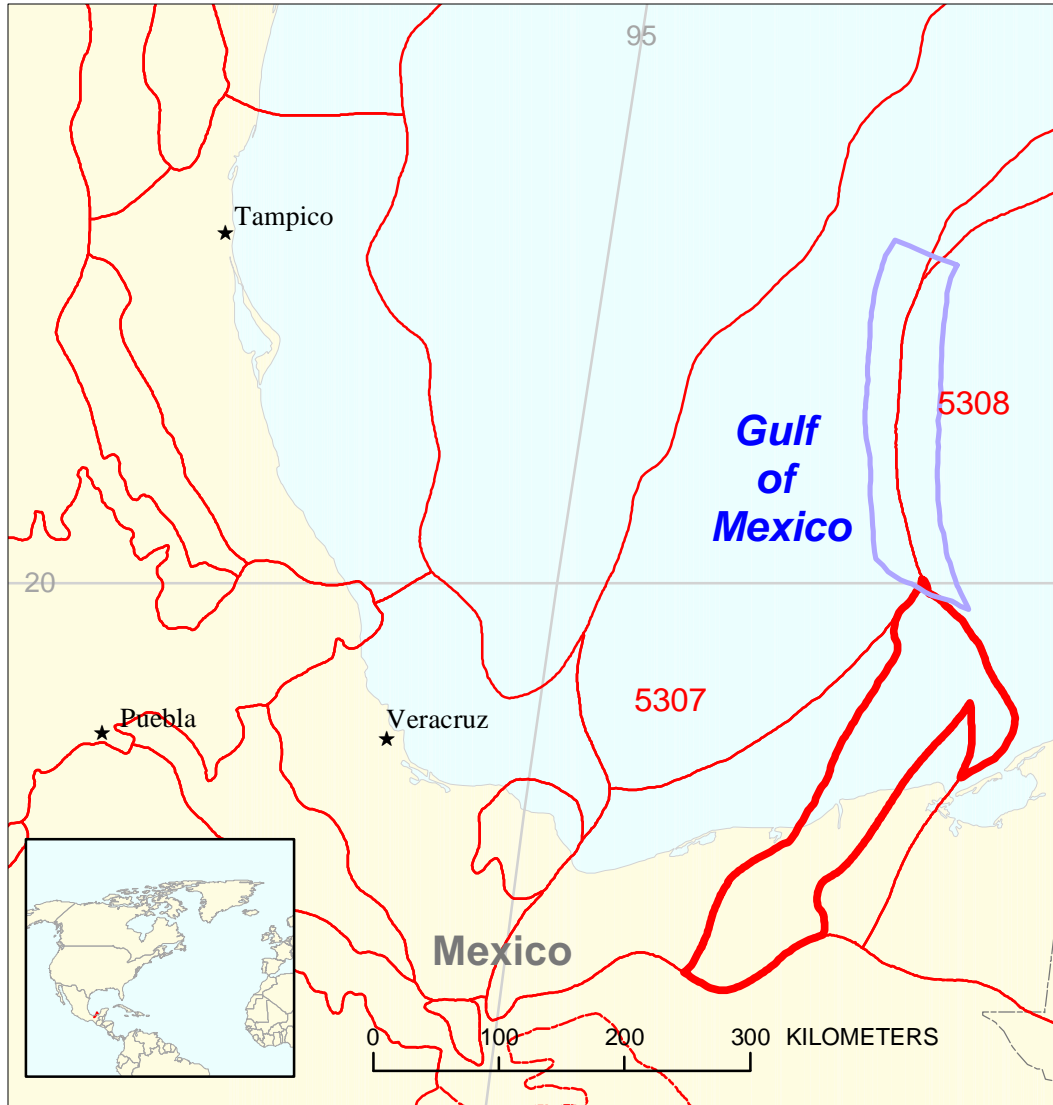





Tamabra-Like Debris-Flow-Breccia Limestone North of Campeche Assessment Unit 53050107



-  Tamabra-Like Debris-Flow-Breccia Limestone North of Campeche Assessment Unit 53050107
-  Villahermosa Uplift Geologic Province 5305
-  Other geologic province boundary

USGS PROVINCES: Yucatan Platform (5308), and Campeche-Sigsbee Salt Basin (5307)

GEOLOGIST: L.B. Magoon III

TOTAL PETROLEUM SYSTEM: Pimienta-Tamabra (530501)

ASSESSMENT UNIT: Tamabra-Like Debris-Flow-Breccia Limestone North of Campeche (53050107)

DESCRIPTION: This assessment unit includes the traps in the Tamabralike limestone reservoir facies north of Campeche in the Pimienta-Tamabra total petroleum system.

