

511. 761

MAY 3 1977

Memorandum

To: RO 100, 700, 760  
Project Superintendent, CSP0, Boise, Idaho

From: 761

Subject: New Method Adopted for Allocation of Boise System Storage

I. Introduction

The 1977 water year appears to be the driest of record for the Boise River. Insufficient water will accrue to Arrowrock Reservoir to fill its storage right. This is the primary factor which makes the allocation method currently used unreasonable and inadequate. A new method is proposed which calculates storage carryover and new accrual more strictly. This new method has been adopted after consultation with the Central Snake Project Office, the Boise River Watermaster, and the manager of the Boise Project Board of Control.

II. How the Old Method Works

As an example, the 1976 allocation was done as follows:

<u>Reservoir</u>	<u>Content on day of maximum upper system storage (June 23, 1976) in A.F.</u>
Arrowrock	266,557
Anderson	423,368
Lucky Peak	<u>264,756</u>
Total	<u>954,681</u>

Note: Lake Lowell has not entered into the total storage computation under the old method. On June 23, it contained 122,088 A.F. and maximum for the year was 167,789 on May 1. It has been assumed to fill if its maximum content plus subsequent feed water exceeds its 177,000 A.F. capacity.

The allocation proceeds as follows:

Total storage three reservoirs	954,681
Accrued to Arrowrock	-286,600 (capacity)
	<u>688,081</u>
Accrued to Anderson	-423,178 (capacity)
Balance accrued to Lucky Peak	<u>244,903 (88% capacity)</u>

NOTE: Lucky Peak carryover is erased if water is spilled for flood control and Lucky Peak is then reallocated with new accrual.

As will be shown, the old method does not fairly account for carryover in Lake Lowell.

### III. The Proposed Allocation Method

We feel that the Lake Lowell storage right must be included in the allocation procedure. Lake Lowell is the first priority storage right. It is reasonable to assume, however, that Arrowrock Reservoir has essentially the same right and that Lake Lowell and Arrowrock accrue water simultaneously. Also, Anderson Ranch water which is diverted to Lake Lowell but not used, must be accounted for to fairly allocate the system.

The new method begins by establishing carryovers at the end of the irrigation season. The determination for carryover on October 18, 1976, would be as follows: (using round numbers)

Total storage 4 reservoirs 10/18 (all carryover)	591,000
Anderson carryover from District 63 watermaster report	-219,000
Unused Anderson water in Lake Lowell from Boise Project Board of Control records	- 78,000
Lucky Peak carryover 10/18 from CSP0	<u>-242,000</u>
Lake Lowell and Arrowrock carryover	<u>52,000</u>

The allocation proceeds as follows:

Maximum storage upper system for year (April 9)	665,000
Maximum storage Lake Lowell after October 18	124,000
Lake Lowell feed water (subsequent to October 18)	0
	<u>TOTAL 789,000</u>
Less Anderson carryover	-297,000
Less Lucky Peak carryover 4/11 (after winter releases)	<u>-182,000</u>
Total Lake Lowell and Arrowrock water to distribute	<u>310,000</u>

The 310,000 is divided between Lake Lowell and Arrowrock according to their active storage capacities. Arrowrock has 61.82 percent of the total active capacities of 463,600 and Lake Lowell has 38.18 percent. This allocates 191,600 to Arrowrock and 118,400 to Lake Lowell. Arrowrock is further divided between Board of Control water (89.28%) and other users (10.72%). This gives the Board of Control about 171,060, and the others about 20,540 in Arrowrock.

IV. Ordinary Application of the New Method

It is useful to consider how the new method which includes Lake Lowell in the storage computations would work in a larger year. A rework of the 1976 allocation from Section II using the new method would look like this:

Total storage 4 reservoirs 10/15	606,089
Anderson carryover from District 63 report	-301,594
Unused Anderson water in Lake Lowell from Boise Project Board of Control records	0
Lucky Peak carryover 10/15 from CSP0	-202,292
Lake Lowell and Arrowrock carryover	<u>102,203</u>
Maximum storage upper system (June 23)	954,681
+ Maximum storage Lake Lowell (May 1)	167,789
+ Lake Lowell feed water after 10/15	9,211 <sup>1/</sup>
TOTAL	<u>1,131,681</u>
Less Anderson carryover	-301,594
Less Lucky Peak carryover (flood spills)	0
TOTAL TO ALLOCATE	<u>830,087</u>
Accrued to Lake Lowell	-177,000
	<u>653,000</u>
Accrued to Arrowrock	-286,600
	<u>366,487</u>
Accrued to Anderson	-121,606 <sup>2/</sup>
Balance accrued to Lucky Peak	<u>244,881 (88%)</u>

1/ Maximum storage plus feed water not greater than 177,000 capacity.

2/ Total Anderson cannot exceed 423,200.

*15/ D. R. Yribar*

D Yribar:db 5/3/77