



## Nebraska Public Power District

*Always there when you need us*

September 27, 2019

Mr. Gordon Fassett  
Nebraska Department of Natural Resources  
301 Centennial Mall South  
PO Box 94676  
Lincoln, NE 68509

Dear Mr. Fassett:

### **RE: Recharge Analysis for Temporary appropriations A-19607 and A-19608**

#### **Background**

On August 16, 2018, the Nebraska Department of Natural Resources approved applications A-19607, Gothenburg Canal, and A-19608, Dawson County Canal, for recharge activities. These temporary appropriations expired one year from the order date. One condition included in each of the water appropriations was:

*13. Within six months after the final date of diversion under this temporary permit, the appropriator shall file a map that depicts where the water was routed, and will provide in-depth quantitative analysis to the Department of the recharge achieved by utilizing the Gothenburg/Dawson County Canal, including all data provided for any contractual arrangements between NPPD, the Department or other persons.*

With this letter, the Nebraska Public Power District (NPPD) intends to fulfill the provision. NPPD has a contract with the Platte River Recovery Program (PRRIP) for the recharge from the Dawson Country and Gothenburg Canals and the information included in this report will be provided to PRRIP. Determination of the recharge at each of the canals is made from data collected including river diversions recorded at the canal head gates (NDNR provisional data) and NPPD used staff gages to determine diversions into canal laterals from the main canal and the water spilled from the canal systems. This data was used to determine the amount of water recharged.

#### **Fall 2018 Operations**

##### *Gothenburg Canal*

The Gothenburg Canal ceased operating for irrigation needs on September 7, 2018. Subsequently, water was diverted into the canal for groundwater recharge as shown below. Note that on September 10, only laterals were used while the main canal was used for delivering water to Central Platte NRD's B-1 Reservoir. There was a total of 617 AF of water recharged.

#### **General Office**

1414 15th Street / PO Box 499 / Columbus, NE 68602-0499

**Telephone:** (402) 564-8561 / **Fax:** (402) 563-5527

[www.nppd.com](http://www.nppd.com)





Date	Canal Diversions cfs	Canal Returns cfs	Net Recharge (acre-feet)	Canal Information (AF) (2 measurable segments)										Lateral Information (AF)							
				Net Canal Recharge (AF)			River Diversion to French Creek		French Creek to End of Canal			Berquist		#1		#2		F			
				Total River Diversion	Total River Returns	Net Recharge	Main Canal River Diversion	French Creek Return	Main Canal after French Creek Return	Main Canal Return (Elm Creek)	Diversion	Return	Diversion	Return	Diversion	Return	Diversion	Return			
				2018																	
Dawson Cty Canal:				Dawson Cty Canal:																	
9/8/2018	107	(41.2)	131	9/8	212	-82	131	212	0	18	-9	38	-15	44	-36	14	-10	16	-12		
9/9/2018	103	(41.2)	123	9/9	204	-82	123	204	0	18	-9	38	-15	44	-36	14	-10	16	-12		
9/10/2018	90	(41.2)	97	9/10	179	-82	97	179	0	18	-9	38	-15	44	-36	14	-10	16	-12		
9/11/2018	80	(23.7)	112	9/11	159	-47	112	159	0	20	-6	38	-9	23	-16	14	-10	10	-6		
9/12/2018	72	(21.0)	101	9/12	143	-42	101	143	0	20	-6	34	-8	23	-12	14	-10	10	-6		
9/13/2018	67	(10.0)	113	9/13	133	-20	113	133	0	8	0	23	-8	23	-8	10	-4	0	0		
9/14/2018	65	(7.7)	114	9/14	129	-15	114	129	0	8	0	23	-7	14	-6	7	-2	0	0		
9/15/2018	63	(7.7)	110	9/15	125	-15	110	125	0	8	0	23	-7	14	-6	7	-2	0	0		
9/16/2018	60	(7.7)	104	9/16	119	-15	104	119	0	8	0	23	-7	14	-6	7	-2	0	0		
9/17/2018	41	(7.7)	66	9/17	81	-15	66	81	0	8	0	20	-7	14	-6	7	-2	0	0		
9/18/2018	-	-	-	9/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9/19/2018	-	-	-	9/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
9/20/2018	50	(9.0)	81	9/20	99	-18	81	99	0	0	0	20	-10	14	-4	10	-4	0	0		
9/21/2018	64	(13.0)	101	9/21	127	-26	101	127	0	0	0	20	-10	14	-12	10	-4	0	0		
9/22/2018	55	(13.0)	83	9/22	109	-26	83	109	0	0	0	20	-10	14	-12	10	-4	0	0		
9/23/2018	48	(7.5)	80	9/23	95	-15	80	95	0	4	0	16	-4	14	-7	14	-4	0	0		
9/24/2018	48	(6.0)	83	9/24	95	-12	83	95	0	2	0	16	-4	14	-4	14	-4	0	0		
9/25/2018	51	(7.0)	87	9/25	101	-14	87	101	0	2	0	16	-4	14	-7	14	-3	0	0		
9/26/2018	56	(7.0)	97	9/26	111	-14	97	111	0	2	0	20	-4	14	-7	14	-3	0	0		
9/27/2018	54	(7.5)	92	9/27	107	-15	92	107	0	4	0	14	-6	10	-6	14	-3	0	0		
9/28/2018	51	(6.0)	89	9/28	101	-12	89	101	0	4	0	12	-4	10	-6	12	-2	0	0		
9/29/2018	50	(4.0)	91	9/29	99	-8	91	99	0	4	0	12	-4	10	-4	12	0	0	0		
9/30/2018	51	(4.0)	93	9/30	101	-8	93	101	0	4	0	12	-4	10	-4	12	0	0	0		
10/1/2018	18	-	36	10/1	36	0	36	36	0	0	0	0	0	0	0	0	0	0	0		
10/2/2018	-	-	-	10/2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
					0	0	0														
	1,344	(293)	2,084		2,666	(581)	2,084														

