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BLS 2000 User Manual

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# Configuration



The first time the system is configured it is necessary to enable and configure all devices you require. To configure a particular device select the ***Devices*** option from the main menu followed by the appropriate device.

This will launch an application to configure the device. You will be presented with a set of tabs as shown above.

To configure a channel, select a group of channels by clicking on the appropriate channel tab. From the list provided select a channel and double-click. Alternatively you can select a channel and then click on the Configure Channel button. This will launch a channel configuration dialog that enables you to configure individual channels.

# Channel Configuration



## Enable Channel

The Enable Channel check box must be checked to enable, and allow this channel to be configured and ultimately included with all other configured channels in the overall system.

## Tag

The Tag field is a 12 character alphanumeric field that can contain channel information or wiring schedule references.

## Description

The Description field is a 32 character alphanumeric field in which a description of the channel can be detailed.

## Engineering Units

Specifies engineering details for this channel.

###  Minimum

Minimum engineering value for all analog channels in addition to the unit field. The default is 0 (used as a default when running trends).

###  Maximum

Maximum engineering value for all analog channels in addition to the unit field. The default is 100 (used as a default when running trends).

### Descriptor

A 4 character field available to describe the units of the measurement.

## Scaling

NB. Scaling is only available to Analog channels that are not Output channels.

Some transducers give a number of pulses, or a frequency output proportional to their full-scale range. To enable the Scaling utility check the Scaling Check box. The Slope and Offset values can be entered directly into the text boxes. The formula applied is:

y = mx + c where: m is SLOPE

 X is the measured value.

 C is the OFFSET

### Auto Scaling

Click on the Auto Scale button if you want the scale and offset values calculated automatically. A dialog box will be displayed. Enter the values in the text boxes. The low measured value, and the high measured value, the output range of the transducer. When the fields have been completed and assuming the System is enabled click on the Apply button. Under the heading Current Values the actual measured value will be shown, as well as the Engineering Value.

Click on OK to accept the scaling, or Cancel to abort the Auto Scaling feature.

NB. Scaling will not be applied to the channel, even if the system is enabled, until the system is next enabled or the BLS2000 Device is reconfigured

## Event Checking

Event checking is used, if required to trigger a logger to record information on a number of channels during an event. Check the Event Checking check box if this channel is to trigger an event.

### High Limit

A value, in engineering units, entered in this text box will define the level that, if exceeded, will cause an event trigger.

### Low Limit

A value entered in this text box will define the level that if the channel result falls below will cause an event trigger.

## Significant Change

To enable the Significant Change feature check the Sig Change check box. This facility allows filtering of data on channels on which significant change is of interest. Such changes can cause an event, which can be logged.

The figure entered in the Value text box, is the rate of change that if the output level exceeds per scan, either increasing or decreasing will cause the significant change event trigger. The scan rate is determined in the Advanced Device configuration

If a logger is configured each time the significant change trigger operates information on the channels defined in the logger will be recorded. A significant change event only lasts one scan, unless the next reading also changes greater than the Significant change value

When monitoring channels, if the Significant Change is triggered, then the fact will be annotated alongside the other channel information in the Channel Monitor. The significant change events are in addition to those caused by an Event.

## Alarm Error Checking

Drives a common alarm when an error occurs on this channel.

### Drive Common

A common alarm is a single digital output that will switch on when any channel with the **Drive Common Alarm** enabled goes into an alarm state. Check this box if a link to the Common Alarm is required.

### Priority

 Enter or edit the number in the text box to allocate the priority of this channel alarm.

### Delay

Enter the time, in seconds, between the channel value entering the AlarmState and the system flagging an alarm.

## Alarm Checking

Alarm checking is available on all channels throughout the system. Low Alarm and High Alarm levels can be configured independent of each other. If the channel output exceeds the High Alarm limit then an alarm will be triggered as it will if the output goes below the Low Alarm limit.

When monitoring channels, if the high or low alarm is triggered, then the fact will be annotated alongside the other channel information in the Channel Monitor. To configure the Alarm Checking section of the device, complete the options as follows for either or both the High Alarm and Low Alarm checking.

### Enable Alarm Checking

Check either the Low Alarm Checking or High Alarm Checking or both check boxes to enable the facility.

### Drive Common Alarm

A common alarm is a single digital output that will switch on when any channel with the Drive Common Alarm enabled goes into an alarm state. Check this box if a link to the Common Alarm is required.

### Alarm Limit

Specifies the value that will trigger this alarm. For Low Alarm Checking it will be any value <= the Alarm Limit and for High Alarm Checking it will be any value >= the Alarm Limit.

### Warning and Limit

If required, a warning can be displayed when a channel reaches a limit close to the alarm limit. For low alarm checking, the limit must be less than the alarm limit. For high alarm checking, the warning limit must be less than the alarm limit

### Hysteresis

Hysteresis can prevent 'noisy' channels from reporting multiple alarms when the average reading is close to the alarm threshold. Check the box if this feature if needed. Enter the value of the dead band in the corresponding value field.

### Priority

Enter or edit the number in the text box to allocate the priority of this alarm. Alarm priority ranges are from 0 to 255.

### Alarm Delay

Enter the time, in seconds, between the channel value entering the alarm state and the system flagging an alarm.

### Alarm Message

An Alarm Message can be defined that will be displayed on the Status line of the Main Window when a channel goes into an alarm state. Enter the message, up to 32 characters, that is to appear in the event of an alarm.

## Device Specific Button

When the Device Specific Button is pressed, the following will apply:



### Record Name

Allows the user to select the appropriate Record Name from the drop down list.

The records available are:

 FE1-Drill Mode External Record One when in Drill Mode.

 FE1-Trip Mode External Record One when in Trip Mode.

 FE2-Page 1 Page 1 of External Record Two.

 FE2-Page 2 Page 2 of External Record Two.

 FE2-Page 3 Page 3 of External Record Two.

 FE2-Page 4 Page 4 of External Record Two.

 FE1\* This refers to channels configured in either Drill Mode (FE1)

 or Trip Mode(FE1).

 Status This refers to the status bits included in all records sent by

 the BLS2000.

 Logging Int. Logging Interval Record Data as defined in the BLS2000 system.

 Lagged Log Int. Lagged Log Interval Record Data per the BLS2000 system.

 Trip-Out New Tally Trip-Out New Tally Record Data per the BLS2000 system.

 Trip-Out Hole Fill Trip-Out Hole Fill Record Data per the BLS2000 system.

 Trip-In New Tally Trip-In New Tally Record Data per the BLS2000 system.

### Link Number

This field allows the user to specify the Link Number within the selected Record type. See Appendix A for details on available fixed Link Numbers for Status through Trip-In New Tally. Link numbers for FE1-XXXX and FE2-XXXX pages (FE = Format External, see BLS2000 documentation) are user assigned – see section 3.4.

# Advanced Device Configuration



When the system is enabled and the device is enabled this window will display the Achieved Scan Rate. If the device is not scanning correctly then any error associated with the device will be displayed instead.

