LOWER PLATTE SOUTH
natural resources district
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Memorandum

Date: September 11, 2020

To: Each Director

From: Paul D. Zillig, General Manager

RE: Water Resources Subcommittee Meeting Minutes.

The Water Resources Subcommittee met via video/teleconference at 5:30 p.m. on Wednesday, September 9, 2020. Subcommittee members participating included Bob Andersen, Chelsea Johnson, Karen Amen, David Landis, Vern Barrett, Greg Osborn, and Dan Steinkruger. Others accessing the meeting included Larry Ruth, Deborah Eagan, Matt Rhodes & Dan Levy & Amy Ostermeyer all of Monolith Materials, Jim Schneider of Olsson, Steve Seglin & Corey Wasserburger, Nathan Kuhlman, Tracy Zayac, Maclane Scott, Dick Ehrman, Chris Witthuhn, Steve Herdzina, Mike Murren, David Potter, and myself.

Chair Andersen opened the meeting, welcomed those in attendance, and moved to the first item. I reported that we have received the annual "water year" agreement from USGS for the operation of the 16 streamgages that are partially funded by this NRD. I have attached a map showing the 24 streamgages in this NRD (including the 16 we help fund) and a copy of the annual Joint Funding Agreement with USGS. It was moved by Landis, seconded by Osborn, and unanimously approved by the Subcommittee to **recommend the Board of Directors approve the October 2020 Joint Funding Agreement with USGS for the operation of 16 streamgages in the Lower Platte South NRD.**

The next item on the agenda was to continue the Subcommittee's discussion on irrigation from NRD dams. Zayac reviewed with the subcommittee that the NRD holds permits from the State (DNR) to irrigate from 14 structures/lakes, and the NRD has agreements with a couple dozen landowners to actually pump the water and irrigate their land. Zayac reported that a majority of these permits/agreements were over 30 years old. Discussion continued on the status and issues concerning allowing new permits to irrigate, the use of the water/meters, fees to offset costs, benefits, and suitability of land to be irrigated. The Subcommittee directed staff to prepare suggestions on a basic agreement and consider including flow meters, fees to cover costs, and other conditions. Staff will bring back that information to a future meeting.

The next item on the agenda was an update on the Monolith preliminary well permit. Scott reported that their work continues in preparing their reports and information.

The next two items were reports by Ehrman on groundwater information from the Hallam area and a review of pros and cons of conducting additional study or testing of groundwater in the Hallam area. Ehrman reviewed the attached memo on Groundwater Issues in the Hallam Area. The Subcommittee discussed the aquifer characteristics, pump tests being completed, potential costs of additional study, groundwater variability, and that they are looking for assurances that groundwater users are protected.

Ostermeyer and Rhodes reported that Monolith anticipates a need of 250-800 M gal/year for Olive Creek 2. They are continuing with their analysis of the site and the number of wells needed will be determined by the modeling that is currently underway. They also reported that they are working with Kiewitt Corporation on design features that will result in less water use, they will also apply for a discharge permit from the State/NDEE as there will be some discharge from their operation.

