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MINUTES OF THE 249TH MEETING
OF THE WATER MANAGEMENT BOARD
FLOYD MATTHEW TRAINING CENTER
523 EAST CAPITOL AVENUE
PIERRE, SOUTH DAKOTA
MAY 8, 2024

CALL TO ORDER AND ROLL CALL: Vice Chair Jim Hutmacher called the meeting to order at 9:30 a.m. Central Time. A quorum was present.

Vice Chair Hutmacher announced that the meeting was streaming live on SD.net, a service of South Dakota Public Broadcasting.

The following attended the meeting:

Board Members: Jim Hutmacher, Rodney Freeman, and Leo Holzbauer attended in person. Tim Bjork, Chad Comes, and Peggy Dixon attended remotely. William Larson was absent.

Department of Agriculture and Natural Resources (DANR): Eric Gronlund, Chief Engineer, Ron Duvall, Amanda Dewell, Adam Mathiowetz, Whitney Kilts, Mark Rath, and Brittan Hullinger, Water Rights Program.

Attorney General's Office: David McVey, board counsel; Jennifer Verleger, Water Rights Program counsel.

Court Reporter: Carla Bachand, Capital Reporting Services.

Legislative Oversight Committee Members: Representative Mike Weisgram and Senator Randy Deibert.

Findings of Fact, Conclusions of Law, and Final Decision in the matter of Water Permit Application No. 8787-3, Cheryl E Nelson: Cody Honeywell, Pierre, Shar Eliason, Gettysburg, Dianna Archer, Sturgis, Gary Schumacher, DeSmet.

Consider Future Use Water Permit Application No. 8754-3, Lewis and Clark Regional Water System: Troy Larson, Lewis & Clark RWS, John Taylor, Sioux Falls, and Leslie Murpey, Banner Associates.

Water Permit Application Nos. 8825-3 and 8268-3, Lenny Peterson: Todd Wilkinson, DeSmet, Ryan Vogel, Aberdeen, Rob Roeber, Redfield, Lenny Peterson, Hitchcock, Frank Schwartz, Adam Hansen, Chad Moore, City of Redfield.

Water Permit Application Nos. 8594A and 8817, Merlin Vannorsdel: Scott and Merlin

Vannorsdel, Viborg.

Other: Albert Keller, Lemmon.

ADOPT FINAL AGENDA: Motion by Freeman, seconded by Holzbauer, to adopt the agenda. Motion carried unanimously.

CONFLICT DISCLOSURES AND REQUESTS FOR STATE BOARD WAIVERS: None.

APPROVE MARCH 6, 2024, MINUTES: Ms. Dixon pointed out that on page 7 in the fourth paragraph under Consider Water Permit Application No. 8803-3, the words "per year" should be added at the end of the second to last sentence.

Motion by Freeman, seconded by Comes, to amend the minutes by adding "per year" as discussed. Motion carried unanimously.

Motion by Bjork, seconded by Dixon, to approve the amended minutes of the March 6, 2024, Water Management Board meeting. Motion carried unanimously.

SET JULY 10-11, 2024, MEETING LOCATION: The July 10-11 board meeting will be at the Matthew Environmental Training Center in Pierre.

PUBLIC COMMENT PERIOD IN ACCORDANCE WITH SDCL 1-25-1: None.

STATUS AND REVIEW OF WATER RIGHTS LITIGATION: David McVey reported that the two Water Management Board decisions on McCook Lake Recreation Area Association's declaratory ruling request and Dakota Bay's water permit application were appealed to the First Judicial Circuit Court. Both matters have been fully briefed, and oral arguments were held on April 9, 2024. There has been no decision rendered yet.

UPDATE ON DANR ACTIVITIES: Eric Gronlund, Chief Engineer, Water Rights Program, reported that the Water Rights Program has received many water permit applications. Staff is conducting the spring lake survey measuring water levels in several lakes, seasonal observation well readers are being hired, and staff is monitoring the US Geological Survey gaging stations and checking the drought monitor on a weekly basis.

Mark Rath was the recipient of the 2024 Governor's Award for Excellence in Leadership.

Mr. Gronlund announced that Vickie Maberry, senior secretary with the Water Rights Program, will retire on May 24, 2024, and Mark Rath, engineer with the Water Rights Program, will be retiring on June 8, 2024. Mr. Rath has agreed to be a seasonal water rights inspector for the Water Rights Program.

ADMINISTER OATH TO DANR STAFF: The court reporter administered the oath to DANR staff who were present and intended to testify during the meeting.

CANCELLATION CONSIDERATIONS: A table listing the proposed cancellations, the notices of cancellation, and the Chief Engineer's recommendations were included in the packet the board members received prior to the meeting.

Amanda Dewell stated that 11 water rights and water permits were scheduled for cancellation. The owners were notified of the hearing and the reasons for cancellation. The department received no comments or letters in response to the notices of cancellation.

The Chief Engineer recommended cancellation of the following water rights and water permits for the reasons listed.

Number	Original Owner	Present Owner(s) and Other Persons Notified	Reason
DIVISION I WATER RIGHTS/PERMITS			
RT 1384-1	Meade School Dist 46-1	Same	Abandonment
DIVISION III WATER RIGHTS/PERMITS			
PE 2464-3	John R Talsma	Same	Abandonment/Forfeiture
PE 6888-3	Coulson Land Co c/o Thomas Coulson	Same	Abandonment/Forfeiture
PE 7356-3	Mark Baxter	Same	Abandonment/Forfeiture
PE 7535-3	Donald Benson	James Benson	Non-Construction
PE 7603-3	Michael D Stevens	Same	Non-Construction
PE 7616-3	Wayne Reierson (renter)	Forrest & Ruth Borr (owners)	Non-Construction
PE 7695-3	Three J Farm Partnership c/o Janet Perry	Same	Non-Construction
PE 8096-3	Jeffrey Aman	Same	Non-Construction
PE 8097-3	Jeffrey Aman	Same	Non-Construction
RT 8188-3	Jensen Rock & Sand Inc (renter)	Gary Althoff (owner)	Abandonment

Motion by Freeman, seconded by Holzbauer, to accept the Chief Engineer's recommendations for cancellation of the 11 water rights and water permits for the reasons listed in the table. A roll call vote was taken, and the motion carried unanimously.

CONSIDER FINDINGS OF FACT, CONCLUSIONS OF LAW, AND FINAL DECISION IN THE MATTER OF WATER PERMIT APPLICATION NO. 8787-3, CHERYL E. NELSON: David McVey reported that there was no opposition to the proposed Findings of Fact and Conclusions of Law and Final Decision.

Motion by Freeman, seconded by Dixon, to approve the Findings of Fact, Conclusions of Law, and Final Decision in the matter of Water Permit Application No. 8787-3, Cheryle E. Nelson. A roll call vote was taken, and the motion carried unanimously.

UNOPPOSED NEW WATER PERMITS ISSUED BY THE CHIEF ENGINEER WITHOUT A HEARING BEFORE THE BOARD: Prior to the meeting, the board received a copy of the table listing the unopposed new water permits issued by the Chief Engineer. See attachment.

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 withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.

Well Construction Rule Qualification
The wells authorized by Permit No. ____ shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.

Irrigation Water Use Questionnaire Qualification
This permit is approved subject to the irrigation water use questionnaire being submitted each year.

Low Flow Qualification
Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

CONSIDER WATER PERMIT APPLICATION NOS. 8821-3, 8822-3, 8823-3, 8824-3, JIM OR COLLIN KLEBSCH AND WATER PERMIT APPLICATION NO. 8835-3, NICK AND SCOTT BEBO: Brittan Hullinger, engineer with the Water Rights Program, presented her report on the applications.