## AutoEnable Device

To ensure that the device is enabled on the system, check the Enable Device box. Checking this box will automatically start communication between the BLS2000 and the ScadaPro system when the computer is powered up.

## Scan Rate

To set the rate, at which the device will scan, edit the text boxes associated with the Scan Rate field.

## Save Outputs

To enable this utility check the Save outputs flag. All values in output channels are saved to disk when the system is disabled. The next time the system is restarted the values which were previously in output channels will be restored to the appropriate channel number.

### By Tag

Channel values can be saved and restored to channels using the channel tag instead of the channel number. In this way, channels can be rearranged within the modules and as long as the channel tags remain the same, the correct channel values will be restored to the appropriate channel number.

## Device Specific Button

When the Device Specific Button is pressed, the following will appear:



### CommPort

This field allows the user to select which communications port the BLS2000 device is connected to on your PC.

### Baud Rate

This field allows the user to select the baudrate for communications with the BLS2000 device located at the communications port specified above.

### Record Name

This field allows the user to select the External Records to configure. For each record the user specifies up to 32 BLS2000 system *VarNum.Index* pairs. Available records are

 FE1-Drill Mode Defines External Record One when in Drill Mode.

 FE1-Trip Mode Defines External Record One when in Trip Mode.

 FE2-Page 1 Defines Page 1 for External Record Two.

 FE2-Page 2 Defines Page 2 for External Record Two.

 FE2-Page 3 Defines Page 3 for External Record Two.

 FE2-Page 4 Defines Page 4 for External Record Two.

See Appendix B for VarNum listings.

Once the BLS2000 VarNum’s are configured to Ref #’s the combination of Record name and Ref # are used to apply these variables to ScadaPro channels.

Setting up this screen serves two purposes, firstly it configures the BLS2000 Format External record within the Multibus system and, secondly, it identifies the main directory parameters to be scanned into ScadaPro channels.

It should be understood that the primary method to extract information from the BLS2000 is from its list of Main Directory Parameters (MDP’s). The only mechanism to do this is to configure these (MDP’s) into the Format External record and then request the data to be sent from these records. There are two Format External Records available in the BLS2000 system, each of which can hold up to 32 parameters, giving access to a maximum of 64 variables. To expand the number of points available to ScadaPro the driver implements a two-fold strategy for the available external records: -

*Format External Record 1*

The driver permits two definitions for this record 1) while in drilling or idle mode and 2) while in any trip mode. The driver automatically monitors the status information contained in every format external data transmission for the current mode and will dynamically configure or reconfigure the contents of the record, dependant on the detected mode. In this way only channel data relevant to the current drilling operation is updated since typically the required data will be different as dictated by current rig operation. If no BLS2000 VarNum’s are configured in the trip mode definition then the system will automatically continue polling for, and updating, the channels defined for drilling mode. If VarNum’s have been entered for both modes the ScadaPro channels will hold the last scanned value for the mode not currently being polled.

*Format External Record 2*

Here the driver allows up to four definitions of MDP #’s. If two or more pages have been defined the driver will automatically define the requested MDP VarNum’s in page one, read the data, then dynamically reconfigure FE2 to the page 2 definition, read it and so on for all pages with definitions. In this way the limit of 32 channels is expanded to 128. (See section 4. For additional information on scanning sequences).

# Scanner Operation

When enabled the scanner seeks to define and read external records from the BLS2000. All records read from the BLS2000 include status information. One of these status bits is the current mode i.e. Drill, Trip or Idle. If the BLS2000 is in Trip Mode then record *FE1-Trip Mode* is defined and used instead of *FE1-Drill Mode*, however if record *FE1-Trip Mode* has no variables defined then it will carry on reading record *FE1-Drill Mode*. If the BLS2000 system is in Idle mode then the driver follows the convention for *FE1-Drill Mode.*

On every scan the driver also seeks to define and read the second record, sequencing through FE2*-Page 1*, *FE2-Page 2*, *FE2-Page 3* and *FE2-Page 4*.

The transmission sequence is as follows:

Scan 1: Get external record 1 (either *FE1-Drill Mode or FE1-Trip Mode)*

 Define external record *FE2-Page 1*

 Get external record *FE2-Page 1*

Scan 2: Get external record 1 (either *FE1-Drill Mode or FE1-Trip Mode)*

 Define external record *FE2-Page 2*

 Get external record *FE2-Page 2*

Scan 3: Get external record 1 (either *FE1-Drill Mode or FE1-Trip Mode)*

 Define external record *FE2-Page 3*

 Get external record *FE2-Page 3*

Scan 4: Get external record 1 (either *FE1-Drill Mode or FE1-Trip Mode)*

 Define external record *FE2-Page 4*

 Get external record *FE2-Page 4*

Scan 5: As in Scan 1.

.

.

.

Scan N

If *FE2-Page 2*, *FE2-Page 3* or *FE2-Page 4* are not defined the sequence will automatically restart at *FE2-Page 1*

Any non-FE type channels that have been configured (i.e. Log Interval Records) will result in data requests, and appropriate responses, being interspersed between the above sequence.

# BLS2000 Driver Errors

## Standard Error Codes

|  |  |
| --- | --- |
| Error Code |  |
| 1 | Scanner cannot open path. |
| 3 | Error detected when reading response. |
| 4 | Error detected when writing. |
| 5 | Bad tag detected, indicates that SOM atbeginning or EOM at end of transmitted data is missing. |
| 6 | Bad checksum detected, the checksum is incorrect. |
| 21 | Bad record number specified. |
| 22 | Bad command length sent. |
| 23 | Bad parameter specified, a variable has been specified incorrectly, i.e. an index is applied to a variable that doesn't have one, or a variable is requested that cannot be reported on. |

# Appendix A

For the *FE1-Drill Mode, FE1-Trip, FE2-Page 1, FE2-Page 2, FE2-Page 3, FE2-Page 4 and FE1\** records the *Link Number* should be a value between 1-32 where the value represents the Ref # as defined in the Advanced Device Configuration for that page.

