DEPARTMENT of AGRICULTURE and NATURAL RESOURCES
JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

RECOMMENDATION OF ACTING CHIEF ENGINEER FOR WATER PERMIT APPLICATION NO. 8987-3, Vic Utech

Pursuant to SDCL 46-2A-2, the following is the recommendation of the acting Chief Engineer, Water Rights Program, Department of Agriculture and Natural Resources concerning Water Permit Application No. 8987-3, Vic Utech, 28170 Spring Creek Place, Pierre SD 57501.

The acting Chief Engineer is recommending APPROVAL of Application No. 8987-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing domestic water uses and water rights, 3) the proposed use is a beneficial use and 4) it is in the public interest as it pertains to matters of public interest within the regulatory authority of the Water Management Board with the following qualifications:

1. The well approved under this Permit is located near domestic wells and other wells which may obtain water from the same aquifer. The well owner under this Permit must control withdrawals so there is not a reduction of needed water supplies in adequate domestic wells or in adequate wells having prior water rights.

2. The permit holder must report to the Chief Engineer annually the amount of water withdrawn from the Grey Goose Aquifer.

See report on application for additional information.

Mark Mayer, PE
Director of Office of Water
January 5, 2026

Report to the Chief Engineer

On Water Permit Application No. 8987-3

Vic Utech

December 19, 2025

Water Permit Application No. 8987-3 proposes to appropriate up to 2.45 acre-feet of water annually at a maximum pump rate of 0.22 cubic feet of water per second (cfs) from one existing well completed into the Grey Goose aquifer (90 feet deep). The well, located in the NW ¼ SE ¼ Section 34, will supply water for commercial use at an RV Park to be located in the SE ¼ Section 34; all in T113N-R80W. This site is located in Sully County, approximately 12 miles northwest of Pierre, SD.

This application, if approved, uses the same well that is currently authorized under Water Right No. 8008-3 authorizing irrigation of 131 acres. The proposed appropriation of up to 2.45 acre-feet of water annually at a maximum pump rate of 0.22 cfs would be in addition to the 2.22 cfs, authorized by No. 8008-3. Combined, Water Right No. 8008-3 and Water Permit Application No. 8987-3 will appropriate groundwater at a maximum combined diversion rate of 2.44 cfs from one existing well completed into the Grey Goose aquifer.

AQUIFER: Grey Goose (GG)

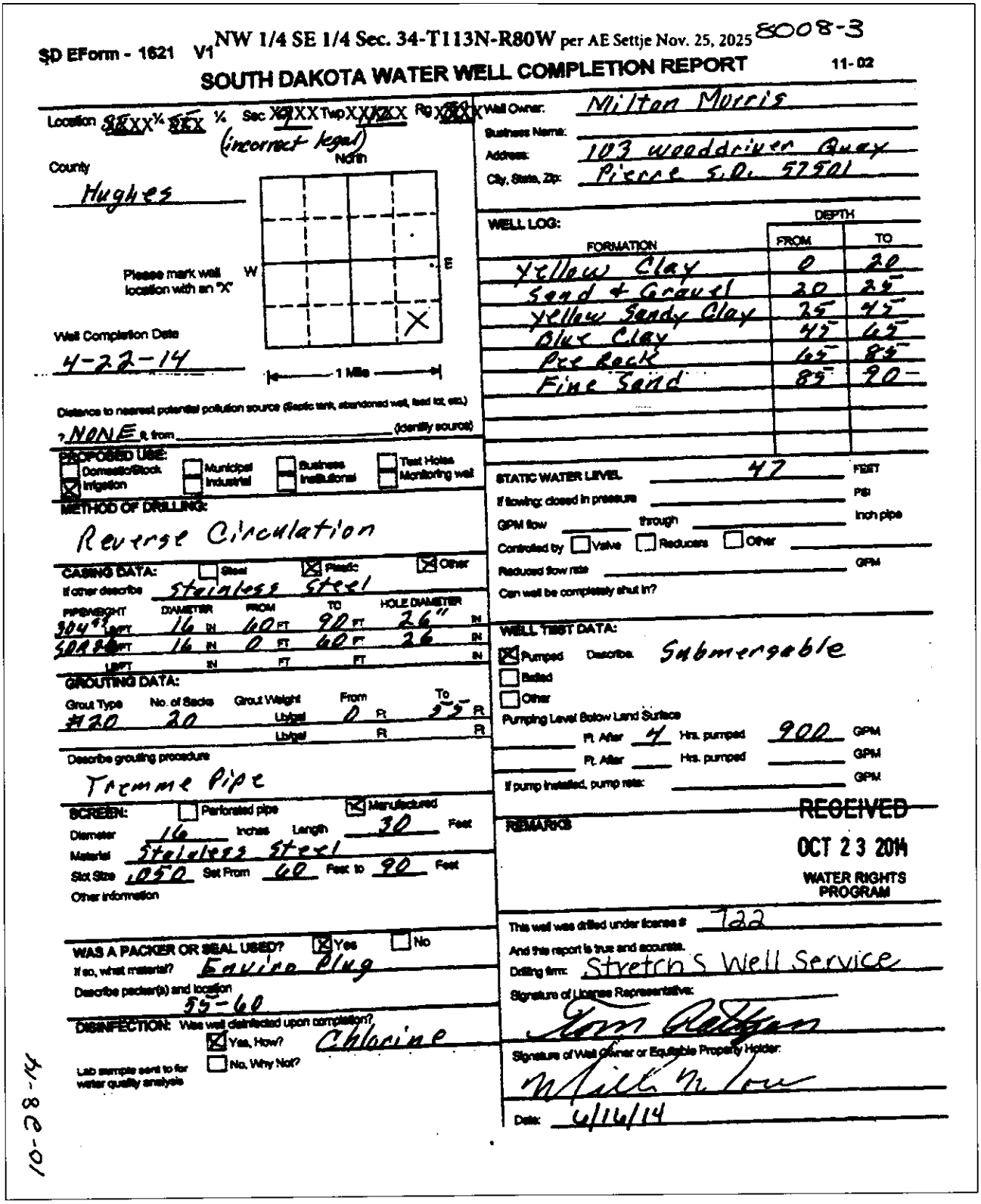
HYDROGEOLOGY:

The Grey Goose aquifer is a buried outwash deposit of coarse sand and gravel that partly fills a broad, irregular river channel that was carved into shale bedrock (Hamilton, 1986b). The Grey Goose aquifer extends 30 miles from the northwestern corner to the central portion of Hughes County, shown in Figure 2 (Hamilton, 1986b). Additionally, the Grey Goose aquifer extends a few miles north into the southwestern portion of Sully County where this application is located. The channel is generally 2 to 5 miles wide along the western extent and seems to narrow to about 1 mile wide as the channel approaches the central portion of the Hughes County (Hamilton, 1986b). The Grey Goose aquifer has historically been primarily unconfined but, more recently, some portions have changed to confined conditions, with a depth to water ranging 15 feet to 250 feet from ground surface (Hamilton, 1986a). The total thickness of aquifer bearing material, sand and gravel, averages 40 feet, but can exceed 60 feet is some areas (Hamilton, 1986b). Groundwater in the aquifer moves from the northwest to discharge areas in the south-central portion of Hughes County (Hamilton, 1986b). The Grey Goose aquifer is hydrologically connected with Lake Oahe. The water moves from Lake Oahe to the Grey Goose aquifer at times when the lake water levels are higher than the potentiometric surface of the aquifer (Hamilton, 1986b). Hedges and others (1982) estimate that the Grey Goose aquifer underlies 33,400 acres (52 square miles) and contains approximately 200,400 acre-feet (ac-ft) of recoverable water in storage. Further studies by Hamilton (1986a) proposed that the Grey Goose aquifer covers approximately 120 square miles (76,800 acres) and contains approximately 610,000 ac-ft of water in storage. Hedges and others (1982) areal extent will be used for this report to avoid overestimating the recharge to the Grey Goose aquifer.

Well completion reports were submitted with this application. The lithologic information on well completion reports for well associated with Water Right No. 8008-3 and this application are listed on Table 1. The water well completion reports show the top of aquifer material ranging from 26 feet to 60 feet below ground surface with a static water level ranging from 28 feet to 47 feet below ground surface. The saturated aquifer thickness listed on the well completion reports ranges from 23 to 43 feet (Water Rights, 2025d). The well completion reports submitted with the application indicate the aquifer material is unconfined and are similar to other nearby test hole reports and well completion reports on file with the Water Rights Program (Water Rights, 2025d).

Table 1. A table summarizing water well completion reports submitted with Water Right No. 8008-3

04/27/2006		
Formation	From (ft)	To (ft)
Top Soil	0	1
Brown Clay	1	5
Gravel	5	10
Brown Clay	10	26
Silty sand, Gravel, and Clay lenses (Coarse and Large)	26	48
Gravel	48	51
Hard Shale	51	
Screened	*27*	*51*
Static Water Level		*28*
Location (Corrected)	*SW 1/4 SE 1/4 Sec. 34-T113N-R80W*	
10/24/2013		
Formation	From (ft)	To (ft)
Top Soil	0	2
Yellow Clay	2	6
Clay	6	15
Gravel yellow	15	25
Sand and Clay	25	47
Sand	47	82
Screened	*42*	*82*
Static Water Level		*44*
Location	*NW 1/4 SE 1/4 Sec. 34-T113N-R80W*	
04/22/2014		
Formation	From (ft)	To (ft)
Yellow Clay	0	20
Sand and Gravel	20	25
Yellow Sandy Clay	25	45
Blue Clay	45	65
Pee Rock	65	85
Fine Sand	85	90
Screened	*60*	*90*
Static Water Level		*47*
Location (Corrected)	*NW 1/4 SE 1/4 Sec. 34-T113N-R80W*	



SD EForm - 1621 V1 NW 1/4 SE 1/4 Sec. 34-T113N-R80W per AE Settje Nov. 25, 2025 8008-3

SOUTH DAKOTA WATER WELL COMPLETION REPORT 11-02

Location SE¼ SE¼ ¼ Sec 34 Twp 113N Rg 80W (incorrect legal)

County: Hughes

Please mark well location with an "X"

Well Completion Date: 4-22-14

Distance to nearest potential pollution source (Septic tank, abandoned well, feed lot, etc.): ? NONE ft. from _____ (identify source)

