P-07-94

Oskarshamn site investigation

Hydraulic injection tests in borehole KLX21B

Subarea Laxemar

Cristian Enachescu, Jörg Böhner, Reinder van der Wall
Golder Associates GmbH

September 2007

Svensk Kärnbränslehantering AB
Swedish Nuclear Fuel
and Waste Management Co
Box 5864
SE-102 40 Stockholm Sweden
Tel 08-459 84 00
+46 8 459 84 00
Fax 08-661 57 19
+46 8 661 57 19

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Keywords: Site/project, Hydrogeology, Hydraulic tests, Injection test, Hydraulic parameters, Transmissivity, Constant head.

Abstract

Hydraulic injection tests have been performed in Borehole KLX21B at the Laxemar area, Oskarshamn. The tests are part of the general program for site investigations and specifically for the Laxemar subarea. The hydraulic testing programme has the aim to characterise the rock with respect to its hydraulic properties of the fractured zones and rock mass between them. Data is subsequently delivered for the site descriptive model.

This report describes the results and primary data evaluation of the hydraulic injection tests in borehole KLX21B performed between 06th and 28th of February 2007.

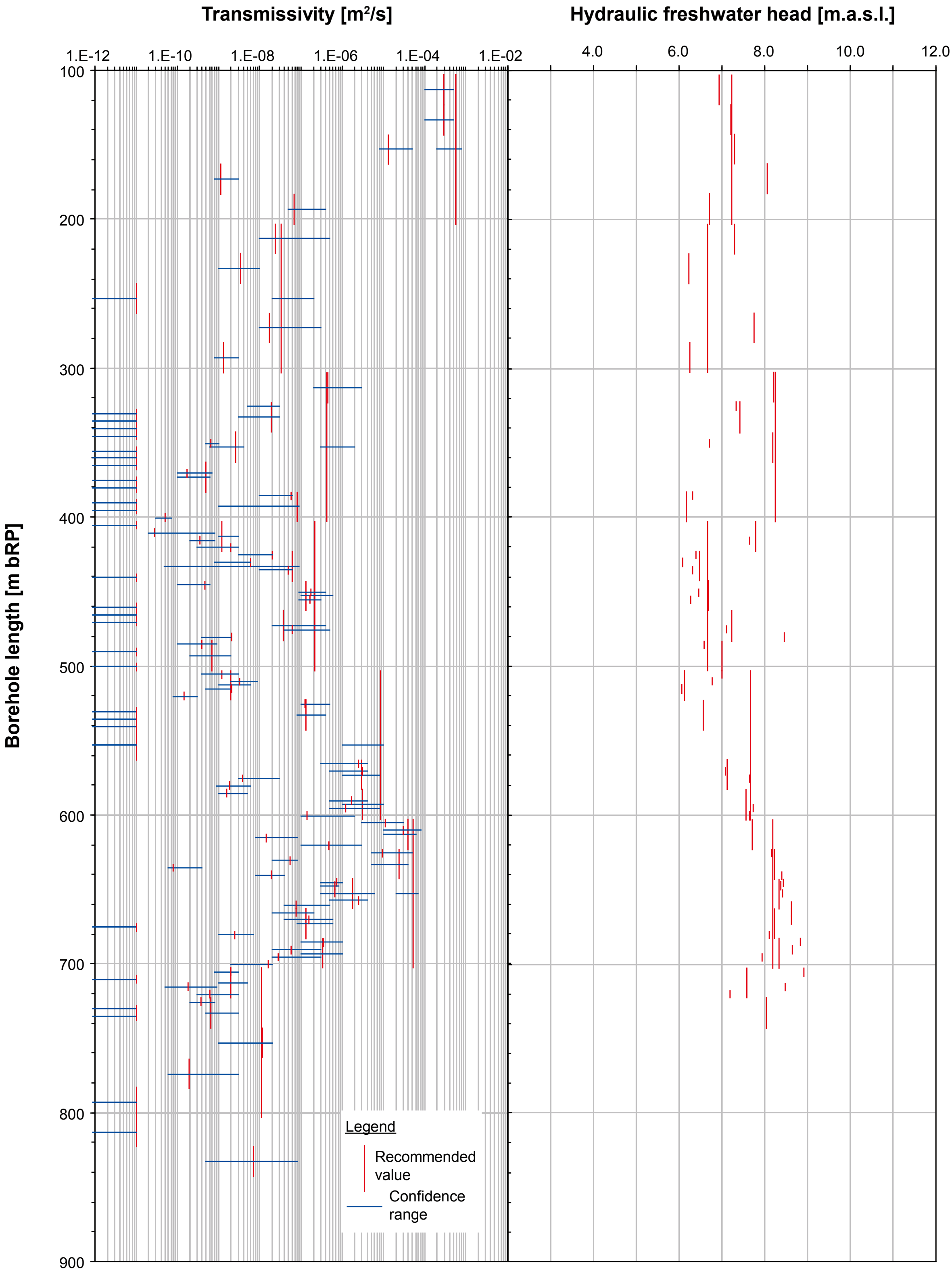
The objective of the hydrotests was to describe the rock around the borehole with respect of hydraulic parameters, mainly transmissivity (T) and hydraulic conductivity (K) at different measurement scales of 100 m, 20 m and 5 m sections. Transient evaluation during flow and recovery period provided additional information such as flow regimes, hydraulic boundaries and cross-over flows. Constant pressure injection tests were conducted between 103.00–843.00 m below ToC. The results of the test interpretation are presented as transmissivity, hydraulic conductivity and hydraulic freshwater head.

Sammanfattning

Injektionstester har utförts i borrhål KLX21B i delområde Laxemar, Oskarshamn. Testerna är en del av SKB:s platsundersökningar. Hydraultestprogrammet där injektionstesterna ingår har som mål att karakterisera berget med avseende på dess hydrauliska egenskaper av sprickzoner och mellanliggande bergmassa. Data från testerna används vid den platsbeskrivande modelleringen av området.

Denna rapport redovisar resultaten och utvärderingar av primärdata de hydrauliska injektionstesterna i borrhål KLX21B. Testerna utfördes mellan den 06 februari till den 28 februari 2007.

Syftet med hydraultesterna var framförallt att beskriva bergets hydrauliska egenskaper runt borrhålet med avseende på hydrauliska parametrar, i huvudsak transmissvitet (T) och hydraulisk konduktivitet (K) vid olika mätskalor av 100 m, 20 m och 5 m sektioner. Transient utvärdering under injektions- och återhämntningsfasen gav ytterligare information avseende flödesgeometri, hydrauliska gränser och sprickläckage. Injektionstester utfördes mellan 103,00–843,00 m borrhålslängd. Resultaten av testutvärderingen presenteras som transmissivitet, hydraulisk konduktivitet och grundvattennivå uttryckt i ekvivalent sötvattenpelare (fresh-water head).



Borehole KLX21B – Summary of results.

Contents

1 Introduction

A general program for site investigations presenting survey methods has been prepared /SKB 2001/, as well as a site-specific program for the investigations in the Simpevarp area /SKB 2006/. The hydraulic injection tests form part of the site characterization program under item 1.1.5.8 in the work breakdown structure of the execution programme, /SKB 2002/.

Measurements were carried out according in borehole KLX21B between 07^{th} and 27^{th} of February 2007 following the methodology described in SKB MD 323.001 and in the Activity Plan AP PS 400-07-005 (SKB controlling documents). Data and results were delivered to the SKB site characterization database SICADA and are traceable by the Activity Plan number.

The hydraulic testing programme has the aim to characterise the rock with respect to its hydraulic properties of the fractured zones and rock mass between them. This report describes the results and primary data evaluation of the hydraulic injection tests in borehole KLX21B. The commission was conducted by Golder Associates AB and Golder Associates GmbH.

Borehole KLX21B is situated in the Laxemar area approximately 2 km west of the nuclear power plant of Simpevarp, Figure 1-1. The borehole was drilled from September 2006 to November 2006 at 858.78 m length with an inner diameter of 198 m to a depth of 99.3 m and further on of 76 mm to the bottom of the borehole. The inclination of the borehole is –70.86°. The upper 11.50 m is cased with large diameter telescopic casing ranging from diameter (outer diameter) 208–323 mm. A cone casing is placed from 96.15 m to 100.85 m ranging from diameter (outer diameter) 84–104 mm.

The work was carried out in accordance with Activity Plan AP PS 400-07-005. In Table 1-1 controlling documents for performing this activity are listed. Activity plan and Method Descriptions are SKB's internal controlling documents. Measurements were conducted utilising SKB's custom made testing equipment PSS2.

Table 1-1. Controlling documents for the performance of the activity.

Activity Plan	Number	Version
Hydraulic pumping and injection tests in borehole KLX21B	AP PS 400-07-005	1.0
Method Descriptions	**Number**	**Version**
Hydraulic injection tests	SKB MD 323.001	1.0
Instruktion för rengöring av borrhålsutrustning och viss markbaserad utrustning.	SKB MD 600.004	1.0
Instruktion för längdkalibrering vid undersökningar i kärnborrhål	SKB MD 620.010	1.0
Allmäna ordning-, skydds- och miljöregler för platsundersökningar Oskarshamn.	SKB SDPO-003	1.0
Miljökontrollprogram Platsundersökningar	SKB SDP-301	1.0
Hantering av primärdata vid platsundersökningar	SKB SDP-508	1.0

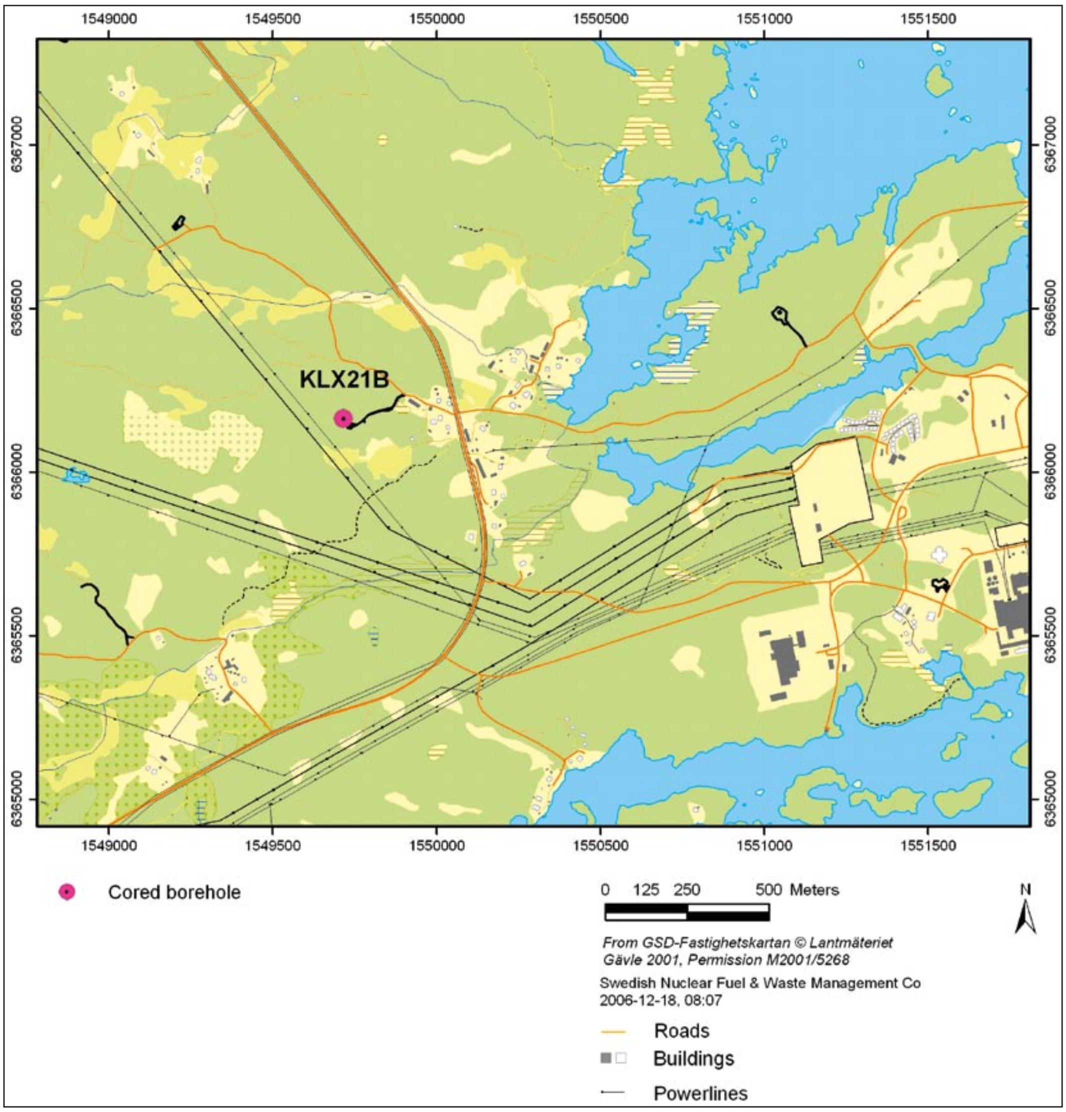


Figure 1-1. *The investigation area Laxemar, Oskarshamn with location of borehole KLX21B.*

2 Objective and scope

The objective of the hydrotests in borehole KLX21B is to describe the rock around the borehole with respect to hydraulic parameters, mainly transmissivity (T) and hydraulic conductivity (K). This is done at different measurement scales of 100 m, 20 m and 5 m sections. Among these parameters transient evaluation during the flow and recovery period provides additional information such as flow regimes, hydraulic boundaries and cross-over flows.

The scope of work consisted of preparation of the PSS2 tool which included cleaning of the down-hole tools, calibration and functional checks, injection tests of 100 m, 20 m and 5 m test sections, analyses and reporting.

Preparation for testing was done according to the Quality plan. This step mainly consists of functions checks of the equipment to be used, the PSS2 tool. Calibration checks and function checks were documented in the daily log and/or relevant documents.

The following hydraulic injection tests were performed between 07th and 27th February 2007.

Between 543.00 m and 563.00 m no 5 m tests were performed because the appropriate 20 m section shows a flow below measurement limit (1 ml/min). The position range of the 5 m tests were calculated for covering a true vertical depth of 300 m to 700 m with consideration of the borehole inclination of –70.86° and adapting to the next appropriate section limits of the 20 m sections.

2.1 Borehole

The borehole is telescope drilled with specifications on its construction according to Table 2-2. The reference point of the borehole is the centre of top of casing (ToC), given as elevation in table below. The Swedish National coordinate system (RT90) is used in the x-y direction and RHB70 in the z-direction. Northing and Easting refer to the top of the borehole at the ground surface. The borehole diameter in Table 2-2 refers to the final diameter of the drill bit after drilling to full depth.

Table 2-1. Performed injection tests at borehole KLX21B.

No. of injection tests*	Interval	Positions	Time/test	Total test time
7	100 m	103.00–803.00 m	125 min	14.6 hrs
37	20 m	103.00–843.00 m	90 min	55.5 hrs
81	5 m	323.00–743.00 m	90 min	121.5 hrs
			Total:	191.6 hrs

* excluding repeated tests

Table 2-2. Information about KLX21B (from SICADA (2007-01-18).

Title	Value				
Old idcode name(s):	KLX21B				
Comment:	No comment exists				
Borehole length (m):	858.780				
Reference level:	TOC				
Drilling period(s):	From date	To date	Secup (m)	Seclow (m)	Drilling type
	2006-09-20	2006-09-25	0.30	99.41	Percussion drilling
	2006-10-12	2006-11-29	99.41	858.78	Core drilling
Starting point coordinate:	Length (m)	Northing (m)	Easting (m)	Elevation (m.a.s.l)	Coord system
(centerpoint of TOC)	0.00	6366164.00	1549715.10	10.68	RT90-RHB70
	3.00	6366163.30	1549714.41	7.84	RT90-RHB70
Angles:	Length(m)	Bearing	Inclination (– = down)		
	0.000	225.050	–70.86		RT90-RHB70
Borehole diameter:	Secup (m)	Seclow (m)	Hole diam (m)		
	0.30	6.35	0.340		
	6.35	11.85	0.248		
	11.85	99.30	0.198		
	99.30	99.41	0.158		
	99.41	100.00	0.086		
	100.00	100.85	0.086		
	100.85	858.78	0.076		
Core diameter:	Secup (m)	Seclow (m)	Core diam (m)		
	99.41	100.00	0.072		
	100.00	858.78	0.050		
Casing diameter:	Secup (m)	Seclow (m)	Case in (m)	Case out (m)	
	0.00	11.85	0.200	0.208	
	0.30	6.35	0.311	0.323	
Cone dimensions:	Secup (m)	Seclow (m)	Cone in (m)	Cone out (m)	
	96.15	99.15	0.100	0.104	
	99.15	100.85	0.080	0.084	
Grove milling:	Length (m)	Trace detectable			
	110.000	YES			
	150.000	YES			
	200.000	YES			
	250.000	YES			
	300.000	YES			
	350.000	YES			
	400.000	YES			
	450.000	YES			
	500.000	YES			
	550.000	YES			
	600.000	YES			
	650.000	YES			
	700.000	YES			
	750.000	YES			
	800.000	YES			
	830.000	YES			

2.2 Injection tests

Injection tests were conducted according to the Activity Plan AP PS 400-07-005 and the Method Description for hydraulic injection tests, SKB MD 323.001 (SKB internal documents). Tests were done in 100 m test sections between 103.00–803.00 m below ToC, in 20 m test sections between 103.00–843.00 m below ToC and in 5 m test sections between 323–743 m below ToC with the exception of the sections between 543–563 m (see Table 2-3). The initial criteria for performing injection tests in 20 m and 5 m sections was a measurable flow of Q > 0.001 L/min in the previous measured 100 m and 20 m tests covering the smaller test sections (see Figure 2-1). The measurements were performed with SKB's custom made equipment for hydraulic testing called PSS2.

No other additional measurements except the actual hydraulic tests and related measurements of packer position and water level in annulus of borehole KLX21B were conducted.

Table 2-3. Tests performed.

Bh ID	Test section (m bToC)	Test type[1]	Test no	Test start Date, Time	Test stop Date, Time
KLX21B	103.00–203.00	3	1	070208 17:57:00	070208 20:28:00
KLX21B	203.00–303.00	3	1	070209 08:42:00	070209 10:42:00
KLX21B	303.00–403.00	3	1	070209 12:45:00	070209 14:49:00
KLX21B	403.00–503.00	3	1	070209 16:53:00	070209 19:00:00
KLX21B	503.00–603.00	3	1	070209 21:47:00	070210 00:17:00
KLX21B	603.00–703.00	3	1	070210 08:23:00	070210 10:25:00
KLX21B	703.00–803.00	3	1	070210 12:20:00	070210 15:49:00
KLX21B	103.00–123.00	3	1	070211 11:45:00	070211 13:20:00
KLX21B	123.00–143.00	3	1	070211 14:42:00	070211 16:10:00
KLX21B	143.00–163.00	3	1	070211 17:08:00	070211 18:38:00
KLX21B	163.00–183.00	3	1	070211 19:26:00	070211 20:16:00
KLX21B	163.00–183.00	3	2	070212 15:16:00	070212 15:38:00
KLX21B	163.00–183.00	3	3	070213 07:10:00	070213 09:10:00
KLX21B	183.00–203.00	3	1	070211 22:06:00	070211 22:43:00
KLX21B	183.00–203.00	3	2	070213 09:56:00	070213 11:51:00
KLX21B	203.00–223.00	3	1	070213 12:58:00	070213 14:26:00
KLX21B	223.00–243.00	3	1	070213 15:11:00	070213 16:52:00
KLX21B	243.00–263.00	3	1	070213 17:44:00	070213 18:35:00
KLX21B	263.00–283.00	3	1	070213 19:22:00	070213 20:56:00
KLX21B	283.00–303.00	3	1	070213 22:19:00	070214 00:16:00
KLX21B	303.00–323.00	3	1	070214 01:09:00	070214 02:35:00
KLX21B	323.00–343.00	3	1	070214 06:37:00	070214 08:29:00
KLX21B	343.00–363.00	3	1	070214 09:15:00	070214 11:32:00
KLX21B	363.00–383.00	3	1	070214 12:16:00	070214 14:39:00
KLX21B	383.00–403.00	3	1	070214 15:20:00	070214 16:48:00
KLX21B	403.00–423.00	3	1	070214 17:28:00	070214 19:45:00
KLX21B	423.00–443.00	3	1	070214 20:27:00	070214 21:59:00
KLX21B	443.00–463.00	3	1	070214 23:06:00	070215 00:35:00
KLX21B	463.00–483.00	3	1	070215 01:22:00	070215 03:27:00
KLX21B	483.00–503.00	3	1	070215 06:36:00	070215 08:50:00
KLX21B	503.00–523.00	3	1	070215 09:32:00	070215 11:10:00
KLX21B	523.00–543.00	3	1	070215 11:42:00	070215 13:04:00
KLX21B	543.00–563.00	3	1	070215 14:01:00	070215 14:54:00
KLX21B	563.00–583.00	3	1	070215 15:30:00	070215 17:03:00

Bh ID	Test section (m bToC)	Test type[1]	Test no	Test start Date, Time	Test stop Date, Time
KLX21B	583.00–603.00	3	1	070215 17:52:00	070215 19:25:00
KLX21B	603.00–623.00	3	1	070215 20:13:00	070215 22:12:00
KLX21B	623.00–643.00	3	1	070215 23:08:00	070216 00:36:00
KLX21B	643.00–663.00	3	1	070216 01:18:00	070216 02:45:00
KLX21B	663.00–683.00	3	1	070216 06:38:00	070216 08:03:00
KLX21B	683.00–703.00	3	1	070216 08:52:00	070216 10:25:00
KLX21B	703.00–723.00	3	1	070216 10:59:00	070216 13:03:00
KLX21B	723.00–743.00	3	1	070216 13:59:00	070216 15:33:00
KLX21B	743.00–763.00	3	1	070216 16:38:00	070216 18:02:00
KLX21B	743.00–763.00	3	2	070216 18:09:00	070216 19:51:00
KLX21B	764.00–784.00	3	1	070216 20:51:00	070216 23:04:00
KLX21B	783.00–803.00	3	1	070216 23:47:00	070217 00:14:00
KLX21B	803.00–823.00	3	1	070217 01:20:00	070217 02:09:00
KLX21B	823.00–843.00	3	1	070217 07:00:00	070217 09:28:00
KLX21B	323.00–328.00	3	1	070218 06:40:00	070218 08:09:00
KLX21B	328.00–333.00	3	1	070218 08:36:00	070218 09:26:00
KLX21B	333.00–338.00	3	1	070218 09:54:00	070218 10:43:00
KLX21B	338.00–343.00	3	1	070218 11:14:00	070218 12:04:00
KLX21B	343.00–348.00	3	1	070218 12:30:00	070218 13:18:00
KLX21B	348.00–353.00	3	1	070218 14:32:00	070218 16:24:00
KLX21B	353.00–358.00	3	1	070218 16:52:00	070218 17:40:00
KLX21B	358.00–363.00	3	1	070218 18:10:00	070218 18:58:00
KLX21B	363.00–368.00	3	1	070218 19:32:00	070218 20:21:00
KLX21B	368.00–373.00	3	1	070218 20:49:00	070218 23:18:00
KLX21B	373.00–378.00	3	1	070218 23:48:00	070219 00:48:00
KLX21B	373.00–378.00	3	2	070219 19:45:00	070219 20:34:00
KLX21B	378.00–383.00	3	1	070219 21:05:00	070219 21:54:00
KLX21B	383.00–388.00	3	1	070219 22:56:00	070210 00:26:00
KLX21B	388.00–393.00	3	1	070220 01:01:00	070220 01:50:00
KLX21B	393.00–398.00	3	1	070220 06:24:00	070220 07:12:00
KLX21B	398.00–403.00	4B	1	070220 07:37:00	070220 09:37:00
KLX21B	403.00–408.00	3	1	070220 10:05:00	070220 10:54:00
KLX21B	408.00–413.00	4B	1	070220 11:21:00	070220 13:54:00
KLX21B	413.00–418.00	3	1	070220 14:19:00	070220 16:32:00
KLX21B	418.00–423.00	3	1	070220 16:56:00	070220 17:34:00
KLX21B	418.00–423.00	3	2	070220 17:35:00	070220 19:26:00
KLX21B	423.00–428.00	3	1	070220 20:09:00	070220 21:54:00
KLX21B	428.00–433.00	3	1	070220 22:30:00	070221 00:08:00
KLX21B	433.00–438.00	3	1	070221 00:31:00	070221 01:54:00
KLX21B	438.00–443.00	3	1	070221 06:31:00	070221 07:20:00
KLX21B	443.00–448.00	3	1	070221 07:48:00	070221 10:20:00
KLX21B	448.00–453.00	3	1	070221 10:45:00	070221 12:42:00
KLX21B	453.00–458.00	3	1	070221 13:18:00	070221 14:45:00
KLX21B	458.00–463.00	3	1	070221 15:10:00	070221 15:59:00
KLX21B	463.00–468.00	3	1	070221 16:30:00	070221 17:19:00
KLX21B	468.00–473.00	3	1	070221 17:46:00	070221 18:35:00
KLX21B	473.00–478.00	3	1	070221 19:07:00	070221 20:36:00
KLX21B	478.00–483.00	3	1	070221 21:08:00	070221 23:16:00
KLX21B	483.00–488.00	3	1	070221 23:52:00	070221 23:53:00
KLX21B	488.00–493.00	3	1	070222 06:18:00	070222 07:14:00

Bh ID	Test section (m bToC)	Test type[1]	Test no	Test start Date, Time	Test stop Date, Time
KLX21B	493.00–498.00	3	1	070222 07:39:00	070222 08:28:00
KLX21B	498.00–503.00	3	1	070222 08:57:00	070222 09:46:00
KLX21B	503.00–508.00	3	1	070222 10:10:00	070222 12:25:00
KLX21B	508.00–513.00	3	1	070222 12:52:00	070222 14:25:00
KLX21B	513.00–518.00	3	1	070222 14:50:00	070222 16:25:00
KLX21B	518.00–523.00	4B	1	070222 16:54:00	070222 19:13:00
KLX21B	523.00–528.00	3	1	070222 19:39:00	070222 21:08:00
KLX21B	528.00–533.00	3	1	070222 22:02:00	070222 22:51:00
KLX21B	533.00–538.00	3	1	070222 23:18:00	070223 00:08:00
KLX21B	538.00–543.00	3	1	070223 00:39:00	070223 01:28:00
KLX21B	563.00–568.00	3	1	070223 06:41:00	070223 08:11:00
KLX21B	568.00–573.00	3	1	070223 08:35:00	070223 10:01:00
KLX21B	573.00–578.00	3	1	070223 10:28:00	070223 12:39:00
KLX21B	578.00–583.00	3	1	070223 12:50:00	070223 14:28:00
KLX21B	583.00–588.00	3	1	070223 14:54:00	070223 16:24:00
KLX21B	588.00–593.00	3	1	070223 16:51:00	070223 18:20:00
KLX21B	593.00–598.00	3	1	070223 18:50:00	070223 20:17:00
KLX21B	598.00–603.00	3	1	070223 22:03:00	070223 23:31:00
KLX21B	603.00–608.00	3	1	070224 00:00:00	070224 01:53:00
KLX21B	608.00–613.00	3	1	070224 06:15:00	070224 07:41:00
KLX21B	613.00–618.00	3	1	070224 08:06:00	070224 09:37:00
KLX21B	618.00–623.00	3	1	070224 10:03:00	070224 11:29:00
KLX21B	623.00–628.00	3	1	070224 12:24:00	070224 13:52:00
KLX21B	628.00–633.00	3	1	070224 14:15:00	070224 15:40:00
KLX21B	633.00–638.00	4B	1	070224 16:07:00	070224 18:04:00
KLX21B	638.00–643.00	3	1	070224 18:33:00	070224 19:57:00
KLX21B	643.00–648.00	3	1	070224 21:04:00	070224 22:28:00
KLX21B	645.00–650.00	3	1	070224 22:53:00	070225 00:20:00
KLX21B	650.00–655.00	3	1	070225 00:44:00	070225 02:31:00
KLX21B	658.00–663.00	3	1	070225 06:21:00	070225 07:47:00
KLX21B	655.00–660.00	3	1	070225 08:15:00	070225 09:41:00
KLX21B	663.00–668.00	3	1	070225 10:07:00	070225 11:33:00
KLX21B	668.00–673.00	3	1	070225 11:57:00	070225 13:20:00
KLX21B	673.00–678.00	3	1	070225 14:08:00	070225 14:57:00
KLX21B	678.00–683.00	3	1	070225 15:24:00	070225 17:31:00
KLX21B	683.00–688.00	3	1	070225 17:38:00	070225 19:11:00
KLX21B	688.00–693.00	3	1	070225 19:40:00	070225 21:07:00
KLX21B	693.00–698.00	3	1	070225 21:57:00	070225 23:47:00
KLX21B	698.00–703.00	3	1	070226 00:12:00	070226 02:22:00
KLX21B	703.00–708.00	3	1	070226 06:17:00	070226 08:06:00
KLX21B	708.00–713.00	3	1	070226 08:32:00	070226 09:20:00
KLX21B	713.00–718.00	3	1	070226 09:45:00	070226 12:44:00
KLX21B	718.00–723.00	3	1	070226 12:51:00	070226 14:42:00
KLX21B	723.00–728.00	3	1	070226 15:07:00	070226 15:46:00
KLX21B	723.00–728.00	3	2	070226 16:33:00	070226 18:20:00
KLX21B	728.00–733.00	3	1	070226 18:46:00	070226 19:37:00
KLX21B	733.00–738.00	3	1	070226 20:01:00	070226 20:51:00
KLX21B	738.00–743.00	3	1	070227 06:22:00	070227 07:13:00

1) 3: Injection test; 4B Pulse injection test

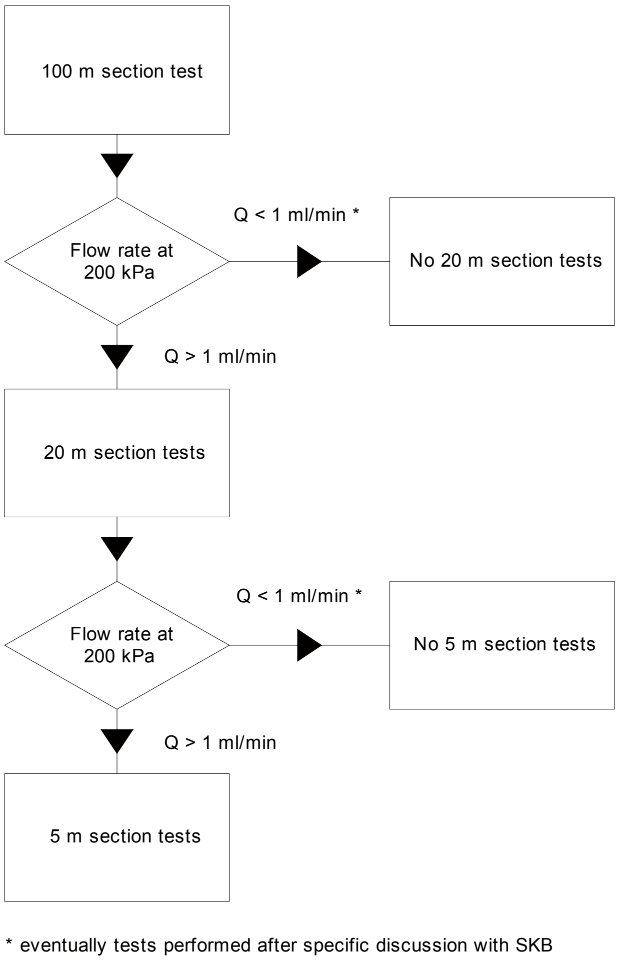


Figure 2-1. *Flow chart for test sections.*

2.3 Control of equipment

Control of equipment was mainly performed according to the Quality plan. The basis for equipment handling is described in the "Mätssystembeskrivning" SKB MD 345.101–123 which is composed of two parts 1) management description, 2) drawings and technical documents of the modified PSS2 tool.

Function checks were performed before and during the tests. Among these pressure sensors were checked at ground level and while running in the hole calculated to the static head. Temperature was checked at ground level and while running in. Leakage checks at joints in the pipe string were done at least every 100 m of running in respectively prior to every test performance.

Any malfunction was recorded, and measures were taken accordingly for proper operation. Approval was made according to SKB site manager, or Quality plan and the "Mätssystembeskrivning".

3 Equipment

3.1 Description of equipment

The equipment called PSS2 (Pipe String System 2) is a highly integrated tool for testing boreholes at great depth (see conceptual drawing in the next Figure). The system is built inside a container suitable for testing at any weather. Briefly, the components consists of a hydraulic rig, down-hole equipment including packers, pressure gauges, shut-in tool and level indicator, racks for pump, gauge carriers, breakpins, etc shelfs and drawers for tools and spare parts.

There are three spools for a multi-signal cable, a test valve hose and a packer inflation hose. There is a water tank for injection purposes, pressure vessels for injection of packers, to open test valve and for low flow injection. The PSS2 has been upgraded with a computerized flow regulation system. The office part of the container consists of a computer, regulation valves for the nitrogen system, a 24 V back-up system in case of power shut-offs and a flow regulation board.

PSS2 is documented in photographs 1–6.

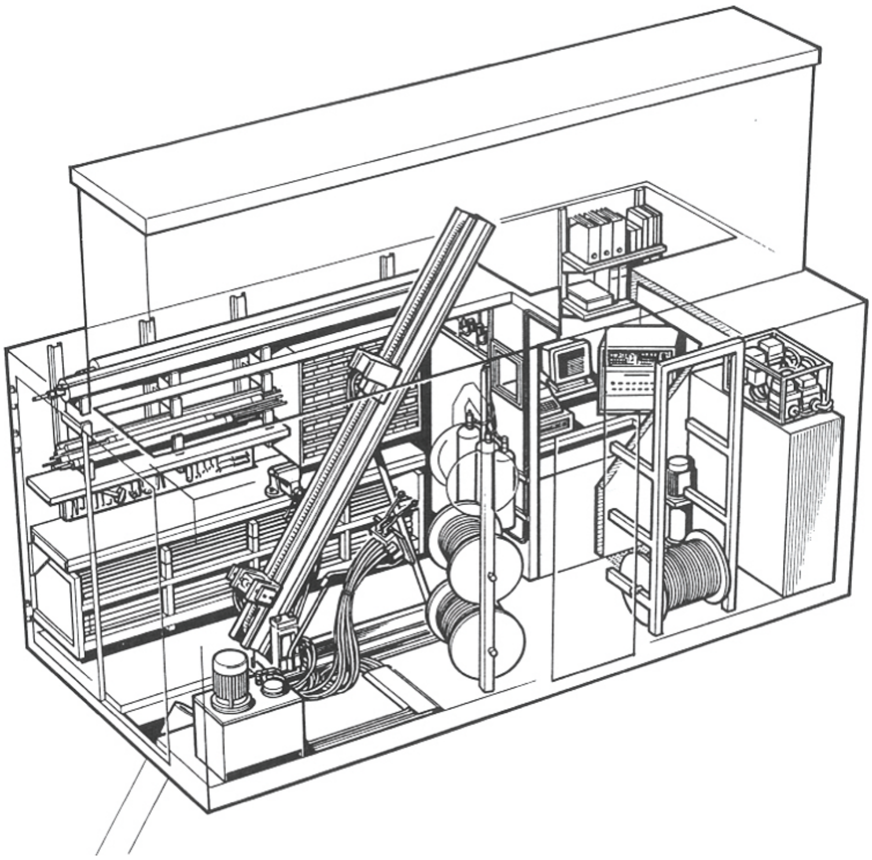


Figure 3-1. *A view of the layout and equipment of PSS2.*

Photo 1. *Hydraulic rig.*

Photo 2. *Rack for pump, down-hole equipment, workbench and drawers for tools.*

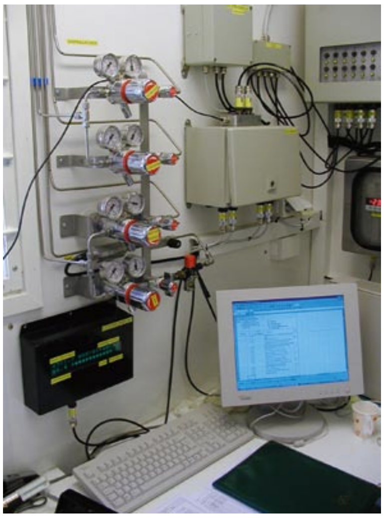


Photo 3. *Computer room, displays and gas regulators.*

Photo 4. *Pressure vessels for test valve, packers and injection.*

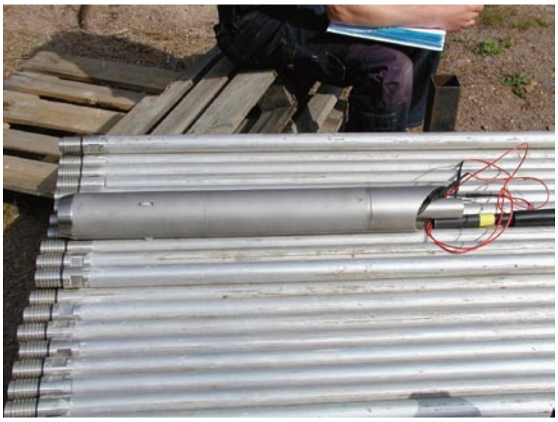


Photo 5. *Positioner, bottom end of down-in-hole string.*

Photo 6. *Packer and gauge carrier.*

The down-hole equipment consists from bottom to top of the following equipment:

- Level indicator – SS 630 mm pipe with OD 73 mm with 3 plastic wheels connected to a Hallswitch.
- Gauge carrier – SS 1.5 m carrying bottom section pressure transducer and connections from positioner.
- Lower packer – SS and PUR 1.5 m with OD 72 mm, stiff ends, tightening length 1.0 m, maximum pressure 6.5 MPa, working pressure 1.6 MPa.
- Gauge carrier with breakpin – SS 1.75 m carrying test section pressure transducer, temperature sensor and connections for sensors below. Breakpin with maximum load of 47.3 (± 1.0) kN. The gauge carrier is covered by split pipes and connected to a stone catcher on the top.
- Pop joint – SS 1.0 or 0.5 m with OD 33 mm and ID 21 mm, double O-ring fittings, trapezoid thread, friction loss of 3kPa/m at 50 L/min.
- Pipe string – SS 3.0 m with OD 33 mm and ID 21 mm, double O-ring fittings, trapezoid thread, friction loss of 3kPa/m at 50 L/min.
- Contact carrier – SS 1.0 m carrying connections for sensors below.
- Upper packer – SS and PUR 1.5 m with OD 72 mm, fixed ends, seal length 1.0 m, maximum pressure 6.5 MPa, working pressure 1.6 MPa.
- Breakpin – SS 250 mm with OD 33.7 mm. Maximum load of 47.3 (± 1.0) kN.
- Gauge carrier – SS 1.5 m carrying top section pressure transducer, connections from sensors below. Flow pipe is double bent at both ends to give room for sensor equipment. The pipe gauge carrier is covered by split pipes.
- Shut-in tool (test valve) – SS 1.0 m with a OD of 48 mm, Teflon coated valve piston, friction loss of 11 kPa at 10 L/min (260 kPa–50L/min). Working pressure 2.8–4.0 MPa. Breakpipe with maximum load of 47.3 (± 1.0) kN. The shut-in tool is covered by split pipes and connected to a stone catcher on the top.

The tool scheme is presented in Figure 3-2.

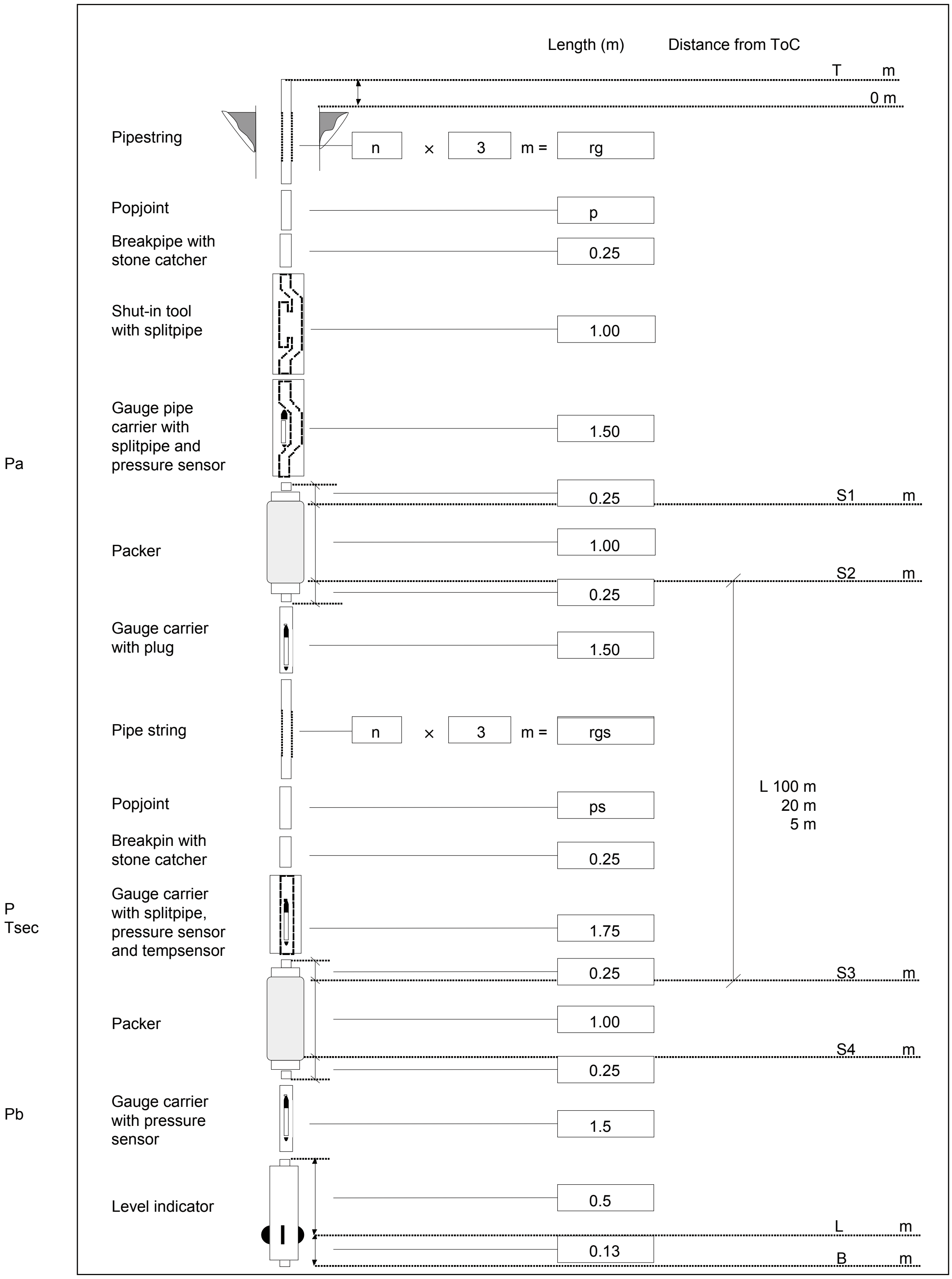


Figure 3-2. *Schematic drawing of the down-hole equipment in the PSS2 system.*

3.2 Sensors

Table 3-1. Technical specifications of sensors.

Keyword	Sensor	Name	Value/Range	Unit	Comments
$P_{sec,a,b}$	Pressure	Druck PTX 162–1464abs	9–30 4–20 0–13.5 ± 0.1	VDC mA MPa % of FS	
$T_{sec,surf,air}$	Temperature	BGI	18–24 4–20 0–32 ± 0.1	VDC mA °C °C	
Q_{big}	Flow	Micro motion Elite sensor	0–100 ± 0.1	kg/min %	Massflow
Q_{small}	Flow	Micro motion Elite sensor	0–1.8 ± 0.1	kg/min %	Massflow
p_{air}	Pressure	Druck PTX 630	9–30 4–20 0–120 ± 0.1	VDC mA KPa % of FS	
p_{pack}	Pressure	Druck PTX 630	9–30 4–20 0–4 ± 0.1	VDC mA MPa % of FS	
$p_{in,out}$	Pressure	Druck PTX 1400	9–28 4–20 0–2.5 ± 0.15	VDC mA MPa % of FS	
L	Level Indicator				Length correction

Table 3-2. Sensor positions and wellbore storage (WBS) controlling factors.

Borehole information		Sensors		Equipment affecting WBS coefficient			
ID	Test section (m)	Type	Position (m fr ToC)	Position	Function	Outer diameter (mm)	Net water volume in test section (m³)
KLX21B	103.00–203.00	p_a p T p_b L	101.00 202.13 104.00 205.00 206.25	Test section	Signal cable Pump string Packer line	9.1 33 6	0.359
KLX21B	103.00–123.00	p_a p T p_b L	101.00 122.13 104.00 125.00 126.25	Test section	Signal cable Pump string Packer line	9.1 33 6	0.072
KLX21B	323.00–328.00	p_a p T p_b L	321.00 327.13 324.00 330.00 331.25	Test section	Signal cable Pump string Packer line	9.1 33 6	0.018

3.3 Data acquisition system

The data acquisition system in the PSS2 container contains a stationary PC with the software Orchestrator, pump- and injection test parameters such as pressure, temperature and flow are monitored and sensor data collected. A second laptop PC is connected to the stationary PC through a network containing evaluation software, Flowdim. While testing, data from previously tested section is converted with IPPlot and entered in Flowdim for evaluation.

The data acquisition system starts and stops the test automatically or can be disengaged for manual operation of magnetic and regulation valves within the injection/pumping system. The flow regulation board is used for differential pressure and valve settings prior testing and for monitoring valves during actual test. An outline of the data acquisition system is outlined in Figure 3-3.

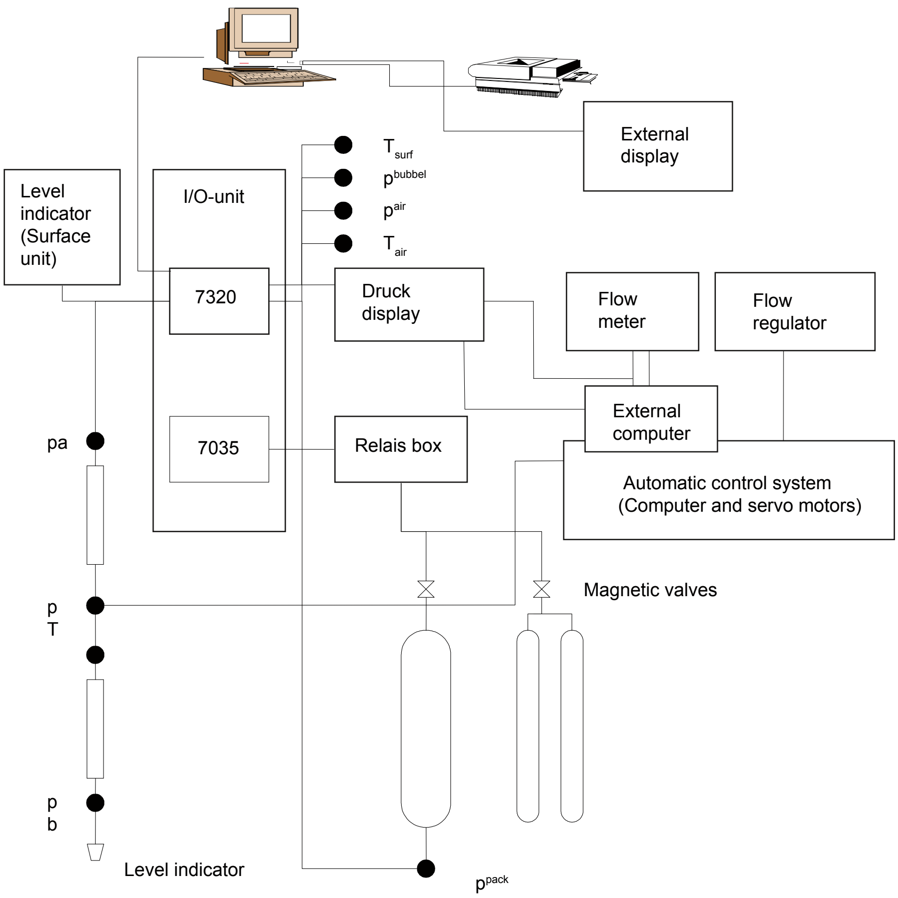


Figure 3-3. *Schematic drawing of the data acquisition system and the flow regulation control system in PSS2.*

4 Execution

4.1 Preparations

Following preparation work and functional checks were conducted prior to starting test activities:

- Place pallets and container, lifting rig up, installing fence on top of container, lifting tent on container.
- Clean and disinfect of Multikabel and hoses for packer and test valve. Clean the tubings with hot steam.
- Filling injection tank with water out of the borehole HLX14.
- Filling buffer tank with water and tracer it with Uranin; take water sample.
- Filling vessels.
- Filling the hoses for test valve and packer.
- Entering calibration constants to system and regulation unit.
- Synchronize clocks on all computers.
- Function check of shut-in tool both ends, overpressure by 900 kPa for 5 min (OK).
- Check pressure gauges against atmospheric pressure and than on test depth against column of water.
- Translate all protocols into English (where necessary).
- Filling packers with water and de-air.
- Measure and assemble test tool.

4.2 Length correction

By running in with the test tool, a level indicator is incorporated at the bottom of the tool. The level indicator is able to record groves milled into the borehole wall. The depths of these groves are given by SKB in the Activity Plan (see Table 2-2) and the measured depth is counter checked against the number/length of the tubes build in. The achieved correction value, based on linear interpolation between the reference marks, is used to adjust the location of the packers for the test sections to avoid wrong placements and minimize elongation effects of the test string.

4.3 Execution of field work

4.3.1 Test principle

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a shut-in pressure recovery (CHir) was conducted. Regularly the CHi and CHir phases were analysed quantitatively, in cases of very low section transmissivity, the PI phase was analysed.

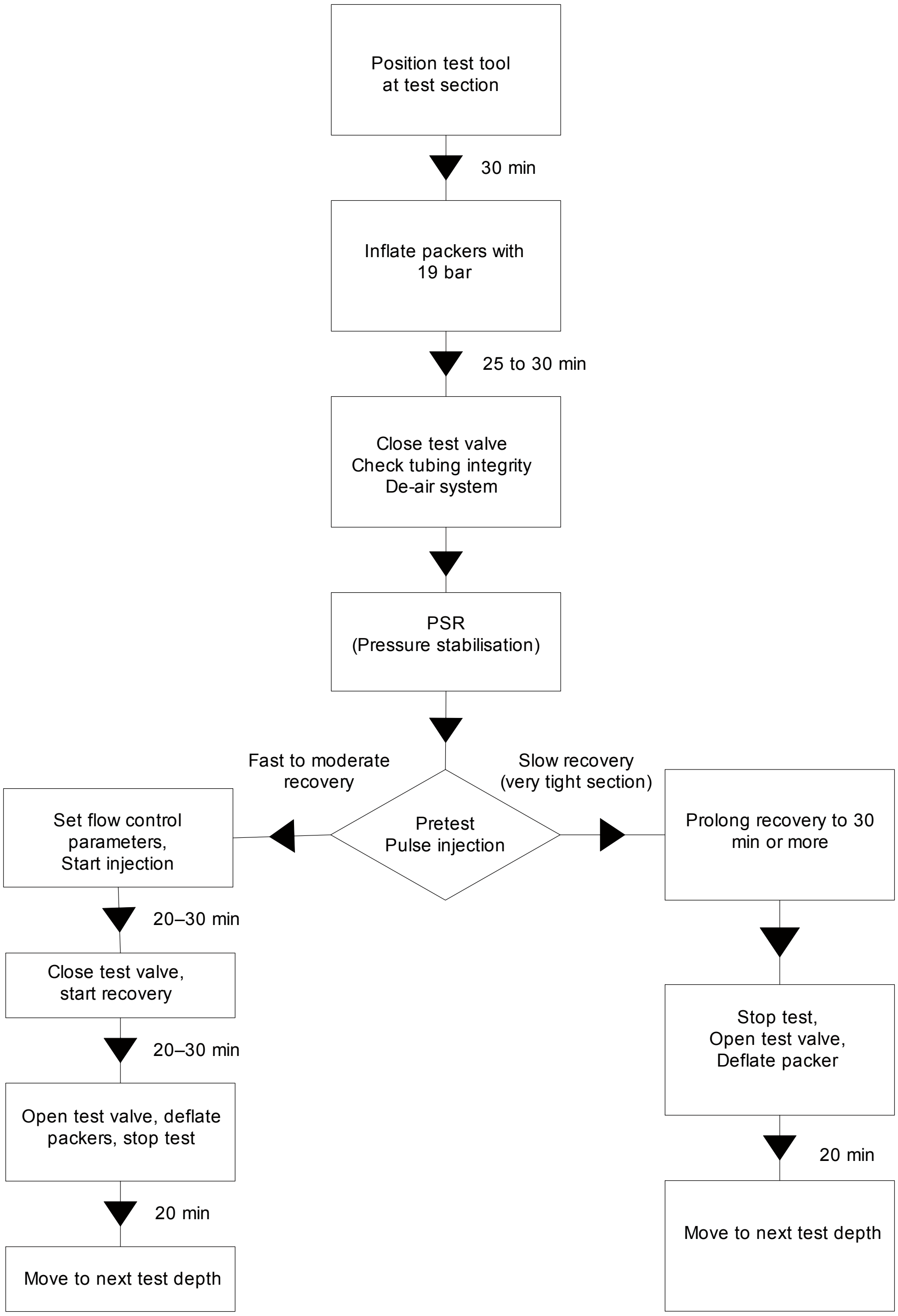


Figure 4-1. *Flow chart for test performance.*

4.3.2 Test procedure

A typical test cycle includes the following phases: 1) Transfer of down-hole equipment to the next section. 2) Packer inflation. 3) Pressure stabilisation. 4) Preliminary Pulse injection. 5) Constant head injection. 6) Pressure recovery. 7) Packer deflation.

The preliminary pulse injection (Step 4) derives the first estimations of the formation transmissivity. It is conducted by applying a pressure difference of approx. 200 kPa to the static formation pressure. If the pulse recovery indicates a very low transmissivity (flow probably below 1 ml/min) the pulse recovery is prolonged and no constant head injection test is performed. The decision to continue the pulse or to conduct an injection tests is based on the pressure response of the pulse recovery. A pressure recovery less than 50% during the first ten minutes of the pulse indicates a low transmissivity. In such a case no injection test will be conducted.

The pressure static recovery (PSR) after packer inflation and before the pulse gives a direct measure of the magnitude of the packer compliance. A steep PSR indicates extremely low test section transmissivity. In such a case the packer compliance would influence the subsequent pulse test too much and introduce very large uncertainties. Therfore tests with this behaviour would be stopped after PSR phase.

If the preliminary pulse injection test indicates a formation transmissivity with a flow above 1 ml/min a constant head injection test (Step 5 and 6) is carried out. It is applied with a constant injection pressure of approx. 200 kPa (20 m water column) above the static formation pressure in the test section. Before start of the injection tests, approximately stable pressure conditions prevailed in the test section. After the injection period, the pressure recovery in the section is measured. In cases, where small flow rates were expected, the automatic regulation unit was switched off and the test was performed manually (determined by the preliminary pulse injection) . In those cases, the constant difference pressure was usually unequal to 200 kPa.

In cases when the derived transmissivity of a test section influences the subsequent test program the constant head injection was conducted even if the preliminary pulse indicates a very tight section (e.g. flow below 1 ml/min). The injection phase is then performed to verify the results of the pulse.

The duration for each phase is presented in Table 4-1.

4.4 Data handling/post processing

The data handling followed several stages. The data acquisition software (Orchestrator) produced an ASCII raw data file (*.ht2) which contains the data in voltage and milliampere format plus calibration coefficients. The *.ht2 files were processed to *.dat files using the SKB program called IPPlot. These files contain the time, pressure, flow rate and temperature data. The *.dat files were synthesised in Excel to a *.xls file for plotting purposes. Finally, the test data to be delivered to SKB were exported from Excel in *.csv format. These files were also used for the subsequent analysis (field and final) of the injection phase (CHi). The synthesised data of the recovery phase (CHir) was used for the field analysis and to receive preliminary results for consistency reviews.

Table 4-1. Durations for packer inflation, pressure stabilisation, injection and recovery phase and packer deflation.

Step	Phase	Time
1	Position test tool to new test section (correct position using the borehole markers)	Approx. 30 min
2	Inflate packers with appr. 1,900 kPa	25 min
3	Close test valve	10 min
	Check tubing integrity with appr. 800 kPa	5 min
	De-air system	2 min
4	Pretest, pulse injection (duration depends on the formation transmissivity)	…
5*	Set automatic flow control parameters or setting for manual test	5 min
	Start injection	20 to 45 min
6*	Close test valve, start recovery	20 min. or more
	Open test valve	10 min
7	Deflate packers	25 min
	Move to next test depth	…

*Step 5 and 6 conducted if the preliminary pulse indicates a formation transmissivity with a sufficient flow.

4.5 Analyses and interpretations

4.5.1 Analysis software

The tests were analysed using a type curve matching method. The analysis was performed using Golder's test analysis program FlowDim. FlowDim is an interactive analysis environment allowing the user to interpret constant pressure, constant rate and slug/pulse tests in source as well as observation boreholes. The program allows the calculation of type-curves for homogeneous, dual porosity and composite flow models in variable flow geometries from linear to spherical.

4.5.2 Analysis approach

Constant pressure tests are analysed using a rate inverse approach. The method initially known as the /Jacob and Lohman 1952/ method was further improved for the use of type curve derivatives and for different flow models.

Constant pressure recovery tests are analysed using the method described by /Gringarten 1986, Bourdet et al. 1989/ by using type curve derivatives calculated for different flow models.

Pulse tests are analysed by using the pressure deconvolution method described by /Peres et al. 1989/ with improvements introduced by /Chakrabarty and Enachescu 1997/.

4.5.3 Analysis methodology

Each of the relevant test phases is subsequently analyzed using the following steps:

- **Injection Tests**
  - Identification of the flow model by evaluation of the derivative on the log-log diagnostic plot. Initial estimates of the model parameters are obtained by conventional straight-line analysis.
  - Superposition type curve matching in log-log coordinates. A non-linear regression algorithm is used to provide optimized model parameters in the latter stages.
  - Non-linear regression in semi-log coordinates (superposition HORNER plot; /Horner 1951/). In this stage of the analysis, the static formation pressure is selected for regression.

The test analysis methodology is best explained in /Horne 1990/.

- **Pre-test for the Injection Tests**

The test cycle always starts with a pulse injection phase with the aim of deriving a first estimation of the formation transmissivity. In cases when the pulse recovery is low (indicating low transmissivity) the pulse phase is extended and analysed as the main phase for the test.

The transmissivity derived from a pulse test is strongly influenced by the wellbore storage coefficient used as an input in the analysis. The wellbore storage coefficient is calculated as $C = dV/dP$ where dV is the volume difference injected during the brief flow period of the pulse and dP is the initial pressure difference of the pulse. dV is directly measured either by using the flowmeter readings or water level measurements in the injection vessel.

It should be noted though that there is large uncertainty connected with the determination of the wellbore storage coefficient (probably one order of magnitude), which will implicitly translate into uncertainty in the derived transmissivity. Figure 4-2 below show an example of a typical pressure versus time evolution for such a tight section.

  - Flow model identification and type curve analysis in the deconvolution Peres Plot /Peres et al. 1989, Chakrabarty and Enachescu 1997/. A non-linear regression algorithm is used to provide optimized model parameters in the later stages. An example of type curves is presented in Figure 4-3.

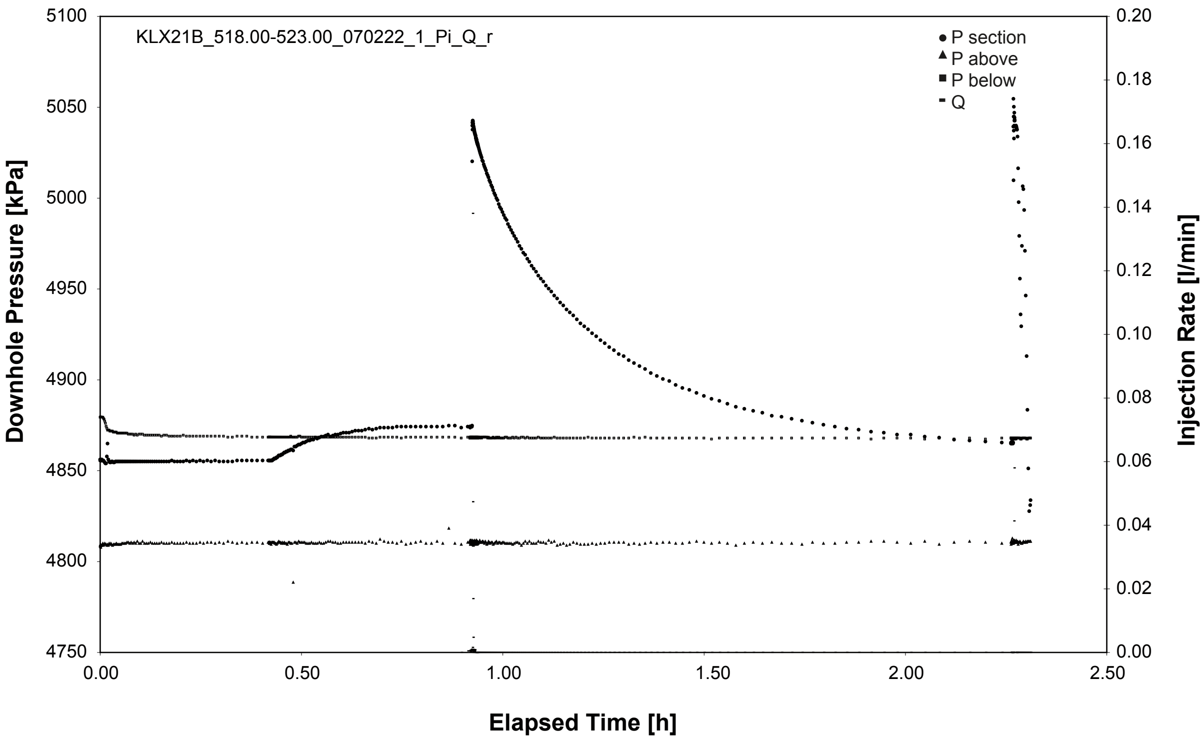


Figure 4-2. *Typical pressure versus time plot of a Pulse injection test.*

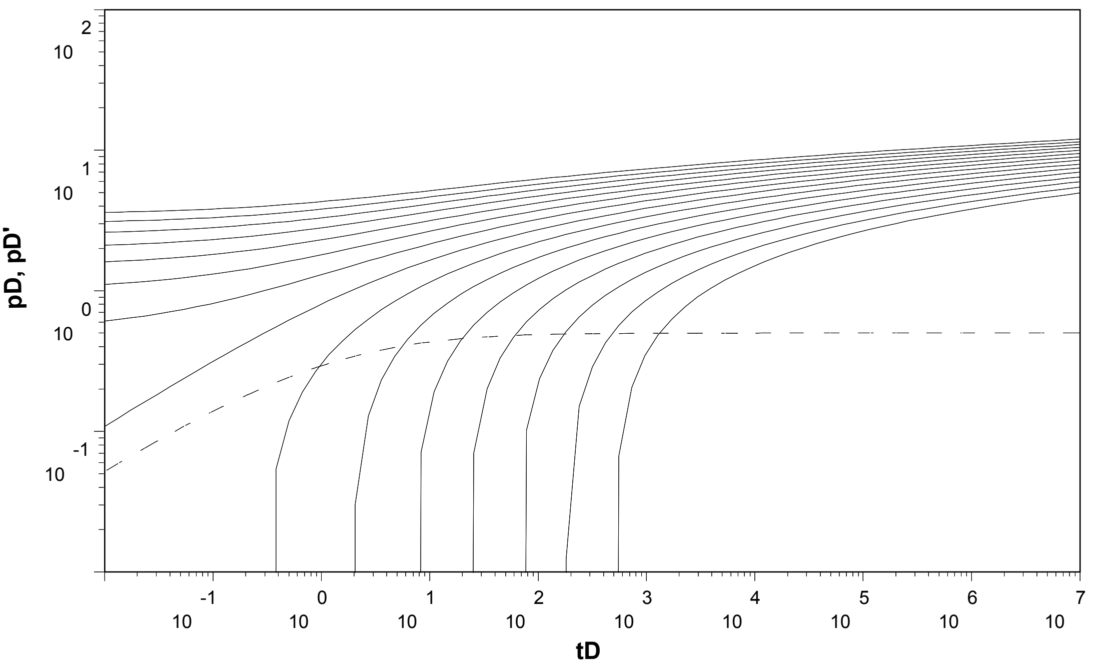


Figure 4-3. *Deconvolution type curve set for pulse test analysis.*

4.5.4 Correlation between storativity and skin factor

For the analysis of the conducted hydraulic tests below 100 m depth a storativity of $1 \cdot 10^{-6}$ is assumed (SKB MD 320.004e). Based on this assumption the skin will be calculated. In the following the correlation between storativity and skin for the relevant test phases will be explained in greater detail.

- **Injection phase (CHi) / Pulse tests (Pi)**

Due to the fact that the early time data of the CHi and Pi phases, respectively, is not available or too noisy (attributed to the automatic regulation system) the storativity and the skin factor become correlated. Consequently they cannot be solved independently any more. In this case as a result of the analysis one determines the correlation group $e^{2\xi}/S$. This means that in such cases the skin factor can only be calculated when assuming the storativity as known.

- **Recovery phase (CHir)**

The wellbore storage coefficient (C) is determined by matching the early time data with the corresponding type curve. The derived C-value is introduced in the equation of the type curve parameter:

$$(C_D e^{2\xi})_M = \frac{C\, \rho\, g}{2\pi\, r_w^2\, S} e^{2\xi}$$

The equation above has two unknowns, the storativity (*S*) and the skin factor (ξ) which expresses the fact that for the case of constant rate and pressure recovery tests the storativity and the skin factor are 100% correlated. Therefore, the equation can only be either solved for skin by assuming that the storativity is known or solved for storativity by assuming the skin as known.

4.5.5 Determination of the ri-index and calculation of the radius of influence (ri)

The analysis provides also the radius of influence and the ri-index, which describes the late time behaviour of the derivative.

Ri-index

The determination of the ri-index is based on the shape of the derivative plotted in log-log coordinates and describes the behaviour of the derivative after the time t_2, representing the end of the near wellbore response. The ri-index also describes the flow regime at the end of the test. Following ri-indices can be assigned:

- ri-index = 0: The middle and late time derivative shows a horizontal stabilization. This pressure response indicates that the size of the hydraulic feature is greater than the radius of influence. The calculated radius of influence is based on the entire test time t_P.
- ri-index = 1: The derivative shows an upward trend at late times, indicating a decrease of transmissivity or a barrier boundary at some distance from the borehole. The size of the hydraulic feature near the borehole is estimated as the radius of influence based on t_2.
- ri-index = –1: The derivative shows a downward trend at late times, indicating an increase of transmissivity or a constant head boundary at some distance from the borehole. The size of the hydraulic feature near the borehole is estimated as the radius of influence based on t_2.

Figure 4-4 presents the relationship between the shape of derivative and the ri-index.

If no radial flow stabilization can be observed the ri-index is based on the flow regime at the end of the test: i.e. ri-index = 1 for tests with a derivative showing an upward trend at the end and a ri-index = -1 for tests with a derivative showing a downward trend. In such cases the calculated radius of influence is based on the entire test time t_P.

The assignment of the ri-index is based on /Rhen 2005/.

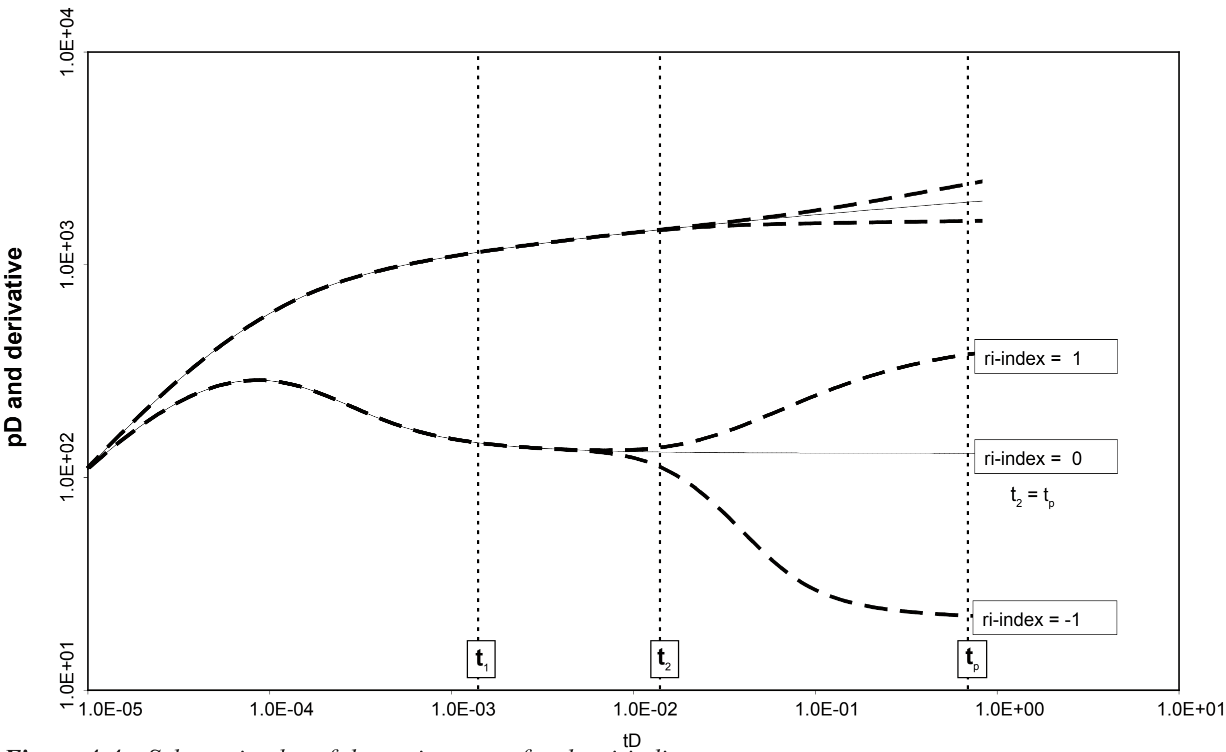


Figure 4-4. Schematic plot of the assignments for the ri-indices.

Calculation of the radius of influence

The radius of influence (ri) is calculated as follows:

$$ri = 1.89 \times \sqrt{\frac{T_T}{S_T} \times t_2} \text{ [m]}$$

T_T recommended inner zone transmissivity [m²/s].

t_2 time when hydraulic formation properties changes (see previous chapter) [s].

S_T for the calculation of the ri the storage coefficient (S) is estimated from the transmissivity /Rhen et al. 2006/:

$S_T = 0.0007 \times T_T^{0.5}$ [–].

4.5.6 Steady state analysis

In addition to the type curve analysis, an interpretation based on the assumption of stationary conditions was performed as described by /Moye 1967/.

4.5.7 Flow models used for analysis

The flow models used in analysis were derived from the shape of the pressure derivative calculated with respect to log time and plotted in log-log coordinates.

In several cases the pressure derivative suggests a change of transmissivity with the distance from the borehole. In such cases a composite flow model was used in the analysis.

If there were different flow models matching the data in comparable quality, the simplest model was preferred.

The flow dimension displayed by the test can be diagnosed from the slope of the pressure derivative. A slope of 0.5 indicates linear flow, a slope of 0 (horizontal derivative) indicates radial flow and a slope of –0.5 indicates spherical flow. The flow dimension diagnosis was commented for each of the tests. At tests where a flow regime could not clearly identified from the test data, we assume in general a radial flow regime as the most simple flow model available. The value of p* was then calculated according to this assumption.

In cases when the infinite acting radial flow (IARF) phase was not supported by the data the derivative was extrapolated using the most conservative assumption, which is that the derivative would stabilise short time after test end. In such cases the additional uncertainty was accounted for in the estimation of the transmissivity confidence ranges.

4.5.8 Calculation of the static formation pressure and equivalent freshwater head

The static formation pressure (p*) measured at transducer depth, was derived from the pressure recovery (CHir) following the constant pressure injection phase by using:

(1) straight line extrapolation in cases infinite acting radial flow (IARF) occurred.

(2) type curve extrapolation in cases infinite acting radial flow (IARF) is unclear or was not reached.

The equivalent freshwater head (expressed in metres above sea level) was calculated from the extrapolated static formation pressure (p*), corrected for atmospheric pressure measured by the surface gauge and corrected for the vertical depth considering the inclination of the drill hole, by assuming a water density of 1,000 kg/m^3 (freshwater). The equivalent freshwater head is the static water level an individual test interval would show if isolated and connected to the surface by tubing full of freshwater. Figure 4-5 shows the methodology schematically.

The freshwater head in metres above sea level is calculated as following:

$$head = \frac{(p^* - p_{atm})}{\rho \cdot g}$$

which is the p* value expressed in a water column of freshwater.

With consideration of the elevation of the reference point (RP) and the gauge depth (Gd), the freshwater head h_{iwf} is:

$$h_{iwf} = RP_{elev} - Gd + \frac{(p^* - p_{atm})}{\rho \cdot g}$$

4.5.9 Derivation of the recommended transmissivity and the confidence range

In most of the cases more than one analysis was conducted on a specific test. Typically both test phases were analysed (CHi and CHir) and in some cases the CHi or the CHir phase was analysed using two different flow models. The parameter sets (i.e. transmissivities) derived from the individual analyses of a specific test usually differ. In the case when the differences are small (which is typically the case) the recommended transmissivity value is chosen from the test phase that shows the best data and derivative quality.

In cases when the difference in results of the individual analyses was large (more than half order of magnitude) the test phases were compared and the phase showing the best derivative quality was selected.

The confidence range of the transmissivity was derived using expert judgement. Factors considered were the range of transmissivities derived from the individual analyses of the test as well as additional sources of uncertainty such as noise in the flow rate measurement, numeric effects in the calculation of the derivative or possible errors in the measurement of the wellbore

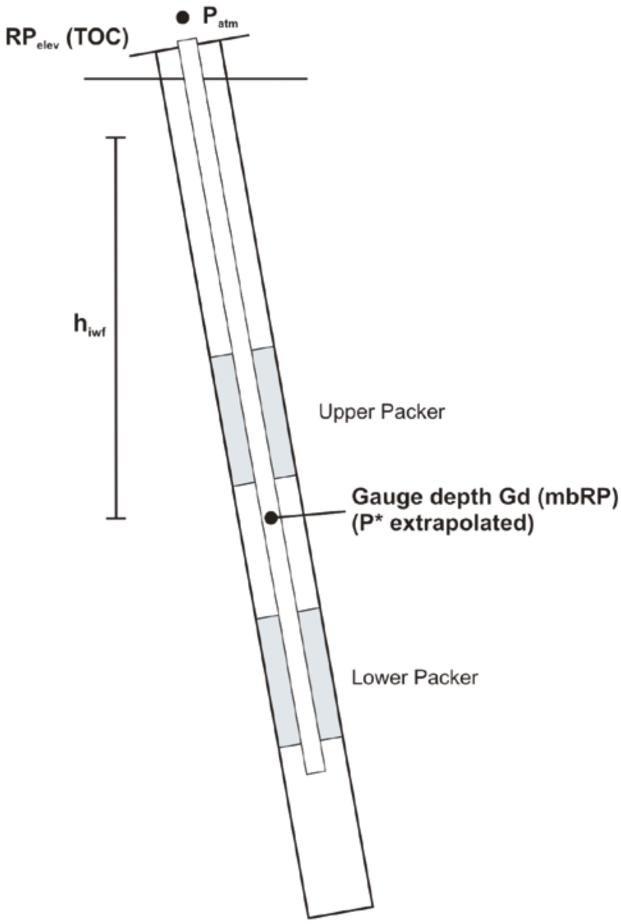


Figure 4-5. *Schematic methodologies for calculation of the freshwater head.*

storage coefficient. No statistical calculations were performed to derive the confidence range of transmissivity.

In cases when changing transmissivity with distance from the borehole (composite model) was diagnosted, the transmissivity of the zone, which was showing the better derivative quality, was recommended.

In cases when the infinite acting radial flow (IARF) phase was not supported by the data the additional uncertainty was accounted for in the estimation of the transmissivity confidence ranges.

4.6 Nonconformities

After performing the 100 m test sections it was observed that the level indicator gives no signal any more by passing the grove millings when running in for the 20 m and 5 m section tests. As the relevant correction values were already documented from the 100 m section tests, these correction values were used for the 20 m and 5 m section tests accordingly.

Malfunctions of the pressure transducer at position Pa (pressure above test section) and of the temperature sensor were observed. As these values are of minor importance for the evaluation of the performed injection tests, it was agreed by SKB to proceed with the testing programme.

5 Results

In the following, results of all tests are presented and analysed. Section 5.1 present the 100 m tests, 5.2 the 20 m tests and 5.3 the 5 m tests. The results are given as general comments to test performance, the identified flow regimes and calculated parameters and finally the parameters which are considered as most representative are chosen and justification is given. All results are also summarised in Table 6-1 and 6-2 of the Summary chapter. In addition, the results are presented in Appendices 3 and 5.

The results are stored in the primary data base (SICADA). The SICADA data base contains data that will be used for further interpretation (modelling). The data are traceable in SICADA by the Activity plan number (AP PS 400-07-005; SKB controlling document).

5.1 100 m single-hole injection tests

In the following, the 100 m section tests conducted in borehole KLX21B are presented and analysed.

5.1.1 Section 103.00–203.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

According to the high transmissivity, it was not possible to conduct the CHi phase with a pressure difference of 200 kPa. Instead of, the pressure difference was 12 kPa. A hydraulic connection to the section above was observed with a pressure difference of 4 kPa during the CHi phase. The injection rate decreased from 42 L/min at start of the CHi phase to 30 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times and a slight upward trend at late times, indicating radial flow at middle times. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and a slight upward trend at late times. A homogeneous radial flow model with wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-1.

Selected representative parameters

The recommended transmissivity of $5.6 \cdot 10^{-4}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-4}$ m^2/s to $8.0 \cdot 10^{-4}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 1,925.4 kPa.

The analyses of the CHi and CHir phases show consistency. No further analysis is recommended.

5.1.2 Section 203.00–303.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted with a pressure difference of 202 kPa. No hydraulic connection to the adjacent sections was observed during the CHi phase. The injection rate decreased from 0.11 L/min at start of the CHi phase to 0.079 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times and an upward trend at late times, indicating radial flow and a decrease of transmissivity at some distance from the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle times and an upward trend at late times. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-2.

Selected representative parameters

The recommended transmissivity of $3.3 \cdot 10^{-8}$ m²/s was derived from the analysis of the CHir phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-8}$ m²/s to $2.0 \cdot 10^{-7}$ m²/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 2,834.0 kPa.

The analyses of the CHi and CHir phases show good consistency with the exception of discrepancies in the skin values derived from the CHi (negative) and CHir (positive) phases. No further analysis is recommended.

5.1.3 Section 303.00–403.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.96 L/min at start of the CHi phase to 0.44 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times, indicating radial flow. A two shell composite model with radial flow was chosen for the analysis of the CHi phase because of the upward trend of the derivative at late times. The derivative of the CHir phase shows a horizontal stabilization at middle times and an upward trend at late times. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-3.

Selected representative parameters

The recommended transmissivity of $4.2 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHi phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $3.0 \cdot 10^{-7}$ m^2/s to $2.0 \cdot 10^{-6}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 3,762.0 kPa.

The analyses of the CHi and CHir phases show good consistency with the exception of discrepancies in the skin values derived from the CHi (negative) and CHir (positive) phases. No further analysis is recommended.

5.1.4 Section 403.00–503.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 201 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.9 L/min at start of the CHi phase to 0.3 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times and a downward trend and further horizontal stabilization at late times, indicating radial flow. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle times and a downward trend with further horizontal stabilization at late times. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-4.

Selected representative parameters

The recommended transmissivity of $2.2 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-7}$ m^2/s to $6.0 \cdot 10^{-7}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,659.9 kPa.

The analyses of the CHi and CHir phases show consistency. No further analysis is recommended.

5.1.5 Section 503.00–603.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 204 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 4.9 L/min at start of the CHi phase to 3.2 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at early times, a downward trend at middle times and a further horizontal stabilization at late times, indicating radial flow. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times, a downward trend at early times is covered by the slope of the skin effect. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-5.

Selected representative parameters

The recommended transmissivity of $8.2 \cdot 10^{-6}$ m^2/s was derived from the analysis of the CHir phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-6}$ m^2/s to $1.0 \cdot 10^{-5}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,582.1 kPa.

The analyses of the CHi and CHir phases show good consistency with the exception of discrepancies in the skin values derived from the CHi (negative) and CHir (positive) phases. No further analysis is recommended.

5.1.6 Section 603.00–703.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 204 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 4.9 L/min at start of the CHi phase to 3.2 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-6.

Selected representative parameters

The recommended transmissivity of $5.1 \cdot 10^{-5}$ m^2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-5}$ m^2/s to $7.0 \cdot 10^{-5}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,498.0 kPa.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.1.7 Section 703.00–803.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. According to the poor data quality of the CHi phase, only the CHir phase was analysed quantitatively.

Depending on the slow recovery of the preliminary pulse injection test, it was decided to run the CHi phase manually. The CHi phase was conducted using a pressure difference of 203 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 1.3 L/min at start of the CHi phase to 0.012 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). According to the unexpected high flow rate at the beginning of the CHi phase, the system was switched back to the automatic mode causing some instability in the pressure data of the CHi phase. Therefore, only the CHir phase shows no problems and is adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the derivative of the CHir phase shows an upward trend at middle and late times. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-7.

Selected representative parameters

The recommended transmissivity of $1.1 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-9}$ m^2/s to $2.0 \cdot 10^{-8}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 7,511.4 kPa.

No further analysis is recommended.

5.2 20 m single-hole injection tests

In the following, the 20 m section tests conducted in borehole KLX21B are presented and analysed.

5.2.1 Section 103.00–123.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

According to the high transmissivity, it was not possible to conduct the CHi phase with a pressure difference of 200 kPa. Instead of, the pressure difference was 32 kPa. The injection rate decreased from 34.9 L/min at start of the CHi phase to 33.5 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at late times, indicating a radial flow. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle times and a slight upward trend at late times. A homogeneous radial flow model with wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-8.

Selected representative parameters

The recommended transmissivity of $2.9 \cdot 10^{-4}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-4}$ m^2/s to $5.0 \cdot 10^{-4}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 1,189.3 kPa.

The analyses of the CHi and CHir phases show consistency. No further analysis is recommended.

5.2.2 Section 123.00–143.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

According to the high transmissivity, it was not possible to conduct the CHi phase with a pressure difference of 200 kPa. Instead of, the pressure difference was 22 kPa. The injection rate decreased from 54.9 L/min at start of the CHi phase to 41.5 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at late times, indicating a radial flow. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle times and a slight upward trend at late times. A homogeneous radial flow model with wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-9.

Selected representative parameters

The recommended transmissivity of $2.9 \cdot 10^{-4}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-4}$ m^2/s to $5.0 \cdot 10^{-4}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 1,375.5 kPa.

The analyses of the CHi and CHir phases show consistency. No further analysis is recommended.

5.2.3 Section 143.00–163.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted with a pressure difference of 200 kPa. The injection rate decreased from 6.6 L/min at start of the CHi phase to 6.4 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at late times, indicating a radial flow. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. A homogeneous radial flow model with wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-10.

Selected representative parameters

The recommended transmissivity of $1.3 \cdot 10^{-5}$ m^2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-6}$ m^2/s to $5.0 \cdot 10^{-5}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 1,559.7 kPa.

The analysis of the CHir phase shows an unusually large skin factor. This phenomenon was observed in other tests as well and may be caused by non-Darcy (turbulent) flow in the formation. In case further analysis is planned, a model involving non-Darcy flow in the formation should be used in order to clarify whether the parameters derived are physically realistic and in this way at least constrain the possible source of this discrepancy.

5.2.4 Section 163.00–183.00 m, test no. 1, 2 and 3, injection

Comments to test

The test was conducted three times (1st, 2nd and 3rd test) due to a damaged nylon line connecting the packers through the interval. All three tests were composed of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases of the third test were analysed quantitatively.

The CHi phase was conducted manually with a pressure difference of 199 kPa. The injection rate decreased from 0.007 L/min at start of the CHi phase to 0.002 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a very noisy derivative (due to flow rates close to the lower measurement limit of the small flowmeter) with a trend of horizontal stabilization at middle and late times, indicating a radial flow. Under consideration of a relative high grade of uncertainty, a homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times. A homogeneous radial flow model with wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-11.

Selected representative parameters

The recommended transmissivity of $1.1 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-10}$ m^2/s to $3.0 \cdot 10^{-9}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 1,750.4 kPa.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.5 Section 183.00–203.00 m, test no. 1 and 2, injection

Comments to test

The test was conducted twice (1st test and 2nd test) due to problems with a leaking nylon line connecting the packers. The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases of the 2nd test were analysed quantitatively.

The CHi phase was conducted manually with a pressure difference of 200 kPa. No hydraulic connection between the test interval and the adjacent zones was observed. The injection rate decreased from 0.1 L/min at start of the CHi phase to 0.05 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at late times, indicating a radial flow. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times. A homogeneous radial flow model with wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-12.

Selected representative parameters

The recommended transmissivity of $6.8 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-8}$ m^2/s to $4.0 \cdot 10^{-7}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 1,920.4 kPa.

Apart from the unexplained high skin observed during the CHir phase, the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.6 Section 203.00–223.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted with a pressure difference of 201 kPa. No hydraulic connection to the adjacent sections was observed during the CHi phase. The injection rate decreased from 0.09 L/min at start of the CHi phase to 0.045 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-13.

Selected representative parameters

The recommended transmissivity of $2.4 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-8}$ m^2/s to $5.0 \cdot 10^{-7}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 2,109.1 kPa.

The analyses of the CHi and CHir phases show some discrepancies in the skin values derived from the CHi (negative) and CHir (positive) phases as well as the unexplained high skin observed during the CHir phase. Also the transmissivities of the CHi and CHir phases differ by one order of magnitude. In case further analysis is planned, a total test simulation should help to better constrain the formation transmissivity.

5.2.7 Section 223.00–243.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually with a pressure difference of 217 kPa. No hydraulic connection to the adjacent sections was observed during the CHi phase. The injection rate decreased from 0.015 L/min at start of the CHi phase to 0.004 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times, indicating radial flow. Due to the low flow rate close to the lower measurement limit of the small flowmeter, the derivative is very noisy. Despite of that, it was possible to use a homogeneous model with radial flow for the analysis of the CHi phase. The derivative of the CHir phase does not cover the horizontal stabilization phase but ends in a test phase which is still affected by wellbore storage and skin. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-14.

Selected representative parameters

The recommended transmissivity of $3.4 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-9}$ m^2/s to $1.0 \cdot 10^{-8}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 2,281.5 kPa.

The analyses of the CHi and CHir phases show good consistency despite of a discrepancy in the flow model. No further analysis is recommended.

5.2.8 Section 243.00–263.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 27 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-15.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.2.9 Section 263.00–283.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually with a pressure difference of 211 kPa at the start of the test. Due to an unexpected high flow rate and a relative small gas buffer in the pressure vessel the pressure difference decreased during the CHi phase to 192 kPa. No hydraulic connection to the adjacent sections was observed during the CHi phase. The injection rate decreased from 0.09 L/min at start of the CHi phase to 0.048 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Despite of the pressure decrease during the CHi phase, this phase was analysable. The CHir phase shows no problems and is adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times and a further horizontal stabilization on an increased level at late times indicating a lower transmissivity at some distance from the borehole. A two shell composite model with radial flow was used for the analysis of the CHi phase. The CHir phase shows a horizontal stabilisation at middle times followed by an upward trend of the derivative at late times. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-16.

Selected representative parameters

The recommended transmissivity of $1.7 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHi phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-8}$ m^2/s to $3.0 \cdot 10^{-7}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 2,662.0 kPa.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.10 Section 283.00–303.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually with a pressure difference of 218 kPa. No hydraulic connection to the adjacent sections was observed during the CHi phase. The injection rate decreased from 0.005 L/min at start of the CHi phase to 0.0026 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times, indicating radial flow. Despite of a very noisy derivative due to a flow rate close to the lower measurement limit of the small flowmeter the CHi phase was analysable. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase covers only parts which are affected by wellbore storage and skin. However, a homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-17.

Selected representative parameters

The recommended transmissivity of $1.3\cdot10^{-9}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0\cdot10^{-10}$ m^2/s to $3.0\cdot10^{-9}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 2,829.9 kPa.

The analyses of the CHi and CHir phases show some discrepancies in the skin values derived from the CHi (negative) and CHir (positive) phases. Other aspects of the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.11 Section 303.00–323.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 201 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.9 L/min at start of the CHi phase to 0.49 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times, connected by a slight downward trend in between. A two shell composite model with radial flow was chosen for the analysis of the CHi phase with an increase of transmissivity at some distance of the borehole. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-18.

Selected representative parameters

The recommended transmissivity of $4.4\cdot10^{-7}$ m^2/s was derived from the analysis of the CHi phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0\cdot10^{-7}$ m^2/s to $3.0\cdot10^{-6}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 3,031.8 kPa.

The analyses of the CHi and CHir phases show good consistency with the exception of discrepancies in the skin values derived from the CHi (negative) and CHir (positive) phases. No further analysis is recommended.

5.2.12 Section 323.00–343.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 220 kPa at the start of the injection which decreased during the injection to 215 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.0098 L/min at start of the CHi phase to 0.0058 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times. The derivative of the CHi phase is relatively noisy due to flow rates close to the lower limit of the small flowmeter. However, a homogeneous model with radial flow was chosen as adequate for the analysis of the CHi phase. The derivative of the CHir phase covers only a part which is mainly affected by wellbore storage and skin. However, a homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-19.

Selected representative parameters

The recommended transmissivity of $1.9 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $3.0 \cdot 10^{-9}$ m^2/s to $3.0 \cdot 10^{-8}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 3,206.5 kPa.

Considering the noisy CHi derivative, the analyses of the CHi and CHir phases show good consistency with the exception of an unexplained very large skin at the CHir phase. No further analysis is recommended.

5.2.13 Section 343.00–363.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 198 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.015 L/min at start of the CHi phase to 0.0043 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at late times. A homogeneous model with radial flow was chosen as adequate for the analysis of the CHi phase. The derivative of the CHir phase shows stabilization at middle times and a further stabilization at late times connected by an upward trend of the derivative, indicating a decrease of the transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-20.

Selected representative parameters

The recommended transmissivity of $2.6 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $6.0 \cdot 10^{-10}$ m^2/s to $4.0 \cdot 10^{-9}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,396.4 kPa.

The CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.14 Section 363.00–383.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 192 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.003 L/min at start of the CHi phase to 0.001 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase is very noisy due to flow rates close to the lower measurement limit of the small flowmeter but shows a relative flat derivative at late times. A homogeneous model with radial flow was chosen as adequate for the analysis of the CHi phase. The derivative of the CHir phase covers only a part of the test phase which is mainly affected by the wellbore storage. However, a homogeneous model with radial flow, wellbore storage and skin was chosen for type curve matching for analysis. The analysis is presented in Appendix 2-21.

Selected representative parameters

The recommended transmissivity of $4.8 \cdot 10^{-10}$ m^2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-10}$ m^2/s to $6.0 \cdot 10^{-10}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using straight line extrapolation in the Horner plot because of a too short recovery phase.

The CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.15 Section 383.00–403.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.1 L/min at start of the CHi phase to 0.014 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase is noisy due to low flow rates. The derivative shows a flat section at middle times and again a horizontal stabilization at late times connected by a decrease of the derivative, indicating the transition to a zone of higher transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen as adequate for the analysis of the CHi phase. The CHir phase shows a flat derivative at late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for type curve matching for analysis. The analysis is presented in Appendix 2-22.

Selected representative parameters

The recommended transmissivity of $7.9 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-9}$ m^2/s to $9.0 \cdot 10^{-8}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,741.7 kPa.

The CHi and CHir phases show some discrepancy. The transmissivity of the inner zone of the CHi phase is around one order of magnitude lower than the transmissivity derived from the CHir phase. The CHi phase shows a negative skin and the CHir phase a very large positive unexplained skin. In case further analysis of the test is planned, we recommend conducting a full superposition transient analysis in order to account for pressure history effects.

5.2.16 Section 403.00–423.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 217 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.01 L/min at start of the CHi phase to 0.002 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but very noisy derivative at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase covers only parts of the recovery which are mainly affected by wellbore storage and skin effects. However, despite of this the data quality is very good and a homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-23.

Selected representative parameters

The recommended transmissivity of $1.2 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-9}$ m^2/s to $3.0 \cdot 10^{-9}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,940.2 kPa.

The analyses of the CHi and CHir phases show consistency. No further analysis is recommended.

5.2.17 Section 423.00–443.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 198 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.15 L/min at start of the CHi phase to 0.035 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilisation at late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-24.

Selected representative parameters

The recommended transmissivity of $6.2 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $4.0 \cdot 10^{-8}$ m^2/s to $9.0 \cdot 10^{-8}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,110.0 kPa.

The analyses of the CHi and CHir phases show consistency. No further analysis is recommended.

5.2.18 Section 443.00–463.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.55 L/min at start of the CHi phase to 0.25 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times, connected by a down gradient indicating an increasing transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilisation at middle and late times, connected by a down gradient which is consistent with the CHi phase. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-25.

Selected representative parameters

The recommended transmissivity of $1.3 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-7}$ m^2/s to $3.0 \cdot 10^{-7}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,294.8 kPa.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.19 Section 463.00–483.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 201 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.16 L/min at start of the CHi phase to 0.068 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times, indicating a radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilisation at middle and late times. However, the derivative indicated a change of transmissivity at some distance to the borehole which is covered mainly by wellbore storage and skin effects. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-26.

Selected representative parameters

The recommended transmissivity of $3.8 \cdot 10^{-8}$ m²/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-8}$ m²/s to $4.0 \cdot 10^{-7}$ m²/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 4,482.9 kPa.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.20 Section 483.00–503.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 184 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.004 L/min at start of the CHi phase to 0.001 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). The derivative of the CHi phase is very noisy and the data and derivative of the CHir phase cover a test phase which is mainly affected by wellbore storage and skin effects, however, both phases are still adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a very noisy flat derivative at middle and late times, indicating a radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. A relative high uncertainty should be considered for this analysis. The derivative of the CHir phase covers only a part of the test phase which is mainly affected by wellbore storage effects. However, regarding a relative high uncertainty, it was possible to use a two shell composite model with radial flow, wellbore storage and skin for the analysis. The analysis is presented in Appendix 2-27.

Selected representative parameters

The recommended transmissivity of $7.0 \cdot 10^{-10}$ m²/s was derived from the analysis of the CHi phase, which shows the better data quality. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-10}$ m²/s to $2.0 \cdot 10^{-9}$ m²/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth of 4,663.1 kPa was derived from the CHir phase using type curve extrapolation in the Horner plot.

Considering the limited quality of the data and derivative, the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.21 Section 503.00–523.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 222 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.014 L/min at start of the CHi phase to 0.0059 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but very noisy derivative data at late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase covers only a test phase which is mainly affected by wellbore storage and skin effects. However, the distance of the data and derivative indicate a change of transmissivity at some distance to the borehole with a larger transmissivity at the outer zone. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-28.

Selected representative parameters

The recommended transmissivity of $2.0 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-9}$ m^2/s to $6.0 \cdot 10^{-9}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,837.1 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.22 Section 523.00–543.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.25 L/min at start of the CHi phase to 0.095 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but very noisy derivative data at late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle times, followed by a further stabilization at late times on a lower level, indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-29.

Selected representative parameters

The recommended transmissivity of $1.3 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-8}$ m^2/s to $4.0 \cdot 10^{-7}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,024.0 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.23 Section 543.00–563.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 24 kPa in 25 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-30.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.2.24 Section 563.00–583.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 201 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 1.5 L/min at start of the CHi phase to 1.32 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at middle and late times, indicating radial flow. However, considering the data quality, a homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle times, followed by a further stabilization at late times on a lower level, indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-31.

Selected representative parameters

The recommended transmissivity of $2.9 \cdot 10^{-6}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-6}$ m^2/s to $8.0 \cdot 10^{-6}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 5,394.4 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.25 Section 583.00–603.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. An increase of the pressure in the section below of 2 kPa was observed during the injection phase. It is assumed that this is based on a minor flow through the fracture system of the formation. The injection rate decreased from 2.8 L/min at start of the CHi phase to 2.2 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but very noisy derivative at late times, indicating radial flow. However, considering the data quality, a homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-32.

Selected representative parameters

The recommended transmissivity of $3.2 \cdot 10^{-6}$ m^2/s was derived from the analysis of the CHi phase, which shows a fairly good data and derivative quality. The CHir phase shows a very fast recovery, therefore the analysis is considered as less representative than the CHi phase. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-6}$ m^2/s to $1.0 \cdot 10^{-5}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,580.9 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. The CHir phase shows a relative high unexplained skin. No further analysis is recommended.

5.2.26 Section 603.00–623.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. A hydraulic connection to the bottom zone was observed during the CHi and CHir phases. It is assumed that this hydraulic connection is related to some flow through fractures in the formation. The injection rate decreased from 22.8 L/min at start of the CHi phase to 20.2 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-33.

Selected representative parameters

The recommended transmissivity of $3.8 \cdot 10^{-5}$ m^2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-5}$ m^2/s to $6.0 \cdot 10^{-5}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 5,764.7 kPa.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.27 Section 623.00–643.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 198 kPa. A hydraulic connection to the bottom zone was observed during the CHi and CHir phases. It is assumed that this hydraulic connection is related to some flow through fractures in the formation. The injection rate decreased from 11.5 L/min at start of the CHi phase to 8.25 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times, followed by a downward trend and a further flat derivative at late times. The shape of the derivative indicates a radial flow with some increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-34.

Selected representative parameters

The recommended transmissivity of $2.5 \cdot 10^{-5}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-6}$ m^2/s to $4.0 \cdot 10^{-5}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,952.1 kPa.

The analyses of the CHi and CHir phases show discrepancy considering the different flow models and the unexplained very large skin of the CHir phase. If further analysis is planned, a total test simulation should help resolving these inconsistencies.

5.2.28 Section 643.00–663.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 201 kPa. A hydraulic connection to the bottom zone was observed during the CHi and CHir phases. It is assumed that this hydraulic connection is related to some flow through fractures in the formation. The injection rate decreased from 2.8 L/min at start of the CHi phase to 1.7 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times, followed by a downward trend and a further flat derivative at late times. The shape of the derivative indicates a radial flow with an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows also a flat derivative at middle times, followed by a downward trend and a further stabilization at late times. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-35.

Selected representative parameters

The recommended transmissivity of $1.8 \cdot 10^{-6}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-7}$ m^2/s to $6.0 \cdot 10^{-6}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,135.2 kPa.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.2.29 Section 663.00–683.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 204 kPa. No hydraulic connection between the test section and the adjacent zones was observed. The injection rate decreased from 0.27 L/min at start of the CHi phase to 0.13 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at late times, indicating a radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a flat derivative at late times. A downward trend of the derivative is shown at middle times, which is covered mainly by skin effects. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-36.

Selected representative parameters

The recommended transmissivity of $1.3 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-8}$ m^2/s to $6.0 \cdot 10^{-7}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,316.3 kPa.

The analyses of the CHi and CHir phases show good consistency despite of the different flow models used for analysis of the derivative data. No further analysis is recommended.

5.2.30 Section 683.00–703.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 202 kPa. No hydraulic connection between the test section and the adjacent zones was observed. The injection rate decreased from 0.95 L/min at start of the CHi phase to 0.37 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). The CHi phase shows some instability due to the automatic regulation which switches between two valves for flow regulation. Despite of this poor pressure control, the CHi phase is of sufficient quality for quantitative analysis. The CHir phase shows no problems and is adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a noisy but flat derivative at middle and late times, indicating a radial flow. Problems with the automatic regulation lead to a very noisy derivative between the stabilized middle and late derivative. However, a homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a flat part at middle times, followed by a downward trend and a further stabilization at late times. The derivative is indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-37.

Selected representative parameters

The recommended transmissivity of $3.4 \cdot 10^{-7}$ m²/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-7}$ m²/s to $1.0 \cdot 10^{-6}$ m²/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,499.5 kPa.

The analyses of the CHi and CHir phases show good consistency despite of the different flow models used for analysis of the derivative data. No further analysis is recommended.

5.2.31 Section 703.00–723.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.01 L/min at start of the CHi phase to 0.005 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to effects of the automatic regulation at low flow rates, the flow rate during the CHi phase shows some instability, causing background noise at the data and derivative. The CHir phase shows no problems and both phases are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test, the CHi phase shows a very noisy but flat derivative at late times. A homogeneous flow model was chosen for analysis of the CHi phase. The derivative of the CHir phase shows a slight downward trend at late times which is typical for the transition from wellbore storage and skin dominated flow to pure formation flow. Because the formation flow stabilization was not observed, a radial homogeneous flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2-38.

Selected representative parameters

The recommended transmissivity of $2.0 \cdot 10^{-9}$ m²/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-9}$ m²/s to $5.0 \cdot 10^{-9}$ m²/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,674.4 kPa.

The analyses of the CHi and CHir phases show a good consistency. No further analysis is recommended.

5.2.32 Section 723.00–743.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 204 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.005 L/min at start of the CHi phase to 0.002 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate close to the lower measurement limit of the small flowmeter, the CHi phase shows some instability, causing background noise at the data and derivative. The CHir phase shows no problems and both phases are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test, the CHi phase shows a very noisy but flat derivative at middle and late times. A homogeneous flow model was chosen for analysis of the CHi phase. The derivative of the CHir phase shows a shape which is typical for the transition from wellbore storage to skin dominated flow. Because the formation flow stabilization was not observed, a radial homogeneous flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2-39.

Selected representative parameters

The recommended transmissivity of $6.1 \cdot 10^{-10}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-10}$ m^2/s to $3.0 \cdot 10^{-9}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,861.0 kPa.

The analyses of the CHi and CHir phases show some discrepancy concerning the skin of the CHi phase (positive) and the CHir phase (negative). If further analysis is planned, a total test simulation should help resolving this inconsistency.

5.2.33 Section 743.00–763.00 m, test no. 1 and 2, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. During the first injection test at this section, the regulation unit started to deflate the packers approximately 2 min after start of the CHi phase. It was decided to repeat the test at this section without the preliminary pulse injection test. The second test was started manually which caused a drop of pressure during the CHi phase due to an unexpected high flow rate. Therefore, only the CHir phase of the second test was analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 198 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.19 L/min at start of the CHi phase to 0.006 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). The CHir phase shows no problems and is adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test, the CHi phase was not analysed due to a pressure drop during the injection. The derivative of the CHir phase shows a shape which is typical for the transition from wellbore storage to skin dominated flow with some additional upward trend of the derivative at early time data. Because the formation flow stabilization was not observed, a radial two shell composite flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2-40.

Selected representative parameters

The recommended transmissivity of $2.3 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-9}$ m^2/s to $2.0 \cdot 10^{-8}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using straight line extrapolation in the Horner plot because of a too short recovery phase.

No further analysis is recommended.

5.2.34 Section 764.00–784.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 197 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.008 L/min at start of the CHi phase to 0.002 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate close to the lower measurement limit of the small flowmeter, the CHi phase shows some instability, causing background noise at the data and derivative. The CHir phase shows no problems and both phases are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test, the CHi phase shows a very noisy but flat derivative at middle times followed by an upward trend. A two shell composite flow model was chosen for analysis of the CHi phase indicating a decrease of transmissivity at some distance to the borehole. The derivative of the CHir phase shows a shape which is typical for the transition from wellbore storage to skin dominated flow with some additional change of transmissivity at some distance to the borehole. Because the formation flow stabilization was not observed, a radial two shell composite flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2-41.

Selected representative parameters

The recommended transmissivity of $2.0 \cdot 10^{-10}$ m²/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $6.0 \cdot 10^{-11}$ m²/s to $3.0 \cdot 10^{-9}$ m²/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using type curve extrapolation in the Horner plot because of a too short recovery phase.

The analyses of the CHi and CHir phases show some discrepancy concerning the transmissivity of the CHi and CHir phases. If further analysis is planned, a total test simulation should help resolving this inconsistency.

5.2.35 Section 783.00–803.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 40 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-42.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.2.36 Section 803.00–823.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 27 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-43.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.2.37 Section 823.00–843.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 163 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.09 L/min at start of the CHi phase to 0.002 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate close to the lower measurement limit of the small flowmeter, the CHi phase shows some instability, causing background noise at the data and derivative. The CHir phase shows a very slow recovery. However, considering the named background effects, both phases are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test, the CHi phase shows a very noisy derivative with an upward trend at late times. A two shell composite flow model was chosen for analysis of the CHi phase indicating a decrease of transmissivity at some distance to the borehole. The derivative of the CHir phase shows a shape which is typical for the transition from wellbore storage to skin dominated flow with some additional change of transmissivity at some distance to the borehole. Because the formation flow stabilization was not observed, a radial two shell composite flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2-44.

Selected representative parameters

The recommended transmissivity of $6.9 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-10}$ m^2/s to $8.0 \cdot 10^{-8}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using type curve extrapolation in the Horner plot because of a too short recovery phase.

The analyses of the CHi and CHir phases show some discrepancy concerning the transmissivity of the CHi and CHir phases. Also the data quality is relatively poor which makes a more accurate analysis difficult. If further analysis is planned, a total test simulation should help resolving this inconsistency.

5.3 5 m single-hole injection tests

In the following, the 5 m section tests conducted in borehole KLX21B are presented and analysed.

5.3.1 Section 323.00–328.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa for the injection. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.02 L/min at start of the CHi phase to 0.009 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times. The derivative of the CHi phase is relatively noisy due to flow rates close to the lower limit of the small flowmeter. However, a homogeneous model with radial flow was chosen as adequate for the analysis of the CHi phase. The derivative of the CHir phase shows a shape which is typical for the transition of from a wellbore and skin dominated flow to formation flow. In addition, the effect of a change of transmissivity at a distance to the borehole is observed. Therefore, a two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-45.

Selected representative parameters

The recommended transmissivity of $1.9 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-9}$ m^2/s to $3.0 \cdot 10^{-8}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,068.8 kPa.

Considering the noisy CHi derivative, the analyses of the CHi and CHir phases show good consistency with the exception of an unexplained large skin at the CHir phase. No further analysis is recommended.

5.3.2 Section 328.00–333.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 101 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-46.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.3.3 Section 333.00–338.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 91 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-47.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.4 Section 338.00–343.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 42 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-48.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.5 Section 343.00–348.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 38 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-49.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.6 Section 348.00–353.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 212 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.006 L/min at start of the CHi phase to 0.001 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate during the CHi phase which is close to the lower measurement limit of the small flowmeter, the flow data are very noisy. However, both phases are still adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a noisy but flat derivative at middle and late times. A homogeneous model with radial flow was chosen as adequate for the analysis of the CHi phase. The derivative of the CHir phase shows the typical shape for the transition of a wellbore to skin dominated flow. The downward trend of the late time data is not yet representing the formation flow, therefore, a homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-50.

Selected representative parameters

The recommended transmissivity of $6.6 \cdot 10^{-10}$ m²/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-10}$ m²/s to $1.0 \cdot 10^{-9}$ m²/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,290.6 kPa.

The CHi and CHir phases show good consistency. No further analysis is recommended.

5.3.7 Section 353.00–358.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 13 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-51.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.8 Section 358.00–363.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 110 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-52.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.9 Section 363.00–368.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 93 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-53.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.10 Section 368.00–373.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 224 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.005 L/min at start of the CHi phase to 0.001 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase is very noisy due to flow rates close to the lower measurement limit of the small flowmeter but shows a relative flat derivative at middle and late times. A homogeneous model with radial flow was chosen as adequate for the analysis of the CHi phase. The derivative of the CHir phase shows the typical shape for the transition of wellbore storage to skin effects. However, a homogeneous model with radial flow, wellbore storage and skin was chosen for type curve matching for analysis. The analysis is presented in Appendix 2-54.

Selected representative parameters

The recommended transmissivity of $1.7 \cdot 10^{-10}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-10}$ m^2/s to $7.0 \cdot 10^{-10}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using type curve extrapolation in the Horner plot because of a too short recovery phase.

The CHi and CHir phases show some discrepancy in the skin factor which is different for the CHi phase (positive) and the CHir phase (negative). In case further analysis is planned, a total test simulation should be conducted in order to derive consistent parameters for the flow models.

5.3.11 Section 373.00–378.00 m, test no. 1 and 2, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). During the first test it was observed that the shut-in tool (testventil) is not working correct. The tool was pulled out, the shut-in tool replaced with a spare part and the tool was run in again to the section depth for a second test at that section. However, after inflating the packers and closing the test valve, the pressure kept rising by 26 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-55.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.3.12 Section 378.00–383.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 35 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-56.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.13 Section 383.00–388.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.064 L/min at start of the CHi phase to 0.019 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase is noisy due to low flow rates. The derivative shows a flat section at middle and late times. A homogeneous model with radial flow was chosen as adequate for the analysis of the CHi phase. The CHir phase shows a flat derivative at middle and late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for type curve matching for analysis. The analysis is presented in Appendix 2-57.

Selected representative parameters

The recommended transmissivity of $5.7 \cdot 10^{-8}$ m²/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-8}$ m²/s to $6.0 \cdot 10^{-8}$ m²/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,606.1 kPa.

The CHi and CHir phases show some discrepancy in the skin factors. The CHi phase shows a small positive skin whereas the CHir phase is analysed using a large positive unexplained skin. No further analysis is recommended.

5.3.14 Section 388.00–393.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 27 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-58.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.15 Section 393.00–398.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 26 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-59.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.16 Section 398.00–403.00 m, test no. 1, pulse injection

Comments to test

The test was conducted as pulse injection (PI) with a pressure difference of 235 kPa. No hydraulic connection between the test section and the adjacent zones was observed. The decision to conduct a pulse injection instead of a constant head injection with subsequent pressure recovery was met because the injection rate dropped below of the lower measurement limit of the small flowmeter (< 1 ml/min) within 20 sec after starting the injection phase. The pulse injection was analysed using a wellbore storage coefficient calculated from the volume of water needed to elevate the pressure in the test section by 235 kPa (0.0039 L). The PI phase is adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the derivative of the convolved PI pressure shows a clear horizontal stabilization which indicated radial (dimension 2) homogeneous flow. The PI phase was analyzed using a homogeneous radial flow model. The analysis is presented in Appendix 2-60.

Selected representative parameters

The recommended transmissivity of $5.1 \cdot 10^{-11}$ m^2/s was derived from the analysis of the PI phase. The confidence range for the interval transmissivity is estimated to $3.0 \cdot 10^{-11}$ m^2/s to $7.0 \cdot 10^{-11}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth could not be extrapolated.

No further analysis is recommended.

5.3.17 Section 403.00–408.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 28 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-61.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.3.18 Section 408.00–413.00 m, test no. 1, pulse injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. The CHi phase was conducted using a pressure difference of 210 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.002 L/min at start of the CHi phase to 0.001 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the very low flow rate at the lower measurement limit of the small flowmeter (< 0.001 L/min), the flow data are very noisy.

The preliminary pulse injection (PI) was conducted with a pressure difference of 203 kPa. No hydraulic connection between the test section and the adjacent zones was observed. The pulse injection was analysed using a wellbore storage coefficient calculated from the volume of water needed to elevate the pressure in the test section by 203 kPa (0.00096 L). The PI phase is adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the derivative of the convolved PI pressure shows a clear horizontal stabilization which indicated radial (dimension 2) homogeneous flow. The PI phase was analyzed using a homogeneous radial flow model. The analysis is presented in Appendix 2-62.

Selected representative parameters

The recommended transmissivity of $2.7 \cdot 10^{-11}$ m^2/s was derived from the analysis of the PI phase. The confidence range for the interval transmissivity is estimated to $2.0 \cdot 10^{-11}$ m^2/s to $8.0 \cdot 10^{-10}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth could not be extrapolated.

The analysis of the CHi, CHir and PI phases show some inconsistencies in the range of the analysed transmissivities. This is related to the poor data quality of the CHi phase and the major influence of wellbore storage and skin effects at the CHir phase. No further analysis is recommended.

5.3.19 Section 413.00–418.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 193 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.0045 L/min at start of the CHi phase to 0.0009 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). The flow rate during the CHi phase is relative noisy due to a flow rate at the lower measurement limit of the small flowmeter (< 0.001 L/min). However, both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but very noisy derivative at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows the typical shape of transition from wellbore to skin effects. However, despite of this the data quality of the CHir phase is very good and a homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-63.

Selected representative parameters

The recommended transmissivity of $3.5 \cdot 10^{-10}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-10}$ m^2/s to $8.0 \cdot 10^{-10}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,893.1 kPa.

The analyses of the CHi and CHir phases show consistency. No further analysis is recommended.

5.3.20 Section 418.00–423.00 m, test no. 1 and 2, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a constant pressure injection phase was started but due to operational problems, the packers were deflated shortly after the start of injection of the first test. It was decided to restart a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) as test two. Only the CHi and CHir phases of test two were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 190 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.0048 L/min at start of the CHi phase to 0.0016 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). The flow rate during the CHi phase is relative noisy due to a flow rate at the lower measurement limit of the small flowmeter (< 0.001 L/min). However, both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but very noisy derivative. The derivative is flat at early time data, followed by an upward trend and again a horizontal stabilization at late times, indicating radial flow and a decrease of transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a similar shape as of the CHi phase but with much better data quality and less noise. Therefore, a two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis of the CHir phase as well. The analysis is presented in Appendix 2-64.

Selected representative parameters

The recommended transmissivity of $1.9 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $3.0 \cdot 10^{-10}$ m^2/s to $3.0 \cdot 10^{-9}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using type curve extrapolation in the Horner plot because of a too short recovery phase.

The analyses of the CHi and CHir phases show some discrepancy related to the skin factors of the CHi phase (negative) and CHir phase (positive). Probably this is related to the poor data quality of the CHi phase. No further analysis is recommended.

5.3.21 Section 423.00–428.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 249 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.009 L/min at start of the CHi phase to 0.0068 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilisation at middle times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-65.

Selected representative parameters

The recommended transmissivity of $2.0 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $3.0 \cdot 10^{-9}$ m^2/s to $2.0 \cdot 10^{-8}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 3,972.3 kPa.

The analyses of the CHi and CHir phases show some inconsistency like an unexplained high skin at the CHir phase and a transmissivity which differ by one order of magnitude. If further analysis is planned, a total test simulation should help resolving this inconsistency.

5.3.22 Section 428.00–433.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 204 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.007 L/min at start of the CHi phase to 0.0016 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows the typical shape of transition from wellbore storage and skin dominated flow to formation flow. However, a homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-66.

Selected representative parameters

The recommended transmissivity of $5.8 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-10}$ m^2/s to $6.0 \cdot 10^{-9}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,014.8 kPa.

The analyses of the CHi and CHir phases show a good consistency despite of an unexplained high skin at the CHir phase. No further analysis is recommended.

5.3.23 Section 433.00–438.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually. As the flow rate was higher than expected, the pressure difference decreased during the CHi phase from 203 kPa at start of the CHi phase to 191 kPa at the end. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.043 L/min at start of the CHi phase to 0.030 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). However, both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a kind of stabilization at middle times followed by a downward trend and further stabilization at late times. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-67.

Selected representative parameters

The recommended transmissivity of $4.8 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-8}$ m^2/s to $6.0 \cdot 10^{-8}$ m^2/s. The analyses were conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,062.8 kPa.

The analyses of the CHi and CHir phases show a good consistency. No further analysis is recommended.

5.3.24 Section 438.00–443.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 144 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-68.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.3.25 Section 443.00–448.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 202 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.004 L/min at start of the CHi phase to 0.0014 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the derivative of the CHi phase shows a horizontal stabilization at late times. Due to a flow rate close to the lower limit of the small flowmeter, the data and derivative of the CHi phase are very noisy. However, a homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows an upward trend at middle and late times, indicating a decrease of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-69.

Selected representative parameters

The recommended transmissivity of $4.7 \cdot 10^{-10}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows a good data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-10}$ m^2/s to $6.0 \cdot 10^{-10}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using type curve extrapolation in the Horner plot because of a too short recovery phase.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.3.26 Section 448.00–453.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 201 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.46 L/min at start of the CHi phase to 0.18 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the derivative of the CHi phase shows a horizontal stabilization at late times. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle times, followed by a downward trend and a further flat part at late times. This is indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-70.

Selected representative parameters

The recommended transmissivity of $1.7 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows a good data and derivative quality. The confidence range for the interval transmissivity is estimated to be $9.0 \cdot 10^{-8}$ m^2/s to $4.0 \cdot 10^{-7}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,201.3 kPa.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.3.27 Section 453.00–458.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.36 L/min at start of the CHi phase to 0.15 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the derivative of the CHi phase shows a horizontal stabilization at middle times, followed by a downward trend and a further horizontal stabilization at late times. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a similar shape as the CHi phase, indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-71.

Selected representative parameters

The recommended transmissivity of $1.6 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which is consistent with the inner zone transmissivity from the CHi phase. The confidence range for the interval transmissivity is estimated to be $9.0 \cdot 10^{-8}$ m^2/s to $3.0 \cdot 10^{-7}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,245.1 kPa.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.3.28 Section 458.00–463.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 143 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-72.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.29 Section 463.00–468.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 122 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-73.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.30 Section 468.00–473.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 28 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-74.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.31 Section 473.00–478.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.35 L/min at start of the CHi phase to 0.12 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times, indicating a radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows also a horizontal stabilisation at middle and late times. Therefore, a two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-75.

Selected representative parameters

The recommended transmissivity of $5.9 \cdot 10^{-8}$ m²/s was derived from the analysis of the CHi phase, which is of good data and derivative quality and consistent with the analysis result of the CHir phase. The confidence range for the interval transmissivity is estimated to be $4.0 \cdot 10^{-8}$ m²/s to $5.0 \cdot 10^{-7}$ m²/s. The test phases were analysed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,436.0 kPa.

The analyses of the CHi and CHir phases show some inconsistency in skin factors which are different from the CHi phase (negative) and CHir phase (positive). Also the transmissivity differs by nearly one order of magnitude. If further analysis is planned, a total test simulation should help resolving this inconsistency.

5.3.32 Section 478.00–483.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 222 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.009 L/min at start of the CHi phase to 0.0025 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times, followed by an upward trend and a further stabilisation at late times. This is indicating a decrease of transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows also a horizontal stabilisation at middle times followed by an upward trend. Therefore, a two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-76.

Selected representative parameters

The recommended transmissivity of $2.1 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which is of good data and derivative quality and consistent with the analysis result of the CHi phase. The confidence range for the interval transmissivity is estimated to be $4.0 \cdot 10^{-10}$ m^2/s to $2.0 \cdot 10^{-9}$ m^2/s. The test phases were analysed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,494.9 kPa.

The analyses of the CHi and CHir phases show a good consistency. No further analysis is recommended.

5.3.33 Section 483.00–488.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 211 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.0048 L/min at start of the CHi phase to 0.0012 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a noisy but flat derivative at middle and late times. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows also a horizontal stabilisation at middle times followed by an upward trend. This is indicating a decrease of transmissivity at some distance to the borehole. Therefore, a two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-77.

Selected representative parameters

The recommended transmissivity of $4.1 \cdot 10^{-10}$ m²/s was derived from the analysis of the CHi phase, which displayed the clearest derivative stabilisation. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-10}$ m²/s to $9.0 \cdot 10^{-10}$ m²/s. The test phases were analysed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,522.1 kPa.

The analyses of the CHi and CHir phases show some inconsistency in the skin factor which is negative for the analysis of the CHi phase and positive for the analysis of the CHir phase. If further analysis is planned, a total test simulation should help to resolve this inconsistency.

5.3.34 Section 488.00–493.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 48 kPa in 27 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-78.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.35 Section 493.00–498.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 61 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-79.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.36 Section 498.00–503.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 22 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-80.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.3.37 Section 503.00–508.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 210 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.0044 L/min at start of the CHi phase to 0.0021 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but very noisy derivative data at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a typical shape of transition from wellbore storage and skin dominated flow to formation flow where already the derivative is influenced by an upward trend at late times. This is indicating a decrease of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-81.

Selected representative parameters

The recommended transmissivity of $1.2 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality and is consistent with the CHi analysis. The confidence range for the interval transmissivity is estimated to be $4.0 \cdot 10^{-10}$ m^2/s to $3.0 \cdot 10^{-9}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,708.8 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.3.38 Section 508.00–513.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 198 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.009 L/min at start of the CHi phase to 0.004 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but very noisy derivative data at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilisation at late times. A downward trend is used to match the type curve at the derivative part which is dominated by skin effects, indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-82.

Selected representative parameters

The recommended transmissivity of $3.2 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality and is consistent with the CHi analysis. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-9}$ m^2/s to $9.0 \cdot 10^{-9}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,752.3 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency with the exception of the different flow models used for the analyses. No further analysis is recommended.

5.3.39 Section 513.00–518.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 203 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.003 L/min at start of the CHi phase to 0.001 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but very noisy derivative data at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a typical shape for the transition of a wellbore storage and skin dominated flow to formation flow. However, a homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-83.

Selected representative parameters

The recommended transmissivity of $2.1 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-10}$ m^2/s to $2.0 \cdot 10^{-9}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,790.8 kPa.

The analyses of the CHi and CHir phases show some inconsistency in the transmissivities derived from the CHi and CHir phases. Also the skin factor differs from the CHi phase (negative) to the CHir phase (positive). If further analysis is planned, a total test simulation should help resolving these inconsistencies.

5.3.40 Section 518.00–523.00 m, test no. 1, pulse injection

Comments to test

The test was conducted as pulse injection (PI) with a pressure difference of 195 kPa. No hydraulic connection between the test section and the adjacent zones was observed. The decision to conduct a pulse injection instead of a constant head injection with subsequent pressure recovery was met because the injection rate dropped below of the lower measurement limit of the small flowmeter (< 1 ml/min) within 10 sec after starting the injection phase. The pulse injection was analysed using a wellbore storage coefficient calculated from the volume of water needed to elevate the pressure in the test section by 195 kPa (0.0035 L). The PI phase is adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the derivative of the convolved PI pressure shows a clear horizontal stabilization which indicated radial (dimension 2) homogeneous flow. The PI phase was analyzed using a homogeneous radial flow model. The analysis is presented in Appendix 2-84.

Selected representative parameters

The recommended transmissivity of $1.5 \cdot 10^{-10}$ m^2/s was derived from the analysis of the PI phase. The confidence range for the interval transmissivity is estimated to $8.0 \cdot 10^{-11}$ m^2/s to $3.0 \cdot 10^{-10}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth could not be extrapolated.

No further analysis is recommended.

5.3.41 Section 523.00–528.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 201 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.38 L/min at start of the CHi phase to 0.10 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative data at middle times, followed by a downward trend and a further stabilisation at late times. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a similar shape than that of the CHi phase, indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-85.

Selected representative parameters

The recommended transmissivity of $1.2 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the best derivative stabilisation. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-7}$ m^2/s to $5.0 \cdot 10^{-7}$ m^2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,885.4 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.3.42 Section 528.00–533.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 168 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-86.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.3.43 Section 533.00–538.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 158 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-87.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.44 Section 538.00–543.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 95 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-88.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.45 Section 563.00–568.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 1.3 L/min at start of the CHi phase to 0.81 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at middle times, followed by a downward trend and a further stabilisation at late times. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle times and late times. The shape of derivative indicated a downward trend at early times, covered by a wellbore storage and skin dominated flow. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis of the CHir phase. The analysis is presented in Appendix 2-89.

Selected representative parameters

The recommended transmissivity of $2.4 \cdot 10^{-6}$ m^2/s was derived from the analysis of the CHir phase (outer zone), which shows the best horizontal derivative stabilisation. The confidence range for the interval transmissivity is estimated to be $3.0 \cdot 10^{-7}$ m^2/s to $4.0 \cdot 10^{-6}$ m^2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,258.1 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.3.46 Section 568.00–573.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 1.16 L/min at start of the CHi phase to 1.05 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at middle and late times. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a downward trend at middle times and a horizontal stabilization at late times. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis of the CHir phase. The analysis is presented in Appendix 2-90.

Selected representative parameters

The recommended transmissivity of $3.1 \cdot 10^{-6}$ m^2/s was derived from the analysis of the CHir phase (outer zone), which shows the best horizontal derivative stabilisation. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-7}$ m^2/s to $4.0 \cdot 10^{-6}$ m^2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,302.7 kPa.

The analyses of the CHi and CHir phases show some inconsistency in the model used for analysis of the CHi phase (homogeneous) and CHir phase (two shell composite) which may be explained by the noisy data of the CHi phase. No further analysis is recommended.

5.3.47 Section 573.00–578.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.014 L/min at start of the CHi phase to 0.0062 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). The automatic flow regulation was a bit instable at the first part of the CHi phase, creating very noisy data. Therefore only the late time data of the CHi phase are adequate for quantitative analysis. The CHir phase shows no problems.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at late times. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times. The analysis indicated a downward trend at early and middle times covered by wellbore storage and skin dominated flow. Therefore, a two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis of the CHir phase. The analysis is presented in Appendix 2-91.

Selected representative parameters

The recommended transmissivity of $3.8 \cdot 10^{-9}$ m²/s was derived from the analysis of the CHi phase, which shows the best horizontal derivative stabilisation. The confidence range for the interval transmissivity is estimated to be $3.0 \cdot 10^{-9}$ m²/s to $3.0 \cdot 10^{-8}$ m²/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,353.9 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. The different model used for the analysis of the test phases may be due to the poor data quality of the CHi phase. No further analysis is recommended.

5.3.48 Section 578.00–583.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 202 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.01 L/min at start of the CHi phase to 0.004 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a horizontal stabilisation of the derivative at early times, followed by a downward trend and a further stabilisation at late times. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows the typical shape of the transition from wellbore storage and skin dominated flow to formation flow. The analysis indicated a downward trend at early and middle times covered by wellbore storage and skin dominated flow. Therefore, a two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis of the CHir phase. The analysis is presented in Appendix 2-92.

Selected representative parameters

The recommended transmissivity of $1.9 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $9.0 \cdot 10^{-10}$ m^2/s to $6.0 \cdot 10^{-9}$ m^2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 5,386.4 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.3.49 Section 583.00–588.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 202 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.099 L/min at start of the CHi phase to 0.0046 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a horizontal stabilisation of the derivative at early times, followed by a downward trend and a further stabilisation at late times. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows the typical shape of the transition from wellbore storage and skin dominated flow to formation flow. The analysis indicated a downward trend at early and middle times covered by wellbore storage and skin dominated flow. Therefore, a two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis of the CHir phase. The analysis is presented in Appendix 2-93.

Selected representative parameters

The recommended transmissivity of $1.6 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-9}$ m^2/s to $5.0 \cdot 10^{-9}$ m^2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 5,433.0 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.3.50 Section 588.00–593.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. An increase of the pressure in the section below of 2 kPa was observed during the injection phase. It is assumed that this is based on a minor flow through the fracture system of the formation. The injection rate decreased from 1.89 L/min at start of the CHi phase to 1.08 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at middle and late times, indicating radial flow. However, considering the data quality, a homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-94.

Selected representative parameters

The recommended transmissivity of $1.7·10^{-6}$ m²/s was derived from the analysis of the CHi phase, which shows a fairly good data and derivative quality and the best horizontal derivative stabilisation. The CHir phase shows a very fast recovery, therefore the analysis is considered as less representative than the CHi phase. The confidence range for the interval transmissivity is estimated to be $5.0·10^{-7}$ m²/s to $4.0·10^{-6}$ m²/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,486.0 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. The CHir phase shows a relative high unexplained skin. No further analysis is recommended.

5.3.51 Section 593.00–598.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 198 kPa. An increase of the pressure in the section below of 2 kPa was observed during the injection phase. It is assumed that this is based on a minor flow through the fracture system of the formation. The injection rate decreased from 2.43 L/min at start of the CHi phase to 1.72 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at early times, followed by a downward trend and a further horizontal stabilisation at late times. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-95.

Selected representative parameters

The recommended transmissivity of $1.2 \cdot 10^{-6}$ m^2/s was derived from the analysis of the CHi phase, which shows a fairly good data and derivative quality and the best horizontal derivative stabilisation. The CHir phase shows a very fast recovery, therefore the analysis is considered as less representative than the CHi phase. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-7}$ m^2/s to $8.0 \cdot 10^{-6}$ m^2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,537.0 kPa.

The analyses of the CHi and CHir phases show some inconsistencies. The CHi phase was analysed using a two shell composite model whereas for the CHir phase a homogeneous model was used. In addition, the CHir phase shows a relative high unexplained skin. This phenomenon was observed in other tests as well and bay be caused by non-Darcy (turbulent) flow. In case a further analysis is planned, a total test simulation and a model involving non-Darcy flow in the formation should be used in order to clarify whether the parameters derived are physically realistic.

5.3.52 Section 598.00–603.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection between the test interval and adjacent sections was observed. The injection rate decreased from 0.15 L/min at start of the CHi phase to 0.074 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat but noisy derivative at middle and late times, indicating radial flow. However, considering the data quality, a homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-96.

Selected representative parameters

The recommended transmissivity of $1.4 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHi phase, which shows a fairly good data and derivative quality and the best horizontal derivative stabilisation. The CHir phase shows a very fast recovery, therefore the analysis is considered as less representative than the CHi phase. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-7}$ m^2/s to $2.0 \cdot 10^{-6}$ m^2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,581.8 kPa.

Considering the noisy derivative of the CHi phase, the analyses of the CHi and CHir phases show good consistency. The CHir phase shows a relative high unexplained skin. No further analysis is recommended.

5.3.53 Section 603.00–608.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. A hydraulic connection to the bottom zone was observed during the CHi and CHir phases. It is assumed that this hydraulic connection is related to some flow through fractures in the formation. The injection rate decreased from 14.0 L/min at start of the CHi phase to 6.52 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-97.

Selected representative parameters

The recommended transmissivity of $1.1 \cdot 10^{-5}$ m^2/s was derived from the analysis of the CHi phase, which shows the better derivative stabilisation. Due to the very fast pressure recovery, the CHir phase is considered as less representative. The confidence range for the interval transmissivity is estimated to be $3.0 \cdot 10^{-6}$ m^2/s to $3.0 \cdot 10^{-5}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 5,627.7 kPa.

The analyses of the CHi and CHir phases show good consistency despite of an unexplained high skin derived from the analysis of the CHir phase. No further analysis is recommended.

5.3.54 Section 608.00–613.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. A hydraulic connection to the bottom zone was observed during the CHi and CHir phases. It is assumed that this hydraulic connection is related to some flow through fractures in the formation. The injection rate decreased from 19.2 L/min at start of the CHi phase to 17.3 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times, followed by a downward trend and a further horizontal stabilisation at late times. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times. However, the analysis indicated a downward trend at early to middle times covered by wellbore storage and skin dominated flow, indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis.
The analysis is presented in Appendix 2-98.

Selected representative parameters

The recommended transmissivity of $3.0 \cdot 10^{-5}$ m^2/s was derived from the analysis of the CHi phase (inner zone), which shows the best derivative stabilisation. Due to the very fast pressure recovery, the CHir phase is considered as less representative. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-5}$ m^2/s to $8.0 \cdot 10^{-5}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,675.3 kPa.

The analyses of the CHi and CHir phases show good consistency. No further analysis is recommended.

5.3.55 Section 613.00–618.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. No hydraulic connection between the test interval and adjacent sections was observed during the CHi and CHir phases. The injection rate decreased from 0.026 L/min at start of the CHi phase to 0.016 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). At the start of the CHi phase, the automatic flow regulation need some time to stabilise the injection pressure, leading to a poor data quality at the early and middle time data. However, both phases are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times. However, the analysis indicated a downward trend at early to middle times covered by wellbore storage and skin dominated flow, indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-99.

Selected representative parameters

The recommended transmissivity of $1.5 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-9}$ m^2/s to $8.0 \cdot 10^{-8}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,722.7 kPa.

The analyses of the CHi and CHir phases show some inconsistency. As the CHi phase was analysed using a homogeneous model, a two shell composite model was chosen for the CHir phase. Probably this is related to the poor data quality of the CHi phase. No further analysis is recommended.

5.3.56 Section 618.00–623.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection between the test interval and adjacent sections was observed during the CHi and CHir phases. The injection rate decreased from 0.36 L/min at start of the CHi phase to 0.24 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times, indicating radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle and late times. However, the analysis indicates a downward trend at early times which is covered by wellbore storage and skin dominated flow. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-100.

Selected representative parameters

The recommended transmissivity of $4.7 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHi phase, which shows (despite of some background noise) a good derivative stabilisation. Due to the very fast pressure recovery, the CHir phase is considered as less representative. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-7}$ m^2/s to $3.0 \cdot 10^{-6}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,730.7 kPa.

The analyses of the CHi and CHir phases show some inconsistency. For the analysis of the CHi phase a homogeneous flow model was used whereas the CHir phase was analysed using a two shell composite model. In addition, both phases show a relative high unexplained skin. In case of a further analysis a total test simulation should help to resolve these inconsistencies.

5.3.57 Section 623.00–628.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a high formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. A hydraulic connection to the bottom zone was observed during the CHi and CHir phases. It is assumed that this hydraulic connection is related to some flow through fractures in the formation. The injection rate decreased from 10.0 L/min at start of the CHi phase to 8.74 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times, followed by a downward trend and a further flat derivative at late times. The shape of the derivative indicates a radial flow with an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times. However, the analysis indicates a downward trend at early to middle times covered by wellbore storage and skin dominated flow. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-101.

Selected representative parameters

The recommended transmissivity of $9.4 \cdot 10^{-6}$ m^2/s was derived from the analysis of the CHi phase (inner zone), which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-6}$ m^2/s to $5.0 \cdot 10^{-5}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,814.8 kPa.

The analyses of the CHi and CHir phases show a good consistency. No further analysis is recommended.

5.3.58 Section 628.00–633.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection between the test interval and adjacent sections was observed during the CHi and CHir phases. The injection rate decreased from 0.065 L/min at start of the CHi phase to 0.038 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle to late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-102.

Selected representative parameters

The recommended transmissivity of $5.6 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHi phase, which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-8}$ m^2/s to $8.0 \cdot 10^{-8}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,860.6 kPa.

The analyses of the CHi and CHir phases show a good consistency despite of an unexplained large skin derived from the analysis of the CHir phase. No further analysis is recommended.

5.3.59 Section 633.00–638.00 m, test no. 1, pulse injection

Comments to test

The test was conducted as pulse injection (PI) with a pressure difference of 226 kPa. No hydraulic connection between the test section and the adjacent zones was observed. The decision to conduct a pulse injection instead of a constant head injection with subsequent pressure recovery was met because the injection rate dropped below of the lower measurement limit of the small flowmeter (< 1 ml/min) within 10 sec after starting the injection phase. The pulse injection was analysed using a wellbore storage coefficient calculated from the volume of water needed to elevate the pressure in the test section by 226 kPa (0.0039 L). The PI phase is adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the derivative of the convolved PI pressure shows a clear horizontal stabilization at middle and late time which indicated radial (dimension 2) homogeneous flow. The PI phase was analysed using a homogeneous radial flow model. The analysis is presented in Appendix 2-103.

Selected representative parameters

The recommended transmissivity of $7.9 \cdot 10^{-11}$ m^2/s was derived from the analysis of the PI phase. The confidence range for the interval transmissivity is estimated to $6.0 \cdot 10^{-11}$ m^2/s to $4.0 \cdot 10^{-10}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth could not be extrapolated.

No further analysis is recommended.

5.3.60 Section 638.00–643.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection between the test interval and adjacent sections was observed during the CHi and CHir phases. The injection rate decreased from 0.045 L/min at start of the CHi phase to 0.030 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to some effects of the automatic flow regulation, early time data of the CHi phase are of poor quality. However, both phases are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at late times. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle to late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-104.

Selected representative parameters

The recommended transmissivity of $1.9 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHi phase, which shows the best horizontal stabilisation of the derivative with a skin of zero. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-9}$ m^2/s to $4.0 \cdot 10^{-8}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,953.7 kPa.

The analyses of the CHi and CHir phases show some inconsistency in the range of transmissivities derived from the analysis and an unexplained large skin derived from the analysis of the CHir phase. In case further analysis is planned, a total test simulation should be conducted in order to derive a consistency for both test phases.

5.3.61 Section 643.00–648.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. A hydraulic connection between the test interval and the section below was observed during the CHi and CHir phases. It is assumed that this hydraulic connection is related to some flow through fractures in the formation. The injection rate decreased from 1.55 L/min at start of the CHi phase to 0.46 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases are of good quality and adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle to late times as well. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-105.

Selected representative parameters

The recommended transmissivity of $7.3 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHi phase, which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be $3.0 \cdot 10^{-7}$ m^2/s to $1.0 \cdot 10^{-6}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,999.6 kPa.

The analyses of the CHi and CHir phases show a good consistency despite of an unexplained high skin at the CHir phase. No further analysis is recommended.

5.3.62 Section 645.00–650.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. A hydraulic connection between the test interval and the section below was observed during the CHi and CHir phases. It is assumed that this hydraulic connection is related to some flow through fractures in the formation. The injection rate decreased from 1.55 L/min at start of the CHi phase to 0.35 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases are of good quality and adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle to late times as well. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-106.

Selected representative parameters

The recommended transmissivity of $6.5 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHi phase, which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be $3.0 \cdot 10^{-7}$ m^2/s to $8.0 \cdot 10^{-7}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,017.2 kPa.

The analyses of the CHi and CHir phases show a good consistency. No further analysis is recommended.

5.3.63 Section 650.00–655.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. A hydraulic connection between the test interval and the section below was observed during the CHi and CHir phases. It is assumed that this hydraulic connection is related to some flow through fractures in the formation. The injection rate decreased from 0.86 L/min at start of the CHi phase to 0.58 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases are of good quality and adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle times, followed by a downward trend and a further stabilisation at late times. This is indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times. In addition, the analysis indicates a downward trend at middle times, partly covered by skin dominated flow. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-107.

Selected representative parameters

The recommended transmissivity of $6.7 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHi phase (inner zone), which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be $3.0 \cdot 10^{-7}$ m^2/s to $3.0 \cdot 10^{-6}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,063.2 kPa.

The analyses of the CHi and CHir phases show a good consistency. No further analysis is recommended.

5.3.64 Section 655.00–660.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 201 kPa. A hydraulic connection between the test interval and the section below was observed during the CHi and CHir phases. It is assumed that this hydraulic connection is related to some flow through fractures in the formation. The injection rate decreased from 0.94 L/min at start of the CHi phase to 0.89 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases are of good quality and adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a noisy but flat derivative at late times, indicating a radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at middle to late times. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-108.

Selected representative parameters

The recommended transmissivity of $2.5 \cdot 10^{-6}$ m^2/s was derived from the analysis of the CHir phase, which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-7}$ m^2/s to $4.0 \cdot 10^{-6}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,110.2 kPa.

The analyses of the CHi and CHir phases show a good consistency. An unexplained high skin was derived from both analyses. No further analysis is recommended.

5.3.65 Section 658.00–663.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection between the test interval and the adjacent sections was observed during the CHi and CHir phases. The injection rate decreased from 0.15 L/min at start of the CHi phase to 0.077 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases are of good quality and adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a noisy but flat derivative at middle to late times, indicating a radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times. In addition, the analysis indicates a downward trend at early to middle times covered by wellbore storage and skin dominated flow. A two shell composite model with radial flow, well-bore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-109.

Selected representative parameters

The recommended transmissivity of $7.7 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHi phase, which shows the better horizontal stabilisation of the derivative. The CHir phase shows a relative fast recovery and is understood as less representative. The confidence range for the interval transmissivity is estimated to be $4.0 \cdot 10^{-8}$ m^2/s to $5.0 \cdot 10^{-7}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,138.1 kPa.

The analyses of the CHi and CHir phases show some inconsistency in respect to the different flow models used for analysis. In case a further analysis is planned, a full test simulation should help to resolve these inconsistencies.

5.3.66 Section 663.00–668.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection between the test section and the adjacent zones was observed. The injection rate decreased from 0.083 L/min at start of the CHi phase to 0.055 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a flat derivative at middle and late times, indicating a radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a flat derivative at middle to late times as well. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-110.

Selected representative parameters

The recommended transmissivity of $7.5 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHi phase, which shows the better derivative stabilisation despite of some background noise. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-8}$ m^2/s to $2.0 \cdot 10^{-7}$ m^2/s. The analyses were conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,183.7 kPa.

The analyses of the CHi and CHir phases show good consistency despite of an unexplained very large skin derived from the analysis of the CHir phase. No further analysis is recommended.

5.3.67 Section 668.00–673.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection between the test section and the adjacent zones was observed. The injection rate decreased from 0.11 L/min at start of the CHi phase to 0.080 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a noisy but flat derivative at middle and late times, indicating a radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows the typical shape of the transition from wellbore storage and skin dominated flow to formation flow. In addition, a downward trend at middle times, mainly covered by skin dominated flow was derived from the analysis. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-111.

Selected representative parameters

The recommended transmissivity of $1.6 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality compared with the noisy data of the CHi phase. The confidence range for the interval transmissivity is estimated to be $4.0 \cdot 10^{-8}$ m^2/s to $6.0 \cdot 10^{-7}$ m^2/s. The analyses were conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,229.1 kPa.

The analyses of the CHi and CHir phases show good consistency with the exception of the different flow models used for analysis. In case of a further analysis, a total test simulation should help to resolve this inconsistency.

5.3.68 Section 673.00–678.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 18 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-112.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.3.69 Section 678.00–683.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 201 kPa. No hydraulic connection between the test section and the adjacent zones was observed. The injection rate decreased from 0.016 L/min at start of the CHi phase to 0.0074 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a very noisy but flat derivative at late times, indicating a radial flow. A homogeneous model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows the typical shape of the transition from wellbore storage and skin dominated flow to formation flow. In addition, a downward trend at middle times, covered by wellbore storage and skin dominated flow was derived from the analysis. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-113.

Selected representative parameters

The recommended transmissivity of $2.5·10^{-9}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality compared with the noisy data of the CHi phase. The confidence range for the interval transmissivity is estimated to be $1.0·10^{-9}$ m^2/s to $7.0·10^{-9}$ m^2/s. The analyses were conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,315.2 kPa.

The analyses of the CHi and CHir phases show good consistency with the exception of the different flow models used for analysis. In case of a further analysis, a total test simulation should help to resolve this inconsistency.

5.3.70 Section 683.00–688.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a medium formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 199 kPa. A hydraulic connection between the test section and the bottom zone was observed. It is assumed that the hydraulic connection is related to a flow through the fractured formation. The injection rate decreased from 0.58 L/min at start of the CHi phase to 0.29 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a noisy but flat derivative at middle times, followed by a downward trend and a further stabilisation at late times. This is indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a flat part at middle and late times, indicating radial flow. A homogeneous model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-114.

Selected representative parameters

The recommended transmissivity of $3.5 \cdot 10^{-7}$ m^2/s was derived from the analysis of the CHi phase (inner zone), which shows a good horizontal stabilisation in connection with a small skin factor. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-7}$ m^2/s to $1.0 \cdot 10^{-6}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,367.8 kPa.

The analyses of the CHi and CHir phases show some inconsistency like the different flow models used for analysis of the derivative data and the unexplained high skin of the CHir phase. In case of further analysis, a total test simulation should help to resolve these inconsistencies.

5.3.71 Section 688.00–693.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. A hydraulic connection between the test section and the bottom zone was observed. It is assumed that the hydraulic connection is related to a flow through the fractured formation. The injection rate decreased from 0.094 L/min at start of the CHi phase to 0.059 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). The automatic flow regulation created some noisy data in the middle and late time of the CHi phase. However, both phases are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi phase shows a noisy but flat derivative at middle times, followed by an upward trend at late times. This is indicating a decrease of transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a flat part at late times, indicating radial flow. In addition, the shape of the derivative indicated a downward trend at middle times, covered by skin dominated flow. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2-115.

Selected representative parameters

The recommended transmissivity of $5.8 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows a better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-8}$ m^2/s to $3.0 \cdot 10^{-7}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,411.5 kPa.

The analyses of the CHi and CHir phases show some inconsistency, especially in respect to the different trend of transmissivities in some distance to the borehole in the CHi phase (decrease) and CHir phase (increase). In case of further analysis, a total test simulation should help to resolve these inconsistencies.

5.3.72 Section 693.00–698.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

Due to a malfunction of the automatic pressure control system, the CHi phase was repeated and therefore started two times. The CHi phase was conducted using a pressure difference of 200 kPa. A hydraulic connection between the test section and the bottom zone was observed. It is assumed that the hydraulic connection is related to a flow through the fractured formation. The injection rate decreased from 0.18 L/min at start of the CHi phase to 0.066 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi and CHir phases show a flat derivative at middle times, followed by a downward trend at late times. This is indicating an increase of transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis of the CHir phase. The analysis is presented in Appendix 2-116.

Selected representative parameters

The recommended transmissivity of $2.7 \cdot 10^{-8}$ m²/s was derived from the analysis of the CHir phase (inner zone), which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-8}$ m²/s to $3.0 \cdot 10^{-7}$ m²/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,450.0 kPa.

The analyses of the CHi and CHir phases show a good consistency. No further analysis is recommended.

5.3.73 Section 698.00–703.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted using a pressure difference of 200 kPa. No hydraulic connection between the test section and the adjacent zones was observed. The injection rate decreased from 0.079 L/min at start of the CHi phase to 0.016 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CHi and CHir phases show a flat derivative at middle times, followed by an upward trend and a further stabilisation at late times. This is indicating a decrease of transmissivity at some distance to the borehole. A two shell composite model with radial flow was chosen for the analysis of the CHi phase. A two shell composite model with radial flow, wellbore storage and skin was chosen for the analysis of the CHir phase. The analysis is presented in Appendix 2-117.

Selected representative parameters

The recommended transmissivity of $1.6 \cdot 10^{-8}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-9}$ m^2/s to $2.0 \cdot 10^{-8}$ m^2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,496.1 kPa.

The analyses of the CHi and CHir phases show a good consistency. No further analysis is recommended.

5.3.74 Section 703.00–708.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 202 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.0059 L/min at start of the CHi phase to 0.0029 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate close to the lower measurement limit of the small flowmeter, the flow data are of poor quality. Despite of that, both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test, the CHi phase shows a very noisy but flat derivative at middle and late times. A homogeneous flow model was chosen for analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilisation at middle times followed by a slight upward trend. A two shell composite model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2-118.

Selected representative parameters

The recommended transmissivity of $1.9 \cdot 10^{-9}$ m^2/s was derived from the analysis of the CHir phase (inner zone), which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-10}$ m^2/s to $3.0 \cdot 10^{-9}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,550.8 kPa.

The analyses of the CHi and CHir phases show a good consistency despite of an unexplained large skin of the CHi phase. No further analysis is recommended.

5.3.75 Section 708.00–713.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 171 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-119.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.76 Section 713.00–718.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 198 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.004 L/min at start of the CHi phase to 0.0009 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate close to the lower measurement limit of the small flowmeter, the flow data are of poor quality. Despite of that, both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test, the CHi phase shows a very noisy but flat derivative at middle times followed by an upward trend. A two shell composite flow model was chosen for analysis of the CHi phase. The derivative of the CHir phase shows the typical shape of a derivative transition from wellbore storage and skin dominated flow to formation flow. In addition, the shape of derivative indicated an upward trend at middle times. A two shell composite model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2-120.

Selected representative parameters

The recommended transmissivity of $1.8 \cdot 10^{-10}$ m²/s was derived from the analysis of the CHir phase (outer zone), which shows the best horizontal stabilisation of the derivative and best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-11}$ m²/s to $9.0 \cdot 10^{-10}$ m²/s. The analysis was conducted using a flow dimension of

2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,637.5 kPa.

The analyses of the CHi and CHir phases show a good consistency despite of the poor data quality of the CHi phase. No further analysis is recommended.

5.3.77 Section 718.00–723.00 m, test no. 1, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 202 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.005 L/min at start of the CHi phase to 0.002 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate close to the lower measurement limit of the small flowmeter, the flow data are of poor quality. Despite of that, both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test, the CHi phase shows a very noisy but flat derivative at middle times followed by an upward trend and further stabilisation at late times. A two shell composite flow model was chosen for analysis of the CHi phase. The derivative of the CHir phase shows a stabilisation at middle times followed by an upward trend and a further stabilisation at late times. A two shell composite model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2-121.

Selected representative parameters

The recommended transmissivity of $6.1\cdot10^{-10}$ m^2/s was derived from the analysis of the CHir phase (outer zone), which shows the best horizontal stabilisation of the derivative and best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $3.0\cdot10^{-10}$ m^2/s to $3.0\cdot10^{-9}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,670.6 kPa.

The analyses of the CHi and CHir phases show a good consistency despite of the poor data quality of the CHi phase. No further analysis is recommended.

5.3.78 Section 723.00–728.00 m, test no. 1 and 2, injection

Comments to test

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. Due to a malfunction of the release valve of the vessel for the packers, the test was repeated after blocking this valve. The pressure response and the recovery of the pulse test indicated a low formation transmissivity. Based on this result a sequence consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Only the CHi and CHir phases were analysed quantitatively.

The CHi phase was conducted manually using a pressure difference of 182 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.0058 L/min at start of the CHi phase to 0.0012 L/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate close to the lower measurement limit of the small flowmeter, the flow data are of poor quality. Despite of that, both phases show no problems and are adequate for quantitative analysis.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test, the CHi phase shows a very noisy but flat derivative at late times. A homogeneous flow model was chosen for analysis of the CHi phase. The derivative of the CHir phase shows a stabilisation at late times. A homogeneous model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2-122.

Selected representative parameters

The recommended transmissivity of $3.8 \cdot 10^{-10}$ m^2/s was derived from the analysis of the CHir phase, which shows the best horizontal stabilisation of the derivative and best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-10}$ m^2/s to $8.0 \cdot 10^{-10}$ m^2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,734.6 kPa.

The analyses of the CHi and CHir phases show a good consistency despite of the poor data quality of the CHi phase. No further analysis is recommended.

5.3.79 Section 728.00–733.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 330 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-123.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.3.80 Section 733.00–738.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 78 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-124.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

5.3.81 Section 738.00–743.00 m, test no. 1, injection

Comments to test

The intention was to conduct the test as a constant pressure injection test phase (CHi), followed by a pressure recovery phase (CHir). However, after inflating the packers and closing the test valve, the pressure kept rising by 176 kPa in 20 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m^2/s). None of the test phases is analysable.

Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the flow model cannot be determined. No analysis was performed. The measured data are presented in Appendix 2-125.

Selected representative parameters

Based on the test response (prolonged packer compliance) the interval transmissivity is set to $1.0 \cdot 10^{-11}$ m^2/s.

No further analysis is recommended.

6 Summary of results

This chapter summarizes the basic test parameters and analysis results. In addition, the correlation between steady state and transient transmissivities as well as between the matched and the theoretical wellbore storage (WBS) coefficient are presented and discussed.

6.1 General test data and results

Table 6-1. General test data from hydraulic tests in KLX21B (for nomenclature see Appendix 4 and below).

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	t_p (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	Test phases measured Analysed test phases marked bold
103.00	203.00	20070208 17:57	20070208 20:28	5.00E–04	4.09E–04	1,800	1,800	1,920	1,923	1,935	1,925	8.4	**CHi / CHir**
203.00	303.00	20070209 08:42	20070209 10:42	1.08E–06	1.31E–06	1,800	1,800	2,840	2,840	3,042	2,863	9.6	**CHi / CHir**
303.00	403.00	20070209 12:45	20070209 14:49	7.33E–06	8.20E–06	1,800	1,800	3,754	3,754	3,954	3,772	10.7	**CHi / CHir**
403.00	503.00	20070209 16:53	20070209 19:00	5.00E–06	5.58E–06	1,800	1,800	4,671	4,662	4,863	4,669	12.0	**CHi / CHir**
503.00	603.00	20070209 21:47	20070210 00:17	5.32E–05	5.49E–05	1,800	1,800	5,592	5,583	5,787	5,583	13.4	**CHi / CHir**
603.00	703.00	20070210 08:23	20070210 10:25	4.73E–04	4.96E–04	1,800	1,800	6,501	6,497	6,698	6,691	13.8	**CHi / CHir**
703.00	803.00	20070210 12:20	20070210 15:49	2.00E–07	5.43E–07	1,800	1,800	7,426	7,438	7,641	7,550	16.9	CHi / **CHir**
103.00	123.00	20070211 11:45	20070211 13:20	5.58E–04	5.71E–04	1,200	1,200	1,188	1,189	1,220	1,190	9.0	**CHi / CHir**
123.00	143.00	20070211 14:42	20070211 16:10	6.92E–04	7.49E–04	1,200	1,200	1,374	1,375	1,397	1,376	9.4	**CHi / CHir**
143.00	163.00	20070211 17:08	20070211 18:38	1.06E–04	1.07E–04	1,200	1,200	1,557	1,559	1,759	1,559	9.1	**CHi / CHir**
163.00	183.00	20070213 07:10	20070213 09:10	3.77E–08	4.93E–08	1,200	1,200	1,740	1,746	1,945	1,787	9.3	**CHi / CHir**
183.00	203.00	20070213 09:56	20070213 11:51	8.17E–07	8.83E–07	1,200	1,200	1,925	1,920	2,120	1,921	9.4	**CHi / CHir**
203.00	223.00	20070213 12:58	20070213 14:26	7.43E–07	8.63E–07	1,200	1,200	2,108	2,107	2,308	2,110	9.7	**CHi / CHir**
223.00	243.00	20070213 15:11	20070213 16:52	4.03E–03	7.27E–08	1,200	1,200	2,291	2,289	2,506	2,288	9.9	**CHi / CHir**
243.00	263.00	20070213 17:44	20070213 18:35	#NV	#NV	#NV	#NV	2,476	2,504	#NV	#NV	10.1	**–**
263.00	283.00	20070213 19:22	20070213 20:56	7.98E–07	9.62E–07	1,200	1,200	2,658	2,655	2,847	2,690	10.4	**CHi / CHir**
283.00	303.00	20070213 22:19	20070214 00:16	4.39E–08	5.41E–08	1,200	1,200	2,843	2,843	3,061	2,864	10.6	**CHi / CHir**
303.00	323.00	20070214 01:09	20070214 02:35	8.18E–06	8.95E–06	1,200	1,200	3,026	3,024	3,225	3,036	10.8	**CHi / CHir**
323.00	343.00	20070214 06:37	20070214 08:29	9.58E–08	1.04E–07	1,200	1,200	3,209	3,210	3,425	3,210	11.1	**CHi / CHir**
343.00	363.00	20070214 09:15	20070214 11:32	7.17E–08	9.72E–08	1,200	1,200	3,388	3,395	3,593	3,424	11.4	**CHi / CHir**
363.00	383.00	20070214 12:16	20070214 14:39	1.83E–08	2.15E–08	1,200	1,200	3,572	3,581	3,773	3,643	11.6	**CHi / CHir**
383.00	403.00	20070214 15:20	20070214 16:48	2.27E–07	2.68E–07	1,200	1,200	3,753	3,742	3,942	3,745	11.9	**CHi / CHir**
403.00	423.00	20070214 17:28	20070214 19:45	3.65E–08	4.91E–08	1,200	1,200	3,939	3,948	4,165	3,976	12.2	**CHi / CHir**
423.00	443.00	20070214 20:27	20070214 21:59	5.77E–07	6.22E–07	1,200	1,200	4,125	4,110	4,308	4,115	12.5	**CHi / CHir**
443.00	463.00	20070214 23:06	20070215 00:35	6.20E–08	4.55E–06	1,200	1,200	4,309	4,300	4,499	4,304	12.7	**CHi / CHir**

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	t_p (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	Test phases measured Analysed test phases marked bold
463.00	483.00	20070215 01:22	20070215 03:27	1.13E–06	1.39E–06	1,200	3,600	4,493	4,483	4,683	4,484	13.0	**CHi / CHir**
483.00	503.00	20070215 06:36	20070215 08:50	2.42E–08	2.85E–08	1,200	1,200	4,676	4,691	4,875	4,741	13.3	**CHi / CHir**
503.00	523.00	20070215 09:32	20070215 11:10	9.78E–08	1.17E–07	1,200	1,200	4,858	4,851	5,073	4,855	13.6	**CHi / CHir**
523.00	543.00	20070215 11:42	20070215 13:04	1.58E–06	1.66E–06	1,200	1,200	5,040	5,026	5,226	5,027	13.9	**CHi / CHir**
543.00	563.00	20070215 14:01	20070215 14:54	#NV	#NV	#NV	#NV	5,224	5,247	#NV	#NV	14.0	**–**
563.00	583.00	20070215 15:30	20070215 17:03	2.20E–05	2.23E–05	1,200	1,200	5,407	5,394	5,595	5,394	14.3	**CHi / CHir**
583.00	603.00	20070215 17:52	20070215 19:25	3.67E–05	3.81E–05	1,200	1,200	5,592	5,581	5,781	5,581	14.6	**CHi / CHir**
603.00	623.00	20070215 20:13	20070215 22:12	1.67E–04	3.46E–04	1,200	1,200	5,776	5,769	5,968	5,770	14.1	**CHi / CHir**
623.00	643.00	20070215 23:08	20070216 00:36	1.38E–04	1.41E–04	1,200	1,200	5,958	5,952	6,150	5,952	15.1	**CHi / CHir**
643.00	663.00	20070216 01:18	20070216 02:45	2.80E–05	2.92E–05	1,200	1,200	6,140	6,136	6,337	6,136	15.8	**CHi / CHir**
663.00	683.00	20070216 06:38	20070216 08:03	2.20E–06	2.33E–06	1,200	1,200	6,322	6,314	6,518	6,319	16.2	**CHi / CHir**
683.00	703.00	20070216 08:52	20070216 10:25	6.13E–06	7.47E–06	1,200	1,200	6,503	6,502	6,704	6,504	16.5	**CHi / CHir**
703.00	723.00	20070216 10:59	20070216 13:03	8.07E–08	9.92E–08	1,200	2,400	6,691	6,694	6,893	6,699	16.8	**CHi / CHir**
723.00	743.00	20070216 13:59	20070216 15:33	3.67E–08	4.88E–08	1,200	1,200	6,875	6,898	7,102	6,927	17.1	**CHi / CHir**
743.00	763.00	20070216 18:09	20070216 19:51	1.00E–07	5.70E–07	1,200	2,400	7,058	7,062	7,260	7,209	17.4	CHi / **CHir**
764.00	784.00	20070216 20:51	20070216 23:04	3.17E–08	5.10E–08	1,200	1,200	7,227	7,280	7,477	7,401	17.7	**CHi / CHir**
783.00	803.00	20070216 23:47	20070217 00:14	#NV	#NV	#NV	#NV	7,242	7,305	#NV	#NV	17.8	**–**
803.00	823.00	20070217 01:20	20070217 02:09	#NV	#NV	#NV	#NV	7,602	7,632	#NV	#NV	18.2	**–**
823.00	843.00	20070217 07:00	20070217 09:28	4.00E–08	1.82E–07	1,200	1,200	7,788	7,828	7,991	7,971	18.5	**CHi / CHir**
323.00	328.00	20070218 06:40	20070218 08:09	1.57E–07	1.65E–07	1,200	1,200	3,069	3,071	3,270	3,071	#NV	**CHi / CHir**
328.00	333.00	20070218 08:36	20070218 09:26	#NV	#NV	#NV	#NV	3,115	3,219	#NV	#NV	#NV	**–**
333.00	338.00	20070218 09:54	20070218 10:43	#NV	#NV	#NV	#NV	3,161	3,162	#NV	#NV	#NV	**–**
338.00	343.00	20070218 11:14	20070218 12:04	#NV	#NV	#NV	#NV	3,207	3,249	#NV	#NV	#NV	**–**
343.00	348.00	20070218 12:30	20070218 13:18	#NV	#NV	#NV	#NV	3,252	3,253	#NV	#NV	#NV	**–**
348.00	353.00	20070218 14:32	20070218 16:24	2.18E–08	2.48E–08	1,200	1,200	3,298	3,307	3,519	3,322	#NV	**CHi / CHir**
353.00	358.00	20070218 16:52	20070218 17:40	#NV	#NV	#NV	#NV	3,344	3,357	#NV	#NV	#NV	**–**
358.00	363.00	20070218 18:10	20070218 18:58	#NV	#NV	#NV	#NV	3,390	3,502	#NV	#NV	#NV	**–**

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	t_p (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	Test phases measured Analysed test phases marked bold
363.00	368.00	20070218 19:32	20070218 20:21	#NV	#NV	#NV	#NV	3,436	3,531	#NV	#NV	#NV	–
368.00	373.00	20070218 20:49	20070218 23:18	1.69E–08	2.02E–08	1,200	1,200	3,482	3,482	3,706	3,524	#NV	**CHi / CHir**
373.00	378.00	20070219 19:45	20070219 20:34	#NV	#NV	#NV	#NV	3,526	3,553	#NV	#NV	#NV	–
378.00	383.00	20070219 21:05	20070219 21:54	#NV	#NV	#NV	#NV	3,572	3,608	#NV	#NV	#NV	–
383.00	388.00	20070219 22:56	20070210 00:26	3.45E–07	3.17E–07	1,200	1,200	3,617	3,607	3,806	3,608	#NV	**CHi / CHir**
388.00	393.00	20070220 01:01	20070220 01:50	#NV	#NV	#NV	#NV	3,664	3,689	#NV	#NV	#NV	–
393.00	398.00	20070220 06:24	20070220 07:12	#NV	#NV	#NV	#NV	3,710	3,736	#NV	#NV	#NV	–
398.00	403.00	20070220 07:37	20070220 09:37	#NV	7.78E–07	10	4,020	3,716	3,730	3,943	3,751	#NV	**Pi**
403.00	408.00	20070220 10:05	20070220 10:54	#NV	#NV	#NV	#NV	3,800	3,829	#NV	#NV	#NV	–
408.00	413.00	20070220 11:21	20070220 13:54	#NV	1.20E–07	10	4,020	3,845	3,869	4,072	3,856	#NV	**Pi**
413.00	418.00	20070220 14:19	20070220 16:32	1.45E–08	1.63E–08	1,200	1,200	3,891	3,917	4,110	3,946	#NV	**CHi / CHir**
418.00	423.00	20070220 17:35	20070220 19:26	2.67E–08	3.49E–08	1,200	1,200	3,937	3,952	4,142	4,002	#NV	**CHi / CHir**
423.00	428.00	20070220 20:09	20070220 21:54	1.13E–07	1.22E–07	1,200	2,400	3,984	3,972	4,221	3,973	#NV	**CHi / CHir**
428.00	433.00	20070220 22:30	20070221 00:08	2.67E–08	2.99E–08	1,200	1,200	4,034	4,020	4,224	4,019	#NV	**CHi / CHir**
433.00	438.00	20070221 00:31	20070221 01:54	4.95E–07	5.32E–07	1,200	1,200	4,079	4,065	4,256	4,068	#NV	**CHi / CHir**
438.00	443.00	20070221 06:31	20070221 07:20	#NV	#NV	#NV	#NV	4,123	4,123	#NV	#NV	#NV	–
443.00	448.00	20070221 07:48	20070221 10:20	2.30E–08	2.73E–08	1,200	1,200	4,170	4,192	4,394	4,270	#NV	**CHi / CHir**
448.00	453.00	20070221 10:45	20070221 12:42	3.07E–06	3.32E–06	1,200	1,200	4,216	4,204	4,405	4,204	#NV	**CHi / CHir**
453.00	458.00	20070221 13:18	20070221 14:45	2.53E–06	2.65E–06	1,200	1,200	4,261	4,250	4,450	4,253	#NV	**CHi / CHir**
458.00	463.00	20070221 15:10	20070221 15:59	#NV	#NV	#NV	#NV	4,307	4,453	#NV	#NV	#NV	–
463.00	468.00	20070221 16:30	20070221 17:19	#NV	#NV	#NV	#NV	4,352	4,476	#NV	#NV	#NV	–
468.00	473.00	20070221 17:46	20070221 18:35	#NV	#NV	#NV	#NV	4,396	4,422	#NV	#NV	#NV	–
473.00	478.00	20070221 19:07	20070221 20:36	2.00E–06	2.35E–06	1,200	1,200	4,446	4,436	4,636	4,432	#NV	**CHi / CHir**
478.00	483.00	20070221 21:08	20070221 23:16	4.17E–08	6.05E–08	1,200	1,200	4,491	4,496	4,718	4,538	#NV	**CHi / CHir**
483.00	488.00	20070221 23:52	20070221 23:53	2.05E–08	2.48E–08	1,200	10,800	4,537	4,548	4,759	4,534	#NV	**CHi / CHir**
488.00	493.00	20070222 06:18	20070222 07:14	#NV	#NV	#NV	#NV	4,582	4,582	#NV	#NV	#NV	–
493.00	498.00	20070222 07:39	20070222 08:28	#NV	#NV	#NV	#NV	4,628	4,689	#NV	#NV	#NV	–

Borehole secup (m)	**Borehole seclow (m)**	**Date and time for test, start YYYYMMDD hh:mm**	**Date and time for test, stop YYYYMMDD hh:mm**	**Q_p (m^3/s)**	**Q_m (m^3/s)**	**t_p (s)**	**t_F (s)**	**p_0 (kPa)**	**p_i (kPa)**	**p_p (kPa)**	**p_F (kPa)**	**Te_w (°C)**	**Test phases measured Analysed test phases marked bold**
498.00	503.00	20070222 08:57	20070222 09:46	#NV	#NV	#NV	#NV	4,673	4,673	#NV	#NV	#NV	**–**
503.00	508.00	20070222 10:10	20070222 12:25	3.50E–08	3.68E–08	1,200	2,400	4,718	4,735	4,945	4,736	#NV	**CHi / CHir**
508.00	513.00	20070222 12:52	20070222 14:25	6.72E–08	7.74E–08	1,200	1,200	4,764	4,758	4,956	4,757	#NV	**CHi / CHir**
513.00	518.00	20070222 14:50	20070222 16:25	1.94E–08	2.44E–08	1,200	1,200	4,811	4,802	5,005	4,802	#NV	**CHi / CHir**
518.00	523.00	20070222 16:54	20070222 19:13	#NV	3.50E–07	10	4,800	4,856	4,847	5,042	4,865	#NV	**Pi**
523.00	528.00	20070222 19:39	20070222 21:08	1.69E–06	1.78E–06	1,200	1,200	4,903	4,887	5,088	4,888	#NV	**CHi / CHir**
528.00	533.00	20070222 22:02	20070222 22:51	#NV	#NV	#NV	#NV	4,949	5,109	#NV	#NV	#NV	**–**
533.00	538.00	20070222 23:18	20070223 00:08	#NV	#NV	#NV	#NV	4,996	5,154	#NV	#NV	#NV	**–**
538.00	543.00	20070223 00:39	20070223 01:28	#NV	#NV	#NV	#NV	5,042	5,137	#NV	#NV	#NV	**–**
563.00	568.00	20070223 06:41	20070223 08:11	1.34E–05	1.36E–05	1,200	1,200	5,270	5,260	5,459	5,259	#NV	**CHi / CHir**
568.00	573.00	20070223 08:35	20070223 10:01	1.74E–05	1.78E–05	1,200	1,200	5,315	5,305	5,504	5,304	#NV	**CHi / CHir**
573.00	578.00	20070223 10:28	20070223 12:39	1.03E–07	1.08E–07	1,200	2,400	5,361	5,358	5,558	5,354	#NV	**CHi / CHir**
578.00	583.00	20070223 12:50	20070223 14:28	6.67E–08	7.62E–08	1,200	1,200	5,406	5,399	5,601	5,401	#NV	**CHi / CHir**
583.00	588.00	20070223 14:54	20070223 16:24	7.67E–08	8.52E–08	1,200	1,200	5,451	5,451	5,653	5,450	14.7	**CHi / CHir**
588.00	593.00	20070223 16:51	20070223 18:20	1.80E–05	1.91E–05	1,200	1,200	5,498	5,487	5,686	5,485	14.6	**CHi / CHir**
593.00	598.00	20070223 18:50	20070223 20:17	1.80E–05	2.97E–05	1,200	1,200	5,545	5,537	5,735	5,537	14.7	**CHi / CHir**
598.00	603.00	20070223 22:03	20070223 23:31	1.23E–06	1.67E–04	1,200	1,200	5,592	5,582	5,782	5,581	14.8	**CHi / CHir**
603.00	608.00	20070224 00:00	20070224 01:53	1.09E–04	1.14E–04	1,800	1,200	5,638	5,630	5,829	5,629	14.5	**CHi / CHir**
608.00	613.00	20070224 06:15	20070224 07:41	2.88E–04	2.97E–04	1,200	1,200	5,683	5,675	5,875	5,678	14.2	**CHi / CHir**
613.00	618.00	20070224 08:06	20070224 09:37	2.65E–07	2.82E–07	1,200	1,200	5,728	5,723	5,922	5,722	15.1	**CHi / CHir**
618.00	623.00	20070224 10:03	20070224 11:29	4.00E–06	4.09E–06	1,200	1,200	5,736	5,730	5,930	5,730	15.4	**CHi / CHir**
623.00	628.00	20070224 12:24	20070224 13:52	1.46E–04	1.48E–04	1,200	1,200	5,820	5,814	6,014	5,815	15.0	**CHi / CHir**
628.00	633.00	20070224 14:15	20070224 15:40	6.28E–07	6.57E–07	1,200	1,200	5,866	5,862	6,062	5,862	15.7	**CHi / CHir**
633.00	638.00	20070224 16:07	20070224 18:04	#NV	3.62E–07	10	4,020	5,911	5,922	6,148	5,917	15.8	**Pi**
638.00	643.00	20070224 18:33	20070224 19:57	5.00E–07	5.32E–07	1,200	1,200	5,958	5,953	6,153	5,953	15.9	**CHi / CHir**
643.00	648.00	20070224 21:04	20070224 22:28	7.66E–06	8.02E–06	1,200	1,200	6,004	5,999	6,199	5,999	15.9	**CHi / CHir**
645.00	650.00	20070224 22:53	20070225 00:20	5.83E–06	6.15E–06	1,200	1,200	6,022	6,018	6,217	6,017	16.0	**CHi / CHir**

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	t_p (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	Test phases measured Analysed test phases marked bold
650.00	655.00	20070225 00:44	20070225 02:31	9.73E–06	1.01E–05	1,200	1,200	6,067	6,064	6,263	6,062	16.0	**CHi / CHir**
655.00	660.00	20070225 06:21	20070225 07:47	1.48E–05	1.51E–05	1,200	1,200	6,113	6,110	6,311	6,110	16.1	**CHi / CHir**
658.00	663.00	20070225 08:15	20070225 09:41	1.28E–06	1.39E–06	1,200	1,200	6,140	6,138	6,338	6,138	16.2	**CHi / CHir**
663.00	668.00	20070225 10:07	20070225 11:33	9.18E–07	9.73E–07	1,200	1,200	6,186	6,182	6,382	6,184	16.2	**CHi / CHir**
668.00	673.00	20070225 11:57	20070225 13:20	1.33E–06	1.34E–06	1,200	1,200	6,232	6,230	6,430	6,230	16.3	**CHi / CHir**
673.00	678.00	20070225 14:08	20070225 14:57	#NV	#NV	#NV	#NV	6,277	6,280	#NV	#NV	#NV	**–**
678.00	683.00	20070225 15:24	20070225 17:31	1.23E–07	1.44E–07	1,200	1,800	6,324	6,323	6,524	6,324	16.5	**CHi / CHir**
683.00	688.00	20070225 17:38	20070225 19:11	4.90E–06	5.07E–06	1,200	1,200	6,368	6,368	6,567	6,365	16.5	**CHi / CHir**
688.00	693.00	20070225 19:40	20070225 21:07	9.83E–07	1.01E–06	1,200	1,200	6,415	6,414	6,614	6,413	16.6	**CHi / CHir**
693.00	698.00	20070225 21:57	20070225 23:47	1.09E–06	1.23E–06	1,200	1,200	6,459	6,462	6,662	6,466	16.7	**CHi / CHir**
698.00	703.00	20070226 00:12	20070226 02:22	2.62E–07	3.67E–07	1,200	3,600	6,505	6,513	6,713	6,519	16.7	**CHi / CHir**
703.00	708.00	20070226 06:17	20070226 08:06	4.83E–08	5.42E–08	1,200	1,200	6,552	6,561	6,763	6,578	16.8	**CHi / CHir**
708.00	713.00	20070226 08:32	20070226 09:20	#NV	#NV	#NV	#NV	6,596	6,600	#NV	#NV	#NV	**–**
713.00	718.00	20070226 09:45	20070226 12:44	1.45E–08	2.09E–08	1,200	3,600	6,645	6,680	6,878	6,677	16.9	**CHi / CHir**
718.00	723.00	20070226 12:51	20070226 14:42	3.65E–08	4.63E–08	1,200	1,800	6,691	6,698	6,900	6,710	17.0	**CHi / CHir**
723.00	728.00	20070226 16:33	20070226 18:20	2.06E–08	2.93E–08	1,200	1,200	6,733	6,757	6,939	6,775	17.1	**CHi / CHir**
728.00	733.00	20070226 18:46	20070226 19:37	#NV	#NV	#NV	#NV	6,780	7,124	#NV	#NV	#NV	**–**
733.00	738.00	20070226 20:01	20070226 20:51	#NV	#NV	#NV	#NV	6,826	6,892	#NV	#NV	#NV	**–**
738.00	743.00	20070227 06:22	20070227 07:13	#NV	#NV	#NV	#NV	6,870	7,049	#NV	#NV	#NV	**–**

Nomenclature	
Q_p	Flow in test section immediately before stop of flow [m³/s]
Q_m	Arithmetical mean flow during perturbation phase [m³/s]
t_p	Duration of perturbation phase [s]
t_f	Duration of recovery phase [s]
p_0	Pressure in borehole before packer inflation [kPa]
p_i	Pressure in test section before start of flowing [kPa]
p_p	Pressure in test section before stop of flowing [kPa]
p_F	Pressure in test section at the end of the recovery [kPa]
Te_w	Temperature in test section
Test phases	CHi Constant Head injection phase
	CHir: Recovery phase following the constant head injection phase
	Pi: Pulse injection phase
#NV	not analysed/no values

Table 6-2. Results from analysis of hydraulic tests in KLX21B (for nomenclature see Appendix 4 and below).

Interval position		Stationary flow parameters		Transient analysis														
				Flow regime		Formation parameters											Static conditions	
up m btoc	low m btoc	Q/s m^2/s	T_M m^2/s	Perturb. Phase	Recovery Phase	T_{f1} m^2/s	T_{f2} m^2/s	T_{s1} m^2/s	T_{s2} m^2/s	T_T m^2/s	T_{TMIN} m^2/s	T_{TMAX} m^2/s	C m^3/Pa	ξ –	dt_1 min	dt_2 min	p* kPa	h_{wif} m.a.s.l
103.00	203.00	4.1E–04	5.3E–04	2	WBS2	3.5E–04	#NV	5.6E–04	#NV	5.6E–04	2.0E–04	8.0E–04	2.5E–07	–3.9	0.50	9.00	1,925.4	7.22
203.00	303.00	5.3E–08	6.9E–08	22	WBS22	4.8E–08	1.6E–08	1.5E–07	3.3E–08	3.3E–08	2.0E–08	2.0E–07	2.9E–10	6.7	11.64	29.40	2,834.0	6.66
303.00	403.00	3.6E–07	4.7E–07	22	WBS22	4.2E–07	2.8E–07	1.4E–06	7.2E–07	4.2E–07	3.0E–07	2.0E–06	2.4E–10	–0.1	0.15	5.52	3,762.0	8.24
403.00	503.00	2.4E–07	3.2E–07	22	WBS22	2.0E–07	2.5E–07	2.2E–07	4.30E–07	2.2E–07	1.0E–07	6.0E–07	1.3E–10	–1.5	0.27	3.24	4,659.9	6.67
503.00	603.00	2.6E–06	3.3E–06	22	WBS22	2.8E–06	5.6E–06	2.5E–06	8.2E–06	8.2E–06	1.0E–06	1.0E–05	6.4E–10	1.3	0.30	17.52	5,582.1	7.68
603.00	703.00	2.3E–05	3.0E–05	2	WBS2	5.1E–05	#NV	5.7E–05	#NV	5.1E–05	2.0E–05	7.0E–05	6.2E–09	4.4	6.84	27.96	6,498.0	8.18
703.00	803.00	9.7E–09	1.3E–08	#NV	WBS22	#NV	#NV	1.1E–08	2.8E–09	1.1E–08	1.0E–09	2.0E–08	2.2E–09	–3.9	1.73	8.58	#NV	#NV
103.00	123.00	1.8E–04	1.9E–04	2	WBS2	3.6E–04	#NV	2.9E–04	#NV	2.9E–04	1.0E–04	5.0E–04	3.8E–08	1.6	0.48	3.15	1,189.3	6.93
123.00	143.00	3.1E–04	3.2E–04	2	WBS2	3.6E–04	#NV	2.9E–04	#NV	2.9E–04	1.0E–04	5.0E–04	4.0E–08	–4.2	0.42	3.92	1,375.5	7.22
143.00	163.00	5.2E–06	5.4E–06	2	WBS2	1.3E–05	#NV	3.1E–05	#NV	1.3E–05	8.0E–06	5.0E–05	8.6E–10	8.1	3.87	18.15	1,559.7	7.30
163.00	183.00	1.9E–09	1.9E–09	2	WBS2	1.0E–09	#NV	1.1E–09	#NV	1.1E–09	8.0E–10	3.0E–09	6.9E–11	–1.0	8.56	18.61	1,750.4	8.06
183.00	203.00	4.0E–08	4.2E–08	2	WBS2	6.8E–08	#NV	2.7E–07	#NV	6.8E–08	5.0E–08	4.0E–07	6.8E–11	4.8	2.06	16.76	1,920.4	6.71
203.00	223.00	3.6E–08	3.8E–08	2	WBS2	2.4E–08	#NV	2.6E–07	#NV	2.4E–08	1.0E–08	5.0E–07	6.8E–11	–1.4	1.07	18.60	2,109.1	7.30
223.00	243.00	3.0E–09	3.2E–09	2	WBS22	3.4E–09	#NV	3.1E–09	8.9E–09	3.4E–09	1.0E–09	1.0E–08	5.4E–11	2.7	0.40	7.67	2,281.5	6.23
243.00	263.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
263.00	283.00	4.1E–08	4.3E–08	22	WBS22	7.0E–08	1.7E–08	1.1E–07	2.2E–08	1.7E–08	1.0E–08	3.0E–07	4.6E–11	2.7	#NV	#NV	2,662.0	7.75
283.00	303.00	2.0E–09	2.1E–09	2	WBS2	1.1E–09	#NV	1.3E–09	#NV	1.3E–09	8.0E–10	3.0E–09	7.2E–11	0.1	#NV	#NV	2,829.9	6.25
303.00	323.00	4.0E–07	4.2E–07	22	WBS22	3.5E–07	4.4E–07	5.8E–07	1.3E–06	4.4E–07	2.0E–07	3.0E–06	8.5E–11	–1.2	7.81	20.00	3,031.8	8.22
323.00	343.00	4.4E–09	4.6E–09	2	WBS2	5.1E–09	#NV	1.9E–08	#NV	1.9E–08	3.0E–09	3.0E–08	5.0E–11	21.0	#NV	#NV	3,206.5	7.43
343.00	363.00	3.6E–09	3.7E–09	2	WBS22	8.9E–10	#NV	2.6E–09	1.2E–09	2.6E–09	6.0E–10	4.0E–09	5.7E–11	–1.5	#NV	#NV	3,396.4	8.18
363.00	383.00	9.4E–10	9.8E–10	2	WB2	4.8E–10	#NV	1.2E–10	#NV	4.8E–10	1.0E–10	6.0E–10	5.8E–11	–0.3	1.16	7.81	#NV	#NV
383.00	403.00	1.1E–08	1.2E–08	22	WBS2	3.0E–09	3.0E–08	7.9E–08	#NV	7.9E–08	1.0E–09	9.0E–08	4.7E–11	32.6	9.97	16.45	3,741.7	6.17
403.00	423.00	1.7E–09	1.7E–09	2	WBS2	1.2E–09	#NV	1.2E–09	#NV	1.2E–09	1.0E–09	3.0E–09	7.7E–11	0.1	#NV	#NV	3,940.2	7.79
423.00	443.00	2.9E–08	2.9E–08	2	WBS2	6.2E–08	#NV	7.7E–08	#NV	6.2E–08	4.0E–08	9.0E–08	4.8E–11	7.5	1.90	11.55	4,110.0	6.47
443.00	463.00	2.1E–07	2.2E–07	22	WBS22	1.6E–07	2.7E–07	1.3E–07	2.2E–07	1.3E–07	1.0E–07	3.0E–07	6.2E–11	–2.1	0.50	1.54	4,294.8	6.68
463.00	483.00	5.5E–08	5.8E–08	2	WBS22	3.8E–08	#NV	6.3E–08	2.1E–07	3.8E–08	2.0E–08	4.0E–07	5.6E–11	–1.7	1.39	18.72	4,482.9	7.24

Interval position		Stationary flow parameters		Transient analysis														
				Flow regime		Formation parameters											Static conditions	
up m btoc	low m btoc	Q/s m²/s	T_M m²/s	Perturb. Phase	Recovery Phase	T_{f1} m²/s	T_{f2} m²/s	T_{s1} m²/s	T_{s2} m²/s	T_T m²/s	T_{TMIN} m²/s	T_{TMAX} m²/s	C m³/Pa	ξ –	dt_1 min	dt_2 min	p* kPa	h_{wif} m.a.s.l
483.00	503.00	1.3E–09	1.4E–09	2	WBS2	7.0E–10	#NV	1.7E–10	#NV	7.0E–10	2.0E–10	2.0E–09	6.4E–11	0.0	#NV	#NV	4,663.1	7.00
503.00	523.00	4.3E–09	4.5E–09	2	WBS22	2.9E–09	#NV	2.0E–09	4.9E–09	2.0E–09	1.0E–09	6.0E–09	6.1E–11	–0.9	#NV	#NV	4,837.1	6.12
523.00	543.00	7.8E–08	8.1E–08	2	WBS22	1.8E–07	#NV	1.3E–07	2.6E–07	1.3E–07	8.0E–08	4.0E–07	5.1E–11	4.9	#NV	#NV	5,024.0	6.57
543.00	563.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
563.00	583.00	1.1E–06	1.1E–06	2	WBS22	2.0E–06	#NV	2.9E–06	7.3E–06	2.9E–06	1.0E–06	8.0E–06	3.3E–10	0.5	0.28	0.62	5,394.4	7.13
583.00	603.00	1.8E–06	1.9E–06	2	WBS2	3.2E–06	#NV	8.1E–06	#NV	3.2E–06	1.0E–06	1.0E–05	5.1E–10	3.2	2.88	13.65	5,580.9	7.55
603.00	623.00	1.7E–05	1.8E–05	2	WBS2	3.8E–05	#NV	4.4E–05	#NV	3.8E–05	1.0E–05	6.0E–05	3.8E–09	5.6	3.55	18.75	5,764.7	7.71
623.00	643.00	6.8E–06	7.1E–06	22	WBS2	1.4E–05	2.8E–05	2.5E–05	#NV	2.5E–05	5.0E–06	4.0E–05	1.5E–09	13.6	0.55	9.98	5,952.1	8.23
643.00	663.00	1.4E–06	1.4E–06	22	WBS22	1.8E–06	3.6E–06	1.8E–06	5.1E–06	1.8E–06	8.0E–07	6.0E–06	3.0E–10	1.7	10.02	14.04	6,135.2	8.33
663.00	683.00	1.1E–07	1.1E–07	2	WBS22	1.5E–07	#NV	1.3E–07	4.4E–07	1.3E–07	8.0E–08	6.0E–07	2.4E–10	1.8	#NV	#NV	6,316.3	8.22
683.00	703.00	3.0E–07	3.1E–07	2	WBS22	2.6E–07	#NV	3.4E–07	8.4E–07	3.4E–07	1.0E–07	1.0E–06	1.2E–10	–0.1	0.58	1.63	6,499.5	8.33
703.00	723.00	4.0E–09	4.2E–09	2	WBS2	1.4E–09	#NV	2.0E–09	#NV	2.0E–09	1.0E–09	5.0E–09	9.9E–11	–1.2	#NV	#NV	6,674.4	7.58
723.00	743.00	1.8E–09	1.8E–09	2	WBS2	6.6E–10	#NV	6.4E–10	#NV	6.4E–10	5.0E–10	3.0E–09	7.4E–11	–1.0	#NV	#NV	6,861.0	8.03
743.00	763.00	5.0E–09	5.2E–09	#NV	WBS22	#NV	#NV	1.1E–08	2.3E–09	1.1E–08	1.0E–09	2.0E–08	3.3E–09	–2.9	#NV	#NV	#NV	#NV
764.00	784.00	1.6E–09	1.7E–09	22	WBS22	1.3E–09	3.2E–10	2.0E–10	8.9E–11	2.0E–10	6.0E–11	3.0E–09	1.1E–10	–3.0	#NV	#NV	#NV	#NV
783.00	803.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
803.00	823.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
823.00	843.00	2.4E–09	2.5E–09	22	WBS22	1.2E–08	7.6E–10	6.9E–08	6.9E–09	6.9E–09	5.0E–10	8.0E–08	5.2E–10	–3.8	#NV	#NV	#NV	#NV
323.00	328.00	7.7E–09	6.4E–09	2	WBS22	8.2E–09	#NV	1.9E–08	5.0E–08	1.9E–08	5.0E–09	3.0E–08	1.6E–11	10.1	3.62	10.23	3,068.8	7.34
328.00	333.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
333.00	338.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
338.00	343.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
343.00	348.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
348.00	353.00	1.0E–09	8.3E–10	2	WBS2	7.4E–10	#NV	6.6E–10	#NV	6.6E–10	5.0E–10	1.0E–09	2.8E–11	0.6	#NV	#NV	3,290.6	6.70E+00
353.00	358.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
358.00	363.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
363.00	368.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV

Interval position		Stationary flow parameters		Transient analysis														
				Flow regime		Formation parameters											Static conditions	
up m btoc	low m btoc	Q/s m^2/s	T_M m^2/s	Perturb. Phase	Recovery Phase	T_{f1} m^2/s	T_{f2} m^2/s	T_{s1} m^2/s	T_{s2} m^2/s	T_T m^2/s	T_{TMIN} m^2/s	T_{TMAX} m^2/s	C m^3/Pa	ξ –	dt_1 min	dt_2 min	p* kPa	h_{wif} m.a.s.l
368.00	373.00	7.4E–10	6.1E–10	2	WBS2	4.3E–10	#NV	1.7E–10	#NV	1.7E–10	1.0E–10	7.0E–10	2.8E–11	–1.2	#NV	#NV	#NV	#NV
373.00	378.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
378.00	383.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
383.00	388.00	1.6E–08	1.3E–08	2	WBS2	1.4E–08	#NV	5.7E–08	#NV	5.7E–08	1.0E–08	6.0E–08	1.1E–11	16.1	1.06	17.78	3,606.1	6.31
388.00	393.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
393.00	398.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
398.00	403.00	#NV	#NV	#NV	WBS2	#NV	#NV	5.1E–11	#NV	5.1E–11	3.0E–11	7.0E–11	1.8E–11	0.4	3.70	53.62	#NV	#NV
403.00	408.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
408.00	413.00	8.5E–10	7.0E–10	#NV	WBS2	#NV	#NV	2.7E–11	#NV	2.7E–11	2.0E–11	8.0E–10	4.7E–12	0.9	1.76	59.02	#NV	#NV
413.00	418.00	7.3E–10	6.1E–10	2	WBS2	6.3E–10	#NV	3.5E–10	#NV	3.5E–10	2.0E–10	8.0E–10	3.7E–11	1.5	#NV	#NV	3,893.1	7.64
418.00	423.00	1.4E–09	1.1E–09	22	WBS22	1.0E–09	5.1E–10	1.9E–09	4.9E–10	1.9E–09	3.0E–10	3.0E–09	2.7E–11	1.0	#NV	#NV	#NV	#NV
423.00	428.00	4.4E–09	3.7E–09	2	WBS2	5.9E–09	#NV	2.0E–08	#NV	2.0E–08	3.0E–09	2.0E–08	1.5E–11	21.6	6.65	32.40	3,972.3	6.40
428.00	433.00	1.3E–09	1.1E–09	2	WBS2	9.0E–10	#NV	5.8E–09	#NV	5.8E–09	8.0E–10	6.0E–09	2.4E–11	21.4	#NV	#NV	4,014.8	6.08
433.00	438.00	2.5E–08	2.1E–08	2	WBS22	4.8E–08	#NV	4.6E–08	5.7E–08	4.8E–08	1.0E–08	6.0E–08	1.5E–11	5.4	0.16	16.21	4,062.8	6.31
438.00	443.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
443.00	448.00	1.1E–09	9.2E–10	2	WBS22	4.2E–10	#NV	4.7E–10	2.4E–10	4.7E–10	1.0E–10	6.0E–10	3.3E–11	–1.8	#NV	#NV	#NV	#NV
448.00	453.00	1.5E–07	1.2E–07	2	WBS22	1.8E–07	#NV	1.7E–07	3.4E–07	1.7E–07	9.0E–08	4.0E–07	3.1E–11	0.6	0.48	2.46	4,201.3	6.46
453.00	458.00	1.2E–07	1.0E–07	22	WBS22	1.6E–07	2.7E–07	1.6E–07	2.7E–07	1.6E–07	9.0E–08	3.0E–07	2.0E–11	1.9	0.38	2.63	4,245.1	6.27
458.00	463.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
463.00	468.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
468.00	473.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
473.00	478.00	9.8E–08	8.1E–08	2	WBS2	5.9E–08	#NV	4.0E–07	#NV	5.9E–08	4.0E–08	5.0E–07	1.7E–11	2.1	2.82	16.62	4,436.0	7.11
478.00	483.00	1.8E–09	1.5E–09	22	WBS22	1.6E–09	5.3E–10	2.1E–09	5.2E–10	2.1E–09	4.0E–10	2.0E–09	1.9E–11	–1.0	0.62	1.94	4,494.9	8.46
483.00	488.00	9.5E–10	7.9E–10	2	WBS22	4.1E–10	#NV	5.7E–10	2.8E–10	4.1E–10	1.0E–10	9.0E–10	2.8E–11	–0.7	1.15	15.02	4,522.1	6.58
488.00	493.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
493.00	498.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
498.00	503.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV

Interval position		Stationary flow parameters		Transient analysis													Static conditions	
				Flow regime		Formation parameters												
up m btoc	low m btoc	Q/s m^2/s	T_M m^2/s	Perturb. Phase	Recovery Phase	T_{f1} m^2/s	T_{f2} m^2/s	T_{s1} m^2/s	T_{s2} m^2/s	T_T m^2/s	T_{TMIN} m^2/s	T_{TMAX} m^2/s	C m^3/Pa	ξ –	dt_1 min	dt_2 min	p* kPa	h_{wif} m.a.s.l
503.00	508.00	1.6E–09	1.4E–09	2	WBS22	8.0E–10	#NV	1.2E–09	5.9E–10	1.2E–09	4.0E–10	3.0E–09	3.4E–11	–0.7	#NV	#NV	4,708.8	7.00
508.00	513.00	3.3E–09	2.8E–09	2	WBS22	3.3E–09	#NV	3.2E–09	7.9E–09	3.2E–09	2.0E–09	9.0E–09	1.7E–11	2.0	#NV	#NV	4,752.3	6.78
513.00	518.00	9.4E–10	7.7E–10	2	WBS2	5.1E–10	#NV	2.1E–09	#NV	2.1E–09	5.0E–10	2.0E–09	2.8E–11	7.9	#NV	#NV	4,790.8	6.05
518.00	523.00	#NV	#NV	#NV	WBS2	#NV	#NV	1.5E–10	#NV	1.5E–10	8.0E–11	3.0E–10	2.4E–11	1.3	0.88	67.35	#NV	#NV
523.00	528.00	8.3E–08	6.8E–08	22	WBS22	1.1E–07	4.2E–07	1.2E–07	3.5E–07	1.2E–07	1.0E–07	5.0E–07	1.3E–11	3.3	0.35	1.93	4,885.4	6.39
528.00	533.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
533.00	538.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
538.00	543.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
563.00	568.00	6.6E–07	5.5E–07	22	WBS22	6.4E–07	3.2E–06	4.9E–07	2.4E–06	2.4E–06	3.0E–07	4.0E–06	6.1E–11	0.2	0.60	13.27	5,258.1	7.18
568.00	573.00	8.6E–07	7.1E–07	2	WBS22	2.0E–06	#NV	2.1E–06	3.1E–06	3.1E–06	5.0E–07	4.0E–06	1.1E–10	9.2	2.08	13.57	5,302.7	7.08
573.00	578.00	5.1E–09	4.2E–09	2	WBS22	3.8E–09	#NV	5.5E–09	1.8E–08	3.8E–09	3.0E–09	3.0E–08	1.2E–11	0.3	5.28	16.51	5,353.9	7.65
578.00	583.00	3.2E–09	2.7E–09	22	WBS22	1.2E–09	4.9E–09	1.9E–09	3.8E–09	1.9E–09	9.0E–10	6.0E–09	2.3E–11	–0.5	#NV	#NV	5,386.4	6.32
583.00	588.00	3.7E–09	3.1E–09	22	WBS22	1.2E–09	2.4E–09	1.6E–09	3.4E–09	1.6E–09	1.0E–09	5.0E–09	2.2E–11	–1.0	#NV	#NV	5,433.0	6.42
588.00	593.00	8.9E–07	7.3E–07	2	WBS2	1.7E–06	#NV	3.2E–06	#NV	1.7E–06	5.0E–07	4.0E–06	9.5E–11	4.7	0.94	11.78	5,486.0	7.17
593.00	598.00	8.9E–07	7.4E–07	22	WBS2	1.2E–06	4.0E–06	6.5E–06	#NV	1.2E–06	5.0E–07	8.0E–06	4.3E–10	–1.3	0.25	1.31	5,537.0	7.73
598.00	603.00	1.4E–06	1.2E–06	2	WBS2	1.4E–07	#NV	2.1E–07	#NV	1.4E–07	1.0E–07	2.0E–06	1.2E–11	8.5	0.74	14.78	5,581.8	7.65
603.00	608.00	5.4E–06	4.4E–06	2	WBS2	1.1E–05	#NV	1.9E–05	#NV	1.1E–05	3.0E–06	3.0E–05	1.0E–09	4.0	1.20	27.40	5,627.7	7.69
608.00	613.00	1.4E–05	1.2E–05	22	WBS22	3.0E–05	6.0E–05	3.2E–05	6.4E–05	3.0E–05	1.0E–05	8.0E–05	3.0E–09	5.0	1.78	3.78	5,675.3	7.89
613.00	618.00	1.3E–08	1.1E–08	2	WBS22	1.4E–08	#NV	1.5E–08	7.3E–08	1.5E–08	8.0E–09	8.0E–08	1.3E–11	3.3	#NV	#NV	5,722.7	8.07
618.00	623.00	2.0E–07	1.6E–07	2	WBS22	4.7E–07	#NV	4.7E–07	1.9E–06	4.7E–07	1.0E–07	3.0E–06	1.3E–11	8.4	0.37	15.30	5,730.7	4.24
623.00	628.00	6.0E–06	5.9E–06	22	WBS22	9.4E–06	3.1E–05	1.2E–05	3.9E–05	9.4E–06	5.0E–06	5.0E–05	3.1E–09	0.7	0.60	1.06	5,814.8	8.17
628.00	633.00	3.1E–08	2.5E–08	2	WBS2	5.6E–08	#NV	1.1E–07	#NV	5.6E–08	2.0E–08	8.0E–08	2.0E–11	5.6	0.83	15.20	5,860.6	8.20
633.00	638.00	#NV	#NV	#NV	WBS2	#NV	#NV	7.9E–11	#NV	7.9E–11	6.0E–11	4.0E–10	1.5E–11	1.4	1.13	6.95	#NV	#NV
638.00	643.00	2.5E–08	2.0E–08	2	WBS2	1.9E–08	#NV	1.1E–07	#NV	1.9E–08	8.0E–09	4.0E–08	1.3E–11	0.0	2.35	18.71	5,953.7	8.40
643.00	648.00	3.8E–07	3.1E–07	2	WBS2	7.3E–07	#NV	1.4E–06	#NV	7.3E–07	3.0E–07	1.0E–06	5.6E–11	5.2	0.40	13.28	5,999.6	8.43
645.00	650.00	2.9E–07	2.4E–07	2	WBS2	6.5E–07	#NV	7.7E–07	#NV	6.5E–07	3.0E–07	8.0E–07	4.3E–11	7.1	0.77	14.67	6,017.2	8.37
650.00	655.00	4.8E–07	4.0E–07	22	WBS22	6.7E–07	1.3E–06	5.9E–07	1.7E–06	6.7E–07	3.0E–07	3.0E–06	1.3E–10	2.2	0.15	1.12	6,063.2	8.42

Interval position		Stationary flow parameters		Transient analysis														
				Flow regime		Formation parameters											Static conditions	
up m btoc	low m btoc	Q/s m²/s	T_M m²/s	Perturb. Phase	Recovery Phase	T_{f1} m²/s	T_{f2} m²/s	T_{s1} m²/s	T_{s2} m²/s	T_T m²/s	T_{TMIN} m²/s	T_{TMAX} m²/s	C m³/Pa	ξ –	dt_1 min	dt_2 min	p* kPa	h_{wif} m.a.s.l
655.00	660.00	7.2E–07	6.0E–07	2	WBS2	2.3E–06	#NV	2.5E–06	#NV	2.5E–06	5.0E–07	4.0E–06	1.2E–10	14.8	11.38	18.71	6,110.2	8.57
658.00	663.00	6.3E–08	5.2E–08	2	WBS22	7.7E–08	#NV	7.2E–08	3.6E–07	7.7E–08	4.0E–08	5.0E–07	1.3E–11	1.4	1.75	16.52	6,138.1	8.62
663.00	668.00	4.5E–08	3.7E–08	2	WBS2	7.5E–08	#NV	1.6E–07	#NV	7.5E–08	2.0E–08	2.0E–07	3.6E–11	4.4	0.67	14.72	6,183.7	8.63
668.00	673.00	6.5E–08	5.4E–08	2	WBS22	1.5E–07	#NV	1.6E–07	5.3E–07	1.6E–07	4.0E–08	6.0E–07	8.2E–11	9.3	#NV	#NV	6,229.1	8.62
673.00	678.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
678.00	683.00	6.0E–09	5.0E–09	2	WBS22	3.1E–09	#NV	2.5E–09	5.4E–09	2.5E–09	1.0E–09	7.0E–09	7.1E–11	–0.6	#NV	#NV	6,315.2	8.11
683.00	688.00	2.4E–07	2.0E–07	22	WBS2	3.5E–07	8.7E–07	8.7E–07	#NV	3.5E–07	1.0E–07	1.0E–06	5.7E–11	2.9	0.32	0.68	6,367.8	8.83
688.00	693.00	4.8E–08	4.0E–08	22	WBS22	9.1E–08	3.6E–08	5.8E–08	1.5E–07	5.8E–08	2.0E–08	3.0E–07	2.7E–11	2.9	#NV	#NV	6,411.5	8.64
693.00	698.00	5.4E–08	4.4E–08	22	WBS22	3.0E–08	1.2E–07	2.7E–08	6.8E–08	2.7E–08	2.0E–08	3.0E–07	1.1E–11	–2.4	#NV	#NV	6,450.0	7.93
698.00	703.00	1.3E–08	1.1E–08	22	WBS22	7.3E–09	3.7E–09	1.6E–08	4.6E–09	1.6E–08	2.0E–09	2.0E–08	4.8E–11	–2.1	#NV	#NV	6,496.1	7.99
703.00	708.00	2.4E–09	1.9E–09	2	WBS22	1.6E–09	#NV	1.9E–09	9.7E–10	1.9E–09	8.0E–10	3.0E–09	3.1E–11	0.5	#NV	#NV	6,550.8	8.92
708.00	713.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
713.00	718.00	7.2E–10	5.9E–10	22	WBS22	7.7E–10	6.4E–11	8.9E–10	1.8E–10	1.8E–10	5.0E–11	9.0E–10	2.1E–11	–1.0	#NV	#NV	6,637.5	8.47
718.00	723.00	1.8E–09	1.5E–09	22	WBS22	1.2E–09	4.1E–10	2.2E–09	6.1E–10	6.1E–10	3.0E–10	3.0E–09	2.2E–11	–0.4	#NV	#NV	6,670.6	7.20
723.00	728.00	1.1E–09	9.2E–10	2	WBS2	3.8E–10	#NV	3.8E–10	#NV	3.8E–10	2.0E–10	8.0E–10	2.1E–11	–1.6	#NV	19.48	6,734.6	9.07
728.00	733.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
733.00	738.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV
738.00	743.00	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E–11	1.0E–13	1.0E–11	#NV	#NV	#NV	#NV	#NV	#NV

Nomenclature

Q/s	Specific capacity
T_M	Transmissivity according to /Moye 1967/
Flow regime	The flow regime description refers to the recommended model used in the transient analysis. WBS denotes wellbore storage and skin and is followed by a set of numbers describing the flow dimension used in the analysis (1 = linear flow, 2 = radial flow, 3 = spherical flow). If only one number is used (e.g. WBS2 or 2) a homogeneous flow model (1 composite zone) was used in the analysis, if two numbers are given (WBS22 or 22) a 2 zones composite model was used.
T_f	Transmissivity derived from the analysis of the perturbation phase (CHi). In case a homogeneous flow model was used only one T_f value is reported, in case a two zone composite flow model was used both T_{f1} (inner zone) and T_{f2} (outer zone) are given.
T_s	Transmissivity derived from the analysis of the recovery phase (CHir or Pi). In case a homogeneous flow model was used only one T_s value is reported, in case a two zone composite flow model was used both T_{s1} (inner zone) and T_{s2} (outer zone) are given.
T_T	Recommended transmissivity
T_{TMIN}	Confidence range lower limit
T_{TMAX}	Confidence range upper limit
C	Wellbore storage coefficient
ξ	Skin factor (calculated based on a Storativity of $1\cdot10^{-6}$)
dt_1	Estimated start time of evaluation
dt_2	Estimated stop time of evaluation
p*	The parameter p* denoted the static formation pressure (measured at transducer depth) and was derived from the HORNER plot of the CHir phase using straight line or type-curve extrapolation
h_{wif}	Fresh-water head (based on transducer depth and p*)
#NV	Not analysed/no values

Table 6-3. Results from the ri-index calculation of hydraulic tests in KLX21B (see Section 4.5.5 for details and nomenclature).

Borehole secup (m)	Borehole seclow (m)	Recommended transmissivity T_T (m²/s)	Time t_2 for radius of influence calculation (s)	ri-index (–)	Radius of Influence (m)
103.00	203.00	5.6E–04	1,800	0	465.81
203.00	303.00	3.3E–08	1,800	1	40.85
303.00	403.00	4.2E–07	331	1	33.12
403.00	503.00	2.2E–07	194	–1	21.43
503.00	603.00	8.2E–06	1,800	0	162.35
603.00	703.00	5.1E–05	1,800	0	255.87
703.00	803.00	1.1E–08	515	1	16.60
103.00	123.00	2.9E–04	189	1	127.71
123.00	143.00	2.9E–04	235	1	143.15
143.00	163.00	1.3E–05	1,200	0	149.72
163.00	183.00	1.1E–09	1,200	0	14.38
183.00	203.00	6.8E–08	1,200	0	39.90
203.00	223.00	2.4E–08	1,200	0	30.67
223.00	243.00	3.4E–09	1,200	0	18.87
243.00	263.00	1.0E–11	#NV	#NV	#NV
263.00	283.00	1.7E–08	#NV	1	#NV
283.00	303.00	1.3E–09	#NV	–1	#NV
303.00	323.00	4.4E–07	1,200	0	63.60
323.00	343.00	1.9E–08	#NV	–1	#NV
343.00	363.00	2.6E–09	#NV	1	#NV
363.00	383.00	4.8E–10	1,200	0	11.59
383.00	403.00	7.9E–08	1,200	0	41.49
403.00	423.00	1.2E–09	1,200	0	14.53
423.00	443.00	6.2E–08	1,200	0	39.05
443.00	463.00	1.3E–07	92	–1	13.06
463.00	483.00	3.8E–08	1,200	0	34.50
483.00	503.00	7.0E–10	1,200	0	12.74
503.00	523.00	2.0E–09	#NV	–1	#NV
523.00	543.00	1.3E–07	#NV	–1	#NV
543.00	563.00	1.0E–11	#NV	#NV	#NV
563.00	583.00	2.9E–06	37	–1	17.96
583.00	603.00	3.2E–06	1,200	0	104.42
603.00	623.00	3.8E–05	1,200	0	194.80
623.00	643.00	2.5E–05	1,200	0	174.10
643.00	663.00	1.8E–06	842	–1	75.93
663.00	683.00	1.3E–07	#NV	–1	#NV
683.00	703.00	3.4E–07	98	–1	17.01
703.00	723.00	2.0E–09	#NV	–1	#NV
723.00	743.00	6.4E–10	#NV	1	#NV
743.00	763.00	1.1E–08	#NV	1	#NV
764.00	784.00	2.0E–10	#NV	1	#NV
783.00	803.00	1.0E–11	#NV	#NV	#NV
803.00	823.00	1.0E–11	#NV	#NV	#NV
823.00	843.00	6.9E–09	#NV	1	#NV
323.00	328.00	1.9E–08	614	–1	20.86

Borehole secup (m)	Borehole seclow (m)	Recommended transmissivity T_T (m²/s)	Time t_2 for radius of influence calculation (s)	ri-index (–)	Radius of Influence (m)
328.00	333.00	1.0E–11	#NV	#NV	#NV
333.00	338.00	1.0E–11	#NV	#NV	#NV
338.00	343.00	1.0E–11	#NV	#NV	#NV
343.00	348.00	1.0E–11	#NV	#NV	#NV
348.00	353.00	6.6E–10	#NV	–1	#NV
353.00	358.00	1.0E–11	#NV	#NV	#NV
358.00	363.00	1.0E–11	#NV	#NV	#NV
363.00	368.00	1.0E–11	#NV	#NV	#NV
368.00	373.00	1.7E–10	1,200	0	8.99
373.00	378.00	1.0E–11	#NV	#NV	#NV
378.00	383.00	1.0E–11	#NV	#NV	#NV
383.00	388.00	5.7E–08	1,200	0	38.24
388.00	393.00	1.0E–11	#NV	#NV	#NV
393.00	398.00	1.0E–11	#NV	#NV	#NV
398.00	403.00	5.1E–11	4,020	0	12.13
403.00	408.00	1.0E–11	#NV	#NV	#NV
408.00	413.00	2.7E–11	4,020	0	10.32
413.00	418.00	3.5E–10	#NV	–1	#NV
418.00	423.00	1.9E–09	#NV	1	#NV
423.00	428.00	2.0E–08	1,944	1	37.27
428.00	433.00	5.8E–09	#NV	–1	#NV
433.00	438.00	4.8E–08	1,200	0	36.69
438.00	443.00	1.0E–11	#NV	#NV	#NV
443.00	448.00	4.7E–10	#NV	1	#NV
448.00	453.00	1.7E–07	147	–1	17.59
453.00	458.00	1.6E–07	158	–1	17.99
458.00	463.00	1.0E–11	#NV	#NV	#NV
463.00	468.00	1.0E–11	#NV	#NV	#NV
468.00	473.00	1.0E–11	#NV	#NV	#NV
473.00	478.00	5.9E–08	1,200	0	38.62
478.00	483.00	2.1E–09	116	1	5.20
483.00	488.00	4.1E–10	1,200	0	11.10
488.00	493.00	1.0E–11	#NV	#NV	#NV
493.00	498.00	1.0E–11	#NV	#NV	#NV
498.00	503.00	1.0E–11	#NV	#NV	#NV
503.00	508.00	1.2E–09	#NV	–1	#NV
508.00	513.00	3.2E–09	#NV	0	#NV
513.00	518.00	2.1E–09	#NV	–1	#NV
518.00	523.00	1.5E–10	4,800	0	17.26
523.00	528.00	1.2E–07	116	–1	14.41
528.00	533.00	1.0E–11	#NV	#NV	#NV
533.00	538.00	1.0E–11	#NV	#NV	#NV
538.00	543.00	1.0E–11	#NV	#NV	#NV
563.00	568.00	2.4E–06	1,200	0	97.75
568.00	573.00	3.1E–06	1,200	0	103.47
573.00	578.00	3.8E–09	1,200	0	19.47
578.00	583.00	1.9E–09	#NV	–1	#NV

Borehole secup (m)	Borehole seclow (m)	Recommended transmissivity T_T (m²/s)	Time t_2 for radius of influence calculation (s)	ri-index (–)	Radius of Influence (m)
583.00	588.00	1.6E–09	#NV	–1	#NV
588.00	593.00	1.7E–06	1,200	0	89.62
593.00	598.00	1.2E–06	79	–1	21.06
598.00	603.00	1.4E–07	1,200	0	47.95
603.00	608.00	1.1E–05	1,800	0	174.14
608.00	613.00	3.0E–05	227	–1	79.79
613.00	618.00	1.5E–08	#NV	–1	#NV
618.00	623.00	4.7E–07	1,200	0	64.72
623.00	628.00	9.4E–06	64	–1	31.61
628.00	633.00	5.6E–08	1,200	0	37.98
633.00	638.00	7.9E–11	4,020	0	13.49
638.00	643.00	1.9E–08	1,200	0	28.98
643.00	648.00	7.3E–07	1,200	0	72.33
645.00	650.00	6.5E–07	1,200	0	70.32
650.00	655.00	6.7E–07	67	–1	16.70
655.00	660.00	2.5E–06	1,200	0	97.90
658.00	663.00	7.7E–08	1,200	0	41.22
663.00	668.00	7.5E–08	1,200	0	40.95
668.00	673.00	1.6E–07	#NV	–1	#NV
673.00	678.00	1.0E–11	#NV	#NV	#NV
678.00	683.00	2.5E–09	#NV	–1	#NV
683.00	688.00	3.5E–07	41	–1	11.12
688.00	693.00	5.8E–08	#NV	0	#NV
693.00	698.00	2.7E–08	#NV	–1	#NV
698.00	703.00	1.6E–08	#NV	–1	#NV
703.00	708.00	1.9E–09	#NV	0	#NV
708.00	713.00	1.0E–11	#NV	#NV	#NV
713.00	718.00	1.8E–10	3,600	0	15.70
718.00	723.00	6.1E–10	1,800	0	15.09
723.00	728.00	3.8E–10	1,200	0	10.95
728.00	733.00	1.0E–11	#NV	#NV	#NV
733.00	738.00	1.0E–11	#NV	#NV	#NV
738.00	743.00	1.0E–11	#NV	#NV	#NV

The Figures 6-1 to 6-3 present the transmissivity, conductivity and hydraulic freshwater head profiles.

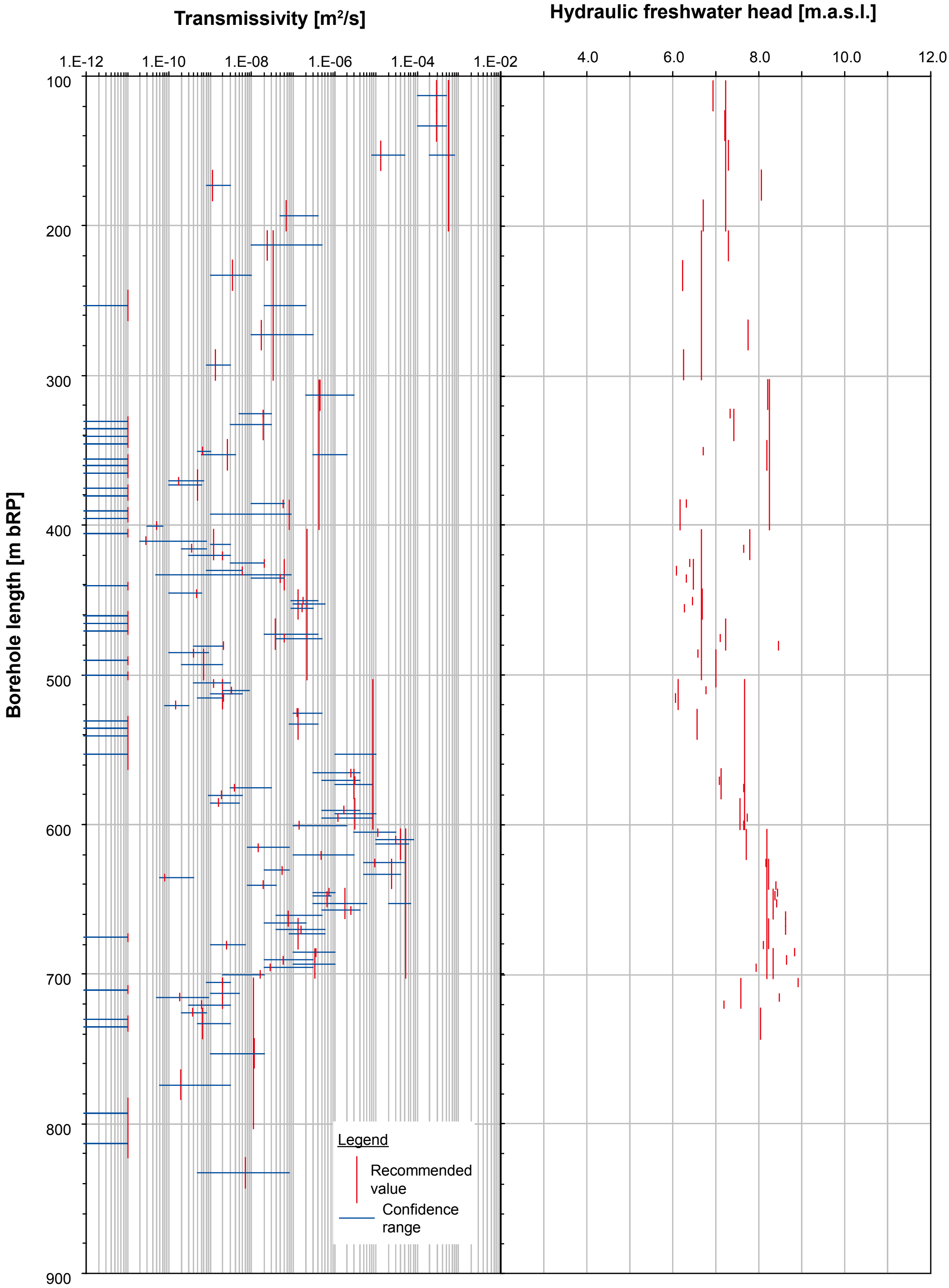


Figure 6-1. *Results summary – profiles of transmissivity and equivalent freshwater head, transmissivities derived from injection tests, freshwater head extrapolated.*

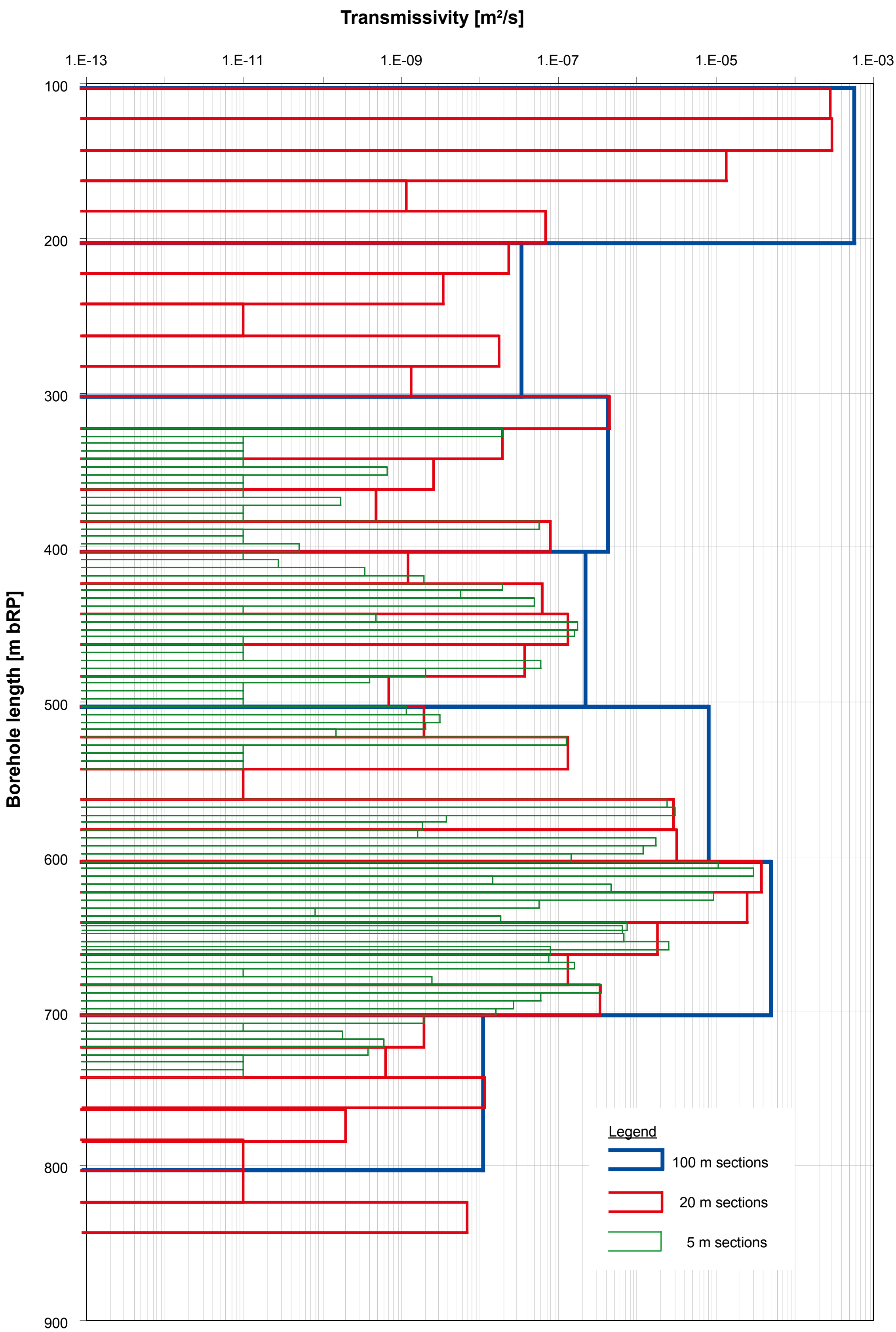


Figure 6-2. Results summary – profile of transmissivity.

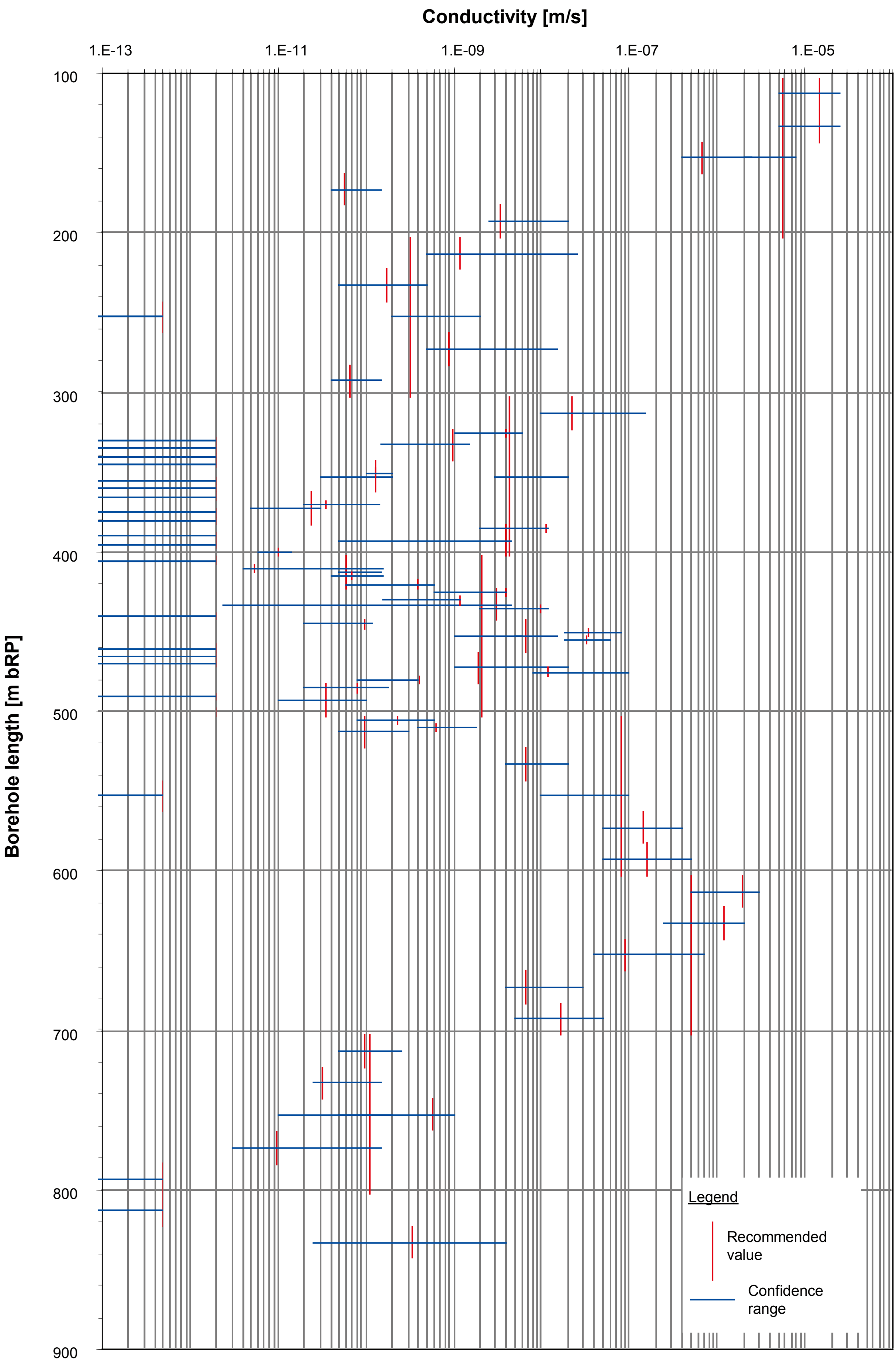


Figure 6-3. *Results summary – profile of hydraulic conductivity.*

6.2 Correlation analysis

A correlation analysis was used with the aim of examining the consistency of results and deriving general conclusion regarding the testing and analysis methods used.

6.2.1 Comparison of steady state and transient analysis results

The steady state derived transmissivities (T_M) and specific capacities (Q/s) were compared in a cross-plot with the recommended transmissivity values derived from the transient analysis (see following figure).

The correlation analysis shows that the transmissivities derived from the steady state analysis differ (with one exception) by less than one order of magnitude from the transmissivities derived from the transient analysis. The one exception is observed in section 408.00 to 413.00 m, where the pulse test was used for analysis, whereas the T_M was derived from the measured flow during the following injection. The flow rate was measured at 1 ml/min which is at the lower measurement limit of the used flowmeter, therefore the T_M value is considered with a limited reliability.

