**COMPANY: ENERFIN RESOURCES NORTHWEST**

**WELL: JOHN HANCOCK 22-27-64**

**FIELD: MIST GAS**

**COUNTY: COLUMBIA STATE: OREGON**

COUNTY COLUMBIA
Field MIST GAS
Location 1979S & 2432E FROM THE NW
Well JOHN HANCOCK 22-27-64
Company ENERFIN RESOURCES NORTH

Schlumberger

## PLATFORM EXPRESS
## ARRAY INDUCTION/SP
## NEUTRON/DENSITY/SONIC

LOCATION
1979'S & 2432'E FROM THE NW CORNER
OF SECTION 27

Elev.: K.B. 1001.8 F
G.L. 991.8 F
D.F.

| | | | |
|---|---|---|---|
| Permanent Datum | GROUND LEVEL | Elev.: | 991.8 F |
| Log Measured From | KELLY BUSHING | 10.0 F | above Perm. Datum |
| Drilling Measured From | KELLY BUSHING | | |

| API Serial No | SECTION | TOWNSHIP |
|---|---|---|
| 36-009-00333 | 26 | 6N |

| | | | | |
|---|---|---|---|---|
| Logging Date | 28-OCT-1998 | | | |
| Run Number | 1 | | | |
| Depth Driller | 2211 F | | | |
| Schlumberger Depth | 2209 F | | | |
| Bottom Log Interval | 1103 F | | | |
| Top Log Interval | 497 F | | | |
| Casing Driller Size @ Depth | 7.000 IN | @ 496 F | @ | |
| Casing Schlumberger | 496 F | | | |
| Bit Size | 6.250 IN | | | |
| Type Fluid In Hole | CYPAN | | | |
| MUD Density / Viscosity | 9.44 LB/G | 38 S | | |
| MUD Fluid Loss / PH | 4.6 C3 | 8 | | |
| MUD Source Of Sample | FLOWLINE | | | |
| RM @ Measured Temperature | 3.600 OHMM | @ 72 DEGF | @ | |
| RMF @ Measured Temperature | 4.070 OHMM | @ 70 DEGF | @ | |
| RMC @ Measured Temperature | 4.370 OHMM | @ 70 DEGF | @ | |
| Source RMF / RMC | PRESS | PRESS | | |
| RM @ MRT / RMF @ MRT | 3.459 @ 75 | 3.812 @ 75 | @ | @ |
| Maximum Recorded Temperatures | 75 DEGF | | | |
| Circulation Stopped / Time | 28-OCT-1998 | 6.45 | | |
| Logger On Bottom / Time | 28-OCT-1998 | | | |
| Unit Number / Location | 3146 | BAKERSFIELD | | |
| Recorded By | CLAYTON CAMPBELL | | | |
| Witnessed By | | | | |

| | Run 1 | Run 2 | Run 3 | Run 4 |
|---|---|---|---|---|
| Logging Date | | | | |
| Run Number | | | | |
| Depth Driller | | | | |
| Schlumberger Depth | | | | |
| Bottom Log Interval | | | | |
| Top Log Interval | | | | |
| Casing Driller Size @ Depth | @ | | @ | |
| Casing Schlumberger | | | | |
| Bit Size | | | | |
| Type Fluid In Hole | | | | |
| MUD Density / Viscosity | | | | |
| MUD Fluid Loss / PH | | | | |
| MUD Source Of Sample | | | | |
| RM @ Measured Temperature | @ | | @ | |
| RMF @ Measured Temperature | @ | | @ | |
| RMC @ Measured Temperature | @ | | @ | |
| Source RMF / RMC | | | | |
| RM @ MRT / RMF @ MRT | @ | @ | @ | @ |
| Maximum Recorded Temperatures | | | | |
| Circulation Stopped / Time | | | | |
| Logger On Bottom / Time | | | | |
| Unit Number / Location | | | | |
| Recorded By | | | | |
| Witnessed By | | | | |

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO CLAUSE 4 OF OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

| OTHER SERVICES1 | OTHER SERVICES2 |
|---|---|
| OS1: | OS1: |
| OS2: | OS2: |
| OS3: | OS3: |
| OS4: | OS4: |
| OS5: | OS5: |

