# 2023 Upper Platte River Basin-Wide IMP Report Covering 2022 Activities

8/3/2023

# **Annual Report of the Department of Natural Resources**

To Meet the Requirements of the North Platte, South Platte, Twin Platte, Central Platte, and Tri-Basin Natural Resources Districts' Upper Platte River Basin Integrated Management Plans for the 2023 Upper Platte River Basin-Wide Meeting

Third report for the second 10-year increment of the IMPs and Upper Platte River Basin-Wide Plan, adopted in September 2019

> Nebraska Department of Natural Resources August 3, 2023

#### I. INTRODUCTION

This report, presented at the annual basin-wide meeting on August 3<sup>rd</sup>, 2023, is intended to satisfy the tracking, reporting, and evaluation requirements of the Nebraska Department of Natural Resources (Department) as described in the Monitoring and Studies section of the North Platte, South Platte, Central Platte, Twin Platte, and Tri-Basin Natural Resources Districts' (Upper Platte Basin NRDs) integrated management plans (IMPs). The tracking, reporting, and evaluation processes are described in more detail in the Monitoring and Studies section of the IMPs. This is the third report to be filed following adoption of the second increment IMPs in September 2019 and contains information on activities from January 1, 2022, to December 31, 2022.

Each of the five Upper Platte Basin IMPs require that the Department annually track and report on the following items: 1) any surface water permits issued; 2) any dam safety permits issued; 3) any groundwater permits issued; and 4) the associated offsets/mitigations for any new permits issued. These items are included in this report. The IMPs also discuss the inclusion of information on the location, amount, and timing of the depletions caused by each permitted new or expanded water use as well as the same information for the associated offset/mitigation. To facilitate the exchange of information between the Department and the NRDs, the Department reports on the cancellation of surface water permits each year.

In addition to reporting on annual permitting activities, the Department is also required to report the following items every five years: 1) National Agricultural Statistics Service (NASS) livestock data; 2) U.S. Census Bureau population data; 3) inventory of sandpits; 4) inventory of reservoirs of less than 15 acre-feet; 5) any retirements of irrigated acres or other activities in the NRDs by the Department for the purpose of returning to a fully appropriated condition; and 6) offsets/mitigations for depletions resulting from increased consumptive use related to the items listed. These items, as well as the items reported annually, were analyzed as part of the 2019 Robust Review, which was completed as part of the IMP requirements. The Robust Review analysis is described in more detail in the IMPs. The full 2019 Robust Review report is available on the Department's website.

The items tracked and reported here will be used by the Upper Platte Basin NRDs and the Department to measure the success of the controls, incentive measures, and other action items in meeting the goals and objectives of the IMPs. Two evaluation processes for measuring success are described in the IMPs. The first is a yearly evaluation of the data contained in the annual report that will include a

forecast of the balance of depletions and accretions for permitted new activities using analytical methods. The second evaluation process involves updating and running groundwater models with any of the relevant data from the annual exchange along with the data that is to be collected and considered every five years (Robust Review). In addition to these evaluation processes, the information that is tracked and reported will also be used by the State to help meet requirements of the Platte River Recovery Implementation Program (PRRIP).

- II. ACTIVITIES TO BE REPORTED ANNUALLY (JANUARY 1, 2022, THROUGH DECEMBER 31, 2022)
- A. Summary

Items reported annually include permits that are issued by the Department. When a surface water or groundwater permit is reviewed, the Department assesses the potential for the permitted action to increase, decrease, or have no effect on water use. Depending on the circumstances, the applicant may be required to take action that would offset/mitigate the effect of any increase in water use. Described in each section below are the permits issued by the Department and the associated review of potential changes in the water use. The Department issued nine (9) new surface water permits, one (1) groundwater transfer permit, and three (3) dam safety permits. Copies of the applications and orders for each permit are available in Appendix 1. More detailed information on each permit is available from the Department upon request.

