

6/20/73

VERBATIM MINUTES

BEAR RIVER TRI-STATE NEGOTIATING COMMITTEE
MEETING

Room 303
State Capitol Building
Salt Lake City, Utah

April 23, 1973
1:30 p.m.

Submitted by
Connie Borrowman, Secretary

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SUMMARY OF ACTIONS

1. The Verbatim Minutes of the meeting held December 20, 1972 were approved as corrected

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2. A Motion was passed that the Report of the Technical Sub-Committee on Water Supply above Bear Lake, March 15, 1973, be adopted by the Bear River Tri-State Negotiating Committee as the official position of the Committee for future discussions on the hydrology of the River.

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3. A Motion was passed that Ferris Kunz and Marion Olson go back to the Commissioners on their separate sides of the Lake and ask the Commissioners to request flood plain information from the Corps of Engineers as it applies to the Bear Lake Area.

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BEAR RIVER TRI-STATE NEGOTIATING MEETING

April 23, 1973
Salt Lake City, Utah

THOSE PRESENT:

NEGOTIATORS:

Ferris M. Kunz, Idaho - Chairman
R. Keith Higginson, Idaho
William G. Jenkins, Idaho
J. C. Hedin, Idaho
Marion Olsen, Utah - Vice-Chairman
Daniel F. Lawrence, Utah
Calvin W. Funk, Utah
Gordon Peart, Utah
Simeon Weston, Utah
Paul Holmgren, Utah
Floyd A. Bishop, Wyoming
S. Reed Dayton, Wyoming
J. W. Myers, Wyoming

OTHERS PRESENT:

IDAHO

Alan Robertson, Idaho Water Resource Board, Boise
Nathan W. Higer, Attorney General's Office, Boise
Daniel Roberts, Franklin County Water Users, Preston
Theo J. Bell, Franklin County Water Users, Preston

UTAH

Dee C. Hansen, State Engineer, Salt Lake City
Norman Stauffer, Jr., Utah Div. of Water Resources, Salt Lake City
James G. Christensen, Utah Div. of Water Resources, Salt Lake City
James Harvey, Utah State Soil Conservation Commission, Salt Lake City

WYOMING

John A. Teichert, State Board of Control, Cokeville
Tom Barker, State Engineer's Office, Cheyenne

E. O. Larson, Federal Representative, Bear River Commission, Salt Lake City
Robert B. Porter, Utah Power & Light Company, Salt Lake City
D. J. Watkins, Utah Power & Light Company, Salt Lake City
J. G. Haight, Utah Power & Light Company, Salt Lake City
Paul Willmore, U.S. Bureau of Reclamation, Salt Lake City
Dean E. Bischoff, U.S. Bureau of Reclamation, Logan
Clifford Alldredge, U.S. Bureau of Reclamation, Logan
Wallace N. Jibson, U.S. Geological Survey, Logan
Lee J. McQuivey, U.S. Corps of Engineers, Salt Lake City
Connie Borrowman, Secretary, Salt Lake City

MINUTES

BEAR RIVER TRI-STATE NEGOTIATING COMMITTEE
MEETING

April 23, 1973 - Salt Lake City, Utah
1:30 p.m.

Verbatim Minutes of the Bear River Tri-State Negotiating Committee meeting held April 23, 1973 in the State Capitol Building, Salt Lake City, Utah. The meeting commenced at 1:30 p.m. with Chairman Ferris Kunz presiding.

CHAIRMAN KUNZ: We are a few minutes late; let's go to work here if we can. I might comment to Mr. Bishop that we're sure grateful that we didn't have to come to Cheyenne today.

APPROVAL OF MINUTES OF MEETING HELD DECEMBER 20, 1972

CHAIRMAN KUNZ: The first order of business is the approval of the Minutes of the meeting held on December 20, 1972. You have all received verbatim copies of that. There are a few corrections that I have that we should note here.

Page 20, line 3, should say "West Cache" -- instead of "Left Cache".

Page 22 - Mr. Alldredge's comments should be revised as follows:

"Mr. Chairman, we really operated the Lake based on studies of the Bureau of Reclamation Logan office; and this Upper Bear study -- we made a comparable study in 1967 of the Lower Bear. And we made some operations in that; it really hasn't changed too much. . . ."

MR. JENKINS: Page 22, Ferris, the second line - "We the annual operation."?

CHAIRMAN KUNZ: Do you recall what you said there, Jay? There is a blank space there that was missed.

MR. HAIGHT: Well, we used the annual operation. Insert "used actual" in that space.

CHAIRMAN KUNZ: Page 27; Mr. Funk's comment, in about the middle of the page - insert the word "not". That will read: "I would just comment that the future and potential of this River should not hinge on a 1 in 50 dry."

On page 36, we run into the same type of thing. The last sentence should read, "We have not been releasing much more -- 700 to 900 second-feet during all of that period, even when the Lake's been full."

Page 44 - in the comments of Chairman Kunz, about the start of the 4th line -- it says "five county", and that should be "by county".

Are there any other corrections anyone has noticed in the Minutes? I will proceed, then, to read the summary that the Secretary has prepared for us:

SUMMARY OF MINUTES

BEAR RIVER TRI-STATE NEGOTIATING COMMITTEE MEETING

December 20, 1972
Room 303 State Capitol Building
Salt Lake City, Utah

The meeting commenced at 1:30 p.m. with Chairman Ferris Kunz presiding.

The verbatim Minutes of the meeting held September 29, 1972 were approved as corrected.

Mr. Keith Higginson, with the use of slides and charts, gave a discussion of the "Concept of Flood Plain Management". The Negotiators discussed the value of flood plain management studies in the area of Bear Lake, and the possibility of flood plain insurance to cover variations in the Lake level.

Mr. Dee Hansen gave the "Domestic Use Discussion" prepared for the Technical Sub-committee. This concerned small well filings for domestic use and the amount of flow and amount of use that would be allowed under the filings. A tabulation had been made of 76 such filings which had been perfected, and the actual use ranged from a low of .14 acre-feet per year to a high of 45.53 acre-feet per year. Mr. Hansen recommended that there be allowed an intermittent flow of 0.015 second-feet with the volume not to exceed 3 acre-feet per year total usage. A Motion was passed that this report be accepted and held for consideration at such time that changes in the Bear River Compact be made.

Robert B. Porter reported on the "Mode of Operation of Bear Lake", as carried out by Utah Power & Light Company. This report indicated that:

(a) with depletions to inflow resulting from Bear River Compact storage allocations and with storage water released only for current downstream irrigation demands, a 15-year period can elapse before Bear Lake will fill to capacity;

(b) about 850,000 acre-feet (representing a drawdown on the Lake of 12.5 feet) is required as a reserve for downstream irrigation rights during this 15-year period;

(c) during 36 to 48 years of record, there is surplus inflow to Bear Lake in excess of direct flow irrigation rights and Bear Lake

filling demands, which is highly variable and must be regulated for flood control and short-term use;

(d) any future reservoir projects must be planned realistically so as not to have an adverse effect on water users below Bear Lake;

(e) further upstream storage will deplete the supply of water now used by Utah Power & Light Company primarily for peaking purposes.

Power currently has a value of \$2.10 per acre-foot for dump power and \$4.90 per acre-foot for peaking in the Bear River Basin.

There was considerable discussion following Mr. Porter's report as to whether the Lake should be operated strictly for the benefit of the irrigation rights, or whether the land owners and home owners on the Lake must also be considered even though they have no legal rights concerning the fluctuation of the Lake. The willingness of upstream water users to assume the risk of not having a full water supply every year if a reservoir were built upstream was also considered.

Each of the three states responded to questions asked by Utah Power & Light Company in the September 29 meeting. These questions concerned the use of Bear Lake for irrigation purposes without regard to recreational uses, home owners, and resort areas; flood control around the Lake and downstream from the Lake; and the filling of downstream irrigation rights prior to new storage or diversions upstream.

Mr. Porter reiterated that the problem facing the Power Company is the threat of lawsuits from flooding. Mr. Bishop commented that it is unfair for Utah Power & Light Company to bear the complete responsibility and liability for the operation of Bear Lake. Mr. Porter suggested that, if and when the Bear River Compact is modified, perhaps something could be incorporated, through legislative action, assigning some of that responsibility to the states.

Negotiators were concerned about the differences in hydrology studies used by the Technical Sub-committee and by Utah Power & Light Company. A Motion was approved that the Technical Sub-committee (including representatives of all three states), be instructed to meet with the hydrology staff of Utah Power & Light Company, review the Power Company's hydrology of the River, and submit appropriate comments at the next Negotiating Committee meeting; including a review of the analysis made by Utah Power & Light Company and the differences in that analysis and the one made by the Technical Sub-committee.

The Technical Sub-committee was further assigned the procuring of additional detail on flooding around the Lake and River from fluctuations in Lake levels and River flows.

Mr. Jim Christensen briefly explained "Inter-Agency Planning Teams", which are being set up in an effort to bring together the various studies being pursued on Bear River into one coordinated, useful, product. Dr. Norman Stauffer of Utah is the team leader in this effort, and they are working in a 6-months' time frame. It was agreed that at the next meeting of the Tri-State Negotiating Committee, the Committee should be briefed on progress made in these multi-objective planning activities.

As an Agenda item for the next Tri-State Negotiating Committee meeting, Chairman Kunz and Vice-Chairman Olsen were assigned to contact the County Commissioners of Bear Lake County and Rich County, respectively, and notify the Negotiators as to what is being done in those counties with regard to master planning, zoning, etc.

The next meeting of the Tri-State Negotiating Committee was tentatively set for April 16, 1973, with Wyoming acting as host state; time and place to be determined.

Meeting adjourned at 4:30 p.m.

CHAIRMAN KUNZ: You have heard the reading of the summary Minutes. What is your pleasure?

MR. OLSEN: Mr. Chairman, I move that they be adopted.

MR. WESTON: Second the Motion.

MR. LAWRENCE: This includes the Verbatim too, then?

MR. OLSEN: Yes; that was the intent of the Motion.

CHAIRMAN KUNZ: All in favor of the Motion, say 'aye'. Opposed?

MOTION CARRIED

TECHNICAL SUB-COMMITTEE REPORTS

Hydrology Report

CHAIRMAN KUNZ: That brings us to item No. 3 - the Technical Sub-committee Report. The first one will be the hydrology report. Mr. Dan Lawrence, Chairman of the Technical Sub-committee.

MR. LAWRENCE: Norm, do you want to give that report in behalf of all of the 'guys' you have been working with?

DR. STAUFFER: I don't know; you can probably read it better than I can.

MR. LAWRENCE: You recall in the Minutes of the previous meeting, the Sub-committee was assigned to meet with the Power Company to try and resolve at least in a more meaningful way whatever differences we might have with the Power Company in understanding the hydrology of the River. Several meetings were held -- these were primarily Alan (Robertson), and Tom (Barker), and Norm (Stauffer), working on

those. I prepared a memorandum on March 21, 1973, which I think all of you received. This is to the Negotiating Committee from the Technical Sub-Committee:

"The Tri-State Bear River Negotiating Committee at its December 18, 1972, meeting, requested the Technical Sub-committee to review the Utah Power and Light Company hydrologic study of Bear River. The purpose of this review was to determine the nature and extent of any differences between that study and the July 20, 1972, report of the Technical Sub-committee. The Sub-committee met with representatives of Utah Power and Light Company in Salt Lake City on March 13.

"The Power Company study consists of an examination of the operation of Bear Lake designed to (1) meet present irrigation requirements and (2) to optimize lake operation for flood control by operating the lake with the objective of reducing lake elevation to 5915 to provide sufficient storage capacity for high spring runoff. This type of operation is not now followed but the study results can be interpreted to relate to the present operation in which the lake is drawn down to elevation 5918 to provide storage capacity for high spring runoff. It is the concensus of the Sub-committee that the results of the Power Company study are not significantly different from Sub-committee studies which relate to the present mode of operation of Bear Lake. The Power Company study is enclosed. Details of this study will be provided to the respective state committees by their staffs.

"The Technical Sub-committee report of July 20, 1972, was based upon data available at that time. Two events have since occurred which now make it appropriate to revise the report. These were (1) completion of depletion studies above Bear Lake by the Bureau of Reclamation which includes the full compact storage allocation, and (2) a review of previously computed depletions below the lake by a Hydrologic Study Team composed of Dr. Norman Stauffer of Utah Division of Water Resources and representatives of the USBR and SCS. The Subcommittee is agreed that these changes should be incorporated in the basic water supply picture being considered by the Negotiating Committee.

"A revised Technical Subcommittee report has, therefore, been prepared and should henceforth be used as the hydrologic basis for discussion by the Negotiating Committee. A copy of the revised report is enclosed.

"The changes made result in showing smaller present conditions depletions both above and below Bear Lake from those formerly used. The average adjustments are about 5000 acre-feet per year less depletion above Bear Lake and about 3000 acre-feet per year below the lake. These relatively small changes result in somewhat greater increases in the average water shown available under existing use category C (Exhibit 1 of the report) because of the cumulative effect of depletions in the critical period in the 1930's. The characteristics of categories B and C (Exhibits 2 through 5), however, remain relatively unchanged."

MR. LAWRENCE: I wonder, if everyone has read this, is there need to read further the revised report? Does anyone have any feeling on that? I think the main thing is --

MR. JENKINS: Does this now have the complete concurrence of the three states, and the Utah Power & Light Company?

MR. LAWRENCE: Alright; I guess there is a good place to get this. I have been instructed by my staff that there was consensus; but I haven't talked to Floyd and I haven't talked to Keith; or the Director of the Idaho Water Resources Board -- so maybe we should ask for these comments from Floyd and from Idaho.

MR. BISHOP: We have been involved in the deliberations that went into modifying the technical sub-committee report and I think we agree with what is said therein.

MR. KUNZ: I think Idaho concurs.

MR. LAWRENCE: Would the spokesman for the Power Company want to -

MR. PORTER: We're not completely in accord yet, Dan. The last paragraph of your memorandum we do not agree with.

MR. LAWRENCE: The last paragraph in my memorandum?

MR. PORTER: Yes.

MR. KUNZ: The one he just read?

MR. PORTER: Yes; we feel it is just a little too close.

MR. WATSON: We feel that in the dry period it turns out to be a tug of war between lower water users and upper user rights. On the average this is probably right; but in the dry period -- this is really what we disagree with.

CHAIRMAN KUNZ: That isn't in this report though.

MR. PORTER: On the average the adjustment to the average.

CHAIRMAN KUNZ: You are speaking about the comments he made; and we are talking about the revised report of the technical sub-committee; that paragraph is reflected in exhibit 1 but is not in this report as prepared for us, Bob.

MR. PORTER: Let me take a quick look again.

MR. LAWRENCE: I think the gentleman from Idaho wants to know if the document

dated March 15, 1973, entitled Revised Report of the Technical Sub-committee on Water Supply above Bear Lake is technically accepted by the three states plus the Power Company. This was an objective in 1956, I think, when we thought we put --

CHAIRMAN KUNZ: Yes.

MR. PORTER: We agree with that. It is just the one statement on Dan's memo.

MR. LAWRENCE: The memo that I wrote.

MR. PORTER: We are in agreement, I think, on the overall hydrology report.

CHAIRMAN KUNZ: Okay.

MR. LAWRENCE: Mr. Chairman, that is the report, then of the Committee, unless there are questions.

CHAIRMAN KUNZ: Are we ready to make a formal acceptance of this for future reference then?

MR. LAWRENCE: Mr. Chairman, I move that the revised report of Technical Sub-committee on Water Supply above Bear Lake, March 15, 1973, be adopted by the Tri-State Bear River Negotiating Committee as the official position on the hydrology of the River for future discussions.

MR. BISHOP: Second.

CHAIRMAN KUNZ: You have heard the Motion made and seconded. Any discussion? Ready for the question? All in favor say 'aye'. Opposed?

MOTION CARRIED

We now have an official document to which we can refer and cuss and discuss, then.

MR. LAWRENCE: And if it is alright, we will have Connie include that in the Verbatim Minutes as if it had been read aloud. (This report is attached)

CHAIRMAN KUNZ: Very fine.

That brings us to Item B of the Technical Sub-committee report. Mr. Lee McQuivey of the Corps of Engineers has graciously consented to make a presentation on Bear River and Bear Lake flooding. Mr. McQuivey, the floor is yours.

BEAR RIVER TRI-STATE NEGOTIATING COMMITTEE

BEAR RIVER AND BEAR LAKE FLOODING

Lee J. McQuivey
Corps of Engineers

Mr. Chairman, Members of the Bear River Tri-State Negotiating Committee and others met here to discuss problems pertinent to the Bear River Basin, it is a pleasure to meet with this group. The Sacramento District Corps of Engineers was requested in January of this year to compile information on flooding in the Bear River Basin for various uses including considerations of this Tri-State Negotiating Committee, State Water and Land Use Planning Activities and for the Western U.S. Water Planning Efforts.

In reviewing Corps of Engineer's activities in the Bear River Basin, I find they have been somewhat limited. A comprehensive study of the Bear River Basin in Utah, Idaho and Wyoming was authorized by the 1938 Flood Control Act. Its purpose was to develop a program for preventing flood damage, providing additional water supply, and alleviating drainage problems in the basin. Work on the study was begun in 1947 but suspended in 1951 pending completion of Bureau of Reclamation studies of the Bear River Project. The study has remained in inactive status. Primary activity since 1951 has included providing flood control evaluations to the Bureau of Reclamation for various storage features they have investigated under the Bear River Project. Other activities have included emergency flood control work such as that carried out on Logan River and Blacksmith Fork in the fall of 1971 and on Smiths Fork near Cokeville, Wyoming during the spring runoff of 1972. The only current study in the basin is a flood plain information report for Logan River near Logan, Utah. This study scheduled for completion in June of this year will delineate areas subject to flooding. It is under preparation as a flood plain management service to provide local planners with basic flood information for their use in developing flood plain regulations and utilizing flood prone areas consistent with the potential hazards.

On a basinwide basis the Corps participated with other federal and state agencies in the Great Basin Comprehensive Framework studies and provided a general flood control plan for incorporation into the overall framework plan, completed in June 1971. The flood control plan primarily incorporated flood control as an integral function of the overall water resource development program. Under the plan storage reservoirs would be drawn down on a snowmelt forecast basis to provide sufficient

capacity to regulate flood flows and alleviate flood damages. The program also included flood levees and related improvements at critical locations in the basin, and included non-structural measures.

Information developed for the Great Basin Framework Study and data collected following the snowmelt flooding of 1971, a flood having a frequency of about 1 in 40 years, form the basis for the following summary of flood problem areas in the Bear River Basin.