PROPOSED USE: ☐ Domestic/Stock ☒ Irrigation ☐ Municipal ☐ Industrial ☐ Business ☐ Institutional ☐ Test Hole ☐ Monitoring well

METHOD OF DRILLING: Reverse Circulation

CASING DATA: ☐ Steel ☒ Plastic ☒ Other — If other describe: Stainless Steel

PIPE WEIGHT	DIAMETER	FROM	TO	HOLE DIAMETER
304.93 LB/FT	16 IN	60 FT	90 FT	26" IN
SDR 26 LB/FT	16 IN	0 FT	60 FT	26 IN
LB/FT	IN	FT	FT	IN

GROUTING DATA:

Grout Type	No. of Sacks	Grout Weight	From	To
#20	20	Lb/gal	0 Ft R	35 Ft R
		Lb/gal	Ft R	Ft R

Describe grouting procedure: Tremie Pipe

SCREEN: ☐ Perforated pipe ☒ Manufactured

Diameter 16 Inches Length 30 Feet

Material Stainless Steel

Slot Size .050 Set From 60 Feet to 90 Feet

Other information:

WAS A PACKER OR SEAL USED? ☒ Yes ☐ No

If so, what material? Enviro Plug

Describe packer(s) and location: 55-60

DISINFECTION: Was well disinfected upon completion? ☒ Yes, How? Chlorine ☐ No, Why Not?

Lab sample sent to for water quality analysis

Well Owner: Milton Morris

Business Name:

Address: 103 Wooddriver Quay

City, State, Zip: Pierre S.D. 57501

WELL LOG:

FORMATION	DEPTH FROM	DEPTH TO
Yellow Clay	0	20
Sand & Gravel	20	25
Yellow Sandy Clay	25	42
Blue Clay	42	65
Ice Rock	65	85
Fine Sand	85	90

STATIC WATER LEVEL 47 FEET

If flowing: closed in pressure _____ PSI

GPM flow _____ through _____ inch pipe

Controlled by ☐ Valve ☐ Reducers ☐ Other _____

Reduced flow rate _____ GPM

Can well be completely shut in?

WELL TEST DATA: ☒ Pumped Describe: Submergable ☐ Bailed ☐ Other

Pumping Level Below Land Surface: _____ Ft. After 4 Hrs. pumped 900 GPM; _____ Ft. After _____ Hrs. pumped _____ GPM

If pump installed, pump rate: _____ GPM

REMARKS

RECEIVED OCT 23 2014 WATER RIGHTS PROGRAM

This well was drilled under license # 122

And this report is true and accurate.

Drilling firm: Stretch's Well Service

Signature of Licensee Representative: Tom Retzlaff

Signature of Well Owner or Equitable Property Holder: Milton Morris

Date: 6/16/14

H-8C-01

Figure 1. Original well completion report submitted with Water Permit No. 8008-3 (modified with the correct legal location)

