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OIL AND GAS ACTIVITIES IN FLORIDA, 1967

By
Clarence Babcock

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Bureau of Geology
Tallahassee
CONTENTS

Production .................................................. 1
  Sunoco-Felda oil field .................................. 1
  Sunniland oil field ..................................... 1
Exploration .................................................. 7
  Exploratory drilling ..................................... 7
  Geophysical activity .................................... 7
Land .......................................................... 10
Pipeline facilities ......................................... 10
Rules and regulations ....................................... 13
Bibliography ............................................... 15
Appendix ...................................................... 17
  Well data sheets, 1967 .................................. 18

ILLUSTRATIONS

Figure Page
  1 Florida petroleum exploration and production, 1967 ............... 2
  2 Structure map on top of the Sunniland Limestone, Sunoco-Felda field, Hendry and Collier counties, Florida ................. 3
  3 Section A-A', depicting the character of the Sunniland Limestone marker, Sunoco-Felda field, Hendry and Collier counties, Florida .......... 4
  4 Structure map on top of the Sunniland Limestone marker, Sunniland field, Collier County, Florida .............................................. 6
  5 Florida offshore geophysical permits, 1967 ....................... facing page 8
  6 State acreage, located offshore from northwestern Florida, made available for leasing, March, 1967 ........................................ 11
  7 Map showing the location of the Sunniland Pipeline Company oil transmission lines 12

TABLES

Table Page
  1 Monthly and cumulative oil production, Sunoco-Felda field, 1964-1967, inclusive ................................................................. 5
  2 Monthly and cumulative oil production, Sunniland field, 1961-1967, inclusive ................................................................. 8
  3 Exploratory footage for 1967 .............................................. 9
OIL AND GAS ACTIVITIES IN FLORIDA, 1967

by

Clarence Babcock

PRODUCTION

SUNOCO-FELDA OIL FIELD

The Sunoco-Felda oil field as shown in figure 1, is the newer of Florida’s two currently producing fields. It was discovered by the Sun Oil Company on October 9, 1964, and is located in Hendry and Collier counties of southern Florida. The structural configuration of the field is shown on figure 2; the character on representative induction-electrical logs of the marker contoured is depicted on figure 3, a cross section. As of December 31, 1967 this field contains 26 producing wells drilled on 160-acre spacing, and it appears that nine dry holes have mostly defined the limits of the field. In 1967 there was no field drilling.

It is possible that additional fields are present along a northwest-southeast trend of which the Sunoco-Felda field is a part. At the present time there is insufficient control to definitely determine if the Sun, No. 1 Red Cattle Company “B” well located 3½ miles northwest of the main part of the Sunoco-Felda field, and completed August 2, 1966 with an initial production of 56 BOPD, is an extension of the original field, or is a new field discovery.

The Sunoco-Felda field produces on pump from the microfossiliferous (miliolitic) limestone of the Roberts zone, which is reached at a depth of about 11,460 feet, and which occurs about 60 feet below the top of the Sunniland Limestone of Lower Cretaceous (Trinity) age. A large percentage of salt water is yielded by up-gradient producing wells to the north, where the porosity of the Roberts zone is reported by the operator to be poor. Woodson R. Oglesby (1967, p. 278) has suggested that hydrodynamic factors may have contributed to the oil accumulation in the Sunoco-Felda field.

The yield of the better wells of the field ranges from about 230 to 285 BOPD, with 19 and 11 percent, respectively, of the total fluid recovery being salt water. The gravity of this oil is about 24 degrees API. Table 1 shows monthly and cumulative oil production from the field for the four-year period, 1964-1967, inclusive. In association with the 1967 production of 982,807 barrels of oil (table 1), the field also produced 1,184,055 barrels of salt water, which was 55 percent of the total fluid yield.

SUNNILAND OIL FIELD

The Sunniland oil field (fig. 1), discovered in 1943 and operated by the Humble Oil and Refining Company, is located in Collier County, and about 18 miles south of the Sunoco-Felda field. The structural configuration of the field is shown on figure 4. The short-lived Forty Mile Bend field is the only additional discovery of a field similar to the Sunniland field.
Figure 1. Florida petroleum exploration and production, 1967.
Figure 2. Structure map on top of the Sunniland Limestone, Sunoco-Felda field, Hendry and Collier counties, Florida.
Figure 3. Section A-A', depicting the character of the Sunniland Limestone marker, Sunoco-Felda field, Hendry and Collier counties, Florida.
Table 1. Monthly and cumulative oil production, Sunoco-Felda field, 1964-1967, inclusive.