FLOOD PLAINS OF THE BEAR RIVER BASIN

Flooding along the Bear River is normally the result of snowmelt runoff during the months of May and June. However, ice jams and winter floods are known to occur during the months of January and February. These floods have caused local flooding at various points throughout the river system, particularly in areas where the channel is restricted or the flood plain is broad. A brief description of the channel and flood plain beginning near the headwaters and extending downstream. Note that the areas subject to flooding are delineated on the wall maps. (See attached map).

In the reach above Evanston, Wyoming, channel capacities are generally adequate; however, minor bank erosion damage occurs from sustained high flows. Damages of this type are primarily associated with sandbars and snags in the channel. Bank erosion damage is typical of the reach through Evanston where the problem is more acute due to the developments adjacent to the channel. A minimum flow easement of about seven feet above streambed and builtup levees are required in this reach to avoid substantial flood damages from overflow. Downstream of Evanston to a point just below Wyoming Highway 89 crossing, flows in excess of 1,800 second feet tend to overtop streambanks and flow directly across oxbows. Below this crossing to Neville Canal Heading, below Woodruff Narrows Dam, channel capacities are adequate and flooding seldom occurs. Minor overbank flooding occurs downstream to the vicinity of Saleratus Creek where the combined flood plain occupies a large area between Utah State Route 16 and the Rees Canal. In the reach from Woodruff to the Utah State Route 16 crossing, near Sage Junction, ranchers have learned to live with the river. In the spring and early summer they use the higher-lying pastures while the native grasslands near the river receive their annual inundation. According to the local gentry, the river never gets deeper, just wider. Below the Utah State Route 16 crossing downstream to Cokeville, Wyoming, flood waters are difficult to separate from seepage and percolation, due to high water tables, which render fields unusable during periods of high river stages. Localized flooding occurs intermittently along the Bear River

from Cokeville downstream to Marse, Wyoming, due to the local runoff of Spring Creek and Smith Fork River. Flooding is also common during high runoff years along the Smith Fork and Thomas Fork drainages. Downstream of Marse, restricted channel capacities and local inflow from Thomas Fork River causes flooding of most of the area between the hills bordering the Bear River flood plain. Evidence of frequent flooding is apparent by the predominance of native pasture in the area. The community of Pegram, Idaho, has been virtually isolated on occasion due to high river stages flooding its main access road.

Flooding within the Bear Lake Valley is due to a combination of many factors. First, high water stages in Bear Lake occur in coincidence with moderate to high winds which create waves and related flooding at various locations around the lake perimeter. Rough calculations show the wind tide or water buildup from a north or south wind ranges from 1 to 8 feet for wind velocities of 40 to 80 miles per hour respectively. For an east or west wind the wind tide would vary from about 1 to 4 feet for similar wind velocities. Wave runup, which is the effect of the waves breaking and running up the shoreline is a function of the shoreline slope in addition to the wave height. Waves 1 foot high have a runup which varies from less than a foot to over 2 feet depending on the shoreline, while waves of 5 foot high have runup ranging from about 3 to 12 feet in elevation. Assuming a high lake stage at a gage height of 23.65, approximate elevation 5,927, affects from a 40 miles per hour wind could result in an increase lake stage of about 1 to 5 feet and thus flood damages could occur up to an elevation of about 5,932 feet. For a 60 miles per hour wind the increase lake stage due to wind tide and wave runup would range from about 5 to 10 feet and could thus result in damage to roads, piers and other exposed structures up to an elevation of about 5,937 feet. Further investigative work is required to properly identify areas of damage and to estimate high water profiles for detailed Bear Lake perimeter planning studies. Flooding in Bear Lake Valley also occurs when water is released from Stewart Dam into the old Bear River channel. Most of the adjacent land consists of poorly drained, deep soils of medium and moderately fine texture along with some very poorly drained muck and peat soils. The area is relatively flat with numerous sloughs and the flood plain is broad affecting a large acreage. From Bennington, Idaho, to the vicinity of the Georgetown-Nounan Road, channel capacities are generally adequate; however, below the road to a point approximately four miles upstream of the Soda Point Reservoir overbank flooding is general during high water years. There are no flood plains from Soda

Springs to the Grace Powerplant. In Gentile Valley and Mound Valley, flooding due to large peak flows and seepage due to high water tables frequently prevents access to meadows, hay, and grain fields through high runoff periods. Winter ice jams also cause damage to fences, farm roads and other improvements in this area. The Bear River below Mound Valley enters the Oneida Narrows Reservoir; from the reservoir to the Idaho State Route 36 crossing, little overbank flooding occurs. However, from the Route 36 crossing, downstream to the vicinity of the Oneida Street Bridge west of Preston, Idaho, the 1971 floodwaters inundated many adjacent fields and by-passed oxbows when channel capacities were exceeded. Records show that during the 1890's, 1900, and 1910's, and during the ice flood of 1917, the water surface elevation increased to as much as 9 feet over the streambed elevation and floodwaters covered most of the river bottom lands. Downstream of the Oneida Street crossing to Cutler Reservoir most of the river bottom lands are inundated during high water years. Flooding in this reach is aggravated by a problem of channel deterioration caused from deposition of sediment. The sediment is primarily derived from erosion and sloughing of the high alluvial banks which are characteristic of the river and its tributary washes in the reach. The steep banks exceed 50 feet in height in most cases and are particularly susceptible to sloughing by the undermining action of groundwater seepage along their toes. Backwater effects from Cutler Reservoir and the associated reduced velocities cause deposition and channel aggradation from the reservoir nearly to the Utah-Idaho State line. Tributary streams subject to flood damage above Cutler Reservoir include Cub River near Preston, Idaho, Logan River, Blacksmith Fork and Little Bear River near Logan, Utah, as noted by the colored flood plains. Downstream of Cutler Reservoir the 7,150 cfs peak flow that occurred in 1971 was less than flows of record on several occasions around the turn of the century. A peak flow of 11,600 cfs was recorded in June of 1909. It is estimated that a 100 year peak flow would inundate most of the bottom lands within this reach down to Corinne, Utah. Damages encountered in this area include loss of developed land from bank erosion and damages to ditches, crops, and irrigated pasture. Below this point extensive flood occurs on the Bear River Migratory Bird Refuge with resultant loss. Additional damages are also suffered by several hunting and duck clubs and by crop and pasturelands in this area.

Damages resulting from the May-June 1971 flood on the Bear River are as follows:

DAMAGE DATA

Location	Acres flooded	Primary flood damage (\$1,000)					Total
		Agricu ltural	Resid- ential	Commé rcial	Indust & Util	Pub Fac	
Bear River							
Above Bear Lake	21,500	179	-	-	1	12	192
Bear Lake to Narrows Point Reservoir	11,600	151	-	-	2	3	156
Narrows Point Reservoir to Cutler Reservoir	5,900	172	-	-	2	1	175
Cutler Reservoir to Bird Refuge	19,000	643	-	-	1	1	645
Bird Refuge	(1)	-	-	-	-	185	185
Total	58,000	1,145	-	-	6	202	1,353

(1) Estimate 30,000 acres inundated not included in total.

CHAIRMAN KUNZ: Any questions of Mr. McQuivey? Thank you, Lee.

MR. BISHOP: Mr. Chairman, I'd like to ask one. Lee, are there significant bottle-necks in the capacity of the River below Bear Lake that you could point out? Are there certain areas that create greater problems than anywhere else - or is it just kind of a general problem all the way down?

MR. MCQUIVEY: There are a couple of major problems. One is just upstream from Cutler Reservoir, which is primarily due to the channel being filled with sediment, and other vegetation growing out in it. Aside from that, at the outlet from Bear Lake you've got quite a flood plain there in the Dingle Swamp area. This is one of the big considerations. Flooding near Georgetown - there is a little bit between there and Soda Springs. Then you are pretty free until you get around to Oneida Narrows. Below Oneida Narrows, again, there is some flooding. Then it is pretty good all the way to Cutler and Cache Valley on the Little Bear; and then basically from Corinne downstream.

MR. BISHOP: The area just below Bear Lake is one of the major bottlenecks, is that right? Do you know what the capacity of the channel in that area is?

MR. WATKINS: About 1,400 second feet of the main canal.

GRIFF JENKINS: What was the nature of the changes in Bear Lake that you have been talking about from the point of view of improved flood management?

MR. MCQUIVEY: I think the potential there lies in drawing the Lake down on a snowmelt forecast basis - reserving some capacity for snowmelt runoff. This is something they have done pretty much on a voluntary basis, but to my knowledge they have no set criteria to base this on. They don't have the actual perimeters that relate snowmelt runoff to required capacity.

MR. WATKINS: It is a compromise between flood protection versus going dry in the Lake during the dry period, but we do watch the snow forecast starting January 1, and we make adjustments - in fact, this last winter we have been running a full 900 second feet which we feel is the maximum under ice conditions, we can get down the River. I would say the Power Company has probably been practicing a modified flood control program for the last 35 or 40 years.

MR. PORTER: I think we said before, Ferris, that you just cannot - full irrigation versus flood control just does not fit. It conflicts.

CHAIRMAN KUNZ: Any other questions? Thanks very much, Lee.

REPORTS ON BEAR LAKE COUNTY AND RICH COUNTY COMMISSIONS AS
RELATED TO BEAR LAKE PROBLEMS AND SOLUTIONS

Chairman Ferris Kunz
Vice-Chairman Marion Olsen

CHAIRMAN KUNZ: Item No. 4 on the Agenda is Reports on Bear Lake County and Rich County Commissions as related to Bear Lake problems and solutions.

I would report at this time that I contacted the Bear Lake County Commissioners, asked them if they desired to have a delegation here, or if they wanted to be observers. They informed me that as long as I was sitting here and was willing to tell them what was going on, they didn't want to become too involved. They have recently reorganized their planning Commission in Bear Lake County. I had quite a visit with the Chairman. They have, at the present time, set up subdivision

ordinances. In June they hope to have a condominium ordinance ready; and later on in the year they anticipate a building code. Probably one of the big concerns on Bear Lake is the supposed pollution. Bear Lake County has contracted with Hamilton and Bowler for preliminary engineering studies on the Bear Lake side; and that is about ready to go to paper, although the consultant doing the study feels that it is not practical to try to get EPA grants or so on, until he can get Rich County involved and tie the thing together. They recently organized the by-state commission; one of the County Commissioners of Bear Lake County was appointed Chairman, or elected Chairman. They have taken no particular official action. They have certain disagreements within the group about what their first priority should be. They will be meeting on the 26th, Thursday, to hire what they are going to call an Executive Director. Hopefully, he can resolve the groups thinking as to their first activity. Most of the group feels that the first activity should be supplementing the study which has already been done in Bear Lake County with the same engineering firm to tie the sewage disposal of the entire Basin together. Others feel that land use planning and a complete comprehensive land use plan should be first. They are very much in limbo, and what they are going to accomplish soon will not be known. At some future date, if the group desires a lengthy report of what they wish to accomplish and how they think they are going to accomplish it, I am sure they would be happy to meet with you.

The way I read it, that was the assignment that was given me. I hope I have covered it. If there are any questions, I will try to answer them.

MR. OLSEN: Did they speak out any on what restrictions they might put on the land adjacent to the water and any requirements that might be imposed upon developments?

CHAIRMAN KUNZ: The main objective - the main constraint on building there is the sewer problem, Marion; and unless they get this central sewer system, they are going to have to go to contained pumps. Then again you run into the problem of what do they do with it after they pump it?

Vice-Chairman Marion Olsen

MR. OLSEN: I met with the Commission of Rich County and discussed with them to quite an extent what they were doing. They are just now finishing up the Master Plan of the County; and as Chairman Kunz has pointed out, their concern, too, is what they are going to do with the plumbing of the County. They've got a real concern. They

mentioned the fact that they are looking into working along the lines that you spoke of in reference to a common sewer for the two counties. But I asked them about some of the restraints that they might be going to make on the Lake itself; and they have, in the Master Plan, notated that no buildings will be allowed within 100 feet of the water at its highest level. They gave no indication but what they would like to see the Lake managed at its highest possible use. They are not going to attempt to restrict, or take any lands away from the need of the water to allow the dwellings. They figure that there is enough land that they can move back to. It kind of got out of hand until they got their plan moving; and there are some adverse users now that have built; but they have been instructed that they would have to stand the consequences of what high water might do to them. From here on out, they are carefully zoning and restricting the location of the buildings.

They have this new development group that is in there, Sweet Water. They are working very closely with these; and vice versa, the Sweet Water group is working very closely with the Commission. They have established (the Sweet Water Group) have established their own sewer system, and their lagoon system, where they are going to pump their sewage back south of the Lake into some lagoons that they have constructed there. I didn't get a copy of their zoning ordinance, but they felt that they have come some distance. There is a lot of road to travel yet before they are in complete control of it. I pointed out our concern about the Lake; and they were quite specific in stating that they wanted to use the reservoir to its maximum for water use; and plan the other uses into that, and restrict the building so that they would be back. Do you other two men that have been in on this - I haven't talked to you about it -- do you know any more that you would like to report in reference to what is being done?

MR. WESTON: That covers what I have heard.

MR. OLSEN: Mr. Chairman, if there are any questions --

MR. JENKINS: You mentioned to hold back building 100 feet from the highest point of the Lake. Would this be in the normal level; and then where would this come with respect to this 8 feet that we have just heard could sometimes build up; and where would you stand on certain of the areas - I would think particularly on the North end of the Lake when you have that 8 feet going on the north end, then you have a very gentle grade up there and really, 100 feet might not do much good when you had 8 more feet of water.

MR. OLSEN: I asked a little about this, about it being sloping; and they said that as people come in for building permits - which is a must - in the county now before they can conduct any building - building permits are required - they would restrict them along the lines of the possibility of having a wind or ice that might be eroded up on either end of the Lake and cause damages to them; and then they could adjust their buildings beyond this point. But as far as the elevation, I didn't get straight on what was required - and I think that is what you are referring to; because 1 foot elevation would carry them back sometimes several hundred feet, where other places it wouldn't. But they seemed to stick on the thought that in the areas where the buildings were that 100 feet above the high water mark was the protection that they thought maybe the builders would need.

MR. FUNK: I would like to ask - apparently these Commissions are not aware of any flood plain designation. Is there a possibility of some input from the Corps here to designate flood plain that would probably be at each end of the Lake; and would this affect their building restrictions if such a plain were designated?

MR. OLSEN: It seems to me that they did mention that they had investigated their flood plain with their planners in reference to the action that they had taken.

MR. KUNZ: Bear Lake indicated that this was something in the future for them. They hadn't looked at it yet. As I said, they're just getting going. They don't have a master plan yet.

MR. LAWRENCE: I was wondering if someone representing water development people should, in some kind of a formal way, indicate to the master planning people in Rich County the levels that they ought to maybe specifically put into their ordinances, or something. The highest point to them might be the 1½ feet lower that Bob and Don have been using, as opposed to the point of maximum that we are considering.

MR. PEART: Mr. Chairman, this 8 foot wave action there is a very slim possibility. It isn't a probability at all, is it? I mean, once in a hundred years you might get a wave action that brings it up 8 feet.

CHAIRMAN KUNZ: Don could probably tell you better.

MR. WATKINS: We did have a situation like that in 1965, when we were sitting at about 2274. We had one of these northwest winds come in and caused a lot of damage. Since that time, it has been higher in the Lake. It has occurred. I couldn't tell you the frequency, but I guess maybe once in 30 years, when the two have coincided -

the high stage in acre-feet and extreme high winds.

MR. BISHOP: Mr. Chairman, isn't the best solution to that kind of a situation flood plain insurance? I think that is what flood plain insurance was designed to accomplish. You've got an unusual combination of circumstances that only develops once in a long period of years; and I think we should try to encourage these counties to enter into flood plain insurance arrangements with the federal government, every way we can do it.

MR. HIGGINSON: I agree with that. The first thing that has to be done, of course, is to identify the flood hazard area. Once those areas have been identified, then that identification can be the basis for petitioning HUD for availability of flood insurance. I think that ought to be done; that the counties ought to be encouraged to pursue that as an alternative to some of the other planning that might be done.

MR. BISHOP: What entity would be the appropriate entity to request a flood plain study to define the areas that are subject to occasional flooding?

CHAIRMAN KUNZ: Would this study that you have conducted identify these areas, Lee?

MR. MCQUIVEY: No; it is not detailed enough. This is too general, Ferris.

CHAIRMAN KUNZ: Your agency would be the one that could make a detailed study?

MR. MCQUIVEY: We normally make these at the request, generally of a county commission, with the concurrence of the State to set priorities for work between counties.

MR. HIGGINSON: As far as Idaho is concerned, our agency has been designated, the Department of Water Administration, as the State agency to coordinate requests from various counties or cities or local levels of government. We then set a priority within each of the districts of the Corps of Engineers, and there are 3 in Idaho, and give them a priority for studying in that portion of Idaho in their district. I assume that there is a similar agency designated in Utah.

MR. LAWRENCE: Yes; the Division of Water Resources has been designated by the Governor and we, just about a month ago, gave the Corps some priorities. Usually the reports were made, really, jointly for the local sponsors and the State.

MR. BISHOP: Mr. Chairman, in view of the fact we've got a two-state problem here, I wonder if it would be appropriate for this group, representing the Bear River Negotiating Committee, to submit a request to the Corps of Engineers to make a flood plain study of Bear Lake. Lee, would you be impressed if we made a request?

MR. MCQUIVEY: I'm impressive; I don't know how much -

MR. HIGGINSON: We have no problem, Mr. Chairman, in Idaho. We have no local requests for flood plain information reports in the Sacramento District in Idaho. Of course that includes just a little section of the state, but if there are no other requests, this is the No. 1 priority as far as I am concerned. If the local governments need and would use the information. My concern in the past has been that we have obtained this information by giving some local area a high priority. They've got the information from the Corps after expenditure of the effort that the Corps has made, and haven't taken advantage of it; have taken no action as a result thereof; haven't done any zoning, any land use regulations; haven't done anything as a result of that information. The information is not wasted; but almost so -- and if I were the Corps I would be getting a little more reluctant as the years go by to continue to make these studies for local government if they aren't followed through.

MR. JENKINS: Would it be appropriate for this group to recommend to the County Commissions that they consider such a request; that in our judgment this is something that they should properly include in the scope of their planning, and this service would be available upon request; and if they felt it was appropriate we would add our weight to the request of this body?

CHAIRMAN KUNZ: Another way might be to go to this by-state commission. Wouldn't they be authorized to request this, too?

