Centennial Oil Field
T43N-R94W
Hot Springs County, Wyoming

Oblique aerial view of Centennial Oil Field development looking north

Executive Summary
With Reference Data
Centennial Oil Field

T43N-R94W
Hot Springs County, Wyoming

Executive Summary

Centennial Energy No. 5-22 on federal lease WYW90509

Prepared by:
Daniel C. Wychgram
Exploration Geologist
Some interesting facts about Centennial Oil Field.

1. The first wildcat drilled on the structure in 1917 was well-located but failed to drill the last 10 feet to the pay zone.

2. Our discovery well was completed in early 1992. In October of that year, we decided to give the zone an acid treatment. We had the rod pump inspected and returned it to duty. This same pump has been pumping continuously with no problems for 15 years!

3. The working interest in all 2,358 acres of leases is 100% jointly owned by my father and me. Our initial investors have been rewarded with ORRI in both of our HBP leases but not the adjoining state and federal leases.

4. Total water production is so low that evaporation and soil absorption are normally adequate to prevent any discharge. However, a discharge permit is maintained and would possibly be utilized in a steam or water flood operation.

5. This oil field's infrastructure is exceptional for a recent discovery. We are a 15-minute drive from Thermopolis via scenic East River Road. The 1.5 mile Centennial Road into the oilfield is semi-paved by incorporating tank-bottom waste oil into the road bed. Single-phase electric utility service is built in with the option to upgrade to three-phase service. A newly-constructed, 25' X 50' building provides a shop and secure storage for tools and equipment.

6. Centennial Oil Field has a field-wide Rule 302 spacing exception (10 acres instead of 40 acres) from the WO&GCC. The BLM has granted both BOP and H2S waivers.

7. Oil dehydration is accomplished with only 8 ounces of chemical per day, a free water knock out, and a vertical heater/treater. The heater/treater is supplied with propane but no heat is required except during the coldest months and then only the pilot flame is used.

8. Our expense for contract pumper, chemical and electricity amounts to less than $1,000 per month.

Please review the enclosed data and contact me with any questions or comments you may have. Thank you for your interest in Centennial Oil Field.

Sincerely,

Daniel C. Wychgram, President

P.O. Box 469, Thermopolis, Wyoming 82443
Thermopolis (307) 864-3811 • San Diego (619) 792-0349
Introduction

Centennial Oil Field produces from the Lucerne Anticline and is located in the prolific Bighorn Basin of Wyoming that has produced over 2.4 billion barrels of oil. The entire oil-producing structure, plus two smaller-sized anticlinal closures, are covered by a lease block of 2,358 acres of state and federal leases. The field has excellent infrastructure which includes an improved road providing access from county-maintained East River Road, utility electric service, and close proximity to the town of Thermopolis. Centennial Oil Field is operated by Centennial Energy which owns 100% of the working interest in all leases.

This field was discovered in 1992 and is the most recent discovery in the region. It is the only local oil field that is not under water flood to restore the Phosphoria reservoir pressure which has been depleted from decades of basin-wide oil and water production. A water or steam flood is the key to high rates of production and maximum recovery of reserves as illustrated by nearby West Warm Springs Field located 2 miles to the southeast. West Warm Springs Field was discovered in 1916 and produced 750,000 barrels of oil on primary production and had declined to only 19 barrels of oil per day (BOPD) by 1972. Cork Petroleum took over the field and started a water flood and infill drilling program in 1976. By 1981 the production rate had increased to over 800 BOPD. Since the start of the water flood, over 3.25 million additional barrels of oil have been produced and the field is still producing about 87 BOPD. Centennial Oil Field is similar to West Warm Springs Field in all respects except that it is about 800 feet deeper to the Phosphoria oil zone and has 3 degree higher oil gravity.

Development Strategy/Revenues

Six wells have been drilled by Centennial Energy. The wells have had initial production rates up to 35 BOPD (80 BOPD initial production for two days from the #3-15) but decline rapidly to about 5 BOPD due to low reservoir pressure. The field is a prime candidate for a 20-acre, 5-spot water or steam flood development. Using the West Warm Springs Field as an analog and the fact that Centennial Field has only recently been placed on production, it is projected that drilling 20 additional oil wells and four water or steam injection wells will result in a rate of production in excess of 1,000 BOPD. Horizontal drilling could multiply this rate.

