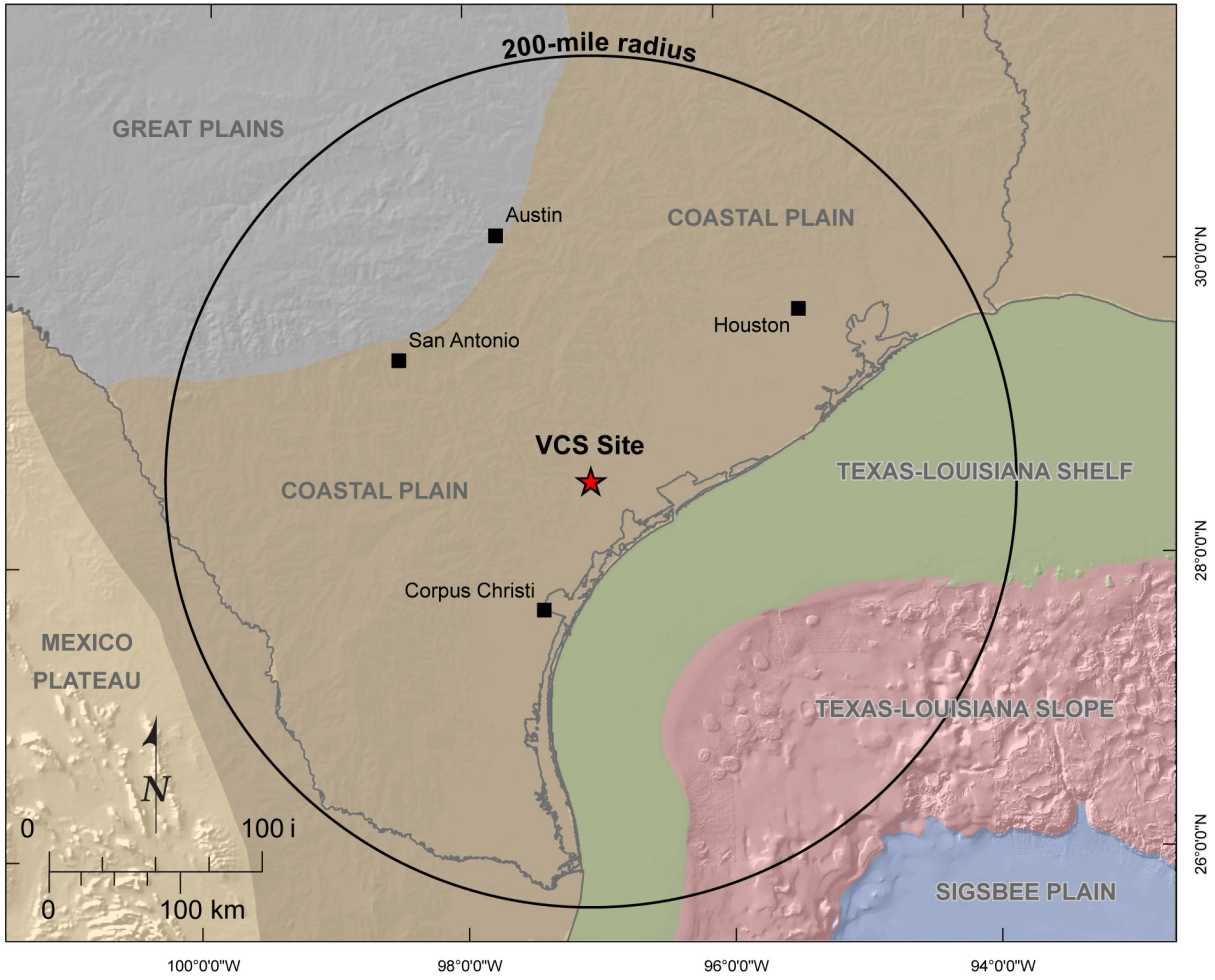


Figure 2.5.1-1 Map of Physiographic Provinces

Physiographic provisions modified from References 2.5.1-50 and 2.5.1-216.

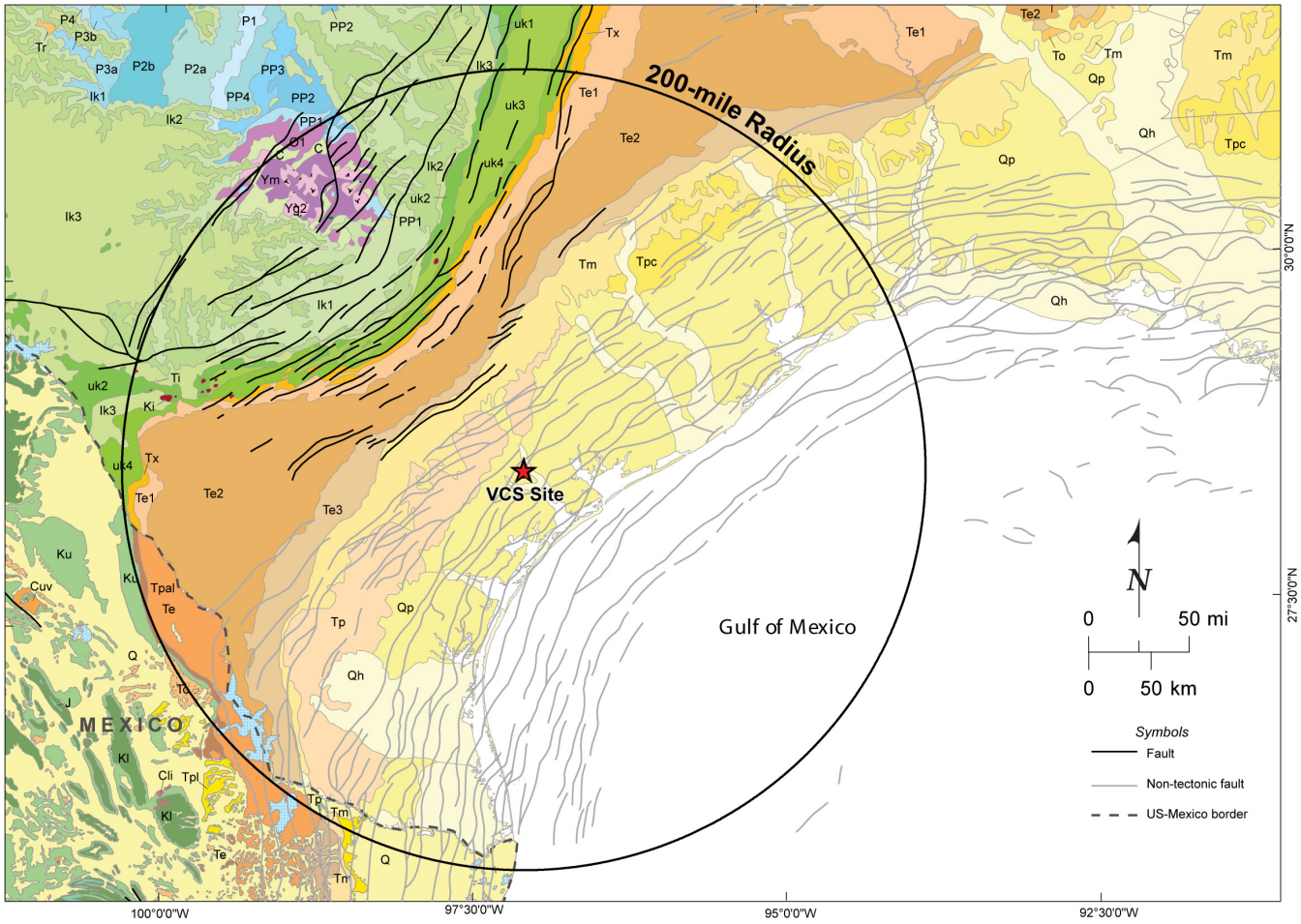


Figure 2.5.1-2a Regional Geologic Map (200-Mile Radius)

Note: U.S. geology from Reference 2.5.1-4 as digitized by Reference 2.5.1-5. Faults from Reference 2.5.1-6. Mexico geology from Reference 2.5.1-7.

