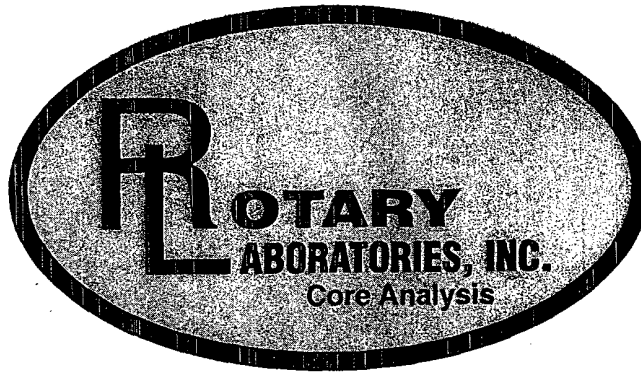




**CORE ANALYSIS PROCEDURES**  
**FOR**  
**CLAYTON WILLIAMS ENERGY, INC.**

**STATE '16-13' # 1**  
**EDDY COUNTY, NEW MEXICO**

RECEIVED  
MAY 26 2006  
MOUNTAIN

The Rotary Sidewalls were picked up by Rotary Laboratories, Inc.

Gases from the Sidewalls were measured by Hot Wire Chromatography and reported in Gas Units.

A brief Lithological Description of the Sidewalls was recorded.

A description of the Fluorescence of the Sidewalls was recorded.

Ultraviolet Light Photographs were taken of the Sidewalls for a permanent record.

Natural Light Photographs were taken of the Sidewalls for a permanent record.

Composite Photographs of the Sidewall End Trims were taken under Natural and Ultraviolet Light.

The Sidewalls were extracted utilizing the Dean Stark method.

The fluids were measured by the Dean Stark method.

Porosities were measured in a Boyle's Law Porosimeter utilizing Helium.

Permeabilities were measured in a Hassler Sleeve Permeameter utilizing Nitrogen at 300 psi confining pressure.

Test samples of a known permeability were measured before and after the Sidewall permeabilities were measured.

# ROTARY SIDEWALL CORE ANALYSIS

CLAYTON WILLIAMS ENERGY, INC.  
STATE '16-13' # 1  
EDDY COUNTY, NEW MEXICO

A.P.I. NUMBER : 30-015-34140  
FIELD : Rocky Arroyo ( Morrow Gas )  
LOCATION : 660' FSL, 660' FWL,  
Section 16, T-22-S, R-22-E

