

BEAR RIVER COMPACT COMMISSION

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WALLACE N. JIBSON

USGS-3-25

A BEAR LAKE IRRIGATION RESERVE

A METHOD OF COMPACTING ON UPSTREAM STORAGE

REPORT OF ENGINEERING COMMITTEE

to

BEAR RIVER COMPACT COMMISSION

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NOTES ON DETAIL
(Report #25)

Plate #3

- Col. (1) End of Bear Lake Storage Period.
- Col. (5) Past Storage or Storable for power from report #10, dated Sept. 12, 1950.
- Col. (6) Net Supply to Bear Lake from Bear River plus Tributary Inflow.
- Col. (7) End of Period - Sept. 30 each year.
- Col. (11) From Report #10.
- Col. (12) do
- Col. (13) Power plus irrigation releases added to the changes in content, result is the net evaporation loss for the delivery period.
- Col. (14) Col. (5) / (12) same as report #10.
- Col. (15) Same as (12).
- Col. (16) Total flow at Woodruff Oct. 1 to Apr. 30.
- Col. (17) Excess over the irrigation requirement (Woodruff to Pixley) after May 1, when Border is above 700 s.f. and also limited by the amount that Border is above 700 s.f. i.e., 1st 700 s.f. at Border to supply direct flow rights after May 1st.

Storage Period

- Col. (21) Same as (6) as explained above.
- Col. (23) When past power releases Col. (5) are sufficient to take care of upstream depletion power water is adjusted for the depletion in (Col. (20)). This will be true each year until the adjusted content of the Lake (Col. 24) falls to the assumed required capacity of the "irrigation Reserve", at which time only that portion of the storage above the required reserve is allowed to be released for power only. When the adjusted contents at the end of the storage period decreases below the required reserve for irrigation, there is no water available for power releases.
- Col. (24) Contents on Sept. 30 of preceding year plus adjusted supply in Col. (22) of the storage period minus the adjusted power releases in Col. (23). Held to a minimum of the irrigation reserve when extra water is available for power purposes.

Storage Delivery Period

- Col. (25) Col. (13) reported.
- Col. (26) As long as the adjusted content is equal to or greater than the (assumed required reserve for irrigation) releases for power purposes (during the draft period), were considered to be the same as records show for past conditions. If the adjusted content passed thru the required reserve during the draft period (1926, Plate 4), power water releases would be halted and a proportional adjustment shown in this Column. A minimum of 12,000 a.f., was allowed as in previous studies.

*straight line
decrease in content assumed*

COMPARISON OF TWO SUGGESTED METHODS OF UPSTREAM STORAGE ANALYSIS

	Report #24 (Iorns Method)	Report #25 (Thomas Method)
SUPPLIES	<ol style="list-style-type: none"> 1. Supplies available at Woodruff Narrows <ol style="list-style-type: none"> a. Total flow Oct. 1 to Apr. 30 b. Total flow above irrigation requirement (Woodruff to Pixley) after May 1, during periods when Bear Lake above certain content and Bear R. near Border above 700 s.f. c. Average Supply (10,000 to 50,000)= 55,360 a.f. 	<ol style="list-style-type: none"> 1. Supplies available at Woodruff Narrows <ol style="list-style-type: none"> a. Total flow Oct. 1 to Apr. 30 b. Total flow above irrigation requirement (Woodruff to Pixley) after May 1, during periods Bear R. near Border above 700 s.f. but not exceeding amount Border is above 700 s.f. c. Same Supply for all studies = 60,200 a.f.
STORAGE LIMITATIONS	<ol style="list-style-type: none"> 1. Basic storage dependent only on supplies Oct. 1 - Apr. 30 2. Secondary: <ol style="list-style-type: none"> a. Before May 1st: excess supplies over basic storage requirements during limiting periods b. After May 1st: excess supplies over irrigation requirements during limiting periods. 3. Av. <u>Basic</u> storage (10,000 to 50,000)=27,700 a.f. Av. <u>Secondary</u> storage (20,000 max.)= 7,000 a.f. 	<ol style="list-style-type: none"> 1. Storage dependent only on Supplies Oct. 1 - Apr. 30 2. After May 1st: <ol style="list-style-type: none"> a. Permitted when Border above 700 s.f. b. Limited by supplies over irrigation requirement and to excess above 700 s.f. at Border. 3. Av. Storage (10,000 to 50,000) = 28,400 a.f.
BEAR LAKE LIMITATIONS	<ol style="list-style-type: none"> 1. <ol style="list-style-type: none"> a. <u>Basic</u>: No limitation b. <u>Secondary</u>: Permitted only when Bear Lake above a certain amount. 	<ol style="list-style-type: none"> 1. Upstream storage not restricted by contents. 2. Lower portion of Bear Lake reserved solely for irrigation.
EXISTING RIGHTS	<ol style="list-style-type: none"> 1. Subordinate to all direct flow irrigation rights. 2. Subordinate to existing storage above Bear Lake. 3. Not subordinate to existing storage below Bear Lake. 	<ol style="list-style-type: none"> 1. Subordinate to all direct flow irrigation rights. 2. Subordinate to existing storage above Bear Lake. 3. Not subordinate to existing storage below Bear Lake.

~~See back cover sheet for
compensation report 24 & 25~~

S U M M A R Y

At the last Bear River Compact Commission meeting, April 28 - May 2, 1952, Area Engineer E. K. Thomas of the Logan office of the Bureau of Reclamation, presented a report dated April 18, 1952, including water studies in support thereof, on a new method of compacting on storage on Bear River upstream from Stewart Dam. That report, including the supporting material, was assigned to the Engineering Committee for study and checking. The material herein is a report of the Engineering Committee on the method suggested by Mr. Thomas for consideration by the Commission.

No definitions of terms used in this report are considered necessary with a possible exception of the term "upstream storage". This term includes all storage ^{except} on Bear River and its tributaries upstream from Stewart Dam which has been or may be developed after September 30, 1948.

Difficulty in reaching an interstate agreement on a definite amount of storage upstream from Stewart Dam has centered about two conditions. First, the upstream irrigation interests desire a fairly large amount of storage, sufficient to meet their supplemental irrigation requirements. Second, the downstream irrigation interests dependent on Bear Lake storage have not been willing to enter into a compact allowing any substantial amount of upstream storage, at least partially because they have no control over Bear Lake storage operation and consequently, have been fearful that upstream storage would deplete their water supplies and increase shortages of water such as they have experienced in the past.

The main objective of the method suggested by Mr. Thomas is to place

compacting on a basis (1) whereby the upstream irrigation interests could obtain a storage allowance of a firm type and in such amount as might be acceptable to those upstream interests, (2) whereby the lower irrigation interests could obtain assurance that upstream storage would not interfere with their water supplies or increase their shortages as experienced in the past, and thus would be able to reach an agreement with the upstream interests, (3) whereby the power interests would know to what extent they would be affected by upstream storage and could indicate more definitely than heretofore the extent to which upstream storage would be acceptable to them, and (4) whereby the three states involved could overcome the deadlock that has existed on the upstream storage problem and could arrive at an agreement.

The suggested method of attaining this objective involves, fundamentally, a division of the active storage capacity (1,421,000 acre-feet) in Bear Lake into two parts. One part which may be referred to as the "irrigation reserve" would consist of the bottom portion of the active storage capacity in the lake. The irrigation reserve would be subject to demand for water for irrigation and such incidental power uses as could be made of the water while flowing down Bear River enroute to irrigation diversions. The irrigation reserve, however, would not be subject to demand for any water for use solely for power. The top portion of the active storage capacity in Bear Lake would be subject to demand for water for irrigation and incidental power, and also solely for power.

The active capacity of the irrigation reserve, or the top elevation corresponding to the active capacity of the irrigation reserve, would be specified by the compact. At times when the active storage in Bear Lake

would be in excess of the capacity or above the top elevation specified for the irrigation reserve, storage water in Bear Lake and Mud Lake, including storable water in Bear River at Stewart Dam, would be released as required for irrigation and for incidental power. At such times the storage and storable water also would be subject to release into Bear River solely for power purposes. At times when the active storage in Bear Lake would not be in excess of the capacity or above the top elevation specified for the irrigation reserve, no Bear Lake or Mud Lake storage water or storable water in Bear River at Stewart Dam could be released except for irrigation and incidental power.

The size of the Bear Lake irrigation reserve required to avoid interference with water supplies of the lower irrigation interests, as received in the past, naturally would depend on the amount of storage development that might be allowed above Stewart Dam, since such storage development would affect the storage supply for Bear Lake. Using records of Bear River flows and Bear Lake storage over the 1924-1948 period, Mr. Thomas computed the capacities of the Bear Lake irrigation reserve that would be required for five different annual upstream storage allowances, (10,000, 20,000, 30,000, 40,000 and 50,000 acre-feet). In this manner a correlation was obtained between upstream storage and the Bear Lake irrigation reserve.

In addition to this correlation, the studies show the availability of water over the 1924-1948 period for upstream storage under each of the five storage allowances that were studied. The studies also include estimates of depletions in water supply for power purposes that would result from upstream storage under the five possible storage allowances studied.

As computed for each of the five possible storage allowances, the

upstream storage would be subordinate to existing storage above Bear Lake and also would be subordinate to established uses of the direct flow of Bear River. In order to attain the objective of a firm type of storage, however, the upstream storage would not be subordinate to, or in any way dependent upon, existing or future storage in Bear Lake or elsewhere below Stewart Dam.

Under this method a correlation could be determined between upstream storage at any point on Bear River at or above Stewart Dam, or for any drainage area above Stewart Dam, and the irrigation reserve required in Bear Lake. In his report, Mr. Thomas presented a correlation between upstream storage at Woodruff Narrows (including such storage farther upstream as could be substituted for storage at Woodruff Narrows) and the irrigation reserve required in Bear Lake. The selection of Woodruff Narrows for this correlation was influenced by the physical characteristics of Bear River and its drainage area above Stewart Dam, including the apparent unfavorability of main-stem storage sites below Woodruff Narrows. If desired, however, the correlation could be adjusted readily to cover such relatively small amounts of storage as are needed and are physically available on Bear River tributaries between Stewart Dam and Woodruff Narrows.

In studying and checking the April 18 report of Mr. Thomas, the Engineering Committee found that the factual data, estimates, and allowances used therein were the same as those used in Committee Report No. 24, dated April 10, 1952. The only differences were in the approach to the upstream storage problem and the plan of operation for Bear Lake and upstream storage to meet the objective (stated on page 2 of this report), that Mr. Thomas had in mind. The Committee also found that for that objective, the factual data, estimates, and allowances were handled properly. The Committee therefore considers the correlation between upstream storage and the Bear Lake

irrigation reserve to be correct for the 1924-1948 period within the margin of error induced by any inaccuracies in stream-flow records, estimates, and allowances which have been available to or made by the Committee.

At the request of Mr. Person, Engineering Committee member representing Wyoming, the Committee expanded the studies of Mr. Thomas (covering annual storage allowances of 10,000, 20,000, 30,000, 40,000 and 50,000 acre-feet at Woodruff Narrows) to include allowances of 75,000 and 100,000 acre-feet. Thus, studies of a range of seven different storage allowances at Woodruff Narrows have been made, including the five original studies of Mr. Thomas and the two additional studies made by the Committee. Expansion of the original studies has provided some additional information, particularly on the availability and shortages of water for the larger amounts of storage at Woodruff Narrows, ~~but should not be considered indicative that the Committee favors a large upstream storage allowance.~~

The results of the seven studies are summarized in Tables I, II, and III, and on Plates 1 and 2. Table I shows in tabular form the relationship between various upstream storage allowances (at Woodruff Narrows) and the corresponding capacities of Bear Lake irrigation reserve required to avoid interference with downstream irrigation uses. Table II shows information relative to the availability and shortages of water for storage at Woodruff Narrows for each of the seven storage allowances. Table III shows the estimated effect of upstream storage (at Woodruff Narrows) on water supplies for power purposes. Plate 1 includes two separate figures (Figure 1 and Figure 2) and shows graphically the same information given in Tables I and III. Plate 2 shows graphically the same information given in Table II.

The seven studies, with an explanation of the mechanics of the studies, are included in the Detailed Analysis portion of this report.

