ALABAMA CARBON STORAGE: DATA SHARING AND ENGAGEMENT (DE-FE0032373)

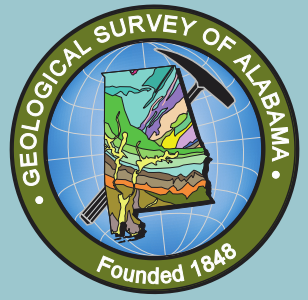
NETL-FECM 2024 PROJECT REVIEW MEETING
AUGUST 6, 2024

Marcella R. McIntyre-Redden

Geological Survey of Alabama

STANDARD DISCLAIMER

NATIONAL ENERGY TECHNOLOGY LABORATORY



CONTACTS

Principal Investigator

Marcella McIntyre-Redden, mmcintyre@gsa.state.al.us

GSA/OGB Financials

Heather Tomlinson, htomlinson@gsa.state.al.us

U.S. Department of Energy (DOE)
National Energy Technology Laboratory (NETL)

Geological Survey of Alabama / State Oil and Gas Board of Alabama (GSA/OGB)
PI: Marcella McIntyre-Redden
Financial: Heather Tomlinson (GSA/OGB)

Advanced Resources International

Denise Hills (Task 2 and 6)

GSA

Chris Hooks
Greg Guthrie
Milo Cameron
Kyle Olsen
Tiffany Olsen
student aides

OGB

Terry Burns (Task 3.3, Task 4)
Eric St. Clair (Task 5)

PROJECT OVERVIEW

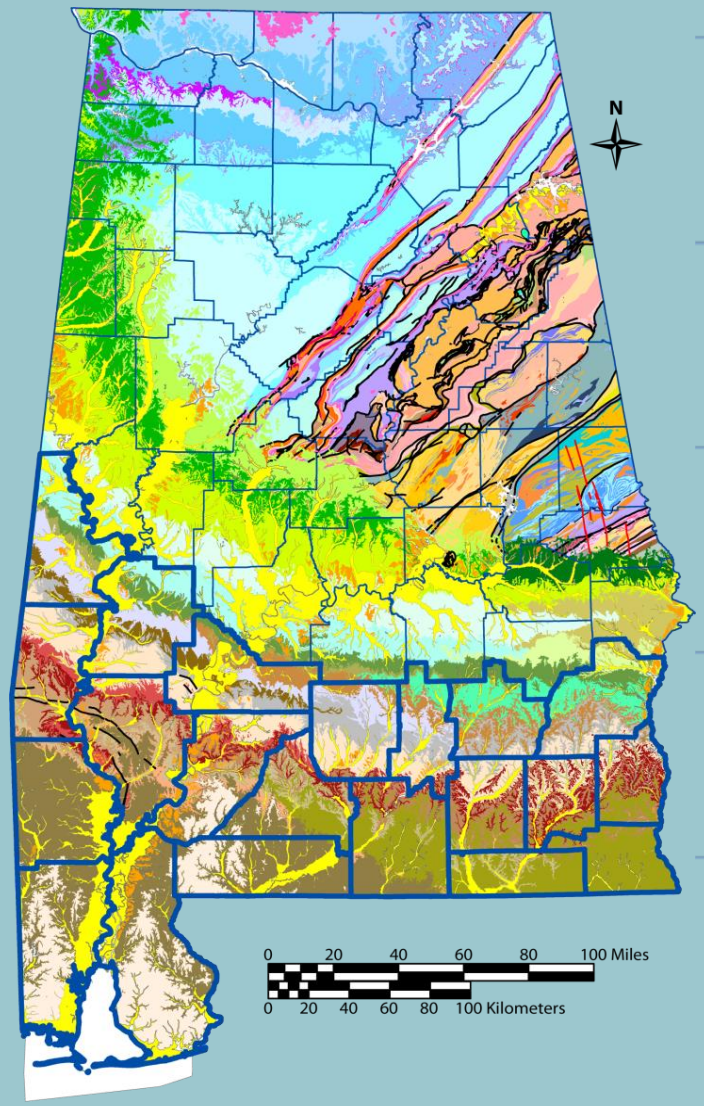
- Performance period: December 2023 to December 2025
- 1 budget period

- DOE Funding: $958,735
- Non-DOE Funding: $241,033
- Total Funding: $1,199,768

PROJECT BACKGROUND

- Leverage the 20+ years of CCS research at the GSA to provide publicly accessible geologic storage data across the Gulf Coastal Plain of Alabama;
- Assist **communities** and the **CCS industry** to make informed decisions; and
- Foster trust through transparency -
- To further the development of CCS in Alabama and work towards net-zero carbon emissions.

PROJECT OBJECTIVES



Collect and compile all CCS-relevant geologic, geophysical, and infrastructure datasets for the study area.

Develop a regional subsurface geologic model for the study area.

Design and implement an online platform to serve CCS data to the public.

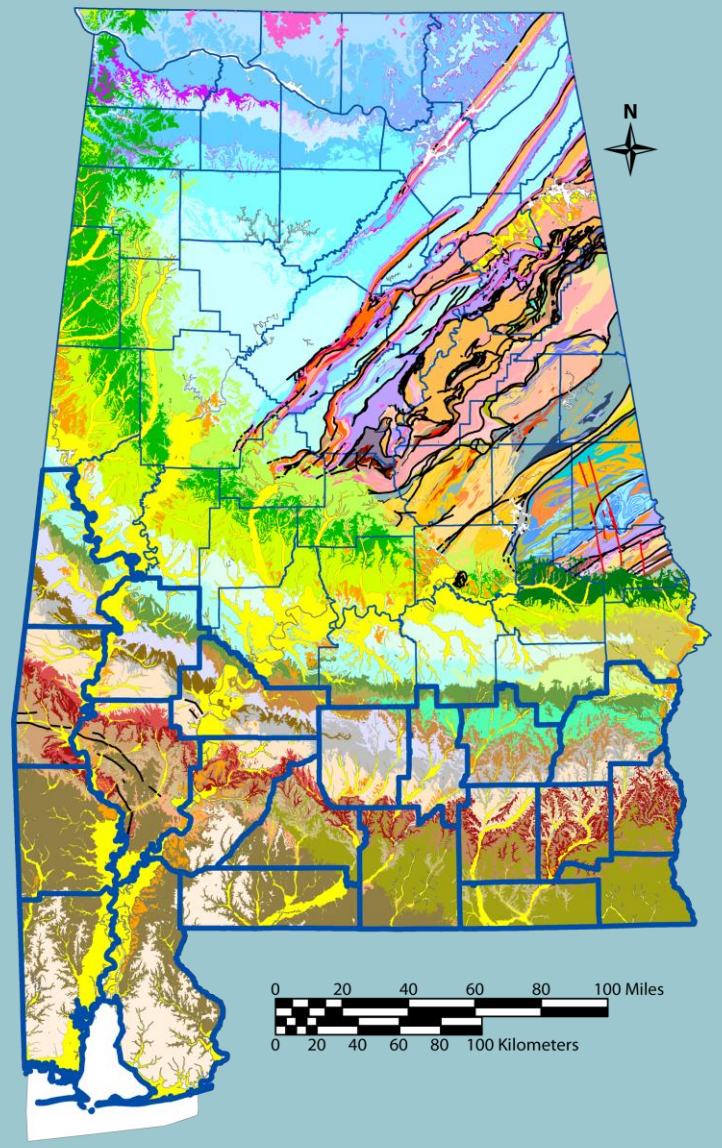
Stakeholder education and outreach.

Ensure energy and environmental justice is central.

PROJECT SUCCESS CRITERIA

- Successful participation and feedback from project stakeholders and disadvantaged communities
- Digitization of 750 log curves, spread across the study area.
- Construction of a geologic model that covers the study area
- Launch of the online data platform, with the ability to download CCS relevant data in various formats.

