IN THE FIFTH JUDICIAL DISTRICT COURT, IN AND FOR IRON COUNTY,

STATE OF UTAH

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IN THE MATTER OF THE GENERAL DETERMINATION OF ALL THE RIGHTS, BOTH SURFACE AND UNDERGROUND, TO THE USE OF WATER WITHIN THE DRAINAGE AREA OF THE ESCALANTE VALLEY IN UTAH.	))))	FINDINGS OF FACT AND CONCLUSIONS OF LAW AS TO DUTY OF WATER. No._____

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This matter came on regularly for hearing of protests as to duty of water on Wednesday, the 27th day of February, 1957, following numerous pre-trial meetings, hearings and conferences, and the said hearing was thereafter continued to and concluded on June 17, 1957; Sam Cline, Durham Morris, E. J. Skeen, V. Pershing Nelson and John S. Boyden appearing on behalf of the water users and Robert E. Porter, Assistant Attorney General, appearing on behalf of the Utah State Engineer; and the Court, having duly considered the protests of the water users to the field headgate requirements of the land as set by the State Engineer and having heard and duly considered the testimony and evidence presented and being fully advised in the premises, now makes and enters its Findings of Fact and Conclusions of Law, as follows:

FINDINGS OF FACT

1. That the above entitled cause is a proceeding to generally determine all of the rights to the use of water in the Escalante Valley Drainage Area, and that, after complying with the provisions of Chapter 4 of Title 73, Utah Code Annotated 1953, and after completion of a hydrographic survey of the area, the State Engineer, on or about the 1st day of April, 1949, served and filed herein his Proposed Determination of Water Rights in said area.

2. That the area comprised by the Escalante Valley Drainage area includes the Milford underground water area south of the town of Opal and the Beryl underground water area located south of the town of Lund and continues south to the watershed parting between this area and the Virgin River and includes all areas lying between; the east boundary is the water parting between Escalante Valley and Cedar City Valley on the south and the Rocky Ford Dam on the north; and the west boundary is the summit of the mountain range to the west of Milford and Lund that continues into Nevada west of Modena and at that point the state line becomes the west boundary.

3. That in said Proposed Determination of Water Rights the State Engineer set three acre feet per acre as the field headgate requirement of all lands embraced within this adjudication; and that many of the users of water from underground sources have protested this amount and have requested that it be increased.

4. That, as set forth in said Proposed Determination, there are within the area covered by said determination diligence rights to the use of 232.8 cubic feet of water per second of time from underground sources for the irrigation of 9422 acres of land; that certificates of appropriation of water have been issued by the State Engineer for the use of 24.8 cubic feet of water per second of time from underground sources for the irrigation of 16,746 acres of land; and that approved applications now pending before the State Engineer request the use of an additional 467.7 second feet of underground water for some 24,410 additional acres of land.

5. That to supply water on the basis of three acre feet per acre for said claims above referred to would require 151.723 acre feet of water per calendar year.

6. That the recharge of both the Milford and the Beryl underground water areas falls far short of equalling the present acre foot pumpage from the wells in each of said areas and that the underground water level has declined continuously since 1948 and the decline has been precipitous since 1950, the year end water levels

having been lowered 10 to 15 feet in the center of the Milford area and 8 to 12 feet in the center of the Beryl area.

7. That actual use of water in the year 1953 by farmers in the Milford area varied from 1.6 acre feet per acre to 8.0 acre feet per acre; and that the average use during said year was 4.4 acre feet per acre and the median use was 4.1 acre feet per acre. That during the year 1954, the average use and the median use was, respectively, 4.0 and 3.8 acre feet per acre.

8. That the average use of water in the Beryl area was 3.2 acre feet per acre in 1953 and 3.6 acre feet per acre in the year 1954; and in the adjacent Parowan Valley area the average use in 1953 was 2.4 acre feet per acre.

