CLASS VI PERMIT APPLICATION NARRATIVE
40 CFR 146.82(a)

Sugarberry CCS Hub

Facility Information

Facility Name: Sugarberry CCS Hub

Facility Contact: Sugarberry CCS Hub
14302 FNB Parkway
Omaha, NE 68154

RRC Organization Report Number: 102245

Well Locations: Projection WGS84

Well	County/State	Latitude	Longitude
SB-01	Hopkins, TX	33.202707	-95.338539
SB-02	Hopkins, TX	33.189225	-95.375952
SB-03	Hopkins, TX	33.196028	-95.405035
SB-04	Hopkins, TX	33.219565	-95.434859
SB-05	Hopkins, TX	33.207361	-95.385666

Certification

16 TAC 5.203(a)(1)(B)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Further, I verify that as a Vice President of the corporation applying for this permit that I meet the signatory requirement at 16 TAC 5.203(a)(1)(B)(i).

Larry Carlson
Vice President, Environmental Affairs
Sugarberry CCS, LLC

5/28/25
Date

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List of Acronyms/Abbreviations

ACA	Area of Corrective Action
AoR	Area of Review
BGS	Below Ground Surface
BRACS	Brackish Resources Aquifer Characterization System
CA	Corrective Action
CCS	Carbon Capture and Sequestration
CCUS	Carbon Capture, Utilization, and Sequestration
CFR	Code of Federal Regulations
CO_2	Carbon Dioxide
EPA	Environmental Protection Agency
ERRP	Emergency and Remedial Response Plan
GAU	Groundwater Advisory Unit (of the RRC)
GSDT	Geologic Sequestration Data Tool
Lb/gal	Pounds per Gallon
MIT	Mechanical Integrity Testing
MMT/yr	Million Metric Tons per Year
MPa	Megapascals
MW	Megawatts
Pa	Pascals
PISC	Post-Injection Site Care
Psi	Pounds per square inch
QASP	Quality Assurance and Surveillance Plan
RRC	Railroad Commission of Texas
SIC	Standard Industrial Classification
TAC	Texas Administrative Code
TBD	To be Determined
t/d	Tons per Day
TDS	Total Dissolved Solids
UIC	Underground Injection Control
USDW	Underground Source of Drinking Water
USGS	U.S. Geological Survey

A. Project Background and Contact Information

Sugarberry CCS Hub

Sugarberry CCS, LLC, an affiliate of Tenaska, Inc. (Tenaska), is proposing development of an industrial scale carbon capture and storage (CCS) hub in Hopkins and Franklin Counties, Texas (**Figure 1-1**). The Sugarberry CCS Hub ("the project") area is located north of Interstate 30 and US Highway 67 between the towns of Mt. Vernon, Texas (to the southeast), Sulphur Springs, Texas (to the southwest), Dike, TX (to the northwest), and Hagansport, Texas (to the northeast). The Area of Review (AoR) covers approximately 20,500 acres (32 square miles) and is largely located within Hopkins County along with all injection and observation wells proposed for this CCS hub. A small portion of the AoR extends into western Franklin County as seen on **Figure 1-2**.

The project is seeking to permit and drill five injection wells (SB-01, SB-02, SB-03, SB-04, and SB-05), four in-zone observation wells (IOB-01, IOB-02, IOB-03, and IOB-04), three above-zone observation wells (AOB-01, AOB-04, and AOB-05), and two underground source of drinking water (USDW) observation wells (UOB-01, UOB-04). These wells will be drilled on nine well pads. The location of each well pad and its associated injection and/or observation well is shown in **Figure 1-2.**

To address regulatory requirements per EPA [40 CFR 146.82(a)(2)] and RRC [16 TAC 5.203(b)], **Figure 1-3** shows notable surface and subsurface features in and around the Sugarberry CCS Hub, where the delineated AoR boundary serves as the boundary of the geologic storage facility. **Figure 1-3** includes surface bodies of water (rivers and streams; lakes and ponds), numerous roads, surface structures, pipelines, county lines, and all previously drilled wells (permitted locations, dry holes [active, plugged, or unknown], and BRACS Database water wells) within the Sugarberry CCS Hub AoR. No stratigraphic boreholes; injection wells; producing wells; cathodic protection holes; State- or EPA-approved subsurface cleanup sites; springs; surface or subsurface mines; quarries; faults; or state, tribal, or territory boundaries are located in the Sugarberry CCS Hub AoR according to publicly available data.

In addition, Sugarberry CCS, LLC has included a buffer around the AoR in which corrective action will be performed (**Figure 1-3**, Area of Corrective Action [ACA]). This area was formed by adding a one-mile AoR buffer on the west, south, and east sides of the delineated AoR and extended to the north towards the Mexia-Talco Fault Zone along the 200-psi delta pressure contour line at the end of injection. The ACA buffer may be revised or removed following pre-injection testing and model calibration. This buffered AoR covers 53.18 square miles; a 65.2% increase. The additional area of the buffered AoR is conservatively established to account for computational model uncertainty. Sugarberry CCS, LLC will conduct all corrective action procedures for all artificial penetrations within the buffered AoR. The area in and near the Sugarberry CCS Hub contains few water supply wells and deeper wells related to oil and gas production. Within the AoR and corrective action area, there are 19 penetrations:

Area of Review (14 wells):

- Permitted Location = 3
- Dry Hole – Active or Unknown Status = 7
- Dry Hole – Plugged = 2
- BRACS Database Water Well, depth known = 2

Area of Corrective Action (5 wells):

- Dry Hole – Active or Unknown Status = 4
- BRACS Database Water Well, depth known = 1

The well number, latitude, longitude, well type (i.e., public, domestic), and depth of the wells within the AoR and corrective action area are provided in **Attachment 2.3 of the Area of Review and Corrective Action Plan (Section 2)**. The geologic subsurface within and around the AoR has been studied in the context of hydrocarbon production. Regional studies (e.g., USGS CO_2 storage resource assessments) have shown that the project area has large potential for safely and permanently storing CO_2 in several deep saline reservoirs within the East Texas Basin.

No depth waiver or aquifer exemption is requested for the project since the proposed injection interval is more than 2,000 feet deeper than the deepest USDW in the area (Taylor Group) and proposed injection zones (Woodbine and Paluxy Formations) contain total dissolved solids (TDS) greater than 10,000 mg/L.

Monitoring protocols have been designed to allow Sugarberry CCS, LLC to track the areal and vertical extent of the CO_2 plume, the development of the elevated pressure front, and changes in pressure and fluid composition above the confining zone. These protocols will also provide input data to periodic reevaluation of the AoR through computational modeling of CO_2 plume and reservoir pressures as well as changes in above injection interval conditions to ensure containment of the injected CO_2.

The Sugarberry CCS Hub will be designed to provide safe, secure, and long-term CO_2 storage for CO_2 emissions from key sources.

A.1. Proposed CO_2 Sources and Mass/Volume of Injection

Potential CO_2 sources are power plants, cogeneration plants, hydrogen production facilities, gas processing facilities, refineries, and petrochemical facilities near the Sugarberry CCS Hub. Initial plans are to provide an average of approximately 3.5 MMt per year for 30 years (104.5 MMt total).

A.2. Project Scope and Timeframe

The five proposed injection wells will be located in the center of the Sugarberry CCS Hub with each well located approximately 1.5 to 3 miles apart. Computational reservoir modeling work shows that the five injection wells will be able to safely inject the proposed volume of

CO_2 provided from the sources.

Sugarberry CCS, LLC will initiate injection upon receiving EPA approval for operation of the well. It is anticipated that the 30-year injection period will start in approximately 2029, end in 2059, and be followed by a proposed 50-year post-injection site care period, taking the project to 2109.

A.3. Partners/Collaborators/Stakeholders

Tenaska, Inc. (Tenaska) has made major, corporate-level commitments toward the development of the project. Tenaska is a privately held, independent power company based in Omaha, Nebraska. Established in 1987, Tenaska has a generating fleet over 7,500 MW, is one of the largest gas marketing companies in North America and has balance sheet equity of $3.1 billion. Sugarberry CCS, LLC, an affiliate of Tenaska, will serve as the project owner and will assume liability for the project development, finance, and operation. The project will be conducted entirely within the State of Texas in Hopkins and Franklin Counties. No tribal or territory boundaries will be impacted per 40 CFR 146.82(a)(20) and 16 TAC 5.203(a)(2)(F).

The key project contact is:

Sugarberry CCS, LLC
Ryan Choquette, Sr. Project Manager
Tenaska, Inc.
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Omaha, Nebraska 68154
Claimed as PBI

SCS Engineers
Stephanie Hill, Vice President
Claimed as PBI

The key state contacts are:

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Austin, Texas 78701
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Texas Commission on Environmental Quality Underground Injection Control
Permits Section
P.O. Box 13087
Austin, Texas 78711-3087
512-239-6466, uic@tceq.texas.gov

A.4. Other Permit Information Required Under 40 CFR 144.31(e)

A.4.A. Applicable SIC Codes

Per 40 CFR 144.31(e)(3), the SIC codes applicable to the Sugarberry CCS Hub are:

1. 49530300 Nonhazardous waste disposal sites – primarily engaged in collection and disposal of refuse by processing or destruction or in operation of incinerators/waste treatment plants/landfills/other sites for disposal of such materials;
2. 51690203 Carbon Dioxide – primarily engaged in wholesale distribution of CO_2; and
3. 4619 Pipelines, not elsewhere classified – primarily engaged in pipeline transportation of commodities except petroleum and natural gas.

A.4.B. Permits and Authorizations

Per 40 CFR 144.31(e)(6), the permits and authorizations that will likely be required for the wells at the Sugarberry CCS Hub, the permit/authorization jurisdictions, and the associated project development activities are provided in **Table 1-1.**

Table 1-1. Permits & Authorizations to be Obtained for the Development of the Sugarberry CCS Hub

Permit/Authorization	Activity	Jurisdiction
UIC Class VI Injection Well Permit to Construct	Drilling of Injection Wells	Federal
UIC Class VI Injection Well Authorization to Inject	Injecting CO_2	Federal
Greenhouse Gas Rule Subpart RR Monitoring, Reporting, & Verification Plan Approval	Injecting CO_2	Federal
Section 404 Nationwide Permit	Temporary Impacts to Jurisdictional Waters	Federal
Geologic Storage Facility Permit	Construction & Operation of Injection Wells	Texas Railroad Commission
Permit to Drill, Deepen, or Convert a Well	Drilling of Injection & Observation Wells	Texas Railroad Commission
TPDES Construction General Permit No. TXR150000	Management of Stormwater During Construction	Texas Commission on Environmental Quality

GSDT Submission - Project Background and Contact Information

GSDT Module: Project Information Tracking
Tab(s): General Information tab; Facility Information and Owner/Operator Information tab

Please use the checkbox(es) to verify the following information was submitted to the GSDT:
☒ Required project and facility details ***[40 CFR 146.82(a)(1)]***

B. Site Characterization

The following section presents the results of a geologic, hydrologic, and hydrogeologic study for the proposed Sugarberry CCS Hub

Geology in the area consists of a number of stacked units (**Figure 1-4**) interpreted as repeated oceanic transgression-regression sequences on the ancestral Gulf Coast. Formations of particular interest generally are interpreted as coastal beach, sand bar, or inland-near coast environments that resulted in the deposition of coarser, more permeable units. Formations dip shallowly to the south-southeast. Two formations are to be targeted, the lower Cretaceous Paluxy Formation and the upper Cretaceous Woodbine Formation. Both formations have been identified previously (e.g. Roberts-Ashby et al., 2012) as regional units of interest for CCUS projects. Between them are the Fredricksburg and Washita Groups, which consist of repeated sequences of shale, limestone, and thin sandstones. Core data and geophysical logs described in **Section B.4** were used to determine formation thicknesses, porosity, and permeability (**Table 1-2**), which all show suitable parameters for CO_2 storage. In addition, logs show laterally extensive permeable units in both formations, allowing for high CO_2 storage. Thicknesses referenced in **Table 1-2** are estimated net sand thicknesses in these main continuous units.

Table 1-2. General Parameters for Primary Injection Zones

Parameter	Value
Woodbine Aquifer thickness (ft)	200
Woodbine Porosity (%)	20
Woodbine Permeability (mD)	433
Paluxy Aquifer thickness (ft)	180
Paluxy Porosity (%)	20
Paluxy Permeability (mD)	433

Overlying the Woodbine Formation is the Eagle Ford Formation, which locally is primarily the Eagle Ford Shale and is identified as the confining unit that will contain CO_2. The topmost portion of the Eagle Ford is the Sub Clarksville Member, a sand unit that is the first permeable formation above the target reservoirs and will host monitoring wells to detect any CO_2 or brine leakage from the target reservoirs. The Sub Clarksville is not a USDW. Above the Eagle Ford Group are the Austin, Taylor, and Navarro Groups. These primarily consist of chalk and shale units. Based on salinity calculations and the assessment of the Railroad Commission of Texas Groundwater

Advisory Unit (see **Appendix A**), the lowermost USDW is in the Taylor Group at about 1,600 to 1,800 ft BGS (-1,200 to -1,400 feet below sea level).

In summary, the Sugarberry CCS Hub is in regionally favorable geology with repeated transgression-regression series that have resulted in numerous stacked permeable reservoirs separated by impermeable formations that will prevent the leakage of CO_2. All formation targets are far below the USDW with significant thicknesses of low-permeability shales and chalks between them. Additional detail is provided in subsequent parts of this report. **Section B.1** describes the geological, hydrological, and structural setting of the project. **Section B.2** provides supporting visuals including maps and cross sections. **Section B.3** discusses identified faults nearest to the injection area. **Section B.4** provides additional information specific to the Woodbine, Paluxy, and their respective confining units. **Section B.5** discusses known geomechanical and petrophysical information. **Section B.6** outlines known seismic sources within 60 miles (100 km) of the project. **Sections B.7 and B.8** discuss the hydrology and salinity information as currently known. **Section B.9** discusses geochemistry and known potential for chemical reactions. Finally, **Section B.10** presents the demonstration that the target site is suitable for development and large-scale CO_2 injection.

B.1 Regional Geology, Hydrogeology & Local Structural Geology [40 CFR 146.82(a)(3)(vi)]

The Sugarberry CCS Hub will be developed in the Woodbine and Paluxy Formations of northeastern Texas. The interval between these formations consists of the Fredricksburg and Washita Groups, which consists primarily of shale and chalk units and is unlikely to provide significant storage. The Woodbine underlies the impermeable Eagle Ford Shale, which forms a consistent regional seal and will serve as the confining unit for the site. Dynamic simulations do not suggest that the supercritical CO_2 plume will reach the main local structure of the Mexia-Talco Fault Zone to the north (**Figure 1-5**).

B.1.1 Data Used to Develop the Model

The data used to develop the geologic model of the Sugarberry CCS Hub include publicly available well log and testing information, two-dimensional (2D) seismic data, and published literature. The depositional sequence for the Woodbine, Paluxy, and related formations have been extensively described regionally across the Gulf Coast due to extensive petroleum resource extraction in the region since the early 20th century (e.g. Alexander, 1951; Caughey, 1977; Hager and Burnett, 1960; Hentz et al. 2014; Gifford, 2021). The US Geological Survey has identified the formations as potential CO_2 storage targets (Roberts-Ashby et al. 2012), and the Woodbine and Paluxy were subject to focused evaluation by the NatCarb regional study in Texas (US DOE, 2015). A variety of journal publications and other academic work have focused on the depositional history (e,g, Caughey 1977; Evans 2022; Dutton et al. 1996; Hentz et al. 2014) and petrology (e.g. Owen, 1979; Wagner, 1978).

Further local information is drawn from 54 geophysical logs acquired from the Texas Geophysical Company ASA (https://www.tgs.com/; **Figure 1-5**). 2D seismic lines were acquired from Seismic Exchange Inc (https://www.seismicexchange.com/). Drilled well information includes location,

deviation surveys, geophysical logs, hydrocarbon production, and wastewater injection rates. Each well log may contain the following information:

- Measured Depth
- Gamma Ray
- Neutron Porosity Sandstone
- Density Porosity Sandstone
- Bulk Density
- Spontaneous Potential
- Caliper
- Shallow, Medium, and Deep Resistivity
- Sonic

The White W.K. #1 (API #42223300610000) well serves as the type log (see **Appendix B**) for the primary upper confining unit, the Lower Eagle Ford Shale Formation, and proposed injection intervals of the Woodbine and Paluxy Sandstone Formations. Geologic formation tops were picked on 52 of the geophysical logs that intersect the top and bottom of the Woodbine Formation, and 44 of the wells that reach the bottom of the Paluxy Formation. A synthetic seismogram was generated from the White W.K. #1 sonic log and correlated with seismic data to establish the depths of formation tops and to tie the seismic data to the well data, then geologic formations were mapped based on existing 2D seismic lines. Structure and isopach maps were created using the combination of geophysical logs and 2D seismic data.

Sugarberry CCS Hub licensed 65.7 linear miles of existing 2D seismic lines that transect the AoR (**Figure 1-5**). This data was used to interpret site-specific and regional geologic structure, to determine lateral continuity of the injection units and confining units, and to identify any undetected faults. During the synthetic seismogram creation, the 2D seismic lines were tied to sonic measurements taken in the White W. K. #1 well (**Appendix B**) to correlate the structural interpretation to the porosity and permeability model developed using the well log data. Together, these data sets were used to build a 3D Static Earth Model (SEM) in the RockWorks geological modeling software suite, representative of the geologic and petrophysical characteristics within the Sugarberry CCS Hub project location with input data. The areal extent of the 3D SEM is shown in **Figure 1-6**.

B.1.2. Regional Setting

The East Texas Basin is a structural embayment of the Gulf Coast Basin in which thick sedimentary packages are bounded to the north and west by the Mexia-Talco fault zone (Hager and Burnett 1960) and to the east by the Sabine Uplift (Hentz et al. 2014). Sediment in the area consists primarily of siliciclastic facies interpreted as an outer-shelf depositional environment (Hentz et al. 2014), with sedimentary grain size and thicknesses varying with transgressive and regressive sequences. The sediments for this stratigraphic section derive from the highlands to the north and the Sabine Uplift to the east, with sediment transport to fan and deltaic deposits along the ancestral continental shelf; consequently, sediment generally thickens and deepens to the south. Permeable sedimentary packages include facies interpreted as fluvial channels, some coarse overbank deposits, and beach facies, while intra-reservoir baffles include fine-grained overbank,

lacustrine, and intermittent sea level high stands. More substantial long-duration sea level rises result in confining units such as the lower Eagle Ford Shale. A map of regionally important features is provided in **Figure 1-7**, and a regional cross section is shown in **Figure 1-8.**

The geologic history of the Sugarberry site and the greater East Texas Basin is primarily influenced by the Paleozoic Ouachita Orogeny to the north and west (Thomas 1985), the local fold of the Sabine uplift to the east (Adams 2009), and coastal sedimentation along the ancestral Gulf of Mexico. The Ouachita Orogeny is a part of a continuous belt of orogenic features extending along the southern and eastern North American Craton including the Ouachita Mountains of Oklahoma and Arkansas and the eastern US Appalachian Mountains (Thomas 1985). Highlands resulting from this orogeny are the source for clastic sediments that have flowed into the Gulf of Mexico and served as the primary sediment source for much of the strata observed in the Sugarberry area. Deformation associated with these uplift events is focused outside the Sugarberry area, but the presence of highlands to the north causes geologic layers to dip gently to the south. Deformation of layers is not due to the orogenic events but instead relates to extensional sagging of the formations during and after deposition. Salt domes are present in the basin south of the Sugarberry area but do not influence strata in the AoR.

Paleozoic and Mesozoic sediments include the Paleozoic Ouachita Formation and the Jurassic Louann, Louark, and Cotton Valley Groups. Stratigraphy of the lower portion of the area of interest is described in Kreitler et al. (1981). At the Sugarberry site, the lowermost formation of interest is the Upper Glen Rose Formation. In the northern part of Texas, the Glen Rose is a clastic sequence that grades into the Paluxy Formation above it, with the two formations distinguished primarily by an increased abundance of shales in the Glen Rose compared to the Paluxy. The base of the Paluxy Formation is marked by a transition to relatively thick sandstone beds. Limestone is absent from the Paluxy, indicating a prolonged sea level lowstand with several thin shale units splitting the sandstone into several sub-units. The top of the Paluxy Formation is marked by a transition to limestone in the Goodland Limestone member of the Fredricksburg Group.

The interval between the Paluxy and Woodbine Formations consists of the Fredricksburg and Washita Groups which are composed of multiple layers of limestone and shale. These intervals are associated with sea level changes during the Cretaceous with shallow marine environments transitioning between fine clastics and carbonates. The properties of the limestone formations are uncertain in the Sugarberry area, but shale units are broadly identified as impermeable formations that are unlikely to provide significant CO_2 storage (Roberts-Ashby et al. 2012). In the study area, these formations are readily identified in geophysical logs by a clear transition to low-porosity units compared to the overlying Woodbine and underlying Paluxy sandstones.

The two CO_2 injection intervals for the Sugarberry CCS Hub are the Upper Cretaceous Woodbine Formation and the Lower Cretaceous Paluxy Formation. Both formations have been regionally characterized and previously identified as promising zones for CCS injection (Roberts-Ashby et al. 2012, US DOE 2015), and based on available regional and local data are expected to have favorable reservoir properties including adequate thickness, lateral continuity, porosity and permeability, as well as adequate depth to ensure CO_2 is injected as, and remains, a supercritical fluid. The full stratigraphy of the project area is shown in **Figure 1-4**.

The primary confining unit for the development is the shale member of the Eagle Ford Formation, which is approximately -2,500 feet below sea level (~2,800 feet BGS; **Figure 1-9**). Local data about the Eagle Ford are limited and additional information, including geomechanical data, porosity, and permeability will be collected prior to site development. Based on the nearest geophysical logs, the Eagle Ford Formation is about 400 feet thick with at least 300 feet of shale-dominated sediment.

Regional investigations and local wellbores indicate that the shallower injection unit, the Woodbine Formation is located at approximately -3,000 feet below sea level and 3,400 feet BGS in the Sugarberry CCS Hub, with the northernmost injection well targets expected to intersect the formation top at about -3,100 feet below sea level (~3,500 ft BGS) and the southernmost injection targets approximately -3,200 ft below sea level (~3,600 ft BGS, **Figure 1-10**). The total Woodbine Formation has an approximate thickness of 600 feet, with a net sand thickness of 200 to 400 feet. Area well log data shows a continuous sand layer of approximately 200 feet thick at the base of the formation with additional intermittent thin layers of sand above, providing additional storage potential (**See Appendix B)**. Containment for the Woodbine Formation is provided by the impermeable shales of the lower Eagle Ford Formation. The lower Eagle Ford Formation is part of the same overall depositional sequence but represents near-shore shallow marine deposition during a relative sea level high. Hydrogeologic characteristics of both Formations are described in **Section B.4**.

Table 1-3. Key Regulatory Interval Formations for the Sugarberry CCS Hub

Regulatory interval	Name	Expected formation top (ft BGS)
Deepest USDW	Taylor Group	1,800[1]
Primary Confining Unit	Eagle Ford	2,800
Primary Injection Interval 1	Woodbine	3,400
Primary Injection Interval 2	Paluxy	4,900

[1]Note: that for the USDW, the listed depth is the lowermost depth of expected USDW quality water, not the top.

The Lower Cretaceous Paluxy Formation is deeper than the Woodbine Formation (**Figure 1-11**) and locally consists of primarily sandstones interbedded with shales, interpreted as nearshore and onshore coastal sedimentation (e.g. Caughey, 1977). The Paluxy Formation is located at approximately -4,600 ft below sea level (~4,900 ft BGS). Total formation thickness is roughly 250 feet, with approximately 180 feet of net sandstone thickness. Based on geophysical logs, sand units are thickest and cleanest at the top and bottom of the formation, with interbedded shales through the middle section. As with the Woodbine, no evidence has been identified that it is indicative of structural complexity near the injection area, other than the Mexia-Talco Fault Zone graben to the north. Some salt doming is observed about 40 miles south of the injection site but does not influence strata in the AoR and does not have any effect on the site development or CO_2 containment.

B.2. Maps & Cross Sections of the AoR [40 CFR 146.82(a)(2), 146.82(a)(3)(i)]

This section presents key geologic data pertaining to the structure of the Sugarberry CCS Hub. A map view of cross section locations is shown in **Figure 1-12**. The Sugarberry CCS Hub is in a shallowly dipping region with relatively quiescent geology. No significant structures have been detected in either seismic or well log data along strike within the AoR in the east-west direction or parallel to dip in the north-south direction (**Figure 1-13 and Figure 1-14**). Within the area of the injection wells, no identified regional faults are present, and geophysical techniques have not indicated any subsurface faults in the AoR. Well picks and geophysics indicate that there is no significant folding or salt doming, and formations generally dip shallowly to the southeast at a slope of less than a degree. North of the project area, the Mexia-Talco fault zone forms a simple graben with the juxtaposition of impermeable shales against the Lower Woodbine.

Although no structural traps have been identified within the Sugarberry CCS Hub AoR, there is potential structural trapping along the southernmost bounding fault of the Mexia-Talco graben due to emplacement of impermeable shales adjacent to the permeable reservoir rock. Simulations do not show the CO_2 plume reaching the faulted area, and operations will be managed to avoid a plume reaching the area near the faults due to the large numbers of well penetrations in this area. The Woodbine Formation is not actively producing large volumes of petroleum in the area as it was largely depleted in the early 20th century (Alexander, 1951) but does have numerous penetrations along the Mexia-Talco fault zone.

Geologic formations generally thin towards the northwest as they approach the Ouachita Uplift but are still present on both sides of the fault zone and there is no evidence of formation pinch-out in the AoR of the injection or confining units. The Eagle Ford Shale overlying confining unit is about 350±50 feet thick around the injection site (**Figure 1-15**). In the Woodbine, individual porous sandstone units do show evidence of pinch-out and thickness variability, especially in the upper Woodbine, but the lower Woodbine has a consistent sandstone unit approximately 200 ft thick based on GEOPHYSICAL LOGS (**Figure 1-16**). Upper Woodbine pinchout may prevent updip CO_2 migration, enhancing development security by preventing CO_2 in this part of the reservoir from reaching well penetrations. Deeper, the Paluxy Formation is about 250 feet thick (**Figure 1-17**) has consistent sand units of about 80 feet thickness at the top and bottom respectively, with likely continuous internal layering adding additional tens of feet to the net sandstone thickness of the Paluxy. A total of 180 to 200 ft of porous and permeable sandstone are estimated in the Paluxy Formation. Additional sand units are inconsistently present in the area and may provide additional limited storage capacity for both the Woodbine and Paluxy Formations.

Above the Paluxy Formation, few permeable sandstones are likely locally available to serve as backup reservoirs prior to any CO_2 entering the Woodbine. Geophysical logs show a few pockets of sandstone that are part of the Fredricksburg and Washita transgressive-regressive cycles and are too thin to represent good injection zones, but could catch and slow any CO_2 escaping vertically from the Paluxy. There is no suitable backup reservoir to the Woodbine Formation because of its shallow depth and the concern that supercritical CO_2 could flare to gas if it entered a shallower formation. As noted in **Section B.2**., most CO_2 injected into the Woodbine Formation is expected to go into the lowermost and thickest member, and to an extent it is possible that backup containment will be provided within the upper Woodbine.

B.3. Faults & Fractures [40 CFR 146.82(a)(3)(ii)]

Sugarberry CCS Hub identified the Mexia-Talco fault zone, a band of extension-related faults and structures extending from southwestern Texas to north of the project area, then turning east. 2D seismic lines indicate this structure locally forms a graben bounding the northern portion of the AoR and which serves as a petroleum trap (**Figure 1-18**). The exact geometry of the faults is unconstrained because only 2D seismic data are available. Model simulations suggest that neither the supercritical CO_2 plume nor critical pressure front reach this feature. Otherwise, there are not any indications of faults or identified fracture zones in the modeled AoR. 2D seismic lines show no sign of vertical offset nor any noticeable discontinuities suggesting strike-slip faults.

Eastern Texas is a tectonically quiet area, with no identified history of ambient geological activity since the formation of the Mexia-Talco graben during the Cretaceous. Furthermore, there is no evidence of induced seismicity near the study area, with the nearest region of significant seismic activity occurring in the Dallas area about 85 miles from the project area. A single earthquake with a magnitude of less than 4.0 was recorded in the Texas State Earthquake Database (https://texnet.beg.utexas.edu/) and in the USGS global earthquake database (https://earthquake.usgs.gov/earthquakes/search/) near Greenville, about 35 miles from the project area. Induced seismicity from other sources such as fluid injection is extremely unlikely unless significant future changes in oilfield management occur. A fault-slip potential analysis was conducted using the Stanford Fault Slip Potential tool (FSP; Walsh and Zoback, 2016) to determine the differential risk in induced seismicity from this. The FSP tool ingests a collection of inputs, calculates an estimated differential stress required to induce fault slip, then probabilistically determines the fault slip potential hazard. Inputs to the model include:

- Fault orientation (**Figure 1-19)**, dip, and segment length (**Table 1-4**)
- Regional stress data (**Table 1-5**)
- Hydrology data (**Table 1-6**)
- Well injection data (**Table 1-7 and Table 1-8**)

Fault information is available from regional maps and intersections of fault planes with the 2D seismic lines. In the FSP, faults are divided into shorter segments with key information including strike, dip, length of the segment, and coordinates of the center point of the segment. Given the expected pressure field, the nearest segments to the wells are the most likely to experience concerning differential pressure. Thus, for the FSP model we considered several key segments from both the mapped and seismic-interpreted faults (**Figure 1-19**). Fault information is shown in **Table 1-4.**

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Table 1-4. Fault Segments Included in FSP Model

Segment number	X (East km)	Y (North km)	Strike (deg)	Dip (Deg)	Length (km)
1	1162.4	3409.8	230.9400	45	2.9800
2	1163.9	3411.4	272.9613	45	3.1300
3	1160.7	3411.6	272.9613	45	3.1300
4	1158.5	3411.5	253.3053	45	1.3100
5	1156.7	3411.1	263.4529	45	2.0300

Regional stress data was acquired from the World Stress Map database (Heidbach et al. 2018). The nearest points to the development area are located about 10 miles south and 10 miles north and both have a primary compressive stress orientation ($\sigma 1$) of about 73°. Additional input data required is a singular coefficient of friction (μ) for all faults. For continental interior faults, this usually ranges between 0.6 and 1.0, with a most common value of 0.6 (Dvory and Zoback, 2021). To give a conservative estimate, the default coefficient was listed as 0.5.

Much uncertainty exists pertaining to local stress data, but given the tectonic quiescence of the location and the normal faulting of the Mexia-Talco Fault Zone, an α-ϕ (A-phi) model (see Walsh and Zoback, 2016) was used which takes inputs including the vertical stress gradient, α-ϕ parameter, maximum horizontal stress direction, initial reservoir pressure gradient, and reference depth for calculations. **Table 1-5** shows inputs used for these. The vertical stress gradient was based on well log density of 2,280 kg/^{m3}. The α-ϕ parameter varies widely but is typically <1 for normal faults (Lund Snee and Zoback, 2022), so a value of 0.5 was used with uncertainty of ±0.45 to cover the range of possibilities. Reservoir pressure was based on the observed pressure gradient. The reference depth for calculations was based on the elevation of the top of the Woodbine and Paluxy respectively.

Table 1-5. Stress Data Used in FSP Model

Parameter	Value
Vertical stress gradient (PSI/ft)	1.0
α-ϕ Parameter	0.5
Azimuth of maximum horizontal stress (°N CW)	72
Initial Reservoir Pressure gradient (PSI/ft)	0.45
Reference depth, Woodbine (ft)	3,400
Reference depth, Paluxy (ft)	4,900

The hydrologic model was based on the same inputs used in the numerical reservoir model (see Model section). To give a conservative assumption, only the thickness of the lower Woodbine was considered. Parameters for the Woodbine and Paluxy models are shown in **Table 1-2**.

Injection well data includes the location, injection rate, and duration for each well. The FSP 2.0 software only allows a maximum of four wells, which produces an underestimation of the reservoir pressure. Wells SB-01, 03, 04, and 05 were simulated as they are the closest to the fault and would produce the greatest pressure increases. These wells are recorded sequentially in the FSP input as 1, 2, 3, and 4 respectively. As a check against the uncertainty introduced by this, the deviatoric pressure from the 3D numerical model was evaluated compared to the calculated fault slip deviatoric pressure as discussed below. Additionally, within the FSP model itself, the injection duration for the four wells was increased to 30 years. Inputs for the wells are shown in **Table 1-6** for the Woodbine and **Table 1-7** for the Paluxy. The injection rate was based on the target 250,000 tonnes/year for the Woodbine and 650,000 tonnes/year for the Paluxy, with CO_2 density for each formation calculated based on pressure and temperature of each reservoir following Peng and Robinson (1976).