STUDY AREA



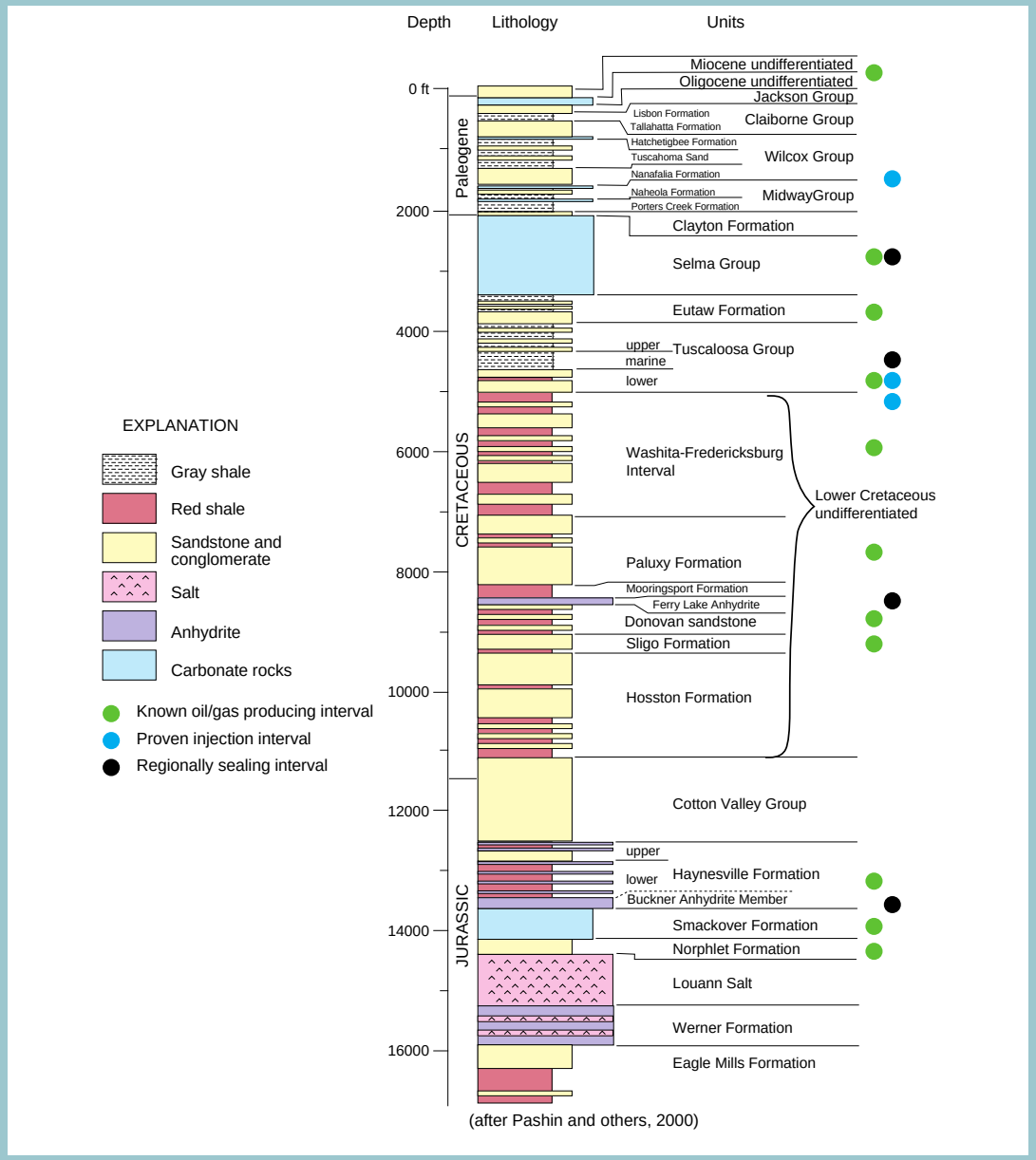
Gulf Coastal Plain of Alabama:

The study area covers the southern third of Alabama – Encompassing all or most of 21 counties.

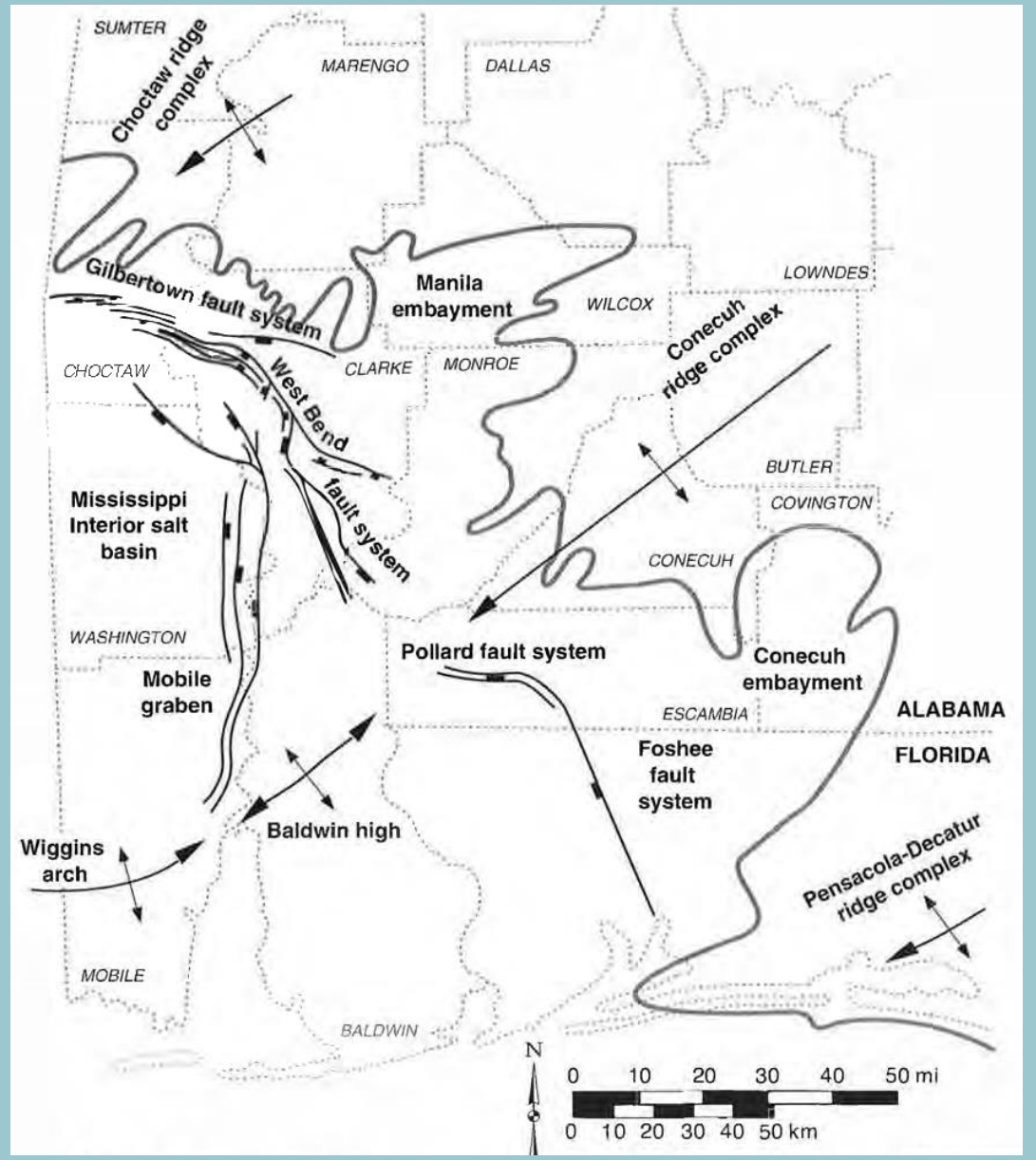
Study area has hosted 5 different DOE funded CCS projects.

Study area includes 4 current commercial CCS projects in varying stages of development.

GEOLOGY



(after Pashin and others, 2000)

