

No. 1494-3Water Division No. 3 Biasious River District 2
(Blanks to be filled by the Engineer for the W. R. C.)

JAN 11 1939

VESTED RIGHT
APPLICATION FOR PERMIT**To appropriate Water within the State of South Dakota**

(NOTE—Draw a line through item = not applicable.)

1. Name of applicant South Dakota Department of Game, Fish and Parks
Postoffice address Pierre, County Hughes, State South Dakota

- I. If a corporation _____
(a) Name of same _____
(b) Date and place of incorporation _____
(c) Amount of capital stock _____
(d) Amount paid in _____
(e) Names and addresses of directors _____

(NOTE—A certified copy of articles of incorporation must accompany the application.)

- II. Method of accomplishing the work and financial resources of the applicant:
(a) Method of accomplishing work (Whether by contract, employment of others, or by direct labor) _____
(b) Cash on hand, \$ _____ (c) Treasury stock, \$ _____
(d) Bonds to be issued, \$ _____ (e) Other resources, \$ _____

2. Name of diversion work WINGDAHL LAKE - Deuel County
As required to fill lake to outlet level - approximately 2139
3. Amount of water claimed acre feet per year cubic feet per second _____
4. Source of water supply Intermittant flows from South School Lake
5. Location of point of diversion A point in the SW 1/4 of Sec. 26, T 117, R 50.
_____ on _____ bank _____ County.
6. Annual period or periods during which water is to be used all year round
7. To be used for:

- I. Irrigation or domestic use: Gravity, overhead sprinkling or combination system? _____

- (a) Number of acres to be irrigated _____ acres.

- (b) Legal subdivisions to be irrigated _____

(NOTE—A list of lands to be irrigated, giving each subdivision and fraction with acreage thereof, should be written here, or may be appended as a part of this application. Same must also be shown on accompanying map.)

- (c) Statement as to domestic use (giving location, etc.) To the ordinary high water mark
of the inundated portion of Sec. 22, 23, 26, 27, T 117, R 50.

- II. Stockwatering, mining, milling, power, fish culture, fire protection and public recreation:

- (a) Nature of use public recreational purposes

Name any of the above uses claimed

- (b) Amount of power to be generated _____ horse power.

Amount claimed for engine cooling _____

- (c) Location of plant _____

- (d) Method of developing power _____

- (e) Point where water will be returned to stream _____

8. Estimated cost of work:

(a) Head Gates, \$..... (b) Pumping plant, \$.....
 (c) Fluming, \$..... (d) Canal-earth, \$..... Rock, \$.....
 (e) Other structures \$..... Total, \$.....

9. Description of diversion works:

I. Nature of works: (Reservoir, dam, ditch, flume, pumping plant, etc.)

II. Dimensions of works. Information requested not applicable. Wingdahl Lake is a

(a) Dam: Height.....feet; length at bottom.....feet; length at top.....feet; thickness at bottom.....feet; thickness at top.....feet; slope at front water face.....; slope at back face.....
 material used in construction

(b) Reservoir: Capacity when filled 2,139acre feet. Surface area at highwater mark 713.77acres.

DEPTH AT OUTLET-Feet	SURFACE AREA AT EACH..... FEET DEPTH AT OUTLET--ACRES	ACRE-Feet CAPACITY

(c)* Head gate: Width.....feet; height.....feet;
 Material

(d) Canal: Total lengthmiles.

LOCATION BELOW HEADGATE	DEPTH	BOTTOM WIDTH	WIDTH AT WATER-LINE	GRADE PER MILE
At Mile	 feet	 feet	 feet	 feet
At Mile	 feet	 feet	 feet	 feet
At Mile	 feet	 feet	 feet	 feet
At Mile	 feet	 feet	 feet	 feet
At Mile	 feet	 feet	 feet	 feet
At Mile	 feet	 feet	 feet	 feet

(Give dimensions where reductions in size are made.)

10. Time required for completion of workyears.

11. Time required for complete application of water to the proposed beneficial use years.

12. Choice of newspaper for publication of notice of intention to appropriate

STATE OF SOUTH DAKOTA }
 County of Hughes }

I, R. A. Hodgins, being first duly sworn on my oath depose and say: That my relation to the above described undertaking is that of owner, that I have read the above foregoing statement, examined the map accompanying the same, and that I know of my own personal knowledge that the matters therein stated and shown are true.

Signed R. A. Hodgins

Subscribed and sworn to before me this 10th day of January 1968

Notary Public (or other qualified officer.)

*Each diversion must have a headgate or measuring device.

H. E. Bennett Notary Public

ME 1494-3

TWP 117N - R16G 50W
DEUEL COUNTY
SCS PHOTO 1958

23 24
26 25

23

WINGDAHL
LAKE

713.77 AC.

22 23
27 26

SOUTH SCHOOL
220.76 AC.

22

27

26

Remarks by State Water Resources Commission:

"VESTED RIGHT" CLAIMED

STATE OF SOUTH DAKOTA
County of HUGHES } ss.

Pierre, South Dakota, FEBRUARY 8, 1968

This is to certify that the foregoing application was received by the Commission at 3:00 o'clock
12 m. upon the 11TH day of JANUARY, 1968

State Water Resources Commission

By: Arthur J. [Signature]

Chief Engineer, Executive Officer

Number of permit 1494.3

Date of first receipt of application JANUARY 11, 1968

Date of return to applicant for correction, amendments or changes required as follows: _____, 19____

Date of receipt of corrected application _____, 19____

Date from which applicant may claim right 1889, 19____

Approved FEBRUARY 8, 1968 Recorded in Book 10 Page 82

This is to certify that we have examined the foregoing application for a permit to appropriate water of the State of South Dakota, and we hereby grant the same as stated herein, subject, however, to the following limitations and conditions:

1st. The equivalent of at least one-fifth of the work above specified is ~~to be~~ completed ~~on or before~~ _____

2nd. The whole of said work is ~~to be~~ completed ~~on or before~~ _____

3rd. The limit of time for proof of beneficial use of water appropriated in accordance herewith is

COMPLETED, 19____

4th. The water appropriated shall be used for the purpose of PUBLIC RECREATION

5th. The prior right of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to the use of water must not be injuriously affected by this appropriation.

6th. The amount of the appropriation herein granted shall not exceed 2139 ACRES FEET ANNUALLY ~~acre feet per annum~~; neither shall it exceed the capacity of the above described system of diversion works, nor the least amount of water that experience may hereafter indicate as necessary for ~~the production of crops in the vicinity of the best husbandry, and further, said appropriation must be limited to not more than one centimeth (1/100) of one cubic foot of water per second of time for each acre of land to which water is actually~~ USED FOR PUBLIC RECREATION WAS

and beneficially ~~applied to irrigation~~ used for public recreation on or before JUNE 30, 1955; said water to be used during the following described annual period:

CONTINUOUSLY
Witness my hand this 8TH day of FEBRUARY, 1968

State Water Resources Commission

By: [Signature]

Chief Engineer, Executive Officer

Certificate of Construction Issued FEBRUARY 8, 1968

Water License issued FEBRUARY 8, 1968

Permit No. 1494-3Water Division No. 3 **Big SIOUX**
RIVER Water District**Certificate of Completion of Works**

TO ALL WHOM IT MAY CONCERN:

This is to Certify, That the Department of Game, Fish and Parksof Pierre, County of Hughes, and State ofSouth Dakota, the holder Vested Right of Permit No. 1494-3 issued upon ApplicationNo. 1494-3 bearing date of priority of 1829, authorizing the diversion of2139 acre feet annually per second of the waters of overflow from School LakeCounty of Deuel, State of South Dakota, at a point in theSW 1/4 SW 1/4, Section 26, T117N. R50Wfor public recreation

purposes, has fully complied with the provisions of the laws of the State of South Dakota relating to proof of

completion of the works of diversion set out and described in said Permit; that said works are recognized as2139 acre feet annually for diverting and conveying to the place of intended use and

per second of water; and that the lands proposed to be irrigated by the use of said water are described as follows,

to-wit: to be used in place for public recreationWitness my hand this 8th day of February A. D. 1968

State Water Resources Commission

By:

J.W. GRIMES
Chief Engineer, Executive Officer

STATE OF SOUTH DAKOTA

WATER LICENSE No....1494-3...

WHEREAS, On the 11th day of January A. D. 1968
 the Department of Game, Fish and Parks

of Pierre County of Hughes and State of
South Dakota duly made application (No. 1494-3) to us for a Vested Right permit to use 2139 acre feet
annually ~~cubic feet per second~~ of the waters of overflow from School Lake
 County of Deuel, State of South Dakota, for public recreation
 purposes; and

WHEREAS, On the 8th day of February A. D. 1968
Vested Right Permit No. 1494-3 was issued to said applicant... for the diversion of said water, recognizing
 completion of the works of diversion therein described ~~on or before the~~ ~~XXXXXX~~
~~XXXXXX~~ and for the application to beneficial use of said
 water ~~on or before the~~ ~~XXXXXX~~ ~~XXXXXX~~
 and,

WHEREAS, On the 11th day of January A. D. 1968
 the holder... of said permit duly made proof of the completion of adequate works for the diversion of 2139 acre
feet annually ~~cubic feet per second~~ of said waters, as evidenced by our Certificate No. 1494-3
 dated February 8, 1968 confirming the completion of works of sufficient capacity for
 diverting and conveying to the place of intended use 2139 acre feet annually
~~cubic feet per second~~ of water, with date of
 priority of 1969 ~~XXXXXX~~ and,

WHEREAS, On the 11th day of January A. D. 1968
 proof was duly made of the application to beneficial use of 2139 acre feet annually
~~cubic feet per second~~ of said water;
to be used in place for public recreation purposes

NOW, THEREFORE, By the virtue of the authority vested in us by the laws of the State of South Dakota,
We hereby grant and confirm to the Department of Game, Fish and Parks
of Pierre the holder Vested Right and owner 1494-3
of said permit No. 1494-3
a water right, dating from 1889 to the use of 2139 acre feet
annually
~~public water~~ of the waters of overflow from the School Lake
In the County of Deuel and State of South Dakota, or so much thereof as may be
necessary for the purposes hereinafter mentioned, to be diverted at a point in the SW 1/4 SW 1/4
Section 26, T117N, R50W
and ~~conducted to and upon~~ stored in place

for the purpose of public recreation, subject to any limitations listed in
the Permit to appropriate water, and

subject, however, to the laws of the State of South Dakota applicable to a license for the use of the waters of the
State, and subject, also to the local or community customs, rules and regulations which have been or may be
adopted from time to time by a majority of the users from a common source of supply, canal or lateral from
which such water may be taken, when such rules and regulations have for their object the economical use of such
water.

WITNESS, My hand and seal of our office at Pierre, South Dakota,
this 8th day of February A. D. Nineteen
Hundred and Sixty-eight

State Water Resources Commission

By:

J. W. GRIMES
Chief Engineer, Executive Officer

Location No.

Water Division No. Water District

Proof of Application of Water to Beneficial Use**PETITION OF HOLDER**

Ques. 1. State your name, residence, occupation and postoffice address.

Ans. South Dakota Department of Game, Fish and ParksWingdahl Lake - Deuel County

Ques. 2. If acting in behalf of a corporation, state its name, principal place of business (if a foreign corporation, give name and postoffice of statutory agent,) your position with reference to same, and your authority for appearing in its behalf.

Ans.

Ques. 3. State date of posting and date of recording notice of appropriation.

Ans.

Ques. 4. State source of water supply and give exact location of point of diversion.

Ans. Intermittant flows from South School Lake - a point in the SW $\frac{1}{2}$ SW $\frac{1}{2}$ ofSec. 26, T 117, R 50.

Ques. 5. Describe your works of diversion giving length and height of each dam and state amount of water they are capable of conveying from point of diversion to place of use, and give name of canal or ditch or other works by which water is conducted to such place of use, and date of completion of same.

Ans. A meandered lake - depth 8 feet - 713.77 acres

Ques. 6. State for what purpose water is used and describe place of use. (If for irrigation, name each subdivision in which used, and number of acres in each subdivision that have ACTUALLY been irrigated with said water.)

Ans. Fish and wildlife propagation, conservation and recreation

Ques. 7. If for other than irrigation purpose, state how applied, amount of horse power generated, etc.

Ans. Used in place in lake or reservoir

Ques. 8. What is the minimum amount of water required for the use specified above?

Ans. As required to fill lake to outlet level - approximately 2139 acre feet per year

Ques. 9. If you are not the person or representative of the corporation to whom above mentioned permit was originally issued, please state how ownership was acquired by present holder.

Ans.

Ques. 10. State when, how, in what amount and to what extent, the water diverted under above mentioned permit has been used.

Ans. A meandered lake. ... Used by the public for uses specified except for ...
 ---that amount lost by evaporation and seepage, -----

(Sign) R A Hodgins

I hereby certify that the foregoing testimony was read to the above subscriber before its signing, that I believe him to be the person he represents himself to be, and that said testimony was subscribed and sworn to before me, at my office in Pierre, County of Hughes, State of South Dakota, on this 10th day of January, A. D. 1968.

_____ } Witnesses. _____
 _____ }
 _____ }

I, the undersigned, do hereby certify that I am a duly qualified elector residing in the immediate vicinity of the diversion works designated in the foregoing testimony, that I have no interest in the works, water or land above described, that I have read the foregoing testimony and that I know of my own personal knowledge that the matters therein stated are true.

1494-3

South Dakota Department of
Water & Natural Resources

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

September 21, 1988

Richard Beringson, Secretary
Department of Game, Fish and Parks
Anderson Building
445 E Capitol
Pierre SD 57501

Dear Mr. Beringson:

I am writing to notify you that pursuant to the Notice of Intent to Validate Vested Water Right Claims dated June 20, 1988 that I intend to oppose validation of all Department of Game, Fish and Parks Vested Water Right Claims for lakes for the following reasons:

1. Until the outlet elevation for each lake is surveyed and the outlet elevation is set by the Water Management Board.
2. To allow the Vested Water Right Claim to be amended, if necessary, as follows:
 - a) Include the outlet elevation;
 - b) To correct the amount of water claimed;
 - c) To add the qualification that a vested claim is subject where necessary to installation of a concrete outlet structure to assure retention of the outlet as the established elevation; and
 - d) To add any amendments and qualifications necessary to clarify a Vested Right Claim.