## *Status* record Link Numbers:

|  |  |
| --- | --- |
| **Link #** | **Description** |
| 1 | 0 Out of Slips, 1 in Slips |
| 2 | 0 Off Bottom, 1 On Bottom |
| 3 | Mode - 0 Idle , 1 Drill, 2 Trip Out, 3 Trip In |
| 4 | Change = New Bit Record Number |
| 5 | Change = New Geometry Record Number |
| 6 | Change = New Survey Record |
| 7 | Change = New Drilling Model Record |
| 8 | Change = New Lag Data Record |
| 9 | Change = New Circulation Record |
| 10 | Change = New GC1 Sample Record |
| 11 | Change = New GC2 Sample Record |
| 12 | Change = New GC1 Sample Run Data |
| 13 | Change = New GC2 Sample Run Data |
| 14 | Change = New MPT Record Received |
| 15 | **Drill Mode** - Change = New Log Interval Record |
| 16 | **Drill Mode** - Change = New ROP Interval Record |
| 17 | **Drill Mode** - Change = New Connection Record |
| 18 | Current Time - Seconds |
| 19 | Current Time - Minutes |
| 20 | Current Time - hours |
| 21 | Current Date - Day |
| 22 | Current Date - Month |
| 23 | Current Date – Year |
| 24 | **Trip Mode** - Change = New Hole Fill Record |
| 25 | **Trip Mode** - Trip Out Record |
| 26 | **Trip Out** - 0 = Pump Fills 1 = Tank Fills, Overflow Not to Tank. 2 = Tank Fills, Overflow Back to Tank. 3 = Tank Fills, Continuous Re-circulation Mode. |
| 27 | **Trip In** – 1 = Monitor for Gain Pit Dumps |
| 28 | **Trip In** – 1 = Float Collar Present |

## *Logging Int.* record Link Numbers:

|  |  |  |
| --- | --- | --- |
| **Link #** | **Description** | **Units** |
| 1 | Logging Interval Record Counter | Status |
| 2 | Hole Depth | Feet |
| 3 | Bit Key | … |
| 4 | Current Lag Depth | Feet |
| 5 | Hours On Bit | Hours |
| 6 | Rev’s On Bit  | (X1000) |
| 7 | Drill Rate | FT/HR |
| 8 | Weight On Bit | KLBS |
| 9 | Rev’s On bit | RPM |
| 10 | Equivalent Circulating Density | LB/GL |
| 11 | Tooth Wear | % |
| 12 | Flow In | GPM |
| 13 | Standpipe Pressure | PSI |
| 14 | Real Torque | AMPS |
| 15 | WOB Average Deviation | KLB |
| 16 | Torque Average Deviation | AMP |
| 17 | Flow In Measured | GPM |
| 18 | Average Gas | UNITS |
| 19 | Max Gas | UNITS |
| 20 | Bearing Wear | % |
| 21 | Current Pit Volume Density | BBLS |
| 22 | Current Density In | LB/GL |
| 23 | Current Density Out | LB/GL |
| 24 | Current Temp. In | DEG |
| 25 | Current Temp. Out | DEG |
| 26 | Current Conductivity In | MMHOS/CM |
| 27 | Current Conductivity Out | MMHOS/CM |
| 28 | Estimated Pore Pressure | LB/GL |

## *Lagged Log Int.* record Link Numbers:

|  |  |  |
| --- | --- | --- |
| **Link #** | **Description** | **Units** |
| 1 | Lag Interval Record Counter | Status |
| 2 | Hole Depth | Feet |
| 3 | Bit Key | Feet |
| 4 | Current Lag Depth | BBLS |
| 5 | Lag Adjustment | UNITS |
| 6 | Max. Gas | UNITS |
| 7 | Lag Interval Average Gas | LB/GL |
| 8 | Average Density Out | LB/GL |
| 9 | Lagged Density | DEG |
| 10 | Temperature In | DEG |
| 11 | Temperature Out | DEG |
| 12 | Temperature Out Lagged | DEG |
| 13 | Conductivity Out | MMHOS/CM |
| 14 | Conductivity Lagged | MMHOS/CM |
| 15 | Mud Duck Mud pH | … |
| 16 | Mud Duck pHS | … |
| 17 | Mud Duck DHP | … |
| 18 | Mud Duck CO2 % | … |

## Trip-Out New Tally and Trip-In New Tally records Link Numbers:

|  |  |  |
| --- | --- | --- |
| **Link #** | **Description** | **Units** |
| 1 | Trip Record Counter | Status |
| 2 | Hole Depth | Feet |
| 3 | Bit Key | … |
| 4 | Bit Depth | Feet |
| 5 | Max. String Running Speed | FPM |
| 6 | Average Out Of Slip Hookload | K LBS |
| 7 | Theoretical Hookload | K LBS |
| 8 | Smallest Hookload | K LBS |
| 9 | Largest Hookload | K LBS |
| 10 | Cumulative Fill/Gain Observed | BBLS |
| 11 | Calculated Cumulative Fill/Gain | BBLS |
| 12 | Fill/Gain Pit Volume | BBLS |
| 13 | In Slips Time | SEC’S |
| 14 | Max. Tong Pull | K FT/LBS |

## *Trip-Out Hole Fill* record Link Numbers:

|  |  |  |
| --- | --- | --- |
| **Link #** | **Description** | **Units** |
| 1 | Fill Volume Record Counter | Status |
| 2 | Hole Depth | Feet |
| 3 | Bit Key | … |
| 4 | Bit Depth | Feet |
| 5 | Fill-up Number | … |
| 6 | Fill Volume Observed | BBLS |
| 7 | Fill Volume Calculated | BBLS |
| 8 | Stroke Count Observed | STKS |
| 9 | Stroke Count Calculated | STKS |
| 10 | Cumulative Fill Volume Observed | BBLS |
| 11 | Cumulative Fill Volume Calculated | BBLS |

# Appendix B

**Note:**

Certain VarNums are not valid for configuration and should not be used.

E.g. VarNum 4 (Check Status).

If any of these invalid VarNums are used then the system will return ERROR: 23 “Bad parameter specified; a variable has been specified incorrectly, i.e. an index is applied to a variable that doesn't exist, or a variable is requested that cannot be reported on.” and will not function correctly.

