




## Memorandum

**Date:** March 15, 2019  
**To:** Each Director  
**From:** Paul D. Zillig, General Manager   
**RE:** Water Resources Subcommittee Meeting Minutes.

The Water Resources Subcommittee met in the NRD Office at 5:30 p.m. on Wednesday, March 13, 2019. Subcommittee members present included Bob Andersen, Vern Barrett, Don Jacobson, Karen Amen, Greg Osborn, Chelsea Johnson, Mark Spangler, and David Landis. Others present included Larry Ruth, Dan Schulz, Dick Ehrman, and myself.

Chair Andersen called the meeting to order and called on Dick Ehrman who reported that the Ground Water Management Plan 2018 Annual review has been prepared by staff and provided to the Subcommittee (the full report is available on the NRD website). A copy of Ehrman's power point that was presented to the Subcommittee is attached. The Subcommittee discussed the review including water quality, transfers, AEM studies and well decommissioning. Ehrman reported that he will make a shorter version of this presentation at the Board Meeting.

The next item on the agenda was a brief report on the Well Decommissioning Program. Schulz and myself briefly discussed the accomplishment and that there will be a presentation at the Board Meeting.

I reported on the status of watershed restoration projects at Oak-Middle 82-B, Upper Salt 3-A, and North Oak 1-A/Wildwood. I also reported on the ongoing flood threat and ice jam concerns.

There being no additional business the meeting adjourned at 6:45 pm.

PDZ/pz

cc: Steve Seglin



Ground Water

# Lower Platte South NRD Ground Water Management Plan 2018 Annual Review

**Water Resources Subcommittee Meeting**

**March 13, 2019**

## 2018 Highlights

- Completed annual ground water network sampling and level measurements
- Nitrate levels in several designated management areas steady or in slight decline (LSC GWR, Hickman, Sprague, Union)
  - 2017 revisions to GW Rules & Regulations include process for suspension of Phase II
- Ashland, Emerald (Lancaster Co. SID 6), Greenwood, MUD (1 well), Raymond, & Waverly CWSPAs exceeded Phase II Trigger
  - Emerald, Greenwood, & Waverly studies initiated in 2018
  - Determine necessity of Verification Studies for Ashland & Raymond
  - Communicate w/ MUD to gather more information
- Pleasant Dale CWSPA slightly exceeded Phase III trigger
  - Additional study initiated in 2018
- Received 8<sup>th</sup> annual reports of water usage from 412 metered wells; calculated water usage for these wells pumping a total of about 3.4 billion gallons (compare with 3.9 billion gallons for 2017); 59% of total used for irrigation (6,249 acre-feet)
- Ground water levels decreased in 60% and increased in 40% of measured wells
- Additional AEM flight blocks and transects completed in western NRD; report due 11/2019; AEM data collection essentially complete
- Issued 11 new well permits (compare with 7 in 2017)
- Continued development of voluntary Integrated Management Plan & participation in Lower Platte River Basin Coalition

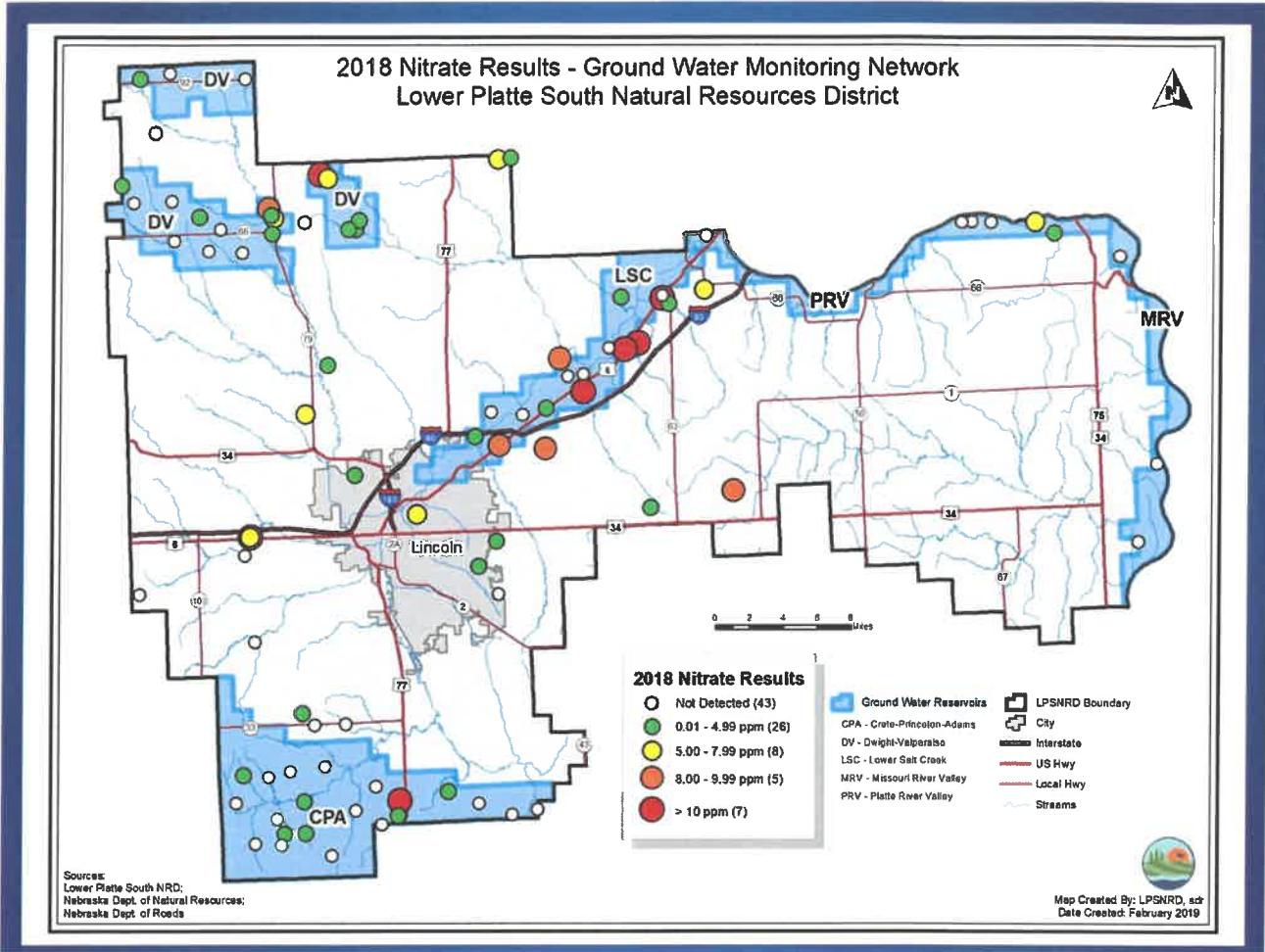
# 2018 Ground Water Quality Results



## 2018 Ground Water Quality Monitoring Summary

222 samples, 42 QA/QC samples from 222 different wells (numbers down slightly due to wet weather)

- Parameters:
  - Nitrate-N
  - Major Ions (rotated between GWRs—PRV & MRV GWRs in 2018)
  - Pesticides (rotated between GWRs—PRV & MRV GWRs & community wells in 2015)
  - Arsenic (community wells & CWSPA wells)

