

ULTRA-MEOR®

PEMEX Tamaulipas-Constituciones 20-Well Analysis & Case Study

FIELD RESULT At the July 1996 post-treatment measurement snapshot, combined net oil production across 20 wells increased from approximately 446.6 to 874.3 BOPD, a gain of approximately 427.7 BOPD or 95.8%. Fifteen of 20 wells increased oil production, three were unchanged, two declined, and two previously nonproducing wells were restored to oil production.

1. Why this historical program matters

The Tamaulipas-Constituciones dataset is the largest well-level historical Ultra-MEOR field record currently available in the ATG archive. Unlike an aggregate-only field result, it allows the response distribution to be evaluated across individual wells. That makes it valuable for understanding both the potential magnitude of response and the importance of candidate selection.

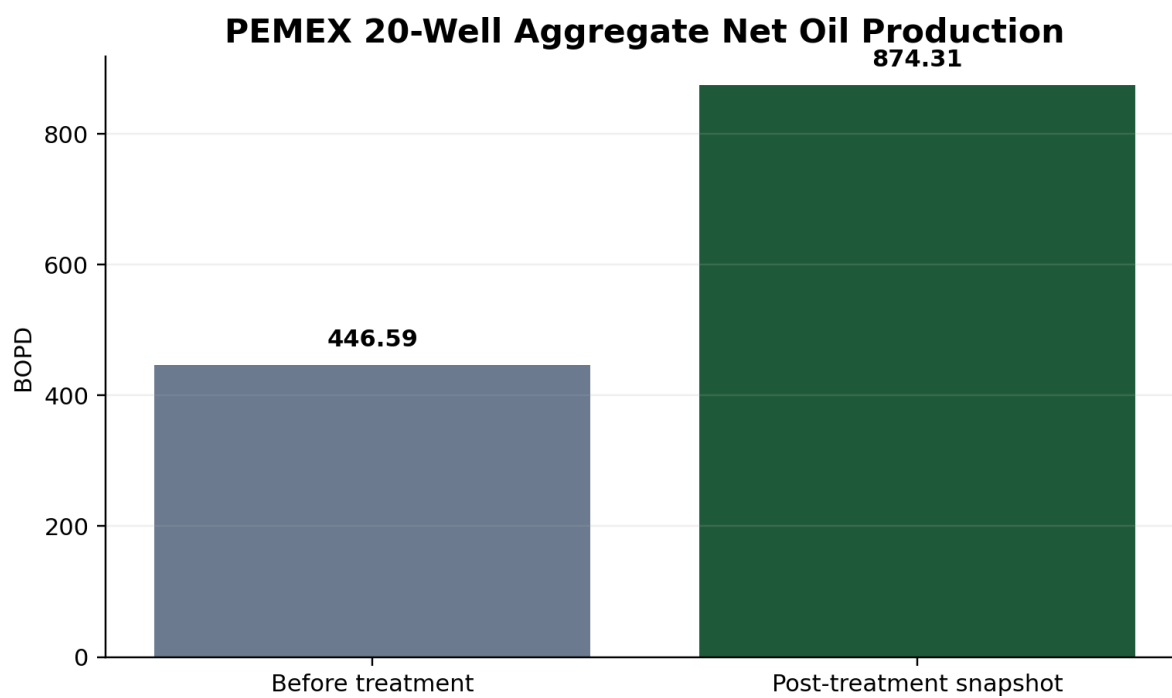
2. Field setting and evidence basis

The 20 wells are located in the mature onshore Tamaulipas-Constituciones field in Altamira municipality, Tamaulipas, within the Tampico-Misantla Basin. The current analysis combines a supplied 1996 PEMEX production table with public well-location and depth records and a representative field-level stratigraphic framework. Total vertical depths range from approximately 1,838 to 2,161 m. Total depth indicates which formations a well may have reached; it does not identify the perforated, producing or treated interval.

Potential interval	Representative top	General geologic character
Pimienta	~1,850 m	Upper Jurassic carbonate-rich mudstone, argillaceous limestone and shale.
San Andrés	~1,950 m	Kimmeridgian platform carbonate; microcrystalline/oolitic limestone, grainstone and related facies; local sandstone transition.
Areniscas Constituciones	~1,980 m	Oxfordian siliciclastic / arkosic sandstone.
Basal conglomerate	~2,060 m	Coarse clastic interval above basement.
Basement	~2,085 m	Crystalline basement; deeper wells traversed the overlying Jurassic reservoir section.

