 27 feet at the end of the summer this year. We like to think the installation of the sewer systems, the Big Creek Project, and other things we are doing contributed to this improvement. The Bear River contributes approximately 70 percent of the known-pollutants to Bear Lake. With the low water years in 1987 and 1988, we assume the Bear River contributed about 60 percent of those good figures in terms of improved water quality. We have to say at this point we support upstream storage and we have done some work on the Smith Fork dam project and worked with a lot of sampling upstream as far as above Evanston. We do have point sources where we know there are some natural phosphates being put into the Bear River system and we also know that upstream storage would help out some of the water quality problems of Bear Lake. Probably our mainstay in our efforts at the Bear Lake Regional Commission is in coordination and cooperation. Being the fact we are a bi-state organization being able to stand in the middle of two states and having ex-officio members from the Wyoming contingent on our Commission, we are able to deal with State Lands and State Parks, the Bureau of Land Management, Wildlife Resources, the Forest Service, in addition to people like Utah Power and Light in order to coordinate their efforts and bring them to the common table to deal with common kinds of problems.

One thing we have done that has done tremendous good for the management of Bear Lake is through our efforts put together a hydrological model to predict runoff. This was in conjunction with Utah Power and Light, specifically Carly Burton's office, and he is using this computerized tool that was developed through our efforts to predict the runoff at a much faster rate than he was able to with USGS data. It has been tested for about three years and I have been told it is very accurate. As a result, management of those resources has been able to be much more scientific and that is to the benefit of all of us.

We look toward a continued relationship with this group and anything we can do in terms of our resources to help you or to glean resources from you. We have had a good relationship with Wally on a working basis for a number of years. We stand ready to work with you. We are both working in the 3-state area and have the same kind of goals in mind. Other than the fact sometimes we like low water and you like high water, I think we have the same directions we can go in. I would entertain any questions.

JEFF FASSETT: What sort of annual budget does the Regional Commission operate on?

ALLEN HARRISON: Presently we are under a budget of about $130,000 with a 3-person staff and we have one consultant that is not on a retainer but we use consultant work periodically.

CHAIRMAN: How have you worked with Wally in the past?

ALLEN HARRISON: Wally and I have exchanged data alot and we use him as our resident expert in terms of dealing with the upper Bear River. Obviously we don't have alot to do with the lower Bear River at this time. The upper Bear River is of great concern to us and we have called him when we needed to work with him.

CHAIRMAN: Any other questions. Thank you very much.

BLAIR FRANCIS: I would like to make one statement. I think the most important thing that the Bear Lake Regional Commision does is it is a place where the average citizen can go because of the uniqueness of this commission that walks on both sides of the line. It doesn't see the Idaho-Utah line or the county lines. So an average citizen that has a question can go into this small office and these people can help expediate these people getting an answer. Other than that we don't know whether we have to go to Boise or Salt Lake or what division to work with. This is the important thing we locals see that this commission does. It is a place we can get an answer and some help.

ALLEN HARRISON: Thank you very much. We appreciate being here and hope to see you all in some future circumstances at Bear Lake.

Consumptive Use Study

BOB HILL: I have been asked to give a very brief report and comments. In behalf of Chuck Brockway and Bob Berman and myself, I would like to express appreciation to the Commission for the opportunity to do this consumptive use study and for your continuing encouragement, involvement, and suggestions we have received throughout the study. It is our hope we provided some information for you that will be useful as you continue in your allocation of water in the Bear River. I would also like to acknowledge the receipt of some comments and suggestions on the report that we have received from Idaho and Wyoming and to solicit additional comments, preferably in writing, as to how we can improve the report; or if there are uncertainties or unclear sentences, we would like to know about it so we can improve that report as we go into the final publication. I indicated in the letter I sent to you if we received those comments by December 5, we would be able to include them in the report. I think we could now say by December 10. We will be on a very tight publication schedule because of the length of time we have to leave it with the publisher prior to the January 31 termination date. If you have any comments you have written in the margins on your draft copy of the report, I would be pleased for you to send that draft in or a copy of that page so I can see where you had a question.

By way of technical information today, Wally and Larry have asked me to take a look at alfalfa consumptive use throughout the basin, at least at the places we had weather data, and calculated consumptive use or evapotranspiration, then show how the relates back to depletion and effective precipitation. Let's consider this in downstream order - Evanston, Randolph, Cokeville, Thomas Fork, Bear Lake, Soda Springs, Oneida, Cache Valley, Malad, Tremonton, and Brigham City. You can see generally alfalfa consumptive use increases as we go in downstream order, except for Bear Lake. That might be because of where our site is north of the lake. Precipitation, the red is total annual precip and this is an average for water years 1976-1987. The orange is our estimate of effective precipitation in which we estimated a carryover winter moisture that would be in the soil and root zone at the begining of spring plus summer moisture that would come in the form of rainfall that would be useable by the crop. You can see the percentage of effective precipitation varies, generally decreasing as the amount of precip increases. Malad, for example, has a relatively low amount of precip compared to Cache Valley, Tremonton or Brigham City. That was one of the questions we will come back to. I think we have discussed with the technical committee a couple of times how we calculate this effective precipitation. Coming back to the estimated alfalfa water use evapotranspiration and depletion, for example, if I take the Brigham City effective precip which is the orange, subtract it from the green, that is the ET, then the depletion is what results. The depletion can be considered as a net irrigation requirement. I have subtracted off natural moistures contribution to consumptive use. Now looking at the blue, this is the depletion figure that we have estimated and presented in the draft report for the various sub-basins. There is one other thing we do, we take into account the crop use pattern recognizing we don't have 100 percent alfalfa in any one of the sub-basins. We might have close to 60 percent in many of the sub-basins of alfalfa and small grains, meadow hay, etc. The depletion at Malad and some of the earlier figures we gave may have showed a greater difference than this, when you see the depletion line it is about the same as Cache Valley. The depletion at Randolph is greater than at Evanston and Cokeville because the precipitation is less. I also have some line graphs showing the long-term consumptive use and depletion if this would be appropriate to show.

JEFF FASSETT: Those numbers are 1976-87. It is beyond the study period of the report.

BOB HILL: The study period actually includes data since 1983 through 87.

JEFF FASSETT: Where do the other numbers come from?

BOB HILL: These all come from NOAA weather stations. The study period we used to calibrate the equations and then we used the equations on the long-term data.

KEITH HIGGINSON: One of the problems I have following the report is that you refer to sub-basins, the ones indicated on that chart. But nowhere is there a map showing the boundaries of what you call sub-basins nor is there anything that shows the weather stations that you used as the basis of determining the CU and ET within that sub-basin.

BOB HILL: On the graphs and this is in the appendix where we show the individual sub-basin calculations, we do have the weather station shown. For example, in Evanston we used Evanston, Randolph we used Woodruff, that is shown in Appendix 3. I realize why this comment came up today as I reviewed my draft, the figure that got put in for the sub-basin figure didn't have the sub-basin lines in it. So that was a mistake on our part. We have the wrong figure in there.

The question came up earlier, a reduced version of these graphs is in the draft report. Here you see the green for the ET or consumptive use calculation. This is Evanston with the Evanston weather station. The red is precipitation and in this case we have not shown the effective precipitation but the total annual precip from 1929 through 1987. The blue line represents a calculated depletion for each of those years, and you can see in the Evanston area the average for the last 12 years is essentially the same as the long-term average depletion. The horizontal lines represent the average ET and the average depletion, respectively. Using the Thomas Fork weather station, the same approach, here you can see a noticeable difference between the long-term average depletion and the more recent 12-year depletion calculation. In Cache Valley we had to switch weather stations because the Logan 5 Southwest station which we used for the previous set wasn't long enough. So we have used the Logan-USU weather station again with some calibration checks and see a more noticeable difference between the more recent 12-years and the long-term depletion calculation.

WALLY JIBSON: Bob, on an average does 15 to 25 inches represent precip between the two graphs?

BOB HILL: Yes, if you look at the red dots or diamonds, that is the annual precipitation, not effective, but the annual total precipitation. Four or five out of the last twelve years we had precip above 25 inches.

WALLY JIBSON: So the 10 inches from 15 to 25 is effective precip?

BOB HILL: There is no effective precip shown on this at all. From here to here, yes.

HAL ANDERSON: Bob, would you define what you call depletion?

BOB HILL: The consumptive use or evapotranspirations are calculated and shown as the green line. This is water use by the plant. Depletion is this total consumptive use minus our estimate of the natural moisture that can be used by the plant. That is carryover moisture in the winter plus precip that comes during the summer that is useable by the plant. That was Wally's question. You can see the effective precip difference essentially here.

HAL ANDERSON: It is basically the amount of water you need to have.

