

Practical 4

SUBJECT: Descriptors
OBJECTIVE: Learn what Descriptors do and which to use

Descriptors are InSite's way of tying information from multiple runs together. Think of only one variable: ROP. Each drilling run, InSite records what the rig's ROP is and writes that data in the Logging Record. If you wish to make a single log showing the ROP for the entire well, you cannot access each individual run. A descriptor is created that tells InSite to use the data from each run.

What Descriptors are there?

In all, there are 7 Descriptors. *Desc Rec Depth, Desc Rec Time, Desc Run Depth, Desc Run Time, Desc Var Depth, Desc Var Time* and *Desc Survey*. Notice a trend here? 6 of the Descriptors have either Depth or Time in the name, indicating what type of descriptor it is. Further, you will notice that 2 are Rec (Record), 2 are Run, and 2 are Var (Variable). Looks suspiciously like our Primary Keys, doesn't it? You might ask "Where does Var come from?" That particular descriptor looks at the database on the Description level, but it would look weird to call it Desc Desc... well, you get the picture.

So, how will these primarily be used by the logger? These Descriptors allow us to display information from the entire well, as stated above. The ones with Depth in the name will only be used for depth-based displays, and the ones with Time in the name will be used for time-based displays. If you wanted to create a Time Log, which type of Descriptor would you use – depth-based or time-based?

Descriptors are located in the Well Based run – **ALWAYS**. Certain of the Descriptors will be created automatically and others will have to be created if necessary. Here's a list of some of the Descriptors most commonly used by SDL:

- **Desc Rec Depth** – Comprised of Descriptor Descriptions including: Chromatograph, Drill Model, Lag, Lagged Gas, Lithology, Time/Depth. Missing any of the above descriptor descriptions may result in some calculated data not being presented. All depth-based GC data will be pulled together using Chromatograph. Drill Model deals with calculators that provide important variables such as D Exponent. InSite cannot calculate Lag unless you update the Lag Descriptor. Lithology and Time / Depth are also controlled with these Descriptors. Here is the Lag Descriptor (Figure 4.1):