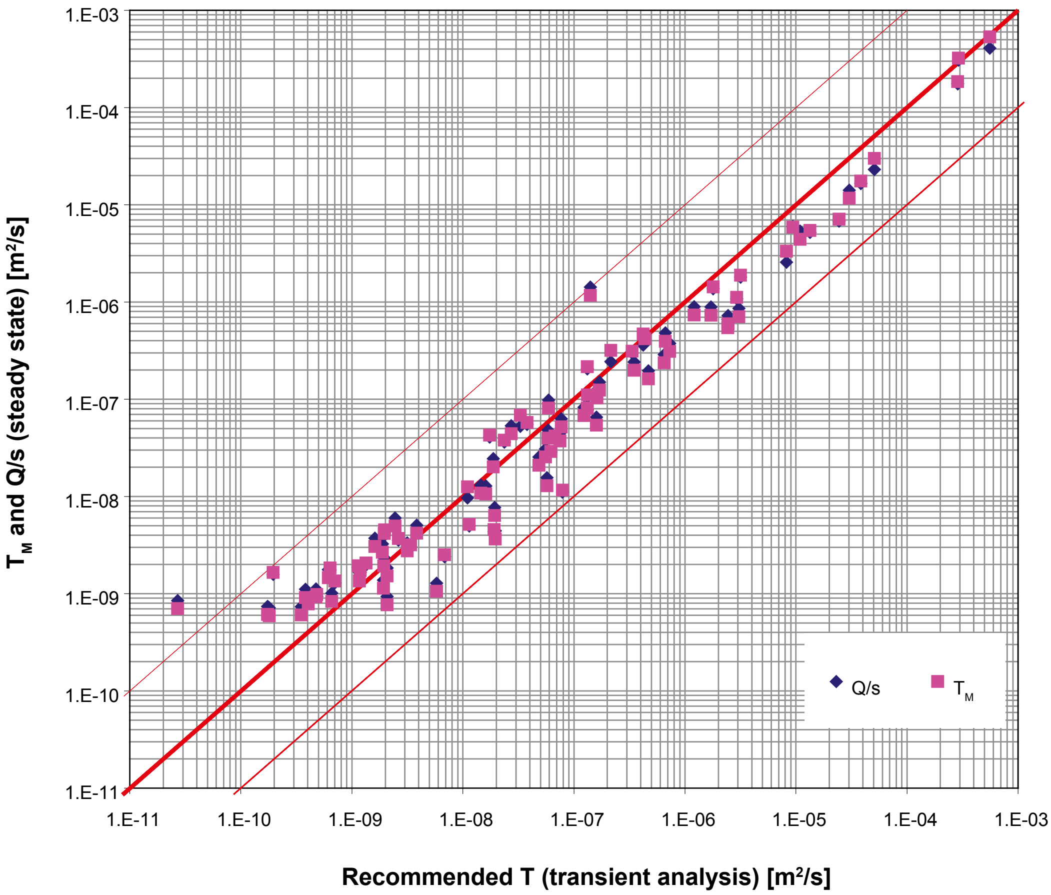


Figure 6-4. *Correlation analysis of transmissivities derived by steady state and transient methods.*

6.2.2 Comparison between the matched and theoretical wellbore storage coefficient

The wellbore storage coefficient describes the capacity of the test interval to store fluid as result of a unit pressure change in the interval. For a closed system (i.e. closed downhole valve) the theoretical value of the wellbore storage coefficient is given by the product between the interval volume and the test zone compressibility. The interval volume is calculated from the borehole radius and interval length. There are uncertainties concerning the interval volume calculation. Cavities or high transmissivity fractures intersecting the interval may enlarge the effective volume of the interval.

The test zone compressibility is given by the sum of compressibilities of the individual components present in the interval (water, packer elements, other test tool components, and the borehole wall). The water compressibility depends on the temperature and salinity. However, for temperature and salinity values as encountered at the Oskarshamn site the water compressibility varies only slightly between $4.5 \cdot 10^{-10}$ and $5.0 \cdot 10^{-10}$ 1/Pa.

A water compressibility of $5 \cdot 10^{-10}$ 1/Pa and a rock compressibility of $1 \cdot 10^{-10}$ 1/Pa was assumed for the analysis. In addition, the test zone compressibility is influenced by the test tool (packer compliance). The test tool compressibility was calculated as follow:

$$c = \frac{\Delta V}{\Delta p} \times \frac{1}{V} \text{ [1/Pa]}$$

ΔV Volume change of 2 Packers (The volume change was estimated at $7 \cdot 10^{-7}$ m³/100 kPa based on the results of laboratory tests conducted by GEOSIGMA) [m³]

Δp Pressure change in test section (usually $2 \cdot 10^{5}$ Pa) [Pa]

V Volume in test section [m³]

The following table presents the calculated compressibilities for each relevant section length. The average value for the test tool compressibility based on different section lengths is $1 \cdot 10^{-10}$ 1/Pa.

Table 6-4. Test tool compressibility values based on packer displacement.

Length of test section [m]	Volume in test section [m³]	Compressibility [1/Pa]
5	0.023	$3 \cdot 10^{-10}$
20	0.091	$8 \cdot 10^{-11}$
100	0.454	$2 \cdot 10^{-11}$
Average compressibility:		$1 \cdot 10^{-10}$

The sum of the compressibilities (water, rock, test tool) leads to a test zone compressibility with a value of $7 \cdot 10^{-10}$ 1/Pa. This value is used for the calculation of the theoretical wellbore storage coefficient.

The matched wellbore storage coefficient is derived from the transient type curve analysis by matching the unit slope early times derivative plotted in log-log coordinates.

The following figure presents a cross-plot of the matched and theoretical wellbore storage coefficients.

It can be seen that the matched wellbore storage coefficients differ mainly up to two orders of magnitude from the theoretical. This phenomenon was already observed at the previous boreholes. A two or three orders of magnitude increase is difficult to explain by volume uncertainty. Even if large fractures are connected to the interval, a volume increase by two orders of magnitude does not seem probable. This discrepancy is not fully understood, but following hypotheses may be formulated:

- increased compressibility of the packer system,
- as shown by previous work conducted at site, the phenomenon of increased wellbore storage coefficients can be explained by turbulent flow induced by the test in the vicinity of the borehole. Considering the fact that deviations concerning the wellbore storage rather occur in test sections with a higher transmissivity (which can lead to turbulent flow) seems to rest upon this hypothesis.

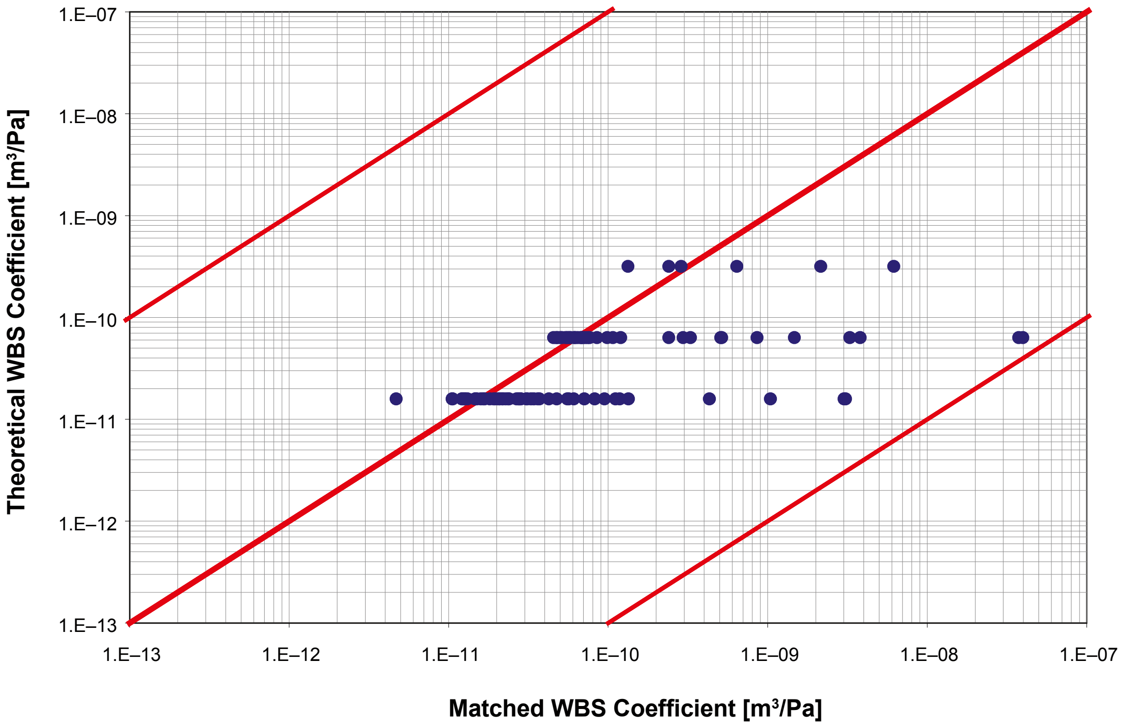


Figure 6-5. *Correlation analysis of theoretical and matched wellbore storage coefficients.*

7 Conclusions

7.1 Transmissivity

Figure 6-1 presents a profile of transmissivity, including the confidence ranges derived from the transient analysis. The method used for deriving the recommended transmissivity and its confidence range is described in Section 4.5.9.

Whenever possible, the transmissivities derived are representative for the "undisturbed formation" further away from the borehole. The borehole vicinity was typically described by using a skin effect.

If the conducted preliminary pulse injection (Pi) showed a slow recovery the pulse test was prolonged and no further injection test was performed. The pulse test was used for a quantitative analysis. In four cases the preliminary pulse was prolonged and the recommended transmissivity range from $2.7 \cdot 10^{-11}$ m^2/s to $1.5 \cdot 10^{-10}$ m^2/s.

The recommended transmissivities derived from the conducted injection tests (CHi and CHir) range between $1.7 \cdot 10^{-10}$ m^2/s and $5.6 \cdot 10^{-4}$ m^2/s.

All of the 20 m sections show the same or smaller transmissivities than the appropriate longer interval what is the normal expected situation. Therefore, no crossflow or connections to adjacent zones happened by performing the 20 m section tests. A few of the 5 m sections show a slightly higher transmissivity than the appropriate 20 m section. In these cases, a crossflow or hydraulic connection to adjacent zones cannot be excluded by performing the relevant 5 m section tests. At some of the relevant 5 m sections an increase of Pb was observed during injection which is consistent with the crossflow hypothesis.

7.2 Equivalent freshwater head

Figure 6-1 presents a profile of the derived equivalent freshwater head expressed in metres above sea level. The method used for deriving the equivalent freshwater head is described in Section 4.5.8.

The head profile shows the freshwater head ranges from 6.1 m to 8.9 m. The highest freshwater heads were measured between 658 m and 723 m, whereas the lowest freshwater heads were measured between 430 m and 520 m.

The uncertainty related to the derived freshwater heads is dependent on the test section transmissivity. Due to the relatively short pressure recovery phase, the static pressure extrapolation becomes increasingly uncertain at lower transmissivities. In several cases (e.g. at all tests performed below of 743 m borehole length), no freshwater head was calculated due to the high uncertainty of the formation pressure.

7.3 Flow regimes encountered

The flow models used in analysis were derived from the shape of the pressure derivative calculated with respect to log time and plotted in log-log coordinates.

In several cases the pressure derivative suggests a change of transmissivity with the distance from the borehole. In such cases a composite flow model was used in the analysis.

If there were different flow models matching the data in comparable quality, the simplest model was preferred.

In some cases very large skins has been observed. This is unusual and should be further examined. There are several possible explanations to this behaviour:

- If the behaviour is to be completely attributed to changes of transmissivity in the formation, this indicates the presence of larger transmissivity zones in the borehole vicinity, which could be caused by steep fractures that do not intersect the test interval, but are connected to the interval by lower transmissivity fractures. The fact that in many cases the test derivatives of adjacent test sections converge at late times seems to support this hypothesis.
- A further possibility is that the large skins are caused by turbulent flow taking place in the tool or in fractures connected to the test interval. This hypothesis is more difficult to examine. However, considering the fact that some high skins were observed in sections with transmissivities as low as $6 \cdot 10^{-9}$ m^2/s (which imply low flow rates) seems to speak against this hypothesis.

The flow dimension displayed by the test can be diagnosed from the slope of the pressure derivative. A slope of 0.5 indicates linear flow, a slope of 0 (horizontal derivative) indicates radial flow and a slope of –0.5 indicates spherical flow. The flow dimension diagnosis was commented for each of the tests. In all of the cases it was possible to get a good match quality by using radial flow geometry. In no cases an alternative analysis with a flow dimension unequal to two was performed.

8 References

Bourdet D, Ayoub J A, Pirard Y M, 1989. Use of pressure derivative in well-test interpretation. Coc. Of Petroleum Engineers, SPE Formation Evaluation. pp. 293–302.

Chakrabarty C, Enachescu C, 1997. Using the Devolution Approach for Slug Test Analysis: Theory and Application. Ground Water Sept–Oct 1997. pp. 797–806.

Gringarten A C, 1986. Computer-aided well-test analysis. SPE Paper 14099.

Horne R N, 1990. Modern well test analysis. Petroway, Inc., Palo Alto, Calif.

Horner D R, 1951. Pressure build-up in wells. Third World Pet. Congress, E.J. Brill, Leiden II, pp. 503–521.

Jacob C E, Lohman S W, 1952. Nonsteady flow to a well of constant drawdown in an extensive aquifer. Transactions, American Geophysical Union, Volume 33, No 4, pp. 559–569.

Moye D G, 1967. Diamond drilling for foundation exploration. Civil Eng. Trans., Inst. Eng. Australia, Apr 1967, pp. 95–100.

Peres A M M, Onur M, Reynolds A C, 1989. A new analysis procedure for determining aquifer properties from slug test data. Water Resour. Res. v. 25, no. 7, pp. 1591–1602.

Rhen I, 2005. Reporting influence radius – proposal (2005-02-09).

Rhen I, Forsmark T, Forssman I, Zetterlund M, 2006. Evaluation of hydrogeo-logical properties for Hydraulic Conductor Domains (HCD) and Hydraulic Rock Domains (HRD). SKB R-06-22, Svensk Kärnbränslehantering AB.

SKB, 2001. Platsundersökningar. Undersökningsmetoder och generellt genomförandeprogramm. SKB R-01-10, Svensk Kärnbränslehantering AB.

SKB, 2002. Execution programme for the initial site investigations at Simpevarp. SKB P-02-06, Svensk Kärnbränslehantering AB.

SKB, 2006. Programme for further investigations of bedrock, soil, water and environment in Laxemar subarea. SKB R-06-29, Svensk Kärnbränslehantering AB.

APPENDIX 1

File Description Table

HYDROTESTING WITH PSS					DRILLHOLE IDENTIFICATION NO.: KLX21B				
TEST- AND FILEPROTOCOL					**Testorder dated : 2007-02-07**				
Teststart		Interval boundaries		Name of Datafiles		Testtype	Copied to	Plotted	Sign.
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)	
2007-02-08	17:57	103.00	203.00	__KLX21B_0103.00_200702081757.ht2	KLX21B_103.00-203.00_070208_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-09	
2007-02-09	08:42	203.00	303.00	__KLX21B_0203.00_200702090842.ht2	KLX21B_203.00-303.00_070209_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-09	
2007-02-09	12:45	303.00	403.00	__KLX21B_0303.00_200702091245.ht2	KLX21B_303.00-403.00_070209_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-09	
2007-02-09	16:53	403.00	503.00	__KLX21B_0403.00_200702091653.ht2	KLX21B_403.00-503.00_070209_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-10	
2007-02-09	21:47	503.00	603.00	__KLX21B_0503.00_200702092147.ht2	KLX21B_503.00-603.00_070209_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-10	
2007-02-10	08:23	603.00	703.00	__KLX21B_0603.00_200702100823.ht2	KLX21B_603.00-703.00_070210_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-10	
2007-02-10	12:20	703.00	803.00	__KLX21B_0703.00_200702101220.ht2	KLX21B_703.00-803.00_070210_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-10	
2007-02-11	11:45	103.00	123.00	__KLX21B_0103.00_200702111145.ht2	KLX21B_103.00-123.00_070211_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-11	
2007-02-11	14:42	123.00	143.00	__KLX21B_0123.00_200702111442.ht2	KLX21B_123.00-143.00_070211_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-11	
2007-02-11	17:08	143.00	163.00	__KLX21B_0143.00_200702111708.ht2	KLX21B_143.00-163.00_070211_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-11	
2007-02-11	19:26	163.00	183.00	__KLX21B_0163.00_200702111926.ht2	KLX21B_163.00-183.00_070211_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-11	
2007-02-12	15:16	163.00	183.00	__KLX21B_0163.00_200702121516.ht2	KLX21B_163.00-183.00_070212_2_CHir_Q_r.csv	CHir	2007-02-27	2007-02-12	
2007-02-13	07:10	163.00	183.00	__KLX21B_0163.00_200702130710.ht2	KLX21B_163.00-183.00_070213_3_CHir_Q_r.csv	CHir	2007-02-27	2007-02-13	
2007-02-12	22:06	183.00	203.00	__KLX21B_0183.00_200702112206.ht2	KLX21B_183.00-203.00_070211_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-13	
2007-02-13	09:56	183.00	203.00	__KLX21B_0183.00_200702130956.ht2	KLX21B_183.00-203.00_070213_2_CHir_Q_r.csv	CHir	2007-02-27	2007-02-13	
2007-02-13	12:58	203.00	223.00	__KLX21B_0203.00_200702131258.ht2	KLX21B_203.00-223.00_070213_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-13	

HYDROTESTING WITH PSS					DRILLHOLE IDENTIFICATION NO.: KLX21B				
TEST- AND FILEPROTOCOL					**Testorder dated : 2007-02-07**				
Teststart		Interval boundaries		Name of Datafiles		Testtype	Copied to	Plotted	Sign.
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)	
2007-02-13	15:11	223.00	243.00	__KLX21B_0223.00_200702131511.ht2	KLX21B_223.00-243.00_070213_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-13	
2007-02-13	17:44	243.00	263.00	__KLX21B_0243.00_200702131744.ht2	KLX21B_243.00-263.00_070213_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-13	
2007-02-13	19:22	263.00	283.00	__KLX21B_0263.00_200702131922.ht2	KLX21B_263.00-283.00_070213_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-13	
2007-02-13	22:19	283.00	303.00	__KLX21B_0283.00_200702132219.ht2	KLX21B_283.00-303.00_070213_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-13	
2007-02-14	01:09	303.00	323.00	__KLX21B_0303.00_200702140109.ht2	KLX21B_303.00-323.00_070214_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-14	
2007-02-14	06:37	323.00	343.00	__KLX21B_0323.00_200702140637.ht2	KLX21B_323.00-343.00_070214_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-14	
2007-02-14	09:15	343.00	363.00	__KLX21B_0343.00_200702140915.ht2	KLX21B_343.00-363.00_070214_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-14	
2007-02-14	12:16	363.00	383.00	__KLX21B_0363.00_200702141216.ht2	KLX21B_363.00-383.00_070214_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-14	
2007-02-14	15:20	383.00	403.00	__KLX21B_0383.00_200702141520.ht2	KLX21B_383.00-403.00_070214_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-14	
2007-02-14	17:28	403.00	423.00	__KLX21B_0403.00_200702141728.ht2	KLX21B_403.00-423.00_070214_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	
2007-02-14	20:27	423.00	443.00	__KLX21B_0423.00_200702142027.ht2	KLX21B_423.00-443.00_070214_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	
2007-02-14	23:06	443.00	463.00	__KLX21B_0443.00_200702142306.ht2	KLX21B_443.00-463.00_070214_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	
2007-02-15	01:22	463.00	483.00	__KLX21B_0463.00_200702150122.ht2	KLX21B_463.00-483.00_070215_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	
2007-02-15	06:36	483.00	503.00	__KLX21B_0483.00_200702150636.ht2	KLX21B_483.00-503.00_070215_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	
2007-02-15	09:32	503.00	523.00	__KLX21B_0503.00_200702150932.ht2	KLX21B_503.00-523.00_070215_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	
2007-02-15	11:42	523.00	543.00	__KLX21B_0523.00_200702151142.ht2	KLX21B_523.00-543.00_070215_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	

HYDROTESTING WITH PSS					DRILLHOLE IDENTIFICATION NO.: KLX21B				
TEST- AND FILEPROTOCOL					**Testorder dated : 2007-02-07**				
Teststart		Interval boundaries		Name of Datafiles		Testtype	Copied to	Plotted	Sign.
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)	
2007-02-15	14:01	543.00	563.00	__KLX21B_0543.00_200702151401.ht2	KLX21B_543.00-563.00_070215_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	
2007-02-15	15:30	563.00	583.00	__KLX21B_0563.00_200702151530.ht2	KLX21B_563.00-583.00_070215_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	
2007-02-15	17:52	583.00	603.00	__KLX21B_0583.00_200702151752.ht2	KLX21B_583.00-603.00_070215_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	
2007-02-15	20:13	603.00	623.00	__KLX21B_0603.00_200702152013.ht2	KLX21B_603.00-623.00_070215_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-15	
2007-02-15	23:08	623.00	643.00	__KLX21B_0623.00_200702152308.ht2	KLX21B_623.00-643.00_070215_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-16	
2007-02-16	01:18	643.00	663.00	__KLX21B_0643.00_200702160118.ht2	KLX21B_643.00-663.00_070216_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-16	
2007-02-16	06:38	663.00	683.00	__KLX21B_0663.00_200702160638.ht2	KLX21B_663.00-683.00_070216_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-16	
2007-02-16	08:52	683.00	703.00	__KLX21B_0683.00_200702160852.ht2	KLX21B_683.00-703.00_070216_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-16	
2007-02-16	10:59	703.00	723.00	__KLX21B_0703.00_200702161059.ht2	KLX21B_703.00-723.00_070216_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-16	
2007-02-16	13:59	723.00	743.00	__KLX21B_0723.00_200702161359.ht2	KLX21B_723.00-743.00_070216_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-16	
2007-02-16	16:38	743.00	763.00	__KLX21B_0743.00_200702161638.ht2	KLX21B_743.00-763.00_070216_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-16	
2007-02-16	18:09	743.00	763.00	__KLX21B_0743.00_200702161809.ht2	KLX21B_743.00-763.00_070216_2_CHir_Q_r.csv	CHir	2007-02-27	2007-02-16	
2007-02-16	20:51	764.00	784.00	__KLX21B_0764.00_200702162051.ht2	KLX21B_764.00-784.00_070216_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-16	
2007-02-16	23:48	783.00	803.00	__KLX21B_0783.00_200702162348.ht2	KLX21B_783.00-803.00_070216_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-16	
2007-02-17	01:20	803.00	823.00	__KLX21B_0803.00_200702170120.ht2	KLX21B_803.00-823.00_070217_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-17	

HYDROTESTING WITH PSS					DRILLHOLE IDENTIFICATION NO.: KLX21B				
TEST- AND FILEPROTOCOL					Testorder dated : 2007-02-07				
Teststart		Interval boundaries		Name of Datafiles		Testtype	Copied to	Plotted	Sign.
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)	
2007-02-17	07:00	823.00	843.00	__KLX21B_0823.00_200702170700.ht2	KLX21B_823.00-843.00_070217_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-17	
2007-02-18	06:40	323.00	328.00	__KLX21B_0323.00_200702180640.ht2	KLX21B_323.00-328.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-18	
2007-02-18	08:36	328.00	333.00	__KLX21B_0328.00_200702180836.ht2	KLX21B_328.00-333.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-18	
2007-02-18	09:54	333.00	338.00	__KLX21B_0333.00_200702180954.ht2	KLX21B_333.00-338.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-18	
2007-02-18	11:14	338.00	343.00	__KLX21B_0338.00_200702181114.ht2	KLX21B_338.00-343.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-18	
2007-02-18	12:30	343.00	348.00	__KLX21B_0343.00_200702181230.ht2	KLX21B_343.00-348.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-18	
2007-02-18	14:32	348.00	353.00	__KLX21B_0348.00_200702181432.ht2	KLX21B_348.00-353.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-18	
2007-02-18	16:52	353.00	358.00	__KLX21B_0353.00_200702181652.ht2	KLX21B_353.00-358.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-18	
2007-02-18	18:10	358.00	363.00	__KLX21B_0358.00_200702181810.ht2	KLX21B_358.00-363.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-18	
2007-02-18	19:32	363.00	368.00	__KLX21B_0363.00_200702181932.ht2	KLX21B_363.00-368.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-18	
2007-02-18	20:49	368.00	373.00	__KLX21B_0368.00_200702182049.ht2	KLX21B_368.00-373.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-18	
2007-02-18	23:48	373.00	378.00	__KLX21B_0373.00_200702182348.ht2	KLX21B_373.00-378.00_070218_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-19	
2007-02-19	19:44	373.00	378.00	__KLX21B_0373.00_200702191944.ht2	KLX21B_373.00-378.00_070219_2_CHir_Q_r.csv	CHir	2007-02-27	2007-02-19	
2007-02-19	21:05	378.00	383.00	__KLX21B_0378.00_200702192105.ht2	KLX21B_378.00-383.00_070219_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-19	
2007-02-19	22:56	383.00	388.00	__KLX21B_0383.00_200702192256.ht2	KLX21B_383.00-388.00_070219_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-19	

HYDROTESTING WITH PSS					DRILLHOLE IDENTIFICATION NO.: KLX21B				
TEST- AND FILEPROTOCOL					**Testorder dated : 2007-02-07**				
Teststart		Interval boundaries		Name of Datafiles		Testtype	Copied to	Plotted	Sign.
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)	
2007-02-20	01:01	388.00	393.00	__KLX21B_0388.00_200702200101.ht2	KLX21B_388.00-393.00_070220_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-20	
2007-02-20	06:24	393.00	398.00	__KLX21B_0393.00_200702200624.ht2	KLX21B_393.00-398.00_070220_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-20	
2007-02-20	07:37	398.00	403.00	__KLX21B_0398.00_200702200737.ht2	KLX21B_398.00-403.00_070220_1_Pi_Q_r.csv	Pi	2007-02-27	2007-02-20	
2007-02-20	10:05	403.00	408.00	__KLX21B_0403.00_200702201005.ht2	KLX21B_403.00-408.00_070220_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-20	
2007-02-20	11:21	408.00	413.00	__KLX21B_0408.00_200702201121.ht2	KLX21B_408.00-413.00_070220_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-20	
2007-02-20	14:19	413.00	418.00	__KLX21B_0413.00_200702201419.ht2	KLX21B_413.00-418.00_070220_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-20	
2007-02-20	16:56	418.00	423.00	__KLX21B_0418.00_200702201656.ht2	KLX21B_418.00-423.00_070220_1_Pi_Q_r.csv	Pi	2007-02-27	2007-02-20	
2007-02-20	17:35	418.00	423.00	__KLX21B_0418.00_200702201735.ht2	KLX21B_418.00-423.00_070220_2_CHir_Q_r.csv	CHir	2007-02-27	2007-02-20	
2007-02-20	20:09	423.00	428.00	__KLX21B_0423.00_200702202009.ht2	KLX21B_423.00-428.00_070220_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-20	
2007-02-20	22:30	428.00	433.00	__KLX21B_0428.00_200702202230.ht2	KLX21B_428.00-433.00_070220_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	
2007-02-21	00:31	433.00	438.00	__KLX21B_0433.00_200702210031.ht2	KLX21B_433.00-438.00_070221_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	
2007-02-21	06:31	438.00	443.00	__KLX21B_0438.00_200702210631.ht2	KLX21B_438.00-443.00_070221_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	
2007-02-21	07:48	443.00	448.00	__KLX21B_0443.00_200702210748.ht2	KLX21B_443.00-448.00_070221_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	
2007-02-21	10:45	448.00	453.00	__KLX21B_0448.00_200702211045.ht2	KLX21B_448.00-453.00_070221_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	
2007-02-21	13:18	453.00	458.00	__KLX21B_0453.00_200702211318.ht2	KLX21B_453.00-458.00_070221_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	

HYDROTESTING WITH PSS					DRILLHOLE IDENTIFICATION NO.: KLX21B				
TEST- AND FILEPROTOCOL					Testorder dated : 2007-02-07				
Teststart		Interval boundaries		Name of Datafiles		Testtype	Copied to	Plotted	Sign.
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)	
2007-02-21	15:10	458.00	463.00	__KLX21B_0458.00_200702211510.ht2	KLX21B_458.00-463.00_070221_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	
2007-02-21	16:30	463.00	468.00	__KLX21B_0463.00_200702211630.ht2	KLX21B_463.00-468.00_070221_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	
2007-02-21	17:46	468.00	473.00	__KLX21B_0468.00_200702211746.ht2	KLX21B_468.00-473.00_070221_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	
2007-02-21	19:07	473.00	478.00	__KLX21B_0473.00_200702211907.ht2	KLX21B_473.00-478.00_070221_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	
2007-02-21	21:08	478.00	483.00	__KLX21B_0478.00_200702212108.ht2	KLX21B_478.00-483.00_070221_1_CHir_Q_r.xls	CHir	2007-02-27	2007-02-21	
2007-02-21	23:52	483.00	488.00	__KLX21B_0483.00_200702212352.ht2	KLX21B_483.00-488.00_070221_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-21	
2007-02-22	06:18	488.00	493.00	__KLX21B_0488.00_200702220618.ht2	KLX21B_488.00-493.00_070222_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-22	
2007-02-22	07:39	493.00	498.00	__KLX21B_0493.00_200702220739.ht2	KLX21B_493.00-498.00_070222_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-22	
2007-02-22	08:57	498.00	503.00	__KLX21B_0498.00_200702220857.ht2	KLX21B_498.00-503.00_070222_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-22	
2007-02-22	10:10	503.00	508.00	__KLX21B_0503.00_200702221010.ht2	KLX21B_503.00-508.00_070222_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-22	
2007-02-22	12:52	508.00	513.00	__KLX21B_0508.00_200702221252.ht2	KLX21B_508.00-513.00_070222_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-22	
2007-02-22	14:50	513.00	518.00	__KLX21B_0513.00_200702221450.ht2	KLX21B_513.00-518.00_070222_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-22	
2007-02-22	16:54	518.00	523.00	__KLX21B_0518.00_200702221654.ht2	KLX21B_518.00-523.00_070222_1_Pi_Q_r.csv	Pi	2007-02-27	2007-02-22	
2007-02-22	19:39	523.00	528.00	__KLX21B_0523.00_200702221939.ht2	KLX21B_523.00-528.00_070222_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-22	
2007-02-22	22:02	528.00	533.00	__KLX21B_0528.00_200702222202.ht2	KLX21B_528.00-533.00_070222_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-22	

HYDROTESTING WITH PSS					DRILLHOLE IDENTIFICATION NO.: KLX21B				
TEST- AND FILEPROTOCOL					Testorder dated : 2007-02-07				
Teststart		Interval boundaries		Name of Datafiles		Testtype	Copied to	Plotted	Sign.
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)	
2007-02-22	23:18	533.00	538.00	__KLX21B_0533.00_200702222318.ht2	KLX21B_533.00-538.00_070222_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-23	
2007-02-23	00:39	538.00	543.00	__KLX21B_0538.00_200702230039.ht2	KLX21B_538.00-543.00_070222_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-23	
2007-02-23	06:41	563.00	568.00	__KLX21B_0563.00_200702230641.ht2	KLX21B_563.00-568.00_070223_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-23	
2007-02-23	08:35	568.00	573.00	__KLX21B_0568.00_200702230835.ht2	KLX21B_568.00-573.00_070223_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-23	
2007-02-23	10:28	573.00	578.00	__KLX21B_0573.00_200702231028.ht2	KLX21B_573.00-578.00_070223_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-23	
2007-02-23	12:50	578.00	583.00	__KLX21B_0578.00_200702231250.ht2	KLX21B_578.00-583.00_070223_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-23	
2007-02-23	14:54	583.00	588.00	__KLX21B_0583.00_200702231454.ht2	KLX21B_583.00-588.00_070223_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-23	
2007-02-23	16:51	588.00	593.00	__KLX21B_0588.00_200702231651.ht2	KLX21B_588.00-593.00_070223_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-23	
2007-02-23	18:50	593.00	598.00	__KLX21B_0593.00_200702231850.ht2	KLX21B_593.00-598.00_070223_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-23	
2007-02-23	22:03	598.00	603.00	__KLX21B_0598.00_200702232203.ht2	KLX21B_598.00-603.00_070223_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-23	
2007-02-24	00:00	603.00	608.00	__KLX21B_0603.00_200702240000.ht2	KLX21B_603.00-608.00_070224_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-24	
2007-02-24	06:15	608.00	613.00	__KLX21B_0608.00_200702240615.ht2	KLX21B_608.00-613.00_070224_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-24	
2007-02-24	08:06	613.00	618.00	__KLX21B_0613.00_200702240806.ht2	KLX21B_613.00-618.00_070224_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-24	
2007-02-24	10:03	618.00	623.00	__KLX21B_0618.00_200702241003.ht2	KLX21B_618.00-623.00_070224_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-24	
2007-02-24	12:24	623.00	628.00	__KLX21B_0623.00_200702241224.ht2	KLX21B_623.00-628.00_070224_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-24	

HYDROTESTING WITH PSS					DRILLHOLE IDENTIFICATION NO.: KLX21B				
TEST- AND FILEPROTOCOL					**Testorder dated : 2007-02-07**				
Teststart		Interval boundaries		Name of Datafiles		Testtype	Copied to	Plotted	Sign.
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)	
2007-02-24	14:15	628.00	633.00	__KLX21B_0628.00_200702241415.ht2	KLX21B_628.00-633.00_070224_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-24	
2007-02-24	16:07	633.00	638.00	__KLX21B_0633.00_200702241607.ht2	KLX21B_633.00-638.00_070224_1_Pi_Q_r.csv	Pi	2007-02-27	2007-02-24	
2007-02-24	18:33	638.00	643.00	__KLX21B_0638.00_200702241833.ht2	KLX21B_638.00-643.00_070224_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-24	
2007-02-24	21:04	643.00	648.00	__KLX21B_0643.00_200702242104.ht2	KLX21B_643.00-648.00_070224_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-24	
2007-02-24	22:53	645.00	650.00	__KLX21B_0645.00_200702242253.ht2	KLX21B_645.00-650.00_070224_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	
2007-02-25	00:44	650.00	655.00	__KLX21B_0650.00_200702250044.ht2	KLX21B_650.00-655.00_070224_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	
2007-02-25	06:21	655.00	660.00	__KLX21B_0655.00_200702250621.ht2	KLX21B_655.00-660.00_070225_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	
2007-02-25	08:15	658.00	663.00	__KLX21B_0658.00_200702250815.ht2	KLX21B_658.00-663.00_070225_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	
2007-02-25	10:07	663.00	668.00	__KLX21B_0663.00_200702251007.ht2	KLX21B_663.00-668.00_070225_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	
2007-02-25	11:57	668.00	673.00	__KLX21B_0668.00_200702251157.ht2	KLX21B_668.00-673.00_070225_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	
2007-02-25	14:08	673.00	678.00	__KLX21B_0673.00_200702251408.ht2	KLX21B_673.00-678.00_070225_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	
2007-02-25	15:24	678.00	683.00	__KLX21B_0678.00_200702251524.ht2	KLX21B_678.00-683.00_070225_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	
2007-02-25	17:38	683.00	688.00	__KLX21B_0683.00_200702251738.ht2	KLX21B_683.00-688.00_070225_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	
2007-02-25	19:40	688.00	693.00	__KLX21B_0688.00_200702251940.ht2	KLX21B_688.00-693.00_070225_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	
2007-02-25	21:57	693.00	698.00	__KLX21B_0693.00_200702252157.ht2	KLX21B_693.00-698.00_070225_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-25	

HYDROTESTING WITH PSS					DRILLHOLE IDENTIFICATION NO.: KLX21B				
TEST- AND FILEPROTOCOL					Testorder dated : 2007-02-07				
Teststart		Interval boundaries		Name of Datafiles		Testtype	Copied to	Plotted	Sign.
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)	
2007-02-26	00:12	698.00	703.00	__KLX21B_0698.00_200702260012.ht2	KLX21B_698.00-703.00_070226_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-26	
2007-02-26	06:17	703.00	708.00	__KLX21B_0703.00_200702260617.ht2	KLX21B_703.00-708.00_070226_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-26	
2007-02-26	08:32	708.00	713.00	__KLX21B_0708.00_200702260832.ht2	KLX21B_708.00-713.00_070226_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-26	
2007-02-26	09:45	713.00	718.00	__KLX21B_0713.00_200702260945.ht2	KLX21B_713.00-718.00_070226_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-26	
2007-02-26	12:51	718.00	723.00	__KLX21B_0718.00_200702261251.ht2	KLX21B_718.00-723.00_070226_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-26	
2007-02-26	15:07	723.00	728.00	__KLX21B_0723.00_200702261507.ht2	KLX21B_723.00-728.00_070226_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-26	
2007-02-26	16:33	723.00	728.00	__KLX21B_0723.00_200702261633.ht2	KLX21B_723.00-728.00_070226_2_CHir_Q_r.csv	CHir	2007-02-27	2007-02-26	
2007-02-26	18:46	728.00	733.00	__KLX21B_0728.00_200702261846.ht2	KLX21B_728.00-733.00_070226_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-26	
2007-02-26	20:01	733.00	738.00	__KLX21B_0733.00_200702262001.ht2	KLX21B_733.00-738.00_070226_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-27	
2007-02-27	06:22	738.00	743.00	__KLX21B_0738.00_200702270622.ht2	KLX21B_738.00-743.00_070227_1_CHir_Q_r.csv	CHir	2007-02-27	2007-02-27	

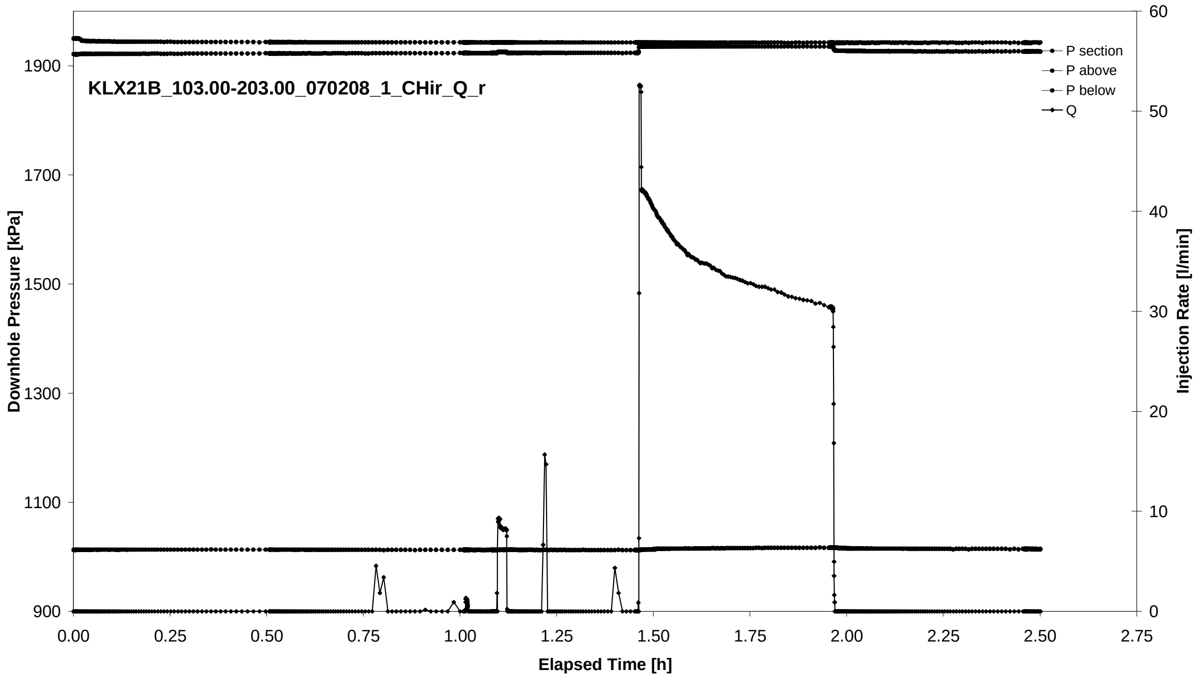
APPENDIX 2

Analysis diagrams

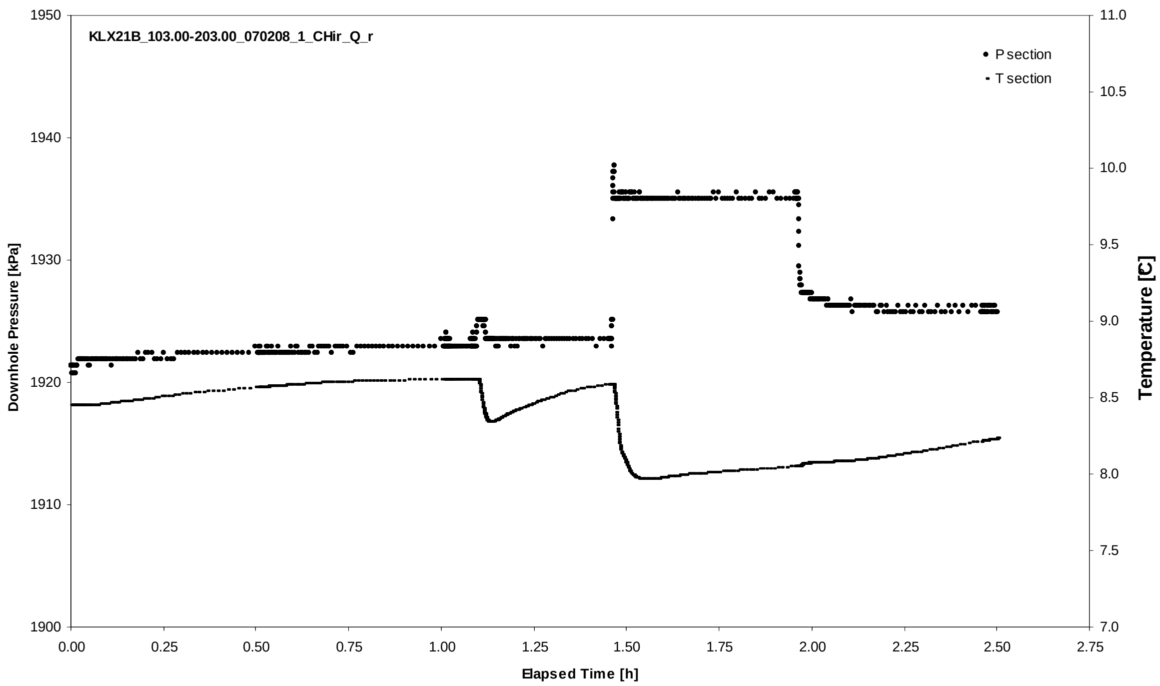
APPENDIX 2-1

Test 103.00 – 203.00 m

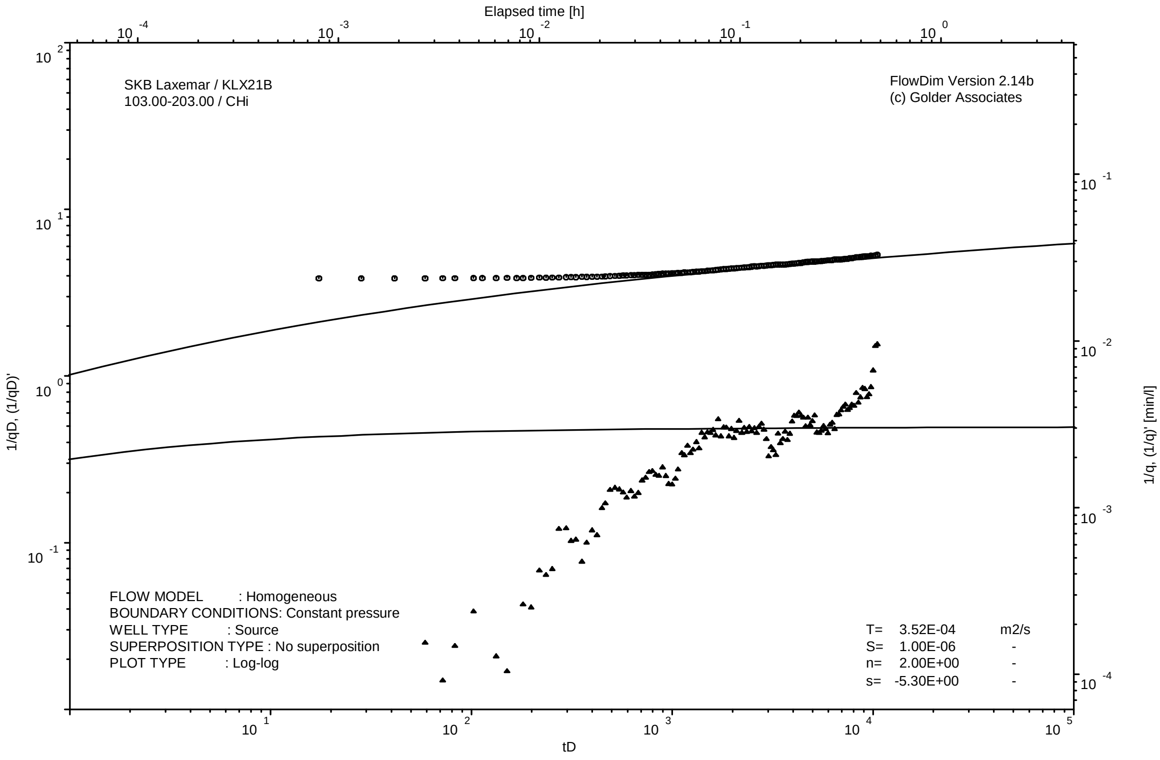
Analysis diagrams



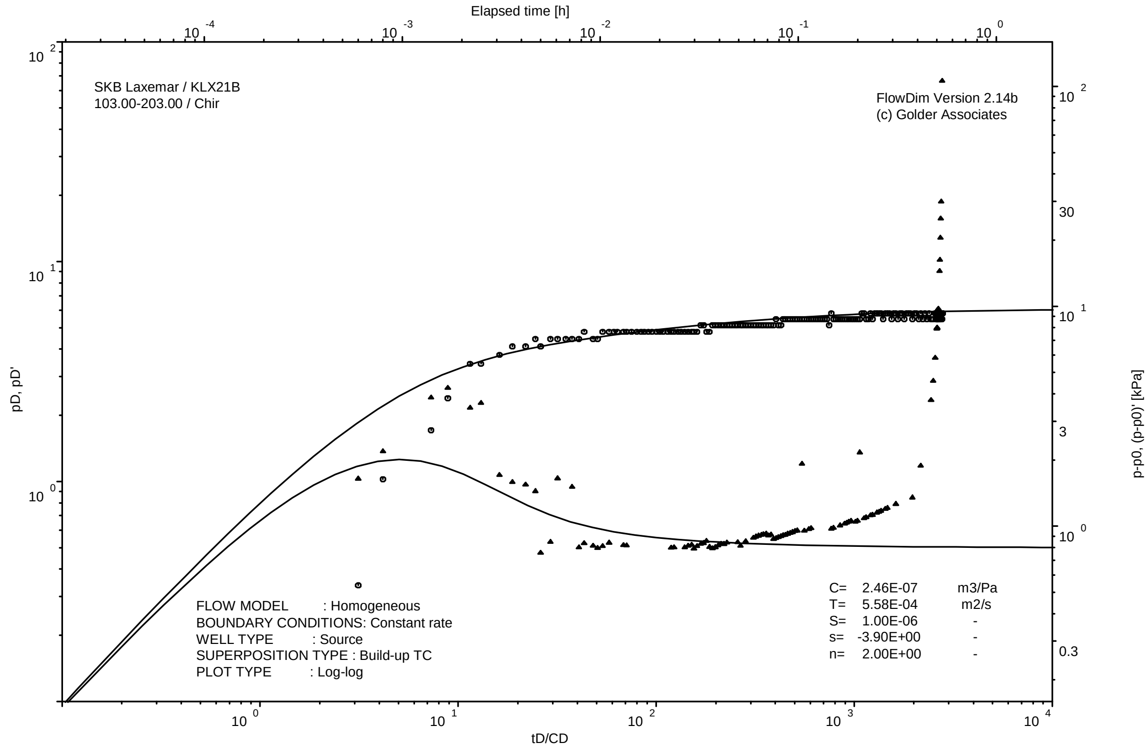
Pressure and flow rate vs. time; cartesian plot



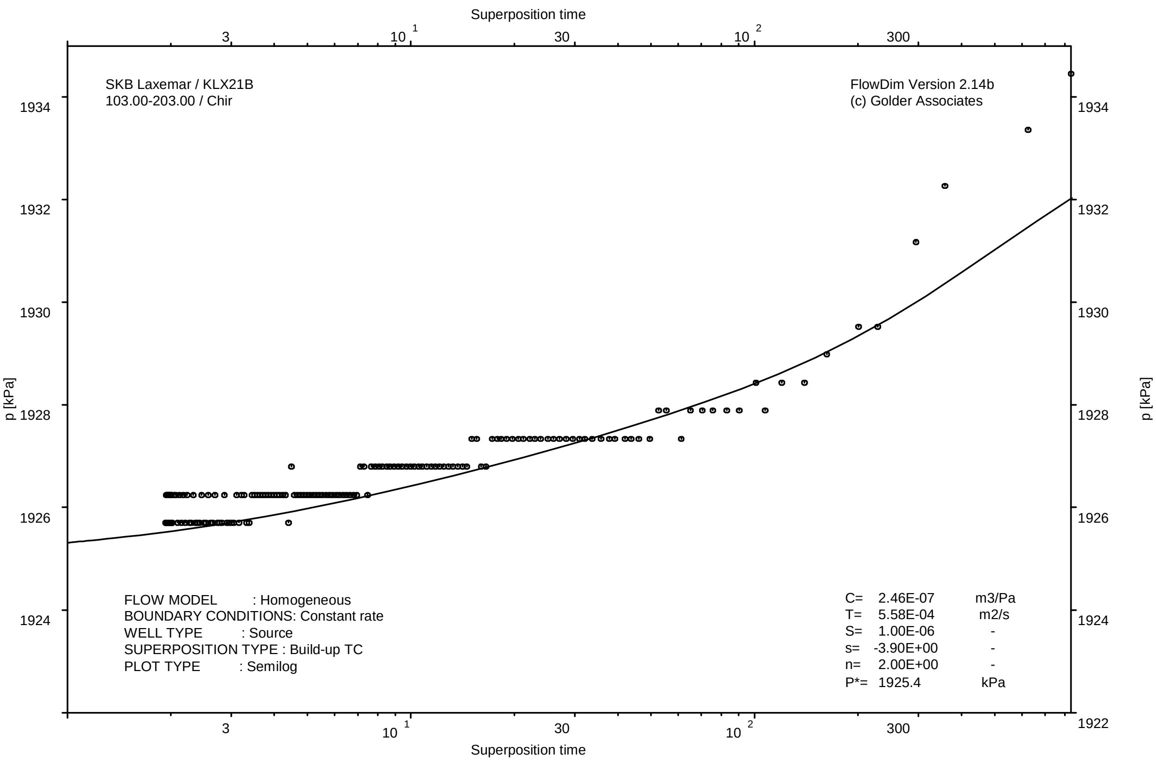
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

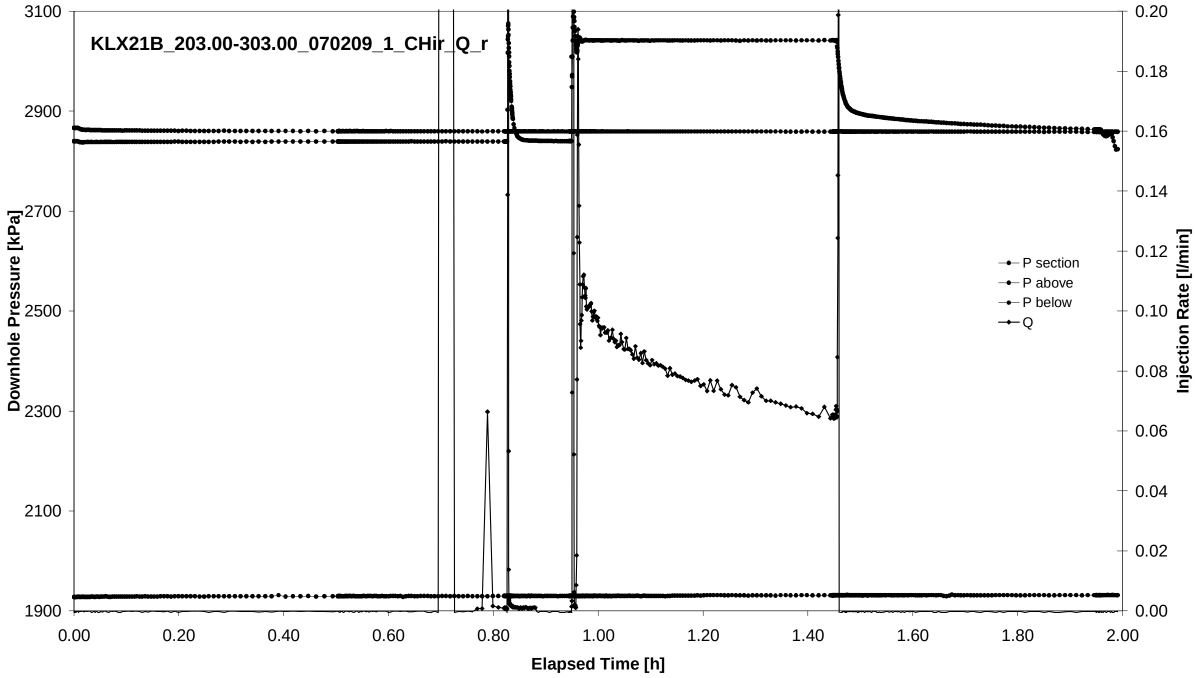


CHIR phase; HORNER match

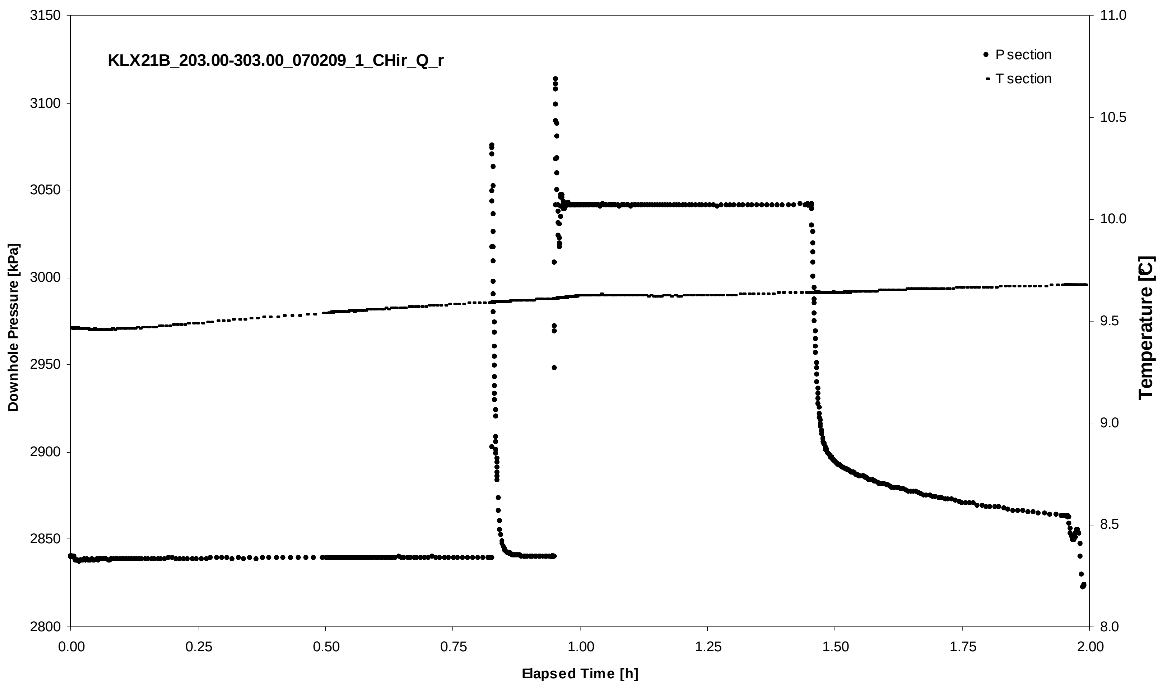
APPENDIX 2-2

Test 203.00 – 303.00 m

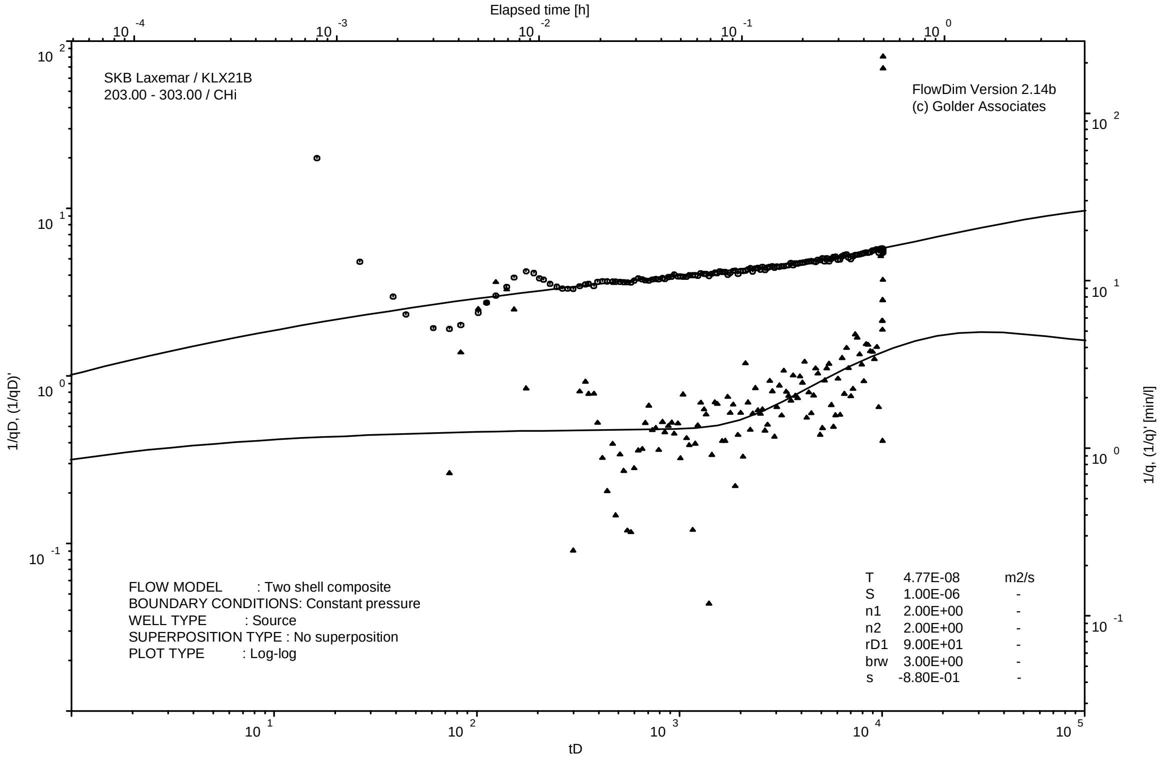
Analysis diagrams



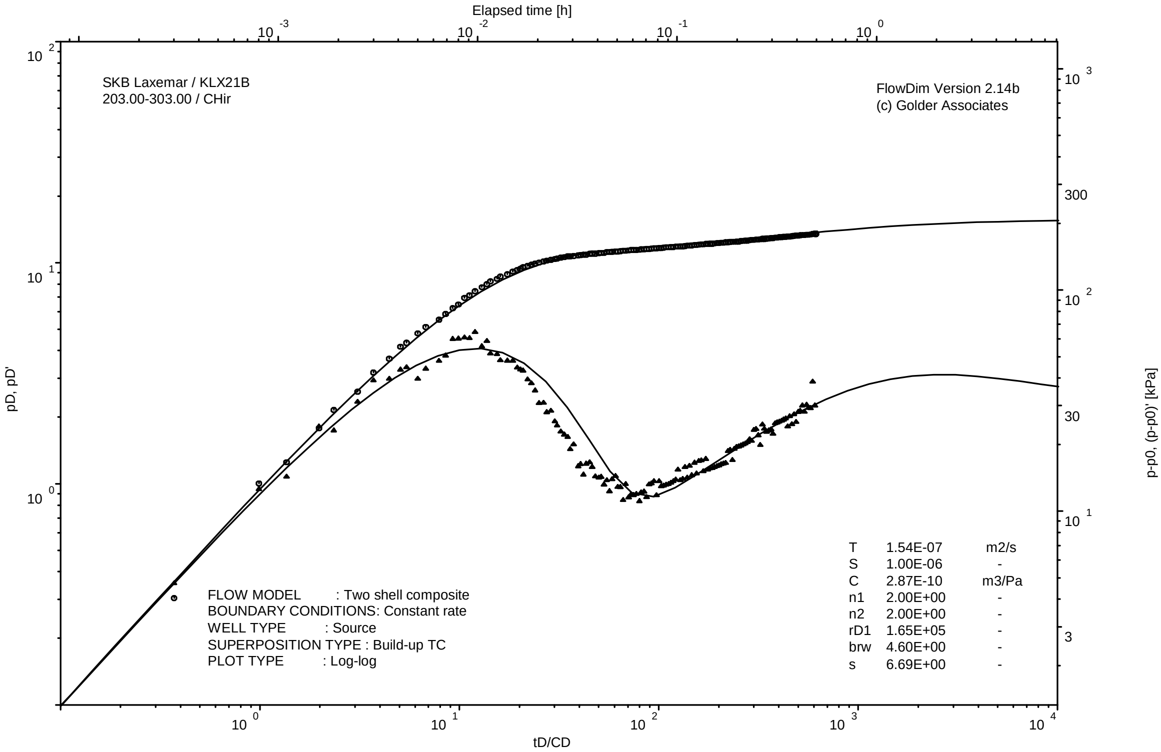
Pressure and flow rate vs. time; cartesian plot



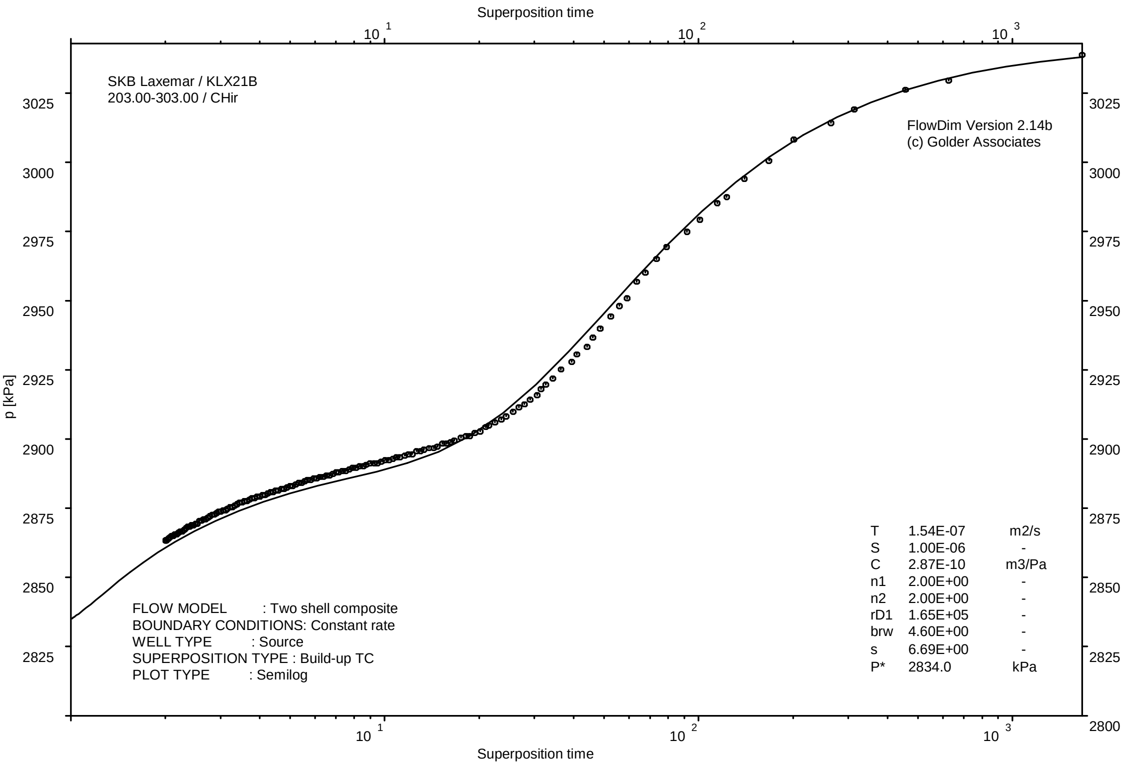
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

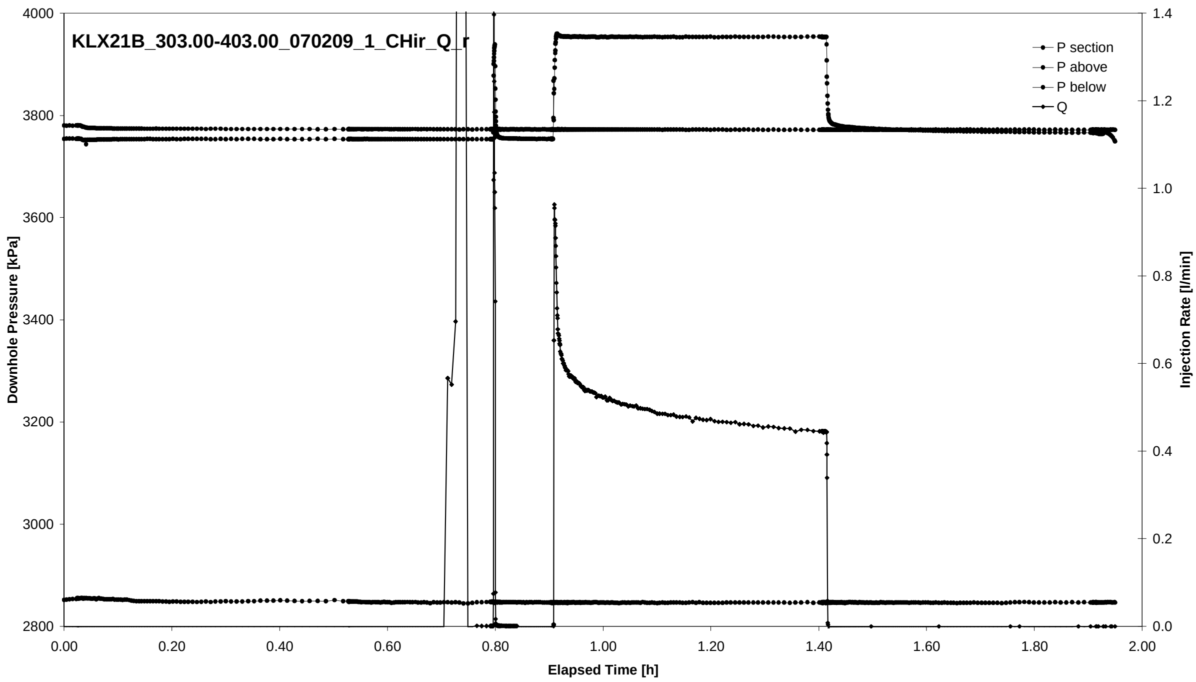


CHIR phase; HORNER match

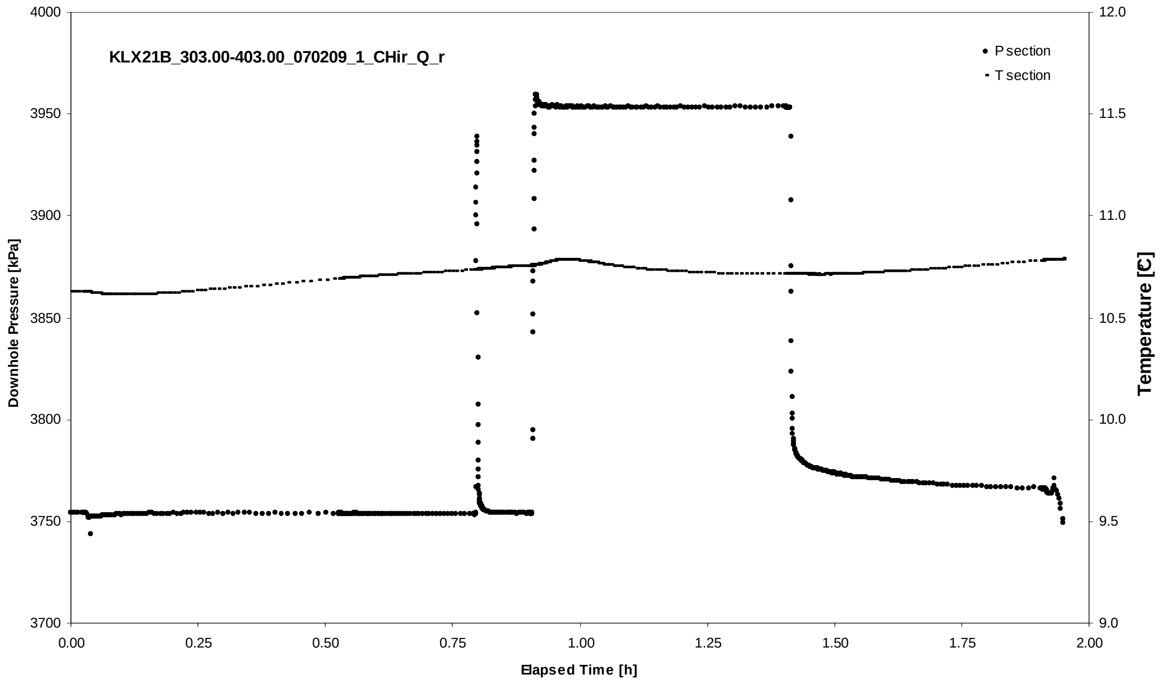
APPENDIX 2-3

Test 303.00 – 403.00 m

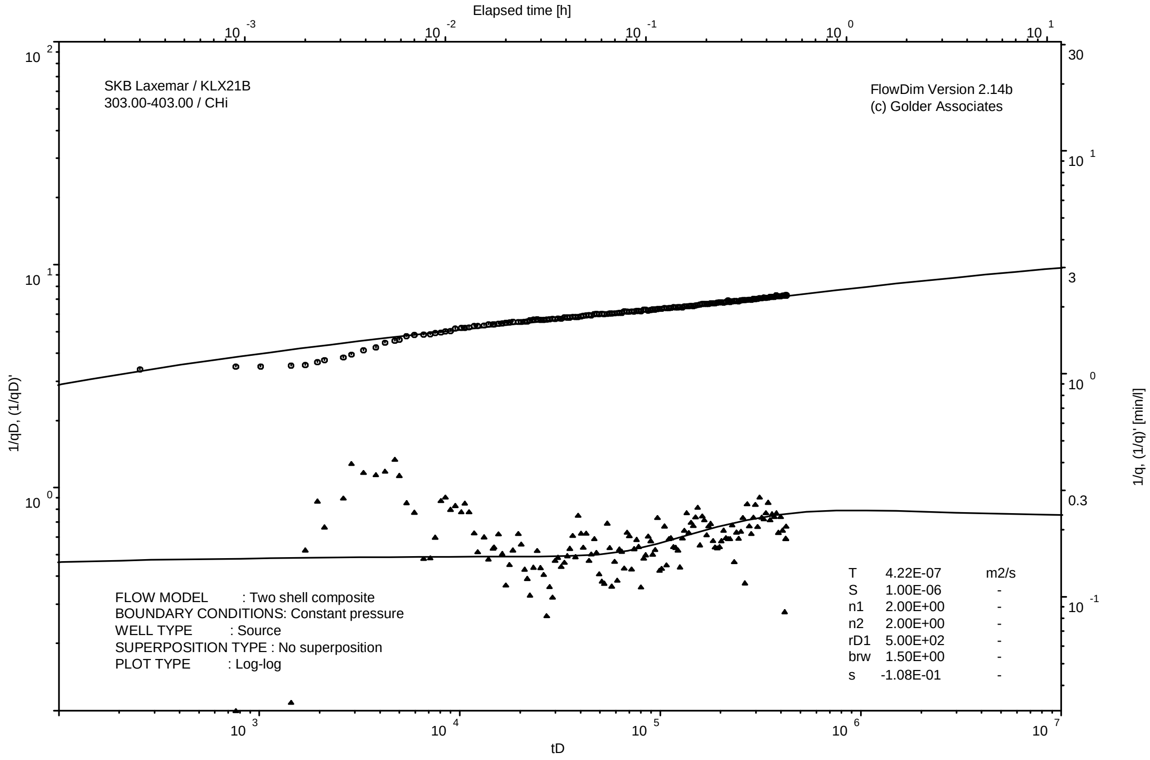
Analysis diagrams



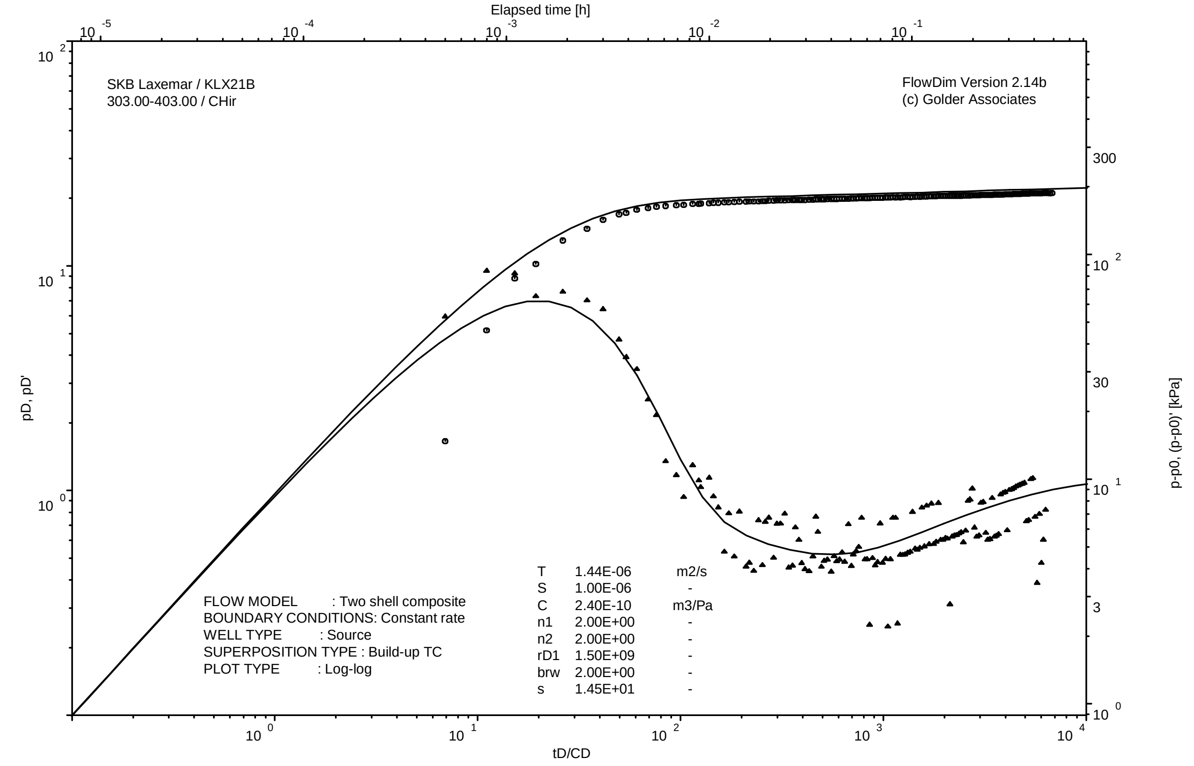
Pressure and flow rate vs. time; cartesian plot



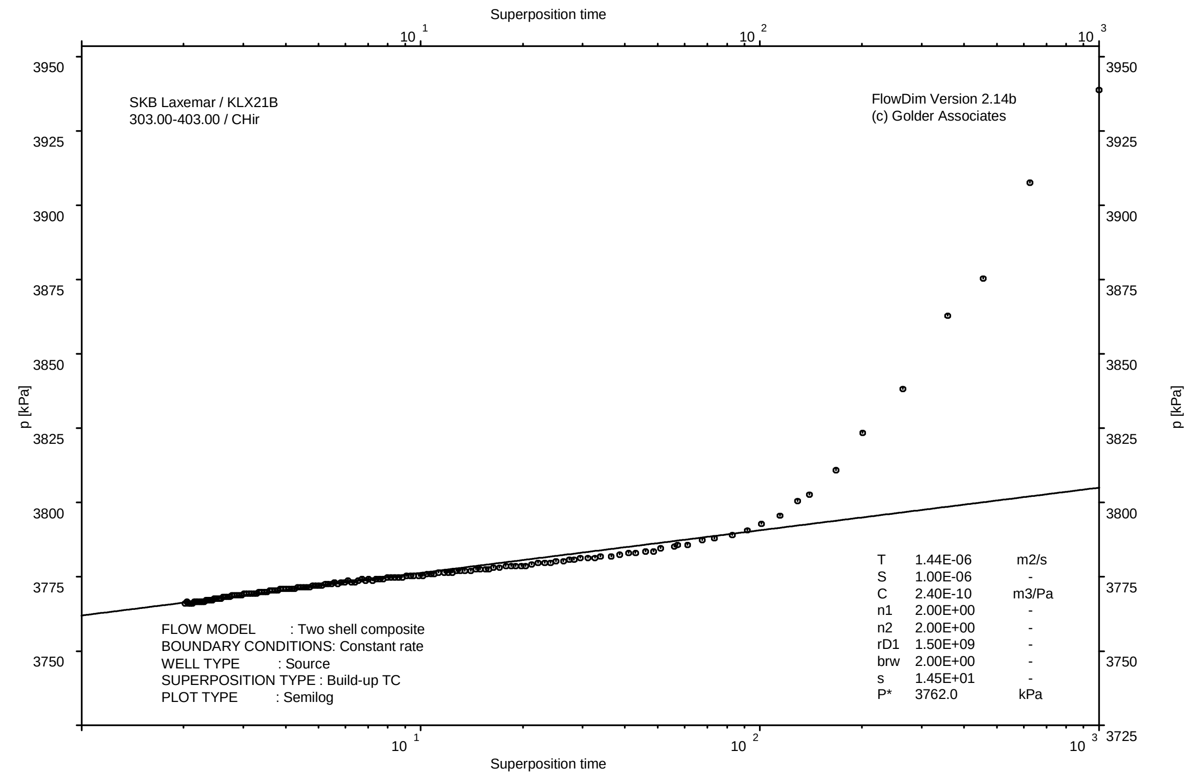
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

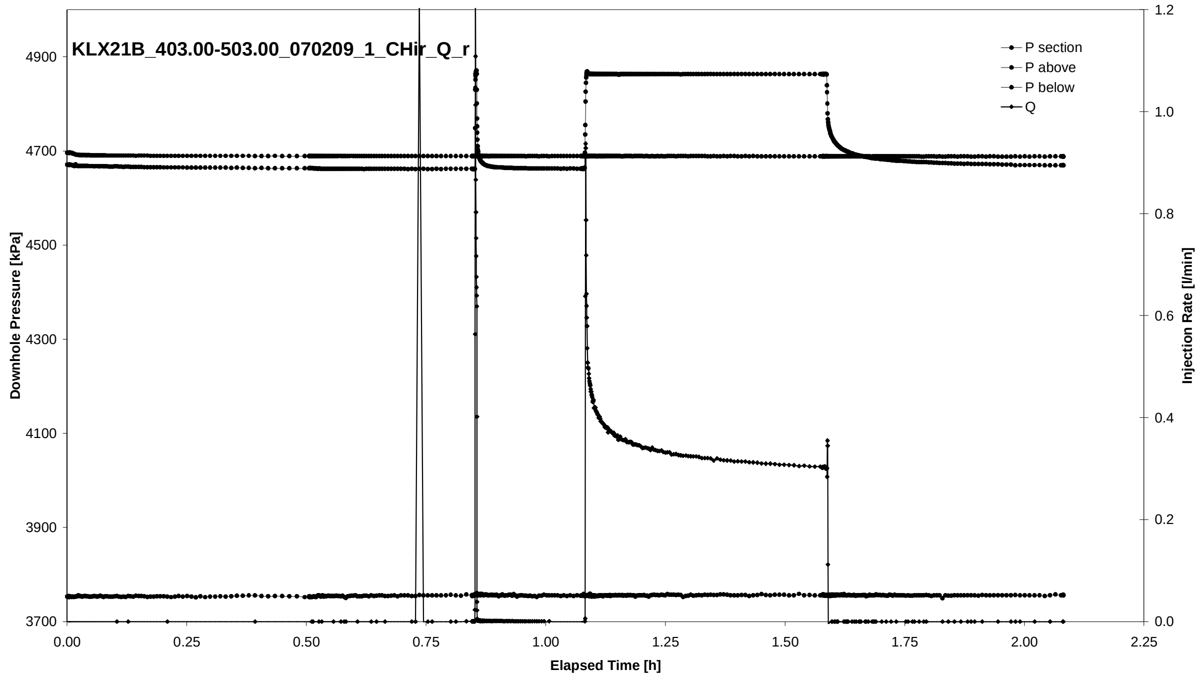


CHIR phase; HORNER match

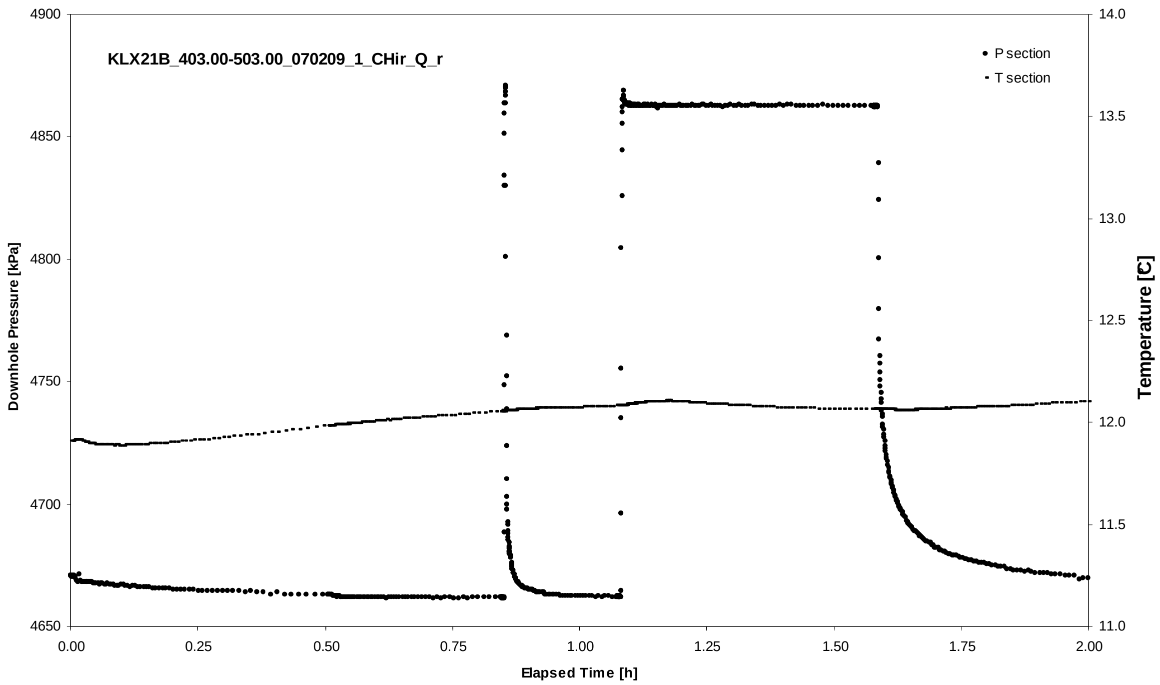
APPENDIX 2-4

Test 403.00 – 503.00 m

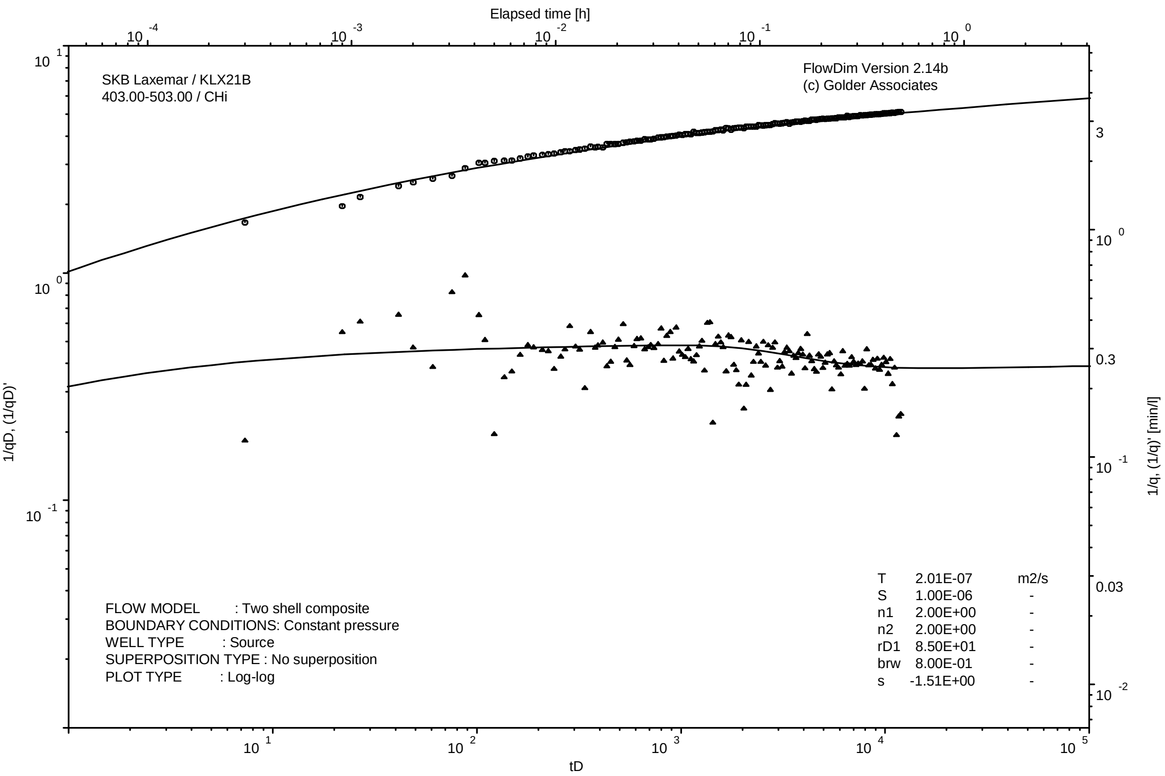
Analysis diagrams



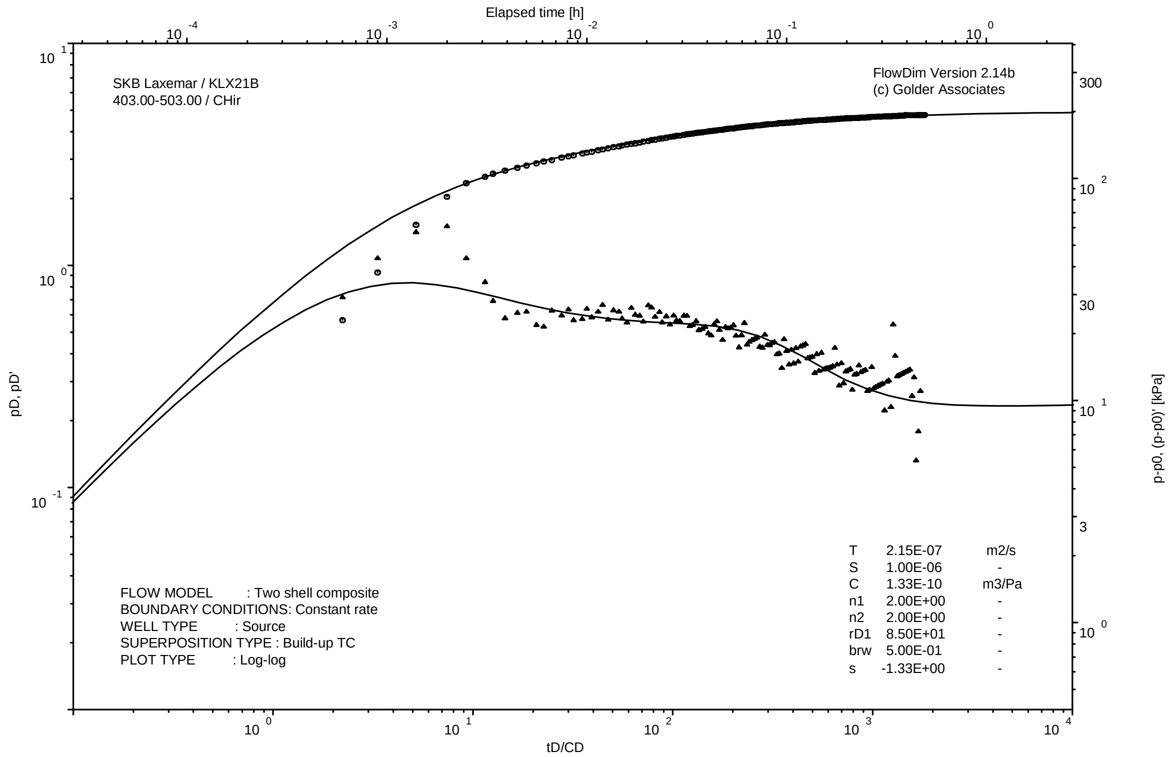
Pressure and flow rate vs. time; cartesian plot



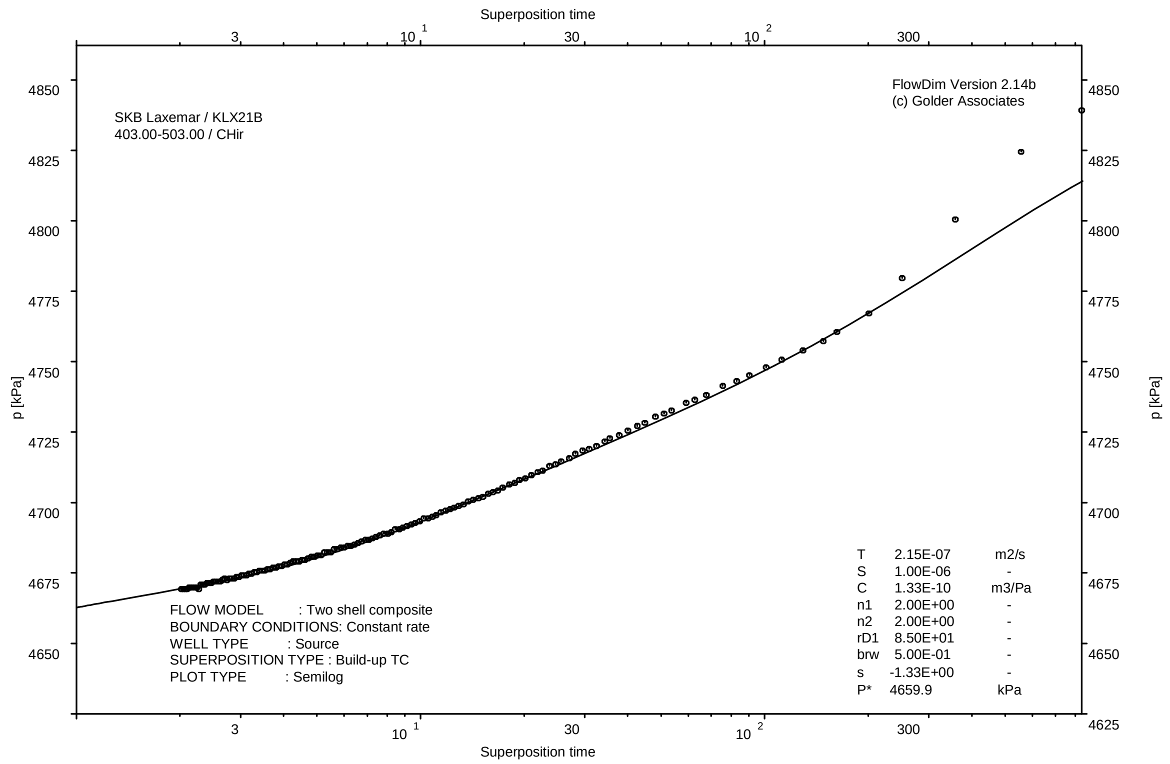
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

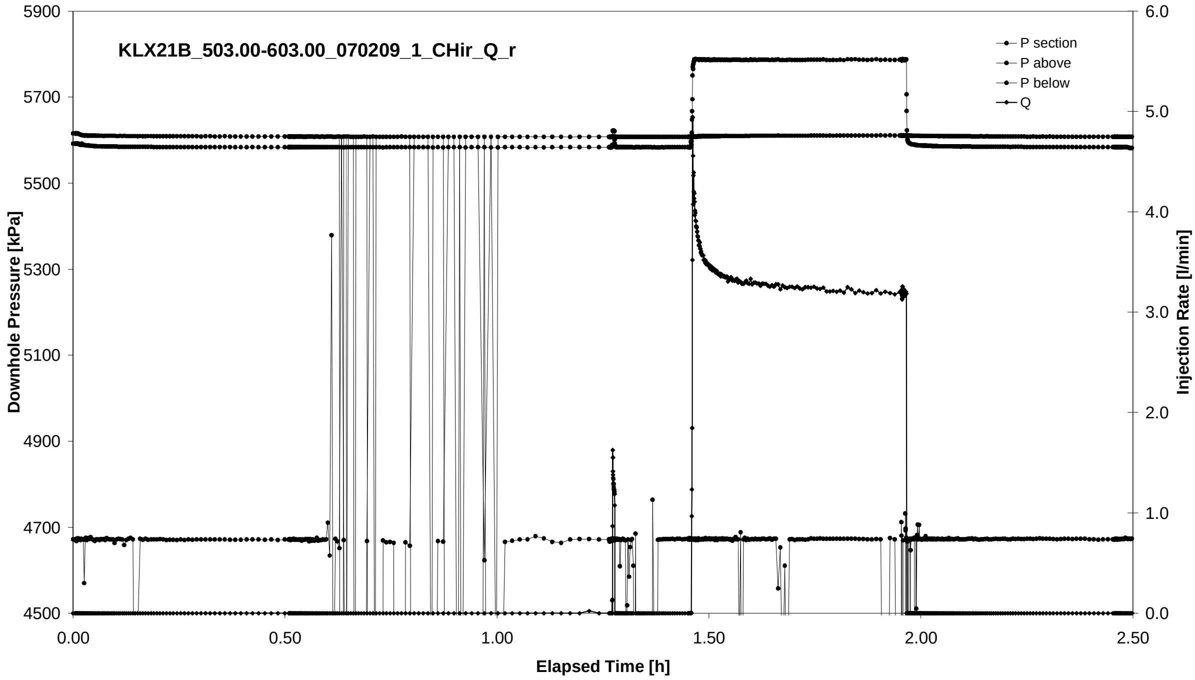


CHIR phase; HORNER match

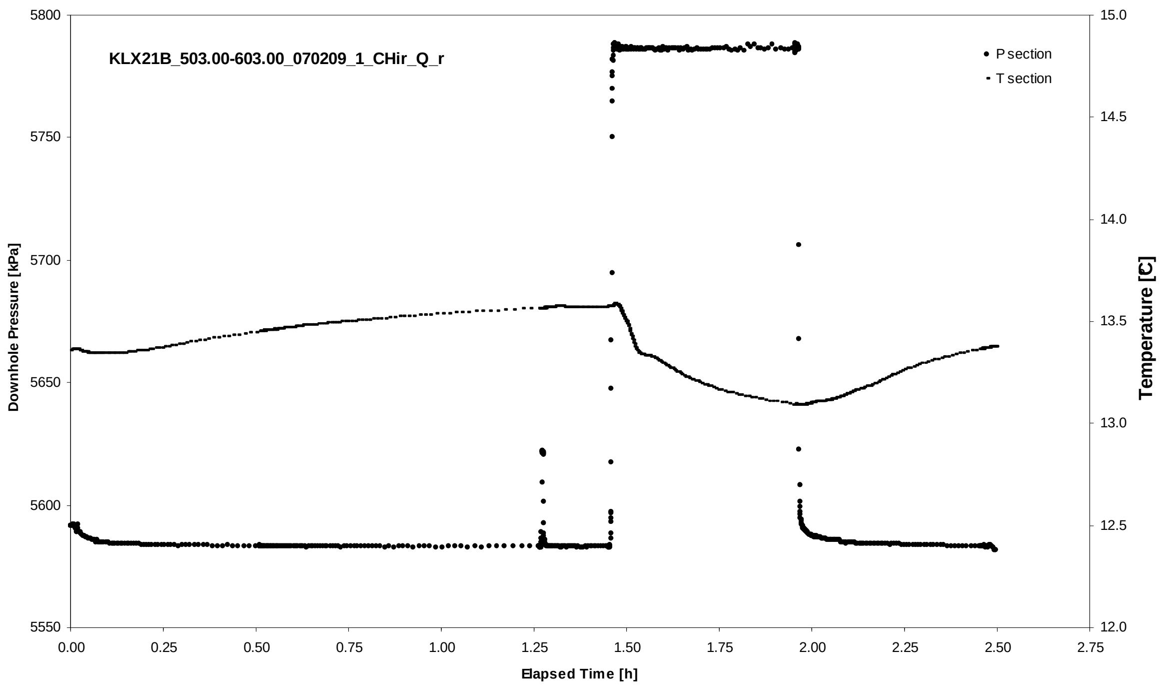
APPENDIX 2-5

Test 503.00 – 603.00 m

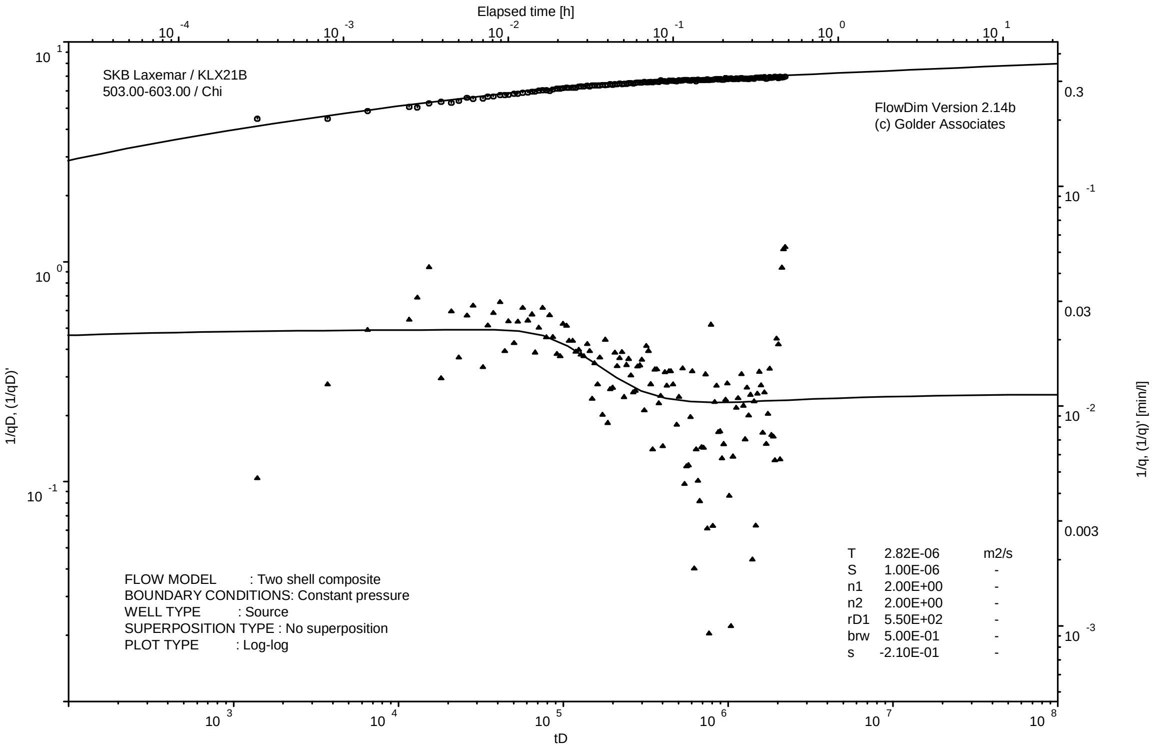
Analysis diagrams



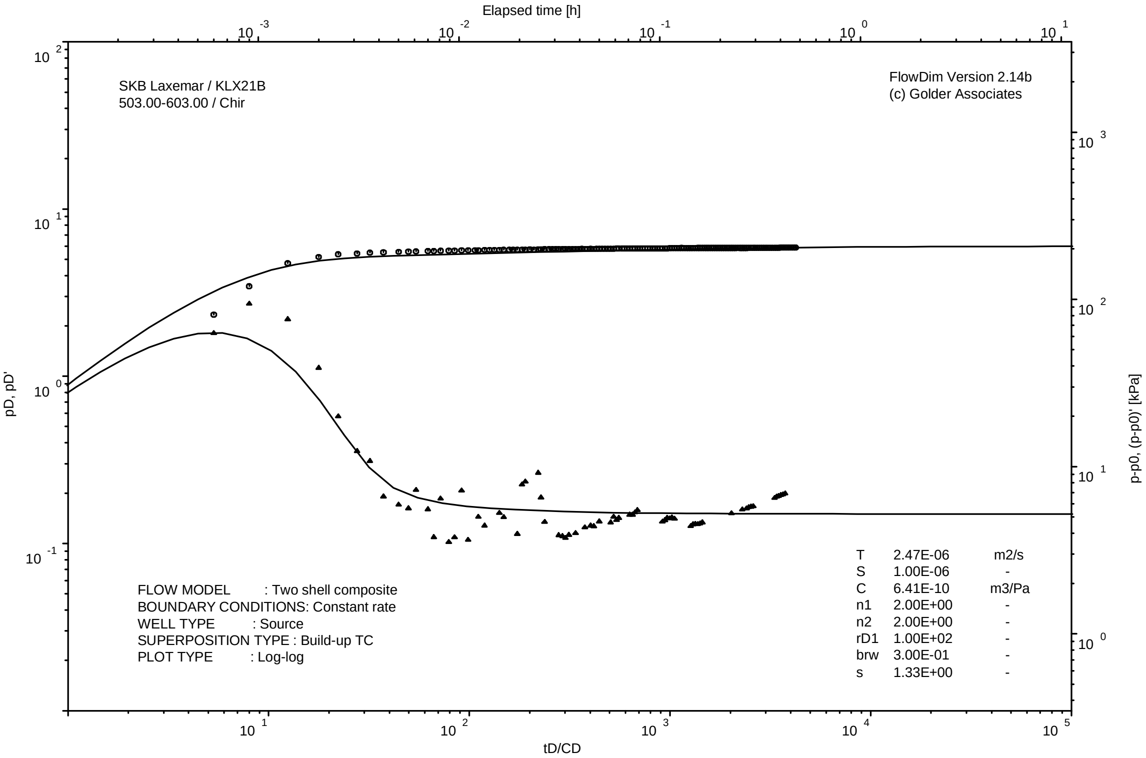
Pressure and flow rate vs. time; cartesian plot



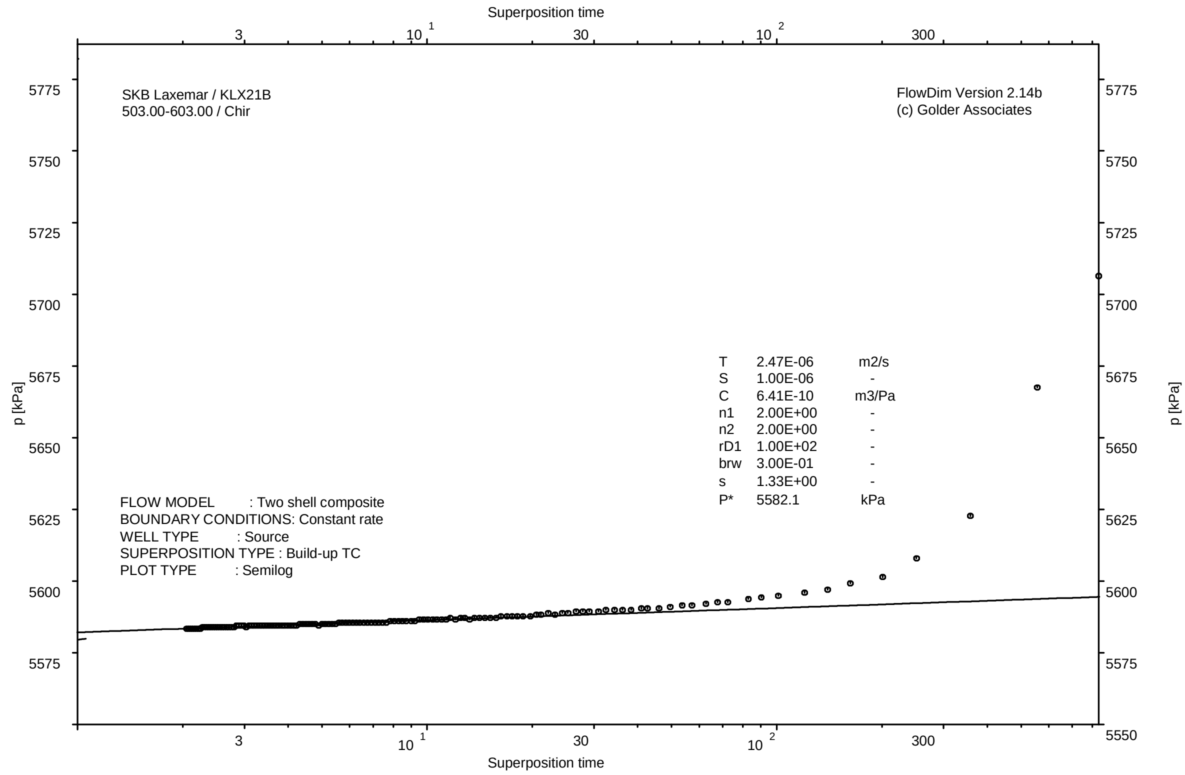
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

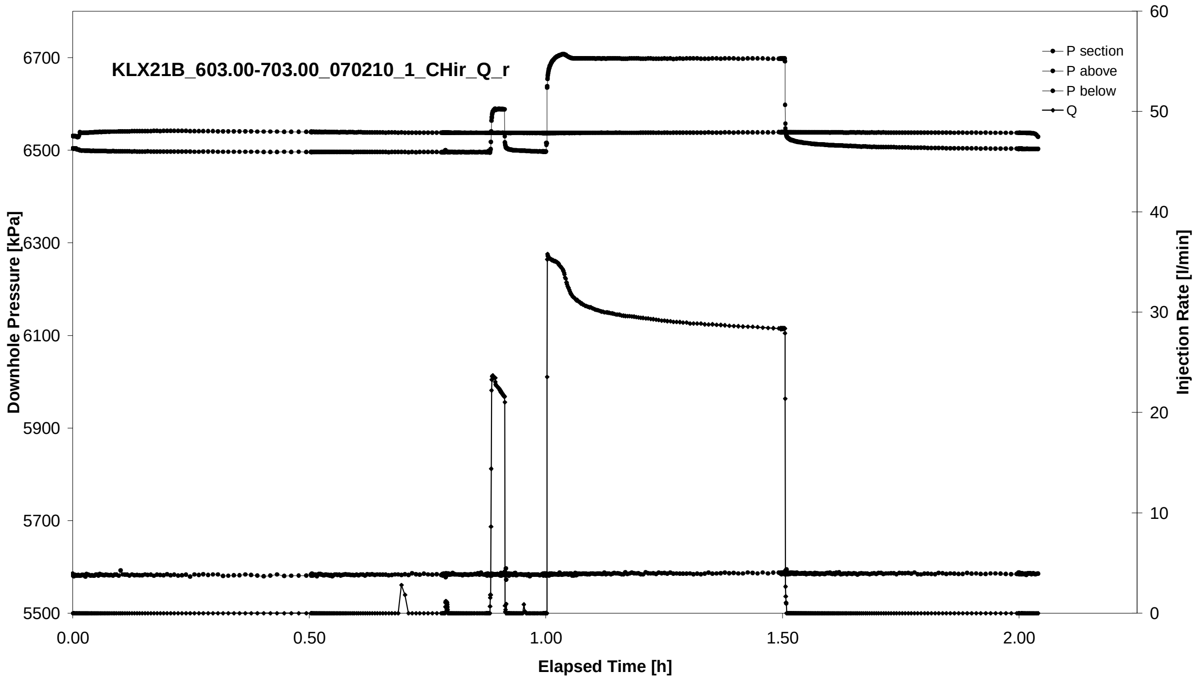


CHIR phase; HORNER match

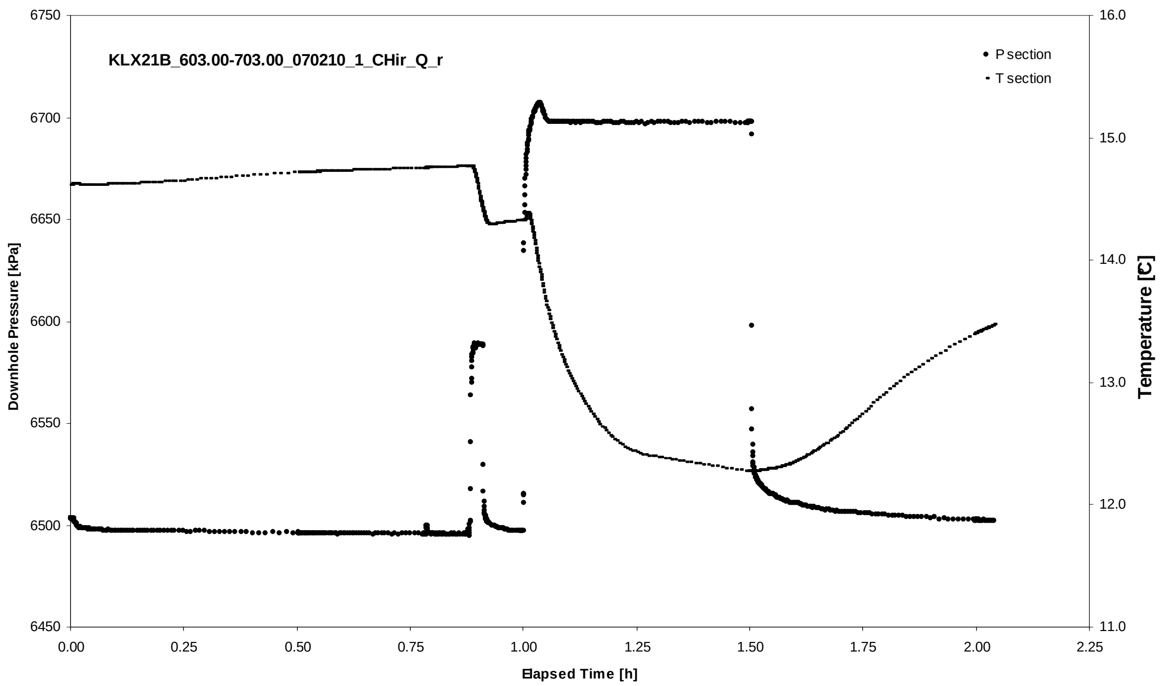
APPENDIX 2-6

Test 603.00 – 703.00 m

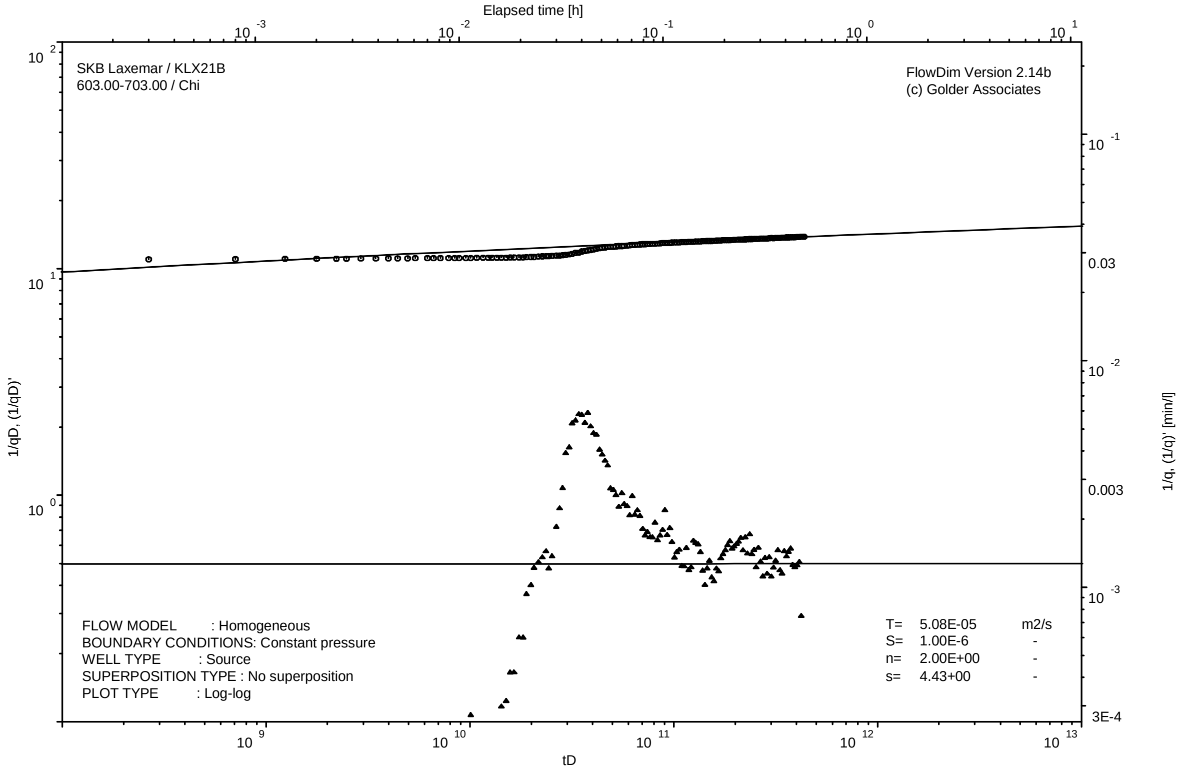
Analysis diagrams



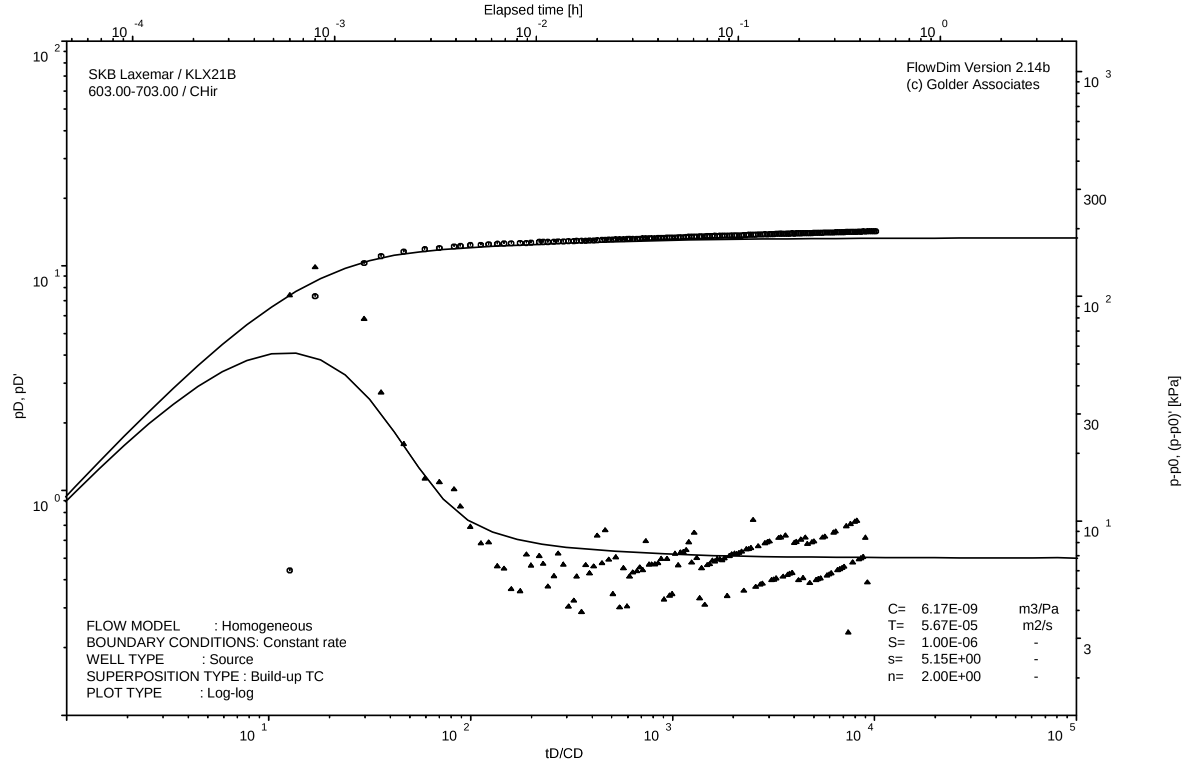
Pressure and flow rate vs. time; cartesian plot



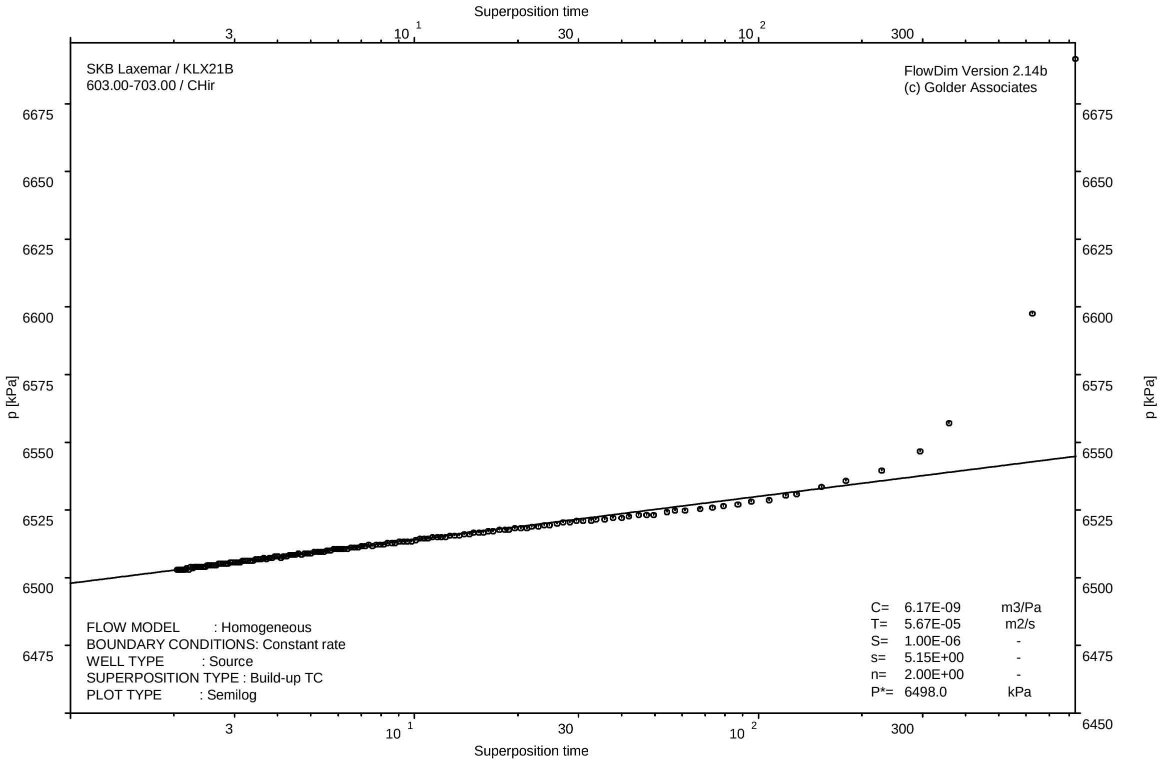
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

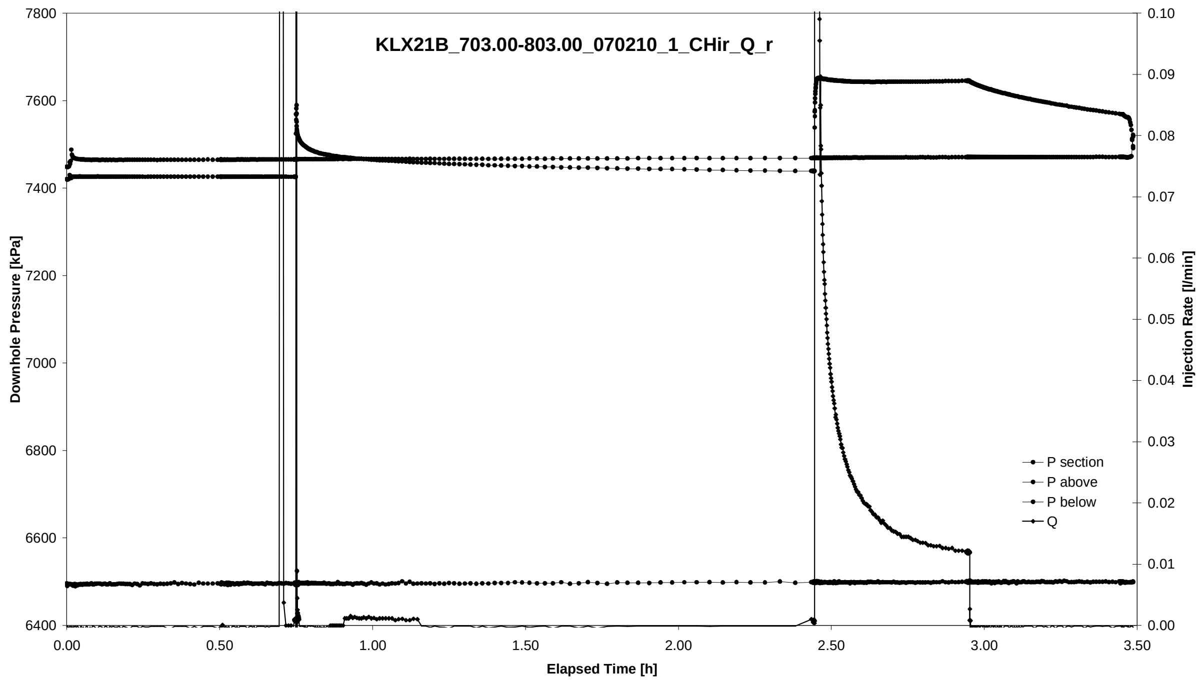


CHIR phase; HORNER match

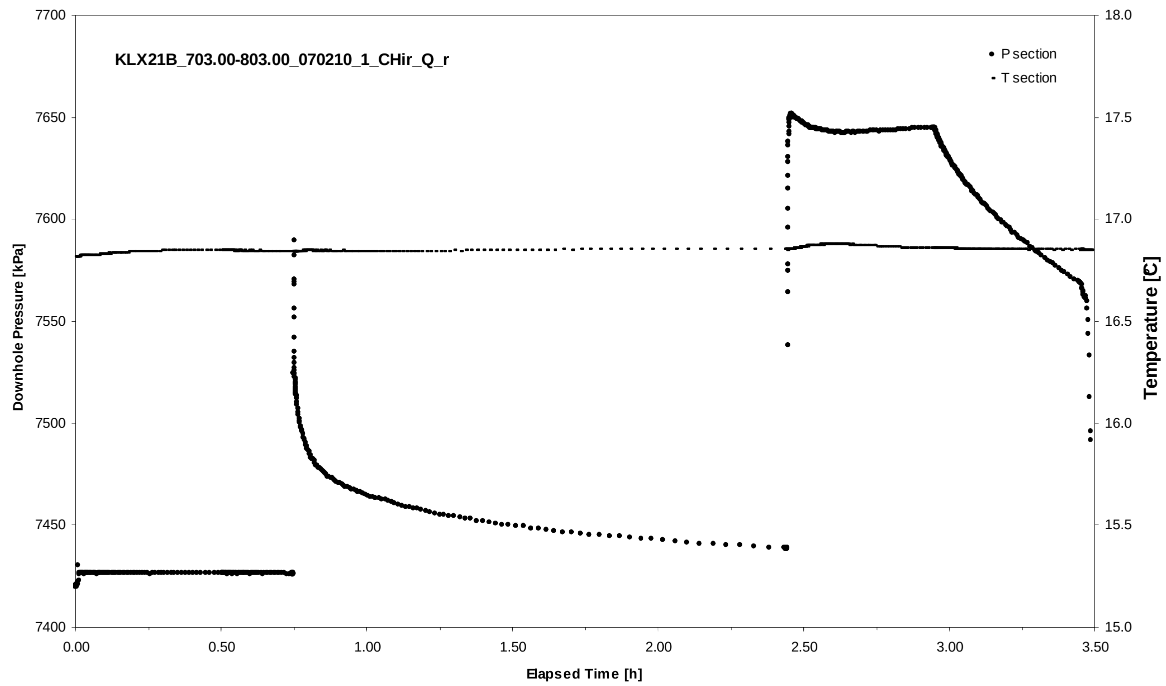
APPENDIX 2-7

Test 703.00 – 803.00 m

Analysis diagrams



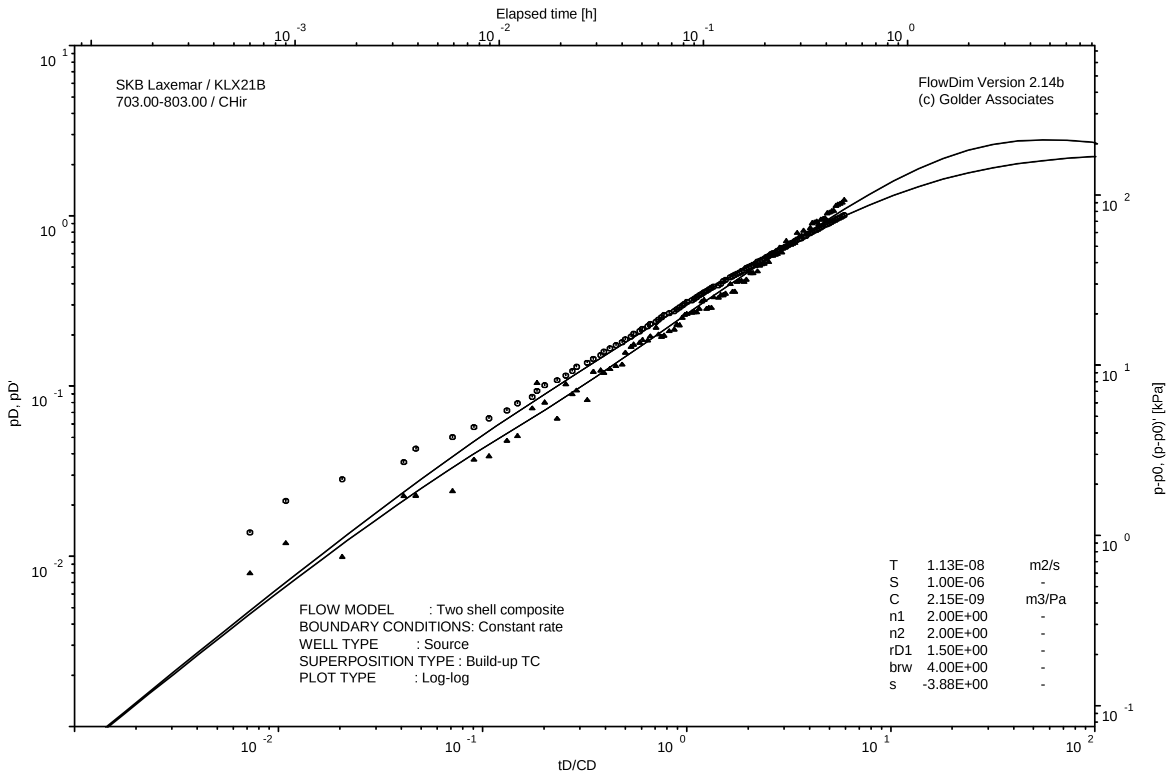
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match



CHIR phase; log-log match

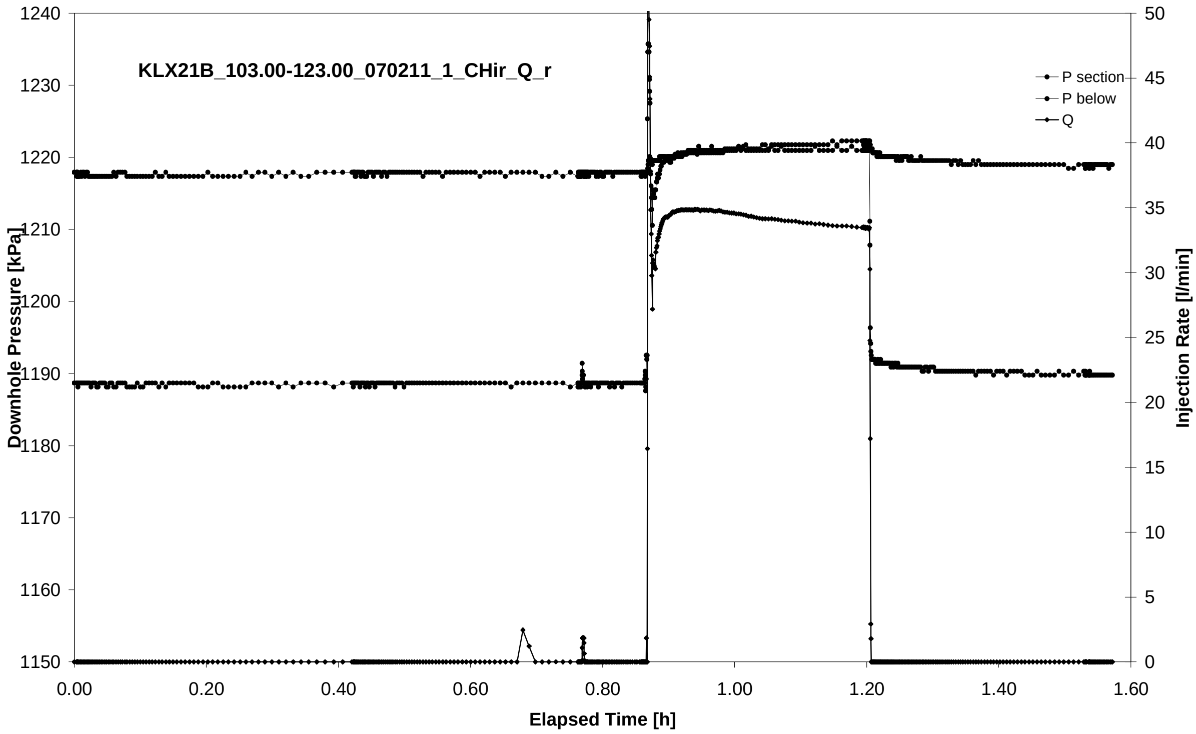
Not analysed

CHIR phase; HORNER match

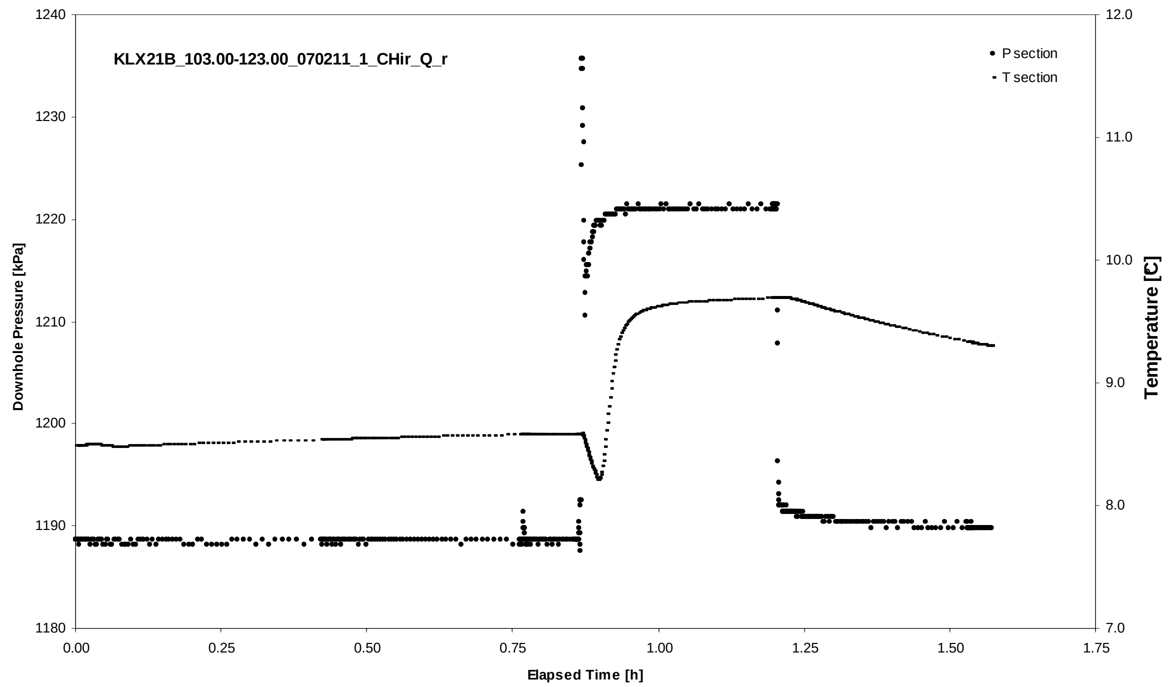
APPENDIX 2-8

Test 103.00 – 123.00 m

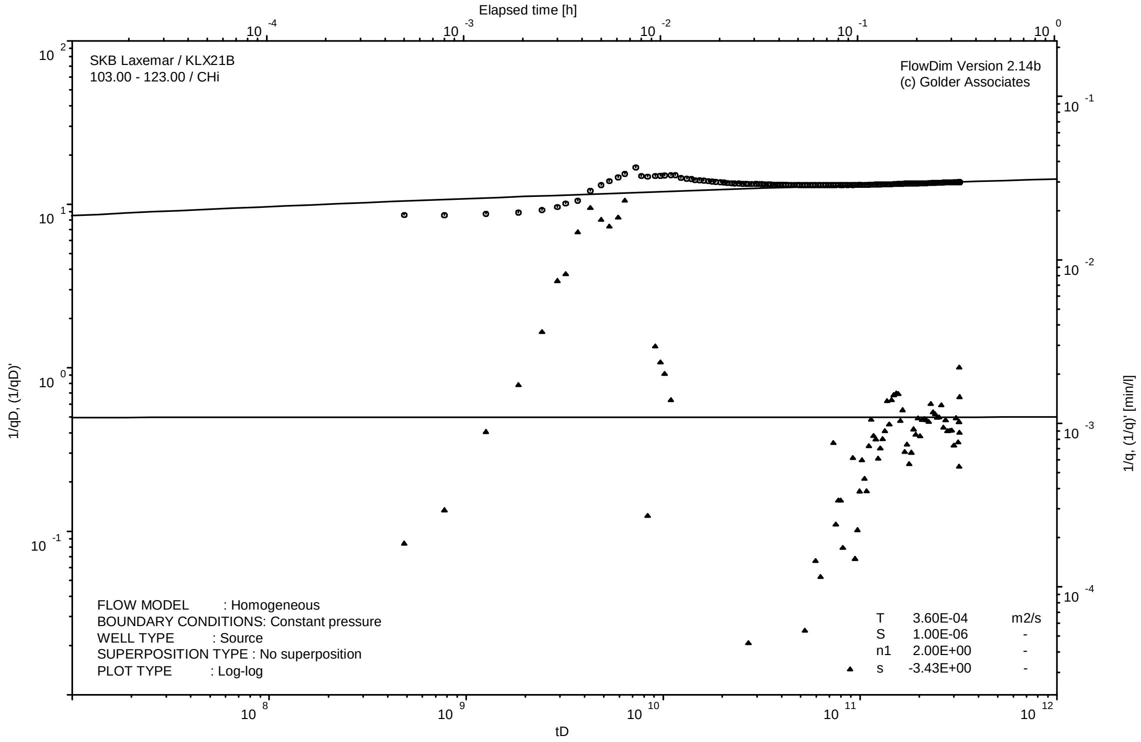
Analysis diagrams



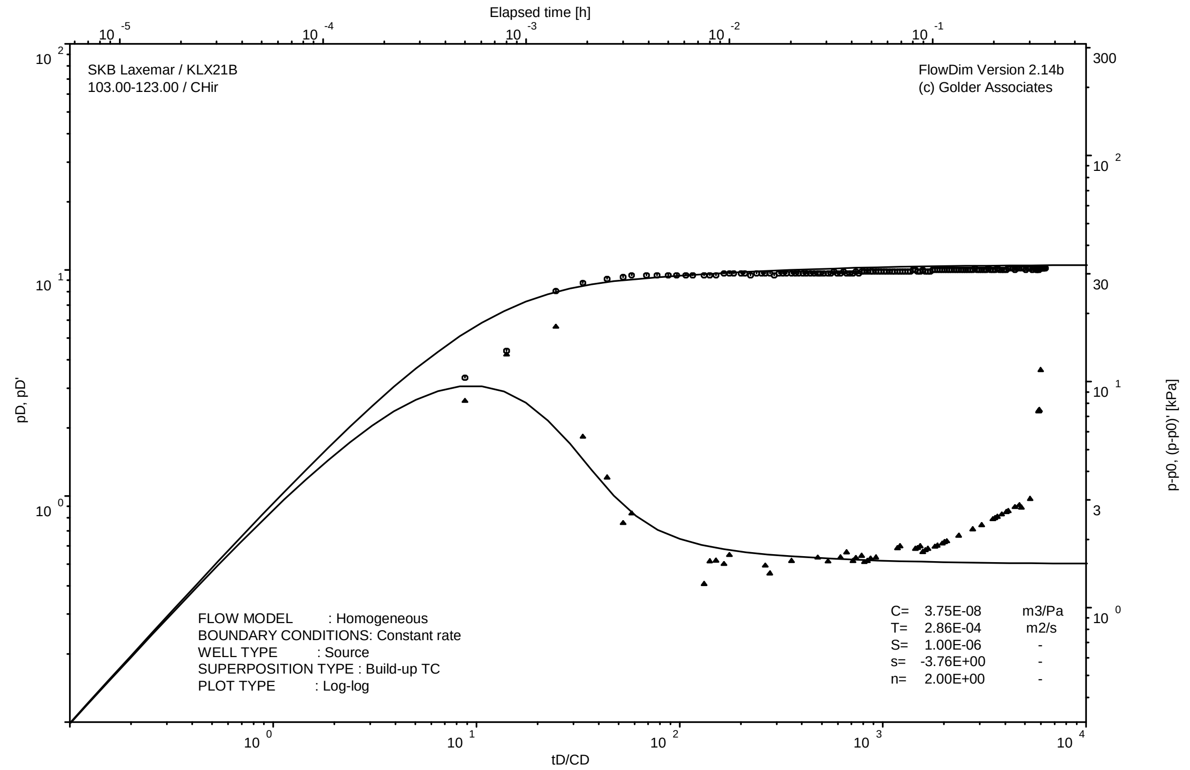
Pressure and flow rate vs. time; cartesian plot



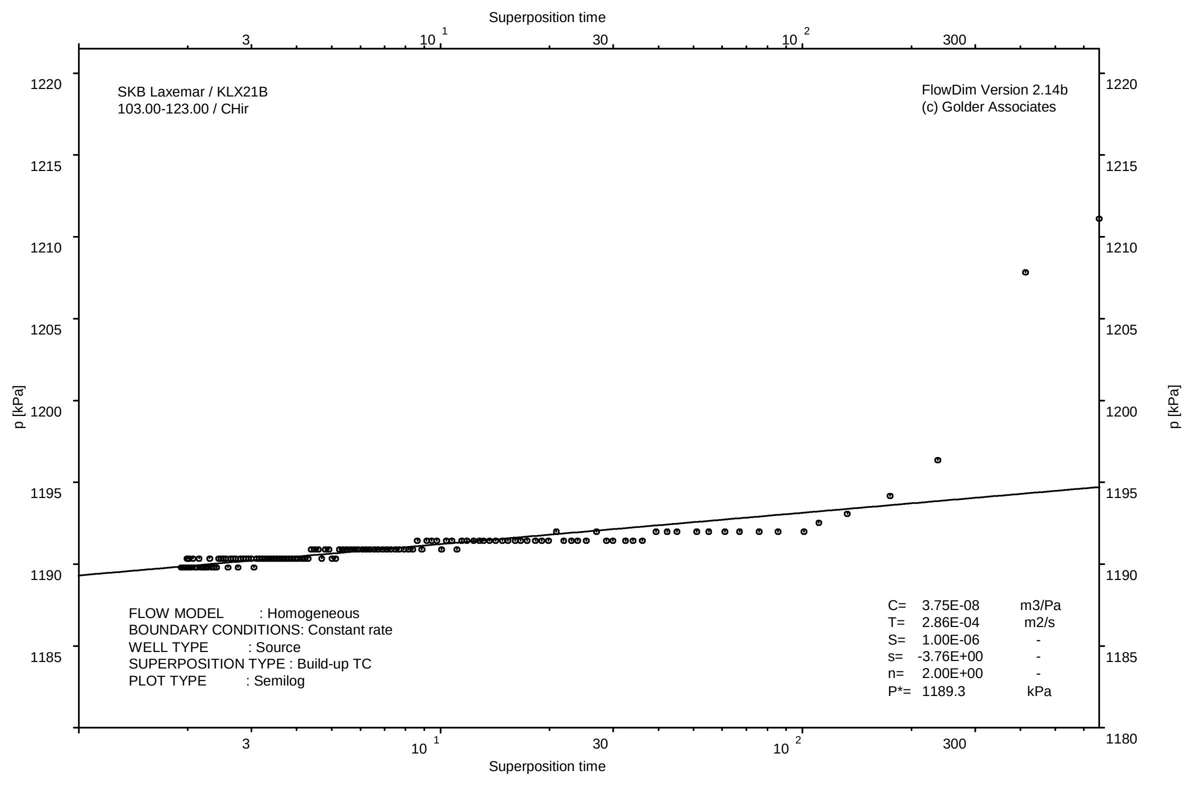
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

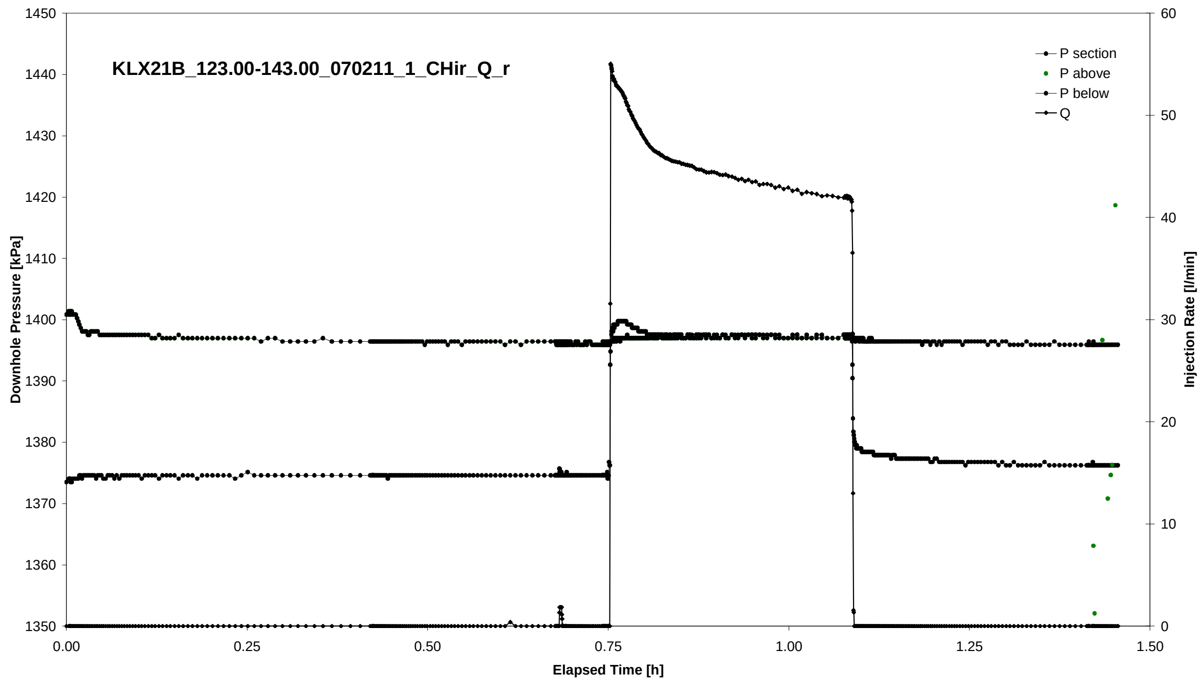


CHIR phase; HORNER match

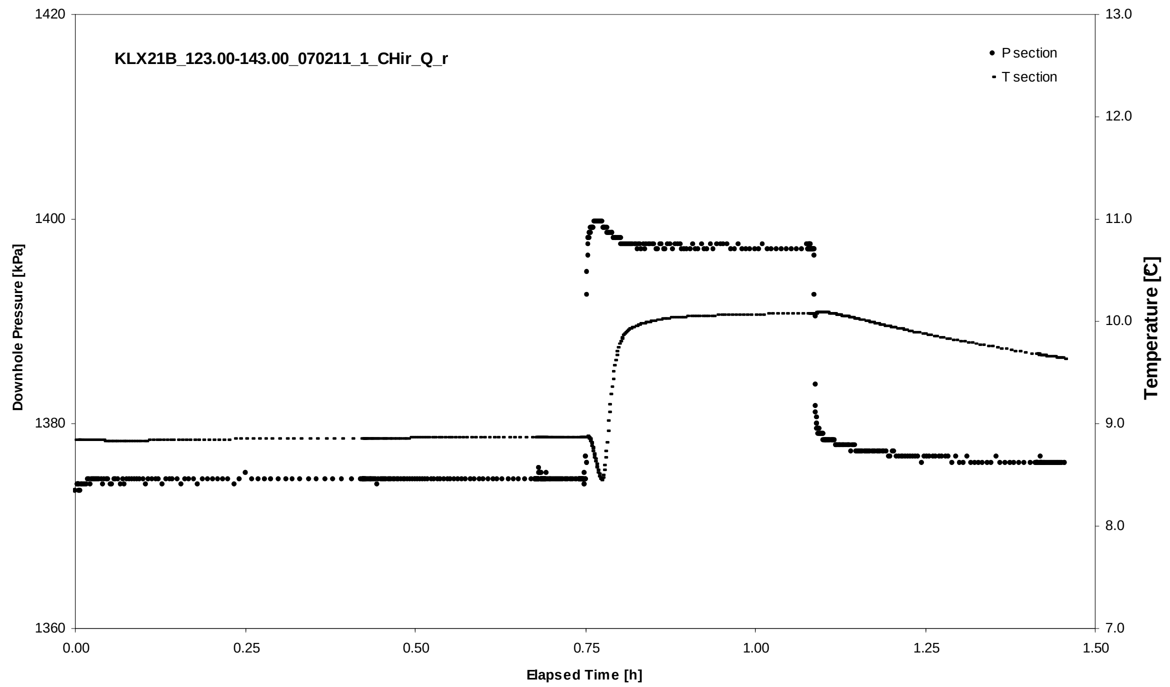
APPENDIX 2-9

Test 123.00 – 143.00 m

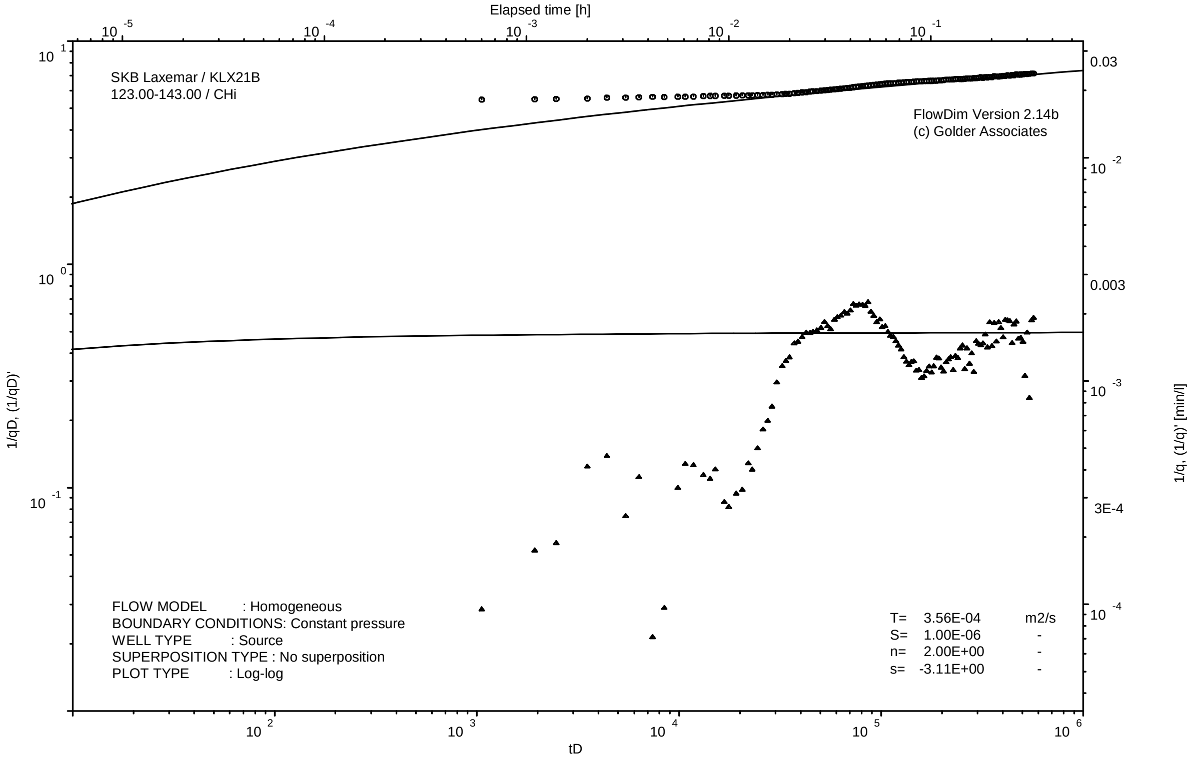
Analysis diagrams



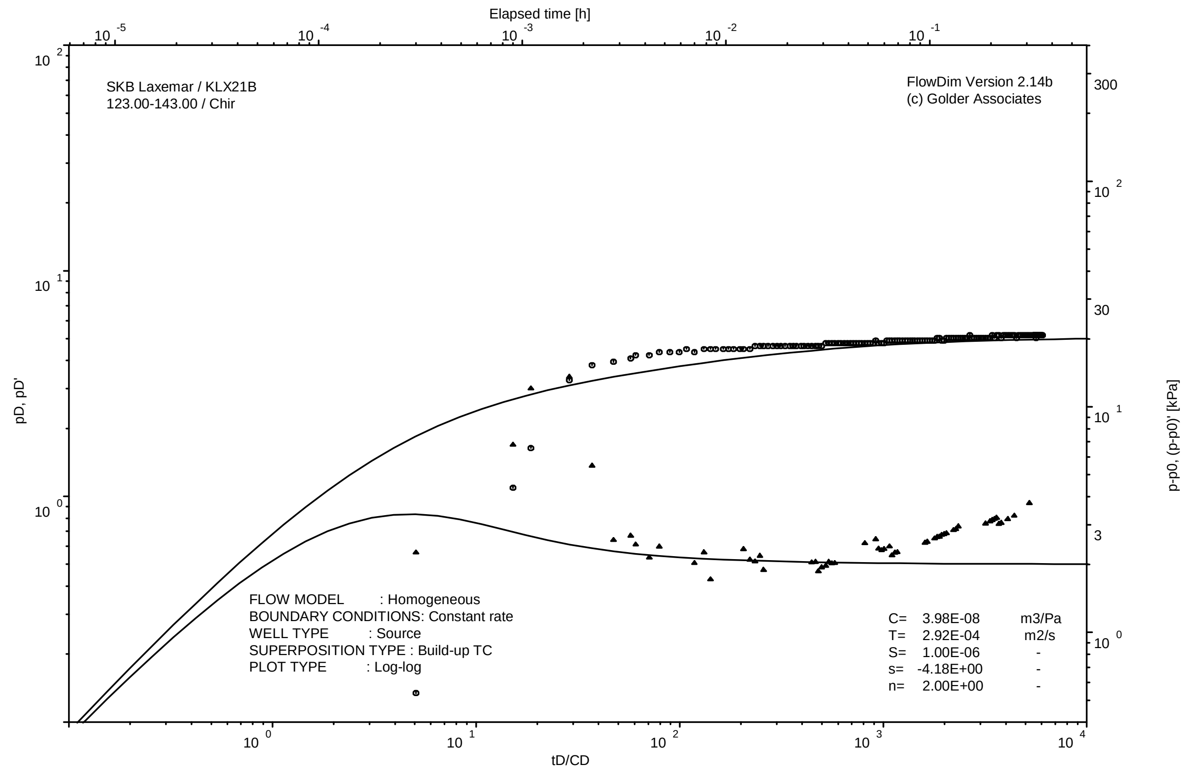
Pressure and flow rate vs. time; cartesian plot



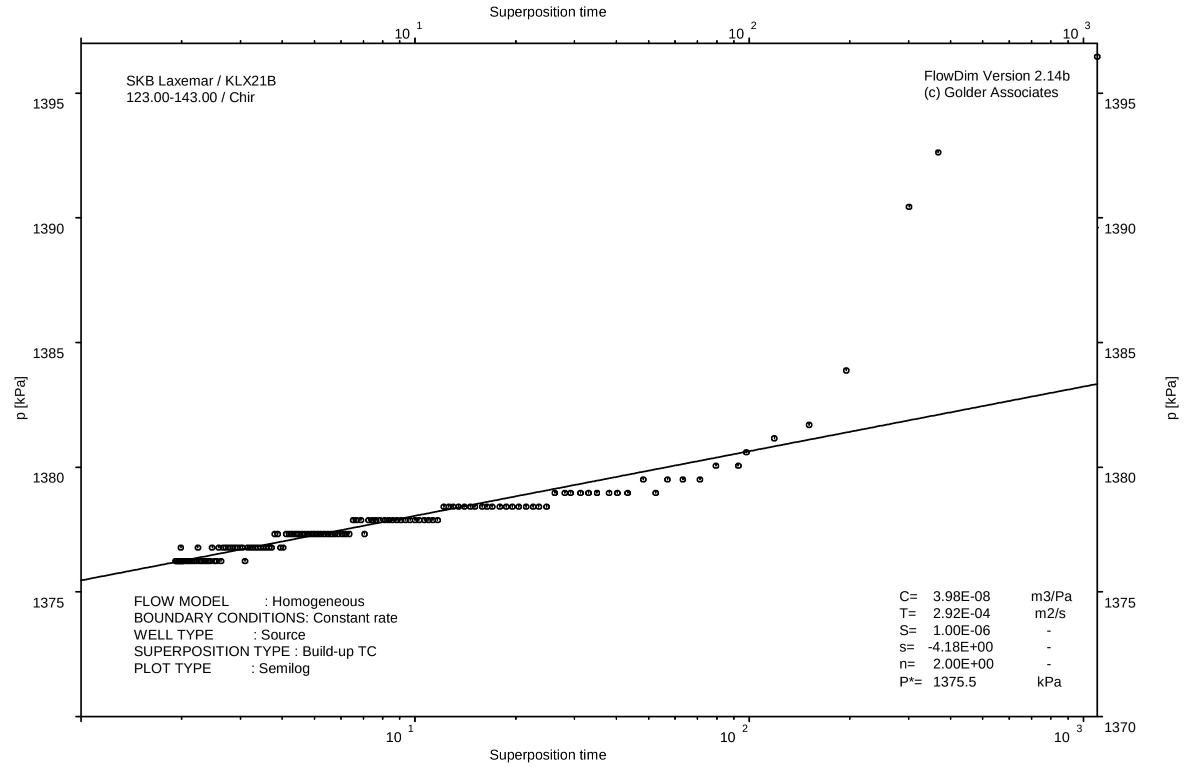
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

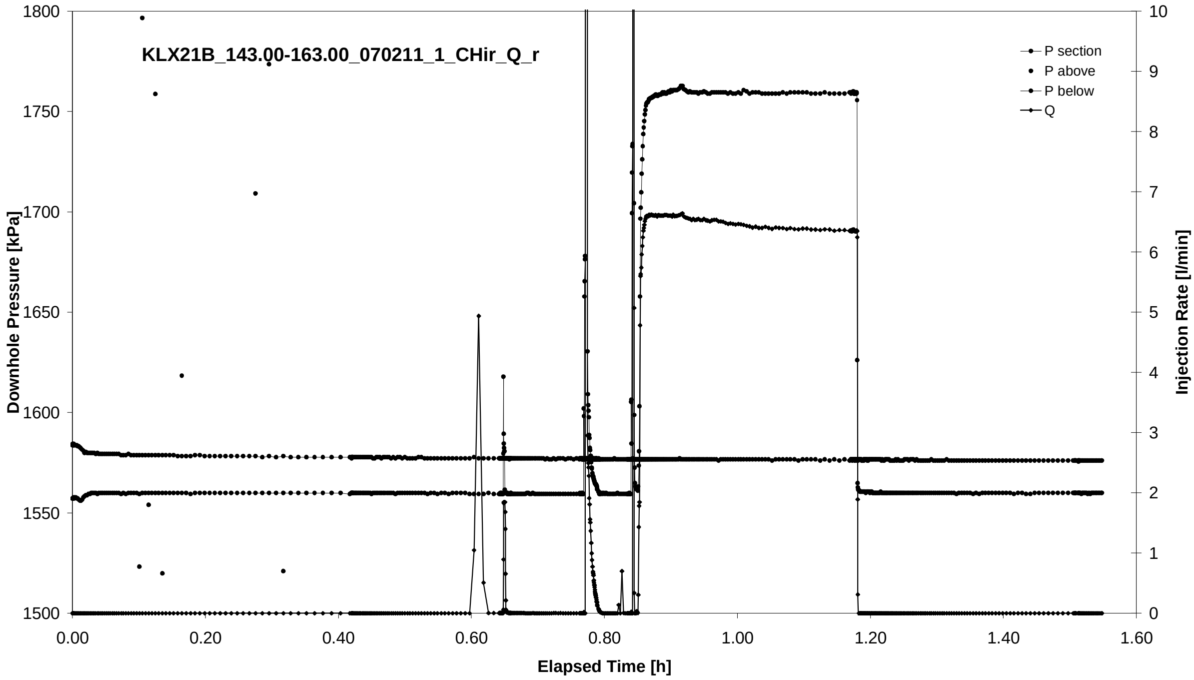


CHIR phase; HORNER match

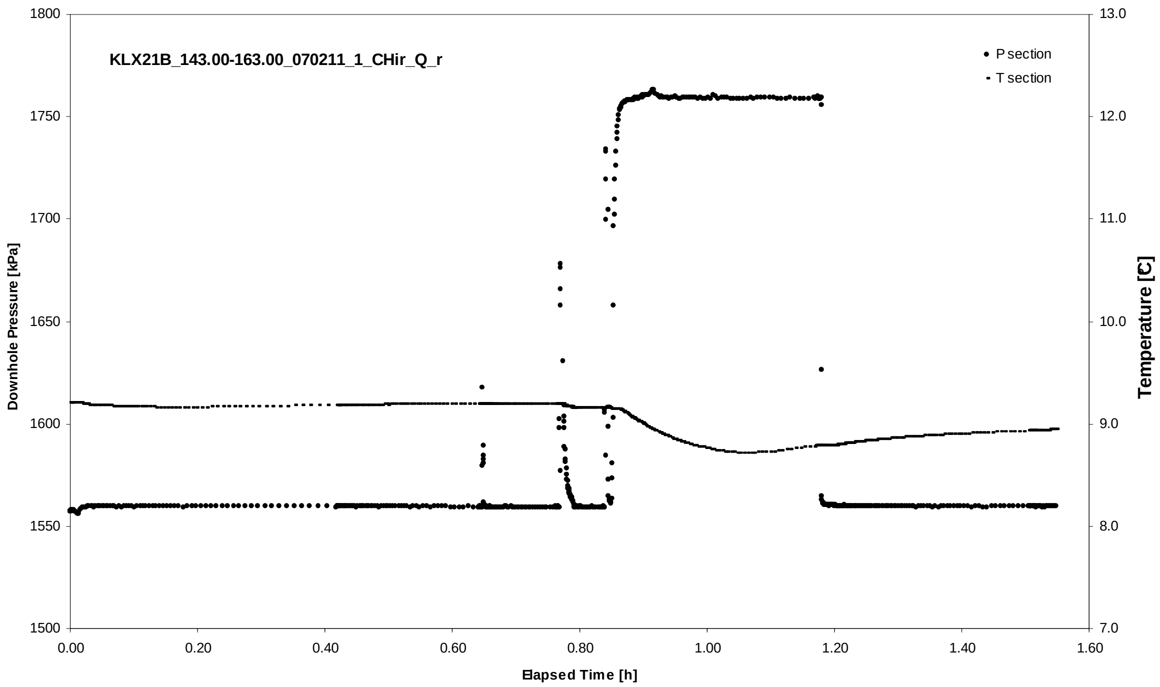
APPENDIX 2-10

Test 143.00 – 163.00 m

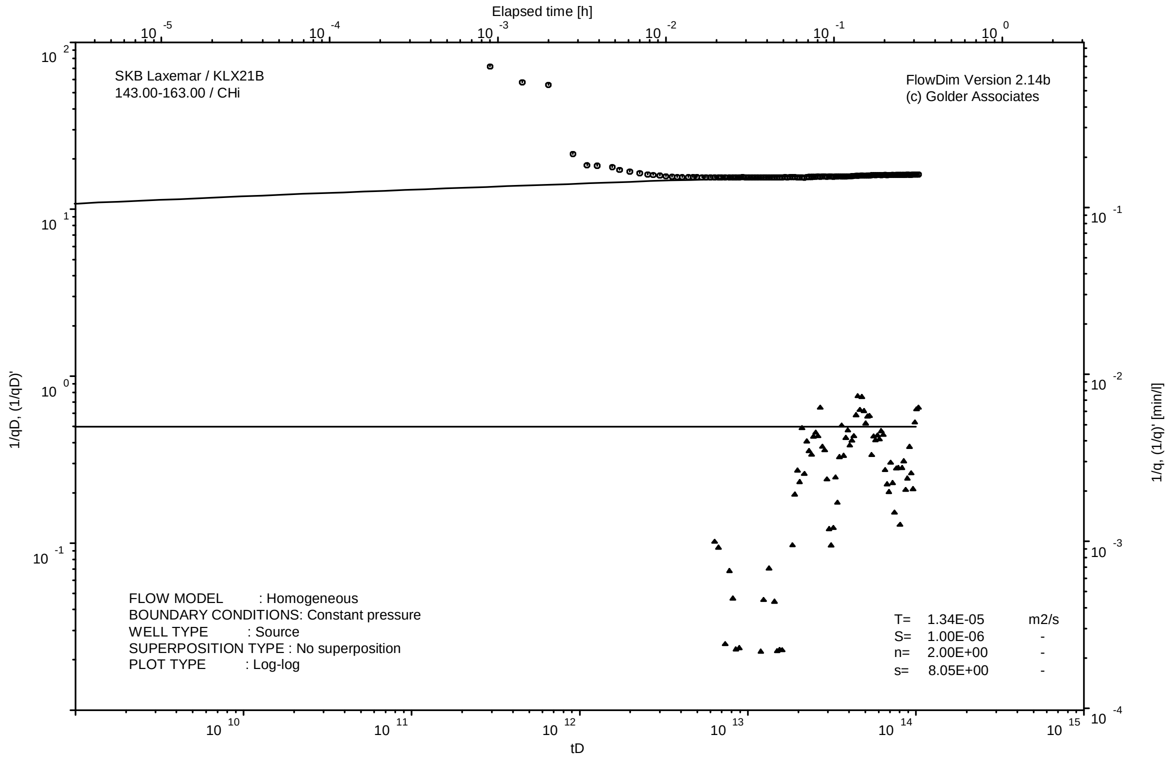
Analysis diagrams



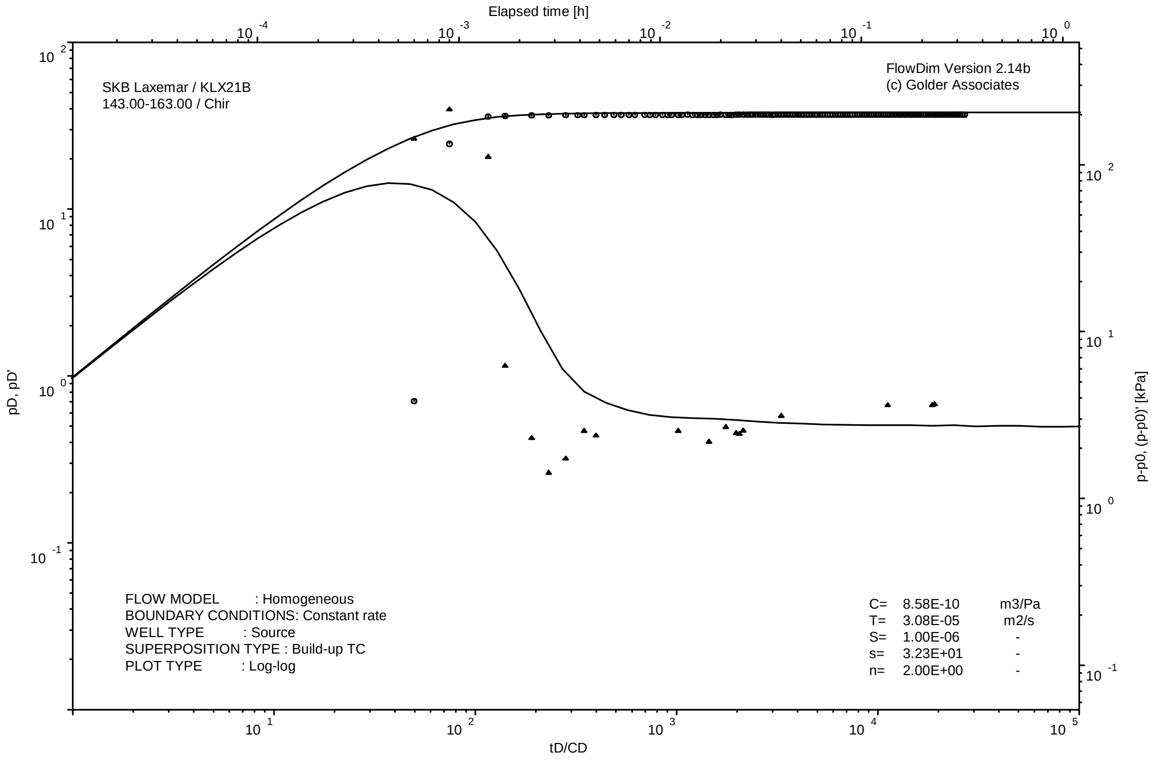
Pressure and flow rate vs. time; cartesian plot



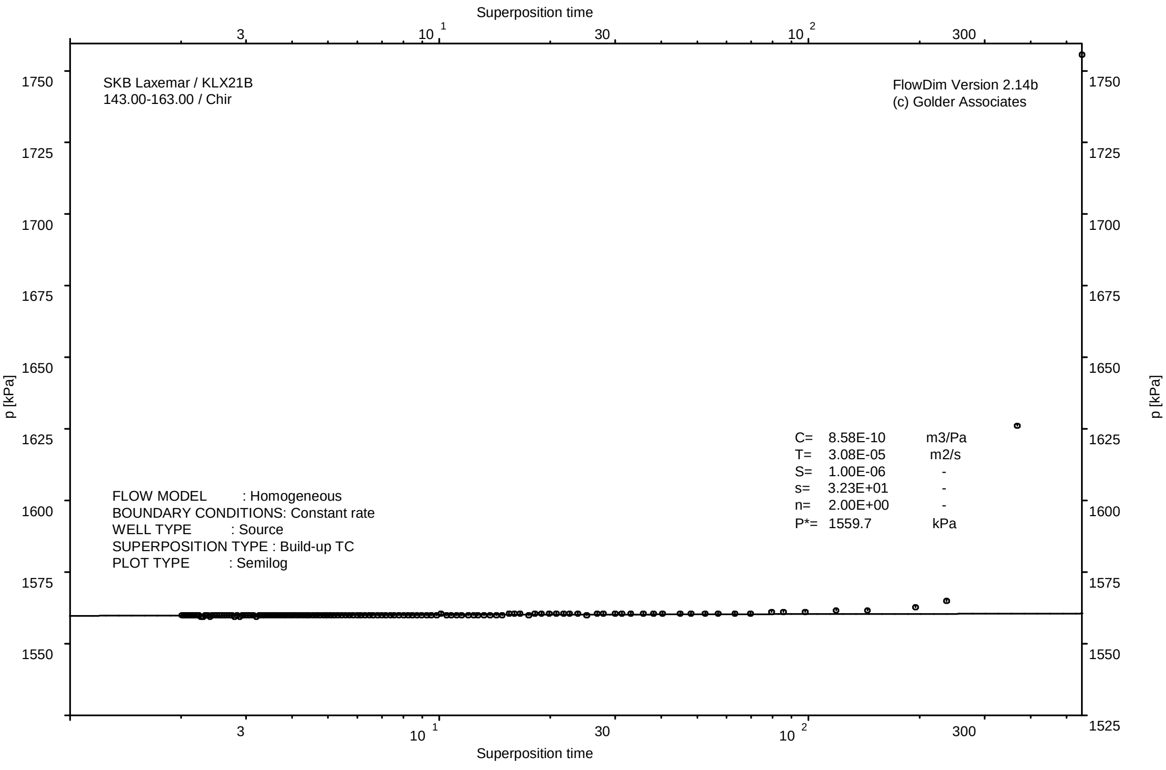
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

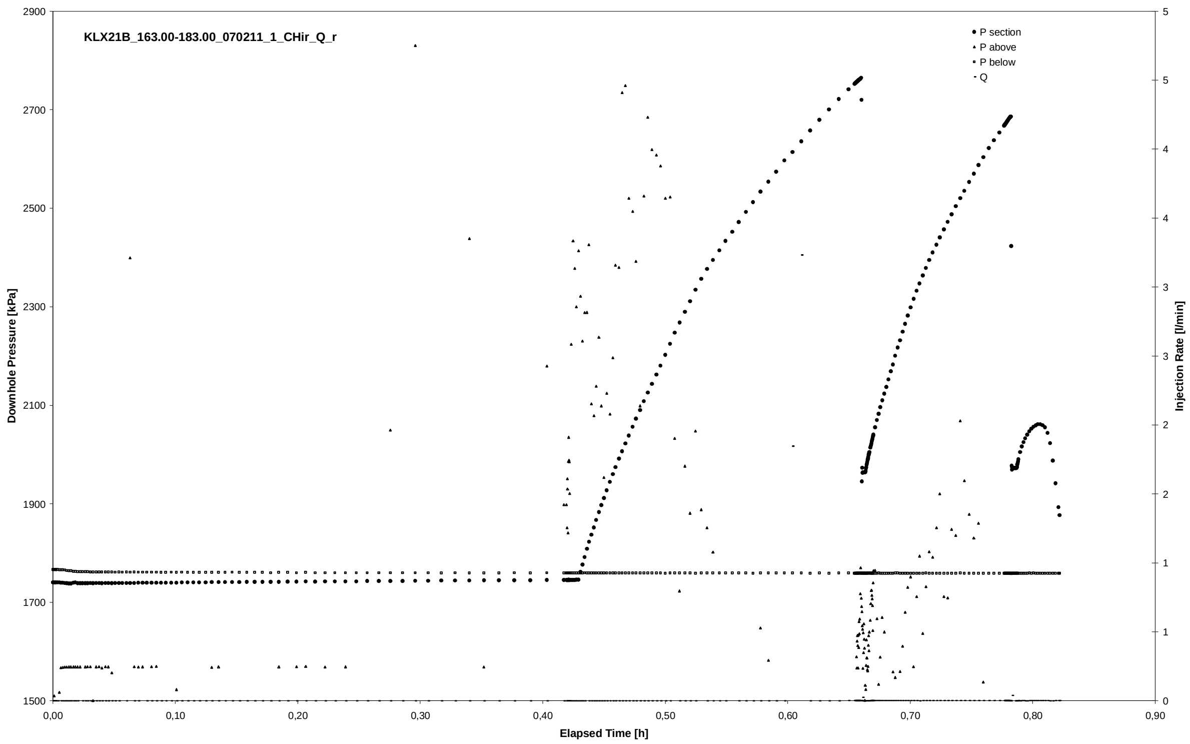


CHIR phase; HORNER match

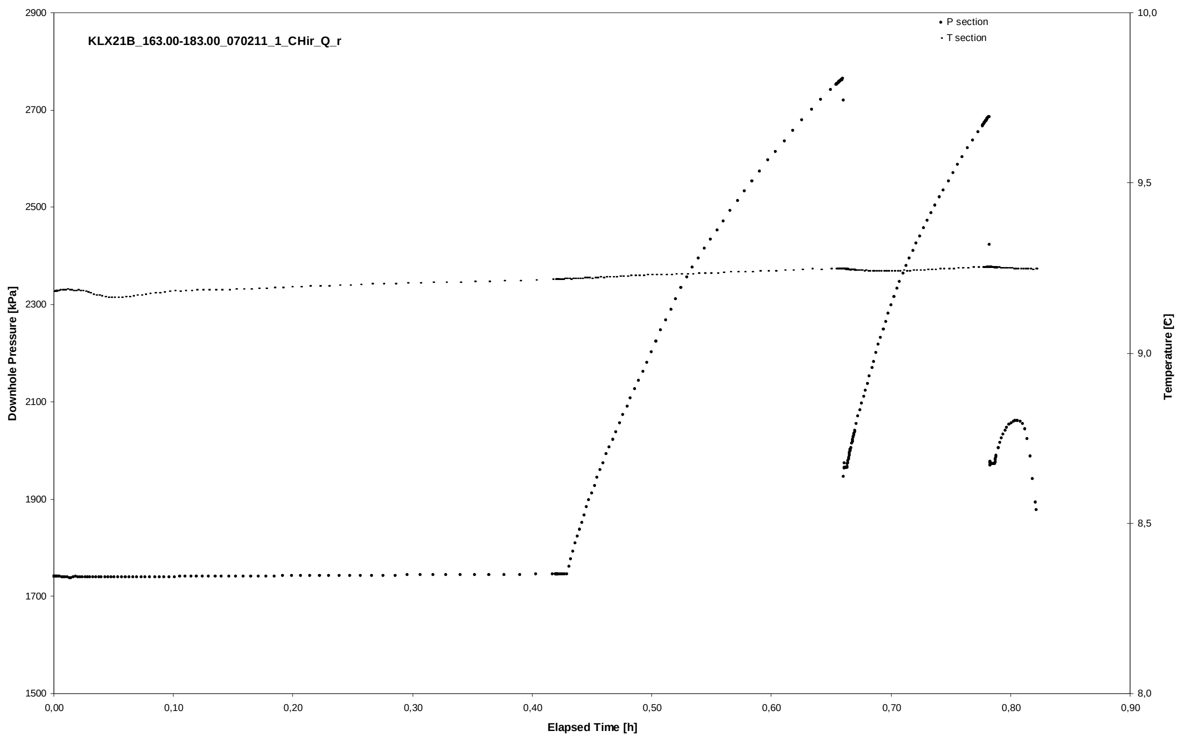
APPENDIX 2-11

Test 163.00 – 183.00 m

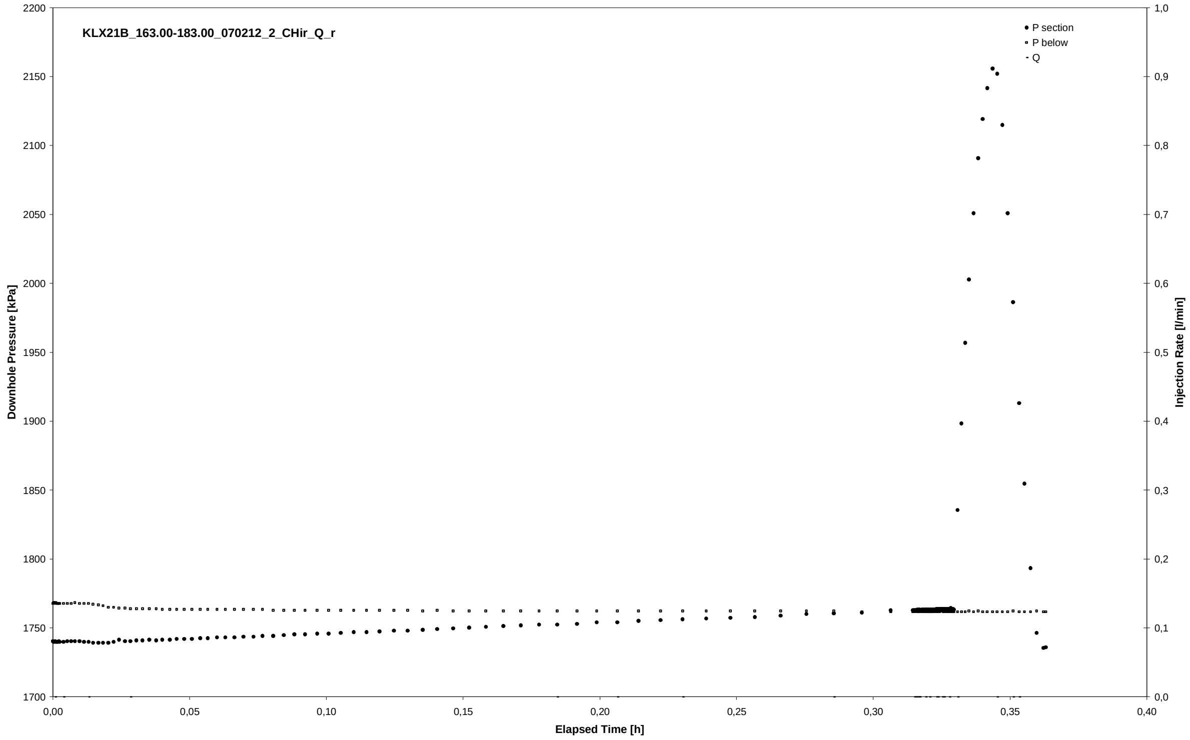
Analysis diagrams



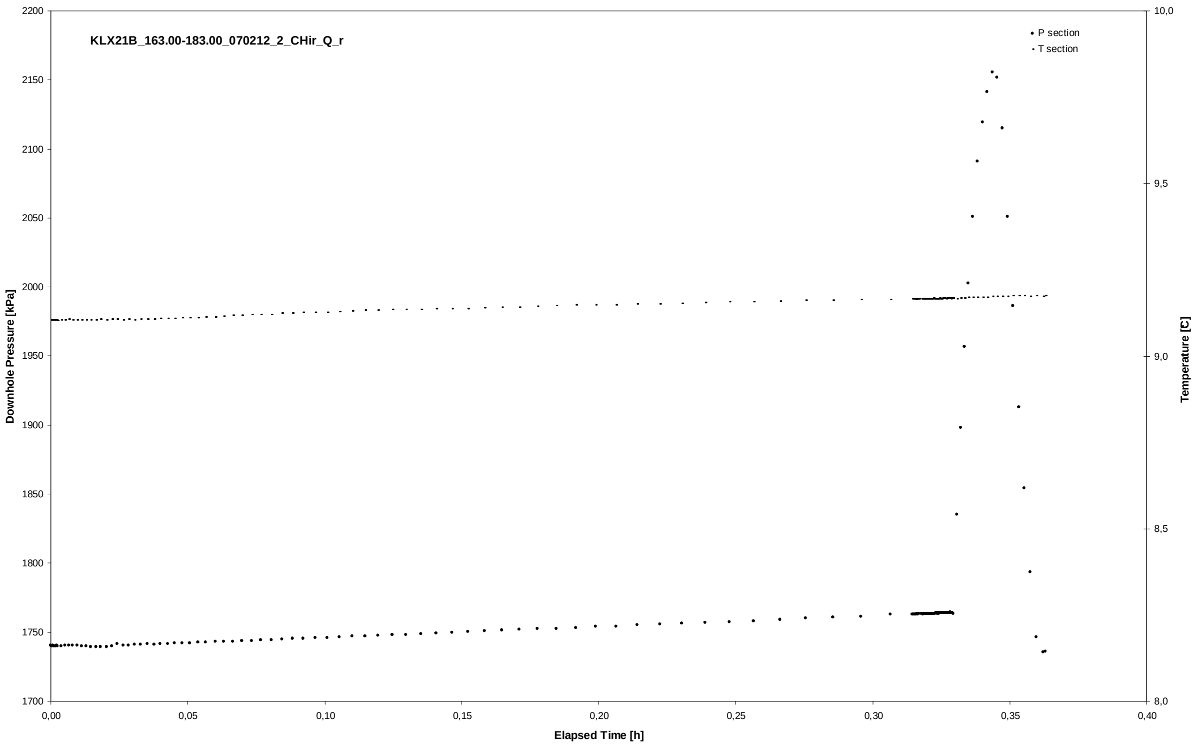
Pressure and flow rate vs. time; cartesian plot (repeated)



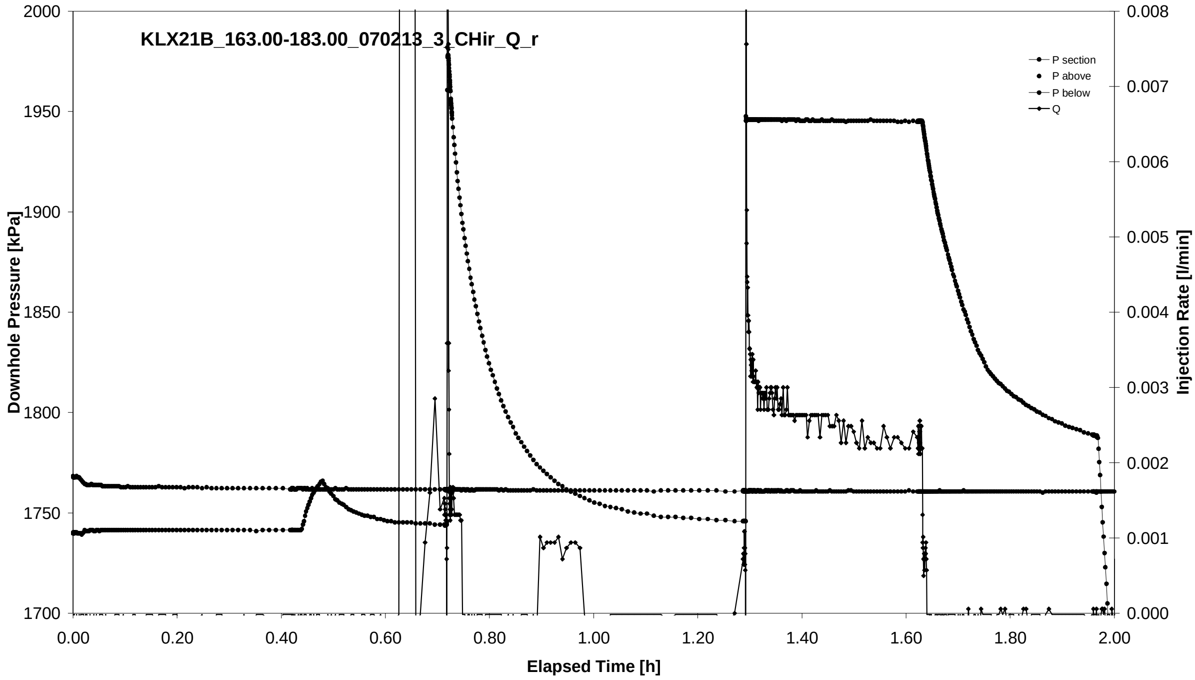
Interval pressure and temperature vs. time; cartesian plot (repeated)



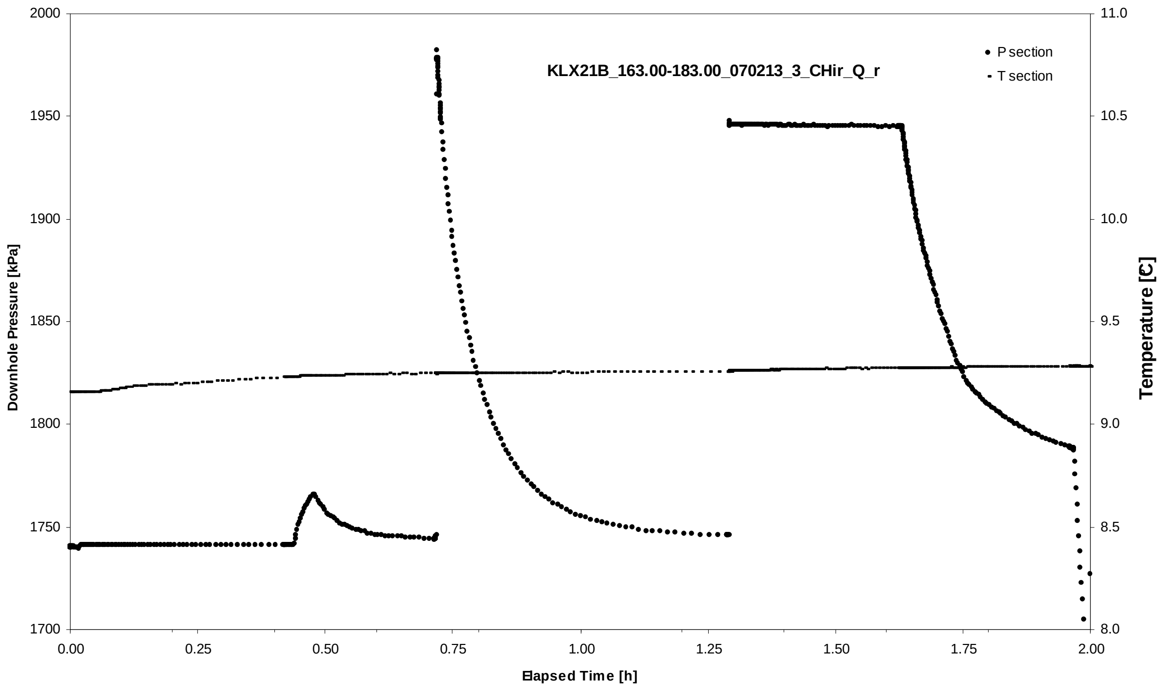
Pressure and flow rate vs. time; cartesian plot (repeated)



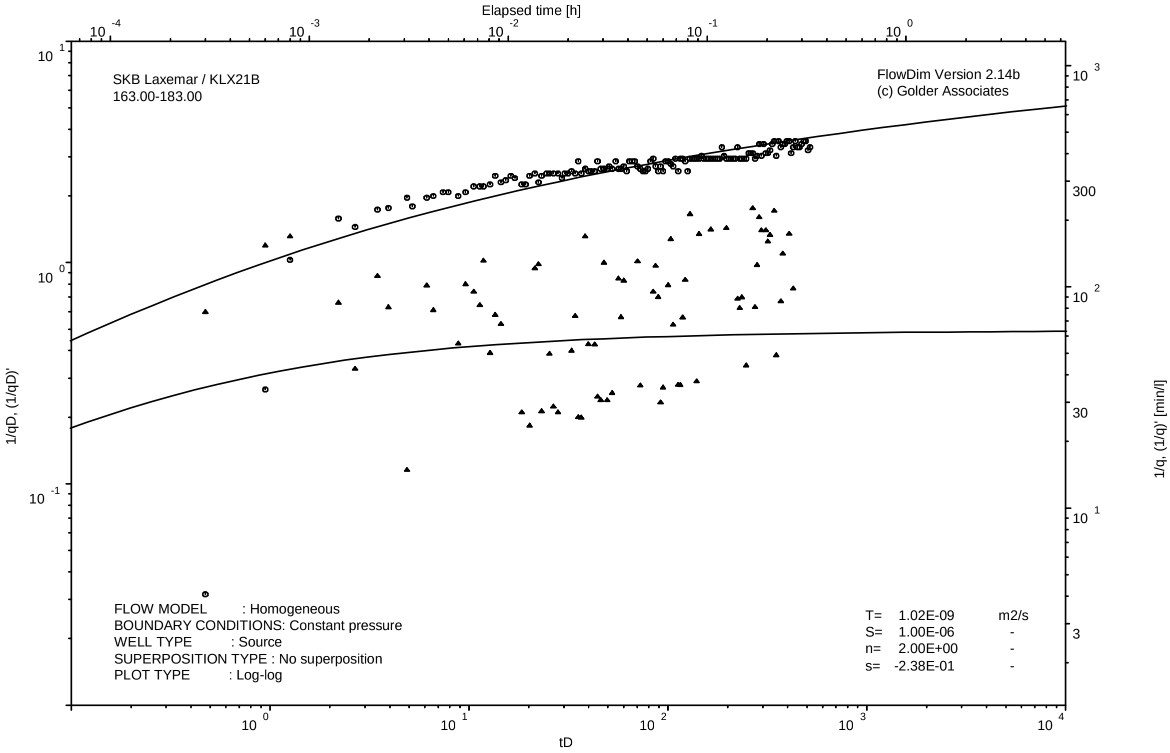
Interval pressure and temperature vs. time; cartesian plot (repeated)



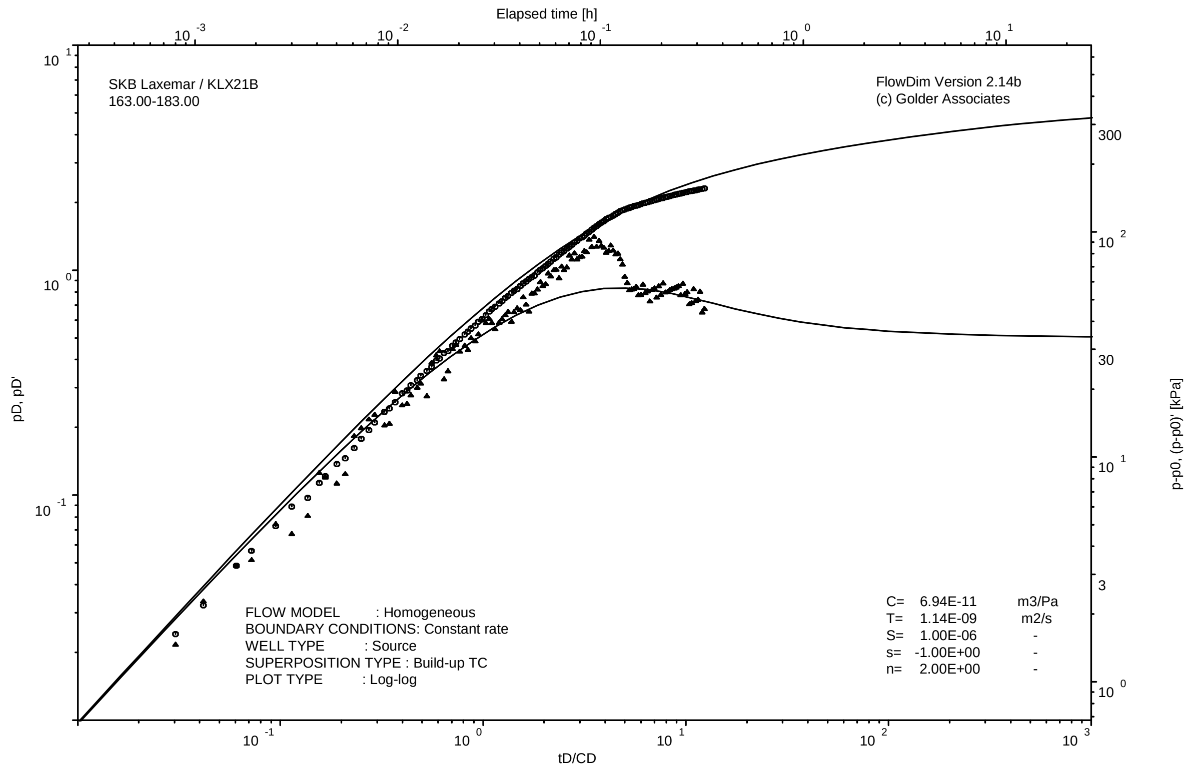
Pressure and flow rate vs. time; cartesian plot



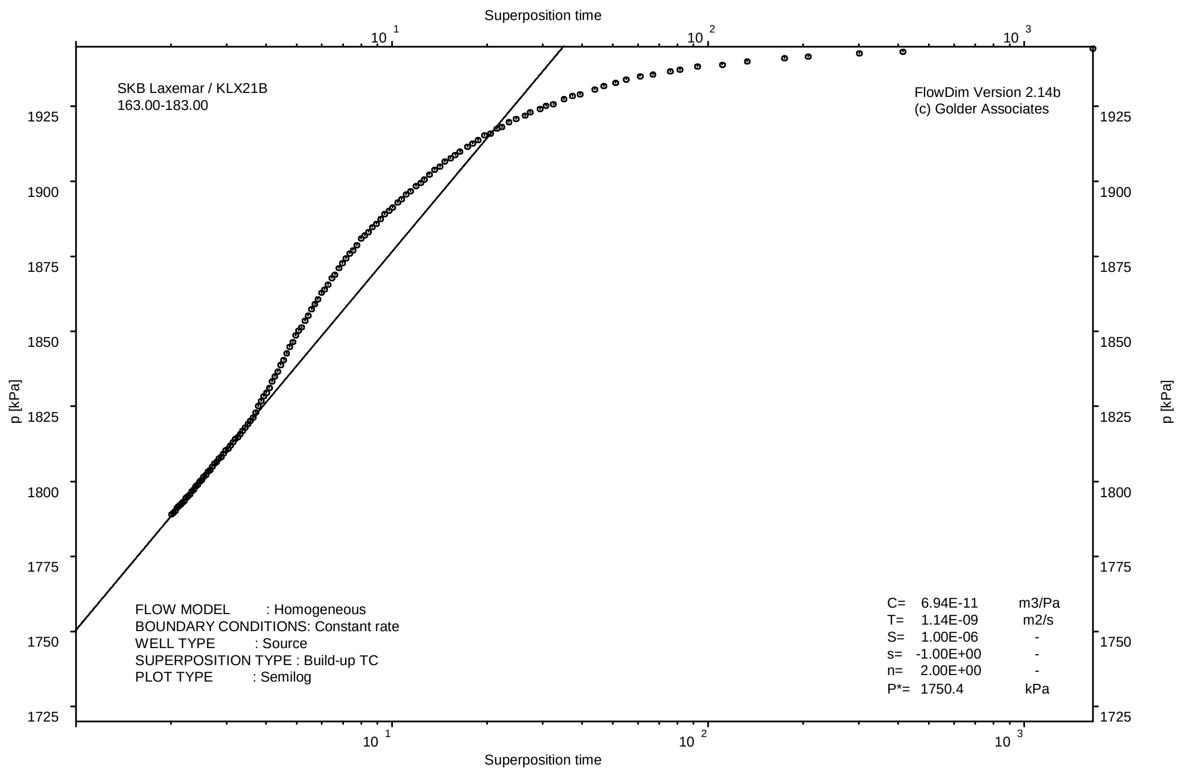
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

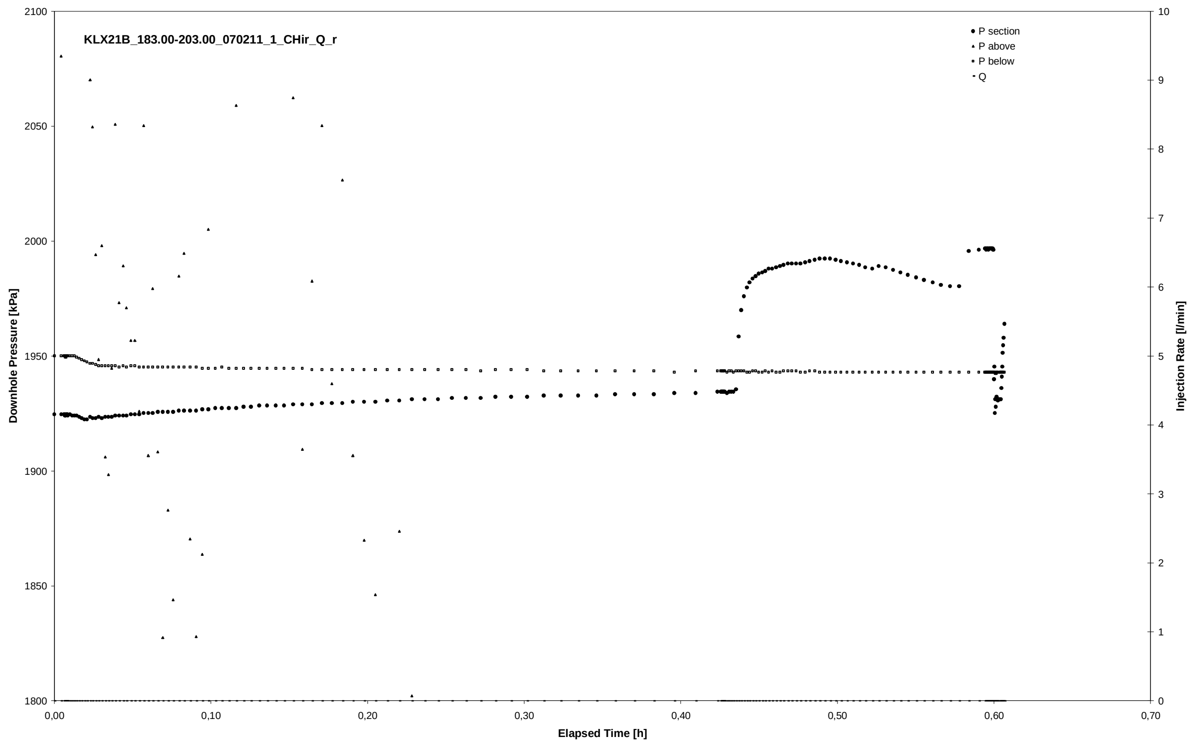


CHIR phase; HORNER match

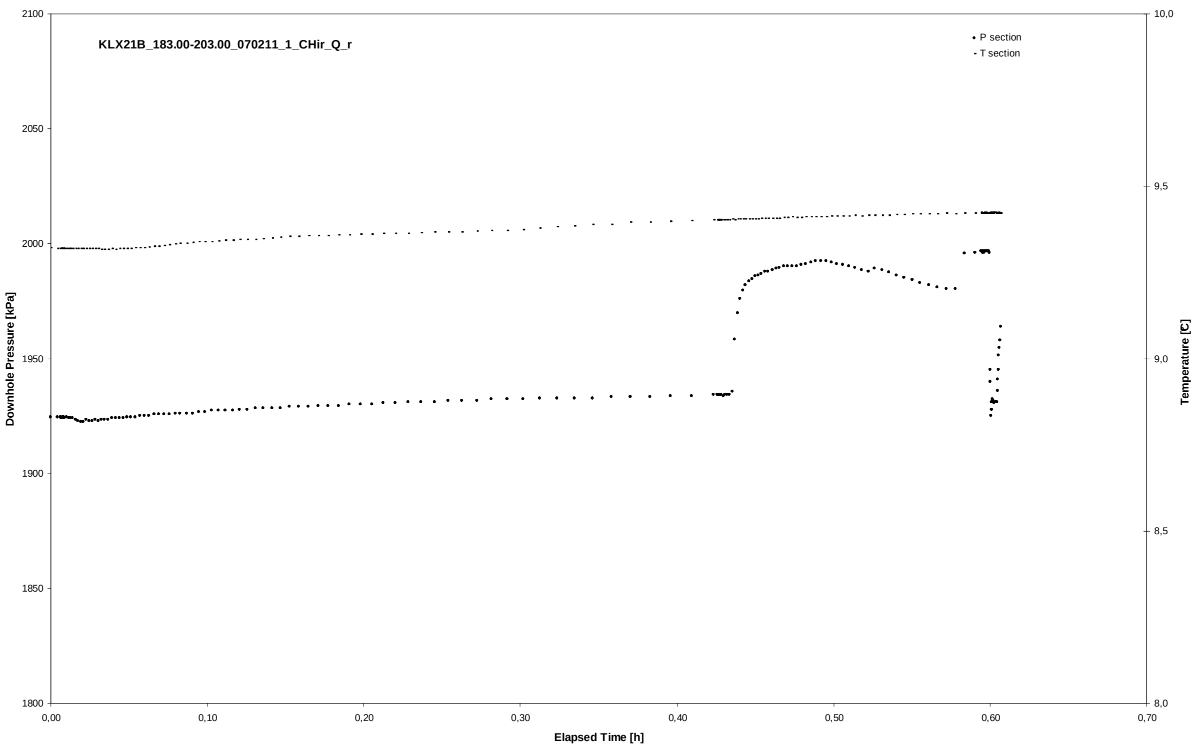
APPENDIX 2-12

Test 183.00 – 203.00 m

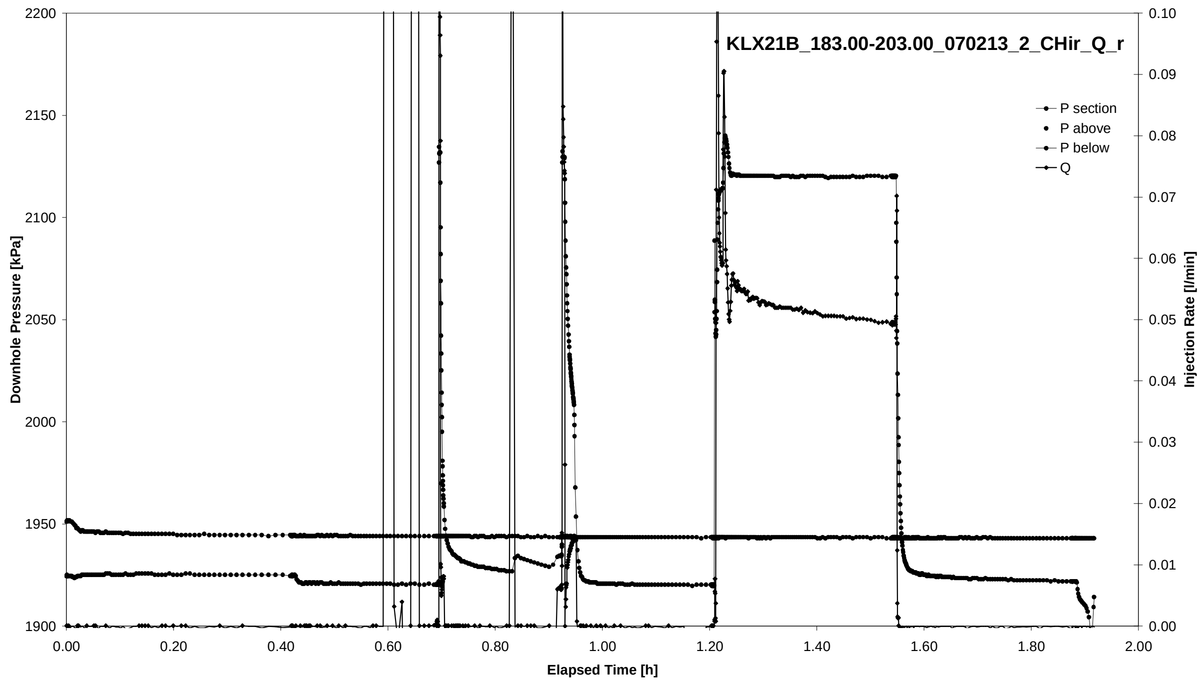
Analysis diagrams



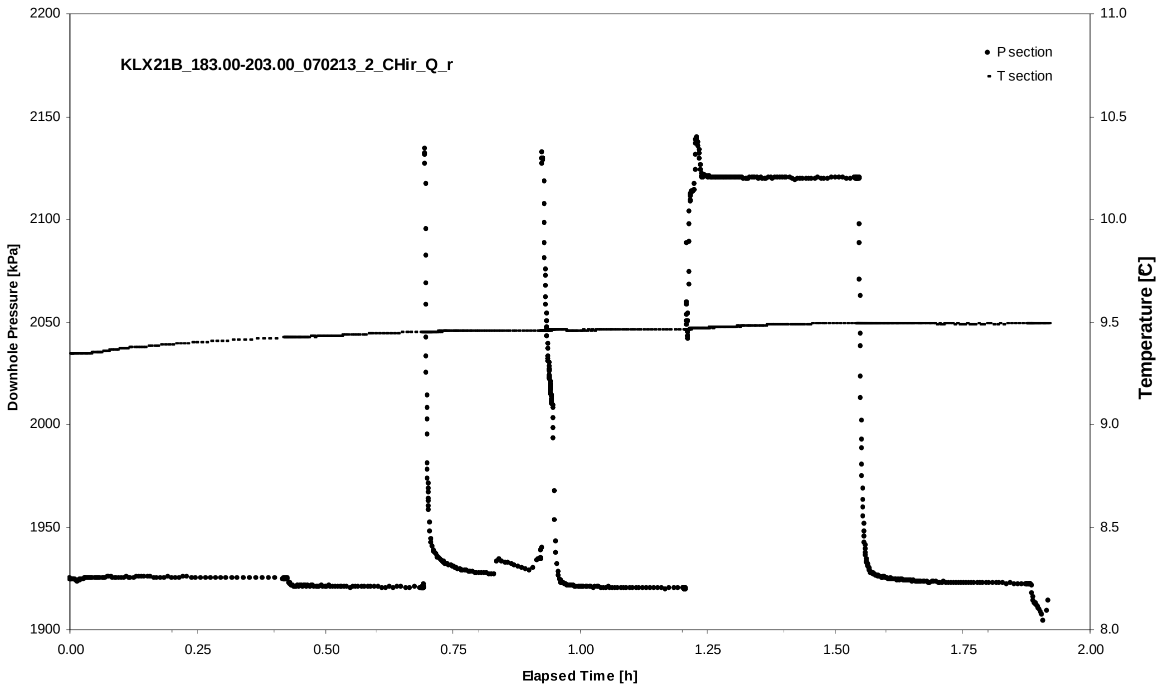
Pressure and flow rate vs. time; cartesian plot (repeated)



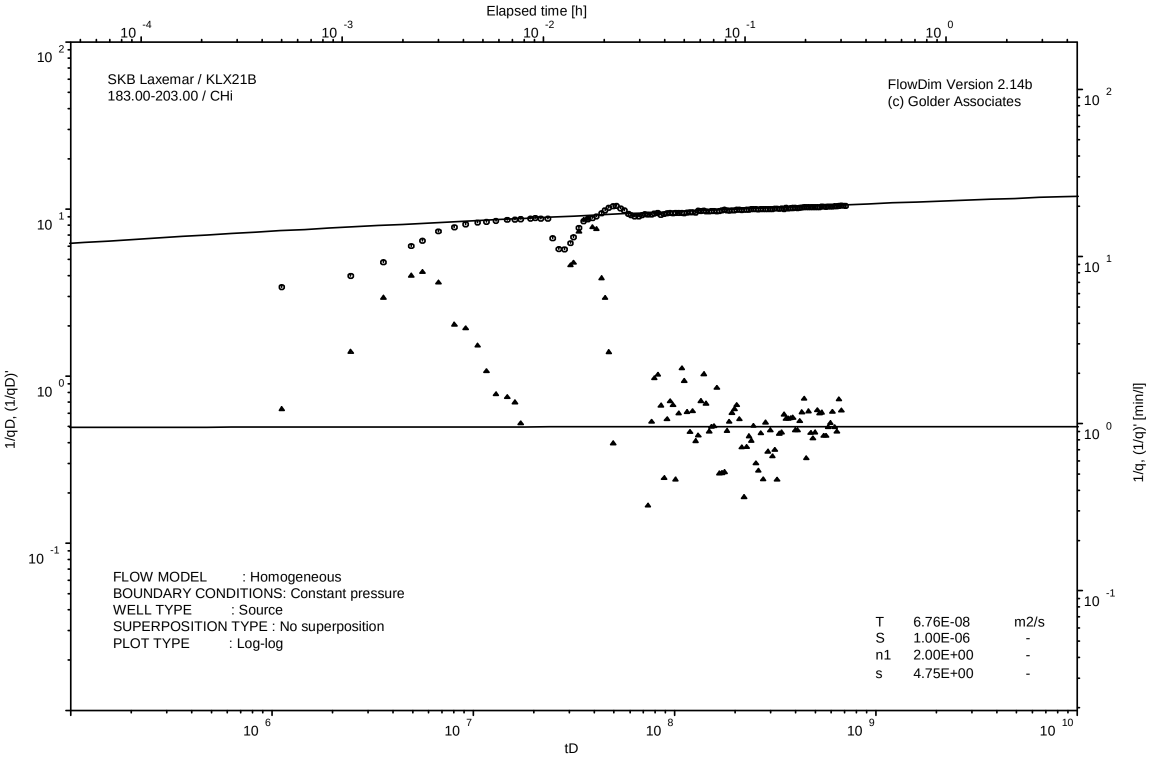
Interval pressure and temperature vs. time; cartesian plot (repeated)



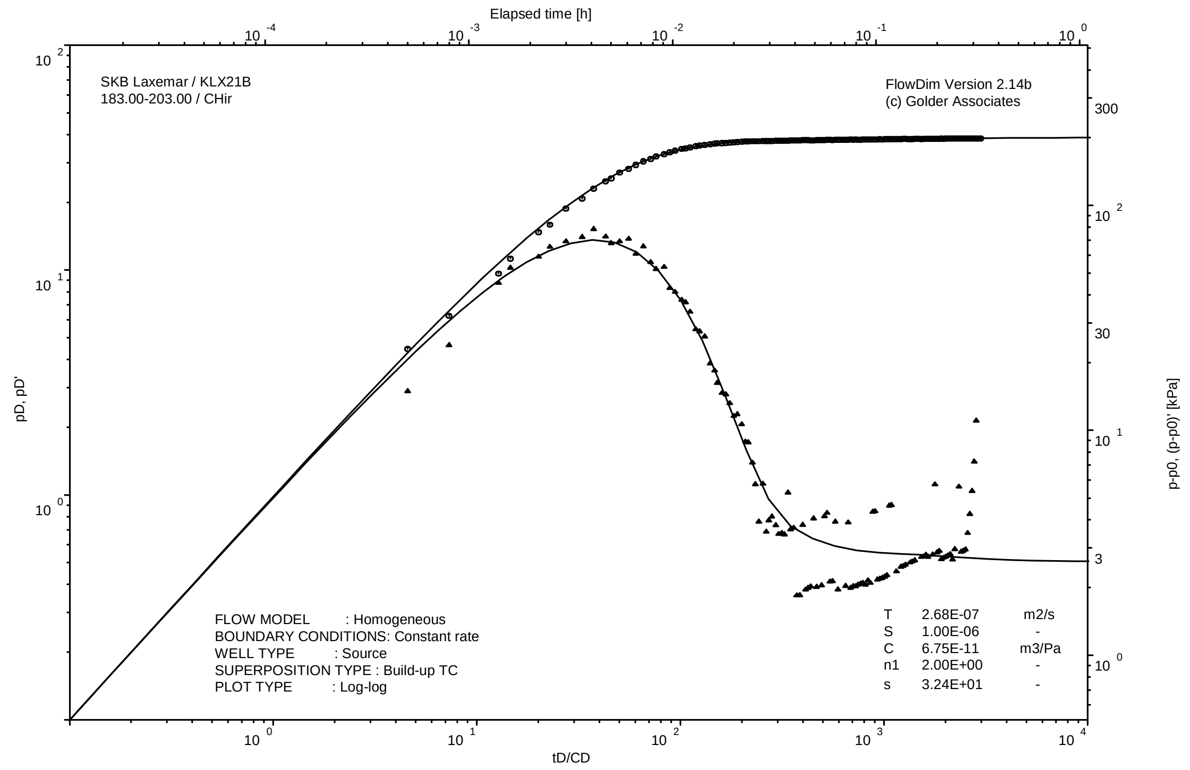
Pressure and flow rate vs. time; cartesian plot



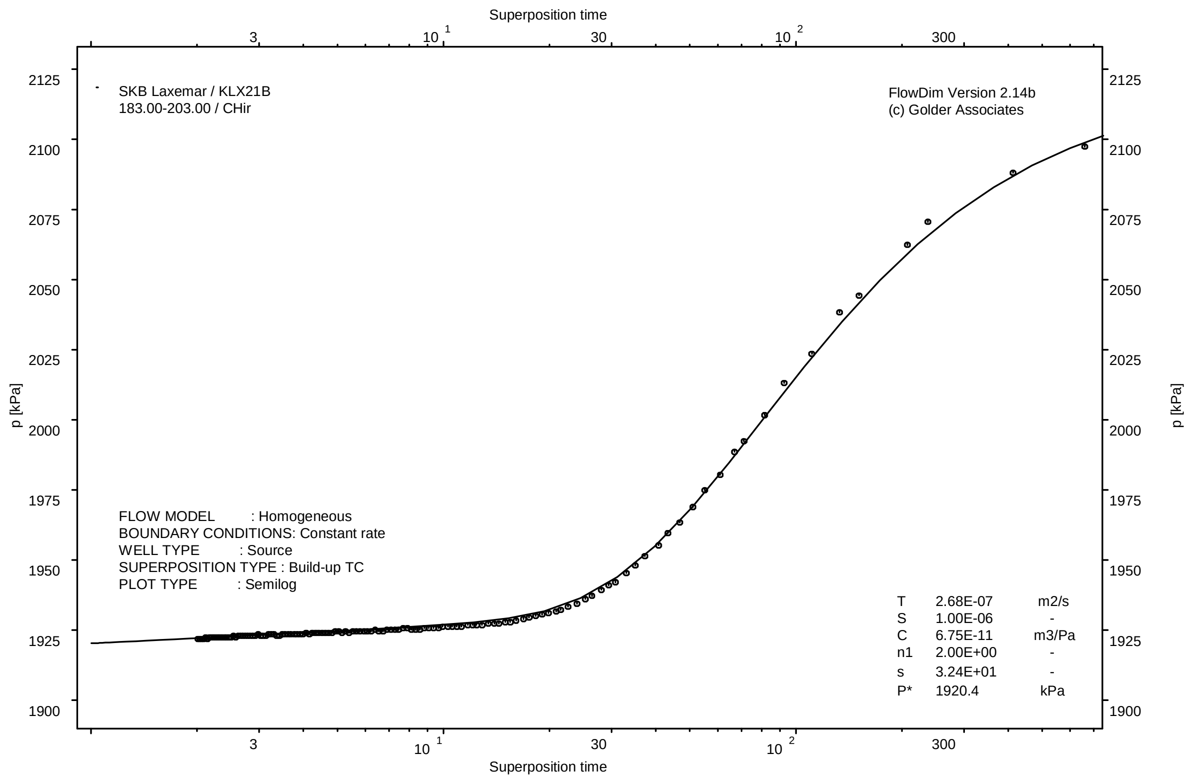
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

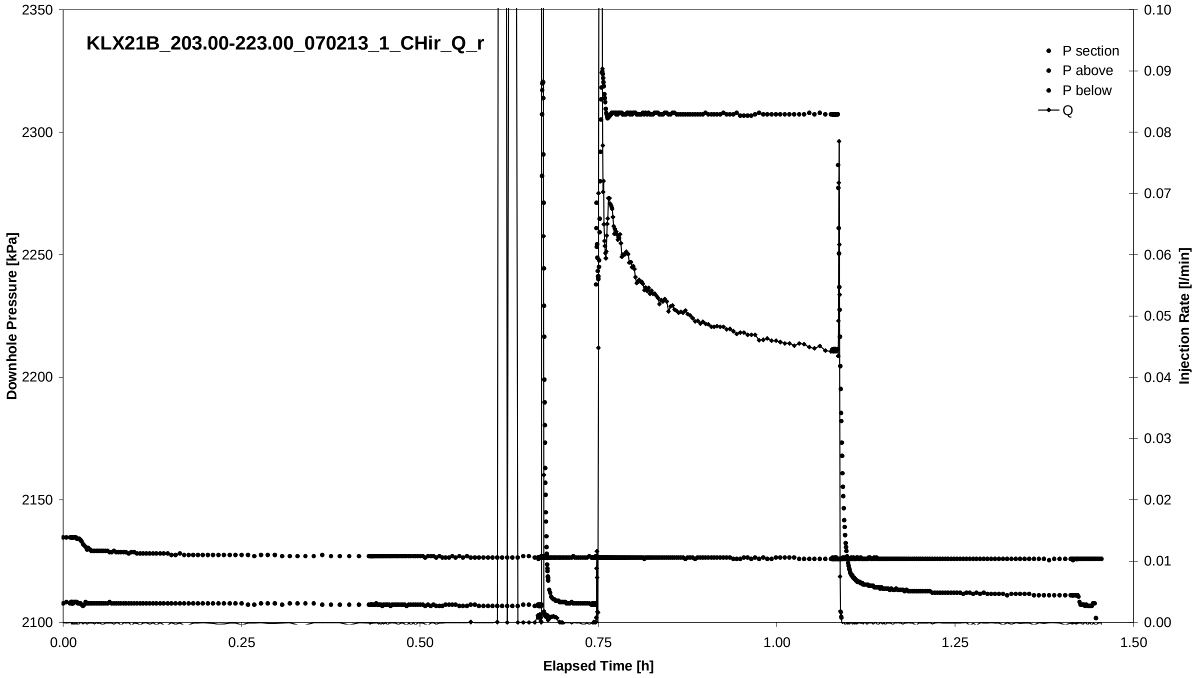


CHIR phase; HORNER match

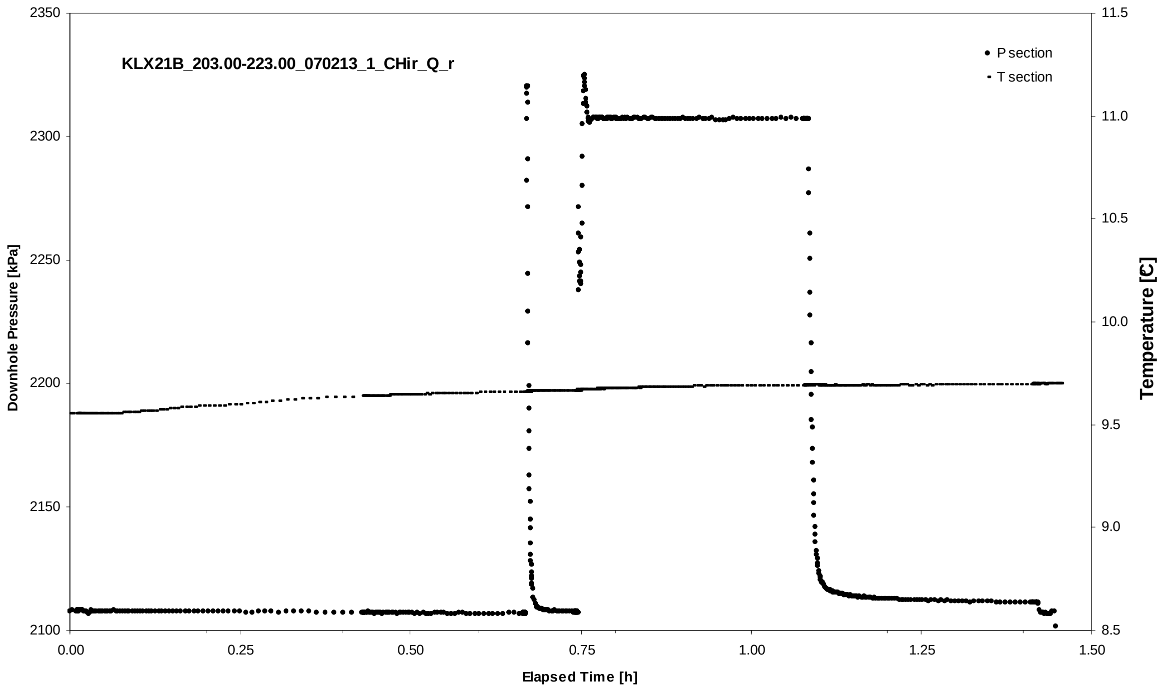
APPENDIX 2-13

Test 203.00 – 223.00 m

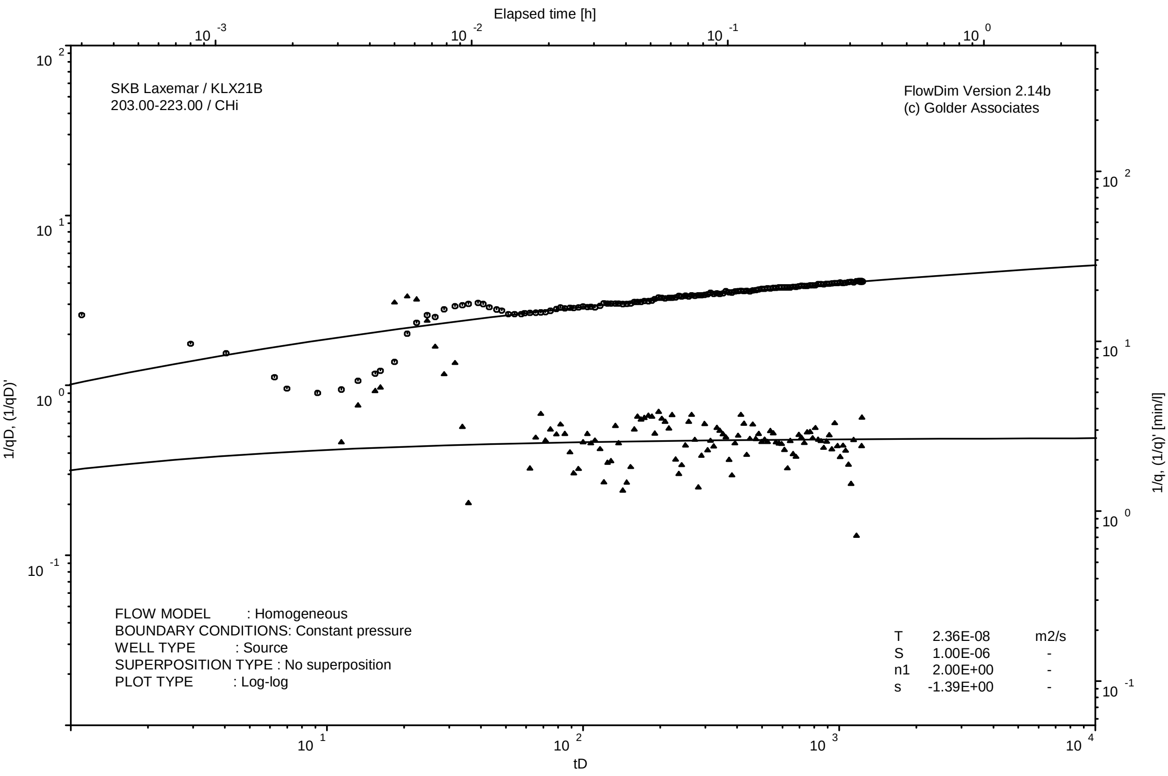
Analysis diagrams



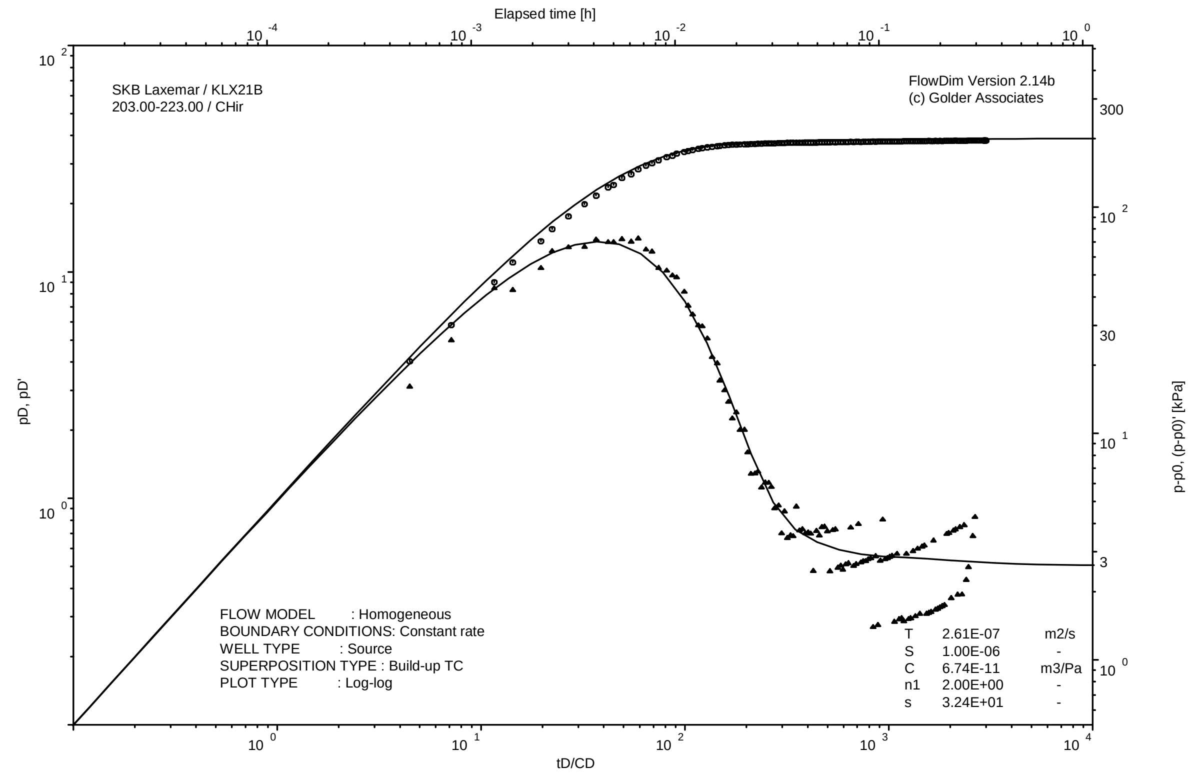
Pressure and flow rate vs. time; cartesian plot