TABLE I
RELATIONSHIP BETWEEN UPSTREAM STORAGE ALLOWANCES
AND BEAR LAKE IRRIGATION RESERVE

Annual upstream storage allowance (acre-feet)	Active capacity of Bear Lake irrigation reserve required to avoid interference with downstream irrigation water supplies (acre-feet)
10,000	799,000
20,000	849,000
30,000	884,000 <i>14.01 - 799,000</i>
40,000	906,000
50,000	915,000
75,000	916,000
100,000	916,000

TABLE II
AVAILABILITY AND SHORTAGES OF WATER
FOR UPSTREAM STORAGE

Annual upstream storage allowance (acre-feet)	Years fully available	Average annual amount available (acre-feet)	Maximum annual shortage (acre-feet)	Consecutive shortages	
				Years	Total amount (acre-feet)
10,000	24 25 in 25 44	10,000 ✓	0	0	0
20,000	22 25 in 25 44	20,000 19.9	0	0 1	0 6,000
30,000	36 22 in 25 44	29,000 28.7	7,000 12.0	2 ✓	9,000
40,000	33 19 in 25 44	38,000 36.7	17,000 22.0	3 ✓	30,000
50,000	29 16 in 25 44	45,000 43.89	27,000 32.0	3 ✓	60,000 62.0
75,000	18 6 in 25 44	56,000 57.45	52,000 56.6	16 ✓ (3) ✓	398,000 (125,000) (137.0)
100,000	8 1 in 25 44	60,000 64.9	77,000 81.6	24 ✓ (3) ✓	1,108,000 (210,000) (212.0)

TABLE III
ESTIMATED EFFECT OF UPSTREAM STORAGE
ON WATER SUPPLIES FOR POWER

Annual upstream storage allowance (acre-feet)	<i>Decrease in average annual supply for irrigation (acre-feet)</i>	Decrease in average annual water supply for power (acre-feet)
10,000		10,000 ✓
20,000		20,000 19.1
30,000		28,000 27.4
40,000		34,500 33.5
50,000		38,500 38.5
75,000		44,700 45.74
100,000		46,800 50.5210

CONCLUSIONS

For any given water-supply period, a definite relationship exists between the size of firm-type upstream storage development (subordinate only to prior storage above Stewart Dam and to established uses of direct flow of Bear River) that might be allowed, and the size of a Bear Lake irrigation reserve that would be required to avoid interfering with water supplies and increasing shortages of downstream irrigation interests. Table I and Figure 1 of Plate 1, show the relationship which is applicable for the 1924-1948 period.

Establishment of a Bear Lake irrigation reserve of some specific size, with a corresponding allowance for firm-type upstream storage, is considered a ~~workable means of~~ ^{practical basis for} compacting on upstream storage.

From stream-flow records extending as far back as 1889, adjusted for depletions resulting from irrigation and other development since 1889, the 1924-1948 period now appears to be a representative water-supply period. It therefore appears that this period should be used at this time as a basis for water-supply determinations made for compact purposes.

To provide for the possibility, however, that future stream-flow records may show that the 1924-1948 period is not a sufficiently representative water-supply period, consideration should be given to compact provisions for periodic reviews of stream flow, and for means of making equitable and desirable adjustments in the compact. This will apply not only to the method of compacting on upstream storage covered in this report, but also to any other method that may be considered.

W. N. JIBSON
U. S. Geological Survey

E. K. THOMAS
Bureau of Reclamation

State of Idaho

H. T. PERSON
State of Wyoming

State of Utah

Figure 1
 CAPACITY OF BEAR LAKE IF
 REQUIRED FOR VARIOUS STORAGE ALLOW

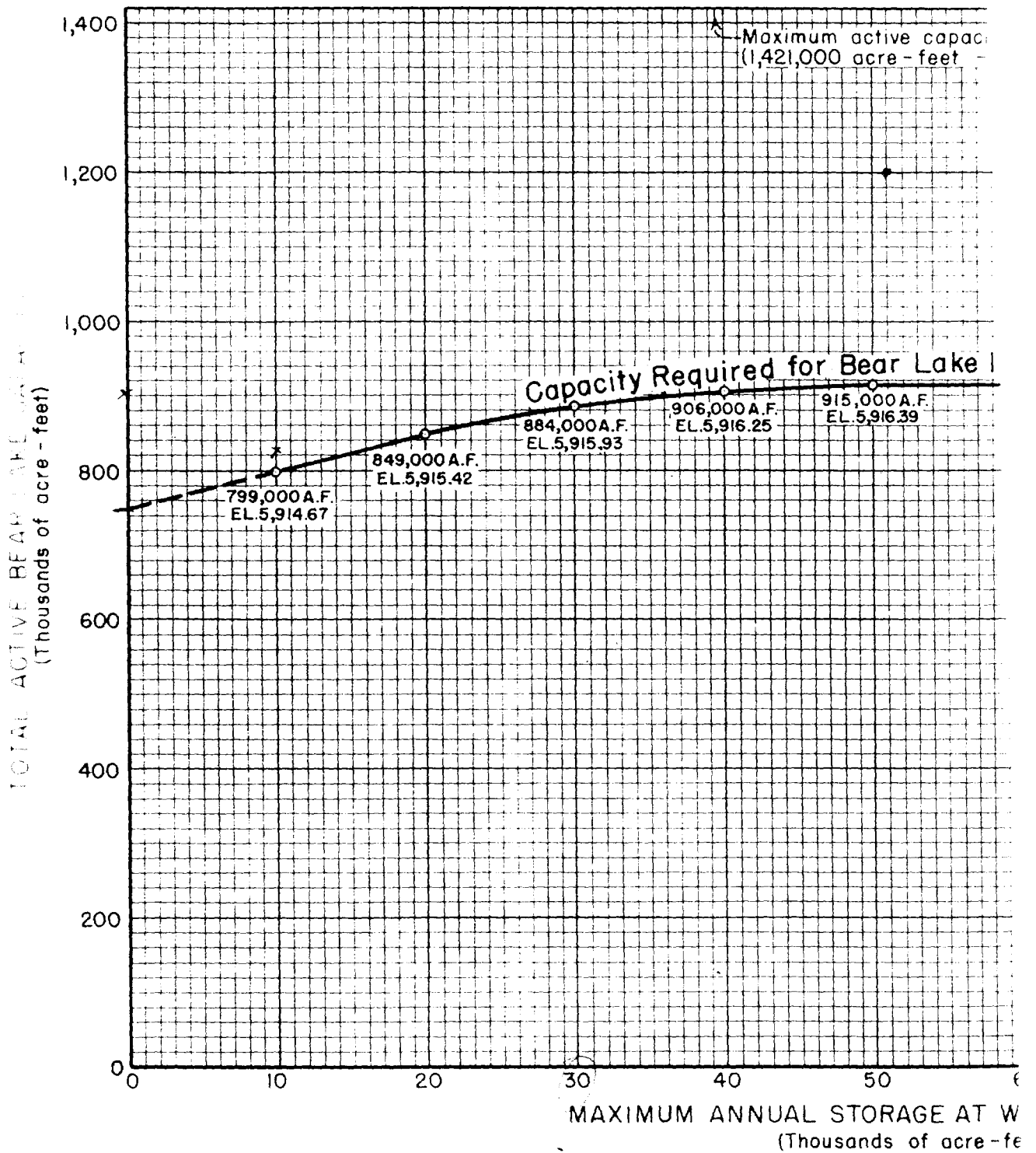
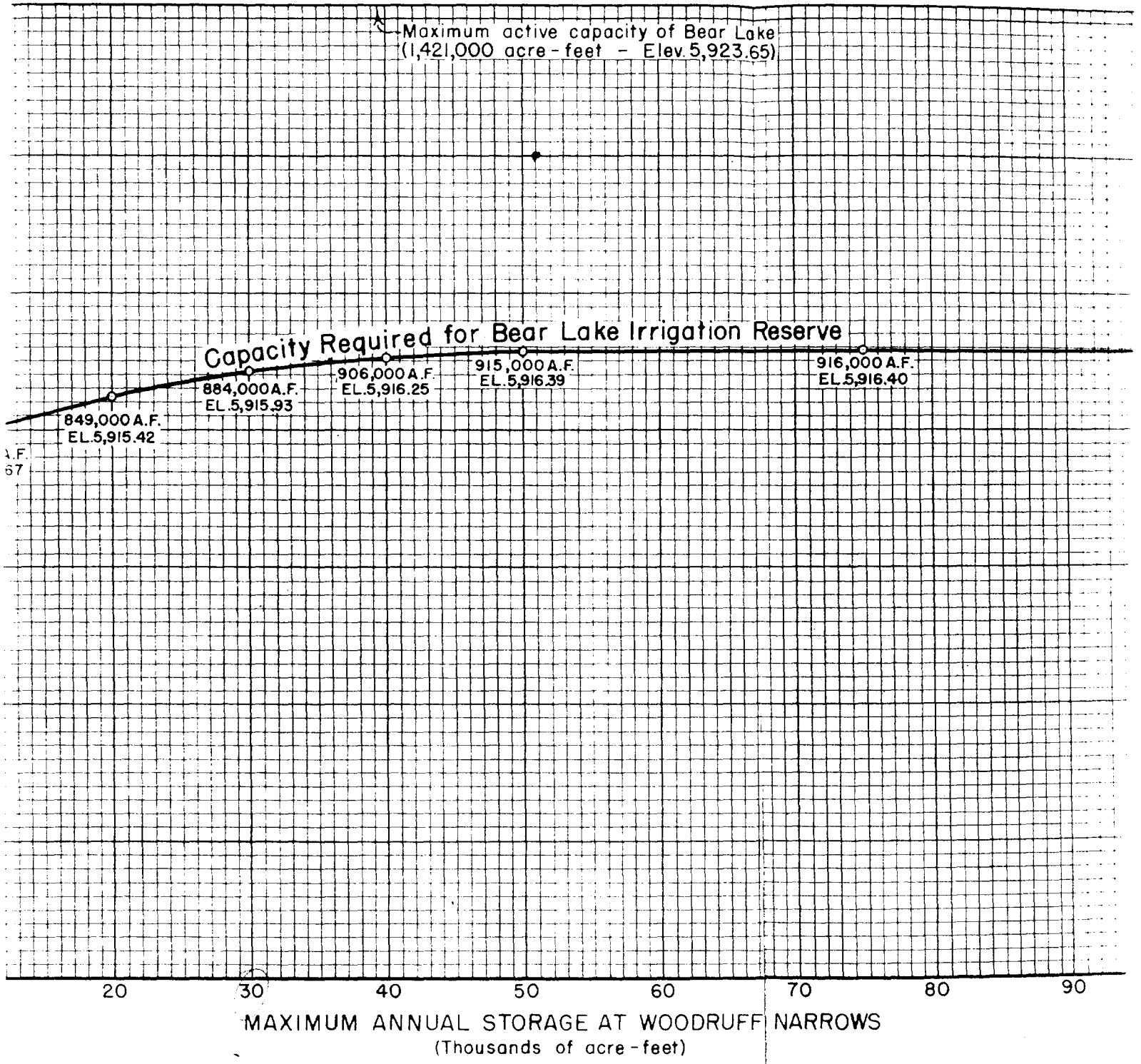
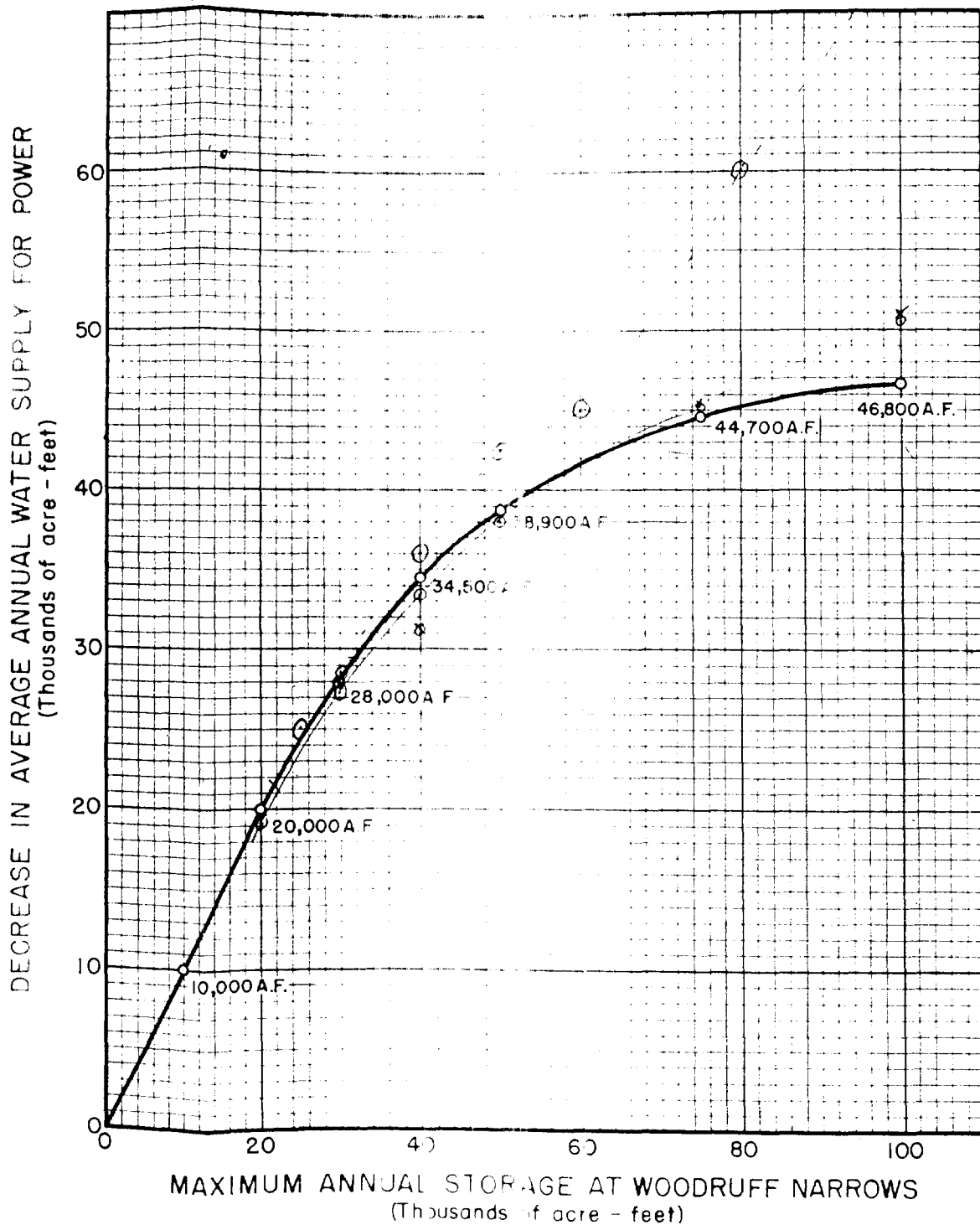