The portions of the canal which recharged groundwater during this period can be found on the map below.



## Spring 2019 Operations

### Gothenburg Canal

The Gothenburg Canal did not operate for groundwater recharge in the spring of 2019.



### Dawson County Canal

The Dawson County Canal began operating for groundwater recharge on April 8, 2019 as shown below. It began irrigation operations on April 22, 2019. There was a total of 479 AF of water recharged.

					Canal Information (AF) (2 measurable segments)				Lateral Information (AF)											
					Net Canal Recharge (AF)				River Diversion to French Creek		French Creek to End of Canal		Berquist		#1		#2		F	
					Total	Total			Main Canal	French Creek	Main Canal after	Main Canal								
					River	River	Net		Diversion	Return	French Creek	Return (Elm	Diversion	Return	Diversion	Return	Diversion	Return	Diversion	Return
Date	Divisions	Canal	Net		Date	Diversion	Returns	Recharge	River Diversion	Return	French Creek	Return	Diversion	Return	Diversion	Return	Diversion	Return	Diversion	Return
cfs	Returns cfs	(acre-feet)			2018															
Dawson Cty Canal:																				
4/7/2019	0		-		4/7	0	0	0	0	0	0	0	0	0	No laterals were used.					
4/8/2019	5.4	-	11		4/8	11	0	11	11	0	0	0	0	0						
4/9/2019	12	-	24		4/9	24	0	24	24	0	0	0	0	0						
4/10/2019	0		-		4/10	0	0	0	0	0	0	0	0	0						
4/11/2019	0		-		4/11	0	0	0	0	0	0	0	0	0						
4/12/2019	0		-		4/12	0	0	0	0	0	0	0	0	0						
4/13/2019	0		-		4/13	0	0	0	0	0	0	0	0	0						
4/14/2019	1.4	-	3		4/14	3	0	3	3	0	0	0	0	0						
4/15/2019	34	-	67		4/15	67	0	67	67	0	0	0	0	0						
4/16/2019	49		97		4/16	97	0	97	97	0	0	0	0	0						
4/17/2019	46	(23.0)	46		4/17	91	-46	46	91	-46	0	0	0	0						
4/18/2019	46	(11.7)	68		4/18	91	-23	68	91	-23	0	0	0	0						
4/19/2019	46	(11.7)	68		4/19	91	-23	68	91	-23	0	0	0	0						
4/20/2019	44	(11.7)	64		4/20	87	-23	64	87	-23	0	0	0	0						
4/21/2019	44	(14.0)	60		4/21	87	-28	60	87	-28	0	0	0	0						
4/22/2019	0	(14.0)	(28)		4/22	0	-28	-28	0	-28	0	0	0	0						
328				(86)	479	650				(171)	479									

The portions of the canal which recharged groundwater during this period can be found on the map below.



Sincerely,

*Joe L. Citta, Jr.*

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Director of Corp. Environmental & Water Resources

Copy: Seth Turner, Platte River Recovery Implementation Program