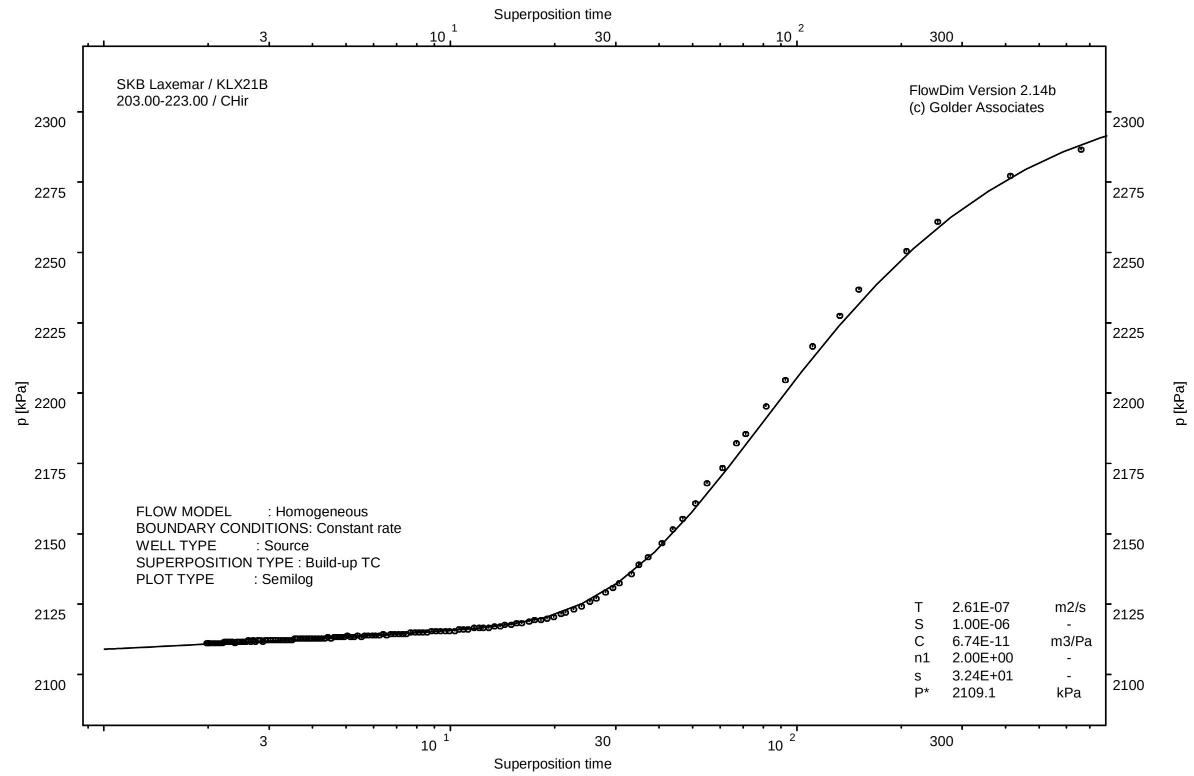
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

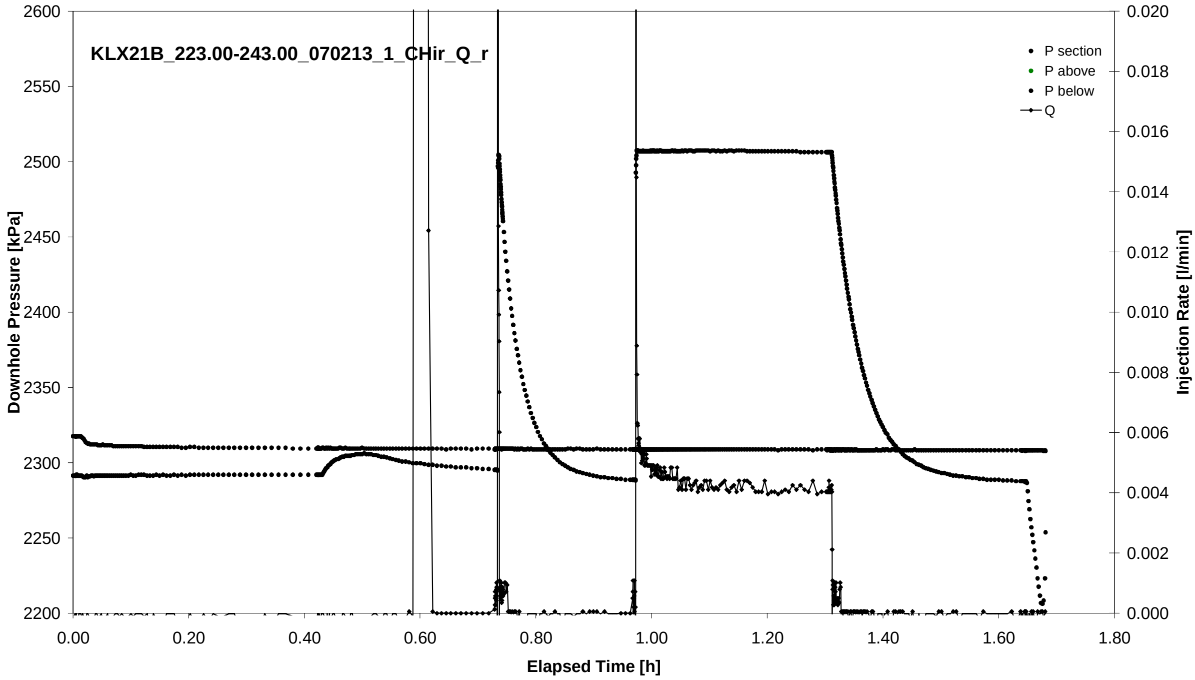


CHIR phase; HORNER match

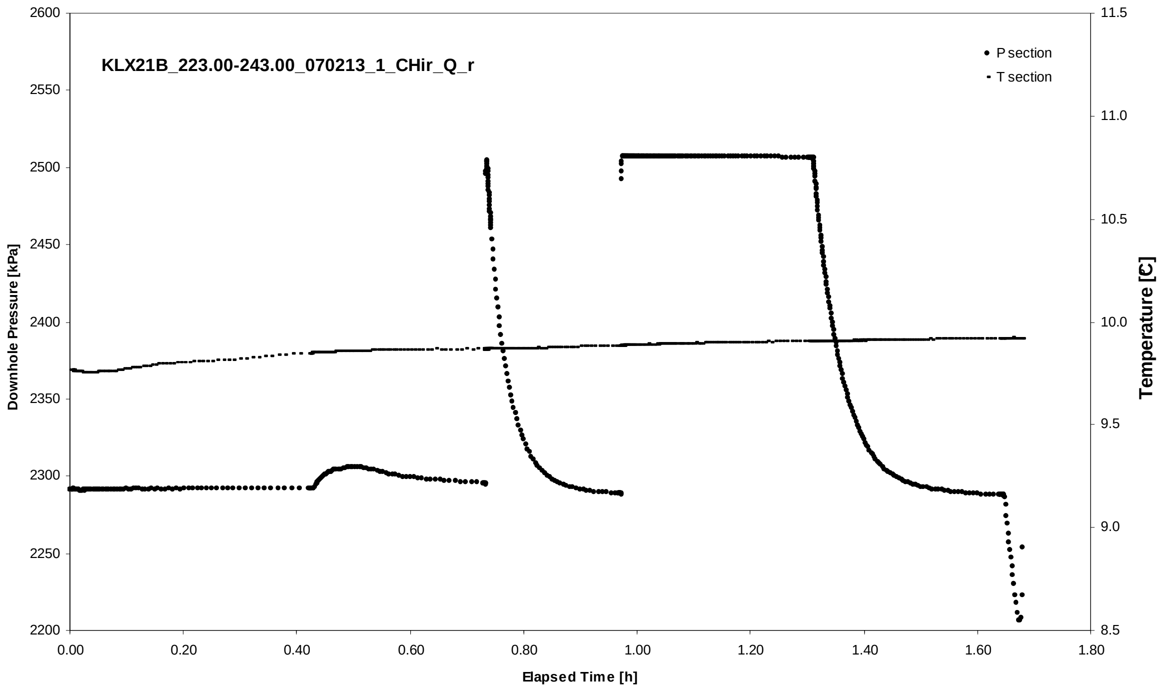
APPENDIX 2-14

Test 223.00 – 243.00 m

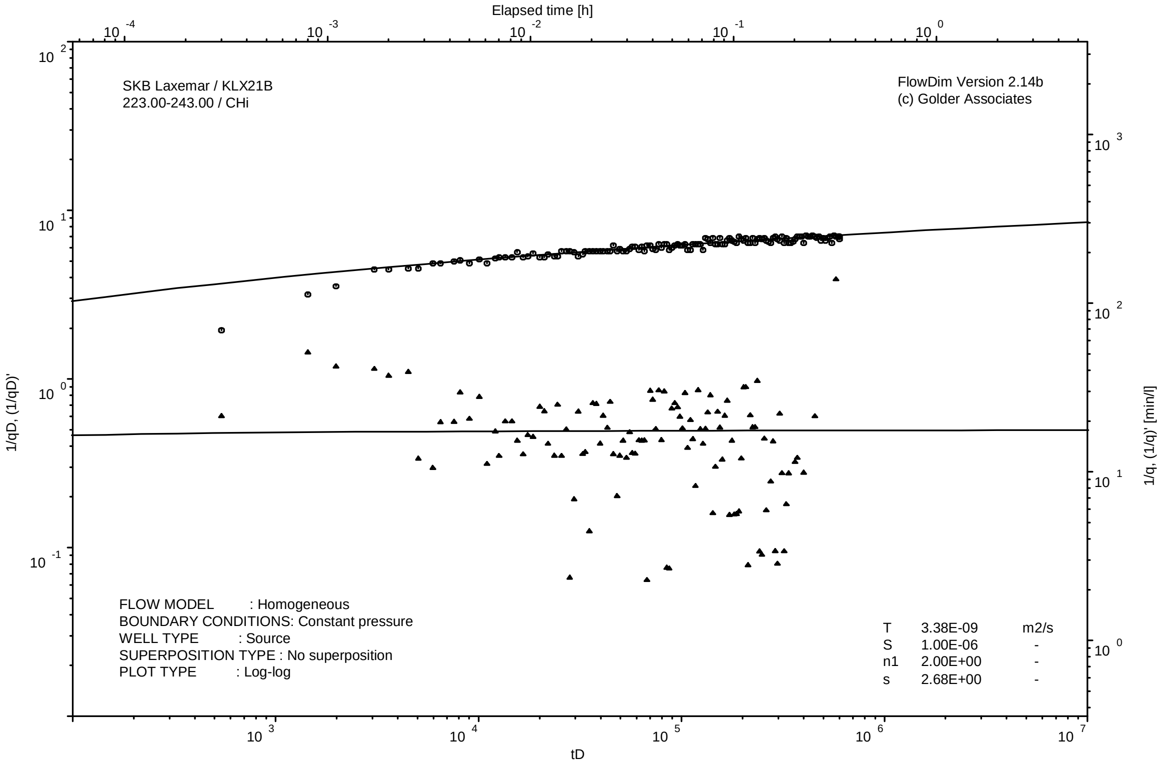
Analysis diagrams



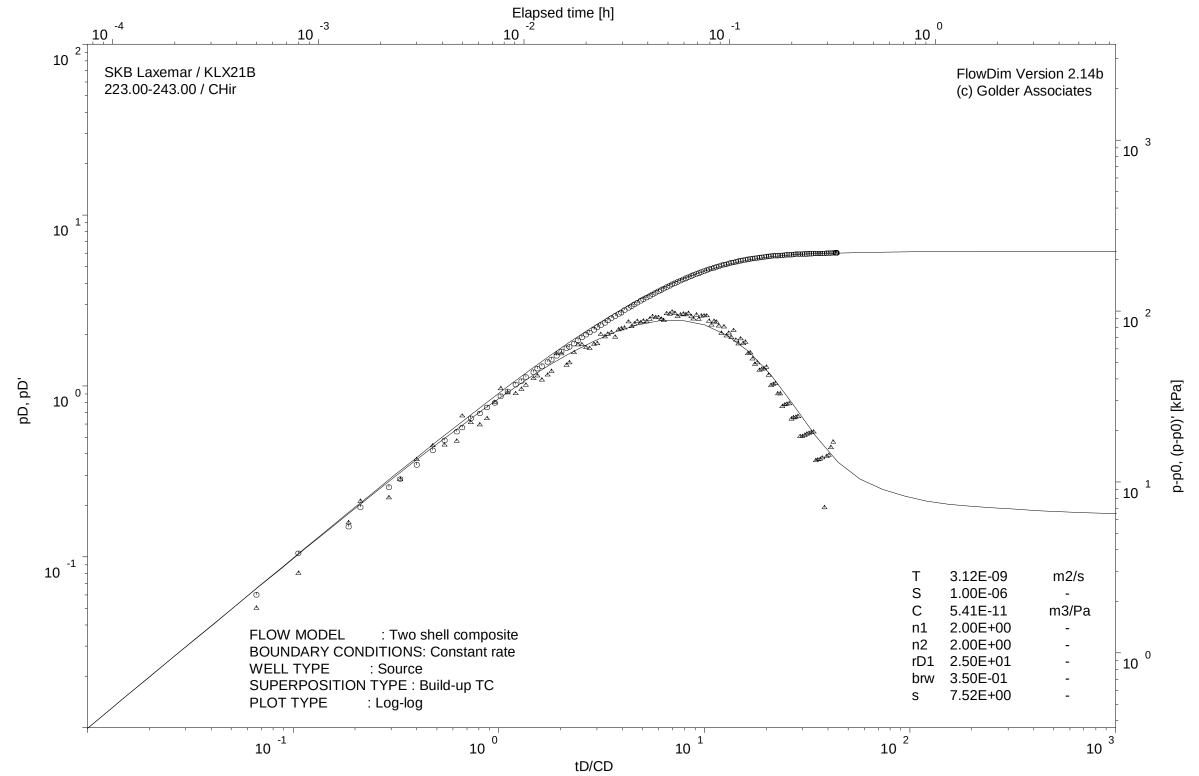
Pressure and flow rate vs. time; cartesian plot



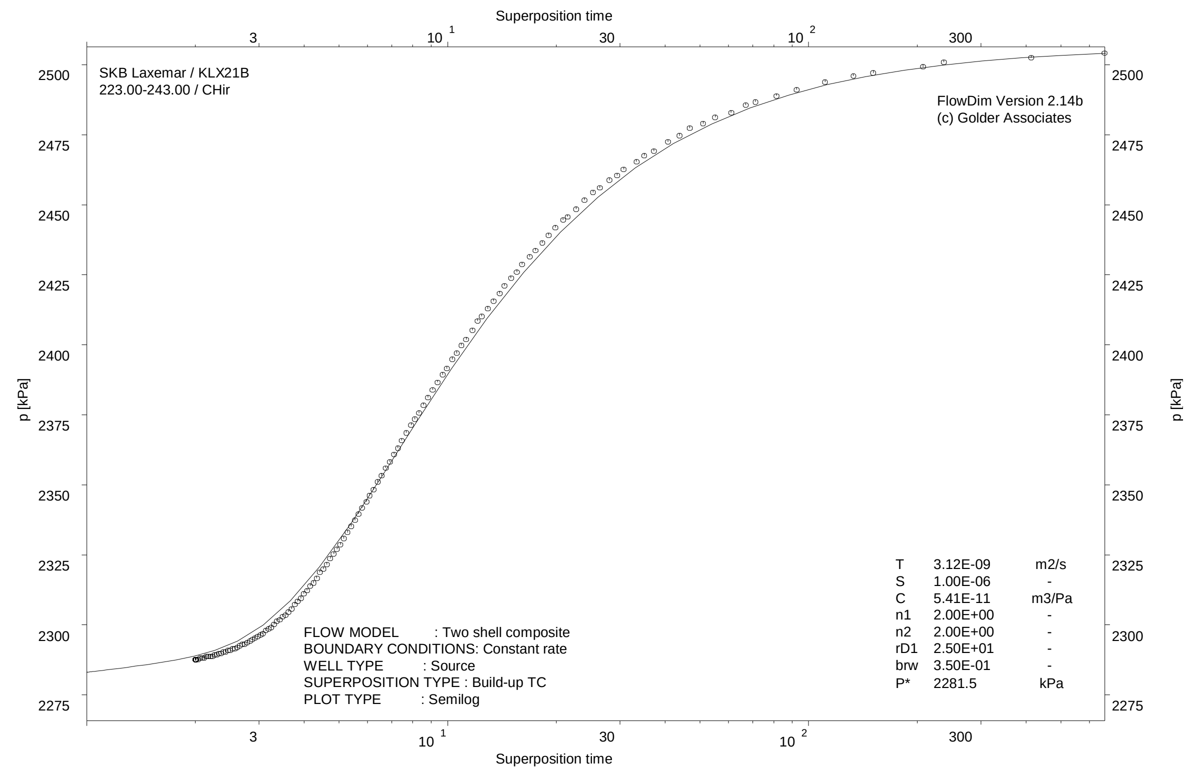
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

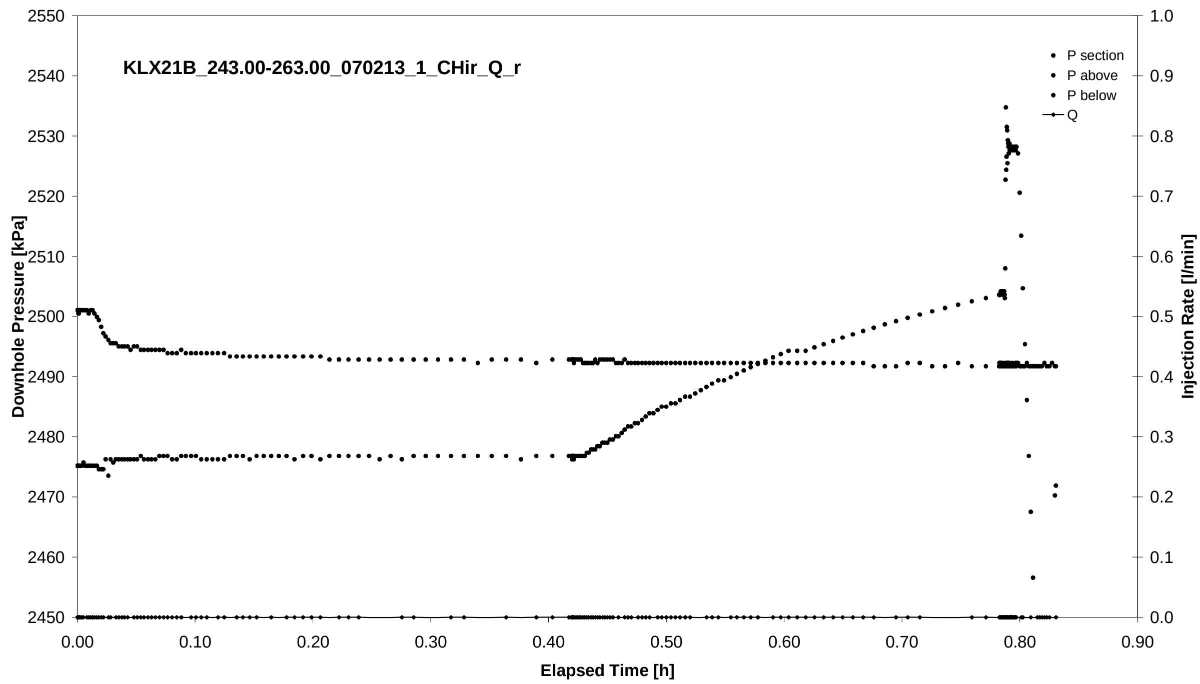


CHIR phase; HORNER match

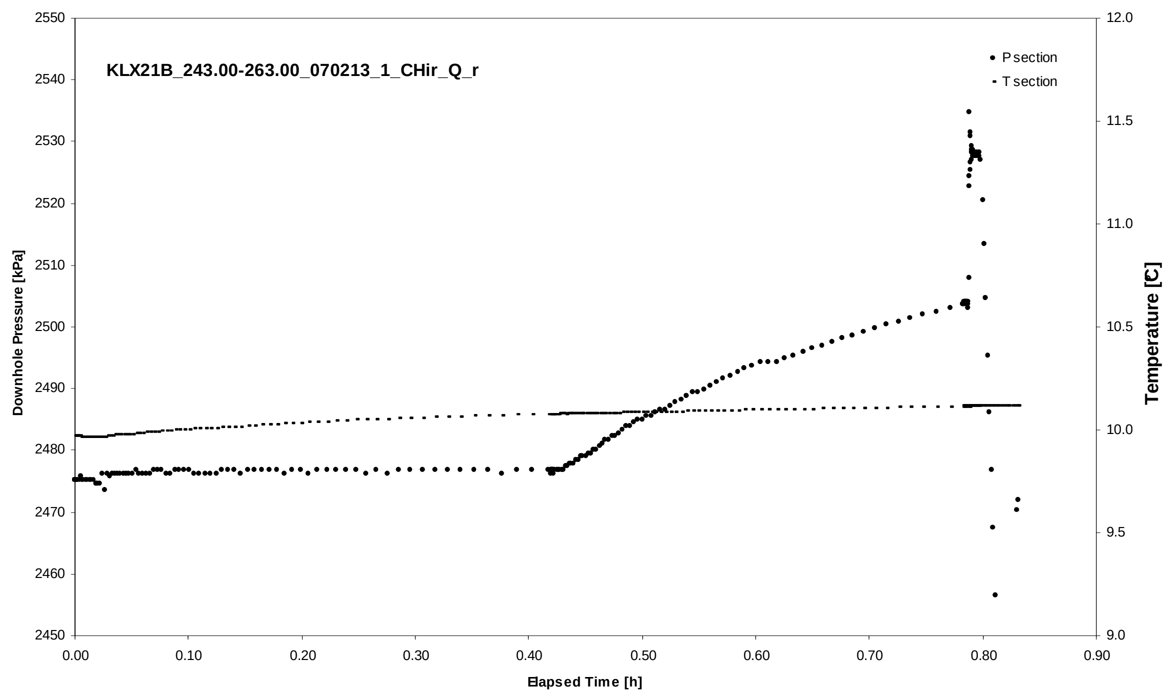
APPENDIX 2-15

Test 243.00 – 263.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

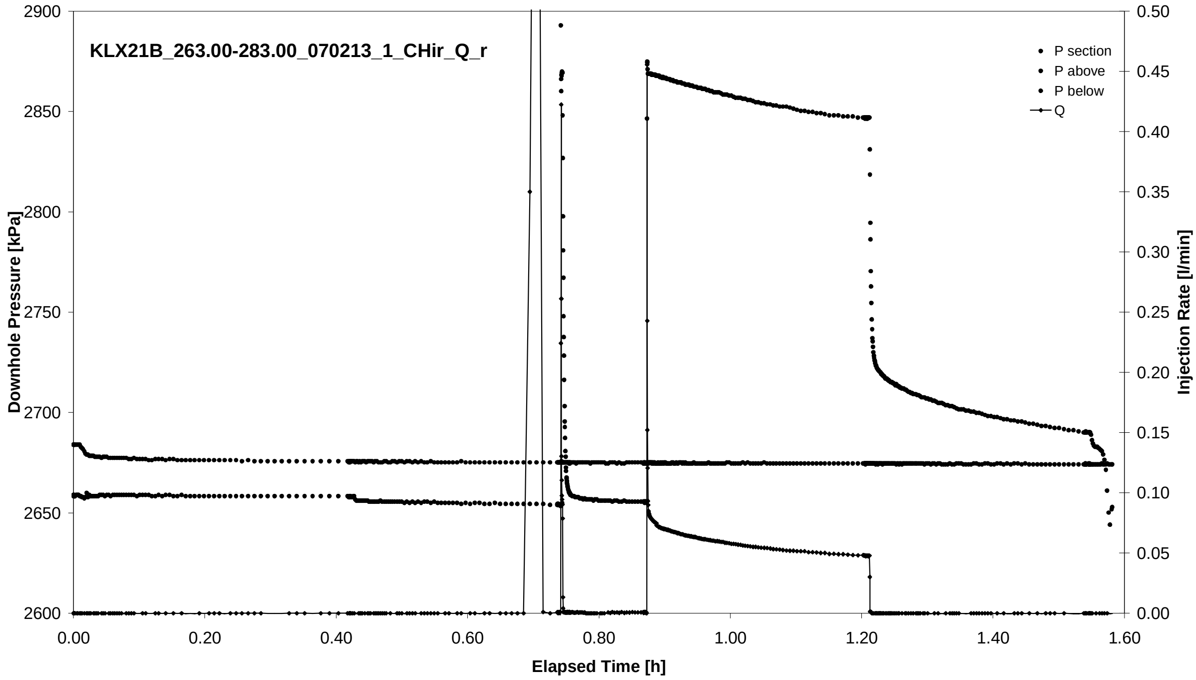
Not analysed

CHIR phase; HORNER match

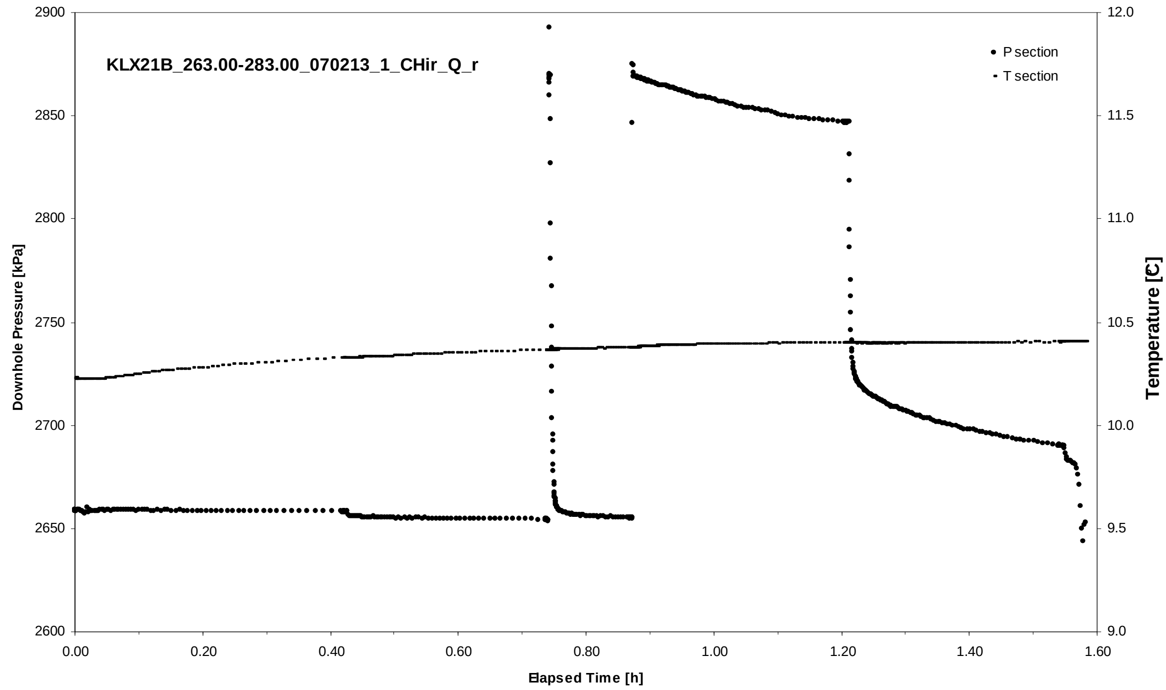
APPENDIX 2-16

Test 263.00 – 283.00 m

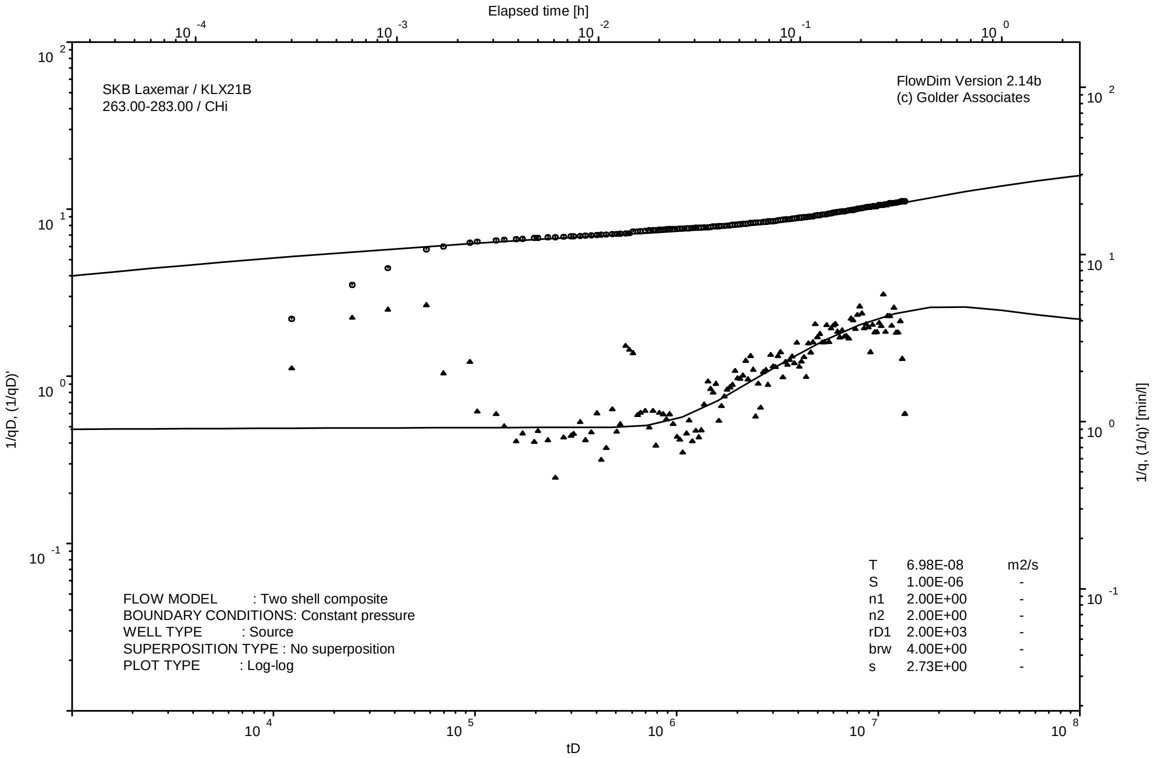
Analysis diagrams



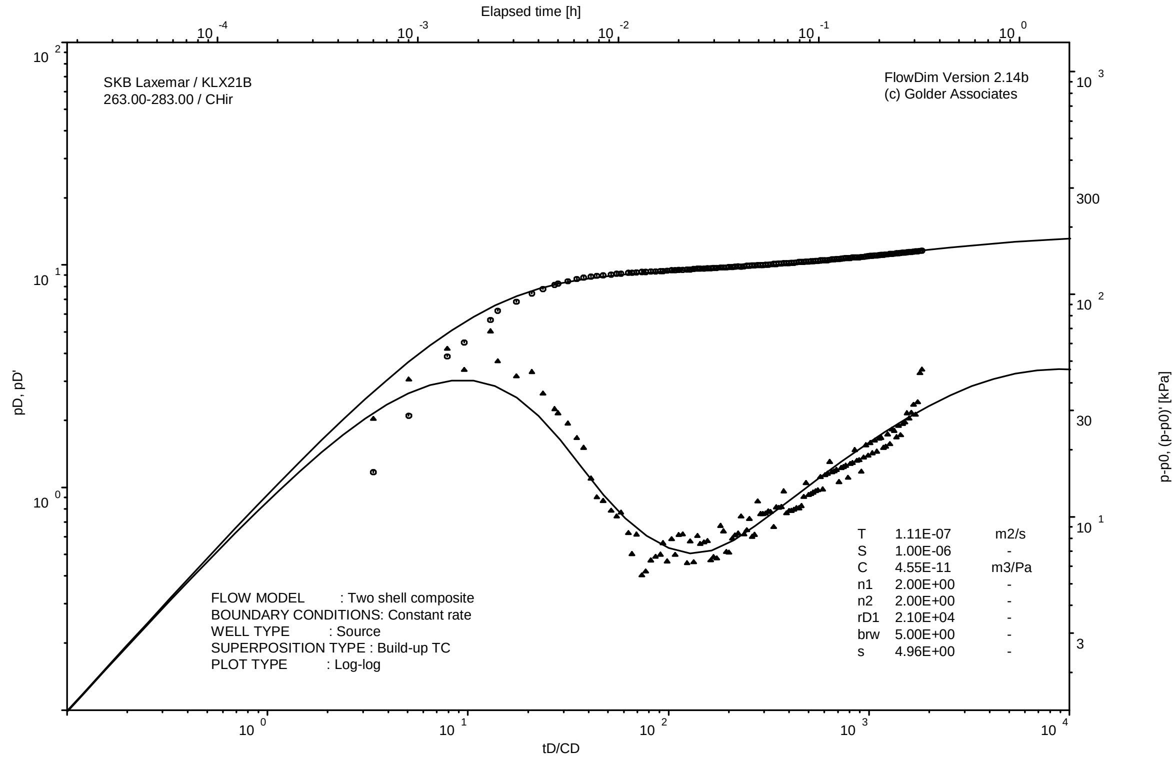
Pressure and flow rate vs. time; cartesian plot



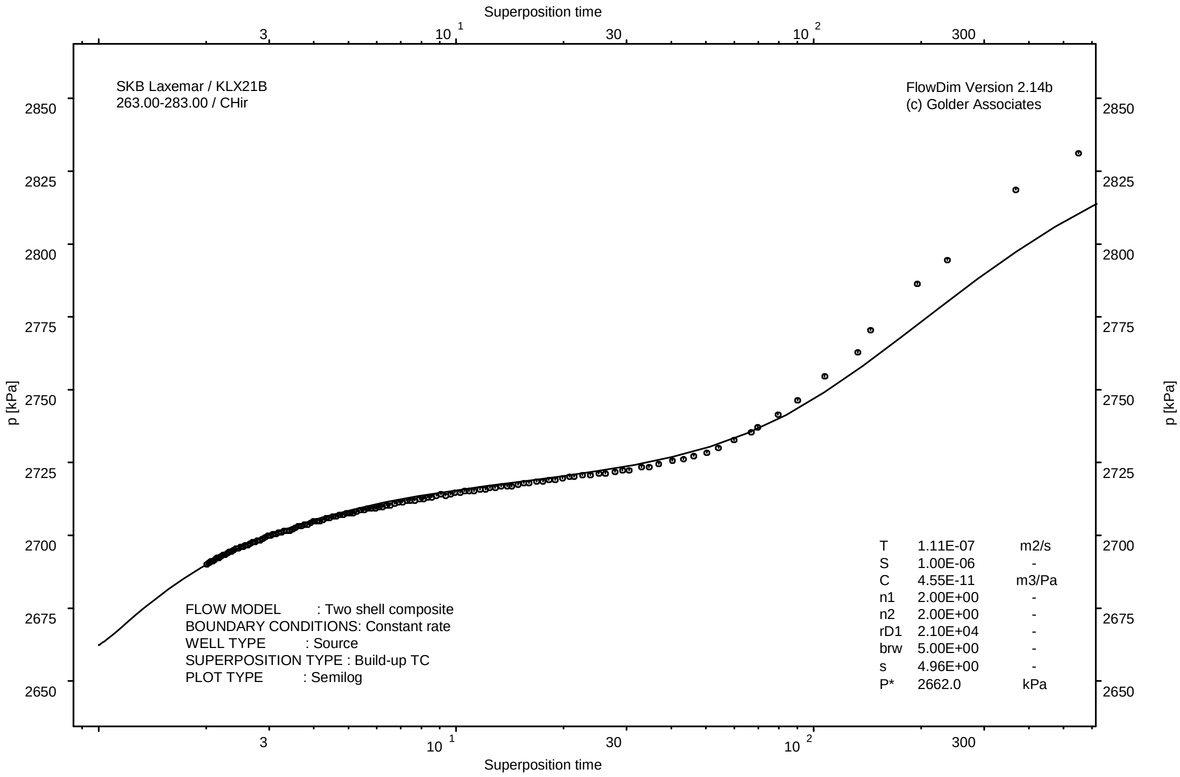
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

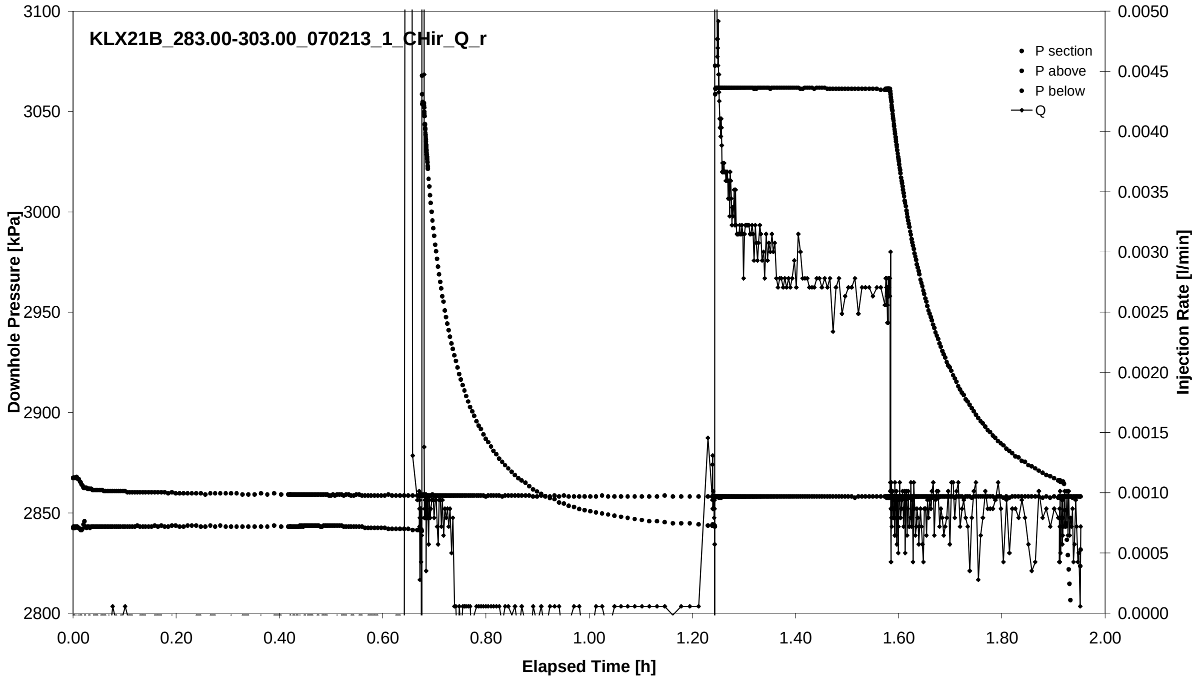


CHIR phase; HORNER match

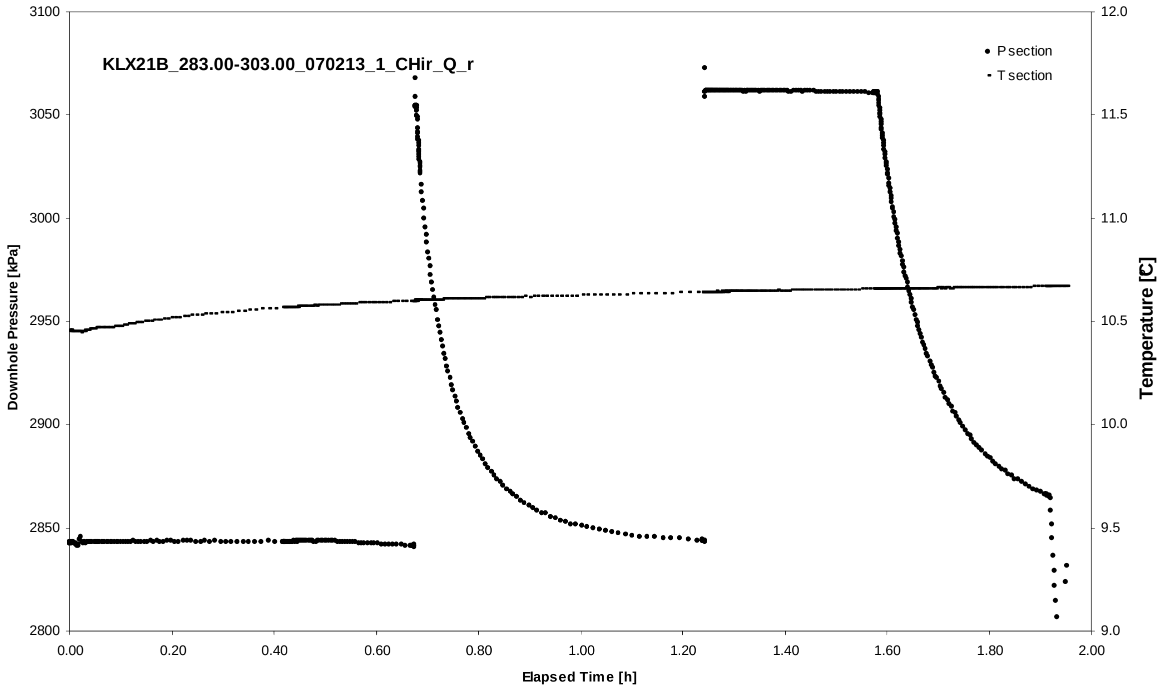
APPENDIX 2-17

Test 283.00 – 303.00 m

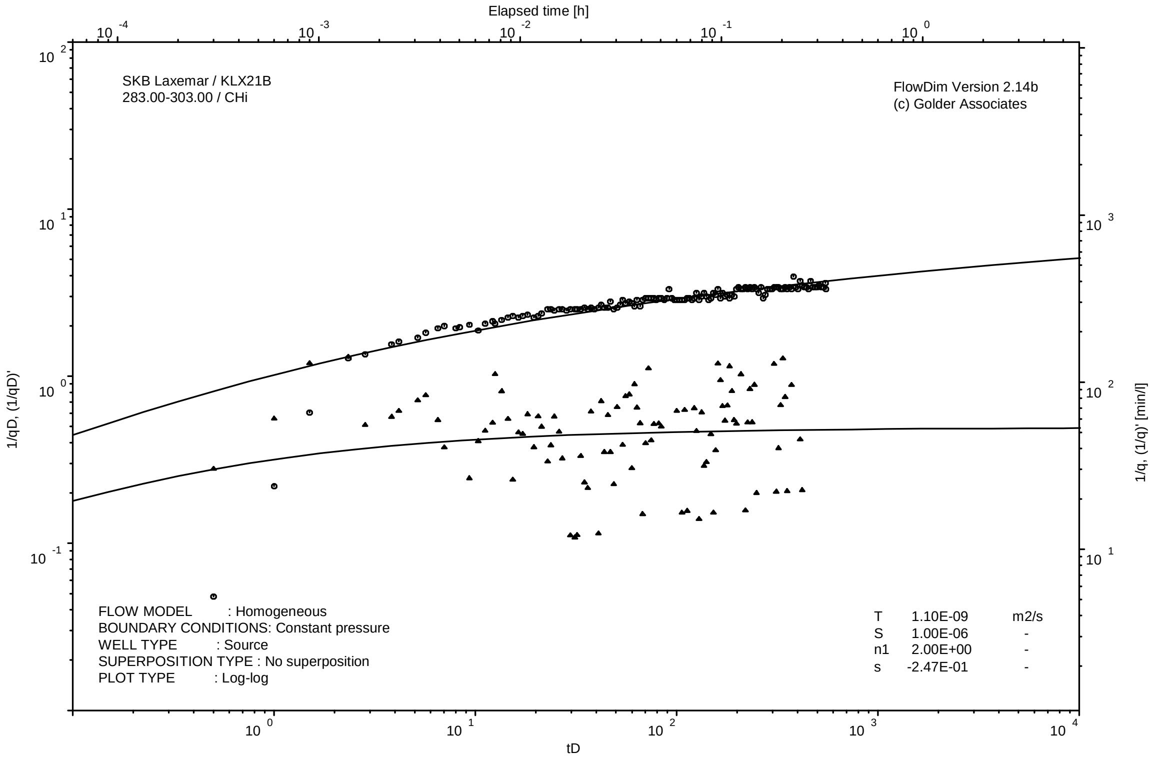
Analysis diagrams



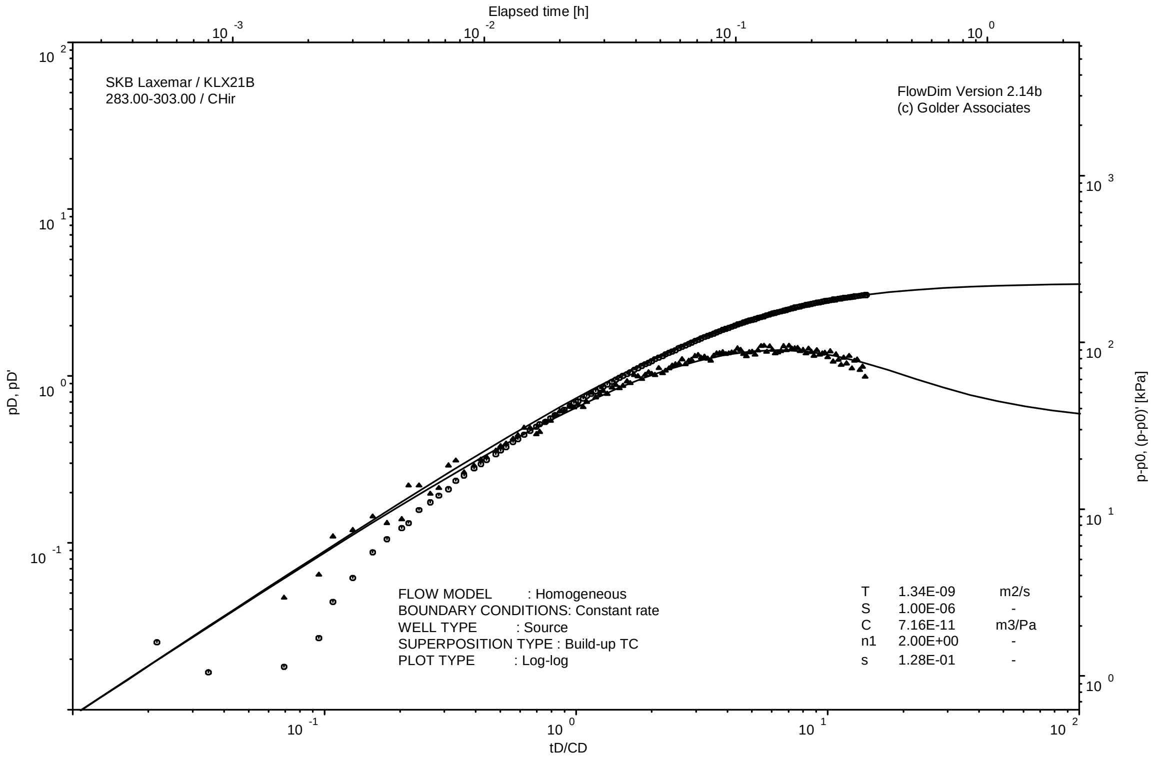
Pressure and flow rate vs. time; cartesian plot



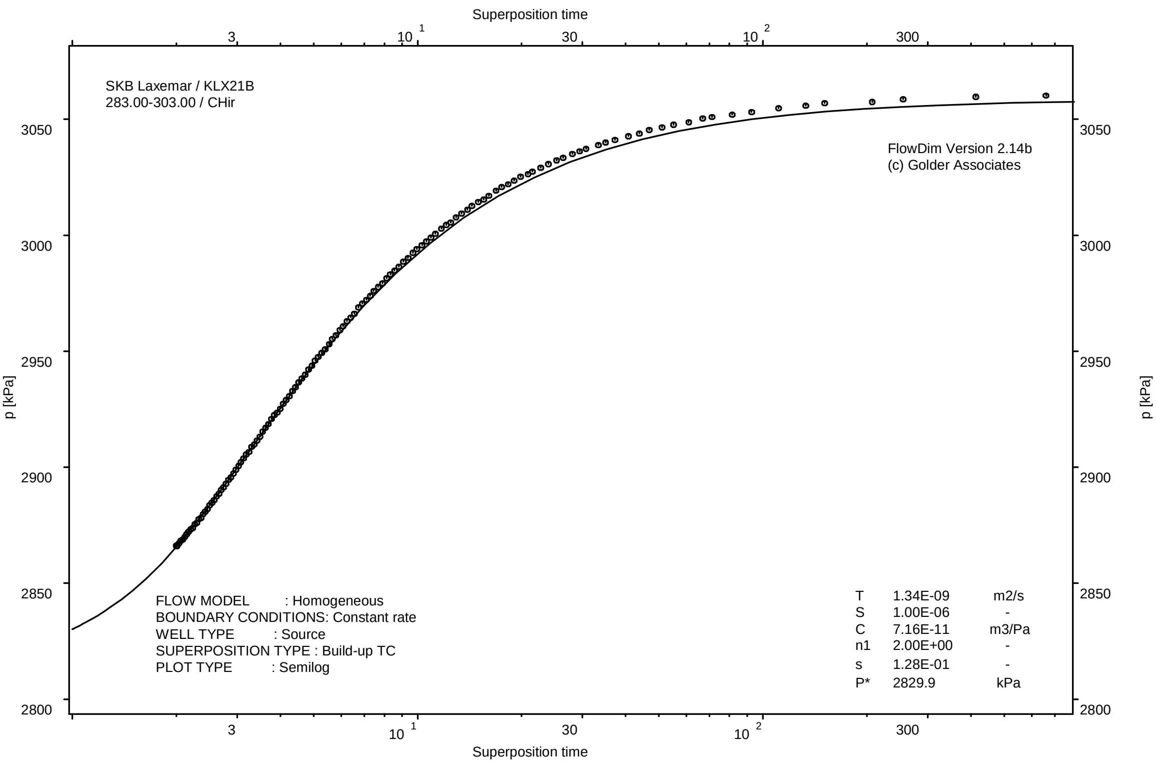
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

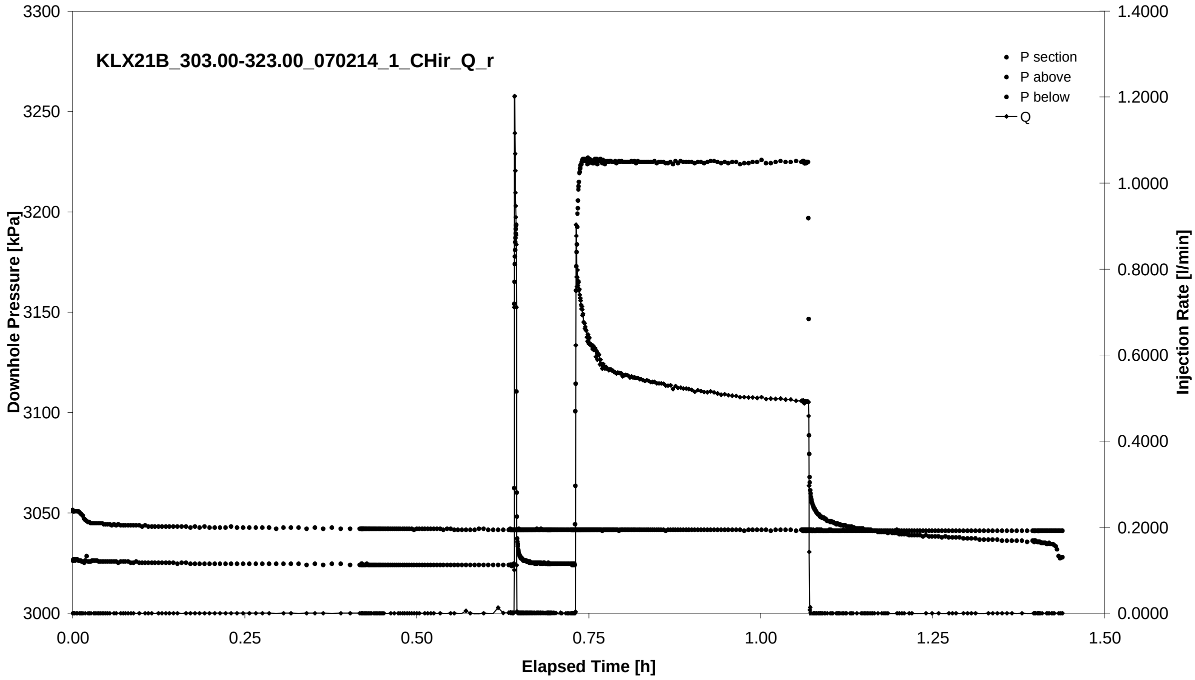


CHIR phase; HORNER match

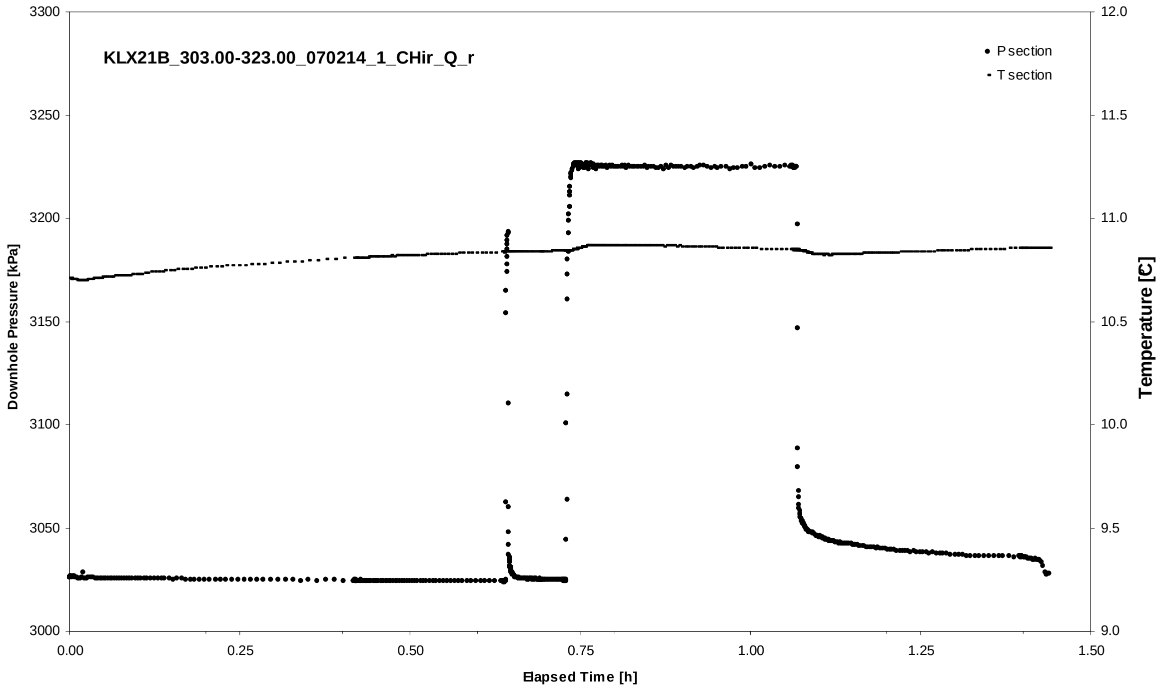
APPENDIX 2-18

Test 303.00 – 323.00 m

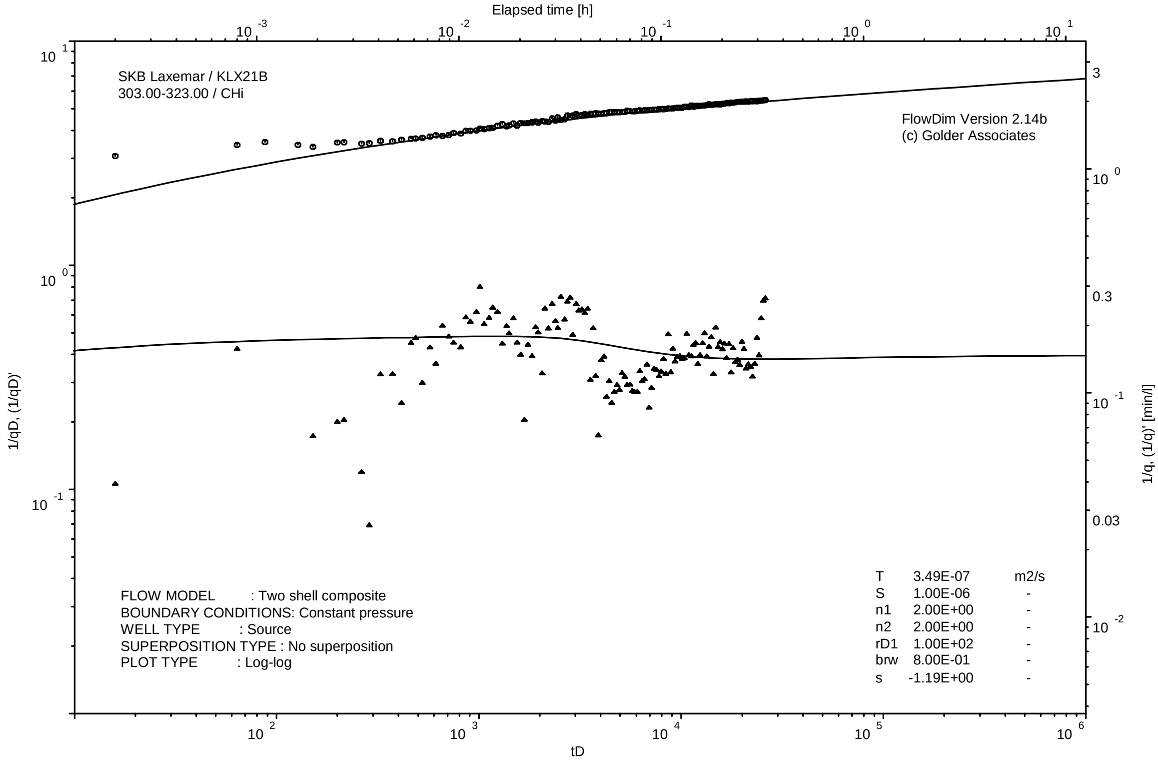
Analysis diagrams



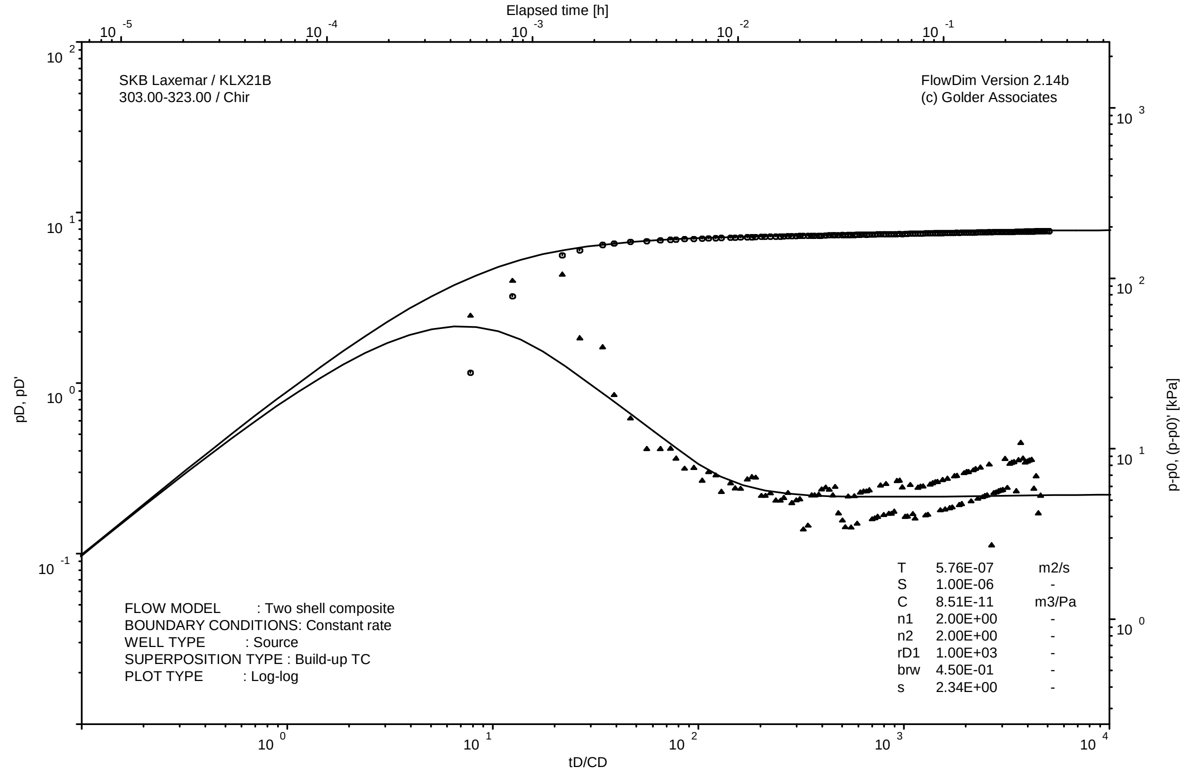
Pressure and flow rate vs. time; cartesian plot



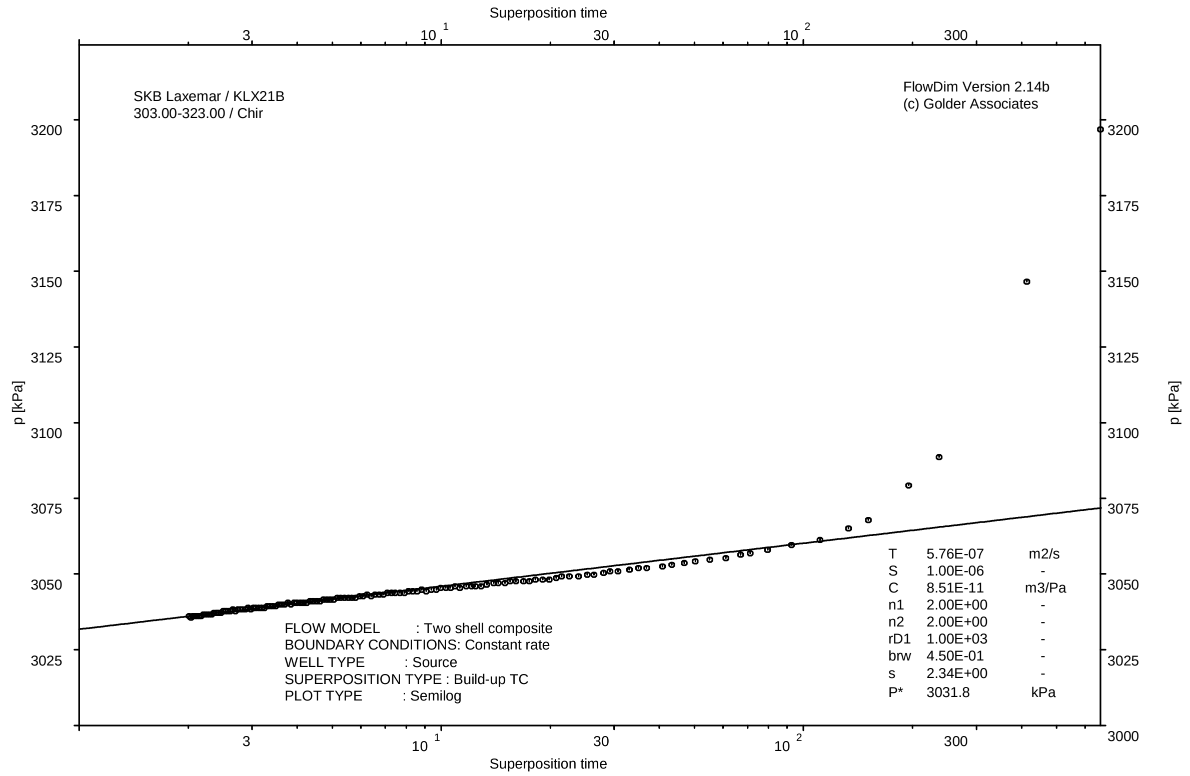
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

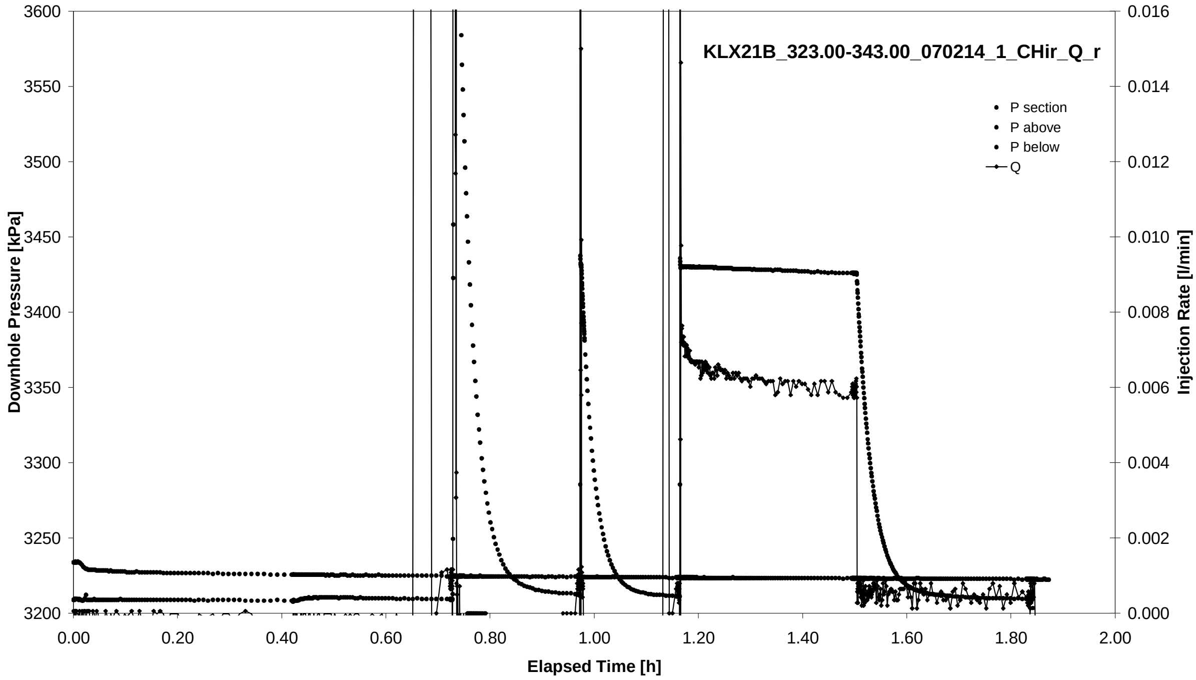


CHIR phase; HORNER match

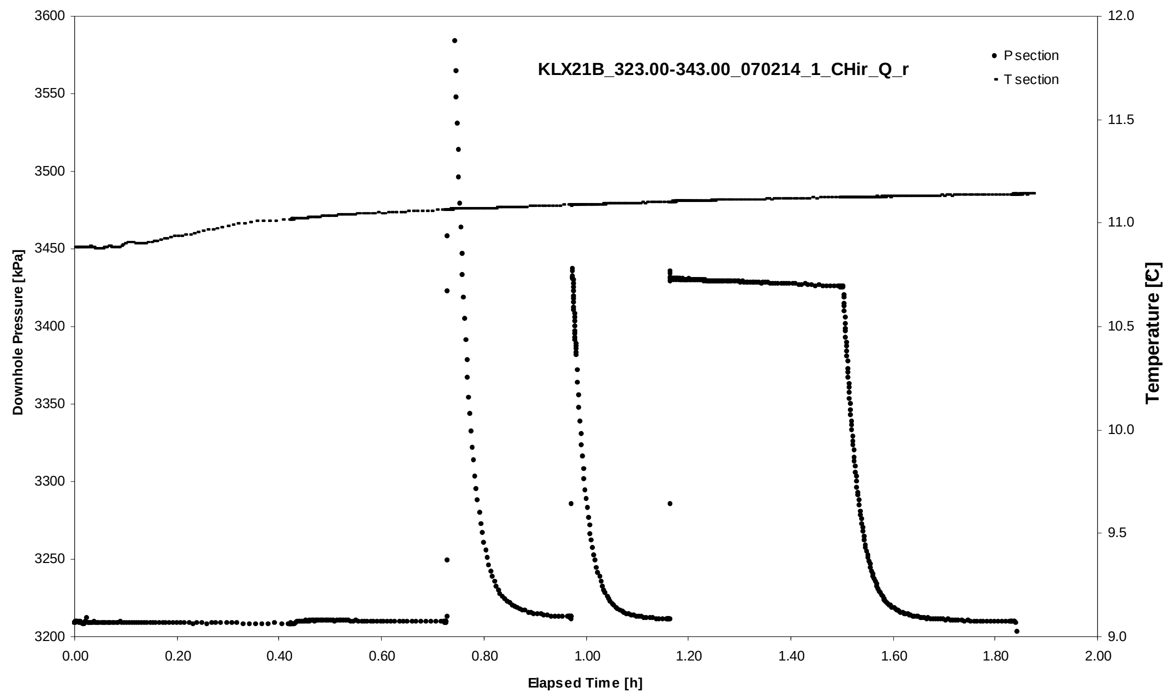
APPENDIX 2-19

Test 323.00 – 343.00 m

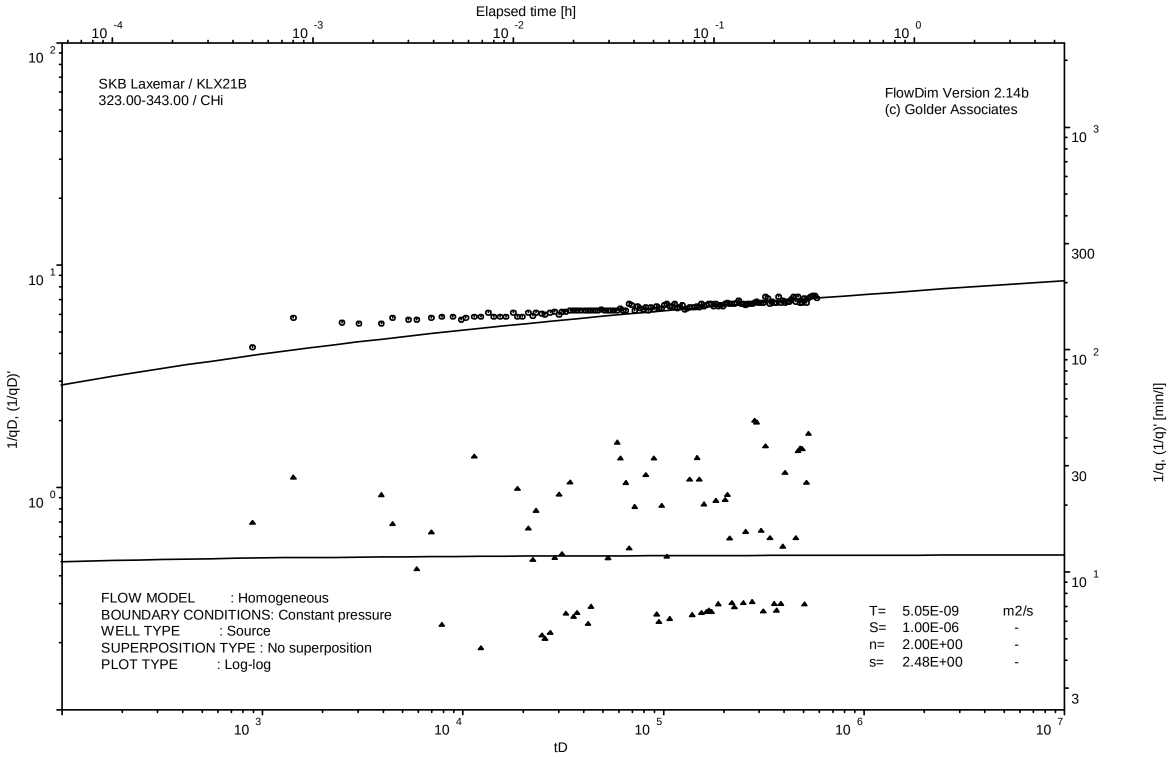
Analysis diagrams



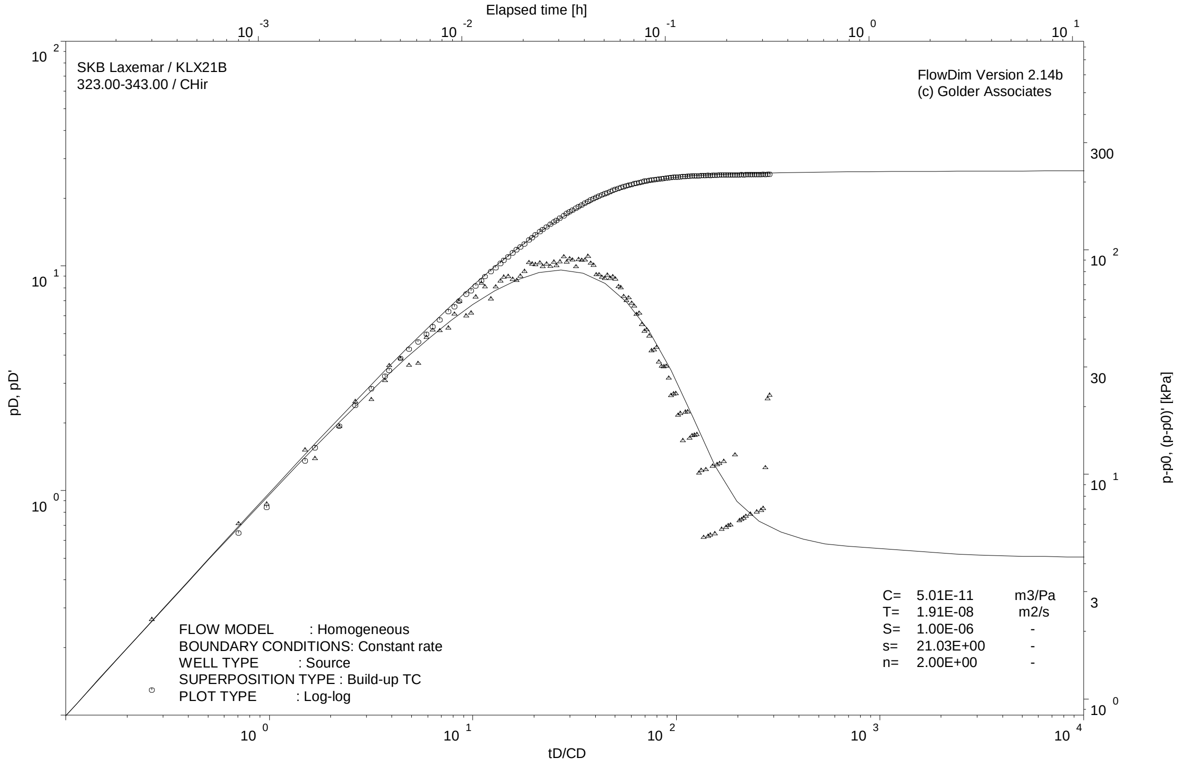
Pressure and flow rate vs. time; cartesian plot



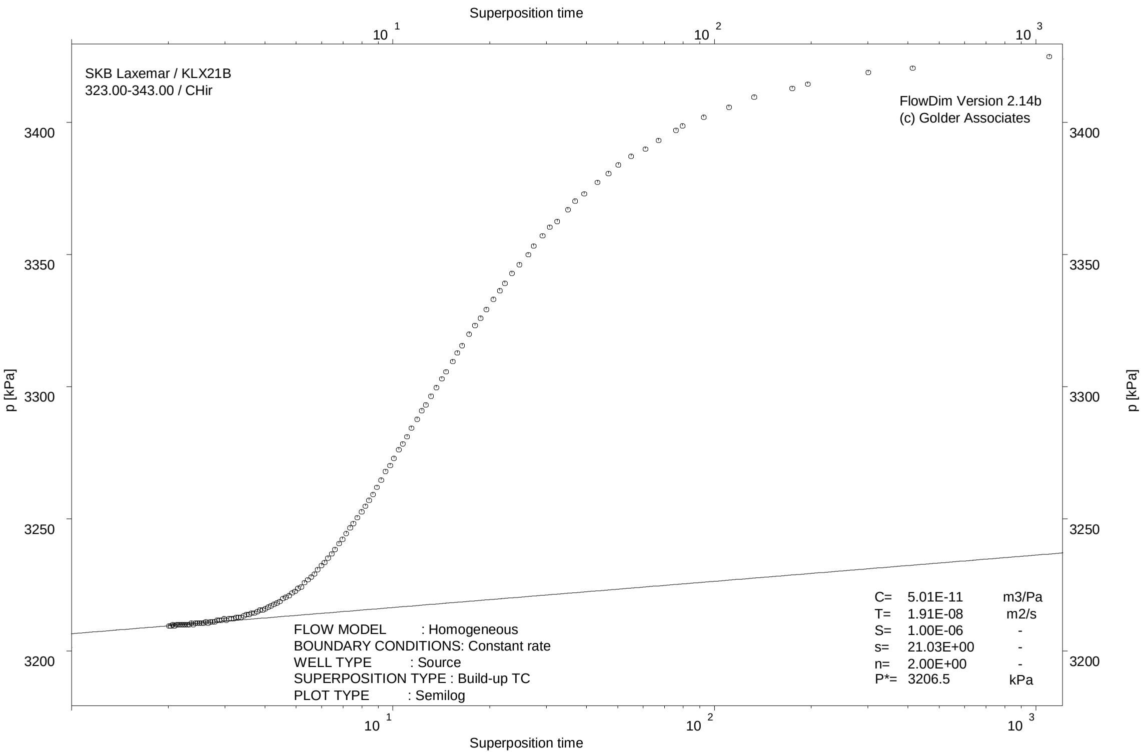
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

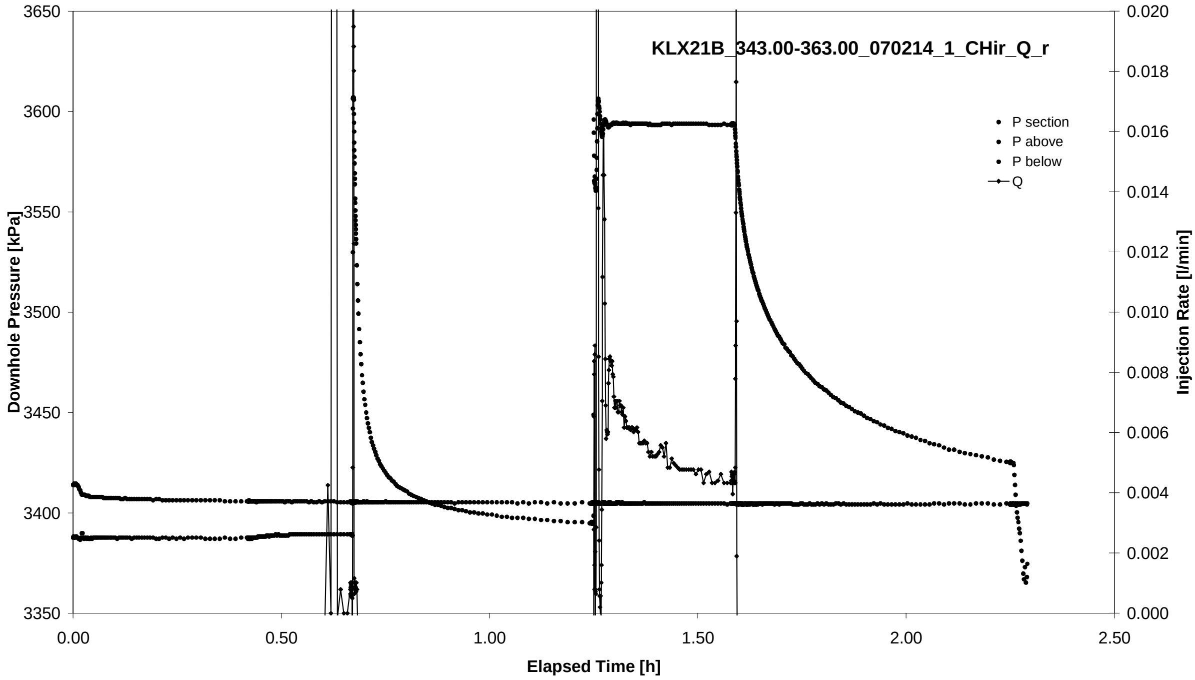


CHIR phase; HORNER match

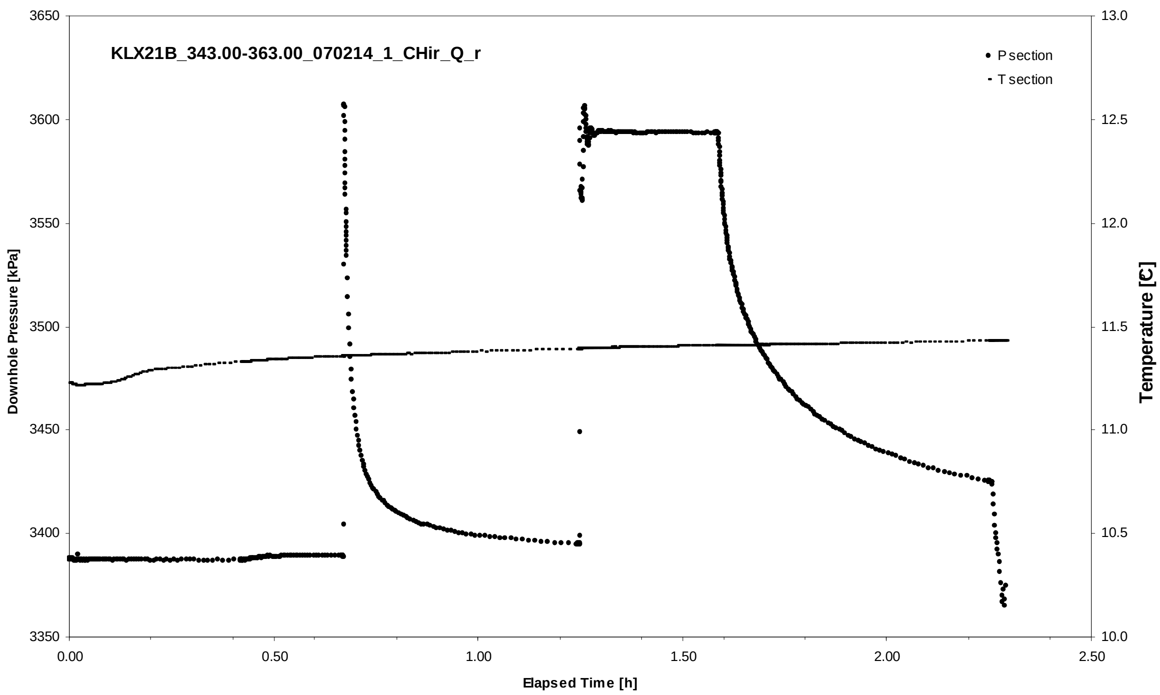
APPENDIX 2-20

Test 343.00 – 363.00 m

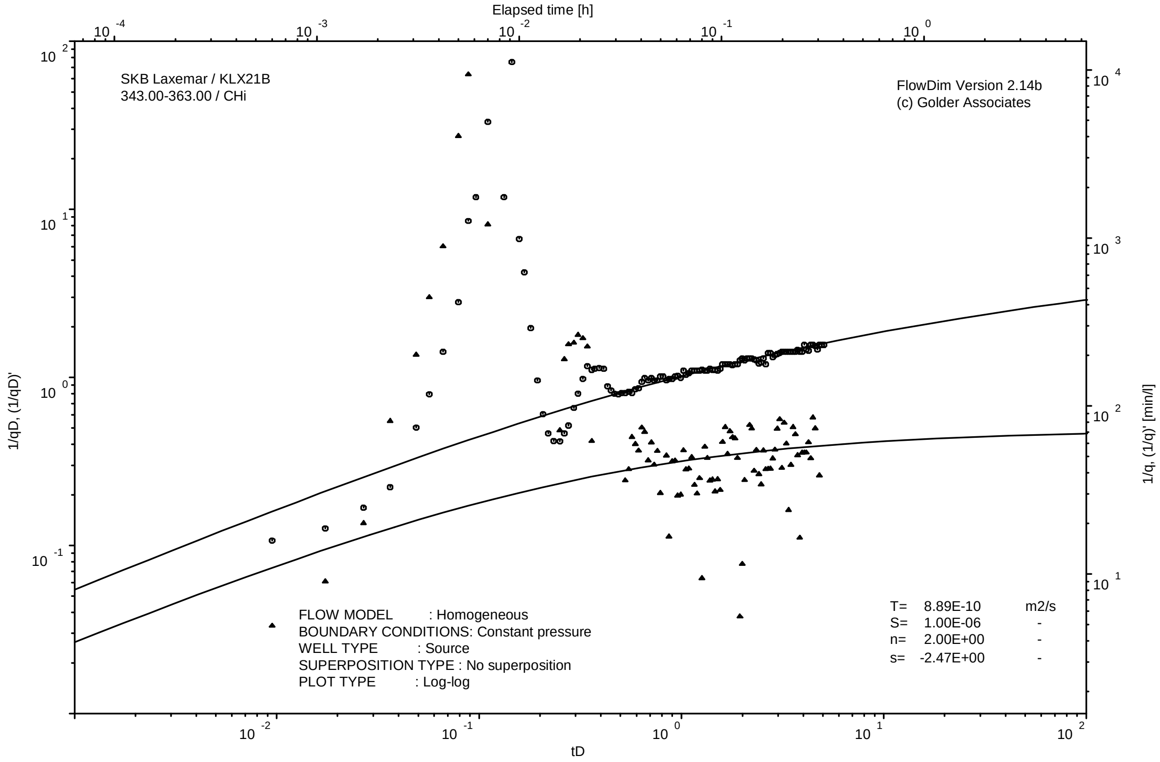
Analysis diagrams



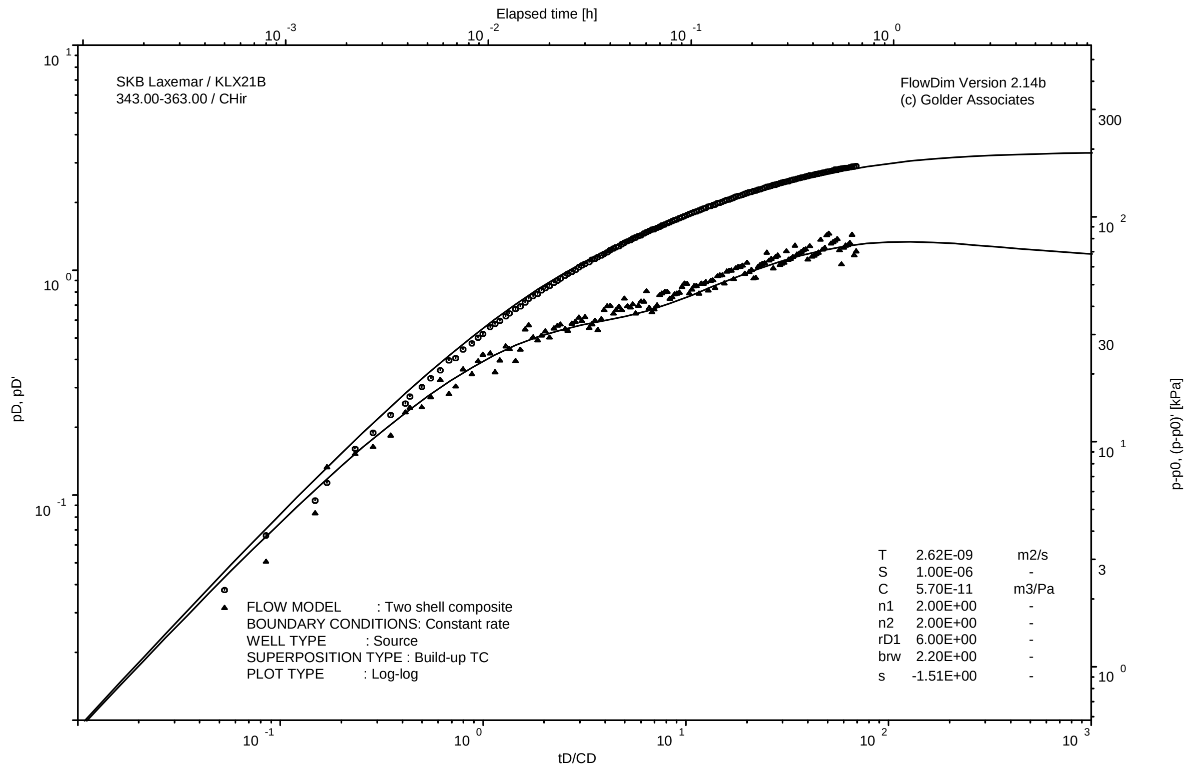
Pressure and flow rate vs. time; cartesian plot



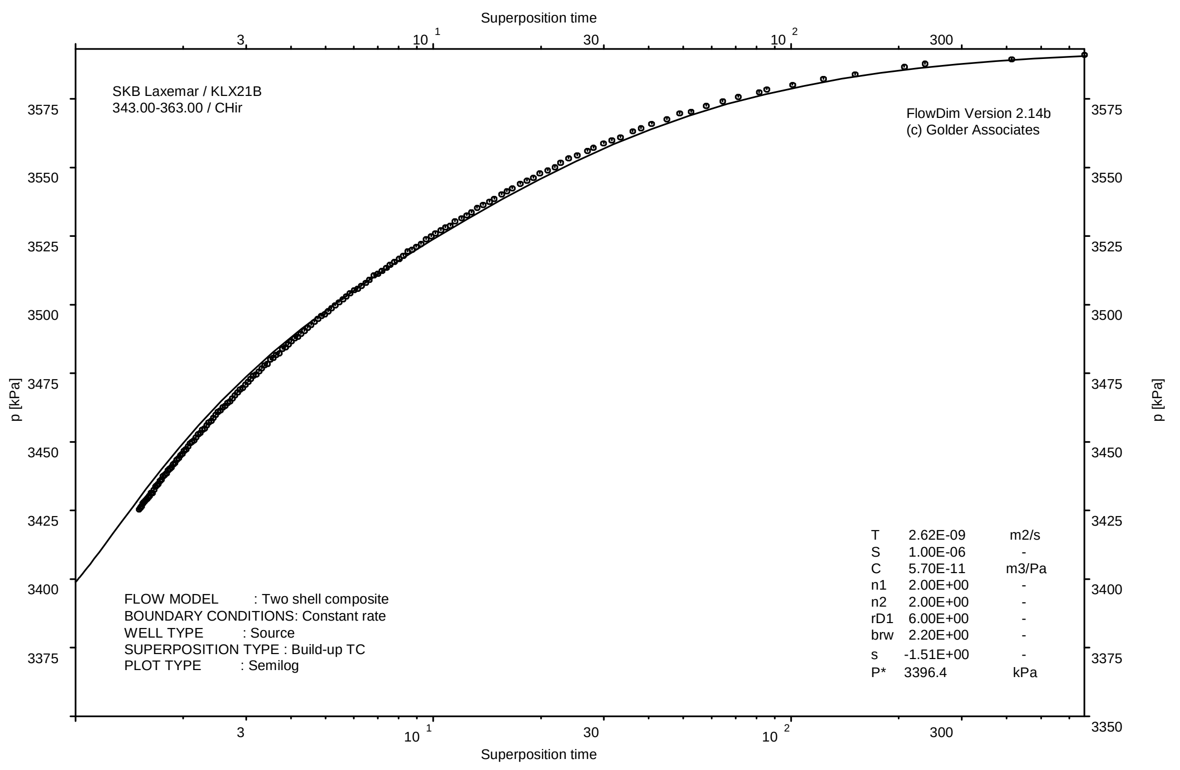
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

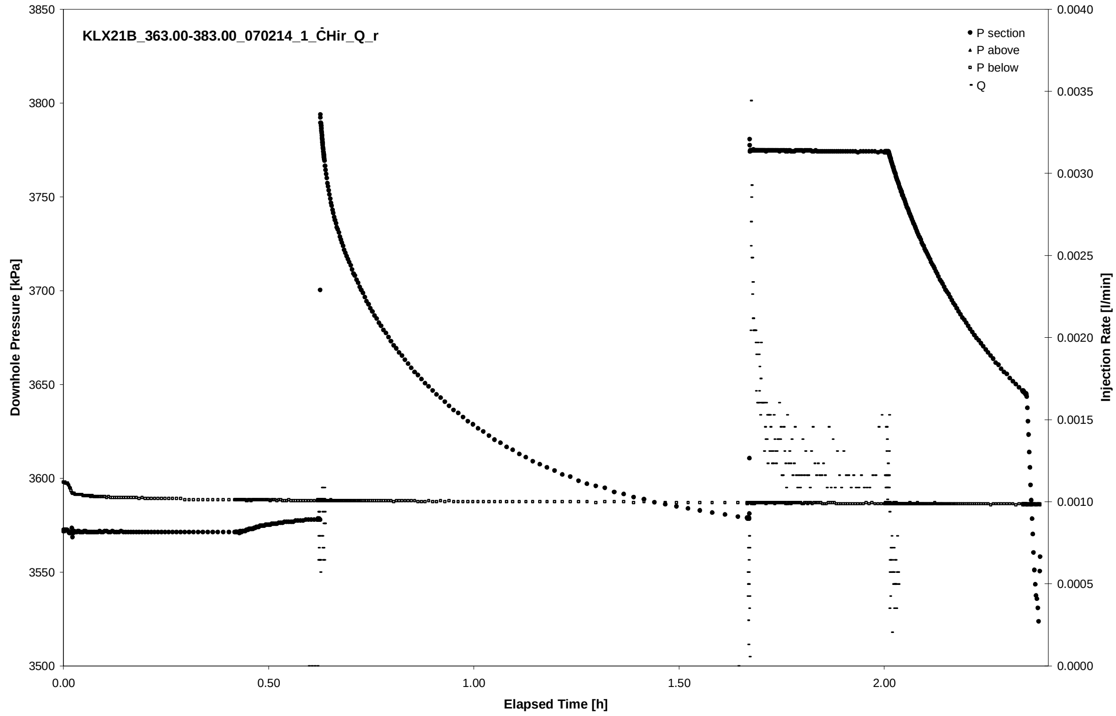


CHIR phase; HORNER match

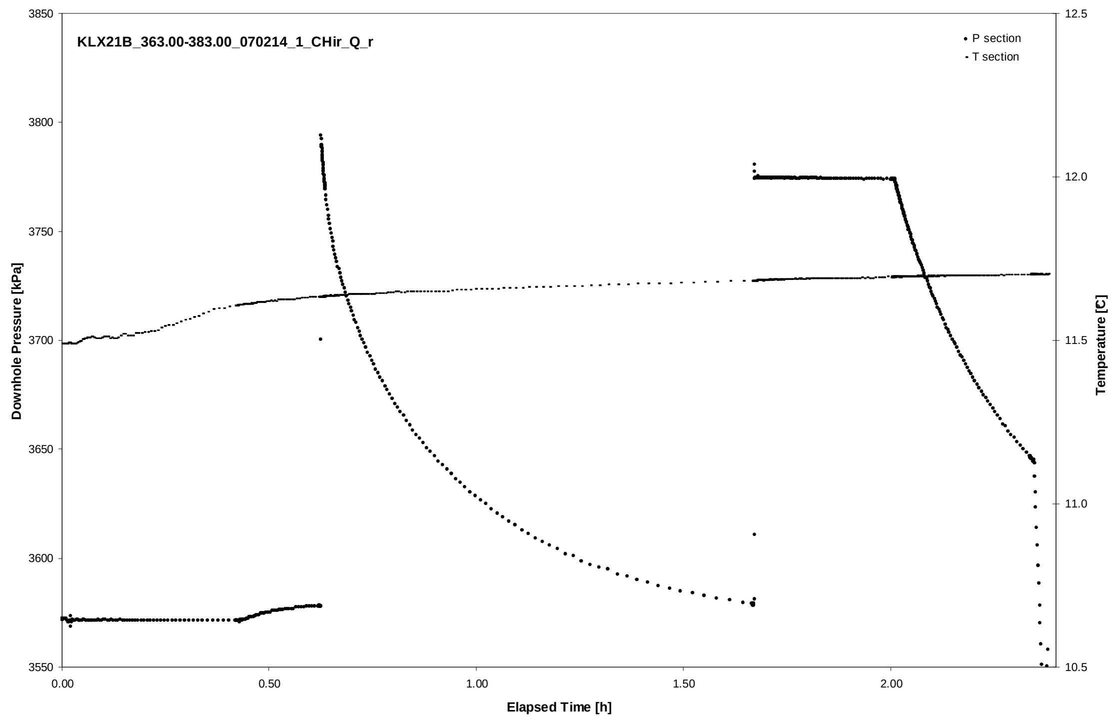
APPENDIX 2-21

Test 363.00 – 383.00 m

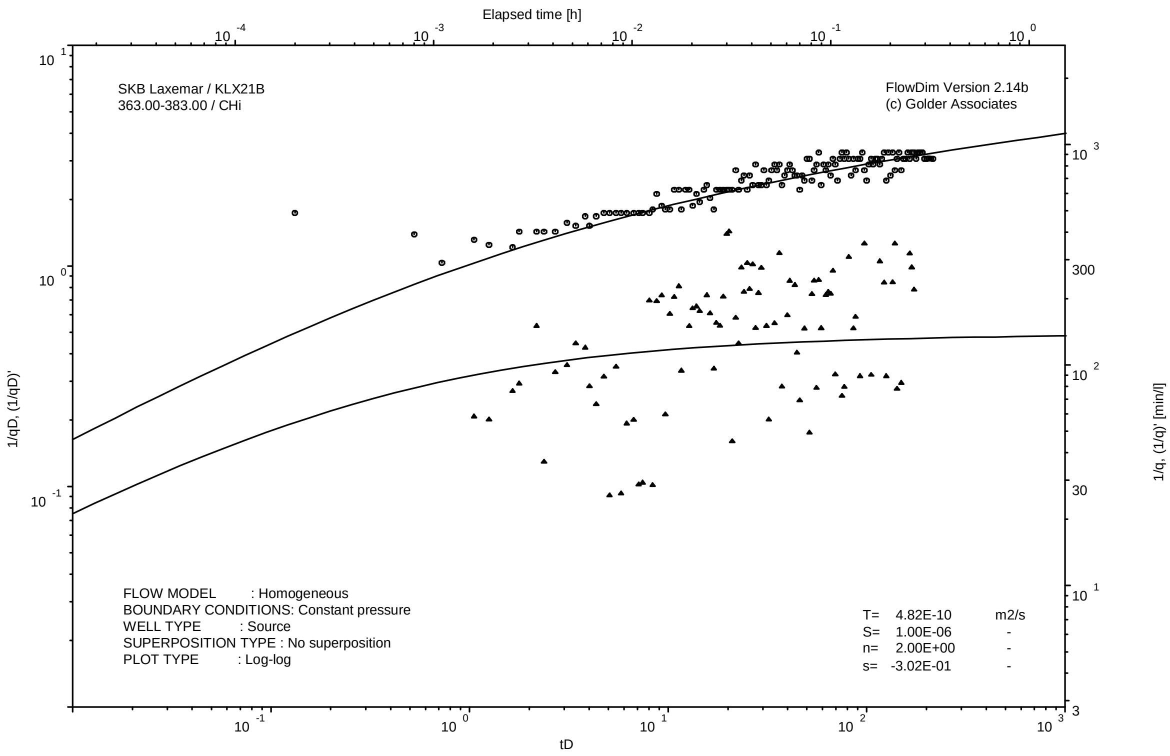
Analysis diagrams



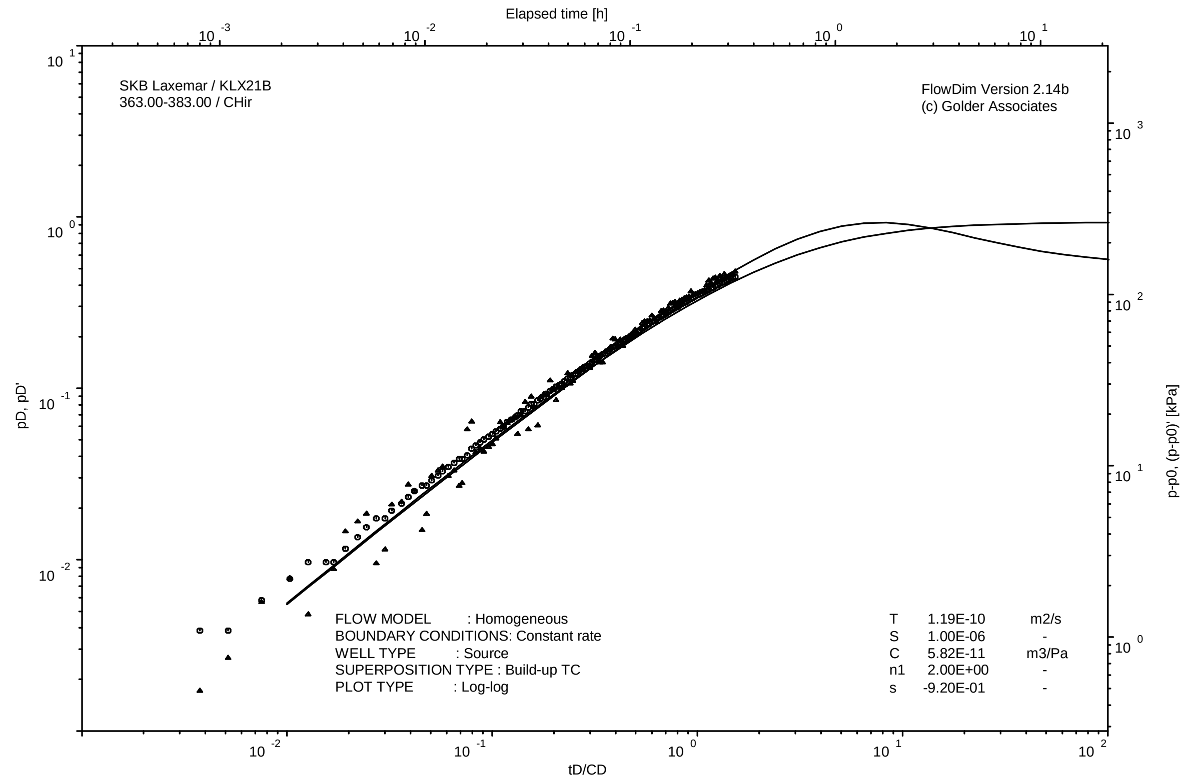
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

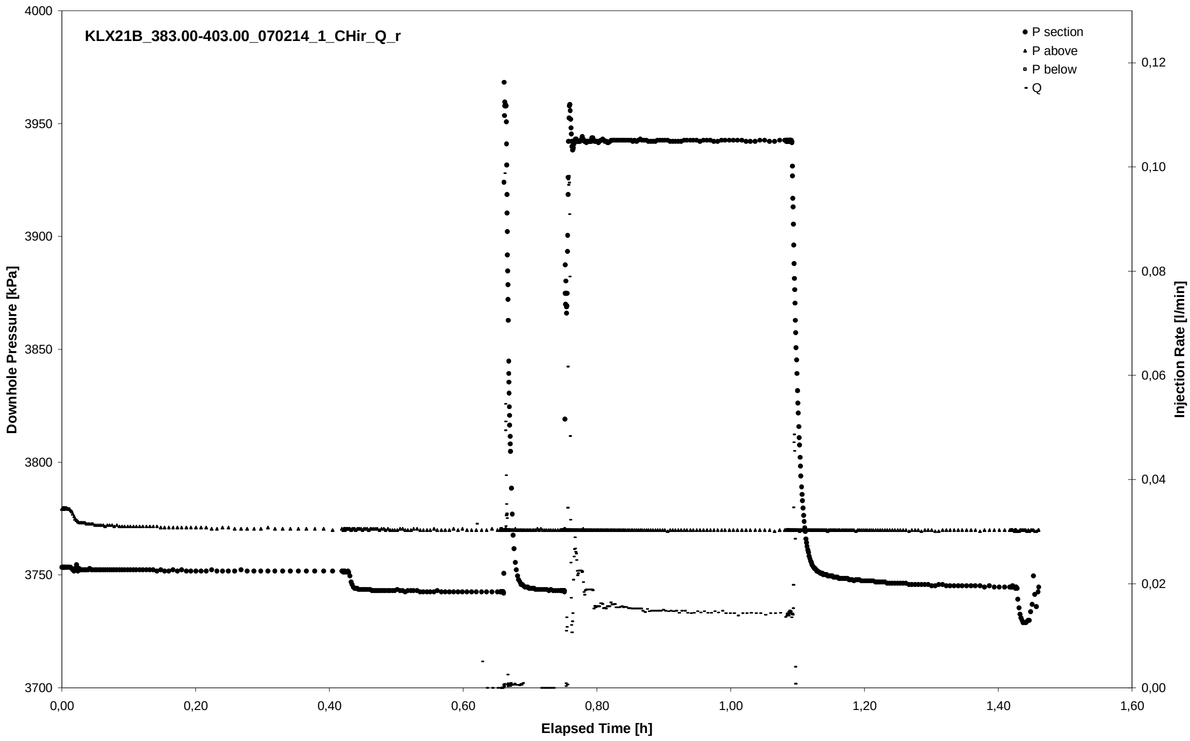
Not analysed

CHIR phase; HORNER match

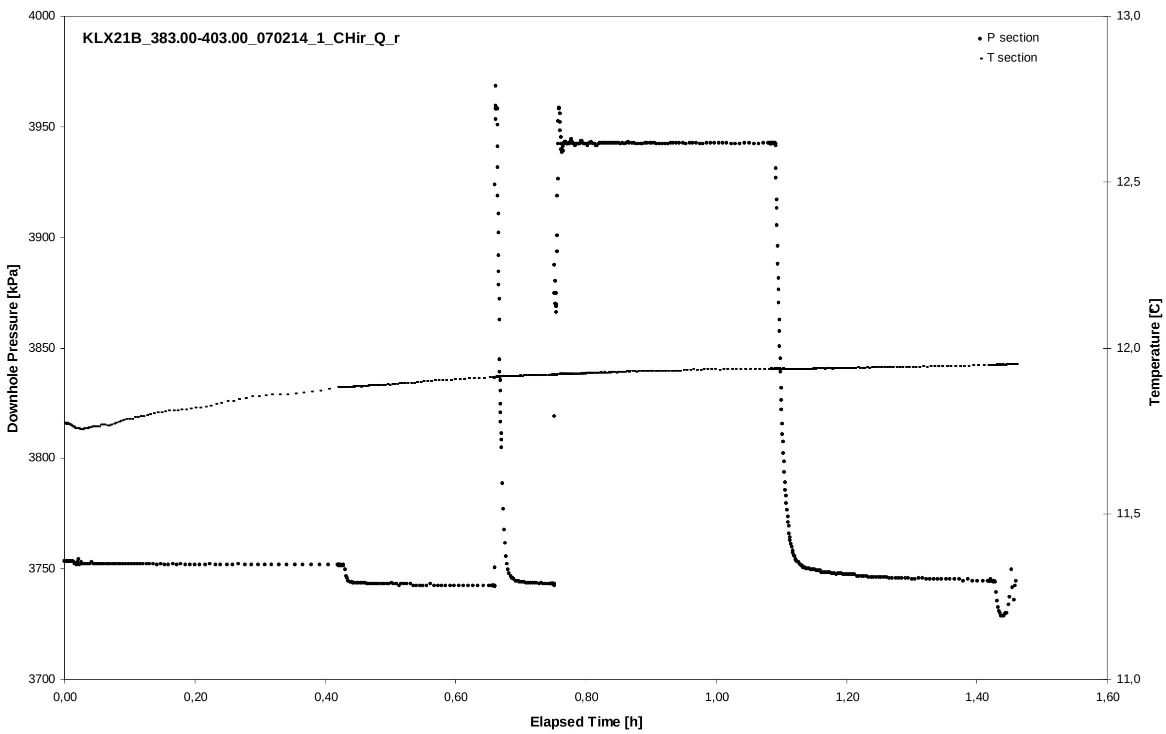
APPENDIX 2-22

Test 383.00 – 403.00 m

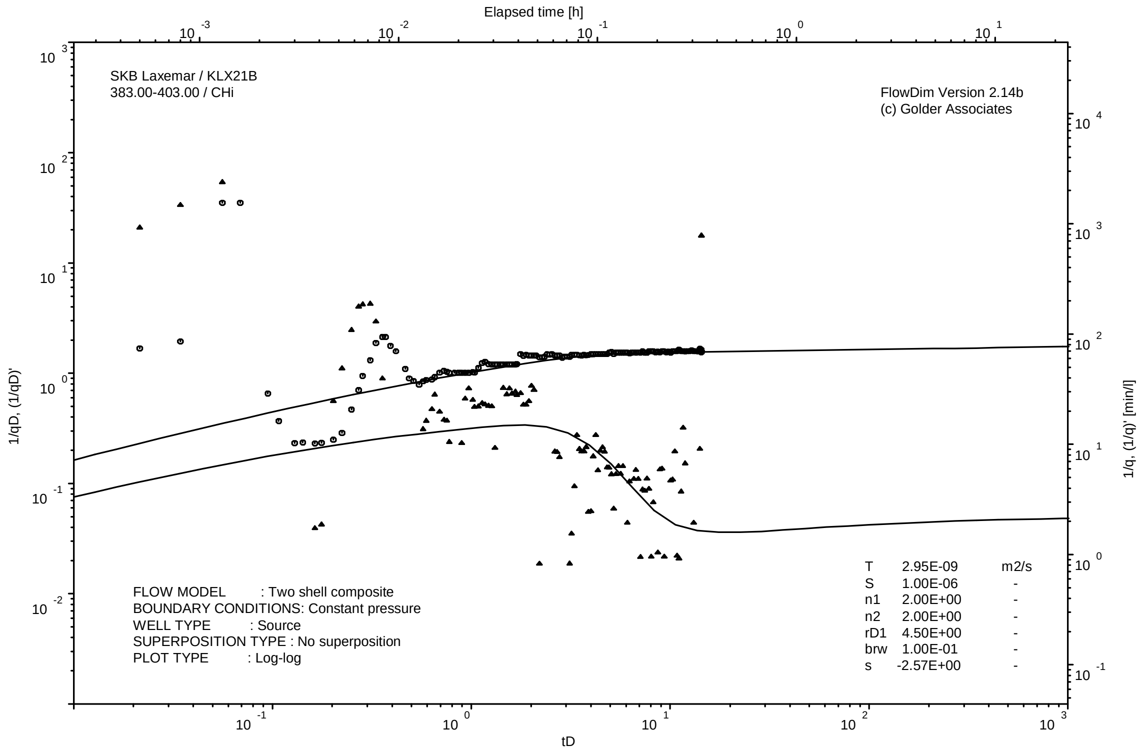
Analysis diagrams



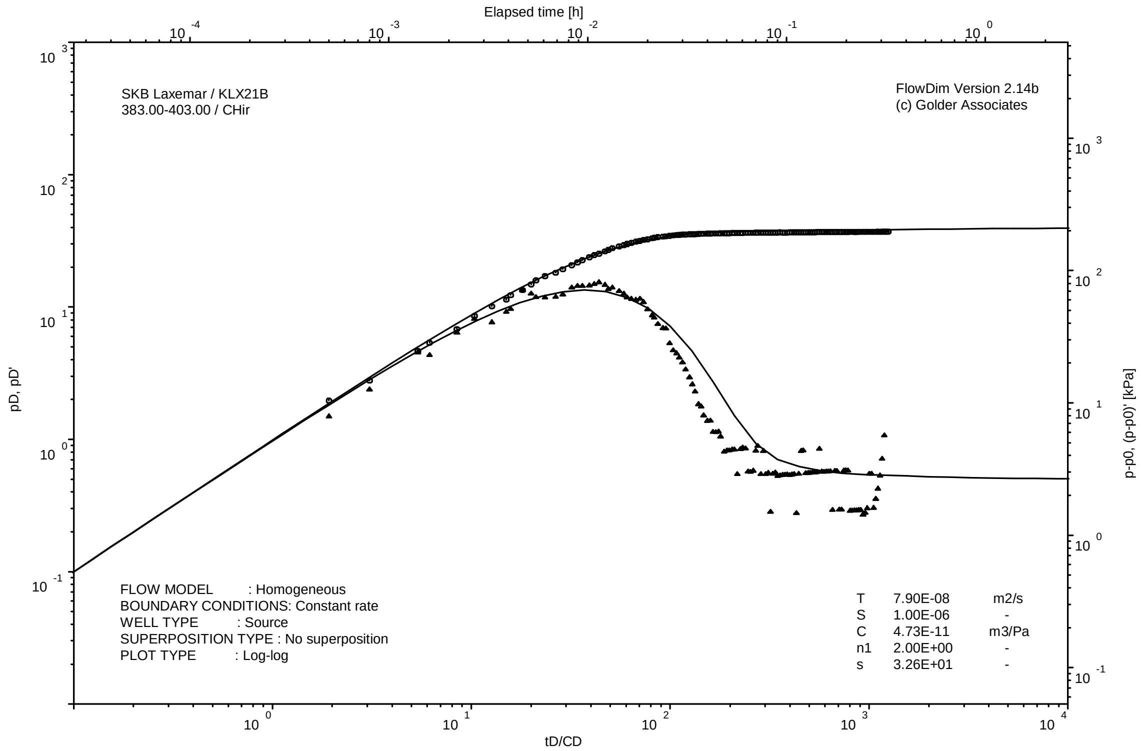
Pressure and flow rate vs. time; cartesian plot



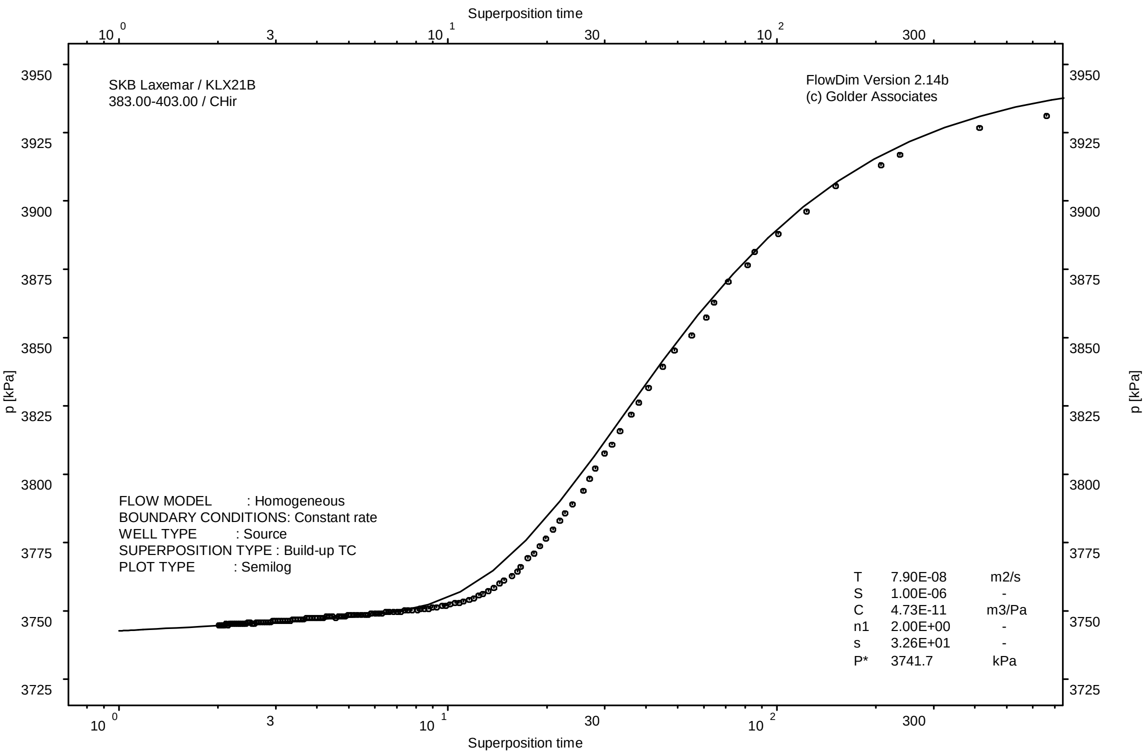
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

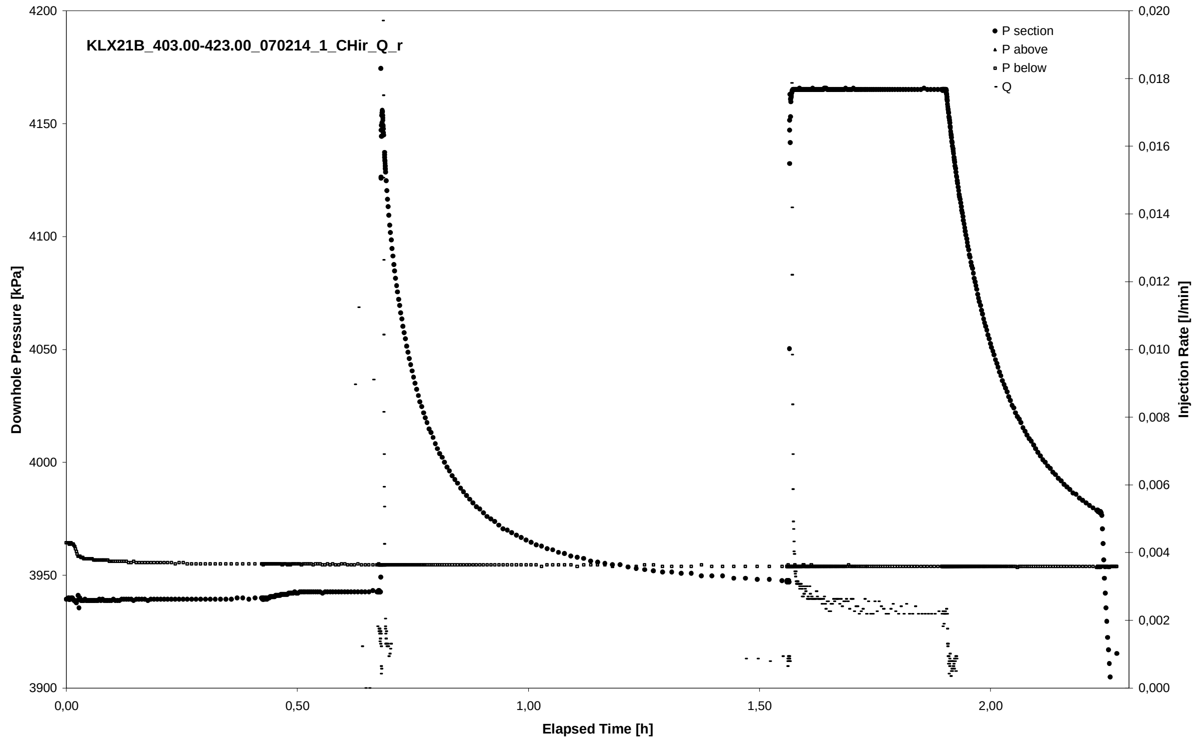


CHIR phase; HORNER match

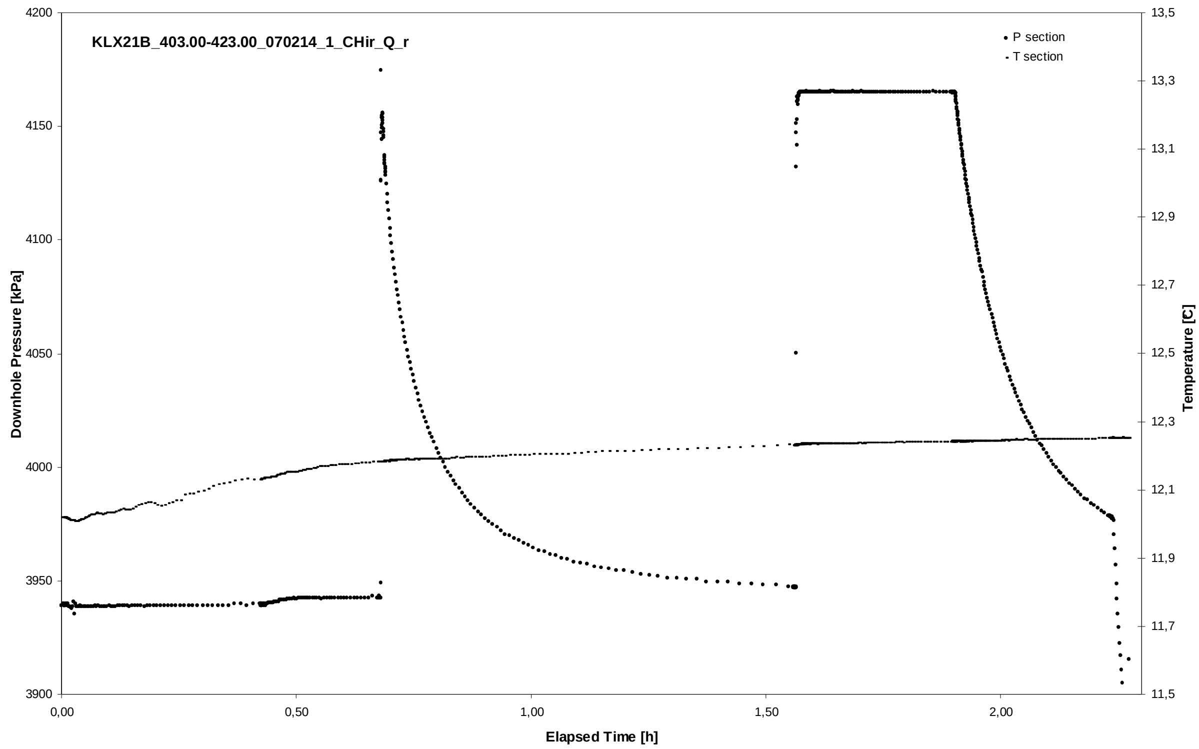
APPENDIX 2-23

Test 403.00 – 423.00 m

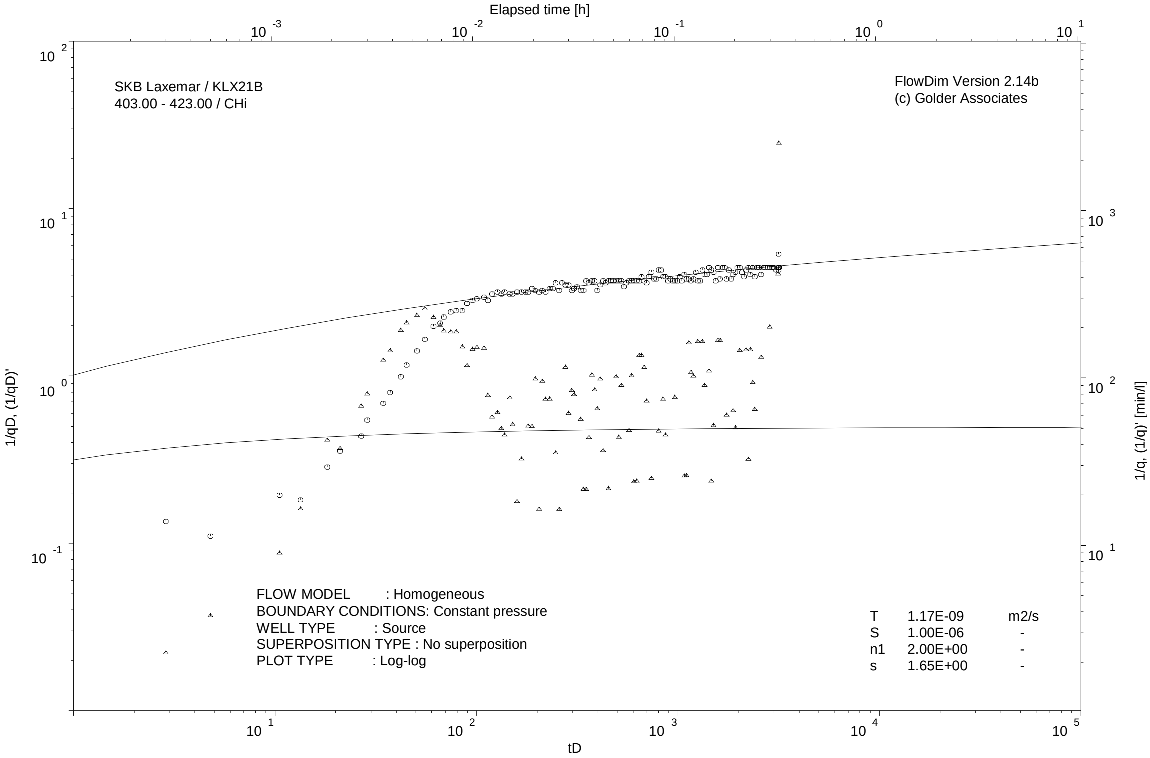
Analysis diagrams



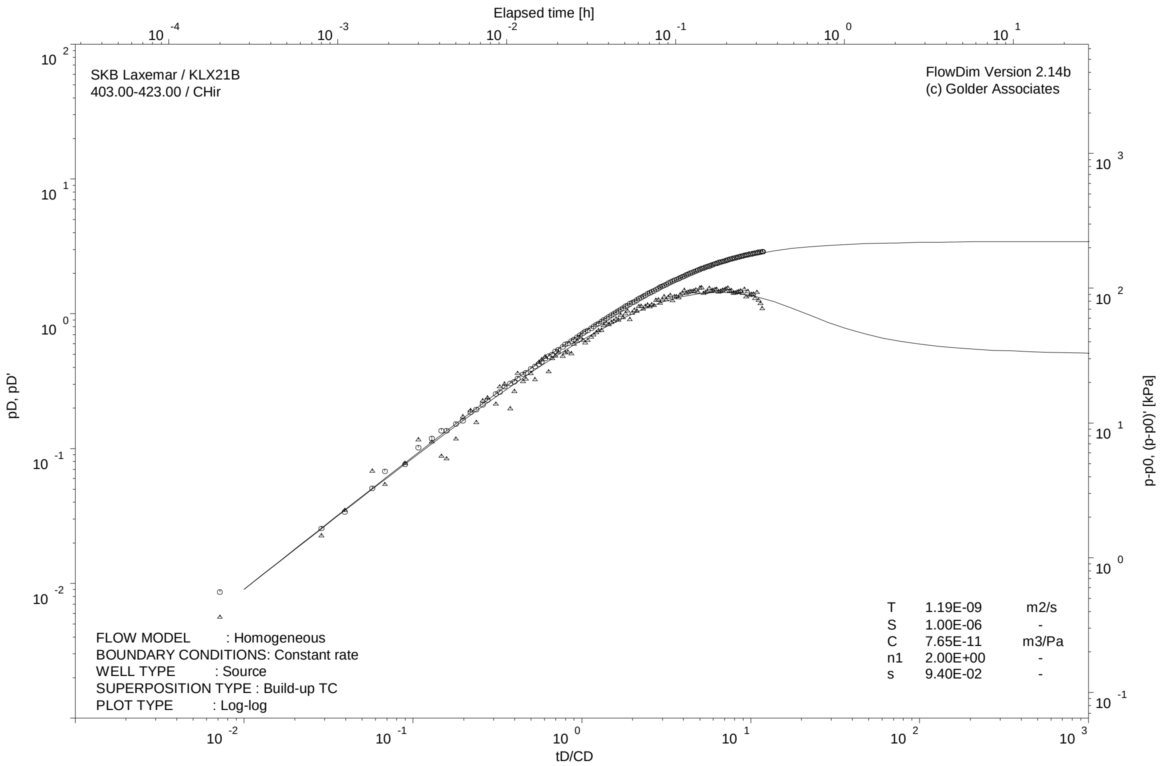
Pressure and flow rate vs. time; cartesian plot



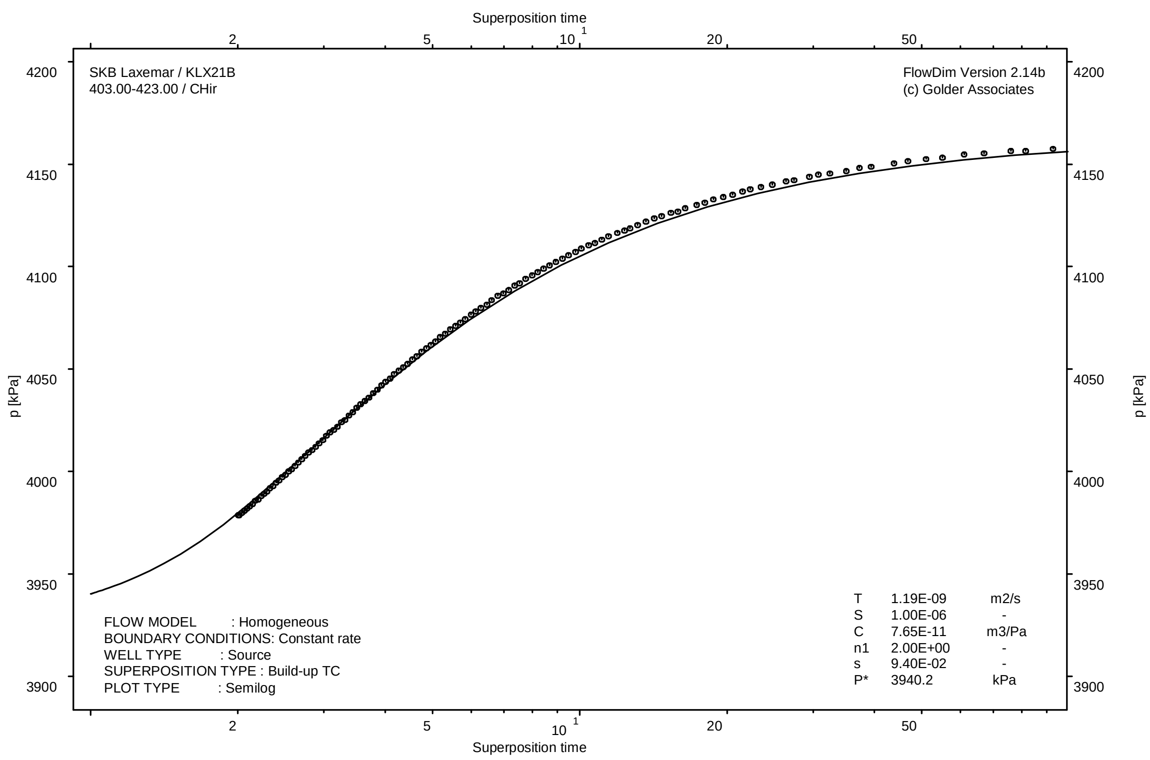
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

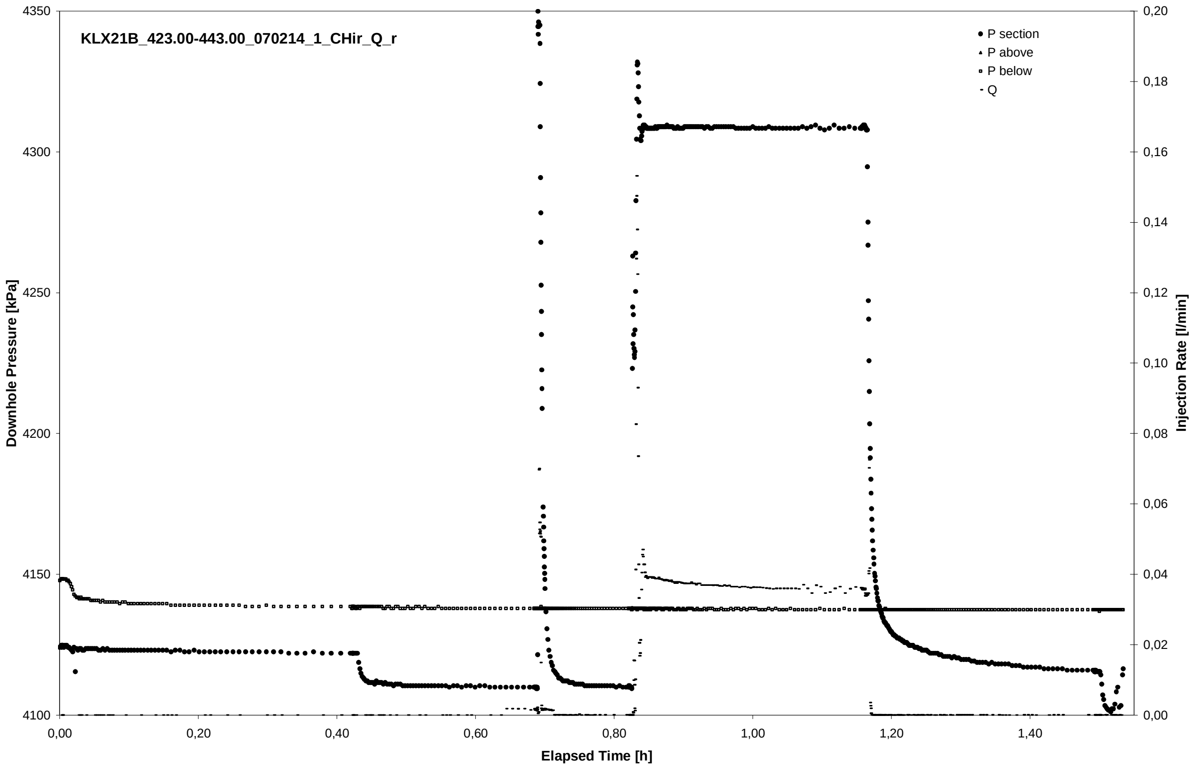


CHIR phase; HORNER match

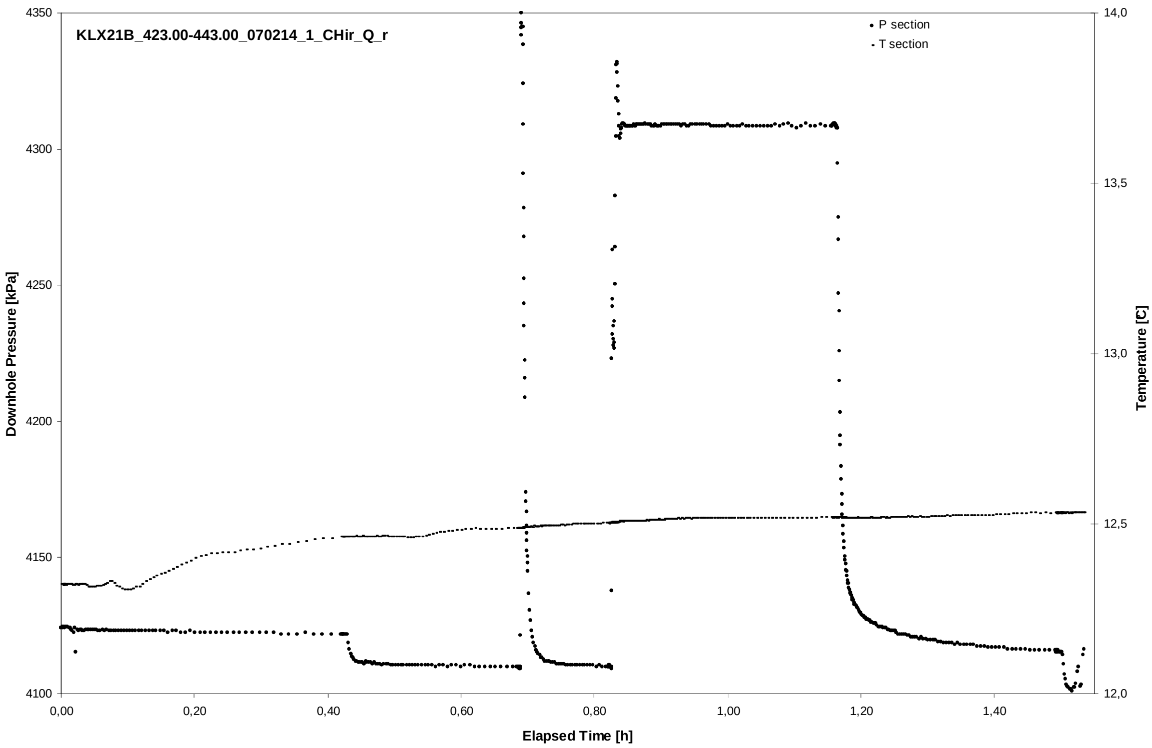
APPENDIX 2-24

Test 423.00 – 443.00 m

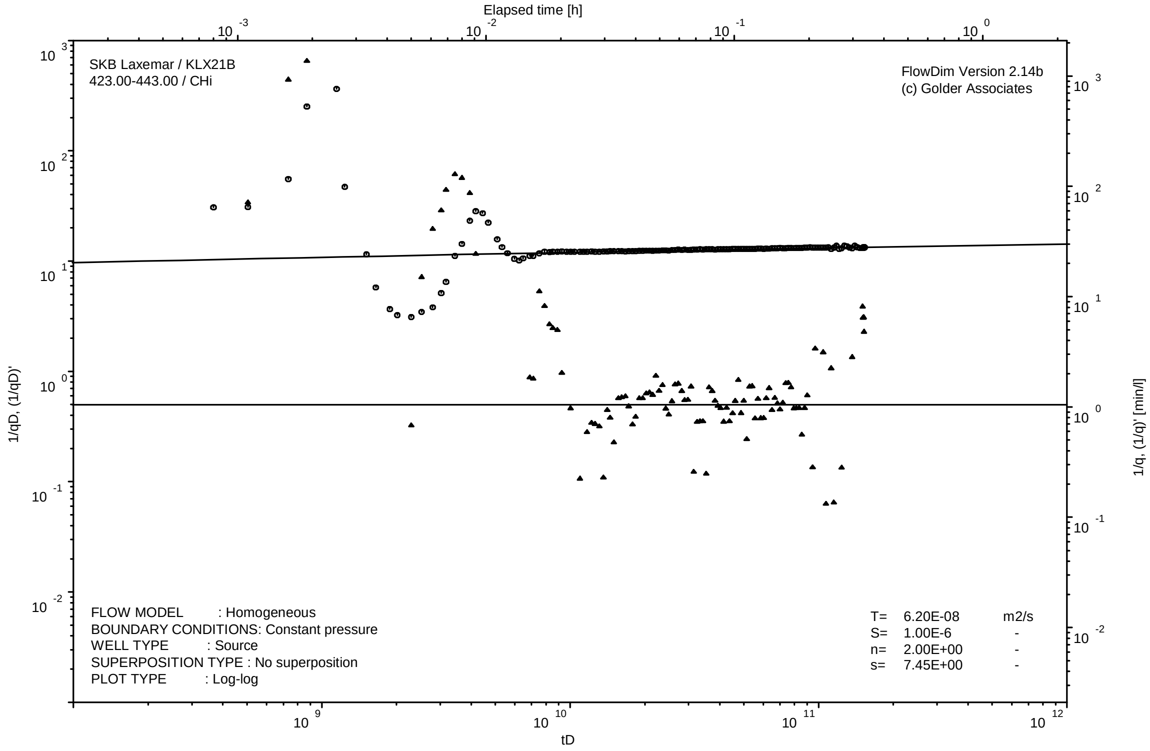
Analysis diagrams



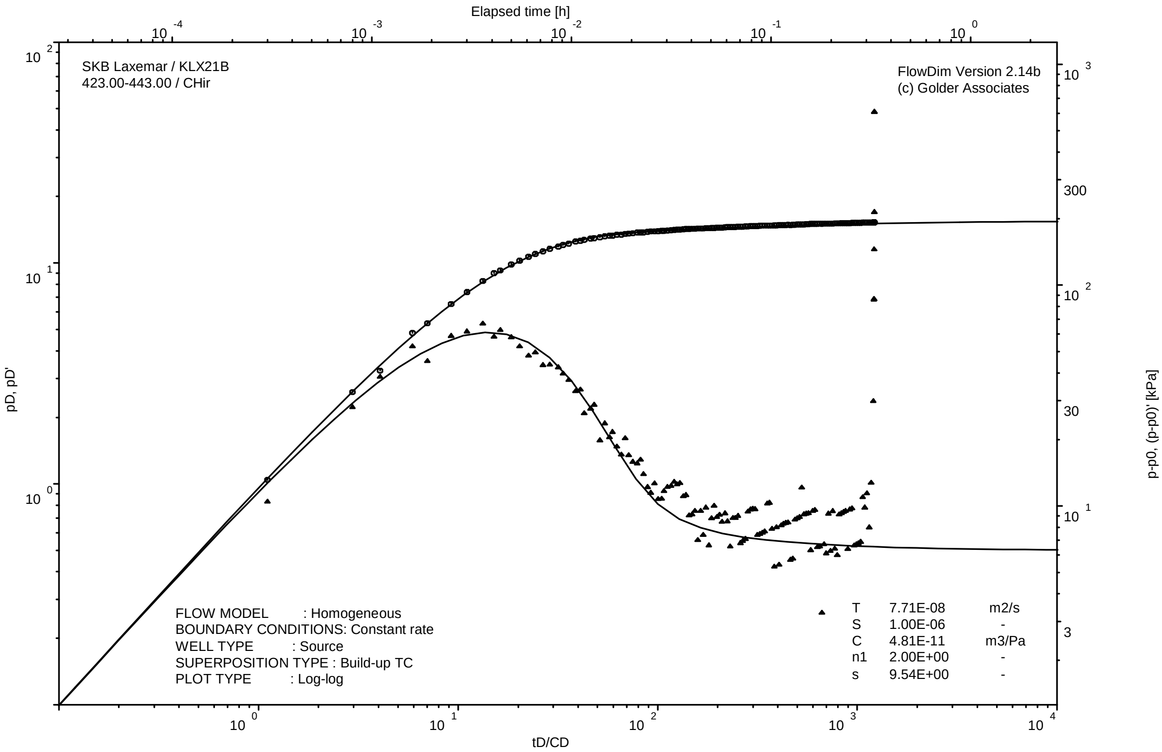
Pressure and flow rate vs. time; cartesian plot



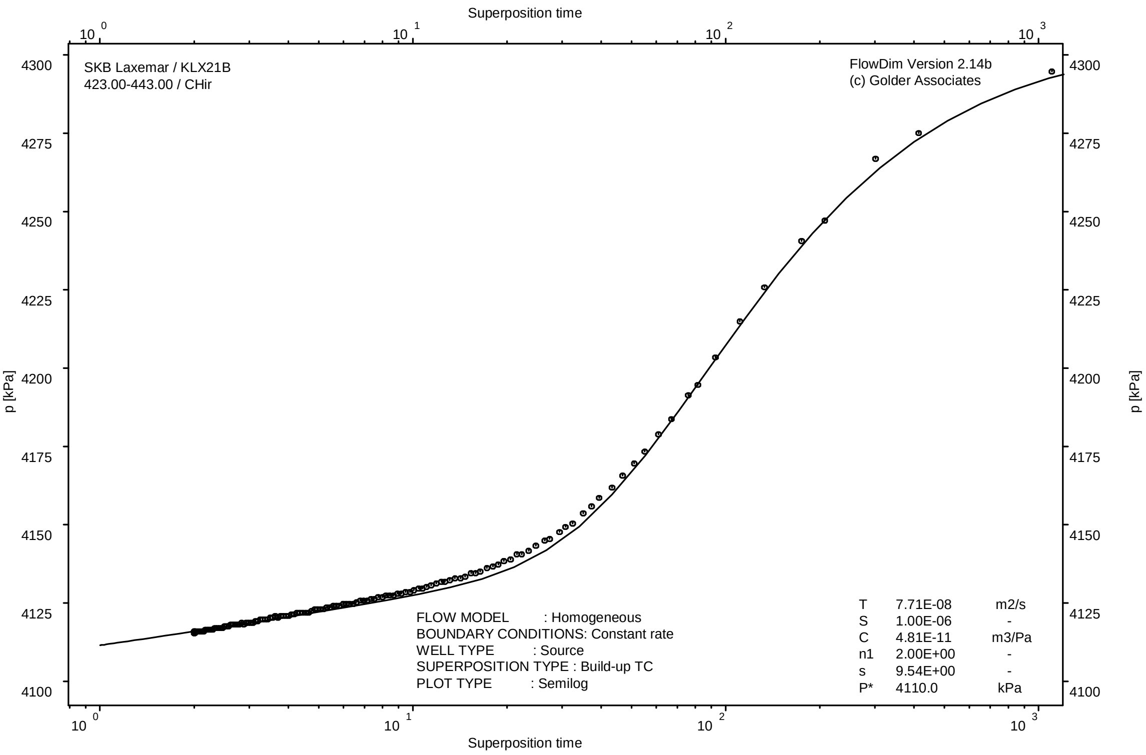
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

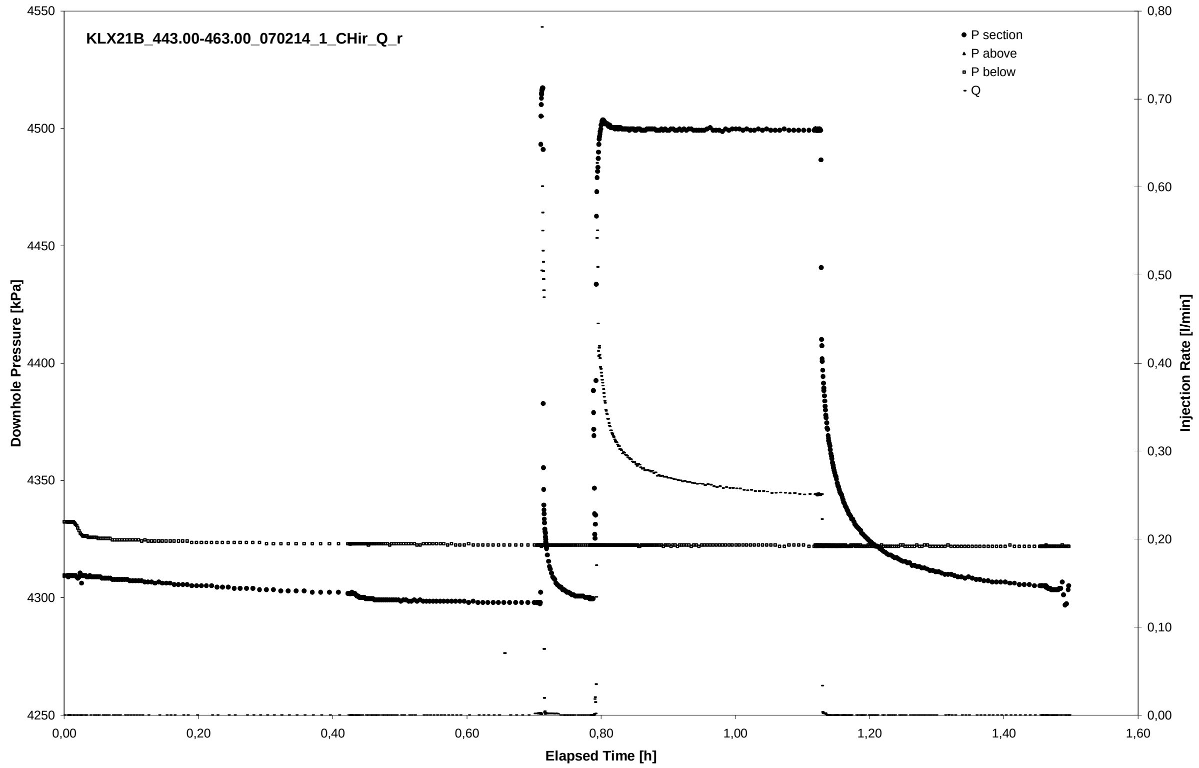


CHIR phase; HORNER match

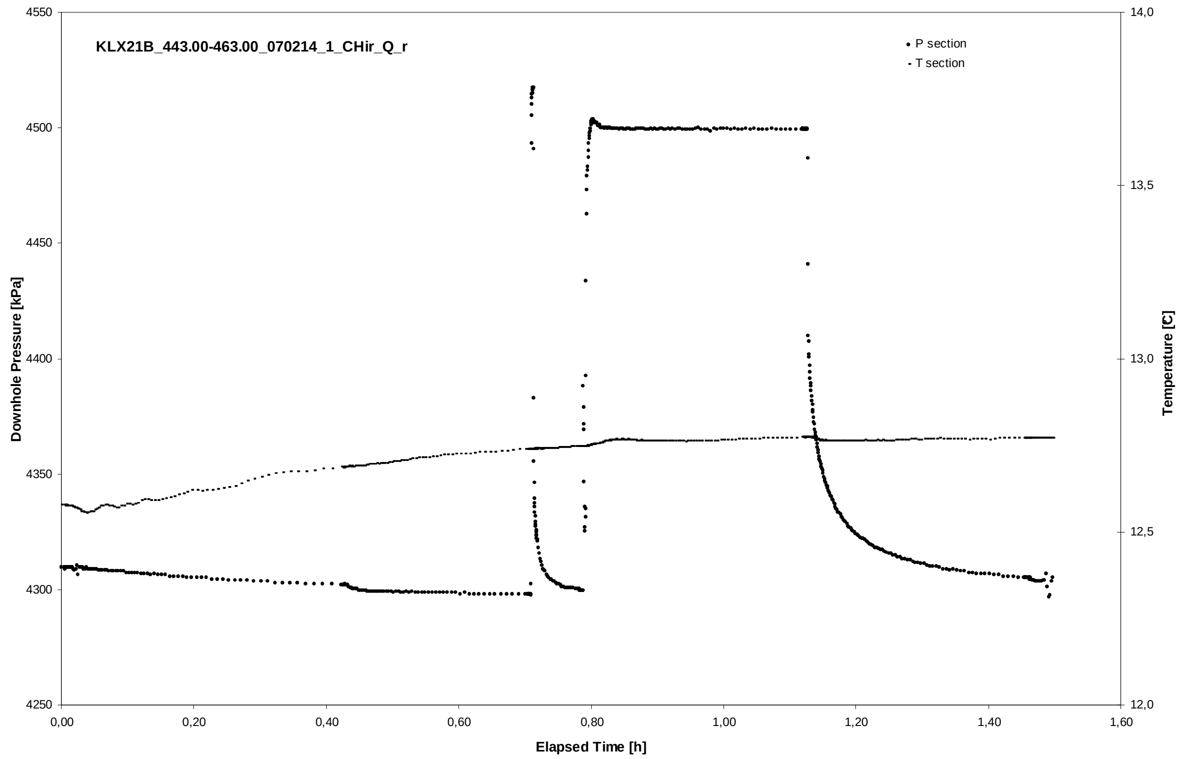
APPENDIX 2-25

Test 443.00 – 463.00 m

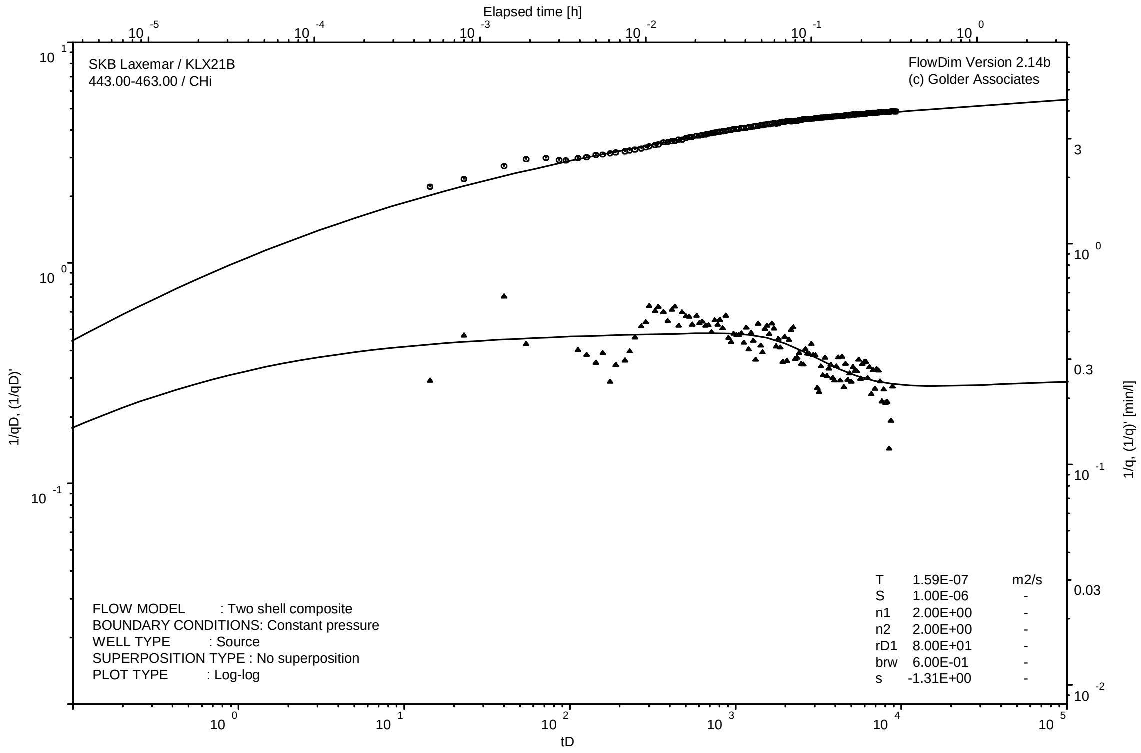
Analysis diagrams



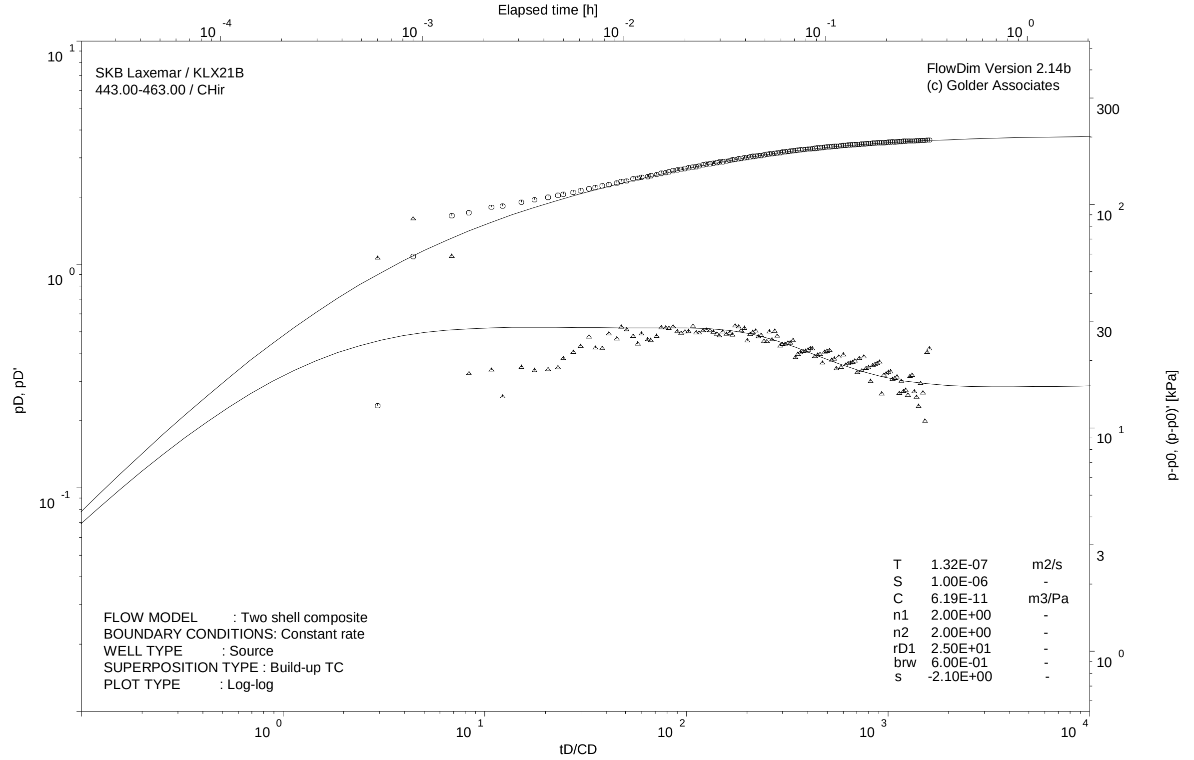
Pressure and flow rate vs. time; cartesian plot



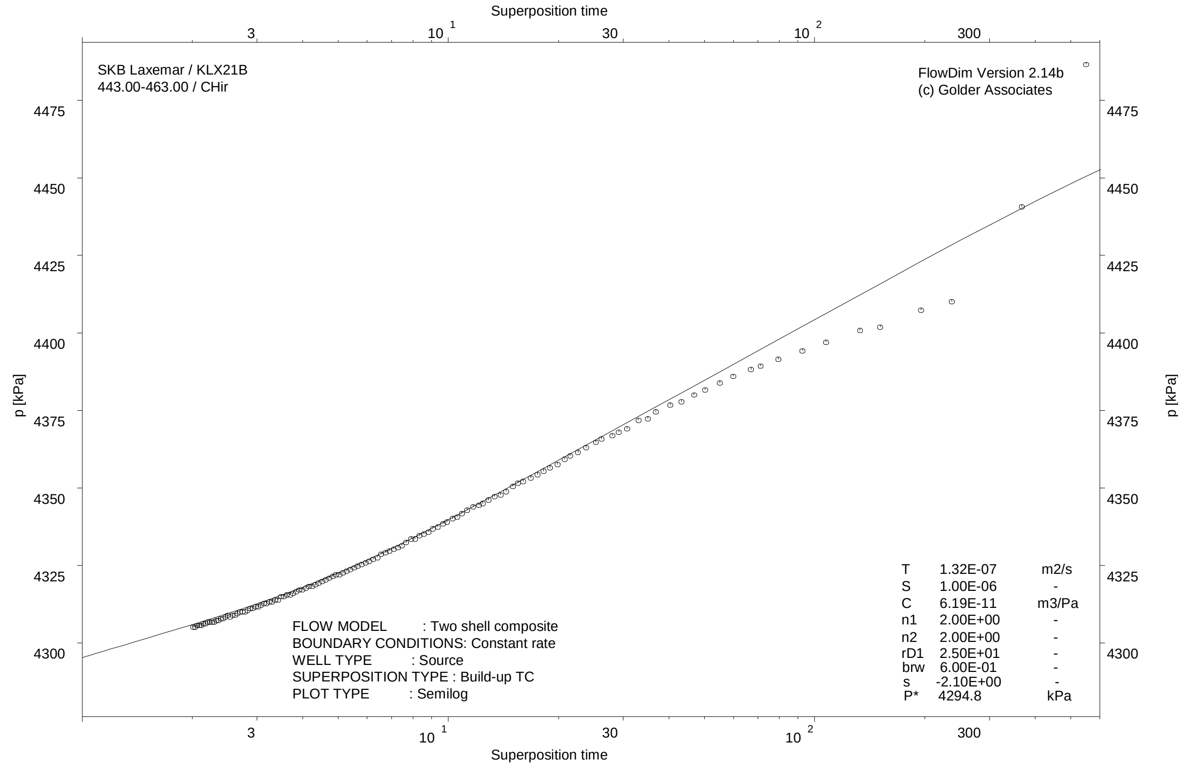
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

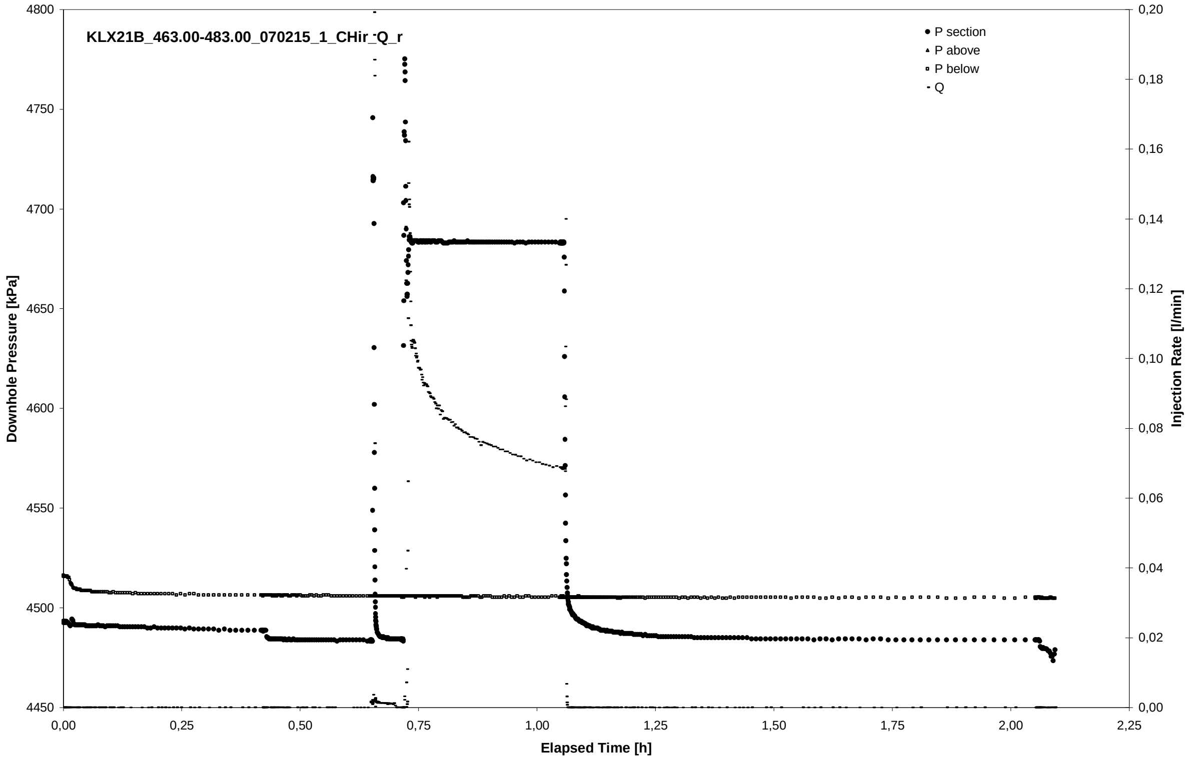


CHIR phase; HORNER match

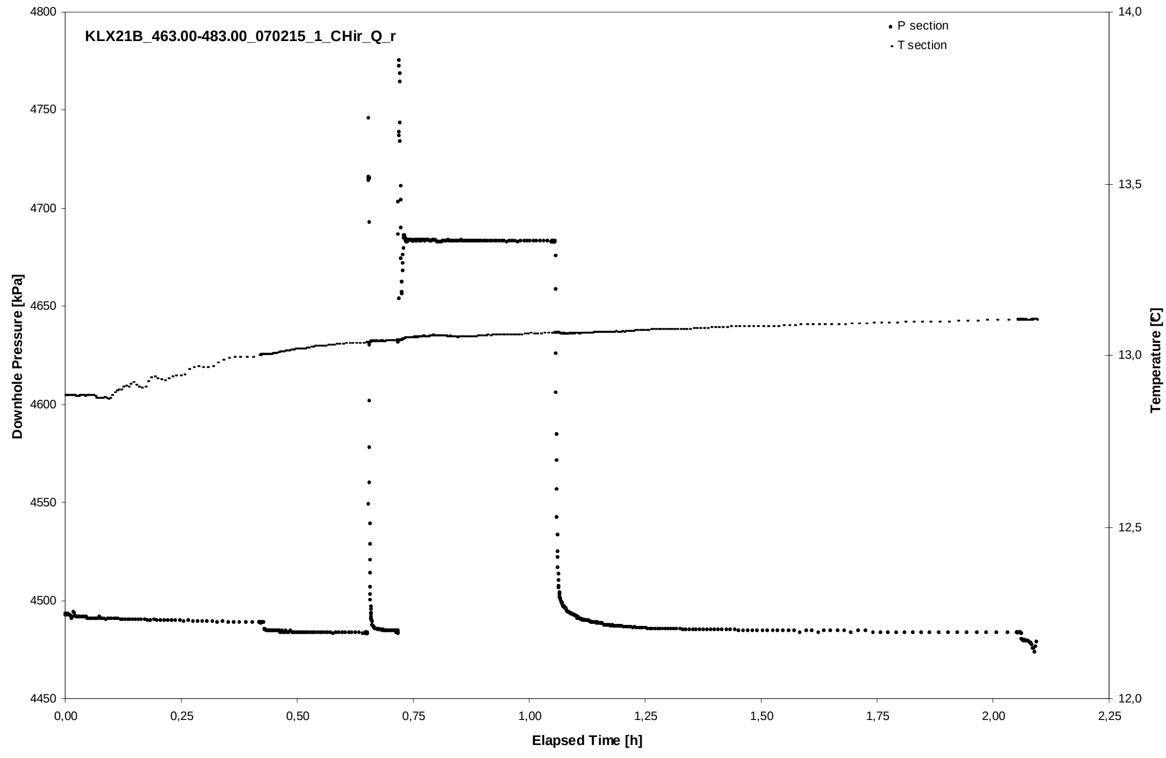
APPENDIX 2-26

Test 463.00 – 483.00 m

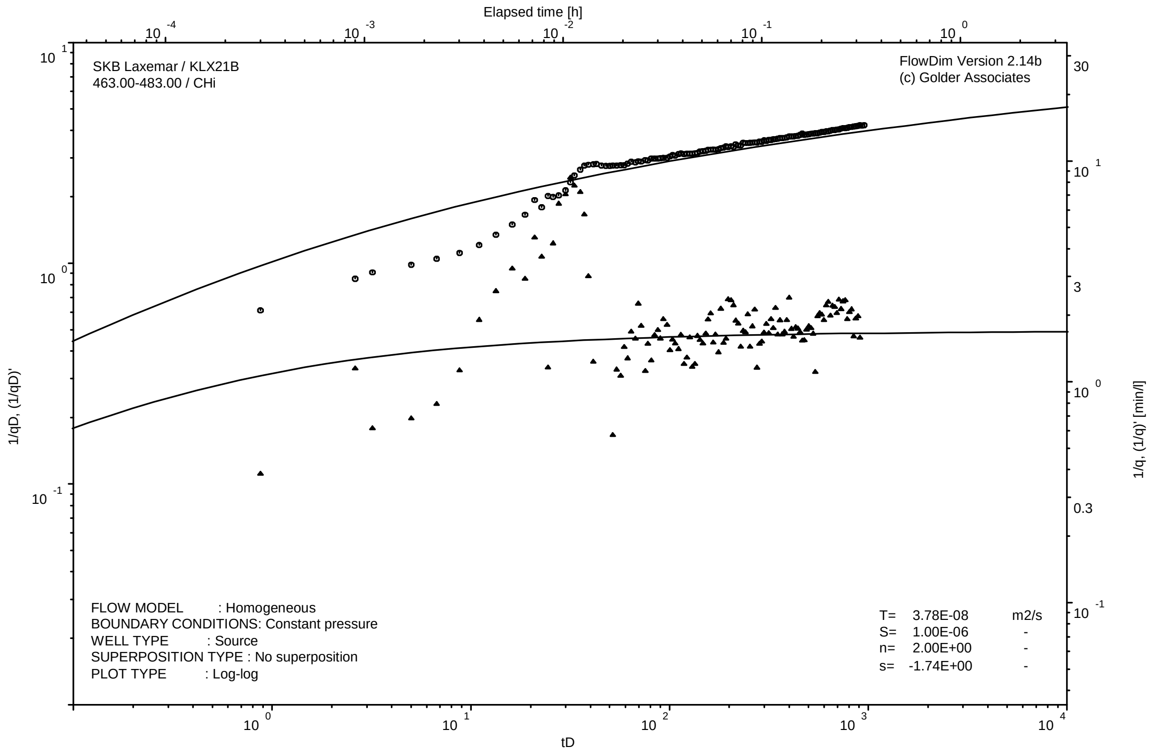
Analysis diagrams



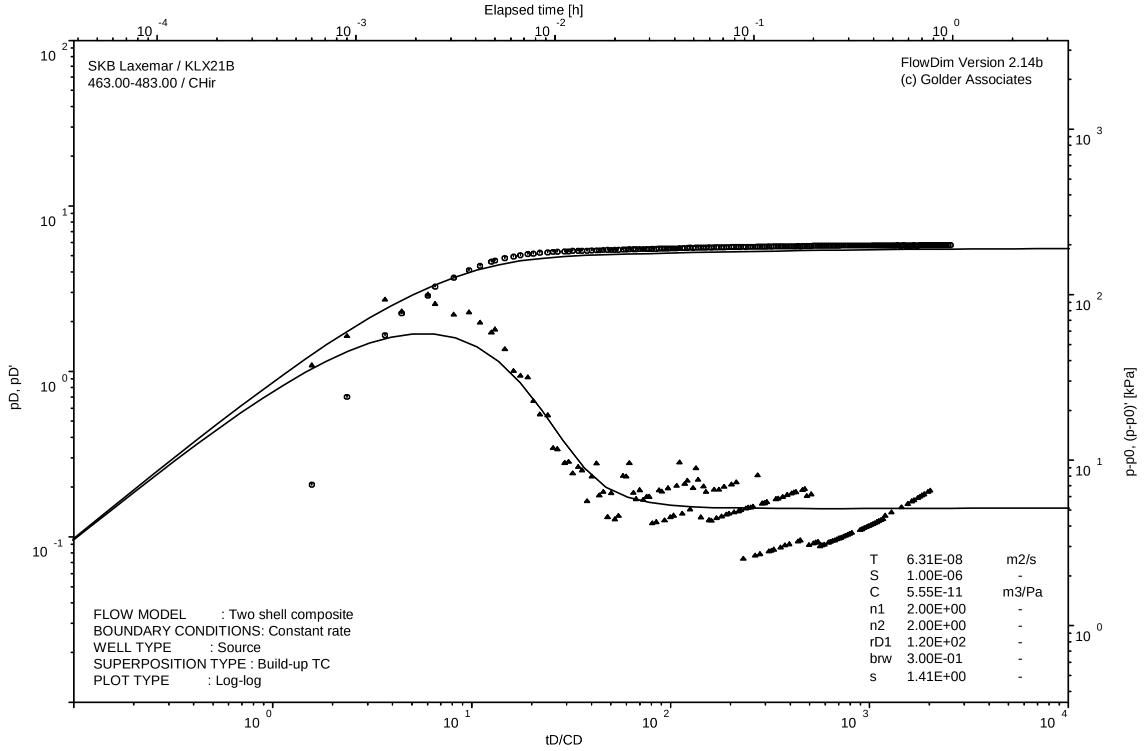
Pressure and flow rate vs. time; cartesian plot



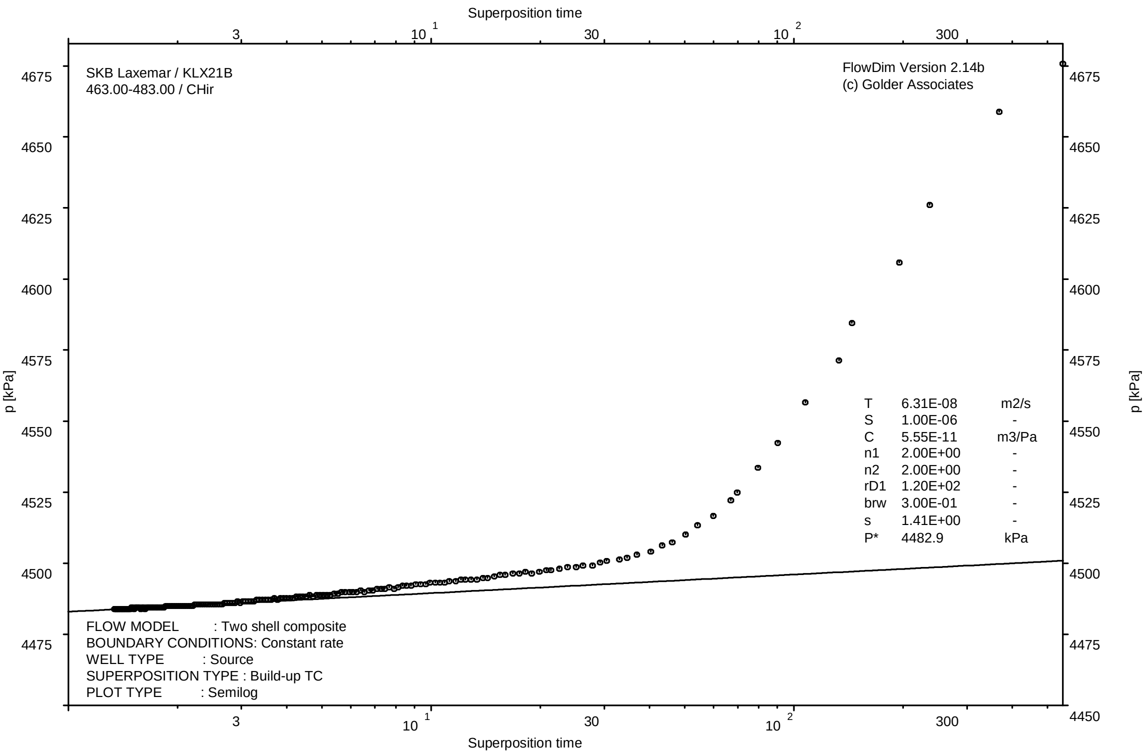
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

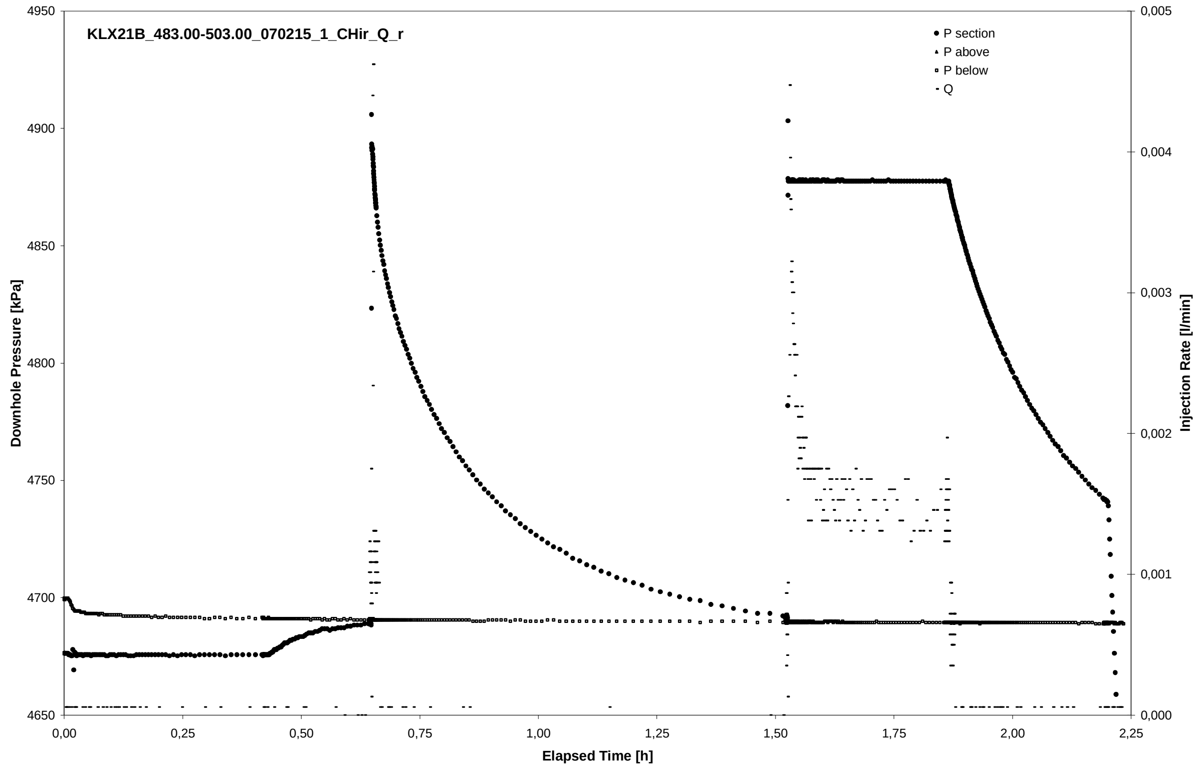


CHIR phase; HORNER match

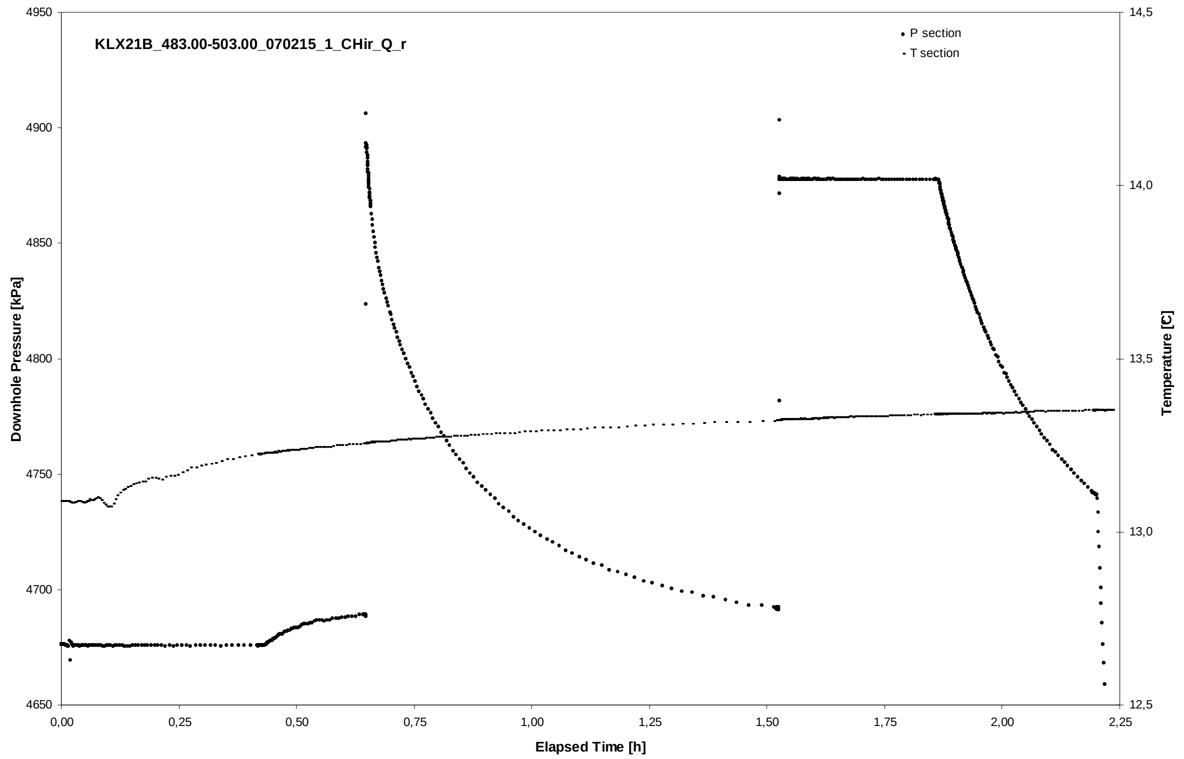
APPENDIX 2-27

Test 483.00 – 503.00 m

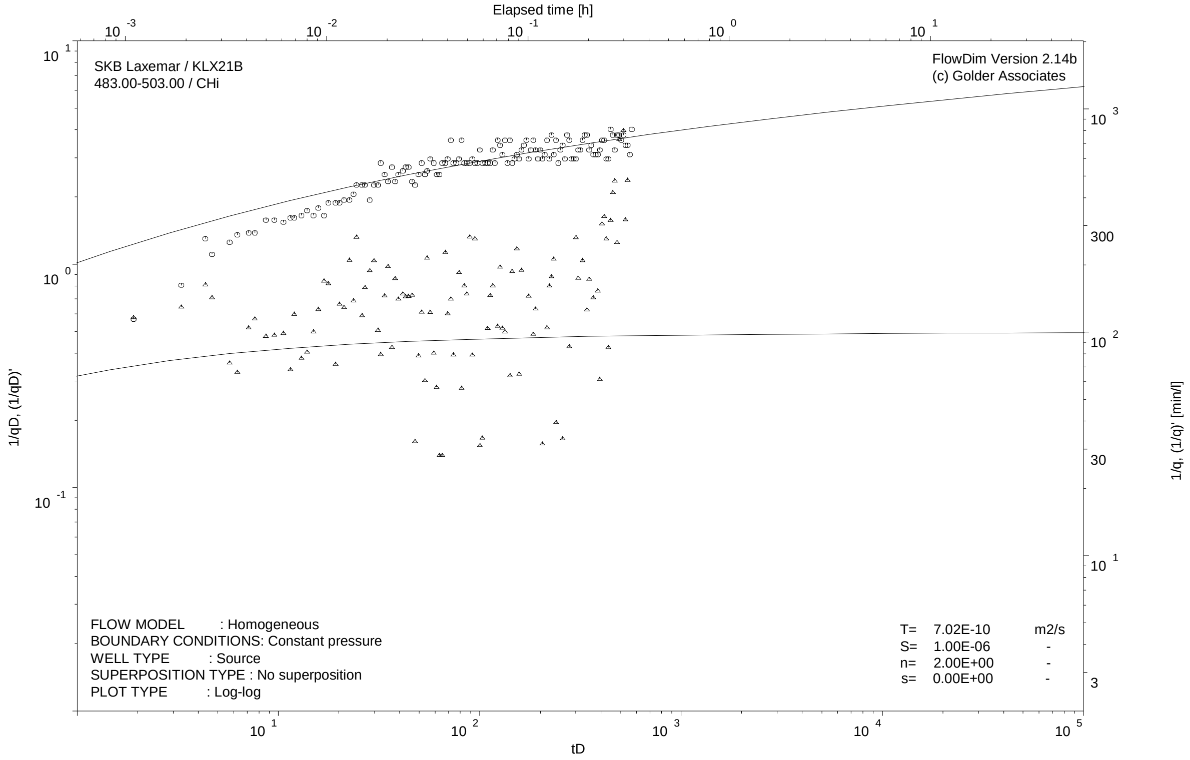
Analysis diagrams



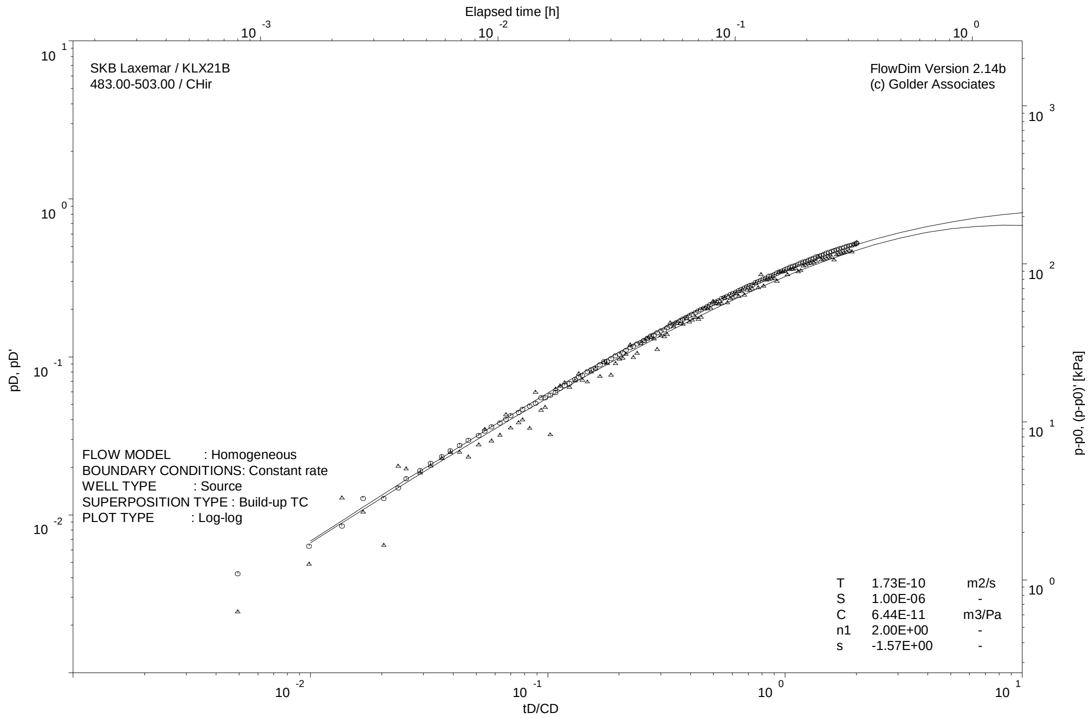
Pressure and flow rate vs. time; cartesian plot



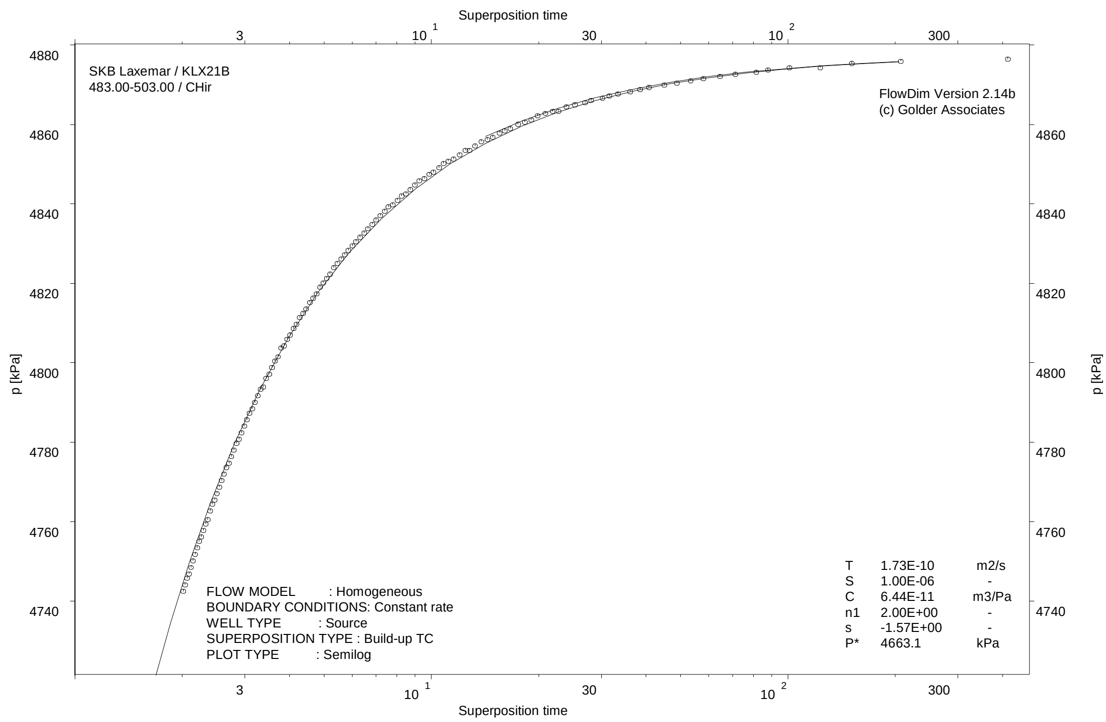
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

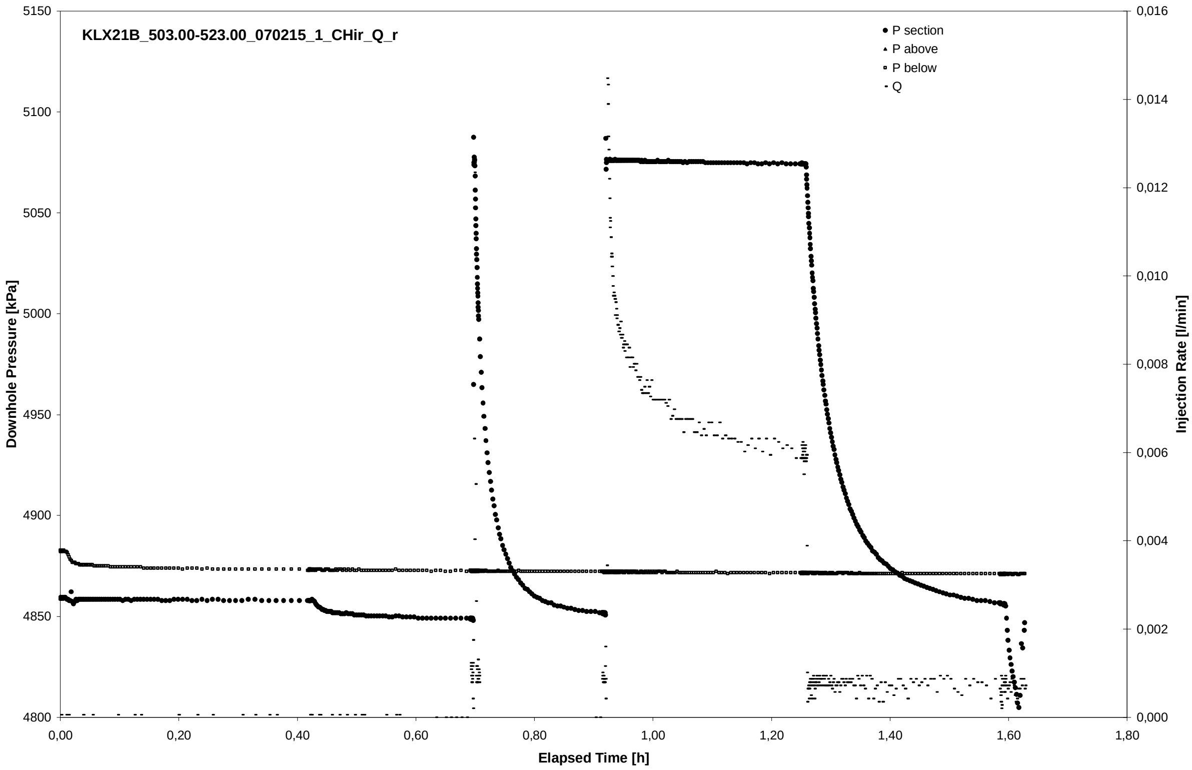


CHIR phase; HORNER match

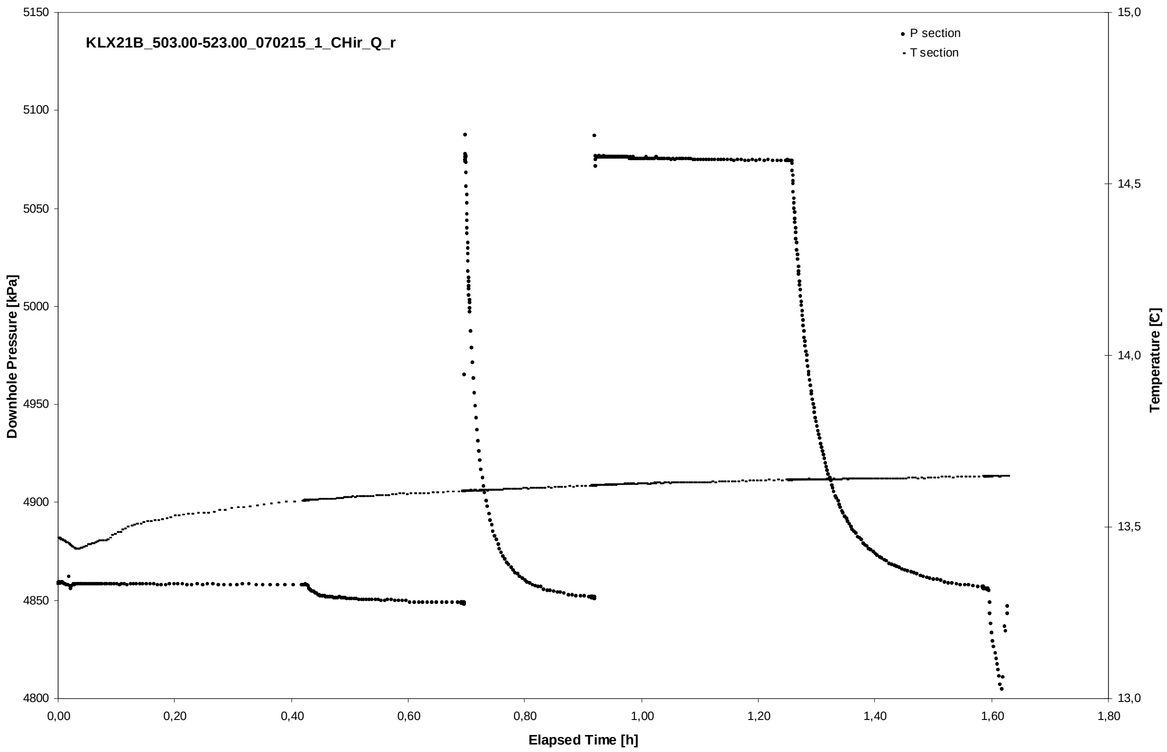
APPENDIX 2-28

Test 503.00 – 523.00 m

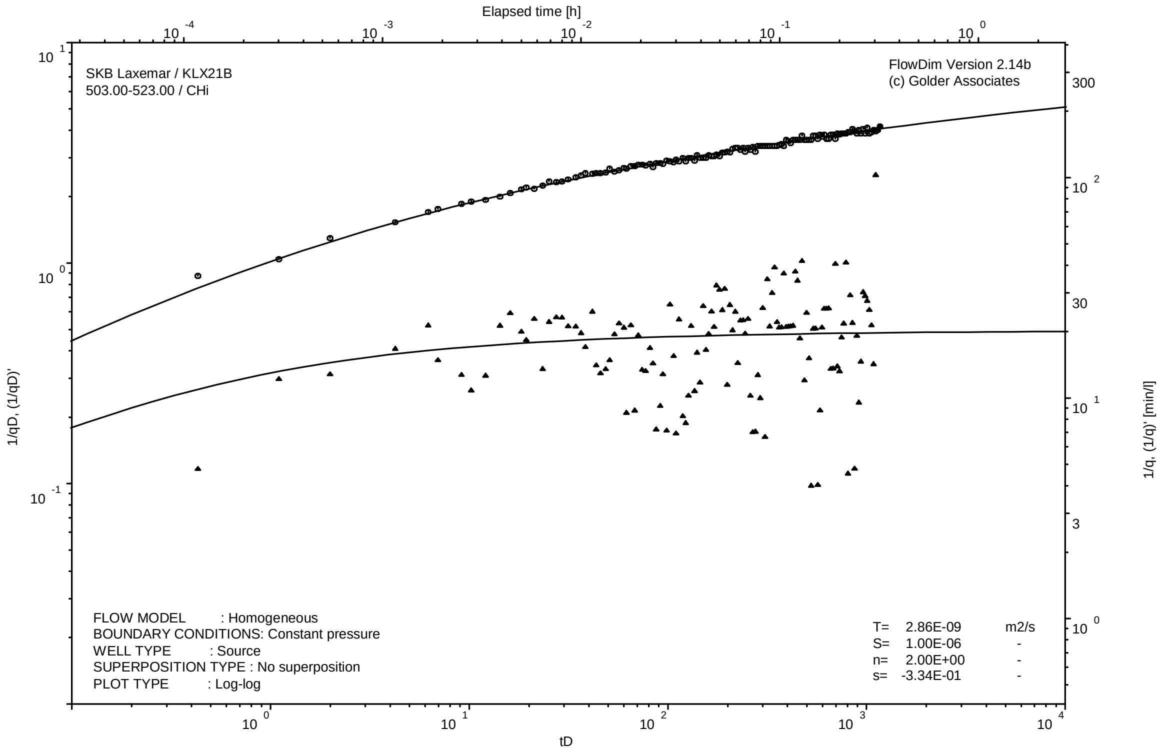
Analysis diagrams



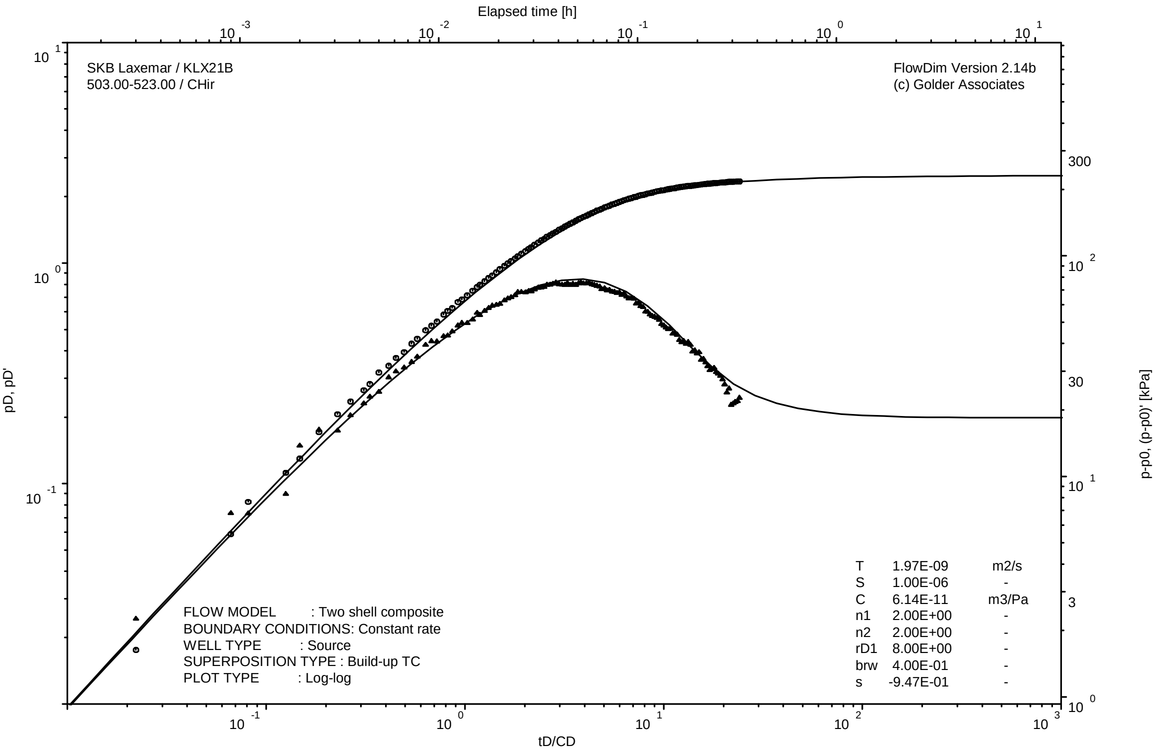
Pressure and flow rate vs. time; cartesian plot



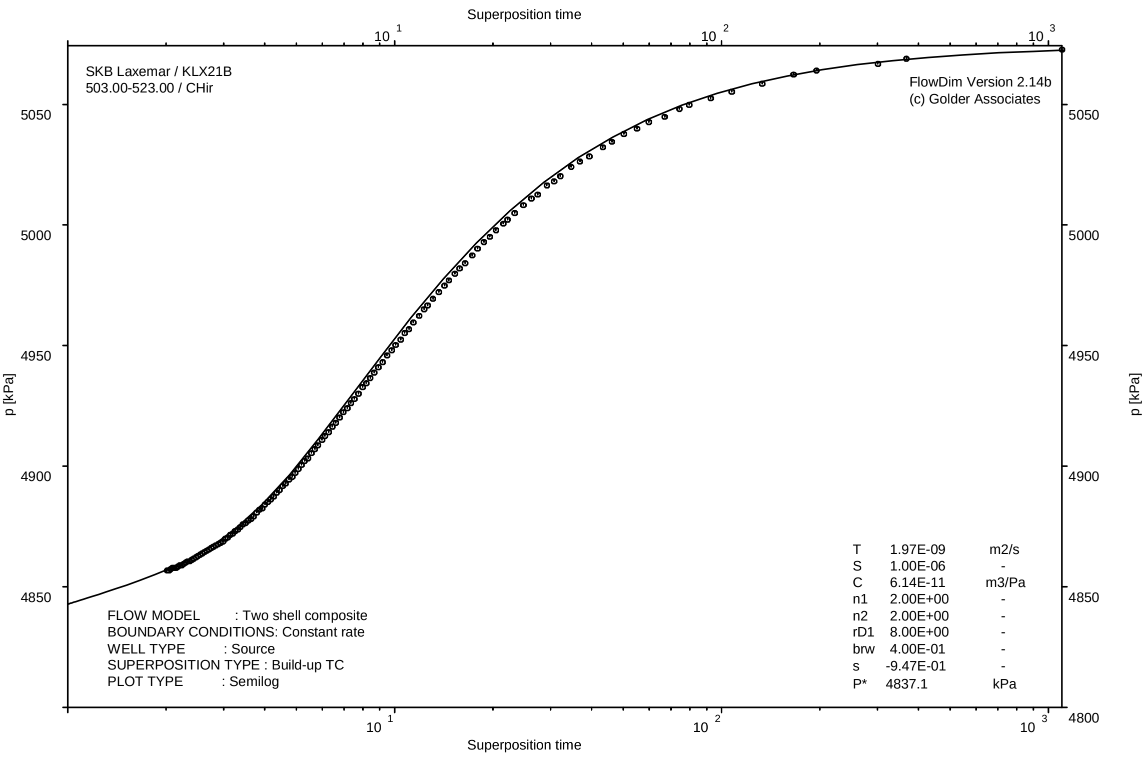
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

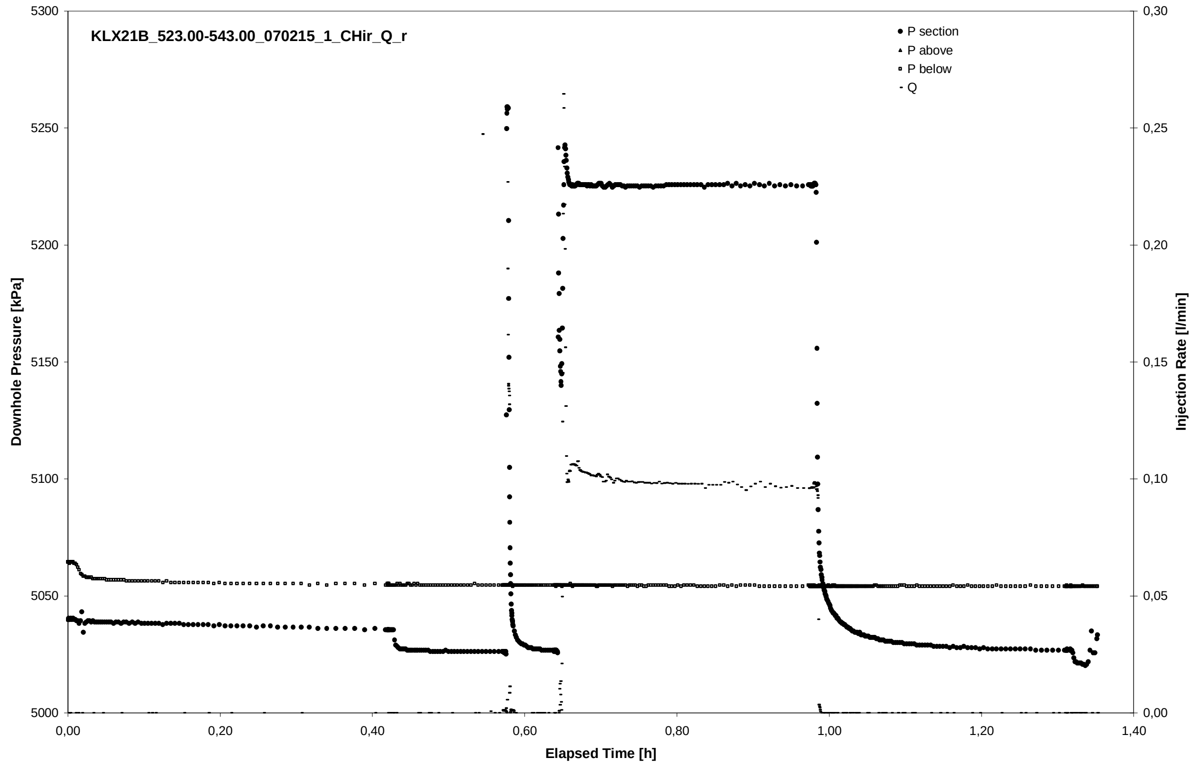


CHIR phase; HORNER match

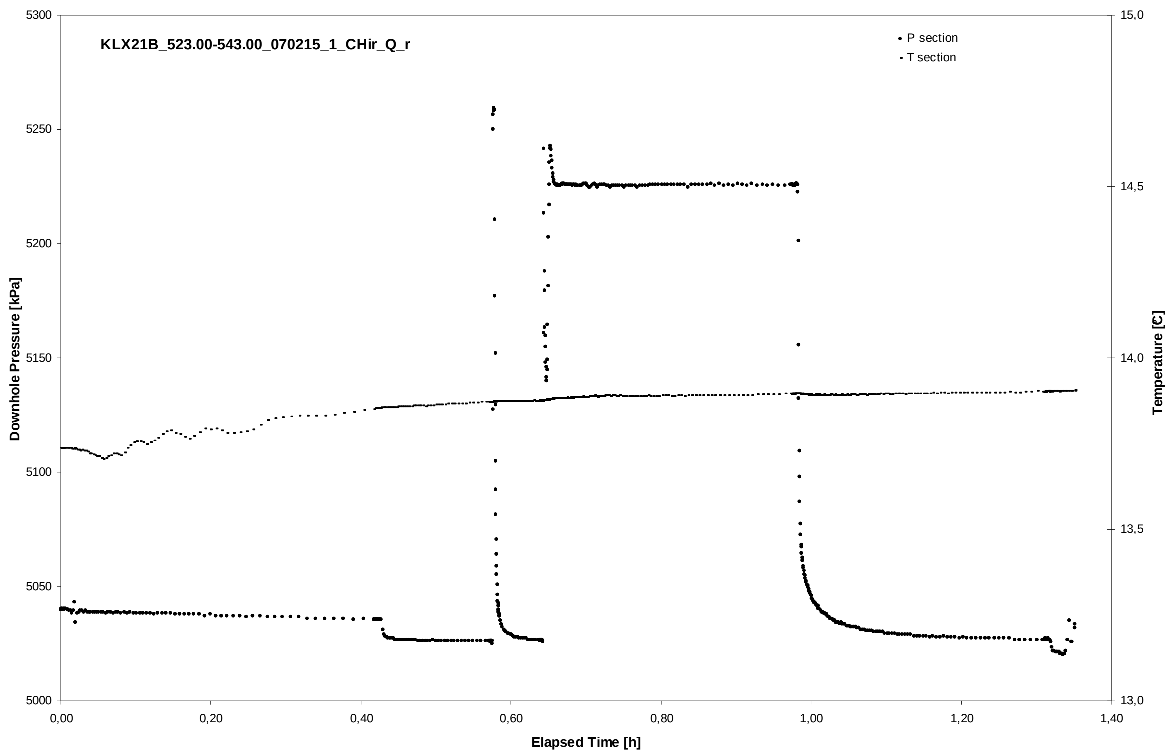
APPENDIX 2-29

Test 523.00 – 543.00 m

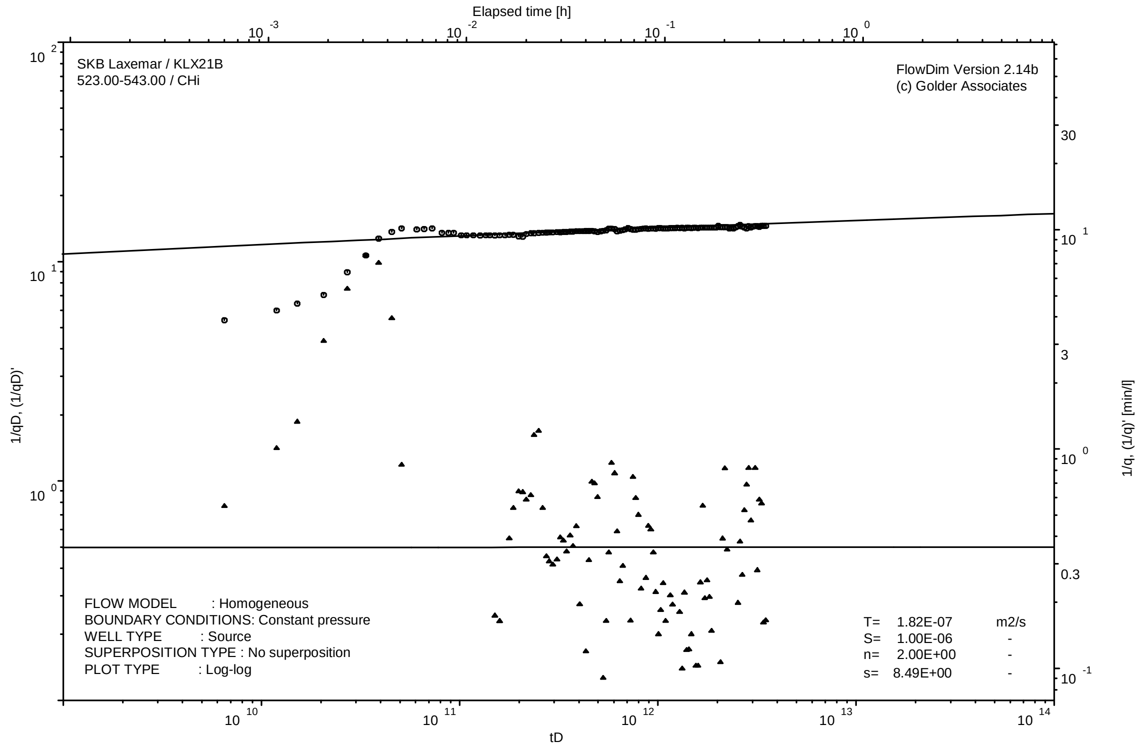
Analysis diagrams



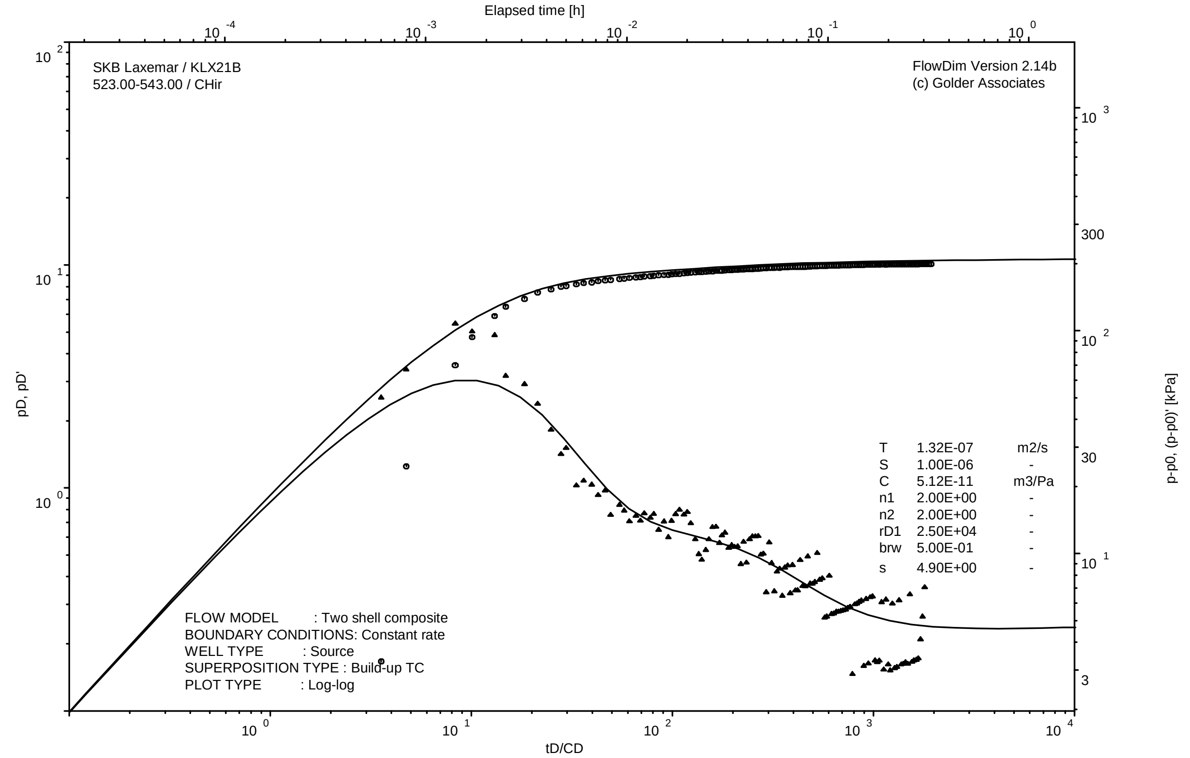
Pressure and flow rate vs. time; cartesian plot



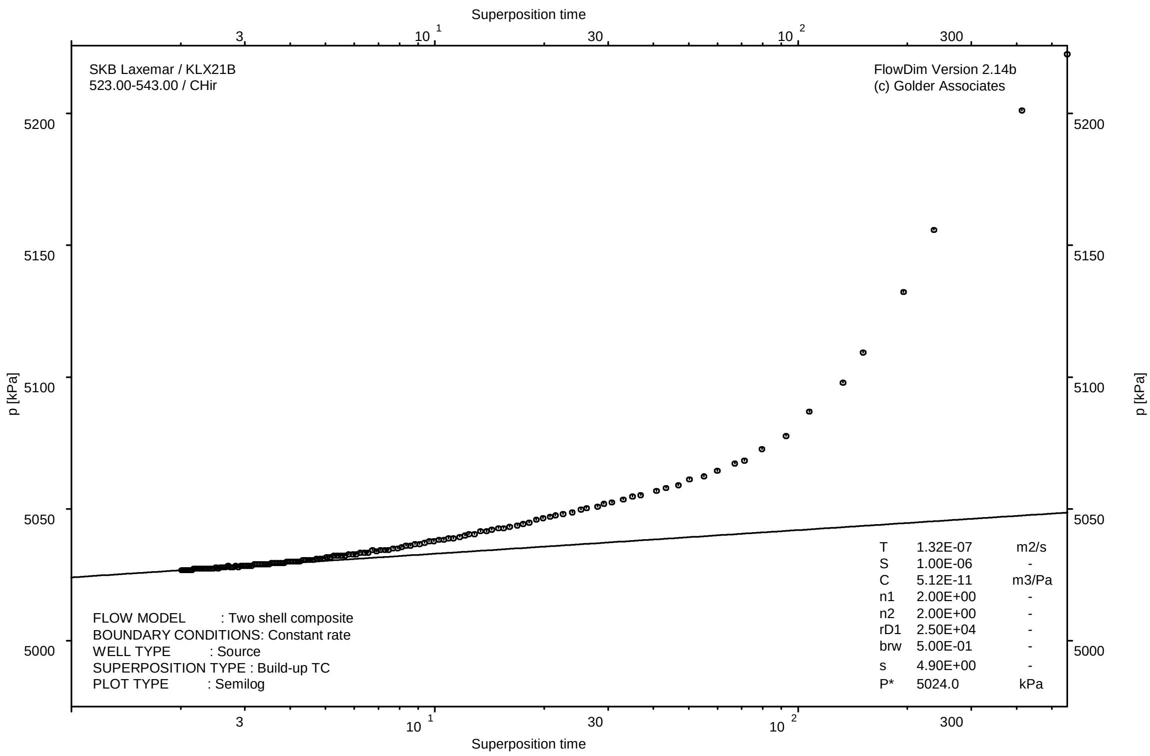
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