MR. HIGGINSON: We could; but I would be reluctant to do so since there are other needs for the information. If there isn't interest on the local level, because they are the ones that are going to have to implement any program as a result of that information. I would like, if we are going to do anything in Idaho, to get something from local government to request the information.

MR. FUNK: Then we are passing it back to these two men to go back and see the Commissioners they have already seen, and get them to request some action.

CHAIRMAN KUNZ: Not necessarily; we could pass a motion here directing us to tell them that this is our feeling.

MR. FUNK: Mr. Chairman, I move that we direct Ferris Kunz and Marion Olsen to go back to the Commissioners on their separate sides of the Lake and request them to request flood plain information that applies to the Bear Lake area.

MR. PEART: I will second.

CHAIRMAN KUNZ: There is a Motion. It has been made and seconded. Any discussion? All in favor say 'aye'. Opposed?

MOTION CARRIED.

CHAIRMAN KUNZ: Any further discussion on this?

STATUS OF BEAR RIVER WESTWIDE AND TYPE IV STUDIES
James G. Christensen

CHAIRMAN KUNZ: Item No. 5, Status of Bear River Westwide and Type 4 Studies. Jim Christensen.

MR. CHRISTENSEN: Mr. Chairman, and members of the Committee; the inter-agency multi-discipline team that we discussed at the last meeting has been formed and as you recall, the primary purpose of this effort was to bring together several studies which were going on on the Bear River into a common effort. The primary study that we are interested in coordinating were the Bureau of Reclamation Westwide study and the Soil Conservation Service Type 4 River Basin study. All parties involved have agreed to work in this manner. The SCS people agreed to modify their Type 4 study to include this 6 months effort to get an overview of the Bear River Basin.

They have met and agreed to an outline of a report, which I will pass around that you can be looking at, to serve as a guide to bring out of everybody's drawers the information known on the Bear River, that we might have a good understanding of what we know about this River. It is pertinent to note that the hydrology group today agreed on the hydrology of Bear River. Hopefully, a report written to this outline, with a number of agencies involved, could serve as a general agreement type of a report on the status of a broader nature on the River Basin itself.

Unfortunately, the Bureau of Reclamation - or maybe fortunately, depending on your standpoint - westwide study has been drastically altered during this period of time. The study was originally scheduled to last about 4 years; and the funds have been cut off for that, and they have been directed to complete that study - the state portion of it - by July of this year; and the entire study by July of the following year. Further, the SCS Type 4 people, who are really the main participants in this study, were really not ready to start on a Type 4 study either. They are

involved in other parts of the state of Wyoming and Utah and have not been able to put very much manpower into it.

The net result is that rather than a report, which was due in April, we are talking about a report in July. Now this is an initial 6 months overview. Unless there are further questions on that, I won't take any further time on that.

CHAIRMAN KUNZ: You will keep us advised, Jim, as this goes along then?

MR. CHRISTENSEN: Yes; for instance, Mr. McQuivey presented today some of what would be the Corps input to this same study.

MR. JENKINS: Are you saying, then, Jim, that this outline is going to be severely restricted by virtue of reduction in funds on this?

MR. CHRISTENSEN: What it has done is slowed down the effort and slowed down the participation. But the team has agreed to continue to write to this same outline under the same schedule we had before; but it has restricted Bureau of Reclamation participation and slowed down the SCS input. Some of the items that the Bureau was going to do, we will probably have to pick up in other ways.

MR. LAWRENCE: In other words, even the Western United States water plan of the Bureau is going to be completed in 1974 and their input will be less, you expect that the combined effort will still do the job that you originally planned to do?

MR. CHRISTENSEN: That's right.

MR. LAWRENCE: That's because of input from the states?

MR. CHRISTENSEN: There really isn't too much slack on this. We have three of these studies going now in the state of Utah and some of the others were more severely restricted.

CHAIRMAN KUNZ: Any other questions of Jim? Thank you. The chair at this time is going to declare a 5-minute recess.

BREAK

CHAIRMAN KUNZ: Let's go back to work. I assumed that we had been together often enough that there were no introductions necessary; I did, however, wonder if there were some new members from some of our states that were present today that haven't been introduced to the group.

MR. LAWRENCE: We have had one official change, for the record.

Mr. Lambert passed away in March. He was an advisor to the Utah group - not one of the six official delegates, but a member of our team; and last Monday Governor Rampton appointed Dee Hansen as the State Engineer. So I am sure the Utah delegation will officially make him our official advisor on water rights. We are happy to recognize him; we are very proud of the Governor in making this selection.

CHAIRMAN KUNZ: Thank you, Dan. Idaho does have a representative from the Attorney General's office here. He isn't present right now; I'll introduce him a little later.

DISCUSSION OF TOM BARKER'S PROPOSAL

CHAIRMAN KUNZ: Item No. 6 on the Agenda is a discussion of the Tom Barker proposal. I think the way we will proceed here is to let Tom have the floor and probably read to you the proposal he has bandied around a bit with some of the staff members of the two states - Mr. Stauffer and Mr. Robertson. Tom, you have the floor.

TOM BARKER: I wrote on January 10, a letter to Norm and Alan Robertson about some ideas and concepts which I wanted to test as far as guaranteeing downstream rights and at the same time allowing upstream storage. Alan responded and commented; and then I wrote another revised proposal showing some more ideas, and Alan responded again. I will try to summarize this first letter, and then go from there.

"Enclosed is a proposal for amending the Bear River Compact. Floyd likes the idea, but we still have not made an analysis of the numbers in the table or other details. I simply extended the existing table for the irrigation reserve in the Compact, with the help of a very rough elevation capacity curve of Bear Lake. If you think the concept is worth pursuing, maybe we could get together to try to refine the proposed table. It might even be worth the trouble to simulate the storage possibilities under the amended Compact.

"There is one problem that is not tackled by this proposal. How can we incorporate a guarantee that demands on Bear Lake under existing water rights will not be further expanded?"

We have not, as I understand the situation, come up with an acceptable proposal for guaranteeing that in return for recognizing downstream rights, a definition of those downstream rights.

The first proposal for a change or amendment to the Compact would be an addition to Paragraph E on the end of Article V. In other words, there are four

articles down through D of the Compact; and the amendment would add an additional paragraph which would read something like:

"Pursuant to Article V, Paragraph A, rights are hereby granted to construct additional storage reservoirs above Stewart Dam and to store in any water year an additional 100,000 acre-feet of Bear River water, and no more, for use in Utah and Wyoming."

Now, I took the liberty of including Utah and Wyoming in one group, and of course Utah has their own position and so we would have to work this out.

"Such new storage is considered to be in addition to that amount of storage allowed under Article V, Paragraphs A, B, C and D, and the Commission shall, pursuant to Article V, Paragraph B, make findings in writing (monthly) as to the lake surface elevation of Bear Lake and the average quantity of additional water in storage.

"From this information, the Commission shall determine the quantity of water in addition to storage allowed in Article V, Paragraphs A, B, C and D above, that could legally be stored according to the following table:"

<u>Additional Storage</u>	<u>Lake Surface Elevation Utah Power and Light Company Bear Lake Datum</u>
3,500	5,914.75
10,000	5,914.95
30,000	5,915.35
50,000	5,915.75
70,000	5,916.15
100,000	5,916.65

In this table Bear Lake elevation in a particular month was 5,914.75; I don't have the area capacity here, but that elevation would correspond to additional storage of something like 3,500 acre-feet above Bear Lake.

"In the event that average upstream storage during the preceding month exceeds the limits allowed by the above table,"

That is, if too much water were diverted into this particular storage, or if Bear Lake levels receded then,

"sufficient quantities of water must be released during the following month for storage in Bear Lake to bring upstream storage within the allowable limit as indicated by the average lake surface elevation of Bear Lake during the preceding month.

"Such additional storage rights shall be subordinate to, and shall not be exercised when the effect thereof will be to impair or interfere with (1) existing direct flow rights for consumptive use in any river division and (2) existing storage rights above Stewart Dam."

That is the language that is already in the Compact.

"Each storage reservoir constructed under the provisions of this paragraph shall be regulated in each state according to proper state authority and in accordance with state laws.

"The Commission shall also utilize the preceding table in determining the "Reserve for Irrigation" as defined in Article V,"

That simply means reserved for irrigation, as defined in the Compact - would use this table. Now I don't know how critical that is; but the idea being that any time Lake surface elevation and storage was at a certain elevation, anything above that could be released for power purposes only, and not totally for irrigation.

"In addition, Utah Power and Light Company is required to operate Bear Lake in a manner which will satisfy to that extent possible, all existing rights to Bear Lake storage as of January 1, 1973,"

This is an attempt to maintain as they are today the current existing rights to Bear Lake storage.

"and the Utah Power and Light Company is expressly required to maintain Bear Lake at a filled elevation of 5,923.65 when possible and shall be required to lower the surface elevation of Bear Lake to 5,902, if necessary, to fulfill its downstream obligations."

Of course, this is the full range of operation of Bear Lake, and the idea here was to try to give the states some of the responsibility and some of the risk of operating this reservoir for beneficial consumptive uses; and take some of the heat off Utah Power and Light.

"At such time that some of the demand upon the storage in Bear Lake is satisfied by storage capacity in other reservoirs, the maximum lake surface elevation of 5,923.65 required by the Amended Bear River Compact may be lowered, thereby reducing the maximum capacity of Bear Lake by the exact amount of storage capacity replaced at other locations."

Of course, a desire has been expressed by Utah Power and Light that for flood control purposes and other reasons they prefer to operate the Lake at a lower level than 5,916.65, and this would be an opportunity for replacement storage to reduce the maximum level of Bear Lake. That is the proposal.

MR. FUNK: Mr. Chairman, I would like to ask Tom - does this attempt to compensate Utah Power & Light at \$4.90 an acre-foot for any storage above Bear Lake, or was this any consideration? Would it be settled by the builders of the reservoir with the Power Company?

TOM BARKER: I don't think this proposal goes that far.

Alan Robertson replied and expressed some doubts and some questions - that we might not be able to reach agreement on the spread between maximum Lake content and the content which upstream storage release would require. He expressed an apprehension about a one-month lag between the time the decision was rendered by the Bear River Commission as far as elevation of Bear Lake and the month of storage upstream and the next month when that decision would be executed; and also he suggested that the upper basin should be allowed to store any water not needed for direct flow rights at a time when Bear Lake content exceeded 1,340,000 acre-feet. Now this is at elevation 5922.5 - a little over a foot below the spillway elevation.

Another suggestion that water could be stored upstream at any time when Bear Lake content exceeded one million acre-feet and then released to bring Bear Lake up to 1,340,000.

With those comments in mind, I wrote another letter February 9 trying to incorporate those suggestions. This would also be Paragraph E added onto Article V of the Compact:

"Pursuant to Article V, Paragraph A, rights are hereby granted to construct additional storage reservoirs above Stewart Dam and to store in any water year an additional 30,000 acre-feet of Bear River water for use in Utah and Wyoming."

This was the initial allotment allotted to both states and was based on the Technical Committee report of last July, which indicated that there was 30,000 acre-feet of Bear River water. Those numbers have changed and the additional number here used in the report is now 44,000 acre-feet; so, some of the circumstances have changed there.

"Such new storage is considered to be in addition to that amount of storage allowed under Article V, Paragraph A, B, C and D. In addition, the Bear River Commission shall, pursuant to Article V, Paragraph B, make findings in writing annually as to the contents of Bear Lake and the total quantity of additional water in storage on June 30."

Instead of basing correlation between upstream storage and Bear Lake elevation on a monthly basis, it would be based fully on June 30th of each year; and the elevation of Bear Lake, then, on June 30th would indicate how much upstream storage could be stored during the next year following June 30th.

"From this information, the Commission shall determine the quantity of water in addition to storage allowed in Article V, Paragraphs A, B, C, D and E above that could legally be stored or was required to be released according to the following

criteria: 1.b. Rights are hereby granted to construct additional storage reservoirs above Stewart Dam and to store in any water year an additional 100,000 acre-feet, up to 75% of which would be required to be released with the objective of increasing the contents of Bear Lake to 1,340,000 if, on June 30, actual storage were less than 1,340,000 acre feet."

This goes back to Alan's suggestion that water should be required to be released to bring Bear Lake up to 1,340,000 which is 5922.5 elevation.

"1.c. If, on June 30, the contents of Bear Lake exceeded 1,340,000 acre-feet, any water not needed to satisfy senior storage and direct flow rights in Wyoming and Utah could be legally stored in an amount not exceeding an additional 100,000 acre-feet beyond the amount allowable in Subparagraph 2. Any water stored is not required to be released for the purpose of augmenting the contents of Bear Lake."

Norm's idea was that if there is so much surplus water in a high runoff year the water would be spilled anyway, then the upper basin should not be limited. There should be no ceiling at all on the amount of water that should be allowed to be stored upstream. But we did limit this to 100,000 acre-feet to assure the lower basin that no one would get carried away.

"2. All such additional storage rights shall be subordinate to, and shall not be exercised when the effect thereof will be to impair or interfere with (1) existing direct flow rights for consumptive use in any river division and (2) existing storage rights above Stewart Dam.

"3. Each storage reservoir constructed under the provisions of the paragraph shall be regulated in each state according to proper state authority and in accordance with state laws.

"4. The "Reserve for Irrigation" as defined in Article V, Paragraph B, at such time as additional storage should exceed that amount of storage allowed under Article V, Paragraphs A, B, C and D is hereby determined to be at a Lake Surface Elevation (Utah Power and Light Company, Bear Lake Datum) of 5922.50."

Now, in this case, instead of the reserve for irrigation varying as it does in the existing Compact and as worded in the previous proposal, it would remain at elevation 5922.50 which would give Utah Power & Light the right to release any water purely for power purposes if the Lake elevation exceeded this level.

"5. In addition, Utah Power and Light Company is required to operate Bear Lake in a manner which will satisfy to that extent possible, all existing rights to Bear Lake storage as of January 1, 1973, and is expressly required to maintain Bear Lake at a filled elevation of 5923.00 when possible and shall lower the surface elevation of Bear Lake to 5902.00 if necessary to fulfill its downstream obligations."

Again, this is the same theory as before, to try to give the states some of the risk and responsibility and liability of the operation of the Lake.

That is what has happened in the last four months.

CHAIRMAN KUNZ: Floyd, I understand this has been kicking around between these three men. Has your group taken an official position on it; have they studied it enough; are you ready for the other states to comment on something like this; do you want them to continue to kick this back and forth between the three of them before we get it out for official comment; or what is your reaction here?

MR. BISHOP: Well, Ferris, we haven't really studied it, and we haven't made any operation analyses to determine what would be possible under the provisions of this particular suggestion. Really, what we wanted to do today was to throw the concept out, and not look too hard at the figures; but to see if there wasn't a possibility of an acceptable reaction on the part of the negotiators to a proposal of this nature, assuming that there would probably need to be some modifications in the elevations and the storage capacities in order to accomplish what we are trying to accomplish. Actually, what we are trying to accomplish is to provide the opportunity for some additional storage in the upper part of the River basin and still guarantee that the downstream rights would not be adversely affected. I think the figures haven't been sufficiently researched to say that these are the figures that we want to propose. But we would like to get some reaction from the other negotiators as to whether this approach has any possibility of acceptance.

MR. LAWRENCE: I presume that if we had some computer runs playing these concepts in, we could determine whether under these concepts the Upper basin would still have some water available for storage?

MR. BISHOP: We do need to make some operation studies to determine what would be possible. We haven't done that. We just kind of pulled some figures out of the air.

MR. LAWRENCE: When Norm tried this out on us without much background, it sounded like we were building a lot of storage and sent down 75% of it later to fill Bear Lake. I hope that isn't the net effect.

MR. HIGGINSON: I should hope that if it's necessary, that is the net effect.

MR. LAWRENCE: Mr. Chairman, I think that Tom should be commended for a sincere effort to try and get us off dead center here, in some way trying to break this log jam; and it is worthy of us looking at it. He is trying to figure out what we might do. It seems to me that as far as Utah is concerned, Marion, that that is what we ought to do - to maybe take this and get Norm to explain to us in our own

private caucus some of the ramifications of it.

MR. JENKINS: Floyd, could we - would you be comfortable with a wording such as this, that this could be considered Wyoming's proposal for further study?

MR. BISHOP: Sure. Tom Barker's is fine with me; if you want to make it Wyoming's, that's alright. I think the concept has some merit. It seems to me that it gives us a basis to talk about something that might be acceptable on all sides and permit some additional benefits to be realized in the upper part of the river basin.

MR. FUNK: It may have sounded like I said it jokingly, but I have been impressed at recent meetings at the grip that Utah Power has on this River. In all sincerity, I think that with this amount of water being talked about, that they are going to demand some compensation. How do you contemplate resolving this issue? Is it going to be a court decision as to whose the water is; or - Bob keeps telling me, sometimes subtly and sometimes very forcefully, that that's their water and they own it, and they are going to have the revenue that comes from power from that water. This comes to me always as an issue. Even before we get to the agreement between the states, if we've got to compensate them almost \$5 an acre-foot for what goes above Bear Lake, and then release 75% of it in a dry year, this gets irrigation out of the realm of practicability. Comments, Bob?

MR. PORTER: We've got an open mind. We think it has some good ideas. We haven't seen the report, and we'd like to look at it.

MR. KUNZ: We'll see that you get a copy of those so that you can agree with the concept or whatever. Further comment to you, Cal; it seems to me that at the last meeting Utah Power & Light went out on a limb and said 'this is the figure we'll take,' and Bob reaffirmed that under question; that they expected a reimbursement of a certain amount for the water that was considered theirs.

MR. FUNK: I understood that.

MR. KUNZ: Okay; you're just trying to talk them out of it?

MR. FUNK: Well, I'm just keeping it before the group. I think that is an issue.

MR. HIGGINSON: I would like to ask Tom - what was your reasoning for putting this proposal forth as a new paragraph to be added to Article V, rather than a revision of an existing Article? Was there any reason behind that? For my part, Mr. Chairman, I would prefer that, if the Compact is going to be opened up from the

standpoint of increasing the storage allotment above Bear Lake, I would prefer that as an amendment to the existing restrictions of A, B, C and D of Article V rather than a new E, which to me, causes some conflict with previous sections. You read the previous sections and they limit it to 35,500 and no more; read down to D, and here is another limitation. To me, they ought to be put in together. I would suggest that, if possible, Tom's proposal be redrafted as an amendment to Article V, A, B, C and D.

MR. BISHOP: I think that has some merit.

MR. HIGGINSON: I think it is confusing.

