| Max. Rec. Temperature Equipment Locatic Recorded By Witnessed By | Time on Bottom | Rm @ BHT   | Source F                 | BEREXCO LLC  UNIT OF THE PERMANENT HAZEN 2-21  HARTNETT-HAZEN 2-21  HARTNETT-HAZEN 2-21  FINNEY  BEREXCO LLC  WELL  HARTNETT-HAZEN 2-21  FINNEY  AMAZON DITCH EAST  Depth - Driller  Depth - Logged Interval  Top - Logged Interval  Casing - Driller  Casing - Driller  Casing - Driller  Casing - Driller  Depth - Logged Interval  Fun No.  Depth - Logged Interval  Top - Logged Interval  Fun Bottom - Logged Interval  Fun Bottom - Logged Interval  Top - Logged Interval  Fun Bottom - Logged Interval  Casing - Driller  Bit Size  Type Fluid in Hole  Density  Viscosity  PH  Rm @ Meas. Temperature  Rm @ Meas. Temperature  Rm @ Meas. Temperature  Rmc @ Meas. Temperature  Rmc @ Meas. Temperature  Rmc @ Meas. Temperature |            |               |      |            |            |                 |           |            |        |         |           |                               |    |           |           |                             |                    |                  |          |   | I                  |            |              |                   |                     |             |               |          |                     |          |
|--|----------------|------------|--------------------------|---|------------|---------------|------|------------|------------|-----------------|-----------|------------|--------|---------|-----------|-------------------------------|----|-----------|-----------|-----------------------------|--------------------|------------------|----------|---|--------------------|------------|--------------|-------------------|---------------------|-------------|---------------|----------|---------------------|----------|
| c. Terr<br>int<br>id By<br>ed By                                 | Bottor         | ]<br>      | Ĭ<br>Ĭ                   |   |            |               |      |            |            |                 |           |            |        |         |           |                               |    |           |           |                             |                    |                  |          |   |                    |            |              |                   |                     |             |               |          |                     |          |
| Tperati<br>Loc   | m Callan       | 2          | Rmc                      | Temp  | Temp       | empe          | ıple | Flu        | Vis        | lole            | ۲         |            | nterva | ed Inte |           | FIELD/BLOCK AMAZON DITCH EAST |    |           |           |                             |                    |                  |          |   |                    |            |              |                   |                     |             |               |          |                     |          |
| erature<br>Location  | =              | 3          | Ō                        | eratur  | erature    | rature        | Ì    | Fluid Loss | Viscosity  |                 |           |            | -      | irval   |           |                               |    |           | Ĭ         |                             |                    | COUNT            | Υ        |   |                    |            | FIN          | INEY              |                     |             |               |          |                     |          |
|  | Ш              |            |                          | STATE   |            |               |      |            |            |                 |           |            |        | KANSAS  |           |                               |    |           |           |                             |                    |                  |          |   |                    |            |              |                   |                     |             |               |          |                     |          |
| 125.00 degF @ 4 12156883 E WHITLOCK PETER VOLLMER                | :50            | nm @       | , _                      | @   |            | 0.65 ohmm @ 7 | ŕ    |            | 9.1 ppg 62 | Water Based Mud | 7//U.U ft | @          | 1770   | 4891    | 4901.0 ft | 4900.0 ft                     |    | 03-Dec-18 | KB        | KB                          | GL                 | Sect. 21         |          | (SHL) E2                                  | Location 15-055-2  | :          | COUNTY       | FIELD/BLOCK       | WELL                | COMPANY     |               |          | HALLIBURTON         |          |
| EL RENO, OK  |                | 125.0 degF | MEAS                     | 72.00 degF  | 72.00 degF | 76.00 degF    |      | 8.4 cptm   | 62.00 s/qt |                 |           | 1782.0 ft  |        |         |           |                               |    |           |           |                             |                    | Twp. 22S         |          | (SHL) E2 SW NE NW<br>990' FNL & 1855' FWL | 15-055-22508-00-00 | 3E00 00 00 | FINNEY       |                   | HARTN               | BEREX       |               |          | Z                   |          |
| @  |                | @          | )                        | @   | @          | @             | -    |            |            | @               |           | @          |        |         |           |                               |    |           |           | , 12.0 ft above perm. Datum | Elev. 2953.0 ft    | Rge. 34W         |          |   |                    |            | ~            | AMAZON DITCH EAST | HARTNETT-HAZEN 2-21 | BEREXCO LLC | 5 1/2         |          | ANNU                |          |
| @  |                | @          | )                        | @   | @          | @             |      |            | +          | @               |           | @          |        |         |           |                               |    |           | G.L.      |                             | 3.0 ft Elev.: K.B. |                  | MICLOG   | SDL-DSN                                   | Office Convices.   | ΞI         | STATE KANSAS |                   |                     |             | 5 1/2" CASING | LOG      | ANNULAR HOLE VOLUME |          |