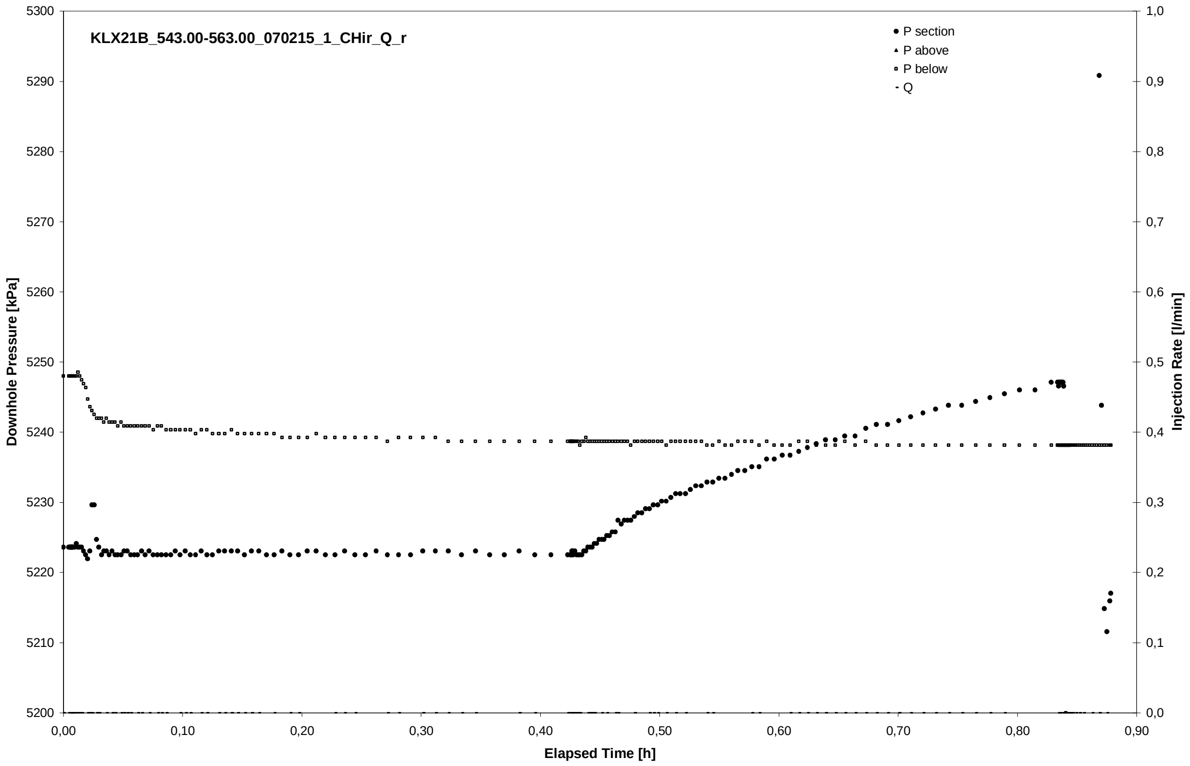


CHIR phase; HORNER match

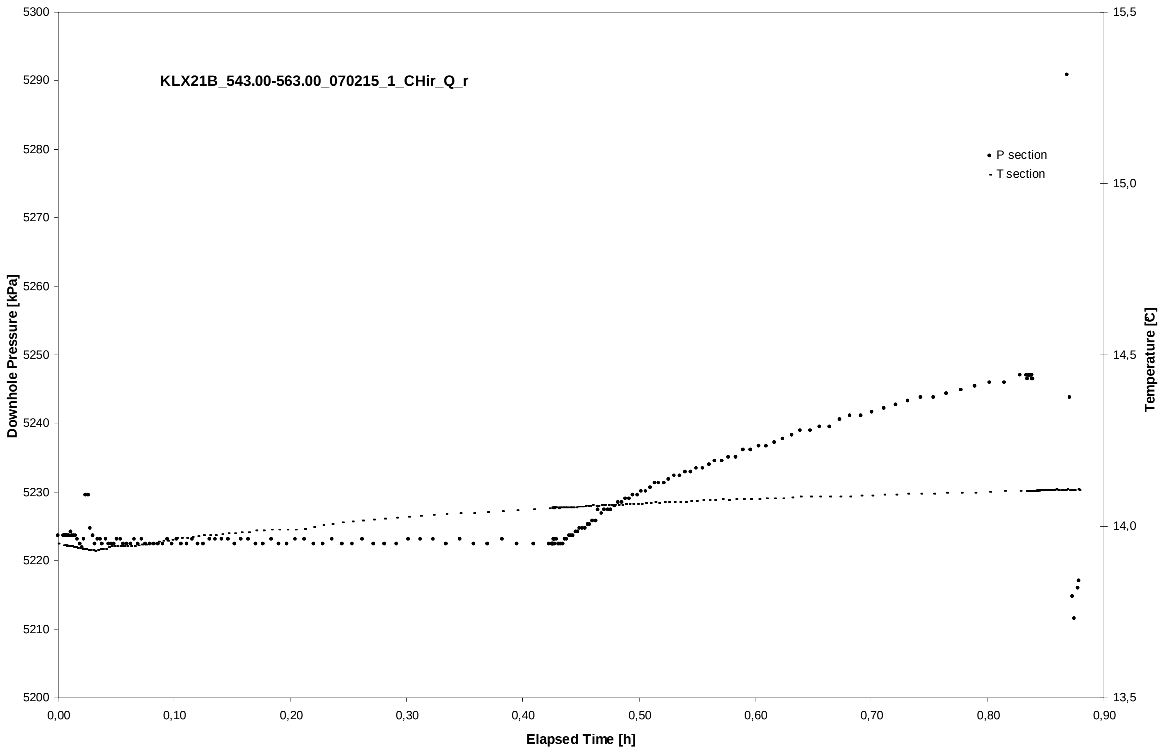
APPENDIX 2-30

Test 543.00 – 563.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

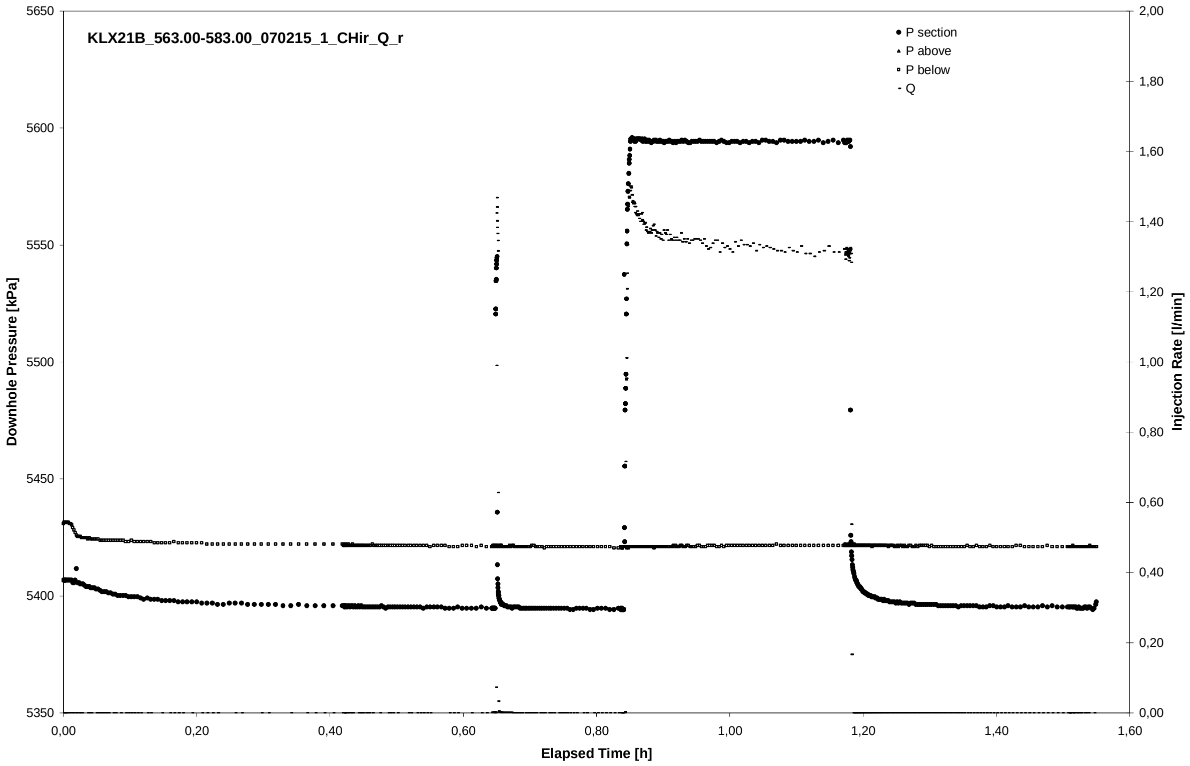
Not analysed

CHIR phase; HORNER match

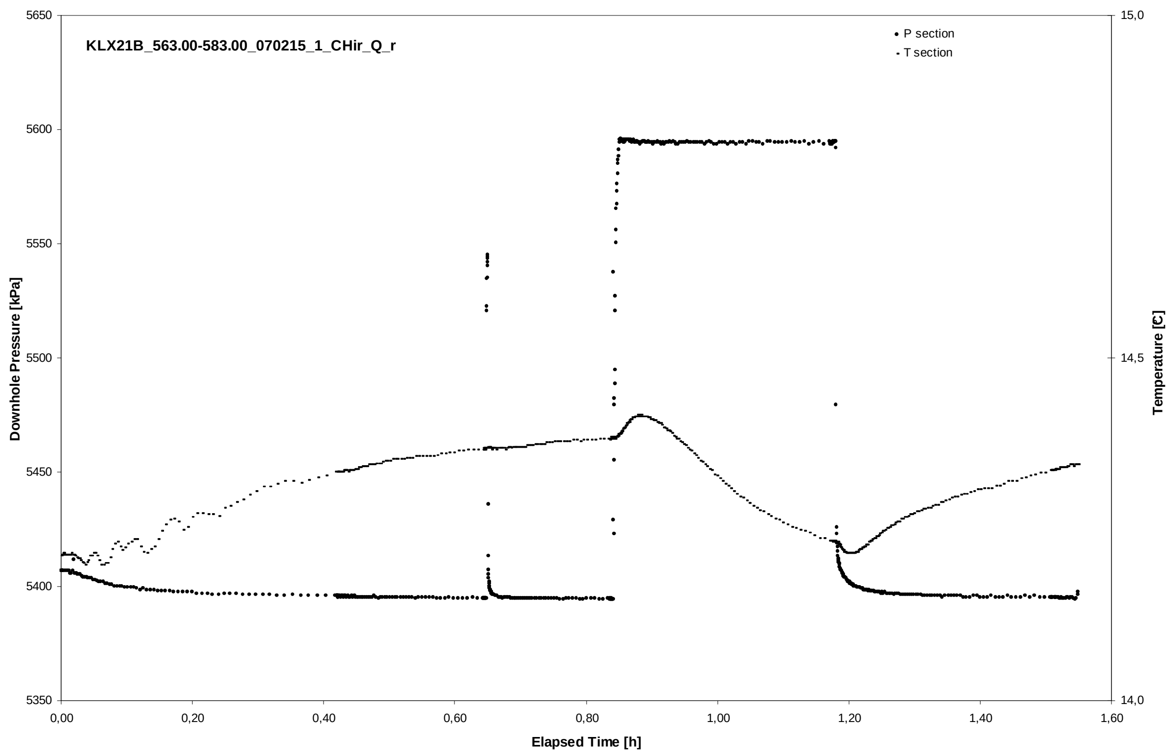
APPENDIX 2-31

Test 563.00 – 583.00 m

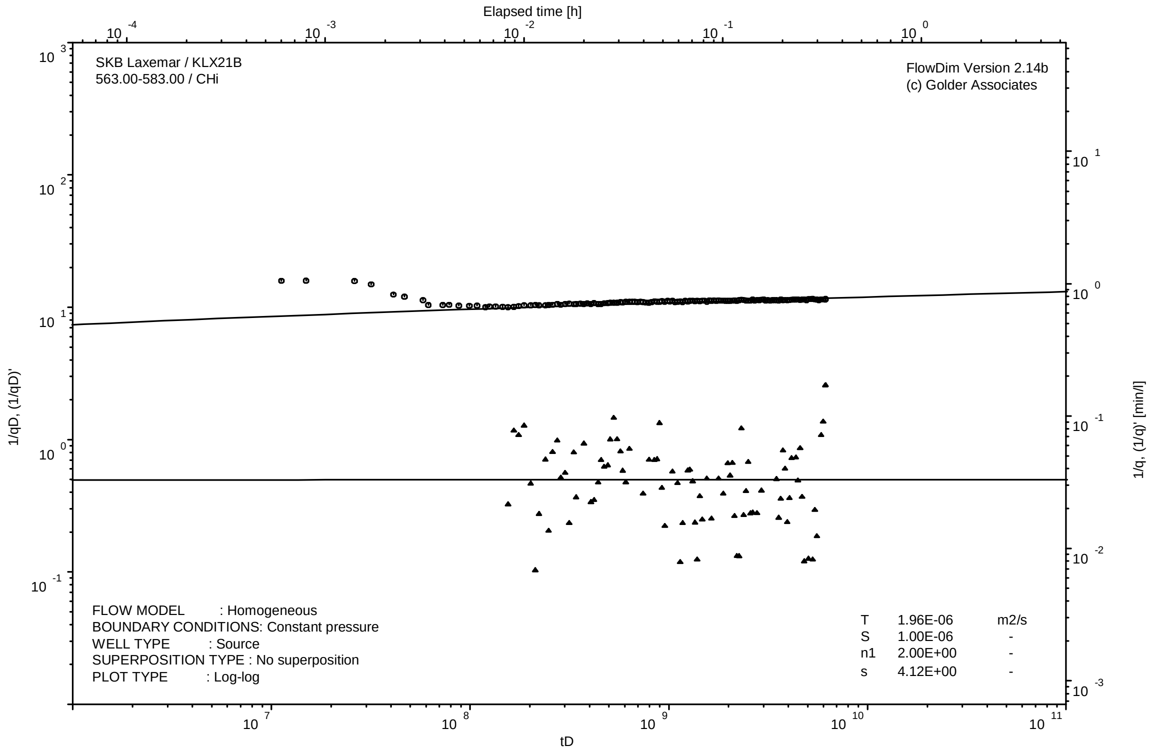
Analysis diagrams



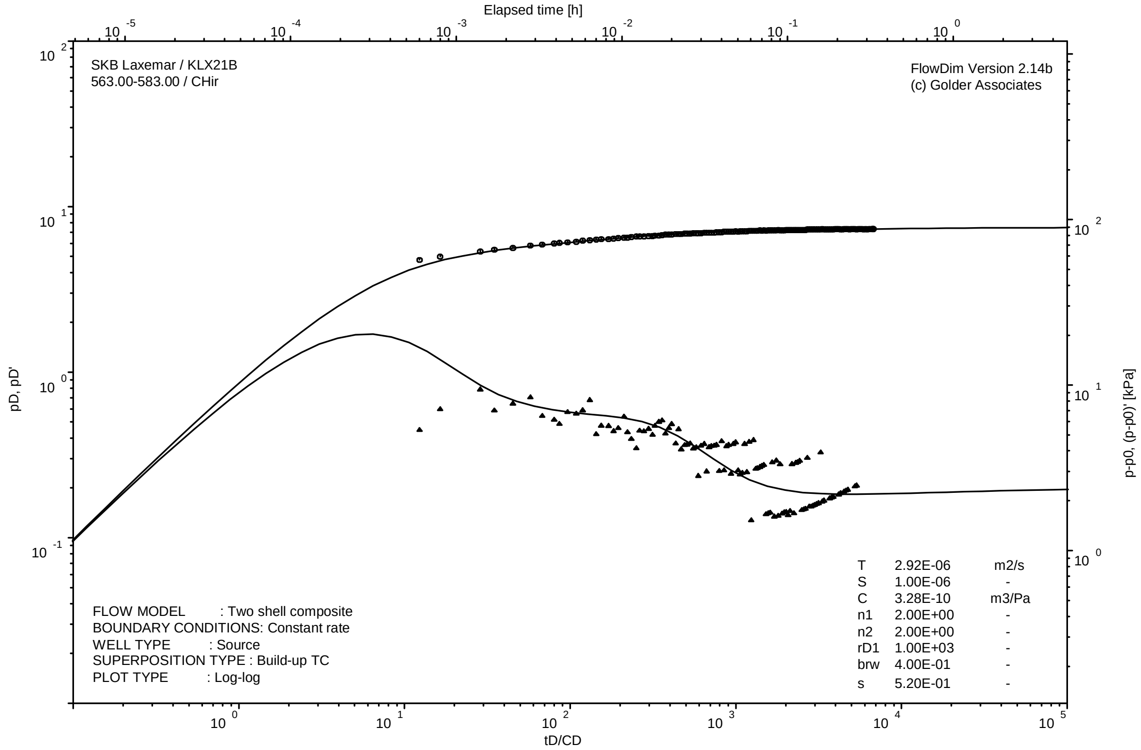
Pressure and flow rate vs. time; cartesian plot



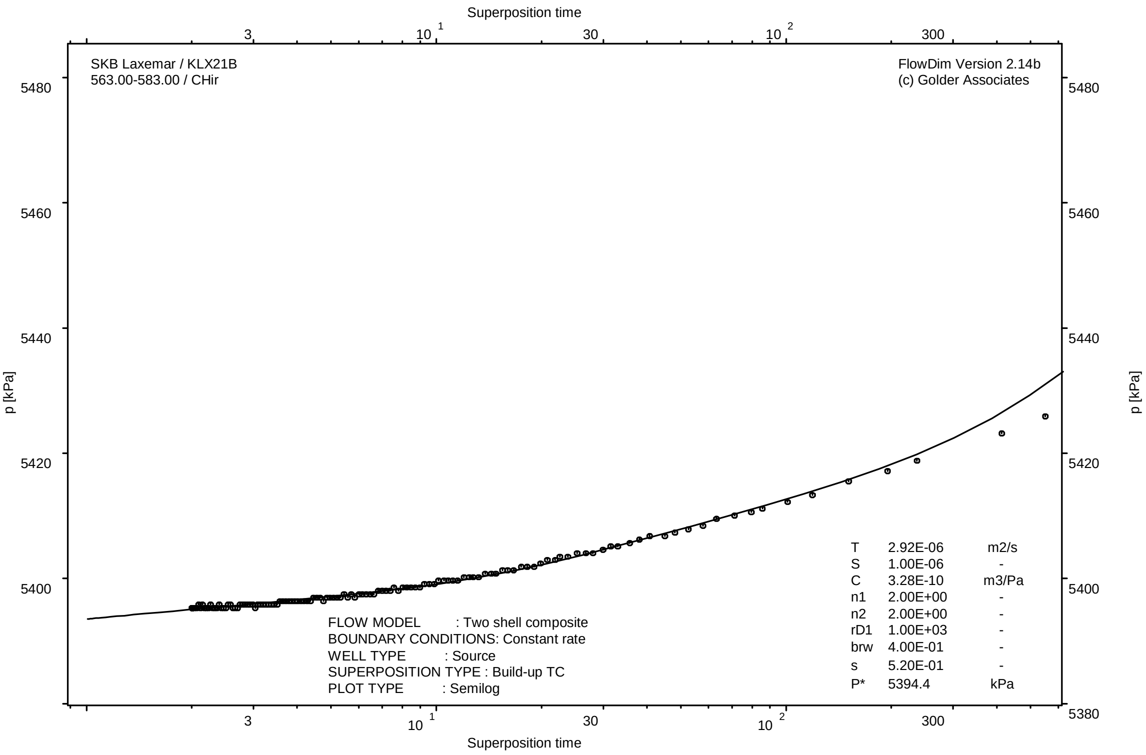
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

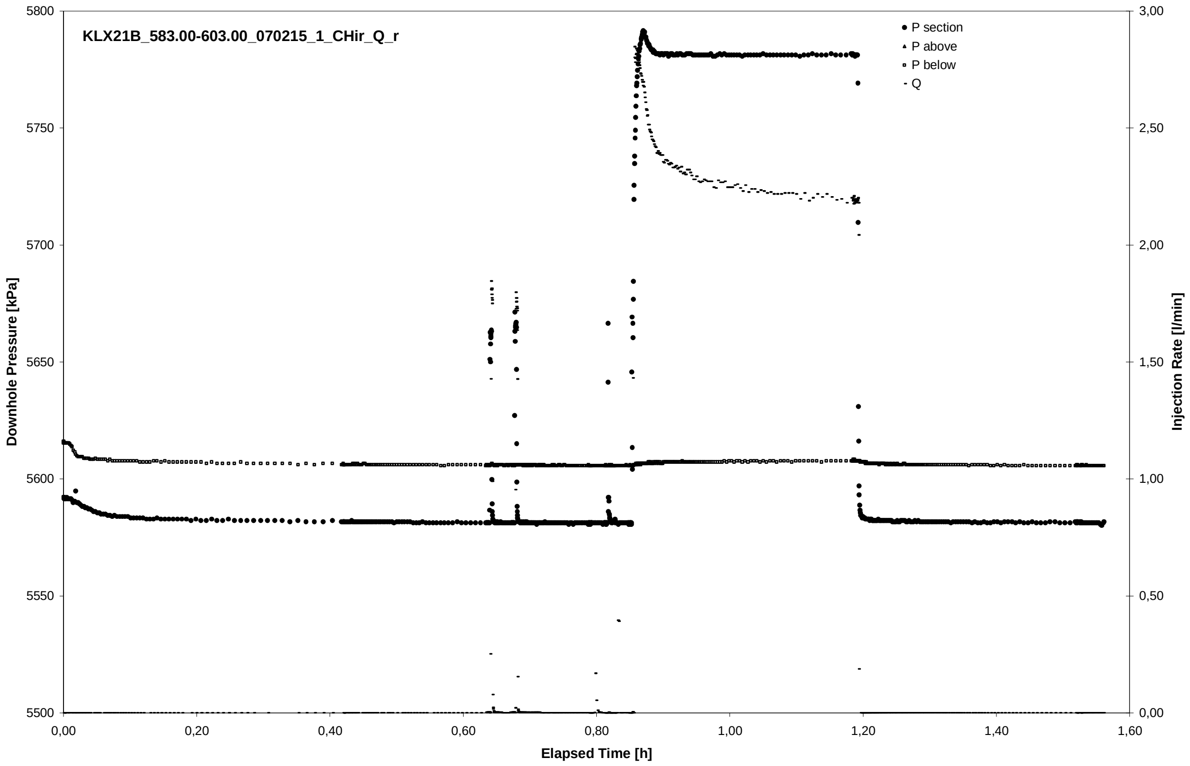


CHIR phase; HORNER match

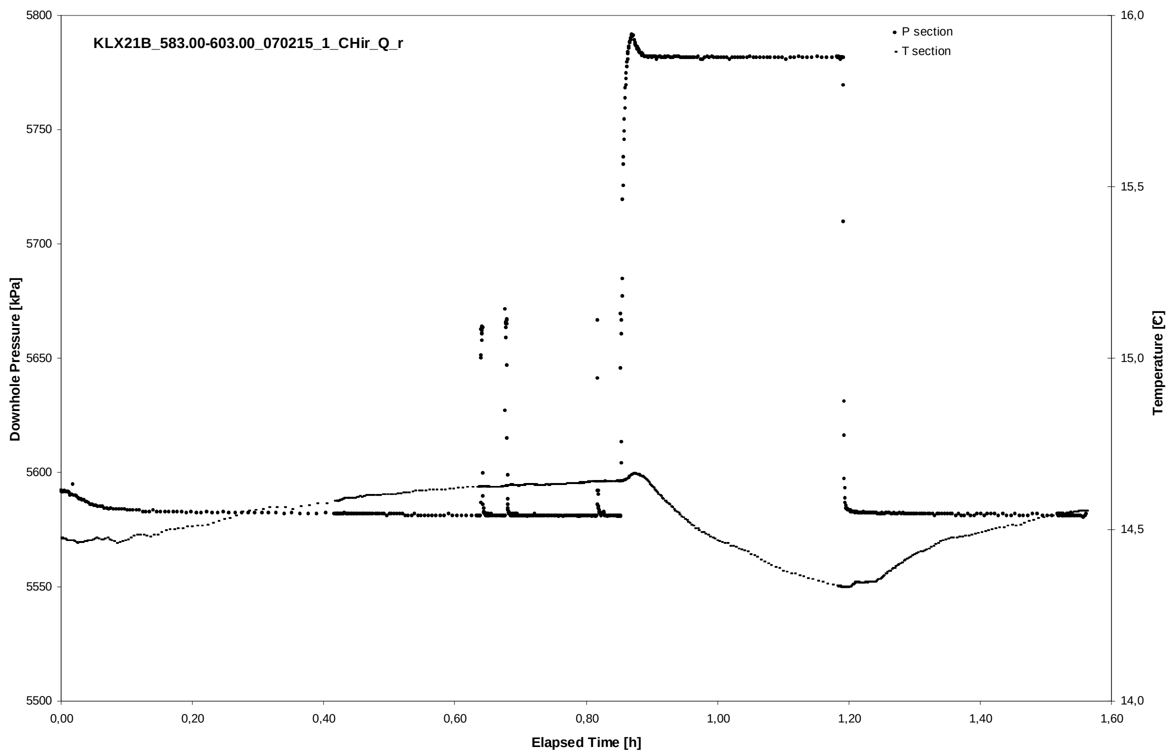
APPENDIX 2-32

Test 583.00 – 603.00 m

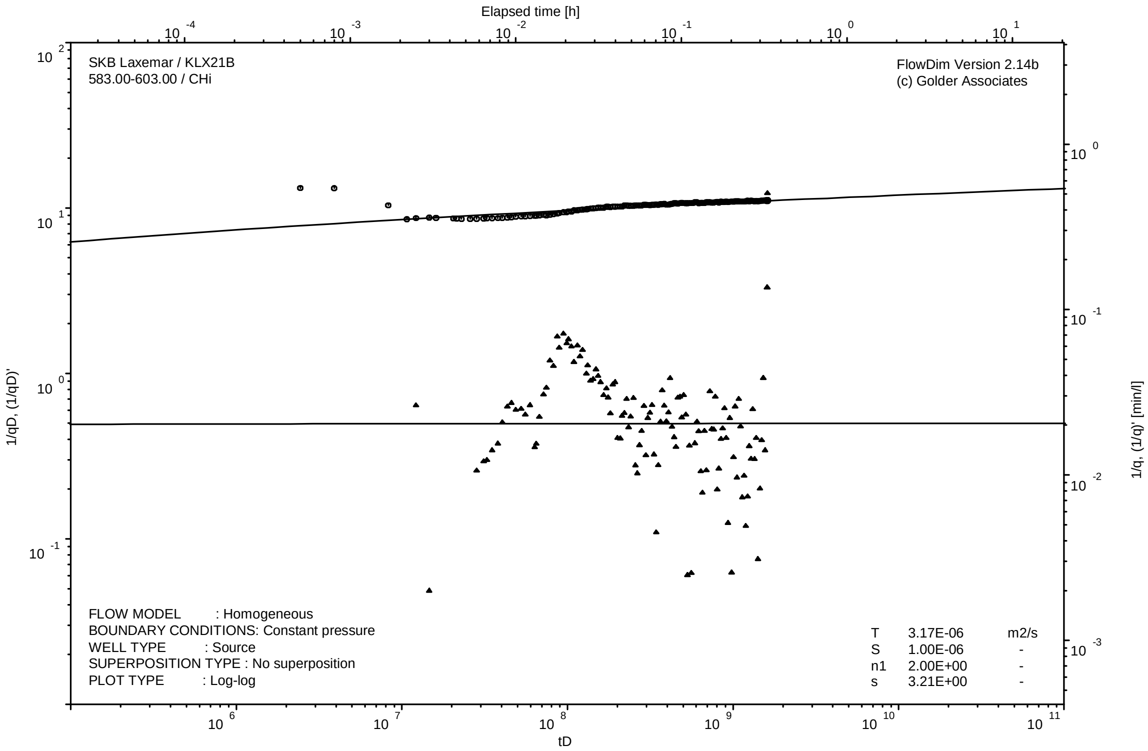
Analysis diagrams



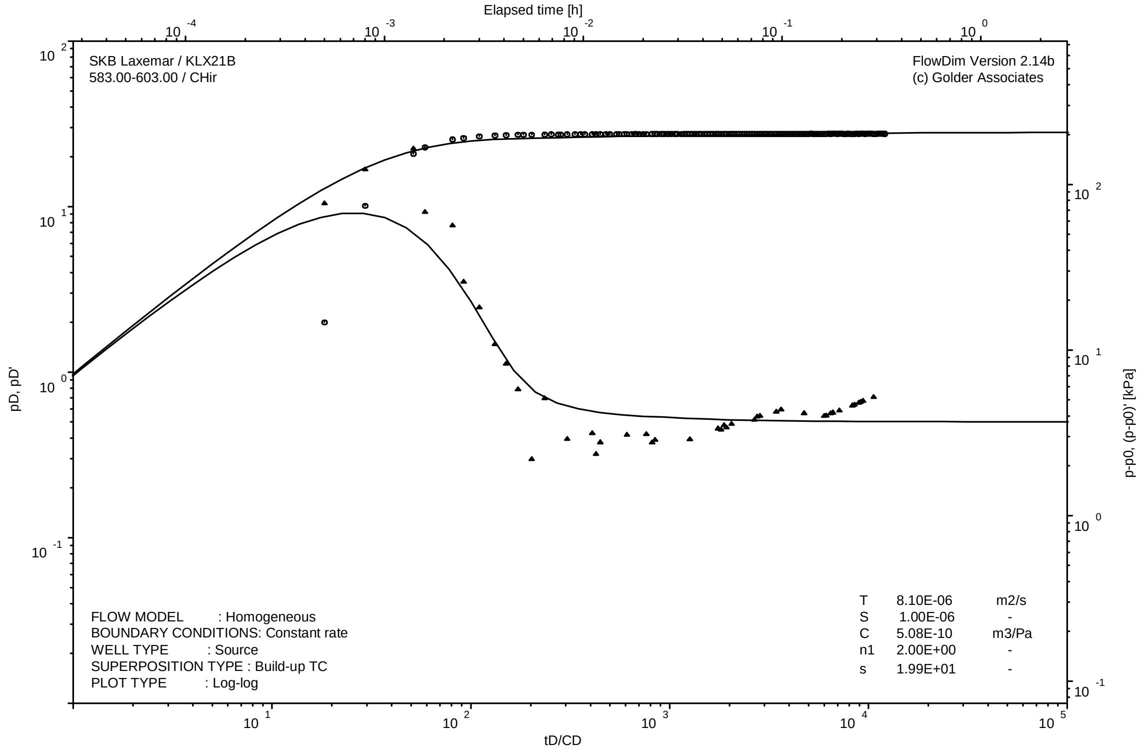
Pressure and flow rate vs. time; cartesian plot



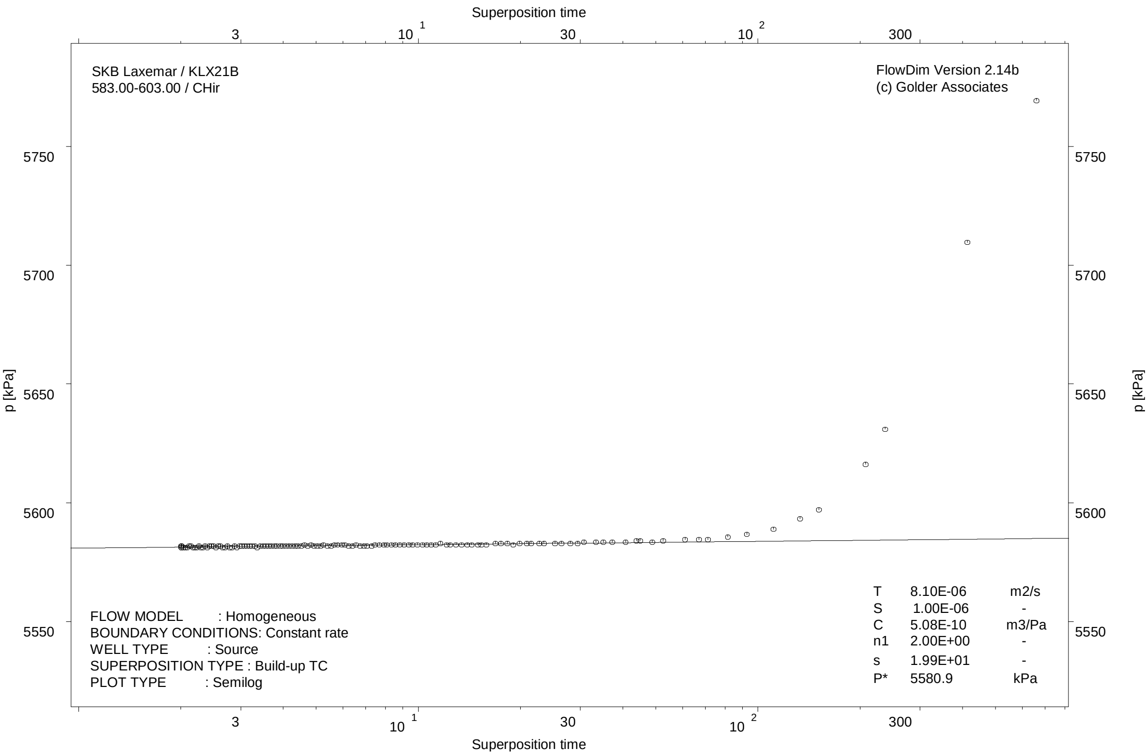
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

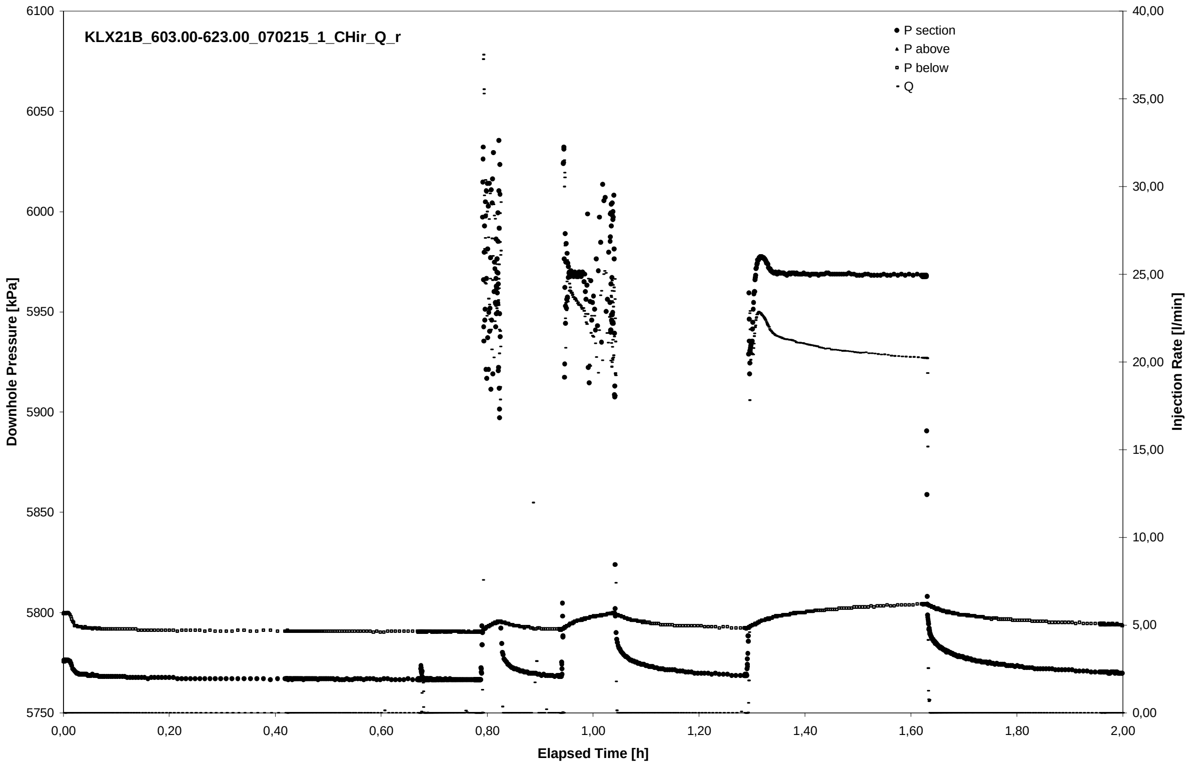


CHIR phase; HORNER match

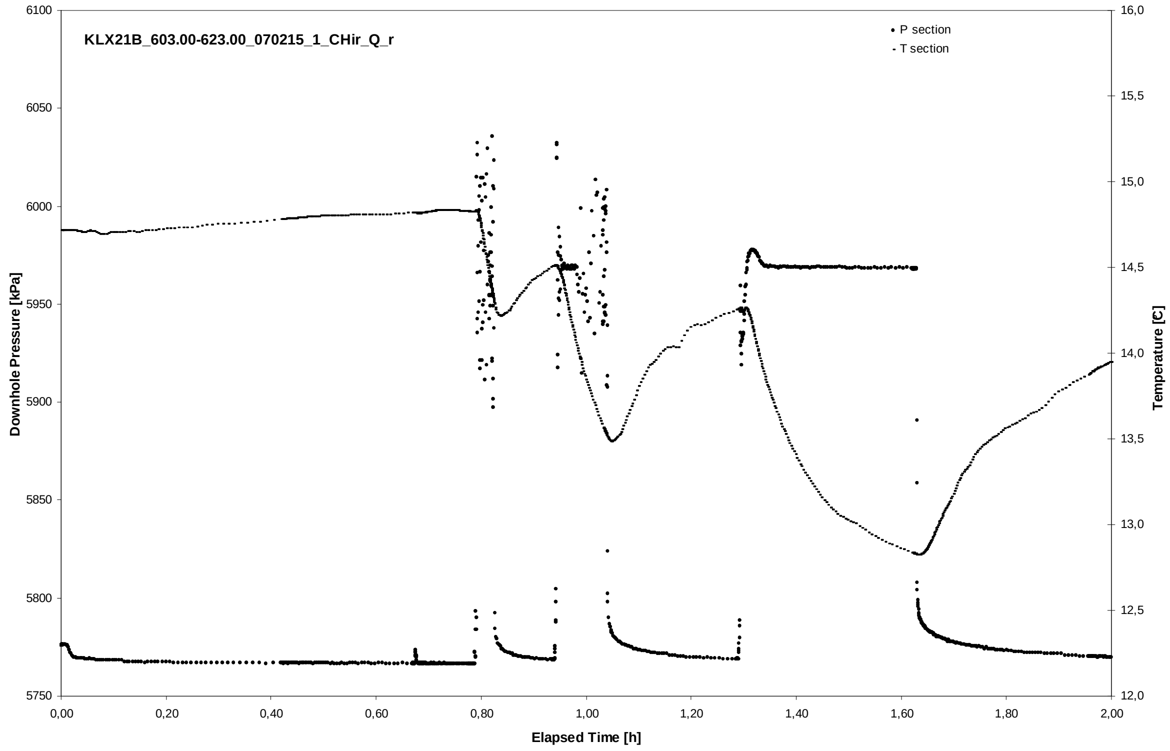
APPENDIX 2-33

Test 603.00 – 623.00 m

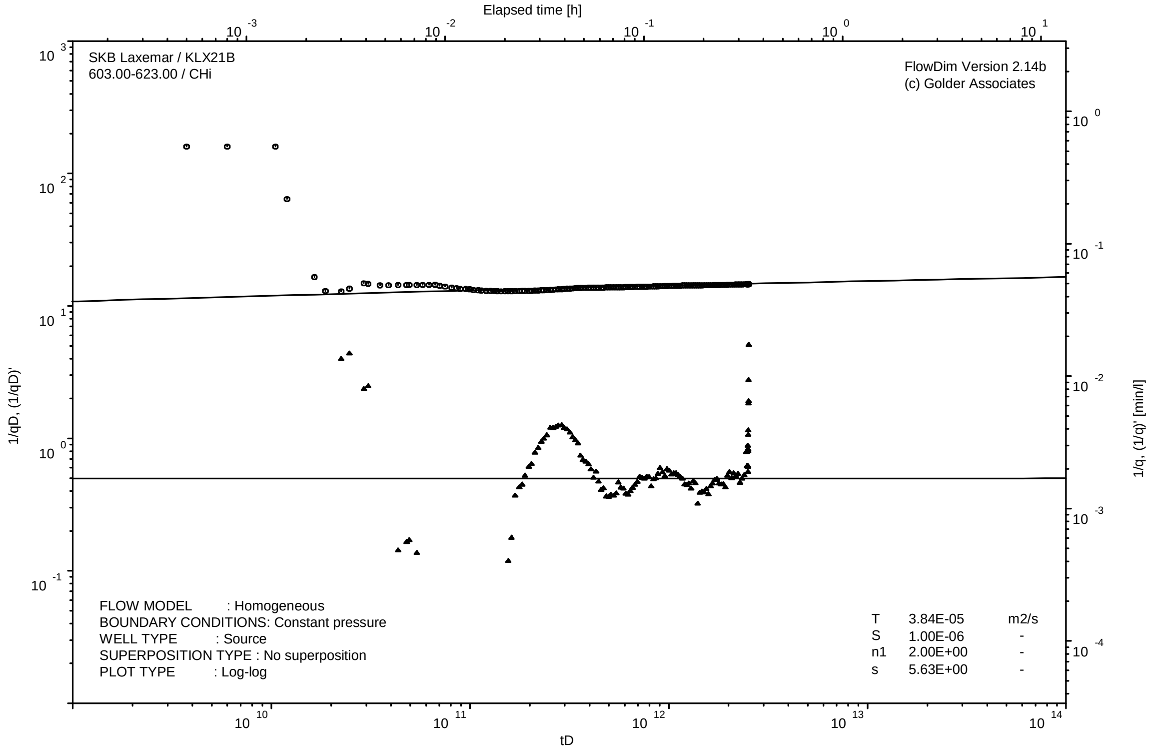
Analysis diagrams



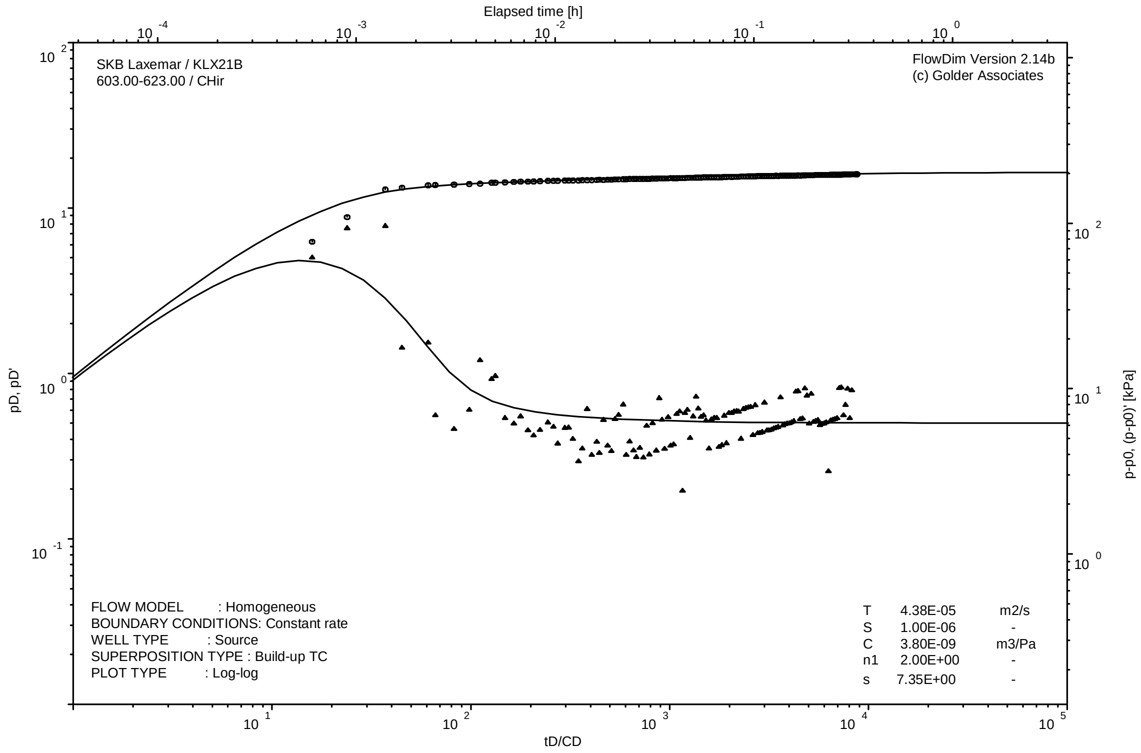
Pressure and flow rate vs. time; cartesian plot



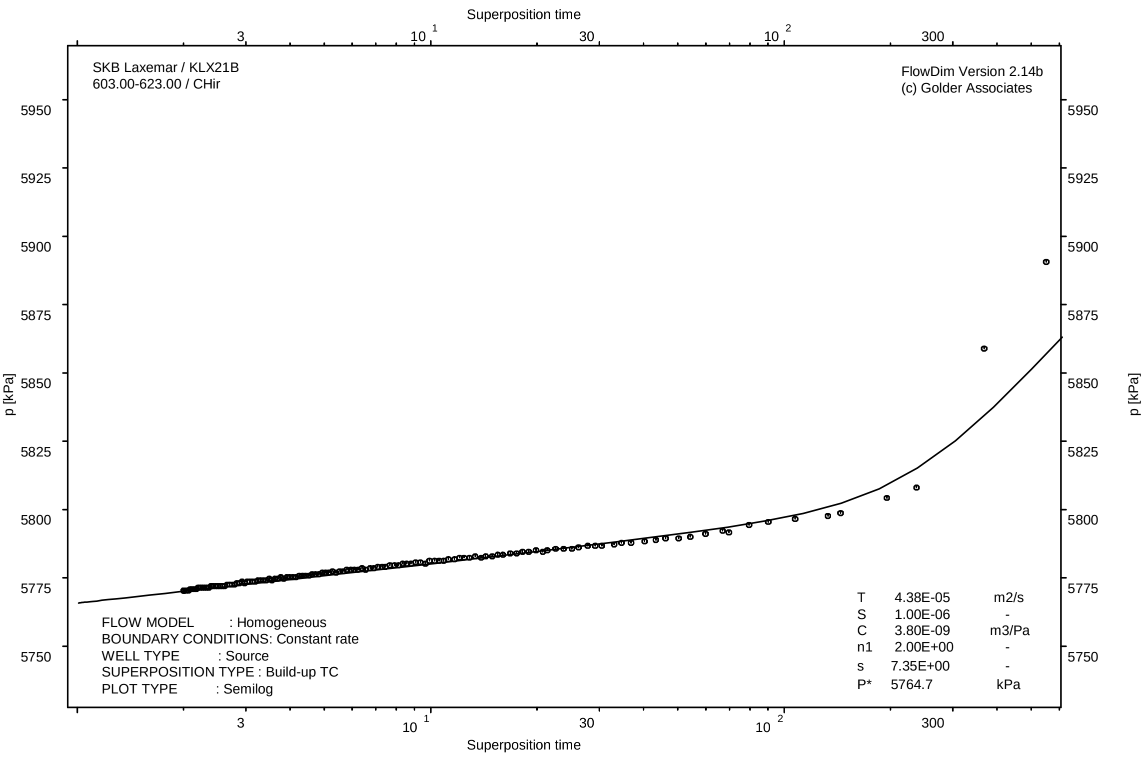
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

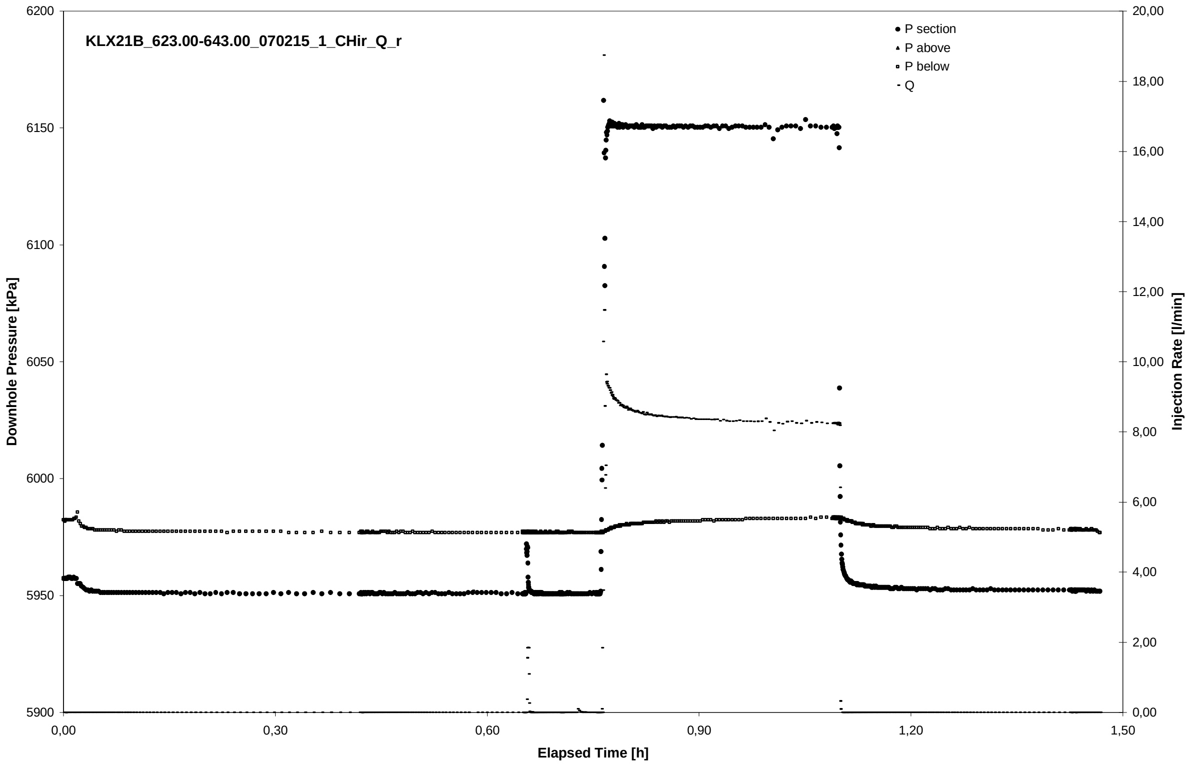


CHIR phase; HORNER match

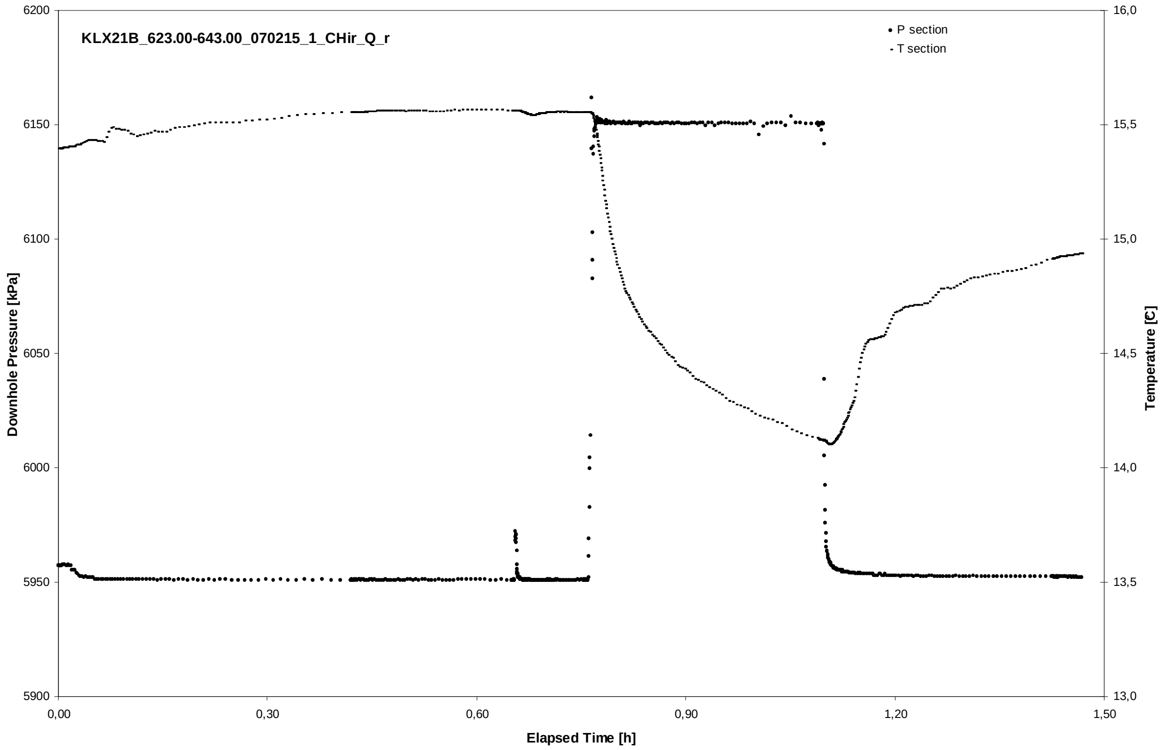
APPENDIX 2-34

Test 623.00 – 643.00 m

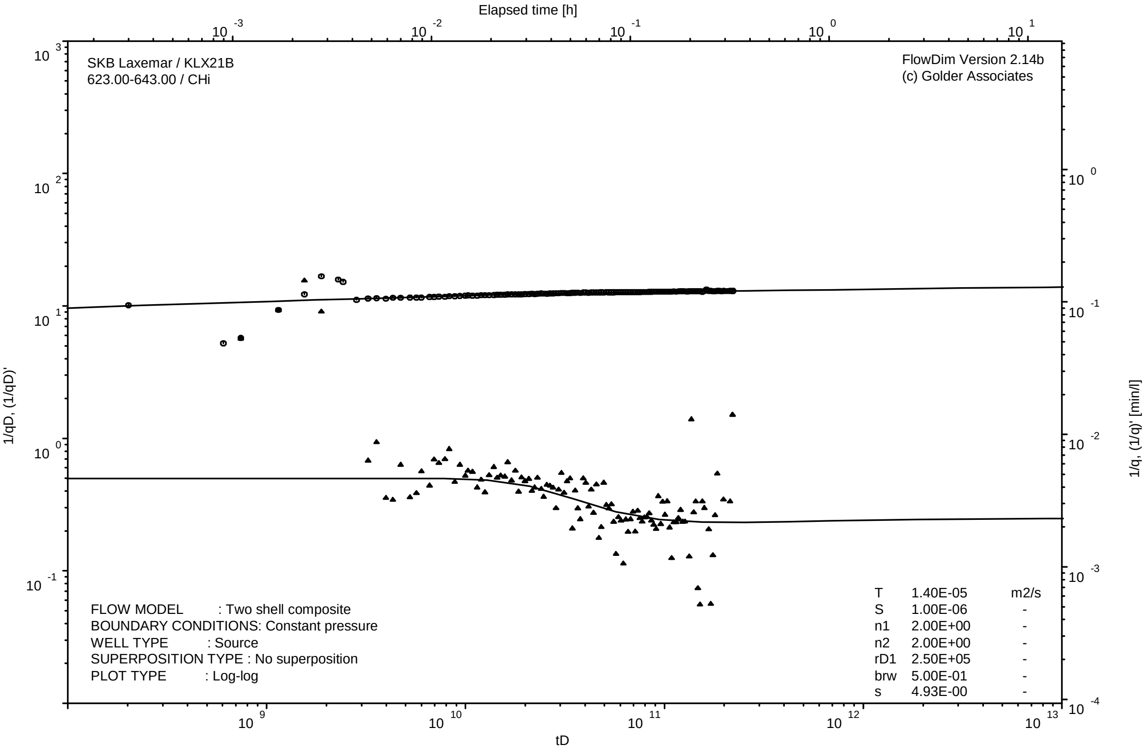
Analysis diagrams



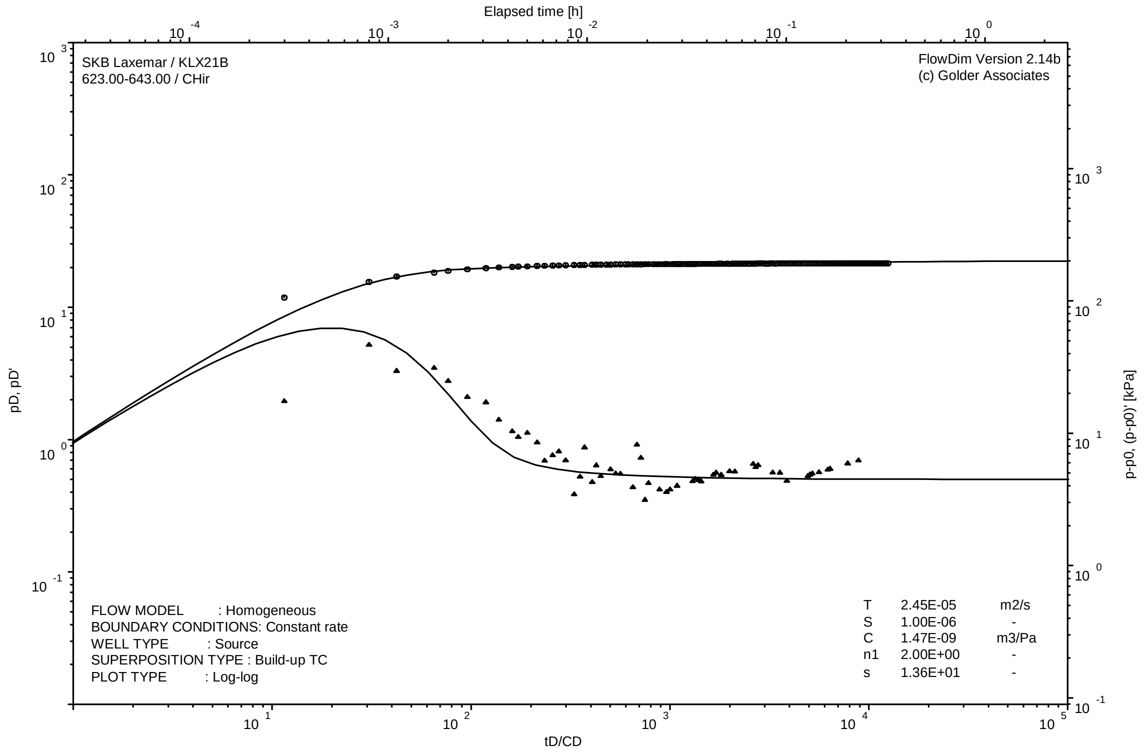
Pressure and flow rate vs. time; cartesian plot



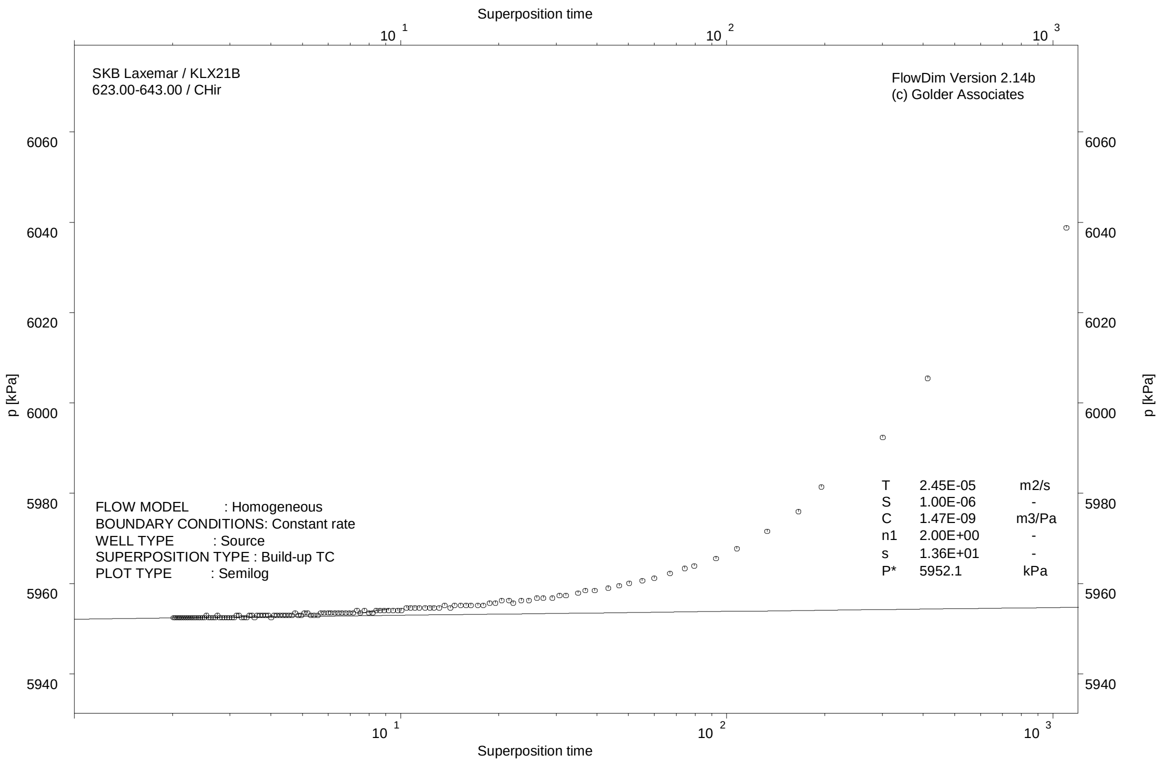
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

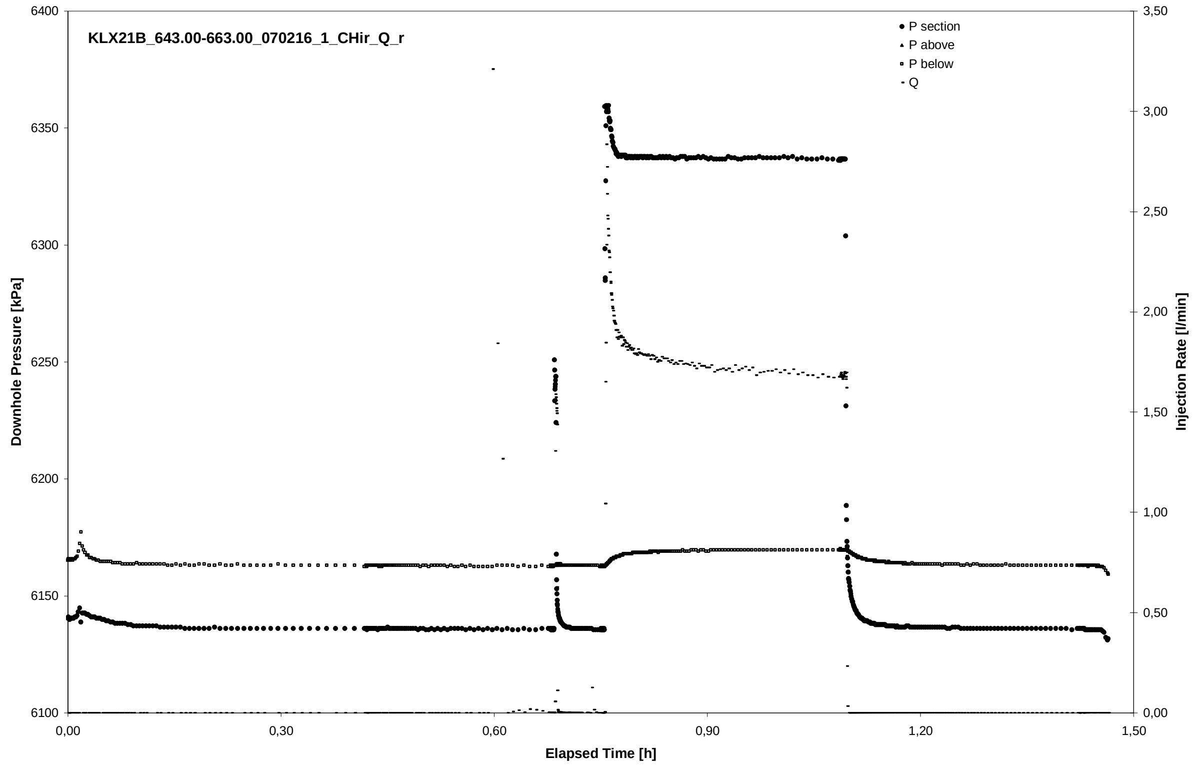


CHIR phase; HORNER match

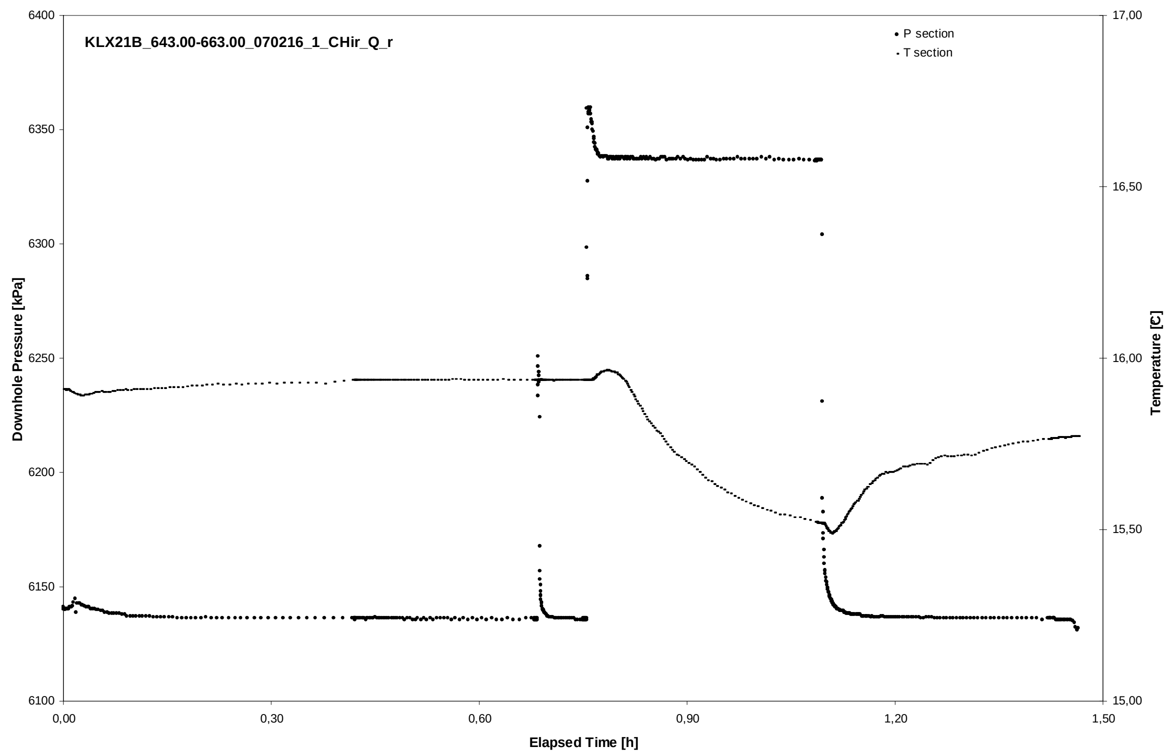
APPENDIX 2-35

Test 643.00 – 663.00 m

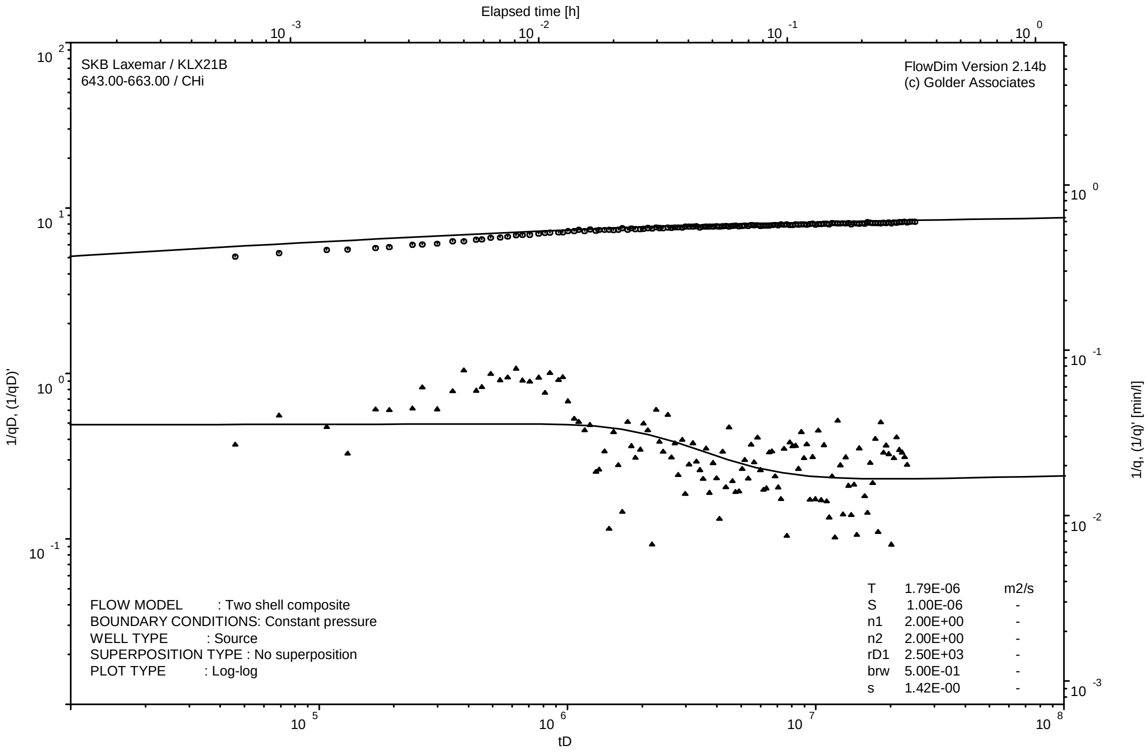
Analysis diagrams



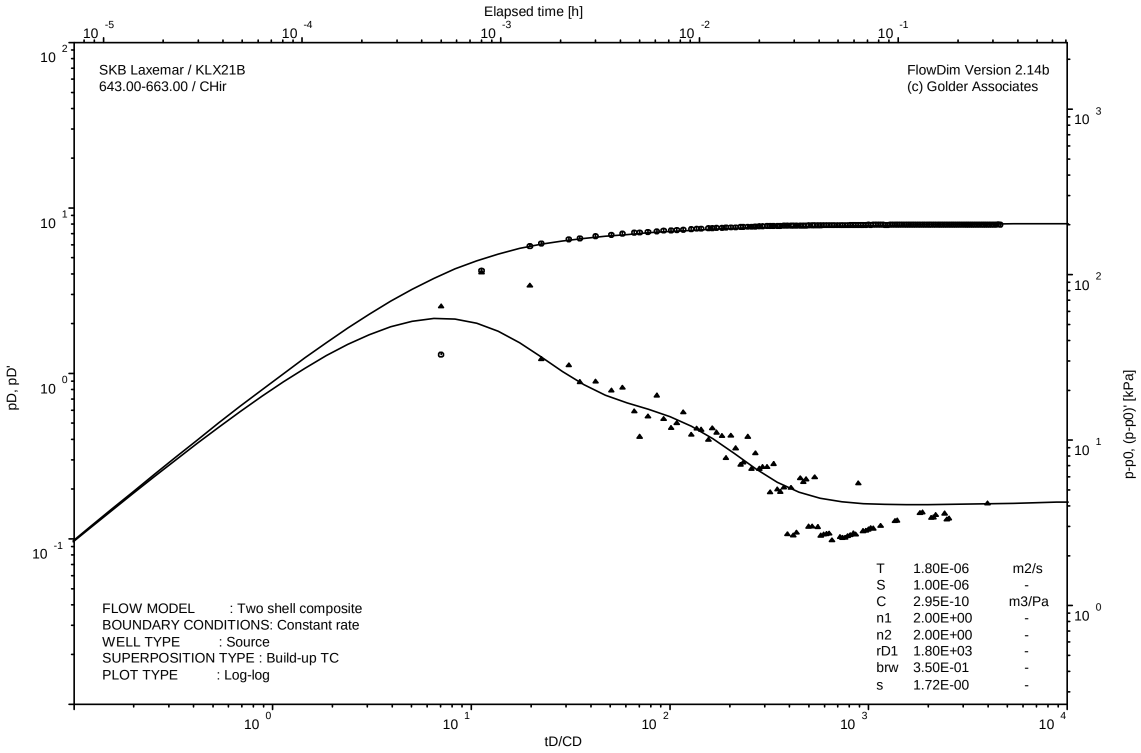
Pressure and flow rate vs. time; cartesian plot



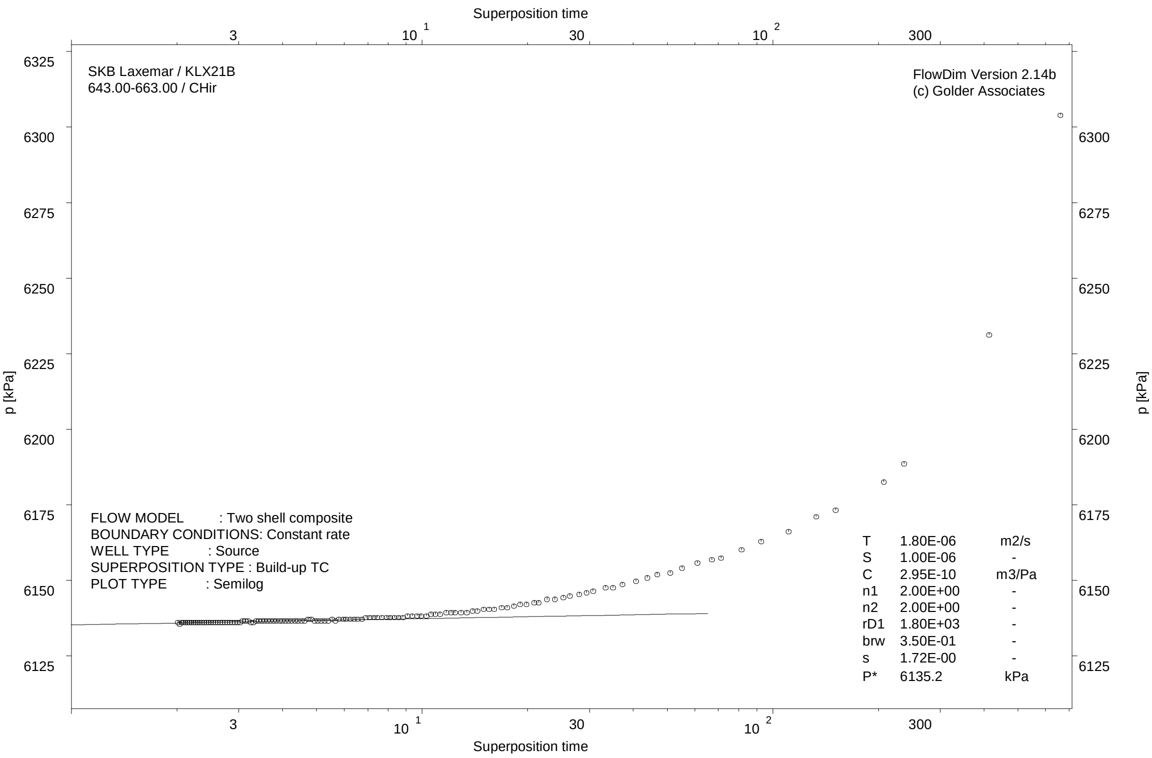
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

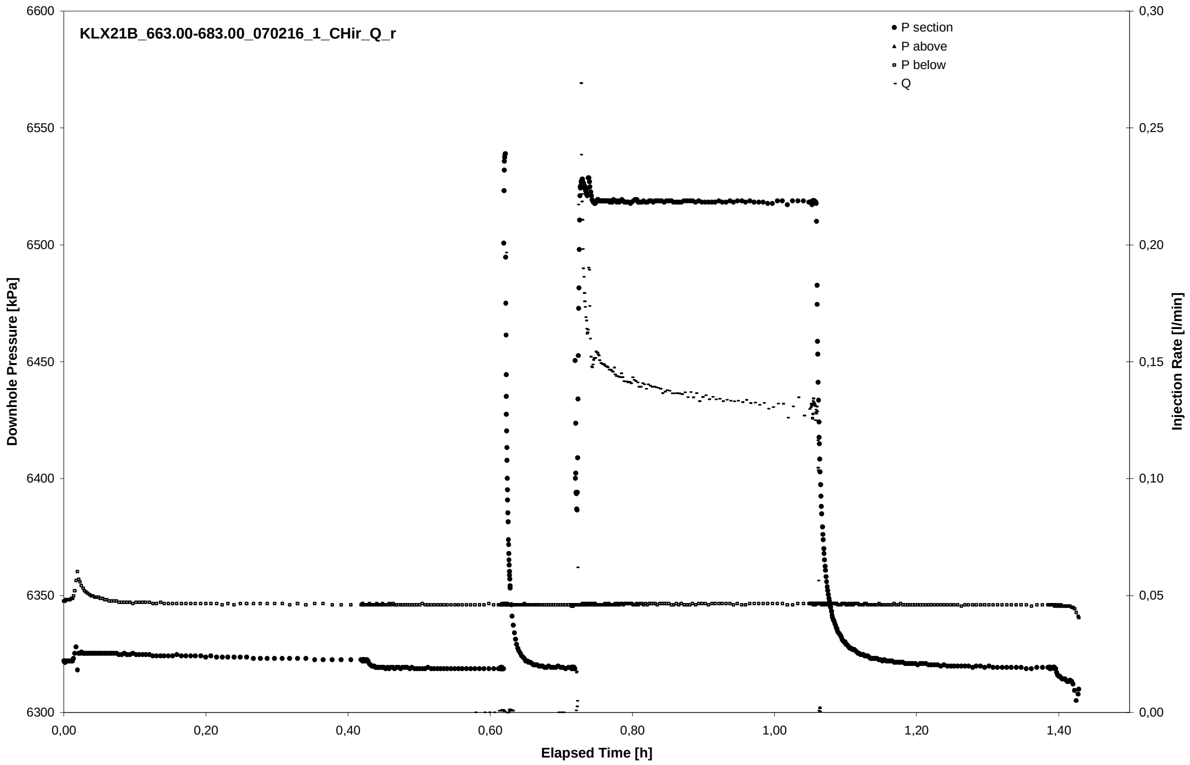


CHIR phase; HORNER match

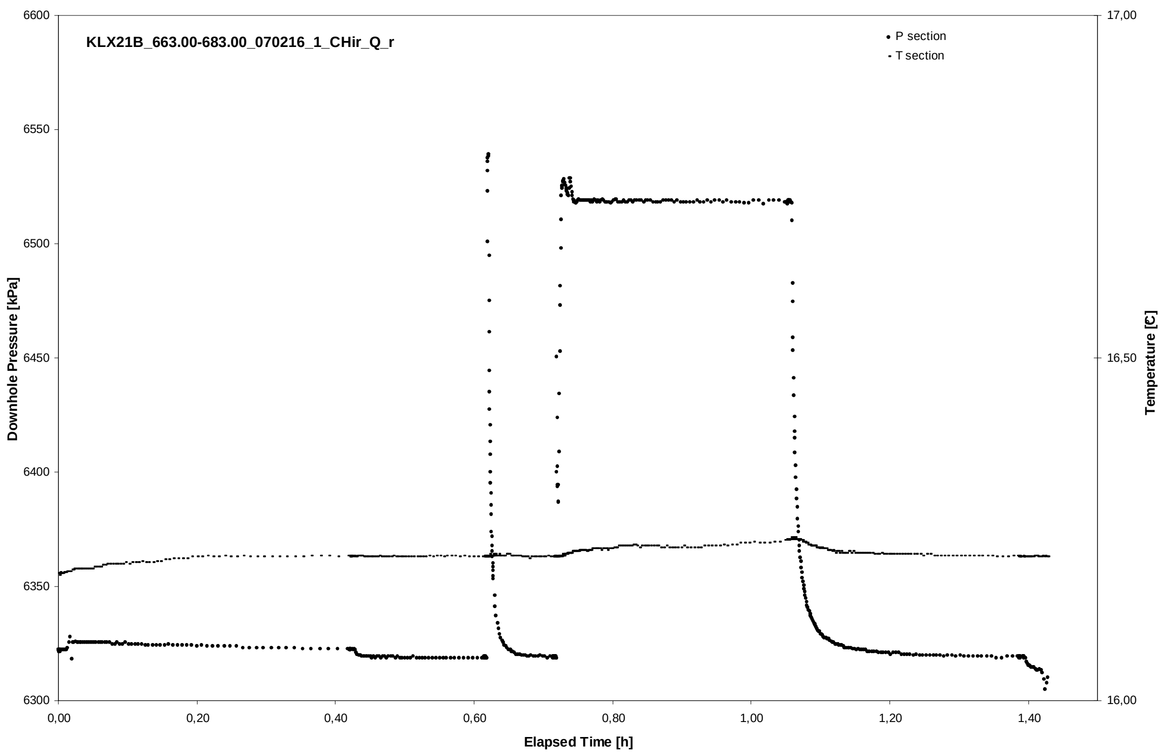
APPENDIX 2-36

Test 663.00 – 683.00 m

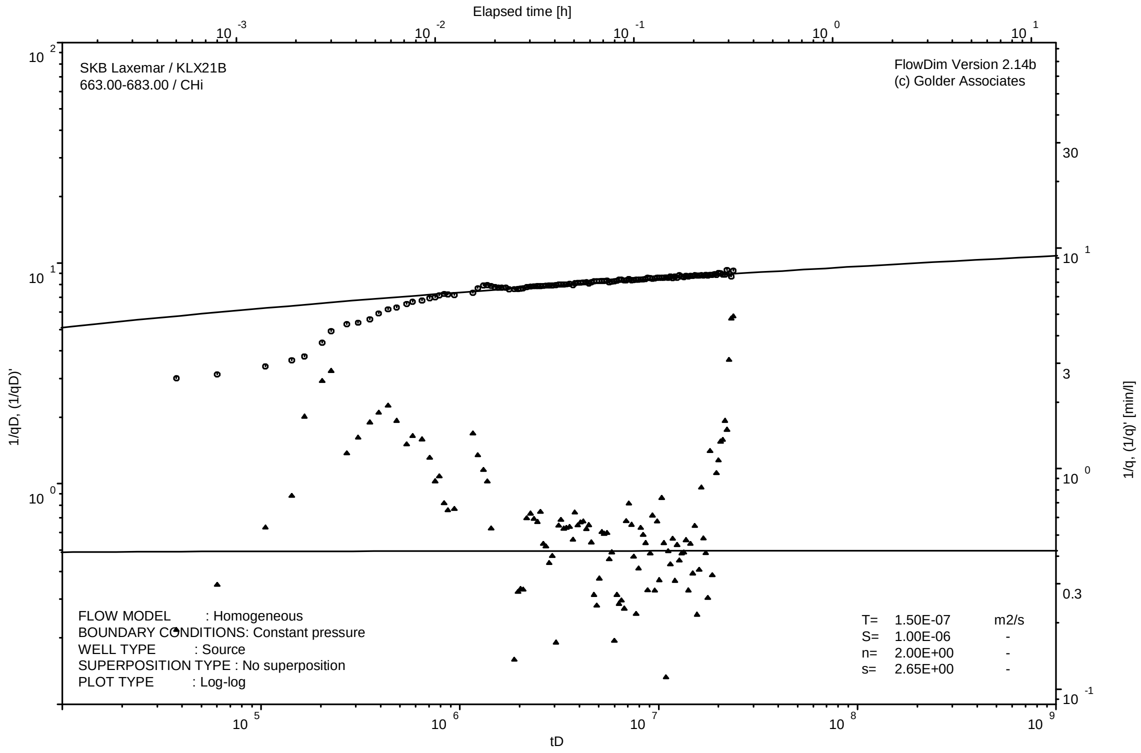
Analysis diagrams



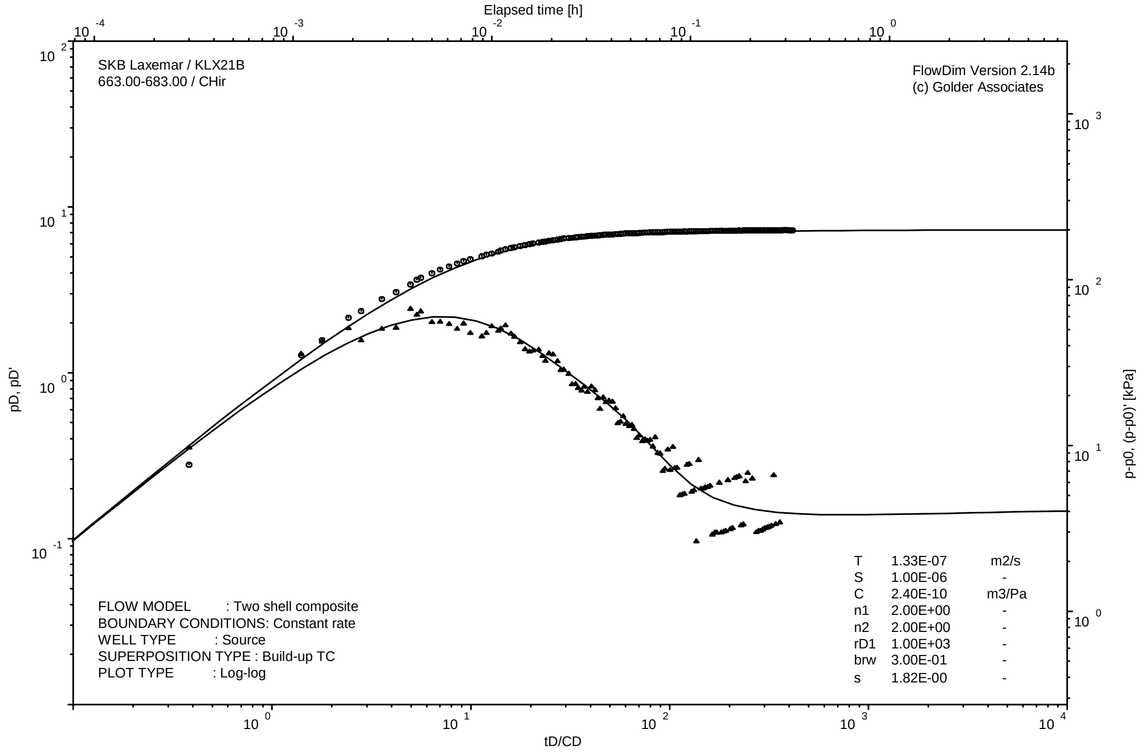
Pressure and flow rate vs. time; cartesian plot



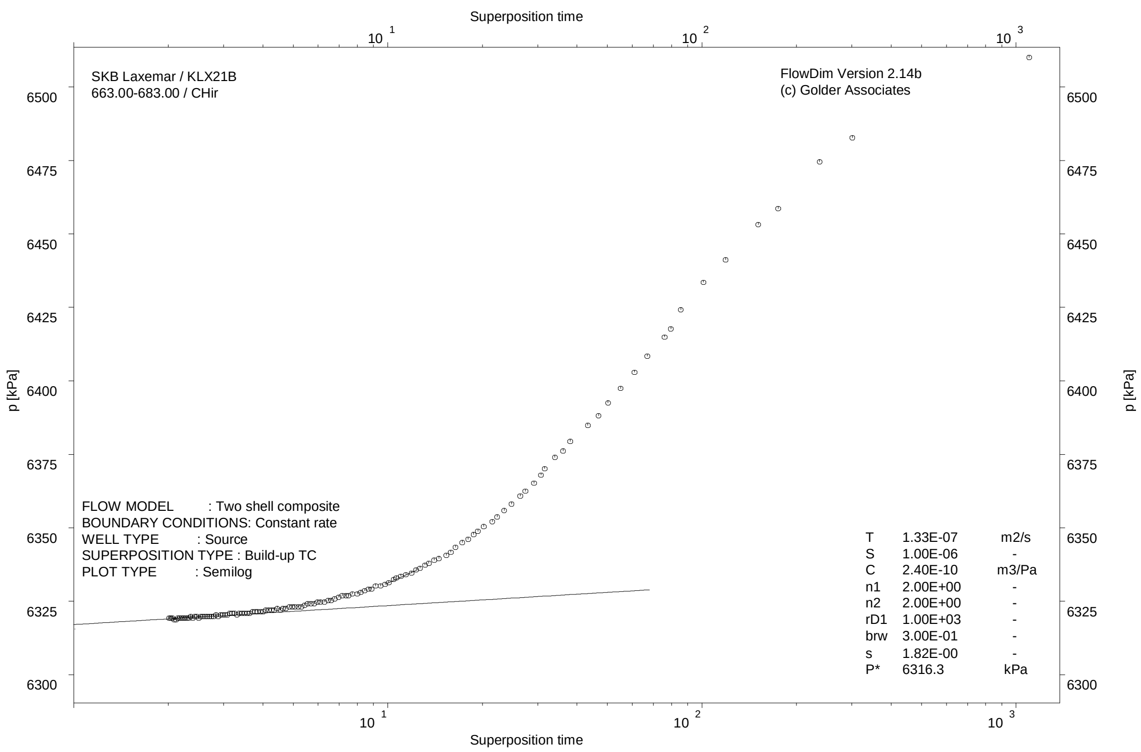
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

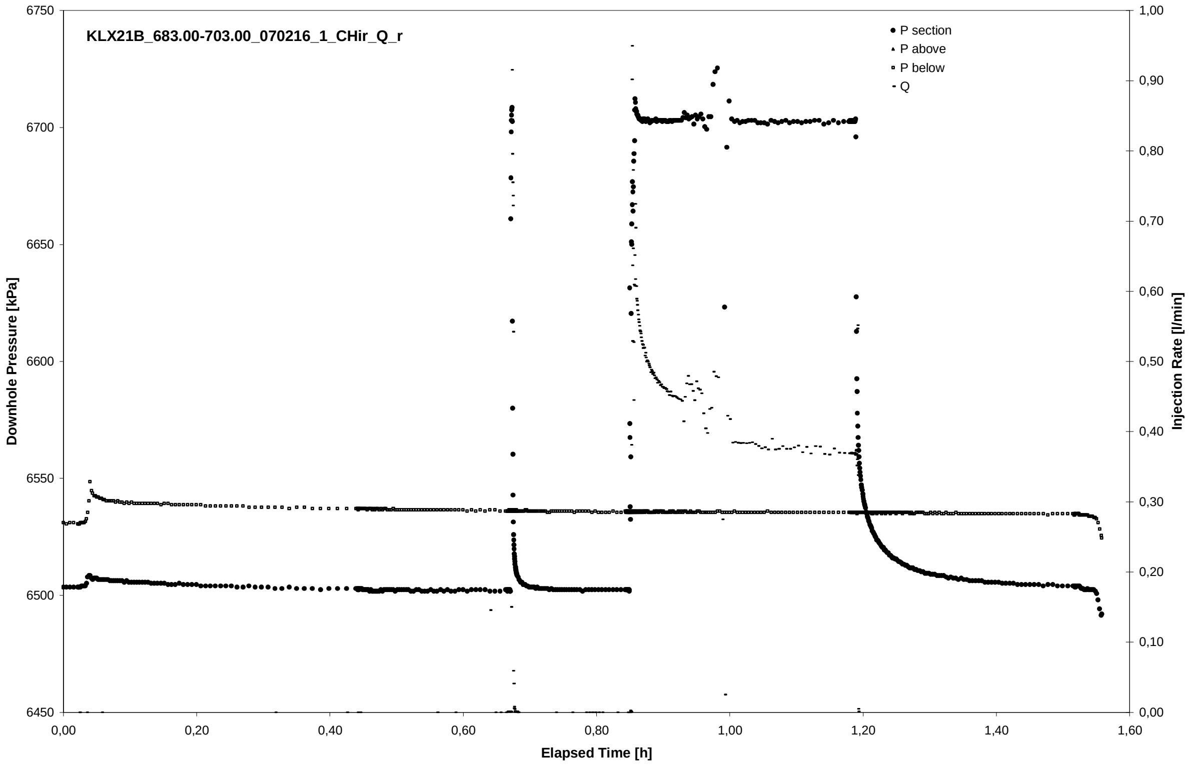


CHIR phase; HORNER match

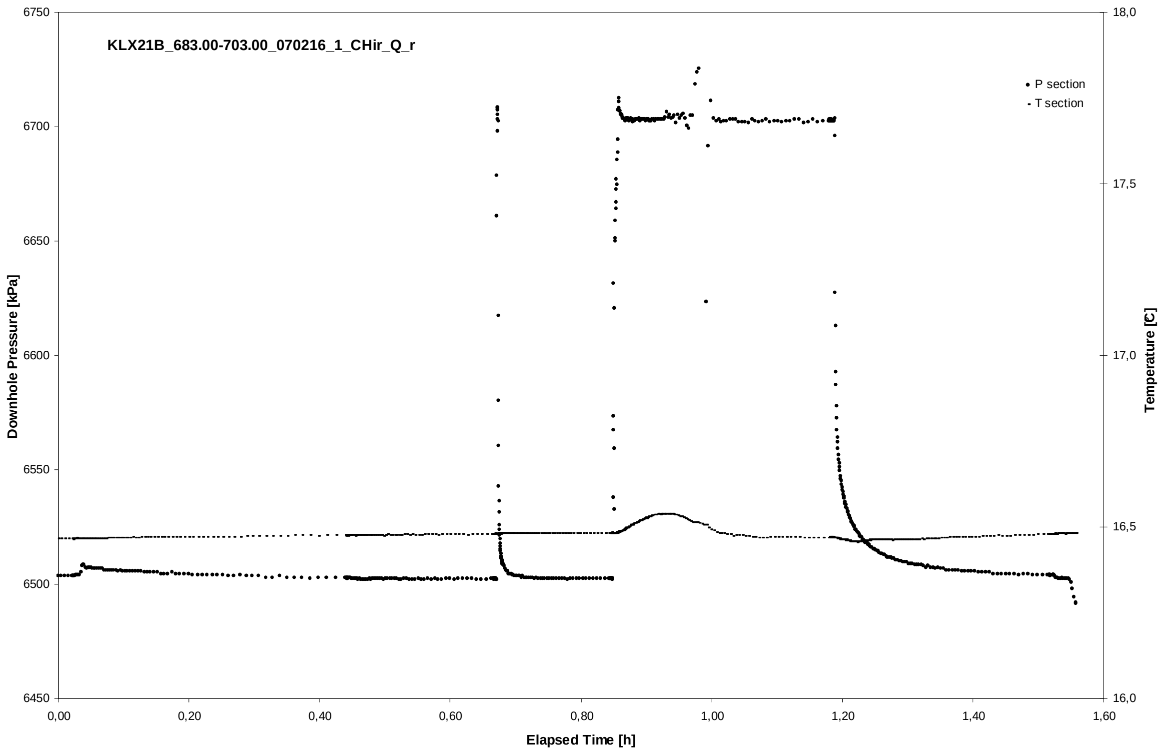
APPENDIX 2-37

Test 683.00 – 703.00 m

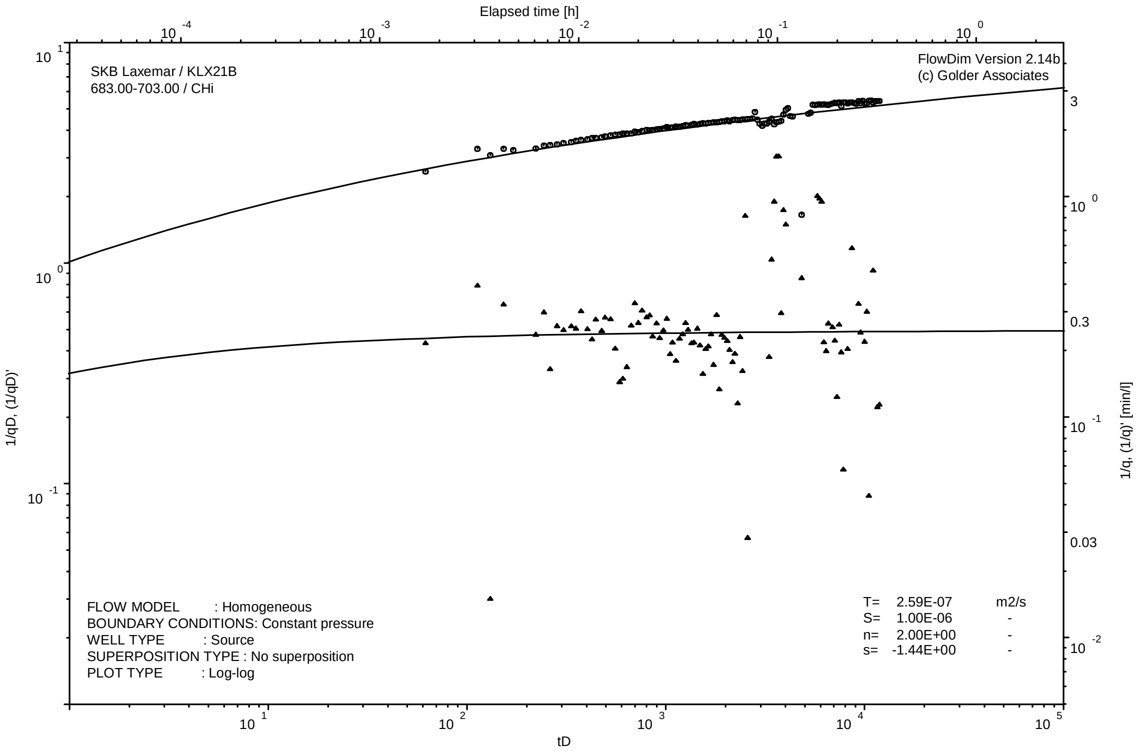
Analysis diagrams



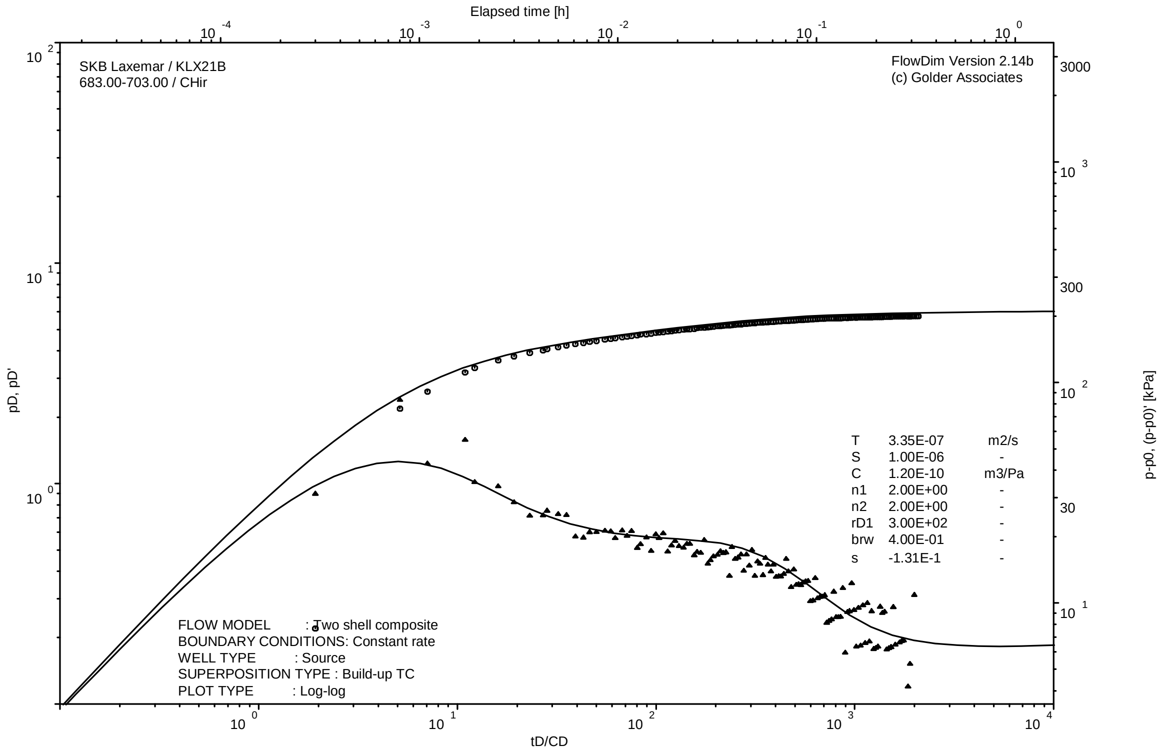
Pressure and flow rate vs. time; cartesian plot



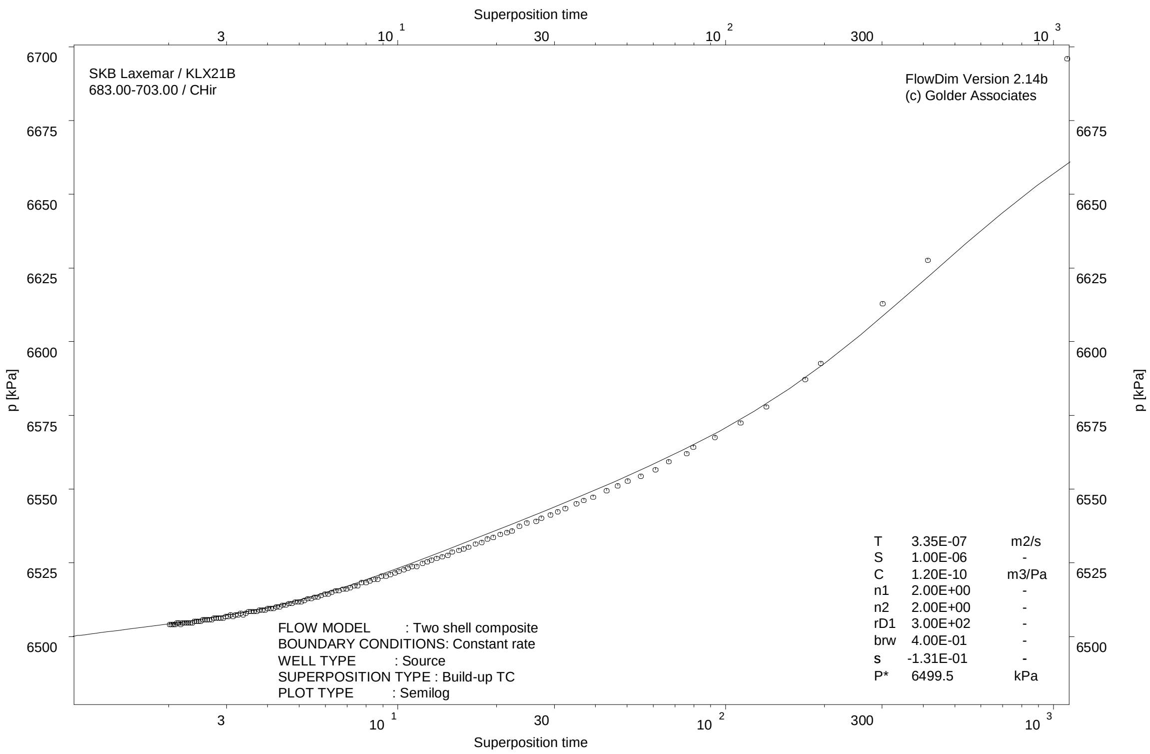
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

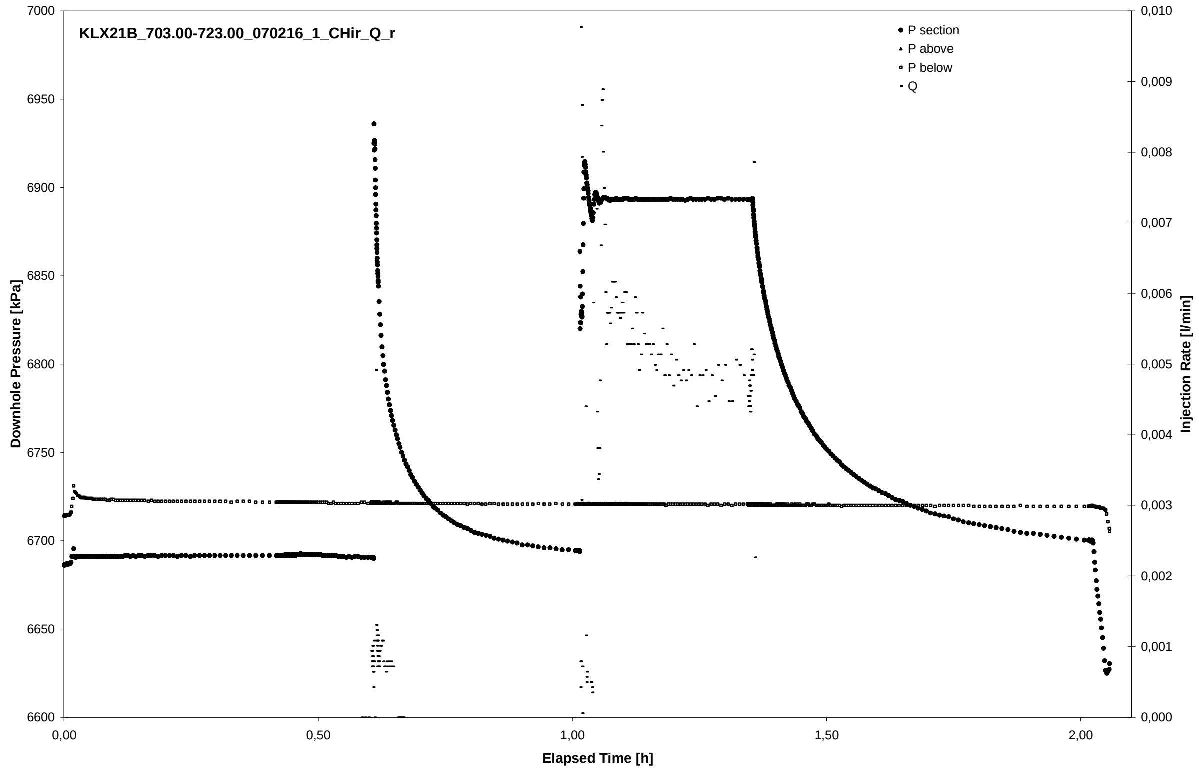


CHIR phase; HORNER match

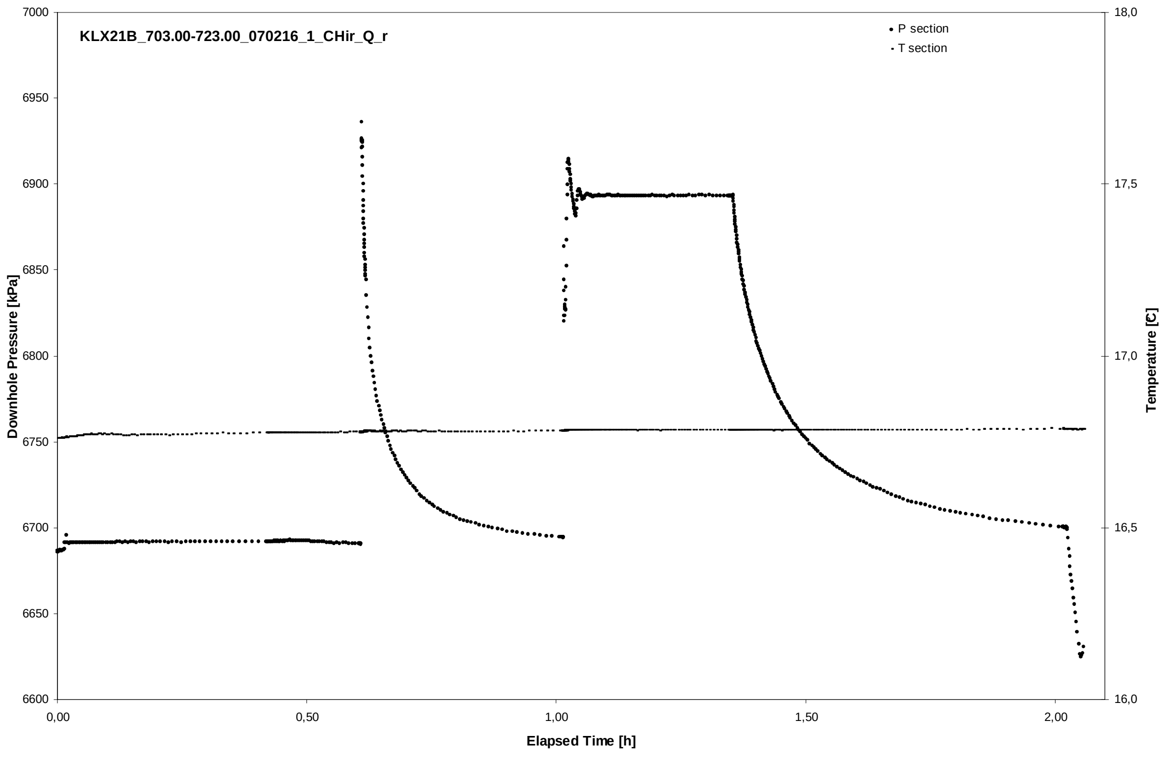
APPENDIX 2-38

Test 703.00 – 723.00 m

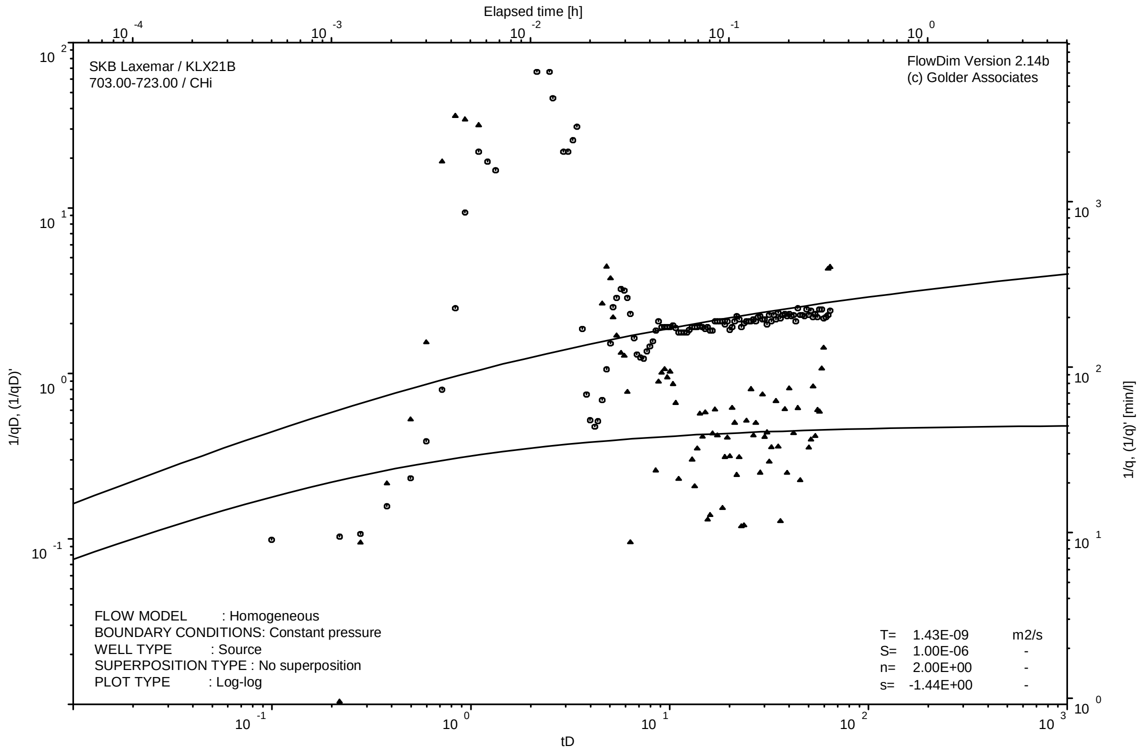
Analysis diagrams



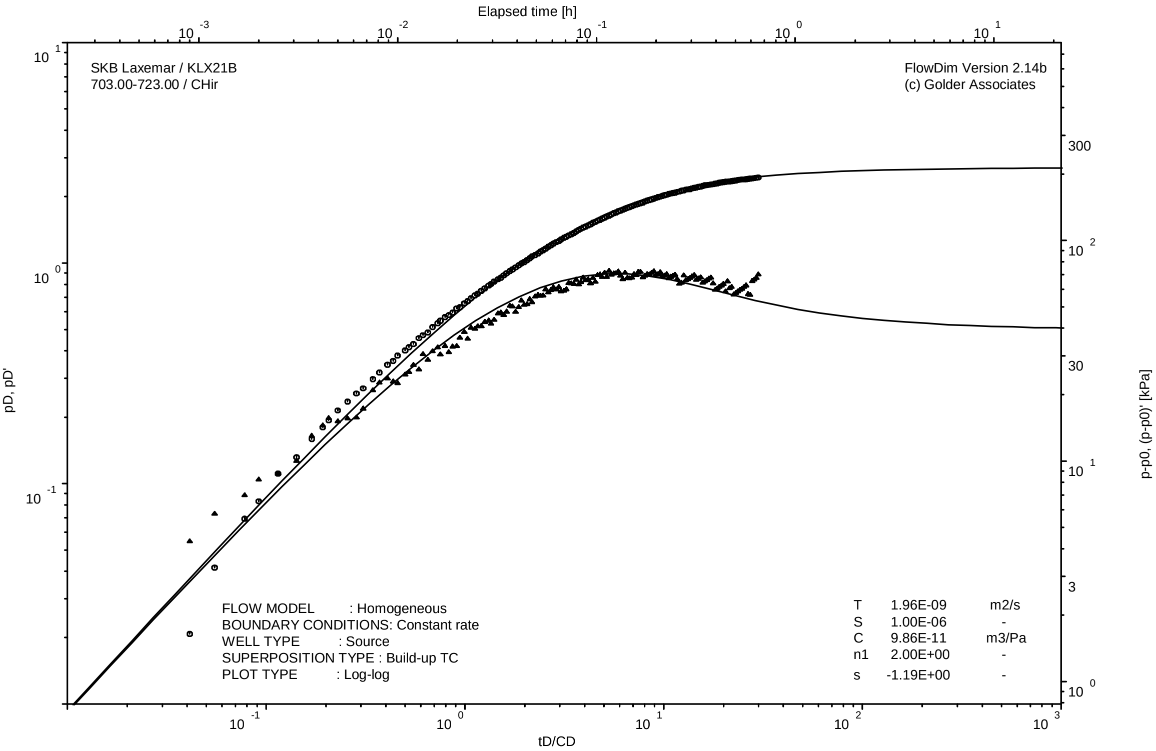
Pressure and flow rate vs. time; cartesian plot



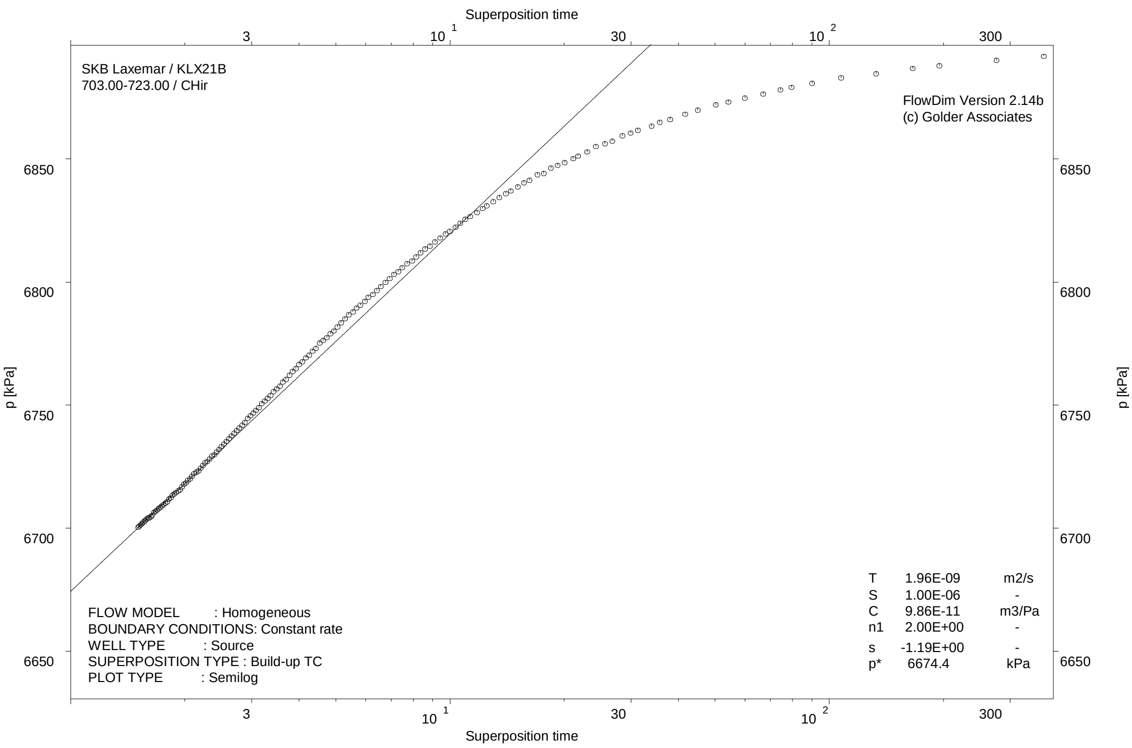
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

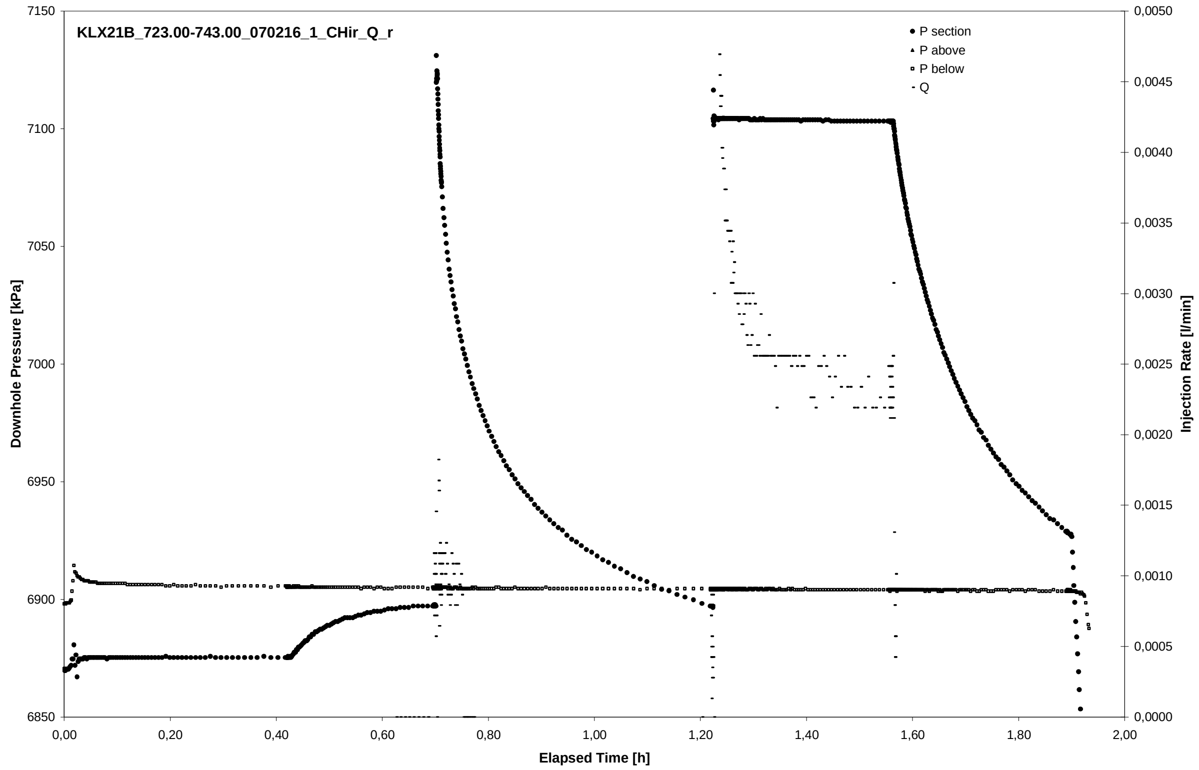


CHIR phase; HORNER match

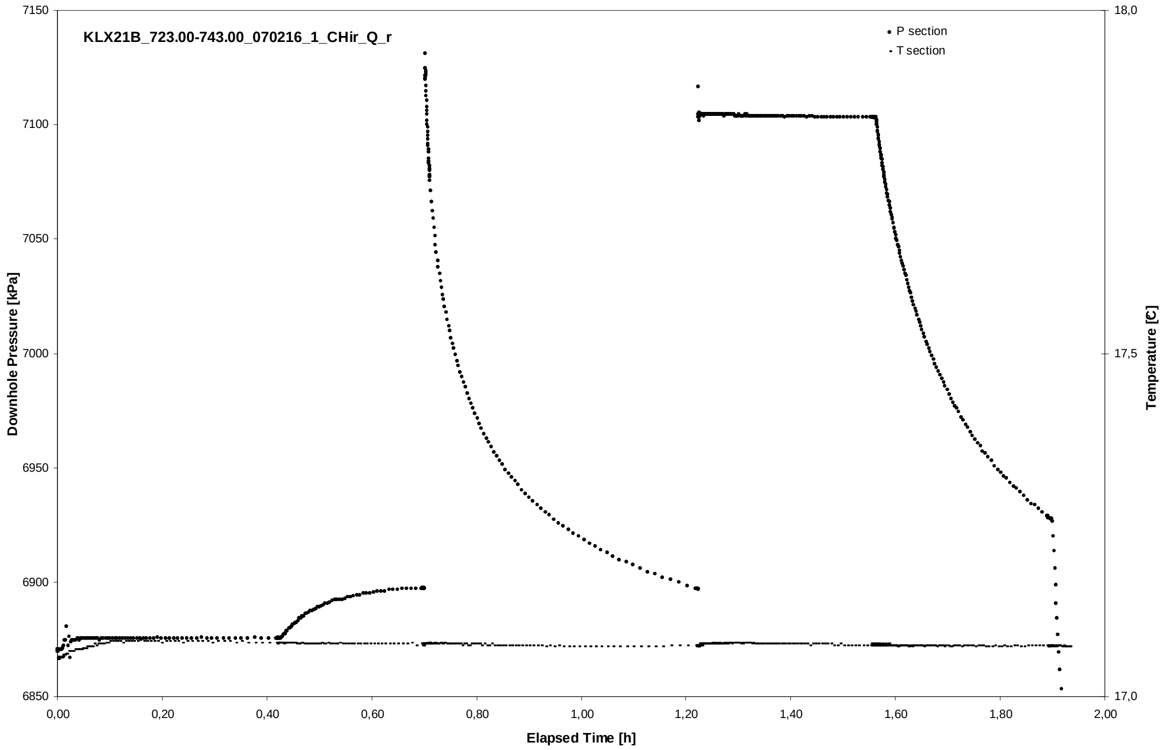
APPENDIX 2-39

Test 723.00 – 743.00 m

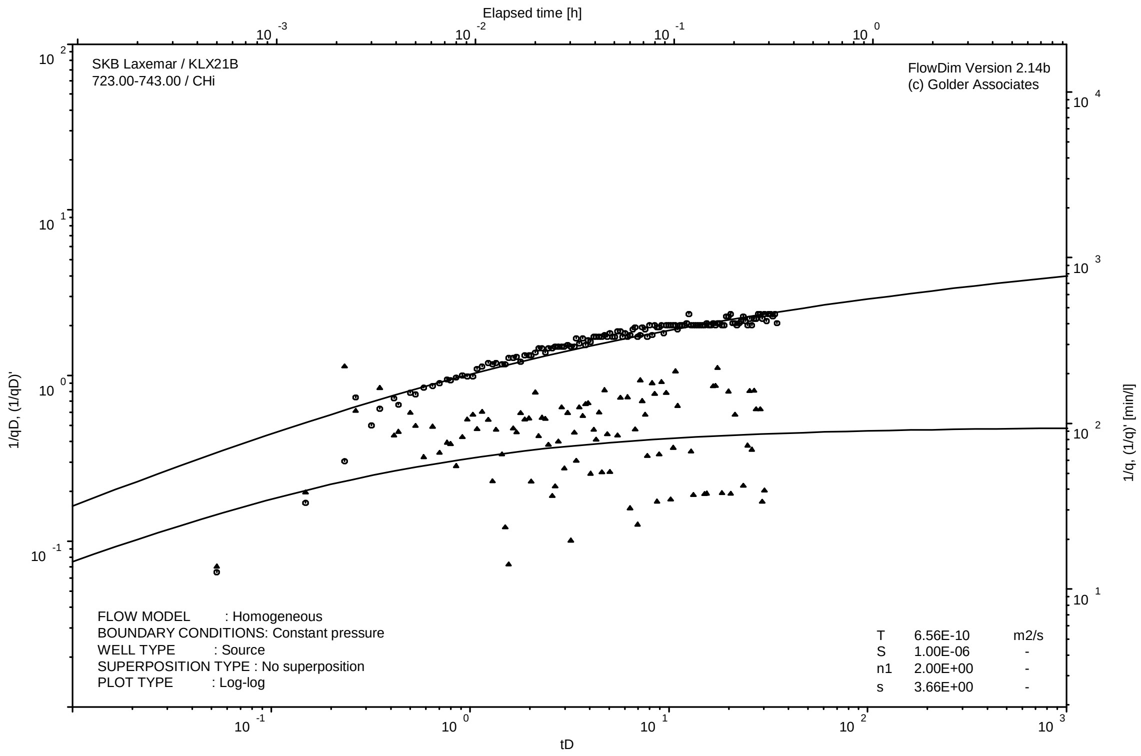
Analysis diagrams



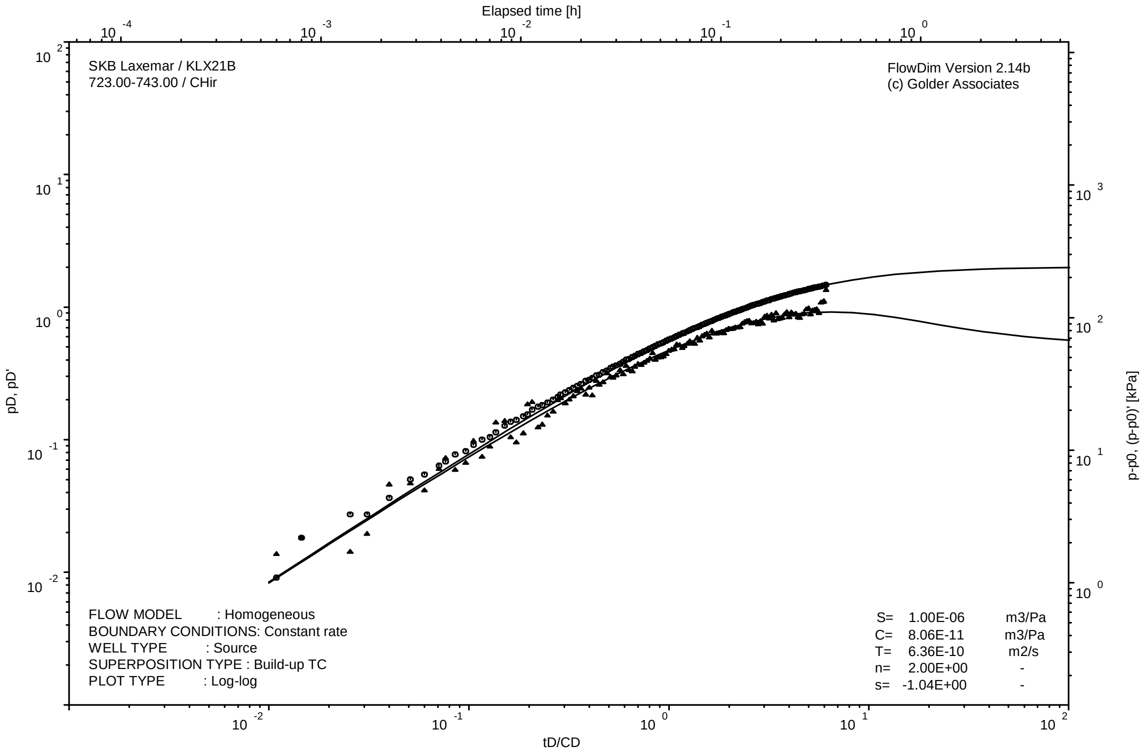
Pressure and flow rate vs. time; cartesian plot



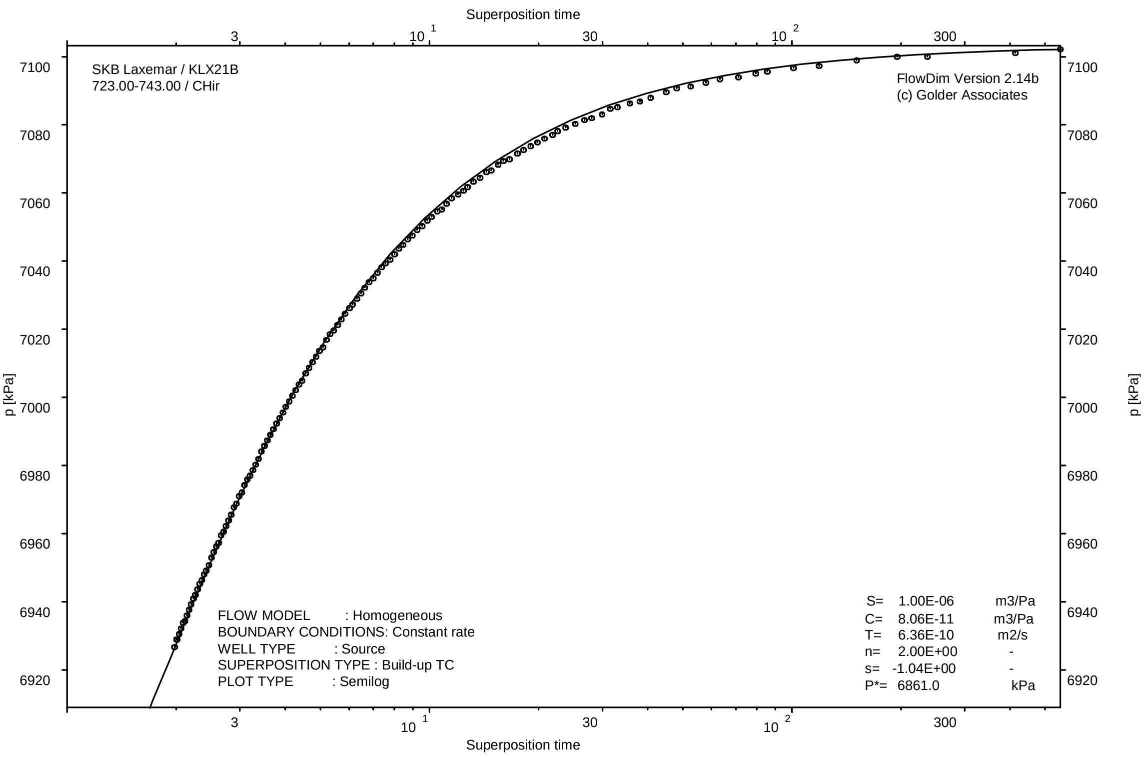
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

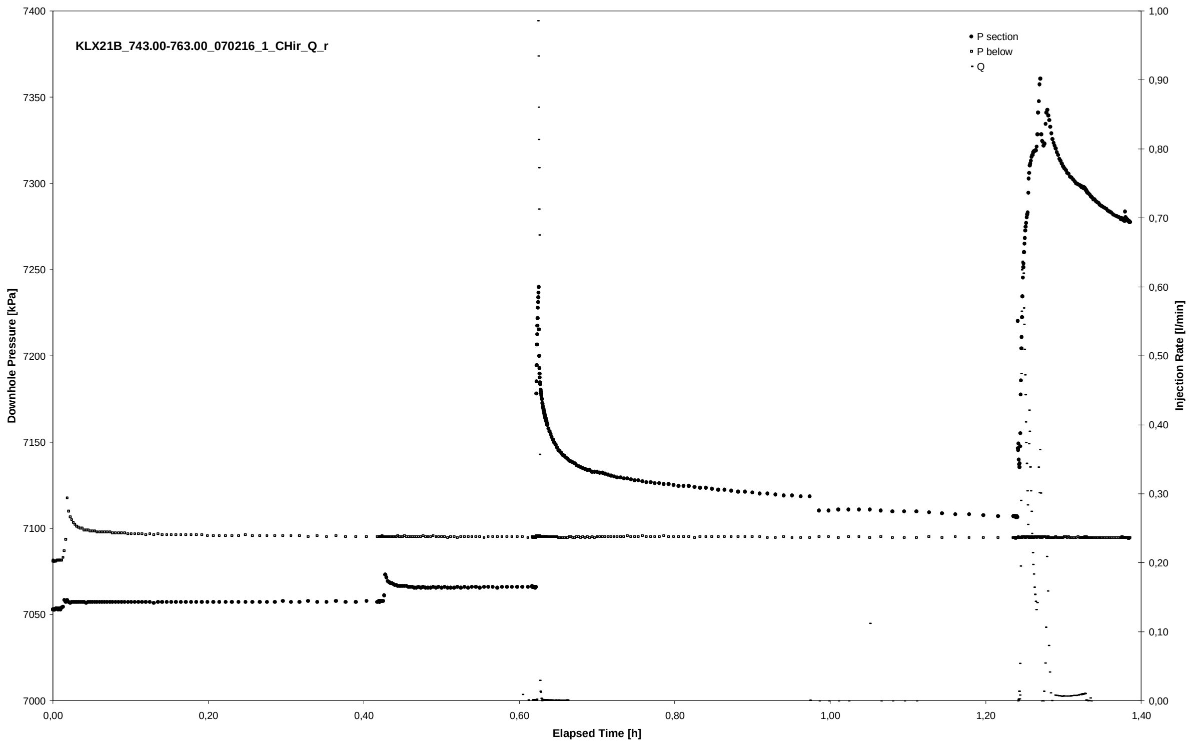


CHIR phase; HORNER match

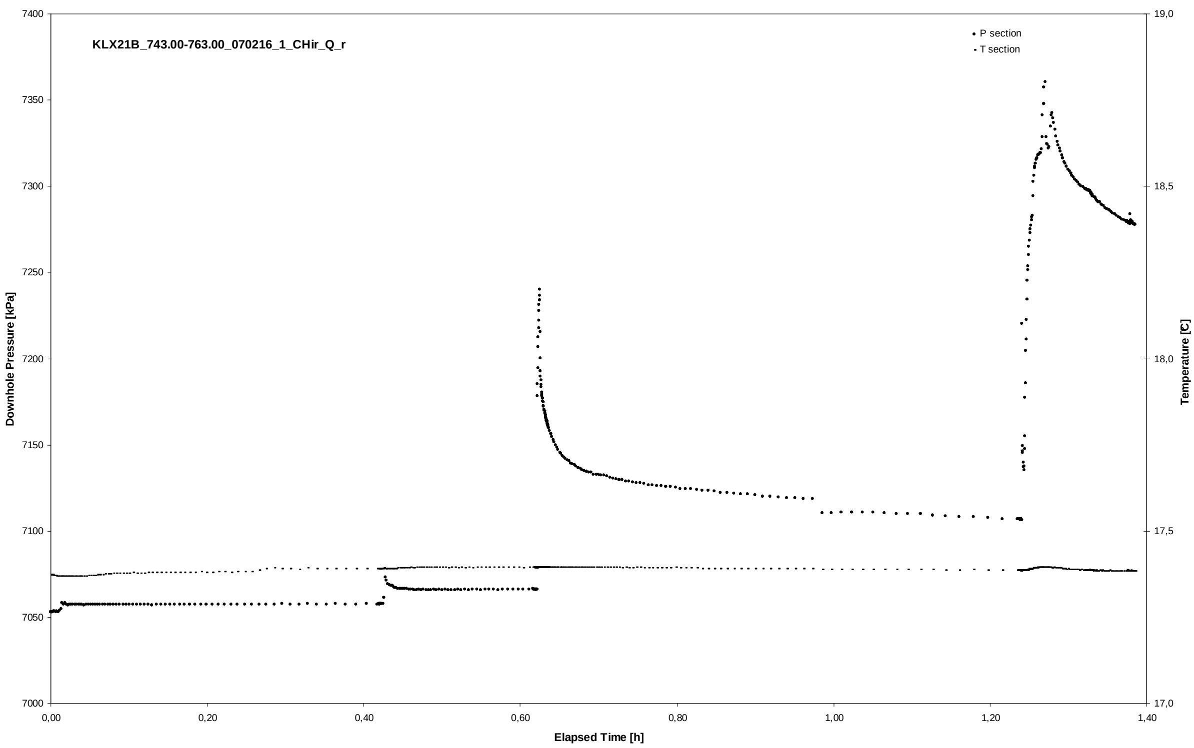
APPENDIX 2-40

Test 743.00 – 763.00 m

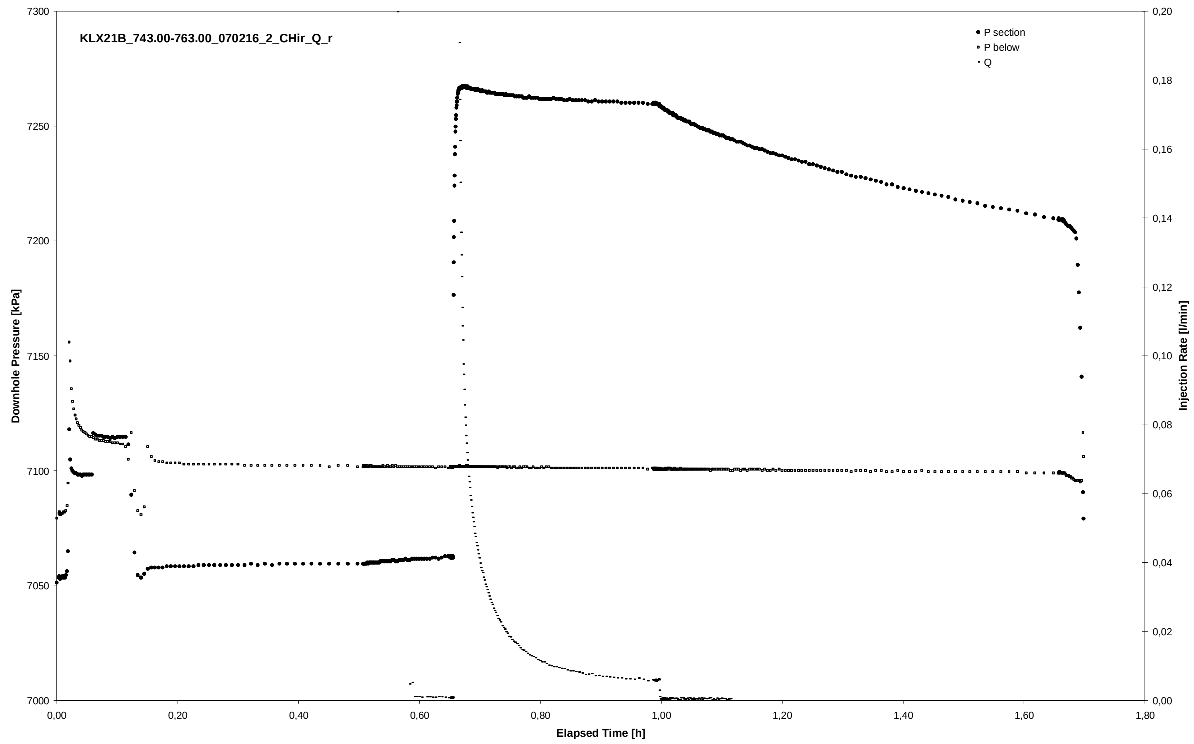
Analysis diagrams



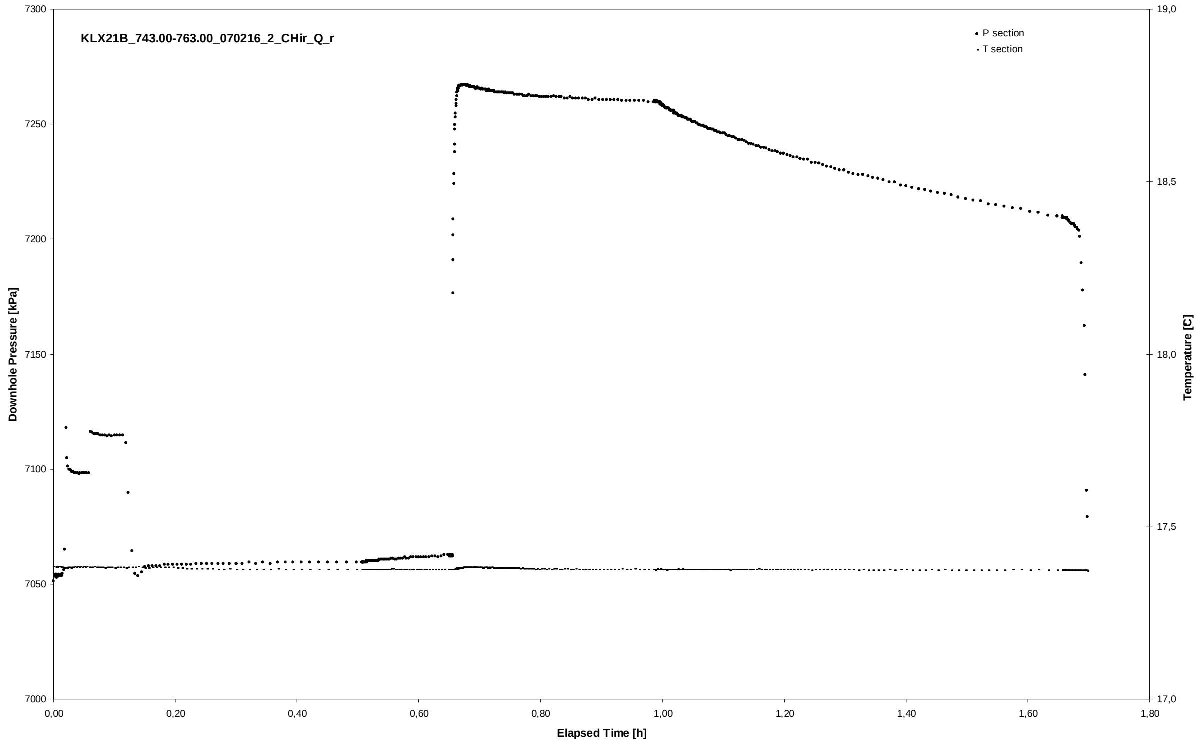
Pressure and flow rate vs. time; cartesian plot (repeated)



Interval pressure and temperature vs. time; cartesian plot (repeated)



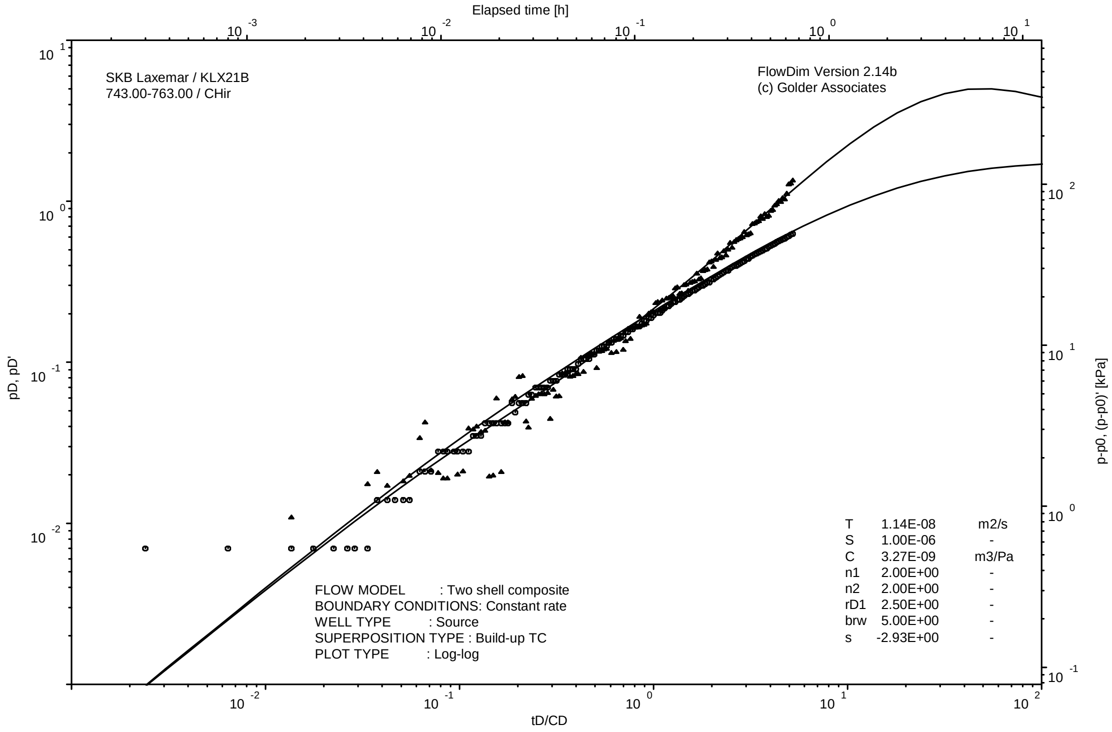
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match



CHIR phase; log-log match

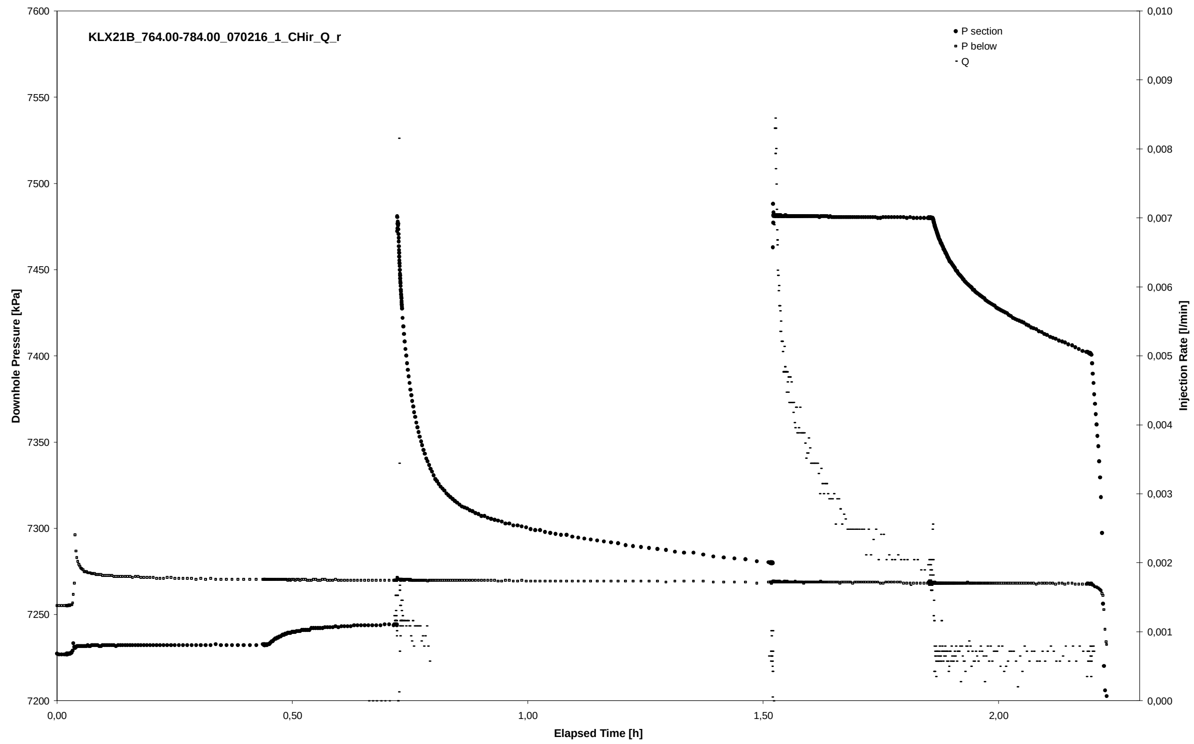
Not analysed

CHIR phase; HORNER match

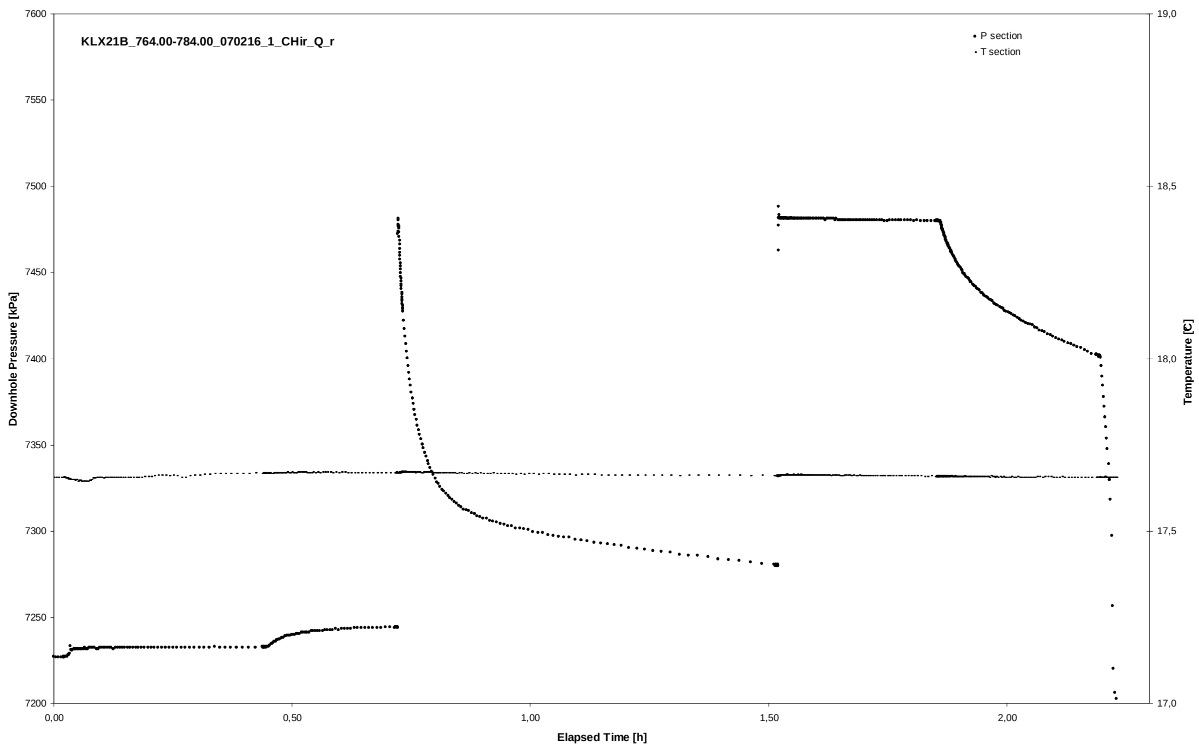
APPENDIX 2-41

Test 764.00 – 784.00 m

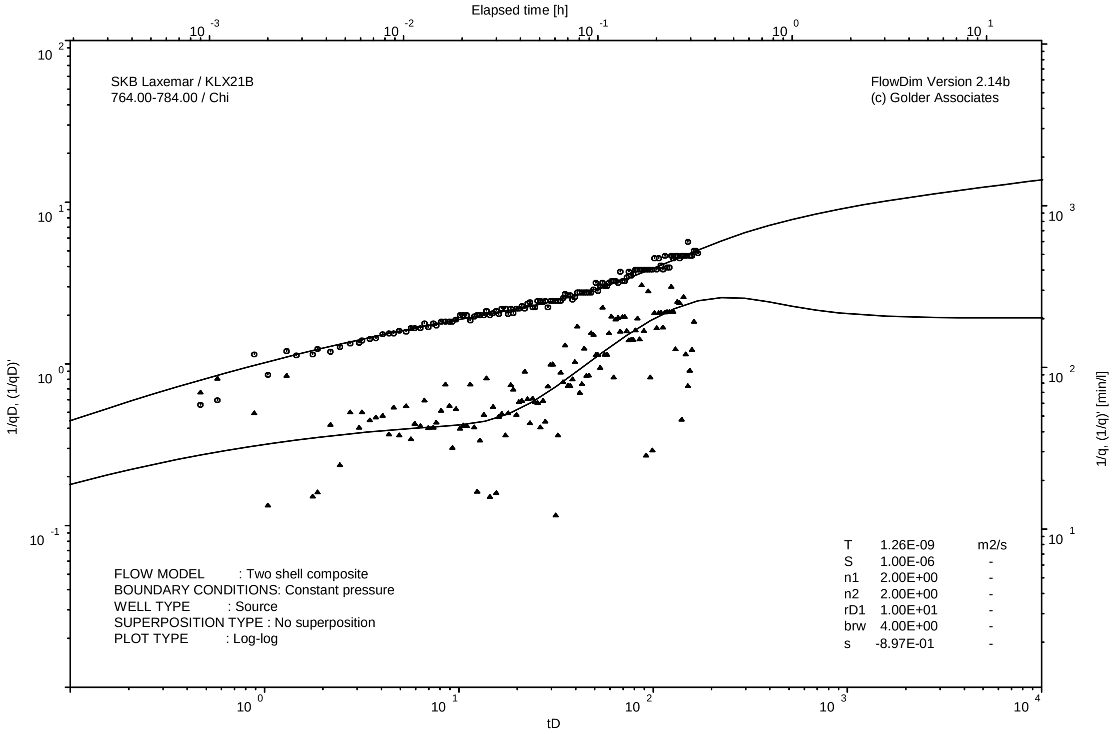
Analysis diagrams



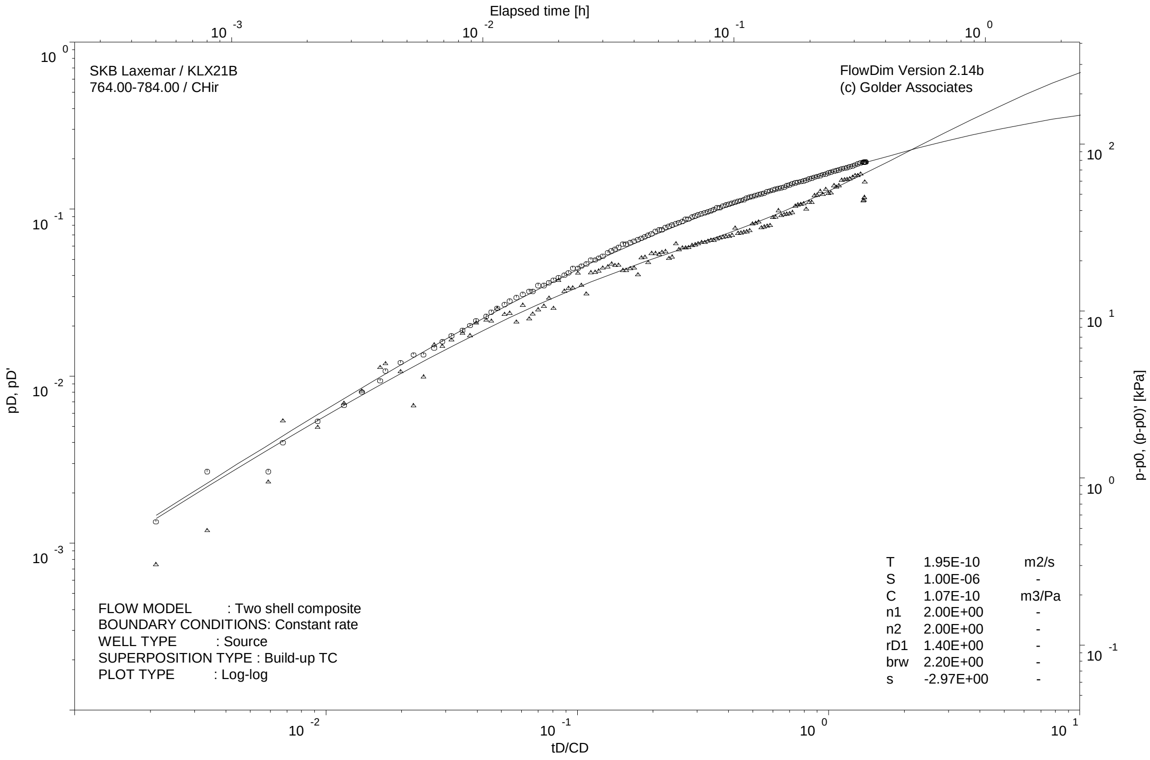
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

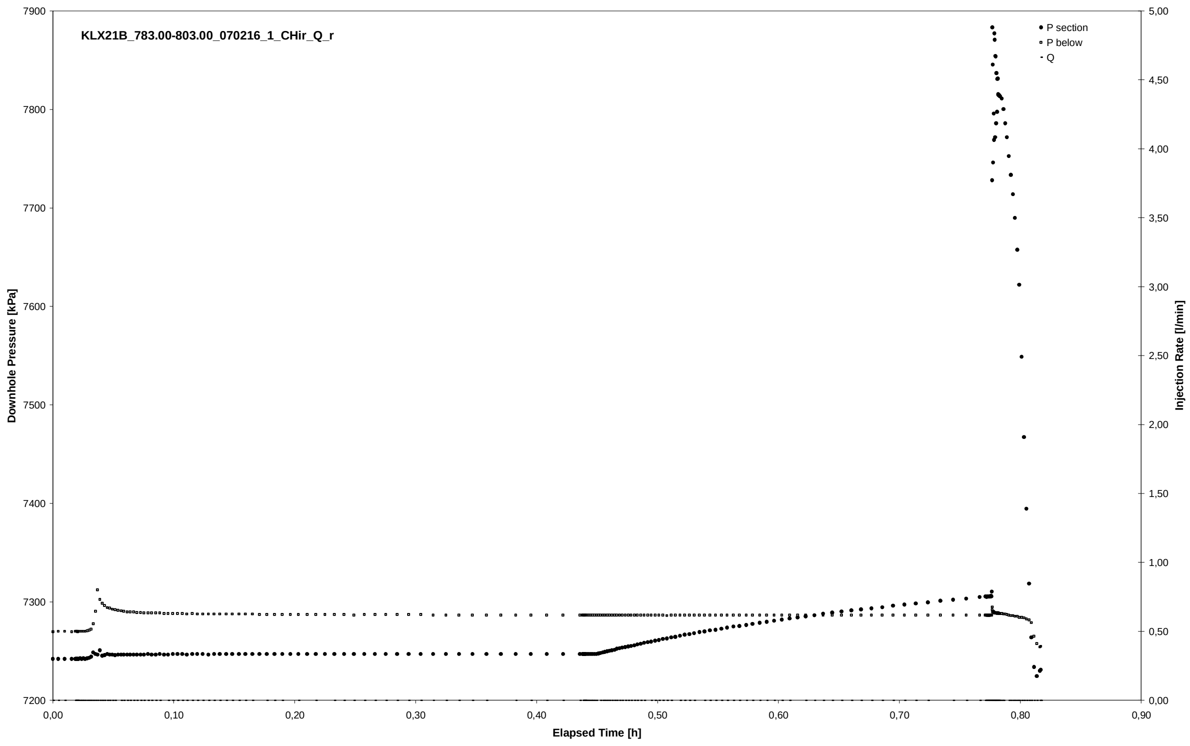
Not analysed

CHIR phase; HORNER match

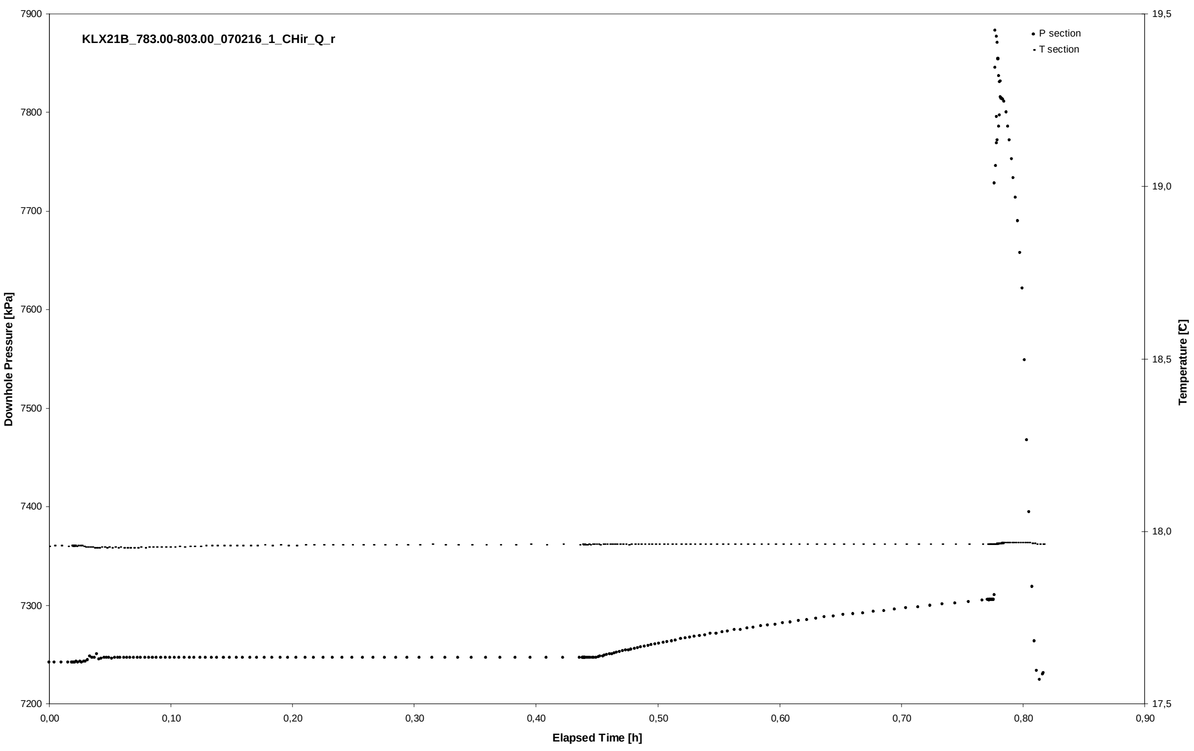
APPENDIX 2-42

Test 783.00 – 803.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

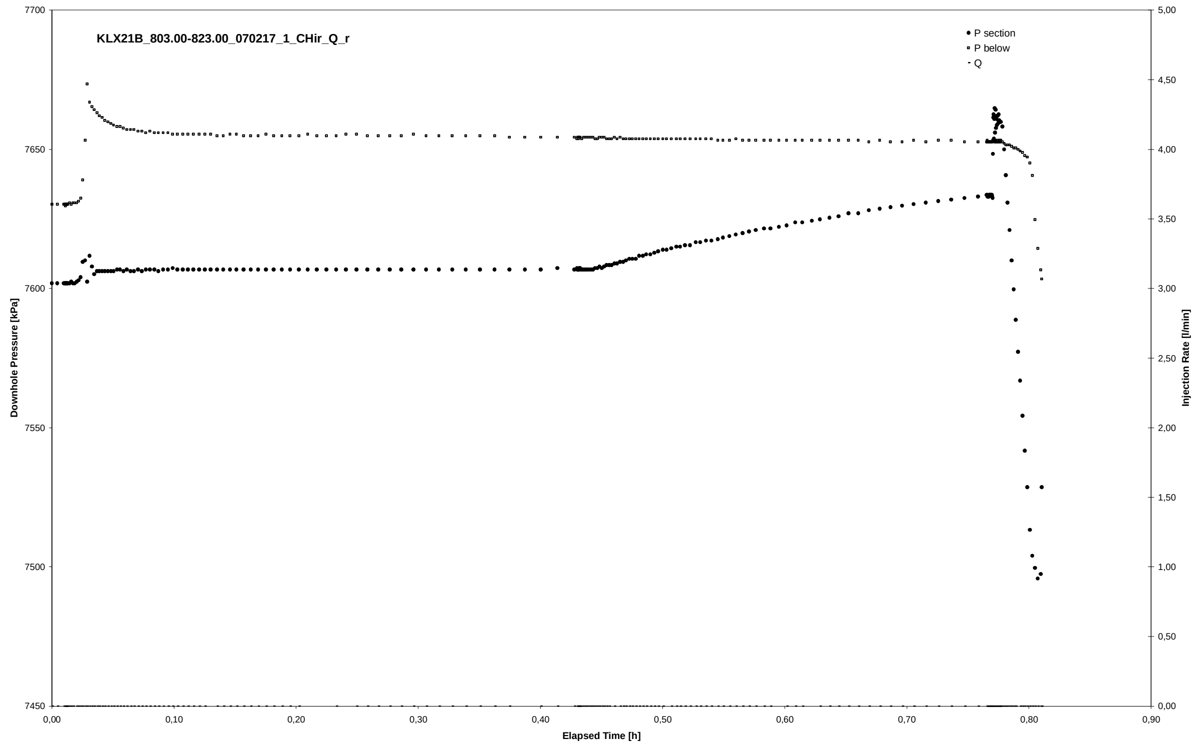
Not analysed

CHIR phase; HORNER match

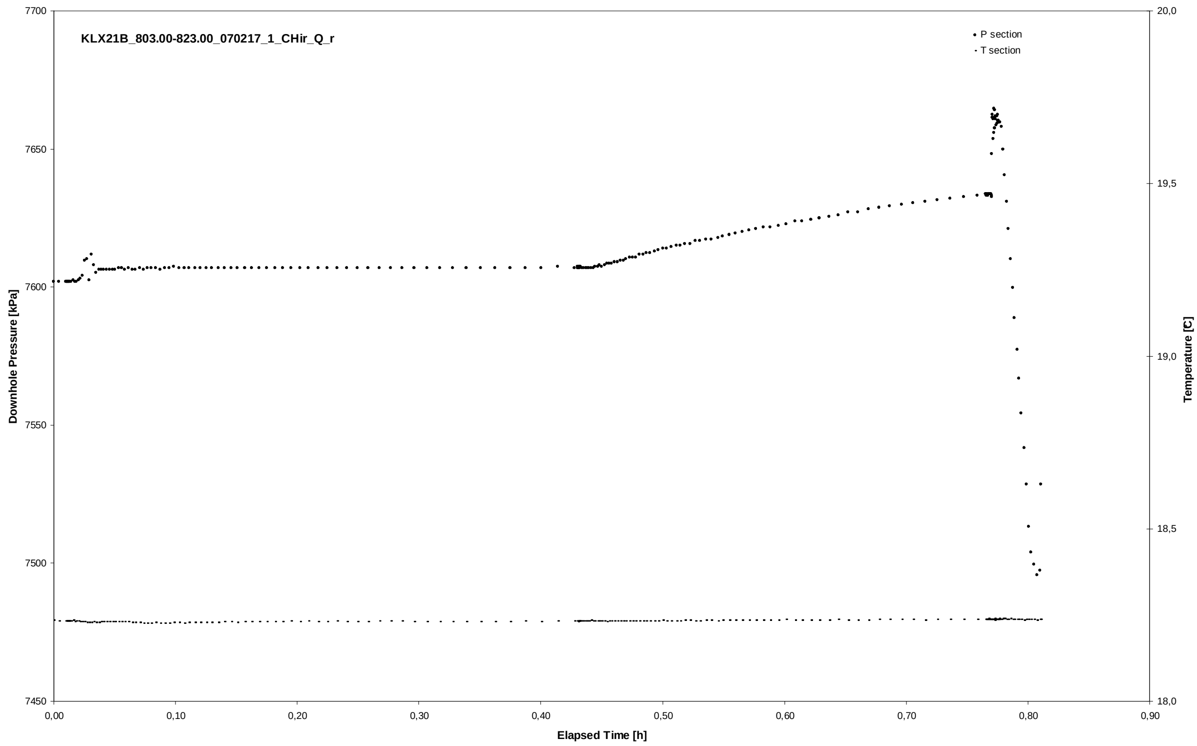
APPENDIX 2-43

Test 803.00 – 823.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

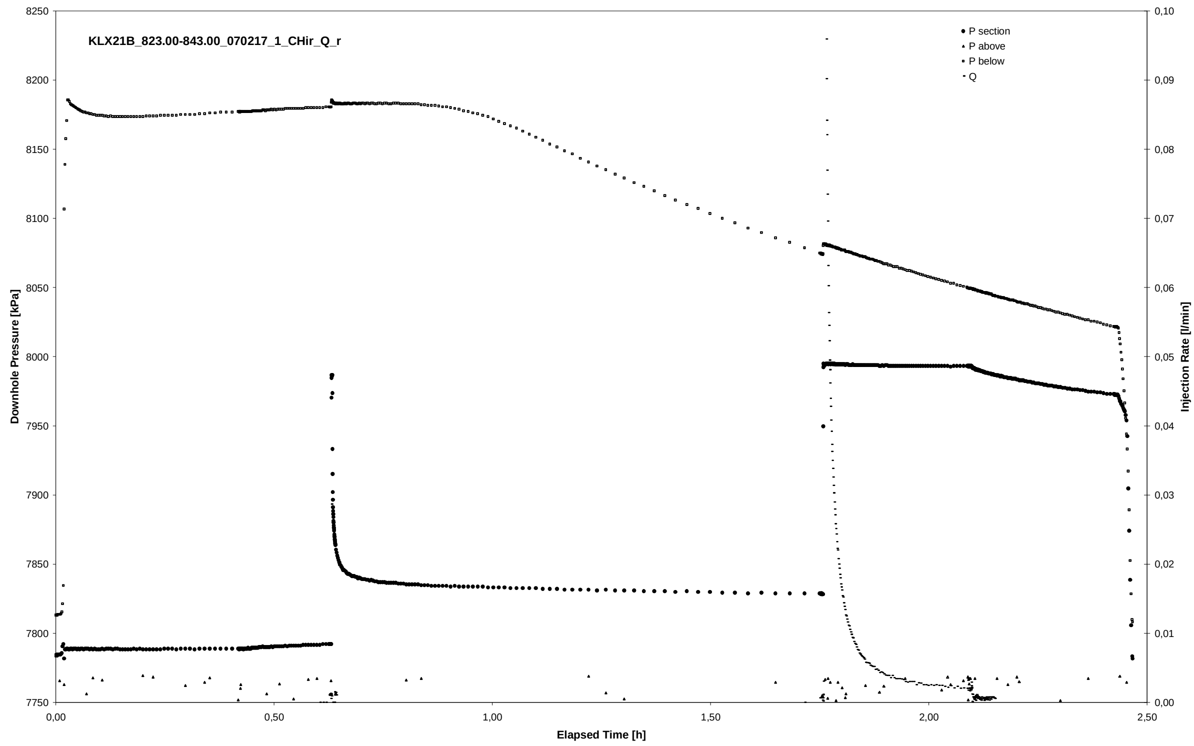
Not analysed

CHIR phase; HORNER match

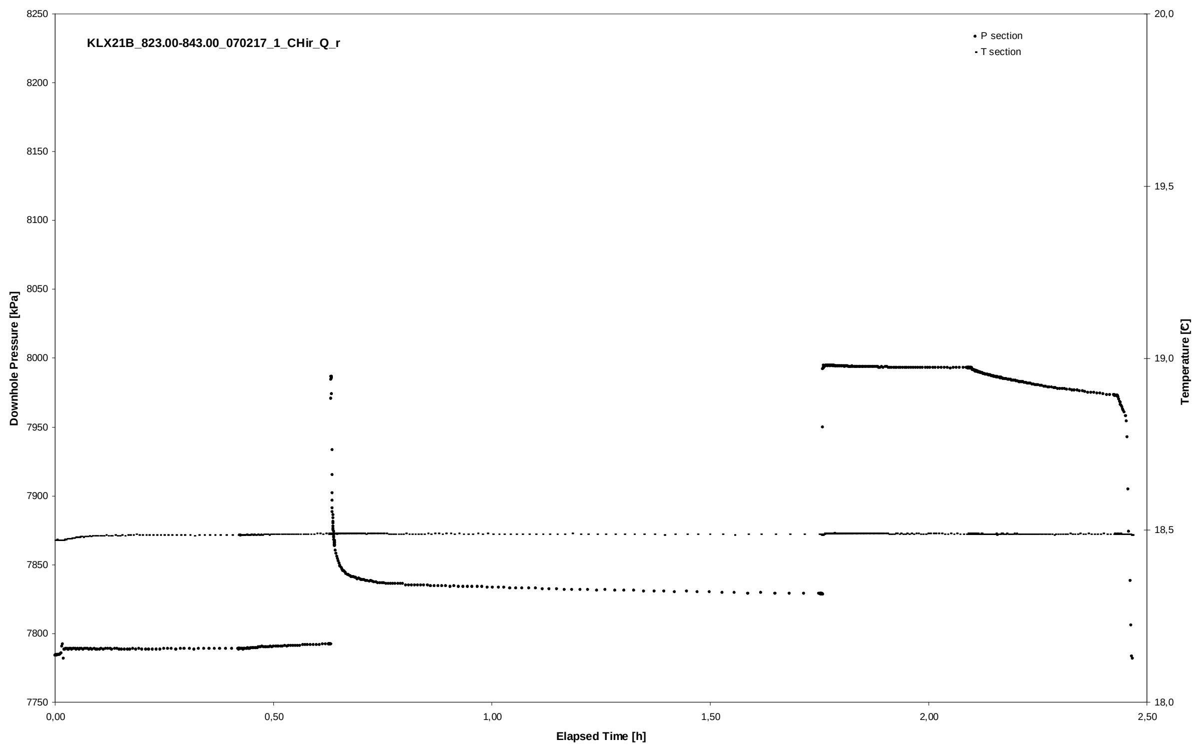
APPENDIX 2-44

Test 823.00 – 843.00 m

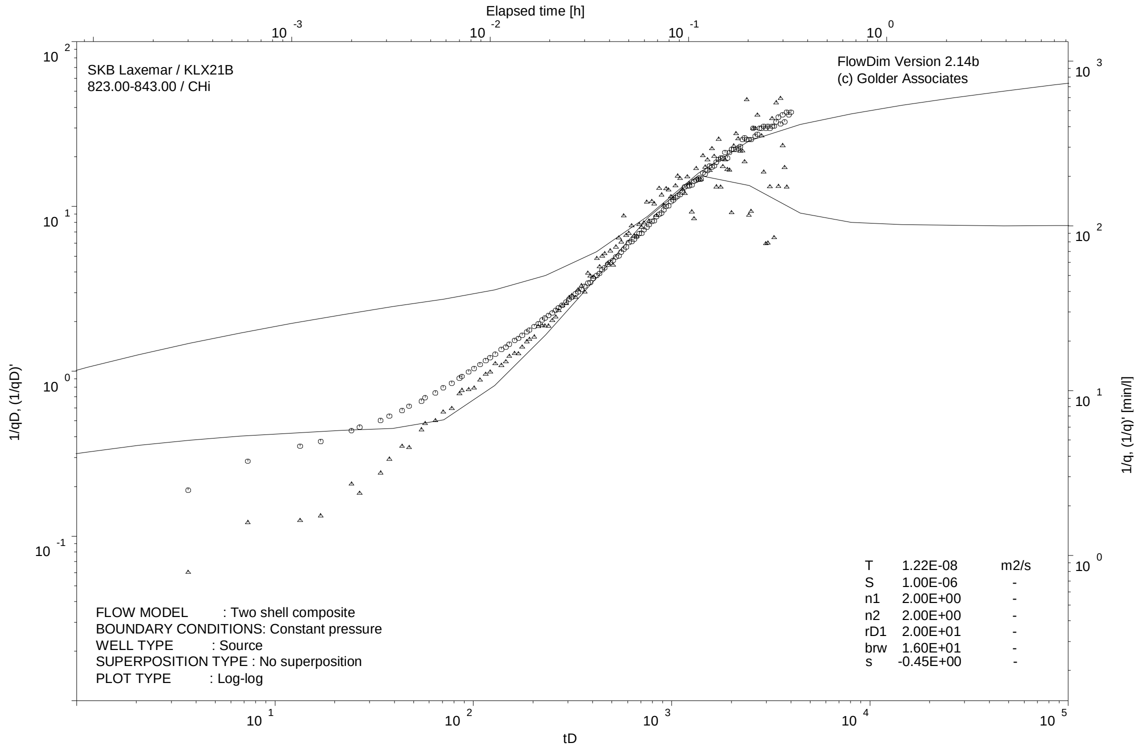
Analysis diagrams



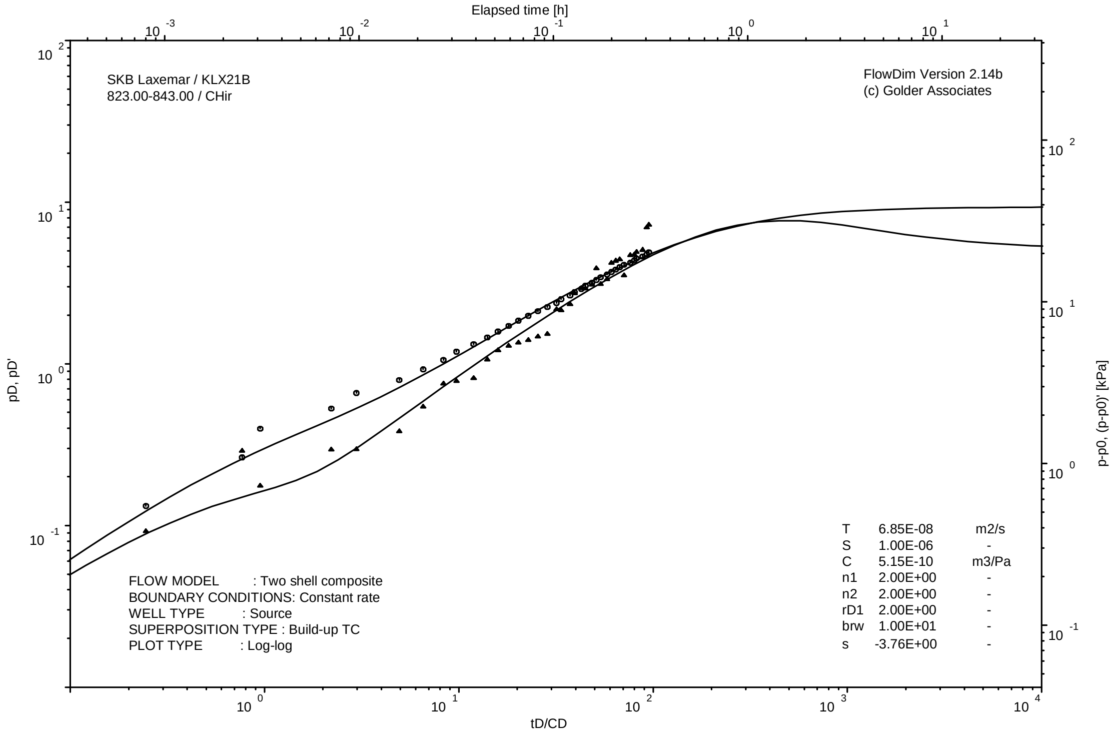
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

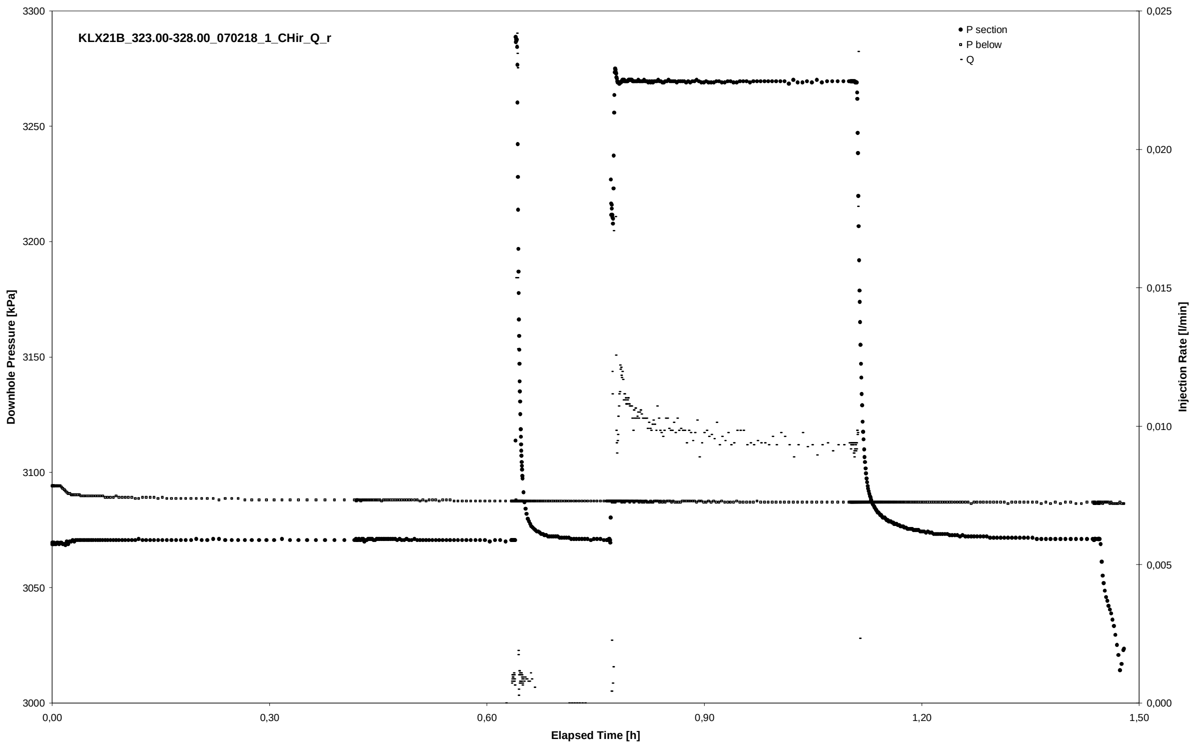
Not analysed

CHIR phase; HORNER match

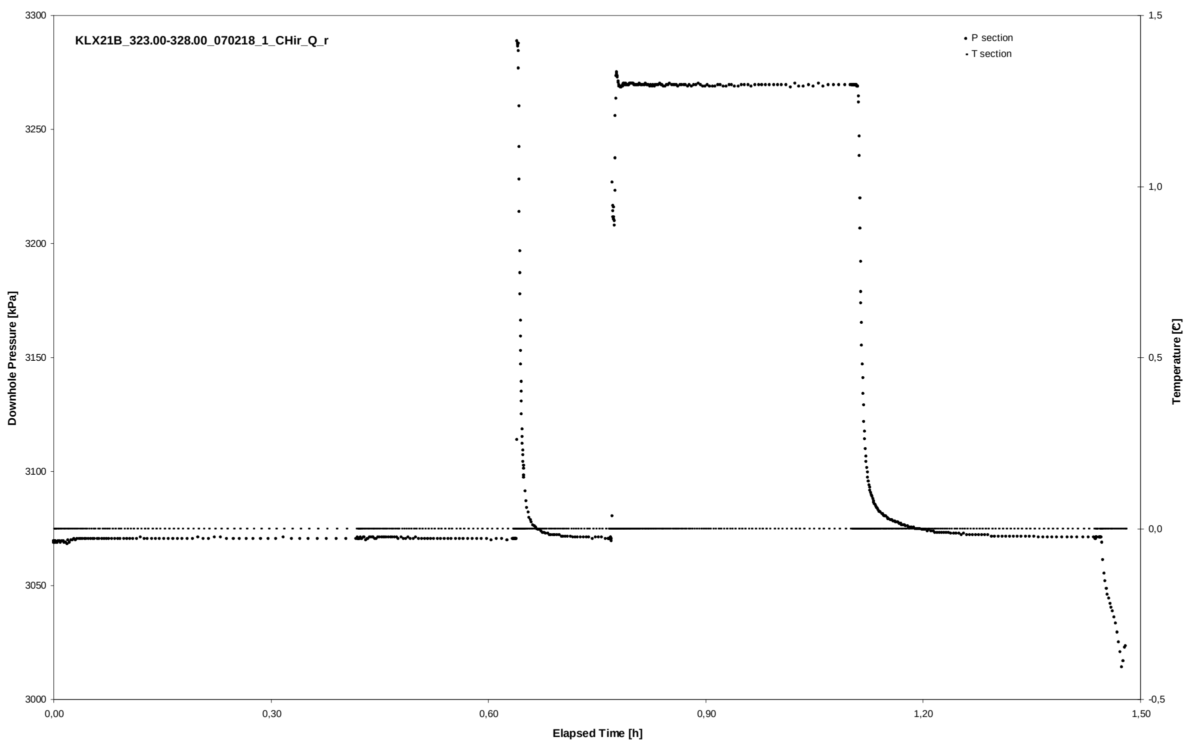
APPENDIX 2-45

Test 323.00 – 328.00 m

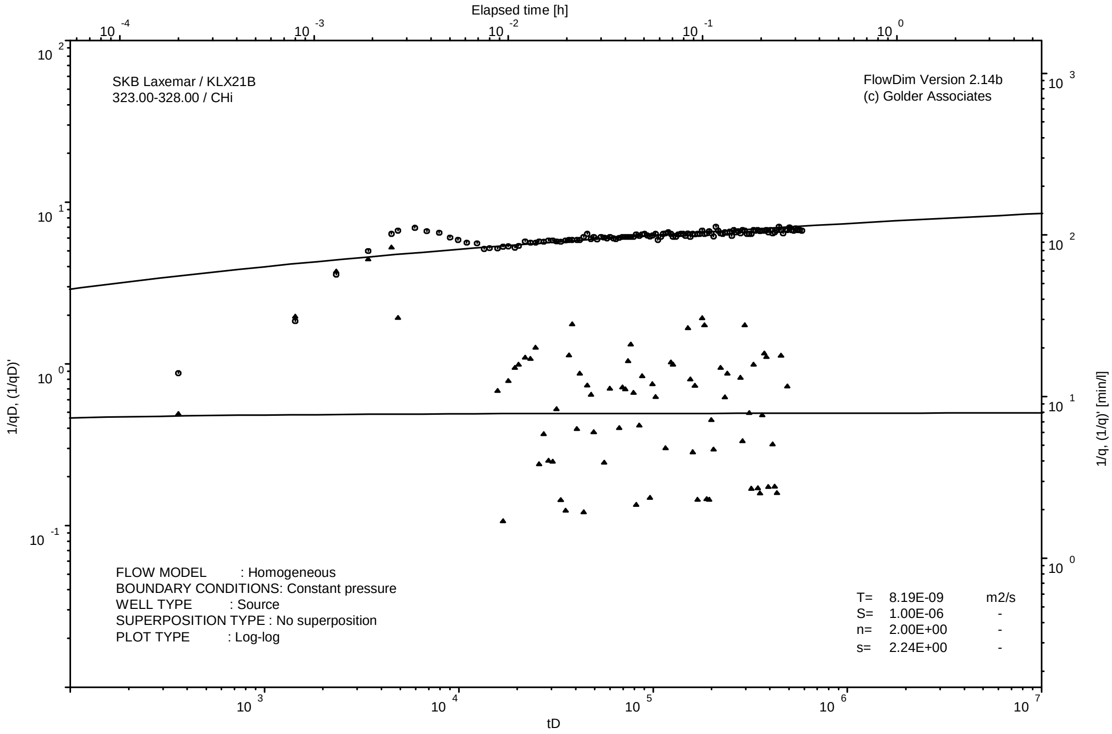
Analysis diagrams



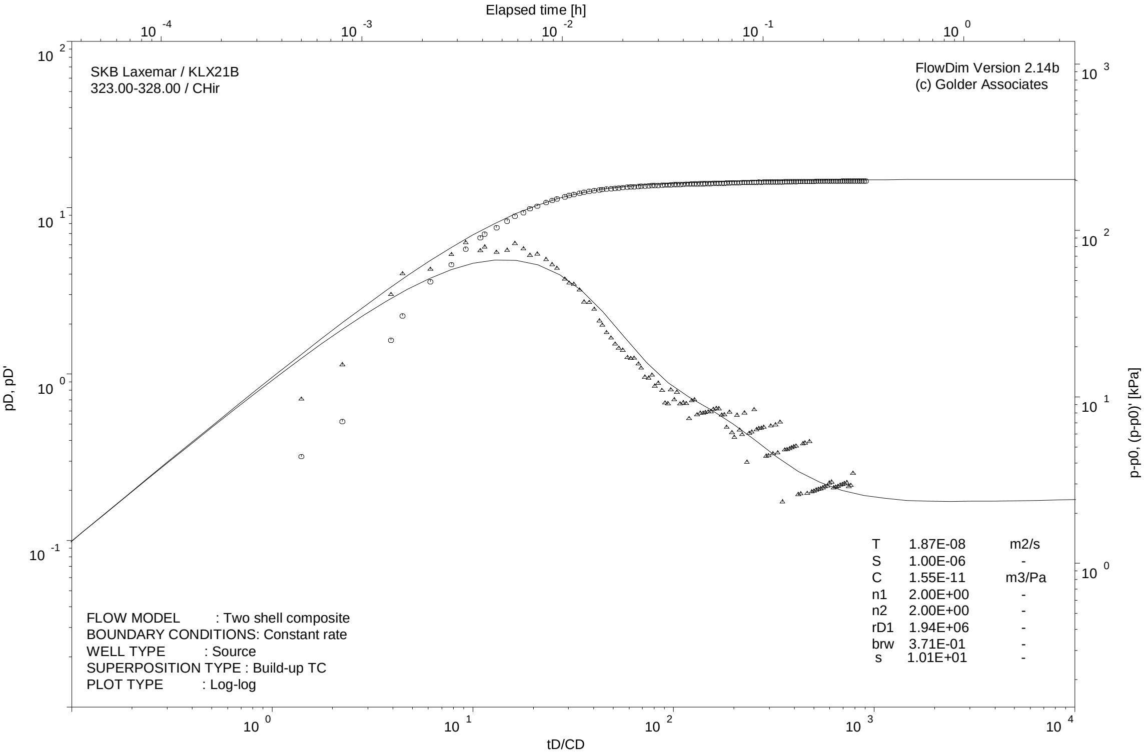
Pressure and flow rate vs. time; cartesian plot



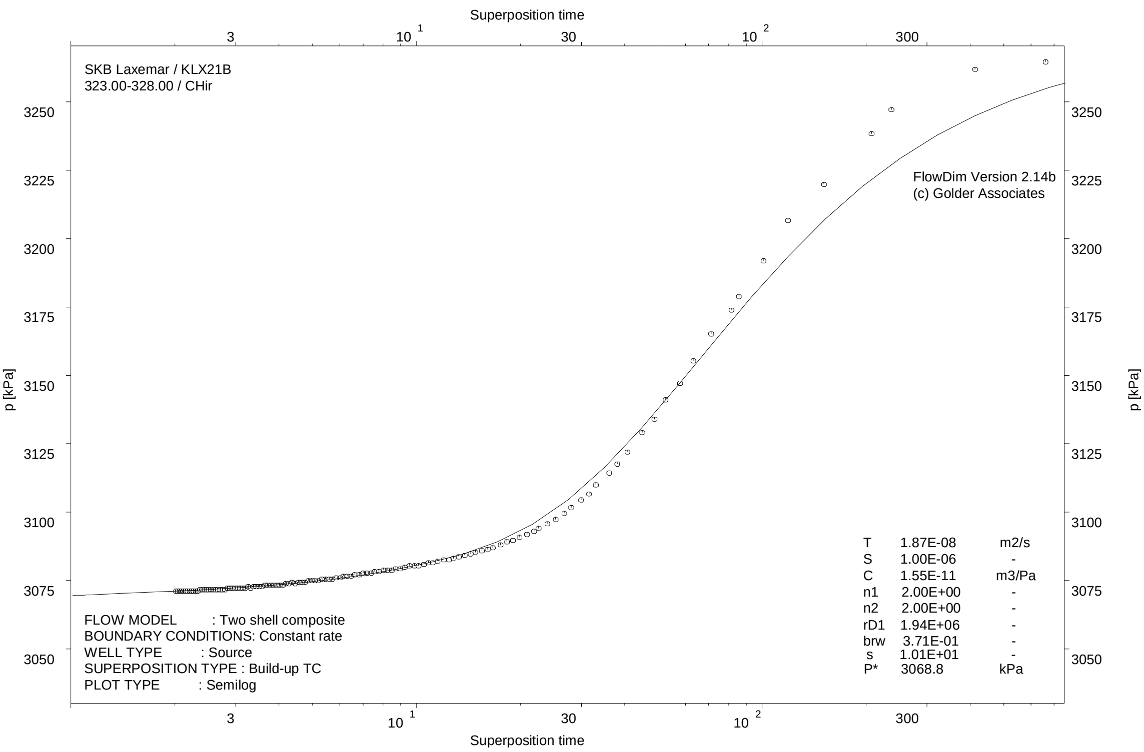
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

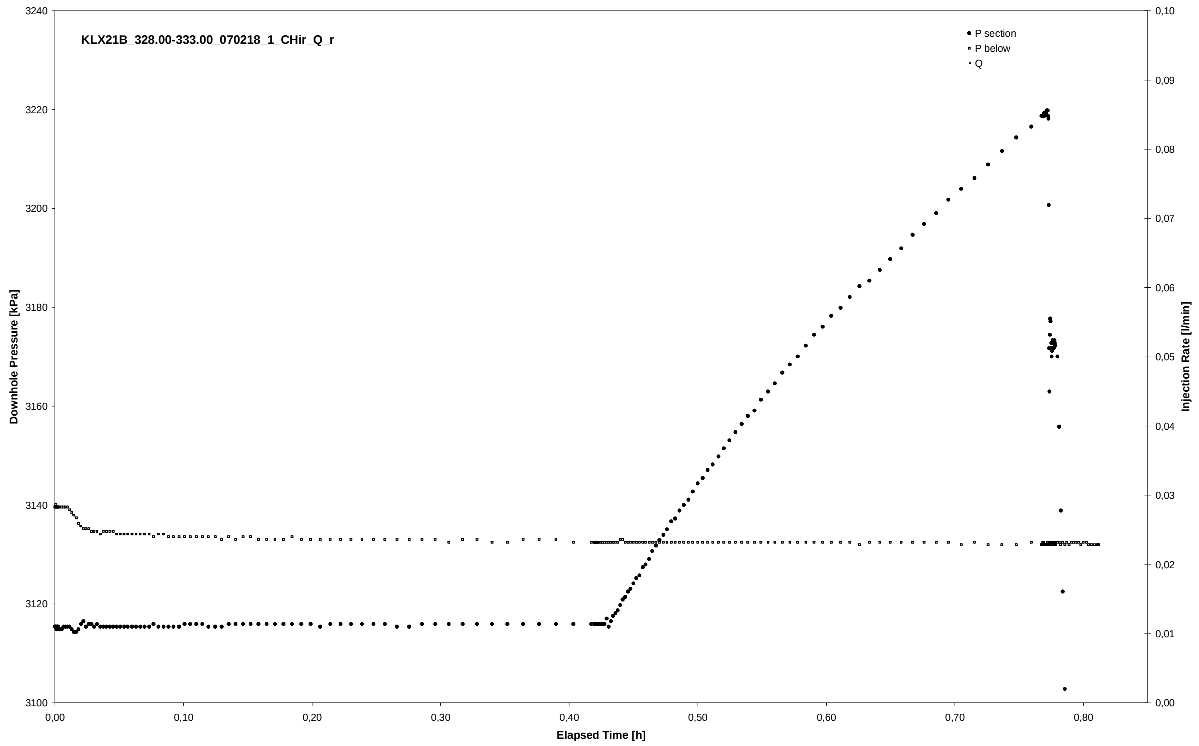


CHIR phase; HORNER match

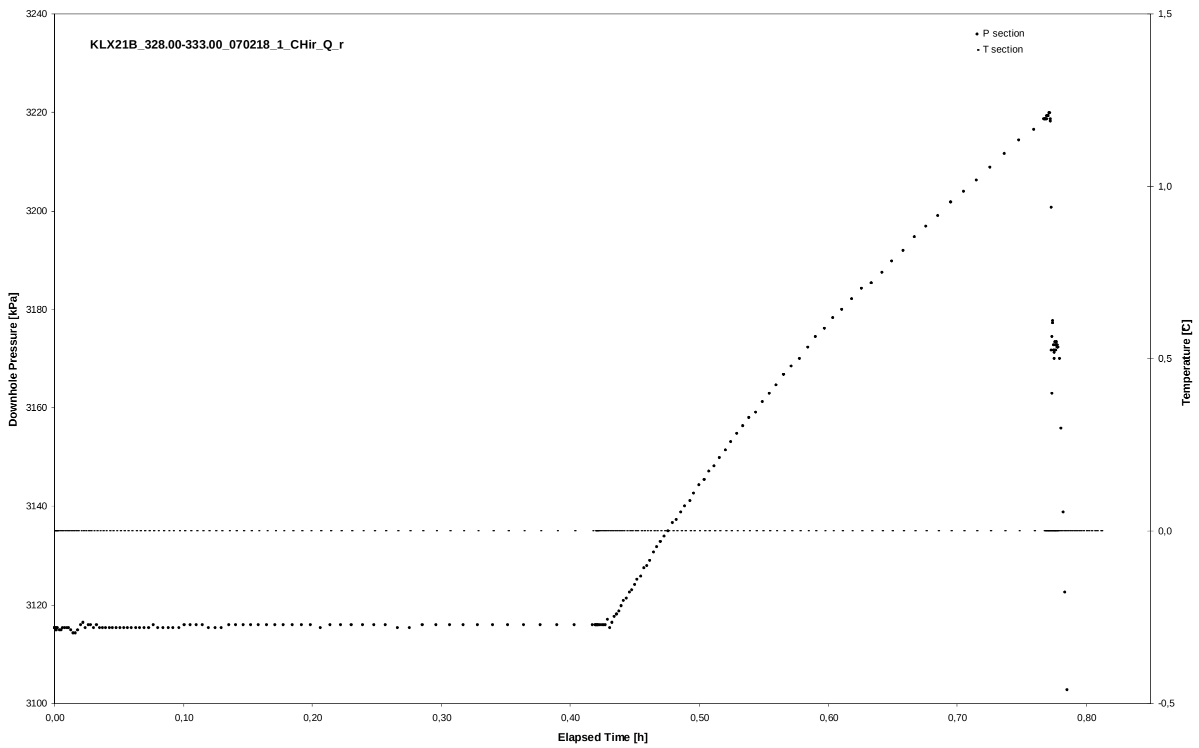
APPENDIX 2-46

Test 328.00 – 333.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

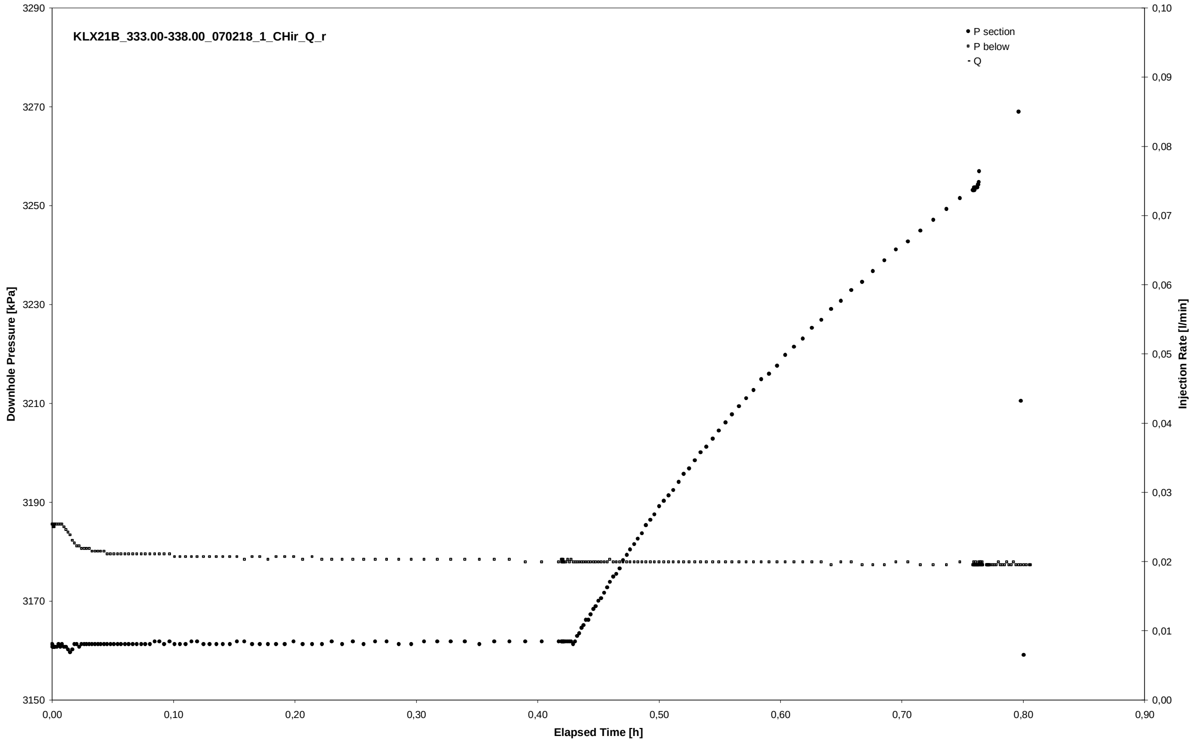
Not analysed

CHIR phase; HORNER match

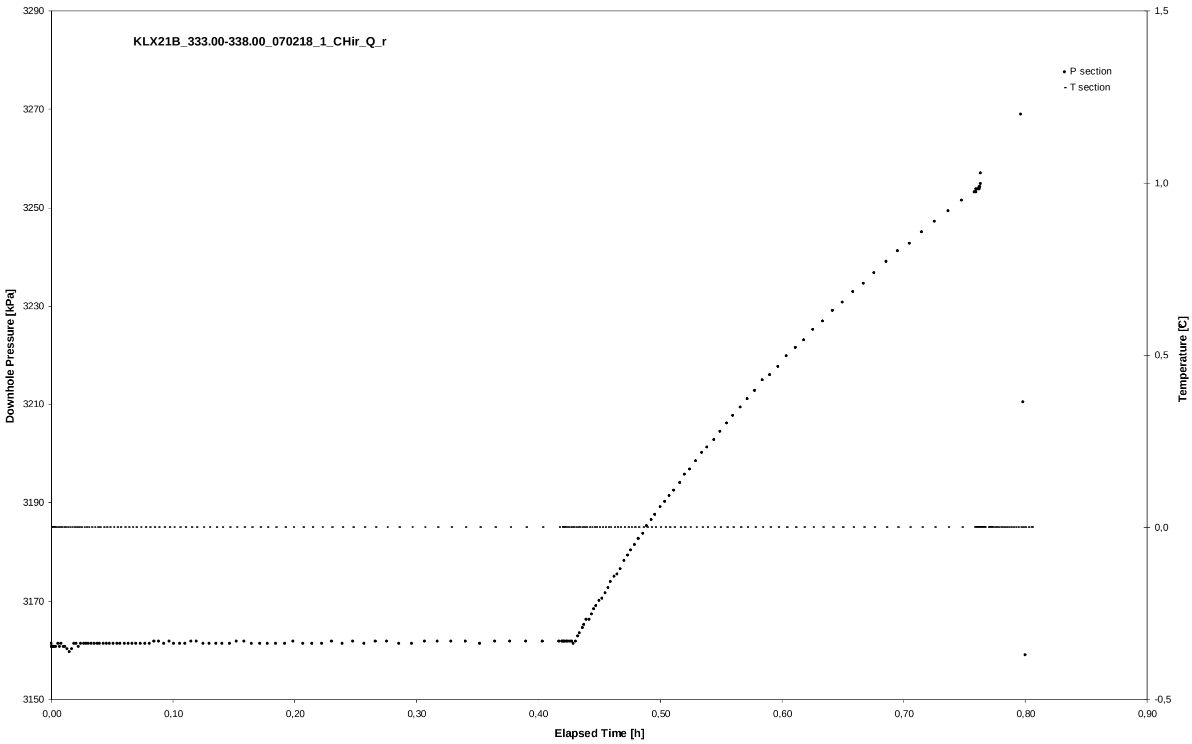
APPENDIX 2-47

Test 333.00 – 338.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

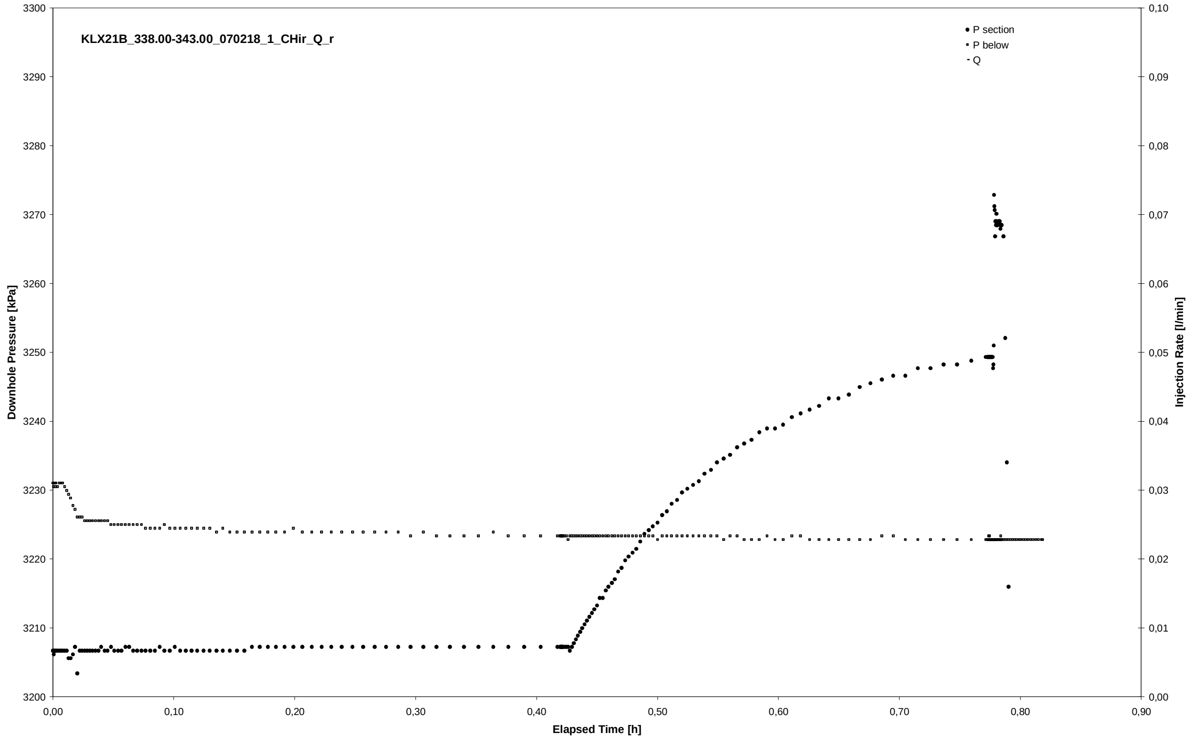
Not analysed

CHIR phase; HORNER match

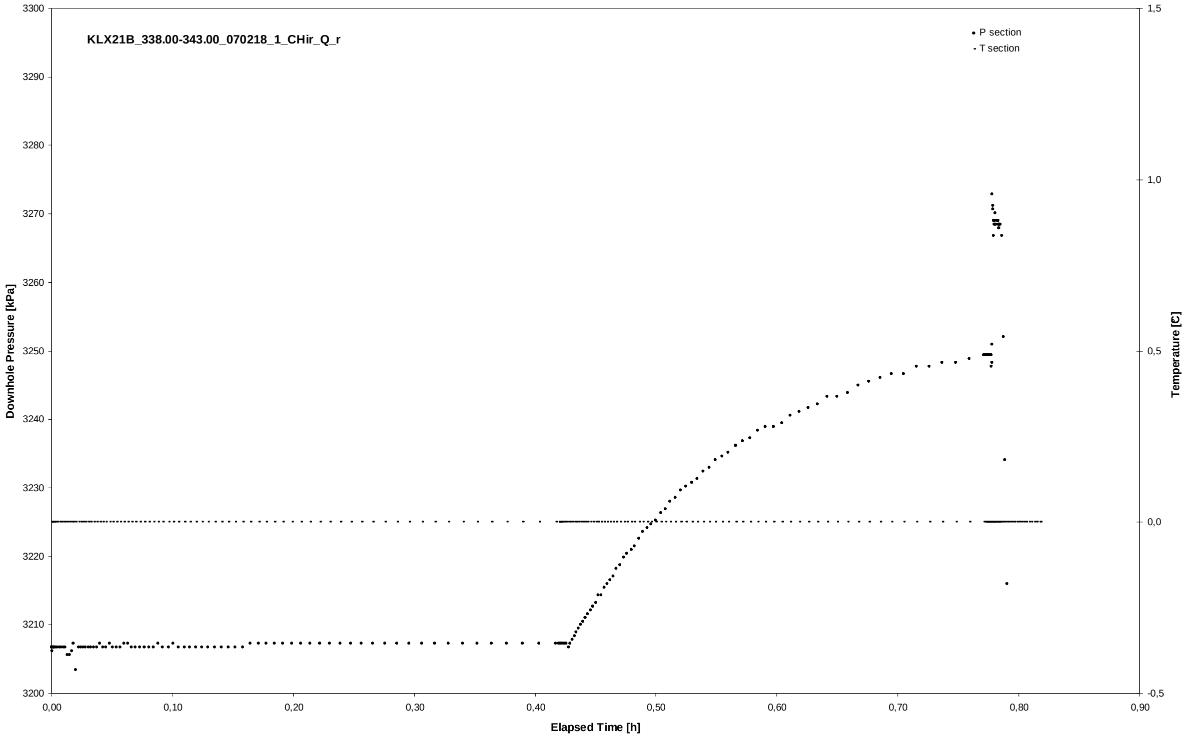
APPENDIX 2-48

Test 338.00 – 343.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

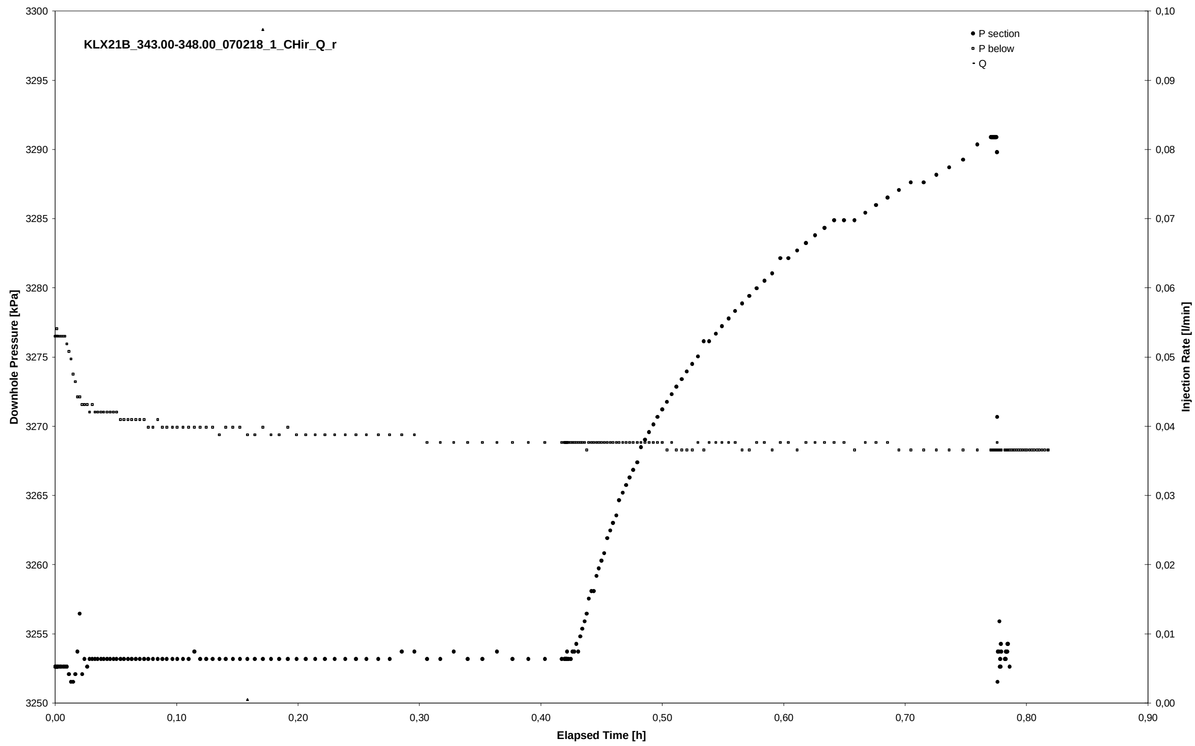
Not analysed

CHIR phase; HORNER match

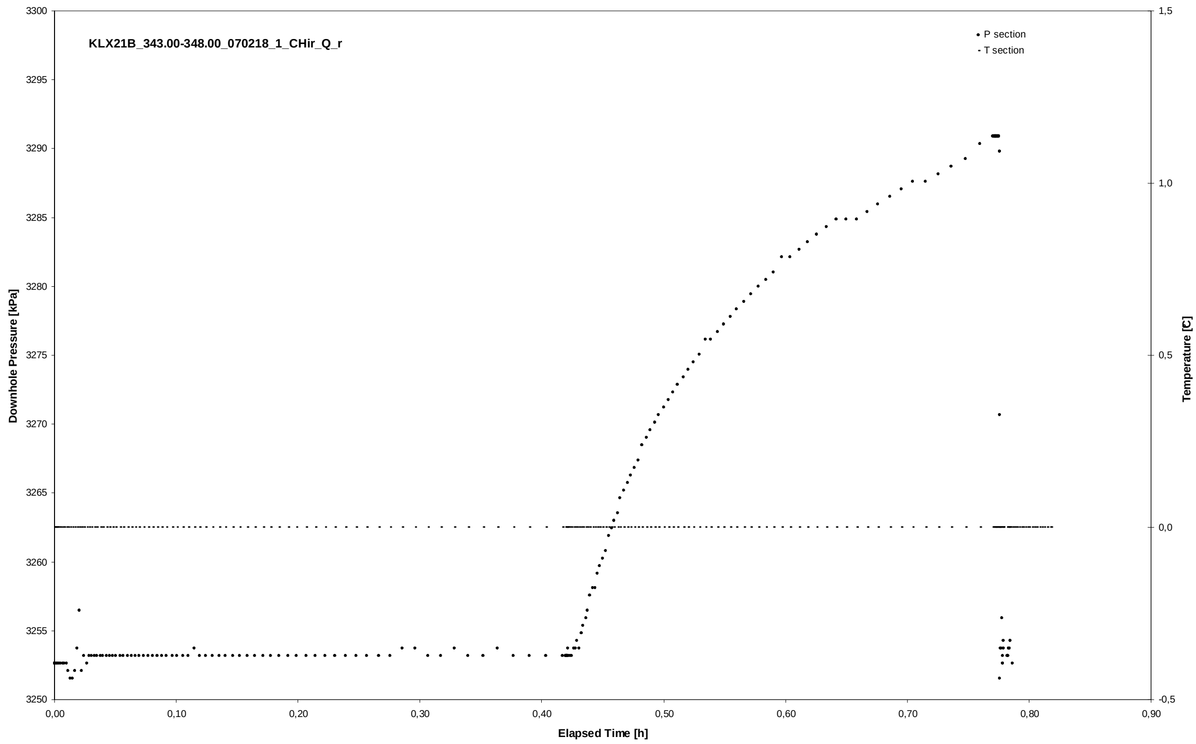
APPENDIX 2-49

Test 343.00 – 348.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

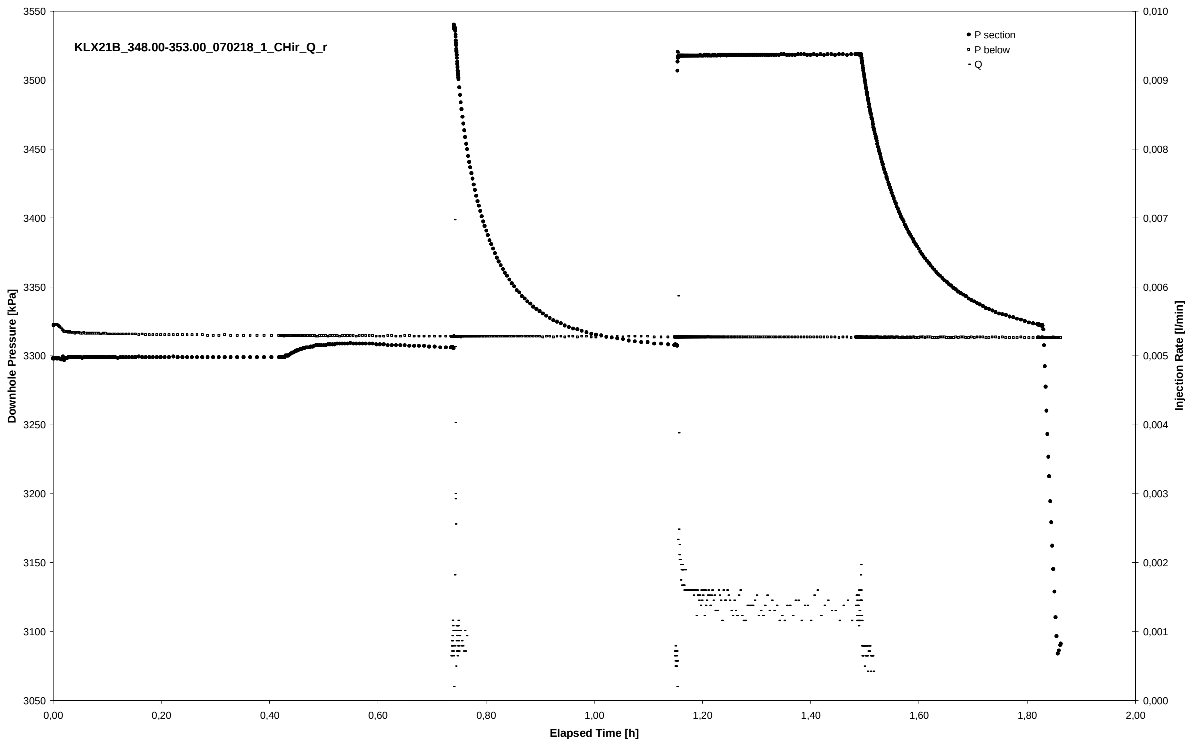
Not analysed

CHIR phase; HORNER match

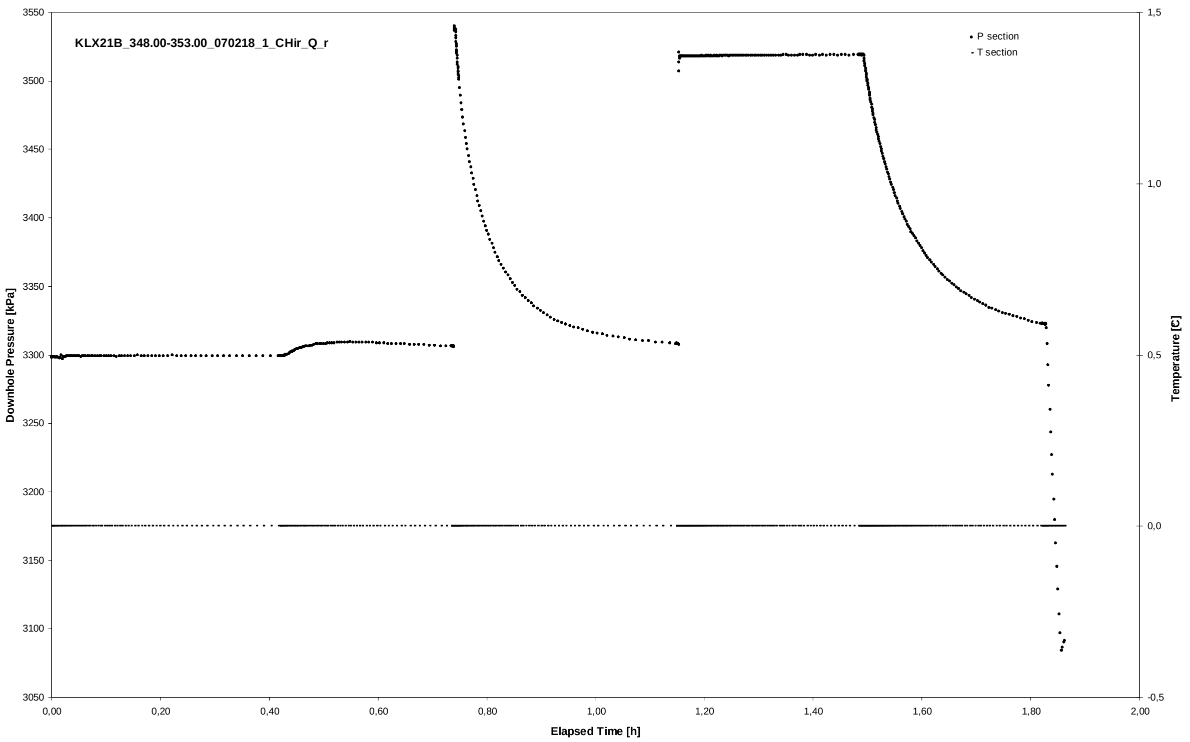
APPENDIX 2-50

Test 348.00 – 353.00 m

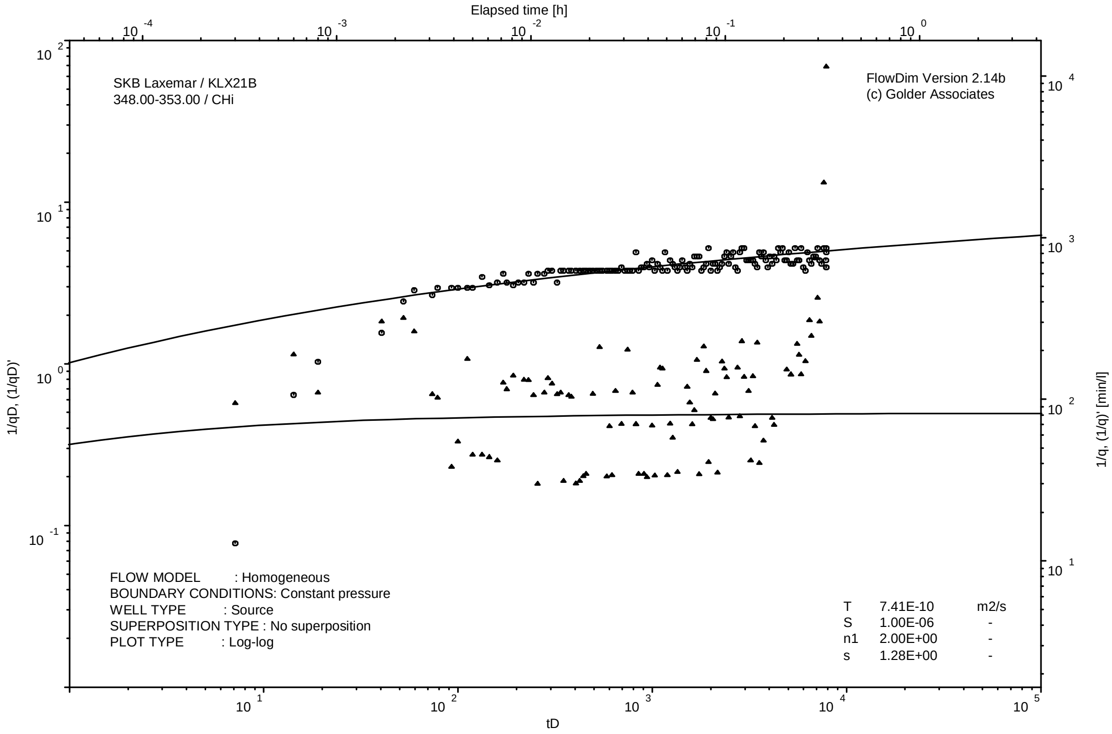
Analysis diagrams



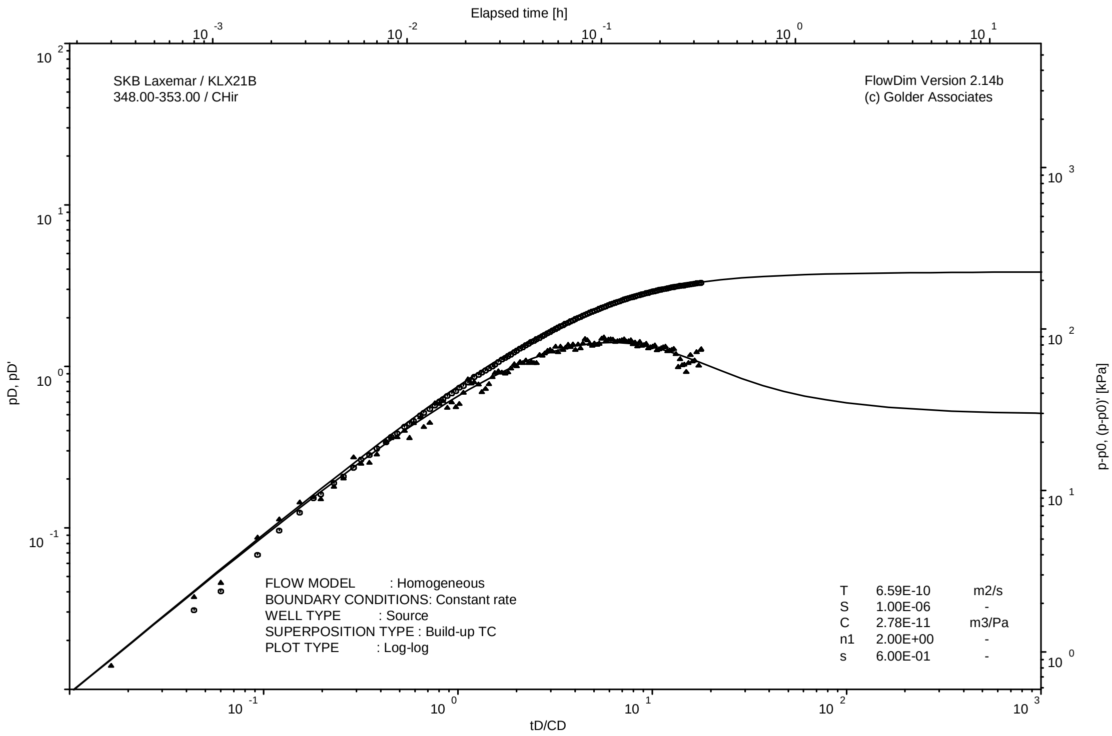
Pressure and flow rate vs. time; cartesian plot



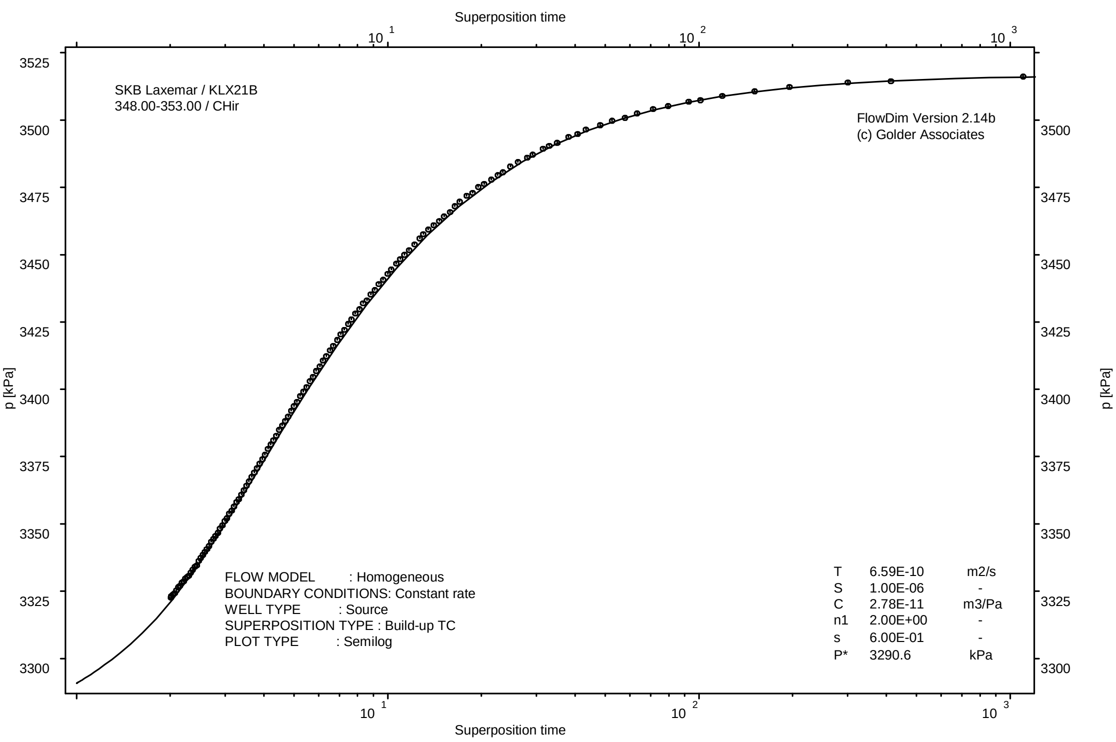
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

