

**Special core analysis for DONG A/S**  
**Well: 5604/20-1, Siri-1**

Mini-permeametry measured on  
core section 2090 - 2110 meter

Niels Springer



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# Contents

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<b>1. Introduction</b>	<b>2</b>
<b>2. Analytical procedure</b>	<b>3</b>
2.1 <i>Measurement</i>	3
2.2 <i>Calculation</i>	3
2.3 <i>Instrumental</i>	3
<b>3. Results</b>	<b>4</b>
3.1 <i>Mini permeability measurements</i>	4

**Enclosure:** - Core log  
              - Data on diskette

Req. no.: 09201-506  
File: Siri-minipermrep.doc  
      Siri-1\_C3-5miniperm.xls

# 1. Introduction

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By request of DONG E&P A/S, GEUS Core Laboratory has performed special core analysis on the 5604/20-1 (Siri-1) well, Danish North Sea.

The experimental programme was specified in e-mail communications with Mr. Christian Høier. The following analytical programme has been carried out:

- Pilot mini permeametry on 4 meter core section, performed at resinated cuts
- Additional mini permeametry on 16 meter resinated cuts

The pilot study as well as the total set of data in a spreadsheet has been forwarded to DONG E&P earlier.

## 2. Analytical procedure

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### 2.1 Measurement

From the Siri-1 well 20 resinated cuts covering the depth interval 2090 – 2110 meter were received in the laboratory. Mini permeametry readings were taken along the resinated core slabs at a step interval of 1.5 cm. For the pilot study, a double determination was performed at each depth to check for consistency of the readings and test the heterogeneity of the core material. For the remaining slabs, covering the interval 2094-2110 meter, it was decided to perform only one reading at each depth. Observations relating to the condition of the slab and the possible effect on the measurements were recorded during the work. This information is contained with the data sheets in section x of this report.

### 2.2 Calculation

Gas permeability measurement was carried out using 3 different flow meters at different upstream pressures. The most frequent used experimental condition was the medium flow meter at an upstream pressure of 0.13 bar ( $M_1$ ). A number of conversion factors have been determined to equalize other measurement conditions to this standard setting of the mini permeameter as follows:

- $L * 39 = M_1$
- $S * 0.25 = M_1$
- $M_2 * 0.21 = M_1$

where L, M and S indicates the large, medium and small flowmeter tube respectively.  $M_1$  and  $M_2$  are introduced to distinguish between medium flowmeter readings taken at an upstream pressure of 0.13 bar and 2.8 bar respectively.

For the pilot study a mean value was calculated from the double determinations and used in the minipermeability log plot .

### 2.3 Instrumental

GEUS field mini permeameter M 1990 was used as a stationary lab instrument to measure the gas spot permeability. The instrument was connected directly to a regulated air supply in the laboratory and spot measurements taken with a 6 mm diameter flow probe. The upstream pressure was regulated to a suitable setting on the pressure transducer (Druck®), and flow readings were recorded from 3 ball flowmeter tubes covering 3 orders of magnitude in gas flow (Ruska®). A leakage test is performed at regular intervals by placing the probe tip on an impermeable plate. The field mini permeameter has been described earlier in a GEUS internal report<sup>1</sup>.

1. Madsen, Lena: Minipermeametry: Testing the DGU-minipermeameter. A contribution to the EFP-92 Project: Stochastic Modelling of Petrophysical properties in Chalk. DGU Service report no. 39, 1994.

## 3. Results

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### 3.1 Mini permeability measurements

Readings vs depth are given in the following charts. A bar graph along the chart provides a quick visual impression of the scatter within the core box. Descriptive comments have been added as a guide to interpretation. The following abbreviations have been used:

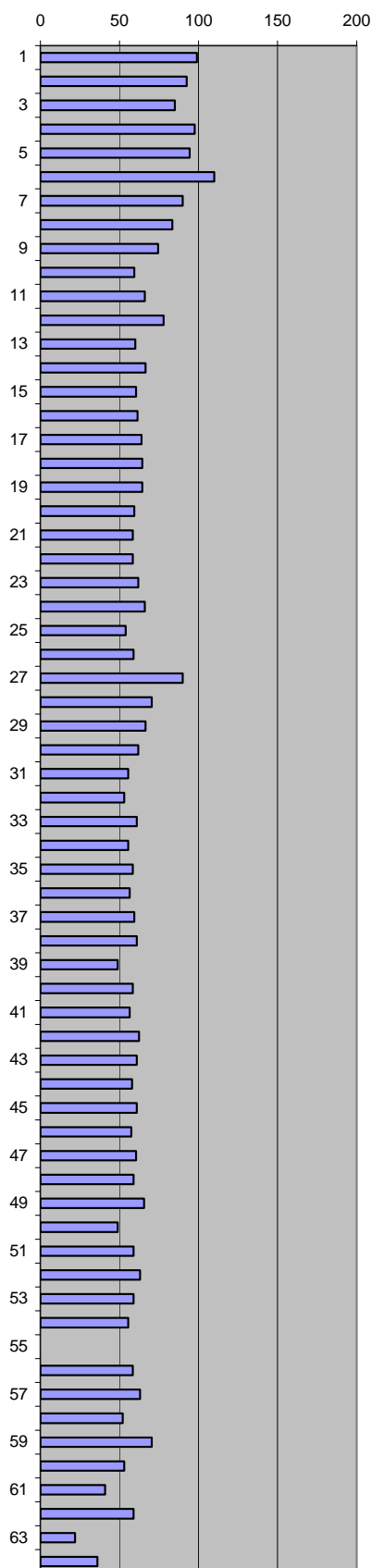
'nxt plug nn'	- reading taken next to plug no. nn
'frc'	- reading taken close to or possibly affected by a fracture
'epoxy'	- reading may be affected by the resin
'edge'	- reading taken close at the slab edge
'surface'	- reading may be affected by surface irregularities
'nd'	- reading not possible due to large fracture or missing core

The attached core log shows the mini permeability readings normalized to plug permeability data, and plug data have been added to make direct comparison possible.

Company: DONG Well: 5604/20-1 core #3 Siri-1  
 Subject: Miniperm. Data 2090-2091 m

Flowmeter: medium  
 Upstream P: 0,13 bar

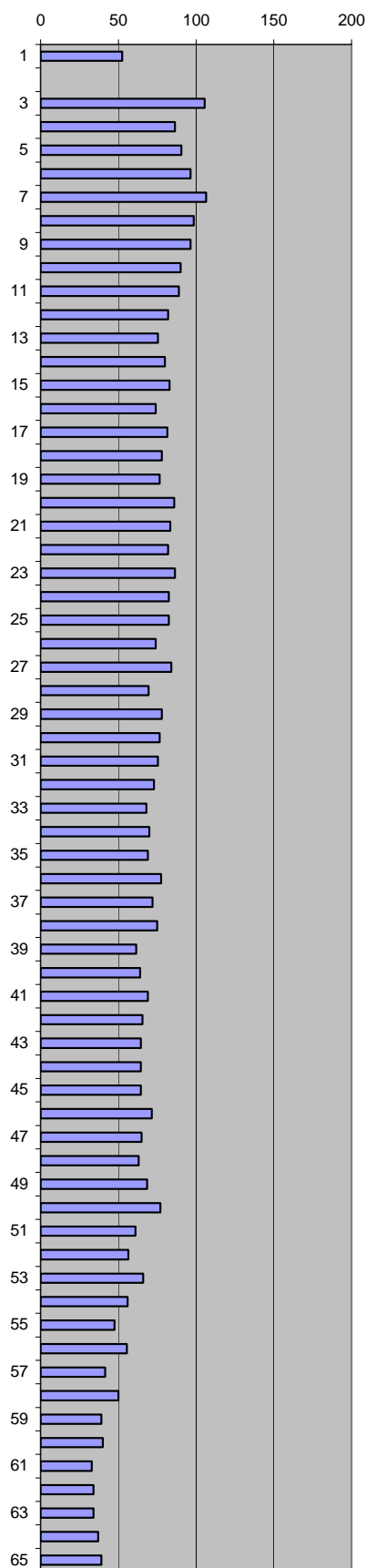
Depth, m	Flow 1	Flow 2	Mean flow	Comments
2090.030	103	95	99.0	
2090.045	105	80	92.5	
2090.060	85	85	85.0	
2090.075	103	92	97.5	'nxt plug 30'
2090.090	108	81	94.5	'nxt plug 30'
2090.105	127	93	110.0	'nxt plug 30'
2090.120	100	80	90.0	'nxt plug 30'
2090.135	95	72	83.5	'nxt plug 30'
2090.150	85	64	74.5	
2090.165	65	54	59.5	
2090.180	70	62	66.0	
2090.195	80	76	78.0	
2090.210	62	58	60.0	
2090.225	75	58	66.5	
2090.240	63	58	60.5	
2090.255	60	63	61.5	
2090.270	67	61	64.0	
2090.285	61	68	64.5	
2090.300	65	64	64.5	
2090.315	58	61	59.5	
2090.330	62	55	58.5	
2090.345	63	54	58.5	
2090.360	62	62	62.0	
2090.375	67	65	66.0	
2090.390	55	53	54.0	
2090.405	57	61	59.0	'nxt plug 31'
2090.420	107	73	90.0	'nxt plug 31'
2090.435	65	76	70.5	'nxt plug 31'
2090.450	75	58	66.5	'nxt plug 31'
2090.465	70	54	62.0	'nxt plug 31'
2090.480	57	54	55.5	
2090.495	50	56	53.0	
2090.510	63	59	61.0	
2090.525	55	56	55.5	
2090.540	58	59	58.5	
2090.555	59	54	56.5	
2090.570	57	62	59.5	
2090.585	58	64	61.0	
2090.600	47	51	49.0	
2090.615	63	54	58.5	
2090.630	58	55	56.5	
2090.645	58	67	62.5	
2090.660	60	62	61.0	
2090.675	54	62	58.0	
2090.690	57	65	61.0	
2090.705	53	62	57.5	
2090.720	59	62	60.5	
2090.735	56	62	59.0	
2090.750	58	73	65.5	
2090.765	48	50	49.0	
2090.780	57	61	59.0	
2090.795	55	71	63.0	
2090.810	60	58	59.0	
2090.825	55	56	55.5	
2090.840				'nd'
2090.855	55	62	58.5	
2090.870	70	56	63.0	'nxt plug 32'
2090.885	53	51	52.0	'nxt plug 32'
2090.900	53	88	70.5	'nxt plug 32'
2090.915	53	53	53.0	'nxt plug 32'
2090.930	45	37	41.0	'nxt plug 32'
2090.945	68	50	59.0	epoxy ?
2090.960	22	22	22.0	epoxy ?
2090.975	25	47	36.0	epoxy ?