FILE NO. : 050914-1  
DATE : September 15, 2005  
ANALYSTS : WH, SB, PK

## DEAN STARK EXTRACTION

| SAMPLE NO. | DEPTH ft | GRAIN DENSITY | POROSITY % | PERM mD | SATURATIONS Sw | So   | GAS UNITS | FLUORESCENCE % | LITHOLOGY                                                                    |
|------------|----------|---------------|------------|---------|----------------|------|-----------|----------------|------------------------------------------------------------------------------|
| 1          | 2,074.0  | 2.78          | 6.7        | 0.02    | 54.9           | 0.0  | 70        | 0              | Dol crm-tn-gy ssly tr ppp sc sml anhy incl tr pyr                            |
| 2          | 2,078.0  | 2.70          | 8.4        | 0.06    | 62.5           | 0.0  | 25        | 0              | Ss opaq-tn vf-fgr sbrnd-sbang ssly abd slty lam tr pyr                       |
| 3          | 2,083.0  | 2.68          | 10.3       | 0.11    | 50.0           | 0.0  | 32        | 0              | Ss opaq-tn vf-fgr sbrnd-sbang ssly abd slty lam tr pyr                       |
| 4          | 2,087.0  | 2.69          | 8.9        | 0.12    | 21.2           | 12.3 | 103       | 80             | DI yl-brt yl-bl Ss opaq-tn-brn vf-fgr sbrnd-sbang ssly scalc tr pyr          |
| 5          | 2,093.0  | 2.66          | 8.7        | 0.09    | 37.7           | 11.7 | 105       | 70             | DI yl-brt yl-bl Ss opaq-tn-brn vf-fgr sbrnd-sbang ssly scalc slty lam tr pyr |
| 6          | 2,098.0  | 2.70          | 9.2        | 0.13    | 41.1           | 0.0  | 21        | 0              | Ss opaq-tn-gy lam vf-fgr sbrnd-sbang mod-ssly tr pyr                         |
| 7          | 2,826.0  | 2.75          | 5.6        | 0.01    | 70.5           | 0.0  | 3         | 0              | DI mf Ss opaq-tn-gy lam vf-fgr sbrnd-sbang mod-ssly sc cht tr pyr            |
| 8          | 2,828.0  | 2.75          | 5.9        | 0.02    | 71.3           | 0.0  | 2         | 0              | DI mf Ss opaq-tn-gy lam vf-fgr sbrnd-sbang mod-ssly sc cht tr pyr            |
| 9          | 2,830.0  | 2.74          | 5.5        | 0.03    | 70.8           | 0.0  | 1         | 0              | DI mf Ss opaq-tn-gy mott vf-fgr sbrnd-sbang mod-ssly tr pyr                  |
| 10         | 2,855.0  | 2.77          | 5.0        | 0.08    | 41.9           | 0.0  | 0         | 0              | DI mf Dol tn-brn ssly ssdy tr foss                                           |
| 11         | 2,857.0  | 2.84          | 10.9       | 0.67    | 47.9           | Tr   | 0         | Tr             | DI brn / DI mf Dol tn-brn ssly ssdy tr cht tr foss                           |
| 12         | 3,083.0  | 2.84          | 9.0        | 0.96    | 37.8           | Tr   | 0         | Tr             | DI brn / DI mf Dol tn-brn ssly ssdy tr foss                                  |
| 13         | 3,091.0  | 2.85          | 14.5       | 40.33   | 39.9           | 0.0  | 0         | 0              | DI mf Dol tn-brn ssly ssdy suc sc ppp sc foss                                |
| 14         | 4,500.0  | 2.86          | 6.9        | 2.22    | 9.6            | 7.4  | 26        | 20             | Brt yl-grn vug Dol tn-brn ssly ssdy suc i/p sc ppp sc foss frac              |
| 15         | 4,504.5  | 2.71          | 2.7        | 0.04    | 20.6           | 8.9  | 393       | 30             | Yl-bl-wht Ls tn-brn-gy mott mod-ssly ssdy tr ppp foss sty                    |
| 16         | 4,513.0  | 2.78          | 17.7       | 15.55   | 45.7           | Tr   | 3         | Tr             | DI brn Dol tn-brn mod-ssly sdy suc sc ppp foss mod-vcalc                     |
| 17         | 4,533.0  | 2.78          | 10.3       | 1.65    | 23.6           | Tr   | 1         | Tr             | DI brn Dol tn-brn mod-ssly sdy suc i/p sc ppp foss mod-vcalc                 |
| 18         | 4,535.0  | 2.85          | 12.8       | 11.30   | 11.3           | 13.1 | 92        | 80             | Brt yl-bl Dol tn-brn mod-ssly sdy sc ppp foss mod-vcalc                      |



# ROTARY SIDEWALL CORE ANALYSIS

CLAYTON WILLIAMS ENERGY, INC.  
STATE '16-13' # 1  
EDDY COUNTY, NEW MEXICO

A.P.I. NUMBER : 30-015-34140  
FIELD : Rocky Arroyo ( Morrow Gas )  
LOCATION : 660' FSL, 660' FWL,  
Section 16, T-22-S, R-22-E