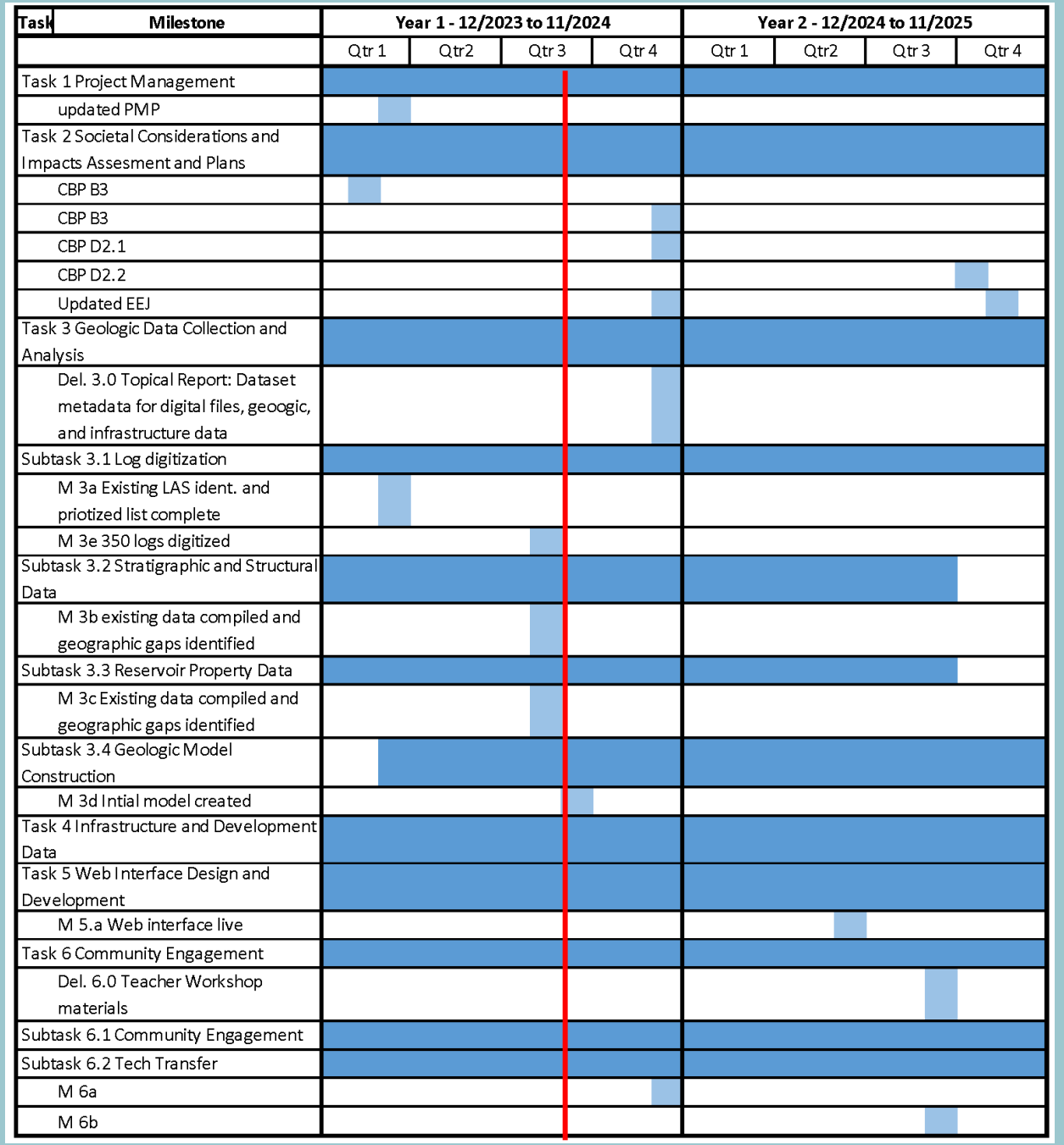


TASKS

Task 1 – Project Management and Planning	
Task 2 – Community Benefits Plan	
Task 3 – Geologic Data Collection and Analysis	3.1 Log Digitization
	3.2 Stratigraphic and Structural Data Collection
	3.3 Reservoir Property Data Collection
	3.4 Model Construction
Task 4 – Infrastructure and Development Data	
Task 5 – Web Interface Design and Programming	
Task 6 - Community Engagement	

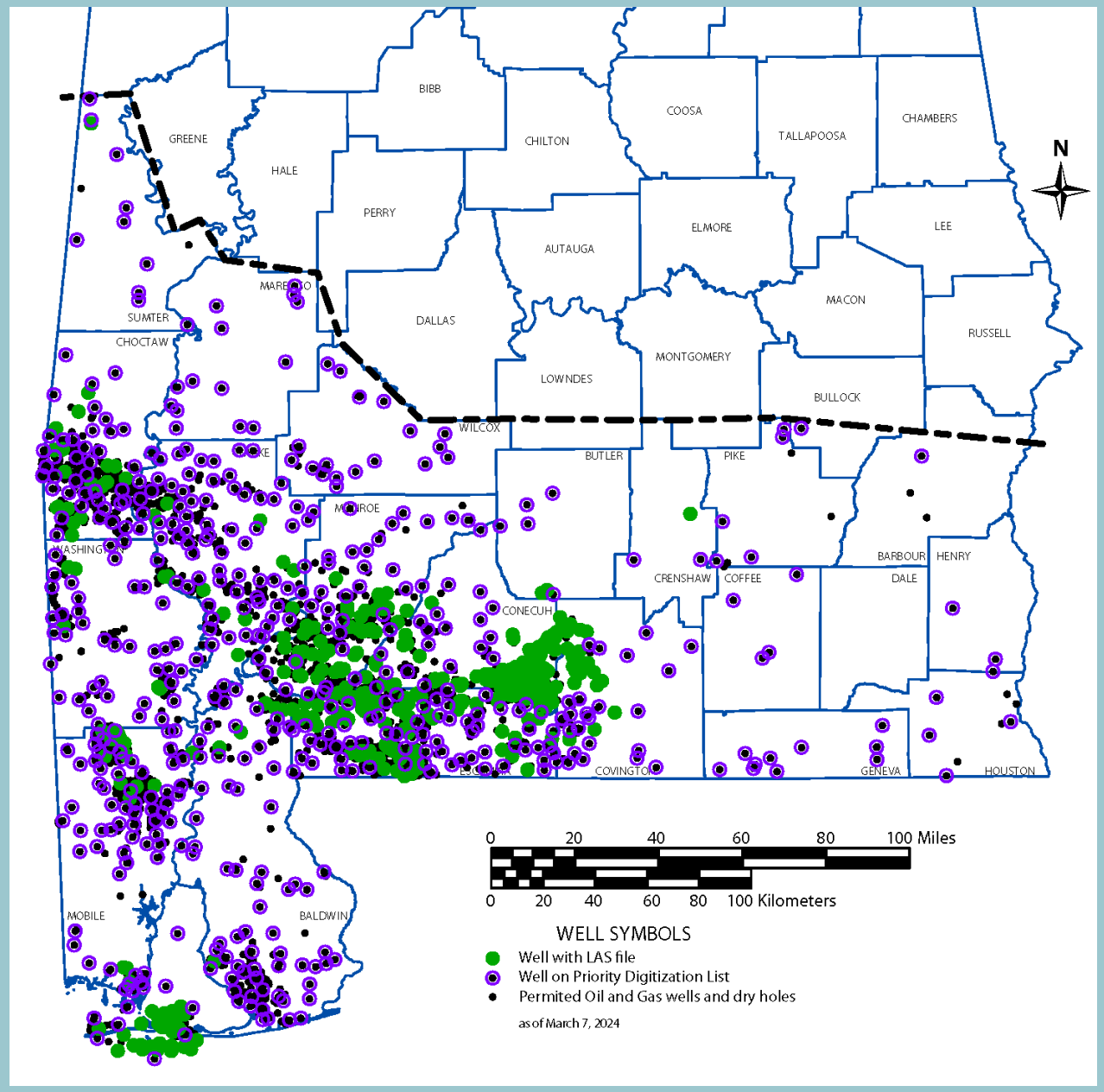
MILESTONES

- Major Milestones & Deliverables:
  - 350 log curves digitized (9/31/24)
  - Topical Report on the data and metadata for digital files (11/30/24)
  - Online platform goes live (5/31/25)
  - Teacher workshop materials (9/31/25)
- Current Status
  - Contract for sub-recipient nearing completion
  - On track to meet the log digitization milestone
  - Legacy data loaded into the database
  - Standardization of log picks has begun