## BLS2000 VarNum Listing

1 DEPTH..... 1000.0 ft

 2 OFF.BTM... 0.50 feet

 3 BIT.DEPTH. 999 feet

 4 CHK.STATUS (Y/N)?

 5 WOB....... -NA- klb

 6 WOB.OVR... 54.0 klb

 7 WOB.REF... 158.3 klb

 8 INSLP.DEL. 10.0 klb

 9 AVG.JOINT. 31.50 feet

 10 JOINTS.... 32

 11 DEP.ON.JNT 32.0 feet

 12 HRS.ON.BIT 2.0 hrs

 13 RVS.ON.BIT 2 x1000

 14 TOOTH.WEAR 3 %

 15 BEARG.WEAR 3 %

 16 NON.DRILL. 3.1 hrs

 17 BASE.NDR.. 10.0 ft/hr

 18 NDR.CHNG.. -NA- %chng

 19 W/R.CHNG.. -NA- %chng

 20 PVT.CHG.FC 0.0 bbl

 21 ANN.DENS.. 0.0 lb/gl

 22 ECD.BTM... 0.0 lb/gl

 23 ECD.OVR... -NA- lb/gl

 24 CONN.DEPTH -OF- ft

 25 CONN.TIME. 3.0 min

 26 CABLE.WEAR 3 ton.mi

 27 CIRC.TIME. 60 min

 28 CIRC.PMPD. 267 bbl

 29 CIRC.STKS. 21380 stk

 30 LAG.DEPTH. -NA- ft

 31 PWR.DN.ADJ 0 bbl

 32 VOL/STK.AV 1.245 gal

 33 VOL.PMPD.. -OF- bbl

 34 STK.CT.... 32867 stk

 35 LAG.CORR.. -1 bbl

 36 ANN.V.CALC 368 bbl

 37 BTM/UP.LAG 367 bbl

 38 BTM/UP.STK 12378 stk

 39 BTM/UP.TIM -NA- min

 40 I/O.V.CALC 837 bbl

 41 IN/OUT.LAG 837 bbl

 42 IN/OUT.STK 28213 stk

 43 IN/OUT.TIM -NA- min

 44 MUD.GAS... 0 units

 45 MAX.GAS... 6144 units

 46 MXG.VOL... 26368 bbl

 47 MXG.STK... 0 stk

 48 GAS.PRCNT. 0.00 %

 49 XXXXXXXXXX

 50 FULL.DEPTH 0 feet

 51 BTM.DIST.. 1 feet

 52 STR.DSPL.. 36.4 bbl

 53 VOL/STAND. 3.44 bbl

 54 SINGLES... 58099

 55 STANDS.... -NA-

 56 STDS.TO.GO 24319

 57 SEC/STND.. 65243 sec

 58 STD.TO.FIL -NA-

 59 SEC.INSLPS 65501 sec

 60 C.FIL.CALC -NA- bbl

 61 C.FIL.OBS. -NA- bbl

 62 C.STK.CALC -NA- stk

 63 C.STK.OBS. -NA- stk

 64 TF/GN.CALC -NA- bbl

 65 TF/GN.OBS. -NA- bbl

 66 TF/GN.ERR. -NA- bbl

 67 TF/GN.PIT. -NA- bbl

 68 XXXXXXXXXX

 69 XXXXXXXXXX

 70 FILL.NMBR. 0

 71 FILL.CALC. 1.0 bbl

 72 FILL.OBS.. 1.0 bbl

 73 F.STK.CALC -NA- stk

 74 F.STK.OBS. -NA- stk

 75 XXXXXXXXXX

 76 XXXXXXXXXX

 77 XXXXXXXXXX

 78 XXXXXXXXXX

 79 XXXXXXXXXX

 80 PUMP(1)... 0 spm

 80 PUMP(2)... 4 spm

 80 PUMP(3)... 8 spm

 80 PUMP(4)... 24 spm

 80 PUMP(5)... 60 spm

 80 PUMP(6)... 0 spm

 81 ACTV.PMPS. 72 spm

 82 FLOW.IN... 11 gpm

 83 AUX.PMPS.. 96 spm

 84 AUX.FLOW.. 198 gpm

 85 AUX.CT.... 94193 stk

 86 AUX.V.PMPD 4615 bbl

 87 SPM(1).... 0 spm

 87 SPM(2).... 0 spm

 87 SPM(3).... 0 spm

 87 SPM(4).... 0 spm

 87 SPM(5).... 0 spm

 87 SPM(6).... 0 spm

 88 SPM.OVR(1) 65407 spm

 88 SPM.OVR(2) 4 spm

 88 SPM.OVR(3) 8 spm

 88 SPM.OVR(4) 24 spm

 88 SPM.OVR(5) 60 spm

 89 SPM.OVR(6) -NA- spm

 89 STKS(1)... 66621 stk

 89 STKS(2)... 94 stk

 89 STKS(3)... 55 stk

 89 STKS(4)... 421 stk

 89 STKS(5)... 20 stk

 89 STKS(6)... 20 stk

 90 HT.HOOK... 140.00 feet

 91 BLOCK.HT.. 152.00 feet

 92 COMP.OPNG. 0.00 feet

 93 RISER.DIST 0.00 feet

 94 STRING.CHG -296.97 feet

 95 WIRELN.DEP -NA- ft

 96 WIRELN.SPD -NA- fpm

 97 WHL.CT(1). 0

 97 WHL.CT(2). 2192

 97 WHL.CT(3). 8684

 97 WHL.CT(4). -30576

 98 HSD.CT(1). 32806

 98 HSD.CT(2). 10261

 99 XXXXXXX

100 HOOKLOAD.. 30.0 klb

101 ROT.RGFL.. 0 rpm

102 TORQ.REL.. 0 rel

103 MOTOR.V... -NA- volts

104 FLOW.OUT.. 0 gpm

105 SP.PRES... 0 psi

106 CHOKE..... 0 psi

107 DENS.IN... 0.00 lb/gl

108 DENS.OUT.. 0.00 lb/gl

109 TEMP.IN... 9.5 deg f

110 TEMP.OUT.. 9.5 deg f

111 COND.IN... 0.0 mmo/cm

112 COND.OUT.. 0.0 mmo/cm

113 PIT(1).... 0.0 bbl

113 PIT(2).... 0.0 bbl

113 PIT(3).... 0.0 bbl

113 PIT(4).... 0.0 bbl

113 PIT(5).... 50.0 bbl

113 PIT(6).... 0.0 bbl

113 PIT(7).... 0.0 bbl

113 PIT(8).... 0.0 bbl

113 PIT(9).... 0.0 bbl

113 PIT(10)... 0.0 bbl

113 PIT(11)... 0.0 bbl

113 PIT(12)... 0.0 bbl

113 PIT(13)... 0.0 bbl

113 PIT(14)... 0.0 bbl

113 PIT(15)... 0.0 bbl

113 PIT(16)... 0.0 bbl

114 GAS.DET... 0 units

115 CAT.GAS... -NA- units

116 TRAP.PWR.. 0 watts

117 CO2.DET... -NA- %

118 H2S (1).... -NA- ppm

119 HCG (1).... -NA- %lel

120 PH.MUD.... -NA-

121 PHS.MUD... –NA

122 XXXXXXXXXX

