Rigsite for LWD Lesson 6

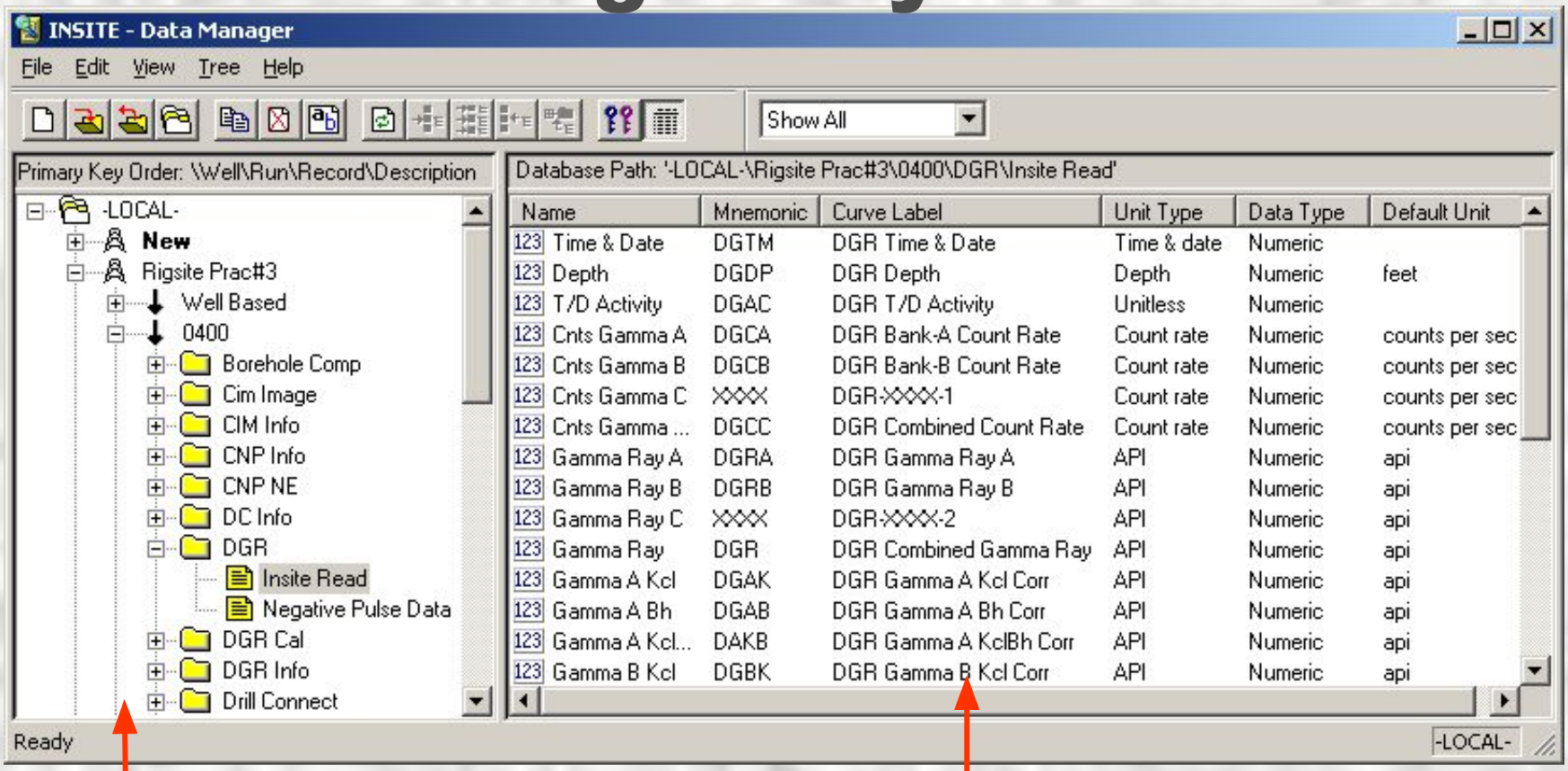
Data Management

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



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

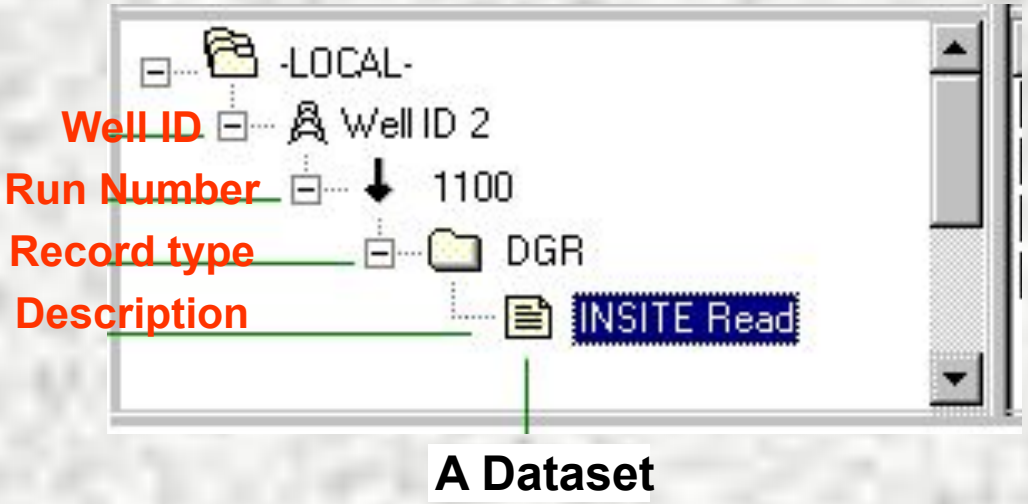
Record data is stored in datasets:

- 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



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:

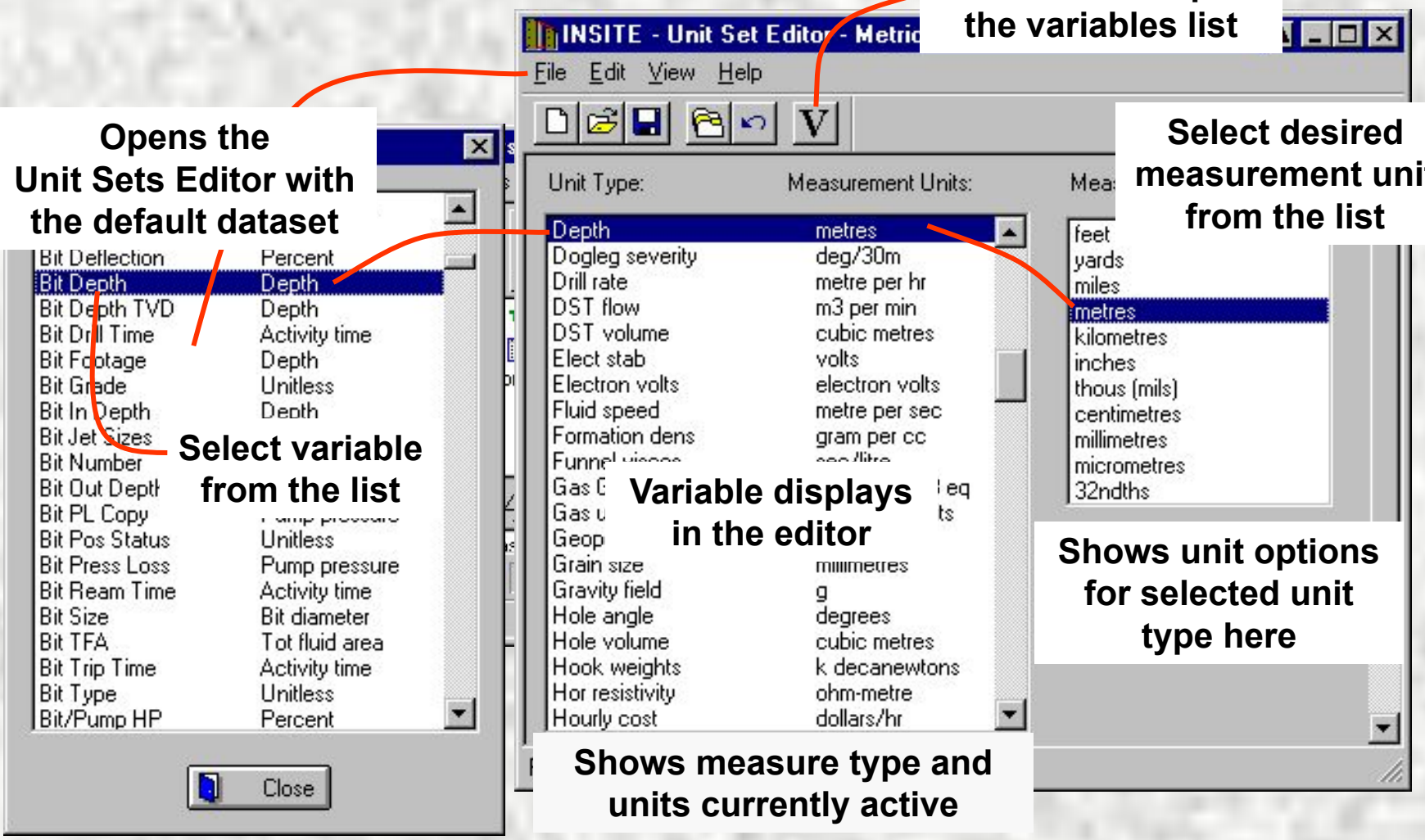
- Indexed against time or depth
- Characterized by
  - Variable name (TVD, EWR phase angle, etc)
  - Unit type (depth, phase angle, hole angle, mud density, etc.)
  - Measurement unit (feet, degrees, lb/gal, etc.)

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



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**

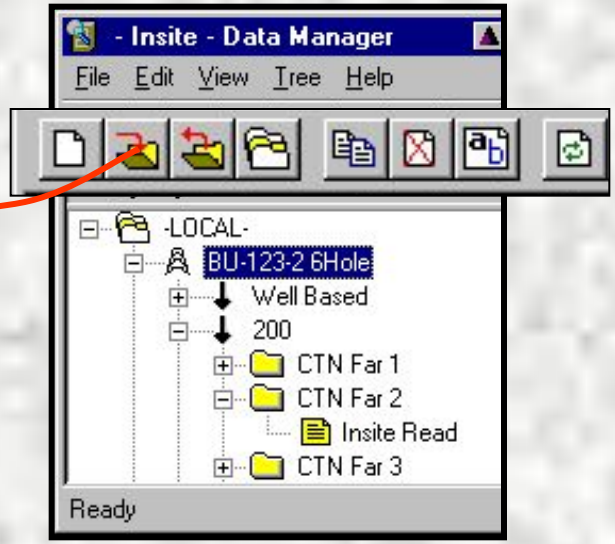
Importing ADI Files

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

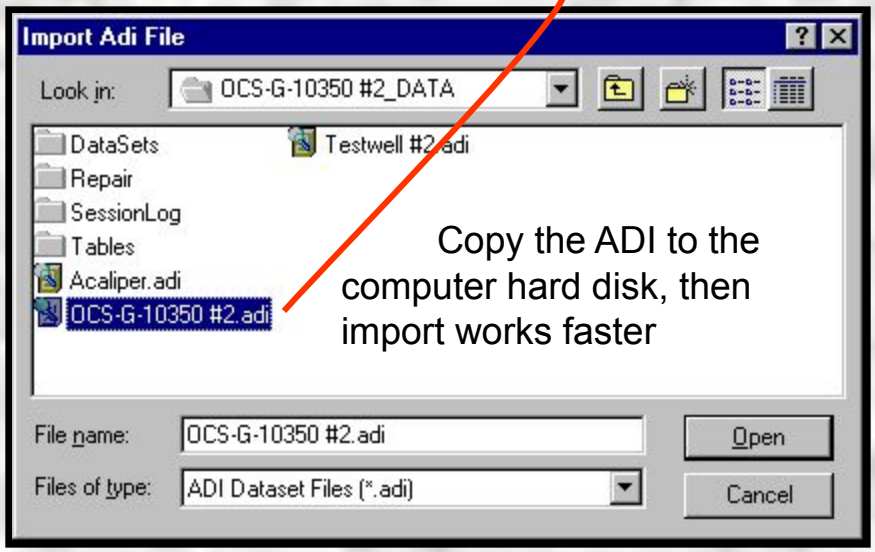
- **Entire file or selected datasets**
- **Datasets with the same 4 keys overwrite**
- **Data Directory containing config files**
- **Data Directory renamed during import**
- **Session Logs**