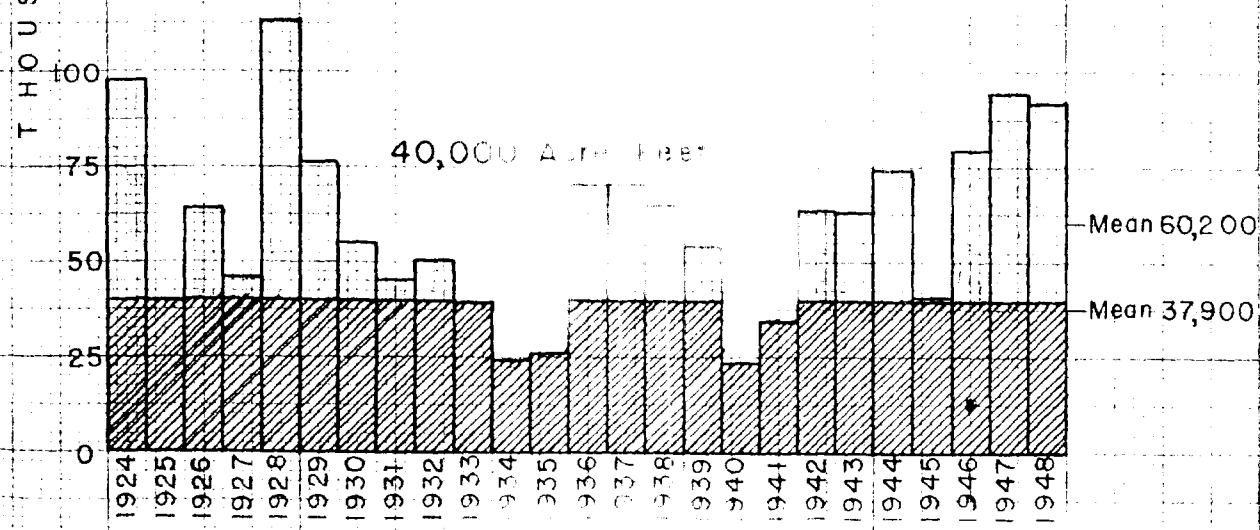
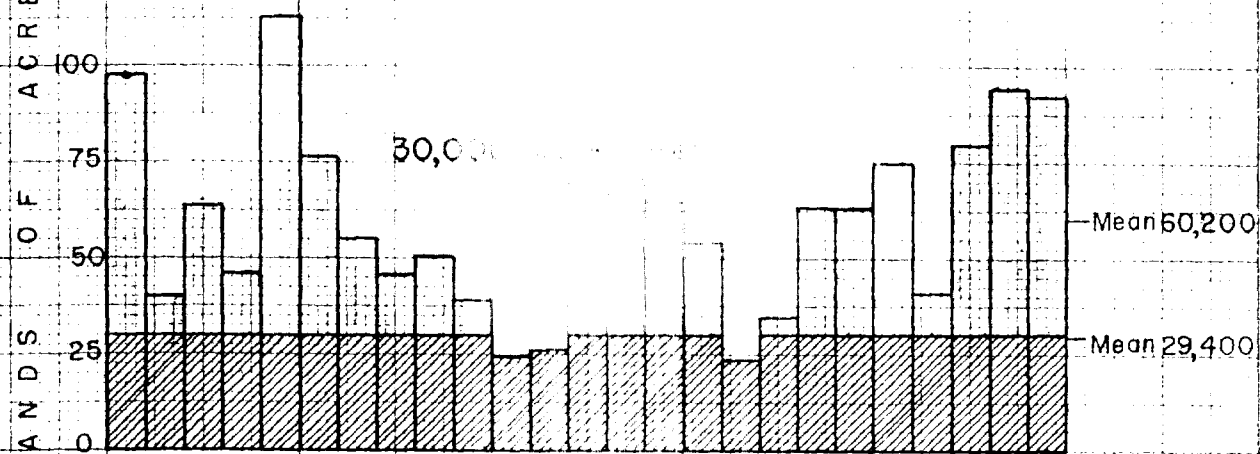
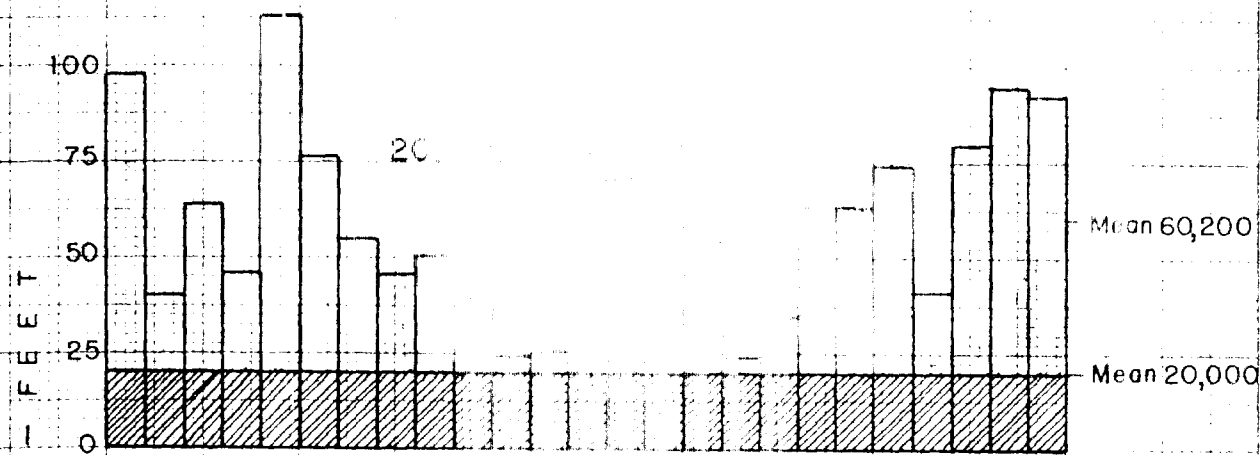
Figure 1
 CAPACITY OF BEAR LAKE IRRIGATION RESERVE
 REQUIRED FOR VARIOUS STORAGE ALLOWANCES AT WOODRUFF NARROWS



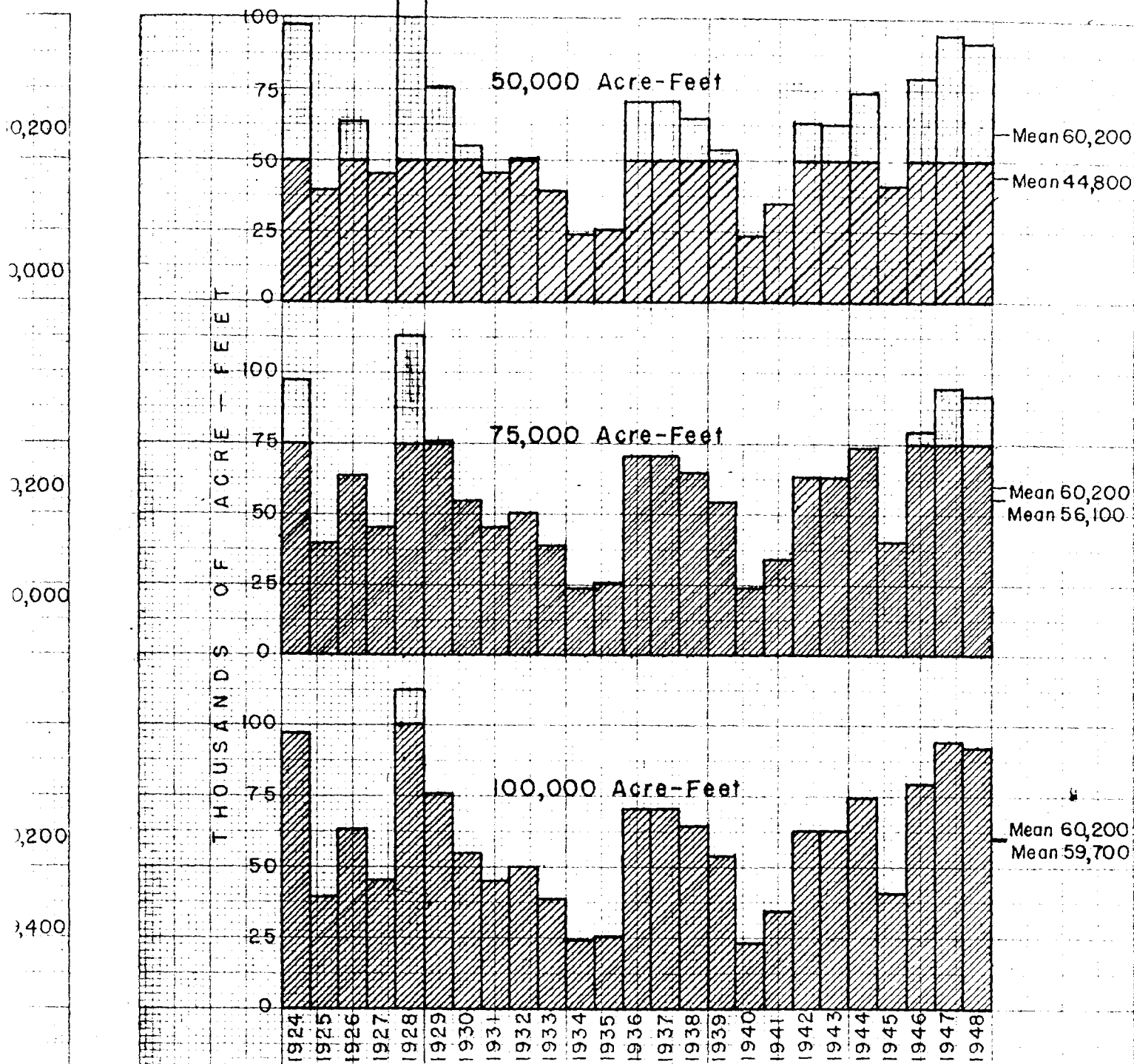
ESTIMATED EFFECT OF WOODRUFF NARROWS STORAGE ON WATER SUPPLY FOR POWER



*85
500
425 00*



A



AVAILABLE SUPPLIES and ASSUMED STORAGE AMOUNTS

at

WOODRUFF NARROWS

Unruled — Supplies in excess of irrigation requirements

Crosshatched — Maximum storage amounts as shown

DETAILS OF THE STUDY

General

The availability of upstream storage and its effect on Bear Lake operation, as determined in this report is limited to available storage supplies at Woodruff Narrows. Taken into account in these studies are the depletions in Bear Lake storage supplies that would result from additional upstream storage, revised Bear Lake operations necessary to offset these depletions, and the capacity of Bear Lake required for irrigation uses. This report covers studies of seven upstream storage schemes as previously outlined on page 5.