Recoverable reserves on water flood are calculated at 1.8 MMBO and on a steam flood at 2.9 MMBO. The average historical price received for Centennial’s 26 gravity oil is $35/barrel (recent high price is $90/barrel). Therefore, gross revenues are $35/BO X 1.8 MMBO = $63,000,000 ($162MM at $90/BO) for a water flood and $35/BO X 2.9 MMBO = $100,000,000 ($261MM at $90/BO) for a steam flood.

Madison Limestone Potential

The Madison Limestone provides significant deeper potential within the closure provided by the Lucerne Anticline. Oil has been produced from the Madison at several fields in the Bighorn Basin including Red Springs Oil Field four miles to the SE. The Madison is often a prolific producer because of fracturing connecting paleo-karst caverns which allows high volumes of fluid to enter the well bore. Several hundred barrels of oil per day have been reported at these fields and comparable rates are possible at Centennial Oil Field. A well drilled to a depth of approximately 3,000 feet would test the oil potential of the Madison.
Proposed Sale of Centennial Oil Field

The sale price is based on an industry formula that sells semi-proven reserves for 25% of current value adjusted for royalties and taxes. Using this formula:

Current value of recoverable reserves on a water flood: $63MM less royalties and taxes of approximately 33% = $41MM $10.25MM sales price.

The sale price includes assignment of 2,358 acres of leases, subsurface equipment, surface production facilities, an injection house with triplex pump set up for a water flood and a new 25’ X 50’ shop and storage building.

References

The following references are provided:

Front Pocket
1. Map montage of Centennial Oil Field featuring the surface geology, cross-section, Phosphoria-level geologic structure and overlay of a portion of the lease position.

Following Report Text
2. Economics basis and calculations.
3. Lease schedule.

Rear Pocket
4. Severance Tax Work Sheet for 2007 (provides oil price, volumes produced and sold and royalty information).
7. Discovery Well Crude Oil Analysis Report, #1-16
8. Discovery Well Logs, #1-16
9. Core Analysis and Completion Report, #1-15 (renamed the #3-15)
Centennial Oil Field
Phosphoria Reservoir Economics

Reserves

The following reserves calculations are based on all available well data. In order to provide realistic numbers, the reservoir parameters are an average of all wells from which that specific parameter is available.

Oil Reserves Calculation
(L = log data; C = core data; N/A = not available)

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<thead>
<tr>
<th></th>
<th>#1-16</th>
<th>#2-16</th>
<th>#3-15</th>
<th>H&amp;J</th>
<th>McAlester</th>
<th>Value</th>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Thickness (h)</td>
<td>14'</td>
<td>14'</td>
<td>N/A</td>
<td>20</td>
<td>21'</td>
<td>17.25'</td>
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<tr>
<td>Average reservoir</td>
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<td></td>
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<td></td>
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<tr>
<td>Porosity (Ø)</td>
<td>16%</td>
<td>16%</td>
<td>23%</td>
<td>N/A</td>
<td>18.5%</td>
<td>16.8%</td>
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<tr>
<td>Oil Saturation (So)</td>
<td>63% (L)</td>
<td>63% (L)</td>
<td>70% (est.)</td>
<td>67% (C max.)</td>
<td>61.6% (C max.)</td>
<td>65%</td>
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</table>

Assumptions:

1) Area of production (A) is 250 acres based on a projection of the oil column found in the McAlester Fuel well. The actual limit of oil-saturated reservoir has not been established and may include more than 250 acres. Please see map.

2) The reservoir recovery factor (R) is 50% with a waterflood as demonstrated by the upper Phosphoria-producing West Warm Springs Field two miles to the SE. This fully developed field has produced 3.75 MMBO out of total oil in place of about 7.5 MMBO.

3) A reservoir recovery factor (R) of 80% with a steam flood.

