

# Nebraska Department of Natural Resources 2021 Annual Report

*for the jointly developed*

## **Tri-Basin Natural Resources District (*Little Blue River Basin portion*) Voluntary Integrated Management Plan**



Of 2020 Data  
Prepared by the  
Nebraska Department of Natural Resources

September 8, 2021



## INTRODUCTION

The Tri-Basin Natural Resources District (TBNRD) and the Nebraska Department of Natural Resources (NeDNR) jointly adopted a voluntary Integrated Management Plan (V-IMP) for the Little Blue River Basin portion of the district, which became effective on April 15, 2020.

The 2021 V-IMP Annual Reports are intended to provide transparency between the TBNRD and NeDNR, as well as to the public, regarding 2020 integrated water management activities. The Department's 2021 Annual Report focuses on surface water and covers the actions and progress made by NeDNR in 2020 to implement the V-IMP. The TBNRD completed a separate report, focused on groundwater, that describes the actions and progress made in V-IMP implementation.

Currently, all the irrigation-use surface water permits in Tri-Basin's Little Blue River portion are considered "exempt." Prior to 2008, the Department issued surface water permits according to the then-current statutes. Those statutes exempted the requirement of a surface water permit diverting from a stream determined by the U.S. Geological Survey as an intermittent stream. However, in 2008 the Nebraska Legislature modified statutes §46-286 and §46-287<sup>1</sup> that allowed NeDNR to investigate and to determine if streams should be identified as "intermittent." The Department identified additional "intermittent" streams which were not mapped as such by the U.S. Geological Survey. Therefore, the existing surface water permits located on the newly (2008) classified intermittent streams are exempt from the provisions of Chapter 46, Article 2<sup>2</sup> (surface water permitting).

Included in this report are the items required to be reported on by the V-IMP. They are as follows:

1. Data on existing streamgaging in TBNRD.
2. Data on water administration of surface water rights for first-in-time, first-in-right.<sup>3</sup>
3. Data on monitoring the use of surface water.<sup>3</sup>
4. Data on any new surface water appropriations.
5. Data collected through voluntary reporting program.
6. Track transfers of surface water rights.<sup>3</sup>
7. Track variances acted upon, should a moratorium be placed on new surface water appropriations in TBNRD.

---

<sup>1</sup> **Attachment A** contains the full language of Neb. Rev. Stat. §§ 46-283 to 46-287 for your reference.

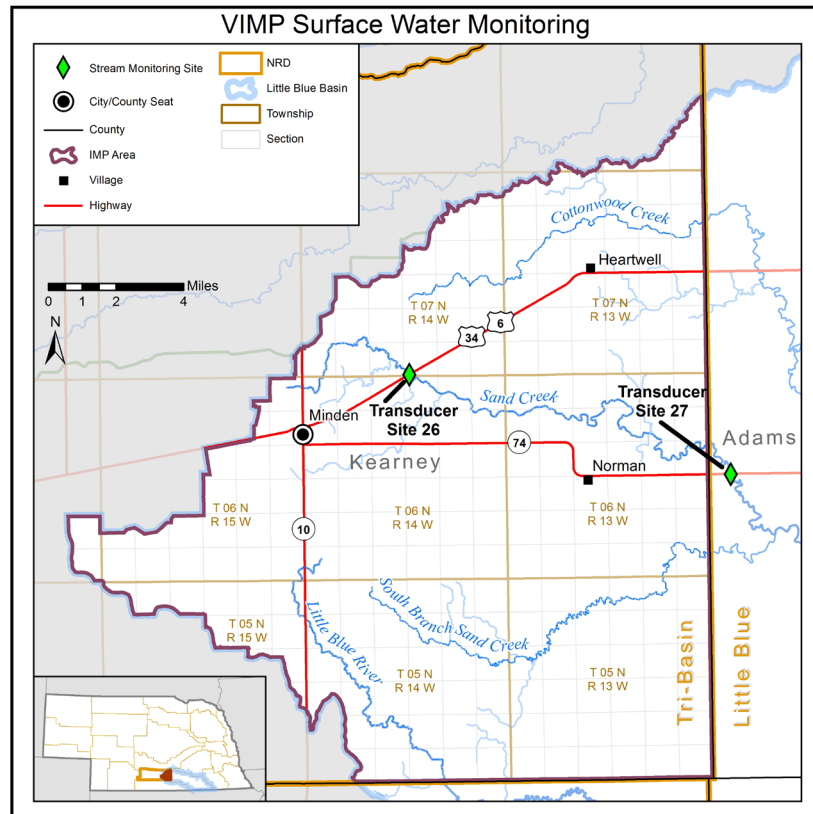
<sup>2</sup> Chapter 46, Article 2 may be found at the following website: <https://nebraskalegislature.gov/>. Chapter 46 may be found here: <https://nebraskalegislature.gov/laws/browse-chapters.php?chapter=46>.

