Schlumberger

CEMENT EVALUATION QUICKLOOK

COUNTY	COLUMBIA
FIELD	MIST
LOCATION	1757.6'S AND 733'E
WELL	"Raven" #12A-33-75
COMPANY	Nahama & Weagant Energy Co.

COMPANY Nahama & Weagant Energy Co.

WELL "Raven" #12A-33-75

FIELD MIST

COUNTY COLUMBIA **STATE** OREGON

LOCATION
1757.6'S AND 733'E
FROM NW CORNER

Other Services:

API SERIAL NO.	SECT.	TWP.	RANGE
36-009-000299	33	7N	5W

Permanent Datum GL **Elev.** 888.5 F

Log Measured From KB 10.5 F **above Perm. Datum**

Drilling Measured From KB

Elev.: K.B. 899.0 F
D.F.
G.L. 888.5 F

Date	11-JUN-1993			
Run No.	ONE			
Depth Driller	2346.0 F			
Depth Logger (Schl.)	2333.0 F			
Btm. Log Interval	2326.0 F			
Top Log Interval	1400.0 F			
Type Fluid in Hole	WATER			
Salinity NaCl				
Density	8.30 LB/G			
Fluid Level				
Max. Rec. Temp.	95.0 DEGF			
Deviation	14 DEG			
Logger on Bottom	12:40 11-JUN-1993			
Equip. | Location	8504 | SACRAMENTO			
Recorded By	SCOTT PILCH			
Witnessed By	ROB LUCAS			
BOREHOLE RECORD				
Bit Size	7 7/8"			
Depth	2475.0 F			
CASING & TUBING RECORD				
Size	4 1/2"			
Weight	10.5000 LB/F			
Casing Top-Driller				
Casing Top-Logger				
Casing Shoe-Driller	2346.0 F			
Casing-Logger	2333.0 F			

The well name, location and borehole reference data were furnished by the customer.

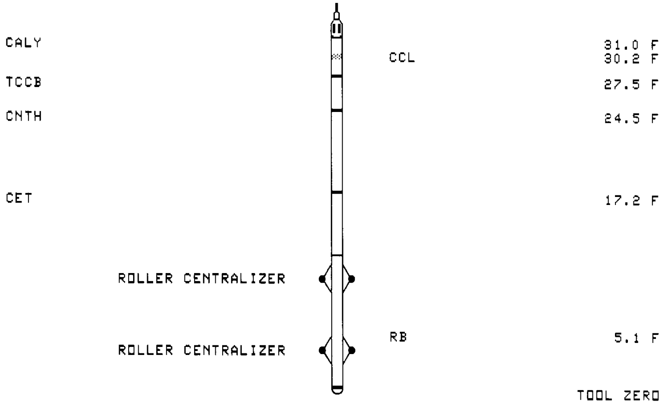
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretations 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.

Run No.	ONE	
Service Order No.	454611	
Logging Speed	3000.0 F/HR	
EQUIPMENT DATA		
Tool Number 1	CESS-B 888	
Tool Number 2	CEEC-B 818	
Tool Number 3	CNC-HA 2524	
Tool Number 4	TCC-B 2886	
Tool Number 5	CAL-Y 433	
Tool Number 6	TCM-AB 1516	
Tool Number 7		
Tool Number 8		
Tool Number 9		
Tool Number 10		
Tool Number 11		
Tool Number 12		

REMARKS:

CORRELATED TO SWS CIL/BHC RUN 26-MAY-1993.

LOGGING TOOL STRING SKETCH



TOTAL TOOL STRING LENGTH IS 34.5 F.
TOTAL TOOL STRING WEIGHT IS 522. LB IN AIR.

