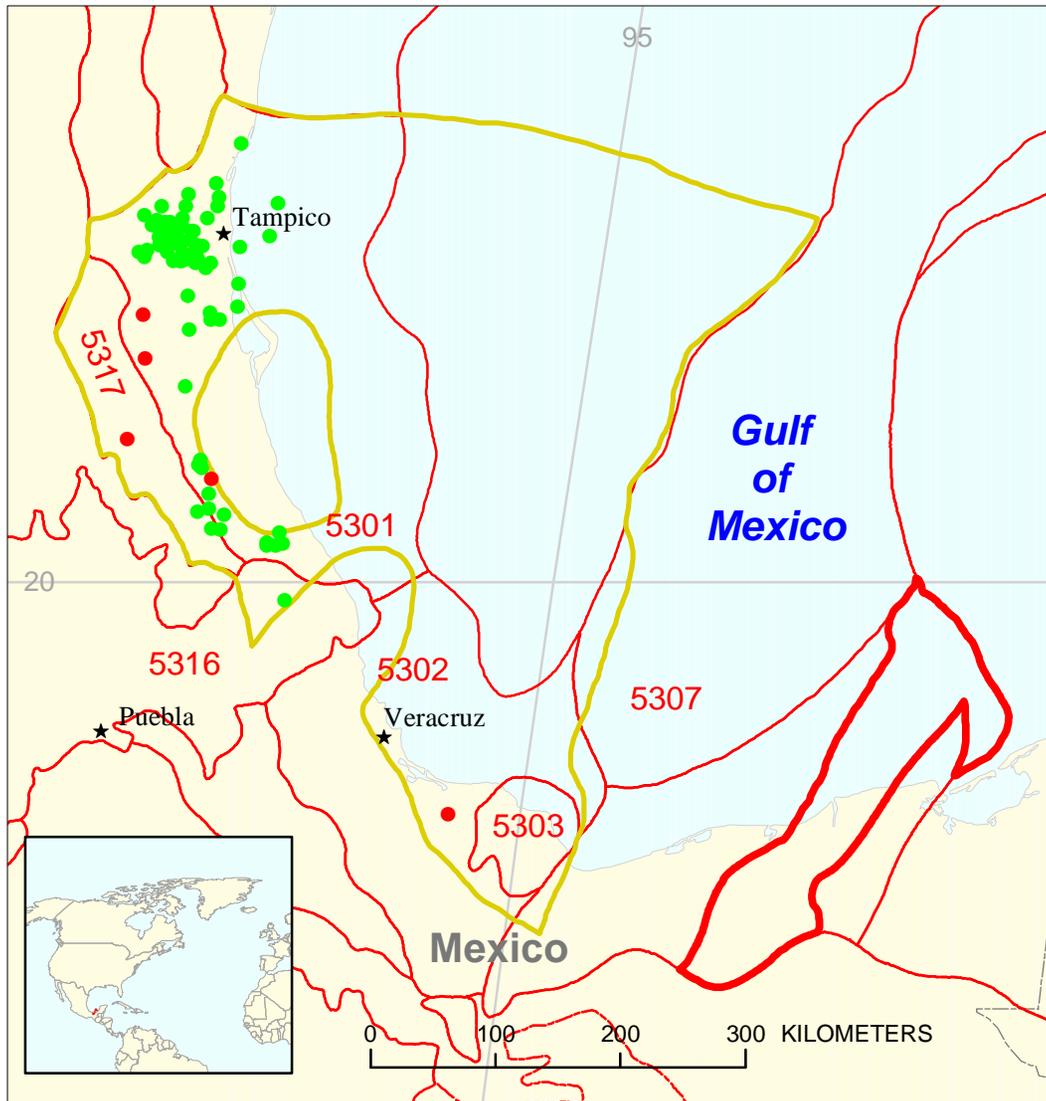


# Tamaulipas-Like Basinal Limestone and Tertiary Strata Without Underlying Evaporites Assessment Unit 53050105



-  Tamaulipas-Like Basinal Limestone and Tertiary Strata Without Underlying Evaporites Assessment Unit 53050105
-  Villahermosa Uplift Geologic Province 5305
-  Other geologic province boundary

**USGS PROVINCES:** Tampico-Misantla Basin (5301), Veracruz Basin (5302), Chicontepec Basin (5317), Tuxla Uplift (5303), Campeche-Sigsbee Salt Basin (5307), and Trans-Mexican Neovolcanic Axis (5316)

**GEOLOGIST:** L.B. Magoon III

**TOTAL PETROLEUM SYSTEM:** Pimienta-Tamabra (530501)

**ASSESSMENT UNIT:** Tamaulipas-Like Basinal Limestone and Tertiary Strata Without Underlying Evaporites (53050105)

**DESCRIPTION:** This assessment unit includes the traps in the Tamaulipaslike limestone reservoir facies without underlying evaporites in the Pimienta-Tamabra total petroleum system.