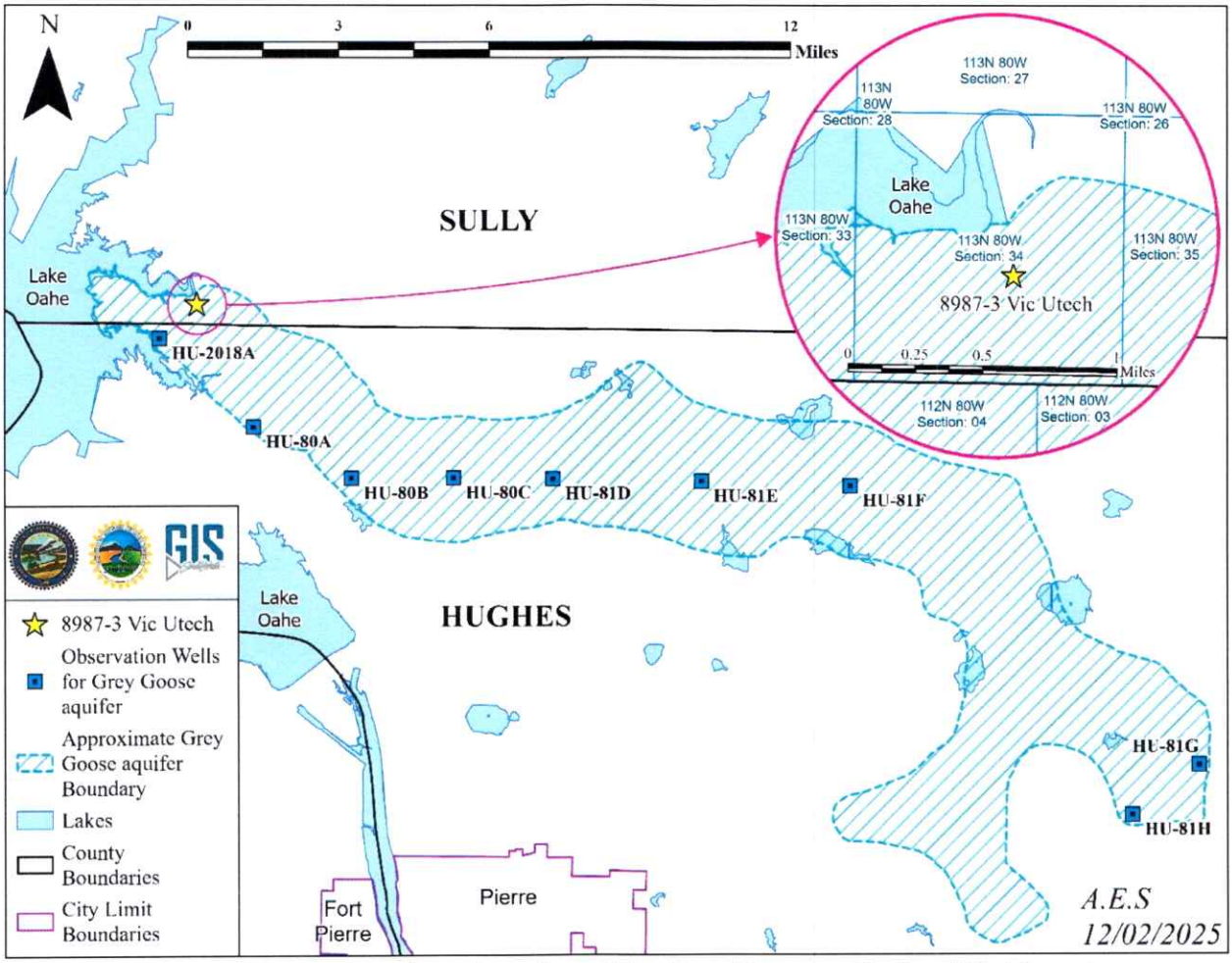


Figure 2. Map showing the approximate boundary of the Grey Goose aquifer (modified from Jensen, 2019), location of the proposed diversion point for Water Application No. 8987-3, and observation wells completed into the Grey Goose aquifer (Water Rights, 2025b)

South Dakota Codified Law (SDCL)

Water Permit Application No. 8987-3 proposes to appropriate water from the Grey Goose aquifer. The probability of unappropriated water being available from the aquifer can be evaluated by considering *SDCL 46-6-3.1, SDCL 46-2A-9.*

Pursuant to SDCL 46-6-3.1,

> *"No application to appropriate groundwater may be approved if, according to the best information reasonably available, it is probable that the quantity of water withdrawn annually from a groundwater source will exceed the quantity of the average estimated annual recharge of water to the groundwater source. An application may be approved, however, for withdrawals of groundwater from any groundwater formation older than or stratigraphically lower than the greenhorn formation in excess of the average estimated annual recharge for use by water distribution systems."*

The Grey Goose aquifer is not older than or stratigraphically lower than the Greenhorn Formation (Fahrenbach et al., 2010), and the applicant's proposed use is not for use in a water distribution system as defined by SDCL 46-1-6(17). Therefore, the average annual recharge and average annual withdrawal rates to and from the Grey Goose aquifer must be considered.

Pursuant to SDCL 46-2A-9,

> *"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 as defined by SDCL 46-2-9 and 46-2-11."*

This report will address the availability of unappropriated water and the potential for unlawful impairment of existing domestic water uses and water rights within the Grey Goose aquifer.

HYDROLOGIC BUDGET:

Recharge

Recharge to the Grey Goose aquifer is mostly by infiltration of precipitation and inflow from Lake Oahe when the water level in the lake is higher than the potentiometric surface of the aquifer (Hamilton, 1986b). Based on observation well analysis by Hedges et al (1985) a recharge rate of 3.2 inches per year was estimated for unconfined portions of the Grey Goose aquifer. The Grey Goose aquifer has an estimated areal extent of approximately 33,400 acres in Hughes County (Hedges et al, 1982). Currently, there is no estimation for the areal extent of the Grey Goose aquifer in Sully County. Therefore, based on the best available information, 33,400 acres represents the best current approximation of the extent of the Grey Goose aquifer. If the entire areal extent of the Grey Goose aquifer was unconfined, then the estimated average annual recharge rate would be approximately 8,907 acre-feet/year (Hedges et al, 1982 and 1985). The actual annual recharge to the Grey Goose aquifer is likely to be lower since the areal extent of the aquifer is under both unconfined and confined conditions.

Although, the Grey Goose aquifer has historically been primarily an unconfined aquifer, there are confined areas of the aquifer where recharge occurs. Hedges et al (1985) estimated a general recharge rate of South Dakota's confined glacial aquifers to be a range from 0.15 to 0.60 inches per year. Applying these recharge rates to the entire estimated areal extent of the Grey Goose aquifer (Hedges et al, 1982) yields an estimated recharge range from 418 to 1,670 acre-feet/year. The actual annual recharge to the Grey Goose aquifer is likely to be higher than this range since the areal extent of the aquifer is under both unconfined and confined conditions.

Overall, the average annual recharge to the Grey Goose aquifer likely lies between the range of 1,670 to 8,907 acre-feet/year. This range is based on Hedges et al (1985) recharge rates of unconfined and confined portions of the Grey Goose aquifer and the estimated areal extent of the Grey Goose aquifer (Hedges et al, 1982). Also, this range is likely influenced by the hydrological connection of the aquifer to Lake Oahe.

Discharge

Discharge from the Grey Goose aquifer primarily occurs through evapotranspiration in the valley of Medicine Knoll Creek, outflow to Lake Oahe when the water level is lower than the potentiometric surface of the aquifer, and well withdrawals (Hamilton, 1986b; Water Rights, 2025d). Groundwater in the aquifer moves from the northwest to discharge areas in the south-central portion of Hughes County (Hamilton, 1986b). Currently, there are 23 water rights/permits authorized to appropriate water from the Grey Goose aquifer (Water Rights, 2025c).