<table>
<thead>
<tr>
<th>Month</th>
<th>1964</th>
<th>1965</th>
<th>1966</th>
<th>1967</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Barrels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cumulative total, discovered preceding year</td>
<td>19,222</td>
<td>706,218</td>
<td>1,703,124</td>
<td></td>
</tr>
<tr>
<td>Oct. 9, 1964</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>January</td>
<td>11,323</td>
<td>92,166</td>
<td>89,463</td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>12,358</td>
<td>87,935</td>
<td>80,077</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>21,029</td>
<td>94,935</td>
<td>88,105</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>28,654</td>
<td>88,100</td>
<td>86,414</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>45,076</td>
<td>82,397</td>
<td>86,933</td>
<td></td>
</tr>
<tr>
<td>June</td>
<td>56,418</td>
<td>79,879</td>
<td>84,032</td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>64,327</td>
<td>81,718</td>
<td>87,264</td>
<td></td>
</tr>
<tr>
<td>August</td>
<td>72,256</td>
<td>79,776</td>
<td>80,995</td>
<td></td>
</tr>
<tr>
<td>September</td>
<td>77,646</td>
<td>73,670</td>
<td>78,436</td>
<td></td>
</tr>
<tr>
<td>October</td>
<td>2,202</td>
<td>103,047</td>
<td>76,327</td>
<td>78,468</td>
</tr>
<tr>
<td>November</td>
<td>7,322</td>
<td>97,520</td>
<td>76,696</td>
<td>73,517</td>
</tr>
<tr>
<td>December</td>
<td>9,698</td>
<td>97,342</td>
<td>83,307</td>
<td>69,103</td>
</tr>
<tr>
<td>Annual Total</td>
<td>19,222</td>
<td>686,996</td>
<td>996,906</td>
<td>982,807</td>
</tr>
<tr>
<td>Cumulative total, as of Dec. 31</td>
<td>19,222</td>
<td>706,218</td>
<td>1,703,124</td>
<td>2,685,931</td>
</tr>
</tbody>
</table>
The Humble, No.25 Gulf Coast Realities Corp., completed in upper C" zone of the Sunniland Limestone (I.P. of 62 BORD in 368 barrels of fluid.)

- Producing well
- New producing well
  (Completed 1962-1965, incl.)
- Old producing well, deepened
  (Re-completed 1963)
- Abandoned producer
- Plugged and abandoned (initially)
- Permitted location for the Humble,
  No.26 Gulf Coast Realities Corp.,
  to be drilled in early 1969

- Converted to disposal well
- Well number
- Datum below sea level
- Contour interval 10 feet

Figure 4. Structure map on top of the Sunniland Limestone marker, Sunniland field, Collier County, Florida.
Production in the field is obtained from calcareous rock containing mostly disoriented macrofossils (rudistids) which is reached at a depth of about 11,500 feet. The trap is a gentle anticline associated with a biostromal reef. Productive zones begin at the top of the Sunniland Limestone and extend to a depth of about 65 to 75 feet lower in the section; the lowermost of these zones is correlative with the productive Roberts zone of the Sunoco-Felda field.

Production from the better wells in the Sunniland field ranges from about 180 to 220 BOPD, with 27 and 37 percent, respectively, of the total fluid recovery being salt water. The gravity of this oil ranges from 19 to 26 degrees API. Table 2 shows monthly and cumulative oil production from the field for the seven-year period, 1961-1967, inclusive. Along with the 1967 production of 585,374 barrels of oil (table 2), the field also produced 1,646,215 barrels of salt water, which is 74 percent of the total fluid yield.

It is significant that the oil production in the years following 1961 increased markedly over the 1961 figure (table 2). This reflects the opening to production, beginning in 1962, of deeper zones (C2 and D) of the field in a total of nine wells (fig.4). The bottom of zone D is only about 65 to 75 feet below the top of the Sunniland producing interval.

At this time it is thought that 30 million barrels of oil probably is a reasonable figure for the initially recoverable reserves of the field.

Humble has completed drilling operations on their No. 25 Gulf Coast Realties Corporation well, which is the only field test drilled in 1967. This well is located near the northeastern edge of the field. On December 15, 1967 an induction-electrical log was recorded for this hole, and it has been released by the company. The structural contours of the field, as shown in figure 4, have been revised to reflect this additional control. It will be noted that the No. 25 well has a rather favorable structural elevation. As of the end of the year, the operator was conducting testing operations to determine the productivity of this well. Since this is an edge location, it is possible that the relatively favorable structural elevation will not be a guarantee that the parts of the Sunniland producing interval with a strong water drive will produce.

EXPLORATION

EXPLORATORY DRILLING

As recapitulated in table 3, a footage of 98,432 feet was drilled in 11 exploratory tests in 1967, including an outpost well to the abandoned Forty Mile Bend field. All of these wells have been plugged and abandoned. Well data sheets for these test are presented in appendix 1.

GEOPHYSICAL ACTIVITY

The interest in Florida offshore geophysical activity which began in 1964 continues to the present time. In 1967, as shown by figure 5, a total of 23 permits were issued to 8 major oil companies and 2 independents for offshore geophysical work. Work permitted was: 15 non-conventional seismic surveys