DID NOT
CONSIDER
STORAGE
REQUIREMENT

Past Bear Lake Operation Data

The first part of the tabular data, entitled "Past Bear Lake Operation Data", is shown on Plate 3. The primary purpose of this part of the study was to determine the nature and extent of past inflow to Bear Lake for each storage and storage delivery period during the 1924 to 1948 period of study. The net inflow to storage was determined from the algebraic summation of past storage releases for irrigation and power, as obtained from segregation studies made by Mr. Iorns, and actual changes in Bear Lake content during the respective periods. Having determined the net inflow to Bear Lake, by periods, this data is then utilized in the adjusted portion of the Bear Lake Operation.

Available Storage Supplies and Estimated Depletion to Bear Lake

Available storage supplies at Woodruff Narrows as determined for these studies, are shown in columns 16 to 18 on each of the Plates 4 to 10. They include (1) total flow between October 1 and April 30, and (2) excess flow above ideal irrigation requirements and limited to dates Border is above 700 second-feet, but not to exceed that portion of the flow at Border, which is

in excess of 700 second-feet. Ideal irrigation requirements, referred to, were determined by Mr. Iorns in his report #19, dated August 9, 1951. The limiting flow of 700 second-feet at Border prevents infringement on direct flow irrigation rights below Border.

Depletions in Bear Lake storage supplies resulting from additional upstream storage were computed from the following estimated table:

Upstream Storage	Estimated Depletion to Bear Lake Storage Supplies
25,000 a.f. and below	100%
over 25,000 to 35,000	95%
over 35,000 to 45,000	90%
over 45,000 to 55,000	85%
over 55,000	75%

STORAGE REQUIREMENTS NOT CONSIDERED - THIS DEPLETION IS MORE LIKE THAT ON NEW LAND RATHER THAN SUPPLEMENTAL USE

Adjusted Bear Lake Operation

In this portion of the study, Plates 4 to 10, the past Bear Lake operation has been adjusted for the estimated depletion to Bear Lake resulting from the various upstream storage schemes. Taken into account in this part of the study are adjusted inflow to Bear Lake, necessary adjustments in releases, and a division of the total capacity of Bear Lake, the bottom portion of which would be for irrigation uses only and the top for uses as the power Company desires. Columns 20 to 31 show the complete adjusted operation as based on supplies at ^{OK} ~~Stewart Dam~~ ~~Woodruff~~ ~~Stewart~~ ~~Dam~~. The mechanics of this operation is very simple and presents a workable plan for actual operation conditions. The operation begins by assuming that the content of Bear Lake would be the same at the beginning of the period of study as actually occurred in the past on that date. To this content was added the adjusted inflow for the storage period following, less the adjusted release during the period. The resulting figure is the adjusted Bear Lake content at the end of the period. This process is followed for each storage and storage delivery period through the study. As long as the adjusted content of the lake was above the assumed

capacity required for irrigation the pattern of past releases was followed very closely. However, as the content dropped below the assumed required capacity needed for irrigation, releases for power purposes were not permitted. A minimum release of 12,000 acre-feet, during the storage delivery period, was allowed. This amount is classified as unavoidable release due to inefficiency in operation. In all cases, adjusted releases for irrigation would not vary from past releases since the premise on which this operation is based precludes any decrease in irrigation uses below Bear Lake.

Plate 11 is a comparative summary of the various upstream storage schemes, Plates 4 to 10. All data in this summary is on an annual basis and is presented for convenience in comparing available upstream storage, estimated depletion to Bear Lake, adjusted storage release for power, and adjusted Bear Lake content as determined in each of the studies.

In each of the studies the capacity of Bear Lake required for irrigation was an assumed figure and in each case did not prove to be the exact capacity required for irrigation. Had the available storage supplies during the critical period been as great as the maximum annual storage allowed, for each of the various upstream storage schemes, the assumed capacity would have been very nearly the actual capacity required for irrigation. However, since this was not the case, an adjustment of the assumed capacity as used in the respective studies is required in order to obtain the actual required capacity for irrigation for each of the upstream storage schemes studied. This adjustment appears in the following table

Maximum Annual Upstream Storage (Acre-feet)	Assumed Bear Lake Capacity Required for irrigation as used in the operations (Acre-feet)	Minus Adjustments necessary (indicated by studies) (Acre-feet)	Calculated active capacity of Bear Lake Irrigation reservoir required to insure lower irrigation sub-group against any decrease in water supply due to upstream storage (Acre-feet)
1	2	3	4
10,000	800,000 *	1,400	798,600
20,000	850,000	1,400	848,600
30,000	900,000	16,100	883,900
40,000	950,000	43,700	906,300
50,000	1,000,000	84,800	915,200
75,000	1,000,000	84,200	915,800
100,000	1,000,000	84,200	915,800

The adjustment figure, as shown in Column 3 above, taken from the studies is the lowest adjusted Bear Lake content indicated by the respective studies and always appears at the end of the 1935 water year.

* Actual B.L. Spring 1935 — 588,000
 " " " " " " — 21,000
 Actual Lake Content — 811,000 }
 Power storage loss — 72,000 } 739,000
 Actual power released — 134,000
 Reservoir — 749,000

Water year	Storage Period					
	End of Period (date)	Bear Lake content beginning of period	Bear Lake content (end of period)	Change in content during period (3)-(2)	Past storage or storage flows used for power plant	Net water supply available (for storage period) (4)-(5)
	1	2	3	4	5	6
1923						
24	5/25	1,286,000	1,368,300	+82,300	324,900	407,
1925	6/12	1,051,400	1,086,000	+34,600	241,400	279,
26	4/30	927,500	901,600	-25,900	188,000	167,
27	7/4	592,400	640,100	+47,700	241,400	289,
28	6/26	473,500	800,900	+327,400	62,400	383,
29	7/5	580,100	821,700	+241,600	149,400	391,
1930	5/21	710,700	831,700	+121,000	85,100	205,
31	5/6	648,700	670,300	+23,600	71,100	24,
32	7/22	540,100	611,900	+71,800	8,000	279,
33	6/27	608,900	685,600	+76,700	0	176,
34	4/19	469,900	495,500	+25,600	2,200	27,
1935	6/23	134,100	219,900	+85,800	4,000	85,
36	6/21	20,700	415,100	+394,400	0	394,
37	6/16	328,800	638,800	+310,000	23,300	333,
38	7/12	608,300	832,400	+224,100	14,500	338,
39	5/15	750,000	881,100	+131,100	57,600	186,
1940	5/6	605,200	684,200	+79,000	7,100	32,
41	6/22	381,600	441,100	+59,500	18,900	78,
42	6/6	316,100	511,600	+195,500	27,200	223,
43	6/25	308,800	627,100	+318,300	38,700	357,
44	7/8	322,900	752,700	+429,800	24,400	284,
1945	7/5	344,500	758,300	+413,800	9,100	202,
46	6/11	328,500	1,118,400	+789,900	1,500	441,
47	7/7	681,800	1,254,000	+572,200	81,900	384,
1948	6/18	689,000	1,299,000	+610,000	127,500	318,
Average				+182,200	72,200	234,

tabulation to be used in conjunction with the

LAKE OPERATION DATA

Storage Delivery Period							Annual Releases	
End of period (date)	Year Lake content beginning of period	Year Lake content (end of period)	Change in content during period (9)-(8)	Past storage or storage flows used for power at Lake	Past storage releases used for irrigation	Deficiency in water supply due to evaporation (period) (-10)-11-12	Past storage or storage flows used for power at Lake	Past storage releases used for irrigation
7	8	9	10	11	12	13	14	15
2/30	1,355,300	1,057,400	-298,900	121,600	140,200	55,100	445,500	140,200
3/30	1,282,000	927,500	-154,500	90,500	37,000	31,500	331,400	37,000
4/30	901,500	592,400	-309,200	120,100	117,400	71,700	303,100	117,400
5/31	644,100	473,500	-169,600	52,900	58,100	49,600	294,300	58,100
6/30	800,900	580,100	-220,800	58,400	88,600	73,800	120,800	88,600
7/30	821,700	710,700	-111,000	10,300	67,000	33,700	159,700	67,000
8/30	831,700	646,700	-185,000	42,100	88,400	47,500	134,200	88,400
9/30	570,300	340,100	-230,200	0	223,600	106,600	71,100	223,600
9/30	611,900	508,900	-103,000	0	62,500	40,500	8,000	62,500
9/30	685,500	469,900	-215,600	0	135,700	79,900	0	135,700
9/30	495,500	134,100	-361,400	0	230,100	131,300	2,200	230,100
9/30	219,500	20,700	-198,800	0	120,000	79,200	4,000	120,000
9/30	415,100	328,500	-86,600	0	45,600	39,700	0	46,600
9/30	638,800	508,300	-130,500	0	77,700	52,800	23,300	77,700
9/30	832,400	750,000	-82,400	0	49,100	33,300	14,500	49,100
9/30	881,100	655,200	-225,900	7,900	147,100	70,900	65,500	147,100
9/30	684,200	381,500	-302,700	0	205,800	96,900	7,100	205,800
9/30	441,100	315,100	-126,000	0	84,200	41,800	18,900	84,200
9/30	511,500	308,800	-202,700	0	135,600	67,100	27,200	135,600
9/30	627,100	492,900	-134,200	17,200	64,500	52,500	55,900	64,500
9/30	752,700	564,500	-188,200	0	107,700	80,500	24,400	107,700
9/30	755,300	673,300	-82,000	24,600	19,700	35,700	33,700	19,700
9/30	1,155,400	951,500	-199,900	64,200	48,400	64,300	65,700	48,400
9/30	1,251,000	1,099,000	-152,000	76,800	56,200	22,000	158,700	56,200
9/30	1,250,000	1,077,000	-173,000	77,800	90,200	45,000	205,300	90,200
			-190,500	30,800	100,000	59,700	103,000	100,000

(owing 7 plates)

col 28

col 324
col 325
col 326
col 327

BEAR LAKE OPERATION ADJUSTED FOR
(Based on supplies at Woodruff Narrows with 10,000)

Water Year	Flow Available For Storage at Woodruff Narrows			Flow available for storage at Woodruff Narrows limited to a maximum of <u>10,000</u> a.f.	A D J U S T			
	Oct. 1 to April 30	Excess flow over irrigation require- ments after May 1	Total flow available for storage Col.(16+17)		Storage Period			
					Estimated depletion to Bear lake from upstream storage	Net water supply available (for storage period) Col. (6)	Adjusted supply during period Col. (21) - (20)	Adjusted storage or storable flows used for power at Cutler
16	17	18	19	20	21	22	23	
1923								
1924	78,200	19,600	97,800	10,000	10,000	407,200	397,200	314,900
1925	37,000	2,900	39,900	10,000	10,000	278,000	266,000	231,400
1926	63,300	1,100	64,400	10,000	10,000	157,100	147,100	173,000
1927	38,400	7,500	45,900	10,000	10,000	289,100	279,100	151,500
1928	62,200	51,300	113,500	10,000	10,000	383,800	373,800	254,100
1929	47,100	29,600	76,700	10,000	10,000	391,000	381,000	206,600
1930	54,800	100	54,900	10,000	10,000	206,100	196,100	83,400
1931	45,200	0	45,200	10,000	10,000	94,700	84,700	0
1932	41,400	9,700	51,100	10,000	10,000	279,800	269,800	0
1933	30,500	8,800	39,300	10,000	10,000	176,600	166,600	0
1934	24,600	0	24,600	10,000	10,000	27,800	17,800	0
1935	22,900	3,700	26,600	10,000	10,000	89,800	79,800	0
1936	43,400	27,800	71,200	10,000	10,000	394,400	384,400	0
1937	55,600	15,000	70,600	10,000	10,000	333,300	323,300	0
1938	50,300	14,500	64,800	10,000	10,000	338,600	328,600	0
1939	52,800	1,300	54,100	10,000	10,000	188,700	178,700	81,200
1940	23,400	0	23,400	10,000	10,000	36,100	26,100	0
1941	28,200	6,300	34,500	10,000	10,000	78,500	68,500	0
1942	63,700	0	63,700	10,000	10,000	223,600	213,600	0
1943	49,500	13,500	63,000	10,000	10,000	357,000	347,000	0
1944	44,000	30,400	74,400	10,000	10,000	284,200	274,200	0
1945	38,400	2,300	40,700	10,000	10,000	202,900	192,900	0
1946	71,400	7,600	79,000	10,000	10,000	441,600	431,600	0
1947	57,400	37,300	94,700	10,000	10,000	384,400	374,400	65,600
1948	63,400	28,600	92,000	10,000	10,000	318,500	308,500	117,500
Average	47,500	12,700	60,200	10,000	10,000	254,400	244,400	67,200

* A minimum release of 12,000 A.F., during the storage delivery period, is allowed for due to inefficiency in operation.