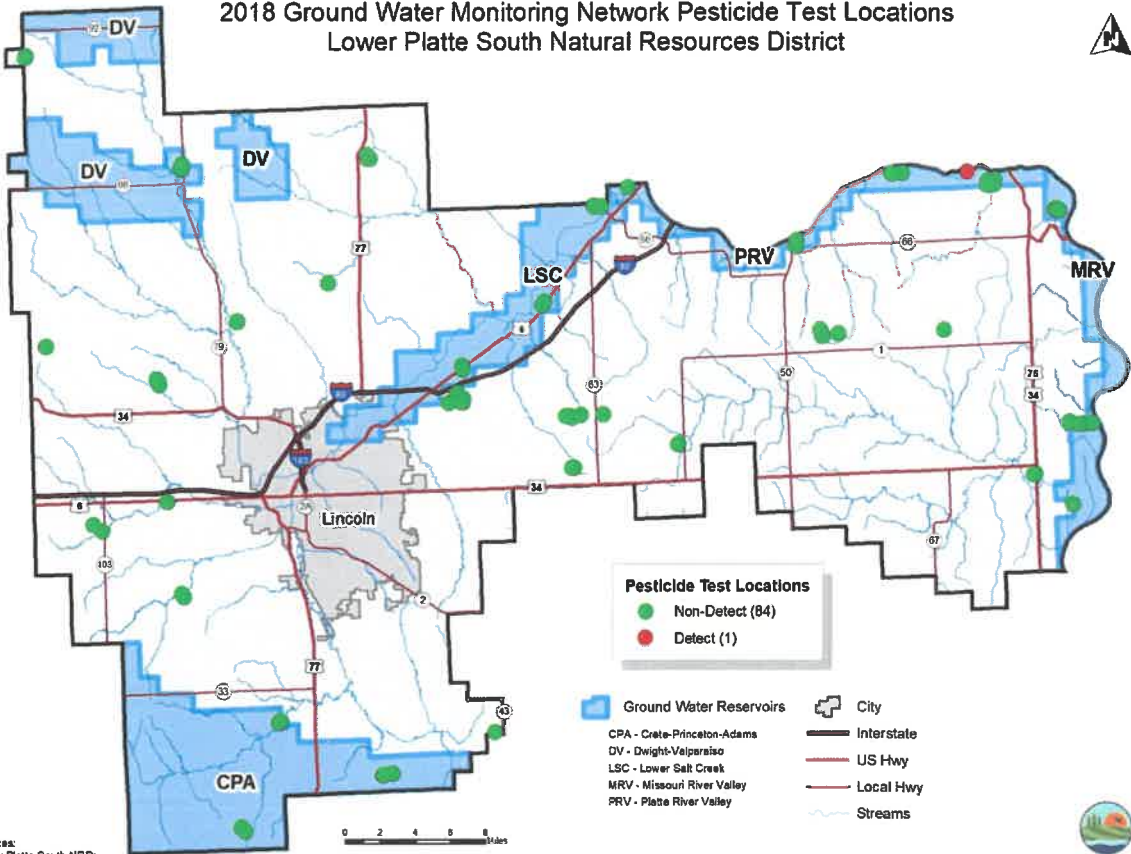


# 2018 Nitrates by GWR vs. Triggers

Ground Water Reservoir	# Network Wells Sampled	Network Samples ≥ 50% of MCL*	Network Samples ≥ 80% of MCL*
Crete-Princeton-Adams	21	5%	5%
Dwight-Valparaiso	19	16%	5%
Lower Salt Creek	14	<b>36% (Phase II Area)</b>	36%
Missouri River Valley	3	0%	0%
Platte River Valley	6	17%	0%
Remaining Area	26	38%	19%

\*Phase II Trigger: 50% of network wells ≥ 50% of MCL (5 ppm)  
Phase III Trigger: 80% of network wells ≥ 80% of MCL (8 ppm)

## 2018 Ground Water Monitoring Network Pesticide Test Locations Lower Platte South Natural Resources District



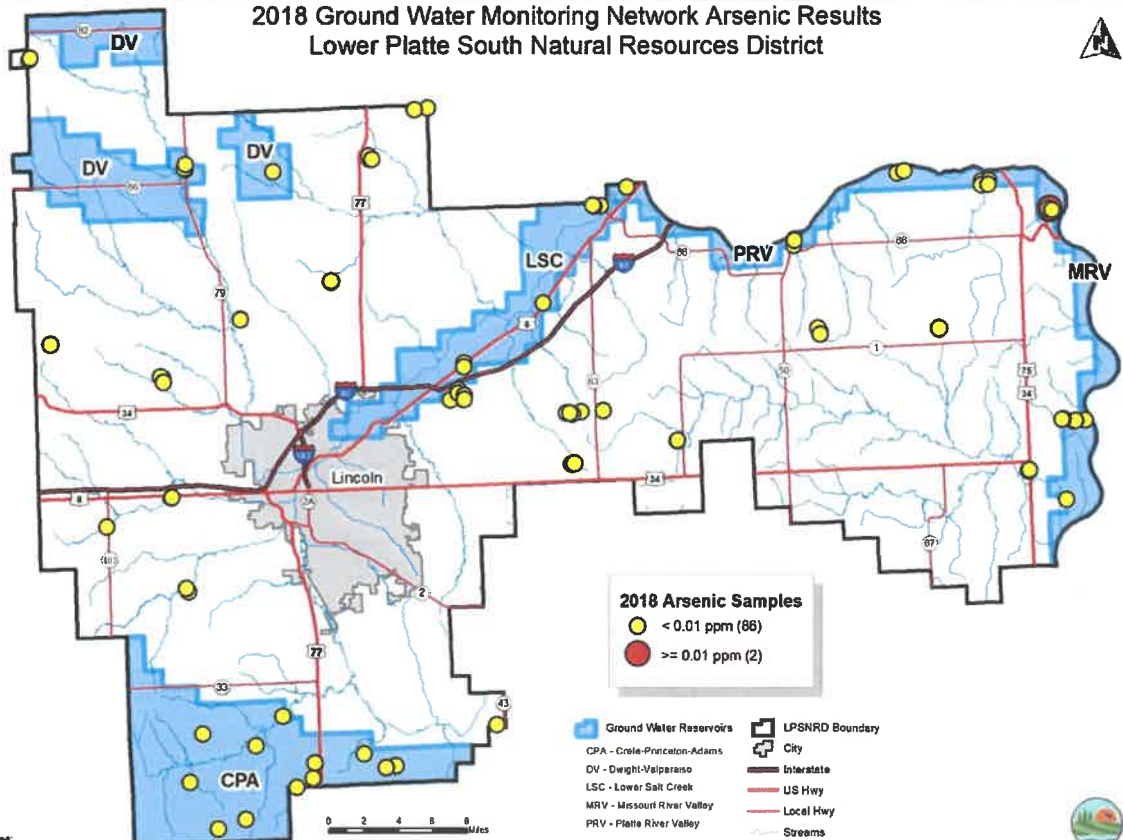
**Pesticide Test Locations**  
 ● Non-Detect (84)  
 ● Detect (1)

■ Ground Water Reservoirs  
 CPA - Crete-Princeton-Adams  
 DV - Dwight-Valparaiso  
 LSC - Lower Salt Creek  
 MRV - Missouri River Valley  
 PRV - Platte River Valley  
  City  
 Interstate  
 US Hwy  
 Local Hwy  
~ Streams

Sources:  
 Lower Platte South NRD;  
 Nebraska Dept. of Natural Resources;  
 Nebraska Dept. of Roads