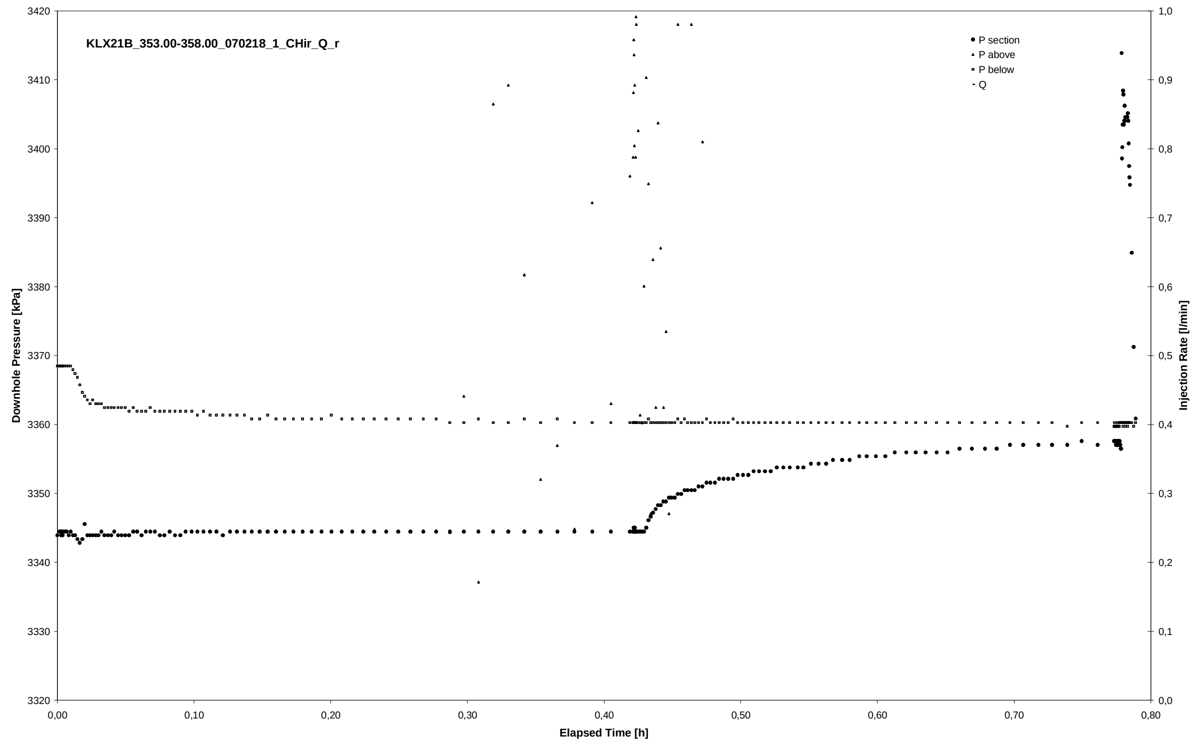


CHIR phase; HORNER match

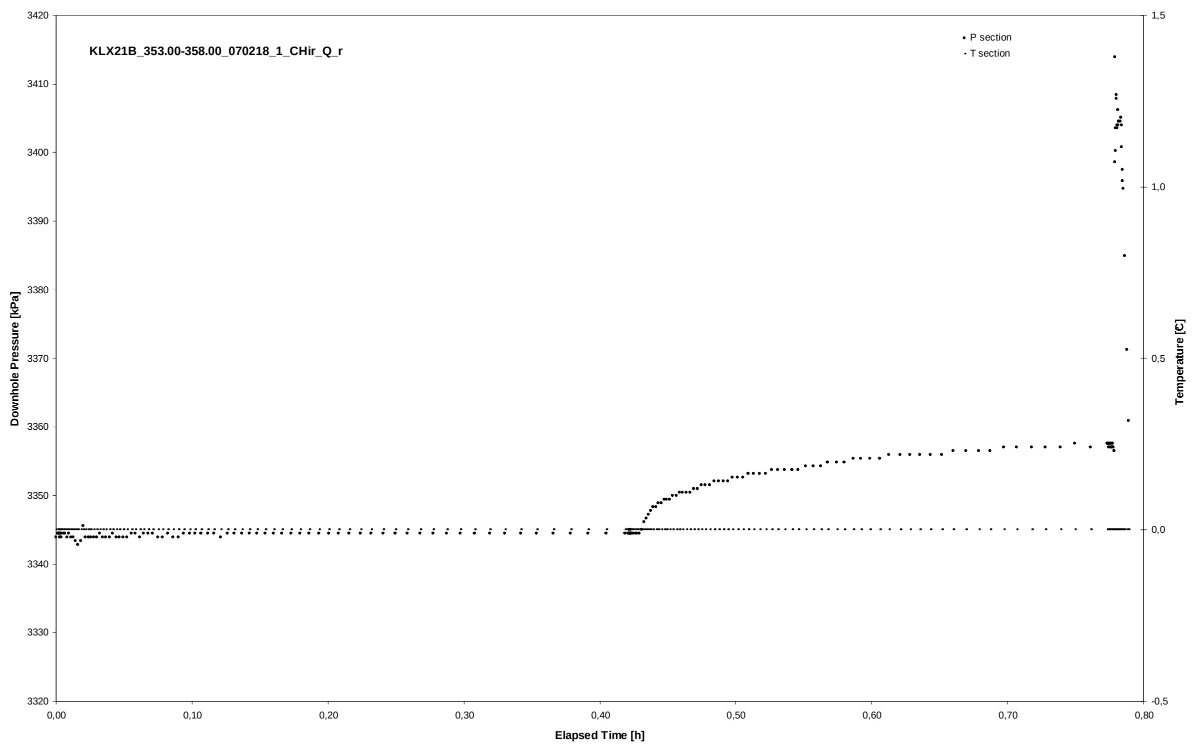
APPENDIX 2-51

Test 353.00 – 358.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

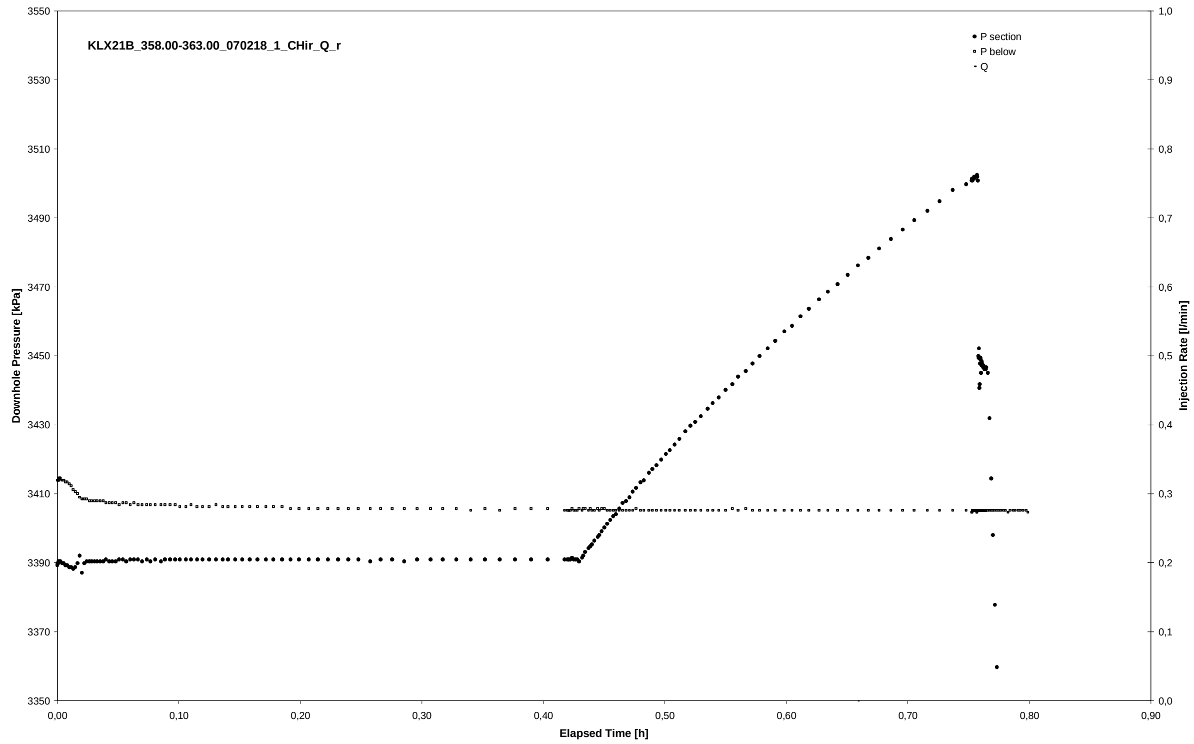
Not analysed

CHIR phase; HORNER match

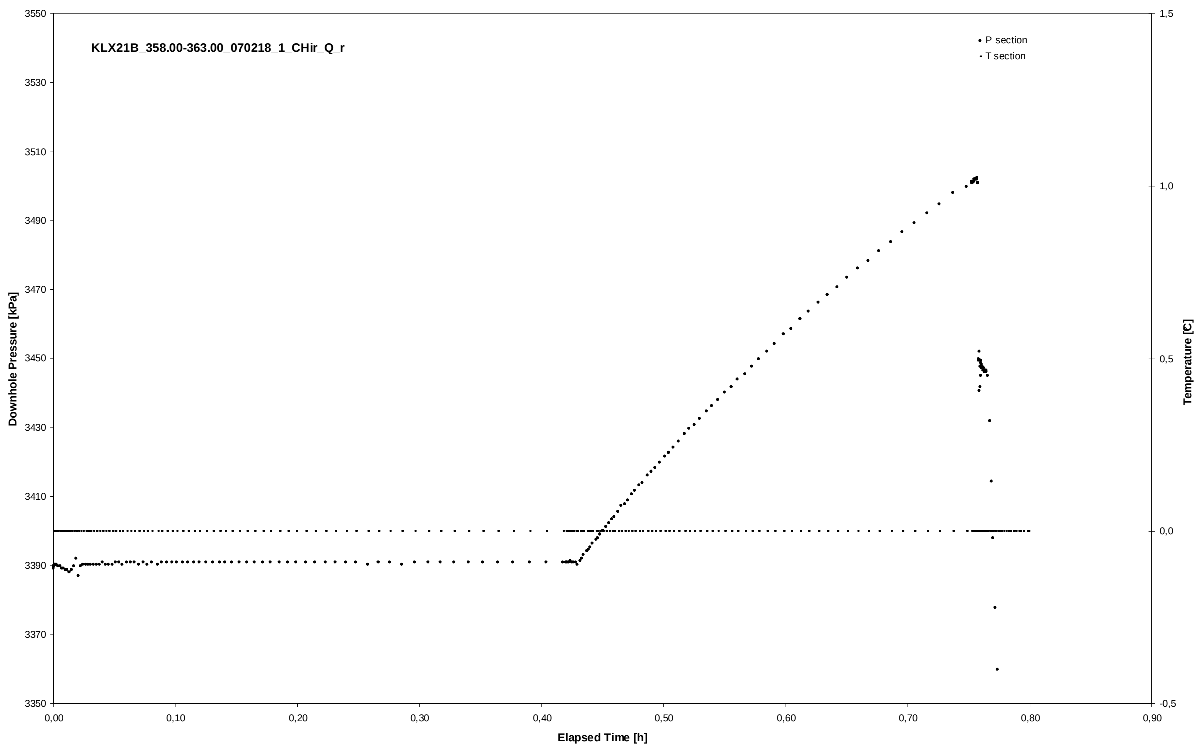
APPENDIX 2-52

Test 358.00 – 363.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

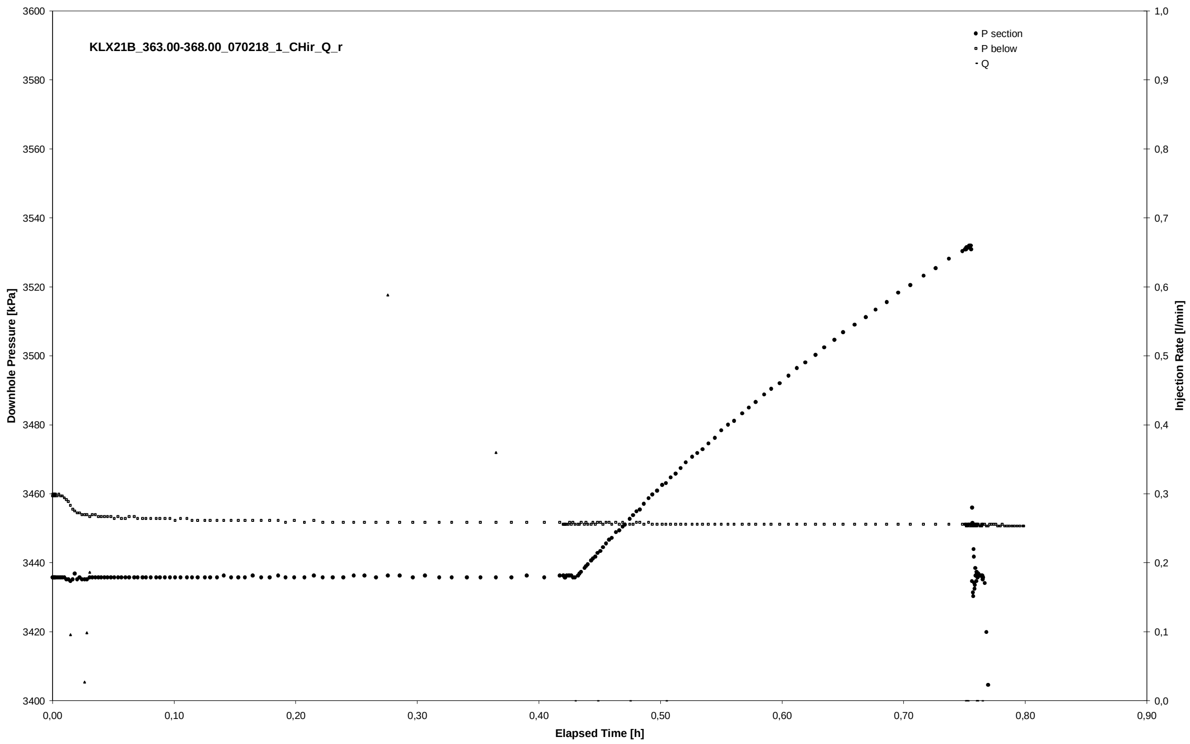
Not analysed

CHIR phase; HORNER match

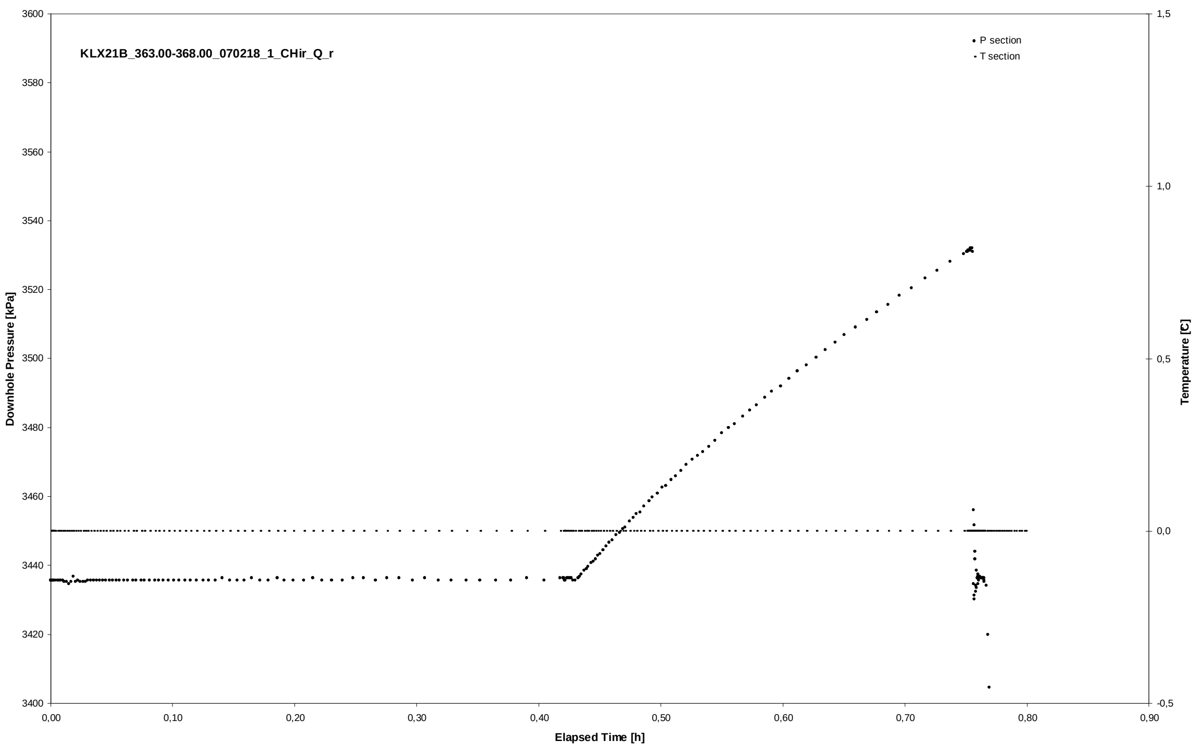
APPENDIX 2-53

Test 363.00 – 368.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

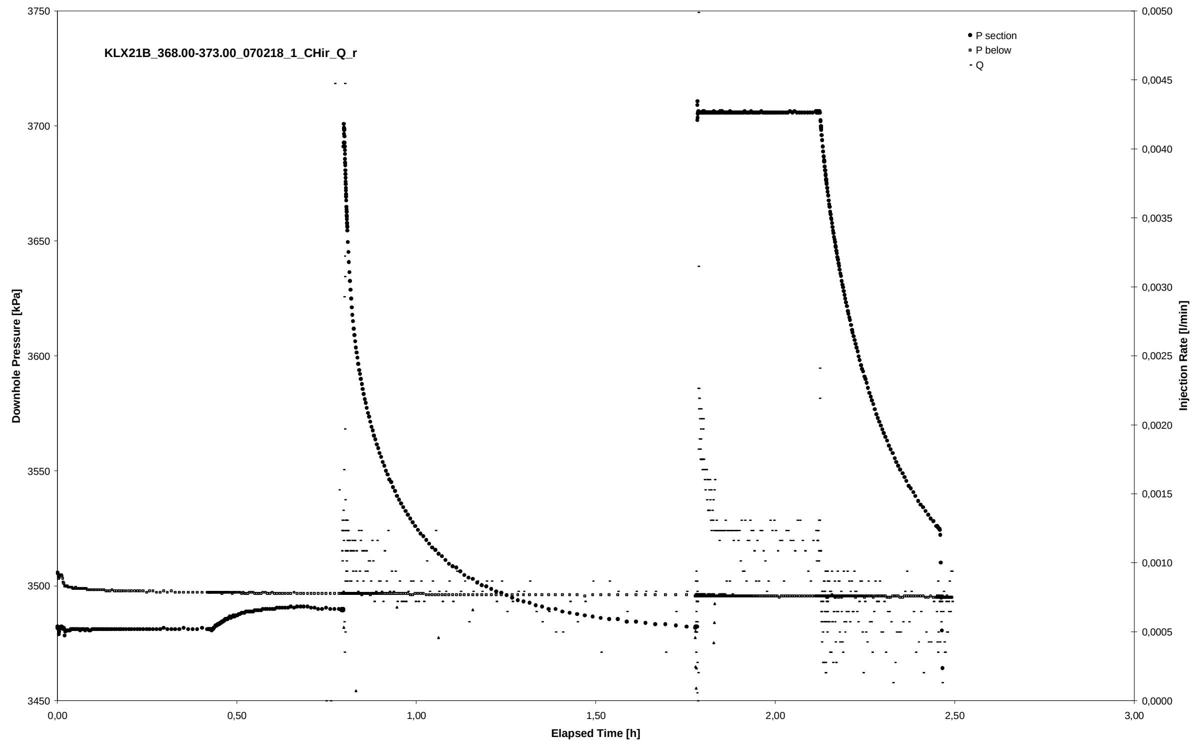
Not analysed

CHIR phase; HORNER match

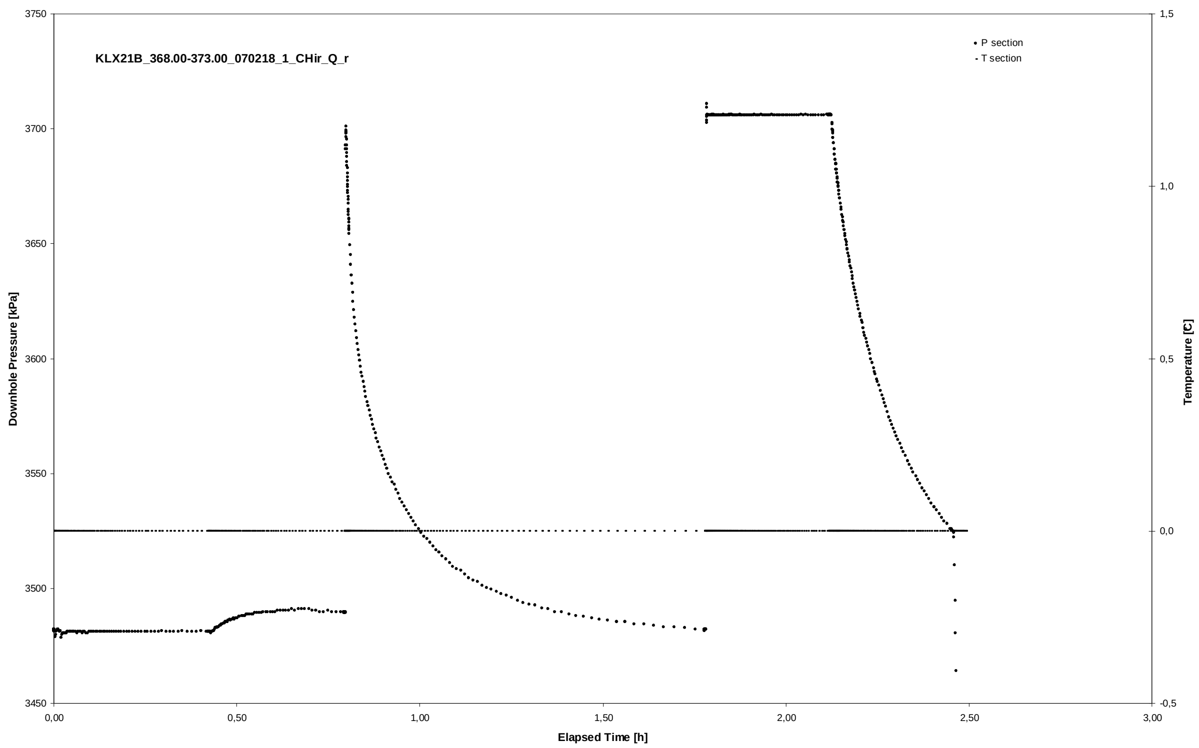
APPENDIX 2-54

Test 368.00 – 373.00 m

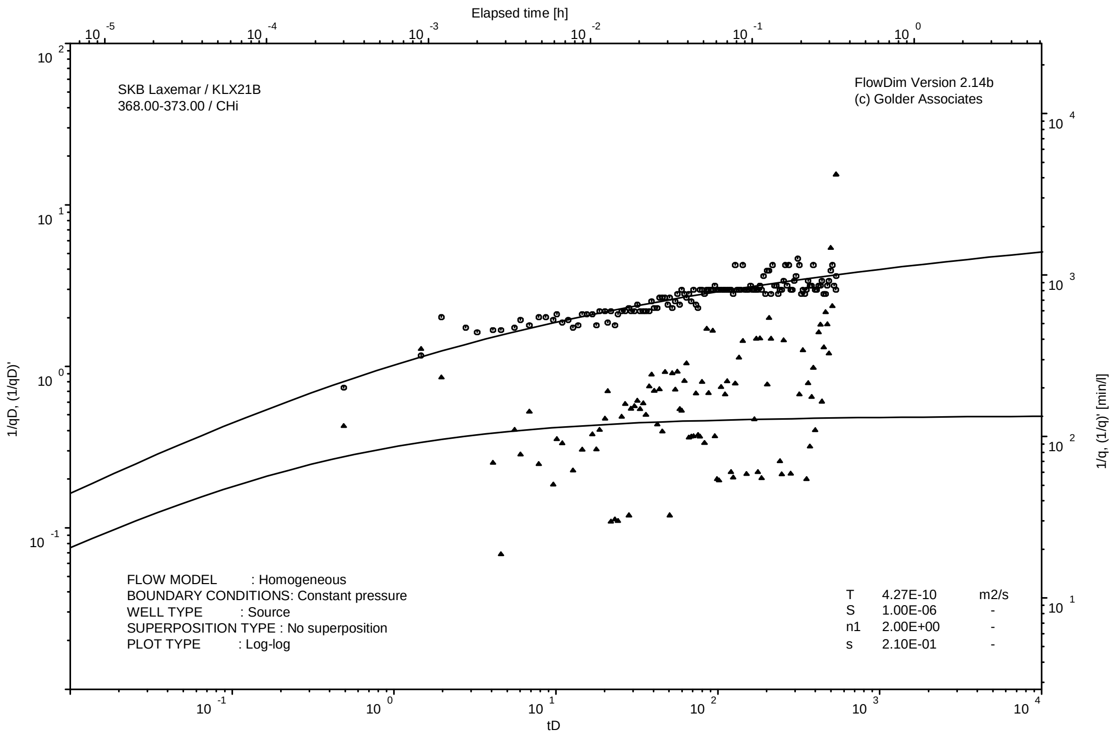
Analysis diagrams



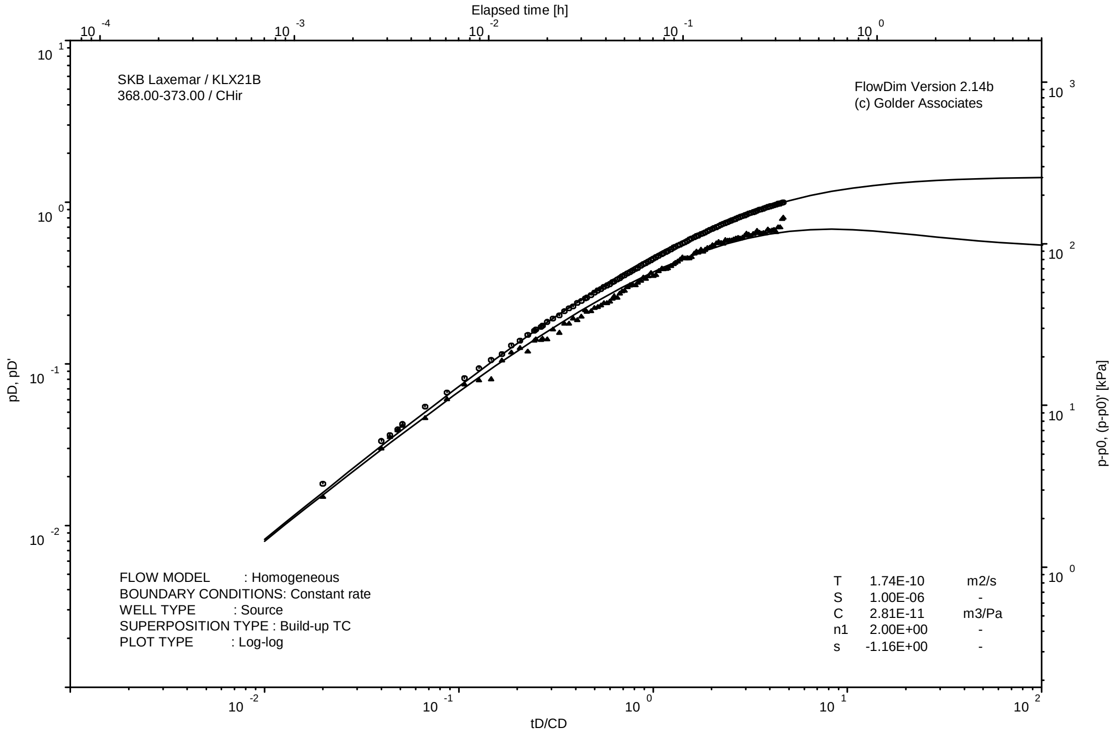
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

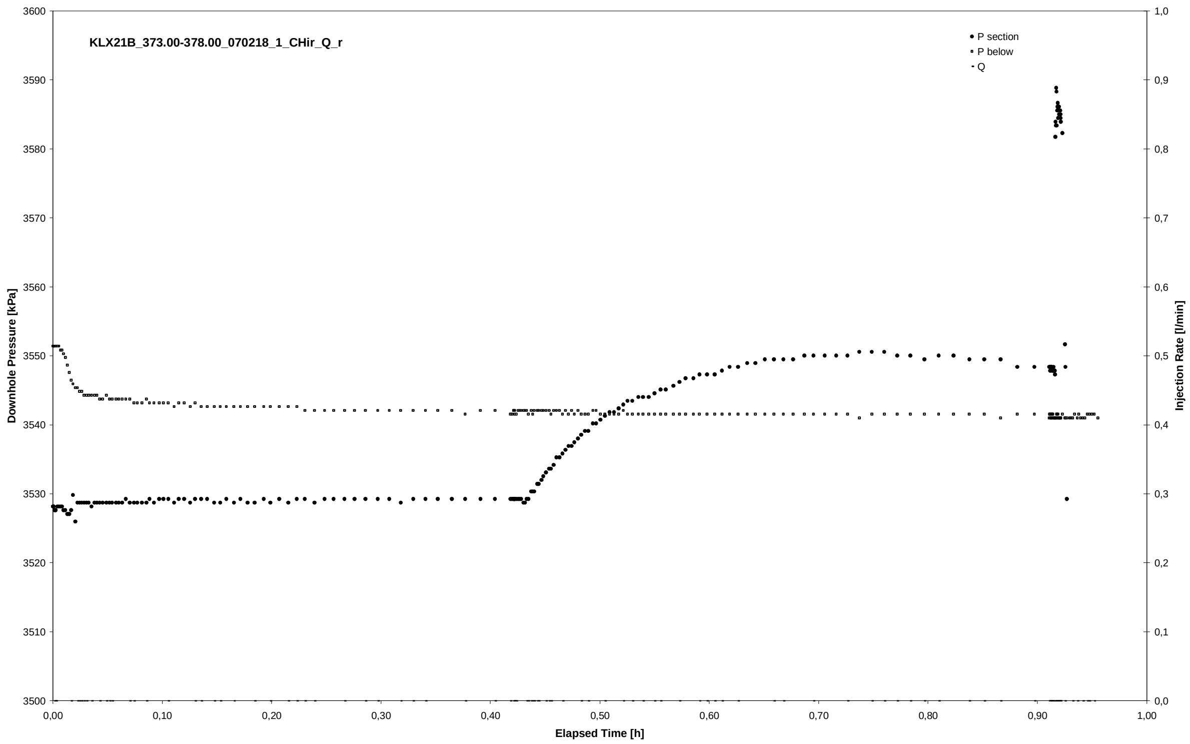
Not analysed

CHIR phase; HORNER match

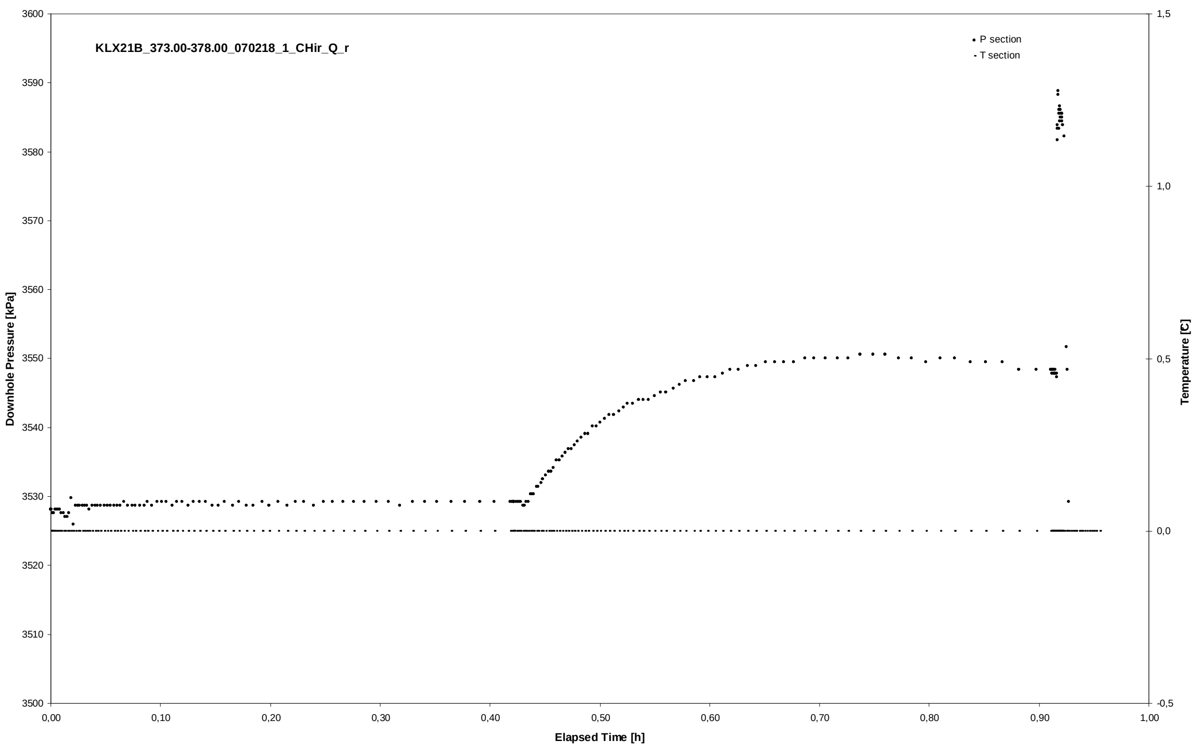
APPENDIX 2-55

Test 373.00 – 378.00 m

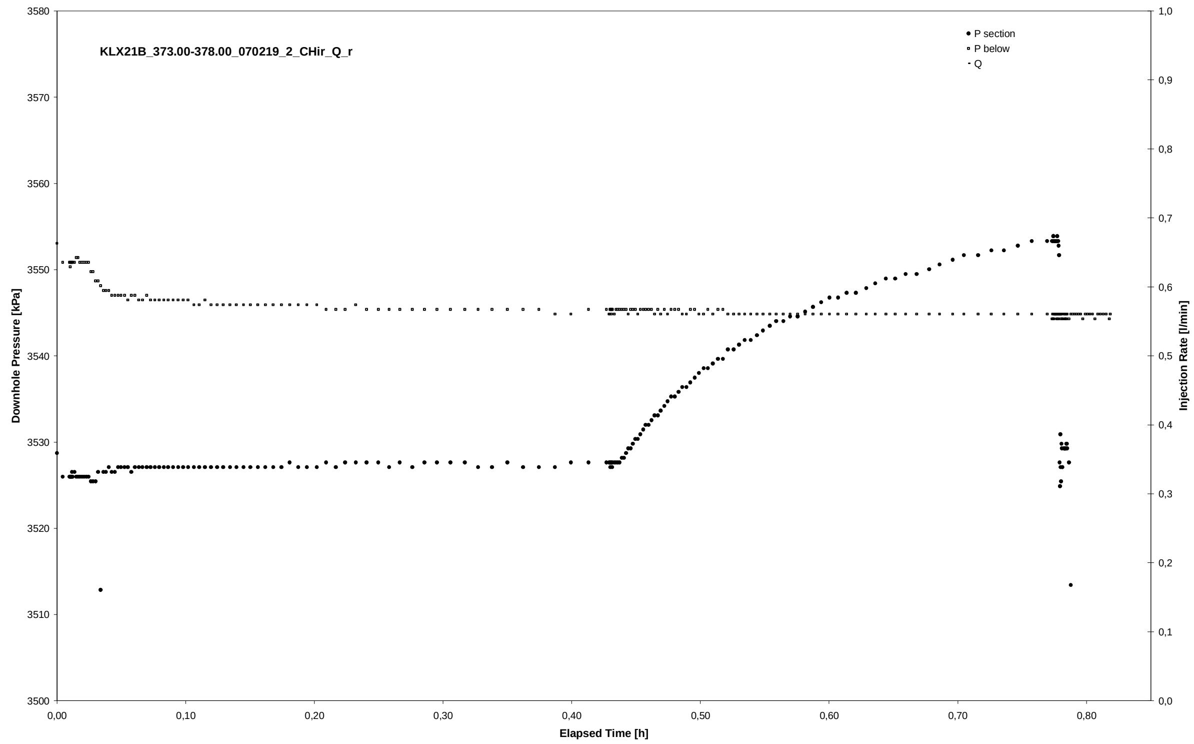
Analysis diagrams



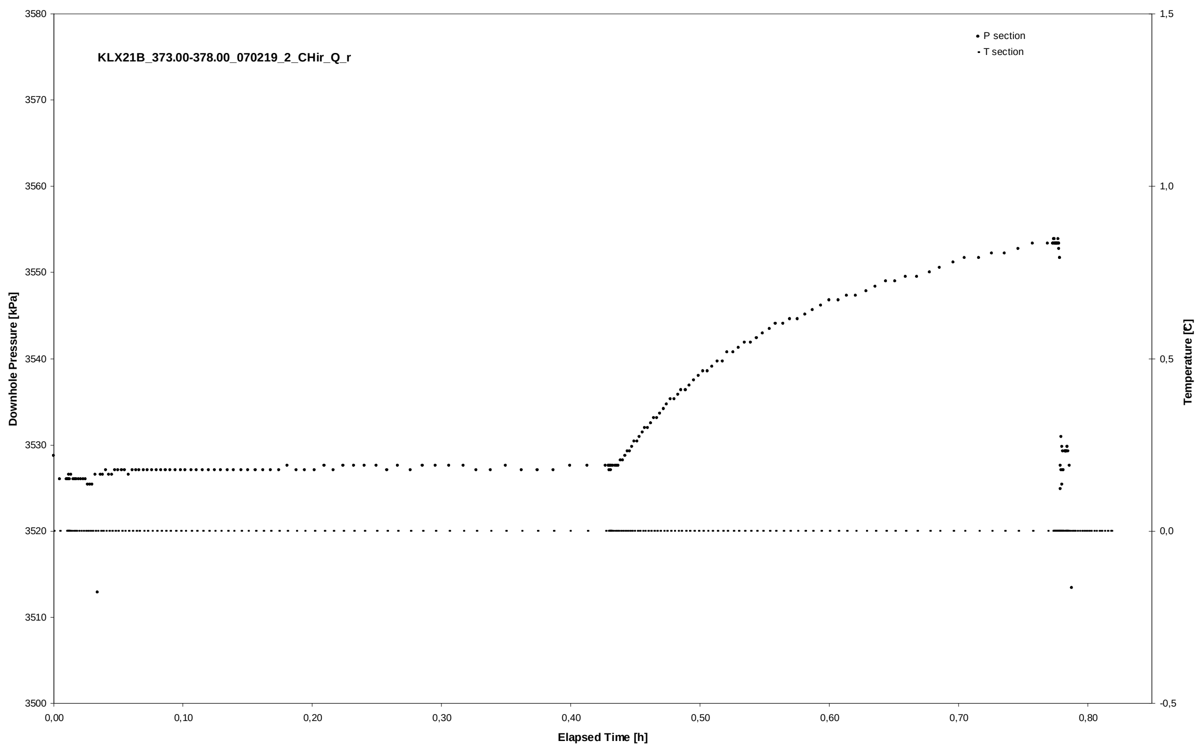
Pressure and flow rate vs. time; cartesian plot (repeated)



Interval pressure and temperature vs. time; cartesian plot (repeated)



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

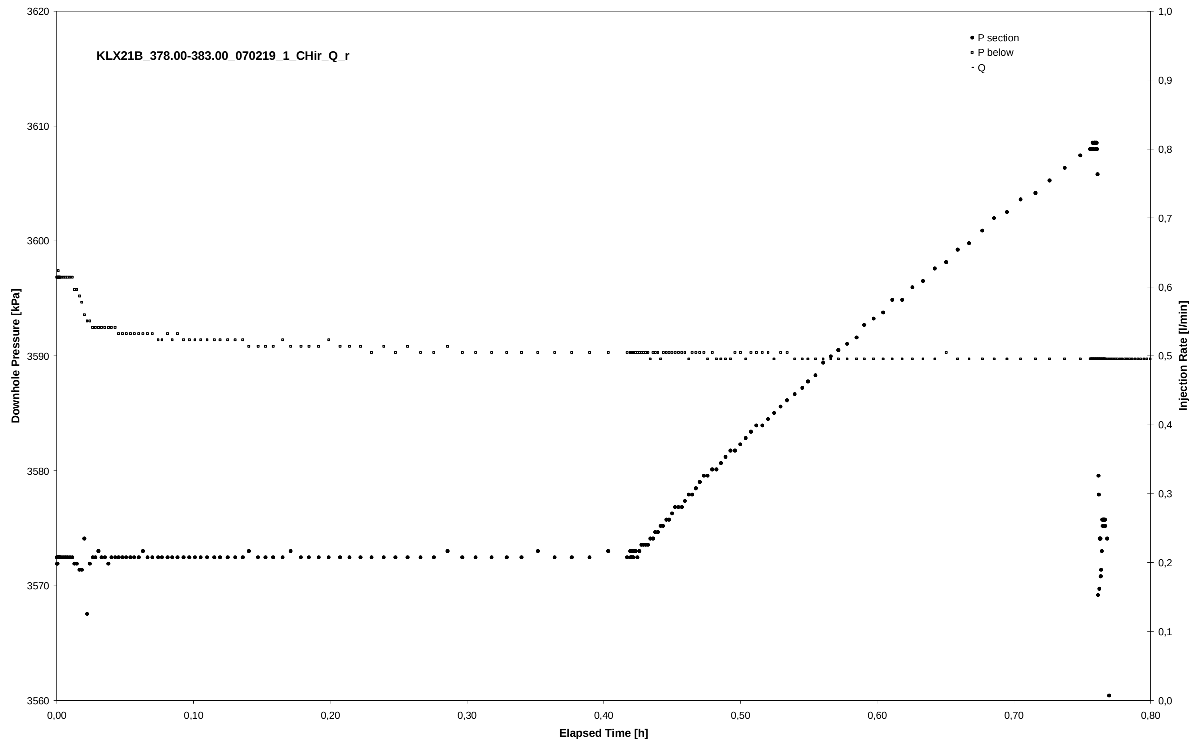
Not analysed

CHIR phase; HORNER match

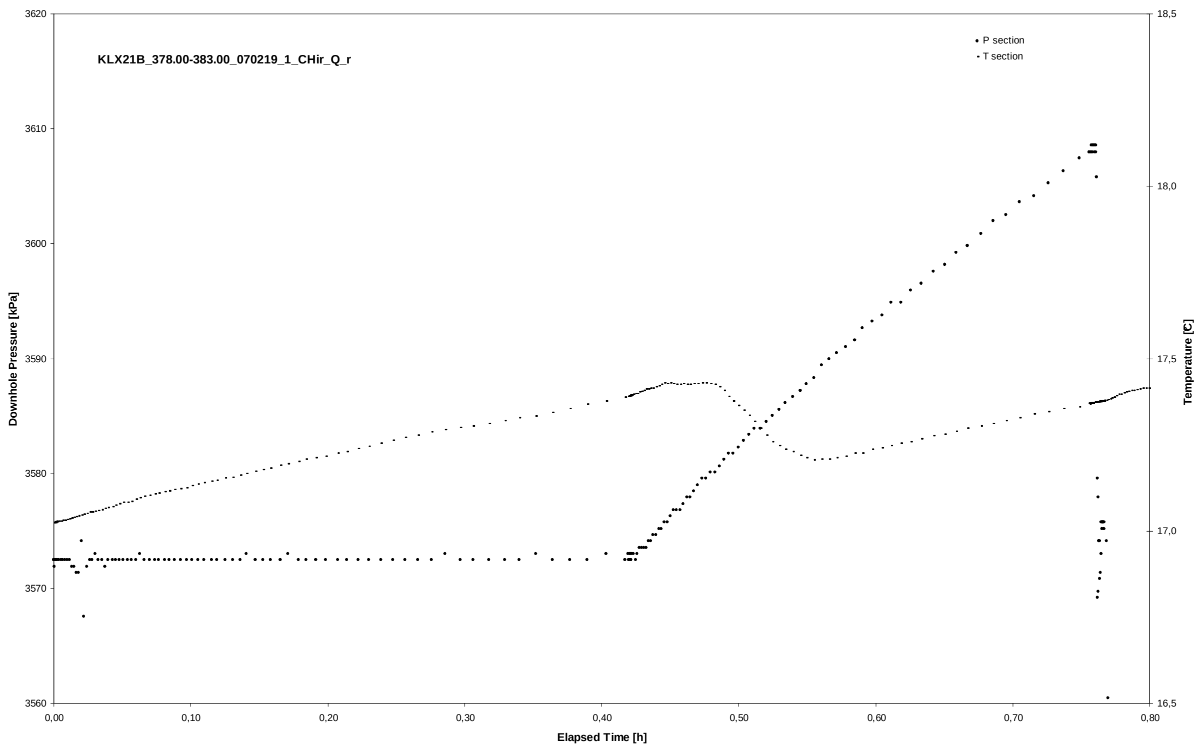
APPENDIX 2-56

Test 378.00 – 383.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

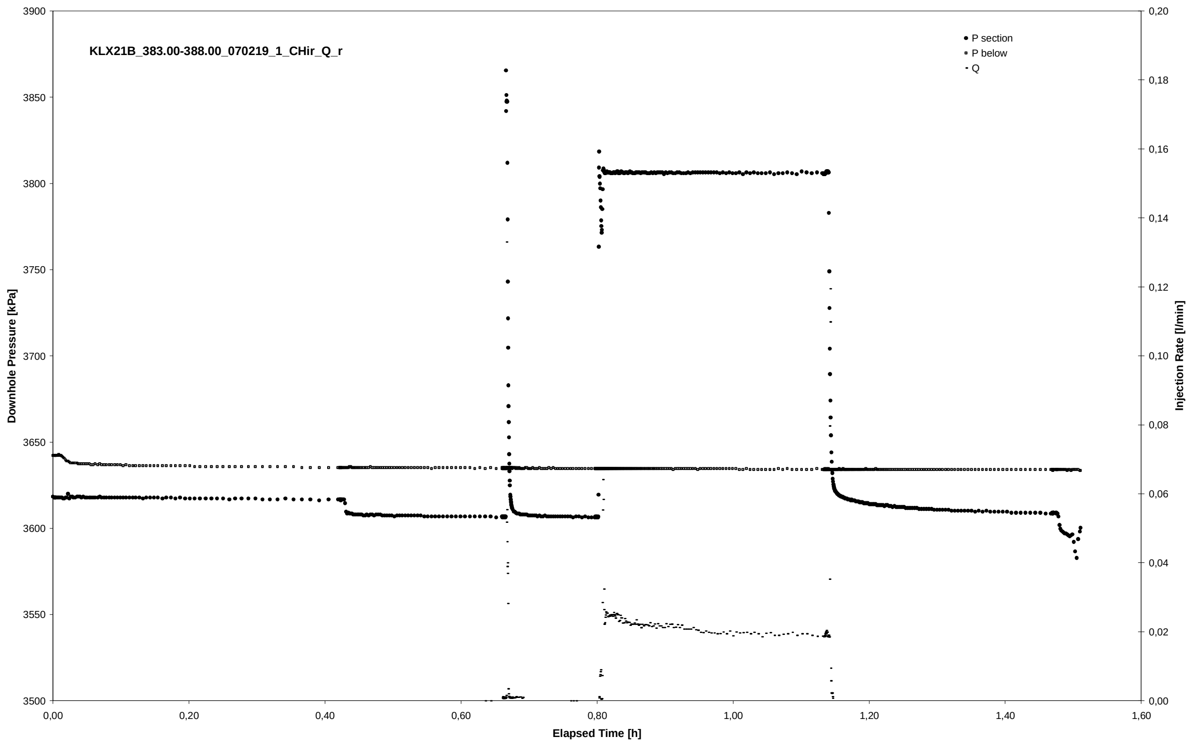
Not analysed

CHIR phase; HORNER match

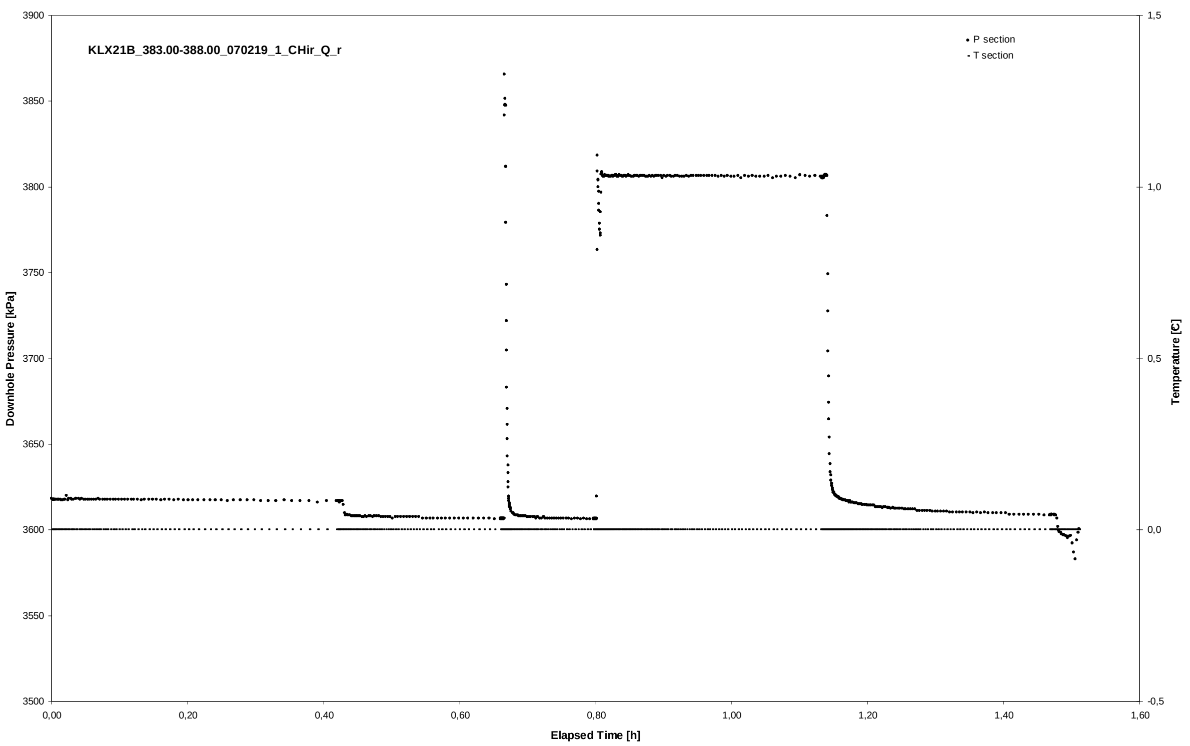
APPENDIX 2-57

Test 383.00 – 388.00 m

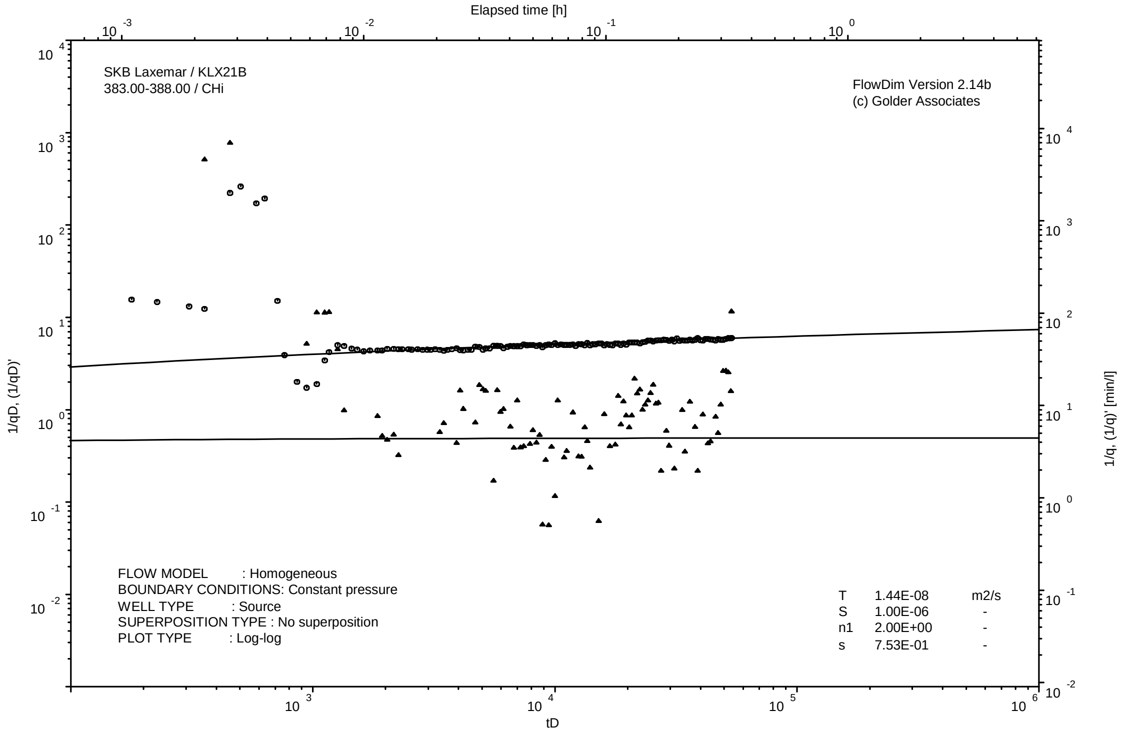
Analysis diagrams



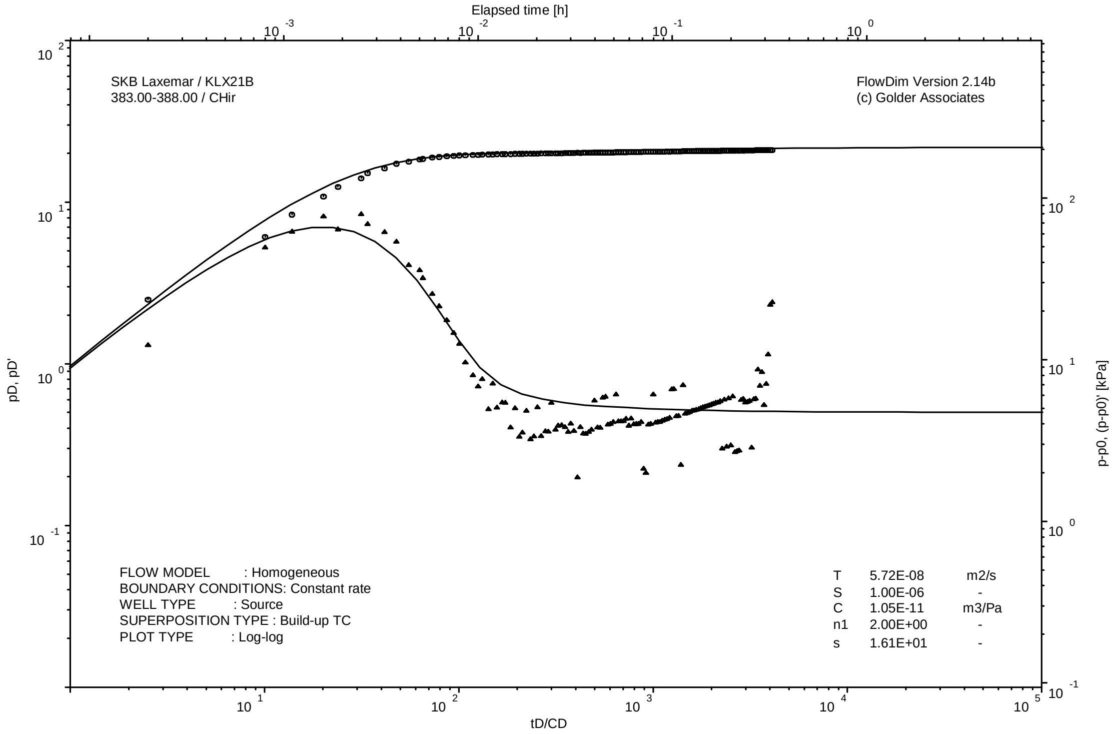
Pressure and flow rate vs. time; cartesian plot



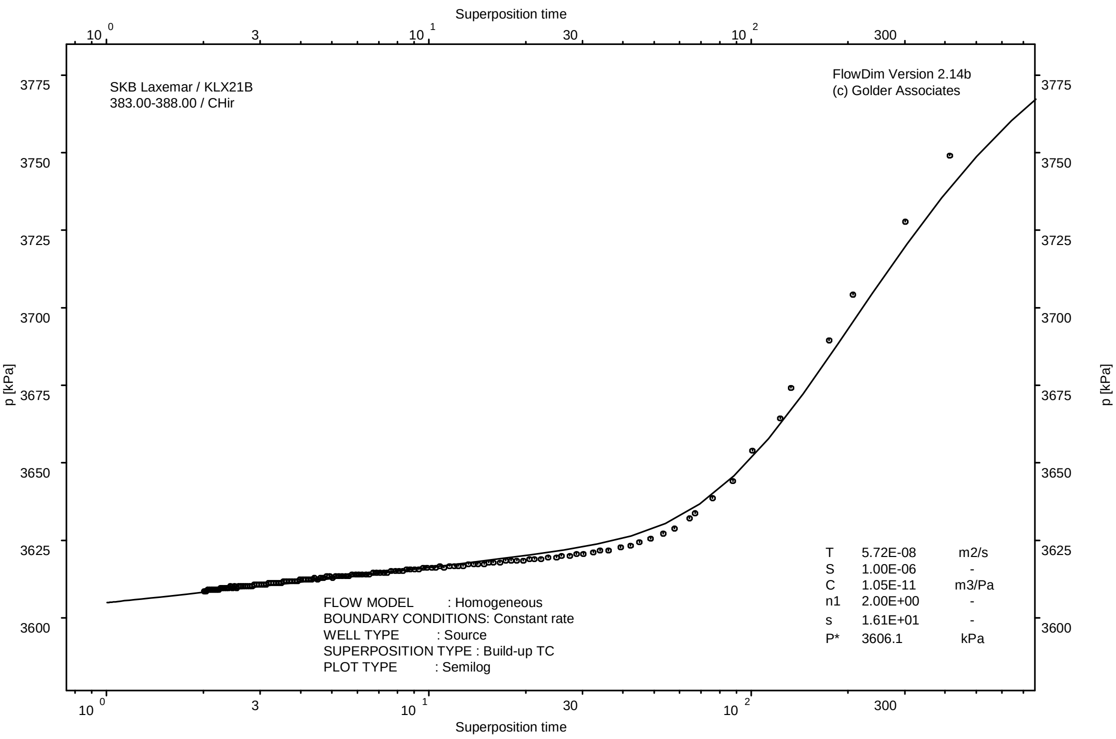
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

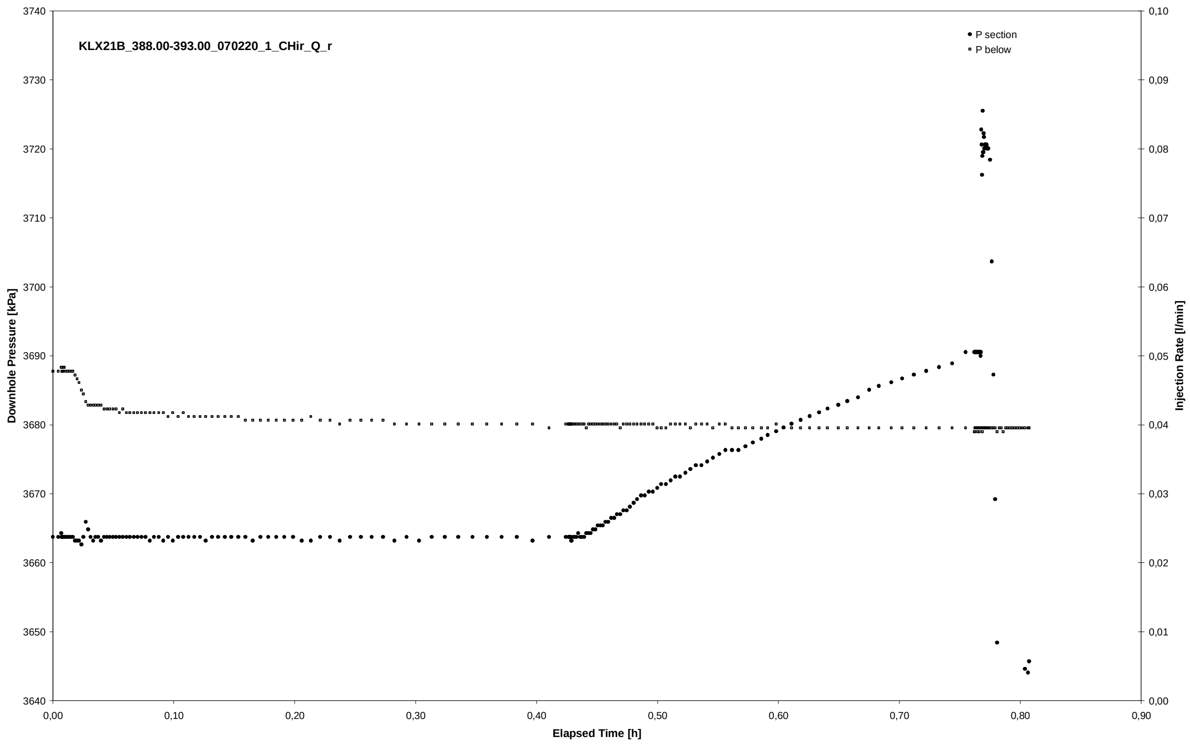


CHIR phase; HORNER match

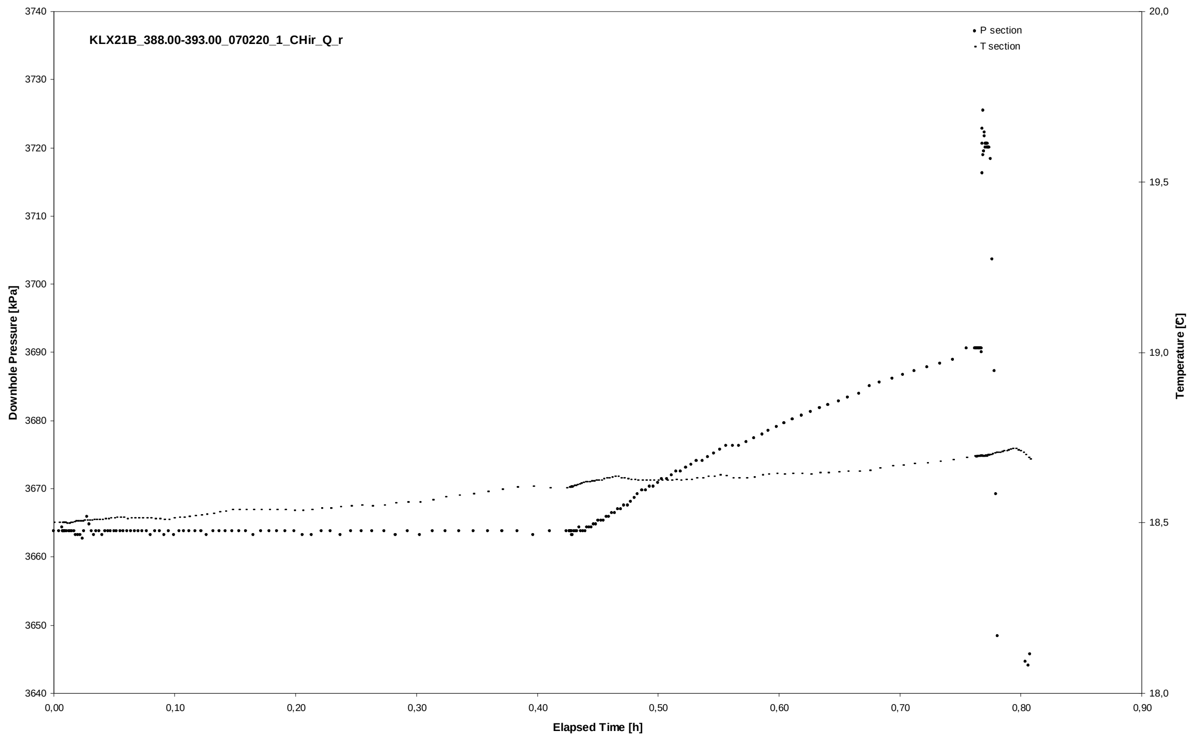
APPENDIX 2-58

Test 388.00 – 393.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

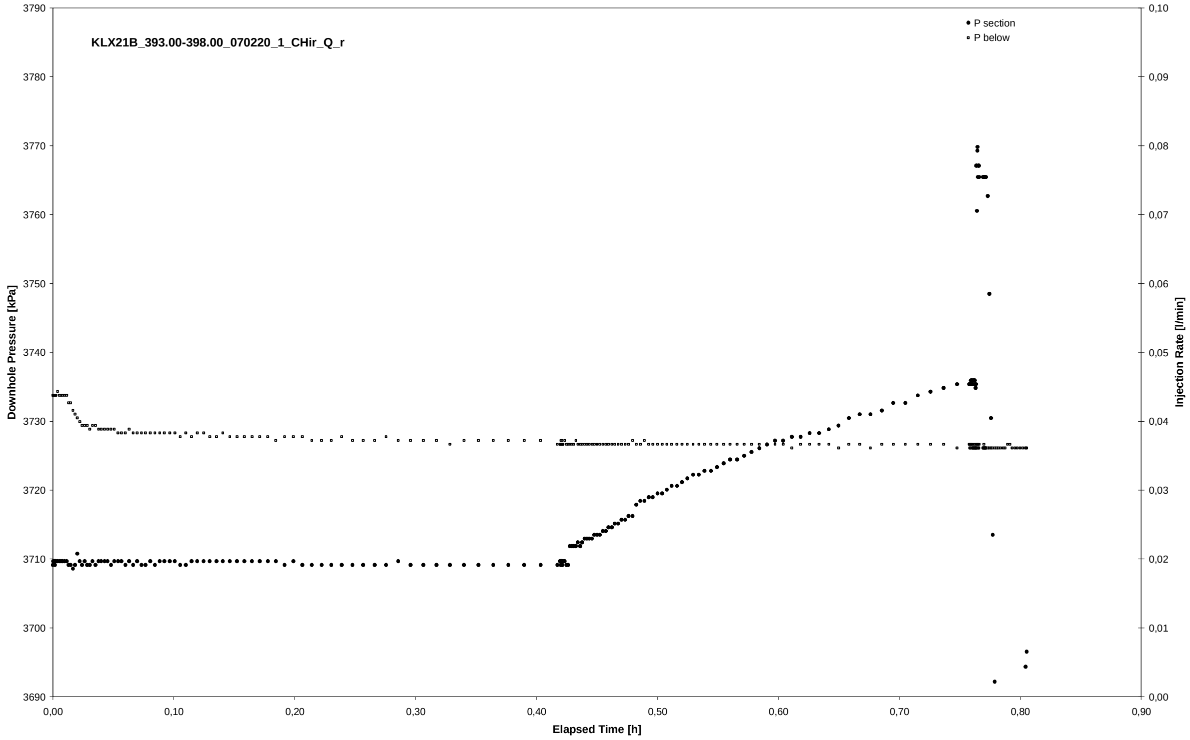
Not analysed

CHIR phase; HORNER match

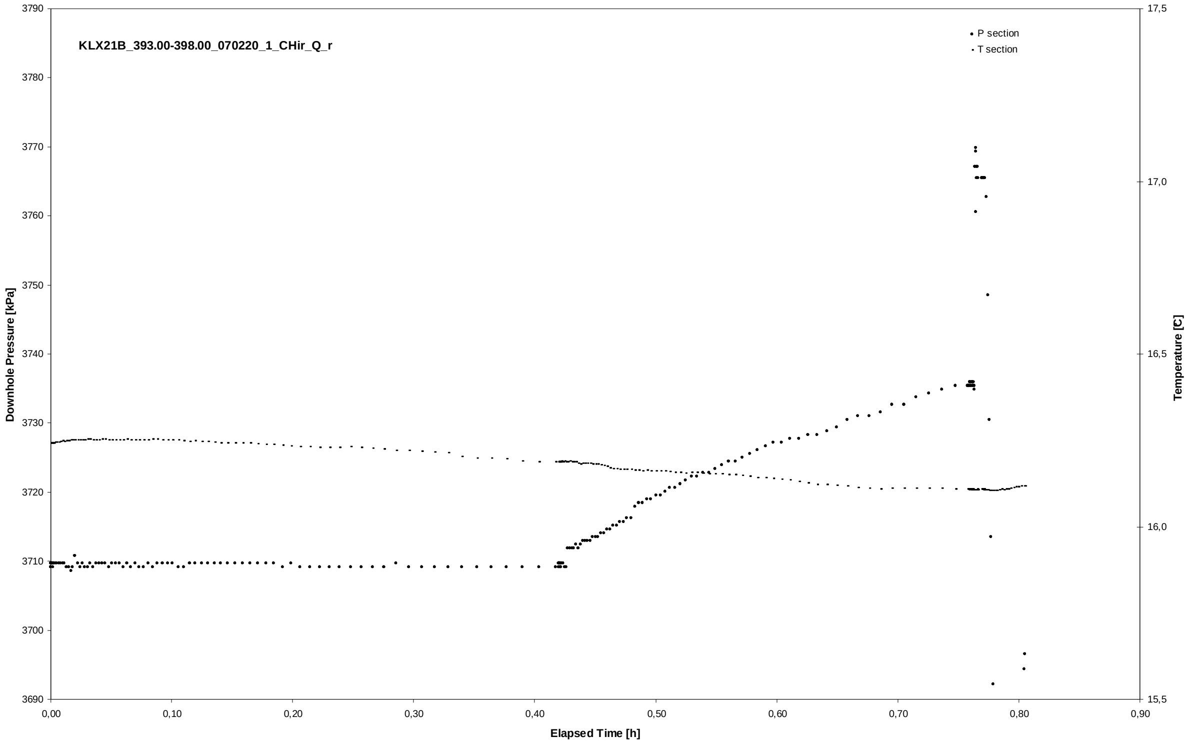
APPENDIX 2-59

Test 393.00 – 398.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

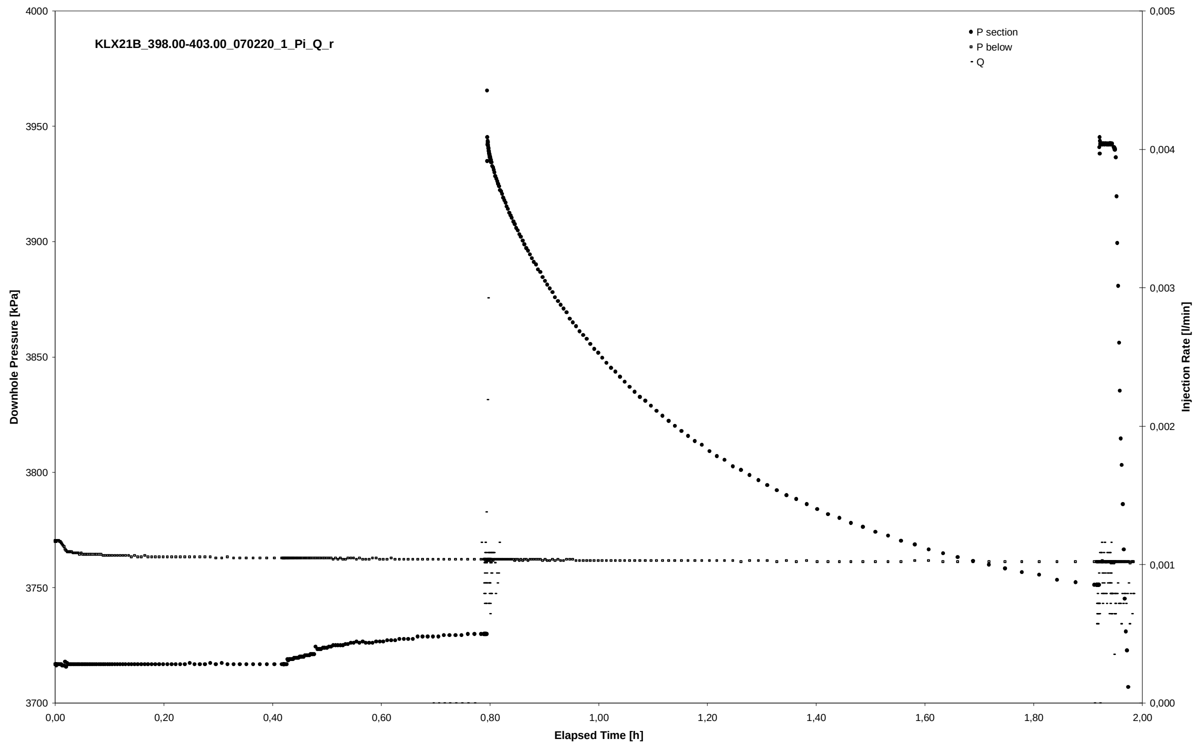
Not analysed

CHIR phase; HORNER match

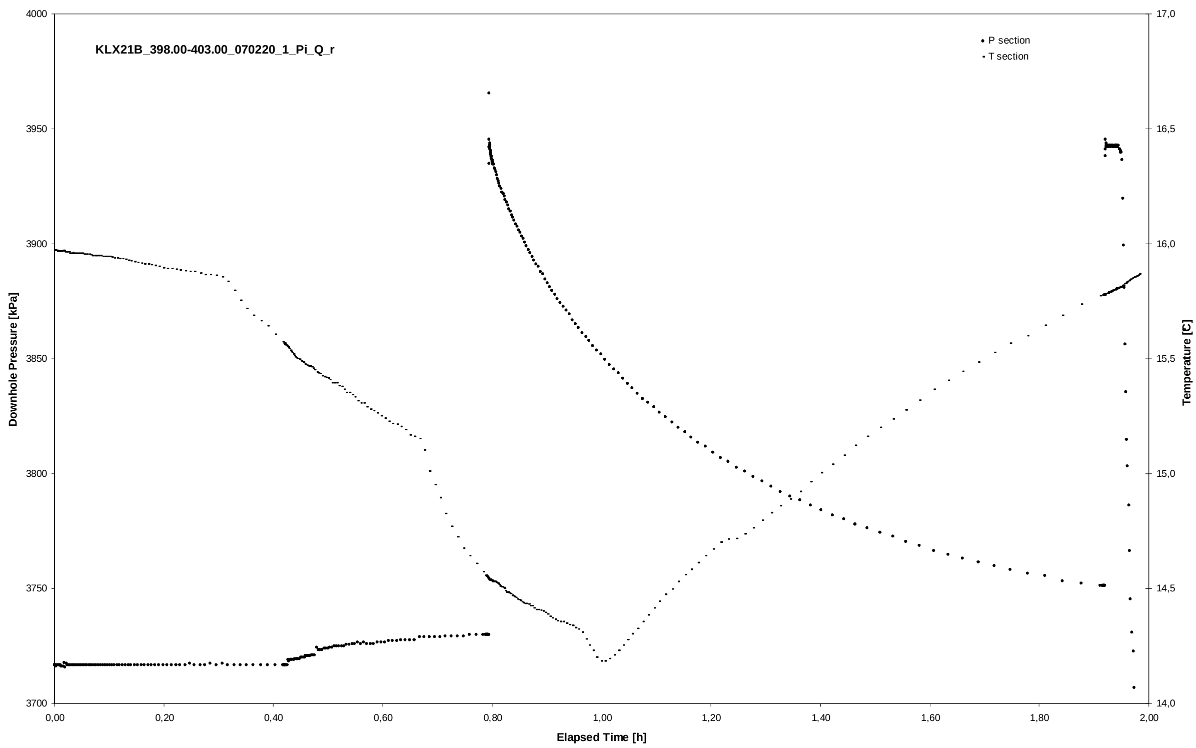
APPENDIX 2-60

Test 398.00 – 403.00 m

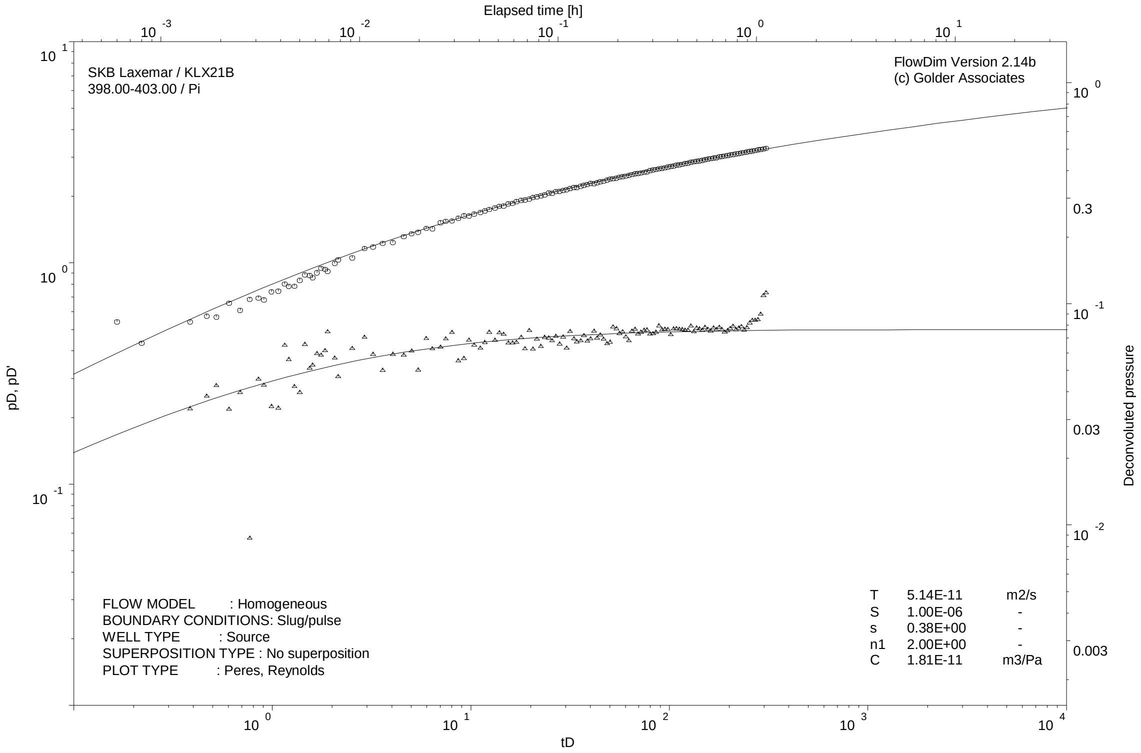
Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

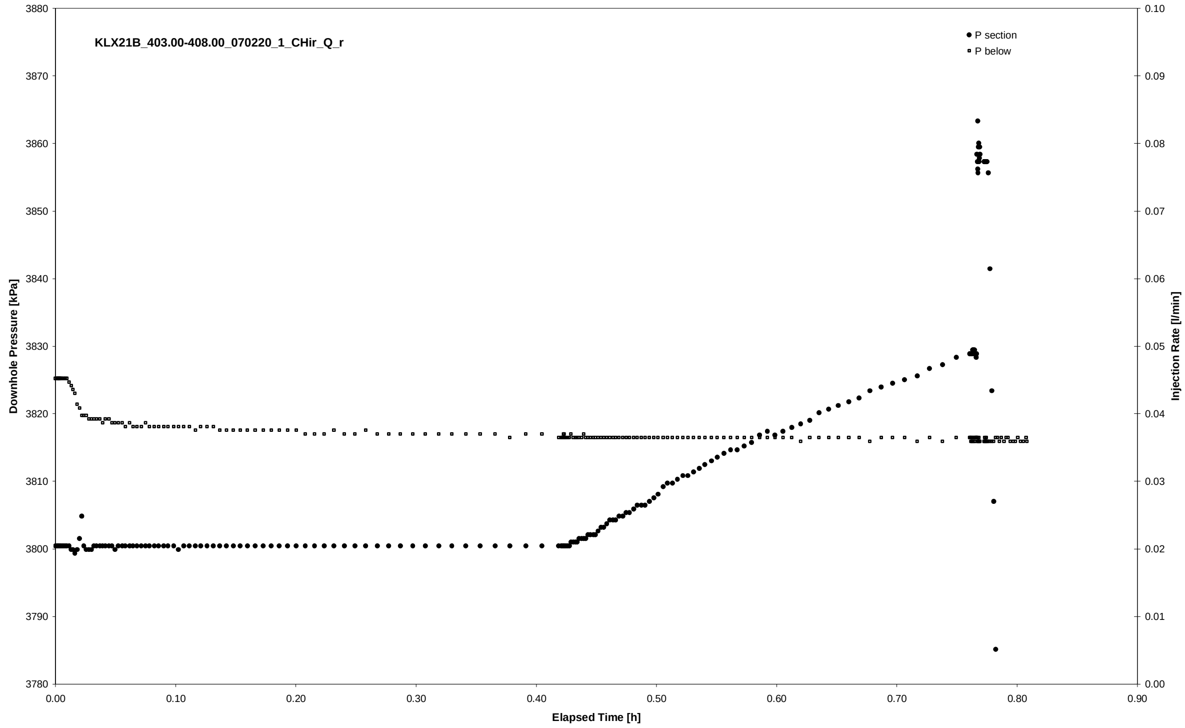


Pulse injection; deconvolution match

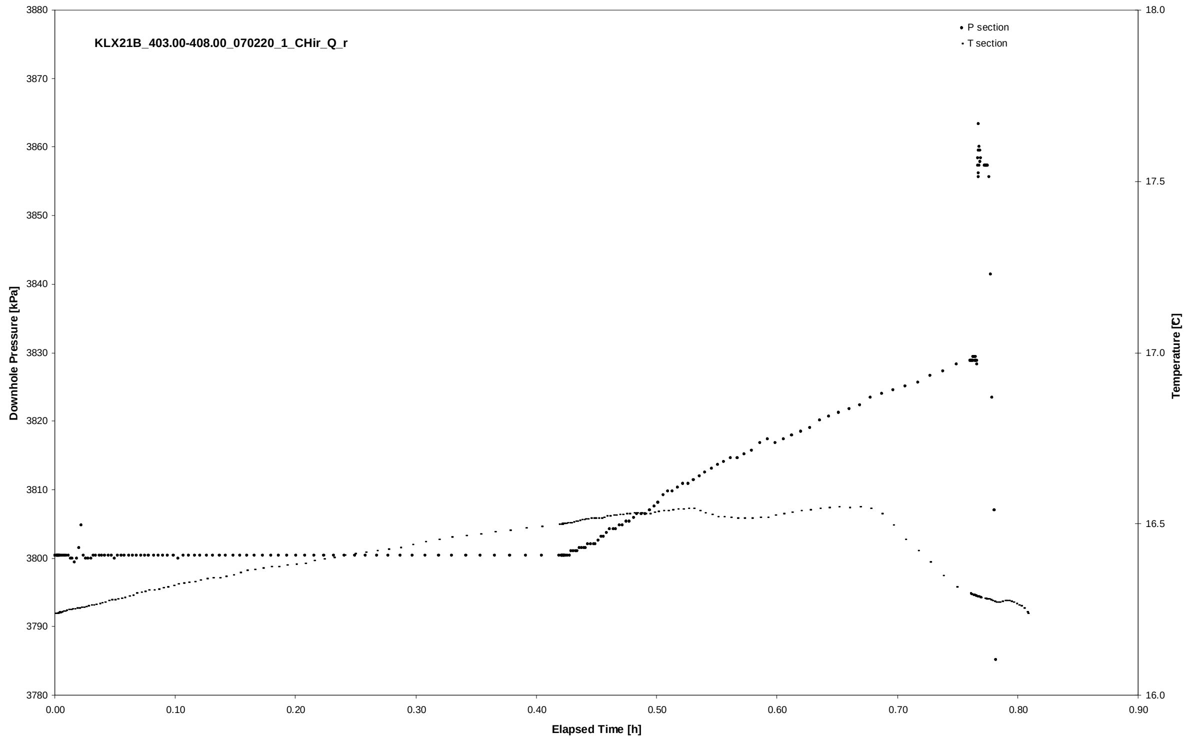
APPENDIX 2-61

Test 403.00 – 408.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

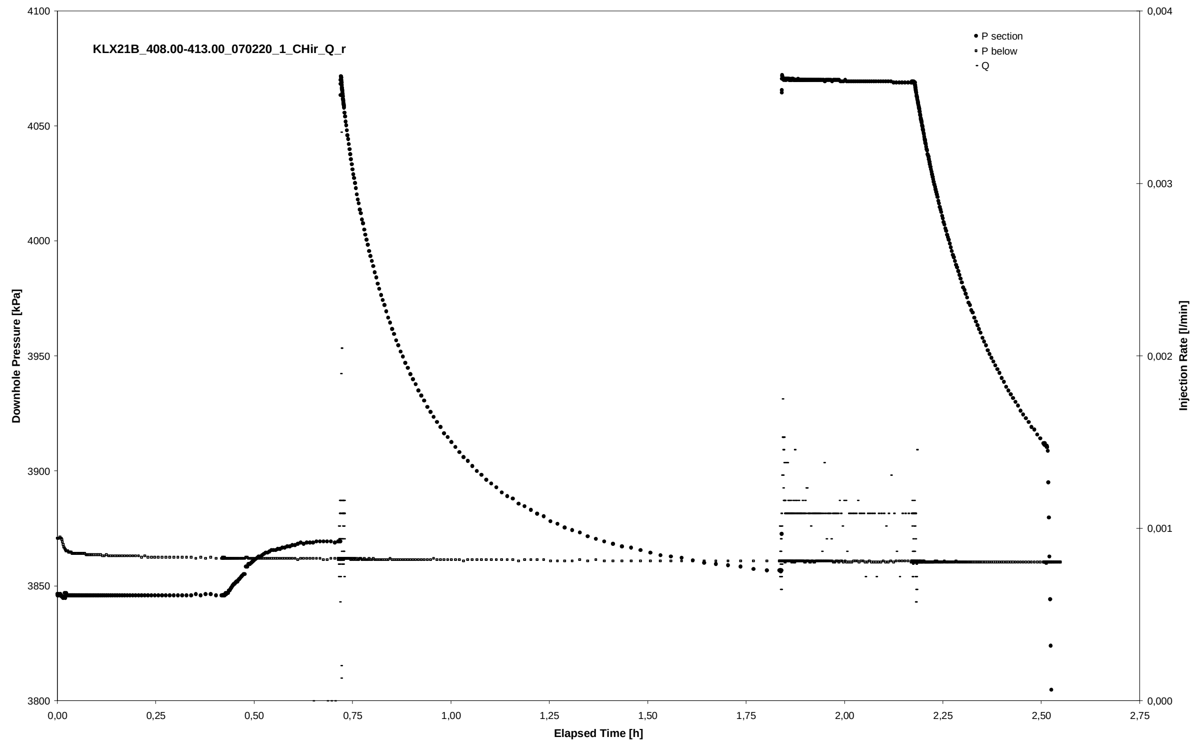
Not analysed

CHIR phase; HORNER match

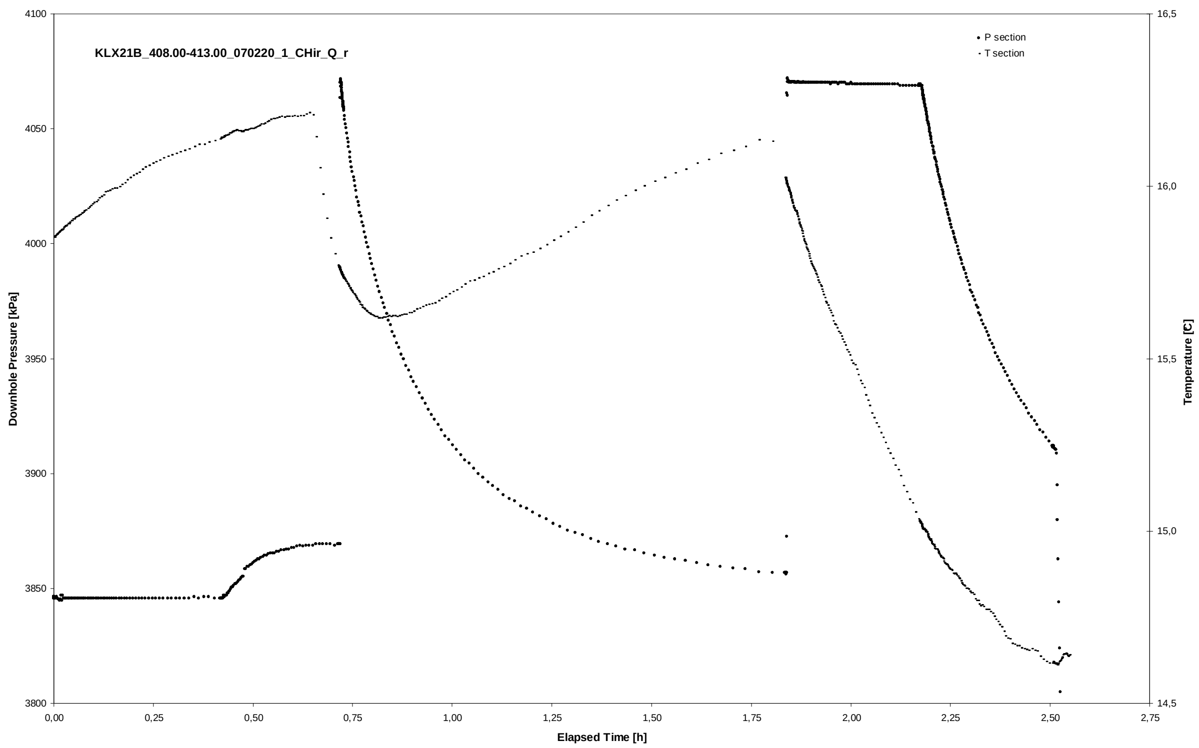
APPENDIX 2-62

Test 408.00 – 413.00 m

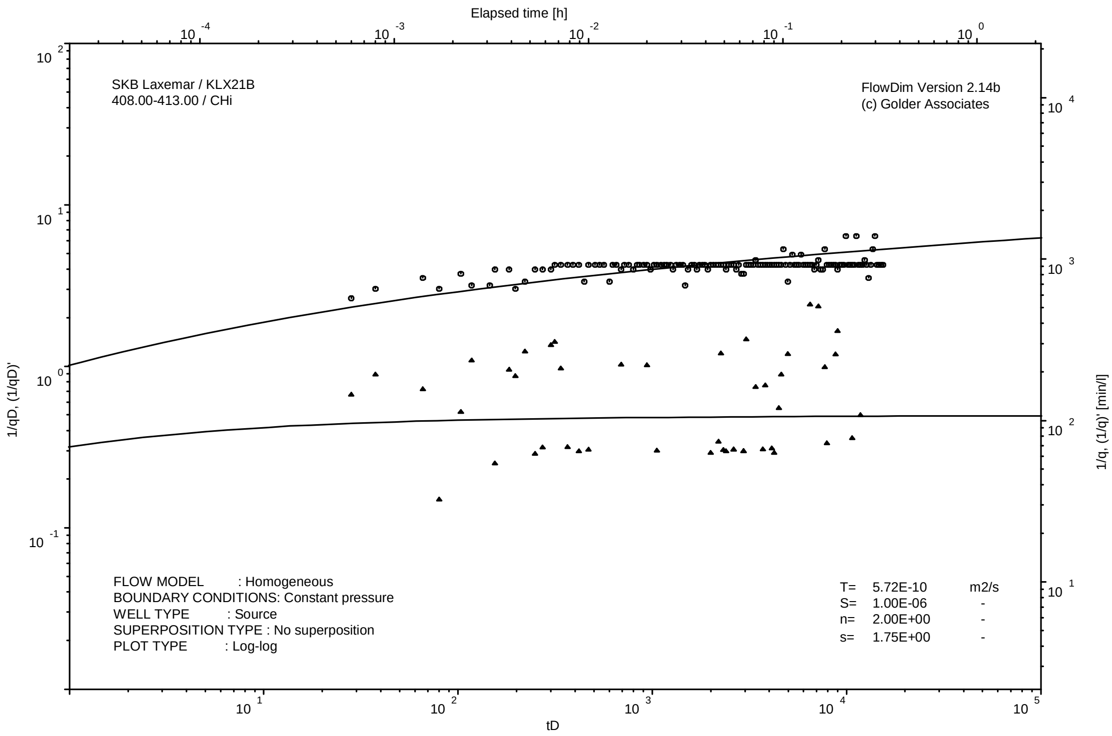
Analysis diagrams



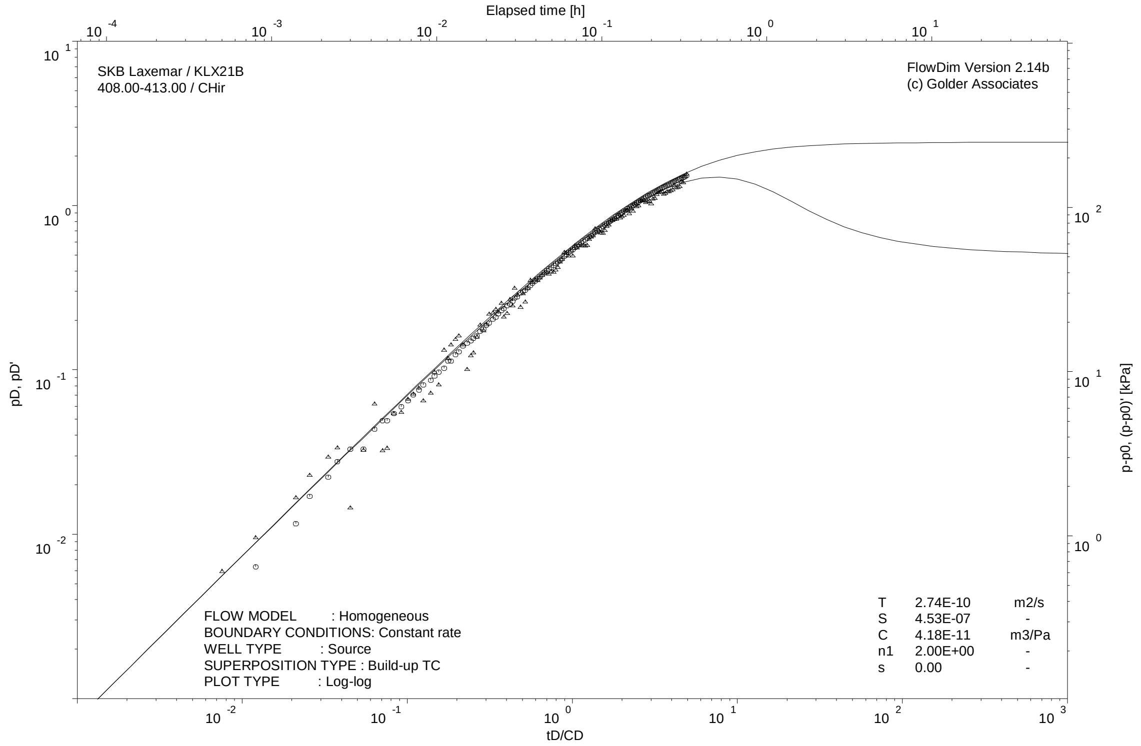
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot



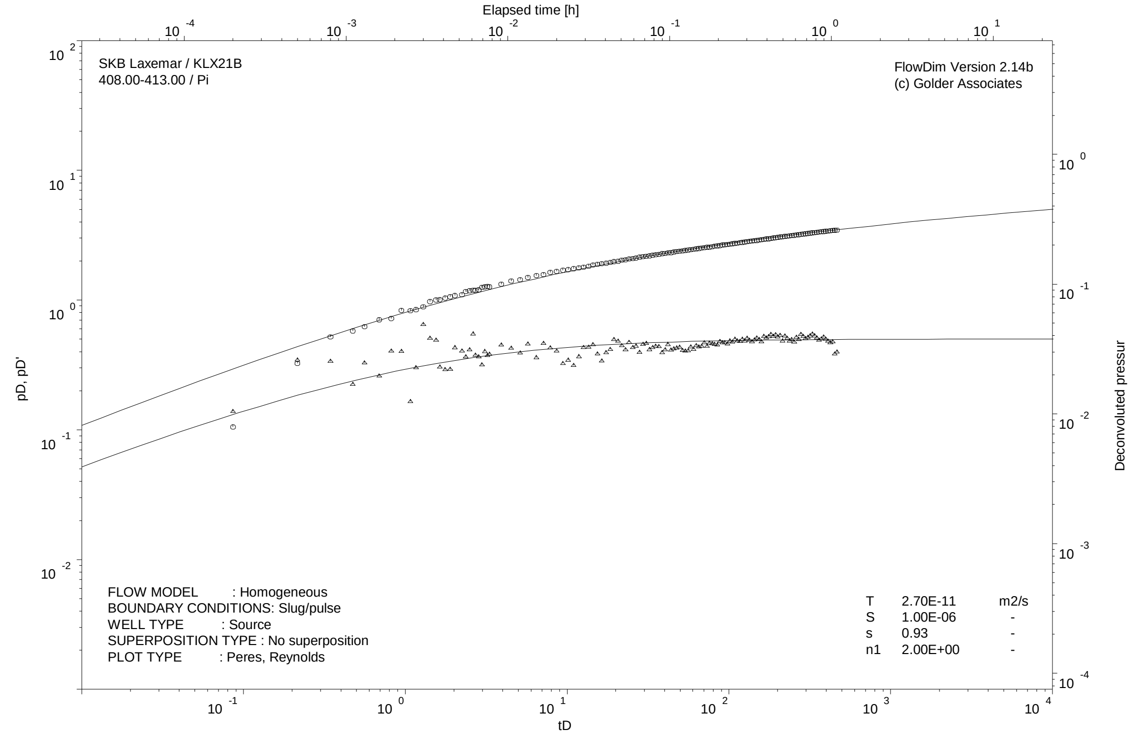
CHI phase; log-log match



CHIR phase; log-log match

Not analyzable

CHIR phase; HORNER match

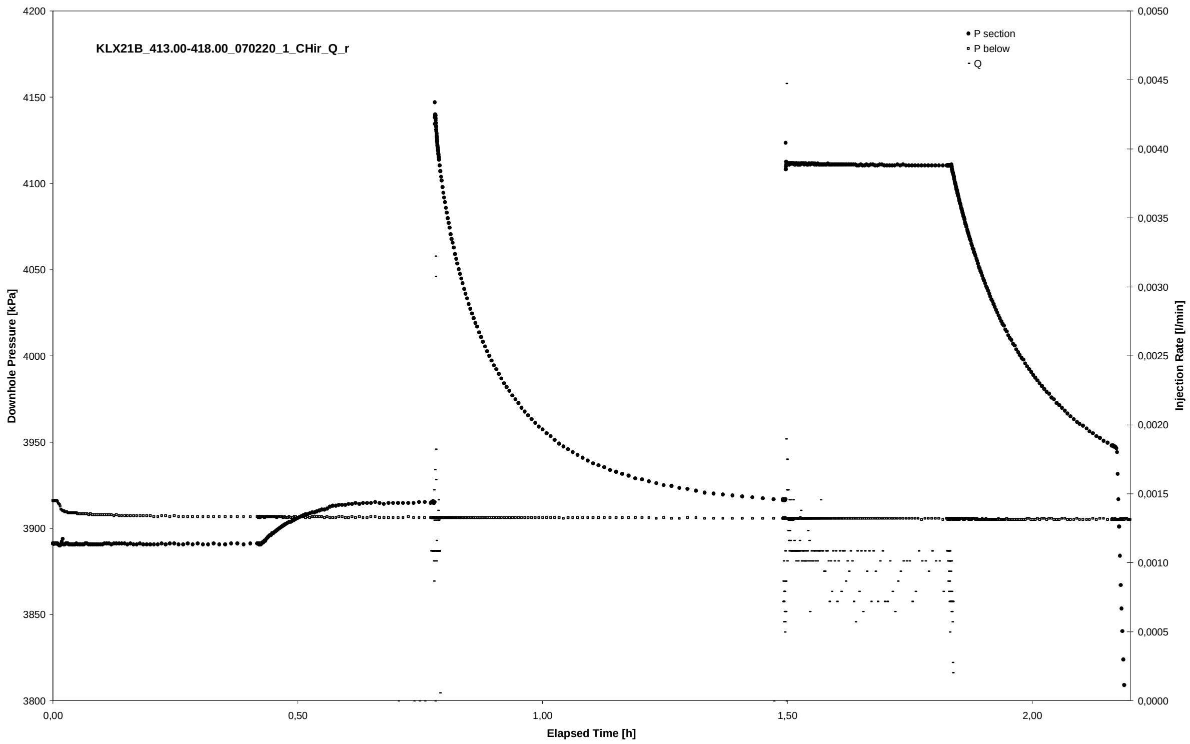


Pulse injection; deconvolution match

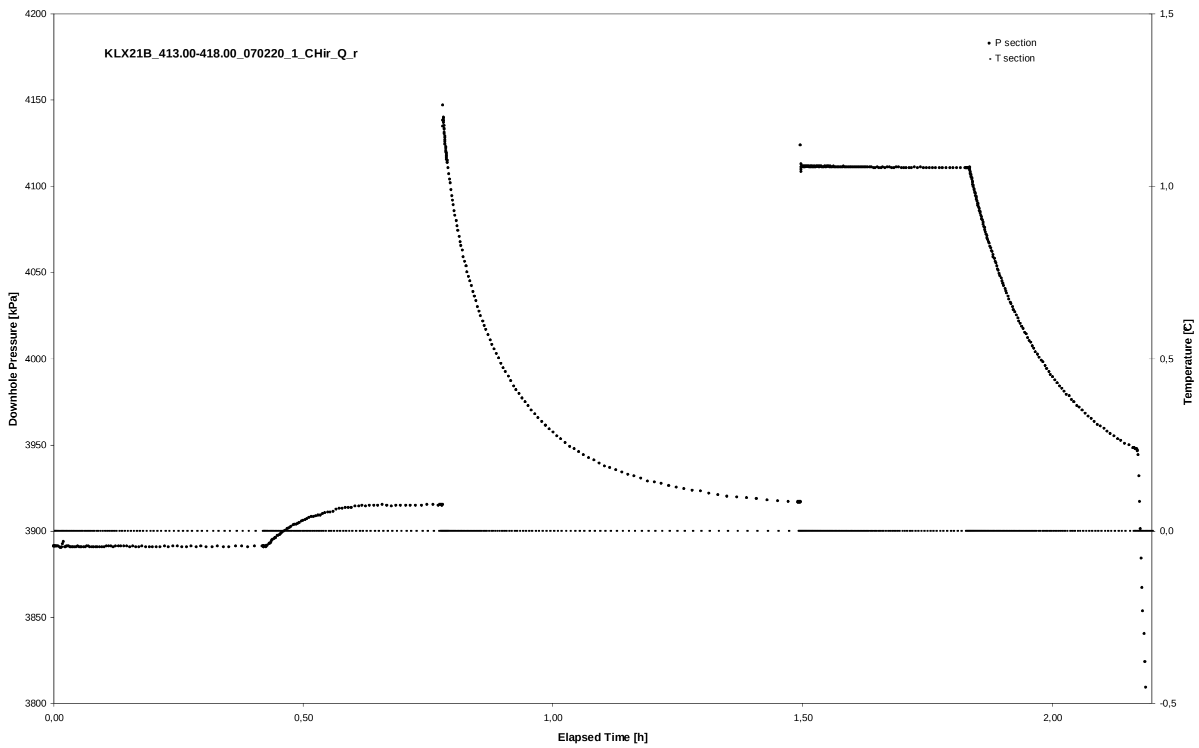
APPENDIX 2-63

Test 413.00 – 418.00 m

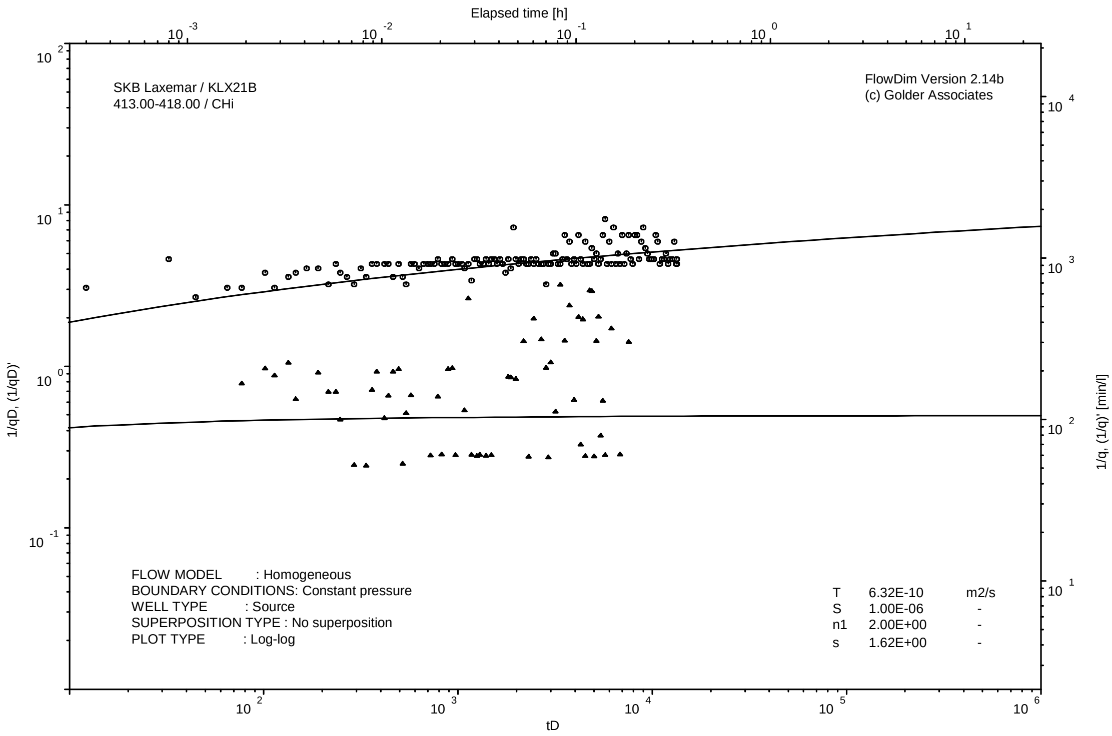
Analysis diagrams



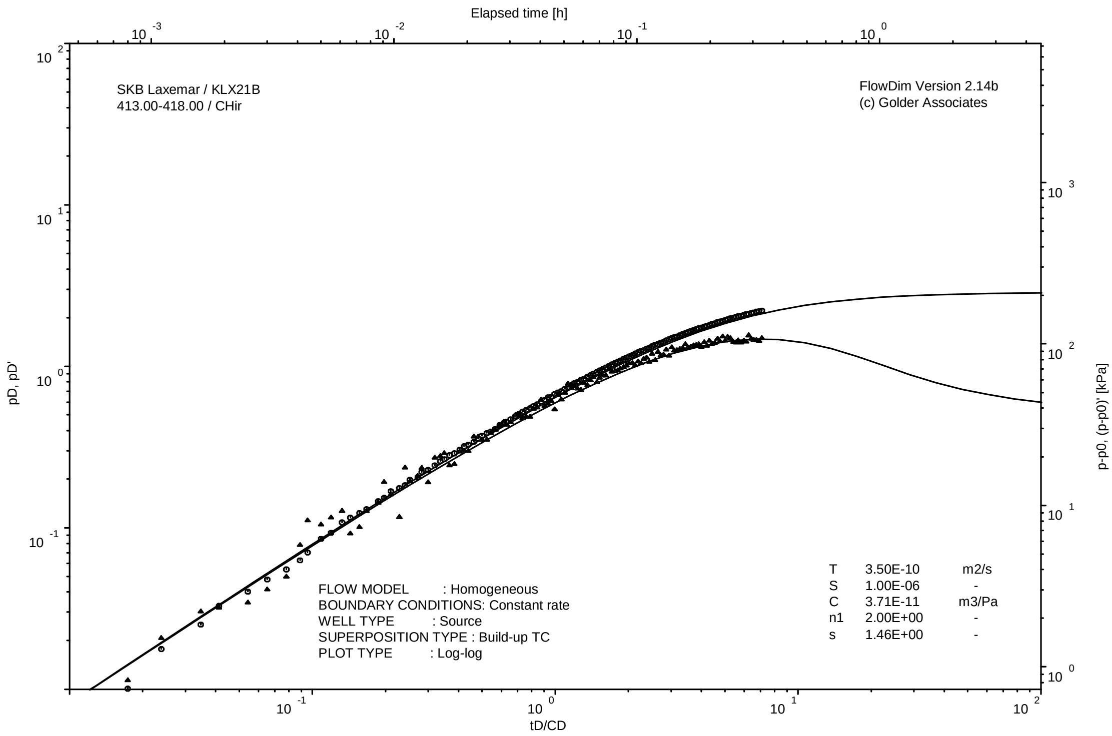
Pressure and flow rate vs. time; cartesian plot



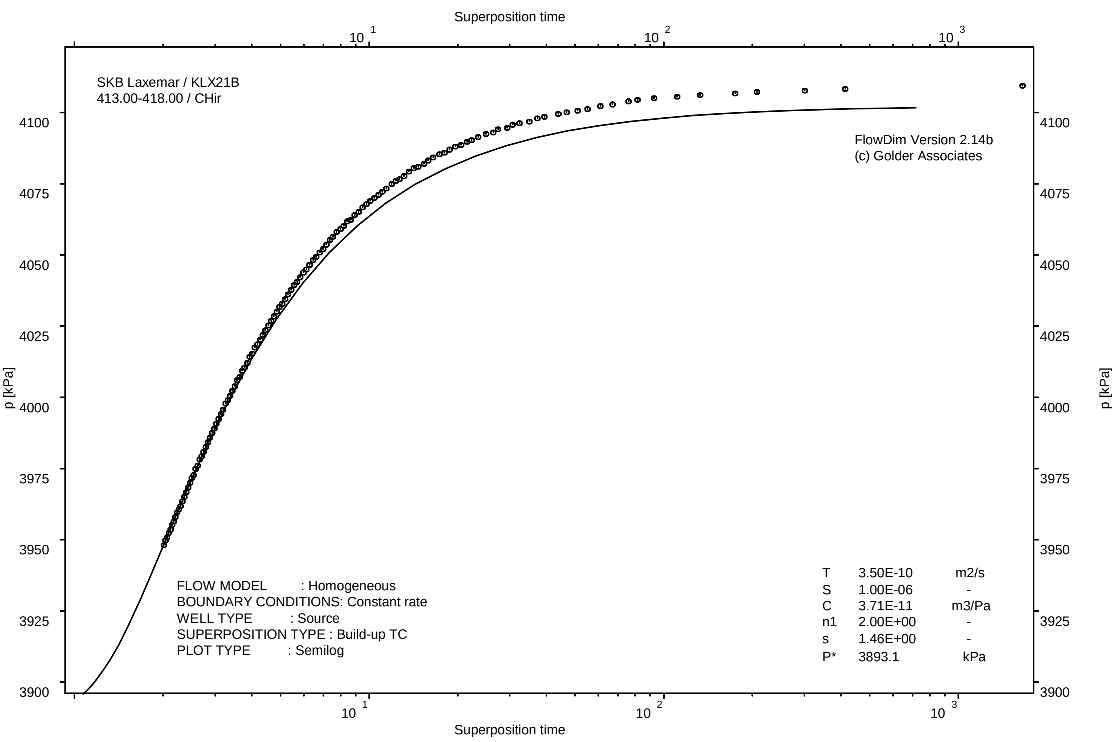
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

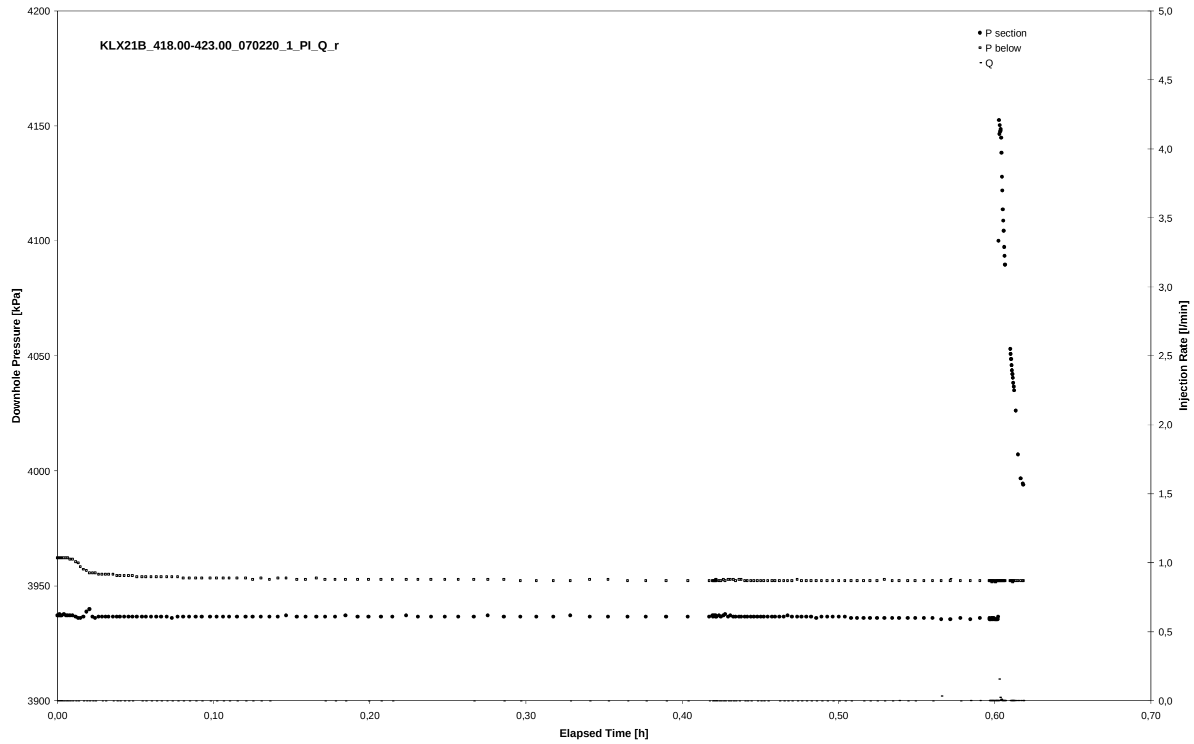


CHIR phase; HORNER match

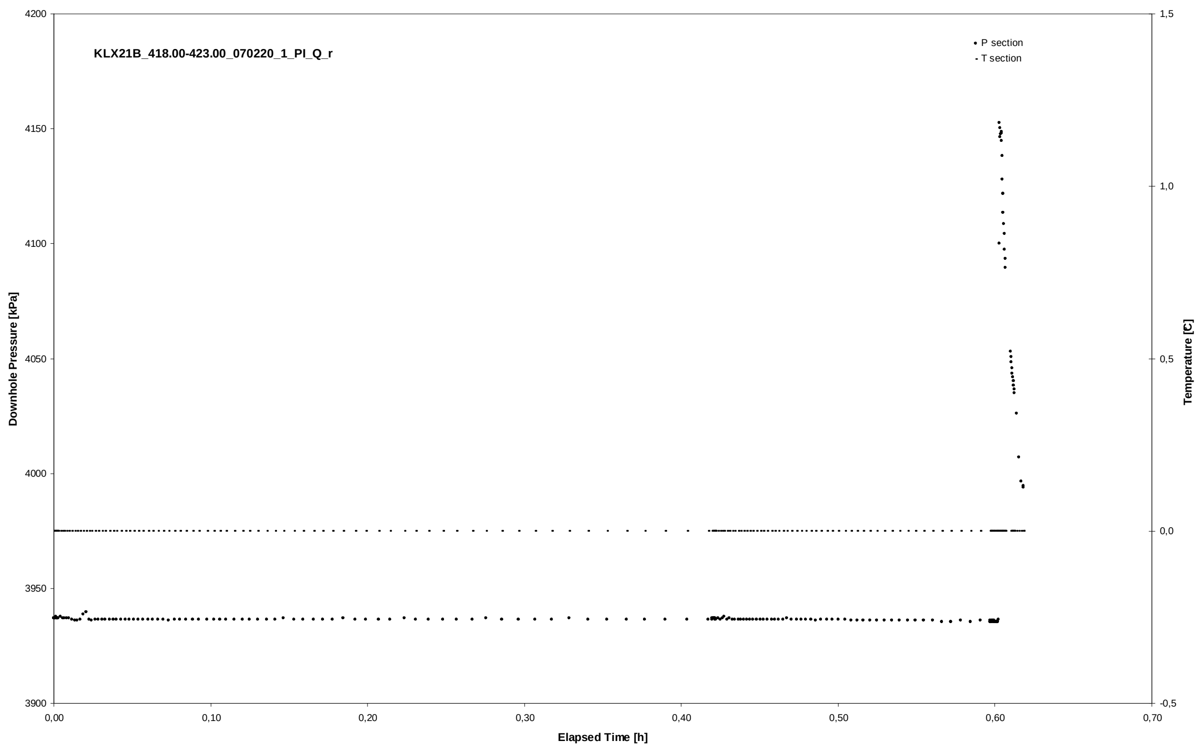
APPENDIX 2-64

Test 418.00 – 423.00 m

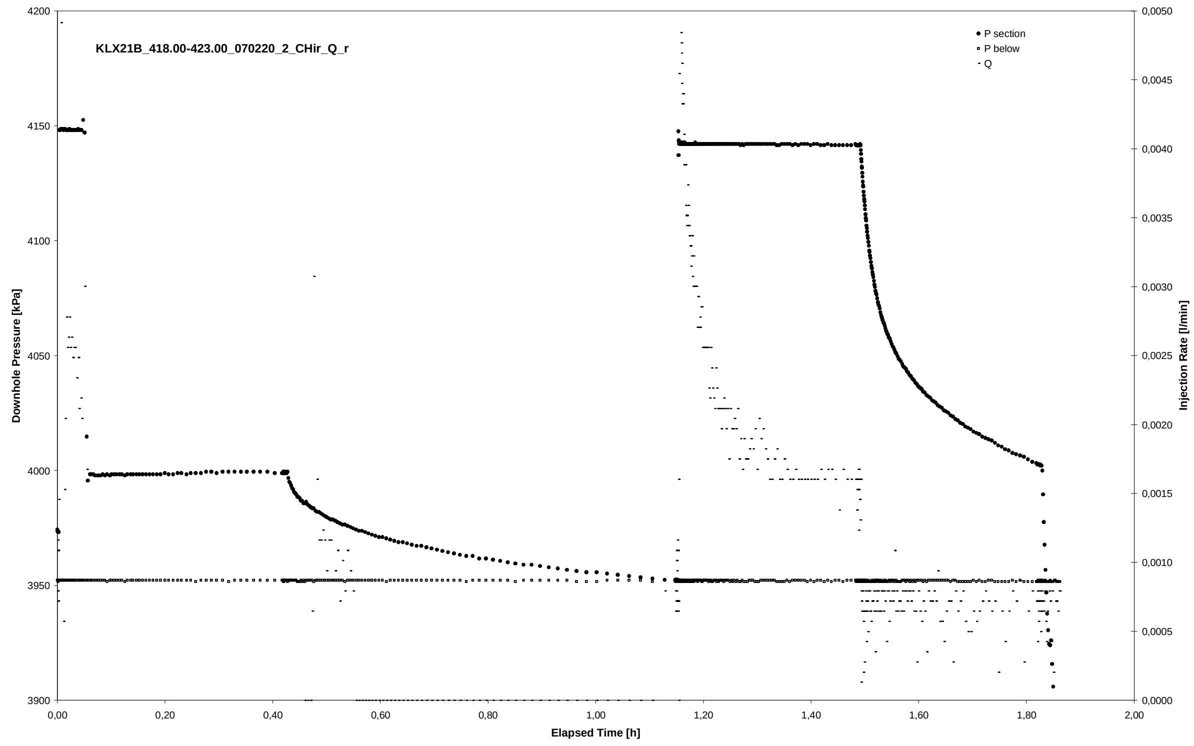
Analysis diagrams



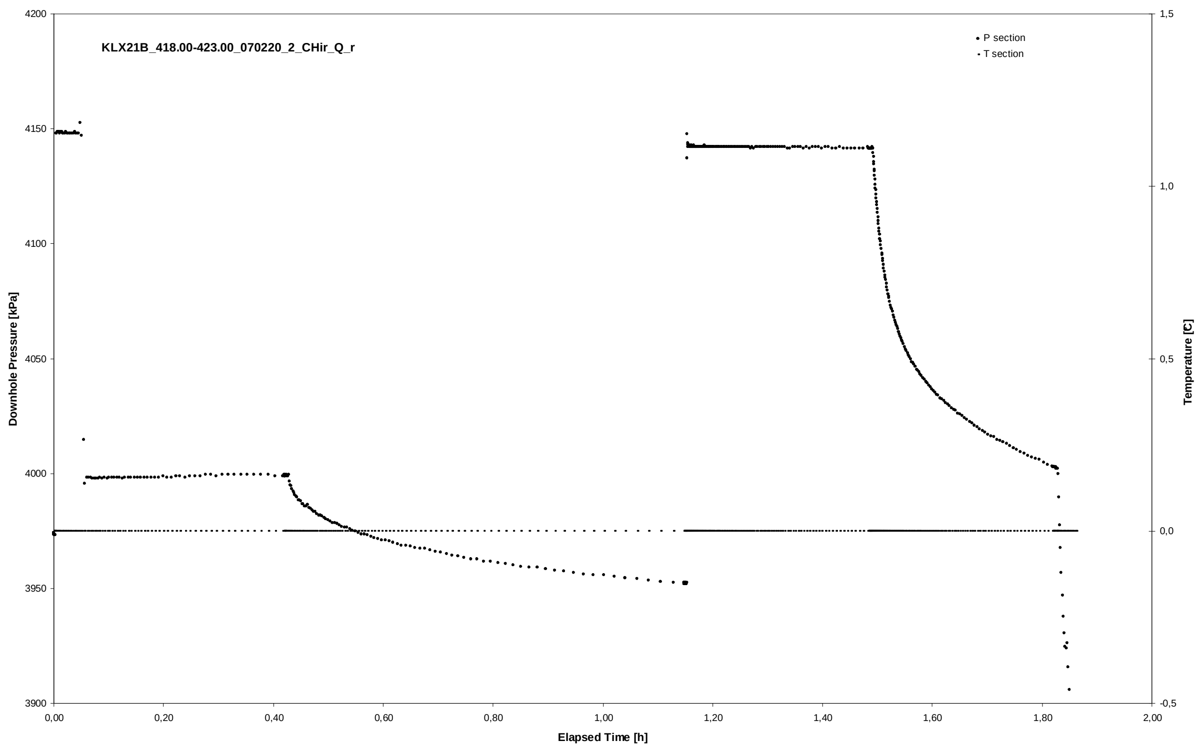
Pressure and flow rate vs. time; cartesian plot (repeated)



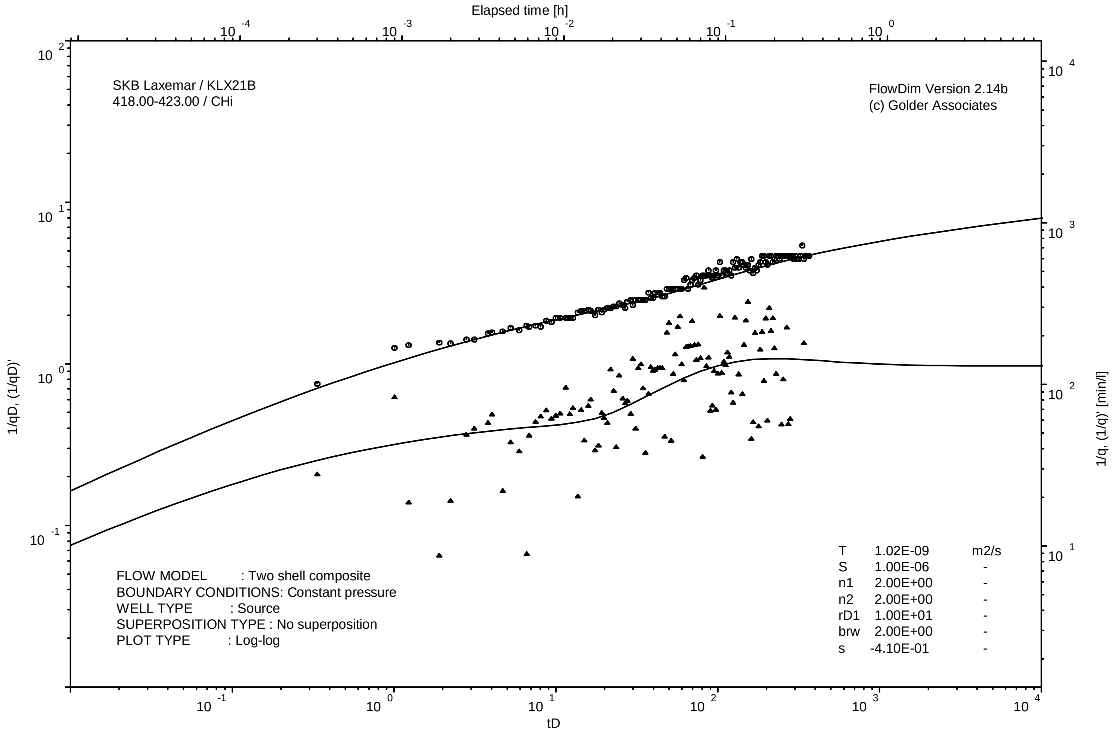
Interval pressure and temperature vs. time; cartesian plot (repeated)



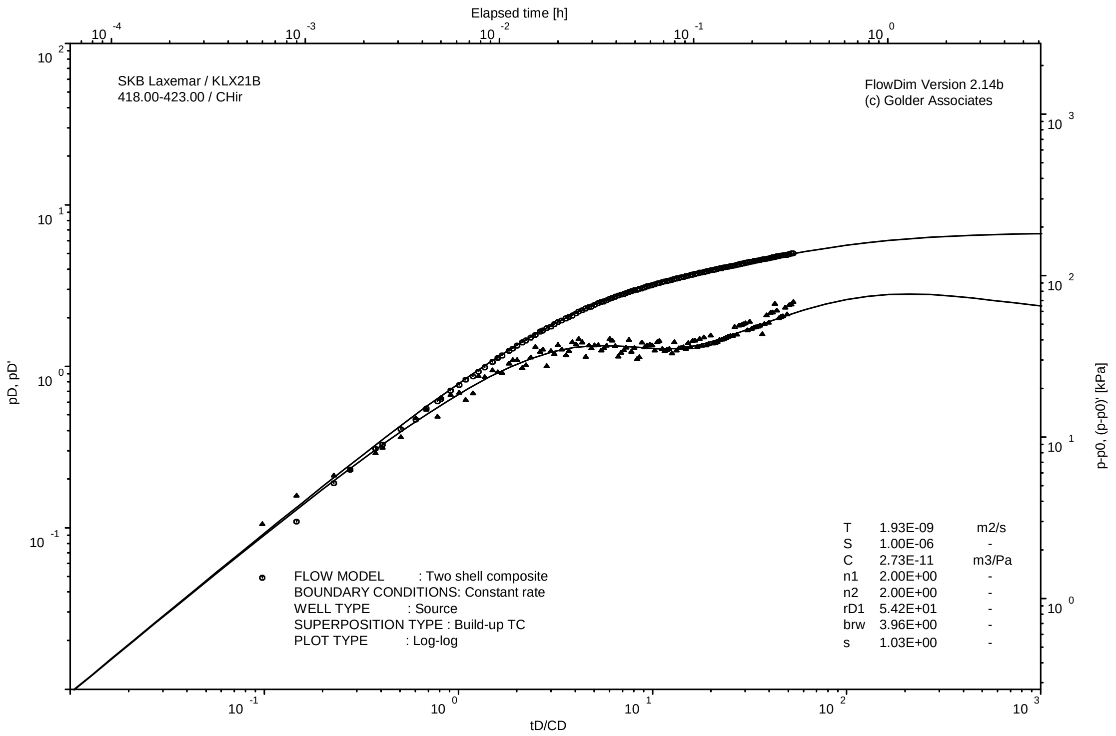
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

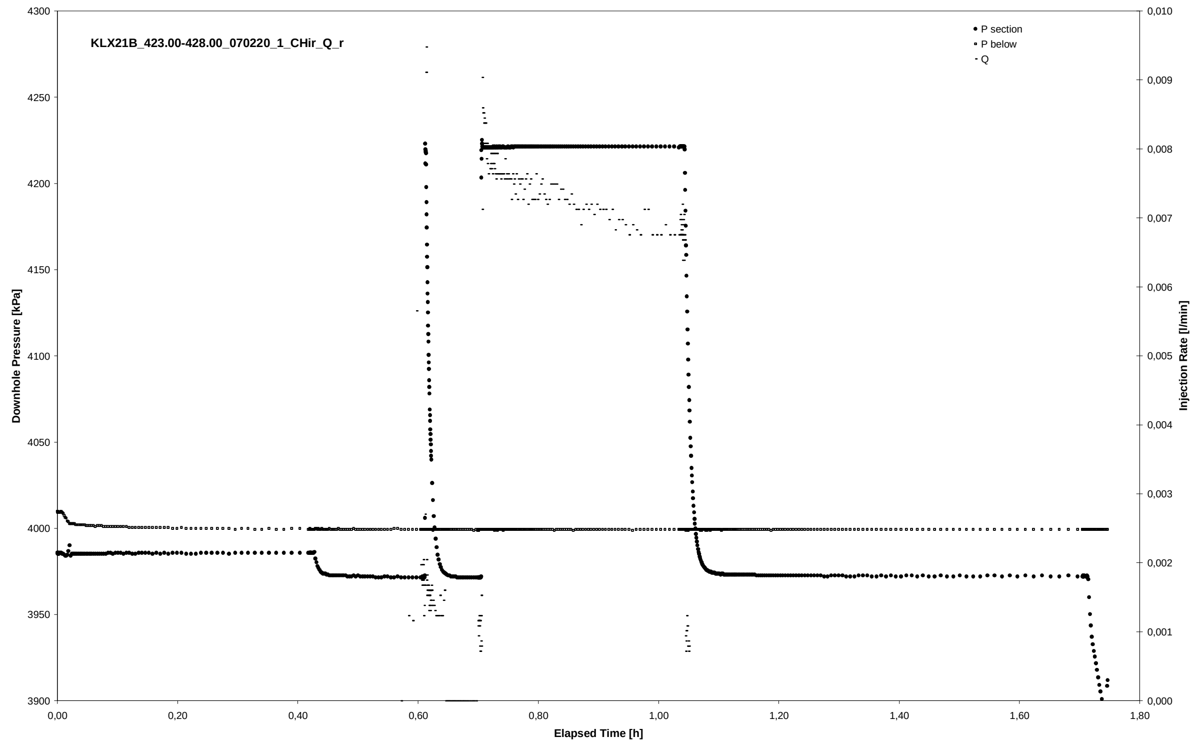
Not analysed

CHIR phase; HORNER match

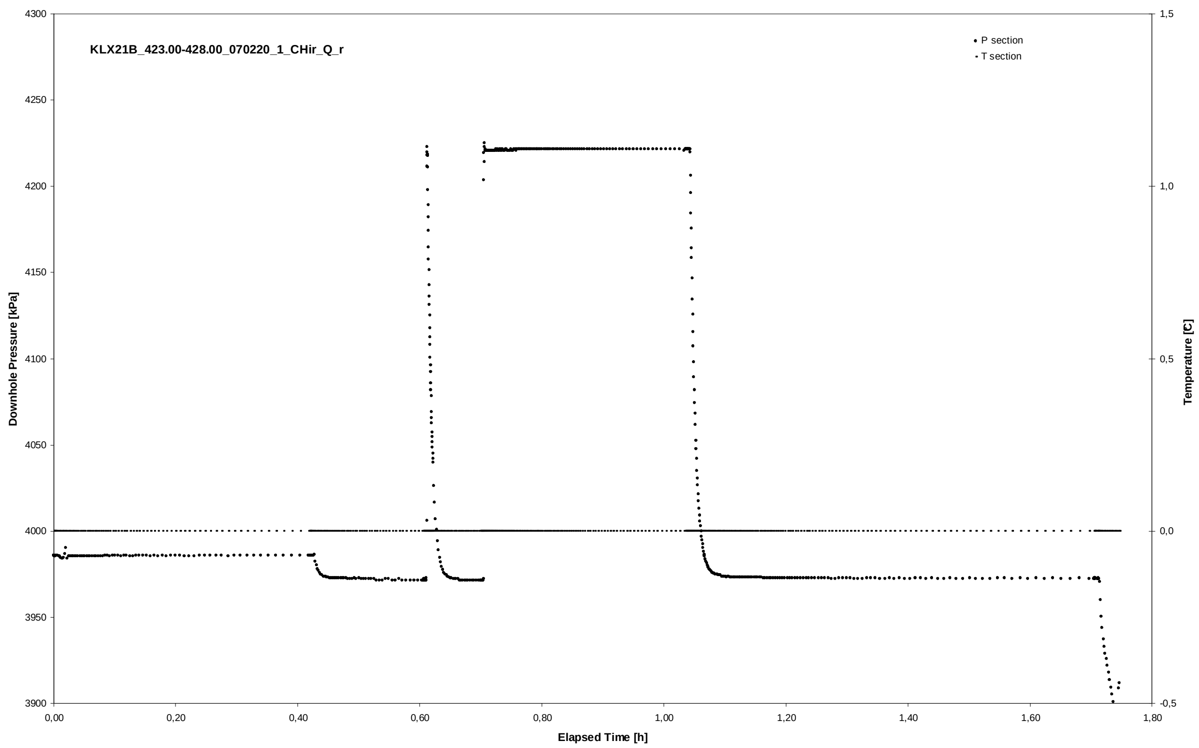
APPENDIX 2-65

Test 423.00 – 428.00 m

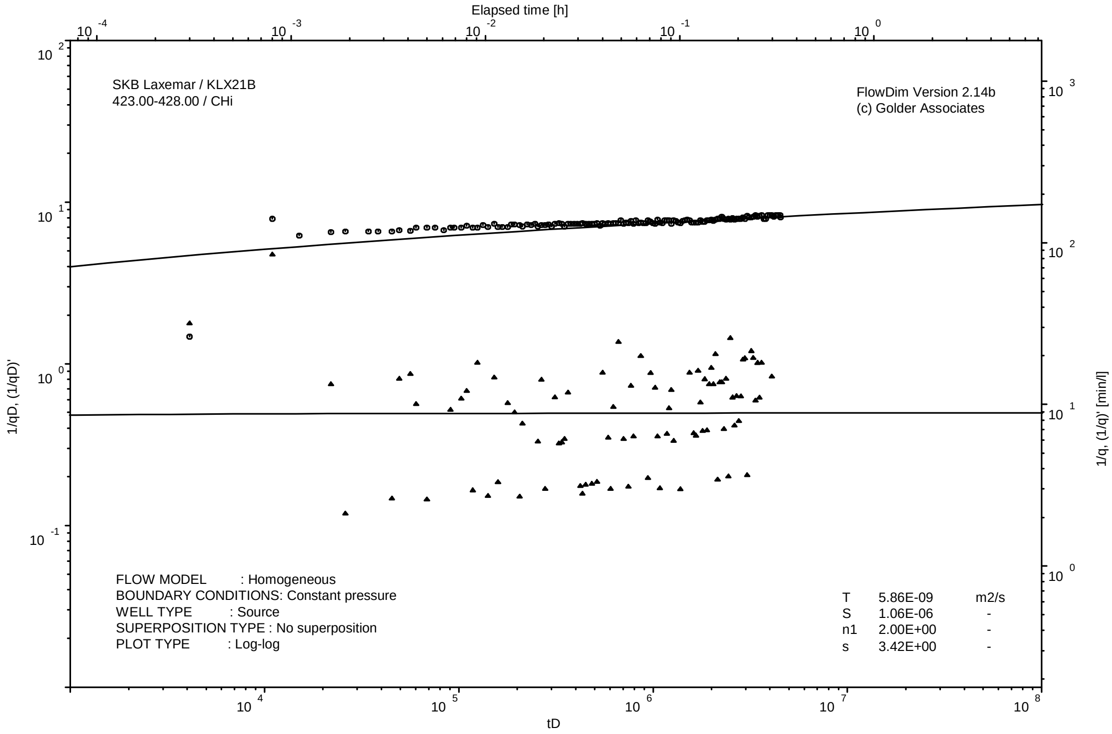
Analysis diagrams



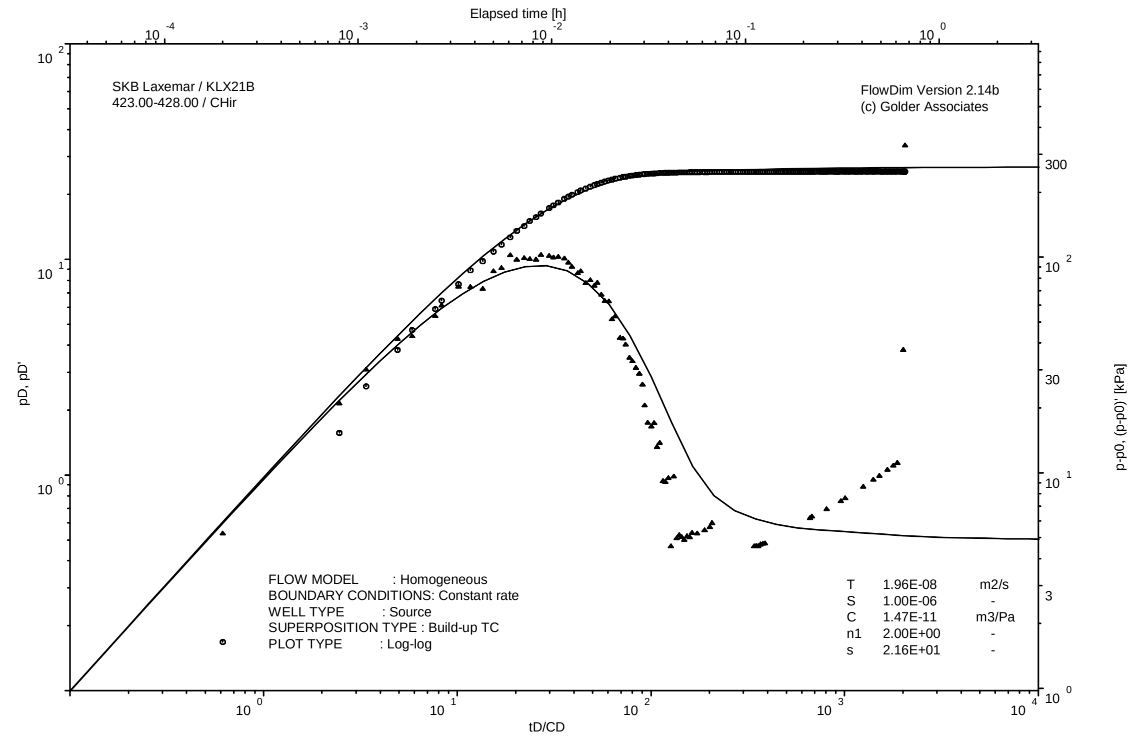
Pressure and flow rate vs. time; cartesian plot



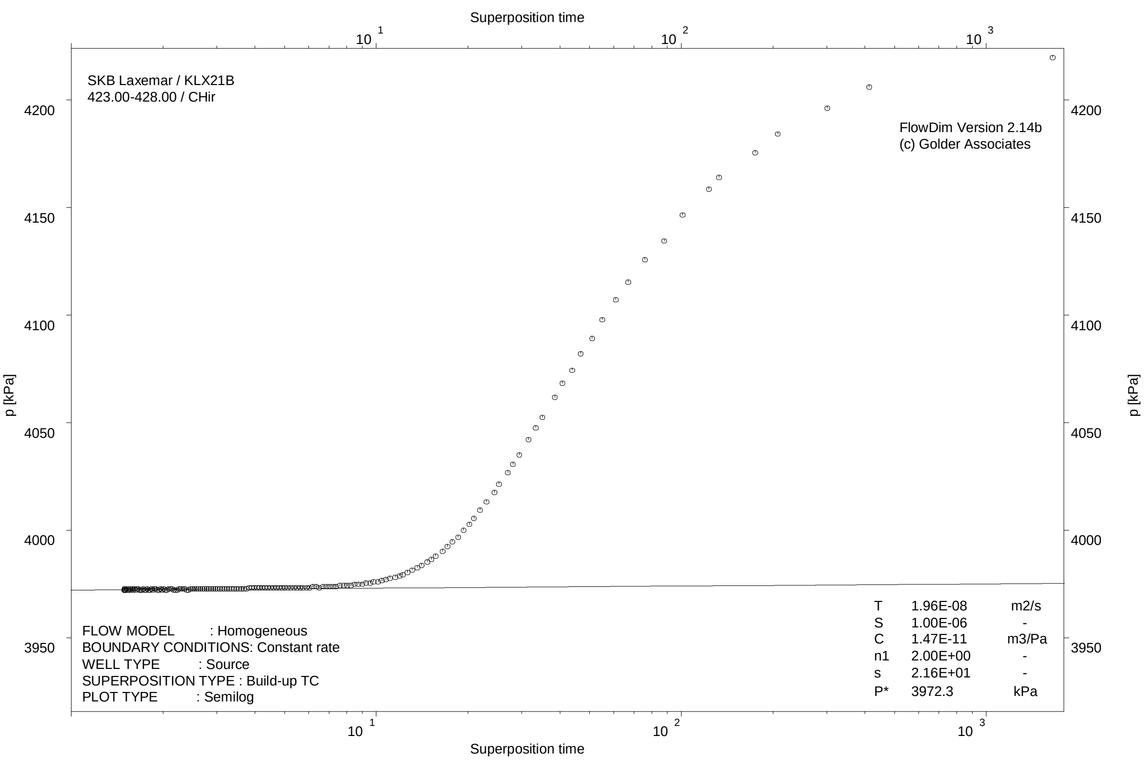
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

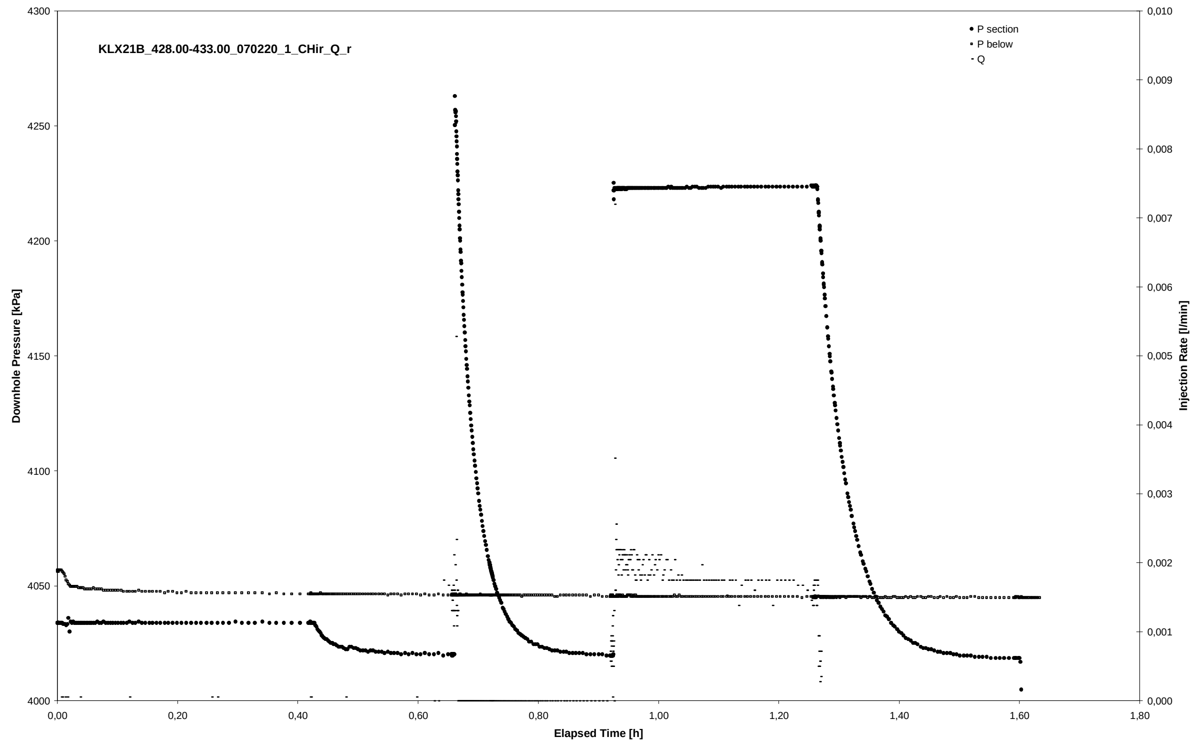


CHIR phase; HORNER match

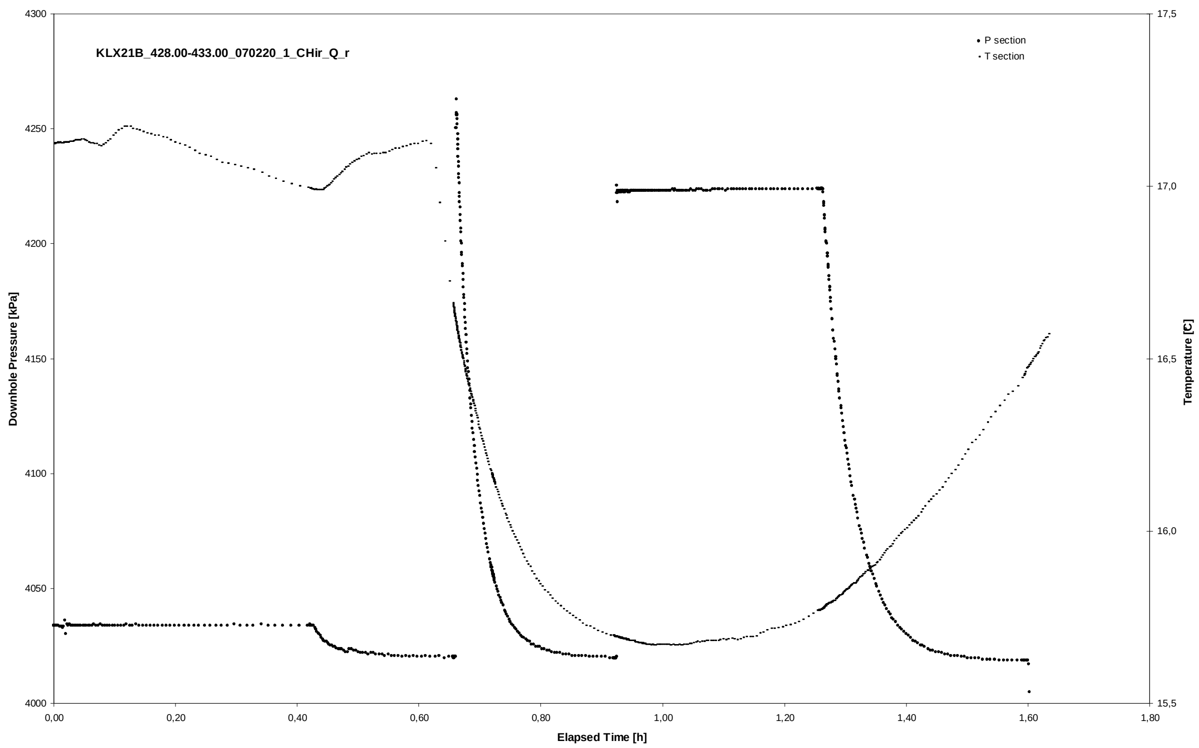
APPENDIX 2-66

Test 428.00 – 433.00 m

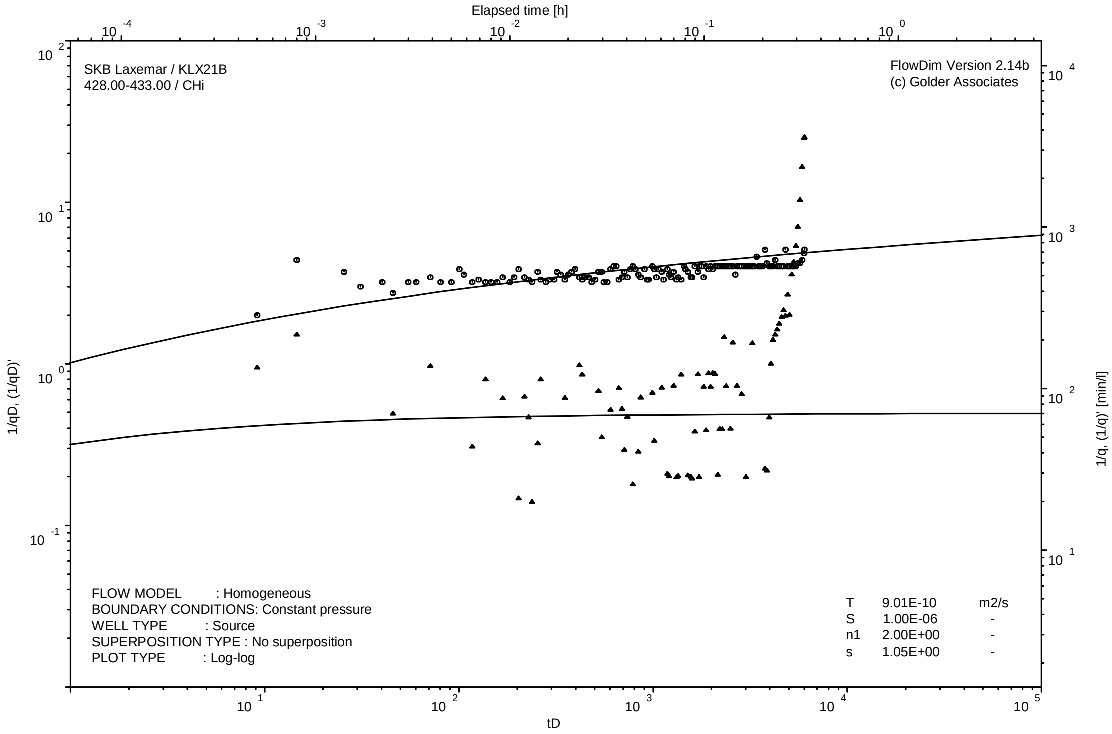
Analysis diagrams



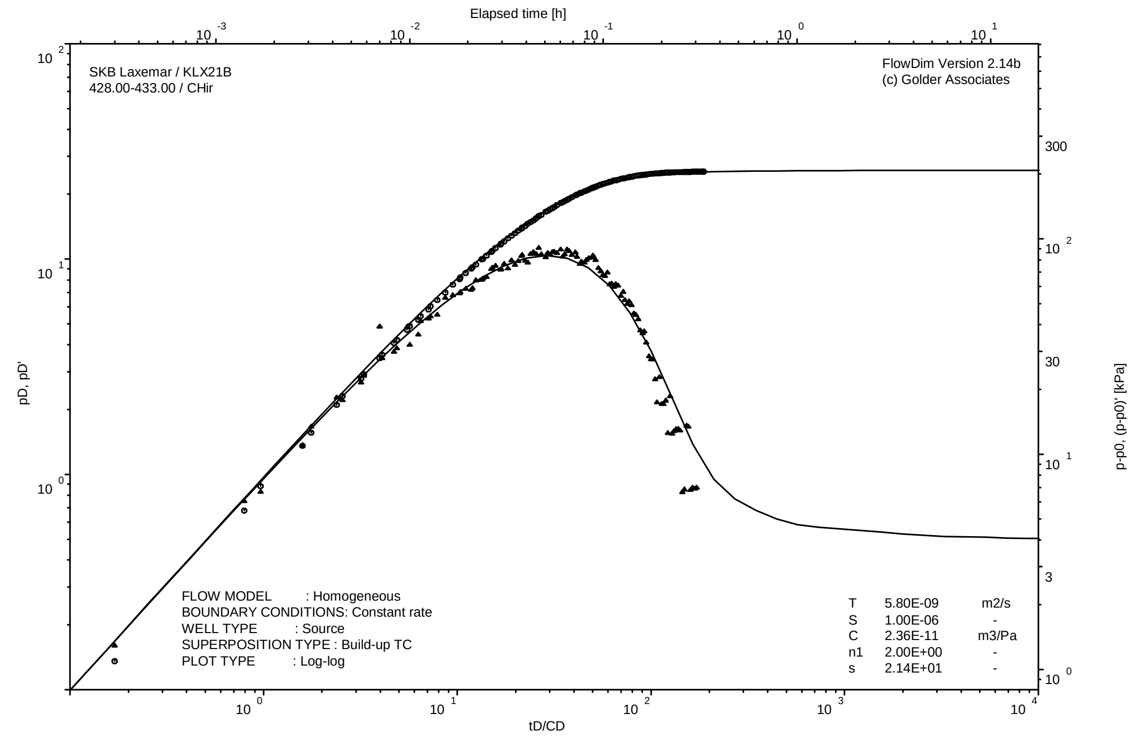
Pressure and flow rate vs. time; cartesian plot



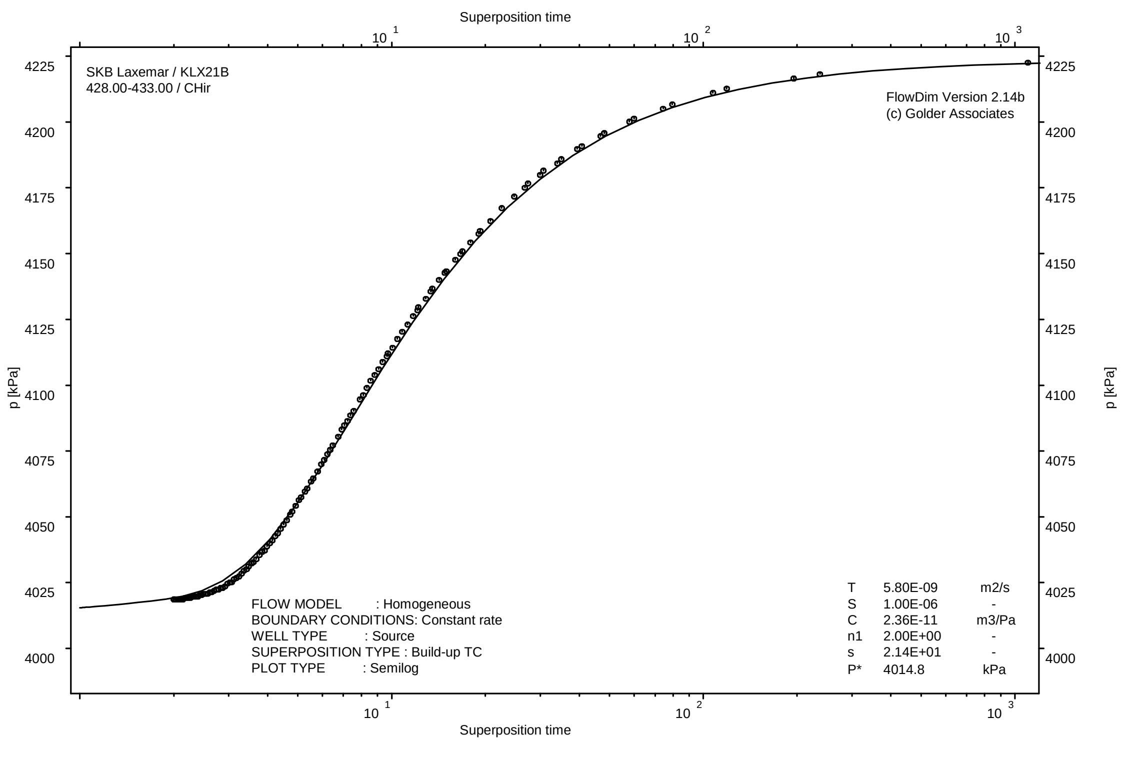
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

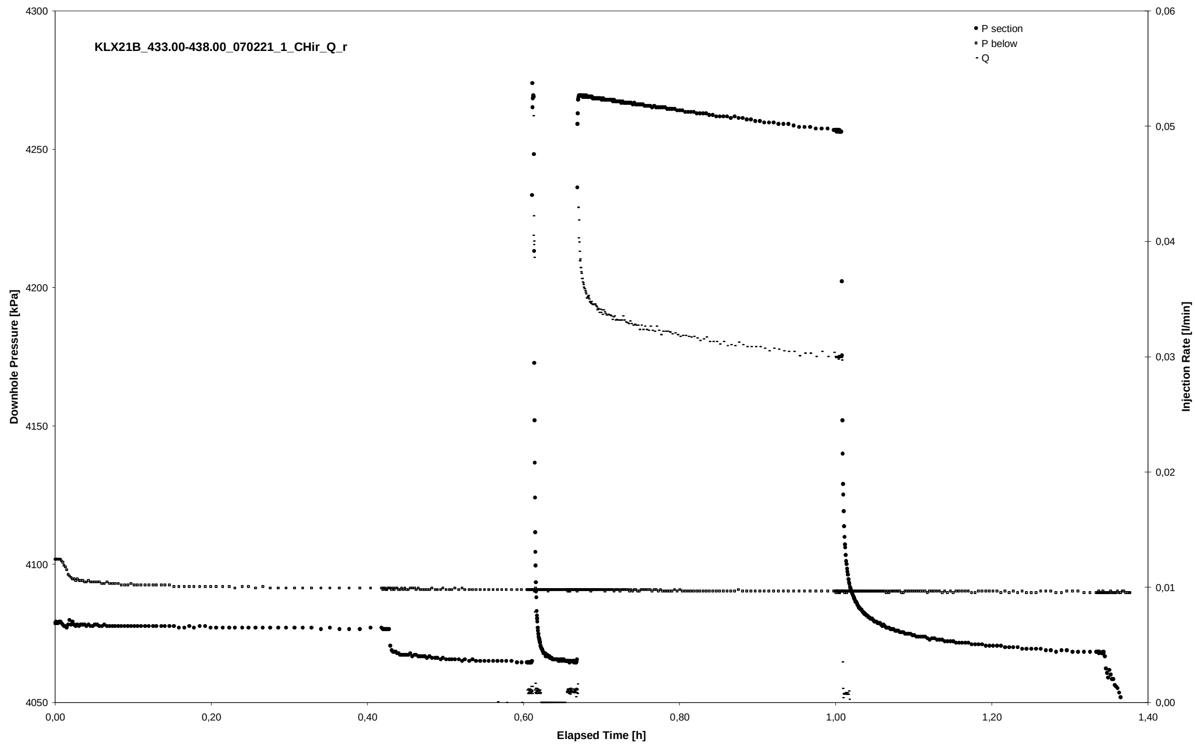


CHIR phase; HORNER match

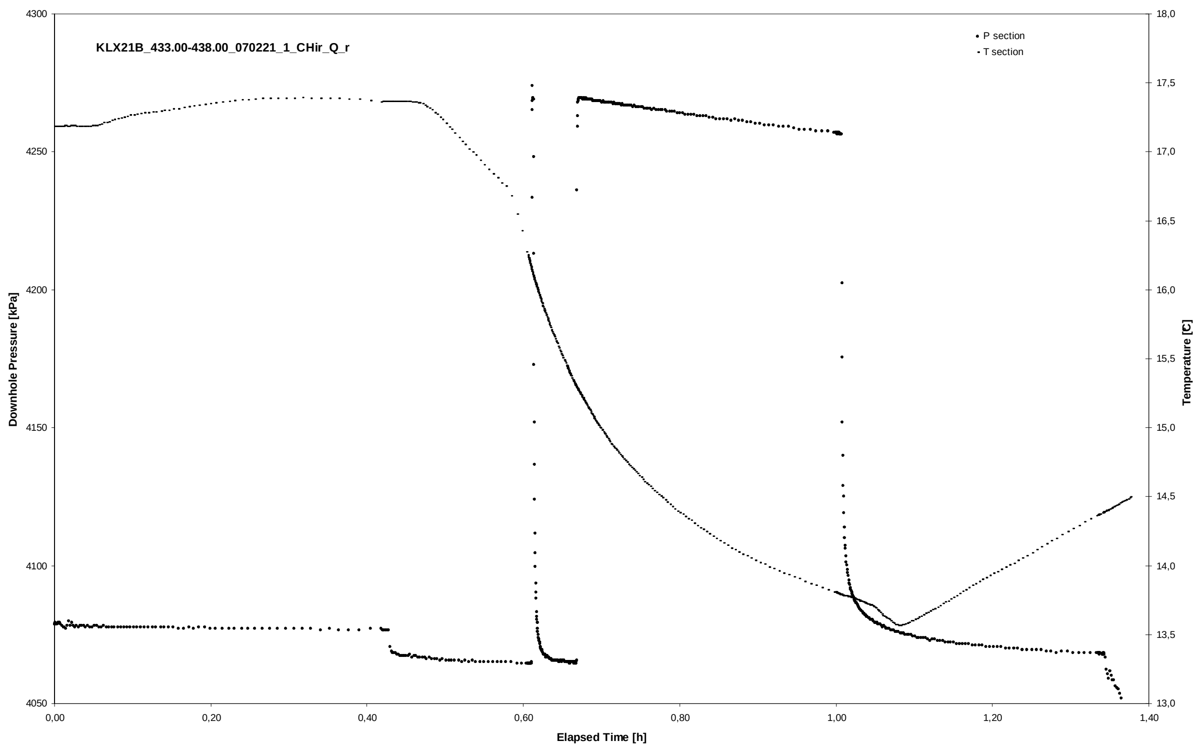
APPENDIX 2-67

Test 433.00 – 438.00 m

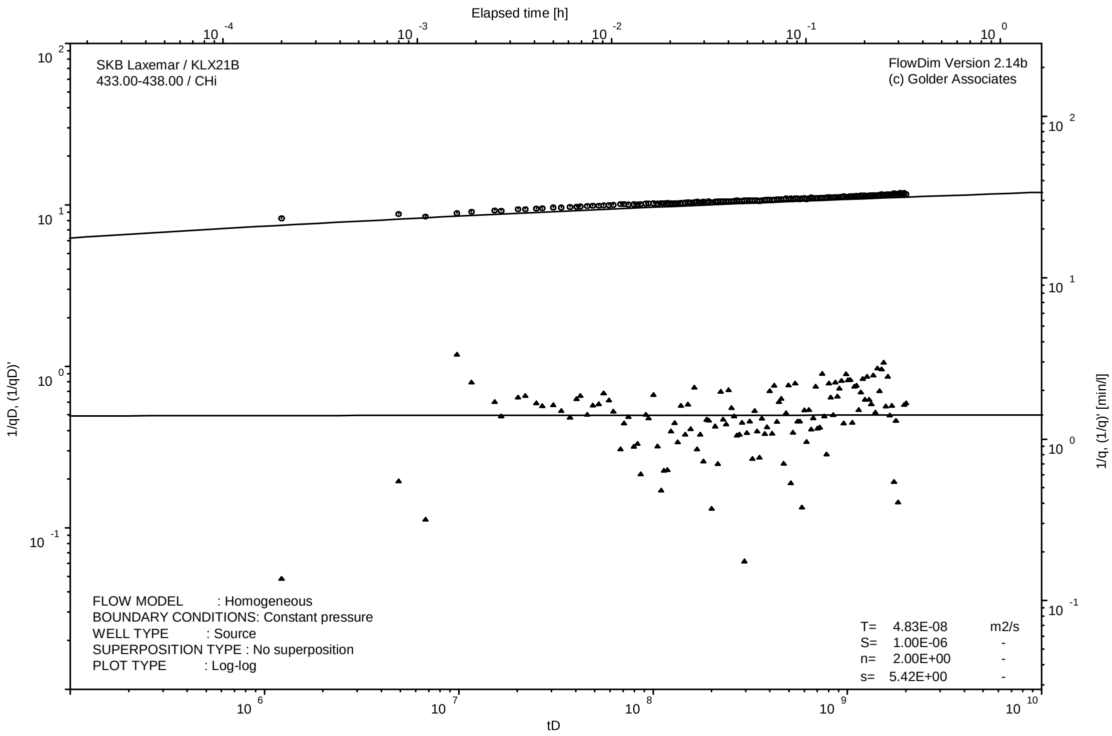
Analysis diagrams



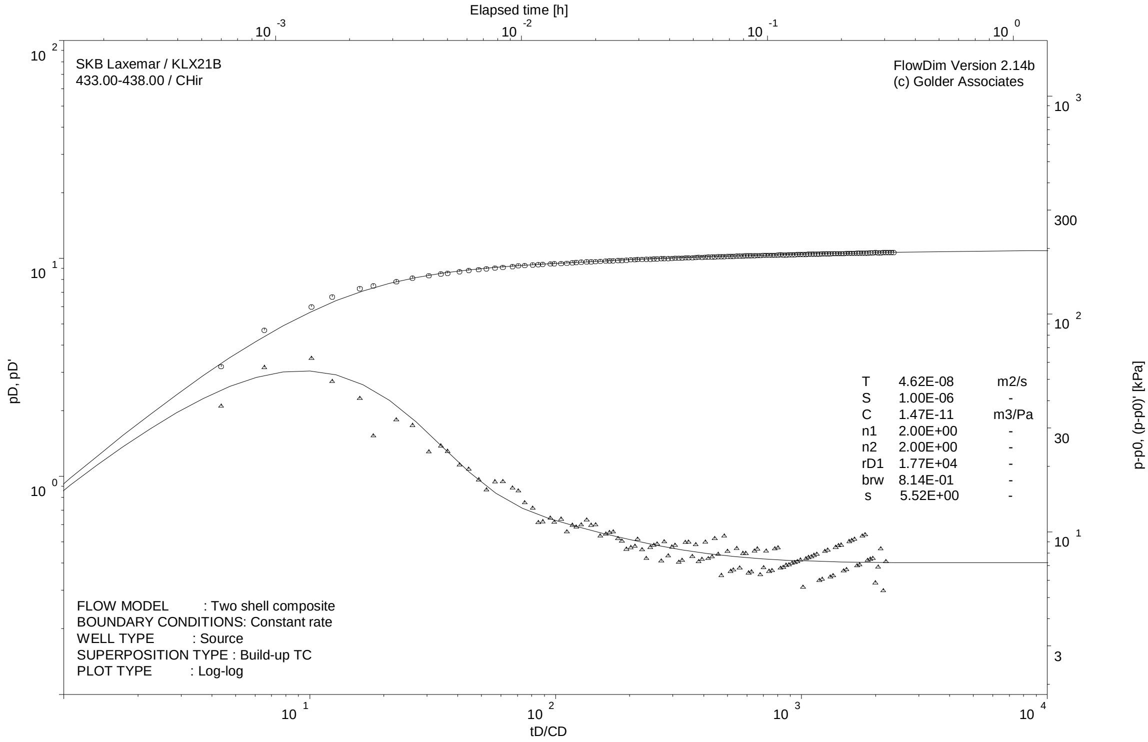
Pressure and flow rate vs. time; cartesian plot



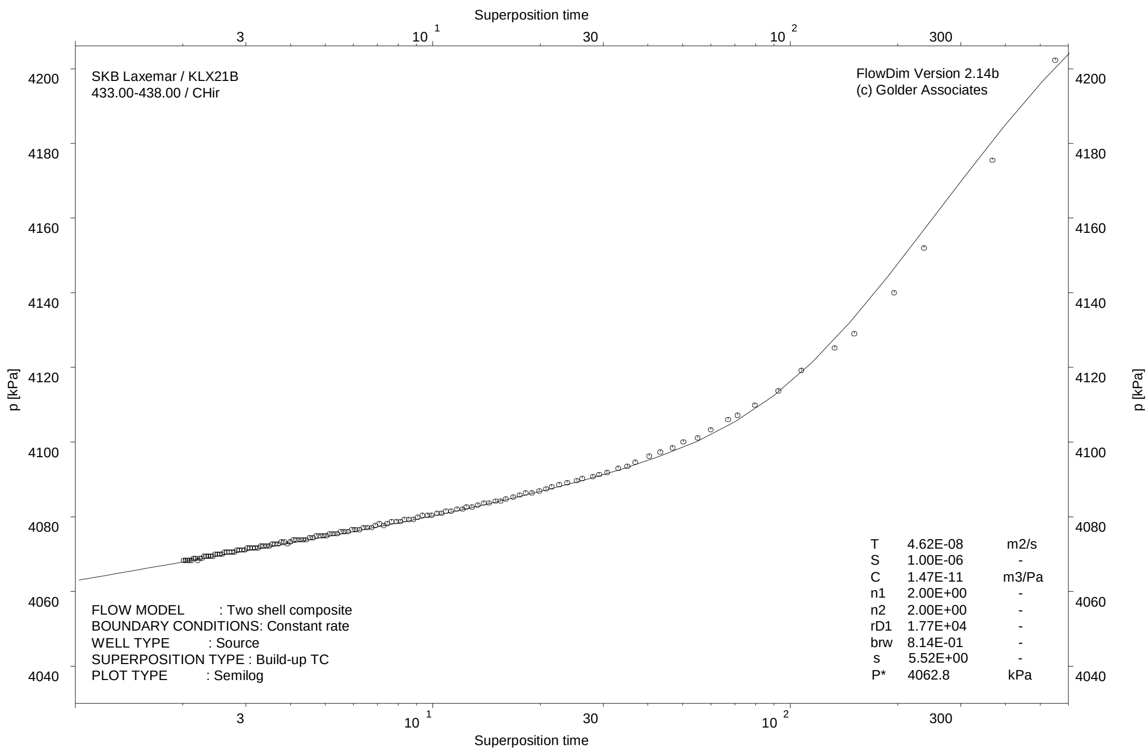
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

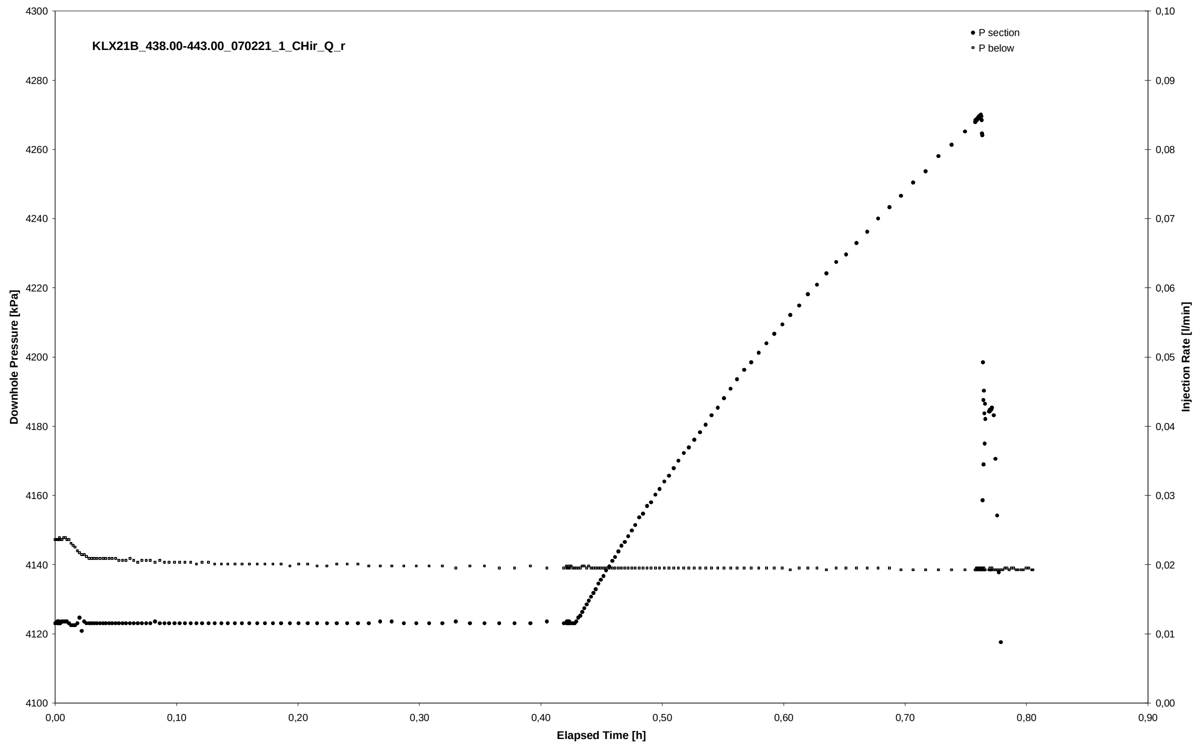


CHIR phase; HORNER match

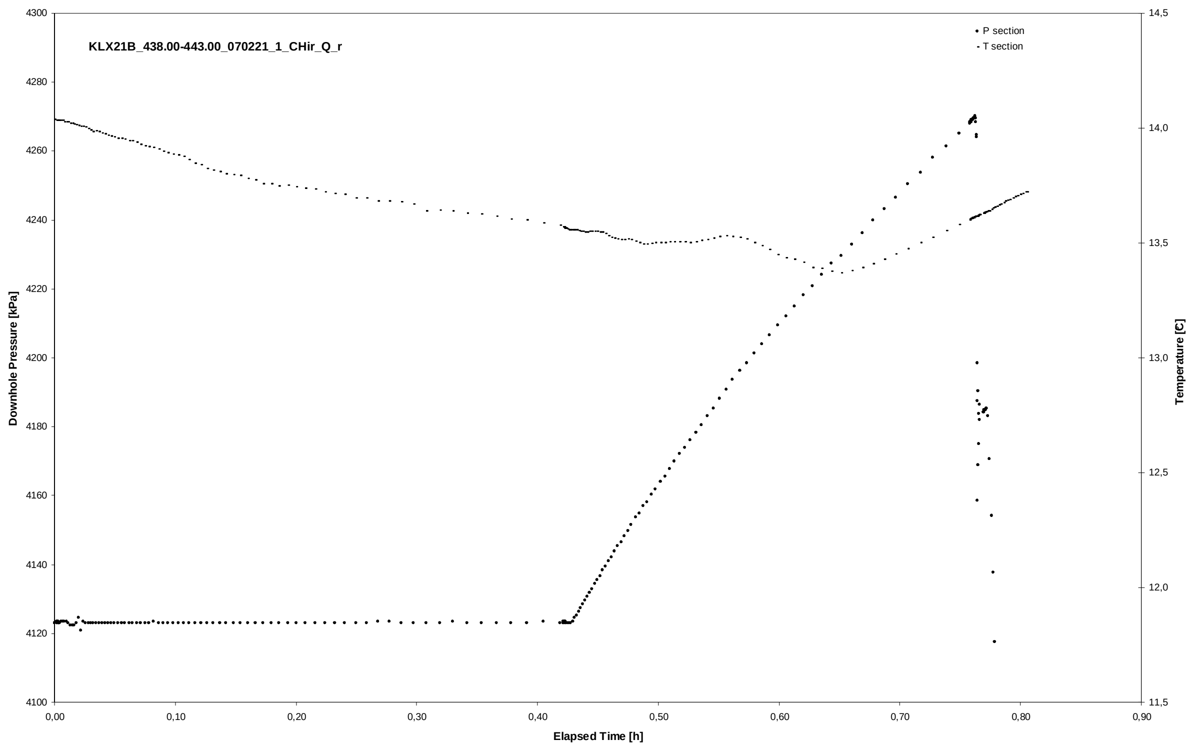
APPENDIX 2-68

Test 438.00 – 443.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

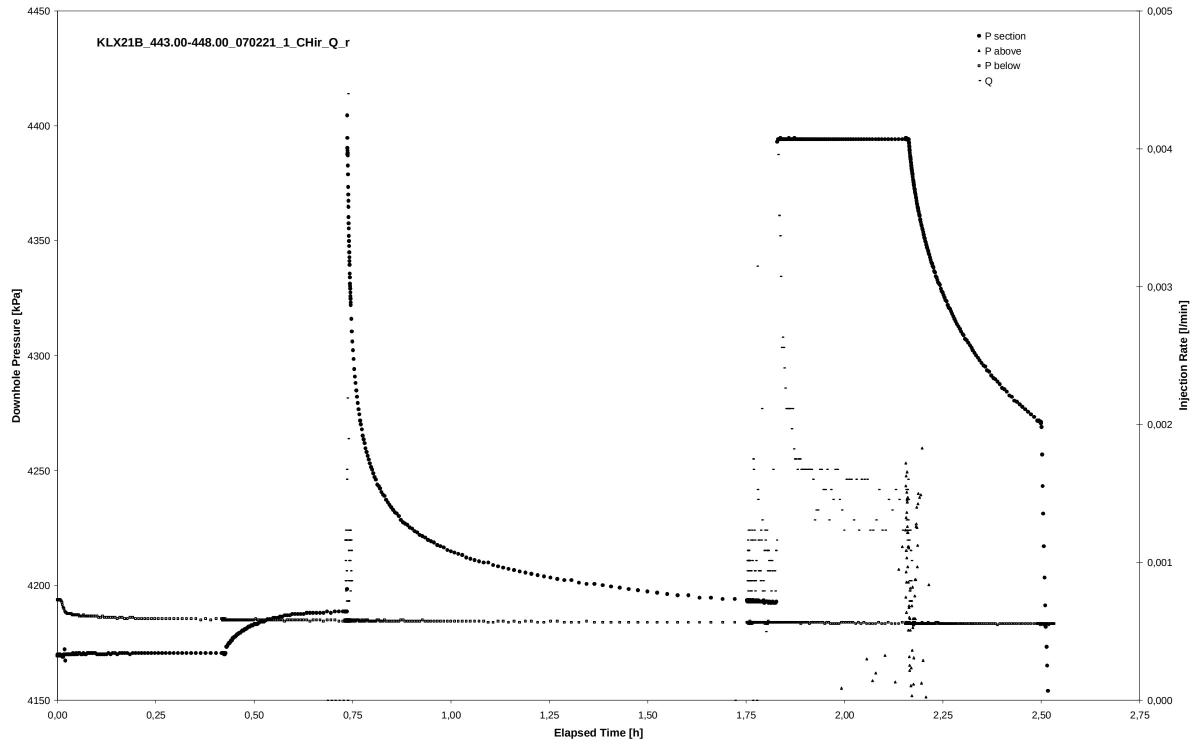
Not analysed

CHIR phase; HORNER match

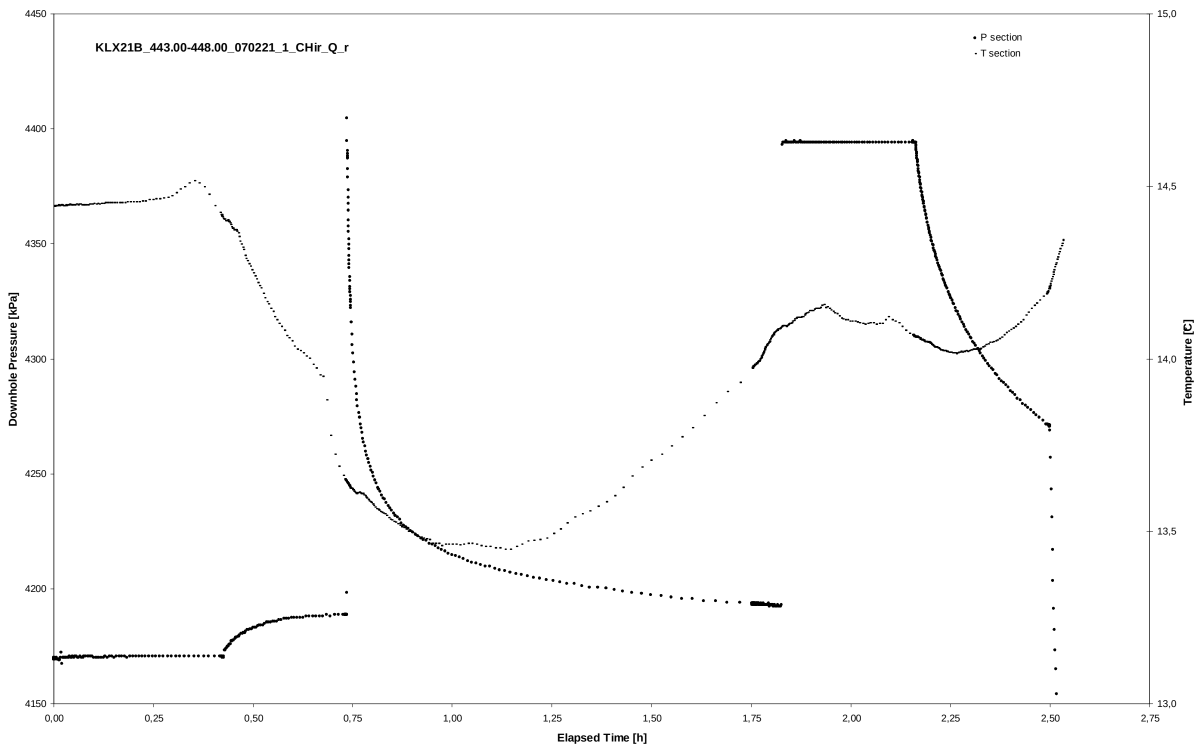
APPENDIX 2-69

Test 443.00 – 448.00 m

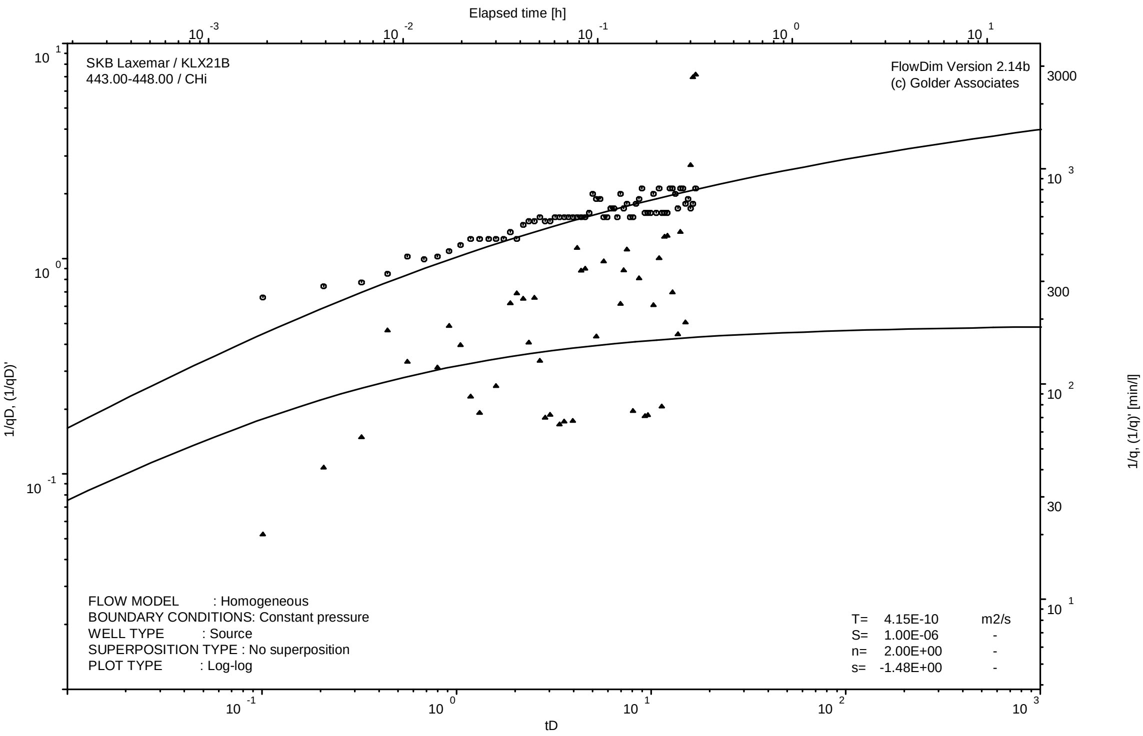
Analysis diagrams



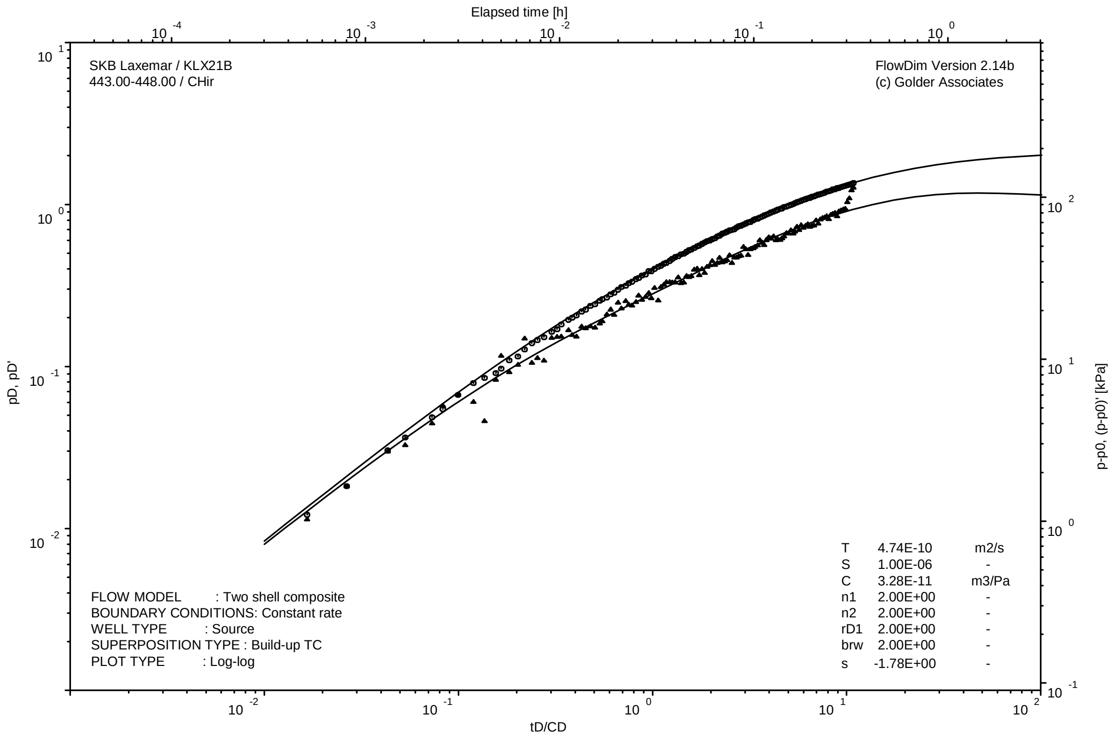
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

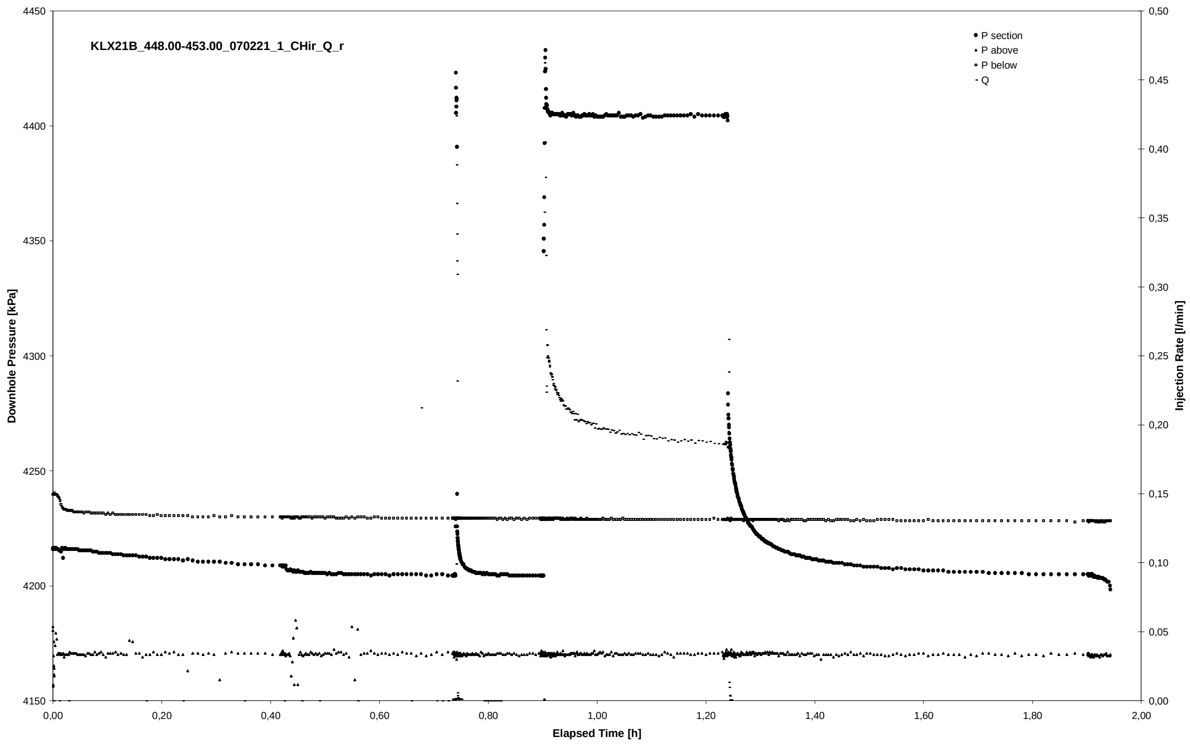
Not analysed

CHIR phase; HORNER match

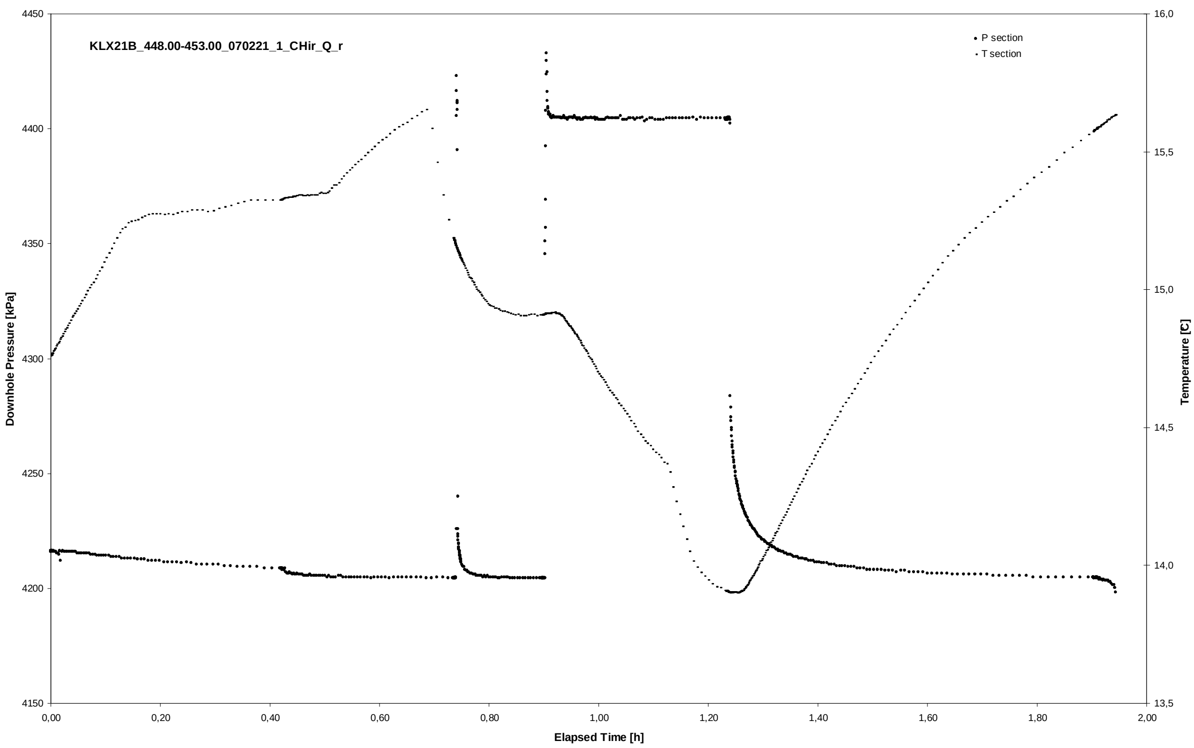
APPENDIX 2-70

Test 448.00 – 453.00 m

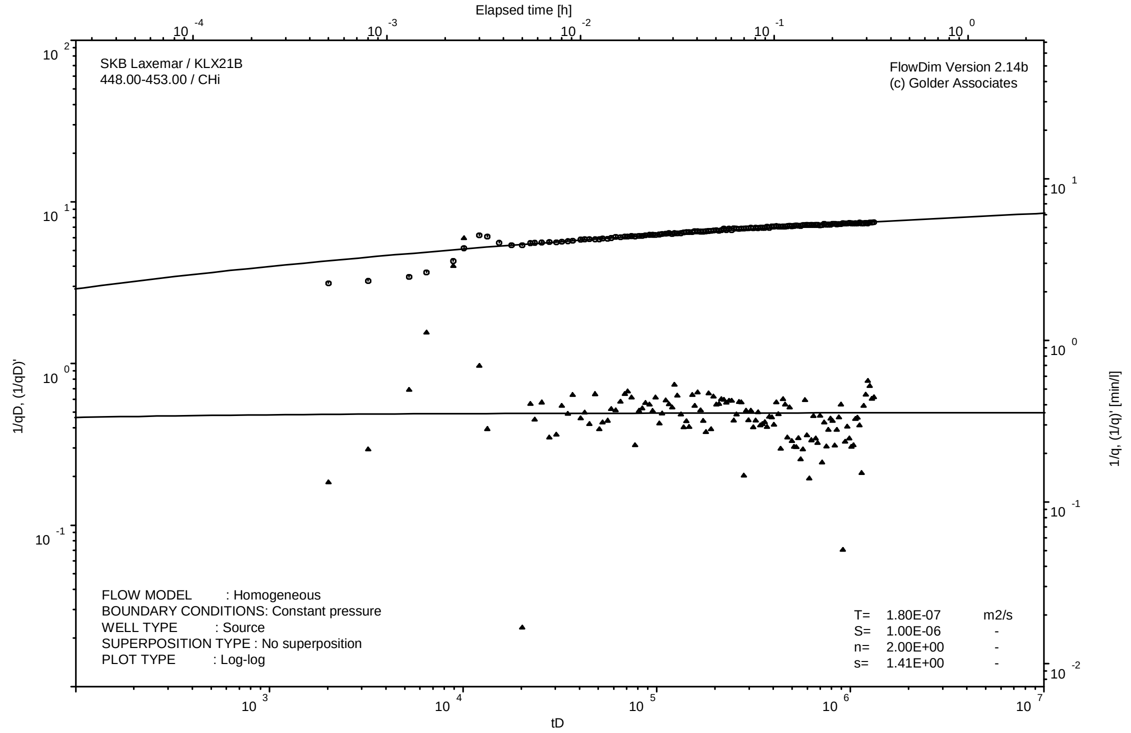
Analysis diagrams



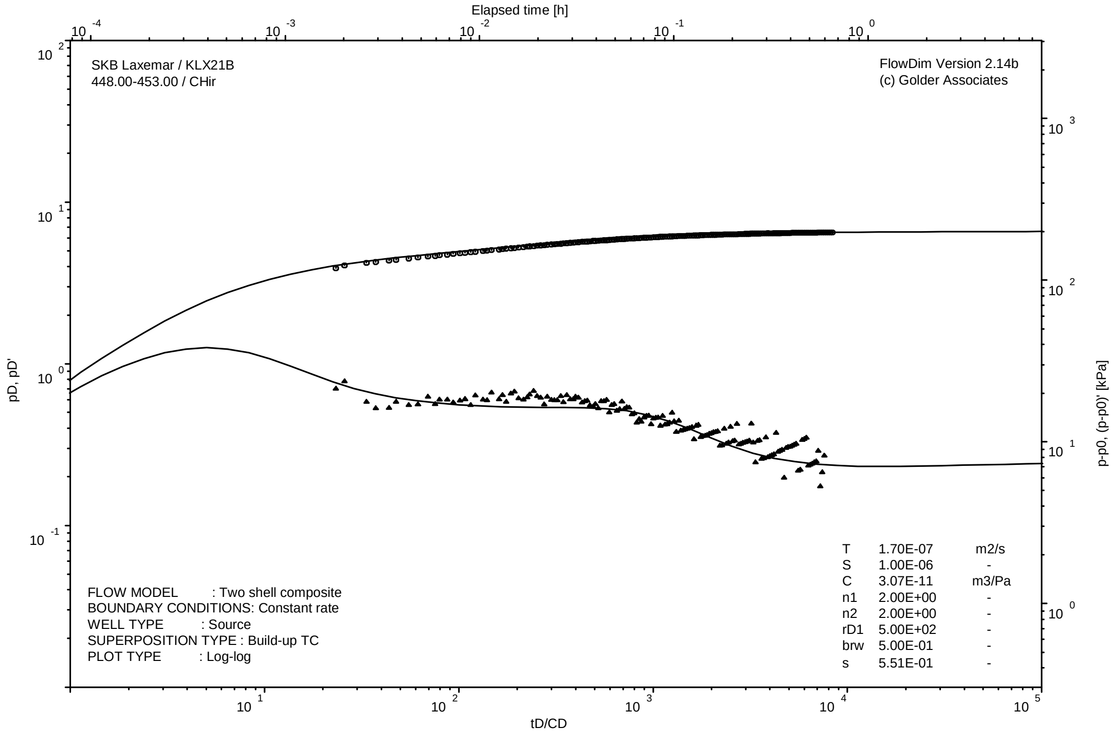
Pressure and flow rate vs. time; cartesian plot



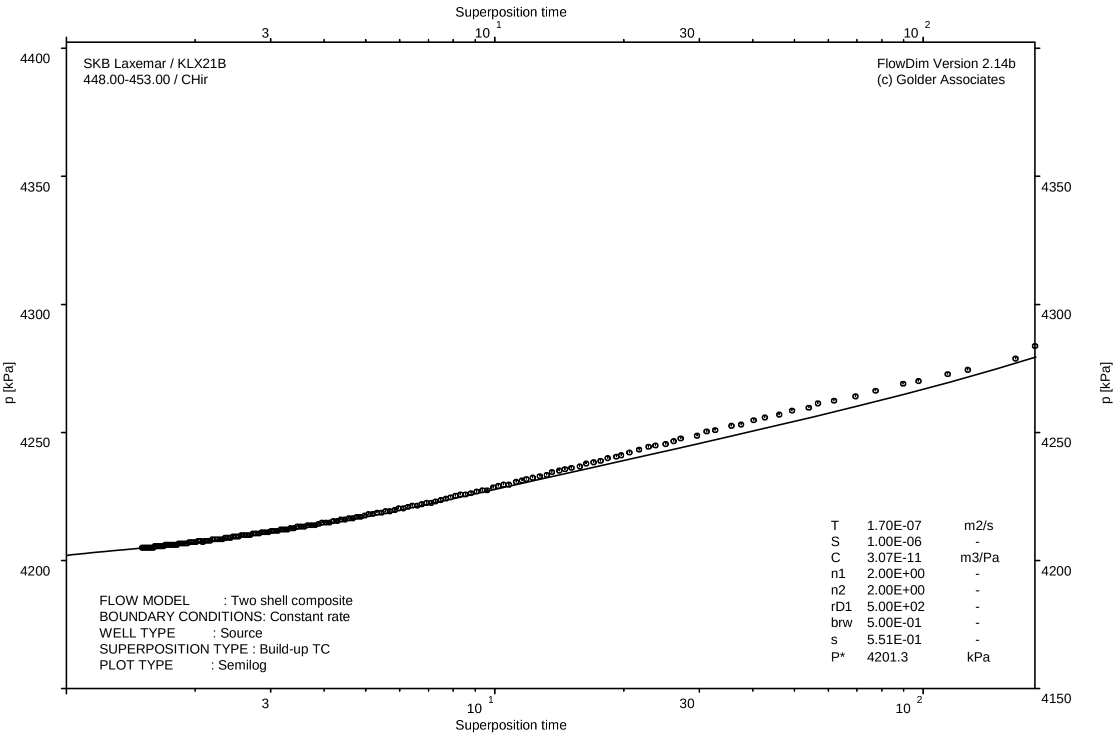
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

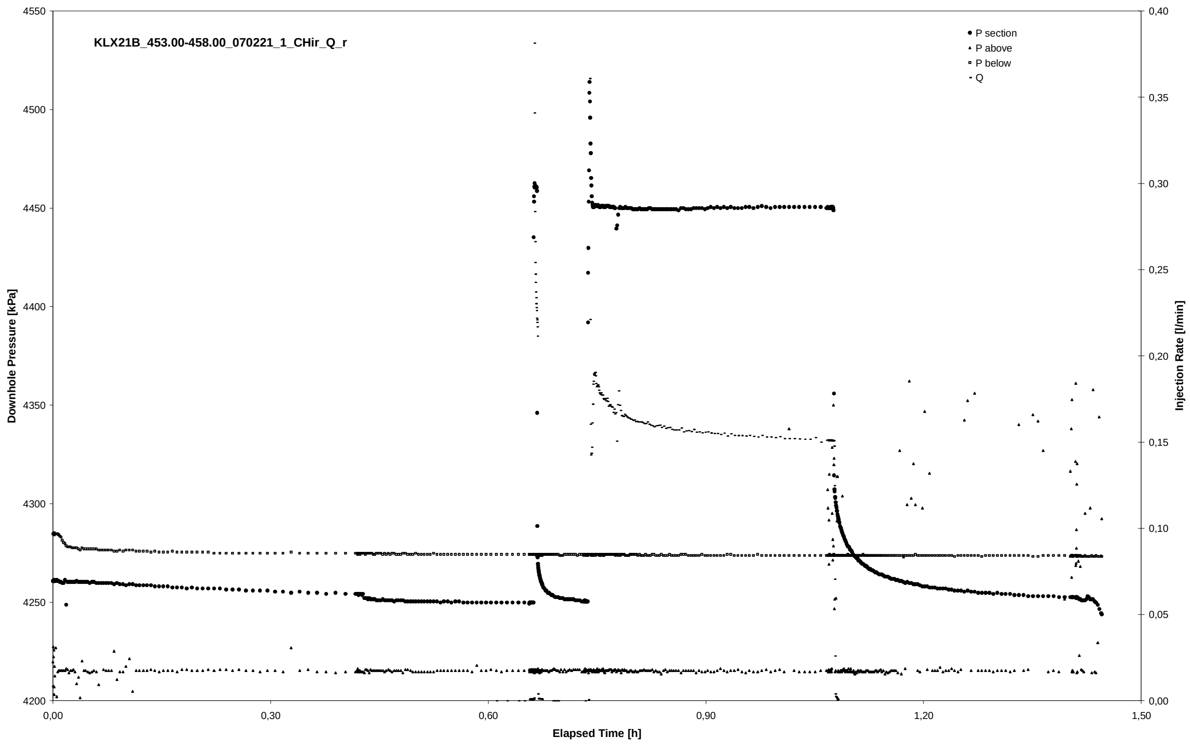


CHIR phase; HORNER match

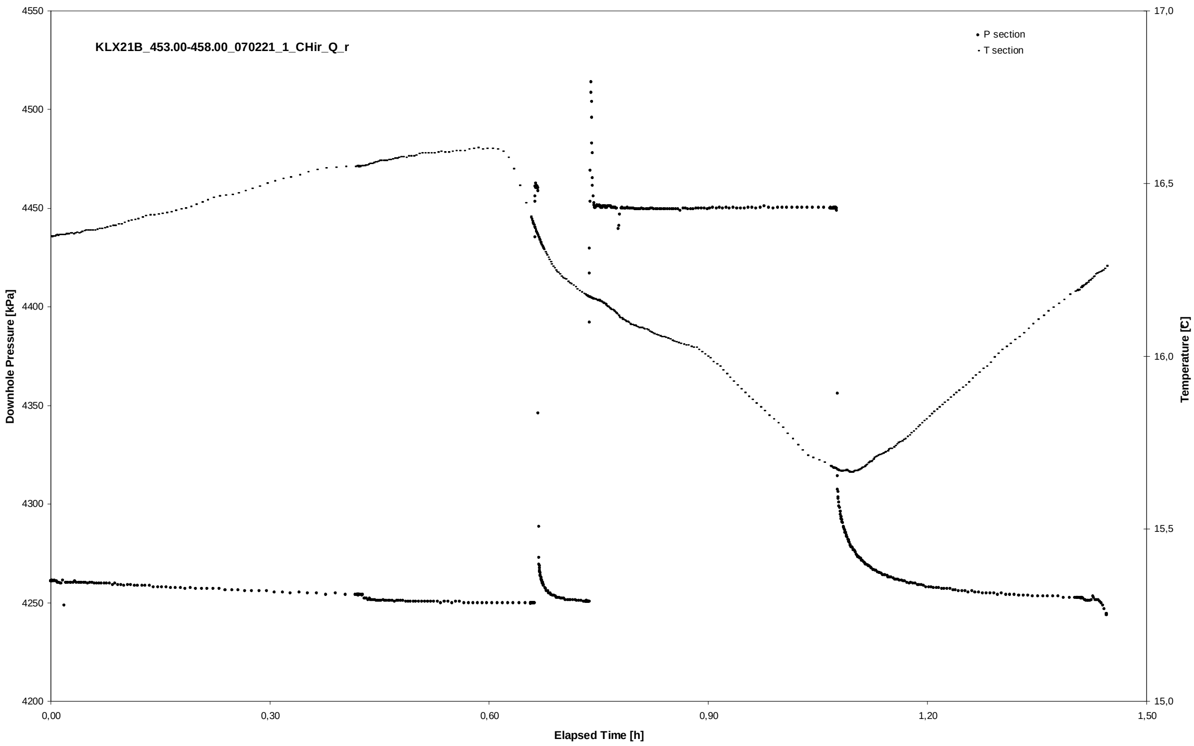
APPENDIX 2-71

Test 453.00 – 458.00 m

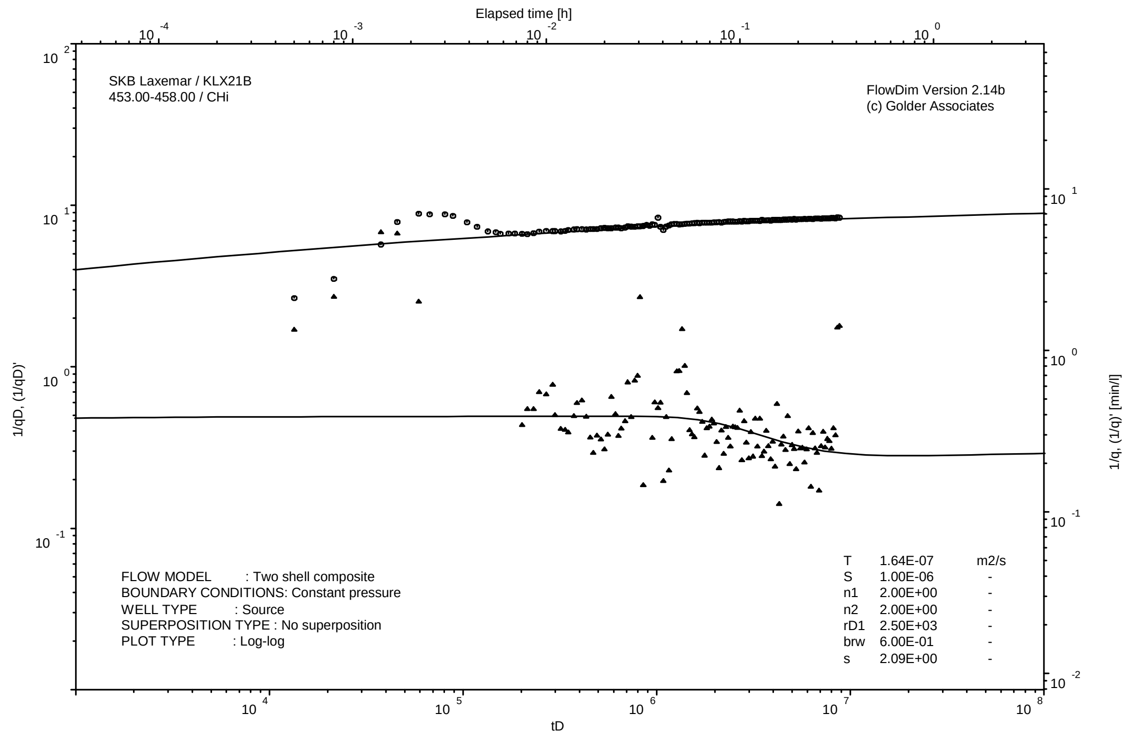
Analysis diagrams



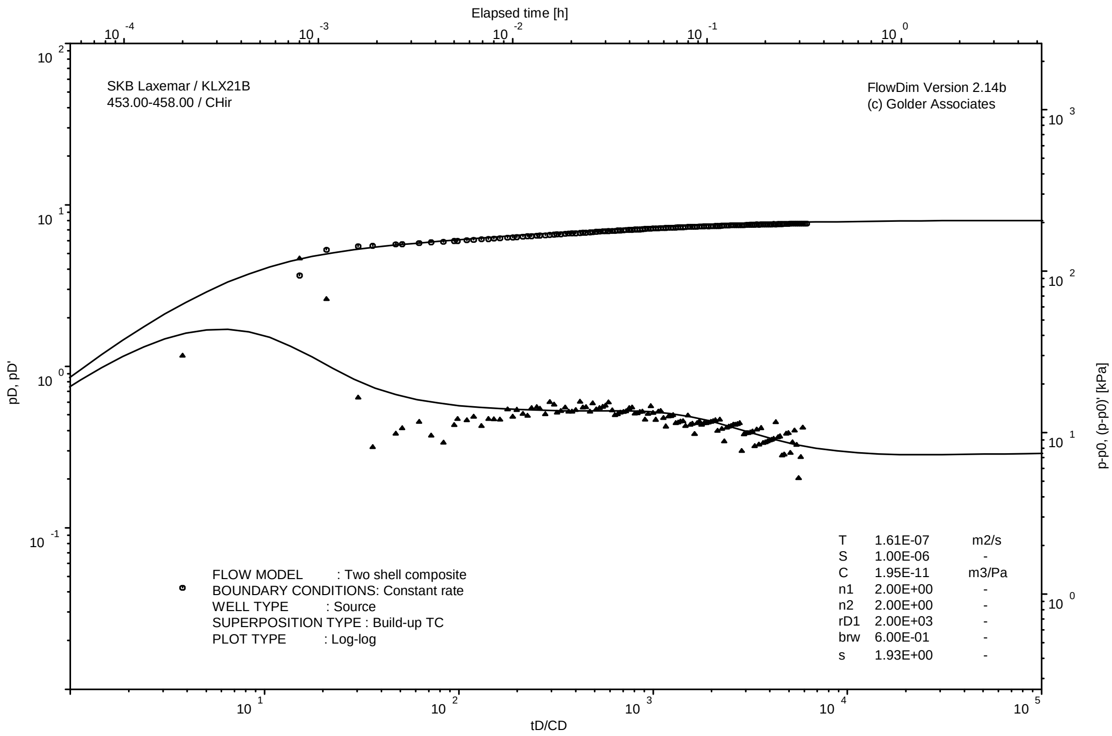
Pressure and flow rate vs. time; cartesian plot



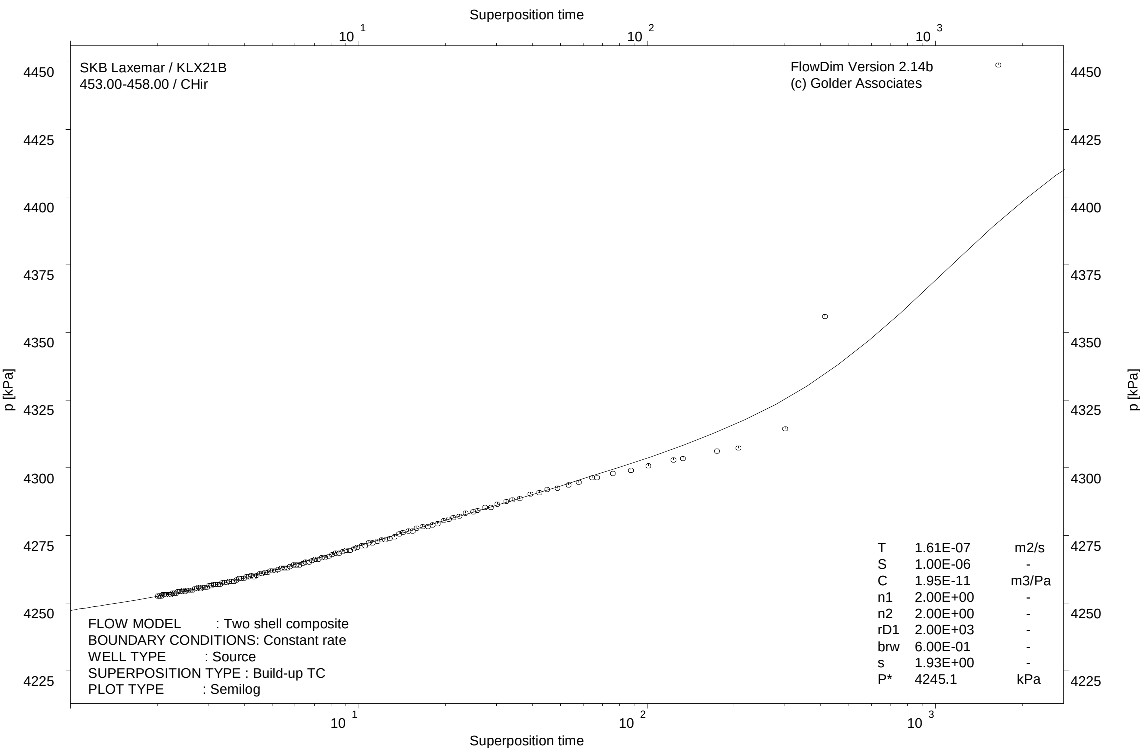
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