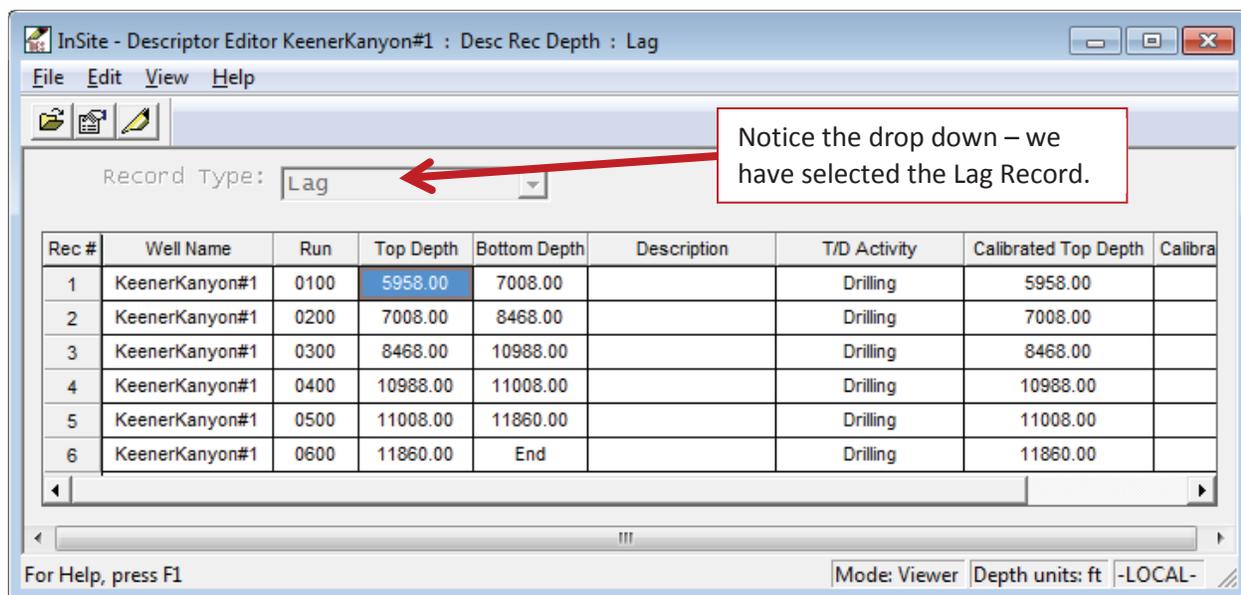


Figure 4.1

- **Desc Run Depth** – Most of our depth-based data will be tied together with this Descriptor. It looks at entire Runs rather than individual Records. When InSite creates Desc Run Depth for a new well, several individual Descriptor Descriptions will be made: Logging, MWD, Time/Depth and Wits Received. Figure 4.2 is the SDL Logging Descriptor:

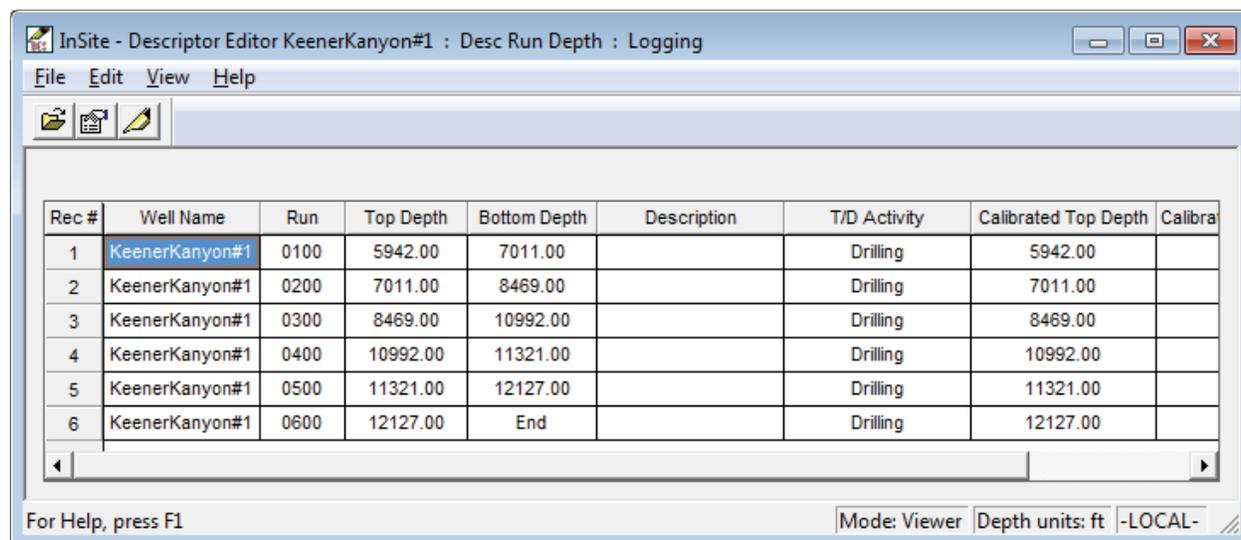


Figure 4.2

- **Desc Run Time** – This is the time-based equivalent for the Run Descriptors. It will be used for time-based logs and real time displays, primarily. Similarly, when Desc Run Time is created by InSite for a new well, several Descriptions will be made: MWD, SDL, Time/Depth and Wits Received. Here is what the SDL Descriptor looks like (Figure 4.3):