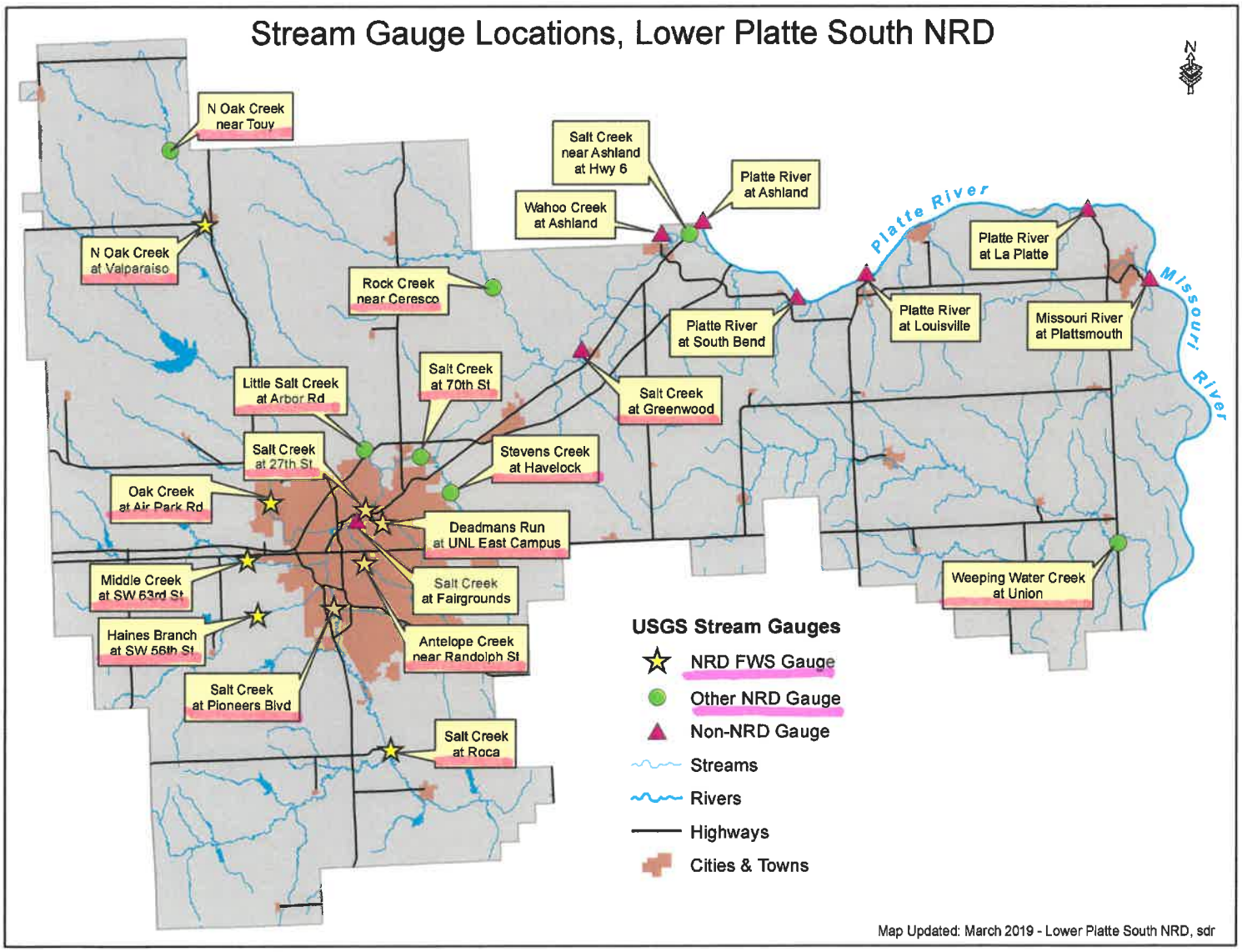
The next item on the agenda was a report on NRD Groundwater Rules & Regulations Overview. It was moved by Andersen, seconded by Osborn, and unanimously approved by the Subcommittee to move into a closed session for the purpose of considering and discussing a legal opinion from the District's legal counsel. The Subcommittee went into closed session at 6:55pm. It was moved by Landis, seconded by Amen, and unanimously approved by the Subcommittee to come out of closed session at 7:52pm.

The Subcommittee discussed the need to consider hiring professional services for the review of reports, information, studies, and work needed to assist with the review of the Monolith Nebraska Well Permit. A motion was made, seconded, and then withdrew upon advice from legal counsel, to approve the proposed contract with LRE Water. The Subcommittee decided to meet just prior to the September Board Meeting to consider this issue.

There being no additional business the meeting adjourned at 8:10 pm.

PDZ/pz

cc: Steve Seglin & Corey Wasserburger


Stream Gauge Locations, Lower Platte South NRD
N
N Oak Creek near Touy
N Oak Creek at Valparaiso
Salt Creek near Ashland at Hwy 6
Wahoo Creek at Ashland
Platte River at Ashland
Rock Creek near Ceresco
Platte River at South Bend
Platte River
Platte River at La Platte
Platte River at Louisville
Missouri River at Plattsmouth
Missouri River
Little Salt Creek at Arbor Rd
Salt Creek at 70th St
Salt Creek at Greenwood
Salt Creek at 27th St
Stevens Creek at Havelock
Oak Creek at Air Park Rd
Deadmans Run at UNL East Campus
Middle Creek at SW 63rd St
Salt Creek at Fairgrounds
Weeping Water Creek at Union
Haines Branch at SW 56th St
Antelope Creek near Randolph St
Salt Creek at Pioneers Blvd
Salt Creek at Roca
USGS Stream Gauges
NRD FWS Gauge
Other NRD Gauge
Non-NRD Gauge
Streams
Rivers
Highways
Cities & Towns
Map Updated: March 2019 - Lower Platte South NRD, sdr