BOB HILL: It is the net irrigation requirement assuming 100 percent irrigation efficiency. You notice as we have gone downstream the most recent 12 years, our 12-year average depletion, is less than the long-term and it just seems to increase as we go further downstream. Here is Brigham City using the Corrine weather station. Again you can see the most recent 12 years, this case is almost 3 inches less than the long-term. Any further questions?

CHAIRMAN: Thank you, Bob.

JEFF FASSETT: What is your anticipated schedule for the completion of the report?

BOB HILL: We are attempting to have it out by January 31. We have to allow about 5 weeks at the printer. We are printing a large number of copies so all the states can have some.

WALLY JIBSON: That is the deadline we gave them.

LARRY ANDERSON: When will it be done?

BOB HILL: January 31.

LARRY ANDERSON: Bob, do you need any type of action by the Commission on the study at this time or are you saying this is the final report and we will take your comments that are due back by December 10 and then we will make the appropriate modifications at that time and then print a final document?

BOB HILL: That is correct.

LARRY ANDERSON: So as far as you are concerned your contract with the Commission has been completed. I move that we accept the report as presented and indicate that we would like Bob to review it and finalize it based on the comments he receives, written comments, and make the appropriate changes. If for some reason you receive comments that you decide not to use in the report, I would request that you inform the states in writing why you are not making those changes.

JEFF FASSETT: I'll second it.

CHAIRMAN: Any discussion? Motion passed.

Update of 1976 Base Map/Depletion Study

CHAIRMAN: We will have the report of the map depletion study from Bob Fotheringham.

BOB FOTHERINGHAM: This Logan quadrangle which is part of the base map was prepared and shows or represents all of the geographic information that was proposed to you in the outline that we prepared when we contracted with the Commission to present or prepare this map. That was given to all of the state engineers and presumably you have been able to review it. We presented it to you today, basically to let you look at the composition of the map to see if you think those different classes of land use or categories of land use like wetlands, irrigated land and dry land are represented well enough. There is no tabular data available yet. We have had some questions by AGR, they have asked us to resolve exactly how we want the tabular data output. Basically they have some programming that they have to do to resolve how they are going to output the data. Right now the Logan quad is the only map we have completed and we have to compile other data to complete the rest. This month we will probably have all the data for AGR to plot all of the draft base maps.

As far as the depletion study, we have made some recommendations to the state engineers. They are discussing those recommendations and we don't really have anything to present to you today except for what Bob Morgan will present. That concludes what I have.

CHAIRMAN: What is the map to the right?

BOB FOTHERINGHAM: This map is an index to the basin. On this map we have the basin and division boundaries outlined in orange.

CHAIRMAN: Since we only meet every six months and people forget what goes on in between, I think it is a good idea when we present something like this you tell us why we did it and what it is going to be used for.

BOB FOTHERINGHAM: Why you did it is to define by all of the geographic information that we could compile, what the land use was in 1976 so that you would know whether or not there had been changes by additional water filings that had been perfected in any state and again additional depletions would need to be calculated on those additional acres. This is the attempt, and I think a very good attempt, to define what the use was as of 1976. This map has all of the water rights changes that are available in the Utah data base right now on this quadrangle so that it represents what was there in 1976.

LARRY ANDERSON: Just a comment, Bob. We have amended the contract between the Commission and three states and have sent it out for signature. Do you know where the contract is at the present time?

WALLY JIBSON: We gave them a wrapup date of next April, 1989, and I just got back the amended contract. I noticed in my report that they had $25,000 plus $8,000 carryover, so as of now we have about $33,000.

LARRY ANDERSON: We did not amend the contract to give any additional money, just additional time. I wanted the Commission members to know that, and so in April we should be close to final maps on all of the land as of 1976.

BOB FOTHERINGHAM: Right, we should be complete by that date. Also there was prepared for the state engineers a timeline for Commission-approved procedures and a date for a final report on Commission-approved procedures that we didn't distribute to all of you. If you have a question about when the TAC believes we will have all of the procedures complete and approved by the Commission, you can talk to your respective state engineers on that. The projected date for that is November, 1991.

Progress of Commission-Approved Depletion Guidelines

CHAIRMAN: Bob Morgan will be telling about the progress of the depletion guidelines.

BOB MORGAN handed out copies of a memorandum from the State Engineers' Committee regarding Interim Commission-Approved Procedures for the Depletion Study. (Copy attached).

BOB MORGAN: Before we get into the guidelines, if any of you have any heartburns over the format of this map, the colors or what is on there, you better get with your respective state engineer committee representative because these people are on track. If you want any changes, we have to let them know. Unless someone complains about it, that is how all of the quads are going to look.

In the Compact it states that there shall be Commission-approved guidelines to determine the depletions within the system. The State Engineers' Committee was formed to organize and to write down these guidelines to determine the depletions. Periodically we come back to you with some new ones because the technical committee asks questions just about as fast as we can answer them. They have asked more questions this time than we can answer. It is our responsibility to provide those guidelines to the technical committee so they can complete their assignment. Lest there be any misunderstandings, the report to you today is called Interim Commission-Approved Procedures for the Depletion Study. I suppose there will be other revisions and other attachments to this prior to the final compilation of the Commission-approved guidelines. It is an ever growing subject.

Mr. Morgan then read the attached memorandum. After he read the issue raised by the Technical Committee regarding the "RFP" for preparing water budgets, the following comments were made:

BOB MORGAN: The proposals outlining how the consultant would accomplish the task and how much it would cost would then be due back to the Engineer-Manager's office by March 3, 1989. At this time the Technical Committee could review the RFPs and they could then make a recommendation to the State Engineers, and the State Engineers' Committee could then make a recommendation to the Commission at your April meeting on the selection of a consultant.

LARRY ANDERSON: That is an important date. The intent was we would have to modify our budget at that time and that is why we were looking at having it ready to present it to the Commission at the April meeting when we make those budget modifications.

BOB MORGAN: Mr. Chairman, I don't know how you want to handle these, whether they want to react to each one individually or to both of them.

CHAIRMAN: I think we should react to them individually.

BOB MORGAN: Are there any questions now concerning the recommendation of the State Engineers' Committee?

CHAIRMAN: Do these require the approval of the Commission at this point?

BOB MORGAN: I would appreciate some direction to the State Engineers' Committee to go ahead and supervise the preparation along with the Engineer-Manager and the Technical Committee as to the RFP.

LARRY ANDERSON: I would so move that we authorize the Engineer-Manager and Technical Committee and State Engineers' Committee to move ahead with the request for RFPs with the intent they will be ready to make a recommendation at the April meeting as to the selection of a contractor to prepare the water budget model.

WES MYERS: I second the motion.

KEITH HIGGINSON: I would just like to make sure it is clear that even though Wally has given us in his report the tentative budget for 1990 and 1991, and it has some big numbers in it, that it is not the intent of the State Engineers' Committee that there be any preconceived idea as to how much this study ought to cost. I don't want the word to go out from this meeting that we are proposing to set aside $100,000 for this kind of a study in the next couple of years. I think that is way beyond what we need.

WALLY JIBSON: I had that at $50,000 Keith for the one year, fiscal year ending 6-30-90, that is the fiscal biennium.

KEITH HIGGINSON: Whatever the number is, we have no preconceived idea as to what the number ought to be. My personal feeling is it is nowhere near that.

CHAIRMAN: That is another reason not to approve this budget at this point in time.

KEITH HIGGINSON: We may very well find we can do this in-house alot cheaper.

CHAIRMAN: We have a motion on the floor. Is there any further discussion? Motion carried.

BOB MORGAN: The second item that will require commission action is the Technical Committee came to us with one of these questions and said how do we resolve the issue of depletion from municipal and industrial uses along the river. These uses amount to approximately one-and-one-half percent of the total water diverted in the Bear River system. Yet if you have to look at these on an individual basis and have to go evaluate every single town, every single city, every industry, it could be a horrendous task. We kicked it around and we think the industrial uses are enough of a question that they should be treated on an individual basis. We have industry where we have total consumption of water because EPA will not allow them to take project water that they have used for some purpose and put it back into the system. We have other industries where the water is used and then they are allowed to discharge back into the river.

It is our recommendation to the Commission that for industrial depletions that the technical committee look at each individual case to assess the depletion for the system just because they are not all created equal. There may be some constraints on each of the industries that is peculiar to that location and that industry and we must account for that depletion separately. For municipalities, we think there is data that is representative of municipal uses and municipal depletions in most of the areas and in probably most of the subbasins that will be created in the water budgets. We think that using existing data and coming up with some representative depletion figure for a subbasin or for an area would be more appropriate and

would conserve time and ultimately time and money in determining the depletions. This would be our recommendation that industry would be a case-by-case basis, and as far as muncipal uses they use a representative figure for that subbasin or for that area in determining the depletions to the system.