Table 1-6. Injection Data for Woodbine Formation Used in FSP Model

Well Number	X (km)	Y (km)	Inj. Rate (bbl/day)	Start Year	End Year
1 (SB-01)	1159.6784	3401.5354	5,557.0	0	30
2 (SB-03)	1165.8433	3402.5525	5,557.0	0	30
3 (SB-04)	1161.4279	3402.8721	5,557.0	0	30
4 (SB-05)	1156.7834	3404.0221	5,557.0	0	30

Table 1-7. Injection Data for Paluxy Formation Used in FSP Model

Well Number	X (km)	Y (km)	Inj. Rate (bbl/day)	Start Year	End Year
1 (SB-01)	1159.6784	3401.5354	13,858.47	0	30
2 (SB-03)	1165.8433	3402.5525	13,858.47	0	30
3 (SB-04)	1161.4279	3402.8721	13,858.47	0	30
4 (SB-05)	1156.7834	3404.0221	13,858.47	0	30

Compressibility based on the Peng-Robinson equation of state is set to 4.1×10-8 Pa^{-1}, and dynamic viscosity is 8×10-6 Pa·s.

Results from the analysis suggest that a deviatoric pressure of 161 psi (1.11 MPa) is required to induce slip in the most vulnerable fault segment (**Figure 1-20**). Fortunately, the southernmost and closest segment appears to have unfavorable geometry for fault slip and requires a pressure increase of 260 psi (~1.8 MPa) to slip, which is above simulated pressures at this area.

The Fault Slip Potential model does not show any significant increase in probability of slip (**Figure 1-21**). As a result, it can be concluded that the project is unlikely to induce seismicity. This analysis will be performed again in detail in subsequent work with a comparison to a rebuilt 3D model after enhanced porosity and permeability data are available upon completion of the first injection well.

Buoyant petroleum is trapped at the fault and is being actively exploited, and updip migration is prevented by the juxtaposition of impermeable shale against the injection units, which is the process creating the petroleum trap. Additional simulations were run (**Area of Review and Corrective Action Plan, Section 2**) to consider the possibility of permeability in the fault parallel to the fault plane, accounting for the possibility of preferential fluid pathways. Since simulations did not show the CO_2 plume reaching the fault, the presence of well penetrations extending towards the Sugarberry CCS Hub and active fluid withdraw around the fault is a greater project risk than flow along the fault plane.

The primary source of uncertainty with faulting from available data is whether there is a single pair of graben-bounding faults, as interpolated between 2D seismic lines, or if the prior regional analyses are correct that there are multiple complex faults. The primary implication of more complex faults would be to possibly allow for pressure flow across the fault plane into the graben area, which would overall reduce pressure and reduce seismic risk; the inclusion of the fault trap represents a conservative estimate on pressure relief for the Sugarberry CCS Hub because it prevents brine flow to the north. Since simulations do not show the CO_2 plume reaching the fault area even with an open fault boundary, it is unlikely that there would be significant impacts on the CO_2 plume and the increase in project risk from a more complex fault zone is negligible.

In summary, there are no identified fault or fracture networks within the AoR, and the nearest known fault is outside the modeled CO_2 plume area, shows evidence of good petroleum trapping which suggests that there is no meaningful vertical permeability along the fault plane, and the FSP analysis suggests it is unlikely that seismicity could be induced that would allow enhanced fault permeability.

B.4. Injection & Confining Zone Details [40 CFR 146.82(a)(3)(iii)]

The Sugarberry CCS Hub will utilize the Woodbine and Paluxy Formations and all the intervening units for the injection interval. The confining unit is the Lower Eagle Ford Shale, which provides about 300 ft thickness between the upper injection zone, the Woodbine Formation, and the next permeable sand unit which is the Sub Clarksville Sand. The Woodbine Formation is approximately 3,500 ft BGS. The two primary injection zones are separated by approximately 1,000 feet of the Fredricksburg and Washita Groups, which include the Kiamichi, Duck Creek, Denton, Grayson, and Maness Shales as well as several limestone formations that have not been identified as reservoir rocks (see **Figure 1-4**). Geophysical logs of the Fredricksburg and Washita Groups show few porous zones of 20 ft or less in thickness (**Figures 1-13** and **1-14**). Above the Eagle Ford Shale, several other formations have been identified, primarily consisting of chalk and shale layers in the Austin and Taylor Groups. However, while these units are likely low permeability, they are not considered backup containment for this application due to their shallowness and the possibility of CO_2 pressure decreasing below the critical point, causing flashing of CO_2 to gas.

Five injection wells will be utilized for the Sugarberry CCS Hub. In the southeast portion of the project area, SB-01 and SB-02 will likely be deeper than SB-03, SB-04, and SB-05 wells to the northwest by approx. 100 feet. The estimated total thickness of the Woodbine in the project area is approx. 600 feet, of which a minimum of 200 feet are likely to be accessible sands based on geophysical logs (**Figure 1-10**). Numerous shale intervals divide the upper Woodbine Formation, and sandstone intervals are likely less continuous, but the lower 200-foot section of the Woodbine appears regionally extensive in geophysical logs and bounds minimum sand thickness. The

porosity and permeability of the Lower Woodbine is unclear, as the permeability tests in core samples are from the Upper Woodbine. However, the Lower Woodbine is a clean and relatively homogeneous sandstone lacking in continuous intermediate shale units, and reasonably high permeability values are likely.

The top of the Paluxy Formation is at approx. 5,000 ft BGS and separated from the Woodbine by the Fredricksburg and Washita Groups. Although the Paluxy Formation is thinner, with a typical thickness of approx. 260 feet within the AoR, a greater proportion of its thickness consists of laterally continuous, porous sandstone, based on and geophysical logs **(Figures 1-13 and 1-14)**. Net sand thickness is a minimum of 160 feet in the top and basal sandstone units which are present throughout, and abundant sandstone units are present in the middle portion of the Paluxy Formation separated by thin shale units. The continuity of these intermediate units is less clear, but overall net sandstone thickness may be upwards of 200 feet and possibly higher in local areas. As with the Woodbine, spatially distributed well log data shows porous and permeable units at comparable levels of the formation over a wide area, suggesting good areal extent and continuity of the storage reservoir.

Although no samples are available directly from the Sugarberry CCS Hub concerning mineralogy, the Woodbine and Paluxy Formations are both extensively described in literature and show a regionally consistent mineralogy. The Woodbine has been classified in the sublitharenite to litharenite categories with fragments of quartz, feldspar, biological detritus such as shell fragments, and clays (Wagner 1978). Accessory minerals are identified as pyrite, organic macerals, and micas. These lithologies are consistent with the basinal interpretation of near-shore coastline type environments. The underlying Paluxy Formation is described as a quartzarenite with grain sizes ranging from coarse silt to medium sand (Owen, 1979). An overview of mineralogy and geochemistry is provided in **Section B.10**.

Porosity and permeability data are sparse in the vicinity of the Sugarberry CCS Hub but there is one well, Bessie-Connor #3 (API# 42499313570000, see **Figure 1-5**), that has been characterized for porosity and permeability in the Paluxy Formation. Measurements were taken from core samples at 6,316 to 6,386 ft BGS and yield a geometric mean of 433 mD horizontal permeability and 62 mD vertical permeability. The core porosity measurements agree with the porosity logs (See **Appendix C**). The geometric mean is based on 58 sample analyses taken on intervals of either 1 foot or 0.5 foot. In the Woodbine, the wells Harriet ISOM #1 (API# 42063001910000) and International Paper #1 (API# 42499308210000) include porosity and permeability core data for the upper Woodbine. Porosity logs for these two wells are not available. Twenty-one (21) total analyses were used to construct the geometric mean, with sampling frequencies of 0.5 to 1 foot. No samples were identified for the lower Woodbine in the study area and the parameters of the lower Woodbine are consequently more uncertain, but it is likely to have a permeability greater than that of the upper Woodbine. In both the Woodbine and the Paluxy Formations, interbedded shale or mixed sand-shale units are observed in well logs and cores. These units have low permeability and variable porosity with a geometric mean of 0.18.

Core data are unavailable for the Eagle Ford Shale and its effective porosity is uncertain. Core and well logs will be collected during pre-development characterization. It is expected that the Eagle Ford Shale may have a lower effective porosity than the interbedded shale baffles within the Woodbine and Paluxy. For purposes of dynamic numerical simulation, the higher porosity value of the shale baffles within the injection reservoir is more conservative, This conservative value is

considered in the numerical model, presented in the **Area of Review and Corrective Action Plan, subsection B.4**. It is important to note that the capillary pressure and low permeability are the parameters that contain the sCO2 in the injection interval. **Attachment 2.2-1** of the **Area of Review and Corrective Action Plan** presents the results of sensitivity analyses obtained from permeability distributions that are variations on the base case. Varying porosity in the models shows low sensitivity. Sugarberry CCS, LLC will obtain core data during drilling of the injection and in-zone monitoring wells and use this information to calibrate the model and reevaluate the AoR prior to the start of injection.

The laterally extensive sandstone units have an estimated average porosity of about 20%, which in tandem with the areal extent of these formations indicates that the storage capacity should exceed the target injection volumes. In geophysical logs the lower Woodbine in particular can be readily identified over an area extending beyond the travel distance of the plume in numerical simulations, suggesting that sufficient porosity exists to accommodate the entire desired volume of CO_2. Because the lowermost sand unit of the Woodbine is quite thick (>200 ft), it is unlikely that the formation will have all of its available pore space filled by CO_2; instead, CO_2 buoyancy is likely to cause the supercritical plume to rise to the top of the formation before spreading laterally. Thus, the volumetric potential capacity of the formation exceeds the physically useful volume of the formation because a significant amount of its sandstone may not receive CO_2. Injectivity in the Woodbine is constrained to 20 MMT by the upslope migration of CO_2 which must be prevented from reaching penetrations near the Mexia-Talco Fault Zone. Migration of CO_2 in the reservoir is highly dependent on the specifics of capillary trapping, especially residual CO_2 saturation and the relative permeability functions that govern CO_2 flow, as well as the number of impermeable shale layers within the lower Woodbine that do not consistently appear in the geophysical logs. The existence of such layers would further subdivide the buoyantly rising CO_2 into multiple plumes, shrinking and slowing the travel distance of any individual plume and allowing for more efficient use of the pore space. Thus, for the Woodbine the 20 MMT input into the numerical model is likely a low estimate of maximum storage capacity, but additional data are required at the site to constrain this.

The storage capacity of the Paluxy Formation is likely greater than the Woodbine primarily because of its more favorable geometry. In contrast to the Woodbine Formation simulation results, the Paluxy Formation injection simulations do not produce a plume that reaches the Mexia-Talco Fault Zone under any reasonable set of material parameters. This difference is likely due to a combination of the greater density of CO_2 with depth and the division of the Paluxy Formation into several units that are thin relative to the Lower Woodbine sandstone. Consequently, injections into this formation tend to produce multiple plumes that each fill much of the available vertical pore space. Numerical simulations allow for about 84.5 MMT of total injection into the Paluxy with the primary limitation imposed by the maximum allowable bottomhole pressure. No fracture pressure data is available for the facility as yet, but geophysical logs from the Bessie-Connor #3 well yield a rock density of 2,280 kg/m3, which gives a lithostatic gradient of about 0.99 psi/ft which is well within typical lithostatic values. A fracture gradient of 0.7 psi/ft is assumed as a conservative estimate, with a further 90% safety factor for bottomhole injection pressure.

Uncertainty exists as to the specifics of the parameters for the target formations in the development area. Some of these include the nature of the Upper Woodbine reservoir, if present; the porosity and permeability in the target area; and relative permeability and capillary characteristics.Additional sampling as outlined in the Pre-Operational Testing Plan (**Section 5**)

will take place during the construction of the Sugarberry CCS Hub. Samples must be collected in the Sugarberry CCS Hub in the future. Data collected will be used to refine the geological and dynamic models. These samples will focus on the following key parameters:

- Capillary and relative permeability characteristics
- Site-specific porosity and permeability
- Geomechanical information in the injection and confining zone

B.5. Geomechanical & Petrophysical Information [40 CFR 146.82(a)(3)(iv)]

The **Area of Review and Corrective Action Plan** (**Section 2**) details current model inputs regarding formation temperature, pressure, and pore pressure gradient. Multiphysics reservoir modeling used 0.7 psi/ft as the fracture pressure gradient, with a further factor of safety of 90% of this pressure as the maximum allowable bottomhole pressure.

A site-specific geomechanical characterization effort is planned with the use of micro-image logs, wireline well tests, and laboratory core tests as detailed in the **Pre-Operational Testing Plan** (**Section 2**). Acquisition of this data will be undertaken during the construction of observation (IOB#) and injection wells (SB#) in the storage area. Physical properties that will be determined from samples will include bulk density, porosity, permeability, Young's modulus, Poisson's ratio, and failure strength. These will allow determination of fracture pressures for each zone, the rock compressibility, and ductility, and the unconfined compressive strength of the confining layer.

B.6. Seismic History [40 CFR 146.82(a)(3)(v)]

As noted in **Section B.3**, the Sugarberry CCS Hub is to be developed in a tectonically inactive area, with negligible ambient seismicity. The primary source of regional earthquakes is likely associated with fluid reinjections from the petroleum industry (e.g. Lundstern and Zoback, 2016) and is addressed in the discussion of FSP above. Furthermore, the nearest identified earthquake is 33 miles west of the proposed facility and is a single event with a magnitude of 3.4. There are four (4) documented earthquakes within 60 miles (100 km) of the site (**Table 1-8**, USGS 2024; **Table 1-9**, TexNet 2024). Sugarberry CCS LLC has concluded there is an extremely low risk of natural seismicity, and that there is not currently a risk of induced seismicity related to fluid injections from other developments. There is no identified risk of project interference with other developments or other issues that could result in seismic activity.

Table 1-8. Earthquakes within 60 Miles of the Sugarberry CCS Hub from the Texas State Earthquake Database. Coordinate reference system is WGS 84.

Latitude (WGS84)	Longitude (WGS84)	Depth (km)	Mag	Place	Distance to Sugarberry CCS Hub Center (mi)
32.5528	-94.9811	5	2.2	4 km WNW of Gladewater, Texas	51.98
33.182	-95.966	5	3.4	3 km ESE of Neylandville, Texas	33.67
34.056	-95.592	5	1.5	9 km WNW of Hugo, Oklahoma	58.49

Table 1-9. USGS Database Earthquakes within 60 Miles of the Sugarberry CCS Hub

Latitude (WGS84)	Longitude (WGS84)	Depth of Hypocenter (Km. Rel to MSL)	Local Magnitude	Location Name	Distance to Sugarberry CCS Hub Center (mi)
32.5571	-94.9487	12.5	2.6	Louisiana-Texas Border Region	52.61

As discussed in **Section B.3**., the increase in seismic hazard from the Sugarberry CCS Hub project is predicted to be negligible. Furthermore, simulations do not show the CO_2 plume reaching the fault. In the event an earthquake may occur, there is a very low risk of CO_2 escaping from the reservoir. Deviatoric pressure also is not likely to exceed the critical pressure threshold required to drive saline brine into a USDW (see **Area of Review and Corrective Action Plan, Section 2**).

B.7. Hydrologic & Hydrogeologic Information [40 CFR 146.82(a)(3)(vi), 146.82(a)(5)]

The following sections outline the collected hydrologic and hydrogeologic information for the Sugarberry CCS Hub. The study reviewed online databases, well records, and historical literature focused on groundwater in the Trinity and Carrizo-Wilcox aquifers. Groundwater was reviewed in a region centered on the proposed Sugarberry CCS Hub location and extending approximately 80 miles in diameter, extending far beyond the AoR to ensure that regional features were captured.

B.7.1 Groundwater Overview

The Sugarberry CCS Hub lies in Groundwater Management Area 8 and near Area 11 as designated by the Texas Water Development Board **(Figure 1-22)**. A cross section of the greater geologic setting is provided in **Figure 1-8**. As displayed in **Figure 1-23**, groundwater within the study area is primarily associated with the Trinity and Carrizo-Wilcox major aquifers. All groundwater generally flows toward the Gulf of Mexico, south-southeast of the Sugarberry CCS Hub (Texas Water Development Board, 2016). None of the aquifers are within the AoR.

B.7.2 Major Aquifers

B.7.2.1 Carrizo-Wilcox Aquifer

The Carrizo-Wilcox Aquifer is a major aquifer extending from the Louisiana state line to the Mexico border and is stratigraphically above the Woodbine-Eagle Ford reservoir-cap sequence. The Carrizo-Wilcox Aquifer is not found within the AoR but is located approximately 5 miles south of the AoR of the Sugarberry CCS Hub (**Figure 1-23**). Water bearing formations consist of the Hooper, Simsboro, and Calvert Bluff formations of the Wilcox Group and the overlying Carrizo Formation of the Claiborne Group. The aquifer is primarily composed of sand locally interbedded with gravel, silt, clay, and lignite. Although the Carrizo-Wilcox Aquifer reaches 3,000 feet in thickness, the freshwater saturated thickness of the sands averages 670 feet (Bruun et al. 2016).

B.7.2.2 Water Quality

A review of the Texas Water Development Board (TWDB) Groundwater Database (GWDB) recorded total dissolved solids (TDS) concentrations for 15 wells within the last five years in the Trinity and Carrizo-Wilcox aquifers inside the project area. TDS concentrations in the Trinity Aquifer ranged from approximately 800 to 1,000 mg/L with well depths ranging from 2,025 to 3,366 feet below ground surface (ft BGS) (**Figure 1-24**). TDS concentrations in the Carrizo-Wilcox ranged from approximately 150 to 700 mg/L with well depths ranging from 300 to 960 feet BGS. **Table 1-10** lists the data by well and **Figure 1-24** displays the geographic location and depth of each well with available water quality data. The wells in the Paluxy are beyond the structural graben north of the AoR and are hydrologically disconnected from the injection zone.

Table 1-10. Water Quality by Aquifer

State Well Number	County	Formation	Major Aquifer	Well Depth (feet BGS)	Latitude (WGS84)	Longitude (WGS84)	Total Dissolved Solids (mg/L)
3501501	Camp	Carrizo-Wilcox	Carrizo	389	32.95576	-94.950417	286
1763501	Franklin	Wilcox	Carrizo	440	33.04846	-95.205442	171
1760804	Hopkins	Wilcox	Carrizo	440	33.01439	-95.563686	199
3503107	Morris	Wilcox	Carrizo	960	32.97828	-94.729942	649

State Well Number	County	Formation	Major Aquifer	Well Depth (feet BGS)	Latitude (WGS84)	Longitude (WGS84)	Total Dissolved Solids (mg/L)
1756417	Titus	Wilcox	Carrizo	300	33.19113	-95.095381	693
3518303	Upshur	Carrizo-Wilcox	Carrizo	440	32.71273	-94.759492	512
3407705	Wood	Wilcox	Carrizo	890	32.89963	-95.217233	261
3421703	Wood	Carrizo-Wilcox	Carrizo	425	32.65401	-95.487497	156
1734301	Delta	Paluxy	Trinity	3333	33.47219	-95.765861	921
1734301	Delta	Paluxy	Trinity	3333	33.47219	-95.765861	980
1733501	Fannin	Antler Sand	Trinity	3366	33.42667	-95.946389	804
1734101	Fannin	Paluxy	Trinity	3063	33.49189	-95.865917	871
1729103	Lamar	Paluxy	Trinity	2563	33.59936	-95.460611	932
1729103	Lamar	Paluxy	Trinity	2563	33.59936	-95.460611	988
1722902	Red River	Paluxy	Trinity	2025	33.66083	-95.266389	998

B.7.3 Minor Aquifers

Minor aquifers near the AoR include the Blossom, Nacatoch and Queen City (**Figure 1-25**). A high-level summary of each minor aquifer is discussed below.

Queen City Aquifer
The Queen City Aquifer is a minor aquifer that extends across the southern portion of the study area. Within the study area, the formation can range from 0-300 feet thick. The average freshwater saturated thickness of the Queen City Aquifer is about 140 feet (Texas Water Development Board 2016). No wells produce drinking water near the Sugarberry CCS Hub.

Blossom Aquifer
The Blossom Aquifer is a minor aquifer located north of the Mexia-Talco Fault Zone and consists of the Blossom Sand Formation, composed of alternating sequences of sand and clay. Freshwater thickness averages approximately 25 feet. Water quality is slightly saline with TDS less than 3,000 mg/L (Bruun et al. 2016). No wells actively produce drinking water in the Sugarberry CCS Hub.

Nacatoch Aquifer
The Nacatoch Aquifer is a minor aquifer that extends across the central portion of the study area and consists of the Nacatoch Sand, which is composed of sequences of sandstone separated by impermeable layers of mudstone or clay. Freshwater saturated thickness averages about 50 feet. The Mexia-Talco Fault Zone generally delineates the subsurface limit of the aquifer (Bruun et al. 2016). Based on salinity measurements described in **Section B.8.1** below, the Nacatoch is the deepest formation that has water within USDW standards and has sufficient permeability to have development potential.

B.7.4 Upper and Lower USDWs

The uppermost underground source of drinking water (USDW) is the Queen City Aquifer. The lowermost USDW would fall into the Taylor Group based on the salinity-depth relationship.

B.8. Geochemistry [40 CFR 146.82(a)(6)]

Geochemistry for the Sugarberry CCS Hub was evaluated for potential injection into two target formations: the Woodbine and the Paluxy. The confining unit is identified as the lower Eagle Ford Shale. Mineralogy of the injection and confining formations are discussed further in **Section B.4**. but are summarized here for context in geochemical interactions. The Woodbine is described as a mature sublitharenite to litharenite composition, dominated by quartz, feldspar, shell fragments, and clays (Wagner, 1978). Accessory minerals are identified as pyrite, organic macerals, and micas. The confining lower Eagle Ford shale is described as a low-permeability shale (Surles, 1986). The Paluxy Formation is described as a quartzarenite consisting of medium to very fine quartz sand and coarse silt (Owen, 1979). As site-specific mineralogy at the Sugarberry CCS Hub site is not available, this information will be confirmed during drilling, per the **Pre-Operations Testing Plan (Section 5)** and re-evaluated in the context of geochemical compatibility.

Formation brine chemistries for the Woodbine and Paluxy Formations were taken from the USGS Produced Waters Database (v. 3.0; Blondes et al., 2024) within a 100 km (62 mile) radius centered on the Sugarberry CCS Hub (**Figure 1-26**, **Figure 1-27**, and **Appendix D**). Of the available data within the 62-mile radius, only one subset of samples comprising 310 analyses from the Paluxy formation fell within 5-10 miles of the AoR. These samples were dominantly sourced from the Sulphur Bluff and Mitchell Creek oilfields to the north of the AoR. The existing data from the Woodbine Formation (53 analyses) fell outside of the AoR and are approximately 18-25 miles to the north and east in Titus County and approximately 35 miles to the south in Wood County. Geochemical data from the USGS Produced Waters Database for both the Paluxy and Woodbine Formations included pH, total dissolved solids, sodium, calcium, magnesium, chloride, sulfate, bicarbonate, and iron. Additional geochemical analyses will be collected from the injection and confining formations during well construction.

B.8.1 Salinity Calculations

Salinity in the Paluxy and Woodbine Formations varies within the basin, with the highest salinities generally in the center of the East Texas basin. The salinity data is derived from a 1972 report for the Texas Water Development Board on subsurface saline waters in Texas (Core Labs, 1972). As much of the data contained within that report were collected by oil companies and/or professional engineering and geological societies interested primarily in total dissolved solids, salinity is predominantly calculated from water resistivity or spontaneous potential logs (roughly 50% of the data). Where available, salinities derived from discrete chemical analyses are also captured in the USGS Produced Waters Database. Based on the Core Labs report, regional salinities in the Woodbine Formation are estimated to be 60,000 to 80,000 ppm (**Figure 1-26**). Salinities in the Paluxy Formation are estimated to be 40,000 to 80,000 ppm (**Figure 1-27)**.

Salinities were also calculated from adjacent oil and gas wells. Petrophysical logs from 59 oil and gas wells were utilized to calculate salinity of the Woodbine and Paluxy Formations in the study

area (**Table 1-11, Figures 1-28 and 1-29**). The 59 geophysical logs used to calculate average salinities for the Woodbine show a range from 5,421 to 156,398 salinity parts per million (ppm) with an overall average of 63,803 ppm. The same geophysical logs were used to calculate salinity for the Paluxy, where values range from 2,773 to 223,337 salinity parts per million (ppm) with an overall average of 61,050 ppm.

Table 1-11. Well Derived Calculated Salinities

API	Well	Latitude (WGS 84)	Longitude (WGS 84)	Mean (Log) Salinity Woodbine (ppm)	Mean (Log) Salinity Paluxy (ppm)
42119301180000	Olson 1	33.4558972502	-95.8285317495	5,421	2,773
42277301200000	Ground 1	33.5522265000	-95.6088059447	7,172	13,901
42387303660000	Willis 1	33.5423895836	-95.0900017775	10,379	22,929
42387303610000	Marris 1	33.4428401947	-95.2686752499	20,182	37,502
42387303640000	Santa Fe Energy B 2	33.4064728334	-94.9771363894	22,170	56,080
42223000590000	R.F. Stephens 1	33.3271613000	-95.4659798607	27,856	113,616
42119301070000	Sulfur Bluff Realty 1	33.3621939998	-95.4426740000	30,208	54,594
42499317440000	Milner Et Al 1	32.7554091665	-95.4285103893	31,812	NA
42223304810000	J.G. Reynolds 8	33.2876423142	-95.4160979366	32,381	NA
42343300090000	L. Justiss Farms Carolina Gas 1	33.0949438614	-94.7609777779	35,944	78,045
42223304320000	Basham 1	33.3212020556	-94.9207580000	36,839	45,701
42159303250000	Smith Heirs 1	33.3127160000	-95.2887950000	37,436	46,257
42387303620000	Baker 1	33.5011510000	-94.9207580000	38,393	30,106
42387303630000	Kelsoe 1	33.4684521111	-94.7828881942	42,837	61,789
42223303850000	Morris Troughber 1	33.3043324079	-95.3434158619	42,882	64,250
42449304910000	Wright 1	33.3684500000	-95.0912509998	49,572	67,024
42459300320000	A.H Owens Gas Unit 1	32.8467636108	-94.9299774170	50,561	52,181
42223304440000	Hedrick 2	33.2950826942	-95.3213050832	56,830	25,396
42223303410000	Clyde Mayes 1	33.3176923611	-95.3083849446	59,333	123,438
42223304400000	B. Jackson Unit 5 2	33.2861114166	-95.6186341944	59,352	66,234
42223303380000	John Devries A 1	33.3618510572	-95.3926779845	61,370	55,220
42223300610000	White W K 1	33.1906848539	-95.3738959665	62,815	35,032
42499307770000	Blount Ida Mae 1	32.7551770835	-95.6254171112	64,668	64,015
42223304750000	Hopkins Spindletop 1	33.2882115555	-95.5711527501	65,160	79,799
42159300010000	Chitsey 1	33.0401896111	-95.3020826389	65,280	40,586
42223304880000	Phillip 338-2	33.2924914996	-95.5618225002	67,558	25,068
42159302020000	A. R. Talley 1	33.3191250001	-94.9299774170	73,767	NA

API	Well	Latitude (WGS 84)	Longitude (WGS 84)	Mean (Log) Salinity Woodbine (ppm)	Mean (Log) Salinity Paluxy (ppm)
42223300670000	Maude Peek Matherly 1	33.2607914448	-95.7480380556	74,319	83,861
42223000780000	Elvis Neal 1	33.2898330000	-95.4958579996	76,131	NA
42499306650000	McCrary Hawkins 2	33.2607914448	-95.3034432501	82,199	53,489
42499316150000	Lemon Pauline 1	32.8548677778	-95.2365917222	85,363	68,772
42387304420000	Olen Jesse 1	33.4916603057	-95.0327993615	90,534	104,236
42379301410000	R.R. Goodrich Gas Unit 1 2	32.8690203889	-95.6679547222	90,612	52,140
42499306550000	Carroll Greene 1	32.9228307777	-95.6119249439	95,202	45,958
42459304940000	Ella Rose Hart 1	32.8699583334	-95.1038383333	100,328	59,773
42159304690000	Benton 1	32.9833820000	-95.1693110000	109,853	92,694
42223300250000	Goodman 1	33.2319433890	-95.4307879723	113,974	105,222
42467307020000	A A Bullock Gas Unit 1	32.7291976113	-95.7107899168	122,256	NA
42499320980000	McKenzie 1	32.8896190278	-95.4784410837	127,588	NA
42223303570000	Ima Burge Et Al 1	33.2971818055	-95.4732198053	132,970	223,337
42499320980000	Lipscomb 1	32.8590555551	-95.3892675002	156,398	171,213
42159300390000	C D Solomon 1	33.0889581945	-95.3049330277	NA	37,486
42231302180000	Juniger Estate 1	33.2535776390	-96.0156658056	NA	NA
42459304290000	L V Ray Gas Unit 1	32.7425746950	-95.0199679165	NA	32,848
42063002020000	L.E Richardson 1	33.0281132221	-94.9690932777	NA	37,618
42223300080000	L.E. Ardis 1	33.2710122222	-95.4896900834	NA	NA
42459304640000	Larsson C F Gas Unit 1	32.8112714725	-95.0410275555	NA	NA
42159305190000	Littrell 1	33.3232750000	-95.2707260000	NA	29,398
42159304780000	Markham Heirs 1	33.2560436877	-95.2774632415	NA	19,619
42223300600000	Modena Flippen Et Al 1	33.2988520084	-95.4333685847	NA	NA
42159005870000	Murphy Wheeler Cox 1	33.0142006948	-95.2690412222	NA	48,174
42499301280000	Opal McIntosh 10	32.8094458887	-95.5085528056	NA	36,713
42223304520000	Pierce 1	33.3276214727	-94.8449630833	NA	NA
42063302480000	Pittsburgh Unit 78	32.9637045277	-95.0723563888	NA	NA
42456305170000	R A Hinson Gas Unit 2	32.7615434445	-95.0639087497	NA	NA
42499317420000	Richbourg Silas 1	32.8690203889	-95.4141907501	NA	NA
42277301150000	Skaggs C 1	33.5131985558	-95.3600786665	NA	NA
42223300780000	Stewart 1	33.1996943612	-95.4102271949	NA	NA
42159305930000	Wafford 1	33.1943065358	-95.2550438174	NA	NA

API	Well	Latitude (WGS 84)	Longitude (WGS 84)	Mean (Log) Salinity Woodbine (ppm)	Mean (Log) Salinity Paluxy (ppm)
Average Salinity (parts per million)				63,803	61,050

NA: Not Available

B.8.2 Geochemical Brine Compositions

Table 1-12. Approximate Compositions of the Woodbine & Paluxy Formation Brines from the Vicinity of the Sugarberry CCS Hub

Constituent	Woodbine	Paluxy
TDS, mg/L	52,758	57,720
density, kg/L	1.04	1.04
pH, s.u.	6.8	7.1
Na, mg/L	18,511	20,736
Mg, mg/L	436	277
Ca, mg/L	1,144	1121
Cl, mg/L	32,044	34,519
HCO3, mg/L	398	244
SO4, mg/L	503	178
Fe, mg/L	23	8

Compositional data to estimate the Woodbine and Paluxy geochemical compositions were matched to the salinity values indicated from the 1972 Core Labs report as well as the calculated salinities from petrophysical logs. Within the USGS Produced Waters Database, the Woodbine datapoints in Titus County follow the 60,000 ppm contour and average 53,000 ppm in total dissolved solids. The Woodbine samples in Wood County are more central to the East Texas basin and average 95,000 ppm in total dissolved solids. Thus, for an approximation of the Woodbine formation fluid composition, the Titus County samples were averaged for the geochemical compatibility evaluations.