123 MEAS.FLOW. -NA- gpm

124 PRES.AUXL. -NA- psi

125 FLW.MTR (1) -NA- gpm

126 BULK.WT (1) -NA- klb

127 TONG.TRQ.. -NA- klb.ft

128 XXXXXXXXXX

129 TEST (1)... -NA-

130 A/D.BD1 (1) 0.000 volts

131 A/D.BD2 (1) 0.000 volts

132 XXXXXXXXXX

133 XXXXXXXXXX

134 XXXXXXXXXX

135 PIT.TOTL.. 0 bbl

136 PIT.TOTL1. 0.1 bbl

137 PIT.CHNG.. 0.0 bbl

138 PIT.RATE.. 0 bpm

139 AUX.TOTL.. 0 bbl

140 AUX.TOTL1. 0.1 bbl

141 AUX.CHNG.. 679.5 bbl

142 AUX.RATE.. 0 bpm

143 TRIP.TANK. 0.0 bbl

144 TANK.CHNG. 1469.2 bbl

145 GAIN.PIT.. 0.0 bbl

146 GAIN.CHNG. -246.3 bbl

147 SLUG.PIT.. 50.0 bbl

148 SLUG.CHNG. -616.5 bbl

149 XXXXXXXXXX

150 FLOW.LINE. 0 gpm

151 FLOW.DIFF. -11 gpm

152 DENS.IN1.. 0.0 lb/gl

153 DENS.OUT1. 0.0 lb/gl

154 DENS.DIFF. 0.0 lb/gl

155 DENS.LAG.. -NA- lb/gl

156 DENS.LGDF. -NA- lb/gl

157 TEMP.DIFF. 0.0 deg f

158 TEMP.LAG.. -NA- deg f

159 TEMP.LGDF. -NA- deg f

160 COND.DIFF. 0.0 mmo/cm

161 COND.LAG.. -NA- mmo/cm

162COND.LGDF.-NA- mmo/cm

163 CL.IN..... 0.0 ppt

164 CL.OUT.... 0.0 ppt

165 CL.DIF.... 0.0 ppt

166 CL.LAG.... -NA- ppt

167 DELTA.CL.. -NA- ppt

168 XXXXXXXXXX

169 XXXXXXXXXX

170 RUN.SPD... -NA- fpm

171 ACCEL..... -NA- fps2

172 R/S.MAX... 0 fpm

173 R/S.HIGH.. 0 fpm

174 R/S.LOW... 0 fpm

175 ACCL.HIGH. 0.0 fps2

176 RS.ACCL.HI 0 fpm

177 ACCL.LOW.. 0.0 fps2

178 RS.ACCL.LO 0 fpm

179 XXXXXXXXXX

180 OFF.BT.DSP 0.5 feet

181 HKLD.DSPLY 30 klb

182 HKLD.AVG.. 30719 klb

183 HKLD.CALC. 158 klb

184 HK.CALC.AV 158 klb

185 HKLD.ERR.. -NA- klb

186 HK.MAX.ERR -1 klb

187 HK.HI.ERR. -65 klb

188 HK.HI.DPTH 48637 feet

189 HK.LO.ERR. -1 klb

190 HK.LO.DPTH 59327 feet

191 WOB0...... -NA- klb

192 WOB.DSPLY. -NA- klb

193 WOB.DSP0.. -NA- klb

194 WOB.DEV... -NA- klb

195 ABS.TRQ... -NA- klb.ft

196 TRQ.DEV... -NA- rel

197 ROTARY.... 0 rpm

198 HT.HOOK0.. 140 feet

199 SQUAT.FCTR 0.0012 ft/klb

200 DEPTH0.... 1000 feet

201 LAG.DEPTH0 -NA- feet

202 P.DEPTH... 1000.0 feet

203 P.LAG.DPTH -NA- feet

204 TVD.BTM... 1000 feet

205 TVD.BIT... 999 feet

206 FRAC.GRAD. 16.0 lb/gl

207 MAX.KICK.. 11.9 lb/gl

208 MAX.CHOKE. 616 psi

209 EST.PP.... 9.0 lb/gl

210 SMTHD.PP.. 9.0 lb/gl

211 BALANCE... -468 psi

212 XXXXXXXXXX

213 XXXXXXXXXX

214 XXXXXXXXXX

215 RISER.PMPS 0 gpm

216 RSR.P.SPM. 0 spm

217 FLOW.TOT.. 11 gpm

218 TOT.P.SPM. 72 spm

219 XXXXXXXXXX

220 ROP.INST.. -NA- ft/hr

221 ROP.INST1. -NA- ft/hr

222 XXXXXXXXXX

223 XXXXXXXXXX

224 XXXXXXXXXX

225 TONG.MAX.. -NA- klb.ft

226 XXXXXXXXXX

227 XXXXXXXXXX

228 XXXXXXXXXX

229 XXXXXXXXXX

230 XXXXXXXXXX

231 XXXXXXXXXX

232 XXXXXXXXXX

233 XXXXXXXXXX

234 XXXXXXXXXX

235 XXXXXXXXXX

236 XXXXXXXXXX

237 XXXXXXXXXX

238 XXXXXXXXXX

239 XXXXXXXXXX

240 XXXXXXXXXX

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242 XXXXXXXXXX

243 XXXXXXXXXX

244 XXXXXXXXXX

245 XXXXXXXXXX

246 XXXXXXXXXX

247 XXXXXXXXXX

248 XXXXXXXXXX

249 XXXXXXXXXX

250250 R.ROP.. -OF- ft/hr

251 R.ROP2.... -OF- ft/hr

252 R.RDR..... 0.0 min/ft

253 R.DXPNT.. -168.88

254 R.MOD.DXP. 70.23

255 R.MDX.TWC. 327.04

256 R.NMLZ.DR. -161.1 ft/hr

257 R.SIML.SP. 7.286

258 R.MLNDR. 228.21

259 R.B/Y.PP. 15.4 lb/gl

260 R.CALB.A0. 1.571

261 XXXXXXXXXX

262 XXXXXXXXXX

263 XXXXXXXXXX

264 XXXXXXXXXX

265 XXXXXXXXXX

266 XXXXXXXXXX

267 XXXXXXXXXX

268 XXXXXXXXXX

269 XXXXXXXXXX

270 R.WOB..... 4556.7 klb

271 R.ROTARY.. 65519 rpm

272 R.ECD..... -NA- lb/gl

273 R.TWR..... -NA- %

274 R.FLOW.... -NA- gpm

275 R.SP.PRS.. -NA- psi

276 R.TORQ.... -NA- rel

277 XXXXXXXXXX

278 XXXXXXXXXX

279 R.WOB.DEV. -NA- klb

280 R.TRQ.DEV. -NA- rel

281 R.MEAS.FLW -NA- gpm

282 R.FLW.TOT. 65534 gpm

283 XXXXXXXXXX

284 XXXXXXXXXX

285 XXXXXXXXXX

286 XXXXXXXXXX

287 XXXXXXXXXX

288 XXXXXXXXXX

289 XXXXXXXXXX

290 XXXXXXXXXX

291 XXXXXXXXXX

292 XXXXXXXXXX

293 XXXXXXXXXX

294 XXXXXXXXXX

295 XXXXXXXXXX

296 XXXXXXXXXX

