Practical 4

SUBJECT:DescriptorsOBJECTIVE: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):

2	🚮 InSite - Descriptor Editor KeenerKanyon#1 : Desc Rec Depth : Lag									
E	<u>File E</u> dit <u>V</u> iew <u>H</u> elp									
Record Type:								Notice the drop down – we have selected the Lag Record.		
	Rec #	Well Name	Run	Top Depth	Bottom Depth	Descriptio	n	T/D Activity	Calibrated Top Dep	th Calibra
	1	KeenerKanyon#1	0100	5958.00	7008.00			Drilling	5958.00	
	2	KeenerKanyon#1	0200	7008.00	8468.00			Drilling	7008.00	
	3	KeenerKanyon#1	0300	8468.00	10988.00			Drilling	8468.00	
	4	KeenerKanyon#1	0400	10988.00	11008.00			Drilling	10988.00	
	5	KeenerKanyon#1	0500	11008.00	11860.00			Drilling	11008.00	
	6	KeenerKanyon#1	0600	11860.00	End			Drilling	11860.00	
1										
Fo	For Help, press F1 Mode: Viewer Depth units: ft -LOCAL-									



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:

6	🕼 InSite - Descriptor Editor KeenerKanyon#1 : Desc Run Depth : Logging								
1	<u>File Edit View H</u> elp								
É									
L	Rec #	Well Name	Run	Top Depth	Bottom Depth	Description	T/D Activity	Calibrated Top Depth	Calibra
L	1	KeenerKanyon#1	0100	5942.00	7011.00		Drilling	5942.00	
L	2	KeenerKanyon#1	0200	7011.00	8469.00		Drilling	7011.00	
L	3	KeenerKanyon#1	0300	8469.00	10992.00		Drilling	8469.00	
L	4	KeenerKanyon#1	0400	10992.00	11321.00		Drilling	10992.00	
L	5	KeenerKanyon#1	0500	11321.00	12127.00		Drilling	11321.00	
L	6	KeenerKanyon#1	0600	12127.00	End		Drilling	12127.00	
L									
F	For Help, press F1 Mode: Viewer Depth units: ft -LOCAL- //								

Figure 4.2

 Desc Run Time – This is the time-based equivalent for the Run Descriptors. It will be used for timebased 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):

	🕼 InSite - Descriptor Editor KeenerKanyon#1 : Desc Run Time : SDL									
E	<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>H</u> elp									
(
Γ										
	Rec #	Well Name	Run	Start Time	End Time	Description	T/D Activity	Calibrated Start Time Calib	ora	
	1	nerKanyc	0100	31-May-12 04:25:58	06-Jun-12 04:56:35		All	31-May-12 04:25:58 06-Ju	un	
	2	enerKanyo	0101	06-Jun-12 04:57:52	08-Jun-12 22:09:52		All	06-Jun-12 04:57:52 08-Ju	un	
	3	enerKanyo	0200	08-Jun-12 22:24:37	12-Jun-12 10:25:52		All	08-Jun-12 22:24:37 12-Ju	un	
	4	enerKanyo	0300	12-Jun-12 10:26:38	15-Jun-12 23:55:25		All	12-Jun-12 10:26:38 15-Ju	un	
	5	enerKanyo	0301	15-Jun-12 23:57:05	22-Jun-12 13:36:05		All	15-Jun-12 23:57:05 22-Ju	un	
	6	enerKanyo	0302	22-Jun-12 13:37:52	End		All	22-Jun-12 13:37:52		
Fo	For Help, press F1 Mode: Viewer Depth units: ft -LOCAL-									



 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.