Also, that I intend to oppose validation of all Department of Game, Fish and Parks Vested Water Right Claims for dams to allow the Vested Water Right Claim to be amended, if necessary, as follows:

1. To include the spillway elevation;
2. To correct the amount of water claimed; and
3. To add any amendments and qualifications necessary to clarify a Vested Right Claim.



September 21, 1988
Richard Berington, Secretary
Page 2

We will be working with your staff on these validations. We have already discussed setting outlet elevations before validating claims for lakes. Although the work necessary to complete the validation process will take several years to complete, the results should be of benefit to the public and to your Department. As the work is completed to validate each claim, the claim will be presented to the Water Management Board for validation.

Please advise if you have any questions.

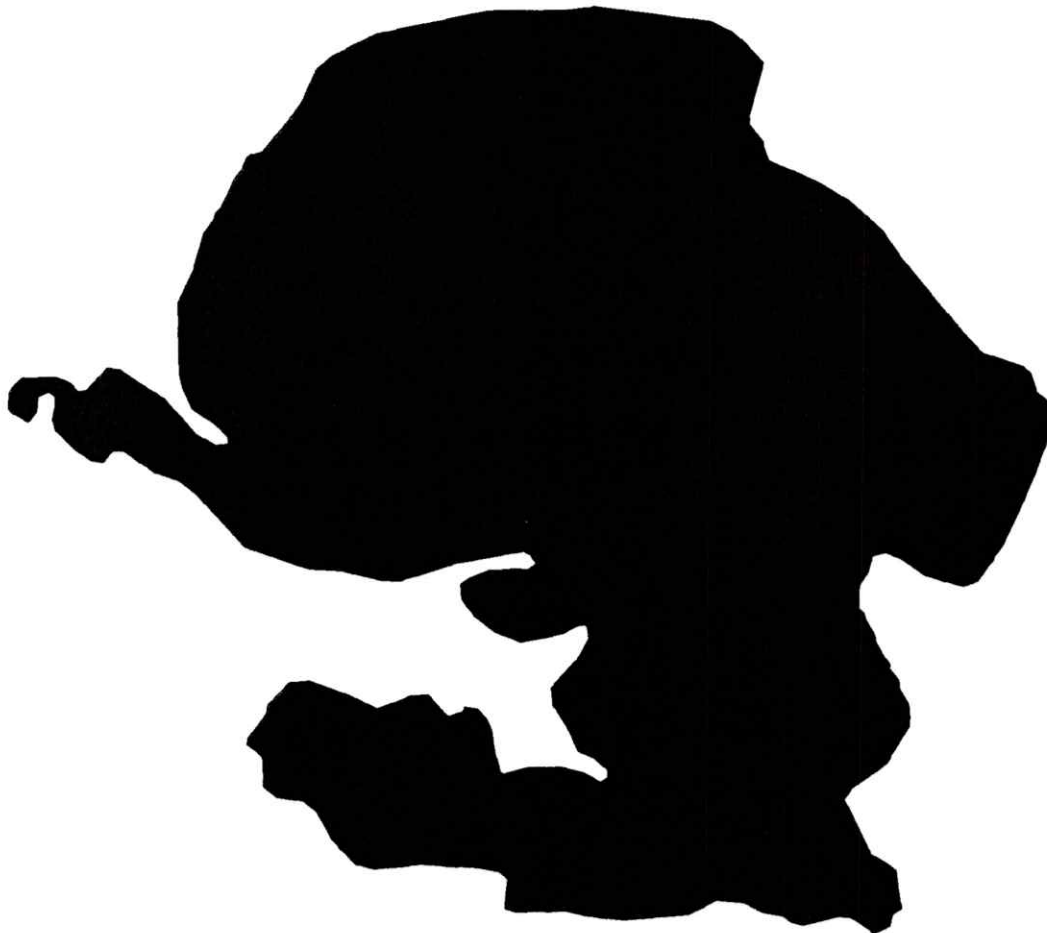
Very truly yours,

John Hatch
for JOHN HATCH, Chief Engineer
Water Rights Division
605 773-3352

cc: Ron Koth, Department of Game, Fish and Parks

1494-3

REPORT ON WIGDALE LAKE - DEUEL COUNTY ORDINARY HIGH WATER MARK INVESTIGATION



WATER RIGHTS PROGRAM
February 25, 1999

South Dakota Department of
Environment and Natural Resources



Protecting South Dakota's Tomorrow ... Today

**Department of Environment and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181**

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ABSTRACT

Dennis Jaeger, RR 1, Box 127, Goodwin, SD 57238 and Gary Jaeger, RR 1, Box 133, Goodwin, SD 57238 have requested the Water Management Board to establish the Ordinary High Water Mark (OHWM), Ordinary Low Water Mark (OLWM), and outlet elevation for Wigdale Lake in Deuel County.

In response to the request and pursuant to SDCL 43-17-1, 43-17-21, 43-17-24 and 43-17-28, an investigation was conducted by the South Dakota Department of Environment and Natural Resources, Water Rights Program acting on behalf of the Water Management Board.

This report contains the results of the field investigation conducted in August 1998.

During the field investigation of Wigdale Lake, the following easily recognizable characteristics were used in recommending an elevation for the OHWM: erosion, changes in the character of the soil, boulder lines, changes in slope, and terrestrial vegetation. The evidence for the Ordinary Low Water Mark (OLWM) was covered by high water conditions. In addition the outlet was inundated and an outlet elevation was not obtained.

Based on the finding in this report, the recommended elevation for the Wigdale Lake OHWM is 1866 feet above mean sea level.

INTRODUCTION

On May 21, 1993, the Water Rights Program received a written request for the establishment of an Ordinary High Water Mark, Ordinary Low Water Mark, and outlet elevation for Wigdale Lake from Dennis Jaeger and Gary Jaeger, riparian landowners. Based on the request, an investigation was conducted to determine elevations to be recommended for the Ordinary High Water Mark (OHWM), Ordinary Low Water Mark (OLWM), and outlet.

OHWM is defined by SDCL 43-17-20(2), which states:

“Ordinary high water mark,” the term as defined in decisions rendered by the courts of this state.

An OHWM is established by the processes of nature. The Water Management Board’s (Board) setting thereof is merely a formal recognition of the mark established by nature.

An Ordinary Low Water Mark (OLWM) elevation will not be recommended for Wigdale Lake. The high water conditions at Wigdale Lake covered evidence for an OLWM.

State law (SDCL 43-17-2) provides that all navigable rivers and lakes are public highways within 50 feet landward from the water’s edge, provided that the outer boundary of such public highway may not expand beyond the OHWM and may not contract within the OLWM. Thus, the public has the right to use a strip of land up to 50 feet wide below the OHWM beginning at the water’s edge or the OLWM for public purposes.

Further, while the public may use the 50 foot strip of land for only “public” purposes, the private adjoining landowner may use the land for any purpose not inconsistent with the rights of the public. Such purposes ordinarily would include, but not limited to, the right to graze and water livestock, to hay, or to build a boat dock.

South Dakota Codified Law (SDCL) 43-17-23 states that in determining the OHWM, natural factors take precedence. Man-made influences, either those that have been constructed to lower the mark or those constructed to raise the mark, shall be disregarded unless the influences have been lawfully constructed or have existed and been accepted for a period of time determined by the Board to be the equivalent of natural conditions.

When requested to do so, the Board is required by SDCL 43-17-21 and 43-17-28 to establish the OHWM for public lakes. SDCL 43-17-1 provides that the ownership of land below the OHWM, and of land below the water of a navigable lake or stream, is regulated by the laws of the United States or by such laws of the state as the Legislature may enact.

A lake is "navigable" if its waters constitute "public waters" (Flisrand v. Madson 35 S.D. 457, 152 N.W. 796, (1915)). A lake is also "navigable" when, if maintained at the high-water mark, it is suitable for rowing, fishing, fowling and bathing (Anderson v. Ray (1916) 37 S.D. 17, 156 N.W. 591).

"Ordinary" according to SDCL 43-17-20(2) is defined in decisions rendered by the courts of this state. In the case of Flisrand v. Madson, 35 S.D. 457, 152 N.W. 796, (1915) the court wrote:

Neither high or low water mark means the highest or lowest point reached by the waters of a lake during periods of extreme and continued freshets, or periods of extreme and continued drought, but does mean the high and low points of variation of such waters under ordinary conditions, unaffected by either extreme.

In the case of Anderson v. Ray, 37 S.D. 17, 156 N.W. 591 (1916) the South Dakota Supreme Court wrote:

In the case of freshwater rivers and lakes - in which there is no ebb and flow of the tide, but which are subject to irregular and occasional changes of height, without fixed quantity of time, except that they are periodical, recurring with the wet or dry seasons of the year - high water mark, as a line between the riparian owner and the public, is to be determined by examining the bed and banks, and ascertaining where the presence and action of the water are so common and usual, and so long-continued in all ordinary years, as to mark upon the soil of the bed a character distinct from that of the banks, in respect to vegetation, as well as respects the nature of the soil itself.

In the Waubay Lake decision, issued on January 17, 1986, the South Dakota Supreme Court stated the determination of these water marks is to be done on a case by case basis. The Court stated that:

"... under ordinary circumstances, the Ordinary High Water Mark will be set at a level where there is a distinct mark which evidences erosion, and changes in the character of the soil, and destruction of terrestrial vegetation, which have occurred under the ordinary and continuous conditions of the lake, disregarding periods of extreme and periodic freshets, and disregarding the highest water mark which does not evidence erosion and soil changes and destruction of vegetation occasioned under ordinary conditions. If a single distinct mark, occasioned under ordinary circumstances and evidencing all of the factors delineated above does not exist, i.e., there is conflicting evidence of the role of the Ordinary High Water Mark, it is the level where significant major, and substantial terrestrial vegetation ends, that the OHWM is to be set." (cites omitted)

MEANDER LINE

A meander line, as the name implies, is a line that meanders and is not at a constant topographic elevation. An OHWM is at a constant topographic elevation. Hence, a meander line is not and cannot be associated with an OHWM. A meander line survey is established by man for surveying and mapping purposes and to establish the number of acres subject to sale. A meander line is not a property line. OHWM's are established by nature and defined by man.

In the case of *Flisrand v. Madson*, 1915, the South Dakota Supreme Court wrote:

"The fact alone that the lake in question was meandered by the government survey does not directly control this matter, as a meander line is not considered a boundary line, but merely serves to define the sinuities of the bank of the lake and a means of ascertaining the amount of land in the fractional tract subject to sale, which is to be paid for by the purchaser. *St. Paul Ry. Co., Shurmeier* 7 Wall 272, 19 L. Ed. 74, and note page 972."

The meander line was surveyed around Wigdale Lake in 1872 (see Attachment No. 2).

GENERAL INFORMATION

Wigdale Lake is located in northwestern Deuel County 3 miles north of the city of Goodwin. Wigdale Lake is located in Sections 22, 23, 26 and 27, T117N, R50W. The outlet channel is located on the north side of the lake in Section 22, T117N, R50W (see Attachment No.1).

All elevations in this report are referenced to a United States Department of Commerce, Environmental Sciences Services Administration, Coast and Geodetic Survey benchmark with a 1969 sea-level datum described as follows:

The benchmark is located 4 miles north and 4 miles east of the town of Goodwin in Deuel County, South Dakota; near the corner of Sections 13, 18, 19, and 24 in T117N, R47 and 48W; 47 feet north and 192 feet east and 6.1 feet lower than the crossroads; 1 foot south of a fence; a standard tablet set in the top of a concrete post at elevation 1822.227 fmsl, stamped "7 HEH 1969".

Temporary benchmarks were established by the Water Rights Program along the perimeter of Wigdale Lake. The locations and elevations of the temporary benchmarks are available from the Water Rights Program upon request.

WATER RIGHTS

Vested Water Right Claim No. 1494-3 held by the South Dakota Department of Game, Fish and Parks (GF&P) is the only existing claim on file for water stored in Wigdale Lake. (Water Right files, 1999) There are also domestic uses (i.e. livestock watering, dams, dugouts, etc.) present within the Wigdale Lake drainage basin.

Vested Water Right Claim No. 1494-3 claims an 1889 priority date, and approximately 2139 acre-feet of water per year to fill Wigdale Lake for public recreational purposes. The claim states that the location of the Wigdale Lake outlet is in the SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 26, T117N, R50W. This claim indicates a surface area of 714 acres at a maximum depth of 8 feet. The lake surface area at full water level was estimated by the GF&P on January 10, 1968. The storage and area of the lake are only estimates and may not be the actual lake storage or surface area at the OHWM.

A correction will need to be made to Vested Water Right Claim No. 1494-3 for Wigdale Lake. The location of the outlet will need to be corrected from the SW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 26 to Section 22, T117N, R50W.

Vested Right Claim No. 1495-3, South School Lake, also held by GF&P, claims an 1889 priority date and approximately 660 acre-feet of Round Lake overflow water per year to fill South School Lake for public recreational purposes. The claim states that the outlet is in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 22, T117N, R50W.

Corrections also need to be made to Vested Right Claim No. 1495-3. The source of water for South School Lake will need to be corrected from overflow water from Round Lake to overflow water from Wigdale Lake. The location of the outlet for water in South School Lake will need to be changed from the NE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 22 to the W $\frac{1}{2}$ NE $\frac{1}{4}$ Section 16, T117N, R50W.

GEOLOGY

Most of Deuel County lies on the Coteau De Prairies division of the central lowlands province. The surface of the Coteau is primarily glacial moraine topography with a generally hummocky appearance as a result of glacial movement and subsequent melting of ice (Beissel and Gilbertson, 1987). Most of the surficial land forms are a result of the late Wisconsin glaciation.

The Bemis moraine, from the last ice advance into the Coteau Des Prairies, acts as a drainage divide between the Big Sioux River and the Minnesota River. Wigdale Lake lies on the western flank of the moraine and is therefore a part of the Big Sioux River drainage basin.

The Altamont Moraine is believed to be the outermost moraine of the last Wisconsin Glacial period. Like the Bemis moraine it runs from the northwest to the southeast in Deuel County (Beissel and Gilbertson, 1987).