Total Oil in Place:

BO (in place) = VAhØSo where V (volume constant) = 7758 bbls/ac. Ft.  
BO (ip) = (7758) (250) (17.25') (.168) (.65) = 3,653,436 BO

Total Recoverable Oil:

BO (recoverable/waterflood) = BO (ip) x R = 3,653,436 x .50 = 1.8 MMBO  
BO (recoverable/wellsite) = 1,826,718 BO ÷ 19 wells = 96,000+ BO/well
BO (recoverable/steamflood) = BO (ip) x R = 3,653,436 x .80 = 2.9 MMBO

* Thickness of interval is 21' but upper 7' at this location is tight cap rock.
** Only 11' of zone penetrated, total thickness unknown.
# Centennial Oil Field
## Oil & Gas Lease Schedule

All leases are located in T43N - R94W, 6th P.M.
Hot Springs County, Wyoming

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<tr>
<th>Lease # (Lessor)</th>
<th>Expiration Date</th>
<th>Legal Description</th>
<th>Acres</th>
<th>Lease Net Revenue Interest</th>
<th>C.E. Owned Working Interest</th>
<th>Centennial Energy Undivided Net Interest</th>
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<td>88-00100 (State)</td>
<td>HBP</td>
<td>Sec. 16: Lots 1, 2, 3, 4, E/2W/2, SE/4</td>
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<td>76.173%</td>
<td>x 100%</td>
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<td>07-00094 (State)</td>
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<td>HBP</td>
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<td>x 100%</td>
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<td>440.00</td>
<td>87.500%</td>
<td>x 100%</td>
<td>= 87.500%</td>
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**Gross Acres**

2358.84

HBP - Held By Production
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(307) 921-9998 (cell)
dwychgram@directtainet.com

• Certified Petroleum Geologist •
### Centennial Oil Field
#### 2007

#### Severance Tax Worksheet

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<th>Month</th>
<th>State (J.M.)</th>
<th>Fed. (Hans H.)</th>
<th>Fed. (Hans H.)</th>
<th>Total (Gross) Sales</th>
<th>Royalty Sales</th>
<th>Net Sales</th>
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<td>#3-15 Prod. days</td>
<td>#4-22 Prod. days</td>
<td>#5-22 Prod. days</td>
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<td>BO $</td>
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<td>January</td>
<td>93 31</td>
<td>0 0</td>
<td>99 31</td>
<td>95 31</td>
<td>93 3,534 294 11,158</td>
<td>16 589 37 1,395</td>
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<td>February</td>
<td>84 28</td>
<td>112 28</td>
<td>90 28</td>
<td>60 20</td>
<td>84 3,720 108 4,764</td>
<td>14 620 14 596</td>
</tr>
<tr>
<td>March</td>
<td>84 28</td>
<td>112 30</td>
<td>90 28</td>
<td>72 28</td>
<td>84 3,936 334 15,650</td>
<td>14 656 42 1,956</td>
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<tr>
<td>April</td>
<td>93 30</td>
<td>120 31</td>
<td>96 30</td>
<td>81 30</td>
<td>93 4,100 491 21,638</td>
<td>16 683 61 2,705</td>
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<tr>
<td>May</td>
<td>93 31</td>
<td>117 30</td>
<td>93 31</td>
<td>80 31</td>
<td>93 4,402 324 15,342</td>
<td>16 734 41 1,818</td>
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<tr>
<td>June</td>
<td>87 30</td>
<td>114 30</td>
<td>90 30</td>
<td>75 30</td>
<td>0 0 0 0</td>
<td>0 0 0 0</td>
</tr>
</tbody>
</table>

| Total      | 534 178      | 575 147         | 558 178        | 463 170            | 447 19,692 1,551 68,552 | 76 3,282 195 8,570 | 371 16,410 1,357 59,983 |
| July       | 93 31        | 111 31          | 93 31          | 80 31              | 93 4,925 380 20,115 | 16 821 48 2,514 | 77 4,104 332 17,601 |
| August     | 93 31        | 110 31          | 84 30          | 72 30              | 93 5,027 383 20,681 | 16 838 48 2,585 | 77 4,189 335 18,086 |
| September  | 75 27        | 99 30           | 84 30          | 72 30              | 75 4,088 171 9,298 | 13 681 21 1,162 | 62 3,407 150 8,134 |
| October    | 70 25        | 96 31           | 83 31          | 71 31              | 70 3,957 403 22,764 | 12 660 50 2,846 | 58 3,297 353 19,919 |
| November   | 68 30        | 96 30           | 77 30          | 68 30              | 68 4,620 178 12,109 | 11 770 22 1,514 | 57 3,850 156 10,595 |
| December   | 87 31        | 98 31           | 83 31          | 16 7              | 87 4,506 154 12,990 | 15 751 19 999 | 72 3,757 135 6,991 |

| Total for Year | 1,020 353 1,183 331 1,062 368 1,376 159 | 3,803 360 20,190 | 374 30,014 2,818 141,319 |