REMARKS: RUN NUMBER 1

2 CENTRALIZERS USED ON SONIC

0.5 INCH STANDOFFS USED ON ARRAY INDUCTION

REMARKS: RUN NUMBER 2

| | RUN 1 | RUN 2 |
|---|---|---|
| SERVICE ORDER #: | 6004653 | |
| PROGRAM VERSION: | 8C1-205 | |
| FLUID LEVEL | | |

| LOGGED INTERVAL | START | STOP | LOGGED INTERVAL | START | STOP |
|---|---|---|---|---|---|

## EQUIPMENT DESCRIPTION

RUN 1

RUN 2

### SURFACE EQUIPMENT

GSR-U/Y
NCT-B
CNB-AB
NCS-VB

TCM-AB

### DOWNHOLE EQUIPMENT

**LEH-QT** 70.0
LEH-QT

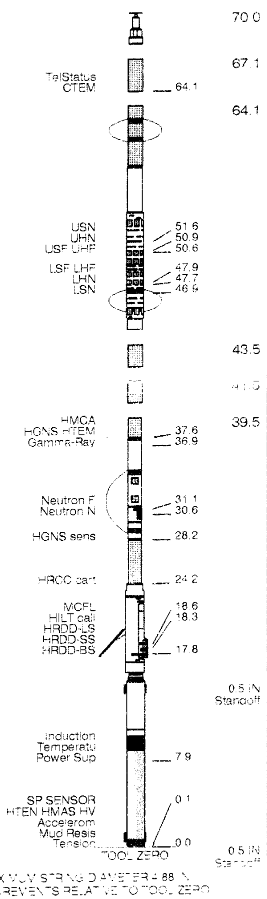
**TCC-B** 67.1
ECH-KC
TCC-B

**DSLT-TCC** 64.1
DSLC-B
ECH-KH
SLS-W

**AH-FLX** 43.5
AH-FLX

**AH-FLX** 41.5
AH-FLX

**HILTB-DTB** 39.5
HTBCC
HMCA
HGNS-CAN-B
HGNS-H 753
NLS-KL
NSR-F
HACCZ
HCNT
HGR
HRCC-B 722
HRMS-B 722
HRGD 722
GLS-VJ 1958
MCFL Device
HILT Nucl. LS
HILT Nucl. SS
HILT Nucl. BS
AIT-H 233
AHiS-BA
BOW-SPR
NPV-N



MAXIMUM STRING DIAMETER 4.88 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

## Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | HILTB .016 | FN:13 | FIELD | 28-Oct-1998 12:31 | 2214.0 FT | 66.5 FT |

## Output DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | HILTB .019 | FN:16 | FIELD | 28-Oct-1998 12:49 | 2214.0 FT | 66.5 FT |

## Integrated Hole/Cement Volume Summary

Hole Volume = 357.70 F3

Cement Volume = 280.37 F3 (assuming 2.88 IN casing O.D.)

Computed from 2211.0 FT to 496.0 FT using data channel(s) HCAL

## OP System Version: 8C1-205

MCM

| | | | |
|---|---|---|---|
| HILTB-DTB | 8C1-205 | DSLT-TCC | 8C1-205 |
| TCC-B | 8C1-205 | | |

## Changed Parameter Summary

| DLIS Name | New Value | Previous Value | Depth & Time |
|---|---|---|---|
| SPNV | -21 MV | -95 MV | 1190.0 12:52:42 |

PIP SUMMARY

⊢ Integrated Hole Volume Minor Pip Every 10 F3
⊢— Integrated Hole Volume Major Pip Every 100 F3
⊣ Integrated Cement Volume Minor Pip Every 10 F3
—⊣ Integrated Cement Volume Major Pip Every 100 F3