Water Permit Application Nos. 8821-3, 8822-3, 8823-3, 8824-3, and 8835-3 are five new applications that were submitted to appropriate water from the James River. The applications were filed by two landowners, Klebsch and Bebo, for a total of 15.11 cubic feet of water per second (cfs) for the irrigation of 1,016 total acres. The proposed diversion locations for the five permits are close together, all located three to five miles northeast of Redfield, SD.

The James River originates in North Dakota and flows south across South Dakota, emptying into the Missouri River east of Yankton. Approximately 475 of its total 710 miles are in South Dakota, and its elevation decreases about 460 feet over the distance of 710 miles, which gives the river

only 0.7 feet per mile of elevation change. This is extremely flat, and travel times on the James River are measured in weeks, rather than hours or days. The James River has periodic extremely low flows and cannot be considered a reliable source of water.

The USGS published a study in 2022 called "Assessment of Streamflow Trends in the Eastern Dakotas for Water Years 1960-2019." The report found that streams in the eastern Dakotas have experienced the greatest increases in streamflow during the last 60 years in comparison to any other USGS gaged stream in the United States.

In 2020, the USGS James River gage at Columbia was measured above flood stage for more than 518 consecutive days. Since then, the National Weather Service has updated its flood severity categories to reflect flow changes to the James River. The Water Rights Program conducted its own review and found the same significantly increasing trends.

Figures 1 through 3 in both reports show the minimum daily flow, median daily flow, and the maximum daily flow for the irrigation months for each year that data is available. Figures 5 through 7 show the median monthly flow for each of the irrigation months, for three different timeframes. While the minimum, median, and maximum streamflow during irrigation months have all generally increased, there are still years where flow in the river is low and unreliable.

In 1965, the Water Rights Commission placed maximum appropriation limits over sections of the James River. A 300 cfs appropriation restriction applies from the North Dakota/South Dakota border to the Yankton/Hutchinson County line. Of this restriction, there is a 200 cfs appropriation limit from the North Dakota/South Dakota border to the USGS gaging station in Huron. The Water Management Board has maintained these limits for almost 60 years. Current appropriations from the James River are very close to these limits.

Future Use Permit No. 8512-3, held by the City of Aberdeen, reserves 8.5 cfs. When a water source is otherwise fully appropriated, state law provides for a temporary use water permit to put water to beneficial use. If any of the five applications were approved as a temporary use water permit, there is currently no process which allows those to become regular water rights and retain the same priority date. This is problematic if water becomes available through permit cancellations, or if the maximum appropriation limits change on the James River.

Ms. Hullinger stated that due to the changing streamflow conditions and the recent influx of new applications on the James River, the Water Rights Program would like to take the opportunity to re-evaluate the limits on the James River and determine if new qualifications could be made to allow issuance of new permits while still protecting existing water rights and domestic use.

Mr. Gronlund stated the applications are requesting 15.11 cfs from the James River for the irrigation of 1,061 acres. Currently, appropriations on the James River are within approximately 1 cfs of the appropriative limits. There is a statute that allows for temporary use water permits to be issued in the interim, but even with that, there would not be enough water to satisfy these applications.

Mr. Gronlund reported that in 1965 the Water Rights Commission set two appropriative limits on

the James River. When the Water Rights Commission set the limits, they had another add-on that says after those limits are reached, the decision could be made for several hundred additional cfs to be approved with a July 1 cut-off date. Staff was not aware of the July 1 cut-off date until the recent review. In reviewing the minutes from the July 14, 1965, Water Rights Commission meeting, staff learned that the period used to make the determination of the flow records, was from 1950-1963, and it was the monthly average summertime gaging station; basically 13 years of record. The Water Rights Program has dramatically more records on the James River than what was available when the 1965 decision was made.

Mr. Gronlund noted that the James River is the only river or stream course in South Dakota that has this type of set threshold appropriative limit. Figures 5, 6, and 7 in the reports show the 50th percentile flows over a period of record at USGS gaging stations at Ashton, SD, Huron, SD, and Scotland, SD. There has been significantly more flow in the James River over the past 30 years than when the current appropriative thresholds were put in place.

Mr. Gronlund recommended deferral of all five applications until the fall/winter 2024 Water Management Board meeting to allow completion of a hydrologic analysis to determine whether the 300/200 cfs appropriation limit on the James River should be retained or modified and, if modified, to allow appropriations in excess of the current limit, what qualifications should be attached to new water permits to protect existing James River water rights and domestic uses.

No petitions in opposition to these five applications were received.

Motion by Holzbauer, seconded by Bjork, to defer Water Permit Application Nos. 8821-3, 8822-3, 8823-3, 8824-3, Jim or Collin Klebsch, and Water Permit Application No. 8835-3, Nick and Scott Bebo. A roll call vote was taken, and the motion carried unanimously.

CONSIDER FUTURE USE WATER PERMIT APPLICATION NO. 8754-3, LEWIS AND CLARK REGIONAL WATER SYSTEM: Mr. Gronlund stated that Troy Larson, Executive Director of Lewis and Clark Regional Water System, John Taylor, attorney, and Leslie Murphey, engineer with Banner Associates, were participating remotely.

SDCL 46-5-20.1 requires that any appropriation more than 10,000 acre-feet annually shall be presented by the Water Management Board to the Legislature for approval prior to the board acting upon the application.

The application was first brought before the board in July 2023, and at that time, the board passed a motion to present the application to the State Legislature for approval. The 2024 South Dakota Legislature adopted Senate Joint Resolution 502 providing legislative approval for a future use permit application by Lewis and Clark Regional Water System.

Adam Mathiowetz, senior groundwater engineer with the Water Rights Program, presented his report on the application.

Future Use Water Permit Application No. 8754-3 proposes to appropriate and reserve for future use 19,121 acre-feet of water annually from the Missouri: Elk Point aquifer near the Missouri

River in Clay County, three miles southeast of Vermillion. This area is also known as Mulberry Bend. The water is reserved for future water supplies for a rural water system.

The Missouri: Elk Point aquifer is a glacial sand and gravel aquifer underlying the flood plain of the Missouri River from east of Yankton to the southeastern corner of the state at North Sioux City. It is a very large and well-used aquifer. In general, the aquifer is unconfined, but there are locally confined conditions, particularly in the northwest and along the bluff coming out of the flood plain.

At the future use site, the top of aquifer material can typically be found within five feet of land surface and may have a total thickness of up to 120 feet. The static water level is typically between 15 and 25 feet below land surface.

When considering water availability, Mr. Mathiowetz considered the observation well data as well as a hydrologic budget. The department maintains 36 observation wells completed into the Missouri: Elk Point aquifer. Figure 2 on page 4 of the report shows six hydrographs for nearby observation wells and the Missouri River gage at Maskell, Nebraska, within 10 miles of the Lewis and Clark Regional Water System future use area. The aquifer and the river gage respond similarly. The aquifer responds to changes in climatic conditions, lowering during drier times and rising during wetter times, and especially rising very rapidly in result to flooding (2011 and 2019 data).

Recharge to the aquifer is primarily from precipitation and groundwater inflow from the Lower Vermillion Missouri, Lower James Missouri, and Big Sioux aquifers. There have been several studies and reviews of recharge to the aquifer. Most recently, the SD Geological Survey conducted a study regarding the induced recharge from the river into the aquifer as a result of pumping at Lewis and Clark Regional Water System's well sites. During that time, the Geological Survey observed that over a 365-day model run, 84.6 percent of the water that would be pumped from the water system's wells would be river water and thus, induced recharge into the aquifer.