🛃 InSite - Data Manager					
<u>F</u> ile <u>E</u> dit <u>V</u> iew <u>T</u> ree <u>H</u> elp					
	??	Show All	•		Curve Label
Primary Key Order: \Well\Run\Record\Description	Expand A	Arrays aba	se Path: '-L	OCAL-\Kee	nerKanyon#UtorUU\DGK\K
🖻 🖓 -LOCAL- 🛛 🗛	Name		Mnem	Curve Lab	
🖨 🙈 KeenerKanyon#1 🛛 📝	123 Time & D)ate	DGTM	DGR Time	& Date
ter vel	123 Depth		DGDP	DGR Dept	h
📔 🗄 🚽 010 Variable Name 🛀	123 T/D Activ	vity	DGTD	DGR T/D	Activity 🖌
	🔁 Gamma I	Ray	DGRC	DGR Com	bined Gamma Ray
🕀 🗀 Ana Vibration	123 Gamma I	Ray A	DGRA	DGR Gam	ma Ray A
📃 💼 🗀 ARC PWD	123 Gamma I	Ray B	DGRB	DGR Gam	ma Ray B
🖶 🗀 BAT Sonic RT	123 Gamma I	Ray KclBh	DGCC	DGR Com	b Gamma Ray BCorr
🗄 🗀 BC1 THA Corr	123 Gamma I	Ray Bh	DGCB	DGR Gam	ma HS & MW Corr
🕀 🗀 Borehole	123 Gamma I	Ray Kcl	DGCK	DGR Gam	ma KCI Corrected
🕀 🕒 Borehole Comp	123 Gamma	AKCIBh	DGAC	DGR Gam	ma Ray A BCorr
🗄 🕒 Borehole Prm	123 Gamma /	ABN	DGAB	DGRGam	ma Ray A HS&MW C
🗄 🕒 BSL GC1 Cycle	123 Gamma		DGAN	DGR Gam	ma Ray A KCI Corr
	123 Gamma	D NCIDRI D DL		DGR Gam	
🕀 🦳 CalcInput Depth	123 Gamma	B Kal	DGBB	DGR Gam	ma Ray B H3&MW C
🖶 🦳 Cementing	123 Cote Gan	ome A		DGR Gam	ma Ray & Cnt Rate
	123 Cnts Gan	nmaB	DGB	DGR Gam	ma Bay B Cnt Bate
	123 Cnts Gan	nma GR	DGC	DGR Com	bined Count Bate
	123 Form Exp	oos Time	DGXT	DGR Expo	sure Time
	123 Data Der	nsit∨	DGDD	DGR Data	Density
Recorded	123 TVD	-	DGTV	DGR True	Vertical Depth
Wits Received	123 TVT		DGTT	DGR True	Vert Thickness
n Drill Connect	123 TVDss		DGSS	DGR True	Vert Depth SS 📃 💌
	•	III			•
Ready					-LOCAL-



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

4	R InSite - Survey Viewer (KeenerKanyon#1 Survey)(Not Active)									
1	ile <u>E</u> dif	t <u>V</u> iew Tools <u>H</u> elp	1 1 1							
1	2 💆		11 🔡 ⊿	All	•					
	К	eenerKanyon#1-Run	0300 H	KeenerKanyon#1-	Run 0400	Keenerk	Kanyon#1-Run 0500	Ke	enerKanyon#1-Run	0600 İ
	[Descriptor : Survey	Comb	ined Descriptor Ite	ems	KeenerKan	yon#1-Run 0100	Kee	enerKanyon#1-Run 0	200
		End Of Data								<u> </u>
	Rec #	Desc Survey Start Depth	Desc Survey End Depth	Desc Survey Depth Well ID	Desc Survey Run	Desc Survey Record Type	Desc Survey Desc	cription	Azimuth/Raw (deg)	Azimu (de
	1	5942.00	7011.00	KeenerKanyon#1	0100	Survey	Recorded			
	2	7011.00	8469.00	KeenerKanyon#1	0200	Survey	Recorded			
	3	8469.00	10992.00	KeenerKanyon#1	0300	Survey	Recorded			
	4	10992.00	11321.00	KeenerKanyon#1	0400	Survey	Recorded			
	5	11321.00	12127.00	KeenerKanyon#1	0500	Survey	Recorded			
	6	12127.00	16200.00	KeenerKanyon#1	0600	Survey	Recorded			
	Tie-In Data Measured Depth 0.00 ft Inclination 0.00 deg									
				North/South Dep East/West Dep	TVD 0.00 parture 0.00 parture 0.00	ft ft				
					1					-
Ľ	•									•
R	ady					Mode: 1	Viewer KeenerKanyon#1 N	lo Run Surve	ey Descriptor : Survey	-LOCAL-
-										

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:

New Descriptor						
Well:	KeenerKanyon#1					
Run:	Well Based 🗾					
Record:	Desc Rec Depth					
Description:	_					
✓	OK X Cancel <u>? H</u> elp					

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.

Edit Record Fields - Re	ecord Deptl	n				—
Primary Keys —						
Well ID:	Keener	Kanyon#1	•			
Run:	0500				-	X Cancel
Record Type:	BSL GC	1 Intvl				<u>?</u> <u>H</u> elp
Description:					•	
Activity:	All		•			
Top 0.00	ft	Bottom	ft		Fetch Fron	n Dataset
Calibrated Dept	h Range -					
Тор 0.00	ft	Bottom	ft	Calibrate		0 Apply Shift

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.