Map Created By: LPSNRD, sdr  
 Date Created: February 2019

## 2018 Ground Water Monitoring Network Arsenic Results Lower Platte South Natural Resources District

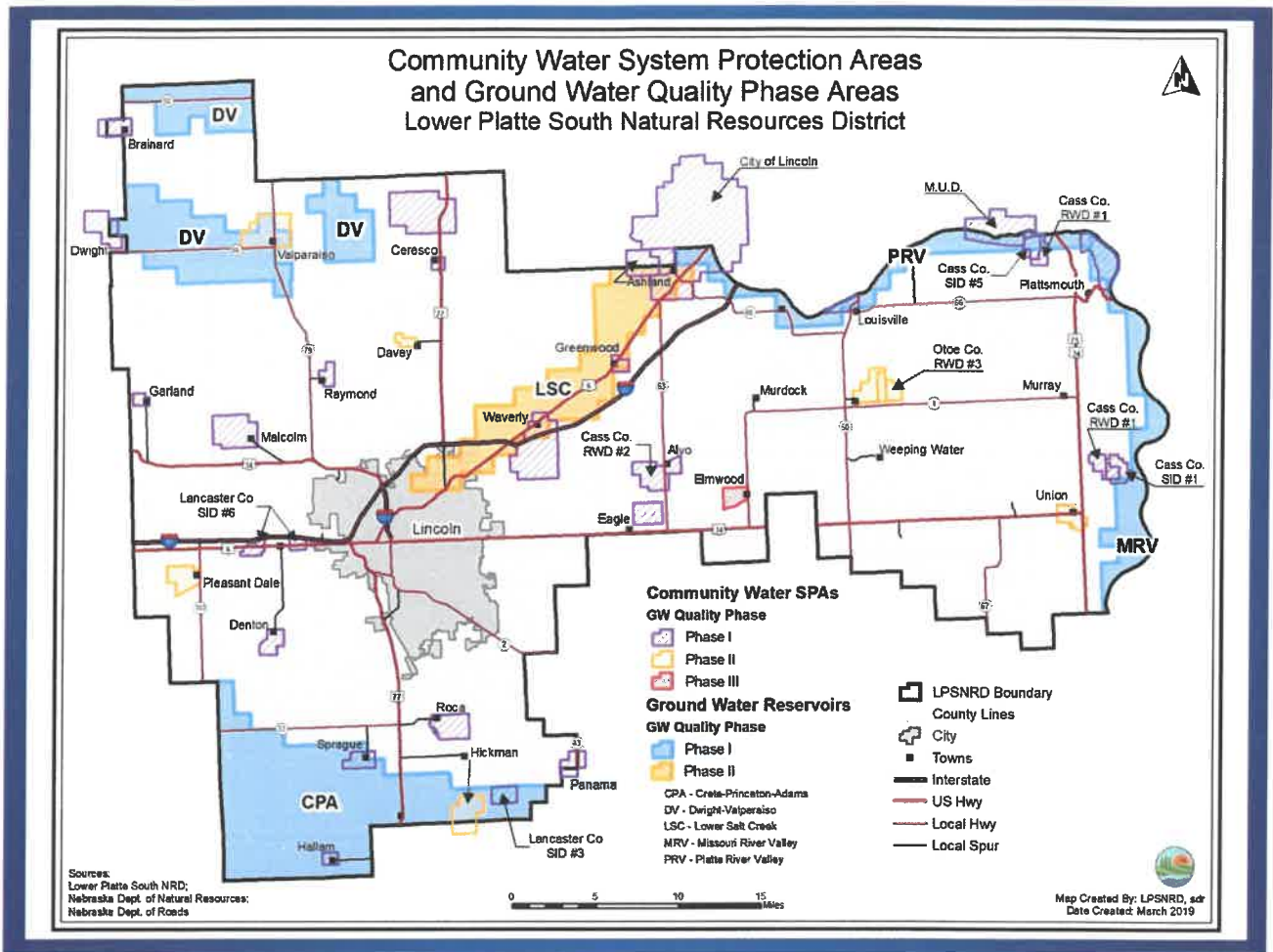


**2018 Arsenic Samples**  
 ● < 0.01 ppm (88)  
 ● >= 0.01 ppm (2)

■ Ground Water Reservoirs  
 CPA - Crete-Princeton-Adams  
 DV - Dwight-Valparaiso  
 LSC - Lower Salt Creek  
 MRV - Missouri River Valley  
 PRV - Platte River Valley  
  LPSNRD Boundary  
  City  
 Interstate  
 US Hwy  
 Local Hwy  
~ Streams

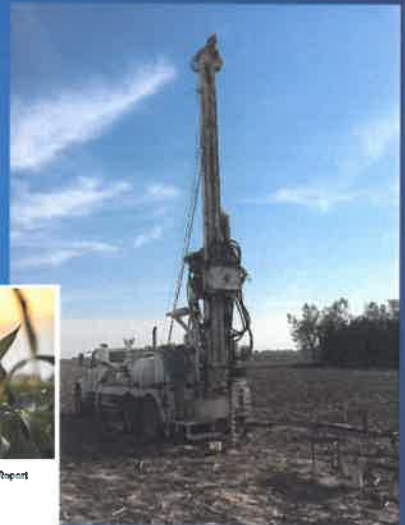
Sources:  
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 Nebraska Dept. of Natural Resources;  
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Map Created By: LPSNRD, sdr  
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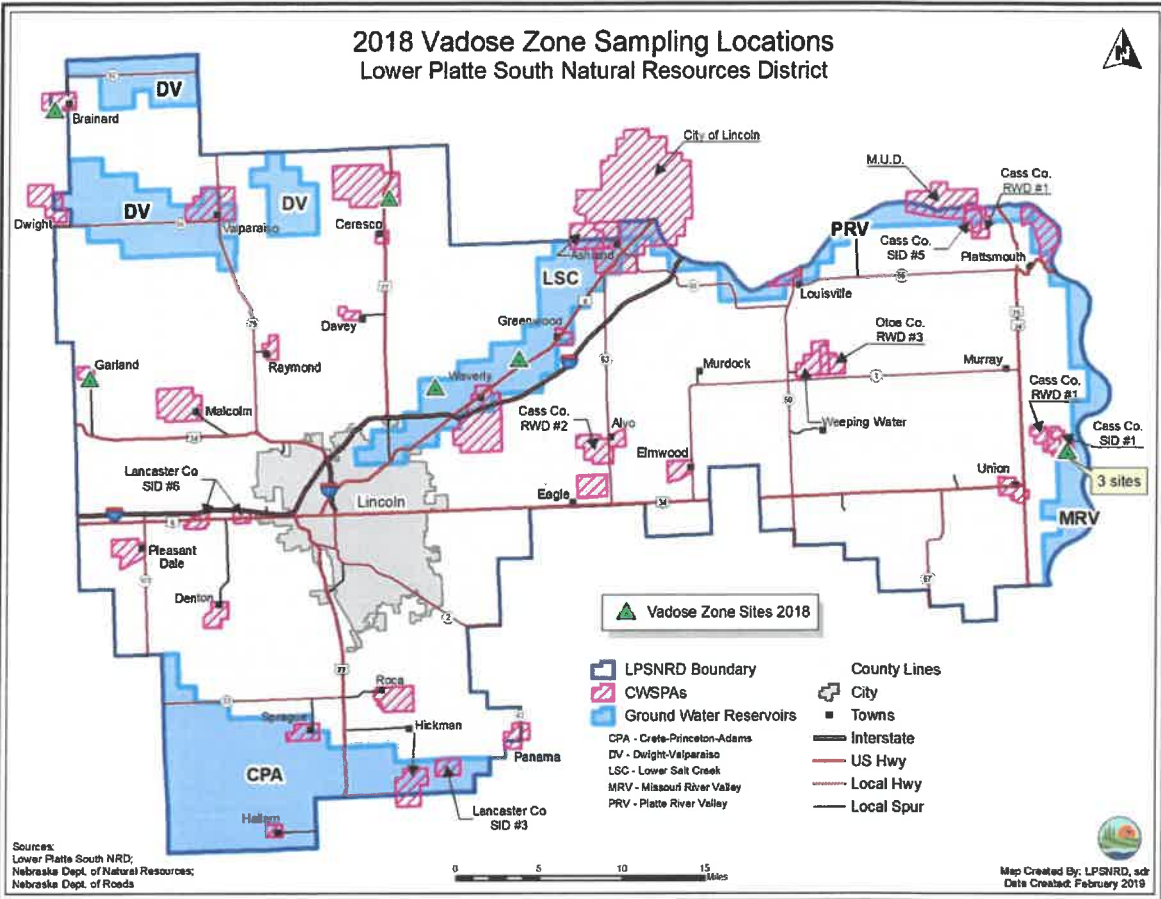


## Vadose Zone Program

- Working w/ UNL-WSL on project for advanced methods, SOP development, database
- Sampled 8 sites in 2018 (all previously sampled)
- UNL-WSL reported to WRS in October 2018