■ Time Mark Every 60 S

Env.Corr.Thermal Neutron Porosity (TNPH) 1.2 (V/V) 0.6

Env.Corr.Thermal Neutron Porosity (TNPH) 0.6 (V/V) 0

Crossover

SP (SP) -100 (MV) 0

Micro Normal Resistivity (HMNO) (OHMM) 0 30

Tension (TENS) 10000 (LBF) 0

RWA (RWA) 0 (OHMM) 3

Micro Inverse Resistivity (HMIN) (OHMM) 0 30

Sonic Porosity (SPHI) 0.6 (V V) 0

Caliper (HCAL) 4 (IN) 14

Resistivity standoff (RSOZ) 2 (IN) 0

Formation Pe (PEFZ) -1 (----) 9

Bit Size (BS) 4 (IN) 14

Density Stand-off (DSOZ) 2 (IN) 0

HRDD Density Correction (HDRA) -0.25 (G/C3) 0.25

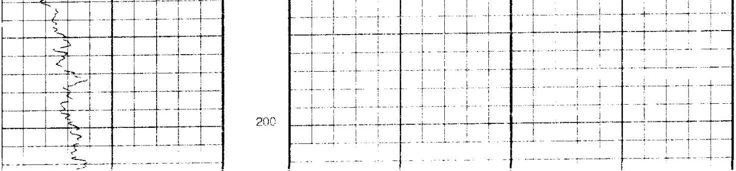
Std Res Density Porosity (DPHZ) 1.2 (V/V) 0.6

