



2017 Platte Basin-Wide IMP Report

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' Platte Basin
Integrated Management Plans for the 2017 Basin-Wide Meeting

Nebraska Department of Natural Resources
July 19, 2017



**ANNUAL REPORT OF THE DEPARTMENT OF NATURAL RESOURCES
TO MEET THE REQUIREMENTS OF THE NORTH PLATTE, SOUTH PLATTE,
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I. INTRODUCTION

This report, to be presented at the annual basin-wide meeting on July 19, 2017, 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' (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 eighth report to be filed following adoption of the IMPs in September 2009 and contains information on activities from January 1, 2016, to December 31, 2016.

Each of the five 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. The above 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.

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 (af); 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. The items listed here were included in the 2011 report¹ but will not be included in the 2017 report. Instead, these items, as well as the items reported annually, will be used in a robust analysis planned to be conducted every five years. This robust analysis is described in more detail in the IMPs.

Following the reporting at the annual basin-wide meeting, the items tracked and reported will be used by the 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

¹ *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' Integrated Management Plans for the 2011 Basin-Wide Meeting* available from the Department upon request.

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the annual report that will include a forecast of the balance of depletions and accretions for permitted new activities. The second evaluation process is more robust, including updating and running groundwater models. 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, 2016, THROUGH DECEMBER 31, 2016)

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 five (5) new surface water permits, no dam safety permits, and no groundwater permits in calendar year 2016. Copies of the applications and orders for each permit are available in Appendix 1. More detailed information on each permit is available at the Department office in Lincoln, Nebraska.

B. Surface Water Applications Approved – Table 1, Page 6

Five (5) new surface water applications were approved in calendar year 2016. Four (4) are temporary permits for groundwater recharge. These 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. All temporary permits expire one year from the issued date.

The fifth permit is for storage in a reservoir that existed and was in use prior to the basin moratorium. The reservoir is located on a tributary to the Wood River in the Central Platte NRD and is owned by the Nebraska Board of Educational Lands and Funds. The purpose of the reservoir is erosion control. The dam was constructed around 1948 but no plans were submitted to the Department and no storage permits were obtained. Following a

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Department dam inspection in 2013, the owner communicated with the Department on the necessary actions to bring the dam and reservoir into compliance. The owner then filed for a variance and an application to store water. Diversions will not exceed 18.1 acre-feet per year.

The conditions under which each permit can operate are specified in detail in the order for each permit (see Appendix 1).

C. Dam Safety Applications Approved

No new dam safety applications were approved in calendar year 2016.

D. Groundwater Permits Issued

No new groundwater permits were issued in calendar year 2016.

E. Offsets/Mitigations for Issued Permits

No offsets were necessary for the four (4) surface water applications approved for the purpose of groundwater recharge because the permits would not impact state protected flows or species target flows. The fifth surface water permit for storage also does not require any offset as the use existed prior to the moratorium so there is no new use and no impact to state protect flows or species target flows.

F. Additional Reporting of Cancelled Permits – Table 2, Page 7

To facilitate the exchange of information between the Department and the NRDs, the Department is also reporting on the cancellation of surface water permits. Eight (8) surface water permits were cancelled during the reporting period. Four (4) of these were temporary groundwater recharge permits issued for one year which expired in 2016 and two (2) were temporary manufacturing/construction permits issued for one year which expired in 2016. There was one power permit relinquished and one irrigation permit relinquished. 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

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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 2016 activities.

Projects for the purpose of providing accretions to the river to offset other depletions are discussed in more detail in the Department's 2016 update to the Governance Committee report: "Nebraska Update on Continued Implementation of the Nebraska New Depletion Plan (NNDP)," attached to this report in Appendix 2. Based on the analysis presented in that update, 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://dnr.nebraska.gov/sites/dnr.nebraska.gov/files/doc/water-planning/upper-platte/other/basin-wide-technical-committee-guidance20120814.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.

The changes in livestock and human populations and other activities between calendar years 1997 and 2005 were reported in the 2010 report. Activities in this section for the 2010 calendar year were reported in the 2011 report. Updates to livestock and human population data in the 2010 and 2011 reports were made after errors were identified following the original publication of the reports. 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 2015 are available from the Department upon request. More recent reports can be found at <https://dnr.nebraska.gov/water-planning/upper-platte-basin-wide-meetings-and-annual-reports>.

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The next update to this section of the report will be included in the results of the Robust Review, currently underway.

IV. OTHER TECHNICAL ANALYSES

The Department and NRDs have developed a scope of work to conduct a robust review as described in *Neb. Rev. Stat. § 46-755(5)(d)*, according to the process outlined in the Basin-Wide Technical Committee Guidance Document. Consultants have been contracted and work has begun in coordination with NRD and Department technical staff. Work on assessing the difference between current and fully appropriated levels of development began in early 2015. Draft results of this study have been completed and shared. Phase II of the soil and water conservation measures study is also underway and will be completed in 2017. The results of these analyses will help guide planning efforts for the second increment of the basin-wide plan.

