



Rightsite for LWD Lesson 6

Data Management



INSITE Data Manager

Uses of INSITE Data Manager are:

- **Export and import data**
- **Create and store new datasets**
- **Copy, move, or rename datasets**
- **View and edit the contents of datasets**



Data Manager Layout

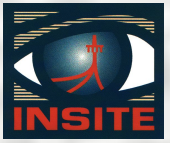
Primary Key Order: \\Well\Run\Record\Description

Database Path: \'-LOCAL-\Rigsite Prac#3\0400\DGR\Insite Read'

Name	Mnemonic	Curve Label	Unit Type	Data Type	Default Unit
123 Time & Date	DGTM	DGR Time & Date	Time & date	Numeric	
123 Depth	DGDP	DGR Depth	Depth	Numeric	feet
123 T/D Activity	DGAC	DGR T/D Activity	Unitless	Numeric	
123 Cnts Gamma A	DGCA	DGR Bank-A Count Rate	Count rate	Numeric	counts per sec
123 Cnts Gamma B	DGCB	DGR Bank-B Count Rate	Count rate	Numeric	counts per sec
123 Cnts Gamma C	XXXX	DGR-XXXX-1	Count rate	Numeric	counts per sec
123 Cnts Gamma ...	DGCC	DGR Combined Count Rate	Count rate	Numeric	counts per sec
123 Gamma Ray A	DGRA	DGR Gamma Ray A	API	Numeric	api
123 Gamma Ray B	DGRB	DGR Gamma Ray B	API	Numeric	api
123 Gamma Ray C	XXXX	DGR-XXXX-2	API	Numeric	api
123 Gamma Ray	DGR	DGR Combined Gamma Ray	API	Numeric	api
123 Gamma A Kcl	DGAK	DGR Gamma A Kcl Corr	API	Numeric	api
123 Gamma A Bh	DGAB	DGR Gamma A Bh Corr	API	Numeric	api
123 Gamma A Kcl...	DAKB	DGR Gamma A KclBh Corr	API	Numeric	api
123 Gamma B Kcl	DGBK	DGR Gamma B Kcl Corr	API	Numeric	api

Directory Tree Area

Contents Display Area



Types of Data Stored

INSITE stores three types of data:

- **Bag data - stored in name value pairs (tool parameters, well data, etc.)**
- **Private data - stored in a form that INSITE cannot display (tool image data)**
- **Record data - stored in datasets (sensor data, environmental data, etc)**



Record Data Storage

Record data is stored in datasets:

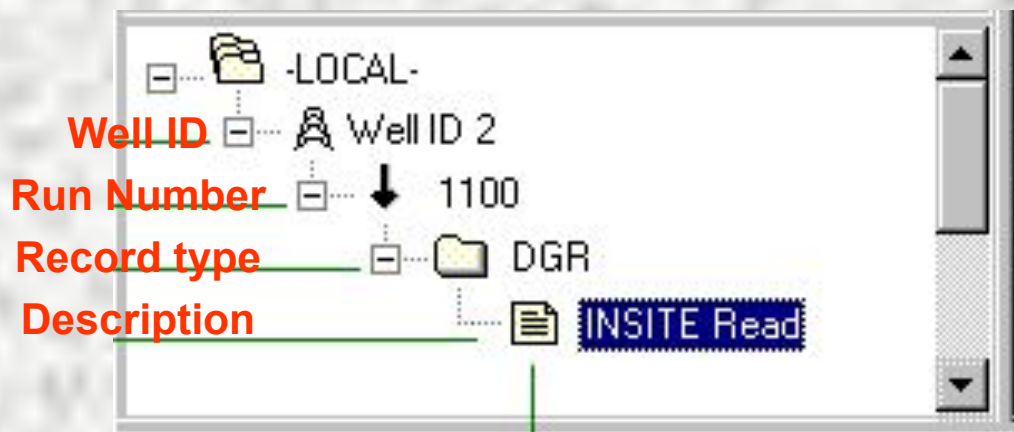
- **A dataset is a collection of associated information stored in the INSITE database**
- **A dataset is not a file, but a set of data defined by four primary search keys that tell INSITE what data to include in the dataset**



Dataset Primary Keys

A dataset is specified by four ADI keys:

- **Well I.D.**
15 character limit
- **Run number**
0 to 9999*
- **Record type**
15 character limit
- **Description**
31 character limit



A Dataset



Primary Key Order

The keys represent search criteria and:

- **Are not a hierarchy; they can be rearranged in any order**
- **Are generally presented in the order: Well I.D., Run Number, Record Type, Description for convenience**
- **Some datasets have a description of blank**



Run Number Key

Sperry INSITE datasets have one of two types of run number keys:

- **Number of the MWD run (the run when the data was collected 100, 200, etc.)**
- **Well based (the data that applies to the well as a whole or to multiple runs)**



Well Based Dataset Key

Datasets with a run number key of Well Based contain data that applies to more than one run:

- **Descriptors**
- **Well Information**
- **Environmental data**
- **Remarks**



Record Type Key

The Record Type key is generally named for the type of data contained in the dataset.