Company: DONG Well: 5604/20-1 core #3 Siri-1  
 Subject: Miniperm. Data 2091-2092 m

Flowmeter: medium  
 Upstream P: 0,13 bar

Depth, m	Flow 1	Flow 2	Mean flow	Comments
2091.015	58	47	52.5	
2091.03				'nd'
2091.045	111	100	105.5	'frc'
2091.060	100	73	86.5	
2091.075	95	86	90.5	'nxt plug 33'
2091.090	100	93	96.5	'nxt plug 33'
2091.105	95	118	106.5	'nxt plug 33'
2091.120	97	100	98.5	'nxt plug 33'
2091.135	96	97	96.5	'nxt plug 33'
2091.150	95	85	90.0	'nxt plug 33'
2091.165	95	83	89.0	'nxt plug 33'
2091.180	83	81	82.0	
2091.195	76	75	75.5	
2091.210	77	83	80.0	
2091.225	80	86	83.0	
2091.240	75	73	74.0	
2091.255	80	83	81.5	
2091.270	82	74	78.0	
2091.285	78	75	76.5	
2091.300	92	80	86.0	
2091.315	83	84	83.5	
2091.330	84	80	82.0	
2091.345	87	86	86.5	
2091.360	80	85	82.5	
2091.375	82	83	82.5	
2091.390	80	68	74.0	
2091.405	95	73	84.0	
2091.420	71	68	69.5	
2091.435	83	73	78.0	'nxt plug 34'
2091.450	80	73	76.5	'nxt plug 34'
2091.465	70	81	75.5	'nxt plug 34'
2091.480	75	71	73.0	
2091.495	70	66	68.0	
2091.510	74	66	70.0	
2091.525	71	67	69.0	
2091.540	85	70	77.5	
2091.555	69	75	72.0	
2091.570	75	75	75.0	
2091.585	56	67	61.5	
2091.600	62	66	64.0	
2091.615	70	68	69.0	
2091.630	65	66	65.5	
2091.645	66	63	64.5	
2091.660	66	63	64.5	
2091.675	66	63	64.5	
2091.690	73	70	71.5	
2091.705	65	65	65.0	
2091.720	66	60	63.0	
2091.735	74	63	68.5	
2091.750	77	77	77.0	'nxt plug 35'
2091.765	73	49	61.0	'nxt plug 35'
2091.780	65	48	56.5	'nxt plug 35'
2091.795	90	42	66.0	'nxt plug 35'
2091.810	62	50	56.0	
2091.825	47	48	47.5	
2091.840	65	46	55.5	
2091.855	38	45	41.5	
2091.870	65	35	50.0	
2091.885	33	45	39.0	
2091.900	46	34	40.0	
2091.915	33	33	33.0	
2091.930	35	33	34.0	
2091.945	35	33	34.0	
2091.960	38	36	37.0	
2091.975	40	38	39.0	

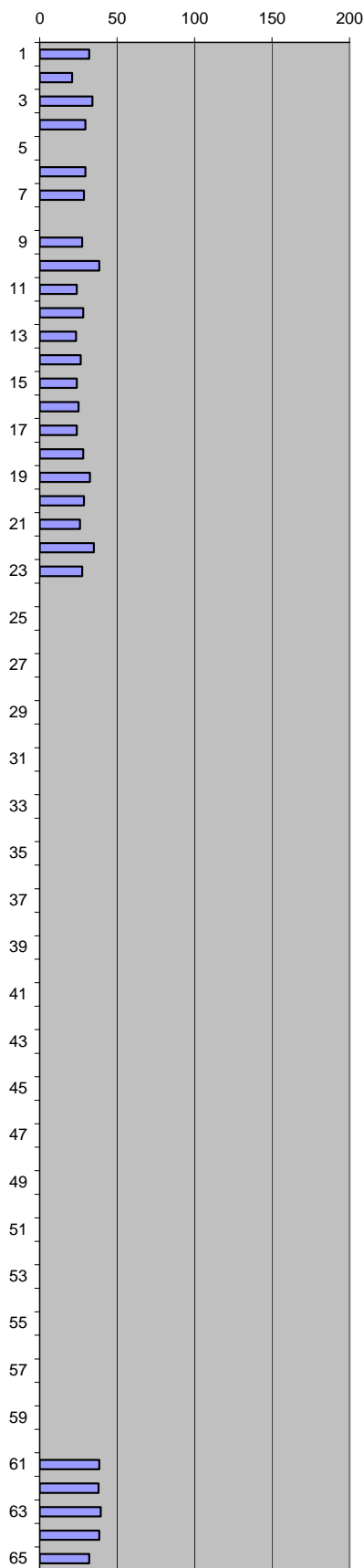




Company: DONG Well: 5604/20-1 core #3 Siri-1  
 Subject: Miniperm. Data 2092-2093 m

Flowmeter: medium  
 Upstream P: 0,13 bar

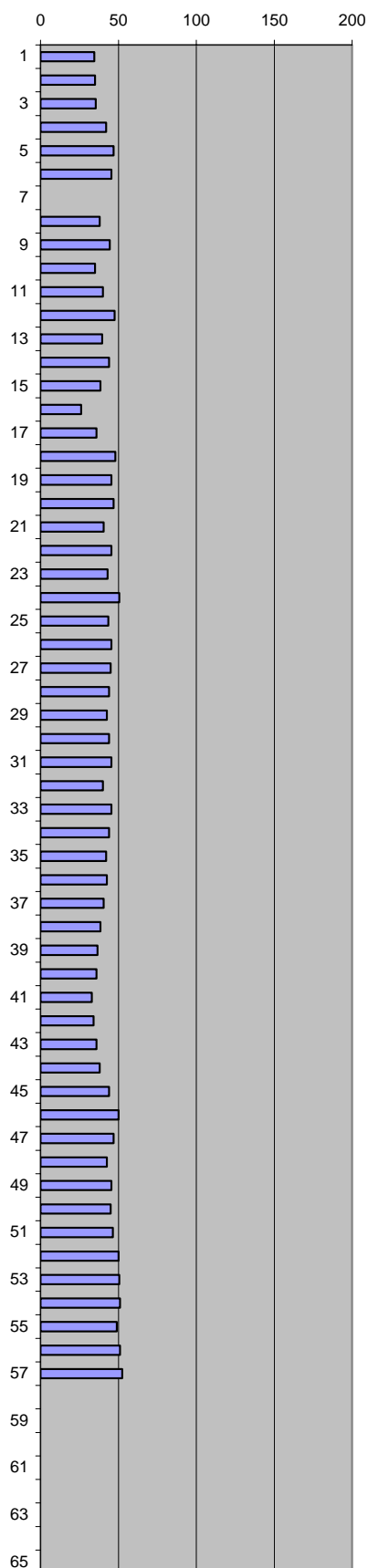
Depth, m	Flow 1	Flow 2	Mean flow	Comments
2092.015	33	31	32.0	'nxt plug 36'
2092.030	20	22	21.0	'nxt plug 36'
2092.045	46	22	34.0	
2092.060	21	38	29.5	
2092.075				'nd'
2092.090	19	40	29.5	
2092.105	23	34	28.5	
2092.120				'nd'
2092.135	25	30	27.5	
2092.150	27	50	38.5	
2092.165	23	25	24.0	
2092.180	25	31	28.0	
2092.195	25	22	23.5	
2092.210	27	26	26.5	
2092.225	25	23	24.0	
2092.240	25	25	25.0	
2092.255	23	25	24.0	
2092.270	26	30	28.0	
2092.285	30	35	32.5	'nxt plug 37'
2092.300	27	30	28.5	'nxt plug 37'
2092.315	25	27	26.0	'nxt plug 37'
2092.330	45	25	35.0	
2092.345	25	30	27.5	
2092.360	0	0	0	Flowmeter: small
2092.375	0	0	0	
2092.390	0	0	0	
2092.405	0	0	0	Upstream P 2.81 bar
2092.420	0	0	0	
2092.435	0	0	0	
2092.450	0	0	0	
2092.465	0	0	0	
2092.480	0	0	0	
2092.495	0	0	0	
2092.510	0	0	0	
2092.525	0	0	0	
2092.540	0	0	0	
2092.555	0	0	0	
2092.570	0	0	0	
2092.585	0	0	0	
2092.600	0	0	0	
2092.615	0	0	0	
2092.630				Seal peal
2092.645				'nd'
2092.660				
2092.675				
2092.690				
2092.705				
2092.720				
2092.735				
2092.750				
2092.765				
2092.780				
2092.795				
2092.810				
2092.825				
2092.840				
2092.855				
2092.870				
2092.885				
2092.900				
2092.915	34	43	38.5	
2092.930	29	47	38.0	
2092.945	31	48	39.5	
2092.960	32	45	38.5	
2092.975	32	32	32.0	'nxt plug 39'