CHAIRMAN: Is there a motion to approve this second point?

JEFF FASSETT: I'll so move.

DON GILBERT: I'll second it.

CHAIRMAN: Any discussion? Motion carried.

BOB MORGAN: There were other issues that were discussed that we did not resolve. We will attempt to have these resolved at the next meeting. We will work at it. The first issue would be should evaporation from new reservoir storage be counted as a depletion to the respective state? We will continue to work on that. Secondly, the Compact is silent on "ordinary" domestic and stockwatering depletions in the lower zone. In the middle and upper zone according to Article VI, paragraph e, "these depletions are not counted against the respective states." The issue to be resolved is should the lower zone be treated the same as the upper and middle zones. We will attempt to resolve this issue.

WALLY JIBSON: Just so it is clear to everyone we might use division rather than zone in this proposal.

BOB MORGAN: The third item we will be working on in Article VI, Paragraph C, it states there shall be Commission-approved procedures for the determination of when Bear Lake spills. I am sure you are all aware there are some unusual conditions should Bear Lake spill that would afford storage above Bear Lake. We will be looking at determining when Bear Lake spills so we can make a judgment and afford the upper area storage.

CARLY BURTON: I would appreciate it if Utah Power and Light could have some involvement in that one.

BOB MORGAN: We will be happy to include you.

KEITH HIGGINSON: It is probably more appropriate in referring to this not to talk about Bear Lake spills since Bear Lake never spills. There are times when water is by-passed that could have been stored for water that is being released to make room in Bear Lake for storage. It is during those periods that we are talking about.

CHAIRMAN: You will change that language in your committee.

WALLY JIBSON: You don't want any action on the last two items you gave?

CHAIRMAN: When they resolve them, they will bring them before the Commisson for approval.

BOB MORGAN: I look for sometime when rather than interim guidelines, we would have guidelines that would require formal action and maybe some hearings in the various states. We are just going to go along like we know what we are doing until we get to that point.

Status Report by Corps of Engineers on Bear River Study

LEX DIXON: My name is Les Dixon and I am with the Army Corps of Engineers. I spoke to you approximately six months ago, when I announced the Corps of Engineers would be initiating a reconnaissance study of the Bear River Basin as directed by Congress. The purpose of the study was to identify water resources problems and potential opportunities for water resources development that would be eligible for federal participation. As part of this reconnaissance study, last week I was in Cache Valley and made a similar briefing to the Bear River RC&D.

We are scheduled to complete this reconnaissance study in April, 1989. Last March when we initiated this study we asked for representatives from all three states to come and assist us in identifying those issues, problems, and opportunities that we should address. All three states responded and we had John Jackson from Wyoming, Ralph Millan from Idaho, and Gene Bigler from Utah. We are currently looking at seven potential reservoir sites: Mill Creek, Avon, Oneida, Honeyville, Soda Springs, Thomas Fork, and Smiths Fork. We took a real quick look at the rate that existing and proposed reservoirs are filling with sediment. We were asked to take a look at the water quality problem on Bear Lake, and we were asked to look at the city of Evanston to see if we could assist them on an erosion problem. We have completed the analysis at Evanston, the sedimentation problem, and the water quality problem on Bear Lake. We are in the middle of analyzing the seven reservoir sites and hope to have that work done by the end of December. We have some cursory results from the Oneida site. I would be happy to answer any questions.

JEFF FASSETT: What process do you envision occurring after April?

LES DIXON: We have to have our report done in March. That report will probably identify one or two reservoir sites as being eligible for federal participation or assistance in development. In order for us to proceed, any further studies have to be cost-shared 50-50. We will have approximately six months to identify a potential project sponsor or sponsors. If at that time we have not identified someone willing and able to cost share 50-50, we will have to put the project on the shelf.

JEFF FASSETT: On your reservoirs, are you looking at multi-purpose type reservoirs?

LES DIXON: All three states have done significant studies on alternative reservoir sites, and they asked us to concentrate on the work they have already done and not reproduce work. So we have pretty much just taken the multi-purpose reservoirs that the states have already identified.

KEITH HIGGINSON: Are you willing to look at things in your study or have you pretty well got your list in tact and trying to finish the report?

LES DIXON: It is in tact and we are trying to finish the report.

KEITH HIGGINSON: If we had some other area that somehow our person did not suggest to you as he was told to do so, can we still bring it up?

LES DIXON: You can still bring it up but I probably would not have time to address it and still meet my deadlines. I would probably work with you and suggest that we bring it up as another separate reconnaissance study or some other problem-solving solution.

KEITH HIGGINSON: One gross oversite in whatever you are doing is the flooding problem between Stewart Dam and Percadero on the Bear River.

LES DIXON: We might be able to handle that under a different authority.

CHAIRMAN: Did you say the water quality study in Bear Lake is done?

LES DIXON: Yes it is.

CHAIRMAN: When the potential reservoir sites are completed, would your report come to the Commission?

LES DIXON: I would be happy to present that report to the Commission.

CHAIRMAN: That will be great.

LARRY ANDERSON: I assume you will have a written report by the first of April.

LES DIXON: Yes I will.

LARRY ANDERSON: If you can make that available to me, I will get it off to the other states.

Unfinished Business

CHAIRMAN: Is there any old or any unfinished business?

CARLY BURTON: Could I make a couple of comments regarding this last year's operation. As I said before we had a difficult time in regulating Bear Lake and the Bear River this last year. There are some things that we have been thinking about lately as a result of this year that we need to mention to you. One is we have petitioned the State Engineer of Utah for a river commissioner in the Utah section of the lower Bear. We would like to see that commissioner in place by this coming season. We have also done some work at Bear Lake, and one thing that is alarming to us is the old 5902 elevation, which is the bottom of the pumps at Bear Lake. I am not sure that is necessarily the bottom any more because the sand has built up since the 1930's to the point where at least our studies indicate that

the level now is in the 5906 range. All of this gives us some concern about supplying water under continued drought conditions like we have had the last couple of years. Right now we are in pretty good shape for another year but I am not so sure after that. For the future we are looking at possibly quantifying the amount of available storage water out of Bear Lake and looking at possibly prioritizing storage water to some of the contract users, specifically Bear River Canal Company, Last Chance, West Cache and some of the others. I don't believe we can continue providing a full river to the benefit of all of the users. We are looking at that pretty hard, but we don't have definite solutions yet. This year, for example, we were to the point of flooding some of the low land irrigated ground around Montpelier and we still had a very difficult time getting sufficient water down to Cutler Dam. The 900 cfs Cutler Irrigation commitment was very difficult to provide this year. We were drawing not only on Bear Lake, but we were drawing on our other reservoirs - Oneida, Soda, and Cutler - to try to maintain that commitment. We don't see the problems getting any better but see them getting worse.

New Business

CHAIRMAN: Is there any further unfinished business? Any new business?

LARRY ANDERSON: After visiting with Wally and making sure he really wanted to retire, I would like to recommend that we set up a subcommittee of Keith Higginson, Jeff Fassett, and myself to begin the process of selecting a new Engineer-Manager for the Bear River Commission. That process would consist of working with Wally first in getting a good job description, advertising either through the newspaper, professional publications, or word of mouth to determine if there are people who exist in the basin that could serve the same role or a modified role that Wally has been serving for the Commission. We will need to move quickly on this if we are to have a recommendation for our next meeting. It is my understanding Wally would like to be able to work two or three months with the new Engineer-Manager prior to his retirement. He would retire around July 1, 1989. The three of us would have to work out the arrangements to interview and make a recommendation back at our next meeting for that replacement. I think as long as the other Commission members are happy with that arrangement, we would like to do that. Both Jeff and Keith said it was fine with them.

CHAIRMAN: Is there any further new business?

LARRY ANDERSON: Do we need any action on the budget you proposed, Wally?

WALLY JIBSON: I don't think so. We are not changing anything for the current budget year through June 30. I justified putting these figures in so you could be looking forward to whether or not you have to change the assessments to the states in April. I wanted a figure in there, but it is rough and I don't expect you to approve it. It should be understood this is not a bonafied estimate on it.

KEITH HIGGINSON: We are already in the 1990 budget cycle and have submitted our budget request for 1990, and it does not include any kind of an increase. Knowing there is a possibility we are going to need an increase and our legislature is going to meet before April, I have to do something to adjust the 1990 request.

WALLY JIBSON: Notice we still have a projected carryover of $90,000 at the end of 1990.

