Practical 3

SUBJECT: **Database Structure**
OBJECTIVE: **Utilize Data Manager to view and manipulate data**
MATERIALS: **KeenerKanyon.adi**

Part I – What is an .adi file?

This is a file type that is created by our ADI computer. In a nutshell, we collect data (IRIS, WITS, Profibus, etc.) which is written into an encrypted database on our ADI. We can import or export this data using Data Manager. For this practical, we will need to import data so we can learn about InSite's database structure.

Part II – What is Data Manager?

Go to **InSite Studio** and click the **Data** tab. Click **Data Manager** to open it. Once it is opened, it should look something like this:

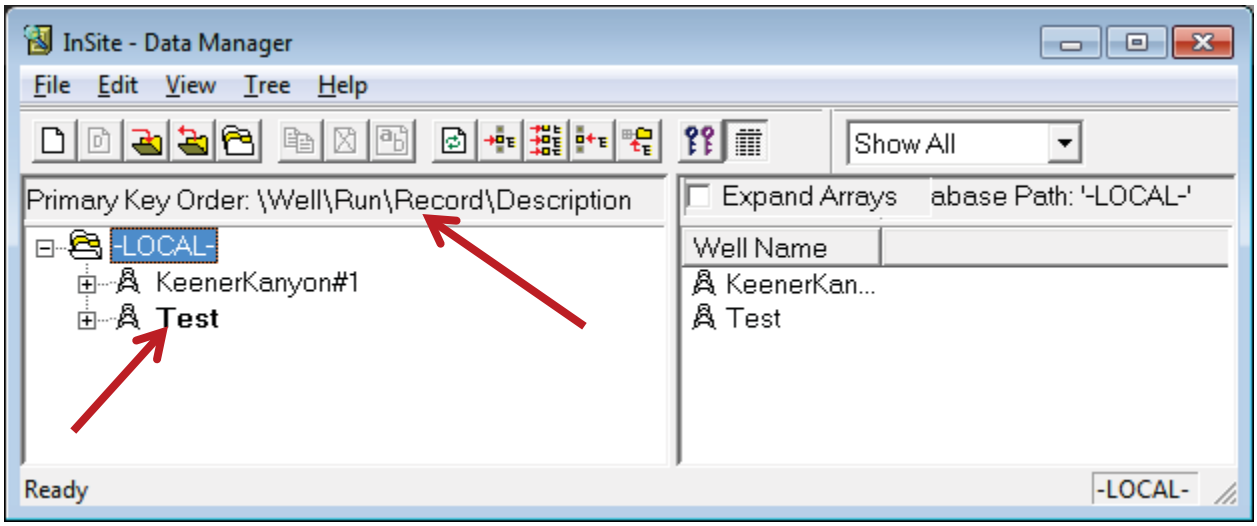

Figure 3.1

You will notice there are 2 arrows in Figure 3.1; one points to the ***Primary Key Order***, the other points at ***Test***. The primary key order is ***Well \ Run \ Record \ Description*** by default, and it determines how the database is structured. In the screen capture you will notice ***-LOCAL-*** which refers to the ADI database. Under that, you should have a single well called Test. This is the first level of our "Data Tree." If you click the plus button next to Test, the "tree" will open up to reveal our second level – individual runs.

You should have Well Based and run 0100. The third level is known as a Record. If you click the plus button next to run 0100, it will open and we can now see every Record within that particular run. Now, find the Time SDL Fast Record and click the plus button next to it. It will open and there will simply be this:
The little yellow box that looks like a page is the Description. It can have a name, but SDL Descriptions generally do not.

A single click on the description will give you a list of variables contained in the record. Double click the Description for Time SDL Fast. This will open up a page called the ***General Data Editor*** (Figure 3.2). It displays all of the time-based data you have been "collecting" since you turned on your IRIS server. We can use the general data editor to search and view data, amongst other things.