B. Surface Water Applications Approved – Table 1, Page 7-8

In calendar year 2022, nine (9) new surface water applications were approved. Eight (8) were temporary permits for groundwater recharge, and one (1) was a temporary manufacturing permit. Temporary recharge permits only allow the diversion of streamflows in excess of already permitted uses and target flows when they are available during non-irrigation periods in the spring and fall and are intended to supply baseflow accretions back to the river. Temporary manufacturing permits are for less than ten acre-feet over one year. All temporary permits expire one year from the issued date. The conditions under which each permit can operate are specified in the order for each permit (see Appendix 1).

## C. Dam Safety Applications Approved – Table 2, Page 9

Three (3) dam permits were approved in 2022 by the NeDNR Dam Safety Division. The permits, P-20855, P-20885, and P-20890, are dam repair projects which do not increase the capacity of the dams above the originally permitted volumes. Therefore, there is no increase in consumptive use associated with these dams and no offset is required.

Brule Creek 1-A Dam Remedial Repair (P-20855) is a plan to remediate the existing dam to improve dam safety and compliance. Brule Creek 1-A Dam is a flood control dam owned by the TPNRD and located approximately two miles north of Brule, Nebraska. The reservoir pool is typically dry except during and immediately after significant precipitation events. The approved construction will consist of various repairs and improvements to the embankment and principal spillway.

Elwood Dam Seepage Mitigation Project (P-20885) is a plan to mitigate unsafe seepage at Elwood Dam and the inlet/outlet embankment. Elwood Dam and Elwood Reservoir are owned and operated by Central Nebraska Public Power and Irrigation District (CNPPID). In summer 2019, CNPPID observed seepage exiting the ground surface near the toe and south abutment of the inlet/outlet embankment. CNPPID informed RJH Consultants, Inc. (RJH) that they would like to maintain the reservoir at Elevation 2607. Based on initial evaluations, RJH concluded that uncontrolled seepage posed credible dam safety issues with a reservoir pool maintained at Elevation 2607, and that seepage mitigation systems should be installed.

Jones Creek Reservoir Dam Rehabilitation (P-20890) is for the reconstruction of Jones Creek 1-1 Dam. Jones Creek 1-1 Dam is a grade control dam owned by the CPNRD. Corroded parts will be replaced, and the principal spillway will be increased to pass a 10-year storm. The auxiliary spillway and top of dam will remain unchanged. Note: this dam, while located within the CPNRD, is outside the Platte River Water Division (1A).

## D. Groundwater Permits Approved – Table 3, Page 9

In 2022, NeDNR Water Administration approved one (1) permit transferring groundwater out of state. The permit, TA-55, allows for irrigation of up to 9.9 acres in Wyoming from a well located close to the Wyoming state line in Scotts Bluff County, completing a center pivot circle to irrigate land in

Nebraska and Wyoming. TA-55 is closely tied to a previous permit, TA-31, for the same well. TA-55 did not allow any additional water to be withdrawn; the amount is limited to the 33.5 acre-feet approved under TA-31. Because there was no increase in total pumping volume and there is already an allocation in place limiting the producer below the crop consumptive use value, NPNRD did not require an offset.

E. Offsets/Mitigations for Issued Permits

No offsets were necessary for the eight (8) surface water applications approved for the purpose of groundwater recharge because the permits contained limitations that would ensure that these diversions would not impact state protected flows or species target flows.

No offsets were necessary for the one (1) temporary manufacturing permit approved in 2022 because it is not for a new consumptive use. The Parasailing CNPPID permit, A-19801, repurposes existing water stored in Lake McConaughy under appropriation A-2374 and therefore does not qualify as a new use. Permit A-19801 allows a temporary non-consumptive use of up to 2 acre-feet for the purposes of compacting soil for a construction project at the Big Mac Marina. Water applied under this permit will infiltrate back to the source after use.