| Rec # | Well Name | Run | Start Time | End Time | Description | T/D Activity | Calibrated Start Time | Calibra |
|-------|-----------|------|--------------------|--------------------|-------------|--------------|-----------------------|---------|
| 1 | nerKanyo | 0100 | 31-May-12 04:25:58 | 06-Jun-12 04:56:35 | | All | 31-May-12 04:25:58 | 06-Jun |
| 2 | nerKanyo | 0101 | 06-Jun-12 04:57:52 | 08-Jun-12 22:09:52 | | All | 06-Jun-12 04:57:52 | 08-Jun |
| 3 | nerKanyo | 0200 | 08-Jun-12 22:24:37 | 12-Jun-12 10:25:52 | | All | 08-Jun-12 22:24:37 | 12-Jun |
| 4 | nerKanyo | 0300 | 12-Jun-12 10:26:38 | 15-Jun-12 23:55:25 | | All | 12-Jun-12 10:26:38 | 15-Jun |
| 5 | nerKanyo | 0301 | 15-Jun-12 23:57:05 | 22-Jun-12 13:36:05 | | All | 15-Jun-12 23:57:05 | 22-Jun |
| 6 | nerKanyo | 0302 | 22-Jun-12 13:37:52 | End | | All | 22-Jun-12 13:37:52 | |

Figure 4.3

- **Desc Var Depth & Desc Var Time** – This is used for individual variables on the Description level. Typically, these are made for MWD data or data that we receive from other third parties. Because you are selecting specific variables to include in the descriptor, the appropriate variable must be chosen. Often, the name for the variable in General Data Editor is different from the Curve Label. It is very easy to confuse the two. Always select the variable name. See Figure 4.4.

| Name | Mnem... | Curve Label |
|---------------------|---------|----------------------------|
| 123 Time & Date | DGTM | DGR Time & Date |
| 123 Depth | DGDP | DGR Depth |
| 123 T/D Activity | DGTD | DGR T/D Activity |
| 123 Gamma Ray | DGRC | DGR Combined Gamma Ray |
| 123 Gamma Ray A | DGRA | DGR Gamma Ray A |
| 123 Gamma Ray B | DGRB | DGR Gamma Ray B |
| 123 Gamma Ray KclBh | DGCC | DGR Comb Gamma Ray BCorr |
| 123 Gamma Ray Bh | DGCB | DGR Gamma HS & MW Corr |
| 123 Gamma Ray Kcl | DGCK | DGR Gamma KCl Corrected |
| 123 Gamma A KclBh | DGAC | DGR Gamma Ray A BCorr |
| 123 Gamma A Bh | DGAB | DGR Gamma Ray A HS&MW C... |
| 123 Gamma A Kcl | DGAK | DGR Gamma Ray A KCl Corr |
| 123 Gamma B KclBh | DGBC | DGR Gamma Ray B BCorr |
| 123 Gamma B Bh | DGBB | DGR Gamma Ray B HS&MW C... |
| 123 Gamma B Kcl | DGBK | DGR Gamma Ray B KCl Corr |
| 123 Cnts Gamma A | DGA | DGR Gamma Ray A Cnt Rate |
| 123 Cnts Gamma B | DGB | DGR Gamma Ray B Cnt Rate |
| 123 Cnts Gamma GR | DGC | DGR Combined Count Rate |
| 123 Form Expos Time | DGXT | DGR Exposure Time |
| 123 Data Density | DGDD | DGR Data Density |
| 123 TVD | DGTV | DGR True Vertical Depth |
| 123 TVT | DGTT | DGR True Vert Thickness |
| 123 TVDss | DGSS | DGR True Vert Depth SS |

Figure 4.4

- **Desc Survey** – As the name implies, this Descriptor is for Surveys only and looks a little different from the other Descriptors (Figure 4.5):