## 2018 Vadose Zone Sampling Locations Lower Platte South Natural Resources District

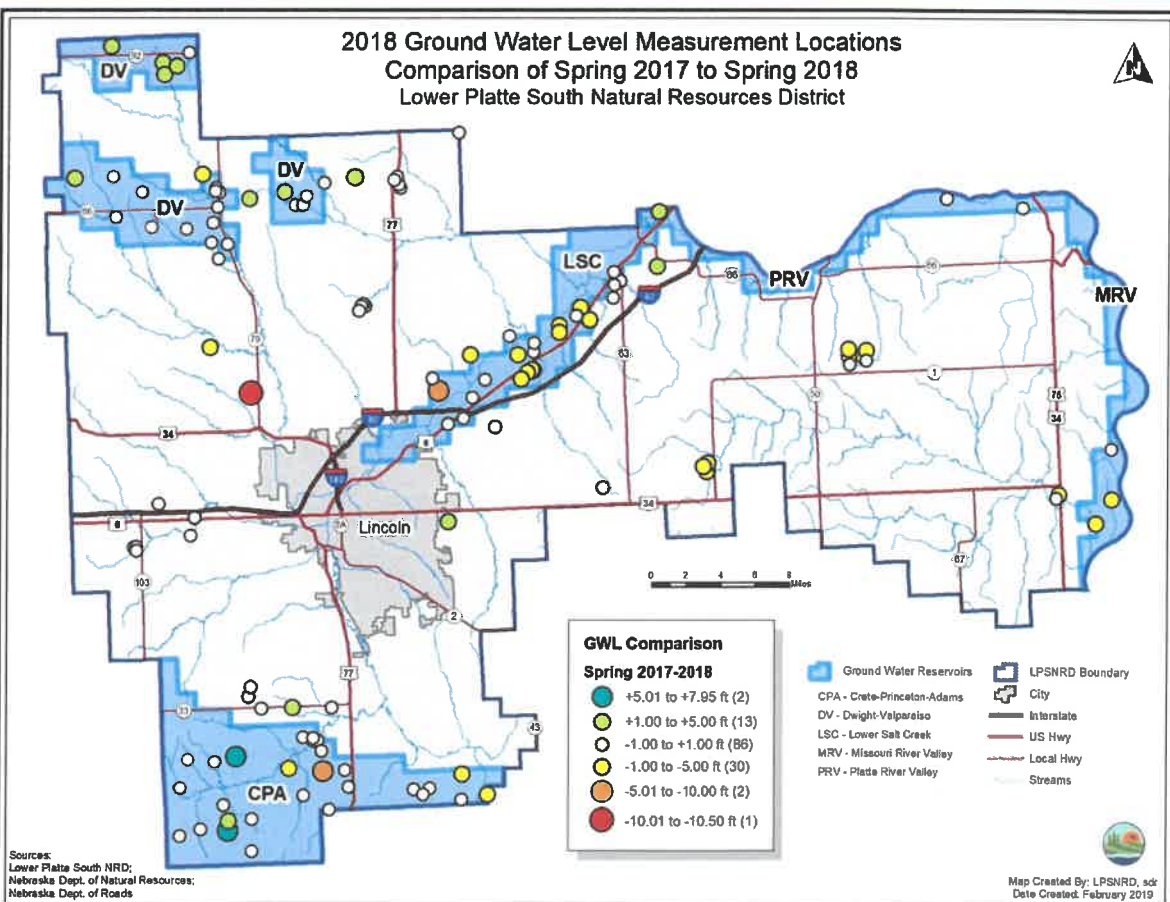


## 2018 Ground Water Quantity Results



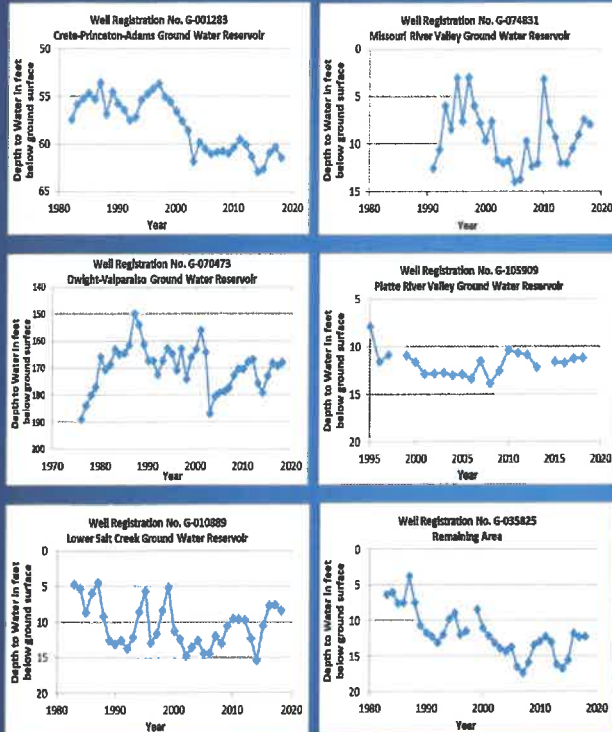
# 2018 Ground Water Level Monitoring Summary

- 273 water levels measured
- 137 different wells
- Semiannual measurements:
  - Spring: February-March
  - Fall: October-November
- Spring-spring measurements used for comparison & phase determination as specified in GWMP
- 60% of measured wells showed decrease; 40% showed increase from 2016-2017

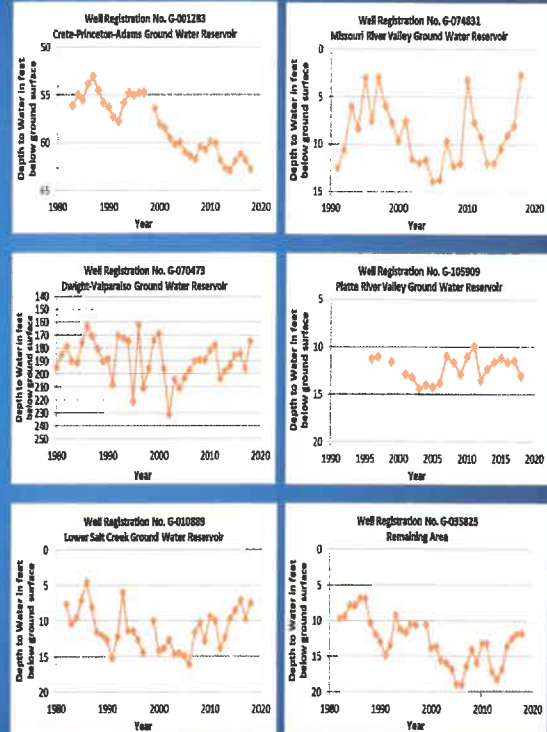




## SPRING



## FALL



# Quantity Triggers

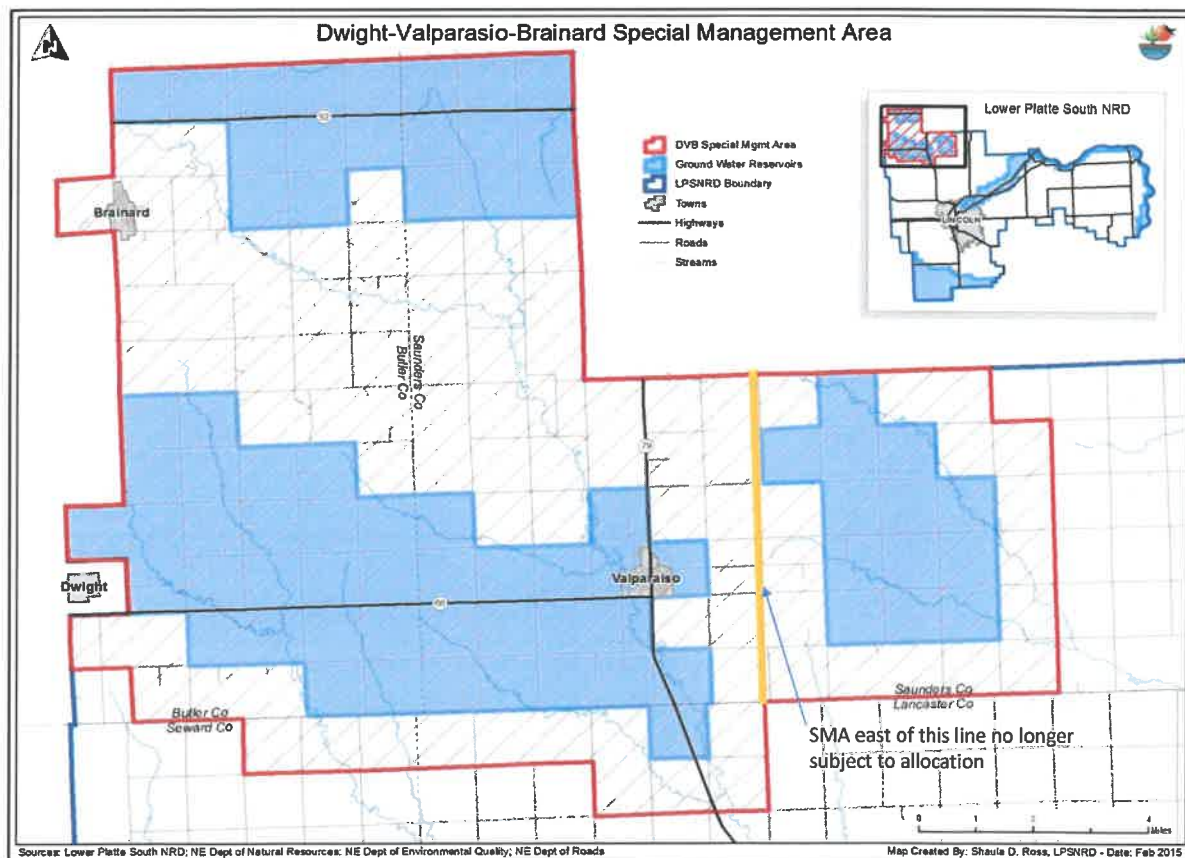
Ground Water Reservoir	Percentage of wells below Phase II %* reduction in average saturated thickness	Percentage of wells below Phase III* reduction in average saturated thickness	Average change in Water Levels, Spring 2015-2016 (ft.)
Crete-Princeton-Adams	0%	0%	-0.42
Dwight-Valparaiso	0%	0%	0.48
Lower Salt Creek	0%	0%	-1.31
Missouri River Valley	0%	0%	-1.98
Platte River Valley	0%	0%	1.46
Remaining Area	5%	0%	-0.28