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative total, proceeding year</td>
<td>6,495,456</td>
<td>6,869,696</td>
<td>7,284,369</td>
<td>7,748,011</td>
<td>8,348,697</td>
<td>9,125,916</td>
<td>9,927,884</td>
</tr>
<tr>
<td>January</td>
<td>33,324</td>
<td>38,584</td>
<td>32,756</td>
<td>38,270</td>
<td>66,252</td>
<td>83,533</td>
<td>56,138</td>
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<td>February</td>
<td>29,977</td>
<td>33,002</td>
<td>36,365</td>
<td>34,807</td>
<td>60,881</td>
<td>72,703</td>
<td>48,766</td>
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<td>March</td>
<td>32,093</td>
<td>36,866</td>
<td>39,211</td>
<td>36,285</td>
<td>58,950</td>
<td>76,410</td>
<td>53,733</td>
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<tr>
<td>April</td>
<td>29,513</td>
<td>36,082</td>
<td>38,539</td>
<td>33,785</td>
<td>60,323</td>
<td>72,022</td>
<td>50,845</td>
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<tr>
<td>May</td>
<td>30,550</td>
<td>33,341</td>
<td>41,631</td>
<td>41,116</td>
<td>63,879</td>
<td>71,173</td>
<td>50,394</td>
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<tr>
<td>June</td>
<td>29,359</td>
<td>32,218</td>
<td>40,927</td>
<td>46,911</td>
<td>62,209</td>
<td>66,597</td>
<td>50,276</td>
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<td>July</td>
<td>30,195</td>
<td>34,042</td>
<td>39,965</td>
<td>56,766</td>
<td>58,528</td>
<td>65,540</td>
<td>50,439</td>
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<tr>
<td>August</td>
<td>30,400</td>
<td>35,074</td>
<td>39,729</td>
<td>56,872</td>
<td>60,163</td>
<td>63,784</td>
<td>49,196</td>
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<tr>
<td>September</td>
<td>31,718</td>
<td>34,067</td>
<td>36,291</td>
<td>53,552</td>
<td>61,064</td>
<td>57,427</td>
<td>44,525</td>
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<tr>
<td>October</td>
<td>28,520</td>
<td>34,972</td>
<td>40,169</td>
<td>64,174</td>
<td>72,492</td>
<td>61,159</td>
<td>47,569</td>
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<tr>
<td>November</td>
<td>30,719</td>
<td>30,570</td>
<td>39,057</td>
<td>68,849</td>
<td>68,500</td>
<td>55,624</td>
<td>42,780</td>
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<tr>
<td>December</td>
<td>37,872</td>
<td>35,855</td>
<td>39,002</td>
<td>69,299</td>
<td>83,978</td>
<td>55,996</td>
<td>40,713</td>
</tr>
<tr>
<td>Annual total</td>
<td>374,240</td>
<td>414,673</td>
<td>463,642</td>
<td>600,686</td>
<td>777,219</td>
<td>801,968</td>
<td>585,374</td>
</tr>
<tr>
<td>Cumulative total as of Dec. 31</td>
<td>6,869,696</td>
<td>7,284,369</td>
<td>7,748,011</td>
<td>8,348,697</td>
<td>9,125,916</td>
<td>9,927,884</td>
<td>10,513,258</td>
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Figure 5. Florida offshore geophysical permits, 1967.
<table>
<thead>
<tr>
<th>County</th>
<th>Company</th>
<th>Well No.</th>
<th>Landowner</th>
<th>#New-Field Well Footage</th>
<th>#Offset Well Footage</th>
<th>Total Exploratory Footage</th>
<th>Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
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<td>A). WILDCAT WELLS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charlotte</td>
<td>Mobil Oil Corp.</td>
<td>1</td>
<td>Babcock Ranch &quot;A&quot;</td>
<td>12,500</td>
<td></td>
<td></td>
<td>P &amp; A</td>
<td>Slight oil show in tight Somniland limestone</td>
</tr>
<tr>
<td>Charlotte</td>
<td>Mobil Oil Corp.</td>
<td>1</td>
<td>Fla. State Lease 224-B</td>
<td>12,931</td>
<td></td>
<td></td>
<td>P &amp; A</td>
<td>Permitted depth, 17,000</td>
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<tr>
<td>Citrus</td>
<td>Mobil Oil Corp.</td>
<td>1-A</td>
<td>Fla. State Lease 224-A, Farm A</td>
<td>6,041</td>
<td></td>
<td></td>
<td>P &amp; A</td>
<td></td>
</tr>
<tr>
<td>Collier</td>
<td>Chambers, Kennedy and Hibbert</td>
<td>1</td>
<td>Anchor Investment Corp.</td>
<td>11,757</td>
<td></td>
<td></td>
<td>P &amp; A</td>
<td>Primarily a Tuscaloosa test</td>
</tr>
<tr>
<td>Collier</td>
<td>Humble Oil</td>
<td>1</td>
<td>Price-Improvement</td>
<td>12,925</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Collier</td>
<td>McCulloch Oil Corp. of Calif.</td>
<td>1</td>
<td>Collier Development Corp.</td>
<td>11,610</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hernando</td>
<td>Thayer-Davis</td>
<td>1</td>
<td>Hill</td>
<td>1,404</td>
<td></td>
<td></td>
<td>P &amp; A</td>
<td>Temp. ab'd. Slight oil show in porosity in fairly hard calcarenite at 11,59% (Somniland limestone, prob. Roberts tone)</td>
</tr>
<tr>
<td>Hernando</td>
<td>Thayer-Davis</td>
<td>2</td>
<td>Hill</td>
<td>6,209</td>
<td></td>
<td></td>
<td>P &amp; A</td>
<td>Tools lost</td>
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<td>Levy</td>
<td>Mobil Oil Corp.</td>
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<td>Fla. State Lease 224-A, Farm B</td>
<td>4,715</td>
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<td>P &amp; A</td>
<td>Primarily a Tuscaloosa test</td>
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<td>Santa Rosa</td>
<td>Young Oil Co.</td>
<td>1</td>
<td>Thomas</td>
<td>6,610</td>
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<td></td>
<td>P &amp; A</td>
<td>Tuscaloosa test</td>
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<tr>
<td>TOTAL WILDCAT WELL FOOTAGE</td>
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<td></td>
<td></td>
<td>86,922</td>
<td></td>
<td></td>
<td></td>
<td>98,432</td>
</tr>
</tbody>
</table>

B). OUTPOST WELL (to abandoned Forty Mile Bend field) |

TOTAL OUTPOST WELL FOOTAGE | 11,510 |

TOTAL EXPLORATORY WELL FOOTAGE, 1967 | 98,432 |

*Classification when drilling commenced. This classification follows guidelines from Labee, Frederich H. (AAPG, 1964, vol. 29, table 1, p. 709)*
(those which did not use dynamite as an energy source), 4 conventional seismic surveys, 2 velocity surveys, and 12 gravity surveys. The bulk of this activity will be in State and Federal waters offshore from the west coast of the State in the Gulf of Mexico, though some will be in Atlantic water bottoms and mostly over Federal acreage.