C:\LotusSmartSuite\200TAXWORKSHEET
Renovations unleash West Warm Springs potential

In 1971, when Thomas Sullivan and Jerry Agnew bought the West Warm Springs field four miles east of Thermopolis, Wyo., they had a hunch there were larger reserves than production at that time, (about 19 bo/d) indicated. They were right after a few renovations production is now 850 bo/d. They also made some other interesting discoveries: none of the field’s 14 wells, drilled in the early 1900s, had ever been stimulated; surface pipe was the only casing set in any of the holes; and the two brothers-in-law ran across one well that wasn’t even on the map.

“The original 14 wells which existed on the land when we bought it were really little more than holes in the ground,” said Sullivan, a partner in Agnew-Sullivan Enterprises Inc., which owns the field. “But in a way, that was the beauty of the field. Nobody had tampered with it, so it was just a matter of cleaning out and running pipe, and we had holes that were like new. And because the holes hadn’t been cased beforehand, the oldest casing in the field is four years old. So we aren’t bothered with a bunch of old casing to patch, repair or pull.”

Sullivan, who is also president of Cork Petroleum Inc., operating company for West Warm Springs field, and Agnew, the other partner in Agnew-Sullivan and vice-president of Cork Petroleum, purchased the field in 1971 but didn’t start their “workover program” until 1978 when the price of crude oil began to rise. In the past four years, they have rejuvenated 12 of the original 14 wells, increasing production by as much as 100 bo/d per well.

There also were a few holes on the 250-acre field that had to be plugged, Sullivan recalled. These holes were a result of drilling done on the basis of “surface high,” a method of siting wells used by “old-timers,” as Sullivan called the first oilfield operators. “They believed that if there was a hill on the surface, it was correlative to the structure of the producing formation so there must be a hill down there, too. This isn’t necessarily true.”

(Two other relics of the old-timers, a pulling unit and central power unit which came with the package when Agnew-Sullivan purchased West Warm Springs, were donated to the Hot Springs County museum.)

The addition of 26 development wells drilled by Agnew-Sullivan brings the current well count of West Warm Springs to 35 oil-producing wells, 7 water injection wells and 2 water...
Thomas Sullivan, one of the partners in Agnew-Sullivan Enterprises, looks over the field he and his brother-in-law brought from 19 bo/d to 850 bo/d.

Supply wells. The owners have also installed three tank batteries to handle produced fluid.

Sullivan gained his first experience in the Phosphoria formation (pay zone for the existing Warm Springs wells) as chairman of the Working Interest Owners & Engineering Committee in the Hamilton Dome field, northwest of West Warm Springs. He began speculating on the Agnew-Sullivan field’s potential in 1972 when the phosphoria was utilized in Hamilton Dome.

And as he watched production in the latter field go from 200 bo/d to 3,000 bo/d over a period of only six months, he had a feeling he and his brother-in-law were on to something, Sullivan related.

“We realized we were taking a gamble, but we had a good clue that the field was capable of significant production because it didn’t have a high water to oil ratio. And the fact that the Phosphoria at Hamilton Dome did flood was encouraging,” Sullivan admitted.

“Considering the low water saturation in what little fluid West Warm Springs was making at the time, we figured if we injected water and created an imbalance of pressure, something had to move.”

Since the two men began reworking the field, production has increased steadily although not as quickly as did Hamilton Dome’s. But, Sullivan explained, recovery from West Warm Springs has been carefully controlled so as not to bruise or damage the reservoir by either pumping oil out or injecting water too fast.

Wells have been drilled on a seven-acre spacing pattern, putting them about 500 ft apart. “There are two schools of thought on what the distance between wells should be,” Sullivan commented. “One is that if you drill fewer wells farther apart, the production rate won’t be as high but the reserves will last longer. That makes sense because someday we might be looking at $80 per bbl oil prices.

“On the other hand,” he continued, “I believe that sweep efficiency and recovery on a waterflood will be greater with closer spacing. Most oil fields were overspaced due to lower oil prices. Now with increased oil prices, you’ll see more infill drilling.”

Sullivan says he is satisfied that seven-acre spacing is allowing ample recovery in West Warm Springs without severely draining the reservoir. He also is confident that injection isn’t taking place too fast. “We’re pounding fluid on every well, which means that we don’t have any fluid over the pump.” This indicates the injection program isn’t bruising the reservoir, he said.