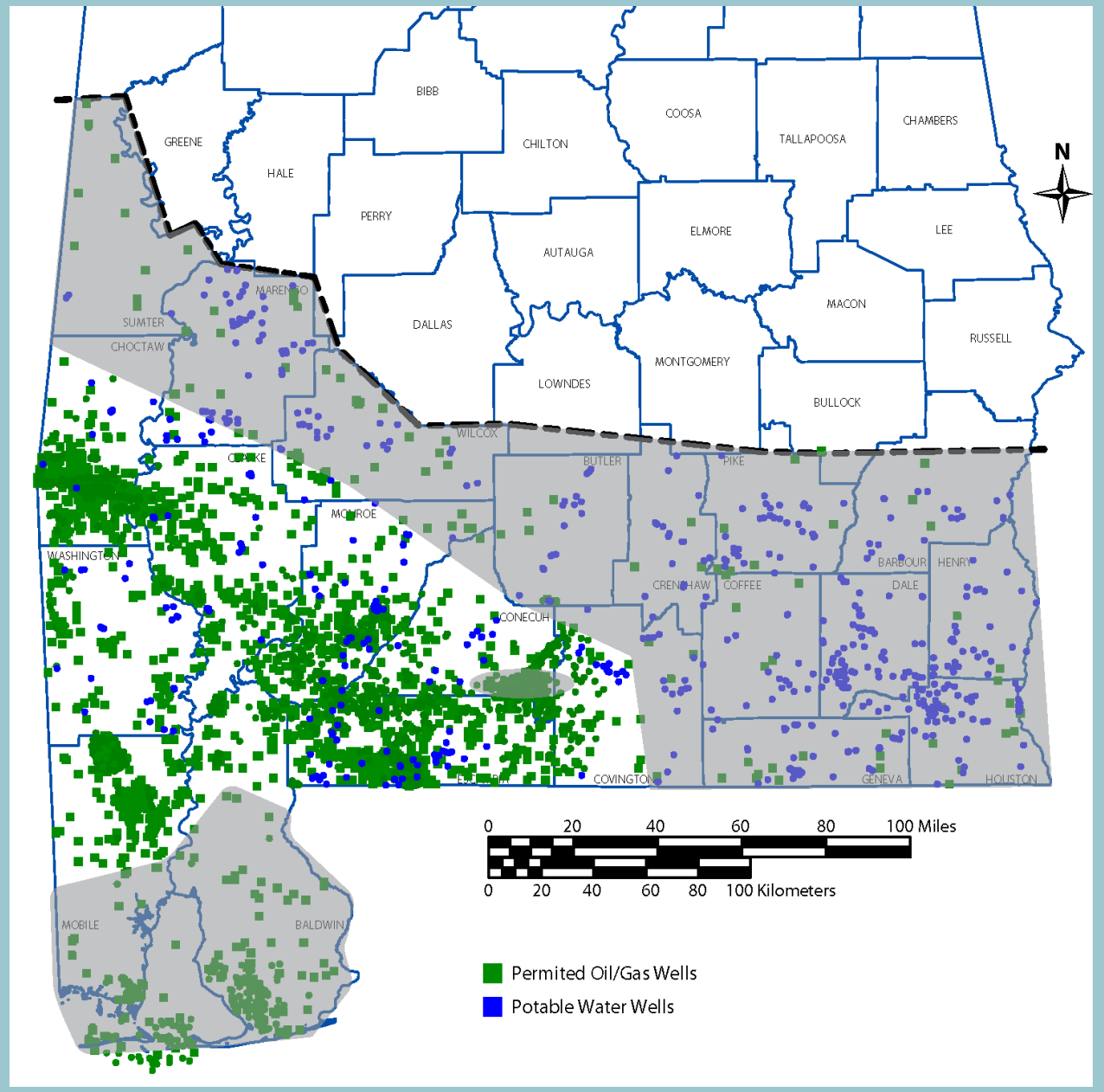
TASK 3 – GEOLOGIC DATA COLLECTION AND ANALYSIS

- Task 3.1 – Log Digitization
  - Over 500 wells in project area currently have LAS files
- As of August 1st:
  - 98+ logs digitized from 70+ wells (226 curves)
  - mostly wells from 1950s-1970s
  - SP, GR, normal Resistivity, Conductivity, and Induction logs most common



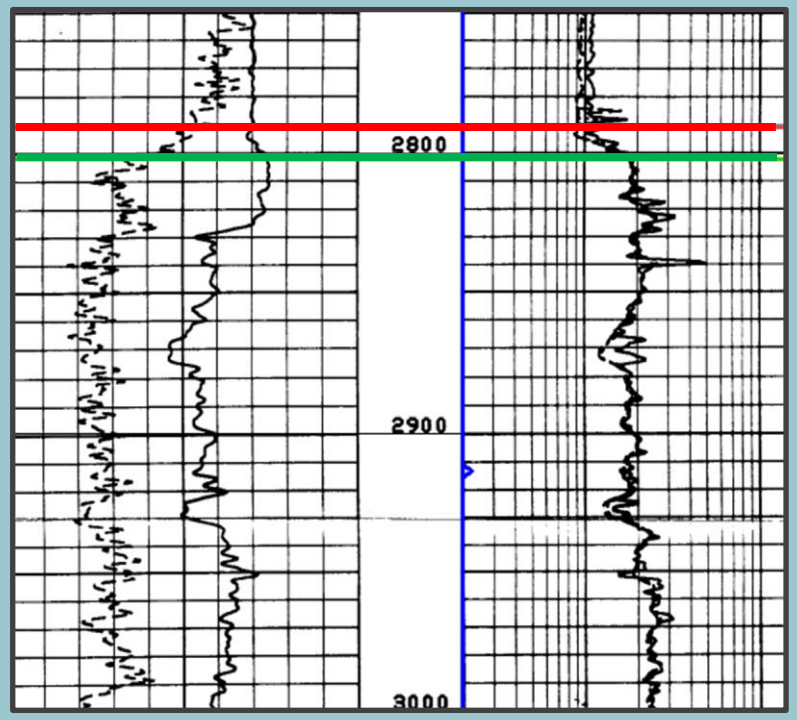
TASK 3 – GEOLOGIC DATA COLLECTION AND ANALYSIS

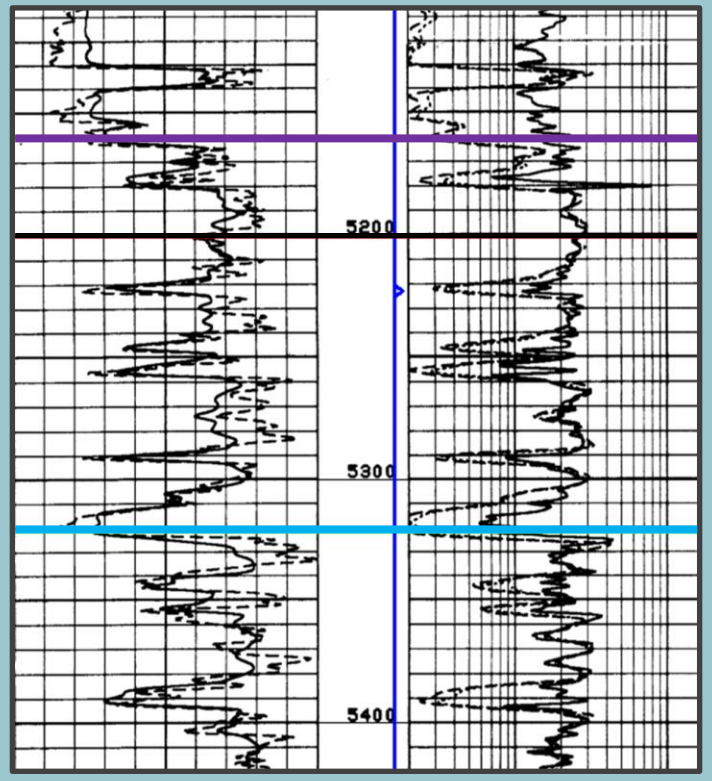
- Task 3.2 – Stratigraphic and Structural Legacy Data
  - Mostly from 5 previous projects, 1 on-going project, and sample descriptions
  - 36,700+ data points from 4824 wells
  - Fill in new tops where no data



TASK 3 – GEOLOGIC DATA COLLECTION AND ANALYSIS

- Task 3.2 – Stratigraphic and Structural Data Compilation
  - Stratigraphic data (formation tops, 'pay' zones, thickness…) from various projects and sources have been compiled into one database
  - Data will be checked for consistency and standardized