MR. BISHOP: Yes; we really just propose that this be a concept. We are not that far along that we would say that this is wording that should be seriously considered. I think Keith makes a good point.

MR. BARKER: One other reason behind that is that the additional storage has a different status than existing storage under the Compact. I guess for that reason it wasn't included in the rest of it. This storage is tied to elevations of Bear Lake rather than a block of water allocated to each state; and a person could incorporate that into the existing language of the Compact.

MR. KUNZ: I think that this concept is more or less what Idaho had in mind when we originally approached this thing. The figures are different, we realize that. In that original proposal, also, we suggested that a change in Article III on this, "without regards to state boundaries, lower division, page 6", and at the next meeting Utah wasn't prepared to comment on that; and you said you would at a later date. Have you prepared a comment on that question we had there, Dan?

MR. LAWRENCE: I was trying to research the Minutes to see if we had; and I can't find that we did.

CHAIRMAN KUNZ: I can't find that you did either.

DEE HANSEN: If we haven't, we would probably like to make that at a later date.

CHAIRMAN KUNZ: Okay; we just want to keep you reminded that we have that coming. New assignment Dee; new job - okay?

MR. HIGGINSON: The only comment I would make, Mr. Chairman, is that I certainly think this is the way we've got to go. This is the first positive step, I think, that anyone has suggested towards what needs to be done to get this thing accomplished.

Without having the benefit of this morning's discussion, but having heard what I have in the restrooms and hallways since the morning, this makes more sense than anything that was discussed here this morning so far as storage above Bear Lake.

MR. LAWRENCE: I don't think that he was suggesting that, though, as a substitute for this morning.

MR. HIGGINSON: I am suggesting it as a reasonable substitute, Mr. Chairman.

CHAIRMAN KUNZ: Any other comment or question?

MR. FUNK: Yes; to pursue Mr. Higginson's comment a little further - are you saying that any development should be arrested until there is a modification of the Compact; or can it proceed as long as it is within the framework of the existing Compact? This applies to the lower basin as well as above Bear Lake.

MR. HIGGINSON: Having attained an Attorney General's opinion since noon today, (laughter) it is my opinion that no new storage can be constructed above Bear Lake beyond the 36,500 acre-feet allowed under the existing compact without a modification of the Compact.

CHAIRMAN KUNZ: Maybe I should at this time introduce our representative from the Attorney General's office - Mr. Nathan Higer.

MR. FUNK: I would like to ask a further question of Mr. Bishop and Mr. Higginson; about their speculation as to the hazard of opening the Compact in a federal Congress for increased amounts of storage, if at this point in time they feel it would stand a chance of passing, when the objective is increased storage, and irrigation, and reservoir construction, and related activities. I would judge from your previous statement that you feel that it would have a chance of gaining approval through the federal Congress.

MR. BISHOP: I think traditionally, the proposals in the federal Congress that have the support of the states involved, have been sympathetically treated. There is a little different atmosphere today than there has been in past years; but I still think if the three states can agree on a modification of the Compact even if it involves some additional storage, and does not involve any federal obligation or any modification in federal responsibilities or federal rights, I personally feel that Congress would look sympathetically towards that kind of a proposal. That is only a guess. What do you think?

MR. HIGGINSON: I would hazard the same guess. I would add this, though, Floyd. Cal, you said something about opening the Compact. I think we have to remember that we can't really open the Compact. The Compact remains in effect until such time as a new compact or revision is approved. There is no hazard in proposing a revision of the Compact in the Congress from the standpoint of damage to the existing Compact. It remains in full force and effect until modified, approved by the legislatures, and by an act of Congress. I keep hearing this in Idaho among some of our people - "you are going to open up the Compact." There is no way you can open up the Compact. The Compact is final, and remains in full force and effect until the legislatures and Congress have acted. So., I don't think there is any danger from that standpoint of losing what we've presently got. And I think, like Floyd, that there is every possibility that if the three states can agree and there are no substantial federal rights involved that would raise the questions we were talking about in Congress, that it would be approved.

MR. FUNK: I guess with that terminology - I didn't think there was any risk of losing what we have; but I think it may be a hazard to development if we pin all of our efforts on that federal approval of an amendment or modification of the Compact. I just think the idea of presenting to Congress at this point, and that may vary next year - and we should be prepared for that eventuality; but to go and say we want to make this change, and we want your stamp of approval so that we can build more dams, I think there would be a lot of people that would raise much opposition to that change.

CHAIRMAN KUNZ: If you said to the Congress, we want you to build these dams, I know you'd be killed.

MR. FUNK: But even let us build the dams, I think -

CHAIRMAN KUNZ: It would be my opinion, then, from this discussion, that this should be an Agenda item for next time with meaningful comments from each state, on this concept, and so on. Does this agree with you?

MR. BISHOP: Mr. Chairman, I would like to suggest that the Technical Sub-Committee - I guess that's who Tom and Norm and Alan are really - be directed to make some operation studies and see what storage could be accomplished in the upper part of the drainage under the provisions of this suggestion; and that must be done within the framework of the basic criteria that no injury will result to the downstream water users as a result. If they could run some operation studies and maybe modify the

numbers somewhat in order to provide a set of numbers that would be acceptable, and come back to the negotiating committee at the next meeting with something that would be a little firmer as far as the numbers were concerned, that would be very helpful.

MR. LAWRENCE: Mr. Chairman, I am not sure if Floyd meant exactly what he said about no injury to the lower water users. I'm sure we're all pledged to protecting existing rights; but if we do anything, somebody's going to be injured a little bit, upstream and downstream. Did you mean protecting existing rights?

MR. BISHOP: I think downstream rights have to be protected, Dan.

MR. LAWRENCE: Yes; but is that what you meant when you said 'injury to lower water users'?

MR. BISHOP: But when we get into Cal's problem of the effect on Power generation and things of that kind, you are in a different ballgame in my view. When I say downstream rights, I'm talking about downstream irrigation rights.

MR. LAWRENCE: Right.

MR. JENKINS: The first part of this proposal, rather than the second part, the revision with a little later date on it, they were talking in terms of 100,000 acre-feet. Really, going back a ways, this was what Wyoming was talking about pretty much in their own stead. Now we have here, presumably a sharing of this 100,000 from Utah and Wyoming. I'm wondering if the Technical Sub-Committee shouldn't be given some guidance from this group, or maybe from the Utah delegation and the Wyoming delegation as to what numbers in the upper ranges of this study might be looked at. Or maybe you want to leave that to the Technical Committee to decide; but they need to be given some guidance of where to go with these numbers, I think; unless you just want to look at this 100,000 and see what that shows.

CHAIRMAN KUNZ: Your inference, Floyd, was that they would look at this 100,000 and possibly some other ranges?

MR. BISHOP: Right.

CHAIRMAN KUNZ: You have considerable of these studies done, Alan? Have you run one on this particular -

MR. ROBERTSON: Not directly; but I wonder if what you are talking about isn't inferred in the answer already in the sub-committee report. We tried to structure that so that if you made an assumption or took a position regarding Bear Lake, you

could look at the tables in there and see the degree or the amount of water available and what you would have to do. That isn't to say that operation studies shouldn't be run, but it's clearly indicated, to you; and it seems to me that it would be more appropriate that you consider more fully now your attitude regarding how much, what you do to Bear Lake, and this sort of thing first. Do I make myself clear on that?

MR. BISHOP: The intent of making an operation study in my - as I suggested it, Alan, was to define the effect of this limitation of only being able to store when there is 1,340,000 acre-feet of storage in Bear Lake on June 30th. That has a very important effect on how much water will be storable in the upper basin that we have been talking about. And I don't think you have analyzed that, have you?

MR. ROBERTSON: Only in the sense that we have a study that represents the present operation; and if this condition were imposed on the present, and no other thing were added, such as storage downstream or new diversion downstream, I think we could use the study we already have. It wouldn't tell you details about what happens to storage in Wyoming, but it would tell you - I think we could already interpret what we have to indicate the amount of average yield you could get out of a certain amount of storage.

MR. JENKINS: I think one of the things, Floyd, that he is pressing this group for is to pin down for discussion purposes what variation do we want to permit in Bear Lake? If we're going to run it from the bottom of the pumps to the top of the dike, fine; he can go from there - but if there are going to be the constraints that Utah Power & Light has, in fact, been holding on it for the last several years, that is a different set of numbers.

MR. LAWRENCE: I was wondering if Alan was saying that we don't really need to make operation studies; but the technical group needs to analyze for us so that we can better understand the effect?

MR. ROBERTSON: We'll try to do whatever you want.

MR. FUNK: I think our previous discussions have given almost the full range of Lake operations. The drawdown in that dry year - we don't like to look at that, maybe. And maybe we're within a foot of the top. But I think we should tell these people that their studies should be based on the full range of operation of the Lake.

MR. LAWRENCE: I think Cal is speaking for Utah collectively.

MR. BISHOP: I think we have been consistent in saying that.

CHAIRMAN KUNZ: Idaho hasn't taken a position. Our studies have indicated to us what the effect of the full operation of the Lake is, but we have not taken a position. Do you have enough information yet to know what you are going to try to do?

MR. ROBERTSON: I don't know what to say; if you leave us with what you have said now and we wait three months, and we come back with a report to you, you will be disappointed, I think with what new information we gain from that. I think we may be telling you the same thing we have been telling you before. Maybe we haven't done a good enough job.

If I could make one comment: I have heard the phrase used today, 'store water without injury to downstream rights'. I can assure that our study - this was the basis for the Technical Sub-Committee reports - it showed me that you cannot operate the Lake full range and insist on being full at all times, without exceeding the kind of flows that were being discussed this morning regarding floods; and rates of outflows. You are going to exceed those on a number of occasions. In fact, you are going to anyway, with present operation study. So when you talk about without injury, I think you should remember that that is in the context of irrigation rights; not necessarily downstream flooding.

MR. TEICHERT: The question I have on this - you have been releasing a lot of storage the past winter - 900 second feet - and I don't think we should have to release the upstream storage without being compensated for that; and if there is storage in the Lake, more than we use in one year, there should be carry over, I feel, from one year to the other - from a dry year to a wet year.

CHAIRMAN KUNZ: John, what he's trying to tell you, I think, is this: that if you don't release this 900 cfs on a steady basis during the winter time, and you maintain a full Lake, and then you have 3,000 cfs come down the River, it's got to bypass the Lake, and your channel won't carry it. Because you can't build enough storage to handle -

MR. TEICHERT: If we build 100,000 acre-feet of storage upstream, we shouldn't have to release storage later on from these reservoirs to compensate for that winter flow that is released for flood control or whatever.

CHAIRMAN KUNZ: You still have your downstream flow rights to take care of.

MR. BARKER: What John means, though, in the event that you get a dry year, he doesn't think upstream storage should have to be released, according to this thing, for water to Bear Lake to replace water that was released during the winter solely to protect from major flooding downstream from Bear Lake.

MR. MYERS: But if it was a dry year, there wouldn't be any flooding.

MR. ROBERTSON: I think that is a valid point; I think that is correct, in my judgment. And what you are saying makes the assumption that you are intending to release in anticipation of flood inflows which seems to infer a different kind of operation of Bear Lake - fill it when you can. If you try to fill that Lake as quickly as you can and get it full, then you get one kind of water availability of the Lake; but if you draw it down in anticipation of, as the power company has been doing, you get a different picture. That is what we tried to lay out in the report, the two extremes: present operation, and the water that could be stored. And if you store it as quickly as possible, then your outflows frequently are going to exceed the flow levels that were talked of this morning.

MR. BARKER: The way this is supposed to work though -- in a year like this when Utah Power & Light does have to release water to make room for flood stream runoff; if upstream storage were constructed those reservoirs would be filling and release would not have to be made; so that you would be accruing upstream instead of down below Bear Lake.

You would need more than 100,000, though. How much have we released this winter - 300,000 acre-feet? Something like that. So, 100,000 still would not alleviate the flooding condition.

MR. WATKINS: On the other hand, it is pretty hard to tell what you are going to get next spring before about January 1; and the question is, when you would start storing and when you would have to release.

MR. TEICHERT: If there is enough water in the reservoir to meet irrigation demands, even though they don't fill, I think there should be enough water in there to meet irrigation demands, and not hurt the appropriators.

MR. BISHOP: I don't see how there is any question but what the construction of additional storage capacity upstream will improve your flexibility in the whole system; your ability to handle flood problems; your ability to store water during the winter - you can store that water in those upstream reservoirs - if it develops to

be a dry year, and you need the water to bring Bear Lake up, you can release it from those reservoirs and transfer it, but you don't have to dump that water from Bear Lake on down stream like you are this winter. It is hard for me to understand why it doesn't improve your flexibility in the whole system by having additional storage capacity.

MR. WATKINS: On the basis of past performance of the River, I don't think there is anyone that can afford that storage.

MR. BISHOP: Well, you are talking about economics, Don. That is going to be a serious question; I don't doubt that for a minute. But I still think we ought to have the right to develop the storage in the event that it is economically feasible.

MR. WATKINS: I think what you are talking about, though, just off hand, is maybe a capacity of 15 to one -- 15 capacity for 1 yield.

MR. BISHOP: I don't think the hydrology of the River indicates that.

MR. HAIGHT: You would have 15 years that you couldn't put anything in the reservoir below the irrigation - so whatever you put in the reservoir has got to carry over this 15 year dry period.

MR. HIGGINSON: Tom, do I understand your proposal does not contemplate releases such as being made this winter? That this would require the Power Company to keep the Lake full; and if next spring it spills and runs on down the River, it is part of the operating hazard?

MR. BARKER: No, the language in here says fill the reservoir whenever possible -

MR. HIGGINSON: Then, if they need flood control operation -

MR. BARKER: Well, it doesn't; but I think it could be incorporated easily if there were upstream storage; particularly if there were upstream storage; even though it may not be major.

MR. HIGGINSON: But as presently written, there would be no 900 second feet being released.

MR. BISHOP: Well, there might be, and there might not, Keith. If they were releasing 200,000 acre-feet this winter downstream, and we had 100,000 acre-feet of upstream storage, why couldn't we still fill 100,000 acre-feet of upstream storage; they would still have to release some water, and provide the same degree of protection that they realize now.

MR. HIGGINSON: But they wouldn't be operating under this criteria in Tom's proposal. The proposal says you keep it full whenever possible.

MR. BISHOP: The language may need some refinement relative to flood operation; I don't think it even addresses that.

MR. HIGGINSON: Okay; that's what I wanted to clear.

CHAIRMAN KUNZ: You boys have some homework to do with your delegation. I think you've got to convince the laymen sitting around the table what you know.

MR. MYERS: There's something here that involves Cal's evaluation of the \$5 acre-foot. It it's \$5 an acre-foot and you run 300,000 acre-feet down the River to the Lake, that seems a waste of our resources and our finances. It looks to me like it makes a lot more sense to store it up the River with no value at all than it does to just run it all down into the Lake every year so that you won't have a flood the next spring. The relationship there - this \$5 that you are talking about, Cal, if you run it down to the Lake, what's it worth to you?

MR. FUNK: That's not my value; that's Utah Power & Light.

MR. MYERS: Yes, I know, but I say what is the value of the water that runs into the Lake?

MR. FUNK: Well, I would suppose that Utah Power is getting all of that 300,000 acre-feet that they can at the \$5 rate. What portion of it, Don, are you in fact getting at the rate of \$5 this winter?

MR. WATKINS: Well, on this steady energy, it wouldn't be the peak where we had to run flat out; it isn't the peak. It's somewhere closer to around \$3 on the average. But the point I would also like to make is that it isn't every year. I realize that we have been through a rather wet series here; but it's more like over the history of the river, one in 15 years. We went from '51 to '65 without spilling a drop. This is what I think might be being put back in the background which is a real fact.

CHAIRMAN KUNZ: What can we do here, Alan?

MR. ROBERTSON: Apparently our Technical Sub-Committee report needs some explaining, or we need to run some studies before reporting. I thought the information was in there.

MR. BARKER: For example, in this operation study, Bear Lake has exceeded the present operation condition, 1,340,000 acre-feet, approximately half the number of years. You would have quite a bit of water to store on an average of every other year. After 1950, you would have it more than every other year. In the last 20 years, you would have considerable storage water most years.

CHAIRMAN KUNZ: This information is available there, if we understand it, you think?

MR. BISHOP: I don't think the Technical Sub-Committee report needs any explanation. I think it is perfectly clear. But I think we need to analyze the proposal that Tom Barker has outlined in his last letter to you, and see what the practical numerical effect of imposing those kinds of conditions on the River is.

MR. FUNK: Wouldn't some of those studies indicate whether there would be water in more than 1 in 14 years? And wouldn't some of those figures become apparent as they made that study?

MR. ROBERTSON: We can answer what Floyd has said. We can provide a statement that describes what they would do. I think the report does say what water is available, and it depends on what you are talking about doing on the Lake, for example. If you operate the Lake full range and only want to use water that flows in and spills from the Lake, then there is an average of 70,000 acre-feet upstream that could be depleted upstream; but it comes in sporadic periods; and there is a 16-year period that is zero. Now, if you want to operate the Lake full range and allow the upper basin to deplete the inflows such that it empties the Lake in the worst years, there is 44,000 acre-feet per year they could deplete the inflows every year. That would result in the Lake going empty in the worst year. Do you want us to do that? Which kind of water do you want us to take?

MR. PEART: Why keep it full in the worst years? That's what it is there for: to use.

MR. ROBERTSON: What I am trying to say is that that kind of information is there; and it is a matter of discussing those kinds of questions, probably more so than further hydrologic studies.

MR. BARKER: I don't think we should go further. There is 44,000 acre-feet per year could be depleted without injuring downstream irrigation rights. That means that if you consider 33% depletion of the water diverted, that means you could store 3 times 44,000 per year, or 132,000 acre-feet per year, and use it for irrigation, as a rough average. And not deplete more than 44,000 acre-feet per year.

MR. HIGGINSON: I wouldn't buy that at all.

MR. BARKER: In fact, if you use some of it for supplemental use, the percentage of depleted water in relation to diversions would be lower than 33%, depending, of course, on what you use the water for. If you figure 50% you would have 88,000 acre-feet to store every year. That is used. You could store more than that if in a good year you didn't divert it for irrigation the 80,000 to 100,000 acre-feet per year. You could store up to 300,000 acre feet and maybe use all of it 1/3 of the years, for example. These are just combinations that a person can come up with, with what information is available. We can look at a lot of storage and still only look at 44,000 acre-feet depletion per year.

