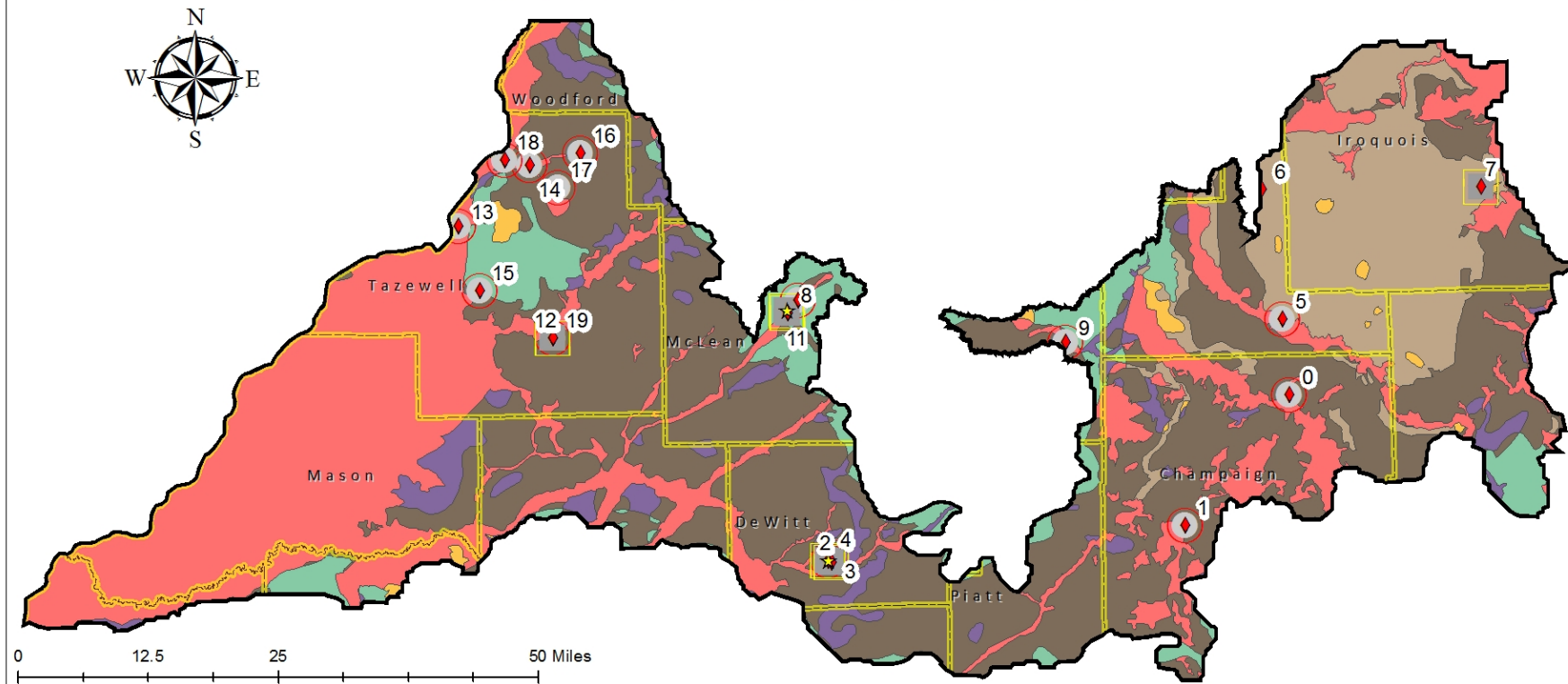


Threat Assessment of Select Mahomet Aquifer Landfills in High Groundwater Recharge Areas

Rick Cobb, Hayden King, and Joe Konczyk: Bureau of Water, Division of Public Water Supplies

Illinois EPA

MAHOMET AQUIFER LANDFILLS

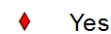
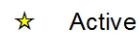


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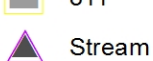
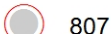
County



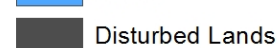
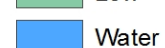
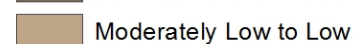
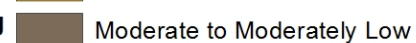
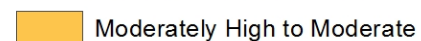
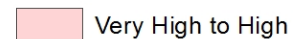
Final Cover



GW Monitoring



Potential for Aquifer Recharge



FID	Name	County	GW Monitoring	Final Cover	Potential for Aquifer Recharge
0	Rantoul Municipal	Champaign	807	Yes	Moderate to Moderately Low
1	Champaign Municipal	Champaign	807	Yes	Moderate to Moderately Low
2	Clinton Landfill	Dewitt	807	Yes	Moderate to Moderately Low
3	Clinton Landfill #2	Dewitt	811	Yes	Moderate to Moderately Low
4	Clinton Landfill #3	Dewitt	811	Active	Moderate to Moderately Low
5	Paxton Municipal #2	Ford	807	Yes	Very High
6	RMTP Landfill	Ford	Stream	Yes	Moderately High to Moderate
7	IL Waste Systems	Iroquois	811	Yes	Moderately Low to Low
8	McLean CO Landfill	McLean	811	Yes	Very High
9	Bradd Landfill	McLean	807	Yes	Moderate to Moderately Low
10	Rowe Landfill	McLean	807	Yes	Very High
11	Sexton/McLean	McLean	811	Active	Moderate to Moderately Low
12	Indian Creek Landfill	Tazewell	807	Yes	Low
13	Illini Tech Systems	Tazewell	807	Yes	Very High
14	Tazewell CO Landfill	Tazewell	807	Yes	Very High
15	Pekin Metro Landfill	Tazewell	807	Yes	Very High
16	Grimm Bros Landfill	Tazewell	807	Yes	Moderate to Moderately Low
17	Getz Landfill	Tazewell	807	Yes	Moderate to Moderately Low
18	Powley	Tazewell	807	Yes	High to Low
19	Indian Creek #2	Tazewell	811	Yes	Moderate to Moderately Low

