STATE OF CALIFORNIA
STATE WATER RIGHTS BOARD

In the Matter of Application 17593)
of Southern California Water Company)
to Appropriate from the Underflow of) Decision No. D 972
Mojave River in San Bernardino County) ADOPTED JUN 30 '60

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Substance of Application and Hearing

Application 17593 is for permit to appropriate 15 cubic feet per second (cfs) from the Mojave River underflow in San Bernardino County by direct diversion from wells, year-round, for domestic and industrial use within the City of Barstow. Protests having been filed, a public hearing was held before the State Water Rights Board conducted by Member Ralph J. McGill on May 12, 1959, and October 6, 1959, in Barstow, California. The applicant and all protestants of record were duly notified of the hearing. The applicants and protestants having appeared, evidence having been received, the Board having considered same and now being fully informed in the premises, finds as follows:

Summary of Evidence

Mojave River Valley Watershed and Ground Water Geology

In the 25-mile reach of the Mojave River between Victorville and Hodge, the river and its alluvial-filled channel is confined to a narrow valley cut through older, less permeable sediments or nonwaterbearing rocks. Bedrock is near or at the

surface throughout this reach. Below Hodge the river emerges into a rather broad plain called Hinkley Valley, sometimes referred to as a part of the Middle Basin. Some underflow and, during major floods, some surface flow escapes to Harper Lake to the north of Hinkley Valley.

The surface flow of the river through Hinkley Valley and that portion of the underflow which does not escape to the north nor is used by overlying owners passes into a narrow canyon section about 3 miles above the proposed point of diversion at Barstow.

The river continues through a relatively narrow gap cut through bedrock and older deposits for about 10 miles between Barstow and Daggett where it debouches upon the broad plain of the lower Mojave River called the Lower Basin. The older alluvial deposits along the southerly side of the canyon reach, located for the most part of the south and east of Barstow, consist of poorly sorted alluvial fan material with relatively low permeability (Staff Exh. 10). The most permeable sands and gravel deposits are confined to the narrow recent alluvium of the stream bed deposit. Rising water has occurred at the upper end of the reach near Barstow during wet years (RT p. 113).

Surface and Ground-Water Hydrology

The surface flow past Barstow for the period of record, 1930 to 1958, averaged 20,630 acre-feet per year, as shown in Table No. 1. The underflow amounted to about 8,000 to 10,000 acre-feet per year for a total of about 30,000 acre-feet per year (Staff Exhs. 7 and 10).

The flow at Afton, which is considered to be unappropriated outflow from the area, has been measured by the USGS and reported for 1929 to 1932 and 1952 to 1958. It is set forth in Table I (Staff Exh. 7).

TABLE I

Year	Flow at Afton acre-feet	Flow at Barstow acre-feet
1929-30	694 *	--
31	1,270	0
32	7,910	40,300
33	No record	0
34	"	0
35	"	1,180
36	"	0
37	"	103,900
38	"	138,100
39	"	550
40	"	0
41	"	96,000
42	"	101
43	"	90,980
44	"	36,260
45	"	22,090
46	"	12,500
47	"	2,880
48	"	0
49	"	0
50	"	0
51	"	0
52	"	12,540
53	996	0
54	952	0
55	913	0
56	902	0
57	753	0
58	2,780	20,070
	2,060 acre-feet 8-year average	20,630 acre-feet 28-year average

* Not complete year, therefore, not included in the average.

Availability of
Unappropriated Water

Flood waters are the main source of recharge to the Daggett-Newberry area ground-water basins (Staff Exh. 7) which lie below the proposed point of diversion and wherein the lands of a number of protestants are located. A precise determination of the amount of recharge of these basins cannot be made due to the insufficiency of available data. However, in the winter of 1931-32, when there was a continuous flow from Barstow to Afton, and during which flood conditions existed, 40,300 acre-feet of water passed Barstow, of which 32,390 acre-feet, or about 80 per cent, percolated into the Daggett-Newberry area basins. There has been little recharge to the basins since 1945, as may be seen by a cumulative departure curve for flow of the river at Barstow prepared on the basis of USGS records (Staff Exh. 7). During the last eleven years, only 32,610 acre-feet have passed the gage at Barstow.