**SOURCE ROCK:** Pimienta-like 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.

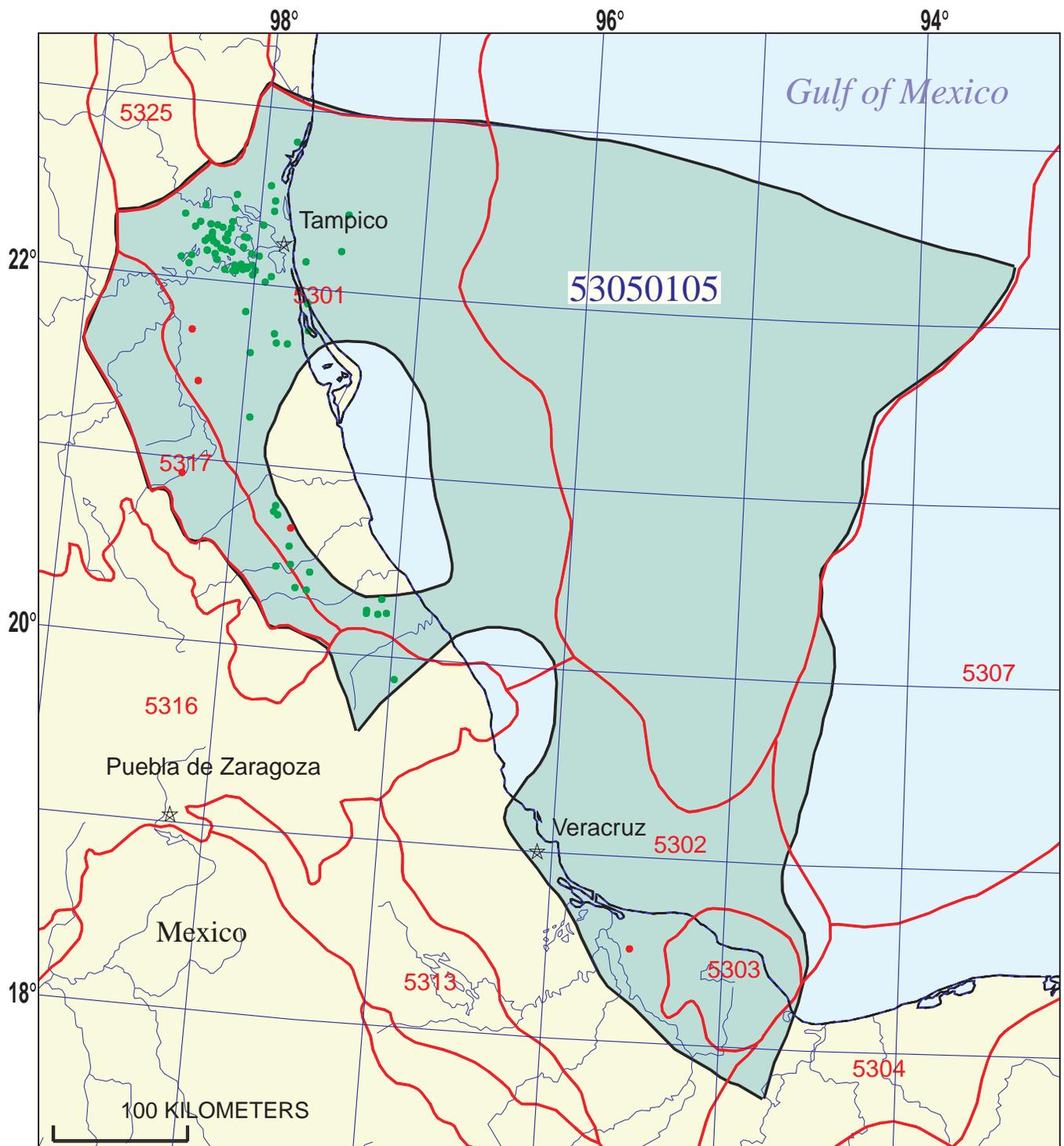
**RESERVOIR ROCKS (CRETACEOUS AND TERTIARY):** Upper Tamaulipas-like limestone (Basin Environment): These reservoirs are developed in pelagic limestone facies that were deposited in basinal settings seaward of the base-of-slope. This reservoir rock has low fracture porosity, which was probably created by tectonic activity. In producing fields, porosity is as much as 24 percent and the fracture permeability is as much as 60 millidarcies. Most reservoir rocks are Cretaceous (78 percent) in age, followed by Late Jurassic (17 percent) age.