Examples:

- **DGR - contains data measured by Dual Gamma Ray tool**
- **Desc Run Depth - contains descriptor instructions**



Description Key

The description key is generally related to the source of the data:

- **Sensor data source descriptions**
 - ◆ **Insite Read is recorded data read from a tool**
 - ◆ **Positive Pulse Data is real-time data**
- **Time/Depth dataset**
 - ◆ **Contains record of time versus depth**
 - ◆ **Description MUST be - Master**



Dataset Review

- **Data Manager**
- **Dataset**
- **4 Keys**



Dataset Contents

Two types of information in datasets:

- Record data
 - ◆ Alphanumeric data presented as a table
 - ◆ Rows in the table are called **records**
 - ◆ Each column in the table is a **variable**
 - ◆ Variables do not always contain data
- Descriptor instructions
 - ◆ Instructions to access data from multiple runs



Record Data

	DGR Time & Date	DGR Depth (ft)	DGR T/D Activity	DGR Bank-A Count Rate	DGR Bank-B Count Rate	DGR Combined Count Rate	DGR Gamma Ray A (api)
📄	11-Aug-04 21:19:44	12612.63	Drilling	1050	930		67.08
📄	11-Aug-04 21:20:04	12612.66	Drilling	990	900		63.25
📄	11-Aug-04 21:20:24	12612.74	Drilling	870	960		55.58
📄	11-Aug-04 21:20:44	12612.86	Drilling	780	1020		49.83
📄	11-Aug-04 21:21:04	12612.92	Drilling	990	930		63.25
📄	11-Aug-04 21:21:24	12612.97	Drilling	1050	660		67.08
📄	11-Aug-04 21:21:44	12612.97	Drilling	810			
🚫	11-Aug-04 21:22:04	12608.12	None	720			
🚫	11-Aug-04 21:22:24	12611.32	None	780			

Sensor values, or survey data, or remarks, or depth data indexed against time or depth

Descriptor Instructions

Rec #	Run	Top Depth	Bottom Depth	Description	T/D Activity	Record Name	Variable	Calibrated Top Depth	Calibrated Bottom Depth
1	0100	6983.56	12856.96	Insite Read	Drilling	DGR	Gamma Ray KclBh	0.00	0.00
2	0200	12856.96	12963.22	Insite Read	Drilling	DGR	Gamma Ray KclBh	0.00	0.00
3	0300	12963.22	13386.99	Insite Read	Drilling	DGR	Gamma Ray KclBh	0.00	0.00
4	0400	13386.99	15815.03	Insite Read	Drilling	GM	GR SCalc KclBh	0.00	0.00
5	0500	15815.03	End	Positive Pulse Data	Drilling	GM	GR DH Clc KclBh	0.00	End

Instructions to locate data



Types of Variables

There are two types of variables in a dataset:

- **Measured**
 - ◆ Raw and processed data from a sensor
 - ◆ Stored in the database
- **Calculated**
 - ◆ Data calculated from measured variables
 - ◆ Not stored in database, but generated on the fly



Variables

Within a dataset the **variables** are:

- Indexed against time or depth
- Characterized by
 - ◆ Variable name (TVD, EWR phase angle, etc)
 - ◆ Unit type (depth, phase angle, hole angle, mud density, etc.)
 - ◆ Measurement unit (feet, degrees, lb/gal, etc.)



Unit Set

INSITE uses an active unit set for all calculations:

- **All data stored in English units**
- **Converts to other units on-the-fly for display**
- **Active unit set contains conversion instructions**
- **Standard unit set can be modified to customer requirements**



Unit Set Editor

Click here to open the variables list

Opens the Unit Sets Editor with the default dataset

Bit Deflection	Percent
Bit Depth	Depth
Bit Depth TVD	Depth
Bit Drill Time	Activity time
Bit Footage	Depth
Bit Grade	Unitless
Bit In Depth	Depth
Bit Jet Sizes	
Bit Number	
Bit Out Depth	
Bit PL Copy	
Bit Pos Status	Unitless
Bit Press Loss	Pump pressure
Bit Ream Time	Activity time
Bit Size	Bit diameter
Bit TFA	Tot fluid area
Bit Trip Time	Activity time
Bit Type	Unitless
Bit/Pump HP	Percent