|  |                |            |                          |   |            |               |      |            |            |                 |           |            |        |         |           |                               |    |           | 2953.0 ft | 2963.0 ft                   | 2965.0 ft          |                  |          |   |                    |            |              |                   |                     |             |               |          |                     |          |
|  |                |            |                          |   |            |               |      |            |            |                 |           |            |        |         |           |                               |    |           | · Fo      | old he                      | ∍re                |                  |          |   |                    |            |              |                   |                     |             |               |          |                     |          |
| Service Ticket   | t No.:         |            |                          |   |            |               |      | - 25       |            | (               | 0-0       |            |        |         | 5-22      | 508·                          | —  |           |           | _                           |                    |                  |          | PGM V                                     |                    |            |              |                   | 5.8.9 (E            |             |               |          |                     |          |
| Date   | Sam            |            |                          | E IN  | Mu         | ו לול         | YPt  | T          | ≀ Aレ       | DH              | ONA       | AL SA      | ٩M٢    | PLE     |           | Τ                             | _  |           |           | +                           | Tyr                | ne Log           |          | Depth                                     |                    | ESIS       |              |                   | Jp Hole             |             | S             | Sca      | le Down Hole        | -        |
| Depth-Driller  |                |            |                          |   |            |               |      |            | _          |                 |           |            |        |         |           | _                             | _  | _         | _         | $\pm$                       |                    |                  |          |   |                    |            |              |                   |                     |             |               |          |                     |          |
| Type Fluid in F  | _              |            |                          | L   |            |               |      | _          | _          |                 |           | lacksquare |        |         |           |                               | _  | _         | _         | $\downarrow$                | _                  |                  |          |   |                    | lacksquare |              |                   |                     |             |               |          |                     |          |
| Density<br>Ph  | Visco          |            |                          | +   |            |               |      |            |            |                 |           |            |        |         |           |                               |    |           |           |                             |                    |                  |          |   |                    | $\vdash$   |              |                   |                     |             |               |          |                     | =        |
| Ph Fluid Loss Source of Sample                                   |                |            |                          |   |            |               |      |            |            |                 |           |            |        |         |           |                               |    |           |           |                             | <u> </u>           |                  | RE       | ESIS.                                     | TIVIT              | Y EQL      | JIPMEN       | <br>ГА            |                     |             |               |          |                     |          |
| Rm @ Meas. Temp @  |                |            |                          |   |            |               |      |            |            |                 | @         |            |        |         |           | 丰                             | Ru | n No.     | Tool      | l Type 8                    | & No.              |                  | Pac      | Туре                                      |                    | Too        | ol Pos.      |                   | Other               |             |               |          |                     |          |
| Rmf @ Meas.  | •              |            |                          | _   |            | @             |      |            |            |                 | @         |            |        |         |           |                               |    |           | $\bot$    |                             |                    |                  |          |   | ₩                  |            |              |                   |                     |             |               |          | _                   |          |
| Rmc @ Meas. Source Rmf   | Rmc            |            |                          | $\vdash$  |            |               |      | <u> </u>   | —          |                 |           | $\vdash$   |        |         |           | <u>.</u><br>T                 | —  | —         | —         | +                           | —                  |                  | <u> </u> |   | —                  | $\vdash$   |              |                   |                     |             |               |          |                     | $\dashv$ |