The Paluxy geochemical datapoints to the north of the AoR follow the 10,000 ppm salinity contour and average 16,120 ppm (**Table 1-11** and **1-12**). However, the Sugarberry CCS Hub falls within the 40,000 to 80,000 ppm contours and salinity values derived from resistivity logs indicate average values of 61,050 ppm. Datasets from neighboring counties along these contours are nonexistent or not available within the USGS Produced Waters Database. Of the available dataset from the Sulphur Bluff field, nine datapoints fall within the 40,000 to 80,000 ppm range expected at the Sugarberry CCS Hub. These datapoints were averaged and used as an approximation of the Paluxy Formation brine compositions for geochemical compatibility evaluations.

Temperatures and pressures were approximated using average geothermal and hydrostatic gradients in the region and are consistent with the values used in the AoR model (Core Labs, 1972; Kreitler et al., 1983). At the Sugarberry CCS Hub, this assumption results in a Formation

temperature of 109°F (43°C) in the Woodbine and 122°F (50°C) in the Paluxy. The calculated hydrostatic pressures are 1,377 psi in the Woodbine and 2,323 psi in the Paluxy (**Summary of Requirements**).

The geochemistry data obtained for the Woodbine and Paluxy Formations were input into PHREEQC (v. 3.7.3-15968; Parkhurst and Appelo, 2013) and speciated using the llnl.dat database. The llnl.dat database uses an ion association model derived from the Debye-Huckel extended B-dot relationship to model species activities in the aqueous phase and is accurate for NaCl solutions up to 3 molal (Bethke, 2008). For the Woodbine and Paluxy Formation brines, characterized as NaCl waters, the calculated ionic strengths range from 0.97– 1.39 molal and are thus within the working range of the B-dot model. CO_2 solubility in the brine was calculated using the model of Duan and Sun (2006) for the formation temperatures, pressures, and NaCl salinities. This equation-of-state for the CO_2 solubility is consistent with the AoR dynamic modeling and justifications for selection in **Area of Review and Corrective Action Plan (Section 2)**. At the temperature, pressure, and ionic strength conditions of the Woodbine, CO_2 solubility was calculated at 0.91 mol CO_2/kg brine and 1.12 mol CO_2/kg brine at the conditions of the Paluxy.

Site specific bottom hole temperatures and pressures will be obtained as outlined in the **Testing and Monitoring Plan** (**Section 7**) and **Pre-Operational Testing Plan** (**Section 5**). The calculated solubilities of CO_2 were equilibrated with the formation brines in PHREEQC and resultant solutions reported in **Table 1-13.** Equilibration with CO_2 results in lowered pH values of 3.5 – 3.7 for the Woodbine and Paluxy Formations, and carbonate minerals shifting from oversaturation/equilibrium in the initial brines to undersaturation in the lower pH liquids.

Table 1-13. Woodbine and Paluxy Formation Fluids Speciated in PHREEQC with the llnl.dat Database and Subsequently Reacted with the Calculated CO_2 Solubility from Duan and Sun (2006)

	Woodbine	Paluxy
pH, s.u.	6.8	7.1
ionic strength, mol/kgw	0.9360	0.9934
Saturation Indices		
Aragonite	0.62	0.81
Calcite	0.76	0.95
Dolomite	2.72	2.95
Halite	-2.19	-2.12
Equilibration with CO_2		
pH, s.u.	3.703	3.572
ionic strength, mol/kgw	0.9363	0.9939
Saturation Indices		
Aragonite	-2.45	-2.65
Calcite	-2.30	-2.51
Dolomite	-3.41	-3.97
Halite	-2.19	-2.12

Compatibility of the CO_2-brine interactions was evaluated using kinetic models of mineral precipitation and dissolution according to the equation

$$r_{\vec{k}} = A_s k_+ (1 - Q/K),$$

where $r_{\vec{k}}$ is the reaction rate (mol s-1, positive for dissolution), A_s is the mineral surface area (cm^2), k_+ is the rate constant (mol cm-2 s-1), and Q and K are the activity product and equilibrium constant for the dissolution reaction. The logarithm of Q/K is defined as the mineral saturation index as detailed in **Table 1-13.** Accordingly, minerals will dissolve at a rate determined by the rate law when $Q/K > 1$ (saturation index < 0), and precipitate when $Q/K < 1$ (saturation index > 0). Rate constants are defined in **Table 1-14** and are derived from Palandri and Kharaka (2004) and Ilgen and Cygen (2016).

Table 1-14. Kinetic Reaction Parameters Considered for Select Mineral Species in the PHREEQC Model

	Surface Area, A_s (cm^2)	Rate Constant, k_+ (mol cm^{-2} s^{-1})	Reference
Quartz	10	1.02E-18	Ilgen and Cygen (2016)
K-feldspar	10	3.89E-17	Ilgen and Cygen (2016)
Albite	10	1.45E-16	Ilgen and Cygen (2016)
Anorthite	10	2.10E-16	Ilgen and Cygen (2016)
Calcite	10	5.01E-10	Ilgen and Cygen (2016)
Pyrite	500	2.79E-15	Ilgen and Cygen (2016)
Kaolinite	10	4.90E-16	Palandri and Kharaka (2004)
Smectite	10	1.05E-15	Palandri and Kharaka (2004)

The generalized mineralogy of the Woodbine and Paluxy and the confining formations detailed in **Section B.4**. were evaluated for kinetic dissolution and precipitation reactions along a timescale of 1,000 years. This generalized mineral assemblage considered the minerals included in **Table 1-14** to evaluate interactions with sandstone, limestone, and clay components. CO_2-brine interactions over 1,000 years indicated high compatibility with sandstone, limestone, and clay components. Dissolution of quartz, feldspar, and clays over the course of the 1,000-year model is not expected to be significant. Thus, injected CO_2 would be expected to be compatible in the receiving formations (Woodbine and Paluxy) and non-reactive with the confining unit comprised mainly of shale and clay minerals. Precipitation of carbonate minerals is not predicted to be significant, such that mineral trapping is not expected to play a significant role in CO_2 storage. **Figure 1-30** summarizes molar reactions of the generalized mineralogy.

B.9. Site Suitability [40 CFR 146.83]

Geologic site characterization of the Sugarberry CCS Hub shows that the project area provides a geologically favorable setting for the safe long-term storage of a large volume of CO_2. The proposed project will inject CO_2 into the Woodbine and Paluxy Formations. The Formations are two members of a prolonged passive coastal margin transgressive-regressive sequence with numerous cycles of sea level highstands creating shales and limestones while sea level lows create sandstones and coastal sediments. Both Formations show facies suggesting coast and near shore deposits (Hentz et al .2014; Gifford, 2021; Caughey, 1977).

Core data, geophysical well log data, and 2D seismic lines suggest that both Formations contain porous and permeable units with a minimum thickness of 200 feet for the Woodbine and 160 feet for the Paluxy, which extend continuously over a large area and lack any problematic surface structures. No fault segments have been identified in orthogonal 2D seismic lines, nor are faults suggested by anomalous offsets in units in logs. The lower Woodbine Formation and upper and lower Paluxy Formations both appear to have adequate continuity and storage volume to hold high volumes of CO_2. Injectivity may be limited in the Paluxy to 650,000 tons/year per well to maintain safe operating pressure, but with five wells injecting and 200,000 tons/year supplemental injectivity in the Woodbine, the project size is above desired targets and economically viable.

Beneath the Paluxy lie impermeable members of the Upper Glen Rose Formation which serves as the lower confining unit and the Woodbine is overlain by the lower Eagle Ford Shale, a regionally extensive formation which serves as a clear and continuous seal. Facies analyses suggest that the lower Eagle Ford Shale is representative of a sea level low resulting in a thick shale formation along the ancestral coast, with clear lateral continuity over the basin.

With no identified faults or fractures, ambient natural disruptions of the lower Eagle Ford confining unit appear absent and there is no evidence suggesting CO_2 leakage could occur through the confining unit. Because the primary reservoir for the Woodbine is at the base of the formation, there will be additional containment provided by internal shale layers for the majority of the CO_2, and only the uppermost thin sandstone layers that receive CO_2 may reach the base of the Eagle Ford. Since buoyant rise of CO_2 is driven in part by the thickness of the CO_2 column beneath the confining unit, and this column will be very thin in upper Woodbine sand stringers, the risk of CO_2 leakage directly through the confining unit is minimal. Nevertheless, careful characterization of the lower Eagle Ford Shale will be undertaken prior to injection during pre-operational testing **(Section 5).** Furthermore, a key advantage of the Sugarberry CCS Hub location is that there are few well penetrations that reach the two target reservoirs and consequently few artificial pathways for CO_2 leakage. Artificial penetrations of the Woodbine and Paluxy are north of the AoR and up-dip in a natural petroleum trap along the Mexia-Talco fault zone. Site management and operation have been designed to prevent CO_2 plume migration to the fault zone and simulations do not indicate that CO_2 will interact with the fault or related production penetrations.

C. AoR and Corrective Action

The information submitted in the **Area of Review and Corrective Action Plan** satisfies the requirements of 40 CFR 146.84 and the state requirements of 16 TAC 5.203(d). This plan is **Section 2** of this application. This plan addresses delineation of the AoR and Corrective Action (CA) for the artificial penetrations and other features within the AoR to protect Underground Sources of Drinking Water (USDWs) from sequestration activities.

The computational model describes simulation of the processes of injecting CO_2 into the Woodbine and Paluxy Formations at the Sugarberry CCS Hub to satisfy the requirements of 40 CFR 146.84(c). This part of the AoR/CA Plan describes the GEOS dynamic model that was used to simulate the injection. It also describes the properties of the Woodbine and Paluxy that comprise the injection zone and the properties of the lower shales in the Eagle Ford Formation that comprise the confining unit. The engineering design and operational plans for the injection wells are described as well as how they are incorporated into the dynamic model.

The AoR is defined as the superposition of the CO_2 plume extent and the area at the top of the storage complex where the change in pressure is greater than the threshold pressure (calculated as 290 psi; see **Attachment 1** of the **AoR and Corrective Action Plan** for details). Results from the base case model indicate the AoR is dominated by the extent of the supercritical CO_2 plume during all phases of the project. After delineating the AoR, Sugarberry CCS, LLC established a buffer around the AoR in which corrective action will be performed (as shown in **Figure 1-3**). This buffered AoR was formed by adding a one-mile buffer on the west, south, and east sides of the delineated AoR (i.e., the downdip and crossdip sides) and extending to the north (updip, towards the Mexia-Talco Fault Zone) to the 200-psi delta pressure contour line at the end of injection (i.e., 30 years). This buffer may be revised or removed following pre-injection testing and model calibration. The buffered AoR covers 53.18 square miles, a 65.2% increase in area over the AoR established by computational modeling. The additional area of the buffered AoR is conservatively established to account for computational model uncertainty. Sugarberry CCS, LLC will conduct all corrective action procedures for all artificial penetrations within the buffered AoR.

There are 19 artificial penetrations of the confining unit within the extended buffer and these penetrations have been tabulated per 40 CFR 146.82(a)(4). Sugarberry CCS, LLC proposes a sequential CA strategy based on temporal evolution of the supercritical plume, beginning prior to injection and ending in the 20th year of injection. Sugarberry CCS, LLC will review the AoR every five years during the injection and post-injection phases of the project to ensure the computational model predictions are adequate for predicting the extent of the CO_2 plume and pressure front. Unforeseen events may occur in between the periodic five-year update intervals that may trigger an AoR reevaluation and such events and the process for addressing them are also contained in this section.

AoR and Corrective Action GSDT Submissions
GSDT Module: AoR and Corrective Action ***Tab(s):*** All applicable tabs Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☒ Tabulation of all wells within AoR that penetrate confining zone ***[40 CFR 146.82(a)(4)]*** ☒ AoR and Corrective Action Plan ***[40 CFR 146.82(a)(13) and 146.84(b)]*** ☒ Computational modeling details ***[40 CFR 146.84(c)]***

D. Financial Responsibility

Sugarberry CCS, LLC has prepared the Financial Responsibility Demonstration to comply with federal requirements at 40 CFR 146.85 and state requirements at 16 TAC 5.203(n) and 5.205. The **Financial Responsibility Plan** is **Section 3** of this application. The plan provides estimates for project activities and information pertaining to the financial instruments Sugarberry CCS, LLC proposes to use to demonstrate Financial Responsibility for the following activities: (1) Corrective Action; (2) Injection Well Plugging; (3) Post-Injection Site Care; (4) Site Closure; and (5) Emergency and Remedial Response. The Financial Responsibility Demonstration includes financial instruments to cover the costs of one emergency leakage event as laid out in the **ERRP**, total costs of injection well plugging as outlined in the **Injection Well Plugging Plan**, total costs

of corrective action per the **Area of Review and Corrective Action Plan**, total costs of 50 years of post-injection site care as discussed in the **Post-Injection Site Care and Site Closure Plan**, and total costs of plugging observation wells and restoring the site as per the **Injection Well Plugging Plan** and **Post-Injection Site Care and Site Closure Plan.**

Financial Responsibility GSDT Submissions
GSDT Module: Financial Responsibility Demonstration ***Tab(s):*** Cost Estimate tab and all applicable financial instrument tabs Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☒ Demonstration of financial responsibility ***[40 CFR 146.82(a)(14) and 146.85]***

E. Injection Well Construction

Sugarberry CCS, LLC has prepared the **Injection Well Construction Plan** to comply with federal requirements at 40 CFR 146.85 and 146.86 and state requirements at 16 TAC 5.203(e). This plan is **Section 4** of this application. The plan provides information to address the construction of five new injection wells, supported by construction procedures, details related to casing and cementing, and tubing and packer details. Although not anticipated, a stimulation program is provided in **Section 4.1** of the application.

F. Pre-Operational Logging and Testing

The **Pre-Operational Testing Plan** was prepared pursuant to the requirements of 40 CFR 146.82(c). This plan is **Section 5** of this application. The initial computational model that delineates the AoR was built with the best available site characterization data. Additional data will be gathered during construction and testing of the injection wells and deep monitoring wells that will support the initial AoR reevaluation. Results of pre-operational testing will be used to reduce uncertainty in the geologic characterization and computational model inputs and provide information to fine-tune the **Testing and Monitoring Plan** (**Section 7**) to meet site conditions.

Pre-Operational Logging and Testing GSDT Submissions
GSDT Module: Pre-Operational Testing ***Tab(s):*** Welcome tab Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☒ Proposed pre-operational testing program ***[40 CFR 146.82(a)(8) and 146.87]***

G. Well Operation

A **Summary of Requirements** was prepared pursuant to the requirements of 40 CFR 146.82(a)(10). This plan is **Section 6** of this application. The Summary of Requirements provides operational procedures including operational values and the proposed carbon dioxide stream.

H. Testing and Monitoring

This plan is designed to ensure that injection and storage of CO_2 at the Sugarberry CCS Hub is done safely, without endangerment to local USDWs or communities, and satisfies the federal requirements under 40 CFR 146.90 and state requirements under 16 TAC 5.203(j). This plan is **Section 7** of this application. An accompanying **Quality Assurance and Surveillance Plan** is provided as **Section 7.1**.

Sugarberry CCS, LLC plans to drill 14 wells strategically placed in specific formations (**Figure 1-2**) to ensure the protection of groundwater resources. These wells include:

- Five injection wells completed in the Woodbine and Paluxy Formations;
- Four in-zone observation wells completed in the Woodbine and Paluxy Formations;
- Three above-zone observations wells completed in the Subclarksville Sand Member (upper Eagle Ford Formation); and
- Two USDW observation wells completed in shallow sands (Taylor Group) that may be related to regional aquifer systems.

Data collected during the implementation of this plan will be used to confirm that injection procedures are operating as planned, that USDWs are protected, and that the CO_2 plume and pressure front both develop as modeled. The monitoring data will also be used to validate and update geologic and reservoir simulation models. These models, being the primary method of forecasting the position, pressure, and saturation of the injected CO_2 within the Sugarberry CCS Hub, will ultimately support and demonstrate the safe and permanent storage of CO_2 throughout the project. **Table 7-1 of the Testing and Monitoring Plan** summarizes the testing and monitoring activities that are proposed for the Sugarberry CCS Hub. **Tables 7-2 through 7-9** summarize the details of each testing and monitoring activity to satisfy the federal requirements under 40 CFR 146.90 and state requirements under 16 TAC 5.203(j) for each method.

Testing and Monitoring GSDT Submissions
GSDT Module: Project Plan Submissions ***Tab(s):*** Testing and Monitoring tab Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☒ Testing and Monitoring Plan ***[40 CFR 146.82(a)(15) and 146.90]***

I. Injection Well Plugging

The **Injection Well Plugging Plan** is designed to comply with federal requirements at 40 CFR 146.92 and 146.93(e) and state requirements at 16 TAC 3.14 and 5.203(k), which include plugging details for the injection wells and observation wells at the Sugarberry CCS Hub. This plan is **Section 8** of this application. For five years after the 30-year injection period, the injection wells will be used as observation wells to ensure containment of the CO_2 in the injection zone, after which they will be plugged. Prior to plugging, the final bottom-hole pressure of the injection wells will be measured, and a buffered fluid (brine) will be used to flush and fill the wells to maintain

pressure control. The injection tubing strings, packers, and gauges will be removed from the wells. The mechanical integrity of the wells will be tested to determine no communication has been established between the injection zone and any unauthorized zone (per 40 CFR 146.92). Upon a successful mechanical integrity test, CO_2 resistant cement will be used to isolate the well from total depth to the top of the confining unit (Eagle Ford Shale). Federal and state plugging notifications and reports will be submitted as detailed in the plan.

Injection Well Plugging GSDT Submissions
GSDT Module: Project Plan Submissions ***Tab(s):*** Injection Well Plugging tab Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☒ Injection Well Plugging Plan ***[40 CFR 146.82(a)(16) and 146.92(b)]***

J. Post-Injection Site Care (PISC) and Site Closure

This plan is designed so that CO_2 injection for permanent storage at the Sugarberry CCS Hub does not lead to USDW endangerment following cessation of injection and satisfies the federal requirements under 40 CFR 146.93 and state requirements under 16 TAC 5.203(m). This plan is **Section 9** of this application and references the accompanying **Quality Assurance and Surveillance Plan**, provided as **Section 7.1.**

The PISC timeframe will begin when all CO_2 injection ceases (after 30 years of injection) and ends with site closure. Given the slowed rate of plume migration and decrease in pressure differentials by 80 years, as shown by current modeling results and the minimal number of artificial penetrations in the path of the leading edge of the CO_2 plume, the default 50-year PISC timeframe and following closure will be suitable to demonstrate USDW non-endangerment. As such, Sugarberry CCS, LLC does not propose an alternative PISC timeframe.

Throughout the PISC period, Sugarberry CCS, LLC will continue monitoring the site with a combination of:

- Groundwater quality and geochemical monitoring to capture potential vertical migration of CO_2 out of the reservoir after injection through loss of containment;
- Pressure front tracking to observe how elevated pressures related to injection dissipate within the reservoir and near the primary confining zone over time following injection and to capture potential pressure changes in units above the confining zone; and
- CO_2 plume tracking to observe the direction and rate of plume migration after cessation of injection.

Prior to approval of the end of the PISC timeframe, Sugarberry CCS, LLC will compile and submit a demonstration of non-endangerment of USDWs to the UIC Program Director and RRC Director. This demonstration will include all relevant monitoring data and interpretations upon which the non-endangerment demonstration is based, model documentation and all supporting data, and any other necessary information. Following approval of ending the PISC period, Sugarberry CCS, LLC will conduct site closure activities including the decommissioning of surface facilities and

equipment, plugging monitoring wells, restoration of the site to pre-operational conditions, and preparing and submitting all documentation necessary to demonstrate that site closure has been completed.

PISC and Site Closure GSDT Submissions
GSDT Module: Project Plan Submissions ***Tab(s):*** PISC and Site Closure tab Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☒ PISC and Site Closure Plan ***[40 CFR 146.82(a)(17) and 146.93(a)]***
GSDT Module: Alternative PISC Timeframe Demonstration ***Tab(s):*** All tabs (only if an alternative PISC timeframe is requested) Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☐ Alternative PISC timeframe demonstration ***[40 CFR 146.82(a)(18) and 146.93(c)]***

K. Emergency and Remedial Response

The **Emergency and Remedial Response Plan** (ERRP) was prepared pursuant to the requirements of 40 CFR 146.94(a). This plan is **Section 10** of this application. The ERRP describes actions that Sugarberry CCS, LLC will take to address movement of the injection fluid or formation fluid in a manner that may endanger an underground source of drinking water (USDW) during the construction, operation, or post-injection site care periods. The ERRP describes and classifies the potential risk events, and describes avoidance measures and response actions for each risk event. The ERRP also contains an Emergency Communications Plan for the Sugarberry CCS Hub. Finally, the ERRP provides plans for conducting periodic review and updates of the Plan through the life of the project.

Emergency and Remedial Response GSDT Submissions
GSDT Module: Project Plan Submissions ***Tab(s):*** Emergency and Remedial Response tab Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☒ Emergency and Remedial Response Plan ***[40 CFR 146.82(a)(19) and 146.94(a)]***

L. Injection Depth Waiver and Aquifer Exemption Expansion

No Injection Depth Waiver or Aquifer Exemption Expansions are requested by this Permit Application.

Injection Depth Waiver and Aquifer Exemption Expansion GSDT Submissions
GSDT Module: Injection Depth Waivers and Aquifer Exemption Expansions ***Tab(s):*** All applicable tabs Please use the checkbox(es) to verify the following information was submitted to the GSDT: ☐ Injection Depth Waiver supplemental report ***[40 CFR 146.82(d) and 146.95(a)]*** ☐ Aquifer exemption expansion request and data ***[40 CFR 146.4(d) and 144.7(d)]***

M. Environmental Justice Plan

This plan was designed to meet state environmental justice requirements for permitting a geologic storage facility at 16 TAC 5.204(a)(6) and also considers EPA guidance on environmental justice issued in August 2023. The plan presents the results of an energy and environmental justice assessment, discusses project benefits and disbenefits, and describes the stakeholder engagement strategy that Sugarberry CCS, LLC is implementing for the project.

N. Other Information

No other information has been requested for submittal to the GSDT at this time.

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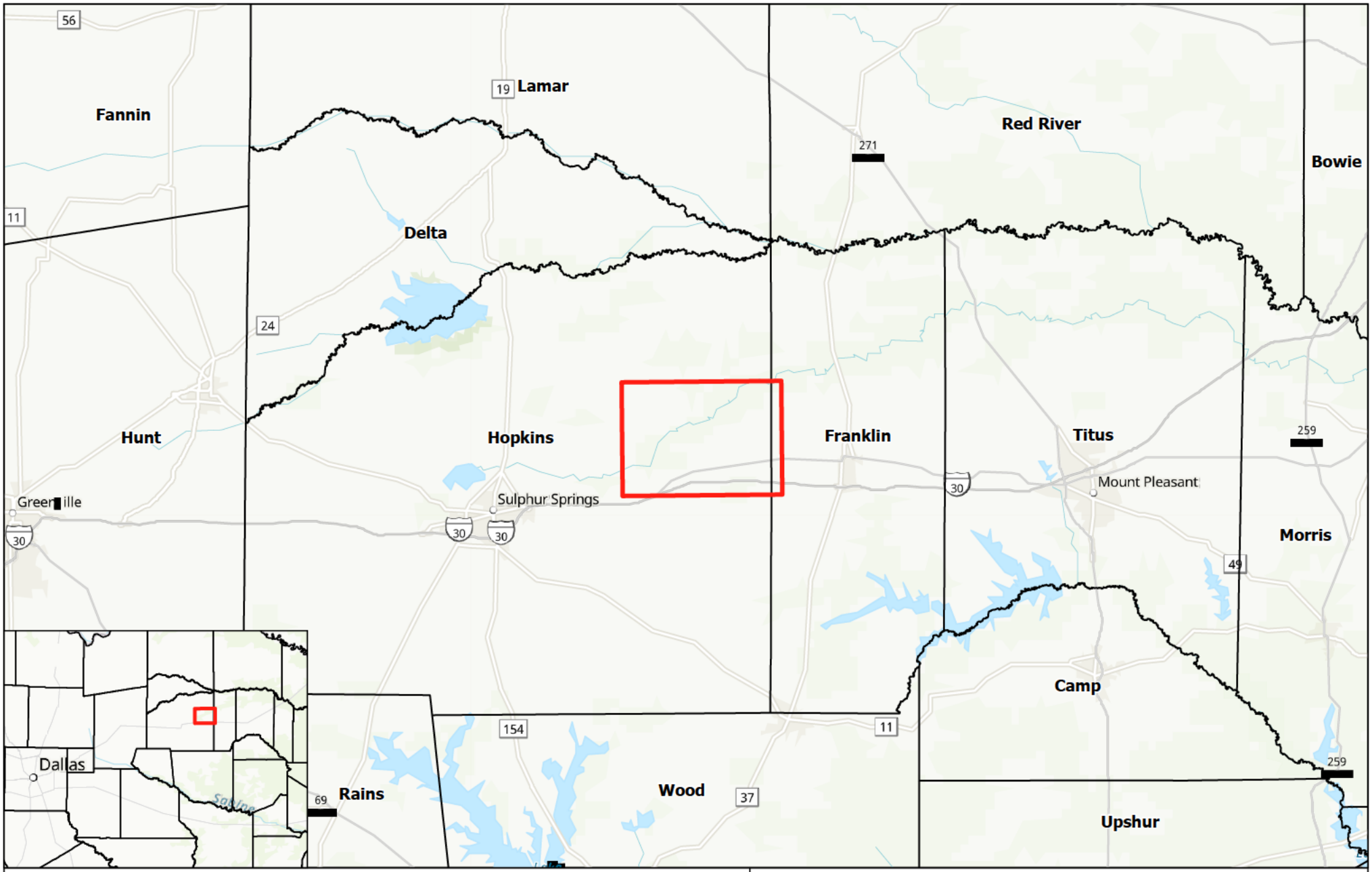
FIGURES



Legend

- Sugarberry CCS Hub General Location
- County Line

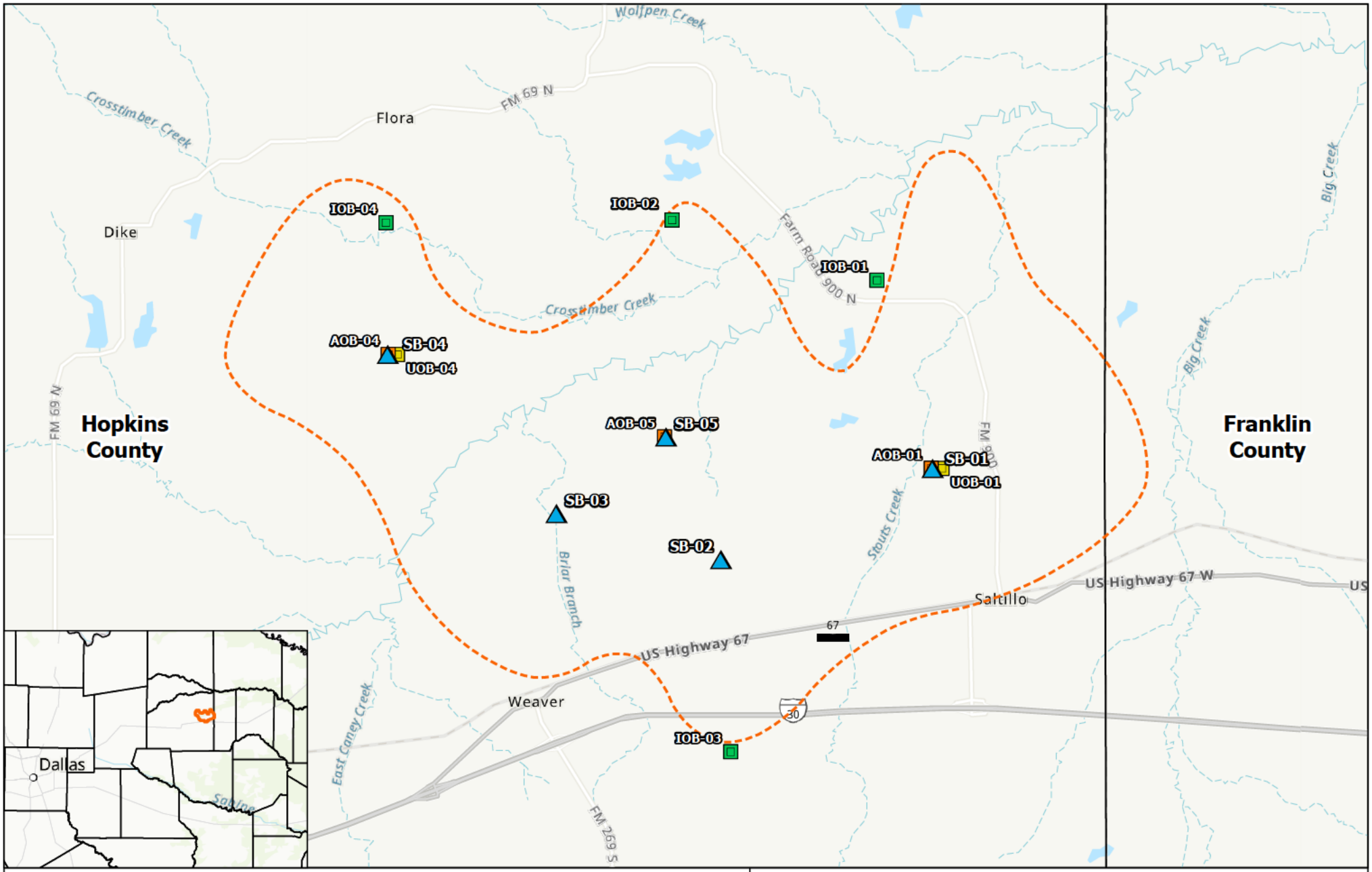
FIGURE 1-1
LOCATION OF SUGARBERRY CCS HUB
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 5 10 Miles

N



Legend

- Injection Well
- Above-zone Observation Well
- In-zone Observation Well
- USDW Monitoring Well
- Area of Review
- County Line

FIGURE 1-2
MAP OF THE SUGARBERRY CCS HUB WITH THE LOCATION OF THE PROPOSED WELLS AND AREA OF REVIEW
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 1 2 Miles

N

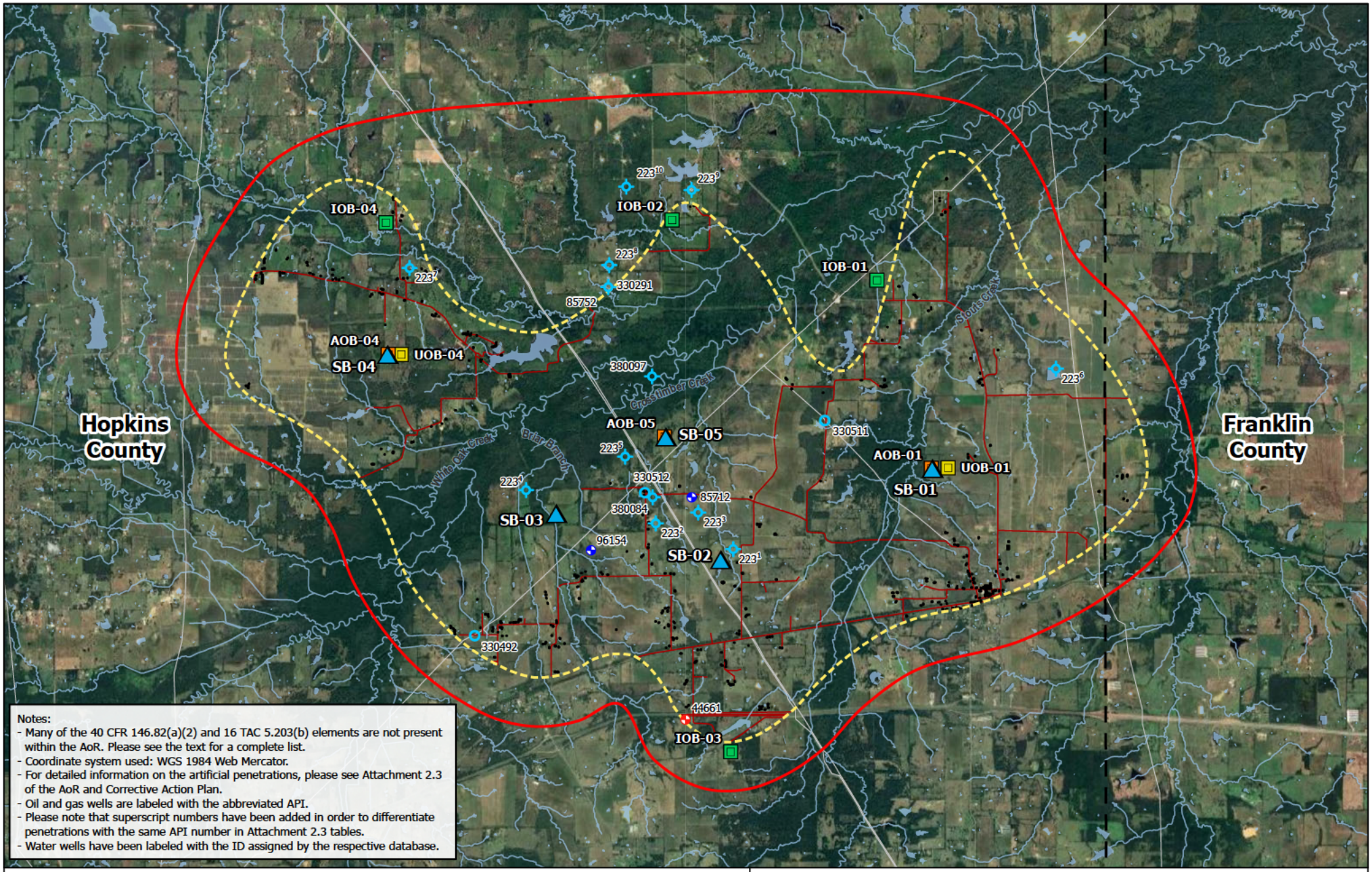
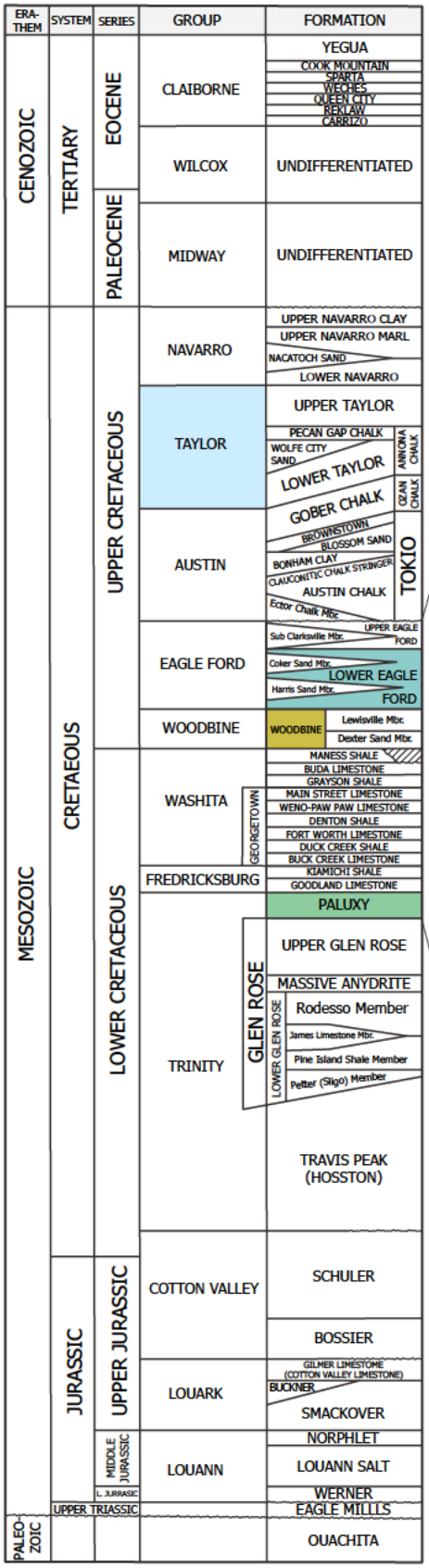


FIGURE 1-3
FEATURES AT THE SUGARBERRY CCS HUB
PER 40 CFR 146.82(A)(2) AND 16 TAC 5.203(B)
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025



Source:
Modified from Wood D. H. and Guevara E. H. (1981) Regional Structural Cross Sections and General Stratigraphy East Texas Basin. Bureau of Economic Geology.

