

IN THE MATTER OF APPLICATIONS NOS.)
13005 TO 13017 INCLUSIVE AND NO. : RULING
13037 IN NAME OF FREEMAN E. FAIRFIELD)

The following applications were filed August 5, 1949 by Freeman E. Fairfield to appropriate underground water for irrigation and domestic purposes.

Application No. 13005 to appropriate 1.0 c.f.s. from proposed Well No. 1 to be located within the SW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 10, T. 10 N., R. 23 E. for the irrigation of 45 acres of land.

Application No. 13006 to appropriate 2.0 c.f.s. from proposed Well No. 2 to be located within the NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 16, T. 10 N., R. 23 E. for the irrigation of 72 acres of land.

Application No. 13007 to appropriate 2.0 c.f.s. from proposed Well No. 3 to be located within the SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 16, T. 10 N., R. 23 E. for the irrigation of 98 acres of land.

Application No. 13008 to appropriate 2.0 c.f.s. from proposed Well No. 4 to be located within the NW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 16, T. 10 N., R. 23 E. for the irrigation of 89 acres of land.

Application No. 13009 to appropriate 2.0 c.f.s. of water from proposed Well No. 5 to be located within the SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 17, T. 10 N., R. 23 E. for the irrigation of 56 acres of land.

Application No. 13010 to appropriate 3.0 c.f.s. of water from proposed Well No. 6 to be located within the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 16, T. 10 N., R. 23 E. for the irrigation of 140 acres of land.

Application No. 13011 to appropriate 1.0 c.f.s. of water from proposed Well No. 8 to be located within the SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 17, T. 10 N., R. 23 E. for the irrigation of 24 acres of land.

Application No. 13012 to appropriate 2.0 c.f.s. of water from proposed Well No. 9 to be located within the SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 18, T. 10 N., R. 23 E. for the irrigation of 74 acres of land.

Application No. 13013 to appropriate 5.0 c.f.s. of water from proposed Well No. 10 to be located within the NE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 19, T. 10 N., R. 23 E. for the irrigation of 221 acres of land.

Application No. 13014 to appropriate 5.0 c.f.s. of water from proposed Well No. 11 to be located within the SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 22, T. 10 N., R. 22 E. for the irrigation of 1240 acres of land.

Application No. 13015 to appropriate 4.0 c.f.s. of water from proposed Well No. 12 to be located within the SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 19, T. 10 N., R. 23 E. for the irrigation of 172 acres of land.

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Application No. 13016 to appropriate 5.0 c.f.s. of water from proposed Well No. 13 to be located within the SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 25, T. 10 N., R. 22 E. for the irrigation of 258 acres of land.

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Application No. 13017 to appropriate 5.0 c.f.s. of water from proposed Well No. 14 to be located within the NE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 25, T. 10 N., R. 22 E. for the irrigation of 230 acres of land.

Application No. 13037 to appropriate 3.0 c.f.s. of water from proposed Well No. 7 to be located within the NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 17, T. 10 N., R. 23 E. for the irrigation of 109 acres of land.

On November 10, 1949 the Walker River Irrigation District and Norman Brown filed protests to the granting of permits on all of the above numbered applications except Application No. 13037. The protests were based mainly on the following premises:

1. That the granting of the applications would invade the prior vested and existing rights of protestants;
2. That there is no unappropriated water in the underground basin; and
3. That the waters applied for constitute waters which naturally find their way into the West Walker River; and
4. That the taking of the water from said source would, in effect, be a violation of the decree entered in Equity C-125; and
5. That the distribution of water under Decree C-125 to the water users has been taken into consideration in fixing the priorities to be served; and
6. If a portion of the underground return supply is taken from the point specified in the applications, it will also affect and reduce the priorities to be served upstream from the proposed points of diversion.

FIELD INVESTIGATION

.On March 28, 1950 a field investigation was made by the office of State Engineer. Present were: Alfred Merritt Smith, State Engineer; Edmund Muth, Special Deputy; Freeman E. Fairfield, Applicant; Representation of Walker River Irrigation District, Protestant; Wm. Johnstone, representing the engineering firm of McLeod, Wallace & Johnstone, engineers of Applicant; and T. W. Robinson, District Engineer, U.S.G.S., Ground-Water Division.