The limit of the Altamont moraines occur just east of the chain of lakes which includes Wigdale Lake and ends at Round Lake. A meltwater outwash lies under the chain of lakes, see Attachment No. 3. The channel starts at approximately Wigdale Lake and travels north to Round Lake continuing west along Willow Creek and ultimately to the Big Sioux River.

HYDROLOGY

Wigdale Lake water levels appear to fluctuate with the water levels of the water table aquifer that occurs in the area. The Water Rights Program monitors one well in the water table aquifer that encompasses Wigdale Lake; well GT-81A which lies 5.5 miles northwest of Wigdale Lake. The general fluctuations in the water levels in well GT-81A follow measured lake levels for Wigdale Lake over the last 5 years, see Attachment No. 5.

There are four lakes in the chain of lakes that include Wigdale Lake. The chain consists of Wigdale, School, and Round lakes, also included is a connection between Bullhead and Round lake. All four hydrographs for these lakes have the same shape for the period of lake level measurements. This also follows the yearly precipitation graph and the hydrograph for well GT-81A, see Attachment Nos. 5, 6, and 9.

Besides ground water and yearly precipitation, water levels in Wigdale Lake could also be influenced by the meltwater channel, depending on ground water elevations, that connects the lakes below the surface of the ground, see Attachment No. 3 (Beissel and Gilbertson, 1987). This meltwater channel formed when water from melting glaciers was carried away in established or developing drainages. The action of the meltwater created the near surface outwash aquifer underlying and connecting the four lakes.

The direction of surface water flow between these lakes depends on water levels in the individual lakes. At the time of investigation, water was flowing from Wigdale Lake to School Lake to Round Lake. There was no flow between Bullhead Lake and Round Lake. Water was spilling from Round Lake to Willow Creek and ultimately to the Big Sioux River.

WATER LEVELS

Available water level measurements of Wigdale Lake are shown in Attachment No. 4. The water level measurements were taken by the Water Rights Program.

Dennis Jaeger, landowner at Wigdale Lake since 1955, reported he had never seen water flow from South School Lake to School Lake until the wet conditions in the 1990's. Mr. Jaeger recalls that South School Lake always has water in it but not enough to flow to School Lake. In 1976 South School Lake and Wigdale Lake were dry except for a small pond of water in the center of Wigdale Lake.

Roy Weber has lived on Wigdale Lake all of his 68 years and his Grandfather was the second homesteader on the lake. In addition to repeating what Mr. Jaeger said, Mr. Weber remembers a ditch from Wigdale Lake through South School Lake. Mr. Weber also recalls a large boulder, now underwater, that the early homesteaders used to record water levels on Wigdale Lake.

CLIMATOLOGICAL DATA

Climatological data for Wigdale Lake is included in this report as Attachment Nos. 9 and 10. The climatological data is discussed in detail under the heading of RUNOFF FACTORS in this report.

RUNOFF FACTORS

Soil moisture conditions refer to the degree that a soil is saturated with water. During a "dry" year(s), the soil moisture becomes depleted due to plant use, evaporation, and natural drainage. Runoff Volume from a rainfall event during depleted soil moisture conditions would be reduced due to the rain soaking into the ground.

On the other hand, during a "wet" year(s), the soil becomes saturated with water and isn't capable of absorbing the rainfall event. Hence, the identical rainfall event during "wet" years will produce a much larger runoff volume than during "dry" years. The more saturated the soil becomes, the larger the runoff volumes generated during a particular rainfall event.

A single rainfall event whose duration is spread over a number of days or weeks can generate a relatively small runoff volume. Conversely, a single rainfall event whose duration is only a few minutes or hours could generate a relatively large runoff volume. Hence, the runoff volume generated by any given rainfall event is also dependent upon the amount and how rapidly the rain falls.

The potential for the largest runoff volumes for any drainage basin (Wigdale Lake or any other lake) are generated when saturated soil moisture conditions are present going into the winter. The ground then freezes nearly solid and becomes impermeable due to winter temperatures below 32 degrees Fahrenheit. Snow accumulations coupled with cold winter temperatures set the scene for a major runoff event the following spring.

A rapid temperature rise in the spring quickly melts the previous winters snow accumulation. The still frozen/saturated soil is not able to soak up any of the snow melt-water, hence, nearly all snow melt-water arrives at terminal locations such as depressions, dams and lakes or discharge to streams.

As previously shown, yearly runoff entering Wigdale Lake is dictated by a complicated set of circumstances that include general climatic factors, soil moisture conditions, and snow melt.

MAN MADE INFLUENCES

Natural factors are given precedence in determining the ordinary high water mark. Man-made influences, either those that have been constructed to lower the mark or those constructed to raise the mark, shall be disregarded unless the influences have been lawfully constructed or have existed and been accepted for a period of time determined by the Board to be the equivalent of natural conditions (SDCL 43-17-23).

There appears to be manmade influences at Wigdale Lake and as on many other lakes the influences are in the inlet and outlet areas. Roads and culverts have replaced portions of the natural channel between the chain of lakes which include Wigdale Lake. The above man-made influences have apparently had an affect on the OHWM but have been in place for such a time they probably constitute natural conditions.

FIELD INVESTIGATION

BENCH MARK ESTABLISHMENT AND COLLECTION OF FIELD DATA

Temporary bench marks were established around Wigdale Lake. The locations and elevations for the temporary bench marks are available from the Water Rights Program upon request.

Field data for Wigdale Lake was collected in August of 1998. The data collected can be found in Attachment Nos. 7 and 8.

ORDINARY HIGH WATER MARK EVIDENCE

Distinct physical evidence used in identifying the OHWM are: erosion, changes in the character of the soil, boulder lines, change in slope, growth and destruction of terrestrial vegetation (FLISRAND V. MADSON, 1915; ANDERSON v. RAY, 1916; S.D. WILDLIFE FEDERATION v. WATER MGT. BD., 1986; Red Lake, Brule County Ordinary High Water Mark and Ordinary Low Water Mark, and Outlet Elevation Investigation Report).

Erosion

Distinct erosional features around Wigdale Lake are summarized in Attachment No. 8. Also see photo nos. 8 – 10, 12, 13, 15 – 18.

Consistent erosional features at Wigdale Lake consist of cutbanks, slope changes, and washed root systems. These features are found at the following elevations: 1865 to 1865.2, 1865.9, 1866.3, and 1866.6 to 1867.4 fmsl for bottom of cutbank; 1865.7, 1866.1, 1866.9 to 1867, and 1867.6 to 1868.3 fmsl for top of cutbank; and 1864.6 to 1865.4, 1865.9 to 1866.8, and 1867.1 to 1868 fmsl for top of washed root systems. There are several slope changes starting at 1864.4 to 1868.9 fmsl. Other erosion lines occur at 1864.6, 1866.3 to 1866.6, 1866.9 and 1867.7 fmsl.

Changes in the character of the soil

Soil stratification occurs around a lake when wave action washes the lake shore and leaves the larger parent materials (pebbles, cobbles, boulders) relatively stationary while the fine grained materials (sand, silts, clays, peats) are transported the greatest distance into the lake. An idealized lake shore progression would start with backshore boulder sized materials and terminate with clay and peat materials deposited in the deepest portions of the lake. Historical lake levels can be inferred by locating areas showing remnant soil stratification.

Lake water levels limited the amount of visible soil changes. The few soil characteristics observed were found at elevations of 1864.5 to 1865, 1866.5 and 1867.3 fmsl for top of washed pebbles; 1865.1 and 1866.6 to 1866.9 fmsl for top of washed cobble; and 1865.5, 1865.8 to 1866.3, and 1866.7 to 1867.2 fmsl for the top of sandy beach and beginning of top soil. Distinct surficial changes in the character of the soil at Wigdale Lake can be found in Attachment No. 8. Also see photo nos. 13, 17, and 19.

Boulder Lines/Ice Pushed Ridges

In the spring lake shores can be acted upon by ice sheets and wind action which form ice pushed ridges. The lake ice melts first near the shores because of the relatively rapid heating of the earthy material of the shore and the shallow bottom. An open lane of water is formed which is further widened by a rise in lake level from the water added by the melting snow of the surrounding slopes. If strong winds develop before the ice becomes rotten, the ice is blown about from side to side by the winds and pushed on the shores with almost irresistible force. The direction of shove is related to that of the winds and may vary along any shore even during a jam, if the winds shift considerably. The force of the push depends on the firmness and momentum of the ice, the latter being determined by the velocity and duration of the wind, the weight of the ice and to some extent the distance through which the ice is free to move. (Dionne, 1979)

Ice pushed ridges/boulder lines can be composed of foreshore and backshore materials. There are boulder lines present around Wigdale Lake. The boulder lines present are related to ice action and wave erosion acting upon the lake bank. The boulder lines are found at the base and along the slopes of steeply sloping hillsides as residuum.

Boulder lines are summarized in Attachment No. 8. Base elevations of boulder lines range from 1863.4 to 1864, 1864.8 to 1865.1, and 1865.9 to 1866.1 fmsl. The top of the boulder lines exist at or near 1864.6, 1865.3, 1866.8, and 1867.5 fmsl. See photo nos. 3 and 13.

Terrestrial Vegetation

The tree population observations in this report are limited to easily recognizable characteristics such as species, diameter and elevation. The tree population around Wigdale Lake is predominately cottonwood and elm. Growth of terrestrial vegetation around Wigdale Lake is summarized in Attachment No. 8. Also see photos in Attachment No. 11.

Certain species of trees are able to survive periods of flooding better than others. Elm and cottonwood trees are the predominant trees on Wigdale Lake's shore. Elm trees are considered intermediately tolerant to flooding. This means an elm tree with good vigor can survive occasional inundation between 20 and 30 percent of the growing season. Cottonwood trees are considered tolerant to flooding. This means a cottonwood tree with good vigor is able to survive when flooded more than 30 percent but less than 40 percent of the growing season. (Hightshoe, 1988)

The ability for certain trees to survive occasional flooding may be due to the formation of lateral roots at or just above the waterline (Gill). Photo No. 12 shows lateral roots washed by wave action. The top of these washed root systems occur from 1864.6 to 1865.4, 1865.9 to 1866.8, and 1867.1 to 1868 fmsl.

Using trees on a lake without other OHWM evidence would suggest that the OHWM elevation lies between the elevation of predominant destruction of terrestrial vegetation and the top of the washed root systems. Destruction of terrestrial vegetation (i.e. trees) at Wigdale Lake occurs from 1864.3 to 1864.8 fmsl. See photo nos. 3, 4, and 5. The highest elevation for top of washed root systems occur at 1868 fmsl.

Elm and cottonwood trees measured at Wigdale Lake range in diameter from six inches to five feet and have grown between the elevations of 1864.3 and 1868.4 fmsl. Large trees were found at all locations investigated around the lake and at several different elevations. Trees 2.5 to 5-feet in diameter were found from 1865.3 to 1866.2, 1866.5 to 1866.9, 1867.5 to 1867.7, and 1868.2 fmsl. Large trees at lower elevations consisted of one 3-foot diameter live elm tree found at elevation 1865.3 fmsl; two 3-foot diameter cottonwood trees both at 1865.4 fmsl, one live and one dead. The largest trees measured were two 5-foot diameter live elm trees found at elevation 1867.5 and 1868.2 fmsl and one 6-foot diameter live cottonwood tree at elevation 1869 fmsl. Other large trees

consisted of four 4-foot live elms and one 4-foot stump found at elevations 1865.9, 1866.2, 1866.7, 1867.7 and 1866.9 fmsl respectively; two 3-foot live elms found at 1865.8 and 1868.2 fmsl, and one 2.5-foot live elm at 1866.1 fmsl. The lowest terminal elevation for live trees at Wigdale Lake is at or near 1865 fmsl.

Consistent elevations for various tree classes (diameters, heights) at Wigdale Lake are difficult to determine from the field data collected. However, when looking at live trees 2-feet in diameter or greater it does appear that there are three zones of tree growth. one zone occurs at elevation 1865.3 to 1866.2 fmsl representing tree growth at or near the shoreline. The other two zones occur at elevations of 1866.5 to 1866.9 fmsl and 1867.5 to 1868.2 fmsl representing tree growth on the upper limits of the bank. Elm and cottonwood trees are predominant in the lower growth zone while Elm trees make up most of the upper two growth zones.

OUTLET

The outlet for Wigdale Lake is located in Section 22, T117N, R50W. The overflow elevation occurs somewhere in the slough known as South School Lake at the north end of Wigdale Lake. As stated earlier Mr. Weber recalls seeing a ditch from Wigdale Lake through South School Lake when lake levels were low. At the time of the investigation the water level of Wigdale and South School Lake were the same, 1864.2 fmsl. Therefore the overflow elevation may be less than 1864.2 fmsl. The overflow elevation for the culvert between South School Lake and School Lake is 1861 fmsl. Mr. Weber and Mr. Jaeger said that there is always some water in South School Lake which could be due to ground water and/or the ditch.

In South Dakota most of the lakes with OHWM's have outlets that are six inches to one foot below the OHWM. The recommended OHWM for Wigdale Lake is at least 1.8 feet above the overflow elevation of the outlet channel and 5 feet above the overflow elevation of the culvert between South School Lake and School Lake. Because of the difference in the bottom of the culvert elevation and the recommended OHWM elevation and the inundation of the outlet channel during the time of the investigation the outlet elevation can not be determined, at this time.

CONCLUSIONS

1. The term "Ordinary" for any given lake, as defined by established OHWM's can be synonymous with average, normal and yearly. "Ordinary" can also take into consideration periodic fluctuating water levels based upon prevailing climatic conditions and watershed characteristics.
2. A meander line is not at a constant elevation and is not considered in determining the OHWM for any given lake.
3. Measured water levels since May 4, 1994, indicate that Wigdale Lake has experienced 3.3 feet of fluctuation.
4. Man made influences caused by road construction and culvert installation over and in the outlet and inlet channels may have affected the Wigdale Lake OHWM, but have been in existence long enough to constitute natural conditions.
5. Based upon the field data summarized in Attachment No.8, a potential OHWM elevation for Bullhead Lake is 1866 fmsl. Data from soil characteristics were limited due to the water level in the lake. However, erosional features and terrestrial vegetation afforded strong evidence with supportive evidence from soil characteristics. OHWM's are not associated with the highest limits of a lake bank but are associated with the upper limits of a lake bank. The majority of the indicators show the OHWM exists at the elevation of 1866 fmsl, it is recommended that the OHWM be established at 1866 fmsl.
6. The outlet elevation for Wigdale Lake can not be established at this time due to the lack of conclusive evidence.
7. Vested Water Right Claim Nos.1494-3 and 1495-3 will need to be corrected prior to being validated.