Select variable from the list

Close

INSITE - Unit Set Editor - Metric

File Edit View Help

Unit Type: Measurement Units: Mea

Depth	metres
Dogleg severity	deg/30m
Drill rate	metre per hr
DST flow	m3 per min
DST volume	cubic metres
Elect stab	volts
Electron volts	electron volts
Fluid speed	metre per sec
Formation dens	gram per cc
Funnel viscos	centipoise
Gas C	deg
Gas u	ts
Geop	
Grain size	millimetres
Gravity field	g
Hole angle	degrees
Hole volume	cubic metres
Hook weights	k decanewtons
Hor resistivity	ohm-metre
Hourly cost	dollars/hr

Select desired measurement unit from the list

Variable displays in the editor

Shows measure type and units currently active

Shows unit options for selected unit type here

Demo



Data Storage Review

- **Records**
- **Variables**
 - ◆ **Calculated**
 - ◆ **Measured**
- **Unit sets**



ADI Files

Exported INSITE datasets are stored outside the INSITE database as an ADI file.

- **An ADI file can only be read by INSITE**
- **ADI files can be any size from a single dataset to the entire database**



Importing ADI Files

Import Dataset adds the data in that file to the INSITE database:

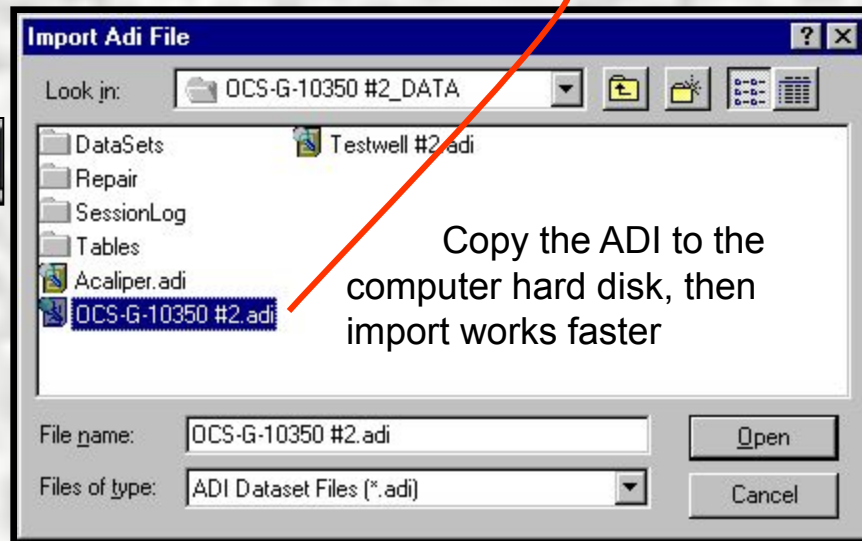
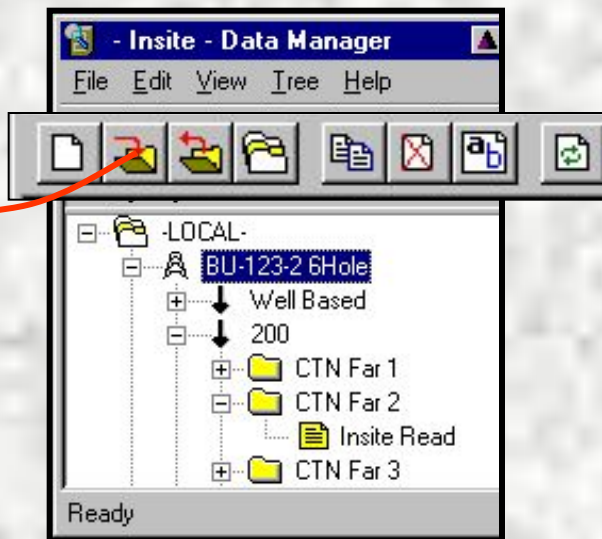
- **Entire file or selected datasets**
- **Datasets with the same 4 keys overwrite**
- **Data Directory containing config files**
- **Data Directory renamed during import**
- **Session Logs**



Import ADI Process

2. Select import file

1. Click Import Data



3. Select what to import



4. Select the datasets to import



Demo



Exporting ADI Files

Use the export function to:

- **Backup INSITE datasets**
- **Transfer a dataset to another computer**
- **Send a dataset to a customer or to the lab for evaluation**