MAIN LOG

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 CET INTERPRETATION
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CET TRANSDUCER READINGS ARE INTERPRETED IN TERMS OF THE
ACOUSTIC IMPEDANCE Z OF THE MATERIAL BEHIND THE CASING.
THREE MATERIALS ARE DISCRIMINATED AND  MAPPED IN TRACK  2
OF  THE  DISPLAY.  PERCENTAGE CURVES, GOOD  CEMENT  INDEX
CURVES,  GOOD AND GASEOUS CEMENT INDEX (GGCI)  AND  FREE
GAS INDEX  (FRGI)  ARE PRESENTED ON THE LEFT END SIDE AND
THE CEMENT MAP ON THE RIGHT.
   ACCEPTABLE CEMENTATION IS INDICATED :
       WHEN Z > 2.60000
   FREE GAS IS INDICATED :
       WHEN Z < .200000
   UNACCEPTABLE CEMENTATION IS INDICATED :
       WHEN .200000  < Z < 2.60000
THE MAP SHADING IS :
   BLACK - ACCEPTABLE CEMENT
   LIGHT GREY DENSITY - FREE GAS
   WHITE - SIGNIFICANT UNACCEPTABLE CEMENT
   DARK GREY DENSITY - ISOLATED OCCURANCE OF UNACCEPTABLE
              CEMENT OR DEGRADED BY GAS INTRUSION (IF GAS
              LOGIC ON).


 CBL / CBT INTERPRETATION
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Curve	Left	Right
RB(DEG)	0.0	360.00
CCL	19.000	-1.000
NPHI(V/V)	.60000	0.0
CALU(IN)	3.5000	4.5000
DUMM	1.0000	-.0010
BIF	1.0000	0.0
FRGI	-.0010	1.0000
GGCI	1.0000	-.0010
GOCI	1.0000	-.0010
W2L	0.0	2.0000
W2H	0.0	2.0000
W3H	.50000	1.5000
W3L	.50000	1.5000

▨ CEMENT

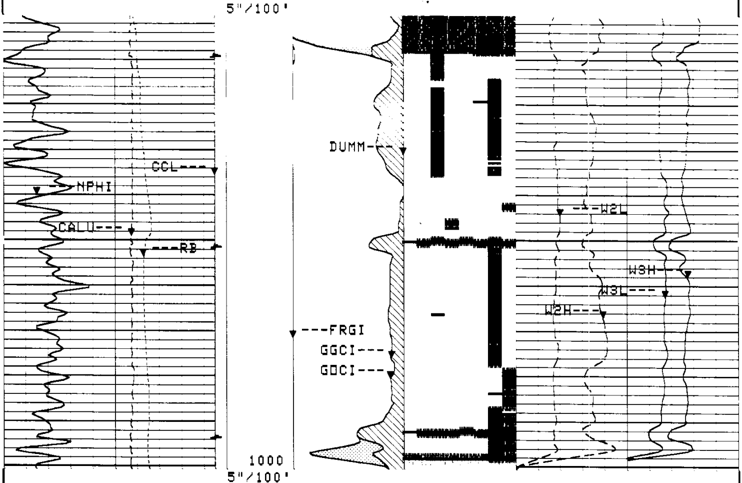
▨ GAS CUT CEMENT

▨ FREE GAS

WATER

CP 38.2 FILE 4 11-JUN-1993 14:44

INPUT FILE(S) CREATION DATE
4 11-JUN-1993 12:39



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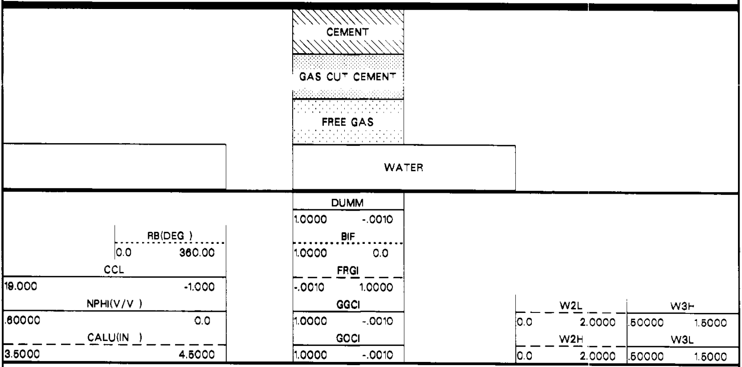