Table 1 summarizes the four non-irrigation water rights/permits authorized to appropriate water from the Grey Goose aquifer with the estimated annual use for each water right/permit as determined by their permitted maximum diversion rate or annual volume. Historically, average water use by non-irrigation appropriations limited by an instantaneous diversion rate have been assumed to be pumping 60% of full time at the respective permitted diversion rate. Water rights/permits limited by an annual volume are assumed to withdraw their entire respective annual volume limitation. This is a standard method used by the DANR-Water Rights Program for estimating annual withdrawals by non-irrigation appropriations from an aquifer and is likely an overestimation of average annual withdrawals (Water Rights, 2025c). However, based on irrigation annual reports from 2016 to 2024, Water Permit No. 8203-3 reports to use an average of approximately 19.4 acre-feet/year (Water Rights, 2025f). Overall, the estimated average annual withdrawal rate from the Grey Goose aquifer by the non-irrigation water rights/permits is approximately 133 acre-feet per year (Table 2) (Water Rights, 2025c).

Table 2. Estimated annual use for the non-irrigation water right/permits authorized to divert water from the Grey Goose aquifer (Water Rights, 2025c)

Permit No.	Name	Status	Use	Authorized Diversion Rate (cfs)	Authorized Annual Volume (acre-feet)	Estimated Use (acre-feet/year)
4580A-3	Platte Center West LLC	LC	COM	0.17	N/A	73.8
4917-3	Tom Olson	LC	COM	0.07	N/A	30.4
5943-3	Cow Creek Estates LLC	LC	COM	0.022	N/A	9.6
8203-3	Milton Morris	PE	FWP, REC	1.11	N/A	19.4
LC: Licensed Water Right; PE: Permitted Water Right; COM: Commercial; FWP: Fish & Wildlife Propagation; REC: Recreation					**TOTAL:**	133.2

Currently, there are 19 irrigation water rights/permits authorized to appropriate water from the Grey Goose aquifer (Water Rights, 2025c). Irrigation water rights/permits have been typically required to report their annual usage on an irrigation questionnaire since 1979. The estimated average annual withdrawal rate for the Grey Goose aquifer irrigation water rights/permits that have reported over the period of record (1979 to 2024) is approximately 1,472 acre-feet per year (Table 3) (Water Rights, 2025a). To reflect the current development of irrigation water rights/permits more accurately, the average annual withdrawal rate for irrigation appropriations from 2015 to 2024 is approximately 1,751 acre-feet per year (Table 3) (Water Rights, 2025a).

Table 3. Reported historic irrigation use from the Grey Goose aquifer (Water Rights, 2025a)

Year	No. of Permits Reporting	Reported Pumpage (acre-feet)
1979	7	606
1980	6	1,199
1981	9	1,127
1982	7	1,608.4
1983	7	1,650.5
1984	7	1,620
1985	7	1,792
1986	7	922
1987	7	1,868
1988	7	2,392.1
1989	7	2,132
1990	7	2,165
1991	8	2,280.6
1992	8	1,307
1993	8	1,585
1994	8	1,033.1
1995	8	2,171.8
1996	8	1,591.6
1997	8	1,610
1998	8	1,528.8
1999	8	1,026.4
2000	8	1,006.9
2001	8	886
2002	8	779.7
2003	8	1,101
2004	7	818.1
2005	7	675.8
2006	7	1,044.6
2007	9	1,111.6
2008	9	960
2009	9	1,393.5
2010	9	924.8
2011	11	1,863.5
2012	10	1,941.3
2013	13	1,408.4
2014	14	1,064.6
2015	14	1,697.7
2016	13	1,998.3
2017	14	2,268.6
2018	14	2,470.2
2019	14	564.8
2020	14	1,111.6
2021	15	1,627.3
2022	18	2,339.8
2023	19	2,310.5
2024	19	1,117
Max	**19**	**2,470**
Min	**6**	**565**
Avg (1979-2024)	**10**	**1,472**
Avg (2015-2024)	**15**	**1,751**

There are domestic wells completed into the Grey Goose aquifer that do not require a water right/permit, so the withdrawal amount from those wells is unknown (Water Rights, 2025d). Due to their relatively low diversion rates, withdrawals from domestic wells are generally not considered to be a significant portion of the hydrologic budget. Additionally, with the development of rural water systems in areas where the Grey Goose aquifer is the uppermost aquifer available; it is likely some domestic users may have transitioned to rural water. Therefore, the quantity of water withdrawn by domestic wells is estimated to be negligible to the hydrologic budget for the Grey Goose aquifer.

Hydrologic Budget Summary

The average annual recharge rate to the Grey Goose aquifer ranges from approximately 1,670 to 8,907 acre-feet/year (Hedges et al, 1982 and 1985). The estimated average annual withdrawal rate from the Grey Goose aquifer is approximately 1,887 acre-feet per year (non-irrigation: 133 acre-feet/year; irrigation: 1,751 acre-feet/year; Water Permit Application No. 8987-3 (if approved, assuming full volume): 2.45 acre-feet/year). Based on the hydrologic budget, there is a reasonable probability unappropriated water is available from the Grey Goose aquifer for the proposed appropriation.