In fact, he and Agnew are considering more infill drilling in the future. Sullivan revealed, “I guess you always wonder if you’re getting all the oil you can from each well.”

This doubt caused a decision in 1979...
to perform acid fracs on three of the older wells. Two of the jobs were successful, but one Sullivan described as "a bad deal." High injection pressure on the producing formation and a too large concentration of sand in the fracturing gel caused a lack of injection rate and the sand to screen and fall to the bottom of the hole.

"We temporarily lost that hole, but after all, two out of three's not bad," Sullivan quipped.

Of the two successful fracs, the biggest production jump occurred on Well 12. The well was making 40 bo/d before fracturing and climbed to 140 bo/d after the operation. It's now producing about 60-70 bo/d, Sullivan said.

"But even a 100 bbl increase like that can't compare to the thrill of that very first production jump when you first start reworking a field," Sullivan remembered. "The first time the production curve went up 40 bbl in one day, we knew we were going to make it. Now, seeing it rise from 810 bo/d to 850 is gratifying, but it isn't anywhere near the thrill of that first 40 b/d increase."

Sullivan and Agnew are planning another acid frac in the spring, on the unmapped well they discovered after they acquired the field.

Even though the frac jobs cost more that Agnew-Sullivan originally paid for West Warm Springs (a price Sullivan declined to reveal), "the jobs' results are well worth it," he commented.

Two more development wells are to be drilled this year also to test a zone located about 20 ft below the Upper Phosphoria pay zone. These new wells will be drilled to a total depth of about 1,000 ft, 100 ft deeper than existing holes.

Like the others, these deeper wells will be drilled with a cable tool rig, Sullivan said. "Since there hasn't been any formation pressure to deal with when we've gone into the formation in the past, we think using a cable tool rig is a good policy."

"Besides," he added, "we're not in any hurry."

Sullivan expresses this same laid-back attitude when disclosing that he has no intentions of buying or restoring any other fields. In fact, Agnew-Sullivan recently sold half its working interest in West Warm Springs to Amcana Oil Corp., based in Tulsa, Okla.

"I'm very happy where I am," Sullivan claims. "My appetite is not so great that I have to go out and seek new areas to conquer. If we can maximize production in West Warm Springs, I'll be a very happy person."

Sullivan is practically assured of being happy because the field's production rate is still climbing.
WARM SPRINGS, WEST
T43N R94W
Hot Springs County, Wyoming
Phosphoria

Drive Mechanism: Past; Limited water drive, Present; water flood
Rw and/or Salinity: .80 @ 68' F. (? (operator)
Bottom hole Temperature: 80' F.
Character of oil or gas: Present: Gravity - 24' API;
Viscosity - 30 cp; Sulfur - 3%; Color - black; Past:
Gravity - 23.1' API; Viscosity - 165 sec @ 100' F;
Pour point - < 5' F; Sulfur - 3.06%; Specific gravity
- 0.915; Nitrogen - 0.27%
Continuity of Reservoir: Continuous
Cumulative Production: 2,700,000 BO, 11,213,800
BW?, 1/1/89
Primary Recovery STBO or MCF/AC FT: 500,000
BO
Secondary: 3,000,000 BO
Estimated Ultimate Recovery: 3,500,000 BO
Decline Curve: Appendix; includes Warm Springs, East

DISCUSSION
Warm Springs Field represents two separate anticlines on a major east-west trending structure on the south flank of the Bighorn Basin. Geologic and engineering field data are separated for both, the east and west closures.
A waterflood project in West Warm Springs was initiated in 1976 using warm water from the Darwin Sandstone to flood the first porosity zone. Presently, 160,000 BWPM is being injected and 11,475 BO and 110,925 BWPM are being produced. A lower second porosity interval has a homogeneous reservoir character with good secondary recovery potential. The Madison may also have some merit.