Company: DONG Well: 5604/20-1 core #3 Siri-1  
 Subject: Miniperm. Data 2093-2094 m

Flowmeter: medium  
 Upstream P: 0,13 bar

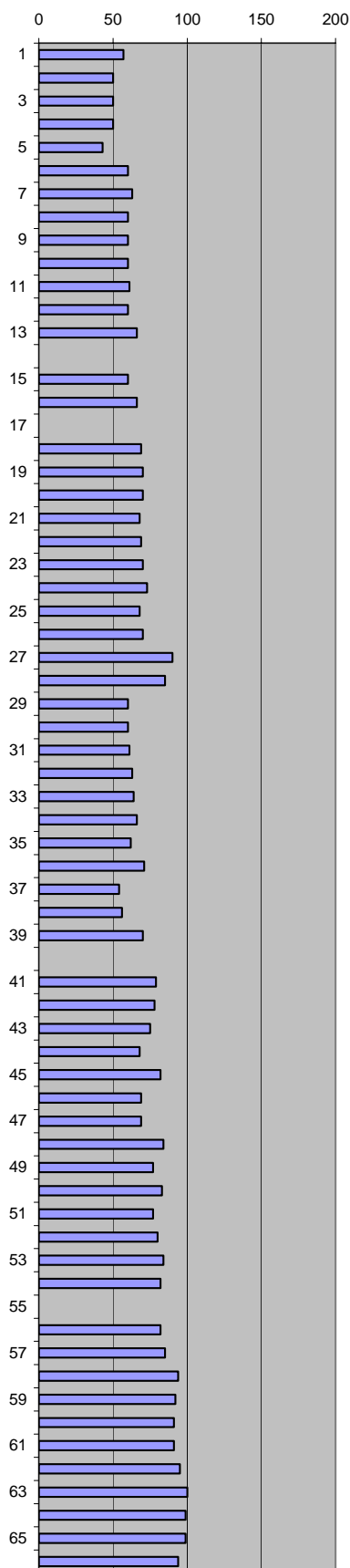
Depth, m	Flow 1	Flow 2	Mean flow	Comments
2093.015	36	33	34.5	'nxt plug 39'
2093.030	37	33	35.0	'nxt plug 39'
2093.045	40	31	35.5	
2093.060	55	29	42.0	
2093.075	63	31	47.0	
2093.090	58	33	45.5	
2093.105				'nd'
2093.120	46	30	38.0	
2093.135	54	35	44.5	
2093.150	37	33	35.0	
2093.165	47	33	40.0	
2093.180	64	31	47.5	
2093.195	58	21	39.5	
2093.210	50	38	44.0	
2093.225	49	28	38.5	
2093.240	42	10	26.0	
2093.255	35	37	36.0	
2093.270	59	37	48.0	
2093.285	50	41	45.5	
2093.300	55	39	47.0	'nxt plug 40'
2093.315	38	43	40.5	'nxt plug 40'
2093.330	48	43	45.5	'nxt plug 40'
2093.345	38	48	43.0	'nxt plug 40'
2093.360	40	61	50.5	'nxt plug 40'
2093.375	40	47	43.5	
2093.390	44	47	45.5	
2093.405	43	47	45.0	
2093.420	43	45	44.0	
2093.435	30	55	42.5	
2093.450	41	47	44.0	
2093.465	43	48	45.5	
2093.480	29	51	40.0	
2093.495	44	47	45.5	
2093.510	43	45	44.0	
2093.525	42	42	42.0	
2093.540	43	42	42.5	
2093.555	41	40	40.5	
2093.570	40	37	38.5	
2093.585	36	37	36.5	
2093.600	37	35	36.0	
2093.615	31	35	33.0	
2093.630	33	35	34.0	
2093.645	33	39	36.0	
2093.660	38	38	38.0	
2093.675	50	38	44.0	
2093.690	48	52	50.0	
2093.705	49	45	47.0	
2093.720	43	42	42.5	
2093.735	46	45	45.5	'nxt plug 41'
2093.750	45	45	45.0	'nxt plug 41'
2093.765	48	45	46.5	'nxt plug 41'
2093.780	50	50	50.0	'nxt plug 41'
2093.795	53	48	50.5	
2093.810	52	50	51.0	
2093.825	50	48	49.0	
2093.840	52	50	51.0	
2093.855	55	50	52.5	
2093.870				'Btm core'
2093.885				
2093.900				
2093.915				
2093.930				
2093.945				
2093.960				
2093.975				



Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Miniperm. Data 2094-2095 m

Flowmeter: medium  
 Upstream P: 0,13 bar

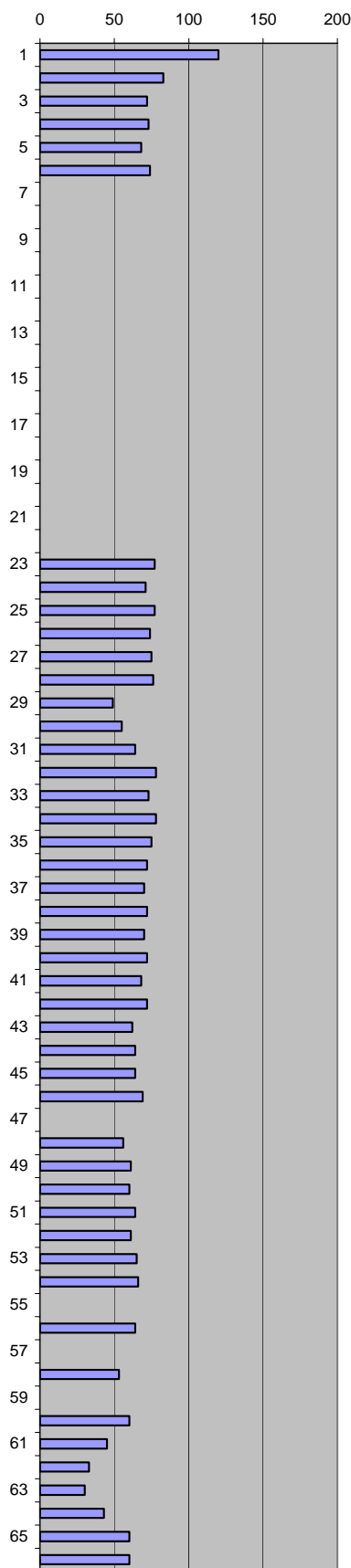
Depth, m	Flow	Comments
2094.015	57	
2094.030	50	'nxt plug 42'
2094.045	50	'nxt plug 42'
2094.060	50	
2094.075	43	
2094.090	60	
2094.105	63	
2094.120	60	
2094.135	60	
2094.150	60	
2094.165	61	
2094.180	60	
2094.195	66	
2094.210		'nd'
2094.225	60	
2094.240	66	
2094.255		'nd'
2094.270	69	
2094.285	70	
2094.300	70	
2094.315	68	'nxt plug 43'
2094.330	69	'nxt plug 43'
2094.345	70	'nxt plug 43'
2094.360	73	
2094.375	68	
2094.390	70	
2094.405	90	'frc'
2094.420	85	'frc'
2094.435	60	
2094.450	60	
2094.465	61	
2094.480	63	
2094.495	64	
2094.510	66	
2094.525	62	
2094.540	71	
2094.555	54	
2094.570	56	
2094.585	70	'frc'
2094.600		'nd'
2094.615	79	'nxt plug V'
2094.630	78	'nxt plug V'
2094.645	75	'nxt plug V'
2094.660	68	'nxt plug 44'
2094.675	82	'nxt plug 44'
2094.690	69	
2094.705	69	
2094.720	84	
2094.735	77	
2094.750	83	
2094.765	77	
2094.780	80	
2094.795	84	
2094.810	82	'frc'
2094.825		'nd'
2094.840	82	'frc'
2094.855	85	
2094.870	94	
2094.885	92	'frc'
2094.900	91	'frc'
2094.915	91	
2094.930	95	
2094.945	100	
2094.960	99	'frc'
2094.975	99	'frc'
2094.990	94	'frc'



Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Miniperm. Data 2095-2096 m

Flowmeter: medium  
 Upstream P: 0,13 bar

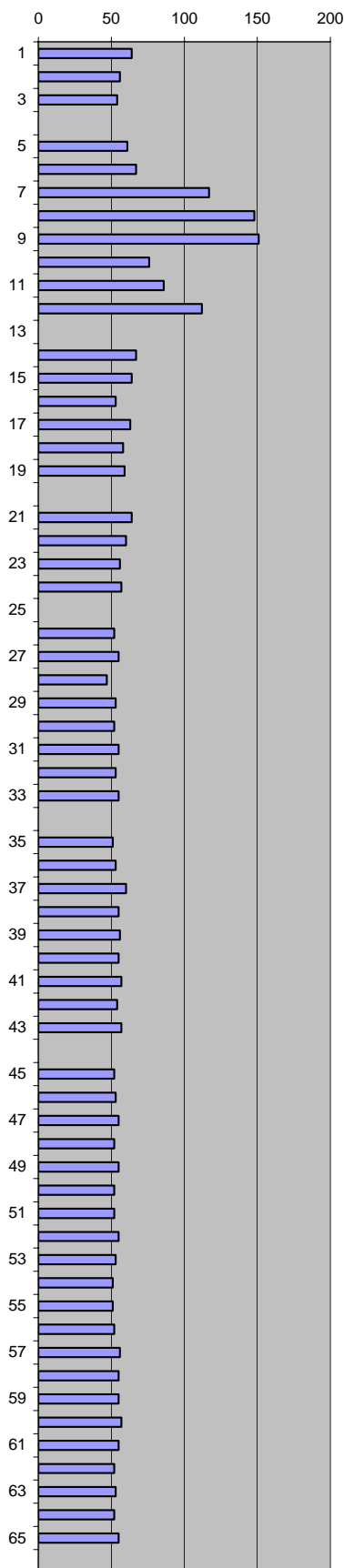
Depth, m	Flow	Comments
2095.015	120	
2095.030	83	
2095.045	72	'nxt plug 45'
2095.060	73	'nxt plug 45'
2095.075	68	
2095.090	74	
2095.105		'Seal peal'
2095.120		'nd'
2095.135		
2095.150		
2095.165		
2095.180		
2095.195		
2095.210		
2095.225		
2095.240		
2095.255		
2095.270		
2095.285		
2095.300		
2095.315		
2095.330		
2095.345	77	
2095.360	71	
2095.375	77	
2095.390	74	'nxt plug 46'
2095.405	75	'nxt plug 46'
2095.420	76	'nxt plug 46'
2095.435	49	
2095.450	55	
2095.465	64	
2095.480	78	
2095.495	73	
2095.510	78	
2095.525	75	
2095.540	72	
2095.555	70	
2095.570	72	
2095.585	70	
2095.600	72	
2095.615	68	'frc'
2095.630	72	'nxt plug 47'
2095.645	62	'nxt plug 47'
2095.660	64	
2095.675	64	
2095.690	69	'frc'
2095.705		'nd'
2095.720	56	'frc'
2095.735	61	
2095.750	60	
2095.765	64	
2095.780	61	
2095.795	65	
2095.810	66	'frc'
2095.825		'nd'
2095.840	64	'frc'
2095.855		'frc'
2095.870	53	'frc'
2095.885		'frc'
2095.900	60	'frc'
2095.915	45	
2095.930	33	
2095.945	30	
2095.960	43	
2095.975	60	'Epoxy'
2095.990	60	'Epoxy'



Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Minipermeability Data 2096-2097 m

Flowmeter: medium  
 Upstream P: 0,13 bar

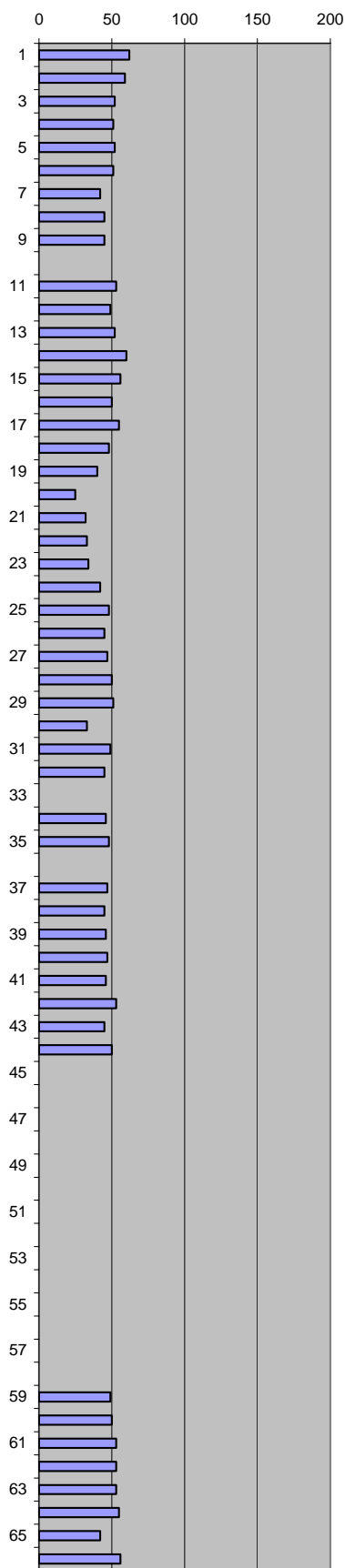
Depth, m	Flow	Comments
2096.015	64	'nxt plug 48'
2096.030	56	'nxt plug 48'
2096.045	54	
2096.060		'nd'
2096.075	61	
2096.090	67	
2096.105	117	'frc'
2096.120	148	'frc'
2096.135	151	'frc'
2096.150	76	
2096.165	86	
2096.180	112	'frc'
2096.195		'nd'
2096.210	67	'frc'
2096.225	64	
2096.240	53	
2096.255	63	'frc'
2096.270	58	
2096.285	59	
2096.300		'nd'
2096.315	64	'nxt plug 49'
2096.330	60	'nxt plug 49'
2096.345	56	
2096.360	57	
2096.375		'nd'
2096.390	52	
2096.405	55	
2096.420	47	
2096.435	53	
2096.450	52	
2096.465	55	
2096.480	53	
2096.495	55	
2096.510		'nd'
2096.525	51	
2096.540	53	
2096.555	60	'frc'
2096.570	55	
2096.585	56	
2096.600	55	
2096.615	57	
2096.630	54	'nxt plug 50'
2096.645	57	'nxt plug 50'
2096.660		'nd'
2096.675	52	
2096.690	53	
2096.705	55	
2096.720	52	
2096.735	55	
2096.750	52	
2096.765	52	
2096.780	55	
2096.795	53	
2096.810	51	
2096.825	51	
2096.840	52	
2096.855	56	
2096.870	55	
2096.885	55	
2096.900	57	
2096.915	55	
2096.930	52	
2096.945	53	
2096.960	52	
2096.975	55	
2096.995		'nd'



Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Miniper. Data 2097-2098 m

Flowmeter: medium  
 Upstream P: 0,13 bar

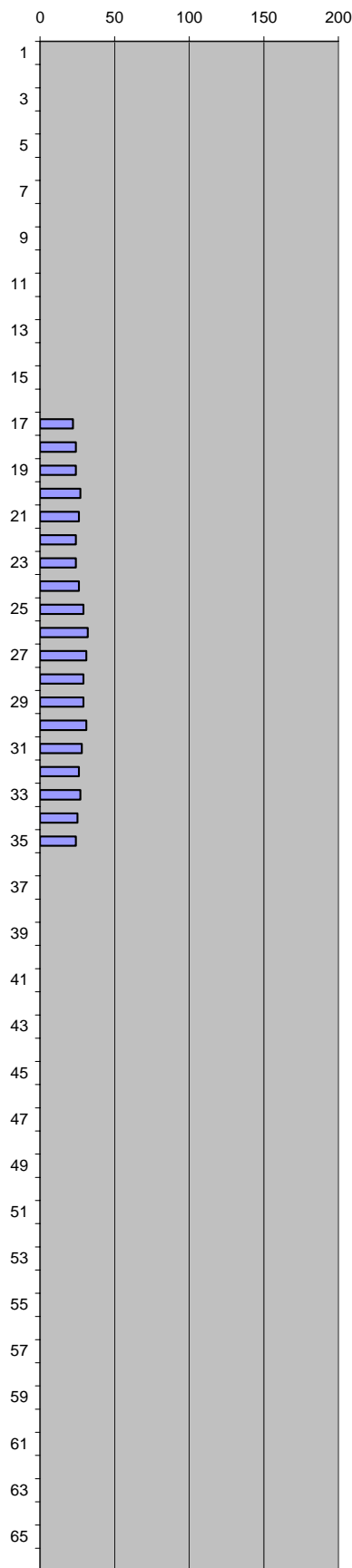
Depth, m	Flow	Comments
2097.015	62	'nxt plug 51'
2097.003	59	'nxt plug 51'
2097.045	52	'nxt plug 51'
2097.060	51	
2097.075	52	
2097.090	51	
2097.105	42	
2097.120	45	
2097.135	45	
2097.150		'nd'
2097.165	53	'frc'
2097.180	49	
2097.195	52	
2097.210	60	'frc'
2097.225	56	'frc'
2097.240	50	
2097.255	55	
2097.270	48	
2097.285	40	
2097.300	25	
2097.315	32	'nxt plug 52'
2097.330	33	'nxt plug 52'
2097.345	34	'nxt plug 52'
2097.360	42	
2097.375	48	
2097.390	45	
2097.405	47	
2097.420	50	
2097.435	51	
2097.450	33	
2097.465	49	
2097.480	45	
2097.495		'nd'
2097.510	46	
2097.525	48	
2097.540		'nd'
2097.555	47	
2097.570	45	
2097.585	46	'nxt plug V'
2097.600	47	'nxt plug V'
2097.615	46	'nxt plug V'
2097.630	53	'nxt plug V'
2097.645	45	'ntx plug 53'
2097.660	50	'ntx plug 53'
2097.675		' Seal peal'
2097.690		'nd'
2097.705		
2097.720		
2097.735		
2097.750		
2097.765		
2097.780		
2097.795		
2097.810		
2097.825		
2097.840		
2097.855		
2097.870		
2097.885	49	
2097.900	50	
2097.915	53	
2097.930	53	
2097.945	53	
2097.960	55	'nxt plug 54'
2097.975	42	'nxt plug 54'
2097.990	56	'nxt plug 54'



Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Miniper. Data 2098-2099 m

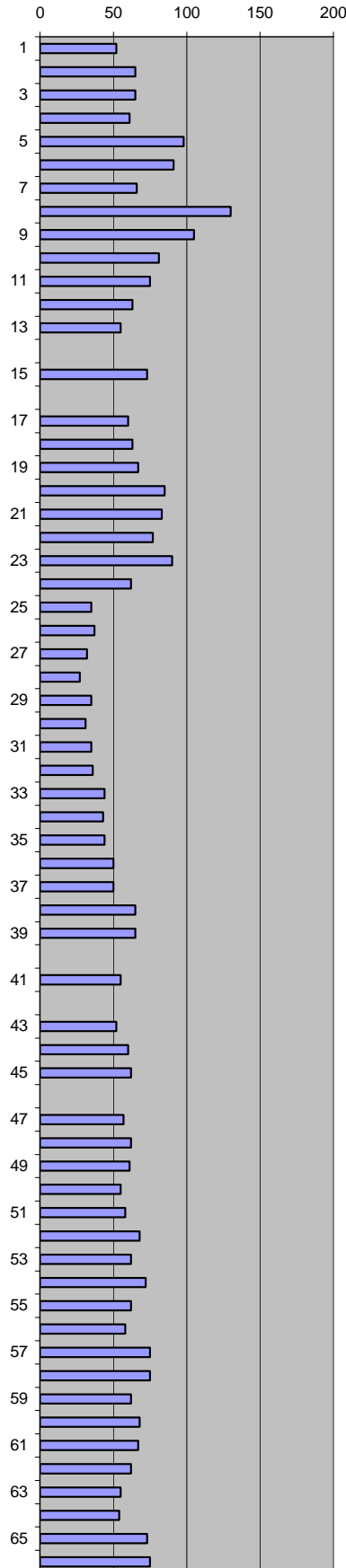
Flowmeter: medium  
 Upstream P: 0,13 bar

Depth, m	Flow	Comments
2098.015		' Seal peal'
2098.003		'nd'
2098.045		
2098.060		
2098.075		
2098.090		
2098.105		
2098.120		
2098.135		
2098.150		
2098.165		
2098.180		
2098.195		
2098.210		
2098.225		
2098.240	0	<1
2098.255	22	
2098.270	24	
2098.285	24	
2098.300	27	
2098.315	26	'nxt plug 55'
2098.330	24	'nxt plug 55'
2098.345	24	
2098.360	26	
2098.375	29	
2098.390	32	
2098.405	31	
2098.420	29	
2098.435	29	
2098.450	31	
2098.465	28	
2098.480	26	
2098.495	27	
2098.510	25	
2098.525	24	
2098.540	0	Flowmeter:
2098.555	0	small
2098.570	0	
2098.585	0	
2098.600	0	
2098.615	0	'nxt plug 56'
2098.630	0	'nxt plug 56'
2098.645	0	
2098.660	0	
2098.675	0	
2098.690	0	
2098.705	0	Upstream P
2098.720	0	2.85 bar
2098.735	0	
2098.750	0	<<1
2098.765	0	
2098.780	0	
2098.795	0	
2098.810	0	
2098.825	0	
2098.840	0	
2098.855	0	
2098.870	0	
2098.885	0	
2098.900	0	
2098.915	0	
2098.930	0	
2098.945	0	
2098.960	0	
2098.975	0	'nxt plug'
2098.990	0	'nxt plug'



Flowmeter: medium  
 Upstream P: 0,13 bar

Depth, m	Flow	Comments
2099.015	52	'nxt plug 57'
2099.030	65	'nxt plug 57'
2099.045	65	'nxt plug 57'
2099.060	61	
2099.075	98	'frc'
2099.090	91	'frc'
2099.105	66	
2099.120	130	'frc'
2099.135	105	'frc'
2099.150	81	
2099.165	75	
2099.180	63	
2099.195	55	
2099.210		'nd'
2099.225	73	
2099.240		'nd'
2099.255	60	
2099.270	63	
2099.285	67	
2099.300	85	'nxt plug 58'
2099.315	83	'nxt plug 58'
2099.330	77	'nxt plug 58'
2099.345	90	'nxt plug 58'
2099.360	62	
2099.375	35	
2099.390	37	
2099.405	32	
2099.420	27	
2099.435	35	
2099.450	31	
2099.465	35	
2099.480	36	
2099.495	44	
2099.510	43	
2099.525	44	
2099.540	50	
2099.555	50	
2099.570	65	'frc'
2099.585	65	'frc'
2099.600		'nd'
2099.615	55	
2099.630		'nd'
2099.645	52	'nxt plug 59'
2099.660	60	'nxt plug 59'
2099.675	62	'nxt plug 59'
2099.690		'nd'
2099.705	57	
2099.720	62	
2099.735	61	
2099.750	55	
2099.765	58	
2099.780	68	
2099.795	62	
2099.810	72	'frc'
2099.825	62	
2099.840	58	
2099.855	75	
2099.870	75	
2099.885	62	
2099.900	68	
2099.915	67	
2099.930	62	
2099.945	55	
2099.960	54	
2099.975	73	'frc'
2099.990	75	'nxt plug'

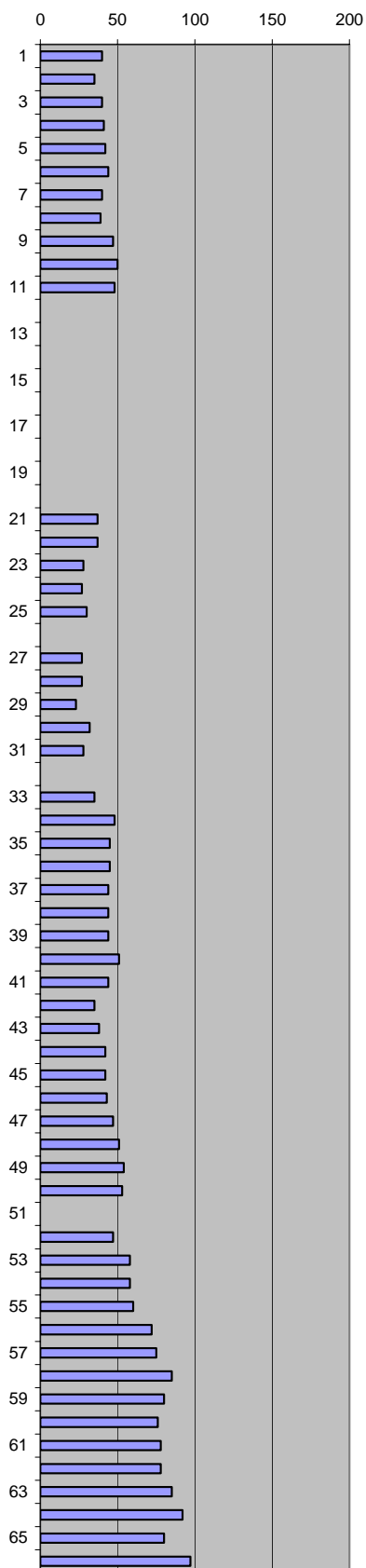




Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Miniperm. Data 2100-2101 m

Flowmeter: medium  
 Upstream P: 0,13 bar

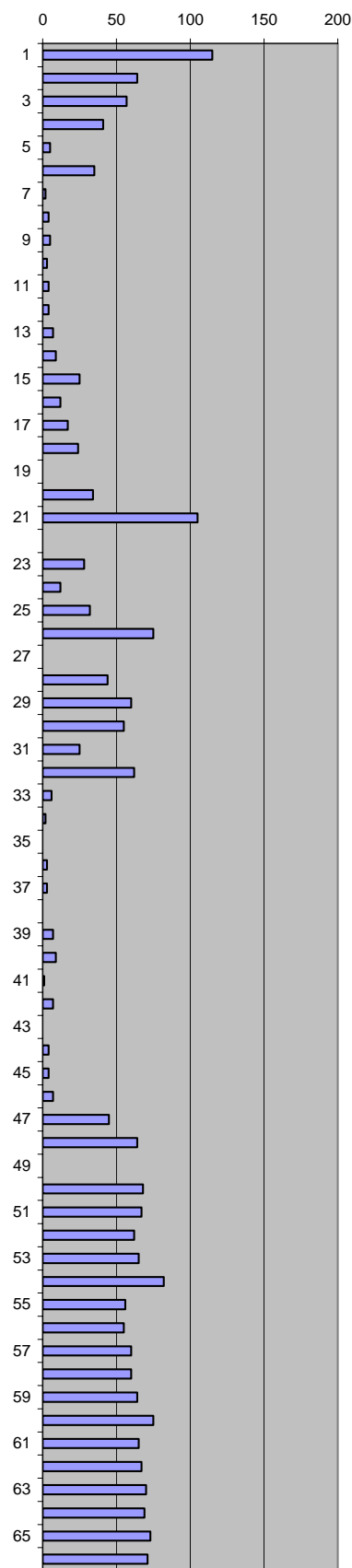
Depth, m	Flow	Comments
2100.015	40	'nxt plug 60'
2100.030	35	'nxt plug 60'
2100.045	40	
2100.060	41	
2100.075	42	
2100.090	44	
2100.105	40	
2100.120	39	
2100.135	47	
2100.150	50	
2100.165	48	
2100.180		'Seal peal'
2100.195		'nd'
2100.210		
2100.225		
2100.240		
2100.255		
2100.270		
2100.285		
2100.300		
2100.315	37	'nxt plug 61'
2100.330	37	'nxt plug 61'
2100.345	28	'nxt plug V'
2100.360	27	'nxt plug V'
2100.375	30	'nxt plug V'
2100.390		'nd'
2100.405	27	
2100.420	27	
2100.435	23	
2100.450	32	'frc'
2100.465	28	
2100.480		'nd'
2100.495	35	
2100.510	48	
2100.525	45	
2100.540	45	
2100.555	44	
2100.570	44	
2100.585	44	
2100.600	51	'frc'
2100.615	44	
2100.630	35	
2100.645	38	
2100.660	42	
2100.675	42	'nxt plug 62'
2100.690	43	'nxt plug 62'
2100.705	47	'nxt plug 62'
2100.720	51	'frc'
2100.735	54	'frc'
2100.750	53	
2100.765		'nd'
2100.780	47	
2100.795	58	
2100.810	58	
2100.825	60	'Epoxy'
2100.840	72	'Epoxy'
2100.855	75	
2100.870	85	
2100.885	80	
2100.900	76	
2100.915	78	
2100.930	78	
2100.945	85	'nxt plug'
2100.960	92	'nxt plug'
2100.975	80	'nxt plug'
2100.990	97	'nxt plug' ' frc'



Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Miniperm. Data 2101-2102 m

Flowmeter: medium  
 Upstream P: 0,13 bar

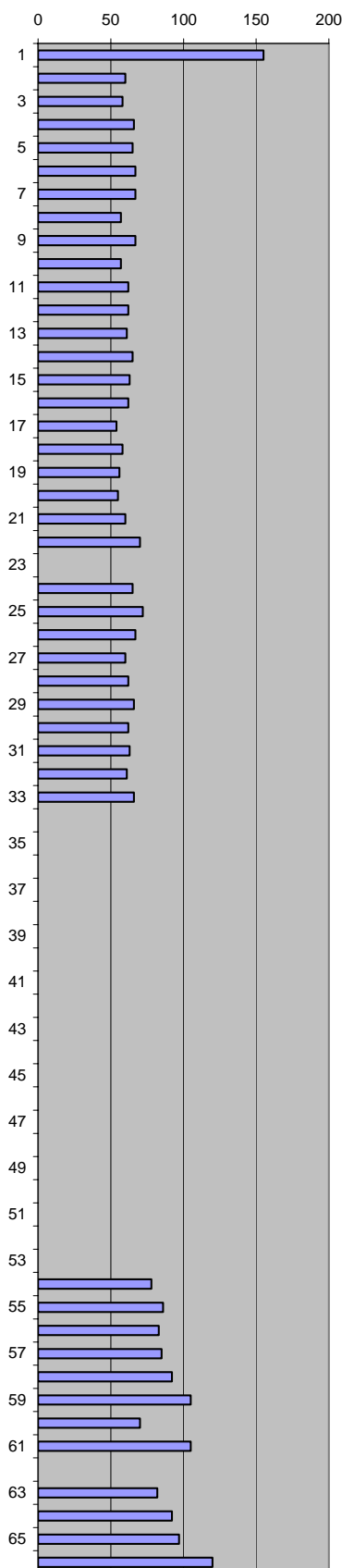
Depth, m	Flow	Comments
2101.015	115	'nxt plug 63'
2101.030	64	'nxt plug 63'
2101.045	57	'nxt plug 63'
2101.060	41	
2101.075	5	
2101.090	35	
2101.105	2	
2101.120	4	
2101.135	5	
2101.150	3	
2101.165	4	
2101.180	4	
2101.195	7	
2101.210	9	'frc'
2101.225	25	'frc'
2101.240	12	
2101.255	17	
2101.270	24	
2101.285		'nd'
2101.300	34	
2101.315	105	'frc'
2101.330		'nd'
2101.345	28	
2101.360	12	'nxt plug 64'
2101.375	32	'nxt plug 64'
2101.390	75	'nxt plug 64'
2101.405		'nd'
2101.420	44	
2101.435	60	'frc'
2101.450	55	'frc'
2101.465	25	
2101.480	62	'frc'
2101.495	6	
2101.510	2	
2101.525		'nd'
2101.540	3	
2101.555	3	
2101.570		'nd'
2101.585	7	
2101.600	9	
2101.615	1	
2101.630	7	
2101.645		' nd' 'Epoxy'
2101.660	4	
2101.675	4	'nxt plug V'
2101.690	7	'nxt plug V'
2101.705	45	'nxt plug V'
2101.720	64	'nxt plug V'
2101.735		'nd'
2101.750	68	'nxt plug 65'
2101.765	67	'nxt plug 65'
2101.780	62	'nxt plug 65'
2101.795	65	
2101.810	82	frc'
2101.825	56	
2101.840	55	
2101.855	60	
2101.870	60	
2101.885	64	
2101.900	75	'frc'
2101.915	65	
2101.930	67	
2101.945	70	
2101.960	69	'nxt plug 66'
2101.975	73	'nxt plug 66'
2101.990	71	'nxt plug 66'



Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Miniperm. Data 2102-2103 m

Flowmeter: medium  
 Upstream P: 0,13 bar

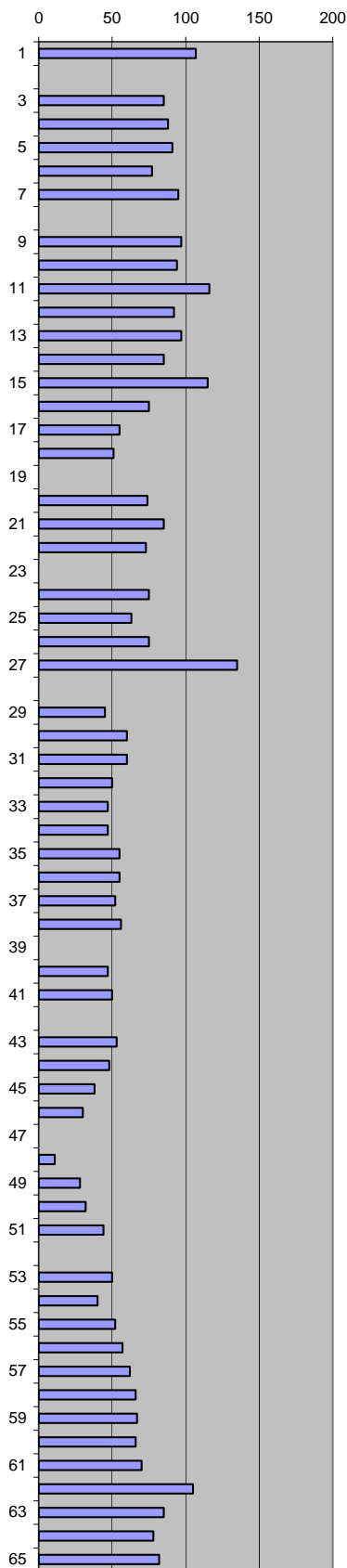
Depth, m	Flow	Comments
2102.015	155	'surface + edge'
2102.030	60	
2102.045	58	
2102.060	66	
2102.075	65	
2102.090	67	
2102.105	67	
2102.120	57	
2102.135	67	
2102.150	57	
2102.165	62	
2102.180	62	
2102.195	61	
2102.210	65	
2102.225	63	
2102.240	62	
2102.255	54	
2102.270	58	
2102.285	56	
2102.300	55	'nxt plug 67'
2102.315	60	'nxt plug 67'
2102.330	70	'nxt plug 67'
2102.345		'nd'
2102.360	65	
2102.375	72	
2102.390	67	
2102.405	60	
2102.420	62	
2102.435	66	
2102.450	62	
2102.465	63	
2102.480	61	
2102.495	66	
2102.510		'Seal peel'
2102.525		'nd'
2102.540		
2102.555		
2102.570		
2102.585		
2102.600		
2102.615		
2102.630		
2102.645		
2102.660		
2102.675		
2102.690		
2102.705		
2102.720		
2102.735		
2102.750		
2102.765		
2102.780		
2102.795		'nd'
2102.810	78	'nxt plug 68'
2102.825	86	'nxt plug 68'
2102.840	83	
2102.855	85	
2102.870	92	
2102.885	105	'frc'
2102.900	70	
2102.915	105	
2102.930		'nd'
2102.945	82	'nxt plug'
2102.960	92	'nxt plug'
2102.975	97	
2102.990	120	'frc'



Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Miniperm. Data 2103-2104 m

Flowmeter: medium  
 Upstream P: 0,13 bar

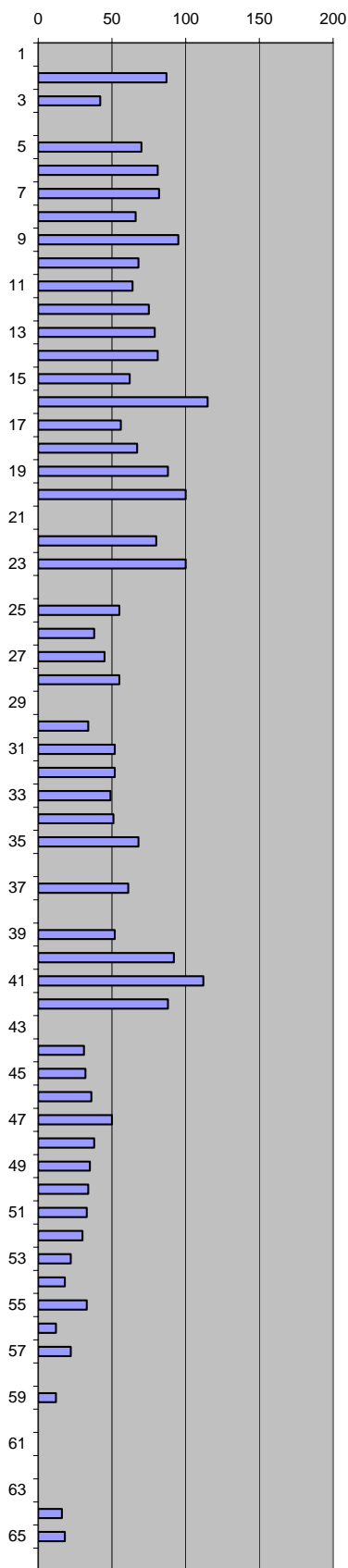
Depth	Flow	Comments
2103.015		'nd'
2103.030	107	'nxt plug 69' 'epoxy'
2103.045		'nd'
2103.060	85	
2103.075	88	
2103.090	91	
2103.105	77	
2103.120	95	
2103.135		'nd'
2103.150	97	
2103.165	94	
2103.180	116	'frc'
2103.195	92	
2103.210	97	
2103.225	85	
2103.240	115	
2103.255	75	
2103.270	55	
2103.285	51	
2103.300		'nd'
2103.315	74	'nxt plug 70'
2103.330	85	'nxt plug 70'
2103.345	73	'nxt plug 70'
2103.360		'nd'
2103.375	75	'nxt plug V '
2103.390	63	'nxt plug V '
2103.405	75	'nxt plug V '
2103.420	135	'nxt plug V ' 'frc'
2103.435		'nd'
2103.450	45	
2103.465	60	
2103.480	60	
2103.495	50	
2103.510	47	
2103.525	47	
2103.540	55	
2103.555	55	
2103.570	52	
2103.585	56	
2103.600		'nd'
2103.615	47	
2103.630	50	
2103.645		'nd'
2103.660	53	'nxt plug 71'
2103.675	48	'nxt plug 71'
2103.690	38	
2103.705	30	
2103.720		'nd'
2103.735	11	
2103.750	28	
2103.765	32	
2103.780	44	
2103.795		'nd'
2103.810	50	
2103.825	40	
2103.840	52	
2103.855	57	
2103.870	62	
2103.885	66	
2103.900	67	
2103.915	66	
2103.930	70	
2103.945	105	'frc'
2103.960	85	
2103.975	78	
2103.990	82	



Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Miniperm. Data 2104-2105 m

Flowmeter: medium  
 Upstream P: 0,13 bar

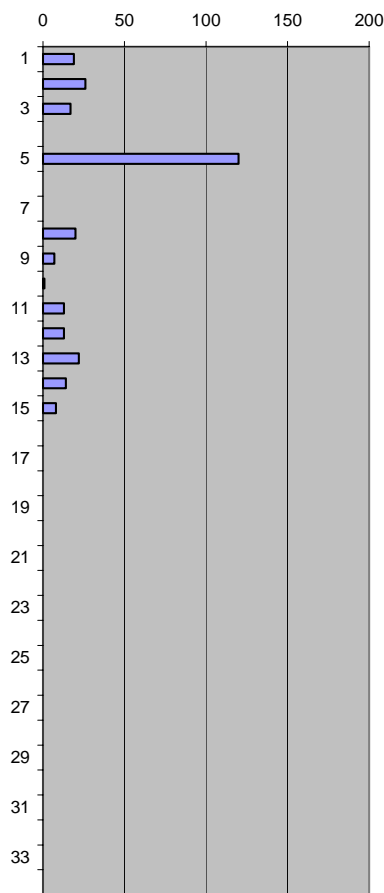
Depth, m	Flow	Comments
2104.015		'nd'
2104.003	87	'nxt plug 72'
2104.045	42	'nxt plug 72'
2104.060		'nd'
2104.075	70	
2104.090	81	
2104.105	82	
2104.120	66	
2104.135	95	'frc'
2104.150	68	
2104.165	64	
2104.180	75	
2104.195	79	'frc'
2104.210	81	'frc'
2104.225	62	
2104.240	115	'frc'
2104.255	56	'nxt plug 73'
2104.270	67	'nxt plug 73'
2104.285	88	'nxt plug 73'
2104.300	100	'frc'
2104.315		'nd'
2104.330	80	
2104.345	100	'frc'
2104.360		'nd'
2104.375	55	
2104.390	38	
2104.405	45	
2104.420	55	
2104.435		'nd'
2104.450	34	
2104.465	52	
2104.480	52	
2104.495	49	
2104.510	51	
2104.525	68	
2104.540		'nd'
2104.555	61	
2104.570		'nd'
2104.585	52	
2104.600	92	'frc'
2104.615	112	'frc'
2104.630	88	'frc'
2104.645		'nd'
2104.660	31	'nxt plug 74'
2104.675	32	'nxt plug 74'
2104.690	36	
2104.705	50	'nxt plug V'
2104.720	38	'nxt plug V'
2104.735	35	'nxt plug V'
2104.750	34	'nxt plug V'
2104.765	33	
2104.780	30	
2104.795	22	
2104.810	18	
2104.825	33	
2104.840	12	'Epoxy'
2104.855	22	
2104.870		'nd'
2104.885	12	
2104.900		'nd'
2104.915	0	Flowmeter:
2104.930	0	small
2104.945		'nd'
2104.960	16	
2104.975	18	
2104.990		'nd'



Company: DONG Well: 5604/20-1 core #4 Siri-1  
 Subject: Miniperm. Data 2105.0-2105.5 m

Flowmeter: medium  
 Upstream P: 0,13 bar

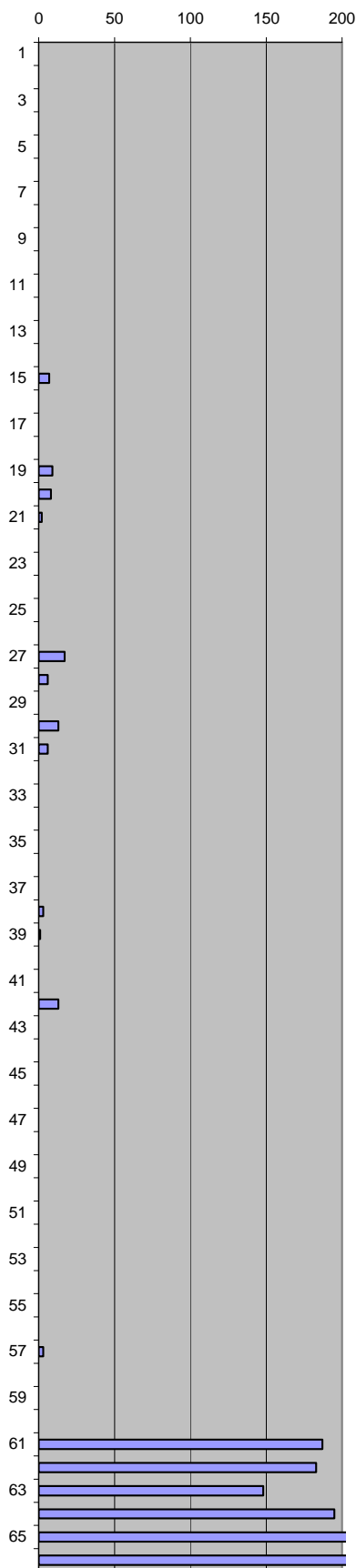
Depth, m	Flow	Comments
2105.015	19	
2105.003	26	
2105.045	17	
2105.060		'nd'
2105.075	120	'frc'
2105.090		'nd'
2105.105		'nd'
2105.120	20	
2105.135	7	
2105.150	1	
2105.165	13	
2105.180	13	
2105.195	22	
2105.210	14	
2105.225	8	
2105.240	0	Flowmeter: small Upstream P 2.81 bar
2105.255	0	
2105.270	0	
2105.285	0	
2105.300	0	
2105.315	0	
2105.330	0	
2105.345	0	
2105.360	0	
2105.375	0	
2105.390	0	
2105.405	0	
2105.420	0	
2105.435	0	
2105.450	0	
2105.465	0	
2105.480	0	
2105.495	0	
2105.500	0	



Company: DONG Well: 5604/20-1 core #5 Siri-1  
 Subject: Miniper. Data 2106-2107 m