<sup>3</sup> Since the surface water permits are exempt from surface water law, these permits are not under the Department's authority, and therefore, are not monitored. As such, data and reporting on these permits is limited. If an intermittent streams' status officially changes (as defined by Nebraska statute, NeDNR determination, and/or USGS mapping), the Department will appropriately monitor, collect, and report data on such surface water permits.

## 1. Streamgaging

The upper Little Blue River Basin's major streams consist of the Little Blue River, Sand Creek, and Cottonwood Creek watersheds. All these streams originate within Kearney County and are intermittent (no baseflow) within TBNRD. No permanent streamgages are in operation in the district portion of the Little Blue River Basin. In 2015, NeDNR installed two pressure transducers to monitor streamflow along Sand Creek. Pressure transducers are a less costly measuring device than a permanent streamgage and are used to observe trends in water levels. NeDNR typically visits them in the spring and the fall to measure and download data. While NeDNR does calculate discharge at these sites, they are less accurate due to fewer numbers of site visits.

One pressure transducer is located on Sand Creek within TBNRD, about three miles northwest of Minden, NE. The other pressure transducer is located just outside the V-IMP area within the LBNRD, about four miles east of Norman, NE (Figure 1). The Little Blue River and tributaries within the LBNRD have dedicated streamgages further downstream of the V-IMP area.