Lynn Beck
Natural Resources Engineer III
Water Rights Program



Gale N. Selken, P.E.
Natural Resources Engineer IV
Water Rights Program

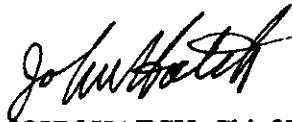
**RECOMMENDATION OF CHIEF ENGINEER ON ESTABLISHMENT OF AN ORDINARY
HIGH WATER MARK FOR WIGDALE LAKE, DEUEL COUNTY**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning establishment of an Ordinary High Water Mark for Wigdale Lake in Deuel County.

The Chief Engineer of the Water Rights Program recommends that the:

Ordinary High Water Mark for Wigdale Lake, Deuel County be established at an elevation of 1,866 feet mean sea level (fmssl).

See report for additional information.

A handwritten signature in black ink, appearing to read "John Hatch", is written above the printed name.

JOHN HATCH, Chief Engineer
March 15, 1999

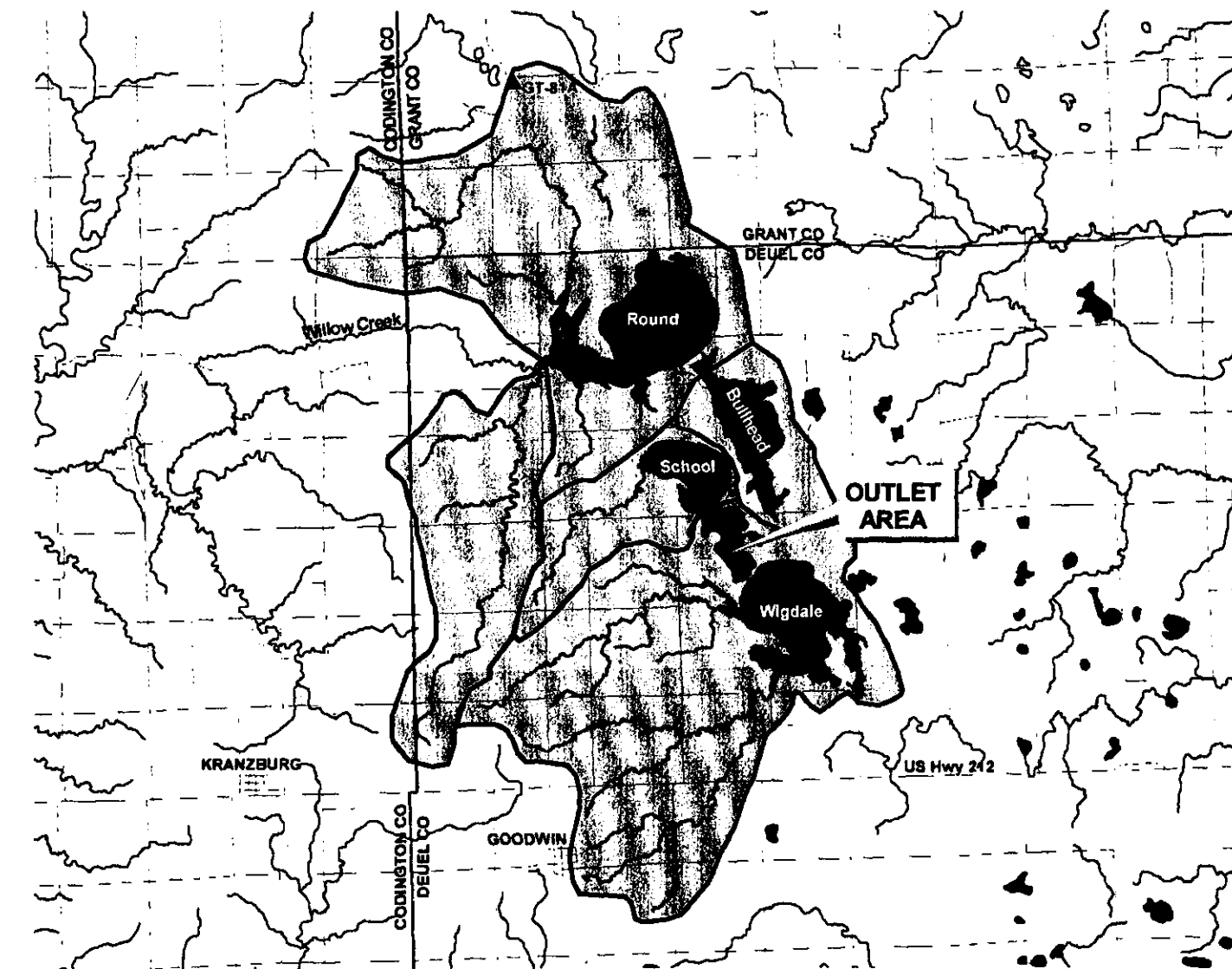
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- Dionne, Jean-Claude, 1979, Ice Action in the Lacustrine Environment: a Review with Particular Reference to Subarctic Quebec, Canada, Earth-Science Reviews, 15(3), 1979, pp. 185.
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- Hightshoe, Gary L., 1988, Native Trees, Shrubs, and Vines for Urban and Rural America, Van Nostrand Reinhold Company, New York.
- Kume, Jack, 1985, Water Resources of Deuel and Hamlin Counties, South Dakota, U.S. Geologic survey Water - Resources Investigations Report 84 - 4069, prepared in cooperation with the South Dakota Geological survey, Deuel and Hamlin Counties, and the East Dakota Conservancy Sub-District, Huron, South Dakota.
- Schroeder, Wayne, 1976, Sand and Gravel Resources in Deuel County, South Dakota, Information Pamphlet No. 9, prepared in cooperation with the U.S. Geological Survey, East Dakota Conservancy Sub-District, South Dakota Department Highways, and Deuel County, Department of Natural Resources Development, S.D. Geological Survey, University of South Dakota, Vermillion, South Dakota.
- Water Rights Program Files, 1999, Department of Environment and Natural Resources, Joe Foss Building, 523 East Capitol, Pierre, SD 57501.

Persons and Agencies Referenced

- Archives, State Library Building, Pierre, SD 57501
- Deuel County Register of Deeds, County Courthouse, Milbank, SD 57252
- Dennis Jaeger, RR 1, Box 127, Goodwin, SD 57265
- State Climatologist, South Dakota State University, Brookings, SD 57007
- Roy Weber, RR 1, Box 48, Strandburg, SD 57265

WIGDALE LAKE, DEUEL COUNTY ORDINARY HIGH WATER MARK INVESTIGATION



SCALE

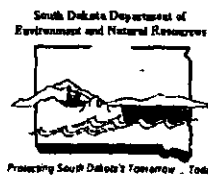


LEGEND

- Hydrology
- Roads
- OHWM Evidence
- Observation Well GT-81A
- Lakes
- Sloughs
- Watersheds

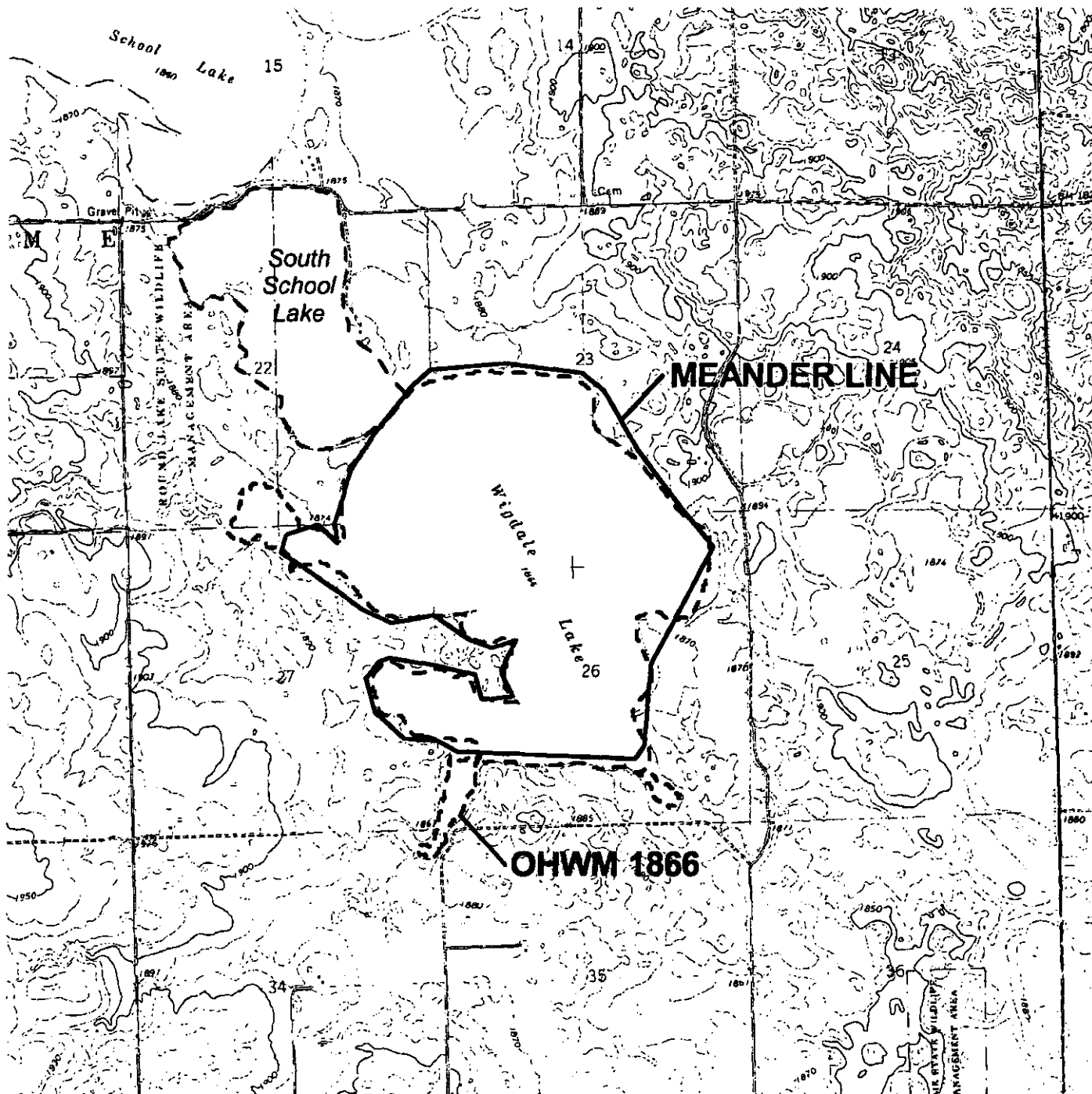


SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
1b



GOODWIN QUADRANGLE

SOUTH DAKOTA, DEUEL COUNTY
7.5 MINUTE SERIES (TOPOGRAPHY)



SCALE:



SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
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South Dakota Department of
Environment and Natural Resources



Attachment No. 3

MELTWATER CHANNEL

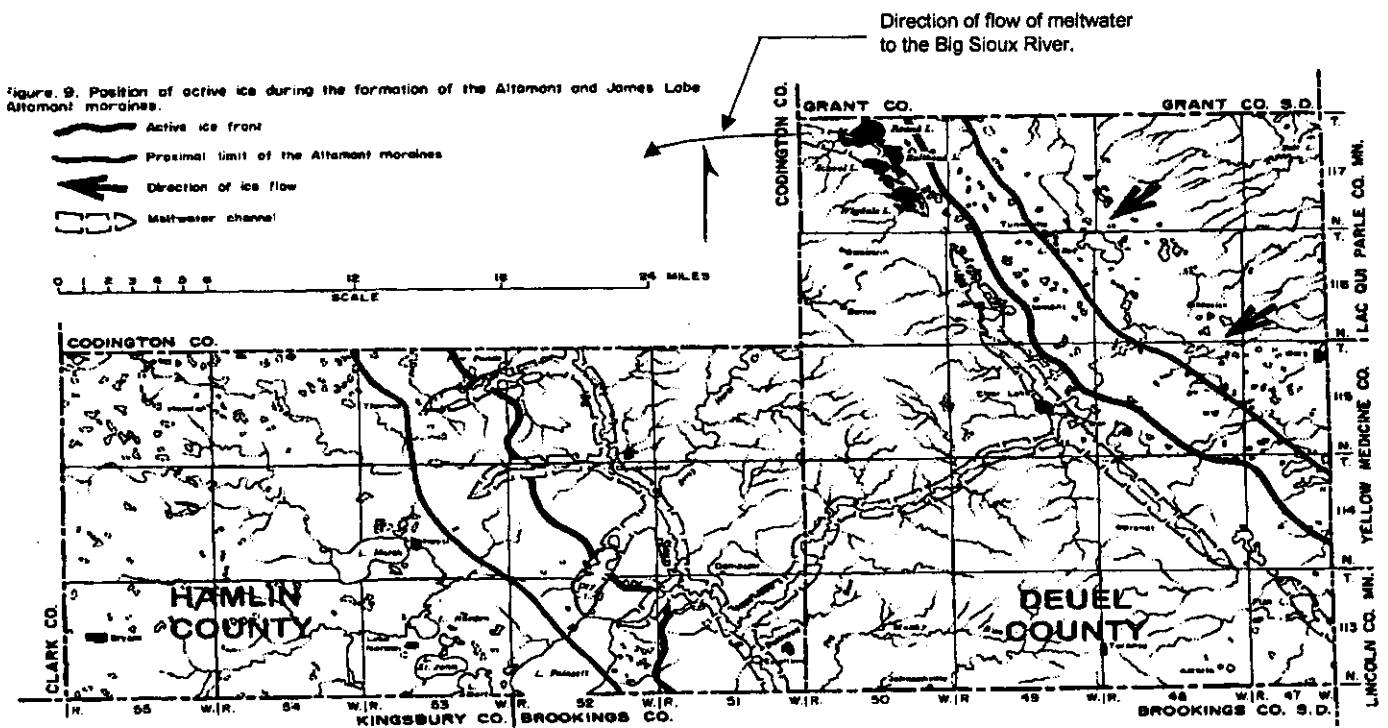


Figure 9 from Geology and Water Resources of Deuel and Hamlin Counties, South Dakota, Part 1: Geology, 1987.