LARRY ANDERSON: I don't believe we will need an increase in the budget for the next fiscal year. I have also submitted mine assuming it will be the same. What that may mean is we may cut into the surplus funds that we have. I think we can wait and take action on this at our April meeting.

JEFF FASSETT: Wyoming is already locked in. We have a biennium so I won't have much flexibility to change the 1990 assessment at this point. I think with the carryover situation we should be alright.

CHAIRMAN: Is there a motion to adjourn?

Meeting adjourned at 2:50 p.m.

BEAR RIVER COMMISSION REGULAR MEETING

November 21, 1988
1:00 p.m.
First Floor Auditorium
Department of Natural Resources Building
1636 West North Temple
Salt Lake City, Utah 84116

A G E N D A

1. CALL TO ORDER
2. READING OF MINUTES OF LAST MEETING
3. APPROVAL OF MINUTES (April 18, 1988)
4. REPORT OF CHAIRMAN
5. REPORT OF TREASURER
6. REPORT OF ENGINEER-MANAGER
7. CONSUMPTIVE USE STUDY
   a. Summary of Report - Robert Hill
   b. Commission Action on Study
8. REPORT OF COMMITTEES
   a. Update of 1976 Base Map/Depletion Study - Robert Fotheringham
   b. Progress of Commission-Approved Depletion Guidelines
9. UNFINISHED BUSINESS
10. NEW BUSINESS
    a. Status Report by Corps of Engineers on Bear River Study - Les Dixon
    b. Bear Lake Regional Commission Activities - Allan Harrison
11. NEXT MEETING - APRIL 17, 1989 - 1:00 p.m.
12. ADJOURNMENT

BEAR RIVER COMMISSION

ANNUAL MEETING

APRIL 18, 1988

SUMMARY OF MINUTES

The Chairman called the meeting to order at 11:15. Jeff Fassett and group from Cheyenne were stopped at Denver by inclement weather, so he was represented by John Teichert. Other voting commissioners were in attendance. The Engineer-Manager summarized minutes from November 1987 which with minor corrections were approved as circulated.

The Chairman raised the question of summarized rather than verbatim minutes. A motion was approved to summarize then review again in the next annual meeting.

Treasurer report given by Bert Page showed a cash balance as of April 1 of $143,700 of which about $17,600 was to be expended before June 30 and an additional $8,138 was to be carried over to 1989 for the Commission-Approved Procedure study. This would leave an unobligated balance of about $118,000 as of June 30. (Less than the unexpended balance to be shown in budget projection today because of the $8,138).

The Engineer-Manager report showed forecasts of seriously deficient water supply in 1988. The April 1, 1987 budget was amended, as presented to the commission, to include $30,000 in each of 89 and 90 fiscal years for hydrologic inventory update.

Bob Hill updated the consumptive use study with a handout summary report. He showed results to date of consumptive use and depletion calculations and presented illustrative techniques in accounting for winter and summer precipitation and crop acreages in each sub-basin. Bob acknowledged that some supporting data was missing or was subject to correction. Questions were raised on the role of precipitation in calculating depletion or, as an alternative, determination of total consumptive use without regard to source. Also, desirability of moving ahead with the report without waiting for updated land-use data. By motion, Bob is to proceed and have a rough draft prior to the November meeting. In doing so a weighted consumptive use will be used based on 1965 data.

Bob Fotheringham reported on the 1976 depletion study in which tabular data for M&I use, and satellite data maps will be presented in the next annual meeting. This will require extending the contract and carrying over unused funds to the 1989 fiscal year.

Bob Morgan reviewed recommendation of the State Engineer's Committee as presented in the November 1987 meeting. Basically, these concerns and recommendations were turned over to the sub-committee following the November meeting. Before commission action on Bob's report, Lloyd Austin and Norm Stauffer discussed the proposed hydrologic inventory update. The need of a basin-wide model, though not required for the inventory, was discussed in which the model could incorporate data from the update as well as commission-approved procedures.

At Wyoming's suggestion and after further discussion the inventory proposal was tabled until November. The commission then approved Bob Morgan's recommendations and guides for further subcommittee work.

Larry Anderson reported that the Corps is proceeding with their study an update of which will be reported along with reports of the Bear River Water Development Committee and the Bear Lake Regional Comm.

Blair Francis was elected Vice-Chairman and Engr-Mgr contract renewed.

Meeting adjourned at 1:35 pm.

BEAR RIVER COMMISSION

STATEMENT OF INCOME AND EXPENDITURES

FOR THE PERIOD OF JULY 1, 1987 TO JUNE 30, 1988

INCOME	CASH ON HAND	INTEREST INCOME	FROM STATES	TOTAL REVENUE
Cash Balance 07-01-87	$122,211.21			$122,211.21
State of Idaho			$30,000.00	$30,000.00
State of Utah			$30,000.00	$30,000.00
State of Wyoming			$30,000.00	$30,000.00
Interest on Savings and other income		$8,637.59		$8,637.59
TOTAL INCOME TO June 30, 1988	$122,211.21	$8,637.59	$90,000.00	$220,848.80

DEDUCT OPERATION EXPENSE

EXPENDED THROUGH U.S.G.S.

	APPROVED BUDGET	UNEXPENDED BALANCE	EXPENDITURES TO DATE
Stream Gaging	$35,680.00	$0.00	$35,680.00
SUBTOTAL	$35,680.00	$0.00	$35,680.00

EXPENDED THROUGH COMMISSION

Personal Services	$8,600.00	$3,254.47	$5,345.53
Travel (Eng-Mgr)	$400.00	-$82.14	$482.14
Office Expenses & Supplies	$250.00	$144.50	$105.50
Printing Biennial Report	$2,500.00	$550.00	$1,950.00
Treasurer Bond & Audit	$700.00	-$35.00	$735.00
Printing and Reproduction	$100.00	$100.00	$0.00
Legal Consultant	$500.00	$0.00	$500.00
Contract-USU	$9,030.00	$0.00	$9,030.00
Contract-Idaho, Utah & Wyoming	$71,537.97	$32,879.72	$38,658.25
SUBTOTAL	$93,617.97	$36,811.55	$56,806.42
TOTAL	$129,297.97	$36,811.55	$92,486.42
CASH BALANCE AS OF 6-30-88			$128,362.38

BEAR RIVER COMMISSION

DETAILS OF EXPENDITURES

FOR PERIOD ENDING JUNE 30, 1988

159	NANCY FULLMER	$21.20
160	V O I D	$0.00
161	U S G S	$35,680.00
162	UTAH DIV WATER RIGHTS	$2,480.79
163	V O I D	$0.00
164	TROPHIES, INC	$59.30
165	WALLY JIBSON	$1,441.64
166	ROSE PRINTING	$1,950.00
167	VAN COTT BAGLEY	$500.00
168	WALLY JIBSON	$2,120.73
169	FENTON INSURANCE AGENCY	$50.00
170	VOID	$0.00
171	UTAH STATE TREASURER	$45,000.00
172	WYOMING STATE ENGINEER	$13,994.16
173	IDAHO DEPT OF WAT RES	$15,880.00
174	GILCHRIST & CO, CPA'S	$685.00
175	POSTMASTER	$25.00
176	WALLY JIBSON	$1,409.62
177	U S U	$9,030.00
178	AGR	$6,303.30
179	WALLY JIBSON	$855.68
		$137,486.42
	LESS SAVINGS ACCOUNT	$45,000.00
	TOTAL EXPENSES	$92,486.42

BANK RECONCILIATION

JUNE 30, 1988

Cash in Bank per Statement 7-1-88	$13,010.53
Less: Outstanding Checks	$855.68
Total Cash in Bank	$12,154.85
Plus: Savings Account-Utah State Treasurer	$116,207.53
TOTAL CASH IN SAVINGS AND IN CHECKING ACCOUNT	$128,362.38

BEAR RIVER COMMISSION

DETAILS OF EXPENDITURES

FOR PERIOD ENDING JUNE 30, 1988

NANCY FULLMER	$21.20
V O I D	$0.00
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BEAR RIVER COMMISSION

STATEMENT OF INCOME AND EXPENDITURES

FOR THE PERIOD OF JULY 1, 1988 TO NOVEMBER 1, 1988

INCOME	CASH ON HAND	INTEREST INCOME	FROM STATES	TOTAL REVENUE
Cash Balance 07-1-88	$128,362.38			$128,362.38
State of Idaho			$25,000.00	$25,000.00
State of Utah			$25,000.00	$25,000.00
State of Wyoming			$25,000.00	$25,000.00
Interest on Savings and other income		$4,647.51		$4,647.51
TOTAL INCOME TO November 1, 1988	$128,362.38	$4,647.51	$75,000.00	$208,009.89

DEDUCT OPERATION EXPENSE

EXPENDED THROUGH U.S.G.S.