**Figure 1:** Location of pressure transducers within the V-IMP area.

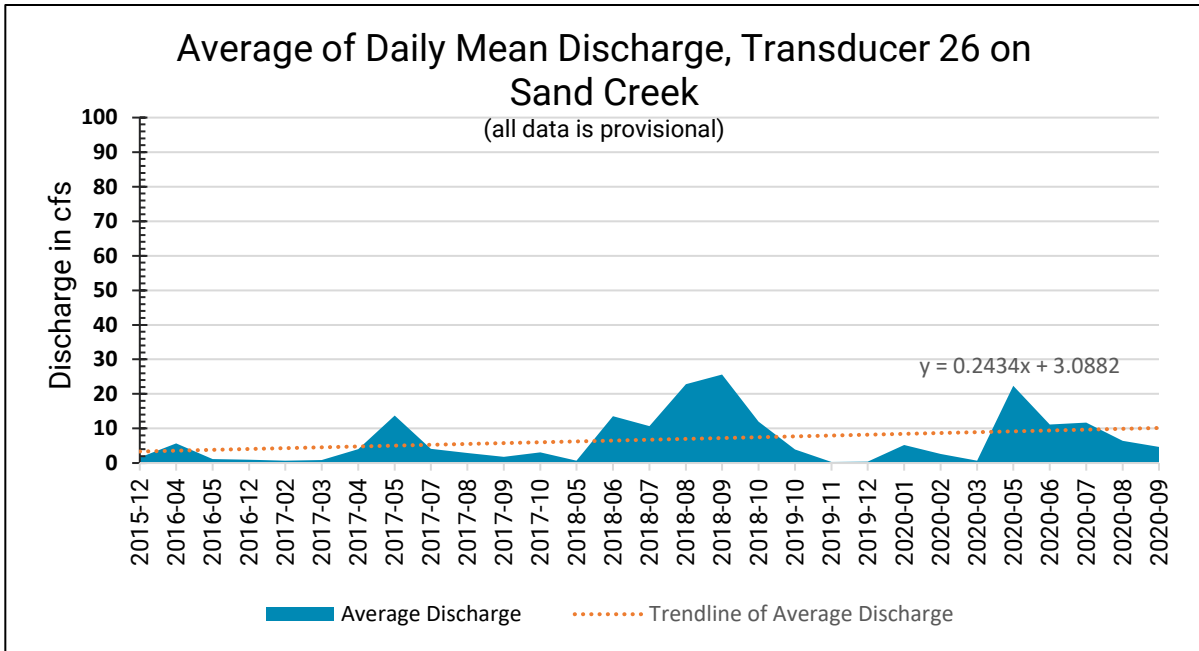


Figure 3: Average discharge at transducer 26 on Sand Creek.

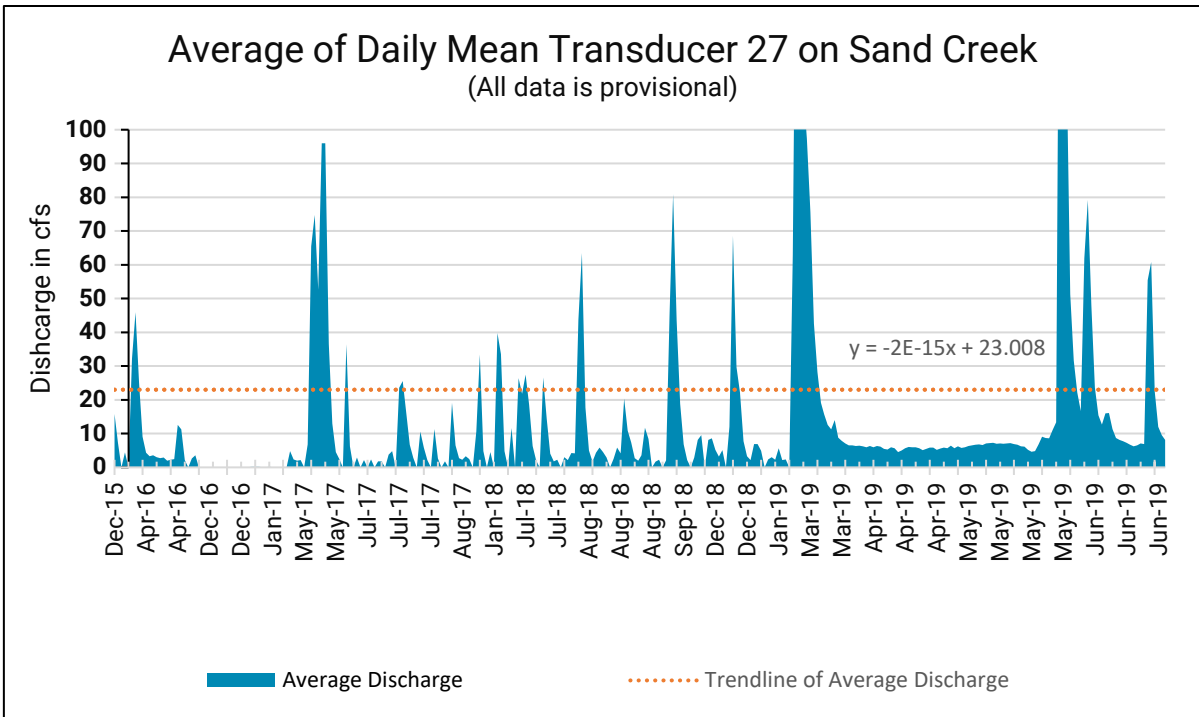


Figure 2: Average discharge at transducer 27 on Sand Creek.

## 2. Administration of surface water rights according to State law

In 2020, the Department did not administer any water rights in the IMP area due to irrigation permits being exempt from NeDNR surface water regulation or administration according to Neb. Rev. Stat. §§46-285 to 46-287.<sup>4</sup>

## 3. Use of surface water

As time and conditions allow, the NeDNR field office staff visit pumpsites as mapped for each appropriation to collect various data. In 2020, the Department did not inspect any pumpsites in the IMP area due to irrigation permits being exempt from NeDNR surface water regulation or administration according to Neb. Rev. Stat. §§46-285 to 46-287.<sup>5</sup>

## 4. Surface water permitting activity

In 2020, the Department did not act upon any applications (either approving new or cancelling existing appropriations) within the V-IMP area. The current active permits are shown in Table 1 below and continued on page 5.