MR. HIGGINSON: Mr. Chairman, I think it's a far cry in going from the criterion information in this Technical Sub-Committee report, which indicates that there might be available 44,000 acre-feet of water at Bear Lake on the average, considering even the 16 years of no water at all, and so forth. And going from that and saying you could store three times that every year and thereby deplete the inflow to Bear Lake 44,000 per year. The two are just not compatible, because you are talking about storage of, say, 100,000 acre-feet in a year like 1933 or 1934. The depletion of that 100,000 acre-feet used in the upper basin is going to be a lot more than 1/3 of the water because of the type of year that it is. I don't think you can do that; you can't do it. You are talking about apples and oranges, and you can't compare it.

MR. BISHOP: Yes, but it still makes sense that you can store more than the 44,000 acre-feet. You have to be able to store more than that in order to deplete the River by anywhere near the 44,000 acre-feet.

MR. HIGGINSON: Right, but you can't do it on an average basis like that.

MR. BISHOP: Well, nobody said you could do it on an average, Keith.

MR. HIGGINSON: Alright, as long as that's understood.

MR. BISHOP: You've got to do it some years in order to come up with an average of that kind.

MR. LAWRENCE: But the concept does suggest that on the dry years you do store upstream and lower the level of Bear Lake to accomplish that purpose, isn't that right? I mean, the criteria is laid down, to the limits that you specify, because

it would be the carry over storage for above as well as below.

MR. MYERS: Actually, isn't the only time that you would need this upper storage spilled is when Bear Lake was at a minimum? I mean, there isn't any use in spilling it and sending it down the river, according to this theory - when the need arises you call this water from up above, down to Bear Lake. But if you've got ample water just by lowering the Lake, shouldn't there be a provision there that we don't need to send it down? And then there would be no reason to spill it all winter either.

MR. BARKER: Well, Wes, here's what would happen, though. If you don't empty out upstream storage before Bear Lake is gone all the way down, the upstream storage, by the time Bear Lake is lowered completely, won't be up there any more -- it will already be used upstream. The idea here is for upstream supplemental storage in Bear Lake. And if you wait until Bear Lake is empty before you call for the water upstream, you won't have any water to call for. All the water upstream is used.

MR. MYERS: You are right on that; but say Bear Lake is filled. You aren't going to deplete that in one season, are you? Clear down to the bottom?

MR. BARKER: No.

MR. MYERS: Well, that's what I'm saying - that's what I'm trying to say. Just because Bear Lake isn't clear full, isn't any reason you should send your water down, until it gets to a critical state where they can plainly see that they are going to run out, and then send it down.

MR. BARKER: The only thing, the lower basin has got to be assured that there will be water upstream.

MR. MYERS: You've got to put all the safeguards you need. There is no doubt about that; but that amount of water is going to be missed very little most years. You would hardly even know the difference.

CHAIRMAN KUNZ: You forget those 16, which we can't.

MR. MYERS: Another thing -- this Woodruff Narrows thing has pretty well demonstrated that to me. Randolph and Woodruff used to be up there pretty well camped on our doorstep all the time after the middle of the irrigating season to make sure nobody used a drop more than they needed; but you never see them anymore. And they haven't got the water they need yet; but it has alleviated that just because everyone's

got more water, with return flow, all the way down the River; and you never have those problems that you used to have. If we can just add to it and take care of it in a reasonable way, I'm just sure it will act the same way all the way down the River as it does up there in the top.

CHAIRMAN KUNZ: As long as the water is up there.

Alan, do you need anything more?

MR. ROBERTSON: Are you asking for a report or - ?

MR. OLSEN: Not today. Are you?

CHAIRMAN KUNZ: No, I'm not.

MR. ROBERTSON: I am sure that we can try to determine what Tom's suggestion would do.

CHAIRMAN KUNZ: Let's put it this way: Can you fellows interpret this, get it out to the states so that they can bandy it back and forth and have something meaningful for another meeting? Can you get together within the next month and see what you can come up with, along this concept? So that the members of each state can understand it, hopefully?

MR. ROBERTSON: I think we can write an interpretation.

CHAIRMAN KUNZ: Any other comments on this item?

OTHER BUSINESS

CHAIRMAN KUNZ: The next order of business is Item 7, Other Business. We will call on Utah first.

MR. FUNK: I was just wondering if Utah and Idaho should meet a minute after on Cub River to make sure we are all together, is all.

MR. OLSEN: Unless you want to bring it up as a matter in this meeting. We are certainly welcome for Wyoming to meet with us.

MR. FUNK: Well, I'll mention it, then. We met in February with Gunn McKay in an effort to get some funding for a feasibility study on Cub River. The dam has been designed. We don't contemplate any change in that, but some changes in the distribution system. This was at the December meeting we did a little preliminary on this,

and we viewed the dim prospects for assistance from the Bureau. But in our efforts, we found that there is some disharmony back in Washington among the delegates of these three states. I am just wondering if that is accidental - if we failed to keep them apprised of what the situation is here on the ground, or if there is some undercurrent that we don't know about in holding down development. We had a response from Gunn McKay that said they were somewhat disinterested because of the inability of the states to agree on the division of water. Read the paragraph, will you, Dan?

MR. LAWRENCE: Letter from Congressman McKay, to Mr. Funk: "As you know, Bureau of Reclamation funds are critically short. This is particularly true with respect to FY 1974 planning funds, which has led to a complete realignment of plan formulation investigation. In 1974, the Bureau will have 48 investigations under way as compared to 80 in this current fiscal year. The 48 investigations that will be under way in 1974 are those which best set current national priorities. Unfortunately, the Bear River project is handicapped by the inability of participant states to agree on overall water allocations, as well as by the fact that it will serve primarily the irrigation functions which currently has a low priority, I am told. To continue the Bear River project study in 1974 within a very limited funding, would mean displacing some investigations which the Bureau feels enjoys a higher priority."

CHAIRMAN KUNZ: That's plain enough. Federal funding is just pretty rough.

MR. FUNK: This is our problem as irrigators. Is there any other route we can go, that the states can help us with? Is this the route we must go, and if so, is it being hampered by any disharmony that we don't know about? We thought we were all in agreement when we wrote back; and then we get the letter back from McKay, that apparently he has found some disagreement back there.

MR. KUNZ: I don't think the disagreement is on this particular Cub River thing - it's on the basin and I suspect that - maybe I'm speaking out of turn - but I think Idaho threw out the concept of a basin plan and I think we've got to pursue a basin plan before we can look for any congressional funding. If we had a basin plan that we could tell our congressional delegation - here's our basin plan - and we were agreed on it with the three states, then I think we would have a chance for getting some federal funding for a portion of it. Am I speaking out of turn?

MR. LAWRENCE: You may be right; but I think there is a distinct possibility that even though we, as a negotiating team agreed that studies should go forward on the

Cub River, maybe the Bureau Washington office has not got that concept, and the Bureau Washington office is telling our congressmen that that's why they cut out funds because the states still haven't agreed. I feel that that is what happened, is the Washington office interpretation - they are using our failure as an excuse to give something else a high priority.

MR. BISHOP: I think you hit the nail right on the head.

MR. FUNK: I understood if we were in agreement we could go ahead with investigations. We held this up until last September, and then we said we were in accord, and now could meet together and go ahead on investigations; and if this is in fact the situation, we may still be 10 or 20 years away from any project.

MR. OLSEN: Even the Cub River.

MR. LAWRENCE: Then, Cal, what we want Utah and Idaho to do is see if we have any other resources to get the answers we need to come to an agreement on Cub River.

MR. FUNK: Yes; and this is different than I understood it. I understood that we could go ahead and investigate, but now Ferris is saying that we can't investigate a single project until we agree on a basin project.

CHAIRMAN KUNZ: I am not saying this - I am saying maybe this is the way they are interpreting.

MR. FUNK: Well, we have some control over our representatives.

MR. KUNZ: Do you? I am sure state funding, as far as Idaho is concerned, is worse than federal. After looking at what they did to our legislature.

MR. LAWRENCE: Do we have any other resources?

MR. FUNK: Well, you haven't answered my question; but I am impressed by your silence.

MR. LAWRENCE: You said Idaho wouldn't have any state funds to pick up the slack. It is my understanding that RC&D is organized. Should we make a request to them for part of this system, or is that too foreign and too much heresay?

MR. FUNK: We need a little investigation on the distribution system - the dam and the water and everything that's there. If we can present some facts to the people that are going to pay for the project, we feel like we could get approval and then move from there. Whether we could get federal funding at that point, or whether we could bond, and tax local people who are going to use it - I don't know what route

is available. I have never built a dam before.

MR. OLSEN: Organize a conservancy district. Have you thought of that, to raise the matching funds on the local basis?

MR. HIGGINSON: We don't have the authorizing legislation in Idaho for that type of organization.

MR. OLSEN: This coming Thursday, we are meeting with representatives of Caribou and Bear Lake counties with a request into Box Elder, Oneida, Cache, Rich, and Franklin counties RC&D for acceptance into the area. It seems to me like with this much area becoming involved, that we ought to be able for the two states coming up with 25% a piece somewhere along the line in some manner or method, that could be concocted to do this. It boils down to the fact, that if we divided the water equally, we would have to come up with 25% each; but it would be divided on the usage, of course.

MR. HIGGINSON: You are contemplating, are you, an RC&D project that would finance 50% of the cost of the dam and the distribution system.

MR. OLSEN: Right.

MR. HIGGINSON: Do you think that would sell in Congress easier than a Bureau project?

MR. OLSEN: Yes, sir; I sure do. I sat in Salt Lake City - you were there - did you hear the undersecretary speak on that when he told you that the trend was looking toward rural - the urban is moving toward rural America, and if rural America was going to withstand the pressures of urban coming out that they would go to RC&D and SCS, Soil Conservation Districts, and organization, and the RC&D. There was no reason for him to say RC&D, other than he understood what was going on with it.

MR. FUNK: Well, this is another report with 16 zeros at this point.

MR. JENKINS: What you are saying, Marion, is your feeling through RC&D, that this is a different conduit into a different group of earmarked funds; maybe there is a possibility of shaking some of it loose when the other channels have been denied to us.

MR. OLSEN: I think the other channels are closed. I don't know how temporary it may be, but it might be some time before we break anything loose; but the first

thing we have got to do, the two states, with the concurrence of Wyoming, is decide we want to build a project and go into this thing - that there is water for it, that we are willing to do everything necessary to get it built, and then move out and see what we can do. We can't sit here and say we will or we will not until we make the investigations and look into the possibilities of financing and have some preliminary work done on it. I feel, as a matter of an agenda, that we ought to have a report on such a nature for our next meeting, and make some real assignments on it.

MR. JENKINS: In your investigation thus far, have you seen an indication that the Farmers' Home Administration might be able to pick up the other half of a project of this size? Certainly there is no question they have done it on a smaller one.

MR. OLSEN: No; but you are only going to deal with one federal agency - with RC&D. You can't have both. On the other hand, an irrigation company for distribution, they could contact Farmers' Home or another loan with RC&D to supply the needs that that company would have individually outside of the reservoir company or the entity that built the reservoir. Then that opens it up so that several different entities could come in and contract with different agencies, in a way that they wanted to contract maybe right back with RC&D.

MR. JENKINS: What you are saying is that the irrigation, individual companies, would underwrite the other half of the monies needed - RC&D providing half, and then individual irrigation companies would probably then go to Farmers' Home for loans, payable over 50 years, as we have seen happen in smaller projects?

CHAIRMAN KUNZ: You've got to get your investigation money, though, first.

MR. OLSEN: SCS does a tremendous amount of investigation for RC&D without charge.

MR. FUNK: It seems that at this point the big question is inability for the three states to agree; and if there is any discord, I think this kills more projects even than the lack of financing, if you don't get to first base. This is probably more fundamental than financing at this point.

MR. BISHOP: I think Dan Lawrence hit the nail on the head when he said that the problem isn't really a lack of the states being able to get together; the problem is that the Bureau of Reclamation does not have the funding or the personnel or the capability for conducting the study, and they are using the compact negotiations as an excuse to say they can't do it; they couldn't do it if we were in complete agreement.

MR. HIGGINSON: No.

MR. OLSEN: They haven't the funds; their machinery has broken down.

DAN ROBERTS: I would like to make a comment. We have Dean here, representing the Bureau, can't we ask him - I think we are putting words in his mouth, or somebody's mouth.

MR. BISCHOFF: The real thing here is that back at perhaps the Washington level, they don't understand that we have two things here. We have first the Bear River Negotiating Committee going on on the overall Bear River Basin; and then we have the East Cache segment of the Bear River, which we have received letters from the State of Idaho and the State of Utah to make an investigation. I think therein is where they don't understand what the situation is. That indicates that in the letter which you got.

MR. OLSEN: Dean, if we started thinking of building a project, there would be no time table as far as looking to the Bureau for funding a project?

MR. BISCHOFF: I am sure that the funding would have to come from Congress. These funds are short, it's true; but if Congress decides that this is the one to build, I would have no qualms that it wouldn't come about.

CHAIRMAN KUNZ: You still haven't got your answer; I don't think anybody could give it to you.

MR. OLSEN: The only thing I would like to see come out of this meeting, Mr. Chairman, is that if possible Idaho and Utah would concur in the feasibility of a Cub River project; and then would turn them loose to make the proper investigation of the feasibility of it and the funding of it, with the blessing of Wyoming in what we are doing, since it would not effect anything - they would lend their moral support to the project and that is all we are asking them to do.

CHAIRMAN KUNZ: I thought we had agreed that we needed this investigation; and I don't think we've got any disagreement on that.

MR. OLSEN: Well, do we pitch in together and set up our committees, and start making investigations that might materialize in something being done?

MR. HIGGINSON: Mr. Chairman, I would suggest - I assumed when you said that if the states could agree on the feasibility that you meant the desirability.

MR. OLSEN: Well, the desirability. We'd have to work out the feasibility.

MR. HIGGINSON: Right; and the studies have to be made to determine feasibility of certain features of the project as it has previously been proposed. If RC&D is a vehicle to get that information, then let's pursue it through RC&D. If there are other means of getting this information - apparently from this letter, the Bureau is not going to be in a position to make investigations of an east Cache segment. What else have we got?

MR. OLSEN: If you get priority through RC&D, we tell SCS what to do - as an RC&D project, and an organization, we direct the efforts of SCS with an investigation.

MR. LAWRENCE: Within the limits of their financial capability.

MR. OLSEN: Each federal and state office in the state of Utah is committed to the assistance of RC&D. In any technical or other way that they can assist us, and that's in writing.

MR. HIGGINSON: Mr. Chairman, based upon the past letters that were written by the two states to the Bureau asking for this study, I don't think we'd have any problem in Idaho getting the Governor, the Water Resource Board, or whatever entity is necessary to write a similar joint letter with the State of Utah to the people responsible in the RC&D to ask for the same information in that vehicle, if that's what will help to get the thing moving. I suggest that we go back to our meeting next Friday and propose to the Water Resource Board that they make such a request. If that's what the local people need and want to get the thing moving.

MR. OLSEN: You talk to your legislator, John Evans, and get his input into this thing. He understands the program quite well, and is enthusiastic about it. And would be helpful in whatever presentation you would want to make to your Board. Griff knows this.

MR. JENKINS: Would there be any possibility of getting RC&D to contract with the Bureau, to make this study?

MR. BISCHOFF: They have done this in two or three instances.

CHAIRMAN KUNZ: You could get your same request to RC&D. Is this what you want?

MR. OLSEN: Isn't that about the route?

MR. FUNK: We'll bring it up Thursday for sure. We are going to talk with Idaho

Thursday; we will pursue every avenue. I appreciate the contribution of this group.

MR. OLSEN: One other thing I would like to bring to Idaho's attention again, and possibly Wyoming's - maybe you are being bothered with the wilderness area, and I am concerned about the effects it might have on the tributaries to the Bear River one way and other, and a dozen ways; I don't need to elaborate too much on this; but I wonder what position the other states are taking; And if it is at all possible, maybe some resolution could go from this group that we are unanimous in the feeling that we have in reference to it. I don't know whether you want to go into any discussion. I am against it; and I think most of our people are, to have a vocal minority that are not, that have lived in the country 2 or 6, 8 or 10 months, that have all the answers.

MR. LAWRENCE: You are talking about some recently designated areas -

MR. OLSEN: Proposed study areas for wilderness in the western states. The Cache National Forest, Strawberry Canyon in Idaho, is a tributary to the Bear. Several months ago, that was made a part of it, with the rest of it. Part of it is in Idaho. That's 52,000 acres - quite a chunk of it. And it's all both sides, drain right into the Bear -- drain into Bear Lake on the east and on the west side into the tributary of the Bear, or the Cub River drainage; and everything north of Logan Canyon in the high country: 52,000 acres -- that's about 6 miles wide and 20 miles long. They want to lock it up so that no combustion engine can go it in any form; and can't even snowmobile on it.

CHAIRMAN KUNZ: You better be at your hearings - the hearings that took place in Pocatello - of 12 of them, 2 of them were all that survived. Two wilderness areas. You've got to be at those hearings.

MR. OLSEN: Those are just preliminary hearings.

CHAIRMAN KUNZ: All this is is preliminary study, too.

MR. OLSEN: Yes - the designation will come from the Congress after the hearings have been made. I think it should be a concern of the group because you are locking up all of your natural resources, your storage projects, your control of your water, your flooding, your timber, your minerals.

CHAIRMAN KUNZ: But they will pay just as much attention to one of those environmentalists as they will to this group; but if 10 of this group were to go it would make more impression.

MR. OLSEN: I think if you had three of your states represented on a letter to your congressmen, you've got some speaking with authority.

MR. MYERS: Our legislators sent a resolution already to our congressmen. We didn't want it any more in Wyoming.

MR. OLSEN: Well, we need to support it. I don't know whether this is the place to come with additional support. The State Association of Counties in Utah last Friday passed a unanimous resolution that they didn't want any in the State of Utah more than what they've got. They are only locking up a proposed 18 billion cord feet of lumber; let it die, and kill the young forests that are trying to grow and survive. Then invite the tourists in that want to hike into it. I bring it up and pass it by. I don't want to belabor the issue at all.

CHAIRMAN KUNZ: I don't know if this group could take any action.

MR. OLSEN: You are concerned about the water; and if you feel that it would have a detrimental effect on any drainage, the reasons that you have - I think there is justification, but if you don't wish to speak to it, that's fine.

MR. BISHOP: Nothing from our group.

CHAIRMAN KUNZ: Idaho?