SENSOR MEASURE POINT TO TOOL ZERO

PARAMETERS

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                 PARAMETER                               VALUE       UNIT

  PADT - Presentation Allow Disallow Threshold           .500000     DEG
  PP   - Playback Processing                             NORM
  DO   - Depth Offset for Logical Unit LI1               0.0         F
  WMUD - Weight of Mud                                   8.30000     LB/G
  IDSL - Defn not found                                  CSID
  IMAR - Image Rotation                                  DISA
  CSCO - Compressive Strength Conversion Offset          3800.00
  CSCG - Compressive Strength Conversion Gain            1520.00
  MCSF - Minimum Compression Strength If Formation R1000.00
  IDSL - Defn not found                                  CSID
  LAO1 - Log Amplitude Offset for Transducer 1           0.0
  LAO2 - Log Amplitude Offset for Transducer 2           0.0
  LAO3 - Log Amplitude Offset for Transducer 3           0.0
  LAO4 - Log Amplitude Offset for Transducer 4           0.0
  LAO5 - Log Amplitude Offset for Transducer 5           0.0
  LAO6 - Log Amplitude Offset for Transducer 6           0.0
  LAO7 - Log Amplitude Offset for Transducer 7           0.0
  LAO8 - Log Amplitude Offset for Transducer 8           0.0
  ASUW - Allowed Statistical Uncertainty on W2           .200000
  ECST - Estimated Compressive Strength                  1500.00
  CMTY - Cement Type                                     N
  FGRL - Free Gas Ratio for Logic                        .300000
  W2FA - W2/W1 in Free Pipe A                            .610000
  W2OA - W2/W1 Offset A                                  0.0
  W3FA - W3/W1 in Free Pipe A                            1.08000
  W3OA - W3/W1 Offset A                                  0.0
```

CODA	- Casing Outer Diameter A	41/2	IN
CIDA	- Casing Inner Diameter A	4.05200	IN
CSWA	- Casing Weight A	10.5	LB/F
W3FB	- W3/W1 in Free Pipe B	1.00000	
W3OB	- W3/W1 Offset B	0.0	
W2FB	- W2/W1 in Free Pipe B	1.00000	
W2OB	- W2/W1 Offset B	0.0	
CODB	- Casing Outer Diameter B	7	IN
CIDB	- Casing Inner Diameter B	0.0	IN
CSWB	- Casing Weight B	20	LB/F
CETS	- Cement Evaluation Tool Sonde	SA	
W1S1	- W1 Smooth Pipe Transducer 1	1.00000	
W1S2	- W1 Smooth Pipe Transducer 2	1.00000	
W1S3	- W1 Smooth Pipe Transducer 3	1.00000	
W1S4	- W1 Smooth Pipe Transducer 4	1.00000	
W1S5	- W1 Smooth Pipe Transducer 5	1.00000	
W1S6	- W1 Smooth Pipe Transducer 6	1.00000	