\*Phase II: 30% of network wells w/ 8% reduction; LSC is 30% w/ 15%

\*Phase III: 50% of network wells w/ 15% reduction; LSC is 50% w/ 30%

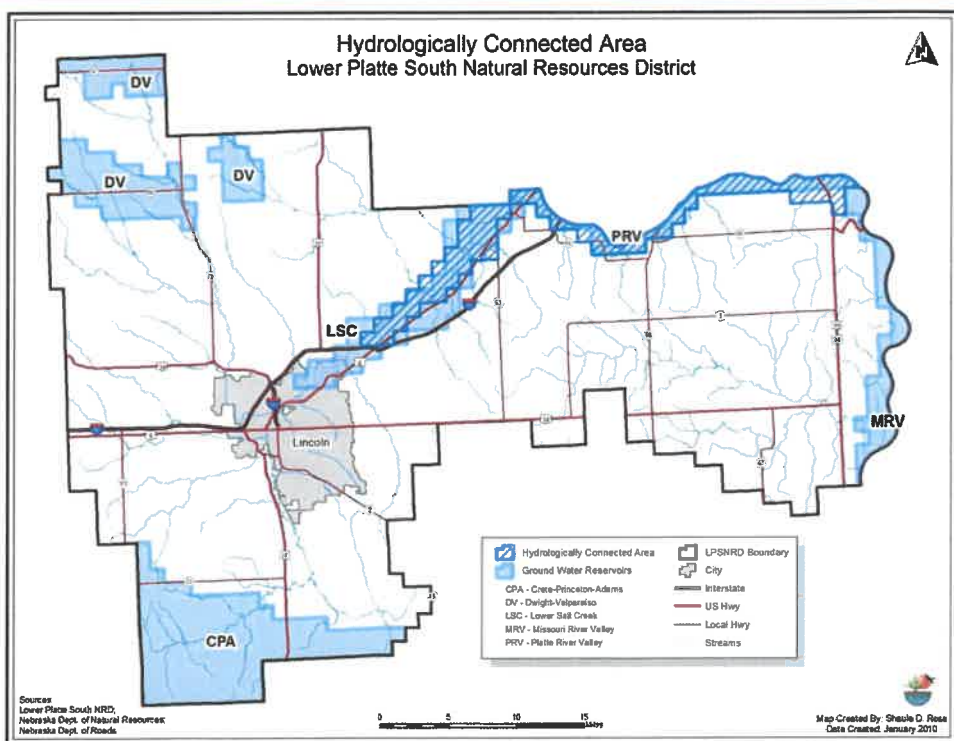
# DVB SMA

- 2014—SMA designated; rules & regulations adopted
- 2015—First irrigation certification class held (63 operators)
- 2018
  - Advisory Group met March 2018
  - Preparing for 2<sup>nd</sup> certification class (March 2019)

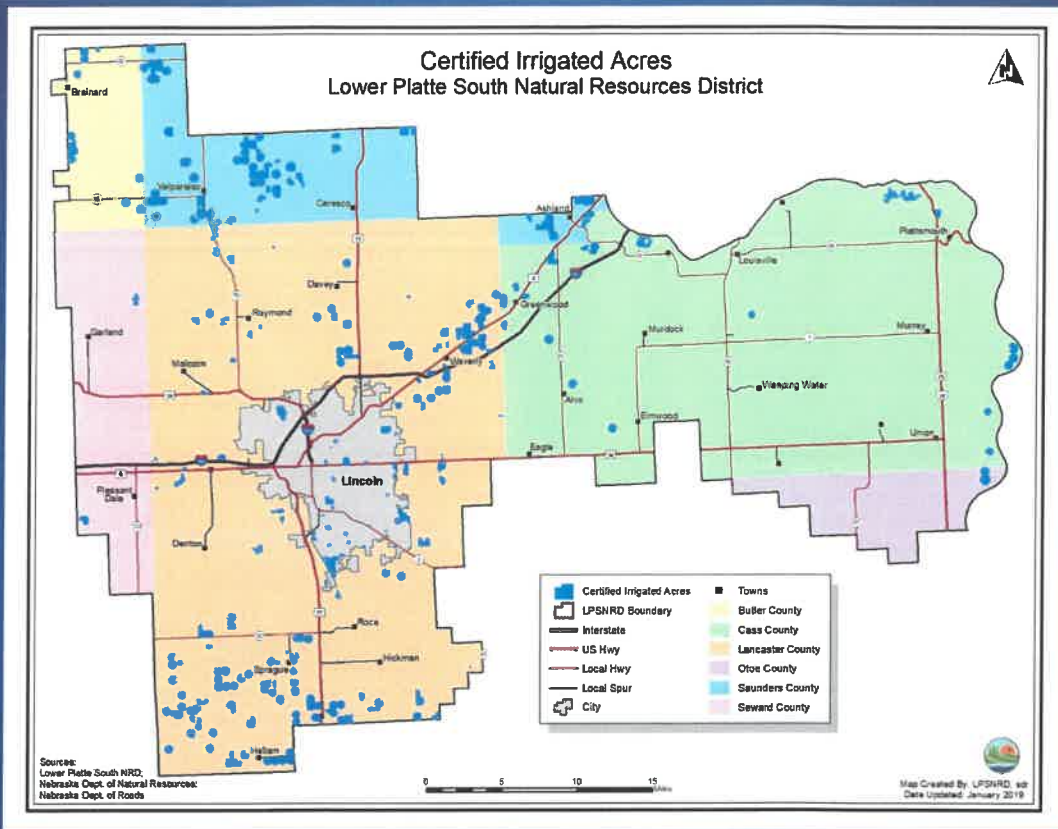


# Certification of Irrigated Acres

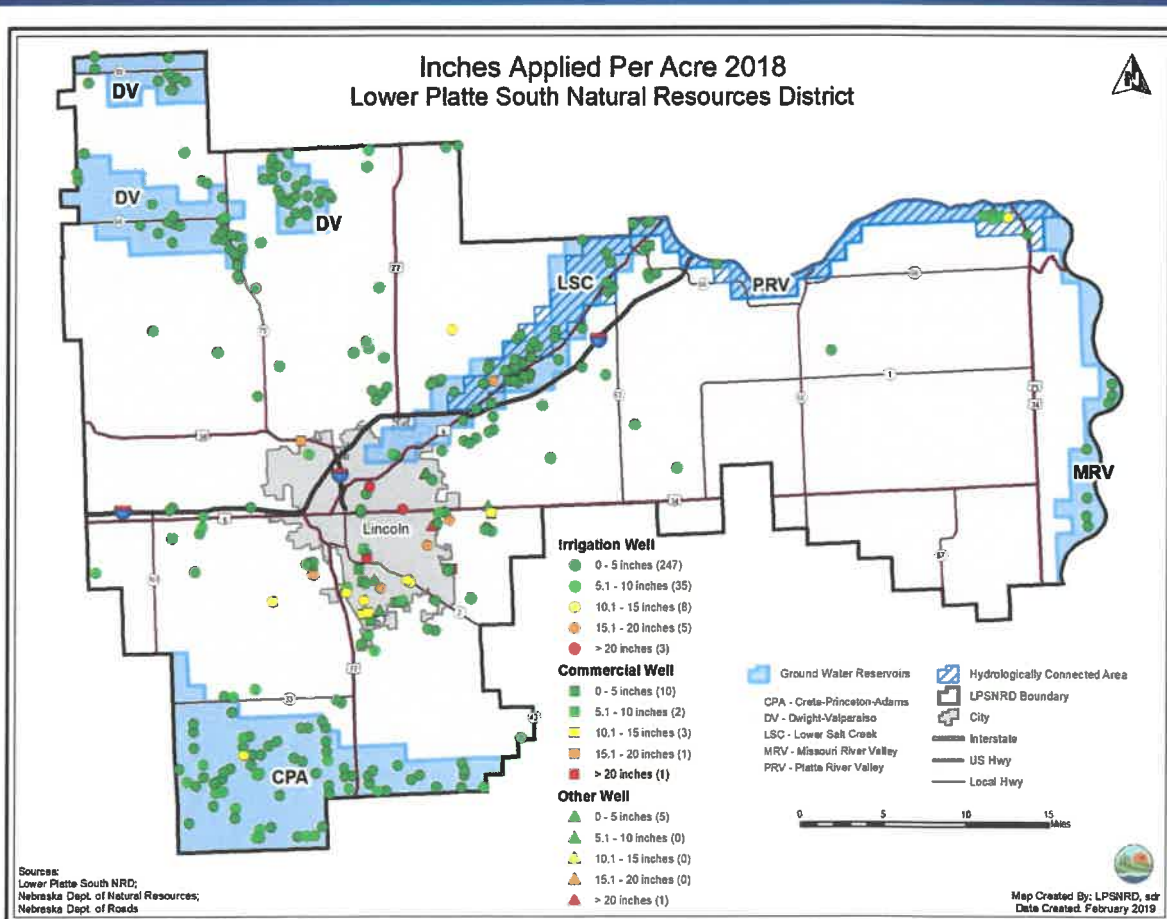
- Documentation of lands irrigated with ground water & well(s) used to irrigate
- Two areas:
  - Hydrologically Connected Area (HCA)
    - Delineated by NDNR
    - Rules & Regulations pursuant to LB483 adopted 7/2009
    - Deadline for certification: 3/31/2009
    - Document “historically ground water irrigated acres”—acres irrigated BEFORE 12/16/2008
    - Allow for annual expansion (592 acres annual maximum)
  - Remainder of LPSNRD (Non-HCA)
    - LPSNRD Ground Water Rules & Regulations
    - Deadline for certification: 1/30/2011 (Current regs state acres must be certified BEFORE being irrigated)



About 65 sq. miles in 77 different sections from Waverly to Ashland along Salt Creek, and from Ashland to Plattsmouth along the Platte River. NDNR has completed modelling for Lower Platte Basin; HCA likely to be modified