The estimated recharge rate to the Missouri: Elk Point aquifer, 3.8 inches per acre per year, was first estimated based on precipitation and inflow from the hydrologically connected aquifers. When the induced recharge is included , primarily from Lewis and Clark Regional Water System, that greatly increases the water availability in the aquifer. Estimates on recharge to the aquifer when the induced recharge is included would be 130,770.2 acre-feet per year if this application were approved and put into beneficial use.

Since the time this application was first presented to the board, 11 new applications for water from the Missouri: Elk Point aquifer have been filed with the Water Rights Program. Several of the applications have been approved as permits and have priority dates junior to this application. The City of Vermillion holds a future use permit for 1,900 acre-feet per year, and there are also several Lewis & Clark future use permits where all the water has been put to beneficial use.

As part of the review for the hydrologic budget with the Missouri: Elk Point aquifer, the Water Rights Program reviewed for irrigation, the application rate per permitted acre, because it was determined that that is, in general, the most accurate method, but it is extremely time-consuming,

especially on an aquifer of this scale with several hundred permits. At the time the report was written, Mr. Mathiowetz determined that the application rate per permitted acre for cropland, corn, beans, etc. was 0.331 feet per year or 3.97 inches, and for turf, such as a turf business or golf courses, it was 0.908 feet per year or 10.9 inches. At the time of the report, there were 82,306 acres authorized for irrigation plus 80 acres that were pending. Of that, 809.6 acres plus 10 pending acres were for turf irrigation.

There are a significant number of domestic wells completed into the aquifer; however, there is a high likelihood that several of them are being served by rural water systems due to the proliferation of rural water systems in the area.

At the time the report was written, the balance of the hydrologic budget had a recharge of 130,770.2 acre-feet per year. The withdrawals, including the pending applications at that time, were 118,276 acre-feet per year.

The potential for unlawful impairment is not reviewed for future use applications because it is not required by statute and because the well location is not known, so the Water Rights Program cannot estimate any effects of drawdown on nearby wells.

The Chief Engineer recommended approval of Application No. 8754-3 with the following qualifications:

1. Future Use Permit No. 8754-3 reserves 19,121 acre-feet of water annually from the Missouri: Elk Point aquifer.

2. Future Use Permit No. 8754-3 is approved with the stipulation that this Permit is subject to review by the Water Management Board as to accomplishment in developing reserved water upon expiration of seven (7) years. This Permit shall be subject to cancellation if the Water Management Board determines during the review that the holder cannot demonstrate a reasonable need for the Permit.

3. At such time as definite plans are made to construct works and put the water reserved by this permit to beneficial use, specific application for all or any part of the reserved water must be submitted prior to construction of facilities pursuant to SDCL 46-5-38.1.

Troy Larson thanked the board and Water Rights staff and requested board approval of the future use permit application.

Motion by Comes, seconded by Freeman, to approve Future User Water Permit Application No. 8754-3, Lewis and Clark Regional Water System, subject to the qualifications set forth by the Chief Engineer. A roll call vote was taken, and the motion carried unanimously.

RECONSIDER DEFERRED WATER PERMIT APPLICATION NO. 8566-3, DUSTIN HAASE: Ms. Verleger noted that Mr. Haase was not present.

This application was presented to the Water Management Board in March 2022, and the board deferred the application for up to two years. The Chief Engineer is recommending further deferral of the application for up to another five years to collect more data, but with the caveat that Mr. Haase can request that the application be brought back before the board anytime if he feels that he can meet the burden of proof that unappropriated water is available. Ms. Verleger stated that Mr. Haase did protest the Chief Engineer's recommendation based solely on the fact that he would like it reviewed again in 2025, rather than waiting the full five years.

Ms. Verleger offered Exhibit 100, which includes the Chief Engineer's recommendation, the technical report, Mr. Haase's petition in opposition, and the notice of hearing.

The exhibit was admitted into the record.

Whitney Kilts, engineer with the Water Rights Program, presented her report on deferred Application No. 8566-3.

Water Permit Application No. 8566-3 proposes to appropriate water at a maximum diversion rate of 1.78 cfs from one well completed into the Pleistocene Series: Unknown aquifer to irrigate 132 acres in Turner County, approximately three miles west of Parker, SD.

This application was initially reviewed in early 2022 alongside two other applications filed by the applicant (Water Permit Nos. 8565-3 and 8567-3) also requesting to irrigate out of the same aquifer. Water Permit Nos. 8565-3 and 8567-3 were approved, and this application was deferred for a period of two years. The two years of deferral have passed, and the application is up for review by the board once again.

The published groundwater studies, with the most recent being published in 2015, that include this area in Turner County, do not identify a sand and gravel aquifer overlaying the bedrock in this area. Information on this aquifer started becoming available with the submittal of water permit applications, with the biggest amount of information available starting in 2014 from an aquifer performance test associated with a water permit application. The understanding of this aquifer has grown over the review of several water permit applications from 2014 to 2022 as well as observation wells monitored by the Water Rights Program since 2016.

Ms. Kilts stated that to bring this information together into a cohesive understanding of the aquifer, a detailed review of the available information for this application was done. This resulted in a smaller aquifer extent of 2,624 acres, shown in red in Figure 7 in the report. Available information indicates the sands and gravels of this aquifer are confined to a relatively narrow valley in the bedrock.

The recharge rate to this aquifer, extent as shown in Figure 7 in the report, required to balance estimated average annual withdrawals including this application is 2.36 inches per acre per year. Initially, in 2022, this was reviewed as a confined aquifer. A 1985 study of aquifers and recharge by Hedges concluded that, for a confined aquifer, the general range for average annual recharge is 0.15 to 0.60 inches per acre per year. In the re-review of this aquifer, it was noted that certain locations of the aquifer have several characteristics of a buried, unconfined aquifer. From the

1985 Hedges study, the generalized range of recharge to a buried, unconfined aquifer is 0.9 to 3.2 inches per acre per year with an average of 2.0 inches per acre per year.

Ms. Kilts stated that in both instances, the confined aquifer range, as well as the average of the buried, unconfined aquifer range, fall below the estimated amount of recharge that would be needed to balance average annual recharge and average annual withdrawals for current appropriations, including this application. When the Water Rights Program encounters these instances of using generalized recharge range to look at the hydrologic budget, the observation well data is heavily relied upon to indicate where the balance is between the range of recharge and withdrawals from the aquifer

The observation well data for this aquifer is shown in Figure 10 in the report. The observation wells for this aquifer have a relatively short period of record. There are only two years of data at the current level of appropriative development, including Water Permit Application Nos. 8565-3 and 8567-3 issued in 2022. Water levels in the observation wells have been decreasing since 2021. With the short period of record, as well as the behavior of water levels, there is not a long enough period to see how the aquifer has responded, historically, to climatic conditions. At this time the current observation well data does not show that water is available for appropriation.

If this application were approved, in the short term, it would be unlikely to unlawfully impair existing water permit holders and domestic users. The nearest water permit is held by the applicant, who would be incentivized to manage withdrawals so as not to impact himself. In the long-term, if average annual withdrawals exceed average annual recharge to the aquifer, there could be issues as the water levels decrease over time to the point where pumping could impact existing users.

In response to a question from Vice Chair Hutmacher, Ms. Kilts stated that recharge to the aquifer is from infiltration and precipitation, and water could be coming into this aquifer from the Niobrara aquifer.