47,500
12,700
60,200

DEL FOR UPSTREAM STORAGE
 (10,000 A.F. allowable upstream storage)

C - Rat
 11111111

LISTED BEAR LAKE OPERATION

Listed releases for power	Adjusted content of Bear Lake (end of period)	Storage Delivery Period				Annual Releases		
		Deficiency in water supply (due to evapora- tion) Col. (13)	Adjusted storage or storable flows used for power at Cutler	Storage releases used for irrigation Col. (12)	Decrease in irrigation releases (over past conditions)	Adjusted content of Bear Lake (end of period) Col. (24) - (25+26 +27)	Adjusted storage or storable flows used for power at Cutler Col. (23) + (26)	Adjusted storage releases used for irrigation Col. (27)
25	24	25	26	27	28	29	30	31
						1,286,000		
4,900	1,368,300	55,100	121,600	140,200	0	1,051,400	436,500	140,200
1,400	1,086,000	31,500	90,000	37,000	0	927,500	321,400	37,000
3,000	901,600	71,700	140,100	117,400	0	672,400	213,100	117,400
1,500	800,000	49,600	12,000	58,100	0	680,300	182,500	58,100
4,100	800,000	73,800	12,000	88,600	0	625,600	266,100	88,600
6,600	800,000	33,700	12,000	67,000	0	687,300	218,600	67,000
13,400	800,000	47,500	12,000	88,400	0	652,100	95,400	88,400
0	736,800	106,800	12,000	223,600	0	394,600	12,000	223,600
0	664,400	40,500	12,000	62,500	0	549,400	12,000	62,500
0	716,600	79,900	12,000	135,700	0	488,400	12,000	135,700
0	506,200	131,300	12,000	230,100	0	132,800	12,000	230,100
0	212,600	79,200	12,000	120,000	0	1,400	12,000	120,000
0	385,800	39,700	12,000	46,600	0	287,500	12,000	46,600
0	610,800	52,800	12,000	77,700	0	468,300	12,000	77,700
0	796,900	33,300	12,000	49,100	0	702,500	12,000	49,100
11,200	800,000	70,900	12,000	147,100	0	570,000	93,200	147,100
0	596,100	96,900	12,000	205,800	0	281,400	12,000	205,800
0	349,900	41,800	12,000	84,200	0	211,900	12,000	84,200
0	425,500	67,100	12,000	135,600	0	210,800	12,000	135,600
0	557,800	52,500	12,000	64,500	0	428,800	12,000	64,500
0	703,000	80,500	12,000	107,700	0	502,800	12,000	107,700
0	595,700	35,700	12,000	19,700	0	628,300	12,000	19,700
0	1,059,900	54,300	12,000	48,400	0	945,200	12,000	48,400
15,600	1,254,000	22,000	76,800	56,200	0	1,099,000	142,400	56,200
17,500	1,290,000	45,000	77,800	90,200	0	1,077,000	195,300	90,200
17,200		59,700	25,800	100,000	0		93,000	100,000

for power and is classified as unavoidable release

BEAR LAKE OPERATION ADJUSTED FC
(Based on supplies at Woodruff Narrows with 20,000)

Water Year	Flow Available For Storage at Woodruff Narrows			Flow available for storage at Woodruff Narrows limited to a maximum of <u>20,000</u> a.f.	A D J U S T S			
	Oct. 1 to April 30	Excess flow over irrigation requirements after May 1	Total flow available for storage Col. (16+17)		Storage Period			
					Estimated depletion to Bear Lake from upstream storage	Net water supply available (for storage period) Col. (6)	Adjusted supply during period Col. (21) - (20)	Adjusted storage or storable flows used for power at Carter
	16	17	18	19	20	21	22	23
1923								
1924	78,200	19,600	97,800	20,000	20,000	407,200	387,200	304,900
1925	37,000	2,900	39,900	20,000	20,000	276,900	256,000	221,400
1926	63,300	1,100	64,400	20,000	20,000	157,100	137,100	183,000
1927	38,400	7,500	45,900	20,000	20,000	289,100	269,100	111,500
1928	62,200	51,300	113,500	20,000	20,000	383,800	363,800	244,100
1929	47,100	23,600	76,700	20,000	20,000	391,000	371,000	196,600
1930	54,800	100	54,900	20,000	20,000	206,100	186,100	75,400
1931	45,200	0	45,200	20,000	20,000	94,700	74,700	0
1932	41,400	9,700	51,100	20,000	20,000	279,800	259,800	0
1933	30,500	8,800	39,300	20,000	20,000	176,600	156,600	0
1934	24,600	0	24,600	20,000	20,000	27,800	7,800	0
1935	22,900	3,700	26,600	20,000	20,000	89,800	69,800	0
1936	43,400	27,800	71,200	20,000	20,000	394,400	374,400	0
1937	55,600	18,000	70,600	20,000	20,000	333,300	313,300	0
1938	50,300	14,500	64,800	20,000	20,000	338,600	318,600	0
1939	52,800	1,300	54,100	20,000	20,000	188,700	168,700	0
1940	23,400	0	23,400	20,000	20,000	36,100	16,100	0
1941	28,200	6,300	34,500	20,000	20,000	78,500	58,500	0
1942	63,700	0	63,700	20,000	20,000	223,600	203,600	0
1943	49,500	13,500	63,000	20,000	20,000	357,000	337,000	0
1944	44,000	30,400	74,400	20,000	20,000	284,200	264,200	0
1945	38,400	2,300	40,700	20,000	20,000	202,900	182,900	0
1946	71,400	7,600	79,000	20,000	20,000	441,600	421,600	0
1947	57,400	37,300	94,700	20,000	20,000	384,400	364,400	26,800
1948	63,400	28,600	92,000	20,000	20,000	318,500	298,500	107,500
Average	47,500	12,700	60,200	20,000	20,000	264,400	234,400	58,000

* A minimum release of 12,000 A.F., during the storage-delivery period, is allowed for; due to inefficiency in operation.

AD FOR UPSTREAM STORAGE
 20,000 A.F. allowable upstream storage)

UNTESTED BEAR LAKE OPERATION

		Storage Delivery Period					Annual Releases	
Adjusted content of Bear Lake (end of period)	Adjusted content of Bear Lake (end of period)	Deficiency in water supply (due to evapo- ration) (Col. (13))	Adjusted storage or storable flows used for power at Cutler	Storage releases used for irrigation Col. (12)	Decrease in irrigation releases (over past conditions)	Adjusted content of Bear Lake (end of period) Col. (24) - (25+26 +27)	Adjusted storage or storable flows used for power at Cutler Col. (23) +(26)	Adjusted storage releases used for irrigation Col. (27)
24	24	25	26	27	28	29	30	31
						1,286,000		
4,900	1,368,300	55,100	121,600	140,200	0	1,051,400	426,500	140,200
4,400	1,256,000	31,500	90,000	37,000	0	927,500	311,400	37,000
3,000	901,600	71,700	20,100	117,400	0	692,400	183,100	117,400
1,500	850,000	49,600	12,000	58,100	0	730,300	123,500	58,100
4,100	850,000	73,800	12,000	88,600	0	675,600	256,100	88,600
3,600	850,000	33,700	12,000	67,000	0	737,300	298,600	67,000
2,400	850,000	47,500	12,000	88,400	0	702,100	85,400	88,400
0	776,800	106,600	12,000	223,600	0	434,600	12,000	223,600
0	694,400	40,500	12,000	62,500	0	579,400	12,000	62,500
0	736,000	79,900	12,000	135,700	0	508,400	12,000	135,700
0	516,200	131,300	12,000	230,100	0	142,800	12,000	230,100
0	212,600	79,200	12,000	120,000	0	1,400	12,000	120,000
0	375,800	39,700	12,000	46,600	0	277,500	12,000	46,600
0	590,800	52,800	12,000	77,700	0	448,300	12,000	77,700
0	766,900	33,300	12,000	49,100	0	672,500	12,000	49,100
0	841,200	70,900	12,000	147,100	0	611,200	12,000	147,100
0	627,300	96,900	12,000	205,800	0	312,600	12,000	205,800
0	371,100	41,800	12,000	84,200	0	233,100	12,000	84,200
0	436,700	67,100	12,000	135,600	0	222,000	12,000	135,600
0	559,000	52,500	12,000	64,500	0	430,000	12,000	64,500
0	694,200	80,500	12,000	107,700	0	494,000	12,000	107,700
0	676,900	35,700	12,000	19,700	0	609,500	12,000	19,700
0	1,031,100	54,300	12,000	48,400	0	916,400	12,000	48,400
3,800	1,254,000	22,000	76,800	56,200	0	1,099,000	103,600	56,200
7,500	1,290,000	45,000	77,800	90,200	0	1,077,000	185,300	90,200
8,000		59,700	25,000	100,000			83,000	100,000

for power and is classified as unavoidable release

BEAR LAKE OPERATION ADJUSTED FOR
(Based on supplies at Woodruff Narrows with 30,000)

Water Year	Flow Available For Storage at Woodruff Narrows			Flow available for storage at Woodruff Narrows limited to a maximum of <u>30,000</u> a.f.	A D J U S T			
	Oct. 1 to April 30	Excess flow over irrigation requirements after May 1	Total flow available for storage Col. (16+17)		Storage Period			
					Estimated depletion to Bear Lake from upstream storage	Net water supply available (for storage period) Col. (6)	Adjusted supply during period Col. (21) - (20)	Adjusted storage or storable flows used for power at October
	16	17	18	19	20	21	22	23
1923								
1924	78,200	19,600	97,800	30,000	28,500	407,200	378,700	296,400
1925	37,000	2,900	39,900	30,000	28,500	276,000	247,500	212,900
1926	63,300	1,100	64,400	30,000	28,500	157,100	128,600	154,500
1927	38,400	7,500	45,900	30,000	28,500	289,100	260,600	61,100
1928	62,200	51,300	113,500	30,000	28,500	383,800	355,300	235,600
1929	47,100	29,600	76,700	30,000	28,500	391,000	362,500	188,100
1930	54,800	100	54,900	30,000	28,500	206,100	177,600	64,900
1931	45,200	0	45,200	30,000	28,500	94,700	66,200	0
1932	41,400	9,700	51,100	30,000	28,500	279,800	251,300	0
1933	30,500	8,800	39,300	30,000	28,500	176,600	148,100	0
1934	24,600	0	24,600	24,600	24,600	27,800	3,200	0
1935	22,900	3,700	26,600	26,600	25,200	89,800	64,600	0
1936	43,400	27,800	71,200	30,000	28,500	394,400	365,900	0
1937	55,600	15,000	70,600	30,000	28,500	333,300	304,800	0
1938	50,300	14,500	64,800	30,000	28,500	338,600	310,100	0
1939	52,800	1,300	54,100	30,000	28,500	188,700	160,200	0
1940	23,400	0	23,400	23,400	23,400	36,100	12,700	0
1941	28,200	6,300	34,500	30,000	28,500	78,500	50,000	0
1942	63,700	0	63,700	30,000	28,500	223,600	195,100	0
1943	49,500	13,500	63,000	30,000	28,500	357,000	328,500	0
1944	44,000	30,400	74,400	30,000	28,500	284,200	255,700	0
1945	38,400	2,300	40,700	30,000	28,500	202,900	174,400	0
1946	71,400	7,600	79,000	30,000	28,500	441,600	413,100	0
1947	57,400	37,300	94,700	30,000	28,500	384,400	355,900	0
1948	63,400	26,600	92,000	30,000	28,500	316,500	290,000	99,000
Average	47,500	12,700	60,200	29,400	28,000	254,400	226,400	52,500

* A minimum release of 12,000 A.F., during the storage delivery period, is allowed for power due to inefficiency in operation.