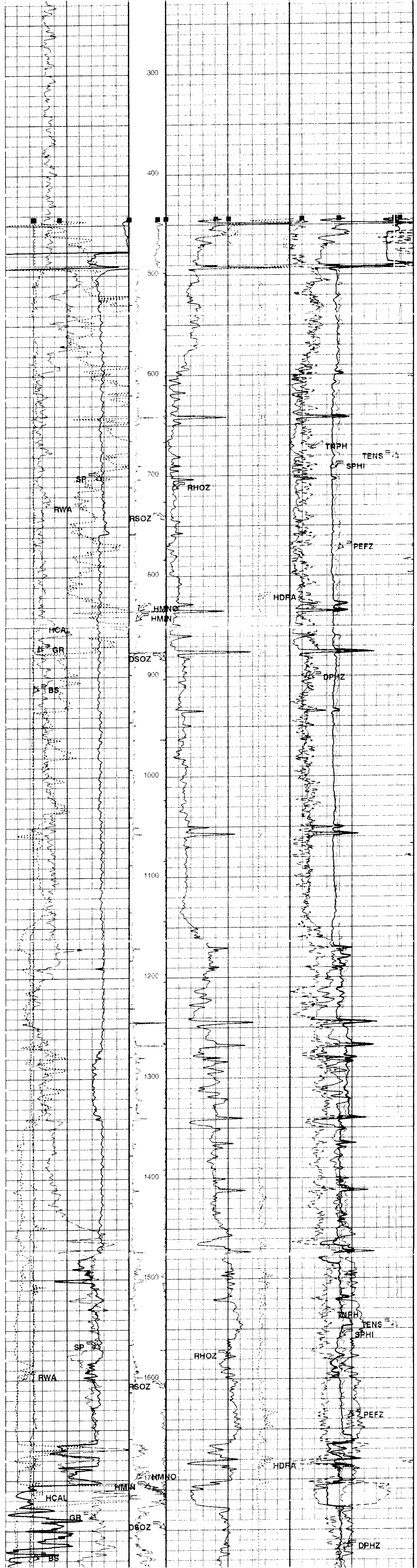
Gamma Ray (GR) 0 (GAPI) 150

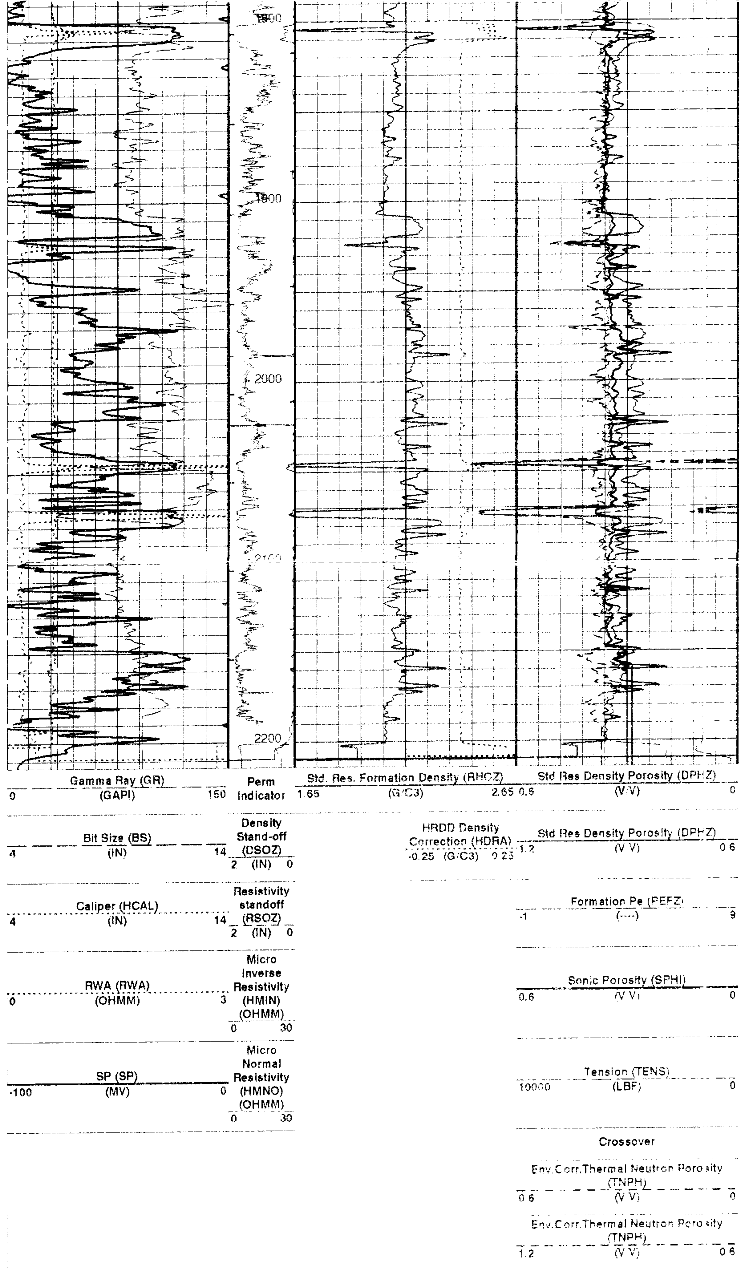
Perm Indicator

Std. Res. Formation Density (RHOZ) 1.65 (G/C3) 2.65

Std Res Density Porosity (DPHZ) 0.6 (V/V) 0







PIP SUMMARY

⊢ Integrated Hole Volume Minor Pip Every 10 F3
⊢— Integrated Hole Volume Major Pip Every 100 F3
⊣ Integrated Cement Volume Minor Pip Every 10 F3
—⊣ Integrated Cement Volume Major Pip Every 100 F3

Time Mark Every 60 S

AIT-H Answer Product Processing Summary. Data taken with tool # 233 (AHTNO)
...Acquired data from HILT/HAIT

***** Bhole Correction *****

Effective Tool Standoff computed. Borehole diameter and mud res. taken as input (see GCSE and GRSE parameters)

Tool is run in ECCENTERED mode with a tool stand-off of 0.50 IN. Bit Size is 6.25 IN.

***** Input Selections to AIT Answer Product processing *****

Caliper (GCSE): HCAL Mud Resistivity (GRSE): AHMF Temperature (GTSE): LINEAR_ESTIMATE Porosity (FPHI): DPHZ

***** Other parameters used by AIT-H Answer Product processing *****

| | | | |
|---|---|---|---|
| Surface Hole Temperature (SHT) | 68.000 DEGF | Bottom Temperature (BHT) | 75.200 DEGF |
| Total Depth (TD) | 2211.000 FT | | |
| Form Factor Exponent (FEXP) | 2.000 | Form Factor Numerator (FNUM) | 1.000 |
| Mud Filtrate Sample Resistivity (RMFS) | 4.070 OHMM | Mud Filtrate Sample Temperature (MFST) | 70.000 DEGF |
| Resitivity Connate Water (RW) | 1.000 OHMM | | |

