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BEFORE THE DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA

* *

IN THE MATTER OF APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 14,965-g41E AND APPLICATION FOR CHANGE OF APPROPRIATION WATER RIGHT NO. 19,230-c41E BY THOMAS H. BOONE, TRUSTEE	)	FINAL DECISION

* *

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The Applicant, Thomas H. Boone, Trustee, hereinafter referred as Boone Trust, on August 26, 1977 filed with the Montana Department of Natural Resources and Conservation an Application for Beneficial Water Use Permit, No. 14,965-g41E. Public Notice of the Boone Trust Application was published in the Boulder Monitor on January 19 and 26, 1978 and February 2, 1978; to wit:

> THOMAS H. BOONE, Trustee, of Missoula, Montana has filed with the Department of Natural Resources and Conservation Application No. 14965-g41E to appropriate 12 cubic feet per second or 5386 gallons per minute of water and not to exceed 1839.6 acre-feet per annum in Jefferson County, Montana. The water is to be diverted by means of a sump (well) approximately 20 feet deep at a point in the NW1/4 NW1/4 NW1/4 of Section 2, T.4N., R.3W., MPM, and used for new irrigation on 320 acres in the N1/2, 300 acres in the S1/2 of Section 35, and 192 acres in the S1/2 of Section 26 all in T.5N., R.3W., MPM, and containing a total of 876 acres, more or less, from April 1 to October 1, inclusive, of each year.
>
> Objections to the issuance of a permit under this application, with reasons therefor, must be filed with the Department of Natural Resources and Conservation, Natural Resources Building, 32 South Ewing, Helena, Montana 59601, on or before March 9, 1978. Objection to Application (Form 611) is available at the office of the county clerk and recorder, or from this Department upon request. For further information call the Water Rights Bureau, 449-3634.

Objections to the Boone Trust's proposed water use were filed by John Carey Ranch, Inc., Emmett McCauley, George Dawson, Edith Brenner, Thomas C. Carey, Martin Carey, Eve Twohy, Paul T. Smith Ranches, Inc., Ed Murphy, Mary Carey Leavitt, Spencer Lanz, Edward Kyler, M. & M. Ranch, Montana Power Company (MPC), and the United States Department of Interior for the Bureau of Reclamation (Bureau) (now called the Water and Power Resources

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Service, W.A.P.R.S.). The pre-hearing was scheduled for July 18, 1978.

On June 22, 1978, the Boone Trust filed two applications with the Department for Changes of Appropriation Water Rights Nos. 19,228-c41E; 19,229-c41E, respectively and on July 12, 1978 a third application for Change of Appropriation Water Right, No. 19230-c41E was filed. At the request of the Boone Trust the pre-hearing on Application No. 14,965-g41E was postponed until the three new applications for Changes could be processed. Public notice of the Boone Trust applications for change was published in the Boulder Monitor on August 24 and 31, 1978 and on September 7, 1978; to wit:

> Thomas H. Boone, Trustee of Missoula, Montana has filed with the Department of Natural Resources and Conservation the following Applications for Change of Appropriation Water Right.
>
> Application No.19228-C41E to change all of a filed appropriation by Henry McCauley for 200 miners inches of water from the Boulder River, first used in June, 1886 and recorded in Jefferson County, Book G, Page 298 on September 28, 1889.
>
> Said water has been diverted from the Boulder River at a rate of 200 miners inches up to 400 acre-feet per annum by means of a ditch at a point in the NE1/4 SE1/4 SW1/4 of Section 28, Township 5 North, Range 3 West, M.P.M., and used for flood irrigation on 100 acres in the SE1/4 of Section 34 and 60 acres in the S1/2 S1/2 of Section 35, Township 5 North, Range 3 West, M.P.M. and containing a total of 160 acres, more or less, from April 1 to November 1, inclusive, of each year.

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The proposed change is to change the place of use to include all 640 acres of Section 35 and 236 acres in the W1/2 of Section 26 all in Township 5 North, Range 3 West, M.P.M.

Application No. 19229-C41E to change a portion, being 1/5 or 300 miners inches of a filed appropriation by Frank Carey for 1500 miners inches from the Boulder River, first used November 2, 1903, and recorded in Jefferson County Book 1 of Water Rights, Page 274 on November 23, 1903.

Said water has been diverted from the Boulder River at a rate of 300 miners inches up to 600 acre-feet per annum by means of a ditch at a point in the SE1/4 NW1/4 SE1/4 of Section 33, Township 5 North, Range 3 West, M.P.M. and used for flood irrigation on a total of 213 acres, more or less, contained within Sections 2 and 11 of Township 4 North, Range 3 West, M.P.M.

The proposed change is to divert the water at a point in the NE1/4 SE1/4 SW1/4 of Section 28, Township 5 North, Range 3 West, M.P.M. and to sprinkle irrigate the 876 acres described in above Application No. 19228-C41E from April 1 to November 1, inclusive, of each year.

Application No. 19230-C41E to change all of a use right by Mike Quinn, with a claimed priority date of July 1, 1940, for 100 miners inches of waste water from irrigation by the Lazy T Ranch.

Said water has been diverted from the Boulder River at a rate of 100 miners inches up to 200 acre-feet per annum by means of a ditch in the SW1/4 of Section 34, Township 5 North, Range 3 West, M.P.M. and used for flood irrigation on 100 acres in the SE1/4 of Section 34, Township 5 North, Range 3 West, M.P.M. and 60 acres in the S1/2 of the S1/2 of Section 35, Township 5 North Range 3 West, M.P.M. and containing a total of 160 acres, more or less, from May 1 to November 1, inclusive, of each year.

The proposed change is to change the place of use to include the 876 acres described in above Application No's. 19228-C41E and 19229-C41E, from May 1 to November 1, inclusive, of each year.

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Objections to the authorization of the proposed changes, with reasons therefor, must be filed with the Department of Natural Resources and Conservation, Natural Resources Building, 32 South Ewing, Helena, Montana 59601, on or before October 12, 1978.

Objection to Application (Form 611) is available at the office of the county clerk and recorder, or from this Department upon request.

Objections to the Applications for Change of Appropriation Water Rights were filed by all parties that objected to Application No. 14,965-g41E; listed previously.

Mr. Forrest Tevebaugh was appointed Hearings Examiner and a pre-hearing conference was held on January 25, 1979. A hearing was scheduled for March 21, 1979 on all four applications submitted by the Boone Trust.

On February 15, 1979, twelve objectors to the applications, represented by legal counsel, William Leaphart, Esq., filed with the Department a motion to dismiss the four applications of the Boone Trust that were pending. Prior to any ruling by the Department on the motion to dismiss, the same twelve objectors on March 15, 1979 filed in the First Judicial District of the State of Montana (Lewis and Clark County) a Petition for Writ of Prohibition. The objectors contended the Department should be prohibited from making a determination on the four Boone Trust applications because a hearing was not held within 60 days, as allegedly required by Section 85-2-309, MCA 1978. On March 25, 1979 an Alternative Writ of Prohibition was filed and recorded

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Carey, v. D.N.R.C., No. 43356) Thomas H. Boone, Trustee, filed as a respondent intervenor. On March 27, 1979, the Department filed a Motion to Quash the Writ of Prohibition. After a hearing, the Honorable Gordon R. Bennett, District Judge, issued a Memorandum and Order holding that the sixty (60) day limit in Section 85-2-309, MCA 1978, was directory and not jurisdictional. Therefore, the Department retained jurisdicition over the four Boone Trust applications.

Pursuant to the Montana Water Use Act and to the Montana Administrative Procedure Act, after due notice, a hearing on objections to the above-described applications was held in the Community Center in Boulder, Montana on August 8, 1979, with Mr. Forrest Tevebaugh presiding.

After one day of hearing, the matter was continued. Mr. Forrest Tevebaugh resigned from the Department; Ms. Ronda L. Sandquist was appointed, and substituted without objection, as Hearing Examiner and presided over the continuation of the hearing held on September 18 and 19, 1979.

The Boone Trust, Applicant, was represented at the hearing by legal counsel, William T. Boone, Esq., from the law firm of Boone, Karlberg and Haddon, Missoula, Montana. Personally appearing on behalf of Boone Trust to present evidence and testimony in support of the application were: Mr. Delos Robbins co-owner of the Boone Trust property; Mr. Keith Evans, Ranch

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Manager of the Boone Trust property from 1972-1977; Mr. Floyd Chef, an employee on the Ranch beginning in 1977; Mr. Larry Riley, representative of Ag Sales, Missoula, Montana; and Mr. Charles C. Bowman, Agricultural Engineer, Montana State University.

The Applicant offered into evidence fifteen exhibits:

(1) a legal description of the Boone Trust Property;

(2) an aerial photo of the Boone Trust Property which was undated, and admitted for illustrative purposes only;

(3) an aerial photograph of the area proportedly taken in August 9, 1973;

(4) a map prepared by the U. S. Geological Survey in 1954, designated as the Boulder Quadrangle;

(5) a map prepared by the U. S. Geological Survey in 1950, designated as the Devil's Fence Quadrangle;

(6) a map prepared by the U. S. Geological Survey in 1950, designated as the Jefferson Island Quadrangle;

(7) a notice of water right filed in Jefferson County in 1889 by Henry McCauley for 200 miners inches from the Boulder

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River to irrigate the SE 1/4 Section 34, T. 5 N., R. 3 W., claiming a priority date of 1866;

(8) a Notice of Appropriation filed in 1918 in Jefferson County for an appropriation by P. H. Howard for 1200 miners inches from the Boulder River to irrigate Sections 26 and 35, T. 5 N., R. 3 W., claiming a priority of 1918;

(9) a schematic drawing of the irrigation system proposed to be operated on the Boone Trust Ranch; admitted for illustrative purposes only;

(10) the Water Resources Survey investigation for Jefferson County of 1955, particularly the pages showing Appropriation No. A-293 of McCauley (the Hearing Examiner took judicial notice of the portions of the pages which were deleted in the exhibit); and

Photos taken on September 19, 1975 near the proposed pit, which purported to show:

(11) the north channel near the pit;

(12) water ponded in the North Channel of the Boulder River;

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(13) water flow after the obstruction in the North Channel had been removed;

(14) the alleged Carey diversion; and

(15) the Carey ditch.

Said exhibits were marked and entered accordingly as Applicant's Exhibits Nos. 1 through 15, respectively.

At the Applicants request judicial notice was taken of the present ownership of McCauley water right and of the Department's records of the 1955 investigation of ownership and use of the Howard right, which records were used in the prepartion of the 1955 Water Resources Survey for Jefferson County.

Objectors Paul T. Smith Ranches, Inc. and Mabel Murphy, were represented by legal counsel, Paul B. Smith, Esq., from the law firm of Smith, Connor and Van Valkenberg, Missoula, Montana. Appearing on behalf of these objectors to present evidence and testimony in opposition to the application were Paul T. Smith and Mylo Fadness. The Paul T. Smith Ranch, Inc., and Mary Ellen Murphy offered into evidence seven exhibits which were:

(1) a deed executed in Jefferson County, recorded in Book 47, Page 224, No. 22942, (1918) by Edward Ryan conveying to

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the Hall Ranch Company a one-half interest in a water ditch to carry 500 miners inches of water;

(2) a deed recorded in the Jefferson County Book of Deeds, Book 16, page 3, conveying from B. F. Hoopes and Marcella R. Hoopes to Edward Ryan a water ditch and a 500 miners inch water right from the Boulder River;

(3) a Notice of Appropriation of Water Right filed by B. F. Hoopes in Book D of Water Rights, page 207, Jefferson County, (1871), claiming 500 miners inches of water from Boulder Creek with a priority date of 1866;

(4) a Certificate of Water Right issued on August 26, 1976 by Montana Department of Natural Resources and Conservation to Paul T. Smith of Boulder to appropriate ground water in a well located in the NW1/4 Section 34, T. 5 N., R. 3 W., M.P.M., Jefferson County, Montana to be used for stockwatering purposes from January 1 to December 31, inclusive, and not to exceed 10 gallons per minute;

(5) four Declarations of Vested Ground Water Rights filed with the State of Montana, Office of State Engineer, on December 27, 1963 by Paul T. Smith, which were

(a) a 1932 water right for the use of stockwater up to 250 gallons per minute from a dug well 40 feet deep in

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the NW1/4 of Section 34, T. 5 N., R. 3 W., M.P.M., Jefferson County;

(b) a 1938 water right for 200 miners inches from a well 38 feet deep located in the NE1/4 Section 27, T. 5 N., R. 3 W., M.P.M., Jefferson County;

(c) an 1890 water right for 200 miners inches for irrigation from a spring and slough approximately 10 feet deep located in the NW1/4, Section 28, T. 5 N., R. 3 W., M.P.M., Jefferson County; and

(d) an 1897 water right for domestic use of 100 gallons per minute from a well drilled to the depth of 162 feet, located in the NW1/4, Section 34, T. 5 N., R. 3 W..

(6) the following surface water rights:

(a) a Notice of Appropriation of 500 inches of water diverted from the Boulder River in 1888 by Cornelius Clark for irrigation of Section 28, 29, and 33, T. 5 N., R. 3 W., M.P.M., Jefferson County; recorded in Jefferson County, Book G, Water Right Location, Page 223 (1888);

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(b) a Notice of Appropriation of 500 inches of water diverted from Boulder Creek by B. F. Hoopes in 1866 for irrigation uses, recorded in Jefferson County, Book D of Water Rights, page 207 (1871); and

(c) a Notice of Appropriation for 250 inches of water diverted from the Boulder River in 1869 by Cornelius Clark for irrigating lands in Sections 28 and 29, T. 5 N., R. 3 W., M.P.M., recorded in Jefferson County, Book G of Water Rights, page 396 (1891).

(7) evidence of the following land transactions:

(a) a warranty deed by A. W. Thayer, H. T. Edwards and F. J. Edwards, directors of Treasure State Land Company, conveying to F. J. Edwards and Harriet T. Edwards the following property - SE1/4, and S1/2 NE1/4 and lot 1 of Section 3, T. 4 N., R. 3 W., and S1/2 NW 1/4, and lots 3 and 4, Section 2, T. 4 N., R. 3 W., and W1/2 NW1/4 and W1/2 SW1/4 in Section 24, T. 5 N., R. 3 W., Section 26, T. 5 N., R. 3 W., and Section 35, T. 5 N., R. 3 W., including all tenements of water rights ditches and irrigation systems; recorded in Jefferson County, Book 58 of Deeds, page 322-323 (1935);

(b) a warranty deed by J. E. and Della Shattack and William and Lora Lee conveying to Treasure State Land

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Company the property described above, recorded in Jefferson County, Book 52 of Deeds, page 189 (1925);

(c) a warranty deed by J. E. and Della Shattuck conveying to William Lee the undivided 1/2 interest in the SE1/4 NE1/4and E1/2 SE1/4, Section 26, T. 5 N., R. 3 W., together with all water rights appurtenant thereto; recorded in Jefferson County, Book 52 of Deeds, page 136 (1924);

(d) a warranty deed by Treasure State Land Company conveying to William Lee and J. E. Shattuck the W1/2, W1/2 E1/2, and NE1/4 NE1/4, Section 26, and Section 35, in T. 5 N., R. 3 W., and S1/2 NW1/4 and lots 3 and 4, Section 2, and SE1/4 and S1/2 NW1/4 and lot 1 of Section 3, T. 4 N., R. 3 W., together with all water rights, flumes, ditches and irrigation systems appurtenant thereto, recorded in Jefferson County, Book 49 of Deeds, pages 394-395 (1923);

(e) a warranty by Gortemoller Land Company conveying to Treasure State Land Company the W1/2 W1/4 E1/2, and NE1/4 NE1/4, of Section 26 all of Sections 35, in T. 5 N., R. 3 W; S1/2 NW1/4, and lots 3 and 4 of Section 2, the SE1/4 and S1/2 NE1/4 and lot 1 of Section 3, in T. 4 N., R. 3 W., together with all water rights appurtenant

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thereto, recorded in Jefferson County, Book 45 of Deeds, page 369 (1920);

(f) a warranty deed by Hugh E. and Lavina Vassburg conveying to J. E. Shattuck the SE1/4 NE1/4 and E1/2 SE1/4 of Section 26, T. 5 N., R. 3 W., together with all water rights appurtenant thereto, recorded in Jefferson County, Book 45 of Deeds, page 395 (1921); and

(g) a warranty deed by the Estate of William Rogers conveying to Gortemoller Land Company certain lands located in Jefferson County, Book 43 of Deeds, pages 137-138 (1911). Said exhibits were marked and entered into the record as Objector (Smith) Exhibits Nos. 1-7, respectively.

Objectors John Carey, Thomas G. Carey, Emmett McCauley, George Dawson, Mary Carey Leavitt, Eve Twohy, and Martin B. Carey were represented by legal counsel, William Leaphart, Esq. of the Leaphart Law Firm, Helena, Montana. Appearing personally on behalf of the Objectors to present evidence and testimony were Thomas Carey and Helen Carey, ranch owners, and Gary Grimstead, groundwater and chemical hydrologist from the University of Montana. The Objectors offered into evidence 20 exhibits:

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The first six exhibits were photographs taken on September 20, 1979 by Helen Carey at or near the conjunction of the North Channel of the Boulder River and the pit of the Boone Trust;

(1) water running from the North Channel into the Boone Trust sump;

(2) water located south of the sump towards the slough;

(3) a rock buildup in the North Channel which diverted water into the sump;

(4) a rock diversion channeling water from the North Channel into the sump;

(5) water running in the North Channel past the sump; and

(6) water flowing into the sump from the slough in relation to the rock diversion; and

(7) a schematic drawing of the cone of depression in an aquifer given the pumping rate of 1850 gallons per minute when the transmissivity rate and storage coefficients were constant, admitted for illustrative purposes only;

(8) an illustration of the drawdown of a well assuming a constant head boundary, such as the Boulder River:

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(9) a Notice of Appropriation of 2000 miners inches of water diverted from the Boulder River in 1877 by John Smith, recorded in Jefferson County, Book F of Water Right Locations, page 54 (1884);

(10) a Notice of Water Right for 3000 inches of water diverted from the Boulder River in 1897 by D. D. Twohy, recorded in Jefferson County, Book 1 of Water Right Locations, page 117 (1898);

(11) a Notice of Water Right for 1000 miners inches diverted from the Boulder River in 1888 by John McKeena, recorded in Jefferson County, Book G of Water Right Locations, page 173 (1888);

(12) a Notice of Water Right for 300 miners inches of water diverted from the Boulder River in 1889 by John W. Dawson, recorded in Jefferson County, Book G of Water Right Locations, page 412 (1889);

(13) a Notice of Water Right for 200 inches of water diverted from the Misey Spring by Thomas Dawson in 1881, recorded in Jefferson County Book G of Water Right Locations, page 303 (1881);

(14) a Notice of Water Right for 300 inches of water diverted from the Boulder River in 1891 by John W. Dawson to

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irrigate the SE1/4 Section 17, T. 3 N., R. 2 W., recorded in Jefferson County, Book G of Water Right Locations, page 565 (1891);

(15) a Notice of Water Right for 150 inches of water diverted from the Boulder River in 1887 by Patrick Wickham to irrigate lands in Section 12, T. 4 N., R. 3 W., and N1/2 NE1/4 Section 12, T. 4 N., R. 3 W., recorded in Jefferson County, Book G of Water Right Locations, page 250 (1887);

(16) a Notice of Water Right for 75 inches of water diverted from the Boulder River in 1876 by Patrick Wickham to irrigate the N1/2 N1/4, Section 12, T. 4 N., R. 3 W., recorded in Jefferson County Book G of Water Right Locations, page 251 (1889);

(17) a Notice of Water Right for 300 inches of water diverted from the Boulder River in 1920 by Frank Carey for irrigation, recorded in Jefferson County, Book 2 of Water Right Locations, page 208 (1936);

(18) a Notice of Water Right for 1500 inches of water diverted from the Boulder River in 1903 by Frank Carey for irrigation, recorded in Jefferson County, Book 1 of Water Right Locations, page 274 (1903);

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(19) a Notice of Water Right for 500 inches of water diverted from the Boulder River in 1888 by Barney Cooney, recorded in Jefferson County, Book G of Water Right Locations, page 409 (1891); and

(20) a Notice of Water Right for 500 inches of water diverted from the slough of the Boulder River in 1890 by Con Smith recorded in Jefferson County, Book G of Water Right Locations, page 403 (1891).

Said Exhibits were marked and entered into the record as Objector (Leaphart) Exhibits Nos. 1-20, respectively.

Objector Edward Kyler withdrew his objection prior to the nearing. Mr. Anderson appeared on behalf of the M & M Ranch on August 8, 1979 to cross-examine the Boone Trust's witnesses.

Objector, the Montana Power Company, hereinafter referred to as M.P.C., was represented by legal counsel, Mr. Ronald Waterman, Esq., from the firm of Gough, Shanahan, Johnson and Waterman, Helena, Montana. Mr. Donald Gregg appeared personally on behalf of MPC to present evidence and testimony in support of the MPC objection. The MPC offered into evidence 14 exhibits:

(1) a Notice of Appropriation for 10,000 cubic feet per second of water from the Missouri River in 1955 to be impounded by a dam with an elevation of approximately 2,125

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feet commonly referred to as Cochrane, to generate hydroelectric power, recorded in Cascade County, Book 5, page 53 (1955);

(2) a Notice of Appropriation for 25,000 cubic feet of water per second from the Missouri River in 1928 by the Great Falls Power Company to be impounded by Morony Dam for generation of hydroelectric power and agricultural uses, recorded in Cascade County, Miscellaneous Book 5, page 165 (1928);

(3) a Notice of Appropriation for 1,000,000 miners inches of water or 25,000 cubic feet of water per second from the Missouri River in 1908 by Great Falls Water, Power and Townsite Company to be impounded by Ryan Dam, recorded in Cascade County, Book 7 of Quartz Location, page 205 (1908);

(4) a Notice of Appropriation for 1,000,000 miners inches of water or 25,000 cubic feet of water per second from the Missouri River in 1908 by Great Falls Water, Power and Townsite Company, to be impounded by Rainbow Dam for agricultural uses, manufacturing and generation of hydroelectric power, recorded in Cascade County, Book 7 of Quartz Location, page 203 (1908);

(5) a Notice of Appropriation for 25,000 cubic feet of water per second from the Missouri River in 1926 by the Great Falls Power Company to be impounded by Black Eagle Dam for

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generation of hydroelectric power, recorded in Cascade County, Miscellaneous Book 5, page 12 (1926);

(6) a Notice of Appropriation for 10,000 cubic feet of water per second from the Missouri River in 1907 by Capital City Improvement Co. to be diverted and impounded by Holter Dam, recorded in Lewis and Clark County Book 1, page 591-592 (1907);

(7) a Notice of Appropriation for 10,000 cubic feet of water per second from the Missouri River in 1907 by Capital City Improvement Co., to be diverted and impounded by Holter Dam for irrigation and generation of hydroelectric power, recorded in Lewis and Clark County, Book 1, page 589 (1907);

(8) a Notice of Appropriation for 240,000 miners inches of water or 6,000 cubic feet of water per second from the Missouri River in 1915 by the M.P.C. to be impounded and diverted by Holter Dam for the generation of hydroelectric power; recorded in Lewis and Clark County, Book N, page 111 (1915);

(9) a Notice of Appropriation for 8,120 cubic feet of water per second from the Missouri River in 1905 by M. H. Gerry, Jr., to be diverted and impounded by Hauser Dam for irrigation and generation of hydroelectric power; recorded in Lewis and Clark County, Book L, page 458, (1905);

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(10) a Notice of Appropriation for 8,120 cubic feet of water per second from the Missouri River in 1906 by the Helena Power Transmission Company to be diverted and impounded by Hauser Dam for irrigation and generation of hydroelectric power, recorded in Lewis and Clark County, Book L, page 566 (1906);

(11) a Notice of Appropriation for 3000 cubic feet of water per second from the Missouri River in 1906 by the Helena Power Transmission Co. to be impounded by Hauser Dam for multiple uses, recorded in Lewis and Clark County, Book L, page 568 (1906);

(12) a schematic drawing, prepared under the direction of Donald Gregg, showing the tributaries of the Missouri River system and the major dams constructed on the Missouri River in Montana;

(13) a table summarizing the water rights claimed by MPC, which water rights were listed as MPC exhibits 1 through 11, and the water rights according to the Special Master's findings of fact in Montana Power Company v. Broadwater-Missouri Users Ass'n ; and

(14) a chart showing the average daily water flow in cubic feet per second at Morony Dam, near Great Falls, from January 1960 through August 1979.

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Said exhibits were marked and entered accordingly as Objector PC)Exhibits Nos. 1 through 14, respectively.

At the request of MPC the Hearing Examiner took judicial notice of the court action, Montana Power Company v. Broadwater - Missouri Users Association , 50 F. Supp. 4 (1942). The Hearing Examiner also took notice that the decision in Montana Power Company v. Broadwater - Missouri Users Association, was reversed because the court lacked jurisdiction, 139 F. 2d 998 (1944).

Objector, United States Bureau of Reclamation, hereinafter referred to as "Bureau", was represented by legal counsel, Richard Aldrich, Esq., from the U. S. Department of Interior, Office of the Solicitor, Billings, Montana. Mr. Bryan J. Edwards appeared personally on behalf of the Bureau to present evidence and testimony in support of the Bureau's objection. The Bureau offered into evidence five exhibits:

(1) a contract entered into between the United States of America and the M.P.C., Re: Canyon Ferry Site Aquisition, dated December 14, 1949

(2) a graph recording the reservoir storage at Canyon Ferry in 1000 acre-feet and the water elevation in feet from October 1967 - September, 1977, and recording the water inflow into Canyon Ferry Resevoir in cubic feet per second from October, 1967 - September, 1977;

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(3) a graph of the average net water inflow monthly in cubic feet of water per second based on data from January, 1954-December, 1975;

(4) the Findings of Fact, Conclusions of Law and Order issued by the Department of Natural Resources and Conservation, in the matter of Application for Beneficial Water Use Permit No. 4963-s41I by the Montana Department of State Lands, issued on December 1, 1978 (which application for water use was later withdrawn by the applicant, a fact which was judicially noticed by the Hearing Examiner);

(5) a chart indicating the dates each year, from 1966-1979, when water was spilled from Canyon Ferry Dam, and the maximum amount of each spill in cubic feet of water per second.

Said exhibits were marked and entered into the record as Objector (Bureau) Exhibits Nos. 1-5, respectively.

Appearing at the hearing to present technical evidence and testimony on behalf of the Department were: Arlin Krogstad, Hearings Representative; Larry Brown, Hydrologist; Glenn Smith, Soil Scientist; Ken Chrest, Soil Scientist; and Tom Patton, Geo-Hydrologist. Prior to the hearing, the Department's technical personnel submitted the following reports:

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(1) Investigation of Surface Water Resources in the Boulder River Basin Downstream from Boulder, Montana; in Reference to Water Rights Applications Boone, Thomas H., Jefferson County, 14,965-g41E, 19,228-c41E, 19,229-c41E, and 19,230-c41E, by Larry Brown (78-LB-5);

(2) Stream Depletion of the Boulder River by Tom Patton, (78-TP-1);

(3) Water Rights Applications; Boone, Thomas H., Jefferson County; 14,965-g41E, 19,228-c41E, 19,229-c41E, 19,230-c41E; by Glenn Smith and Ken Chrest, (78-GS-2); and

(4) Supplement to Surface Water Resources Report by Larry Brown, December 11, 1978.

At the hearing the Department submitted the following Exhibits:

(1) a hydrograph report, including hydrographs for the Boone trust observation wells and interpretations of the hydrographs, prepared by Tom Patton; and

(2) a copy of Application for Beneficial Water Use Permit No. 21615-s41E, submitted by Thomas H. Boone, trustee to divert 15 cubic feet of water per second up to 1070 acre-feet of water for irrigation from April 1 to October 1, from the

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Boulder River into an existing sump pit in the NW1/4, NW1/4 Section 2, T. 5 N., R. 3 W., Jefferson County.

Said exhibits were marked and entered as Department's Exhibits Nos. 1 and 2, respectively.

Hearing Examiner, Forrest Tevebaugh, ruled at the beginning of the hearing that the total cubic feet of water per second under consideration exceeded 15 cubic feet per second, therefore the Boone Trust must prove by clear and convincing evicence that the rights of prior appropriators will not be adversely affected, a requirement in Section 85-2-311 (6), M.C.A. 1979. (TR. 1, page 4.)

The Boone Trust requested that Applications for Change of Appropriation Water Right Nos. 19,228-c41E, and 19,229-c41E be withdrawn (Vol. I, pg. 9). The applications were withdrawn and terminated without objection. The Hearing Examiner ruled that since the aggregate of the pending applications was 14.5 cubic feet of water per second, that Section 85-2-311(6), M.C.A. 1979, was not applicable; therefore the Boone Trust did not have the burden of proving the criteria by clear and convincing evidence (TR. I, pg 10).

The Boone Trust requested that Application for Beneficial Water Use Permit No. 14,965-g41E for water use be amended from April 1 to October 1, to a period of use from July 1 to October

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The modificiation for period of proposed use from July 1 to October 1 was granted.