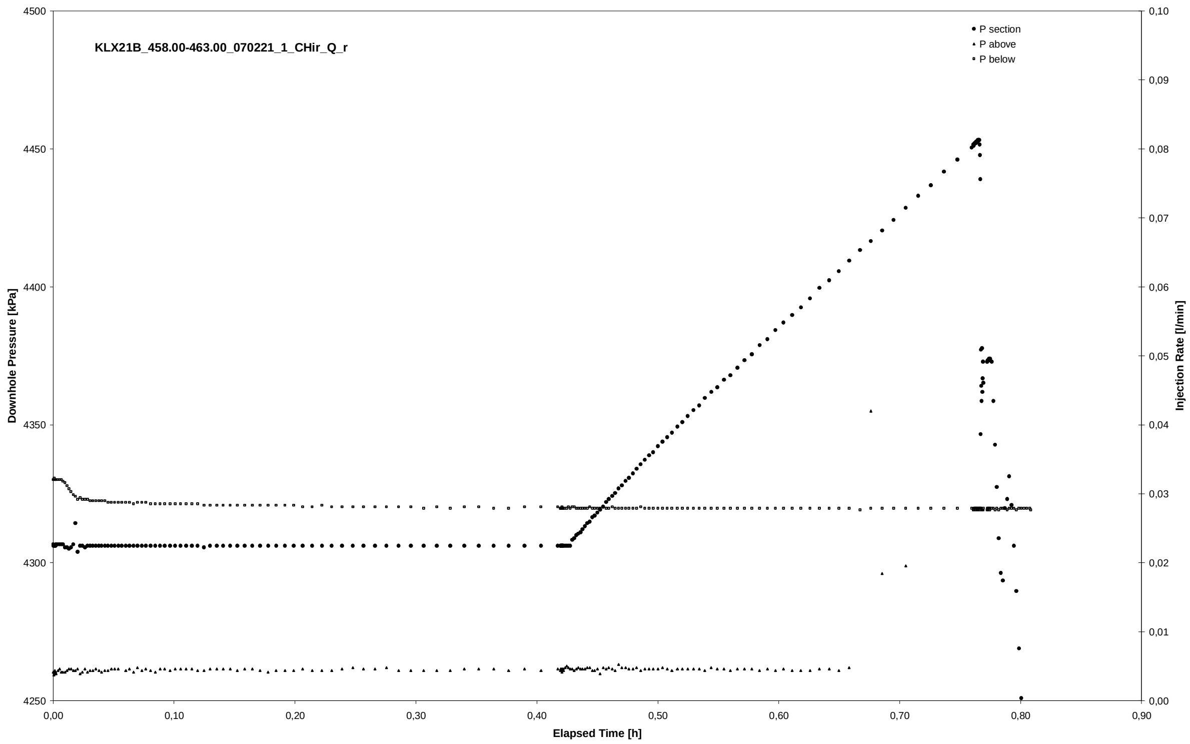


CHIR phase; HORNER match

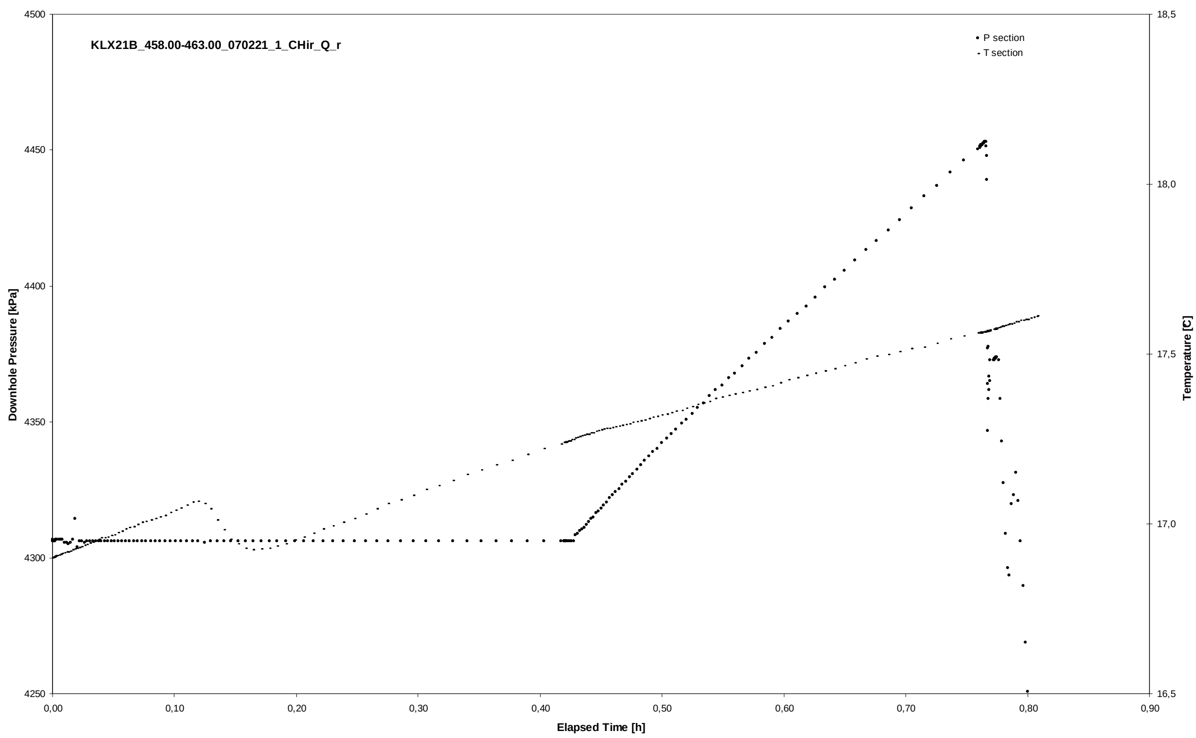
APPENDIX 2-72

Test 458.00 – 463.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

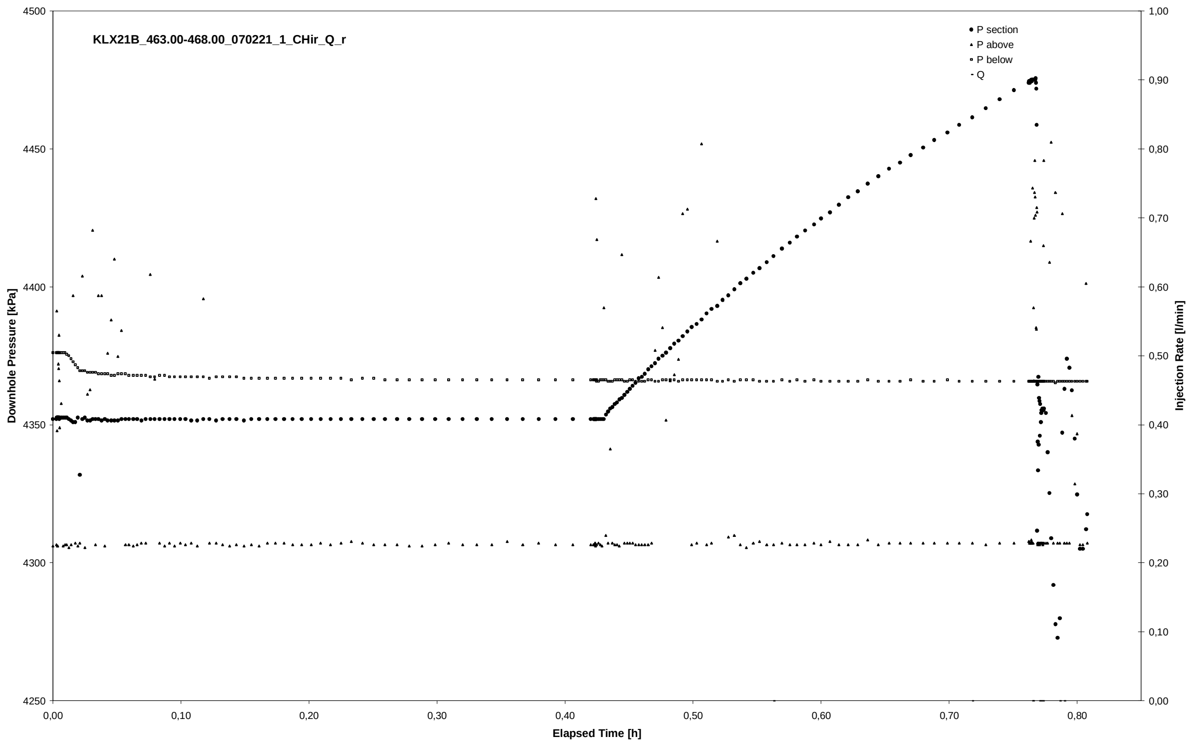
Not analysed

CHIR phase; HORNER match

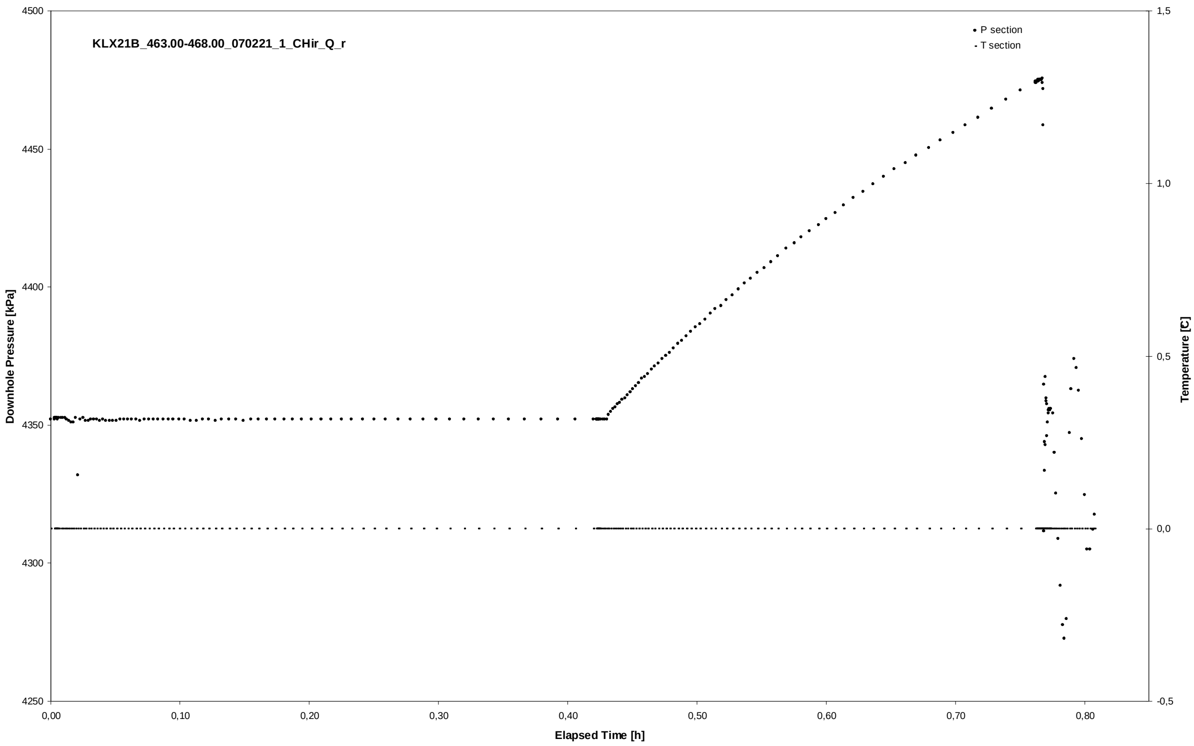
APPENDIX 2-73

Test 463.00 – 468.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

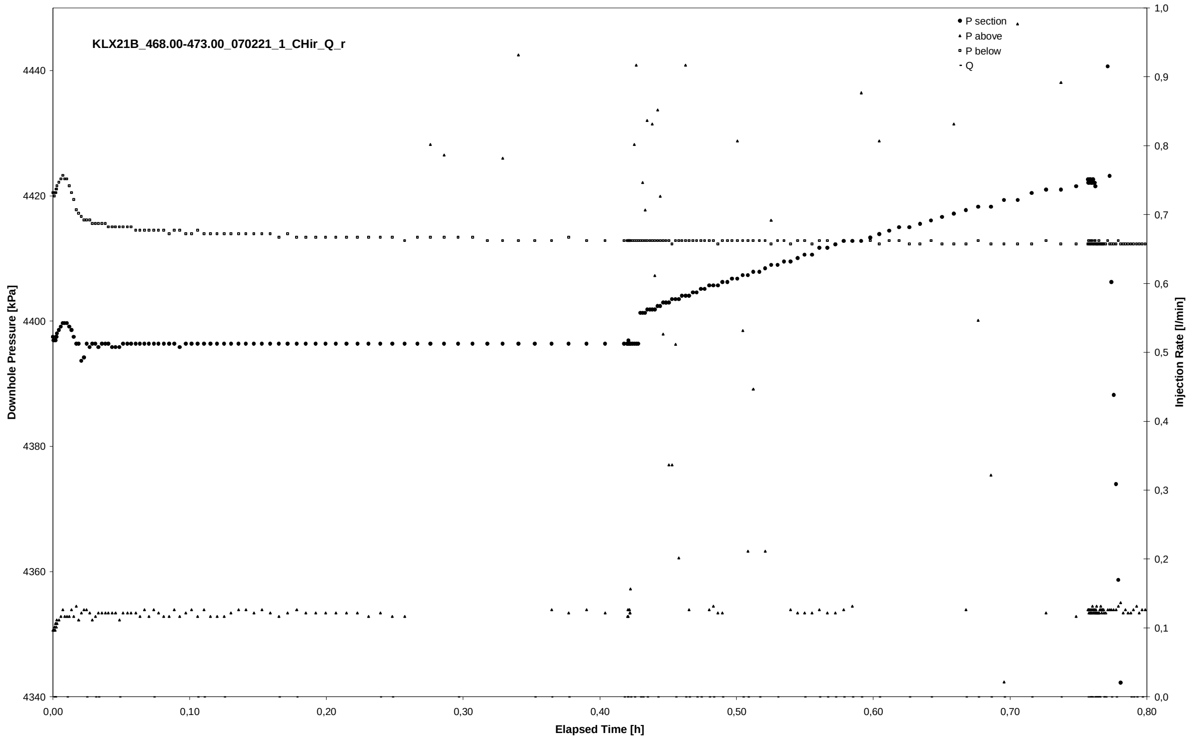
Not analysed

CHIR phase; HORNER match

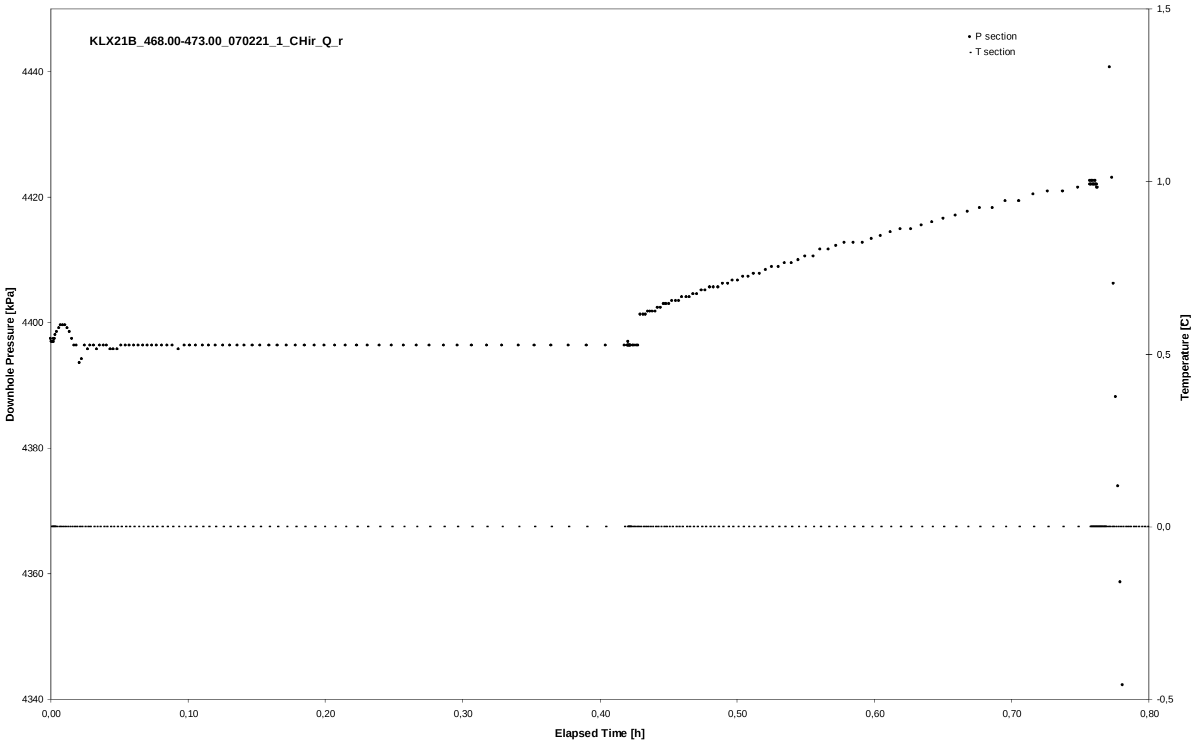
APPENDIX 2-74

Test 468.00 – 473.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

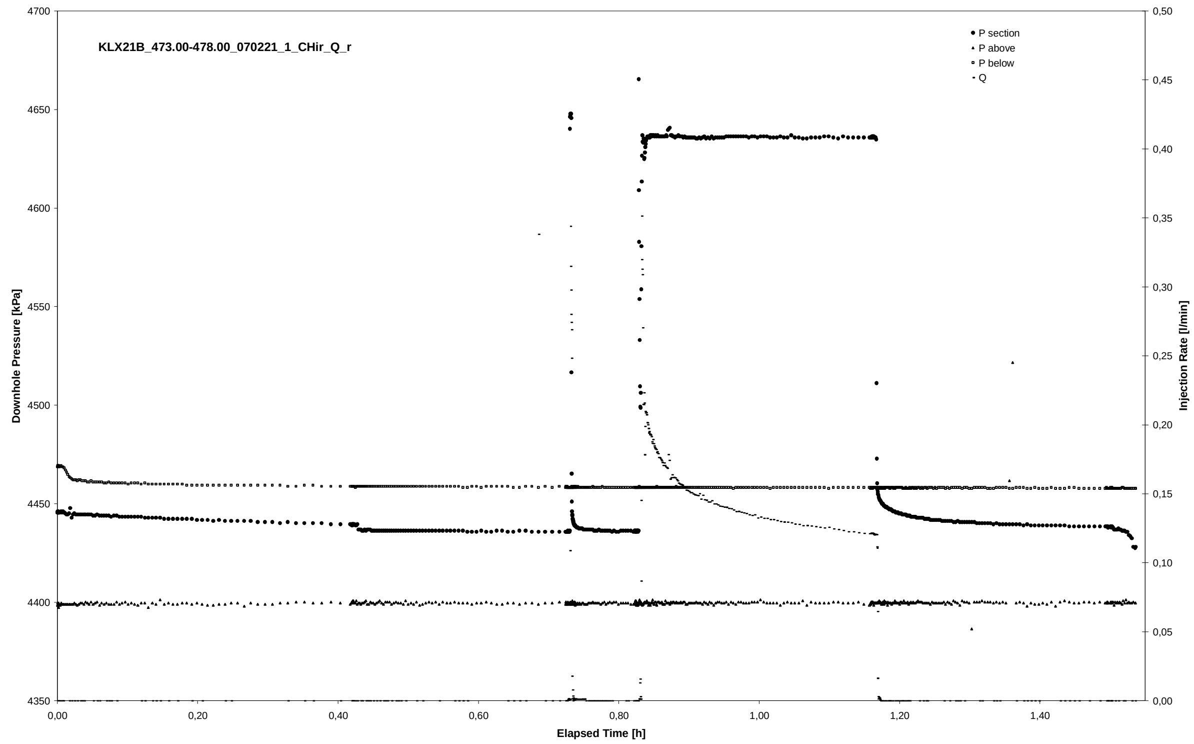
Not analysed

CHIR phase; HORNER match

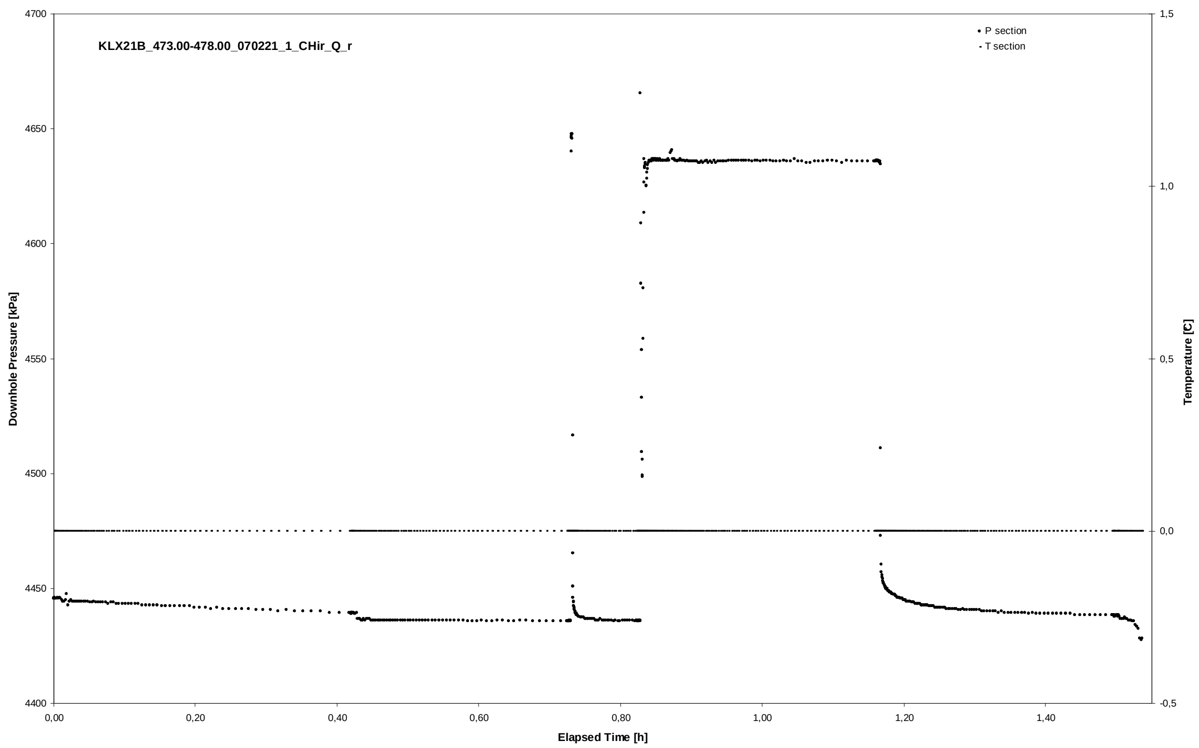
APPENDIX 2-75

Test 473.00 – 478.00 m

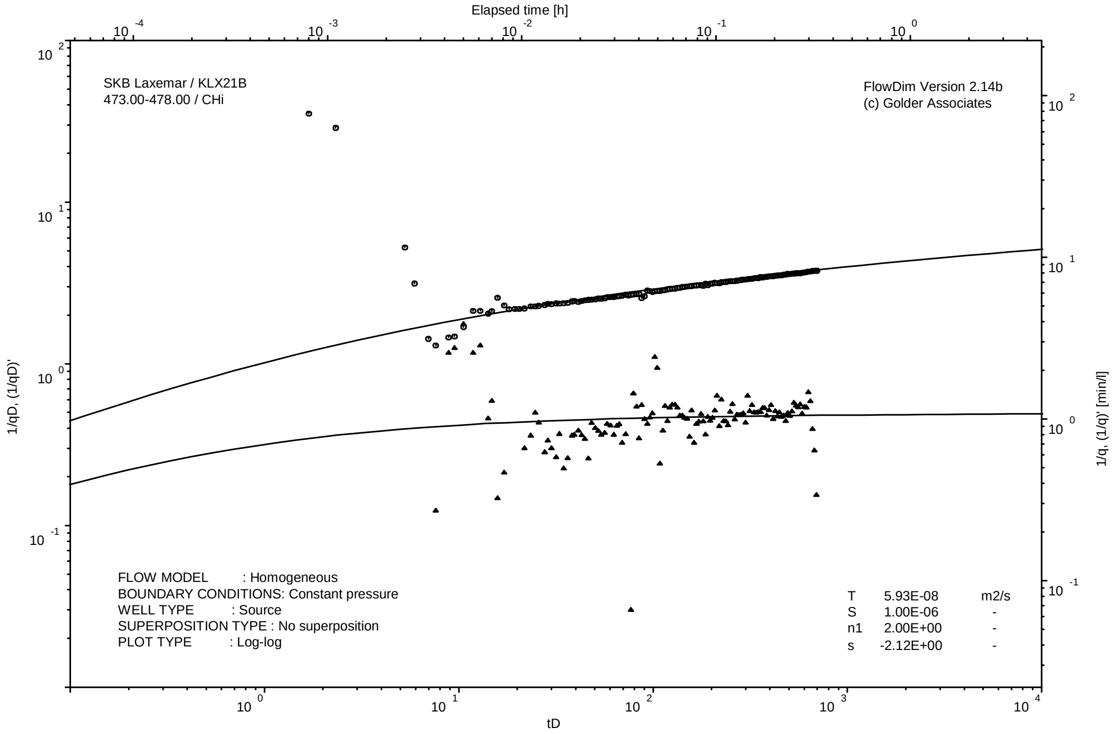
Analysis diagrams



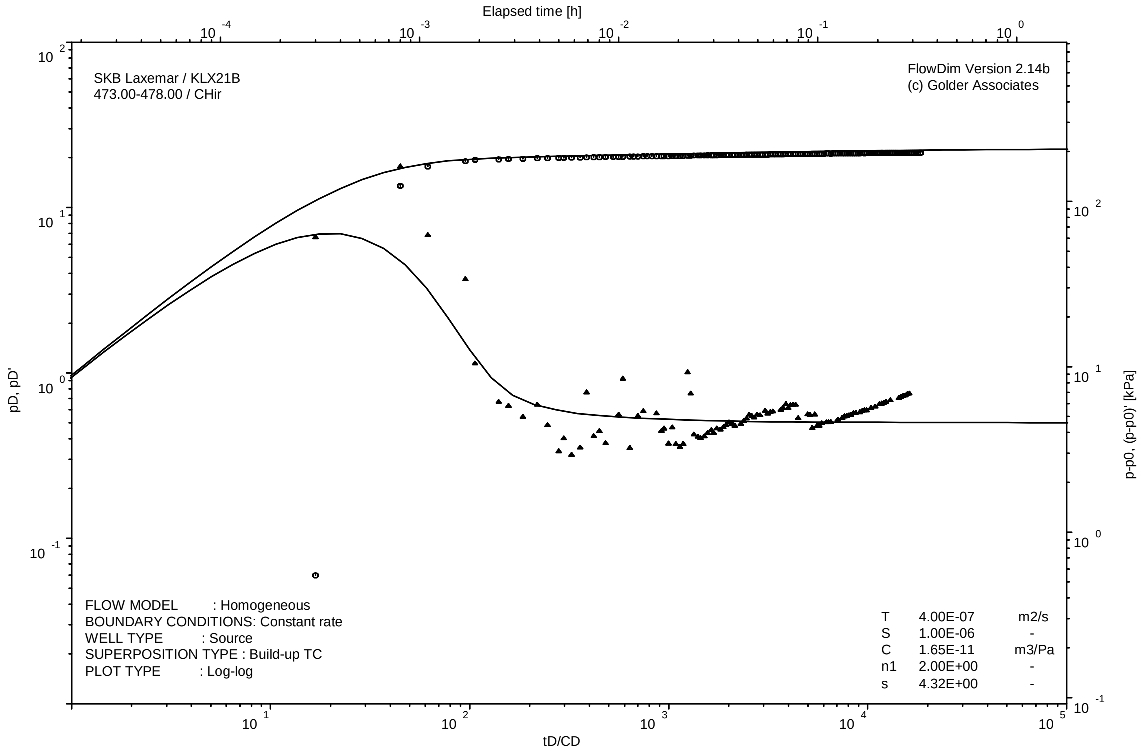
Pressure and flow rate vs. time; cartesian plot



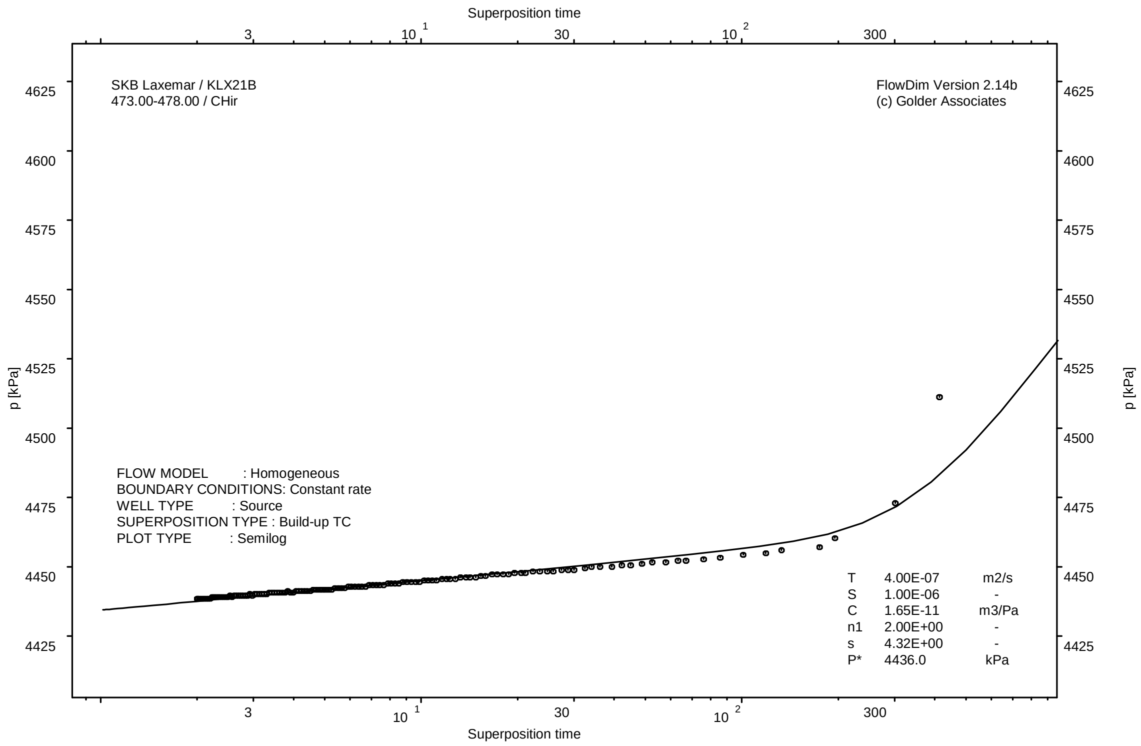
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

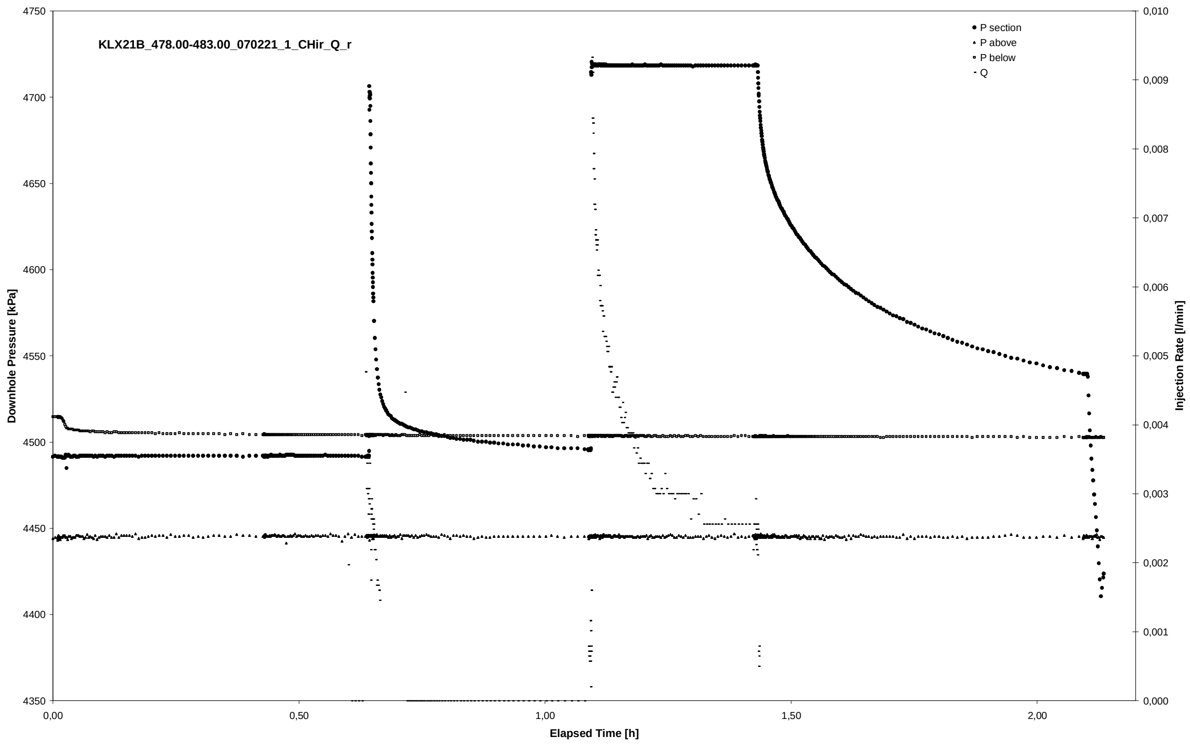


CHIR phase; HORNER match

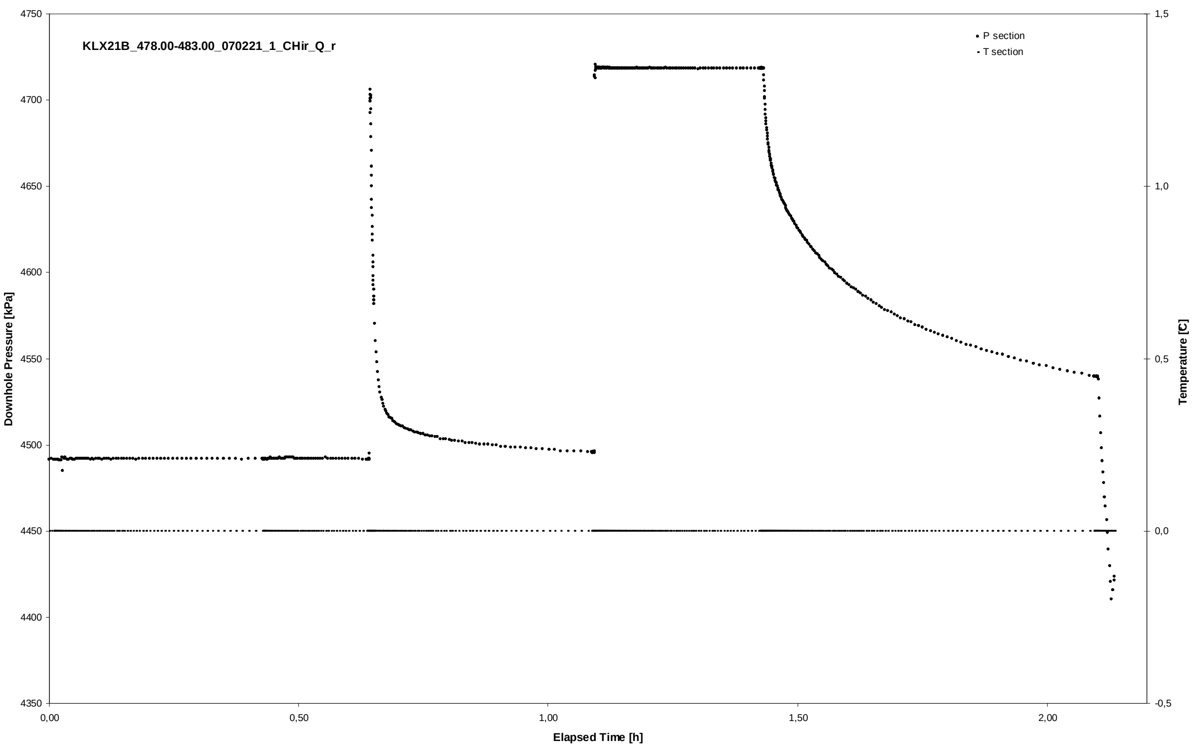
APPENDIX 2-76

Test 478.00 – 483.00 m

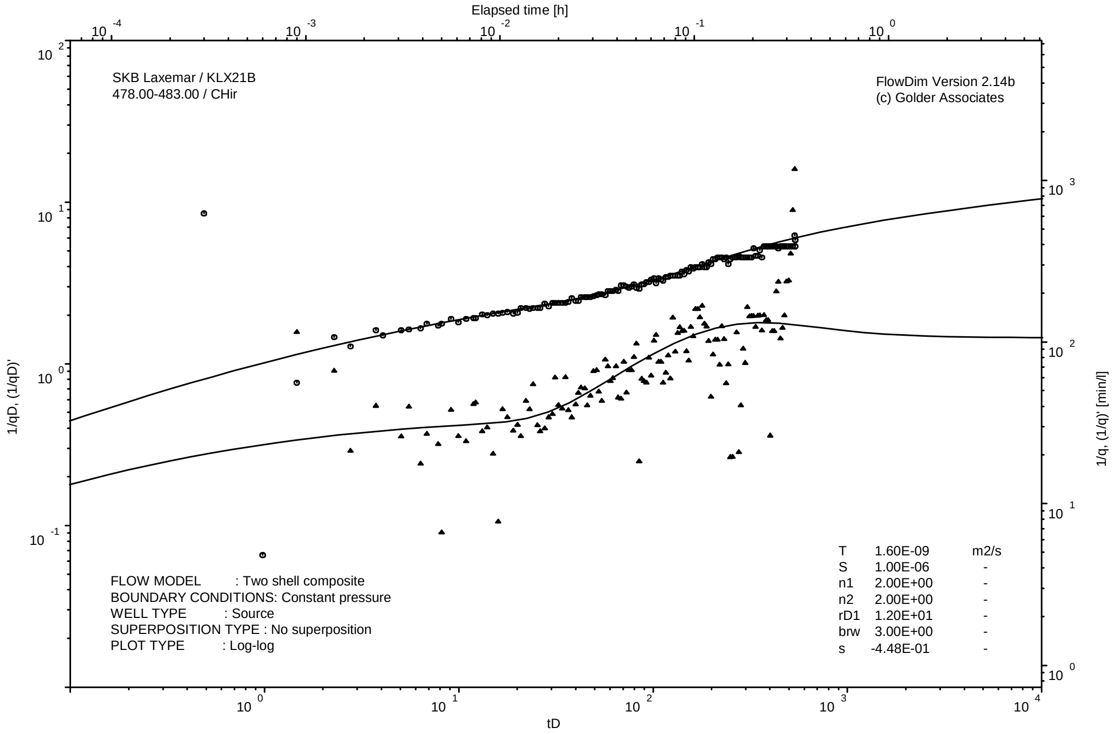
Analysis diagrams



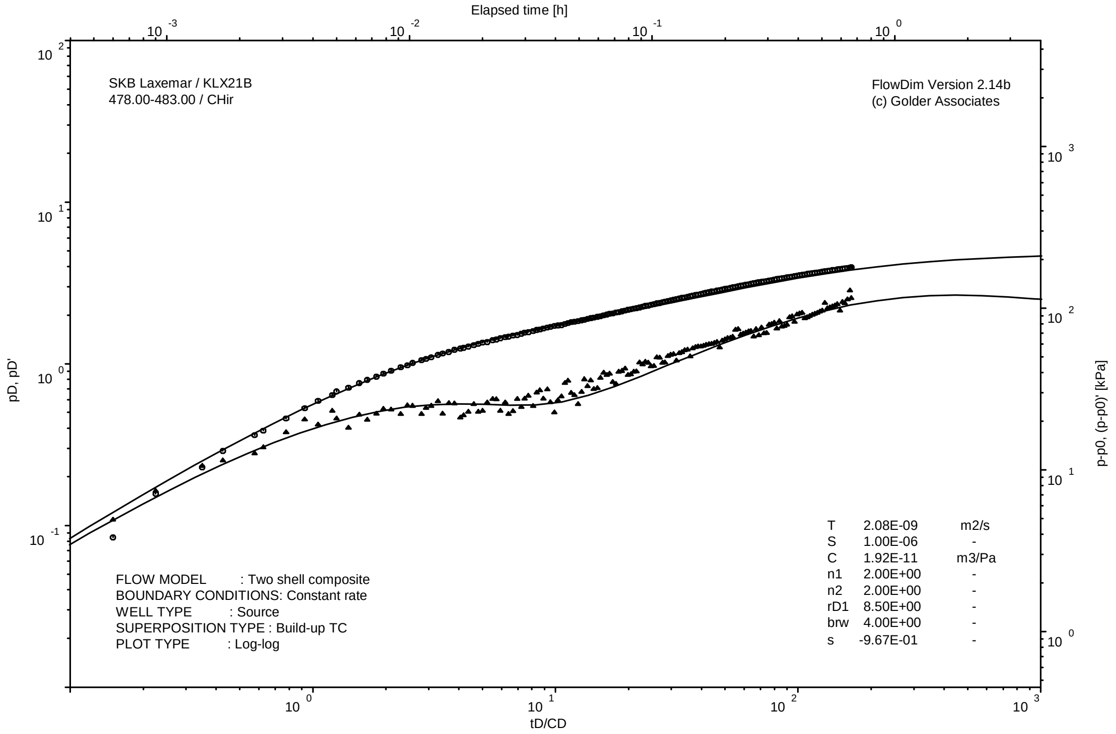
Pressure and flow rate vs. time; cartesian plot



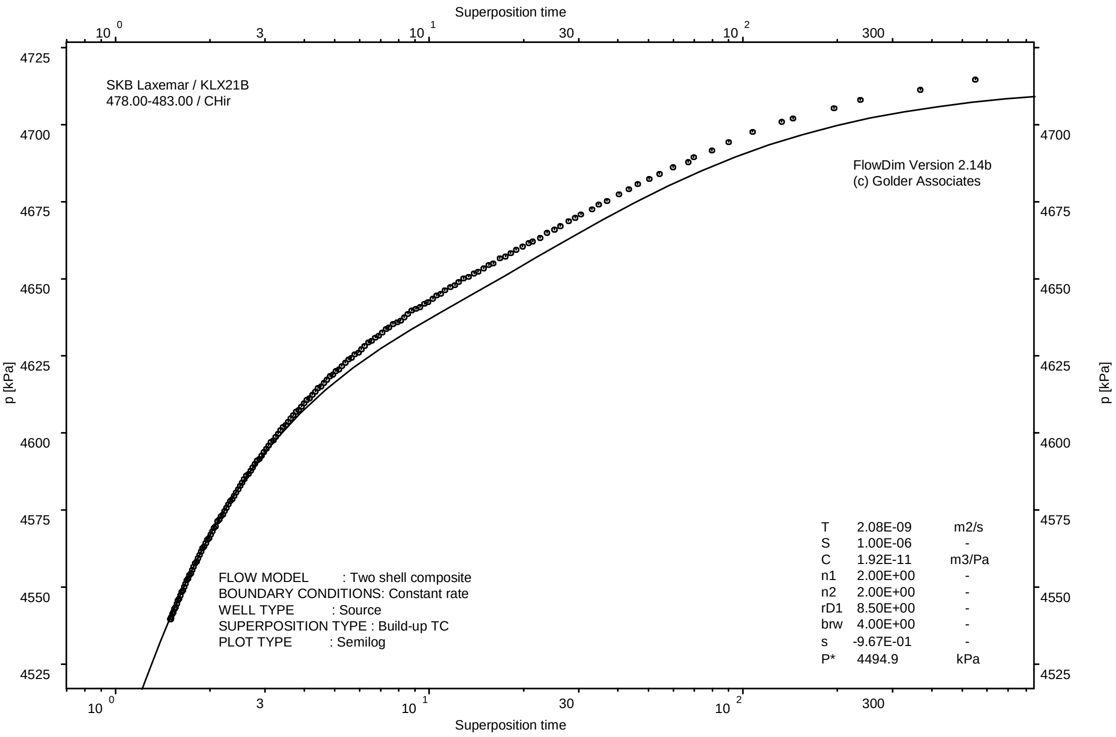
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

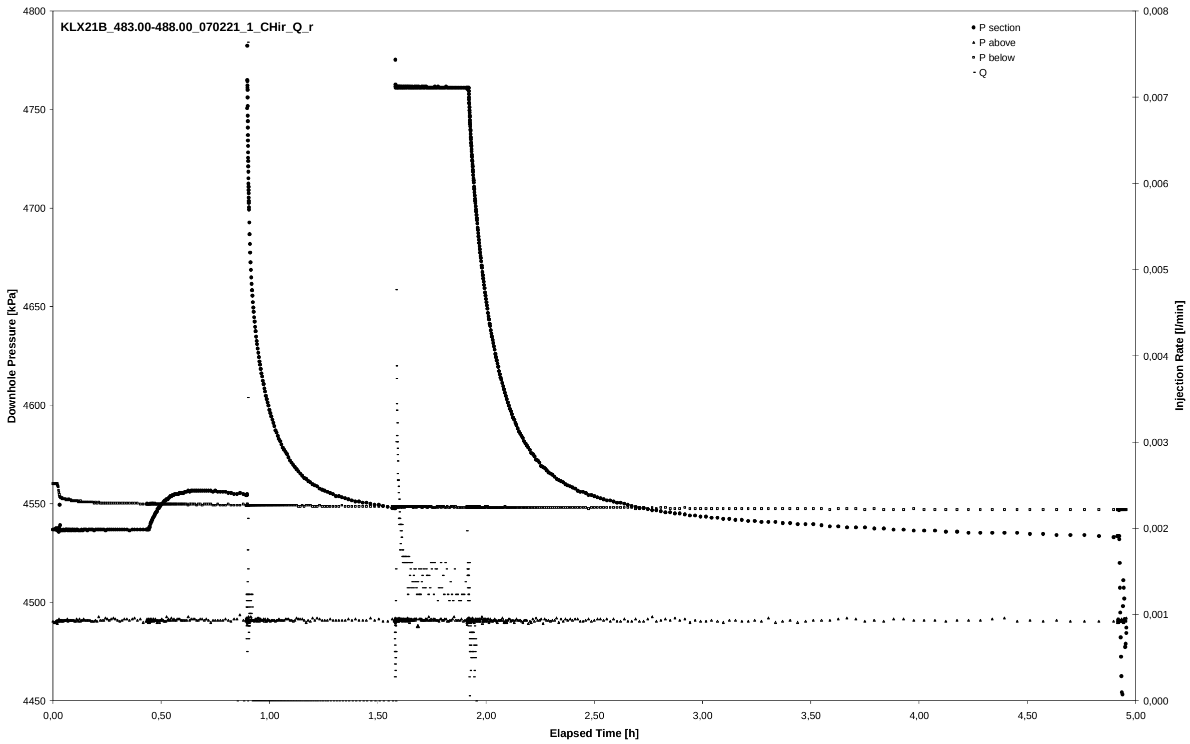


CHIR phase; HORNER match

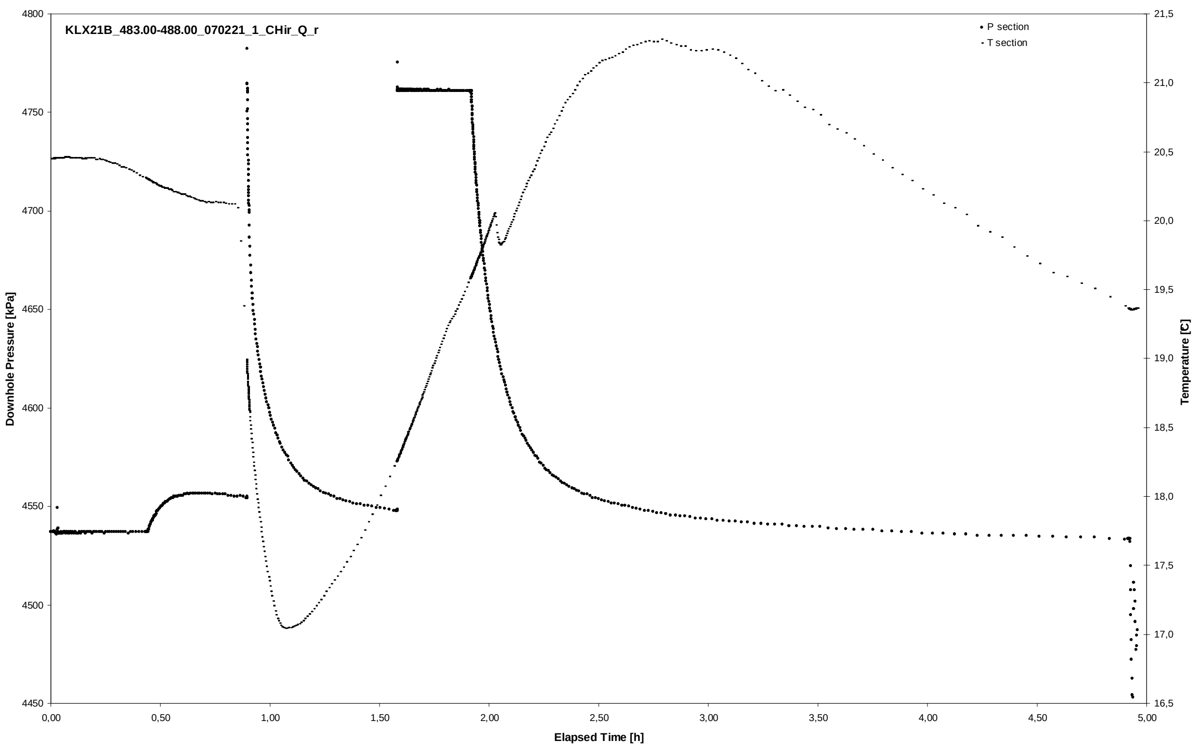
APPENDIX 2-77

Test 483.00 – 488.00 m

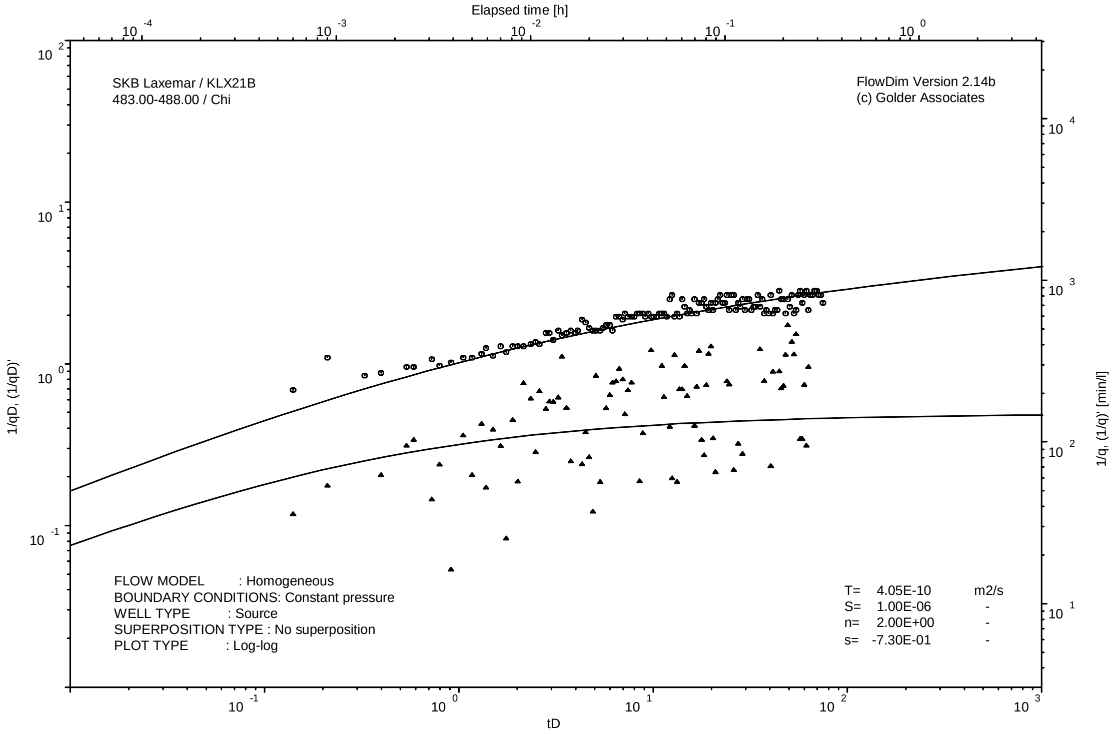
Analysis diagrams



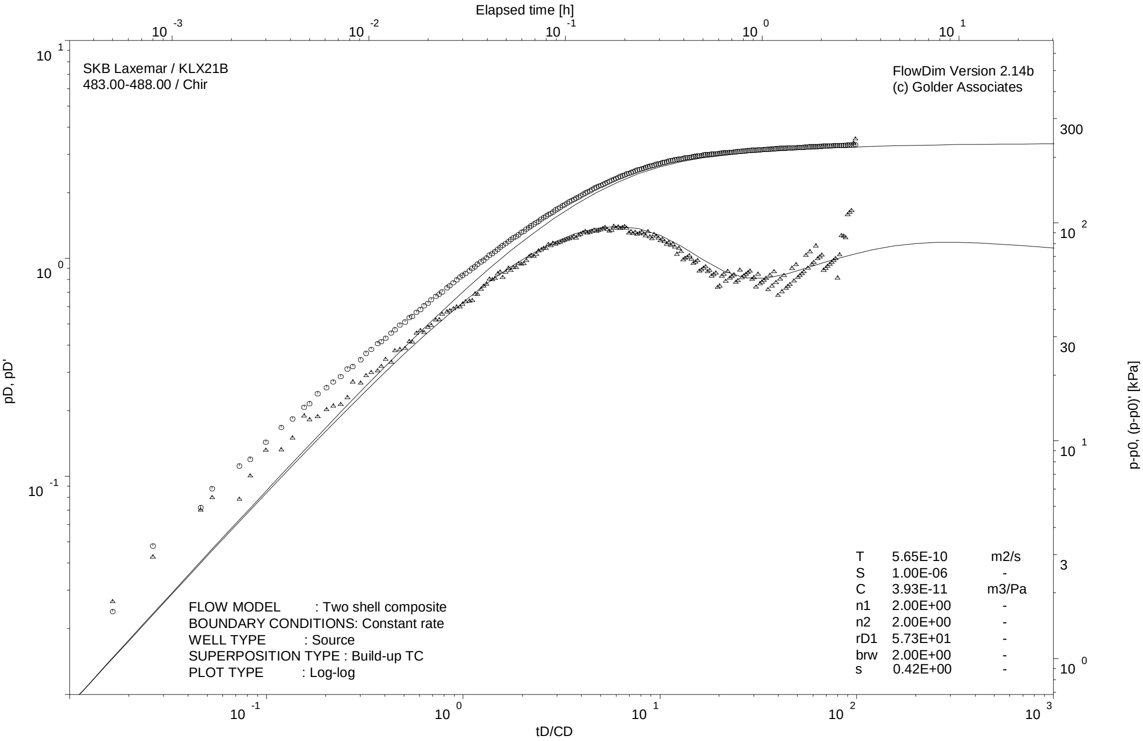
Pressure and flow rate vs. time; cartesian plot



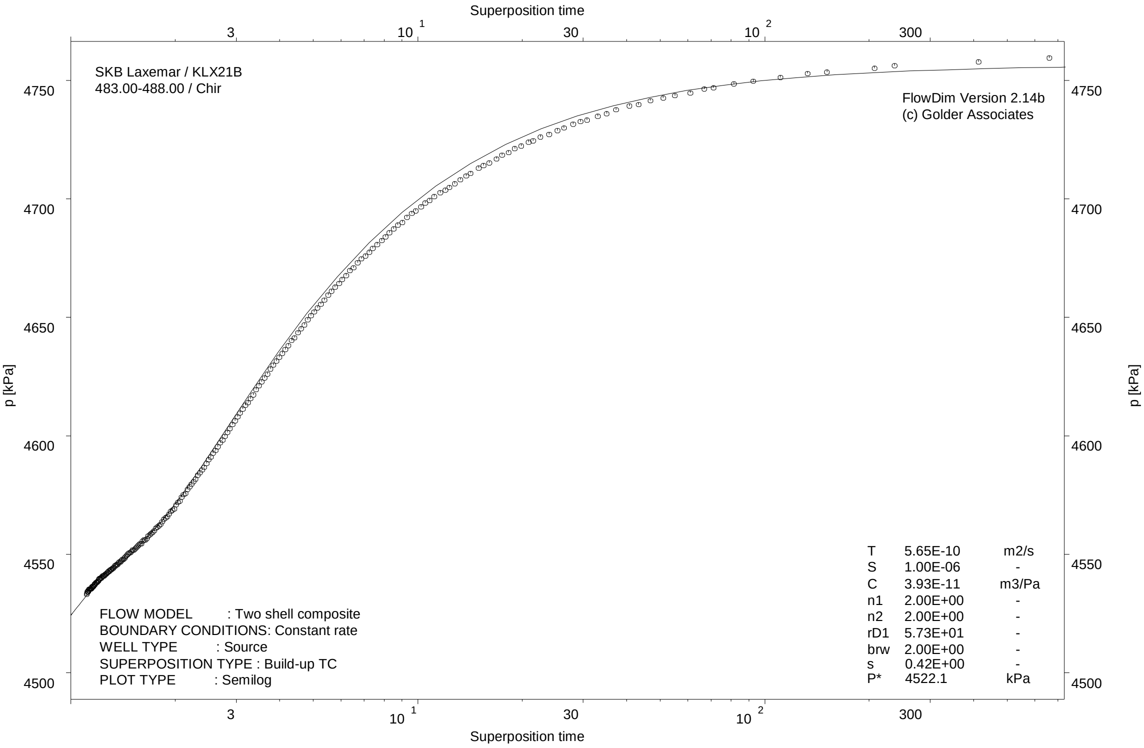
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

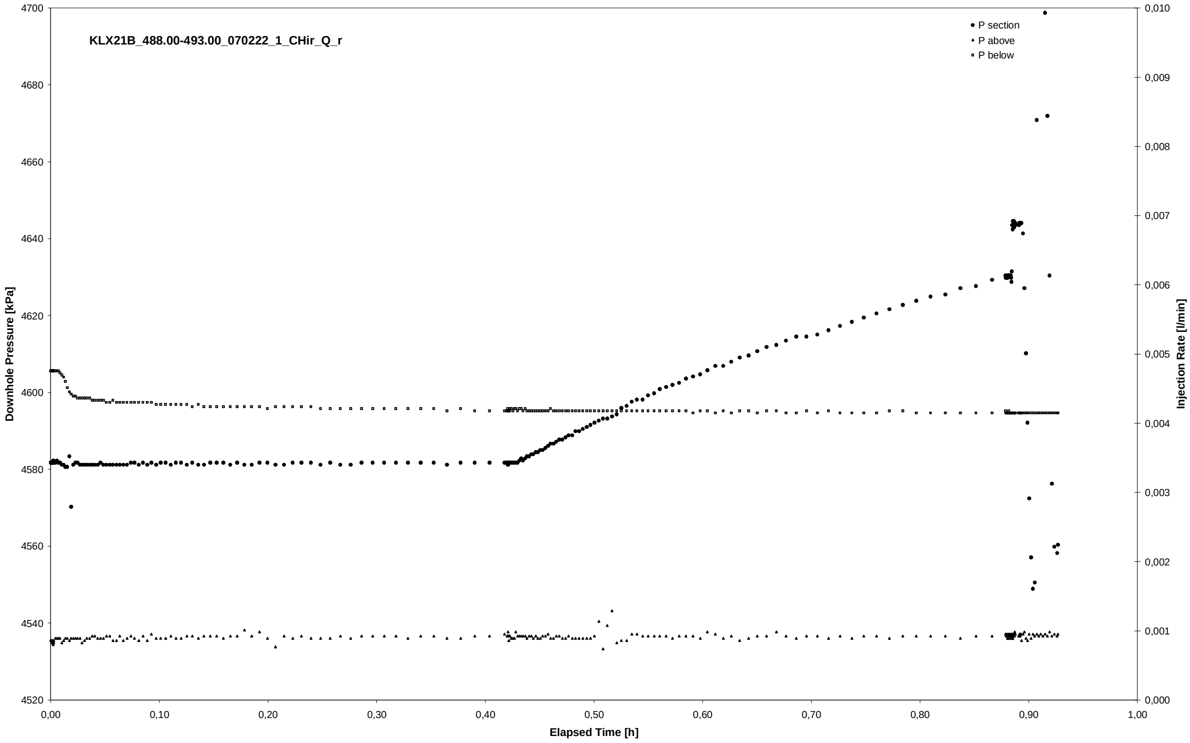


CHIR phase; HORNER match

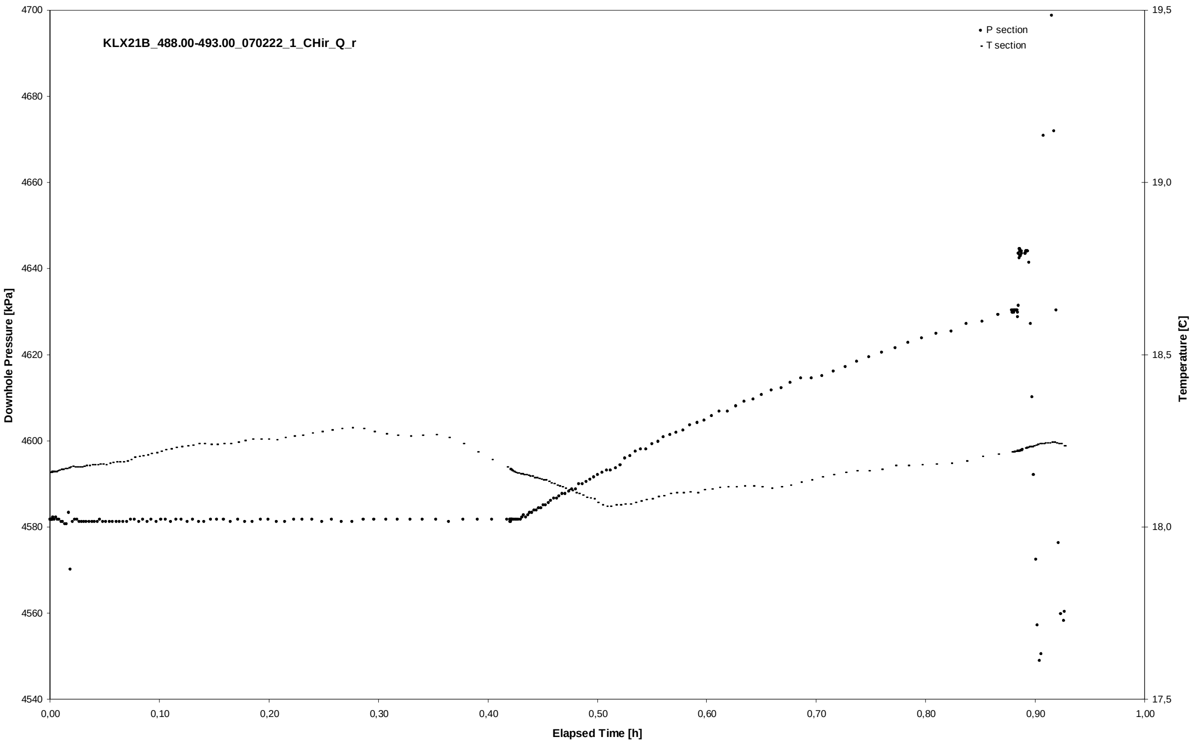
APPENDIX 2-78

Test 488.00 – 493.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

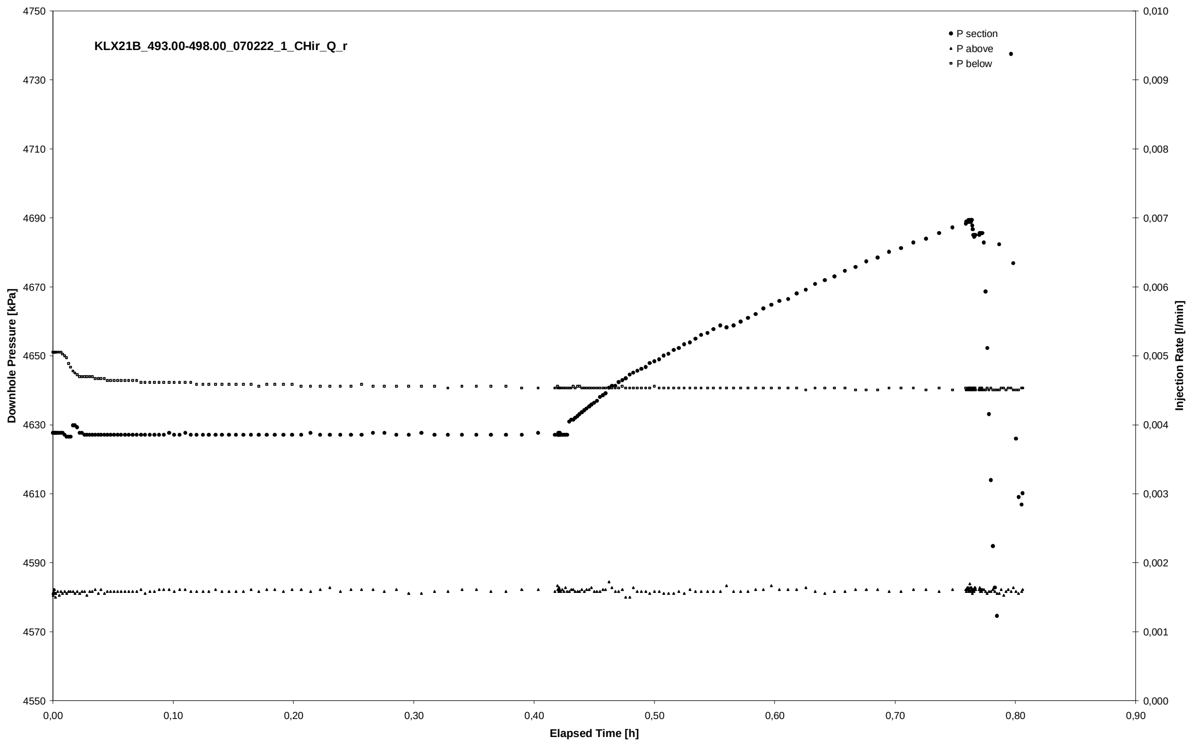
Not analysed

CHIR phase; HORNER match

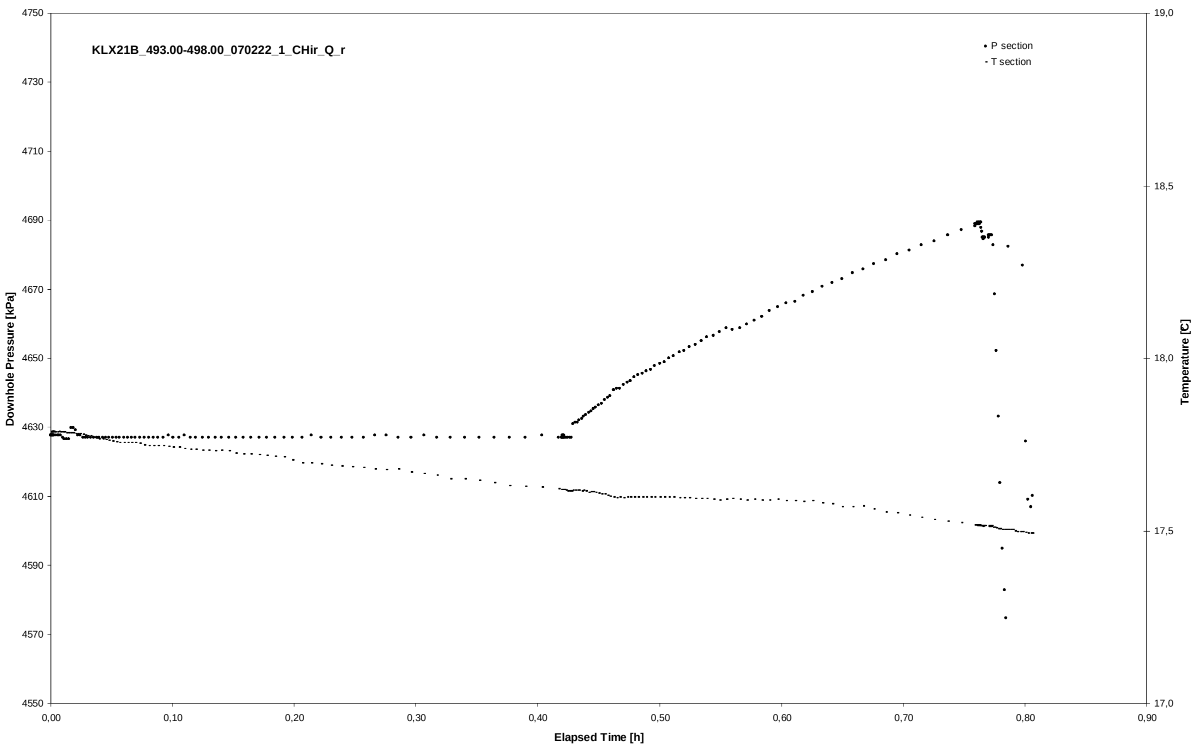
APPENDIX 2-79

Test 493.00 – 498.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

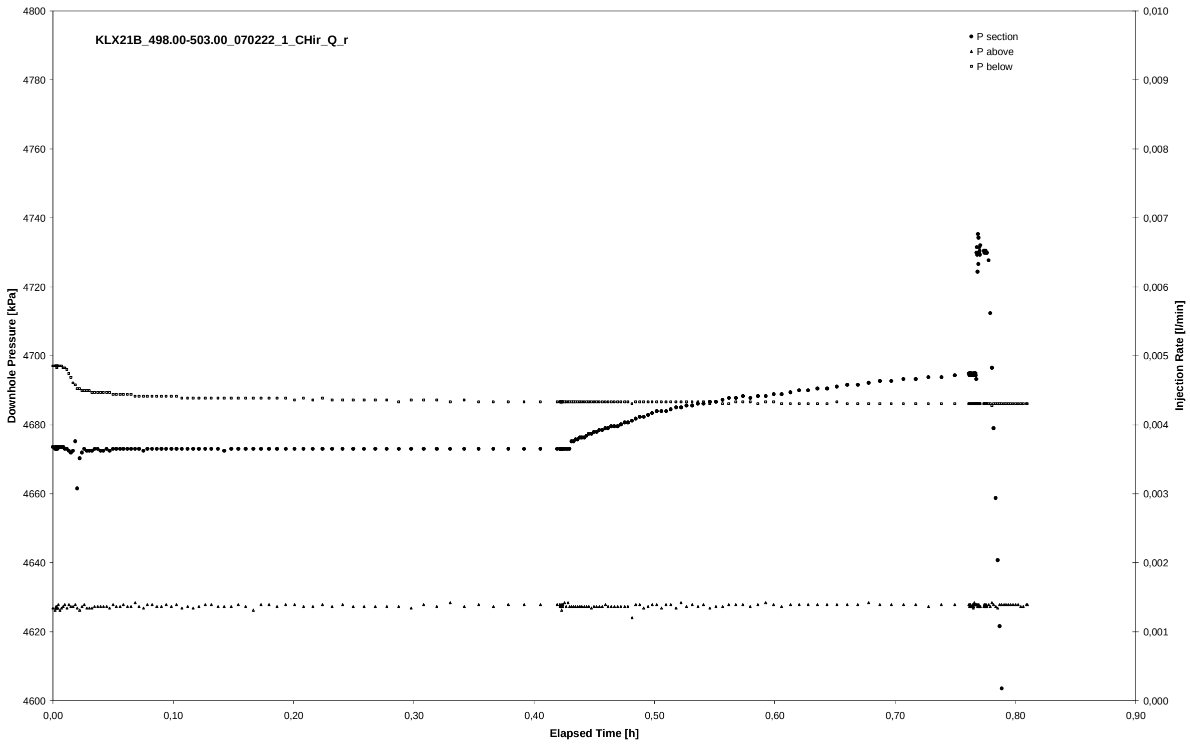
Not analysed

CHIR phase; HORNER match

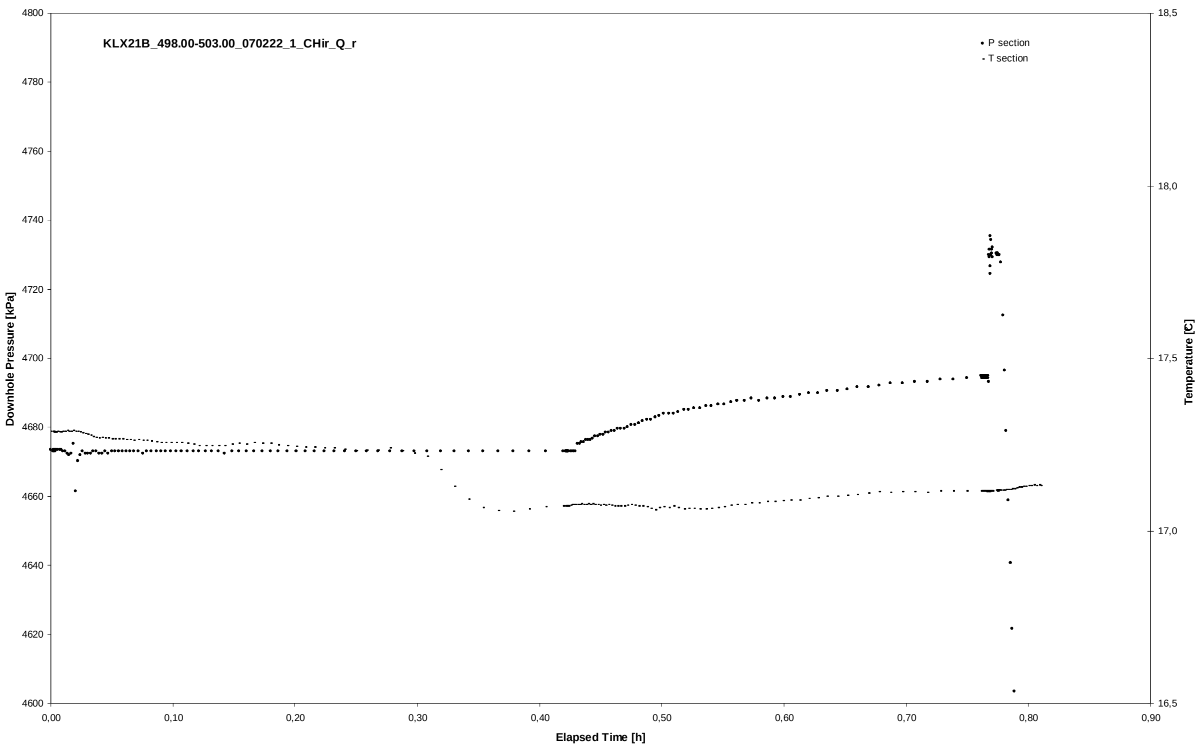
APPENDIX 2-80

Test 498.00 – 503.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

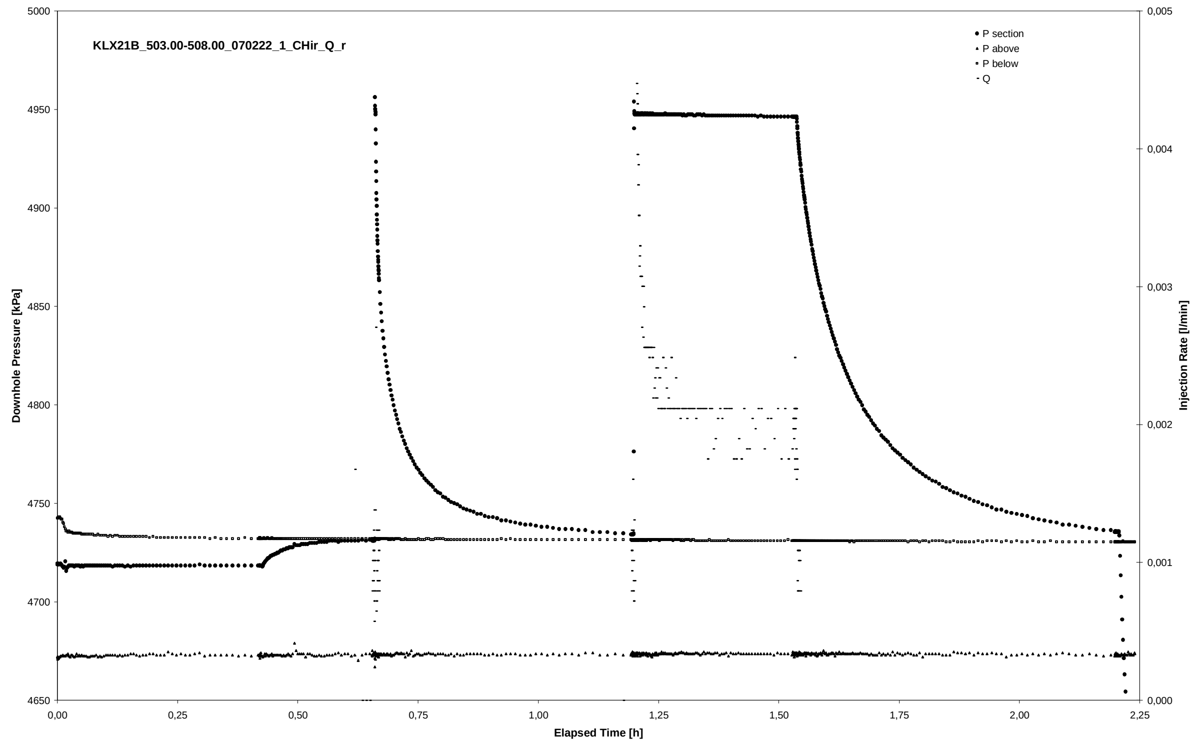
Not analysed

CHIR phase; HORNER match

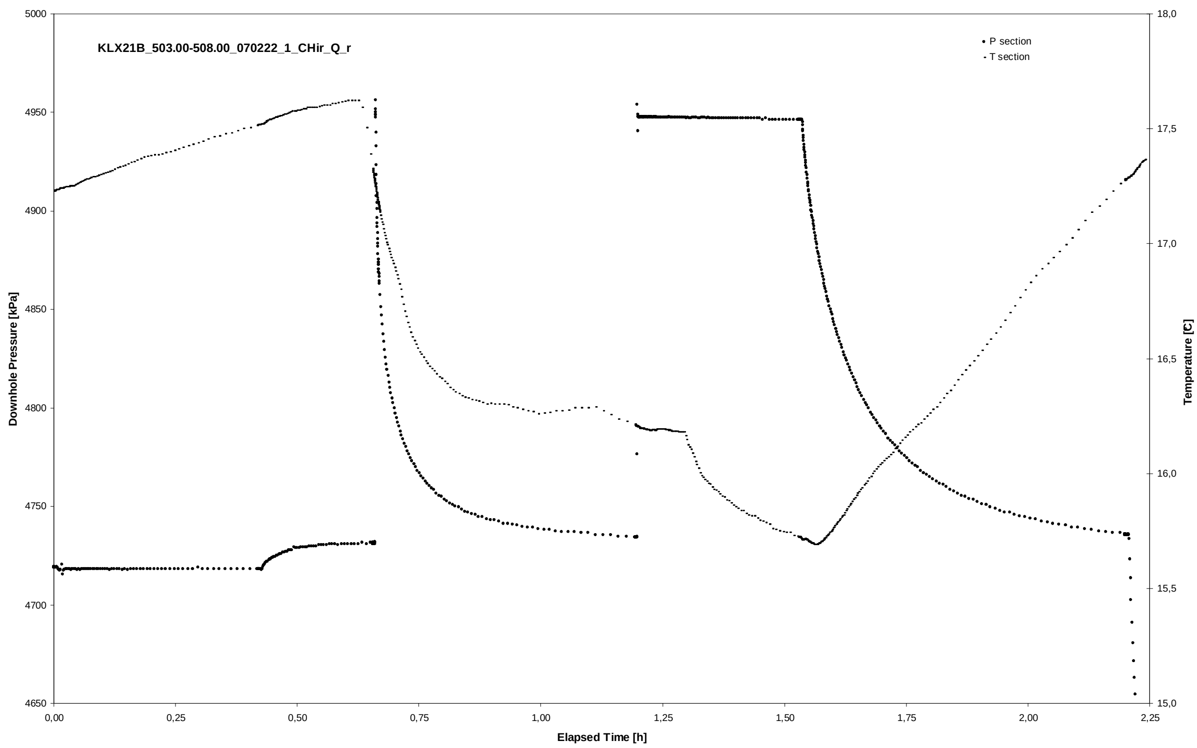
APPENDIX 2-81

Test 503.00 – 508.00 m

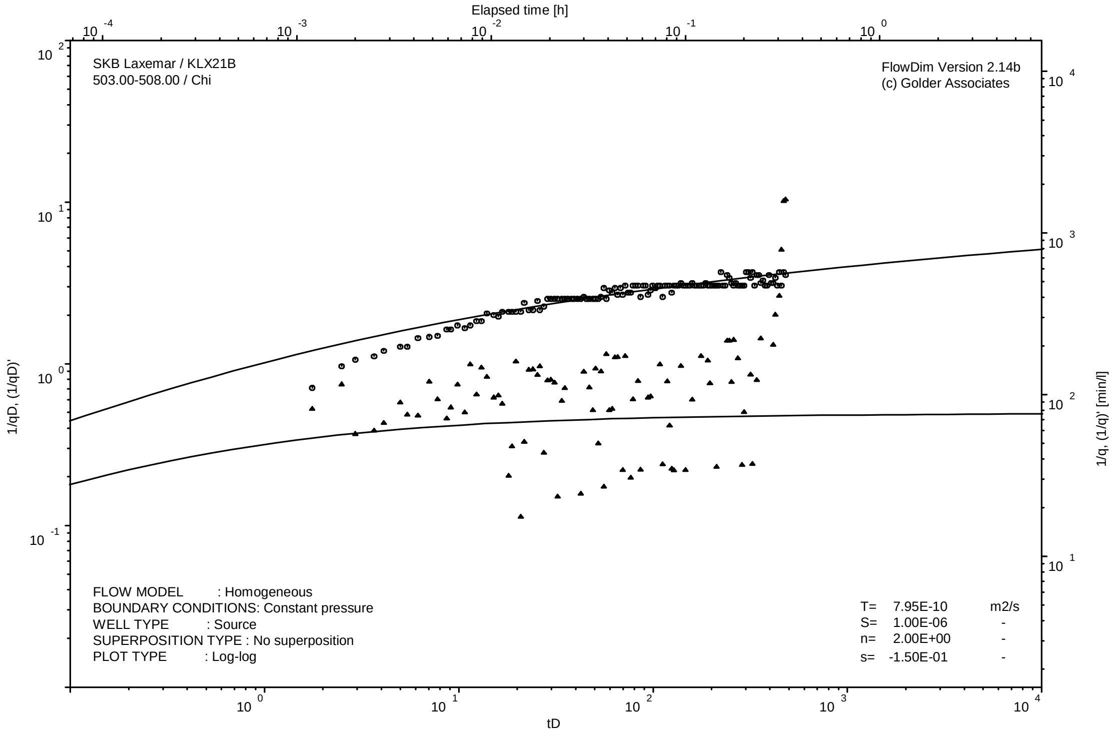
Analysis diagrams



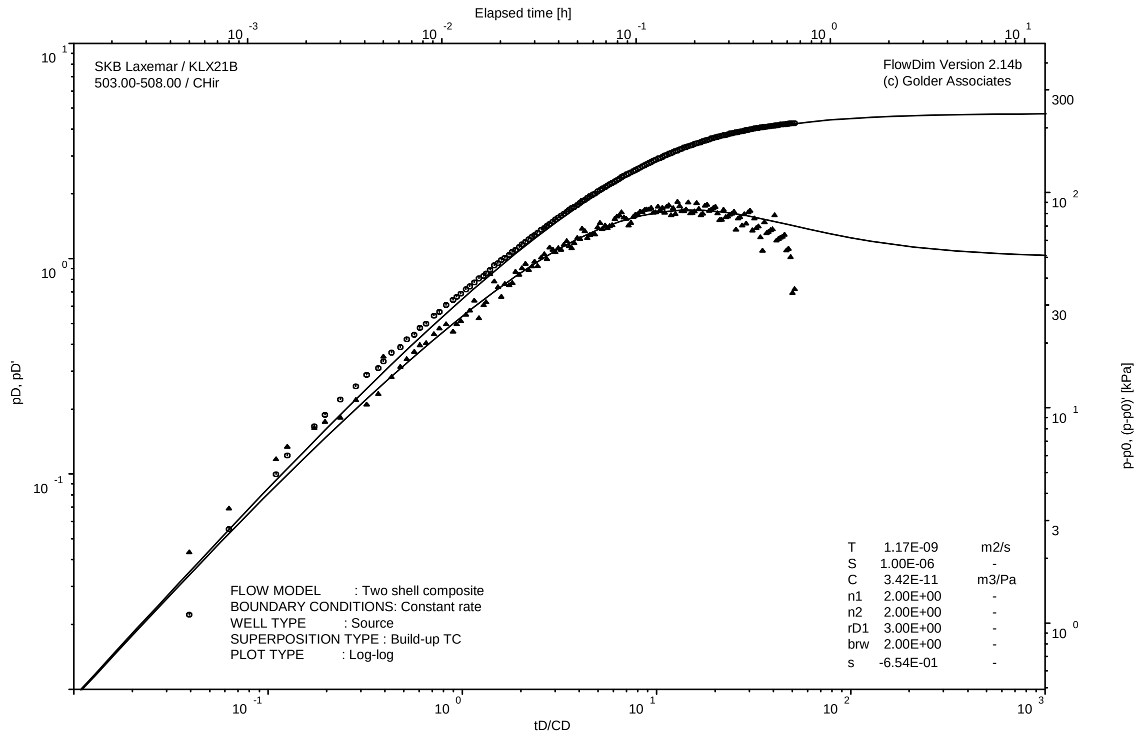
Pressure and flow rate vs. time; cartesian plot



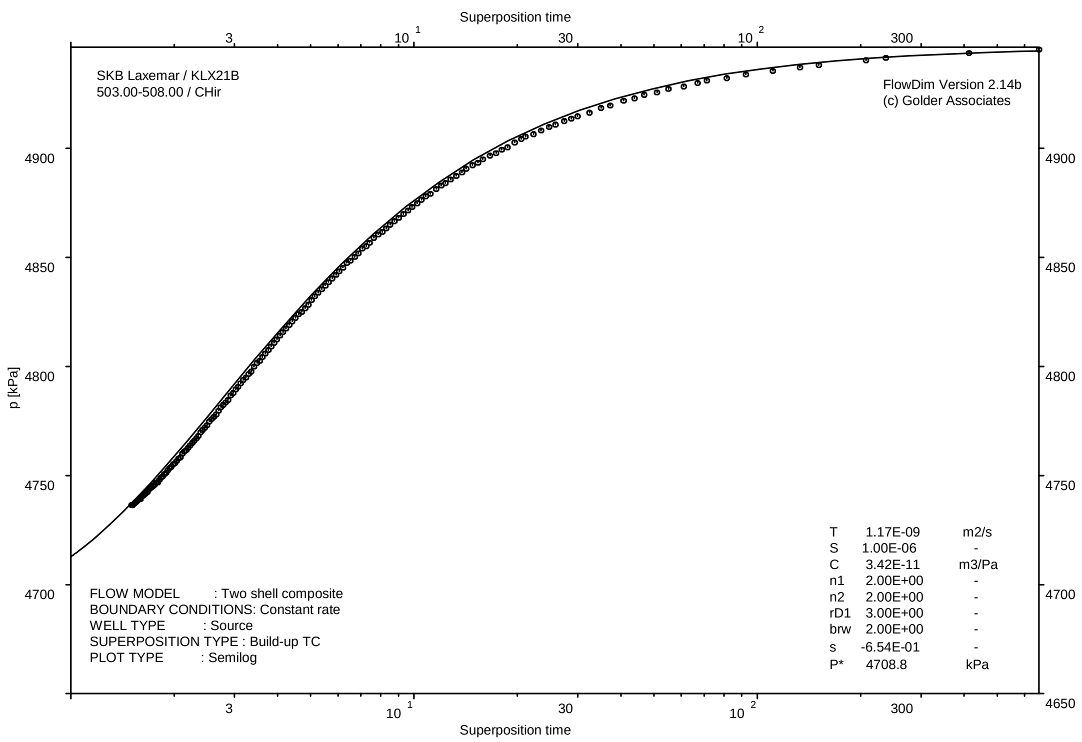
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

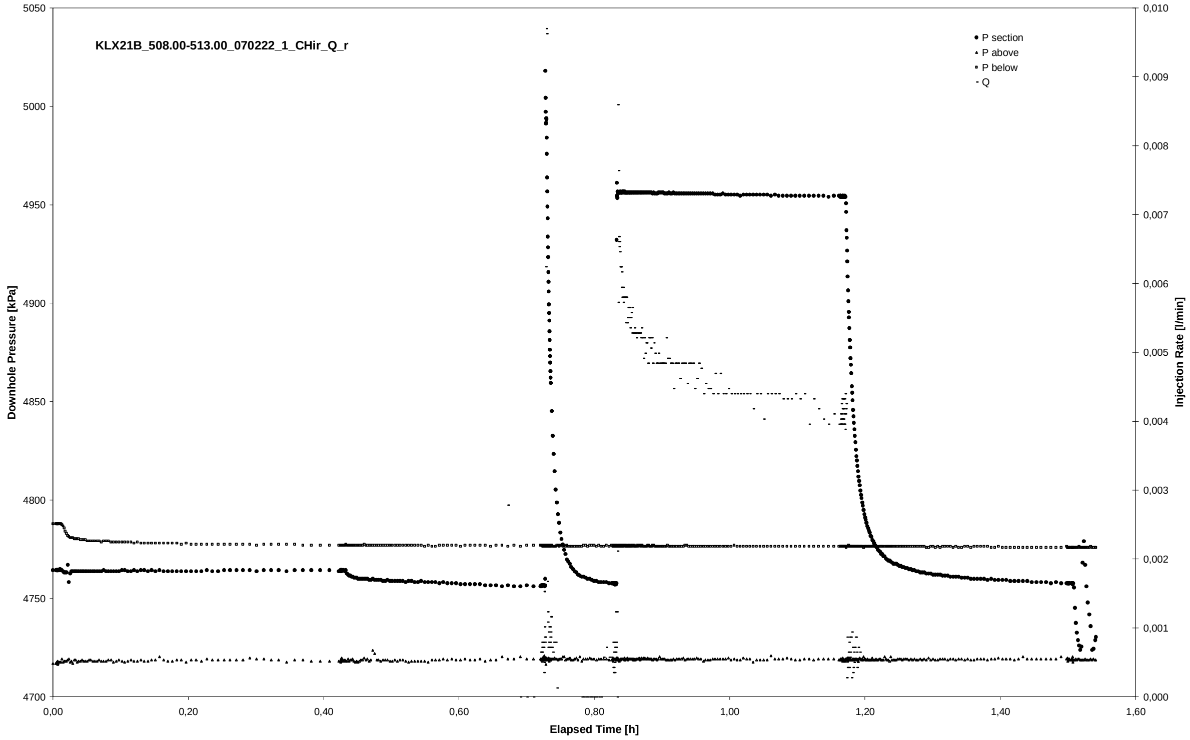


CHIR phase; HORNER match

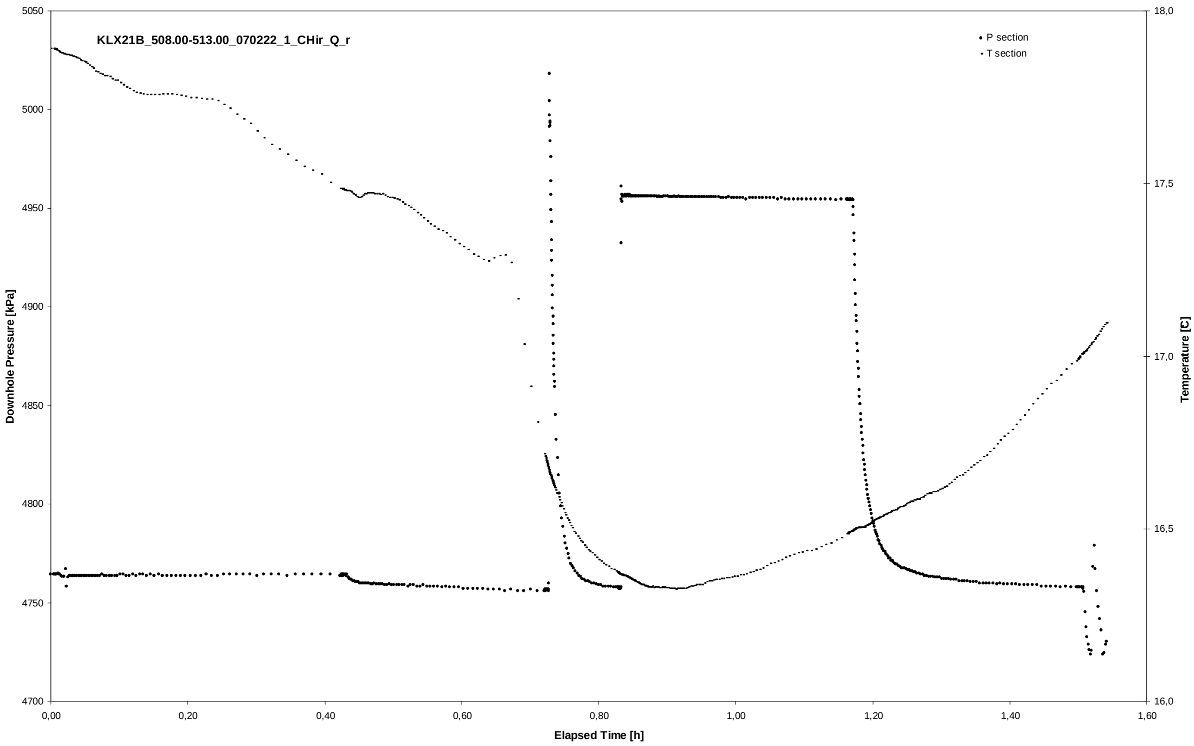
APPENDIX 2-82

Test 508.00 – 513.00 m

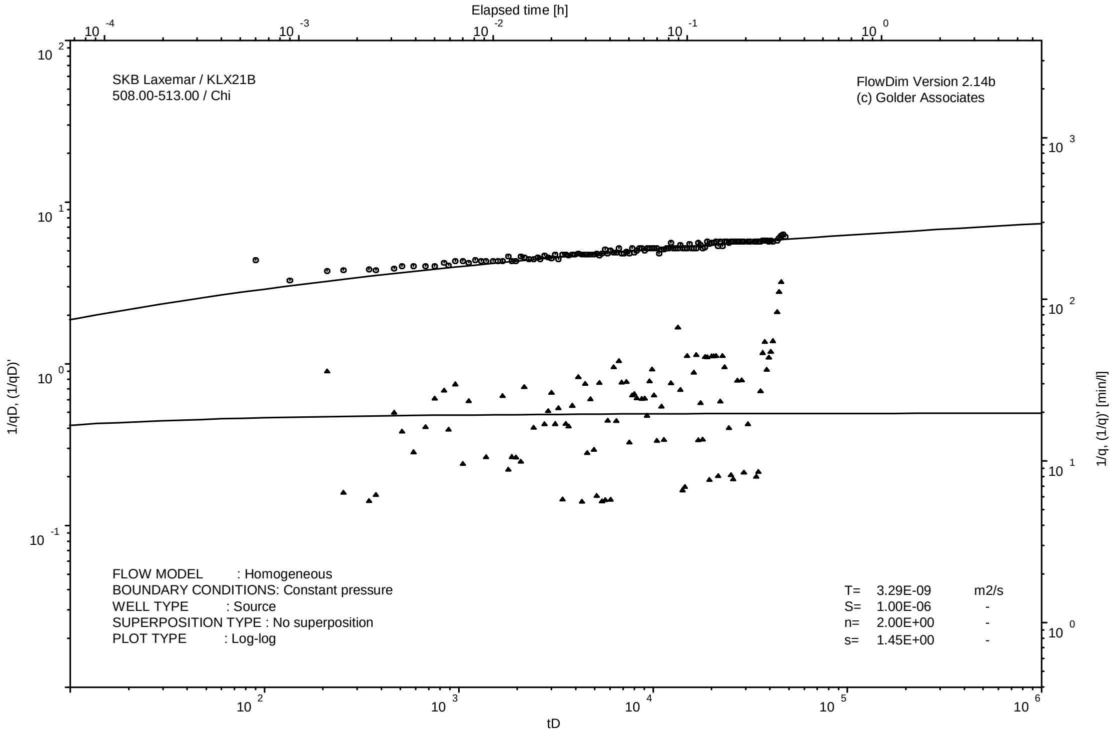
Analysis diagrams



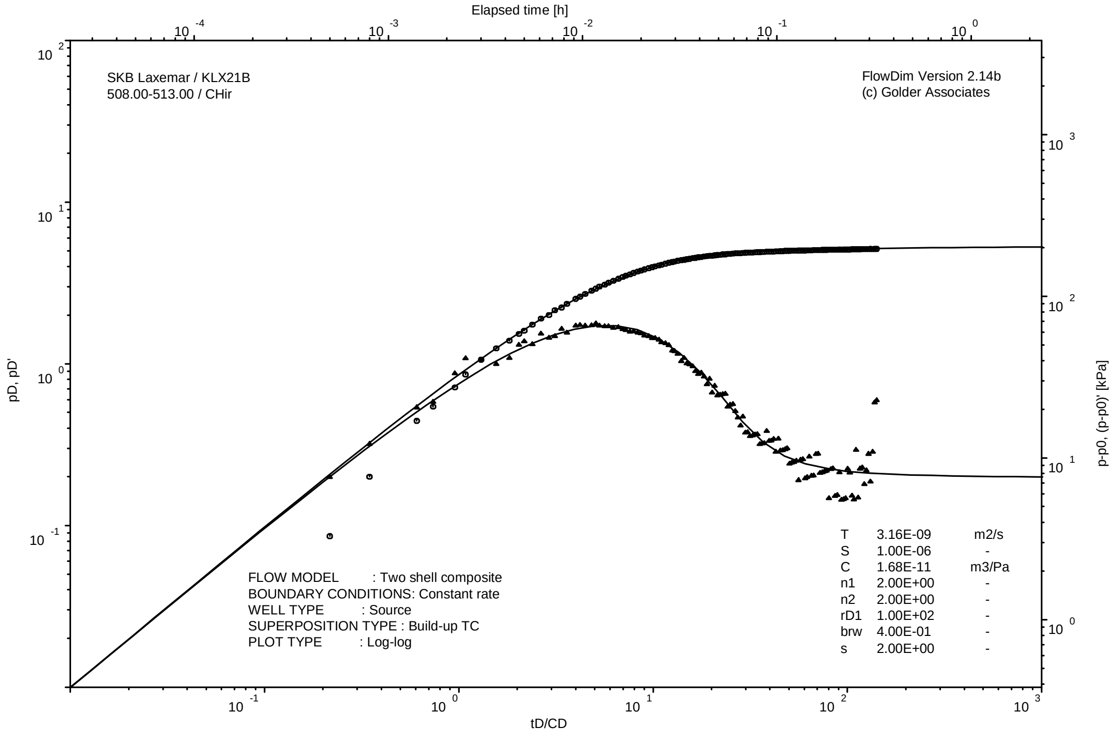
Pressure and flow rate vs. time; cartesian plot



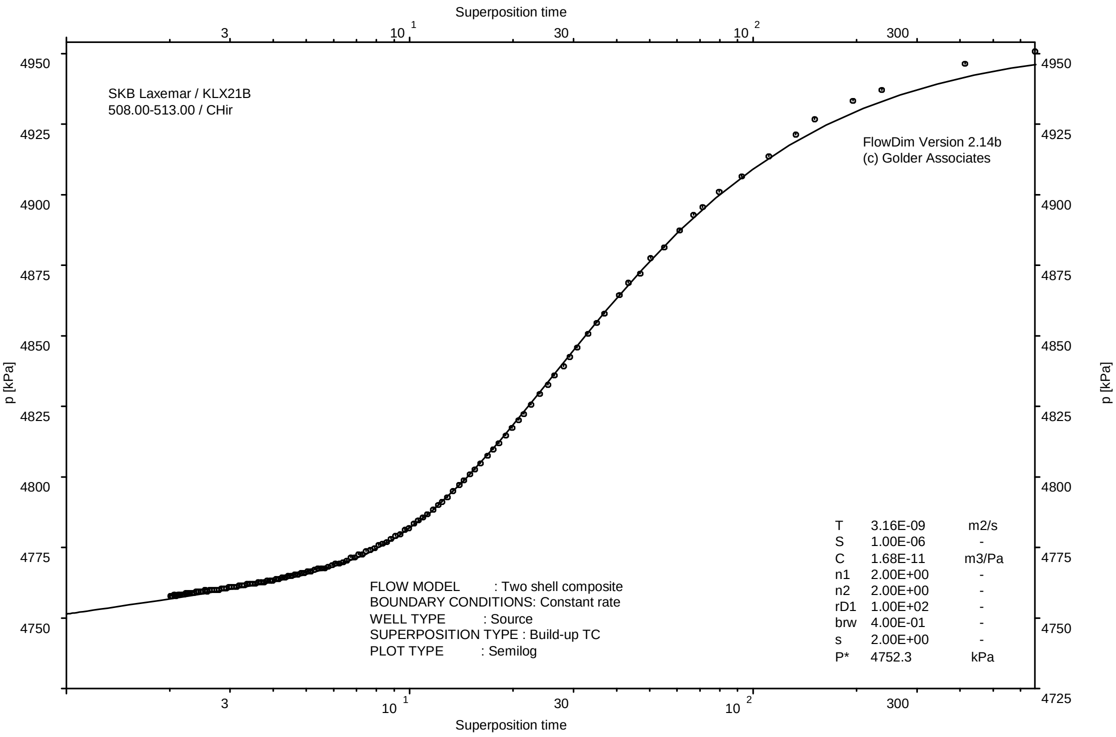
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

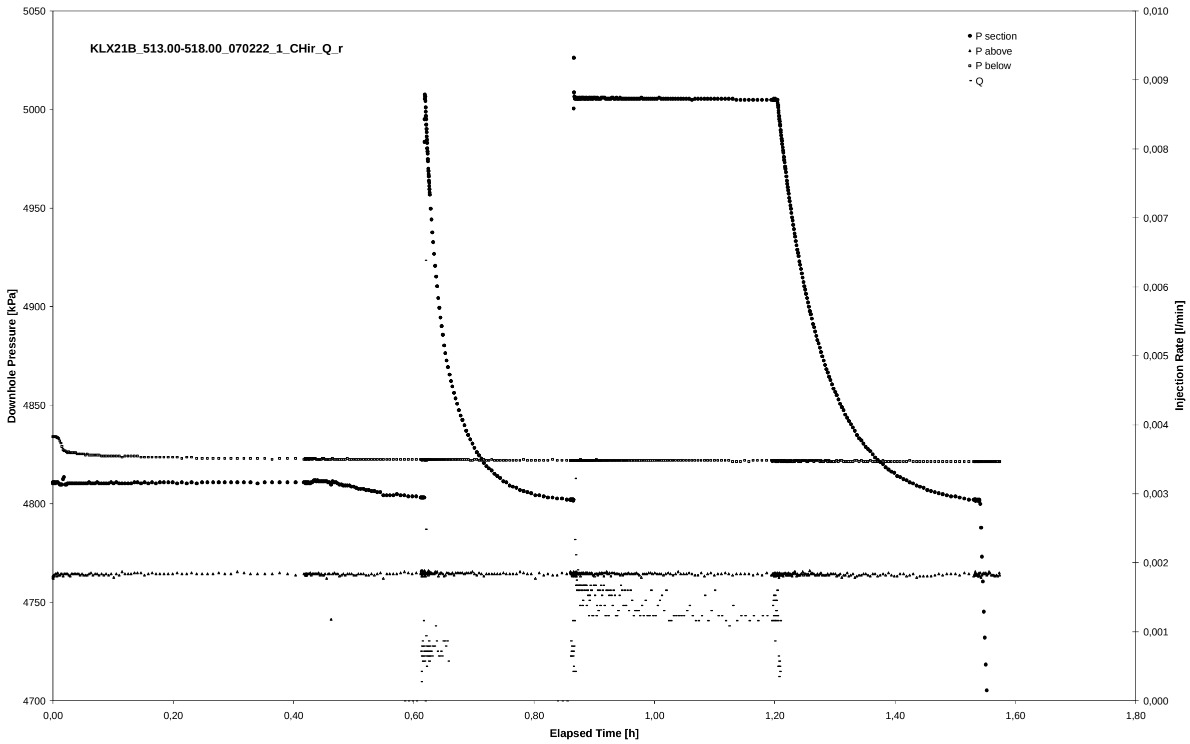


CHIR phase; HORNER match

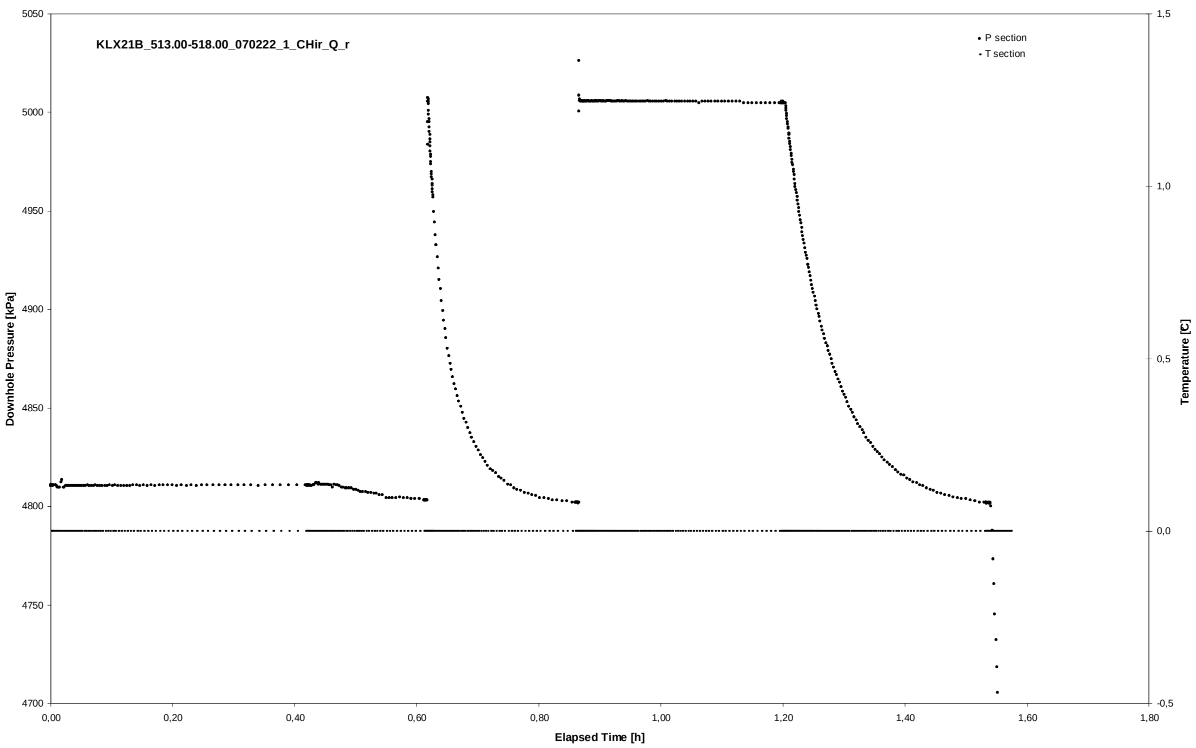
APPENDIX 2-83

Test 513.00 – 518.00 m

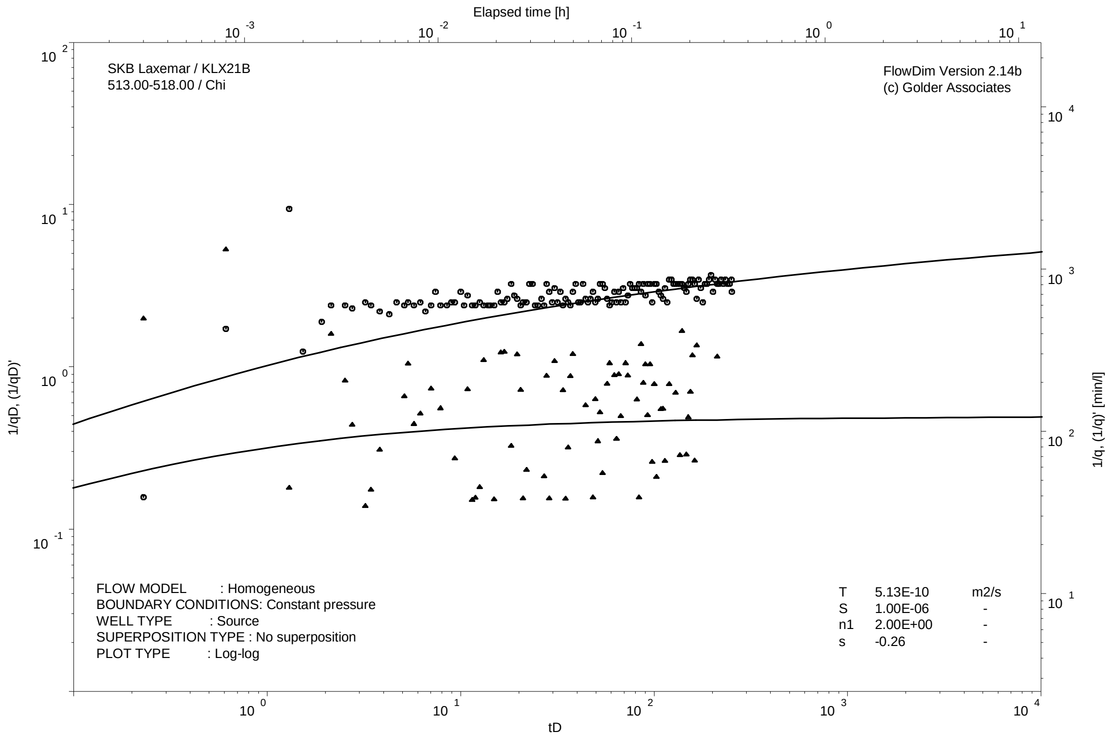
Analysis diagrams



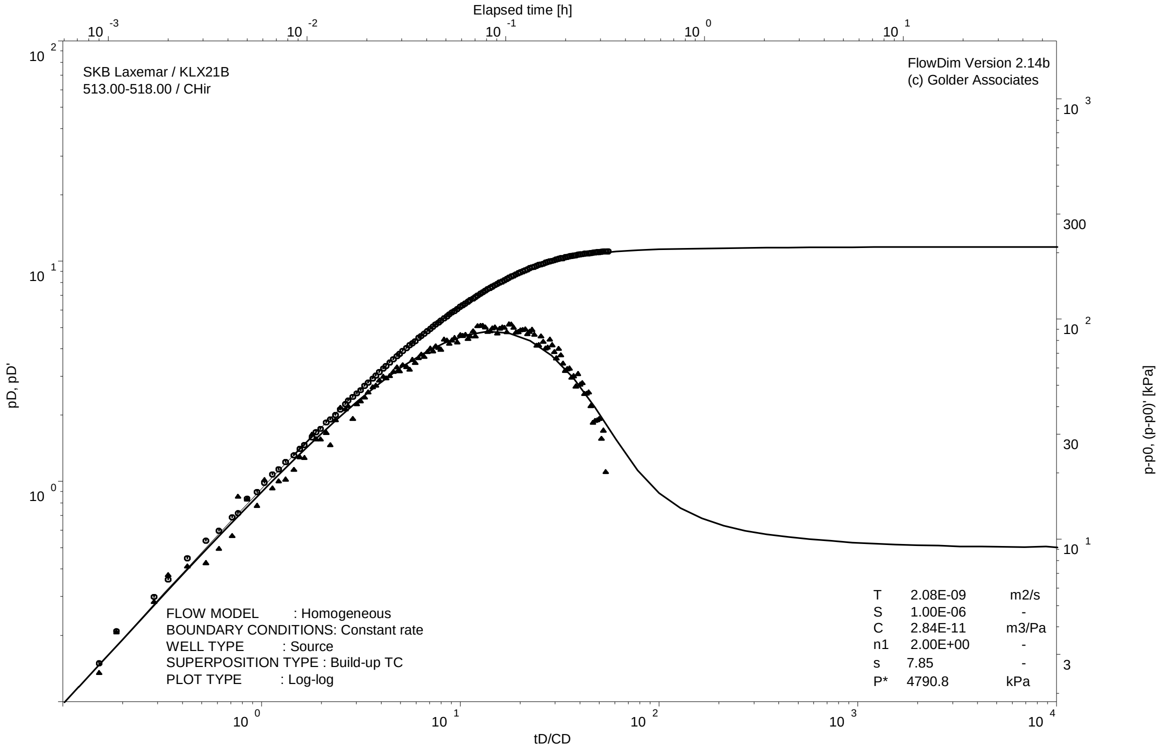
Pressure and flow rate vs. time; cartesian plot



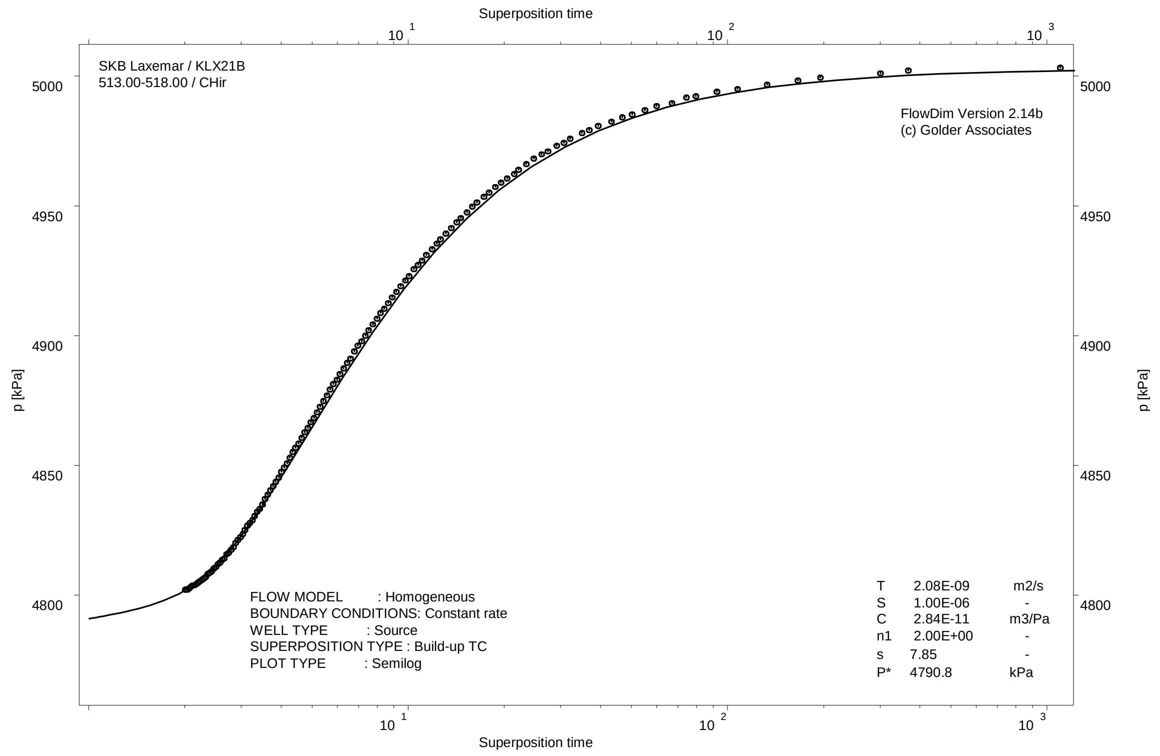
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

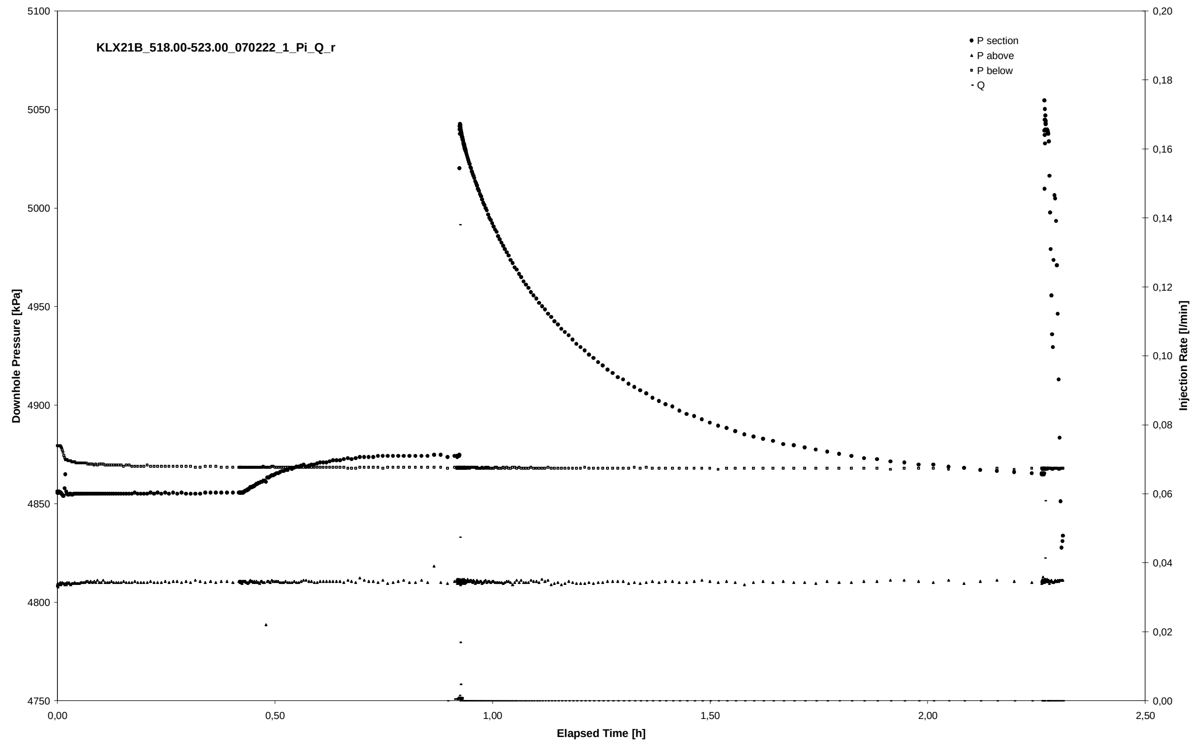


CHIR phase; HORNER match

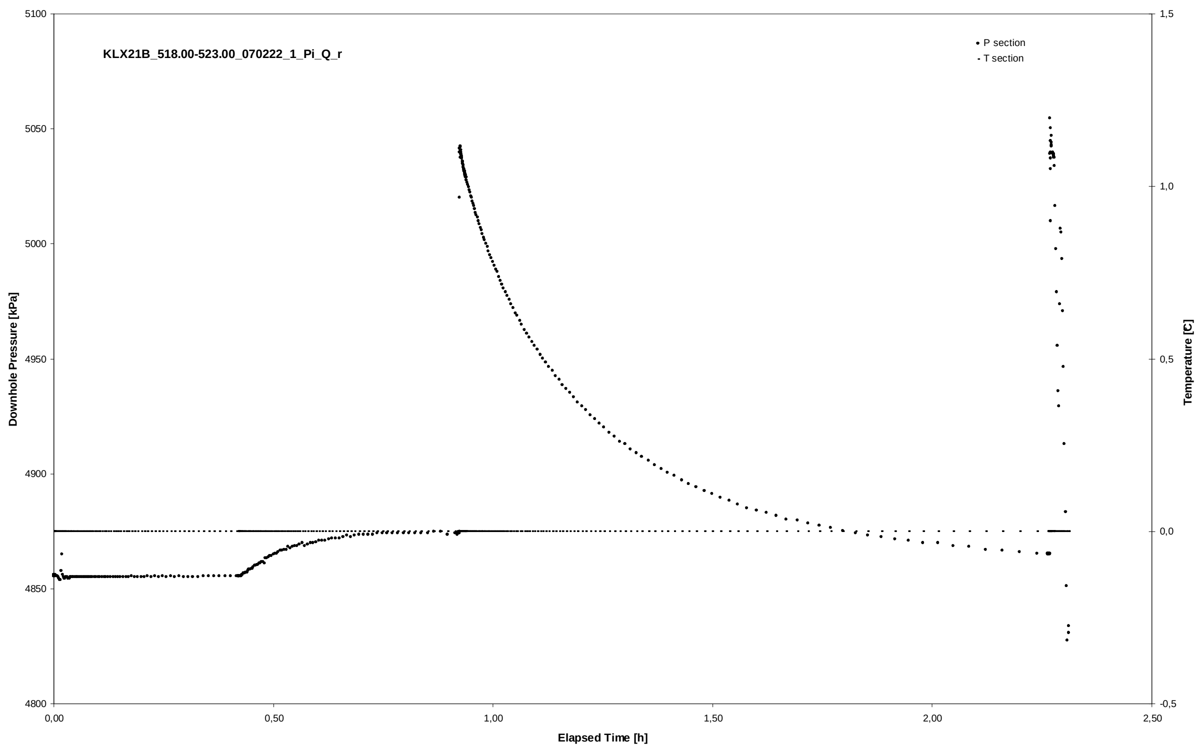
APPENDIX 2-84

Test 518.00 – 523.00 m

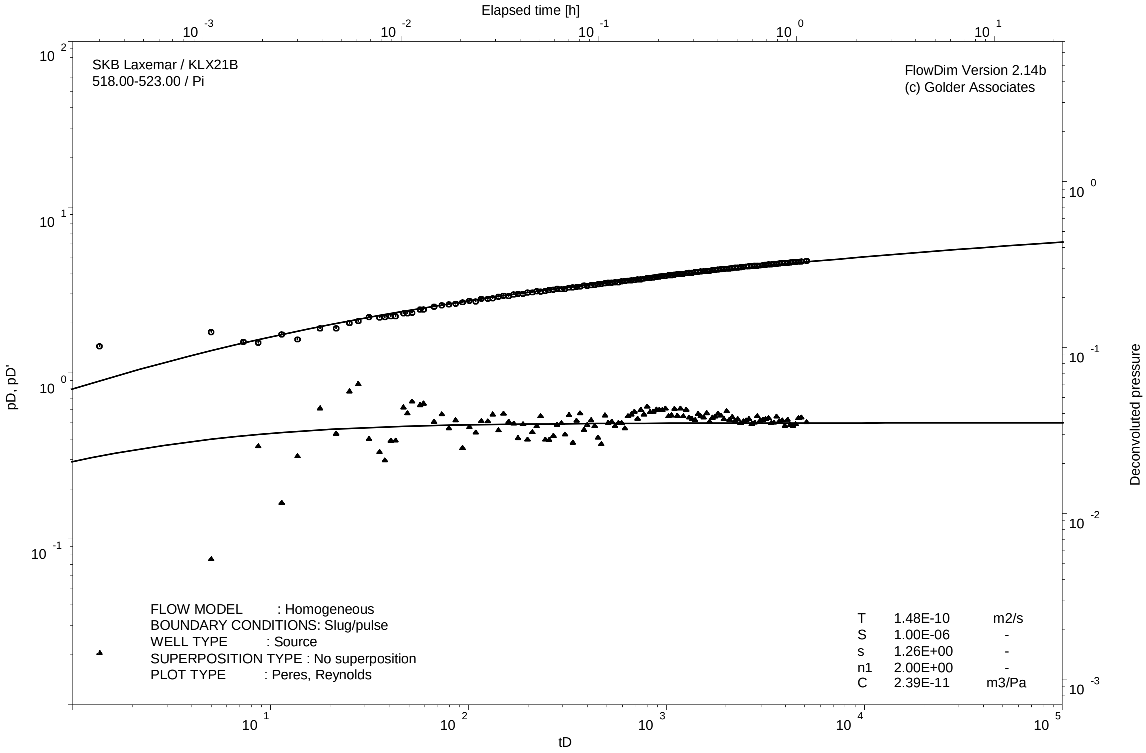
Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

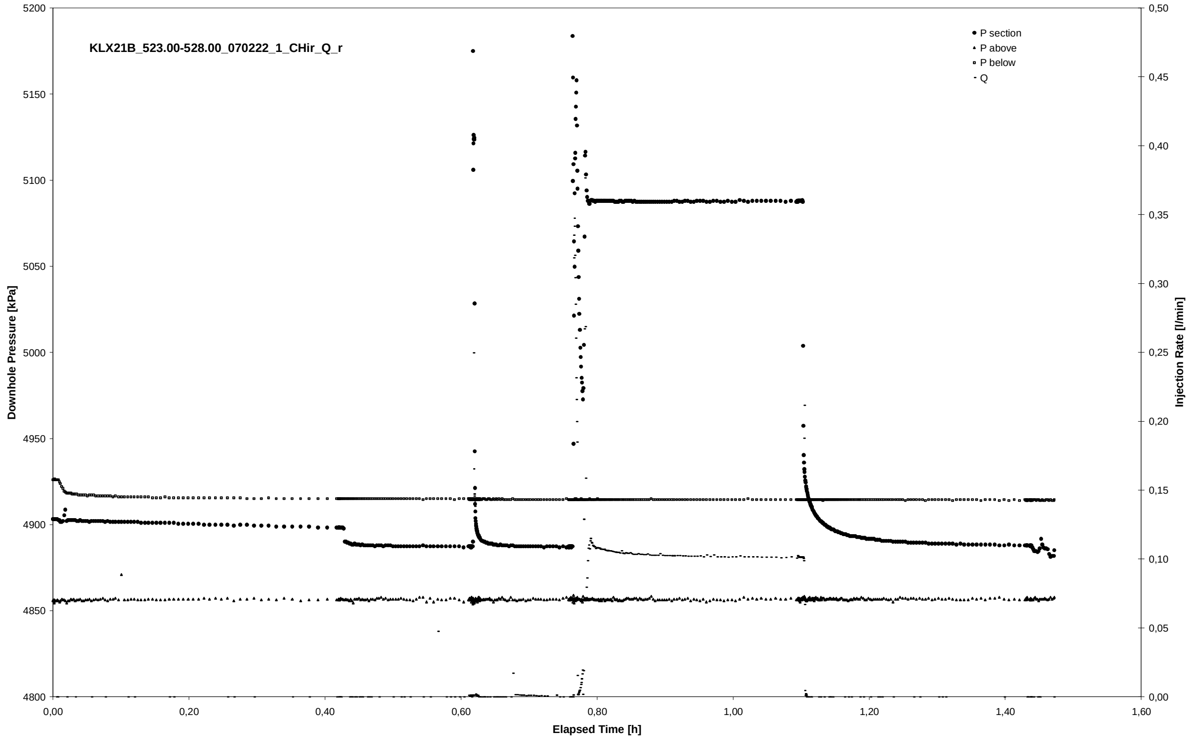


Pulse injection; deconvolution match

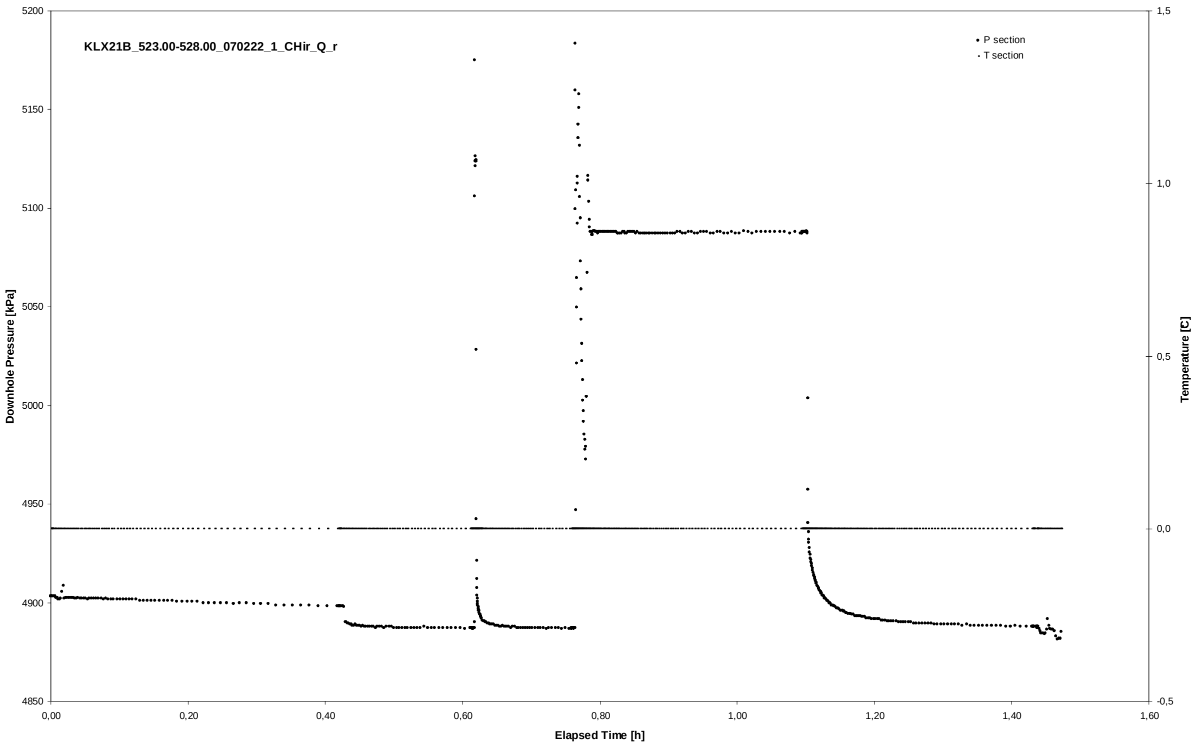
APPENDIX 2-85

Test 523.00 – 528.00 m

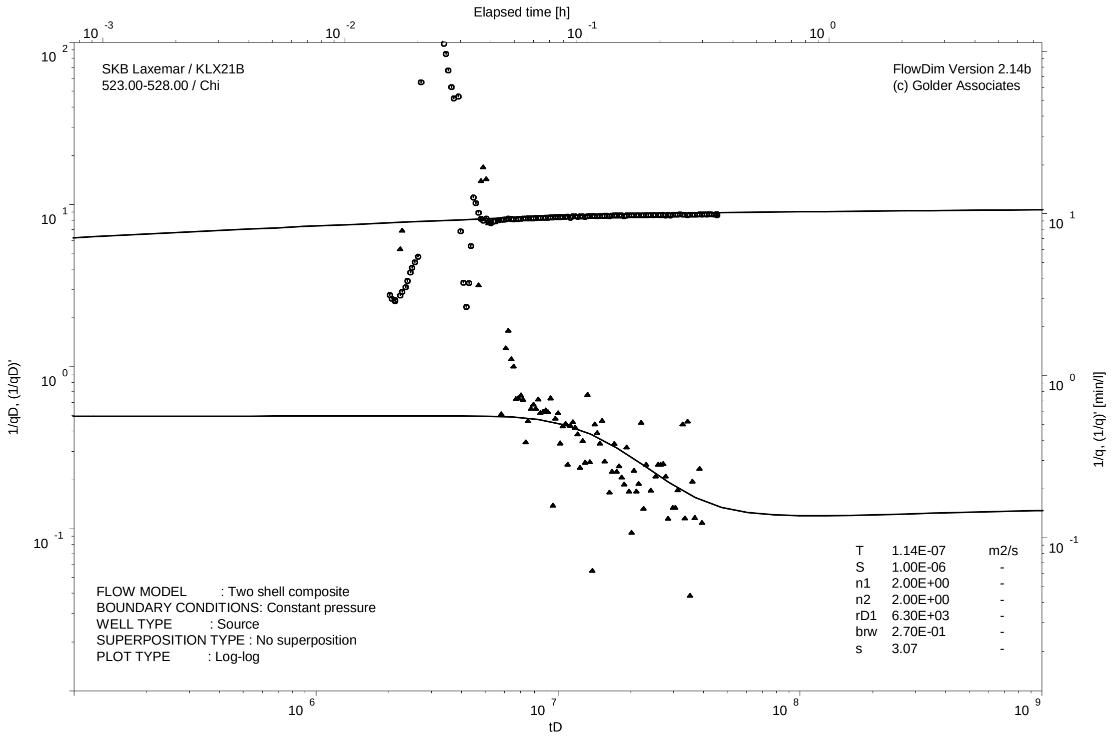
Analysis diagrams



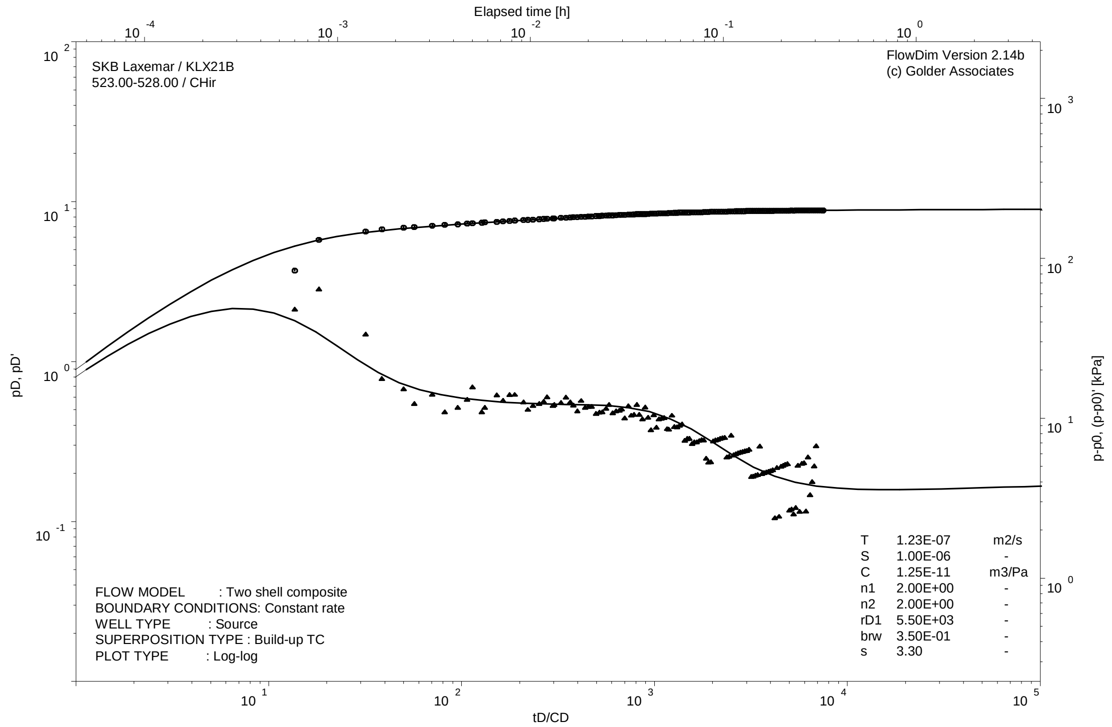
Pressure and flow rate vs. time; cartesian plot



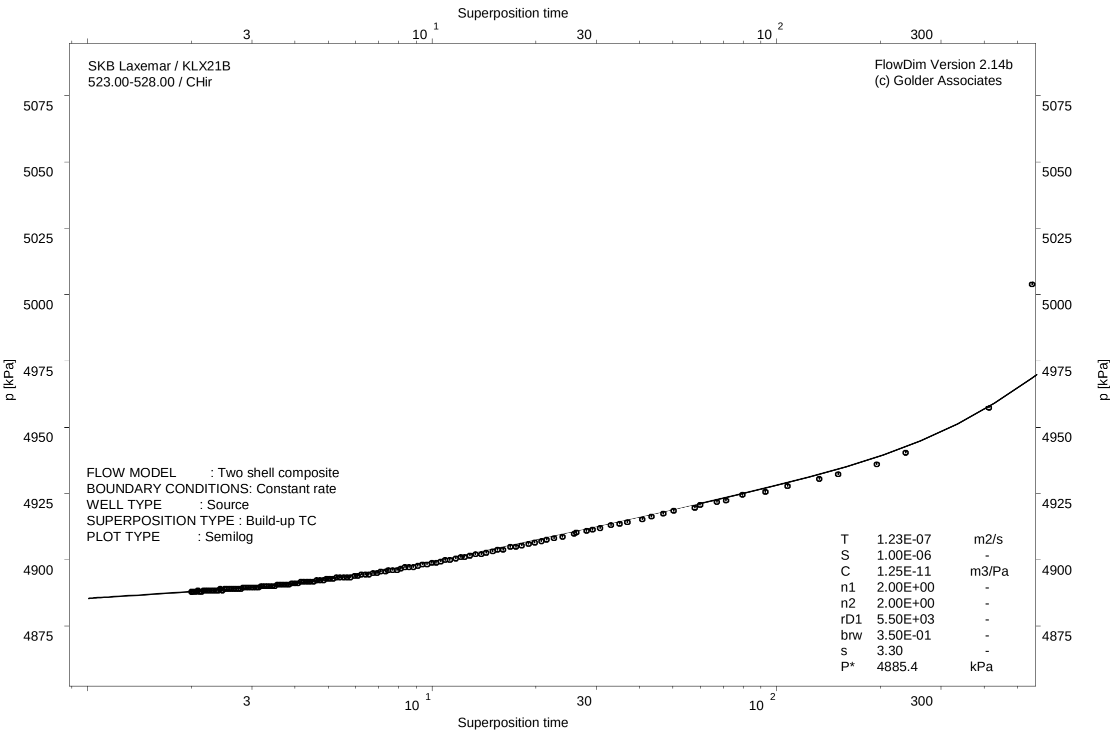
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

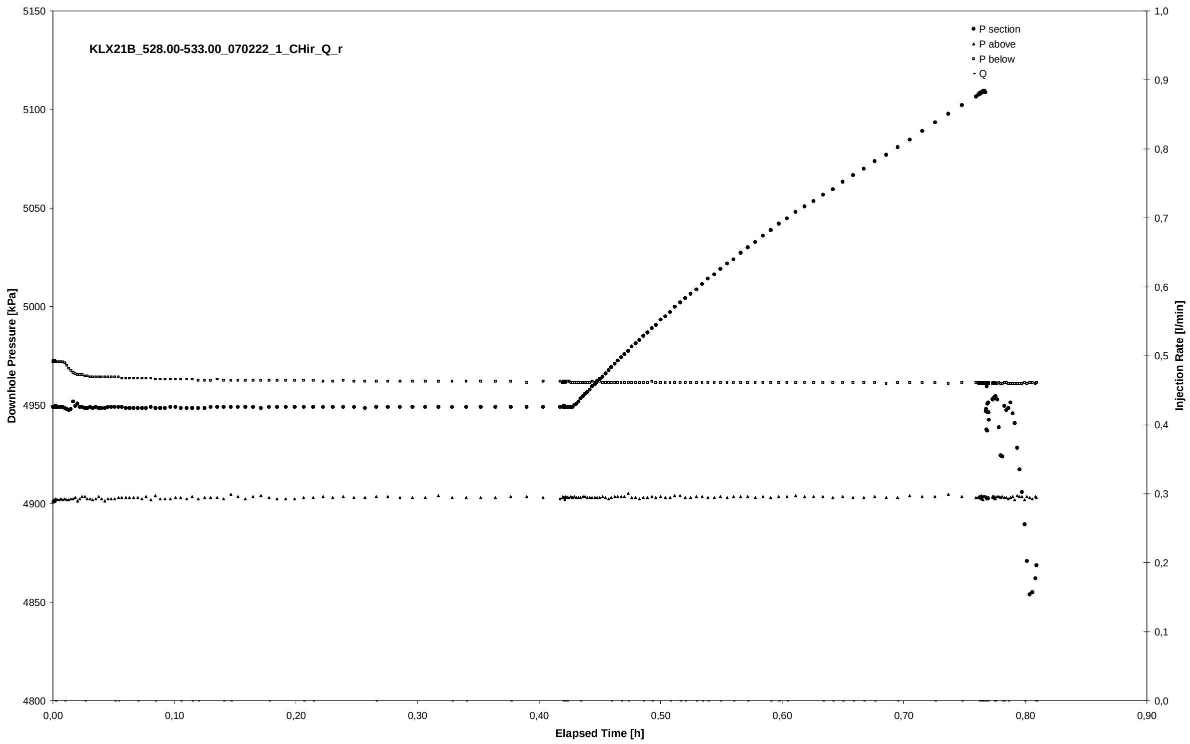


CHIR phase; HORNER match

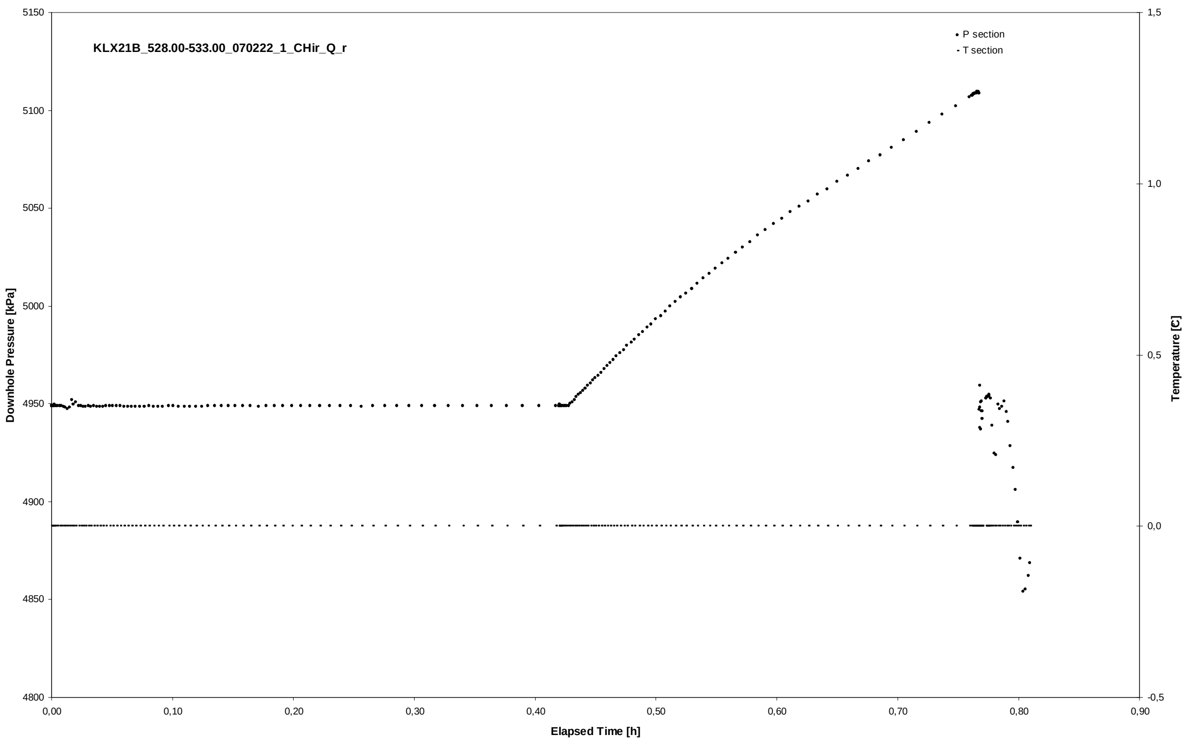
APPENDIX 2-86

Test 528.00 – 533.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

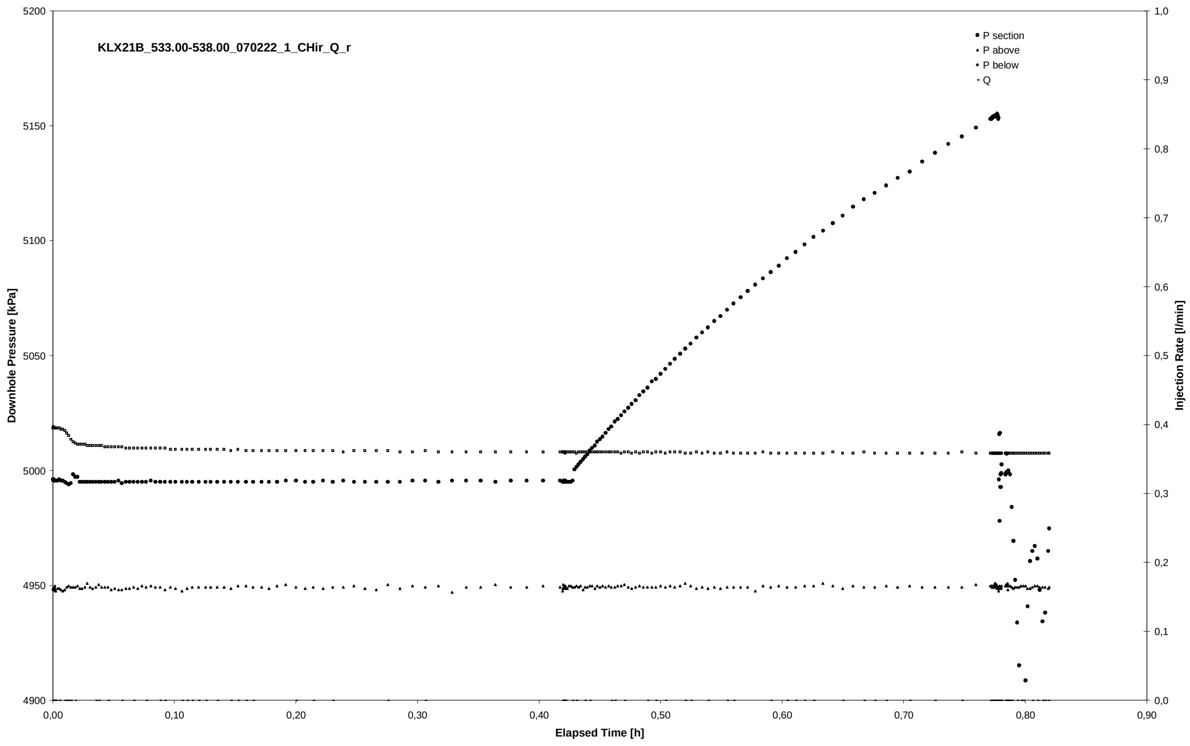
Not analysed

CHIR phase; HORNER match

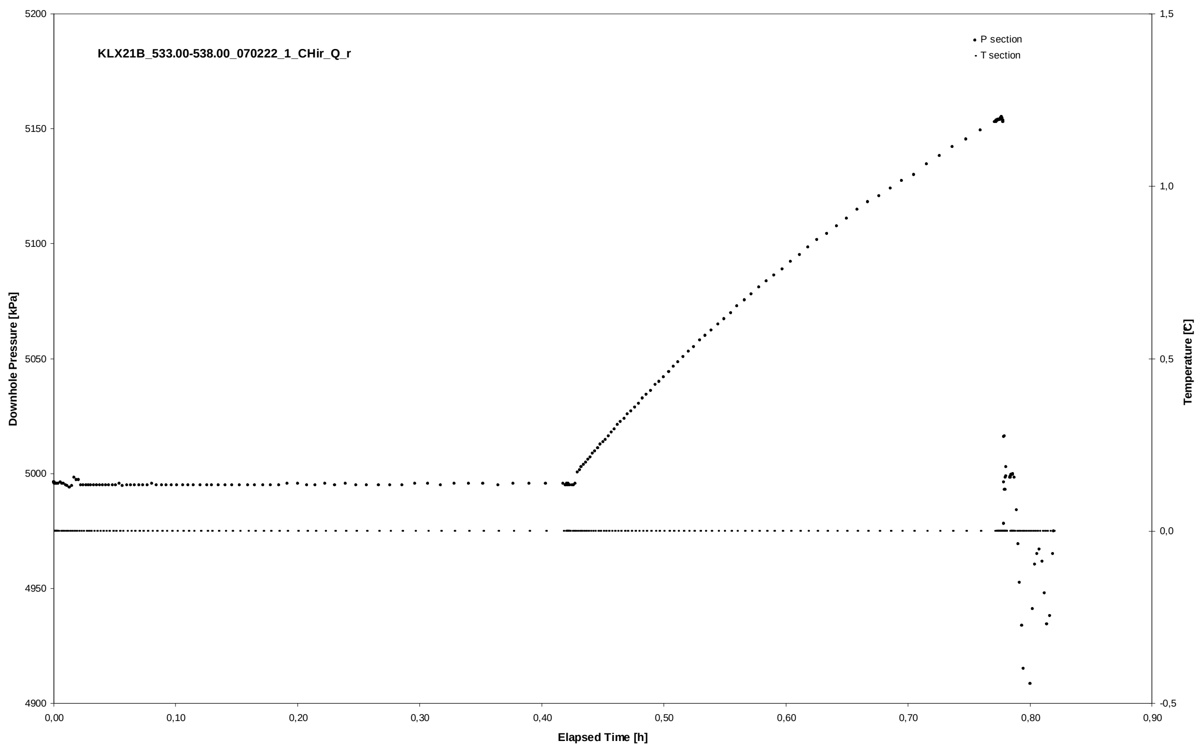
APPENDIX 2-87

Test 533.00 – 538.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

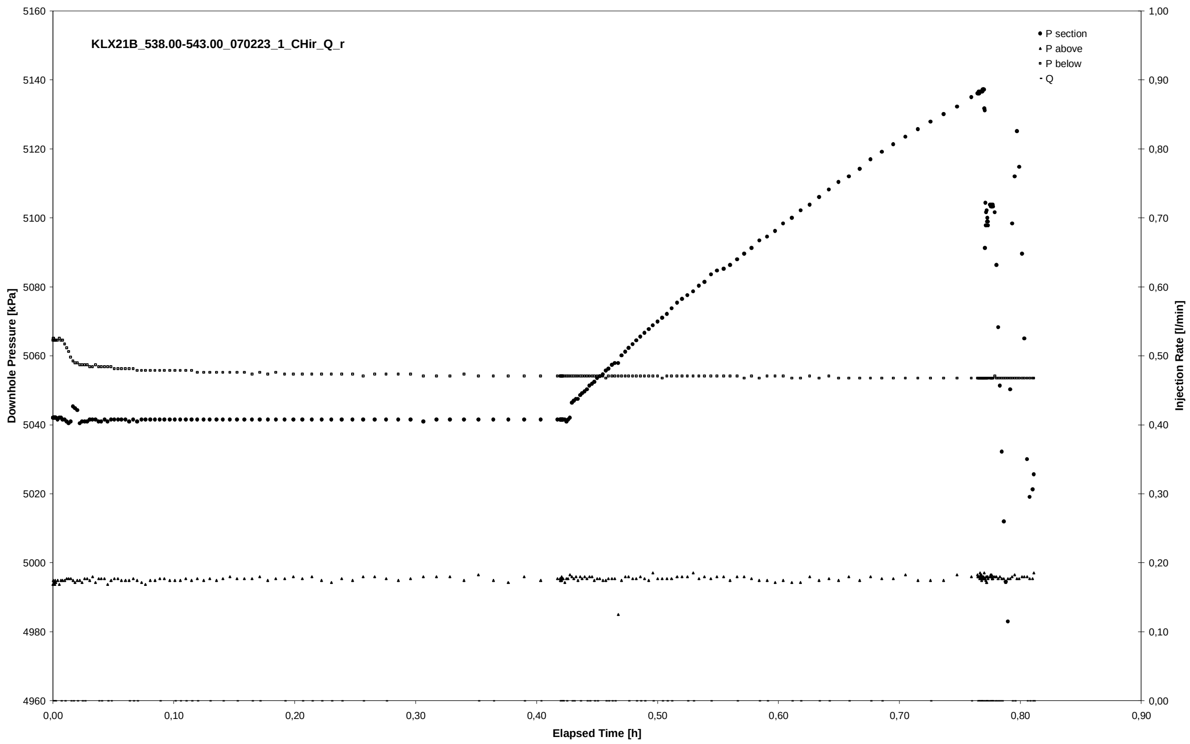
Not analysed

CHIR phase; HORNER match

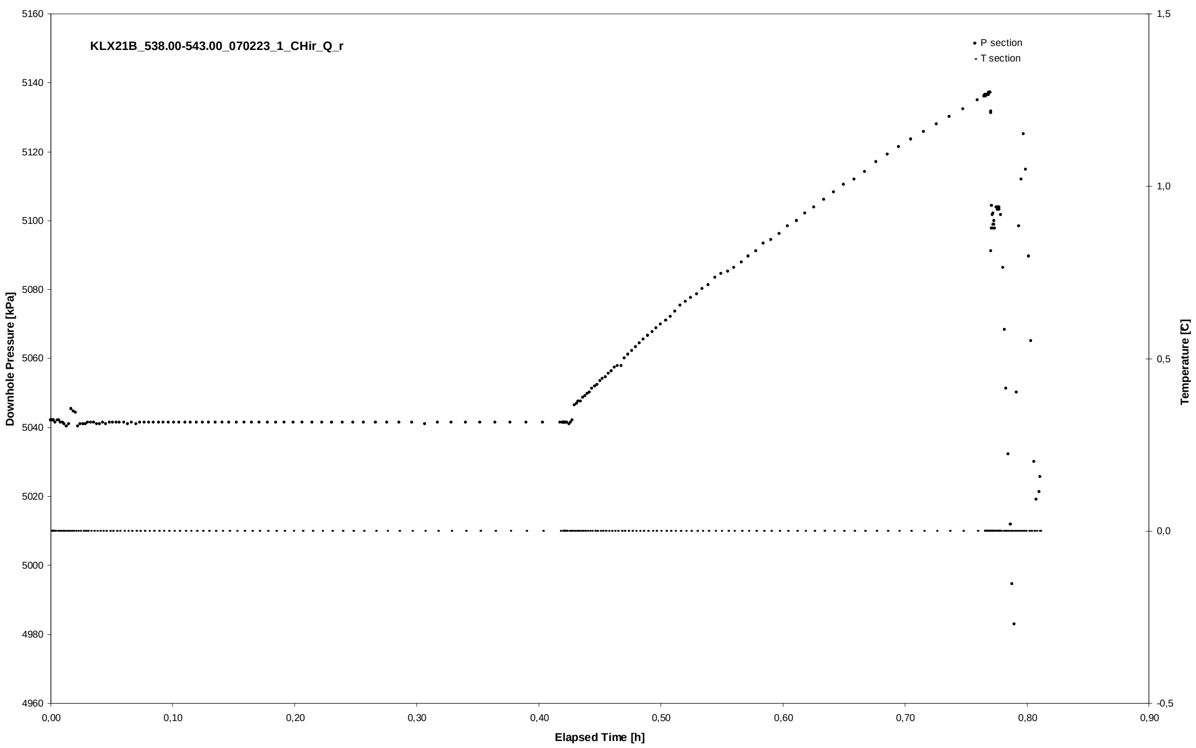
APPENDIX 2-88

Test 538.00 – 543.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

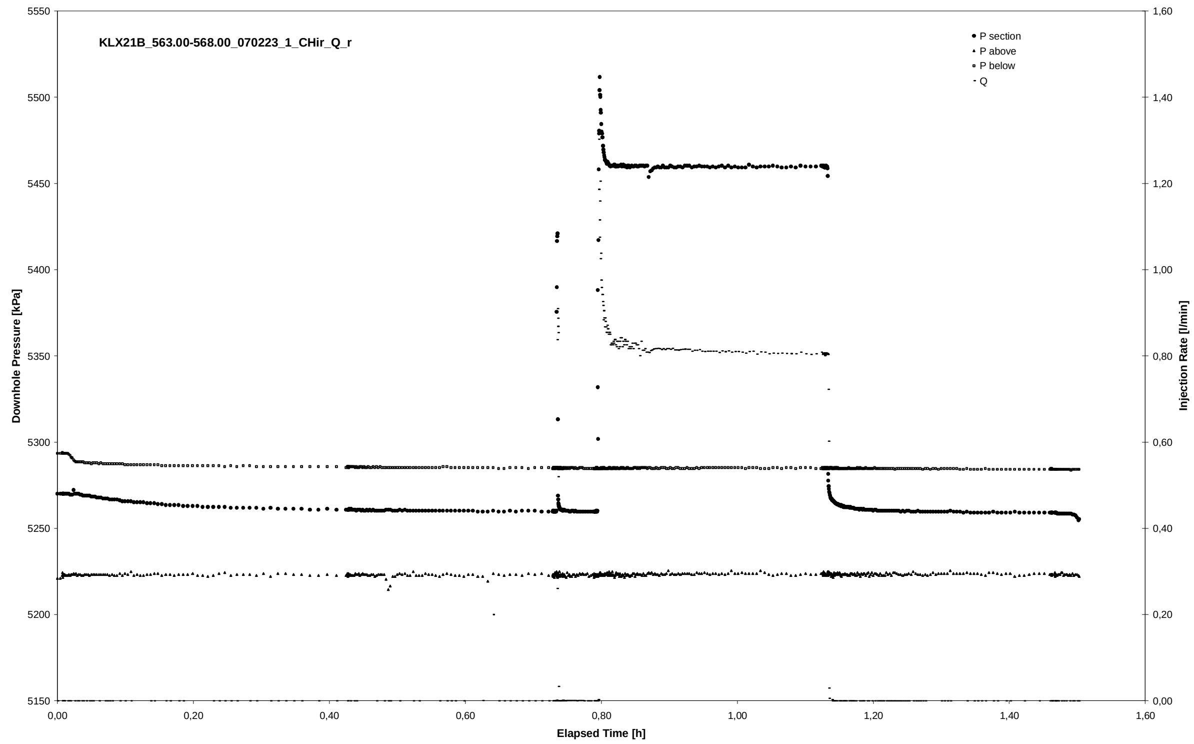
Not analysed

CHIR phase; HORNER match

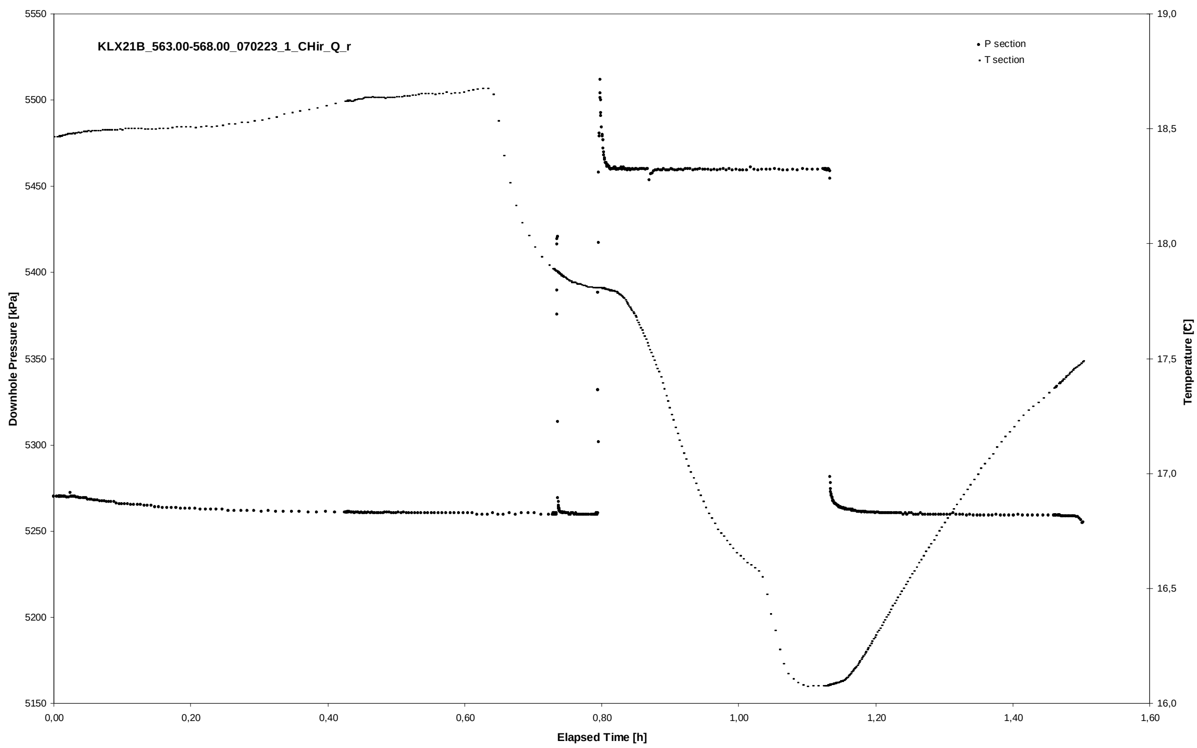
APPENDIX 2-89

Test 563.00 – 568.00 m

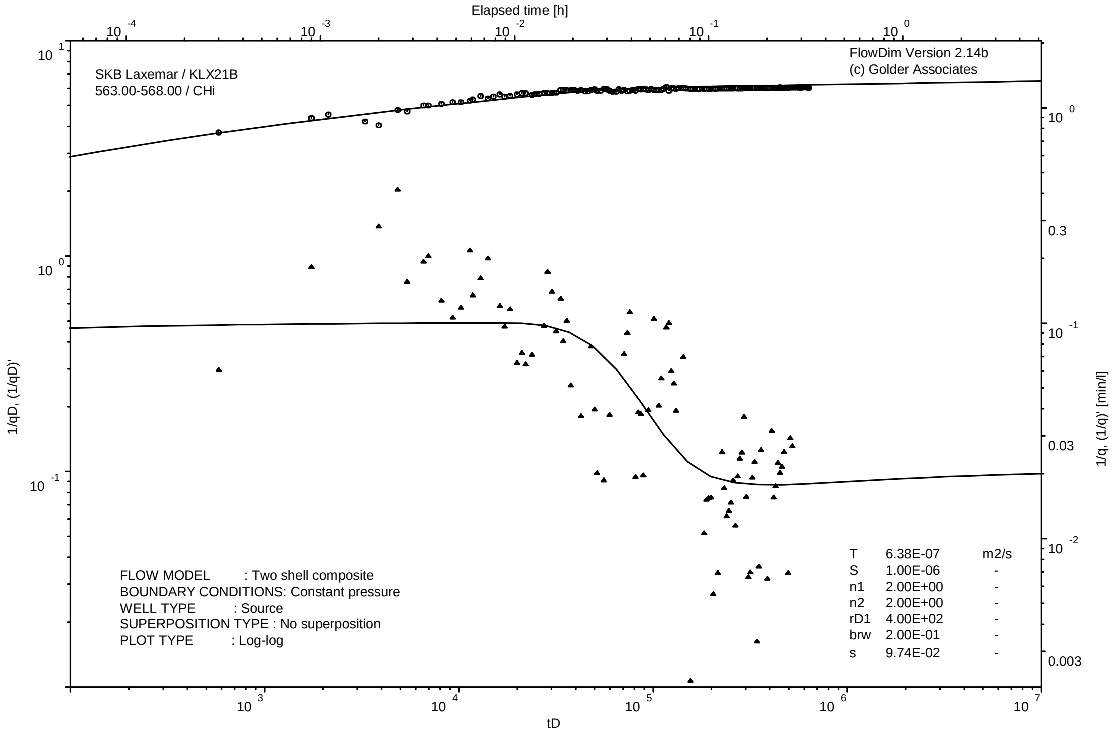
Analysis diagrams



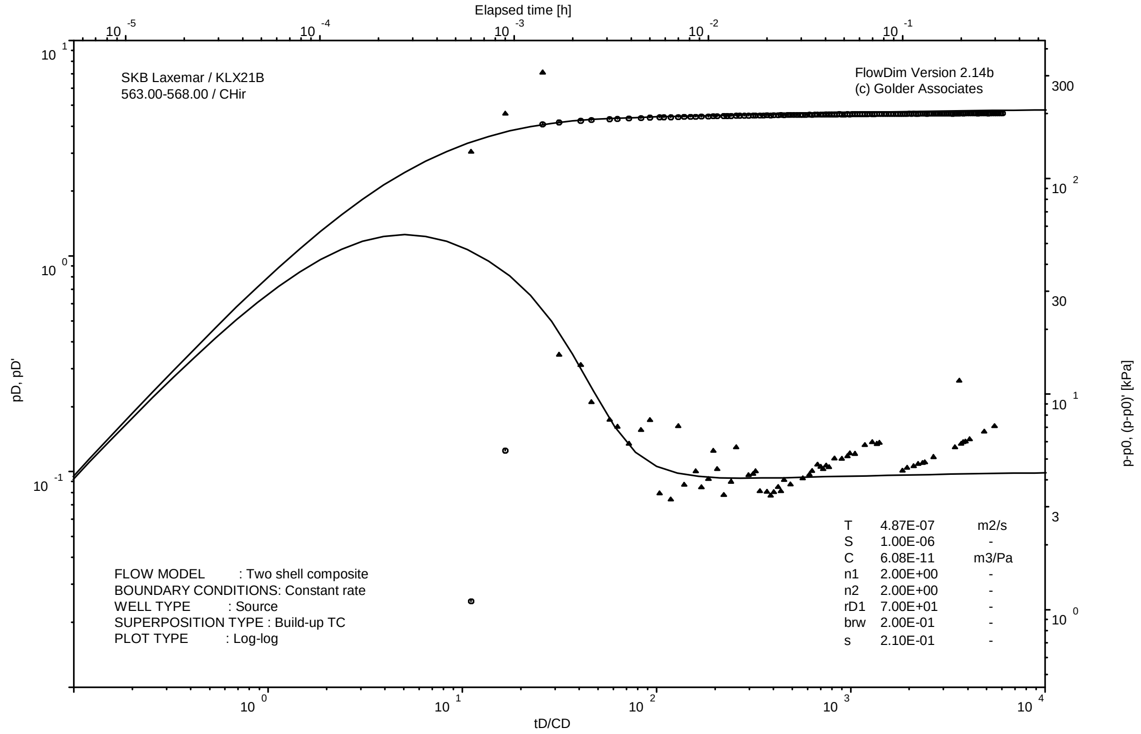
Pressure and flow rate vs. time; cartesian plot



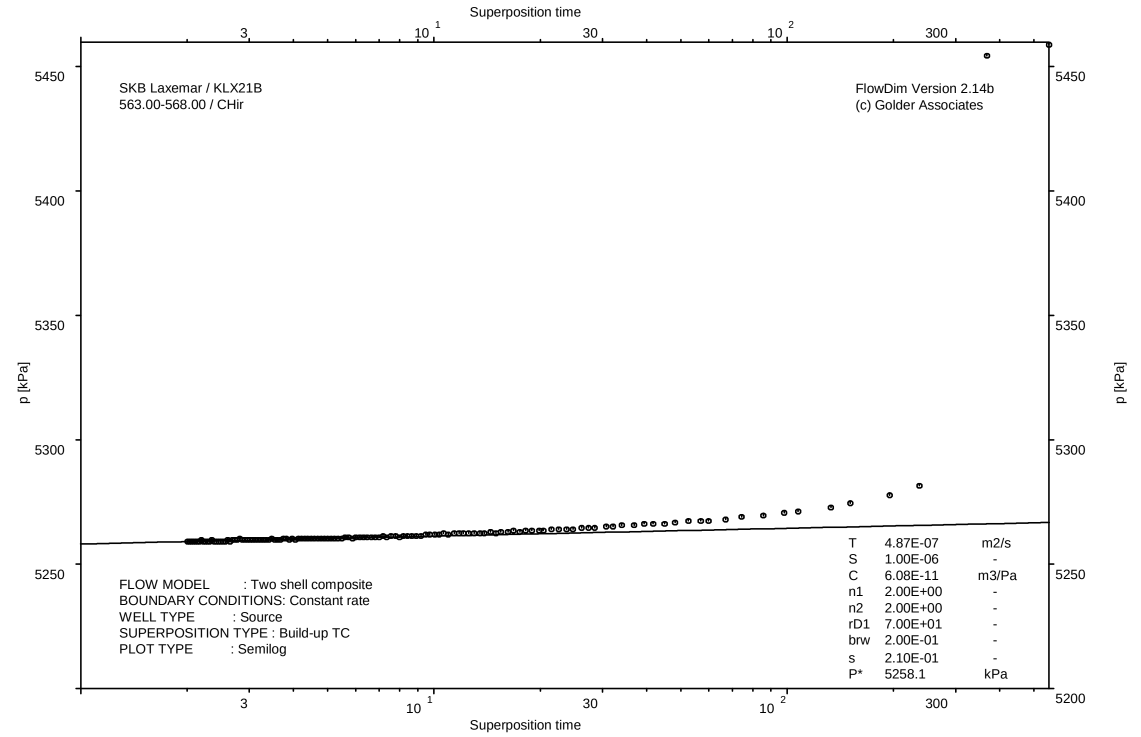
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

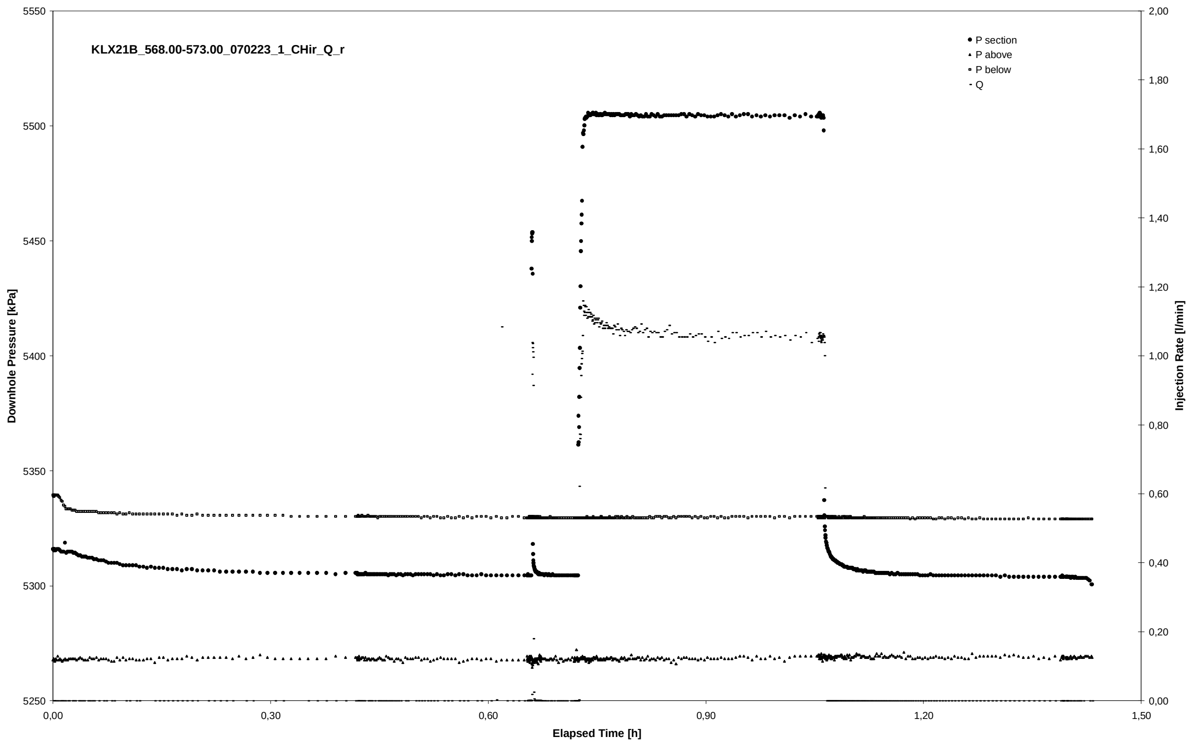


CHIR phase; HORNER match

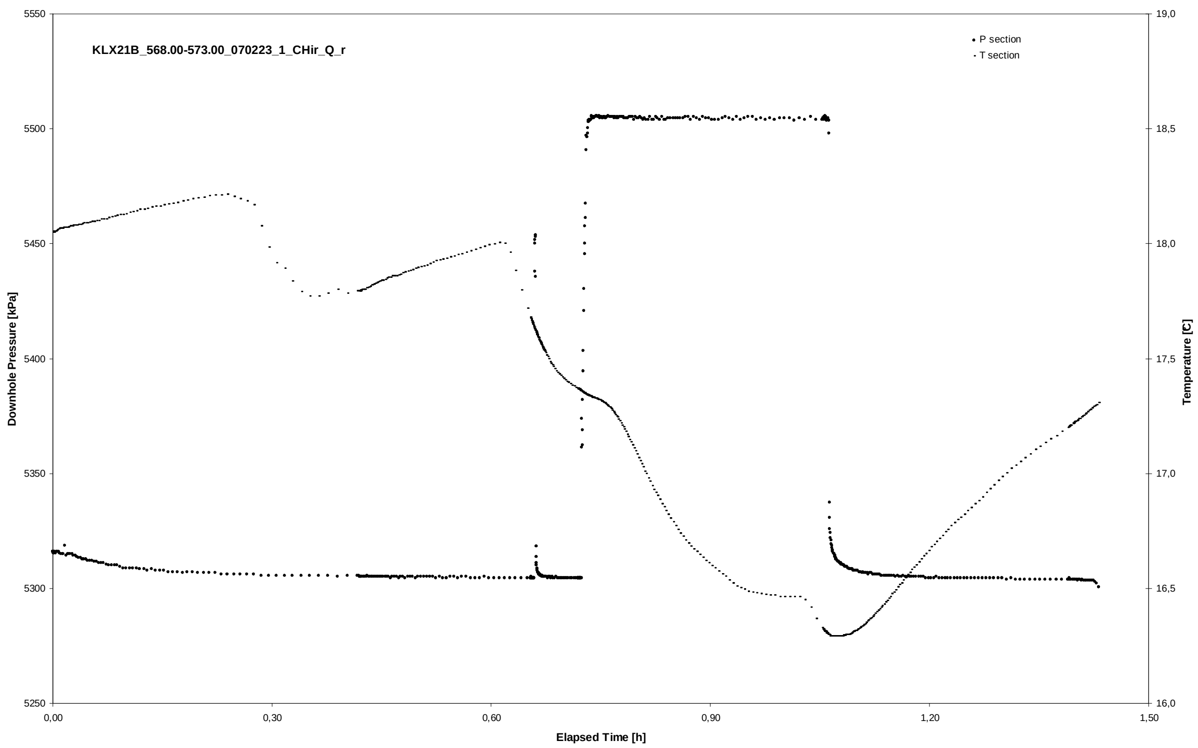
APPENDIX 2-90

Test 568.00 – 573.00 m

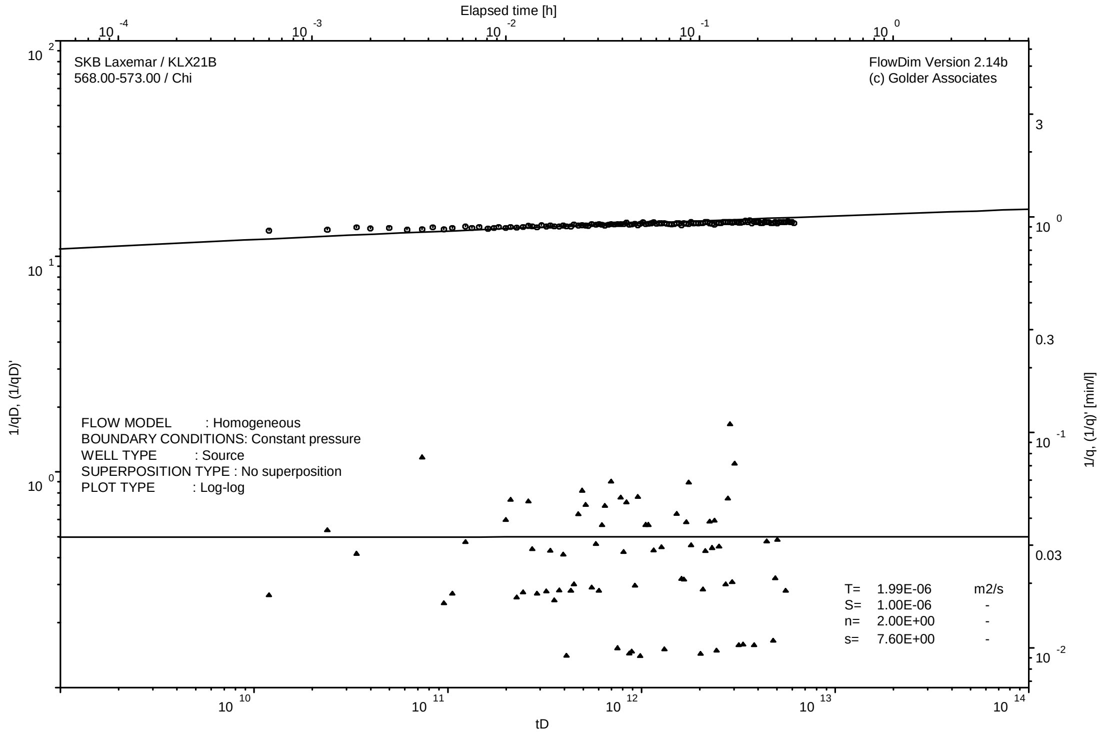
Analysis diagrams



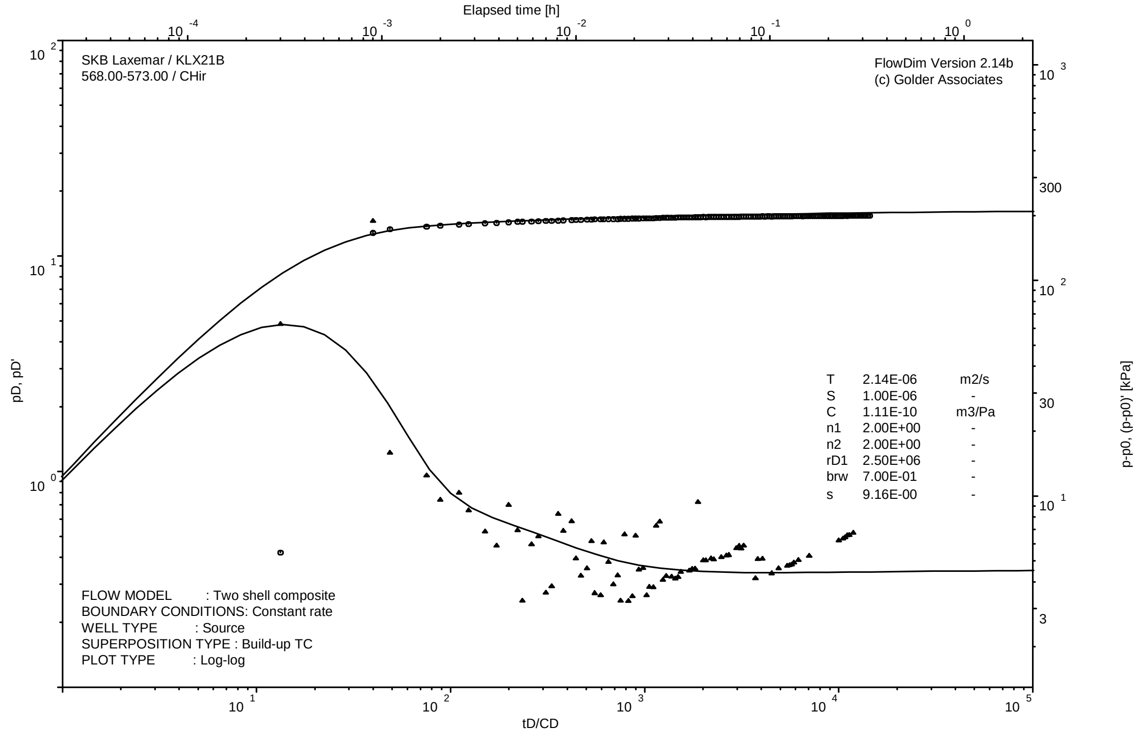
Pressure and flow rate vs. time; cartesian plot



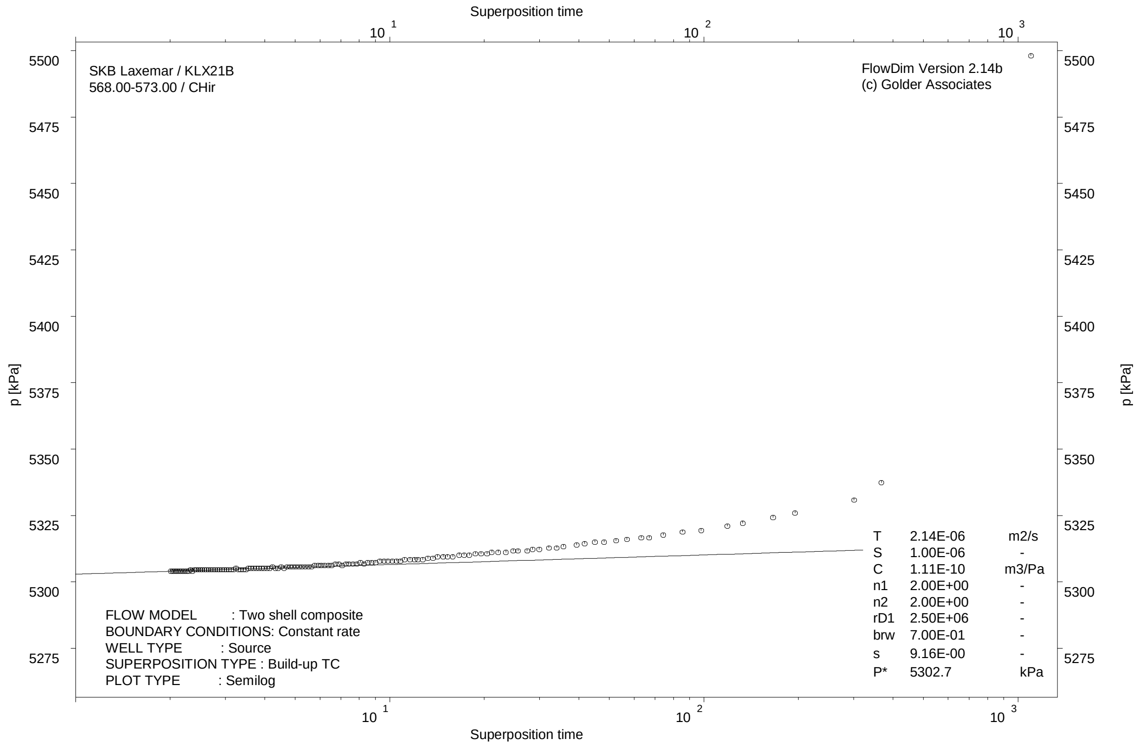
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

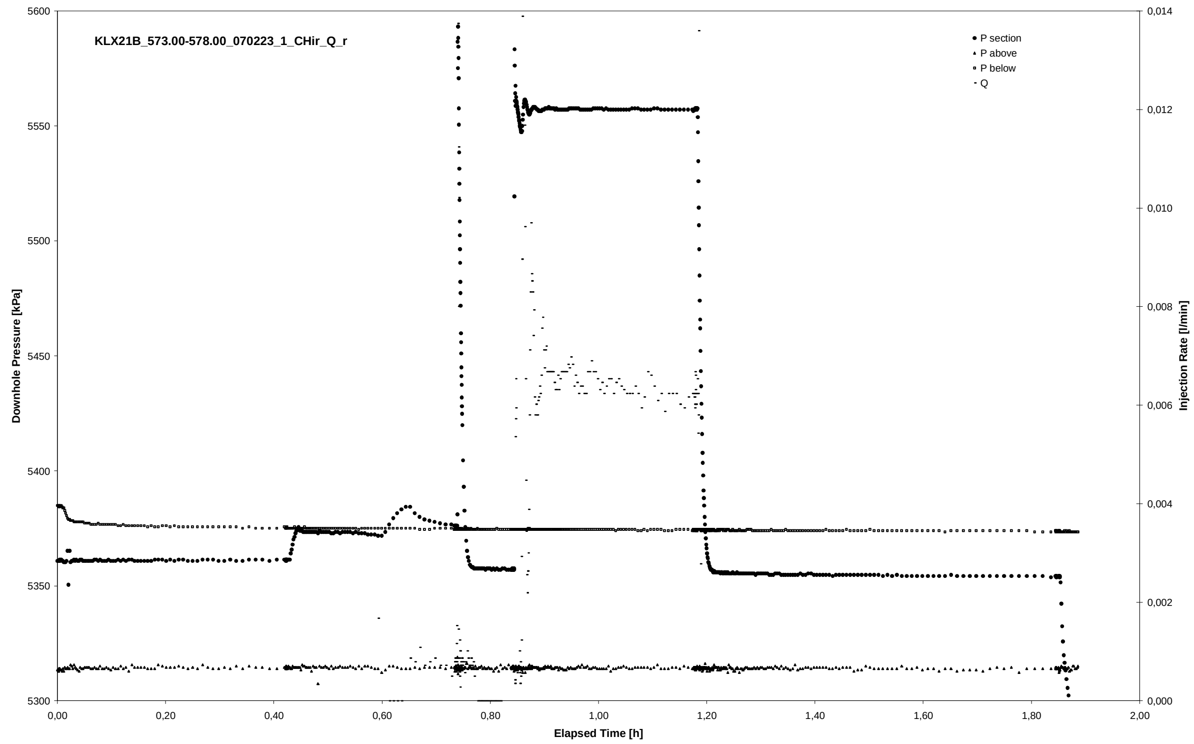


CHIR phase; HORNER match

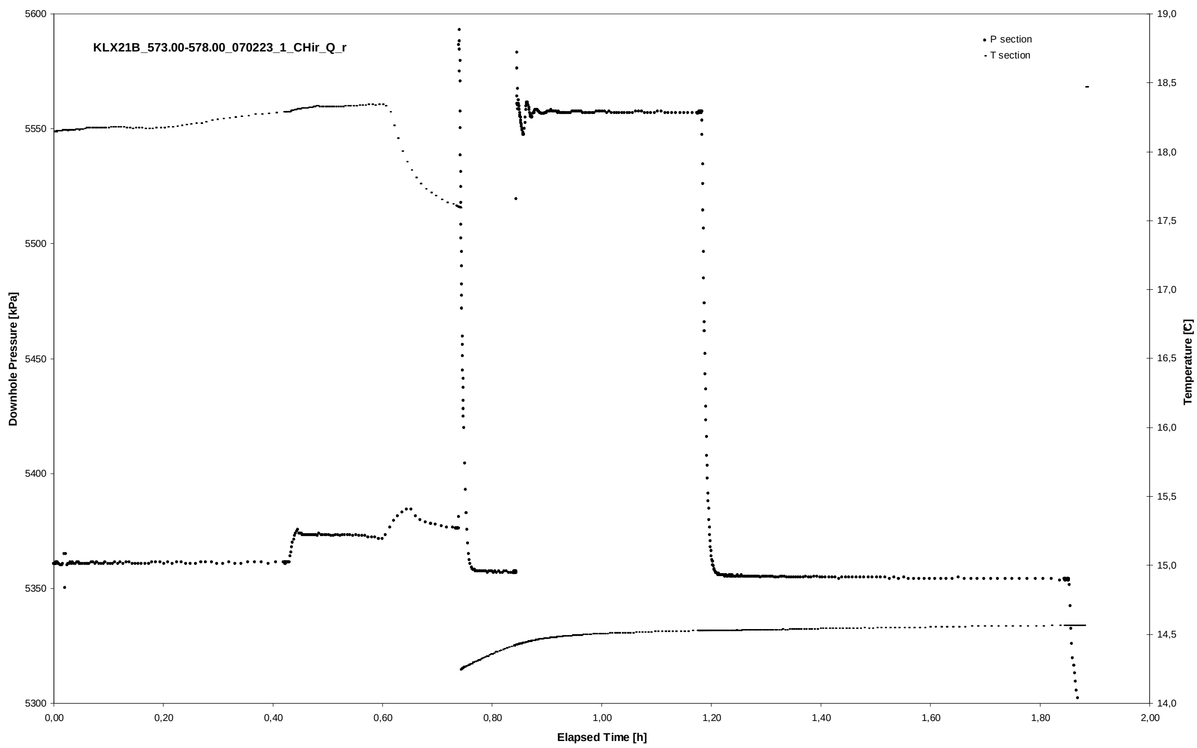
APPENDIX 2-91

Test 573.00 – 578.00 m

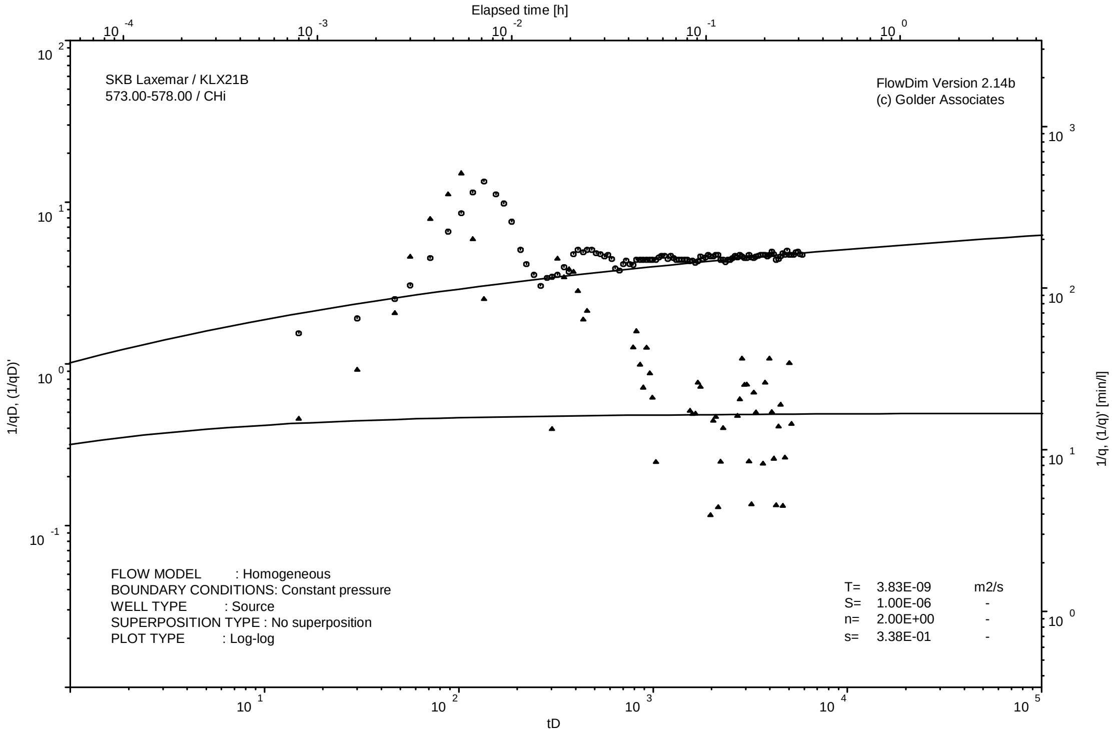
Analysis diagrams



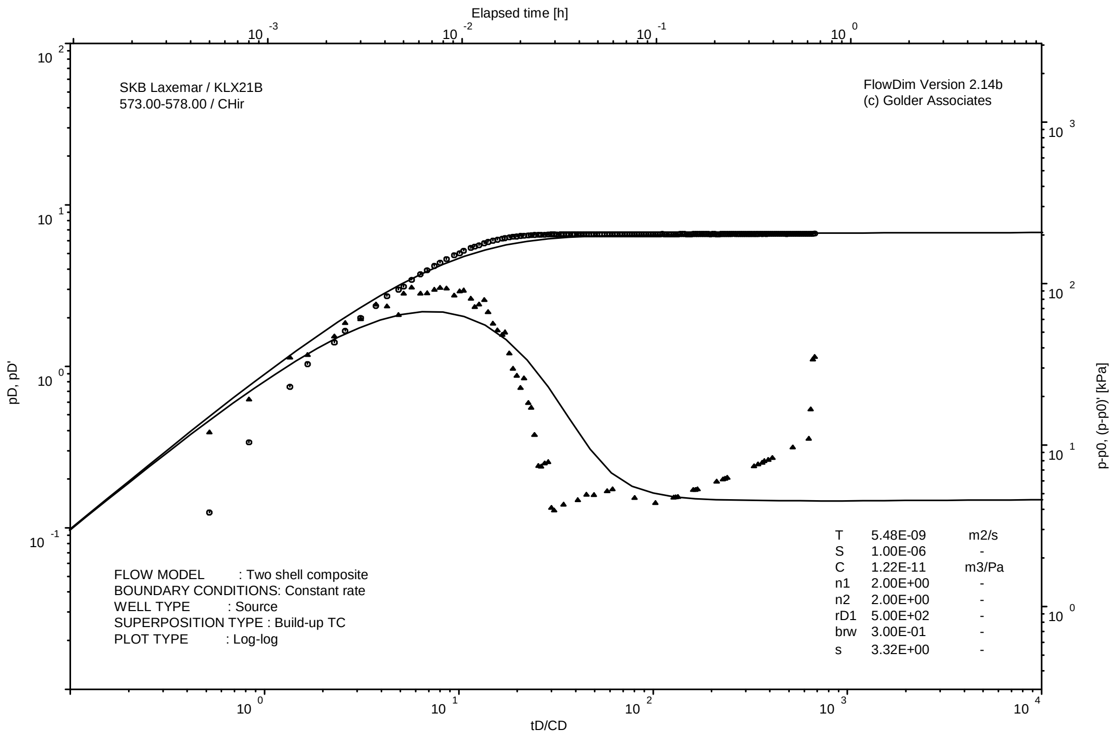
Pressure and flow rate vs. time; cartesian plot



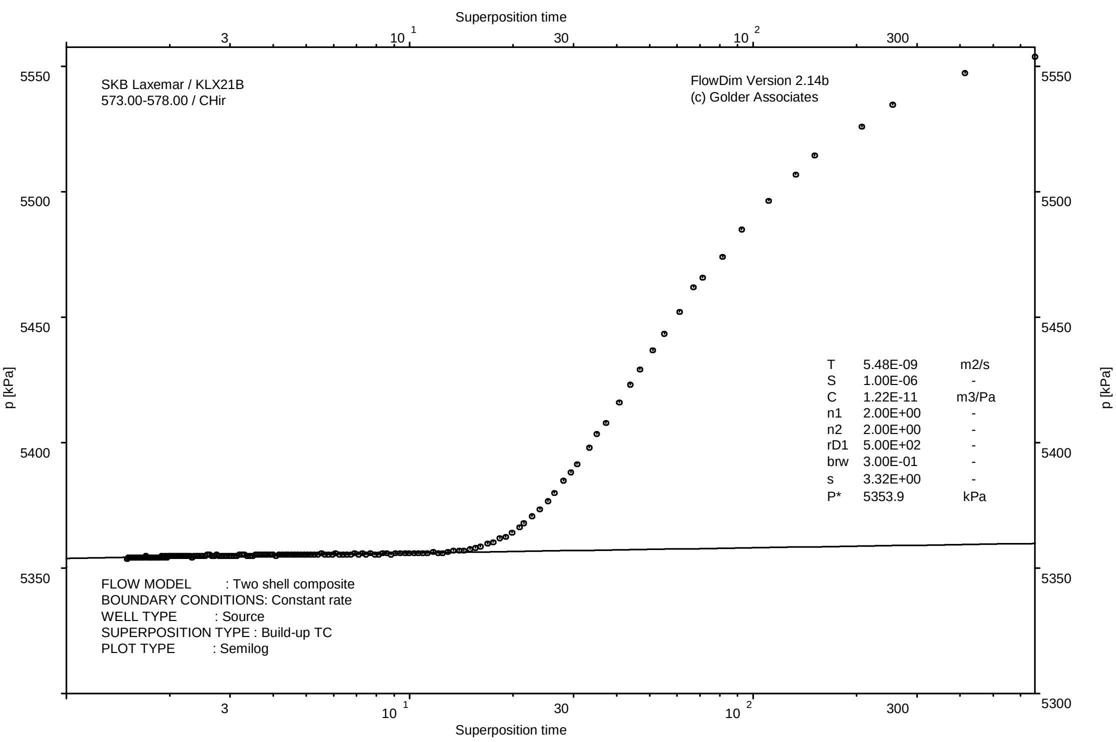
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

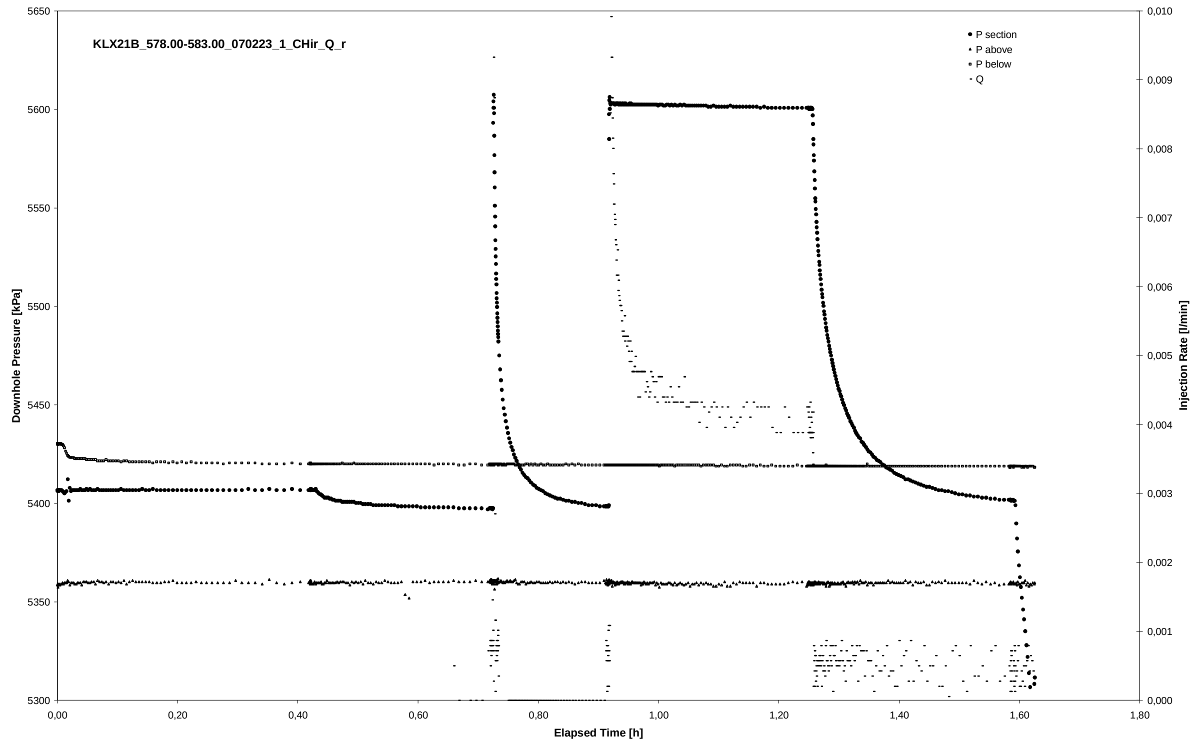


CHIR phase; HORNER match

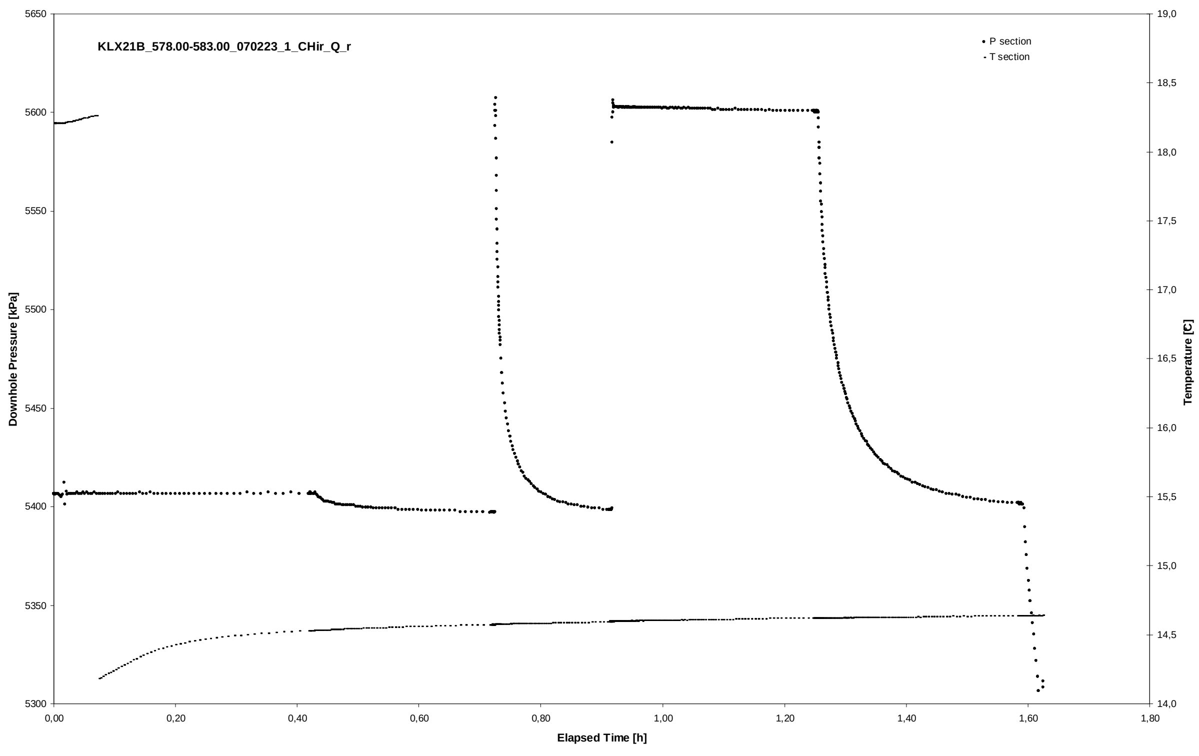
APPENDIX 2-92

Test 578.00 – 583.00 m

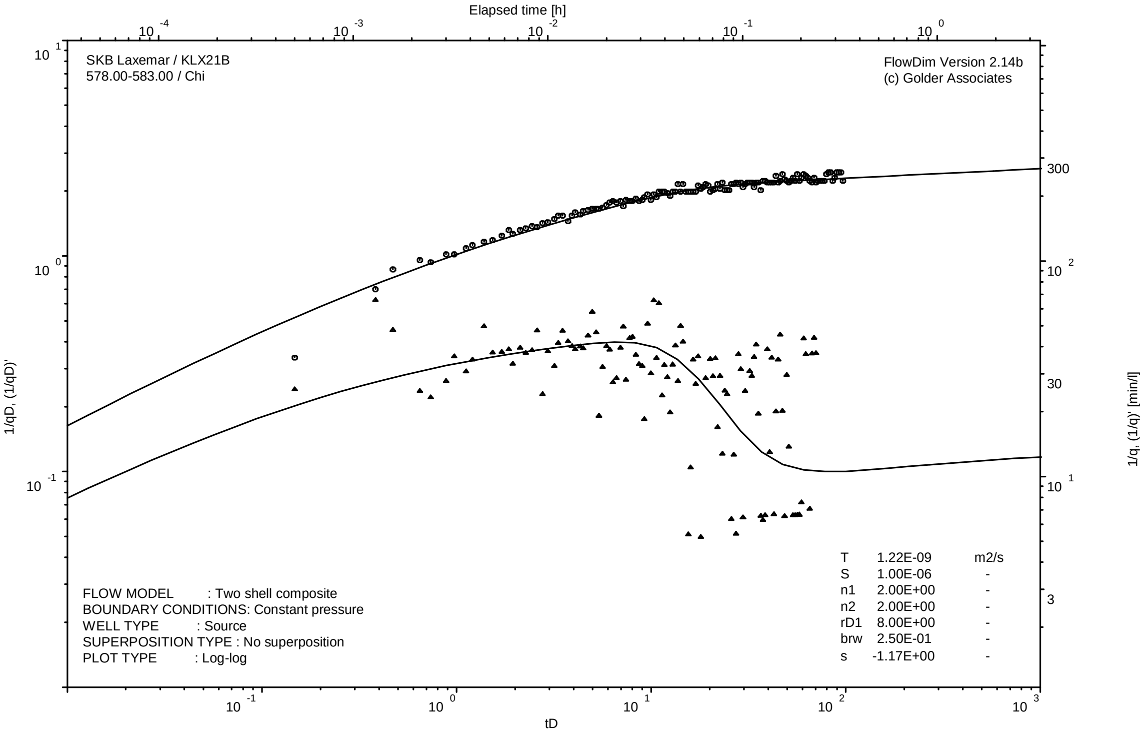
Analysis diagrams



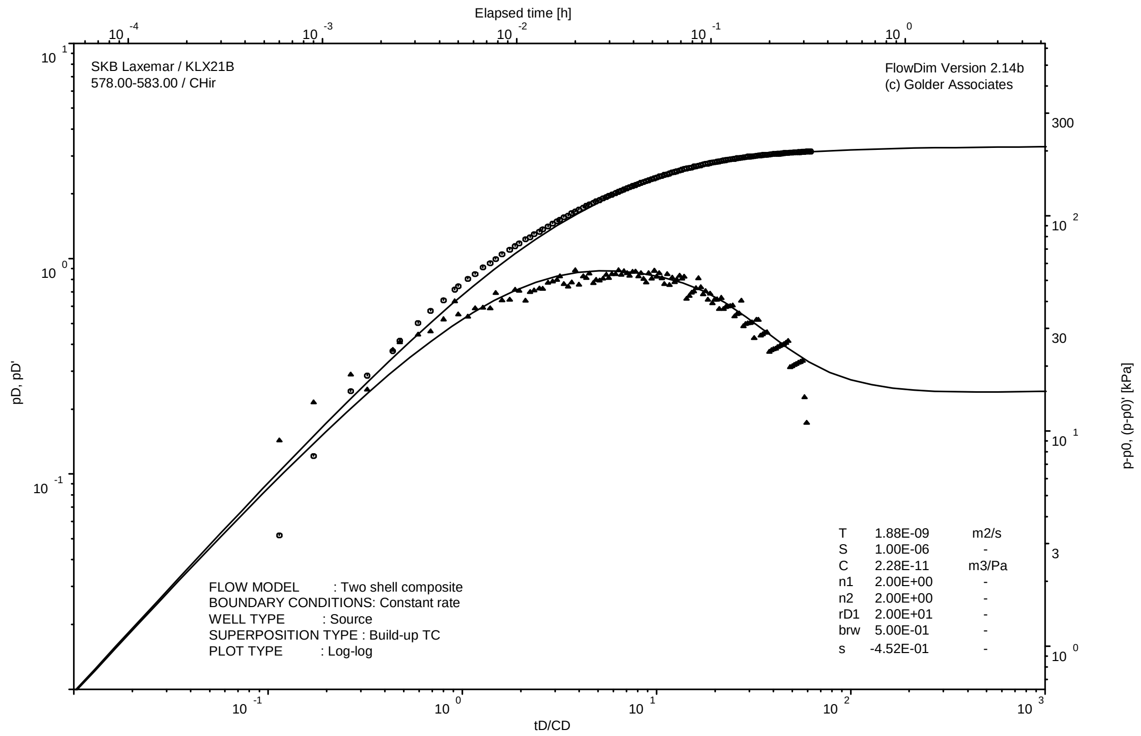
Pressure and flow rate vs. time; cartesian plot



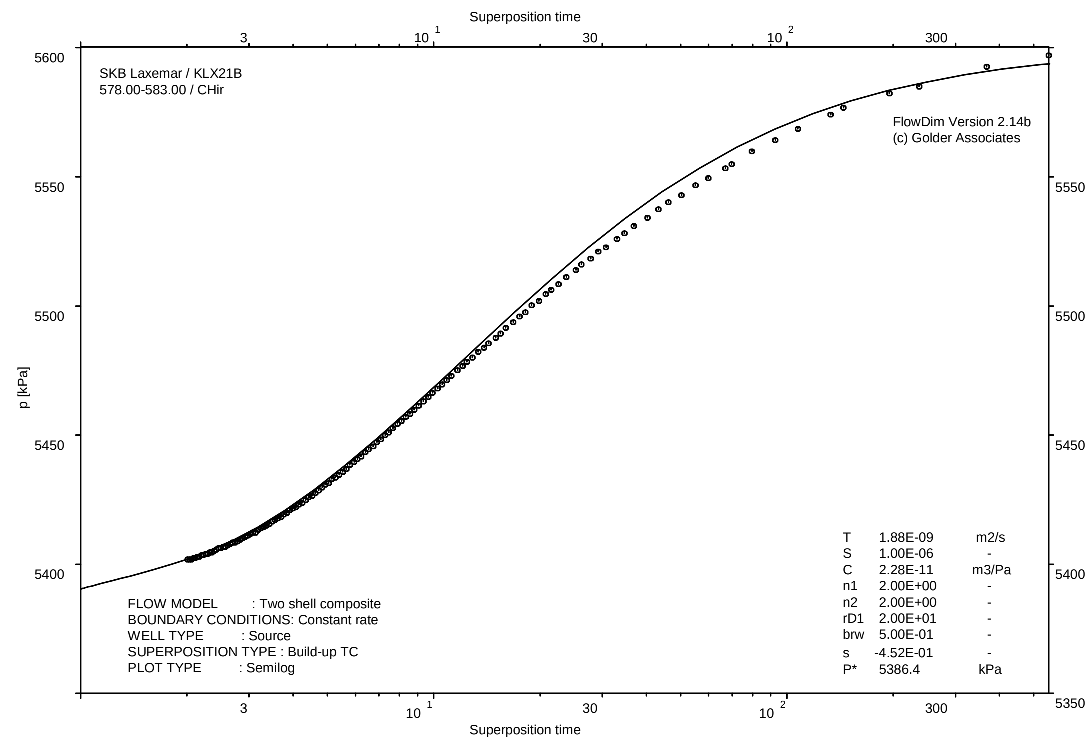
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

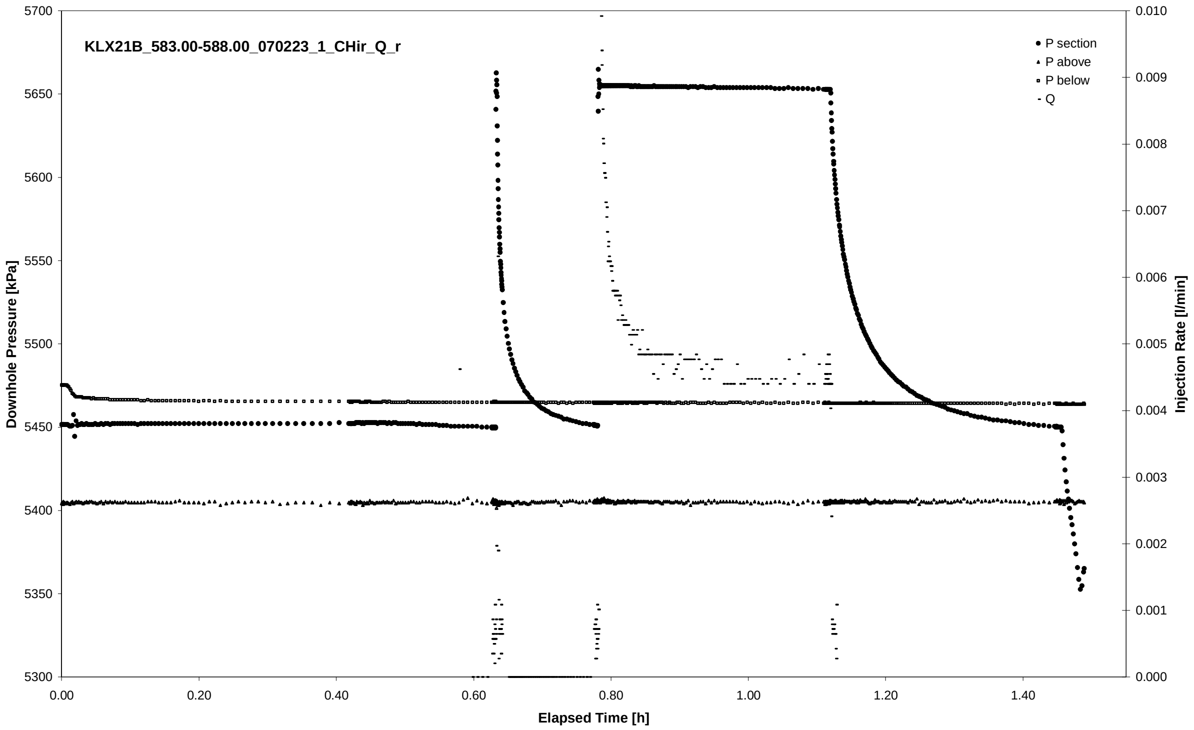


CHIR phase; HORNER match

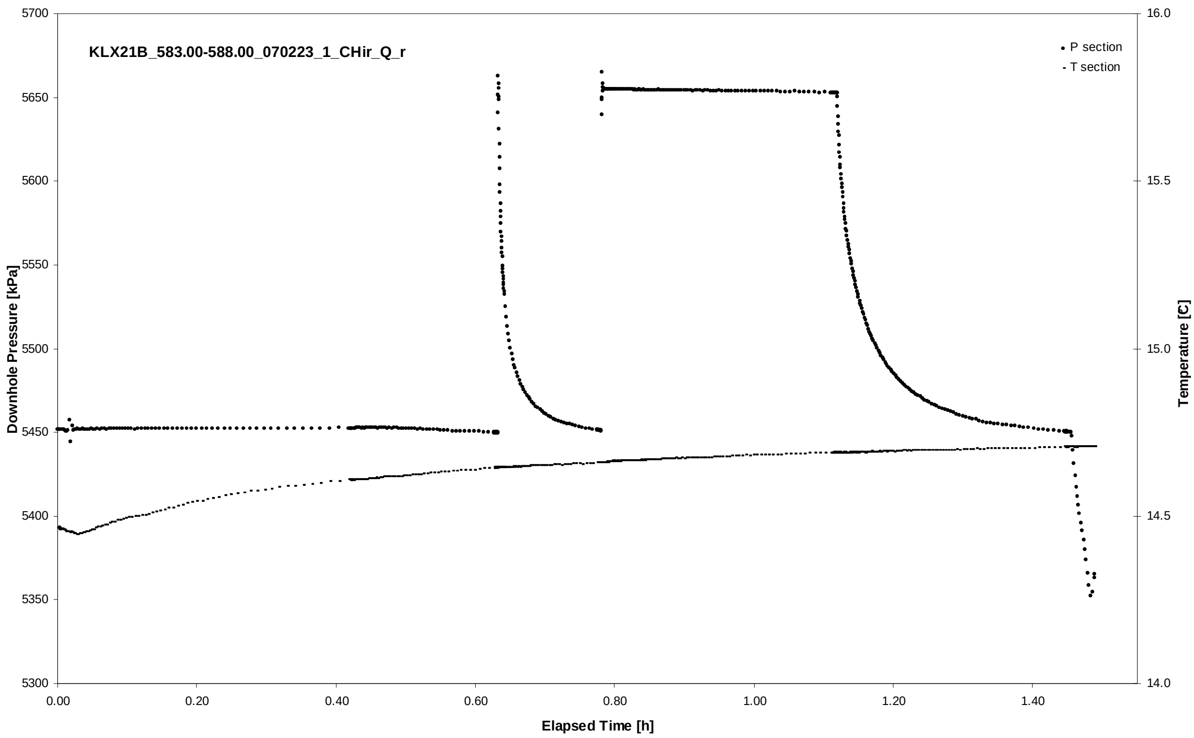
APPENDIX 2-93

Test 583.00 – 588.00 m

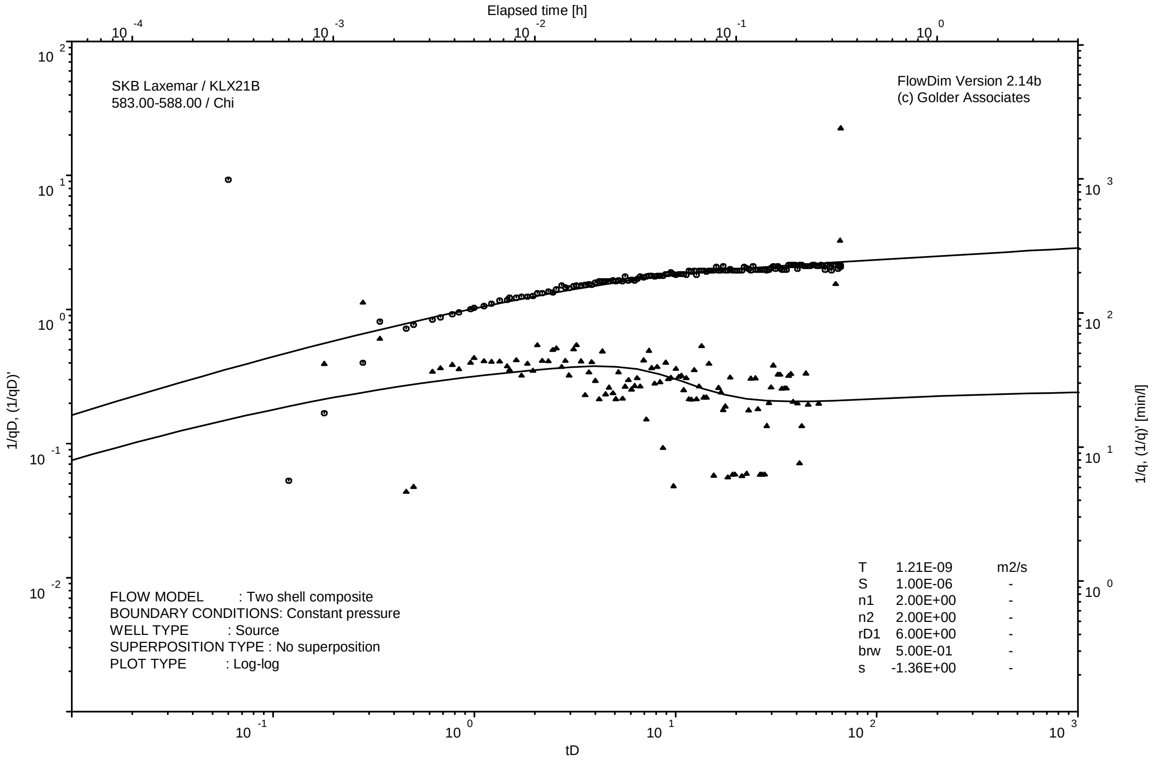
Analysis diagrams



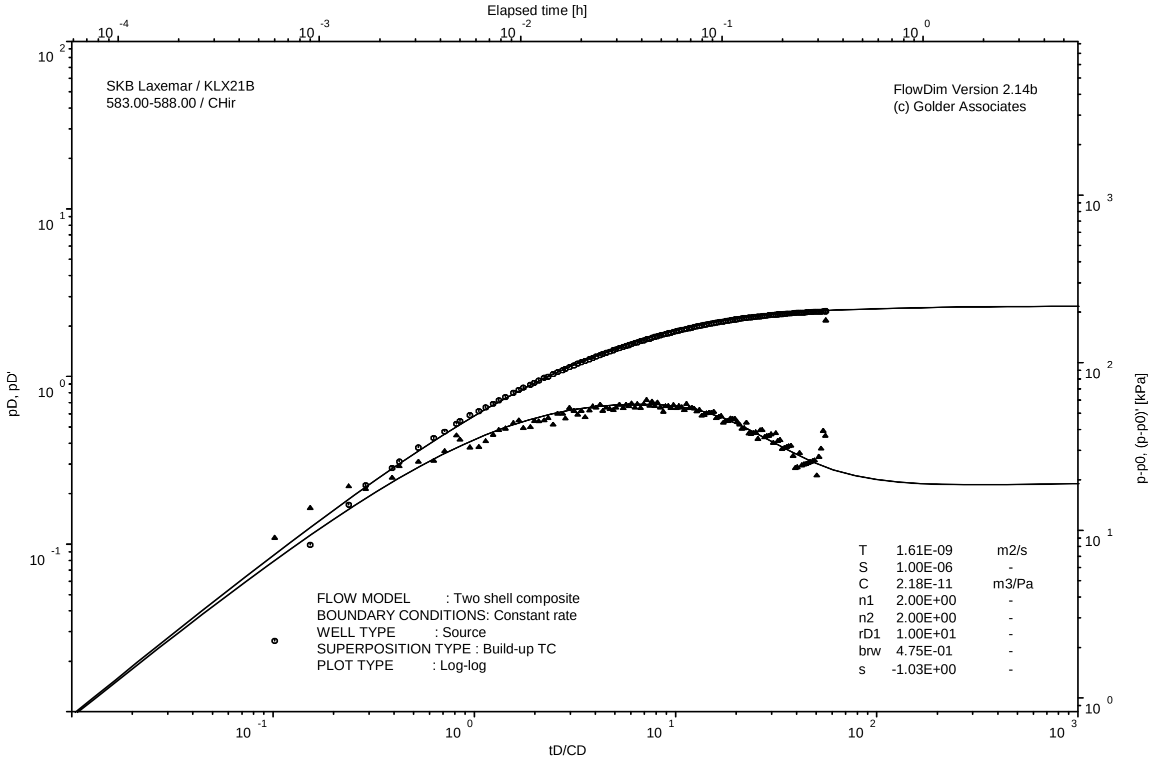
Pressure and flow rate vs. time; cartesian plot



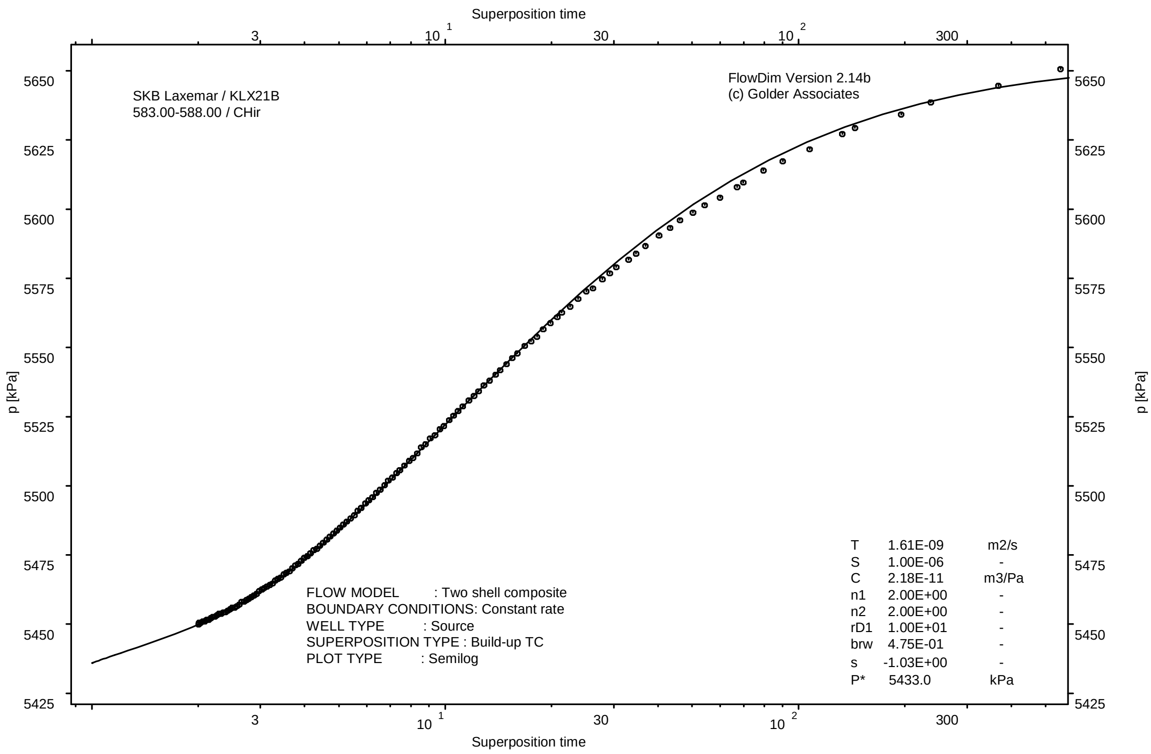
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

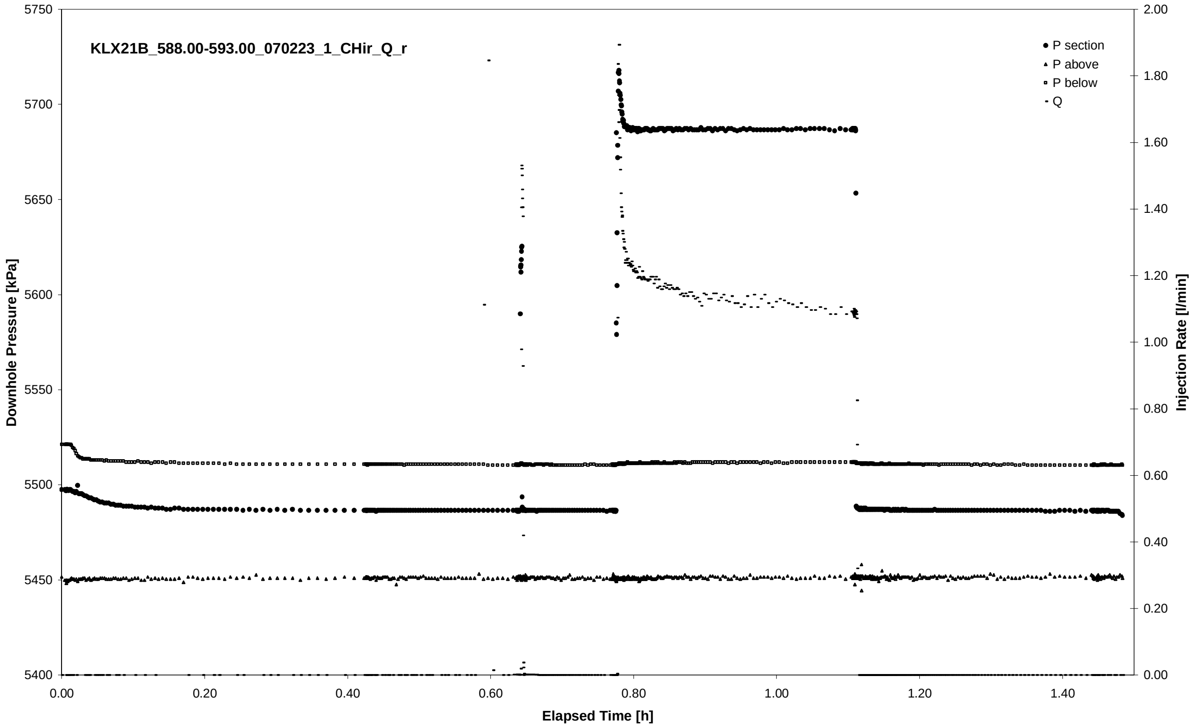


CHIR phase; HORNER match

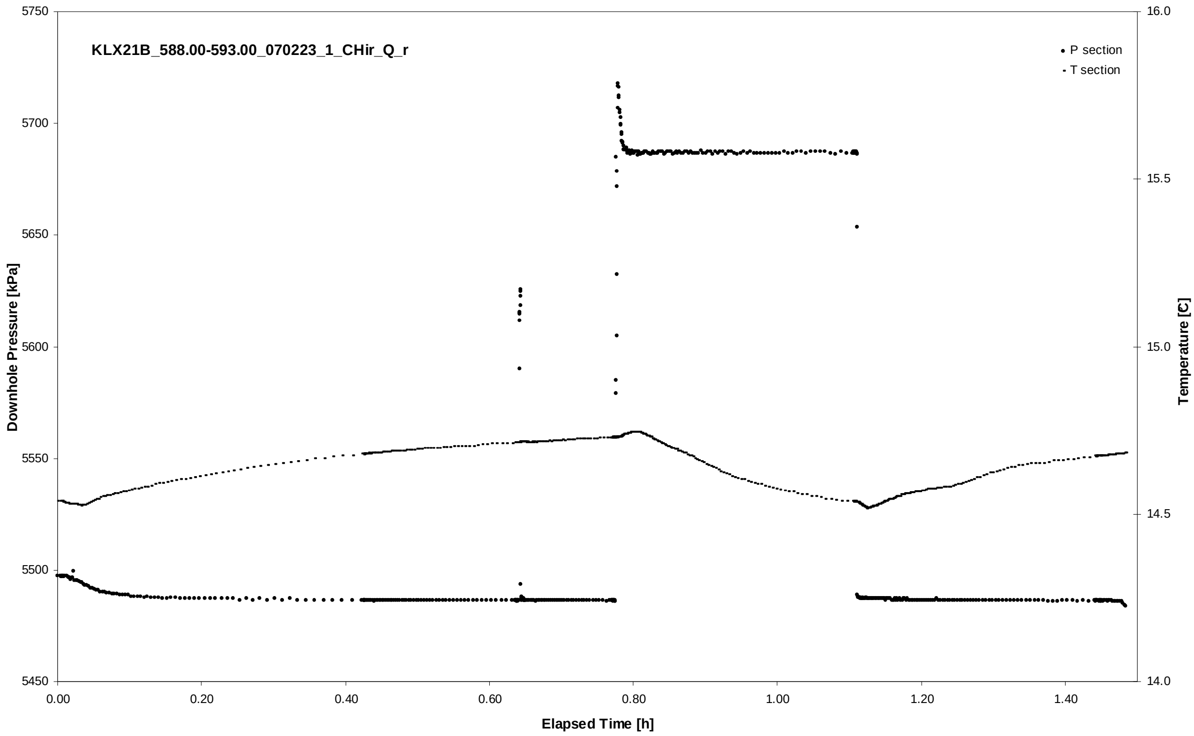
APPENDIX 2-94

Test 588.00 – 593.00 m

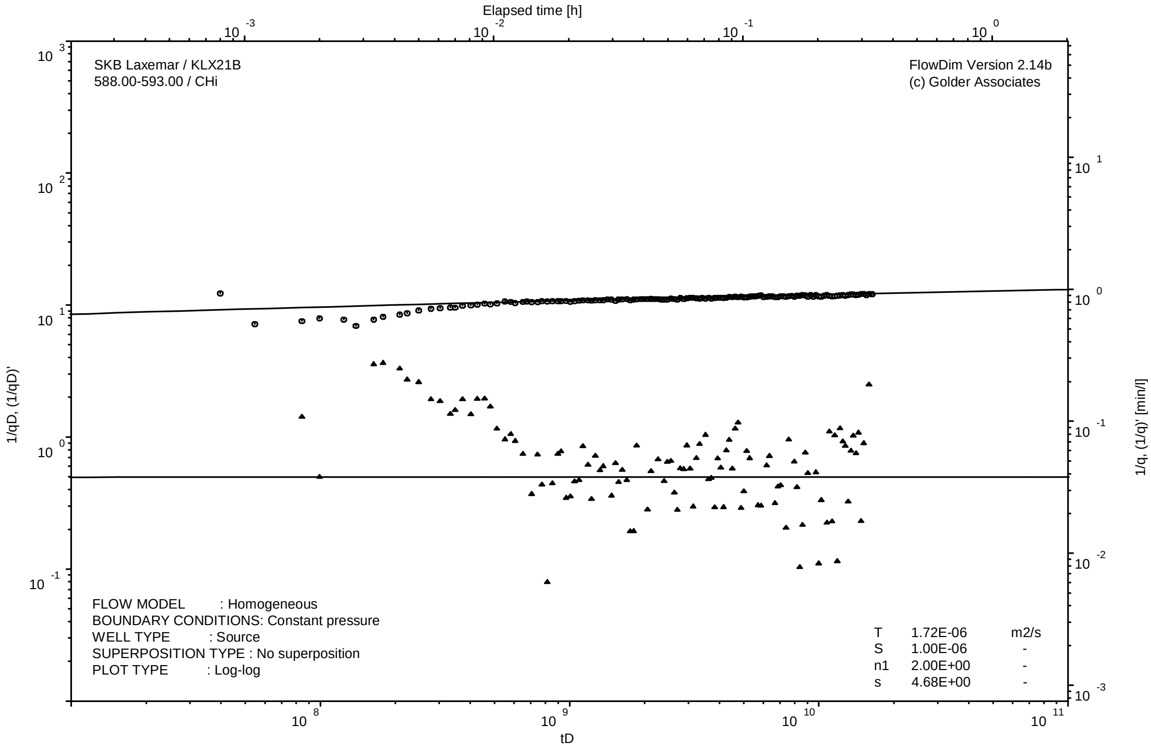
Analysis diagrams



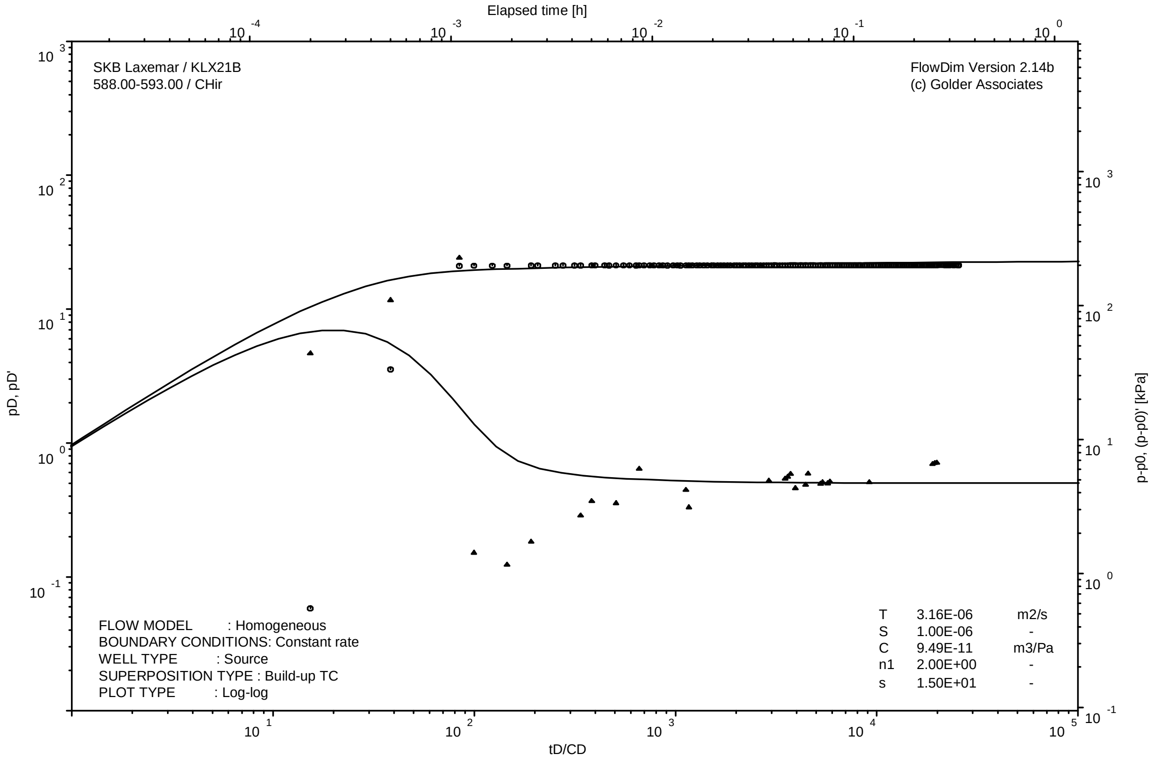
Pressure and flow rate vs. time; cartesian plot



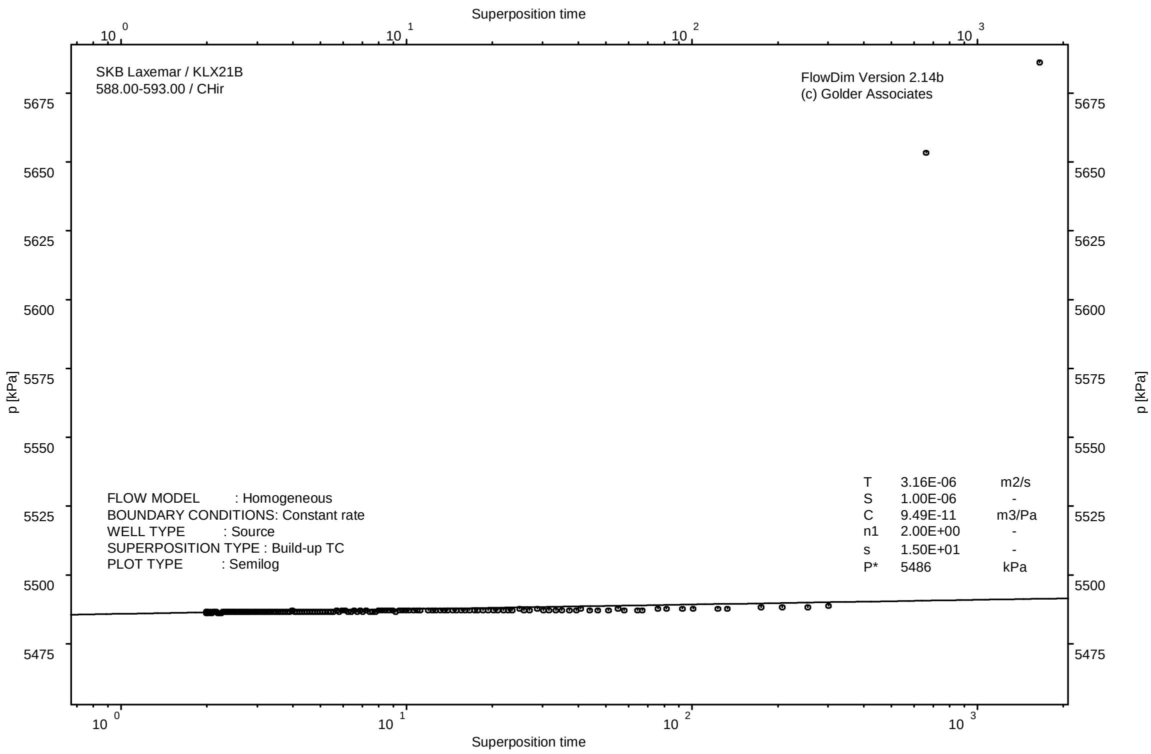
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