3. Aggregate production response

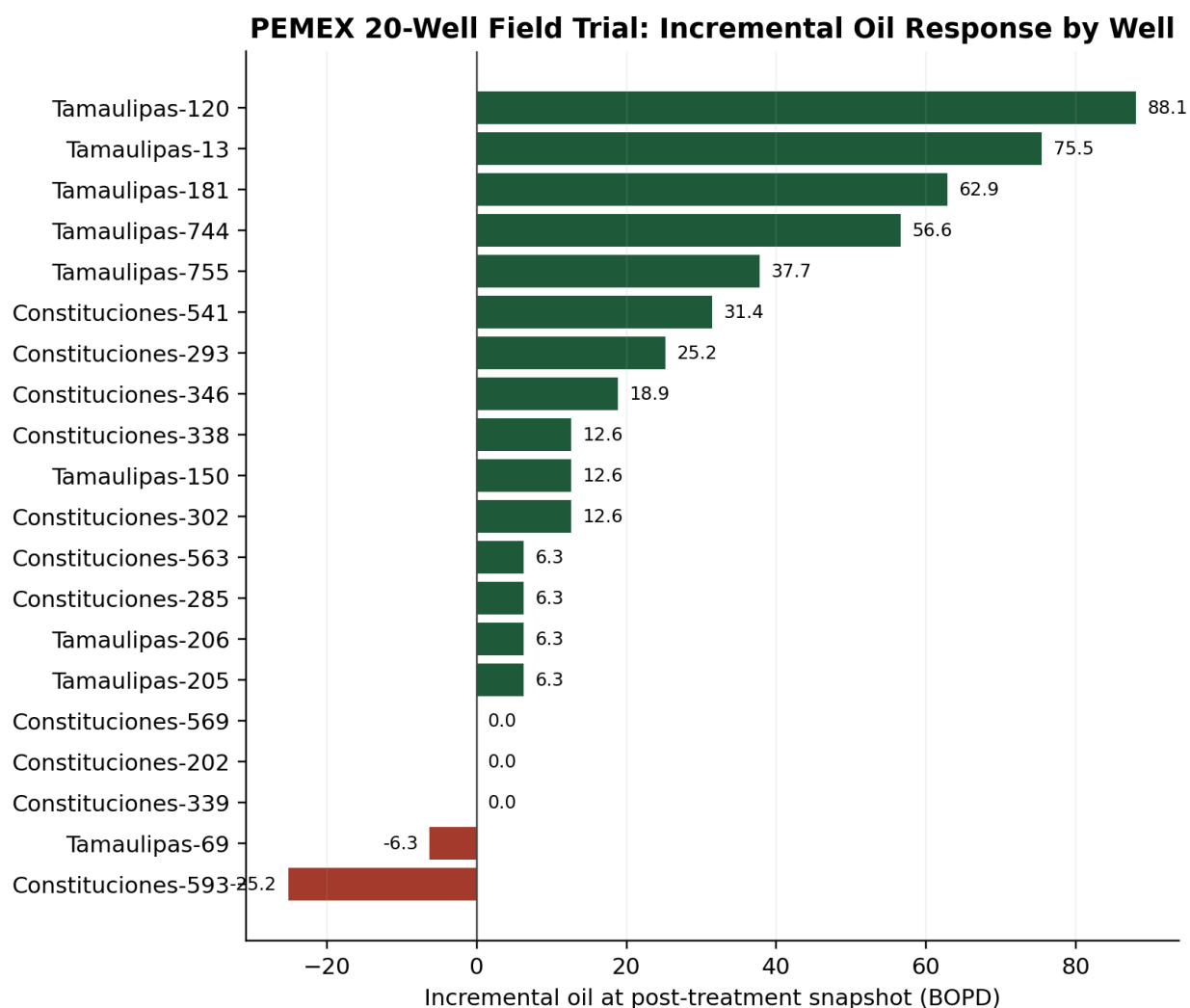
Measure	Result
Wells evaluated	20
Baseline net oil	446.6 BOPD
Post-treatment net oil	874.3 BOPD
Incremental oil rate	+427.7 BOPD
Field-level oil-rate increase	+95.8%
Wells with increased oil	15 of 20 (75%)
Unchanged / declined	3 unchanged; 2 declined
Reactivated wells	2 wells restored from zero net oil to ~132 BOPD combined



Aggregate net oil production nearly doubled at the reported post-treatment snapshot.

4. Well-level response distribution

The response was broad but not uniform. The five largest gains supplied approximately 75% of the total field gain and the top eight supplied approximately 92.6%. The median well gained about 12.6 BOPD while the mean gain was about 21.4 BOPD. This pattern is important: a large part of the value came from several strong responders, but the program-wide result was not dependent on a single well.