Paul B. Smith made a Motion to Strike the testimony of Delos Robbins, concerning the diversion of waste water in the SE1/4, Section 34, T. 5 N., R. 3 W., M.P.M., Jefferson County, because the application filed by Boone Trust stated that the point of diversion was in the SW1/4, Section 34, T. 5 N., R. 3 W., M.P.M., Jefferson County. The motion was taken under advisement. The motion to strike is denied.

Paul B. Smith made a Motion to Strike the testimony relating to Elkhorn Creek water and the Boone Trust's proposed uses of lkhorn Creek water, because the applications did not specify chat the source of any Boone Trust water was from Elkhorn Creek. The Motion to Strike was taken under advisement. The Motion to Strike is denied.

Paul B. Smith had a continuing objection throughout the hearing to all evidence introduced by the Boone Trust concerning the proposed uses of water from Elkhorn Creek.

At the conclusion of the Boone Trust case in chief, the Boone Trust made a motion that the application "be amended to conform to the proof submitted by the applicant". (TR. II, pg. 143). The motion was resisted by all Objectors. The motion was denied because:

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(1) The amendment was vague and uncertain, and the Boone Trust could not specify precisely which factors should be amended and how; and

(2) The amendments may have adversely affected other water right holders whom would not have had adequate notice;

Paul B. Smith made a Motion to Strike all evidence presented and introduced by the Boone Trust pertaining to their proposed uses of Elkhorn Creek water. The Motion to Strike is denied.

Following completion of the Boone Trust's case in chief, William Leaphart, joined by Ronald Waterman, Richard Aldrich and Paul B. Smith, made a motion to dismiss the applications for ailure to state a claim. The motion was denied. The objectors proceeded to present their case.

W. T. Boone made a motion that the Hearing Examiner view the premises of the Boone Trust property prior to making the decision. The motion was granted. On September 26, 1979, the Hearing Examiner notified all parties that a viewing of the premises and inspection of the Boone Trust's diversions and lands would commence at 10:00 a.m. on October 2, 1979 at the Boone Trust Ranch, located in SW1/4 SW1/4 Section 35, T. 5 N., R. 3 W., Jefferson County, Montana. Present during the viewing and inspection were: W. T. Boone, Floyd Chef, William Leaphart, Paul

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Smith, Paul T. Smith, and numerous objectors and ranchers in the area.

Mr. Larry Brown, hydrologist for the Department of Natural Resources and Conservation, at the conclusion of the hearing requested that the evidentiary record remain open so the Department could obtain and submit the U. S. Geological Survey Stream Gage Data for the Boulder River for 1979. Mr. Larry Brown submitted the U.S. Geological Survey Stream Gage Readings for the Boulder River for April through November 9, 1979, and copies of these gage readings were sent to all attorneys of record on January 3, 1980, along with copies of the transcription of the hearing.

After two extensions in time were granted to the objectors, the parties filed Proposed Findings of Fact, Conclusions of Law, and legal briefs on or before March 20, 1980. Reply briefs were served on the Hearing Examiner on or before April 25, 1980.

The Proposal for Decision, consisting of Proposed Findings of Fact, Proposed Conclusions of Law and Proposed Order, was issued on November 5, 1980. The parties filed Exceptions to the Proposal For Decision. Having considered each exception filed, the Department responds to each exception as follows:

Response to Exceptions of the Boone Trust

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On December 10, 1980, the Boone Trust filed written exceptions to the Hearing Examiner's Proposal for Decision, excepting generally to the proposed orders denying Permit No. 14,965-g41E and Authorization to Change No. 19,230-c41E and specifically to enumerated Proposed Findings of Fact and Proposed Conclusions of Law. In response, each exception has been either incorporated by modifications of the Final Order or answered as follows.

The Boone Trust did not except to the conclusions of law that the Boone Trust failed to prove by a preponderance of the evidence that the criteria of Section 85-2-311, M.C.A. 1979 were satisfied. The Department can not issue a Beneficial Water Use Permit unless the Applicant has shown that the criteria of Section 85-2-311, M.C.A. 1979, will be met.

The Boone Trust excepts (Exception No. 1, Page 1) to the alleged failure of the Hearing Examiner to make findings of fact concerning the location of the points of diversion and irrigation ditches of the Objectors except for Montana Power Company and the Bureau of Reclamation. By stipulation of the parties, it was admitted that three of Mabel Murphy's diversions were upstream from the Boone point of diversion.

The Boulder River Watershed Map, prepared by DNRC indicates the irrigators lands along the Boulder River. The only points of diversion identified on the map were located in approximately the

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NW1/4 SE1/4 of Section 33, Township 5 North, Range 3 West; NE1/4 SW1/4 of Section 12, Township 4 North, Range 3 West; and the NW1/4 SW1/4 of Section 19, Township 4 North, Range 3 West.

The map shows irrigated lands upstream of the Boone point of diversion belonging to the following parties: Emmett McCauley, Paul T. Smith, Ed Murphy and Tom Carey (Tom Carey also owns land downstream of the Boone point of diversion). The Hearing Examiner recognizes that the location of lands downstream of the Boone point of diversion does not necessarily mean that the points of diversion are also downstream.

Upon admission into the record of notices of appropriation filed by the Objectors, and their predecessors, the Boone Trust requested the Hearing Examiner to search other records for the appropriate points of diversion, if none were listed on the notice. The Hearing Examiner reviewed the record of the case and the Department's records to determine the points of diversion - no records indicated the points of diversion. Having made this search the Hearing Examiner fulfilled the obligation to attempt to identify the Objectors' points of diversion.

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The Boone Trust contends that the points of diversion of Thomas C. Carey, John Carey, Eve Twohy, Martin D. Carey, Mary Carey Leavitt and Spencer Lanz are all upstream from the Boone Trust point of diversion.

Finding of Fact 4d. has been amended to add (8), which reads as follows:

> (8) Points of diversion were not identified for all of the water rights listed above.

The Boone Trust also excepts to Conclusion of Law #10.

Conclusion of Law #10 (a) (page 81) has been modified to reflect that some Objectors may have points of diversion upstream from the Boone Trust. However, Conclusion of Law #10 is also based upon findings and conclusions as to the

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discharge level of the Boulder River (27.7) cubic feet of water per second). The Boone Trust failed to introduce evidence that water is available from July 1 through October 1.

The Boone Trust excepts (Exception No. 2, Page 3) to Findings of Fact #5, #5 (b) (2); the Boone Trust contends that finding the North Channel to be a natural channel of the Boulder River is not supported by the evidence. The evidence supporting the Finding of Fact is specifically referenced after the finding. Finding of Fact #5 was based upon the technical report of Larry Brown, pages 1 and 4; the Boulder River Watershed Plan, figure 6; and the ruling of Forest Tevebaugh, Transcript Vol. I, page 110. The finding indicates that the evidence was controverted. Charles Bowman, Boone Trust witness, testified that the North Channel was only excavated for 100 yards, and thereafter was a natural channel. (C. Bowman, Transcript Vol. II, pages 79, 130.) Mr. Fadness testified that the North Channel was used to convey irrigation water.

The evidence indicates that at the divergence of the North Channel from the Boulder River the natural stream channel has

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been excavated so that the natural course is no longer identifiable. The Boulder River is a braided or wedded river - the North Channel is one braid of the system.

The Finding of Fact reveals that the testimony of each and everyone of these individuals was considered and weighed in making the final determination. When the evidence is weighed it is found that there is substantial evidence to support the finding that the North Channel is "a natural channel of the Boulder, which for the first 100 yards has been excavated."

The Boone Trust excepts to the language of Finding of Fact #17 (e) (page 60), which was in error and has been changed as follows:

> "Representatives of the Boone Trust, Objectors and the Department agreed that since the North Channel was located so close to the pit, water pumped ---- from the pit would include water from the North Channel. (Bowman, TR. Vol. II, page 130; Grimstead, TR. Vol. III, page 85; and Brown Report, page 2)."

The Boone Trust excepts (page 5) because the Hearing Examiner allegedly failed to apply the definition of "watercourse" as used in Doney v. Beatty, 124 Mont. 41, 51 (1950). In Doney v. Beatty, supra, the Court distinguished diffused surface waters from waters in a natural course. The Court found that there was no marked channel and water only appeared after a rain, and therefore it was not a natural watercourse.

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Doney v. Beatty at 51 (1950) states:

> In 1 Kinney on Irrigation and Water Rights 2d Ed., in discussing water courses in section 301, at page 486, the author quotes with approval the definition of a water course appearing in an Idaho case, as follows: " 'A water course is a stream of water flowing in a definite channel, having a bed and sides or banks, and discharging itself into some other stream or body of water. The flow need not be constant, but must be more than mere surface drainage occasioned by extraordinary causes; there must be substantial indications of the existence of a stream which is ordinarily a moving body of water'." Again in section 312, Kinney says: "But a water course does not include holes, gullies, or ravines in land in which mere surface water from rain or melting snow at irregular periods, is discharged through them from a higher to a lower level, and which at other times are destitute of water. In the absence of a permanent source of water supply there can be no water course in its legal sense." Emphasis supplied. See: 1 Weil on Water Rights in the Western States, 3d Ed., page 354, sec. 334; LeMunyon v. Gallatin Valley Railway Co., 60 Mont. 517, 199 Pac. 915.

The North Channel does have defined bed banks, and therefore the definition of water course in Doney v. Beatty is not applicable.

In reponse to Boone Trust Exception No. 3 (page 6), the following has been added as Finding of Fact No. 17 (a) (6):

> (6) During dry summers the Boulder River has intermittently been dry in sections of the river downstream from the Boone Trust properties. (Bowman, TR. Vol. II, pages 86, 18; and Boulder River Watershed Plan, plate 5, page E-16.

In response to Exception No. 3 (page 7) that the Hearing Examiner allegedly erred because no findings were made on the

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distance from the pit to the main channel of the Boulder River, the following finding of fact has been added:

> 12. (e). The Boulder River's main channel is approximately 1500 feet from the Boone Trust pit. Between the North Channel and the Boulder River's main channel are floodplain lowlands comprised of subirrigated croplands, braided and wedded channels, swamps and riparian vegetation. (Grimstead, TR. Vol. III, page 66; and Boulder River Watershed Plan, page E-14).

The Boone Trust excepts (Exception No. 4, Page 8) to Finding of Fact 17 h. (1) (page 66) because it was not relevant to the issues of the section. The second sentence of the Finding was improperly placed and has been moved; it is now Finding of Fact 1. c. (page 28).

The Boone Trust excepts (Exception No. 5, Page 8) to Finding of Fact No. 17 (pages 54-67) - the Boone Trust "excepts to the Proposed Findings that water pumped from the pit is in fact surface water and not ground water". Finding of Fact No. 17 has been misread by the Boone Trust, the finding is that the water pumped from the pit <u>includes</u> surface water.

Finding of Fact No. 17, therefore, recognizes that the water pumped from the pit is both surface and groundwater. It is important that the finding reflect that both surface and ground water supplies are diverted by the pit, so that the parties that may be adversely affected by the diversions can be identified. Finding of Fact No. 17 has been modified to read as follows:

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17. The Boone Trust requested to divert groundwater from the pit; however, in addition to diverting groundwater the water to be diverted also includes waters which are surface water and part of the surface water source of supply.

The Boone Trust further excepted because the Hearing Examiner alledgedly failed to adopt the following definition of groundwater - "water withdrawn from the aquifer." (Exception #5, page 8). Although the techincal experts agreed that they normally used the term "groundwater" to identify where the water was withdrawn, the experts admitted that there was a different result if the definition of "groundwater" as adopted in the Montana Code Annotated, Section 85-2-102 (8), M.C.A. 1979, was applied. For example, as pointed out by the Boone Trust, Mr. Patton did report that the pit tapped an aquifer (page 2), but he Patton report also discussed the interrelationship of the surface and groundwater:

"Of the four boundaries listed above, the most important is the north channel because of its proximity to the pit. While the channel may be a discharge feature of the aquifer, it also represents a recharge phenomena to the pit while pumping ground water. When pumped, the pit would cause water to "leak" from the channel to the pit. It is apparent from water level observations in the observation wells made June 13, 1978 that underground leakage from the channel was not providing the entire amount of water being pumped and it is probable that the water table was being drawn down below the bed of the channel." (Patton Report, page 4).

"Both the north and main channels of the Boulder River could be affected by pumping and because these boundaries also provide water to downstream water users, adverse affect to these users may occur." (Patton Report, page 5).

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And, Mr. Patton testified concerning the two definitions of groundwater:

> MR. PATTON: Well, part of my problem is that I don't agree entirely, as a hydrologist, with the definition. I'm not sure that you can define them separately.
>
> MR. LEAPHART: I appreciate that we - Mr. Grimstead had the same problem.
>
> MR. PATTON: Yea. He - I think that Mr. Grimstead's point discussing whether or not the interval between the surface water body and the ground water body is saturated, is a very good one and that you would have to look at it from that standpoint. If there is a continuous saturation between the two, between say the pit or a pit and a river, that they would have to be considered ultimately a part of the same system.
>
> MR. LEAPHART: Would you disagree with Doctor Grimstead's testimony in that regard at all?
>
> MR. PATTON: No, I wouldn't.
>
> (Patton, TR. Vol. III, pages 199-200).

The Boone Trust in the exceptions contended that it was Mr. Grimstead's opinion that the pit diverted groundwater. Although Mr. Grimstead testified that the pit tapped an aquifer (TR. Vol. III, page 63), Mr. Grimstead repeatedly testified that the aquifer tapped by the pit and the surface waters were closely interrelated:

> MR. WATERMAN: Do I understand that to say that the water from the river will be drawn into the sump?

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MR. GRIMSTEAD: The water from the river side will be drawn into the sump in increasing proportions as the upgradient aquifer becomes depleted.

MR. WATERMAN: Depleated. (sic) So that from the period of time of July to October the percentage of water drawn from the river will increase more and more.

MR. GRIMSTEAD: Yea.

(Grimstead, TR. Vol. III, page 76):

MR. BOONE: Ok. If we are dealing with a withdrawal of ground water from this dug well, at a point in time, commencing July 1, of a given year, and your knowing that approximately at that time, in the normal year the Boulder River is dry upstream from the Quitten's Bridge and downstream from the Quitten's Bridge, you would say that there's no depletions, wouldn't you?

MR. GRIMSTEAD: No, I wouldn't. Because you see that subgrade flow is necessary to supplement whatever water is coming in down gradient. Now as I understnad this problem, it's primarily what happens to downstream users. That subgradient flow is very much a part of what is necessary to provide surface flow for anyone downstream.

(Grimstead, TR. Vol. III, page 70);

MR. WATERMAN: In this instance, therefore, there is an interaction between the North Channel or the Slough and the sump.

MR. GRIMSTEAD: Yes.

MR. WATERMAN: And your testimony is that additionally there is interaction between the waters of the sump and the Boulder River proper?

MR. GRIMSTEAD: Yes.

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MR. WATERMAN: Would you say that the entire system is an interrelated system?

MR. GRIMSTEAD: Yes.

(Grimstead, TR. Vol. III, page 78); and

MR. LEAPHART: Now given the fact that the channel is of course present, what is your opinion as whether the ground water acquifer is or can be a completely separate source of water independent from the surface water?

MR. GRIMSTEAD: No, as long as the, the river is present it's going to contribute.

MR. LEAPHART: They will be interacting?

MR. GRIMSTEAD: Yes.

(Grimstead, TR. Vol. III, page 52).

Mr. Grimstead also testified as to the application of the Montana legal definition of "groundwater" to these circumstances:

MR. WATERMAN: Now, Mr. Grimstead, there was testimony earlier and some questions by Mr. Boone to you as to whether or not this ground water, could you define for me what you meant by ground water when you answered affirmatively to that question.

MR. GRIMSTEAD: Yes, to me ground water is water that at the point where it is withdrawn is withdrawn from the ground.

(Grimstead, TR. Vol. III, page 74);

MR. BROWN: I have one other question, please. Yesterday I brought up a point that is stated in the

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Montana Water Law, Section 85-2-501, the definition of ground water. If I might refresh your memory as to what this states, it's number 2, "Groundwater means any fresh-water beneath the land surface or beneath the bed of a stream, lake reservoir, or other body of surface water which is no part of that surface water." Could you expound on this definition, Mr. Grimstead, and specifically in regard to a potential hard pan layer or armor plating separating ground water from surface water or water that would actually be contributing to the saturation zone?

MR. GRIMSTEAD: Well, it seems to me that to satisfy the "not a part of the surface waters" you have to have a non- saturated zone intervening so that in most saturated stream/aquifer interacting conditions under that definition since they are physically part, you know, it's a continuum of water from the aquifer into the river. Where do you draw the line, you see.

MR. BROWN: In this situation, probably does not exist in the area surrounding the pit or separating the pit from the North Channel?

MR. GRIMSTEAD: To the extent that if the North Channel were sufficiently plugged, the bottom sealing were sufficiently great that at times, let's say now, when there is water in it and the surrounding ground water is at a somewhat lower level, if that plugging is sufficient to create an unsaturated mound underneath the North Channel then you could, by that legal definition distinguish between the surface and the subsurface water, otherwise no.

(Grimstead, TR. Vol. III, page 82); and

MR. GRIMSTEAD: In my opinion, the water, the ground water and the water in the channel, the water in the ground and the water in the channels are one and the same system and if the legal requirement is that they be separate to be defined as ground water, then, no.

MR. WATERMAN: They are not ground water under those circumstances?

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MR. GRIMSTEAD: I don't like the definition, but I'd have to agree that they are not under the definition in most cases.

(Grimstead, TR. Vol. III, page 84).

The weight of Mr. Grimstead's testimony is that the pit will withdraw both surface and ground water. The Boone Trust exception is rejected since the testimony that the water was groundwater (TR. Vol. III, page 63), was clarified by Mr. Grimstead later in the hearing when he discussed his definition of groundwater and the legal definition of groundwater. (TR. vol. III, pages 74, 82, and 84). Mr. Grimstead's testimony that the waters withdrawn by the pit include surface water is consistent with his testimony that the surface water and groundwater of the pit are interrelated.

The Boone Trust excepts to Proposed Conclusion of Law #4 (page 75) alleging that the definition of groundwater exceeds the bounds of the law. The definition as explained to meet the facts of this case has a rational relation to the legal definition. Conclusion of Law #4 (page 75) has been amended so that the complete legal definition of "groundwater" is quoted since this was the basis for the decision:

"4. Section 85-2-102 (8), M.C.A. 1979 requires that "groundwater" - "means any water beneath the land surface or beneath the bed of a stream, lake, reservoir, or other body of surface water, and which is not a part of that surface water."

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Contrary to the Boone Trust's exceptions, groundwater does in "water beneath the land surface ... and which is not a part of that surface water." Section 85-2-102 (8), M.C.A. 1979. Therefore, the definition of "groundwater" was not exceeded by excluding from groundwater: "seepage of the stream which collects in the stream banks, ... subsurface flows adjacent to the river, ... perched aquifers adjacent to the stream ... which contribute directly or indirectly to the flows of the surface waters." (Conclusion of Law #4b, page 76). And, groundwater does mean water "beneath the bed of a stream, lake, reservoir or other body of surface water, and which is not a part of that surface water." Section 85-2-102 (8), M.C.A. 1979. Therefore, the definition of groundwater rationally excludes therefrom ..." subsurface streamflows underneath ... the stream, subgradient flows of the river, the saturated mound of the stream, and storage reservoirs of the river."

The Boone Trust excepted to Proposed Conclusion of Law #5 (page 77); the Boone Trust contended that the definition of "surface water" adopted by the Board of Natural Resources and Conservation can modify the definition of "groundwater" in the Montana Code, as adopted by the legislature. As noted in Proposed Conclusion of Law #5 a (2) the Board's definition of surface water is not exclusive: ""Surface water" means all water of the state at the surface, including <u>but not limited to</u> any river, etc." There is no indication that the Board intended to alter the statutory definition of "groundwater" by adopting a

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rule defining "surface water". And, it is a rule of statutory construction and interpretation that an agency's adoption of rules can not amend statutory provisions. If the rule conflicts with the statute, then the rule is superceded.

The Boone Trust excepts to the application of the sub-flow doctrine, as first stated in Smith v. Duff, 34 Mont. 382 (1909), to the facts of the Boone Trust application for Beneficial Water Use Permit No. 14,965-g41E. The Boone Trust does not dispute the veracity and precedential effect of the sub-flow doctrine, nor the case of Smith v. Duff, supra. The Boone Trust contends the subflow doctrine is inapplicable because "We are not dealing here with a tributary swamp nor are we dealing with the subsurface supply of stream running in the sand and gravel of the bed of the stream." The Boone Trust also contends the sub-flow as applied in Woodward v. Perkins 116 Mont. 46 (1944) is not applicable because waters diverted, "are not seepage waters arising 'along the bed of the stream'." Finding of Fact No. 17 finds that the waters diverted from the Boone pit will divert, in addition to groundwater, water from the North Channel, water from the saturated zone surrounding the North Channel and the saturated mound of the North Channel. These waters that would be diverted by the Boone pit are the same type of waters that are referred to in Smith v. Duff (subsurface supply of a stream) and Woodward v. Perkins (seepage waters along the bed of stream), and therefore, application of the sub-flow doctrine was appropriate.

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The Boone Trust excepts (Exception No. 6, page 11) because Hearing Examiner took judicial notice of the Findings of the Special Master in Montana Power Company v. Broadwater-Missouri Water Users Ass'n., as expert testimony. The MPC contended that Montana Power Company v. Broadwater-Missouri Water Users Ass'n. was binding precedent. The Hearing Examiner held:

> "The Findings of the Special Master in Montana Power Company v. Broadwater-Misssouri Water Users Ass'n supra; are not binding as judicial precedent in this matter, since said case was dismissed on appeal for lack of jurisdiction and therefore the District Court opinion is a judicial nullity."

The District Court opinion was accorded the weight of expert testimony - opinion testimony of an expert. The evidence was admissable, but it was not accepted as binding precedent.

The Findings of the Special Master in Montana Power Company v. Missouri-Broadwater Water Users Ass'n, were summarized and included in MPC Exhibit No. 13 at the hearing. Important elements of the Findings of the Special Master were included in Exhibit No. 13, summarizing the masters findings on the flow rights in cubic feet per second, the priority date, and the storage rights in cubic feet per second for Canyon Ferry, Hauser Lake, Holter Dam, Black Eagle, Rainbow, Ryan and Morony Reservoirs. The Boone Trust did not object to the introduction of MPC Exhibit No. 13. The Boone Trust did not object when Mr. Gregg, testifying for MPC, discussed Exhibit No. 13 and the Special Master's Findings. (TR. Vol. III, pages 129-135). The

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Boone Trust had fair opportunity at the hearing to object to the admissibility of the Special Master's Findings. The Boone Trust had opportunity to cross-examine Mr. Gregg at hearing concerning the Special Master's Findings.

The Boone Trust excepts (Exception No. 7, page 12) because the Hearing Examiner allegedly erred in stating that MPC by contract with the Bureau retains the right to 23,980 cubic feet of water per second in Canyon Ferry. The Boone Trust contends that the MPC's is contractually limited to refill storage in Canyon Ferry only from Hebgen Lake. The contract (Bureau Exhibit No. 1) indicates otherwise:

> 1. CONVEYANCE BY COMPANY.
>
> "The Company agrees to transfer and convey to the United States the following property:"
>
> "(a) All of its Canyon Ferry land and land rights, including land owned in fee and rights, interests and privileges held by the Company in land owned by others, such as leaseholds, easements, submerged rights, rights-of-way, and other interests in lands;"
>
> "(b) The Company's Montana water right on the Missouri River for the generation of hydroelectric power of the amount necessary to operate the Company's Canyon Ferry power plant on the Missouri River up to and including the maximum of five thousand, one hundred (5,100) second-feet as of October 31, 1898. There is excepted herefrom and reserved ot the Company the water right on the Missouri River which it has acquired under the laws of Montana as of October 31, 1989, in the amount of twenty-three thousand, nine hundred eighty (23,980) cubic feet per second but not in excess in volume of the number of second foot days required to fill, at any given time, the Company's Canyon Ferry

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Reservoir that is to be conveyed to the United States by the Company, and which water in the volume of forty-seven thousand, five hundred (47,500) acre-feet the United States agrees to store in the Canyon Ferry unit of the Missouri River Basin Project; and"

3. CONSIDERATION TO BE PAID BY THE UNITED STATES

"The water available for storage under the Company's Montana appropriative right for its Canyon Ferry reservoir shall be stored by the United States, without cost to the Company, in the United States' Canyon Ferry reservoir. The United States from time to time shall release annually from the United States' Canyon Ferry dam and reservoir a cumulative total of forty-seven thousand, five hundred (47,500) acre-feet of water, such releases to be as ordered by the Company. The Company and the United States, in the development of operating arrangements under Section 5 hereof, shall agree upon a water year. The Company shall not have in the water year next succeeding the water year of the storage any carry-over rights in the forty-seven thousand, five hundred (47,500) acre-feet of water or any part thereof."

The Company also shall have the right when it withdraws water from said forty-seven thousand, five hundred (47,500) acre-feet of storage to replace the amount withdrawn with storage water from its Hebgen or Madison reservoirs and can use said forty-seven thousand, five hundred (47,500) acre-feet of storage space in the United States' Canyon Ferry reservoir to re-regulate the flow of water released from the Company's Hebgen or Madison reservoirs. (pages 12 -13)

and

4. RELEASE OF WATER FROM HEBGEN AND MADISON RESERVOIRS

It is understood that the Company owns, operates and maintains its Hebgen reservoir and its Madison hydroelectric development on the Madison River, a tributary of the Missouri River, upstream from Canyon Ferry. The Company also owns, maintains and operates hydroelectric developments at Hauser Lake, Holter, Black Eagle, Rainbow, Ryan and Morony on the Missouri River

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> downstream from Canyon Ferry and may in the future construct other downstream developments. Storage water released from the Company's Hebgen and Madison reservoirs must flow through the Canyon Ferry reservoir of the United States to supply the Company's power plants downstream therefrom. The United States undertakes and agrees to discharge through its Canyon Ferry dam and reservoir storage water released by the Company from its Hebgen or Madison reservoirs in the quantities so released, less carriage and evaporation losses to the point of inflow to the United States' Canyon Ferry reservoir, as agreed upon between the designated representatives of the Company and the United States. It is the intent hereof that the United States' Canyon Ferry Project shall not in any way interfere with the operation of the Company's dams, reservoirs and power plants on the Madison and Missouri Rivers (other than Canyon Ferry as now conducted. (page 13)

The MPC claims to have a valid appropriation at Canyon Ferry of 23,980 second feet days of storage, it is beyond the authority of the Hearing Examiner to adjudicate that water right. To limit MPC's right to store water in Canyon Ferry to only times when water was released from Hebgen Lake would constitute an adjudication.

The Boone Trust excepts (Exception No. 8, page 12) because the Hearing Examiner allegedly erred in failing to find that MPC and the Bureau would not be adversely affected by the granting of the Boone Trust applications. The testimony presented was insufficient to support the finding desired by the Boone Trust. The MPC and Bureau have water rights that if valid are prior to the Boone Trust's Application for Beneficial Water Use Permit No. 14,965-g41E. It was found that the Boone Trust diversions from the pit included surface waters from the Boulder River system. The Boone Trust had the burden of proving by a preponderance of

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the evidence that "the rights of a prior appropriator will not be adversely affected;" Section 85-2-311 (2). No findings could be made on whether the Boone Trust Application to Change Appropriation Water Right No. 19,230-c41E would adversely affect any parties since the source of water for that water right was erroneously reported.

The Boone Trust excepts (Exception No. 9, page 13) because the Hearing Examiner allegedly erred in not finding that "the waste water from his (Smith's) irrigation leaves the Elkhorn drainage and those waters do not and could not return to the Elkhorn drainage to be available for Elkhorn appropriators". Three different water sources for the "Smith waste water right" were alleged - waste water from the Boulder River, waste water from Elkhorn Creek, and waters of Little Elkhorn Creek. Until the source of the water is known, the Department can not issue proper notice. Until the source of the water is known, the Department cannot ascertain that other appropriators will not be adversely affected by the change of appropriation.

The Boone Trust also excepts because the Finding of Fact No. 23, that return flows may be diminished by changing from flood to sprinkler irrigation, was based upon opinions. The opinions supporting Finding of Fact No. 23 were given by: Charles Bowman, Agricultural Engineer testifying for Boone Trust; Larry Riley, representative of Ag Sales testifying for the Boone Trust; Keith Evans, manager of the Boone Trust property testifying for the

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Boone Trust; Glenn Smith, Soil Scientist for the Department; and Larry Brown, Hydrologist for the Department. These concurring opinions were sufficient basis for Finding of Fact No. 23.

The Boone Trust excepts (Exception No. 10, Page 14) to "the Proposed Findings of Fact and Conclusions of Law that applicant has failed to meet the criteria for the granting of a permit to change the place of use and for a permit to appropriate ground waters". The Boone Trust does not give any reasons why they believe these findings and conclusions to be erroneous. As stated previously, an authorization to change an appropriation cannot be granted until the origin of the water is known - which stream is it diverted from? For this reason, and all others enumerated in the Final Decision, the application to Change Appropriation Water Right No. 19,230-c41E was denied. For each reason enumerated in the Final Decision, Application for Beneficial Water User Permit No. 14,965-g41E was denied.

