



**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

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**RECOMMENDATION OF ACTING CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 9019-3, Jim or Dan Thyen**

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. 9019-3, Jim or Dan Thyen, 46220 165th Street, Waterdown SD 57201.

The Acting Chief Engineer is recommending DEFERRAL of Application No. 9019-3 pending Water Management Board action on a previously filed application by the City of Milbank (Application No. 8990-3) to reserve water from the Antelope Valley Aquifer. The Board's decision on Application No. 8990-3 will impact the amount of water available for appropriation from the aquifer. Consequently, Application No. 9019-3 should be deferred until the status of water availability from the Antelope Valley Aquifer is known based on the Board's decision. At the time of hearing of this application by the Board, the Acting Chief Engineer's deferral recommendation may be revised to either APPROVAL or DENIAL depending on the Board's decision on previously filed Application No. 8990-3.

See report on application for additional information.

Adam Mathiowetz, PE
Acting Chief Engineer
March 24, 2026

Report to the Chief Engineer

On Water Permit Application No. 9019-3

Jim or Dan Thyen

March 20th, 2026

Water Permit Application No. 9019-3 proposes to irrigate an additional 25 acres from two existing wells authorized by Water Right No. 7975-3. Water Right No. 7975-3 authorizes 1.67 cubic feet of water per second (cfs) from two wells completed into the Antelope Valley aquifer (52 and 54 feet deep) located in the SW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 3 for the irrigation of 117 acres located in the NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 3; all in T119N-R51W. This application proposes to irrigate an additional 25 acres located in the N $\frac{1}{2}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 3-T119N-R51W, with no increase to the 1.67 cfs diversion rate. This application, if approved, and Water Right No. 7975-3 will authorize a combined total of 1.67 cfs for irrigation of 142 acres. The site of interest is located approximately two and one-half miles north of South Shore, SD in Codington County.

AQUIFER: Antelope Valley (AV)

HYDROGEOLOGY:

The Antelope Valley aquifer is a glacial outwash aquifer that is composed of very coarse sand to coarse gravel (Hansen, 1990 and 1994). Hedges and others (1982) estimated the areal extent of 28,700 acres and amount of recoverable water stored of 64,580 acre-feet in the Antelope Valley aquifer. Using aquifer materials maps (Jensen 2001, 2003, & 2004), county studies released after the Hedges and others (1982) study (Biessel & Gilbertson, 1987; Hansen, 1990), sand and gravel resource studies (Schulz, 1991; Jarrett, 1986), lithologic logs (Water Rights, 2026f), observation wells (Water Rights, 2026b), and well completion report data (Water Rights, 2026d), Water Rights Staff delineated a updated area for the Antelope Valley aquifer (Figure 1; Drennon, 2026), of approximately 35,000 acres. The Antelope Valley aquifer is located in the axis of the drainage divide between the Big Sioux and Minnesota Rivers and is hydrologically connected to numerous small lakes and sloughs that overlie or are directly adjacent to the aquifer (Hansen, 1990). The aquifer is generally under unconfined conditions; however, there are locations where the aquifer is buried under up to 50 feet of till where it is generally under confined conditions (Hansen, 1990). In Grant and Codington Counties, the depth to the top of aquifer materials ranges from land surface to 57 feet below grade (Hansen, 1990). The average thickness of Antelope Valley aquifer materials is 34 feet with a documented maximum thickness of 52 feet (Hansen, 1990).

Water Right No. 7975-3 has water well completion reports on file for the existing diversion points this application intends to use. The wells were completed into the Antelope Valley aquifer on April 14th, 2015, and May 20th, 2015 (Water Rights, 2026b). The reported depth to the top of aquifer material is approximately 2 feet below the ground surface, static water level is approximately 10 feet below the ground surface, and a saturated aquifer thickness of approximately 44 to 45 feet (SDGS, 2026; Water Rights, 2026b). Based on this and other nearby

water well completion reports, the Antelope Valley aquifer is unconfined at the diversion points (SDGS, 2026; Water Rights, 2026b and 2026d).