In 1967 there were 51 crew weeks of geophysical activity performed on the Florida mainland, as follows: 24 in Collier County, 5 in Broward County, 5 in Lee County, 4 in Charlotte County, 4 in Dade County, 4 in Hendry County, 4 in Palm Beach County, and 1 in Santa Rosa County.

LAND

Offshore State leases in 1967 totaled 3,910,460 acres, all under lease to the Coastal Petroleum Company and located offshore from the west coast of Florida.

About 3,700,000 acres on the Florida mainland were held under oil and gas lease during 1967; the corresponding figure for 1965 was 3,075,219 acres. Most of this leased acreage is located in southern Florida, with 15 percent in Collier County, 11 percent in Hendry County, and 9 percent in Palm Beach County. Leases on this acreage were purchased by 10 major oil companies, with about 60 percent going to Humble, 11 percent to Texaco, 10 percent to Amerada, and 8 percent to Sun.

In 1963 about one million acres of the State’s water bottoms offshore from northwestern Florida and in Choctawhatchee Bay were restricted by the State from oil and gas leasing at the request of the U.S. Defense Department as shown on figure 6. This restriction was based upon the premise that offshore drilling in these areas would interfere with testing delicate sound detection equipment, and also hamper weapons testing. In March, 1967, after receiving the approval of the Defense Department, the State re-opened to oil, gas and mineral leasing about half of the originally restricted area. As shown on figure 6, all leasing restrictions were removed from most of the area re-opened, but part of the re-opened area remained subject to certain defense activity limitations in connection with leasing.

PIPELINE FACILITIES

The oil transmission lines (fig. 7) operated by the Sunniland Pipeline Company transport about 4,100 barrels of oil a day over the 80-mile route from the Sunoco-Felda and Sunniland fields to the terminal at Port Everglades. This volume of crude is the equivalent of 30 oil transport truck loads. Use of the pipeline has resulted in a saving of as much as 20 cents a barrel as compared with movement by truck, thus reducing the transportation cost by more than half.

The facility actually consists of two pieces of welded joint steel pipe: a six-inch diameter pipe from Sunoco-Felda to Andytown, and a four-inch pipe from Sunniland to Port Everglades. The two pipes extend side-by-side from Sunniland to Andytown, and over this distance they are “looped”, or serve to tandem. When the “looped” line narrows to the four-inch pipe at Andytown, the
Figure 6. State acreage, located offshore from northwestern Florida, made available for leasing, March, 1967.
Figure 7. Map showing the location of the Sunniland Pipeline Company oil transmission lines.
oil continues eastward to the terminal at Port Everglades with increased pressure and velocity. The design capacity of the system if the six-inch line were extended all the way to the port would be 8,500 BOPD, which would approximately double the present transmission capacity.

There are two booster stations along the line. The first, used in normal operation, is between Sunniland and Andytown. The second, not used in normal operation, is between Andytown and Port Everglades.

At Sunniland field the Sunoco-Felda and Sunniland crudes are commingled at a pipeline junction box. When the oil reaches Port Everglades, it is reconsigned to the original owners.

The pipelines have been factory-wrapped with a protective coating, and are buried approximately 24 inches below ground. To prevent corrosion, cathodic protection is provided by impressing a DC current into the lines at Sunniland Junction, interceptor canal, and Andytown. The company utilized about 40 anodes across the conservation areas.

The pipelines have been field tested to a pressure of 1,000 psi, with an operational maximum pressure limitation of 750 psi through the conservation areas of the Central and Southern Florida Flood Control District. The lines presently are being operated at about 450 psi, giving an approximate flow rate of 3.7 barrels per minute.

A volume-at-temperature measuring system measures flow rates at Sunniland Junction and Port Everglades, respectively. Any difference between these rates becomes apparent by means of a telemetry system. The entire pipeline is automatically shut down after 15/100 percent of the hourly flow rate, or 40 gallons, is lost; repair crews in swamp buggies and air boats can patch the line in a matter of hours. The operation of the pipeline also is automatically discontinued if a malfunction develops in either the measuring system, or the telemetry system.

RULES AND REGULATIONS

In 1967 there were no changes in the legal code governing the conservation of oil and gas in Florida. As an administrative action, however, the State required that the Mobil Oil Corporation post a $500,000 bond to assure performance of remedial action in the unlikely event that the beaches should be contaminated during the drilling of three tests located offshore from the west coast of Florida. Also, public concern for beach protection motivated the Department of Natural Resources to assign an agent to witness the drilling of these wells.

The rules and regulations for drilling of oil wells in Florida, and administrative oil and gas forms 1 thru 12, closely conform with the pattern suggested by the Interstate Oil Compact Commission. This material can be obtained without charge by writing to: Administrator, Oil and Gas Section, Bureau of Geology, Department of Natural Resources, P.O. Drawer 631, Tallahassee, Florida 32302.
Iahee, Fredric H.

Oglesby, Woodson R.
APPENDIX I

WELL DATA SHEETS, 1967
## Division of Geology

### Acquisition Locality: Well Fee

<table>
<thead>
<tr>
<th>No.</th>
<th>Locality designation</th>
<th>API No.</th>
<th>Operator</th>
<th>Well No.</th>
<th>Fee Name</th>
<th>-Commenced -Completed</th>
<th>Total Depth (feet)</th>
<th>Elevation (feet)</th>
</tr>
</thead>
</table>

### Location:

Sec. 9, T42S, R27E (660 feet FWL and 660 feet FNL of the section)

### Miscellaneous:

This well was drilled on acreage farmed-out from the Gulf Oil Corporation, and the location was selected after performance seismic and core drill programs.