The various points of diversion and places of use were viewed and Applicant Fairfield stated that the areas to be irrigated, as indicated on the applications and supporting maps, were considerably too large and that he would have his engineers submit new figures as to the actual acreage that would be irrigated. This was subsequently done and will be set forth later in tabular form.

On June 2, 1950 another investigation was made. Present were Hugh A. Shamberger, Assistant State Engineer; Thomas Eakin, Geologist, Ground-Water Division, U.S.G.S.; Omar Loeltz, Engineer, Ground-Water Division, U.S.G.S.; and Wm. Johnstone, Engineer for Applicant Fairfield. During this trip a number of pictures were taken by Shamberger which portrays the type of vegetation now growing on the areas proposed to be irrigated. These pictures are attached to this ruling for illustrative purposes.

On June 15, 1950 an informal meeting was held in the office of the Walker River Irrigation District in Yerington, Nevada. Present were members of the Walker River Irrigation District and its Attorney, Wm. M. Kearney; F. E. Fairfield, Applicant; and one of his engineers, Wm. Johnstone; Thomas Eakin and Omar Loeltz of the U.S.G.S. and Hugh A. Shamberger, Assistant State Engineer. Mr. Shamberger presented to the group the results of his studies regarding the use of water as proposed by Applicant Fairfield and what the resultant effect would be on the flow of the West Walker River.

PROPOSED USE OF WATER BY APPLICANT FAIRFIELD

The following table shows the application numbers, the number of each proposed well; distance from river; amount of water applied for in c.f.s.; acres to be irrigated as shown in applications, and the reduced acreage which will actually be irrigated if the project is consummated.

Applica- tion No.	Proposed Well No.	Distance from river	Amount of water applied for	Acres to be irriga- ted as per application	Reduced Acreage to be irrigated
13005	1	100	1.0	45	3.9
13006	2	310	2.0	72	12.0
13007	3	500	2.0	98	32.0
13008	4	550	2.0	89	29.0
13009	5	500	2.0	56	16.5
13010	6	350	3.0	140	50.0
13011	8	150	1.0	24	7.3
13012	9	670	2.0	74	14.7
13013	16	900	5.0	221	113.0
13014	11	10560 <i>f</i>	5.0	1240	123.0
13015	12	500	4.0	172	36.0
13016	13	1000	5.0	258	125.0
13017	14	1900	5.0	230	91.0
13037	7	650	3.0	109	50.0
				2828	709.4

It is noted that Applicant Fairfield has reduced the acreage to be irrigated from 2828 acres to 709.4 acres, or approximately a 75% reduction. From our observations, we are of the opinion that under actual operation the acreages will be reduced still further.

According to statements made by Applicant Fairfield, he proposes to raise a high grade meadow grass. From our investigations we find that the lands to be irrigated with the exception of lands under Application No. 13014, are located along the river floodplain of the West Walker and are covered with phreatophytes (water-loving plants) such as rabbit brush, willows and salt grass. Mr. Fairfield stated that he would clear the land to be irrigated of such phreatophytes.

FINDINGS

From our investigation and studies we find:

1. That at least 90% of the land to be irrigated is covered with water-consuming phreatophytes, such as rabbit brush, willows and salt grass. The approximate use of water by such plants is in the following order:

Willows	-	4 to 5 ac.ft. per growing season
Rabbit brush	-	0.3 to 0.5 ac.ft. per growing season
Salt grass	-	0.7 to 1.0 " " " " "
2. A very small proportion of the area to be irrigated is not covered by phreatophytes using water. All such plants will be cleared from the lands to be irrigated.
3. The root system of the pasture grass would probably not extend to the depths of the phreatophytes and therefore some artificial irrigation would be necessary. The near surface water not used by the meadow grass would follow the natural gradient to the river and would implement the river flow.
4. Along the river floodplain artificial irrigation would not be necessary until the near surface ground-water that could be reached by the root system of the meadow grass has been used. On some of the areas, irrigation would ordinarily not be needed until after June 15th.
5. Any water pumped and applied to the lands in excess of evapo-transpiration would return to the river. This return would be more rapid than under natural conditions and would have the result of implementing or increasing the stream flow.
6. From information furnished by the Soil Conservation Service, the net duty of water for the raising of

meadow pasture would be in the order of 18 inches per season. It would appear that under conditions here, the average amount of net use of water from pumping should not exceed 12 inches per acre per season.