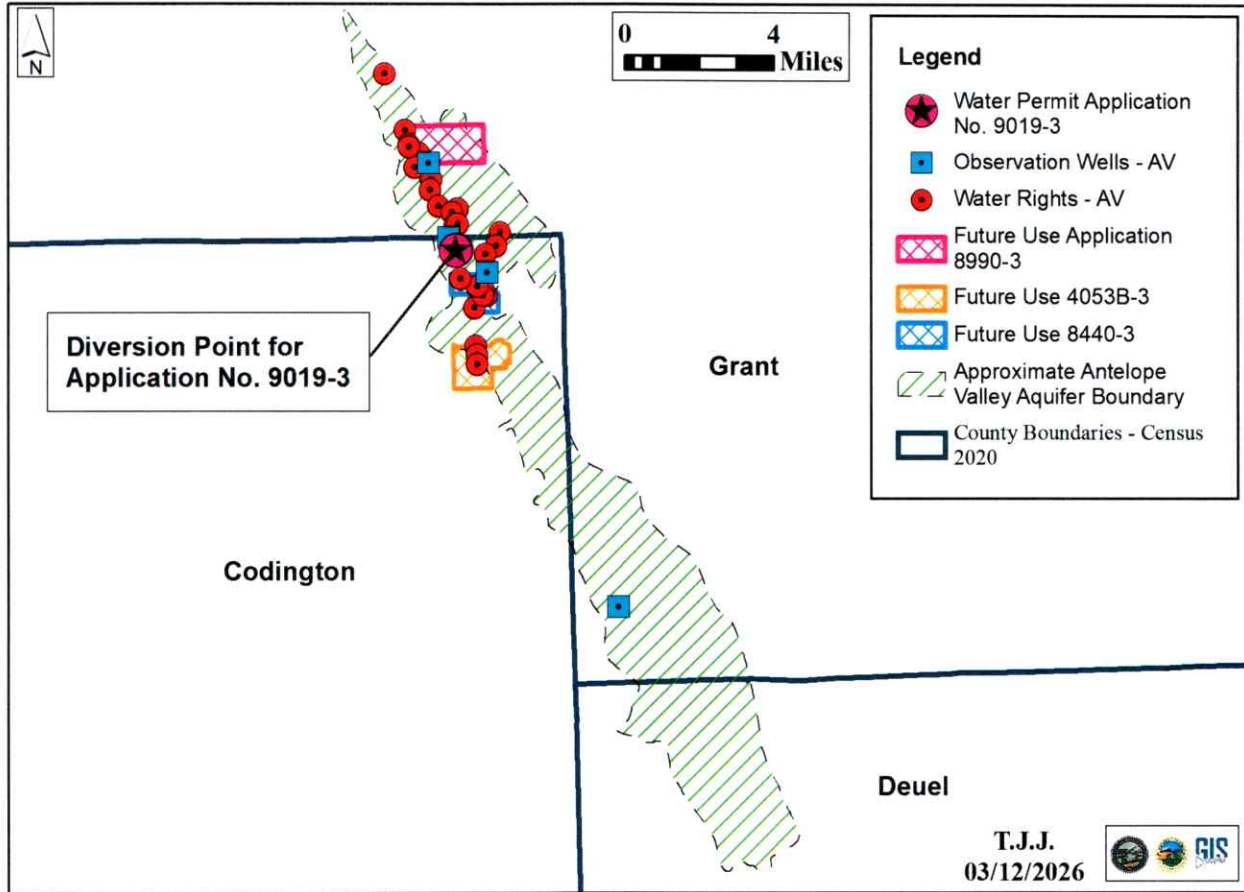


Figure 1. Map of the approximate Antelope Valley aquifer boundary (Drennon, 2026), the location of existing diversion points for Water Permit Application No. 9019-3, Antelope Valley aquifer observation wells, and Antelope Valley aquifer water rights (Water Rights, 2026b and 2026c).

South Dakota Codified Law (SDCL) 46-2A-9

Pursuant to SDCL 46-2A-9, “A permit to appropriate water may be issued only if there is a reasonable probability that unappropriated water is available for the applicant’s proposed use, the proposed diversion can be developed without unlawful impairment of existing domestic water uses and water rights, the proposed use is a beneficial use, and the permit is 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 uses and water rights within the Antelope Valley aquifer.