### Subsurface record:

1. Plugged and abandoned
2. Casing program
   - 20-inch at 110 feet
     - Set 13 3/8 - inch at 1,185 feet with 790 sacks of cement
     - Set 9 5/8 - inch at 3,711 feet with 250 sacks of cement
3. Plugging details
   - 11,124 - 11,324 feet, set 150 sacks of cement
   - 3,611 - 3,811 feet, set 75 sacks of cement
   - 1,556 - 1,775 feet, set 75 sacks of cement
   - The mud-laden fluid used below and between the plugs was 9-pound gel mud the viscosity of which was 40.
4. Logs: Induction-Electrical, 110-12,491 feet; Sonic-Gamma Ray, 110-12,484 feet; Formation Density, 8,000-12,466 feet.
5. Structural tops
   - Sunniland Limestone 11,130 (-11,076) feet
6. Conventional core at 11,185-11,213 feet. Contains slight show in tight limestone
7. DST: none
## CHARLOTTE COUNTY, OFFSHORE

<table>
<thead>
<tr>
<th>Division of Geology Acquisition No.</th>
<th>Locality designation</th>
<th>Well No.</th>
<th>Fee Name</th>
<th>-Commenced Depth (feet)</th>
<th>Total Depth (feet)</th>
<th>Elevation (feet)</th>
</tr>
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<tbody>
<tr>
<td>W-8139</td>
<td>09-683-10014</td>
<td>Mobil Oil Corp.</td>
<td>1</td>
<td>Fla. St. Lse.</td>
<td>March 21, 1967</td>
<td>12,931</td>
</tr>
</tbody>
</table>

**Location:** Latitude 26° 50.3' North; Longitude 82° 24.3' West

**Miscellaneous:** The permitted depth for this well was 17,000 feet

**Subsurface record:**

1. Plugged and abandoned

2. Casing program
   - 33-inch at 153 feet
   - Set 20-inch in 28-inch hole at 303 feet with 500 sacks of common cement
   - Set 13 3/8-inch in 17 1/2-inch hole at 1,387 feet with 775 sacks of common cement
   - Set 10 3/4-inch in 12 1/2-inch hole at 3,971 feet with 200 sacks of common cement

3. Plugging details
   - 11,800 - 12,100 feet, set 150 sacks of cement
   - 10,800 - 11,100 feet, set 150 sacks of cement
   - 3,877 - 4,077 feet, set 100 sacks of cement
   - 100 - 200 feet, set 50 sacks of cement

4. Logs: Induction-Electrical, 303-12,921 feet; Compensated Formation Density, 8,000-12,921 feet; and Borehole Compensated Sonic, with Caliper, 303-12,913 feet.

5. Conventional cores at 10,930-10,957 feet; 10,957-10,987 feet; 10,987-11,026 feet; and 12,924-12,931 feet.

6. DST: None
CITRUS COUNTY, OFFSHORE

<table>
<thead>
<tr>
<th>Division of Geology Acquisition No.</th>
<th>Locality designation</th>
<th>API No.</th>
<th>Operator</th>
<th>Well No.</th>
<th>Fee Name</th>
<th>-Commenced Depth (feet)</th>
<th>-Completed Depth (feet)</th>
<th>Total Depth (feet)</th>
<th>Elevation (feet)</th>
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<tr>
<td>W-</td>
<td>09-683-20001</td>
<td>Mobil Oil Corp.</td>
<td>I-A</td>
<td>Fla, St, Lse</td>
<td>-Oct, 7, 1967</td>
<td>6,041</td>
<td>11 DF</td>
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<td></td>
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</table>

Location: Latitude 28° 50'00" North; Longitude 82° 49'42" West. This is S 69° 05'59" W a distance of 46,752, 92 feet from USC and GS "Mullet", and N 51° 55'14" W a distance of 35,551 feet from USC and GS "Homosassa Point".

Subsurface record:

1. Plugged and abandoned

2. Casing program

   Set 13 3/8-inch in 17 1/2-inch hole at 112 feet with 170 sacks of common cement with 2% CaCl₂

   Set 9 5/8-inch in 12 1/4-inch hole at 1,198 feet with 230 sacks of common cement plus 16% gel, 2% CaCl₂, and 1/4-pound flocele. This was followed by 100 sacks of common cement, with 1/4-pound flocele.

3. Plugging details

   1155-1288 feet, set 50 sacks of cement
   60-193 feet, set 50 sacks of cement
   Left top of 9 5/8-inch and 13 3/8-inch casing strings 10 feet below the mud line


5. Conventional core at 6,030-6,041 feet
**COLLIER COUNTY**

<table>
<thead>
<tr>
<th>Acquisition No.</th>
<th>Locality designation</th>
<th>API No.</th>
<th>Operator</th>
<th>Well No.</th>
<th>Fee Name</th>
<th>-Comenced Depth (feet)</th>
<th>-Completed Depth (feet)</th>
<th>Elevation (feet)</th>
</tr>
</thead>
</table>

Location: Section 20, T49S, R31E (1486 feet FNL and 1314.5 feet FWL of the section)