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 6000000121
Agreement #: 21NRJFA00030
Project #: NR00GS1
TIN #: 47-0542969

Fixed Cost Agreement YES[X] NO[ ]

THIS AGREEMENT is entered into as of October 1, 2020, by the U.S. GEOLOGICAL SURVEY, Nebraska Water Science Center, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the LOWER PLATTE SOUTH NATURAL RESOURCES DISTRICTparty of the second part.

1. The parties hereto agree that subject to the availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation **the operation and computation of records for 16 streamgages,** herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50, and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) include In-Kind-Services in the amount of $0.00

(a) $46,920 by the party of the first part during the period October 1, 2020 to September 30, 2021

(b) $113,035 by the party of the second part during the period October 1, 2020 to September 30, 2021

(c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of: $27,200

Description of the USGS regional/national program:
Groundwater and Streamflow Information Program

(d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program, and if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at cost, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records or reports published by either party shall contain a statement of the cooperative relations between the parties. The Parties acknowledge that scientific information and data developed as a result of the Scope of Work (SOW) are subject to applicable USGS review, approval, and release requirements, which are available on the USGS Fundamental Science Practices website https://www.usgs.gov/about/organization/science-support/science-quality-and-integrity/fundamental-science-practices

Form 9-1366
(May 2018)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement
FOR
Water Resource Investigations

Customer #: 6000000121
Agreement #: 21NRJFA00030
Project #: NR00GS1
TIN #: 47-0542969

9. Billing for this agreement will be rendered **quarterly**. Invoices not paid within 60 days from the billing date will bear Interest, Penalties, and Administrative cost at the annual rate pursuant the Debt Collection Act of 1982, (codified at 31 U.S.C. § 3717) established by the U.S. Treasury.

USGS Technical Point of Contact

Name:	Jason Lambrecht Hydrologic Data Section Chief
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Telephone:	(402) 328-4124
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Customer Technical Point of Contact

Name:	Paul Zillig General Manager
Address:	PO Box 83581 Lincoln, NE 68501
Telephone:	(402) 476-2729
Fax:	
Email:	

USGS Billing Point of Contact

Name:	Lisa Dietsch Administrative Officer
Address:	5231 South 19th Lincoln, NE 68512
Telephone:	(402) 328-4116
Fax:	(402) 328-4101
Email:	ldietsch@usgs.gov

Customer Billing Point of Contact

Name:	Paul Zillig General Manager
Address:	PO Box 83581 Lincoln, NE 68501
Telephone:	(402) 476-2729
Fax:	
Email:	

U.S. Geological Survey
United States
Department of Interior

Signature

By STEVEN PETERSON Digitally signed by STEVEN PETERSON Date: 2020.09.01 14:30:08 -05'00' **Date: 8/31/2020**
Name: Steve Peterson
Title: Director

Lower Platte South Natural Resources District

Signatures

By_____ **Date:** _____
Name:
Title:

By_____ **Date:** _____
Name:
Title:

By_____ **Date:** _____
Name:
Title:

MEMO

TO: Water Resources Subcommittee
FROM: Dick Ehrman, Water Resources Specialist
DATE: September 4, 2020
RE: Groundwater Issues in the Hallam Area

The attached descriptive material and various maps and figures are intended to provide some basic background information regarding the groundwater and geology of the Hallam area in southern Lancaster County, as well as to describe the process for permitting large capacity water wells in that area as per LPSNRD's current Groundwater Rules & Regulations (Effective Date: January 15, 2020). Here are a few key points to consider:

- **LPSNRD currently has a considerable amount of knowledge** of the geology and groundwater resources of the area.
- Current water level data indicates that groundwater levels have declined a few feet since about the 1980s, but **this decline is not close to the triggers** established in LPSNRD's Groundwater Management Plan.
- Monolith's current preliminary well permit is for an 800 gallon per minute (gpm) well, a Class 2 well permit. This means that, in addition to all basic information about the well and its construction, **the applicant will have to perform an aquifer test, groundwater modeling for a minimum 20-year period, a hydrogeologic analysis describing the effect of such pumping on the aquifer system and nearby wells,** and will also have to collect basic water quality data.
- Upon submittal of this data and analysis, LPSNRD will review it for correctness and completeness; LPSNRD may retain outside consultation to assist in this review. **If LPSNRD determines that any of the information submitted is incomplete or incorrect, LPSNRD may require additional work of the applicant. At any time and for any reason, LPSNRD may also undertake its own investigations.**
- If LPSNRD were to undertake its own investigations (e.g. aquifer test, groundwater modeling, hydrogeologic analysis), this could verify the information submitted by the applicant as well as give the NRD long-term information about the aquifer system. On the other hand, such investigations might be an unnecessary duplication of effort, would be expensive, and might set a precedent for future permit applications.

Groundwater Considerations for Hallam Area

General Geology

- There is already a considerable amount of knowledge of the groundwater and geology of the Hallam area from information collected by the University of Nebraska-Lincoln Conservation & Survey Division (UNL-CSD), United States Geologic Survey (USGS), Lower Platte South Natural Resources District (LPSNRD), and others, notably including geologic test hole drilling, groundwater quantity and quality data, various local and regional studies, and the airborne electromagnetic (AEM) data collected over the past several years.
- The Hallam area is part of what LPSNRD calls the Crete-Princeton-Adams Groundwater Reservoir (CPA GWR); UNL-CSD has referred to it as the Dorchester-Sterling aquifer, which is a larger aquifer system including the CPA GWR. This aquifer would include parts of the Lower Platte South, Lower Big Blue, and Nemaha NRDs, and possibly the Upper Big Blue NRD.
- This aquifer is a northwest-southeast trending complex series of ancient river valley deposits of silt, sand, and gravel. The aquifer system is several miles wide, and at its greatest thickness of saturation is about 300'. In general, the aquifer can support considerable amounts of groundwater use for irrigation and other uses as indicated by the number of high output (e.g. several hundred gallons per minute (gpm)) wells in the area. This includes numerous irrigation wells as well as those registered to the Nebraska Public Power District (NPPD) Sheldon Station facility near Hallam.
- LPSNRD records indicate that groundwater levels in CPA are steady to slightly declining. The hydrograph from the Princeton Recorder monitoring well about 3 miles northeast of the Monolith site have declined about 5' over the period of record since the 1980s. In recent years, LPSNRD has not recorded any significant public concern about water level declines in CPA, even during the "flash drought" of 2012 and subsequent dry period in 2013. In addition, no declines have approached LPSNRD's Phase II groundwater quantity triggers as outlined in its Groundwater Management Plan.

LPSNRD Ground Water Rules and Regulations Regarding Well Permits

- The one well permitted for Monolith would be a Class 2 well under LPSNRD's current regulations:
    - The well is intended to produce about 800 gpm. However, given that it is intended to produce water at a constant rate, it exceeds the threshold of 250 acre-feet/year, and thus meets the criteria for a Class 2 well.
    - LPSNRD's current regulations require the following information at a minimum for a Class 2 well permit:
        - A copy of the well log to determine geologic formations;
        - An aquifer test supervised by a professional geologist or engineer with experience in water resources evaluation;
        - All data generated by the aquifer test;
        - A groundwater model for a minimum 20-year timeframe (LPSNRD can extend this and has discussed with Monolith modeling for a 50-year timeframe)
        - A hydrogeologic analysis and report evaluating the ability of the aquifer to support the intended use as well as the impact of the proposed groundwater use on nearby preexisting wells.