297 XXXXXXXXXX

298 XXXXXXXXXX

299 XXXXXXXXXX

300 I.ROP..... 8.3 ft/hr

301 I.ROP2.... 8.33 ft/hr

302 I.RDR..... 3275.2 min/ft

303 I.DXPNT... -176.65

304 I.MOD.DXP. -0.01

305 I.MDX.TWC. -0.01

306 I.NMLZ.DR. -OF- ft/hr

307 I.SIML.SP. -NA-

308 I.MLNDR... -0.01

309 I.B/Y.PP.. -0.1 lb/gl

310 I.CALB.A0. -0.001

311 XXXXXXXXXX

312 XXXXXXXXXX

313 XXXXXXXXXX

314 XXXXXXXXXX

315 XXXXXXXXXX

316 XXXXXXXXXX

317 XXXXXXXXXX

318 XXXXXXXXXX

319 XXXXXXXXXX

320 I.WOB..... 2118.6 klb

321 I.ROTARY.. 8 rpm

322 I.ECD..... 0.0 lb/gl

323 I.TWR..... 0 %

324 I.FLOW.... 46869 gpm

325 I.SP.PRS.. 15789 psi

326 I.TORQ.... 49969 rel

327 I.MUD.GAS. 9048 units

328 I.MAX.GAS. 8964 units

329 I.WOB.DEV. 0.6 klb

330 I.TRQ.DEV. 10168 rel

331 I.MEAS.FLW 40748 gpm

332 I.FLW.TOT. 6565 gpm

333 XXXXXXXXXX

334 XXXXXXXXXX

335 XXXXXXXXXX

336 XXXXXXXXXX

337 XXXXXXXXXX

338 XXXXXXXXXX

349 XXXXXXXXXX

340 XXXXXXXXXX

341 XXXXXXXXXX

342 XXXXXXXXXX

343 XXXXXXXXXX

344 XXXXXXXXXX

345 XXXXXXXXXX

346 XXXXXXXXXX

347 XXXXXXXXXX

348 XXXXXXXXXX

349 XXXXXXXXXX

350 A.ROP..... 0.0 ft/hr

351 A.ROP2.... 0.00 ft/hr

352 A.RDR..... 1395.2 min/ft

353 A.DXPNT... 1.28

354 A.MOD.DXP. 0.32

355 A.MDX.TWC. -94.72

356 A.NMLZ.DR. -OF- ft/hr

357 A.SIML.SP. 16.532

358 A.MLNDR... 41.37

359 A.B/Y.PP.. -216.6 lb/gl

360 A.CALB.A0. -31.150

361 XXXXXXXXXX

362 XXXXXXXXXX

363 XXXXXXXXXX

364 XXXXXXXXXX

365 XXXXXXXXXX

366 XXXXXXXXXX

367 XXXXXXXXXX

368 XXXXXXXXXX

369 XXXXXXXXXX

370 A.WOB..... 4864.0 klb

371 A.ROTARY.. 0 rpm

372 A.ECD..... 1.8 lb/gl

373 A.TWR..... 1536 %

374 A.FLOW.... 48542 gpm

375 A.SP.PRS.. 15616 psi

376 A.TORQ.... 1412 rel

377 A.MUD.GAS. 4698 units

378 A.MAX.GAS. -NA- units

379 A.WOB.DEV. 2716.2 klb

380 A.TRQ.DEV. 24387 rel

381 A.MEAS.FLW 24377 gpm

382 A.FLW.TOT. 38340 gpm

383 XXXXXXXXXX

384 XXXXXXXXXX

385 XXXXXXXXXX

386 XXXXXXXXXX

387 XXXXXXXXXX

388 XXXXXXXXXX

389 XXXXXXXXXX

390 XXXXXXXXXX

391 XXXXXXXXXX

392 XXXXXXXXXX

393 XXXXXXXXXX

394 XXXXXXXXXX

395 XXXXXXXXXX

396 XXXXXXXXXX

397 XXXXXXXXXX

398 XXXXXXXXXX

399 XXXXXXXXXX

400 L.D.LG.DIF 806.5 lb/gl

401 L.T.OUT... 6547.1 deg f

402 L.T.DIFF.. -2724.4 deg f

403 L.C.LG.DIF 0.0 mmo/cm

404 L.DEL.CL.. 1590.9 ppt

405 L.MUD.GAS. -NA- units

406 L.MAX.GAS. -NA- units

407 L.PH...... -NA-

408 L.PHS..... -NA-

409 L.DHP..... -NA- ppm

410 L.MUD.CO2. -NA- %

411 XXXXXXXXXX

412 XXXXXXXXXX

413 XXXXXXXXXX

414 XXXXXXXXXX

415 XXXXXXXXXX

416 XXXXXXXXXX

417 XXXXXXXXXX

418 XXXXXXXXXX

419 XXXXXXXXXX

420 C.AVG.GAS. 16128 units

421 C.MAX.GAS. 65284 units

422 XXXXXXXXXX

423 XXXXXXXXXX

424 XXXXXXXXXX

425 XXXXXXXXXX

426 XXXXXXXXXX

427 XXXXXXXXXX

428 XXXXXXXXXX

429 XXXXXXXXXX

430 XXXXXXXXXX

431 XXXXXXXXXX

432 XXXXXXXXXX

433 XXXXXXXXXX

434 XXXXXXXXXX

435 XXXXXXXXXX

436 XXXXXXXXXX

437 XXXXXXXXXX

438 XXXXXXXXXX

439 XXXXXXXXXX

440 XXXXXXXXXX

441 XXXXXXXXXX

442 XXXXXXXXXX

443 XXXXXXXXXX

444 XXXXXXXXXX

445 XXXXXXXXXX

446 XXXXXXXXXX

447 XXXXXXXXXX

448 XXXXXXXXXX

449 XXXXXXXXXX

450 BIT.RUN... 0 feet

451 DRILL.COST 16424 $/ft

452 B.ROP..... 0.0 ft/hr

453 B.ROP2.... 0.00 ft/hr

454 B.WOB..... 20.0 klb

455 B.ROTARY.. 0 rpm

456 B.ECD..... 1640.1 lb/gl

457 B.FLOW.... 82 gpm

458 B.SP.PRS.. 0 psi

459 B.TORQ.... 0 rel

460 B.MUD.GAS. 0 units

461 B.MAX.GAS. 35 units

462 B.MXG.DPTH -NA- feet

463 TRIP.GAS.. 18440 units

464 TRIP.CHLOR 20 ppm

465 XXXXXXXXXX

466 XXXXXXXXXX

467 XXXXXXXXXX

468 XXXXXXXXXX

469 XXXXXXXXXX

470 GC.DPTH(1) -NA- ft

471 GC.TIME(1) 00:00:00

472 GC.DATE(1) 00-XXX-00

473 C1(1)..... -NA- ppm

474 C2(1)..... -NA- ppm

475 C3(1)..... -NA- ppm

476 C4.ISO(1). -NA- ppm

477 C4.NRM(1). -NA- ppm

478 C4.TOTL(1) -NA- ppm

479 C5.NEO(1). -NA- ppm

480 C5.ISO(1). -NA- ppm

481 C5.NRM(1). -NA- ppm

482 C5.TOTL(1) -NA- ppm

483 XXXXXXXXXX