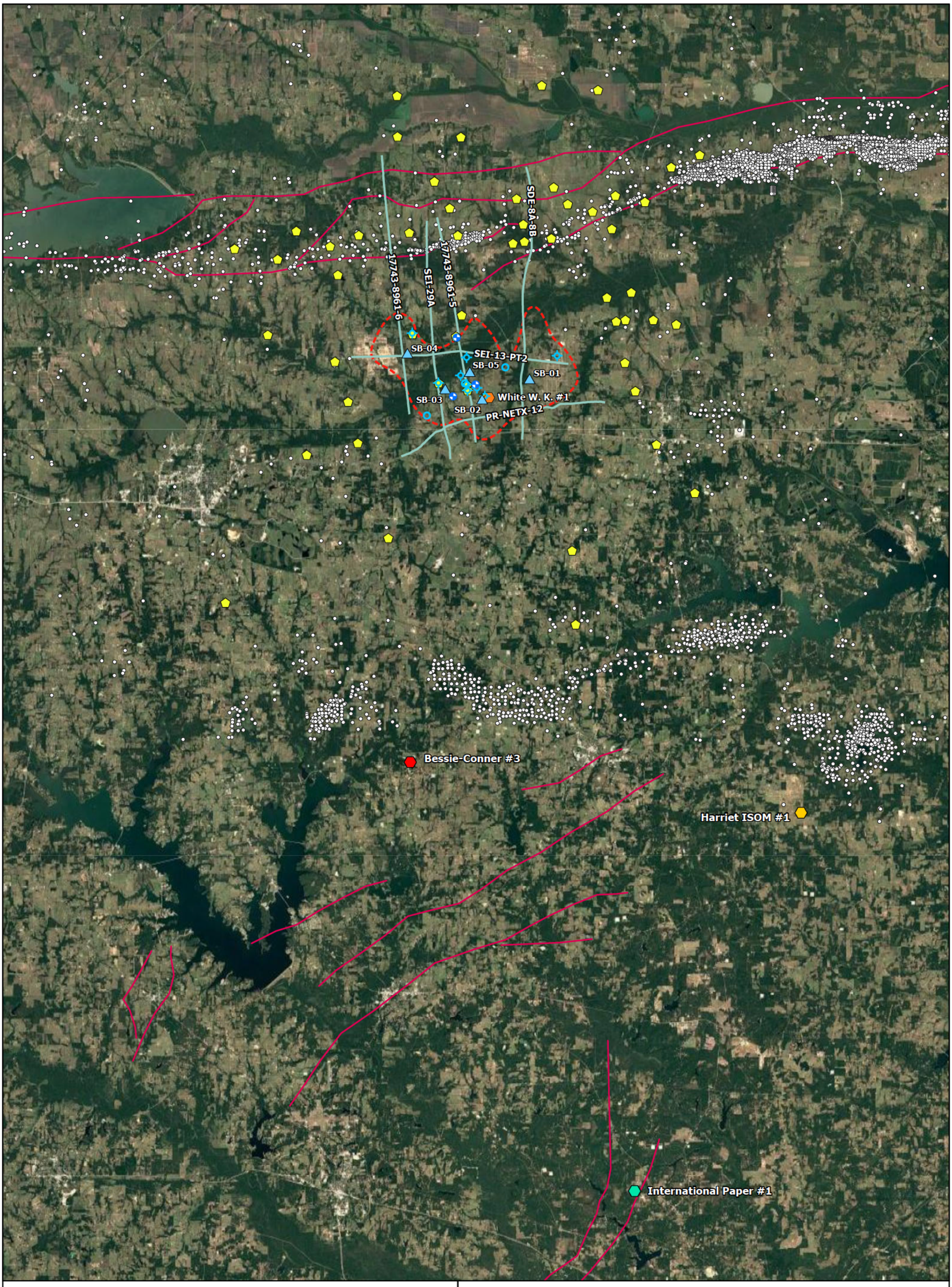
Legend

- Lower Eagle Ford Confining Zone
- Woodbine Injection Zone
- Paluxy Injection Zone
- Taylor Group USDW

FIGURE 1-4
STRATIGRAPHIC COLUMN AT SUGARBERRY CCS HUB
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS	May 2025



Legend

- Injection Wells
- Area of Review
- 2D Seismic Lines
- Known Faults
- Wells Used in Static Modeling
- Oil and Gas Wells Not Used in Static Modeling
- Bessie-Conner #3
- White W. K. #1 Type Log
- International Paper #1
- Harriet Isom #1

Artificial Penetrations In the AOR

- Permitted Location
- Dry Hole
- Water Well

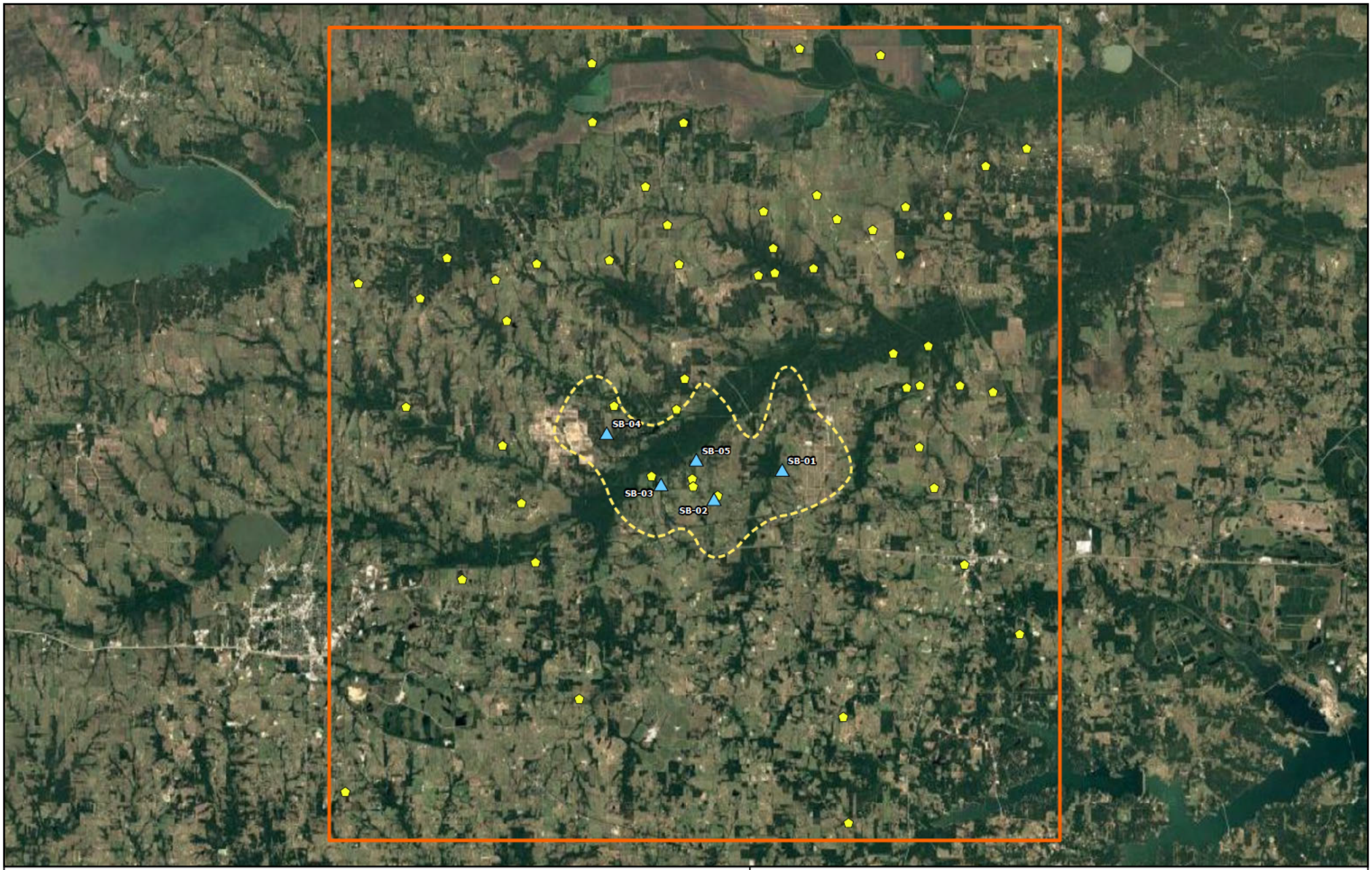
FIGURE 1-5
DATA SOURCE
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 3 6 Miles

N



Legend

- Injection Wells
- Area of Review
- Wells Used in Static Modeling
- Extent of Static Model

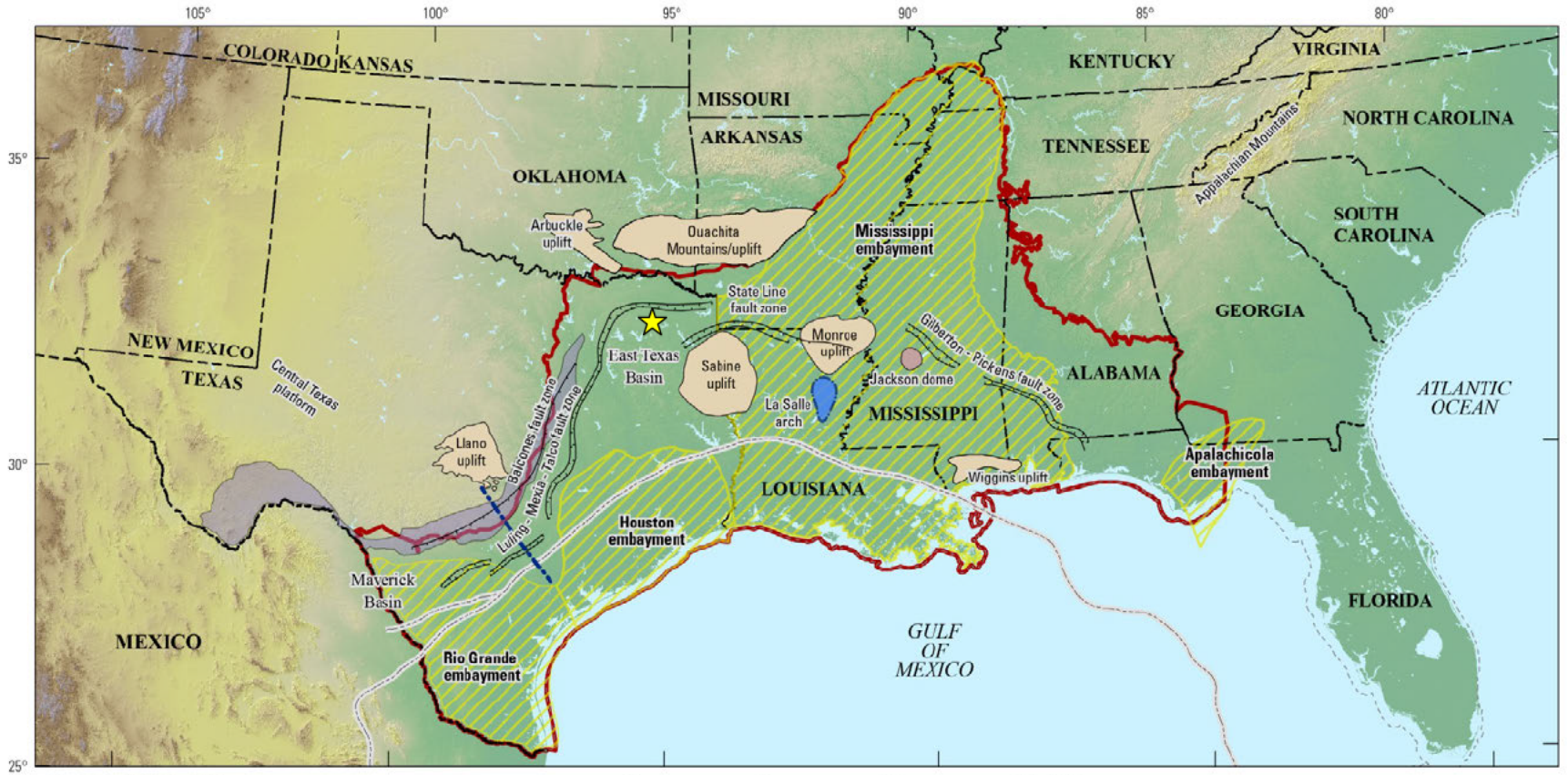
FIGURE 1-6
STATIC MODEL EXTENT
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 2 4 Miles

N



Legend

☆ Site Location

Source:
Roberts-Ashby T. L. et al. (2012). *Geologic Framework for the National Assessment of Carbon Dioxide Storage Resources—U.S. Gulf Coast*. U.S. Geological Survey.

FIGURE 1-7
TEXAS GEOLOGICAL FEATURES
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS	May 2025

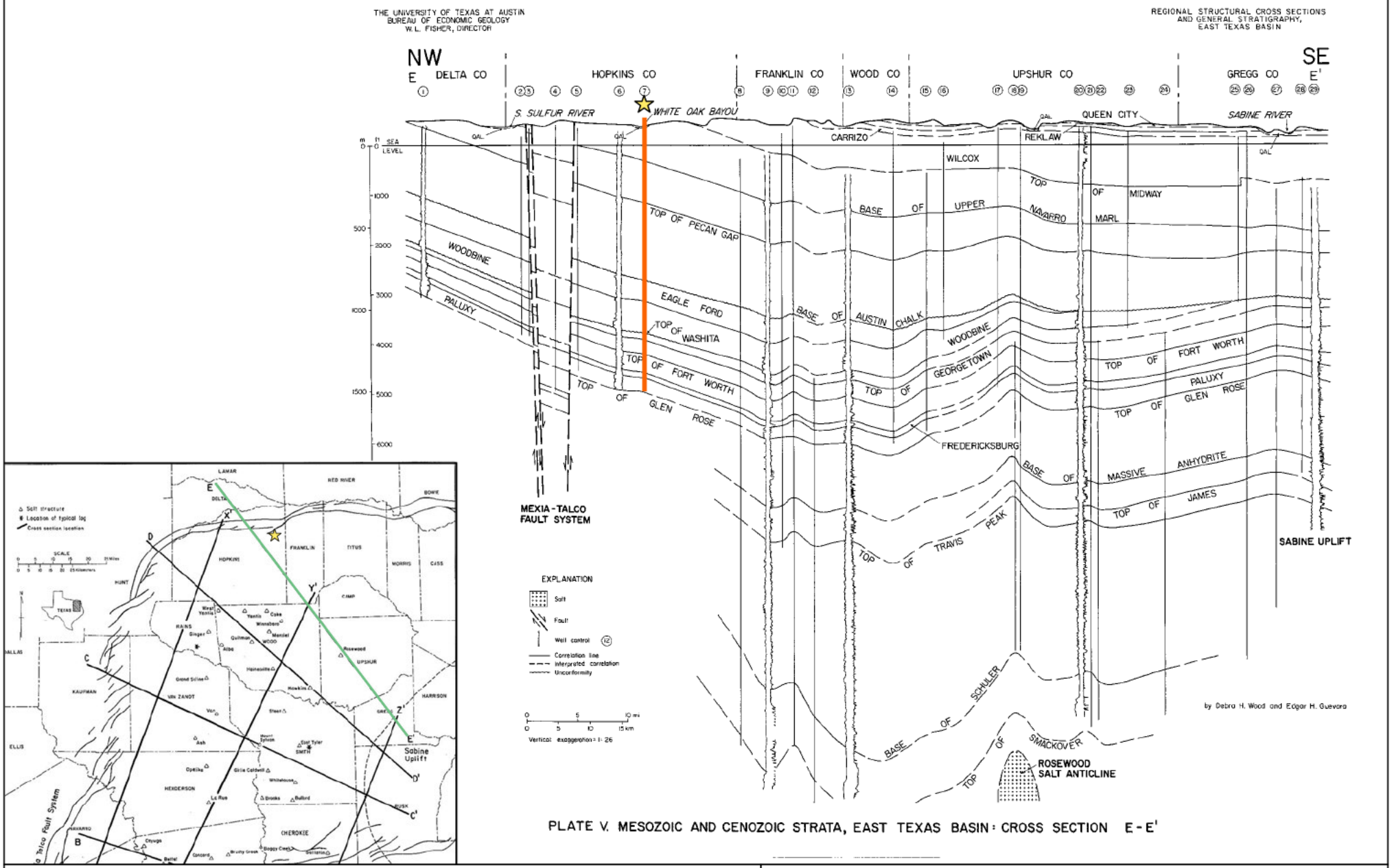


PLATE V. MESOZOIC AND CENOZOIC STRATA, EAST TEXAS BASIN: CROSS SECTION E-E'

Legend

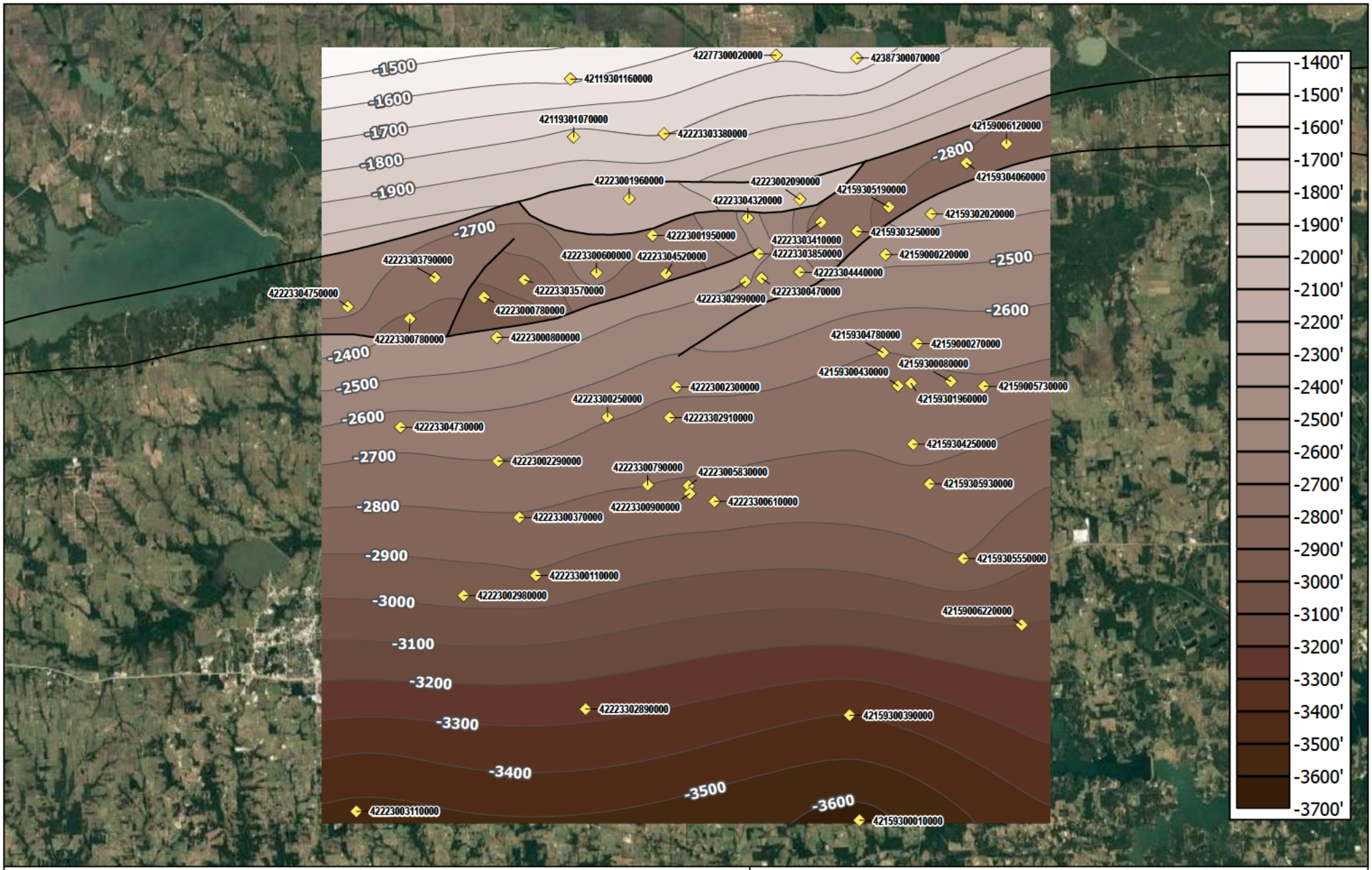
- Site Location
- Injection Wells Location
- Cross Section E-E' Trace

Source:
Modified from Wood D. H. and Guevara E. H. (1981) Regional Structural Cross Sections and General Stratigraphy East Texas Basin. Bureau of Economic Geology.

FIGURE 1-8
REGIONAL CROSS SECTION
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025



Legend

- Well Used in Static Modeling
- Fault

Note:
Depths are measured relative to mean sea level.

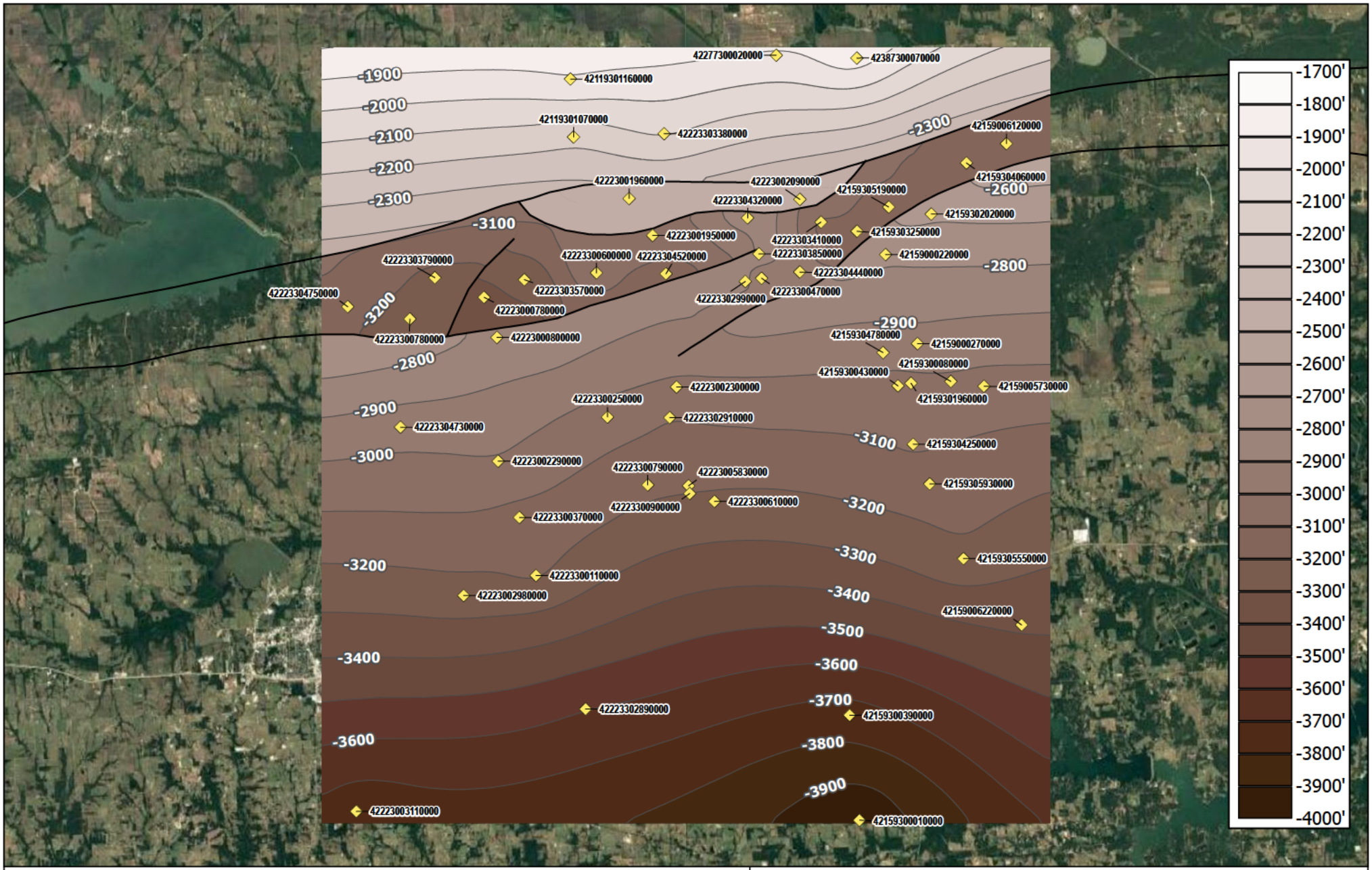
FIGURE 1-9
LOWER EAGLE FORD FORMATION TOP
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS	May 2025

0 2 4 Miles

N



Legend

- Well Used in Static Modeling
- Fault

Note:
Depths are measured relative to mean sea level.

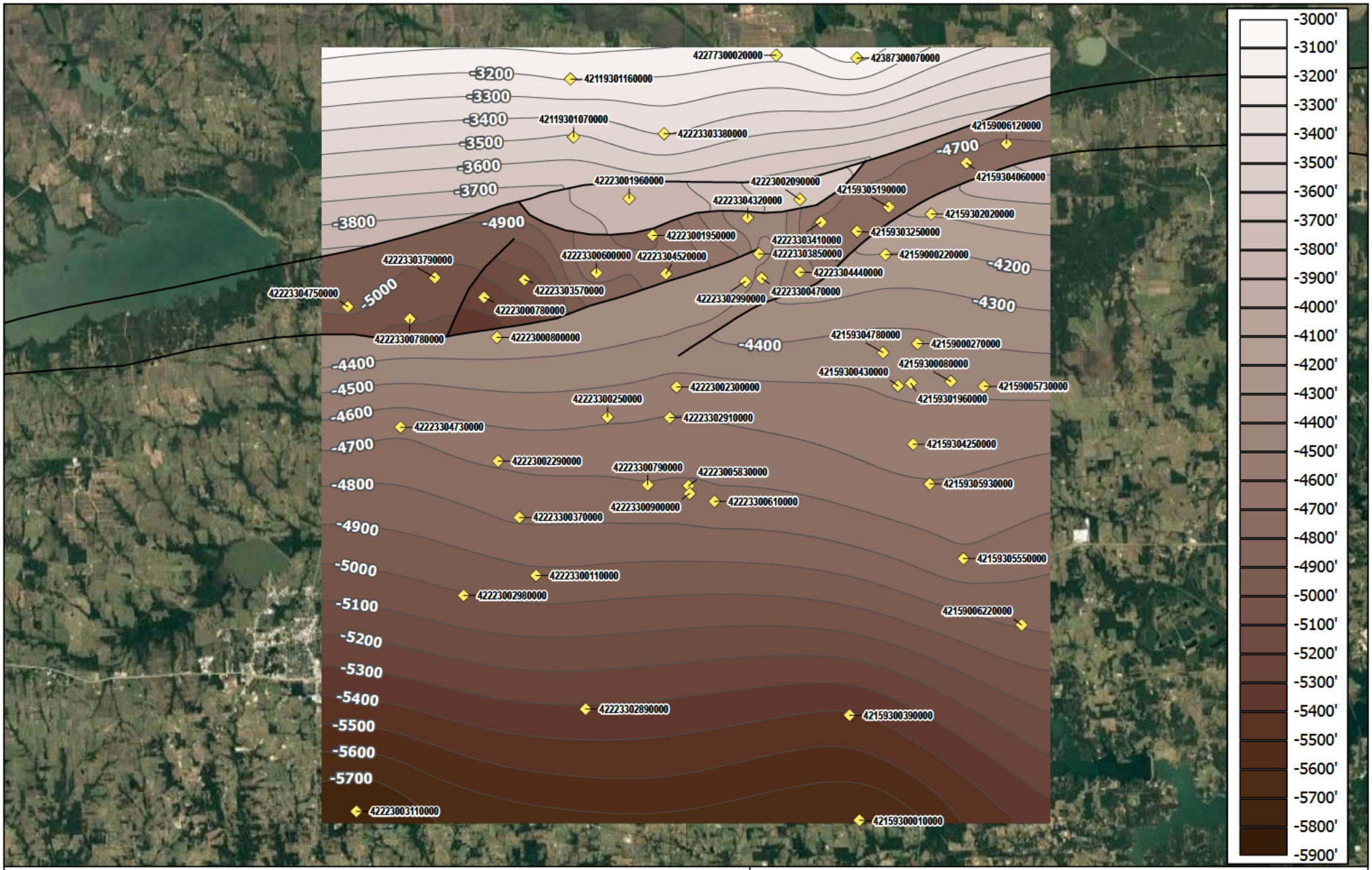
FIGURE 1-10
WOODBINE FORMATION TOP
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS	May 2025

0 2 4 Miles

N



Legend

- Well Used in Static Modeling
- Fault

Note:
Depths are measured relative to mean sea level.