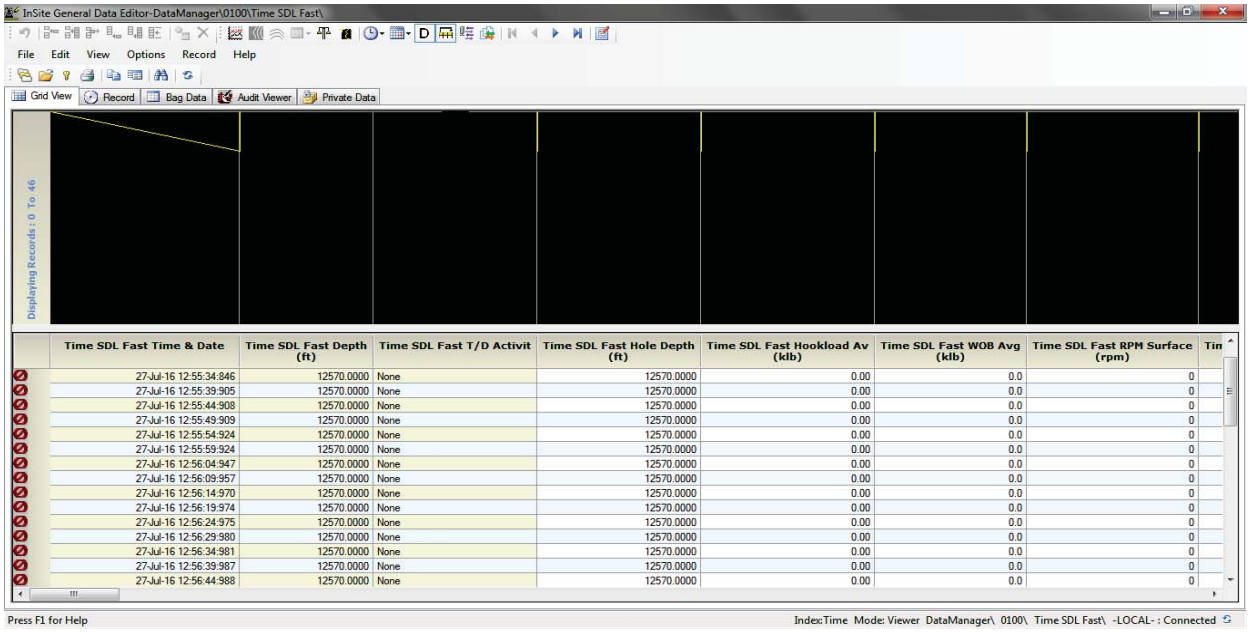

Figure 3.2

Part III – Import the KeenerKanyon.adi file

You will be given a class folder which you should put on your desktop, KeenerKanyon.adi is located within the folder. To import an .adi file through data manager, look for the ***Import Dataset***  button. Once you have clicked it, you will be able to browse for the .adi you wish to import. You should see the following (Figure 3.3). Make sure to select ***Complete Database Tables*** then Click ***Import All***.

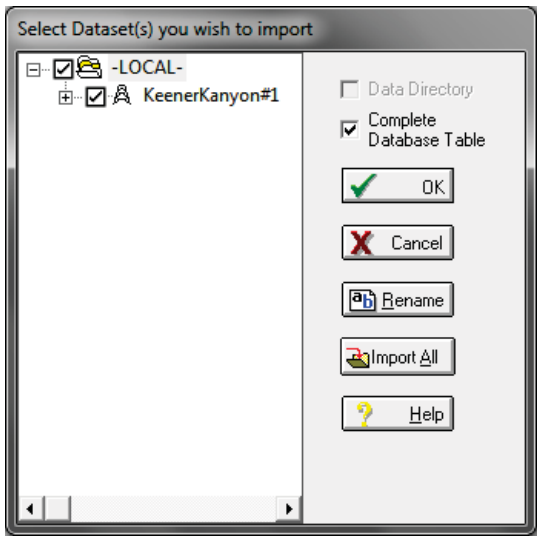

Figure 3.3

Once you have done so, you should see a new well in your Data Manager – KeenerKanyon#1.

Quick Lesson

InSite has MANY Records because it is used by every Halliburton PSL. We will not use all of them; in fact, there are relatively few that we will primarily use. ***As a general rule, data can be expressed in terms of depth and time***. Consequently, we have certain Records we use for depth-based data and others we use for time-based data.

SDL specific depth-based Records we use often include, but are not limited to: BSL GC1 Intvl, Logging, Lag, Lagged Gas and Lith Cuttings. Conversely, our most used time-based Records include: BSL GC1 Cycle, Lagged Gas Time, Pit Volume, Time SDL Fast, Time SDL RT, Time SDL Slow and Time SDL Stats. You should notice that none of these have a Description with a name (this is typical for SDL).

One Record that transcends time and depth is Time/Depth. Check the Description out. Does it have a name?

1. Write the name for the Time/Depth Description on your answer sheet for #1.

NOTE: T/D Activity selection is important. Making sure the activity matches the operation as it occurs will assist in searching for data afterwards.

Part IV – Using General Data Editor

Now that you have imported KeenerKanyon.adi, we can look at some real data. Open Run 0100 and find the ***Logging*** Record. Double click the Descriptor to open the General Data Editor. You will notice a series of depth-based data points (yes, they do have time stamps as well). Every time InSite tracks the bit making a new foot, it captures the most recent data for each parameter (torque, WOB, etc.) and writes it in this dataset. Find and click the ***Search*** button in the tool bar (Figure 3.4).