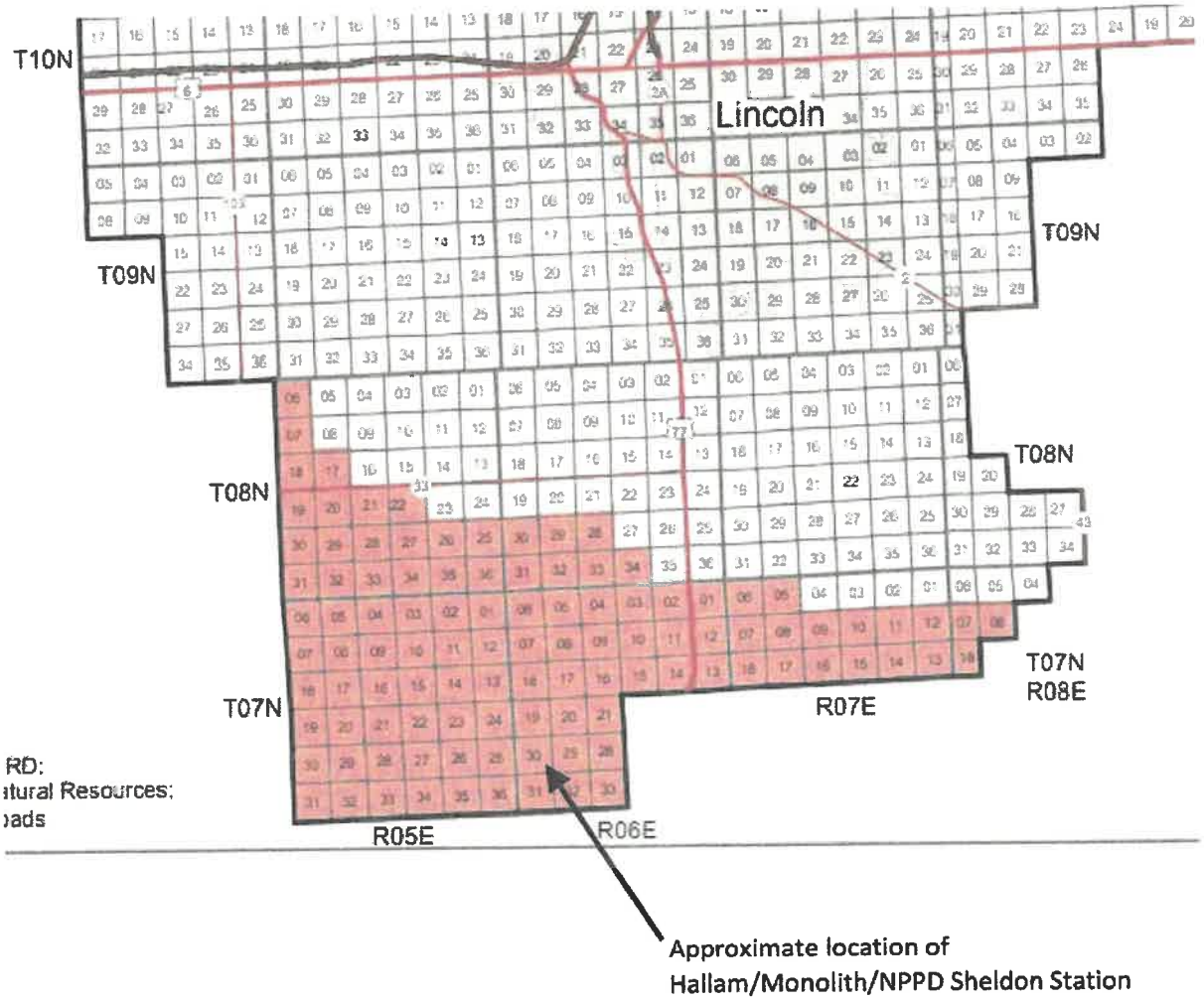
        - Groundwater quality samples at the end of a minimum 24-hour pumping period, to be analyzed for a minimum of sodium, chloride, and total dissolved solids (TDS).
    - All of the information submitted by the permit applicant will be reviewed by LPSNRD staff for correctness and completeness; if desired LPSNRD may retain an outside third party to assist in this review.
    - If the information submitted by the permit applicant does not meet LPSNRD's requirements or if LPSNRD's review reveals that the information is incorrect or incomplete, the NRD can require additional work up to and including re-doing the aquifer test, hydrogeologic analysis, and groundwater modeling.
    - LPSNRD regulations allow for the NRD to attach any other reasonable conditions to the well permit.
    - It's also important to remember that current Nebraska law establishes a preference of use: Domestic (highest), then agricultural, and finally commercial/industrial (lowest).
- Upon the NRD's signature of the preliminary permit, the applicant has one year to complete the well, submit all required information, and put it into production. The Monolith preliminary permit was signed on July 10, 2020. If the well is not completed within one year, the applicant can apply for a late permit, a variance, or begin the permit process with a new application.
- When the NRD determines that the permit application is complete, LPSNRD will approve or deny the permit within 30 days. There is no current deadline as to when the NRD determines that the application is complete.