Mr. Gronlund recommended that the application be deferred for the following reasons:

- The recharge rate needed to support the estimated average annual withdrawals, including this application, exceeds the estimated average annual recharge rate for a buried, unconfined aquifer.
- The period of record for observation wells completed into this aquifer contains only two years of readings at the current level of development. Those two years show declines in water levels. Without a greater period of record, it cannot be determined if the water level declines are seasonal fluctuations due to the recent climatic conditions, due to recent development in the aquifer, or both.

Mr. Gronlund recommended deferral for up to five years to collect more observation well data to determine whether water is available for appropriation. After that time, a review will take place, and the application will be brought back before the Water Management Board for consideration. The applicant can request the application be brought before the board prior to five years, but the burden of proof is on the applicant to show that unappropriated water is available.

Motion by Freeman, seconded by Bjork, to defer Water Permit Application No. 8566-3, Dustin Haase, for up to five years. A roll call vote was taken, and the motion carried unanimously.

CONSIDER APPEAL, IF ANY, OF PRE-HEARING CHAIR'S ORDER GRANTING THE CHIEF ENGINEER'S MOTION TO DISMISS ROBERT ROEBER PETITION IN OPPOSITION TO WATER PERMIT APPLICATION NO. 8825-3 AND DENYING APPLICANT'S MOTION TO DISMISS AS MOOT: Mr. McVey stated that no appeal was filed.

CONSIDER WATER PERMIT APPLICATION NOS. 8825-3 AND 8268A-3, LENNY PETERSON

Appearances
Todd Wilkinson, attorney from DeSmet, represented the applicant, Lenny Peterson.

Ryan Vogel, attorney from Aberdeen, represented the City of Redfield.

Jennifer Verleger, Assistant Attorney General, represented the Water Rights Program.

Ms. Verleger stated that one report was completed for both applications. Water Permit Application No. 8268A-3 is uncontested. Two petitions in opposition to Water Permit Application No. 8825-3 were received by the Water Rights Program. The first petition was submitted by Robert Roeber, which was dismissed by the prehearing chair. The second petition was submitted by the City of Redfield. The City of Redfield does not oppose the application, provided that the Water Management Board adopts the Chief Engineer's recommended qualifications.

Ms. Verleger offered Exhibit 100, which includes the Chief Engineer's recommendation for both water permit applications, the technical report for both applications, the Affidavit of Publication, the Notice of Hearing, the City of Redfield's petition in opposition, and Mr. Roeber's petition in opposition, which has been dismissed.

The exhibit was admitted into the record.

Todd Wilkinson stated that a stipulation was reached between the applicant and the City of Redfield. The stipulation basically states that the City of Redfield will not stand in opposition of the application, provided that the permit is issued in accordance with the Chief Engineer's recommendations. The request for a delay of the hearing has been withdrawn.

Mr. Wilkinson offered Exhibit A, the stipulation between the applicant and the City of Redfield regarding Water Permit Application No. 8825-3, Lenny Peterson.

The exhibit was admitted into the record.

Vice Chair Hutmacher noted that the board is not bound by the stipulation, but the board will take it under consideration.

Brittan Hullinger presented her report on Water Permit Application Nos. 8268A-3 and 8825-3.

Water Right No. 8268-3 was originally approved on December 7, 2017, to divert 2.67 cfs for the irrigation of 450 acres with two qualifications; that the Water Right does not authorize diversion of water after June 1 of each year unless orders have been issued by the Chief Engineer, and that water must be flowing over the spillway of the Redfield Dam.

An on-site licensing inspection was completed January 25, 2024. The inspection found that only 270 of the 450 permitted acres were developed at the diversion rate of 2.67 cfs.

Application No. 8268A-3 proposes to amend Water Right No. 8268-3 to remove the permit qualification not authorizing diversion of water from Turtle Creek after June 1, unless written orders have been issued by the Chief Engineer. All other permit qualifications on Water Right No. 8268-3 would remain unchanged. The amendment of Application No. 8268A-3 does not seek to appropriate additional water or irrigate more acres than authorized by Water Right No. 8268-3.

Application No. 8825-3 proposes to appropriate 1.33 cubic feet of water per second from Turtle Creek at a diversion point that is adjacent to the diversion point for Water Right No. 8268-3, to irrigate 230 acres. The location for both irrigation projects is approximately 6.5 miles southwest of Redfield.

Turtle Creek is a prairie stream that headwaters in Beadle, Hand, and Faulk counties, and flows to the northeast before discharging into the James River, east of Redfield. It is a seasonal stream with heavier flows in the spring due to snow runoff and thunderstorm or rain events. As the summer progresses, the creek becomes a less reliable water source.

Submitted with Application No. 8268A-3 was a report completed by Dennis G. Odens, P.E. of Bartlett & West to support the new permit and amendment applications. In the report, Mr. Odens stated anecdotally that the applicant believes streamflow has increased due to climatological changes. Odens then analyzed historical stream gaging data from a discontinued USGS gage called Turtle Creek west of Tulare, SD, which operated between 1953 to1989. He compared that data to data collected from 2012 to 2023 at an active DANR stream gage, called WQM-172, which is located at the same site as the discontinued USGS gage. Mr. Odens concluded that there is a reasonable probability that unappropriated water is available from Turtle Creek for existing and requested water rights during the irrigation season and that median stream flows from the past 12 years are generally greater than median stream flows from the discontinued USGS gage.

Since the approval of Water Permit No. 8268-3, the WQM-172 gage has been upgraded and real-time streamflow data is available online through the National Weather Service. The location of the WQM-172 gage is upstream of the diversion points and can be seen on Figure 1 of the report. Because there is real-time streamflow data available since 2017, it is reasonable to replace the June 1 cutoff date with a flow bypass qualification.

There are currently nine existing water rights or permits appropriating water from Turtle Creek downstream of the proposed diversion point for Water Permit Application No. 8825-3. The Water Rights Program has historically estimated that 50 percent of permitted diversion rates will be

pumping at any given time. This makes the estimated downstream use, at any given time, to be 1.5 cfs during the irrigation season. Since Turtle Creek pools in Redfield Dam before water spills over to reach downstream users, evaporation loss was also calculated, and direct precipitation subtracted from that value. Taking the average of the four months of the irrigation season, the estimated evaporation rate is 1.5 cfs of continuous evaporation at any given time during the irrigation season.

Water Right No. 8268-3 and Water Permit Application No. 8825-3, if approved, will be assumed to pump a total of 4 cfs at any given time during the irrigation season. Overall, the WQM-172 gage should be required to bypass at least 7 cfs.

To see if there was a reasonable probability that water would be available, the Water Rights Program performed its own analysis of Turtle Creek streamflow. Comparing the median daily flows of Turtle Creek from the discontinued USGS gage to the median daily flows from the WQM-172 gage, there does appear to be a significant increase in flow during the irrigation season, which is shown in Figure 2 in the report. The Water Rights Program also analyzed the percentage of days where streamflow exceeded 7 cfs for the months of May, June, July, and August, for all the years that data was available (Figures 3 through 6 in the report).

Staff concluded that there is a reasonable probability that water is available for appropriation at times during the irrigation season. While there does appear to be increased flow on the creek compared to data from 1953 to 1989, there is the possibility that future flow will be different than what was experienced in the recent past.

Water Permit Application No. 8268A-3 proposes to amend Water Right No. 8268-3 by removing the June 1 shutoff date. Application No. 8825-3 proposes to divert 1.33 cfs from Turtle Creek to irrigate 230 acres. Ms. Hullinger discussed recommended qualifications for the two applications if they are approved.