Attachment No. 4

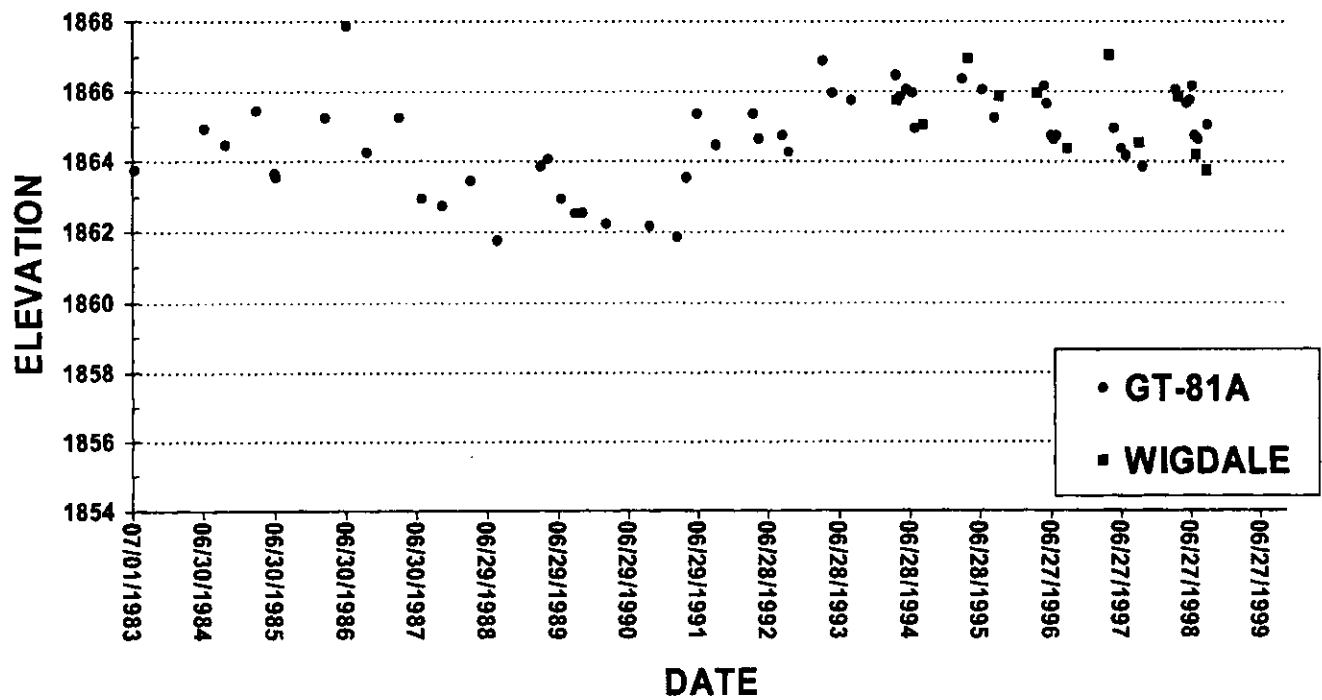
**MEASURED WATER LEVELS
FOR
WIGDALE LAKE, DEUEL COUNTY**

DATE	WATER LEVELS
05-04-94	1865.7
09-14-94	1865.0
05-10-95	1866.9
10-17-95	1865.8
05-01-96	1865.9
10-02-96	1864.3
05-12-97	1867.0
10-08-97	1864.5
04-29-98	1865.8
08-04-98	1864.1
09-29-98	1863.7

Measurements by Water Rights Program

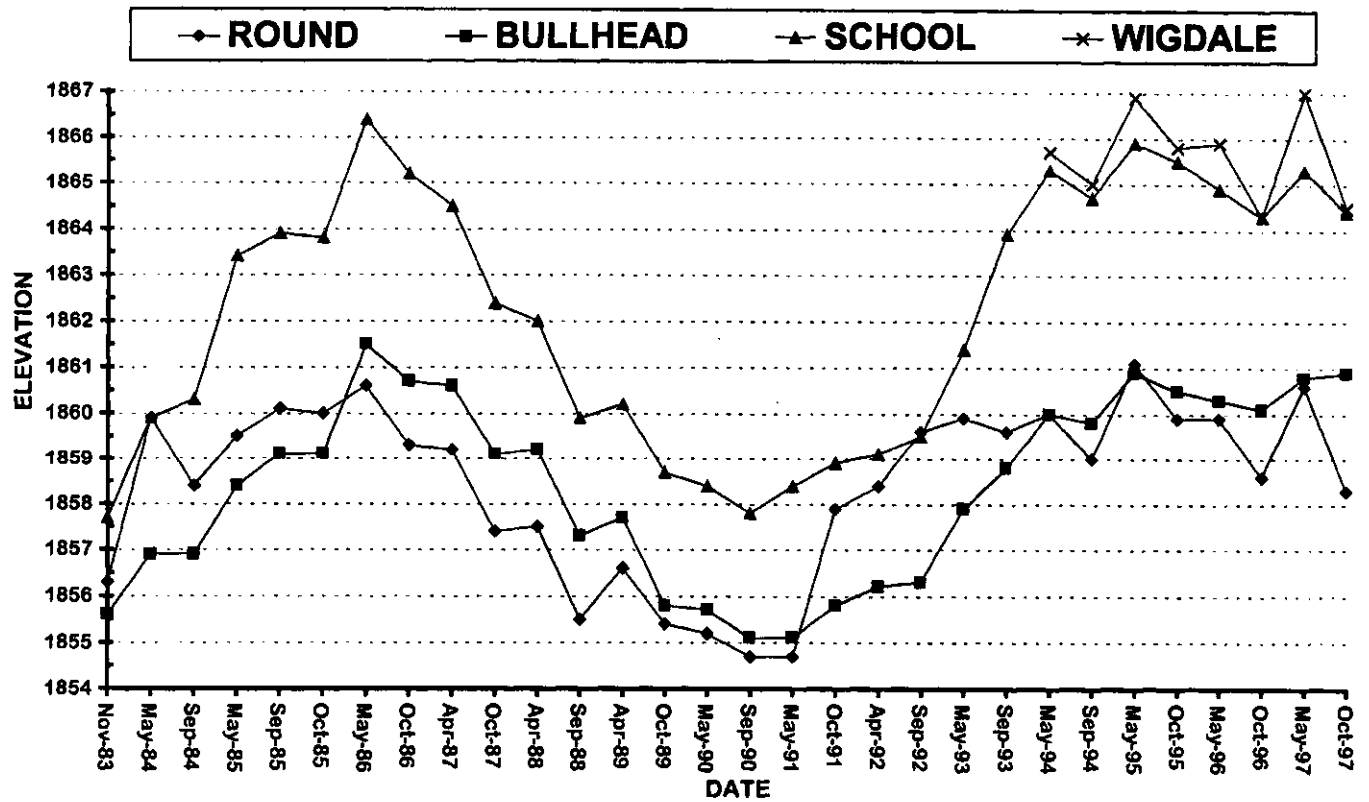
Attachment No. 5

OBSERVATION WELL GT-81A AND WIGDALE LAKE WATER LEVELS



Attachment No. 6

BULLHEAD, ROUND, SCHOOL, AND WIGDALE LAKES DEUEL COUNTY LAKE LEVELS



Attachment No. 7

OHWM EVIDENCE

EROSIONAL CHARACTERISTICS:

Elevation (ft)	Legal Description	Comments
1864.3	NW¼ NE¼ Section 22, T117N, R50W	Change in slope
1864.4		
1864.4		
1864.7		
1864.8		
1864.8		
1864.8		
1865.0		
1865.0		
1865.4		
1866.3		Base of cutbank
1866.3		
1866.3		
1866.7		
1864.3		
1864.4		Debris
1864.4		
1864.5		
1864.6		
1864.7		
1864.8		
1864.8		
1864.8		
1864.9		
1865.0		
1865.0		
1865.0		
1865.1		
1865.2		
1865.3		
1865.3		
1865.4		
1865.5		
1874.4		Top of bank
1874.7		
1876.7		

EROSIONAL CHARACTERISTICS continued:

Elevation (ftmsl)	Legal Description	Comments
1866.1	NW¼ NE¼ Section 22, T117N, R50W	Top of washed roots
1866.3		
1866.5		
1866.6		
1866.8		
1867.3		
1867.6		
1867.9		
1867.9		
1865.3	S½ NW¼ Section 26, T117N, R50W	Change in slope
1865.5		
1866.2		
1866.7		
1866.3		Base of cutbank
1866.4		
1866.6		
1867.1		
1867.6		Top of cutbank
1868.0		
1868.3		
1864.6		Top of washed roots
1864.8		
1865.1		
1865.1		
1865.1		
1966.6		
1867.2		
1867.7		
1865.3	SW¼ SE¼ Section 26, T117N, R50W	Change in slope
1865.8		
1865.9		
1866.3		
1866.8		
1867.0		
1867.1		
1867.2		
1867.8		
1868.9		
1870.3		
1872.2		
1864.6		Base of cutbank
1865.9		

EROSIONAL CHARACTERISTICS continued:

Elevation (ft)	Legal Description	Comments
1866.6	SW¼ SE¼ Section 26, T117N, R50W	Base of cutbank
1866.8		
1865.7		Top of cutbank
1866.9		
1867.0		
1867.9	NE¼ NE¼ Section 26, T117N, R50W	
1864.8		Top of washed roots
1865.0		
1865.0		
1865.4		
1865.9		
1866.2		
1866.3		
1866.5		Change in slope
1866.6		
1867.6		
1865.1		Base of cutbank
1865.2		
1866.8		
1866.9		
1866.9		
1867.1		
1867.4		
1866.0		Top of cutbank
1866.1		
1867.7		
1868.1		
1868.1		
1868.8		Top of bank
1868.9		
1870.4		
1866.2		Top of washed roots
1866.2		
1866.6		
1866.6		
1866.6		
1867.1		
1867.1		
1867.2		
1867.2		
1867.3		

EROSIONAL CHARACTERISTICS continued:

Elevation (feet)	Legal Description	Comments
1867.4	NE¼ NE¼ Section 26, T117N, R50W	Top of washed roots
1867.4		
1867.5		
1867.6		
1868.0		

SOIL CHARACTERISTICS:

Elevation (feet)	Legal Description	Comments
1864.3	NW¼ NE¼ Section 22, T117N, R50W	Bottom of washed pebbles
1864.4		
1864.4		
1864.7		
1864.8		
1864.8		
1864.9		
1865.1		
1865.4		
1865.4		
1865.8		
1865.8		
1865.9		
1864.5		Top of washed pebbles
1864.6		
1865.0		
1865.0		
1865.0		
1866.0		Top of sandy beach
1866.3		
1866.3		
1866.3		
1866.7		
1864.1	S½ NW¼ Section 26, T117N, R50W	Bottom of washed pebbles
1864.4	SW¼ SE¼ Section 26, T117N, R50W	Bottom of washed pebbles
1864.7		
1865.5		Top of sandy beach
1865.6		
1865.8		
1865.9		

SOIL CHARACTERISTICS continued:

Elevation (feet)	Legal Description	Comments
1865.9	SW¼ SE¼ Section 26, T117N, R50W	Top of sandy beach
1866.0		
1867.2		
1864.6	NE¼ NE¼ Section 26, T117N, R50W	Top of washed pebbles
1864.7		
1866.5		
1867.3		
1863.2		Bottom of washed cobble
1863.3		
1863.4		
1865.0		
1865.1		
1865.1		Top of washed cobble
1865.2		
1866.6		
1866.6		
1866.7		
1866.8		
1866.8		
1866.9		
1866.8		Top of sandy beach

TERRESTRIAL VEGETATION:

Elevation (feet)	Legal Description	Comments
1865.0	NW¼ NE¼ Section 22, T117N, R50W	Lakeside 18" dia. live elm
1865.1		Lakeside 18" dia. live elm
1865.2		Lakeside live ctw.
1865.4		Lakeside 3' dia. live ctw.
1865.4		Lakeside 2-1' dia. live elm
1865.8		Lakeside 3' dia. live elm
1865.9		Lakeside 4' dia. live elm
1866.2		Lakeside 4' dia. live elm
1865.6		Landside 18" dia. live elm
1865.8		Landside 18" dia. live elm
1866.2		Landside live ctw.
1866.3		Landside 2-1' dia. live elm
1866.3		Landside 2-1' dia. live elm
1867.9		Landside 3' dia. live ctw.

TERRESTRIAL VEGETATION continued:

Elevation (feet)	Legal Description	Comments
1868.7	NW¼ NE¼ Section 22, T117N, R50W	Landside 3' dia. live elm
1869.0		Landside 4' dia. live elm
1869.0		Landside 4' dia. live elm
1864.5	S½ NW¼ Section 26, T117N, R50W	Lakeside 18" dia. dead ctw.
1864.5		Lakeside 1' dia. dead ctw.
1864.6		Lakeside 18" dia. dead ctw.
1864.7		Lakeside 2' dia. live ctw.
1864.8		Lakeside 2' dia. dead ctw.
1865.8		Lakeside 2' dia. live ctw.
1866.2		Lakeside 2' dia. live ctw.
1866.6		Lakeside 8" dia. live elm
1867.7		Lakeside 8" dia. live elm
1868.0		Lakeside 8" dia. live elm
1864.8		Landside 18" dia. dead ctw.
1865.0		Landside 1' dia. dead ctw.
1865.1		Landside 18" dia. dead ctw.
1865.6		Landside 2' dia. dead ctw.
1866.2		Landside 2' dia. live ctw.
1866.6		Landside 2' dia. live ctw.
1867.4		Landside 8" dia. live elm
1868.0		Landside 2' dia. live ctw.
1868.4		Landside 8" dia. live elm
1869.0		Landside 8" dia. live elm
1864.6	SW¼ SE¼ Section 26, T117N, R50W	Lakeside 2" dia. live elm
1864.6		Lakeside 2' dia. dead black willow
1864.8		Lakeside 8" dia. dead elm
1865.2		Lakeside 2-18" dia. live elms
1865.3		Lakeside 3' dia. live elm
1865.4		Lakeside 3' dia. dead ctw.
1866.8		Lakeside 18" dia. live elm
1867.0		Lakeside 16" dia. live elm
1867.4		Lakeside 1' dia. live elm
1867.7		Lakeside 4' dia. live elm
1864.3		Landside 20-2" to 6" dia. dead elm
1864.6		Landside 20-2" to 6" dia. dead elm
1865.0		Landside 2' dia. dead black willow
1865.1		Landside 8" dia. dead elm
1865.7		Landside 2-18" dia. live elms
1866.1		Landside 2' dia. live elm
1866.4		Landside 3' dia. dead ctw.