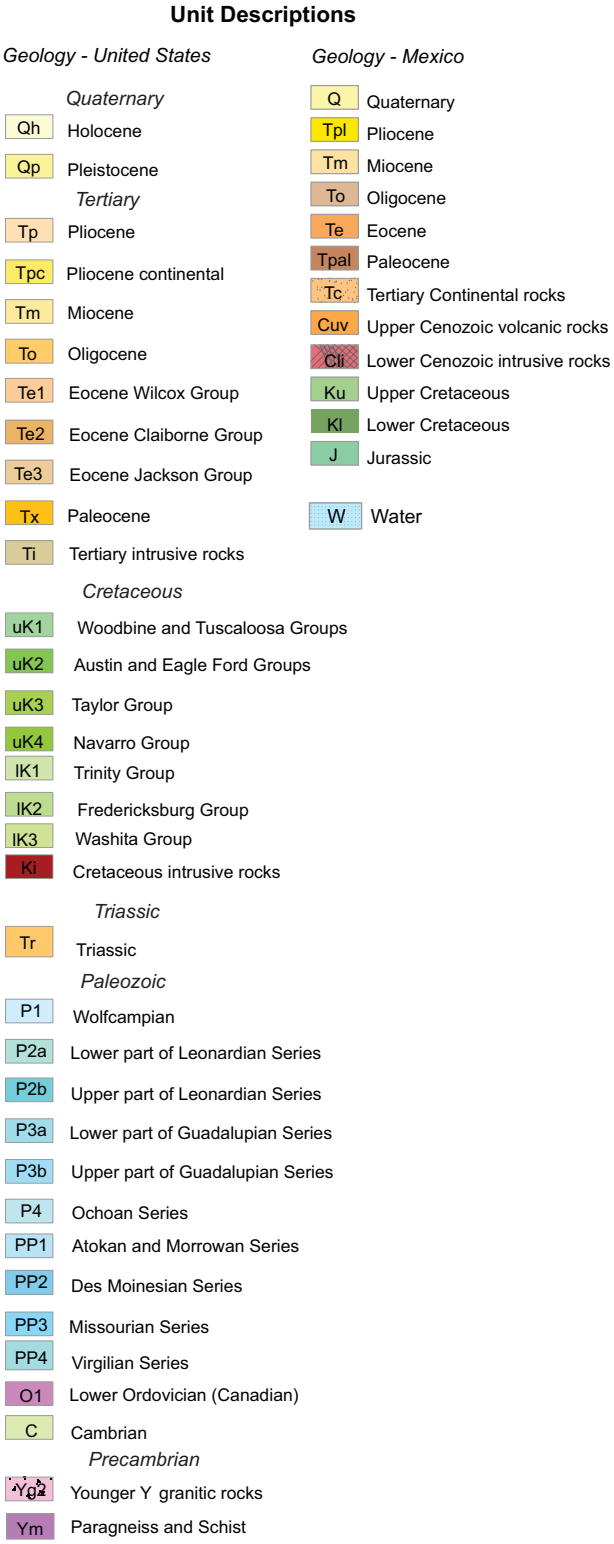
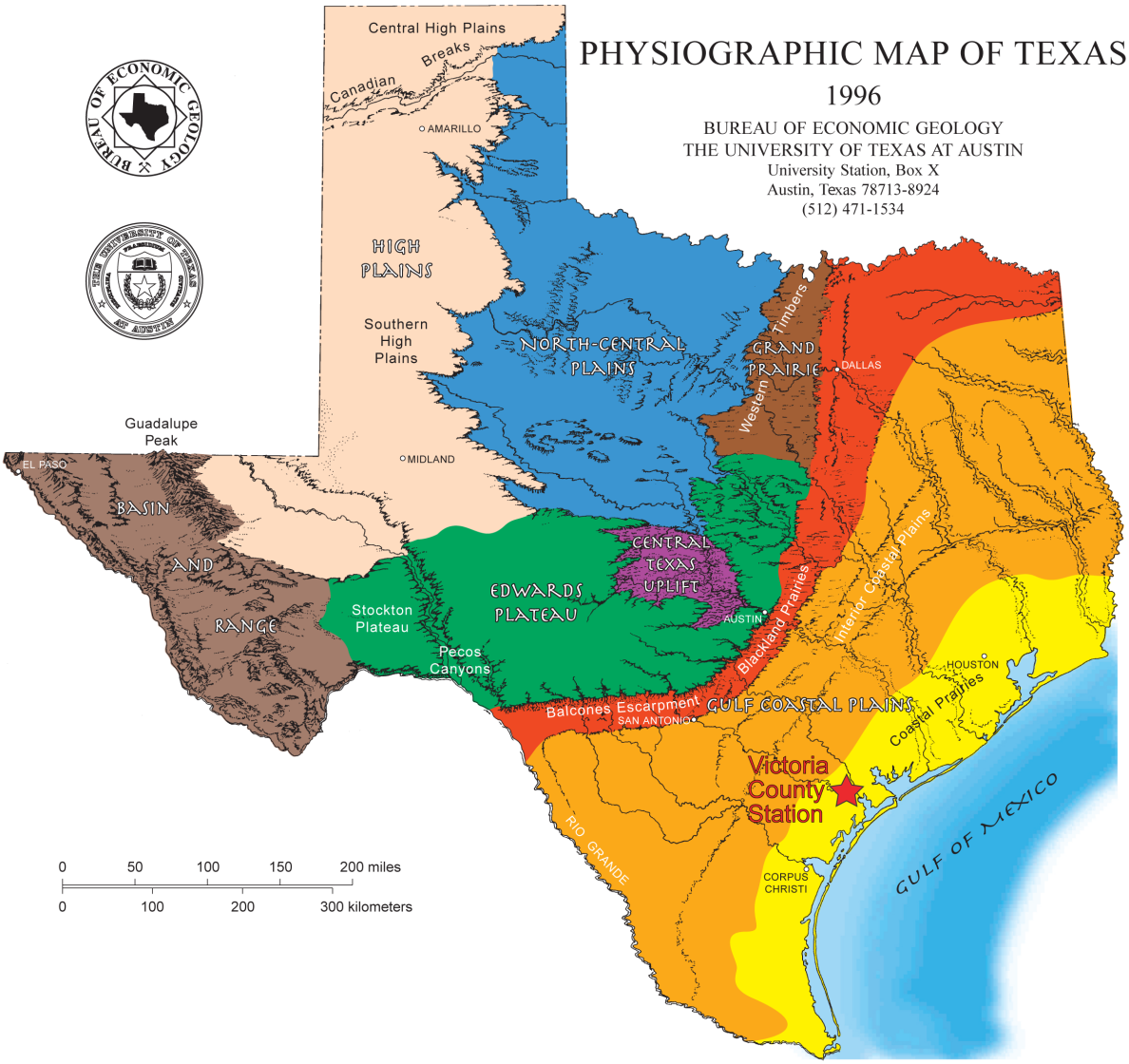


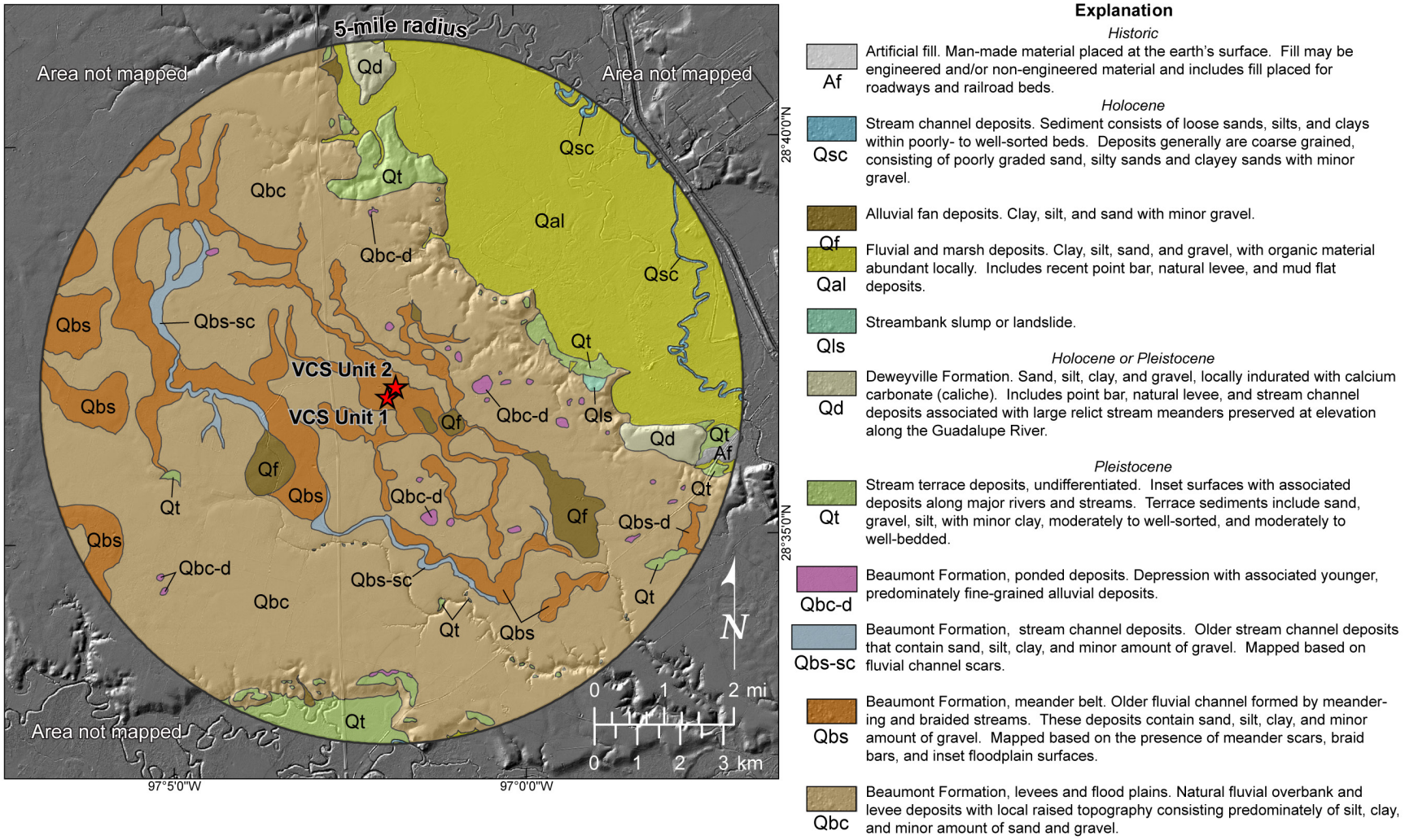
Figure 2.5.1-2b Explanation for Regional Geologic Map (200-Mile Radius)



PROVINCE	MAX. ELEV. (ft)	MIN. ELEV. (ft)	TOPOGRAPHY	GEOLOGIC STRUCTURE	BEDROCK TYPES
Gulf Coastal Plains					
Coastal Prairies	300	0	Nearly flat prairie, <1 ft/mi to Gulf	Nearly flat strata	Deltaic sands and muds
Interior Coastal Plains	800	300	Parallel ridges (questas) and valleys	Beds tilted toward Gulf	Unconsolidated sands and muds
Blackland Prairies	1000	450	Low rolling terrain	Beds tilted south and east	Chalks and marls
Grand Prairie	1250	450	Low stairstep hills west; plains east	Strata dip east	Calcareous east; sandy west
Edwards Plateau					
Principal	3000	450	Flat upper surface with box canyons	Beds dip south; normal faulted	Limestones and dolomites
Pecos Canyons	2000	1200	Steep-walled canyons		Limestones and dolomites
Stockton Plateau	4200	1700	Mesa-formed terrain; highs to west	Unfaulted, near-horizontal beds	Carbonates and alluvial sediments
Central Texas Uplift	2000	800	Knobby plain; surrounded by questas	Centripetal dips, strongly faulted	Granites; metamorphics; sediments
North-Central Plains	3000	900	Low north-south ridges (questas)	West dip; minor faults	Limestones; sandstones; shales
High Plains					
Central	4750	2900	Flat prairies slope east and south	Slight dips east and south	Eolian silts and fine sands
Canadian Breaks	3800	2350	Highly dissected; local solution valleys		
Southern	3800	2200	Flat; many playas; local dune fields		
Basin and Range	8750	1700	North-south mountains and basins	Some complex folding and faulting	Igneous; metamorphics; sediments

Figure 2.5.1-3 Physiographic Map of Texas

Figure modified from Reference 2.5.1-8.



Explanation

Historic

Af — Artificial fill. Man-made material placed at the earth's surface. Fill may be engineered and/or non-engineered material and includes fill placed for roadways and railroad beds.

Holocene

Qsc — Stream channel deposits. Sediment consists of loose sands, silts, and clays within poorly- to well-sorted beds. Deposits generally are coarse grained, consisting of poorly graded sand, silty sands and clayey sands with minor gravel.

Qf — Alluvial fan deposits. Clay, silt, and sand with minor gravel.

