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Corps of Engineers hearing, Boise, Idaho, February 18, 1955

Re Proposal for review report of survey scope, Snake River Basin above Weiser, Idaho

This submission applies to the available waters accruing to Snake River between Milner Dam and Weiser, Idaho. For basin upstream see statement by Lynn Crandall, "New storage on Snake River for irrigation use above Milner, Idaho" as filed February 15 at Idaho Falls hearing.

The water records quoted by Mr. Crandall feature the period 1927-1954. American Falls reservoir storage began in 1927 and storage at Palisades is not yet effective. His determination of spill past Milner Dam, as 1,320,000 acre-feet average for the 28 years, is net of Idaho Power Co. water passing Milner. His figure of 1,050,000 acre-feet of average reservoir holdover supplements the showing of unused water available in Snake River above Milner, Idaho.

This hearing is more directly concerned with the waters accruing to Snake River between Milner Dam and Weiser. An appreciation of the magnitude of these waters is quite important. Snake River at Weiser flows shown in the summary table include the discharge passing Milner Dam. If the upper valley waterusers ultimately absorb all divertible water above Milner, the inflow between Milner and Weiser shown in the summary table would be a better indication of the flow to be expected at Weiser, under those conditions.

Using the same 28-year period comparison, the net flow accruing to Snake River between Milner and Weiser averaged 10,82[illegible],000 acre-feet. This average annual accretion is some seven times the magnitude of the average excess flows above Milner which were under discussion at Idaho Falls. It is sufficient to fill Arrowrock reservoir some 38 times a year. The magni-

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tude of this water supply is quite impressive. These main stem waters are used for power production by the Idaho Power Company in its series of eight main stem hydroelectric plants in this reach. Consumptive uses from the main river do not loom very large at the present time. Future uses for irrigation from the main river promise to involve high-lift pumping. Excess flows from tributary rivers are consequential and account for a substantial part of the main stem accretions (Big Wood, Bruneau, Owyhee, Boise, Malheur, Payette and Weiser). In these tributary basins reservoir sites may be found for control of floods and for irrigation storage at altitudes far above the levels of the main stem. Direct contributions to Snake River by large springs (Thousand Springs group) and by return flows from adjacent irrigated tracts account for more than half of the 10,822,000 acre-feet total accruing to the main stem.

Mr. Crandall has called attention to the necessity for providing hold-over space in new storage reservoirs if the variable excess flows of the better runoff years are to be fully controlled and used. Losses by evaporation are a heavy charge against reservoir holdovers. To illustrate very roughly the general consistency of available main stem flows, the average flow for the lowest consevutive 10 years has been divided by the average flow for the highest consecutive 10 years. Where flows are unusually variable from year to year, this gives a low percentage ratio. Where flows are more consistent, the ratio is higher and the need for reservoir space to accommodate carryovers for one or several years is not so great.

These rough indications, illustrating the general consistency of main stem flows in the several sections of the river below Milner, are as follows:

Contributions to main river	Ratio of consistency
Excess above Milner Dam (527,200 ÷ 2,401,000)	20%
Snake inflows, Milner to King Hill (5,326,000 ÷ 5,990,000)	89%
Snake inflows, King Hill to Weiser (3,817,000 ÷ 6,116,000)	62%

The sources of inflow between Milner and King Hill are by far the more consistent producers year by year, through good years and poor years.

A full scale survey of possibilities of utilization and control will comprise, no doubt, detailed studies of water supplies for the major storage sites and investigations of the interrelation of power production and irrigation proposals involving high-lift pumping. The possibilities of intermountain diversion projects are important to balance water supplies and irrigable land in adjacent basins, to obtain maximum utilization short of high-lift pumping and to assist in flood control. It is assumed that small streams, small irrigation tracts, needs for supplemental water, and small flood-control problems will be given organized attention. Residents of many small communities do not benefit by the major projects on the main stem or on the larger tributaries. This category of investigation deserves consideration throughout southern Idaho.

The Idaho State Reclamation Engineer has suggested that I comment on the adequacy of the available streamflow records in view of the needs for a comprehensive investigation of Snake River waters. The Geological Survey is the recognized record-collection agency. The State of Idaho cooperates financially on a matching basis and Mr. Kulp advises with the district offices as to continuing coverage under the Federal-State program.

Certain additional streamflow records are financed by transfer from the Corps of Engineers, the Bureau of Reclamation, the State Department, and very recently a limited addition through Soil Conservation Service. At this time the coverage of the major streams is reasonably adequate. Most of the larger tributaries have stations at some point on the stream, at least. A number of them are deficient in that they do not reflect yield at higher altitude points. In the small-stream category, the record inadequacies are most pronounced. Many of the collections have been fragmentary or very short-term. There are a great many small streams in Idaho for which we have no information on runoff at this time.

Boise, Idaho
February 17, 1955

Water Records Summary Attachment
(all quantities in thousands of acre-feet)

	Snake Milner *	Inflow Milner to King Hill	Inflow Milner to Weiser	Snake Weiser	Reservoir holdovers September 30 **
1927	1,751	5,369	13,249	15,000	146.5
1928	3,994	5,446	12,406	16,400	20.2
1929	2,062	5,478	8,738	10,800	21.6
1930	1,[illegible]	5,411	8,221	9,500	42.9
1931	672	5,208	7,208	7,880	14.2
1932	357	5,303	10,943	11,300	229.6
1933	380	5,440	9,460	9,840	173.1
1934	178	5,233	7,702	7,880	23.5
1935	113	4,957	8,023	8,136	54.8
1936	772	5,437	10,548	11,320	180.2
1937	530	5,344	8,178	8,708	112.5
1938	1,415	5,818	13,375	14,790	356.1
1939	1,079	5,584	9,141	10,220	147.7
1940	252	5,435	10,268	10,520	240.1
1941	196	5,450	10,044	10,240	345.8
1942	673	5,761	11,427	12,100	281.2
1943	2,833	6,169	16,317	19,150	422.4
1944	1,846	5,746	9,124	10,970	232.8
1945	1,138	5,825	10,882	12,020	250.6
1946	2,678	6,006	12,732	15,410	308.3
1947	1,858	5,911	11,022	12,880	273.0
1948	2,165	5,823	10,565	12,730	309.1
1949	1,789	5,846	10,521	12,310	246.5
1950	2,714	5,838	11,056	13,770	649.7
1951	3,309	6,228	12,769	16,078	636.8
1952	3,681	6,503	16,068	19,749	687.7
1953	997	6,484	12,174	13,171	798.6
1954	931	(6,469)	10,844	11,775	(717.5)
28-year average	1,487	5,697	10,822	12,309	283.0
Lowest decade	527	5,326	9,143		
Highest decade	2,401	5,990	12,106		

* Total flow passing Milner Dam.
** Summation including 7 of the larger reservoirs on tributaries below Milner.