TERRESTRIAL VEGETATION continued:

Elevation (ft/m)	Legal Description	Comments
1867.0		Landside 18" dia. live elm
1867.1		Landside 18" dia. live elm
1867.3		Landside 1' dia. live elm
1867.4		Landside 8" dia. live elm
1867.6		Landside 3' dia. live elm
1867.6		Landside 1' dia. live elm
1867.7		Landside 8" dia. live elm
1867.7		Landside 16" dia. live elm
1868.2		Landside 1' dia. live elm
1868.3		Landside 4' dia. live elm
1868.7		Landside 1' dia. live elm
1868.8		Landside 6" dia. live elm
1870.4		Landside 8" dia. live elm
1870.4		Landside 6" dia. live elm
1865.6	NE¼ NE¼ Section 26, T117N, R50W	Lakeside 2' dia. live ctw.
1865.9		Lakeside 1' dia. live elm
1865.9		Lakeside 1' dia. live elm
1866.1		Lakeside 18" dia. live elm
1866.1		Lakeside 2.5' dia. live elm
1866.2		Lakeside 1' dia. live elm
1866.3		Lakeside 8" dia. live elm
1866.4		Lakeside 10" dia. live elm
1866.5		Lakeside 2' dia. live elm
1866.7		Lakeside 14" dia. live elm
1866.7		Lakeside 4' dia. live elm
1866.8		Lakeside 8" dia. live elm
1866.8		Lakeside 1' dia. live elm
1867.5		Lakeside 5' dia. live elm
1868.2		Lakeside 5' dia. live elm
1868.2		Lakeside 3' dia. live elm
1868.2		Lakeside 2-18" dia. live elms
1868.4		Lakeside 18" dia. live elm
1866.8		Landside 1' dia. live elm
1866.8		Landside 1' dia. live elm
1867.0		Landside 2' dia. live ctw.
1867.0		Landside 1' dia. live elm
1867.4		Landside 2.5' dia. live elm
1867.6		Landside 14" dia. live elm
1867.9		Landside 10" dia. live elm
1867.9		Landside 18" dia. live elm

TERRESTRIAL VEGETATION continued:

Elevation (feet)	Legal Description	Comments
1867.9	NE¼ NE¼ Section 26, T117N, R50W	Landside 8" dia. live elm
1868.0		Landside 8" dia. live elm
1868.2		Landside 1' dia. live elm
1868.3		Landside 2' dia. live elm
1868.5		Landside 15" dia. live elm
1868.6		Landside 5' dia. live elm
1868.9		Landside 4' dia. live elm
1869.0		Landside 5' dia. live elm
1869.2		Landside 18" dia. live elm
1869.3		Landside 2-18" dia. live elm
1869.6		Landside 3' dia. live elm
1866.9	SE¼ NE¼ Section 26, T117N, R50W	Lakeside 2' dia. stump
1866.9		Lakeside 4' dia. stump
1870.0		Lakeside 2-18" dia. stumps
1867.4		Lakeside 6' dia. live ctw.
1868.2		Landside 2-18" dia. stumps
1868.2		Landside 2' dia. stump
1868.8		Landside 4' dia. stump
1869.2		Landside 6' dia. live ctw.

WATER MARKS:

Elevation (feet)	Legal Description	Comments
1867.6	NW¼ NE¼ Section 22, T117N, R50W	On live ctw.
1867.9		On 3' dia. live ctw.
1864.6	S½ NW¼ Section 26, T117N, R50W	On 2' x 3' boulder
1864.8		On 3' flat boulder
1864.8		On 2' boulder
1864.9		On 4' boulder
1865.2		On 3' flat boulder
1865.2		On 2' boulder
1865.3		On 4' boulder
1865.7		On 4' boulder
1866.0		On 4' boulder
1866.8		On 4' boulder
1867.0		On 18" dead ctw.
1867.0		On 18" dead ctw.
1867.1		On 2' dead ctw.
1867.1		On 1' dead ctw.
1867.5		On 2' live ctw.

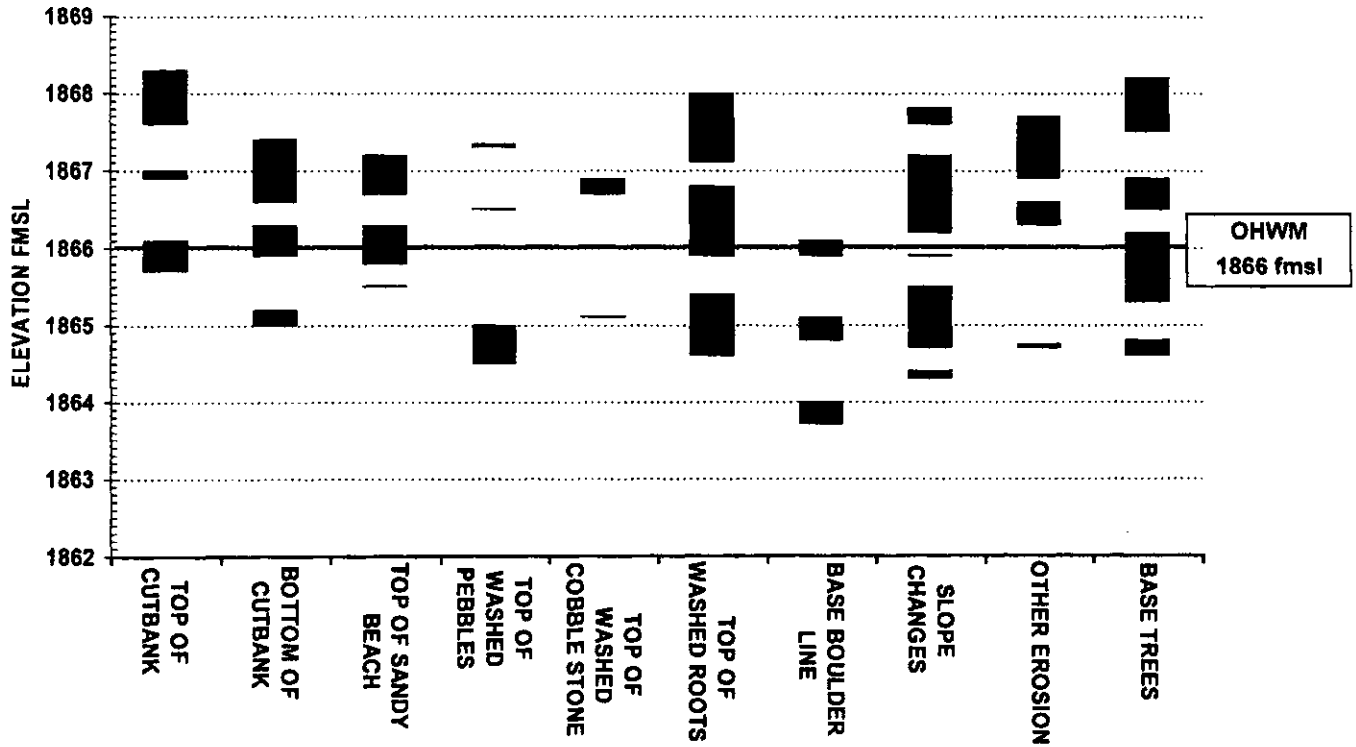
WATER MARKS continued:

Elevation (ft/m)	Legal Description	Comments
1864.7	SW¼ SE¼ Section 26, T117N, R50W	On 3' boulder
1864.7		On 3' boulder
1864.9		On 3' boulder
1865.2		On 3' boulder
1868.0	NE¼ NE¼ Section 26, T117N, R50W	On 1' dia. live elm
1868.1		On 1' dia. live elm
1868.1		On 2.5' dia. live elm
1868.1		On 4' dia. live elm
1868.1		On 1' dia. live elm
1868.1		On 14" dia. live elm
1868.3		On 8" dia. live elm
1868.5		On 10" dia. live elm

Attachment No. 8

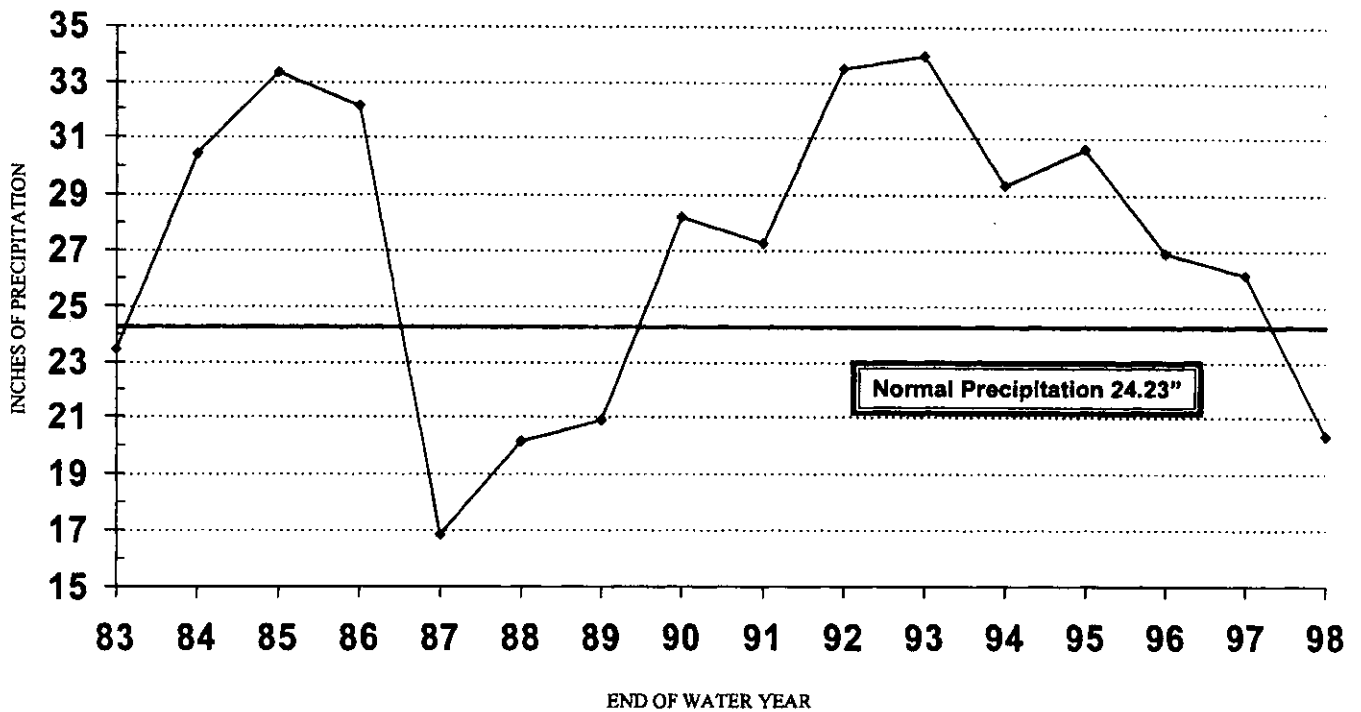
OHWL EVIDENCE GRAPH

The green bar segments represent bands of evidence along Wigdale Lake's shore. Each segment is a group of a particular category of evidence found at or near the same elevation.