Import ADI Process

1. Click Import Data



2. Select import file



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

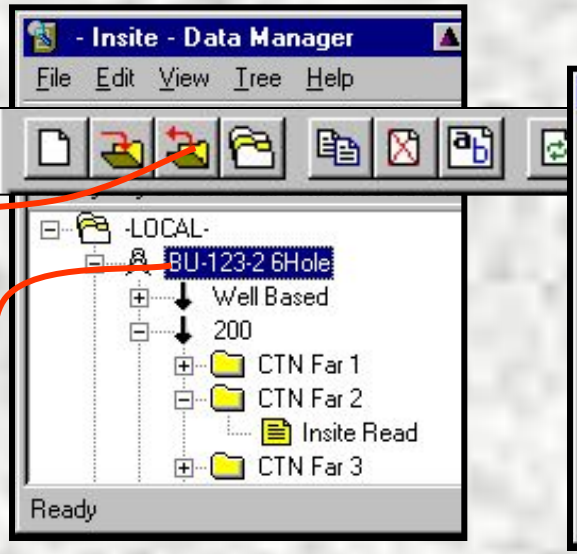
Export will create an ADI file for any part of the database selected:

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

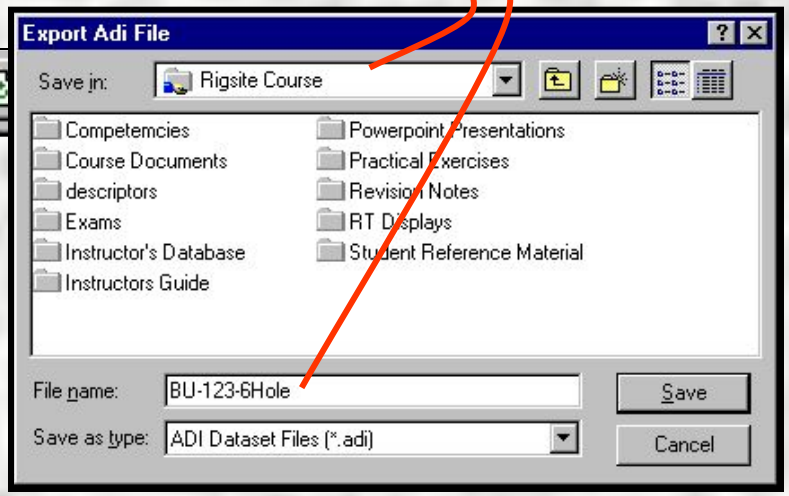
Export ADI Process

1. Select the data to export

2. Click Export Data



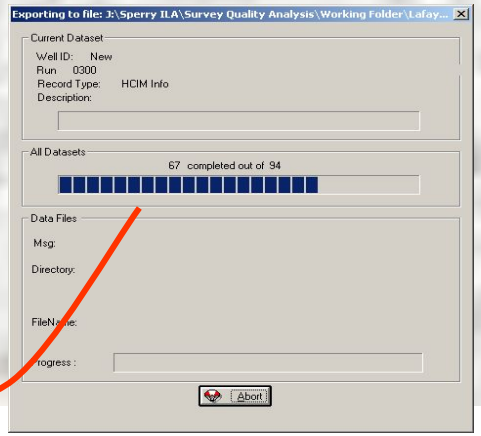
3. Select export destination and file name



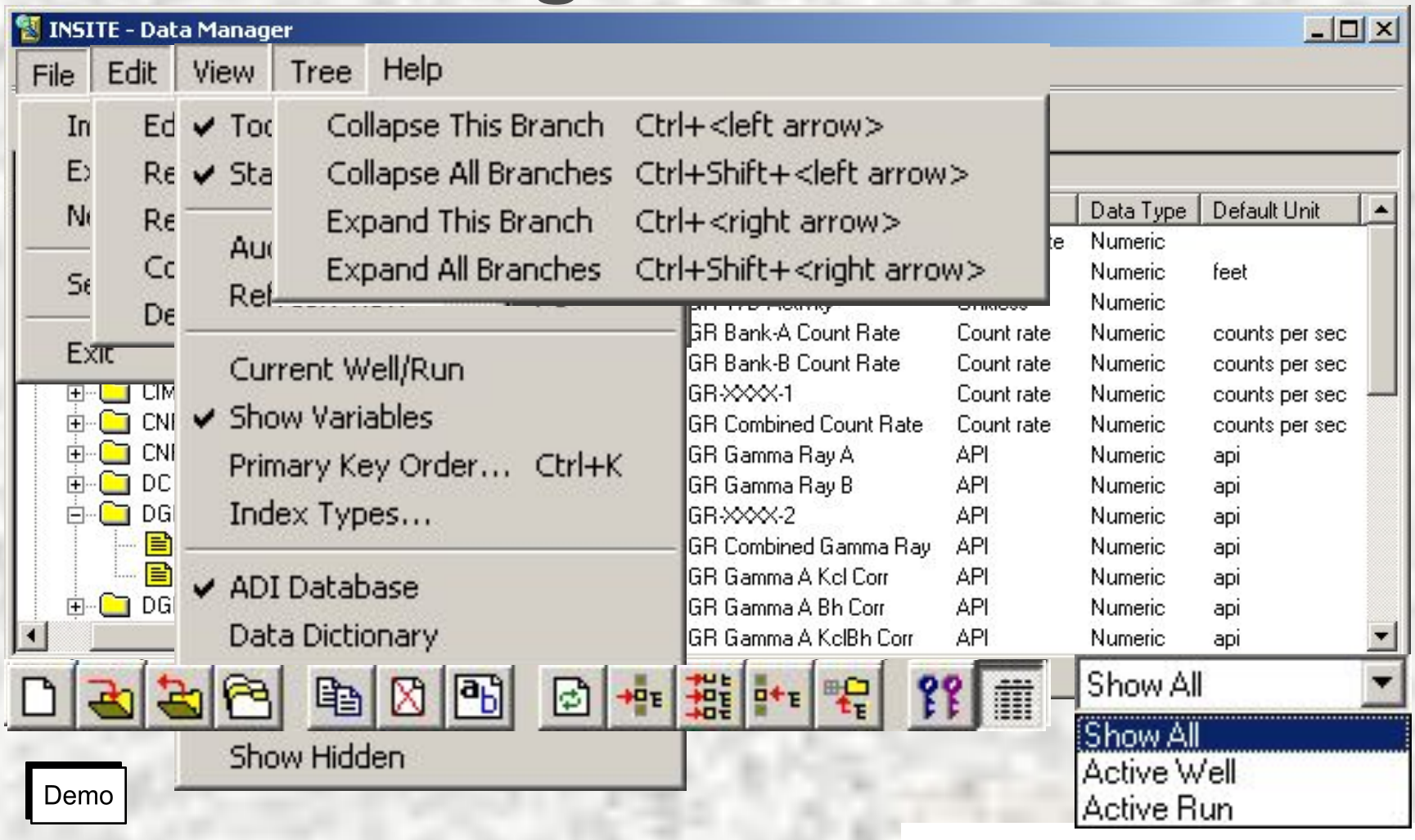
4. Select what type data to export

Demo

5. Export Progress displayed



Data Manager Main Menu



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:

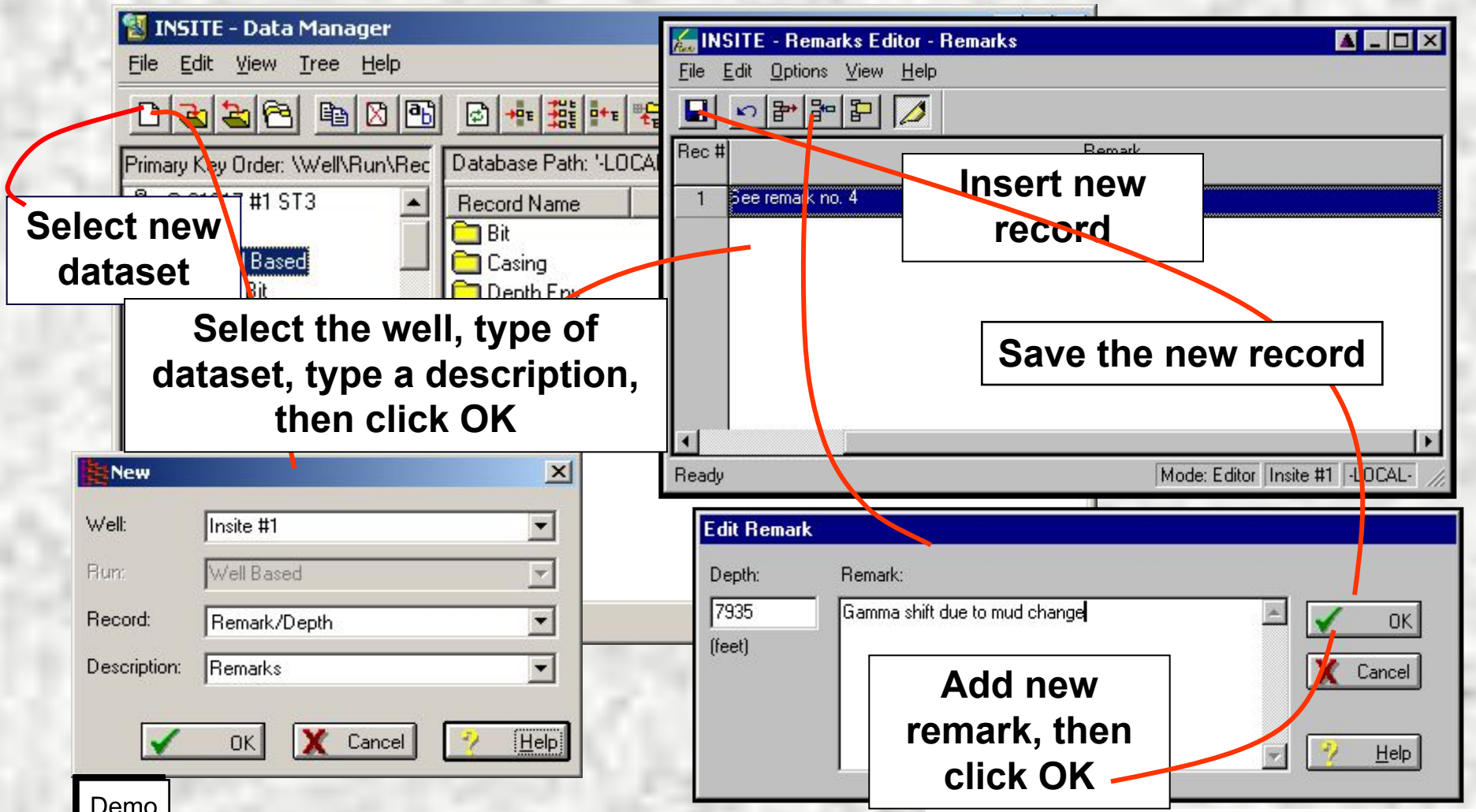
- A new well is started
  - Remarks dataset
  - Descriptor datasets
- Whenever a change in the drilling process requires it
- Some datasets are created by other applications (Geometry Editor, MWD Tool Parameters)