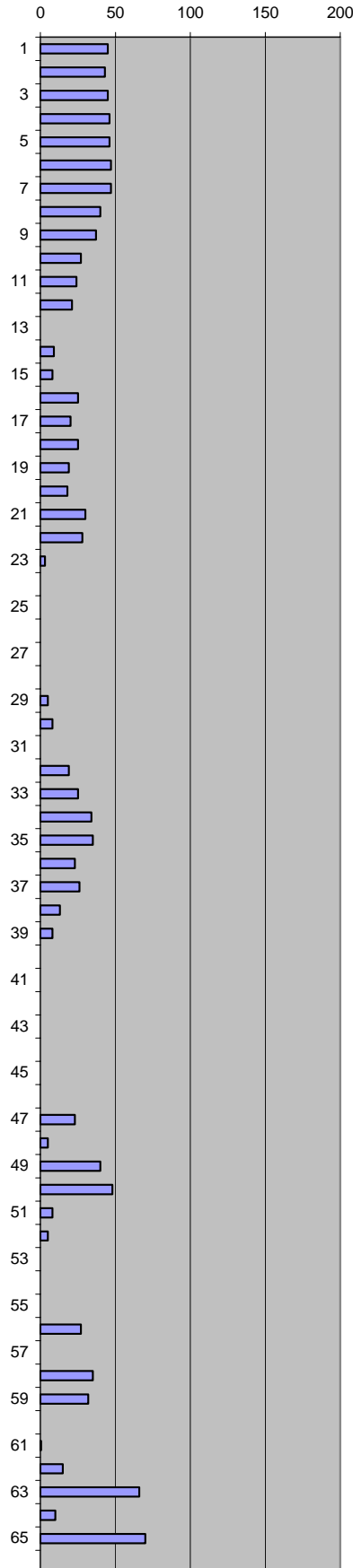
Flowmeter: medium  
 Upstream P: 0,13 bar

Depth, m	Flow	Comments
2106.015		Flowmeter: small
2106.030	0	
2106.045	0	
2106.060	0	'nxt plug 76'
2106.075	0	
2106.090	0	
2106.105	0	
2106.120		'nd'
2106.135	0	
2106.150	0	Upstream P 2.81 bar
2106.165	0	
2106.180	0	
2106.195	0	
2106.210	0	
2106.225	7	
2106.240	0	
2106.255	0	
2106.270	0	
2106.285	9	
2106.300	8	
2106.315	2	
2106.330		'nd'
2106.345	0	
2106.360	0	
2106.375	0	
2106.390	0	
2106.405	17	
2106.420	6	
2106.435	0	
2106.450	13	
2106.465	6	
2106.480		'nd'
2106.495		'nd'
2106.510		'nd'
2106.525		'nd'
2106.540		'nd'
2106.555		'nd'
2106.570	3	
2106.585	1	
2106.600	0	
2106.615	0	
2106.630	13	
2106.645	0	
2106.660	0	
2106.675	0	
2106.690	0	
2106.705	0	
2106.720	0	
2106.735	0	
2106.750	0	
2106.765	0	
2106.780	0	
2106.795	0	
2106.810	0	
2106.825	0	
2106.840	0	
2106.855	3	
2106.870		'nd'
2106.885		'nd'
2106.900		'nd'
2106.915	187	Flowmeter: large
2106.930	183	
2106.945	148	
2106.960	195	Upstream P 2.85 bar
2106.975	214	
2106.990	276	'nxt plug'



Flowmeter: medium  
 Upstream P: 0,13 bar

Depth, m	Flow	Comments	
2107.015	45	'nxt plug 77'	
2107.0300	43	'nxt plug 77'	
2107.045	45	'nxt plug 77'	
2107.060	46		
2107.075	46		
2107.090	47		
2107.105	47		
2107.120	40		
2107.135	37		
2107.150	27		
2107.165	24		
2107.180	21		
2107.195	0		
2107.210	9		
2107.225	8		
2107.240	25	'nxt plug V'	
2107.255	20	'nxt plug V'	
2107.270	25	'nxt plug V'	
2107.285	19	'nxt plug V'	
2107.300	18	'nxt plug 78'	
2107.315	30		
2107.330	28		
2107.345	3	Flowmeter: small Upstream P 2.81 bar	
2107.360	0		
2107.375	0		
2107.390	0		
2107.405	0		
2107.420	0		
2107.435	5		
2107.450	8		'frc'
2107.465			'nd'
2107.480	19		
2107.495	25		
2107.510	34		
2107.525	35		
2107.540	23		
2107.555	26		
2107.570	13		
2107.585	8		
2107.600	0	'frc'	
2107.615	0		
2107.630	0		
2107.645	0		
2107.660	0		
2107.675	0		
2107.690	0		
2107.705	23		
2107.720	5		
2107.735	40		
2107.750	48		
2107.765	8	'frc'	
2107.780	5		
2107.795	0		
2107.810	0		
2107.825	0		
2107.840	27		
2107.855	0		
2107.870	35		
2107.885	32		
2107.900			'nd'
2107.915	0.5		
2107.930	15		
2107.945	66		
2107.960	10		
2107.975	70	'frc'	
2107.990		'nd'	

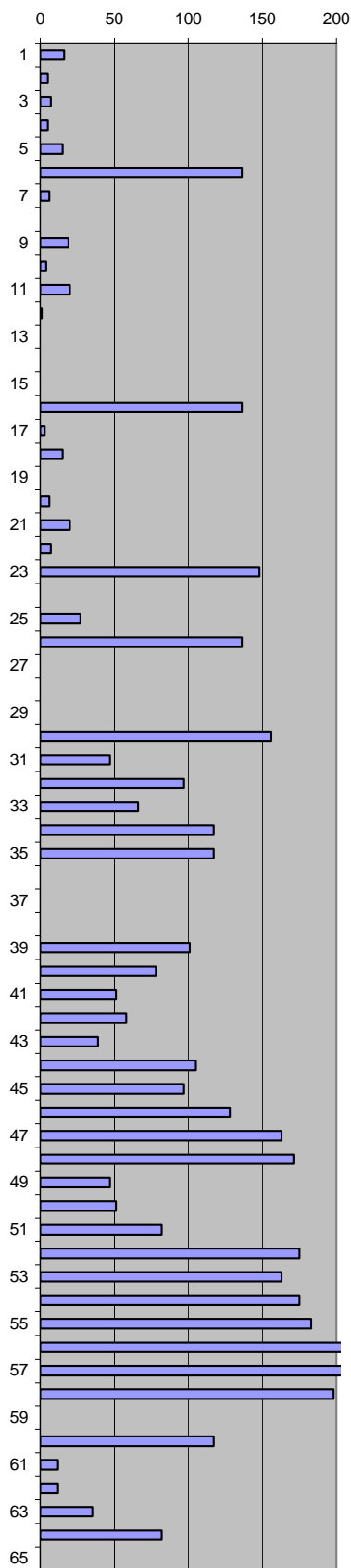




Company: DONG Well: 5604/20-1 core #5 Siri-1  
 Subject: Miniperm. Data 2108-2109 m

Flowmeter: medium  
 Upstream P: 0,13 bar

Depth, m	Flow	Comments
2108.015	16	
2108.030	5	
2108.045	7	
2108.060	5	
2108.075	15	
2108.090	136	
2108.105	6	
2108.120		'nd'
2108.135	19	
2108.150	4	
2108.165	20	
2108.180	1	
2108.195	0	Flowmeter:
2108.210	0	small
2108.225	0	
2108.240	136	
2108.255	3	
2108.270	15	'frc'
2108.285		'nd'
2108.300	6	
2108.315	20	
2108.330	7	
2108.345	148	
2108.360		'nd'
2108.375	27	
2108.390	136	'frc'
2108.405		'nd'
2108.420		'nd'
2108.435		'nd'
2108.450	156	'frc'
2108.465	47	
2108.480	97	'frc'
2108.495	66	
2108.510	117	
2108.525	117	
2108.540		'nd'
2108.555		'nd'
2108.570		'nd'
2108.585	101	Flowmeter:
2108.600	78	large
2108.615	51	
2108.630	58	Upstream P
2108.645	39	2.81 bar
2108.660	105	
2108.675	97	
2108.690	128	
2108.705	163	
2108.720	171	
2108.735	47	
2108.750	51	
2108.765	82	
2108.780	175	
2108.795	163	
2108.810	175	
2108.825	183	
2108.840	265	
2108.855	226	
2108.870	198	'frc'
2108.885		'nd'
2108.900	117	'frc'
2108.915	12	
2108.930	12	
2108.945	35	
2108.960	82	
2108.975		'nd'



Company: DONG Well: 5604/20-1 core #5 Siri-1  
 Subject: Miniperm. Data 2109-2110 m

Flowmeter: medium  
 Upstream P: 0,13 bar

Depth, m	Flow	Comments
2109.015	14	
2109.030	167	
2109.045	128	
2109.060	167	
2109.075		'nd'
2109.090		'nd'
2109.105	4	
2109.120	6	
2109.135	5	
2109.150	0	Flowmeter: small
2109.165	0	
2109.180	144	Flowmeter: large
2109.195	163	
2109.210	97	
2109.225	280	'frc'
2109.240	198	'frc'
2109.255	156	
2109.270	167	Upstream P 2.81 bar
2109.285	97	
2109.300	11	'frc'
2109.315	5	
2109.330	19	
2109.345	17	
2109.360	12	
2109.375	12	
2109.390	202	
2109.405	222	
2109.420	163	
2109.435		'nd'
2109.450		'nd'
2109.465		'nd'
2109.480		'nd'
2109.495	93	
2109.510	22	
2109.525	171	
2109.540	8	
2109.555	5	
2109.570	10	
2109.585	187	
2109.600	206	
2109.615	163	
2109.630	78	
2109.645	159	
2109.660	105	
2109.675	58	
2109.690	11	
2109.705	12	
2109.720	117	
2109.735	136	
2109.750	272	
2109.765	70	
2109.780	39	
2109.795		'nd'
2109.810	105	
2109.825	11	
2109.840	12	
2109.855	6	
2109.870		'nd'
2109.885	202	'frc'
2109.900	66	
2109.915	9	
2109.930	7	
2109.945	16	
2109.960	14	
2109.975	21	'frc'
2109.990	17	