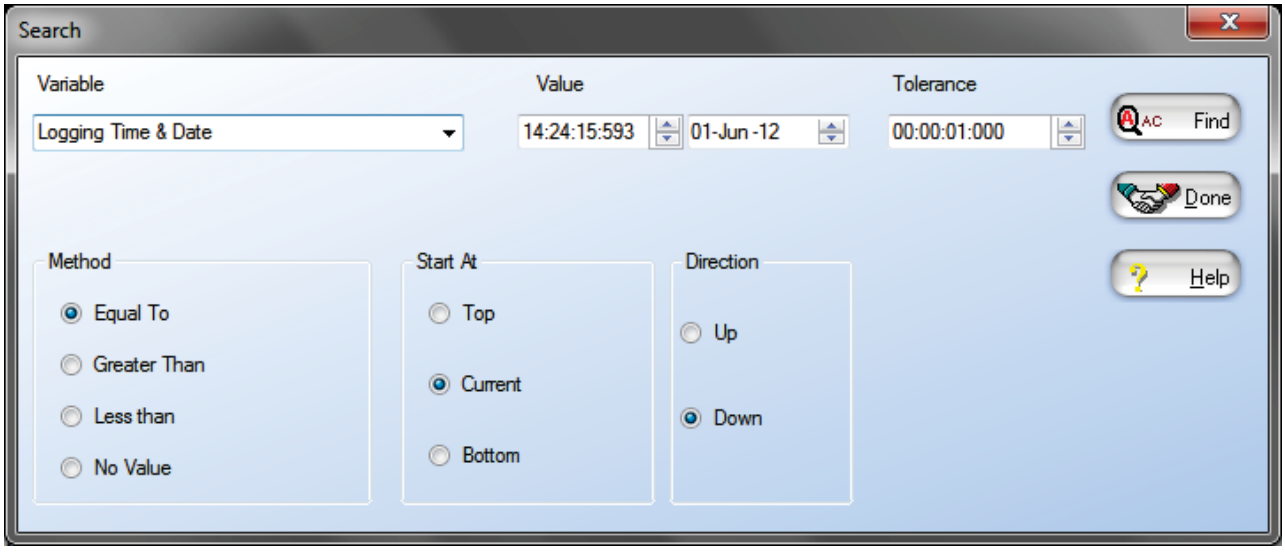

Figure 3.4

This functions in the same manner for every General Data Editor. You must select the Variable you wish to search for. This is a great way to search for the type of activity that is occurring. While this well was being drilled, the logger accidentally changed the mode from Drilling to Circulating at one point, and later from Drilling to Trip In. We need to find these data points and change the T / D Activity back to Drilling.

Select ***Logging T / D Activity*** from the Variable drop down. Search for the Circulating activity first by changing the Value to ***Circulating***. Leave the Method on ***Equal To***, select ***Top*** for the "Start At" and ***Down*** for the "Direction."

When you click ***Find***, the Editor will take you to the data in question. What are the depths where the mistake was made?

2. Write the depth range down on your answer sheet for #2.

Now you can change the activity back to Drilling. You can do that one data point at a time, but what if you have hundreds of data points that need to be changed to the same thing? That is what ***Range Edit*** is for. Select the data points you wish to change (select the first, hold down shift, then the last). Click the ***Change Edit Mode*** button, then ***Range Edit*** (Figure 3.5).

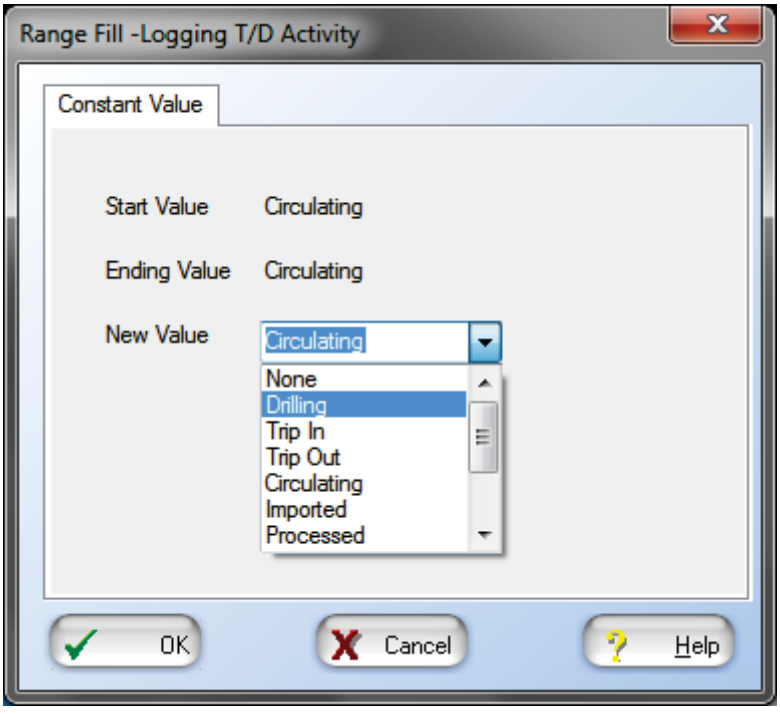

Figure 3.5

Select ***Drilling*** from the New Value drop down and ***OK***. Do the same steps and find ***Trip In***.

3. Write the depth range on your answer sheet for #3.

Use Range Edit to change the activity from Trip In to Drilling. Once you have completed these tasks, click the save button to keep your changes.

QUESTIONS

4. What is the default primary Key Order?
5. What does it determine?
6. Data can be plotted against what two independent variable types?
7. What must be opened in Data Manager to view and change data?
8. Which application must be used to Import / Export ADI files?
9. What are SDL's most used depth-based Records?
10. What are SDL's most used time-based Records?