ED FOR UPSTREAM STORAGE
 30,000 A. F. allowable upstream storage)

TESTED BEAR LAKE OPERATION								
		Storage Delivery Period					Annual Releases	
Adjusted content of Bear Lake (end of period)	Deficiency in water supply (due to evapo- ration) Col. (13)	Adjusted storage or storable flows used for power at Cutler	Storage releases used for irrigation Col. (12)	Decrease in irrigation releases (over past conditions)	Adjusted content of Bear Lake (end of period) Col. (24) - (25 + 26 + 27)	Adjusted storage or storable flows used for power at Cutler Col. (23) + (26)	Adjusted storage releases used for irrigation Col. (27)	
24	25	26	27	28	29	30	31	
					1,286,000			
400	1,368,300	55,100	121,600	140,200	0	1,051,400	140,200	
500	1,086,000	31,500	90,000	37,000	0	927,500	37,000	
600	901,600	71,700	12,000	117,400	0	700,500	117,400	
700	900,000	49,600	12,000	58,100	0	780,300	58,100	
800	900,000	73,800	12,000	88,600	0	725,600	88,600	
900	900,000	33,700	12,000	67,000	0	787,300	67,000	
000	900,000	47,500	12,000	88,400	0	752,100	88,400	
000	818,300	106,600	12,000	223,600	0	476,100	223,600	
000	727,400	40,500	12,000	62,500	0	612,400	62,500	
000	780,500	79,900	12,000	135,700	0	532,900	135,700	
000	536,100	131,300	12,000	230,100	0	162,700	230,100	
000	227,300	79,200	12,000	120,000	0	15,100	120,000	
000	382,000	39,700	12,000	46,600	0	283,700	46,600	
000	588,500	52,800	12,000	77,700	0	446,000	77,700	
000	756,100	33,300	12,000	49,100	0	661,700	49,100	
000	821,900	70,900	12,000	147,100	0	591,900	147,100	
000	604,600	96,900	12,000	205,800	0	289,900	205,800	
000	339,900	41,800	12,000	84,200	0	201,900	84,200	
000	397,000	67,100	12,000	135,600	0	182,300	135,600	
000	510,800	52,500	12,000	64,500	0	381,800	64,500	
000	637,500	80,500	12,000	107,700	0	437,300	107,700	
000	611,700	35,700	12,000	19,700	0	544,300	19,700	
000	957,400	54,300	12,000	48,400	0	842,700	48,400	
000	1,198,600	22,000	21,400	56,200	0	1,099,000	56,200	
000	1,290,000	45,000	77,800	90,200	0	1,077,000	90,200	
000		59,700	22,500	100,000	0		100,000	

for power and is classified as unavoidable release

BEAR LAKE OPERATION ADJ
(Based on supplies at Woodruff Narrows)

Water Year	Flow Available For Storage at Woodruff Narrows			Flow available for storage at Woodruff Narrows limited to a maximum of 40,000 a. f.	A D J U S			
	Oct. 1 to April '30	Excess flow over irrigation requirements after May 1	Total flow available for storage Col. (16+17)		Storage Period			
					Estimated depletion to Bear Lake from upstream storage	Net water supply available (for storage period) Col. (6)	Adjusted supply during period Col. (21) - (20)	Adjusted storage flows used for power at Cattle
	16	17	18	19	20	21	22	23
1923								
1924	78,200	19,600	97,800	40,000	36,000	407,200	371,200	288,200
1925	37,000	2,900	39,900	39,900	35,900	276,000	240,100	205,500
1926	63,300	1,100	64,400	40,000	36,000	157,100	121,100	111,600
1927	38,400	7,500	45,900	40,000	36,000	289,100	253,100	52,000
1928	62,200	51,300	113,500	40,000	36,000	383,800	347,800	228,100
1929	47,100	29,600	76,700	40,000	36,000	391,000	355,000	180,600
1930	54,800	100	54,900	40,000	36,000	206,100	170,100	57,400
1931	45,200	0	45,200	40,000	36,000	94,700	58,700	0
1932	41,400	9,700	51,100	40,000	36,000	279,800	243,800	0
1933	30,500	8,800	39,300	39,300	35,400	176,600	141,200	0
1934	24,600	0	24,600	24,600	24,600	27,800	3,200	0
1935	22,900	3,700	26,600	26,600	25,700	89,800	64,100	0
1936	43,400	27,800	71,200	40,000	36,000	394,400	358,400	0
1937	55,600	15,000	70,600	40,000	36,000	333,300	297,300	0
1938	50,300	14,500	64,800	40,000	36,000	338,600	302,600	0
1939	52,800	1,300	54,100	40,000	36,000	188,700	152,700	0
1940	23,400	0	23,400	23,400	23,400	36,100	12,700	0
1941	28,200	6,300	34,500	34,500	32,800	78,500	45,700	0
1942	63,700	0	63,700	40,000	36,000	223,600	187,600	0
1943	49,500	13,500	63,000	40,000	36,000	357,000	321,000	0
1944	44,000	30,400	74,400	40,000	36,000	284,200	248,200	0
1945	38,400	2,300	40,700	40,000	36,000	202,900	166,900	0
1946	71,400	7,600	79,000	40,000	36,000	441,600	405,600	0
1947	57,400	37,300	94,700	40,000	36,000	384,400	348,400	0
1948	63,400	28,600	92,000	40,000	36,000	318,500	282,500	49,200
Average	47,500	12,700	60,200	37,900	34,500	254,400	219,900	46,900

* A minimum release of 12,000 A.F., during the storage delivery period, is allowed for inefficiency in operation.

ADJUSTED FOR UPSTREAM STORAGE
 (flows with 40,000 A.F. allowable upstream storage)

ADJUSTED BEAR LAKE OPERATION

		Storage Delivery Period				Annual Releases		
Adjusted storage or flows used at Cutler	Adjusted content of Bear Lake (end of period)	Deficiency in water supply (due to evaporation) Col. (13)	* Adjusted storage or flows used for power at Cutler	Storage releases used for irrigation Col. (12)	Decrease in irrigation releases (over past conditions)	Adjusted content of Bear Lake (end of period) Col. (24) - (25 / 26 / 27)	Adjusted storage or flows used for power at Cutler Col. (23) / (26)	Adjusted storage releases used for irrigation Col. (27)
23	24	25	26	27	28	29	30	31
						1,286,000		
8,900	1,368,300	55,100	121,600	140,200	0	1,051,400	410,500	140,200
5,500	1,086,000	31,500	77,000	37,000	0	940,500	282,500	37,000
1,600	950,000	71,700	12,000	117,400	0	748,900	123,600	117,400
2,000	950,000	49,600	12,000	58,100	0	830,300	64,000	58,100
8,100	950,000	73,800	12,000	88,600	0	775,600	240,100	88,600
0,600	950,000	33,700	12,000	67,000	0	837,300	192,600	67,000
7,400	950,000	47,500	12,000	88,400	0	802,100	69,400	88,400
0	860,800	106,600	12,000	223,600	0	518,600	12,000	223,600
0	762,400	40,500	12,000	62,500	0	647,400	12,000	62,500
0	788,600	79,900	12,000	135,700	0	561,000	12,000	135,700
0	564,200	131,300	12,000	230,100	0	190,800	12,000	230,100
0	254,900	79,200	12,000	120,000	0	43,700	12,000	120,000
0	402,100	39,700	12,000	46,600	0	303,800	12,000	46,600
0	601,100	52,800	12,000	77,700	0	458,600	12,000	77,700
0	761,200	33,300	12,000	49,100	0	666,800	12,000	49,100
0	819,500	70,900	12,000	147,100	0	589,500	12,000	147,100
0	602,200	96,900	12,000	205,800	0	287,500	12,000	205,800
0	333,200	41,800	12,000	84,200	0	195,200	12,000	84,200
0	382,800	67,100	12,000	135,600	0	168,100	12,000	135,600
0	489,100	52,500	12,000	64,500	0	360,100	12,000	64,500
0	608,300	80,500	12,000	107,700	0	408,100	12,000	107,700
0	575,000	35,700	12,000	19,700	0	507,600	12,000	19,700
0	913,200	54,300	12,000	48,400	0	798,500	12,000	48,400
0	1,146,900	22,000	12,000	56,200	0	1,056,700	12,000	56,200
9,200	1,290,000	45,000	77,800	90,200	0	1,077,000	127,000	90,200
5,900	-	59,700	21,600	100,000	0	-	68,500	100,000

allowed for power and is classified as unavoidable release due to

BEAR LAKE OPERATION ADJUSTED F
(Based on supplies at Woodruff Narrows with 50,0

Water Year				Flow available for storage at Woodruff Narrows limited to a maximum of <u>50,000</u> a.f.	STORAGE PERIOD					
	Oct. 1 to April 30	Excess flow over irrigation require- ments after May 1	Total flow available for storage Col. (16+17)		Estimated depletion to Bear Lake from upstream storage	Net water supply available (for storage period) Col. (6)	Adjusted supply during period Col. (21) -(20)	Adjusted Storage or storable flows used for power at Cutler		
										16
1923										
1924	78,200	19,600	97,800	50,000	42,500	407,200	364,700	282,400	1	
1925	37,000	2,900	39,900	39,900	35,900	276,000	240,100	205,500	1	
1926	63,300	1,100	64,400	50,000	42,500	157,100	114,600	82,100	1	
1927	38,400	7,500	45,900	45,900	39,000	289,100	250,100	49,000	1	
1928	62,200	51,300	113,500	50,000	42,500	383,800	341,300	221,600	1	
1929	47,100	29,600	76,700	50,000	42,500	391,000	348,500	174,100	1	
1930	54,800	100	54,900	50,000	42,500	206,100	163,600	50,900	1	
1931	45,200	0	45,200	45,200	38,400	94,700	56,300	0		
1932	41,400	9,700	51,100	50,000	42,500	279,800	237,300	0		
1933	30,500	8,800	39,300	39,300	35,400	176,600	141,200	0		
1934	24,600	0	24,600	24,600	24,600	27,800	3,200	0		
1935	22,900	3,700	26,600	26,600	25,700	89,800	64,100	0		
1936	43,400	27,800	71,200	50,000	42,500	394,400	351,900	0		
1937	55,600	15,000	70,600	50,000	42,500	333,300	290,800	0		
1938	50,300	14,500	64,800	50,000	42,500	338,600	296,100	0		
1939	52,800	1,300	54,100	50,000	42,500	188,700	146,200	0		
1940	23,400	0	23,400	23,400	23,400	36,100	12,700	0		
1941	28,200	6,300	34,500	34,500	32,800	78,500	45,700	0		
1942	63,700	0	63,700	50,000	42,500	223,600	181,100	0		
1943	49,500	13,500	63,000	50,000	42,500	357,000	314,500	0		
1944	44,000	30,400	74,400	50,000	42,500	284,200	241,700	0		
1945	38,400	2,300	40,700	40,700	36,600	202,900	166,300	0		
1946	71,400	7,600	79,000	50,000	42,500	441,600	399,100	0		
1947	57,400	37,300	94,700	50,000	42,500	384,400	341,900	0		
1948	63,400	28,600	92,000	50,000	42,500	313,500	276,000	24,700		
Average	47,500	12,700	60,200	44,800	38,900	254,400	215,500	43,600		

* A minimum release of 12,000 A.F., during the storage delivery period, is allowed for inefficiency in operation.