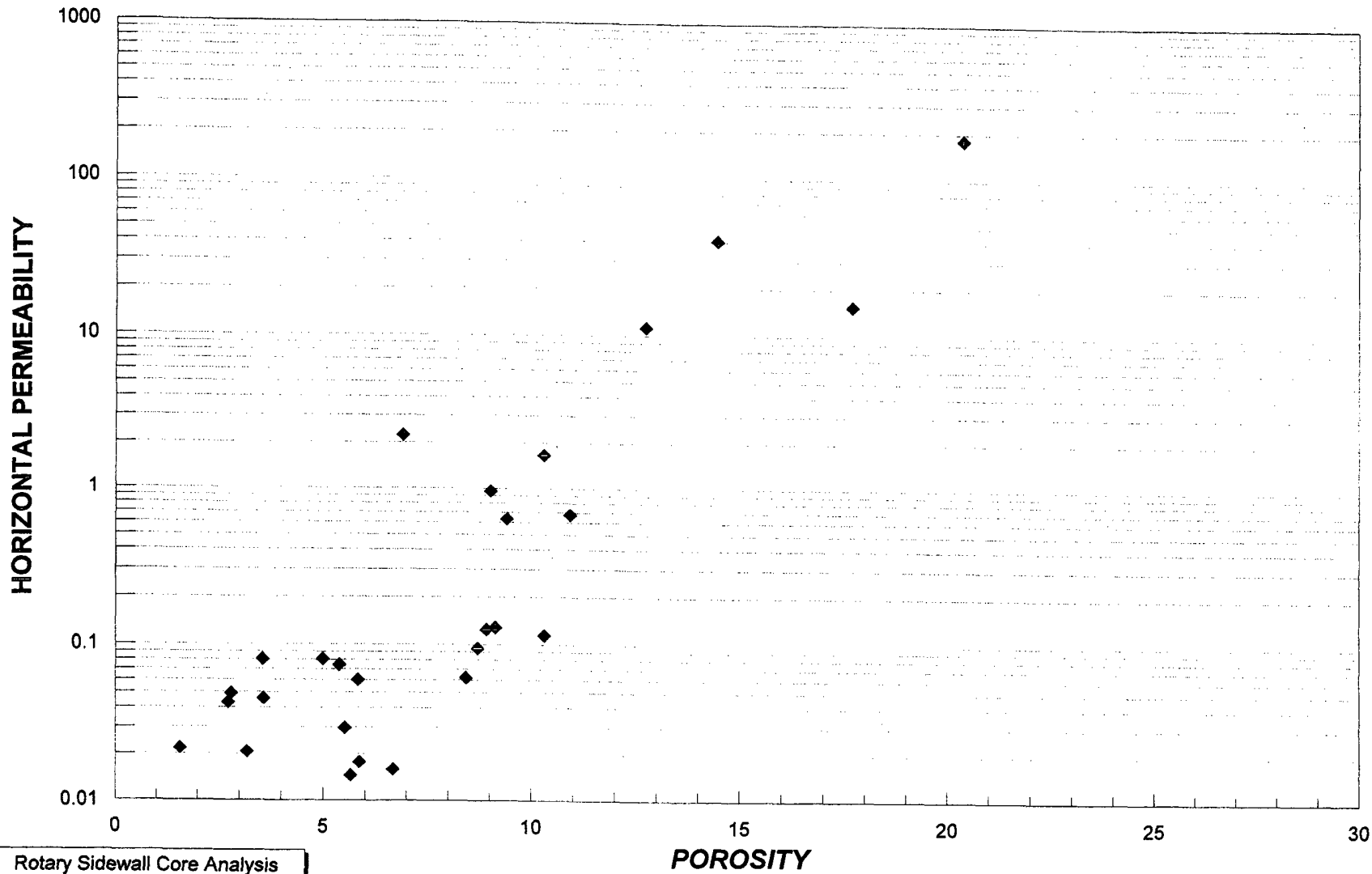
FILE NO. : 050914-1  
DATE : September 15, 2005  
ANALYSTS : WH, SB, PK