Qal — Fluvial and marsh deposits. Clay, silt, sand, and gravel, with organic material abundant locally. Includes recent point bar, natural levee, and mud flat deposits.

Qls — Streambank slump or landslide.

Holocene or Pleistocene

Qd — Deweyville Formation. Sand, silt, clay, and gravel, locally indurated with calcium carbonate (caliche). Includes point bar, natural levee, and stream channel deposits associated with large relict stream meanders preserved at elevation along the Guadalupe River.

Pleistocene

Qt — Stream terrace deposits, undifferentiated. Inset surfaces with associated deposits along major rivers and streams. Terrace sediments include sand, gravel, silt, with minor clay, moderately to well-sorted, and moderately to well-bedded.

Qbc-d — Beaumont Formation, ponded deposits. Depression with associated younger, predominately fine-grained alluvial deposits.

Qbs-sc — Beaumont Formation, stream channel deposits. Older stream channel deposits that contain sand, silt, clay, and minor amount of gravel. Mapped based on fluvial channel scars.

Qbs — Beaumont Formation, meander belt. Older fluvial channel formed by meandering and braided streams. These deposits contain sand, silt, clay, and minor amount of gravel. Mapped based on the presence of meander scars, braid bars, and inset floodplain surfaces.

Qbc — Beaumont Formation, levees and flood plains. Natural fluvial overbank and levee deposits with local raised topography consisting predominately of silt, clay, and minor amount of sand and gravel.

Figure 2.5.1-4 Site Area Geologic Map (5-Mile Radius)

Note: Shaded relief base from References 2.5.1-249 and 2.5.1-250.

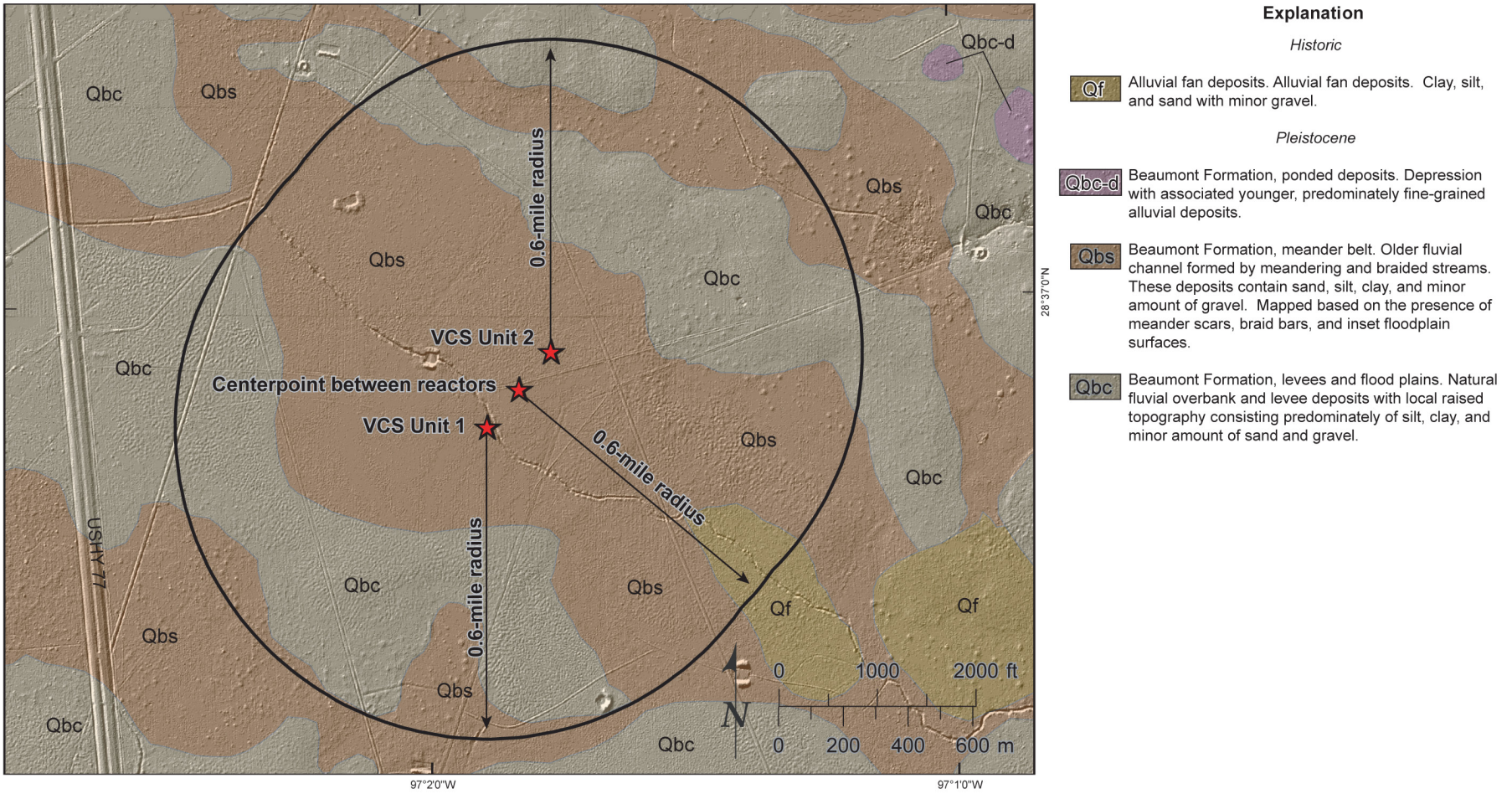


Figure 2.5.1-5 Site Geologic Map (0.6-Mile Radius)

Note: Shaded relief base from Reference 2.5.1-4.

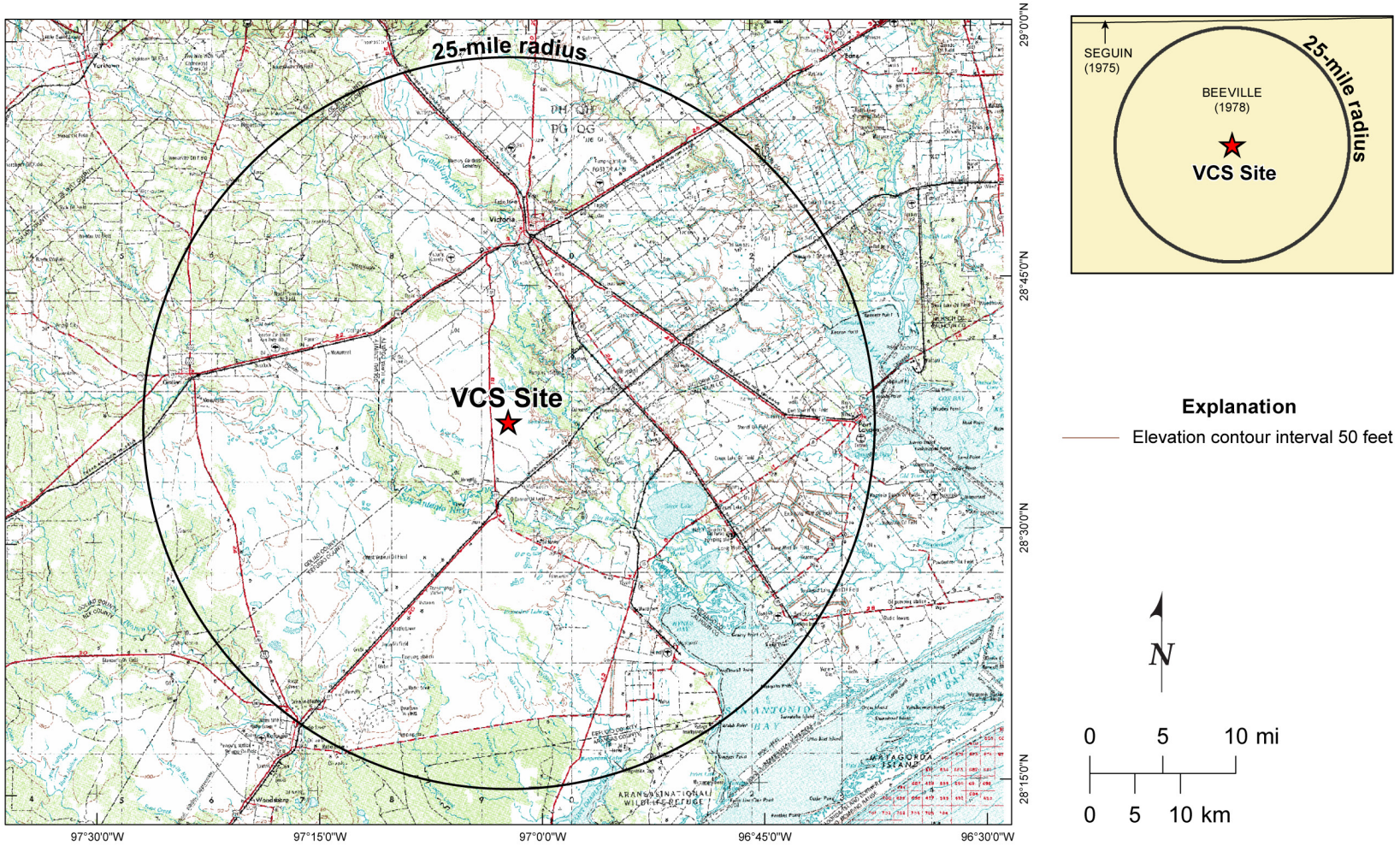
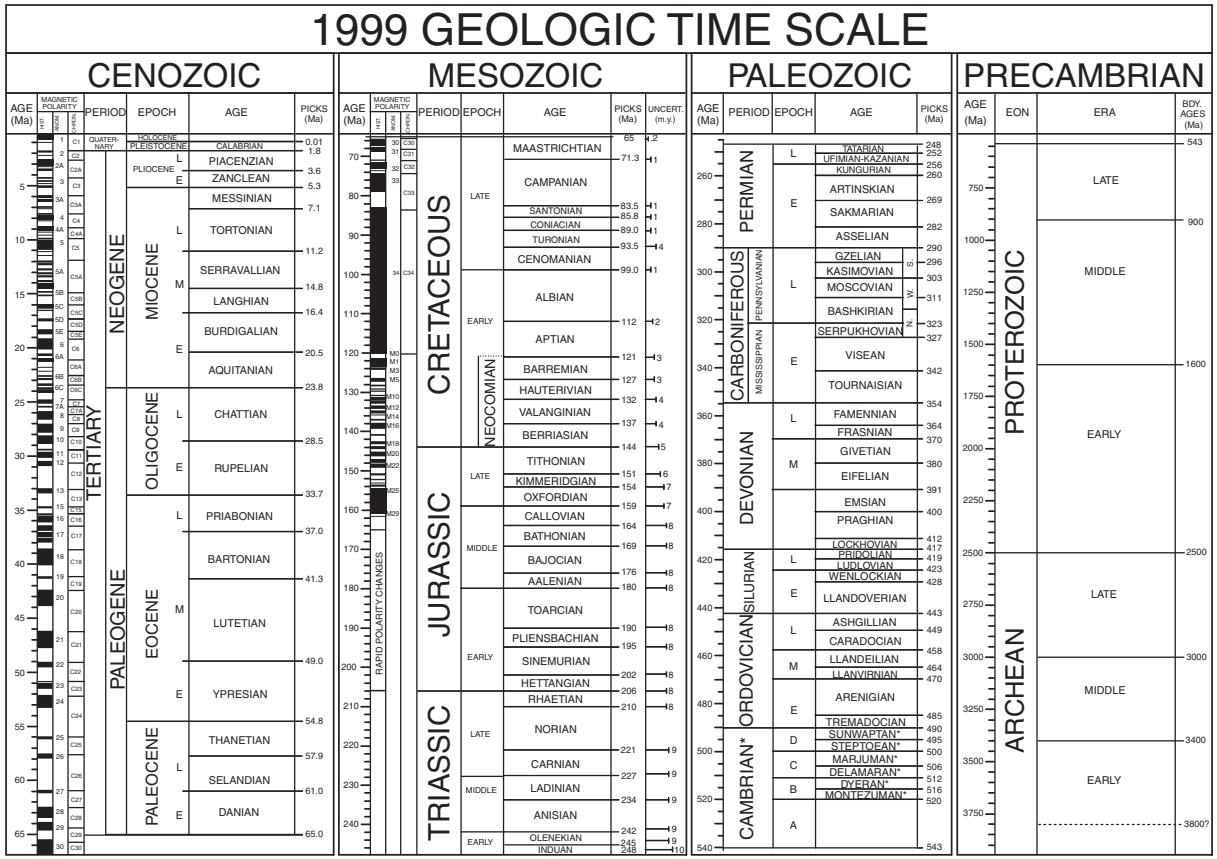