F. Additional Reporting of Cancelled Permits – Table 4, Page 10-11

To facilitate the exchange of information between the Department and the NRDs, the Department is also reporting on the cancellation of ten (10) surface water permits. Eight (8) of the cancelled permits were temporary groundwater recharge permits issued for one (1) year, and the remaining two (2) permits were temporary manufacturing permits issued for one (1) year. Copies of the applications and orders for the cancelled surface water permits can be found in Appendix 1 of this report.

G. Net Effect due to New or Expanded Permitted Activity and Offsets/Mitigations

Due to the nature of the actions permitted by the Department, there will be no change in consumptive water use in the basin and no depletion or offset/mitigation analysis and estimates were necessary for 2022 activities.

Projects for the purpose of providing accretions to the river to offset other depletions were analyzed as part of the Robust Review, which can be found at <a href="http://upjointplanning.nebraska.gov/">http://upjointplanning.nebraska.gov/</a> Based on the analysis conducted for the Robust Review of the projects in place through 2013, the total of Nebraska's offset/mitigation efforts and depletions from new uses within the basin result in a net increase to streamflow.

A guidance document for the annual calculations, Basin-wide Technical Committee Guidance Document – Procedures for Annual Accounting Review and Robust Review to Assist Integrated Management Planning and Facilitate Reporting to the Platte River Recovery and Implementation Program, can be found on the Department's website at https://doc.water-

https://dnr.nebraska.gov/sites/dnr.nebraska.gov/files/doc/waterplanning/upper-platte/other/basin-wide-technical-committeeguidance20120814.pdf.

# III. ACTIVITIES TO BE REPORTED ON A FIVE (5) YEAR BASIS

For the five (5) year tracking requirements, the Department reports on changes in livestock and human populations and conducts an inventory of sandpits and reservoirs less than 15 acre-feet. The Department also reports on retirements of irrigated acres and other activities conducted for the purpose of returning to a fully appropriated condition and any offsets/mitigations necessary for depletions resulting from increased consumptive use by the items reported in this section.

Human and livestock population analyses were updated as part of the Robust Review, a report on the inventory and analysis of sandpits and reservoirs is also part of the Robust Review and can be found on the Robust Review report website: http://upjointplanning.nebraska.gov/. The inventory of sandpits and reservoirs less than 15 acre-feet for 2005 to 2010 was reported in the 2013 report. All reports prior to 2016 are available from the Department upon request. More recent reports can be found at <a href="https://dnr.nebraska.gov/water-planning/upper-platte-basin-wide-meetings-and-annual-reports">http://dnr.nebraska.gov/water-planning/upper-platte-basin-wide-meetings-and-annual-reports</a>.

## IV. OTHER TECHNICAL ANALYSES

The reports, technical analyses, and modeling files that guided development efforts for the second increment basin-wide plan and IMPs are available at <u>http://upjointplanning.nebraska.gov/</u>.

The NRDs, the Department, and their contractors continue to work together on the maintenance and refinement of the two models for the area, the Western Water Use Management Model (WWUMM) and the COHYST Model. As models and associated tools are updated and approved they will be used to conduct the analyses required by the Basin-Wide Plan and the IMPs. The Department and NRDs agreed to a scope of work for the Robust Review in 2021. Data are collected and are now being analyzed and reviewed by NeDNR and the NRDs for inclusion in the Robust Review. Components being updated include: updating the representation of conservation measures in the basin; updating, correcting, and/or recalibrating the groundwater models as described in the groundwater model reports; and updating datasets through calendar year 2020.

## IV. SUMMARY

During 2022, the Department issued nine (9) new surface water permits, one (1) groundwater transfer permit, and three (3) dam safety permits. These permitted activities resulted in no new net depletions to the basin.