## DEAN STARK EXTRACTION

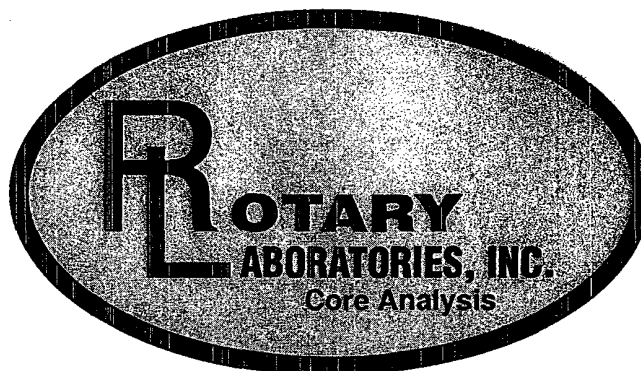
| SAMPLE NO. | DEPTH ft | GRAIN DENSITY | POROSITY % | PERM mD | SATURATIONS Sw | So   | GAS UNITS | FLUORESCENCE % | LITHOLOGY                                                        |
|------------|----------|---------------|------------|---------|----------------|------|-----------|----------------|------------------------------------------------------------------|
| 19         | 4,537.0  | 2.84          | 20.4       | 180.85  | 32.2           | 12.7 | 3         | 30             | Brt yl-bl Dol tn-brn mod-ssltly sdy suc sc ppp sc foss mod-vcalc |
| 20         | 4,854.0  | 2.76          | 9.4        | 0.63    | 21.7           | 0.0  | 101       | 0              | Ls tn-brn mod-ssltly sdy tr ppp-sml vug foss                     |
| 21         | 4,859.0  | 2.73          | 1.6        | 0.02    | 17.9           | 13.9 | 218       | 40             | Yl-bl-wht Ls tn-brn-gy mott mod-ssltly foss sty                  |
| 22         | 4,864.0  | 2.72          | 3.6        | 0.08    | 12.3           | 11.4 | 194       | 60             | Yl-bl-wht Ls tn-brn-gy mott mod-ssltly tr ppp foss               |
| 23         | 4,866.0  | 2.70          | 3.6        | 0.05    | 17.8           | 14.7 | 470       | 70             | Yl-bl-wht Ls brn-gy mott mod-ssltly foss sty                     |
| 24         | 4,872.0  | 2.83          | 2.8        | 0.05    | 7.2            | 5.6  | 197       | 80             | Yl-bl-wht Dol tn-brn-gy-blk mott mod-ssltly sc ppp sc slty lam   |
| 25         | 4,875.0  | 2.72          | 3.2        | 0.02    | 15.0           | 11.6 | 389       | 80             | Yl-bl-wht Ls tn-dk brn-gy arg mod-slty ssdy foss                 |
| 26         | 4,908.0  | 2.85          | 5.4        | 0.07    | 8.5            | Tr   | 66        | 10             | Brt yl vug Dol tn-brn sltly ssdy sc ppp-tr sml vug sc foss s/p   |
| 27         | 4,912.0  | 2.85          | 5.8        | 0.06    | 15.7           | 0.0  | 13        | 0              | Dol tn-brn sltly ssdy sc ppp-tr sml vug sc foss                  |



**CLAYTON WILLIAMS ENERGY, INC.**  
**STATE '16-13' # 1**



P.O. Box 3501 • Midland, Texas 79702-3501 • 432-684-8800 • Fax 432-684-8821 • E-mail [rotarylab@prodigy.net](mailto:rotarylab@prodigy.net)



CLAYTON WILLIAMS ENERGY, INC.  
 STATE '16-13' # 1  
 09/20/2005

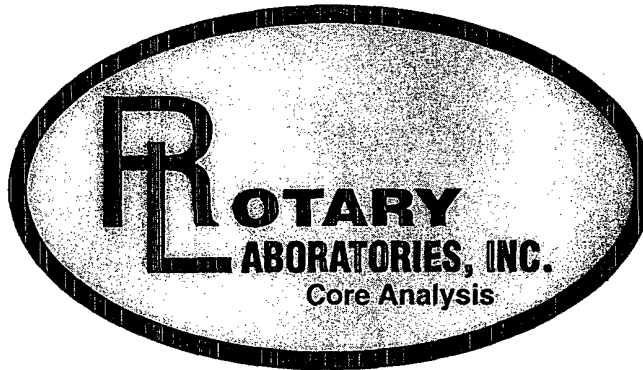
**QUALITY CONTROL RERUN DATA**

| Sample No. | GRAIN DENSITY |        | POROSITY |        | <i>k</i> standard<br>Test Sample | PERMEABILITY |         |
|------------|---------------|--------|----------|--------|----------------------------------|--------------|---------|
|            | original      | reruns | original | reruns |                                  | original     | reruns  |
| 1          | 2.777         | 2.777  | 6.67     | 6.68   | 2.616                            | 0.016        | 0.016   |
| 4          | 2.686         | 2.687  | 8.94     | 8.97   |                                  |              |         |
| 9          | 2.744         | 2.744  | 5.51     | 5.51   |                                  | 0.030        | 0.030   |
| 11         | 2.837         | 2.836  | 10.94    | 10.90  |                                  |              |         |
| 13         | 2.848         | 2.850  | 14.47    | 14.52  |                                  | 40.334       | 40.270  |
| 16         | 2.781         | 2.780  | 17.69    | 17.67  |                                  |              |         |
| 19         | 2.843         | 2.844  | 20.38    | 20.41  |                                  | 180.847      | 181.142 |
| 22         | 2.722         | 2.721  | 3.56     | 3.53   |                                  | 0.080        | 0.080   |
| 24         | 2.827         | 2.825  | 2.81     | 2.76   |                                  |              |         |
| 26         | 2.850         | 2.850  | 5.38     | 5.39   | 2.623                            | 0.074        | 0.073   |