7. Proposed Well No. 11 under Application No. 13014 is to be located about 2 miles from the river. It is our opinion that any pumping from such well would not affect the river flow.
8. On the proposed wells located near the river, if the perforations were kept below a suitable confining bed, such as a clay bed or beds of adequate thickness, it is not likely that any pumping in the amounts necessary would affect the river flow during the irrigation season. During the non-irrigation season, the ground-water aquifers would be replenished.
9. The meadow grass would merely be replacing the phreatophytes that probably consume almost as much water, therefore under such conditions there need be little if any stream depletion.
10. From information furnished by the United States Geological Survey, Ground-Water Division, which has been conducting extensive ground-water studies in Smith Valley, we are of the opinion that the ground-water reservoirs of Antelope and Smith Valleys are separate and distinct and have no relationship one with another as far as transmission of ground-water is concerned. Therefore, no effect on the wells in Smith Valley would occur as a result of minor pumping in Antelope Valley.

RULING

In ruling on any application to appropriate water, the State Engineer must consider what effect such application, if granted, would have on existing rights. In this instance, and from our findings, it is our opinion that the diversion of underground water as proposed by Applicant Fairfield would cause no stream depletion during the irrigation season, and therefore would not change the flow of water in the Walker River in any measurable degree. It is therefore ruled that the protests of the Walker River Irrigation District, et al, be overruled, and permits be granted in the amounts as hereafter set forth and subject to the following provisions:

1. That on all the proposed wells, with the exception of No. 11 under Application No. 13014, any perforations placed in the casings must be so placed following completion of wells and must be below a confining stratum of material, the thickness and depth of which is satisfactory to the State Engineer.

2. Following completion of each well, a suitable measuring device shall be installed, preferably a Parshall Flume, in order that accurate measurements of pumped water can be made.
3. Records shall be kept of hours of pumping and flow from each well in order that the total amount of water pumped in acre-footage can be determined.
4. The permits to be granted and the acreage to be irrigated shall be in the following amounts: The amount of water allowed in c.f.s. under each permit is necessarily large in order that an irrigation head can be maintained. The acre-feet per acre allowance is a gross duty. The total net use per acre should not exceed 18 inches which would be made up by the natural water table now supporting phreatophytes, combined with pumped water. However, allowance must be made for ditch and other losses. Waters so lost would return to the stream.

Applica- tion No.	Well No.	Amount of Permit in c.f.s.	Number of acres to be irrigated	Amount of permit in acre-feet per acre irrigated.
13005	1	0.20	3.9	1.5
13006	2	0.4	12.0	1.5
13007	3	0.6	32.0	1.5
13008	4	0.6	29.0	1.5
13009	5	0.5	16.5	1.5
13010	6	1.0	50.0	1.5
13011	8	0.25	7.3	1.5
13012	9	0.5	14.7	1.5
13013	10	2.3	113.0	1.5
13014	11	2.5	123.0	2.5
13015	12	0.8	36.0	1.5
13016	13	2.5	125.0	1.5
13017	14	1.8	91.0	1.5
13037	7	1.0	50.0	1.5

Respectfully submitted,


 ALFRED MERRITT SMITH
 State Engineer

Dated July 7, 1950.



Proposed Wells Nos. 5 & 8 -
Applications Nos. 13009 & 13011
respectively - 13009 across river.



From same point looking
down river.



Looking across river towards
proposed Well No. 6 -
Application No. 13010
Note bend in river.



Spring Mound
Application No. 12884



Heavy brush to be cleared -
about 1000' S.W. of proposed
Well #9-Application #13012



Looking from proposed Well #9
towards meadow to be
irrigated.



Proposed Well No. 1
Application #13005
aroni Canal in foreground.



Rabbit brush and grass over area
near existing well No. 12885



Looking across ⁷²⁴³ Canal and River
Proposed Well No. 14 -
Application No. 13017