If the WQM-172 gage is flowing less than 7 cfs but there is flow over the entire Redfield Dam spillway, the permit holder can request permission from the Chief Engineer to pump. The drainage area upstream of the Redfield Dam is 357 square-miles greater than the drainage area upstream of the WQM-172 gage. Any inflow from the Turtle Creek watershed below the WQM-172 gage will contribute to additional flow over the spillway.

Mr. Gronlund reported that the application for Water Right No. 8268-3 submitted to the Water Rights Program in 2017, was contested. There were several petitioners, most notably, the City of Redfield. The contested case hearing was considered by the Water Management Board in October 2017, and findings were adopted in December 2017. Much of the discussion at the time of the hearing focused on there not being real-time gaging stations to check instantaneous flows. At the time, Mr. Peterson advocated for a stage level mark on a nearby bridge. DANR opposed that idea because there was fence in that location. Debris could be caught in the fence or high flows could change the configuration of where the mark would be.

After taking the information into consideration, the Water Management Board approved the application with the following qualifications:

1. Diversion of water from Turtle Creek authorized by Water Permit No. 8268-3 is subject to all of the following:

    a) Flow as needed for domestic use, including livestock water and prior rights must be bypassed.

    b) Diversion of water under this permit is subject to senior water rights and any written orders, including shut-off orders, issued by the Chief Engineer.

    c) Water Permit No. 8268-3 does not authorize diversion of water from Turtle Creek after June 1st of each calendar year, unless written orders have been issued by the Chief Engineer.

    d) Water Permit No. 8268-3 authorizes diversion of water from Turtle Creek only when water is discharging across the entire length of the spillway weir at Redfield dam located in the NW¼ NE¼ Section 9, T116N, R64W, Spink County when pumping is occurring.

2. The Water Management Board retains jurisdiction of Water Permit No. 8268-3 in the event that additional information shows that changes need to be made to protect domestic uses or senior water rights.

3. Pursuant to SDCL 46-2-19 the Chief Engineer, or designated representative, may enter upon the lands authorized by Water Permit No. 8268-3 for the purpose of inspecting works and determining if the irrigation system is operating.

4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

Mr. Gronlund stated that the irrigation questionnaires for this permit indicate that Mr. Peterson developed the system within the construction period, and irrigation took place in 2022 and 2023. In both of those years, Mr. Peterson contacted the Water Rights Program requesting authorization to continue pumping, and that was granted because water was spilling over the entire Redfield Dam spillway. That caused Mr. Peterson to contact Mr. Odens with Bartlett & West to perform an engineering analysis, which was provided to the Water Rights Program. Following that analysis, Water Permit Application Nos. 8268A-3 and 8825-3 were filed.

Mr. Gronlund recommended approval of Application No. 8268A-3 removing the June 1st shutoff qualification and replacing with the following amended qualifications:

1. Diversion of water from Turtle Creek authorized by Water Right No. 8268-3 and this Permit is subject to all the following:

    a) Flow as needed for domestic use, including livestock water and prior rights must be bypassed.

b) Diversion of water under Water Right No. 8268-3 and this Permit is subject to senior water rights and any written orders, including shut-off orders, issued by the Chief Engineer.
c) Water Right No. 8268-3 and this Permit do not authorize diversion of water from Turtle Creek when flow drops below 7.0 cfs measured at the SD DANR streamflow gage WQM-172 located in the NE ¼ NE ¼ of Section 36-T115N-R65W, unless written orders have been authorized by the Chief Engineer.
d) Water Right No. 8268-3 and this Permit authorize diversion of water from Turtle Creek only when water is discharging across the entire length of the spillway weir at Redfield dam located in the NW¼ NE¼ Section 9-T116N-R64W, Spink County when pumping is occurring.

2. The Water Management Board retains jurisdiction of Water Right No. 8268-3 and this Permit in the event additional information shows changes need to be made to protect domestic uses or senior water rights.

3. Pursuant to SDCL 46-2-19, the Chief Engineer, or designated representative, may enter upon the lands authorized by Water Right No. 8268-3 and this Permit for the purpose of inspecting works and determining if the irrigation system is operating.

4. Water Right No. 8268-3 and this Permit are approved subject to the irrigation water use questionnaire being submitted each year.

Mr. Gronlund recommended approval of Water Permit Application 8825-3 with the following qualifications:

1. Diversion of water from Turtle Creek authorized by this Permit is subject to all the following:

   a) Flow as needed for domestic use, including livestock water and prior rights must be bypassed.
   b) Diversion of water under this Permit is subject to senior water rights and any written orders, including shut-off orders, issued by the Chief Engineer.
   c) This Permit does not authorize diversion of water from Turtle Creek when flow drops below 7.0 cfs measured at the SD DANR streamflow gage WQM-172 located in the NE ¼ NE ¼ of Section 36-T115N-R65W, unless written orders have been authorized by the Chief Engineer.
   d) This Permit authorizes diversion of water from Turtle Creek only when water is discharging across the entire length of the spillway weir at Redfield dam located in the NW¼ NE¼ Section 9-T116N-R64W, Spink County when pumping is occurring.

2. The Water Management Board retains jurisdiction of this Permit in the event additional information shows changes need to be made to protect domestic uses or senior water rights.

3. Pursuant to SDCL 46-2-19, the Chief Engineer, or designated representative, may enter upon the lands authorized by this Permit for the purpose of inspecting works and determining if the irrigation system is operating.

4. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

Mr. Gronlund noted that this is not necessarily going to be a reliable source of water. Mr. Peterson will have to watch the gaging station and watch the flow going over the dam.

Mr. Wilkinson stated that the applicant is in full agreement with the Chief Engineer's recommendation and qualifications.

Mr. Vogel stated that the City of Redfield agrees with the Chief Engineer's recommendation and qualifications and has no issues with approval of the applications.

Motion by Freeman, seconded by Comes to approve Water Permit Application No. 8825-3, Lenny Peterson, subject to the qualifications set forth by the Chief Engineer. A roll call vote was taken, and the motion carried unanimously.

Motion by Freeman, seconded by Bjork, to approve Water Permit Application No. 8268A-3, Lenny Peterson, subject to the qualifications set forth by the Chief Engineer. A roll call vote was taken, and the motion carried unanimously.

CONSIDER WATER PERMIT APPLICATION NOS. 8594A-3 AND 8817-3, MERLIN VANNORSDEL

Appearances
Jennifer Verleger, Assistant Attorney General, represented the Water Rights Program.

Scott and Merlin Vannorsdel appeared pro se.

Ms. Verleger stated that the Chief Engineer recommended approval, with conditions, for Water Permit Application 8594A-3, which is an application to relocate the diversion point and irrigated acres approved by Permit No. 8594-3.

Water Permit Application No. 8817-3 proposes to add 91 acres to the irrigated area to be authorized by Water Permit Application No. 8594A-3. The Chief Engineer recommended deferral of this application and notes that there are two senior applications in the area that the Water Management Board deferred in March 2024.

The staff prepared a combined technical report covering both applications. Application No. 8594A-3 was not contested, and no comments were received. Application No. 8817-3, for the additional 91 acres, was contested by the applicant, and no other comments were received.

Ms. Verleger offered Exhibit 100. which includes the Chief Engineer's recommendation for both

applications, the technical report on both applications, the Affidavits of Publication, the Notices of hearing, and Merlin Vannorsdel's petition opposing the Chief Engineer's recommendation for deferral of Water Permit Application No. 8817-3.

The exhibit was admitted into the record.

Adam Mathiowetz, senior groundwater engineer with the Water Rights Program, presented his report on the applications.