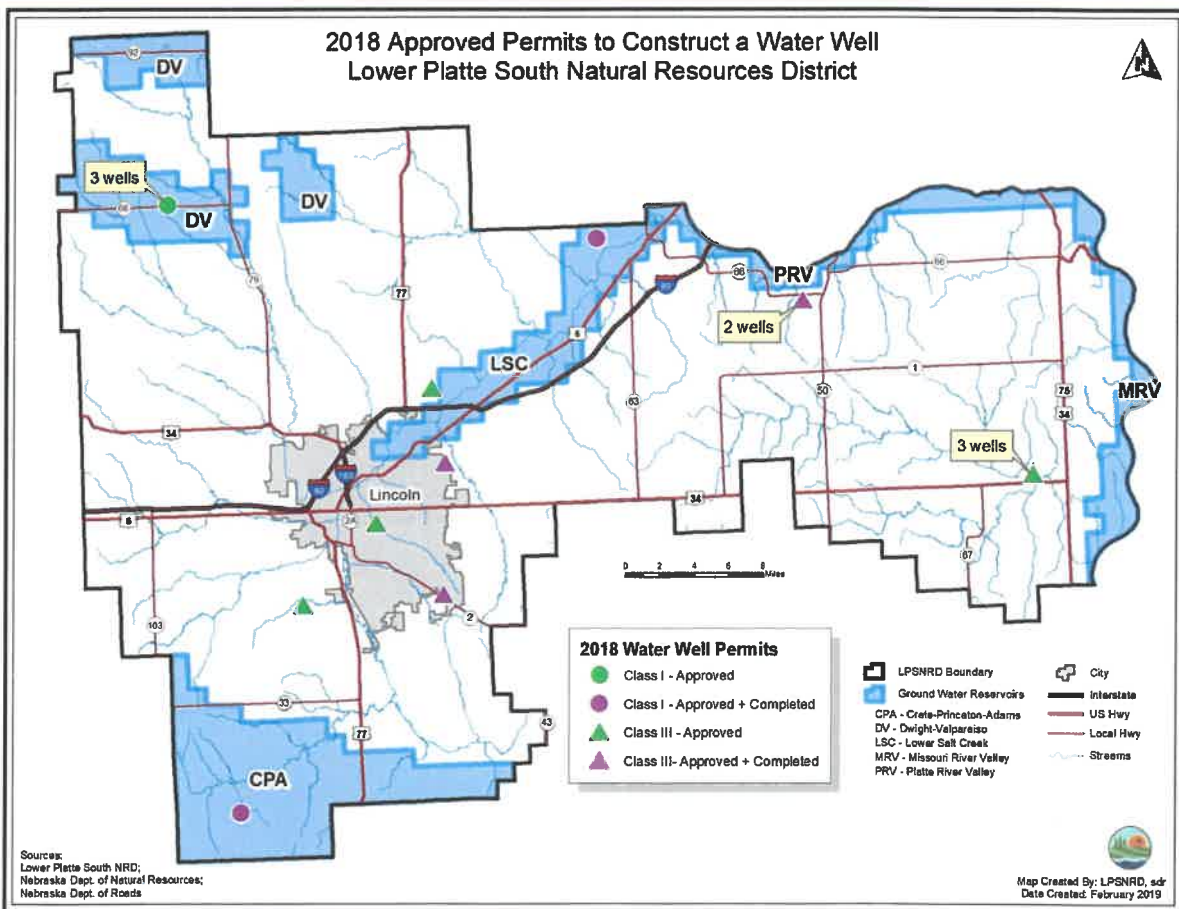
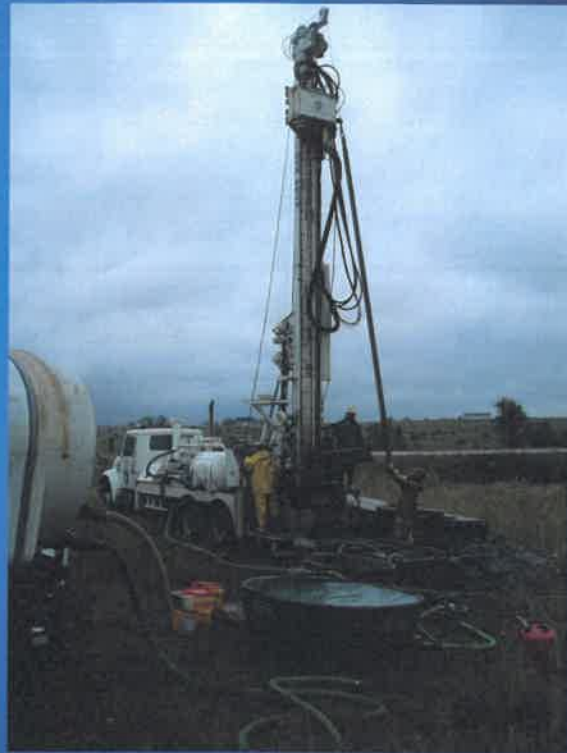


**24,225.13 acres certified in non-HCA;**  
**3,268.2 acres certified in HCA**  
**27,492.33 acres certified District-wide**



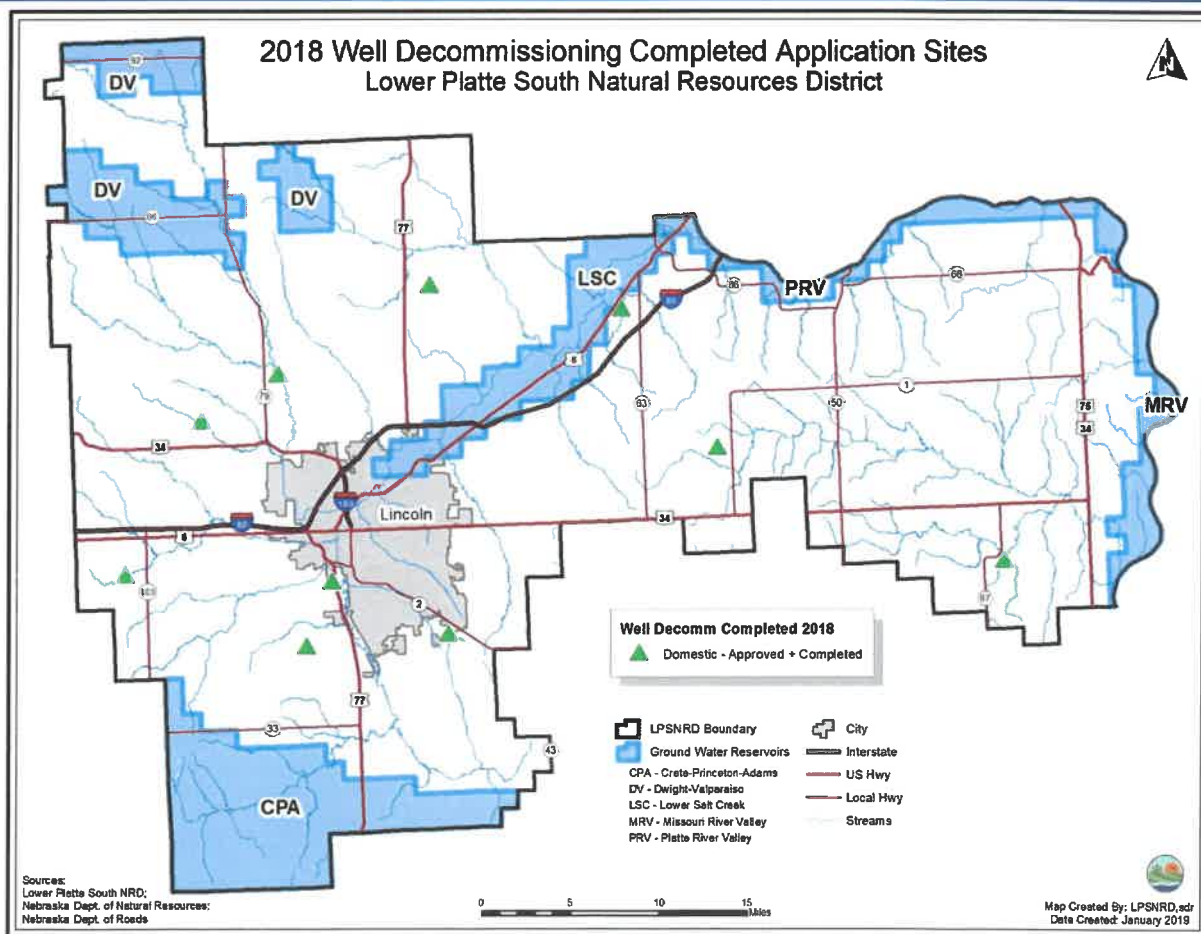
# 2018 Water Well Permits

- Issued 11 well permits
  - 3 irrigation, 3 livestock, 2 domestic, 1 commercial/industrial, 1 geothermal, 1 other (landscape)
  - 2 of these completed in 2018
  - 4 wells approved in 2017 completed in 2018