**TRAPS AND SEALS:** Stratigraphic and structural; seals are lime mudstones and marls.

**REFERENCES:**

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## Tamaulipas-Like Basinal Limestone and Tertiary Strata Without Underlying Evaporites

### Assessment Unit - 53050105

#### EXPLANATION

- Hydrography
- Shoreline
- 5305 Geologic province code and boundary
- Country boundary
- Gas field centerpoint
- Oil field centerpoint
- 53050105 — Assessment unit code and boundary

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



Assessment Unit (name, no.)

Tamaulipas-Like Basinal Limestone and Tertiary Strata Without Underlying Evaporites, 53050105

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**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>1100</u>	<u>2200</u>	<u>3300</u>
NGL/gas ratio (bngl/mmmcf).....	<u>30</u>	<u>60</u>	<u>90</u>
<u>Gas fields:</u>	minimum	median	maximum
Liquids/gas ratio (bngl/mmmcf).....	<u>                    </u>	<u>                    </u>	<u>                    </u>
Oil/gas ratio (bo/mmmcf).....	<u>                    </u>	<u>                    </u>	<u>                    </u>

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**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>30</u>	<u>50</u>
Sulfur content of oil (%).....	<u>0.5</u>	<u>2</u>	<u>8</u>
Drilling Depth (m) .....	<u>200</u>	<u>2500</u>	<u>5000</u>
Depth (m) of water (if applicable).....	<u>0</u>	<u>200</u>	<u>2000</u>

<u>Gas Fields:</u>	minimum	median	maximum
Inert gas content (%).....	<u>                    </u>	<u>                    </u>	<u>                    </u>
CO <sub>2</sub> 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>

Assessment Unit (name, no.)

Tamaulipas-Like Basinal Limestone and Tertiary Strata Without Underlying Evaporites, 53050105

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**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):.....	<u>                    </u>	<u>                    </u>	<u>                    </u>
Volume % in parcel (areal % x richness factor):...	<u>                    </u>	<u>100</u>	<u>                    </u>
Portion of volume % that is offshore (0-100%).....	<u>                    </u>	<u>75</u>	<u>                    </u>

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

2. Province 5301 represents 56 areal % of the total assessment unit

<u>Oil in Oil Fields:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	<u>                    </u>	<u>                    </u>	<u>                    </u>
Volume % in parcel (areal % x richness factor):...	<u>                    </u>	<u>69</u>	<u>                    </u>
Portion of volume % that is offshore (0-100%).....	<u>                    </u>	<u>78</u>	<u>                    </u>

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

3. Province 5302 represents 24 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):...	_____	<u>24</u>	_____
Portion of volume % that is offshore (0-100%).....	_____	<u>75</u>	_____

<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%).....	_____	_____	_____

4. Province 5317 represents 8 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):...	_____	<u>4</u>	_____
Portion of volume % that is offshore (0-100%).....	_____	<u>0</u>	_____

<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%).....	_____	_____	_____

5. Province 5303 represents 6 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):...	_____	<u>0</u>	_____
Portion of volume % that is offshore (0-100%).....	_____	<u>0</u>	_____

<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%).....	_____	_____	_____

6. Province 5307 represents 4 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):...	_____	<u>3</u>	_____
Portion of volume % that is offshore (0-100%).....	_____	<u>100</u>	_____

<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%).....	_____	_____	_____

7. Province 5316 represents 2 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):...	_____	<u>0</u>	_____
Portion of volume % that is offshore (0-100%).....	_____	<u>0</u>	_____

<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%).....	_____	_____	_____

# Tamaulipas-Like Basinal Limestone and Tertiary Strata Without Underlying Evaporites, AU 53050105, Undiscovered Field-Size Distribution