Response to Exceptions of Smith and Murphy:

Smith and Murphy except to the alleged failure of the Hearing Examiner to include in Proposed Finding of Fact No. 4 (d) the water rights claimed by Mable Murphy, as presented at the hearing in Smith's Exhibit No. 6. The claims of water rights presented by Mable Murphy were erroneously excluded from the Proposed Findings of Fact and Law. Since the Proposed Findings of Fact and Conclusions of Law only list

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some water rights claimed by the parties, and do not attempt in any way to adjudicate or validate any of the claimed water rights, neither the applicant nor the other objectors can be harmed by the inclusion of Mabel Murphy's claimed water rights in the Findings of Fact and Conclusions of Law. Therefore, Finding of Fact No. 4 (d) is amended to read as follows:

4. d.

(7) Mabel Murphy: 500 miners inches (1888), 500 miners inches (1866) and 250 miners inches (1869) all from the Boulder River. (Objector Smith's Exhibit No. 6.)

Therefore, Conclusion of Law No. 10, in order to be consistent with the Findings of Fact, is amended to include the following:

10. a.

Mabel Murphy, 1250 miners inches.

Response to: Exceptions of Carey, Twohy, et al.

Carey, Twohy, et al., except to the inclusion of the term, "maximum quantities", in reference to the water rights claimed by rancher objectors, in Conclusion of Law 10 (a). The intent of Conclusion of Law 10 (a) is to list the total quantities of water that each objector claimed at the hearing to appropriate from the Boulder River system. Conclusion of Law 10 (a) can only be based on the testimony and exhibits presented at the hearing. Conclusion of Law 10 (a) does not,

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and the Hearing Examiner cannot, adjudicate the water rights of the parties. The term "maximum" was included to indicate that that was the greatest volume that could be appropriated according to the objector's rights presented. In order to clarify the problem, Conclusion of Law 10 (a) is re-written to read:

> "Based upon the water rights claimed by the rancher objectors at the hearing, it appears that the rancher objectors have claims for water rights from the Boulder River system, and for the purposes herein only, it is determined that those claimed prior appropriations of water, although points of diversion were not determined, are of the following total quantities: . . ."

Carey, Twohy, et al., except to the alleged failure of the Hearing Examiner to include in Conclusion of Law 10 (a) the 400 inch water right of Martin and John Carey, as set forth in Finding of Fact No. 4 (d) (5), page 32. The Conclusion of Law 10 (a) erroneously excluded the 400 inch water right from the Boulder River claimed by Martin B. and John Carey. Since the Conclusion of Law only lists the water rights claimed by the parties, and does not attempt in any way to adjudicate or validate any of the claimed water rights, neither the applicant nor the other objectors can be harmed by the inclusion of Martin B. and John Carey's claimed water in Conclusion of Law 10 (a). Therefore, Conclusion of Law 10 (a) is amended so as to include the following:

"Martin B. and John Carey, 400 inches,"

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Carey, Twohy, et al., except because Conclusion of Law 10 (a) is allegedly erroneous in reading "Eve Twohy, 4000 inches plus 1/2 interest in 200 inches", since Eve Twohy claimed a "1/2 interest in 2000 inches" as was found in Finding of Fact No. 4 (d) (3). The Change from 2000 inches to 200 inches was a clerical error. Therefore, Conclusion of Law 10 (a) is corrected to read:

> "Eve Twohy, 4000 inches plus 1/2 interest in 2000 inches; . . ."

Response to Exceptions of the Montana Power Company:

The MPC excepts to Proposed Finding of Fact 6 (c), contending it should be amended to reflect that in addition to the MPC flow rights described in 6 (c) (1) - (7), that MPC also claims storage water rights. MPC did present exhibits and testimony at the hearing on the MPC's claimed storage water rights. Since the Finding of Fact only lists the water rights claimed by the parties, and does not attempt to adjudicate or validate any of the claimed water rights, neither the applicant nor other objectors can be harmed by including a reference to MPC's storage water rights. Therefore, Finding of Fact 6 (c) is amended to read as follows:

> "The Hearing Examiner does not have the authority to adjudicate the water rights claimed by the MPC and the Hearing Examiner is not attempting to adjudicate

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> the water rights, however, the MPC testified that based upon appropriations for storage water rights and flow rights and the findings of the Special Master for Montana Power Company v. Broadwater-Missouri Water Users Assoication, (supra), that MPC is entitled to storage water rights and the following water flow rights: . . ."

The MPC excepts to Proposed Conclusion of Law 10 (c) (1), contending it should be amended to reflect that in addition to the flow rights described in 10 (c) (1), that MPC also claims water storage rights. MPC did present exhibits and testimony at the hearing on the MPC's claimed storage water rights. Since the Conclusion of Law only lists the water rights claimed by the parties, and does not attempt to adjudicate or validate any of the claimed water rights, neither the applicant nor the objectors can be harmed by including a reference to MPC's storage water rights. Therefore, Conclusion of Law 10 (c) (1) is amended to read as follows:

> "(1) For the purposes herein only, it is determined that MPC has valid claims for storage water and water flow rights in the Missouri, subject to the specified limitations; and that the following total water flow rights of MPC are prior to the proposed appropriation of the Boone Trust: . . ."

The MPC excepts to Proposed Conclusion of Law 10 (c) (2), claiming that it should be amended "to provide the Montana Power Company is adversely affected whenever its

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storage rights at its various dams are not filled to the quantity claimed as well as when its flow right of 10,000 cfs is not available at Cochrane." This proposed amendment is rejected. The evidence presented at the hearing indicates that the volumes of stored water in the reservoirs fluctuates, both seasonally and annually, and in fact that throughout certain times water is regularly drafted from storage, and MPC did not show that these fluctuations in stored water were an adverse affect. Conclusion of Law 10 (c) (2) protects MPC's storage rights, as they have been historically maintained and used. Conclusion of Law 10 (c) (2) protects MPC's right to store excess or flood waters up to the reservoir's maximum capacities, when excess and flood waters are available.

MPC also claims it is adversely affected when 10,000 cubic feet of water per second is not available at Cochrane. Evidence indicates that the entire 10,000 cubic feet of water per second is not always utilized at Cochrane. Specifically, Beneficial Water Use Permit No. 4963-s41I applied for by Montana Department of State Lands, of which judicial notice was taken, states in Proposed Finding of Fact No. 7, page 18:

> "In response to questions posed by the Hearing Examiner, representatives of the MPC testified that 9,200 to 9,400 cubic feet of water per second are utilized for the production of electricity at Cochrane whenever such flow is available, but that the full claimed 10,000 cubic feet of water per second flow right is utilized

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less frequently than every time the full flow right is available (although the full has in fact been used) due to the particular vibration characteristics of the Cochrane generator when operated with a full 10,000 cubic feet of water per second."

With the inclusions of the above-described modifications and amendments, the Hearing Examiner's Proposed Findings of Fact, Proposed Conclusions of Law and Proposed Order are approved and accepted by the Department.

Based upon the Department's file, the applicant's and objector's testimony presented and exhibits admitted, the Department hereby makes the following Findings of Fact:

FINDINGS OF FACT

GENERAL

1. The Boulder River originates near the Continental Divide and flows generally in a southeasterly direction. (Watershed Plan and Environmental Impact Statement: Boulder River Watershed, (hereinafter referred to as Boulder River Watershed Plan) page E-13).

a. The Boulder River is a mountain snow-pak fed stream. (Boulder River Watershed Plan, page E-16; C. Bowman;

b. The major tributaries of the Boulder River head in the mountains to the north and northwest. The principal

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tributaries are the Little Boulder River and Elkhorn Creek. (Boulder River Watershed Plan; page E-15).

c. Mr. Bowman testified that there was probably an aquifer in the Boulder Valley recharged by the Boulder River. (Bowman, Tr. Vol. III, Page 130).

2. The U. S. Geologic Survey maintains two waterflow gages on the Boulder, the Boulder gage, prior to the confluence with the Little Boulder River and the Cardwell gauge located 10-15 miles upstream from the town of Cardwell. The U. S. Soil Conservation Service maintains a waterflow gage on the Little Boulder River. (C. Bowman, TR. II, page 20).

a. The measurements of mean daily stream flows in cubic feet of water per second were:

	Boulder River	Little Boulder	Cardwell
1977:			
May	176.65	37	(162.07)(146)
June	126.2	29.97	72.48
July	41.5	14.14	14.87
1978:			
May	648.11	71.6	604.4
June	639.06	56.69	620.9
July	192.29	28.42	196.14
1979:			
April	127.1	13.9	138.5
May	788.0	76.6	780.1
June	418.9	37.0	327.5
July	65.7	8.4	28.9
August	44.37	6.8	10.2
Sept.	30.73	4.1	11.3
Oct.	68.1	9.7	99.2

(C. Bowman, TR. Vol. II, pages 19-22; L. Brown Report, page 1; gage data submitted Nov. 7, 1979).

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3. Approximately 7300 acres of croplands in the Boulder River Watershed are being irrigated. (Boulder River Watershed Plan, page E-16). Of these 7300 irrigated acres, 3,998 acres of irrigated land are located between the Boone ... Trust property and Cold Springs. (G. Smith Report, page 1).

a. 2,199 acres are on the benchlands and are irrigated by gravity and sprinkler. (G. Smith Report, page 1).

b. 1,799 acres are valley bottomlands and sub-irrigated by the high water table of the Boulder River. (G. Smith Report, page 1).

4. Approximately 5851 acres of irrigated cropland are between the near Boulder gage and the near Cardwell gage, and 3742 acre-feet of water per annum would be required. (L. Brown Report, page 6).

a. Critical discharge is the amount of water needed to satisfy prior water rights, naturally occurring phenomenon and to supplement recharge. (L. Brown Report, page 1).

b. The critical discharge necessary to satisfy prior appropriations for irrigation on the Boulder River is approximately 27.7 cubic feet of water per second. (L. Brown Report, page 6).

c. Critical discharges at the near Boulder gage will be less than 25 cubic feet of water per second

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approximately 1.53 years out 10 years in July, 5.94 years out 10 years for August, 6.28 years out 10 years for September, and 3.47 years out 10 years for October. (L. Brown Report, page 7).

d. The Hearing Examiner does not have the authority to adjudicate the water rights claimed by the parties to the hearing, and the Hearing Examiner is not attempting to adjudicate the water rights, but the Objectors claim to have rights to the following quantities of water:

(1) Emmett McCauley: 150 inches (1887) and 75 inches (1876) (Objector Leaphart Exhibits Nos. 15 and 16);

(2) George Dawson: 300 inches (1889) from the Boulder River, 200 inches (1881) from Misey Spring, and 300 inches (1891). (Objector Leaphart Exhibits Nos. 12,13, and 14);

(3) Eve Twohy: 1,000 inches (1888), 3,000 inches (1897), 2,000 inches (1884, 1/2 interest), (Objector Leaphart Exhibits Nos. 9, 10, and 11);

(4) Martin B. John & Thomas Carey: 1500 inches (1903, 1/2 interest), 300 inches (1920), and 500 inches (1888). (Objector Leaphart Exhibits Nos. 17, 18, and 19);

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(5) Martin B. and John Carey: 400 inches. (Objector Leaphart Exhibits No. 20); and

(6) Paul T. Smith Ranch, Inc.: 500 miners inches (1866) from the Boulder River, and groundwater of 250 gallons per minute (1932), 200 miners inches (1938) 200 miners inches (1890) 100 gallons per minute (1897) (Objector Smith Exhibits Nos. 3 and 5).

(7) Mabel Murphy: 500 miners inches (1888); 500 miners inches (1866); and 250 miners inches (1869), all from the Boulder River. (Objector Smith's Exhibit No. 6).

(8) Points of diversion were not identified for all of the water rights listed above.

5. In approximately the NE1/4 SE1/4 Section 28, Township 5 North, Range 3 West, the North Channel of the Boulder separates from the main Boulder until it rejoins in approximately the NE1/4 SW1/4 Section 12, Township 4 North, Range 3 West. (Applicant's Exhibits Nos. 4, 5 and 6).

a. For the purposes herein, the Boulder River is a meandering, braided or wedded river. (L. Brown Report, pages 1 and 4).

b. The North Channel, also referred to as the Slough Ditch, appears to be a channel of the Boulder River.

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(L. Brown Report, pages 1 and 4; Boulder River Watershed Plan, figure 6; Tevebaugh TR. I, page 110).

(1) Representatives of the Boone Trust countered that the North Channel was a ditch, basing their testimony on the constructed diversion and the excavated channel for the first 100 yards. (C. Bowman, TR. II, page 130; Robbins, TR. I, page 110).

(2) For the purposes herein it is determined that the North Channel is a natural channel of the Boulder River, which for the first 100 yards was excavated, and has been historically used as a natural conveyance for water rights. (Fadness, TR. II, pages 163 and 186).

6. The Boulder River is a tributary of the Jefferson River, and joins the Jefferson River approximately fifteen miles south of the Boone Trust property. (U. S. Geologic Survey Quadrangles; Applicants Exhibits Nos. 4, 5, and 6).

a. The Jefferson River and Gallatin Rivers join near Three Forks, Montana forming the headwaters of the Missouri River.

b. Representatives of the MPC testified that MPC has water power storage and generating facilities at various points along the Missouri River consisting of:

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(1) a 340,000 acre-feet storage reservoir near the head of the Missouri River at Hebgen Lake (above the Canyon Ferry Reservoir);

(2) a 9,000 kilowatt generating plant on the Madison River near Ennis, Montana (above the Canyon Ferry Reservoir);

(3) a 17 megawatt generating plant at Houser Lake (below Canyon Ferry dam);

(4) a 50 megawatt plant on Holter Lake near Wolf Creek, Montana (below Canyon Ferry dam);

(5) an 18 megawatt generating plant at Black Eagle Falls, Montana (below Canyon Ferry Dam);

(6) a 35 megawatt generating plant known as the Rainbow Plant located below the Black Eagle plant;

(7) a 58 megawatt generating plant known as the Cochrane Plant located below the Rainbow Plant;

(8) a 60 megawatt generating plant known as the Ryan Plant located below the Cochrane plant;

(9) a 47 megawatt plant known as the Morony Plant located below the Ryan plant. (Gregg, TR. Vol. III, pages 126-128; MPC Exhibit No. 12)

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c. The Hearing Examiner does not have the authority to adjudicate the water rights claimed by the MPC and the Hearing Examiner is not attempting to adjudicate the water rights, however, the MPC testifed that based upon the filings of appropriation water rights and the findings of the Special Master for Montana Power Company v. Broadwater-Missouri Water Users Ass'n, (supra) that MPC is entitled to storage water rights and the following water flow rights:

(1) Houser Lake:

(a) 4740 cubic feet of water per second based upon a June 23, 1905 priority date (MPC Exhibits Nos. 9, 10, 11, & 13);

(2) Holter plant:

(a) 7100 cubic feet of water per second based upon a priority date of April 30, 1918, (MPC Exhibits Nos. 6, 7, 8, & 13);

(3) Black Eagle dam, a total of 5040 cubic feet of water per second:

(a) 3,300 cubic feet of water per second based upon a priority date of June 1, 1891, (MPC Exhibit No. 13);

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(b) 900 cubic feet of water per second based upon a priority date of December 31, 1893, (MPC Exhibit No. 13);

(c) 280 cubic feet of water per second based upon a priority date of December 31, 1912, (MPC Exhibt No. 13);

(d) 560 cubic feet of water per second based upon a priority date of August 31, 1927 (MPC Exhibits Nos. 5 & 13)

(4) Rainbow dam; a total of 5140 cubic feet of water per second:

(a) 3500 cubic feet of water per second based upon a priority date of September 16, 1908 (MPC Exhibits Nos. 4 & 13)

(b) 1640 cubic feet of water per second based upon a priority date of July 1, 1917 (MPC Exhibit No. 13);

(5) Ryan dam:

(a) 5900 cubic feet of water per second based upon a priority date of August 31, 1915 (MPC Exhibits Nos. 3 & 13);

(6) Morony dam:

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(a) 7150 cubic feet of water per second based upon a priority date of December 10, 1928 (MPC Exhibits Nos. 2 & 13); and

(7) Cochrane dam (which was constructed after the Special Masters decision):

(a) 10,000 cubic feet of water per second filed for on June 16, 1955. (MPC Exhibit No.1)

d. Representatives of the MPC testified that when 10,000 cubic feet of water per second is not available at Cochrane the MPC is adversely affected. (D. Gregg, TR. III, pages 137, and 138)

(1) The records of the U. S. Geologic Survey at Morony dam (approximately 5 miles upstream of Cochrane), based on 18 years of record from 1960-1977, that on the average water flows exceed 10,000 cubic feet per second (for more than 5 days) from April 21 until July 15. (D. Gregg, TR. Vol. III, page 143).

(2) There is a period of 85 days in an average year when water flows in the Missouri exceed MPC's rights. (D. Gregg, TR. Vol. III, page 143, 145).

(3) Approximately 1/4-1/3 of the flow in the Missouri River at Great Falls enters the Missouri

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River below the Canyon Ferry Dam, and between 2/3-3/4 of the flow in the Missouri River at Great Falls enters above the Canyon Ferry Dam. (Application for Beneficial Water Use Permit No. 4963-s41I by Montana Department of State Lands, Proposal for Decision, page 18).

e. The Hearing Examiner does not have the authority to adjudicate water rights and is not attempting to adjudicate the water rights of the Bureau, however, representatives of the Bureau claimed that they had a storage right at Canyon Ferry Dam for 2,050,000 acre-feet of water. (B. Edwards, TR. Vol III, page 169).

(1) The Bureau claimed a water right for 5,100 cubic per second based upon an October 31, 1898 priority date; which right was filed and used by the MPC and subsequently purchased in 1949 by the Bureau. (B. Edwards, TR. Vol. III, page 167; Bureau Exhibit No. 1).

(2) The MPC did not sell to the Bureau a claimed water storage right for 23,980 cubic feet per second at Canyon Ferry. (B. Edwards, TR. Vol. III, page 167; Bureau Exhibit No. 1).

(3) The MPC by contract maintains the right to refill the 23,980 cfs (47,500 acre-feet) of storage. (Bureau Exhibit No. 1).

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(4) The Bureau claimed a water right of 1,150 cubic feet of water per second with a 1949 priority date to be used for the hydropower generation (B. Edwards, TR. Vol. III, page 169).

(5) The Bureau claimed a water right of 250 cubic feet of water per second with a 1906 priority date for the irrigation of approximately 5,200 acres in the Helena Valley. (B. Edwards, TR. Vol. III, page 169).

(6) The Bureau claimed a water right of 500 cubic feet of water per second with a 1957 priority date for the irrigation of approximately 10,400 acres in the Helena Valley. (B. Edwards, TR. Vol. III, page 169).

(7) Records of resevoir storage and water inflows at Canyon Ferry Dam were presented for the years 1966 through 1977. (B. Edwards, TR. Vol. III, page 172; Bureau Exhibit No. 2).

(a) Spills from the Canyon Ferry dam have varied from 500 cubic feet per second to a maximum of 11,570 cubic feet per second. (Bureau Exhibit No. 5).

(b) The period of spills from Canyon Ferry are generally from mid-June through mid-July.

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The spills are for 30 to 45 days, but some years the spills may be for 60 days. (B. Edwards, TR. Vol. III, page 191).

(c) On cross-examination the Bureau's representative testified that spills from Canyon Ferry may have instanteous flows of 1,000 to 3,000 cubic feet of water per second, and therefore, the Canyon Ferry Dam may spill from 89,000 to 267,000 acre-feet of water in a single year. (B. Edwards, TR. Vol. III, page 192)

(d) The normal operation for the Canyon Ferry resevoir is to fill the reservoir in one period of the year, the spring, when excess water is available and release the stored water throughout the remaining seasons of the year when only minimum flows are available. (B. Edwards, TR. Vol. III, page 176).

(e) Representatives of the Bureau testified that if the Bureau is drawing storage water to meet generation needs when an upstream appropriator is diverting water, then the Bureau is adversely affected.

7. The Hearing Examiner does not have the authority to adjudicate Water Rights and is not attempting to adjudicate

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Water Rights, however, representatives of the Boone Trust testified and presented exhibits claiming that the Boone trust has the right to the following water rights:

a. 200 miners inches of water from the Boulder River for irrigation of the SE1/4 Section 34, Township 5 North, Range 3 West, with a priority date of 1866, commonly referred to as the McCauley Water Right. (Applicants Exhibit No. 7, Robbins, TR. Vol. I, pages 68, 91, 92).

b. 1200 miners inches of water from the Boulder River for the irrigation of Sections 26 and 35, Township 5 North, Range 3 West, with a priority date of 1918, commonly referred to as the Howard Water Right (Applicants Exhibit No. 8 and Robbins, TR. Vol. I, page 70); and

c. 200 miners inches of waste water which is Boulder River waste water from the Paul T. Smith Ranch which has been used to irrigate portions of Section 35 below the upper ditch and 198 acres in the NE1/4 NW1/4 Section 2, Township 4 North, Range 3 West, commonly referred to as the Smith waste water right (Application No. 19,230-c41E; and Robbins TR. Vol. I, pages 67, 105, 114).

8. The Boone Trust representatives propose to operate five (5) sprinkler irrigation systems on the Boone Trust lands east of the Boulder River, which systems are interrelated.

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(Robbins, TR. Vol. I., pages 67, 79, 105, and 114; and Riley, TR. Vol. I, pages 164-166).

a. A 100 horsepower turbine pumps water from the pit through a 16 inch buried main line to two-125 horsepower booster pumps located in SE1/4 SW1/4 of Section 35, Township 5 North, Range 3 West. The water would be pumped into System I, which would sprinkle irrigate the W1/2 of Section 35, Township 5 North, Range 3 West; and the SW1/4 and S1/2 NW1/4 of Section 26,Township 5 North, Range 3 West. (Application Exhibit A).

b. System I would consist of 12 sprinkler lines, ten of the lines would have 33 heads and two lines would have 40 heads. (Riley, TR. Vol. I, page 164). Each head would have the capacity to pump 8.07 gallons per minute. (Riley TR. Vol. I, page 164), therefore the operation of System I would require 3,308.7 gallons of water per minute (Riley, TR. Vol. I, page 165).

c. After the water is pumped through System I, any return flow and bypass water would be collected in the lower ditch and transported to System II to sprinkle irrigate the E1/2 of Section 35, Township 5 North, Range 3 West and the S1/2 of S1/2 E1/2 of Section 26, Township 5 North, Range 3 West and the S1/2 of S1/2 E1/2 of Section 26, Township 5 North, Range 3 West.(Robbins, TR. Vol. 1, page 70).

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d. System II would consist of eight (8) sprinkler lines, with each line containing 33 heads that pump at a rate of 8.07 gallons per minute per head. Therefore, System II requires 2,130 gallons of water per minute for full operation (Riley, TR. Vol. I, page 165).

e. The operation of System I and II requires 5,438.7 gallons of water per minute. (Riley, TR. Vol. I, page 165).

f. Irrigation System III would sprinkle irrigate approximately 60 acres in the NE1/4 Section 3, Township 4 North, Range 3 West, and the NW1/4 NW1/4 Section 2, Township 4 North, Range 3 West. (Applicants Exhibit No. 9 and Robbins, TR. Vol. I, page 67).

(1) A representative of the Boone Trust testified that System III would require 589 gallons of water per minute. (Robbins, TR. Vol. I, page 166).

(2) A representative of the Boone Trust testified that the water used for irrigating System III lands would be from the North Channel, the Howard and McCauley rights. (Robbins, TR. Vol. I, pages 68, 113 and 61).

g. Irrigation System IV would sprinkle irrigate approximately 135 acres in the SE1/4, Section 34,

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Township 5 North, Range 3 West. (Applicants Exhibit No. 9).

(1) A representative of the Boone Trust testified that System IV would require 1,065 gallons of water per minute. (Robbins, TR. Vol. I, page 166).

(2) A representative of the Boone Trust testified that the water used for irrigation of System IV lands would be the McCauley water right. (Robbins, TR. Vol. I, page 62-63).

h. Irrigation System V would sprinkle irrigate approximately 198 acres in the NE1/4 and NE1/4 NW1/4, Section 2, Township 4 North, Range 3 West. (Applicants Exhibit No. 9).

(1) A representative of the Boone Trust testified that System V would require 1,331 gallons of water per minute. (Robbins, TR. Vol. I,page 166).

(2) A representative of the Boone Trust testified that the water used for irrigation of System V lands would be the McCauley water right. (Robbins, TR. Vol. I, page 63).

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9. The Boone Trust proposes to divert the ground water by means of sump (pit) located in the NW1/4 NW1/4 of Section 2, Township 4 North, Range 3 West, M.P.M., in Jefferson County, Montana. (Application)

a. Representatives of the Boone trust testfied that a sump (pit) was dug in late July or early August of 1977 in the NW1/4 NW1/4 NW1/4 of Section 2, Township 4 north, Range 3 west, M.P.M., in Jefferson County. (Robbins, TR. Vol. I, page 18).

10. The Boone Trust pit is approximately 100 feet wide by 150 feet long and varies in depth from 16 to 20 feet. (Riley, TR. Vol. I, pages 157-158; and Robbins, TR. Vol, I, page 79).

a. Representatives of the Boone Trust testified that the pit was originally 16 feet deep, and that later the southern end of the pit was excavated to a depth of twenty (20) feet in order to increase the quantity of water diverted. (Riley, TR. Vol. I, page 158)

b. Representatives of the Boone Trust testified that the pit was pumped from August 31, 1977 through September 8, 1977 so the pit could be excavated. (Riley, TR. Vol. I, page 157).

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11. The Boone Trust pit was dug in soils which consisted of a mixture of sand, gravel and possibly some clay; sand and gravel have a high permeability rate.

a. Soils investigations conducted by the Department found that the pit was dug at the junction of alluvial soils comprised of sand, gravel, silt and clay deposits. (Patton, Report, page 1).

b. An agricultural engineer testifying on behalf of the Boone Trust stated that the soil materials of the pit were sand and gravel. (C. Bowman, TR. Vol. II, page 131)

c. A representative testifying for the Boone Trust stated that the soils of the pit were fine sand and gravel on the side near the North Channel and gravel and clay on the east side. (Riley, TR. I, page 196)

d. The agricultural engineer testifying on behalf of the Boone Trust stated that sand and gravel has a very rapid rate of permeability. (C. Bowman, TR. Vol. II, page 137)

12. A strip of soil approximately 20 feet wide, or less, composed of sand, gravel and possibly some silt and clay, separates the Boone Trust pit from the North Channel of the Boulder River. The bottom of the Boone Trust pit is

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estimated to be at a lower elevation than the bottom of the North Channel of the Boulder River.

a. On direct examination, a representataive of the Boone Trust testified that the strip of soil between the pit and the North Channel was thirty (30) feet wide. (Riley, TR. II, page 186). However, on cross examination the representative of the Boone Trust stated that the strip of soil between the pit and the North Channel may be less than twenty (20) feet wide. (Riley, TR. Vol. I, page 189).

b. A representative of the Department reported that there was less than twenty feet of sediment separating the pit from the North Channel. (L. Brown, Report, page 5).

c. On cross examination, a representative of the Boone Trust testified that the bottom of the pit was lower in elevation than the bottom of the North Channel. (Riley, TR. page 190).

d. A report prepared by the Department stated that the bottom of the pit was ten (10) feet lower than the saturated mound of the North Channel. (L. Brown, Report, page 6.)

e. The Boulder River's main channel is approximately 1500 feet from the Boone Trust pit. Between the north

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Channel and the Boulder River's main channel are floodplain lowlands comprised of subirrigated croplands, braided channels, swamps and riparian vegetation. (Grimstead, Tr. Vol. III, Page 66; and Boulder River Watershed Plan, page E-14).

The Boone Trust pit as presently designed and excavated produce a maximum of approximately 2000 to 2300 gallons water per minute, approximately 4.45 to 5.13 cubic feet of er per second, on a sustained basis.

a. The Boone Trust has requested approval to appropriate 12 cubic feet of ground water per second, up to a maximum of 1,839.6 acre-feet of from July 1 through October 1, inclusive of each year. (Application as amended; Tr. Vol. I, page 10).

b. Representatives of the Boone Trust, Mr. Bowman and Mr. Riley, testified that the pit had the capacity to produce 2300 gallons per minute from July 1 through October 1, inclusive. (Bowman, TR. II, page 36; Riley, TR. Vol. I page 168).

c. A representative of the Department, Mr. Patton, testified that based on observations and pumping information, there were indications that the pit could pump on a sustained basis no more than 2,000 gallons per minute, or approximately 4.45 cubic feet of water per second. (Patton, Report, page 1)

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d. A representative of the Department reported that the holding capacity of the pit was 2.2 acre-feet of water. (L. Brown, Report page 5).

e. Representatives of the Boone Trust requested that permission be granted to increase the size of the pit - to dig the entire pit to a depth of twenty (20) feet - so the pit could produce an estimated 2600 gallons of water per minute, approximately 5.7 cubic feet of water per second. (Riley, TR. Vol. I, page 168; Bowman, TR. Vol. II, page 142).

f. Since the capacity of the pit is 2300 gallons of water per minute, in order to operate System I and II the volume of water in the pit must be depleted. (Riley, TR. Vol. I, page 177). The representative of the Boone Trust testified that in order to fully operate the system in 1978, water had to be introduced into the pit from the North Channel (Riley, TR. Vol. I, page 178), however, it is unknown what quantity of water was drawn from the North Channel during such operations (Riley, TR. Vol. I, page 180). Representative of the Boone Trust testified that the system as designed and constructed couldn't be operated from the pit alone on the experience to date (Riley, TR. I, page 180).

g. Mr. Bowman testified on behalf of the Boone Trust that the proposed means of diversion was adequate and

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that the flow of water into the sump may increase slightly with continued use. (Bowman, TR. II, page 44; 42).

h. Mr. Riley testified that since the 100 horsepower pump could only pump 3,600 gallons per minute, or approximately 8 cubic feet of water per second, that a second pump would be required to attain the amount of water needed for the operation (Riley, TR. Vol. I, page 194).