Water Permit Application No. 8594A-3 proposes to amend Water Permit No. 8594-3 to change the location of the diversion point and acres to be irrigated. Water Permit No. 8594-3 currently authorizes a maximum instantaneous diversion rate of 2.22 cfs from one well in the NE ¼ Section 29 to be completed into the West Management Unit of the Upper Vermillion Missouri aquifer for the irrigation of 156 acres located in the NE ¼ Section 29; all in T97N-R53W.

Application No. 8594A- 3 proposes to change the location of the well and the acres to be irrigated, still to be completed into the West Management Unit of the Upper Vermillion Missouri aquifer, to the E 1/4 quarter corner of Section 21 for the irrigation of 156 acres located in the E ½ Section 21 all in T97N-R53W. This proposed amendment does not authorize any increase in the number of acres to be irrigated, and no increase in the diversion rate or volume of water to be appropriated from the Upper Vermillion Missouri: West aquifer.

Water Permit Application No. 8817-3 proposes to add 91 acres to the irrigated area authorized by Water Permit Application No. 8594A-3, and to use the same well.

The Upper Vermillion Missouri: West is a management unit of the Upper Vermillion Missouri. The aquifer is a Quaternary aged glacial aquifer running in a northwest to southeast bedrock channel. The aquifer had previously been considered as the Upper Vermillion Missouri aquifer in 2012 and again in 2014 by former staff engineer, Ken Buhler. In 2012, all applications from the Upper Vermillion Missouri aquifer were deferred for further study until a study was completed by the South Dakota Geological Survey. In 2014, Buhler, using the results from that South Dakota Geological Survey study, re-delineated the Upper Vermillion Missouri aquifer and divided it into three management units: North, South, and West. Water Permit No. 8594-3, and Application Nos. 8594A-3 and 8817-3 is in the West management unit. At the proposed well location for the applicant, the aquifer is confined as it is throughout most of the 2014 Buhler delineation.

Recharge to the to the Upper Vermillion Missouri: West occurs primarily through leakage from fractures in the underlying Sioux Quartzite, outflow from hydrologically connected aquifers such as the Niobrara, and any direct infiltration of precipitation where this aquifer may be at land surface, which would be along Turkey Ridge Creek.

Mr. Mathiowetz stated that there is no specific study of recharge rate to the aquifer, so the Water Rights Program relies on the Hedges et al 1985 Corps of Engineers study where they determined a range of 0.15 to 0.6 inches per acre per year as a reasonable recharge rate to a confined aquifer. Over the Buhler 2014 aerial extent, that comes to a range of 245 to 980 acre-feet per year.

In 2014, Buhler also performed a flow-net analysis to calculate what he called groundwater outflow, using January 2014 observation well measurements and a cross-sectional area that was determined by the South Dakota Geological Survey as part of their study. Buhler estimated hydraulic conductivity using reported aquifer pumping data from various well completion reports. Buhler used the two observation wells closest to the outflow area of the aquifer, known as TU-77Z and TU-77T. TU-77Z was destroyed by road construction in 2018. Figure 1 on page 2 of Appendix 1 in the report shows the location of the observation wells. Buhler's aquifer delineation from 2014 is the red area on Figure 1.

Mr. Mathiowetz stated that Buhler's groundwater outflow is technically groundwater intra-flow because it does not cross the outflow boundary of the aquifer, but it can be used as an analog for recharge to provide an idea of likely scale to recharge. At the time Buhler calculated outflow using that one data point, he calculated an outflow of 2,681 acre-feet per year; however, he did not account for any of the down-gradient permits, that would have been below TU-77T, at that time. When you subtract those, the estimated outflow comes to 2,657 acre-feet per year.

Mr. Mathiowetz re-calculated outflow from the aquifer using all available data, typically using the first reading of the year in May. For the two observation wells Buhler used, TU-77Z and TU-77T, and the observation wells that are currently available, TU-77S and TU-77T, he determined an average groundwater outflow of 3,179 acre-feet per year for the first one and 2,438 acre-feet per year for the second one. When subtracting the withdrawals down gradient of TU-77T, those become 3,062 and 2,329 acre-feet per year. However, when considering the 2023 observation well data, there has been a very steep decline in the hydrograph for both TU-77S and TU-77T. This change reduced the calculated outflow to 500 acre-feet per year for 2023, which is shown on Figure 5 on page 7 of the appendix. This decline in water level for TU-77S may have been tied to nearby pumping for Water Permit No. 8555-3, as well as drought conditions, but there is decline in both observation wells. In TU-77T, while there are permits in close proximity, for the most part, they were not actively pumping at that time.

Mr. Mathiowetz stated that it would be prudent to continue monitoring these observation wells to ensure that the 2023 data was accurate and to attempt to discern any cause of the significant recent decline. A comparison of the groundwater outflow and withdrawals from an aquifer needs to be taken in the context of the year-to-year changes in weather, total withdrawals, and the location of the withdrawals in relation to the observation wells the data is taken from. It is important, especially the proximity, when you consider a confined aquifer such as the Upper Vermillion Missouri:West because nearby pumping can have a significant impact on water levels and thus, change the calculations for groundwater outflow because they are reliant on the differences in water level elevation between two observation wells. However, the groundwater outflow calculations do show that the Hedges rate is likely to be on the low side.

Discharges from the Upper Vermillion Missouri:West aquifer are primarily through well withdrawals and natural outflow, but there may also be evapotranspiration in areas where the aquifer may be at or near land surface along Turkey Ridge Creek.

At the time Mr. Mathiowetz wrote the report, there were 14 water rights and permits; however, the

City of Viborg's permit was on standby and not actively used. The average reported irrigation over the entire period of record the Water Rights Program maintained from 1979 to 2022 was 32 acre-feet per year with a 10-year recent average, 2013 to 2022, of 196.2 acre-feet per year. As part of preparation for the hearing, Mr. Mathiowetz reviewed the 2023 irrigation questionnaire data. The 2014 to 2023 average reported is 256.4 acre-feet per year. He calculated an average application rate per permitted acre per water right that had been reported as constructed. The application rate was 4.6 inches per year across the 10-year period of 2013 to 2022. If you apply that 4.6 inches per acre to the number of permitted acres at that time the report was completed, that comes to 577 acre-feet per year. The estimated non-irrigation use, at the time of the report, was 557 acre-feet per year. That is a total of 1,134 acre-feet per year, estimated average annual withdrawals. The table showing that data is on page 12 of the appendix. The table also contains the estimated use for two other pending applications. The appendix is a report written for Application No. 8797-3, which was deferred by the Water Management Board at the March 2024 meeting.

Mr. Mathiowetz also reviewed the observation well data available for the aquifer. The hydrographs for these wells are shown in Figure 7 on page 13 of the appendix. The recent decline started in 2020 and continued through 2023, with some recovery between irrigation seasons. TU-77S, which is the most upgradient observation, well had a 20 plus foot decline below its previous record low, which is 40 feet below its record high from 2019. That is also the observation well that is nearest to high-rate pumping by appropriative permits. TU-77T, the most down-gradient well, had an approximate decline of 15 feet from the record high in 2019 and five feet below the previous record low. The more significant decline shown in TU-77S may be from local pumping, drought conditions, increasing demand in the general local area, or a combination of any of those factors. Continued monitoring is required to determine which combination is likely to have caused the decline.

When reviewing the groundwater outflow, which is shown as a calculation chart on page 7 of the appendix, and the observation well hydrographs, page 13, it is necessary to consider these calculations in the context of climate, aquifer withdrawals, and the location of the observation wells to pumping wells. There are several new permits that have yet to be developed and are within their respective construction periods.