807 groundwater monitoring

- ◆ Details permitting requirements for operators of solid waste landfills that initiated closure before September 18, 1992.
- ◆ Closure performance standard:

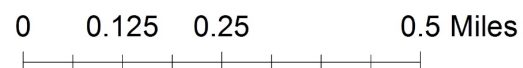
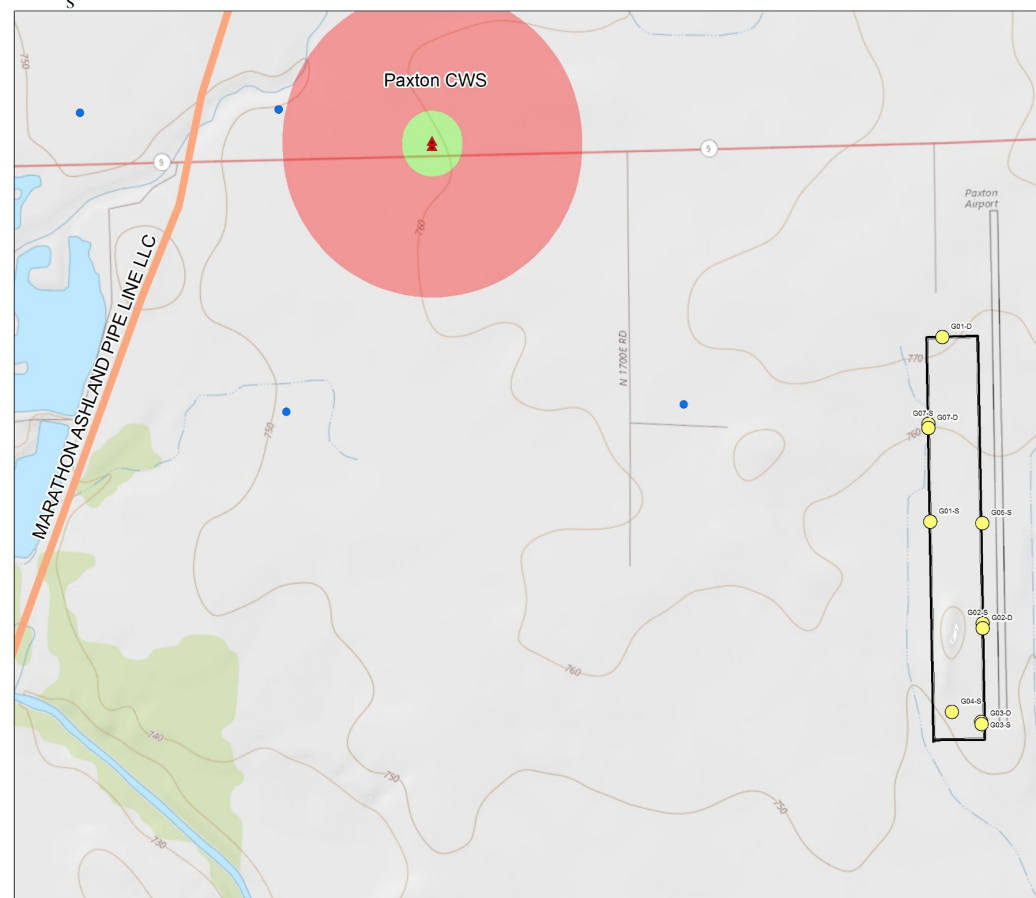
Controls, minimizes or eliminates post-closure release of waste, waste constituents, leachate, contaminated rainfall, or waste decomposition products to the groundwater or surface waters or to the atmosphere to the extent necessary to prevent threats to human health or the environment.
- ◆ Post-closure care requires groundwater (GW) monitoring (cost estimates for quarterly parameter sampling spanning the minimum 15-year post closure period).

Paxton #2 (Ford County)

- ◆ Active period: 1974-1992
- ◆ Last Inspection 12/20/2016
- ◆ Completion of post-closure care requirements pending:
 1. Application for a supplemental permit describing how intrawell background GW quality values are established.
 2. Replacement of G05-S, which has been dry since 2006.
 3. GW data from samples collected during 4 consecutive quarters needed to show the landfill is not causing GW contamination.
 4. Submission of new completion certification affidavit.



Paxton # 2 Site Overview



Legend

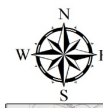
- Landfill Boundary
- Paxton GW Wells
- Private Wells
- Oil and Gas Pipelines
- CWS Wells
- CWS Wells Minimum Setback Zone
- CWS Wells Phase1 WHPA