TO MEET THE REQUIREMENTS OF THE NORTH PLATTE, SOUTH PLATTE, TWIN PLATTE, CENTRAL PLATTE, AND TRI-BASIN NATURAL RESOURCES DISTRICTS' PLATTE BASIN INTEGRATED MANAGEMENT PLANS ON 2022 ACTIVITIES FOR THE 2023 UPPER PLATTE RIVER BASIN-WIDE MEETING

> Table 1: Surface Water Applications Approved by the Department during Reporting Period January 1, 2022, to December 31, 2022

Appropriation Number	Approval Date	S-T-R W	Source or Canal	Use	Grant in CFS	Grant in AF	Surface Water or Groundwater Mitigation	Associated Variance
A-19801	1/14/2022	30-15-38 W	Lake McConaughy, A-2374	Temporary Manufacturing		2	Variance granted pursuant to 457 Neb. Admin. Code Ch. 23 § 001.06	VAR-9469
A-19807	3/1/2022	19-12-26 W	Gothenburg Canal	Temporary Recharge	100		Variance granted pursuant to 457 Neb. Admin. Code Ch. 23 § 001.03	VAR-9543
A-19808	3/1/2022	18-10-23 W	Dawson County Canal	Temporary Recharge	100		Variance granted pursuant to 457 Neb. Admin. Code Ch. 23 § 001.03	VAR-9544
A-19813	3/14/2022	18-14-36 W	Keith-Lincoln Canal	Temporary Recharge	80.56		Variance granted pursuant to 457 Neb. Admin. Code Ch. 23 § 001.03	VAR-9561
A-19814	3/14/2022	13-14-34 W	North Platte Canal	Temporary Recharge	201		Variance granted pursuant to 457 Neb. Admin. Code Ch. 23 § 001.03	VAR-9569

TO MEET THE REQUIREMENTS OF THE NORTH PLATTE, SOUTH PLATTE, TWIN PLATTE, CENTRAL PLATTE, AND TRI-BASIN NATURAL RESOURCES DISTRICTS' PLATTE BASIN INTEGRATED MANAGEMENT PLANS ON 2022 ACTIVITIES FOR THE 2023 UPPER PLATTE RIVER BASIN-WIDE MEETING

Appropriation Number	Approval Date	S-T-R W	Source or Canal	Use	Grant in CFS	Grant in AF	Surface Water or Groundwater Mitigation	Associated Variance
A-19815	3/14/2022	14-12-43 W	Western Canal	Temporary Recharge	176.26		Variance granted pursuant to 457 Neb. Admin. Code Ch. 23 § 001.03	VAR-9563
A-19816	3/14/2022	12-14-33 W	Suburban Canal	Temporary Recharge	77.47		Variance granted pursuant to 457 Neb. Admin. Code Ch. 23 § 001.03	VAR-9565
A-19817	3/14/2022	18-14-33 W	Paxton- Hershey Canal	Temporary Recharge	102.78		Variance granted pursuant to 457 Neb. Admin. Code Ch. 23 § 001.03	VAR-9567
A-19831	4/25/2022	8-13-29 W	Tri-County Canal	Temporary Recharge	950		Variance granted pursuant to 457 Neb. Admin. Code Ch. 23 § 001.03	VAR-9610

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> Table 2: Dam Safety Permits Approved by the Department during Reporting Period January 1, 2022, to December 31, 2022

Plan Number	Order Date	Dam Status	S-T-R W	Project Name	Source	Use
P-20855	1/31/2022	Approved	9-13-40 W	Brule Creek Watershed Site 1A Dam Remedial Repair	Brule Canyon Creek	Flood Control, Storm Water Mgmt
P-20885	8/25/2022	Approved	30-8-22 W	Elwood Dam Seepage Mitigation Project	TR-Plum Creek	Irrigation
P-20890	3/14/2022	Approved	9-14-3 W	Dam Rehabilitation Jones Creek Reservoir	TR-Clear Creek	Erosion & Flood Control

Table 3: Groundwater Permits issued by the Department during Reporting Period January 1, 2022, to December 31, 2022

Per Num		Well Registration Numbers	NRD GW Transfer Permit Number	Approval Date	Well Type	S-T-R W	Permitted Max. Daily Rate (gal)	Permitted Annual Consumptive Use (AF)	Offset Scheme
TA-	-55	G-015400	N/A	6/1/2022	Irrigation	16-23-58 W	252,000	33.5 (Approved under TA-31)	N/A

There were no Municipal or Industrial Groundwater Permits issued by the Department during 2022.