9. That a report of studies of consumptive use of water and of irrigation requirements for various crops was made in 1952 under a cooperative study by the State Engineer and the United States Department of Agriculture and said studies show that the normal consumptive use of water, including rainfall, for alfalfa, small grains and potatoes (which are the principal crops grown in this area) measured in acre inches is as follows:

Area	Alfalfa	Small Grains	Potatoes
Milford-Minersville	20.3	13.4	15.5
Lund-Modena-Enterprise	19.6	12.1	13.8

10. That, from reports of studies of consumptive use of water and of irrigation requirements made by the Division of Irrigation and Water Conservation of the United States Soil Conservation Service in cooperation with state agricultural experiment stations in North Dakota, South Dakota, New Mexico, Nevada and Oregon, it appears that a fair average of the consumptive use of water by alfalfa, small grains and potatoes as grown in these five states and measured in acre inches is as follows:

Alfalfa	Small Grains	Potatoes
24.2	15.7	20.0

11. That, from the report of studies made in the State of Nevada, the following is the consumptive use of water in the areas studied as measured in acre inches:

Area	Alfalfa	Small Grains	Potatoes
Upper Meadow Valley Wash	28	15	19
Fallon	23	15	16
Moapa	44	20	20

12. That, from studies of consumptive use of water by crops in the State of California, the following use for certain crops in the areas named was calculated in acre feet:

	Colorado Desert Area	Lanfair Valley and Twenty-nine Palms Area
Alfalfa	4.5	3.2
Hay & Grain	2.1	1.3
Miscellaneous field crops	2.7	1.9
Sugar Beets	2.8	
Truck Crops	3.3	1.8

That these same studies in California show that the average consumptive use in all areas of the state is 2.0 acre feet or 24 acre inches per acre per year. That, if the Colorado Desert area is excluded, the average for the remainder of the state is 1.43 acre feet or 17.2 acre inches per acre per year.

13. That, in determining the duty of water or field headgate requirement of the land in any given area, it is necessary to consider not only the consumptive use of water by the crops but it is also necessary to consider irrigation efficiency. That it is not practically possible to attain 100 per cent efficiency in the application of irrigation water to crops. That a determination of what constitutes a reasonably practical irrigation efficiency in a given area requires consideration of distance in transit, slope of land, possibility of control of supply of water without wastage, surface soils and probable losses due to underlying gravels or sands and the relative development of the area along with other special factual matters.

14. That in the Escalante Valley drainage area it is reasonable to expect an irrigation efficiency of not less than 60 percent and that said expectation is based upon a consideration of all factors and of all the evidence presented in this matter.

15. That, if a field headgate requirement of 3 acre feet per acre per year is allowed and if an irrigation efficiency of 60 percent is maintained, there would be 21.6 acre inches per acre per year available for the consumptive use of the crop. That such an amount is sufficient to produce the crops ordinarily grown within the said Escalante Valley drainage area.

From the foregoing Findings of Fact, the Court concludes as a matter of law, as follows:

CONCLUSIONS OF LAW

1. That a prior appropriator does not have an unlimited right to the use of water, but is subject to a reasonable limitation of his right for the benefit of junior appropriators. That it is reasonable and necessary to limit such prior appropriator to the volume of water reasonably required to raise crops under reasonably efficient methods of applying water to the land. That beneficial use is the basis and the measure and the limit of the right to the use of water and use of water in excess of the amount reasonably necessary for production of crops is not a beneficial use.

2. That 3.0 acre feet per acre per year is sufficient to produce crops under reasonably efficient methods of irrigation in the area involved herein and that no change should be made in the proposed field headgate requirement or duty of water as set forth in the Proposed Determination of Water Rights in the Escalante Valley Drainage Area.

3. That suitable measuring and recording devices should be installed upon all wells, and other diversions under the direction of the Utah State Engineer, said installations to be completed by March 15, 1958; and that water users should be limited to 3.0 acre feet per acre per year, beginning with the 1958 irrigation season.

4. That the Court should retain jurisdiction of this cause for three years in order that the State Engineer may make further studies and reports to the Court as to the use of water and as to the status of the underground water table and to permit any party to present additional evidence as to reasonable irrigation requirements for the production of crops and as to any other material matter in connection with this cause.

Dated this 13 day of ~~November~~ December, 1937.

/s/ Will R. Hoyt
DISTRICT JUDGE