	APPROVED BUDGET	UNEXPENDED BALANCE	EXPENDITURES TO DATE
Stream Gaging	$37,665.00	$15.00	$37,650.00
SUBTOTAL	$37,665.00	$15.00	$37,650.00

EXPENDED THROUGH COMMISSION

Personal Services	$8,600.00	$7,100.16	$1,499.84
Travel (Eng-Mgr)	$400.00	-$127.06	$527.06
Office Expenses & Supplies	$250.00	$250.00	$0.00
Printing Biennial Report	$0.00	$0.00	$0.00
Treasurer Bond & Audit	$700.00	$700.00	$0.00
Printing and Reproduction	$100.00	$100.00	$0.00
Legal Consultant	$500.00	$0.00	$500.00
Contract-Idaho, Utah & Wyoming	$32,879.72	$22,789.51	$10,090.21
Commission-Approved Procedures	$25,000.00	$25,000.00	$0.00
SUBTOTAL	$68,429.72	$55,812.61	$12,617.11
TOTAL	$106,094.72	$55,827.61	$50,267.11
CASH BALANCE AS OF 11-1-88			$157,742.78

BEAR RIVER COMMISSION

DETAILS OF EXPENDITURES

FOR PERIOD ENDING NOVEMBER 1,1988

180	A G R	$3,462.05
181	VAN,COTT,BAGLEY	$500.00
182	U S G S	$37,650.00
183	WALLY JIBSON	$2,026.90
184	A G R	$6,628.16
		$0.00
	TOTAL EXPENSES	$50,267.11

BANK RECONCILIATION

NOVEMBER 1, 1988

Cash in Bank per Statement 11-1-1988	$8,515.90
Less: Outstanding Checks	$6,628.16
Total Cash in Bank	$1,887.74
Plus: Savings Account-Utah State Treasurer	$155,855.04
TOTAL CASH IN SAVINGS AND IN CHECKING ACCOUNT	$157,742.78

BEAR RIVER COMMISSION
880 River Heights Blvd
Logan, Utah 84321

November 21, 1988

Engineer-Mgr Report

Wallace N. Jibson

1988 Water Supply

Somewhat surprising are provisional streamflow records for the 1988 irrigation season that show a higher water supply than in the (A) 1987 season. A very tentative record for the new gage on Smiths Fork was so high and obviously in error that the discharge figures are not shown in the table below. The Upper Bear River shows an increase from 41% to 58% and Logan River from 49% to 52% of a long-time average over 1987. Again, the Upper Bear record seems out of line with observed conditions by watermasters, but the lack of any summer rainfall in 1988 aggravated the effect of deficient water supply and made more difficult the task of regulating.

As of last Monday precipitation on the SCS SNOTEL sites on Bear River watershed had accumulation of 50-60 percent of average for the new water year to date. Relatively heavy precipitation this past week will improve these figures.

The following table compares 1986, 1987, and 1988 runoff in the May-September period with the 1943-87 average at three representative gaging stations in the three divisions of the basin.

Streamflow in Acre-Feet

May-September

(B)	Average 1943-87	1986	1987	1988*	1988 as Percent of ave.
Upper Bear R.	119,100	211,100	~~48,800~~ 87,900	69,100	58%
Smiths Fork	111,800	183,900	49,600	?	?
Logan River	128,600	220,300	60,700	67,400	52%

(C) * Provisional record, 1988, subject to change.

Reservoirs

Hydrographs of Bear Lake for 1987 and 1988 are shown on page 4. Starting lower, the Lake could not catch up even to the 1987 peak, and subsequent demand was much greater than last year. At the end of September at 5,914.90 feet (814,300 ac-ft) the Lake surface was just 0.3 feet above the present Irrigation Reserve elevation and 6.5 feet below September 30, 1987. Bear Lake draft from June 1 to September 30 reduced the storage content by 302,000 ac-ft. By comparison, the draft in 1961, largest since 1934, 338,000 ac-ft.

Since the end of the draft period, about October 10, the Lake is about holding its own against the higher-than-usual evaporation that has been offsetting Bear River inflow. Elevation on October 10 was 5,914.70 and on November 19 was 5,914.62 feet Rainbow Inlet Canal has been rather steady at 130 cfson November 14 with leakage of 4 cfs in the Outlet Canal.

Reservoirs (continued)

Hydrographs of Woodruff Narrows Reservoir are shown on page 5. Active contents were almost fully utilized with the reservoir being drawn down to its lowest point since 1980.

Sulphur Creek Reservoir, under the third enlargement, has a capacity of nearly 20,000 ac-ft. This year, partly due to delay in building new outlet works, the reservoir filled only to about 5,000 ac-ft and is now down to inactive storage of about 500 ac-ft, according to Mike Ebsen, Wyoming Hydrographer. Whitney Reservoir also failed to fill for the second consecutive year. Whitney Dam was built in 1966 with only two or three years of streamflow records at the site. Based on these meager records, I made an educated guess that in one of every five or six years the reservoir would not fill. After 10 straight years of filling, I was taking considerable flak from the Wes Myers crowd; then in 1977 it failed to fill — and now two more years. Anyway, our prediction helped hold down the minimum release required by the fishery people.

Compact Operation

Diversion records are not yet summarized for the Upper Division, but a number of spot checks during the critical part of the season indicated compliance with compact allocations. Hydrographs for the Central Division are shown on page 6. Divertible Flow throughout the season was considerably less than in 1987 and is of course a measure of supply. Divertible Flow was below 870 cfs until about May 22 even though Bear River at Border was above 350 cfs during most of this period. Wyoming Section diversion was less than allocation in the May period. Divertible Flow again fell below 870 cfs after about June 15 and stayed below the rest of the season. Again, Border was above 350 cfs for periods in late June and July. Wyoming diversion exceeded allocation from June 15 to 25, but regulation reduced diversions below allocation for the next 25 days. Thereafter diversion and allocation were about the same until September when diversion stayed below allocation for the balance of the season.

We had excellent cooperation from watermasters and users in Wyoming and Idaho, and a better than expected crop was harvested in each State in this extremely dry season.

Budget

Budget estimates in accordance with the bylaws are not required until April 1989; however, suggested program changes at and since the April meeting require a reassessment of budget projections. Revised estimates shown on page 7 include Commission action in the April meeting and further proposals to be presented today. Revised estimates, especially in the 1990 fiscal year, are extremely rough and are presented today in order that we might look at updated income-expenditure projections.

Referring to fiscal year ending 6-30-89, I have deleted $30,000 previously estimated for a new hydrologic inventory. This is in accordance with action at the last meeting even though the proposal was only tabled until this meeting. Again, looking at 1989, you will note the estimate of $25,000 for Commission-approved procedures (Technical Subcommittee work) was not changed in the budget portion but was increased to $33,138 in the income-expenditure projection. This is due to a carryover of $8,138 in 1988.