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> Table 4: Surface Water Permits Cancelled by the Department during Reporting Period January 1, 2022, to December 31, 2022

Appropriation Number	Modification Number	Cancellation Date	S-T-R W	Canal or Source	Use	Cancellation in CFS	Cancellation in AF
A-19747	VAR-9261	3/9/2022	19-12-26 W	Gothenburg Canal	Temporary Recharge	100	
A-19748	VAR-9262	3/9/2022	18-10-23 W	Dawson County Canal	Temporary Recharge	100	
A-19770	VAR-9378	5/13/2022	14-12-43 W	Western Canal	Temporary Recharge	176.26	
A-19771	VAR-9374	5/19/2022	18-14-33 W	Paxton Hershey Canal	Temporary Recharge	102.78	
A-19772	VAR-9375	5/19/2022	18-14-36 W	Keith-Lincoln Canal	Temporary Recharge	80.56	

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Appropriation Number	Modification Number	Cancellation Date	S-T-R W	Canal or Source	Use	Cancellation in CFS	Cancellation in AF
A-19773	VAR-9377	5/19/2022	13-14-34 W	North Platte Canal	Temporary Recharge	201	
A-19774	VAR-9376	5/19/2022	12-14-33 W	Suburban Canal	Temporary Recharge	77.47	
A-19797	VAR-9465	11/30/2022	8-13-29 W	Tri-County Supply Canal, E65 Canal, & Phelps Canal	Temporary Recharge	950	
A-19790	VAR-9429	9/8/2022	24-13-41 W	South Platte River	Temporary Manufacturing	0.16	10
A-19799	VAR-9453	12/21/2022	3-14-38 W	Kingsley Reservoir via Phelps Canal	Temporary Manufacturing	200	2000

Table 4: Surface Water Permits Cancelled by the Department during Reporting Period January 1, 2022, to December 31, 2022

# Definitions

Depending on the types of permits issued or cancelled in a given year, not all definitions may be relevant to the current year's report.

Accretion	Addition to streamflow that results from an offset/mitigation action or project.					
Acre-Feet (AF)	A unit of volume, commonly used to measure quantities of water used or stored equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters.					
Annotation	Modification numbers or appropriation numbers also associated with the appropriation.					
Application/Appropriation Number	Appropriations having docket numbers (D-) refer to claims covering rights which existed prior to April 4, 1895, or those rights that existed on the Missouri River that were covered by the law passed in 1980. Those appropriations having application numbers (A-) were filed after April 4, 1895.					
Begin Acres	The amount of acres included in an original appropriation, prior to any acres being cancelled.					
Cancelled Acres	The amount of acres in an appropriation that have been cancelled.					
CFS/Cubic Feet per Second	The USGS defines cubic foot per second (cfs) as "the flow rate or discharge equal to one cubic foot of water per second or about 7.5 gallons per second."					
Depletion	Reduction to streamflow that results from a new use of either groundwater or surface water.					
Flood Control	This refers to water withdrawn from the surface water source for the purpose of protecting health and well-being of society.					
GPD/Gallons per Day	This refers to the number of gallons pumped per day.					
Grant in AF	This refers to the approved amount of acre-feet of water legally allowed to be pumped from a surface water source, as long as all other conditions are met.					