Potential Threats from Paxton #2

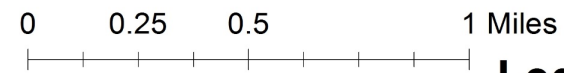
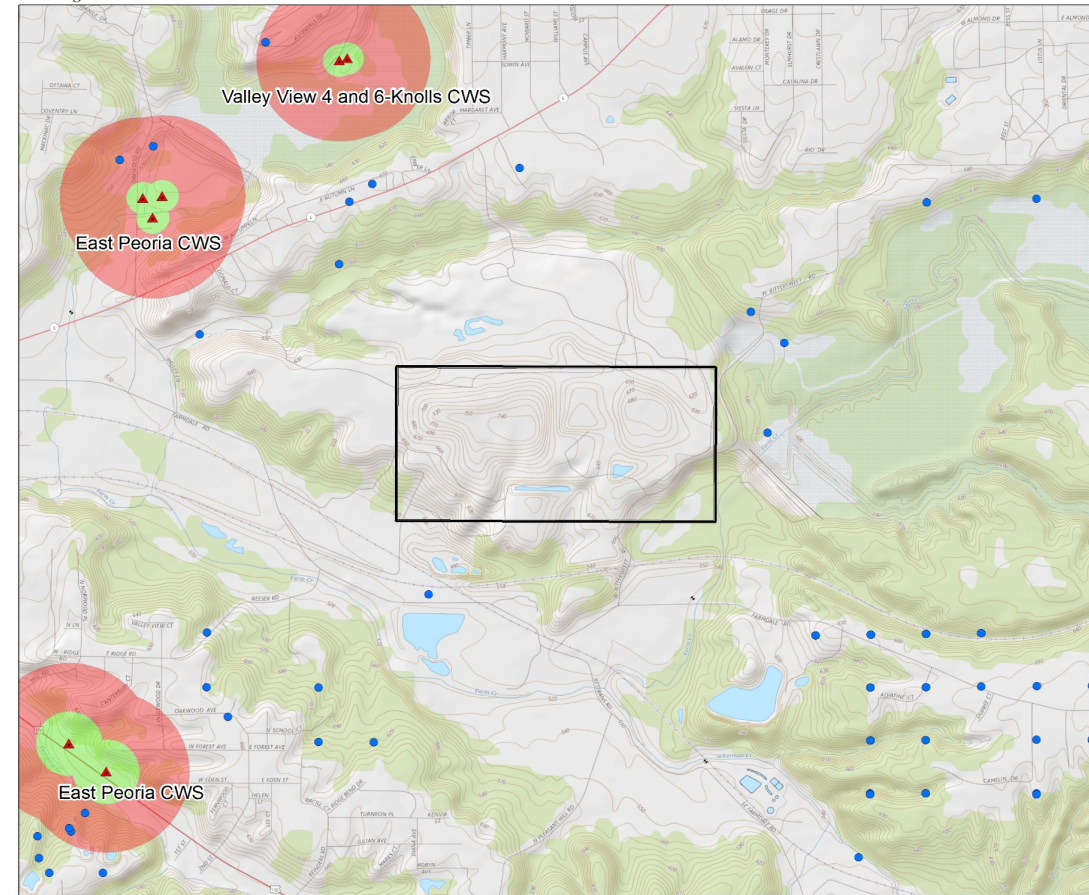
- ◆ No current GW contamination is apparent, but proactive measures are warranted for several reasons:
 1. Post-closure care certification still needs to be submitted.
 2. Uncertainty of GW data, some of the wells are not producing adequate water for sampling.
 3. Paxton Community Water Supply (CWS) well is located approximately 0.5 miles from the landfill.
 4. A lack of documentation regarding gas migration from the landfill.
- ◆ Marathon Pipeline runs through the area transporting gasolines & distillates, preventative measures to protect the Mahomet Aquifer from potential pipeline failures are appropriate.

Tazewell RDF (Tazewell County)

- ◆ Last Inspection: 04/18/2018.
- ◆ 30-Year post-closure care period began 09/28/2007.
- ◆ 2017 Annual Report shows high levels of acetone and tetrachloroethene.
- ◆ Acetone levels were the result of laboratory contamination by a third party.



Tazewell RDF Site Overview



Legend

- Landfill Boundary
- Private Wells
- ▲ CWS Wells
- CWS Wells Minimum Setback Zone
- CWS Wells Phase 1 WHPA

Potential Threats from Tazewell RDF: Tetrachloroethene (C_2Cl_4)