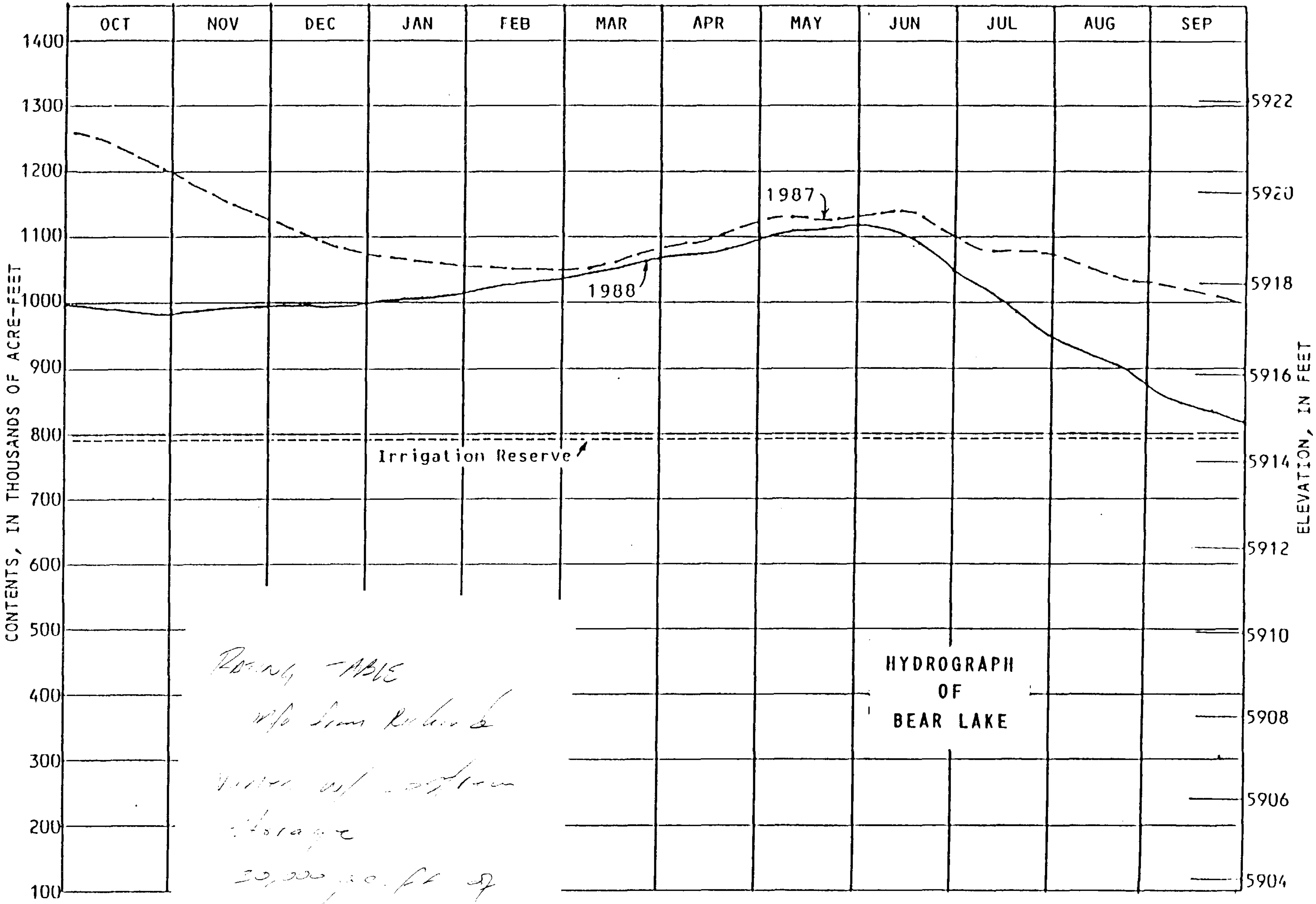
Budget (Continued)

Referring to fiscal year ending 6-30-90, the Engineer-Manager budget estimate is increased about $3\frac{1}{2}$ times over previous expenditures. This subject will be discussed later in the meeting. Also, in 1990 I have added an arbitrary figure of $50,000 for a Hydrologic Model study. This proposal has been circulated to the commissioners for further consideration today. My assumption that, if approved, the study will not require expenditure of funds until 1990 fiscal year might be wrong, and the estimated expenditure in that fiscal year might be grossly in error.

(E) Stream-gaging estimates have been obtained from the USGS and are firm through 1990. With these changes our projected balance at the end of 1990, $90,575, is within $3,000 of the previous projection.

Applications for Appropriation

Applications submitted for the last six months are summarized on the last two pages. In the Wyoming summary it is noted that about 62 cfs of surface water filings have been invalidated in the past six months by rejection or cancellation. Idaho also reported relatively large invalidations in both surface and ground water.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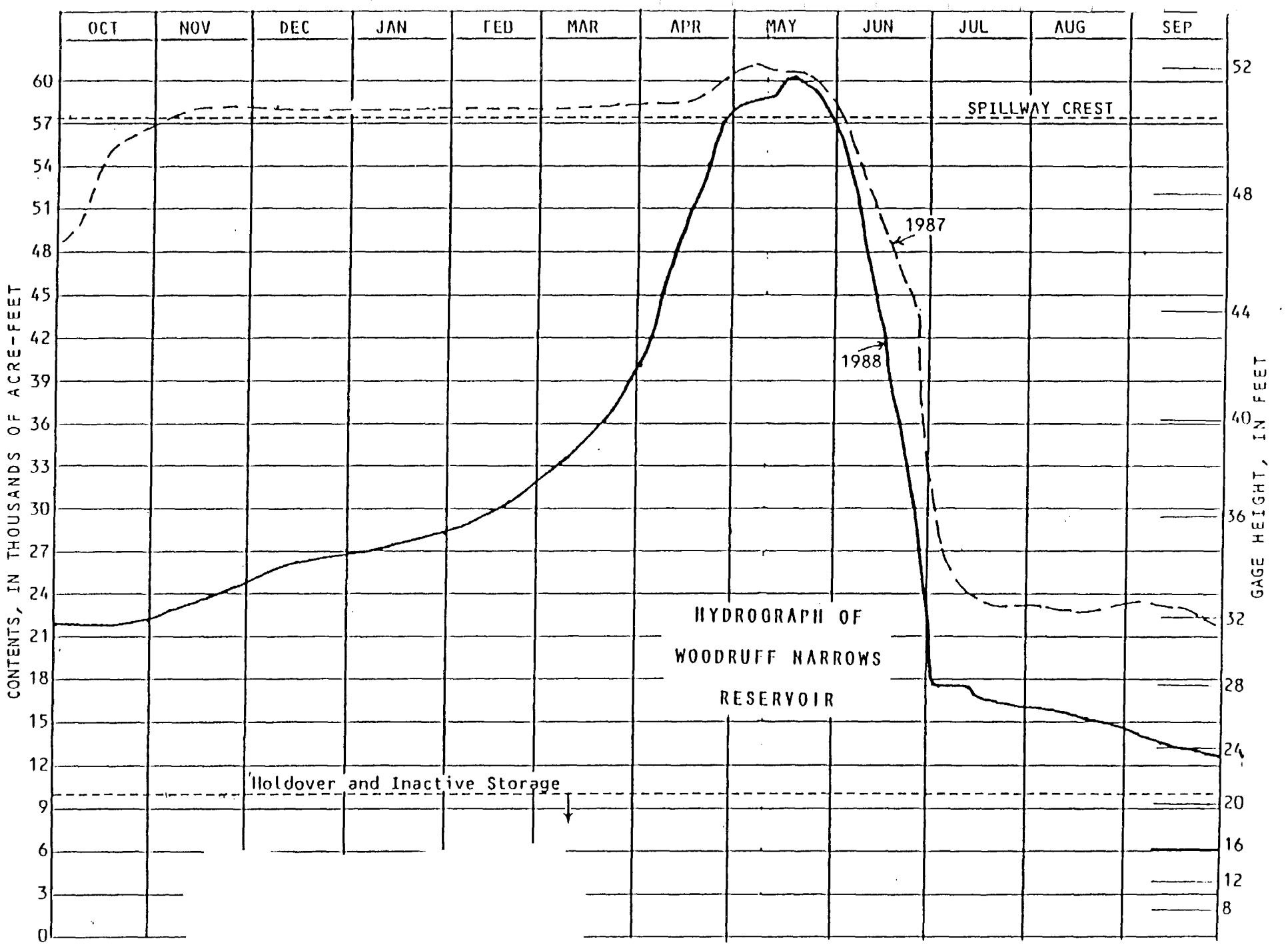
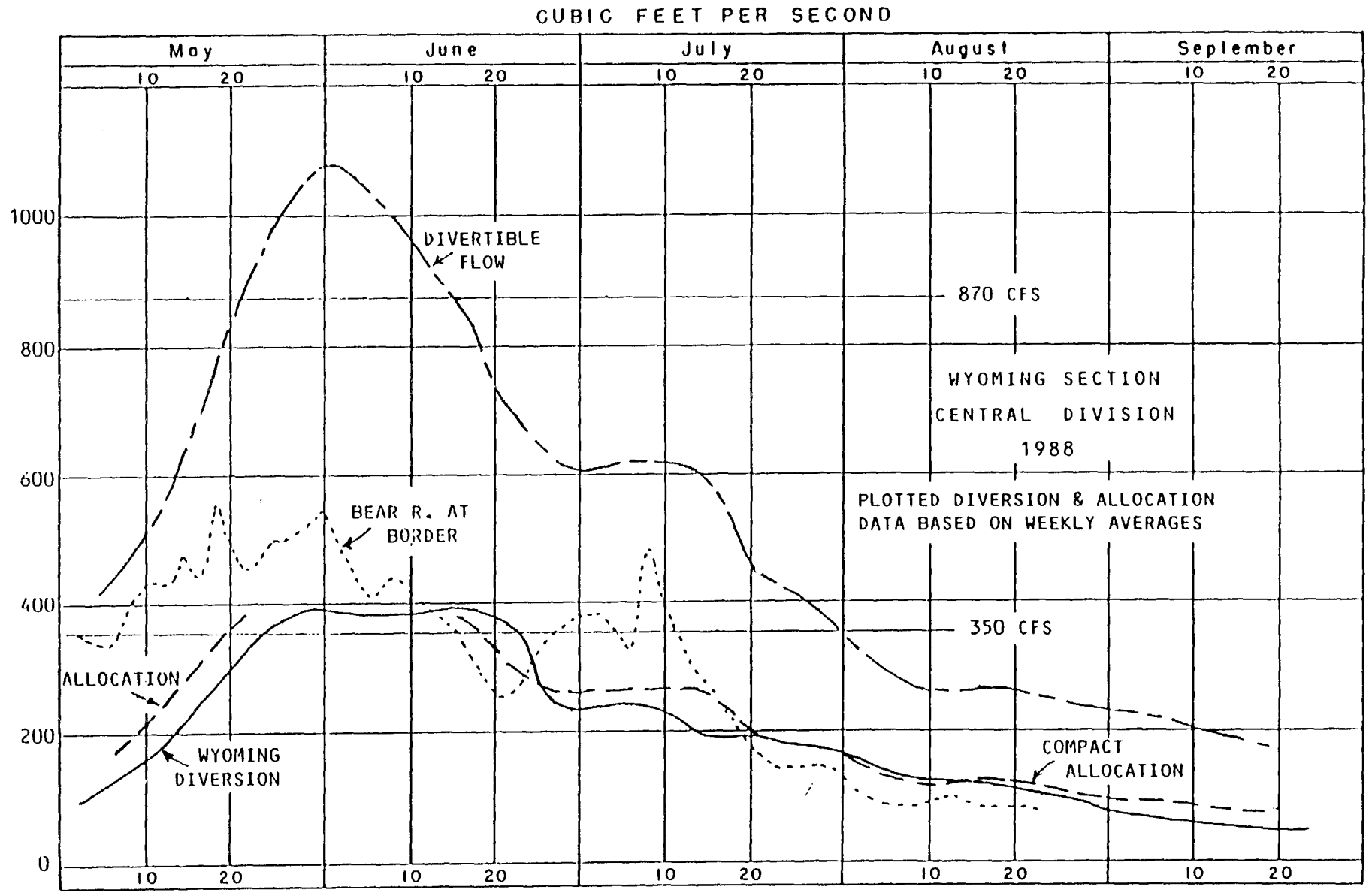
JUN
JUL
AUG
SEP
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
CONTENTS, IN THOUSANDS OF ACRE-FEET
5922
5920
5918
5916
5914
5912
5910
5908
5906
5904
ELEVATION, IN FEET
1987
1988
Irrigation Reserve
HYDROGRAPH
OF
BEAR LAKE


OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
60
57
54
51
48
45
42
39
36
33
30
27
24
21
18
15
12
9
6
3
0
52
48
44
40
36
32
28
24
20
16
12
8
SPILLWAY CREST
1987
1988
HYDROGRAPH OF
WOODRUFF NARROWS
RESERVOIR
Holdover and Inactive Storage
CONTENTS, IN THOUSANDS OF ACRE-FEET
GAGE HEIGHT, IN FEET


CUBIC FEET PER SECOND
May
June
July
August
September
10
20
1000
800
600
400
200
0
DIVERTIBLE FLOW
870 CFS
WYOMING SECTION
CENTRAL DIVISION
1988
PLOTTED DIVERSION & ALLOCATION
DATA BASED ON WEEKLY AVERAGES
BEAR R. AT BORDER
350 CFS
ALLOCATION
WYOMING DIVERSION
COMPACT ALLOCATION

BEAR RIVER COMMISSION

BUDGET, INCOME, AND EXPENDITURES

APRIL 18, 1988 (REVISED)
NOV. 21, 1988 (REVISED)

BUDGET	FISCAL YEAR ENDING 6-30-88	FISCAL YEAR ENDING 6-30-89	FISCAL YEAR ENDING 6-30-90	FISCAL BIENNIUM ENDING 6-30-90
COMPACT ADMINISTRATION				
PERSONAL SERVICES (ENGR-MGR)	$ 8,600	$ 8,600	$ 30,000	$ 38,600
TRAVEL (ENGR-MGR)	400	800	800	1,600
OFFICE SUPPLIES	250	250	250	500
PRINTING BIENNIAL REPORT	2,500	00	2,300	2,300
AUDIT AND TREASURER BOND	700	700	700	1,400
PRINTING AND REPRODUCTION	100	100	100	200
LEGAL RETAINER AND FEES	500	500	500	1,000
CONSUMPTIVE-USE STUDIES (USU)	9,030	00	00	00
COMMISSION-APPROVED PROCEDURES	46,796	25,000	00	25,000
HYDROLOGIC MODEL	00	00	50,000	50,000
SUBTOTAL:	$ 68,876	$ 35,950	$ 84,650	$ 120,600
STREAM-GAGING PROGRAM (USGS)	$ 71,360	$ 75,300	$ 76,800	$ 152,100
TOTAL BUDGET:	$ 140,236	$ 111,250	$ 161,450	$ 272,700
ALLOCATION OF BUDGET				
U.S. GEOLOGICAL SURVEY	$ 35,680	$ 37,650	$ 38,400	$ 76,050
BEAR RIVER COMMISSION	$ 104,556	$ 73,600	$ 123,050	$ 196,650
TOTAL BUDGET:	$ 140,236	$ 111,250	$ 161,450	$ 272,700
ASSESSMENT OF COMMISSION SHARE				
ASSESSMENT TO EACH STATE	$ 30,000	$ 25,000	$ 25,000	$ 50,000
TOTAL THREE-STATE ASSESSMENT	$ 90,000	$ 75,000	$ 75,000	$ 150,000
INCOME-EXPENDITURE PROJECTION (1988-90)				
INCOME				
BEGINNING BALANCE	$ 122,211	$ 128,363	$ 130,625	
INCOME FROM STATES	90,000	75,000	75,000	
INCOME FROM INTEREST	8,638	9,000	8,000	
TOTAL INCOME:	$ 220,849	$ 212,363	$ 213,625	
EXPENDITURES				
STREAM GAGING (USGS)	$ 35,680	$ 37,650	$ 38,400*	
COMPACT ADMINISTRATION (GENERAL)	9,118	10,950	34,650	
CONSUMPTIVE-USE STUDIES (USU)	9,030	00	00	
COMMISSION-APPROVED PROCEDURES	38,658	33,138	00	
HYDROLOGIC MODEL	00	00	50,000	
TOTAL EXPENDITURE:	$ 92,486	$ 81,738	$ 123,050	
UNEXPENDED BALANCE:	$ 128,363	$ 130,625	$ 90,575	
NOTE: STREAM-GAGING COST PER STATION:	$ 4,150	$ 4,380	$ 4,600	
PLUS PUBLIC. COST CUTLER STATIONS	$ 810	$ 855	$ 900	