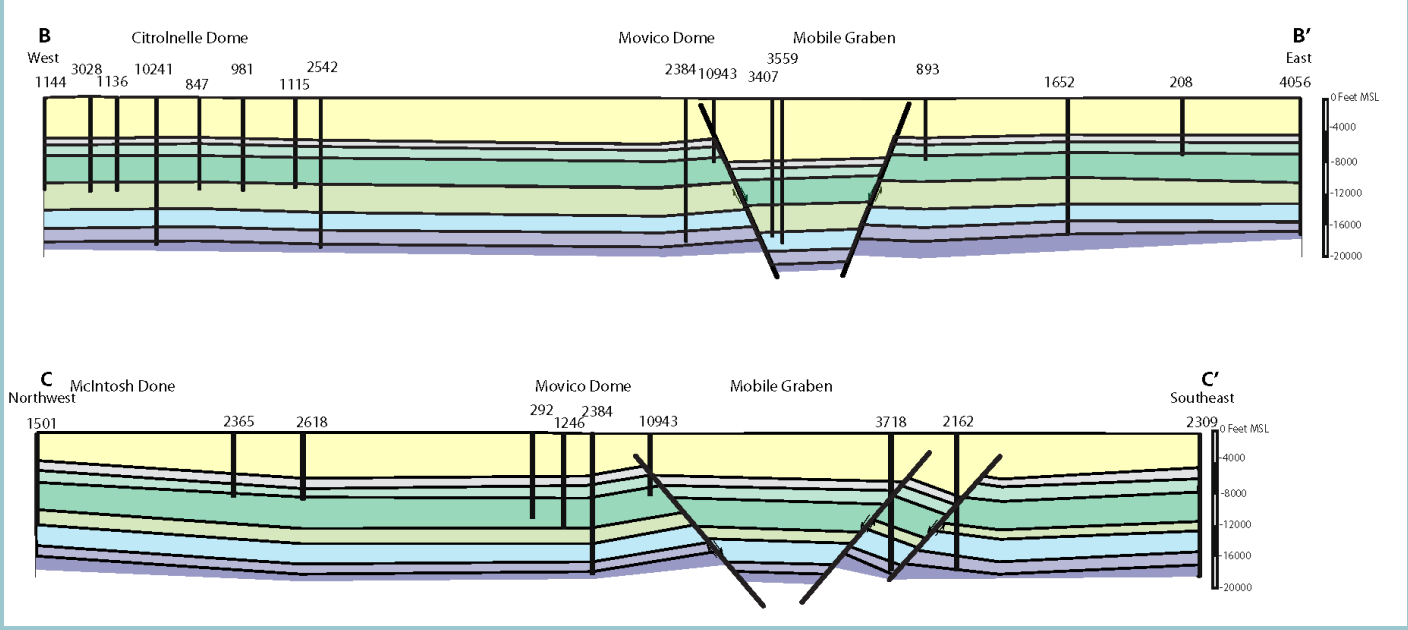
TASK 3 – GEOLOGIC DATA COLLECTION AND ANALYSIS

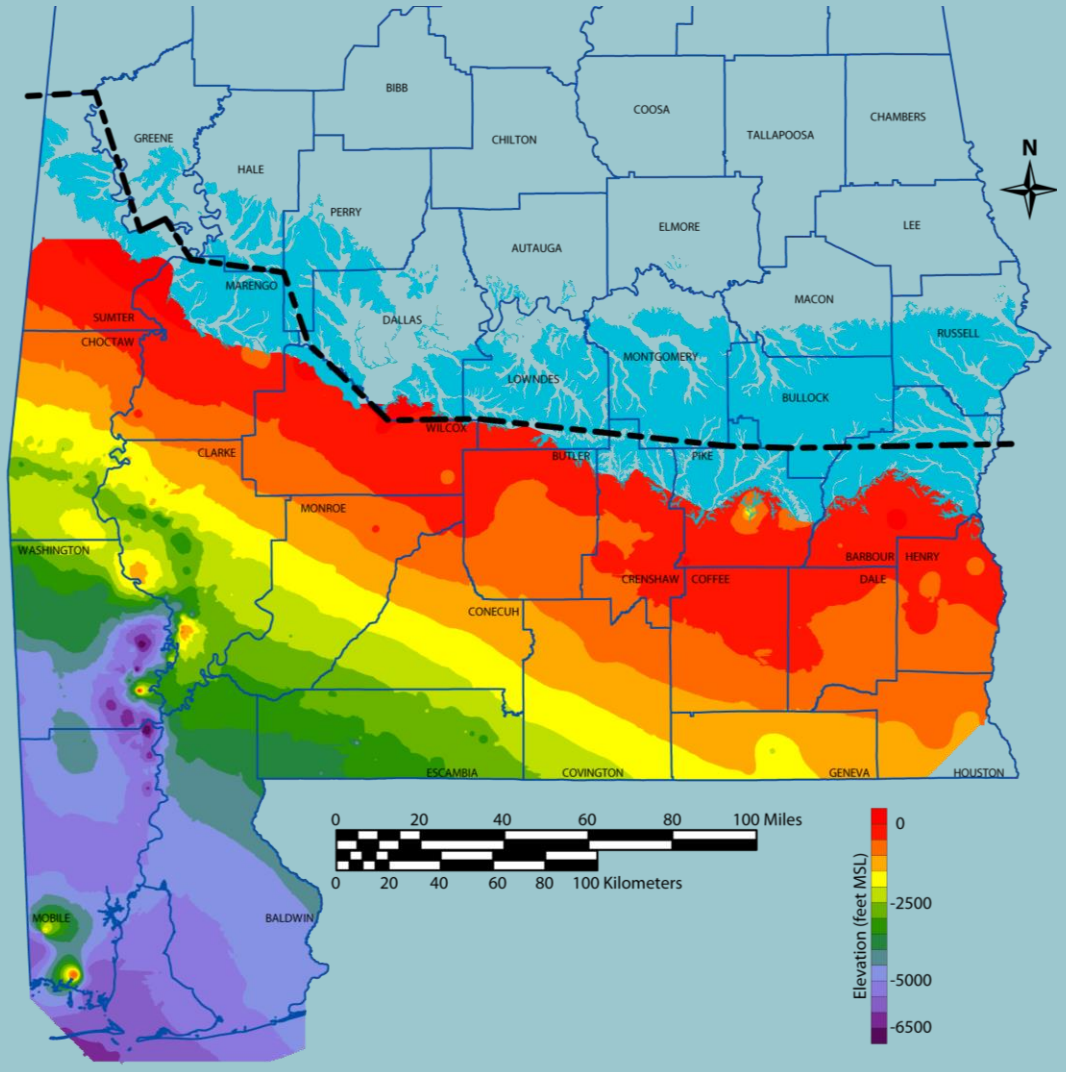
- Task 3.3 – Reservoir Property Data Compilation
  - Porosity, permeability, salinity, pressure data from previous research projects in the area will be assessed for stratigraphic and geographic coverage
  - Existing core analyses, water analyses, mud logs, drillers log, geophysical logs will be used to fill in data gaps, where available.
- As of July 15th:
  - 400+ average formation por/perm data points loaded
  - 150+ core analyses copied into spreadsheet; total of 2750+ measurements
  - Currently looking for additional core analyses and assessing potential salinity and pressure data sources

SMP NO	DEPTH FEET	PERM MD HORZ(KA)	POR %	OIL% PORE
	CORE NUMBER 1	12806-12866	CUT 60 F	
	12806.0 -18.0			
1	12818.0 -19.0	2.72	5.1	0.0
2	12819.0 -20.0	3.24	9.6	0.0
3	12820.0 -21.0	10	14.4	0.0
4	12821.0 -22.0	2.36	8.2	0.0
5	12822.0 -23.0	19	11.4	0.0
6	12823.0 -24.0	7.82	14.8	0.0
7	12824.0 -25.0	1.30	11.9	0.0
8	12825.0 -26.0	2.83	9.1	0.0
9	12826.0 -27.0	99	14.8	0.0
10	12827.0 -28.0	0.26	11.1	0.0
11	12828.0 -29.0	1.93	12.4	0.0
12	12829.0 -30.0	6.49	16.4	0.0
13	12830.0 -31.0	139	15.0	0.0
14	12831.0 -32.0	0.44	13.0	0.0
15	12832.0 -33.0	0.20	6.2	0.0
16	12833.0 -34.0	0.04	5.1	0.0
17	12834.0 -35.0	0.46	8.8	0.0
18	12835.0 -36.0	1.41	11.0	0.0
19	12836.0 -37.0	3.16	11.5	0.0
20	12837.0 -38.0	0.30	9.5	0.0
21	12838.0 -39.0	50	15.6	0.0
22	12839.0 -40.0	144	15.1	0.0
23	12840.0 -41.0	53	17.1	0.0
24	12841.0 -42.0	50	15.7	0.0
25	12842.0 -43.0	97	17.5	0.0

TASK 3 – GEOLOGIC DATA COLLECTION AND ANALYSIS

- Task 3.4 – Geologic Model Construction
  - A 3-D geologic model will be constructed to check the consistency and coverage of existing data and to produce -
  - The final model products - structure contour grids, cross-sections, fault trace maps - which will be available on the data portal.