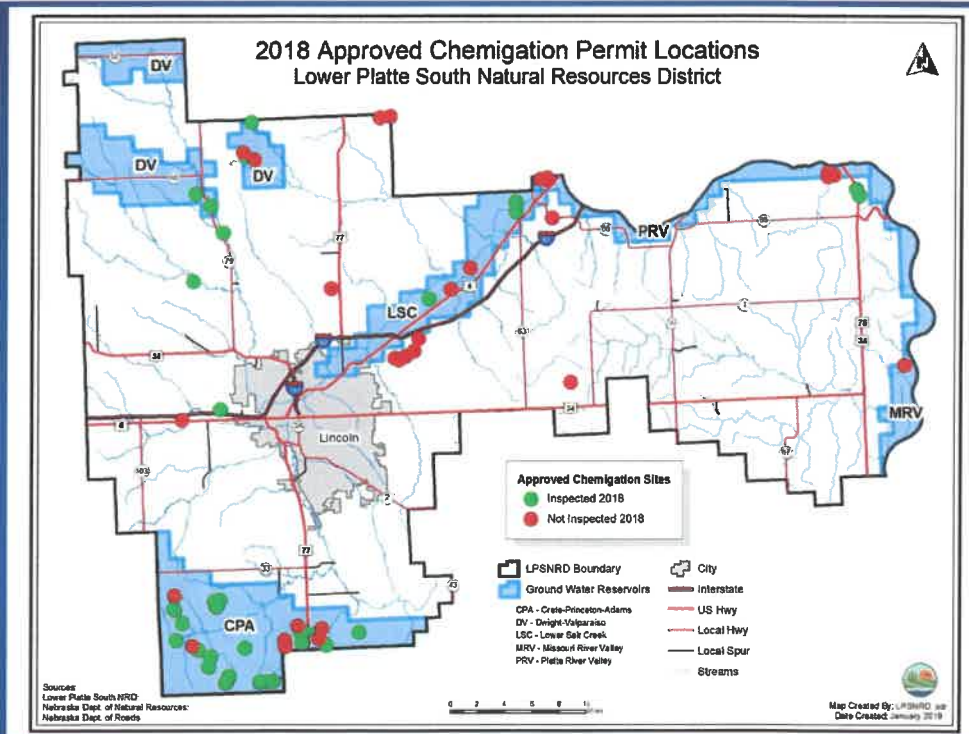
# 2018 Well Decommissioning Program

- Decommissioned 10 wells
  - All domestic
- As of 12/31/2018, 997 wells decommissioned in LPSNRD since 1990!



# 2018 Chemigation Program

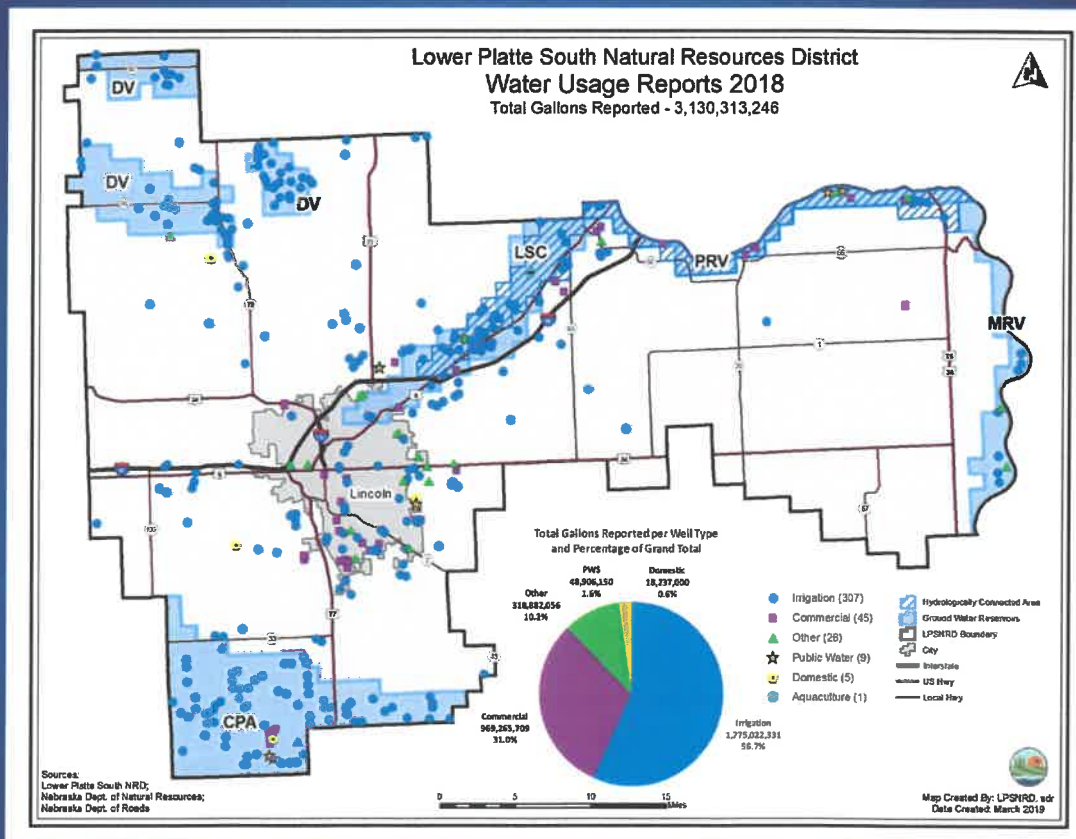
- Issued 51 renewal permits
- Issued 15 new permits
  - District-wide total of 7,258 acres permitted for chemigation
- Completed 37 inspections; no violations found



Ground Water Reservoir	# of Chemigation Permits	# of Acres
Crete-Princeton-Adams	28	3,301
Dwight-Valparaiso	6	1,667
Lower Salt Creek	5	593
Missouri River Valley	1	95
Platte River Valley	6	334
Remaining Area	20	1,268

# 2018 Water Meter Program Highlights

- 1/30/2011 deadline; regulations now require that meters be in place BEFORE well use
- 50% cost-share up to \$650
- No cost-share applications in 2018
- 8<sup>th</sup> year of annual reporting
  - 412 reports received in 2018
  - Calculations of water pumped
- Inspected 119 meters