Figure 2.5.1-6 Site Vicinity Topographic Map (25-Mile Radius)

Note: Index of USGS quadrangle topographic maps, References 2.5.1-260 and 2.5.1-261, used as base.



*International ages have not been established. These are regional (Laurentian) only. Boundary Picks were based on dating techniques and fossil records as of 1999. Paleomagnetic attributions have errors, Please ignore the paleomagnetic scale.

Sources for nomenclature and ages: Primarily from Gradstein, F., and Ogg, J., 1996, *Episodes*, v. 19, nos. 1 & 2; Gradstein, F., et al., 1995, SEPM Special Pub. 54, p. 95–128; Berggren, W. A., et al., 1995, SEPM Special Pub. 54, p. 129–212; Cambrian and basal Ordovician ages adapted from Landing, E., 1998, *Canadian Journal of Earth Sciences*, v. 35, p. 329–338; and Davidek, K., et al., 1998, *Geological Magazine*, v. 135, p. 305–309. Cambrian age names from Palmer, A. R., 1998, *Canadian Journal of Earth Sciences*, v. 35, p. 323–328.

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Figure 2.5.1-7 Geologic Time Scale

Source: Reference 2.5.1-267

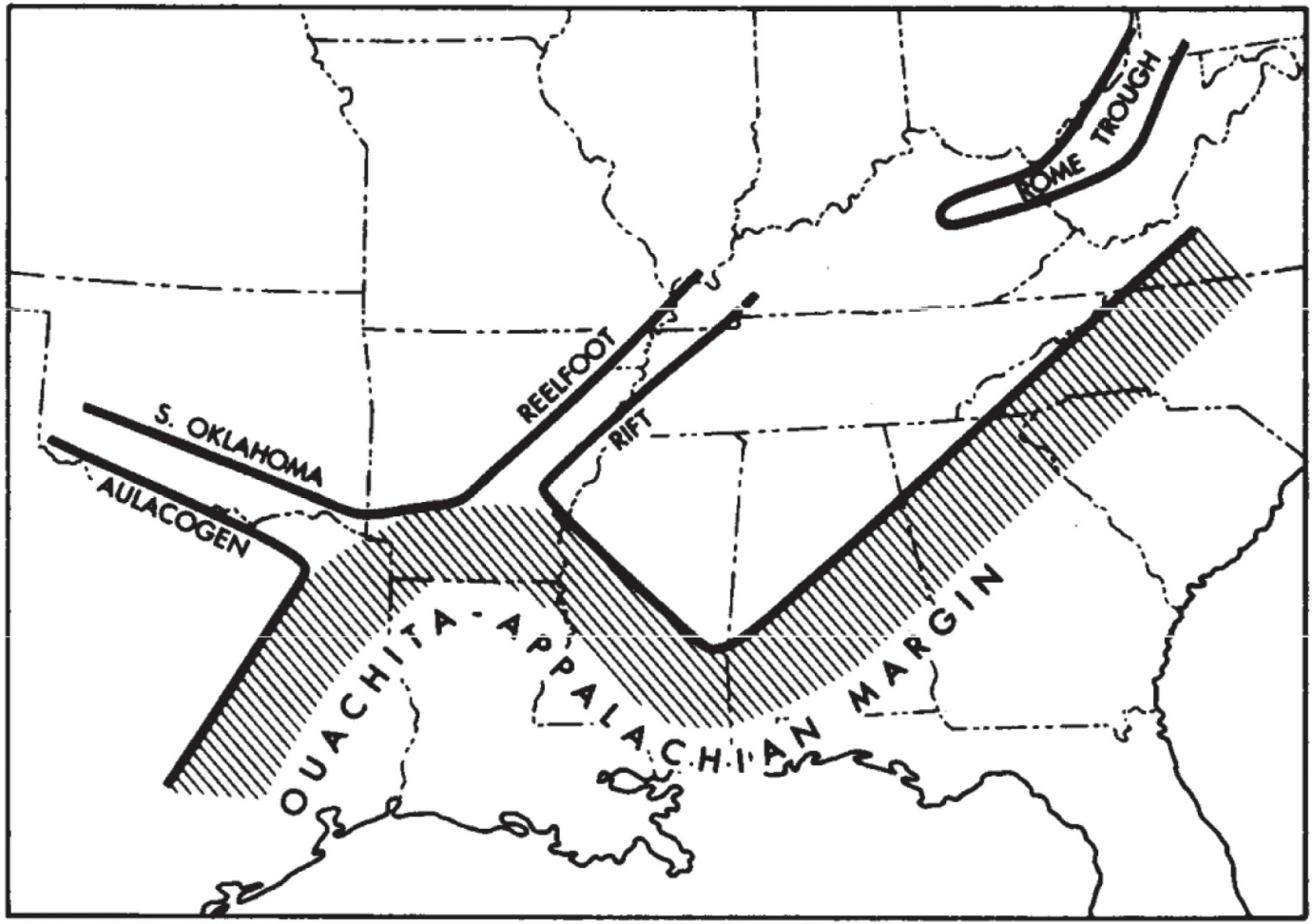


Figure 2.5.1-8 Aulacogens of Laurentia

Note: From Reference 2.5.1-60

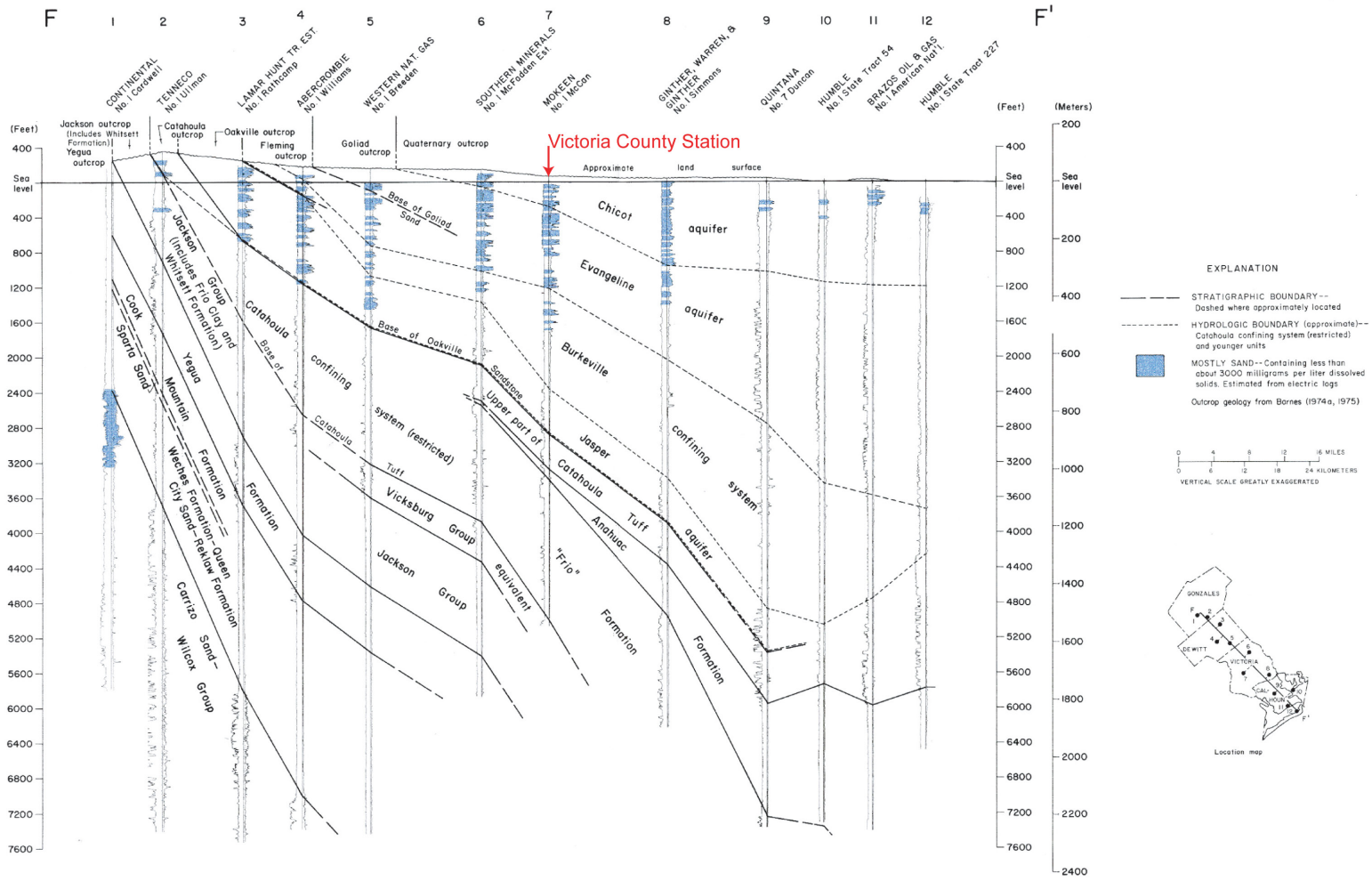


Figure 2.5.1-9 Regional Cross Section

Figure modified from Reference 2.5.1-266

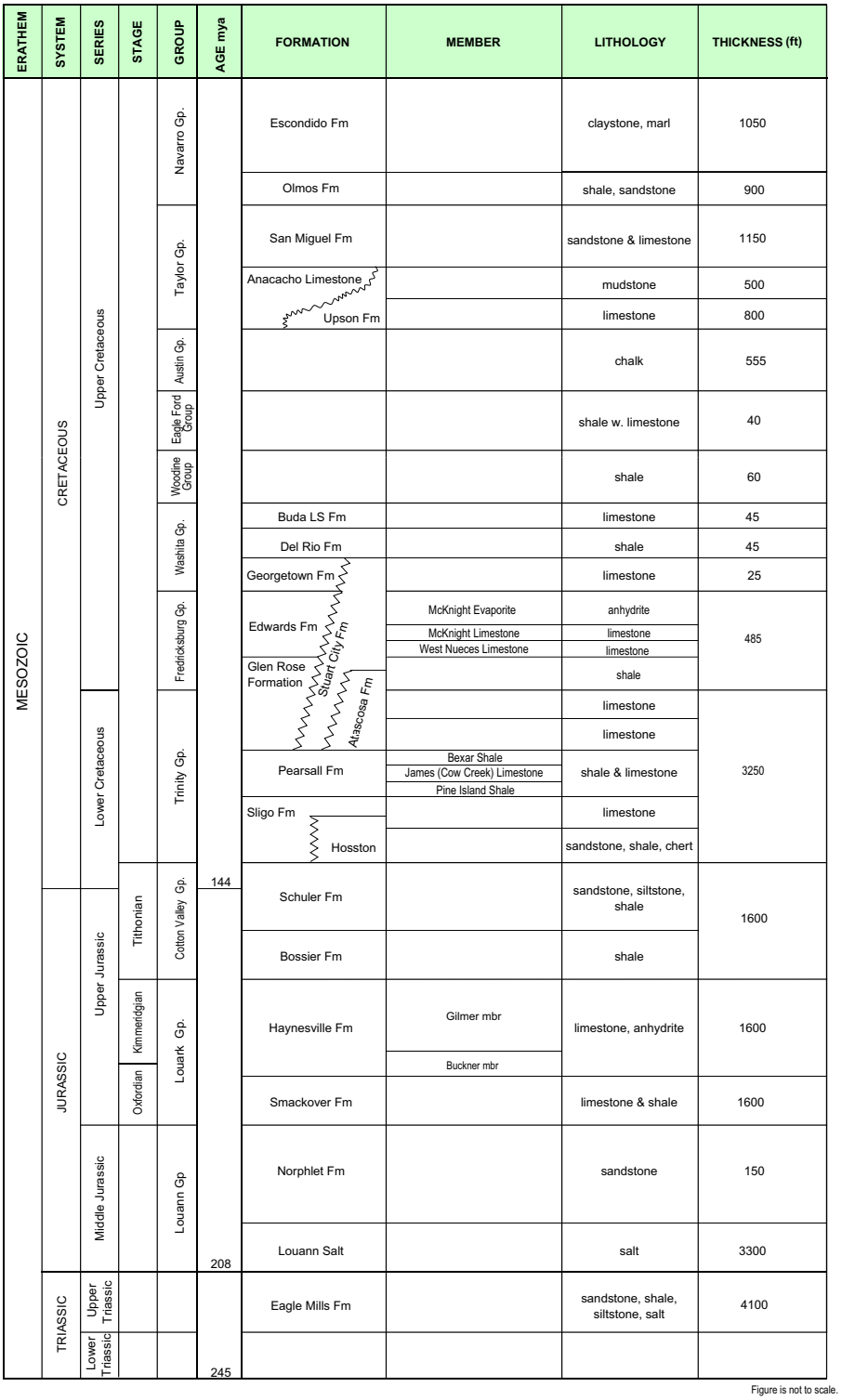


Figure is not to scale.

Figure 2.5.1-10 Mesozoic Stratigraphic Column

Figure modified from Reference 2.5.1-27

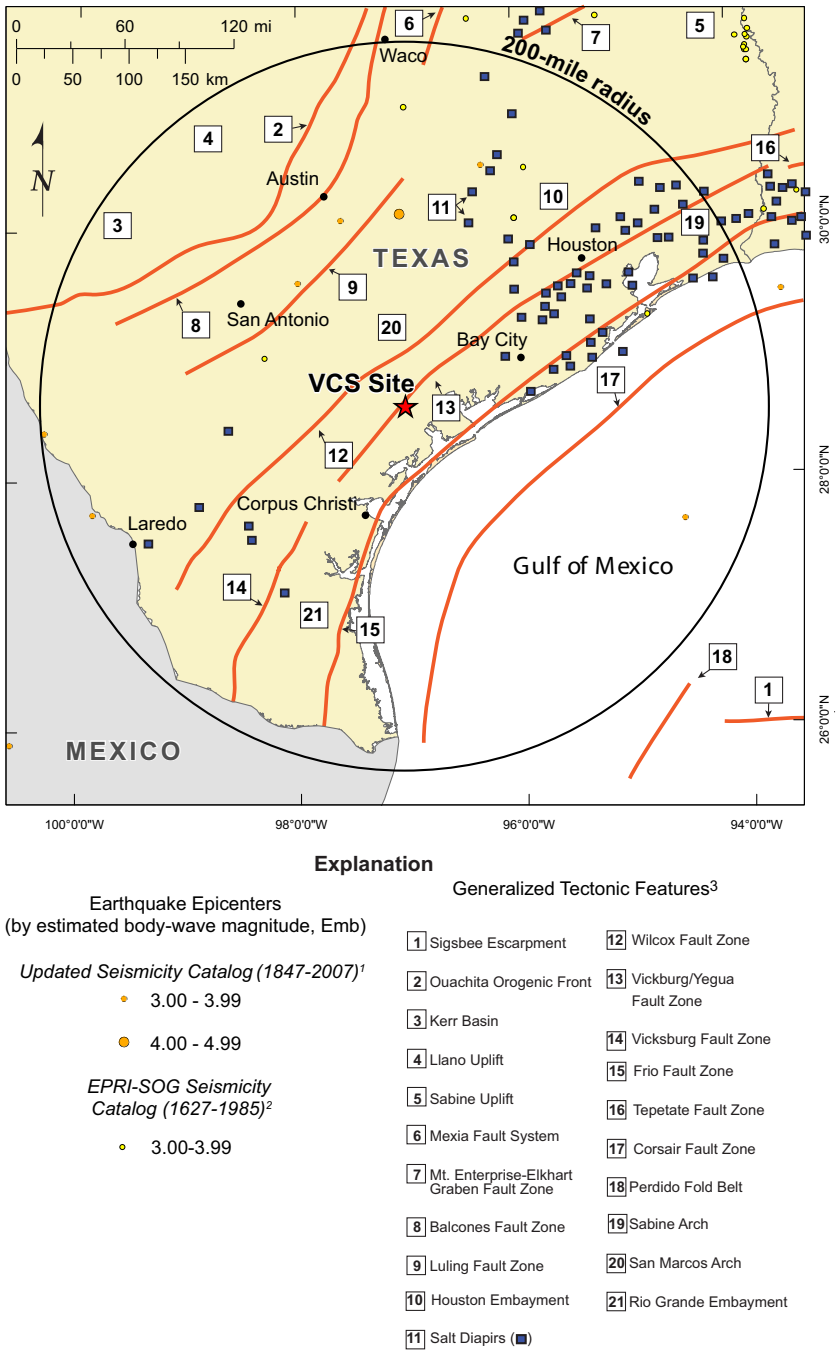


Figure 2.5.1-11 Simplified Map of Tectonic Features in Site Region (200-Mile Radius)

Notes:
1. See Subsection 2.5.2.1
2. Includes Proterozoic to Cenozoic structures from Reference 2.5.1-57
3. Geologic tectonic features from Reference 2.5.1-124