* 50% COST OF 16 STATIONS @ $4,600 PLUS ONE @ $2,300 PLUS THREE (CUTLER) @ $300

Presented to Commission: NOVEMBER 21, 1988

Applic. Number	Date of Filing	Name	Source	Use	Location		Amount (cfs)	Act'n
			STATE OF IDAHO					
11-07371	7-21-88	HAROLD SNELL	GROUND WATER	INDUST.	S21T8SR42E	CARIBOU	0.11 CFS	PEND.
13-07451	2-25-88	RICHARD HOLSTEN	GROUND WATER	IRRIG.	S24T9SR39E	CARIBOU	7.00	PEND.
13-07452	5-3-88	DOREN F. PORTER	SUGAR C TR CUB R.	POWER	S36T15SR40E	FRANKLIN	2.00	APP.
13-07453	6-3-88	WESTON CITY	GROUND WATER	MUNICIPAL	S15T16SR38E	FRANKLIN	2.00	PEND.
13-07454	6-22-88	SHARON HAMILTON	GROUND WATER	IRRIG.	S12T14SR38E	FRANKLIN	4.00	PEND.
15-07108	9-28-88	WILLIAM B. HOWARD	GROUND WATER	IRRIG.	S32T14SR36E	ONEIDA	4.58	PEND.
	TOTAL SURFACE WATER, IDAHO: PENDING, 00 CFS, APPROVED, 2.00 CFS TOTAL GROUND WATER, IDAHO: PENDING, 17.69 CFS, APPROVED, 00 CFS CHANGE IN STATUS PAST SIX MONTHS OF PREVIOUSLY REPORTED APPLICATIONS: APPROVED TO LICENSED: SURFACE WATER, 00 CFS, GROUND WATER, 4.89 CFS APPROVED TO INVALIDATED: SURFACE WATER, 35.06 CFS (INCLUDES 20.0 CFS POWER) GROUND WATER: 70.70 CFS							
			STATE OF WYOMING					
TF 19-5-394	2-8-88	N. UINTA C. IMP. DIST	GROUND WATER	MISC.	S11T16NR121W	UINTA	0.06 CFS	PEND
UW 76787	5-13-88	EXXON CORP	GROUND WATER	INDUST.	S19T21NR118W	LINCOLN	0.22	APP.
UW 77005	5-24-88	WYO HIGHWAY DEPT	GROUND WATER	MISC	S3T21NR118W	LINCOLN	0.03	APP.
UW 77038	6-6-88	C.E. HOSTETTER	GROUND WATER	MISC	S13T16NR121W	UINTA	0.02	APP.
UW 78131	6-13-88	CHEVRON INC	GROUND WATER	INDUST.	S5T15NR119W	UINTA	0.04	APP.
UW 77223	6-16-88	EXXON/BLM	GROUND WATER	MISC	S14T20NR119W	LINCOLN	0.22	APP.
UW 77428	6-20-88	LINCOLN C SCHOOL DIST	GROUND WATER	MISC	S23T34NR119W	LINCOLN	0.33	APP.
29983	7-11-88	EXXON	FOSSIL DRAW (TWIN)	INDUST.	S15T20NR119W	LINCOLN	1.00	APP.
UW 77898	7-26-88	LAIR PETROLEUM	GROUND WATER	MISC	S23T15NR119W	UINTA	0.11	APP.
	TOTAL SURFACE WATER, WYOMING: PENDING, 00 APPROVED, 1.0CFS. GROUND WATER: PEND. 0.09 CFS, APP. 0.97 CFS							
	CHANGE IN STATUS PAST SIX MONTHS OF PREVIOUSLY REPORTED APPLICATIONS: APPROVED TO ADJUDICATED: (WILL BE REPORTED IN THE APRIL 1989 MEETING) APPROVED TO INVALIDATED: SURFACE WATER, 20.37 CFS, GROUND WATER, 00 CFS PENDING TO INVALIDATED: SURFACE WATER, 42.10 CFS, GROUND WATER, 0.79 CFS							

APPLICATIONS TO APPROPRIATE WATER
BEAR RIVER DRAINAGE
STATE OF UTAH
04/01/88 to 11/01/88 PRESENTED TO COMMISSION: NOVEMBER 21, 1988

WR No.	Filing Date	Applicant	Source	Uses	Location	CFS	ACT'N
25-8896	04/14/88	Steele, Charles R. & Jean	Well	IDS	17 11N 1E	0.1	APP
25-8905	05/27/88	Spackman, LeRoy E.	Well	ID	25 14N 1W	0.1	APP
25-8908	06/07/88	Beckstrom, Kelly	Well	IDS	34 11N 1E	0.1	APP
25-8909	06/14/88	Rounds, Rod	Underground Water Drains	IS	3 11N 1E	0.1	PEND
25-8915	06/29/88	Maple Springs Farm	Surplus/Overflow from Sardine	IS	26 10N 1W	1.5	PEND
25-8916	07/01/88	Denney, Alice	Welch's Spring Area	IS	16 11N 1E	0.88	PEND
25-8919	07/14/88	Hyde Park City	Well	Mu	3 12N 1E	3.0	PEND
25-8920	07/22/88	Norman, Grant & Linda D.	Paradise Canal Spr/John James	D	28 10N 1E	0.1	PEND
25-8923	08/02/88	Redford, Glyn & Millicent A.	Blacksmith Fork River	I	11 10N 1E	1.45	PEND
25-8926	08/23/88	Kyriopoulos, Steven G. & Linda B.	Underground Water Wells (2)	IDS	1 10N 1W	0.1	PEND
25-8927	08/23/88	Kyriopoulos, Steven G.	Unnamed Spring	ISOt	1 10N 1W	0.5	PEND
25-8928	08/26/88	Wellsville City Corporation	Murray Spring (or West Spring)	Mu	10 10N 1W	10.0	PEND
25-8936	10/11/88	Johnson, V. H.	Well	IDS	26 10N 1E	0.1	PEND
25-8938	10/13/88	Parker, Brent D.	Underground Water Drain	IS	12 10N 1W	1.5	PEND
25-8942	10/25/88	Wilson Bar-W	Well	IS	3 11N 1E	1.0	PEND
29-3386	05/02/88	Starr, John D.	Mound Spring	IDS	27 14N 3W	0.5	PEND
29-3389	05/16/88	Call. O. Jay	Well	IS	35 9N 2W	1.0	APP.
29-3500	07/20/88	Kendrick, Keith	Well	I	8 11N 2W	0.1	PEND
29-3505	07/27/88	Checketts, Brice	Unnamed Drain	ISOt	11 10N 3W	0.18	PEND
29-3506	07/29/88	Winchester, Randy	Field & Irrigation Drains	IS	31 10N 2W	0.1	PEND
29-3513	08/25/88	USA Dep artment of Interior, Bureau of Indian	Well	IDSOt	18 14N 3W	3.0	PEND
29-3517	09/16/88	Tremonton City Corporation	Well	Mu	10 11N 3W	0.45	PEND
29-3519	10/05/88	Blue Creek Ranch	Portage Canyon Stream	Hy	1 14N 4W	1.6	PEND
29-3522	10/31/88	Richards Land & Livestock Inc.	Springs	ISOt	7 12N 2W	0.75	PEND

TOTAL SURFACE WATER, UTAH, APPROVED, 00 CFS....PENDING, 21.06 CFS.
TOTAL GROUND WATER, UTAH, APPROVED, 1.30 CFS....PENDING, 5.85 CFS.

November 21, 1988

M E M O R A N D U M

To: Members of the Bear River Commission

From: State Engineers' Committee

Subject: Interim Commission-Approved Procedures for the Depletion Study

At the meeting held in Salt Lake City, Utah, on April 18, 1988, recommendations from the State Engineers' Committee were presented to the members of the Commission present. The recommendations were in five parts and three were approved, namely:

1. The Commission should perform accounting of the additional depletion occurring since January 1, 1976, rather than attempting to quantify the total basinwide depletion prior to that date. The Commission should "bookkeep forward" after January 1, 1976, and determine only the depletion chargeable under the Amended Compact.

2. Depletions would be determined by applying an appropriate seasonal crop coefficient to the empirical ET equation. A weighted or averaged coefficient would be applied to determine depletion. This "averaged" coefficient would be determined by county or subbasin crop distribution. Also, prior depletions would not be counted against depletion limitations specified in the Compact.

3. "Banking" of pre-January 1, 1976, depletions would be permitted when irrigated lands were retired due to development.

The issues not resolved were:

1. Evaporation from new reservoir storage would count as a depletion to that respective state.

2. Water budgets should be prepared for the subbasins of the Bear River so that future depletions and trends in water use can be determined.

The State Engineers' Committee and Wally Jibson met in Coeur D'Alene, Idaho, on September 20, 1988. At that time we discussed the previous issues not resolved and two other issues that were raised by the Technical Committee.

1. After discussing the issue of preparing water budgets for the various subbasins of the Bear River, it is the opinion of the State Engineers' Committee that these tools will be necessary to calculate depletions and to project impacts between the various subbasins of the Bear River system. Therefore, it is our recommendation that an "RFP" be prepared and distributed by the Engineer Manager to solicit proposals for the preparation of these budgets. The RFP should be prepared jointly by the Engineer Manager and the Engineering

Technical Committee, with final approval by the State Engineers' Committee. It is suggested that the final approved RFP be available to the respective consultants by January 20, 1989, and that an orientation meeting concerning the RFP be held January 31, 1989. The proposals outlining how the consultant would accomplish the task and how much it would cost would be due in the Engineer Manager's office March 3, 1989.

2. The Technical Committee asked direction in evaluating municipal and industrial depletions. These uses amount to approximately one-and-one-half percent of the total water diverted in the Bear River system. Without guidance, the Technical Committee could spend considerable time resolving these depletion issues. Therefore, it is recommended that all industrial uses be treated on an individual basis for the determination of depletion and all municipal uses be determined by utilizing existing data representative of the subbasins or area of the Bear River.

Issues that were discussed that no resolution to date has been made are:

1. Should evaporation from new reservoir storage be counted as a depletion to the respective state?

2. The Compact is silent on "ordinary" domestic and stockwatering depletions in the lower zone. In the middle and upper zones, according to Article VI, Paragraph E, these depletions are not counted against the respective state. The issue to be resolved is should the lower zone be treated the same as the upper and middle zones?

3. Article VI, Paragraph C, states that there shall be a Commission-approved procedure for the determination of when Bear Lake spills. This item is under consideration in the study by the State Engineers' Committee.

The State Engineers' Committee, assisted by the Engineering Technical Committee, will try to have recommendations concerning these three unresolved matters for the April meeting. However, the issues are complex and they may not all be resolved.