WATER AVAILABILITY:

Water Permit Application No. 9019-3 proposes to appropriate water from the Antelope Valley aquifer for irrigation use. The probability of unappropriated water being available from the

aquifer can be evaluated by considering SDCL 46-6-3.1, which requires “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 Antelope Valley 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 Antelope Valley aquifer must be considered.

HYDROLOGIC BUDGET:

Recharge

Recharge to the Antelope Valley aquifer is primarily through direct infiltration and subsequent percolation of rainfall and snowmelt where the aquifer is near or at land surface (Hansen, 1990). Additional recharge to the aquifer can occur in hydraulically connected lakes and sloughs, including Punished Woman, Round and Crooked Lakes (Hansen, 1990; Water Rights, 2026d). Using observation well analysis, Hedges and others (1985) estimated a recharge rate of 2.3 inches per year to the Antelope Valley aquifer. The Antelope Valley aquifer has an estimated areal extent of approximately 35,000 acres (Drennon, 2026); therefore, the estimated average annual recharge rate (based on Hedges and others, 1985; Drennon, 2026) is approximately 6,700 acre-feet per year.

The observation well analysis method used by Hedges and others (1985) assumed a rise in water level in the aquifer as the only product of recharge to the aquifer. A rise in water level in the aquifer is the result of recharge to the aquifer exceeding discharge from the aquifer, indicating the observation well analysis method may be conservative when estimating a recharge rate because it does not necessarily account for recharge that occurs when discharge from the aquifer exceeds recharge.

Discharge

Discharge from the Antelope Valley aquifer is through well withdrawals and evapotranspiration where the aquifer is near or at land surface. Additional discharge from the aquifer is through outflow to hydraulically connected lakes and sloughs, including Punished Woman, Round and Crooked Lakes (Hansen, 1990; Water Rights, 2026d).

Currently, there are 16 water rights/permits authorized to appropriate water from Antelope Valley aquifer (Water Rights, 2026c). Additionally, there are three future use permits (Nos. 4053-3 and 4053B-3 for the Town of South Shore, and 8440-3 for Grant-Robert RWS) reserving a combined 959 acre-feet of water annually from the Antelope Valley aquifer (Water Rights, 2026c). Additionally, there are two other applications, Application Nos. 8990-3 & 9022-3. Water

Permit Application No. 8990-3 proposes to reserve 1,120 acre-feet per year for future use by the City of Milbank. It should be noted that Application No. 8990-3 is currently contested and a hearing before the Water Management Board will be needed to determine approval or denial of that future use application. The outcome of that hearing may affect the determination of availability of unappropriated water.

Table 1 summarizes the three non-irrigation water rights/permits authorized to appropriate water from the Antelope Valley 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, 2026c). Overall, the estimated average annual withdrawal rate for the Antelope Valley aquifer non-irrigation water rights/permits is approximately 1,351 acre-feet per year (Table 1) (Water Rights, 2026c).

Table 1. Estimated average annual use for non-irrigation water rights/permits authorized to appropriate water from the Antelope Valley aquifer (Water Rights, 2026c).

Permit No.	Name	Uses	Status	Authorized Diversion Rate (cfs)	Authorized Annual Volume (acre-feet)	Estimated Use (acre-feet/year)
4053A-3	Town of South Shore	MUN	License	0.58	N/A	252
5520-3	Town of South Shore	MUN	License	0.09	N/A	39
8439-3	Grant-Roberts Rural Water System	RWS	License	5.14	1,995	1,060*
					Total:	1,351
MUN Municipal, RWS Rural Water System *Reports annual non-irrigation use to the chief engineer.						

Grant-Roberts Rural Water System currently holds Water Right No. 8439-3, which Water Permit No. 6654-3 and Water Permit No. 8321-3 were incorporated into, and is required to annually report the volume of water pumped from the Antelope Valley aquifer (Water Rights, 2026c). The reported historic annual use from the Grant-Roberts Rural Water System over the period of record (2003 to 2024) on file with the DANR - Water Rights Program is listed in Table 2 (Water Rights, 2026c). The Grant-Roberts Rural Water System, on average, uses less than their permitted volume each year; therefore, the assumed maximum permitted use shown in Table 1 is a higher annual withdrawal rate estimate than what is actually being withdrawn each year from the Antelope Valley aquifer from the non-irrigation water rights/permits. However, this conservative method of estimating average annual withdrawals is used because Grant-Roberts Rural Water System has shown some increase in annual pumpage over the period of record as shown in Table 2 and currently holds a future use permit for potential future growth.