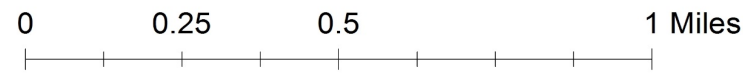
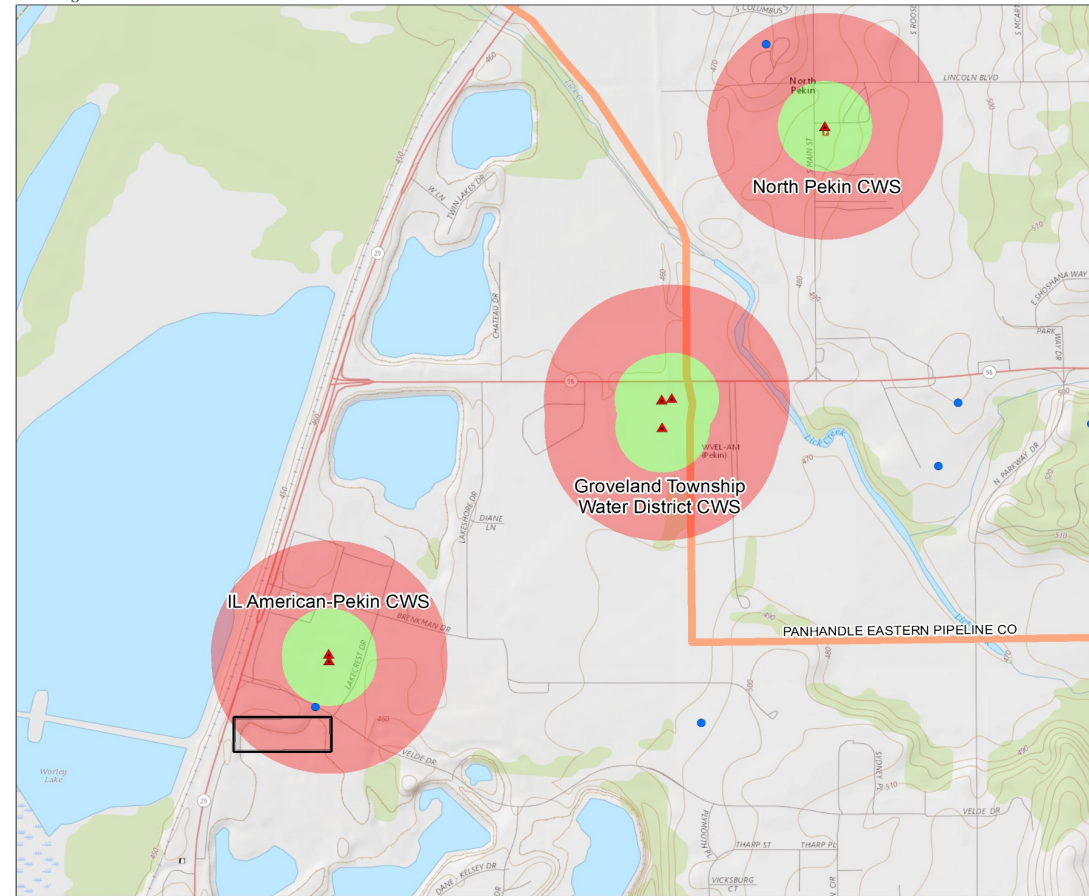
- ◇ Colorless liquid, commonly used for dry cleaning and metal degreasing.
- ◇ Qualifies as a Volatile Organic Compound, can become vinyl chloride when broken down.
- ◇ Likely carcinogenic to humans.
- ◇ Hazardous waste, should not be at this landfill.
- ◇ Tazewell RDF GW monitoring well R62S is in corrective action for C_2Cl_4 .
 - 4th Quarter of 2017 sample shows an observed increase of 3.8 µg/L
 - Class 1 GW standard: 5 µg/L
 - No drinking water Maximum Contaminant Level violations in Community Water Systems to report.

Illini Technical Systems (Tazewell County)

- ◇ Primary waste was construction materials/debris.
- ◇ Completion of post-closure care requirements: 06/30/2004
- ◇ Last inspection: 08/10/2004
- ◇ No potential threats to GW quality are apparent.



Illini Technical Systems Site Overview



Legend

- | | |
|-------------------------|----------------------------------|
| — Landfill Boundary | ▲ CWS Wells |
| — Oil and Gas Pipelines | ■ CWS Wells Minimum Setback Zone |
| • Private Wells | ■ CWS Wells Phase1 WHPA |

Rowe Construction Company Landfill (McLean County)

- ◇ 5-Year post-closure care period began 05/04/1989.
- ◇ Completion of post-closure care requirements: 05/04/1994.
- ◇ No potential threats to GW quality are apparent.



Legend

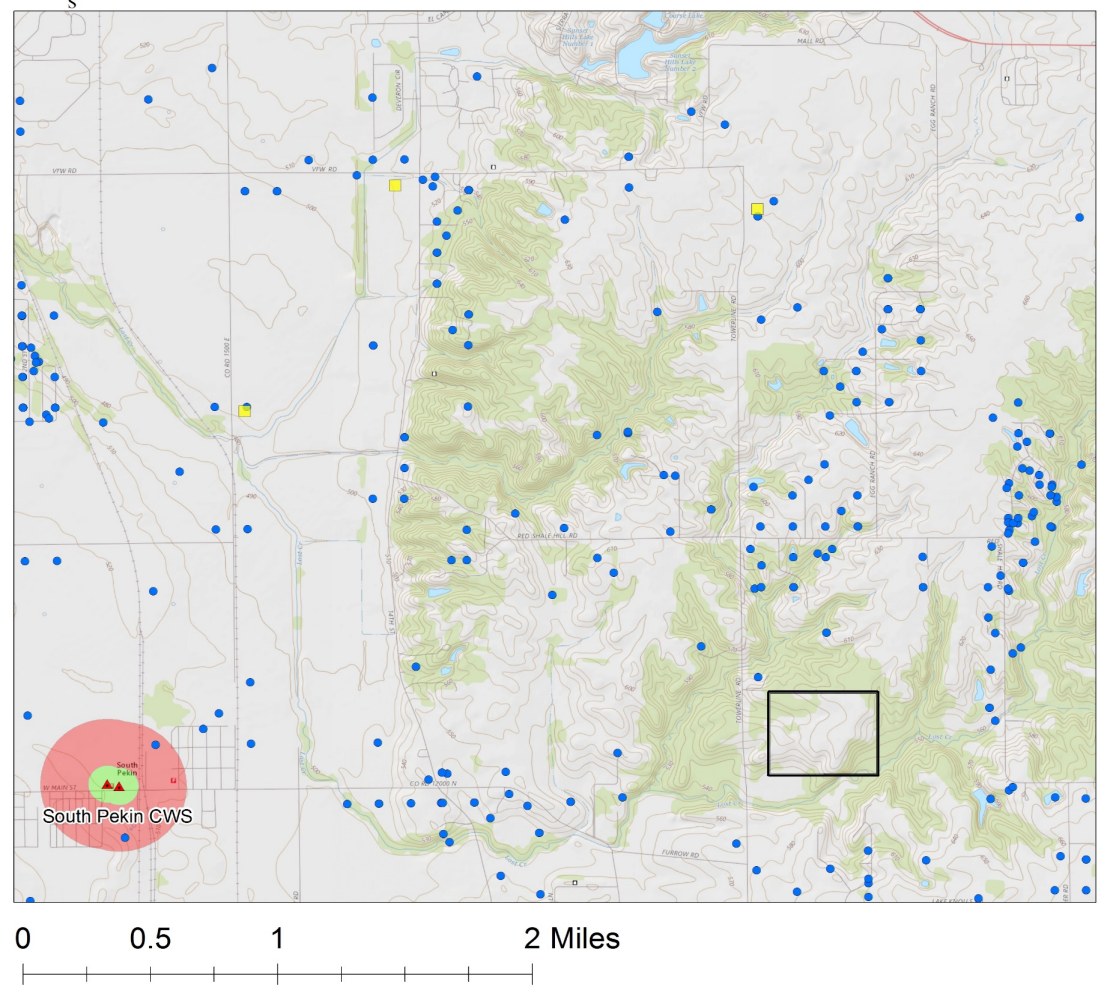
-  CWS Wells
-  Landfill Boundary
-  Private Wells
-  CWS Wells Minimum Setback Zone
-  CWS Wells Phase1 WHPA