ADJUSTED FOR UPSTREAM STORAGE
with 50,000 A. F. allowable upstream storage)

		STORAGE DELIVERY PERIOD					ANNUAL RELEASES	
Adjusted content of Bear Lake (end of period)	Adjusted content of Bear Lake (end of period)	Deficiency in water supply (due to evapora- tion) Col. (13)	* Adjusted storage or storable flows used for power at Cutler	Storage releases used for irrigation Col. (12)	Decrease in irrigation releases (over past conditions)	Adjusted content of Bear Lake (end of period) Col. (24) -(25 + 26 + 27)	Adjusted storage or storable flows used for power at Cutler Col. (23) + (26)	Adjusted storage releases used for irrigation Col. (27)
23	24	25	26	27	28	29	30	31
						1,286,000		
2,400	1,368,300	55,100	121,600	140,200	0	1,051,400	404,000	140,200
2,500	1,086,000	31,500	50,000	37,000	0	967,500	255,500	37,000
2,100	1,000,000	71,700	12,000	117,400	0	798,900	94,100	117,400
2,000	1,000,000	49,600	12,000	58,100	0	880,300	61,000	58,100
1,600	1,000,000	73,800	12,000	88,600	0	825,600	233,600	88,600
1,100	1,000,000	33,700	12,000	67,000	0	887,300	186,100	67,000
2,900	1,000,000	47,500	12,000	88,400	0	852,100	62,900	88,400
0	908,400	106,600	12,000	223,600	0	566,200	12,000	223,600
0	803,500	40,500	12,000	62,500	0	688,500	12,000	62,500
0	829,700	79,900	12,000	135,700	0	602,100	12,000	135,700
0	605,300	131,300	12,000	230,100	0	231,900	12,000	230,100
0	296,000	79,200	12,000	120,000	0	84,800	12,000	120,000
0	436,700	39,700	12,000	46,600	0	338,400	12,000	46,600
0	629,200	52,800	12,000	77,700	0	486,700	12,000	77,700
0	782,800	33,300	12,000	49,100	0	688,400	12,000	49,100
0	834,600	70,900	12,000	147,100	0	604,600	12,000	147,100
0	617,300	96,900	12,000	205,800	0	302,600	12,000	205,800
0	348,300	41,800	12,000	84,200	0	210,300	12,000	84,200
0	391,400	67,100	12,000	135,600	0	176,700	12,000	135,600
0	491,200	52,500	12,000	64,500	0	362,200	12,000	64,500
0	603,900	80,500	12,000	107,700	0	403,700	12,000	107,700
0	570,000	35,700	12,000	19,700	0	502,600	12,000	19,700
0	901,700	54,300	12,000	48,400	0	787,000	12,000	48,400
0	1,128,900	22,000	12,000	56,200	0	1,038,700	12,000	56,200
4,700	1,290,000	45,000	77,800	90,200	0	1,077,000	102,500	90,200
1,600	-	59,700	20,500	100,000	0	-	64,100	100,000

ved for power and is classified as unavoidable release due to

BEAR LAKE OPERATION ADJUST
(Based on supplies at Woodruff Narrows with

Water Year	Flow Available For Storage at Woodruff Narrows			Flow available for storage at Woodruff Narrows limited to a maximum of <u>75,000</u> a.f.	A D . Storage Period			
	Oct. 1 to April 30	Excess flow over irrigation requirements after May 1	Total flow available for storage Col. (16+17)		Estimated depletion to Bear Lake from upstream storage	Net water supply available (for storage period) Col. (6)	Adjusted supply during period Col. (21) - (20)	Adjusted storage flow for at C
1923								
1924	78,200	19,600	97,800	75,000	56,200	407,200	351,000	26
1925	37,000	2,900	39,900	39,900	35,900	276,000	240,100	20
1926	63,300	1,100	64,400	64,400	48,300	157,100	108,800	7
1927	38,400	7,500	45,900	45,900	39,100	289,100	250,000	4
1928	62,200	51,300	113,500	75,000	56,200	383,800	327,600	20
1929	47,100	29,600	76,700	75,000	56,200	391,000	334,800	16
1930	54,800	100	54,900	54,900	46,600	206,100	159,500	1
1931	45,200	0	45,200	45,200	38,400	94,700	56,300	
1932	41,400	9,700	51,100	51,100	43,500	279,800	236,300	
1933	30,500	8,800	39,300	39,300	35,400	176,600	141,200	
1934	24,600	0	24,600	24,600	24,600	27,800	3,200	
1935	22,900	3,700	26,600	26,600	25,300	89,800	64,500	
1936	43,400	27,800	71,200	71,200	53,400	394,400	341,000	
1937	55,600	15,000	70,600	70,600	53,000	333,300	280,300	
1938	50,300	14,500	64,800	64,800	48,600	338,600	290,000	
1939	52,800	1,300	54,100	54,100	46,000	188,700	142,700	
1940	23,400	0	23,400	23,400	23,400	36,100	12,700	
1941	28,200	6,300	34,500	34,500	32,800	78,500	45,700	
1942	63,700	0	63,700	63,700	47,800	223,600	175,800	
1943	49,500	13,500	63,000	63,000	47,200	357,000	309,800	
1944	44,000	30,400	74,400	74,400	55,800	284,200	228,400	
1945	38,400	2,300	40,700	40,700	36,600	202,900	166,300	
1946	71,400	7,600	79,000	75,000	56,200	441,600	385,400	
1947	57,400	37,300	94,700	75,000	56,200	384,400	328,200	
1948	63,400	28,600	92,000	75,000	56,200	318,500	262,300	
Average	47,500	12,700	60,200	56,100	44,700	254,400	209,700	

* A minimum release of 12,000 A.F., during the storage delivery period, is an inefficiency in operation.

ATED FOR UPSTREAM STORAGE
 n 75,000 A. F. allowable upstream storage)

USTED BEAR LAKE OPERATION

		Storage Delivery Period				Annual Releases		
Adjusted Storage Used at Cutler	Adjusted Content of Bear Lake (end of period)	Deficiency in water supply (due to evapora- tion) Col. (13)	* Adjusted storage or flows used for power at Cutler	Storage releases used for irrigation Col. (12)	Decrease in irrigation releases (over past conditions)	Adjusted content of Bear Lake (end of period) Col. (24) -(25 / 26 / 27)	Adjusted storage or flows used for power at Cutler Col. (23) / (26)	Adjusted storage releases used for irrigation Col. (27)
23	24	25	26	27	28	29	30	31
						1,286,000		
3,700	1,368,300	55,100	121,600	140,200	0	1,051,400	390,300	140,200
500	1,086,000	31,500	50,000	37,000	0	967,500	255,500	37,000
300	1,000,000	71,700	12,000	117,400	0	798,900	88,300	117,400
900	1,000,000	49,600	12,000	58,100	0	880,300	60,900	58,100
900	1,000,000	73,800	12,000	88,600	0	825,600	219,900	88,600
400	1,000,000	33,700	12,000	67,000	0	887,300	172,400	67,000
800	1,000,000	47,500	12,000	88,400	0	852,100	58,800	88,400
0	908,400	106,600	12,000	223,600	0	566,200	12,000	223,600
0	802,500	40,500	12,000	62,500	0	687,500	12,000	62,500
0	828,700	79,900	12,000	135,700	0	601,100	12,000	135,700
0	604,300	131,300	12,000	230,100	0	230,900	12,000	230,100
0	295,400	79,700	12,000	120,000	0	84,200	12,000	120,000
0	425,200	39,700	12,000	46,600	0	326,900	12,000	46,600
0	607,200	52,800	12,000	77,700	0	464,700	12,000	77,700
0	754,700	33,300	12,000	49,100	0	660,300	12,000	49,100
0	803,000	70,900	12,000	147,100	0	573,000	12,000	147,100
0	585,700	96,900	12,000	205,800	0	271,000	12,000	205,800
0	316,700	41,800	12,000	84,200	0	178,700	12,000	84,200
0	354,500	67,100	12,000	135,600	0	139,800	12,000	135,600
0	449,600	52,500	12,000	64,500	0	320,600	12,000	64,500
0	549,000	80,500	12,000	107,700	0	348,800	12,000	107,700
0	515,100	35,700	12,000	19,700	0	447,700	12,000	19,700
0	833,100	54,300	12,000	48,400	0	718,400	12,000	48,400
0	1,046,600	22,000	12,000	56,200	0	956,400	12,000	56,200
0	1,218,700	45,000	12,000	90,200	0	1,071,500	12,000	90,200
0,600	-	59,700	17,900	100,000	0	-	58,500	100,000

lowed for power and is classified as unavoidable release due to

BEAR LAKE
(Based on supplies at Woodruff)

Water Year	Flow Available For Storage at Woodruff Narrows			Flow available for storage at Woodruff Narrows limited to a maximum of 100,000 a. f.	Storage Period		
	Oct. 1 to April 30	Excess flow over irrigation requirements after May 1	Total flow available for Storage Col. (16+17)		Estimated depletion to Bear Lake from upstream storage	Net water supply available (for storage period) Col. (6)	Adjusted supply during period Col. (7)
1923							
1924	78,200	19,600	97,800	97,800	56,200	407,200	351,000
1925	37,000	2,900	39,900	39,900	35,900	276,000	240,100
1926	63,300	1,100	64,400	64,400	48,300	157,100	108,800
1927	38,400	7,500	45,900	45,900	39,100	289,100	250,000
1928	62,200	51,300	113,500	100,000	75,000	383,800	308,800
1929	47,100	29,600	76,700	76,700	57,500	391,000	333,500
1930	54,800	100	54,900	54,900	46,600	206,100	159,500
1931	45,200	0	45,200	45,200	38,400	94,700	56,300
1932	41,400	9,700	51,100	51,100	43,500	279,800	236,300
1933	30,500	8,800	39,300	39,300	35,400	176,600	141,200
1934	24,600	0	24,600	24,600	24,600	27,800	3,200
1935	22,900	3,700	26,600	26,600	25,300	89,800	64,500
1936	43,400	27,800	71,200	71,200	53,400	394,400	341,000
1937	55,600	15,000	70,600	70,600	53,000	333,300	280,300
1938	50,300	14,500	64,800	64,800	48,600	338,600	290,000
1939	52,800	1,300	54,100	54,100	46,000	188,700	142,700
1940	23,400	0	23,400	23,400	23,400	36,100	12,700
1941	28,200	6,300	34,500	34,500	32,800	78,500	45,700
1942	63,700	0	63,700	63,700	47,800	223,600	175,800
1943	49,500	13,500	63,000	63,000	47,200	357,000	309,800
1944	44,000	30,400	74,400	74,400	55,800	284,200	228,400
1945	38,400	2,300	40,700	40,700	36,600	202,900	166,300
1946	71,400	7,600	79,000	79,000	59,200	441,600	382,400
1947	57,400	37,300	94,700	94,700	71,000	384,400	313,400
1948	63,400	28,600	92,000	92,000	69,000	318,500	249,500
Average	47,500	12,700	60,200	59,700	46,800	254,400	207,600

* A minimum release of 12,000 A.F., during the storage delivery period, due to inefficiency in operation.

ADJUSTED BEAR LAKE OPERATION
 (flows with 100,000 A.F. allowable upstream storage)

ADJUSTED BEAR LAKE OPERATION								
		Storage Delivery Period				Annual Releases		
Adjusted storage or storable flows used for power at Cutler	Adjusted content of Bear Lake (end of period)	Deficiency * in water supply (due to evaporation) Col. (13)	Adjusted storage or storable flows used for power at Cutler Col. (12)	Storage releases used for irrigation Col. (12)	Decrease in irrigation releases (over past conditions)	Adjusted content of Bear Lake (end of period) Col. (24) - (25) / (26) / (27)	Adjusted storage or storable flows used for power at Cutler Col. (23) / (26)	Adjusted storage releases used for irrigation Col. (27)
23	24	25	26	27	28	29	30	31
						1,286,000		
268,700	1,368,300	55,100	121,600	140,200	0	1,051,400	390,300	140,200
205,500	1,086,000	31,500	50,000	37,000	0	967,500	255,500	37,000
76,300	1,000,000	71,700	12,000	117,400	0	798,900	88,300	117,400
48,900	1,000,000	49,600	12,000	58,100	0	880,300	60,900	58,100
189,100	1,000,000	73,800	12,000	88,600	0	825,600	201,100	88,600
159,100	1,000,000	33,700	12,000	67,000	0	887,300	171,100	67,000
46,800	1,000,000	47,500	12,000	88,400	0	852,100	58,800	88,400
0	908,400	106,600	12,000	223,600	0	566,200	12,000	223,600
0	802,500	40,500	12,000	62,500	0	687,500	12,000	62,500
0	828,700	79,900	12,000	135,700	0	601,100	12,000	135,700
0	604,300	131,300	12,000	230,100	0	230,900	12,000	230,100
0	295,400	79,200	12,000	120,000	0	84,200	12,000	120,000
0	425,200	39,700	12,000	46,600	0	326,900	12,000	46,600
0	607,200	52,800	12,000	77,700	0	464,700	12,000	77,700
0	754,700	33,300	12,000	49,100	0	660,300	12,000	49,100
0	803,000	70,900	12,000	147,100	0	573,000	12,000	147,100
0	585,700	96,900	12,000	205,800	0	271,000	12,000	205,800
0	316,700	41,800	12,000	84,200	0	178,700	12,000	84,200
0	354,500	67,100	12,000	135,600	0	139,800	12,000	135,600
0	449,600	52,500	12,000	64,500	0	320,600	12,000	64,500
0	549,000	80,500	12,000	107,700	0	348,800	12,000	107,700
0	515,100	35,700	12,000	19,700	0	447,700	12,000	19,700
0	830,100	54,300	12,000	48,400	0	715,400	12,000	48,400
0	1,028,800	22,000	12,000	56,200	0	938,600	12,000	56,200
0	1,188,100	45,000	12,000	90,200	0	1,040,900	12,000	90,200
39,700	-	59,700	17,900	100,000	0	-	57,700	100,000