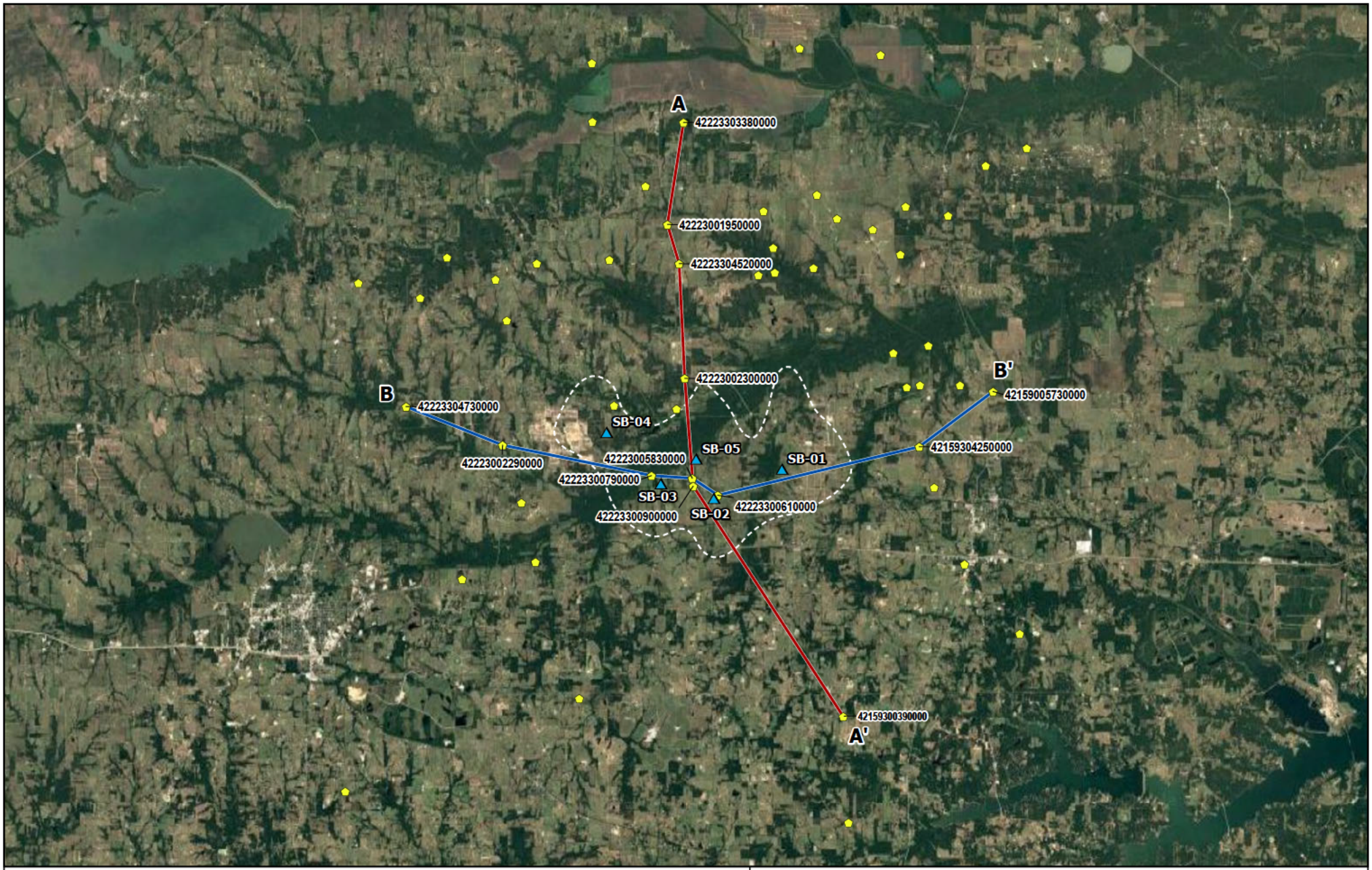
FIGURE 1-11
PALUXY FORMATION TOP
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 2 4 Miles

N



Legend

- Injection Well
- Wells Used in Static Modeling
- Cross Section A-A'
- Cross Section B-B'
- Area of Review

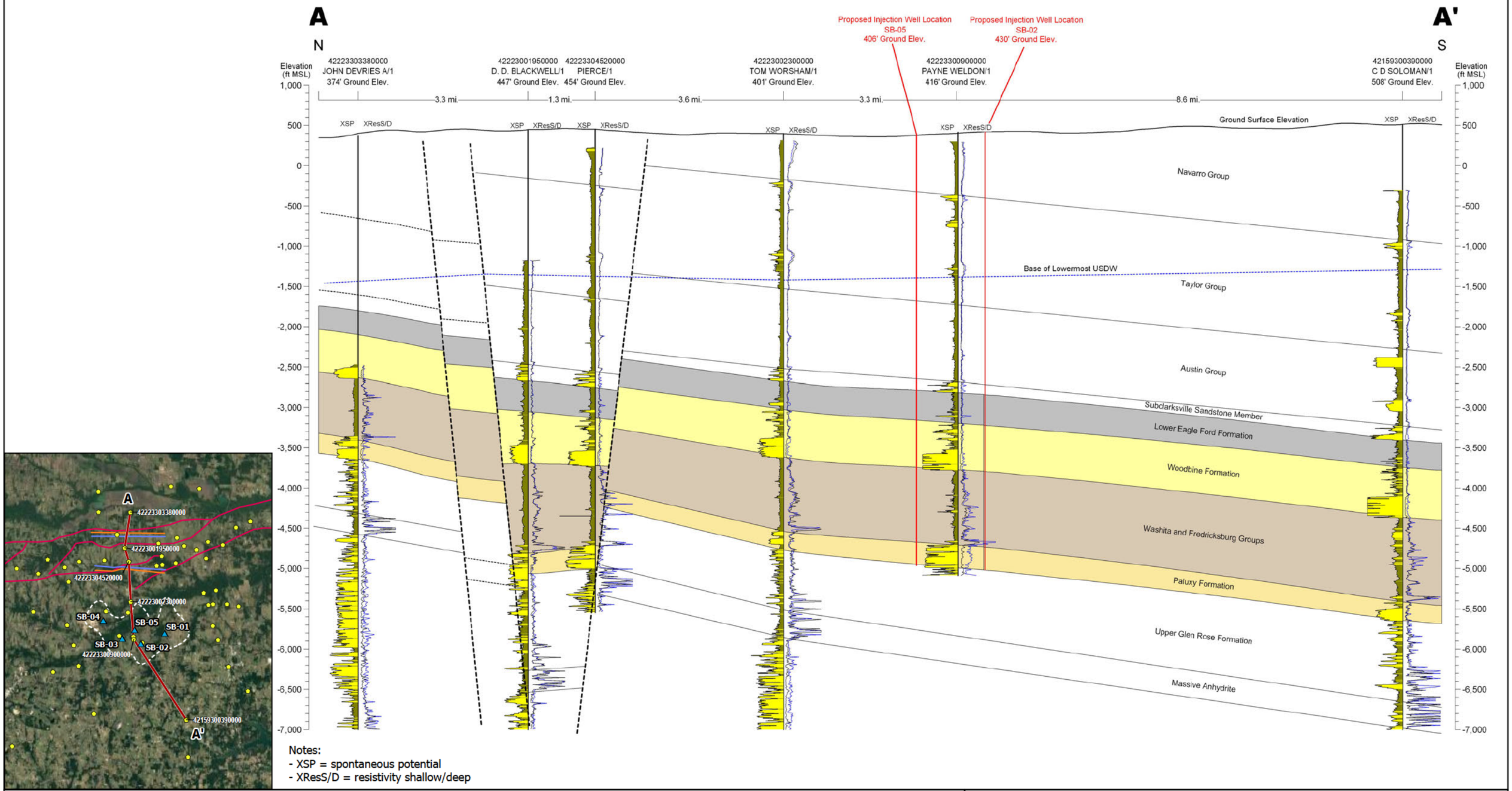
FIGURE 1-12
CROSS SECTION TRACE MAP
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 2 4 Miles

N



Notes:
- XSP = spontaneous potential
- XResS/D = resistivity shallow/deep

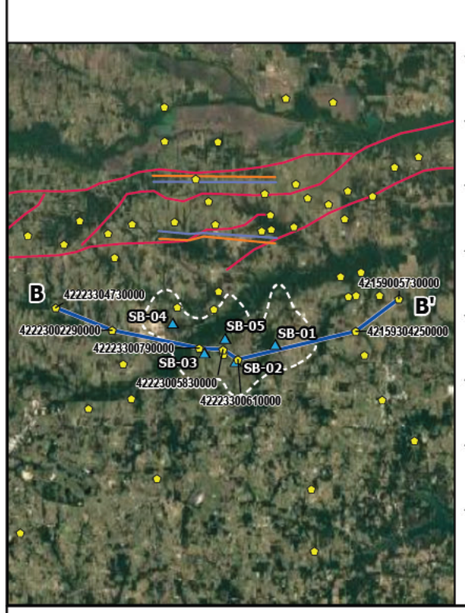
Legend

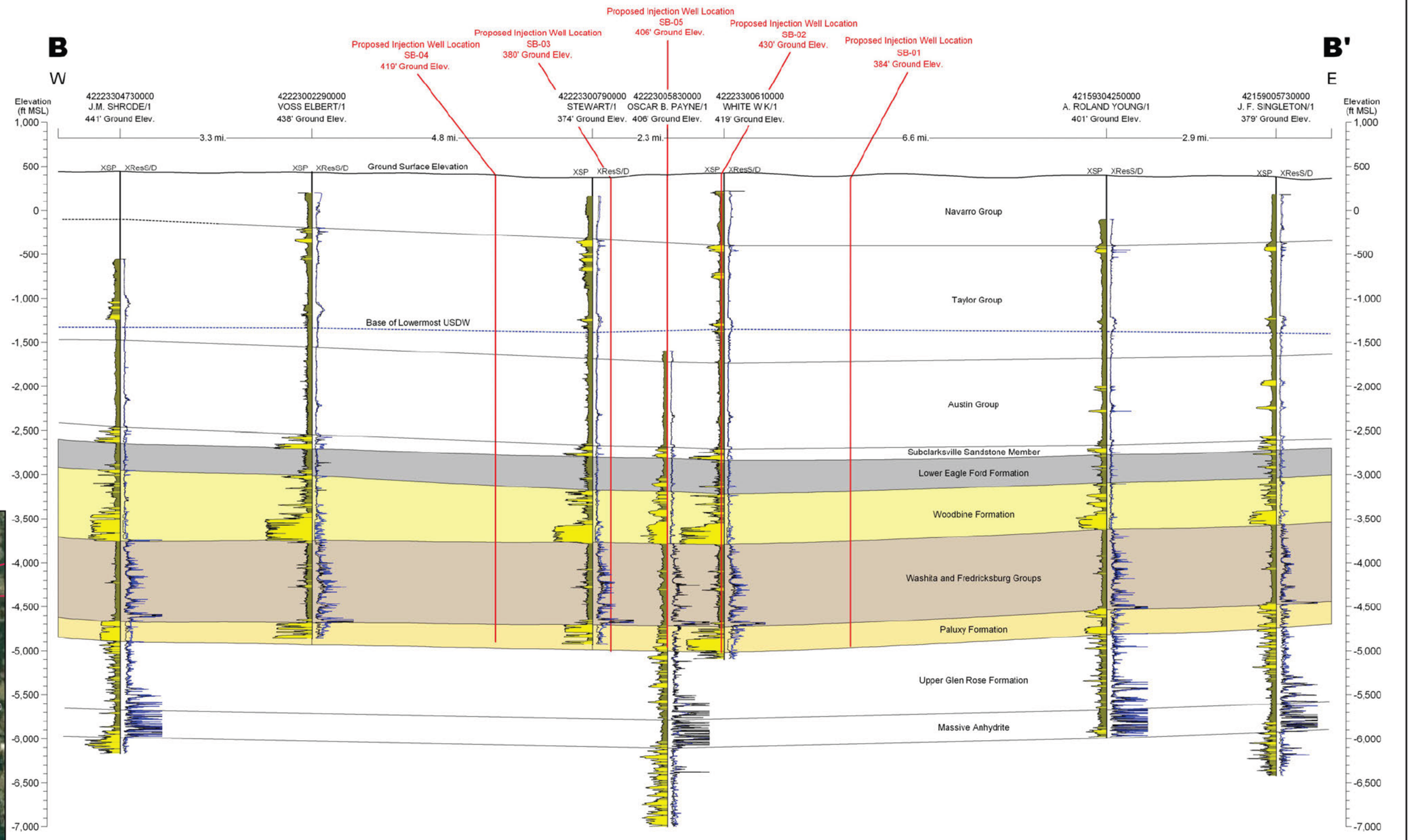
- Wells Used in Static Modeling
- Cross Section A-A'
- Injection Well
- Area of Review
- Eagle Ford Fault
- Fredricksburg Fault
- Literature Faults
- Faults
- Confining Zone (Lower Eagle Ford Formation)
- Injection Zone (Woodbine Formation)
- Injection Zone (Washita and Fredricksberg Groups)
- Injection Zone (Paluxy Formation)

XSP Curves
- Sand
- Shale

FIGURE 1-13
NORTH-SOUTH CROSS SECTION
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS | Wichita, KS | May 2025





Notes:
- XSP = spontaneous potential
- XResS/D = resistivity shallow/deep

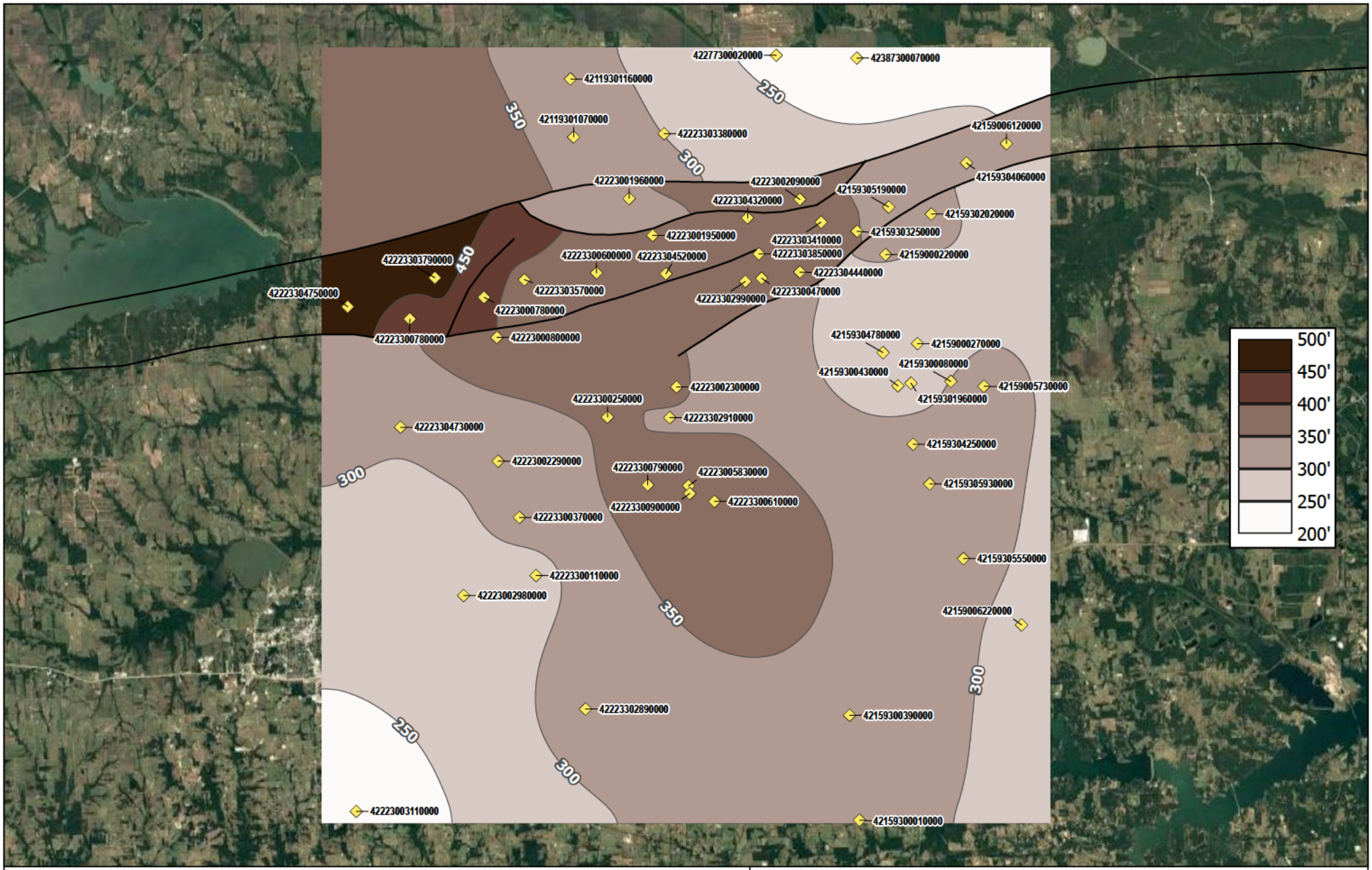
Legend

- Wells Used in Static Modeling
- Cross Section B-B'
- Injection Well
- Area of Review
- Eagle Ford Fault
- Fredricksburg Fault
- Literature Faults
- Confining Zone (Lower Eagle Ford Formation)
- Injection Zone (Woodbine Formation)
- Injection Zone (Washita and Fredricksberg Groups)
- Injection Zone (Paluxy Formation)

XSP Curves
- Sand
- Shale

FIGURE 1-14
EAST-WEST CROSS SECTION
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS | Wichita, KS | May 2025



Legend

- Well Used in Static Modeling
- Fault

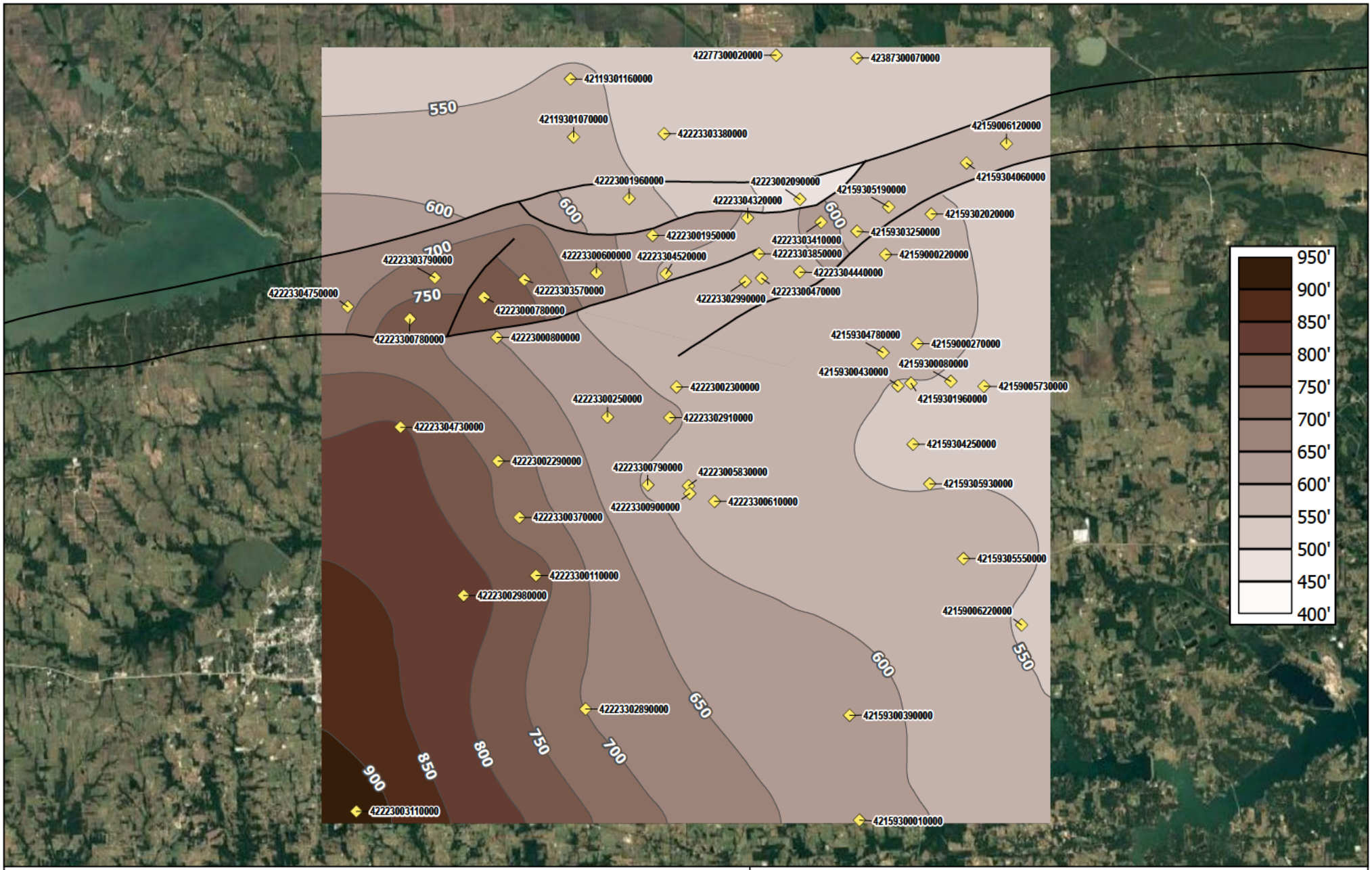
FIGURE 1-15
LOWER EAGLE FORD THICKNESS
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 2 4 Miles

N



Legend

- Well Used in Static Modeling
- Fault

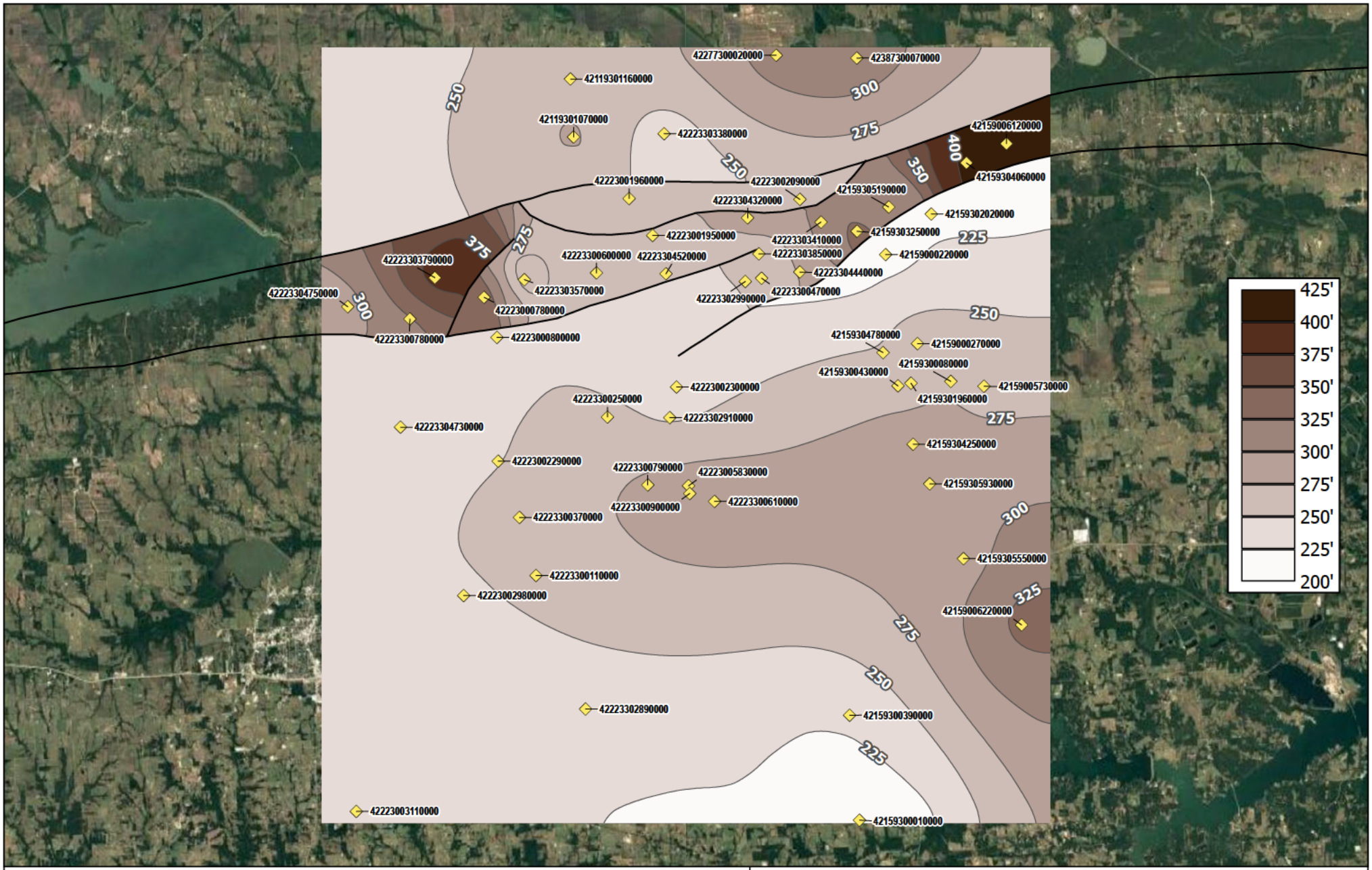
FIGURE 1-16
WOODBINE FORMATION THICKNESS
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 2 4 Miles

N



Legend

- Well Used in Static Modeling
- Fault

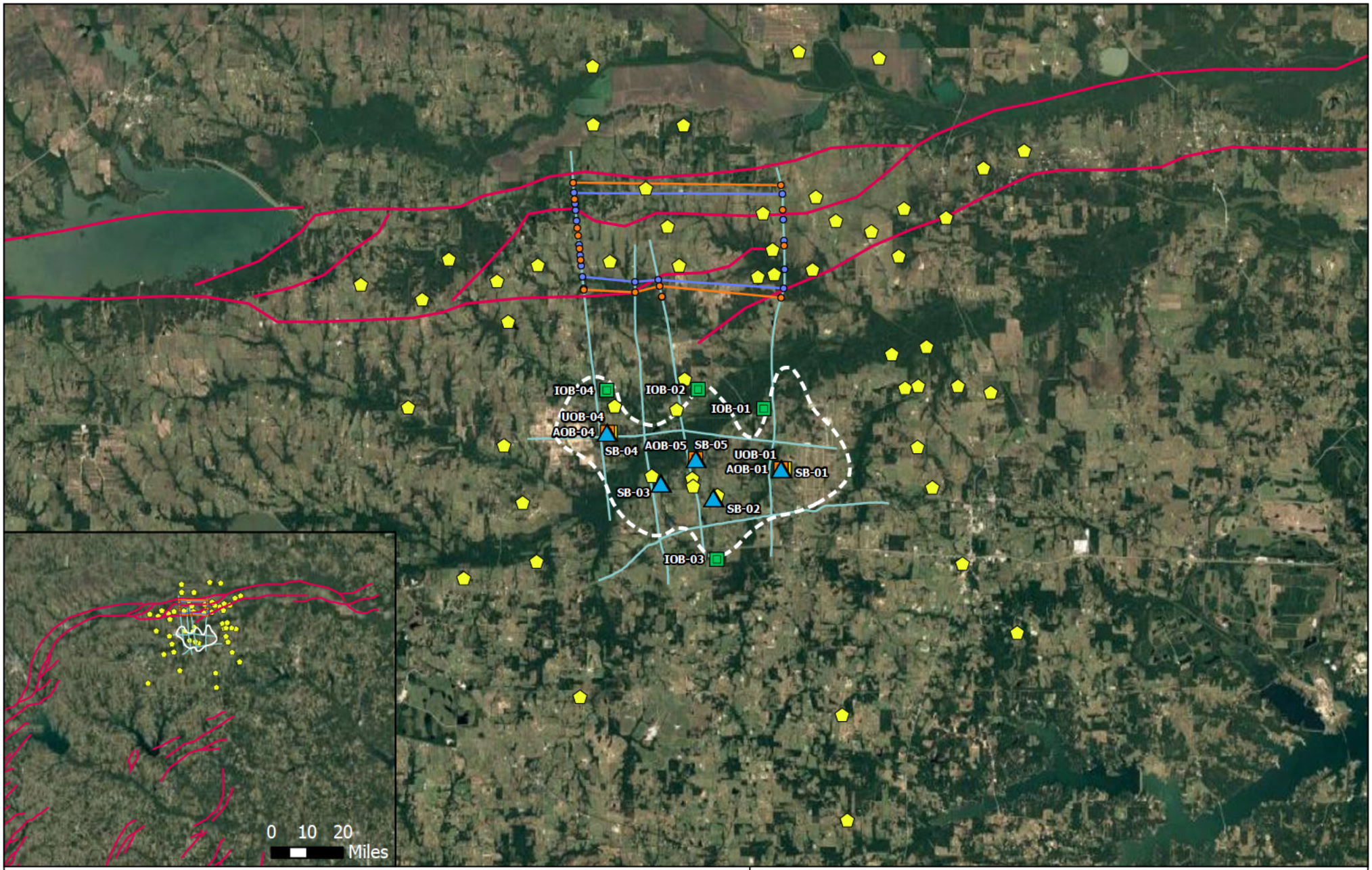
FIGURE 1-17
PALUXY FORMATION THICKNESS
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 2 4 Miles

N



Legend

- Injection Well
- Above-zone Observation Well
- In-zone Observation Well
- USDW Monitoring Well
- Wells Used in Static Modeling
- Area of Review
- Literature Faults
- 2D Seismic Lines
- Eagle Ford Fault Intersects
- Eagle Ford Fault
- Fredericksburg Fault Intersects
- Fredericksburg Fault Lines

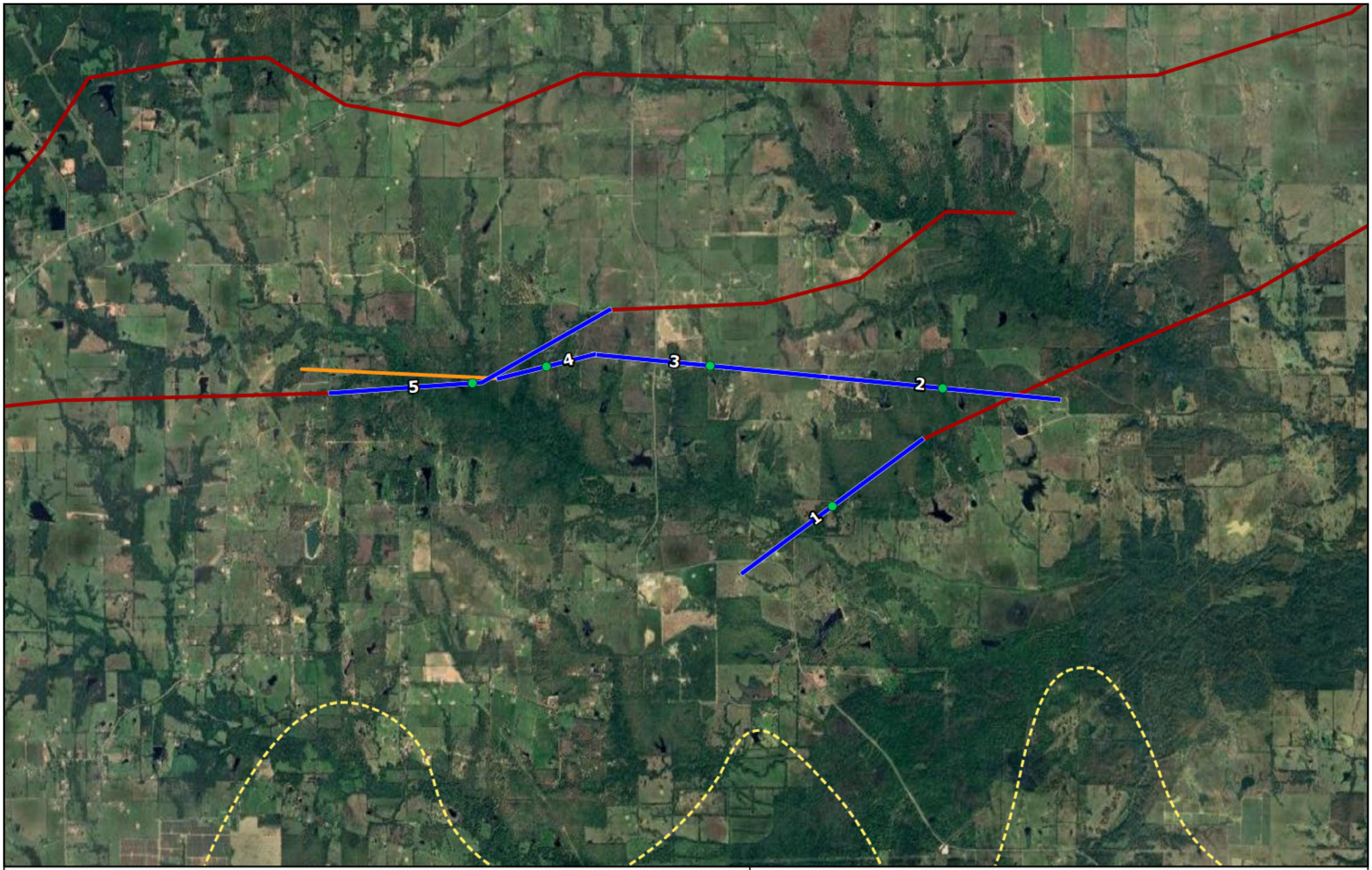
FIGURE 1-18
MAP OF KNOWN FAULTS
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 2.5 5 Miles