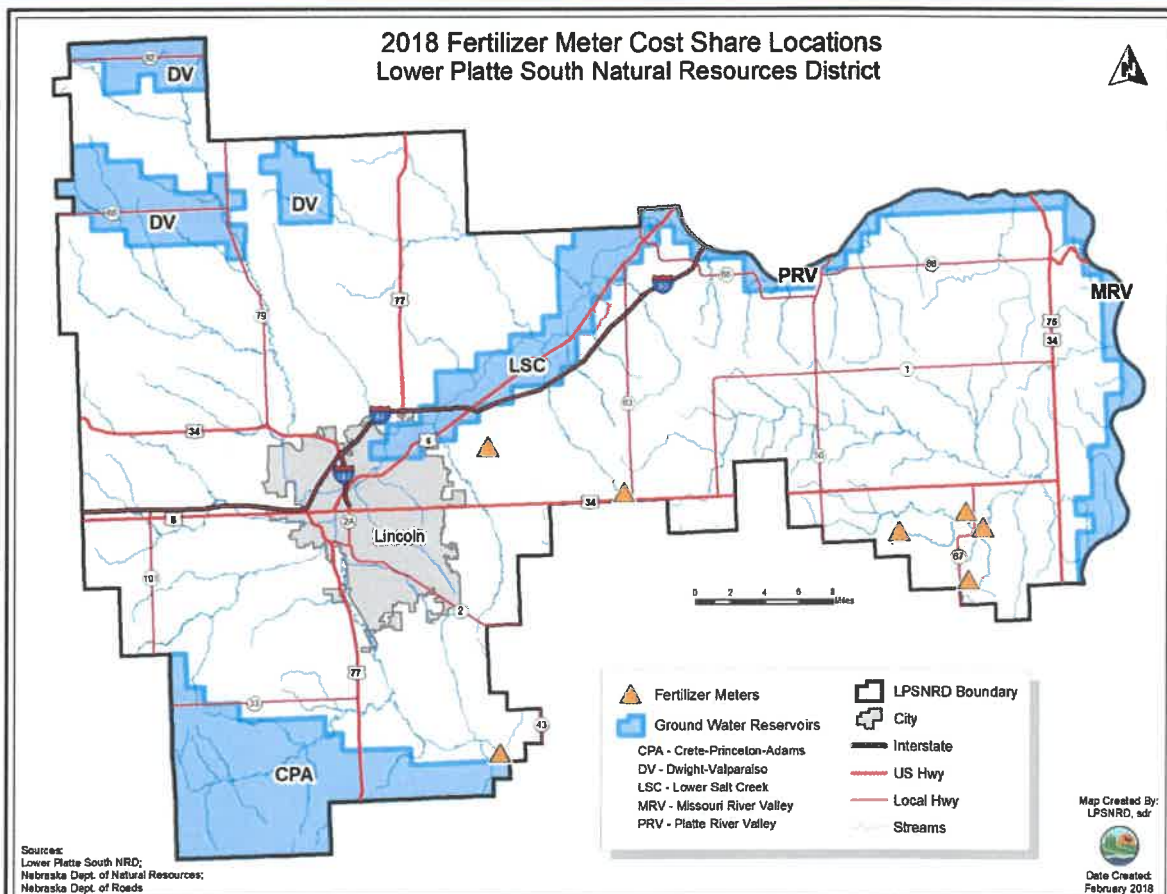


3.4 B gallons = 126,299 acre-inches = 10,525 acre-feet  
(74,989 acre-inches/6,249 acre-feet for irrigation wells)



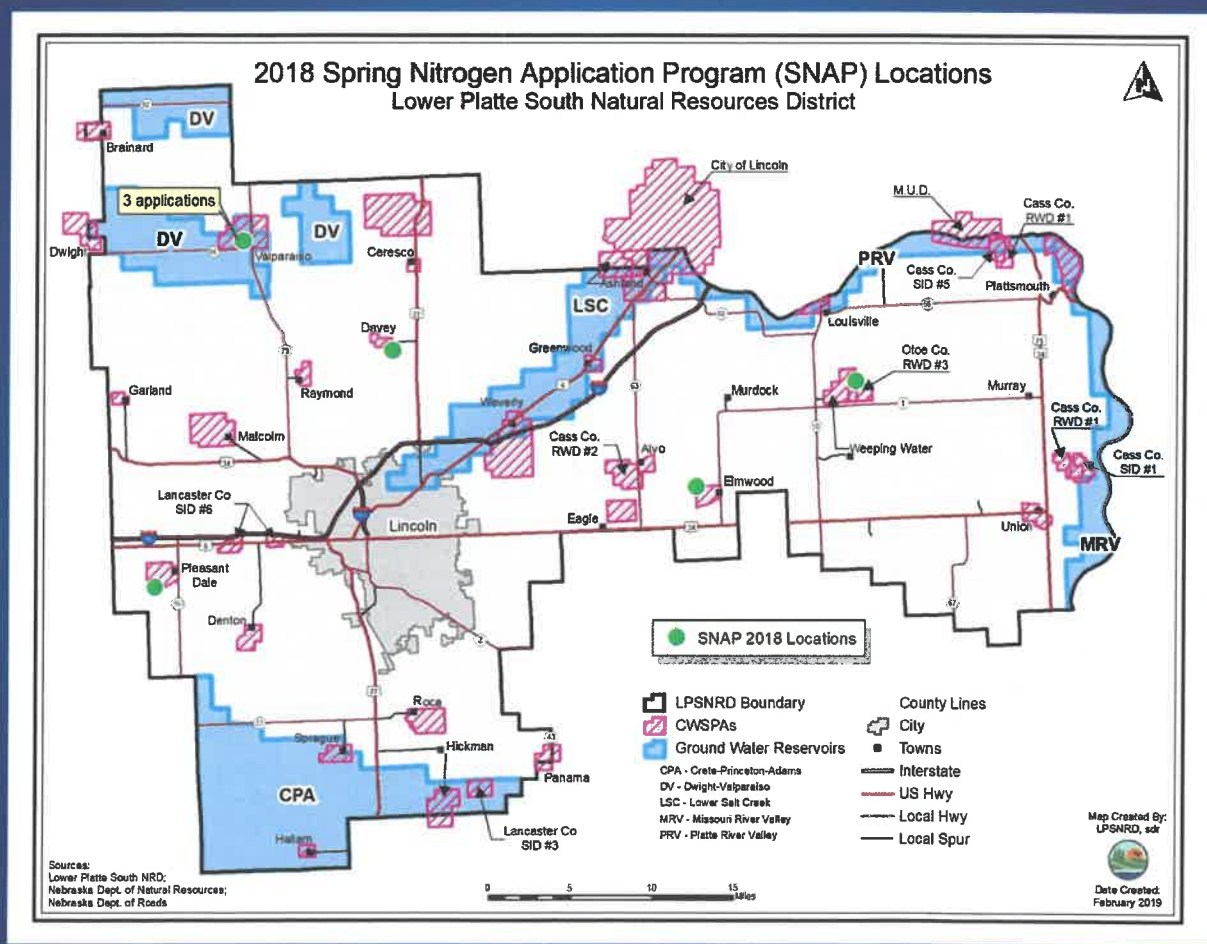
# 2018 Fertilizer Meter Program Highlights

- Received & cost-shared on 7 applications



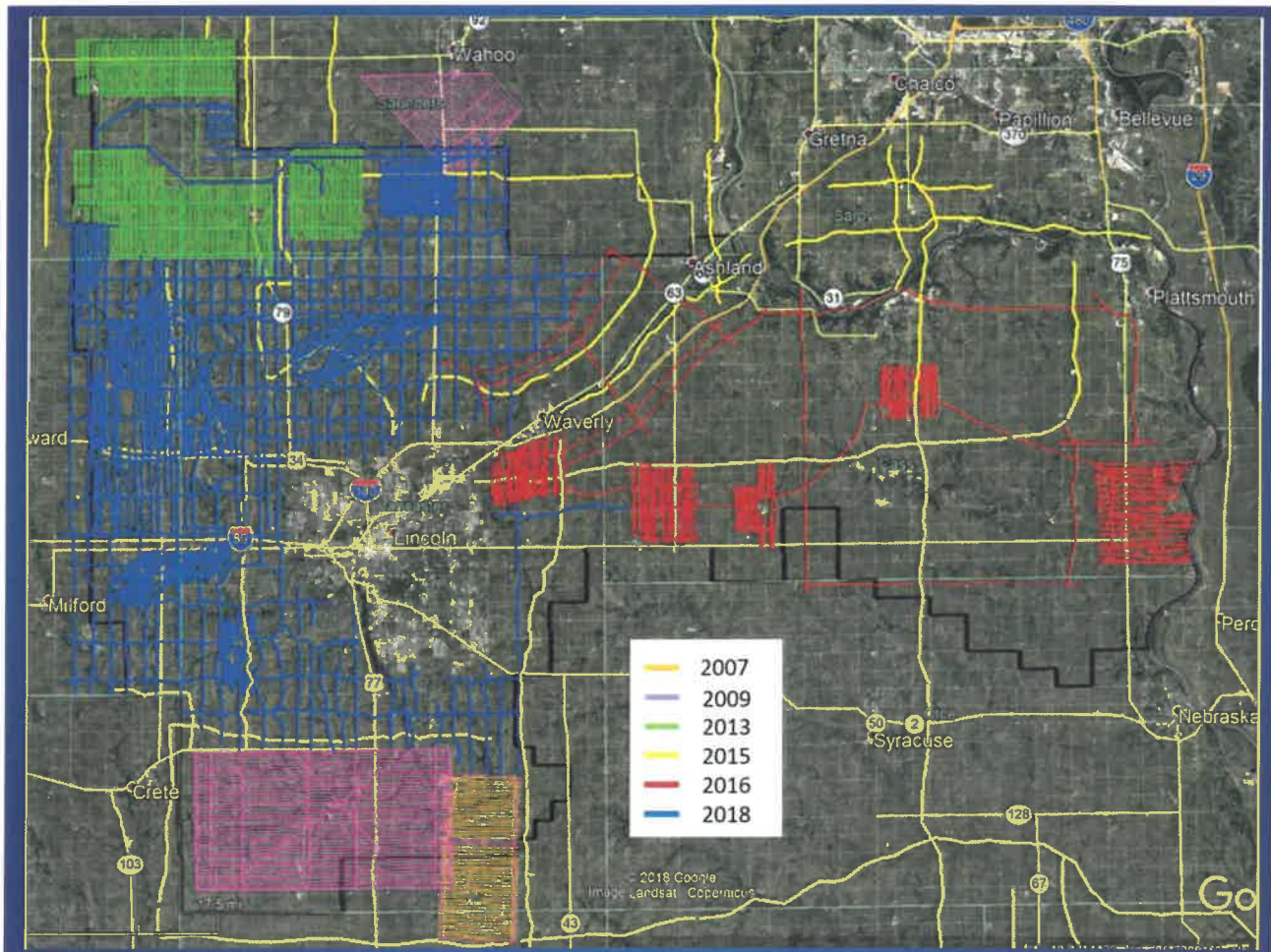
# 2018 Spring Nitrogen Application (SNAP) Highlights

- Program encourages spring application of N fertilizer by offsetting spring fertilizer costs (higher than fall costs)
- 7 applications received & approved in 2018



# 2018 Miscellaneous Activities

- Variety of I/E & Public Information Activities
  - Classroom presentations (2,500 students), field trips (50 field trips + 2 camps), EWF, commercials, well testing nights, activities/games etc.
- Continued participation in ENWRA
  - Final transect flights-1,900+ miles in western LPSNRD in 2018
  - Ongoing meetings, website, data collection, etc.
- Research
  - UNL Vadose Zone project
  - Integration of AEM into NRD ground water projects



# THANKS!!!!

- Steve Herdzina
- Chris Witthuhn
- Ryan Rezac
- Dan Schulz
- Katie Cameron
- Mike Mascoe
- McKenzie Barry
- Shaula Ross

QUESTIONS?