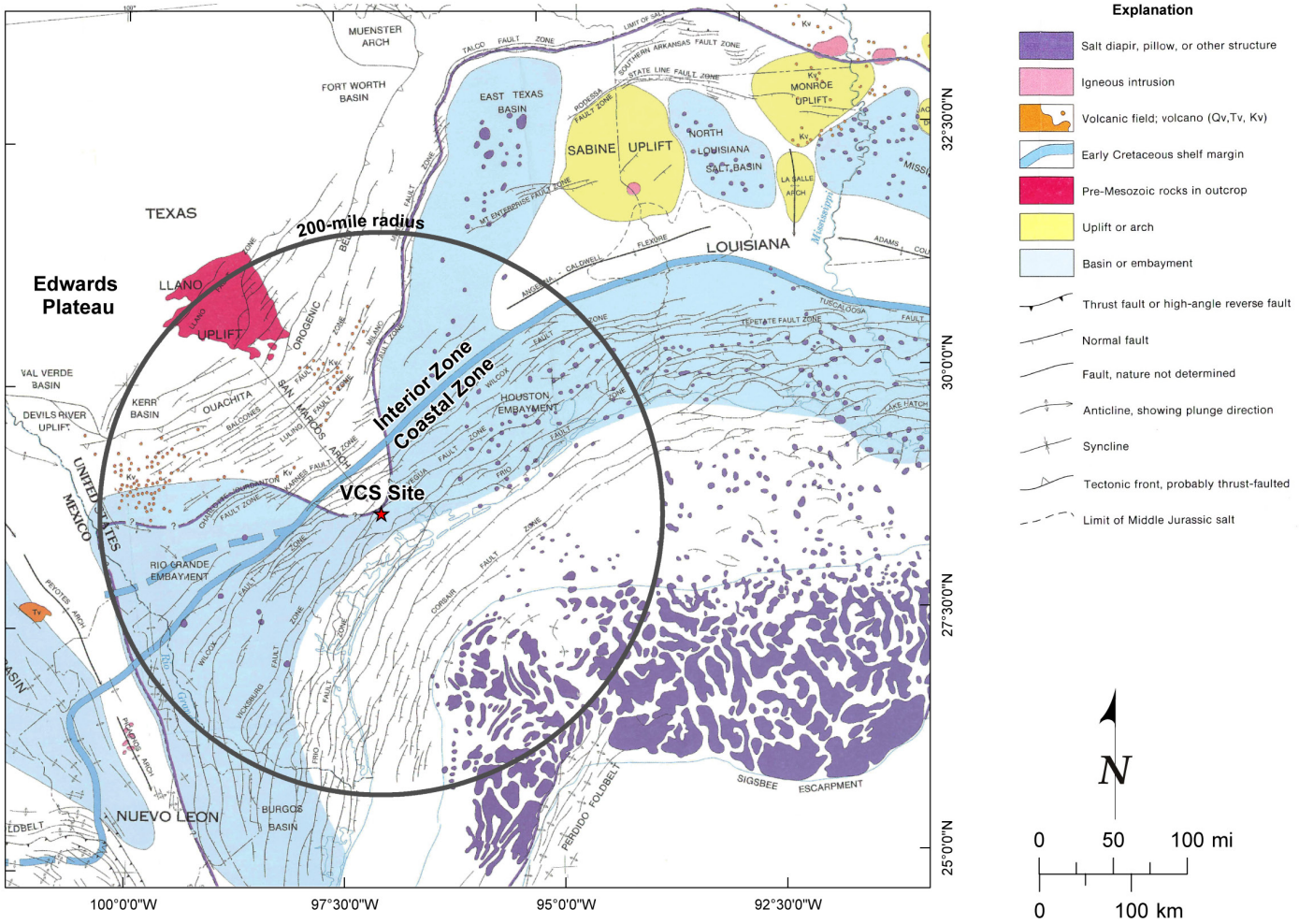


Figure 2.5.1-12 Geologic Features of the Gulf Coast Region

Modified from Reference 2.5.1-124

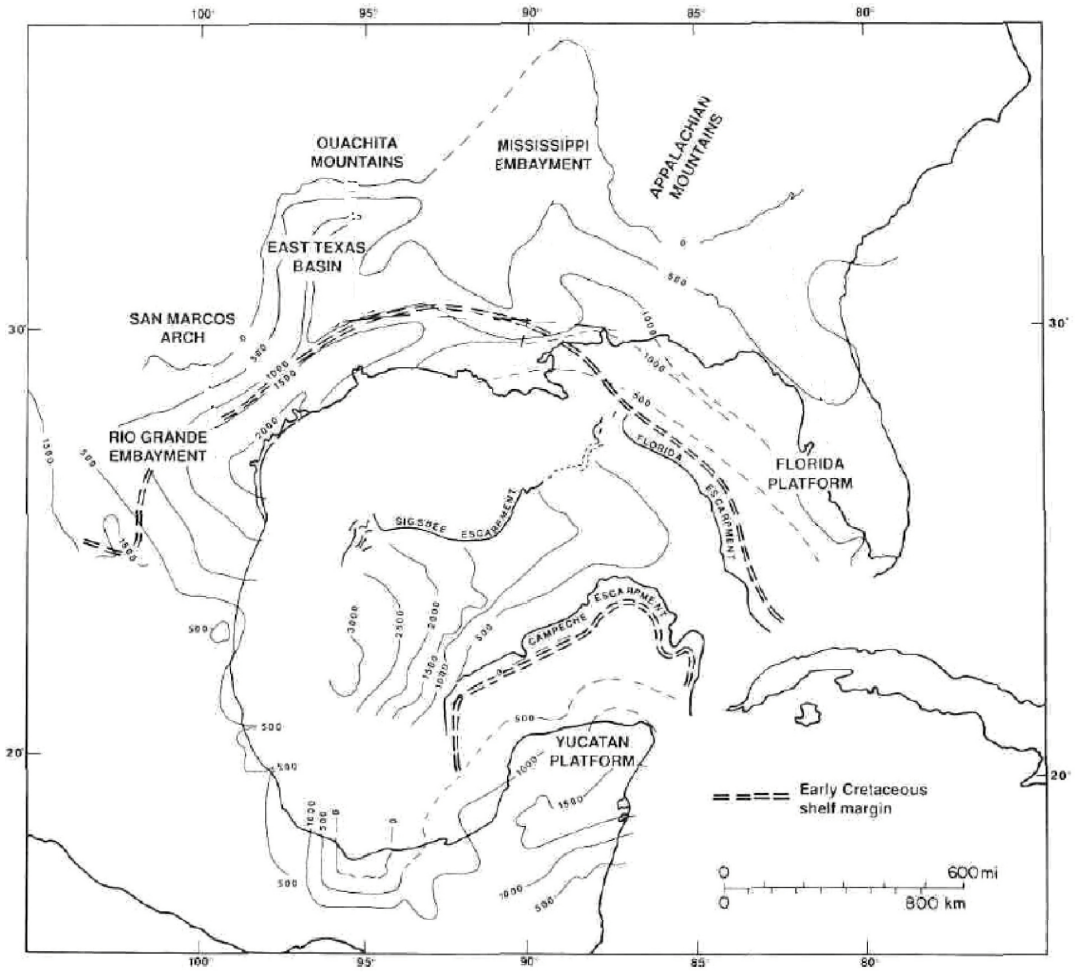


Figure 2.5.1-13 Isopach Map of the Upper Cretaceous Rocks of the Gulf of Mexico Basin

Notes:
1. Thicknesses are in meters
2. Figure modified from Reference 2.5.1-32

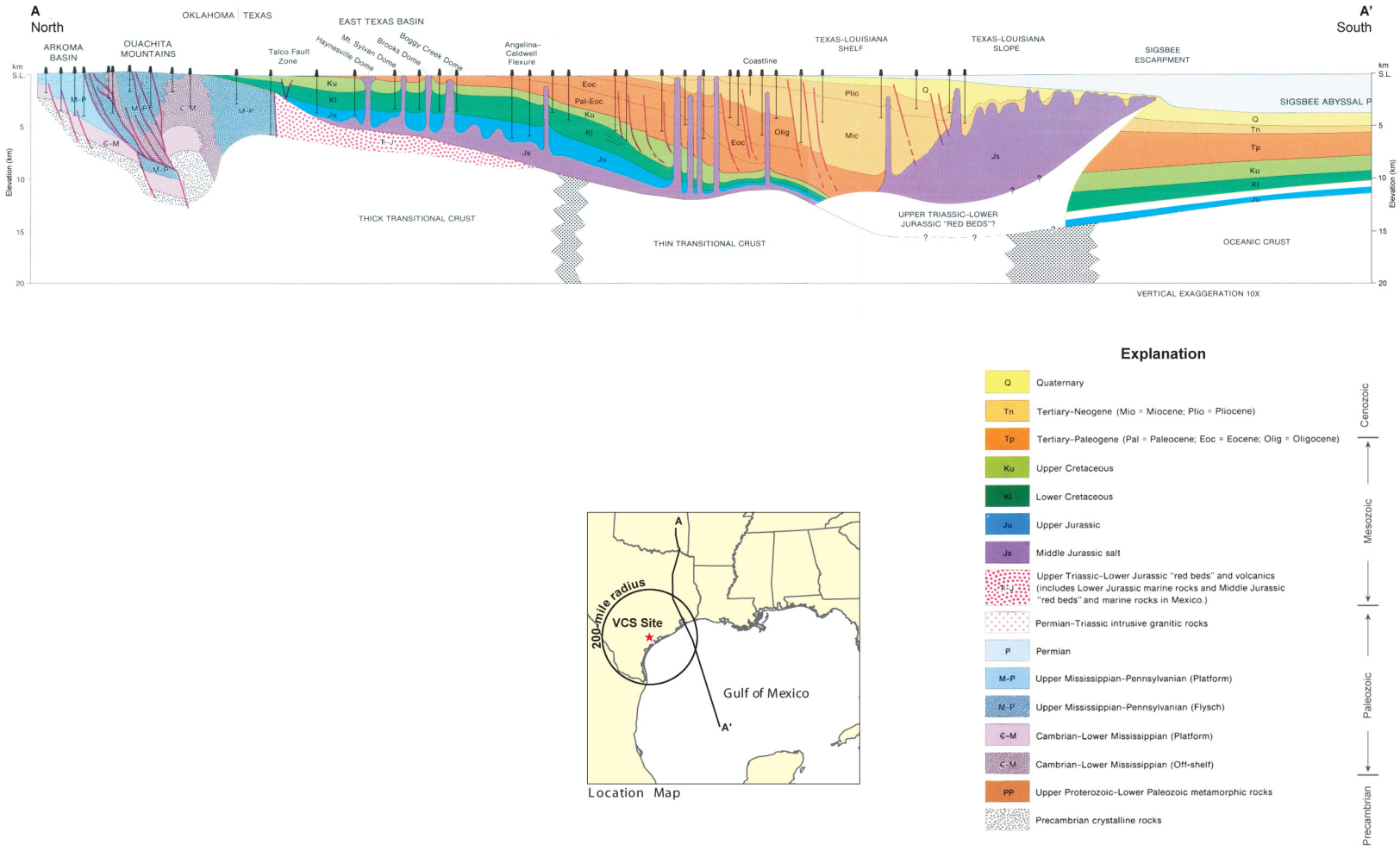


Figure 2.5.1-14 Crustal Structure of the Ouachita Mountains, Coastal Plains, and Northern Gulf of Mexico

Modified from Reference 2.5.1-27

ERATHEM	SYSTEM	SERIES	AGE m.y.	Victoria County Station		Approximate Thickness Undifferentiated (feet)	Approximate elevation of formation top (feet)	Hydrostratigraphy	
CENOZOIC	QUATERNARY	Holocene	0.10	Alluvium & Terrace Deposits	Undifferentiated Deweyville Terrace Deposits	0-50			
		Pleistocene	2		Beaumont Fm Lissie Fm Willis Formation	400 600-700	0± -400	Coastal Lowlands Aquifer System	Chicot aquifer
	TERTIARY	Pliocene	5	Goliad sand		800 to 1,000	-1,000 to -1,100		Evangeline aquifer
		Miocene	24	Fleming Formation Oakville Sandstone		3,400 to 4,500	-1,800 to -2,100		Burkeville Confining System
									Jasper aquifer
				Catahoula Tuff	Catahoula Sand Anahuac Formation Frio Formation	3,000	-5,200 to -6,600		Catahoula Confining System
		Oligocene	38	Frio Clay (Vicksburg Group)		200	-8,000 to -9,600	Coastal Uplands Aquifer System	Vicksburg - Jackson Confining System
		Eocene	58	Jackson Group	Whitsett Manning clay Welborn Caddell	500 to 1,100	-8,400 to -9,800		
				Claiborne Group	Yegua Cook Mountain Sparta Sand Weches Fm Queen City Snd Reklaw Fm Carrizo	1,400 to 4,500	-8,900 to -10,900		Upper Claiborne Aquifer Middle Claiborne Confining System Midddle Claiborne Aquifer Confining System Lower Claiborne-Upper Wilcox Aquifer
				Wilcox Group	Undifferentiated	2,000	-10,300 to -15,400		Middle Wilcox Aquifer Not Present
		Paleocene	66	Midway Grp	Wills Point Kincaid Fm	2,500	-12,300 to -17,400	Midway Confining System	