W1S7	- W1 Smooth Pipe Transducer 7	1.00000	
W1S8	- W1 Smooth Pipe Transducer 8	1.00000	
MATR	- Matrix	SAND	
HC	- Hole Correction Origin	BS	
BS	- Bit Size	7.87500	IN
BHS	- BoreHole Status (Open or Cased)	CASE	

CET INTERPRETATION

CET TRANSDUCER READINGS ARE INTERPRETED IN TERMS OF THE ACOUSTIC IMPEDANCE Z OF THE MATERIAL BEHIND THE CASING. THREE MATERIALS ARE DISCRIMINATED AND MAPPED IN TRACK 2 OF THE DISPLAY. PERCENTAGE CURVES, GOOD CEMENT INDEX CURVES, GOOD AND GASEOUS CEMENT INDEX (GGCI) AND FREE GAS INDEX (FRGI) ARE PRESENTED ON THE LEFT END SIDE AND THE CEMENT MAP ON THE RIGHT.

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FREE GAS IS INDICATED :
WHEN Z < .200000
UNACCEPTABLE CEMENTATION IS INDICATED :
WHEN .200000 < Z < 2.60000

THE MAP SHADING IS :
BLACK - ACCEPTABLE CEMENT
LIGHT GREY DENSITY - FREE GAS
WHITE - SIGNIFICANT UNACCEPTABLE CEMENT
DARK GREY DENSITY - ISOLATED OCCURANCE OF UNACCEPTABLE CEMENT OR DEGRADED BY GAS INTRUSION (IF GAS LOGIC ON).

CBL / CBT INTERPRETATION

PB(DEG) 0.0 360.00
CCL 19.000 -1.000
NPHI(V/V) .60000 0.0
CALU(IN) 3.5000 4.5000

DUMM 1.0000 -.0010
BIF 1.0000 0.0
FRGI -.0010 1.0000
GGCI 1.0000 -.0010
GOCI 1.0000 -.0010

W2L 0.0 2.0000
W2H 0.0 2.0000
W3H .50000 1.5000
W3L .50000 1.5000

▨ CEMENT

░ GAS CUT CEMENT