N



Legend

- Fault Segments
- Fault Segment Center Points
- Literature Faults
- Faults Identified on 2D Seismic Data in the Eagle Ford Formation
- Area of Review

FIGURE 1-19
FAULT SEGMENT MAP
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 0.5 1 1.5 Miles

N

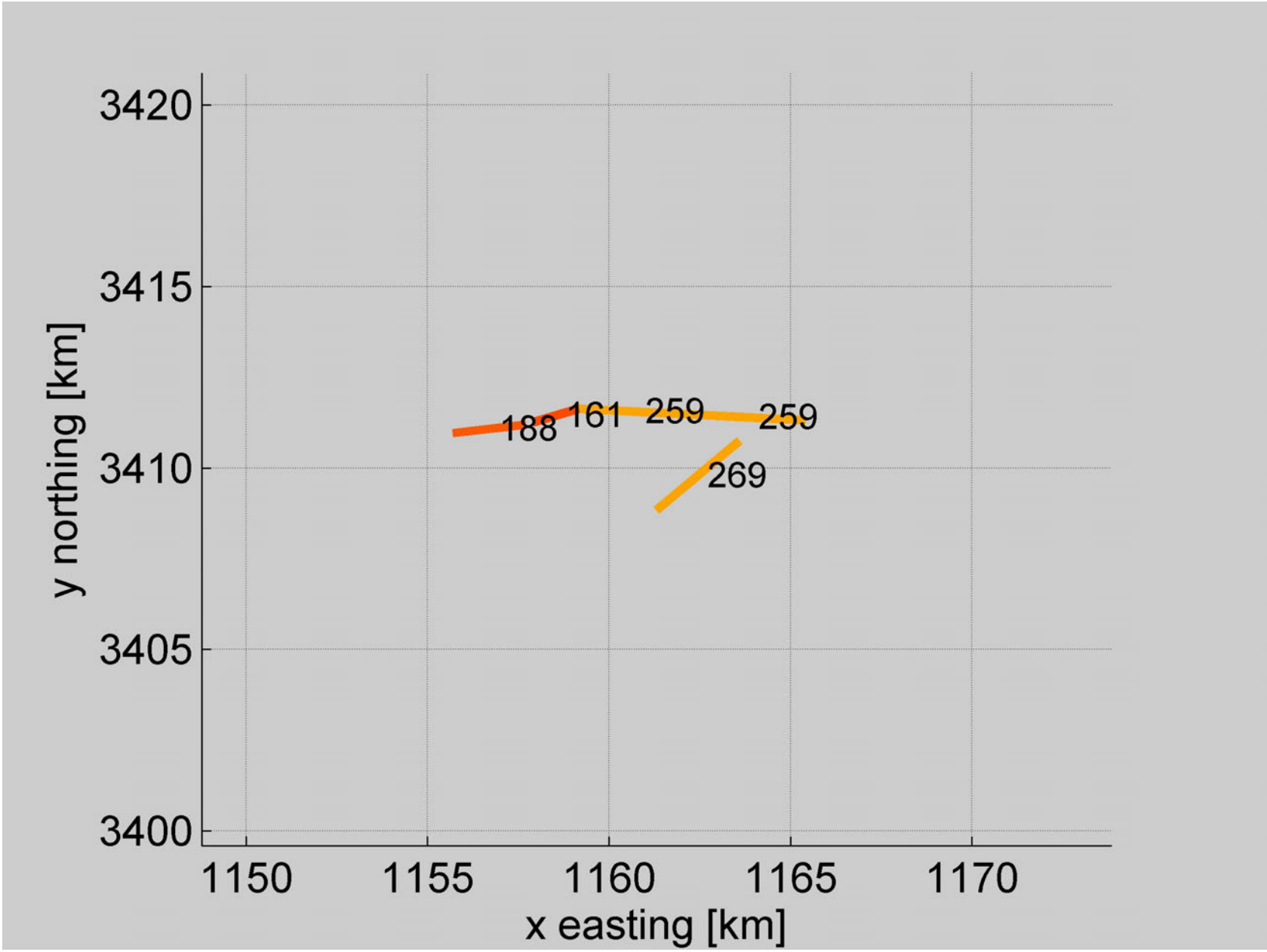
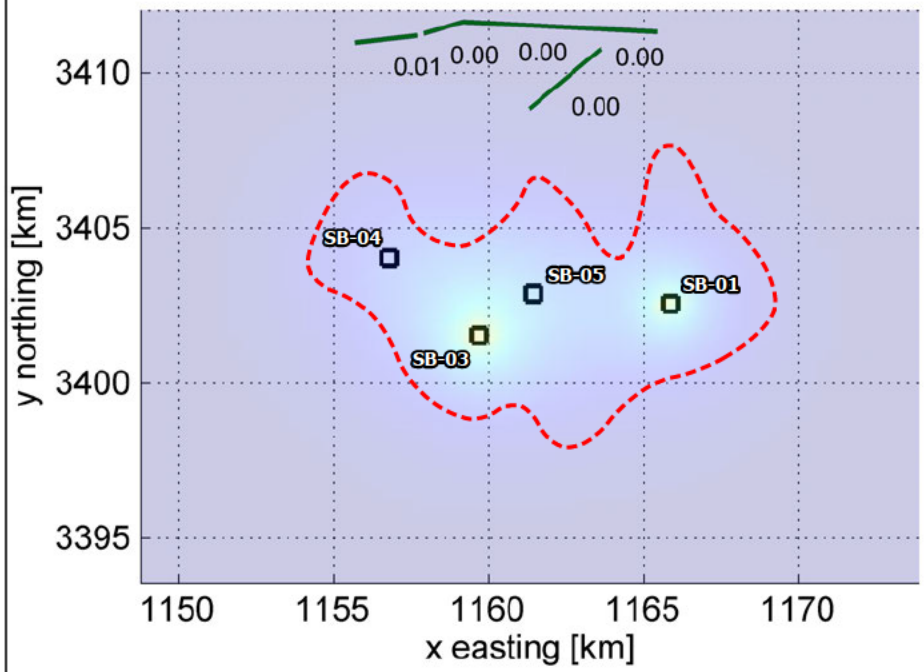


FIGURE 1-20
FAULT SLIP DEVIATORIC PRESSURE
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

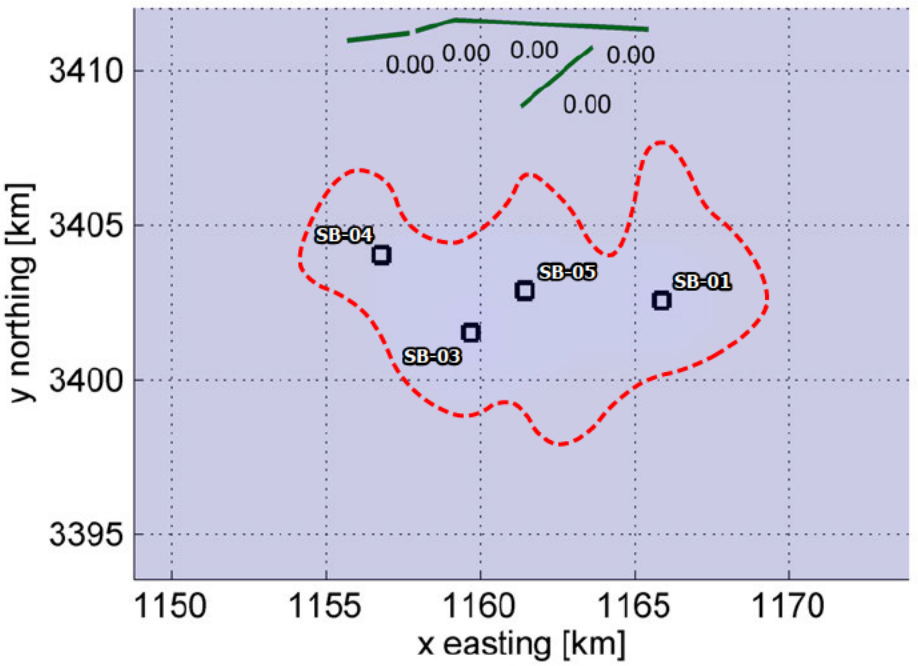
Note:
Values above are delta pressure (psi).

SCS ENGINEERS

Wichita, KS | May 2025



Woodbine



Paluxy

Legend

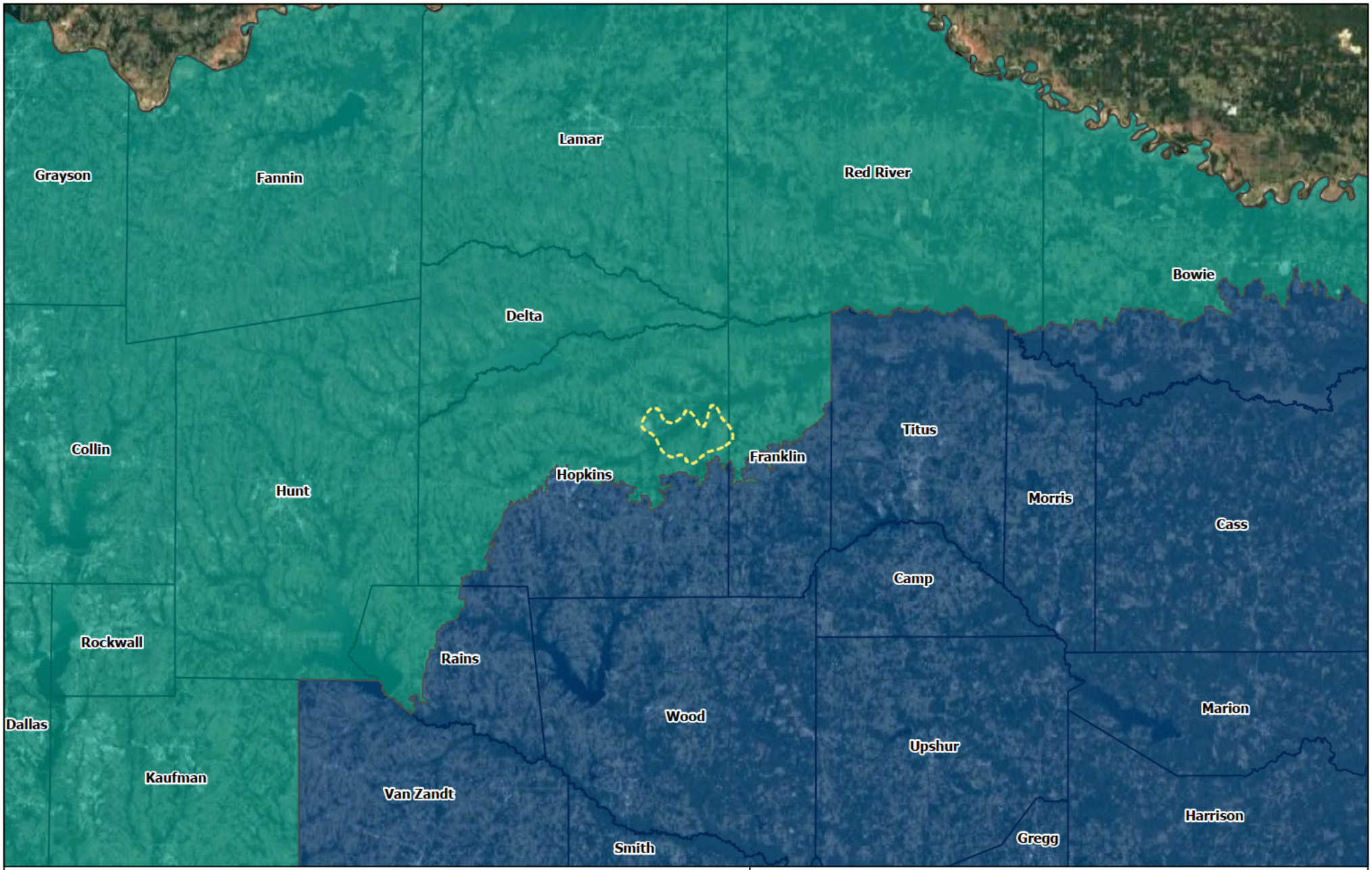
- Injection Wells
- Area of Review

Note:
Please note that only four wells were used as the software only allows for four inputs.

FIGURE 1-21
PROBABILITY OF INDUCED SEISMICITY
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS	May 2025



Legend

- Area of Review
- Groundwater Management Area 8
- Groundwater Management Area 11
- County Line

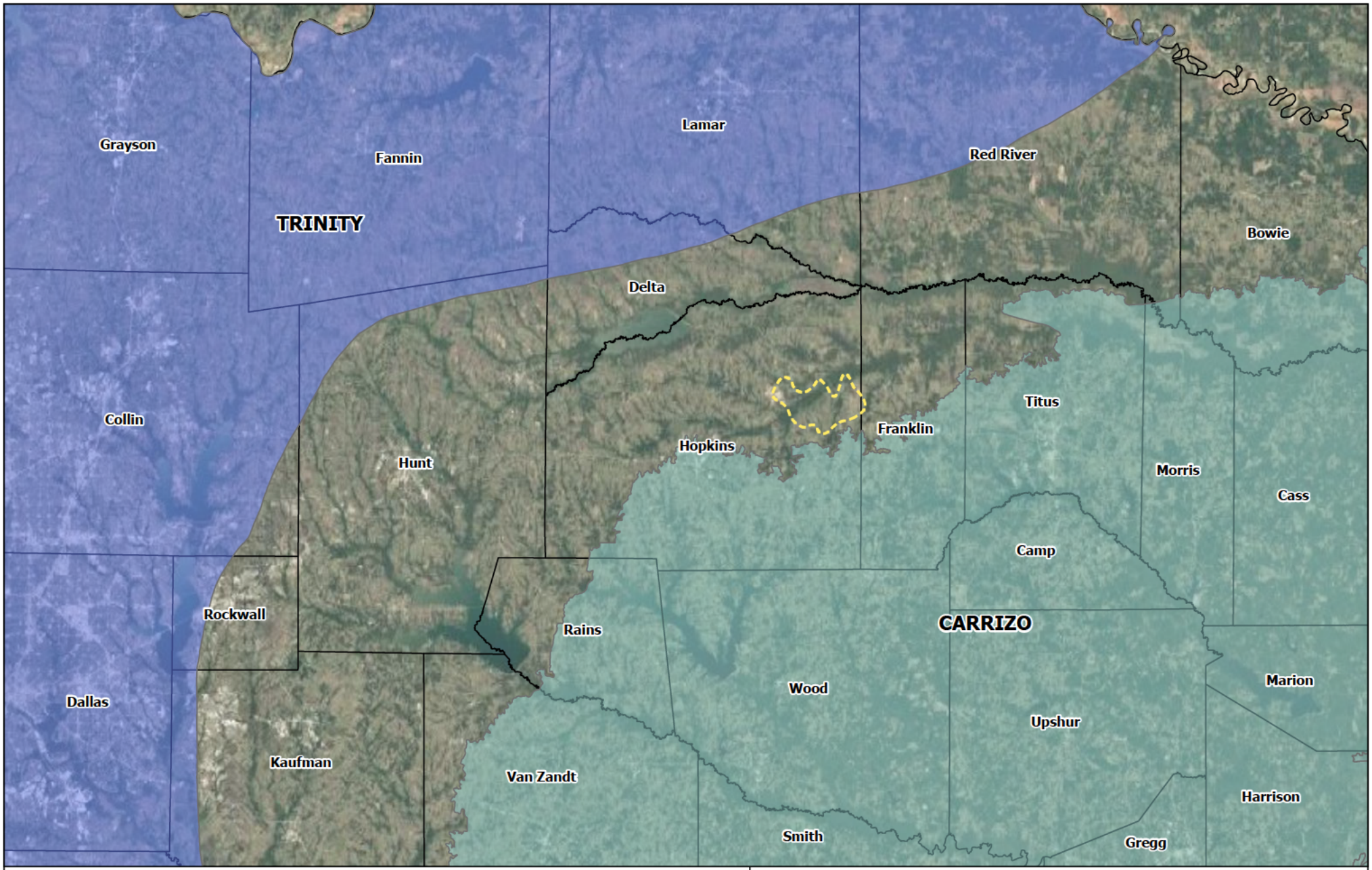
FIGURE 1-22
GROUNDWATER MANAGEMENT AREAS
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 5 10 15 Miles

N



Legend

- Carrizo Aquifer
- Trinity Aquifer
- Area of Review
- County Line

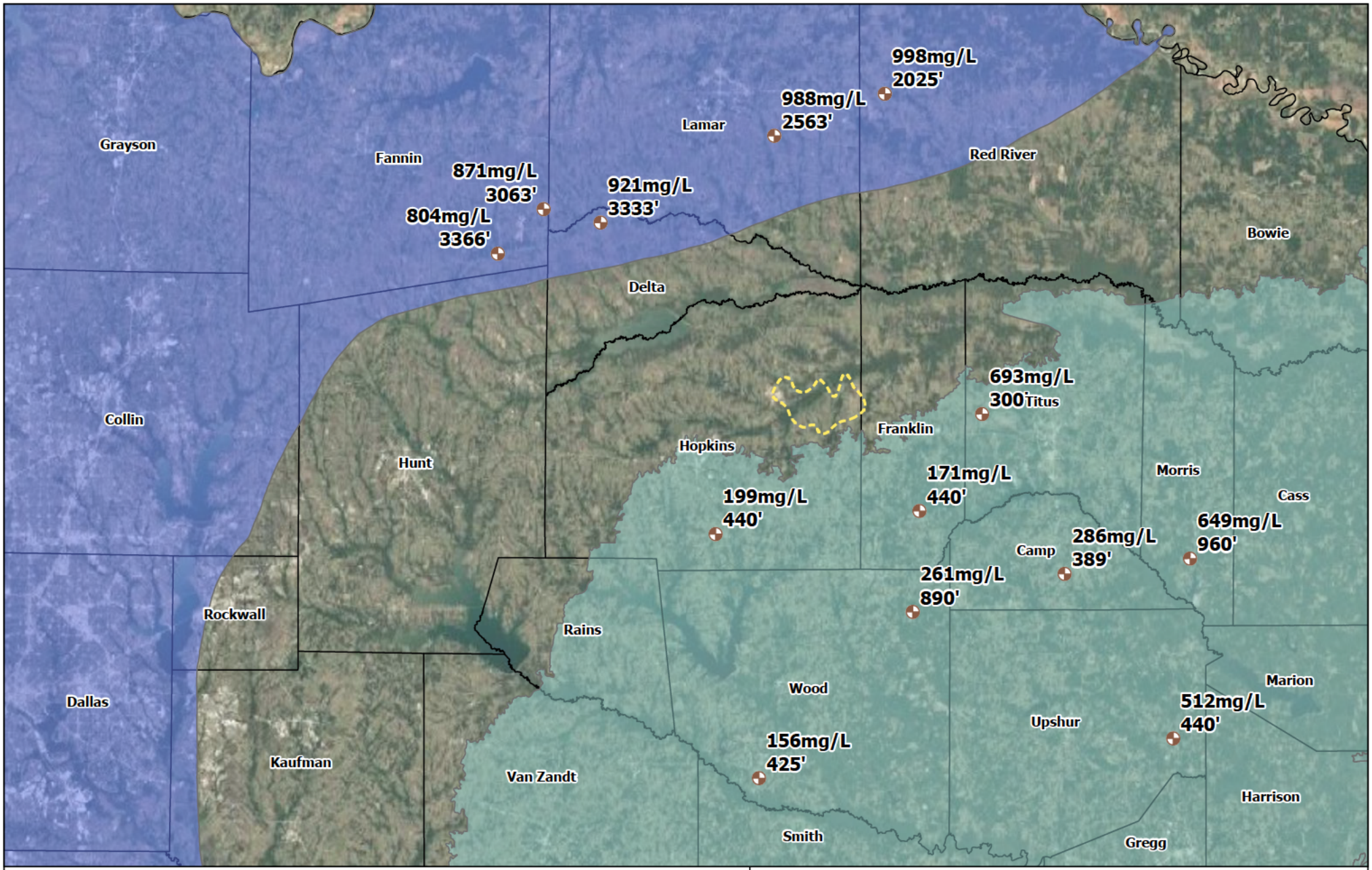
FIGURE 1-23
MAJOR AQUIFERS
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 5 10 15 Miles

N



Legend

- Well
- Area of Review
- County Line
- Carrizo Aquifer
- Trinity Aquifer

Note:
Wells labeled with total dissolved solids (mg/L) and well depth (feet).

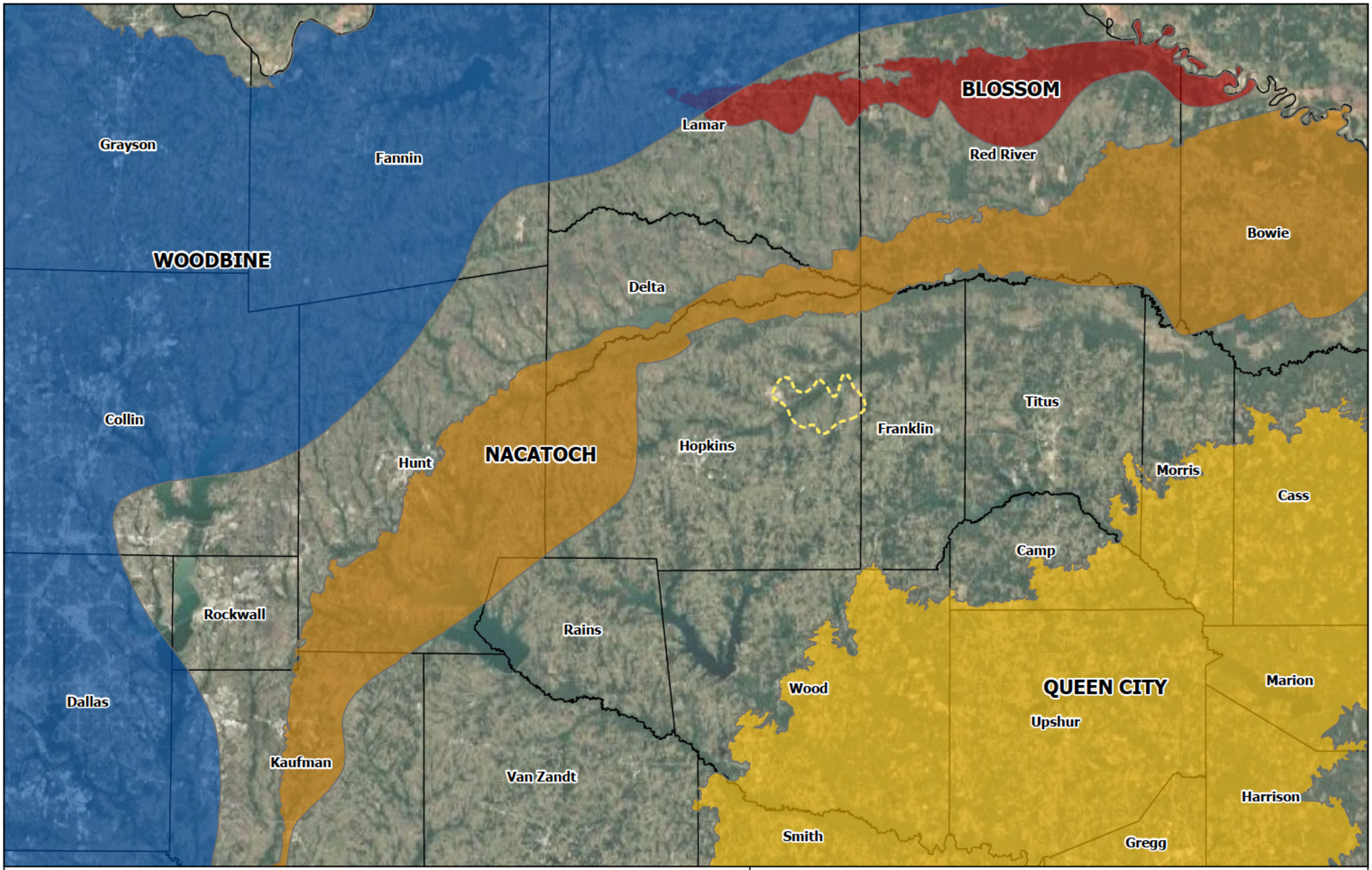
FIGURE 1-24
GROUNDWATER QUALITY
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

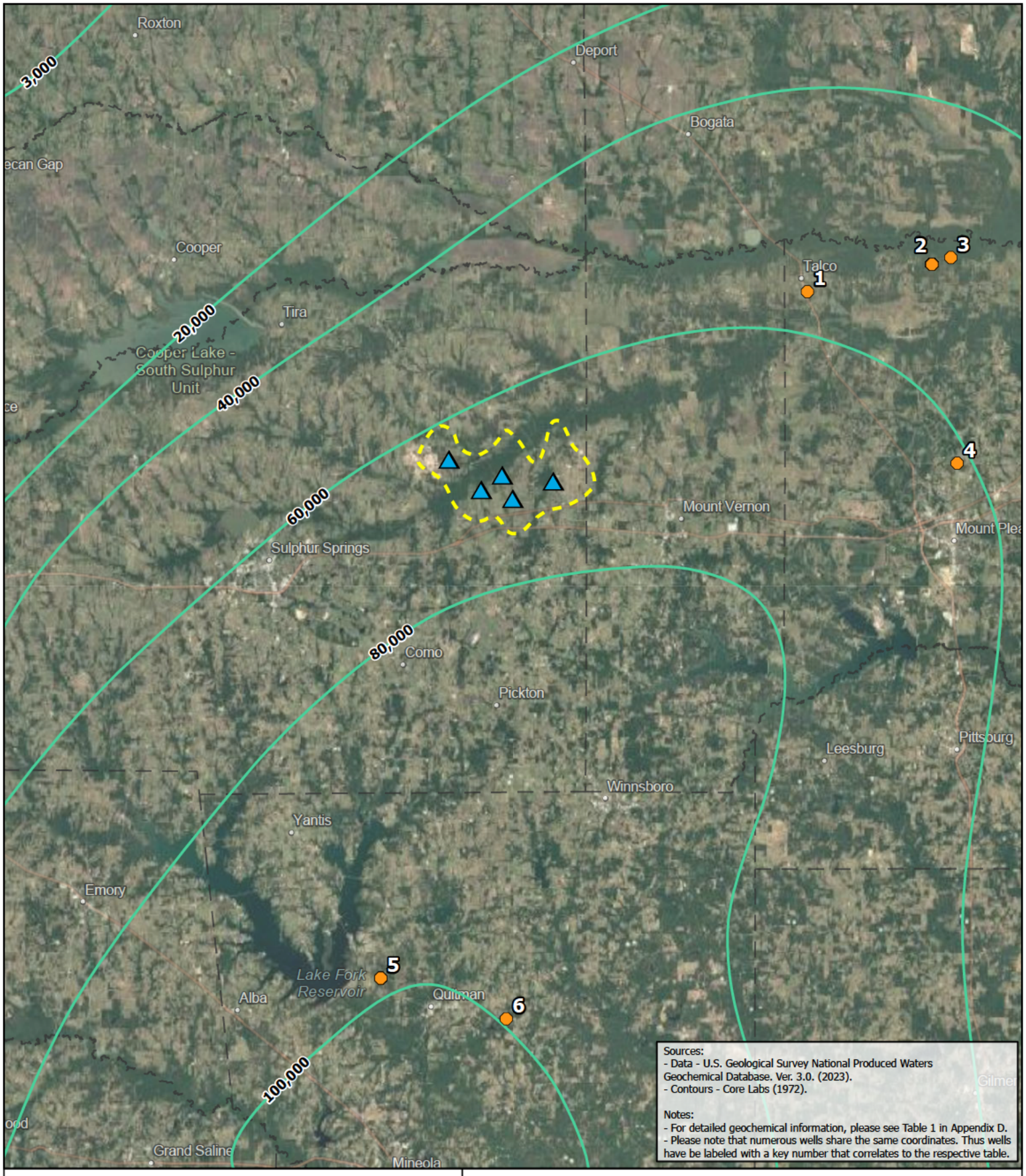
SCS ENGINEERS

Wichita, KS | May 2025

0 5 10 15 Miles

N


BLOSSOM
Lamar
Red River
Grayson
Fannin
WOODBINE
Bowie
Delta
Collin
Titus
Franklin
Hopkins
Hunt
NACATOCH
Morris
Cass
Camp
Rockwall
Rains
Dallas
Wood
QUEEN CITY
Marion
Upshur
Kaufman
Van Zandt
Harrison
Smith
Gregg
Legend
Blossom
Nacatoch
Queen City
Woodbine
Area of Review
County Line
FIGURE 1-25
MINOR AQUIFERS
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS
SCS ENGINEERS
Wichita, KS
May 2025
0 5 10 15
Miles
N



Legend

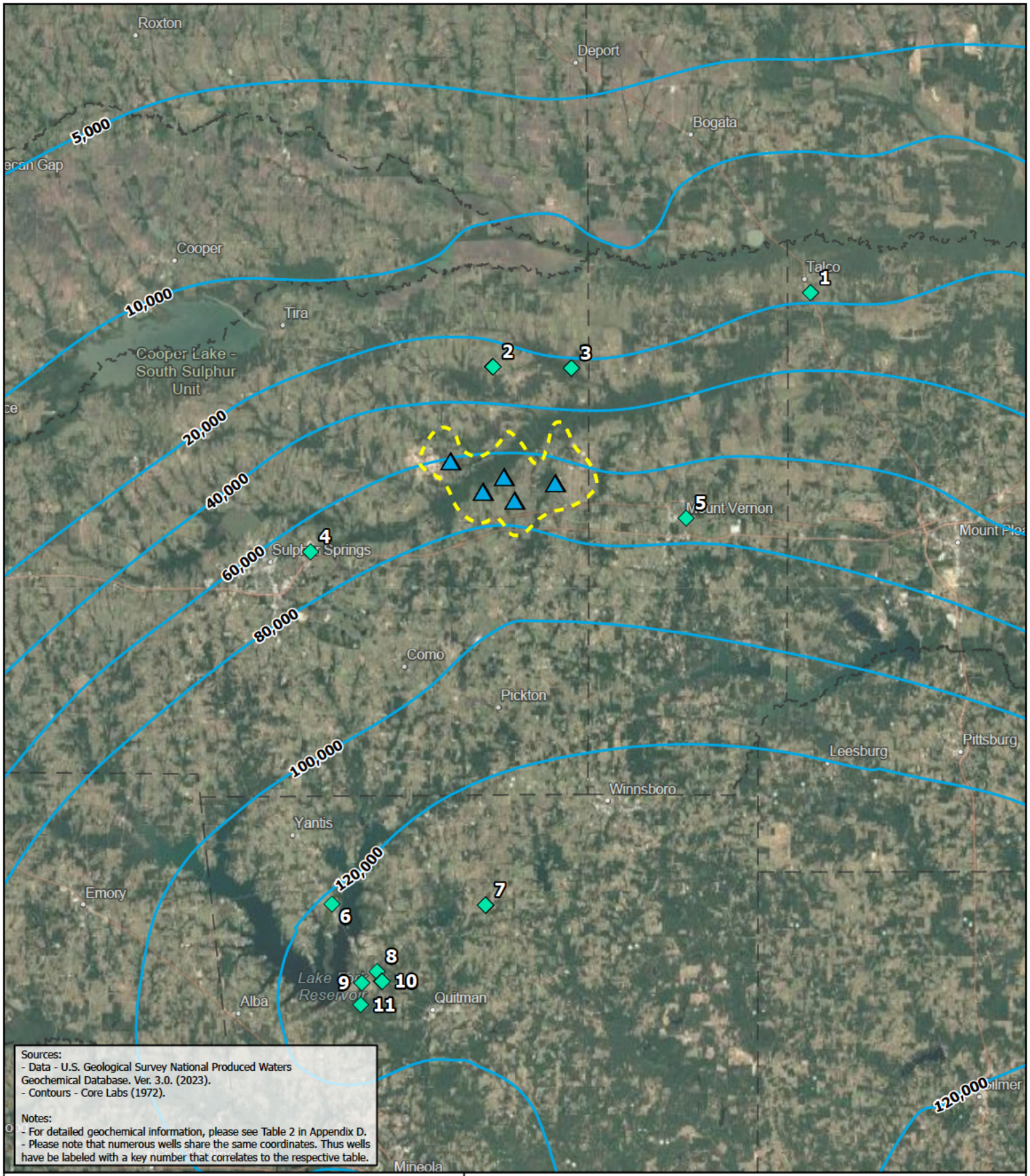
- Geochemical Data
- Injection Well
- Woodbine Salinity Contours (ppm)
- Area of Review
- County Lines

FIGURE 1-26
WOODBINE BRINE DATA
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 5 10 Miles N



Sources:
- Data - U.S. Geological Survey National Produced Waters Geochemical Database. Ver. 3.0. (2023).
- Contours - Core Labs (1972).