Export ADI Files

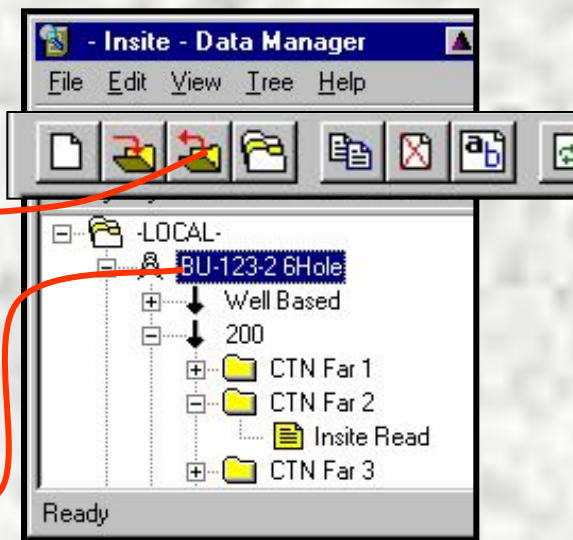
Export will create an ADI file for any part of the database selected:

- **Entire well**
- **Single run**
- **Single record type**
- **Single dataset**
- **ADI file can include the Data directory with all the well templates**
- **Session Log**



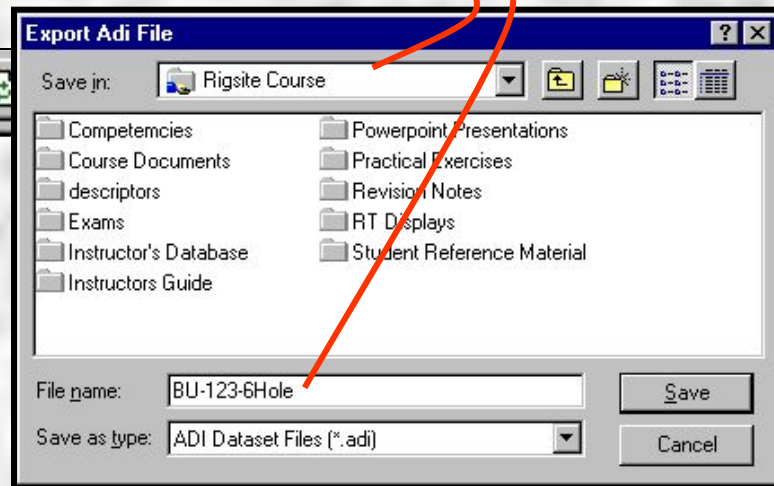
Export ADI Process

2. Click Export Data



1. Select the data to export

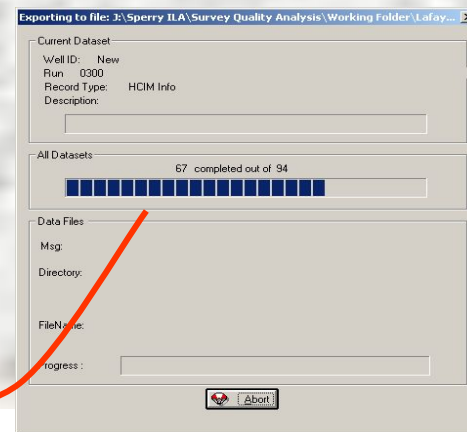
3. Select export destination and file name



4. Select what type data to export



5. Export Progress displayed



Demo



Data Manager Main Menu

The screenshot shows the 'INSITE - Data Manager' application window. The 'File' menu is open, displaying several options:

- Collapse This Branch (Ctrl+ <left arrow>)
- Collapse All Branches (Ctrl+Shift+ <left arrow>)
- Expand This Branch (Ctrl+ <right arrow>)
- Expand All Branches (Ctrl+Shift+ <right arrow>)
- Current Well/Run
- Show Variables
- Primary Key Order... (Ctrl+K)
- Index Types...
- ADI Database
- Data Dictionary

In the background, a data table is visible with the following columns: Name, Units, Data Type, and Default Unit.

Name	Units	Data Type	Default Unit
GR Bank-A Count Rate	Count rate	Numeric	counts per sec
GR Bank-B Count Rate	Count rate	Numeric	counts per sec
GR-XXXX-1	Count rate	Numeric	counts per sec
GR Combined Count Rate	Count rate	Numeric	counts per sec
GR Gamma Ray A	API	Numeric	api
GR Gamma Ray B	API	Numeric	api
GR-XXXX-2	API	Numeric	api
GR Combined Gamma Ray	API	Numeric	api
GR Gamma A Kcl Corr	API	Numeric	api
GR Gamma A Bh Corr	API	Numeric	api
GR Gamma A KclBh Corr	API	Numeric	api

At the bottom of the window, there is a toolbar with icons for file operations and a 'Show Hidden' button. A 'Show All' dropdown menu is also visible, with options: Show All, Active Well, and Active Run.