Table 2. Reported historic use from the Grant-Roberts Rural Water System water rights/permits (Water Rights, 2026c).

Year (Right/Permit Nos.)	Permitted (acre-feet/year)	Reported (acre-feet/year)	Year	Permitted (acre-feet/year)	Reported (acre- feet/year)
2003 (5576-3, 5576A-3)	1,074	761	2015 (5576-3, 5576A-3, 6654-3)	1,074	1,043
2004 (5576-3, 5576A-3, 6654-3)	1,074	792	2016 (5576-3, 5576A-3, 6654-3)	1,074	967
2005 (5576-3, 5576A-3, 6654-3)	1,074	645	2017 (5576-3, 5576A-3, 6654-3)	1,074	983
2006 (5576-3, 5576A-3, 6654-3)	1,074	835	2018 (6654-3, 8321-3)	1,381	1,154
2007 (5576-3, 5576A-3, 6654-3)	1,074	875	2019 (6654-3, 8321-3)	1,381	1,183
2008 (5576-3, 5576A-3, 6654-3)	1,074	890	2020 (6654-3, 8321-3)	1,381	1,158
2009 (5576-3, 5576A-3, 6654-3)	1,074	874	2021 (6654-3, 8321-3)	1,381	1,037
2010 (5576-3, 5576A-3, 6654-3)	1,074	881	2022 (6654-3, 8321-3)	1,381	1,077
2011 (5576-3, 5576A-3, 6654-3)	1,074	844	2023 (6654-3, 8321-3)	1,381	1,022
2012 (5576-3, 5576A-3, 6654-3)	1,074	887	2024 (6654-3, 8321-3)	1,381	1,063
2013 (5576-3, 5576A-3, 6654-3)	1,074	920	Reported Average (2003-2024)		948
2014 (5576-3, 5576A-3, 6654-3)	1,074	963	Reported Average (2015-2024)		1,060

Currently, there are 12 irrigation water rights/permits authorized to appropriate water from the Antelope Valley aquifer (Water Rights, 2026c). 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 Antelope Valley aquifer irrigation water rights/permits that have reported over the period of record (1979 to 2024) is approximately 1,118 acre-feet per year (Table 3) (Water Rights, 2026a). To reflect the current level of development for irrigation water rights/permits more accurately, the average annual withdrawal rate for irrigation appropriations from 2015 to 2024 is approximately 1,348 acre-feet per year and will be used as the estimated average annual irrigation withdrawals for review of water availability (Table 3) (Water Rights, 2026a).

There is one recently approved irrigation water permit that has not yet reported in the 2024 irrigation questionnaire (IQ) and needs to be accounted for. Water Permit No. 8915-3 is authorized to irrigate 160 acres. Over the entire period of record, crop irrigators in the Tulare: East James aquifer of South Dakota applied, on average, 7.58 inches of water per acre per year (Drennon, 2025). However, the Tulare: East James aquifer is more than 60-miles southwest of the Antelope Valley aquifer. To account for the fluctuation in wet and dry cycles from year to year and differences in percolation of local soils, an estimate of 10 inches (0.83 feet) of water per acre per year will be used to somewhat overestimate the annual withdrawal rate of the following

irrigation water permit and applications. Assuming 0.83 feet of water per acre per year, the withdrawal rate for Water Permit No. 8915-3 is approximately 133 acre-feet per year. This pending application proposes to irrigate approximately 25 acres. Water Permit Application No. 9022-3 proposes to irrigate an additional 40 acres to an existing water permit. Assuming 0.83 feet of water per acre per year, the withdrawal rate for these applications, if approved, is approximately 54 acre-feet per year.

There are domestic wells completed into the Antelope Valley aquifer that do not require a water right/permit, so the withdrawal amount from those wells is unknown (Water Rights, 2026d). Due to their relatively low diversion rates, withdrawals from domestic wells are not considered to be a significant portion of the hydrologic budget. Additionally, with the development of rural water systems in areas where the Antelope Valley 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 Antelope Valley aquifer.