Pekin Metro Landfill (Tazewell County)

- ◆ Last Inspection: 07/19/2017
- ◆ Improved passive gas ventilation systems were installed in conjunction with cap expansion in Fall 2014.
- ◆ Has yet to achieve certified closed status.
 - Last 5-year permit expired in 2001, since then there has been no operation or GW monitoring.
 - GW monitoring wells likely buried during 2014 cap expansion.
 - This will need to be remedied in order to initiate a post-closure care period.



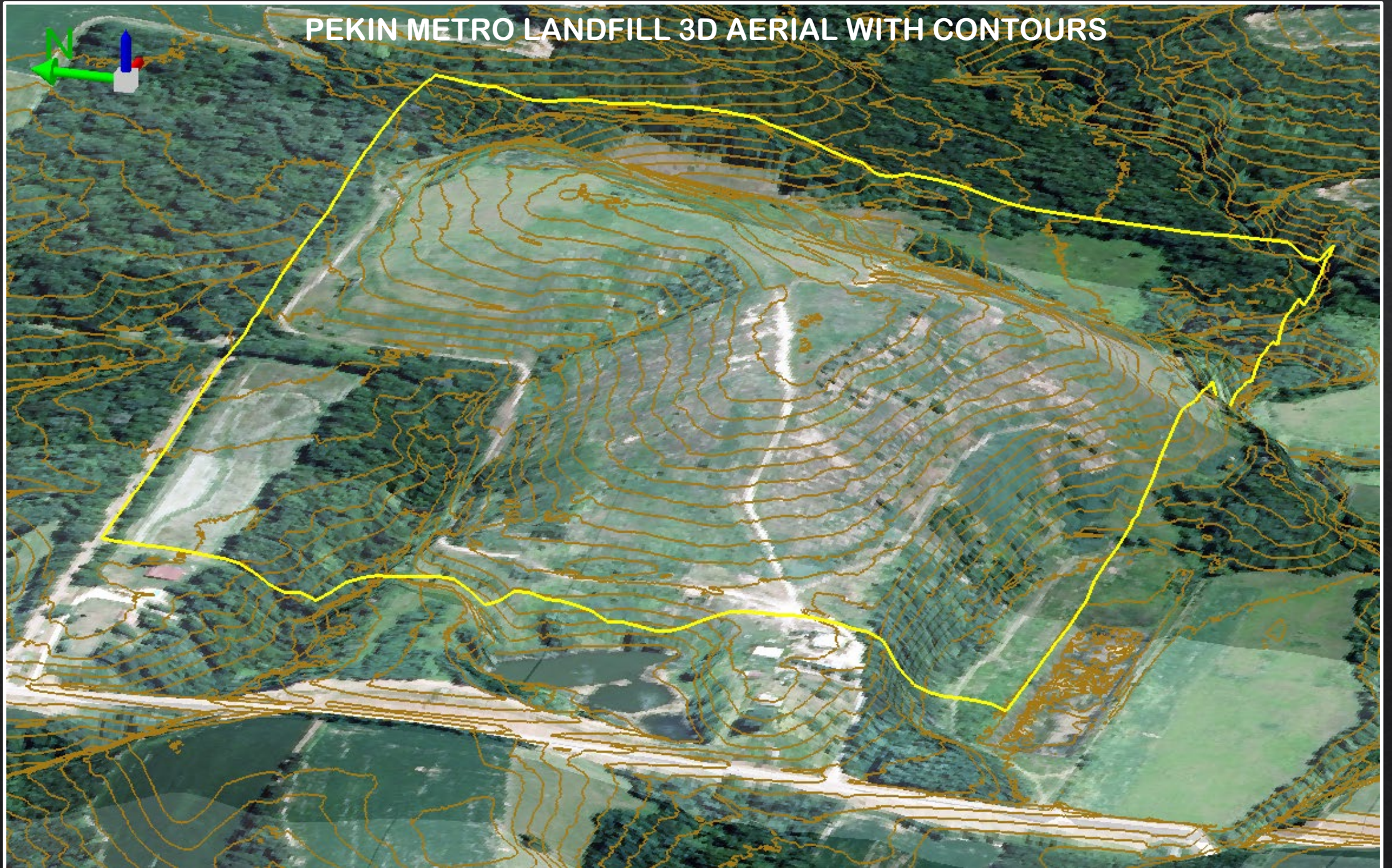
Pekin Metro Landfill Site Overview



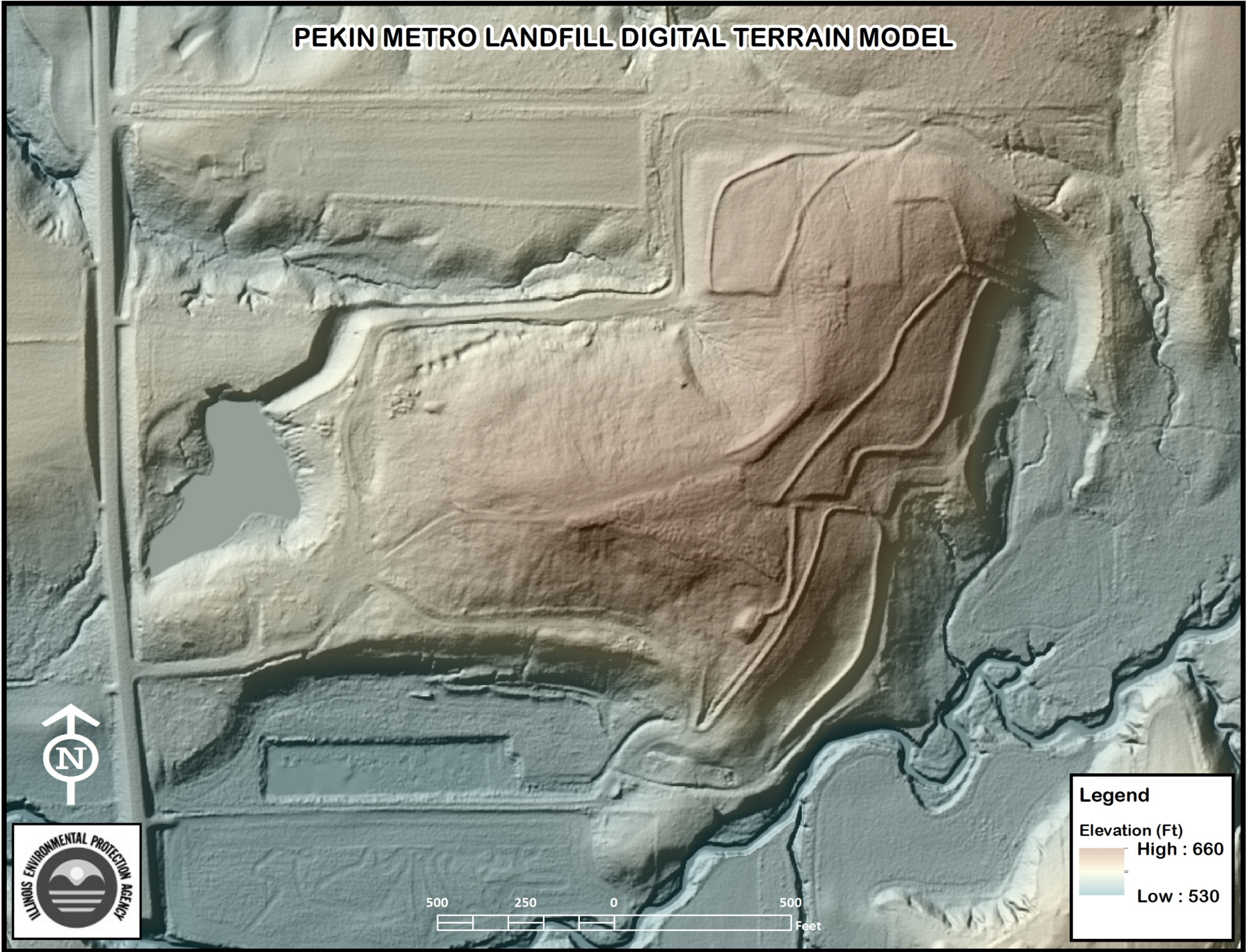
Legend

- | | |
|---------------------|----------------------------------|
| — Landfill Boundary | ▲ CWS Wells |
| • Private Wells | ■ CWS Wells Minimum Setback Zone |
| ■ Non CWS Wells | ■ CWS Wells Phase 1 WHPA |