14. The lands to be irrigated by the Boone Trust with waters from the pit are approximately 838 acres in Section 26 and 35, T. 5 N.; R. 3 W.; M.P.M., Jefferson County, Montana.

a. The Boone Trust applied for the water to be beneficially used by sprinkle irrigating 866 acres. (Application). A representative of the Boone Trust testified that the acreage to be irrigated had been miscalculated and was 838 acres rather than 866. (Robbins, TR. I, page 75). A representative of the Department testified that according to his calculations the acreage to be irrigated was 838 acres. (G. Smith, TR. Vol. I, pages 74-75).

b. The Boone Trust applied to sprinkle irrigate 160 acres in the NE1/4, 160 acres in the NW1/4, and 140 acres in the SE1/4, all located in Section 35, Township 5 North, Range 3 West; and also to sprinkle irrigate 54

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acres in the NW1/4, 160 acres in the SW1/4 and 32 acres in the SE1/4, all located in Section 26,Township 5 North, Range 3 West.

c. The Boone Trust proposes to sprinkle irrigate all lands identified in Sections 26 and 35, except those lands which are beyond the present fence lines. (Robbins, TR. Vol. I, page 75).

15. The Hearing Examiner does not have the authority to adjudicate the water rights of the parties. The Boone Trust testified that specified water rights would be used on particular tracts of land, and none of the findings herein authorize, directly or impliedly, the right of the Boone Trust to change the places of use of other water rights, or to extend the use of other water rights to additional or new lands.

a. A representative of the Boone Trust testified that prior to July 1, Systems I and II would be irrigated with waters of the Howard water right. (Robbins, TR. Vol. I, pages 69 and 80).

b. A representative of the Boone Trust testified that after July 1 and until October 1, the Systems I and II would be irrigated with water from the pit and the Smith waste water right. (Robbins, TR. Vol. I, page 70).

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16. The lands in Sections 26 and 35, field H, which are proposed to be sprinkle irrigated by the Boone Trust are composed of Richlie-Sandy loam soil and from the soil type the approximate amount of water required for successeful irrigation can be estimated. (G. Smith Report, Figure 3).

a. A soil scientist for the Department reported that Richlie-Sandy loam soils required five (5) inches of water for irrigation. If five (5) inches of water were applied to the lands on Systems I and II, it would require 5,391.7 gallons of water per minute or 12 cubic feet of water per second. (G. Smith R., page 8; G. Smith, TR. III, page 211).

b. Mr. Bowman testified for the Boone Trust that for 876 acres you need 24 acre-feet of water per day to irrigate the land (Bowman, TR. II, page 117), which is approximately 1 cubic foot of water, (Bowman, TR. II, page 118). Mr. Bowman testified that in July there would be a need for 20 acre-feet per day, or 741 acre-feet for the month of July. (Bowman, TR. II, page 136). To irrigate in August would require 566 acre-feet of water. (Bowman, TR. Vol. II, page 136). During September, Systems I and II would require eleven (11) acre-feet of water per day, or a total of 329 acre-feet of water for the month. (Bowman, TR. II, page 136). In October 7.3 acre-feet of water would be needed for each

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of fifteen (15) days or a total of 110 acre-feet. (Bowman, TR. Vol. II, page 137).

Mr. Bowman testified that the total quantity of water needed to irrigate Systems I and II was 1,746 acre-feet, (Bowman, TR. Vol. II, page 141).

c. Mr. Bowman testified that in order to deliver 741 acre feet of water in July for sprinkle irrigation by Systems I and II, the system must deliver 23.9 acre-feet of water per day or approximately 12 cubic feet of water per second. Mr. Bowman testified that the capacity of the pit is 5 cubic feet of water per second. (Bowman, TR. Vol. II, page 141-142).

17. The Boone Trust requested to divert groundwater from the pit, however, in addition to diverting groundwater the water to be diverted also includes waters which are surface water and part of the surface water source of supply.

a. Mr. Patton testified that the Boulder River receives recharge from sources in the northwest. (Patton, TR. Vol. III, page 199).

(1) During spring runoff the Boulder River is an influent stream; the surplus river waters recharge the surrounding aquifers. (Grimstead, TR. Vol. III, page 39).

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(2) Later in the summer when the snowmelt is diminished, the groundwater stored in the aquifers adjacent to and underneath the Boulder River flows into the stream and is the major source of riverflow. (Grimstead, TR. Vol. II, page 39).

(3) Mr. Bowman testified that the pit diverts water from an aquifer that may extend to the northern highlands. (Bowman, TR. II, page 34).

(4) On cross-examination Mr. Grimstead testified that it was possible that a portion of the water in the aquifer was from Dry Creek, but all the water in the aquifer diverted by the pit would not be from Dry Creek. (Grimstead, TR. Vol. III, pages 63,65).

(5) It was reported that possibly there was a constriction in the alluvial fill of the Boulder Valley in the vicinity of Sections 1, 11, 12 and 13 of Township 4 North, Range 3 West, which would cause a shallow groundwater table above the constriction. (Patton, TR. Vol. III, page 2).

(6) During dry summers the Boulder River has intermittently been dry in sections of the River downstream from the Boone Trust properties. (Bowman, TR. Vol. II, pages 86, 18; and Boulder River Watershed Plan, plate 5, page E-16).

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b. Representatives of the Boone Trust testified on their observations of the water flowing into the pit during pumping.

(1) Mr. Chef testified that during pumping of the pit a stream of water entered the pit from the east side and some water bubbled up from the bottom. (Chef., TR. Vol. I, pages 136, 137).

(2) Mr. Chef testified that only a small portion of the water flowing into the pit was from the North Channel side of the pit. (Chef, TR. Vol. I, pages 148, 149).

(3) Representatives of the Boone Trust observed that the majority of the water flowing into the pit was from the north and northeast (Chef, TR. Vol. I, page 149; Riley, TR. I, page 159), although waters seeped into the pit from all sides. (Riley, TR. I, page 159).

c. Representatives of the Boone Trust testified that the pit was pumped from August 31 - September 8, 1978, so the operators could dig in the pit. (Riley, TR. Vol. I, page 157).

(1) Mr. Riley testified that during the period of initial pumping, August 31 - September 8, 1978, the North Channel was almost completely dry and the

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water level in the Boulder River was very low. (Riley, TR. Vol. I, page 158).

Later Mr. Riley testified that the temperatures were taken on the second trip to the pit when the North Channel was completely dry. (Riley, TR. Vol. I, page 176).

(2) Mr. Riley testified that he took temperature readings of the waters in the North Channel, Boulder River and pit between August 31 - September 8, 1978. (Riley, TR. Vol. I, page 161).

(3) Mr. Riley testified that the temperature in the pit, taken during pumping, was 49 degrees farenheit; the North Channel was 68 degrees farenheit and the main Boulder River, which temperature was taken two to three hours later, was 63 degrees farenheit. (Riley, TR. Vol. I, pages 161-163).

d. Five (5) observation wells were dug by the Boone Trust to monitor the movement of water in the pit and Boulder aquifer. (Patton Report, figure 1).

(1) No observation wells were drilled between the pit and North Channel or Boulder River to monitor fluctuations in the groundwater and subsurface

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flows of the streams. (Patton, Report, figure 1, and C. Bowman, TR. Vol. II, page 90).

(2) During June, 1978, the Boone Trust pumped from the pit at a rate of 1850 gallons of water per minute. The water level contours indicated a northwest to southeast gradient flow. The effects of pumping were monitored during pumping in June and after pumping ceased in August. (Patton Report page 3).

(3) Observation well No. 1 was drilled 192 feet north of the pit. It was drilled to a depth of 36 feet deep. During the drilling there was a layer of top soil 0 to 5 feet deep, gravel from 5 to 20 feet deep, and gravel and clay mix at 20 to 36 feet deep. In June the water level in observation well No. 1 dropped by 3.13 feet. In August the water level was minus .75 feet. (Patton Report, figures 3, 4A and 4B).

(4) Observation well No. 2 was drilled 368 feet north of the pit. It was drilled to a depth of 38 feet deep, and encountered top soil from 0 to 5 feet, gravel and boulders from 5 to 10 feet, gravel from 10 to 20 feet and gravel and clay from 20 to 38 feet. During the June pumping the water level in the well decreased by .08 feet, and in August

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the depth of the well was plus .12 feet. (Patton Report, figures 3, 4A and 4B).

(5) Observation well No. 3 was drilled 420 feet north of the pit. The well as drilled to a depth of 44 feet deep, and encountered gravel from 0 to 10 feet, clay from 10 to 20 feet, and clay and gravel from the 20 to 30 foot depth. During the June pumping the level of water in the well dropped -.01 feet, and during August the level of water in the well was +.47 feet. (Patton Report, figures 3, 4A, and 4B).

(6) Observation well No. 4 was drilled 234 feet northwest of the pit. It was drilled to a depth of 35 feet, and encountered gravel from 0 to 20 feet and gravel and clay from 20 to 35 feet. During the June pumping the water table in observation well No. 4 dropped by 2.07 feet, and that upon rechecking in August the level of the water was -.52 feet. (Patton Report, figures 3, 4A and 4B).

(7) Observation well No. 5 was drilled 600 feet north of the sump. It was drilled to a depth of 100 feet deep and encountered top soil from 0 to 1 foot, clay gravel and boulders from 1 to 15 feet, clay and gravel from 15 to 64 feet, clay and gravel from 64 to 90, and gravel from 90 to 100 feet. No

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records on water levels were presented. (Patton Report, figures 3, 4A and 4B).

e. Representatives of the Boone Trust, objectors and the Department agreed that since the North Channel was located so close to the pit, water pumped into the pit would include water from the North Channel. (Bowman, TR. Vol. II, page 130; Grimstead, TR. Vol. III, page 85; and Brown, Report page 2).

(1) The Boone Trust was not able to quantify what portion (or amount) of water withdrawn by the pit would be contributed by the North Channel.

(2) During pumping of the pit the water was discharged into the North Channel, so no observations were made on the immediate effects of pumping on the North Channel. (Riley, TR, Vol. I, page 195).

(a) Mr. Bowman testified that the operation of the pit would increase riverflows because excess water from the pit would be discharged into the North Channel. (Bowman, TR. Vol. II, page 65).

(3) The groundwater and surface water systems are interrelated. (Bowman, TR. Vol. II, page 64-65;

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Brown, TR. Vol. III, page 229; and Grimstead, TR. Vol. III, page 52).

(a) Mr. Brown testified that the groundwater helped to maintain a static head pressure of water surrounding the stream. A saturated zone surrounds the North Channel which contributes a large volume of water to the system. (Brown, TR. Vol. III, page 230).

(b) Mr. Patton reported that because pumping the pit affected the water levels in observation well No. 1, the streambed transmissivity in the North Channel must be less than the transmissivity in the aquifer. (Patton, R. page 4).

(1) Mr. Grimstead testified that even if the pit were completely communicating with water in the North Channel, drawdown would be evidenced in the observation wells during and after pumping of the pit. (Grimstead, TR. Vol. III, page 43).

(c) Mr. Patton reported that in order to calculate the sources of water pumped in the pit, new observation wells need to be drilled near the North Channel and a formal pumping test conducted. (Patton, Report page 4) Mr.

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Bowman testified that additional observation wells needed to be drilled near the North Channel. (Bowman, TR. Vol. II, page 90).

(4) The quantity of water directly withdrawn from the North Channel by pumping the pit depends upon the soils and the sealing armor in the North Channel.

(a) Mr. Bowman testified that if the armor in the North Channel were not disturbed, then the leakage from the North Channel into the pit would be minimal. (Bowman, TR. Vol. II, page 132)

(b) Mr. Brown testified that because of the coarse gravel and rubble materials that compose the bed of the North Channel, any sealing armor in the North Channel would not significantly reduce waterflows (leekage) from the North Channel into the surrounding area. (Brown, TR. Vol. III, page 231-232).

(c) Mr. Glenn Smith testified that because of the rocky material in the North Channel any sealing armor was minimal and susceptible to washing out during high water. (G. Smith, TR. Vol. II, pages 219-220).

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(d) In 1977 the Boone Trust excavated a channel between the pit and the North Channel. (Robbins, TR. I, page 78).

(e) Mr. Bowman testified that within one or two winters the armor in the North Channel which had been disturbed by excavation would re-seal if there were no pumping during the two year period. (Bowman, TR. II, page 139).

f. Models were used to calculate the estimated transmissivity rate, storage co-efficient and cone of depression for pumping from the pit.

(1) Mr. Patton reported that the transmissivity rate for the pit was estimated to be 210,000 gallons per day per foot. The coefficient of storage was .10. (Patton, Report page 4) These calculations were based on the non-interacting model, assuming the North Channel did not contribute significant quantities of water.

(2) Mr. Grimstead testified that if the interacting model had been used to calculate the transmissivity rate and storage coefficient, then each would be reduced 50 percent. (Grimstead, TR. Vol. III, page 45) The calculations would be 105,000 gallons per day per foot for the

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transmissivity rate and a storage coefficient of .05.

(3) Mr. Grimstead testified that he used calculations of transmissivity and storage coefficient developed by the interacting model to develop the cone of depression for pumping 1850 gallons of water per minute. (Grimstead, TR. III, pages 47-48; Leaphart Exhibit No. 7).

(4) Mr. Grimstead testified that as pumping continued in the pit the cone of depression would cause the water table to lower. Given the constant head boundary of the North Channel, continued pumping would result in the aquifer contributing little or no water so that all water in the pit would be from the North Channel and the saturated mound of the North Channel. (Mr. Grimstead, TR. Vol. III, pages 49-50; Leaphart Exhibit No. 8).

g. Stream depletion is caused by either direct depletions of the stream or interception of groundwater recharge to the stream. (Patton, R. page 5; Grimstead, TR. Vol. III, page 53).

(a) Mr. Patton reported that to calculate the net effect of pumping from the pit on the Boulder River system the formula must be minus the leakage from the North Channel and minus water depleted from the

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Boulder River, but plus any water saved from evapotranspiration. (Patton, Report page 6).

(b) Mr. Patton reported that pumping from the pit has a delayed effect on the stream; timing is an important factor in stream depletion. (Patton, R. page 6). Pumping later in the irrigation season may delay the occurence of stream depletion until winter or spring, depending on the movement in the aquifer. The stream will be depleted in the spring, but the stream depletion would be wiped out if there were substantial spring floods. (Patton, TR. Vol. III, page 204).

(c) Mr. Patton reported estimated stream depletion for the main Boulder based upon varying levels of water contribution from the North Channel. (Patton, R. figure five). The stream depletion estimates indicated that pumping during July will create more stream depletion in August than in mid July. (Patton, Report figure five).

(d) Mr. Grimstead testified that from July through October the proportion of water drawn into the pit from the North Channel, rather than the aquifer sources, would increase. (Grimstead, TR. Vol. III, page 76).

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h. The Montana Code defines "groundwater" as "any water beneath the land surface or beneath the bed of a stream, lake, reservoir or other body of surface water, and which is not part of that surface water." Section 85-2-102 (8), M.C.A., 1979.

(1) Mr. Bowman testified that the water flowing into the pit was not surface water; because of the differential in the temperatures between the pit and the river and the pumping tests. (Bowman, TR. Vol. II, page 34). (2) Mr. Grimstead testified that the Boone Trust would withdraw groundwater from the pit, given his definition of groundwater being "water that at the point where it is withdrawn is withdrawn from the ground". (Grimstead, TR. Vol. III, page 74). Mr. Grimstead testified that the surface water and groundwater near the Boulder River were connected. Mr. Grimstead testified that for the surface water not to be a part of the groundwater there must be a non-saturated zone between the surface and the aquifer. (Grimstead, TR. Vol. III, page 82).

(3) Mr. Patton testified that the surface water and groundwater are interrelated if there is a continuous saturation between the pit and the river, so water withdrawn in the pit is part of the same system. (Patton, TR. Vol. III, page 199).

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FINDINGS OF FACT

RE: APPLICATION NO. 19,230-c41E

18. The Smith waste water is collected by a ditch which is either in the SW1/4 or the SE1/4 of Section 34, Township 5 North, Range 3 West.

a. The Boone Trust proposes to change the place of use for Smith waste water which is collected by a ditch in the SE1/4 of Section 34, Township 5 North, Range 3 West. (Application)

b. A representative of the Smith Ranch testified that the waste water was collected in the SW1/4 of Section 34, Township 5 North, Range 3 West. (P. T. Smith, TR. Vol. I, page 34).

19. The quantity of Smith waste water diverted by the Boone Trust is between 10 miners inches and 200 miners inches.

a. The Boone Trust stated that the quantity of water was 100 miners inches. (Application).

b. A representative of the Boone Trust testified that in the early spring the waste water occurred in volumes as high as 200 miners inches. (Evans, TR. Vol. I, page 24). The testimony was that volumes of 200 miners inches were not available in July, August or September. (Evans, TR. Vol. I, page 125).

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c. A representative of the Boone Trust testified that there was 200 to 300 inches of water in the lower ditch, a collector of waste water. (Chef, TR. Vol. I, page 151).

d. A representative of the Smith Ranch testified that there seldom is 100 inches of waste water, and estimated waste water flows were generally ten inches. (P. T. Smith, TR. Vol. III, page 113).

e. A representative of the Smith Ranch testified that the ditch had a capacity of 2.5 to 3.5 cubic feet of water per second. (Fadness, TR. Vol. II, page 177). He testified that from 1950 until 1975 there could not have been 150 to 200 inches of waste water from the Smith Ranch because the culvert was only 12 inches.

20. The Smith waste water has previously been used to flood irrigate lands in the SW1/4, Section 34, T. 5 North, R. 3 W., Section 35, T. 5 N., R. 3 W., and portions of Sections 2 and 3, T. 5 N., R. 3 W or potions of Section 2 and 3, T. 4 N., R. 3 W.

a. The Boone Trust stated that the waste water has previously been used for flood irrigating 100 acres in the SE1/4, Section 34, Township 5 North, Range 3 West, and 60 acres in the S1/2, Section 35, Township 5 North, Range 3 West, and 230 acres in portions of Sections 2 and 3, Township 5 North, Range 3 West. (Application).

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b. A representative of the Smith Ranch testified that in Section 2, Township 4 North, Range 3 West, four (4) tracts were flood irrigated from tThe upper ditch: 45 acres, 24 acres, 13 acres, and 15 acres. The testimony was that approximately 100 acres in Section 2, Township 4 North, Range 3 West were irrigated from the lower ditch. (Fadness, TR. Vol. II, pages 167-168)

c. A representative of the Boone Trust testified that the lands flood irrigated were in the NE1/4 of Section 2 and NE1/4 of Section 3, and were flood irrigated partially with water of the Howard Water Right. (Robbins, TR. Vol. I, pages 88-89).

d. A representative of the Boone Trust testified that the SE1/4 of Section 34, Township 5 North, Range 3 West could not be irrigated by waters in the Little Elkhorn Creek. (Robbins, TR. Vol. I, page 113).

21. The Smith waste water was first used by the predecessors of the Boone Trust sometime between 1940 and 1951.

a. The Boone Trust reported that the Smith waste waters were first put to use in July, 1940. (Application).

b. A representative of the Smith Ranch testified that the priority date was 1950 or 1951, since it was in 1950 that Smith orally agreed to permit Quinn (Boone Trust's

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predecessor) to construct the ditch to collect waste water. (P. T. Smith, TR. Vol. III, page 100).

22. The source of the Smith waste water is either the Boulder River, Elkhorn Creek or Little Elkhorn Creek.

a. The Application and Public Notice stated that the source of the Smith waste water was the Boulder River.

b. A Representative of the Boone Trust indicated on the map the drainage that the waste waters came from as Little Elkhorn Creek. (Robbins, TR. Vol. I, page 82). A representative of the Boone Trust testified that the waste water going from the culvert to the lower ditch was Elkhorn Creek water. (Evans, TR. Vol. I, pages 125, 128).

c. A representative of the Smith Ranch testified that Elkhorn Creek water was used for some irrigation on the ranch. (P. T. Smith, TR. Vol. I, page 30). Mr. Smith testified that the waste water in the upper ditch was from the Boulder River, except during spring flooding of Elkhorn Creek. (P. T. Smith, TR. Vol. III, page 101). Mr. Smith testified that the waste water being diverted into the lower ditch was from Elkhorn Creek. (P. T. Smith, TR. Vol. III, page 111).

d. Mr. Smith testified that waste water from Section 28 and the N1/2 W1/2 of Section 34 was collected in the

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upper ditch. (P. T. Smith, TR. Vol. III, pages 100-101). In 1978 use of the upper ditch was discontinued since a bypass was installed in the SW1/4 of Section 34. (P. T. Smith, TR. Vol. I, page 39, and Robbins, TR. Vol. I, page 44). A siphon was constructed on the upper ditch in the NE1/4 SW1/4 of Section 34, at the junction of the upper ditch and Little Elkhorn Creek, to channel the waste water to the lower ditch. (Chef, TR. Vol. I, page 141; Fadness, TR. Vol. II, pages 184-185; and Evans, TR. Vol. I, page 125).

23. The Boone Trust proposes to use the Smith waste water to sprinkle irrigate the W1/2 of Section 26, Township 5 North, Range 3 West and SEction 35, Township 5 North, Range 3 West. (Application).

a. The Boone Trust proposes to sprinkle irrigate the lands, which are in Systems I and II of the irrigation plan. Systems I and II have been described in the Proposed Findings of Fact, General and RE: Application No. 14,965-g41E, both of which are part of this final order and are incorporated completely into this portion of the decision.

b. Representatives of the Boone Trust testified that sprinkler irrigation was 65% to 70% efficient, whereas flood irrigation was 30% efficient. (Riley, TR. Vol. I, page 172 and Bowman, TR. Vol. II, page 44). Efficiency

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was evaluated by the amount of water that was not consumed by the plants, but lost to seepage.

c. Experts testified that there would be a greater volume of return flow water to the river with flood irrigation than with sprinkler irrigation. (Riley, TR. Vol. I, page 171-174; G. Smith, TR. Vol. III, page 213; and Bowman, TR. Vol. II, page 110). Representatives of the Boone Trust testified that downstream water users would not have as large quantities of recharge water in the river with sprinkler irrigation as with flood irrigation. (Evans, TR. Vol. I, page 125 and Bowman, TR. Vol. II, pages 109-110).

d. A representative of the Department testified that the lands previously flood irrigated with the Smith waste water were heavy sandy-loam and gravelly sandy-loam soils that have poor water retention capacity. The lands to be sprinkle irrigated in Systems I and II have high water retention capacity, so less water will be returned to the watershed. (G. Smith, TR. Vol. III, page 214).

(e) A representative of the Department reported that irrigating the benchlands (System I and II) instead of the river bottomlands would increase the dewatering of the Boulder River, because return flows, ditch seepage

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and subsurface saturation would be decreased. (Brown, memo 1978).

From the foregoing Findings of Fact, the following Conclusions of Law are made:

CONCLUSIONS OF LAW

Re: Application No. 14,965-g41E

1. Section 85-2-102 (8), M.C.A. 1979, provides the statutory definition for "groundwater". . . means "any water beneath the surface or beneath the bed of a stream, lake, or resevoir, or other body of surface water, and which is not a part of that surface water."

2. The hydrologists, geo-hydrologists and agricultural engineers use the term "groundwater" to describe 'where' the water is removed, and the term does not describe or delineate whether the waters are interconnected with the surface flows. Therefore, adherence to technical terminology does not provide the distinctions between groundwater and surface which the legislature adopted in Section 85-2-102 (8), M.C.A., 1979.

3. Montana has adopted the subflow doctrine for appropriations of waters which comprise the subsurface flow or source for a stream, lake, or river.

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a. In Smith v. Duff, 39 Mont. 382, 102, P. 2d 984 (1909) the court reversed a portion of the decree adjudicating swamp water to the plaintiffs. In Smith v. Duff at 390 (1909) the court stated:

> "It must not be forgotten that the subsurface supply of a stream, whether it comes from tributary swamps or runs in the sand and gravel constituting the bed of the stream, is as much a part of the surface flow and is governed by the same rules.

b. In Woodward v. Perkins, 116 Mont. 46, 147 P. 2d 1016 (1944) the court held that seepage water collected by drain ditches along a stream was not developed water. Woodward v. Perkins, at 53 (1944) affirms the subflow doctrine:

> "Seepage water which has its rise along the bed of a stream and forms a natural accretion thereto belongs to the stream as a part of its source of supply, same as feeder springs. An appropriator on the stream has the right to all such tributary flow even as against the owner of the land.

c. In Beaverhead Canal Co. v. Dillon Electric Light & Power Co., 34 Mont. 135, 140-141, (1906) the court stated that there was a presumption that seepage waters form a part of the natural supply of the stream.

4. Section 85-2-102 (8) requires that to be classified "groundwater" "means any water beneath the land surface or beneath the bed of a stream, lake, reservoir or other body of surface water, and which is not a part of that survace water." (Emphasis added).

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a. To meet the requirements of this definition the water must be underneath the soil or waters of the surface, and not closely interconnected with the surface waters.

b. The phrase "not a part of that surface water" excludes from groundwater, waters which form the saturated mound of a stream; such as seepage of the stream, which collects in the stream banks, subsurface streamflows underneath or adjacent to the stream subgradient flows of the river; storage resevoirs of the river, and perched aquifers adjacent to the stream; all of which contribute directly or indirectly to the flows of the surface waters, or any other subsurface waters which contribute directly or indirectly to the surface flows.

(1) Subsurface flows contribute directly to the stream when the subsurface water joins and becomes part of the surface water.

(2) Subsurface flows contribute indirectly to the stream when the subsurface water remains underground but provides storage, a head of pressure or gradient so that the surface flows can be sustained at the historic levels.

c. For groundwater to not be "a part of that surface" there must exist a non-saturated intervening layer

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between the surface water source and the point or withdrawal of the subsurface waters.

5. The Montana legislature has not defined "suface water" in the Montana Water Code.

a. The Board of Natural Resources and Conservation has defined "surface water" in the administrative rules; A.R.M., 36.12.101 (3) (1980):

> "Surface water" means all water of the state at the surface, including but not limited to any river, stream, creek, coulee, undeveloped spring, lake and other natural surface source of water and diversions thereof and the impoundment of flood, seepage, and waste waters in a resevoir."

(1) Subsurface waters which contribute directly or indirectly to the surface flows are a part of the natural source of surface water.

(2) The Board's definition of surface water is not exclusive, and therefore does not exclude subsurface waters which are part of the surface water.

6. The waters to be diverted by the Boone Trust's proposed pit are interrelated to the waters and flows of the North Channel and the Boulder River; and therefore, the waters to be diverted include an unknown quantity of surface water.

a. The waters to be diverted by the Boone Trust from the pit are contributed from the saturated mound of the

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North Channel of the Boulder River; the Boulder River waters which are retained in storage in the river banks, and the aquifers surrounding the rivers which contribute during the low flows in the August and September, seepage waters from the North Channel of the Boulder River; subsurface waters which recharge the North Channel and the Boulder, and their river banks, underground storage, and saturated mounds; and waters from a shallow water table located adjacent to the stream.

b. Neither the Boone Trust nor the Objectors were able to specify what proportion of the waters diverted in the pit would be from each of these sources.

7. Section 85-2-311, M.C.A., 1979, specifies the criteria that must be met for the Department to issue a permit to appropriate water.

a. Application No. 14,965-g41E is for a beneficial water use permit to appropriate 12 cubic feet of water per second, and Application No. 19,230-c41E is for an authorization to change 2.5 cubic feet of water per second.

b. The Boone Trust was not required to meet Section 85-2-311 (6), which requires: "an applicant for an appropriation of 10,000 acre-feet a year or more or 15 cubic feet per second or more proves by clear and

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convincing evidence that the rights of a prior appropriator will not be adversely affected." (Emphasis added).