# **LITHOLOGICAL ABBREVIATIONS**

|                            |              |                             |         |                          |           |
|----------------------------|--------------|-----------------------------|---------|--------------------------|-----------|
| <b>Anhydrite (-ic)</b>     | anhy, anhyd  | <b>Filled</b>               | fd      | <b>Poor</b>              | pr        |
| <b>Anhydrite inclusion</b> | A/I          | <b>Fine (-ly)</b>           | f, fnly | <b>Pyrite</b>            | pyr       |
| <b>Bentonite (-ic)</b>     | bent         | <b>Fluorescence</b>         | flu     | <b>Quartz (-itic)</b>    | qtz       |
| <b>Black (-ish)</b>        | blk, blksh   | <b>Fossil (-iferous)</b>    | foss    | <b>Red (ish)</b>         | rd, rdsh  |
| <b>Bleeding Oil</b>        | B/O          | <b>Fracture</b>             | frac    | <b>Round</b>             | rnd       |
| <b>Brecciated</b>          | brec         | <b>Fragments</b>            | frag    | <b>Residual Oil</b>      | So        |
| <b>Bright</b>              | brt          | <b>Friable</b>              | fri     | <b>Residual Water</b>    | Sw        |
| <b>Brittle</b>             | brit         | <b>Fusulinid</b>            | fus     | <b>Sample</b>            | Spl       |
| <b>Broken</b>              | brkn         | <b>Gilsonite</b>            | gil     | <b>Sandstone</b>         | Ss        |
| <b>Brown</b>               | brn          | <b>Gold</b>                 | gld     | <b>Sandy</b>             | sdv       |
| <b>Buff</b>                | bf           | <b>Good</b>                 | gd      | <b>Scattered</b>         | sc        |
| <b>Calcite (-ic)</b>       | calc, calctc | <b>Grain (-s)</b>           | gr      | <b>Shaley</b>            | shy       |
| <b>Calcareous</b>          | calc         | <b>Granular</b>             | gran    | <b>Shale</b>             | sh        |
| <b>Carbonaceous</b>        | carb         | <b>Gray</b>                 | gy      | <b>Shale parting</b>     | s/p       |
| <b>Cement</b>              | cmt          | <b>Green</b>                | grn     | <b>Silt (-y)</b>         | slt, slty |
| <b>Chalk (-y)</b>          | chk, chky    | <b>Gypsum</b>               | gyp     | <b>Siliceous</b>         | sil       |
| <b>Chert</b>               | cht          | <b>Hair line(frac)</b>      | hl      | <b>Slight (-ly)</b>      | sli, s    |
| <b>Clay</b>                | cl           | <b>Halite</b>               | hal     | <b>Small</b>             | sml       |
| <b>Clear</b>               | clr          | <b>Inclusion</b>            | incl    | <b>Spotted (-y)</b>      | sp        |
| <b>Coal</b>                | c            | <b>Laminations (ated)</b>   | lam     | <b>Stringer</b>          | strgr     |
| <b>Coarse</b>              | crs          | <b>Large</b>                | lrg     | <b>Stylolite (-itic)</b> | sty, styl |
| <b>Conglomerate</b>        | cgl          | <b>Light</b>                | lt      | <b>Sucrosic</b>          | suc       |
| <b>Consolidated</b>        | consol       | <b>Limestone</b>            | ls      | <b>Sulphur</b>           | su        |
| <b>Contaminated</b>        | contam       | <b>Limey</b>                | lmy     | <b>Tan</b>               | tn        |
| <b>Crinoid (-al)</b>       | crin, crinal | <b>Lithology</b>            | lith    | <b>Too broken</b>        | tbfa      |
| <b>Cross-bedded</b>        | x-bd         | <b>Medium</b>               | m       | <b>(for Analysis)</b>    |           |
| <b>Crystal (-line)</b>     | Xl, xln      | <b>Mineral Fluorescence</b> | mf      | <b>Thin</b>              | thn       |
| <b>Dark</b>                | dk           | <b>Moderate</b>             | mod     | <b>Trace</b>             | Tr        |
| <b>Dense</b>               | dns          | <b>Mudcake</b>              | m/c     | <b>Very</b>              | v         |
| <b>Diameter</b>            | dia          | <b>No Show</b>              | N/S     | <b>Vertical</b>          | vert, vt  |
| <b>Dolomite (ic)</b>       | dol, dolm    | <b>Oolite (-itic)</b>       | ool     | <b>Vug (-gy)</b>         | vug       |
| <b>Dull</b>                | dl           | <b>Pale</b>                 | pl      | <b>Well</b>              | wl        |
| <b>Faint</b>               | fnt          | <b>Permeability</b>         | Perm, K | <b>White</b>             | wht       |
| <b>Fair</b>                | fr           | <b>Pin-Point Porosity</b>   | ppp     | <b>Yellow</b>            | yl        |