allowed for power and is classified as unavoidable release

Water year	Past Conditions		Total flow at Woodruff Narrows available for upstream storage	10,000 Acre Feet			
	Annual storage and storable flows used for power at Cutler	Bear Lake content (Sept. 30)		Available upstream storage based on supplies and allowable storage	Estimated depletion to Bear Lake	Adjusted storage and storable flows used for power at Cutler	Adjusted storage and storable flows used (Sept. 30)
1924	446,500	1,051,400	97,800	10,000	10,000	436,500	1,000
1925	331,400	927,500	39,900	10,000	10,000	321,400	900
26	303,100	592,400	64,400	10,000	10,000	213,100	800
27	294,300	479,500	45,900	10,000	10,000	163,500	700
28	120,800	580,100	113,500	10,000	10,000	266,100	600
29	159,700	710,700	76,700	10,000	10,000	218,600	500
1930	134,200	646,700	54,900	10,000	10,000	95,400	400
31	71,100	340,100	45,200	10,000	10,000	12,000	300
32	8,000	508,900	51,100	10,000	10,000	12,000	200
33	0	469,900	39,300	10,000	10,000	12,000	100
34	2,200	134,100	24,600	10,000	10,000	12,000	100
1935	4,000	20,700	26,600	10,000	10,000	12,000	100
36	0	328,800	71,200	10,000	10,000	12,000	100
37	23,300	508,300	70,600	10,000	10,000	12,000	100
38	14,500	750,000	64,800	10,000	10,000	12,000	100
39	65,800	655,200	54,100	10,000	10,000	93,200	100
1940	7,100	381,500	23,400	10,000	10,000	12,000	100
41	18,900	315,100	34,500	10,000	10,000	12,000	100
42	27,200	308,800	63,700	10,000	10,000	12,000	100
43	55,900	492,900	63,000	10,000	10,000	12,000	100
44	24,400	564,500	74,400	10,000	10,000	12,000	100
1945	33,700	678,300	40,700	10,000	10,000	12,000	100
46	65,700	951,500	79,000	10,000	10,000	12,000	100
47	158,700	1,099,000	94,700	10,000	10,000	142,400	1,000
48	205,300	1,077,000	92,000	10,000	10,000	195,300	1,000
Average	103,000		60,200	10,000	10,000	93,000	

- Notes: 1. In all of the studies, summarized above, Irrigation Right
2. All Depletions to Bear Lake resulting from upstream storage
3. The water supply at Woodruff Narrows available for upstream flow over irrigation requirements after May 1 during data which is in excess of 700 s.f.

SUMMARY OF BEAR LAKE OPERATION FOR VARIOUS
STORAGE SCHEMES AT WOODRUFF NARROWS
(Based on supplies at Woodruff Narrows)

1 2 3	A L L O W A B L E				U P S T R E A M					
	20,000 Acre Feet.				30,000 Acre Feet					
	Available upstream storage based on supplies and allowable storage	Estimated depletion to Bear Lake	Adjusted storage and storable flows used for power at Cutler	Adjusted Bear Lake content (Sept. 30)	Available upstream storage based on supplies and allowable storage	Estimated depletion to Bear Lake	Adjusted storage and storable flows used for power at Cutler	Adjusted Bear Lake content (Sept. 30)	Available upstream storage based on supplies and allowable storage	
	7	8	9	10	11	12	13	14	15	16
10	20,000	20,000	426,500	1,051,400	30,000	28,500	418,000	1,051,400	40,000	
20	20,000	20,000	311,400	927,500	30,000	28,500	302,900	927,500	39,900	
30	20,000	20,000	183,100	692,400	30,000	28,500	166,500	700,500	40,000	
40	20,000	20,000	123,500	730,300	30,000	28,500	73,100	780,300	40,000	
50	20,000	20,000	256,100	675,600	30,000	28,500	247,600	725,600	40,000	
60	20,000	20,000	208,600	737,300	30,000	28,500	200,100	787,300	40,000	
70	20,000	20,000	85,400	702,100	30,000	28,500	76,900	752,100	40,000	
80	20,000	20,000	12,000	434,600	30,000	28,500	12,000	476,100	40,000	
90	20,000	20,000	12,000	579,400	30,000	28,500	12,000	612,400	40,000	
100	20,000	20,000	12,000	508,400	30,000	28,500	12,000	532,900	39,300	
110	20,000	20,000	12,000	142,800	24,600	24,600	12,000	162,700	24,600	
120	20,000	20,000	12,000	1,400	26,600	25,300	12,000	16,100	26,600	
130	20,000	20,000	12,000	277,500	30,000	28,500	12,000	283,700	40,000	
140	20,000	20,000	12,000	448,300	30,000	28,500	12,000	446,000	40,000	
150	20,000	20,000	12,000	672,500	30,000	28,500	12,000	661,700	40,000	
160	20,000	20,000	12,000	611,200	30,000	28,500	12,000	591,900	40,000	
170	20,000	20,000	12,000	312,600	23,400	23,400	12,000	289,900	23,400	
180	20,000	20,000	12,000	233,100	30,000	28,500	12,000	201,900	34,500	
190	20,000	20,000	12,000	222,000	30,000	28,500	12,000	182,300	40,000	
200	20,000	20,000	12,000	430,000	30,000	28,500	12,000	381,800	40,000	
210	20,000	20,000	12,000	494,000	30,000	28,500	12,000	437,300	40,000	
220	20,000	20,000	12,000	609,500	30,000	28,500	12,000	544,300	40,000	
230	20,000	20,000	12,000	916,400	30,000	28,500	12,000	842,700	40,000	
240	20,000	20,000	103,600	1,099,000	30,000	28,500	21,400	1,099,000	40,000	
250	20,000	20,000	185,300	1,077,000	30,000	28,500	176,800	1,077,000	40,000	
	20,000	20,000	83,000		29,400	28,000	75,000		37,900	

Flow Bear Lake would not be affected by additional upstream storage.
Is absorbed by decreasing storage and storable flows used for Power at Cutler.
Storage includes all of the flow from Oct. 1 to Apr. 30 plus the excess
order is above 700 a.f. and limited by that portion of the flow at Border

(Amounts in Acre-feet)

E A M		S T O R A G E						
Acre Feet		40,000 Acre Feet				50,000 Acre Feet		
Adjusted storage and storable flows used for power at Cutler	Adjusted Bear Lake content (Sept. 30)	Available upstream storage based on supplies and allowable storage	Estimated depletion to Bear Lake	Adjusted storage and storable flows used for power at Cutler	Adjusted Bear Lake content (Sept. 30)	Available upstream storage based on supplies and allowable storage	Estimated depletion to Bear Lake	Adjusted storage and storable flows used for power at Cutler
14	15	16	17	18	19	20	21	22
418,000	1,051,400	40,000	36,000	410,500	1,051,400	50,000	42,500	404,000
302,900	927,500	39,900	35,900	282,500	940,500	39,900	35,900	256,500
166,500	700,500	40,000	36,000	123,600	748,900	50,000	42,500	94,100
73,100	780,300	40,000	36,000	64,000	830,300	45,900	39,000	61,000
247,600	725,600	40,000	36,000	240,100	775,600	50,000	42,500	233,600
200,100	787,300	40,000	36,000	192,600	837,300	50,000	42,500	186,100
75,900	752,100	40,000	36,000	69,400	802,100	50,000	42,500	62,900
12,000	476,100	40,000	36,000	12,000	512,600	45,200	38,400	12,000
12,000	612,400	40,000	36,000	12,000	647,400	50,000	42,500	12,000
12,000	532,900	39,300	35,400	12,000	581,000	39,800	35,400	12,000
12,000	162,700	24,600	24,600	12,000	190,800	24,600	24,600	12,000
12,000	16,100	26,600	26,300	12,000	43,700	26,600	26,300	12,000
12,000	283,700	40,000	36,000	12,000	301,800	50,000	42,500	12,000
12,000	446,000	40,000	36,000	12,000	452,000	50,000	42,500	12,000
12,000	661,700	40,000	36,000	12,000	656,000	50,000	42,500	12,000
12,000	591,900	40,000	36,000	12,000	589,500	50,000	42,500	12,000
12,000	289,800	23,400	23,400	12,000	287,500	23,400	23,400	12,000
12,000	201,900	34,600	32,600	12,000	195,200	34,500	32,600	12,000
12,000	182,300	40,000	36,000	12,000	168,100	50,000	42,500	12,000
12,000	381,800	40,000	36,000	12,000	360,100	50,000	42,500	12,000
12,000	437,300	40,000	36,000	12,000	406,100	50,000	42,500	12,000
12,000	544,300	40,000	36,000	12,000	507,600	40,700	36,000	12,000
12,000	842,700	40,000	36,000	12,000	798,600	50,000	42,500	12,000
21,400	1,099,000	40,000	36,000	12,000	1,046,700	50,000	42,500	12,000
120,800	1,077,000	40,000	36,000	127,000	1,077,000	50,000	42,500	102,500
75,000		37,900	34,500	68,500		44,800	38,900	64,100

38,000 79,900

at Cutler.
Loss
Border

Adjusted Bear Lake Content (Sept. 30)	75,000 Acre Feet				100,000 Acre Feet			
	Available upstream storage based on supplies and allowable storage	Estimated depletion to Bear Lake	Adjusted storage and storable flows used for power at Cutler	Adjusted Bear Lake content (Sept. 30)	Available upstream storage based on supplies and allowable storage	Estimated depletion to Bear Lake	Adjusted storage and storable flows used for power at Cutler	Adjusted Bear Lake content (Sept. 30)
3	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)
1,400	75,000	56,200	390,800	1,051,400	97,800	56,200	390,300	1,051,400
2,500	39,900	35,900	255,500	967,500	39,900	35,900	255,500	967,500
3,900	64,400	48,300	88,300	798,900	64,400	48,300	88,300	798,900
5,300	45,900	39,100	60,900	880,300	45,900	39,100	60,900	880,300
5,600	75,000	56,200	219,900	885,600	100,000	75,000	201,100	825,600
7,300	75,000	56,200	172,400	887,300	76,700	57,500	171,100	887,300
8,200	54,900	46,600	58,800	852,100	54,900	46,600	58,800	852,100
8,200	45,200	38,400	12,000	566,200	45,200	38,400	12,900	566,200
8,500	51,100	43,500	12,000	687,500	51,100	43,500	12,000	687,500
8,200	39,300	35,400	12,000	601,100	39,300	35,400	12,000	601,100
1,900	24,600	24,600	12,000	230,900	24,600	24,600	12,000	230,900
4,800	26,600	25,300	12,000	84,200	26,600	25,300	12,000	84,200
8,400	71,200	53,400	12,000	326,900	71,200	53,400	12,000	326,900
6,700	70,600	53,000	12,000	464,700	70,600	53,000	12,000	464,700
8,400	64,800	48,600	12,000	660,300	64,800	48,600	12,000	660,300
4,800	54,100	46,000	12,000	573,000	54,100	46,000	12,000	573,000
2,600	23,400	23,400	12,000	271,000	23,400	23,400	12,000	271,000
0,300	34,500	32,800	12,000	178,700	34,500	32,800	12,000	178,700
6,700	63,700	47,800	12,000	139,800	63,700	47,800	12,000	139,800
32,200	63,000	47,200	12,000	320,600	63,000	47,200	12,000	320,600
23,700	74,400	55,800	12,000	348,800	74,400	55,800	12,000	348,800
22,600	40,700	36,600	12,000	447,700	40,700	36,600	12,000	447,700
37,000	75,000	56,200	12,000	718,400	79,000	59,200	12,000	715,400
58,700	75,000	56,200	12,000	955,400	94,700	71,000	12,000	938,600
77,000	75,000	56,200	12,000	1,071,500	92,000	69,000	12,000	1,040,900
	56,100	44,700	58,500		59,700	46,800	57,700	

45,200

73,000

50,500

71,400

1924