8. The Boone Trust, as the Applicant for a new appropriation of water from the Boulder River system did have to present sufficient evidence to prove each of the criteria in Section 85-2-311 (1)-(5), M.C.A. (1979) by a preponderance of the evidence.

a. In Smith v. Duff, supra, the court ruled that the new appropriators had not met the burden of proof to establish a right to use water. The proof submitted must assure that in taking the alleged new supply of water, the quantity of the principle stream will not be diminished.

b. The burden of proof is on a claimant of developed water, Woodward v. Perkins, 116 Mont. 46, 51-52, 173 P. 2d 1016 (1944):

> To show that such water right has been acquired, a number of facts must be proved. They must be established by satisfactory evidence and the burden of proof is on the claimant. (Beaverhead Canal Co. v. Dillon Electric Light & Power Co., 34 Mont. 135, 85 P. 880; Smith v. Duff, 39 Mont. 382, 102 P. 193 Am St. Rept. 587; Spaulding v. Stone, 46 Mont. 483, 129 p. 327).

c. The Court in Perkins v. Kramer, 148 Mont. 355, 363, 423 P. 2d 587 (1966), indicated that the Applicant for

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subsurface water must present scientific and technical data on the subsurface waters:

> "The burden of proof to show the use of natural subterranean watercourses as conduits on a developed resevoir system must be a substantial one. There should be some recourse to modern hydrological techniques and not mere conjecture based on inclusive data and ordinary observation."

d. Recently, the district court held that the Department erred in issuing a permit for a new appropriation when the Applicant had not submitted sufficient proof of the criteria of Section 85-2-311, M.C.A., 1980, Jack Hirshy Livestock, Inc. v. Schonenberger (5th Dist., Mont. 1979, No. 9163). In Jack Hirshy Livestock, supra, the court stated:

> "Schonenberger failed to prove by the preponderance of the evidence that the evidence satisfied the criteria of Section 89-885, R.C.M., 1947."

e. Therefore, the Boone Trust had the burden to prove by a preponderance of the evidence that each of the criteria of Section 85-2-311 (1)-(5) were satisfied.

9. Section 85-2-311 (1) requires in part that the Department shall issue a permit if:

> "(1) there are unappropriated waters in the source of supply: (a) at times when the water can be put to the use proposed by the applicant; (b) in the amount the applicant seeks to appropriate; and (c) throughout the period during which the applicant seeks to appropriate, the amount requested is available."

a. It appears that the subsurface waters the Boone Trust seeks to appropriate are interrelated and

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contribute to the surface waters of the Boulder River and the North Channel of the Boulder River; this river system must be considered part of the source of supply.

10. The weight of evidence indicates that water shortages occur on the Boulder River with relative frequency during the months of July, August, September and October.

a. Based upon the water rights claimed by the rancher objectors it appears that the rancher objectors have claims for water rights from the Boulder River System, and for the purposes herein only, it is determined that those claimed prior appropriations of water, although points of diversion were not determined, are of the following quantities:

Emmett McCauley, 225 inches;

George Dawson, 800 inches;

Eve Twohy, 4000 inches plus 1/2 interest in 2000 inches;

Martin B, John and Thomas Carey, 800 inches plus 1/2 interest in 1500 inches;

Martin B. and John Carey, 400 inches;

Paul T. Smith Ranch, Inc., 500 inches plus groundwater diversions of 350 gallons per minute and 400 miners inches; and

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Mable Murphy, 1250 miners inches.

b. The critical discharge level for irrigators with existing water rights on the Boulder River appears, for purposes herein only, to be 27.7 cubic feet of water per second, which will be exceeded in July for 1.53/10.0 years, August for 5.94/10.0 years, September 6.28/10.0 years and October 3.47/10.0 years. Whenever the critical discharge level for the Boulder River is exceeded, there are waters in the Boulder River system available for appropriation.

c. The MPC's evidence as to prior water rights in the Missouri River downstream of Canyon Ferry, as based upon the Findings of the Special Master in Montana Power Company v. Broadwater-Missouri Water Users Ass'n; supra, are not binding as judicial precedent in this matter, since said case was dismissed on appeal for lack of jurisdiction and therefore the District Court opinion is a judicial nullity. The proper weight to be accorded the Findings of the Special Master is that of expert testimony.

(1) For the purposes herein only, it is determined that M.P.C. has valid claims, for storage water and water flow rights in the Missouri subject to the specified limitations; and that the following water

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flow rights of MPC are prior to the proposed appropriation of the Boone Trust:

4740 cubic feet of water per second at Houser Lake,

7100 cubic feet of water per second at Holter Dam,

5040 cubic feet of water per second at Black Eagle Dam,

5140 cubic feet of water per second at Rainbow Dam,

5900 cubic feet of water per second at Ryan Dam,

7150 cubic feet of water per second at Morony Dam, and

Approximately 10,000 cubic feet of water per second at Cochrane Dam.

(2) M.P.C. is adversely affected, and hence no water in the Missouri is available for appropriation when less than 10,000 cubic feet of water per second is available at Cochrane (as calculated from measurements at Morony Dam). Except, for the purposes herein only, it is determined that M.P.C. is only entitled to 10,000 cubic feet of water per second at Cochrane when the 10,000 cubic feet can be benefically used at the Cochrane Plant; therefore, during given times the M.P.C. may not be adversely affected even though some amount of water slightly less than 10,000 cubic feet per second is available at Cochrane. Except, for the purposes herein only, it is determined that M.P.C.'s right to use water from the Missouri River is adversely affected when the

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water is not available to M.P.C. in the quantities, including annual and seasonal variations, for the periods of time that the water has been historically used by the M.P.C. for the usual operation of the M.P.C.'s hydroelectric power generating plants; and this does not limit or infringe on any rights of the M.P.C. to store excess or flood waters up to the maximum capacity when such are available.

e. For the purposes herein only, it appears that the Bureau has valid water right claims subject to the specified limitations, prior to the Boone Trust's proposed diversion, at the Canyon Ferry Resevoir for a maximum of 7,000 cubic feet of water per second being; 6250 cubic feet per second for generation of electricity and 750 cubic feet per second for irrigation; and to store a maximum of 2,050,000 acre-feet of water in Canyon Ferry.

(1) The Bureau contends to be adversely affected if the Bureau must draw storage waters to meet power generation needs when an upstream junior appropriator is diverting water, and this is so only if the Bureau is not able to obtain the quantities of water given the annual and seasonal variations, for the periods of time that the water has been historically used by the Bureau for the

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usual operation of the Canyon Ferry Resevoir; and, this does limit or infringe on any rights of the Bureau to store excess or flood waters up to the maximum storage capacity when said waters are available.

(2) Water is available for appropriation from the Missouri River System upstream of Canyon Ferry without adversely affecting the prior rights of the Bureau when the Bureau spills water from the Canyon Ferry Resevoir. The Bureau spills water, and hence for the purposes herein only, water is generally available for appropriation by upstream junior appropriators, in a normal year from mid-June through mid-July.

11. There is no unappropriated water in the source of supply when the above-described rights of the Objector ranchers are unsatisfied, or when the above-described rights of the Bureau and M.P.C. are unsatisfied.

12. There is possibly unappropriated water available in the source of supply when the above-described rights of the MPC and the above-described rights of the Bureau are satisfied, usually from spring to mid-July; and sporadically for a few days throughout the year when the critical discharge of the Boulder River is sufficient to meet the requirements of appropriators, usually from early spring floods until mid

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July. The Boone Trust's application seeks to divert water from July 1 through October 1.

13. Section 85-2-311 (2) requires in part that the Department shall issue a permit if the requirements of Section 85-2-311 (2) are met:

> "the rights of a prior appropriator will not be adversely affected."

14. When the surface water sources are interconnected to waters to be diverted from the ground, a determination of adverse effect on the rights of prior appropriators must assess the impact on all prior water diverted from the source of supply, irregardless of whether the point of diversion is above or below the surface of the soil.

15. The Boone Trust's appropriation of subsurface waters which are directly and indirectly related to the surface waters results in depletion or diminution of the surface flows, however, the depletion of surface water may not be evident until fifteen to sixty days after the actual diversion of water.

16. Permits issued by the Department contain the following condition:

> The Provisional Permit is granted subject to all prior water rights in the source of supply.

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In order for this condition to be effective and enforced, the source of supply must be determined. Because the boundaries and interrelationships of the Boone water and source of supply are unknown, this condition would not be effective.

17. The Boone Trust proposes that a condition be included requiring the Boone Trust to cease appropriating and diverting water from the pit when notified by senior appropriators that the senior appropriators were unable to satisfy their prior right. This condition would not effectively protect prior appropriators because of the time delay between the diversion from the pit and apparent affect on surface flows.

18. The Boone Trust failed to show by a preponderance of the evidence that the appropriation of water by the pit would not adversely affect prior appropriators.

19. Section 85-2-311 (3), MCA, 1979, requires in part that the Department shall issue a permit if "the proposed means of diversion are adequate."

20. The Boone Trust failed to prove that the proposed means of diversion were adequate to divert the quantities of water and water flows necessary for the project.

a. The Boone Trust requested a permit to appropriate 12 cubic feet of water per second (approximately 5385.6 gallons of water per minute) up to 1839.6 acre-feet per

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year. The pit which is approximately 100 feet wide by 150 feet long and from 16 feet to 20 feet deep has produced approximately 2000 to 2300 gallons of water per minute, or an estimated 4.5 cubic feet of water per second. At the hearing, the Boone Trust requested permission to increase the size of the pit. Boone Trust's irrigation Systems I and II require 5,438.7 gallons of water per minute; the pit as proposed and designed is an inadequate means to divert the quantities of water the Boone Trust requires for Systems I and II. The 100 horsepower pump at the pit is capable of pumping 8 cubic feet of water per second, either an additional pump or pump with increased capacity is required to pump 12 cubic feet of water per second.

b. In 1978 in order to fully operate the pit for irrigating Systems I and II, the Boone Trust introduced an unknown quantity of water from the North Channel into the pit.

c. System II, alone, which requires approximately 2100 gallons of water per minute, could possibly be operated with the flows of water diverted by the pit.

21. Section 85-2-311 (4), MCA, 1979, requires in part that the Department shall issue a permit if "the proposed use of water is a beneficial use.

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22. The Boone Trust's proposed use of water, to sprinkle irrigate lands for crop production, is a beneficial use.

23. Section 85-2-311 (5) requires in part that the Department shall issue a permit if "the proposed use will not interfere unreasonably with other planned uses or developments for which a permit has been issued or for which water has been reserved."

24. There was no evidence that the Boone Trust's proposed use of water would unreasonably interfere with other planned uses which have either a water use permit or a reservation of water. The only planned development that evidence was presented on was the North Boulder Drainage District and U. S. Soil and Conservation Service plans for a 15,000 acre-feet resevoir on the Little Boulder River, which project has not yet received either a water use permit or a water reservation.

25. Boone Trust contends in their brief that Department has failed to fully meet it's responsibilities according to the Article IX, Section 3 (1) of the Montana Constitution and Section 85-2-101, M.C.A., 1979, especially as the policy was stated in McTaggart v. The Montana Power Co. , 36 st. Rep. 2079 (1979). Article IX, Section 3 (1) of the Montana Constitution requires that:

> "All existing rights to the use of any waters for any useful or beneficial purpose are hereby recognized and confirmed." The eminent domain proceeding of McTaggart

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v. The Montana Power Co., supra, reaffirmed the policies of the Montana Constitution and The Montana Code and held that irrigation is a public use.

26. Section 85-2-101, M.C.A., 1979, imposes dual responsibilites on the Department which must be balanced. As the Boone Trust noted the Department has a responsibility to encourage and promote the development of the state's water resources.

> "It is the policy of this state and a purpose of this chapter to encourage the wise use of the state's water resources by making them available for appropriation consistent with this chapter . . ." Section 85-2-101 (3), M.C.A., 1979.

It is also the Department's responsibility to ensure that existing water rights are recognized and protected when new water developments are proposed. Article IX, Section 3 (1) Montana Consitution; and Section 85-2-101 (4), M.C.A., 1979. Limitations on the development of the waters resources are contained in part, Section 85-2-301 et seq, M.C.A., 1979, including the criteria for issuance of a permit specified in Section 85-2-311, M.C.A., 1979.

27. The Department aided the Boone Trust throughout the process and introduced factual findings into the record. The Department's technical staff upheld the legislative mandate to encourage the wise utilization of the state's water resources.

28. Section 36-2.14J (6)-s1430, A.R.M., 1980 provides that the Department may, in its discretion, issue an interim

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permit authorizing an Applicant to begin appropriating water immediately, pending the final approval or denial of a regular permit. The Department's discretion for issuing interim permits is limited, Section 36-2.14J(6)-s1430(5)(a) provides:

> "The Department may not issue an interim permit unless there is substantial evidence that the criteria for issuing a regular permit under Section 85-2-311 of the Act will be met."

29. The Boone Trust's request for an interim permit issued according to Section 36-2-14J(6)-s1430, A.R.M., 1980, is denied because at the hearing held there was not substantial evidence presented that each of the criteria for issuance of a permit, Section 85-2-311, MCA, 1979, would be met.

a. The reasons specified previously in Conclusions of Law Numbers (1) through (27) conclude there is not substantial evidence that the criteria of Section 85-2-311, M.C.A., 1979, are satisfied, and those conclusions of law are incorporated herein by reference.

b. As stated in Conclusion of Law Number (17), which is incorporated herein by reference, a conditon requiring the Boone Trust to cease diverting water when senior appropriators' rights are unsatisfied is insufficient protection for senior appropriators until the sources of waters diverted by the pit is known and the

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interrelation of pit water to surface water is determined.

CONCLUSIONS OF LAW

RE: APPLICATION NO. 19,230-c41E

1. The application and public notice specified the source of water as waste waters from the Boulder River, but the testimony at the hearing was that the source of water is waste water from Elkhorn or Little Elkhorn Creek. The application and public notice did not specify the correct source of the water and, therefore water users that may be affected - especially Elkhorn water users - were not notified of the action.

2. The application specified that the waste water had been used in Sections 2 and 3, Township 5 North, Range 3 West, but the testimony at the hearing was that the water was used in Sections 2 and 3, Township 4 North, Range 3 West.

3. The date of appropriation of the Smith waste water right was disputed; the conclusion is that use of the waste water commenced sometime between 1940 and 1951.

4. Section 85-2-402, M.C.A. (1979) states:

> "(1) An Appropriator may not change the place of diversion, place of use, purpose of use, or place of storage except as permitted under this section and approved by the department.

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(2) The department shall approve the proposed change if it determines that the proposed change will not adversely affect the rights of other persons."

5. The rights of other appropriators are adversely affected if the Applicant by changing the use increases the volume of water consumed, and, hence decreases the volume of return flows and recharge water to the source of supply. Featherman v. Hennessey, 43 Mont. 310, 115 P. 983 (1911); Creek v. Bozeman Water Works, 15 Mont. 121, 38 P. 459 (1894); and Gassert v. Noyes, 18 Mont. 216, (1896).

a. In Featherman v. Hennessey, 43 Mont. 310, 115 Pac. 983 (1911) the court held that the defendant did not have the right to change a non-consumptive water right for power generation to irrigation. The additional quantity of water consumed by the new water use was considered to be a new appropriation by the court, Featherman v. Hennessey at 317:

> "The use of ninety inches for agricultural purposes was founded to have been initiated on April 1, 1905. This was a change of the original use and resulted in consumption of the quantity so diverted to the the new use, and therefore amounted pro tanto to a new appropriation."

b. The court in Head v. Hale, 38 Mont. 302, 307-308, 100 p. 222 (1902) refused permission for an appropriator of water for mining uses to change the use to irrigation, because of the increased consumption of the water:

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> "The water used for this purpose (mining) naturally found its way back into the stream, and was subject to recapture by the farmers on the stream below and to be appropriated to agricultural uses."

c. In Quigley v. McIntosh, 110 Mont. 495, 103 P. 2d 1067 (1940), the appropriator sought to change his use from the irrigation of bottomlands to irrigating an increased number of acres, some of which were in another drainage. The court, Quigley v. McIntosh, at 510 (1940) denied the change:

> "As stated above, while 275 inches of water may be necessary for irrigation upon certain premises, such appropriation means one thing when 250 acres are irrigated, and quite another when 363 acres are irrigated; and one using a certain number of inches but an insignificant amount of water to irrigate a garden patch cannot as against intervening appropriators expand his use of it to irrigate a complete ranch."

The principle of Quigley v. McIntosh, supra, was upheld in McIntosh v. Graveley, 159 Mont. 72, 495 p. 2d 186 (1972).

6. An appropriator is entitled to a change of use if the new use will not consume a greater amount of water than was previously consumed by the old use.

a. Changes of use, including changes from flood irrigating a specified number of acres to sprinkler irrigating an increased number of acres, may be permitted if it is determined that the return flows previously existing will continue in the same quantity, quality, and at the same times as was historically evidenced by the previous use.

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7. The change of use proposed by the Boone Trust - to change from previusly irrigating between 97 and 340 acres to irrigating 838 acres, to change from flood irrigation bottomlands along the river to sprinkler irrigation of benchlands located away from the river, and to change from flood irrigating lowlands which soils have poor water retention capacities to sprinkler irrigation of highland with soils of good water retention capacities - will decrease the amount of return flows and recharge water to the Boulder River system, and thereby adversely affect the rights of other appropriators in the Boulder River system.

Based upon the Findings of Fact and Conclusions of Law, the following Orders are hereby made:

FINAL ORDER

RE: APPLICATION NO. 14,965-g41E

1. The Boone Trust Application For Beneficial Water Use Permit No. 14,965-g41E is hereby denied.

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FINAL ORDER

RE: APPLICATION NO. 19,230-c41E

1. The Boone Trust Application For Change of Appropriation Water Right No. 19,230-c41E is hereby denied.

NOTICE

You are entitled to judicial review of this Order in accordance with Section 2-4-702, M.C.A. Judicial review may only be obtained by filing a petition in the appropriate District Court within thirty (30) days after the service of this Order.

DATED this 21 day of May, 1981.

Gary Fritz

GARY FRITZ, ADMINISTRATOR
Water Resources Division
Montana Department of Natural Resources and Conservation
32 S. Ewing
Helena, MT 59601

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BEFORE THE DEPARTMENT OF NATURAL
RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA

* *

IN THE MATTER OF APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 14,965-g41E AND APPLICATION FOR CHANGE OF APPROPRIATION RIGHT NO. 19,230-c41E BY THOMAS H. BOONE, TRUSTEE	))))))	PROPOSAL FOR DECISION

* *

The Applicant, Thomas H. Boone, Trustee, hereinafter referred to as Boone Trust, on August 26, 1977 filed with the Montana Department of Natural Resources and Conservation an Application for Beneficial Water Use Permit, No. 14,965-g41E. Public Notice of the Boone Trust Application was published in the Boulder Monitor on January 19 and 26, 1978 and February 2, 1978; to wit:

> THOMAS H. BOONE, Trustee, of Missoula, Montana has filed with the Department of Natural Resources and Conservation Application No. 14965-g41E to appropriate 12 cubic feet per second of 5386 gallons per minute of water and not to exceed 1839.6 acre-feet per annum in Jefferson County, Montana. The water is to be diverted by means of a sump (well) approximately 20 feet deep at a point in the NW1/4 NW1/4 NW1/4 of Section 2, T.4N., R.3W., MPM, and used for new irrigation on 320 acres in the N1/2, 300 acres in the S1/2 of Section 35, and 192 acres in the S1/2 of Section 26 all in T.5N., R.3W., MPM, and containing a total of 876 acres, more or less, from April 1 to October 1, inclusive, of each year.
>
> Objections to the issuance of a permit under this application, with reasons therefor, must be filed with the Department of Natural Resources and Conservation, Natural Resources Building, 32 South Ewing, Helena, Montana 59601, on or before March 9, 1978. Objection to Application (Form 611) is available at the office of the county clerk and recorder, or from this Department upon

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request. For further information call the Water Rights Bureau, 449-3634.

Objections to the Boone trust's proposed water use were filed by John Carey Ranch, Inc., Emmett McCauley, George Dawson, Edith Brenner, Thomas C. Carey, Martin Carey, Eve Twohy, Paul T. Smith Ranches, Inc., Ed Murphy, Mary Carey Leavitt, Spencer Lanz, Edward Kyler, M. & M. Ranch, Montana Power Company (MPC), and the United States Department of Interior for the Bureau of Reclamation (Bureau) (now called the Water and Power Resources Service, W.A.P.R.S.). The pre-hearing was scheduled for July 18, 1978.

On June 22, 1978, the Boone Trust filed two applications with the Department for Changes of Appropriation Water Rights Nos. 19,228-c41E; 19,229-c41E, respectively and on July 12, 1978 a third application for Change of Appropriation Water Right, No. 19230-c41E was filed. At the request of the Boone Trust the pre-hearing on Application No. 14,965-g41E was postponed until the three new applications for Changes could be processed. Public notice of the Boone trust applications for change was published in the Boulder Monitor on August 24 and 31, 1978 and on September 7, 1978; to wit:

Thomas H. Boone, Trustee of Missoula, Montana has filed with the Department of Natural Resources and Conservation the following Applications for Change of Appropriation Water Right.

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Application No.19228-C41E to change all of a filed appropriation by Henry McCauley for 200 miners inches of water from the Boulder River, first used in June, 1886 and recorded in Jefferson County, Book G, Page 298 on September 28, 1889.

Said water has been diverted from the Boulder River at a rate of 200 miners inches up to 400 acre-feet per annum by means of a ditch at a point in the NE1/4 SE1/4 SW1/4 of Section 28, Township 5 North, Range 3 West, M.P.M., and used for flood irrigation on 100 acres in the SE1/4 of Section 34 and 60 acres in the S1/2 S1/2 of Section 35, Township 5 North, Range 3 West, M.P.M. and containing a total of 160 acres, more or less, from April 1 to November 1, inclusive, of each year.

The proposed change is to change the place of use to include all 640 acres of Section 35 and 236 acres in the W1/2 of Section 26 all in Township 5 North, Range 3 West, M.P.M.

Application No. 19229-C41E to change a portion, being 1/5 or 300 miners inches of a filed appropriation by Frank Carey for 1500 miners inches from the Boulder River, first used November 2, 1903, and recorded in Jefferson County Book 1 of Water Rights, Page 274 on November 23, 1903.

Said water has been diverted from the Boulder River at a rate of 300 miners inches up to 600 acre-feet per annum by means of a ditch at a point in the SE1/4 NW1/4 SE1/4 of Section 33, Township 5 North, Range 3 West, M.P.M. and used for flood irrigation on a total of 213 acres, more or less, contained within Sections 2 and 11 of Township 4 North, Range 3 West, M.P.M.

The proposed change is to divert the water at a point in the NE1/4 SE1/4 SW1/4 of Section 28, Township 5 North, Range 3 West, M.P.M. and to sprinkle irrigate the 876 acres described in above Application No. 19228-C41E from April 1 to November 1, inclusive, of each year..

Application No. 19230-C41E to change all of a use right by Mike Quinn, with a claimed priority date of July 1, 1940, for 100 miners inches of waste water from irrigation by the Lazy T Ranch.

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Said water has been diverted from the Boulder River at a rate of 100 miners inches up to 200 acre-feet per annum by means of a ditch in the SW1/4 of Section 34, Township 5 North, Range 3 West, M.P.M. and used for flood irrigation on 100 acres in the SE1/4 of Section 34, Township 5 North, Range 3 West, M.P.M. and 60 acres in the S1/2 of the S1/2 of Section 35, Township 5 North Range 3 West, M.P.M. and containing a total of 160 acres, more or less, from May 1 to November 1, inclusive, of each year.

The proposed change is to change the place of use to include the 876 acres described in above Application No's. 19228-C41E and 19229-C41E, from May 1 to November 1, inclusive, of each year.

Objections to the authorization of the proposed changes, with reasons therefor, must be filed with the Department of Natural Resources and Conservation, Natural Resources Building, 32 South Ewing, Helena, Montana 59601, on or before October 12, 1978.

Objection to Application (Form 611) is available at the office of the county clerk and recorder, or from this Department upon request.

Objections to the Applications for Change of Appropriation Water Rights were filed by all parties that objected to Application No. 14,965-g41E; listed previously.

Mr. Forrest Tevebaugh was appointed Hearings Examiner and a pre-hearing conference was held on January 25, 1979. A hearing was scheduled for March 21, 1979 on all four applications submitted by the Boone trust.

On February 15, 1979, twelve objectors to the applications, represented by legal counsel, William Leaphart, Esq., filed with the Department a motion to dismiss the four applications of the

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Boone Trust that were pending. Prior to any ruling by the Department on the motion to dismiss, the same twelve objectors on March 15, 1979 filed in the First Judicial District of the State of Montana (Lewis and Clark County) a Petition for Writ of Prohibition. The objectors contended the Department should be prohibited from making a determination on the four Boone Trust applications because a hearing was not held within 60 days, as allegedly required by Section 85-2-309, MCA 1978. On March 25, 1979 an Alternative Writ of Prohibition was filed and recorded (Carey, v. D.N.R.C., No. 43356) Thomas H. Boone, Trustee, filed as a respondent intervenor. On March 27, 1979, the Department filed a Motion to Quash the Writ of Prohibition. After a hearing, the Honorable Gordon R. Bennett, District Judge, issued a Memorandum and Order holding that the sixty (60) day limit in Section 85-2-309, MCA 1978, was directory and not jurisdictional. Therefore, the Department retained jurisdicition over the four Boone Trust applications.

Pursuant to the Montana Water Use Act and to the Montana Administrative Procedure Act, after due notice, a hearing on objections to the above-described applications was held in the Community Center in Boulder, Montana on August 8, 1979, with Mr. Forrest Tevebaugh presiding.

After one day of hearing, the matter was continued. Mr. Forrest Tevebaugh resigned from the Department; Ms. Ronda L. Sandquist was appointed, and substituted without objection, as

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Hearing Examiner and presided over the continuation of the hearing held on September 18 and 19, 1979.

The Boone Trust, Applicant, was represented at the hearing by legal counsel, William T. Boone, Esq., from the law firm of Boone, Karlberg and Haddon, Missoula, Montana. Personally appearing on behalf of Boone Trust to present evidence and testimony in support of the application were: Mr. Delos Robbins co-owner of the Boone Trust property; Mr. Keith Evans, Ranch Manager of the Boone Trust property from 1972-1977; Mr. Floyd Chef, an employee on the Ranch beginning in 1977; Mr. Larry Riley, representative of Ag Sales, Missoula, Montana; and Mr. Charles C. Bowman, Agricultural Engineer, Montana State University.

The Applicant offered into evidence fifteen exhibits:

(1) a legal description of the Boone Trust Property;

(2) an aerial photo of the Boone Trust Property which was undated, and admitted for illustrative purposes only;

(3) an aerial photograph of the area proportedly taken in August 9, 1973;

(4) a map prepared by the U. S. Geological Survey in 1954, designated as the Boulder Quadrangle;

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(5) a map prepared by the U. S. Geological Survey in 1950, designated as the Devil's Fench Quadrangle;

(6) a map prepared by the U. S. Geological Survey in 1950, designated as the Jefferson Island Quadrangle;

(7) a notice of water right filed in Jefferson County in 1889 by Henry McCauley for 200 miners inches from the Boulder River to irrigate the SE 1/4 Section 34, T. 5 N., R. 3 W., claiming a priority date of 1866;

(8) a Notice of Appropriation filed in 1918 in Jefferson County for an appropriation by P. H. Howard for 1200 miners inches from the Boulder River to irrigate Sections 26 and 35, T. 5 N., R. 3 W., claiming a priority of 1918;

(9) a schematic drawing of the irrigation system proposed to be operated on the Boone Trust Ranch; admitted for illustrative purposes only;

(10) the Water Resources Survey investigation for Jefferson County of 1955, particularly the pages showing Appropriation No. A-293 of McCauley (the Hearing Examiner took judicial notice of the portions of the pages which were deleted in the exhibit); and

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Photos taken on September 19, 1975 near the proposed pit, which proported to show:

(11) the north channel near the pit;

(12) water ponded in the North Channel of the Boulder River;

(13) water flow after the obstruction in the North Channel had been removed;

(14) the alleged Carey diversion; and

(15) the Carey ditch.

Said exhibits were marked and entered accordingly as Applicant's Exhibits Nos. 1 through 15, respectively.

At the Applicants request judicial notice was taken of the present ownership of McCauley water right and of the Department's records of the 1955 investigation of ownership and use of the Howard right, which records were used in the prepartion of the 1955 Water Resources Survey for Jefferson County.

Objectors Paul T. Smith Ranches, Inc. and Mabel Murphy, were represented by legal counsel, Paul B. Smith, Esq., from the law firm of Smith, Connor and Van Valkenberg, Missoula, Montana.

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Appearing on behalf of these objectors to present evidence and testimony in opposition to the application were Paul T. Smith and Mylo Fadness. The Paul T. Smith Ranch, Inc., and Mary Ellen Murphy offered into evidence seven exhibits which were:

(1) a deed executed in Jefferson County, recorded in Book 47, Page 224, No. 22942, (1918) by Edward Ryan conveying to the Hall Ranch Company a one-half interest in a water ditch to carry 500 miners inches of water;

(2) a deed recorded in the Jefferson County Book of Deeds, Book 16, page 3, conveying from B. F. Hoopes and Marcella R. Hoopes to Edward Ryan a water ditch and a 500 miners inch water right from the Boulder River;

(3) a Notice of Appropriation of Water Right filed by B. F. Hoopes in Book D of Water Rights, page 207, Jefferson County, (1871), claiming 500 miners inches of water from Boulder Creek with a priority date of 1866;

(4) a Certificate of Water Right issued on August 26, 1976 by Montana Department of Natural Resources and Conservation to Paul T. Smith of Boulder to appropriate ground water in a well located in the NW1/4 Section 34, T. 5 N., R. 3 W., M.P.M., Jefferson County, Montana to be used for stockwatering purposes from January 1 to December 31, inclusive, and not to exceed 10 gallons per minute;

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(5) four Declarations of Vested Ground Water Rights filed with the State of Montana, Office of State Engineer, on December 27, 1963 by Paul T. Smith, which were

(a) a 1932 water right for the use of stockwater up to 250 gallons per minute from a dug well 40 feet deep in the NW1/4 of Section 34, T. 5 N., R. 3 W., M.P.M., Jefferson County;

(b) a 1938 water right for 200 miners inches from a well 38 feet deep located in the NE1/4 Section 27, T. 5 N., R. 3 W., M.P.M., Jefferson County;

(c) an 1890 water right for 200 miners inches for irrigation from a spring and slough approximately 10 feet deep located in the NW1/4, Section 28, T. 5 N., R. 3 W., M.P.M., Jefferson County; and

(d) an 1897 water right for domestic use of 100 gallons per minute from a well drilled to the depth of 162 feet, located in the NW1/4, Section 34, T. 5 N., R. 3 W..