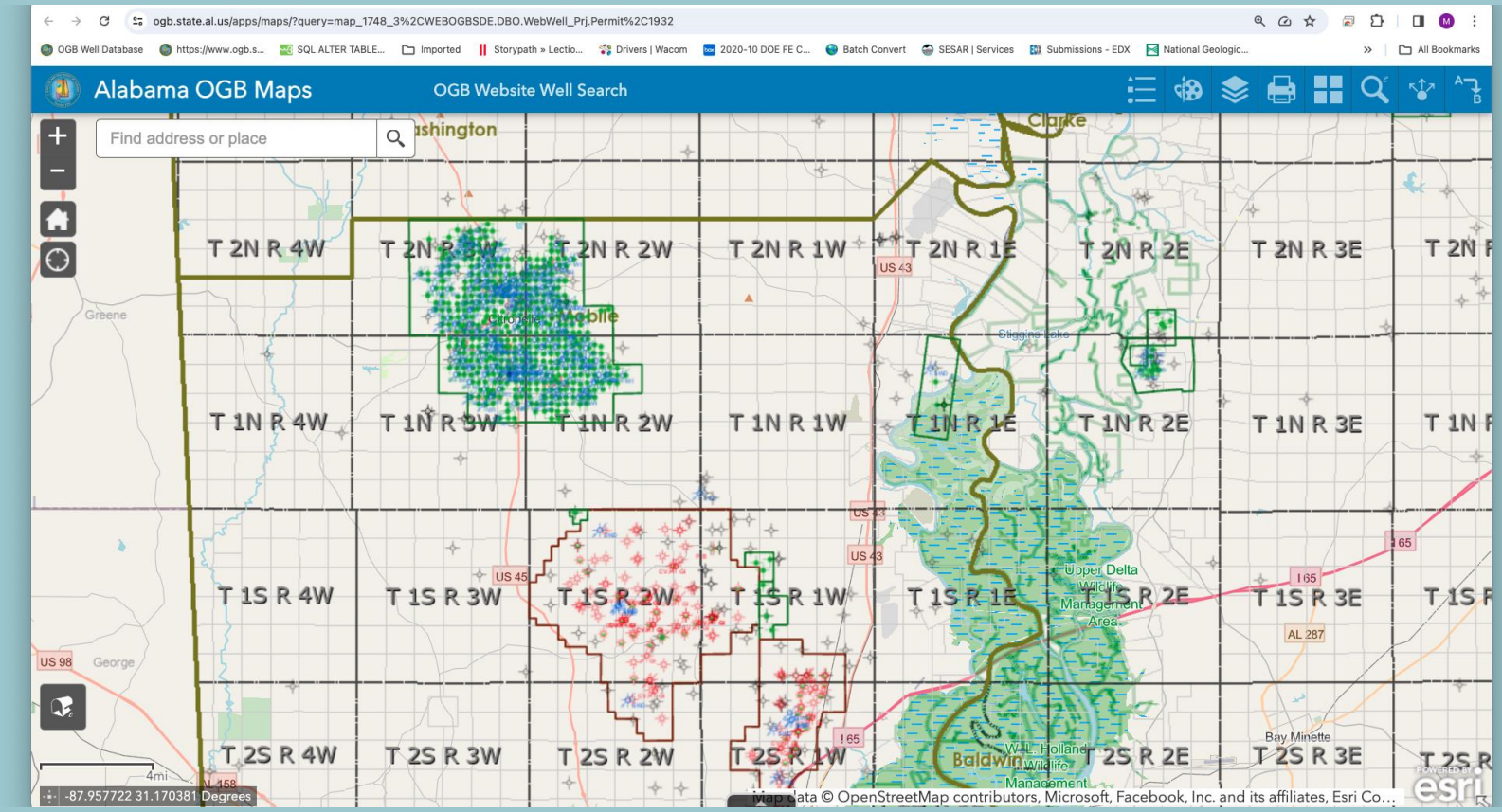




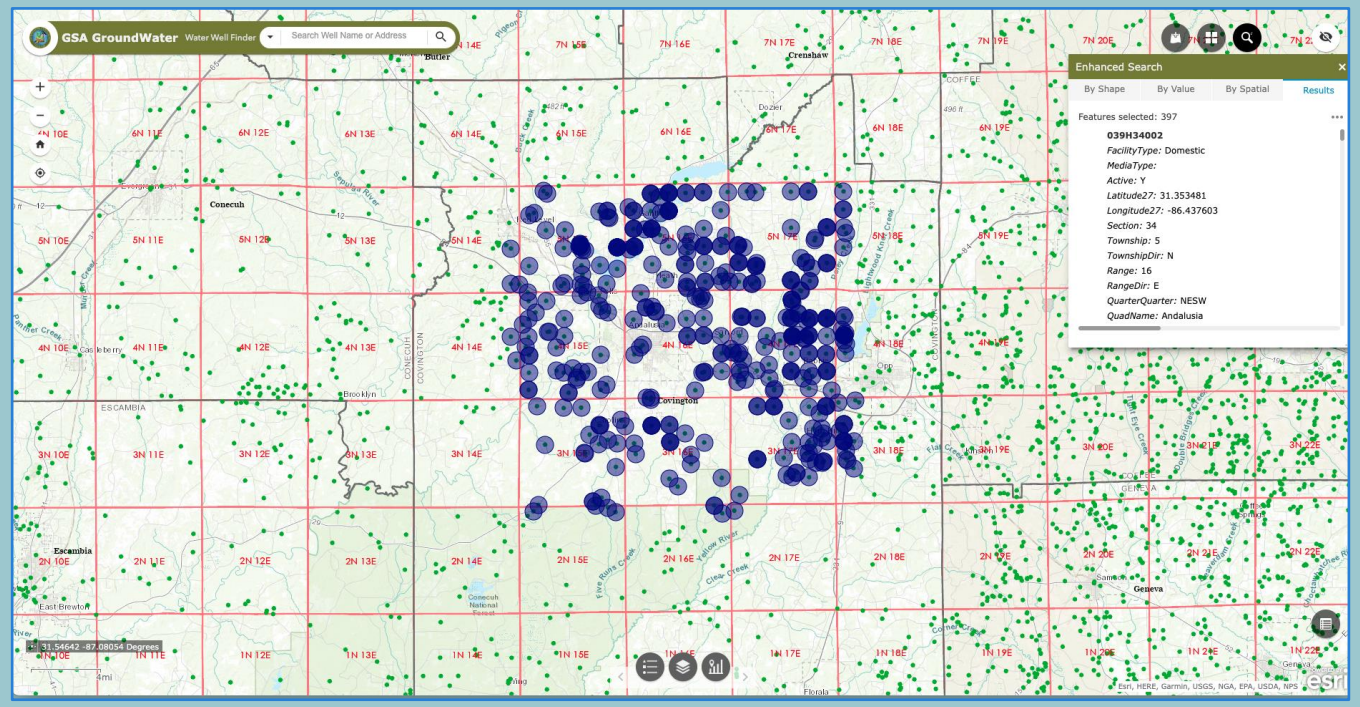
TASK 4 – INFRASTRUCTURE AND DEVELOPMENT DATA

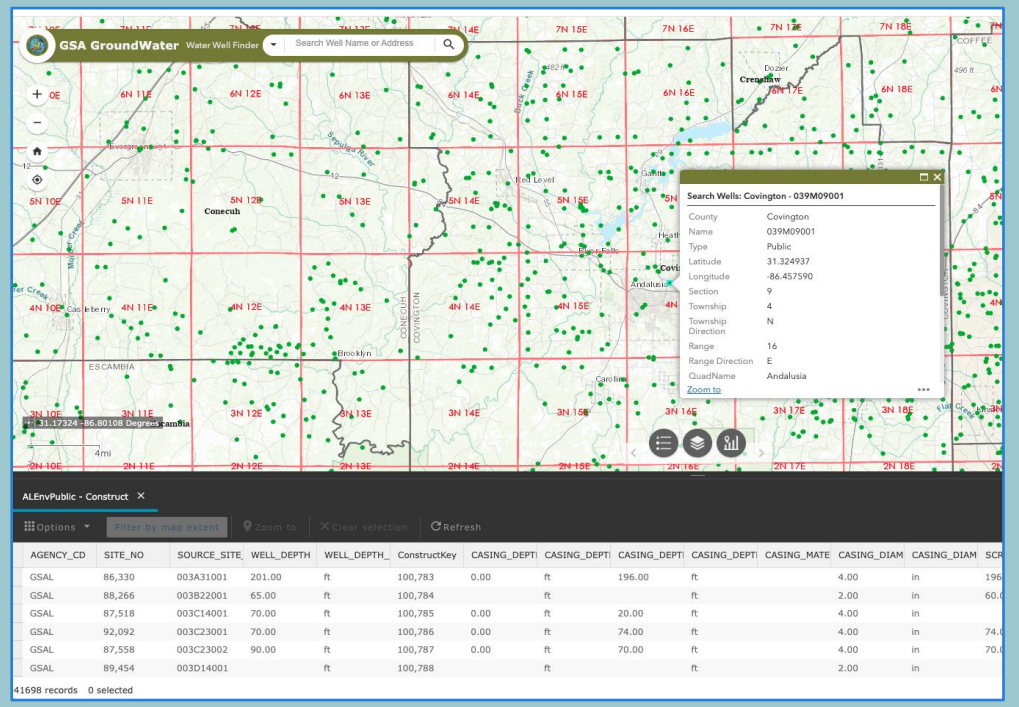
- Compile links to sources for non-GSA/OGB data (i.e. pipeline, property ownership) and appropriate regulations.
- Compile information on CO_2 sources and link to those data.

- Looking at our ability to map in-field “gathering line” pipeline data from OGB exhibits



TASK 5 – WEB INTERFACE DESIGN AND PROGRAMMING





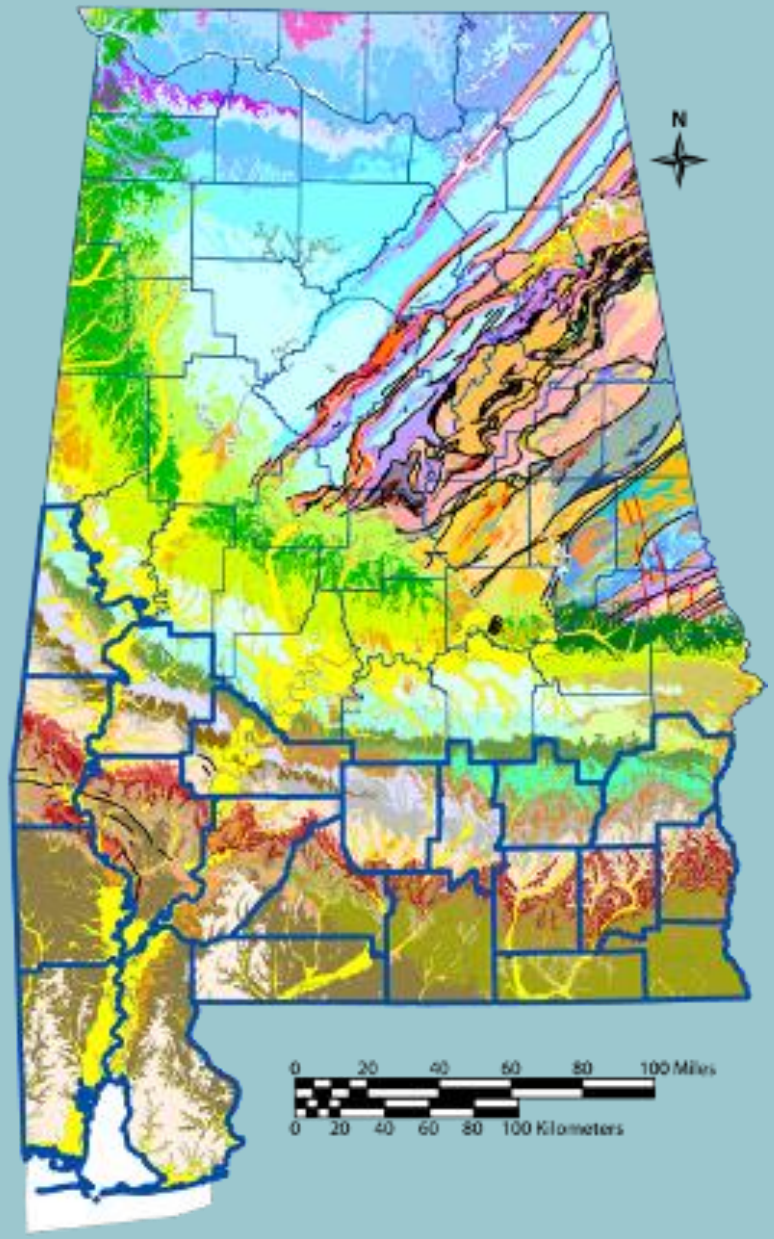
- Designing and programming an online web portal to host the data compiled in Tasks 3 and 4.
- Datasets will be available in commonly used file types for the data – csv files, ArcGIS shapefiles, ArcGIS database, xyz grid files, pdfs.