Figure 2.5.1-15 Cenozoic Stratigraphic Column

Notes:

1. Thicknesses estimated from References 2.5.1-33, 2.5.1-35 and 2.5.1-266
2. Hydrostratigraphy from Reference 2.5.1-25

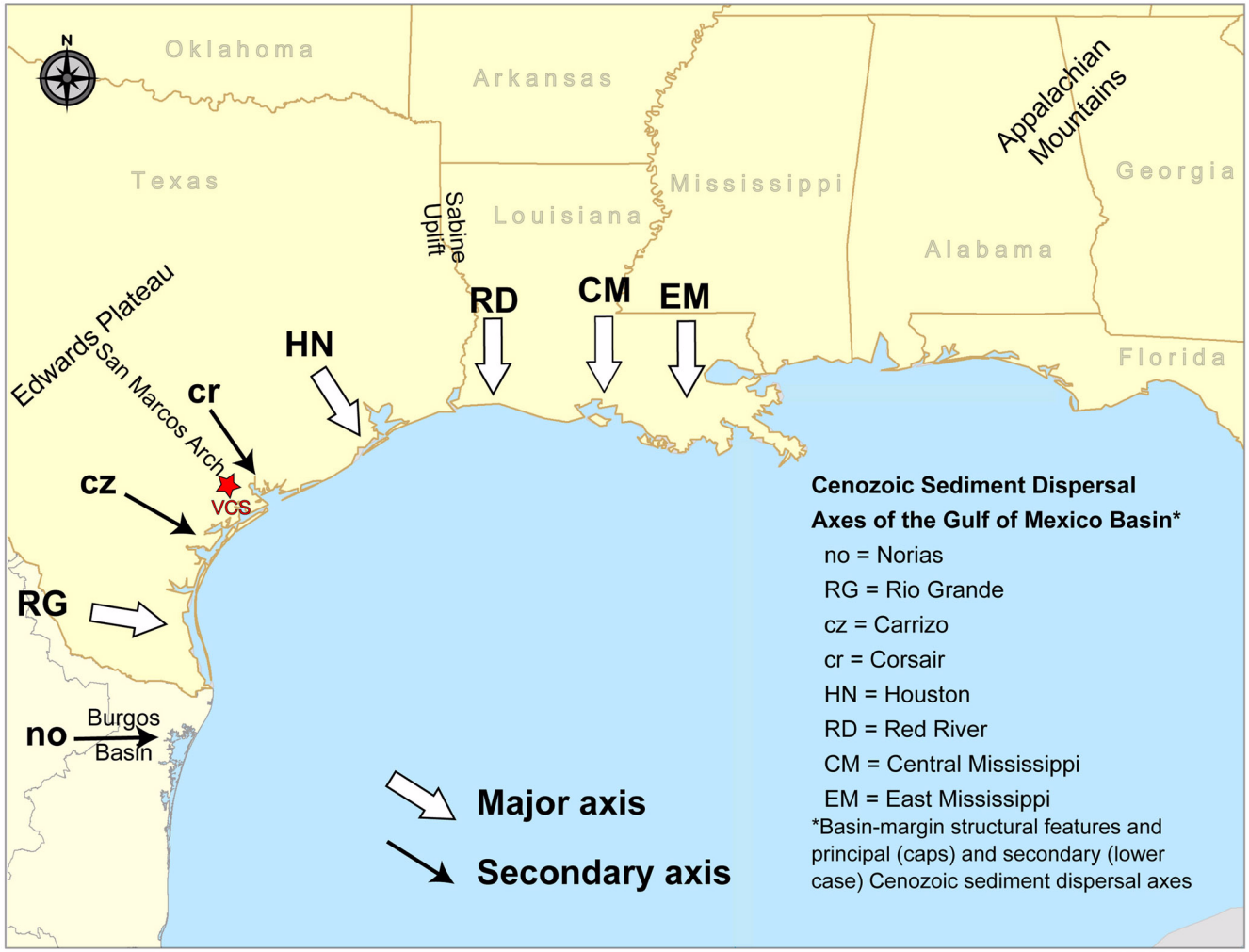


Figure 2.5.1-16 Cenozoic Sediment Dispersal Axes of the Gulf of Mexico

Modified from Reference 2.5.1-34

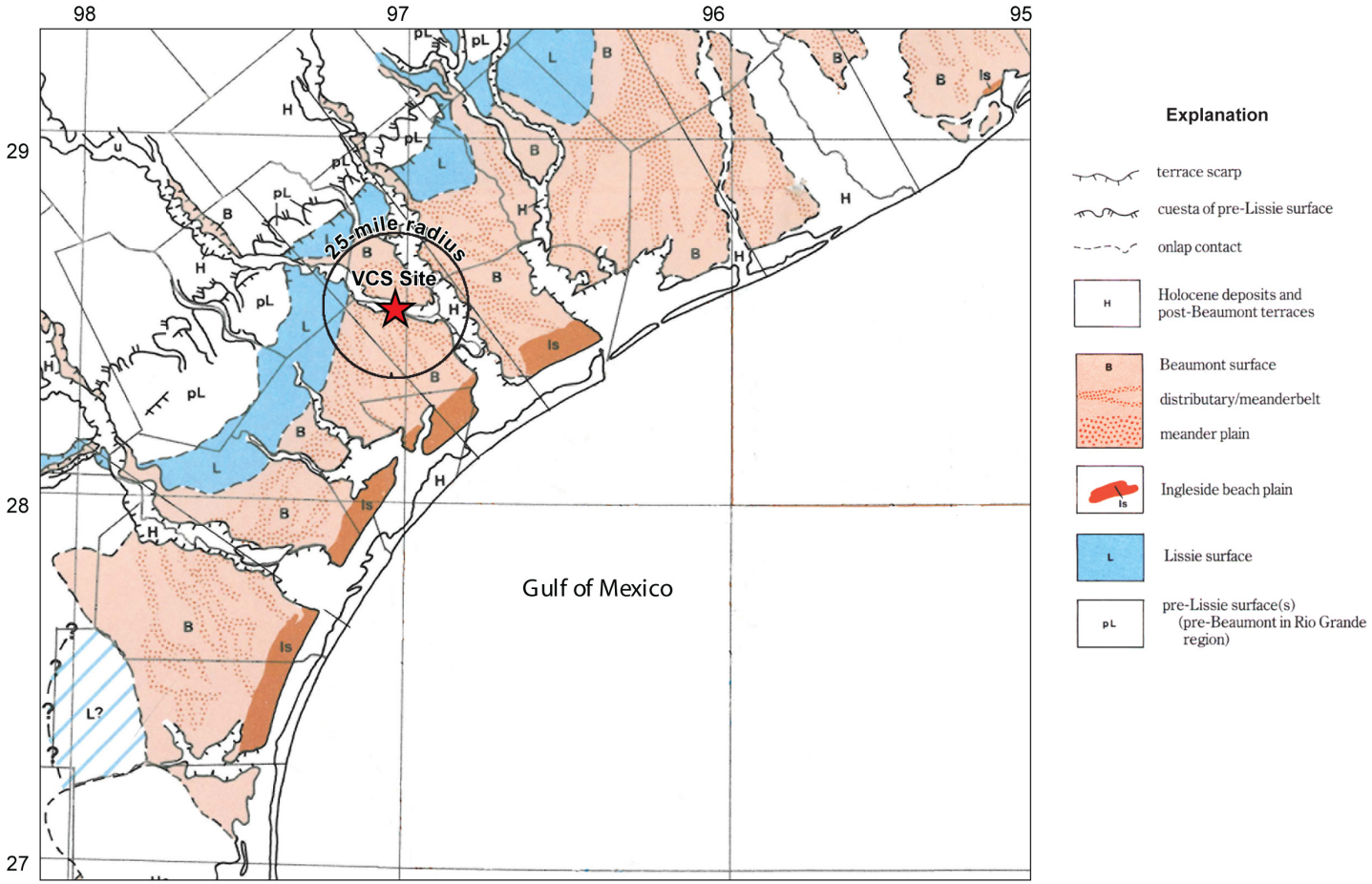


Figure 2.5.1-17 Quaternary Deposits of the Gulf Coastal Plains

Modified from Reference 2.5.1-34

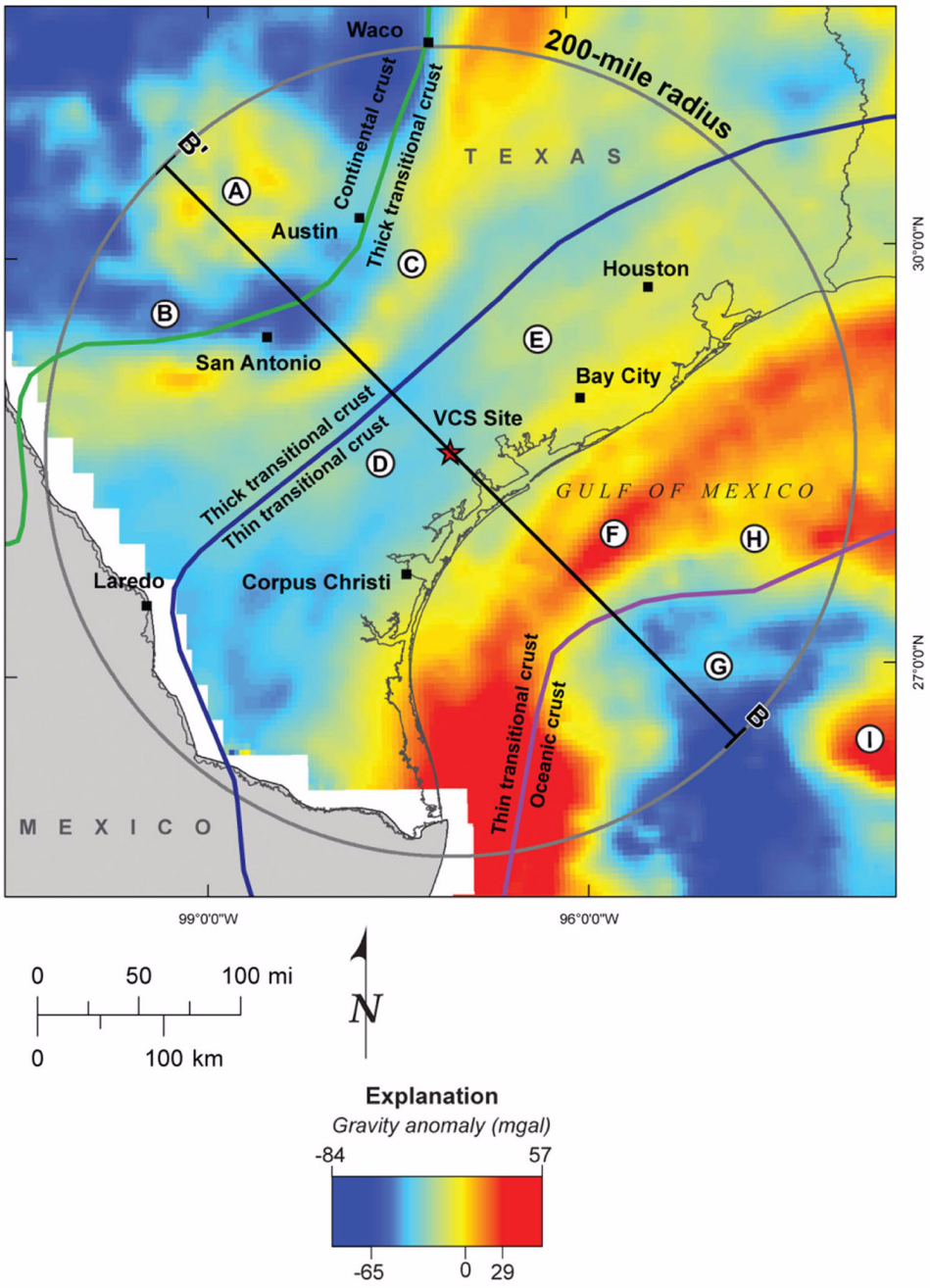


Figure 2.5.1-18 Gravity Anomalies, Crustal Transitions, and Gravity Features in Site Region (200-Mile Radius)

Gravity data from Reference 2.5.1-203 as available in Reference 2.5.1-204. Bouguer anomaly onshore; free-air anomaly offshore. Crustal boundaries from References 2.5.1-46, 2.5.1-47, and 2.5.1-49

1. Geophysical profile B-B' shown in Figure 2.5.1-29