When considering the potential for unlawful impairment for this application, direct impacts caused by drawdown created by pumping were considered. Page 5 of the specific report for these applications shows that the nearest water right is held by Vannorsdel's Inc. and is located a half mile south of the proposed well site. The next nearest is held by Allen Vannorsdel and the next nearest after that is held by James D. Bondesen. The last two are approximately 1.1 mile away from the well location proposed by these applications. The nearest domestic wells on file with the Water Rights Program are 0.3 miles southwest and drilled for the applicant in 2005. The next nearest two are one-half mile north and a half-mile east, respectively, of the proposed well site. Domestic well locations the Water Rights Program has are based on the locations provided by the well driller at the time of well completion. The Water Rights Program does not have records for all wells drilled in South Dakota because it was not required during the entire history of well-drilling in the state, so there may be other wells in the area that the Water Rights Program is not aware of.

The applicant's well site is confined so drawdown can extend some distance from the pumping well; however, exact drawdown cannot be known without aquifer testing at that site. In the past the Water Management Board and the Water Rights Program have recognized that some drawdown is required for a well to pump. ARSD 74:02:04:20(7) states that a well must be constructed such that the pump in the well can be placed 20 feet into the saturated aquifer or as deep into the aquifer as possible if 20 feet of saturated thickness is not available.

A complaint was filed in July 2022 for a well completed into this aquifer, regarding potential well interference. That site is three miles northwest of the applicant's proposed well site and 1.4 miles south of Observation Well TU-77S. The complaint stated the well had ceased providing water for the well owner's cattle. No well completion report was found for the well. The well owner stated the well was 7 to 15 years old and was believed to be 160 feet deep with a pump setting of 60 feet. A review of the hydrograph for TU-77S showed the static water level at the time was approximately 40 feet below top of casing. That observation well has approximately the same surface elevation as the well owner's non-pumping well. The nearest appropriative pumping well was approximately 1.3 miles northeast of the non-pumping well. The non-pumping well was also noted to be near the mapped edge of the aquifer. Using that information, the Water Rights Program determined that was not a substantiated complaint of well interference and that it was likely an issue regarding the pump being placed too high in the well.

Mr. Mathiowetz stated that the Water Rights Program has not received any further complaints regarding this issue.

While there has been notable decline in the observation wells completed into this aquifer, there has been no measured dewatering of the saturated aquifer material. Some well owners who have placed their pumps above or not sufficiently deep enough into the saturated aquifer material may need to lower their pumps if there is nearby pumping. Mr. Mathiowetz stated that when considering the statutes and rules, the amount of artesian head pressure at the proposed well site, which is more than 20 feet above the top of the saturated aquifer, and the lack of substantiated well interference complaints, there is a reasonable probability this application will not cause unlawful impairment of existing water rights or permits with appropriative wells or adequate domestic wells. However, due to the uncertainty surrounding the sudden lowering of water levels in the two observation wells, there may be a concern of cumulative impact of all appropriative pumping causing a general lowering of water levels. Under such conditions, an unlawful impairment of senior water rights or adequate domestic wells may occur.

Mr. Mathiowetz stated that because Application No. 8594A-3 is a location transfer rather than a new permit, it falls under review of SDCL 46-2A-12, which states that an amendment of an existing permit or license may be granted for a change in use, a change in point of diversion or other change only if the change does not unlawfully impair existing rights and is for a beneficial use and in the public interest. Therefore, water availability does not need to be considered for the location transfer and change in diversion point.

Water Permit Application No. 8817-3 is for an additional 91 acres, so it is a new water permit application that falls under SDCL 46-2A-9, which states that a permit to appropriate water may be

issued only if there is a reasonable probability that there is unappropriated water available for the applicant's proposed use, that the diversion point can be developed without unlawful impairment of existing domestic water uses and water rights, and that the proposed use is a beneficial use and in the public interest as it pertains to matters of public interest within the regulatory authority of the Water Management Board.

Mr. Mathiowetz stated that considering that two senior water permit applications from this aquifer were deferred by the Water Management Board at the March 2024 meeting for concerns regarding water availability, his review of Application No. 8817-3 concluded that because there were existing concerns, those concerns would carry forward to this application. Based on that information, the Chief Engineer's recommendation was for approval of Application No. 8594A-3 and deferral of Application No. 8817-3.

In response to questions from Ms. Verleger, Mr. Mathiowetz stated that he reviewed the petition in opposition of Application No. 8817-3. The petition was not considered during his analysis because it had not yet been submitted. He said nothing in the petition impacts the technical analysis because when he considers water availability from an aquifer, which was the concern with Application No. 8817-3, he looks at the availability of unappropriated water based on hydrologic budget, and observation well data, as well as diving deeper into the hydrologic budget, likely pumping by undeveloped permits since the number of undeveloped permits relative to developed permits is almost a one-to-one ratio. Mr. Mathiowetz stated that the efficiency of the type of irrigation system would not affect his analysis of whether unappropriated water is available.

Scott Vannorsdel stated that the permit was originally for 156 acres pumping 800 gpm. The new system, 360 Rain Machine, is an autonomous irrigation system. It uses half to two-thirds less water than a traditional irrigation system. It will pump 200 gallons per minute. Mr. Vannorsdel said he sees no reason to object to adding the 91 acres using less water than the original permit. He said he does not see the efficiency in denying 91 acres using less water. It applies a 15-inch band of water directly at the root zone. A traditional pivot system of 156 acres puts on 0.60 inches of water at 800 gpm.

Ms. Verleger objected stating that this is the time for Ms. Vannorsdel to ask questions of Mr. Mathiowetz regarding the technical report, and Mr. Vannorsdel can present his case afterwards.

Vice Chair Hutmacher sustained the objection.

Mr. Vannorsdel asked why using less water than a traditional irrigation system be denied? Mr. Mathiowetz answered that when he reviewed the submitted petition, the map on the petition showed more efficiency per pass; nowhere in the petition did it show that there would be fewer passes or how many more passes per year. When the Water Rights Program looks at the hydrologic budget, staff considers acre-feet per year and total volume. The implication would be that there would be less, but that is not a guarantee. Mr. Mathiowetz said the information he has available is for per pass math. He also noted that the math provided in the petition is not technically correct. The petition states it is 0.60 inches of water per acre for the center pivot. When the math is completed, it is actually 1.1 inches of water per acre. Mr. Mathiowetz said this

does not affect his analysis in any manner.

Regarding Water Permit Application No. 8594A-3 Mr. Gronlund stated that SDCL 46-5-34 allows for the severing of one parcel of land and simultaneously transferring and becoming appurtenant to other lands. The recommendation for this application was for approval because this is considered an amendment to Permit No. 8594-3. The guiding two statutes regarding amendment are SDCL 46-2A-12 and 46-5-30.4, and the criteria is that there cannot be an unlawful impairment of existing rights. The board does not have to find whether there is a reasonable probability of unappropriated water available and this permit, if approved, would retain the original priority date established under Water Permit No. 8594-3. Mr. Gronlund recommended approval of the application with the following qualifications:

1. The well approved under Water Permit No. 8594A-3 is located near domestic wells and other wells which may obtain water from the same aquifer. Water withdrawals shall be controlled so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.

2. The well authorized by Permit No. 8594A-3 shall be constructed by a licensed well driller and construction of the well and installation of the pump shall comply with Water Management Board Well Construction Rules, Chapter 74:02:04 with the well casing pressure grouted (bottom to top) pursuant to Section 74:02:04:28.