Other Considerations:

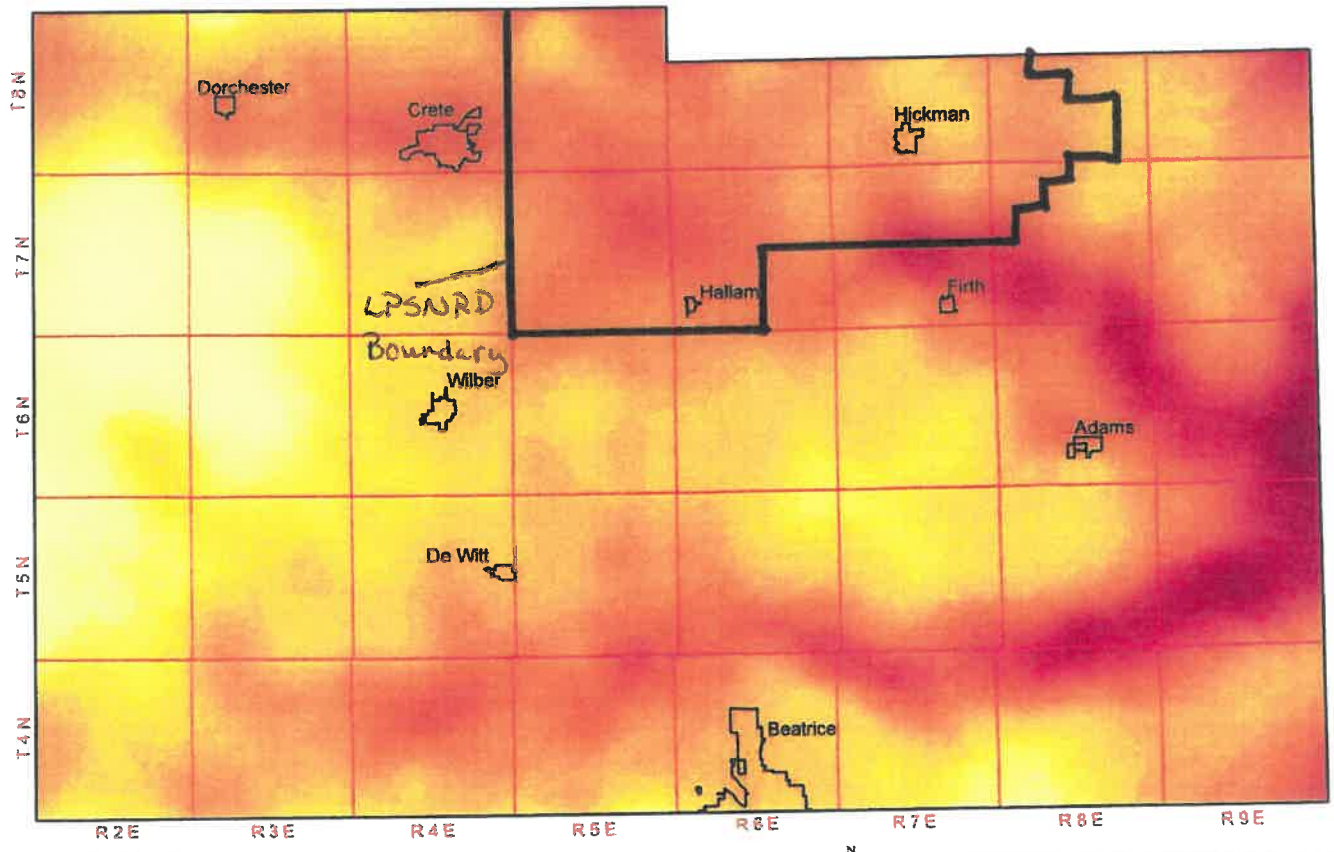
- LPSNRD has wide authority to conduct investigations, sampling, etc. regarding groundwater and other items within its purview, and can conduct such investigations whenever it determines it to be appropriate.
- In most cases, LPSNRD works with willing landowners to establish dedicated groundwater monitoring wells in appropriate locations; LPSNRD typically pays the landowner a nominal fee of a few hundred dollars per year for the ability to install and maintain such monitoring wells.
- However, current state statute also gives the NRD the authority to enter upon private property for the purpose of obtaining groundwater or other data if the NRD provides the landowner with proper advance notice.
- Therefore, if at any time LPSNRD determines that Monolith (or any other well permit applicant) has not submitted adequate information and/or if LPSNRD wishes to have independent verification of that information, the NRD has broad authority to initiate whatever additional investigation it determines to be necessary at any time.
- Advantages of LPSNRD performing its own aquifer test/hydrogeologic evaluation/groundwater modeling:
    - LPSNRD would have some control over where additional wells would be located, how they are constructed, when testing is performed, etc.
    - Such sites could be maintained over long periods of time, allowing LPSNRD to perform better evaluation of groundwater conditions in the area.
    - LPSNRD could perform additional testing/evaluation whenever and however many times it determines such is necessary.
    - Such detailed investigations would provide greater understanding of the regional aquifer system in the Hallam area. This would likely involve neighboring NRDs, which could be both an advantage and a disadvantage (see below).