(6) the following surface water rights:

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(a) a Notice of Appropriation of 500 inches of water diverted from the Boulder River in 1888 by Cornelius Clark for irrigation of Section 28, 29, and 33, T. 5 N., R. 3 W., M.P.M., Jefferson County; recorded in Jefferson County, Book G, Water Right Location, Page 223 (1888);

(b) a Notice of Appropriation of 500 inches of water diverted from Boulder Creek by B. F. Hoopes in 1866 for irrigation uses, recorded in Jefferson County, Book D of Water Rights, page 207 (1871); and

(c) a Notice of Appropriation for 250 inches of water diverted from the Boulder River in 1869 by Cornelius Clark for irrigating lands in Sections 28 and 29, T. 5 N., R. 3 W., M.P.M., recorded in Jefferson County, Book G of Water Rights, page 396 (1891).

(7) evidence of the following land transactions:

(a) a warranty deed by A. W. Thayer, H. T. Edwards and F. J. Edwards, directors of Treasure State Land Company, conveying to F. J. Edwards and Harriet T. Edwards the following property - SE1/4, and S1/2 NE1/4 and lot 1 of Section 3, T. 4 N., R. 3 W., and S1/2 NW 1/4, and lots 3 and 4, Section 2, T. 4 N., R. 3 W., and W1/2 NW1/4 and W1/2 SW1/4 in Section 24, T. 5 N., R. 3 W., Section 26, T. 5 N., R. 3 W., and Section 35, T. 5 N., R. 3 W.,

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including all tenements of water rights ditches and irrigation systems; recorded in Jefferson County, Book 58 of Deeds, page 322-323 (1935);

(b) a warranty deed by J. E. and Della Shattack and William and Lora Lee conveying to Treasure State Land Company the property described above, recorded in Jefferson County, Book 52 of Deeds, page 189 (1925);

(c) a warranty deed by J. E. and Della Shattuck conveying to William Lee the undivided 1/2 interest in the SE1/4 NE1/4and E1/2 SE1/4, Section 26, T. 5 N., R. 3 W., together with all water rights appurtenant thereto; recorded in Jefferson County, Book 52 of Deeds, page 136 (1924);

(d) a warranty deed by Treasure State Land Company conveying to William Lee and J. E. Shattuck the W1/2, W1/2 E1/2, and NE1/4 NE1/4, Section 26, and Section 35, in T. 5 N., R. 3 W., and S1/2 NW1/4 and lots 3 and 4, Section 2, and SE1/4 and S1/2 NW1/4 and lot 1 of Section 3, T. 4 N., R. 3 W., together with all water rights, flumes, ditches and irrigation systems appurtenant thereto, recorded in Jefferson County, Book 49 of Deeds, pages 394-395 (1923);

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(e) a warranty by Gortemoller Land Company conveying to Treasure State Land Company the W1/2 W1/4 E1/2, and NE1/4 NE1/4, of Section 26 all of Sections 35, in T. 5 N., R. 3 W; S1/2 NW1/4, and lots 3 and 4 of Section 2, the SE1/4 and S1/2 NE1/4 and lot 1 of Section 3, in T. 4 N., R. 3 W., together with all water rights appurtenant thereto, recorded in Jefferson County, Book 45 of Deeds, page 369 (1920);

(f) a warranty deed by Hugh E. and Lavina Vassburg conveying to J. E. Shattuck the SE1/4 NE1/4 and E1/2 SE1/4 of Section 26, T. 5 N., R. 3 W., together with all water rights appurtenant thereto, recorded in Jefferson County, Book 45 of Deeds, page 395 (1921); and

(g) a warranty deed by the Estate of William Rogers conveying to Gortemoller Land Company certain lands located in Jefferson County, Book 43 of Deeds, pages 137-138 (1911). Said exhibits were marked and entered into the record as Objector (Smith) Exhibits Nos. 1-7, respectively.

Objectors John Carey, Thomas G. Carey, Emmett McCauley, George Dawson, Mary Carey Leavitt, Eve Twohy, and Martin B. Carey were represented by legal counsel, William Leaphart, Esq. of the Leaphart Law Firm, Helena, Montana. Appearing personally on behalf of the Objectors to present evidence and testimony were

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Thomas Carey and Helen Carey, ranch owners, and Gary Grimstead, groundwater and chemical hydrologist from the University of Montana. The Objectors offered into evidence 20 exhibits:

The first six exhibits were photographs taken on September 20, 1979 by Helen Carey at or near the conjunction of the North Channel of the Boulder River and the pit of the Boone Trust;

(1) water running from the North Channel into the Boone Trust sump;

(2) water located south of the sump towards the slough;

(3) a rock buildup in the North Channel which diverted water into the sump;

(4) a rock diversion channeling water from the North Channel into the sump;

(5) water running in the North Channel past the sump;and

(6) water flowing into the sump from the slough in relation to the rock diversion; and

(7) a schematic drawing of the cone of depression in an aquifer given the pumping rate of 1850 gallons per minute

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when the transmissivity rate and storage coefficients were constant, admitted for illustrative purposes only;

(8) an illustration of the drawdown of a well assuming a constant head boundary, such as the Boulder River:

(9) a Notice of Appropriation of 2000 miners inches of water diverted from the Boulder River in 1877 by John Smith, recorded in Jefferson County, Book F of Water Right Locations, page 54 (1884);

(10) a Notice of Water Right for 3000 inches of water diverted from the Boulder River in 1897 by D. D. Twohy, recorded in Jefferson County, Book 1 of Water Right Locations, page 117 (1898);

(11) a Notice of Water Right for 1000 miners inches diverted from the Boulder River in 1888 by John McKeena, recorded in Jefferson County, Book G of Water Right Locations, page 173 (1888);

(12) a Notice of Water Right for 300 miners inches of water diverted from the Boulder River in 1889 by John W. Dawson, recorded in Jefferson County, Book G of Water Right Locations, page 412 (1889);

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(13) a Notice of Water Right for 200 inches of water diverted from the Misey Spring by Thomas Dawson in 1881, recorded in Jefferson County Book G of Water Right Locations, page 303 (1881);

(14) a Notice of Water Right for 300 inches of water diverted from the Boulder River in 1891 by John W. Dawson to irrigate the SE1/4 Section 17, T. 3 N., R. 2 W., recorded in Jefferson County, Book G of Water Right Locations, page 565 (1891);

(15) a Notice of Water Right for 150 inches of water diverted from the Boulder River in 1887 by Patrick Wickham to irrigate lands in Section 12, T. 4 N., R. 3 W., and N1/2 NE1/4 Section 12, T. 4 N., R. 3 W., recorded in Jefferson County, Book G of Water Right Locations, page 250 (1887);

(16) a Notice of Water Right for 75 inches of water diverted from the Boulder River in 1876 by Patrick Wickham to irrigate the N1/2 N1/4, Section 12, T. 4 N., R. 3 W., recorded in Jefferson County Book G of Water Right Locations, page 251 (1889);

(17) a Notice of Water Right for 300 inches of water diverted from the Boulder River in 1920 by Frank Carey for irrigation, recorded in Jefferson County, Book 2 of Water Right Locations, page 208 (1936);

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(18) a Notice of Water Right for 1500 inches of water diverted from the Boulder River in 1903 by Frank Carey for irrigation, recorded in Jefferson County, Book 1 of Water Right Locations, page 274 (1903);

(19) a Notice of Water Right for 500 inches of water diverted from the Boulder River in 1888 by Barney Cooney, recorded in Jefferson County, Book G of Water Right Locations, page 409 (1891); and

(20) a Notice of Water Right for 500 inches of water diverted from the slough of the Boulder River in 1890 by Consmith recorded in Jefferson County, Book G of Water Right Locations, page 403 (1891).

Said Exhibits were marked and entered into the record as Objector (Leaphart) Exhibits Nos. 1-20, respectively.

Objector Edward Kyler withdrew his objection prior to the hearing. Mr. Anderson appeared on behalf of the M & M Ranch on August 8, 1979 to cross-examine the Boone Trust's witnesses.

Objector, the Montana Power Company, hereinafter referred to as M.P.C., was represented by legal counsel, Mr. Ronald Waterman, Esq., from the firm of Gough, Shanaham, Johnson and Waterman, Helena, Montana. Mr. Donald Gregg appeared personally on behalf

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of MPC to present evidence and testimony in support of the MPC objection. The MPC offered into evidence 14 exhibits:

(1) a Notice of Appropriation for 10,000 cubic feet per second of water from the Missouri River in 1955 to be impounded by a dam with an elevation of approximately 2,125 feet commonly referred to as Cochrane, to generate hydroelectric power, recorded in Cascade County, Book 5, page 53 (1955);

(2) a Notice of Appropriation for 25,000 cubic feet of water per second from the Missouri River in 1928 by the Great Falls Power Company to be impounded by Morony Dam for generation of hydroelectric power and agricultural uses, recorded in Cascade County, Miscellaneous Book 5, page 165 (1928);

(3) a Notice of Appropriation for 1,000,000 miners inches of water or 250,000 cubic feet of water per second from the Missouri River in 1908 by Great Falls Water, Power and Townsite Company to be impounded by Ryan Dam, recorded in Cascade County, Book 7 of Quartz Location, page 205 (1908);

(4) a Notice of Appropriation for 1,000,000 miners inches of water or 25,000 cubic feet of water per second from the Missouri River in 1908 by Great Falls Water, Power and Townsite Company, to be impounded by Rainbow Dam for agricultural uses, manufacturing and generation of

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hydroelectric power, recorded in Cascade County, Book 7 of Quartz Location, page 203 (1908);

(5) a Notice of Appropriation for 25,000 cubic feet of water per second from the Missouri River in 1926 by the Great Falls Power Company to be impounded by Black Eagle Dam for generation of hydroelectric power, recorded in Cascade County, Miscellaneous Book 5, page 12 (1926);

(6) a Notice of Appropriation for 10,000 cubic feet of water per second from the Missouri River in 1907 by Capital City Improvement Co. to be diverted and impounded by Holter Dam, recorded in Lewis and Clark County Book 1, page 591-592 (1907);

(7) a Notice of Appropriation for 10,000 cubic feet of water per second from the Missouri River in 1907 by Capital City Improvement Co., to be diverted and impounded by Holter Dam for irrigation and generation of hydroelectric power, recorded in Lewis and Clark County, Book 1, page 589 (1907);

(8) a Notice of Appropriation for 240,000 miners inches of water or 6,000 cubic feet of water per second from the Missouri River in 1915 by the M.P.C. to be impounded and diverted by Holter Dam for the generation of hydroelectric power; recorded in Lewis and Clark County, Book N, page 111 (1915);

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(9) a Notice of Appropriation for 8,120 cubic feet of water per second from the Missouri River in 1905 by M. H. Gerry, Jr., to be diverted and impounded by Hauser Dam for irrigation and generation of hydroelectric power; recorded in Lewis and Clark County, Book L, page 458, (1905);

(10) a Notice of Appropriation for 8,120 cubic feet of water per second from the Missouri River in 1906 by the Helena Power Transmission Company to be diverted and impounded by Hauser Dam for irrigation and generation of hydroelectric power, recorded in Lewis and Clark County, Book L, page 566 (1906);

(11) a Notice of Appropriation for 3000 cubic feet of water per second from the Missouri River in 1906 by the Helena Power Transmission Co. to be impounded by Hauser Dam for multiple uses, recorded in Lewis and Clark County, Book L, page 568 (1906);

(12) a schematic drawing, prepared under the direction of Donald Gregg, showing the tributaries of the Missouri River system and the major dams constructed on the Missouri River in Montana;

(13) a table summarizing the water rights claimed by MPC, which water rights were listed as MPC exhibits 1 through 11, and the water rights according to the Special Master's

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findings of fact in Montana Power Company v. Broadwater-Missouri Users Ass'n ; and

(14) a chart showing the average daily water flow in cubic feet per second at Morony Dam, near Great Falls, from January 1960 through August 1979.

Said exhibits were marked and entered accordingly as Objector (MPC)Exhibits Nos. 1 through 14, respectively.

At the request of MPC the Hearing Examiner took judicial notice of the court action, Montana Power Company v. Broadwater - Missouri Users Association , 50 F. Supp. 4 (1942). The Hearing Examiner also took notice that the decision in Montana Power Company v. Broadwater - Missouri Users Association, was reversed because the court lacked jurisdiction, 139 F. 2d 998 (1944).

Objector, United States Bureau of Reclamation, hereinafter referred to as "Bureau", was represented by legal counsel, Richard Aldrich, Esq., from the U. S. Department of Interior, Office of the Solicitor, Billings, Montana. Mr. Bryan J. Edwards appeared personally on behalf of the Bureau to present evidence and testimony in support of the Bureau's objection. The Bureau offered into evidence five exhibits:

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(1) a contract entered into between the United States of America and the M.P.C., Re: Canyon Ferry Site Aquisition, dated December 14, 1949

(2) a graph recording the reservoir storage at Canyon Ferry in 1000 acre-feet and the water elevation in feet from October 1967 - September, 1977, and recording the water inflow into Canyon Ferry Resevoir in cubic feet per second from October, 1967 - September, 1977;

(3) a graph of the average net water inflow monthly in cubic feet of water per second based on data from January, 1954-December, 1975;

(4) the Findings of Fact, Conclusions of Law and Order issued by the Department of Natural Resources and Conservation, in the matter of Application for Beneficial Water Use Permit No. 4963-s41I by the Montana Department of State Lands, issued on December 1, 1978 (which application for water use was later withdrawn by the applicant, a fact which was judicially noticed by the Hearing Examiner);

(5) a chart indicating the dates each year, from 1966-1979, when water was spilled from Canyon Ferry Dam, and the maximum amount of each spill in cubic feet of water per second.

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Said exhibits were marked and entered into the record as Objector (Bureau)Exhibits Nos. 1-5, respectively.

Appearing at the hearing to present technical evidence and testimony on behalf of the Department were: Arlin Krogstad, Hearings Representative; Larry Brown, Hydrologist; Glenn Smith, Soil Scientist; Ken Chrest, Soil Scientist; and Tom Patton, Geo-Hydrologist. Prior to the hearing, the Department's technical personnel submitted the following reports:

(1) Investigation of Surface Water Resources in the Boulder River Basin Downstream from Boulder, Montana; in Reference to Water Rights Applications Boone, Thomas H., Jefferson County, 14,965-g41E, 19,228-c41E, 19,229-c41E, and 19,230-c41E, by Larry Brown (78-LB-5);

(2) Stream Depletion of the Boulder River by Tom Patton, (78-TP-1);

(3) Water Rights Applications; Boone, Thomas H., Jefferson County; 14,965-g41E, 19,228-c41E, 19,229-c41E, 19,230-c41E; by Glenn Smith and Ken Chrest, (78-GS-2); and

(4) Supplement to Surface Water Resources Report by Larry Brown, December 11, 1978.

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At the hearing the Department submitted the following Exhibits:

(1) a hydrograph report, including hydrographs for the Boone trust observation wells and interpretations of the hydrographs, prepared by Tom Patton; and

(2) a copy of Application for Beneficial Water Use Permit No. 21615-s41E, submitted by Thomas H. Boone, trustee to divert 15 cubic feet of water per second up to 1070 acre-feet of water for irrigation from April 1 to October 1, from the Boulder River into an existing sump pit in the NW1/4, NW1/4 Section 2, T. 5 N., R. 3 W., Jefferson County.

Said exhibits were marked and entered as Department's Exhibits Nos. 1 and 2, respectively.

Hearing Examiner, Forrest Tevebaugh, ruled at the beginning of the hearing that the total cubic feet of water per second under consideration exceeded 15 cubic feet per second, therefore the Boone Trust must prove by clear and convincing evicence that the rights of prior appropriators will not be adversely affected, a requirement in Section 85-2-311 (6), M.C.A. 1979. (TR. 1, page 4.)

The Boone Trust requested that Applications for Change of Appropriation Water Right Nos. 19,228-c41E, and 19,229-c41E be

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withdrawn (Vol. I, pg. 9). The applications were withdrawn and terminated without objection. The Hearing Examiner ruled that since the aggregate of the pending applications was 14.5 cubic feet of water per second, that Section 85-2-311(6), M.C.A. 1979, was not applicable; therefore the Boone Trust did not have the burden of proving the criteria by clear and convincing evidence (TR. I, pg 10).

The Boone Trust requested that Application for Beneficial Water Use Permit No. 14,965-g41E for water use be amended from April 1 to October 1, to a period of use from July 1 to October 1. The modificiation for period of proposed use from July 1 to October 1 was granted.

Paul B. Smith made a Motion to Strike the testimony of Delos Robbins, concerning the diversion of waste water in the SE1/4, Section 34, T. 5 N., R. 3 W., M.P.M., Jefferson County, because the application filed by Boone Trust stated that the point of diversion was in the SW1/4, Section 34, T. 5 N., R. 3 W., M.P.M., Jefferson County. The motion was taken under advisement. The motion to strike is denied.

Paul B. Smith made a Motion to Strike the testimony relating to Elkhorn Creek water and the Boone Trust's proposed uses of Elkhorn Creek water, because the applications did not specify that the source of any Boone Trust water was from Elkhorn Creek.

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The Motion to Strike was taken under advisement. The Motion to Strike is denied.

Paul B. Smith had a continuing objection throughout the hearing to all evidence introduced by the Boone Trust concerning the proposed uses of water from Elkhorn Creek.

At the conclusion of the Boone Trust case in chief, the Boone Trust made a motion that the application "be amended to conform to the proof submitted by the applicant". (TR. II, pg. 143). The motion was resisted by all Objectors. The motion was denied because:

(1) The amendment was vague and uncertain, and the Boone Trust could not specify precisely which factors should be amended and how; and

(2) The amendments may have adversely affected other water right holders whom would not have had adequate notice;

Paul B. Smith made a Motion to Strike all evidence presented and introduced by the Boone Trust pertaining to their proposed uses of Elkhorn Creek water. The Motion to Strike is denied.

Following completion of the Boone trust's case in chief, William Leaphart, joined by Ronald Waterman, Richard Aldrich and Paul B. Smith, made a motion to dismiss the applications for

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failure to state a claim. The motion was denied. The objectors proceeded to present their case.

W. T. Boone made a motion that the Hearing Examiner view the premises of the Boone Trust property prior to making the decision. The motion was granted. On September 26, 1979, the Hearing Examiner notified all parties that a viewing of the premises and inspection of the Boone Trust's diversions and lands would commence at 10:00 a.m. on October 2, 1979 at the Boone Trust Ranch, located in SW1/4 SW1/4 Section 35, T. 5 N., R. 3 W., Jefferson County, Montana. Present during the viewing and inspection were: W. T. Boone, Floyd Chef, William Leaphart, Paul B. Smith, Paul T. Smith, and numerous objectors and ranchers in the area.

Mr. Larry Brown, hydrologist for the Department of Natural Resources and Conservation, at the conclusion of the hearing requested that the evidentiary record remain open so the Department could obtain and submit the U. S. Geological Survey Stream Gage Data for the Boulder River for 1979. Mr. Larry Brown submitted the U.S. Geological Survey Stream Gage Readings for the Boulder River for April through November 9, 1979, and copies of these gage readings were sent to all attorneys of record on January 3, 1980, along with copies of the transcription of the hearing.

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After two extensions in time were granted to the objectors, the parties filed Proposed Findings of Fact, Conclusions of Law, and legal briefs on or before March 20, 1980. Reply briefs were served on the Hearing Examiner on or before April 25, 1980.

Based upon the Department's file, the applicant's and objector's testimony presented and exhibits admitted, the Hearing Examiner hereby makes the following Findings of Fact:

PROPOSED FINDINGS OF FACT

GENERAL

1. The Boulder River originates near the Continental Divide and flows generally in a southeasterly direction. (Watershed Plan and Environmental Impact Statement: Boulder River Watershed, (hereinafter referred to as Boulder River Watershed Plan) page E-13).

a. The Boulder River is a mountain snow-pak fed stream. (Boulder River Watershed Plan, page E-16; C. Bowman;

b. The major tributaries of the Boulder River head in the mountains to the north and northwest. The principal tributaries are the Little Boulder River and Elkhorn Creek. (Boulder River Watershed Plan; page E-15).

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2. The U. S. Geologic Survey maintains two waterflow gages on the Boulder, the Boulder gage, prior to the confluence with the Little Boulder River and the Cardwell gauge located 10-15 miles upstream from the town of Cardwell. The U. S. Soil Conservation Service maintains a waterflow gage on the Little Boulder River. (C. Bowman, TR. II, page 20).

a. The measurements of mean daily stream flows in cubic feet of water per second were:

	Boulder River	Little Boulder	Cardwell
1977:			
May	176.65	37	(162.07)(146)
June	126.2	29.97	72.48
July	41.5	14.14	14.87
1978:			
May	648.11	71.6	604.4
June	639.06	56.69	620.9
July	192.29	28.42	196.14
1979:			
April	127.1	13.9	138.5
May	788.0	76.6	780.1
June	418.9	37.0	327.5
July	65.7	8.4	28.9
August	44.37	6.8	10.2
Sept.	30.73	4.1	11.3
Oct.	68.1	9.7	99.2

(C. Bowman, TR. Vol. II, pages 19-22; L. Brown Report, page 1; gage data submitted Nov. 7, 1979).

3. Approximately 7300 acres of croplands in the Boulder River Watershed are being irrigated. (Boulder River Watershed Plan, page E-16). Of these 7300 irrigated acres, 3,998 acres of irrigated land are located between the Boone Trust property and Cold Springs. (G. Smith Report, page 1).

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a. 2,199 acres are on the benchlands and are irrigated by gravity and sprinkler. (G. Smith Report, page 1).

b. 1,799 acres are valley bottomlands and sub-irrigated by the high water table of the Boulder River. (G. Smith Report, page 1).

4. Approximately 5851 acres of irrigated cropland are between the near Boulder gage and the near Cardwell gage, and 3742 acre-feet of water per annum would be required. (L. Brown Report, page 6).

a. Critical discharge is the amount of water needed to satisfy prior water rights, naturally occurring phenomenon and to supplement recharge. (L. Brown Report, page 1).

b. The critical discharge necessary to satisfy prior appropriations for irrigation on the Boulder River is approximately 27.7 cubic feet of water per second. (L. Brown Report, page 6).

c. Critical discharges at the near Boulder gage will be less than 25 cubic feet of water per second approximately 1.53 years out 10 years in July, 5.94 years out 10 years for August, 6.28 years out 10 years

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for September, and 3.47 years out 10 years for October. (L. Brown Report, page 7).

d. The Hearing Examiner does not have the authority to adjudicate the water rights claimed by the parties to the hearing, and the Hearing Examiner is not attempting to adjudicate the water rights, but the Objectors claim to have rights to the following quantities of water:

(1) Emmett McCauley: 150 inches (1887) and 75 inches (1876) (Objector Leaphart Exhibits Nos. 15 and 16);

(2) George Dawson: 300 inches (1889) from the Boulder River, 200 inches (1881) from Misey Spring, and 300 inches (1891). (Objector Leaphart Exhibits Nos. 12,13, and 14);

(3) Eve Twohy: 1,000 inches (1888), 3,000 inches (1897), 2,000 inches (1884, 1/2 interest), (Objector Leaphart Exhibits Nos. 9, 10, and 11);

(4) Martin B. John & Thomas Carey: 1500 inches (1903, 1/2 interest), 300 inches (1920), and 500 inches (1888). (Objector Leaphart Exhibits Nos. 17, 18, and 19);

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(5) Martin B. and John Carey: 400 inches. (Objector Leaphart Exhibits No. 20); and

(6) Paul T. Smith Ranch, Inc.: 500 miners inches (1866) from the Boulder River, and groundwater of 250 gallons per minute (1932), 200 miners inches (1938) 200 miners inches (1890) 100 gallons per minute (1897) (Objector Smith Exhibits Nos. 3 and 5).

5. In approximately the NE1/4 SE1/4 Section 28, Township 5 North, Range 3 West, the North Channel of the Boulder separates from the main Boulder until it rejoins in approximately the NE1/4 SW1/4 Section 12, Township 4 North, Range 3 West. (Applicant's Exhibits Nos. 4, 5 and 6).

a. For the purposes herein, the Boulder River is a meandering, braided OR of wedded river. (L. Brown Report, pages 1 and 4).

b. The North Channel, also referred to as the Slough Ditch, appears to be a channel of the Boulder River. (L. Brown Report, pages 1 and 4; Boulder River Watershed Plan, figure 6; Tevebaugh TR. I, page 110).

(1) Representatives of the Boone trust countered that the North Channel was a ditch, basing their

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testimony on the constructed diversion and the excavated channel for the first 100 yards. (C. Bowman, TR. II, page 130; Robbins, TR. I, page 110).

(2) For the purposes herein it is determined that the North Channel is a natural channel of the Boulder River, which for the first 100 yards was excavated, and has been historically used as a natural conveyance for water rights. (Fadness, TR. II, pages 163 and 186).

6. The Boulder River is a tributary of the Jefferson River, and joins the Jefferson River approximately fifteen miles south of the Boone Trust property. (U. S. Geologic Survey Quadrangles; Applicants Exhibits Nos. 4, 5, and 6).

a. The Jefferson River and Gallatin Rivers join near Three Forks, Montana forming the headwaters of the Missouri River.

b. Representatives of the MPC testified that MPC has water power storage and generating facilities at various points along the Missouri River consisting of:

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(1) a 340,000 acre-feet storage reservoir near the head of the Missouri River at Hebgen Lake (above the Canyon Ferry Reservoir);

(2) a 9,000 kilowatt generating plant on the Madison River near Ennis, Montana (above the Canyon Ferry Reservoir);

(3) a 17 megawatt generating plant at Houser Lake (below Canyon Ferry dam);

(4) a 50 megawatt plant on Holter Lake near Wolf Creek, Montana (below Canyon Ferry dam);

(5) an 18 megawatt generating plant at Black Eagle Falls, Montana (below Canyon Ferry Dam);

(6) a 35 megawatt generating plant known as the Rainbow Plant located below the Black Eagle plant;

(7) a 58 megawatt generating plant known as the Cochrane Plant located below the Rainbow Plant;

(8) a 60 megawatt generating plant known as the Ryan Plant located below the Cochrane plant;

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(9) a 47 megawatt plant known as the Morony Plant located below the Ryan plant. (Gregg, TR. Vol. III, pages 126-128; MPC Exhibit No. 12)

c. The Hearing Examiner does not have the authority to adjudicate the water rights claimed by the MPC and the Hearing Examiner is not attempting to adjudicate the water rights, however, the MPC testifed that based upon the filings of appropriation water rights and the findings of the Special Master for Montana Power Company v. Broadwater-Missouri Water Users Ass'n, (supra) that MPC is entitled to the following water rights:

(1) Houser Lake:

(a) 4740 cubic feet of water per second based upon a June 23, 1905 priority date (MPC Exhibits Nos. 9, 10, 11, & 13);

(2) Holter plant:

(a) 7100 cubic feet of water per second based upon a priority date of April 30, 1918, (MPC Exhibits Nos. 6, 7, 8, & 13);

(3) Black Eagle dam, a total of 5040 cubic feet of water per second:

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(a) 3,300 cubic feet of water per second based upon a priority date of June 1, 1891, (MPC Exhibit No. 13);

(b) 900 cubic feet of water per second based upon a priority date of December 31, 1893, (MPC Exhibit No. 13);

(c) 280 cubic feet of water per second based upon a priority date of December 31, 1912, (MPC Exhibt No. 13);

(d) 560 cubic feet of water per second based upon a priority date of August 31, 1927 (MPC Exhibits Nos. 5 & 13)

(4) Rainbow dam; a total of 5140 cubic feet of water per second:

(a) 3500 cubic feet of water per second based upon a priority date of September 16, 1908 (MPC Exhibits Nos. 4 & 13)

(b) 1640 cubic feet of water per second based upon a priority date of July 1, 1917 (MPC Exhibit No. 13);

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(5) Ryan dam:

(a) 5900 cubic feet of water per second based upon a priority date of August 31, 1915 (MPC Exhibits Nos. 3 & 13);

(6) Morony dam:

(a) 7150 cubic feet of water per second based upon a priority date of December 10, 1928 (MPC Exhibits Nos. 2 & 13); and

(7) Cochrane dam (which was constructed after the Special Masters decision):

(a) 10,000 cubic feet of water per second filed for on June 16, 1955. (MPC Exhibit No.1)

d. Representatives of the MPC testified that when 10,000 cubic feet of water per second is not available at Cochrane the MPC is adversely affected. (D. Gregg, TR. III, pages 137, and 138)

(1) The records of the U. S. Geologic Survey at Morony dam (approximately 5 miles upstream of Cochrane), based on 18 years of record from 1960-

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1977, that on the average water flows exceed 10,000 cubic feet per second (for more than 5 days) from April 21 until July 15. (D. Gregg, TR. Vol. III, page 143).