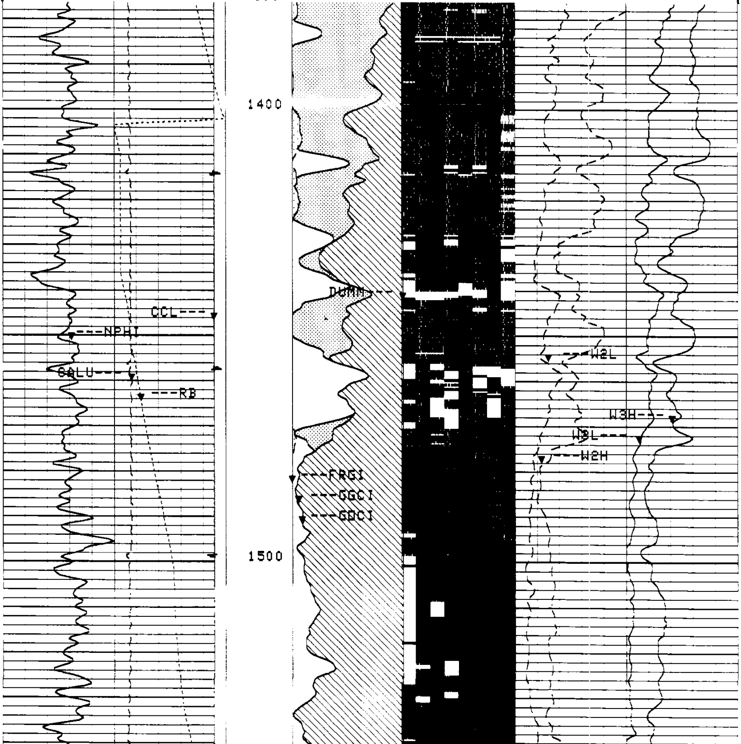
FREE GAS

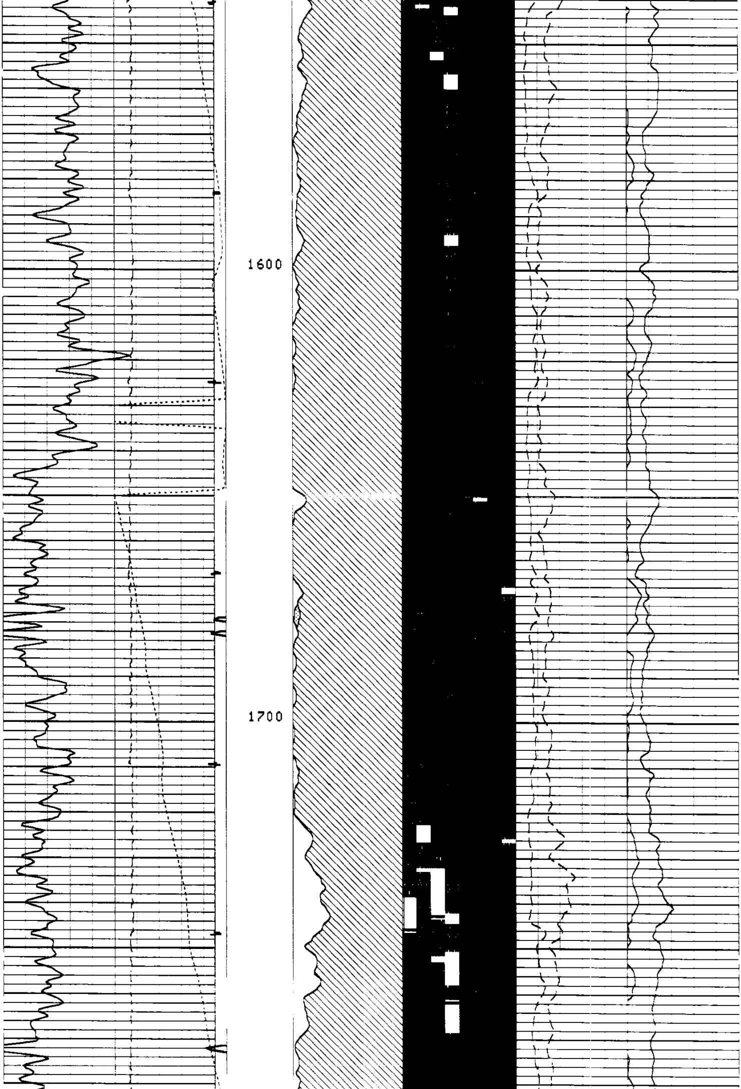
WATER

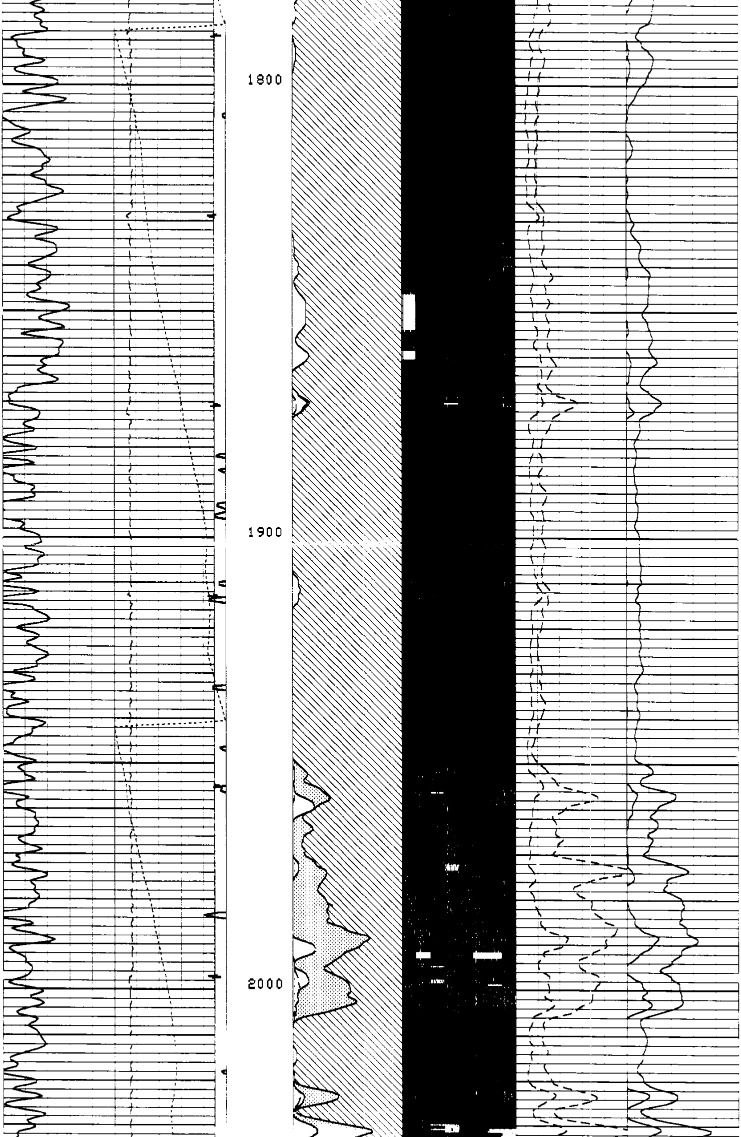
CP 38.2 FILE 3 11-JUN-1993 14:41

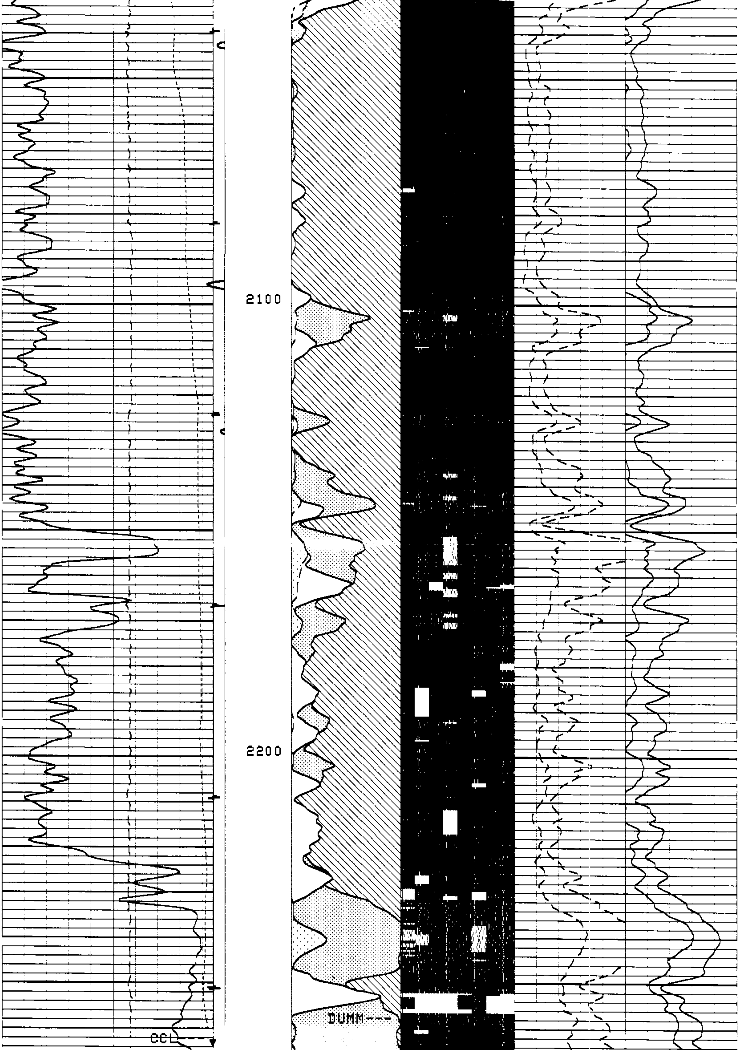
INPUT FILE(S) CREATION DATE
4 11-JUN-1993 12:39

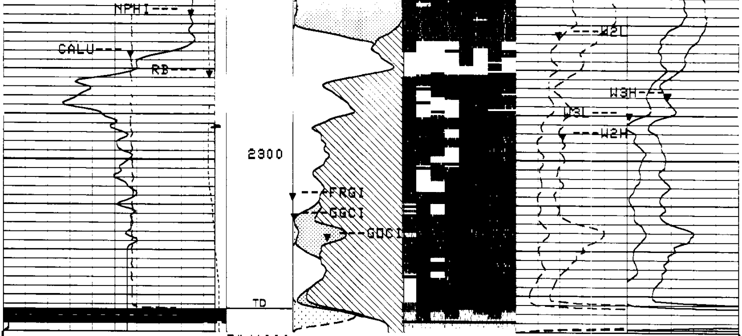
5"/100'











5"/100'

CP 38.2 FILE 3 11-JUN-1993 14:35

INPUT FILE(S) CREATION DATE
4 11-JUN-1993 12:39

▨ CEMENT

▒ GAS CUT CEMENT

░ FREE GAS

WATER

Curve	Left	Right
RB(DEG)	0.0	360.00
CCL	19.000	-1.000
NPHI(V/V)	.60000	0.0
CALU(IN)	3.5000	4.5000

Curve	Left	Right
DUMM	1.0000	-.0010
BIF	1.0000	0.0
FRGI	-.0010	1.0000
GGCI	1.0000	-.0010
GOCI	1.0000	-.0010

Curve	Left	Right
W2L	0.0	2.0000
W2H	0.0	2.0000
W3H	.50000	1.5000
W3L	.50000	1.5000

SENSOR MEASURE POINT TO TOOL ZERO

PARAMETERS

PARAMETER	VALUE	UNIT
PADT - Presentation Allow Disallow Threshold	.500000	DEG
PP - Playback Processing	NORM	
DO - Depth Offset for Logical Unit LI1	0.0	F
WMUD - Weight of Mud	8.30000	LB/G
IDSL - Defn not found	CSID	
IMAR - Image Rotation	DISA	
CSCO - Compressive Strength Conversion Offset	3800.00	
CSCG - Compressive Strength Conversion Gain	1520.00	
MCSF - Minimum Compression Strength If Formation	R1000.00	
IDSL - Defn not found	CSID	