Notes:
- For detailed geochemical information, please see Table 2 in Appendix D.
- Please note that numerous wells share the same coordinates. Thus wells have be labeled with a key number that correlates to the respective table.

Legend

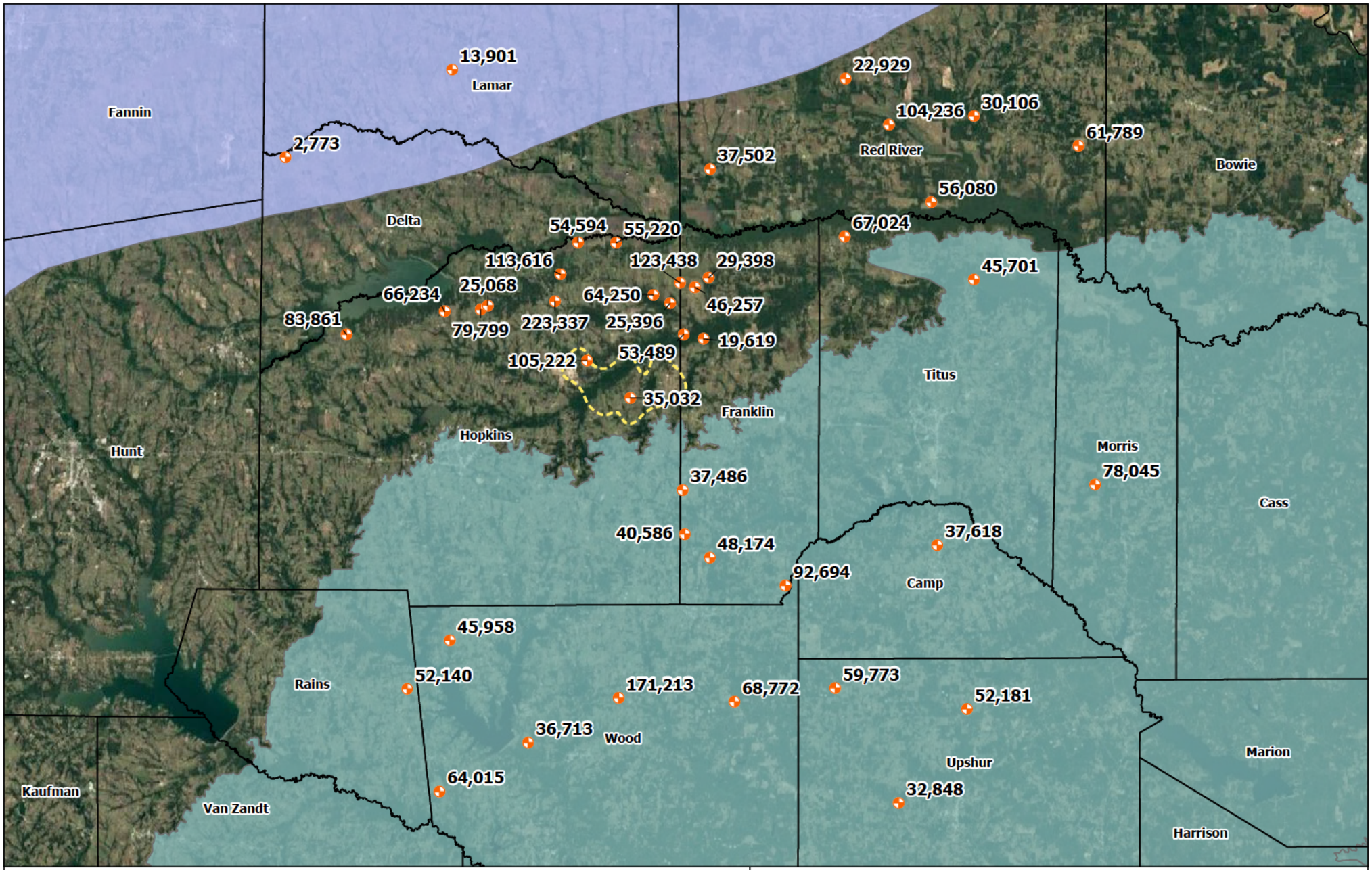
- Geochemical Data
- Paluxy Salinity Contours (ppm)
- County Lines
- Injection Well
- Area of Review

FIGURE 1-27
PALUXY BRINE DATA
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 5 10 Miles N



Legend

- Well
- Area of Review
- County Line
- Carrizo Aquifer
- Trinity Aquifer

Note:
Groundwater Wells labeled with calculated mean log salinity (ppm).

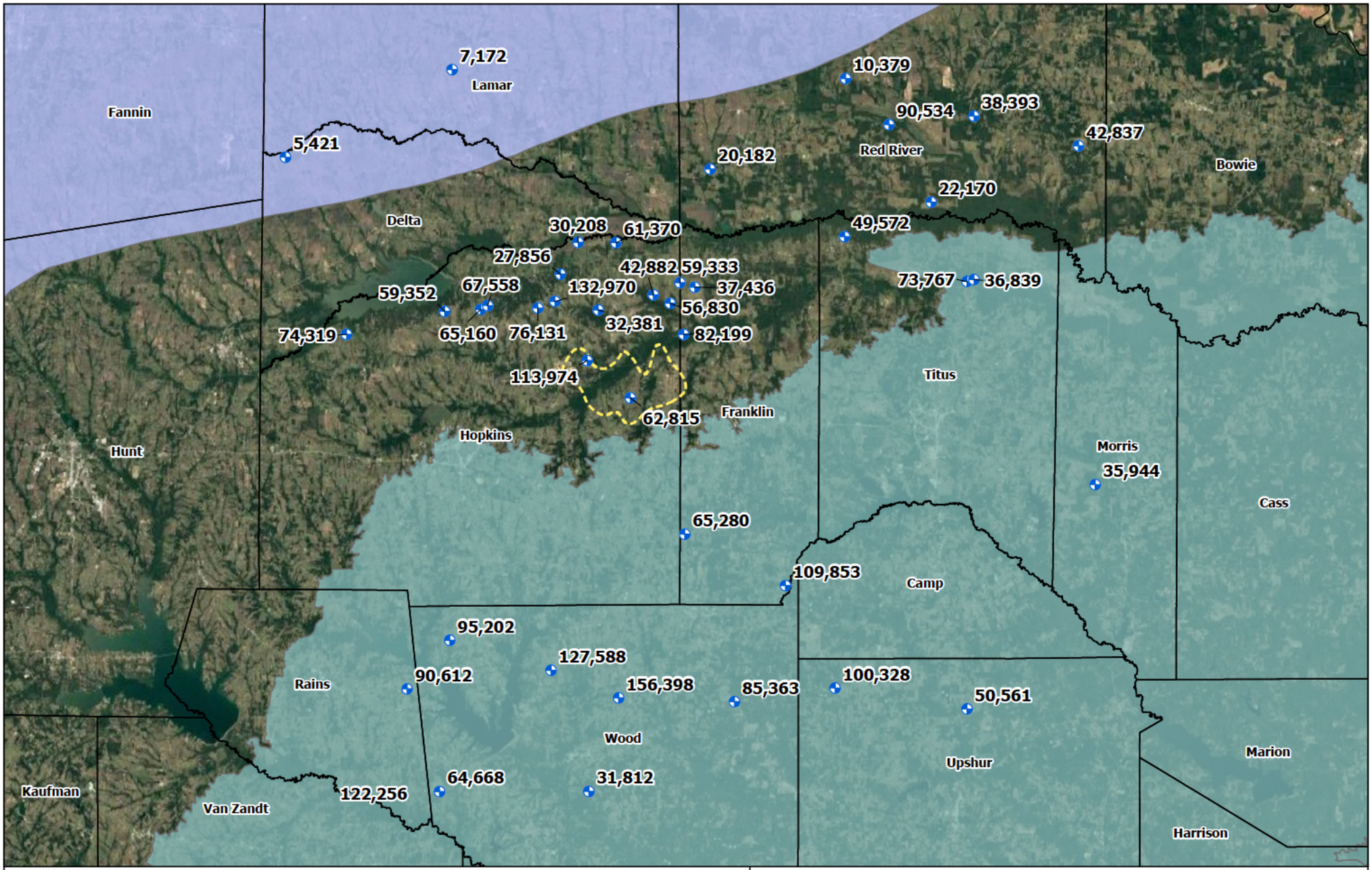
FIGURE 1-28
CALCULATED MEAN LOG SALINITY IN THE PALUXY
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 5 10 Miles

N



Legend

- Well
- Area of Review
- County Line
- Carrizo Aquifer
- Trinity Aquifer

Note:
Groundwater Wells labeled with calculated mean log salinity (ppm).

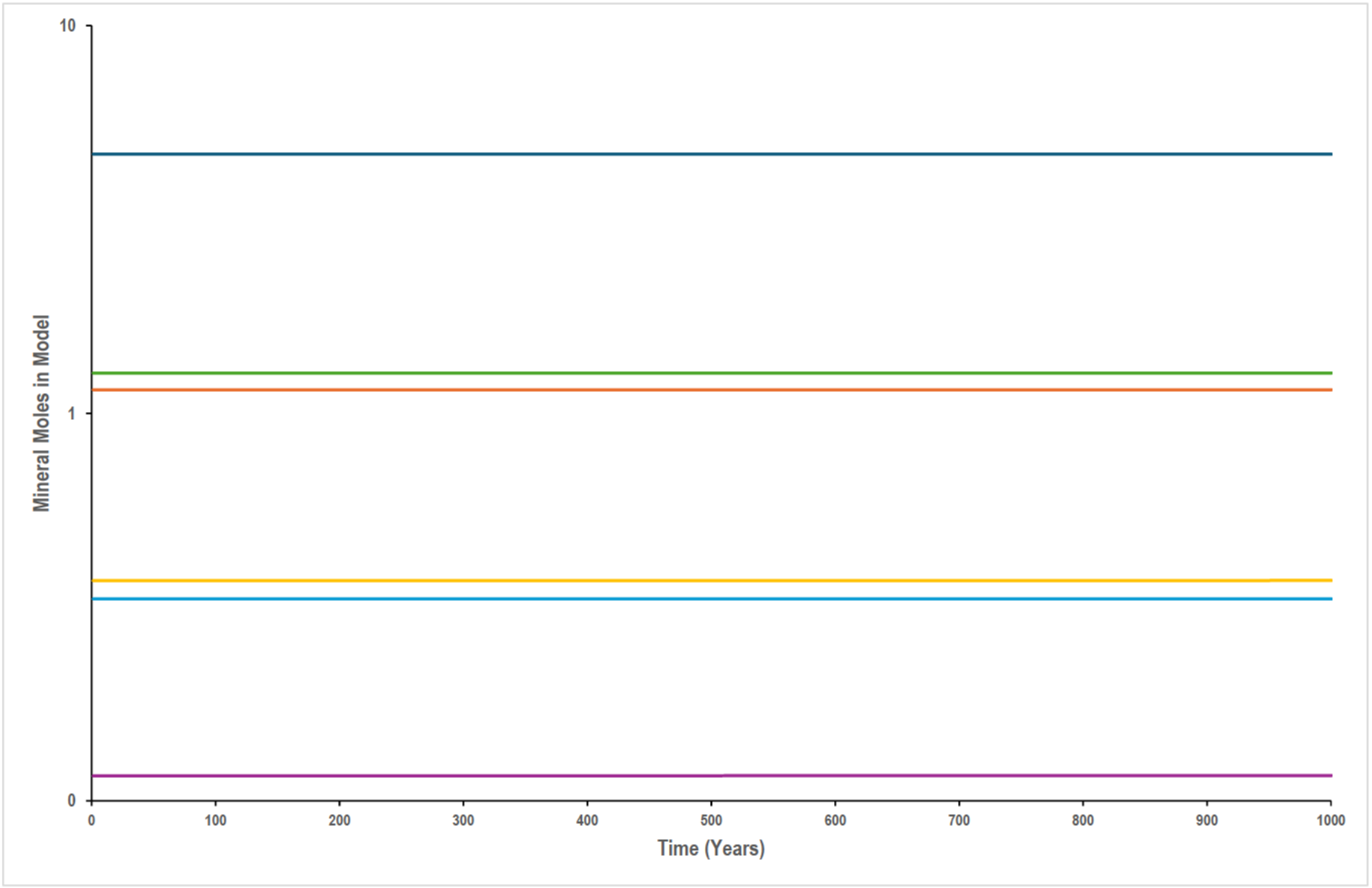
FIGURE 1-29
CALCULATED MEAN LOG SALINITY IN THE WOODBINE
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS | May 2025

0 5 10 Miles

N



Legend

- Albite
- Anorthite
- Calcite
- Pyrite
- Kaolinite
- Smectite

FIGURE 1-30
MOLAR REACTIONS OF GENERALIZED MINERALOGY
SUGARBERRY CCS HUB
SUGARBERRY CCS, LLC
HOPKINS COUNTY, TEXAS

SCS ENGINEERS

Wichita, KS	May 2025

APPENDIX A

GROUNDWATER PROTECTION DETERMINATION

Form GW-2

Groundwater Advisory Unit

Date Issued:	20 November 2024	**GAU Number:**	388610

Attention:	SUGARBERRY CCS, LLC 14302 FNB PARKWAY OMAHA, NE 68154	**API Number:**	
		County:	HOPKINS
		Lease Name:	GARNER JIMMYE MAYS
		Lease Number:	
Operator No.:	102245	**Well Number:**	0001SB
		Total Vertical	5500
		Latitude:	33.202572
		Longitude:	-95.338295
		Datum:	NAD27

Purpose: Injection into Non-producing Zone (W-14)

Location: Survey-DODSON, B N; Abstract-286

To protect usable-quality groundwater at this location, the Groundwater Advisory Unit of the Railroad Commission of Texas recommends:

This Initial Recommendation is for the purpose of Class VI injection only.

The base of usable-quality water-bearing strata is estimated to occur at a depth of 100 feet at the site of the referenced well.

The BASE OF UNDERGROUND SOURCES OF DRINKING WATER (USDW) is estimated to occur at a depth of 1,800 feet at the site of the referenced well.

This recommendation is applicable to all wells within a radius of 1,000 feet of this location.

*(SIP Purpose Only) Water Code Section 27.046(a) requires the GAU to issue a GW-2 letter containing Non-Endangerment language prior to issuance of a class VI permit. An additional letter will be required before SIP can issue a final permit because this letter is silent on endangerment of fresh water. *

Note: Unless stated otherwise, this recommendation is intended to apply to all wells drilled within 200 feet of the subject well. Unless stated otherwise, this recommendation is for normal drilling, production, and plugging operations only.

This determination is based on information provided when the application was submitted on 11/19/2024. If the location information has changed, you must contact the Groundwater Advisory Unit, and submit a new application if necessary. If you have questions, please contact us at 512-463-2741 or gau@rrc.texas.gov.

Groundwater Advisory Unit, Oil and Gas Division

GROUNDWATER PROTECTION DETERMINATION

Form GW-2

Groundwater Advisory Unit

Date Issued:	19 November 2024	**GAU Number:**	388612

Attention:	SUGARBERRY CCS, LLC 14302 FNB PARKWAY OMAHA, NE 68154	**API Number:**	
		County:	HOPKINS
		Lease Name:	WHITE BRANDON M
		Lease Number:	
Operator No.:	102245	**Well Number:**	0002SB
		Total Vertical	5500
		Latitude:	33.189090
		Longitude:	-95.375707
		Datum:	NAD27

Purpose: Injection into Non-producing Zone (W-14)

Location: Survey-GRIFFITH, A H; Abstract-383

To protect usable-quality groundwater at this location, the Groundwater Advisory Unit of the Railroad Commission of Texas recommends:

This Initial Recommendation is for the purpose of Class VI injection only.

The base of usable-quality water-bearing strata is estimated to occur at a depth of 100 feet at the site of the referenced well.

The BASE OF UNDERGROUND SOURCES OF DRINKING WATER (USDW) is estimated to occur at a depth of 1,775 feet at the site of the referenced well.

*(SIP Purpose Only) Water Code Section 27.046(a) requires the GAU to issue a GW-2 letter containing Non-Endangerment language prior to issuance of a class VI permit. An additional letter will be required before SIP can issue a final permit because this letter is silent on endangerment of fresh water. *

This recommendation is applicable to all wells within a radius of 1,000 feet of this location.

Note: Unless stated otherwise, this recommendation is intended to apply to all wells drilled within 200 feet of the subject well. Unless stated otherwise, this recommendation is for normal drilling, production, and plugging operations only.

This determination is based on information provided when the application was submitted on 11/15/2024. If the location information has changed, you must contact the Groundwater Advisory Unit, and submit a new application if necessary. If you have questions, please contact us at 512-463-2741 or gau@rrc.texas.gov.

Groundwater Advisory Unit, Oil and Gas Division

GROUNDWATER PROTECTION DETERMINATION

Form GW-2

Groundwater Advisory Unit

Date Issued:	19 November 2024	**GAU Number:**	388613

Attention:	SUGARBERRY CCS, LLC 14302 FNB PARKWAY OMAHA, NE 68154	**API Number:**	
		County:	HOPKINS
		Lease Name:	WHITE BRANDON M
		Lease Number:	
Operator No.:	102245	**Well Number:**	003SB
		Total Vertical	5500
		Latitude:	33.195893
		Longitude:	-95.404789
		Datum:	NAD27

Purpose: Injection into Non-producing Zone (W-14)

Location: Survey-NEGGIN, G; Abstract-1176

To protect usable-quality groundwater at this location, the Groundwater Advisory Unit of the Railroad Commission of Texas recommends:

This Initial Recommendation is for the purpose of Class VI injection only.

The base of usable-quality water-bearing strata is estimated to occur at a depth of 100 feet at the site of the referenced well.

The BASE OF UNDERGROUND SOURCES OF DRINKING WATER (USDW) is estimated to occur at a depth of 1,775 feet at the site of the referenced well.

*(SIP Purpose Only) Water Code Section 27.046(a) requires the GAU to issue a GW-2 letter containing Non-Endangerment language prior to issuance of a class VI permit. An additional letter will be required before SIP can issue a final permit because this letter is silent on endangerment of fresh water. *

This recommendation is applicable to all wells within a radius of 1,000 feet of this location.

Note: Unless stated otherwise, this recommendation is intended to apply to all wells drilled within 200 feet of the subject well. Unless stated otherwise, this recommendation is for normal drilling, production, and plugging operations only.

This determination is based on information provided when the application was submitted on 11/15/2024. If the location information has changed, you must contact the Groundwater Advisory Unit, and submit a new application if necessary. If you have questions, please contact us at 512-463-2741 or gau@rrc.texas.gov.

Groundwater Advisory Unit, Oil and Gas Division

GROUNDWATER PROTECTION DETERMINATION

Form GW-2

Groundwater Advisory Unit

Date Issued:	20 November 2024	**GAU Number:**	388614

Attention:	SUGARBERRY CCS, LLC 14302 FNB PARKWAY OMAHA, NE 68154	**API Number:**	
		County:	HOPKINS
		Lease Name:	TUBB BETTY
		Lease Number:	
Operator No.:	102245	**Well Number:**	0004SB
		Total Vertical	5500
		Latitude:	33.219431
		Longitude:	-95.434612
		Datum:	NAD27

Purpose: Injection into Non-producing Zone (W-14)

Location: Survey-BERB, O; Abstract-50

To protect usable-quality groundwater at this location, the Groundwater Advisory Unit of the Railroad Commission of Texas recommends:

This Initial Recommendation is for the purpose of Class VI injection only.

The base of usable-quality water-bearing strata is estimated to occur at a depth of 100 feet at the site of the referenced well.

The BASE OF UNDERGROUND SOURCES OF DRINKING WATER (USDW) is estimated to occur at a depth of 1,600 feet at the site of the referenced well.

This recommendation is applicable to all wells within a radius of 1,000 feet of this location.

*(SIP Purpose Only) Water Code Section 27.046(a) requires the GAU to issue a GW-2 letter containing Non-Endangerment language prior to issuance of a class VI permit. An additional letter will be required before SIP can issue a final permit because this letter is silent on endangerment of fresh water. *

Note: Unless stated otherwise, this recommendation is intended to apply to all wells drilled within 200 feet of the subject well. Unless stated otherwise, this recommendation is for normal drilling, production, and plugging operations only.

This determination is based on information provided when the application was submitted on 11/19/2024. If the location information has changed, you must contact the Groundwater Advisory Unit, and submit a new application if necessary. If you have questions, please contact us at 512-463-2741 or gau@rrc.texas.gov.

Groundwater Advisory Unit, Oil and Gas Division

GROUNDWATER PROTECTION DETERMINATION

Form GW-2

Groundwater Advisory Unit

Date Issued:	20 November 2024	**GAU Number:**	388849

Attention:	SUGARBERRY CCS, LLC 14302 FNB PARKWAY OMAHA, NE 68154	**API Number:**	
		County:	HOPKINS
		Lease Name:	WHITE KENNETH C
		Lease Number:	
Operator No.:	102245	**Well Number:**	0005SB
		Total Vertical	5500
		Latitude:	33.207226
		Longitude:	-95.385421
		Datum:	NAD27

Purpose: Injection into Non-producing Zone (W-14)

Location: Survey-DOUTHIT, A; Abstract-282

To protect usable-quality groundwater at this location, the Groundwater Advisory Unit of the Railroad Commission of Texas recommends:

This Initial Recommendation is for the purpose of Class VI injection only.

The base of usable-quality water-bearing strata is estimated to occur at a depth of 100 feet at the site of the referenced well.

The BASE OF UNDERGROUND SOURCES OF DRINKING WATER (USDW) is estimated to occur at a depth of 1,775 feet at the site of the referenced well.

This recommendation is applicable to all wells within a radius of 1,000 feet of this location.

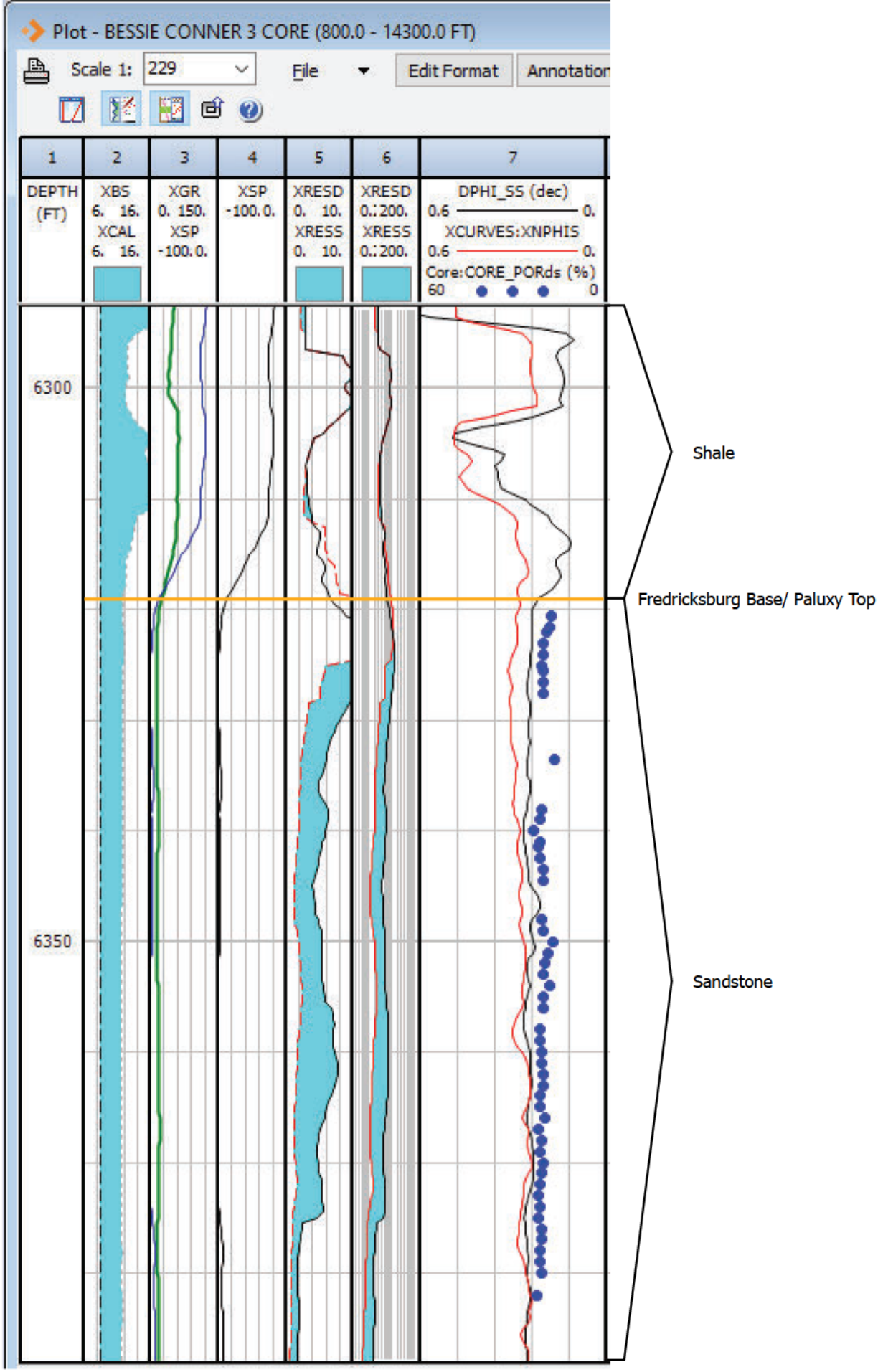
*(SIP Purpose Only) Water Code Section 27.046(a) requires the GAU to issue a GW-2 letter containing Non-Endangerment language prior to issuance of a class VI permit. An additional letter will be required before SIP can issue a final permit because this letter is silent on endangerment of fresh water. *

Note: Unless stated otherwise, this recommendation is intended to apply to all wells drilled within 200 feet of the subject well. Unless stated otherwise, this recommendation is for normal drilling, production, and plugging operations only.

This determination is based on information provided when the application was submitted on 11/19/2024. If the location information has changed, you must contact the Groundwater Advisory Unit, and submit a new application if necessary. If you have questions, please contact us at 512-463-2741 or gau@rrc.texas.gov.

APPENDIX B

APPENDIX C



XBS - Bit Size (inches)
XCAL - Caliper (inches)
XGR - Gamma Ray (API units)
XSP - Spontaneous Potential (mV)
XRESD - Deep Resistivity (ohm-meters)
XRESS - Shallow Resistivity (ohm-meters)
DPHI_SS - Sandstone Density Porosity (decimal)
XNPHIS - Sandstone Neutron Porosity (decimal)
CORE_PORds - Core Measurement Porosity (percent)

APPENDIX D

Table 1. U.S. Geological Survey National Produced Waters Geochemical Data – Woodbine

Key Number	IDUSGS	Well Name	TDS (ppm)
1	89764	No Data Provided	60,550
2	87770	Hoffman B 10	59,735
2	87771	Hoffman B	60,285
2	87777	Bankhead 2 D	58,435
2	87779	Bankhead 8d	61,569
2	97936	Hoffman B No 2	65,680
2	97937	Bankhead No 2d	57,957
2	97938	Woodbine Sand Unit 1-17	59,533
2	97939	Bankhead #3	30,594
2	97940	Bankhead No 5 D	66,123
2	97941	Bankhead No 5 D	82,142
2	97942	Bankhead No 5d	65,610
2	97943	Bankhead #5d	34,483
2	97944	Hoffman B #7	39,074
2	97945	Hoffman B No 7	51,386
2	97946	Hoffman B No 7	45,691
2	97948	Woodbine Sand Unit 5-1	66,359
2	97949	Wbsu 5-1	54,848
2	97950	Woodbine Sand Ut 5-1	60,617
2	97951	Woodbine Sand Unit #5-1	57,669
2	97952	Bankhead #8	28,053
2	97953	Bankhead #14	19,551
2	97954	Bankhead No 14	65,627
2	97955	Wbsu 4-1	21,914
2	97956	Wbsu 4-1	25,394
2	97957	Woodbine Sd Ut 4-1	26,584
2	97958	Hoffman Bankhead Unit 107	46,422
2	97959	Hoffman B-11	66,825
2	97960	W T Bankhead 5d	37,174
2	97961	Wbsu 4-2	38,597
2	97962	Wbsu 1-15	63,807
2	97963	W T Bankhead #7	66,667
2	97964	Hbu #215	65,990
2	97965	Hoffman Bankhead No 206	66,057
2	97966	Hoffman-bankhead Unit #205	36,433
2	97967	Hoffman Bankhead No 204	69,918
2	97968	Huffman-bankhead Unit	64,124
2	97969	Huffman-bankhead Ut & Woodbine C Ut	65,857

Key Number	IDUSGS	Well Name	TDS (ppm)
2	97970	Woodbine C Unit	63,306
2	97971	Trix-liz Swd Facility	63,179
2	97972	Hoffman-bankhead Unit	63,112
2	97973	Woodbine C Zone Unit	64,076
2	97974	Bankhead	67,703
2	97975	Wbsu 4-2	24,083
3	97120	Woodbine C Zone Unit #1-17	5,754
4	97947	Bankhead #7	64,702
5	100450	J B Goldsmith No 12	89,592
5	100451	J B Goldsmith No 30-lt	90,066
5	100646	C B Smith No 5	91,580
5	100649	C B Smith No 5	86,949
5	100656	M H Cox No 2-a	86,928
5	100664	W R Persons No 1	95,906
6	89623	Sinclair Research Laboratories, Inc.	119,828

Note: Please see **Figure 1-26** for a reference map of the well's location.