Grant in CFS	This refers to the approved amount of cubic feet per
	second of water legally allowed to be pumped from a surface water source, as long as all other conditions are met.
Instream Use	This refers to water that is appropriated for use within the stream and is not withdrawn from a surface water source.
Offset	A reduction in water use that corresponds with an increased use of water. An offset may be used as a management strategy to balance uses and supplies. The offset will have a corresponding amount, time, and location. Also referred to as mitigation.
Order Date	This is the date the Department acted upon an application for a permit to appropriate water or a modification of an existing appropriation.
Permit Number	This refers to the number of a groundwater permit, assigned by the Department. The first letters in the permit number denotes type of permit.
Plan Number	This is a unique identifier assigned by the Dam Safety Division for the required plans of dams filed in the Department.
Project Name	This name is provided by the applicant.
Relinquishment (REL)	The voluntary yielding of a surface water appropriation by the owner. By relinquishing a surface water appropriation, the owner surrenders all claims to the right to divert water and apply it to the property in accordance with the appropriation. Relinquishments may be for part or all of an appropriation. A form must be filed with the Department for any relinquishments.
Section/Township/Range	This is the legal description of where a dam, well, or water appropriation is located.
Use	This is the legally accepted and beneficial use of the water impounded by a dam, well, or water appropriation.

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Variance (VAR)	An applicant may petition the Department to file an application for a new surface water appropriation within a moratorium or stay area. This petition, also known as a "variance," if granted, would allow the applicant to file the application, and does not bind the Department to approve any application to which it relates. The variance petition must include sufficient information to indicate the proposed project is for a non-consumptive use, the applicant has a plan to offset any consumptive use, there may be unappropriated flows, the use existed prior to the moratorium, the project address a public safety issue, or the project is a temporary use less than ten (10) acre-feet for public construction.
Water Division	The State of Nebraska is divided in two water divisions by statute, denoted Water Division No. 1, and Water Division No. 2, respectively. Water Division No. 1 consists of all the lands of the state drained by the Platte Rivers and their tributaries lying west of the mouth of the Loup River; and also all other lands lying south of the Platte and South Platte rivers that may be watered from other superficial or subterranean streams not tributary to the Platte River. Water Division No. 2 consists of all lands that may be watered from the Loup, White, Niobrara, and Elkhorn rivers, and Hat Creek and their tributaries, and those lands drained by the Platte River and its tributaries lying east of the mouth of the Loup River. For convenience in the administration of the surface water laws and the distribution of water, the two water divisions have been subdivided into 12 water divisions, denoted:
	<ul> <li>1A Platte River basin,</li> <li>1B Republican River basin,</li> <li>1C Little Blue River basin,</li> <li>1D Big Blue River basin,</li> <li>1E Lodgepole Creek basin,</li> <li>1F Nemaha River basin and Lower Missouri River and tributary basins,</li> <li>2A Loup River basin,</li> <li>2B Elkhorn River and Salt Creek basins,</li> <li>2C Niobrara River basin,</li> <li>2D White River and White Clay Creek basins,</li> <li>2E Hat Creek basin,</li> <li>2F Upper Missouri River and Tributary basins.</li> </ul>

Once finalized, the completed document and appendix are available from the Department website: <u>https://dnr.nebraska.gov/water-planning/upper-platte-basin-wide-meetings-and-annual-reports</u> or may be requested in paper or electronic format by contacting Ryan Kelly at (402) 471-1080 at <u>Ryan.Kelly@nebraska.gov</u>.

Listing of Appendices and Documents:

Annual Report of the Department of the Natural Resources to Meet the Requirements of the North Platte, South Platte, Twin Platte, Central Platte, and Tri-Basin Natural Resources Districts' Integrated Management Plans for the 2023 Upper Platte River Basin-Wide Meeting.

Appendix 1

- Applications and Orders for Department issued surface water permits.
- Applications and Orders for Department issued dam safety permits.
- Applications and Orders for Department cancelled surface water permits.
- Notices and responses from the Department regarding groundwater transfer notices received.