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



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**

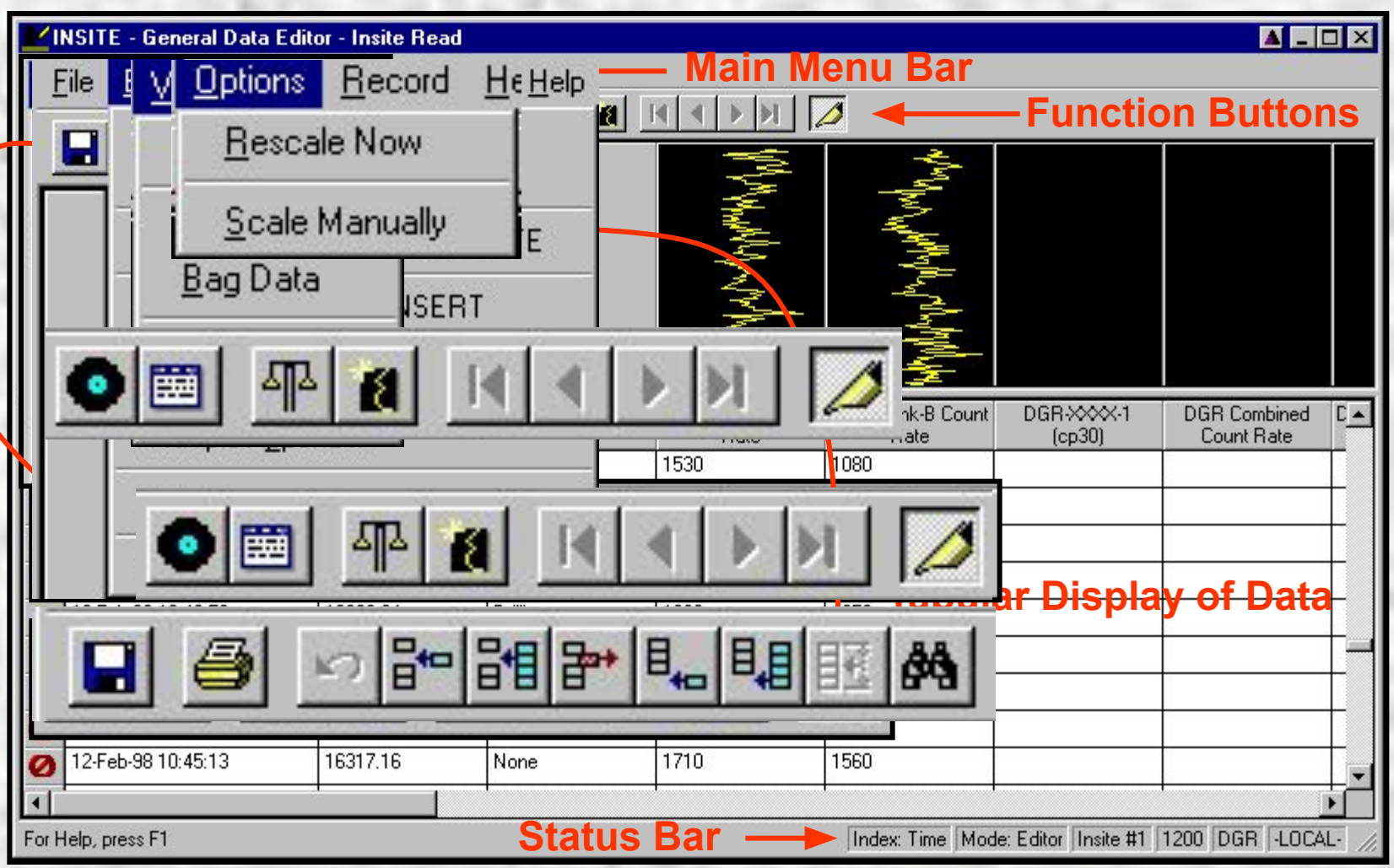
Caution

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

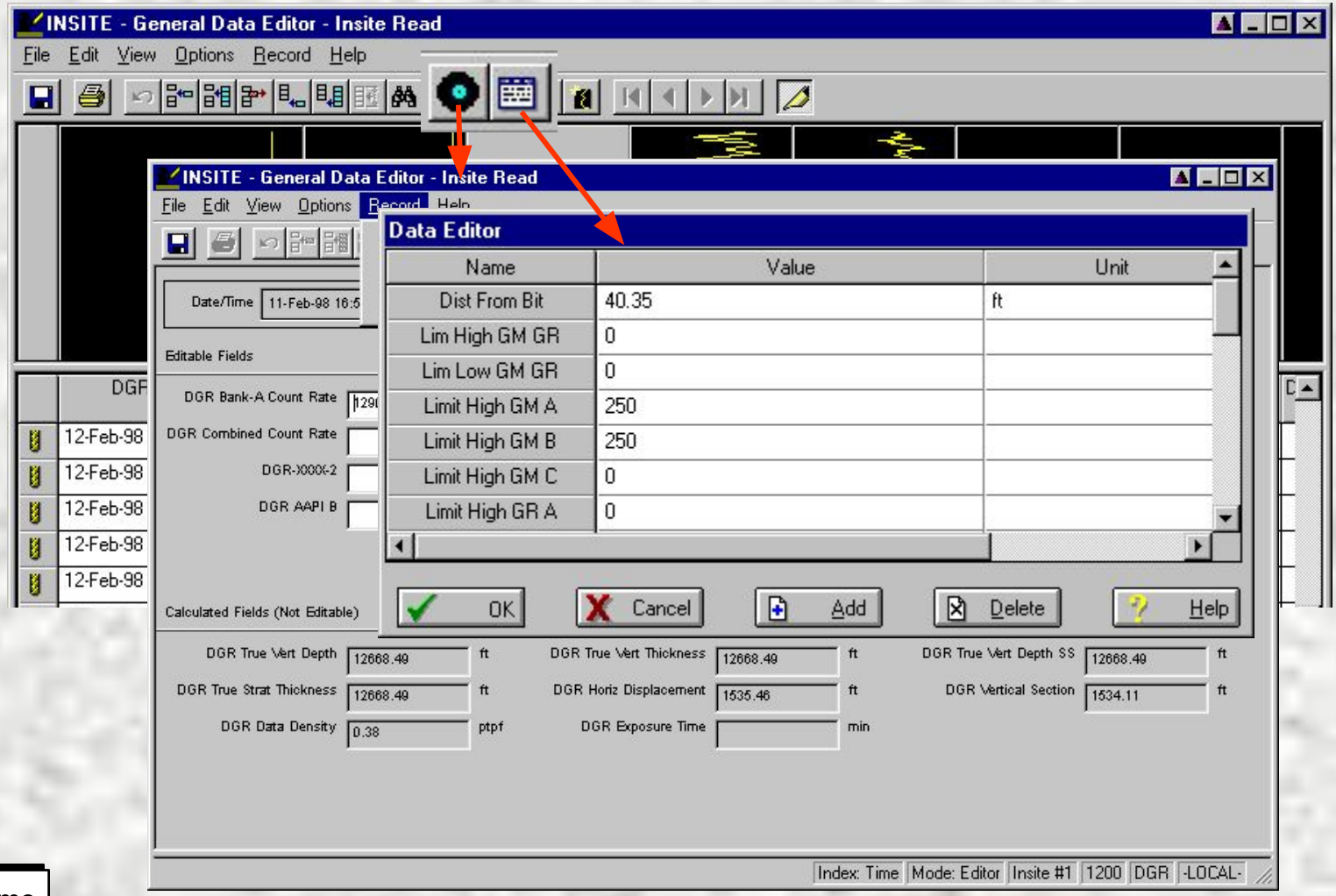
Data cannot be added to a dataset that is open in the editor. INSITE buffers the data for the open dataset until the editor is closed.