OBSERVATION WELL DATA:

Administrative Rule of South Dakota (ARSD) 74:02:05:07 requires that the Water Management Board shall rely upon the record of observation well measurements in addition to other data to determine that the quantity of water withdrawn annually from the aquifer does not exceed the estimated average annual recharge of the aquifer.

Observation wells provide data on how the aquifer reacts to regional climatic conditions and local pumping. The DANR-Water Rights Program monitors nine observation wells completed into the Grey Goose aquifer (Water Rights, 2025b). The three closest observation wells to the well the applicant proposes to use are HU-2018A (approximately 1 mile southwest), HU-80A (approximately 2.7 miles southeast), and HU-80B (approximately 4.6 miles southeast) (Figure 3) (Water Rights, 2025b). The data points utilized to construct the hydrographs are measurements of the static water level in the observation wells from the top of the well casing which were then converted to elevation in feet from the NGVD29 vertical datum.

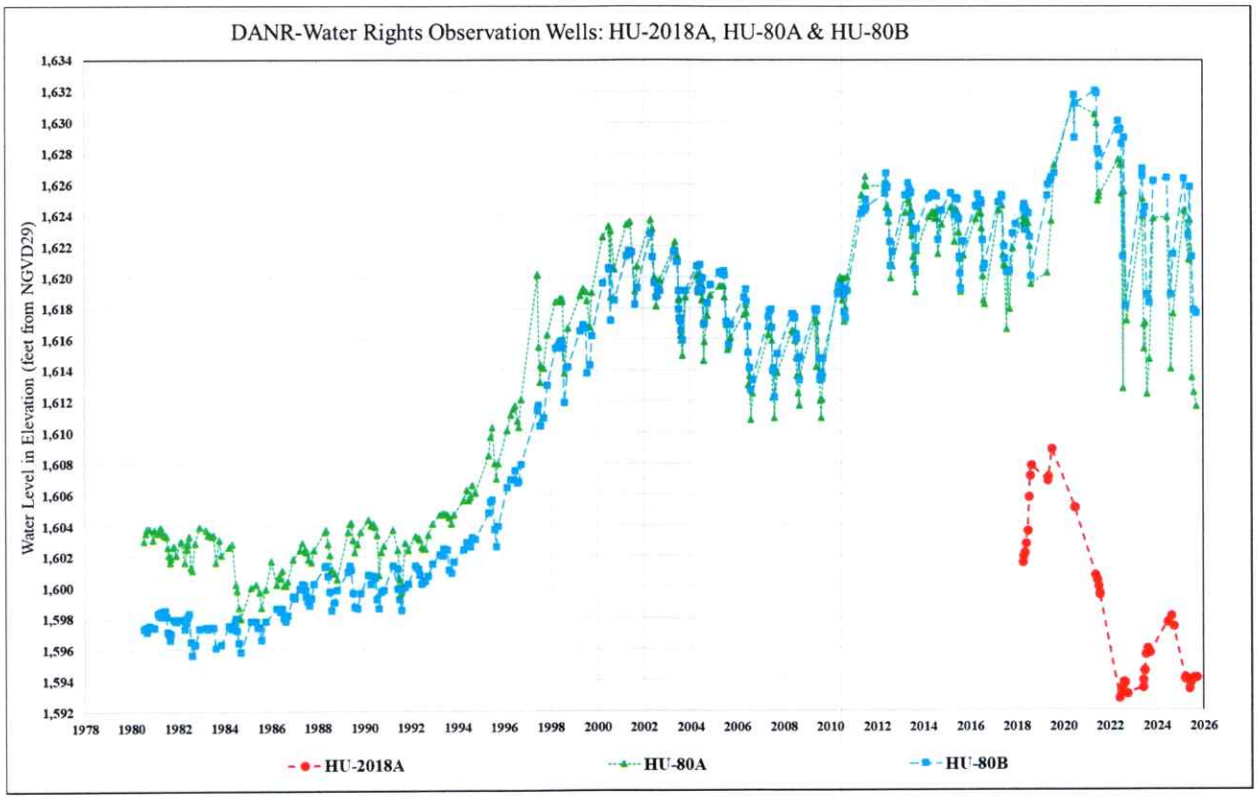


Figure 3. A graph showing the elevation of water levels for observation wells: HU-2018A, HU-80A & HU-80B (Water Rights, 2025b)

The hydrographs for these observation wells were compared to hydrographs for other observation wells completed into the Grey Goose aquifer and all displayed a generally similar trend as shown on the hydrographs displayed in Figure 3 except for HU-81G, which has shown stable water levels over the entire period of record starting in 1979 (Water Rights, 2025b). It should be noted that HU-2018A has a limited period of record and does not provide a full assessment of the aquifer's performance over an extended period of time. Additionally, HU-2018A also lies in close proximity to Oahe reservoir and is more than likely influenced by changes in reservoir levels. It should be noted that a majority of the observation wells have recently transitioned to being under confined conditions (Water Rights, 2025b).