PEKIN METRO LANDFILL 3D AERIAL WITH CONTOURS



PEKIN METRO LANDFILL DIGITAL TERRAIN MODEL



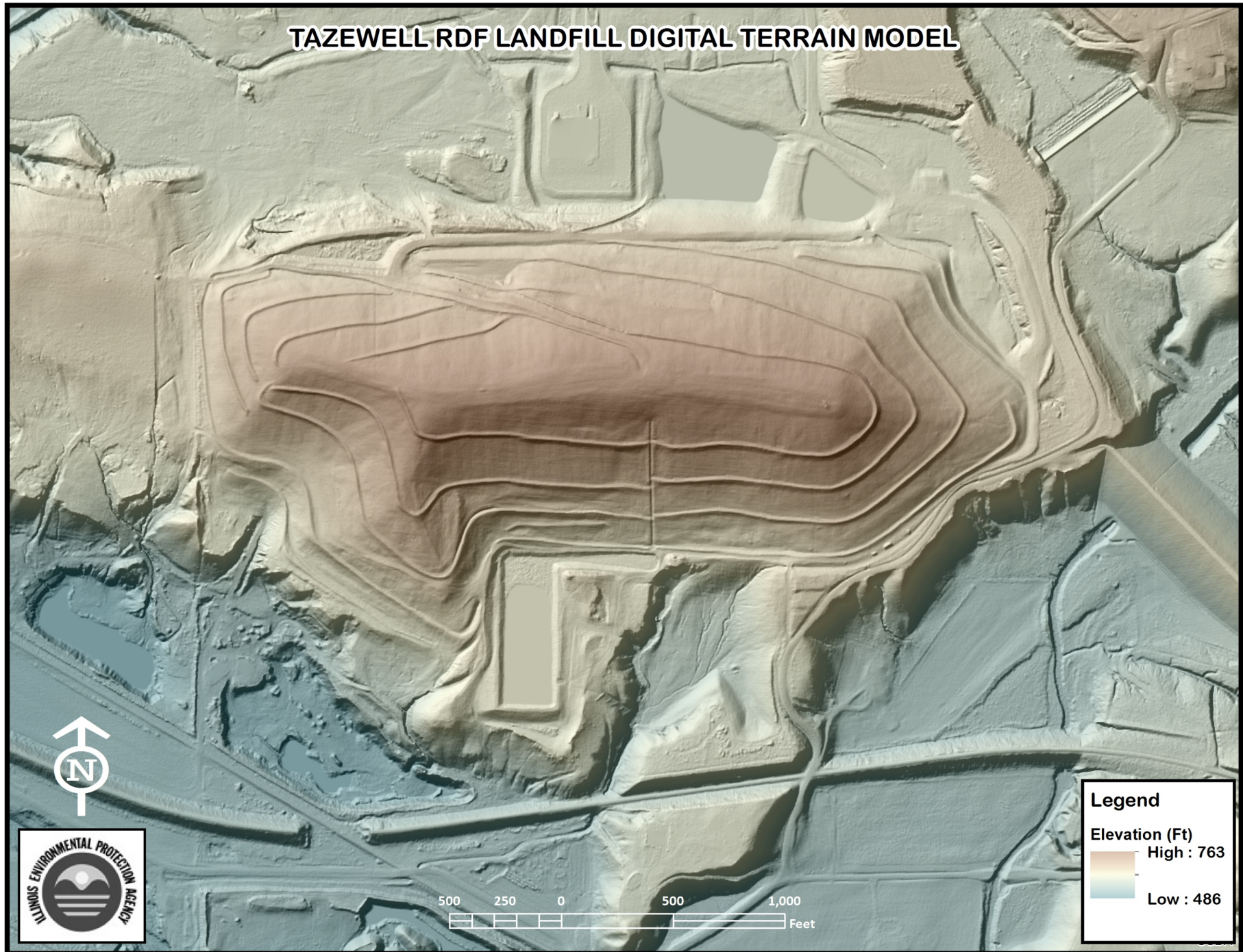
Legend

Elevation (Ft)