Table 3. Reported irrigation use from the Antelope Valley aquifer from 1979 to 2024 (Water Rights, 2026a)

Year	Number of Permit/License	Annual Pumpage (ac-ft/yr)	Year	Number of Permit/License	Annual Pumpage (ac-ft/yr)
1979	7	73	2002	9	1,534
1980	9	435	2003	9	2,001
1981	7	513	2004	9	1,596
1982	5	61	2005	9	1,740
1983	6	543	2006	9	1,937
1984	6	136	2007	9	1,299
1985	6	49	2008	9	989
1986	6	41	2009	9	1,281
1987	6	645	2010	10	1,419
1988	7	1,827	2011	10	887
1989	7	1,427	2012	10	2,164
1990	10	1,606	2013	12	2,003
1991	12	989	2014	14	749
1992	11	650	2015	14	570
1993	11	310	2016	14	2,019
1994	10	699	2017	14	1,405
1995	10	469	2018	14	1,403
1996	8	1,029	2019	14	228
1997	8	932	2020	14	1,298
1998	9	1,136	2021	14	1,583
1999	9	1,379	2022	14	2,035
2000	9	1,608	2023	12	1,787
2001	9	1,809	2024	12	1,149
			Average (1979-2024)	10	1,118
			Average (2015-2024)	14	1,348

Hydrologic Budget Summary

The estimated average annual recharge rate to the Antelope Valley aquifer is approximately 6,700 acre-feet per year. The estimated average annual withdrawal rate from the Antelope Valley aquifer is approximately 4,965 acre-feet per year (non-irrigation: 1,351 acre-feet/year; irrigation: 1,348 acre-feet/year (2014 to 2023); Future Use Reservations: 959 acre-feet/year; Future Use Application No. 8990-3 (if approved): 1,120 acre-feet/year; Water Permit Application Nos. 9019-3 & 9022-3 (if approved, assuming application rate of 0.83 feet of water per authorized acre): 54 acre-feet/year). Table 4 shows average annual recharge to the aquifer exceeds the average annual withdrawals. Based on the hydrologic budget, there is a reasonable probability unappropriated water is available from the Antelope Valley aquifer for the proposed appropriation. As previously stated, Future Use Application No. 8990-3 is currently contested and scheduled for a hearing in front of the Water Management Board. The outcome of that hearing may affect the determination of availability of unappropriated water.

Table 4. List of water rights/permits withdrawals, estimated use of recently approved permits, the pending applications and this application (if approved), and unconfined/confined recharge to the Antelope Valley aquifer (Water Rights, 2026a)

	Hydrologic Budget for the Antelope Valley Aquifer (ac-ft/yr)
Future Use	959
Non-Irrigation Appropriation	1,351
Irrigation Appropriation (2015-2024)	1,348
Recently Approved Permits (2023-2025)	133
Current Withdrawal	3,791
Pending Future Use Application (8990-3)	1,120
Pending Application (9019-3 & 9022-3)	54
Total Withdrawal	4,965
Total Recharge	6,700

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.

The DANR-Water Rights Program monitors four observation wells completed into the Antelope Valley aquifer with observation wells in the area of this application shown on Figure 3 (Water Rights, 2026b). These observation wells provide data on how the aquifer reacts to regional

climatic conditions and local pumping. The three closest observation wells to the diversion points are GT-77G (approximately 0.4 miles northwest), CD-76G (approximately 1.0 mile southeast), and GT-76D (approximately 2.4 miles northwest) (Water Rights, 2026b). The water level elevations for these observation wells are displayed in Figure 2 (Water Rights, 2026b). 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 converted to feet from the NGVD29 datum.