REFERENCES

REFER TO POCKET FOR MAP
CRUDE OIL ANALYSIS REPORT

LAB NO. : 920421-1
ANALYZED BY : AF

COMPANY : CENEX REFINERY
LOCATION : NESESE
WELL NO. : 1-16 SWABBED OIL
SEC16 TWN 43N R94W
FIELD : JOCELYN MARIE
DEPTH : 03/03/92
COUNTY : HOT SPRINGS
SAMPLE TIME:
STATE : WY

GENERAL CHARACTERISTICS

Spec. Gravity @ 60/60 F. . 0.8987 Paraffins, % by wt. . . . . N. REQ.
API Gravity @ 60 deg. F. . 25.95 Asphaltenes, % by wt. . . . . N. REQ.
Saybolt Visc. @ 70 F, Sec. 168 Naphtha Fraction, % by vol. N. REQ.
Saybolt Visc. @ 100 F, Sec Sec 111 Org. Cl, ppm in Naphtha . N. REQ.
BS&W, % by volume. . . . . 3
Four Point, Deg. F. . . . . 0
Total Sulfur, % by weight. 2.56

REMARKS:

ENGLER DISTILLATION

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DISTILLATION GRAPH

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<td>70</td>
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<td>80</td>
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<td>90</td>
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<td>100</td>
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</table>

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# Core Laboratories

**Company:** Centennial Energy  
**Well:** 1-15 Hans Harry  
**Location:** SW SW Sec 15 T43N R94W  
**Co,State:** Hot Springs, Wyoming  
**Field:** Centennial Oil  
**Formation:** Phosphoria  
**Coring Fluid:** Air Mist  
**Elevation:** 4599 GR  
**File No.:** 57122-7926  
**Date:** 16-Dec-1994  
**API No.:** 49-017-20947  
**Analysts:** DF SS

## Core Analysis Results

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Depth (ft)</th>
<th>Permeability (Horizontal) (Kair md)</th>
<th>Porosity (Helium) (%)</th>
<th>Saturation (Pore Volume) Oil-%</th>
<th>Saturation (Pore Volume) Water-%</th>
<th>Grain Density (gm/cc)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1632.0-33.0</td>
<td>15.3</td>
<td>25.1</td>
<td>31.1</td>
<td>27.2</td>
<td>2.82</td>
<td>Dol lt brn suc</td>
</tr>
<tr>
<td>2</td>
<td>1633.0-34.0</td>
<td>25.0</td>
<td>20.3</td>
<td>28.1</td>
<td>21.1</td>
<td>2.80</td>
<td>Dol lt brn suc vug</td>
</tr>
<tr>
<td>3</td>
<td>1634.0-35.0</td>
<td>23.6</td>
<td>22.8</td>
<td>16.0</td>
<td></td>
<td>2.80</td>
<td>Dol lt brn suc</td>
</tr>
</tbody>
</table>

No Plug for #3, Fluid porosity is reported

Top 6" of core had many fractures, at approx 60 degrees

Data, Plug Analysis 1 - 1
**WELL COMPLETION OR RECOMPLETION REPORT AND LOG**

1. **TYPE OF WELL:**
   - Oil
   - Gas
   - Water
   - Dry
   - Other

2. **NAME OF OPERATOR:**
   - Centennial Energy

3. **ADDRESS AND TELEPHONE NO.:**
   - P.O. Box 469, Thermopolis, WY 82443-0469
   - (307) 864-3811 or 675-1612

4. **LOCATION OF WELL:**
   - SW/4SW/4SW/4; 232' FSL & 195' FVL
   - At top prod. Interval reported below
   - At total depth same

5. **DATE ISSUED:**
   - 10/10/94

6. **TOTAL DEPTH, MD & TVD:**
   - 1637' TD

7. **PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD):**
   - 1626-1636', Phosphoria, upper porosity

8. **TYPE ELECTRIC AND OTHER LOG RUN:**
   - Gamma Ray Correlation and Collar Locator

9. **CARING RECORD (Report all strings set in well):**
   - 9-5/8" 7"
   - Depth Set (MD) 83.16 1628
   - Hole Size 12-1/4" 8-3/4"
   - Top of Cement 67 sks 195 sks

10. **LINER RECORD:**
    - Size 2-7/8"
    - Depth Set (MD) 1635.5'

11. **PERFORATION RECORD (Interval, size and number):**
    - 1626-1636' w/ 4 shots/ft

12. **PRODUCTION:**
    - 2/9/95
    - Pumping, 1-1/2" insert rod pump

13. **ACID SHOT, FRACTURE, CEMENT SQUEEZE, ETC.:**
    - 1626-1635'
    - Chemfrac
    - 450 gals. 15% HCl

14. **DISPOSITION OF GAS (Sold, used for fuel, vented, etc.):**
    - Vented, may be used for fuel if sufficient.