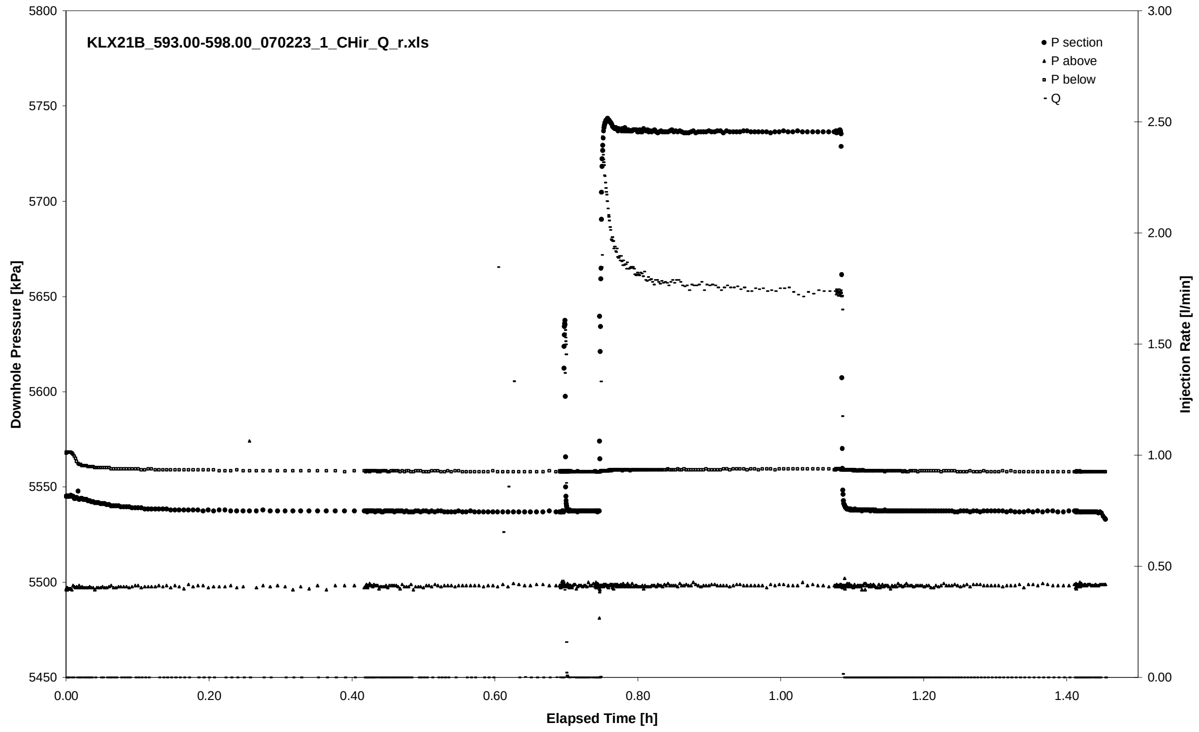


CHIR phase; HORNER match

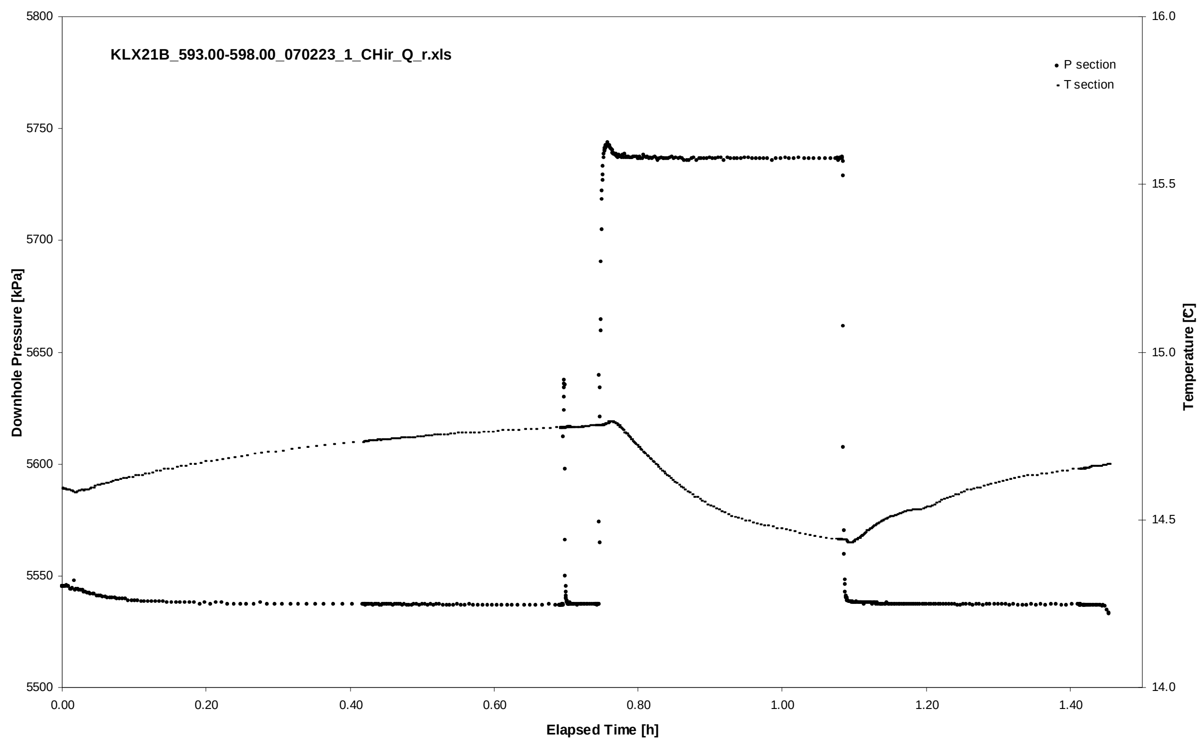
APPENDIX 2-95

Test 593.00 – 598.00 m

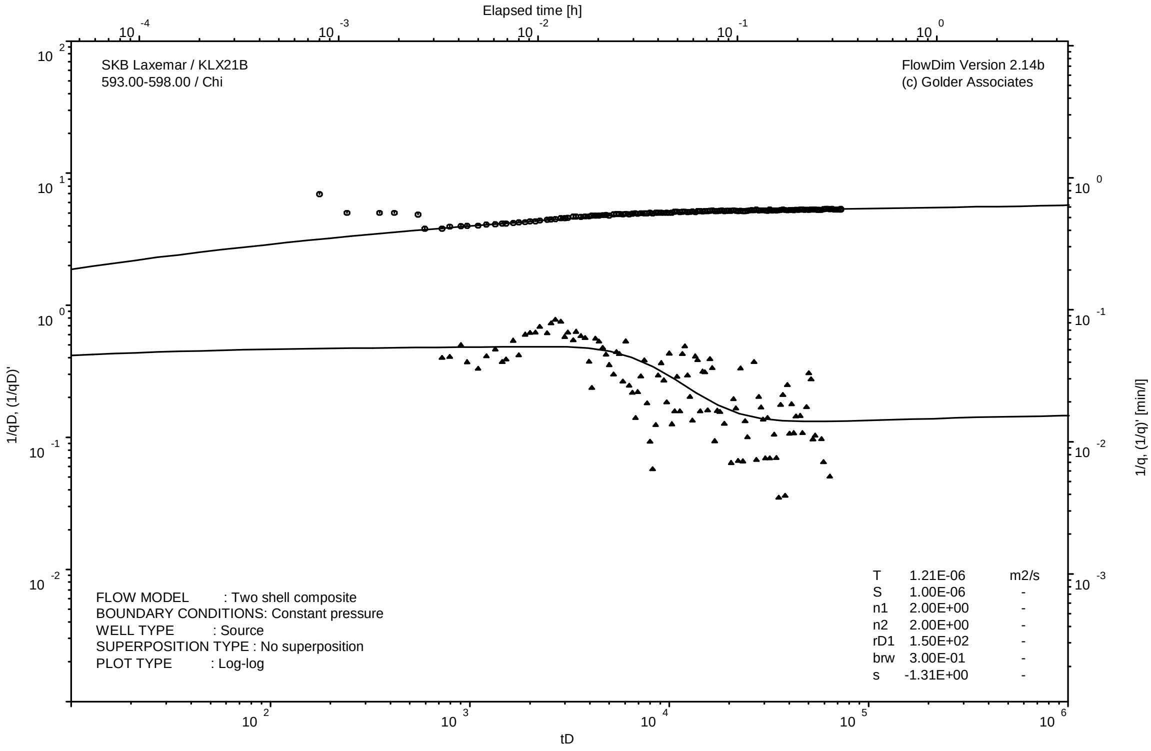
Analysis diagrams



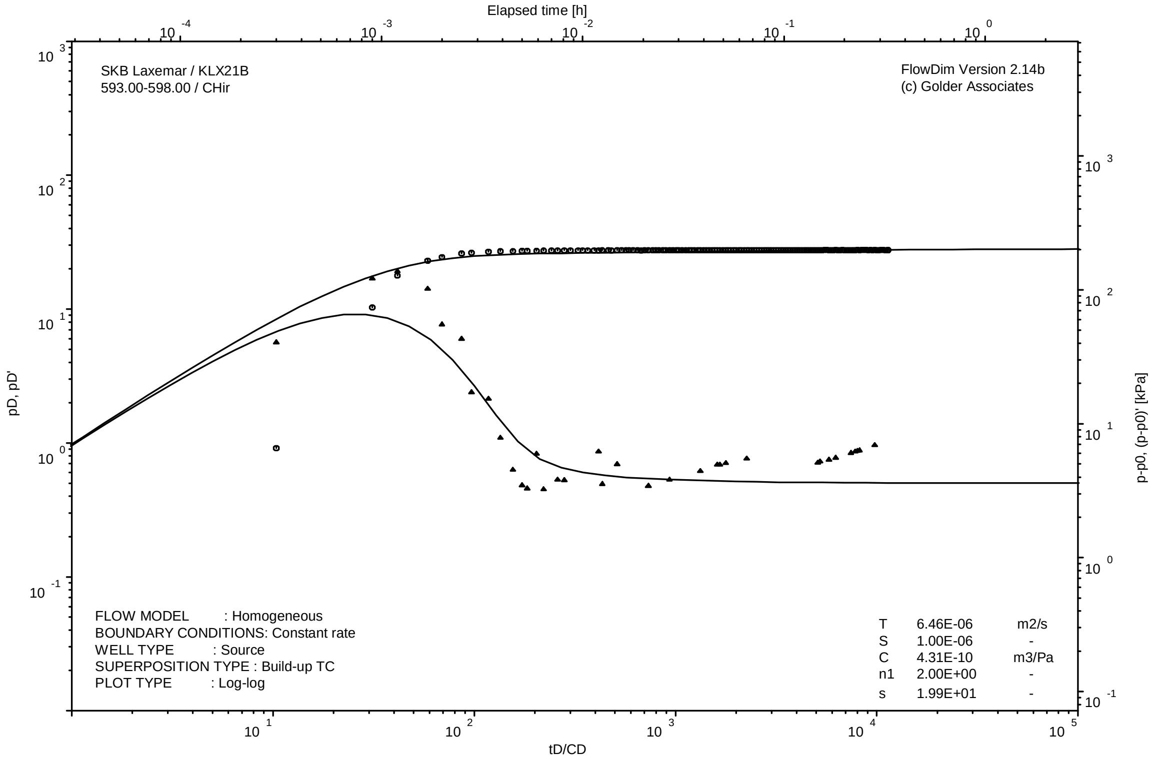
Pressure and flow rate vs. time; cartesian plot



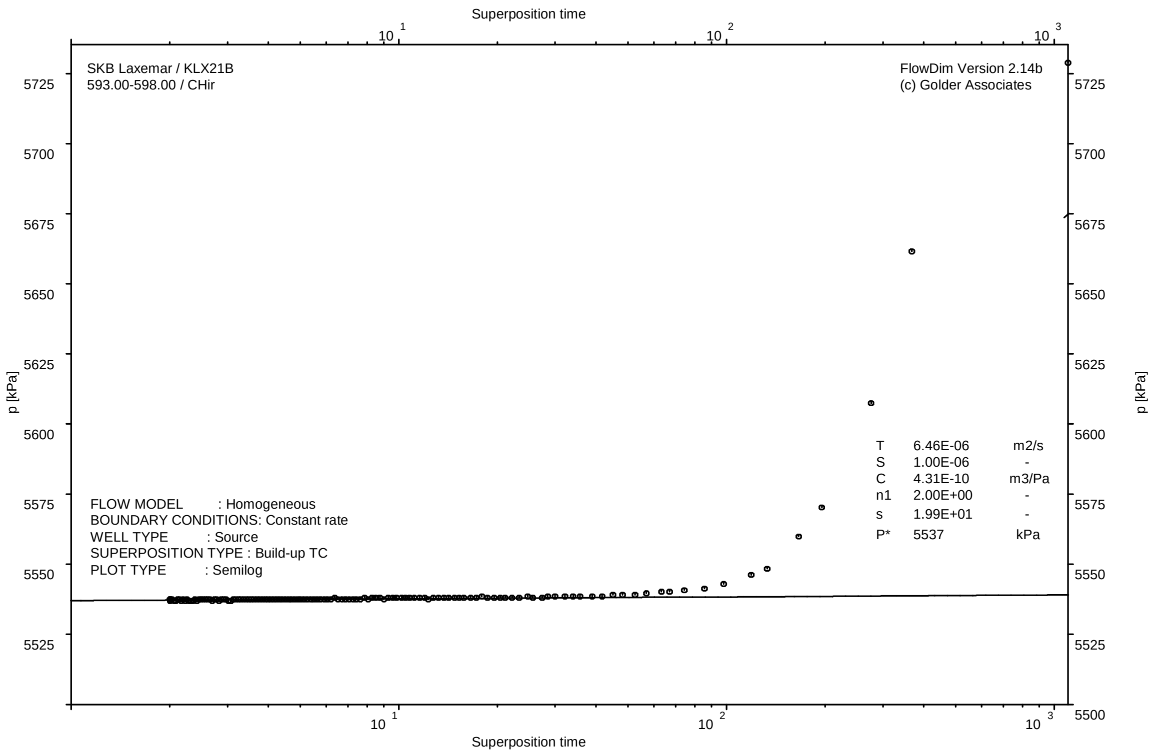
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

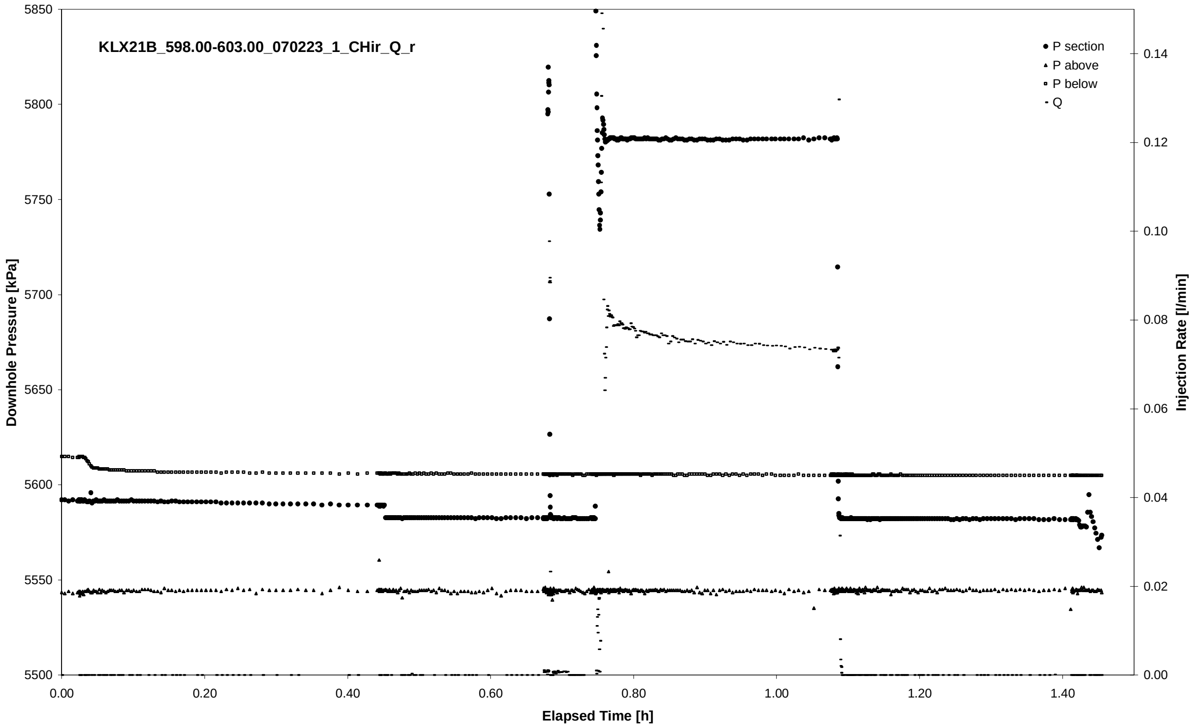


CHIR phase; HORNER match

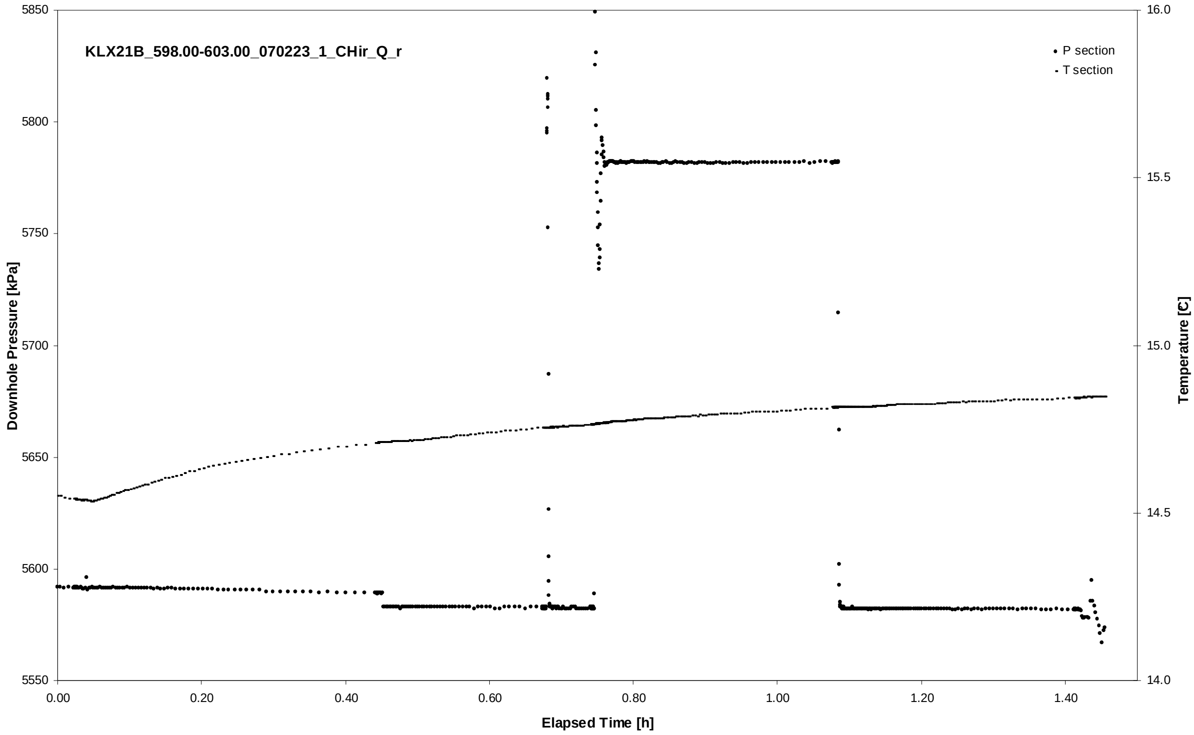
APPENDIX 2-96

Test 598.00 – 603.00 m

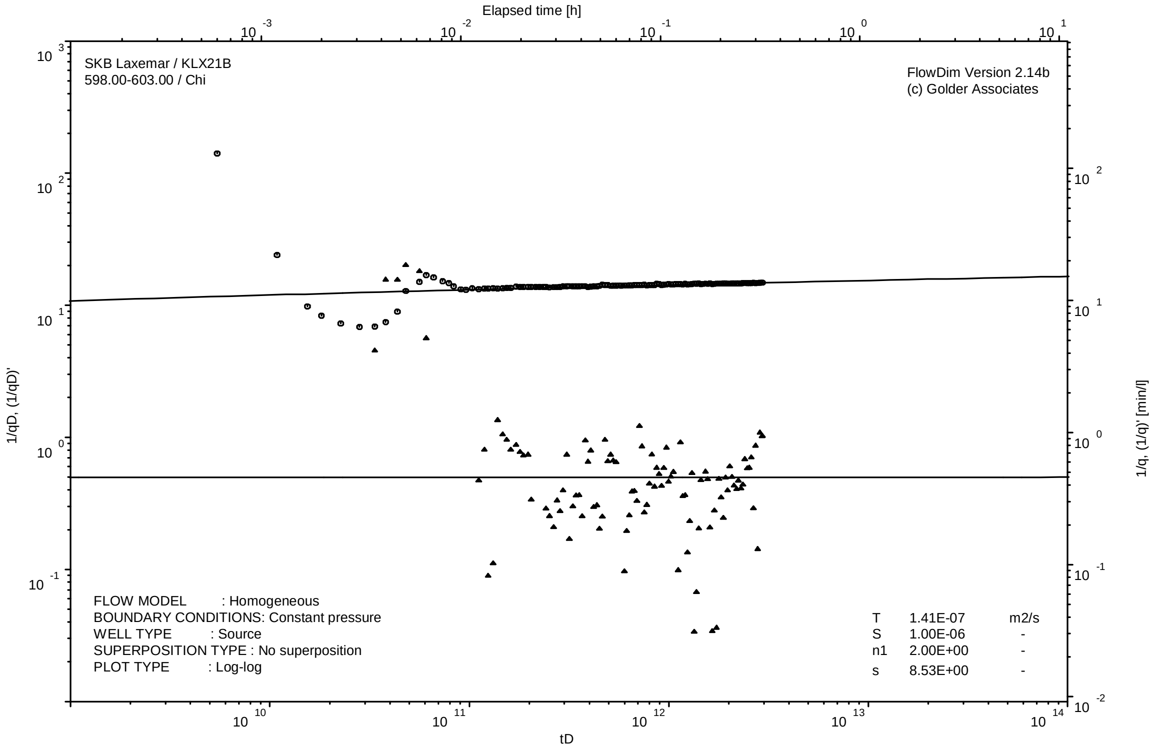
Analysis diagrams



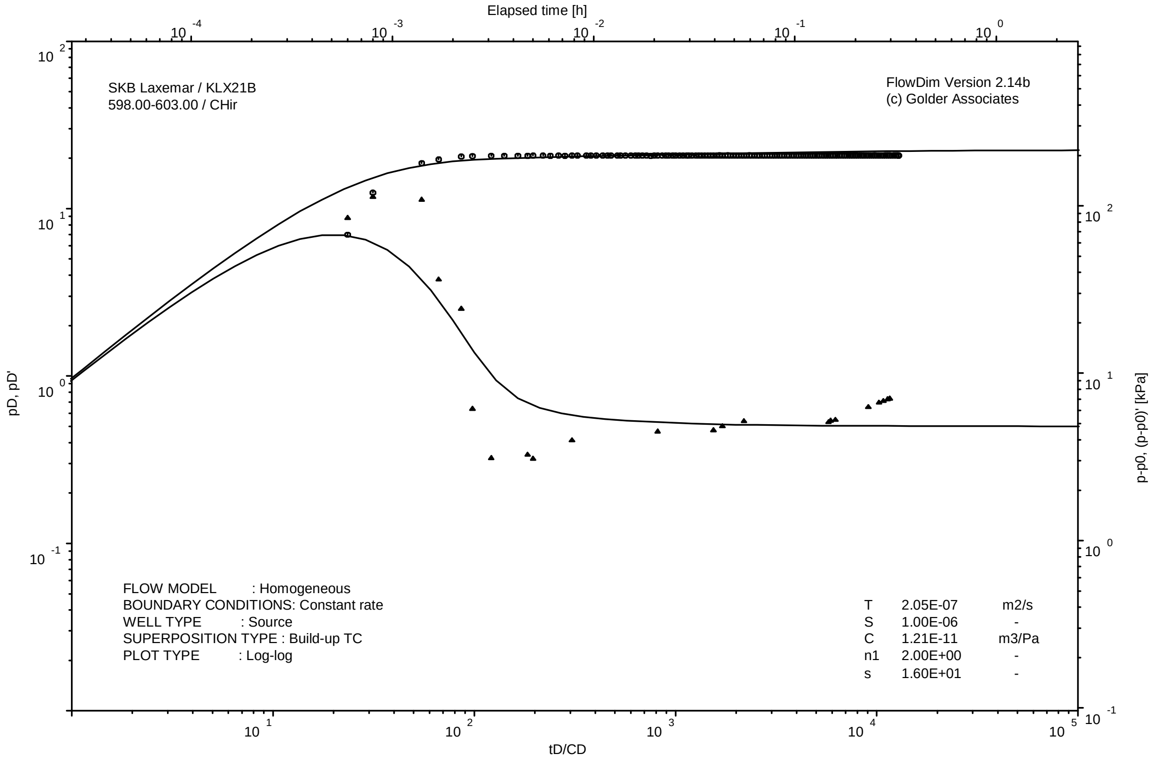
Pressure and flow rate vs. time; cartesian plot



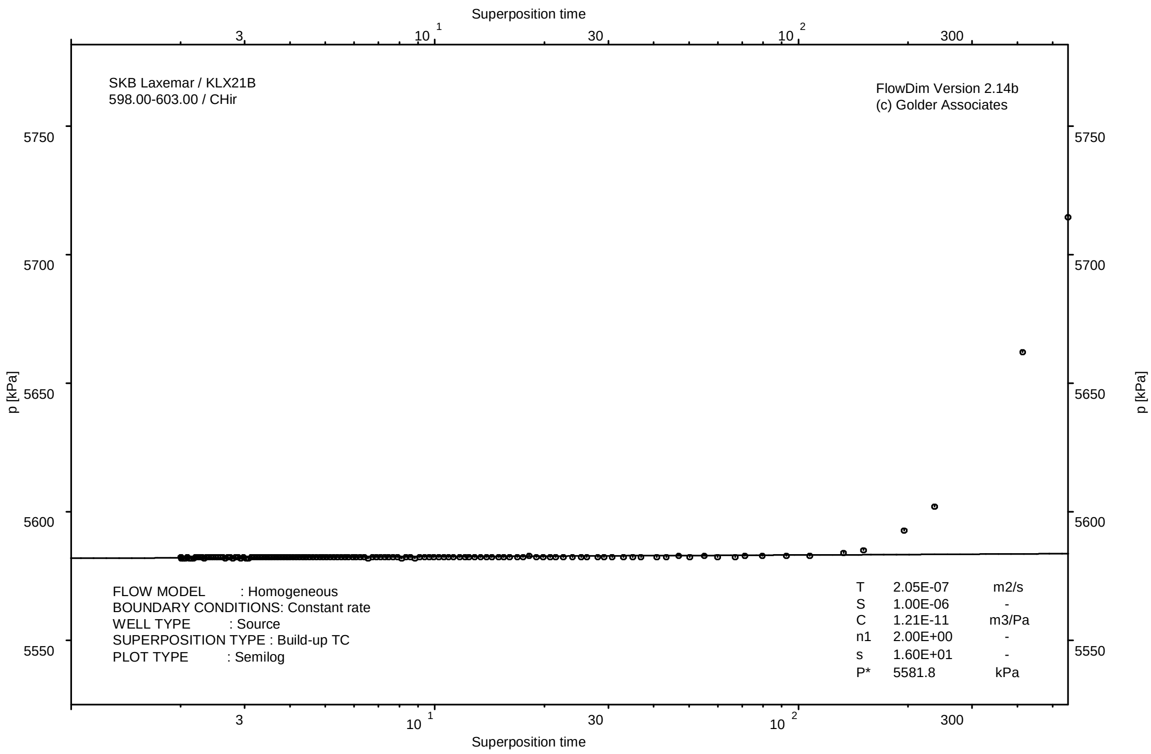
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

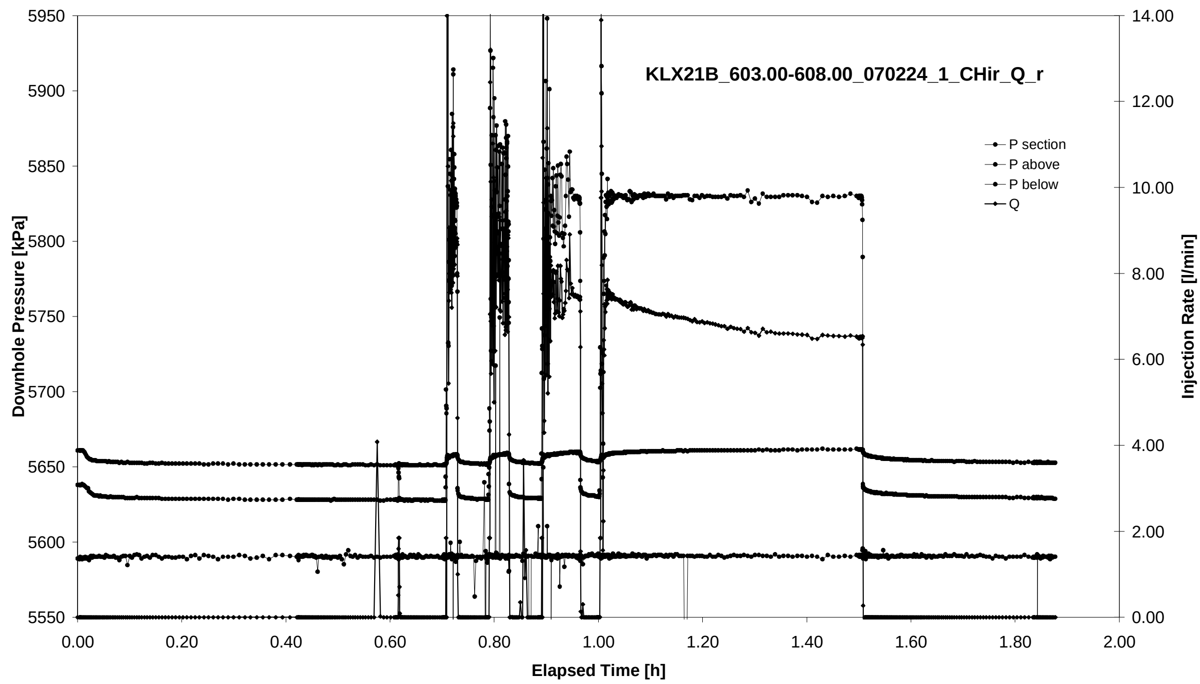


CHIR phase; HORNER match

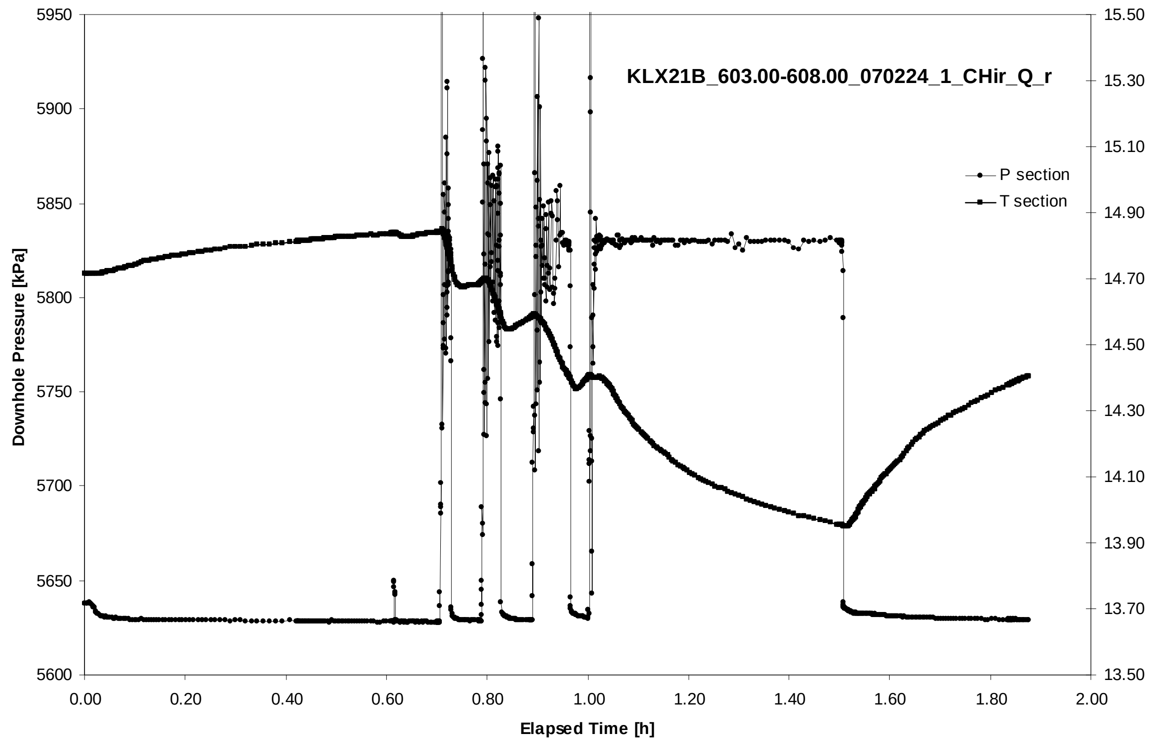
APPENDIX 2-97

Test 603.00 – 608.00 m

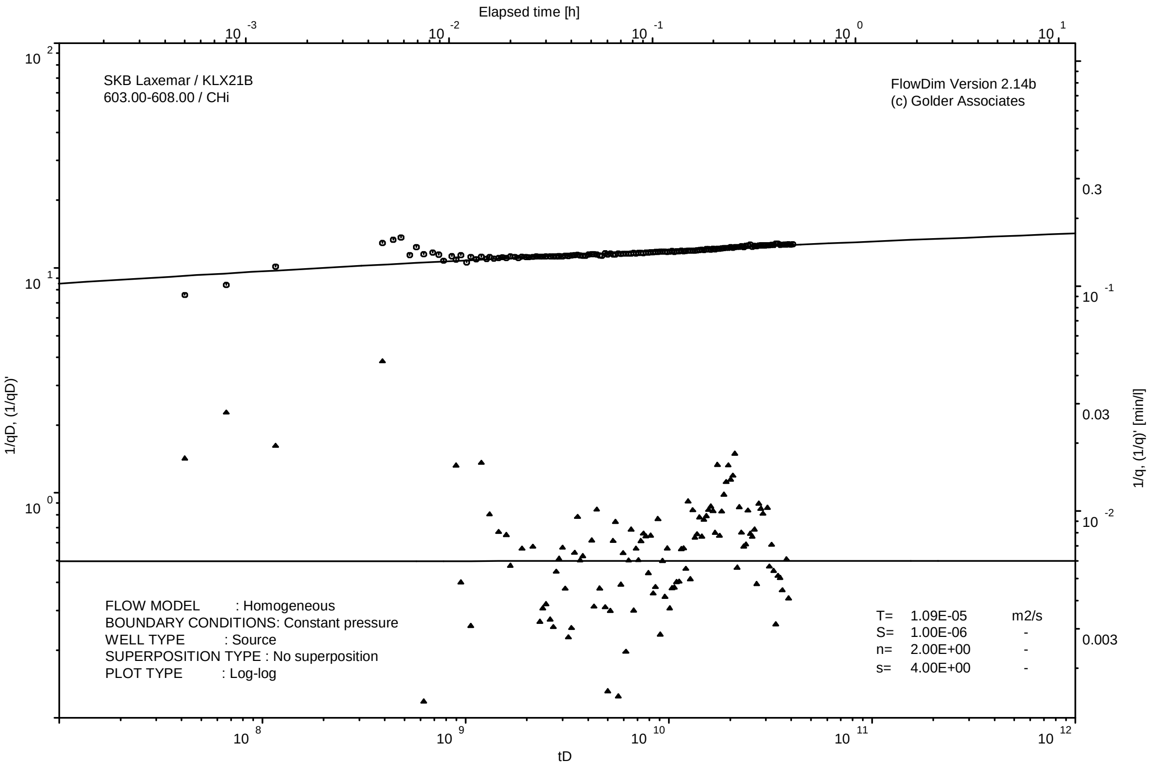
Analysis diagrams



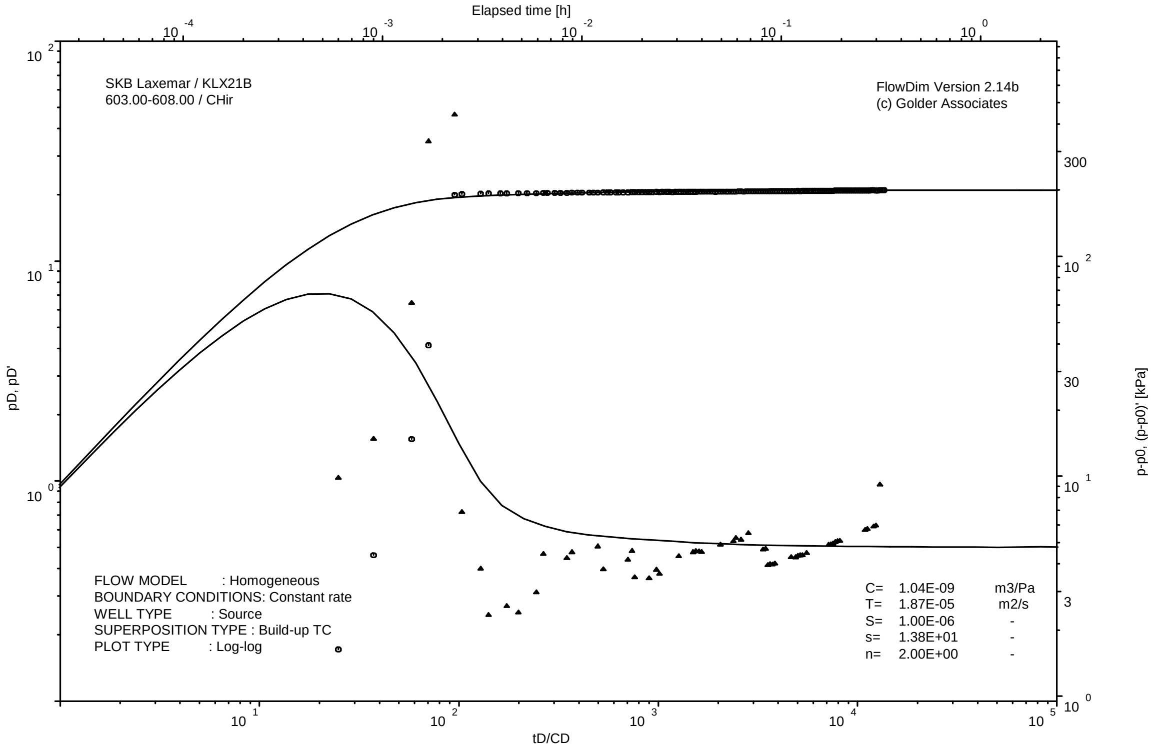
Pressure and flow rate vs. time; cartesian plot



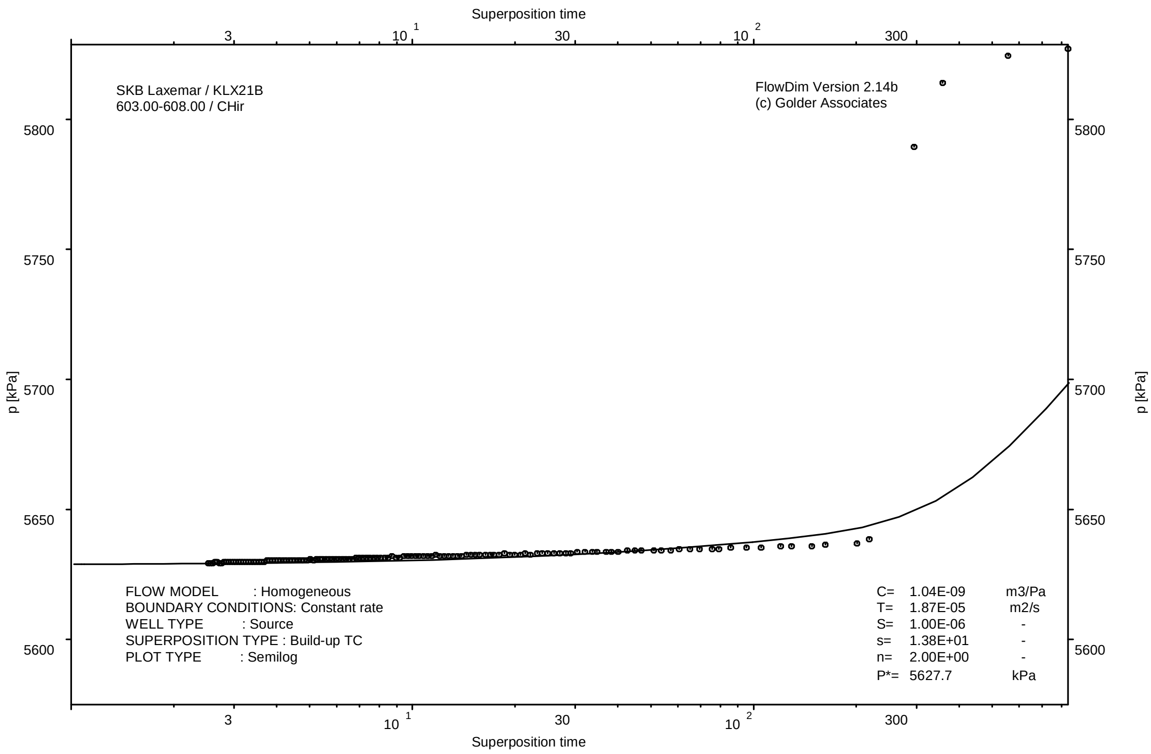
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

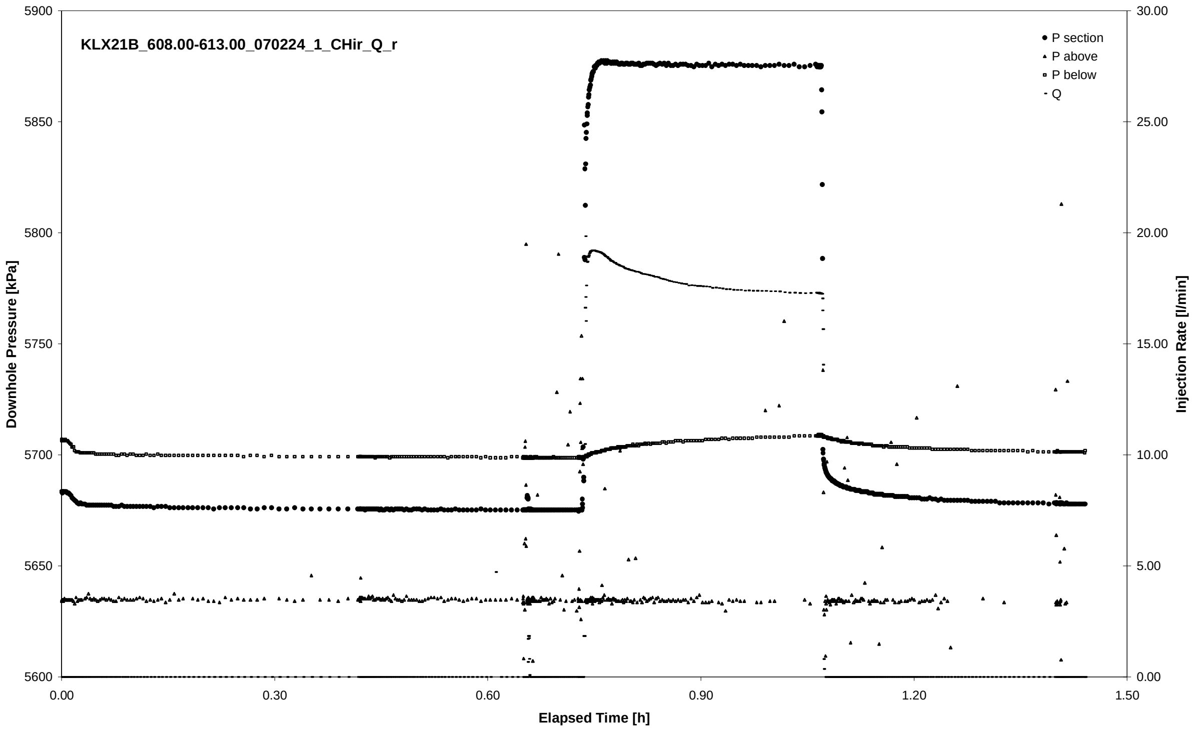


CHIR phase; HORNER match

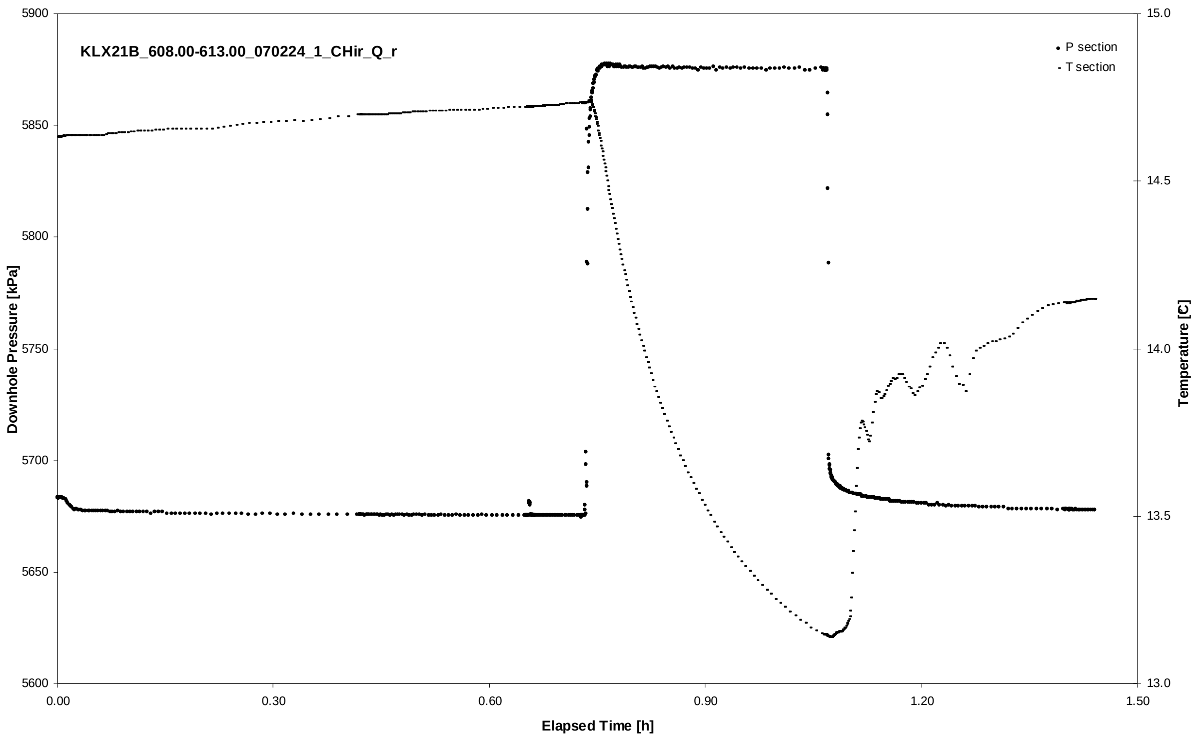
APPENDIX 2-98

Test 608.00 – 613.00 m

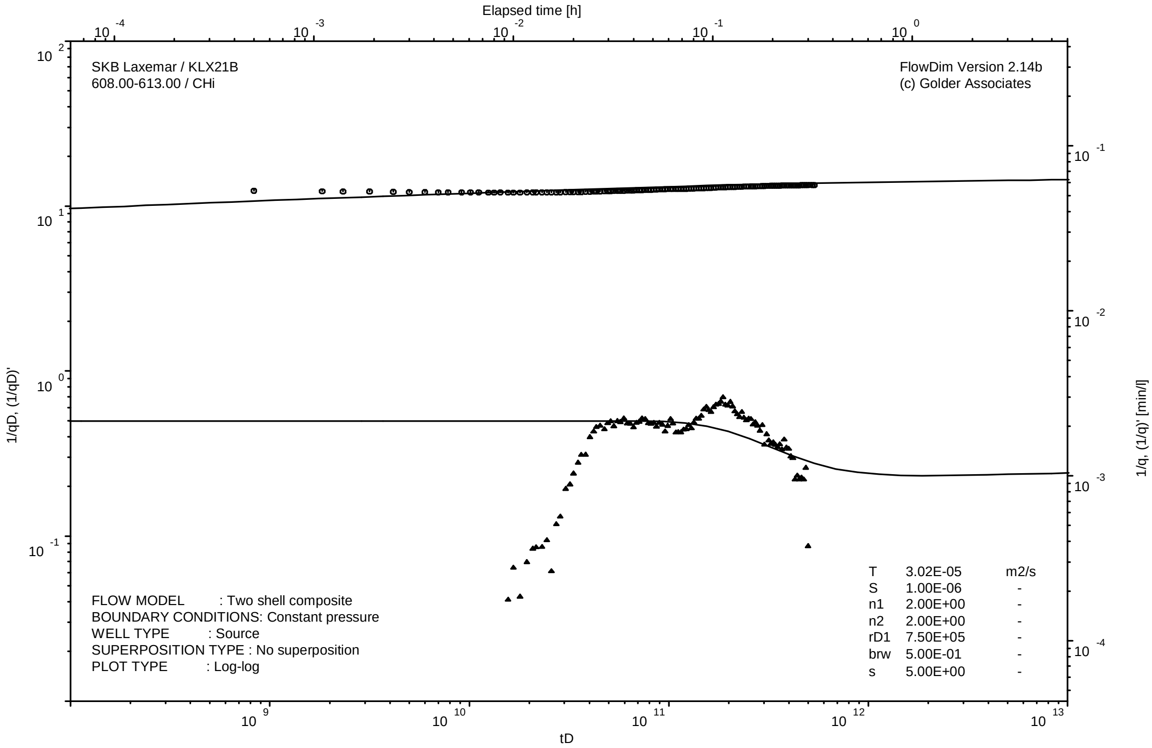
Analysis diagrams



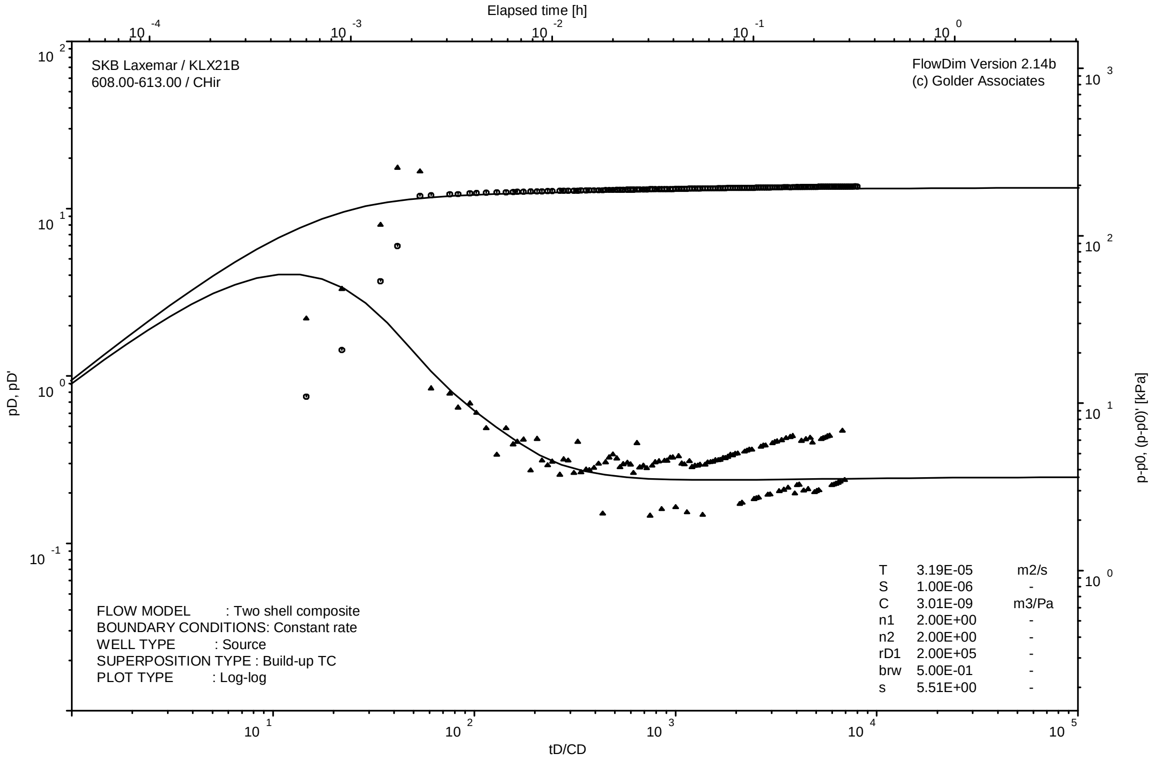
Pressure and flow rate vs. time; cartesian plot



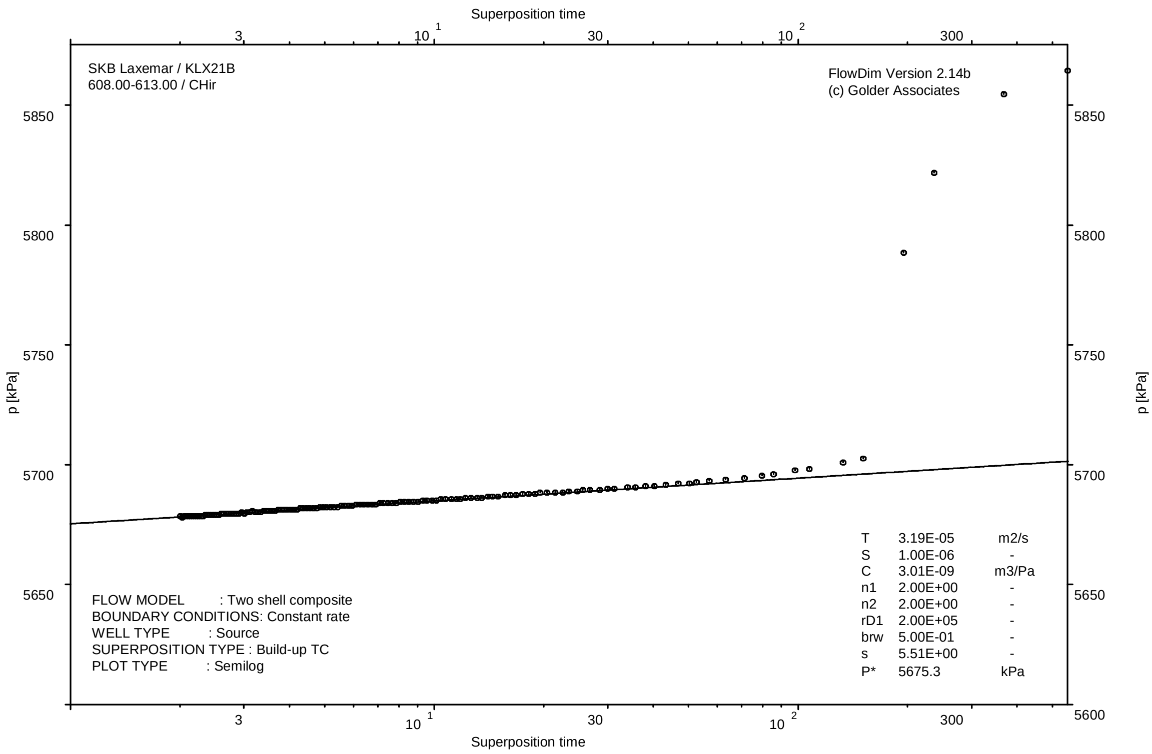
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

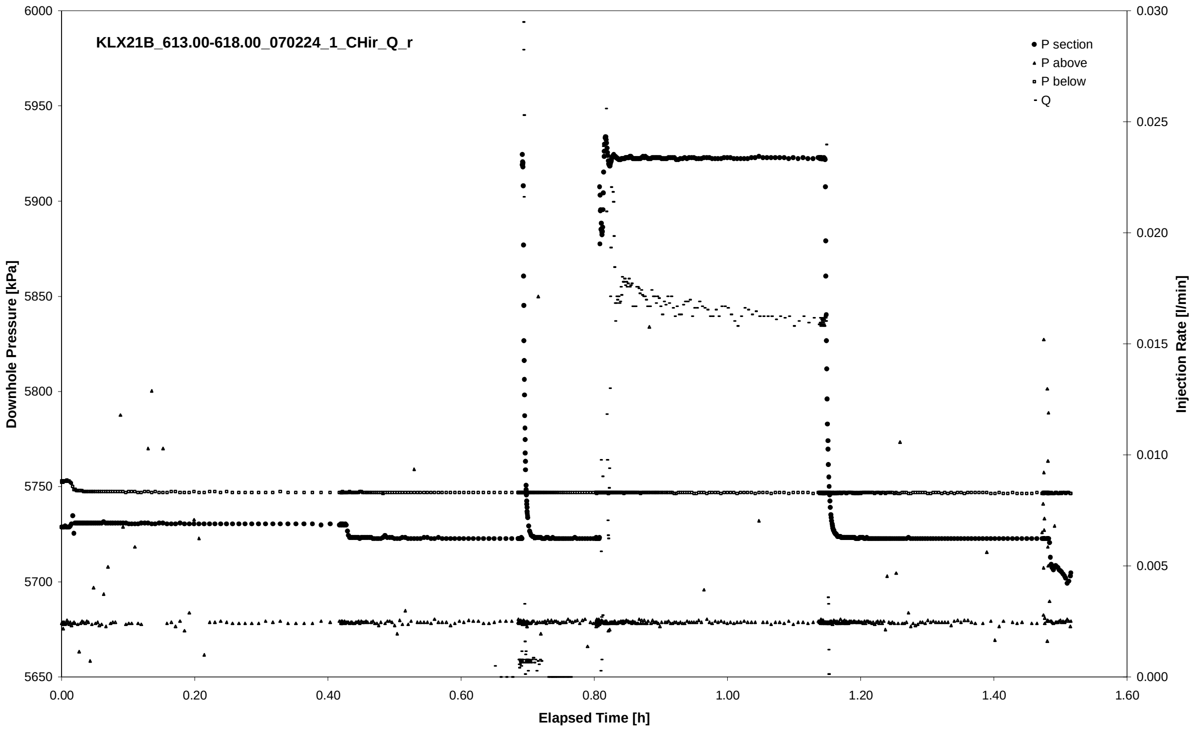


CHIR phase; HORNER match

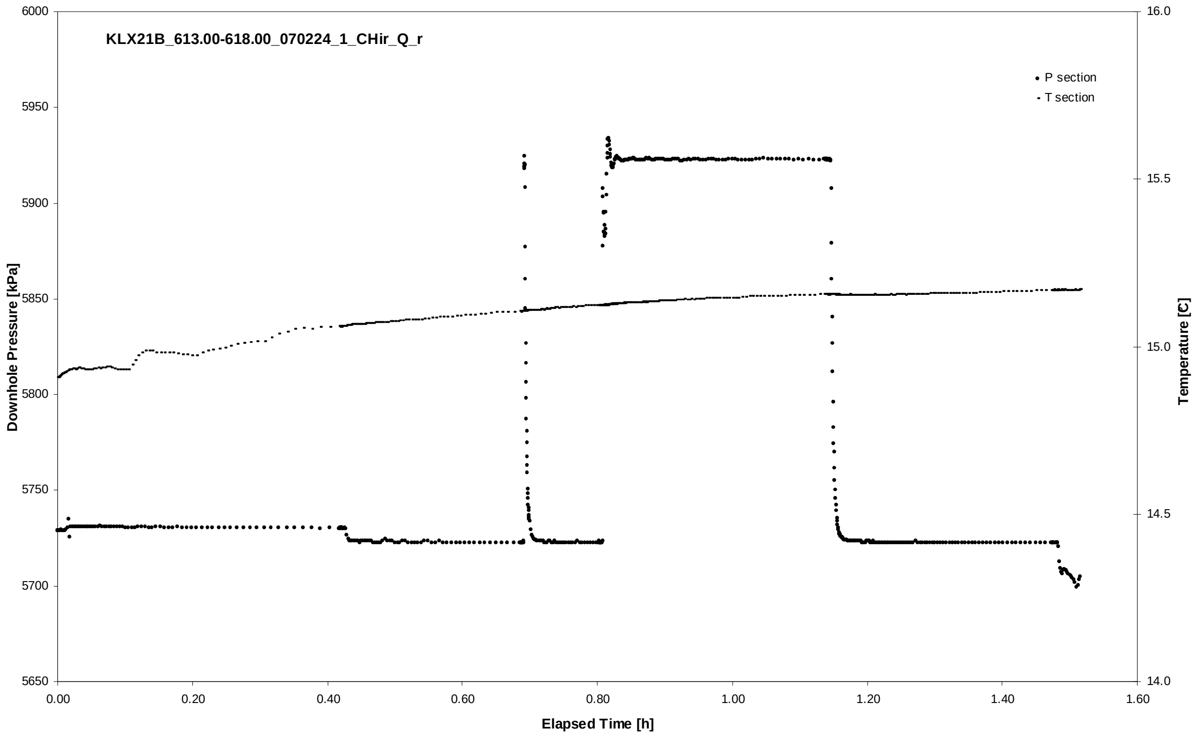
APPENDIX 2-99

Test 613.00 – 618.00 m

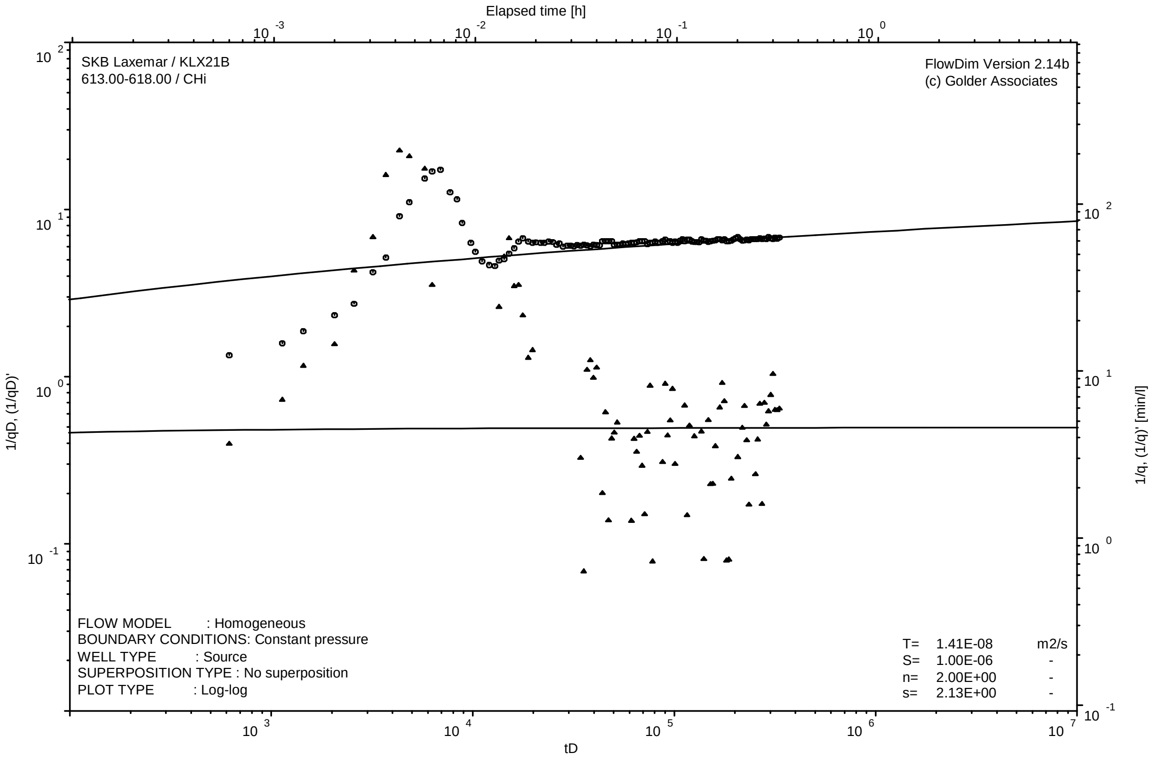
Analysis diagrams



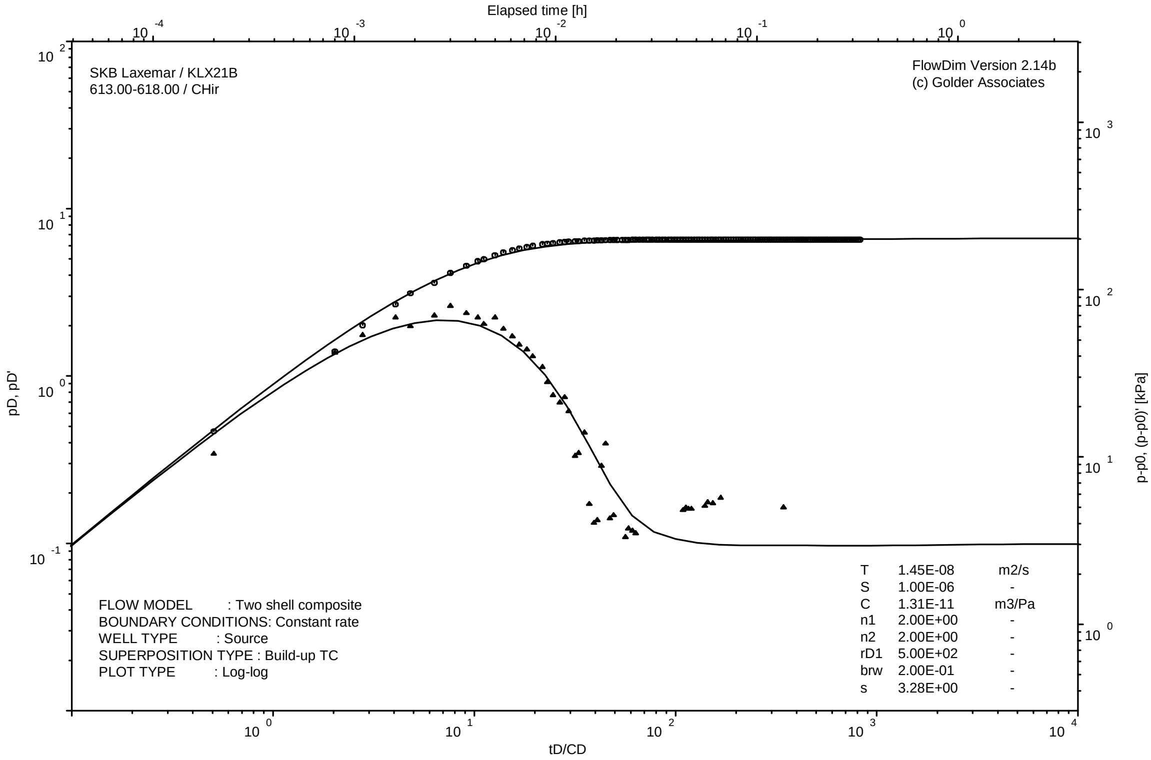
Pressure and flow rate vs. time; cartesian plot



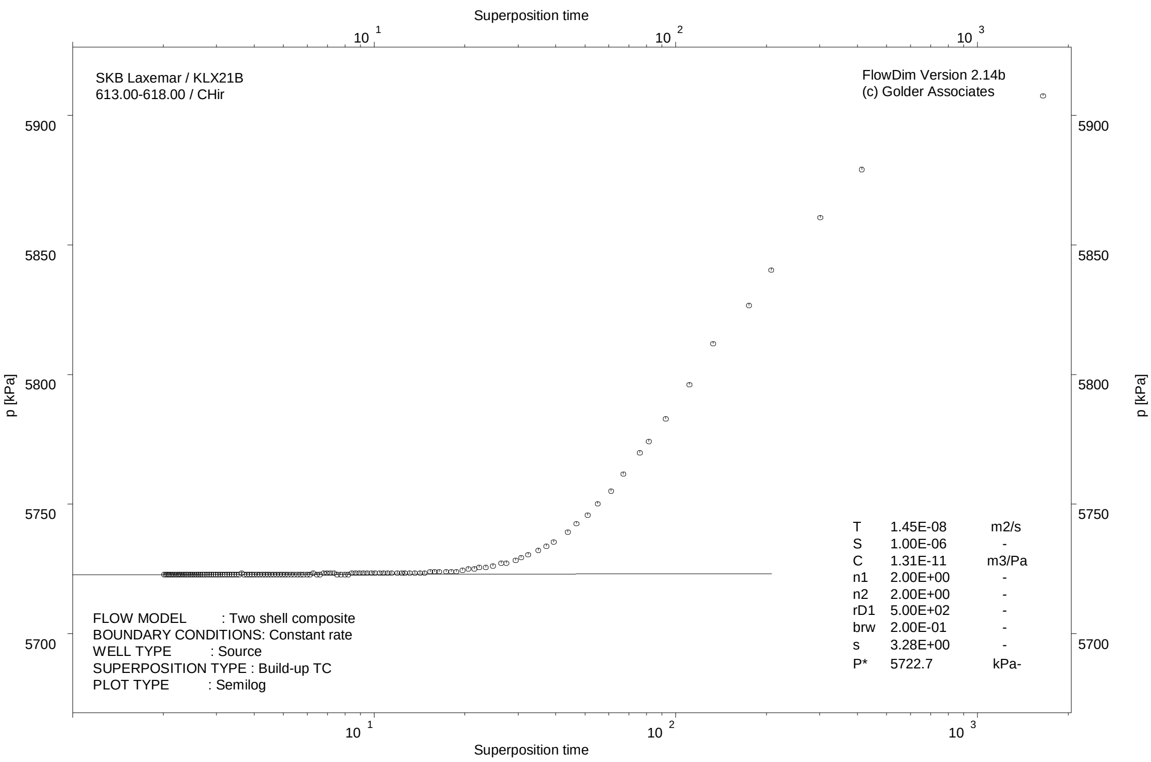
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

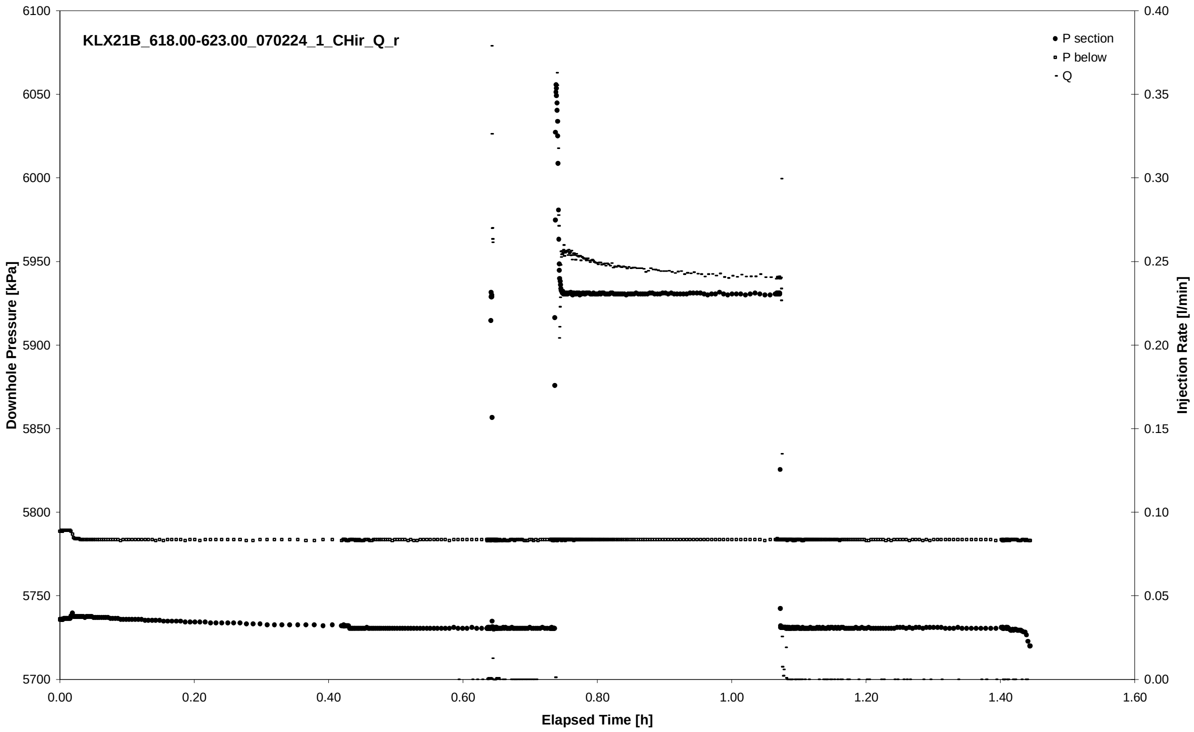


CHIR phase; HORNER match

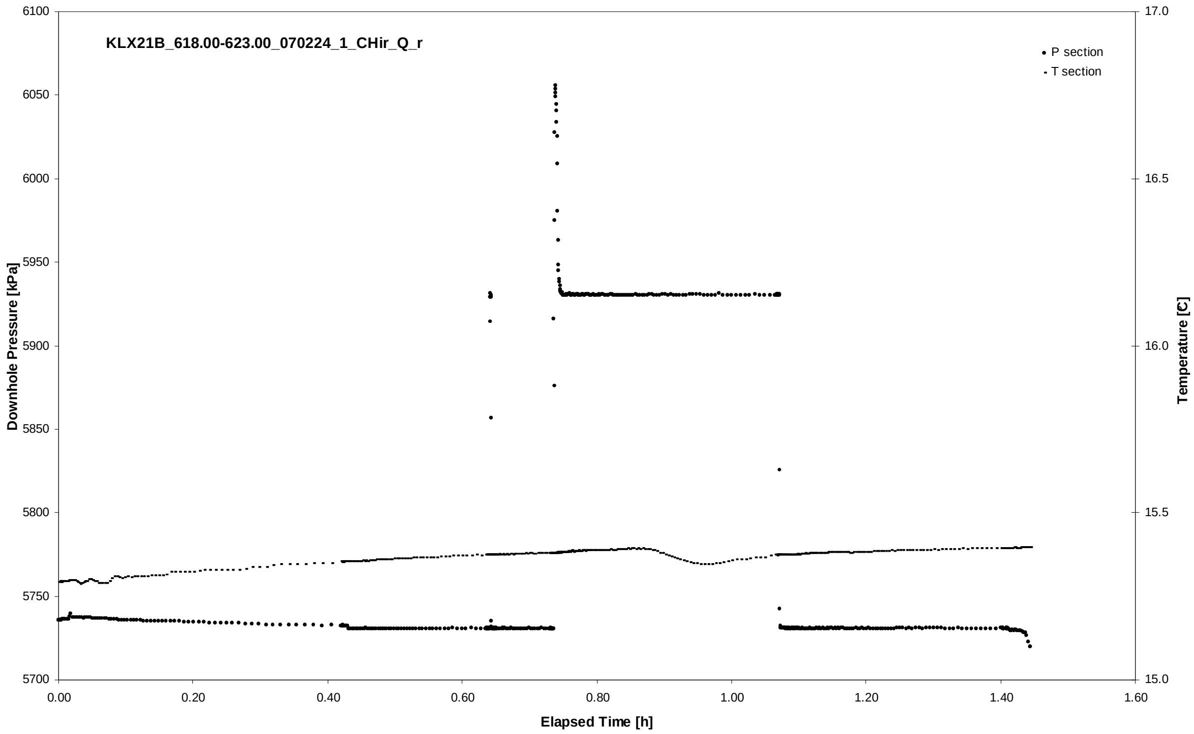
APPENDIX 2-100

Test 618.00 – 623.00 m

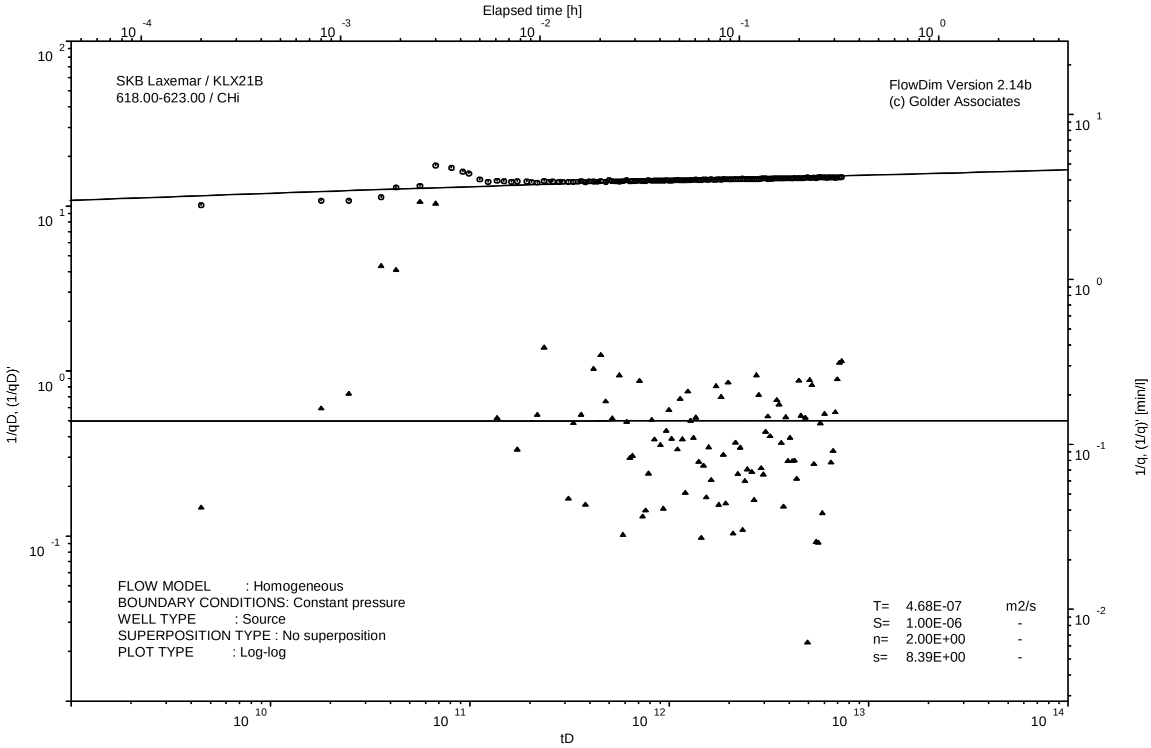
Analysis diagrams



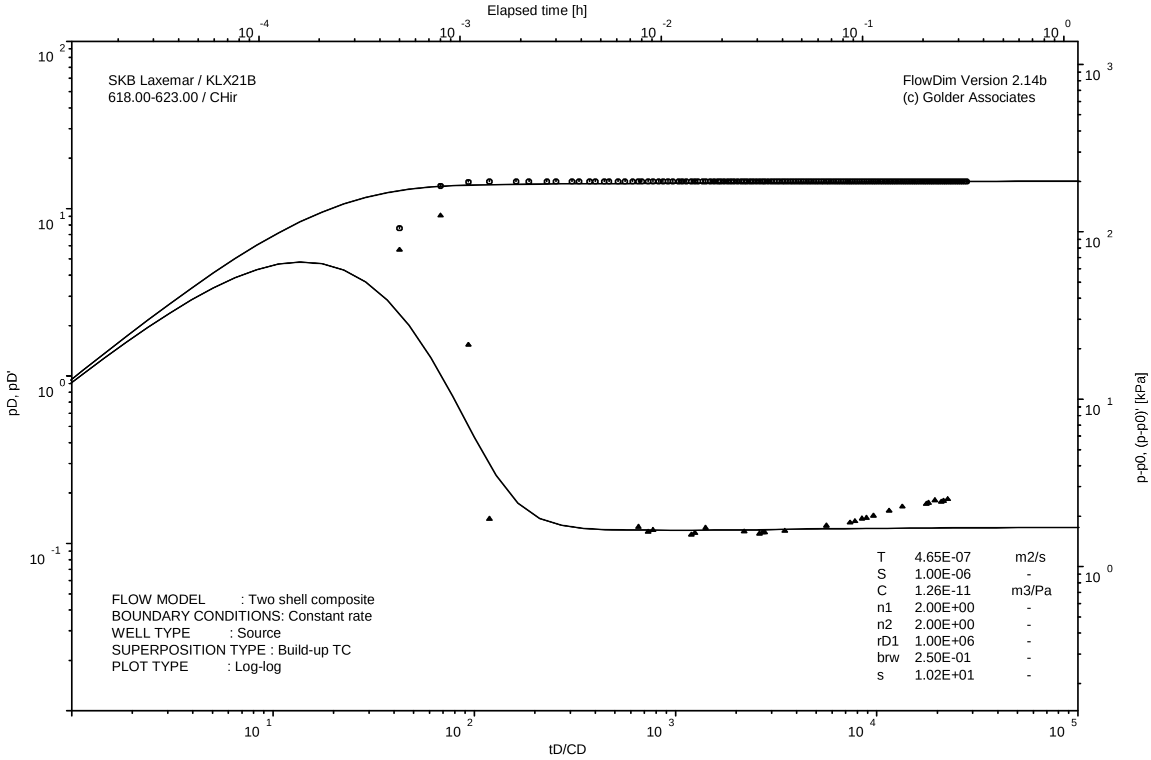
Pressure and flow rate vs. time; cartesian plot



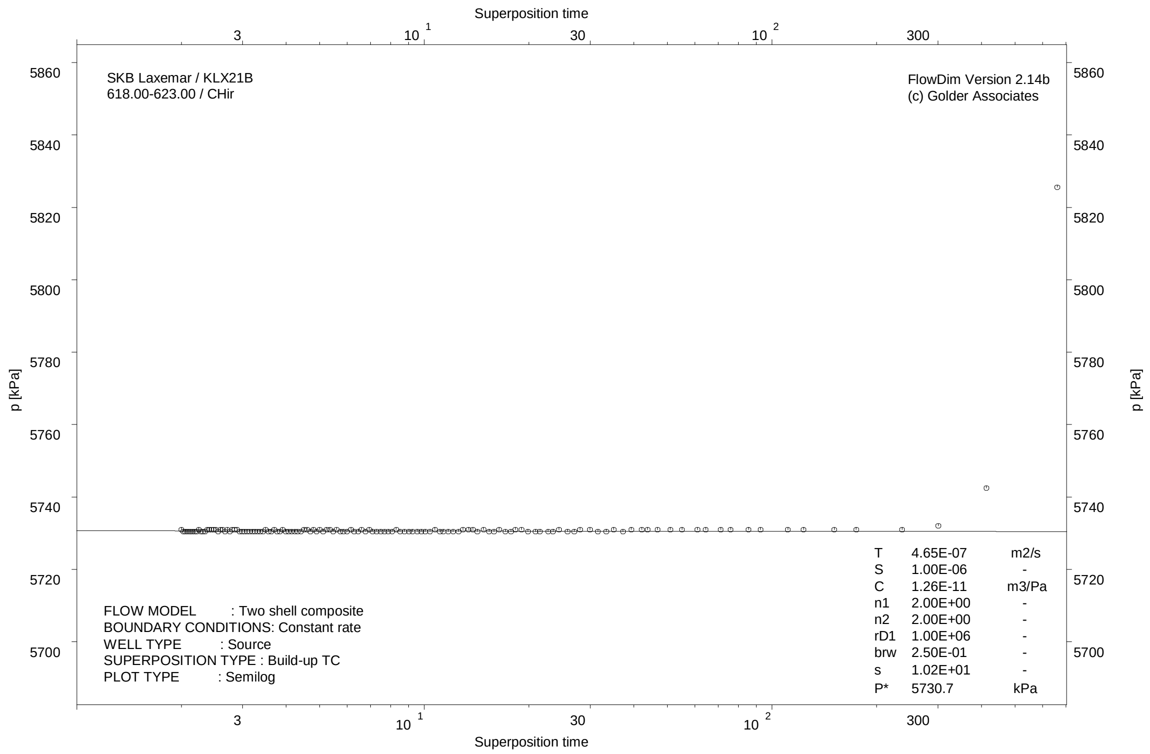
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

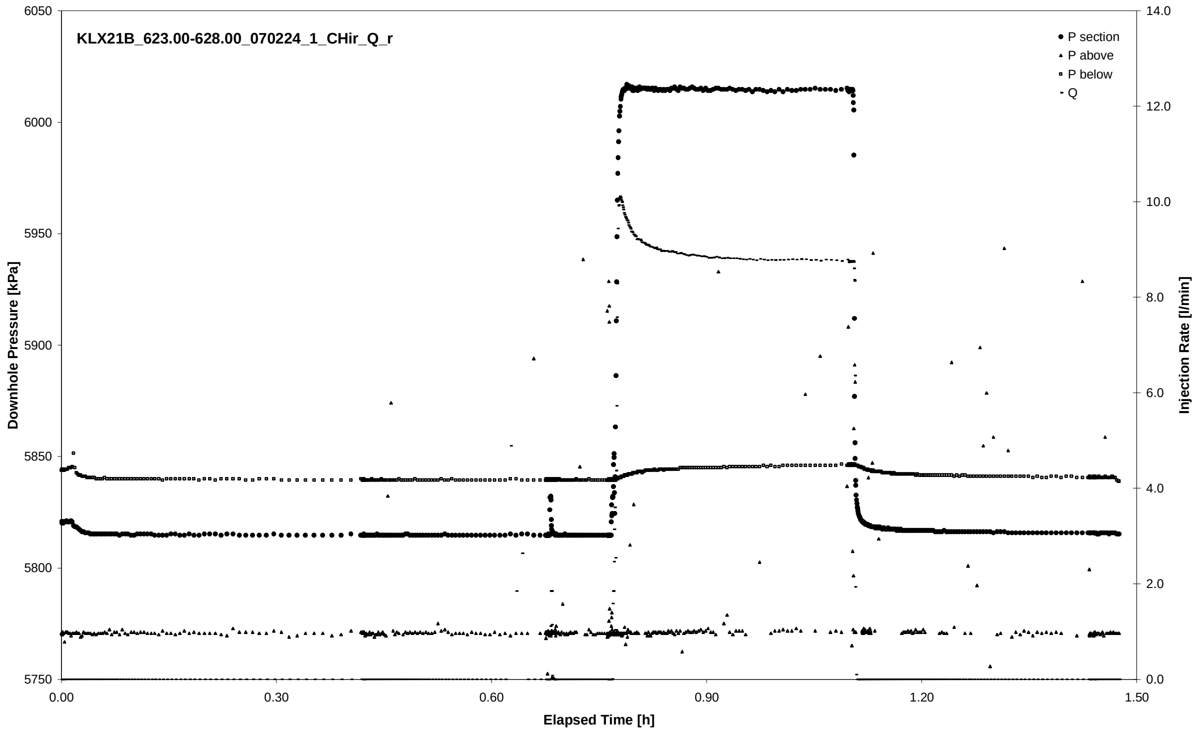


CHIR phase; HORNER match

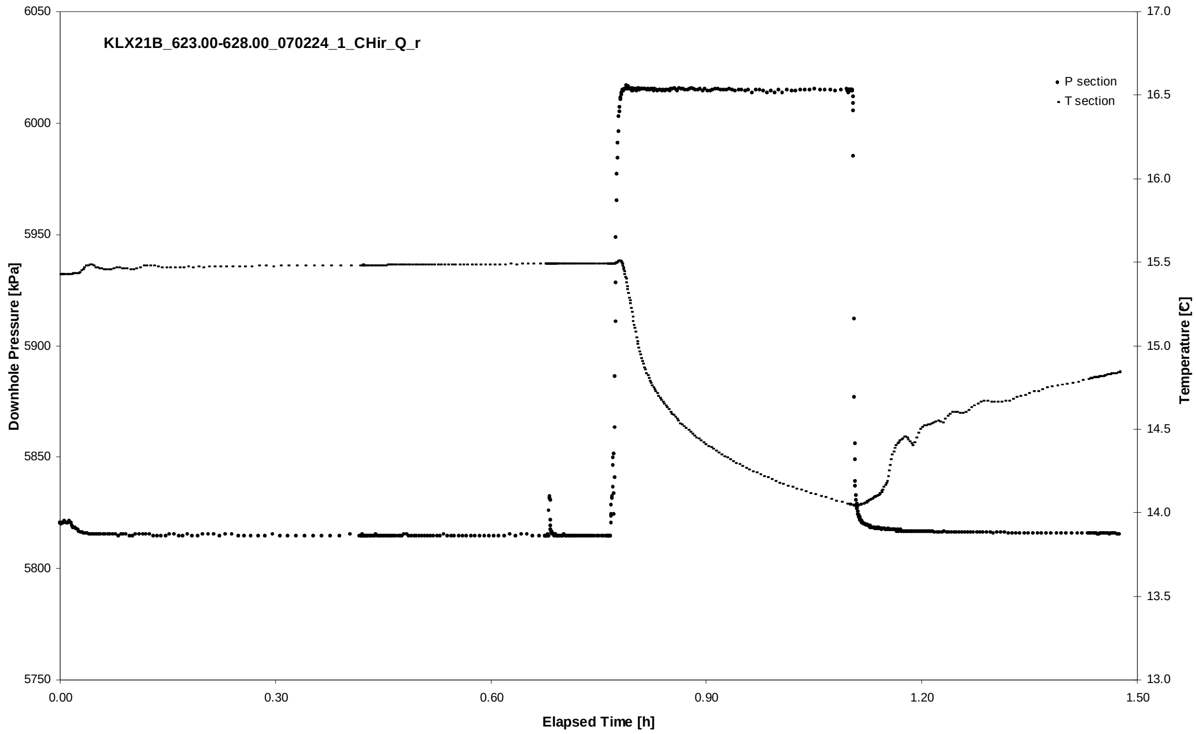
APPENDIX 2-101

Test 623.00 – 628.00 m

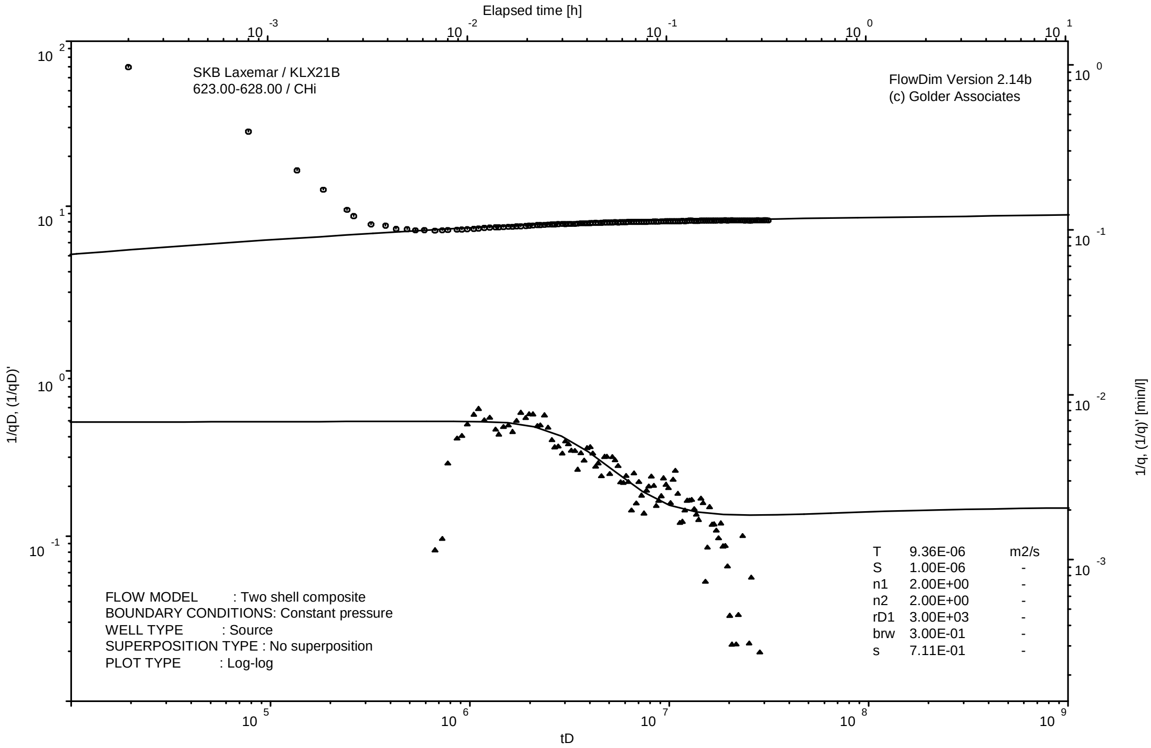
Analysis diagrams



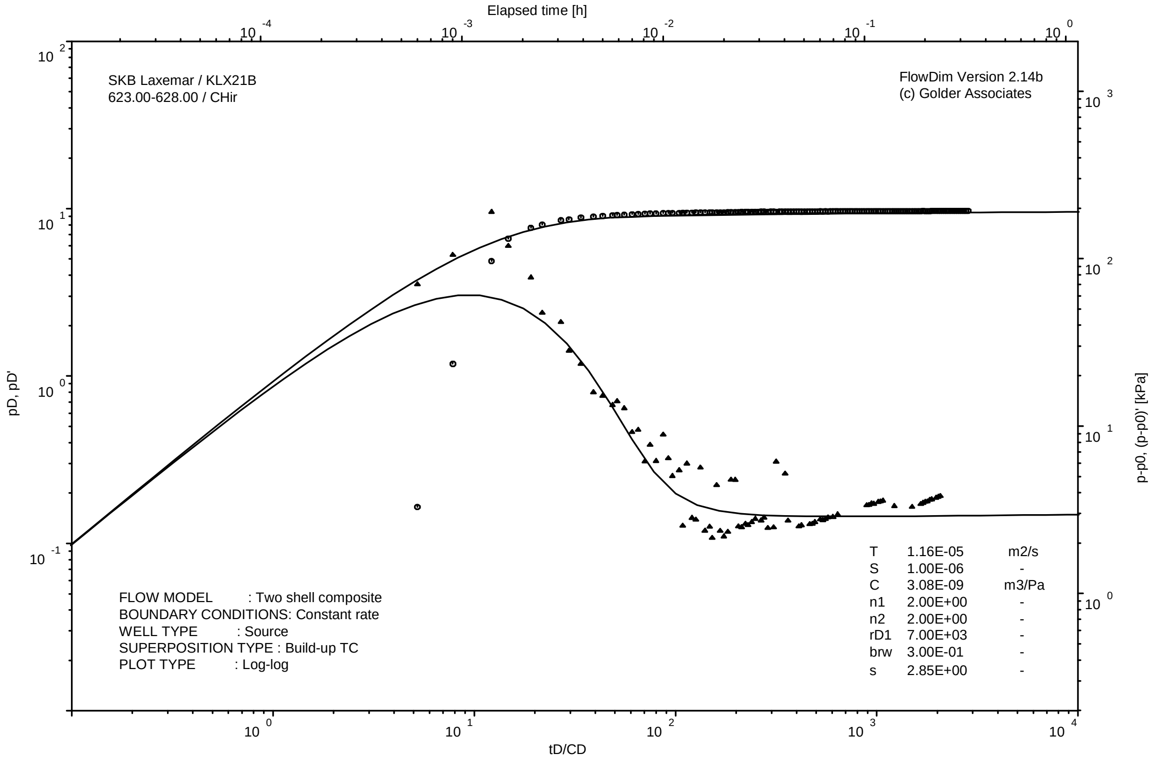
Pressure and flow rate vs. time; cartesian plot



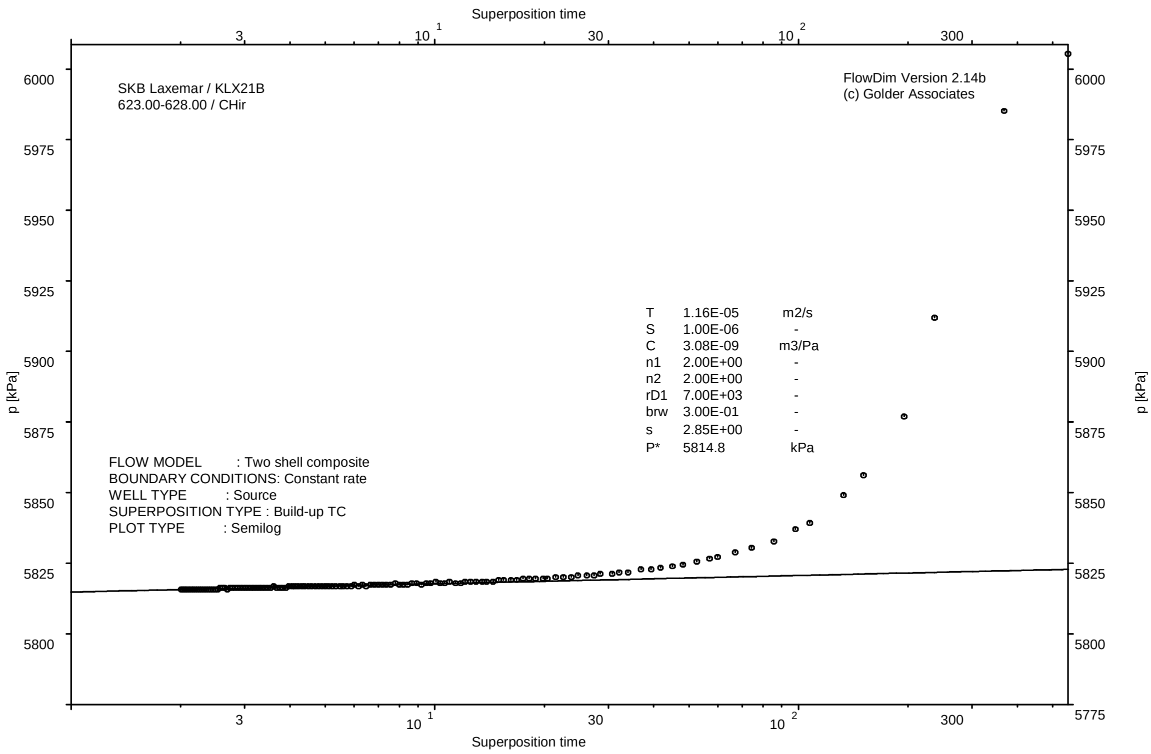
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

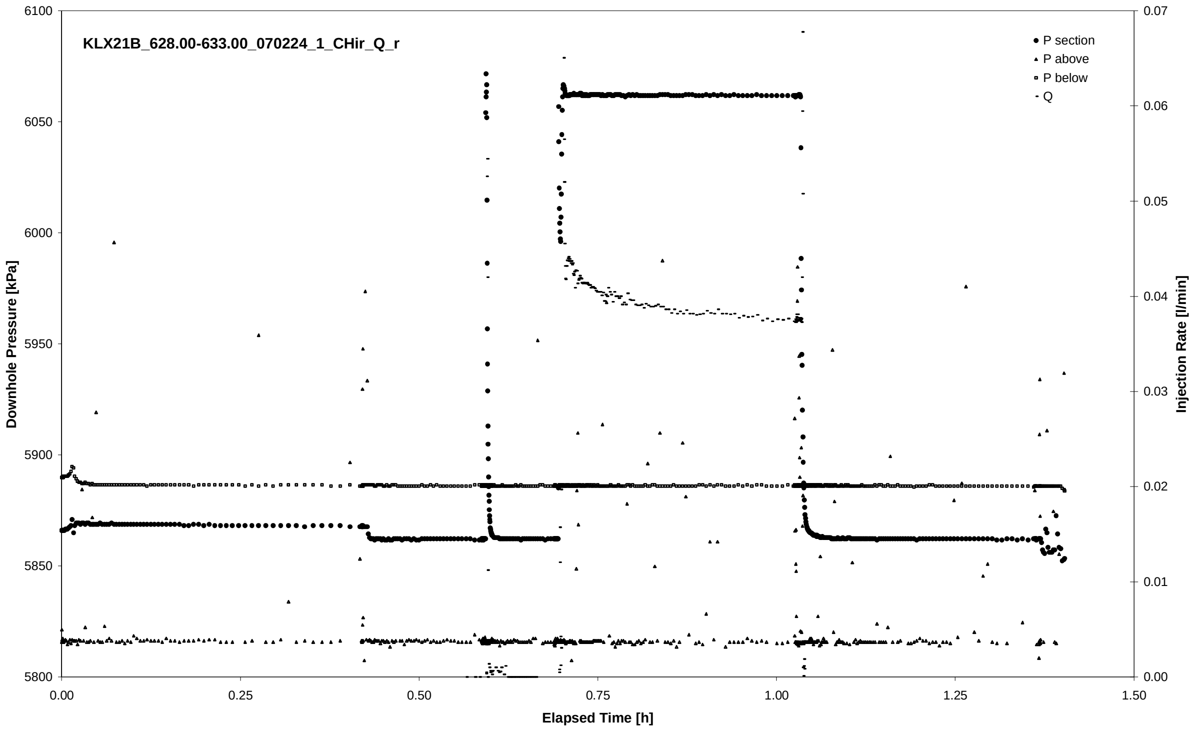


CHIR phase; HORNER match

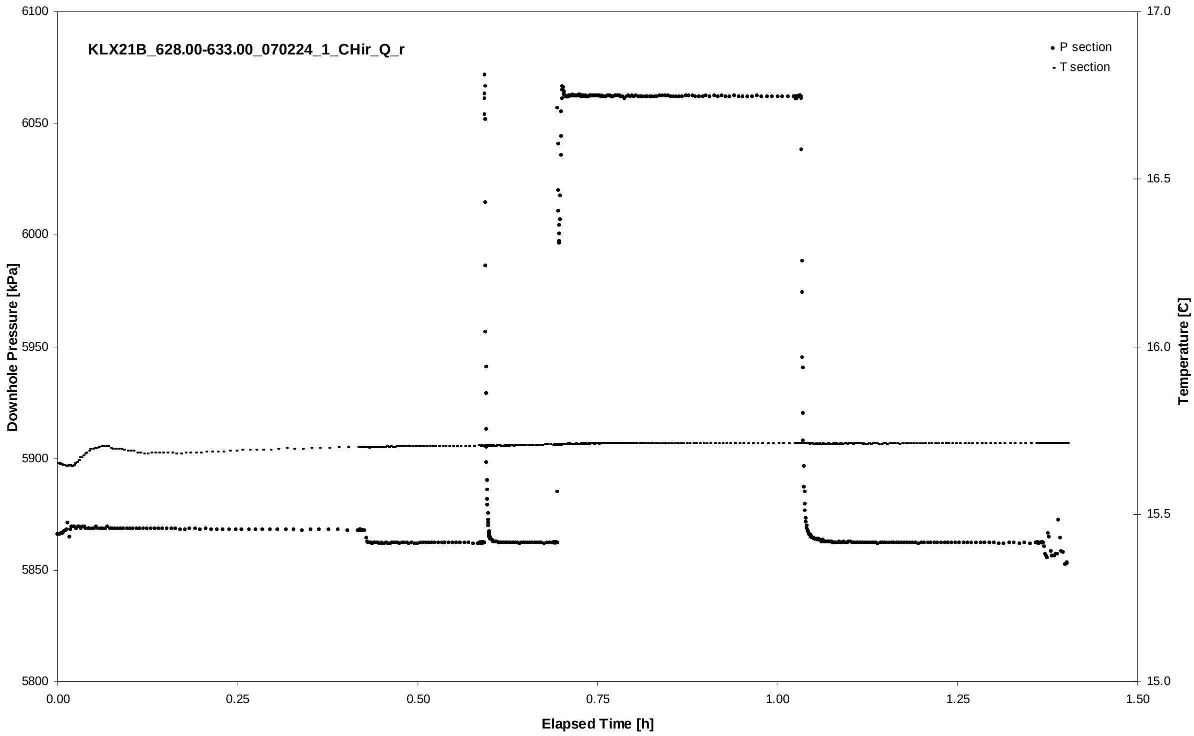
APPENDIX 2-102

Test 628.00 – 633.00 m

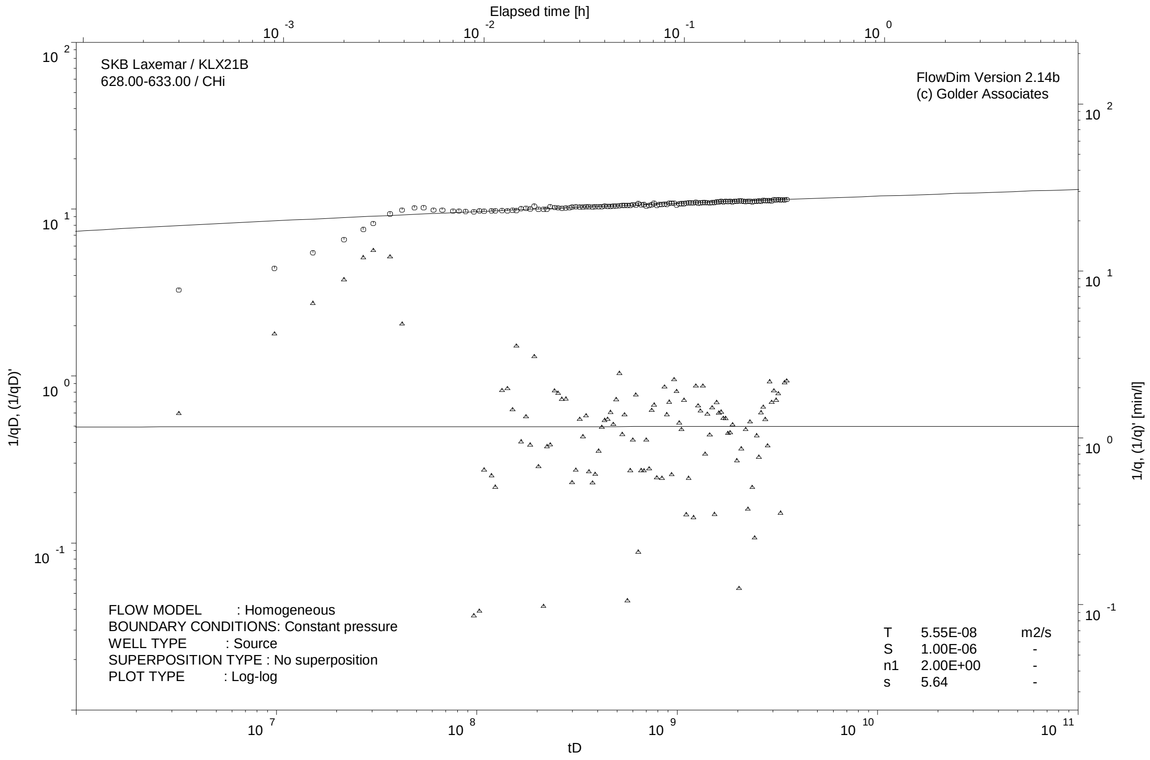
Analysis diagrams



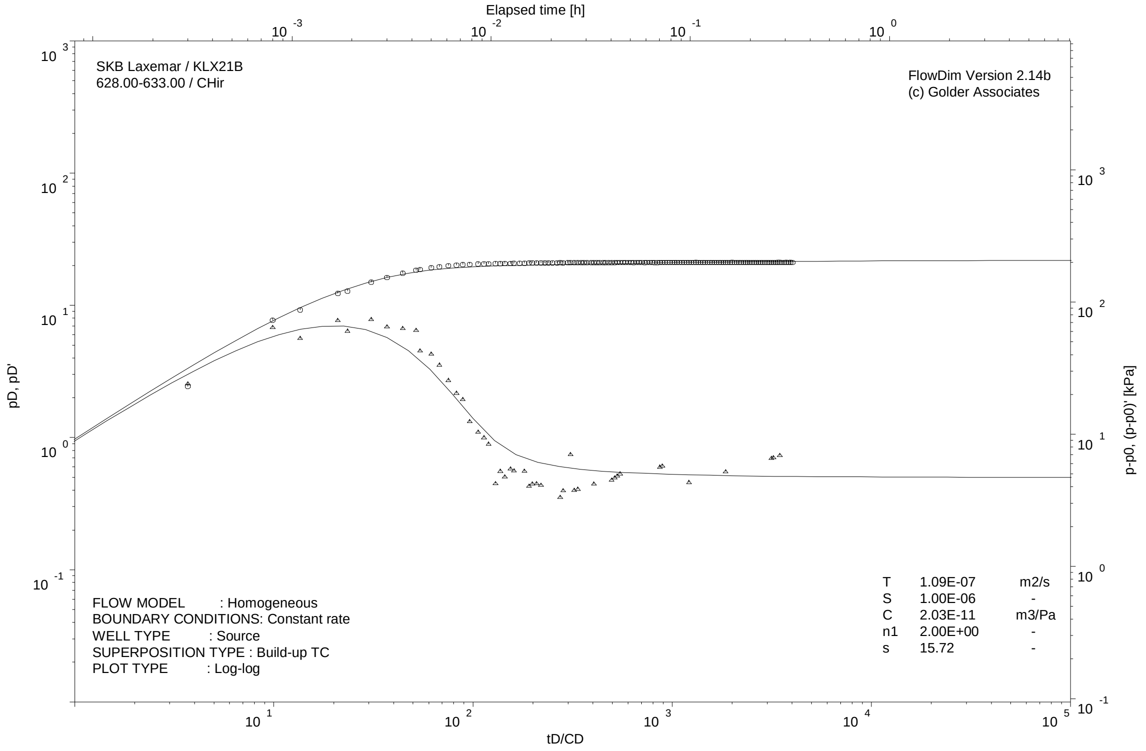
Pressure and flow rate vs. time; cartesian plot



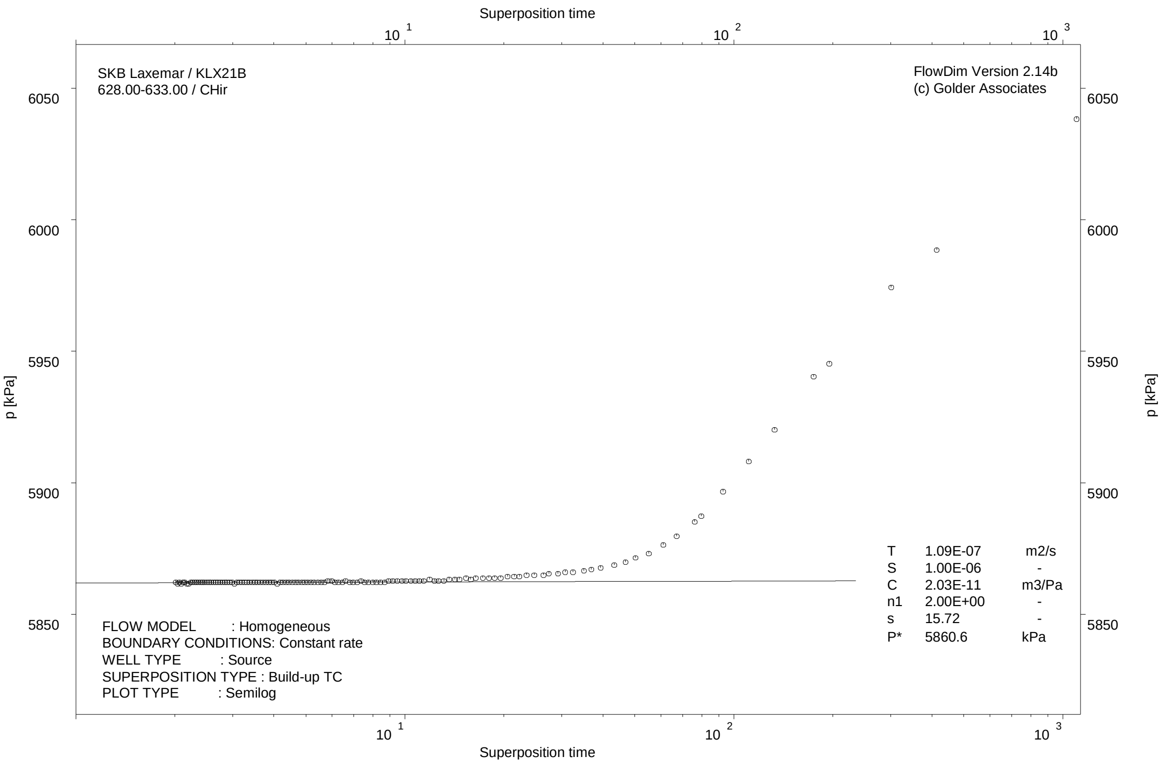
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

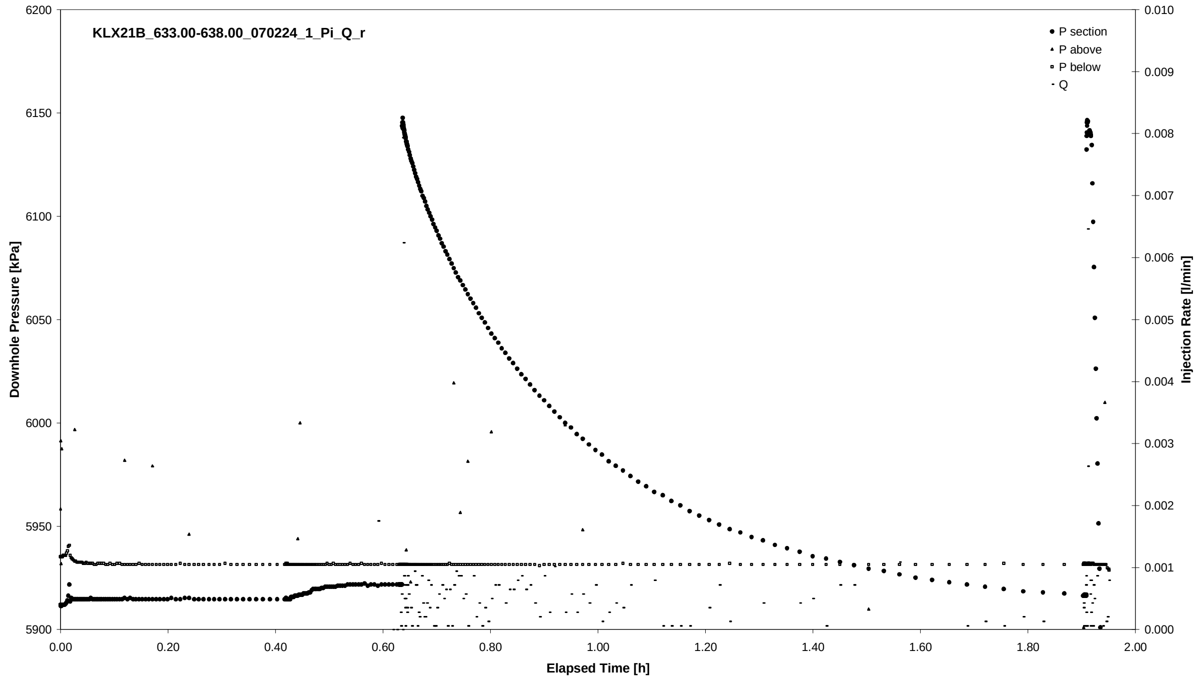


CHIR phase; HORNER match

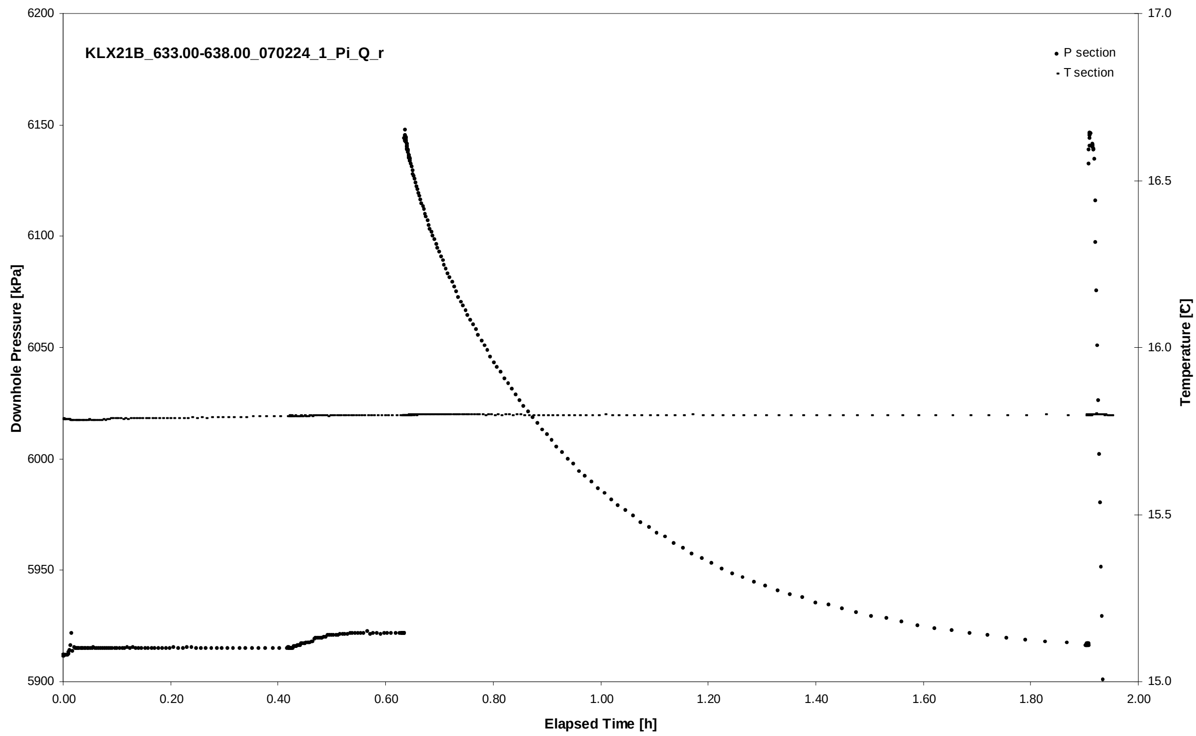
APPENDIX 2-103

Test 633.00 – 638.00 m

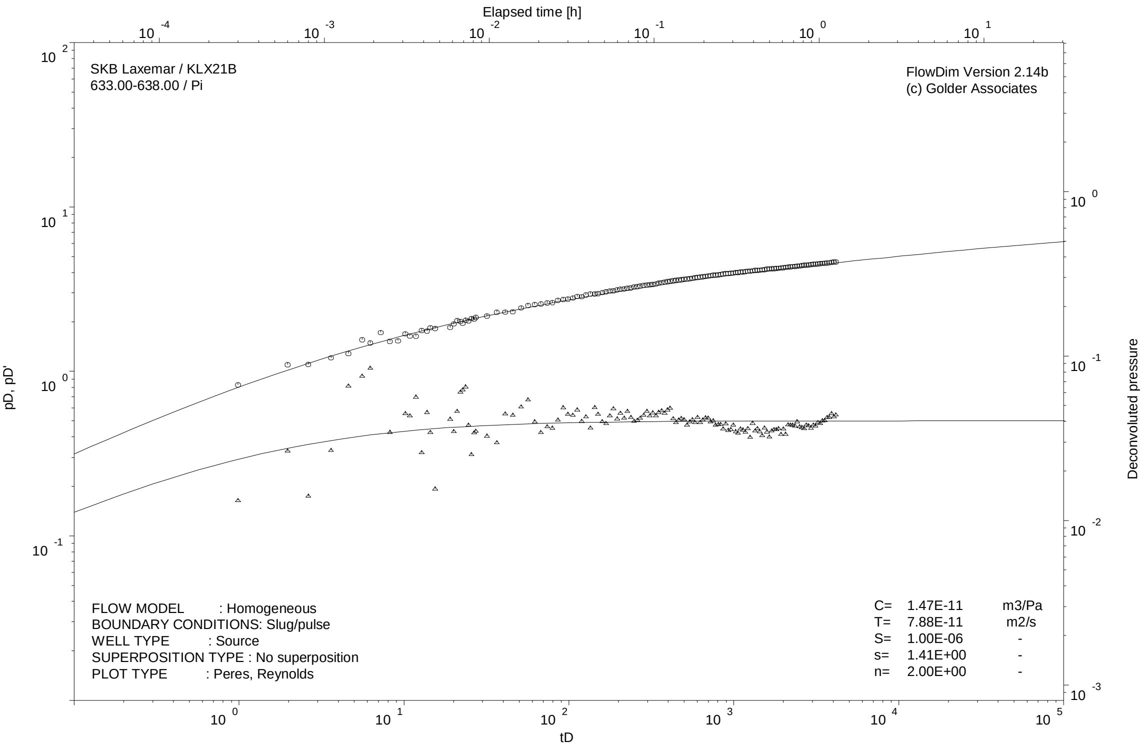
Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

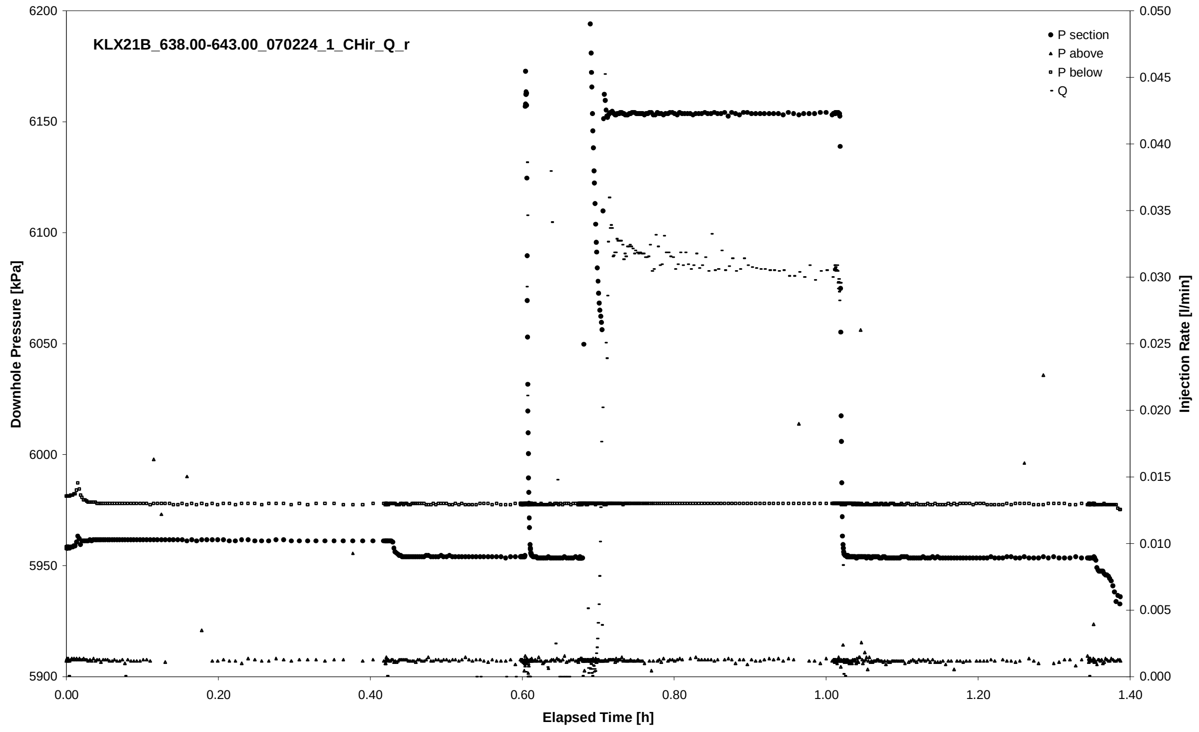


Pulse injection; deconvolution match

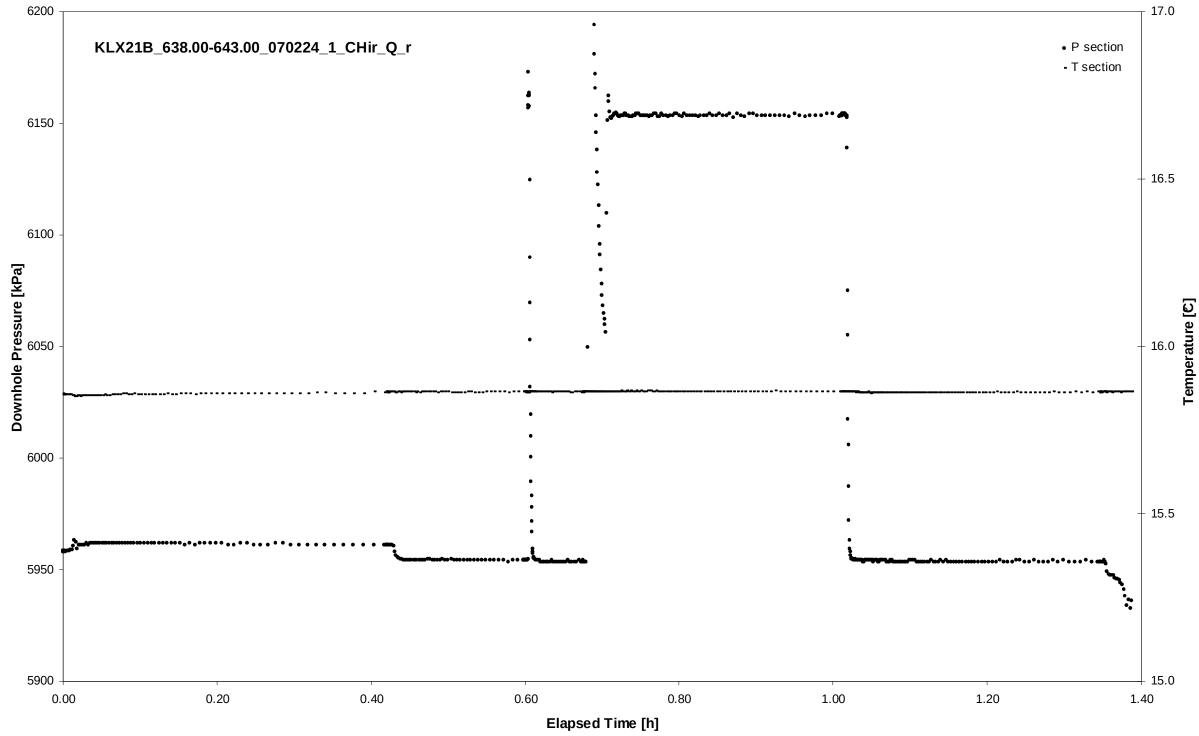
APPENDIX 2-104

Test 638.00 – 643.00 m

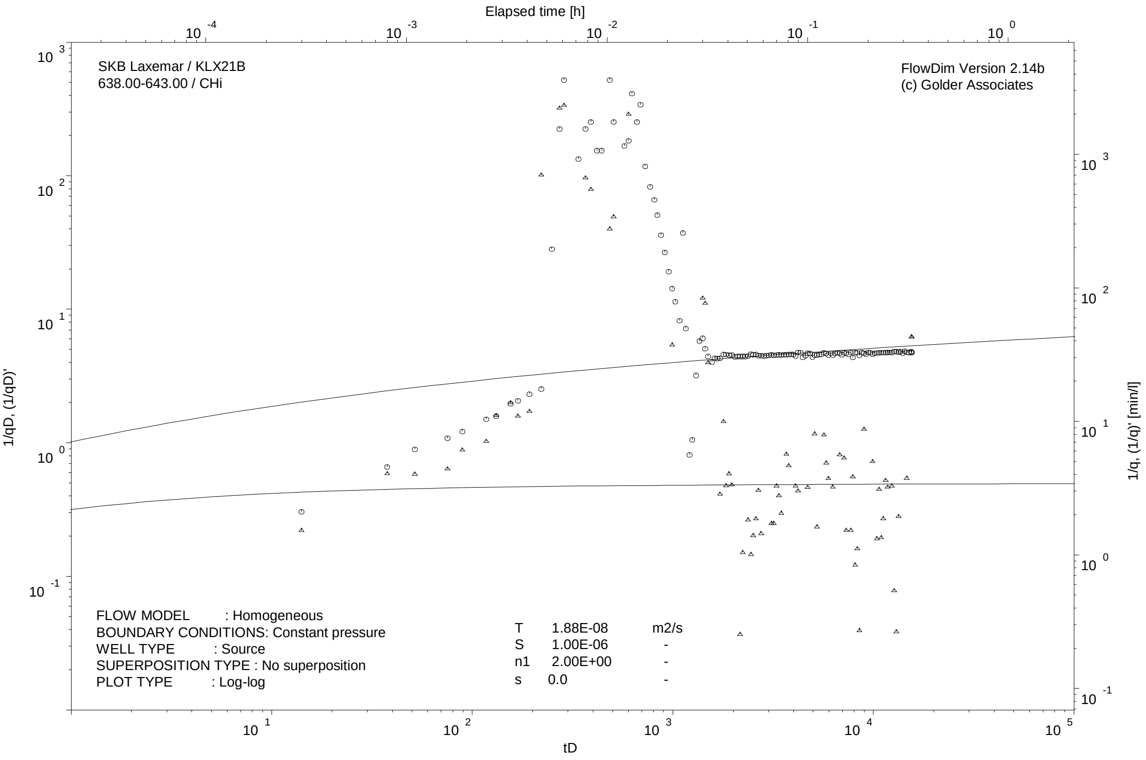
Analysis diagrams



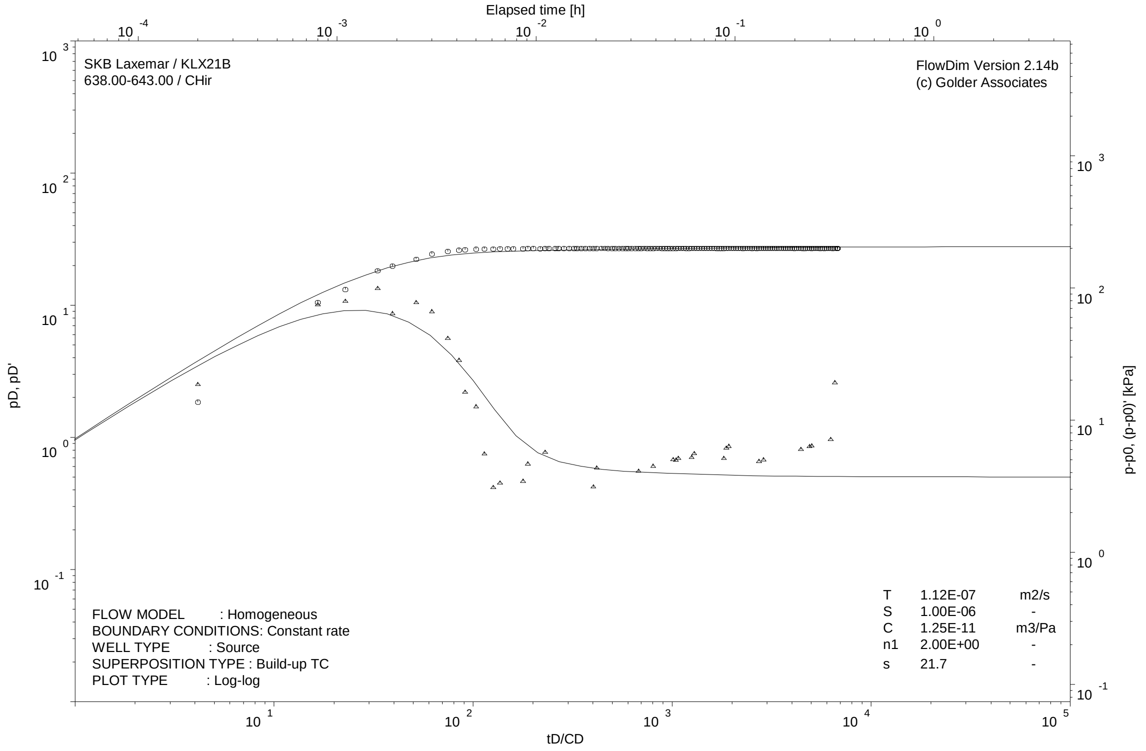
Pressure and flow rate vs. time; cartesian plot



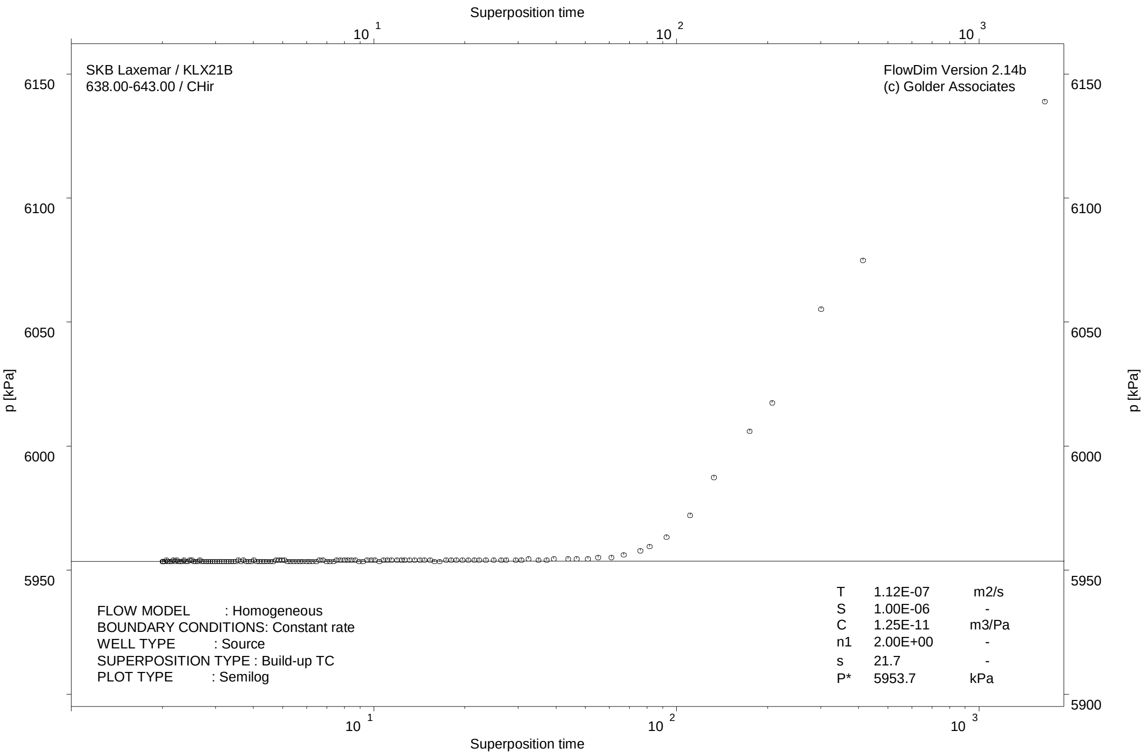
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

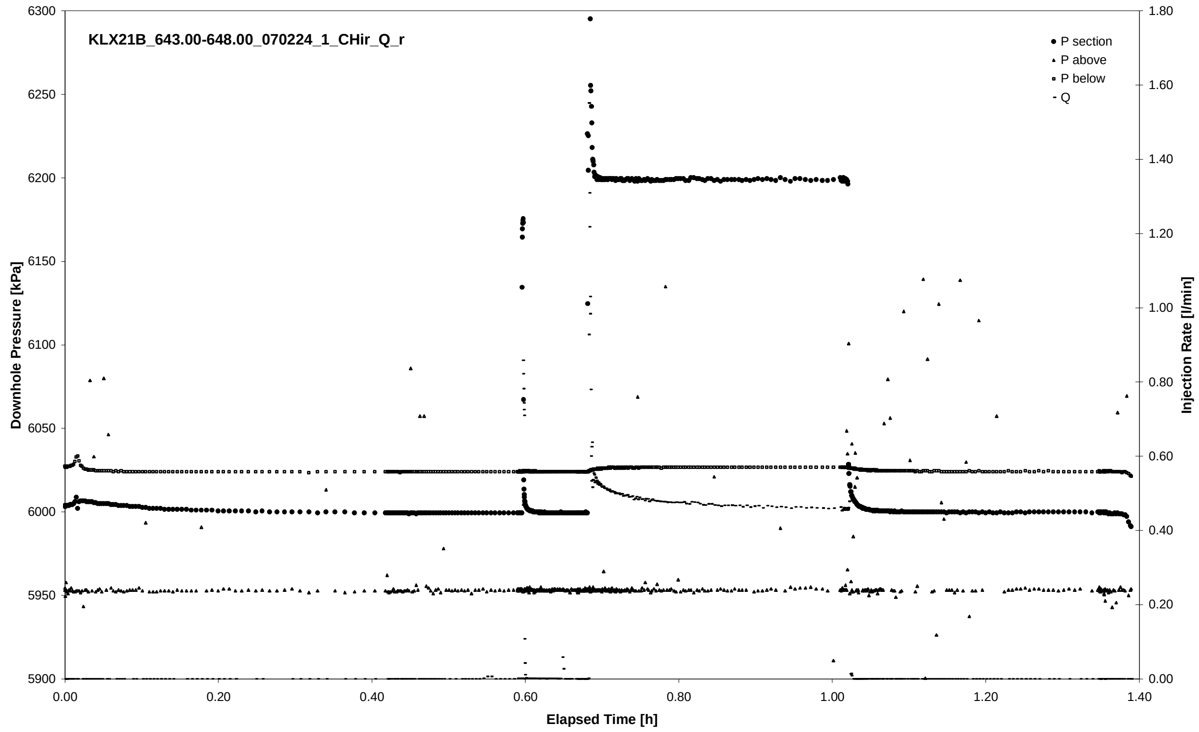


CHIR phase; HORNER match

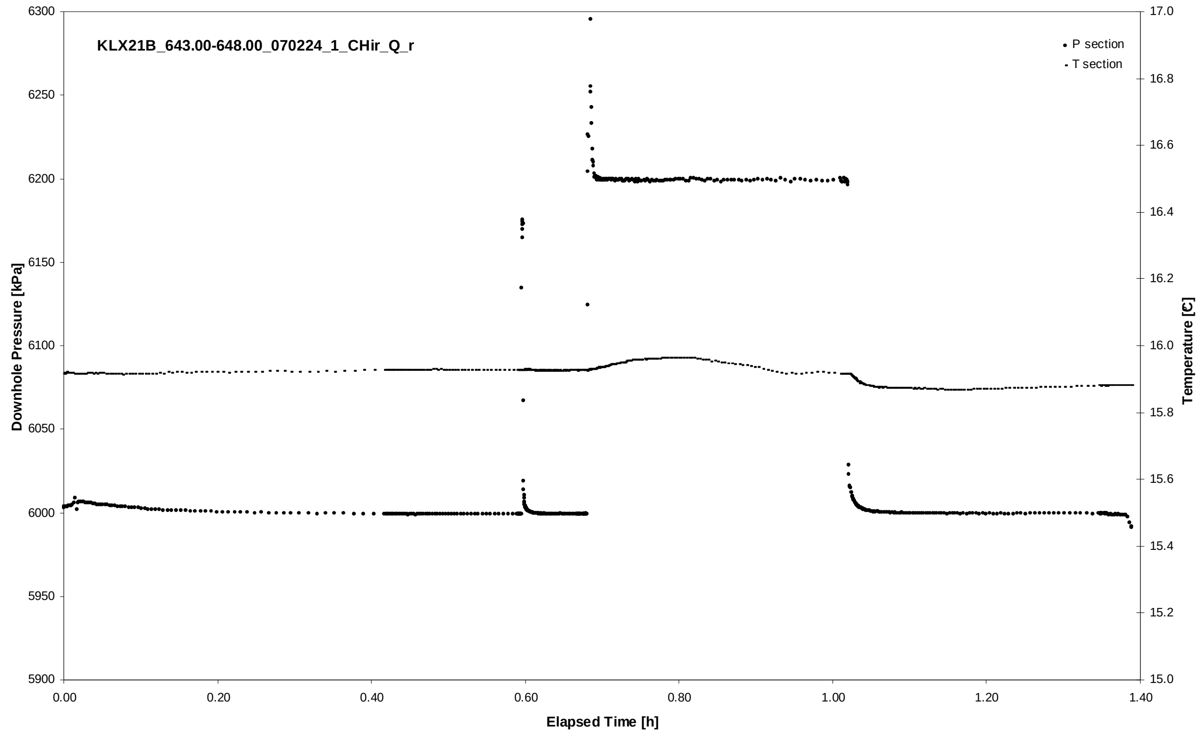
APPENDIX 2-105

Test 643.00 – 648.00 m

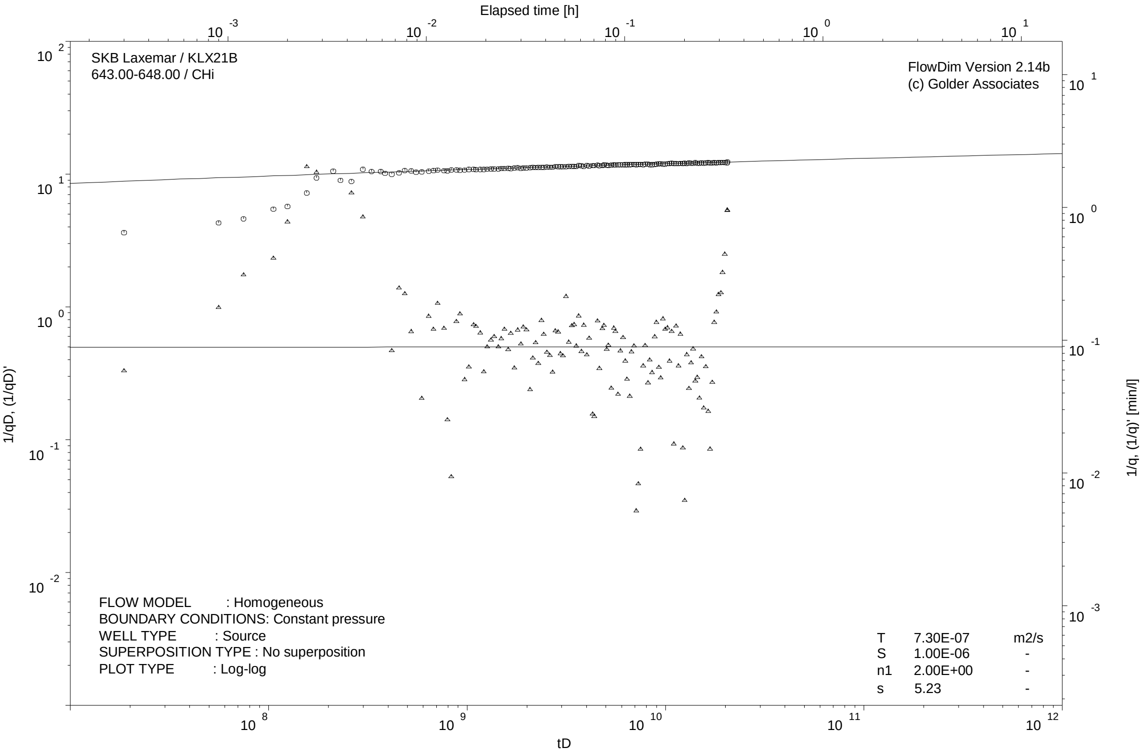
Analysis diagrams



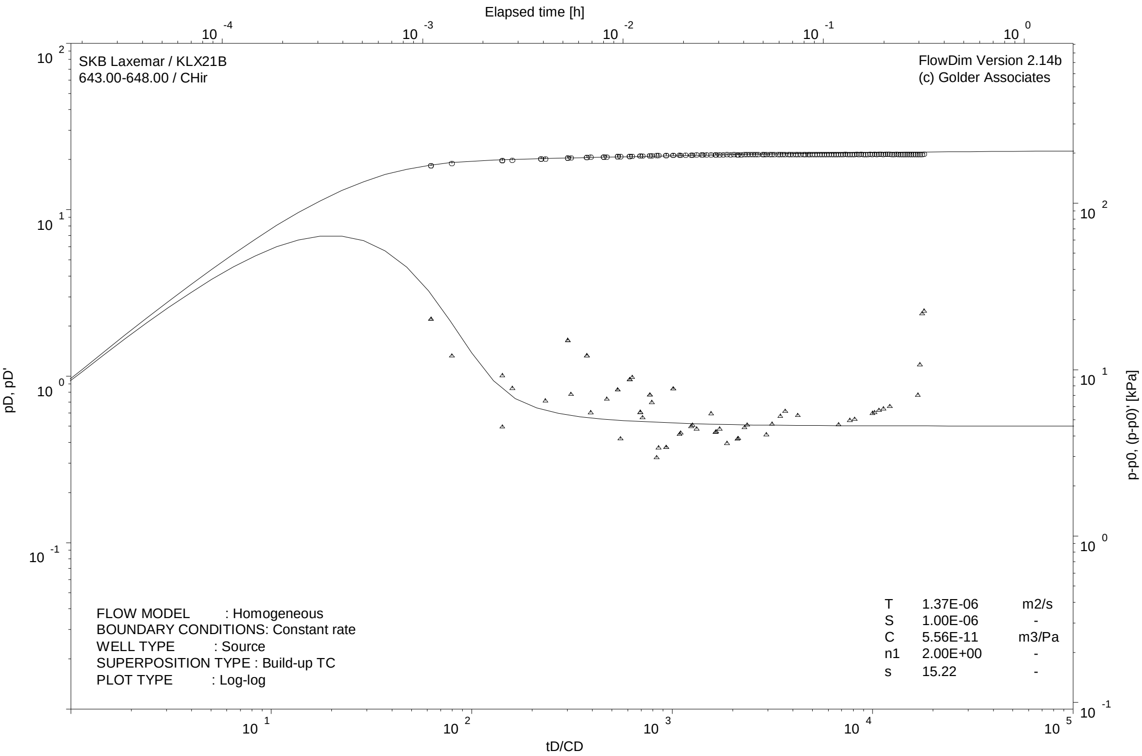
Pressure and flow rate vs. time; cartesian plot



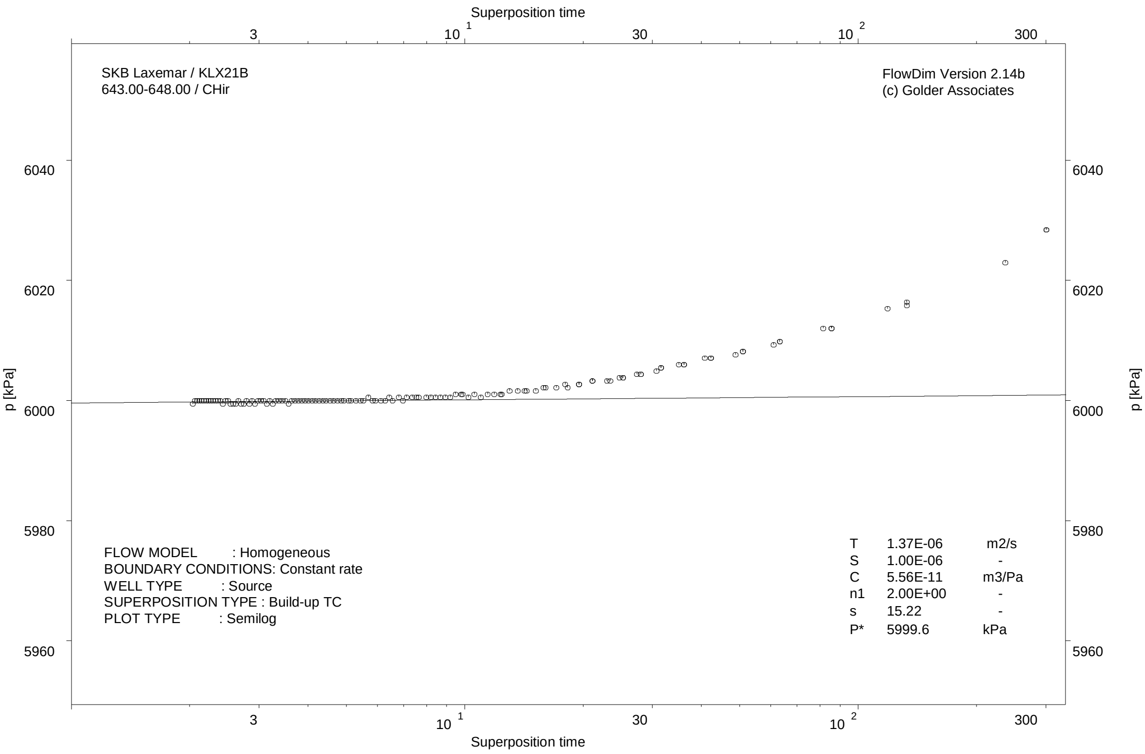
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

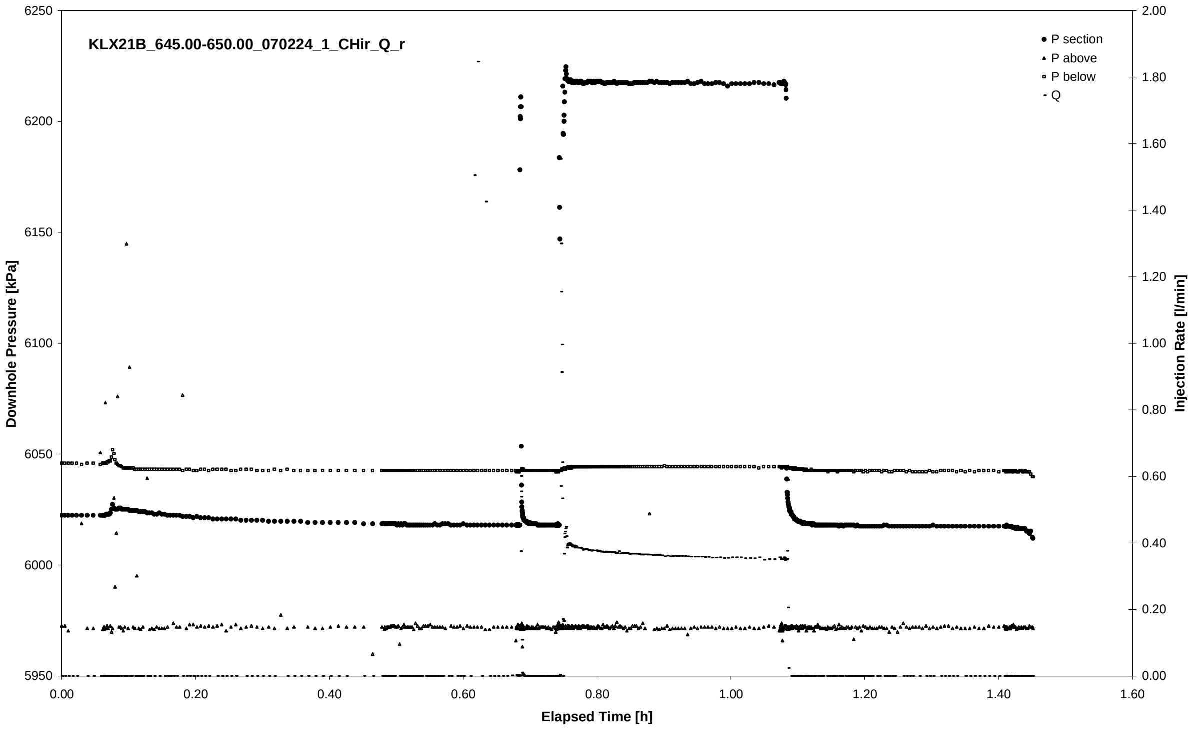


CHIR phase; HORNER match

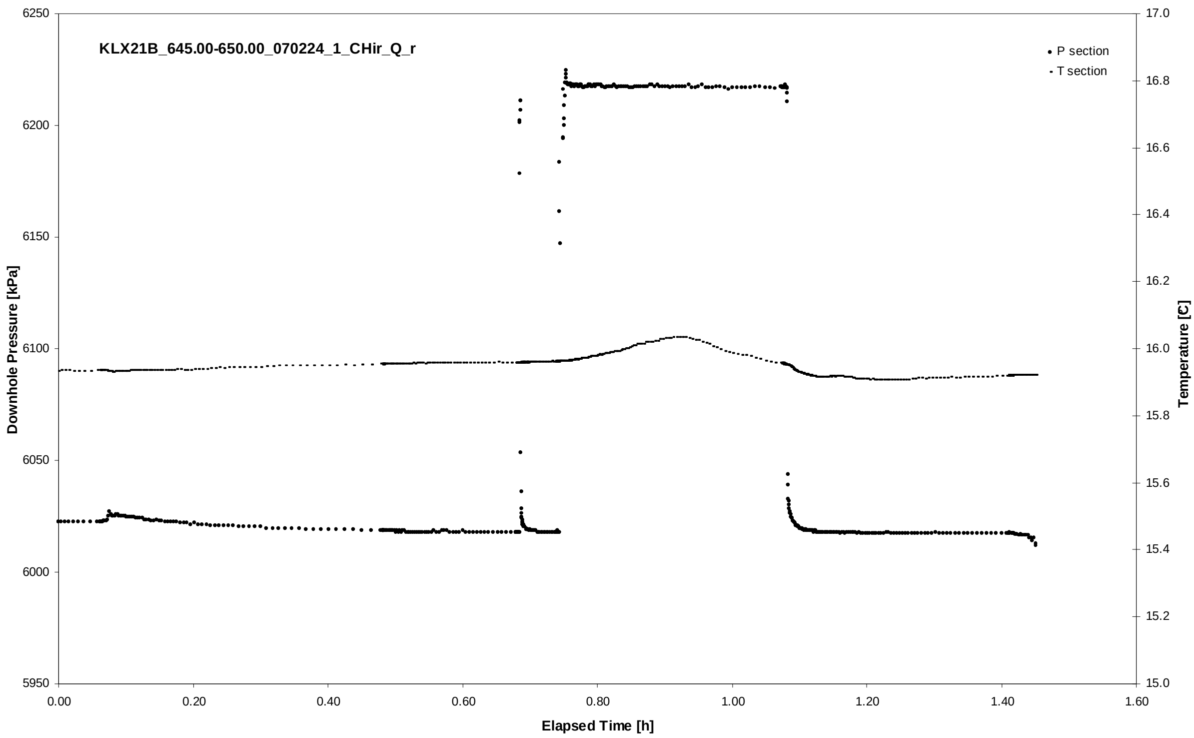
APPENDIX 2-106

Test 645.00 – 650.00 m

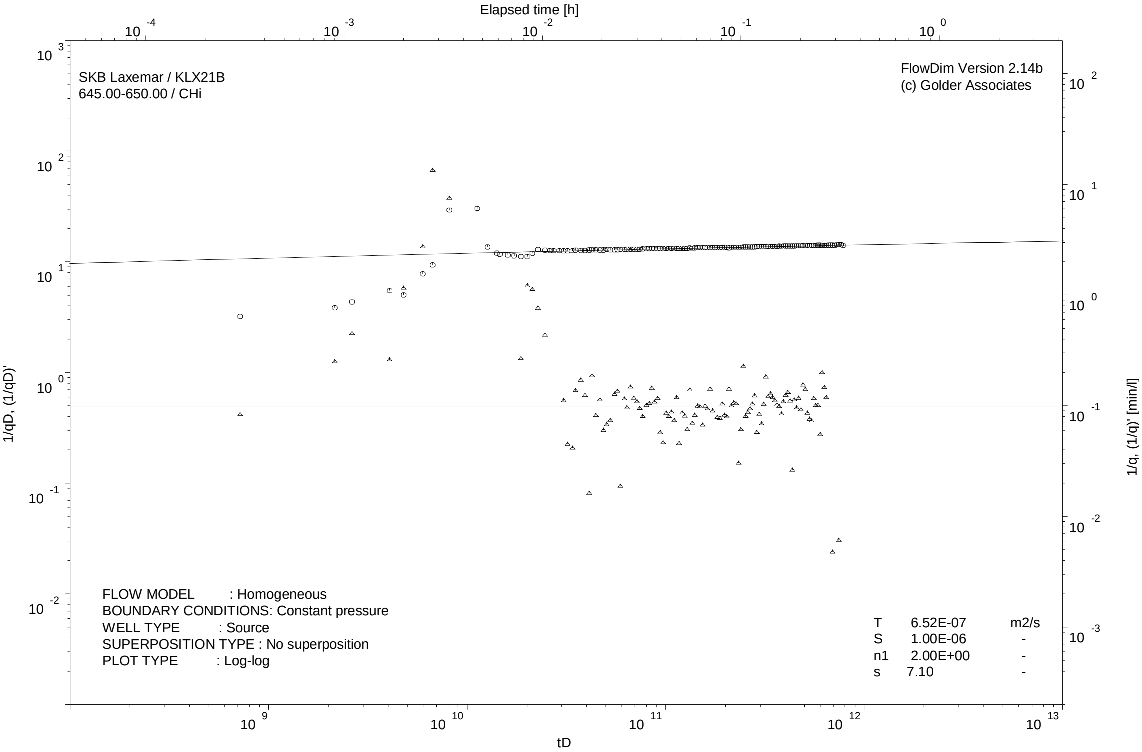
Analysis diagrams



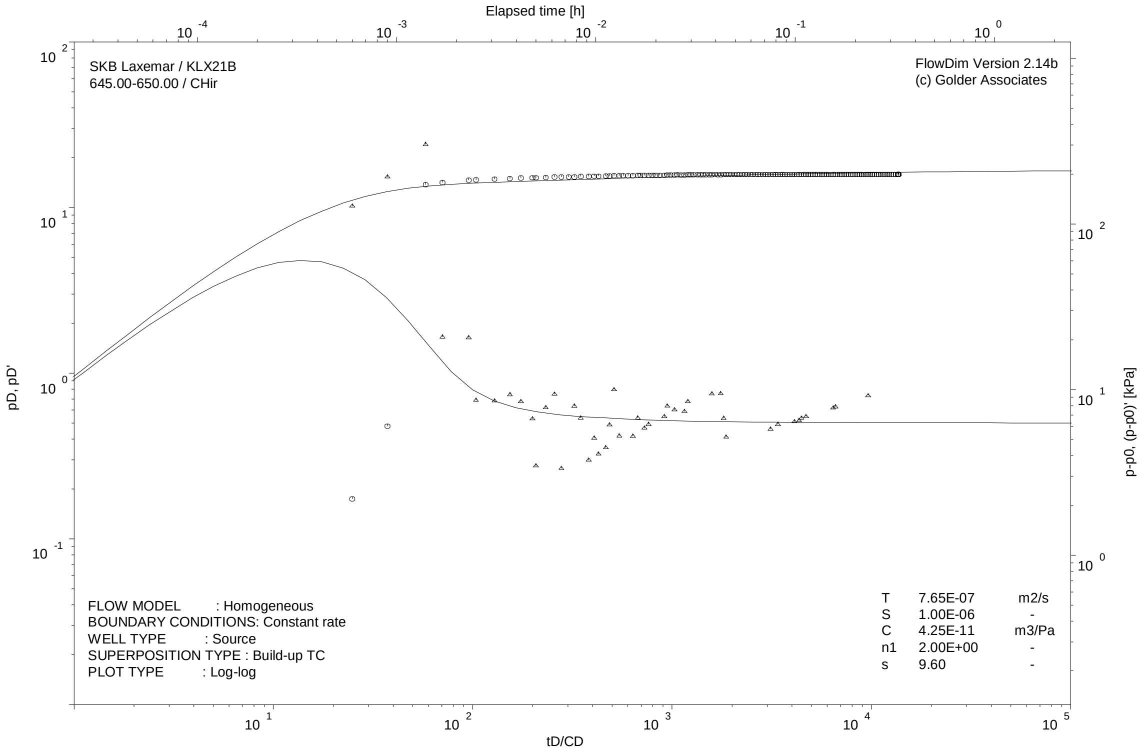
Pressure and flow rate vs. time; cartesian plot



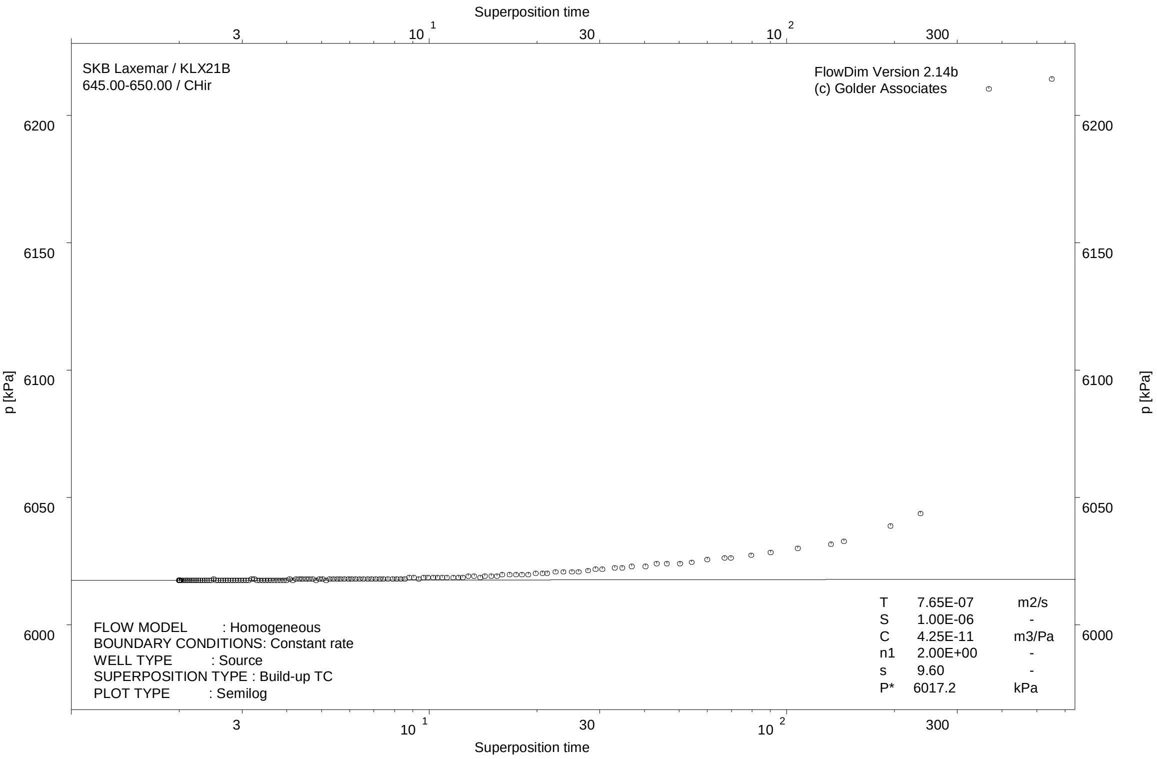
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

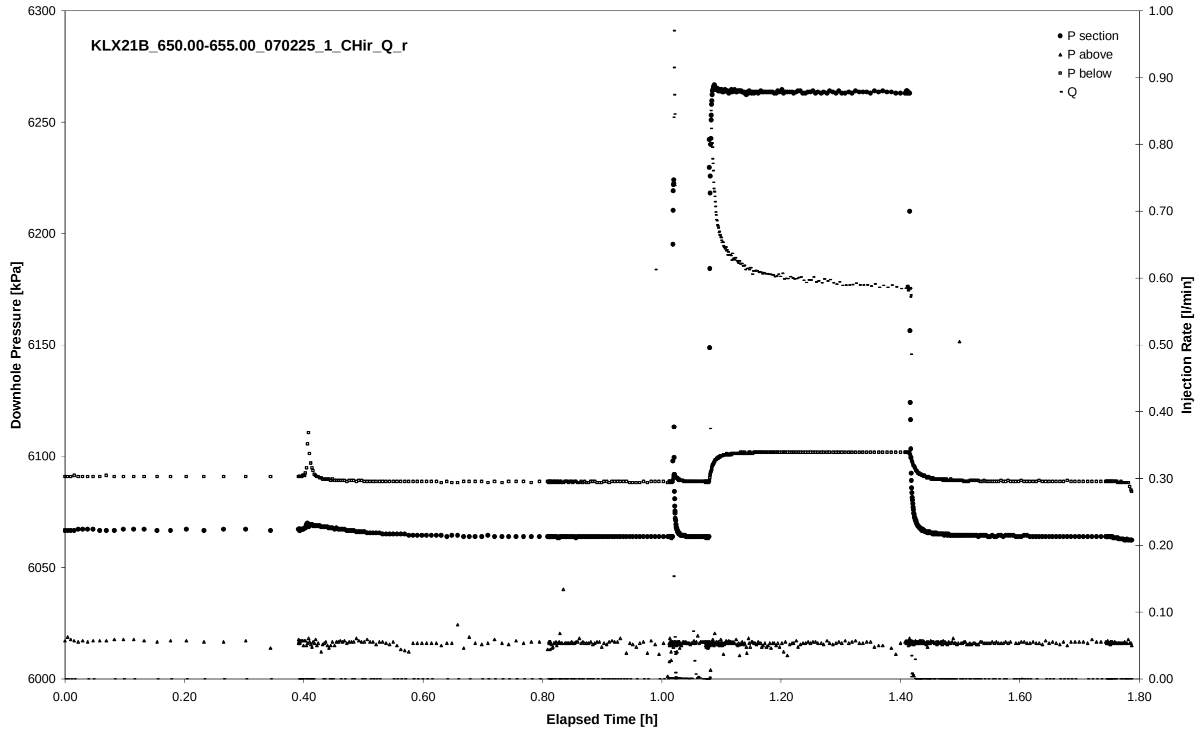


CHIR phase; HORNER match

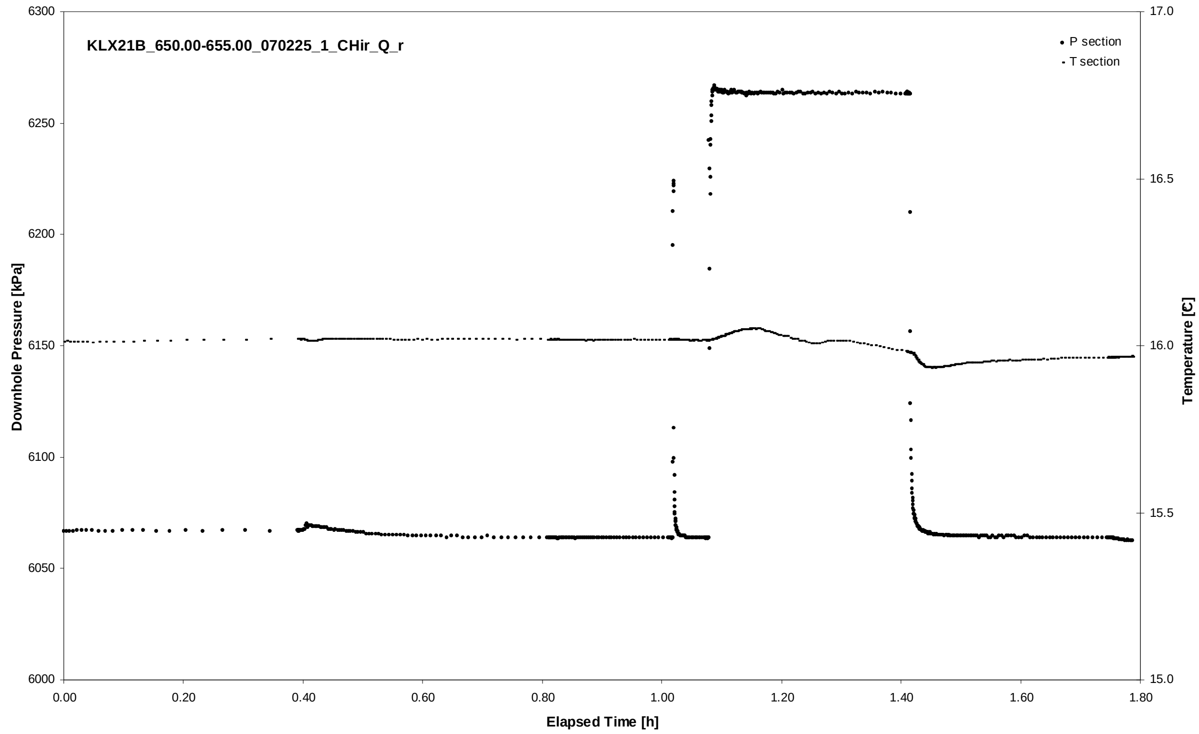
APPENDIX 2-107

Test 650.00 – 655.00 m

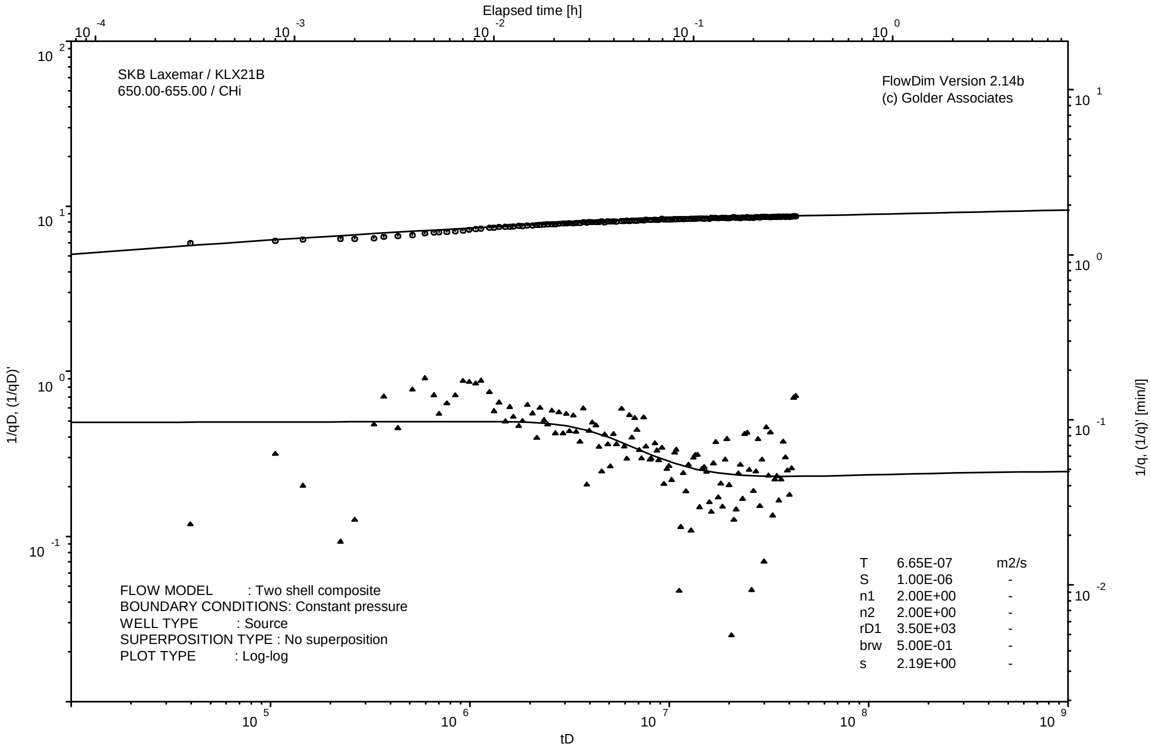
Analysis diagrams



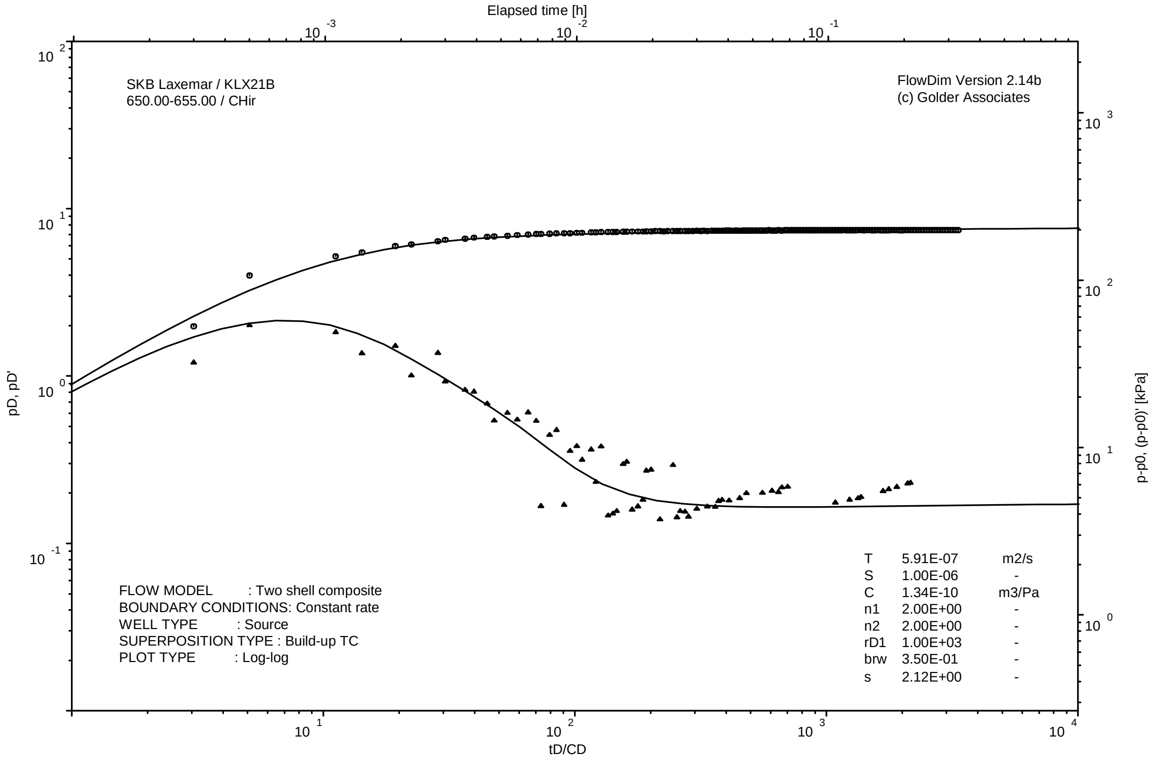
Pressure and flow rate vs. time; cartesian plot



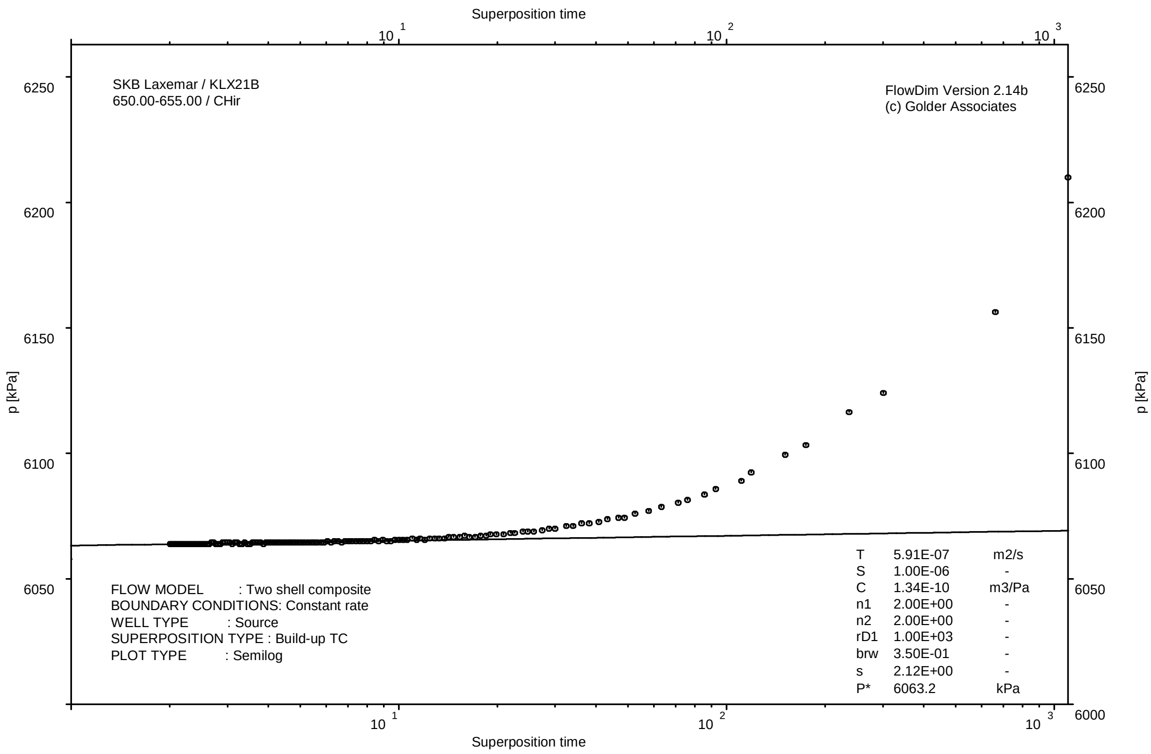
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

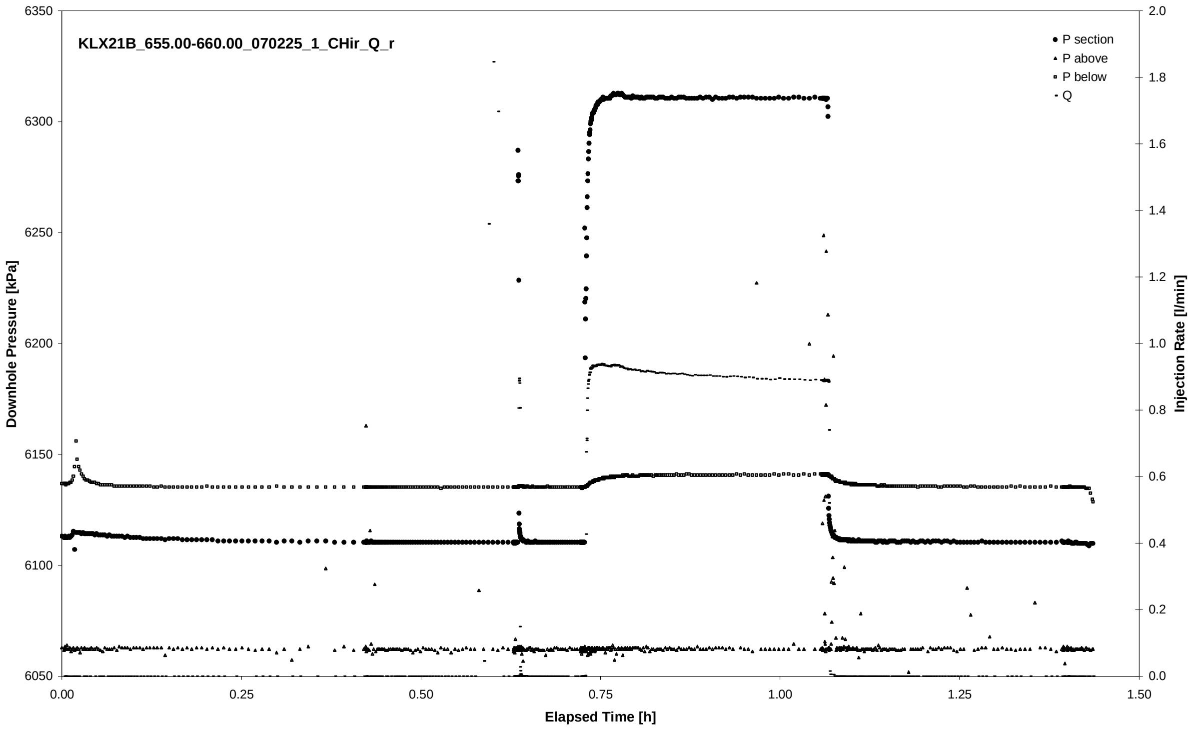


CHIR phase; HORNER match

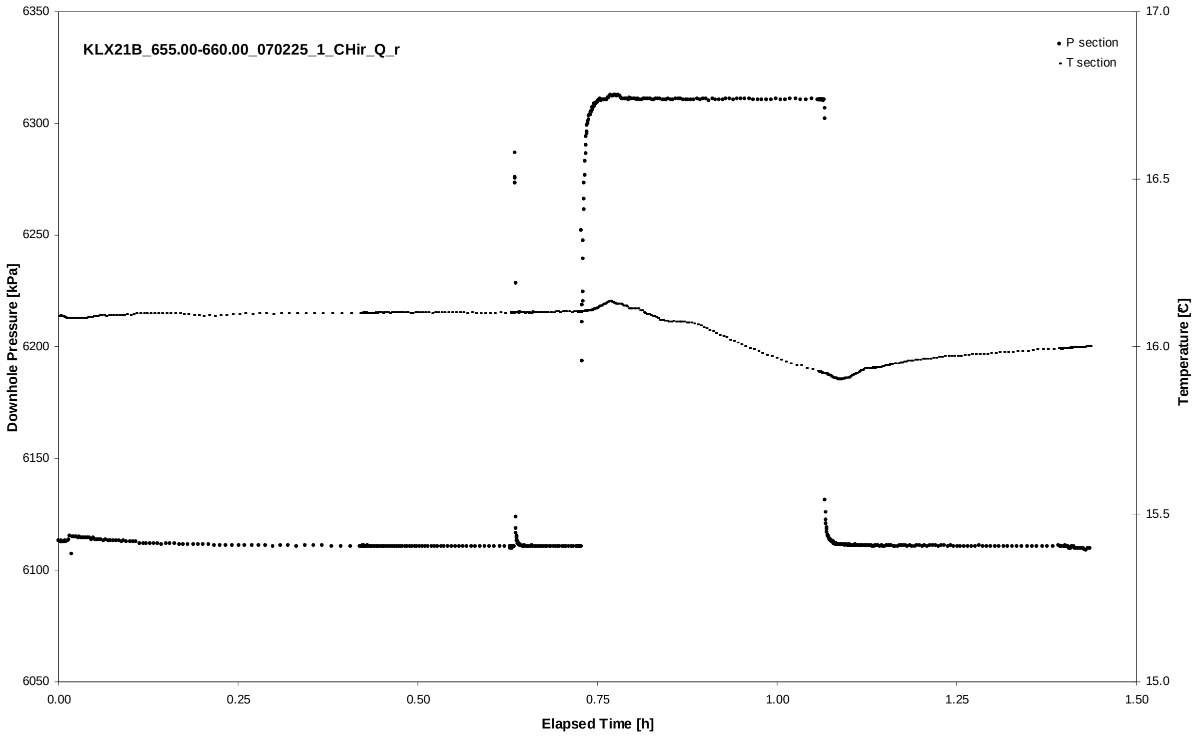
APPENDIX 2-108

Test 655.00 – 660.00 m

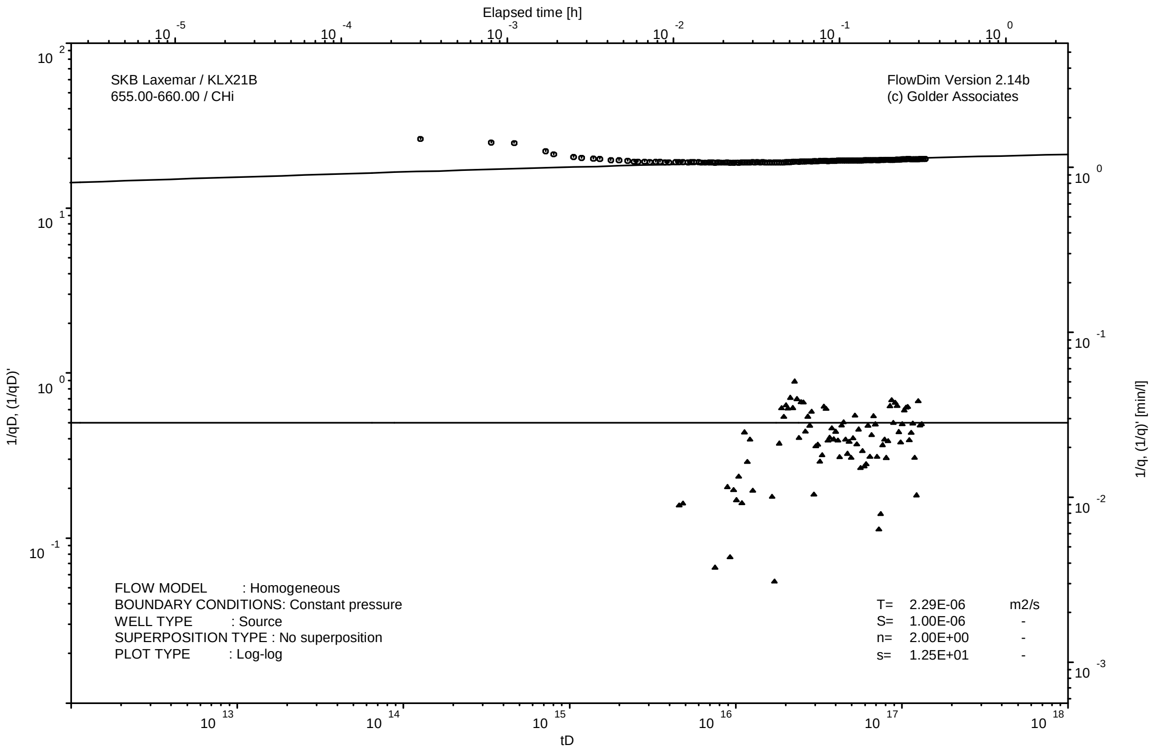
Analysis diagrams



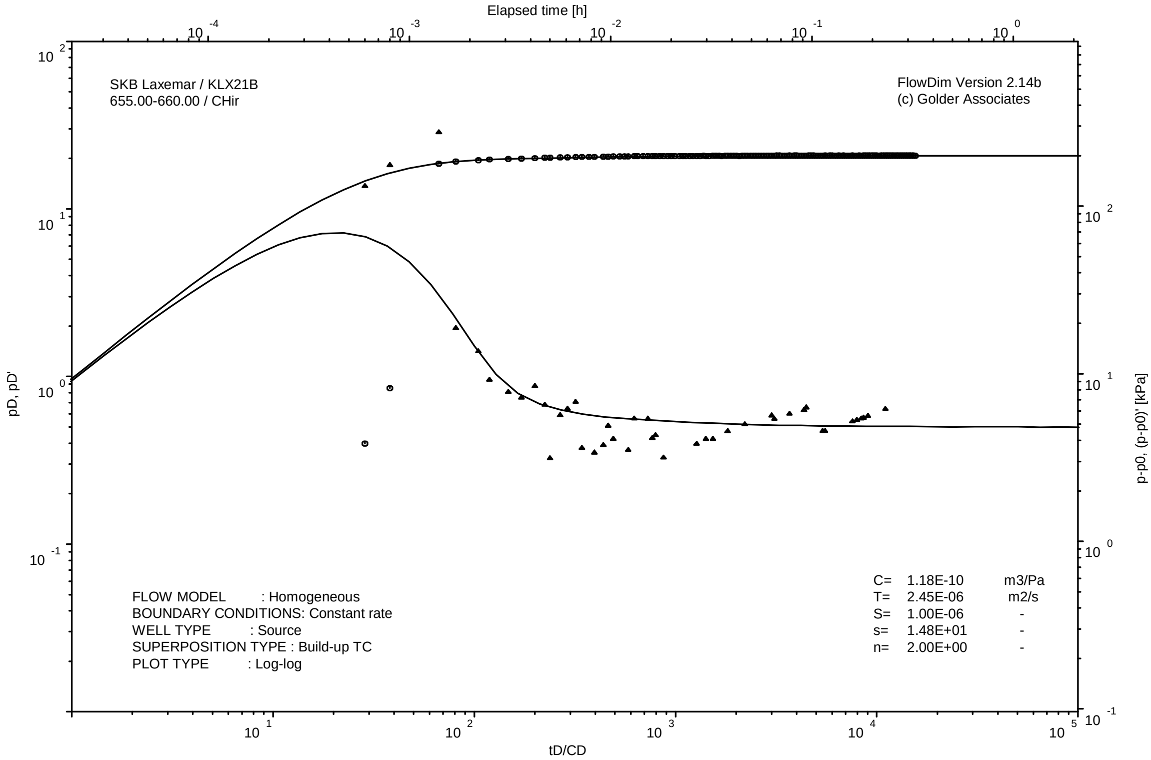
Pressure and flow rate vs. time; cartesian plot



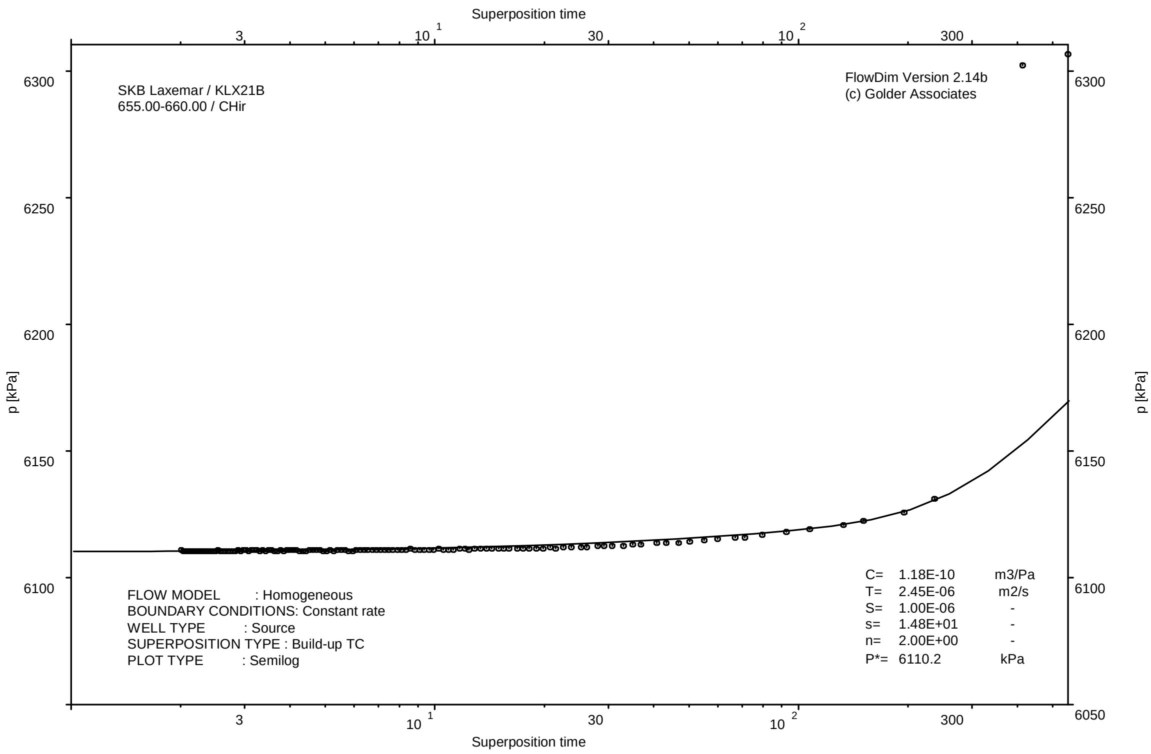
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

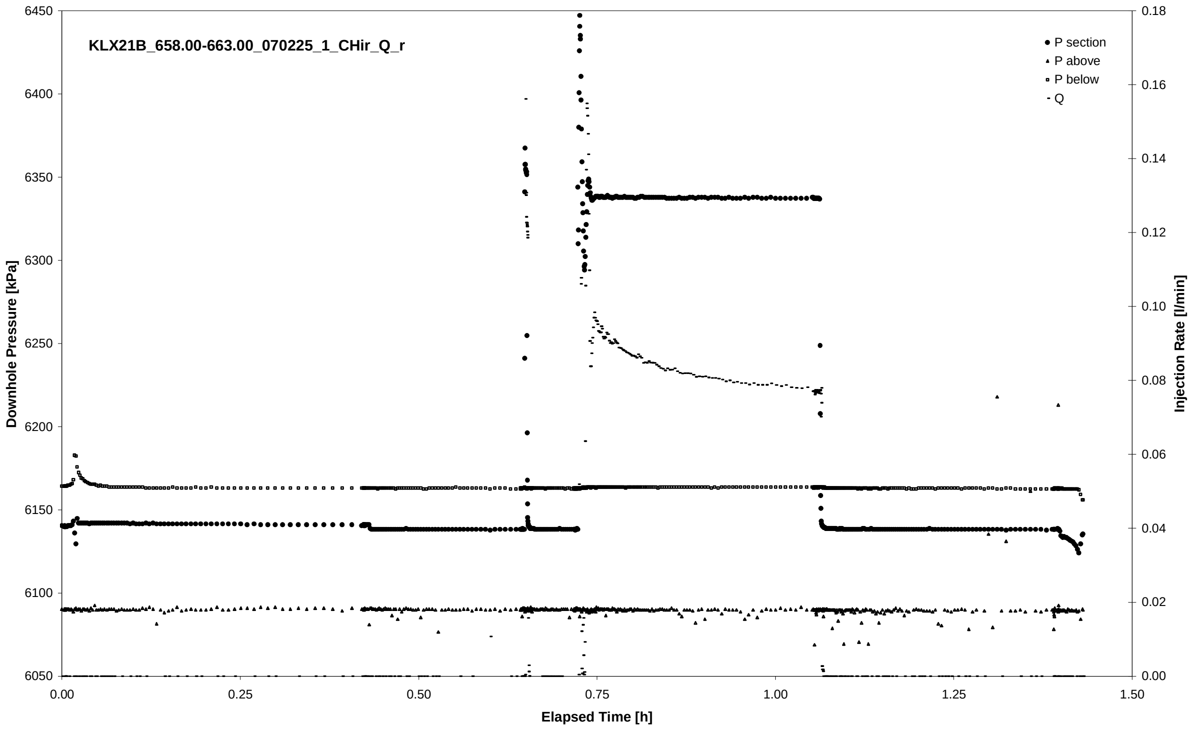


CHIR phase; HORNER match

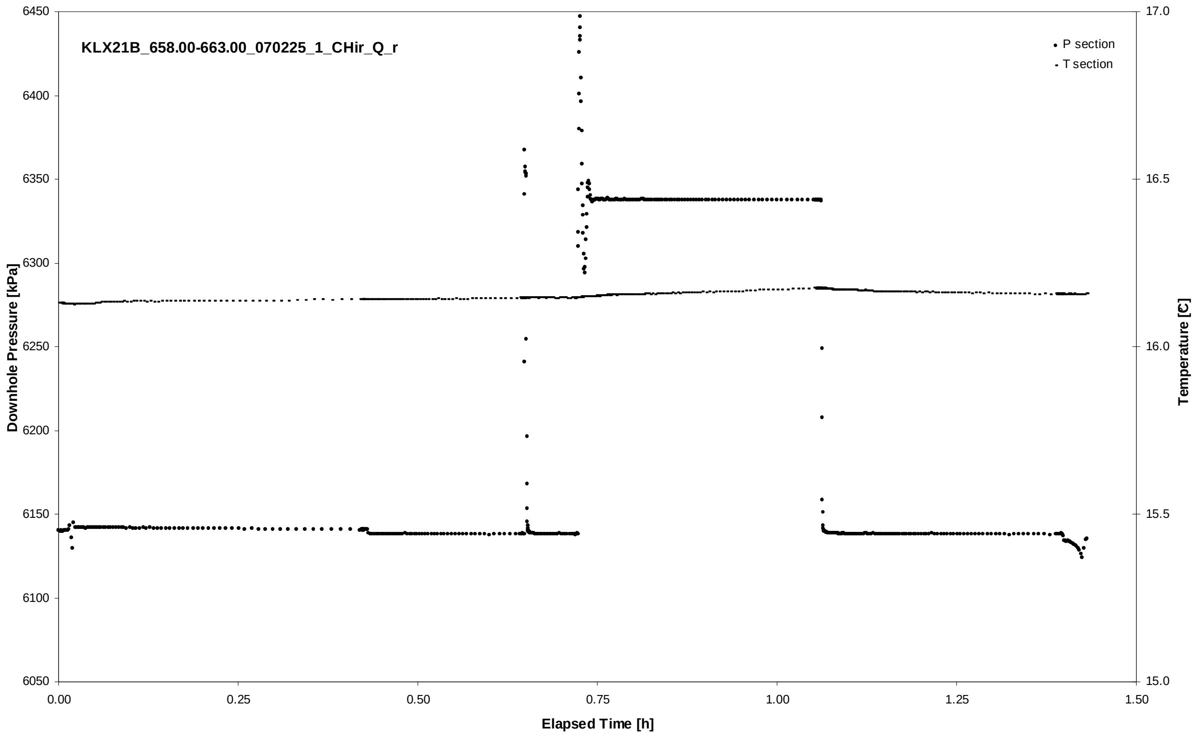
APPENDIX 2-109

Test 658.00 – 663.00 m

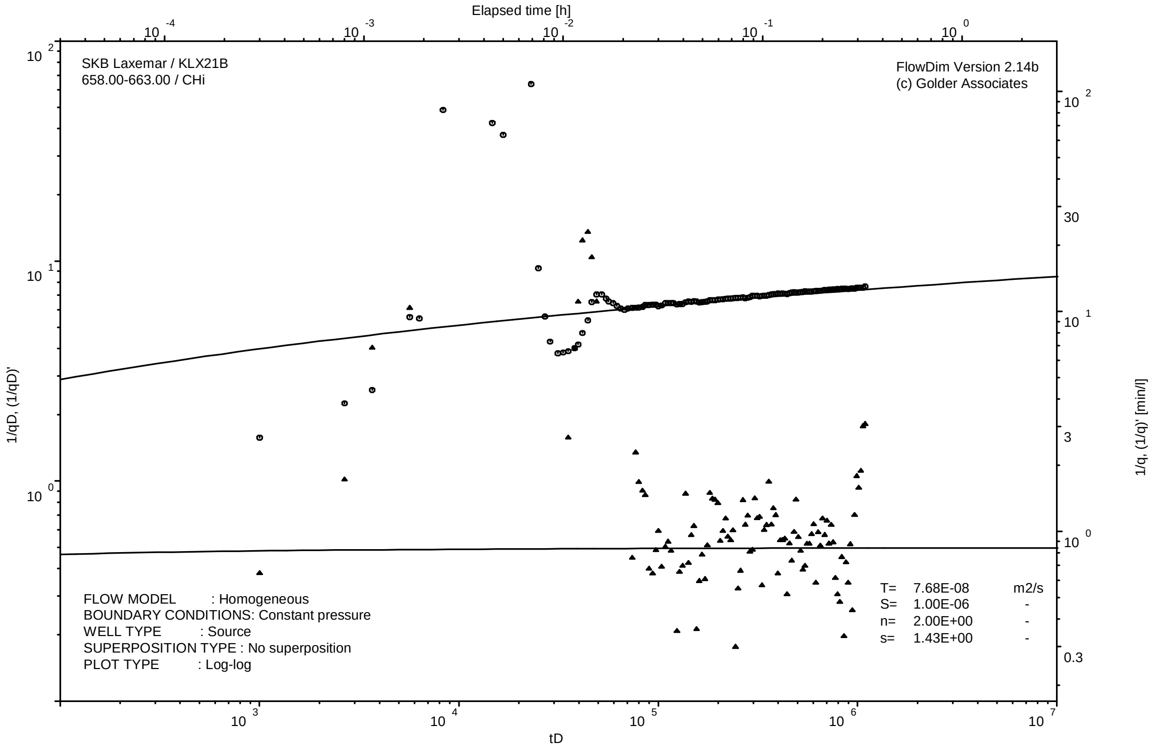
Analysis diagrams



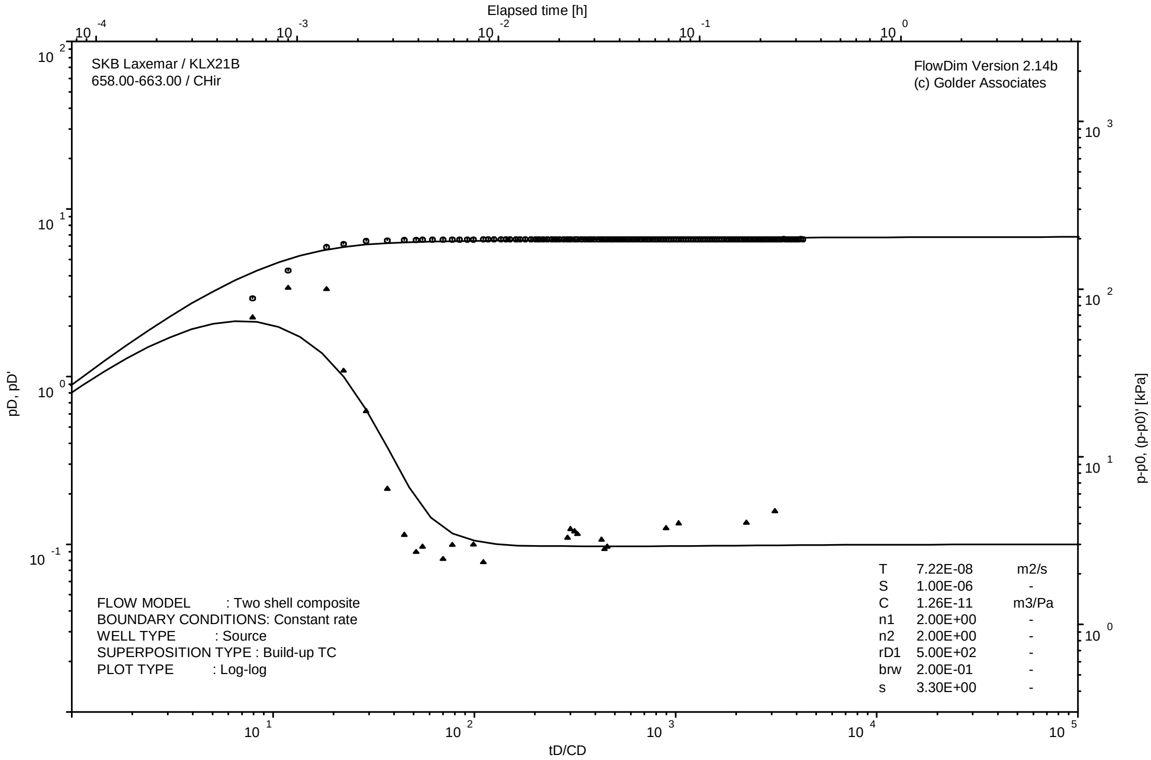
Pressure and flow rate vs. time; cartesian plot



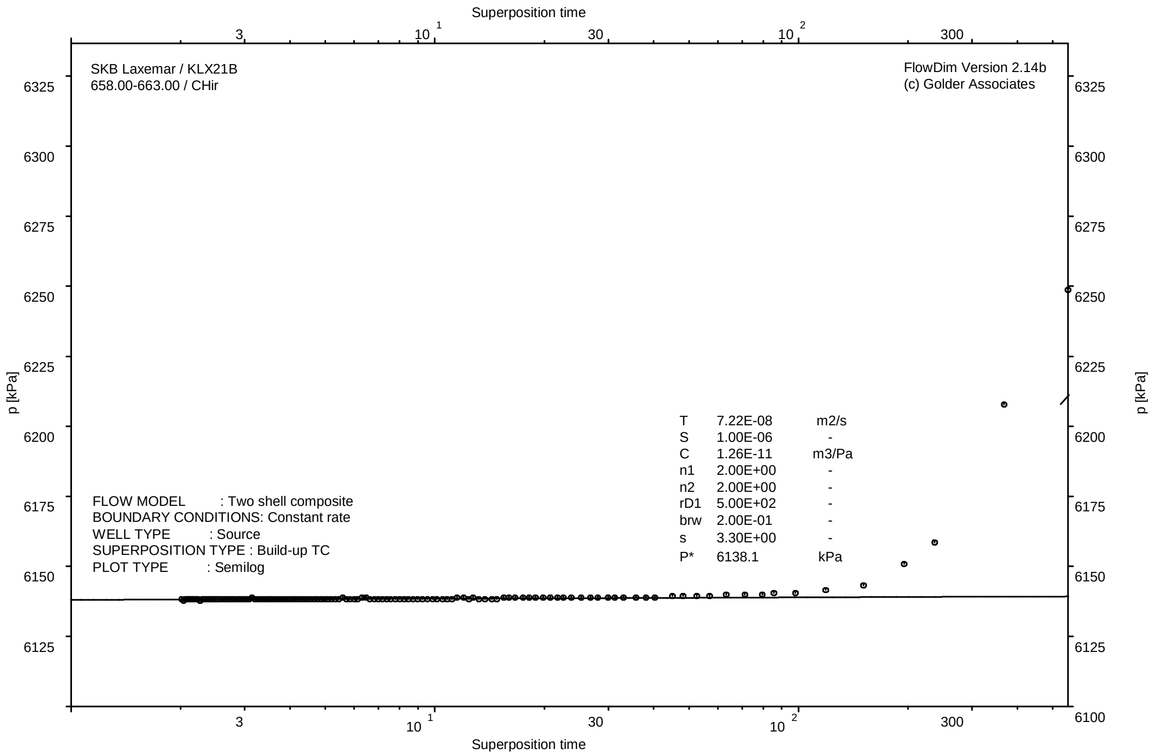
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

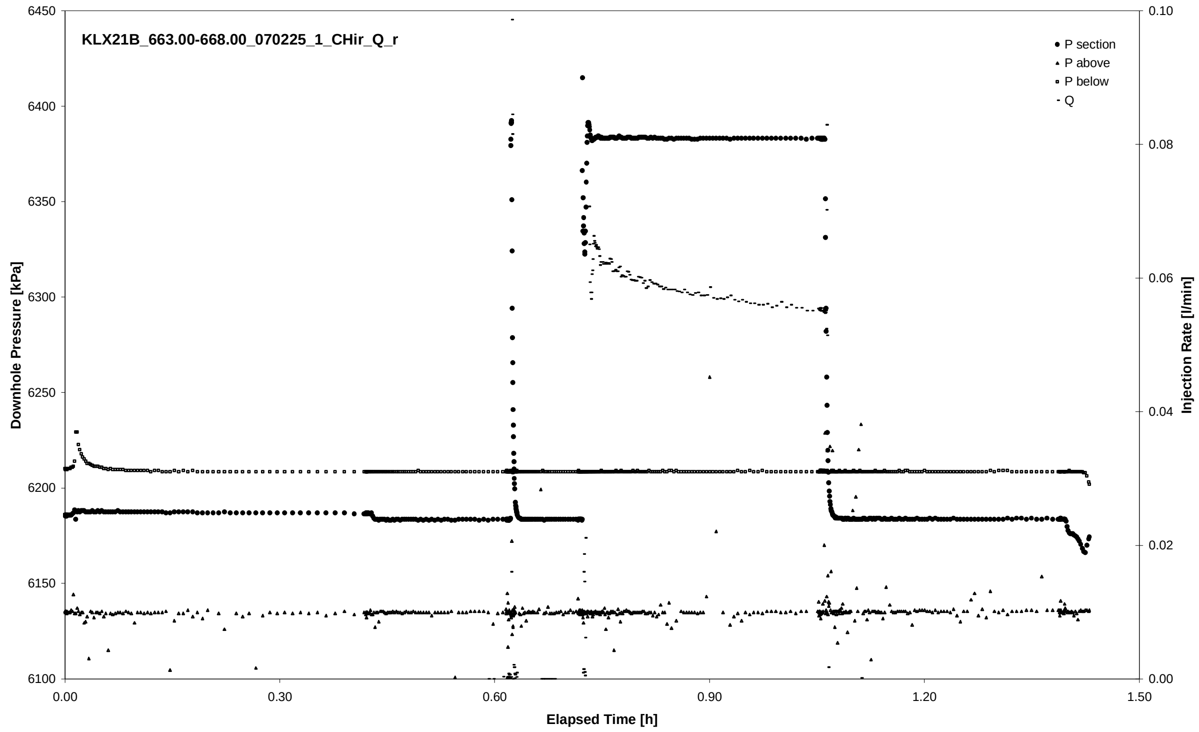


CHIR phase; HORNER match

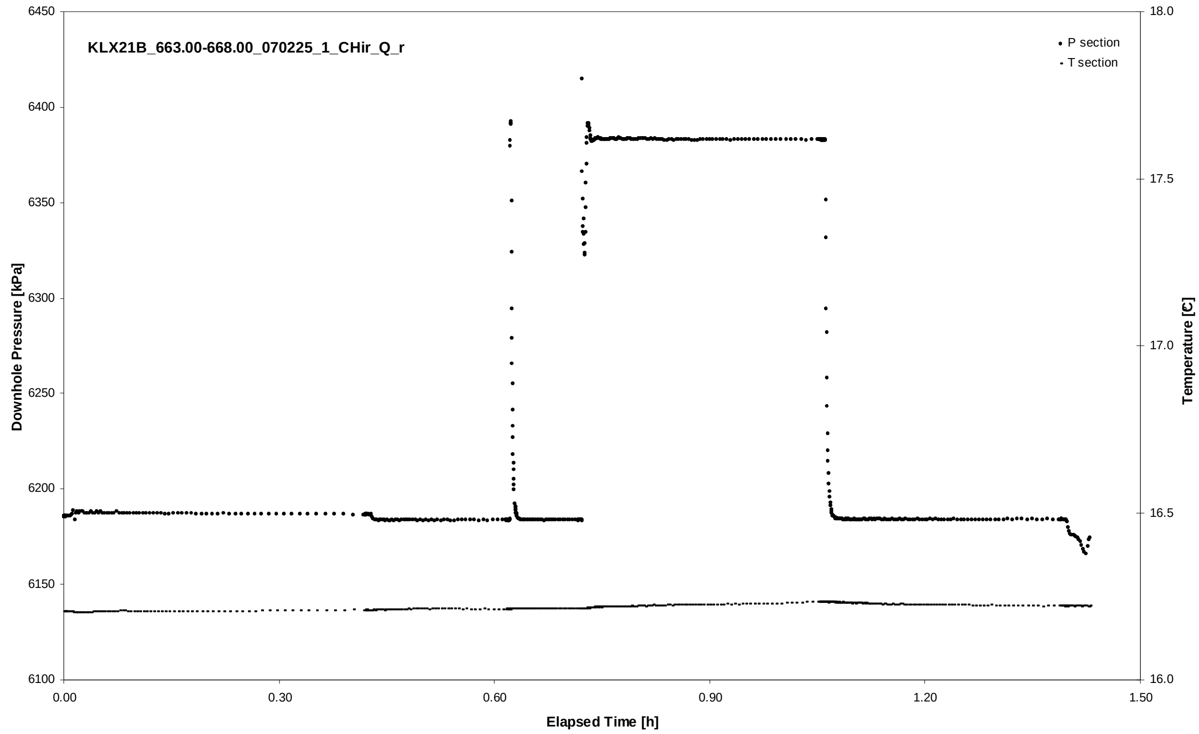
APPENDIX 2-110

Test 663.00 – 668.00 m

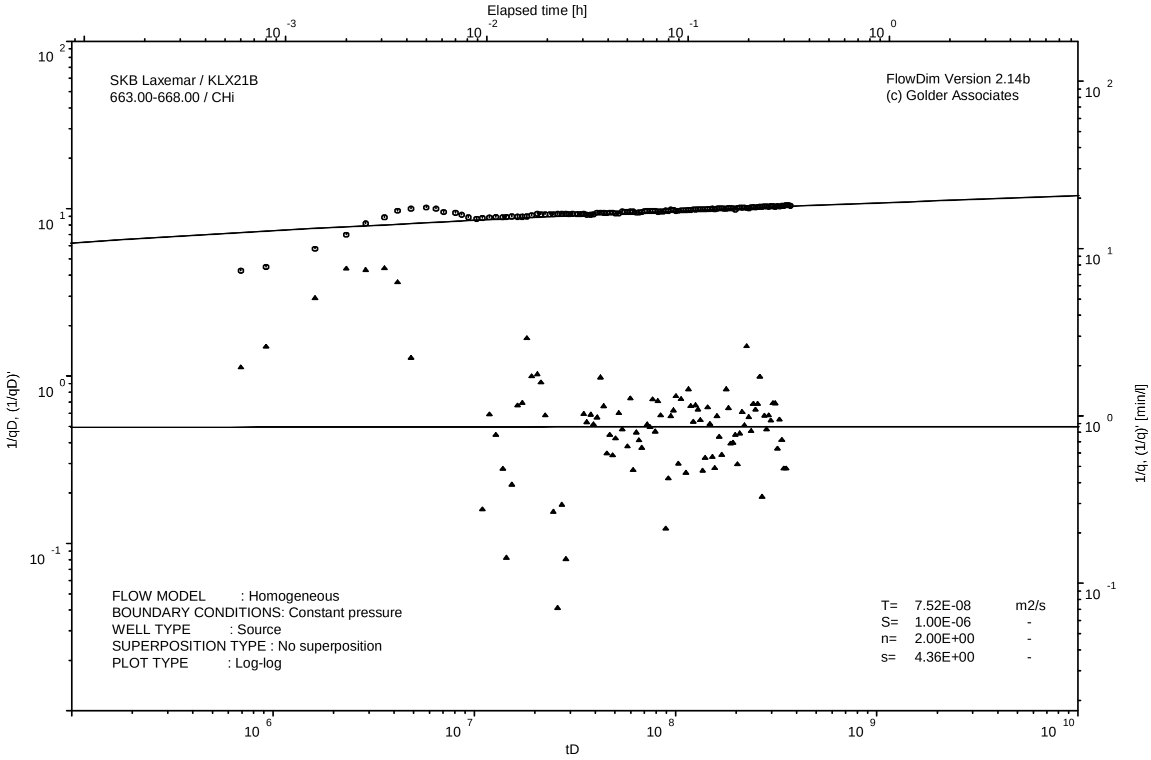
Analysis diagrams



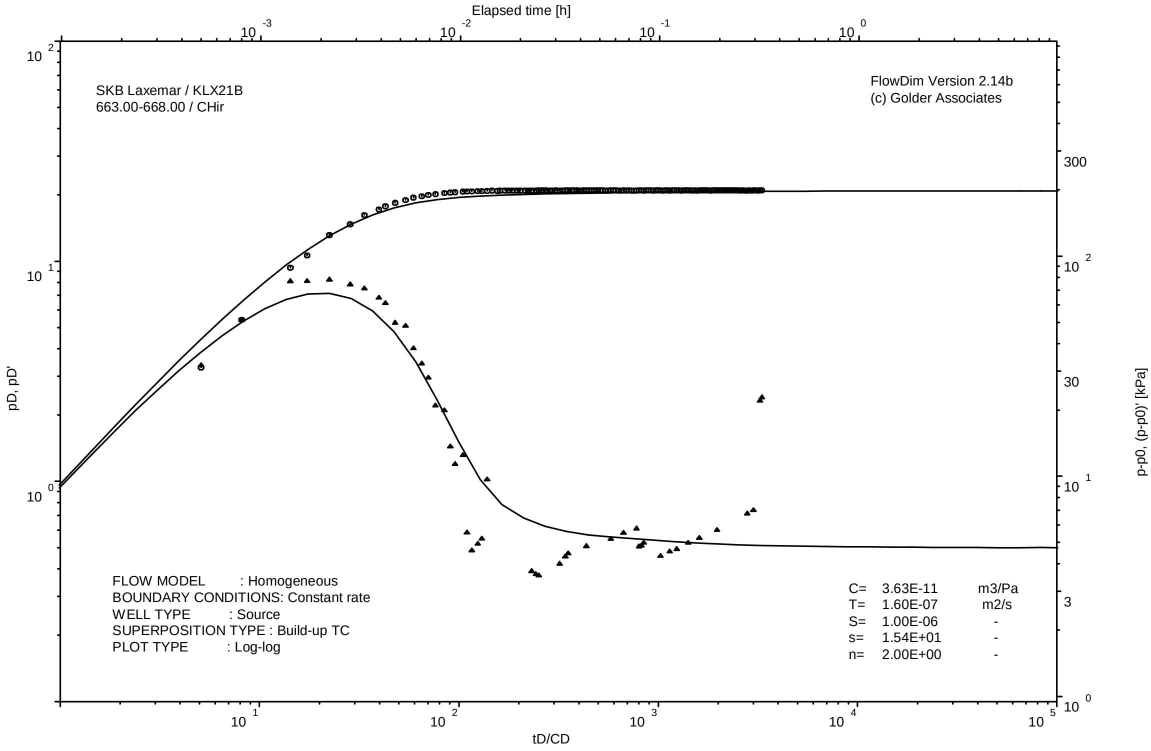
Pressure and flow rate vs. time; cartesian plot



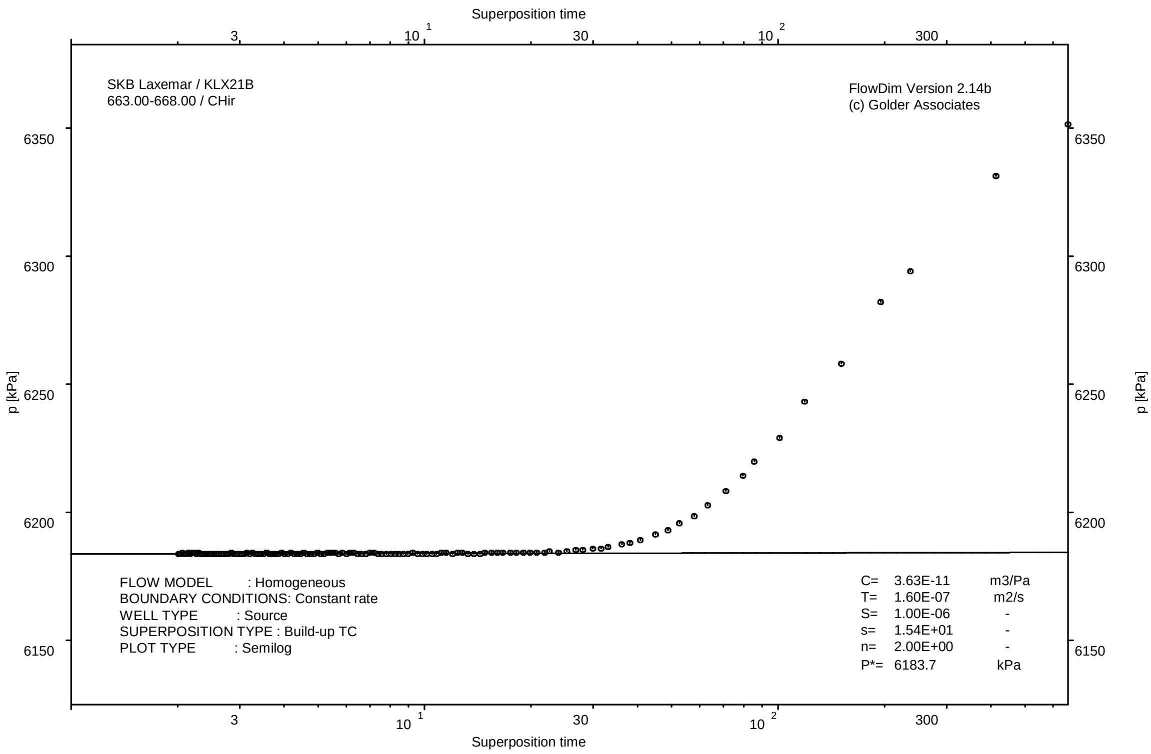
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