The hydrographs for the observation wells display stable to rising water levels over their respective periods of record. The hydrographs for the Grey Goose aquifer indicate that the aquifer responds well to climatic conditions because water levels are rising during wetter periods and declining to a stable water level during drier periods. Additionally, the water levels in the observation wells display that the amount of recharge to and natural discharge from the aquifer greatly exceeds pumping with the aquifer returning to pre-pumping conditions between irrigation seasons. Aquifer recovery indicates that climatic conditions and therefore, the effects of recharge to and natural discharges from the aquifer govern the long-term fluctuations of waters levels in the aquifer rather than the impacts of pumping from the Grey Goose aquifer. By recognizing that both recharge to and natural discharge from an aquifer can be captured for pumping, the

observation well hydrographs demonstrate unappropriated water is available for the proposed appropriation.

POTENTIAL FOR UNLAWFUL IMPAIRMENT OF EXISTING WATER RIGHTS:

The closest water right/permit (not held by the applicant) to the proposed diversion point is Water Permit No. 6732-3, which is held by Oahe Speedway LLC. The diversion point for Water Permit No. 6732-3 is located approximately 0.23 miles north of the proposed diversion point for this application (Figure 4) (Table 4) (Water Rights, 2025c). Although Water Permit No. 6732-3 is the closest Water Permit to the proposed diversion point, it may be subject to partial cancellation based on documentation in the permit file. Therefore, the next closest diversion point (not held by the applicant) to the proposed diversion point is Water Permit No. 7396-3, which is held by Cow Creek Recreation LLC. The diversion point for Water Permit No. 7396-3 is located approximately 0.38 miles northeast of the proposed diversion point for this application (Figure 4) (Table 4) (Water Rights, 2025c).

There are domestic wells on file with the DANR-Water Rights Program that are completed into the Grey Goose aquifer, with the closest domestic well on file (not held by the applicant) located approximately 0.5 miles west of the proposed diversion point (Water Rights, 2025d). There could potentially be other domestic wells completed into the Grey Goose aquifer near the well the applicant proposes to use that are not on file with the DANR-Water Rights Program. The location of the domestic wells in the well completion report database maintained by the Water Rights Program is based on the location listed by the driller on the well completion report.