MR. HIGGINSON: I would just mention one thing for the information of the group. We have received petitions for the creation of a flood control district on Thomas Fork in Idaho, and hearings have been held. And it is an official entity as of now, will involve the Thomas Fork drainage in Idaho. We will be looking at some of the problems that Lee McQuivey talked about. This is a flood control district.

CHAIRMAN KUNZ: Let's move on to the date and location of the next meeting then. It will be Idaho's turn. We are in Wyoming today.

MR. BISHOP: Mr. Chairman, I would like to officially thank Utah for assisting Wyoming in hosting this meeting. I don't know what Wyoming did, really, but we appreciate Utah's cooperation. It is much more convenient to meet here, particularly at the time the Commission meets.

CHAIRMAN KUNZ: We can announce the location later. What is your desire on a date? How soon do you want to hassle with this again?

MR. LAWRENCE: In the other meeting, there was discussion about Woodruff Narrows, and if that is a proper form for this group, I would think we would entertain some

comments from Idaho. They apparently indicated that they were concerned about this development. That ought to be a subject that we shouldn't wait until November. We could meet in July or something like that.

MR. HIGGINSON: How soon might we get the minutes of that meeting so that some of us who weren't in on that meeting would have the benefit of that discussion.

After considerable discussion as to a possible date for a July meeting, it was determined that the next meeting would be held July 19 - place to be announced by Idaho.

Meeting adjourned at 5:00 p.m.

DRAFT

IDAHO - UTAH - WYOMING
TRI-STATE BEAR RIVER NEGOTIATING COMMITTEE

REVISED REPORT OF TECHNICAL SUBCOMMITTEE
ON
WATER SUPPLY ABOVE BEAR LAKE

March 15, 1973

This report replaces the report of the Technical Subcommittee of July 20, 1972. It is similar in content to the earlier report. Numeric changes are the result of incorporation of the results of recently completed U.S. Bureau of Reclamation studies of depletions above Bear Lake and a review of depletions below Bear Lake by a hydrologic study committee.

Because there are several types of uses of the water supply above Bear Lake, it has been classified into categories relating to its present uses. The manner of operation of Bear Lake also affects the water availability for new uses. Water availability is summarized by four categories of existing uses for two modes of Bear Lake operation in Exhibit 1. In the first mode, the full range of Bear Lake capacity, 1,421,000 acre-feet is used (Elev. 5902.00 to 5923.65) without regard to flood control or other lake uses except irrigation. In the second mode, maximum contents are limited to 1,375,000 acre-feet (5923.0), the approximate limit of filling under the present operation. This second mode closely approximates the present operating procedure.

Category A water is inflow to Bear Lake which is uncontrolled to such an extent that none of the downstream power plants can use it for power generation. The Category A condition occurs only when Bear Lake is full to the limits defined in Exhibit 1.

Category B water is that water spilled from Bear Lake which is used for power production but not diverted for irrigation and does not fall within the defined needs of the Bear River Migratory Bird Refuge. It also occurs only when Bear Lake is full to the limit defined in the exhibit. Exhibits 2 and 3 show the monthly and annual distribution of occurrence of Bear Lake spills used only for power production under the two assumed Lake storage limits. In both cases, an average quantity is highly misleading in that the average results from a small number of occurrences of very large spills and many years of no spill.

Under present conditions of use and Bear Lake management, the lake would meet all downstream irrigation requirements and retain some water in storage at its lowest point. Additional uses upstream could be imposed without injuring these downstream irrigation uses in a runoff sequence like the 1927-65 period. These uses would, of course, deplete lake inflows and result in lowered lake levels. Category C water is that amount of additional annual upstream depletion which would result in Bear Lake being drawn to the bottom of the pump withdrawal level (5902.00) at the minimum point. This drawdown is illustrated in Exhibits 4 and 5 using the two assumed upper limits of Bear Lake. Use of Category C water upstream from Bear Lake would result in lowered Lake levels in nearly all years. The maximum lowering would be about 11 feet (740,000 acre-feet) if Bear Lake were operated full range or about 6.3 feet (420,000 acre-feet) if it were restricted to maximums as in the present Lake operation.

Category D water which could be used upstream and replaced by storage downstream, cannot be quantified without a plan for the lower basin. A series of studies of alternate lower basin storage increments and uses could be run. These would provide information on the tradeoffs involved. So many possible combinations of downstream storage, uses, Bear Lake operating ranges, and replacement commitments are possible that guidance from the Negotiating Committee is required before meaningful studies can be made.

EXHIBIT 1

AVAILABILITY OF WATER*

FOR

ADDITIONAL DEPLETION UPSTREAM FROM STEWART DAM

BY CATEGORIES OF EXISTING USES

Existing Use Category	Average Water Available	
	MODE 1	MODE 2
	Bear Lake Used to Maximum Content Elev. 5902 to 5923.65 1,421,000 acre-feet	Bear Lake Level Limited To Elev. 5923.0 1,375,000 acre-feet
A. Water spilled from Bear Lake in excess of all power and other uses.	Virtually none.	Virtually none.
B. Water used only for power production.**	70,000 ac.ft./yr.	75,200 ac.ft./yr.
C. Water remaining in Bear Lake under present conditions, which if depleted by additional upstream uses, would result in lowering of Bear Lake To zero active contents at minimum.***	44,000 ac.ft./yr.	25,000 ac.ft./yr.
D. Water which could be replaced by storage downstream.	Unknown. Would depend upon location and size of downstream storage, amount dedicated to replacement, and size of other new uses of reservoir.	

*All data based on "Modified Historic Flow" hydrology--1927 to 1965

**See Exhibits 2 and 3 for distribution of monthly spills

***See Exhibits 4 and 5 for hydrographs of Lake Levels

EXHIBIT 2

BEAR LAKE SPILLS
(1000 ac ft)

MODE 1
Lake Allowed to Fluctuate Full Range
Elev. 5902.0 to 5923.65

	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Year</u>
1927													0
28									25.2				0
29							52.0	31.0					83.0
1930													0
31													0
32													0
33													0
34													0
1935													0
36													0
37													0
38													0
39													0
1940													0
41													0
42													0
43													0
44													0
1945													0
46							24.9	99.0	91.5				215.4
47						12.5	73.9	113.0	56.1				255.5
48								25.5	43.7				69.2
49						12.8	92.5	175.9	166.5	59.2	5.2		512.1
1950						38.0	105.5	144.6	69.5				474.6
51	18.3	24.7	21.6	13.2	39.2	38.0	86.2	225.1	79.3	8.5			490.5
52			0.9	22.6	33.0	34.9	26.8	25.4	48.6				133.3
53					4.3	28.2							0
54													0
1955													0
56								3.9	108.9				112.8
57							50.5	78.9	3.5				132.9
58													0
59													0
1960													0
61													0
62													0
63													0
64									109.9	67.0	10.3	51.5	224.1
1965													70.0
Avg.													

EXHIBIT 3

BEAR LAKE SPILLS
(1000 ac ft)

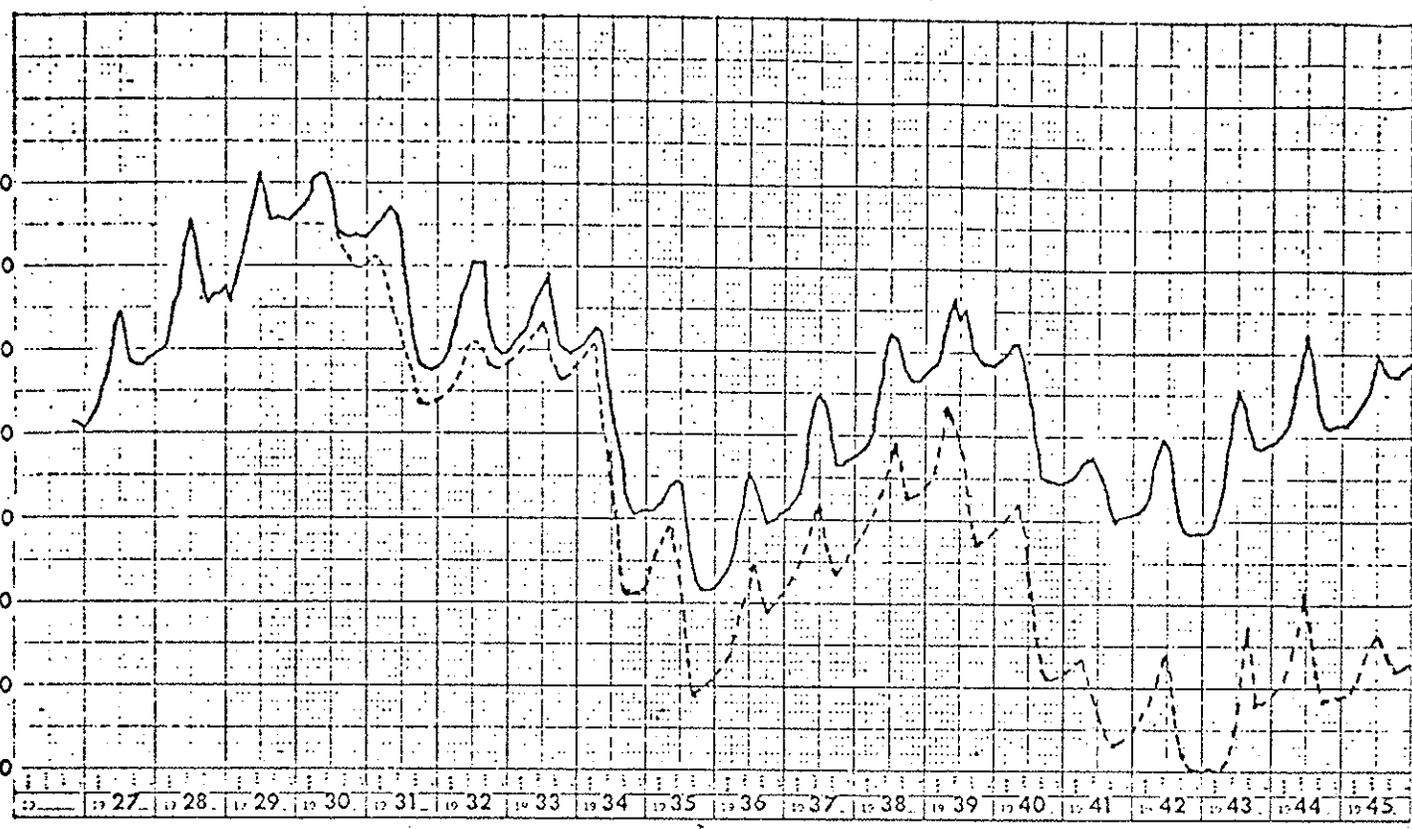
MODE 2

Lake Allowed to Fluctuate Between Elev. 5902.0 and 5923.0

	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sept.</u>	<u>Total</u>
1927													0
28						60.8							60.8
29				40.2	51.4	48.4							140.0
1930			43.1	52.6	53.2	58.8							207.7
31													0
32													0
33													0
34													0
1935													0
36													0
37													0
38													0
39													0
1940													0
41													0
42													0
43													0
44													0
1945													0
46													0
47				11.6	58.3	12.7							82.6
48	24.5	42.8	42.6	50.8	47.6	37.7							246.0
49			9.8	59.0	48.1	43.0							159.9
1950				41.6	53.1	73.2			90.4	67.3	70.2	48.8	444.6
51	89.6	64.7	56.6	48.2	69.2	48.2					29.6	32.6	438.7
52	73.2	57.3	53.7	57.6	63.0	44.9	41.7	4.4	23.6	33.3	37.9		490.6
53	35.1	37.4	48.9	57.0	54.8	38.2							271.4
54													0
1955													0
56													0
57													0
58		20.6	47.8	52.2	55.7	46.7							223.0
59					9.3	29.7							39.0
1960													0
61													0
62													0
63													0
64													0
1965											42.5	87.0	129.5
Avg.													75.2

1.000 2.000 3.000 4.000 5.000 6.000 7.000 8.000 9.000 10.000 11.000 12.000 13.000 14.000 15.000 16.000 17.000 18.000 19.000 20.000 21.000 22.000 23.000 24.000 25.000 26.000 27.000 28.000 29.000 30.000 31.000 32.000 33.000 34.000 35.000 36.000 37.000 38.000 39.000 40.000 41.000 42.000 43.000 44.000 45.000

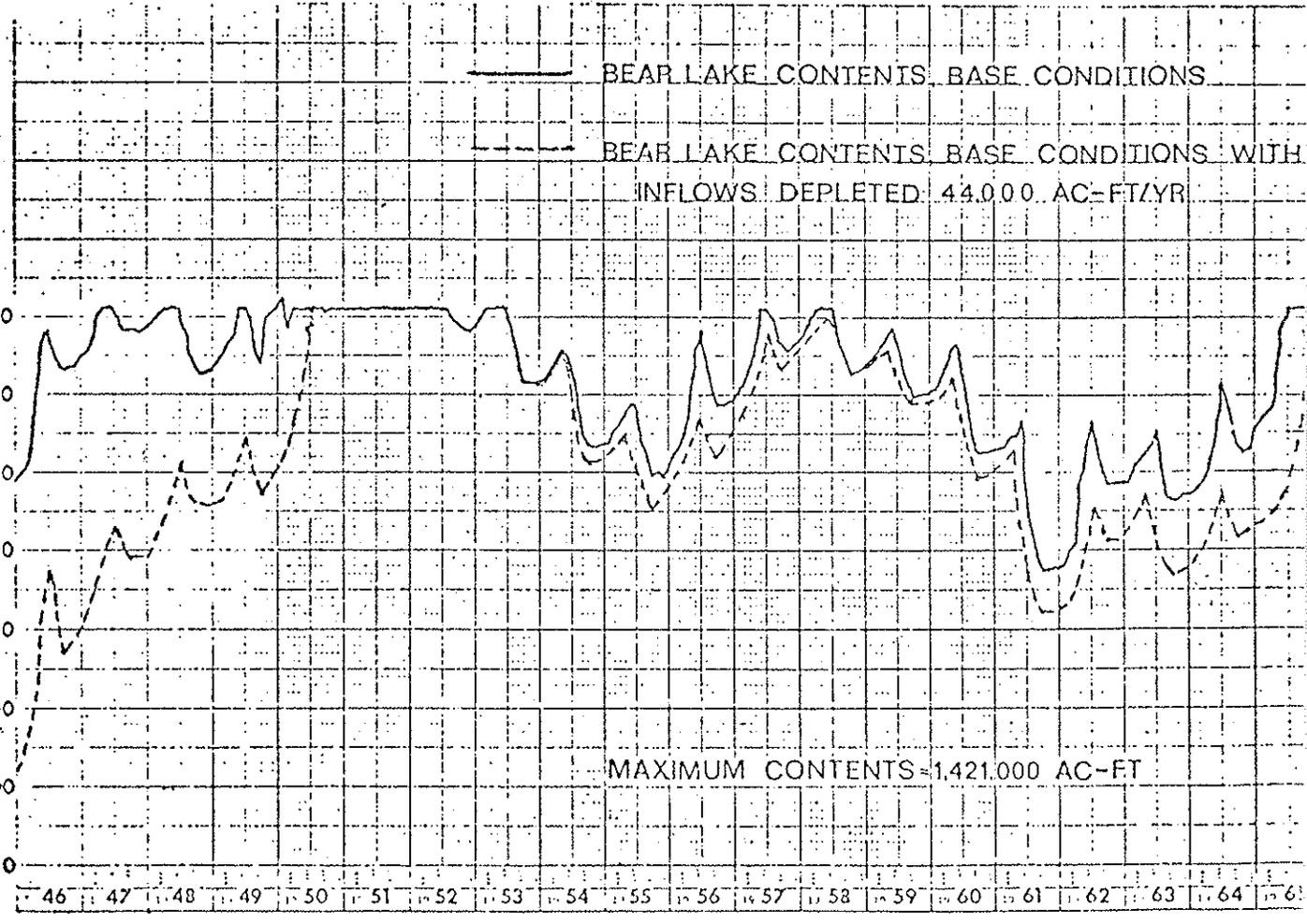
BEAR LAKE CONTENTS-1000 AC. FT.



BEAR LAKE CONTENTS, BASE CONDITIONS

BEAR LAKE CONTENTS, BASE CONDITIONS WITH INFLOWS DEPLETED 44,000 AC-FT/YR

BEAR LAKE CONTENTS-1000 AC. FT.



MAXIMUM CONTENTS=1421.000 AC-FT

EXHIBIT 4. BEAR LAKE CONTENTS WITH AND WITHOUT EFFECTS OF ADDITIONAL UPSTREAM DEPLETION AT MAXIMUM OPERATION

U.S. GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
SACRAMENTO, CALIF.