    - LPSNRD would have assurance that the data collected and conclusions reached would be neutral and unbiased.
- Disadvantages of LPSNRD performing its own aquifer test/hydrogeologic evaluation/ groundwater modeling:
    - If LPSNRD performs its own investigations, it could set a precedent such that future well permit applicants could plausibly question why they should have to do their own aquifer test, hydrogeologic analysis, and groundwater modeling since the NRD did their own in the Monolith case.
    - It's very possible that any investigations LPSNRD would do would essentially duplicate what the applicant submits. This would not provide any additional information and could lead to questions as to appropriate use of tax dollars.
    - Such investigation is not cheap or easy. Installation of additional monitoring wells, aquifer testing, hydrogeologic analysis, and modeling can easily run into the tens to hundreds of thousands of dollars depending on the scope of the action and could add weeks or months to the permitting process.
    - LPSNRD would have to gain access to private property for any investigations, which would at least involve extra cost and could be opposed if done without express landowner permission; this again could add weeks or months to the permitting process.
    - LPSNRD might be perceived as being opposed to an industry that would bring high-paying jobs and tax revenue to the area.
    - Any additional investigation would likely involve neighboring NRDs, which could provide additional complications (not necessarily a disadvantage—see above).

Crete-Princeton-Adams Groundwater Reservoir (CPA GWR) within LPSNRD



Bedrock



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School of Natural Resources (http://snr.unl.edu)
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University of Nebraska-Lincoln

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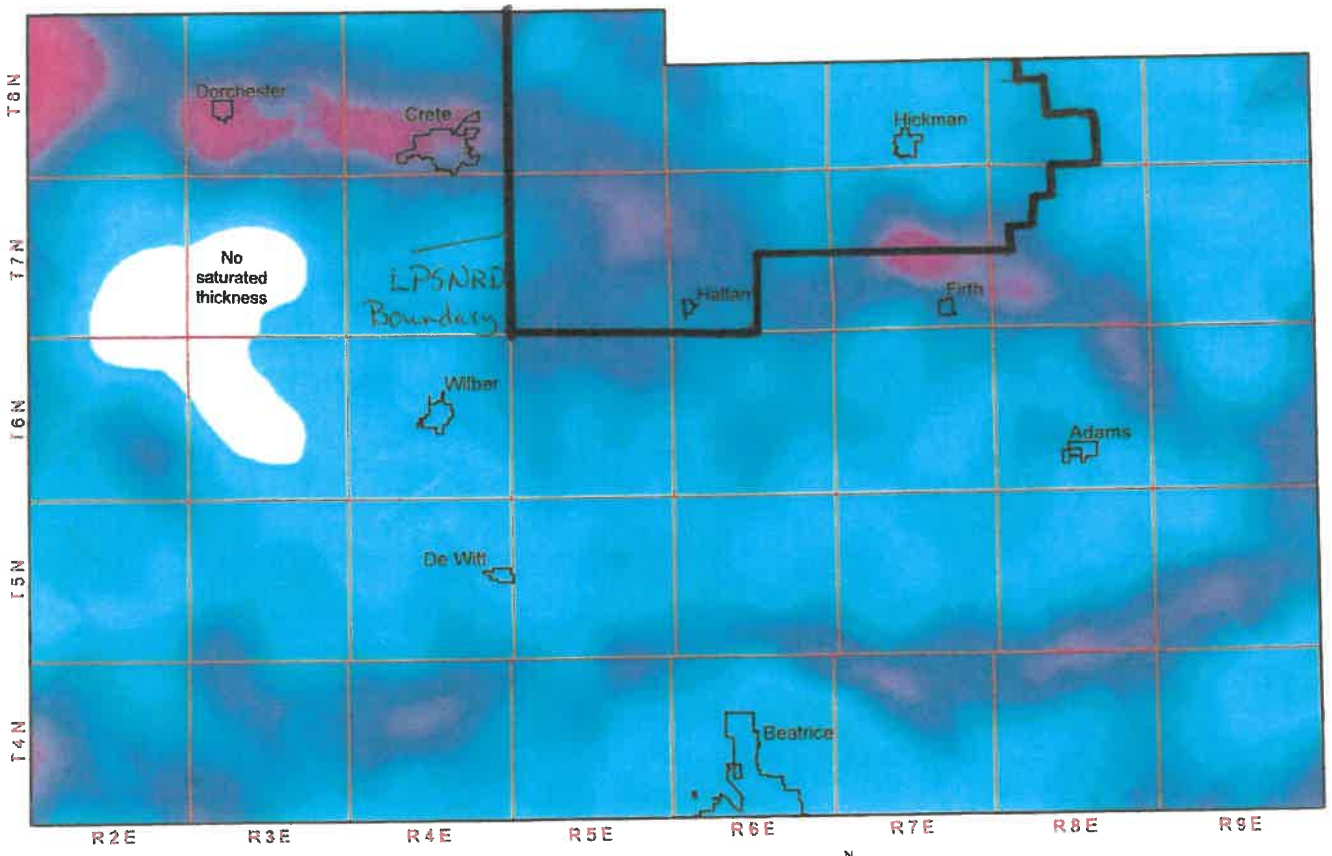
Darker areas indicate approximate locations of paleovalley aquifers. DRAFT July 2020
The northern portion shows the Dorchester - Sterling paleovalley