**Table 1:** Current active surface water permits in the V-IMP area.

Surface Water Permits in TBNRD Voluntary IMP Area							
Permit Number	Date Approved	Use	General Location	Source	Exempt	Acres	AF of Storage
A-10107	12/14/1962	Storage	S18-T6N-R14W	Sand Creek, Trib. To	No	0.0	66.59
A-10159	3/29/1963	Irrigation from Natural Stream	S8-T5N-R13W	Sand Creek, Trib. To	Yes	25.0	-
A-10381	10/16/1964	Storage	S10-T5N-R14W	Sand Creek, Trib. To	No	-	76.24
A-11850	2/5/1970	Storage	S3-T6N-R14W	Sand Creek, Trib. To	No	-	18.0
A-12110	5/14/1971	Irrigation from Natural Stream	S2-T5N-R14W	Sand Creek, Trib. To	Yes	40.0	-
A-12111	5/14/1971	Irrigation from Natural Stream	S2-T5N-R14W	Sand Creek, Trib. To	Yes	40.0	-
A-12298	7/7/1971	Storage	S12-T5N-R14W	Sand Creek, Trib. To	No	-	15.1
A-12761	11/10/1972	Storage	S25-T5N-R14W	Blue River, Little, Trib. To	No	-	61.9
A-12942	9/27/1973	Storage	S19-T5N-R13W	Sand Creek, Trib. To	No	-	65.3
A-12948	3/15/1974	Irrigation from Natural Stream	S18-T5N-R13W	Sand Creek, Trib. To	Yes	19.7	-

<sup>4</sup> Attachment A has the full language of Neb. Rev. Stat. §§46-283 to 46-287

<sup>5</sup> Attachment A has the full language of Neb. Rev. Stat. §§46-283 to 46-287

### Surface Water Permits in TBNRD Voluntary IMP Area

Permit Number	Date Approved	Use	General Location	Source	Exempt	Acres	AF of Storage
A-12957	11/30/1973	Storage	S33-T5N-R14W	Blue River, Little, Trib. To	No	-	36.6
A-12967	3/15/1974	Irrigation from Storage	S33-T5N-R14W	Olson Reservoir	No	147.5	32.9
A-12988	3/15/1974	Irrigation from Storage	S25-T5N-R14W	Nelson Reservoir	No	64.0	50.3
A-13036	12/5/1975	Irrigation from Storage	S25-T5N-R14W	Nelson Reservoir	No	102.0	61.9
A-14869	1/31/1978	Irrigation from Natural Stream	S11-T6N-R13W	Sand Creek	Yes	50.0	-
A-15084	11/15/1978	Irrigation from Natural Stream	S9-T6N-R14W	Sand Creek, Trib. To	Yes	99.1	-
A-15359	1/15/1979	Irrigation from Natural Stream	S16-T6N-R14W	Sand Creek, Trib. To	Yes	68.0	-
A-15361	1/15/1979	Irrigation from Natural Stream	S23-T7N-R13W	Cottonwood Creek, Trib. To	Yes	17.4	-
A-15376	1/15/1979	Irrigation from Natural Stream	S4-T7N-R13W	Cottonwood Creek, Trib. To	Yes	208.0	-
A-15390	2/15/1979	Irrigation from Natural Stream	S9-T6N-R13W	Sand Creek	Yes	30.0	-
A-16513	8/18/1986	Irrigation from Natural Stream	S17-T6N-R14W	Sand Creek, Trib. To	Yes	26.0	-
A-16541	3/16/1987	Irrigation from Natural Stream	S18-T5N-R14W	Blue River, Little	Yes	45.5	-
A-17285	6/17/1993	Irrigation from Natural Stream	S35-T6N-R13W	Sand Creek, South Branch	Yes	27.0	-
A-17904	11/14/2001	Storage	S7-T5N-R14W	Blue River, Little	Yes	-	108.0
A-17905	11/14/2001	Irrigation from Natural Stream	S7-T5N-R14W	Blue River, Little	Yes	36.0	-
A-17907	10/10/2000	Irrigation from Natural Stream	S33-T7N-R14W	Sand Creek, Trib. To	Yes	44.0	-
A-17924	1/25/2001	Storage	S32-T7N-R14W	Sand Creek	No	-	107.4
A-17989	11/14/2001	Irrigation from Storage	S7-T5N-R14W	Karen's Pond	Yes	36.0	108.0

