

# Railroad Commission of Texas

OIL AND GAS DIVISION

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Chief Engineer

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JIM C. LANGDON  
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BYRON TUNNELL  
FRED OSBORNE, Secretary



AUSTIN, TEXAS

May 8, 1968

MEMORANDUM TO THE COMMISSION:

DOCKET NO. 6-58,278

IN RE:

Application of F. O. Penn,  
Gibson Drilling Co., T. C.  
Noe Oil Account, L & N Drilling  
Co. & Ralph Massad to transfer  
79 oil wells from the East Texas  
Field into a separate field to  
be designated Harvey Field,  
Rusk County, Texas

DATE OF HEARING:

March 26, 1968

APPEARANCES:

See transcript

Four operators request that the Commission transfer 79 oil wells from the East Texas Field into a separate field to be designated the Harvey Field. These 79 wells are located in the Daniel Clark, D. Washington, and J. Grace Surveys in Rusk County. The subject area is located near the eastern edge of the East Texas Field and is approximately two miles south of the town of Kilgore.

The East Texas Field was discovered in 1930. When fully developed, the field was 43 miles long and had a maximum width of 10 miles with average width of five miles. The original productive area was 130,444 acres. The maximum number of wells was 25,987 in the latter part of 1939. The field still has 16,113 wells as of May 1, 1968. The cumulative reported production is 3,771,000,000 barrels of oil. It has been estimated that the field has a future life of at least 40 years at the current rate of production.

This field produces from the Woodbine Sand, and the producing energy is primarily a water drive from the western portion of the field. The reservoir is a large stratigraphic trap formed by a pinchout of the Woodbine Sand between the Austin Chalk and the Maness Shale. The sand thickness

ranges from zero on the east side of the field to a maximum gross oil sand thickness of 125' in the central portion of the field. The average gross oil sand thickness is 51' and the average net oil sand thickness is 39'.

The applicants' attorney called attention to the following items in his opening statement:

1. The applicants will request no special allowable.
2. They request the same rules as the East Texas Field.
3. It will be easier to unitize as a separate field.
4. It will be easier from an administrative standpoint, both for the Commission and the operators.
5. The applicants are convinced that they are in a separate reservoir.
6. Applicants will take in other wells if evidence proves that they are in this proposed reservoir.

The petroleum engineer for these applicants testified that the subject area includes 890 acres of the "Harvey Sand" which has average thickness of 3.3' and maximum thickness of 8'. He has calculated that the original oil in place under the subject area was 3,400,000 barrels, and that the cumulative production of the subject wells is only 590,000 barrels as of January 1, 1968. The current average production of these 79 wells is 2.1 barrels of oil per well per day. The average of the July, 1967 well status tests was 5.3 barrels per well per day. At that time, 69 of the 79 wells had capacity of less than 10 barrels of oil per day, and none of the wells produced water.

In January, 1968, the applicants took static fluid level tests on 16 of the subject wells, and the calculated bottomhole pressures ranged from 253 psig to 36 psig, and the average was 107 psig.

Waterflooding is not included in this application. However, the applicants are requesting that these 79 wells be separated from the East Texas Field so that the subject area may be unitized and waterflooded. The applicants plan to use fresh water from the Wilcox Sands at a depth of 500'. They plan to use four injection wells, and the injection rate will be 400-500 barrels of water per well per day. The engineer estimated that future primary production would be 115,000 barrels of oil, which would give a total primary production of 705,000 barrels. He estimated that 750,000 barrels of additional oil would be recovered by the proposed waterflood, and that the total ultimate production would then be 43% of the original oil in place.

The other witness for these applicants testified that the "Harvey Sand" is separate from the Main East Texas Sand and is not receiving bottomhole pressure from the main field. He introduced seven cross-sections in an attempt to

show that the "Harvey Sand" is separate from the main sand. None of his cross-sections extends into the main portion of the field. He testified that he does not know if the "Harvey Sand" may be present west of his cross-sections. On some of his cross-sections the "Harvey Sand" is below a shale member; on other cross-sections it is above a shale. He agreed that the main Woodbine Formation consists of interbedded sand and shales; and that additional data could extend the "Harvey Sand" farther to the west. He testified that over geologic time, this oil moved from the main sand into the "Harvey Sand" and then later some of it moved back into the main sand. He agreed that other low pressure and low potential areas exist in the East Texas Field. The engineering witness agreed that there must be some communication between the subject area and the East Texas Field, but he thinks that there is no flow of fluids.

The Humble Company stated that it has no objection to unitization and waterflooding of the subject area, but Humble does object to separation of the subject area from the East Texas Field. A Humble geologist, who has worked in the East Texas Field for many years, testified that the "Harvey Sand" is the same as the East Texas Woodbine Sand and is in communication. He presented three cross-sections which extend through the subject area into the main East Texas Field, and they show that the sand is all a part of the Woodbine Formation. Further, he testified that the bottomhole pressure gradient shows that the subject area is in communication with the main part of the East Texas Field.

Pan American presented two electrical log cross-sections. One extends through the subject area for a distance of 7000' and into the main field. The other extends 2500' across another portion of the subject area and into the main field for a distance of 6000'. Correlation of the sand on these logs shows a continuous sand body entirely across the subject area and into the main portion of the field. Correlation of these electrical logs is not difficult; in fact, it is fairly easy to pick the base of the Austin Chalk and the top of the Woodbine Sand section. These cross-sections show that each of the wells is producing from the same sand section. Pan American also presented a bottomhole pressure map which shows that there is a definite pressure gradient across the East Texas Field and into the subject area. A bottomhole pressure measured in August, 1962, after only two wells had been completed in the subject area, showed that the pressure had been reduced from the original value of 1620 psig down to only 390 psig. In other words, the pressure in the subject area had been reduced by 32 years production of the East Texas Field. The witness testified that the producing interval of each of these wells is in the same sand section.

The applicants requested that three Sinclair wells be transferred from the East Texas Field into the proposed Harvey Field. During this hearing, Sinclair requested that its wells be removed from this application because all of the wells are completed in the Woodbine or Main East Texas Field Sand.

This application was protested by Sinclair, Getty, Cities Service, Sun, Texaco, Atlantic Richfield, Gulf, Pan American, and Humble. They have no objection to the unitization or waterflooding of the subject area, but do object to this area being separated from the East Texas Field because their evidence does not show that it is separate; their evidence shows definite connection with the main field; that there are other areas with low pressures and low productivity on the eastern side of the East Texas Field; that there is communication instead of separation; and that the additional secondary recovery oil can be recovered without separation.

Based on all of the evidence in this field, the writer recommends that this application be denied.

Respectfully submitted,

*Mac L. Coker*  
Mac L. Coker, Director  
Technical Hearings

MLC:tmg

APPLICATION APPROVED:

APPLICATION DENIED:

_____	CHIEF ENGINEER	<i>W.H. Barber</i>
_____	CHAIRMAN	<i>Jep</i>
_____	COMMISSIONER	<i>B.R.</i>
_____	COMMISSIONER	<i>SB</i>

DCA 6-4-68

EFFECTIVE \_\_\_\_\_