TASK 6 – COMMUNITY ENGAGEMENT

- Engaging with elected leaders, teachers, students, and community groups:
  - Informing them on CCS development potential in the study area;
  - May include public informational meetings, informational pamphlets, and press releases;
  - Teacher workshop materials will be developed.
- Engaging with CCUS industry:
  - presentations at conferences, workshops, etc.
- Closely aligned with the CBP (Task 2.0)

TASK 2 – COMMUNITY BENEFITS PLAN

- Overarching purpose is to provide foundation for including Energy and Environmental Justice elements into future CCS projects enabled by ACS:DSE
- Project focuses on the 21 counties in the Alabama coastal plain, where overall there are more people on average living in poverty or are otherwise disadvantage than the statewide average
  - 58 identified DACs within the 21 covered counties
  - 29 DACs located within Mobile County, where much of the CBP work will be focused



TASK 2 – COMMUNITY BENEFITS PLAN

Community and Labor Engagement

- ARI and GSA have a long history of engagement in the area and will build on existing relationships as well as develop new relationships with groups such as:
  - Mobile Chamber of Commerce; Baldwin County Chamber of Commerce
  - Alabama State and Local Legislators
  - Environmental Groups (e.g., Mobile Baykeeper)
  - Alabama Poarch Creek Tribal leaders
- Commitments
  - B1. Develop a diverse and comprehensive list of community, labor, and stakeholder contacts for project communications
  - B2. Establish a Stakeholder Advisory Committee (SAC) to guide engagement and outreach efforts
  - B3. Host a community and stakeholder engagement event to include a public presentation on CBP work

Investing in Job Quality and Skilled Workforce

- Overall objective is to expand knowledge of what skills are needed for a CCS workforce, in order to enable programs to support such skill development
- Commitments
  - C1. Promote open lines of communication, high performance, employee safety, and workforce engagement while clearly defining acceptable vs unacceptable behavior in the workplace
  - C2. Coordinate with university partners and host events to discuss career opportunities in the CCS industry
  - C3. Actively engage with state regulatory agencies to stay informed of the regulatory framework for storage operations.

TASK 2 – COMMUNITY BENEFITS PLAN

Diversity, Equity, Inclusion, & Accessibility

- Objective is to support stakeholders from underrepresented groups to advance equity and to foster an environment of diversity, equity, inclusion, and accessibility.
  - Increase educational and employment opportunities
  - Facilitates a more formal talent identification and recruitment pipeline
  - Increase awareness and opportunities for diverse vendors
- Commitments
  - D1. Partner with MBEs, MOBs, WOBs, and VOBs, as appropriate, for contractor support needs
  - D2.1. Identify at least one point of contact and hold at least one introductory meeting with faculty representing at least two Alabama HBCUs or MSIs.
  - D2.2. Host at least one event to communicate STEM-related job opportunities to underrepresented groups and students at an Alabama minority-serving campus.
  - D3. Utilize evidence-based, DEIA-focused education programs for internal training of project staff.

Justice40 Initiative

- Energy and Environmental Justice Assessments
  - Preliminary EEJ assessment will cover all 21 counties in the project area to better determine specific areas of focus (estimated to be completed in Dec. 2024).
  - Final EEJ assessment will build on preliminary EEJ assessment to better define future potential benefits and disbenefits specific to the most impacted areas.
  - Project Team will actively engage SAC, other stakeholders, and SMEs to assist with these assessments
- Potential benefits (primarily to be realized from projects enabled by ACS:DSE) could include:
  - Decrease in environmental exposure and burdens
  - Increase in quality job creation, clean energy job pipeline, and job training

TASK 2 – COMMUNITY BENEFITS PLAN

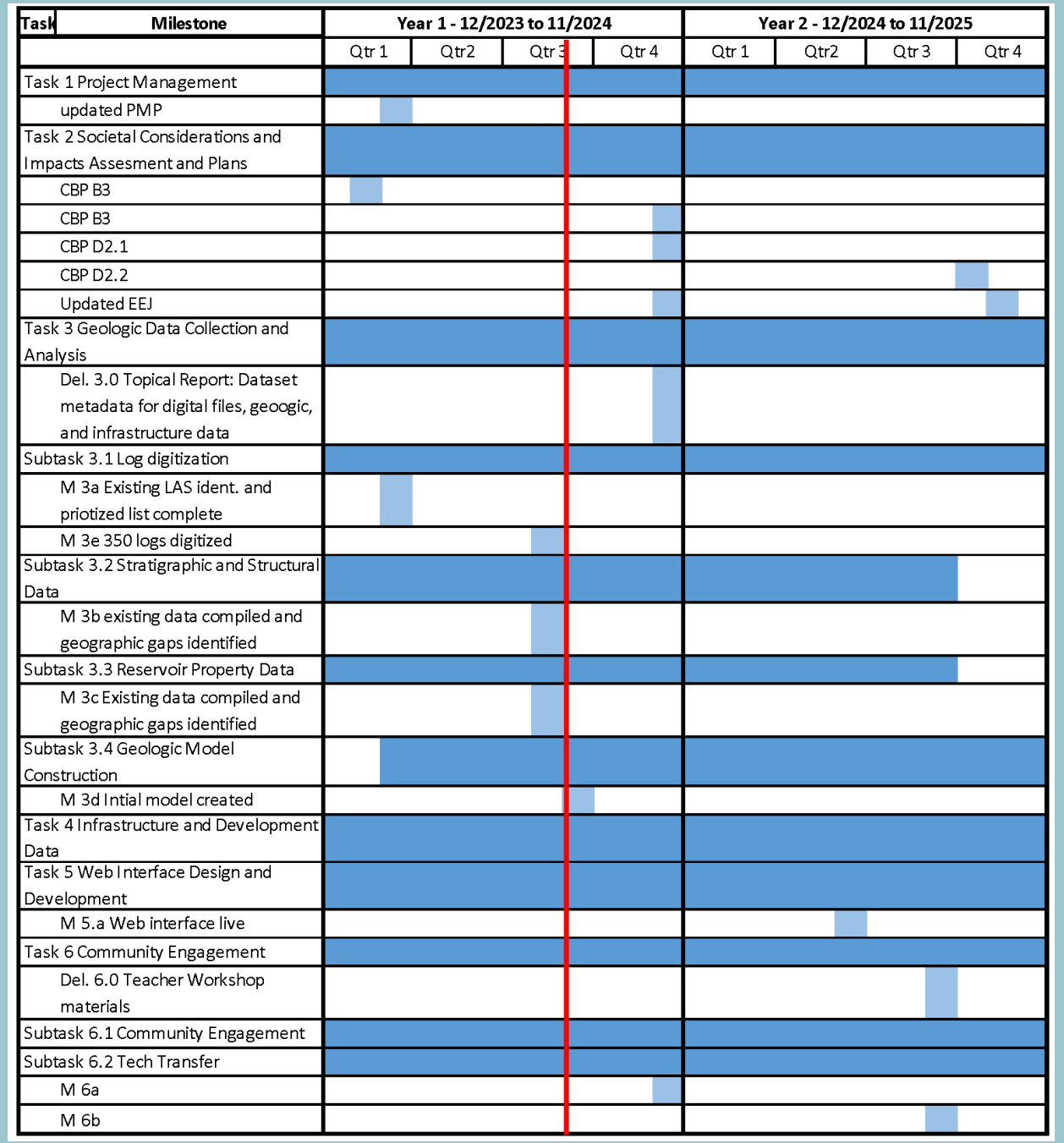
- Within 60 days (of contract completion)
  - Establish project communications list
  - Establish initial SAC
- Within 12 months
  - Host community and stakeholder engagement event
  - Hold at least one introductory meeting with faculty at two Alabama HBCUs/MSIs
  - Preliminary EEJ assessment
- By end of project performance period
  - Host event to communicate STEM-related job opportunities
  - Final EEJ assessment
- Ongoing throughout project
  - Coordinate with university and other partners to discuss career opportunities in CCS
  - Engage with state regulators
  - Explore partnerships with MBEs, MOBs, WOBs, and VOBs
  - DEIA training for internal staff

TASK 2 – COMMUNITY BENEFITS PLAN

CBP Area	Data Collected	Frequency	Update Timeline
Justice40	Socioeconomic data (income, living costs, energy burden); geographic data (locations, local resources); demographic data (ethnicity, gender)	Continuous	11/24 & 11/25
Diversity, equity, imclusion, and accessibility	List of local MBEs and MSIs to engage during project lifecycle; DEIA training feedback	One time	11/24 & 11/25
Investing in Quality Jobs and Skilled Workforce	Inputs related to project health, safety and environmental planning	Periodic	11/24 & 11/25
Community and Labor Engagement	Feedback from SAC; Feedback from community events and other stakeholder engagements	Periodic	11/24 & 11/25

CHALLENGES

- Contracting! - completion this month (hopefully)
- Starting CPB efforts without our CPB lead officially on board
  - ARI (Denise Hills) is ready to hit the ground running
  - Stakeholders Advisory Committee will be created by Sept. 30, 2024
- State legislation
  - Alabama Legislature has enacted Ala. Act 2024-34, limiting diversity, equity, and inclusion (DEI) efforts of state agencies, public universities, and public boards of education, which goes into effect Oct 1, 2024. Unclear as to how this may play out.
  - Alabama Legislature has enacted Ala. Act 2024-340, withholding economic incentive dollars from companies that voluntarily recognize a union, which goes into effect Jan. 1, 2025.