## 5. Voluntary water right use reporting

In 2020, no voluntary water use surveys were sent to appropriators that hold an irrigation use permit in the Little Blue River basin V-IMP area because the permits are exempt from NeDNR surface water regulation or administration according to Neb. Rev. Stat. §§46-285 to 46-287.

## 6. Transfers of surface water rights

In 2020, the Department did not act upon any transfers subject to *Neb. Rev. Stat. §§46-290 to 46-294.04* in the Little Blue River basin V-IMP area because the permits are exempt from NeDNR surface water regulation or administration according to *Neb. Rev. Stat. §§46-285 to 46-287*.

## 7. Variances acted upon

In 2020, no moratoria were placed, thus no variances were sought.

## Modeling Tools, and Data Analysis

TBNRD is participating with the Little Blue, Upper Big Blue, and Lower Big Blue NRDs and NeDNR to develop a numerical Blue Basin Groundwater Model. The model is intended to:

- Refine the Blue River Basin delineations of hydrologically connected groundwater and surface water;
- Spatially and temporally simulate groundwater level changes and their impacts on stream baseflow and assess potential streamflow depletions;
- Support NeDNR's Blue River Basin appropriation status evaluation and other management decisions related to groundwater pumping impacts and streamflows; and
- Provide a platform and datasets that represent the best available data for local-scale water issue evaluations.

In 2020, model development proceeded to the calibration phase. A fully calibrated model is expected to be completed by the end of 2021.

# ATTACHMENT A

## **Water Reuse Pit Related Statutes: *Neb. Rev. Stat.* §§46-283 to 46-287**

### **46-283 Legislative findings.**

The Legislature hereby finds and declares that the practice of reusing ground water from irrigation water reuse pits on irrigated land contributes to the efficient use and conservation of the state's water resources and that such reuse may be more feasible when done from irrigation water reuse pits located within ephemeral natural streams.

Source: Laws 1980, LB 908, § 1; Laws 2008, LB798, § 1. 46-284

### **Definitions, sections found.**

For purposes of sections 46-283 to 46-287, unless the context otherwise requires, the definitions found in sections 46-285 and 46-286 shall be used.

Source: Laws 1980, LB 908, § 2.

### **46-285 Irrigation water reuse pit, defined.**

Irrigation water reuse pit shall mean an excavation constructed to capture, for reuse, runoff resulting from ground water irrigation or a structure designed for the purpose of water impoundment which is used for this same purpose so long as the capacity of the facility does not exceed fifteen acre-feet.

Source: Laws 1980, LB 908, § 3.

### **46-286 Ephemeral natural stream, defined.**

An ephemeral natural stream shall mean that portion of a natural stream in which water flows only after a precipitation event or when augmented by surface water runoff caused by the pumping of ground water for irrigation. The portion of a natural stream that is shown as an intermittent stream on the most recent United States Geological Survey topographic quadrangle map published - 49 - prior to July 18, 2008, shall be considered an ephemeral natural stream unless the Department of Natural Resources has investigated the stream and determined that the stream or a reach of the stream is perennial or intermittent and subject to Chapter 46, Article 2. The department's determination for the purposes of this section shall be adopted and promulgated in rule or regulation.

Source: Laws 1980, LB 908, § 4; Laws 2006, LB 508, § 1; Laws 2008, LB798, § 2.

### **46-287 Irrigation water reuse pit; reusing ground water; exempt from certain provisions.**

Notwithstanding any other provision of law, any person intending to or in the process of reusing ground water from an irrigation water reuse pit located within an ephemeral natural stream shall be exempt from the provisions of Chapter 46, Article 2, which would otherwise apply to such pits, and from the provisions of section 46-637.

Source: Laws 1980, LB 908, § 5; Laws 2008, LB798, § 3