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

General Data Viewer/Editor



Record View



Demo

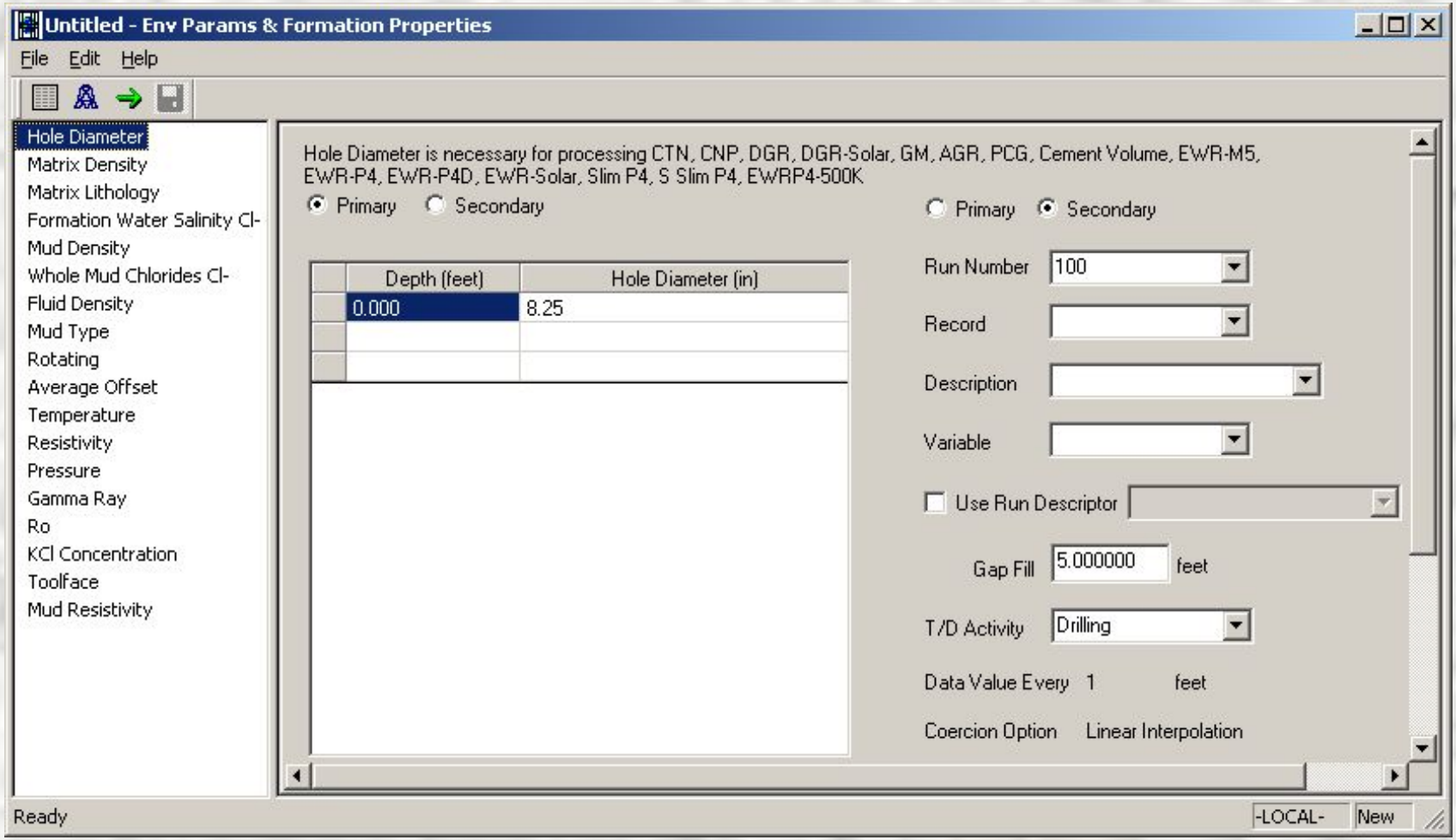
Environmental Datasets

The environmental datasets contain information on the downhole environment:

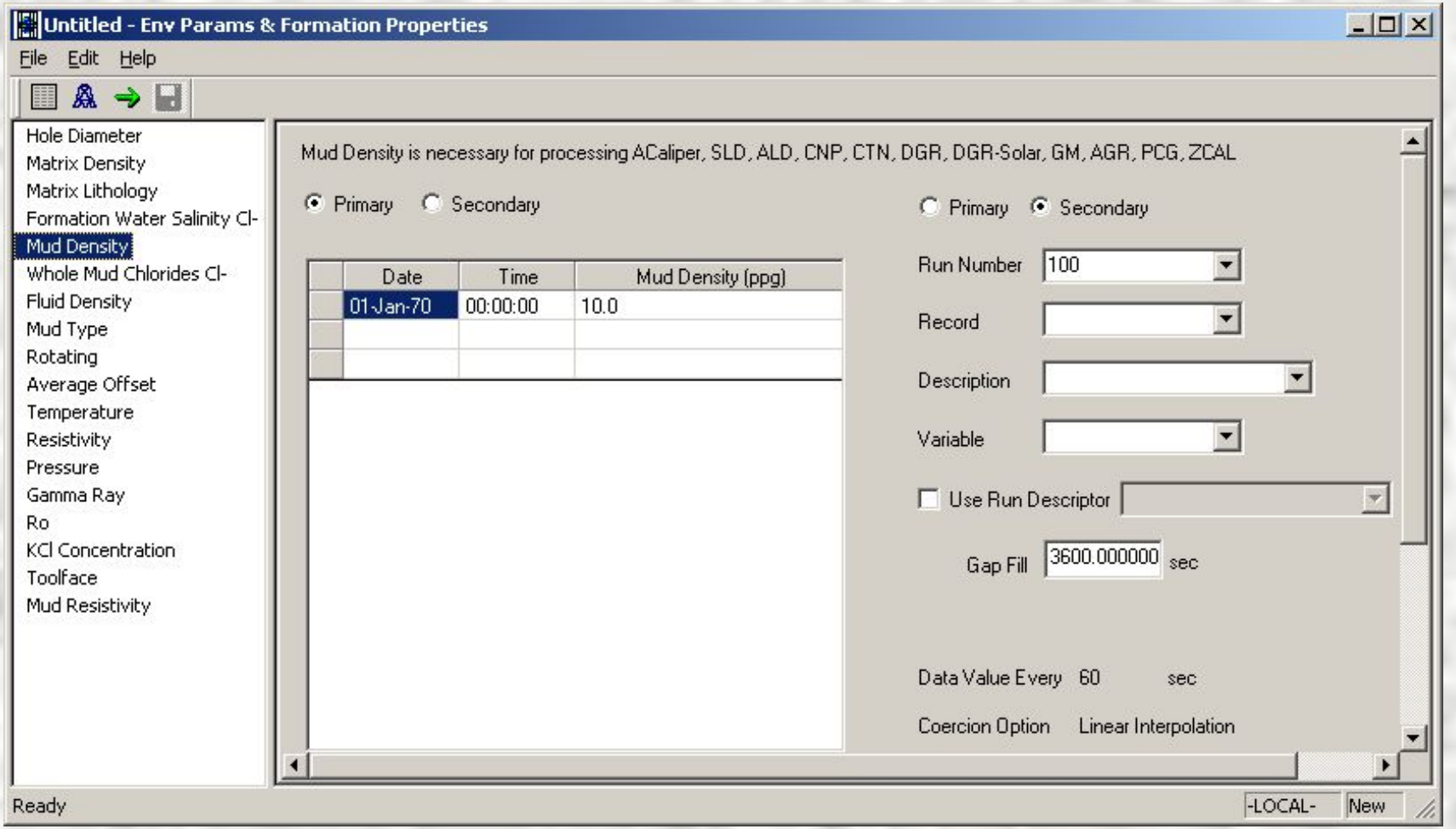
- **Depth Env**
- **Time Env**

Edited using Env Params & Formation P es located in System Manager /

Depth Environmental Datasets



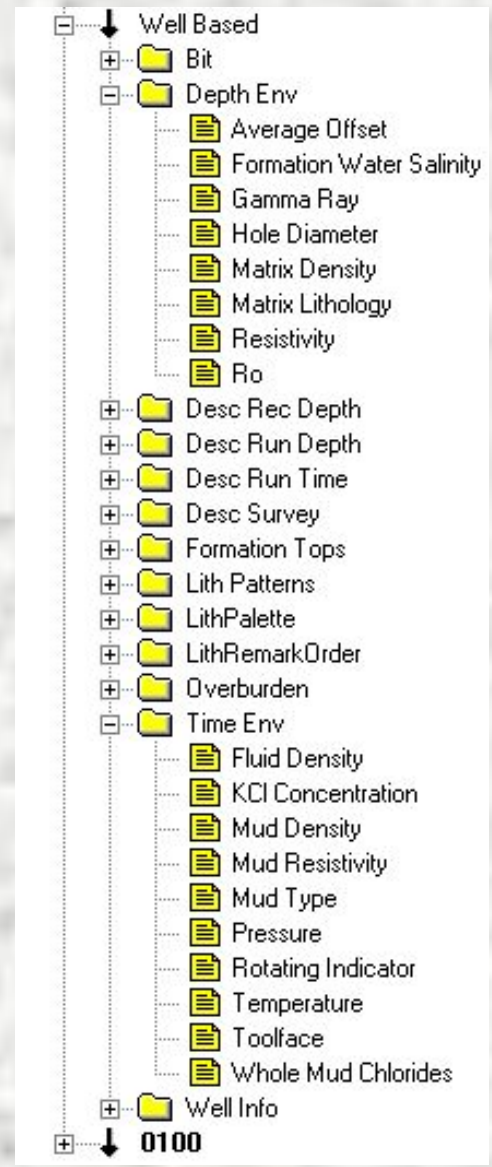
Time Environmental Datasets



Environmental Datasets

Located in the Well Based Run

Selecting in Data Manager opens Editor

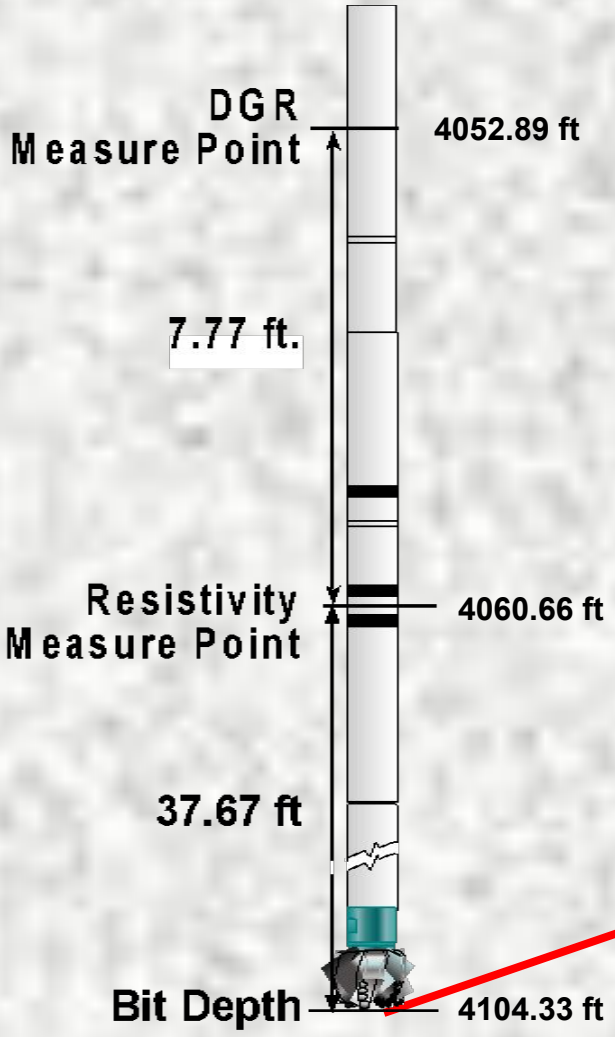


Editor and Dataset Review

- 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

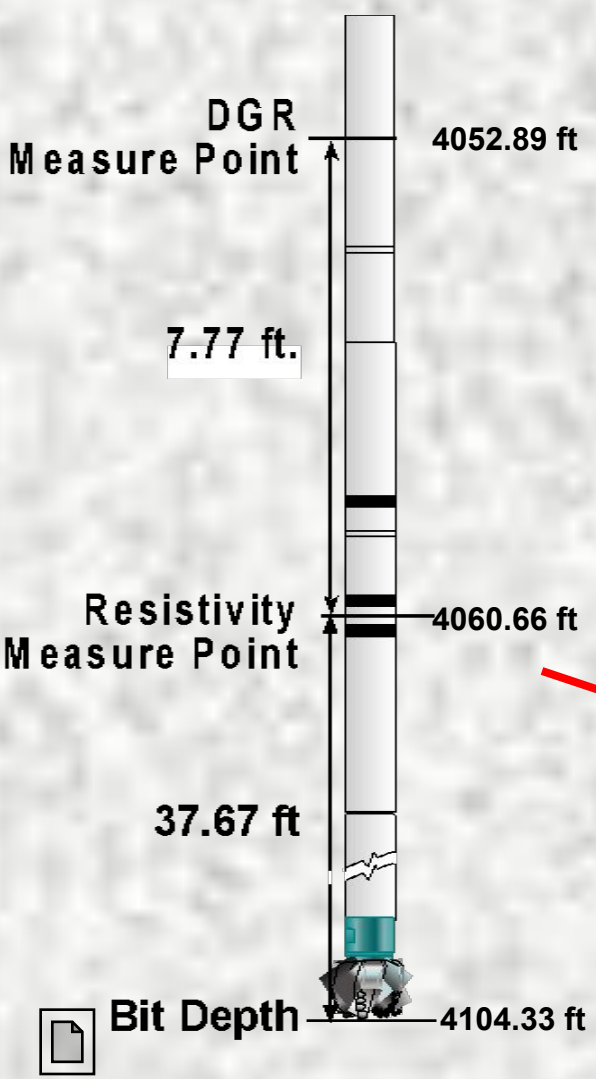


INSITE - Time/Depth Viewer - Master - [Spreadsheet]