3. This Permit is approved subject to the irrigation water use questionnaire being submitted each year.

Mr. Gronlund stated that Water Permit Application No. 8817-3 is a new application for the irrigation of 91 additional acres, therefore, SDCL 46-2A-9 applies. The statutes states that there must be a reasonable probability that unappropriated water is available. Currently, based on the hydrologic budget and the observation well data, the Water Rights Program is not confident that that criteria can be met. The application can be approved if the diversion can be developed without unlawful impairment of existing domestic water uses and water rights. Mr. Gronlund said he does not necessarily believe there would be unlawful impairment. The proposed use must be a beneficial use and in the public interest. Mr. Gronlund stated that the Water Management Board fully recognizes that irrigation in the general sense is a beneficial use and in the public interest.

Mr. Gronlund reiterated that the Water Rights Program cannot conclude that unappropriated water is available. He recommended deferral of the application for up to two years to allow for additional monitoring of water levels in observation wells completed into the Upper Vermillion Missouri:West aquifer and time for recently issued water permits to be developed. Mr. Gronlund noted that there are two other applications that are currently deferred that would be senior to this application.

Scott Vannorsdel said this is not a traditional irrigation system. The new system uses substantially less water. Application No. 8817-3 is just requesting that the board allow adding 91 acres.

Vice Chairman Hutmacher stated that the board has no proof that unappropriated water is

available for Mr. Vannorsdel to use, and it will take new water to run this system, whether its 800 gallons per minute or 200 gallons per minute.

Mr. Vannorsdel said he will be using substantially less water.

Vice Chair Hutmacher responded that his understanding is that it is an additional 200 gallons per minute usage of water.

Mr. Vannorsdel said this is not additional water. It hasn't been pumped yet.

Vice Chair Hutmacher said the first permit was for 800 gallons per minute and this new application is for an additional 200 gallons per minute.

Mr. Vannorsdel said he is not using the 800 gallons per minute. He will be using a total of 200 gallons per minute, which is the maximum gallons per minute that will be pumped for 247 acres.

The court reporter stated that Mr. Vannorsdel had not been sworn in.

Mr. Freeman asked Mr. Gronlund if he is understanding correctly that a water permit for 156 acres has been approved, but not developed yet, and the Vannorsdel's want to add another 91 acres to that 156 acres, and it would not be the same amount of water for the combined 91 and 156 acres.

Mr. Gronlund stated that when Water Permit No. 8594-3 was originally applied for in 2022, the Vannorsdel's were probably considering a standard center pivot irrigation system., which would have been the 800 gallons per minute (1.78 cfs) for irrigation of 156 acres. There is new technology being used as far as efficiencies with precision agriculture taking place. Mr. Gronlund said he believes the Vannorsdel's are trying to take advantage of that new technology, but this additional 91 acres is considered new acreage. South Dakota law does not necessarily reward the permit holder for efficiencies to their system.

Mr. Gronlund stated that at this time it has not been determined whether unappropriated water is available.

Mr. Gronlund answered questions from the board. He reminded the board that there are two other deferred applications that are senior to this application.

Motion by Freeman, seconded by Bjork, to approve Water Permit Application No. 8594A-3, Merlin Vannorsdel, subject to the qualifications set forth by the Chief Engineer. A roll call vote was taken, and the motion carried unanimously.

Motion by Freeman, seconded by Comes, to defer Water Permit No. 8817-3 , Merlin Vannorsdel, for up to two years. A roll call vote was taken, and the motion carried with Bjork, Comes, Freeman, Holzbauer, and Hutmacher voting aye. Dixon cast the only dissenting vote.

ADJOURN: Motion by Freeman, seconded by Holzbauer, to adjourn. Motion carried unanimously.

A court reporter was present, and a transcript of the proceedings may be obtainedby contacting Carla Bachand, Capital Reporting Services, PO Box 903, Pierre SD 57501, telephone number (605) 222-4235.

An audio recording of the meeting is available on the South Dakota Boards and Commissions Portal at https://boardsandcommissions.sd.gov/Meetings.aspx?BoardID=106.

Approved July 10, 2024.

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Water Management Board

WATER MANAGEMENT BOARD MEETING
May 8, 2024

Qualifications:
wi - well interference
wcr -well construction rules
iq - irrigation questionnaire
lf - low flow

Unopposed New Water Permit Applications Issued Based on the Chief Engineer Recommendations

No.	Name	Address	County	Amount	Use	Source	Qualifications
2034-1	City of Sturgis	Sturgis	MD	500 AF	Mun/WDS	1 well – Madison	wi, wcr, 3 special
2873-2	Joseph Kuhlman	Caputa	PE	4.45 cfs	Irrigation	Dam – Rapid Creek	iq, 4 special
8650-3	Marquardt Farms General Partnership	Yankton	CL	0.22 cfs	Irrigation	1 well – Missouri: Elk Point	wi, iq
8807-3	Daric D. Bossman Limited Partnership	Sarasota	TU	1.78 cfs	Irrigation	1 well – Upper Vermillion Missouri: North	wi, wcr, iq
8808-3	Justin Vyn Irrevocable Trust	Sioux Falls	BG	2.22 cfs	Irrigation	1 well – Big Sioux: Aurora	wi, wcr, iq
8809-3	Darbi D. Bossman Limited Partnership	Sarasota	TU	1.78 cfs	Irrigation	1 well – Upper Vermillion Missouri: North	wi, wcr, iq
8810-3	Spring Valley Colony	Wessington Springs	JE	3.56 cfs	Irrigation	1 well – Crow Creek	wi, wcr, iq
8812-3	Olive Toews	Yale	BD	1.55 cfs	Irrigation	1 well – Floyd East James	wi, wcr, iq
8813-3	Jeffrey Albrecht	DeSmet	KG	No Add'l	Irrigation	Add'l Acres	wi, iq, 1 special
8814-3	Craig Arthur	Watertown	GT	1.44 cfs	Irrigation	1 well – Wilmot	wi, wcr, iq
8815-3	Charles Dupraz Trust	Aurora	BG	1.78 cfs	Irrigation	2 wells – Rutland	wi, wcr, iq
8816-3	Karl M Schenk	Mission Hill	YA	0.44 cfs	Irrigation	1 well – Lower James: Miss	wi, iq
8818-3	BLT 1 Family Limited Partnership	Warner	HU	0.44 cfs	Irrigation	1 well – Grey Goose	wi, iq, 1 special
8819-3	Alita Guthmiller	Menno	HT	1.78 cfs	Irrigation	1 well – Lower James Miss	wi, wcr, iq
8820-3	Nineteen Flags, LLC	Sioux Falls	MA	2.5 cfs	Irrigation	Slip Up Creek	iq, 3 special
8826-3	Swenson Brothers	Woonsocket	SA	0.54 cfs	Irrigation	1 well – Pleistocene Series Unk	wi, iq, 1 special
8827-3	Heine Farms	Yankton	YA	1.78 cfs	Irrigation	1 well – Missouri: Elk Point	wi, wcr, iq
8828-3	Robert P Walsh	Elk Point	CL	3.56 cfs	Irrigation	1 well – Dakota	wi, wcr, iq
8829-3	Nick Berndt	Herreid	HM	0.66 cfs	Irrigation	1 well – Grand	wi, wcr, iq
8830-3	Kyle Jensen	Meckling	CL	1.56 cfs	Irrigation	1 well – Missouri: Elk Point	wi, wcr, iq, 1 special
8831-3	Allen Fugere	Estelline	HM	1.78 cfs	Irrigation	2 wells – Big Sioux: Brookings	wi, wcr, iq
8836-3	Kirk Sorensen	Vermillion	CL	2.22 cfs	Irrigation	1 well – Missouri: Elk Point	wi, wcr, iq