| Rm @ BHT   | Tranc          |            |                          | $\perp$   |            |               | (    | @          |            |                 |           |            |        |         | (         | 0                             | —  |           |           | +                           |                    |                  |          |   |                    | +          |              |                   |                     |             |               |          |                     | $\dashv$ |
| Rmf @ BHT @  |                |            |                          |   |            | @             |      |            |            |                 |           |            | (      | 0       |           | _                             | _  | 士         |           |                             |                    |                  |          | †_  |                    |            |              |                   |                     |             |               |          |                     |          |
| Rmc @ BHT @  |                |            |                          |   |            |               |      |            |            |                 |           | 0          | 0      | _       | _         |                               | I  | _         |           |                             |                    |                  |          |   |                    |            |              | -                 |                     |             |               |          |                     |          |
|  | EQUIPI         |            |                          |   |            |               |      |            |            |                 |           | JIPN       | 1EN    | T D     | ATA       |                               |    |           |           |                             |                    |                  |          | NEL                                       | ITDO               |            |              |                   |                     |             |               |          |                     |          |
| GAMMA<br>Run No.   |                |            |                          |   |            | Run No.       |      |            |            |                 | ACOUSTIC  |            |        |         |           |                               | R  | Run I     | <br>No.   |                             | DENSIT             | Υ                |          |   | F                  | Run No.    | -            | NEU               | ITROI               | <u> </u>    | $\dashv$      |          |                     |          |
| Serial No.   |                |            |                          |   |            | -             |      | l No.      |            |                 |           |            |        |         |           |                               |    | +         |           | l No.                       |                    |                  |          |   |                    |            | Serial N     |                   |                     |             |               |          |                     |          |
| Model No.  |                |            |                          |   |            |               | ٨    | /lode      | l No       |                 |           |            |        |         |           |                               |    |           | M         | lode                        | el No.             |                  |          |   |                    |            | N            | Model N           | lo.                 |             |               |          |                     |          |
| Diameter Diameter  |                |            |                          |   |            | -             |      | f Ce       | nt.        |                 |           | -          |        |         |           |                               |    | +         |           | eter                        |                    | +                |          |   |                    |            | Diamete      |                   |                     |             |               | $\dashv$ |                     |          |
|  | al NI-         |            | Detector Model No.  Type |   |            |               |      | Spacing    |            |                 |           |            |        |         |           |                               |    | I L       | ug I      | Гуре                        |                    | 1                |          |   | Log Type           |            |              |                   |                     | ı           |               | —        |                     |          |
| Detector Mode  | el No.         | $\dashv$   |                          |   |            |               |      | +          | pac        | mg_             |           |            |        |         |           |                               |    |           |           | I,S                         | our                | e Type           |          | $\dashv$                                  |                    |            |              | ,c                | Source :            | Туре        |               |          |                     |          |
|  | el No.         |            |                          |   |            |               |      |            |            | [Y/N]           |           |            |        |         |           |                               | _  | _         |           | -                           |                    | ce Type<br>I No. |          |   |                    |            |              |                   | Source Serial N     |             |               |          |                     |          |