Subsurface record

1. Plugged and abandoned

2. Casing record
   - Set 13 3/8-inch at 1,365 feet
   - Set 9 5/8-inch at 3,961 feet

3. Plugging details
   - 11,550-11,650 feet, set cement plug
   - 3,911- 4,011 feet, set cement plug
   - Recovered 2,500 feet of 9 5/8-inch casing
   - 1,315- 1,515 feet, set cement plug
   - Welded 13 3/8-inch casing at the surface

4. Logs: Induction-Electrical, 3965-11,757 feet

5. Structural tops
   - Sunniland Limestone 11,576 (-11,541) feet

6. Conventional cores: No. 1 at 11,530-11,575 feet; No. 2 at 11,575-11,600 feet; and No. 3 at 11,600-11,637 feet.
   - Core at 11,573-11,575 1/2 feet contained a show in rather chalky section of the upper Sunniland Limestone.
   - The remainder of the Sunniland Limestone above definite salt water was tight.
### COLLIER COUNTY

<table>
<thead>
<tr>
<th>Division of Geology Acquisition No.</th>
<th>Locality designation</th>
<th>API No.</th>
<th>Operator</th>
<th>Well No.</th>
<th>Fee Name</th>
<th>-Commenced</th>
<th>Total Depth (feet)</th>
<th>Elevation (feet)</th>
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<tbody>
<tr>
<td>W-8256</td>
<td>Cr-48S-3E-35</td>
<td>09-021-20002</td>
<td>Humble</td>
<td>1</td>
<td>Price+ Improvement Fund</td>
<td>July 12, 1967</td>
<td>12,925</td>
<td>35</td>
</tr>
</tbody>
</table>

**Location:** Section 35, T48S, R30E (1320 feet FWL, and 1717 feet FSL of the section)

**Miscellaneous:** It is understood that the operator intended to drill this test to a depth of about 17,000 feet or more. For this reason a 12 1/2-inch hole was drilled to 12,305 feet, in preparation for the setting of a 9 5/8-inch string of pipe to that depth. Humble proposed to utilize this unusually long string of 9 5/8-inch casing to protect the producing Sunniland Limestone reservoir of the Sunniland field, located 3 1/2 miles to the northwest. However, it was decided to terminate the hole at the final total depth of 12,925 feet, and consequently, the 9 5/8-inch casing was never run.

**Subsurface record:**

1. Plugged and abandoned

2. Casing program
   - Set 30-inch in 34-inch hole at 201 feet with 650 sacks of common cement
   - Set 20-inch in 26-inch hole at 1,396 feet with 1700 sacks of common cement
   - Set 13 31/8-inch in 17 1/2-inch hole at 4,004 feet with 1200 sacks of common cement
   - Set 5 1/2-inch in 9 7/8-inch hole at 12,305 feet with 920 sacks of common cement

3. Plugging details
   - Squeezed 50 sacks of slow set cement and 9 barrels of slurry through perforations at 11,452 feet; tagged cement at 11,462 feet.
   - Spotted 50 sacks of common cement and 10 barrels of mixed fluid in 5 1/2-13 3/8 annulus.
   - Spotted 50 sacks of common cement, and 15 barrels of mixed fluid in the 13 3/8-20 annulus
   - Cut and recovered 5 1/2-inch casing
COLLIER COUNTY (cont'd)

Set 30-foot cement plug in top of 13 3/8-inch casing, and welded steel plate on the top of it.

4. Logs: Induction-Electrical, 1398-4011

5. Structural tops:
   Sunniland Limestone

6. Conventional cores

7. DST:
**CO.LLIER COUNTY**

<table>
<thead>
<tr>
<th>Division of Geology Acquisition No.</th>
<th>Locality designation</th>
<th>API No.</th>
<th>Operator</th>
<th>Well No.</th>
<th>Fee Name</th>
<th>-Commenced</th>
<th>Total Depth (feet)</th>
<th>Elevation (feet)</th>
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<tbody>
<tr>
<td><strong>Cr-46S-29E-20</strong></td>
<td>09-021-20001</td>
<td>McCullough Oil Corp.</td>
<td>1</td>
<td>Collier Develop. -May 19, 1967</td>
<td>11,810</td>
<td>52 DF</td>
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</tbody>
</table>

**Location:** Section 20, T46S, R29E (660 feet FSL, and 660 feet FEL)

**Subsurface record:**

1. Plugged and abandoned

2. **Casing record**
   - Set 20-inch in a 24-inch hole at 85 feet with 150 sacks of regular cement
   - Set 13 3/8-inch in a 17 1/4-inch hole at 1,310 feet with 650 sacks of Class "A" cement
   - Set 9 5/8-inch in a 12 1/4-inch hole at 3,600 feet with 250 sacks of Class "A" cement

3. Plugging details
   - well temporarily abandoned July 6, 1967

4. **Logs:** Induction-Electrical, 3,597-11,810 feet; and Borehole Compensated Sonic, with Caliper, 8,200-11,805 feet.