2. Circled letters refer to features discussed in Subsection 2.5.1.1.5

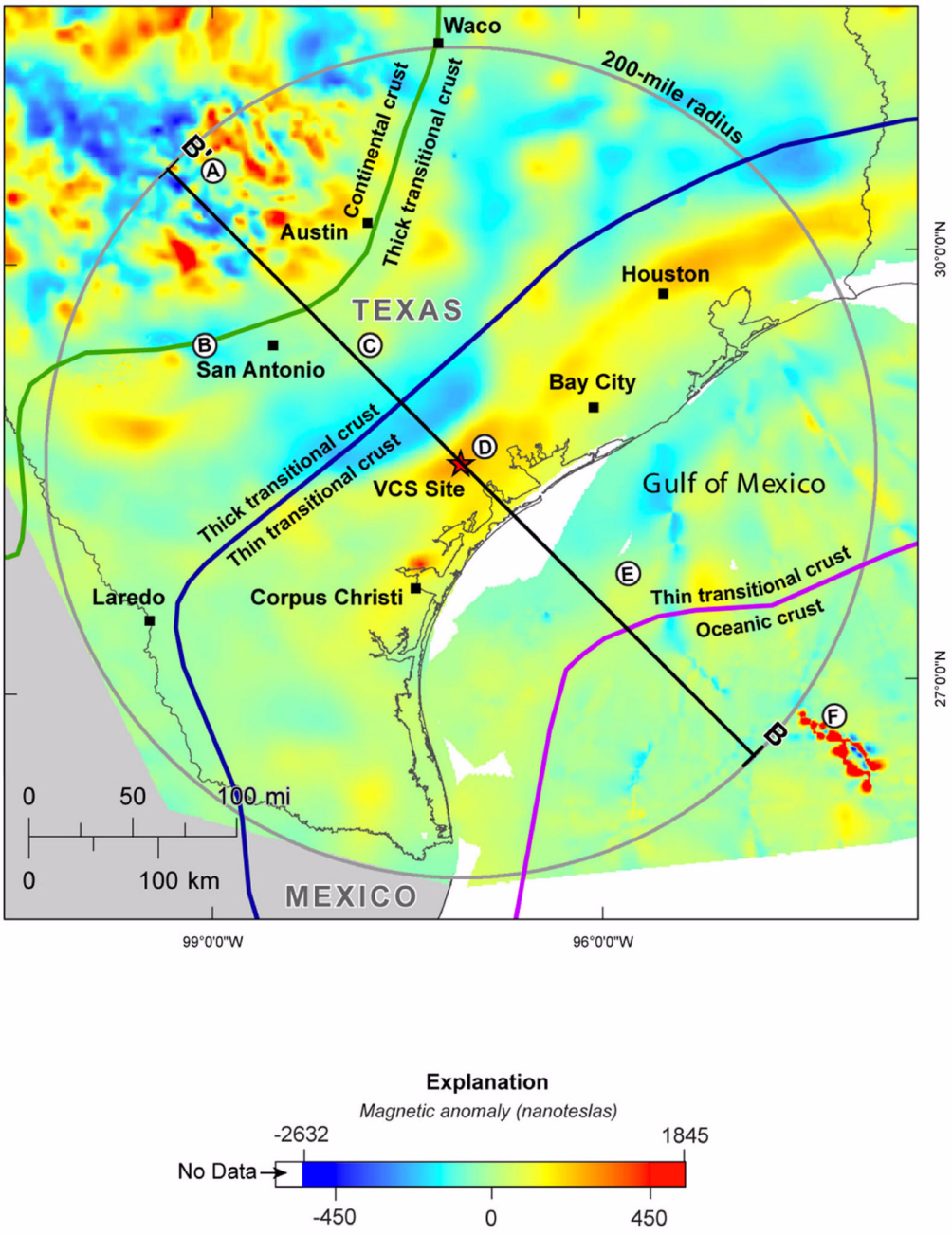
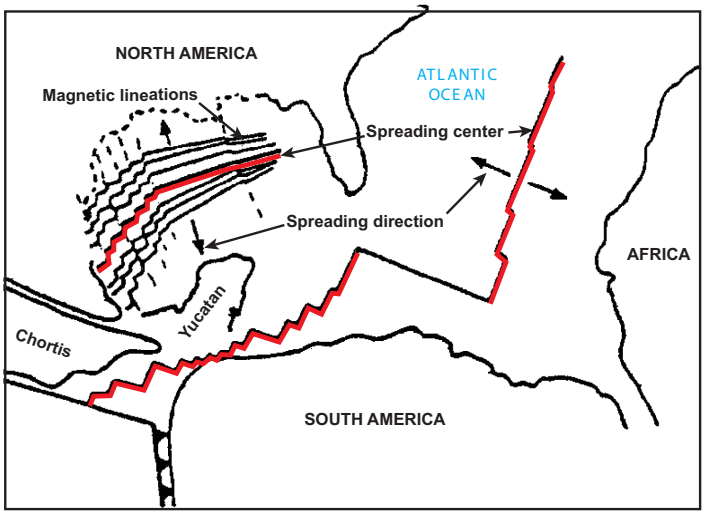


Figure 2.5.1-19 Magnetic Anomalies, Crustal Transitions, and Magnetic Features in the Site Region (200-Mile Radius)

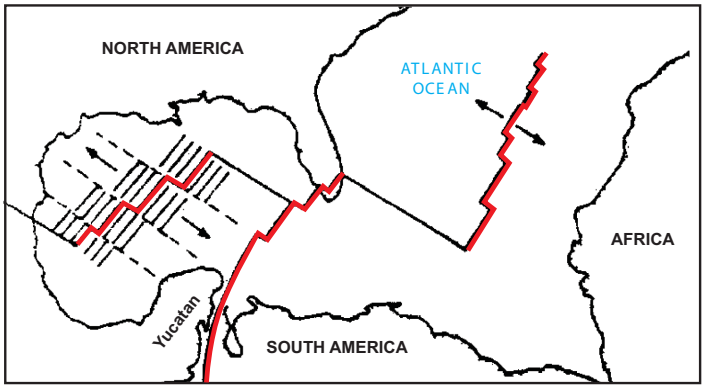
Magnetic data from Reference 2.5.1-200. Crustal boundaries from References 2.5.1-46, 2.5.1-47, and 2.5.1-88.

Notes:

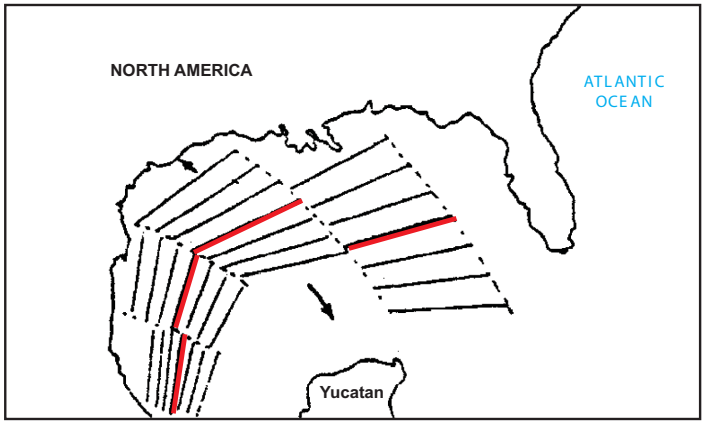
1. Geophysical profile B-B' shown in Figure 2.5.1-29
2. Circled letters refer to features discussed in Subsection 2.5.1.1.5



MODEL A: Rotation of Yucatan counterclockwise



MODEL B: Yucatan diverges with South America



MODEL C: Rotation of Yucatan clockwise

Figure 2.5.1-20 Classification of Gulf Opening Models

Note: From Reference 2.5.1-75