**CORE ANALYSIS PROCEDURES**  
**FOR**  
**CLAYTON WILLIAMS ENERGY, INC.**  
**STATE '16-13' # 1**  
**EDDY COUNTY, NEW MEXICO**

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# ROTARY SIDEWALL CORE ANALYSIS

CLAYTON WILLIAMS ENERGY, INC.  
STATE '16-13' # 1  
EDDY COUNTY, NEW MEXICO

A.P.I. NUMBER : 30-015-34140  
FIELD : Rocky Arroyo ( Morrow Gas )  
LOCATION : 660' FSL, 660' FWL,  
Section 16, T-22-S, R-22-E

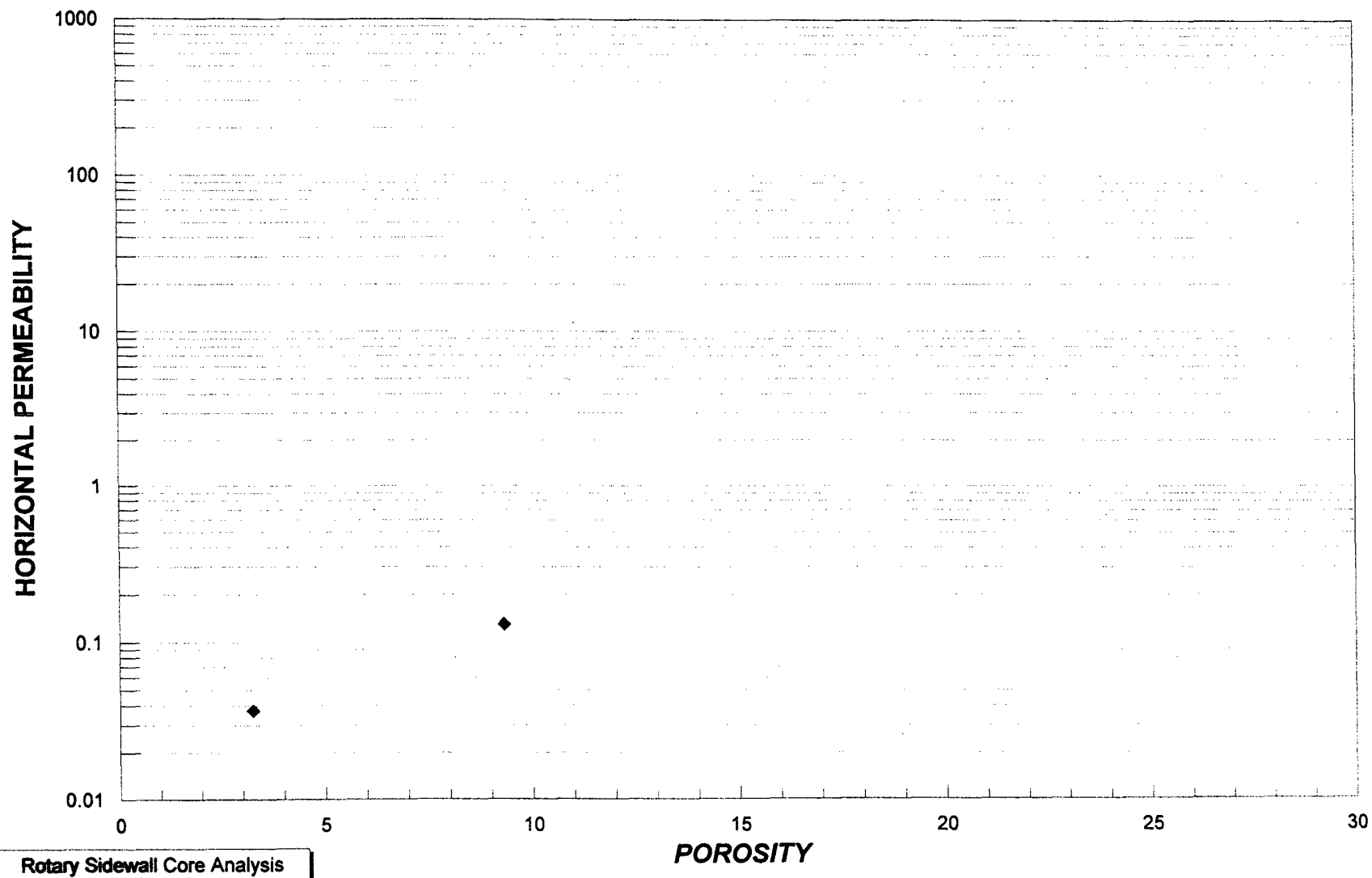
FILE NO. : 051016-1  
DATE : October 17, 2005  
ANALYSTS : WH, SB, PK