484 EQ.C1.R(1) -NA- ppm

485 C1/C2(1).. -NA-

486 C1/C3(1).. -NA-

487 C1/C4(1).. -NA-

488 C1/C5(1).. -NA-

489 XXXXXXXXXX

490 GWR(1).... -NA- %

491 LHR(1).... -NA-

492 OCQ(1).... -NA-

493 ACN(1).... -NA-

494 HCN(1).... -NA-

495 ISO.FR(1). -NA-

496 CARBIDE(1)-285251525 ppm

497 GC.VPMP(1) -OF- bbl

498 LOG.AMP(1) -NA- volts

499 DET.GC(1). -NA- mv

500 BIT.DIAM.. 4.096 in

501 JET.AREA.. 6.5529 in2

502 BIT.LOSS.. 0 psi

503 JET.VEL... 1 fps

504 JET.IMPACT 0 lb

505 IMP/AREA.. 0.0 psi

506 BIT.HHP... 0 hp

507 HHP/AREA.. 0.0 hp/in2

508 PMP.HHP... 0 hp

509 BIT/PMP.HP -NA- %

510 W/R.DIFF.. -50 psi

511 MD.MTR.PWR -NA- hp

512 MD.MTR.TRQ -NA- klb.ft

513 XXXXXXXXXX

514 XXXXXXXXXX

515 XXXXXXXXXX

516 XXXXXXXXXX

517 XXXXXXXXXX

518 XXXXXXXXXX

519 XXXXXXXXXX

520 PV........ 16 cp

521 YP........ 12 lb/hf2

522 GEL.10SEC. 21 lb/hf2

523 GEL.10MIN. 12 lb/hf2

524 VIS.IN.... 5 sec/qt

525 VIS.OUT... 8 sec/qt

526 MUD.PH.... 3.2

527 BTM.TEMP.. 75 deg f

528 XXXXXXXXXX

529 XXXXXXXXXX

530 HYDR.DEP.. -NA- feet

531 CUTTNG.DIA -NA- in

532 CUTTNG.DEN -NA- g/cc

533 CUTTNG.TIM 10.8 min

534 MAX.CUTTNG 243.78 in

535 FLD.VL.TOP 65487 fpm

536 FLD.VL.COL 50766 fpm

537 CRT.VL.COL 42552 fpm

538 STR.LOSS.. 57279 psi

539 CALC.SP.PR 4864 psi

540 ECD.BTM... 3135.6 lb/gl

541 ECD.BIT... 716.8 lb/gl

542 ECD.CSG... -NA- lb/gl

543 ECD.HY.DP. -NA- lb/gl

544 C.PRS.BIT. -NA- psi

545 C.PRS.CSG. -NA- psi

546 C.PRS.H.DP -NA- psi

547 JET.LOSS.. 48910 psi

548 SURF.LOSS. 47444 psi

549 BHA.EQUIP. 18286 psi

550 S/S.BTM... -NA- lb/gl

551 S/S.BIT... -NA- lb/gl

552 S/S.CSG... -NA- lb/gl

553 S/S.HY.DP. -NA- lb/gl

554 S.PRS.BIT. -NA- psi

555 S.PRS.CSG. -NA- psi

556 S.PRS.H.DP -NA- psi

557 S.RUN.SPD. 5375 fpm

558 XXXXXXXXXX

589 XXXXXXXXXX

590 XXXXXXXXXX

591 XXXXXXXXXX

592 XXXXXXXXXX

593 XXXXXXXXXX

594 XXXXXXXXXX

595 XXXXXXXXXX

596 XXXXXXXXXX

597 XXXXXXXXXX

598 XXXXXXXXXX

599 XXXXXXXXXX

600 F.M.VOL(1) 3225.5 bbl

600 F.M.VOL(2) -NA- bbl

600 F.M.VOL(3) -NA- bbl

600 F.M.VOL(4) -NA- bbl

600 F.M.VOL(5) 3045.9 bbl

600 F.M.VOL(6) -NA- bbl

601 FLW.SUM(1) -NA- gpm

601 FLW.SUM(2) -NA- gpm

602 F.S.VOL(1) 24572 bbl

602 F.S.VOL(2) 26016 bbl

603 F.S.24h(1) 32728 bbl

603 F.S.24h(2) 23808 bbl

604 F.S.TOT(1) -OF- bbl

604 F.S.TOT(2)-2147467008 bbl

605 XXXXXXXXXX

606 XXXXXXXXXX

607 XXXXXXXXXX

608 XXXXXXXXXX

609 XXXXXXXXXX

610 B.T.ADD(1) 0.0 klb

610 B.T.ADD(2) 0.0 klb

610 B.T.ADD(3) 5425.4 klb

611 B.T.24h(1) 0.0 klb

611 B.T.24h(2) 512.2 klb

611 B.T.24h(3) 6540.7 klb

612 B.T.TOT(1) -OF- klb

612 B.T.TOT(2) 8356484 klb

612 B.T.TOT(3) -OF- klb

613 XXXXXXXXXX

614 XXXXXXXXXX

615 XXXXXXXXXX

616 XXXXXXXXXX

617 XXXXXXXXXX

618 XXXXXXXXXX

619 XXXXXXXXXX

620 XXXXXXXXXX

621 XXXXXXXXXX

622 XXXXXXXXXX

623 XXXXXXXXXX

624 XXXXXXXXXX

625 XXXXXXXXXX

626 XXXXXXXXXX

627 XXXXXXXXXX

628 XXXXXXXXXX

629 XXXXXXXXXX

630 XXXXXXXXXX

631 XXXXXXXXXX

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794 XXXXXXXXXX

795 XXXXXXXXXX

796 XXXXXXXXXX

797 XXXXXXXXXX

798 XXXXXXXXXX

799 XXXXXXXXXX

800 PPFG.DEPTH 34349.0 ft

801 PPFG.PP... -0.000 lb/gl

802 PPFG.FG... 0.000 lb/gl

803 PPFG.OS... 0.000 lb/gl

804 PPFG.WM... 0.000 lb/gl

805 PPFG.ES... 0.000 lb/gl

806 PPFG.VS... 0.000

807 PPFG.FP... 0.000

808 PPFG.KW... -OF-

809 PPFG.ST... 0.0 us/ft

810 PPFG.PD... 0.000 g/cc

811 PPFG.HC... -OF-

812 XXXXXXXXXX

813 XXXXXXXXXX

814 XXXXXXXXXX

815 XXXXXXXXXX

816 XXXXXXXXXX

817 XXXXXXXXXX

818 XXXXXXXXXX

819 XXXXXXXXXX

820 AVG.DEP... -OF- ft

821 AVG.X..... 0.0 G's

822 AVG.Y..... 0.0 G's

823 AVG.Z..... 0.0 G's

824 PEAK.DEP.. -0.0 ft

825 PEAK.X.... -OF- G's

826 PEAK.Y.... -NA- G's

827 PEAK.Z.... -OF- G's

828 TVIB.P.DEP -0.0 ft

829 TVIB.PX... -OF- G's

830 TVIB.PZ... 0 G's

831 TVIB.A.DEP -OF- ft

832 TVIB.AX... -OF- G's