Demo



Dataset Editors

Several different dataset editors:

- **Remarks editor**
- **General data editor**
- **Survey editor**
- **Time/Depth editor**
- **Descriptor editor**



When to Edit a Dataset

Edit a dataset when:

- **Creating a new dataset**
- **There are confirmed invalid data**
 - ◆ **Transmission errors in real-time**
 - ◆ **ROP spikes from improper depth control**
- **Dataset needs manual updating**
 - ◆ **Remarks dataset needs additional remarks**
- **Customer requests editing**



Before Editing Datasets

Do not edit a dataset until:

- **Original data is backed up**
- **Correct data is confirmed by other means**



Opening Dataset Editors

There are multiple ways to open an editor:

- **Creating a new dataset automatically opens the editor for that type of dataset**
- **Double click on an existing dataset in data manager**
- **Select dataset and use Data Manager menu**
- **Right click on dataset and use short menu**



Creating Datasets

Create a new dataset when:

- **A new well is started**
 - ◆ **Remarks dataset**
 - ◆ **Descriptor datasets**
- **Whenever a change in the drilling process requires it**
- **Some datasets are created by other applications (Geometry Editor, MWD Tool Parameters)**



Remarks Dataset

The remarks dataset:

- **Associates remarks with either time or depth**
- **Has a run number of well based**
- **Can be plotted as a trace on a log**
- **Contains explanatory remarks to interpret log data**



Create a Remarks Dataset

Select new dataset

Select the well, type of dataset, type a description, then click OK

Insert new record

Save the new record

Add new remark, then click OK

Demo



General Data Viewer/Editor

Sensor data is edited in the General Data viewer/editor.

- **Used for sensor datasets (DGR, EWR, MWD Surf Pres, etc)**
- **Three different views available**
- **Search for specified records**
- **Edit or delete records in the dataset**
- **Insert or append new records**



Caution

Do not leave an active data set open in the editor for more than 30 minutes.

Data cannot be added to a dataset that is open in the editor. INSITE buffers the data for the open dataset until the editor is closed.

This buffering holds approximately 30 minutes of data. If the dataset is open longer than 30 minutes data may be lost.



General Data Viewer/Editor

The screenshot shows the 'INSITE - General Data Editor - Insite Read' window. The interface includes a main menu bar at the top with 'File', 'Options', 'Record', and 'Help'. A dropdown menu is open under 'Options', showing 'Rescale Now', 'Scale Manually', and 'Bag Data'. Below the menu bar is a toolbar with function buttons like 'Rescale', 'Scale', 'Bag Data', and navigation arrows. The main area contains a 'Regular Display of Data' with two graphs showing yellow waveforms on a black background. Below the graphs is a data table with columns for 'Bank-B Count Rate', 'DGR-XXXX-1 (cp30)', and 'DGR Combined Count Rate'. The status bar at the bottom displays 'For Help, press F1' and 'Index: Time Mode: Editor Insite #1 1200 DGR -LOCAL-'. Red arrows and text labels identify the 'Main Menu Bar', 'Function Buttons', 'Regular Display of Data', and 'Status Bar'.

Bank-B Count Rate	DGR-XXXX-1 (cp30)	DGR Combined Count Rate
1530	1080	



Record View

INSITE - General Data Editor - Insite Read

File Edit View Options Record Help

Data Editor

Name	Value	Unit
Dist From Bit	40.35	ft
Lim High GM GR	0	
Lim Low GM GR	0	
Limit High GM A	250	
Limit High GM B	250	
Limit High GM C	0	
Limit High GR A	0	

Calculated Fields (Not Editable)

DGR True Vert Depth	12668.49	ft	DGR True Vert Thickness	12668.49	ft	DGR True Vert Depth SS	12668.49	ft
DGR True Strat Thickness	12668.49	ft	DGR Horiz Displacement	1535.46	ft	DGR Vertical Section	1534.11	ft
DGR Data Density	0.38	ptpf	DGR Exposure Time		min			

Index: Time Mode: Editor Insite #1 1200 DGR -LOCAL-

Demo



Environmental Datasets

The environmental datasets contain information on the downhole environment:

- Depth Env
- Time Env

Edited using Env Params & Formation Properties located in System Manager /



Env Params &
Formation
Properties



Depth Environmental Datasets

Untitled - Env Params & Formation Properties

File Edit Help

Hole Diameter

Matrix Density
Matrix Lithology
Formation Water Salinity Cl-
Mud Density
Whole Mud Chlorides Cl-
Fluid Density
Mud Type
Rotating
Average Offset
Temperature
Resistivity
Pressure
Gamma Ray
Ro
KCl Concentration
Toolface
Mud Resistivity

Hole Diameter is necessary for processing CTN, CNP, DGR, DGR-Solar, GM, AGR, PCG, Cement Volume, EWR-M5, EWR-P4, EWR-P4D, EWR-Solar, Slim P4, S Slim P4, EW RP4-500K

Primary Secondary

Depth (feet)	Hole Diameter (in)
0.000	8.25

Primary Secondary

Run Number 100

Record

Description

Variable

Use Run Descriptor

Gap Fill 5.000000 feet

T/D Activity Drilling

Data Value Every 1 feet

Coercion Option Linear Interpolation

Ready

-LOCAL- New



Time Environmental Datasets

Untitled - Env Params & Formation Properties

File Edit Help

Hole Diameter
Matrix Density
Matrix Lithology
Formation Water Salinity Cl-
Mud Density
Whole Mud Chlorides Cl-
Fluid Density
Mud Type
Rotating
Average Offset
Temperature
Resistivity
Pressure
Gamma Ray
Ro
KCl Concentration
Toolface
Mud Resistivity

Mud Density is necessary for processing ACaliper, SLD, ALD, CNP, CTN, DGR, DGR-Solar, GM, AGR, PCG, ZCAL