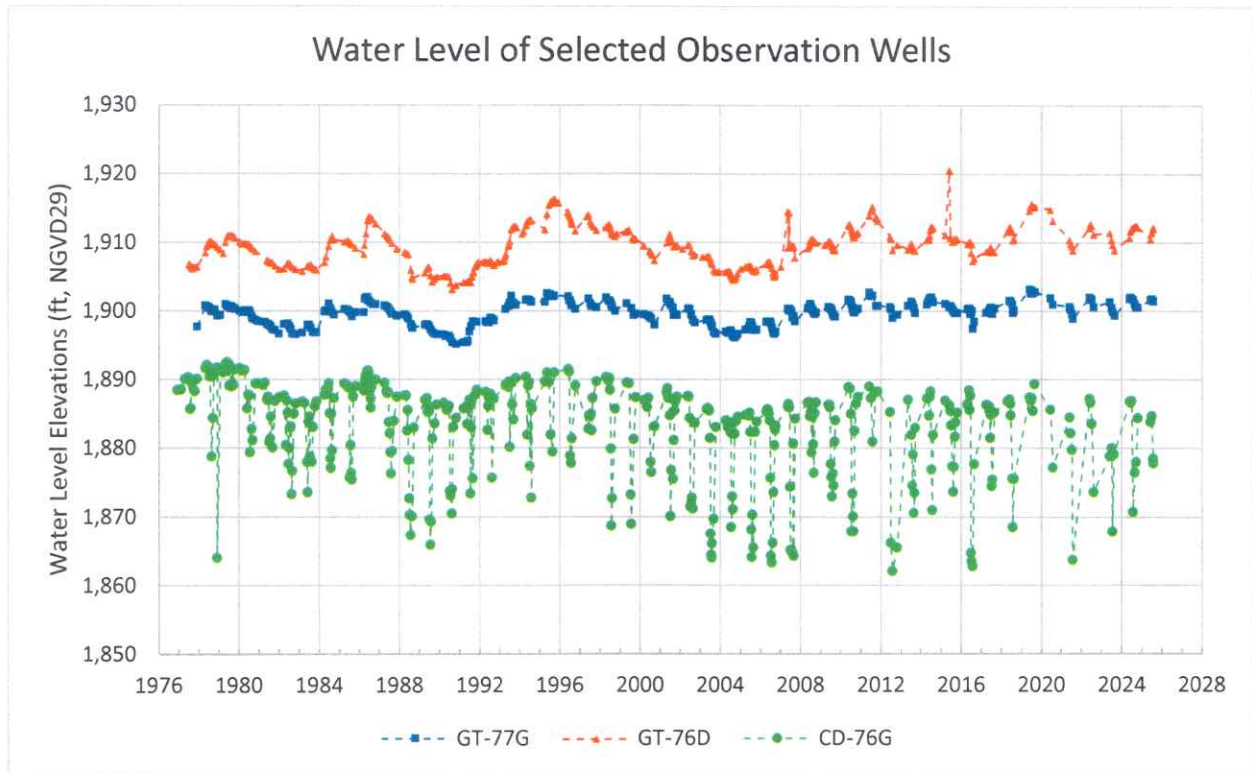


Figure 2. A hydrograph showing the elevation of water levels of observation wells GT-77G, GT-76D, and CD-76G (Water Rights, 2026b)

A majority of the observation wells in the Antelope Valley aquifer have a relatively stable trend in the water level, as seen in Figure 2. The hydrograph for CD-76G shows sudden seasonal drawdown caused by numerous nearby appropriative wells indicating this well is under confined conditions while the other observation wells are not under confined conditions. The hydrographs for the Antelope Valley aquifer observation wells indicate that the aquifer responds well to climatic conditions because water levels are rising during wetter periods (early spring snowmelt and precipitation) 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 with water levels 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 Antelope Valley 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:

Water rights/permits in the general vicinity of the existing well sites for this application are shown in Figure 3 and summarized in Table 5. The closest water right/permit to the existing diversion points for this application, not held by the applicant, is Water Right No. 7534-3 which is held by Joe/John Arthur. The diversion point for Water Right No. 7534-3 is located approximately 0.7 miles north of the existing diversion points for this application (Water Rights, 2026c). There are domestic wells on file with the DANR-Water Rights Program that are completed into the Antelope Valley aquifer, with the closest domestic well on file (not held by the applicant) approximately 1 mile north of the diversion points based on the legal description provided by the well driller on the well completion report (Water Rights, 2026d). There could potentially be other domestic wells completed into the Antelope Valley aquifer near the diversion points that are not on file with the DANR-Water Rights Program.