File Edit View Window Help

ime/Depth Time & Dat	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

The depth in EWR Datasets is sensor depth



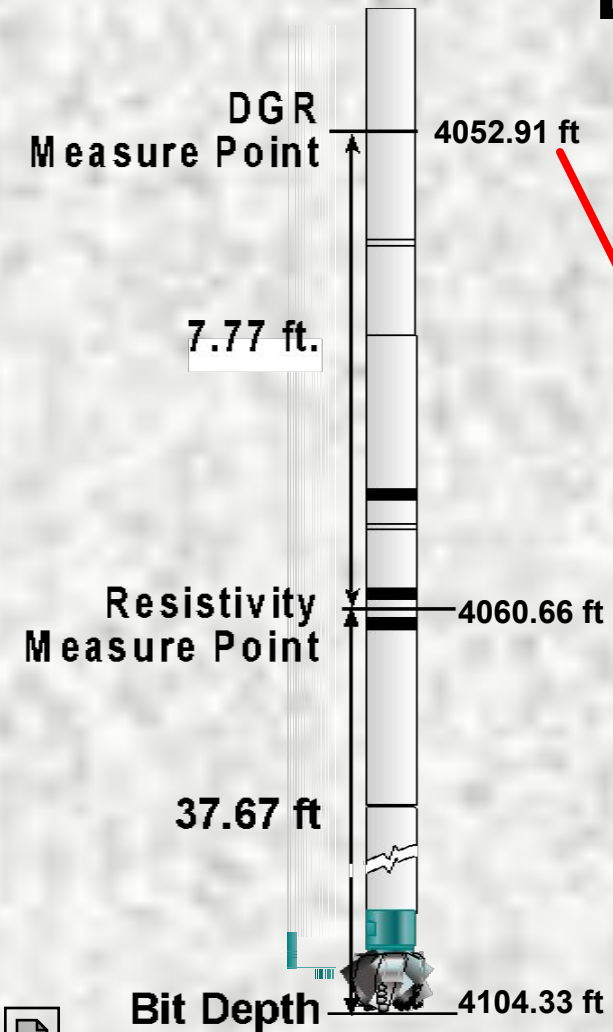
INSITE - General Data Viewer - Insite Read

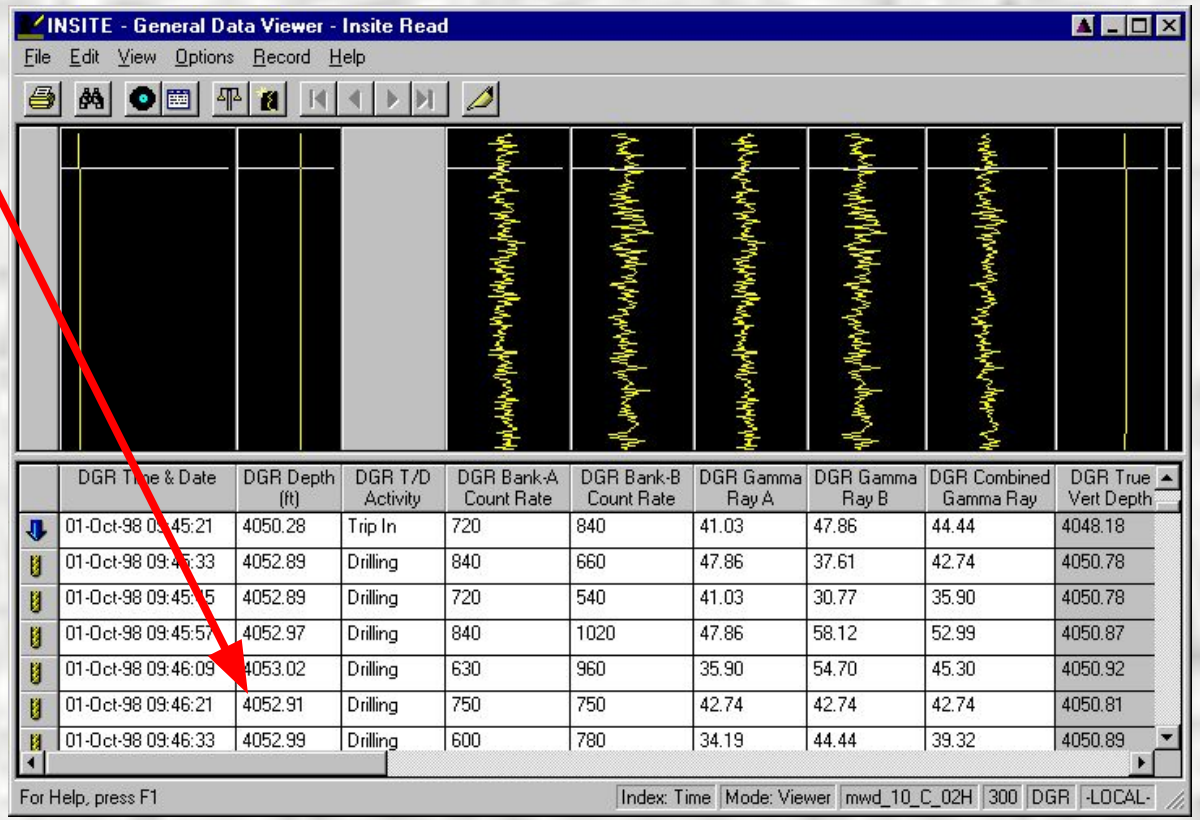
File Edit View Options Record Help

	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





End of Lesson 6

End of Lesson 6