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GAMMA

GENERAL

LOGGING DATA

ACOUSTIC

DENSITY

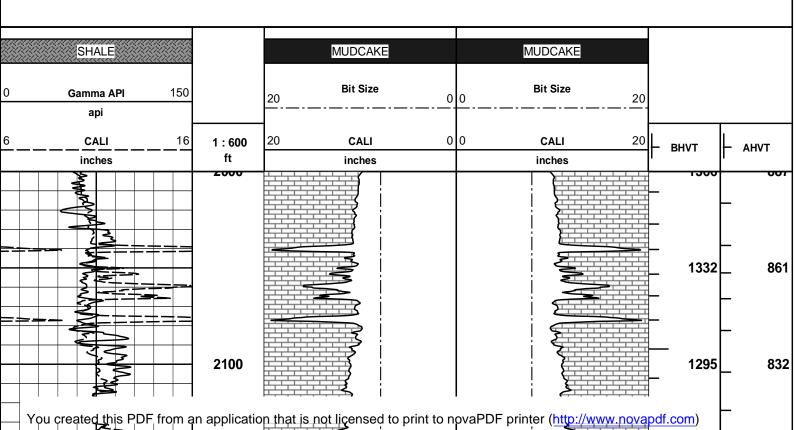
NEUTRON

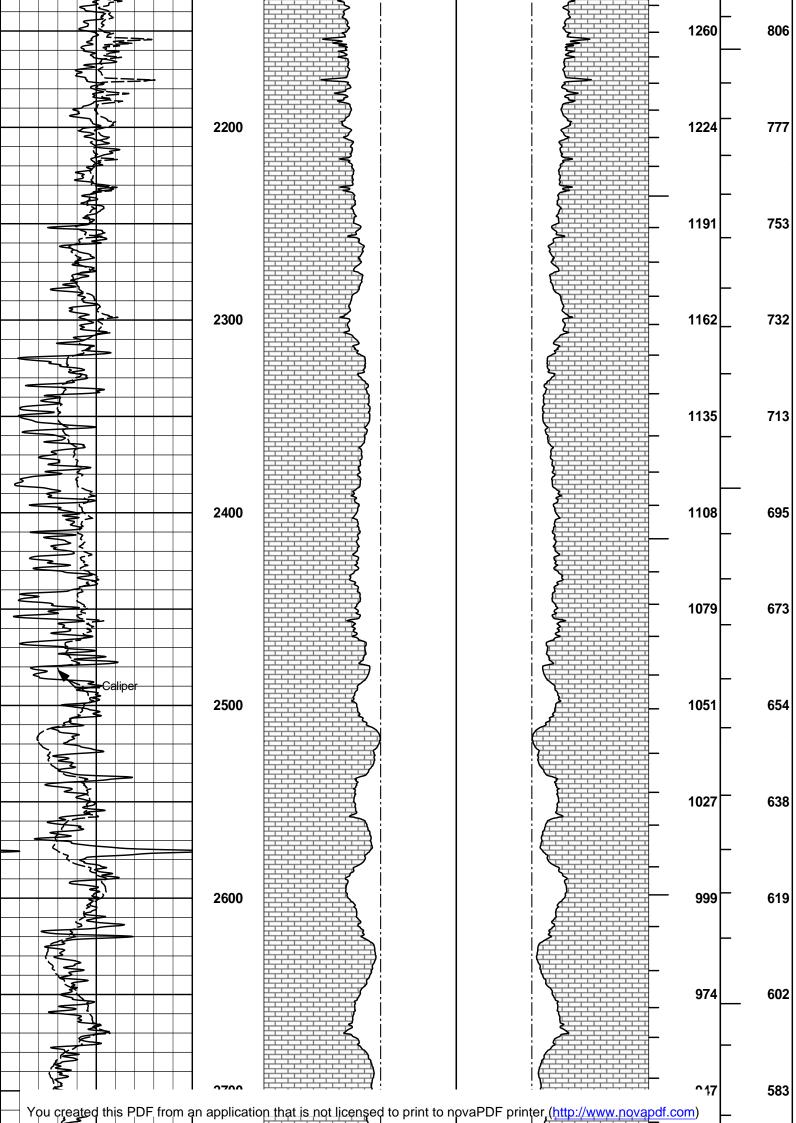
Matrix

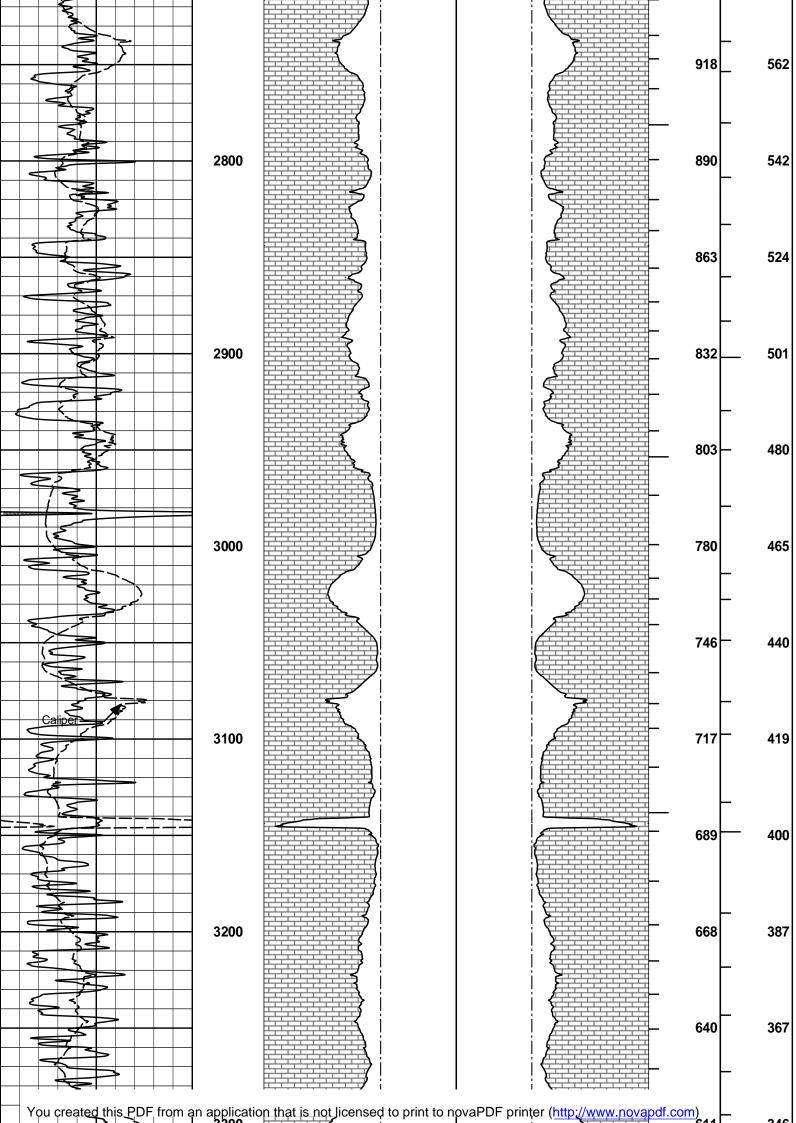
|               |                          |             |                 |              |            | DIRECT      | ΓΙΟΝΑL INF | ORMATION                       |                | <b>.</b>      |               |           |           |   |  |
|---------------|--------------------------|-------------|-----------------|--------------|------------|-------------|------------|--------------------------------|----------------|---------------|---------------|-----------|-----------|---|--|
| Maximum Dev   | aximum Deviation @ KOP @ |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                | •              |               |               |           |           |   |  |
| Remarks: 5 1/ | 2" CASING                | USED FOR    | R ANNULAR HO    | OLE VOLUN    | ИE         |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            | ON OF THE LOG<br>ERSONNEL OR V |                |               |               |           |           |   |  |
|               | USER C                   | OF SUCH DAT | TA, INTERPRETA  | ATIONS, CON  | IVERSIONS, | OR RECOM!   | MENDATION  | S AGREES THAT<br>EXPENSES RES  | HALLIBURT      | ON IS NOT F   | RESPONSIBLE E |           |           |   |  |
|               | 10 0110                  | JOU INLULIO | LINOL OIL WILLI | JE MIOOOI 12 | 001,1010   | VI 1000, 27 | NINGEO, ON | LAF LINOLO INLO                | OLI IIVO I IXO | JIVI TITL OCL | IIILILOI .    |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               | HALLIF    | BURTON    |   |  |
| ı             |                          |             |                 |              |            |             |            |                                |                |               |               | 11/1/22/2 |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            |                                |                |               |               |           |           |   |  |
| HALL          | IBLU                     | DTO         | N               | Plot T       | ime: 03-D  | ec-18 18·   | 18-22      |                                |                |               |               |           |           |   |  |
|               |                          | - I O       |                 |              | Range: 200 |             |            |                                |                |               |               |           |           |   |  |
|               |                          |             |                 |              | •          |             |            | ed\DAQ-0001                    | -002\          |               |               |           |           |   |  |
|               |                          |             |                 |              |            |             |            | NETT\0001 RV                   |                | T-DSN-SD      | L-ACRT\AH\    | \AHV Plot | _INSITE_I | Q |  |