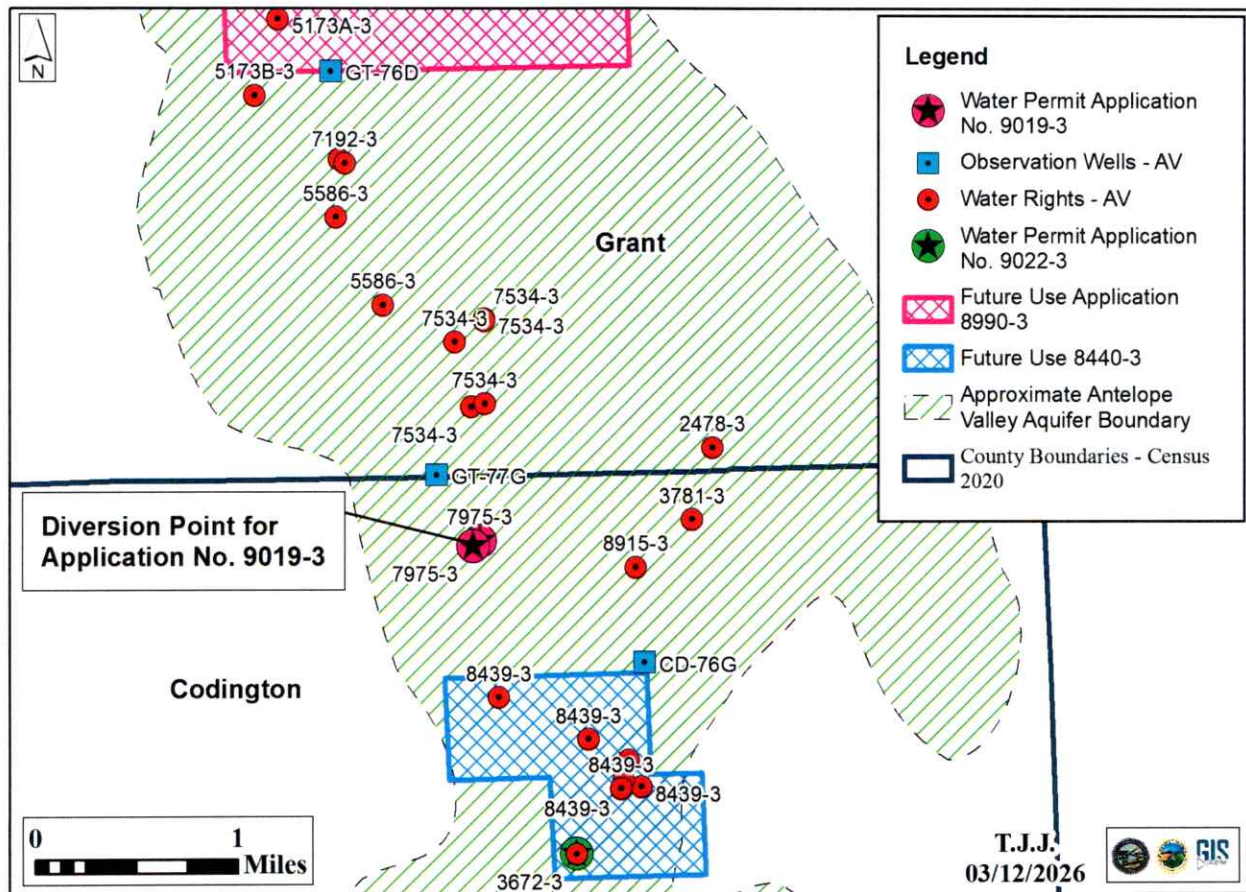


Figure 3. Map of the existing diversion points for Water Permit Application No. 9019-3, nearby Antelope Valley aquifer water rights/permits, and observation wells (Water Rights, 2026b and 2026c).

Table 5. List of water rights/permits shown in Figure 3 (Water Rights, 2026c).