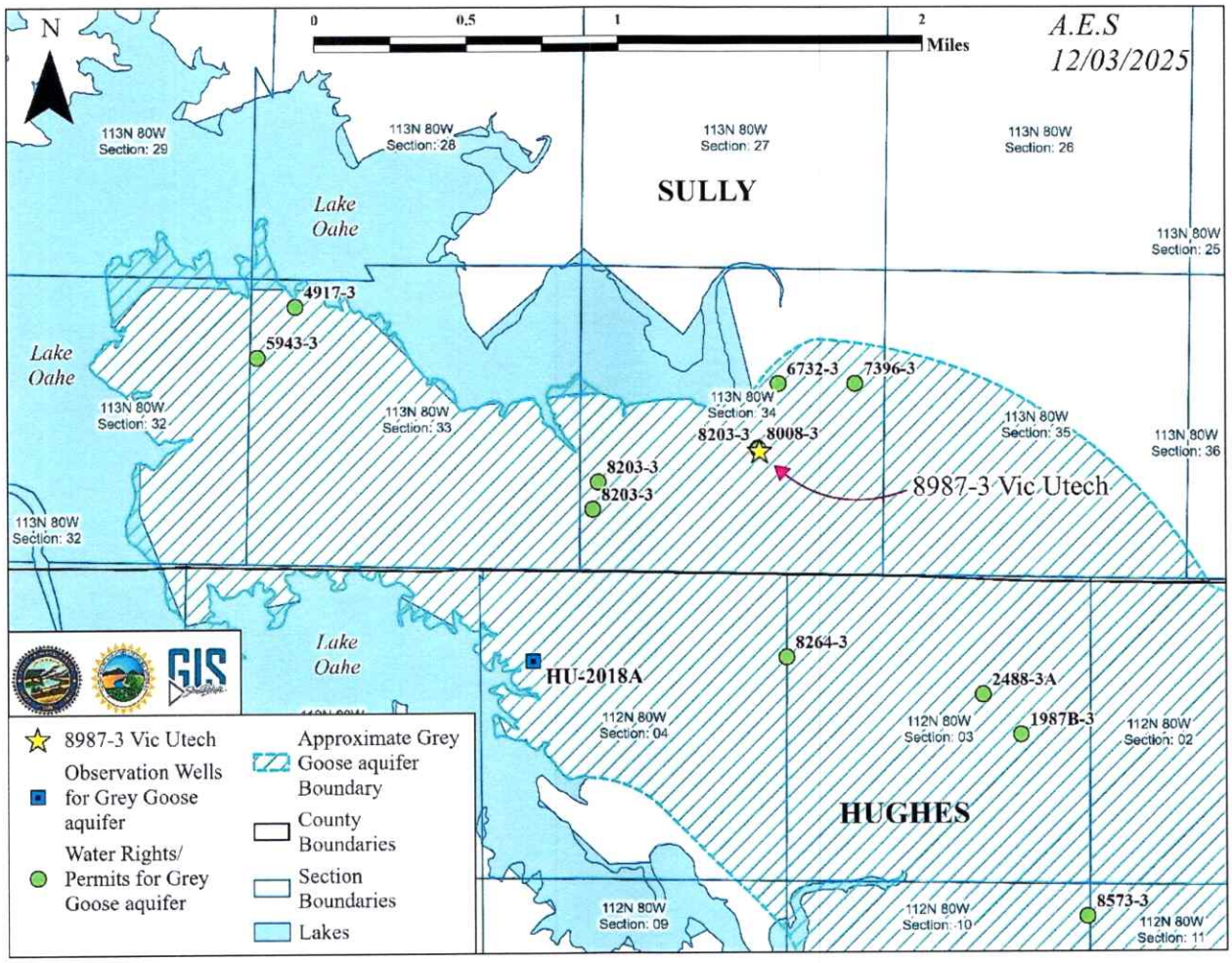


Figure 4. Water rights/permits authorized to withdraw from the Grey Goose aquifer within approximatly two miles of the proposed diversion point for Water Permit Application No. 8987-3 (Water Rights, 2025b and 2025c)

Table 4. Water rights/permits authorized to withdraw water from the Grey Goose aquifer within approximately two miles of Water Permit Application No. 8987-3 as shown in Figure 4 (Water Rights, 2025c)

Permit No.	Name	Status	Use Type	Authorized Diversion Rate (cfs)	Authorized Acres (ac-ft/yr)
1987B-3	Jim Schumacher	LC	IRR	2.11	148
2488-3A	Jim Schumacher	LC	IRR	1.56	127
4917-3	Tom Olson	LC	COM	0.07	
5943-3	Cow Creek Estates LLC	LC	COM	0.022	
6732-3	Oahe Speedway LLC	PE	IRR	0.067	30
7396-3	Oahe Speedway LLC	PE	IRR	0.27	6
8008-3*	Codgers Castaway RV Park	LC	IRR	2.22	131
8203-3	Milton Morris	PE	FWP, REC	1.11	8.45
8264-3	Jonathon Hofer	LC	IRR	0.89	73
8573-3	MGJR LLC	PE	IRR	2.22**	110

LC: License; PE: Permit; IRR: Irrigation; COM: Commercial; FWP: Fish & Wildlife Propagation; REC: Recreation;
* Current well for this application; ** Diversion rate is authorized under Water Permit No. 8481-3 for 2.22 cfs

The Grey Goose aquifer has historically been primarily under unconfined conditions, including this well site. In an unconfined aquifer, drawdown from pumping is not expected to extend far from the pumping wells; however, the exact drawdown behavior of a well cannot be known without an aquifer performance test. Based of the well completion report submitted with Water Right No. 8008-3 and this application, there is expected to be at least 43 feet of saturated aquifer at the time of drilling. Any drawdown as a result of the diversion for this application is not expected to unlawfully impair nearby adequate wells. In Hughes and Sully County, there are no complaints on file with the DANR-Water Rights Program regarding well interference for adequate wells completed into the Grey Goose aquifer (Water Rights, 2025e).

The Water Management Board recognizes that putting water to beneficial use requires a certain amount of drawdown to occur. The Board has developed rules to allow water to be placed to maximum beneficial use without the necessity of maintaining artesian head pressure for domestic use. The Water Management Board defined an "adversely impacted domestic well" in ARSD 74:02:04:20(7) as:

> *"A well in which the pump intake was set at least 20 feet below the top of the aquifer at the time of construction or, if the aquifer is less than 20 feet thick, is as near to the bottom of the aquifer as is practical and the water level of the aquifer has declined to a level that the pump will no longer deliver sufficient water for the well owner's needs."*

When considering the saturated thickness of the Grey Goose aquifer near the proposed diversion point, the observation well data (Figure 3), and the lack of well interference complaints for adequate wells completed into the Grey Goose aquifer, and the existing usage of water from the well by other permits/rights, any drawdown created from the proposed diversion is not expected to cause an unlawful impairment to existing water right/permit holders or domestic users with adequate wells. Therefore, there is a reasonable probability that any interference from the proposed appropriation will not impose unlawful impairments to existing users with adequate wells.

CONCLUSIONS:

1. Water Permit Application No. 8987-3 proposes to appropriate up to 2.45 acre-feet of water annually at a maximum pump rate of 0.22 cfs from one existing well completed into the Grey Goose aquifer (90 feet deep). The well, located in the NW ¼ SE ¼ Section 34, will supply water for commercial use at an RV Park to be located in the SE ¼ Section 34; all in T113N-R80W. This site is located in Sully County, approximately 12 miles northwest of Pierre, SD.

2. Based on observation well data and the hydrologic budget, there is a reasonable probability that unappropriated water is available from the Grey Goose aquifer to supply to the proposed appropriation.

3. There is reasonable probability that the diversion by Water Permit Application No. 8987-3 will not unlawfully impair adequate wells for existing water rights/permits holders or domestic users with adequate wells.

Austin Settje
Natural Resources Engineer I
SD DANR - Water Rights Program

Reviewed by:

Adam Mathiowetz, PE
Natural Resources Engineer IV
SD DANR -Water Rights Program

References

Fahrenbach, M.D., Steece, F.V., Sawyer, J.F., McCormick, K.A., McGillivray, G.L., Schulz, L.D., and Redden, J.A. 2010. South Dakota Stratigraphic Correlation Chart. Oil and Gas Investigations 3. SD DANR-Geological Survey, Vermillion, SD.

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