5. **Structural tops:**
   - Sunniland Limestone 11,527 (-11,475) feet

6. **Conventional Cores** at 11,572-11,602 feet. Consist almost entirely of hard, tight calcarenite and calcilutite. However, minor porosity occurred at 11,593 1/2-11,594 (1 foot) in moderately hard calcarenite. Also, fairly vugular and pinpoint porosity occurred in moderately hard calcarenite at 11,596-11,597 feet (1 foot); there was slight oil staining in the upper part of this interval.
7. DST: No. 1

Interval 11,594-11,602 feet
Chokes, 1/4-inch bubble hose at surface; 5/8-inch at bottom
Surface pressure: Slight to fair blow throughout test (0 to 1 1/2 psi)
Water cushion: 2,000 feet
Tool oper: 3 hours
Recovery
1906 feet of salt water (128,000 ppm chloride)

Pressures (psi)

<table>
<thead>
<tr>
<th></th>
<th>Top gauge</th>
<th>Bottom guage</th>
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<tbody>
<tr>
<td>Initial mud</td>
<td>5,309</td>
<td>5,395</td>
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<tr>
<td>Initial closed-in</td>
<td>4,907</td>
<td>4,954</td>
</tr>
<tr>
<td>(after 30 minutes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First flow period</td>
<td>902</td>
<td>951</td>
</tr>
<tr>
<td>Second flow period</td>
<td>992</td>
<td>1,040</td>
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<tr>
<td>Final flow</td>
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<td></td>
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<tr>
<td>First flow period</td>
<td>965</td>
<td>1,006</td>
</tr>
<tr>
<td>Second flow period</td>
<td>1,819</td>
<td>1,872</td>
</tr>
<tr>
<td>Final closed-in (after 1 hour)</td>
<td>4,714</td>
<td>4,761</td>
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<tr>
<td>Final mud</td>
<td>5,303</td>
<td>5,351</td>
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</tbody>
</table>

No. 2

Interval 11,719-11,810
Chokes, 1/4-inch bubble hose at surface; 5/8-inch at bottom
Surface pressure: 0
Water cushion: 2,000 feet
Recovery
2,000 feet of water cushion

Pressures (psi)
COLLIER COUNTY (cont'd)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Initial mud</td>
<td>5,435</td>
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<tr>
<td>Initial closed-in</td>
<td>2,330</td>
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<tr>
<td>Initial flow (after 30 minutes)</td>
<td></td>
</tr>
<tr>
<td>First flow period</td>
<td>1,004</td>
</tr>
<tr>
<td>Second flow period</td>
<td>1,006</td>
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<tr>
<td>Final flow</td>
<td></td>
</tr>
<tr>
<td>First flow period</td>
<td>1,004</td>
</tr>
<tr>
<td>Second flow period</td>
<td>1,006</td>
</tr>
<tr>
<td>Final closed-in (after 1 hour)</td>
<td>1,949</td>
</tr>
<tr>
<td>Final mud</td>
<td>5,418</td>
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<tr>
<td>Division of Geology Acquisition No.</td>
<td>Locality designation</td>
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<tr>
<td>-----------------------------------</td>
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</tr>
<tr>
<td>W-8131</td>
<td>WDd-54S-36E-18c</td>
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</tbody>
</table>

Location: Sec. 18, T54S, R36E (1320 feet east, and 920 feet north of the SW corner of the section)

Subsurface record:
1. Plugged and abandoned
2. Casing program
   - Set 20-inch in 24-inch hole at 123 feet with 100 sacks of cement
   - Set 13 3/8-inch in 17-inch hole at 1,083 feet with 500 sacks of cement
   - Set 9 9/8-inch in 12 1/4-inch hole at 3,838 feet with 350 sacks of cement
3. Plugging details
   - Set 100 sacks of cement at 11,510-11,310 feet (200 feet)
   - Set 80 sacks of cement at 3,938-3,738 feet (200 feet)
   - Set 10 sacks of cement at 0-30 feet (30 feet)
   - Set 25 sacks of cement in 13 3/8-9 5/8 annulus (75 feet)
4. Logs: Induction-Electrical 3,835-11,492 feet
5. Structural tops
   - Sunniland Limestone 11,332-11,309 feet
6. Conventional Core at 11,332-11,378 feet. Included in the cored interval were shell reefs at 11,356-11,358 feet and 11,366-11,378 feet. Both reefs were permeable; the upper reef contained heavy oil stain.
7. DST
   - Interval, 11,480-11,510 feet
   - Chokes, 1/4-inch at surface; 5/8-inch at bottom
   - Tool open, 8 hours
DADE COUNTY (cont'd)

Recovery
5 feet of oil
2,000 feet of water cushion
372 feet of salt water

Pressures (psi)

<table>
<thead>
<tr>
<th></th>
<th>Top guage</th>
<th>Bottom guage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial mud</td>
<td>5,283</td>
<td>5,312</td>
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<tr>
<td>Initial closed-in</td>
<td>4,726</td>
<td>4,751</td>
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<tr>
<td>(after 30 minutes)</td>
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<td>Initial flow</td>
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<td></td>
</tr>
<tr>
<td>First flow period</td>
<td>919</td>
<td>953</td>
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<tr>
<td>Second flow period</td>
<td>936</td>
<td>970</td>
</tr>
<tr>
<td>Final flow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First flow period</td>
<td>921</td>
<td>953</td>
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<tr>
<td>Second flow period</td>
<td>1,056</td>
<td>1,085</td>
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<tr>
<td>Final closed-in (after 1 hour)</td>
<td>4,606</td>
<td>4,628</td>
</tr>
<tr>
<td>Final mud</td>
<td>5,277</td>
<td>5,304</td>
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</table>
### HERNANDO COUNTY

<table>
<thead>
<tr>
<th>Division of Geology Acquisition No.</th>
<th>Locality designation</th>
<th>API No.</th>
<th>Operator</th>
<th>Well No.</th>
<th>Fee Name</th>
<th>-Commenced</th>
<th>-Completed</th>
<th>Total Depth</th>
<th>Elevation</th>
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<tr>
<td></td>
<td></td>
<td>09-053-10002</td>
<td>Thayer-Davis</td>
<td>Hill</td>
<td></td>
<td>-Dec. 27, 1966</td>
<td>-May 31, 1967</td>
<td>1,404</td>
<td>73 Ground</td>
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</table>