833 TVIB.D.DEP -OF- ft

834 TVIB.AD... -OF- G's

835 DEL.A.DEP. -OF- ft

836 DEL.AVG.XY -OF- G's

837 DEL.PK.XY. -OF- G's

838 XXXXXXXXXX

839 XXXXXXXXXX

840 DEN.DEP... -OF- ft

841 DEN.C..... -OF- g/cc

842 DEN.P..... -OF- pu

843 PE.F.DEP.. -OF- ft

844 PE.F...... -OF- b/ev

845 STAND.DEP. -OF- ft

846 STAND..... -OF- g/cc

847 HOLE.DEP.. -OF- ft

848 HOLE...... 0

849 SLD.DPA.DP180228.5 ft

850 SLD.DPA.MG -NA- deg

851 SLD.DPA.HI 0.00 deg

852 XXXXXXXXXX

853 XXXXXXXXXX

854 XXXXXXXXXX

855 XXXXXXXXXX

856 XXXXXXXXXX

857 XXXXXXXXXX

858 XXXXXXXXXX

859 XXXXXXXXXX

860 PWD.A.ON.D -OF- ft

861 PWD.A.ON.. -OF- psi

862 PWD.A.ON.E -OF- lb/gl

863 PWD.B.ON.D -OF- ft

864 PWD.B.ON.. -OF- psi

865 PWD.B.ON.E -OF- lb/gl

866 PWD.TEMP.D -OF- ft

867 PWD.TEMP.. -OF- deg f

868 PWD.A.OF.D -OF- ft

869 PWD.A.OF.. -OF- psi

870 PWD.A.OF.E -OF- lb/gl

871 PWD.B.OF.D -0.0 ft

872 PWD.B.OF.. -OF- psi

873 PWD.B.OF.E -0.0 lb/gl

874 XXXXXXXXXX

875 XXXXXXXXXX

876 XXXXXXXXXX

877 XXXXXXXXXX

878 XXXXXXXXXX

879 XXXXXXXXXX

880 XXXXXXXXXX

881 XXXXXXXXXX

882 XXXXXXXXXX

883 XXXXXXXXXX

884 XXXXXXXXXX

885 XXXXXXXXXX

886 XXXXXXXXXX

887 XXXXXXXXXX

888 XXXXXXXXXX

889 XXXXXXXXXX

890 XXXXXXXXXX

891 XXXXXXXXXX

892 XXXXXXXXXX

893 XXXXXXXXXX

894 XXXXXXXXXX

895 XXXXXXXXXX

896 XXXXXXXXXX

897 XXXXXXXXXX

898 XXXXXXXXXX

899 XXXXXXXXXX

900 MPT.SEQ.NO 61439

901 GAMMA..... 0.89 aapi

902 GAMMA.DPTH -0.0 ft

903 RESISTIVTY944.06 ohm.m

904 RESIS.DPTH -NA- ft

905 TV.DEPTH.. -OF- ft

906 SURVY.DPTH -0.0 ft

907 TEMP.PIPE. -OF- deg f

908 TOOL.PRES. -OF- psi

909 HOLE.INCL. -OF- deg

910 HOLE.AZIM. -OF- deg

911 DOG.LG.SEV -NA- deg/hf

912 N/S.DEV... -NA- feet

913 E/W.DEV... 0.0 feet

914 HI.SIDE.TF -NA- deg

915 MAGNETC.TF 0.00 deg

916 XXXXXXXXXX

917 MWD.BIT.DP 0.0 ft

918 MWD.ROP... -OF- ft/hr

919 EW.COND... -OF- mhos/m

920 CNP.DPTH.. -0.0 ft

921 N.POR.COMB -OF- pu

922 N.POR.NEAR -OF- pu

923 N.POR.FAR. -OF- pu

924 XXXXXXXXXX

925 XXXXXXXXXX

926 XXXXXXXXXX

927 XXXXXXXXXX

928 XXXXXXXXXX

929 CNP.CHN(1) -OF- cts

929 CNP.CHN(2) -OF- cts

929 CNP.CHN(3) -OF- cts

929 CNP.CHN(4) -OF- cts

930 SFD.DPTH.. 0.0 ft

931 D.POR.RAW. -OF- pu

932 D.POR.CORR -OF- pu

933 B.DEN.RAW. -OF- g/cc

934 B.DEN.CORR 0.000 g/cc

935 XXXXXXXXXX

936 XXXXXXXXXX

937 XXXXXXXXXX

938 XXXXXXXXXX

939 DEN.CHN(1) 29.667 g/cc

939 DEN.CHN(2) -OF- g/cc

939 DEN.CHN(3) 0.000 g/cc

939 DEN.CHN(4) 0.000 g/cc

940 SFD.RW.CAL -OF- in

941 XXXXXXXXXX

942 XXXXXXXXXX

943 XXXXXXXXXX

944 XXXXXXXXXX

945 XXXXXXXXXX

946 XXXXXXXXXX

947 XXXXXXXXXX

948 SFD24.QUAL -OF-

949 SFD.CHN(1) -OF- cts

949 SFD.CHN(2) -40705 cts

949 SFD.CHN(3) -NA- cts

949 SFD.CHN(4) 0 cts

950 EWR.TMP.D. -OF- ft

951 EWR.TMP... 0.0 deg f

952 GAMMA2.... 0.00 aapi

953 XXXXXXXXXX

954 XXXXXXXXXX

955 XXXXXXXXXX

956 XXXXXXXXXX

957 XXXXXXXXXX

958 XXXXXXXXXX

959 XXXXXXXXXX

960 P4.X.DEPTH -0.0 ft

961 P4.X.PHRES -OF- ohm.m

962 P4.X.PCOND -OF- mhos/m

963 P4.X.CFRES 0.00 ohm.m

964 P4.X.CCOND -NA- mhos/m

965 P4.X.PA... 0.000 deg

966 P4.X.AR... -OF-

967 P4.S.DEPTH -OF- ft

968 P4.S.PHRES -OF- ohm.m

969 P4.S.PCOND -OF- mhos/m

970 P4.S.CFRES -OF- ohm.m

971 P4.S.CCOND-OF- mhos/m

972 P4.S.PA... -OF- deg

973 P4.S.AR... -OF-

974 P4.M.DEPTH -OF- ft

975 P4.M.PHRES -OF- ohm.m

976 P4.M.PCOND-OF- mhos/m

977 P4.M.CFRES -OF- ohm.m

978 P4.M.CCOND-OF- mhos/m

979 P4.M.PA... -OF- deg

980 P4.M.AR... -OF-

981 P4.D.DEPTH -OF- ft

982 P4.D.PHRES 0.00 ohm.m

983 P4.D.PCOND-NA- mhos/m

984 P4.D.CFRES-NA- ohm.m

985 P4.D.CCOND 0.0 mhos/m

986 P4.D.PA... -OF- deg

987 P4.D.AR...-0.000000

988 XXXXXXXXXX

989 XXXXXXXXXX

990 XXXXXXXXXX

991 XXXXXXXXXX

992 XXXXXXXXXX

993 XXXXXXXXXX

994 XXXXXXXXXX

995 XXXXXXXXXX

996 XXXXXXXXXX

997 XXXXXXXXXX

998 XXXXXXXXXX

999 XXXXXXXXXX

1000 HR.MIN.... 5.12

1001 HR.MNSC... 5.1241