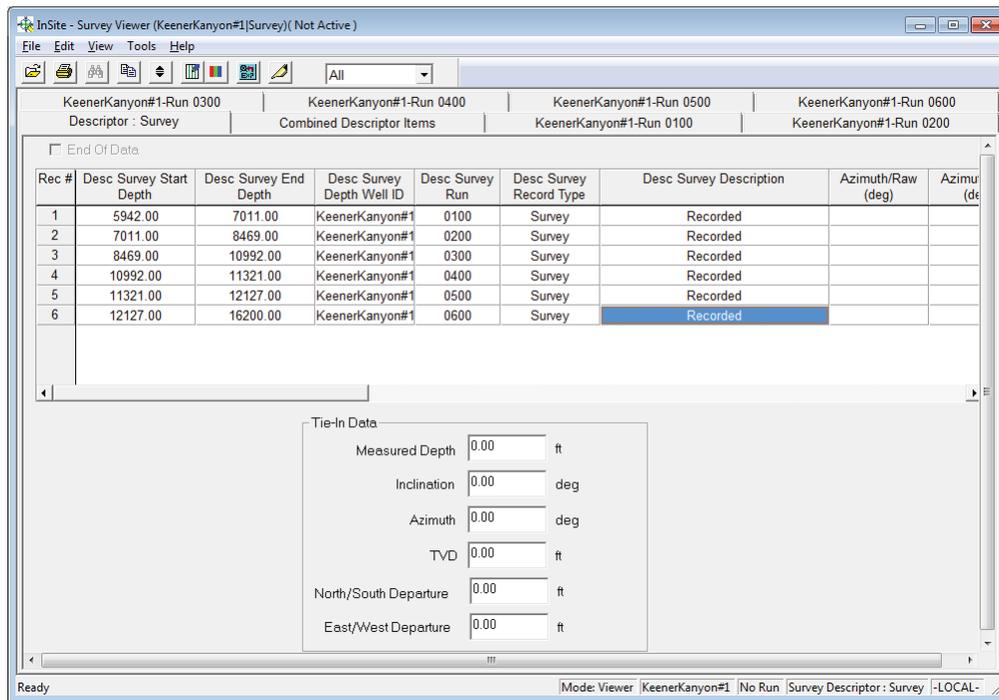


Figure 4.5

NOTE: It would be very beneficial to find the start and end depths / times for each of run before you start building descriptors.

Part I – Desc Rec Depth

Create each of the six Descriptions, starting with Chromatograph. Open Data Manager and click the plus by the KeenerKanyon#1 Well. Click one time on the word Well Based and the **New Descriptor** button will become available on the toolbar; click the button. This pop up (Figure 4.6) will appear:

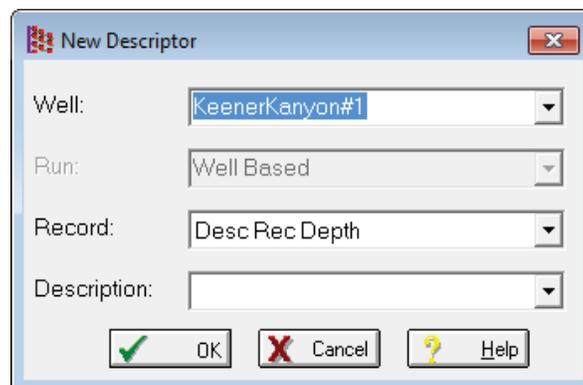


Figure 4.6

Make sure **Desc Rec Depth** is selected for the Record and type Chromatograph in the Description box. Click **OK** and the viewer will pop up. You **MUST** put at least one Run in the Descriptor before you close it. The first Run with GC data is Run 0500. Click the edit pen to make the toolbar available and make sure **BSL GC1 Intvl** is selected in the Record Type drop down. Click the **Insert Record**  button and the following pop up appears. Make sure the proper Well ID is selected and choose Run 0500. Remember, Descriptions for SDL data are not named. Change the Activity to Drilling. Look at the BSL GC1 Intvl Record from Run 0500 to see what the beginning and ending depths are and put those numbers in the appropriate Depth Range boxes. Keep in mind that whatever the bottom depth for a given run **MUST** be the top depth for the next run. This ensures that only drilled formation data is presented. Click **OK**.