Attachment No. 9

**WATER YEAR PRECIPITATION TOTALS
FOR
CLEAR LAKE, DEUEL CO. STATION**



Attachment No. 10

MONTHLY PRECIPITATION FOR CLEAR LAKE STATION NO. 39177707

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1938	NA	NA	NA	NA	NA	NA	NA	4.55	2.55	0.28	0.73	0.19	NA
1939	1.59	0.75	0.71	1.31	2.54	5.78	7.18	4.21	1.10	1.03	0.00	0.05	26.25
1940	0.05	0.45	2.80	1.78	1.01	4.94	1.13	7.26	0.31	1.36	1.23	0.47	22.79
1941	0.75	0.21	0.17	4.66	1.64	3.29	1.94	1.58	1.58	2.64	0.25	0.65	19.36
1942	0.00	0.09	2.68	2.15	7.29	3.19	2.14	2.83	4.99	0.70	0.01	0.40	26.47
1943	0.57	0.67	1.43	0.43	3.36	4.37	4.69	4.11	0.98	1.64	1.38	0.00	23.63
1944	1.05	0.49	0.60	2.28	2.71	4.01	1.88	5.10	2.17	0.17	0.95	0.12	21.53
1945	0.29	0.81	0.58	1.55	4.09	5.15	5.82	1.55	1.62	0.47	0.73	1.48	24.14
1946	0.00	1.31	1.91	0.92	4.37	6.05	4.20	1.75	5.86	4.09	1.18	0.48	32.12
1947	0.64	0.25	1.03	4.81	1.33	6.59	0.32	2.11	3.31	1.84	3.07	0.12	25.42
1948	0.07	1.94	0.45	2.99	0.74	5.14	5.94	5.37	2.68	1.08	1.34	0.13	27.87
1949	0.79	0.00	1.74	0.43	2.27	4.24	5.33	0.97	3.70	1.82	1.47	0.95	23.71
1950	0.68	0.00	2.32	1.21	4.70	1.41	2.51	1.56	1.82	1.71	0.43	0.56	18.91
1951	0.44	0.64	2.73	2.70	3.81	4.31	4.36	5.90	0.84	1.85	0.49	2.19	30.26
1952	1.77	1.49	1.59	0.52	1.42	7.46	1.29	1.35	0.84	0.00	0.84	0.32	18.89
1953	1.12	1.82	0.82	4.53	3.26	5.96	5.09	1.38	0.32	0.54	1.16	1.81	27.81
1954	0.27	0.69	2.71	2.45	2.44	3.74	1.79	1.65	3.57	1.69	0.94	0.08	22.02
1955	0.47	MM	0.34	2.30	0.67	4.84	4.78	3.03	0.79	0.35	NA	1.93	NA
1956	0.80	0.15	1.39	1.85	3.47	6.51	4.67	5.74	1.77	0.69	1.24	0.16	28.44
1957	0.43	0.95	0.68	2.38	5.44	2.58	1.91	3.20	4.60	3.02	1.30	0.76	27.25
1958	0.13	0.67	0.73	2.75	1.57	3.48	2.42	1.80	3.06	0.15	1.86	0.29	18.91
1959	0.38	0.68	0.12	1.21	4.68	1.63	3.01	1.59	1.73	2.37	1.10	1.56	20.06
1960	0.72	0.00	1.11	2.42	2.27	5.12	2.06	8.31	1.75	0.85	0.94	1.06	26.61
1961	0.04	0.52	0.57	1.43	5.40	4.27	1.64	3.04	2.64	1.73	0.26	0.54	22.08
1962	NA	NA	NA	NA	4.25	4.95	6.59	0.59	1.89	0.84	0.56	0.06	NA
1963	0.33	0.38	1.82	2.53	1.65	3.22	9.19	0.77	3.20	1.56	0.56	0.52	25.73
1964	0.00	0.09	1.42	2.70	1.52	2.36	4.15	5.77	1.14	0.05	0.41	0.42	20.03
1965	0.75	0.32	2.26	3.13	7.45	2.68	2.38	3.57	4.60	0.77	0.80	0.51	29.22
1966	0.22	0.88	0.67	1.75	1.69	2.12	4.10	4.24	2.28	0.86	0.38	0.34	19.53
1967	0.88	0.96	0.18	2.39	0.64	6.94	1.14	1.72	0.85	1.16	0.17	0.39	17.42
1968	0.24	0.00	0.74	4.36	2.22	3.90	2.12	2.06	2.85	4.04	0.86	2.02	25.41
1969	1.75	2.01	0.44	1.79	2.33	2.65	5.22	2.04	0.80	3.04	0.21	1.07	23.35
1970	0.24	0.03	1.31	3.85	4.44	3.86	4.86	1.43	2.04	4.20	3.26	0.22	29.74
1971	0.10	0.98	0.03	1.77	1.77	6.72	3.78	2.63	1.03	4.57	2.54	0.36	26.28
1972	0.50	0.31	0.89	3.03	8.51	1.02	5.98	2.10	0.65	3.34	1.26	1.37	28.96

1973	0.22	0.44	2.17	1.15	3.78	0.47	1.35	2.74	1.99	1.40	0.84	0.77	17.32
1974	0.00	1.20	1.07	1.75	4.39	2.90	1.56	3.07	0.66	0.83	0.50	0.14	18.07
1975	1.93	0.32	4.21	4.50	1.13	4.70	1.83	3.99	1.81	0.81	0.92	0.19	26.34
1976	0.84	0.56	1.41	1.00	0.38	1.52	1.60	NA	NA	0.39	0.09	0.54	NA
1977	0.50	1.53	5.29	1.94	2.10	4.36	2.34	4.50	5.60	3.60	3.48	1.42	36.66
1978	0.19	0.41	1.12	3.37	4.87	2.83	2.14	4.87	2.51	0.32	0.99	0.54	24.16
1979	2.39	0.55	1.75	3.02	2.48	4.01	2.62	6.04	0.66	3.62	0.22	0.16	27.52
1980	0.32	0.67	0.69	0.13	2.54	7.97	2.72	4.64	0.78	1.16	0.06	0.14	21.82
1981	0.39	1.38	1.41	1.26	1.21	4.16	2.69	1.13	0.75	2.03	1.22	0.90	18.80
1982	1.75	0.27	1.14	1.43	5.33	2.65	6.80	3.73	2.60	3.47	1.34	0.41	30.92
1983	1.00	0.09	4.09	1.46	1.63	3.23	2.48	1.64	2.62	1.57	5.21	0.67	25.69
1984	0.57	0.75	2.06	3.28	2.56	7.92	1.18	1.09	3.55	6.85	0.02	0.78	30.61
1985	NA	0.22	3.09	2.35	2.94	2.43	5.03	4.33	5.30	1.20	1.72	0.66	NA
1986	0.38	0.76	1.35	5.85	4.15	3.42	5.85	2.34	4.43	0.50	0.42	0.00	29.45
1987	0.17	0.43	2.20	0.70	1.42	1.35	4.93	1.95	2.78	1.16	0.87	0.92	18.88
1988	1.35	0.37	1.08	1.21	1.74	0.48	2.27	6.34	2.34	0.17	1.24	0.39	18.98
1989	0.21	0.82	2.95	1.82	1.10	1.89	2.48	4.66	3.15	1.55	0.74	0.05	21.42
1990	0.00	0.38	1.53	1.44	3.88	8.46	5.10	3.02	1.12	1.65	0.07	0.42	27.07
1991	0.27	0.68	1.15	4.67	4.38	5.82	3.03	3.59	2.45	0.72	1.14	0.03	27.93
1992	0.99	0.77	1.41	2.00	1.39	16.12	4.10	2.73	2.08	0.58	2.29	0.75	35.21
1993	1.13	0.70	1.92	2.67	4.99	8.41	5.51	2.14	2.85	0.51	2.55	0.97	34.55
1994	1.94	1.00	0.57	3.02	1.89	6.84	2.70	4.27	3.07	2.16	0.85	0.41	28.72
1995	0.53	0.27	3.95	5.05	4.37	1.58	5.45	1.86	4.14	2.71	0.82	0.26	30.99
1996	1.22	0.50	0.40	0.77	5.47	1.94	1.88	2.95	2.96	4.76	3.14	0.94	26.93
1997	2.03	1.07	1.58	2.83	1.14	1.49	7.27	4.49	1.59	2.17	0.17	0.31	26.14
1998	0.61	1.17	1.67	0.70	3.53	4.95	2.04	2.63	0.38	5.98	1.02	0.15	24.83

Attachment No. 11
WIGDALE LAKE PHOTOS

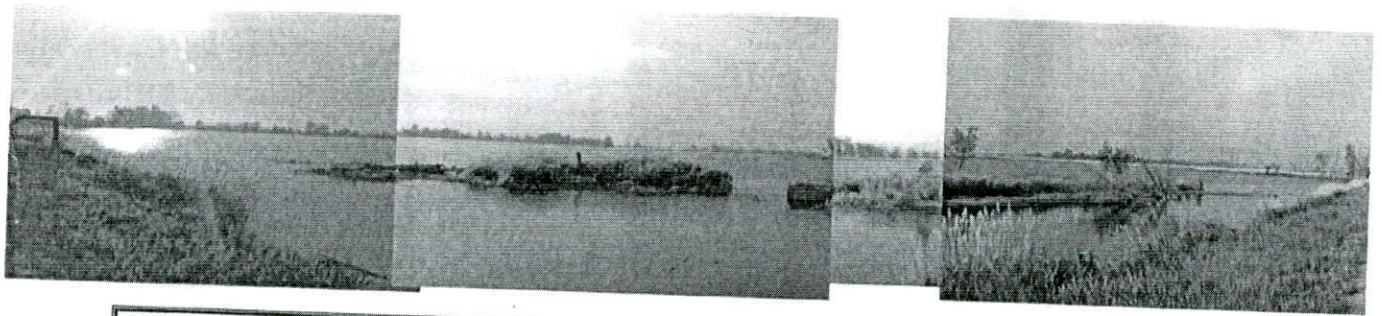


Photo No. 1: Slough just north of Wigdale Lake known as South School Lake. Wigdale Lake outlet area.

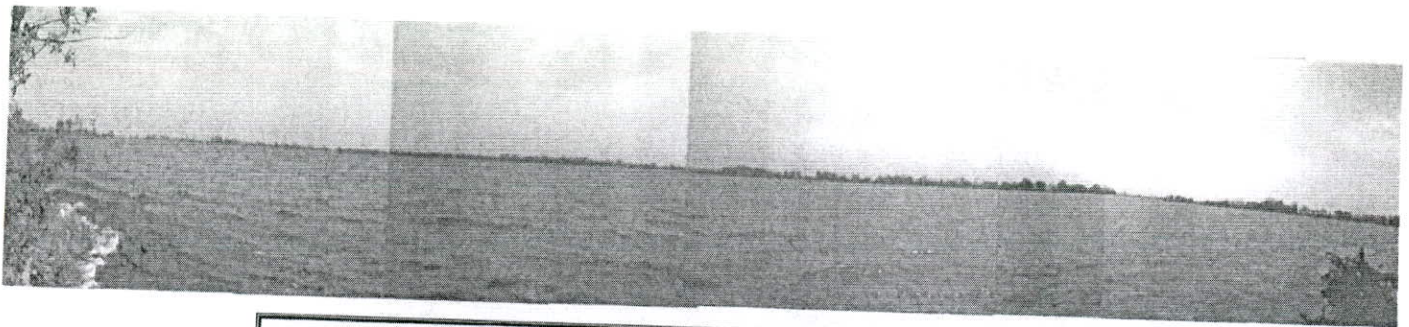


Photo No. 2: Panoramic of Wigdale Lake taken from the south end of the lake.



Photo No. 3

Row of dead cottonwood trees 1 to 2 feet in diameter.

Lakeside elev. 1864.5 to 1864.8 fmsl.

Base boulder line 1863.8 fmsl

Top boulder line 1865.2



Photo No. 4

Row of small dead trees at a base elevation of 1864.5 fmsl.



Photo No. 5

Dying black willow tree at a base elevation of 1864.6 fmsl.



Photo No. 6

4' diameter live elm tree at the base of a steep bank.

Lakeside elev. 1866.2 fmsl

Landside elev. 1869 fmsl



Photo No. 7

2' diameter live cottonwood tree a few feet from the base of a steep bank.

Lakeside elev. 1865.2 fmsl

Landside elev. 1866.2 fmsl



Photo No. 8

3' diameter live elm tree at the base of a steep bank.

Lakeside elev. 1865.4 fmsl

Landside elev. 1867.9 fmsl

Top washed roots 1866.3 fmsl

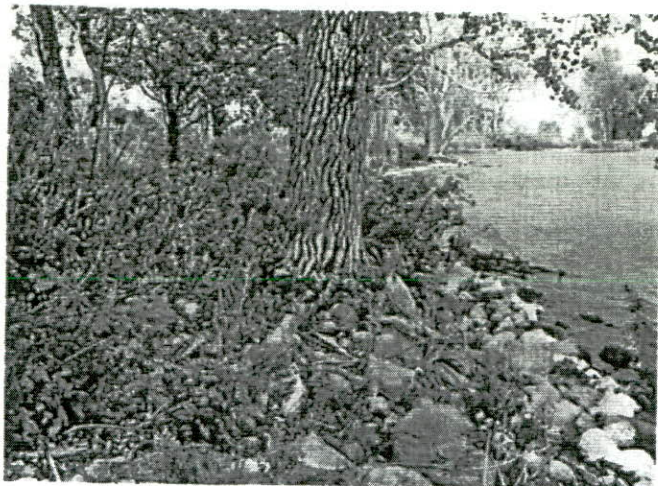


Photo No. 9

2' diameter live cottonwood tree with sloped bank behind it.

Lakeside elev. 1864.7 fmsl

Landside elev. 1866.2 fmsl

Top washed roots 1864.8 fmsl

Water mark 1867.5 fmsl



Photo No. 10

Large tree at the base of a steep bank.

Lakeside elev. 1865.3 fmsl

Landside elev. 1867.6 fmsl

Top washed roots 1866.2 fmsl



Photo No. 11

Line of live elm trees 8" to 2.5' in diameter.

Lakeside elev. 1865.9 to 1866.8 fmsl

Landside elev. 1866.8 to 1868 fmsl

Water mark on trees approx.. 1868



Photo No. 12

18" diameter live elm tree at the base of a steep bank.

Lakeside elev. 1866.1 fmsl

Landside elev. 1867.9 fmsl

Top washed roots 1866.6 fmsl

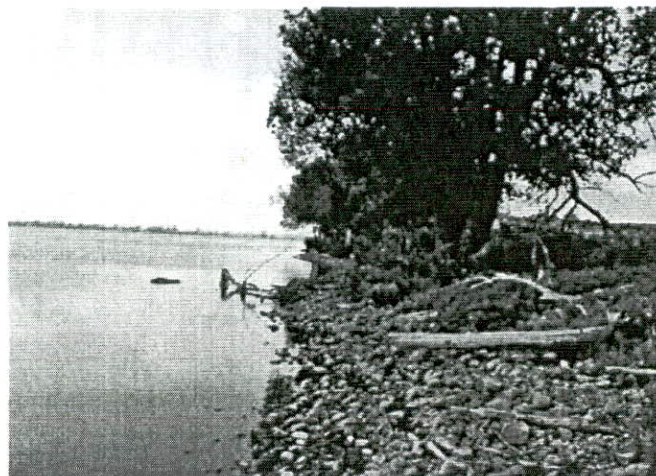


Photo No. 13

Shoreline on the east side of the lake.

Top large cobble 1865.1 fmsl

Top of cut bank 1866.1 fmsl

Base boulder line 1866.1 fmsl

Change in slope 1866.6 fmsl

Top boulder line and change in slope
1867.4 to 1867.6 fmsl



Photo No. 14

Water mark on boulder at elevation
1866 fmsl.



Photo No. 15

Row of two 2' diameter cottonwood trees and one 8" diameter elm tree at base of lake bank.

Lakeside 1865.8, 1866.2, 1866.6 fmsl

Landside 1867.7, 1868, 1867.4 fmsl

Top washed roots 1866.6, 1866.6, 1867.2 fmsl

Base of steep bank 1866.7 fmsl



Photo No. 16

4' diameter stump at a cut bank.

Lakeside elev. 1866.9 fmsl

Landside elev. 1868.8 fmsl

Bottom cut bank 1866.9 fmsl



Photo No. 17

2' diameter stump at the bottom of a cut bank.