**Location:** Sec. 32, T22S, R21E (SE quarter of the SW quarter of the section)

**Subsurface record:**

1. Junked and abandoned
2. **Casing record:**
   - Set 16-inch at approximately 150 feet
3. **Plugging details**
   - This hole was drilled and plugged, with a cable tool rig. Plugging operations consisted of setting a temporary brush and rock plug, about 10 feet thick, with the top at 665 feet. On top of this was set the permanent cement plug, consisting of 95 sacks of cement. The top of this permanent plug was tagged at a depth of 545 feet.
   - A steel plate was welded over the top of the surface casing in this hole.
4. This hole will be converted to use as a fresh water well.
5. **Logs:** Widco survey run by the Division of Geology.
6. **Cores:** None
7. **DST's:** None
HERNANDO COUNTY

<table>
<thead>
<tr>
<th>Division of Geology Acquisition No.</th>
<th>Locality designation</th>
<th>API No., Operator</th>
<th>Well No.</th>
<th>Fee Name</th>
<th>-Commenced -Completed</th>
<th>Total Depth (feet)</th>
<th>Elevation (feet)</th>
</tr>
</thead>
</table>

Location: Sec. 32, T22S, R21E (center of the NE quarter of the SW quarter)

Miscellaneous: The fresh water (1,000 ppm per Schlumberger Engineer) - Salt water contact occurred from 3,240-3,550 feet.

Subsurface record:
1. Plugged and abandoned
2. Casing record
   Set 8 5/8-inch in 10 3/4-inch hole at 1,250 feet with 650 sacks of cement; returns not established.
   Part of the cement was grouted from the surface.
   Set 7-inch in 7 7/8-inch hole at 3,150 feet with 350 sacks of cement.
3. Plugging details
   3,000-3,416 feet, set 95 sacks of cement
   Welded a steel plate on top of the 7-inch casing at the surface
4. Conversion of this hole to use as a fresh water well.
   - Fresh water with a chlorinity of 50 ppm, and total dissolved solids of about 1,200 ppm, flowed from a depth of about 1,850 feet. The braden head was left on the well to control this annular flow, which emanates with a fair flow from a 2-inch pipe.
6. Structural top
   Tuscaloosa Sd 5,250 (-5168)
   Lower Cretaceous 5,375 (-5293)
7. Cores: None
8. DST's: None
LEVY COUNTY, OFFSHORE

<table>
<thead>
<tr>
<th>Division of Geology</th>
<th>Locality designation</th>
<th>API No.</th>
<th>Operator</th>
<th>Wall No.</th>
<th>Fee Name</th>
<th>-Commenced</th>
<th>-Completed</th>
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<th>Elevation (feet)</th>
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<td></td>
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</tr>
<tr>
<td>W-</td>
<td>09-683-20002</td>
<td>Mobil Oil Corp.</td>
<td>1-B</td>
<td>Fla. St. Lee</td>
<td>Nov. 27, 1967</td>
<td>4,735</td>
<td>16 DF</td>
<td></td>
<td></td>
</tr>
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</table>

Location: Latitude 29° 05'24" N; Longitude 82° 55'16" W. This is S 38° 41'36" E a distance of 45,732.76 feet from USC and GS "Lukens", and S 53° 04'52" W a distance of 44,280.98 feet from USC and GS "Wacca".

Subsurface record:
1. Plugged and abandoned
2. Casing record
   - Set 13 3/8-inch in 17 1/2-inch hole at 145 feet with 170 sacks of common cement
   - Set 9 5/8-inch in 12 1/4-inch hole at 1,185 feet with 310 sacks of common cement
3. Plugging details
   - 1,019-1,156 feet, set 50 sacks of cement
   - 40-150 feet, set 50 sacks of cement
   - Left top of 9 5/8-inch and 13 3/8-inch casing strings 9 feet below the mud line
4. Logs: Induction-Electrical, 1,192-4,735 feet; Borehole Compensated Sonic-Gamma Ray, 1,192-4,735 feet.
5. Conventional core at 4,721-4,735 feet.
<table>
<thead>
<tr>
<th>Division of Geology Acquisition No.</th>
<th>Locality designation</th>
<th>API No.</th>
<th>Operator</th>
<th>Well No.</th>
<th>Fee Name</th>
<th>-Commenced</th>
<th>Total Depth (feet)</th>
<th>Elevation (feet)</th>
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<tbody>
<tr>
<td>W</td>
<td>5T-5N-29W-18</td>
<td>09-113-20001</td>
<td>Young Oil Co, 1</td>
<td>Thomas</td>
<td>July 6, 1967</td>
<td>6,613</td>
<td>262</td>
<td></td>
</tr>
</tbody>
</table>

Location: Sec. 18, T5N, R29W (330 feet FNL, and 330 feet FWL of the north half of Lot 2)

Subsurface record:
1. Plugged and abandoned
2. Casing record
3. Plugging details
   - 1,600-1,800 feet, set 60 sacks of cement
   - 900-1,100 feet, set 60 sacks of cement
   - top of 8 5/8-inch casing, set 25 sacks of cement. Welded steel plate over top of casing
4. Logs: Induction-Electrical, 1,010-6,610 feet; Borehole Compensated Sonic, 5,000-6,610 feet.
5. Structural tops:
   - Upper Cretaceous 3,722 (13,460)
   - Lower Tuscaloosa 6,128 (-5,866)
   - Massive 6,285 (-6,023)
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