From this data it can be seen that over the last thirteen years there has been a cumulative deficiency of 220,000 acre-feet, surface flow, taking the average annual flow of the Mojave River at Barstow (20,630 acre-feet) for the 28-year period of record as a basis for reference. If average flows of the river for the 28-year period of record had occurred during this last period of drought, the lower ground-water basin would have been recharged by approximately 215,000 acre-feet (80 per cent of 13 x 20,630 acre-feet). Between Barstow and Afton, covering the entire Daggett-Newberry area,

approximately 16,000 acre-feet per year have been pumped, or about 208,000 acre-feet for a 13-year period (RT p. 6, Oct. 6, 1959). From the foregoing, it can be assumed that under average stream-flow conditions natural percolation from the Mojave River, plus deep penetration of rainfall, tributary inflow, and the return of excess applied water will supply protestants in the Daggett-Newberry area.

Near the river and downstream from the proposed points of diversion, the water table is extremely high and supports a growth of phreatophytes (Plate 50, Staff Exh. 3; RT p. 122, Oct. 6, 1959). Nonbeneficial use by these plants, along with evaporation losses, is estimated to be 14,000 acre-feet per annum (afa) for the middle Mojave River Valley between Victorville and Daggett (Bulletin 47, Staff Exh. 5). Due to this condition, it is safe to assume that of the 8,000 to 10,000 afa that pass as underflow of the river at the City of Barstow, a considerable portion does not reach the Daggett-Newberry area. Any lowering of the water table would salvage water in substantial amounts, as the underflow would no longer support the phreatophytes. This is a further reason for concluding that the protestants in the Daggett-Newberry area will suffer no substantial injury by the granting of the application.

As above mentioned, water levels in the area near Barstow remain relatively near the surface despite the extensive drought of the last eleven years during which there were only two years of surface runoff at Barstow (Staff Exh. 7). Protestant

Joe Polich, a downstream user near Barstow, testified that the water level was eight feet from the surface five years ago and has dropped only about six feet since that time. This lowering of the water table does not appear critical in view of the drought condition that has prevailed.

The protestants in the Barstow narrows area below the point of diversion of the applicant failed to present any evidence in support of their protests. The record shows that the water table in that area is also near the surface from which it can be concluded that the granting of the application will not result in any substantial injury to these protestants.

The amount of water applied for by the applicant, 15 cfs, represents a diversion that is necessary, in addition to the 5 cfs now received under existing licenses, to meet its maximum daily requirements. However, its total annual requirements will only amount to 7,200 acre-feet by the year 1975 (Applicant's Exh. 7). Therefore, the diversion authorized under permit to be issued pursuant to Application 17593 together with diversions authorized by Licenses 2915 and 5383 now held by applicant should not exceed 7,200 afa.

It should be noted that of the 7,200 afa that the applicant proposes to divert, 35 per cent would normally return to the river from irrigation of lawns and gardens and from unsewered areas and would be available to protestants downstream during the periods of highest use.

Conclusion

The evidence indicates and the Board finds that unappropriated water frequently exists in the source named in Application 17593; that when such water occurs it may be taken and used by the applicant as proposed without injury to any lawful user of water; that the proposed use of water is beneficial, and accordingly the application should be approved and permit issued subject to the usual terms and conditions and a special condition that all use of water under the permit shall be within the watershed of the Mojave River wherein return flow will reach the River.

ORDER

IT IS HEREBY ORDERED that Application 17593 be, and the same is, approved and that a permit be issued to the applicant subject to vested rights and the following terms and conditions:

1. The amount of water appropriated shall be limited to the amount which can be beneficially used and shall not exceed 15 cubic feet per second from January 1 to December 31 of each year.

2. The total amount of water diverted under this permit, License 2915 (Application 1186), and License 5383 (Application 11804) shall not exceed 7,200 acre-feet per annum.

3. The maximum amount herein stated may be reduced in the license if investigation warrants.

4. Actual construction work shall be completed and complete application of the water to the proposed use shall be made on or before December 1, 1975.

5. Progress report shall be filed promptly by permittee on forms which will be provided annually by the State Water Rights Board until license is issued.

6. All rights and privileges under this permit including method of diversion, method of use, and quantity of water diverted are subject to the continuing authority of the State Water Rights Board in accordance with law and in the interest of the public welfare to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

7. All water diverted under this permit shall be used within the watershed of the Mojave River wherein return flow will reach the River.

Adopted as the decision and order of the State Water Rights Board at a meeting duly called and held at , California, on this day of , 1960.

Kent Silverthorne, Chairman

W. P. Rowe, Member

Ralph J. McGill, Member