(2) There is a period of 85 days in an average year when water flows in the Missouri exceed MPC's rights. (D. Gregg, TR. Vol. III, page 143, 145).

(3) Approximately 1/4-1/3 of the flow in the Missouri River at Great Falls enters the Missouri River below the Canyon Ferry Dam, and between 2/3-3/4 of the flow in the Missouri River at Great Falls enters above the Canyon Ferry Dam. (Application for Beneficial Water Use Permit No. 4963-s41I by Montana Department of State Lands, Proposal for Decision, page 18).

e. The hearing examiner does not have the authority to adjudicate water rights and is not attempting to adjudicate the water rights of the Bureau, however, representatives of the Bureau claimed that they had a storage right at Canyon Ferry Dam for 2,050,000 acre-feet of water. (B. Edwards, TR. Vol III, page 169).

(1) The Bureau claimed a water right for 5,100 cubic per second based upon an October 31, 1898

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priority date; which right was filed and used by the MPC and subsequently purchased in 1949 by the Bureau. (B. Edwards, TR. Vol. III, page 167; Bureau Exhibit No. 1).

(2) The MPC did not sell to the Bureau a claimed water storage right for 23,980 cubic feet per second at Canyon Ferry. (B. Edwards, TR. Vol. III, page 167; Bureau Exhibit No. 1).

(3) The MPC by contract maintains the right to refill the 23,980 cts (47,500 acre-feet) of storage. (Bureau Exhibit No. 1).

(4) The Bureau claimed a water right of 1,150 cubic feet of water per second with a 1949 priority date to be used for the hydropower generation (B. Edwards, TR. Vol. III, page 169).

(5) The Bureau claimed a water right of 250 cubic feet of water per second with a 1906 priority date for the irrigation of approximately 5,200 acres in the Helena Valley. (B. Edwards, TR. Vol. III, page 169).

(6) The Bureau claimed a water right of 500 cubic feet of water per second with a 1957 priority date

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for the irrigation of approximately 10,400 acres in the Helena Valley. (B. Edwards, TR. Vol. III, page 169).

(7) Records of resevoir storage and water inflows at Canyon Ferry Dam were presented for the years 1966 through 1977. (B. Edwards, TR. Vol. III, page 172; Bureau Exhibit No. 2).

(a) Spills from the Canyon Ferry dam have varied from 500 cubic feet per second to a maximum of 11,570 cubic feet per second. (Bureau Exhibit No. 5).

(b) The period of spills from Canyon Ferry are generally from mid-June through mid-July. The spills are for 30 to 45 days, but some years the spills may be for 60 days. (B. Edwards, TR. Vol. III, page 191).

(c) On cross-examination the Bureau's representative testified that spills from Canyon Ferry may have instanteous flows of 1,000 to 3,000 cubic feet of water per second, and therefore, the Canyon Ferry Dam may spill from 89,000 to 267,000 acre-feet of water in a

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single year. (B. Edwards, TR. Vol. III, page 192)

(d) The normal operation for the Canyon Ferry resevoir is to fill the reservoir in one period of the year, the spring, when excess water is available and release the stored water throughout the remaining seasons of the year when only minimum flows are available. (B. Edwards, TR. Vol. III, page 176).

(e) Representatives of the Bureau testified that if the Bureau is drawing storage water to meet generation needs when an upstream appropriator is diverting water, then the Bureau is adversely affected.

7. The Hearing Examiner does not have the authority to adjudicate Water Rights and is not attempting to adjudicate Water Rights, however, representatives of the Boone Trust testified and presented exhibits claiming that the Boone trust has the right to the following water rights:

a. 200 miners inches of water from the Boulder River for irrigation of the SE1/4 Section 34, Township 5 North, Range 3 West, with a priority date of 1866, commonly referred to as the McCauley Water Right.

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(Applicants Exhibit No. 7, Robbins, TR. Vol. I, pages 68, 91, 92).

b. 1200 miners inches of water from the Boulder River for the irrigation of Sections 26 and 35, Township 5 North, Range 3 West, with a priority date of 1918, commonly referred to as the Howard Water Right (Applicants Exhibit No. 8 and Robbins, TR. Vol. I, page 70); and

c. 200 miners inches of waste water which is Boulder River waste water from the Paul T. Smith Ranch which has been used to irrigate portions of Section 35 below the upper ditch and 198 acres in the NE1/4 NW1/4 Section 2, Township 4 North, Range 3 West, commonly referred to as the Smith waste water right (Application No. 19,230-c41E; and Robbins TR. Vol. I, pages 67, 105, 114).

8. The Boone Trust representatives propose to operate five (5) sprinkler irrigation systems on the Boone trust lands east of the Boulder River, which systems are interrelated. (Robbins, TR. Vol. I., pages 67, 79, 105, and 114; and Riley, TR. Vol. I, pages 164-166).

a. A 100 horsepower turbine pumps water from the pit through a 16 inch buried main line to two-125 horsepower booster pumps located in SE1/4 SW1/4 of Section 35,

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Township 5 North, Range 3 West. The water would be pumped into System I, which would sprinkle irrigate the W1/2 of Section 35, Township 5 North, Range 3 West; and the SW1/4 and S1/2 NW1/4 of Section 26,Township 5 North, Range 3 West. (Application Exhibit A).

b. System I would consist of 12 sprinkler lines, ten of the lines would have 33 heads and two lines would have 40 heads. (Riley, TR. Vol. I, page 164). Each head would have the capacity to pump 8.07 gallons per minute. (Riley TR. Vol. I, page 164), therefore the operation of System I would require 3,308.7 gallons of water per minute (Riley, TR. Vol. I, page 165).

c. After the water is pumped through System I, any return flow and bypass water would be collected in the lower ditch and transported to System II to sprinkle irrigate the E1/2 of Section 35, Township 5 North, Range 3 West and the S1/2 of S1/2 E1/2 of Section 26, Township 5 North, Range 3 West and the S1/2 of S1/2 E1/2 of Section 26, Township 5 North, Range 3 West.(Robbins, TR. Vol. 1, page 70).

d. System II would consist of eight (8) sprinkler lines, with each line containing 33 heads that pump at a rate of 8.07 gallons per minute per head. Therefore,

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System II requires 2,130 gallons of water per minute for full operation (Riley, TR. Vol. I, page 165).

e. The operation of System I and II requires 5,438.7 gallons of water per minute. (Riley, TR. Vol. I, page 165).

f. Irrigation System III would sprinkle irrigate approximately 60 acres in the NE1/4 Section 3, Township 4 North, Range 3 West, and the NW1/4 NW1/4 Section 2, Township 4 North, Range 3 West. (Applicants Exhibit No. 9 and Robbins, TR. Vol. I, page 67).

(1) A representative of the Boone Trust testified that System III would require 589 gallons of water per minute. (Robbins, TR. Vol. I, page 166).

(2) A representative of the Boone Trust testified that the water used for irrigating System III lands would be from the North Channel, the Howard and McCauley rights. (Robbins, TR. Vol. I, pages 68, 113 and 61).

g. Irrigation System IV would sprinkle irrigate approximately 135 acres in the SE1/4, Section 34, Township 5 North, Range 3 West. (Applicants Exhibit No. 9).

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(1) A representative of the Boone Trust testified that System IV would require 1,065 gallons of water per minute. (Robbins, TR. Vol. I, page 166).

(2) A representative of the Boone Trust testified that the water used for irrigation of System IV lands would be the McCauley water right. (Robbins, TR. Vol. I, page 62-63).

h. Irrigation System V would sprinkle irrigate approximately 198 acres in the NE1/4 and NE1/4 NW1/4, Section 2, Township 4 North, Range 3 West. (Applicants Exhibit No. 9).

(1) A representative of the Boone Trust testified that System V would require 1,331 gallons of water per minute. (Robbins, TR. Vol. I,page 166).

(2) A representative of the Boone Trust testified that the water used for irrigation of System V lands would be the McCauley water right. (Robbins, TR. Vol. I, page 63).

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9. The Boone Trust proposes to divert the ground water by means of sump (pit) located in the NW1/4 NW1/4 of Section 2, Township 4 North, Range 3 West, M.P.M., in Jefferson County, Montana. (Application)

a. Representatives of the Boone trust testfied that a sump (pit) was dug in late July or early August of 1977 in the NW1/4 NW1/4 NW1/4 of Section 2, Township 4 north, Range 3 west, M.P.M., in Jefferson County. (Robbins, TR. Vol. I, page 18).

10. The Boone Trust pit is approximately 100 feet wide by 150 feet long and varies in depth from 16 to 20 feet. (Riley, TR. Vol. I, pages 157-158; and Robbins, TR. Vol, I, page 79).

(a) Representatives of the Boone Trust testified that the pit was originally 16 feet deep, and that later the southern end of the pit was excavated to a depth of twenty (20) feet in order to increase the quantity of water diverted. (Riley, TR. Vol. I, page 158)

(b) Representatives of the Boone trust testified that the pit was pumped from August 31, 1977 through September 8, 1977 so the pit could be excavated. (Riley, TR. Vol. I, page 157).

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11. The Boone Trust pit was dug in soils which consisted of a mixture of sand, gravel and possibly some clay; sand and gravel have a high permeability rate.

a. Soils investigations conducted by the Department found that the pit was dug at the junction of alluvial soils comprised of sand, gravel, silt and clay deposits. (Patton, Report, page 1).

b. An agricultural engineer testifying on behalf of the Boone Trust stated that the soil materials of the pit were sand and gravel. (C. Bowman, TR. Vol. II, page 131)

c. A representative testifying for the Boone Trust stated that the soils of the pit were fine sand and gravel on the side near the North Channel and gravel and clay on the east side. (Riley, TR. I, page 196)

d. The agricultural engineer testifying on behalf of the Boone trust stated that sand and gravel has a very rapid rate of permeability. (C. Bowman, TR. Vol. II, page 137)

12. A strip of soil approximately 20 feet wide, or less, composed of sand, gravel and possibly some silt and clay, separates the Boone Trust pit from the North Channel of the

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Boulder River. The bottom of the Boone Trust pit is estimated to be at a lower elevation than the bottom of the North Channel of the Boulder River.

a. On direct examination, a representataive of the Boone Trust testified that the strip of soil between the pit and the North Channel was thirty (30) feet wide. (Riley, TR. II, page 186). However, on cross examination the representative of the Boone trust stated that the strip of soil between the pit and the North Channel may be less than twenty (20) feet wide. (Riley, TR. Vol. I, page 189).

b. A representative of the Department reported that there was less than twenty feet of sediment separating the pit fromt he North Channel. (L. Brown, Report, page 6).

c. On cross examination, a representative of the Boone trust testified that the bottom of the pit was lower in elevation than the bottom of the North Channel. (Riley, TR. page 190).

d. A report prepared by the Department stated that the bottom of the pit was ten (10) feet lower than the saturated mound of the North Channel. (L. Brown, Report, page 6.)

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13. The Boone Trust pit as presently designed and excavated can produce a maximum of approximately 2000 to 2300 gallons of water per minute, approximately 4.45 to 5.13 cubic feet of water per second, on a sustained basis.

a. The Boone Trust has requested approval to appropriate 12 cubic feet of ground water per second, up to a maximum of 1,839.6 acre-feet of from July 1 through October 1, inclusive of each year. (Application as amended; Tr. Vol. I, page 10).

b. Representatives of the Boone Trust, Mr. Bowman and Mr. Riley, testified that the pit had the capacity to produce 2300 gallons per minute from July 1 through October 1, inclusive. (Bowman, TR. II, page 36; Riley, TR. Vol. I page 168).

c. A representative of the Department, Mr. Patten, testified that based on observations and pumping information, there were indications that the pit could pump on a sustained basis no more than 2,000 gallons per minute, or approximately 4.45 cubic feet of water per second. (Patton, Report, page 1)

d. A representative of the Department reported that the holding capacity of the pit was 2.2 acre-feet of water. (L. Brown, Report page 5).

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e. Representatives of the Boone Trust requested that permission be granted to increase the size of the pit - to dig the entire pit to a depth of twenty (20) feet - so the pit could produce an estimated 2600 gallons of water per minute, approximately 5.7 cubic feet of water per second. (Riley, TR. Vol. I, page 168; Bowman, TR. Vol. II, page 142).

f. Since the capacity of the pit is 2300 gallons of water per minute, in order to operate System I and II the volume of water in the pit must be depleted. (Riley, TR. Vol. I, page 177). The representative of the Boone Trust testified that in order to fully operate the system in 1978, water had to be introduced into the pit from the North Channel (Riley, TR. Vol. I, page 178), however, it is unknown what quantity of water was drawn from the North Channel during such operations (Riley, TR. Vol. I, page 180). Representative of the Boone Trust testified that the system as designed and constructed couldn't be operated from the pit alone on the experience to date (Riley, TR. I, page 180).

g. Mr. Bowman testified on behalf of the Boone Trust that the proposed means of diversion was adequate and that the flow of water into the sump may increase slightly with continued use. (Bowman, TR. II, page 44; 42).

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h. Mr. Riley testified that since the 100 horsepower pump could only pump 3,600 gallons per minute, or approximately 8 cubic feet of water per second, that a second pump would be required to attain the amount of water needed for the operation (Riley, TR. Vol. I, page 194).

14. The lands to be irrigated by the Boone Trust with waters from the pit are approximately 838 acres in Section 26 and 35, T. 5 N.; R. 3 W.; M.P.M., Jefferson County, Montana.

a. The Boone Trust applied for the water to be beneficially used by sprinkle irrigating 866 acres. (Application). A representative of the Boone trust testified that the acreage to be irrigated had been miscalculated and was 838 acres rather than 866. (Robbins, TR. I, page 75). A representative of the Department testified that according to his calculations the acreage to be irrigated was 838 acres. (G. Smith, TR. Vol. I, pages 74-75).

b. The Boone Trust applied to sprinkle irrigate 160 acres in the NE1/4, 160 acres in the NW1/4, and 140 acres in the SE1/4, all located in Section 35, Township 5 North, Range 3 West; and also to sprinkle irrigate 54 acres in the NW1/4, 160 acres in the SW1/4 and 32 acres

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in the SE1/4, all located in Section 26,Township 5 North, Range 3 West.

c. The Boone Trust proposes to sprinkle irrigate all lands identified in Sections 26 and 35, except those lands which are beyond the present fence lines. (Robbins, TR. Vol. I, page 75).

15. The Hearing Examiner does not have the authority to adjudicate the water rights of the parties. The Boone Trust testified that specified water rights would be used on particular tracts of land, and none of the findings herein authorize, directly or impliedly, the right of the Boone Trust to change the places of use of other water rights, or to extend the use of other water rights to additional or new lands.

a. A representative of the Boone Trust testified that prior to July 1, Systems I and II would be irrigated with waters of the Howard water right. (Robbins, TR. Vol. I, pages 69 and 80).

b. A representative of the Boone Trust testified that after July 1 and until October 1, the Systems I and II would be irrigated with water from the pit and the Smith waste water right. (Robbins, TR. Vol. I, page 70).

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16. The lands in Sections 26 and 35, field H, which are proposed to be sprinkle irrigated by the Boone trust are composed of Richlie-Sandy loam soil and from the soil type the approximate amount of water required for successeful irrigation can be estimated. (G. Smith Report, Figure 3).

a. A soil scientist for the Department reported that Richlie-Sandy loam soils required five (5) inches of water for irrigation. If five (5) inches of water were applied to the lands on Systems I and II, it would require 5,391.7 gallons of water per minute or 12 cubic feet of water per second. (G. Smith R., page 8; G. Smith, TR. III, page 211).

b. Mr. Bowman testified for the Boone Trust that for 876 acres you need 24 acre-feet of water per day to irrigate the land (Bowman, TR. II, page 117), which is approximately 1 cubic foot of water, (Bowman, TR. II, page 118). Mr. Bowman testified that in July there would be a need for 20 acre-feet per day, or 741 acre-feet for the month of July. (Bowman, TR. II, page 136). To irrigate in August would require 566 acre-feet of water. (Bowman, TR. Vol. II, page 136). During September, Systems I and II would require eleven (11) acre-feet of water per day, or a total of 329 acre-feet of water for the month. (Bowman, TR. II, page 136). In October 7.3 acre-feet of water would be needed for each

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of fifteen (15) days or a total of 110 acre-feet. (Bowman, TR. Vol. II, page 137).

Mr. Bowman testified that the total quantity of water needed to irrigate Systems I and II was 1,746 acre-feet, (Bowman, TR. Vol. II, page 141).

c. Mr. Bowman testified that in order to deliver 741 acre feet of water in July for sprinkle irrigation by Systems I and II, the system must deliver 23.9 acre-feet of water per day or approximately 12 cubic feet of water per second. Mr. Bowman testified that the capacity of the pit is 5 cubic feet of water per second. (Bowman, TR. Vol. II, page 141-142).

17. The Boone Trust requested to divert groundwater from the pit, however, the water to be diverted includes waters which are surface water and part of the source of supply.

a. Mr. Patton testified that the Boulder River receives recharge from sources in the northwest. (Patton, TR. Vol. III, page 199).

(1) During spring runoff the Boulder River is an influent stream; the surplus river waters recharge the surrounding aquifers. (Grimstead, TR. Vol. III, page 39).

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(2) Later in the summer when the snowmelt is diminished, the groundwater stored in the aquifers adjacent to and underneath the Boulder River flows into the stream and is the major source of riverflow. (Grimstead, TR. Vol. II, page 39).

(3) Mr. Bowman testified that the pit diverts water from an aquifer that may extend to the northern highlands. (Bowman, TR. II, page 34).

(4) On cross-examination Mr. Grimstead testified that it was possible that a portion of the water in the aquifer was from Dry Creek, but all the water in the aquifer diverted by the pit would not be from Dry Creek. (Grimstead, TR. Vol. III, pages 63,65).

(5) It was reported that possibly there was a constriction in the alluvial fill of the Boulder Valley in the vicinity of Sections 1, 11, 12 and 13 of Township 4 North, Range 3 West, which would cause a shallow groundwater table above the constriction. (Patton, TR., page 2).

b. Representatives of the Boone trust testified on their observations of the water flowing into the pit during pumping.

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(1) Mr. Chef testified that during pumping of the pit a stream of water entered the pit from the east side and some water bubbled up from the bottom. (Chef., TR. Vol. I, pages 136, 137).

(2) Mr. Chef testified that only a small portion of the water flowing into the pit was from the North Channel side of the pit. (Chef, TR. Vol. I, pages 148, 149).

(3) Representatives of the Boone trust observed that the majority of the water flowing into the pit was from the north and northeast (Chef, TR. Vol. I, page 149; Riley, TR. I, page 159), although waters seeped into the pit from all sides. (Riley, TR. I, page 159).

c. Representatives of the Boone Trust testified that the pit was pumped from August 31 - September 8, 1978, so the operators could dig in the pit. (Riley, TR. Vol. I, page 157).

(1) Mr. Riley testified that during the period of initial pumping, August 31 - September 8, 1978, the North Channel was almost completely dry and the water level in the Boulder River was very low. (Riley, TR. Vol. I, page 158).

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Later Mr. Riley testified that the temperatures were taken on the second trip to the pit when the North Channel was completely dry. (Riley, TR. Vol. I, page 176).

(2) Mr. Riley testified that he took temperature readings of the waters in the North Channel, Boulder River and pit between August 31 - September 8, 1978. (Riley, TR. Vol. I, page 161).

(3) Mr. Riley testified that the temperature in the pit, taken during pumping, was 49 degrees farenheit; the North Channel was 68 degrees farenheit and the main Boulder River, which temperature was taken two to three hours later, was 63 degrees farenheit. (Riley, TR. Vol. I, pages 161-163).

d. Five (5) observation wells were dug by the Boone Trust to monitor the movement of water in the pit and Boulder aquifer. (Patton Report, figure 1).

(1) No observation wells were drilled between the pit and North Channel or Boulder River to monitor fluctuations in the groundwater and subsurface flows of the streams. (Patton, Report, figure 1, and C. Bowman, TR. Vol. II, page 90).

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(2) During June, 1978, the Boone Trust pumped from the pit at a rate of 1850 gallons of water per minute. The water level contours indicated a northwest to southeast gradient flow. The effects of pumping were monitored during pumping in June and after pumping ceased in August. (Patton Report page 3).

(3) Observation well No. 1 was drilled 192 feet north of the pit. It was drilled to a depth of 36 feet deep. During the drilling there was a layer of top soil 0 to 5 feet deep, gravel from 5 to 20 feet deep, and gravel and clay mix at 20 to 36 feet deep. In June the water level in observation well No. 1 dropped by 3.13 feet. In August the water level was minus .75 feet. (Patton Report, figures 3, 4A and 4B).

(4) Observation well No. 2 was drilled 368 feet north of the pit. It was drilled to a depth of 38 feet deep, and encountered top soil from 0 to 5 feet, gravel and boulders from 5 to 10 feet, gravel from 10 to 20 feet and gravel and clay from 20 to 38 feet. During the June pumping the water level in the well decreased by .08 feet, and in August the depth of the well was plus .12 feet. (Patton Report, figures 3, 4A and 4B).

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(5) Observation well No. 3 was drilled 420 feet north of the pit. The well as drilled to a depth of 44 feet deep, and encountered gravel from 0 to 10 feet, clay from 10 to 20 feet, and clay and gravel from the 20 to 30 foot depth. During the June pumping the level of water in the well dropped -.01 feet, and during August the level of water in the well was +.47 feet. (Patton Report, figures 3, 4A, and 4B).

(6) Observation well No. 4 was drilled 234 feet northwest of the pit. It was drilled to a depth of 35 feet, and encountered gravel from 0 to 20 feet and gravel and clay from 20 to 35 feet. During the June pumping the water table in observation well No. 4 dropped by 2.07 feet, and that upon rechecking in August the level of the water was -.52 feet. (Patton Report, figures 3, 4A and 4B).

(7) Observation well No. 5 was drilled 600 feet north of the sump. It was drilled to a depth of 100 feet deep and encountered top soil from 0 to 1 foot, clay gravel and boulders from 1 to 15 feet, clay and gravel from 15 to 64 feet, clay and gravel from 64 to 90, and gravel from 90 to 100 feet. No records on water levels were presented. (Patton Report, figures 3, 4A and 4B).

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e. Representatives of the Boone Trust, objectors and the Department agreed that since the North Channel was located so close to the pit, water pumped into the pit would include water from the North Channel. (Bowman, TR. Vol. II, page 130; Grimstead, TR. Vol. III, page 85; and Brown, Report page 2).

(1) The Boone Trust was not able to quantify what portion (or amount) of water withdrawn by the pit would be contributed by the North Channel.

(2) During pumping of the pit the water was discharged into the North Channel, so no observations were made on the immediate effects of pumping on the North Channel. (Riley, TR, Vol. I, page 195).

(a) Mr. Bowman testified that the operation of the pit would increase riverflows because excess water from the pit would be discharged into the North Channel. (Bowman, TR. Vol. II, page 65).

(3) The groundwater and surface water systems are interrelated. (Bowman, TR. Vol. II, page 64-65; Brown, TR. Vol. III, page 229; and Grimstead, TR. Vol. III, page 52).

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(a) Mr. Brown testified that the groundwater helped to maintain a static head pressure of water surrounding the stream. A saturated zone surrounds the North Channel which contributes a large volume of water to the system. (Brown, TR. Vol. III, page 230).

(b) Mr. Patton reported that because pumping the pit affected the water levels in observation well No. 1, the streambed transmissivity in the North Channel must be less than the transmissivity in the aquifer. (Patton, R. page 4).

(1) Mr. Grimstead testified that even if the pit were completely communicating with water in the North Channel, drawdown would be evidenced in the observation wells during and after pumping of the pit. (Grimstead, TR. Vol. III, page 43).

(c) Mr. Patton reported that in order to calculate the sources of water pumped in the pit, new observation wells need to be drilled near the North Channel and a formal pumping test conducted. (Patton, Report page 4) Mr. Bowman testified that additional observation

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wells needed to be drilled near the North Channel. (Bowman, TR. Vol. II, page 90).

(4) The quantity of water directly withdrawn from the North Channel by pumping the pit depends upon the soils and the sealing armor in the North Channel.

(a) Mr. Bowman testified that if the armor in the North Channel were not disturbed, then the leakage from the North Channel into the pit would be minimal. (Bowman, TR. Vol. II, page 132)

(b) Mr. Brown testified that because of the coarse gravel and rubble materials that compose the bed of the North Channel, any sealing armor in the North Channel would not significantly reduce waterflows (leekage) from the North Channel into the surrounding area. (Brown, TR. Vol. III, page 231-232).

(c) Mr. Glenn Smith testified that because of the rocky material in the North Channel any sealing armor was minimal and susceptible to washing out during high water. (G. Smith, TR. Vol. II, pages 219-220).

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(d) In 1977 the Boone Trust excavated a channel between the pit and the North Channel. (Robbins, TR. I, page 78).

(e) Mr. Bowman testified that within one or two winters the armor in the North Channel which had been disturbed by excavation would re-seal if there were no pumping during the two year period. (Bowman, TR. II, page 139).

f. Models were used to calculate the estimated transmissivity rate, storage co-efficient and cone of depression for pumping from the pit.

(1) Mr. Patton reported that the transmissivity rate for the pit was estimated to be 210,000 gallons per day per foot. The coefficient of storage was .10. (Patton, Report page 4) These calculations were based on the non-interacting model, assuming the North Channel did not contribute significant quantities of water.

(2) Mr. Grimstead testified that if the interacting model had been used to calculate the transmissivity rate and storage coefficient, then each would be reduced 50 percent. (Grimstead, TR. Vol. III, page 45) The calculations would be

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105,000 gallons per day per foot for the transmissivity rate and a storage coefficient of .05.

(3) Mr. Grimstead testified that he used calculations of transmissivity and storage coefficient developed by the interacting model to develop the cone of depression for pumping 1850 gallons of water per minute. (Grimstead, TR. III, pages 47-48; Leaphart Exhibit No. 7).

(4) Mr. Grimstead testified that as pumping continued in the pit the cone of depression would cause the water table to lower. Given the constant head boundary of the North Channel, continued pumping would result in the aquifer contributing little or no water so that all water in the pit would be from the North Channel and the saturated mound of the North Channel. (Mr. Grimstead, TR. Vol. III, pages 49-50; Leaphart Exhibit No. 8).

g. Stream depletion is caused by either direct depletions of the stream or interception of groundwater recharge to the stream. (Patton, R. page 5; Grimstead, TR. Vol. III, page 53).

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(a) Mr. Patton reported that to calculate the net effect of pumping from the pit on the Boulder River system the formula must be minus the leakage from the North Channel and minus water depleted from the Boulder River, but plus any water saved from evapotranspiration. (Patton, Report page 6).

(b) Mr. Patton reported that pumping from the pit has a delayed effect on the stream; timing is an important factor in stream depletion. (Patton, R. page 6). Pumping later in the irrigation season may delay the occurence of stream depletion until winter or spring, depending on the movement in the aquifer. The stream will be depleted in the spring, but the stream depletion would be wiped out if there were substantial spring floods. (Patton, TR. Vol. III, page 204).

(c) Mr. Patton reported estimated stream depletion for the main Boulder based upon varying levels of water contribution from the North Channel. (Patton, R. figure five). The stream depletion estimates indicated that pumping during July will create more stream depletion in August than in mid July. (Patton, Report figure five).

(d) Mr. Grimstead testified that from July through October the proportion of water drawn into the pit from the North Channel, rather than the aquifer sources, would increase. (Grimstead, TR. Vol. III, page 76).

h. The Montana Code defines "groundwater" as "any water beneath the land surface or beneath the bed of a stream, lake, reservoir or other body of surface water, and which is not part of that surface water." Section 85-2-102 (8), M.C.A., 1979.

(1) Mr. Bowman testified that the water flowing into the pit was not surface water; because of the differential in the temperatures between the pit and the river and the pumping tests. (Bowman, TR. Vol. II, page 34). On cross-examination Mr. Bowman testified that there probably was an aquifer in the Boulder valley recharged by the Boulder River (Bowman, TR. Vol. III, page 130).

(2) Mr. Grimstead testified that the Boone Trust would withdraw groundwater from the pit, given his definition of groundwater being "water that at the point where it is withdrawn is withdrawn from the ground". (Grimstead, TR. Vol. III, page 74). Mr. Grimstead testified that the surface water and

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groundwater near the Boulder River were connected. Mr. Grimstead testified that for the surface water not to be a part of the groundwater there must be a non-saturated zone between the surface and the aquifer. (Grimstead, TR. Vol. III, page 82).

(3) Mr. Patton testified that the surface water and groundwater are interrelated if there is a continuous saturation between the pit and the river, so water withdrawn in the pit is part of the same system. (Patton, TR. Vol. III, page 199).

PROPOSED FINDINGS OF FACT

RE: APPLICATION NO. 19,230-c41E

18. The Smith waste water is collected by a ditch which is either in the SW1/4 or the SE1/4 of Section 34, Township 5 North, Range 3 West.

a. The Boone Trust proposes to change the place of use for Smith waste water which is collected by a ditch in the SE1/4 of Sectin 34, Township 5 North, Range 3 West. (Application)

b. A representative of the Smith Ranch testified that the waste water was collected in the SW1/4 of Section

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34, Township 5 North, Range 3 West. (P. T. Smith, TR. Vol. I, page 34).