SOURCE ROCK: Pimientalike shale is an organic-rich source rock that includes all the Upper Jurassic (Oxfordian, Kimmeridgian, and Tithonian) sedimentary rocks and covers the entire southern Gulf of Mexico. It is as thick as 1.5 km, has a richness of as much as 5 wt. % TOC, and whose source rock quality is as much as HI of 750 g HC/gm TOC. All oil samples from several provinces (5301, 5304, and 5305) are similar to each other and compare favorably with extracts from the Pimientalike shale.

MATURATION: The Gulf of Mexico basin whose geometry was established in Oxfordian time is still filling with sediment. This simple burial history allows that the burial depth below the sediment-water interface to the oil window be 5 km. Depending upon where the burial history chart in the southern Gulf of Mexico is located, the onset of oil generation ranges from Eocene to Miocene time.

MIGRATION: Migration of oil and dissolved gas from the Upper Jurassic source rock begins in Eocene to Miocene time after most of the reservoir and seal rocks are deposited and the structural geometry of the traps established. Although the source rock in the center of the southern Gulf of Mexico is in the gas window, there is a lack of large natural gas fields indicating that the source rock is depleted within the oil window.

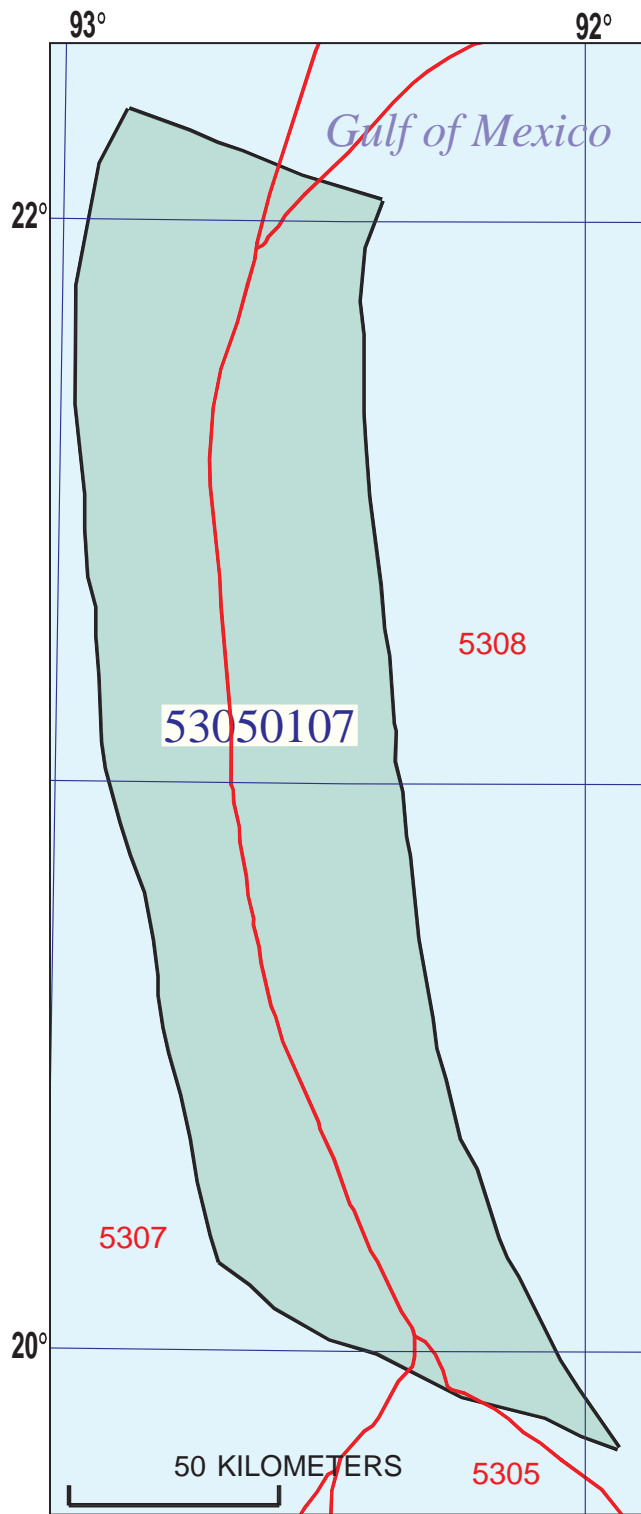
RESERVOIR ROCKS (CRETACEOUS AND TERTIARY): Tamabralike limestone (Slope, Base-of-Slope and Basin Environment): Tamabra-like limestone reservoirs are comprised of allochthonous carbonate sediments (debris flow breccia and turbidity current facies) that were derived from platform margins and deposited on slope, base-of-slope and basinal settings. Reservoir porosity in this facies consists of skeletal moldic, vuggy, interparticle, intercrystal, and some fracture porosity. In producing fields, porosity ranges from 8.0 percent to 25.0 percent, and permeability ranges from 0.01 millidarcies to 5.0 darcys.