Primary Secondary

Date	Time	Mud Density (ppg)
01-Jan-70	00:00:00	10.0

Primary Secondary

Run Number 100

Record

Description

Variable

Use Run Descriptor

Gap Fill 3600.000000 sec

Data Value Every 60 sec

Coercion Option Linear Interpolation

Ready

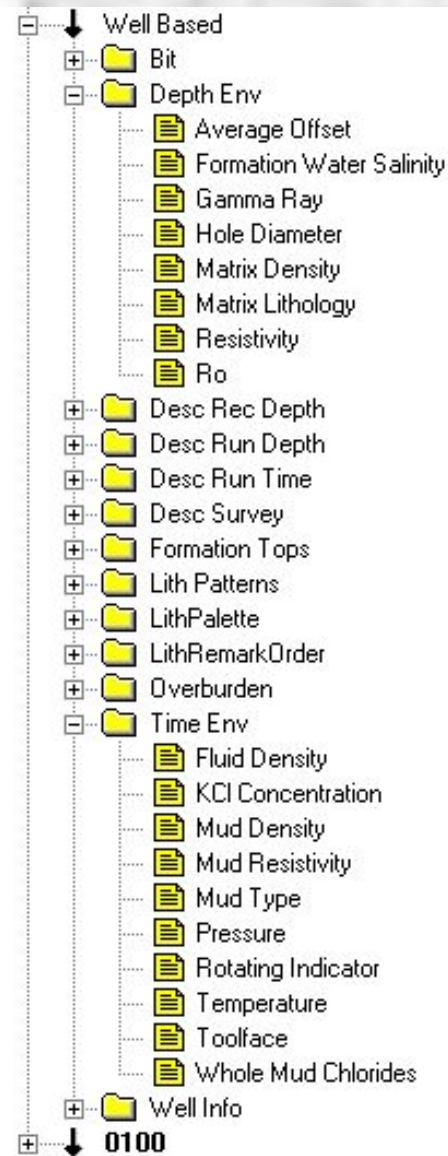
-LOCAL- New



Environmental Datasets

Located in the Well Based Run

Selecting in Data Manager opens Editor





Editor and Dataset Review

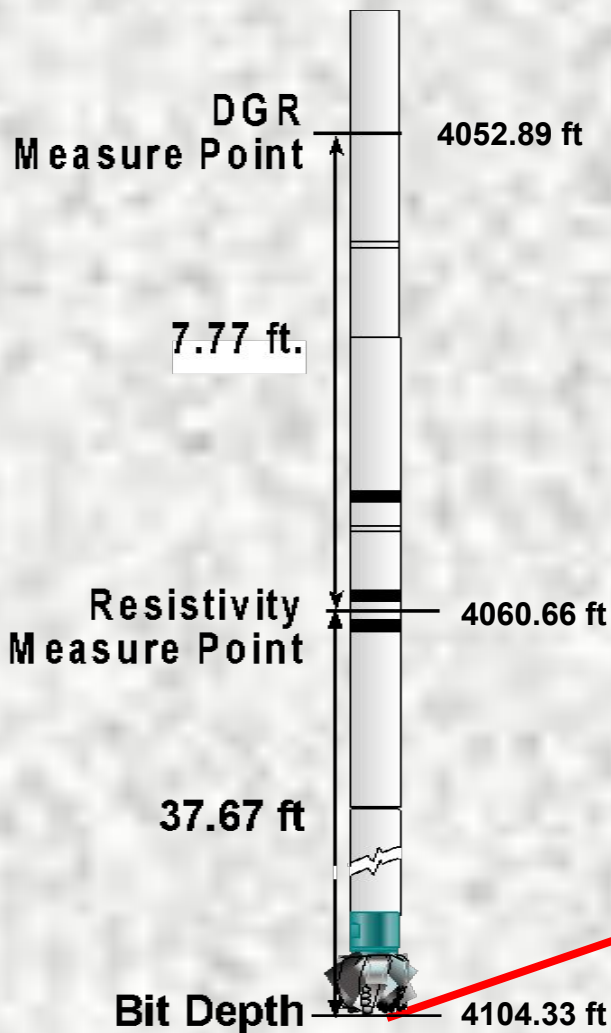
- **Dataset Editors**
- **Creating datasets**
- **Remarks editor**
- **General data editor**
 - ◆ **Layout**
 - ◆ **Displays**
 - ◆ **Menu options**
- **Environmental Dataset Editor**



End of Lesson 6



The depth in the Time/Depth dataset is bit depth



INSITE - Time/Depth Viewer - Master - [Spreadsheet]

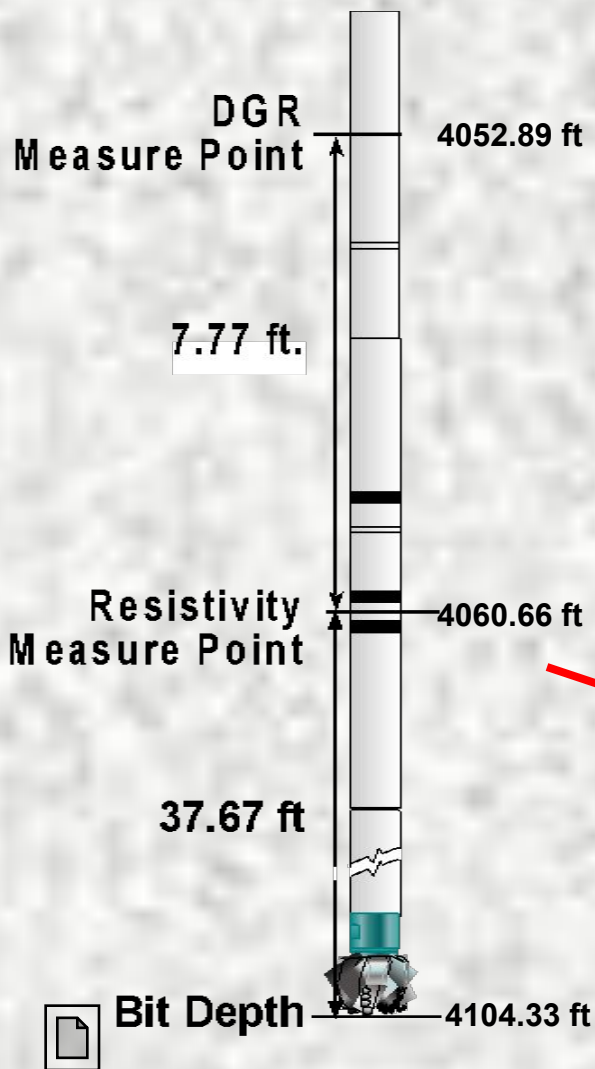
File Edit View Window Help

Time/Depth Time & Date	Time/Depth Depth (ft)	Time/Depth T/D Activity	On Btm Status
01-Oct-98 09:45:12	4101.77	Trip In	Off
01-Oct-98 09:45:22	4101.72	Trip In	Off
01-Oct-98 09:45:26	4104.33	Drilling	On
01-Oct-98 09:45:36	4104.33	Drilling	On
01-Oct-98 09:45:46	4104.33	Drilling	On
01-Oct-98 09:45:56	4104.41	Drilling	On
01-Oct-98 09:46:06	4104.49	Drilling	On