```
LAO1 - Log Amplitude Offset for Transducer 1        0.0
LAO2 - Log Amplitude Offset for Transducer 2        0.0
LAO3 - Log Amplitude Offset for Transducer 3        0.0
LAO4 - Log Amplitude Offset for Transducer 4        0.0
LAO5 - Log Amplitude Offset for Transducer 5        0.0
LAO6 - Log Amplitude Offset for Transducer 6        0.0
LAO7 - Log Amplitude Offset for Transducer 7        0.0
LAO8 - Log Amplitude Offset for Transducer 8        0.0
ASUW - Allowed Statistical Uncertainty on W2        .200000
ECST - Estimated Compressive Strength               1500.00
CMTY - Cement Type                                  N
FGRL - Free Gas Ratio for Logic                     .300000
W2FA - W2/W1 in Free Pipe A                         .610000
W2OA - W2/W1 Offset A                               0.0
W3FA - W3/W1 in Free Pipe A                         1.08000
W3OA - W3/W1 Offset A                               0.0
CODA - Casing Outer Diameter A                      41/2           IN
CIDA - Casing Inner Diameter A                      4.05200        IN
CSWA - Casing Weight A                              10.5           LB/F
W3FB - W3/W1 in Free Pipe B                         1.00000
W3OB - W3/W1 Offset B                               0.0
W2FB - W2/W1 in Free Pipe B                         1.00000
W2OB - W2/W1 Offset B                               0.0
CODB - Casing Outer Diameter B                      7              IN
CIDB - Casing Inner Diameter B                      0.0            IN
CSWB - Casing Weight B                              20             LB/F
CETS - Cement Evaluation Tool Sonde                 SA
W1S1 - W1 Smooth Pipe Transducer 1                  1.00000
W1S2 - W1 Smooth Pipe Transducer 2                  1.00000
W1S3 - W1 Smooth Pipe Transducer 3                  1.00000
W1S4 - W1 Smooth Pipe Transducer 4                  1.00000
W1S5 - W1 Smooth Pipe Transducer 5                  1.00000
W1S6 - W1 Smooth Pipe Transducer 6                  1.00000
W1S7 - W1 Smooth Pipe Transducer 7                  1.00000
W1S8 - W1 Smooth Pipe Transducer 8                  1.00000
MATR - Matrix                                       SAND
HC   - Hole Correction Origin                       BS
BS   - Bit Size                                     7.87500        IN
BHS  - BoreHole Status (Open or Cased)              CASE
```

COMPANY	Nahama & Weagant Energy Co.			SCHL.	FR	2326.0 F
WELL	"Raven" #12A-33-75			SCHL.	TD	2333.0 F
				DRLR.	TD	2346.0 F
FIELD	MIST			Elev:	KB	899.0 F
					DF	
COUNTY	COLUMBIA	**STATE**	OREGON		GL	888.5 F

Schlumberger

CEMENT EVALUATION
QUICKLOOK