

ATTACHMENT 19

AR # 241

E-mail re: Last Transmittal of AoR
Information

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McDonald, Jeffrey

From: Gilmore, Tyler J [Tyler.Gilmore@pnnl.gov]
Sent: Saturday, March 08, 2014 12:50 PM
To: McDonald, Jeffrey; Bayer, MaryRose
Cc: Greenhagen, Andrew; Appriou, Delphine; Lanigan, David C; Lucinda Low Swartz
Subject: Transmittal of AoR information and Request
Attachments: 2014-DCL-AqPressDiff_WaterWell_60yr-001_03-07.png; 2014-DCL-AqPressDiff_OilGas_Struc_60yr-001_03-07.png; 2014-DCL-AqPressDiff_60yr-002_03-07.png

Categories: Follow-up

Jeff and Molly,

Attached are a series of draft maps that begin to provide the information required for the AoR as part of the permit application. Most of the information can be provided by a series of Maps (attached) but some may need to be supplied by reference (e.g. structures for human occupancy). These maps are drafts, but we want to provide to you how we plan to meet the requirements and get your feedback.

These maps also put into perspective the tremendously large size this AoR represents. Some statistics I would like to bring to your attention are;

- The extent of the AoR is 1814 sq miles
- 4386 waters wells and 740 O&G wells have been identified in the AoR
- The AoR encompasses 8 counties
- The AoR also takes in part of Springfield Illinois
- The maximum extent of the 10 psi contour is at 60 years
- The 10psi contour is near the level of uncertainty for the numerical model
- The 10psi contour is based on the Nicot method, but the FutureGen site does not comply with 2 of the 4 assumptions of that method

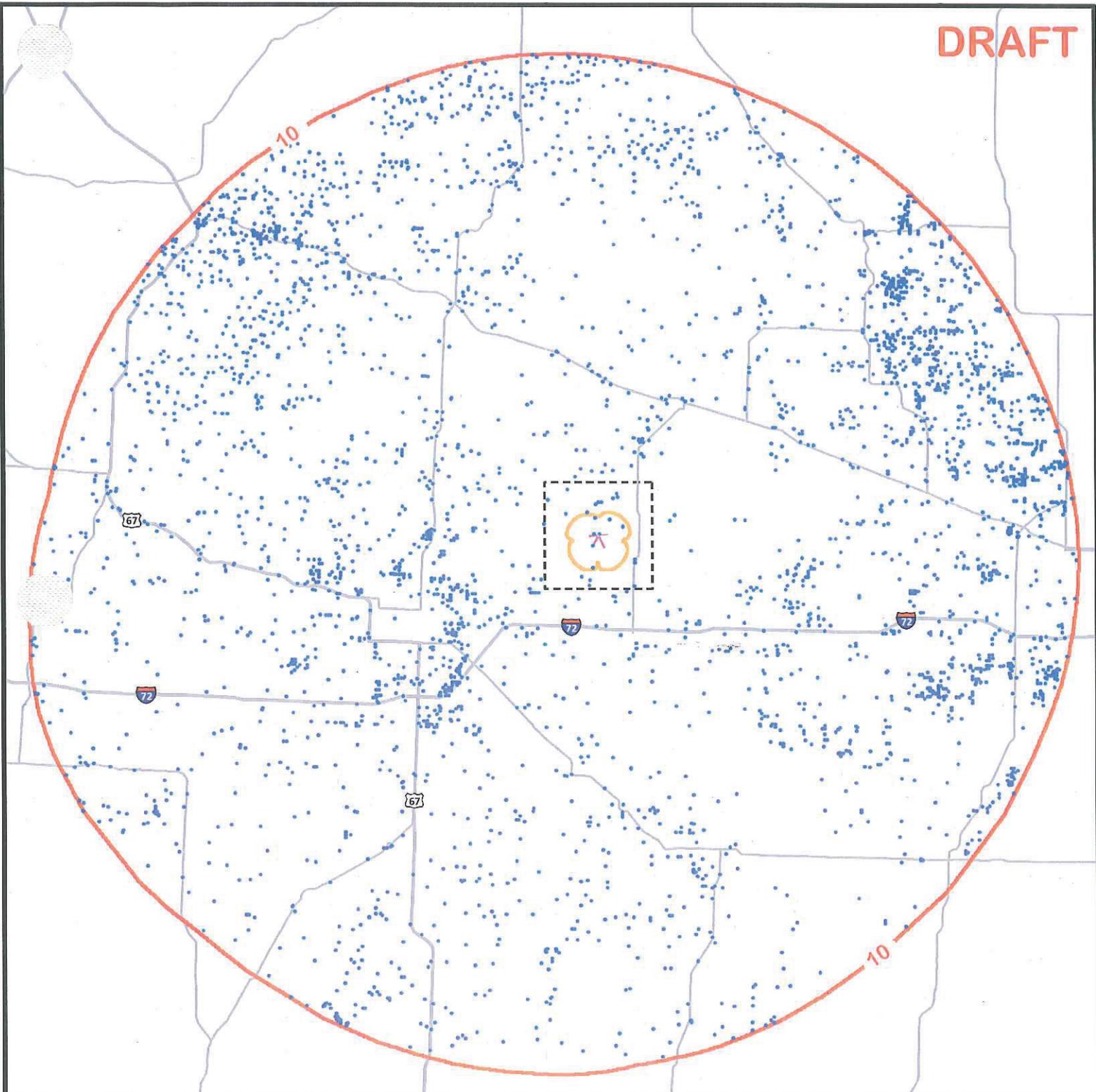
We can only practically account for the habitable structures by reference and can provide the contact information for the 8 county assessor's offices. An important point also is that only two wells within this area penetrate the confining zone and are located in Waverly Field to the south and both of these wells are plugged. The status of these wells is discussed in the UIC permit Supporting Documentation (p. 3.43).