Table 2. U.S. Geological Survey National Produced Waters Geochemical Data – Paluxy

Key Number	IDUSGS	Well Name	TDS (ppm)
1	87179	J. E. Washam #9	14,012
1	87180	J. E. Warsham #9	14,051
1	87181	J. E. Warsham #9	34,116
1	87182	J. E. Warsham #9	13,769
1	87183	J. E. Worsham #9	14,532
1	87184	J. E. Worsham #9	15,277
1	87185	J. E. Worsham #9	14,358
1	87186	J. E. Warsham #9 121	14,616
1	87187	J. H. Warsham #9	14,124
1	87188	J. E. Worsham #9	14,418
1	87189	J. E. Warsham #8	13,911
1	87190	J. E. Worsham #8	13,978
1	87191	J. E. Worsham #8	14,090
1	87192	J. E. Worsham #8	13,921
1	87193	J. E. Worsham #8	13,883
1	87194	J. E. Worsham #8	13,920
1	87195	J. E. Worsham #8	14,041
1	87196	J. E. Worsham #8	13,980
1	87197	J. E. Worsham #8	13,490
1	87198	J. E. Worsham #8	15,200
1	87199	J. E. Worsham #8	13,400
1	87200	J. E. Worsham #8	14,549
1	87201	J. E. Worsham #8	14,206
1	87205	Rooney Long #2	16,100
1	87206	Rooney Long #2	14,190
1	87207	R. Long #2	14,200
1	87208	Rooney Long #2	14,201
1	87209	Rooney Long #2	14,207
1	87210	Rooney Long #2	14,219
1	87211	Rooney Long #2	14,500
1	87212	Rooney Long #2	14,700
1	87213	Rooney Long #2	14,600
1	87214	Rooney Long #2	18,600
1	87215	R. Long #2	20,700
1	87216	R. Long #2	20,700
1	87217	R. Long #2	20,900
1	87218	Rooney Long #2	21,200
1	87219	R. Long #2	21,800

Key Number	IDUSGS	Well Name	TDS (ppm)
1	87221	Rooney Long #2	57,200
1	87223	J. E. Worsham #7	13,760
1	87224	J. E. Worsham #7	13,600
1	87225	J. E. Worsham #7	13,300
1	87226	J. E. Worsham #2	13,700
1	87227	J. E. Worsham #7	13,500
1	87228	J. E. Worsham #7	53,679
1	87229	J. E. Worsham #7	14,811
1	87230	J. E. Worsham #7	13,700
1	87231	J. E. Worsham #7	15,099
1	87232	J. E. Worsham #7	13,769
1	87233	J. E. Worsham #7	13,618
1	87234	J. E. Worsham #7	13,862
1	87235	J. E. Worsham #7	15,534
1	87236	J. E. Worsham #5	14,007
1	87237	J. E. Worsham #7	13,799
1	87238	J. E. Worsham #7	13,850
1	87239	J. E. Worsham #7	13,220
1	87243	J. E. Worsham #6	13,729
1	87244	J. E. Worsham #6	13,800
1	87245	J. E. Worsham #6	13,641
1	87246	J. E. Worsham #6	13,810
1	87247	J. E. Worsham #6	13,963
1	87248	J. E. Worsham #6	13,844
1	87249	J. E. Worsham #6	13,803
1	87250	J. E. Worsham #6	13,968
1	87251	J. E. Worsham #6	13,323
1	87252	J. E. Worsham #6	13,700
1	87253	J. E. Worsham #6	13,000
1	87254	J. E. Worsham #6	14,174
1	87255	J. E. Worsham #6	14,473
1	87256	J. E. Worsham #5	13,831
1	87257	J. E. Worsham #5	13,812
1	87258	J. E. Worsham #5	13,855
1	87259	J. E. Worsham #5	13,590
1	87260	J. E. Worsham #5	13,325
1	87261	J. E. Worsham #5	13,900
1	87262	J. E. Worsham #5	13,200
1	87263	J. E. Worsham #5	13,739
1	87264	J. E. Worsham #5	14,384

Key Number	IDUSGS	Well Name	TDS (ppm)
1	87265	J. E. Worsham #5	14,299
1	87266	J. E. Worsham #5	13,600
1	87267	J. E. Worsham #5	13,600
1	87268	J. E. Worsham #5	13,820
1	87269	J. E. Worsham #5	13,812
1	87270	J. E. Worsham #5	13,972
1	87271	J. E. Worsham #5	13,847
1	87272	J. E. Worsham #5	13,719
1	87273	J. E. Worsham #5	13,909
1	87274	J. E. Worsham #4	13,600
1	87275	Jeff Worsham #4	14,000
1	87276	J. E. Worsham #4	13,400
1	87277	Jeff Worsham #4	15,800
1	87278	J. E. Worsham #4	13,100
1	87279	Jeff Worsham #4	16,256
1	87280	J. E. Worsham #4	13,746
1	87281	Jeff Worsham #4	13,901
1	87282	J. E. Worsham #4	13,861
1	87283	J. E. Worsham #4	13,840
1	87284	Jeff Worsham #4	13,699
1	87285	J. E. Worsham #4	14,234
1	87286	Jeff Worsham #4	55,291
1	87287	J. E. Worsham #4	14,087
1	87288	J. E. Worsham #4	62,609
1	87289	J. E. Worsham #4	13,857
1	87290	Jeff Worsham #4	13,779
1	87291	Jeff Worsham #4	16,311
1	87292	J. E. Worsham #4	13,840
1	87293	Jeff Worsham #4	18,086
1	87294	Jeff Worsham #4	15,997
1	87295	J. E. Worsham #4	13,329
1	87296	J. E. Worsham #4	13,640
1	87297	Jeff Worsham #4	16,071
1	87298	J. E. Wersham #3	11,778
1	87299	J. E. Wardam #3	13,342
1	87300	J. E. Wardham #3	13,428
1	87301	Jeff Worsham #3	13,709
1	87302	Jeff Worsham #3	13,950
1	87303	J. E. Worsham #3	11,246
1	87304	Jeff Worsham #3	13,975

Key Number	IDUSGS	Well Name	TDS (ppm)
1	87305	J. E. Worsham #3	7,821
1	87306	J. E. Worsham #3	9,069
1	87307	Jeff Worsham #3	14,389
1	87308	Jeff Worsham #3	13,300
1	87309	S. E. Worsham #3	13,500
1	87310	J. E. Worsham #3	13,858
1	87311	J. E. Worsham #3	11,726
1	87312	Jeff Warsham #3	14,043
1	87313	J. E. Worsham #3	13,908
1	87314	J. Worsham #3	13,200
1	87315	Jeff Worsham #3	13,709
1	87316	J. E. Worsham #3	5,919
1	87317	Jeff Worsham #3	13,881
1	87318	J. E. Worsham #3	8,811
1	87319	J. E. Worsham #3	6,004
1	87320	Jeff Worsham #3	53,551
1	87321	Jeff Worsham #3	13,736
1	87322	J. E. Worsham #3	13,657
1	87323	J. E. Worsham #2	14,018
1	87324	J. E. Worsham #2	14,604
1	87325	J. E. Worsham #2	14,414
1	87326	Jeff Worsham #2	14,495
1	87328	Susan Pierce #4	13,943
1	87329	Susan Pierce #4	32,449
1	87330	Susan Pierce #4	14,006
1	87331	Susan Pierce #4	14,039
1	87332	Susan Pierce #4	14,331
1	87333	Susan Pierce #4	14,119
1	87334	Susan Pierce #4	65,335
1	87335	Susan Pierce #1	14,113
1	87336	Susan Pierce #1	19,219
1	87337	Susan Pierce #1	19,603
1	87338	Susan Pierce #1	21,335
1	87339	Susan B. Pierce #1	32,537
1	87340	Susan B. Pierce #1	15,338
1	87341	S. B. Pierce #1	11,310
1	87342	S. B. Pierce #1	11,323
1	87592	Rodney Long #1	13,945
1	87593	Rodney Long #1	14,200
1	87594	Rooney Long #1	14,230

Key Number	IDUSGS	Well Name	TDS (ppm)
1	87595	Rooney Long #1	14,168
1	87596	Rooney Long #1	14,177
1	87597	Rooney Long #1	14,332
1	87598	Rooney Long #1	14,400
1	87599	Rooney Long #1	14,453
1	87600	Rooney Long #1	16,600
1	87601	Rooney Long #2	35,338
1	87602	Rooney Long #1	12,574
1	87603	Rooney Long #1	12,600
1	87604	Rooney Long #1	13,187
1	87605	Rooney Long #1	13,400
1	87606	Rooney Long #7	13,500
1	91047	J. E. Morshum	8,224
1	91048	Susan Pierce	51,864
1	91088	Atlantic Refining Company	14,329
1	91089	Susan Pierce # 2	14,261
1	91090	Susan Pierce # 2	14,196
1	91091	Susan Pierce # 2	14,421
1	91092	Susan Pierce # 2	14,420
1	91093	Atlantic Refining Company	14,542
1	91094	Atlantic Refining Company	14,050
1	92943	Rooney Long #2	13,600
1	92944	Rooney Long #2	13,500
1	92945	Rooney Long #2	13,816
1	92946	Rooney Long #2	13,948
1	92947	Rooney Long #2	13,948
1	92948	Rooney Long #2	69,617
1	92949	Rooney Long #2	12,584
1	92950	J. E. Worsham #4	13,840
1	92951	Jeff Worsham #4	16,653
1	92952	Jeff Worsham #4	15,375
1	92953	J. E. Worsham #4	13,126
1	92954	Jeff Worsham #4	15,456
1	92955	Jeff Worsham #4	13,614
1	92956	J. E. Worsham #4	13,517
1	92957	J. E. Worsham #4	13,930
1	92958	J. E. Worsham #4	13,400
1	92959	J. E. Worsham #4	13,500
1	92960	J. E. Worsham #4	13,800
1	92962	Jeff Worsham #4	14,500

Key Number	IDUSGS	Well Name	TDS (ppm)
1	92963	Jeff Worsham #4	13,900
1	92964	J. E. Worsham #3	12,696
1	92965	J. E. Worsham #3	13,800
1	92966	J. E. Worsham #3	13,600
1	92967	Jeff Worsham #3	13,500
1	92968	Jeff Worsham #3	13,000
1	92969	J. E. Worsham #3	13,200
1	92970	J. E. Worsham #3	12,133
1	92971	J. E. Worsham #3	11,381
1	92972	J. E. Worsham #3	11,358
1	92973	J. E. Worsham #3	10,138
1	92974	Jeff Worsham #3	13,896
1	92975	Jeff Worsham #3	13,672
1	92976	J. E. Worsham #3	11,515
1	93172	R. Long #2	22,800
1	93391	Jeff Worshan #2	13,867
1	93392	Jeff Worsham #2	13,862
1	93393	Jeff Worsham #2	13,600
1	93394	Jeff Worsham #2	13,200
1	93395	Jeff Worsham #2	13,300
1	93396	Jeff Worsham #2	13,160
1	93397	J. E. Worsham #24	153,687
1	93398	J. E. Worsham #2-x	15,382
1	93399	J. E. Worsham #1	13,700
1	93400	J. E. Worsham #1	13,347
1	93401	Jeff Worsham #1	13,706
1	93402	Jeff Worsham #1	13,443
1	93403	J. E. Worsham #1	13,772
1	93404	Jeff Worsham #1	13,752
1	93405	Jeff Worsham #1	13,989
1	93406	J. E. Worsham #1	13,960
1	93407	J. E. Worsham #1	13,911
1	93408	Jeff Worsham #1	13,881
1	93409	J. E. Worsham #1	13,600
1	93410	Jeff Worsham #1	26,064
1	93411	J. E. Worsham #1	13,948
1	93412	Jeff Worsham #1	13,600
1	93413	Jeff Worsham #1	14,000
1	93414	Jeff Worsham #1	13,600
1	93415	J. E. Worsham #1	13,881

Key Number	IDUSGS	Well Name	TDS (ppm)
1	93416	J. E. Worsham #1	13,946
1	93417	Jeff Worsham #1	14,000
1	93418	J. E. Worsham #1	14,200
1	93419	Jeff Worsham #1	14,400
1	93420	Jeff Worsham #1	14,700
1	93421	J. E. Worsham #1	14,264
1	93422	J. E. Worsham #1	14,097
1	93423	Jeff Worsham #1	14,304
1	93424	Jeff Worsham #1	14,122
1	93425	Jeff Worsham #1	14,363
1	93426	J. E. Worsham #1	14,098
1	93427	Jeff Worsham #1	14,178
1	93428	Jeff. Worsham #1	14,012
1	93429	Jeff Worsham #1	14,079
1	93430	Jeff Worsham #1	13,800
1	93431	J. E. Worsham #1	13,547
1	93432	S. B. Pierce #3	34,600
1	93433	S. B. Pierce #3	13,900
1	93434	S. B. Pierce #3	13,793
1	93435	Susan B. Pierce #3	13,555
1	93436	Susan B. Pierce #3	13,957
1	93437	S. Pierce #3	13,976
1	93438	Susan Pierce #3	13,860
1	93439	Susan Pierce #3	13,803
1	93440	S. Pierce #3	13,830
1	93441	S. B. Pierce #3	13,600
1	93442	S. B. Pierce #3	14,100
1	93443	Susan B. Pierce #3	14,066
1	93444	Susan B. Pierce #3	14,086
1	93445	Susan Pierce #3	14,224
1	93446	Susan Pierce #3	14,109
1	93447	Susan Pierce #3	14,166
1	93448	Susan Pierce #3	13,695
1	93449	Susan Pierce #1	13,824
1	93450	Susan Pierce #1	13,941
1	93451	Susan B. Pierce #1	13,900
1	93452	S. B. Pierce #1	13,900
1	93453	S. B. Pierce #1	13,906
1	93454	Susan Pierce #1	14,097
1	93455	Susan Pierce #1	13,900

Key Number	IDUSGS	Well Name	TDS (ppm)
1	93456	Susan Pierce #1	14,255
1	93457	S. B. Pierce #1	14,279
1	93458	S. B. Pierce #1	14,363
1	93459	Susan Pierce #1	14,079
1	93460	S. B. Pierce #1	11,337
1	93461	S. B. Pierce #1	13,000
1	93462	Susan Pierce #1	13,500
1	93463	S. B. Pierce #1	13,500
1	93464	S. B. Pierce #1	13,600
1	93465	S. B. Pierce #1	13,600
1	93466	Rooney Long #2-x	13,800
1	93467	Rooney Long #2x	46,280
1	94468	Rooney Long #1	13,800
1	94469	Rooney Long #1	13,800
1	94470	Rooney Long #1	13,852
1	94471	Rooney Long #1	13,928
1	94472	Rooney Long #1	13,686
1	94473	Rooney Long #1	13,887
1	94517	Jeff Worsham #2	14,916
1	94518	J. E. Worsham #2	14,049
1	94519	Jeff Worsham #2	16,293
1	94520	Jef Worsham #2	14,039
1	94521	J. E. Worsham #2	13,850
1	94522	Jeff Worsham #2	13,741
1	94523	Jeff Worsham #2	13,993
1	94873	Jeff Worsham #1	16,370
1	87179	J. E. Washam #9	14,012
1	87180	J. E. Warsham #9	14,051
1	87181	J. E. Warsham #9	34,116
1	87182	J. E. Warsham #9	13,769
1	87183	J. E. Worsham #9	14,532
1	87184	J. E. Worsham #9	15,277
1	87185	J. E. Worsham #9	14,358
1	87186	J. E. Warsham #9 121	14,616
1	87187	J. H. Warsham #9	14,124
1	87188	J. E. Worsham #9	14,418
1	87189	J. E. Warsham #8	13,911
1	87190	J. E. Worsham #8	13,978
1	87191	J. E. Worsham #8	14,090
1	87192	J. E. Worsham #8	13,921

Key Number	IDUSGS	Well Name	TDS (ppm)
1	87193	J. E. Worsham #8	13,883
1	87194	J. E. Worsham #8	13,920
1	87195	J. E. Worsham #8	14,041
1	87196	J. E. Worsham #8	13,980
1	87197	J. E. Worsham #8	13,490
1	87198	J. E. Worsham #8	15,200
1	87199	J. E. Worsham #8	13,400
1	87200	J. E. Worsham #8	14,549
1	87201	J. E. Worsham #8	14,206
1	87205	Rooney Long #2	16,100
1	87206	Rooney Long #2	14,190
1	87207	R. Long #2	14,200
1	87208	Rooney Long #2	14,201
1	87209	Rooney Long #2	14,207
1	87210	Rooney Long #2	14,219
1	87211	Rooney Long #2	14,500
1	87212	Rooney Long #2	14,700
1	87213	Rooney Long #2	14,600
1	87214	Rooney Long #2	18,600
1	87215	R. Long #2	20,700
1	87216	R. Long #2	20,700
1	87217	R. Long #2	20,900
1	87218	Rooney Long #2	21,200
1	87219	R. Long #2	21,800
1	87221	Rooney Long #2	57,200
1	87223	J. E. Worsham #7	13,760
1	87224	J. E. Worsham #7	13,600
1	87225	J. E. Worsham #7	13,300
1	87226	J. E. Worsham #2	13,700
1	87227	J. E. Worsham #7	13,500
1	87228	J. E. Worsham #7	53,679
1	87229	J. E. Worsham #7	14,811
1	87230	J. E. Worsham #7	13,700
1	87231	J. E. Worsham #7	15,099
1	87232	J. E. Worsham #7	13,769
1	87233	J. E. Worsham #7	13,618
1	87234	J. E. Worsham #7	13,862
1	87235	J. E. Worsham #7	15,534
1	87236	J. E. Worsham #5	14,007
1	87237	J. E. Worsham #7	13,799

Key Number	IDUSGS	Well Name	TDS (ppm)
1	87238	J. E. Worsham #7	13,850
1	87239	J. E. Worsham #7	13,220
1	87243	J. E. Worsham #6	13,729
1	87244	J. E. Worsham #6	13,800
1	87245	J. E. Worsham #6	13,641
1	87246	J. E. Worsham #6	13,810
1	87247	J. E. Worsham #6	13,963
1	87248	J. E. Worsham #6	13,844
1	87249	J. E. Worsham #6	13,803
1	87250	J. E. Worsham #6	13,968
1	87251	J. E. Worsham #6	13,323
1	87252	J. E. Worsham #6	13,700
1	87253	J. E. Worsham #6	13,000
1	87254	J. E. Worsham #6	14,174
1	87255	J. E. Worsham #6	14,473
1	87256	J. E. Worsham #5	13,831
1	87257	J. E. Worsham #5	13,812
1	87258	J. E. Worsham #5	13,855
1	87259	J. E. Worsham #5	13,590
1	87260	J. E. Worsham #5	13,325
1	87261	J. E. Worsham #5	13,900
1	87262	J. E. Worsham #5	13,200
1	87263	J. E. Worsham #5	13,739
1	87264	J. E. Worsham #5	14,384
1	87265	J. E. Worsham #5	14,299
1	87266	J. E. Worsham #5	13,600
1	87267	J. E. Worsham #5	13,600
1	87268	J. E. Worsham #5	13,820
1	87269	J. E. Worsham #5	13,812
1	87270	J. E. Worsham #5	13,972
1	87271	J. E. Worsham #5	13,847
1	87272	J. E. Worsham #5	13,719
1	87273	J. E. Worsham #5	13,909
1	87274	J. E. Worsham #4	13,600
1	87275	Jeff Worsham #4	14,000
1	87276	J. E. Worsham #4	13,400
1	87277	Jeff Worsham #4	15,800
1	87278	J. E. Worsham #4	13,100
1	87279	Jeff Worsham #4	16,256
1	87280	J. E. Worsham #4	13,746

Key Number	IDUSGS	Well Name	TDS (ppm)
1	87281	Jeff Worsham #4	13,901
1	87282	J. E. Worsham #4	13,861
1	87283	J. E. Worsham #4	13,840
1	87284	Jeff Worsham #4	13,699
1	87285	J. E. Worsham #4	14,234
1	87286	Jeff Worsham #4	55,291
1	87287	J. E. Worsham #4	14,087
1	87288	J. E. Worsham #4	62,609
1	87289	J. E. Worsham #4	13,857
1	87290	Jeff Worsham #4	13,779
1	87291	Jeff Worsham #4	16,311
1	87292	J. E. Worsham #4	13,840
1	87293	Jeff Worsham #4	18,086
1	87294	Jeff Worsham #4	15,997
1	87295	J. E. Worsham #4	13,329
1	87296	J. E. Worsham #4	13,640
1	87297	Jeff Worsham #4	16,071
1	87298	J. E. Wersham #3	11,778
1	87299	J. E. Wardam #3	13,342
1	87300	J. E. Wardham #3	13,428
1	87301	Jeff Worsham #3	13,709
1	87302	Jeff Worsham #3	13,950
1	87303	J. E. Worsham #3	11,246
1	87304	Jeff Worsham #3	13,975
1	87305	J. E. Worsham #3	7,821
1	87306	J. E. Worsham #3	9,069
1	87307	Jeff Worsham #3	14,389
1	87308	Jeff Worsham #3	13,300
1	87309	S. E. Worsham #3	13,500
1	87310	J. E. Worsham #3	13,858
1	87311	J. E. Worsham #3	11,726
1	87312	Jeff Warsham #3	14,043
1	87313	J. E. Worsham #3	13,908
1	87314	J. Worsham #3	13,200
1	87315	Jeff Worsham #3	13,709
1	87316	J. E. Worsham #3	5,919
1	87317	Jeff Worsham #3	13,881
1	87318	J. E. Worsham #3	8,811
1	87319	J. E. Worsham #3	6,004
1	87320	Jeff Worsham #3	53,551

Key Number	IDUSGS	Well Name	TDS (ppm)
1	87321	Jeff Worsham #3	13,736
1	87322	J. E. Worsham #3	13,657
1	87323	J. E. Worsham #2	14,018
1	87324	J. E. Worsham #2	14,604
1	87325	J. E. Worsham #2	14,414
1	87326	Jeff Worsham #2	14,495
1	87328	Susan Pierce #4	13,943
1	87329	Susan Pierce #4	32,449
1	87330	Susan Pierce #4	14,006
1	87331	Susan Pierce #4	14,039
1	87332	Susan Pierce #4	14,331
1	87333	Susan Pierce #4	14,119
1	87334	Susan Pierce #4	65,335
1	87335	Susan Pierce #1	14,113
1	87336	Susan Pierce #1	19,219
1	87337	Susan Pierce #1	19,603
1	87338	Susan Pierce #1	21,335
1	87339	Susan B. Pierce #1	32,537
1	87340	Susan B. Pierce #1	15,338
1	87341	S. B. Pierce #1	11,310
1	87342	S. B. Pierce #1	11,323
1	87592	Rodney Long #1	13,945
1	87593	Rodney Long #1	14,200
1	87594	Rooney Long #1	14,230
1	87595	Rooney Long #1	14,168
1	87596	Rooney Long #1	14,177
1	87597	Rooney Long #1	14,332
1	87598	Rooney Long #1	14,400
1	87599	Rooney Long #1	14,453
1	87600	Rooney Long #1	16,600
1	87601	Rooney Long #2	35,338
1	87602	Rooney Long #1	12,574
1	87603	Rooney Long #1	12,600
1	87604	Rooney Long #1	13,187
1	87605	Rooney Long #1	13,400
1	87606	Rooney Long #7	13,500
1	91047	J. E. Morshum	8,224
1	91048	Susan Pierce	51,864
1	91088	Atlantic Refining Company	14,329
1	91089	Susan Pierce # 2	14,261

Key Number	IDUSGS	Well Name	TDS (ppm)
1	91090	Susan Pierce # 2	14,196
1	91091	Susan Pierce # 2	14,421
1	91092	Susan Pierce # 2	14,420
1	91093	Atlantic Refining Company	14,542
1	91094	Atlantic Refining Company	14,050
1	92943	Rooney Long #2	13,600
1	92944	Rooney Long #2	13,500
1	92945	Rooney Long #2	13,816
1	92946	Rooney Long #2	13,948
1	92947	Rooney Long #2	13,948
1	92948	Rooney Long #2	69,617
1	92949	Rooney Long #2	12,584
1	92950	J. E. Worsham #4	13,840
1	92951	Jeff Worsham #4	16,653
1	92952	Jeff Worsham #4	15,375
1	92953	J. E. Worsham #4	13,126
1	92954	Jeff Worsham #4	15,456
1	92955	Jeff Worsham #4	13,614
1	92956	J. E. Worsham #4	13,517
1	92957	J. E. Worsham #4	13,930
1	92958	J. E. Worsham #4	13,400
1	92959	J. E. Worsham #4	13,500
1	92960	J. E. Worsham #4	13,800
1	92962	Jeff Worsham #4	14,500
1	92963	Jeff Worsham #4	13,900
1	92964	J. E. Worsham #3	12,696
1	92965	J. E. Worsham #3	13,800
1	92966	J. E. Worsham #3	13,600
1	92967	Jeff Worsham #3	13,500
1	92968	Jeff Worsham #3	13,000
1	92969	J. E. Worsham #3	13,200
1	92970	J. E. Worsham #3	12,133
1	92971	J. E. Worsham #3	11,381
1	92972	J. E. Worsham #3	11,358
1	92973	J. E. Worsham #3	10,138
1	92974	Jeff Worsham #3	13,896
1	92975	Jeff Worsham #3	13,672
1	92976	J. E. Worsham #3	11,515
1	93172	R. Long #2	22,800
1	93391	Jeff Worshan #2	13,867

Key Number	IDUSGS	Well Name	TDS (ppm)
1	93392	Jeff Worsham #2	13,862
1	93393	Jeff Worsham #2	13,600
1	93394	Jeff Worsham #2	13,200
1	93395	Jeff Worsham #2	13,300
1	93396	Jeff Worsham #2	13,160
1	93397	J. E. Worsham #24	153,687
1	93398	J. E. Worsham #2-x	15,382
1	93399	J. E. Worsham #1	13,700
1	93400	J. E. Worsham #1	13,347
1	93401	Jeff Worsham #1	13,706
1	93402	Jeff Worsham #1	13,443
1	93403	J. E. Worsham #1	13,772
1	93404	Jeff Worsham #1	13,752
1	93405	Jeff Worsham #1	13,989
1	93406	J. E. Worsham #1	13,960
1	93407	J. E. Worsham #1	13,911
1	93408	Jeff Worsham #1	13,881
1	93409	J. E. Worsham #1	13,600
1	93410	Jeff Worsham #1	26,064
1	93411	J. E. Worsham #1	13,948
1	93412	Jeff Worsham #1	13,600
1	93413	Jeff Worsham #1	14,000
1	93414	Jeff Worsham #1	13,600
1	93415	J. E. Worsham #1	13,881
1	93416	J. E. Worsham #1	13,946
1	93417	Jeff Worsham #1	14,000
1	93418	J. E. Worsham #1	14,200
1	93419	Jeff Worsham #1	14,400
1	93420	Jeff Worsham #1	14,700
1	93421	J. E. Worsham #1	14,264
1	93422	J. E. Worsham #1	14,097
1	93423	Jeff Worsham #1	14,304
1	93424	Jeff Worsham #1	14,122
1	93425	Jeff Worsham #1	14,363
1	93426	J. E. Worsham #1	14,098
1	93427	Jeff Worsham #1	14,178
1	93428	Jeff. Worsham #1	14,012
1	93429	Jeff Worsham #1	14,079
1	93430	Jeff Worsham #1	13,800
1	93431	J. E. Worsham #1	13,547

Key Number	IDUSGS	Well Name	TDS (ppm)
1	93432	S. B. Pierce #3	34,600
1	93433	S. B. Pierce #3	13,900
1	93434	S. B. Pierce #3	13,793
1	93435	Susan B. Pierce #3	13,555
1	93436	Susan B. Pierce #3	13,957
1	93437	S. Pierce #3	13,976
1	93438	Susan Pierce #3	13,860
1	93439	Susan Pierce #3	13,803
1	93440	S. Pierce #3	13,830
1	93441	S. B. Pierce #3	13,600
1	93442	S. B. Pierce #3	14,100
1	93443	Susan B. Pierce #3	14,066
1	93444	Susan B. Pierce #3	14,086
1	93445	Susan Pierce #3	14,224
1	93446	Susan Pierce #3	14,109
1	93447	Susan Pierce #3	14,166
1	93448	Susan Pierce #3	13,695
1	93449	Susan Pierce #1	13,824
1	93450	Susan Pierce #1	13,941
1	93451	Susan B. Pierce #1	13,900
1	93452	S. B. Pierce #1	13,900
1	93453	S. B. Pierce #1	13,906
1	93454	Susan Pierce #1	14,097
1	93455	Susan Pierce #1	13,900
1	93456	Susan Pierce #1	14,255
1	93457	S. B. Pierce #1	14,279
1	93458	S. B. Pierce #1	14,363
1	93459	Susan Pierce #1	14,079
1	93460	S. B. Pierce #1	11,337
1	93461	S. B. Pierce #1	13,000
1	93462	Susan Pierce #1	13,500
1	93463	S. B. Pierce #1	13,500
1	93464	S. B. Pierce #1	13,600
1	93465	S. B. Pierce #1	13,600
1	93466	Rooney Long #2-x	13,800
1	93467	Rooney Long #2x	46,280
1	94468	Rooney Long #1	13,800
1	94469	Rooney Long #1	13,800
1	94470	Rooney Long #1	13,852
1	94471	Rooney Long #1	13,928

Key Number	IDUSGS	Well Name	TDS (ppm)
1	94472	Rooney Long #1	13,686
1	94473	Rooney Long #1	13,887
1	94517	Jeff Worsham #2	14,916
1	94518	J. E. Worsham #2	14,049
1	94519	Jeff Worsham #2	16,293
1	94520	Jef Worsham #2	14,039
1	94521	J. E. Worsham #2	13,850
1	94522	Jeff Worsham #2	13,741
1	94523	Jeff Worsham #2	13,993
1	94873	Jeff Worsham #1	16,370
2	90206	J. L. Hedrick 6	16,012
2	90207	J. L. Hedrick 7	15,068
2	90208	N. S. Glover 3	16,730
2	90209	J. L. Hedrick 3	16,743
2	90210	J. L. Hedrick 5	16,470
2	90211	J. L. Hedrick 5	14,994
2	90206	J. L. Hedrick 6	16,012
2	90207	J. L. Hedrick 7	15,068
2	90208	N. S. Glover 3	16,730
2	90209	J. L. Hedrick 3	16,743
2	90210	J. L. Hedrick 5	16,470
2	90211	J. L. Hedrick 5	14,994
3	89762	No Data Provided	20,235
3	95747	O. S. Maxton #5	15,855
3	95748	O. S. Maxton #6	22,474
3	95761	C. L. Owings #10	35,606
3	95788	#1 Lucy Blackburn	35,837
4	92961	Jeff Worsham #4	13,700
5	89617	Sinclair Prairie Oil Company	17,650
6	100569	Earl Deas No 1	113,738
7	87016	Wl. L. Johnston #1	130,306
7	88376	F. E. Scoggins #1	130,192
7	88377	F. E. Scoggins #1	141,242
7	88378	F. E. Scoggins No. 1	127,470
7	94403	F. E. Scoggins #2	127,619
7	99417	Hudson No 1	131,147
7	99418	F E Scoggins #1	79,330
7	99419	F E Scoggins #1	107,705
7	99420	F E Scoggin #1	131,427
7	99425	F E Scoggin No 1	132,709

Key Number	IDUSGS	Well Name	TDS (ppm)
7	99427	F E Scoggins #2	127,208
7	100615	W F Bailey No 2	128,747
7	100616	W F Bailey No 2	133,634
7	100619	W H Blackwell Unit No 1	135,103
8	99409	N J Kirkland #4	132,260
9	100563	C B Smith No 2	137,912
10	90167	C. B. Smith 2	67,801
10	90179	H. K. Rainwater 6	127,536
10	90180	H. K. Rainwater 6	13,381
10	90181	Rainwater 6	8,660
10	90186	Mc Intosh-goldsmith 2	141,335
10	90196	J. P. Goldsmith 32	141,145
10	90199	H. H. Cox 2	139,115
10	90203	Atalatl-harris 4	140,318
10	99414	G R Blalock No 1	133,645
10	99415	N J Kirkland Swd	81,122
10	99424	G P Blalock #1	131,065
10	99426	G R Blalock No 1	131,159
10	100246	Blalock-blalock No 1	79,503
10	100443	B L Johnson No 2	134,050
10	100444	J B Goldsmith No 5	135,930
10	100445	J B Goldsmith No 7	133,109
10	100446	J B Goldsmith No 7	139,128
10	100447	J B Goldsmith No 8	137,065
10	100448	J B Goldsmith No 9	135,498
10	100449	J B Goldsmith No 22	140,875
10	100452	J B Goldsmith No 5-p	127,824
10	100604	Goldsmith-watson No 1	135,768
10	100609	Goldsmith-watson No 1	132,583
10	100610	Goldsmith-watson No 2	139,111
10	100618	Cox Smith No 2	133,373
10	100634	J R Blalock No 1	138,618
10	100636	J B Ingram No 1-ut	139,332
10	100640	White-blalock No 1	139,325
10	100641	White-blalock No 1	132,116
10	100652	B L Johnson Nos 1 & 2	131,701
10	100658	John R Blalock A No 2	107,740
10	100660	Kirkland-kirkland No 1-a	130,897
10	100674	Nellie Kirkland No 1	135,747
10	100677	Kirkland Watson No 1	136,495

Key Number	IDUSGS	Well Name	TDS (ppm)
11	100564	H K Rainwater No 6	127,536

Note: Please see **Figure 1-27** for a reference map of the well's location.