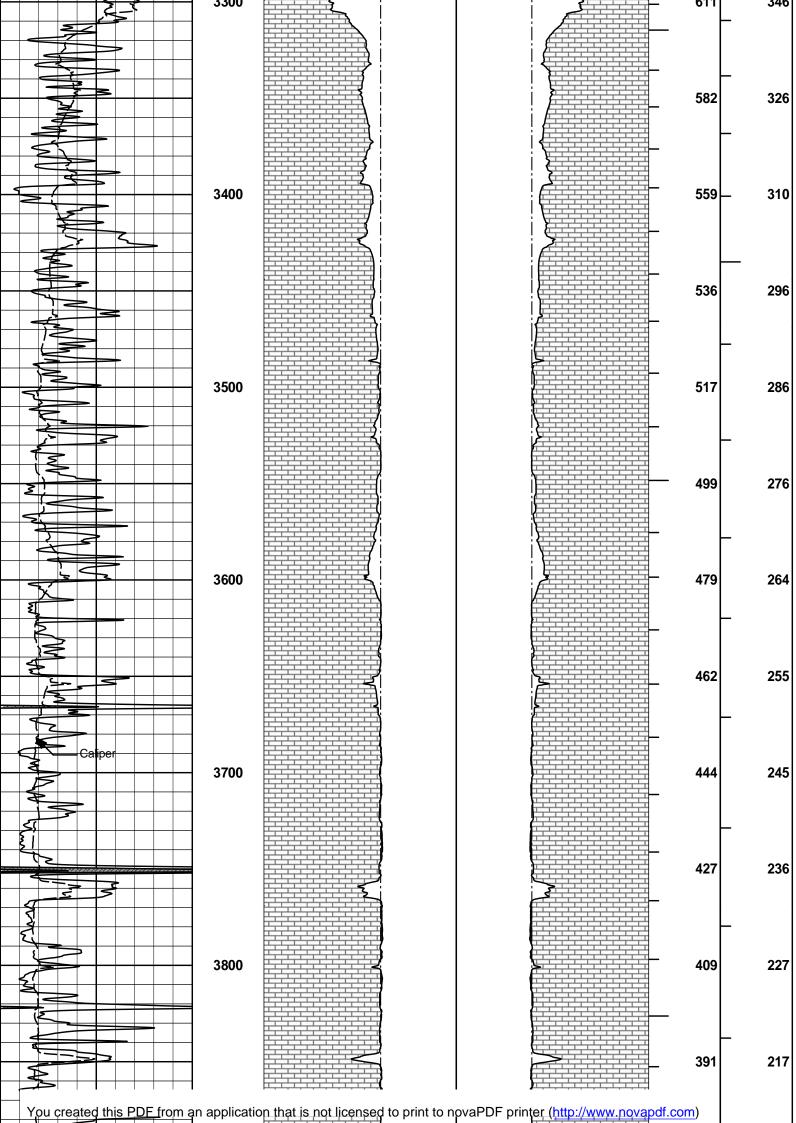
## **ANNULAR HOLE VOLUME PLOT**

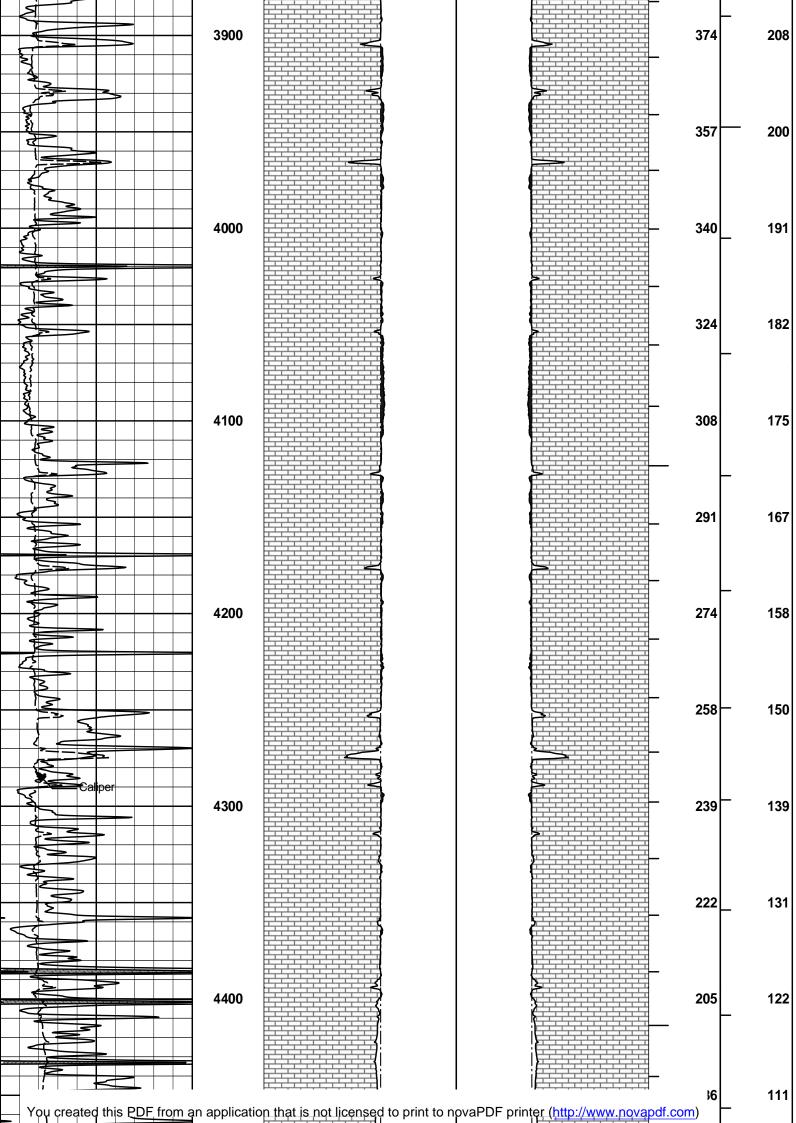
## **AHV PLOT CALCULATED FOR 5 1/2" CASING**