Permit	Name/Business	Priority	Status	Use Type	CFS	Acres
2478-3	Joe/John Arthur	12/15/1975	License	Irrigation	1.07	75
3672-3*	Coast Properties Investors LLC	02/23/1977	License	Irrigation	1.78	132
3781-3	Joe/John Arthur	02/27/1975	License	Irrigation	3.75	264
4053B-3	Town of South Shore	10/20/1976	Future Use	Municipal	N/A	192 (acre-feet)
5173B-3	Willow Run Farms FLP	03/03/1987	License	Irrigation	1.78	136
5586-3	Willow Run Farms FLP	02/18/1975	License	Irrigation	6.00	420
7192-3	Willow Run Farms FLP	04/05/2010	License	Irrigation	1.00	49
7534-3	Joe/John Arthur	11/27/2012	License	Irrigation	7.02	555
7975-3*	Jim & Dan Thyen	02/12/2014	License	Irrigation	1.67	117
8439-3	Grant-Roberts RWS	08/24/2020	License	RWS	5.14	0
8440-3	Grant-Roberts RWS	09/15/2008	Future Use	RWS	N/A	767 (acre-feet)
8915-3	Craig Arthur	12/20/2024	Permit	Irrigation	1.67	160

*These Water Rights are intended to be incorporated into new applications (9019-3 & 9022-3); RWS: Rural Water System

The Antelope Valley aquifer is under confined conditions at the existing well site (Water Rights, 2026d). In a confined aquifer, drawdown from a pumping well can extend some distance from the well. The Water Management Board recognizes that putting water to beneficial use requires a certain amount of drawdown to occur (Water Rights, 1995). 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.”

The Water Management Board considered the delivery of water by artesian head pressure versus maximum beneficial use during the issuance of Water Right No. 2313-2 for Coca-Cola Bottling Company of the Black Hills. The Board adopted the Findings of Facts and Conclusions of Law that noted the reservation of artesian head pressure for delivery of water would be inconsistent with SDCL 46-1-4 which states, “general welfare requires that the water resources of the state be put to beneficial use to the fullest extent of which they are capable...” (Water Rights, 1995). Furthermore, the Water Management Board found if increased cost or decreased production as a result of impacts on artesian head pressure by legitimate users is to be considered as an unlawful impairment, it would also conflict with SDCL 46-1-4 (Water Rights, 1995). With that in mind, some existing well owners may need to install or lower pumps depending on the specific characteristics of the Antelope Valley aquifer at their location. The South Dakota Department of Agriculture & Natural Resources complaints database has no complaints about the Antelope Valley aquifer in Codington and Grant Counties (Water Rights, 2026e). The existing wells for this application have been in use since 2014 with no history of interference. When considering the statutes (SDCL 46-1-4 and 46-6-6.1), rules (ARSD 74:02:04:20(6) and (7)), history of high

capacity well development in the area without any complaints of well interference (Water Rights, 2026e), no increase in the authorized diversion rate, and the saturated aquifer thickness near the diversion points, any drawdown created from the diversion is not expected to cause an unlawful impairment on 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 on existing users with adequate wells.

CONCLUSIONS:

1. Water Permit Application No. 9019-3 proposes to irrigate an additional 25 acres, from two existing wells authorized by Water Right No. 7975-3. Water Right No. 7975-3 authorizes 1.67 cfs from two wells completed into the Antelope Valley aquifer (52-54 feet deep) located in the SW ¼ NW ¼ Section 3 for the irrigation of 117 acres located in the NW ¼, NE ¼ SW ¼ Section 3; all in T119N-R51W. This application proposes to irrigate an additional 25 acres located in the N ½ NW ¼, NE ¼ SW ¼ Section 3-T119N-R51W, with no increase to the 1.67 cfs diversion rate. This application, if approved, and Water Right No. 7975-3 will authorize a combined total of 1.67 cfs for irrigation of 142 acres. The site of interest is located approximately two and one-half miles north of South Shore, SD in Codington County.
2. Based on observation well data and the hydrologic budget, there is a reasonable probability that unappropriated water is available from the Antelope Valley aquifer to supply the proposed appropriation.
3. The pending Water Management Board hearing regarding Future Use Application No. 8990-3, may affect the determination of water availability for this application. Thus, it is recommended to defer this application until the hearing for Application No. 8990-3 has concluded.
4. There is a reasonable probability that the proposed diversion by Water Permit Application No. 9019-3 will not unlawfully impair adequate wells for existing water rights/permits and domestic uses.



Tyler Jensen
Natural Resources Engineer II
SD DANR - Water Rights Program

References

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