Lakeside elev. 1866.9 fmsl

Landside elev. 1868.2 fmsl

Bottom cut bank 1866.9 fmsl

Top of washed pebbles 1867.3 fmsl



Photo No. 18

Stump split into two 18" diameter trunks.

Lakeside elev. 1867 fmsl

Landside elev, 1868.2 fmsl

Bottom of cut bank 1866.9

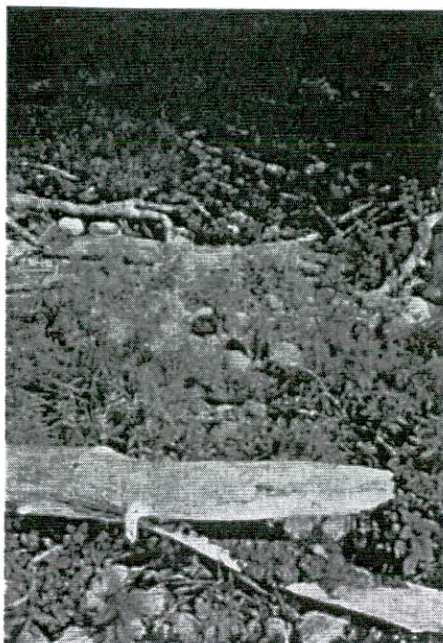


Photo No.19

Top of large washed cobblestone 1866.6



Photo No. 20

6" to 1' diameter elm trees on the upper bank and top of bank, elevation 1867 to 1870 fmsl.



Photo No. 21

6' diameter split live cottonwood tree near the top of the bank.

Lakeside elev. 1867.4 fmsl

Landside elev. 1869.2 fmsl

Top of bank elev. 1869.4 fmsl

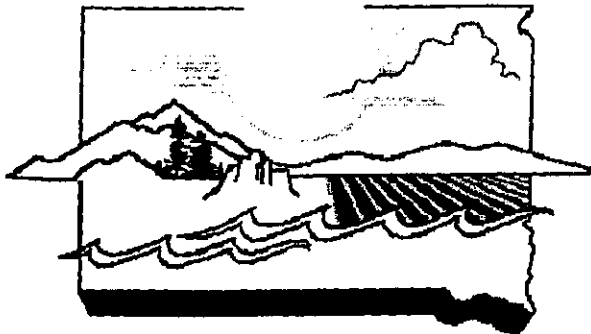


Photo No. 22

3' diameter live elm tree on the upper bank.

Lakeside elev. 1868.2 fmsl

Landside elev. 1869.6 fmsl



Protecting South Dakota's Tomorrow ... Today

AGENDA WATER MANAGEMENT BOARD

May 5, 1999

**Floyd Matthew Training Center
Joe Foss Building
523 E. Capitol Ave., Pierre SD**

Scheduled hearing times are estimates and may be delayed due to prior agenda items

May 5, 1999

8:30 am Call to Order

Approve March 3, 1999 Board Minutes

Set July 7 and 8, 1999 meeting location (Pierre suggested)

Division Update – Steve Pirner

Status and Review of Water Rights Litigation -- John Guhin

Administer Oath to Department of Environment and Natural Resources Staff

8:45 am Consider Findings of Fact, Conclusions of Law and Final Decision
- Water Permit Application No. 6111-3, Blumengard Colony

9:00 am Consider Establishment of an Ordinary High Water Mark for Wigdale Lake – Lynn Beck

9:30 am Consider Flood Control Permit Application No. FC-28, Hamlin County – Tim Schaal

9:45 am Consider Deferred Water Permit Application No. 1497-1, Midland Heights Water & Service Co. – Eric Gronlund

10:00 am Consider New Water Permit/Vested Water Right Applications

- Water Permit Application No. 6121-3, John Swanson – Ken Buhler
- Water Permit Application No. 6093-3, Lyon and Sioux RWS – Jim Goodman
- Water Permit Application No. 6125-3, Wm & Barry Juhnke – Jeff Shafer
- Water Permit Application Nos. 6131-3 and 6132-3, Daniel Ulmer -- Jeff Shafer

Consider Violations of Irrigation Questionnaire, Water Right No. 1814-3, Gary Kerkvliet – Genny McMath

Cancellation Considerations – Eric Gronlund

Future Use Reviews – Eric Gronlund

Minutes of the 108th Water Management Board Meeting
May 5, 1999

After one year, the emergency drainage measures must be disabled unless the county applies for and obtains a flood control permit.

Mr. Gronlund said the chief engineer recommended the hearing on Application No. FC-28 be continued to allow Hamilton County to proceed for one year under the county drainage law.

MOTION by Rollag, SECONDED by Rickenbach, to continue the hearing on Application No. FC-28, Hamlin County. Motion carried.

CONSIDER ESTABLISHMENT OF AN ORDINARY HIGH WATER MARK FOR
WIGDALE LAKE

Lynn Beck presented her report on Wigdale Lake (copy on file).

The Water Rights Program received a request from Dennis Jaeger and Gary Jaeger for the establishment of the Ordinary High Water Mark (OHWM), Ordinary Low Water Mark (OLWM), and outlet elevation for Wigdale Lake in Deuel County. In response to the request, an investigation was conducted in August 1998.

Rollin Siegfried, landowner adjacent to Wigdale Lake and the SD Department of Game, Fish and Parks intervened in this matter.

Wigdale Lake is located in northwestern Deuel County three miles north of the city of Goodwin. Ms. Beck noted that Attachment No. 1 in the report shows the city of Goodwin, the chain of lakes, and their watersheds.

Vested Water Right Claim No. 1494-3 held by the SD Department of Game, Fish and Parks, is the only existing claim on file for water stored in Wigdale Lake. No. 1494-3 claims an 1889 priority date and 2139 acre-feet of water per year to fill Wigdale Lake for public recreational purposes.

Vested Right Claim No. 1495-3, South School Lake, is also held by SD Game, Fish and Parks, and claims an 1889 priority date and 660 acre-feet of Round Lake overflow water per year to fill South School Lake for public recreational purposes. Ms. Beck pointed out on Attachment No. 2 the location of South School Lake, which is north of Wigdale Lake.

Ms. Beck said both of these vested water rights will need corrections made to the location of the outlets or diversion points. Outlets will also need to be established before the claims can be validated.

Wigdale Lake water levels appear to fluctuate with the water levels of the water table aquifer that occurs in the area. The Water Rights Program monitors one well, GT-81A, in the water table aquifer that encompasses Wigdale Lake. The well is 5.5 miles northwest of Wigdale Lake. Attachment No. 5 shows the water level measurements for GT-81A and the water level measurements for Wigdale Lake.

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May 5, 1999

The chain of lakes consists of Wigdale, School, Round, and Bullhead Lakes. All four of the hydrographs (Attachment No. 6) for these lakes have the same shape for the period of lake level measurements. This also follows the yearly precipitation graph (Attachment No. 9).

Besides ground water and yearly precipitation, water levels in Wigdale Lake could also be influenced by the meltwater channel, depending on ground water elevations, that connects the lakes below the surface of the ground (Attachment No. 3).

Ms. Beck said at the time of the investigation, water was flowing from Wigdale Lake to School Lake to Round Lake. There was no flow between Bullhead Lake and Round Lake. Water was spilling from Round Lake to Willow Creek and ultimately the Big Sioux River.

The manmade influences at Wigdale Lake are in the inlet and outlet areas. Roads and culverts have replaced portions of the natural channel between the chain of lakes.

The evidence that was considered in identifying the OHWM was erosion, changes in the character of the soil, boulder lines, changes in slope, and growth and destruction of terrestrial vegetation. Ms. Beck noted that Attachment No. 11 includes several photos of Wigdale Lake. The evidence graph (Attachment No. 8) shows the different bands of evidence along Wigdale Lake's shore. Each segment is a group of a particular category of evidence found at or near the same elevation. Ms. Beck said the evidence at or near 1866 feet mean sea level afforded the best elevation for an OHWM.

The outlet for Wigdale Lake is located in Section 22 somewhere in the slough known as South School Lake. Some of the riparian landowners who have been there all their lives or for several years said when the water was low there is a ditch through South School Lake from Wigdale Lake. At the time of the investigation, this area was inundated so the ditch could not be seen and an outlet elevation could not be determined.

Ms. Beck said at the time of the investigation, the lake level was at 1864.2 and Wigdale Lake and School Lake were connected. So the water was essentially the same elevation for Wigdale Lake, South School Lake, and School Lake. This indicated that the outlet elevation is somewhere below 1864. Another reason the outlet elevation will not be set at this time is because of the difference of elevation between the OHWM and what could possibly be the outlet elevation.

Ms. Beck read her conclusions into the record. The chief engineer recommended the Ordinary High Water Mark for Wigdale Lake be established at an elevation of 1866 feet mean sea level.

Rollin Siegfried said Ms. Beck's report indicates that in 1976 South School Lake and Wigdale Lake were dry except for a small pond of water in the center of Wigdale Lake. He asked if the department had seen pictures of this, or was this just recollection. Ms. Beck answered that this was recollection from the other riparian landowners that have lived there for years.

Tim Olson, SD Game, Fish and Parks, asked why the elevation of 1866 fmsl was chosen. Ms. Beck referred to the photos in Attachment No. 11. She said at or below 1865 there were a lot of

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dead trees and some of those trees were up to two feet in diameter; many were smaller six inch trees. Those are at some of the lower elevations and are indicated in Photo Nos. 3 and 4. Photo No. 4 also shows a definite top-of-beach area and a steep bank in the background. There were three different top-of-beach indicators, 1866 being in the middle. Photo Nos. 6, 7, and 8 show 4', 2', and 3' diameter live trees between 1865 and 1866 lakeside elevation. A lot of these trees were at the base of steep banks.

Chairman Brink asked if Ms. Beck had tried to date those trees. Ms. Beck answered a tree ring study had not been done. Photo Nos. 21 shows a 6' diameter split live cottonwood tree near the top of the bank. Photo No. 22 shows a 3' diameter live elm tree on the upper bank.

Tim Olson was administered the oath. He said the OHWM formally defines where the public has access to the shoreline. The Department of Game, Fish and Parks has some concerns and questions about why the 1866 elevation was chosen over any other line that might be drawn through the set of water mark data.

Mr. Olson said since 1994, when the department started measuring the water levels at the lake, there have been two times when the water elevation has been at 1867 during the month of May. One other year it was within two tenths of 1867. Mr. Olson said some of the highest water marks around the lake are at 1868. He recommended the board set the OHWM for Wigdale Lake at 1867 fmsl.

Rollin Siegfried was administered the oath. He testified that only five individuals have property on this marsh or wetland. He calls it a marsh or wetland because it is usually only two to three feet deep. This year it is five or six feet deep. Mr. Siegfried presented the board with photographs of Wigdale Lake. He stated that Wigdale Lake is a 1000 acre marsh. He showed on the map the location of his property which is in Sections 26 and 27. Mr. Siegfried said he has owned the property since 1972 and over the years he has watched the water levels of the lake go up and down. Mr. Siegfried said the water levels of the lake go up and down so fast that it is easy for cottonwood trees to grow. This marsh goes dry about every 20 years; it was dry in 1976. Mr. Siegfried stated that he took the photographs in September of 1976.

Mr. Siegfried said he sees the establishment of an OHWM as more of a legal thing than a practical thing. He recommended the board not establish an OHWM for Wigdale Lake. If the board does establish an OHWM, it should be 1867 fmsl.

Ms. Best asked Mr. Siegfried if this area is commonly used by the public for duck hunting. Mr. Siegfried answered access is difficult sometimes, but it is used by the public. He pointed out on the map the access areas around the lake. He noted that these are not all legal access areas.

Ms. Beck answered questions from Chairman Brink regarding precipitation data for this area.

Responding to a question from Mr. Rickenbach, Ms. Beck said the landowners in the area had no specific concerns about what setting the OHWM might mean to their farming and ranching operations.

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Responding to questions from Ms. Best regarding public access, Tim Olson stated that the west half of Section 22 is referred to as the Round Lake State Wildlife Management Area on Attachment No. 2. That is a state-owned game production area that is owned and managed by the Wildlife Division of the Department of Game, Fish and Parks. The corner of that piece of public land is within the meander line of Wigdale Lake. So that is one obvious place where the public would have legal access to Wigdale Lake. Mr. Olson said under state law, the public also has use of the section lines for travel purposes. There are several section lines around Wigdale Lake that could be used for travel purpose. Mr. Olson said the testimony of Ms. Beck and Mr. Siegfried demonstrates that the public does use Wigdale Lake for waterfowl hunting.

Chairman Brink asked Mr. Olson if he had looked at where the 1867 fmsl line would be. Mr. Olson answered that the east side of the lake has a fairly steep bank so it might not make a big difference in those areas. It would make a big difference in some of the slough areas, which could be productive areas for hunters to access.

Chairman Brink asked if South School Lake was included in the investigation. Ms. Beck answered that South School Lake probably has the same OHWM as Wigdale Lake, but because it is a separate meandered lake, the OHWM is being set for Wigdale Lake only.

Chairman Brink asked if someone physically goes to the lake and establishes on the ground the contour line for the OHWM. Ms. Beck answered that no one establishes the contour line for the OHWM on the ground. That is why it would be difficult for the average person to know where the OHWM is.

John Hatch said the department does set permanent bench marks around the lakes where Ordinary High Water Marks are established.

This concluded testimony on this application. Chairman Brink asked for board action.

MOTION by Freeman, SECONDED by Loucks, that the Ordinary High Water Mark for Wigdale Lake, Deuel County, be established at an elevation of 1866 feet mean sea level. Motion carried.

Chairman Brink requested that Mr. Guhin prepare findings.

On behalf of Mr. Siegfried, Ms. Best offered Exhibits S-1 and S-2, photographs and map. Chairman Brink accepted the exhibits into the record.

CONSIDER NEW WATER PERMIT APPLICATIONS

The pertinent qualifications attached to approved water permit applications throughout the hearings are listed below:

Well Interference Qualification

The well(s) approved under this permit will be located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit shall control



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Memo to File

Wigdale Lake in Deuel County

VWR No. 1494-3

The OHWM was set by the Water Management Board on May 5, 1999.

OHWM elevation 1866.0 fmsl NGVD29