Incremental net oil response by well at the post-treatment snapshot.

5. Largest individual gains

Well	Incremental oil	TVD
Tamaulipas-120	88.1 BOPD	1858.0 m
Tamaulipas-13	75.5 BOPD	2073.0 m
Tamaulipas-181	62.9 BOPD	1911.7 m
Tamaulipas-744	56.6 BOPD	1951.0 m
Tamaulipas-755	37.7 BOPD	1950.5 m
Constituciones-541	31.4 BOPD	2001.0 m
Constituciones-293	25.2 BOPD	2118.0 m
Constituciones-346	18.9 BOPD	2161.0 m

6. Reactivation of nonproducing wells

Tamaulipas-13 and Tamaulipas-744 had zero net oil in the supplied pre-treatment table and reached approximately 75.5 and 56.6 BOPD, respectively, after treatment. Together they contributed approximately 132 BOPD, or about 31% of the total field gain. These are the clearest restoration outcomes in the dataset and suggest that near-wellbore restriction, fluid mobility or other deliverability effects may have been material in at least some wells.

7. Water behavior was not uniform

The program should not be presented as a field-wide water-reduction case. Aggregate gross fluid approximately doubled while aggregate implied water cut increased modestly from about 31.1% to 33.8%. Individual wells behaved differently. Constituciones-285 maintained approximately constant gross fluid while reported water cut decreased from 70% to 52% and net oil increased. Constituciones-293 increased gross rate while water cut fell from 6% to about 1.4%. In contrast, Constituciones-541 increased oil materially while water cut also increased. The field-wide conclusion is improved oil deliverability with mixed water outcomes.

8. What appears not to explain response

Total vertical depth did not explain the distribution of oil-rate change. The calculated Pearson correlation between TVD and oil-rate change is approximately -0.05. This essentially neutral relationship supports deeper investigation of producing interval, completion condition, reservoir quality, connectivity, treatment placement, pre-treatment impairment and fluid behavior rather than relying on simple depth as a predictor.

9. Carbonate and mixed-reservoir implications

Public depth data and representative field stratigraphy show that the 20-well population spans a mixed Jurassic reservoir section that includes carbonate-rich intervals, San Andrés platform carbonate, sandstone, basal clastics and wells that reached basement. Several strong responders have total depths near carbonate-rich or platform-carbonate intervals, including Tamaulipas-744 and Tamaulipas-755 near the representative San Andrés depth. Other strong responders occur near sandstone and deeper clastic intervals.

This is encouraging evidence that carbonate lithology should not be treated as an automatic exclusion criterion for Ultra-MEOR screening. It is not yet formation-specific proof because total depth does not establish the

perforated, producing or treated interval. Completion and intervention records are the highest-priority missing evidence.

10. Candidate-selection lessons

The PEMEX record supports a candidate-selection model rather than a universal treatment assumption. The wide response distribution suggests that local reservoir quality, completion condition, flow-path connectivity, treatment placement and pre-treatment impairment are likely to matter. A future retrospective analysis should compare responders and nonresponders using perforation intervals, treatment volumes, injection pressure, pressure support, oil properties, water cut, salinity, temperature, production decline and workover history.

11. Recommended next records to obtain

Priority record	Why it matters
Perforated and producing interval for each well	Required for formation-specific response attribution, especially carbonate analysis.
Treatment date, volume, concentration and placement	Needed to compare exposure and placement quality among responders and nonresponders.
3-12 months pre- and post-treatment production	Needed to distinguish snapshot uplift from sustained incremental recovery.
Pressure, injection and offset-well data	Helps assess connectivity, conformance and pressure support.
Oil gravity, viscosity, water chemistry and temperature	Allows compatibility and mechanism comparison.
Workover / mechanical history	Helps identify wells where restoration may reflect near-wellbore or mechanical cleanup.

12. Defensible conclusions

The strongest supported statement is that, in a 20-well PEMEX field application, 15 wells increased oil production and two previously nonproducing wells were restored to production, while combined net oil production increased approximately 96% from 447 to 874 BOPD at the post-treatment measurement snapshot. The program demonstrates broad but nonuniform response across a mixed-reservoir mature-field setting.

The available information does not support claims of universal water reduction, long-term reserves addition, or formation-specific carbonate performance. Those conclusions require additional completion and production-history records.

CASE-STUDY CONCLUSION PEMEX materially strengthens the Ultra-MEOR evidence base because it shows the response distribution across 20 wells rather than only a field total. It demonstrates that strong response can occur in multiple wells, that some wells may not respond, and that candidate quality and reservoir-specific conditions are central to commercial deployment.