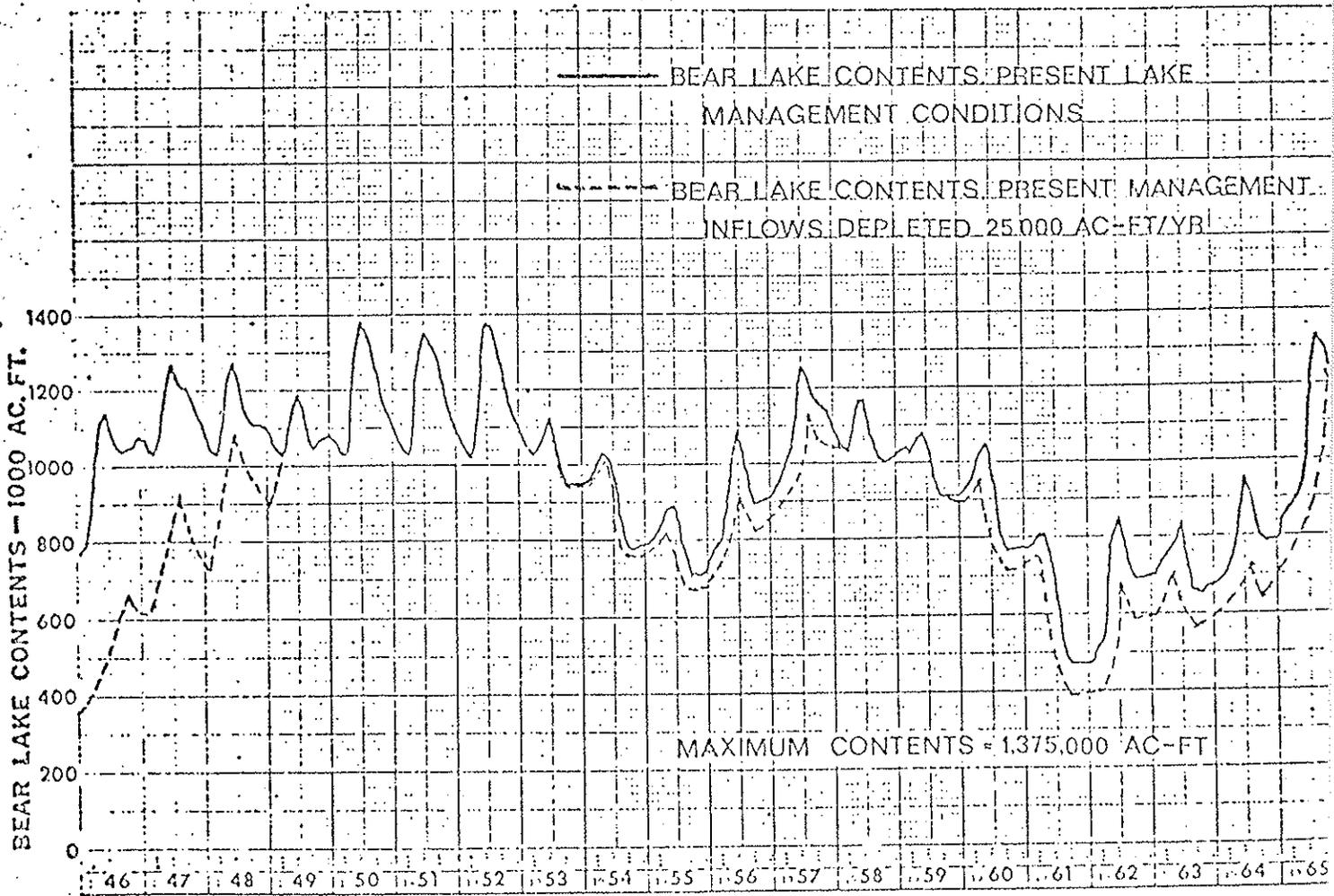
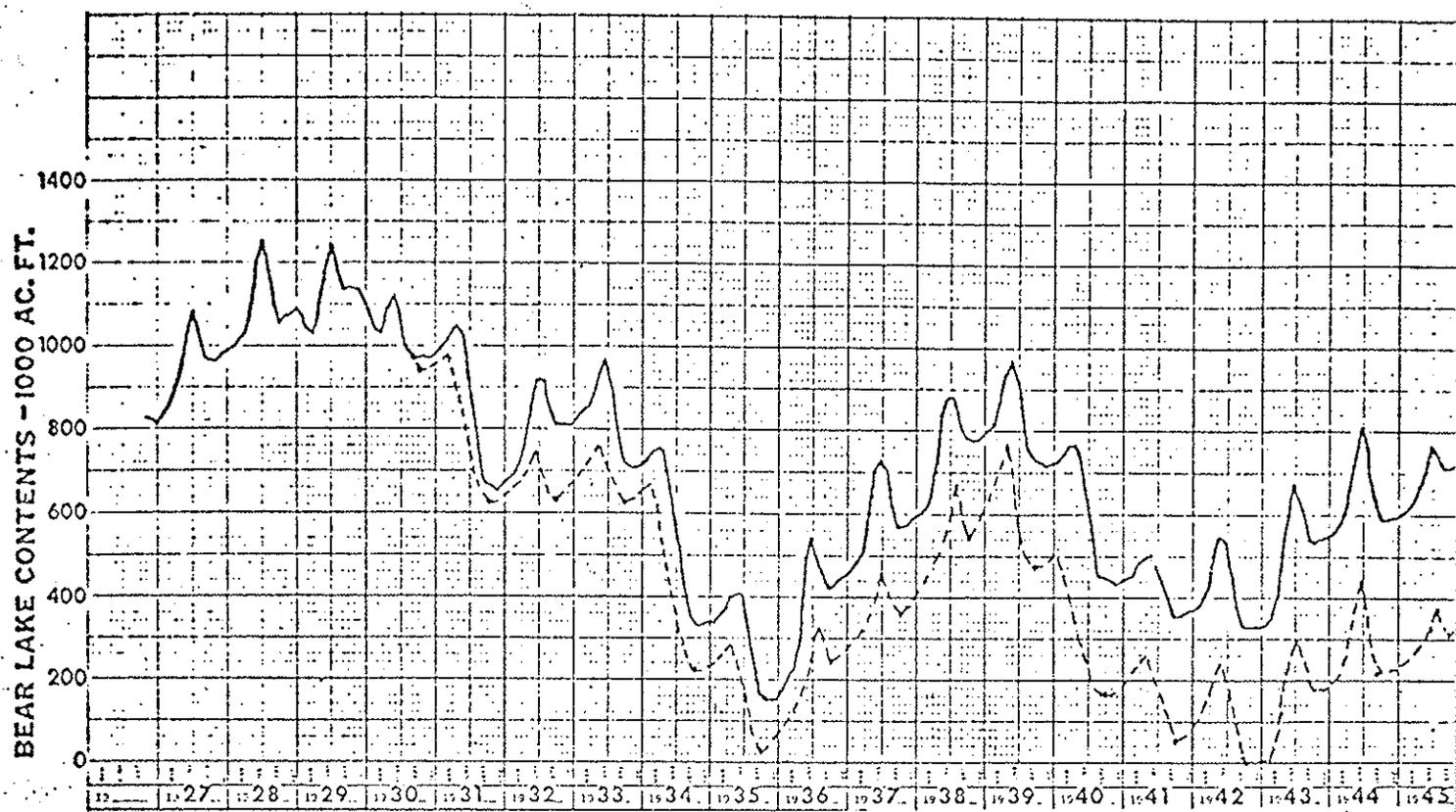


EXHIBIT 5. BEAR LAKE CONTENTS WITH AND WITHOUT EFFECTS OF ADDITIONAL UPSTREAM DEPLETION AT LIMITED OPERATION

Revised 4/10/73

IDAHO - UTAH - WYOMING
TRI-STATE BEAR RIVER NEGOTIATING COMMITTEE
REVISED REPORT OF TECHNICAL SUBCOMMITTEE
ON
WATER SUPPLY ABOVE BEAR LAKE

March 15, 1973

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AVAILABILITY OF WATER*

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ADDITIONAL DEPLETION UPSTREAM FROM STEWART DAM

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*All data based on "Modified Historic Flow" hydrology--1927 to 1965

**See Exhibits 2 and 3 for distribution of monthly spills

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U.S. GOVERNMENT PRINTING OFFICE: 1967 O 345-111

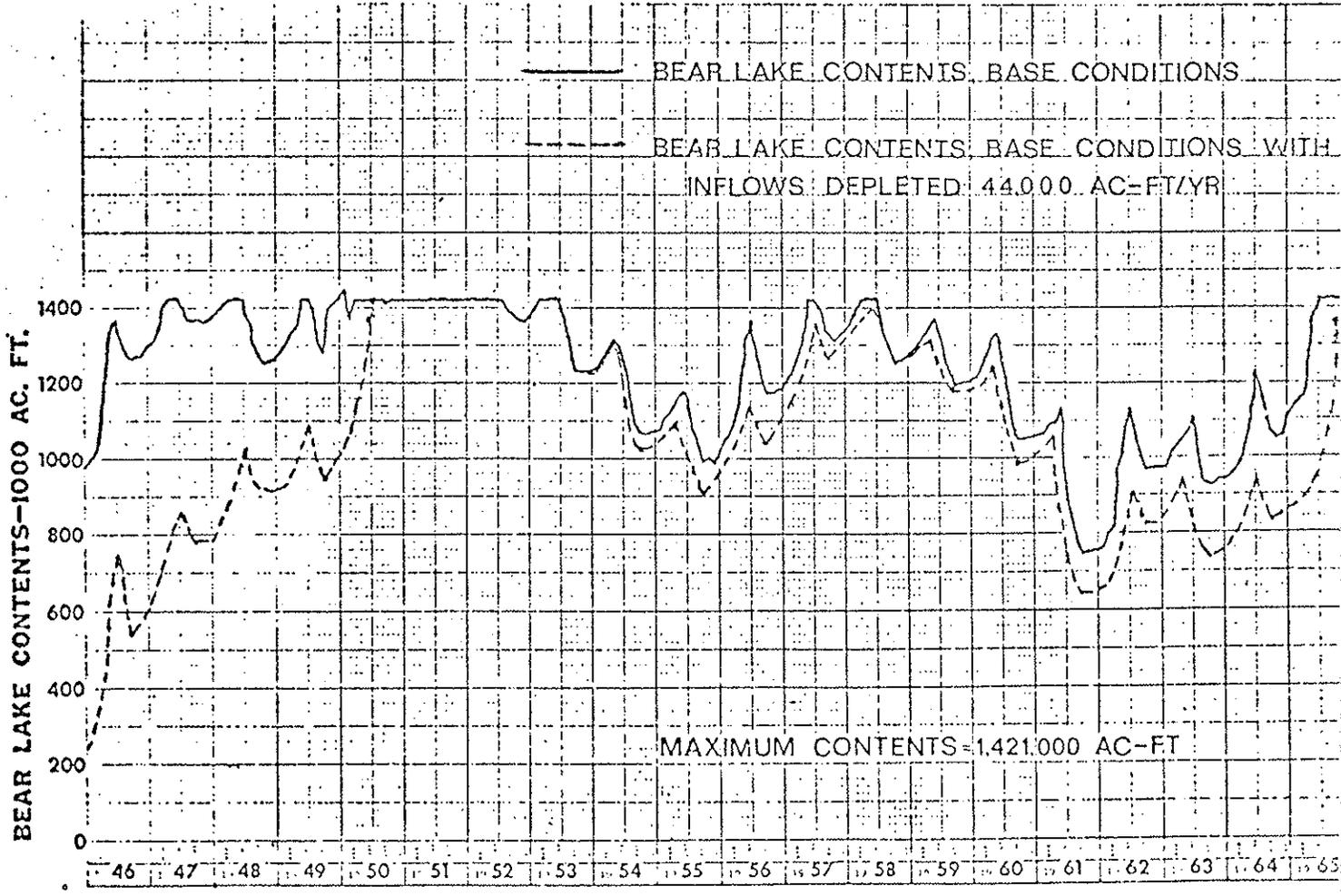
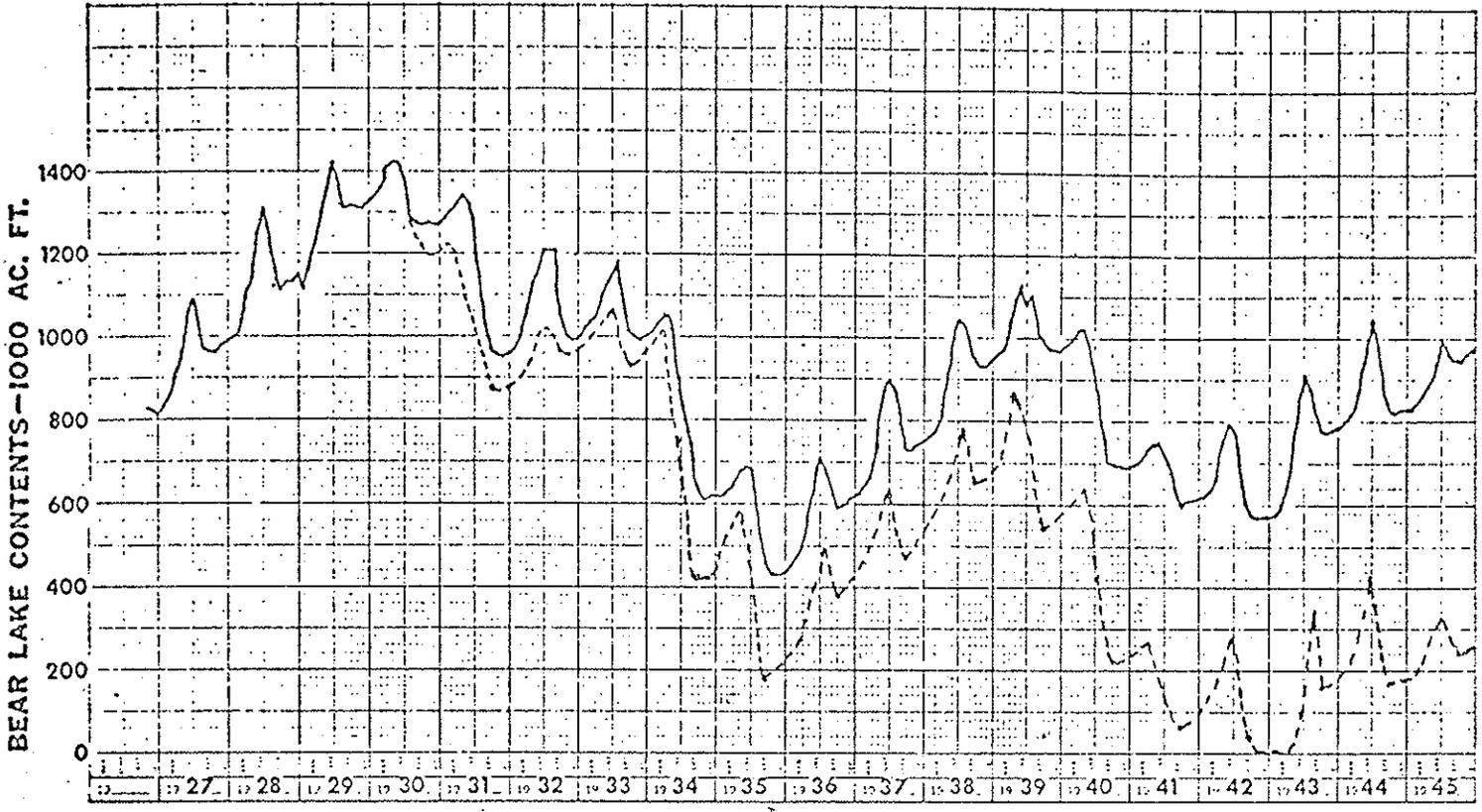
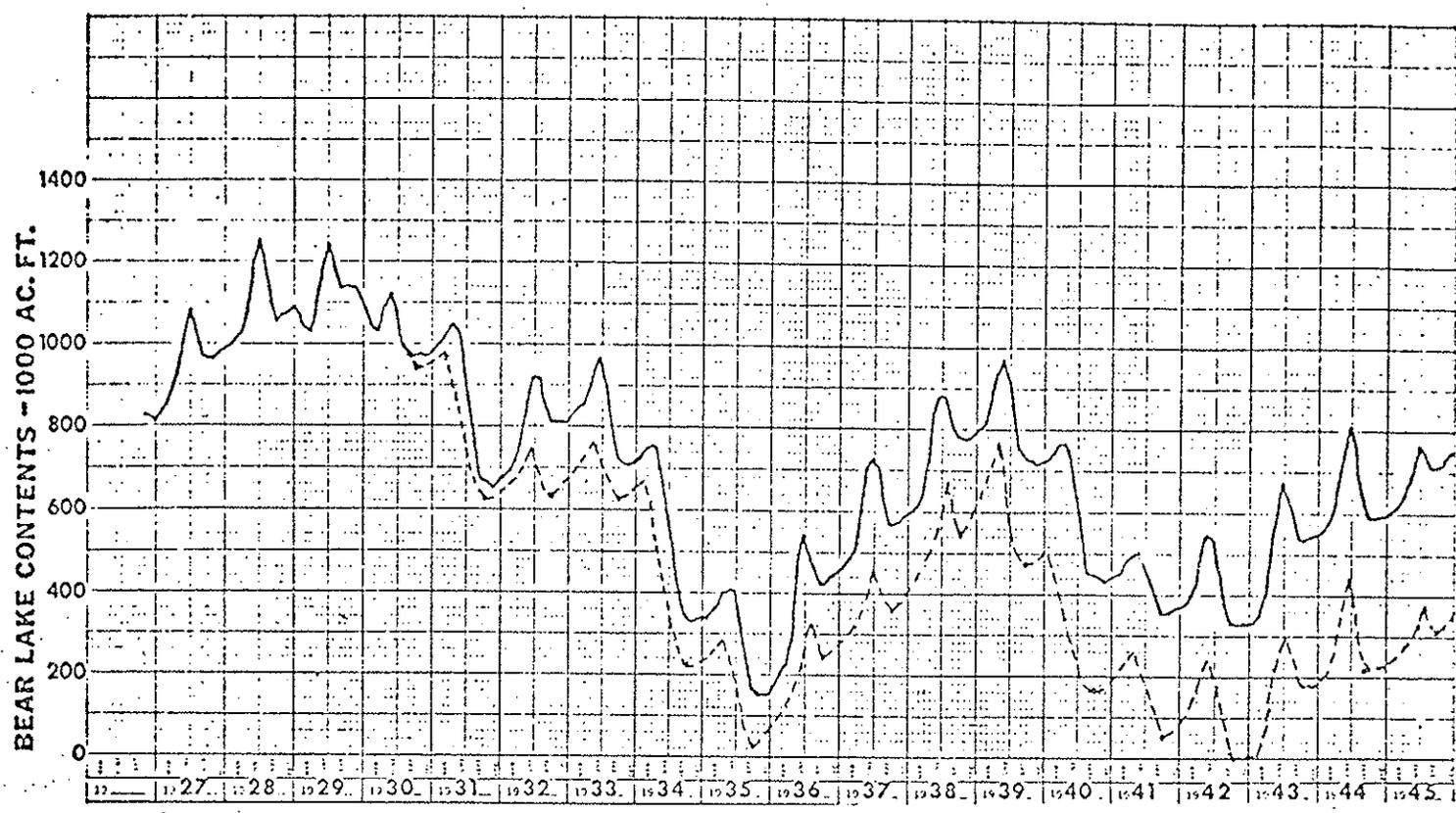


EXHIBIT 4. BEAR LAKE CONTENTS WITH AND WITHOUT EFFECTS OF ADDITIONAL UPSTREAM DEPLETION AT MAXIMUM OPERATION

42 4971
U.S. GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
SACRAMENTO, CALIF.