My concern is that an AoR of this size will raise concerns among a large number of people that may not be impacted in any practical way. There are tremendous practical challenges for both the operator and the regulator for managing an AoR of this size. An alternative approach might be to phase in the size of the AoR over time. For example have the AoR track with the growth of the 10psi plume over time. Recall it takes a predicted 60 years to grow to the maximum extent.

We recognize your determination of the "maximum extent of the 10psi contour" as defining the AoR and are providing the information required for the AoR through attachments to this email, but I also ask that you reconsider the basis for the AoR and consider what would be practical to manage.

Respectfully
Tyler

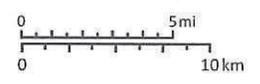
DRAFT



Base Map Projection: 1:498,715 NAD1983 Illinois State Plane West (ft)

• Water Wells
— Highways

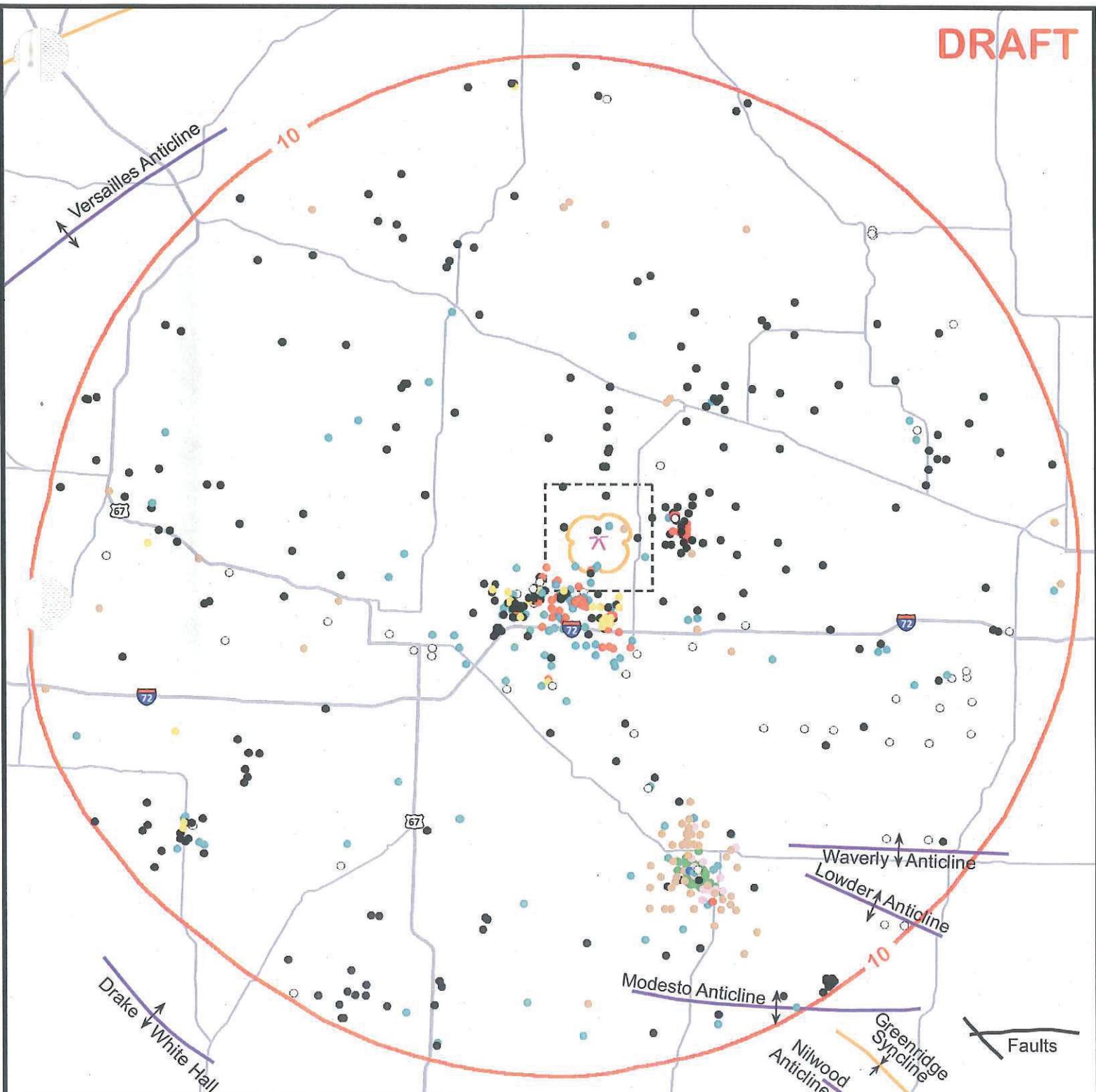
10 Aqueous Pressure Differential (psi) at 60 years after start of CO2 injection (maximum extent of 10 psi contour). Proposed AoR.



— Horizontal Injection Well - - 5 mi x 5 mi Survey Area *cm24_c2 model simulation*
— Max. CO₂ Plume

2014-DCL-AqPressDiff_WaterWell_60yr-001_03-07

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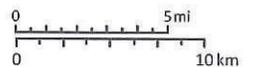
Base Map Projection: 1:498,715 NAD1983 Illinois State Plane West (ft)

- Oil & Gas Wells**
- Abandoned
- Gas Storage
- Observation
- Permit
- Plugged
- Producer
- Salt Water Disposal
- Stratigraphic
- Unknown

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Aqueous Pressure Differential (psi) at 60 years after start of CO₂ injection (maximum extent of 10 psi contour). Proposed AoR.