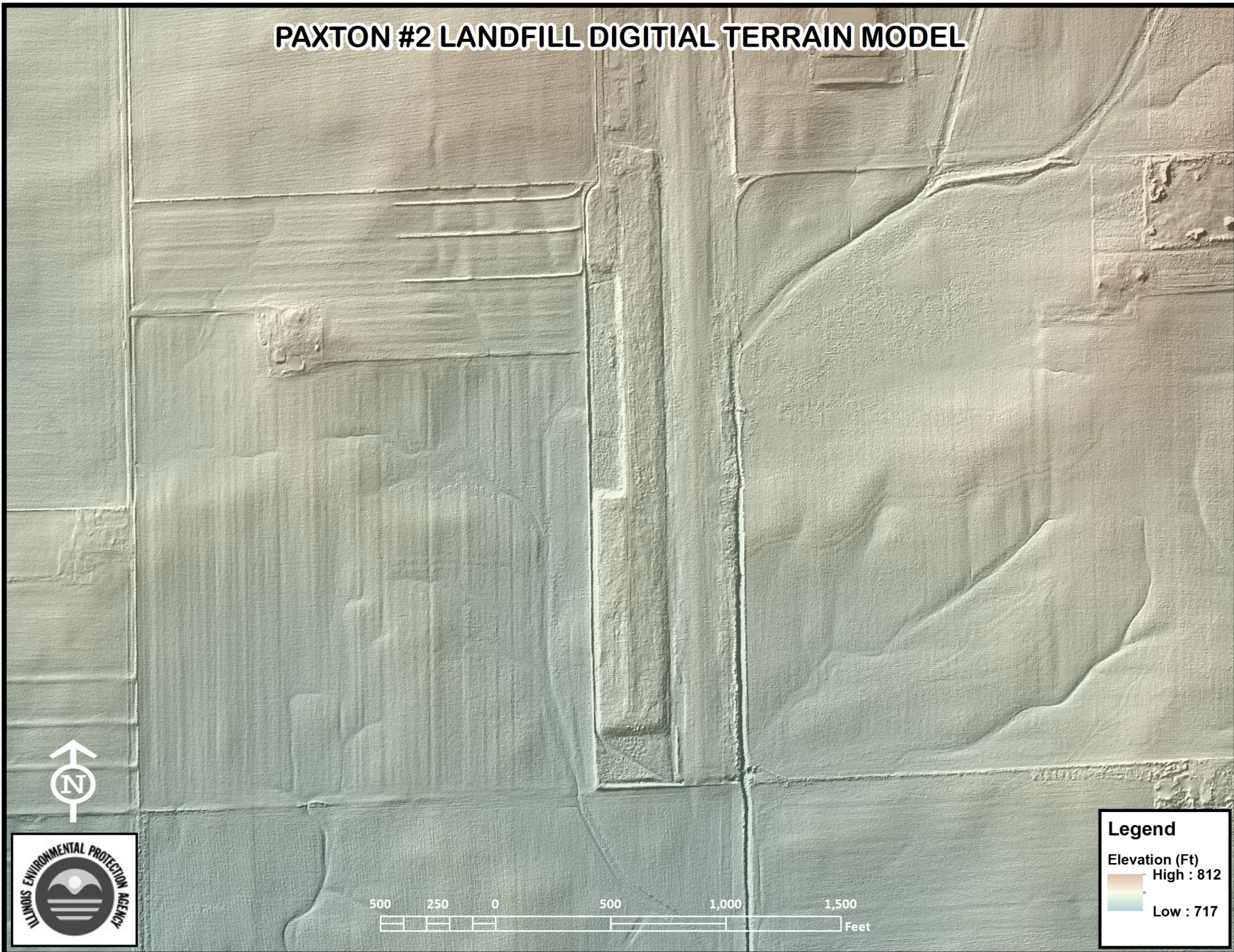
High : 660

Low : 530

TAZEWELL RDF LANDFILL DIGITAL TERRAIN MODEL



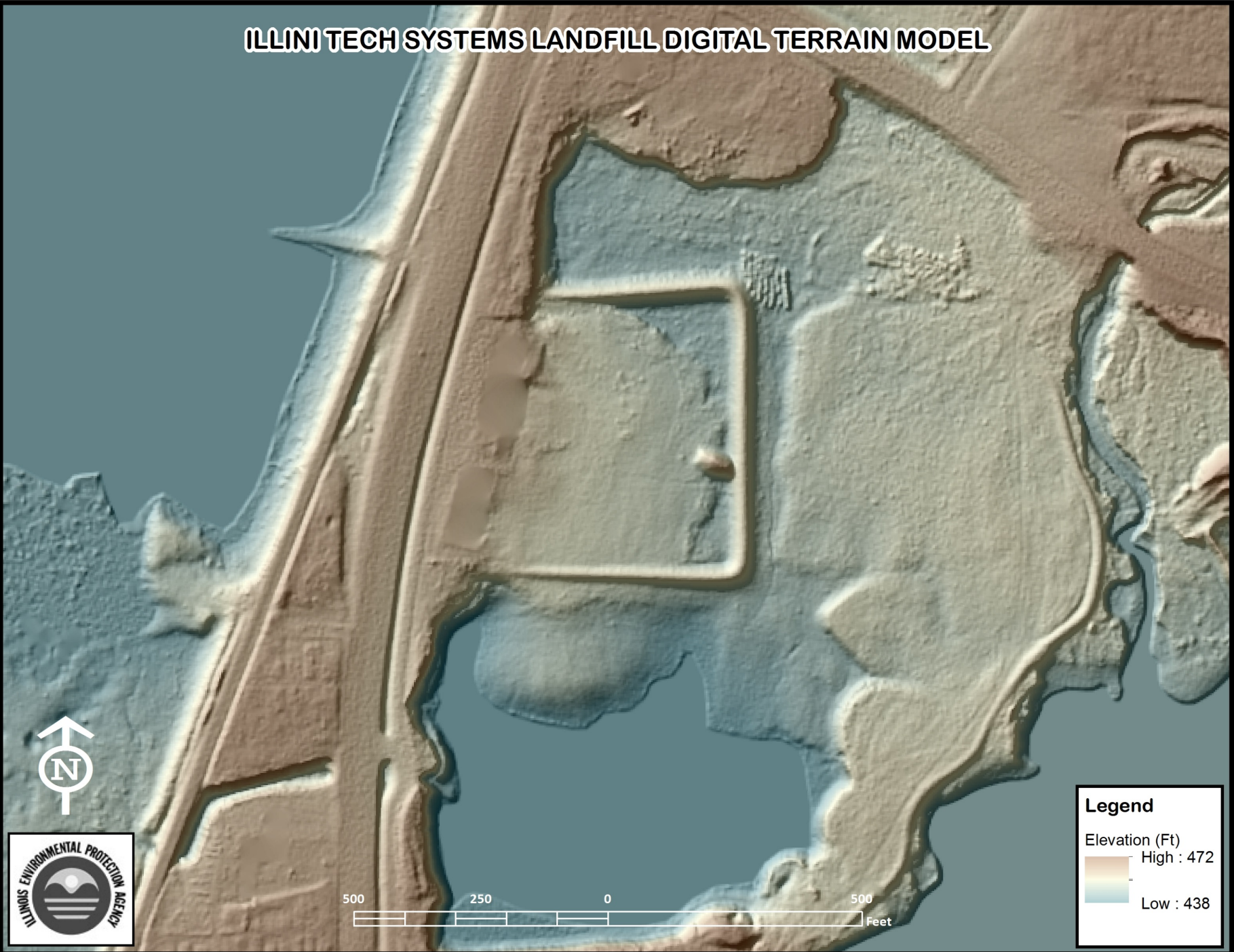
PAXTON #2 LANDFILL DIGITAL TERRAIN MODEL



ROWE CONSTRUCTION LANDFILL DIGITAL TERRAIN MODEL



ILLINI TECH SYSTEMS LANDFILL DIGITAL TERRAIN MODEL



Legend

Elevation (Ft)

High : 472

Low : 438

Summary

- ◆ GW monitoring can be improved at Paxton #2 and Pekin Metro.
- ◆ No immediate GW quality concerns are apparent, but proactive measures may be warranted.
- ◆ Survey of GW quality from private wells in these communities could supplement these findings.

Acknowledgements

- ◆ Ted Dragovich: BOL Permits Section
- ◆ Paul Eisenbrandt: Regional Inspection Staff
- ◆ Alan Fuhrmann: BOW Public Water Supplies Section
- ◆ Andrea Rhodes: BOW Compliance Assurance Section
- ◆ Kenn Smith: BOL Permit Section
- ◆ Jason Thorp: Regional Inspection Staff
- ◆ Jeff Turner: Regional Inspection Staff

Questions?