15. **LIST OF ATTACHMENTS:**
    - Gamma Ray/CCL Log, Core Description

16. **SIGNED:**
    - Daniel C. Wychgram

17. **DATE:**
    - Feb 15, 1995

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*Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.*
## POROUS ZONES:
(Show all important zones of porosity and contents there. cored intervals; and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recovery):

<table>
<thead>
<tr>
<th>FORMATION</th>
<th>TOP</th>
<th>BOTTOM</th>
<th>DESCRIPTION, CONTENTS, ETC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crow Mtn. Ss.</td>
<td>740'</td>
<td>770'</td>
<td>Sandstone, water</td>
</tr>
<tr>
<td>Curtis Ss.</td>
<td>1016'</td>
<td>1036'</td>
<td>Sandstone, water</td>
</tr>
<tr>
<td>Phosphoria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porosity</td>
<td>1626'</td>
<td>1637'</td>
<td>Dolomitic limestone, swabbed oil</td>
</tr>
<tr>
<td>cored interval</td>
<td>1632'</td>
<td>1637'</td>
<td>Porosity: 20.3-25.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Permeability: 15.3-25.0 md</td>
</tr>
</tbody>
</table>

### GEOLOGIC MARKERS

<table>
<thead>
<tr>
<th>NAME</th>
<th>MEAS. DEPTH</th>
<th>TRUE ELEVATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil, brown</td>
<td>surface</td>
<td>+4599' GR</td>
</tr>
<tr>
<td>Morrison Fm.</td>
<td>27'</td>
<td>erosional top</td>
</tr>
<tr>
<td>Sundance Fm.</td>
<td>55'</td>
<td>4544'</td>
</tr>
<tr>
<td>Gypsum Springs</td>
<td>390'</td>
<td>4209'</td>
</tr>
<tr>
<td>Chugwater Fm.</td>
<td>507'</td>
<td>4092'</td>
</tr>
<tr>
<td>Crow Mtn Ss.</td>
<td>740'</td>
<td>3859'</td>
</tr>
<tr>
<td>Alcova Ls.</td>
<td>770'</td>
<td>3829'</td>
</tr>
<tr>
<td>Curtis Ss.</td>
<td>1016'</td>
<td>3583'</td>
</tr>
<tr>
<td>Dinwoody Fm.</td>
<td>1565'</td>
<td>3034'</td>
</tr>
<tr>
<td>Phosphoria Fm.</td>
<td>1619'</td>
<td>2980'</td>
</tr>
<tr>
<td>Phosphoria porosity</td>
<td>1626'</td>
<td>2973'</td>
</tr>
</tbody>
</table>

**Static Fluid Level**
874' of oil in casing
x.389 psi/ft. for 26° API oil
340 psi reservoir pressure
### Well Parameters For Centennial Oil Field Wells

<table>
<thead>
<tr>
<th></th>
<th>#1-16</th>
<th>#3-15</th>
<th>#4-22</th>
<th>#5-22</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Casing:</strong></td>
<td>5.5</td>
<td>7&quot;</td>
<td>4.5&quot;</td>
<td>5.5&quot;</td>
</tr>
<tr>
<td><strong>Tubing</strong></td>
<td>2.375EUE</td>
<td>2.875 EUE</td>
<td>2.375&quot;EUE</td>
<td>2.875&quot;EUE</td>
</tr>
<tr>
<td><strong>Pump Inlet</strong></td>
<td>1655’</td>
<td>1635’</td>
<td>1633’</td>
<td>1713’</td>
</tr>
<tr>
<td><strong>Top Perf</strong></td>
<td>1666’</td>
<td>1626’</td>
<td>1624’OH</td>
<td>1698’</td>
</tr>
<tr>
<td><strong>Surface Elev.</strong></td>
<td>4553’</td>
<td>4599’</td>
<td>4622’</td>
<td>4656’</td>
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<tr>
<td><strong>Fluid Level(pumping)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03/02/01(depth)</td>
<td>1599’</td>
<td>1595’</td>
<td>1700’</td>
<td></td>
</tr>
<tr>
<td>03/02/01(elev.)</td>
<td>+3000’</td>
<td>+3027’</td>
<td>+2956’</td>
<td></td>
</tr>
</tbody>
</table>