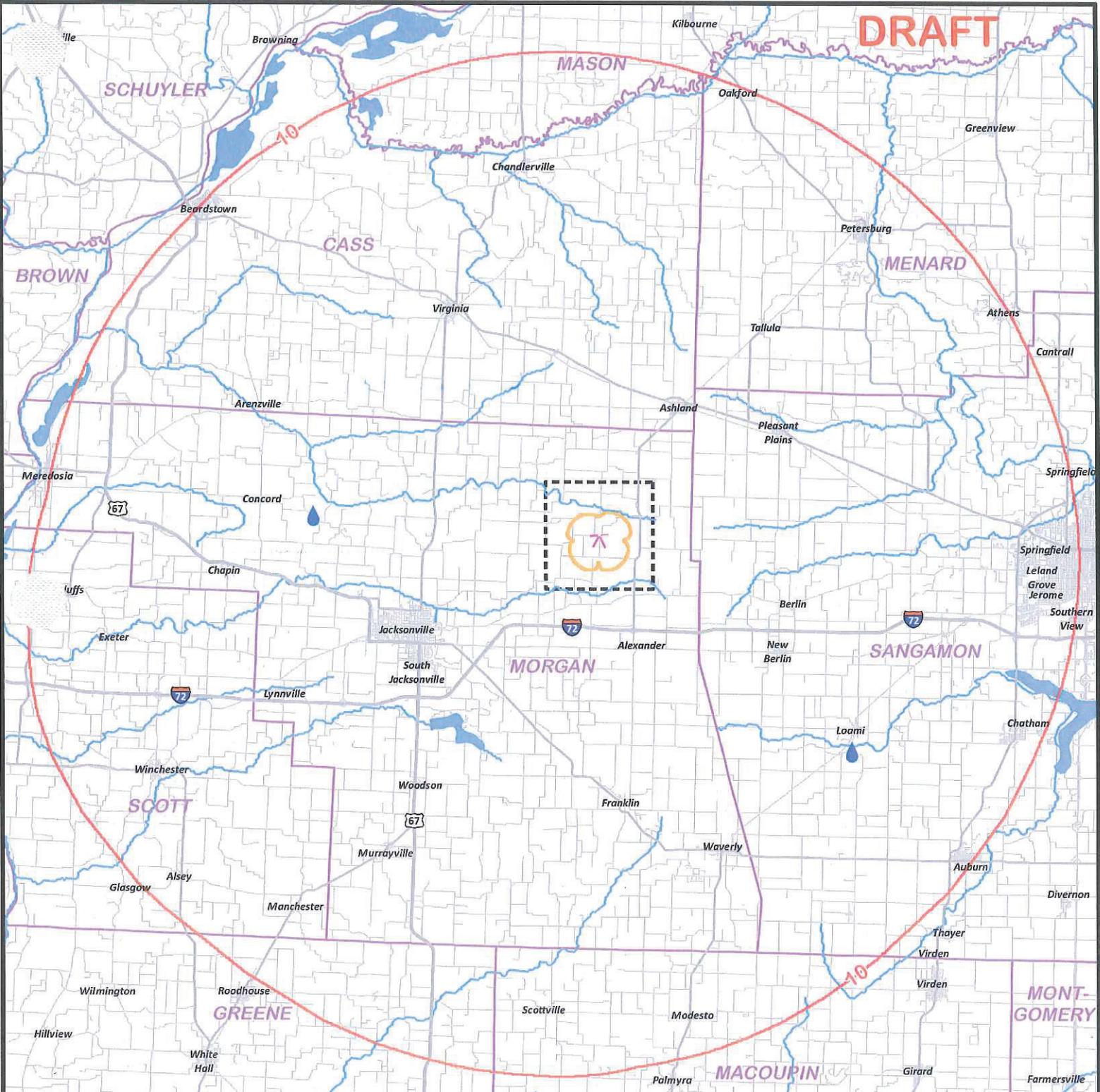
Highways



cm24_c2 model simulation

- Horizontal Injection Well
- - 5 mi x 5 mi Survey Area
- Max. CO₂ Plume

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Base Map Projection: 1:498,715 NAD1983 Illinois State Plane West (ft)

- County
- Lakes
- Rivers
- Springs
- Roads & Highways

-10- Aqueous Pressure Differential (psi) at 60 years after start of CO₂ injection (maximum extent of 10 psi contour). Proposed AoR.

cm24_c2 model simulation
22-yr CO₂ Plume (Max. Extent)