***** AIT-H Answer Product processing control parameters *****

Playback Mode: NORMAL

## Parameters

| DLIS Name | Description | Value | |
|---|---|---|---|
| ARTS | AIT Rt Selection (for ALLRES computation) | 13_AHT90 | |
| BHFL | Borehole Fluid Type | WATER | |
| BHS | Bore Hole Status | OPEN | |
| BS | Bit Size | 6.250 | IN |
| BSAL | Borehole Salinity | 120.00 | PPM |
| BSCO | Borehole Salinity Correction Option | NO | |
| CCCO | Casing & Cement Thickness Correction Option | NO | |
| CDTS | C-Delta-T Shale | 100 | US/F |
| CWEI | Casing Weight | 23.00 | LB/F |
| DFD | Drilling Fluid Density | 9.44 | LB/G |
| DHC | Density Hole Correction | BS | |
| DO | Depth Offset | 0.0 | FT |
| DTF | Delta-T Fluid | 189 | US/F |
| DTM | Delta-T Matrix | 56 | US/F |
| FD | Fluid Density | 1 | G/C3 |
| FEXP | Form Factor Exponent | 2 | |
| FNUM | Form Factor Numerator | 1 | |
| FPHI | Form Factor Porosity Source | DPHZ | |
| FSAL | Formation Salinity | -50000 | PPM |
| FSCO | Formation Salinity Correction Option | NO | |
| GCSE | Generalized Caliper Selection | HCAL | |
| GDEV | Average Angular Deviation of Borehole from Normal | 0 | DEG |
| GGRD | Geothermal Gradient | 0.01 | DF/F |
| HSCM | HILT Speed Correction Mode | TSCD_SPEED_CORRECTION | |
| HSCO | Hole Size Correction Option | YES | |
| HSTI | STI Uses HILT Acceleration | YES | |
| MATR | Rock Matrix Type | SANDSTONE | |
| MCCO | Mud Cake Correction Option | NO | |
| MCOR | Mud Correction | NATU | |
| MDEN | Matrix Density | 2.65 | G/C3 |
| MPOF | MCFL Processing Operation Mode | ON | |
| MST | Mud Sample Temperature | 72.00 | DEGF |
| MWCO | Mud Weight Correction Option | NO | |
| NMT | HILT Nuclear Mud Type | NOBARITE | |
| NPRM | HRDD Processing Mode | StdRes | |
| NSAR | HRDD Depth Sampling Rate | 1 | IN |
| PP | Playback Processing | NORMAL | |
| PTCO | Pressure Temperature Correction Option | NO | |
| RMFS | Resistivity of Mud Filtrate Sample | 4.0700 | OHMM |
| RTCO | RTCO - Rt Invasion Correction | YES | |
| RW | Resistivity of Connate Water | 1.0000 | OHMM |
| SDAT | Standoff Data Source | SOCN | |
| SHT | Surface Hole Temperature | 68 | DEGF |
| SOCN | Standoff Distance | 0.125 | IN |
| SOCO | Standoff Correction Option | NO | |
| SPFS | Sonic Porosity Formula | RAYMER_HUNT | |
| SPNV | SP Next Value | -95 | MV |
| SPSO | Sonic Porosity Source | DT | |
| TDL | Total Depth - Logger | 2209.00 | FT |
| TWS | Temperature of Connate Water Sample | 100.00 | DEGF |

Format: S2 Vertical Scale: 2" per 100' Graphics File Created: 28-Oct-1998 12:49

## OP System Version: 8C1-205

MCM

| | | | |
|---|---|---|---|
| HILTB-DTB | 8C1-205 | DSLT-TCC | 8C1-205 |
| TCC-B | 8C1-205 | | |

## Speed Corrected - Depth Matched LOG

### Input DLIS Files

| | | | | | | |
|---|---|---|---|---|---|---|
| DEFAULT | HILTB .016 | FN:13 | FIELD | 28-Oct-1998 12:31 | 2214.0 FT | 66.5 FT |

### Output DLIS Files

| | | | | |
|---|---|---|---|---|
| DEFAULT | HILTB .019 | FN:16 | FIELD | 28-Oct-1998 12:49 |

| | | | |
|---|---|---|---|
| **COMPANY:** | **ENERFIN RESOURCES NORTHWEST** | BOTTOM LOG INTERVAL | [illegible] |
| | | SCHLUMBERGER DEPTH | [illegible] |
| **WELL:** | **JOHN HANCOCK 22-27-64** | DEPTH DRILLER | [illegible] |
| **FIELD:** | **MIST GAS** | KELLY BUSHING | [illegible] |
| **COUNTY:** | **COLUMBIA** | DRILL FLOOR | |
| **STATE:** | **OREGON** | GROUND LEVEL | 991.8 F |

Schlumberger

**PLATFORM EXPRESS**
**ARRAY INDUCTION/SP**
**NEUTRON/DENSITY/SONIC**