TRAPS AND SEALS: Stratigraphic and structural; basinward and lateral pinchout of debris flow breccias and turbidites into basinal pelagic lime mudstones.

REFERENCES:

Enos, P., 1977, Tamabra Limestone of the Poza Rica trend, Cretaceous, Mexico, *in* Cook, H.E., and Enos, P., eds., Deep-water carbonate environments: SEPM Special Publication 25, p. 273-314.

- Enos, P., 1985, Cretaceous debris reservoirs, Poza Rica field, Veracruz, Mexico, *in* Roehl, P.O., and Choquette, P.W., eds., Carbonate petroleum reservoirs: Berlin, Springer-Verlag, p. 455-469.
- Guzman-Vega, M.A., and Mello, M.R., 1999, Origin of oil in the Sureste basin, Mexico: American Association of Petroleum Geologists Bulletin, v. 83, p. 1068-1095.
- Peterson, J.A., 1983, Petroleum geology and resources of southeastern Mexico, northern Guatemala, and Belize: U.S. Geological Survey Circular 760, 44 p.
- Salvador, Amos, 1991, Triassic-Jurassic, *in* Salvador, Amos, ed., The geology of North America, Volume J, The Gulf of Mexico Basin: Geological Society of America, p. 131-180.
- McFarlan, Edward, Jr. and Menes, L.Silvio, 1991, Lower Cretaceous, *in* Salvador, Amos, ed., The geology of North America, Volume J, The Gulf of Mexico Basin: Geological Society of America, p. 181-204.



Tamabra-Like Debris-Flow-Breccia Limestone North of Campeche Assessment Unit - 53050107

EXPLANATION

- Hydrography
- Shoreline
- 5305 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 53050107 — Assessment unit code and boundary

Projection: Lambert. Standard parallels: 49 and 77. Central meridian: -92

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

<u>Oil Fields:</u>	minimum	median	maximum
Gas/oil ratio (cfg/bo).....	<u>1000</u>	<u>2000</u>	<u>3000</u>
NGL/gas ratio (bngl/mmcf).....	<u>30</u>	<u>60</u>	<u>90</u>
<u>Gas fields:</u>	minimum	median	maximum
Liquids/gas ratio (bngl/mmcf).....	<u> </u>	<u> </u>	<u> </u>
Oil/gas ratio (bo/mmcf).....	<u> </u>	<u> </u>	<u> </u>

SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

<u>Oil Fields:</u>	minimum	median	maximum
API gravity (degrees).....	<u>15</u>	<u>35</u>	<u>50</u>
Sulfur content of oil (%).....	<u>0.5</u>	<u>2</u>	<u>8</u>
Drilling Depth (m)	<u>1000</u>	<u>3500</u>	<u>7500</u>
Depth (m) of water (if applicable).....	<u>200</u>	<u>2000</u>	<u>3500</u>
<u>Gas Fields:</u>	minimum	median	maximum
Inert gas content (%).....	<u> </u>	<u> </u>	<u> </u>
CO ₂ content (%).....	<u> </u>	<u> </u>	<u> </u>
Hydrogen-sulfide content (%).....	<u> </u>	<u> </u>	<u> </u>
Drilling Depth (m).....	<u> </u>	<u> </u>	<u> </u>
Depth (m) of water (if applicable).....	<u> </u>	<u> </u>	<u> </u>

**ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT
 TO COUNTRIES OR OTHER LAND PARCELS** (uncertainty of fixed but unknown values)

1. Mexico represents 100 areal % of the total assessment unit

<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	100	_____
Portion of volume % that is offshore (0-100%):.....	_____	100	_____
 <u>Gas in Gas Fields:</u>	 minimum	 median	 maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

2. Province 5308 represents 53 areal % of the total assessment unit

<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	53	_____
Portion of volume % that is offshore (0-100%):.....	_____	100	_____
 <u>Gas in Gas Fields:</u>	 minimum	 median	 maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

3. Province 5307 represents 47 areal % of the total assessment unit

<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	47	_____
Portion of volume % that is offshore (0-100%):.....	_____	100	_____
 <u>Gas in Gas Fields:</u>	 minimum	 median	 maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

Tamabra-Like Debris-Flow-Breccia Limestone North of Campeche, AU 53050107, Undiscovered Field-Size Distribution