IV. SUMMARY

During 2016, the Department issued five (5) new surface water permits, no dam safety permits, and no groundwater permits. As described in the 2016 Update on the NNDP, when all activities in the basin are tracked and summed, the net effect of new or expanded uses and offset/mitigation activities is positive to the river.

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Table 1: Surface Water Applications Approved by the Department during
Reporting Period January 1, 2016, to December 31, 2016

Appropriation Number	Approval Date	S-T-R W	Canal	Use	Grant in CFS	Grant in AF	Surface Water or Groundwater Mitigation	Associated Variance
A-19458	8/19/1016	18-10-23W	Dawson County	Temporary Groundwater Recharge	100	N/A	Variance granted pursuant to 475 <i>Neb. Admin. Code</i> Ch. 23 § 001.03	VAR-5745
A-19459	8/19/2016	19-12-26W	Gothenburg	Temporary Groundwater Recharge	100	N/A	Variance granted pursuant to 475 <i>Neb. Admin. Code</i> Ch. 23 § 001.03	VAR-5744
A-19460	8/25/2016	8-13-29W	Tri-County and E65	Temporary Groundwater Recharge	350	N/A	Variance granted pursuant to 475 <i>Neb. Admin. Code</i> Ch. 23 § 001.03	VAR-5710
A-19468	11/10/2016	16-11-19W	N/A	Storage	N/A	18.1	Variance granted pursuant to 475 <i>Neb. Admin. Code</i> Ch. 23 § 001.04. Use existed prior to moratorium.	VAR-5025
A-19479	11/18/2016	8-13-29W	Tri-County and Phelps	Temporary Groundwater Recharge	600	N/A	Variance granted pursuant to 475 <i>Neb. Admin. Code</i> Ch. 23 § 001.03	VAR-5971

There were no dam safety applications approved by the Department in 2016.

There were no municipal or industrial groundwater permits issued by the Department in 2016.

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Table 2: Surface Water Permits Cancelled by the Department during
Reporting Period January 1, 2016, to December 31, 2016

Appropriation Number	Modification Number	Cancellation Date	S-T-R W	Canal	Use	Begin Acres	Cancelled Acres	Cancellation in CFS	Cancellation in AF
A-19364	VAR-5392	6/5/2016	27-13-29W	Tri-County	Temporary Construction	N/A	N/A	1.00	N/A
A-15809	REL-5552	6/10/2016	4-18-43W	N/A	Power	N/A	N/A	49.20	N/A
A-19375	VAR-5457	6/12/2016	8-13-29W	Tri-County	Temporary Groundwater Recharge	N/A	N/A	350.00	N/A
A-14498	REL-5699	7/7/2016	16-8-21W	Pump	Irrigation	26.00	26.00	0.37	N/A
A-19385	VAR-5348	8/31/2016	19-12-26W	Gothenburg	Temporary Groundwater Recharge	N/A	N/A	100.00	N/A
A-19386	VAR-5349	8/31/2016	18-10-23W	Dawson County	Temporary Groundwater Recharge	N/A	N/A	100.00	N/A
A-19392	VAR-5528	11/17/2016	8-13-29W	Tri-County	Temporary Construction	N/A	N/A	0.45	N/A
A-19400	VAR-5529	11/25/2016	8-13-29W	Tri-County	Temporary Groundwater Recharge	N/A	N/A	600.00	N/A

A copy of the Application and Order for each approved or cancelled permit can be found in Appendix 1 of this report.

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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 applications 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.

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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	<p>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:</p> <p>1A Platte River basin, 1B Republican River basin, 1C Little Blue River basin, 1D Big Blue River basin, 1E Lodgepole Creek basin, 1F Nemaha River basin and Lower Missouri River and tributary basins, 2A Loup River basin,</p>

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	2B Elkhorn River and Salt Creek basins, 2C Niobrara River basin, 2D White River and White Clay Creek basins, 2E Hat Creek basin, 2F Upper Missouri River and Tributary basins.
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The complete document and appendix are available from the Department website: <https://dnr.nebraska.gov/water-planning/upper-platte-basin-wide-meetings-and-annual-reports> or may be requested in paper or electronic format by contacting Jessie Strom at (402) 471-0376 or jessie.strom@nebraska.gov.

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 2017 Basin-Wide Meeting.

Appendix 1

- Applications and Orders for Department permits issued (surface water permits).
- Applications and Orders for Department cancelled surface water permits.

Appendix 2

- Nebraska Department of Natural Resources 2016 report to the Governance Committee (GC) of the Platte River Recovery Implementation Program (PRRIP), "Nebraska Update on Continued Implementation of the Nebraska New Depletion Plan (NNDP)."