NOTE: Normally, you should leave the Calibrated Depth Range box unchecked. If MWD has shifted the T/D you will need to adjust accordingly so you may need to check this box if that has happened.

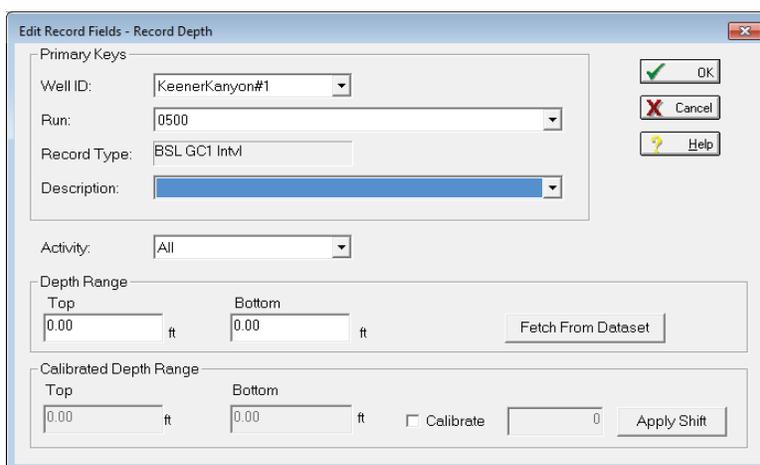


Figure 4.7

Create another record field for Run 0600. When finished with the Chromatograph Description, create these Descriptions in Desc Rec Depth:

| DESCRIPTOR | RECORD TYPE | DESCRIPTION | ACTIVITY |
|-------------|---------------|-------------|----------|
| Drill Model | Drill Model | | Drilling |
| Lag | Lag | | Drilling |
| Lagged Gas | Lagged Gas | | Drilling |
| Lithology | Lith Cuttings | | Drilling |
| Time/Depth | Time/Depth | Master | Drilling |

You will need to check the data for each run; some of these records do not have data in every run.

Part II – Desc Run Depth

Click on **Well Based** and click the **New Descriptor** button. Select **Desc Run Depth** for the Record and type in **Logging** for the Description. Click **OK**. Create a record field for each of the drilling runs you have for KeenerKanyon#1. Leave the Description blank and select **Drilling** for the Activity. It should look like the Desc Run Depth : Logging screen capture from above (Figure 4.2).

Part III – Desc Run Time

Click on **Well Based** and click the **New Descriptor** button. Select **Desc Run Time** for the Record and type in **SDL** for the Description. Click **OK**. Create a record field for each of the drilling runs you have for KeenerKanyon#1. Leave the Description blank and select **All** for the Activity. It should look like the Desc Run Time : SDL screen capture from above (Figure 4.3).

Part IV – Desc Var Depth

Since this well was drilled with another MWD company, Halliburton received all downhole information second-hand. You will create variable depth descriptors for two parameters: gamma ray and resistivity. Click on **Well Based** and click the **New Descriptor** button. Select **Desc Var Depth** for the Record and type **DGR** for the Description. Make a record field for each run. Select **DGR** for the Record and **Recorded** for the Description. Leave the Activity on **All** and put the correct top and bottom depths. Click **OK**.

Do the same thing for deep resistivity. The Description will be called **EWR Deep**. Once the descriptor viewer has opened, enter a record field for each run, selecting **EWR Deep** for the Record. You will have to check each run to see what the description is and the variable is called **EWR Deep Pres**. Select **All** for the Activity. Click **OK**.

Part V – Desc Survey

The Survey data was also received from the MWD company. Create a new descriptor with **Desc Survey** for the Record and **Survey** for the Description. Insert a new record field for each run. Make sure the Description says **Recorded**. Please note that Tie-in Information is to be entered here in the Survey Descriptor. This information will have to be gathered from the MWD company.