## DEAN STARK EXTRACTION

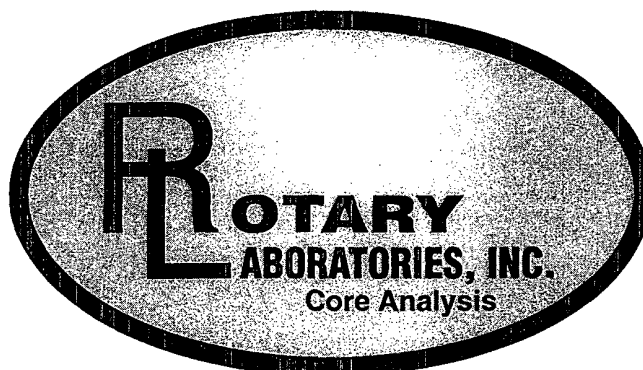
| SAMPLE NO. | DEPTH ft | GRAIN DENSITY | POROSITY % | PERM mD | SATURATIONS Sw | So  | GAS UNITS | FLUORESCENCE % | LITHOLOGY                                                |
|------------|----------|---------------|------------|---------|----------------|-----|-----------|----------------|----------------------------------------------------------|
| 1          | 9,130.0  | 2.73          | 9.3        | 0.13    | 10.0           | 0.0 | 14        | 0              | Ss opaq-gy-tn f-crsgr sbrnd-ang ssity scalc              |
| 2          | 9,131.0  | 2.78          | 6.1        | tbfa    | 18.6           | 0.0 | 23        | 0              | Tr dl mf Ss opaq-gy-tn f-crsgr sbrnd-ang ssity scalc sty |
| 3          | 9,193.0  | 2.72          | 3.2        | 0.04    | 10.1           | 0.0 | 26        | 0              | Ss opaq-gy-tn vf-crsgr rnd-ang ssity scalc               |



**CLAYTON WILLIAMS ENERGY, INC.**  
**STATE '16-13' # 1**



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CLAYTON WILLIAMS ENERGY, INC.

STATE '16-13' # 1

10/18/2005

**QUALITY CONTROL RERUN DATA**

| Sample<br>No. | GRAIN DENSITY |        | POROSITY |        | <i>k</i> standard<br>Test Sample | PERMEABILITY |        |
|---------------|---------------|--------|----------|--------|----------------------------------|--------------|--------|
|               | original      | reruns | original | reruns |                                  | original     | reruns |
| 1             | 2.729         | 2.728  | 9.32     | 9.28   | <b>2.614</b>                     | 0.129        | 0.129  |
| 3             | 2.724         | 2.723  | 3.25     | 3.20   | <b>2.616</b>                     | 0.037        | 0.037  |