19. The quantity of Smith waste water diverted by the Boone Trust is between 10 miners inches and 200 miners inches.

a. The Boone Trust stated that the quantity of water was 100 miners inches. (Application).

b. A representative of the Boone Trust testified that in the early spring the waste water occurred in volumes as high as 200 miners inches. (Evans, TR. Vol. I, page 24). The testimony was that volumes of 200 miners inches were not available in July, August or September. (Evans, TR. Vol. I, page 125).

c. A representative of the Boone Trust testified that there was 200 to 300 inches of water in the lower ditch, a collector of waste water. (Chef, TR. Vol. I, page 151).

d. A representative of the Smith Ranch testified that there seldom is 100 inches of waste water, and estimated waste water flows were generally ten inches. (P. T. Smith, TR. Vol. III, page 113).

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e. A representative of the Smith Ranch testified that the ditch had a capacity of 2.5 to 3.5 cubic feet of water per second. (Fadness, TR. Vol. II, page 177). He testified that from 1950 until 1975 there could not have been 150 to 200 inches of waste water from the Smith Ranch because the culvert was only 12 inches.

20. The Smith waste water has previously been used to flood irrigate lands in the SW1/4, Section 34, T. 5 North, R. 3 W., Section 35, T. 5 N., R. 3 W., and portions of Sections 2 and 3, T. 5 N., R. 3 W or potions of Section 2 and 3, T. 4 N., R. 3 W.

a. The Boone Trust stated that the waste water has previously been used for flood irrigating 100 acres in the S1/4, Section 34, Township 5 North, Range 3 West, and 60 acres in the S1/2, Section 35, Township 5 North, Range 3 West, and 230 acres in portions of Sections 2 and 3, Township 5 North, Range 3 West. (Application).

b. A representative of the Smith Ranch testified that in Section 2, Township 4 North, Range 3 West, four (4) tracts were flood irrigated from The upper ditch: 45 acres, 24 acres, 13 acres, and 15 acres. The testimony was that approximately 100 acres in Section 2, Township 4 North, Range 3 West were irrigated from the lower ditch. (Fadness, TR. Vol. II, pages 167-168)

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c. A representative of the Boone Trust testified that the lands flood irrigated were in the NE1/4 of Section 2 and NE1/4 of Section 3, and were flood irrigated partially with water of the Howard Water Right. (Robbins, TR. Vol. I, pages 88-89).

d. A representative of the Boone Trust testified that the SE1/4 of Section 34, Township 5 North, Range 3 West could not be irrigated by waters in the Little Elkhorn Creek. (Robbins, TR. Vol. I, page 113).

21. The Smith waste water was first used by the predecessors of the Boone Trust sometime between 1940 and 1951.

a. The Boone Trust reported that the Smith waste waters were first put to use in July, 1940. (Application).

b. A representative of the Smith Ranch testified that the priority date was 1950 or 1951, since it was in 1950 that Smith orally agreed to permit Quinn (Boone trust's predecessor) to construct the ditch to collect waste water. (P. T. Smith, TR. Vol. III, page 100).

22. The source of the Smith waste water is either the Boulder River, Elkhorn Creek or Little Elkhorn Creek.

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a. The Application and Public Notice stated that the source of the Smith waste water was the Boulder River.

b. A Representative of the Boone Trust indicated on the map the drainage that the waste waters came from as Little Elkhorn Creek. (Robbins, TR. Vol. I, page 82). A representative of the Boone Trust testified that the waste water going from the culvert to the lower ditch was Elkhorn Creek water. (Evans, TR. Vol. I, pages 125, 128).

c. A representative of the Smith Ranch testified that Elkhorn Creek water was used for some irrigation on the ranch. (P. T. Smith, TR. Vol. I, page 30). Mr. Smith testified that the waste water in the upper ditch was from the Boulder River, except during spring flooding of Elkhorn Creek. (P. T. Smith, TR. Vol. III, page 101). Mr. Smith testified that the waste water being diverted into the lower ditch was from Elkhorn Creek. (P. T. Smith, TR. Vol. III, page 111).

d. Mr. Smith testified that waste water from Section 28 and the N1/2 W1/2 of Sectin 34 was collected in the upper ditch. (P. T. Smith, TR. Vol. III, pages 100-101). In 1978 use of the upper ditch was discontinued since a bypass was installed in the SW1/4 of Section 34. (P. T. Smith, TR. Vol. I, page 39, and Robbins, TR. Vol.

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I, page 44). A siphon was constructed on the upper ditch in the NE1/4 SW1/4 of Section 34, at the junction of the upper ditch and Little Elkhorn Creek, to channel the waste water to the lower ditch. (Chef, TR. Vol. I, page 141; Fadness, TR. Vol. II, pages 184-185; and Evans, TR. Vol. I, page 125).

23. The Boone Trust proposes to use the Smith waste water to sprinkle irrigate the W1/2 of Section 26, Township 5 North, Range 3 West and SEction 35, Township 5 North, Range 3 West. (Application).

a. The Boone Trust proposes to sprinkle irrigate the lands, which are in Systems I and II of the irrigation plan. Systems I and II have been described in the Proposed Findings of Fact, General and RE: Application No. 14,965-g41E, both of which are part of this proposed order and are incorporated completely into this portion of the decision.

b. Representatives of the Boone Trust testified that sprinkler irrigation was 65% to 70% efficient, whereas flood irrigation was 30% efficient. (Riley, TR. Vol. I, page 172 and Bowman, TR. Vol. II, page 44). Efficiency was evaluated by the amount of water that was not consumed by the plants, but lost to seepage.

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c. Experts testified that there would be a greater volume of return flow water to the river with flood irrigation than with sprinkler irrigation. (Riley, TR. Vol. I, page 171-174; G. Smith, TR. Vol. III, page 213; and Bowman, TR. Vol. II, page 110). Representatives of the Boone Trust testified that downstream water users would not have as large quantities of recharge water in the river with sprinkler irrigation as with flood irrigation. (Evans, TR. Vol. I, page 125 and Bowman, TR. Vol. II, pages 109-110).

d. A representative of the Department testified that the lands previously flood irrigated with the Smith waste water were heavy sandy-loam and gravelly sandy-loam soils that have poor water retention capacity. The lands to be sprinkle irrigated in Systems I and II have high water retention capacity, so less water will be returned to the watershed. (G. Smith, TR. Vol. III, page 214).

(e) A representative of the Department reported that irrigating the benchlands (System I and II) instead of the river bottomlands would increase the dewatering of the Boulder River, because return flows, ditch seepage and subsurface saturation would be decreased. (Brown, memo 1978).

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From the foregoing Proposed Findings of Fact, the following Proposed Conclusions of Law are made:

PROPOSED CONCLUSIONS OF LAW

Application for Beneficial Water Use Permit No. 14,965-g41E

1. Section 85-2-102 (8), M.C.A. 1979, provides the statutory definition for "groundwater". . . means "any water beneath the surface or beneath the bed of a stream, lake, or resevoir, or other body of surface water, and which is not a part of that surface water."

2. The hydrologists, geo-hydrologists and agricultural engineers use the term "groundwater" to describe 'where' the water is removed, and the term does not describe or delineate whether the waters are interconnected with the surface flows. Therefore, adherence to technical terminology does not provide the distinctions between groundwater and surface which the legislature adopted in Section 85-2-102 (8), MCA, 1980.

3. Montana has adopted the subflow doctrine for appropriations of waters which comprise the subsurface flow or source for a stream, lake, or river.

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a. In Smith v. Duff, 39 Mont. 382, 102, P. 2d 984 (1909) the court reversed a portion of the decree adjudicating swamp water to the plaintiffs. In Smith v. Duff at 390 (1909) the court stated:

> "It must not be forgotten that the subsurface supply of a stream, whether it comes from tributary swamps or runs in the sand and gravel constituting the bed of the stream, is as much a part of the surface flow and is governed by the same rules.

b. In Woodward v. Perkins, 116 Mont. 46, 147 P. 2d 1016 (1944) the court held that seepage water collected by drain ditches along a stream was not developed water. Woodward v. Perkins, at 53 (1944) affirms the subflow doctrine:

> "Seepage water which has its rise along the bed of a stream and forms a natural accretion thereto belongs to the stream as a part of its source of supply, same as feeder springs. An appropriator on the stream has the right to all such tributary flow even as against the owner of the land.

c. In Beaverhead Canal Co. v. Dillon Electric Light & Power Co., 34 Mont. 135, 140-141, (1906) the court stated that there was a presumption that seepage waters form a part of the natural supply of the stream.

4. Section 85-2-102 (8) requires that to be classified groundwater the waters diverted cannot be "a part of the surface water."

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a. To meet the requirements of this definition the water must be underneath the soil or waters of the surface, and not closely interconnected with the surface waters.

b. The phrase "not a part of that surface water" excludes from groundwater, waters: which form the saturated mound of a stream: seepage of the stream, which collects in the stream banks, subsurface streamflows underneath or adjacent to the stream subgradient flows of the river; ~~return~~ flows that ~~recharge~~ the saturated mound, storage resevoirs of the river, or the river and perched aquifers adjacent to the stream; all of which contribute directly or indirectly to the flows of the surface waters, or any other subsurface waters which contribute directly or indirectly to the surface flows.

(1) Subsurface flows contribute directly to the stream when the subsurface water joins and becomes part of the surface water.

(2) Subsurface flows contribute indirectly to the stream when the subsurface water remains underground but provides storage, a head of pressure or gradient so that the surface flows can be sustained at the historic levels.

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c. For groundwater to not be "a part of that surface" there must exist a non-saturated intervening layer between the surface water source and the point or withdrawal of the subsurface waters.

5. The Montana legislature has not defined "suface water" in the Montana Water Code.

a. The Board of Natural Resources and Conservation has defined "surface water" in the administrative rules; A.R.M., 36.12.101 (3) (1980):

> "Surface water" means all water of the state at the surface, including but not limited to any river, stream, creek, coulee, undeveloped spring, lake and other natural surface source of water and diversions thereof and the impoundment of flood, seepage, and waste waters in a resevoir."

(1) Subsurface waters which contribute directly or indirectly to the surface flows are a part of the natural source of surface water.

(2) The Board's definition of surface is not exclusive, and therefore does not exclude subsurface waters which are part of the surface water.

6. The waters to be diverted by the Boone Trust's proposed pit are interrelated to the waters and flows of the North

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Channel and the Boulder River; and therefore, the waters to be diverted include an unknown quantity of surface water.

a. The waters to be diverted by the Boone Trust from the pit are contributed from the saturated mound of the North Channel of the Boulder River; the Boulder River waters which are retained in storage in the river banks, and the aquifers surrounding the rivers which contribute during the low flows in the August and September, seepage waters from the North Channel of the Boulder River: subsurface waters which recharge the North Channel and the Boulder, and their river banks, underground storage, and saturated mounds; and waters from a shallow water table located adjacent to the stream.

b. Neither the Boone Trust nor the Objectors were able to specify what proportion of the waters diverted in the pit would be from each of these sources.

7. Section 85-2-311, M.C.A., 1979, specifies the criteria that must be met for the Department to issue a permit to appropriate water.

a. Application No. 14,965-g41E is for a beneficial water use permit to appropriate 12 cubic feet of water per second, and Application No. 19,230-c41E is for an

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authorization to change 2.5 cubic feet of water per second.

b. The Boone Trust was not required to meet Section 85-2-311 (6), which requires: "an applicant for an appropriation of 10,000 acre-feet a year or more or 15 cubic feet per second or more proves by clear and convincing evidence that the rights of a prior appropriator will not be adversely affected." (Emphasis added).

8. The Boone Trust, as the Applicant for a new appropriation of water from the Boulder River system did have to present sufficient evidence to prove each of the criteria in Section 85-2-311 (1)-(5), M.C.A. (1979) by a preponderance of the evidence.

a. In Smith v. Duff, supra, the court ruled that the new appropriators had not met the burden of proof to establish a right to use water. The proof submitted must assure that in taking the alleged new supply of water, the quantity of the principle stream will not be diminished.

b. The burden of proof is on a claimant of developed water, Woodward v. Perkins, 116 Mont. 46, 51-52, 173 P. 2d 1016 (1944):

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> To show that such water right has been acquired, a number of facts must be proved. They must be established by satisfactory evidence and the burden of proof is on the claimant. (Beaverhead Canal Co. v. Dillon Electric Light & Power Co., 34 Mont. 135, 85 P. 880; Smith v. Duff, 39 Mont. 382, 102 P. 193 Am St. Rept. 587; Spaulding v. Stone, 46 Mont. 483, 129 p. 327).

c. The Court in Perkins v. Kramer, 148 Mont. 355, 363, 423 P. 2d 587 (1966), indicated that the Applicant for subsurface water must present scientific and technical data on the subsurface waters:

> "The burden of proof to show the use of natural subterranean watercourses as conduits on a developed resevoir system must be a substantial one. There should be some recourse to modern hydrological techniques and not mere conjecture based on inclusive data and ordinary observation."

d. Recently, the district court held that the Department erred in issuing a permit for a new appropriation when the Applicant had not submitted sufficient proof of the criteria of Section 85-2-311, M.C.A., 1980, Jack Hirshy Livestock, Inc. v. Schonenberger (5th Dist., Mont. 1979, No. 9163). In Jack Hirshy Livestock, supra, the court stated:

> "Schonenberger failed to prove by the preponderance of the evidence that the evidence satisfied the criteria of Section 89-885, R.C.M., 1947."

e. Therefore, the Boone Trust had the burden to prove by a preponderance of the evidence that each of the criteria of Section 85-2-311 (1)-(5) were satisfied.

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9. Section 85-2-311 (1) requires in part that the Department shall issue a permit if:

> "(1) there are unappropriated waters in the source of supply: (a) at times when the water can be put to the use proposed by the applicant; (b) in the amount the applicant seeks to appropriate; and (c) throughout the period during which the applicant seeks to appropriate, the amount requested is available."

a. It appears that the subsurface waters the Boone trust seeks to appropriate are interrelated and contribute to the surface waters of the Boulder River and the North Channel of the Boulder River; this river system must be considered part of the source of supply.

10. The Boone Trust failed to prove by a preponderance of the evidence that water was available from July 1 through October 1 in the Boulder River system. The weight of evidence indicates that water shortages occur on the Boulder River with relative frequency during the months of July, August, September and October.

a. It appears that the rancher objectors have claims for water rights from the Boulder River system, and for the purposes herein only, it is determined that said objectors have appropriations of water prior in time to the Boone trust's proposed appropriation the following maximumquantities:

Emmett McCauley, 225 inches;

George Dawson, 800 inches;

Eve Twohy, 4000 inches plus 1/2 interest in 200 inches;

Martin B, John and Thomas Carey, 800 inches plus 1/2 interest in 1500 inches; and

Paul T. Smith Ranch, Inc., 500 inches plus groundwater diversions of 350 gallons per minute and 400 miners inches.

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b. The critical discharge level for irrigators with existing water rights on the Boulder River appears, for purposes herein only, to be 27.7 cubic feet of water per second, which will be exceeded in July for 1.53/10.0 years, August for 5.94/10.0 years, September 6.28/10.0 years and October 3.47/10.0 years. Whenever the critical discharge level for the Boulder River is exceeded, there are not any waters in the Boulder River system available for appropriation.

c. The MPC's evidence as to prior water rights in the Missouri River downstream of Canyon Ferry, as based upon the Findings of the Special Master in Montana Power Company v. Broadwater-Missouri Water Users Ass'n; supra, are not binding as judicial precedent in this matter, since said case was dismissed on appeal for lack of jurisdiction and therefore the District Court opinion is a judicial nullity. The proper weight to be accorded the Findings of the Special Master is that of expert testimony.

(1) For the purposes herein only, it is determined that M.P.C. has valid water rights claims, subject to the specified limitations, in the Missouri which are prior in time to the proposed appropriation by the Boone trust of the following maximum quantities:

4740 cubic feet of water per second at Houser Lake,

7100 cubic feet of water per second at Holter Dam,

5040 cubic feet of water per second at Black Eagle Dam,

5140 cubic feet of water per second at Rainbow Dam,

5900 cubic feet of water per second at Ryan Dam,

7150 cubic feet of water per second at Morony Dam, and

Approximately 10,000 cubic feet of water per seocnd at Cochrane Dam.

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(2) M.P.C. is adversely affected, and hence no water in the Missouri is available for appropriation when less than 10,000 cubic feet of water per second is not available at Cochrane (as calculated from measurements at Morony Dam). Except, for the purposes herein only, it is determined that M.P.C. is only entitled to 10,000 cubic feet of water per second at Cochrane when the 10,000 cubic feet can be benefically used at the Cochrane Plane; therefore, during given times the M.P.C. may not be adversely affected even though some amount of water slightly less than 10,000 cubic feet per second is available at Cochrane. Except, for the purposes herein only, it is determined that M.P.C.'s right to use water from the Missouri River is adversely affected when the water is not available to M.P.C. in the quantities, including annual and seasonal variations, for the periods of time that the water has been historically used by the M.P.C. for the usual operation of the M.P.C.'s hydroelectric power generating plants; and this does not limit or infringe on any rights of the M.P.C. to store excess or flood waters up to the maximum capacity when such are available.

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e. For the purposes herein only, it appears that the Bureau has valid water right claims subject to the specified limitations, prior to the Boone Trust's proposed diversion, at the Canyon Ferry Resevoir for a maximum of 7,000 cubic feet of water per second being; 6250 cubic feet per second for generation of electricity and 750 cubic feet per second for irrigation; and to store a maximum of 2,050,000 acre-feet of water in Canyon Ferry.

(1) The Bureau contends to be adversely affected if the Bureau must draw storage waters to meet power generation needs when an upstream junior appropriator is diverting water, and this is so only if the Bureau is not able to obtain the quantities of water given the annual and seasonal variations, for the periods of time that the water has been historically used by the Bureau for the usual operation of the Canyon Ferry Resevoir; and, this does limit or infringe on any rights of the Bureau to store excess or flood waters up to the maximum storage capacity when said waters are available.

(2) Water is available for appropriation from the Missouri River System upstream of Canyon Ferry without adversely affecting the prior rights of the

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Bureau when the Bureau spills water from the Canyon Ferry Resevoir. The Bureau spills water, and hence for the purposes herein only, water is generally available for appropriation by upstream junior appropriators, in a normal year from mid-June through mid-July.

11. There is no unappropriated water in the source of supply when the above-described rights of the Objector ranchers are unsatisfied, or when the above-described rights of the Bureau and M.P.C. are unsatisfied.

12. There is possibly unappropriated water available in the source of supply when the above-described rights of the MPC and the above-described rights of the Bureau are satisfied, usually from spring to mid-July; and sporadically for a few days throughout the year when the critical discharge of the Boulder River is sufficient to meet the requirements of appropriators, usually from early spring floods until mid July. The Boone Trust's application seeks to divert water from July 1 through October 1.

13. Section 85-2-311 (2) requires in part that the Department shall issue a permit if the requirements of Section 85-2-311 (2) are met:

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"the rights of a prior appropriator will not be adversely affected."

14. When the surface water sources are interconnected to waters to be diverted from the ground, a determination of adverse effect on the rights of prior appropriators must assess the impact on all prior water diverted from the source of supply, irregardless of whether the point of diversion is above or below the surface of the soil.

15. The Boone Trust's appropriation of subsurface waters which are directly and indirectly related to the surface waters results in depletion or diminution of the surface flows, however, the depletion of surface water may not be evident until fifteen to sixty days after the actual diversion of water.

16. Permits issued by the Department contain the following condition:

> The Provisional Permit is granted subject to all prior water rights in the source of supply.
>
> In order for this condition to be effective and enforced, the source of supply must be determined. Because the boundaries and interrelationships of the Boone water and source of supply are unknown, this condition would not be effective.

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17. The Boone Trust proposes that a condition be included requiring the Boone Trust to cease appropriating and diverting water from the pit when notified by senior appropriators that the senior appropriators were unable to satisfy their prior right. This condition would not effectively protect prior appropriators because of the time delay between the diversion from the pit and apparent affect on surface flows.

18. The Boone Trust failed to show by a preponderance of the evidence that the appropriation of water by the pit would not adversely affect prior appropriators.

19. Section 85-2-311 (3), MCA, 1979, requires in part that the Department shall issue a permit if "the proposed means of diversion are adequate."

20. The Boone Trust failed to prove that the proposed means of diversion were adequate.

a. The Boone Trust requested a permit to appropriate 12 cubic feet of water per second (approximately 5385.6 gallons of water per minute) up to 1839.6 acre-feet per year. The pit which is approximately 100 feet wide by 150 feet long and from 16 feet to 20 feet deep has produced approximately 2000 to 2300 gallons of water per minute, or an estimated 4.5 cubic feet of water per

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second. At the hearing, the Boone Trust requested permission to increase the size of the pit. Boone Trust's irrigation Systems I and II require 5,438.7 gallons of water per minute; the pit as proposed and designed is an inadequate means to divert the quantities of water the Boone Trust requires for Systems I and II. The 100 horsepower pump at the pit is capable of pumping 8 cubic feet of water per second, either an additional pump or pump with increased capacity is required to pump 12 cubic feet of water per second.

b. In 1978 in order to fully operate the pit for irrigating Systems I and II, the Boone Trust introduced an unknown quantity of water from the North Channel into the pit.

21. Section 85-2-311 (4), MCA, 1979, requires in part that the Department shall issue a permit if "the proposed use of water is a beneficial use.

22. The Boone Trust's proposed use of water, to sprinkle irrigate lands for crop production, is a beneficial use.

23. Section 85-2-311 (5) requires in part that the Department shall issue a permit if "the proposed use will not interfere unreasonably with other planned uses or

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developments for which a permit has been issued or for which water has been reserved."

24. There was no evidence that the Boone Trust's proposed use of water would unreasonably interfere with other planned uses which have either a water use permit or a reservation of water. The only planned development that evidence was presented on was the North Boulder Drainage District and U. S. Soil and Conservation Service plans for a 15,000 acre-feet resevoir on the Little Boulder River, which project has not yet received either a water use permit or a water reservation.

25. Boone Trust contends in their brief that Department has failed to fully meet it's responsibilities according to the Article IX, Section 3 (1) of the Montana Constitution and Section 85-2-101, M.C.A., 1979, especially as the policy was stated in McTaggart v. The Montana Power Co. , 36 st. Rep. 2079 (1979). Article IX, Section 3 (1) of the Montana Constitution requires that:

> "All existing rights to the use of any waters for any useful or beneficial purpose are hereby recognized and confirmed." The eminent domain proceeding of McTaggart v. The Montana Power Co., supra, reaffirmed the policies of the Montana Constitution and The Montana Code and held that irrigation is a public use.

26. Section 85-2-101, M.C.A., 1979, imposes dual responsibilites on the Department which must be balanced. As

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the Boone trust noted the Department has a responsibility to encourage and promote the development of the state's water resources.

> "It is the policy of this state and a purpose of this chapter to encourage the wise use of the state's water resources by making them available for appropriation consistent with this chapter . . ." Section 85-2-101 (3), M.C.A., 1979.

It is also the Department's responsibility to ensure that existing water rights are recognized and protected when new water developments are proposed. Article IX, Section 3 (1) Montana Consitution; and Section 85-2-101 (4), M.C.A., 1979. Limitations on the development of the waters resources are contained in part, Section 85-2-301 et seq, M.C.A., 1979, including the criteria for issuance of a permit specified in Section 85-2-311, M.C.A., 1979.

27. The Department aided the Boone trust thoughout the process and introduced factual factual findings into the record. The Department's technical staff upheld the legislative mandate to encourage the wise utilization of the state's water resources.

28. Section 36-2.14J (6)-s1430, A.R.M., 1980 provides that the Department may, in its discretion, issue an interim permit authorizing an Applicant to begin appropriating water immediately, pending the final approval or denial of a regular permit. The Department's discretion for issuing interim permits is limited, Section 36-2.14J(6)-s1430(5)(a) provides:

> "The Department may not issue an interim permit unless there is substantial evidence that the criteria for issuing a regular permit under Section 85-2-311 of the Act will be met."

29. The Boone Trust's request for an interim permit issued according to Section 36-2-14J(6)-s1430, A.R.M., 1980, is denied because at the hearing held there was not substantial

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evidence presented that each of the criteria for issuance of a permit, Section 85-2-311, MCA, 1979, would be met.

a. The reasons specified previously in Proposed Conclusions of Law Numbers (1) through (27) conclude there is not substantial evidence that the criteria of Section 85-2-311, M.C.A., 1979, are satisfied, and those conclusions of law are incorporated herein by reference.

b. As stated in Proposed Conclusion of Law Number (17), which is incorporated herein by reference, a conditon requiring the Boone trust to cease diverting water when senior appropriators' rights are unsatisfied is insufficient protection for senior appropriators until the sources of waters diverted by the pit is known and the interrelation of pit water to surface water is determined.

PROPOSED CONCLUSIONS OF LAW

RE: APPLICATION NO. 19,230-c41E

1. The application and public notice specified the source of water as waste waters from the Boulder River, but the testimony at the hearing was that the source of water is waste water from Elkhorn or Little Elkhorn Creek. The application and public notice did not specify the correct

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source of the water and, therefore water users that may be affected - especially Elkhorn water users - were not notified of the action.

2. The application specified that the waste water had been used in Sections 2 and 3, Township 5 North, Range 3 West, but the testimony at the hearing was that the water was used in Sections 2 and 3, Township 4 North, Range 3 West.

3. The date of appropriation of the Smith waste water right was disputed; the conclusion is that use of the waste water commenced sometime between 1940 and 1951.

4. The change of use cannot adversely affect the rights of other persons. Section 85-2-402, M.C.A. (1979). The rights of other appropriators are adversely affected if the Applicant by changing the use increases the volume of water consumed, and, hence decreases the volume of return flows and recharge water to the source of supply. Featherman v. Hennessey, 43 Mont. 310, 115 P. 983 (1911); Creek v. Bozeman Water Works, 15 Mont. 121, 38 P. 459 (1894); and Gassert v. Noyes, 18 Mont. 216, (1896).

a. In Featherman v. Hennessey, 43 Mont. 310, 115 Pac. 983 (1911) the court held that the defendant did not have the right to change a non-consumptive water right for power generation to irrigation. the additional

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quantity of water consumed by the new water use was considered to be a new appropriation by the court, Featherman v. Hennessey at 317:

> "The use of ninety inches for agricultural purposes was founded to have been initiated on April 1, 1905. This was a change of the original use and resulted in consumption of the quantity so diverted to the the new use, and therefore amounted pro tanto to a new appropriation."

b. The court in Head v. Hale, 38 Mont. 302, 307-308, 100 p. 222 (1902) refused permission for an appropriator of water for mining uses to change the use to irrigation, because of the increased consumption of the water:

> "The water used for this purpose (mining) naturally found its way back into the stream, and was subject to recapture by the farmers on the stream below and to be appropriated to agricultural uses."

c. In Quigley v. McIntosh, 110 Mont. 495, 103 P. 2d 1067 (1940), the appropriator sought to change his use from the irrigation of bottomlands to irrigating an increased number of acres, some of which were in another drainage. The court, Quigley v. McIntosh, at 510 (1940) denied the change:

> "As stated above, while 275 inches of water may be necessary for irrigation upon certain premises, such appropriation means one thing when 250 acres are irrigated, and quite another when 363 acres are irrigated; and one using a certain number of inches

but an insignificant amount of water to irrigate a garden patch cannot as against intervening appropriators expand his use of it to irrigate a complete ranch."

The principle of Quigley v. McIntosh, supra, was upheld in McIntosh v. Graveley, 159 Mont. 72, 495 p. 2d 186 (1972).

5. An appropriator is entitled to a change of use if the new use will not consume a greater amount of water than was previously consumed by the old use.

a. Changes of use, including changes from flood irrigating a specified number of acres to sprinkler irrigating an increased number of acres, may be permitted if it is determined that the return flows previously existing will continue in the same quantity, quality, and at the same times as was historically evidenced by the previous use.

6. The change of use proposed by the Boone Trust, to change from previously irrigating between 97 and 340 acres to irrigating 838 acres, to change from flood irrigation bottomlands along the river to sprinkler irrigation of benchlands located away from the river, and to change from flood irrigating lowlands which soils have poor water retention capacities to sprinkler irrigation of highland with soils of good water retention capacities will decrease the amount of return flows and recharge water to the Boulder

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river system, and thereby adversely affect the rights of other appropriators in the Boulder River system.

Based upon the Proposed Findings of Fact and Proposed Conclusions of Law, the following Proposed Orders are hereby made:

PROPOSED ORDER

RE: APPLICATION NO. 14,965-g41E

1. The Boone Trust Application For Beneficial Water Use Permit No. 14,965-g41E is hereby denied.

PROPOSED ORDER

RE: APPLICATION NO. 19,230-c41E

1. The Boone Trust Application For Change of Appropriation Water Right No. 19,230-c41E is hereby denied.

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NOTICE

This is a Proposed Decision and will not become final until accepted by the Administrator of the Water Resources Division of the Department of Natural Resources and Conservation. Written exceptions to the Proposal for Decision, if any, shall be filed with the Department within fifteen (15) days of service upon the parties herein.

DATED this 5th day of November, 1980.

RONDA L. SANDQUIST
HEARING EXAMINER

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