Saturated Thickness



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DRAFT
June 2020

Monolith's onsite water supply well; this is about 1000' south of the 800 gpm production well.

Return to Search Page
Nebraska Department of Natural Resources
Database Through: 9/3/2020
Processed: 9/3/2020 9:28:35 AM

Registration Number G-189234, Well ID 261101

Geo Logs

FromDepth	ToDepth	Description	Color	Density	Composition
0	31		Tan	Dense/Stiff	Clay
31	50		Tan	Dense/Stiff	Sandy Clay
50	64		Brown	Dense/Stiff	Sandy Clay
64	75		Tan	Dense/Stiff	Clay
75	103		Gray	Dense/Stiff	Clay
103	108		Tan	Dense/Stiff	Sandy Clay
108	123		Gray	Hard	Sandy Clay
123	136		Gray	Dense/Stiff	Sand with Clay/Silt
136	143		Gray	Unconsolidated	Sand fine-med
143	155		Gray	Soft	Sand with Clay/Silt
155	164		Gray	Unconsolidated	Sand fine-med
164	166		Gray	Soft	Clay
166	174		Gray	Unconsolidated	Sand fine-med
174	175		Gray	Soft	Clay
175	186		Gray	Soft	Sand with Clay/Silt
186	260		Gray	Loose	Sand med-coarse

Casing and Screen

FromDepth	ToDepth	CaseOrScreen	InsideDiam	OutsideDiam	CaseThickness	Material	ScrnSlotSize	ScreenTname	ScrnGuides	SubTableNo
0	230	casing	8	8.625	0.322	Steel		Livingston	0	1
230	260	screen	7.9	8.7	0.4	SS	0.03	Alloy	0	1

Grout and Gravel

FromDepth	ToDepth	GroutOrGravel	Material	Quantity	Volume	SubTableNo
0	8	gravel	Soil backfill	1.5 ton		1
8	20	grout	cement		1 cubic yard	1
20	225	grout	Medium bentonite chips		4 - tons	1
225	260	gravel	Red Flint 50 slot	4 tons		1

Well Permit Review (new location) - Monolith
NE Sec 30, T7N-R6E, Lancaster

Proposed Well Location
Well Spacing Buffers
LPSNRD Boundary
Parcel Lines
Certified Irr Acres
CWSPA
NPPD Parcels
Potential Domestic (unreg)
Reg Wells
Irrigation
Commercial
Public Water Supply
Other Wells