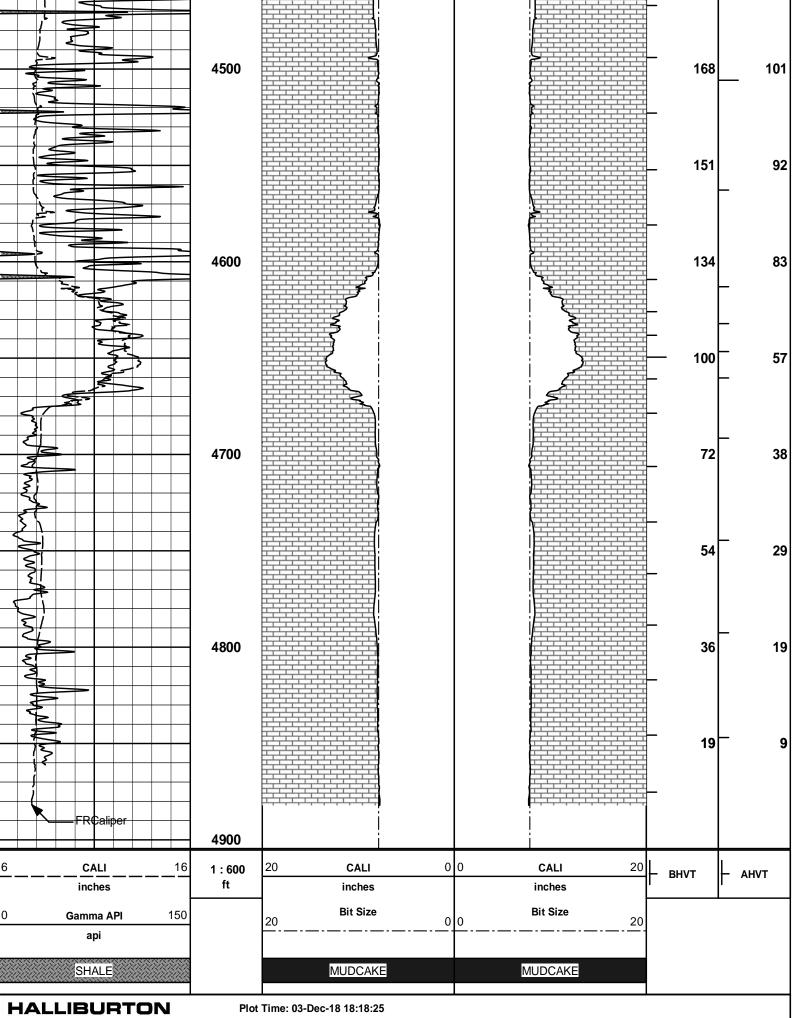












Plot Range: 2000 ft to 4904.5 ft

Data: BEREX\_HARTNETT\Well Based\DAQ-0001-002\

Plot File: \\-LOCAL-\BEREX\_HARTNETT\0001 RWCH-GTET-DSN-SDL-ACRT\AHV\AHV Plot\_INSITE\_IQ