The depth in EWR Datasets is sensor depth



INSITE - General Data Viewer - Insite Read

File Edit View Options Record Help

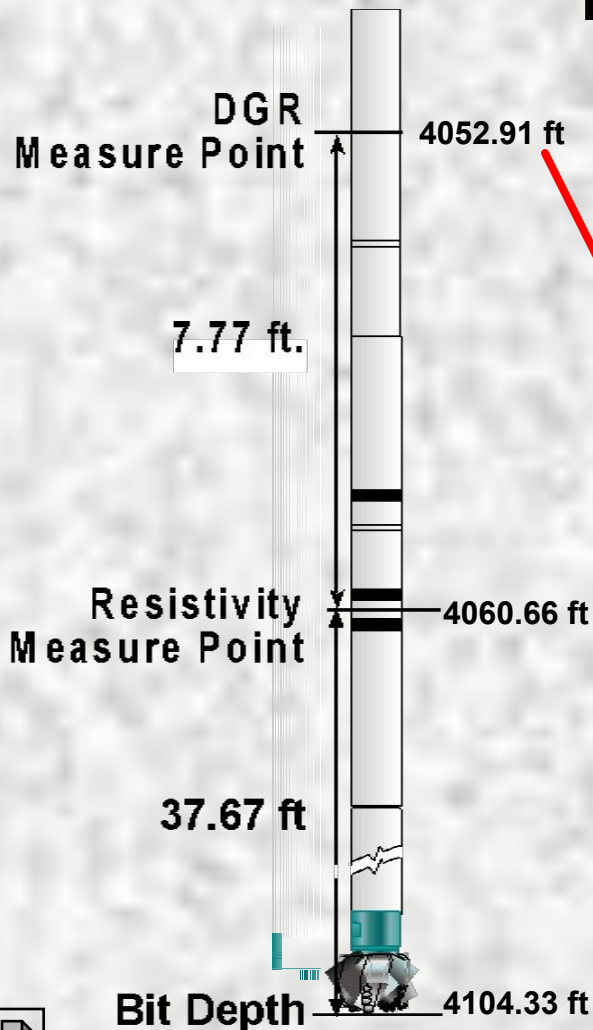
	EWR S Phase Ang Time & Da	EWR S Phase Ang Depth	EWR S Phase Ang T/D Activ	EWR S Phase Ang Cnts Phas	EWR S Phase Ang TVD	EWR S Phase Ang TVT
↓	01-Oct-98 09:44:51	4058.03	Trip In	32755	4055.93	4055.93
↓	01-Oct-98 09:45:03	4058.05	Trip In	32755	4055.95	4055.95
↓	01-Oct-98 09:45:15	4058.09	Trip In	32755	4055.98	4055.98
	01-Oct-98 09:45:27	4060.66	Drilling	32755	4058.55	4058.55
	01-Oct-98 09:45:39	4060.66	Drilling	32755	4058.55	4058.55
	01-Oct-98 09:45:51	4060.70	Drilling	32755	4058.59	4058.59
	01-Oct-98 09:46:03	4060.80	Drilling	32755	4058.69	4058.69
	01-Oct-98 09:46:15	4060.75	Drilling	32755	4058.64	4058.64

For Help, press F1

Index: Time Mode: Viewer mwd_10_C_02H 300 EWR S Phase Ang -LOCAL-



The depth in the DGR Datasets is sensor depth



INSITE - General Data Viewer - Insite Read

File Edit View Options Record Help

	DGR Time & Date	DGR Depth (ft)	DGR T/D Activity	DGR Bank-A Count Rate	DGR Bank-B Count Rate	DGR Gamma Ray A	DGR Gamma Ray B	DGR Combined Gamma Ray	DGR True Vert Depth
↓	01-Oct-98 09:45:21	4050.28	Trip In	720	840	41.03	47.86	44.44	4048.18
⚡	01-Oct-98 09:45:33	4052.89	Drilling	840	660	47.86	37.61	42.74	4050.78
⚡	01-Oct-98 09:45:45	4052.89	Drilling	720	540	41.03	30.77	35.90	4050.78
⚡	01-Oct-98 09:45:57	4052.97	Drilling	840	1020	47.86	58.12	52.99	4050.87
⚡	01-Oct-98 09:46:09	4053.02	Drilling	630	960	35.90	54.70	45.30	4050.92
⚡	01-Oct-98 09:46:21	4052.91	Drilling	750	750	42.74	42.74	42.74	4050.81
⚡	01-Oct-98 09:46:33	4052.99	Drilling	600	780	34.19	44.44	39.32	4050.89

For Help, press F1

Index: Time Mode: Viewer mwd_10_C_02H 300 DGR -LOCAL-



End of Lesson 6

End of Lesson 6