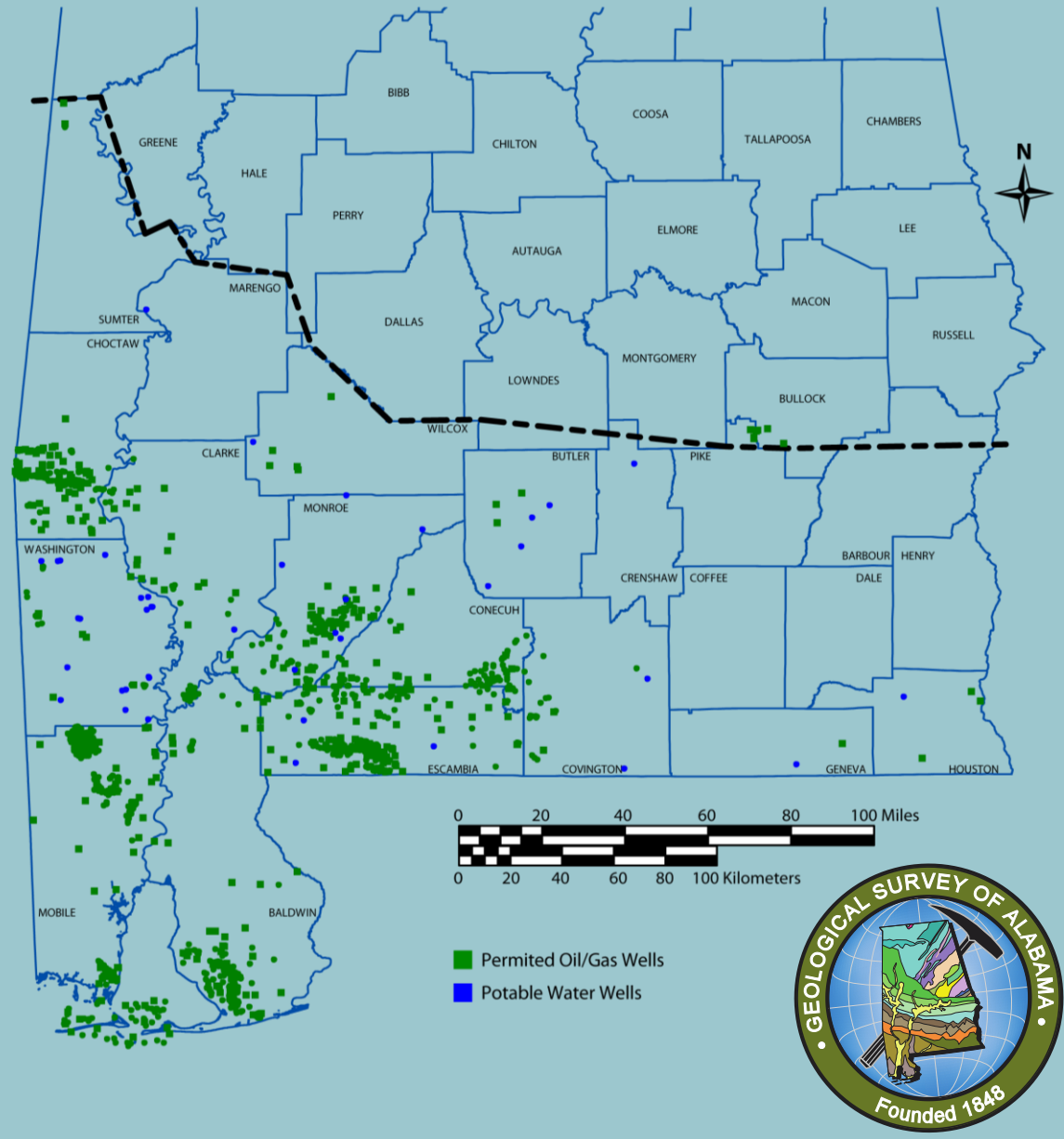
NEXT STEPS

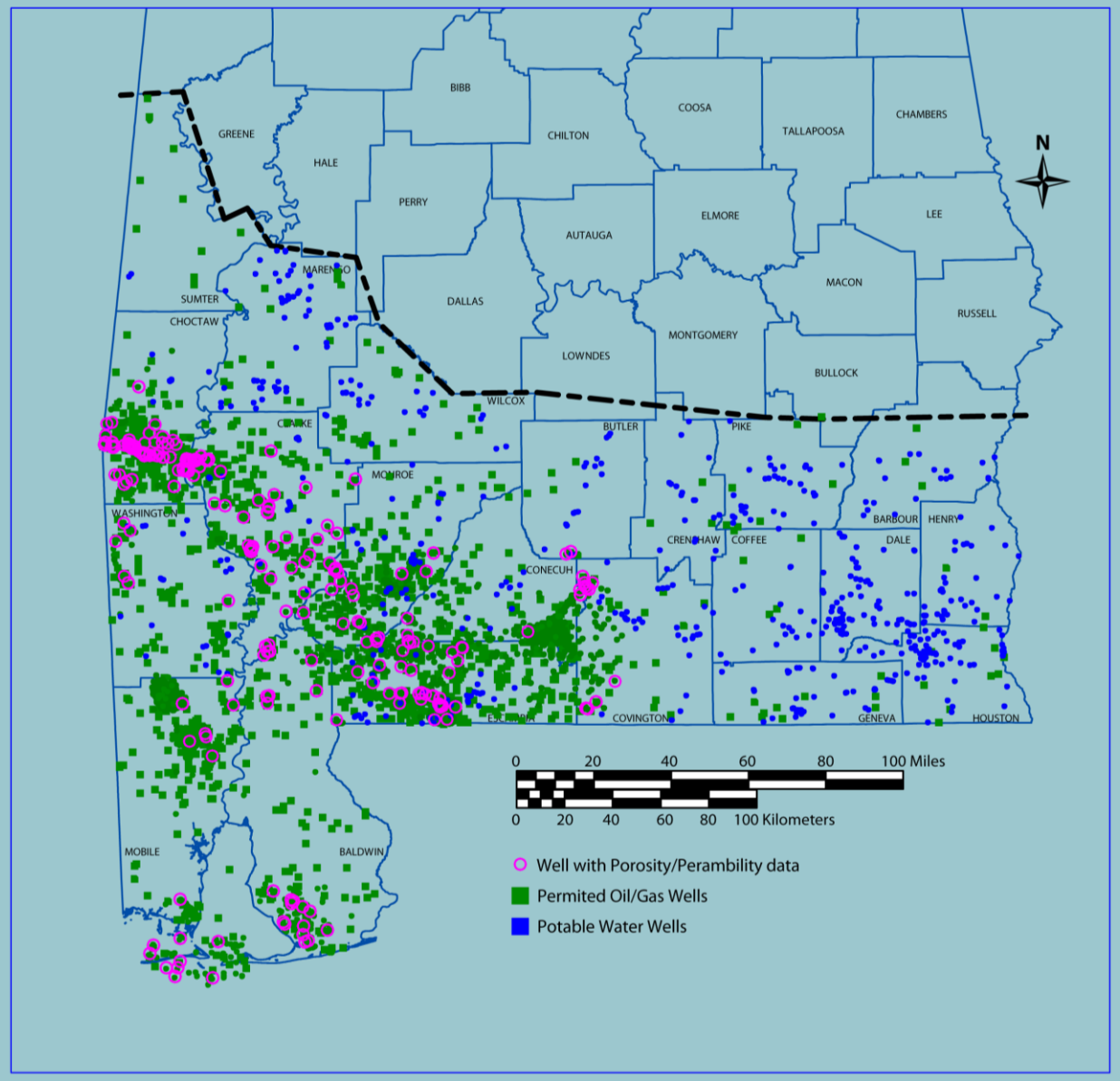
In this Project:

- Establish a Stakeholder Advisory Committee
- Build the regional model
- Design the data portal

And beyond:

- Hold teacher workshop
- Expand area covered by the models





QUESTIONS?

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