— BEAR LAKE CONTENTS, PRESENT LAKE MANAGEMENT CONDITIONS
- - - BEAR LAKE CONTENTS, PRESENT MANAGEMENT INFLOWS DEPLETED 25,000 AC-FT/YR

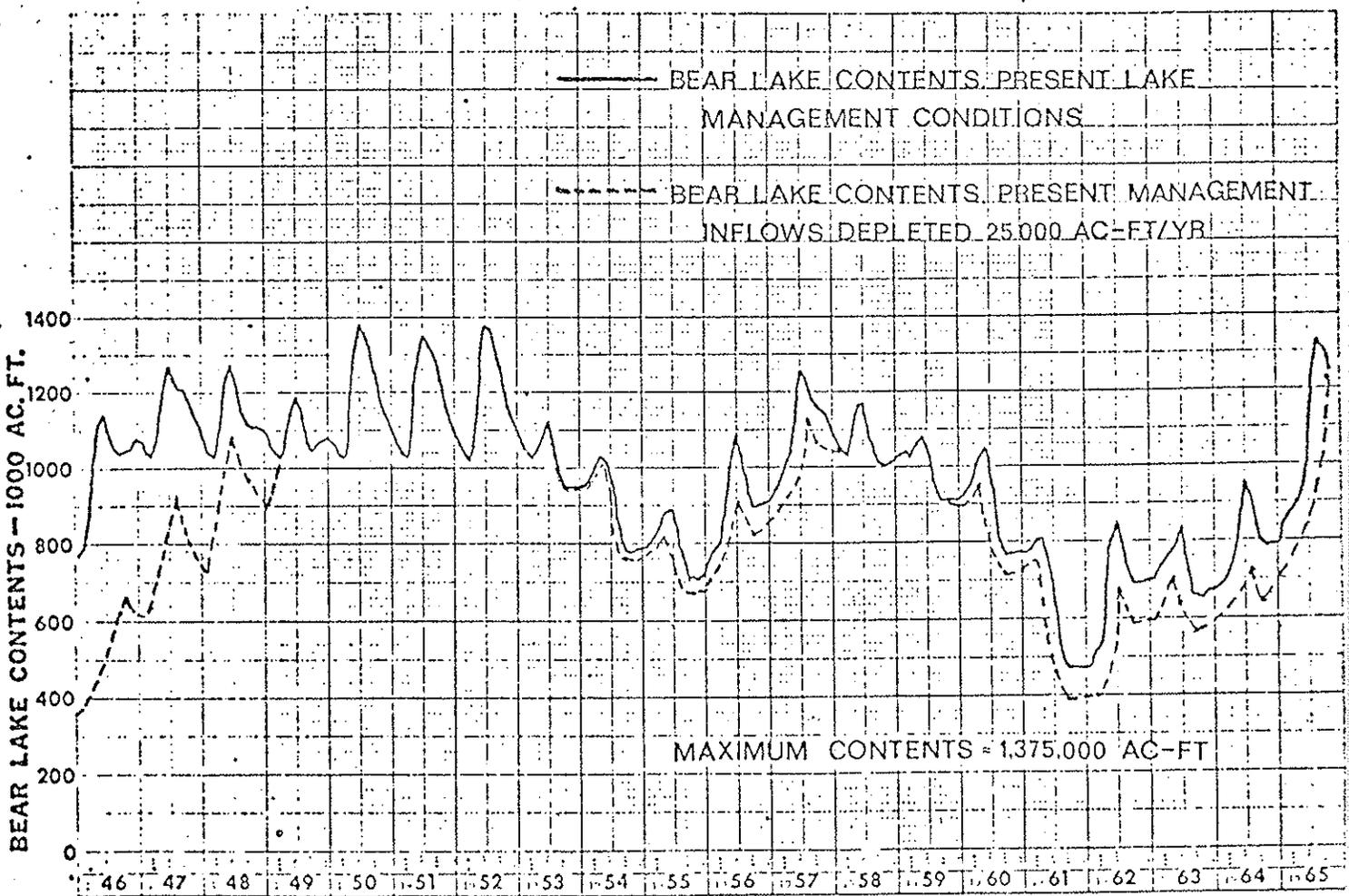


EXHIBIT 5. BEAR LAKE CONTENTS WITH AND WITHOUT EFFECTS OF ADDITIONAL UPSTREAM DEPLETION AT LIMITED OPERATION

Reviewed 4/20/73
EOL

March 21, 1973

MEMORANDUM

TO: Tri-State Bear River Negotiating Committee
FROM: Technical Subcommittee
SUBJECT: Bear River Water Supply

The Tri-State Bear River Negotiating Committee at its December 18, 1972, meeting, requested the Technical Subcommittee to review the Utah Power and Light Company hydrologic study of Bear River. The purpose of this review was to determine the nature and extent of any differences between that study and the July 20, 1972, report of the Technical Subcommittee. The Subcommittee met with representatives of Utah Power and Light Company in Salt Lake City on March 13.

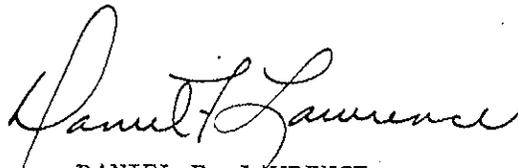
The power company study consists of an examination of the operation of Bear Lake designed to (1) meet present irrigation requirements and (2) to optimize lake operation for flood control by operating the lake with the objective of reducing lake elevation to 5915 to provide sufficient storage capacity for high spring runoff. This type of operation is not now followed but the study results can be interpreted to relate to the present operation in which the lake is drawn down to elevation 5918 to provide storage capacity for high spring runoff. It is the consensus of the subcommittee that the results of the power company study are not significantly different from subcommittee studies which relate to the present mode of operation of

Bear Lake. The power company study is enclosed. Details of this study will be provided to the respective state committees by their staffs.

The Technical Subcommittee report of July 20, 1972, was based upon data available at that time. Two events have since occurred which now make it appropriate to revise the report. These were (1) completion of depletion studies above Bear Lake by the Bureau of Reclamation which includes the full compact storage allocation, and (2) a review of previously computed depletions below the lake by a Hydrologic Study Team composed of Dr. Norman Stauffer of Utah Division of Water Resources and representatives of the USBR AND SCS. The Subcommittee is agreed that these changes should be incorporated in the basic water supply picture being considered by the Negotiating Committee.

A revised Technical Subcommittee report has, therefore, been prepared and should henceforth be used as the hydrologic basis for discussion by the Negotiating Committee. A copy of the revised report is enclosed.

The changes made result in showing smaller present conditions depletions both above and below Bear Lake from those formerly used. The average adjustments are about 5000 acre-feet per year less depletion above Bear Lake and about 3000 acre-feet per year below the lake. These relatively small changes result in somewhat greater increases in the average water shown available under existing use category C (Exhibit 1 of the report) because of the cumulative effect of depletions in the critical period in the 1930's. The characteristics of categories B and C (Exhibits 2 through 5), however, remain relatively unchanges.


DANIEL F. LAWRENCE
Chairman

DFL:rg

Enclosures

UTAH POWER AND LIGHT COMPANY

Hydrology Report - Bear Lake

Reviewed 4/20/73
EGL

On March 13, 1973 in Salt Lake City, Don Watkins and Jay Haight, representing Utah Power and Light Company, met with Alan Robertson, Norman Stauffer, and Thomas Barker, technical subcommittee staff of Idaho, Utah and Wyoming to discuss the power company's hydrology report on Bear Lake.

The power company provided a hydrograph of Bear Lake based on operation of the lake to provide for full flood control and release of water for downstream irrigation demands. The hydrograph and supporting information is attached.

This study shows that to meet downstream irrigation demands and to provide for full flood control, the lake must be drawn down to elevation 5915 feet to provide sufficient space for high spring runoff. It is the present practice of the power company to draw the lake down to elevation 5918 feet to provide space for spring runoff. A hydrograph for the present practice would be similar to the one attached with the lake approximately 3 feet higher at all points.

It is the consensus of the technical subcommittee staff that the results of the power company study are not significantly different from the technical subcommittee staff studies, which relate to the present mode of operation of Bear Lake.

OPERATION OF BEAR LAKE TO PROVIDE FOR FULL FLOOD CONTROL
AND RELEASE OF WATER FOR DOWNSTREAM IRRIGATION DEMANDS

The quantities shown on the attached operation study for Bear Lake were derived as follows:

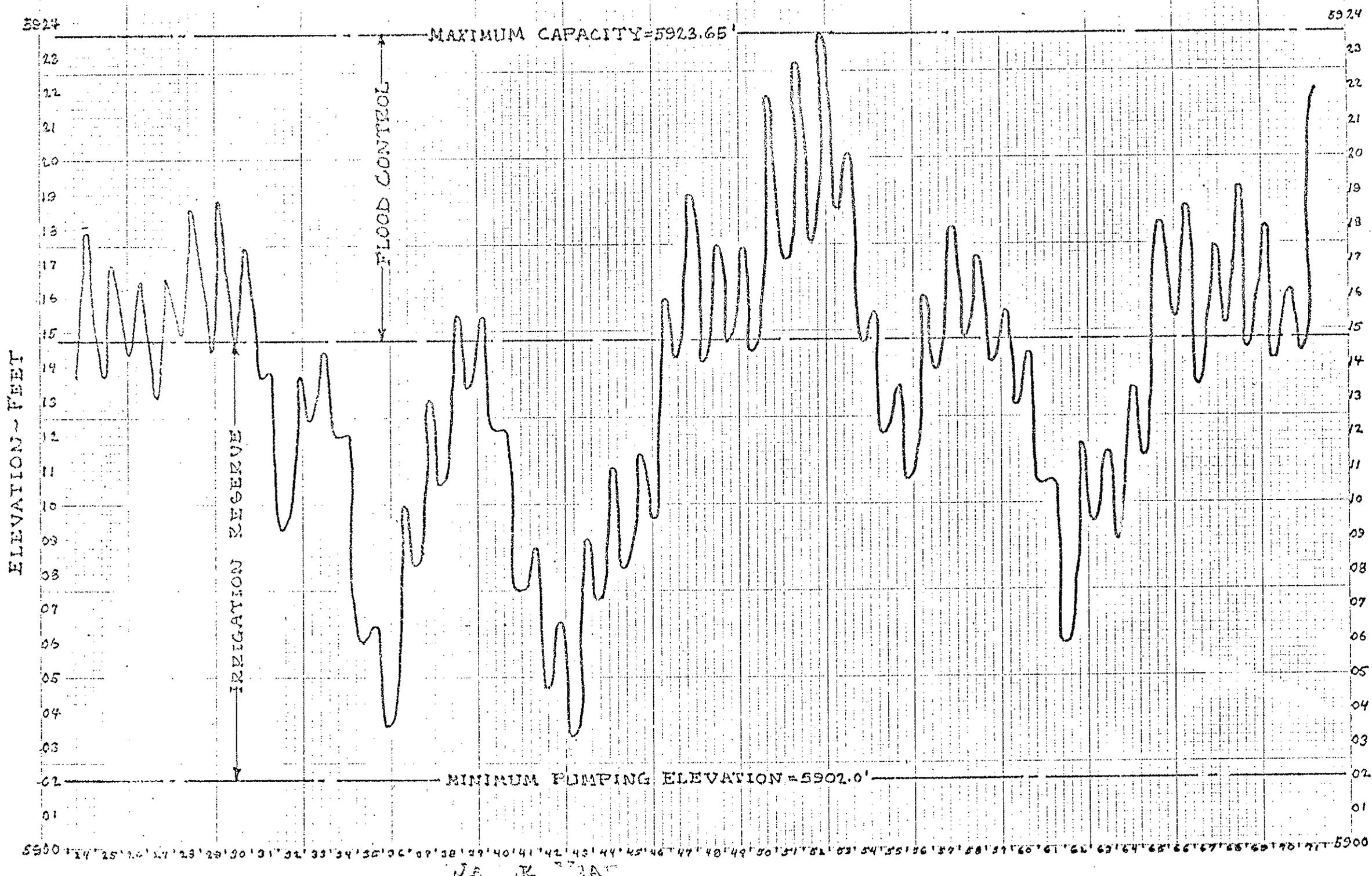
<u>Column</u>	<u>Explanation</u>
1	Recorded net annual change in Bear Lake contents.
2 & 3	Recorded releases.
4	Sum of Columns 1, 2 and 3.
5	Column 4 adjusted to reflect depletions resulting from full upstream storage development allowed under Bear River Compact.
6	The portion of Column 5 which is retained in reserve for later release to meet irrigation demands.
7	The amount of water that has to be released to meet the demands of downstream irrigation. This is based upon the actual releases for irrigation plus leakage during the years since 1945 in which no water was released for flood control or solely for power generation.
8	Irrigation reserve balance plus Column 6 minus Column 7.
9, 10 and 11	In order to avoid flooding caused by Bear Lake Releases, total releases (irrigation + flood control) are limited to a maximum of 500,000 acre feet per year. The June balance in the reserve (Column 11) = 75% Column 5 minus Column 6.
12 & 13	Sum of Columns 8 and 11, plus 77,000 acre feet unused storage above minimum pumping elevation.

OPERATION OF BEAR LAKE TO PROVIDE FOR FULL FLOOD CONTROL AND RELEASE OF WATER FOR DOMESTIC IRRIGATION

Thousands of Acre Feet

Water Year	1	2	3	4	5	6	7	8	9	10	11	12	13				
	Change in	Bear Lake Outlet Canal	Bear River Below Stewart	Net Available Inflow		Irrigation Reserve				Flood Control Reserve				Total Bear Lake			
	Bear Lake Contents			Historical	Adjusted	Store	Release	Balance		Store	Release	Balance		Contents	Elevation-Feet		
								June	Sept.			March	June	March	June		
1924	-235	491	152	408	382	194	194	850	656	188	6	0	92	733	1,019	13.7	17.9
1925	-123	365	80	322	303	194	152	850	698	109	230	0	33	733	960	13.7	17.0
1926	-336	364	129	157	142	142	223	840	617	0	61	0	0	775	917	14.3	16.4
1927	-113	310	106	303	284	233	110	850	740	51	51	0	0	694	927	13.1	16.6
1928	+101	177	84	362	338	110	143	850	707	228	57	0	143	817	1,070	14.9	18.6
1929	+130	178	108	416	394	143	125	850	725	251	246	0	153	784	1,080	14.4	18.8
1930	-64	176	143	255	238	125	193	850	657	113	183	0	54	802	981	14.7	17.4
1931	-307	263	52	8	8	8	285	665	380	0	106	0	0	734	742	13.7	13.8
1932	+169	81	44	294	276	276	78	656	578	0	0	0	0	457	733	9.3	13.7
1933	-39	144	29	134	122	122	152	700	548	0	0	0	0	655	777	12.5	14.4
1934	-336	237	11	-88	-88	-88	300	548	160	0	0	0	0	625	625	12.0	12.0
1935	-114	150	4	40	38	38	177	198	21	0	0	0	0	237	275	6.0	6.6
1936	+308	95	9	412	389	389	110	410	300	0	0	0	0	98	487	3.6	9.9
1937	+180	114	33	327	308	308	157	608	451	0	0	0	0	377	685	8.2	13.0
1938	+242	87	20	349	328	328	143	779	636	0	0	0	0	528	856	10.6	15.5
1939	-95	232	17	154	139	139	216	775	559	0	0	0	0	713	852	13.4	15.4
1940	-274	212	13	-49	-49	-49	250	559	260	0	0	0	0	636	636	12.2	12.2
1941	-66	133	24	91	80	80	256	340	84	0	0	0	0	337	417	7.6	8.8
1942	-63	190	8	135	120	120	204	204	0	0	0	0	0	161	281	4.7	6.6
1943	+184	151	38	373	351	351	105	351	246	0	0	0	0	77	428	3.3	9.0
1944	+72	135	51	258	238	238	186	484	298	0	0	0	0	323	561	7.3	11.1
1945	+114	91	19	224	208	208	110	506	396	0	0	0	0	375	583	8.2	11.4
1946	+273	160	13	466	422	422	121	818	697	0	0	0	0	473	895	9.7	16.1
1947	+148	289	16	453	428	153	157	850	693	275	43	0	168	774	1,095	14.3	19.0
1948	-22	326	15	319	298	157	129	850	721	141	303	0	66	770	993	14.2	17.5
1949	-110	344	10	244	226	129	147	850	703	97	123	0	40	798	967	14.7	17.2
1950	+255	460	22	717	681	147	40	850	810	534	204	0	364	780	1,291	14.4	21.8
1951	-118	668	17	567	536	40	102	850	748	496	398	74	436	961	1,363	17.1	22.8
1952	+13	572	14	599	565	102	117	850	733	463	383	172	494	997	1,421	17.6	23.6
1953	-251	413	10	172	156	117	129	850	721	39	371	252	252	1,062	1,179	18.5	20.2
1954	-164	215	10	61	55	55	225	776	551	0	220	0	0	798	853	14.7	15.5
1955	-83	169	8	94	89	89	177	640	463	0	0	0	0	628	717	12.1	13.4
1956	+186	175	15	376	352	352	152	815	663	0	0	0	0	540	892	10.8	16.1
1957	+198	198	19	415	390	187	121	850	729	203	82	0	105	740	1,032	13.8	18.1
1958	-22	244	12	234	218	121	157	850	693	97	164	0	42	806	969	14.8	17.2
1959	-75	174	13	112	100	100	187	793	606	0	54	0	0	770	870	14.2	15.7
1960	-136	238	8	110	98	98	246	704	458	0	0	0	0	683	781	12.9	14.4
1961	-295	266	4	-25	-25	-25	270	458	163	0	0	0	0	535	538	10.7	10.7
1962	+240	143	3	386	366	366	146	529	383	0	0	0	0	240	606	6.0	11.8
1963	-34	165	3	134	134	134	168	517	349	0	0	0	0	460	594	9.5	11.6
1964	+154	129	2	285	285	285	131	634	503	0	0	0	0	426	711	9.0	13.4
1965	+457	157	4	618	618	347	69	850	781	271	131	0	116	580	1,043	11.4	18.2
1966	-247	533	5	291	291	69	210	850	640	222	140	0	149	858	1,076	15.5	18.7
1967	+144	214	4	362	362	210	91	850	759	152	331	0	62	717	989	13.4	17.5
1968	-24	252	4	232	232	91	130	850	720	141	113	0	83	836	1,010	15.2	19.2
1969	-15	324	5	314	314	130	157	850	693	184	114	0	105	797	1,032	14.6	18.1
1970	-40	177	3	140	140	140	129	833	704	0	141	0	0	770	910	14.2	16.3
1971	+123	537	40	700	700	146	23	850	827	554	177	0	379	781	1,306	14.4	22.0
AVERAGE	-2	248	30	276	262	162	158			100	92						

ELEVATIONS OF BEAR LAKE WHEN OPERATED FOR FULL FLOOD CONTROL & IRRIGATION



1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924

5900 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 5900

JAN 1900

COMPARISON OF BEAR LAKE WATER RELEASED TO MEET DOWNSTREAM IRRIGATION DEMANDS WITH THE JULY-SEPT. DISCHARGE OF LOGAN RIVER ABOVE STATE DAM

K-2 10 x 10 20 PER INCH 47 0703