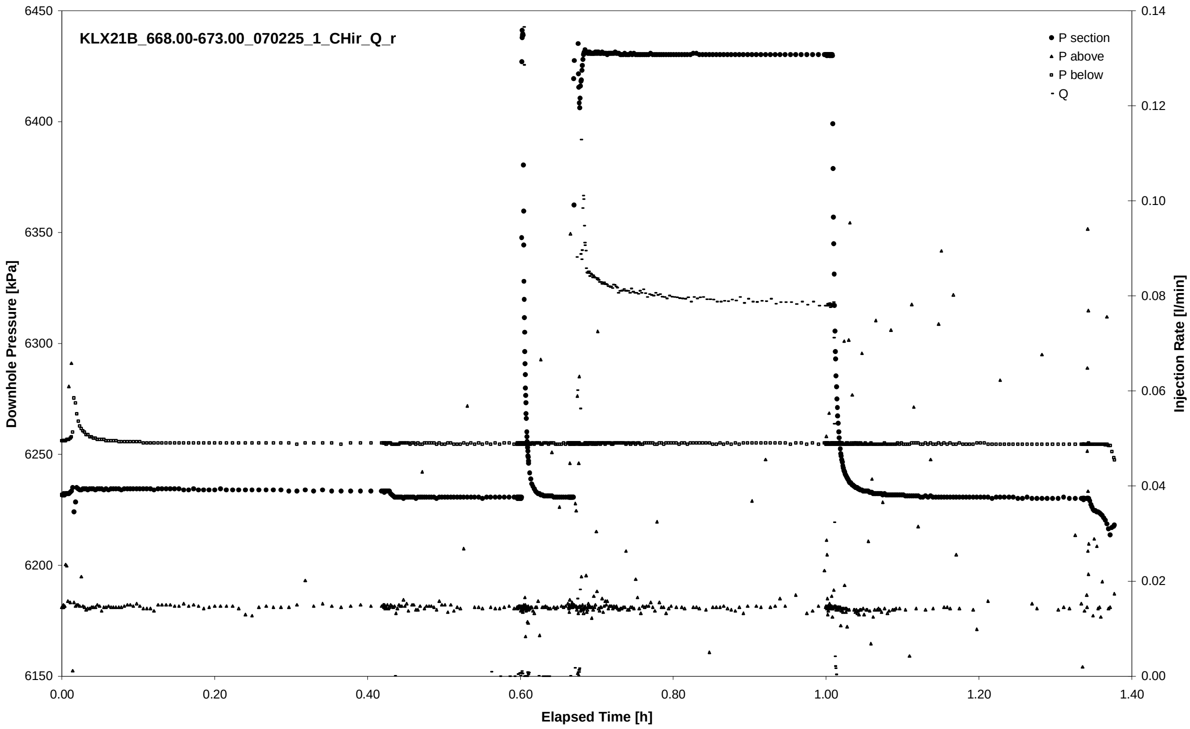


CHIR phase; HORNER match

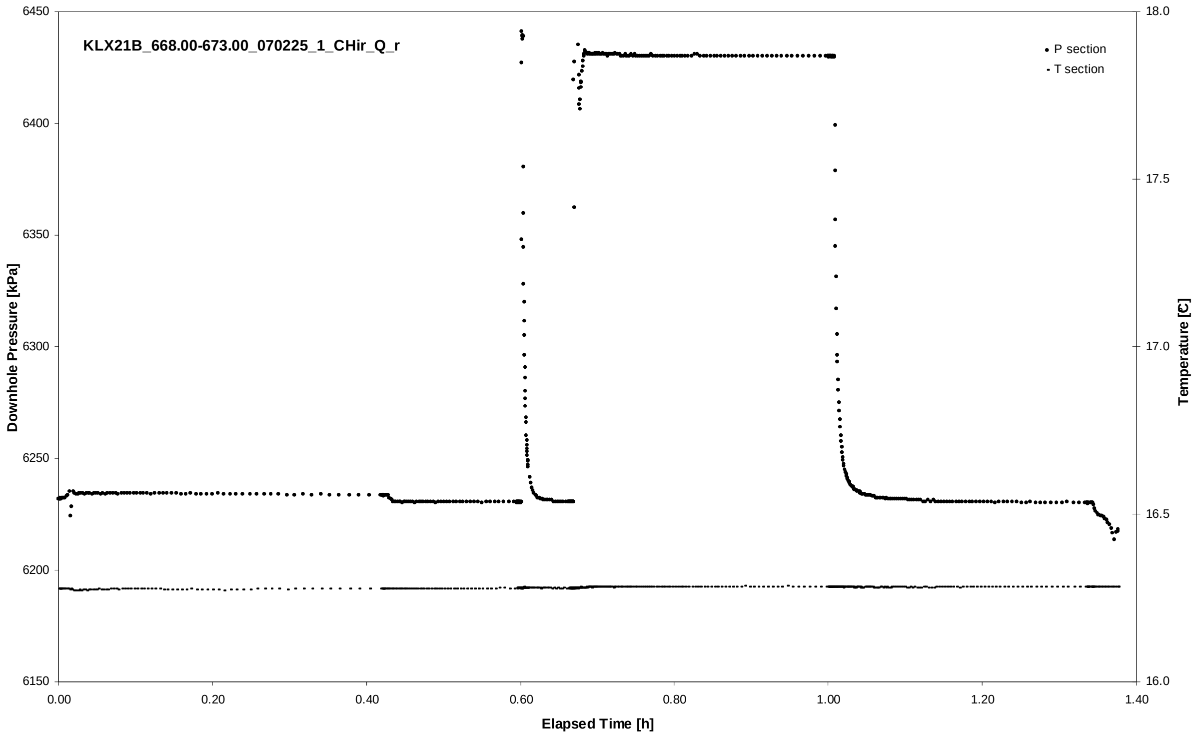
APPENDIX 2-111

Test 668.00 – 673.00 m

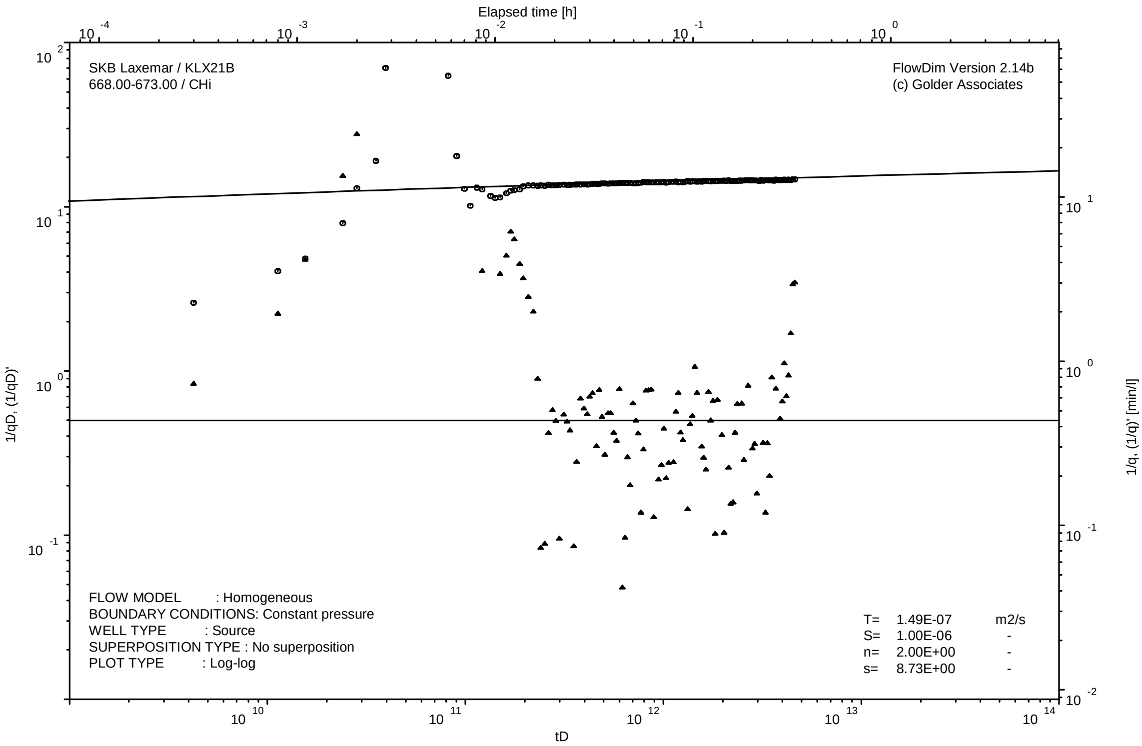
Analysis diagrams



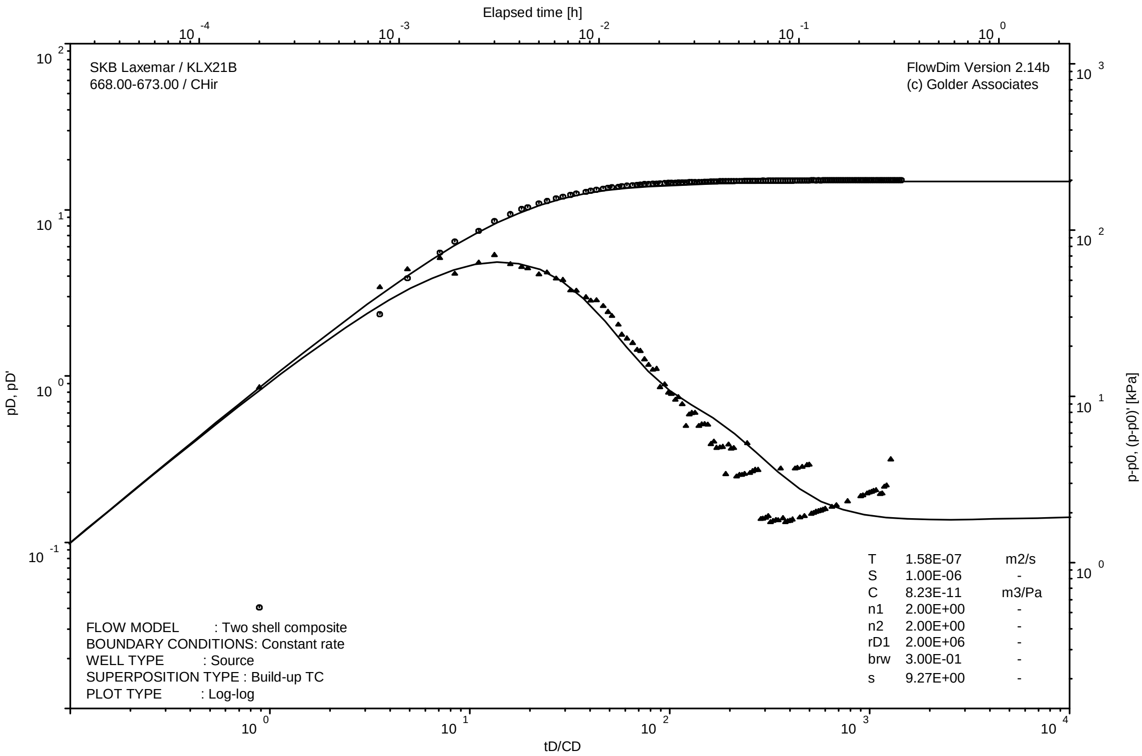
Pressure and flow rate vs. time; cartesian plot



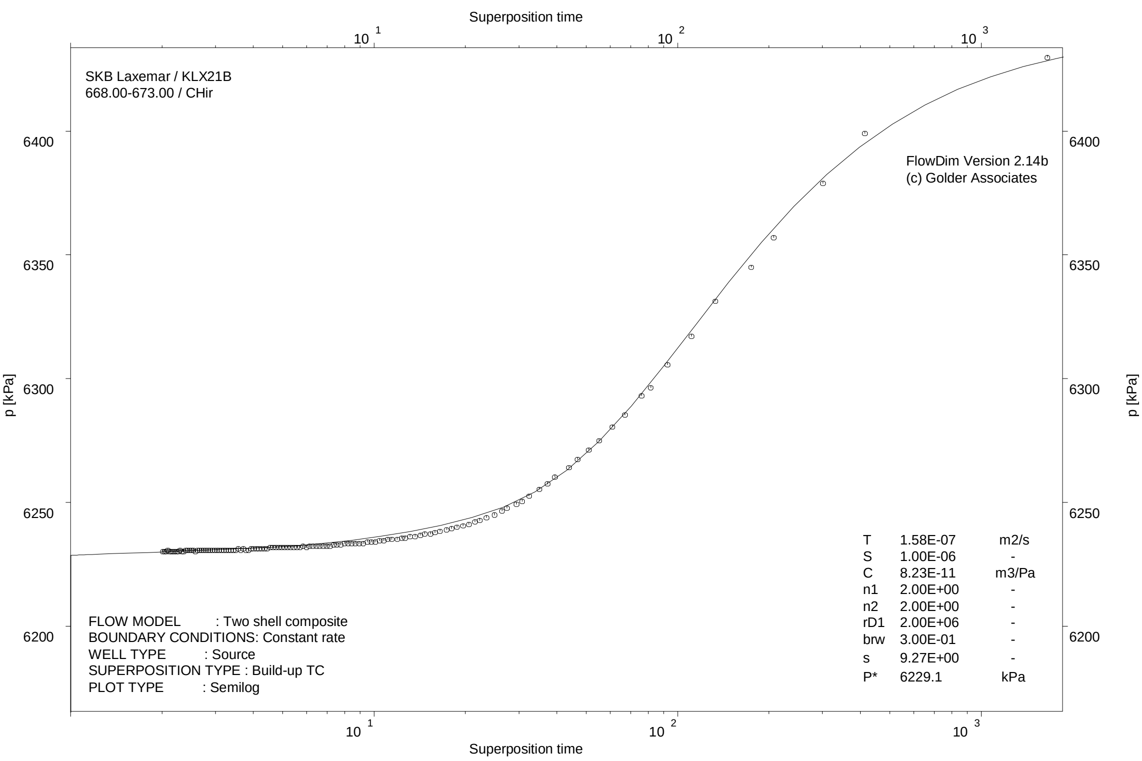
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

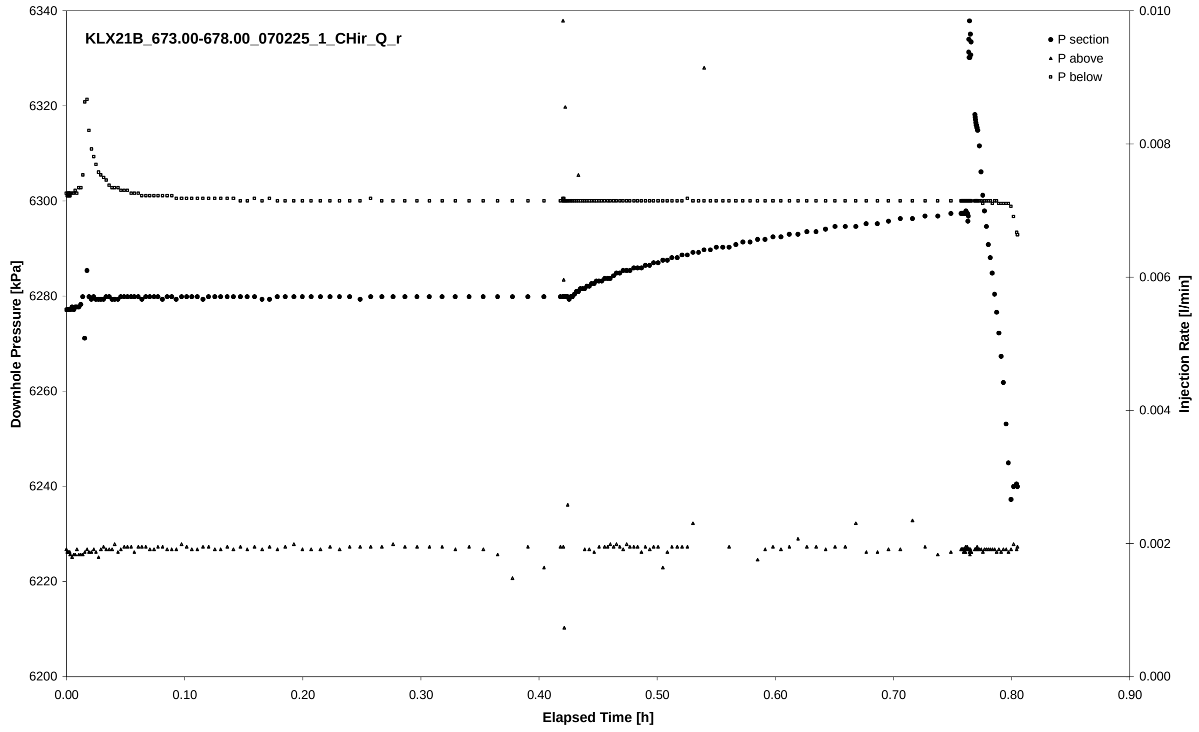


CHIR phase; HORNER match

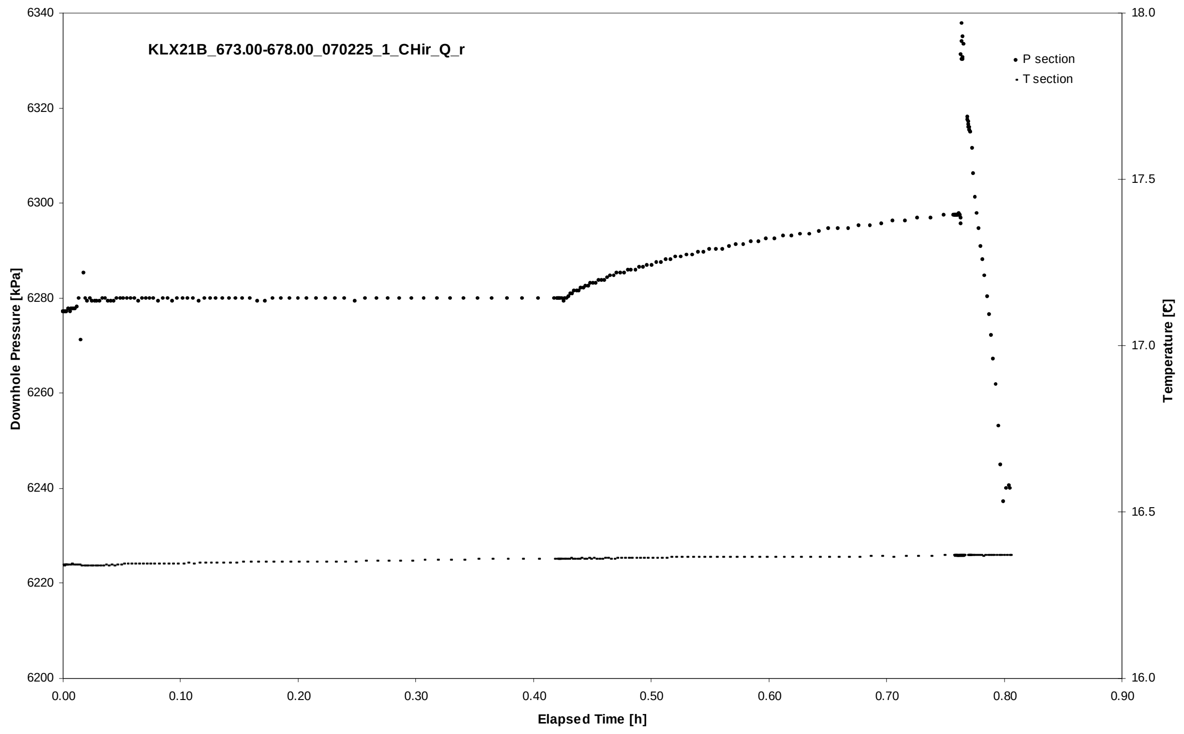
APPENDIX 2-112

Test 673.00 – 678.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

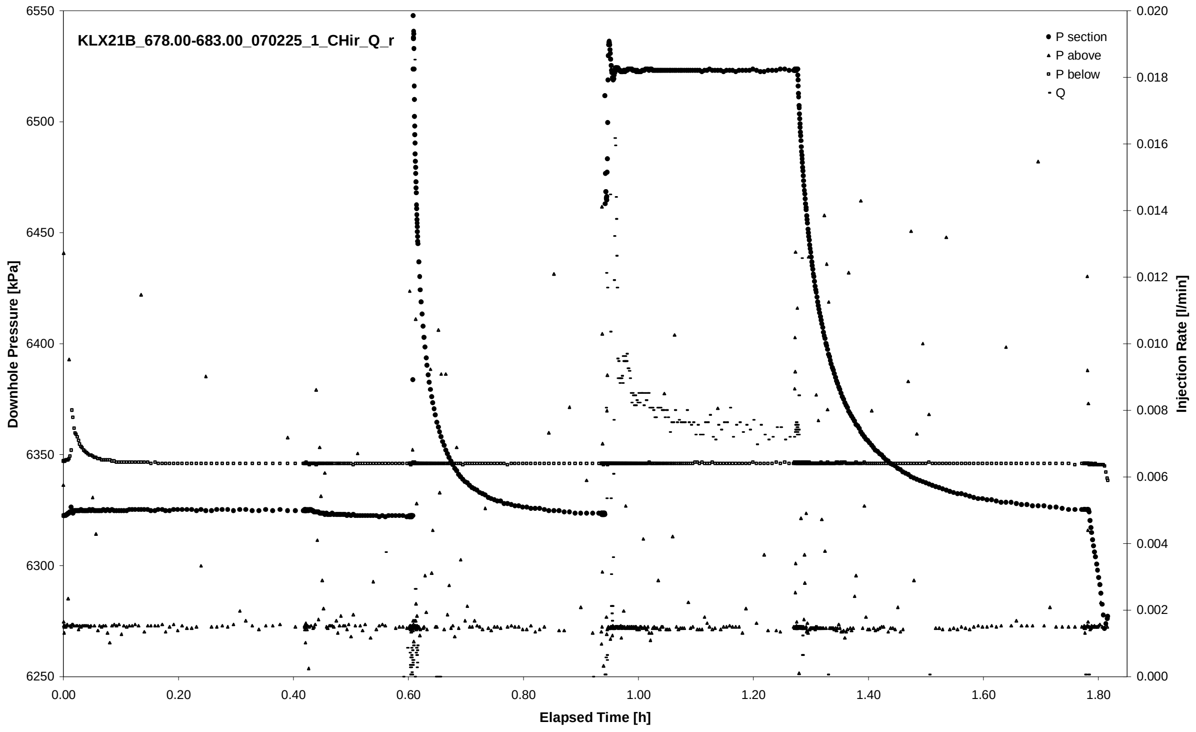
Not analysed

CHIR phase; HORNER match

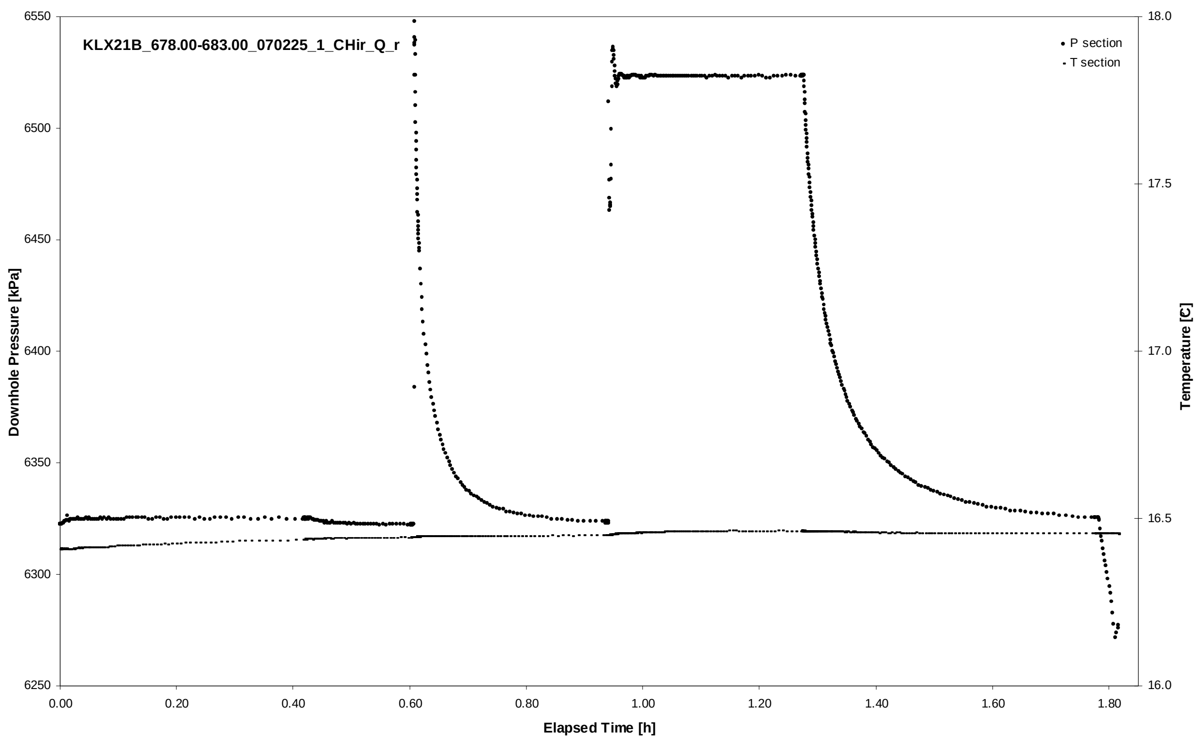
APPENDIX 2-113

Test 678.00 – 683.00 m

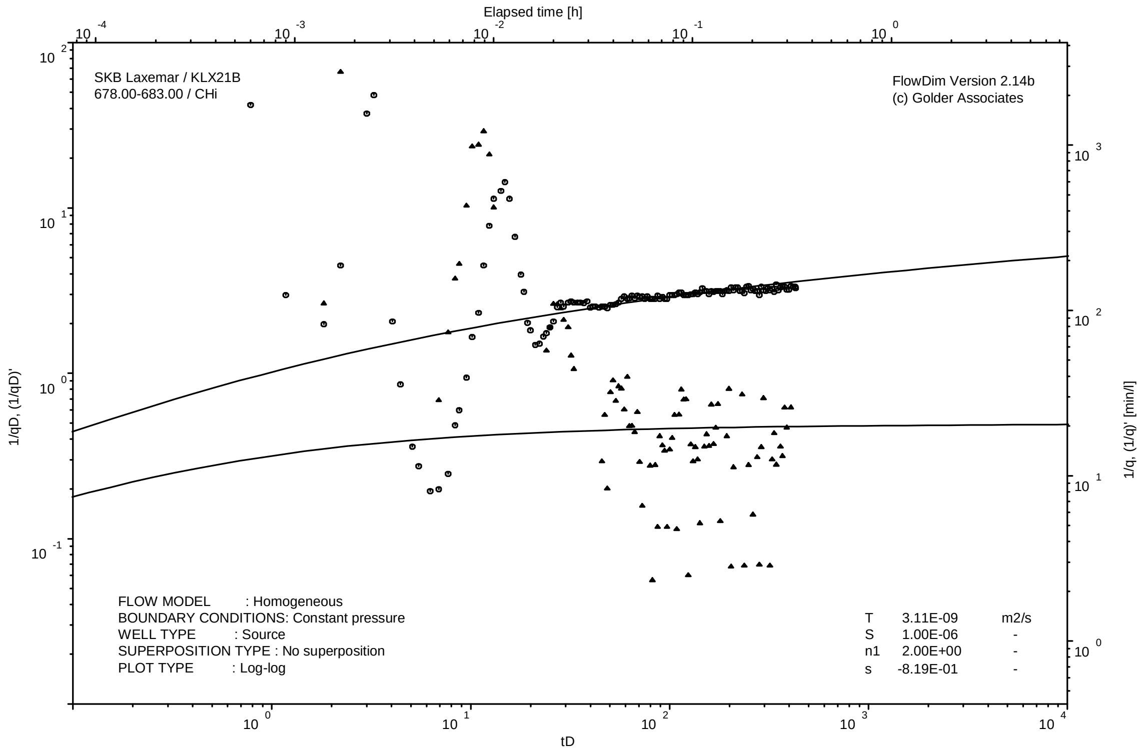
Analysis diagrams



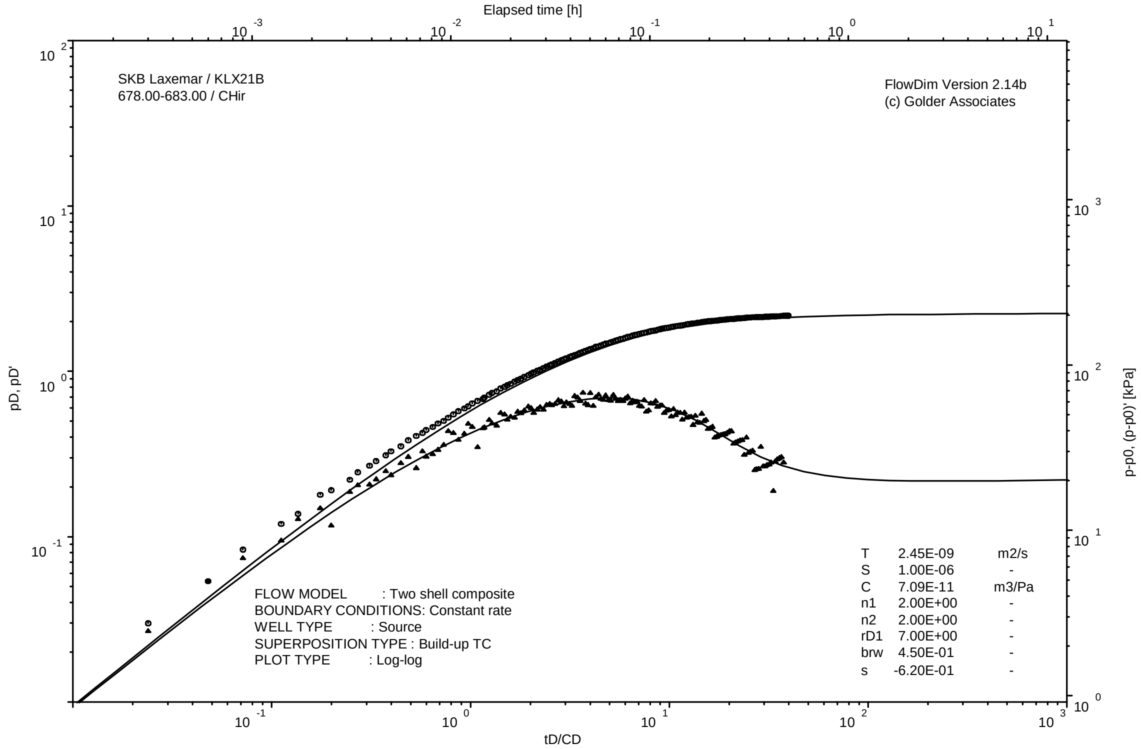
Pressure and flow rate vs. time; cartesian plot



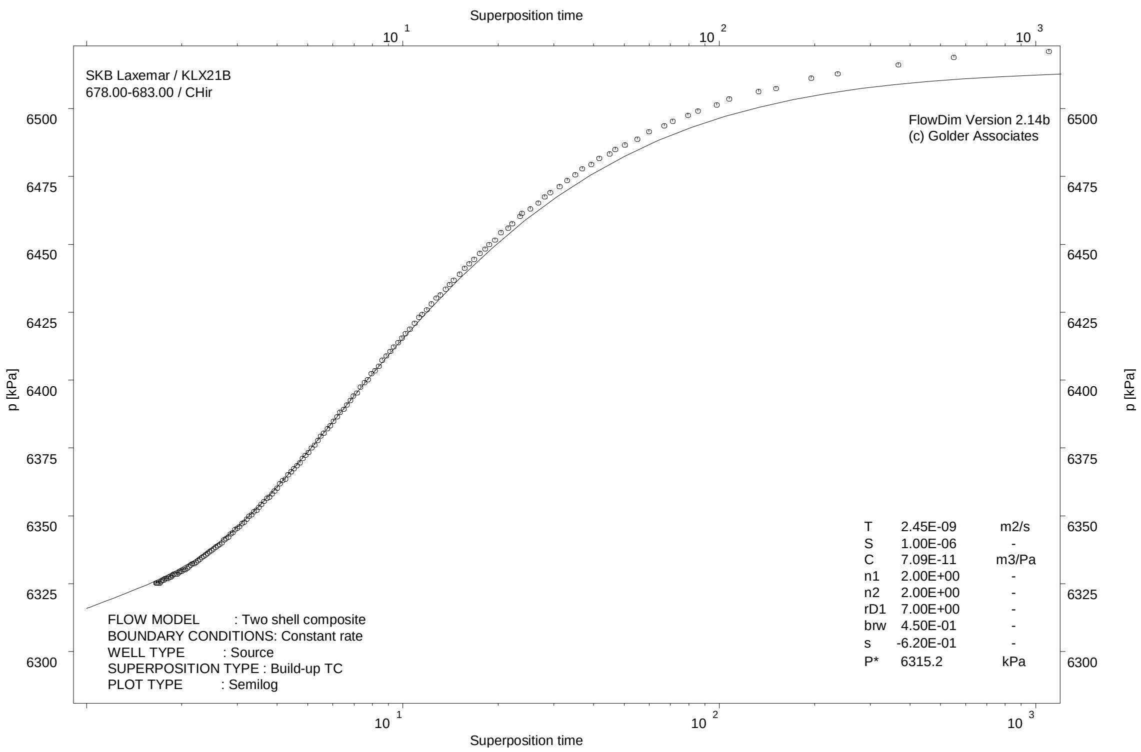
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

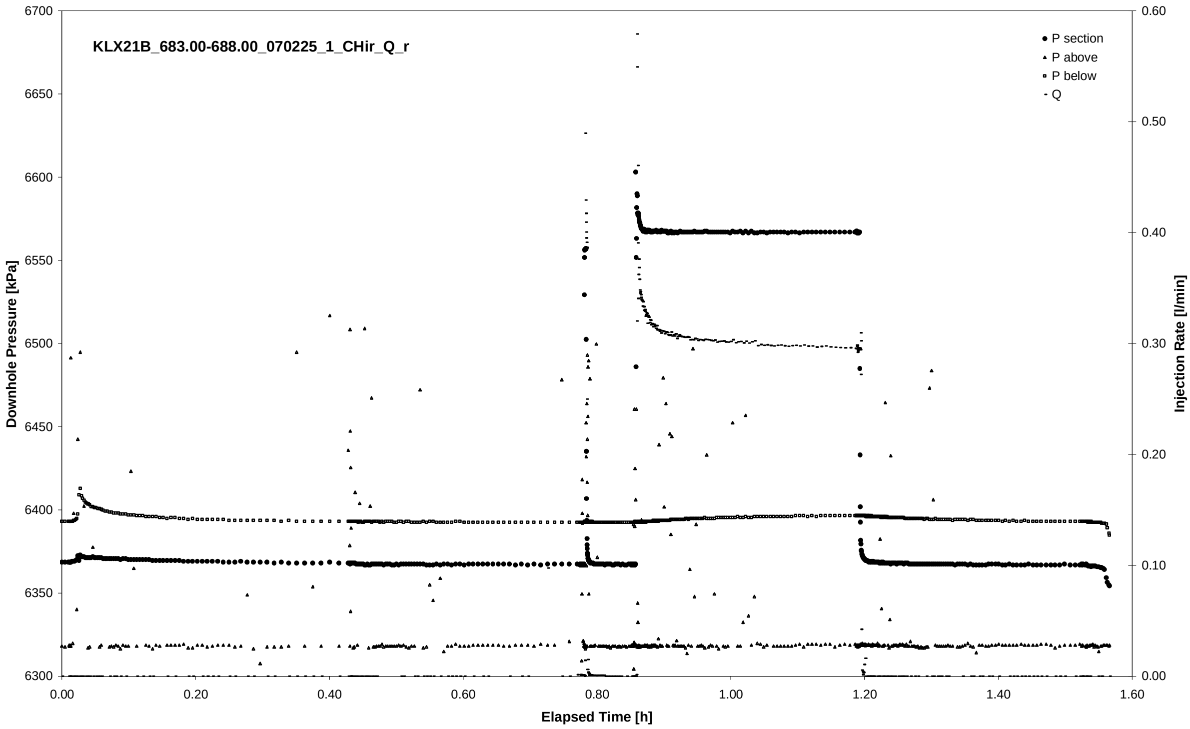


CHIR phase; HORNER match

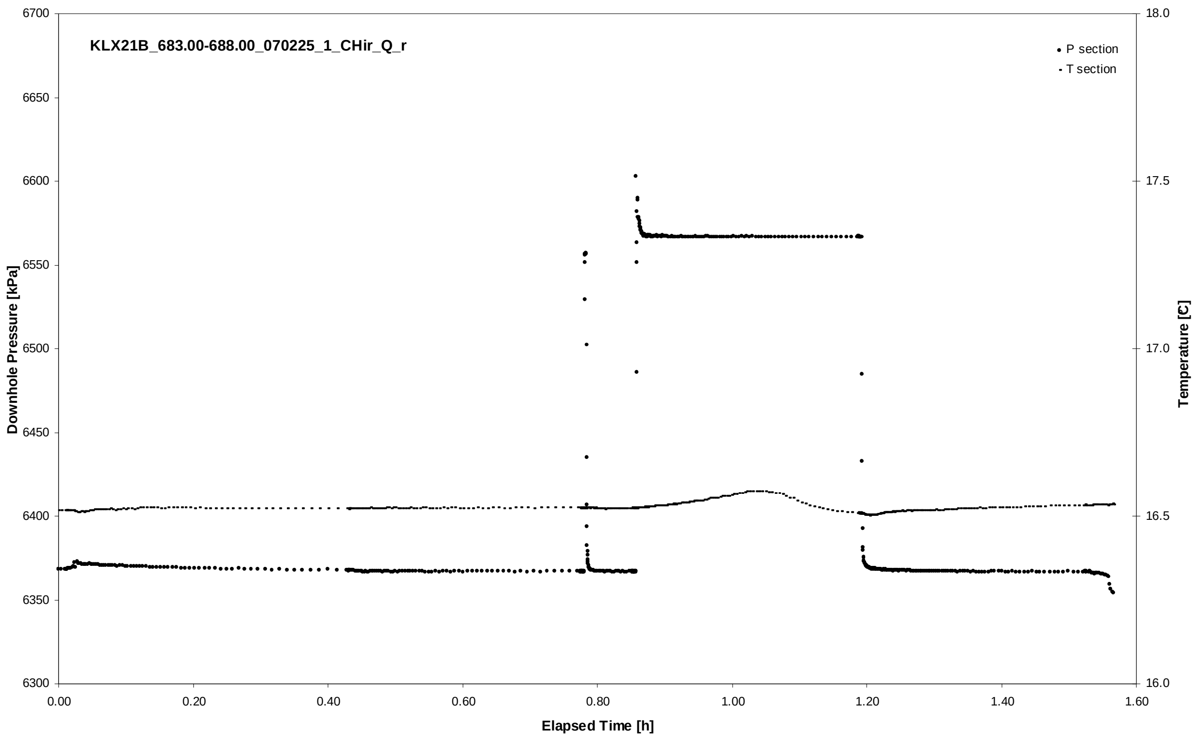
APPENDIX 2-114

Test 683.00 – 688.00 m

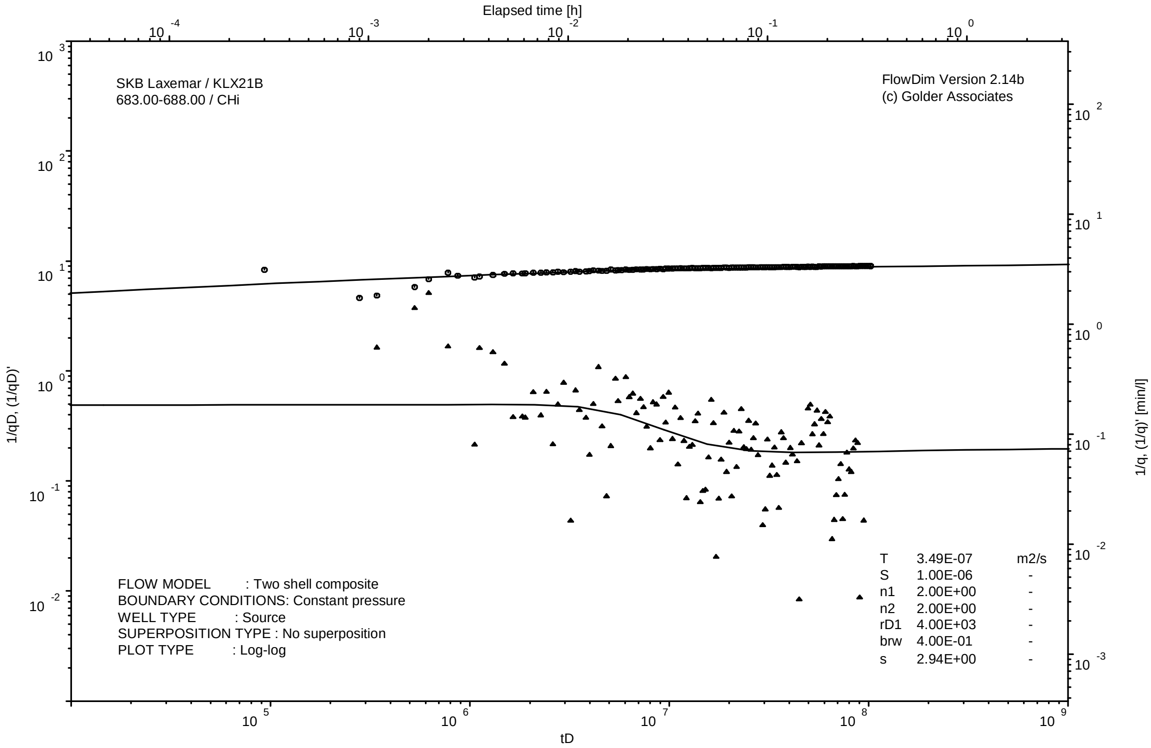
Analysis diagrams



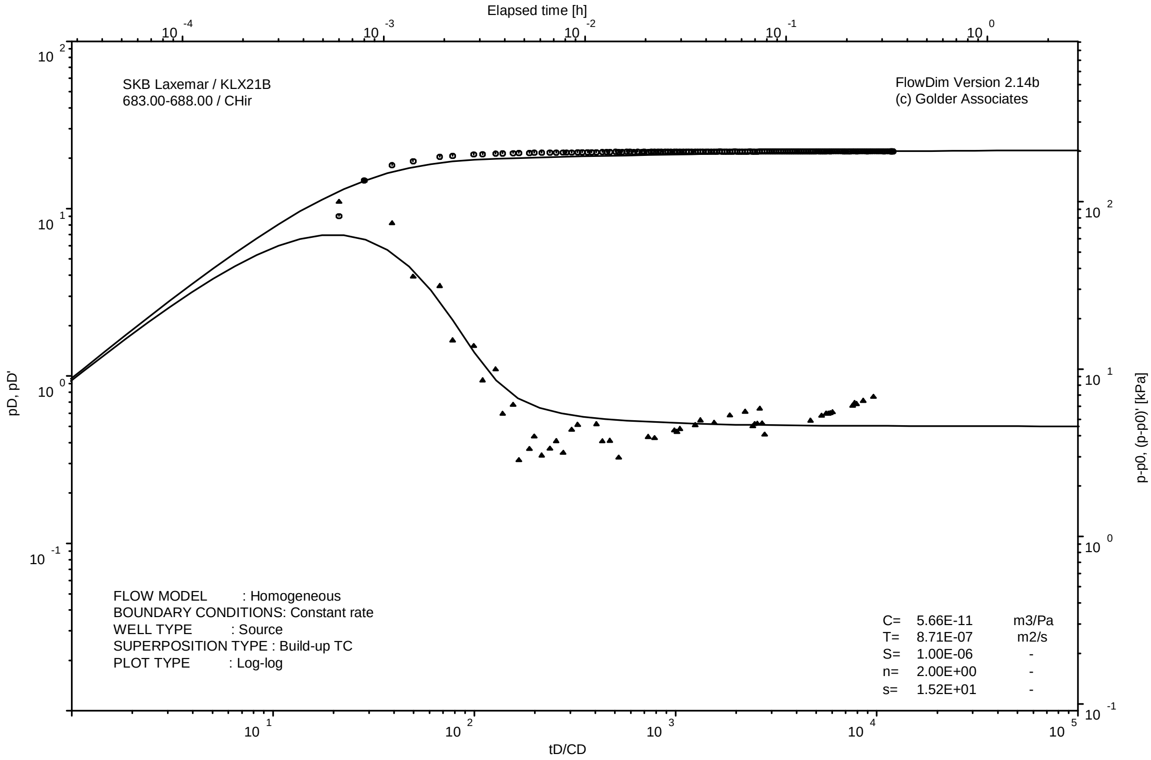
Pressure and flow rate vs. time; cartesian plot



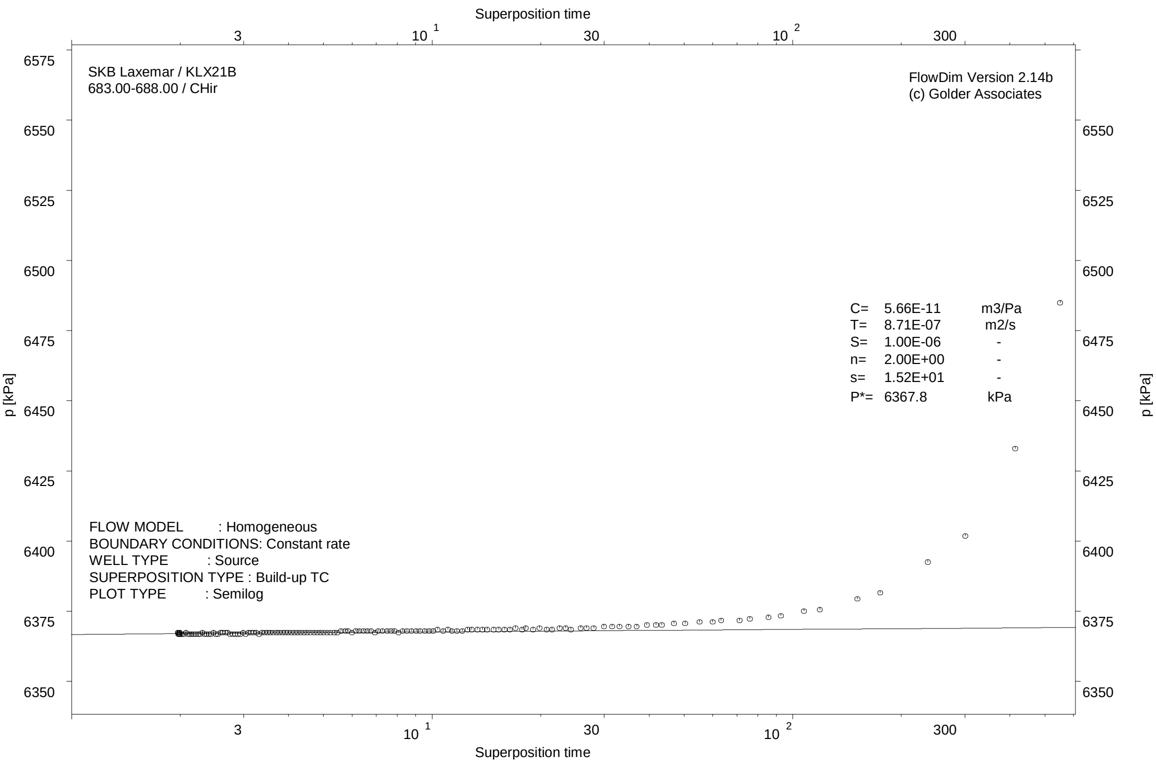
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

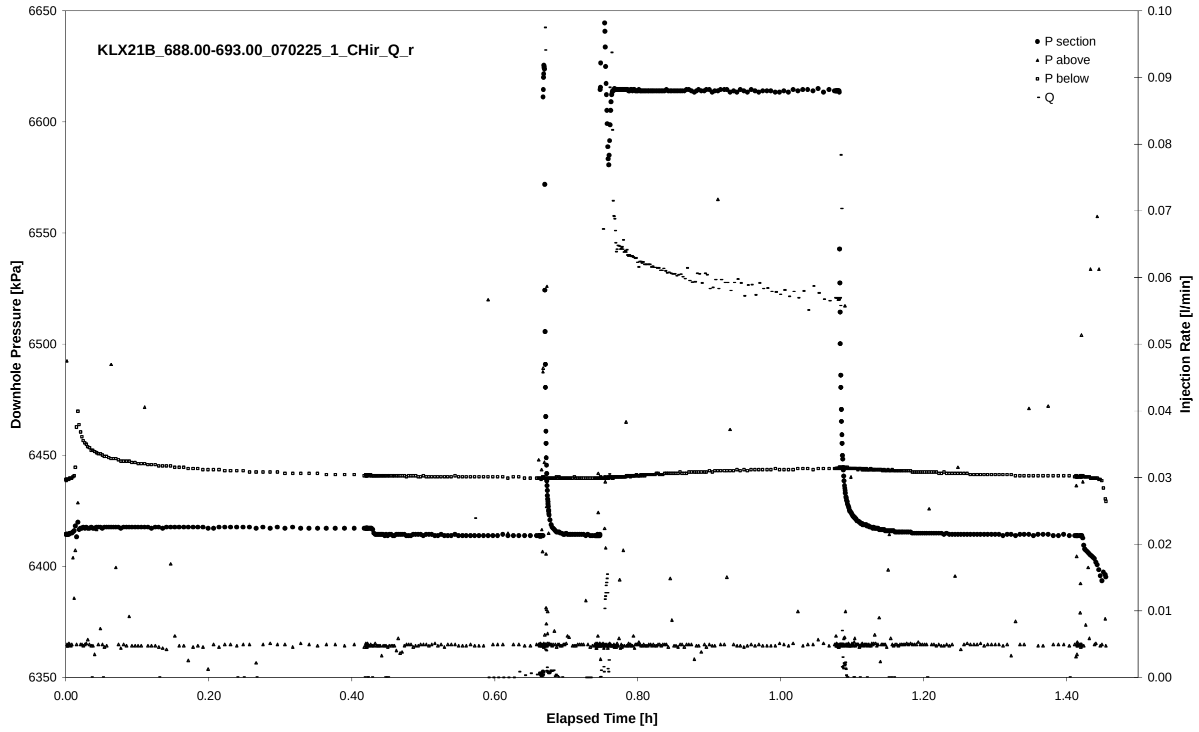


CHIR phase; HORNER match

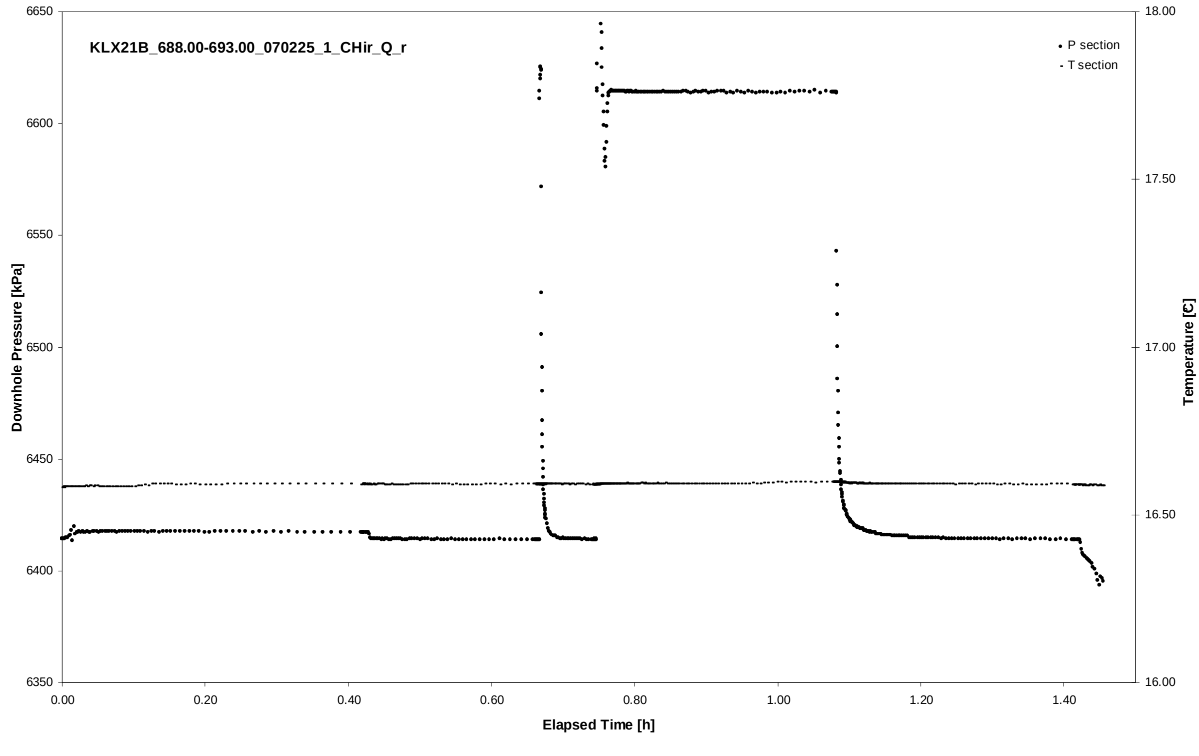
APPENDIX 2-115

Test 688.00 – 693.00 m

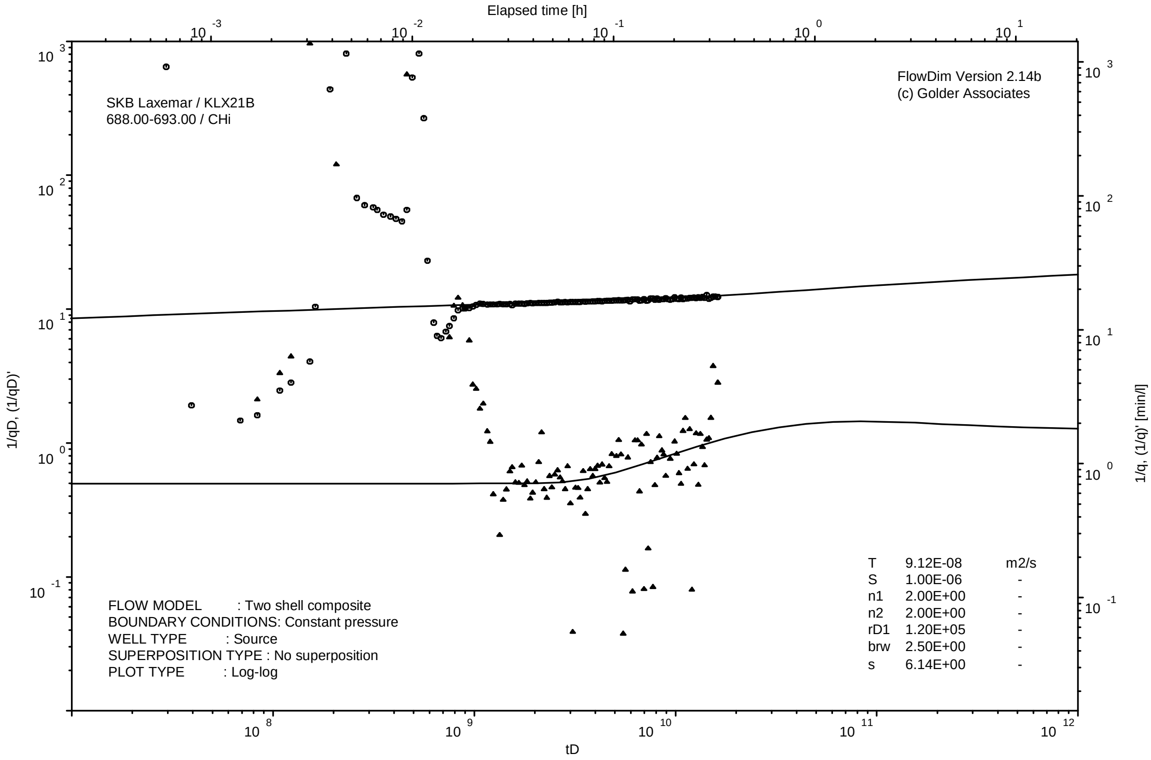
Analysis diagrams



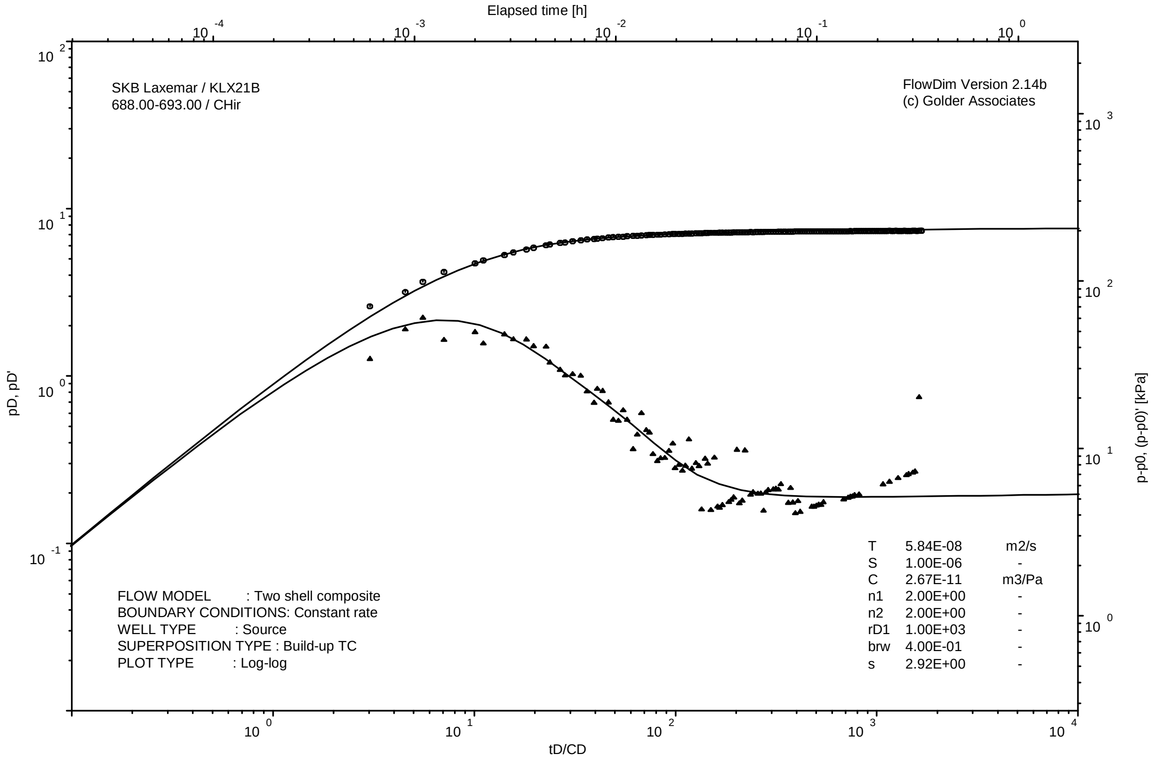
Pressure and flow rate vs. time; cartesian plot



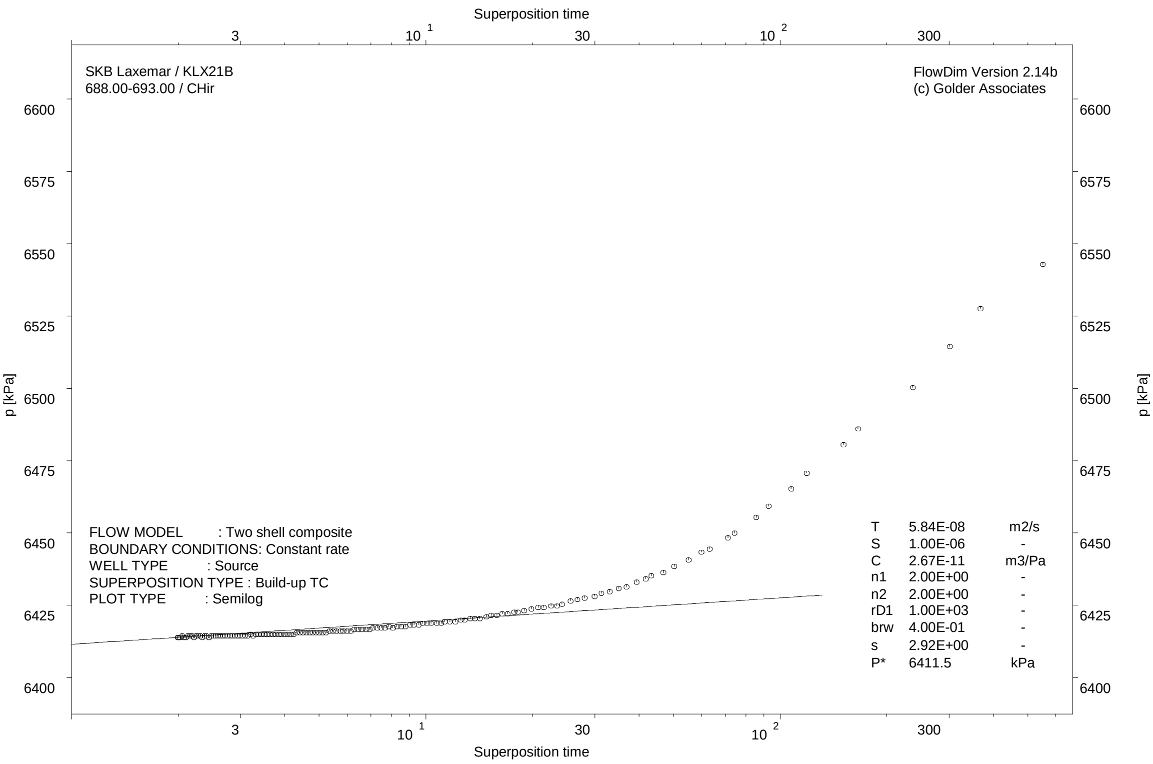
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

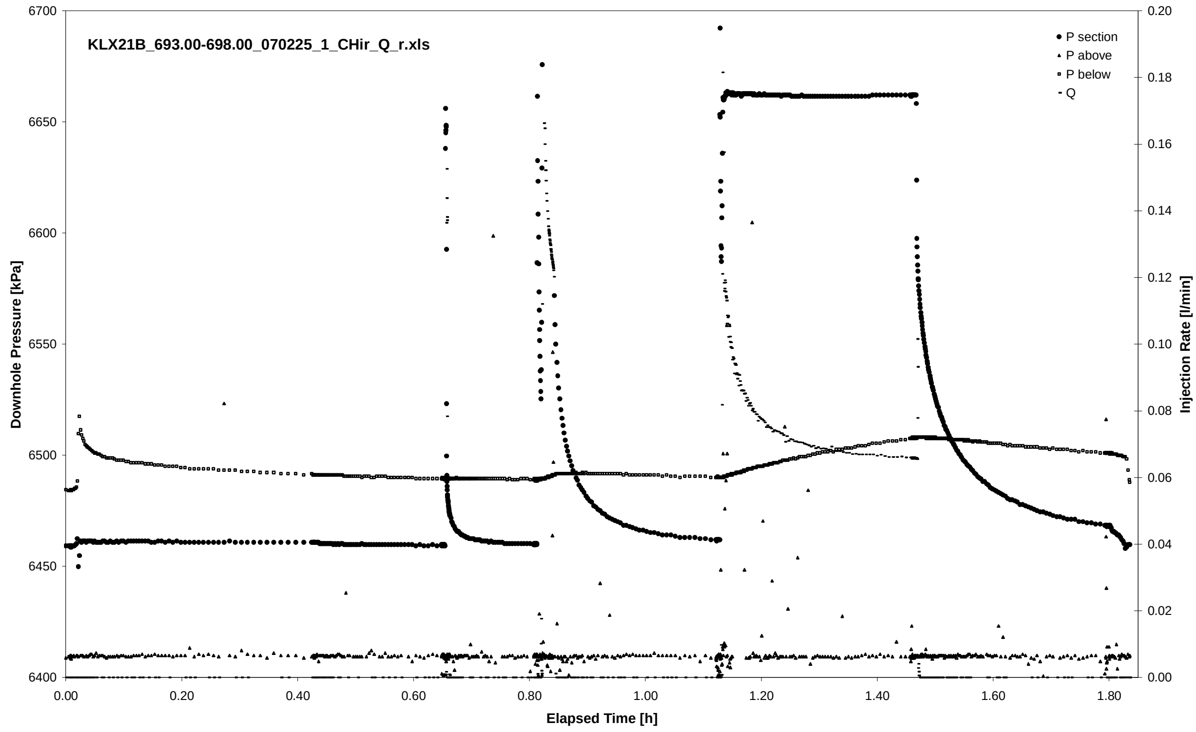


CHIR phase; HORNER match

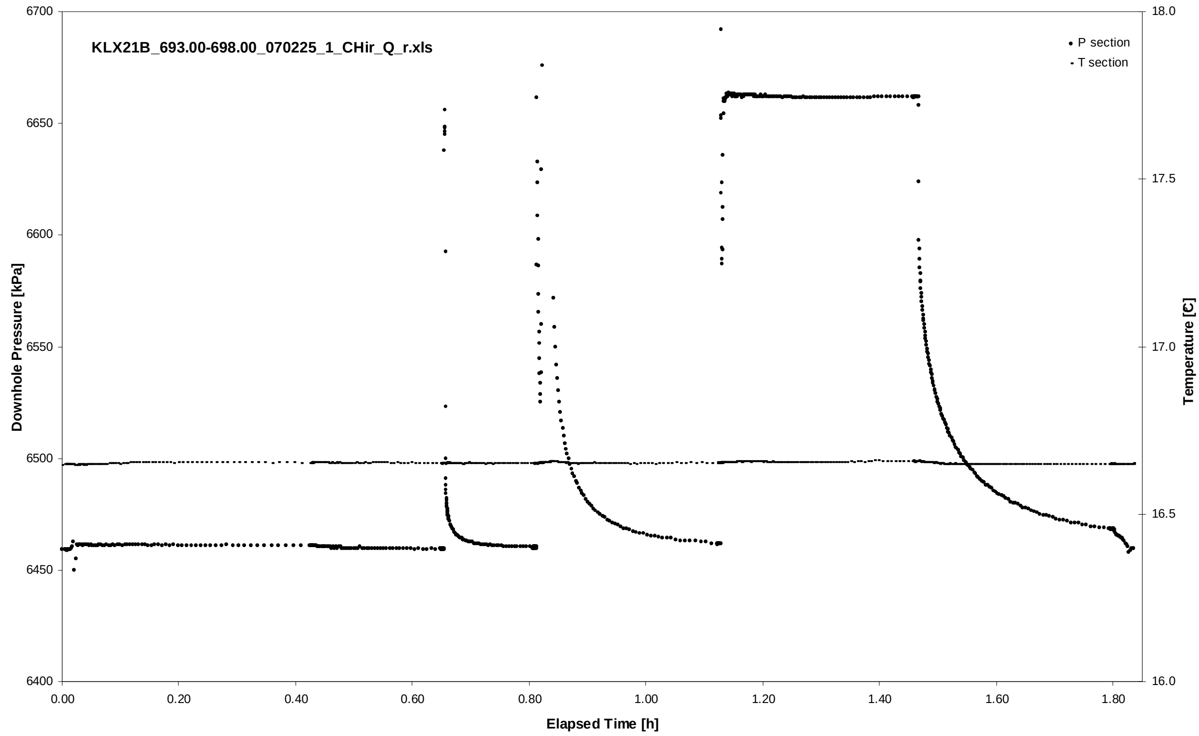
APPENDIX 2-116

Test 693.00 – 698.00 m

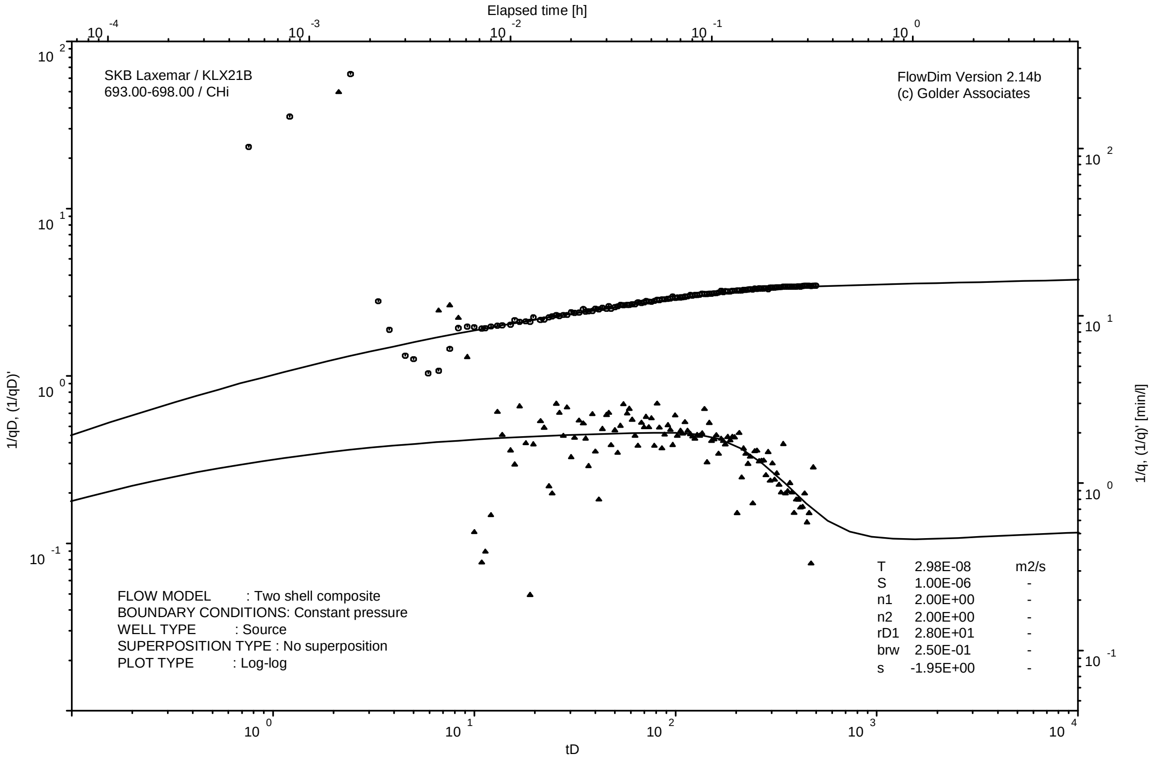
Analysis diagrams



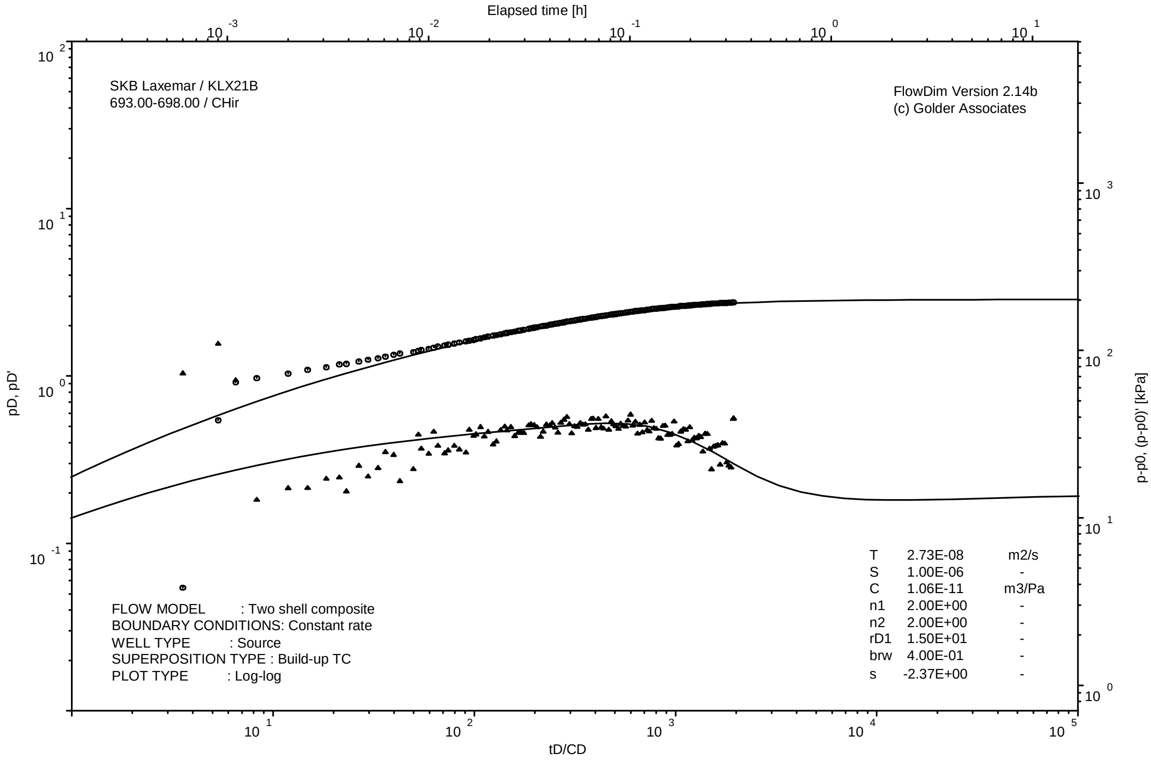
Pressure and flow rate vs. time; cartesian plot



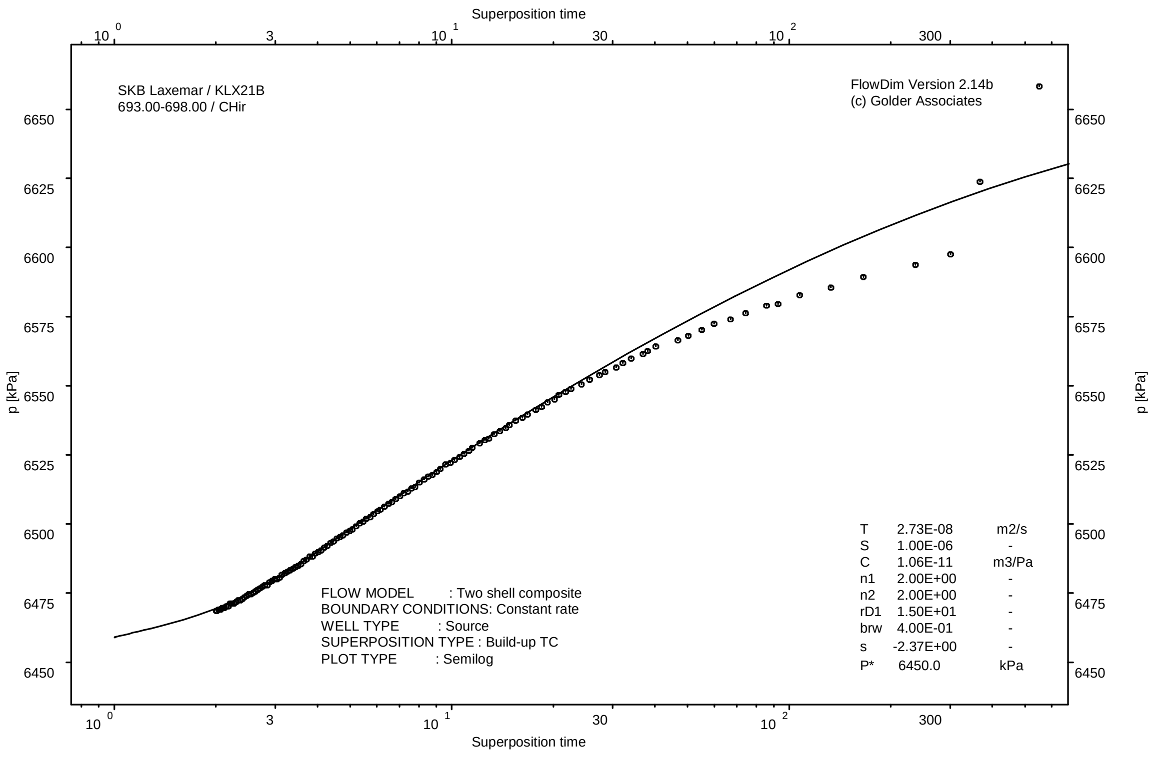
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

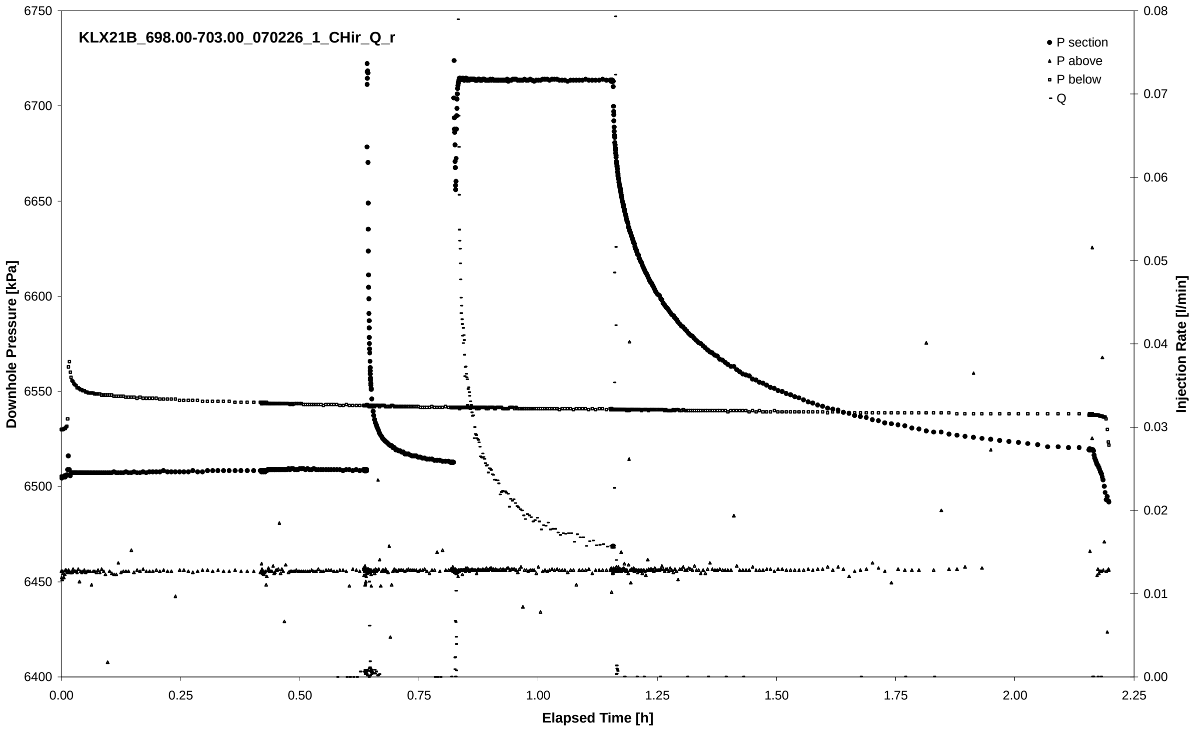


CHIR phase; HORNER match

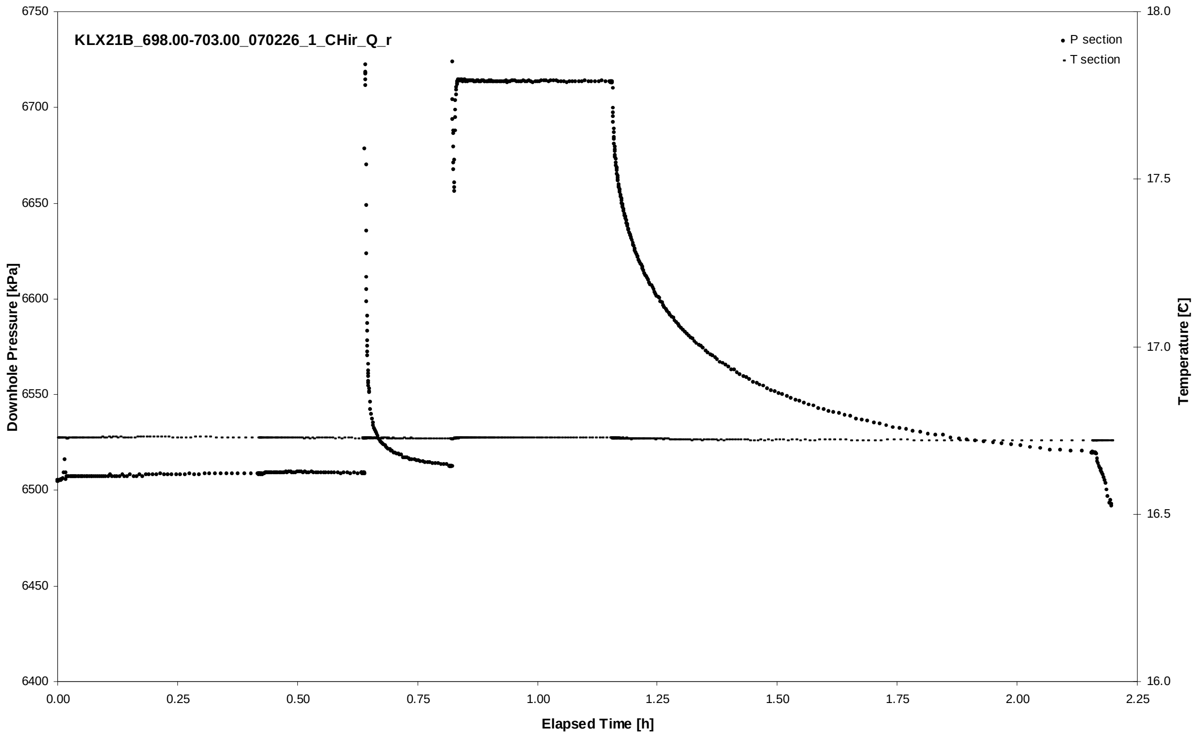
APPENDIX 2-117

Test 698.00 – 703.00 m

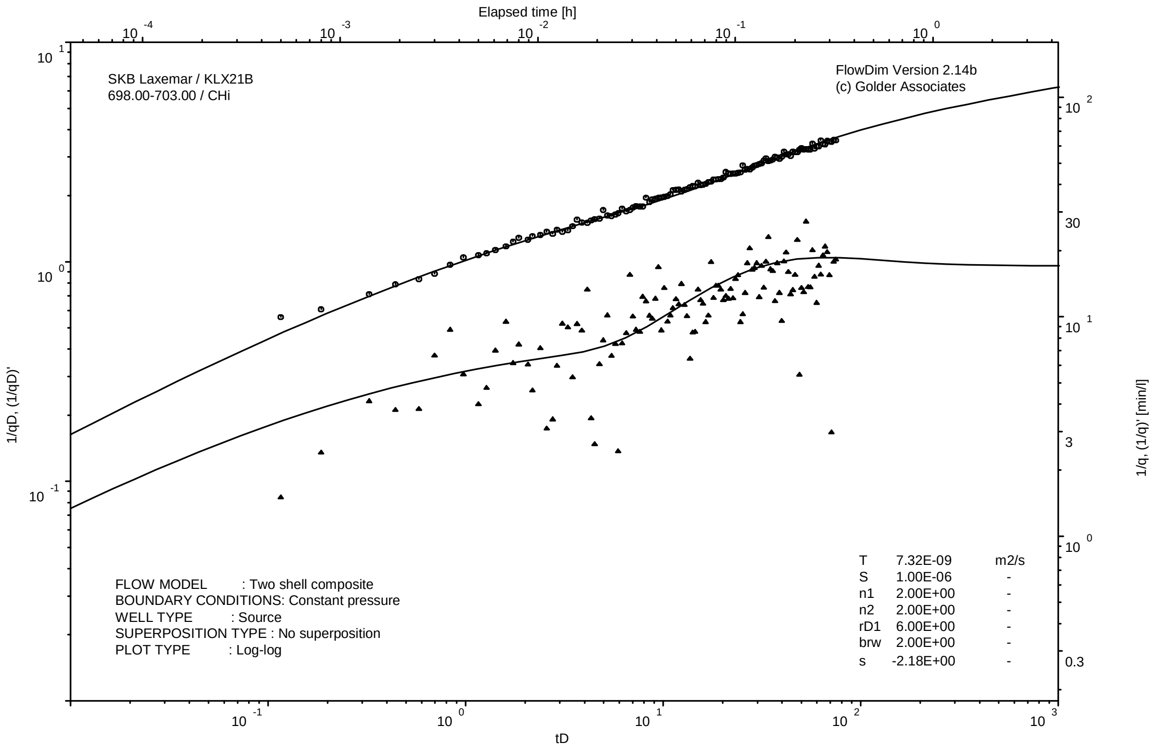
Analysis diagrams



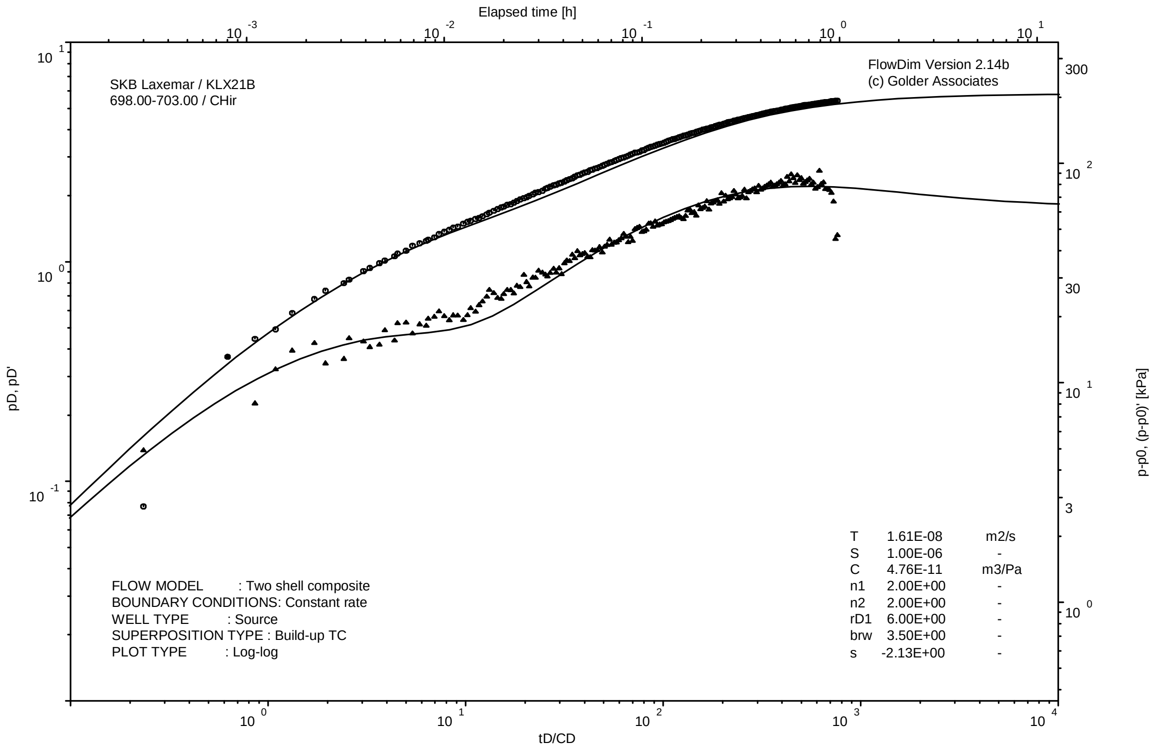
Pressure and flow rate vs. time; cartesian plot



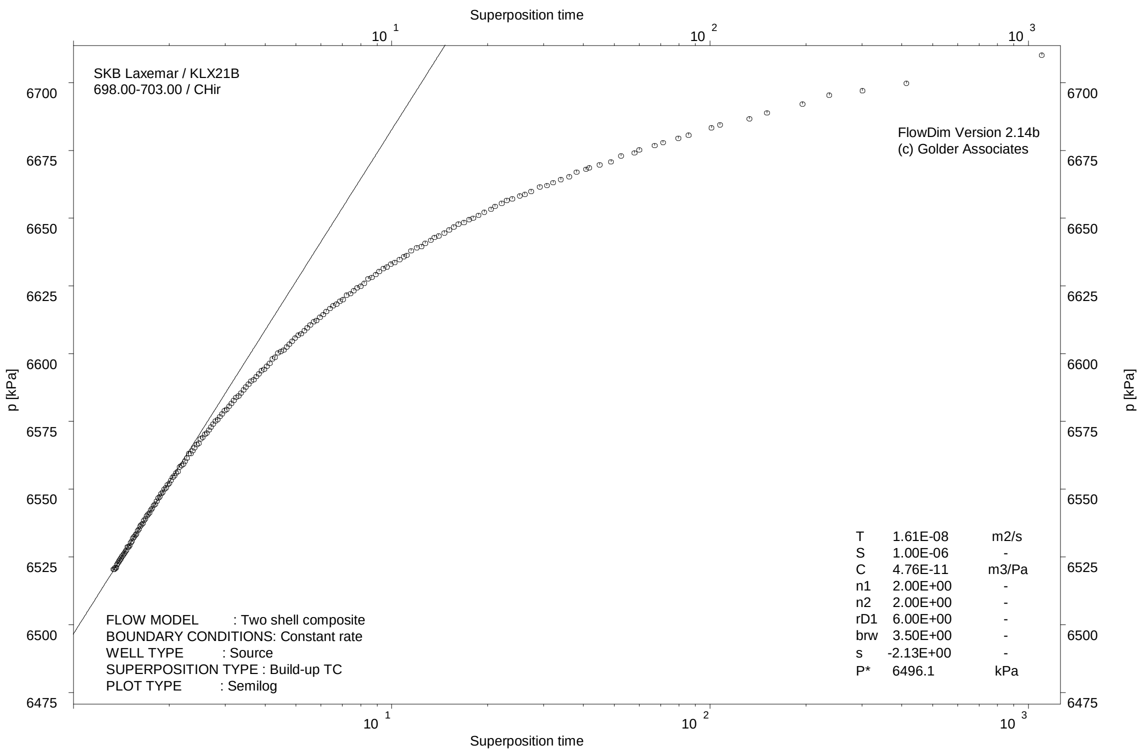
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

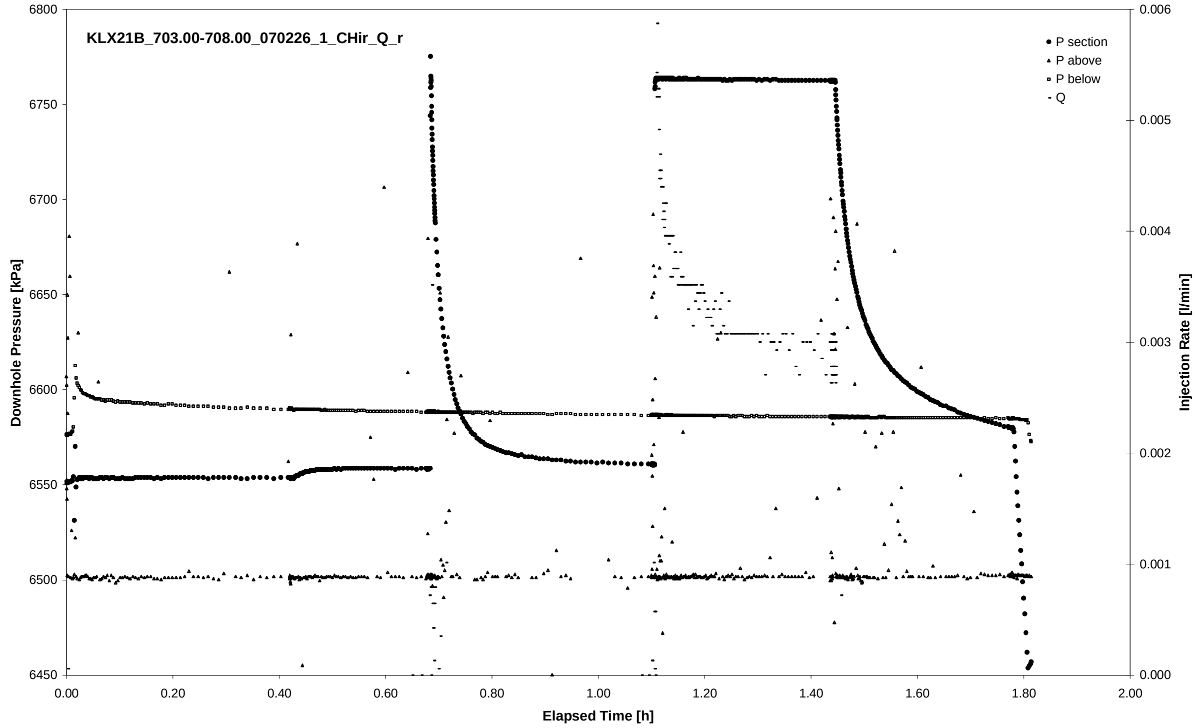


CHIR phase; HORNER match

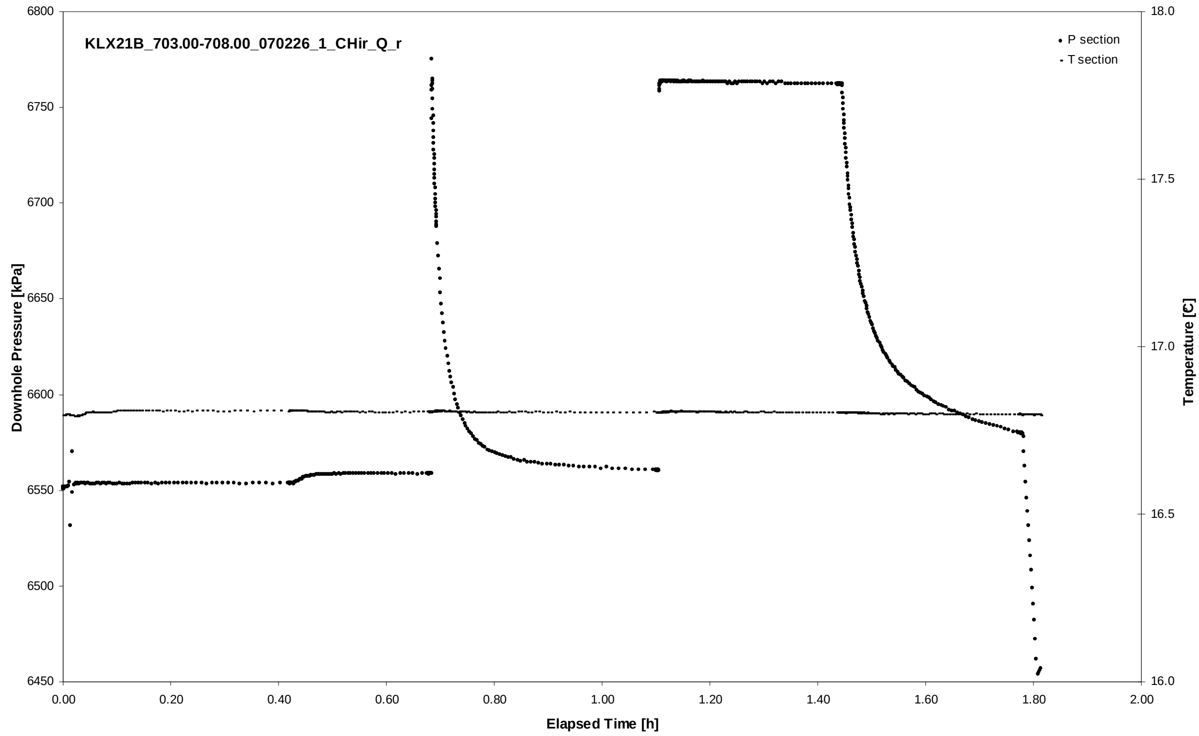
APPENDIX 2-118

Test 703.00 – 708.00 m

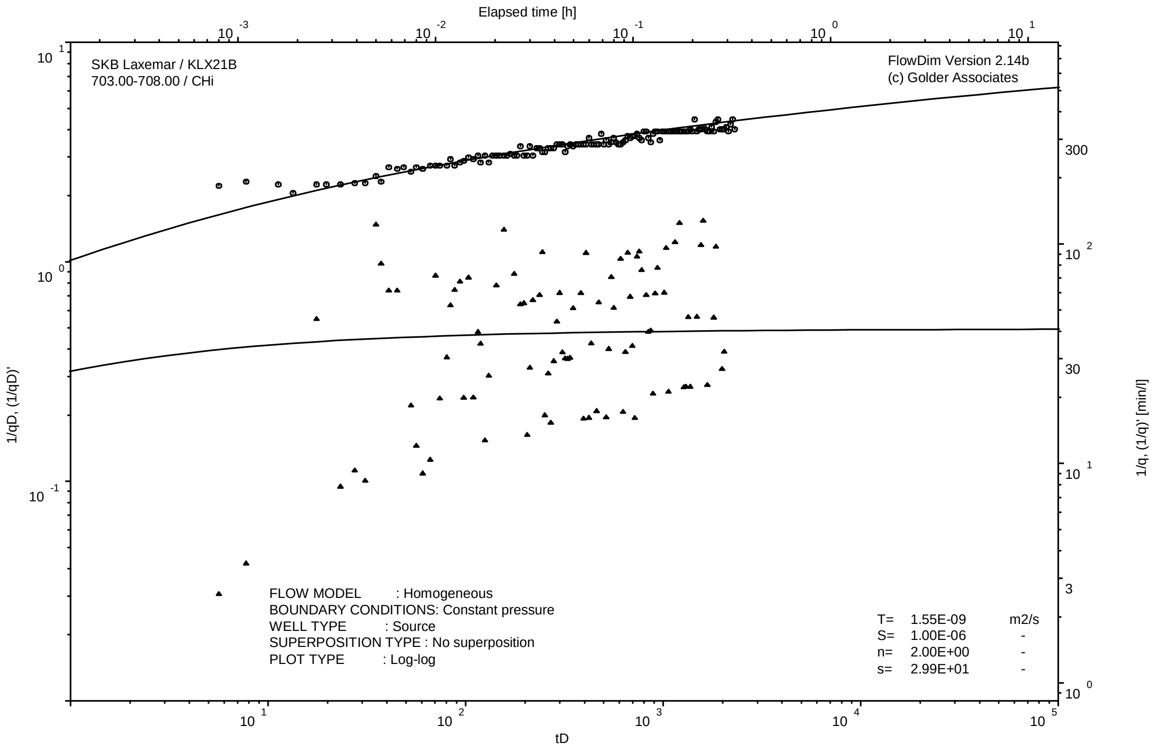
Analysis diagrams



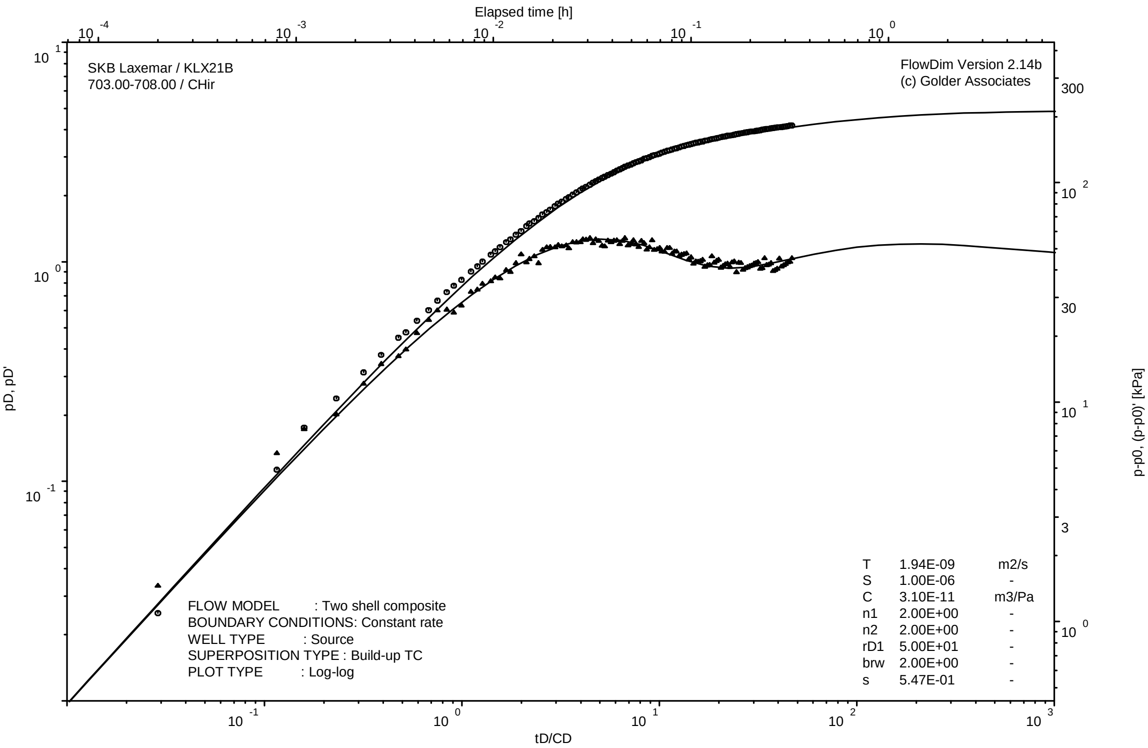
Pressure and flow rate vs. time; cartesian plot



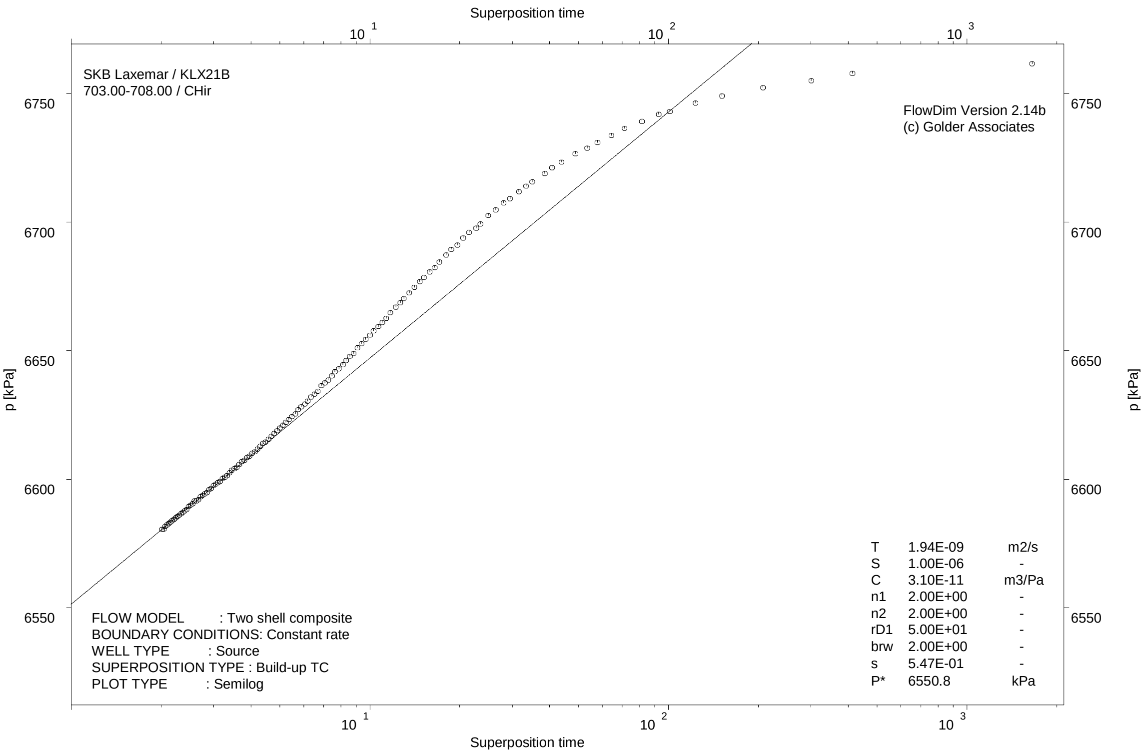
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

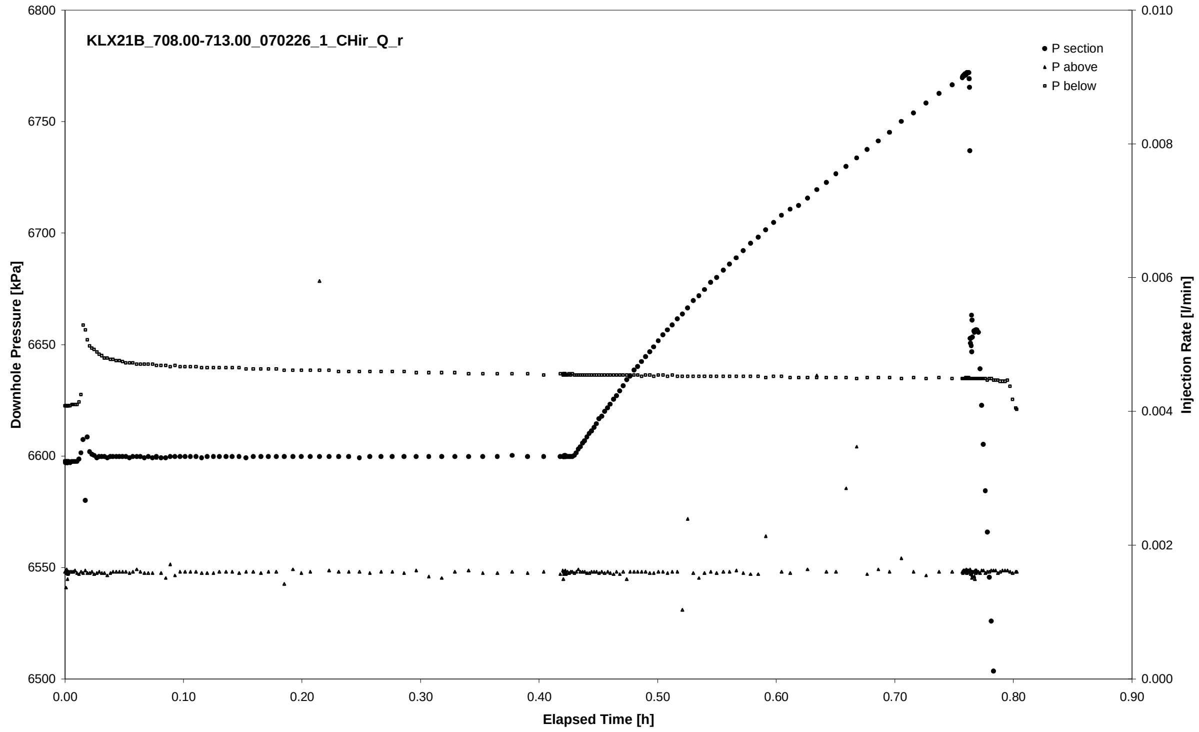


CHIR phase; HORNER match

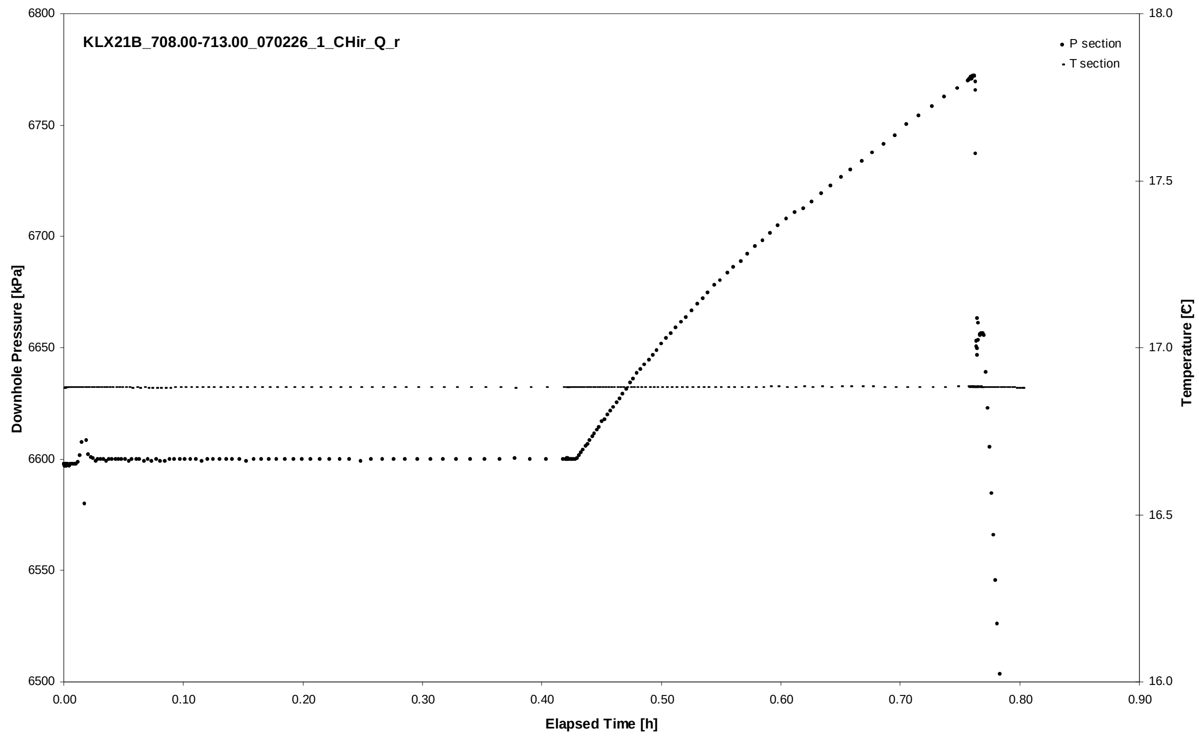
APPENDIX 2-119

Test 708.00 – 713.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

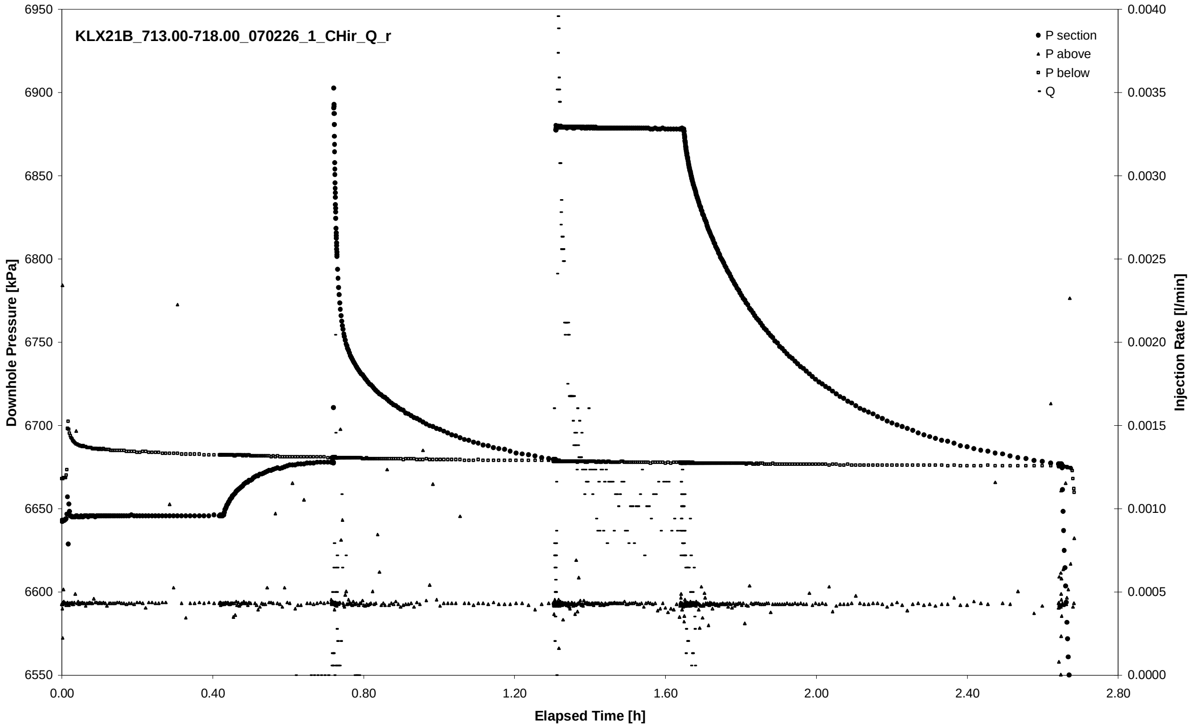
Not analysed

CHIR phase; HORNER match

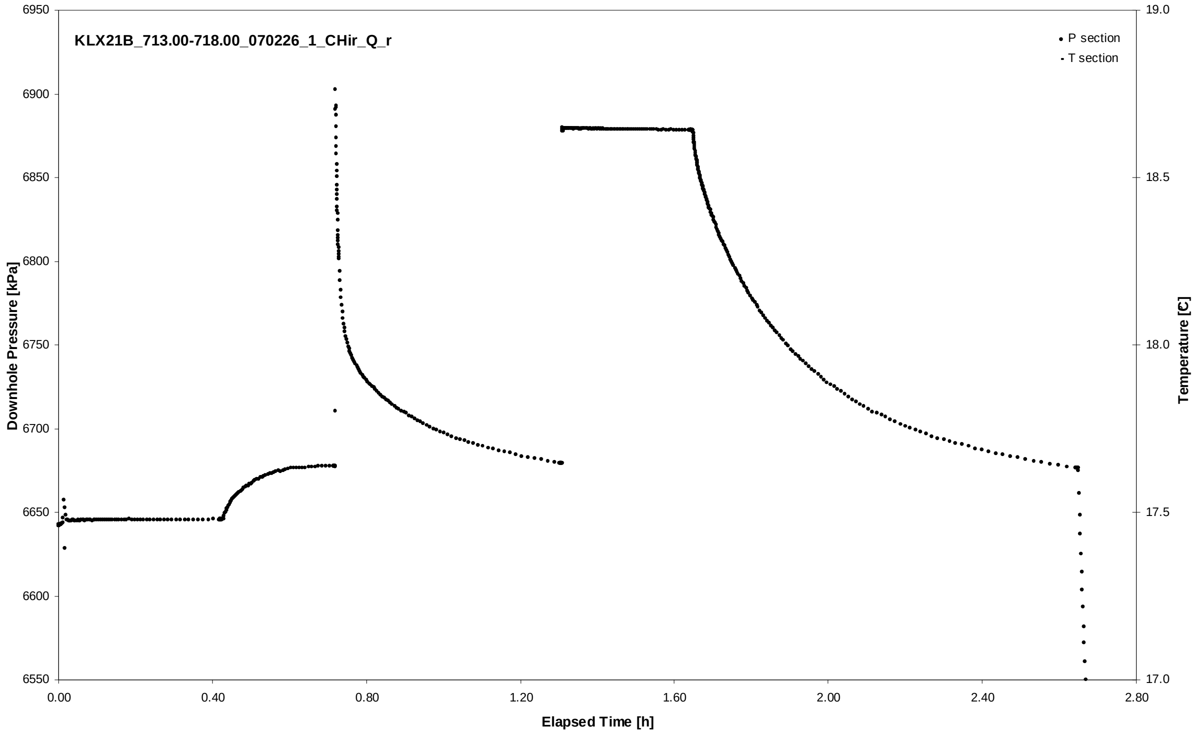
APPENDIX 2-120

Test 713.00 – 718.00 m

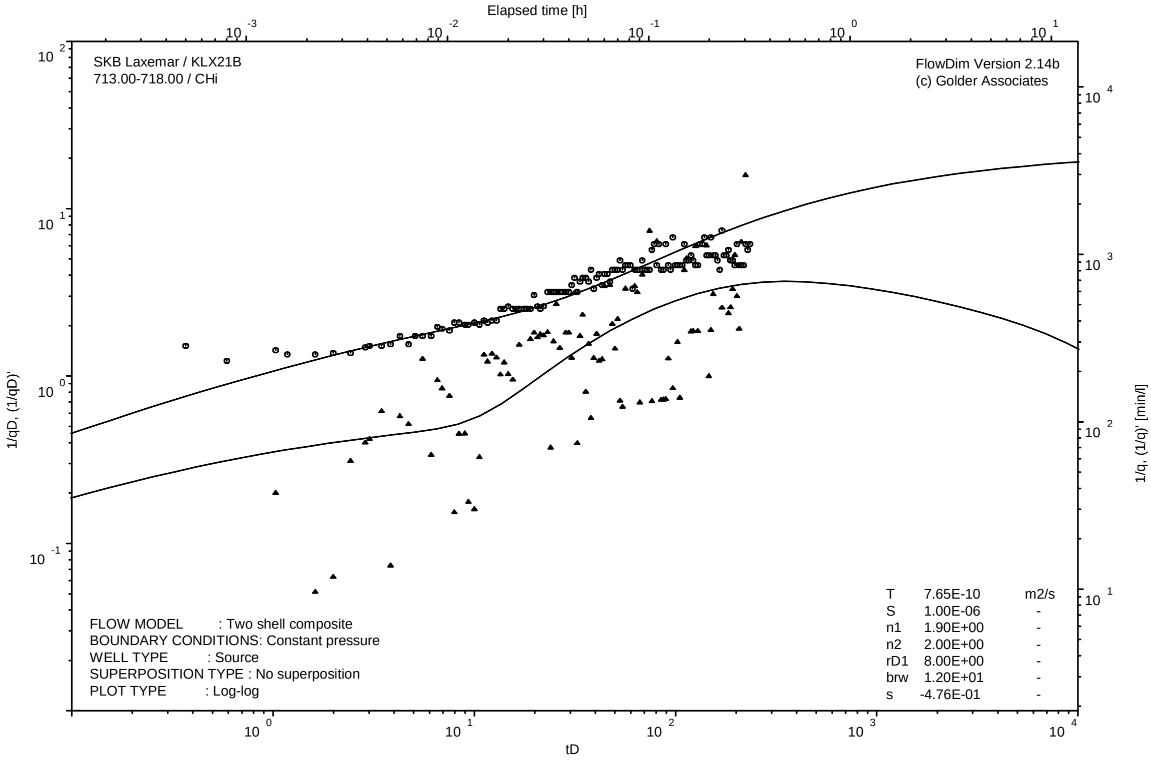
Analysis diagrams



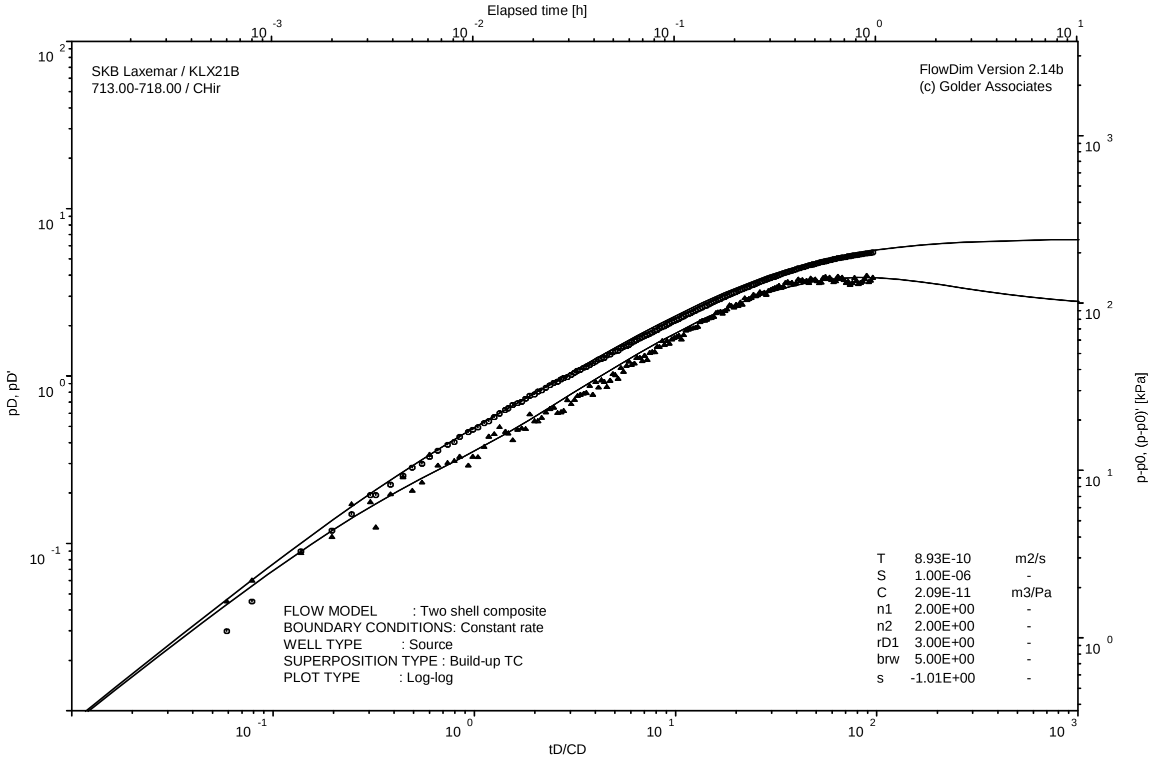
Pressure and flow rate vs. time; cartesian plot



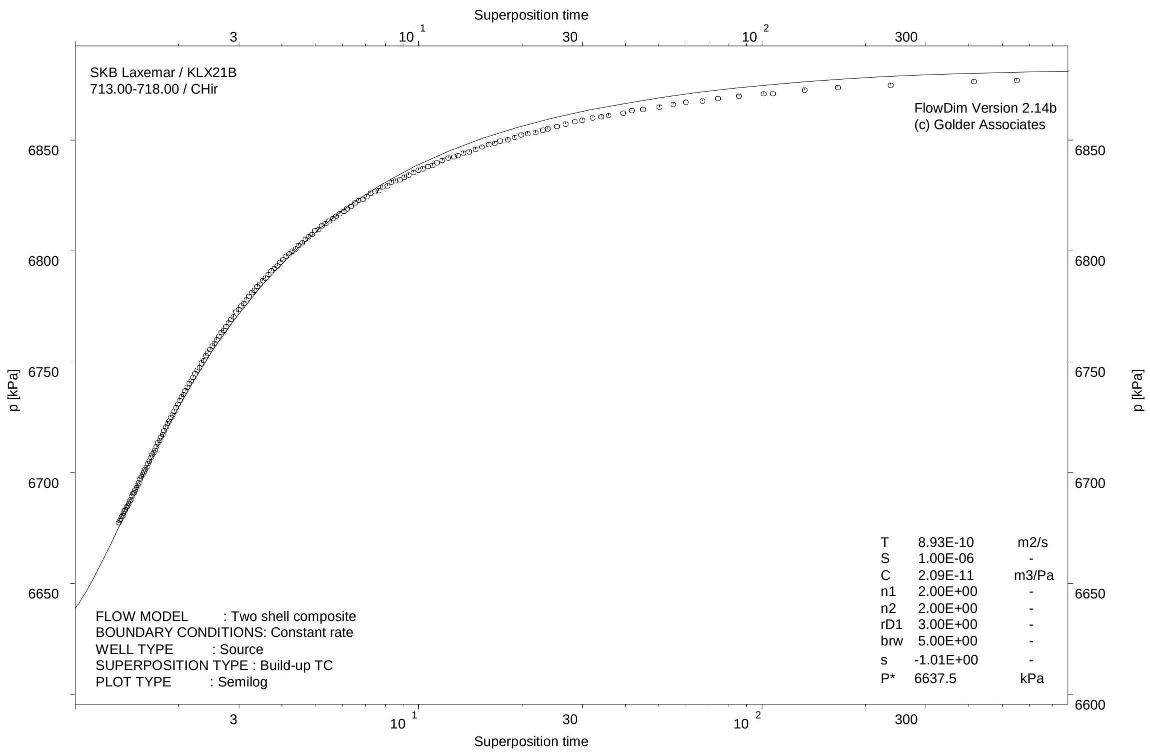
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

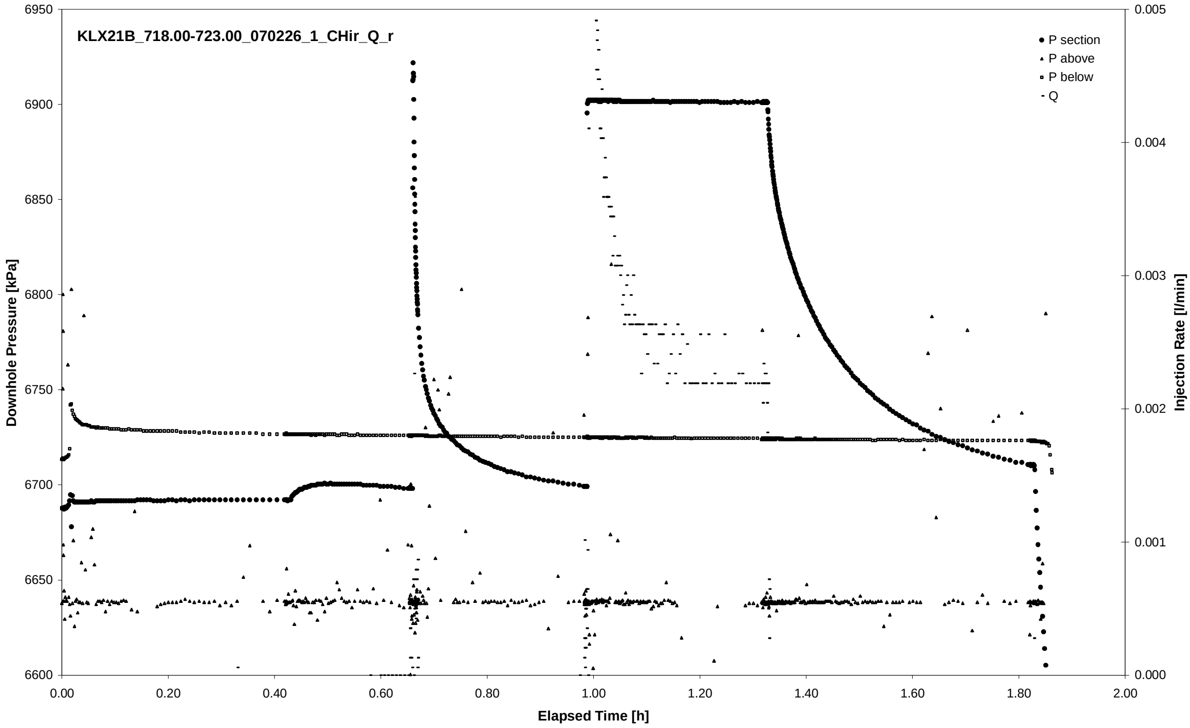


CHIR phase; HORNER match

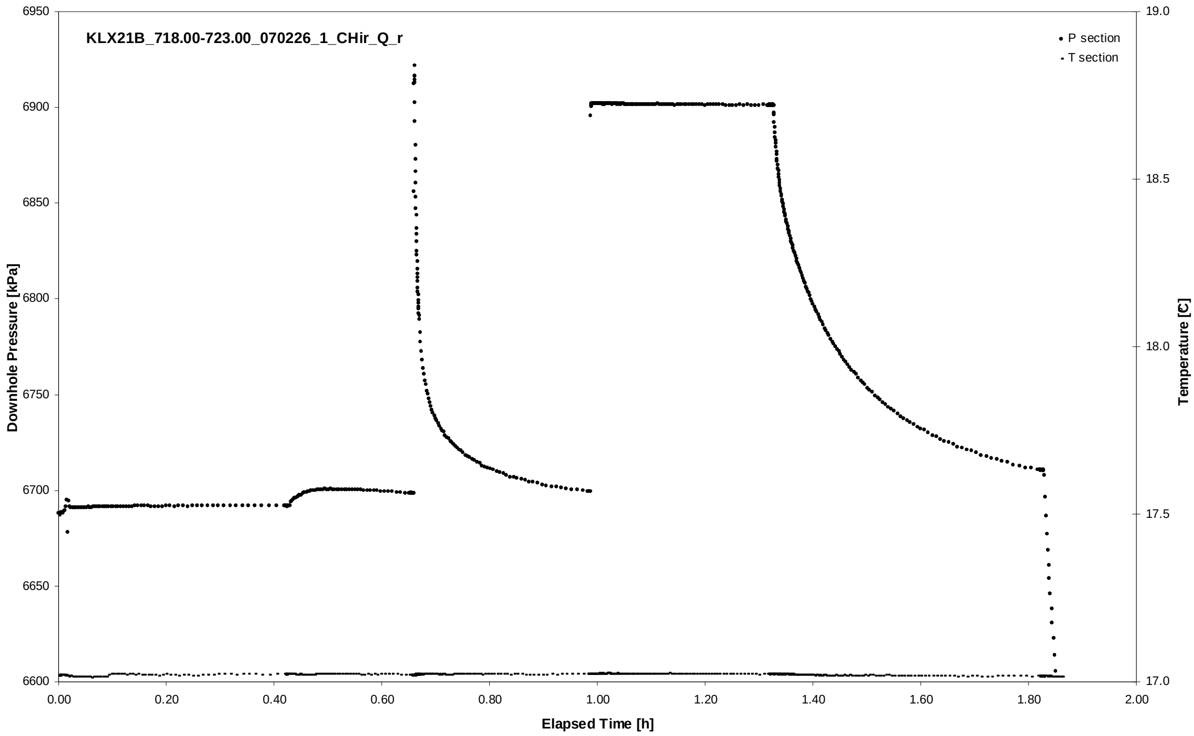
APPENDIX 2-121

Test 718.00 – 723.00 m

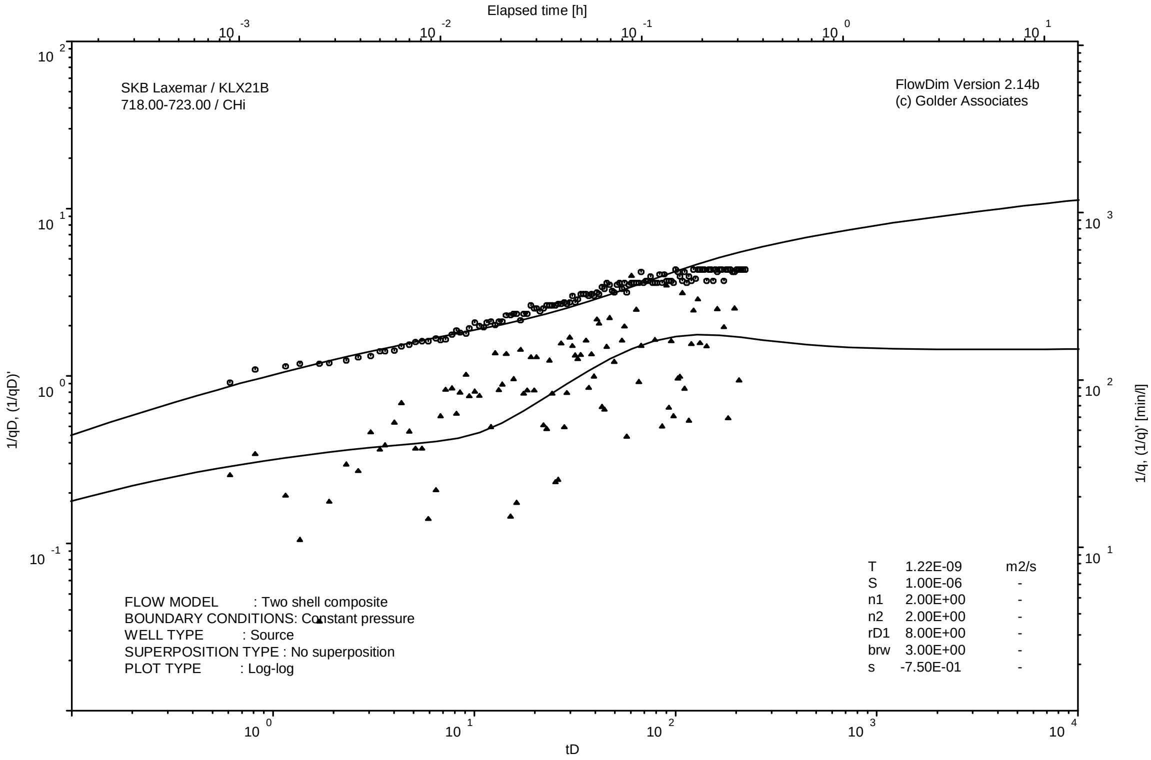
Analysis diagrams



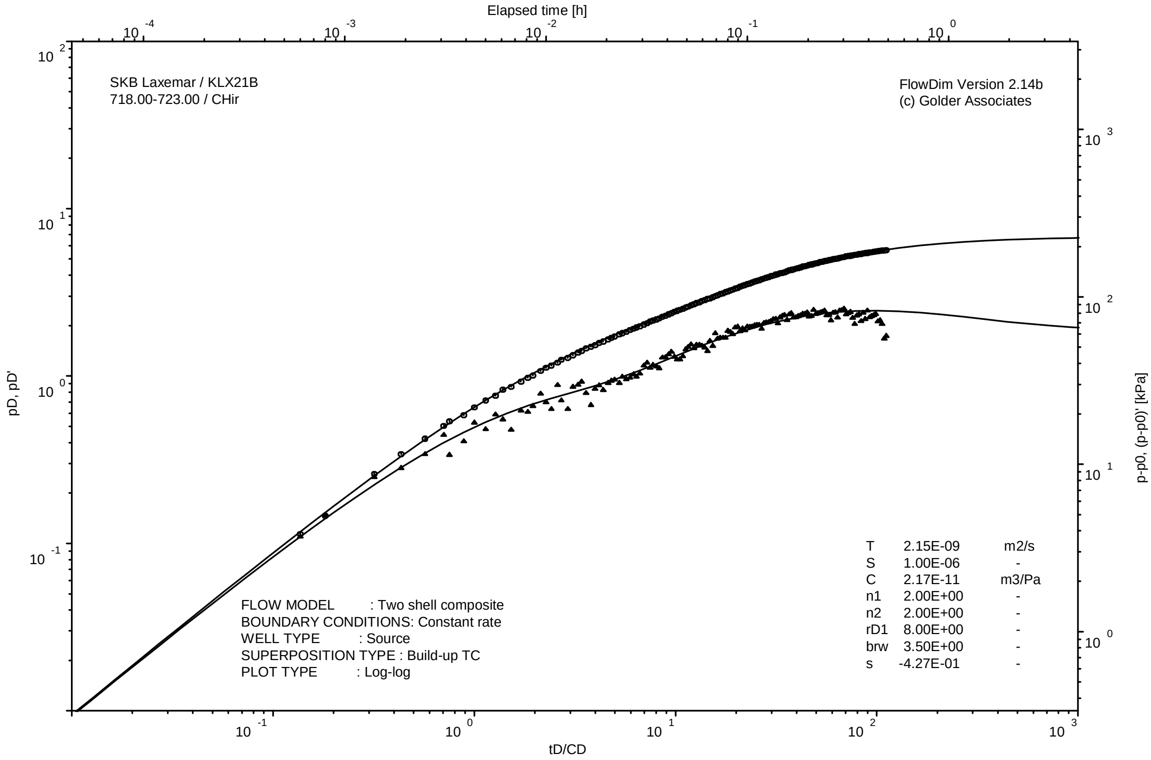
Pressure and flow rate vs. time; cartesian plot



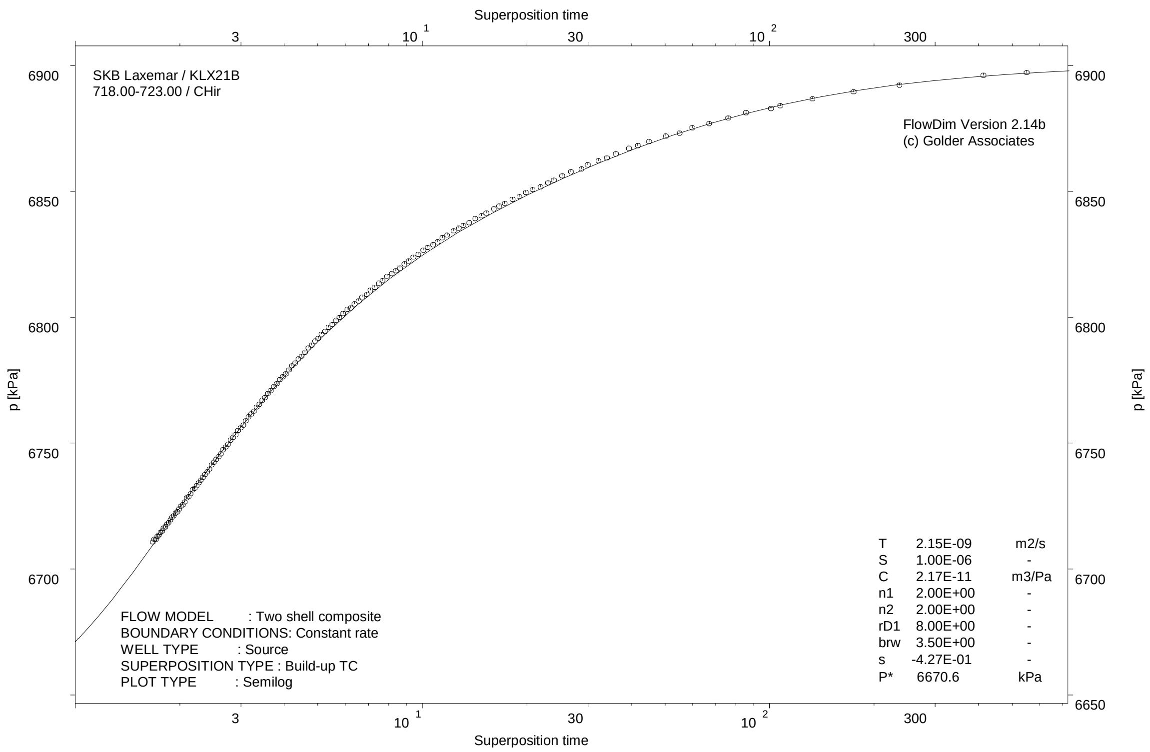
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

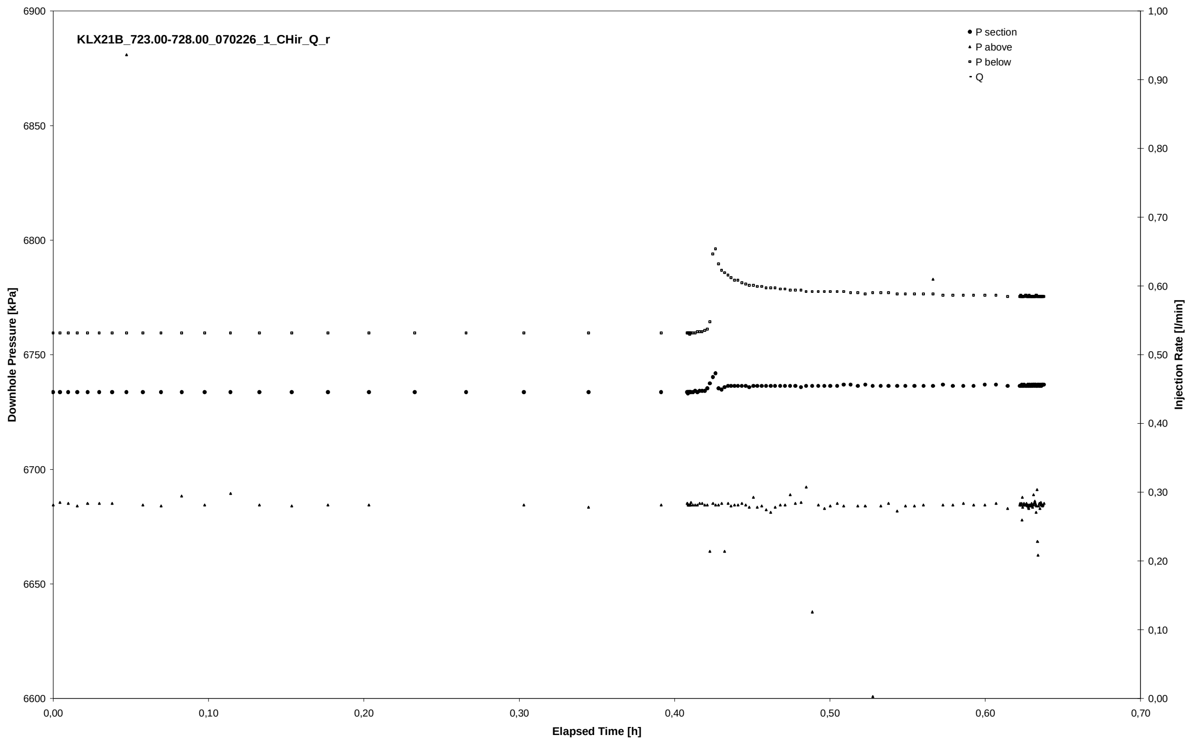


CHIR phase; HORNER match

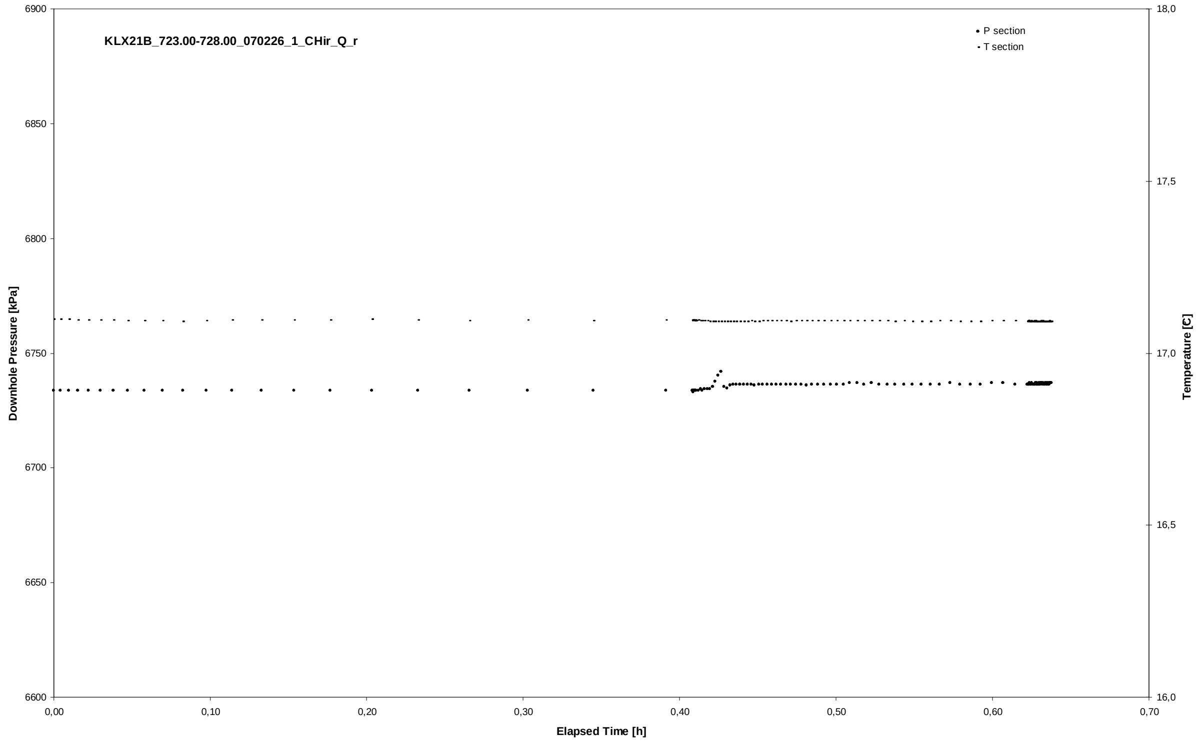
APPENDIX 2-122

Test 723.00 – 728.00 m

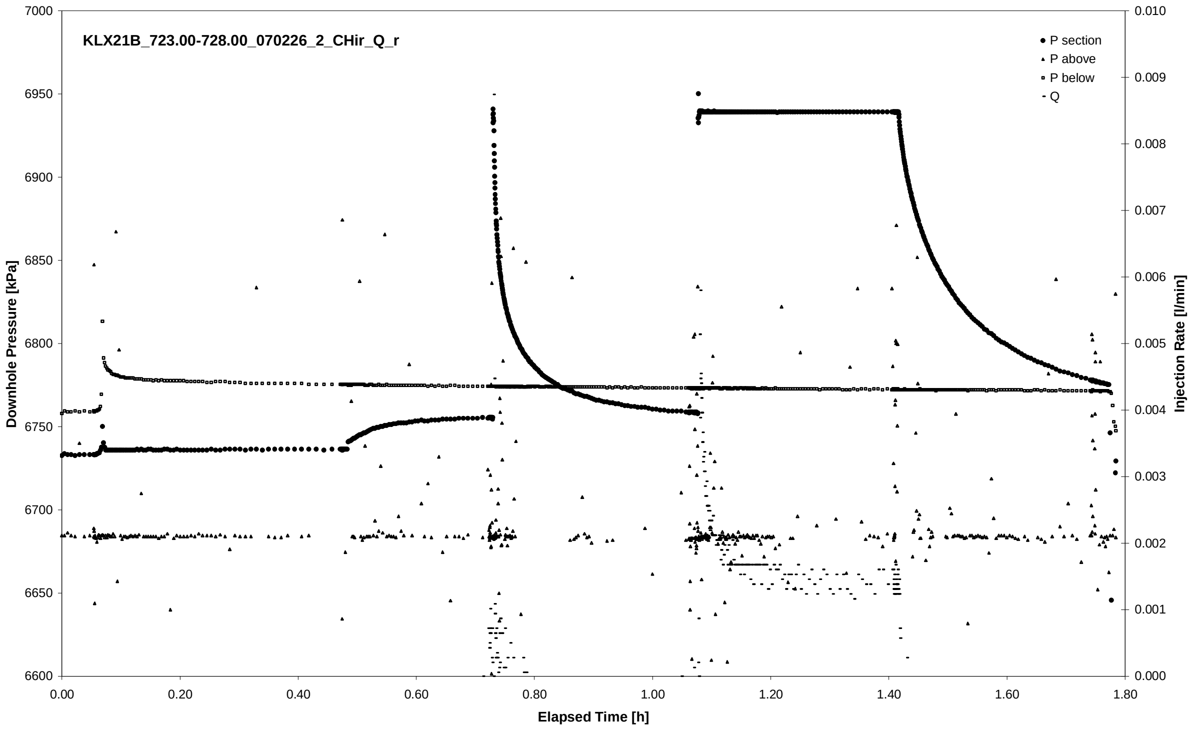
Analysis diagrams



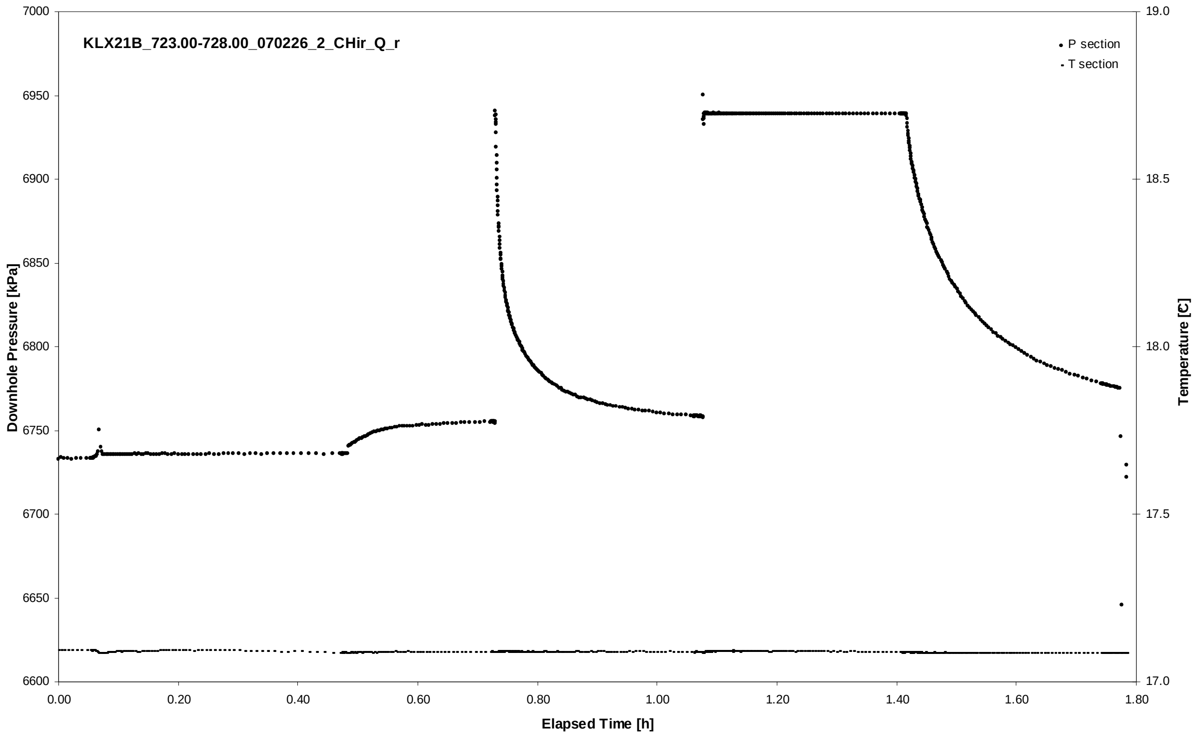
Pressure and flow rate vs. time; cartesian plot (repeated)



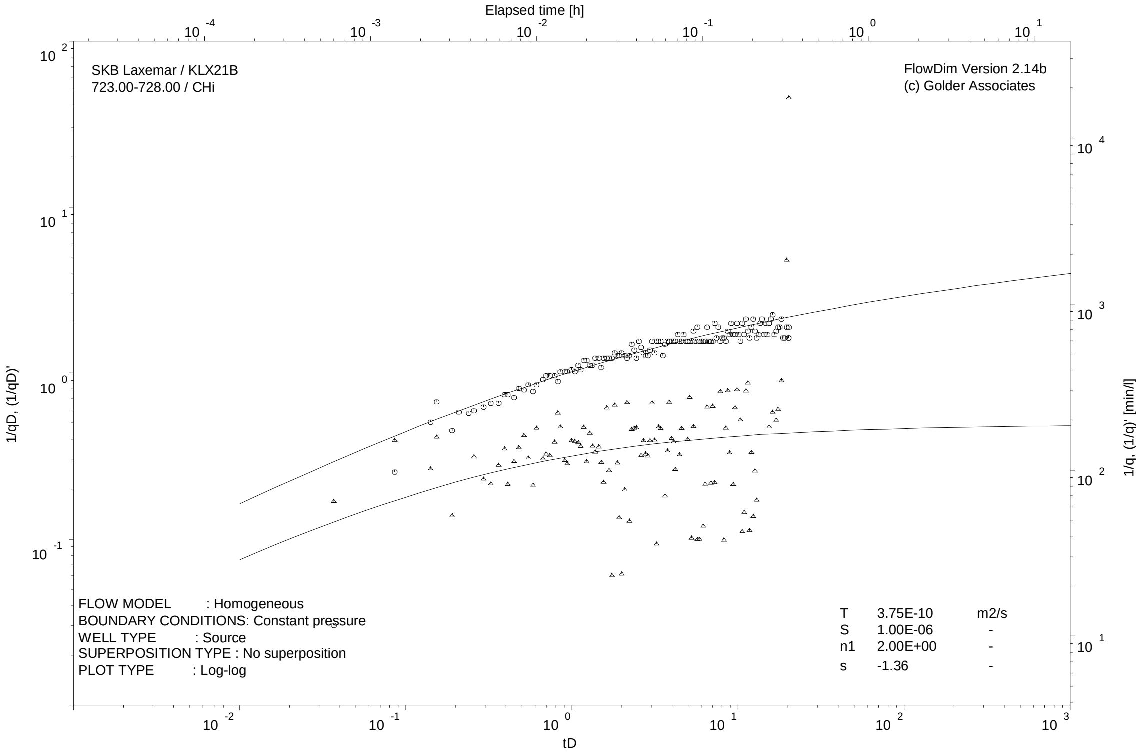
Interval pressure and temperature vs. time; cartesian plot (repeated)



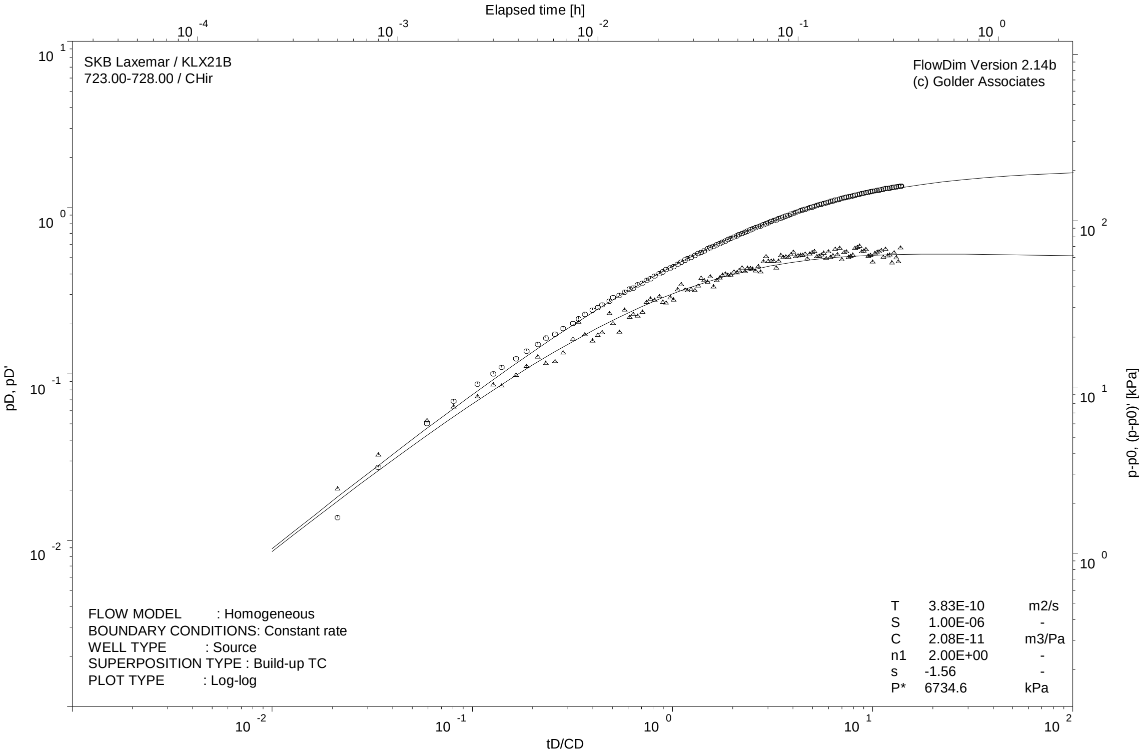
Pressure and flow rate vs. time; cartesian plot



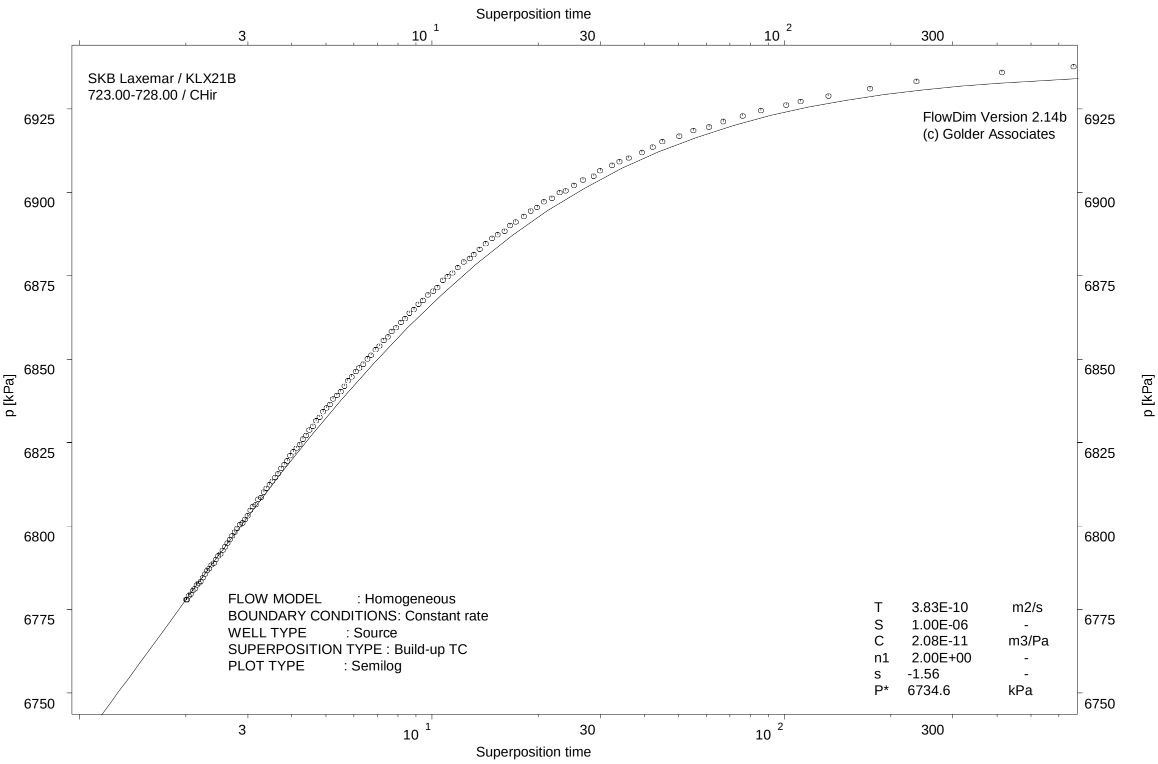
Interval pressure and temperature vs. time; cartesian plot



CHI phase; log-log match



CHIR phase; log-log match

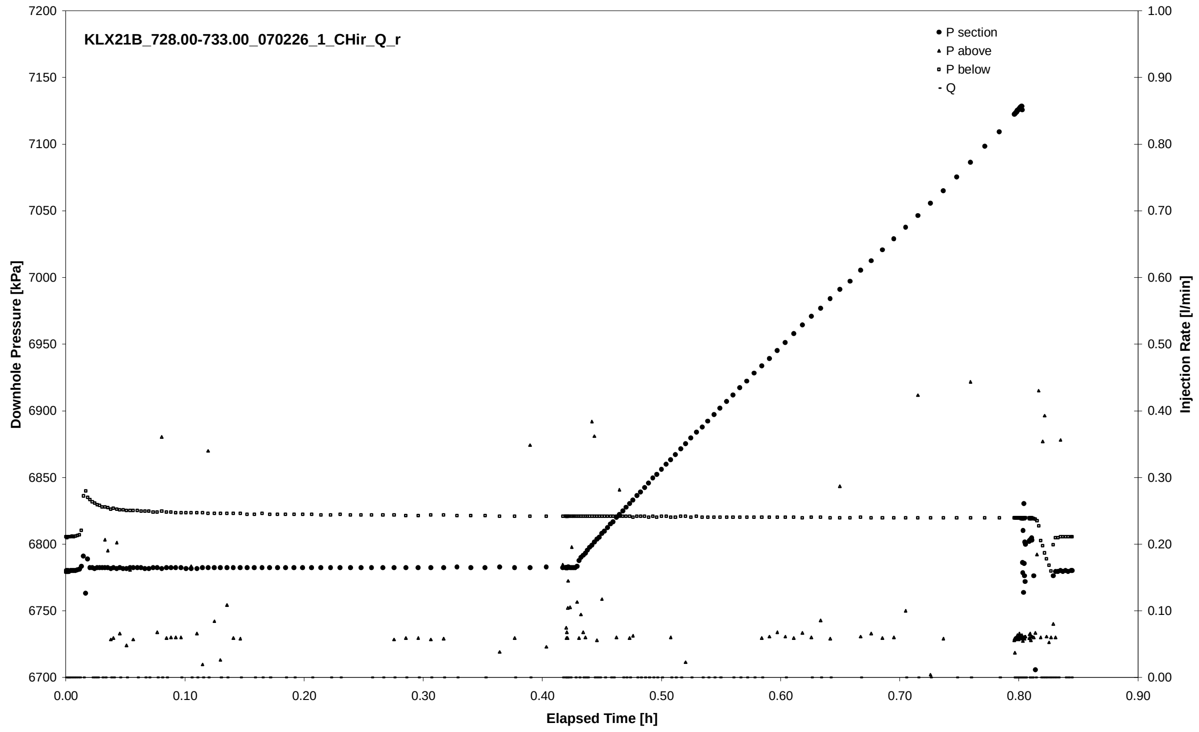


CHIR phase; HORNER match

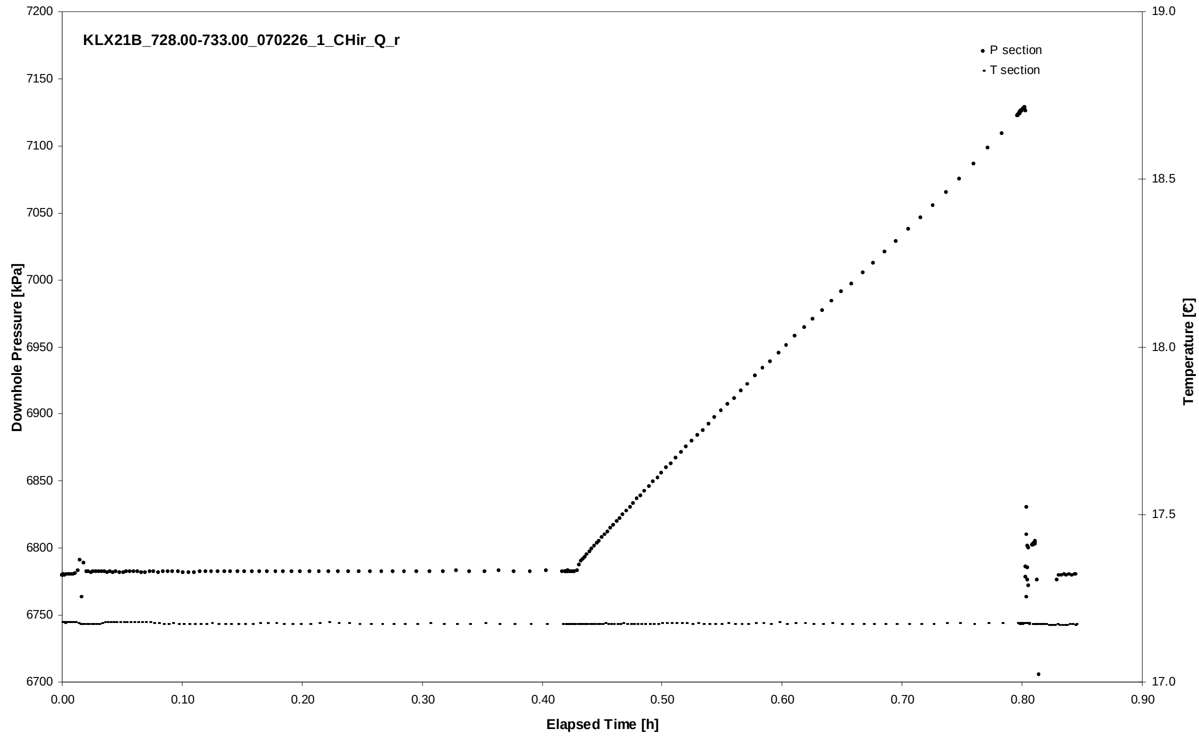
APPENDIX 2-123

Test 728.00 – 733.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

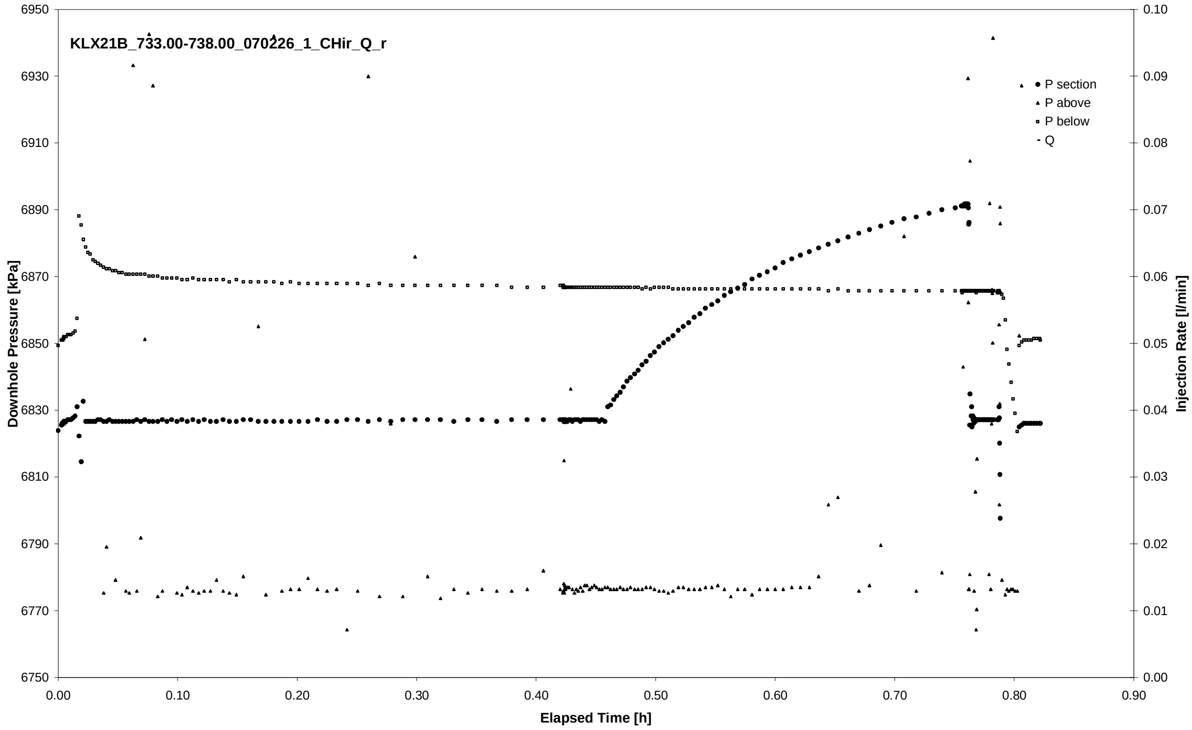
Not analysed

CHIR phase; HORNER match

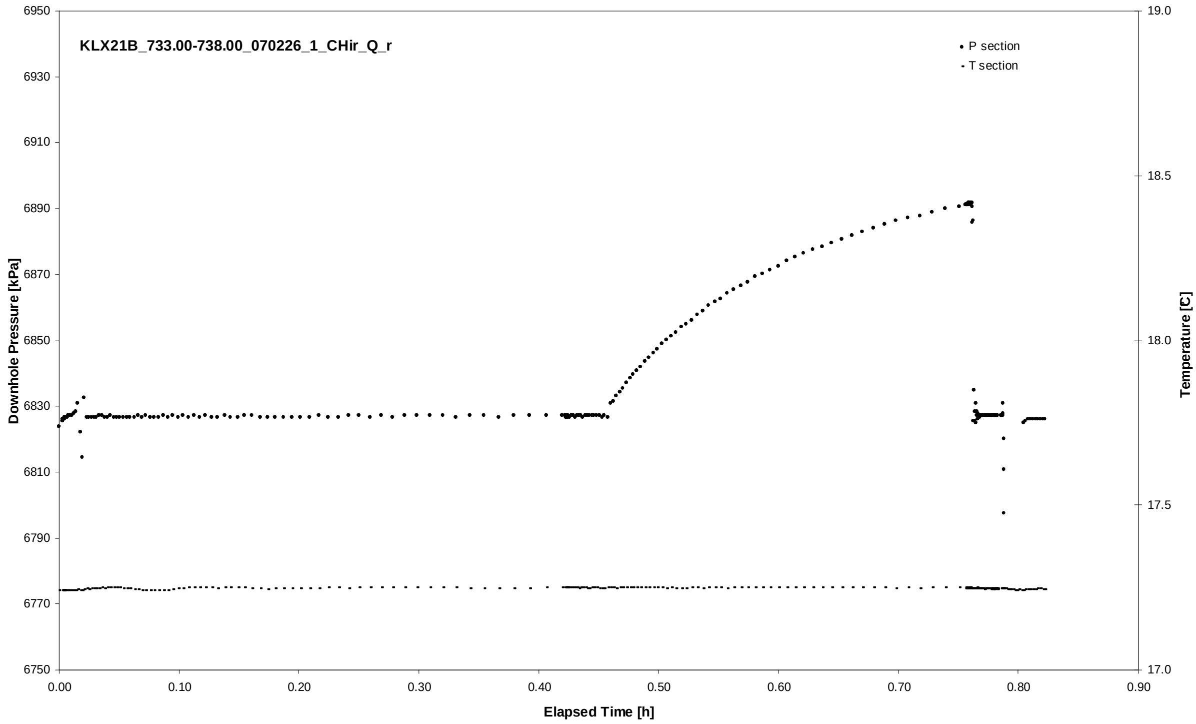
APPENDIX 2-124

Test 733.00 – 738.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

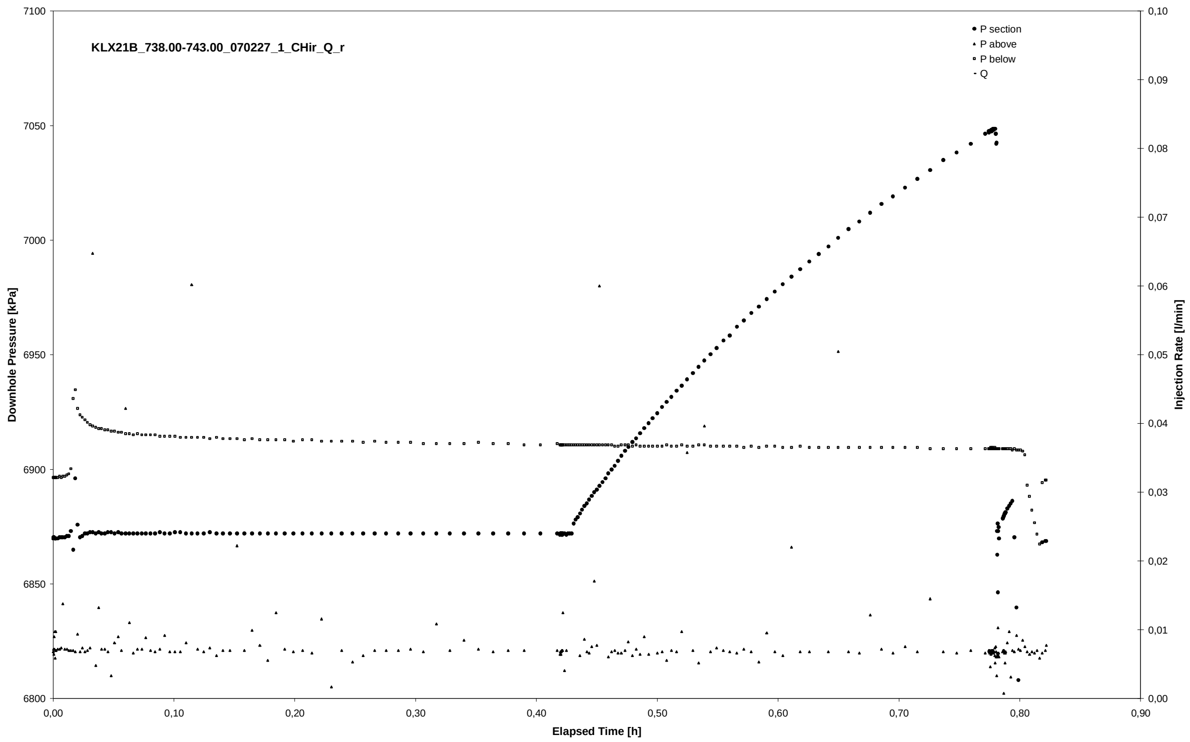
Not analysed

CHIR phase; HORNER match

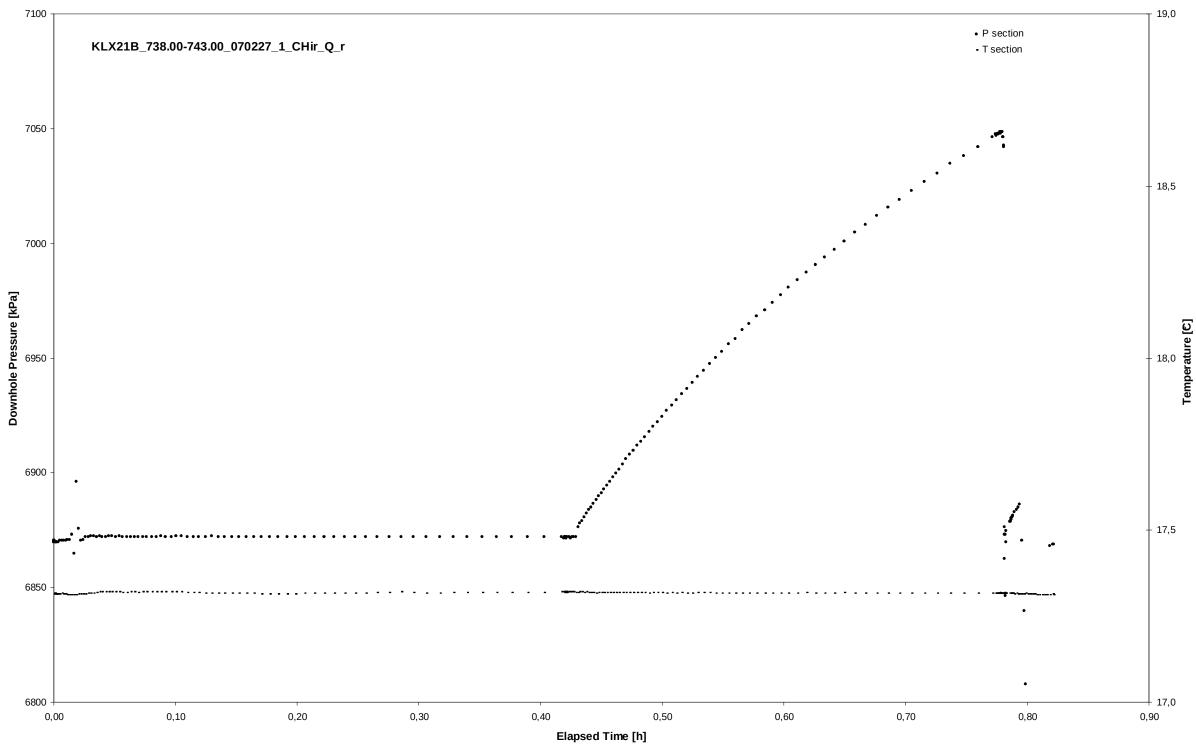
APPENDIX 2-125

Test 738.00 – 743.00 m

Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Not analysed

CHI phase; log-log match

Not analysed

CHIR phase; log-log match

Not analysed

CHIR phase; HORNER match

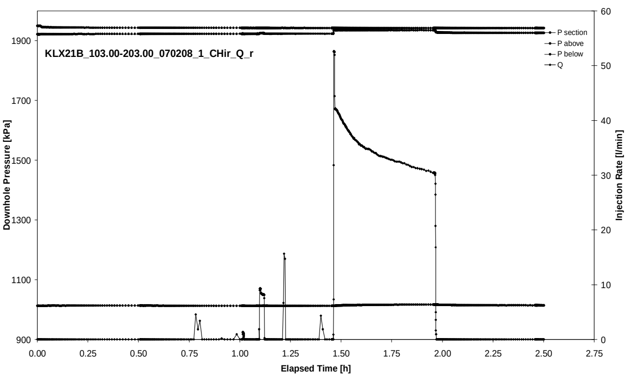
APPENDIX 3

Test Summary Sheets

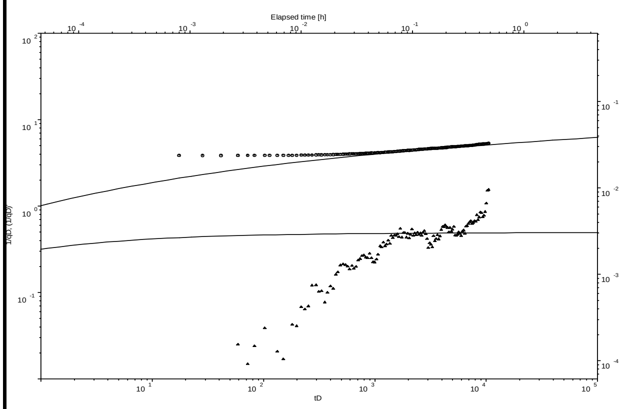
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070208 17:57
Test section from - to (m):	103.00-203.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

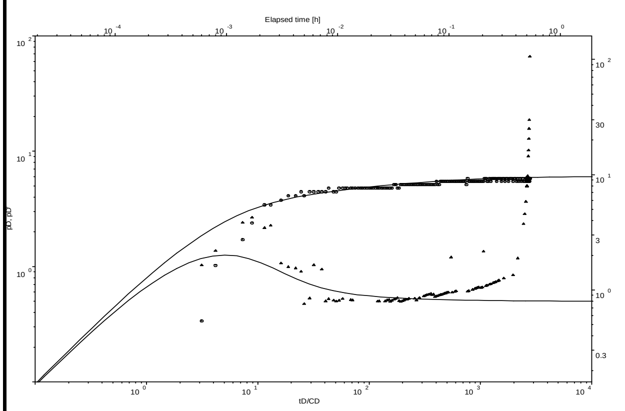
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	1920		
p_i (kPa) =	1923		
p_p(kPa) =	1935	p_F (kPa) =	1925
Q_p (m^3/s)=	5.00E-04		
tp (s) =	1800	t_F (s) =	1800
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.4		
Derivative fact.=	0.06	Derivative fact.=	0.14
Results		**Results**	
Q/s (m^2/s)=	4.1E-04		
T_M (m^2/s)=	5.3E-04		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	4.27	dt_1 (min) =	0.50
dt_2 (min) =	17.70	dt_2 (min) =	9.00
T (m^2/s) =	3.5E-04	T (m^2/s) =	5.6E-04
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.5E-06	K_s (m/s) =	5.6E-06
S_s (1/m) =	1.0E-08	S_s (1/m) =	1.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.5E-07
C_D (-) =	NA	C_D (-) =	2.7E+01
ξ (-) =	-5.30	ξ (-) =	-3.90
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.			
dt_1 (min) =	0.50	C (m^3/Pa) =	2.5E-07
dt_2 (min) =	9.00	C_D (-) =	2.7E+01
T_T (m^2/s) =	5.6E-04	ξ (-) =	-3.90
S (-) =	1.0E-06		
K_s (m/s) =	5.6E-06		
S_s (1/m) =	1.0E-08		

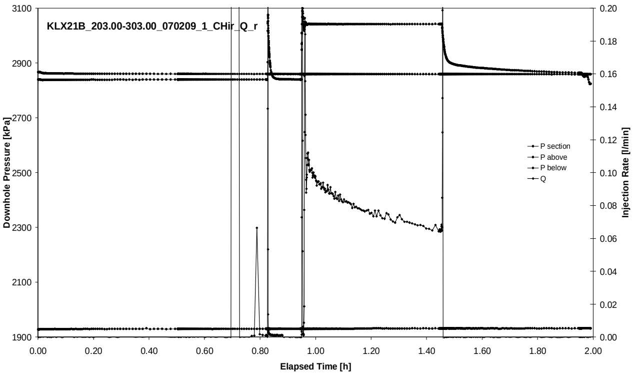
Comments:

The recommended transmissivity of 5.6•10-4 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 2.0•10-4 m2/s to 8.0•10-4 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 1,925.4 kPa.

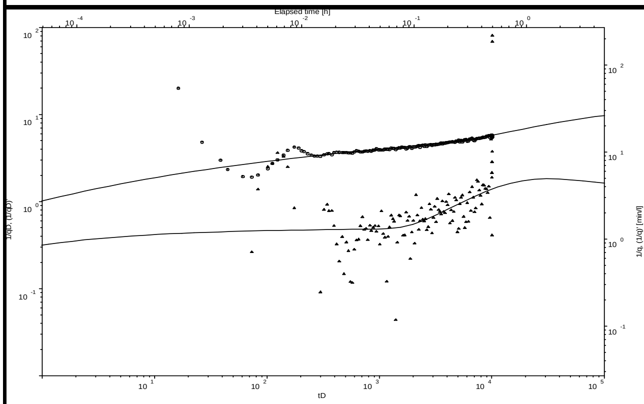
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070209 08:42
Test section from - to (m):	203.00-303.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

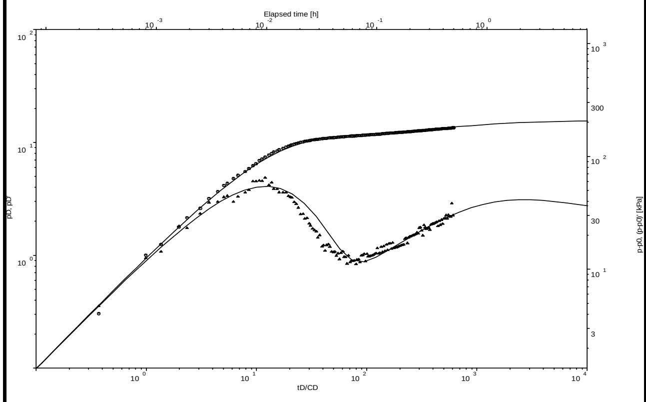
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	2840		
p_i (kPa) =	2840		
p_p(kPa) =	3042	p_F (kPa) =	2863
Q_p (m^3/s)=	1.08E-06		
tp (s) =	1800	t_F (s) =	1800
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	9.6		
Derivative fact.=	0.09	Derivative fact.=	0.07
Results		**Results**	
Q/s (m^2/s)=	5.3E-08		
T_M (m^2/s)=	6.9E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.16	dt_1 (min) =	11.64
dt_2 (min) =	6.78	dt_2 (min) =	29.40
T (m^2/s) =	4.8E-08	T (m^2/s) =	3.3E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	4.8E-10	K_s (m/s) =	3.3E-10
S_s (1/m) =	1.0E-08	S_s (1/m) =	1.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.9E-10
C_D (-) =	NA	C_D (-) =	3.2E-02
ξ (-) =	-0.88	ξ (-) =	6.69
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	11.64	C (m^3/Pa) =	2.7E-10
dt_2 (min) =	29.40	C_D (-) =	3.2E-02
T_T (m^2/s) =	3.3E-08	ξ (-) =	6.69
S (-) =	1.0E-06		
K_s (m/s) =	3.3E-10		
S_s (1/m) =	1.0E-08		

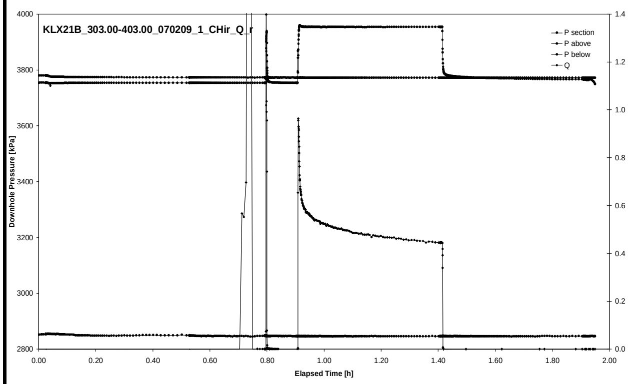
Comments:

The recommended transmissivity of 3.3•10-8 m2/s was derived from the analysis of the CHir phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 2.0•10-8 m2/s to 2.0•10-7 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 2,834.0 kPa.

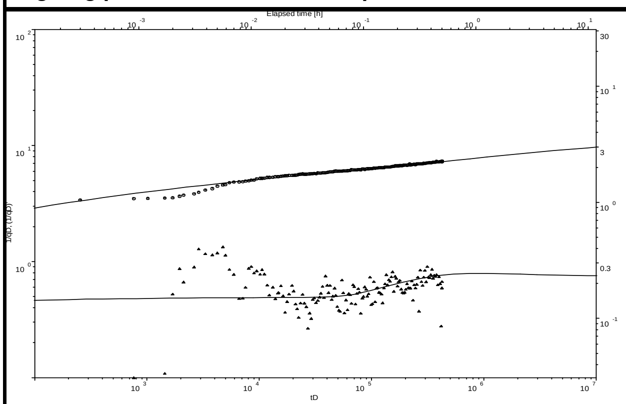
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070209 12:45
Test section from - to (m):	303.00-403.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

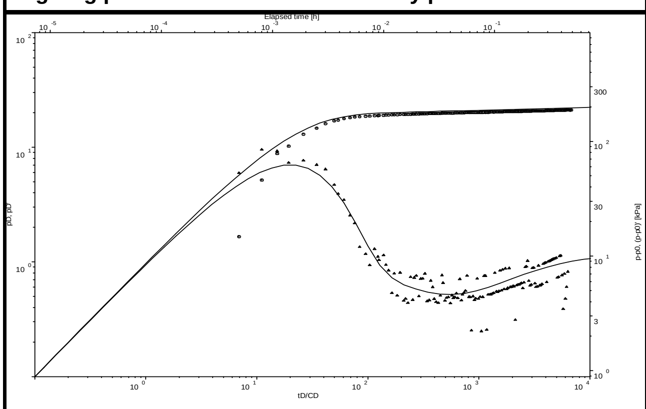
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3754		
p_i (kPa) =	3754		
p_p(kPa) =	3954	p_F (kPa) =	3772
Q_p (m^3/s)=	7.33E-06		
tp (s) =	1800	t_F (s) =	1800
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	10.7		
Derivative fact.=	0.07	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	3.6E-07		
T_M (m^2/s)=	4.7E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.15	dt_1 (min) =	0.80
dt_2 (min) =	5.52	dt_2 (min) =	4.06
T (m^2/s) =	4.2E-07	T (m^2/s) =	1.4E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	4.2E-09	K_s (m/s) =	1.4E-08
S_s (1/m) =	1.0E-08	S_s (1/m) =	1.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.4E-10
C_D (-) =	NA	C_D (-) =	2.6E-02
ξ (-) =	-0.11	ξ (-) =	14.50
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	0.15	C (m^3/Pa) =	2.4E-10
dt_2 (min) =	5.52	C_D (-) =	2.6E-02
T_T (m^2/s) =	4.2E-07	ξ (-) =	-0.11
S (-) =	1.0E-06		
K_s (m/s) =	4.2E-09		
S_s (1/m) =	1.0E-08		

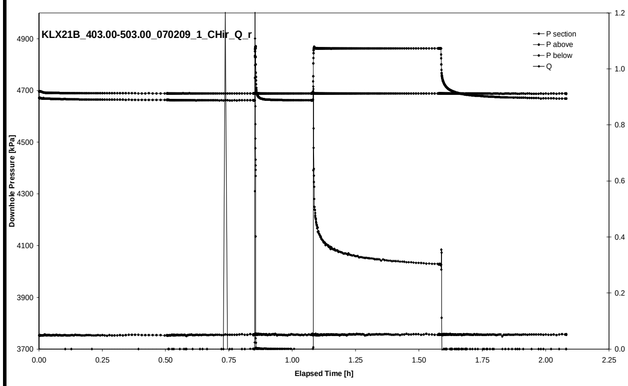
Comments:

The recommended transmissivity of 4.2E-07 m2/s was derived from the analysis of the CHi phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 3.0E-07 m2/s to 2.0E-06 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 3,762.0 kPa.

Test Summary Sheet

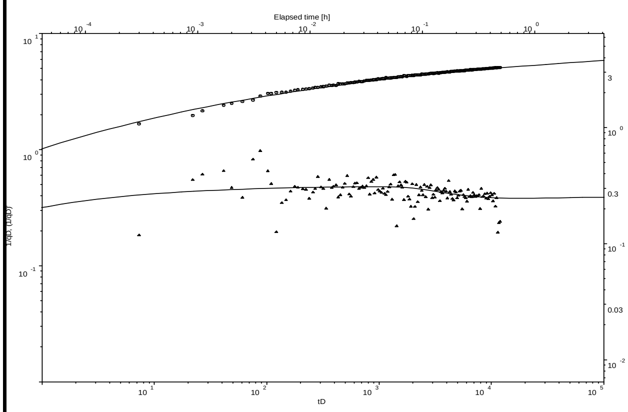
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070209 16:53
Test section from - to (m):	403.00-503.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

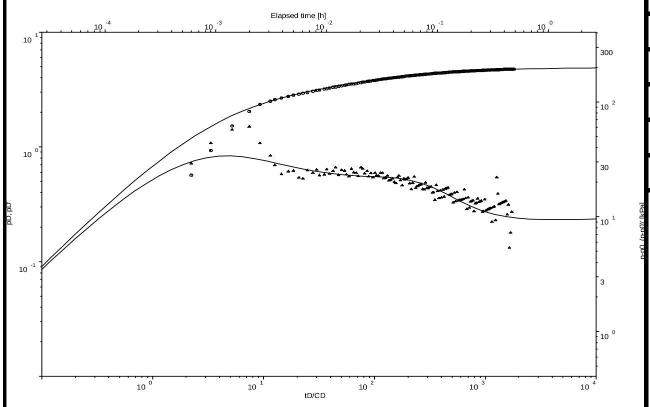


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4671		
p_i (kPa) =	4662		
p_p(kPa) =	4863	p_F (kPa) =	4669
Q_p (m^3/s)=	5.00E-06		
tp (s) =	1800	t_F (s) =	1800
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	12.0		
Derivative fact.=	0.08	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	2.4E-07		
T_M (m^2/s)=	3.2E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	7.74	dt_1 (min) =	0.27
dt_2 (min) =	27.42	dt_2 (min) =	3.24
T (m^2/s) =	2.5E-07	T (m^2/s) =	2.2E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.5E-09	K_s (m/s) =	2.2E-09
S_s (1/m) =	1.0E-08	S_s (1/m) =	1.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.3E-10
C_D (-) =	NA	C_D (-) =	1.5E-02
ξ (-) =	-1.51	ξ (-) =	-1.33
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.27	C (m^3/Pa) =	1.3E-10
dt_2 (min) =	3.24	C_D (-) =	1.5E-02
T_T (m^2/s) =	2.2E-07	ξ (-) =	-1.33
S (-) =	1.0E-06		
K_s (m/s) =	2.5E-09		
S_s (1/m) =	1.0E-08		

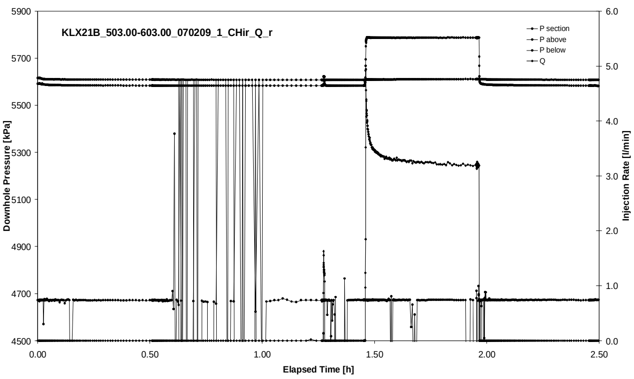
Comments:

The recommended transmissivity of 2.2•10-7 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-7 m2/s to 6.0•10-7 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,659.9 kPa.

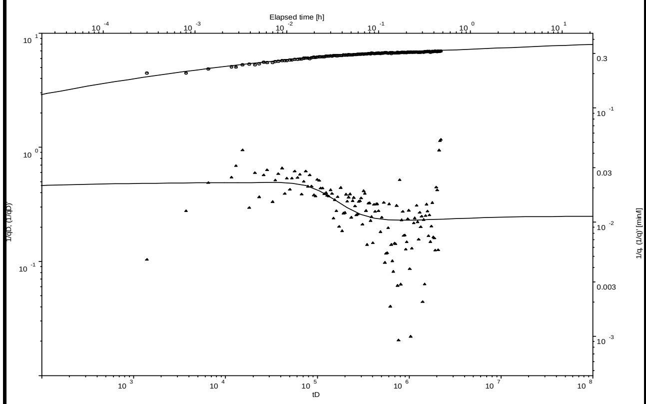
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070209 21:47
Test section from - to (m):	503.00-603.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

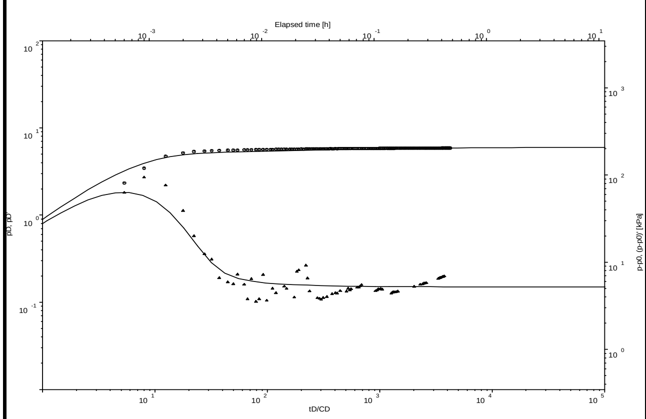
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5592		
p_i (kPa) =	5583		
p_p(kPa) =	5787	p_F (kPa) =	5583
Q_p (m^3/s)=	5.32E-05		
tp (s) =	1800	t_F (s) =	1800
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	13.4		
Derivative fact.=	0.08	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	2.6E-06		
T_M (m^2/s)=	3.3E-06		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.08	dt_1 (min) =	0.30
dt_2 (min) =	1.12	dt_2 (min) =	17.52
T (m^2/s) =	5.6E-06	T (m^2/s) =	8.2E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	5.6E-08	K_s (m/s) =	8.2E-08
S_s (1/m) =	1.0E-08	S_s (1/m) =	1.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	6.4E-10
C_D (-) =	NA	C_D (-) =	7.1E-02
ξ (-) =	-0.21	ξ (-) =	1.33
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	0.30	C (m^3/Pa) =	6.4E-10
dt_2 (min) =	17.52	C_D (-) =	7.1E-02
T_T (m^2/s) =	8.2E-06	ξ (-) =	1.33
S (-) =	1.0E-06		
K_s (m/s) =	8.2E-08		
S_s (1/m) =	1.0E-08		

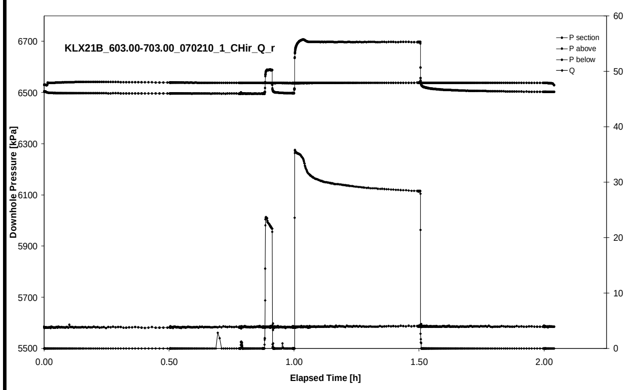
Comments:

The recommended transmissivity of 8.2E-06 m2/s was derived from the analysis of the CHir phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0E-06 m2/s to 1.0E-05 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,582.1 kPa.

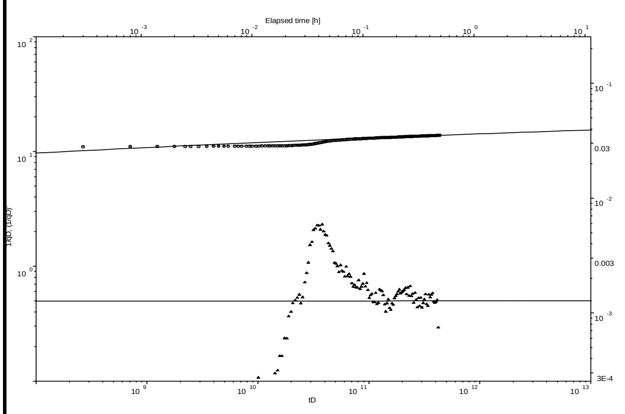
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070210 08:23
Test section from - to (m):	603.00-703.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

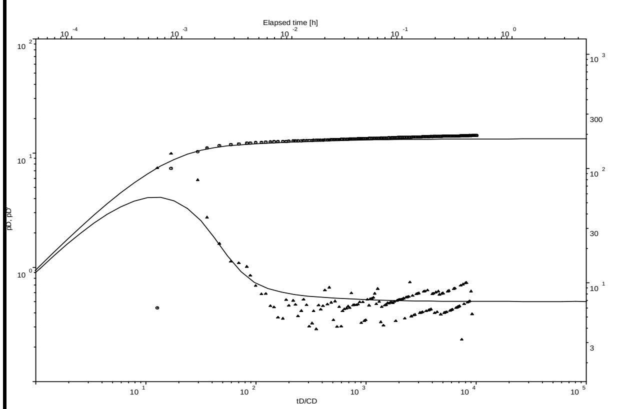
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	6501		
p_i (kPa) =	6497		
p_p(kPa) =	6698	p_F (kPa) =	6691
Q_p (m^3/s)=	4.73E-04		
tp (s) =	1800	t_F (s) =	1800
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	13.8		
Derivative fact.=	0.04	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	2.3E-05		
T_M (m^2/s)=	3.0E-05		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	6.84	dt_1 (min) =	0.38
dt_2 (min) =	27.96	dt_2 (min) =	24.84
T (m^2/s) =	5.1E-05	T (m^2/s) =	5.7E-05
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	5.1E-07	K_s (m/s) =	5.7E-07
S_s (1/m) =	1.0E-08	S_s (1/m) =	1.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	6.2E-09
C_D (-) =	NA	C_D (-) =	6.8E-01
ξ (-) =	4.43	ξ (-) =	5.15
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	6.84	C (m^3/Pa) =	6.2E-09
dt_2 (min) =	27.96	C_D (-) =	6.8E-01
T_T (m^2/s) =	5.1E-05	ξ (-) =	4.43
S (-) =	1.0E-06		
K_s (m/s) =	5.7E-07		
S_s (1/m) =	1.0E-08		

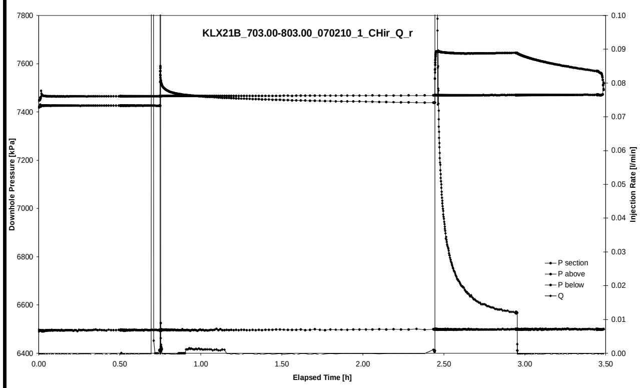
Comments:

The recommended transmissivity of 5.1•10-5 m2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 2.0•10-5 m2/s to 7.0•10-5 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,498.0 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070210 12:20
Test section from - to (m):	703.00-803.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

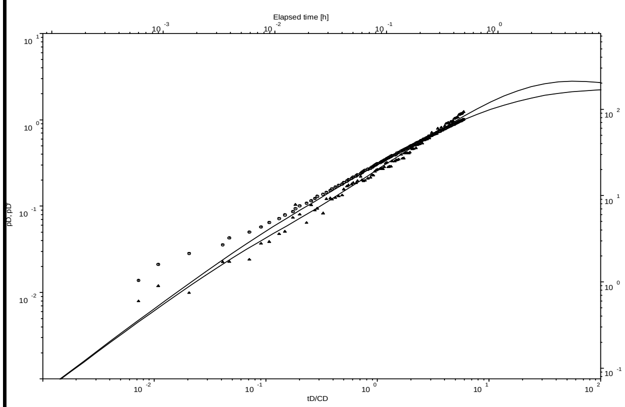


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	7426		
p_i (kPa) =	7438		
p_p(kPa) =	7641	p_F (kPa) =	7550
Q_p (m^3/s)=	2.00E-07		
tp (s) =	1800	t_F (s) =	1800
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.9		
Derivative fact.=	0.06	Derivative fact.=	0.04
Results		**Results**	
Q/s (m^2/s)=	9.7E-09		
T_M (m^2/s)=	1.3E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	1.73
dt_2 (min) =	#NV	dt_2 (min) =	8.58
T (m^2/s) =	NA	T (m^2/s) =	1.1E-08
S (-) =	NA	S (-) =	1.0E-06
K_s (m/s) =	NA	K_s (m/s) =	1.1E-10
S_s (1/m) =	NA	S_s (1/m) =	1.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.2E-09
C_D (-) =	NA	C_D (-) =	2.4E-01
ξ (-) =	NA	ξ (-) =	-3.88
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	1.73	C (m^3/Pa) =	2.2E-09
dt_2 (min) =	8.58	C_D (-) =	2.4E-01
T_T (m^2/s) =	1.1E-08	ξ (-) =	-3.88
S (-) =	1.0E-06		
K_s (m/s) =	1.1E-10		
S_s (1/m) =	1.0E-08		

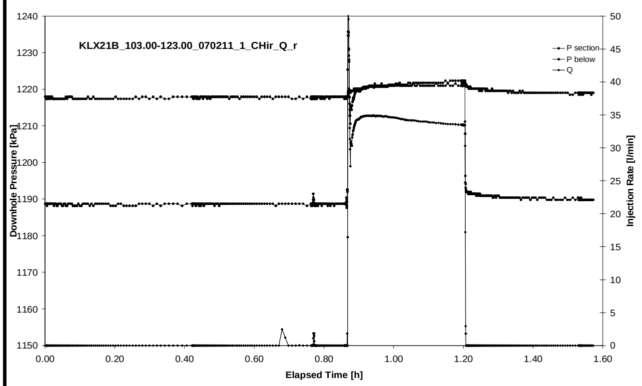
Comments:

The recommended transmissivity of 1.1•10-8 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-9 m2/s to 2.0•10-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using straight line extrapolation in the Horner plot because of the too short recovery period.

Test Summary Sheet

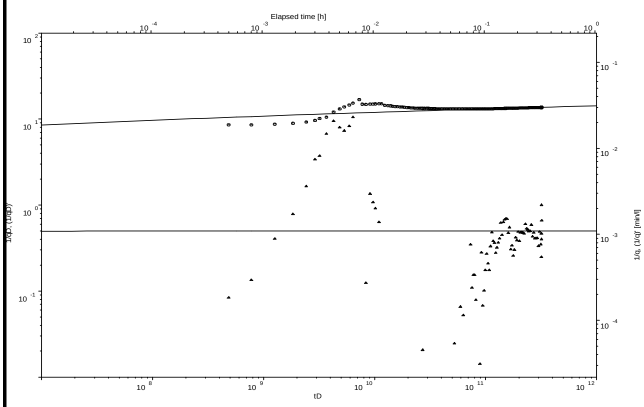
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070211 11:45
Test section from - to (m):	103.00-123.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

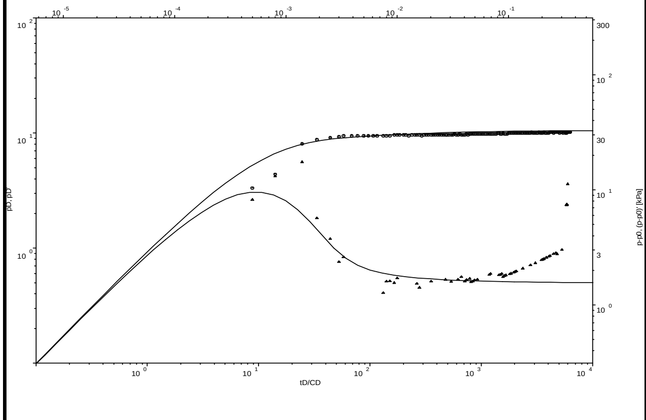


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	1188		
p_i (kPa) =	1189		
p_p(kPa) =	1221	p_F (kPa) =	1190
Q_p (m^3/s)=	5.58E-04		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	9.0		
Derivative fact.=	0.02	Derivative fact.=	0.07
Results		**Results**	
Q/s (m^2/s)=	1.7E-04		
T_M (m^2/s)=	1.8E-04		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	7.05	dt_1 (min) =	0.48
dt_2 (min) =	19.72	dt_2 (min) =	3.15
T (m^2/s) =	3.6E-04	T (m^2/s) =	2.9E-04
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.8E-05	K_s (m/s) =	1.4E-05
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.8E-08
C_D (-) =	NA	C_D (-) =	4.1E+00
ξ (-) =	-3.43	ξ (-) =	-3.76
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	0.48	C (m^3/Pa) =	3.8E-08
dt_2 (min) =	3.15	C_D (-) =	4.1E+00
T_T (m^2/s) =	2.9E-04	ξ (-) =	-3.76
S (-) =	1.0E-06		
K_s (m/s) =	1.4E-05		
S_s (1/m) =	5.0E-08		

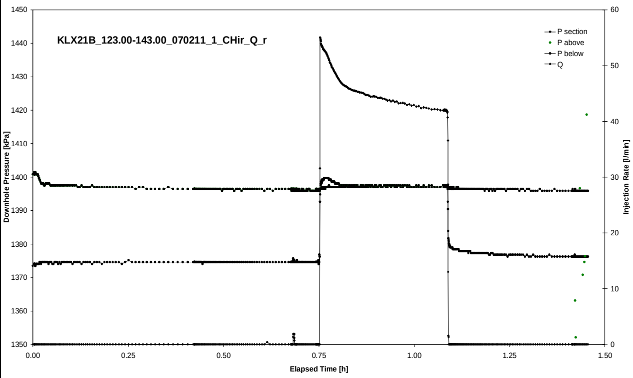
Comments:

The recommended transmissivity of 2.9E-04 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0E-04 m2/s to 5.0E-04 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 1,189.3 kPa.

Test Summary Sheet

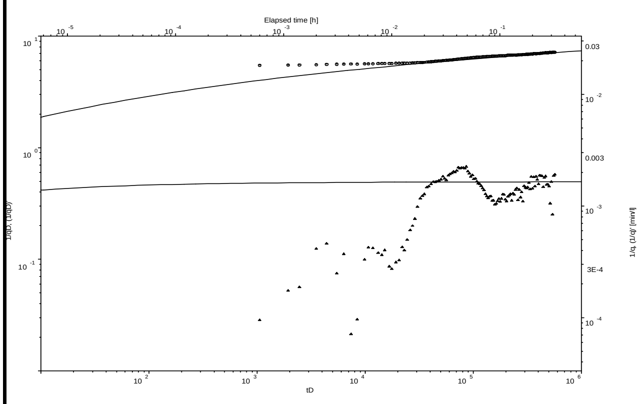
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070211 14:42
Test section from - to (m):	123.00-143.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

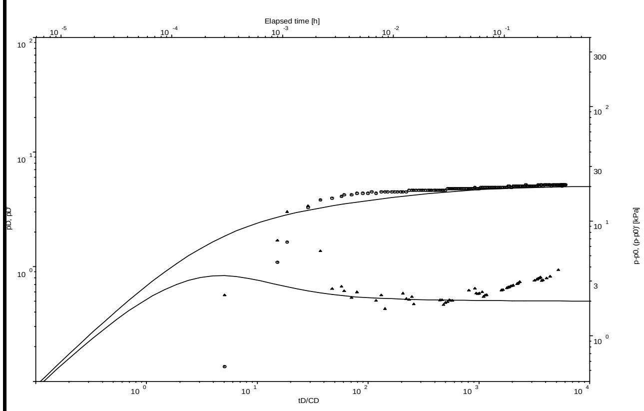


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	1374		
p_i (kPa) =	1375		
p_p(kPa) =	1397	p_F (kPa) =	1376
Q_p (m^3/s)=	6.92E-04		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	9.4		
Derivative fact.=	0.8	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	3.1E-04		
T_M (m^2/s)=	3.2E-04		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.52	dt_1 (min) =	0.42
dt_2 (min) =	3.92	dt_2 (min) =	3.92
T (m^2/s) =	3.6E-04	T (m^2/s) =	2.9E-04
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.8E-05	K_s (m/s) =	1.5E-05
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	4.0E-08
C_D (-) =	NA	C_D (-) =	4.4E+00
ξ (-) =	-3.11	ξ (-) =	-4.18
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.42	C (m^3/Pa) =	4.0E-08
dt_2 (min) =	3.92	C_D (-) =	4.4E+00
T_T (m^2/s) =	2.9E-04	ξ (-) =	-4.18
S (-) =	1.0E-06		
K_s (m/s) =	1.5E-05		
S_s (1/m) =	5.0E-08		

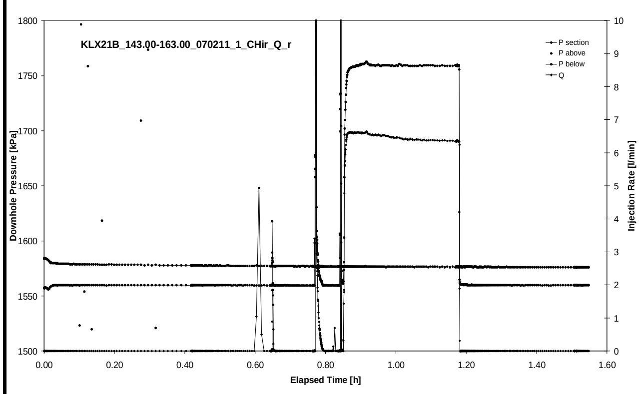
Comments:

The recommended transmissivity of 2.9E-04 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0E-04 m2/s to 5.0E-04 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 1,375.5 kPa.

Test Summary Sheet

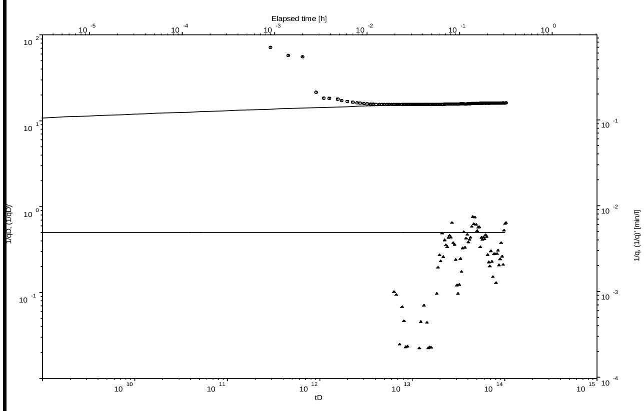
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070211 17:08
Test section from - to (m):	143.00-163.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

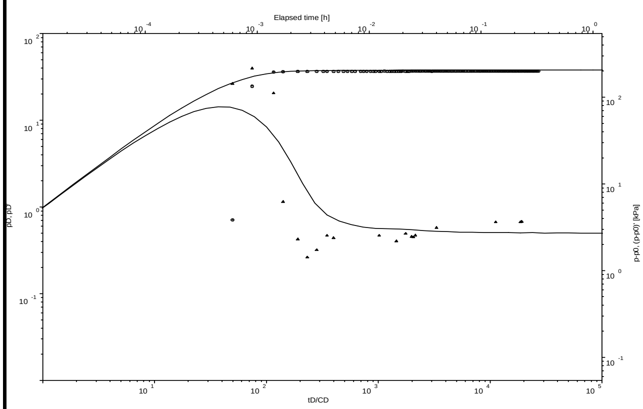


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	1557		
p_i (kPa) =	1559		
p_p(kPa) =	1759	p_F (kPa) =	1559
Q_p (m^3/s)=	1.06E-04		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	9.1		
Derivative fact.=	0.08	Derivative fact.=	0.04
Results		**Results**	
Q/s (m^2/s)=	5.2E-06		
T_M (m^2/s)=	5.4E-06		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	3.87	dt_1 (min) =	0.74
dt_2 (min) =	18.15	dt_2 (min) =	8.12
T (m^2/s) =	1.3E-05	T (m^2/s) =	3.1E-05
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	6.7E-07	K_s (m/s) =	1.5E-06
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	8.6E-10
C_D (-) =	NA	C_D (-) =	9.5E-02
ξ (-) =	8.05	ξ (-) =	32.30
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	3.87	C (m^3/Pa) =	8.6E-10
dt_2 (min) =	18.15	C_D (-) =	9.5E-02
T_T (m^2/s) =	1.3E-05	ξ (-) =	8.05
S (-) =	1.0E-06		
K_s (m/s) =	6.7E-07		
S_s (1/m) =	5.0E-08		

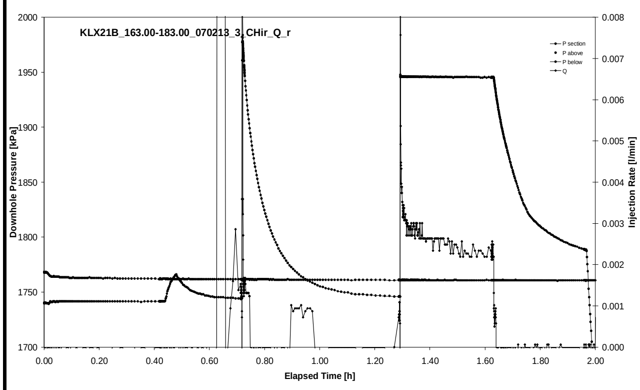
Comments:

The recommended transmissivity of 1.3E-05 m2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 8.0E-06 m2/s to 5.0E-05 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 1,559.7 kPa.

Test Summary Sheet

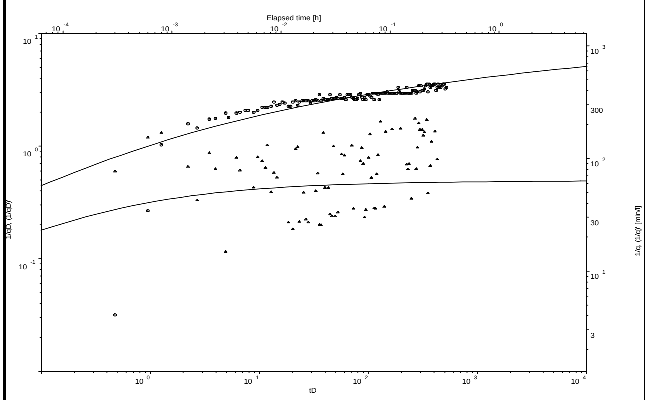
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	3
Borehole ID:	KLX21B	Test start:	070213 07:10
Test section from - to (m):	163.00-183.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

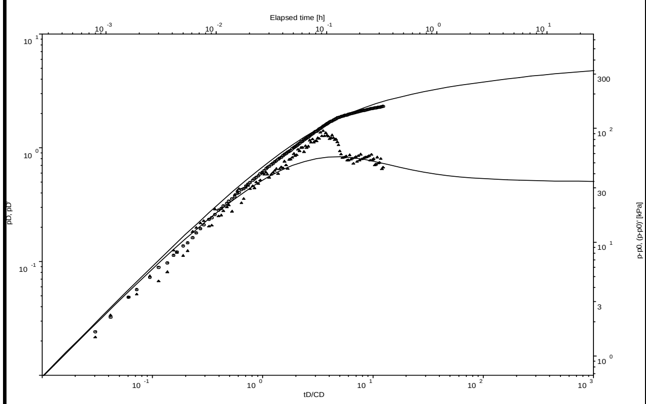


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	1740		
p_i (kPa) =	1746		
p_p(kPa) =	1945	p_F (kPa) =	1787
Q_p (m^3/s)=	3.77E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	9.3		
Derivative fact.=	0.05	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.9E-09		
T_M (m^2/s)=	1.9E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.49	dt_1 (min) =	8.56
dt_2 (min) =	10.43	dt_2 (min) =	18.61
T (m^2/s) =	1.0E-09	T (m^2/s) =	1.1E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	5.1E-11	K_s (m/s) =	5.7E-11
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	6.9E-11
C_D (-) =	NA	C_D (-) =	7.6E-03
ξ (-) =	-0.24	ξ (-) =	-1.00
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	8.56	C (m^3/Pa) =	6.9E-11
dt_2 (min) =	18.61	C_D (-) =	7.6E-03
T_T (m^2/s) =	1.1E-09	ξ (-) =	-1.00
S (-) =	1.0E-06		
K_s (m/s) =	5.7E-11		
S_s (1/m) =	5.0E-08		

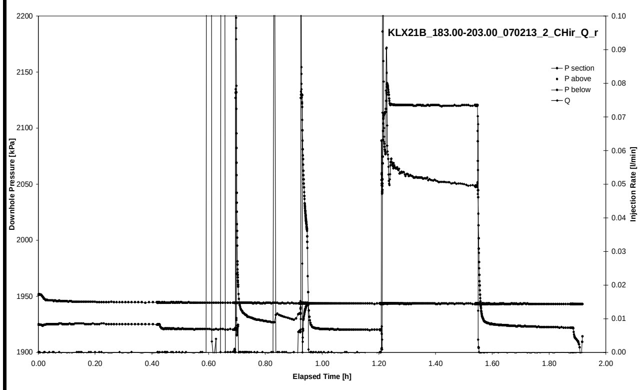
Comments:

The recommended transmissivity of 1.1E-09 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 8.0E-10 m2/s to 3.0E-09 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 1,750.4 kPa.

Test Summary Sheet

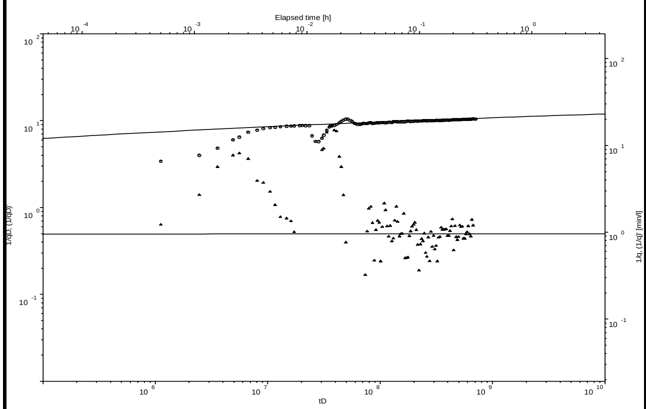
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	2
Borehole ID:	KLX21B	Test start:	070213 09:56
Test section from - to (m):	183.00-203.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

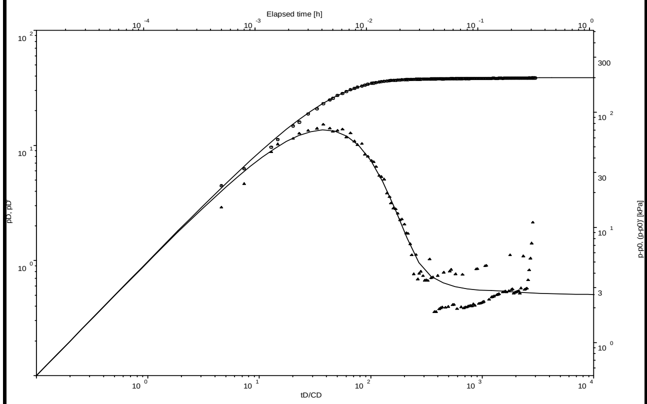


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	1925		
p_i (kPa) =	1920		
p_p(kPa) =	2120	p_F (kPa) =	1921
Q_p (m^3/s)=	8.17E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	9.4		
Derivative fact.=	0.09	Derivative fact.=	0.06
Results		**Results**	
Q/s (m^2/s)=	4.0E-08		
T_M (m^2/s)=	4.2E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	2.06	dt_1 (min) =	10.01
dt_2 (min) =	16.76	dt_2 (min) =	16.10
T (m^2/s) =	6.8E-08	T (m^2/s) =	2.7E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.4E-09	K_s (m/s) =	1.3E-08
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	6.8E-11
C_D (-) =	NA	C_D (-) =	7.4E-03
ξ (-) =	4.75	ξ (-) =	32.40
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	2.06	C (m^3/Pa) =	6.8E-11
dt_2 (min) =	16.76	C_D (-) =	7.4E-03
T_T (m^2/s) =	6.8E-08	ξ (-) =	4.75
S (-) =	1.0E-06		
K_s (m/s) =	3.4E-09		
S_s (1/m) =	5.0E-08		

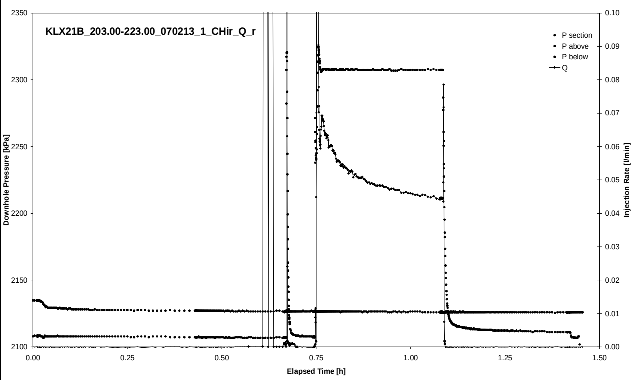
Comments:

The recommended transmissivity of 6.8•10-8 m2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 5.0•10-8 m2/s to 4.0•10-7 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 1,920.4 kPa.

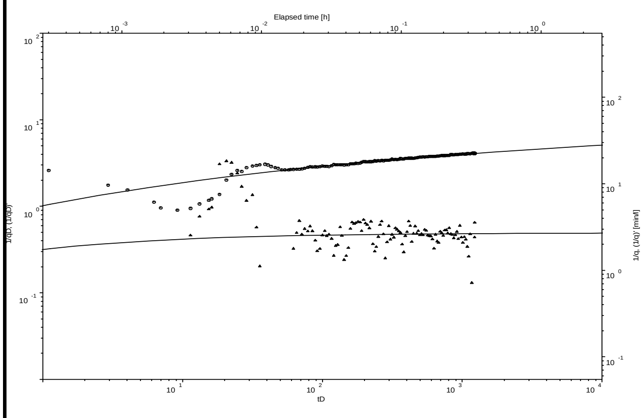
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070213 12:58
Test section from - to (m):	203.00-223.000 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

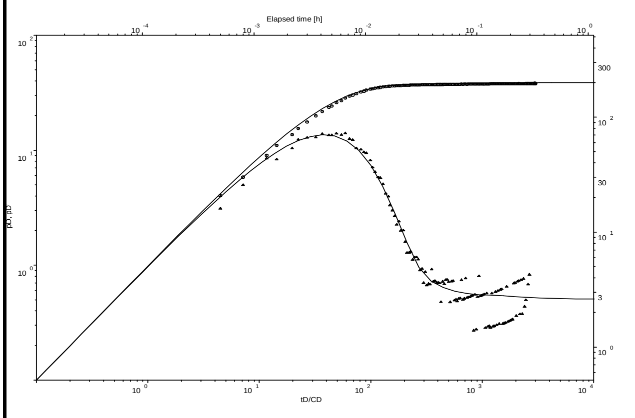
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	2108		
p_i (kPa) =	2107		
p_p(kPa) =	2308	p_F (kPa) =	2110
Q_p (m^3/s)=	7.43E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	9.7		
Derivative fact.=	0.07	Derivative fact.=	0.10
Results		**Results**	
Q/s (m^2/s)=	3.6E-08		
T_M (m^2/s)=	3.8E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.07	dt_1 (min) =	5.47
dt_2 (min) =	18.60	dt_2 (min) =	8.17
T (m^2/s) =	2.4E-08	T (m^2/s) =	2.6E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.2E-09	K_s (m/s) =	1.3E-08
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	6.8E-11
C_D (-) =	NA	C_D (-) =	7.5E-03
ξ (-) =	-1.39	ξ (-) =	32.40
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	1.07	C (m^3/Pa) =	6.8E-11
dt_2 (min) =	18.60	C_D (-) =	7.5E-03
T_T (m^2/s) =	2.4E-08	ξ (-) =	-1.39
S (-) =	1.0E-06		
K_s (m/s) =	1.2E-09		
S_s (1/m) =	5.0E-08		

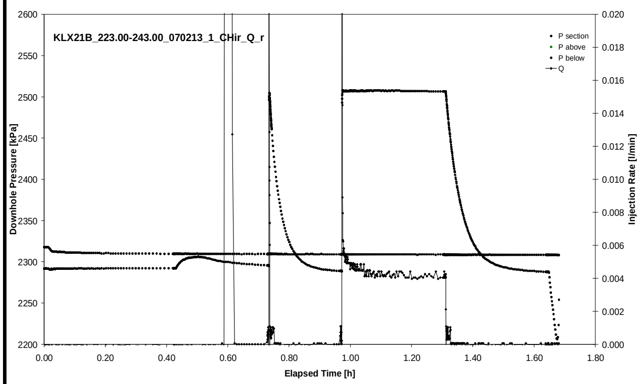
Comments:

The recommended transmissivity of 2.4•10-8 m2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-8 m2/s to 5.0•10-7 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 2,109.1 kPa.

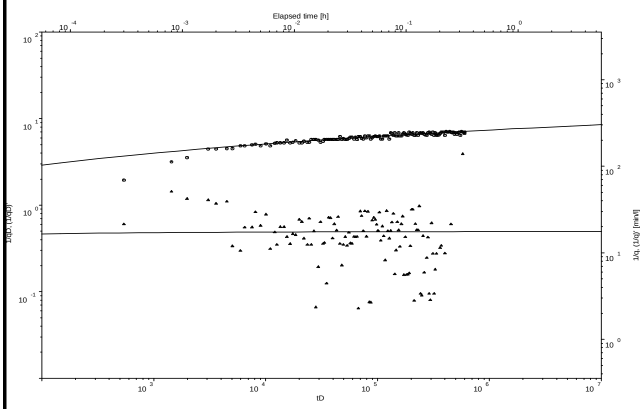
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070213 15:11
Test section from - to (m):	223.00-243.00	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

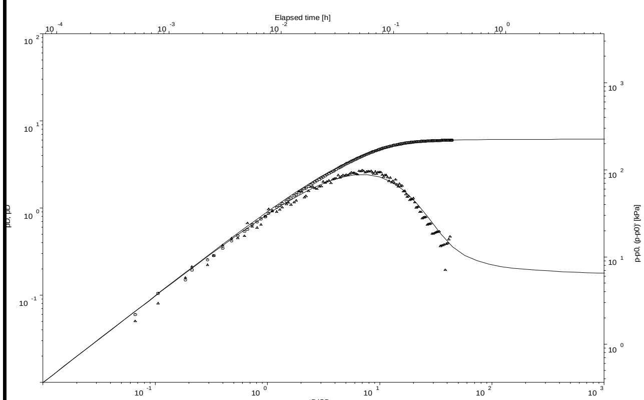
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	2291		
p_i (kPa) =	2289		
p_p(kPa) =	2506	p_F (kPa) =	2288
Q_p (m^3/s)=	6.72E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	9.9		
Derivative fact.=	0.27	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	3.0E-09		
T_M (m^2/s)=	3.2E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.40	dt_1 (min) =	#NV
dt_2 (min) =	7.67	dt_2 (min) =	#NV
T (m^2/s) =	3.4E-09	T (m^2/s) =	3.1E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.7E-10	K_s (m/s) =	1.6E-10
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	5.5E-11
C_D (-) =	NA	C_D (-) =	6.0E-03
ξ (-) =	2.68	ξ (-) =	7.52
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	0.40	C (m^3/Pa) =	5.5E-11
dt_2 (min) =	7.67	C_D (-) =	6.0E-03
T_T (m^2/s) =	3.4E-09	ξ (-) =	2.68
S (-) =	1.0E-06		
K_s (m/s) =	1.7E-10		
S_s (1/m) =	5.0E-08		

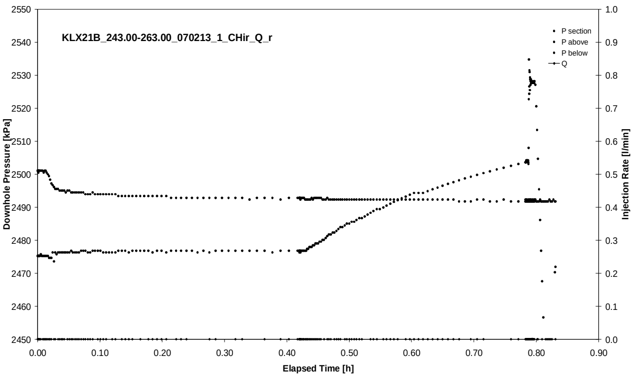
Comments:

The recommended transmissivity of 3.4•10-9 m2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-9 m2/s to 1.0•10-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 2,281.5 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070213 17:44
Test section from - to (m):	243.00-263.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	2476		
p_i (kPa) =	NA		
p_p(kPa) =	NA	p_F (kPa) =	NA
Q_p (m^3/s)=	NA		
tp (s) =	NA	t_F (s) =	NA
S el S^* (-)=	NA	S el S^* (-)=	NA
EC_w (mS/m)=			
$Temp_w$(gr C)=	10.1		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	NA		
T_M (m^2/s)=	NA		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	NA	dt_1 (min) =	NA
dt_2 (min) =	NA	dt_2 (min) =	NA
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	NA	S (-) =	NA
K_s (m/s) =	NA	K_s (m/s) =	NA
S_s (1/m) =	NA	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.			
dt_1 (min) =	NA	C (m^3/Pa) =	NA
dt_2 (min) =	NA	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	NA		
K_s (m/s) =	NA		
S_s (1/m) =	NA		

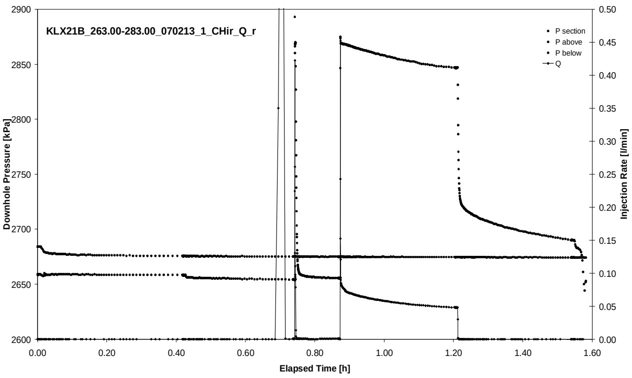
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

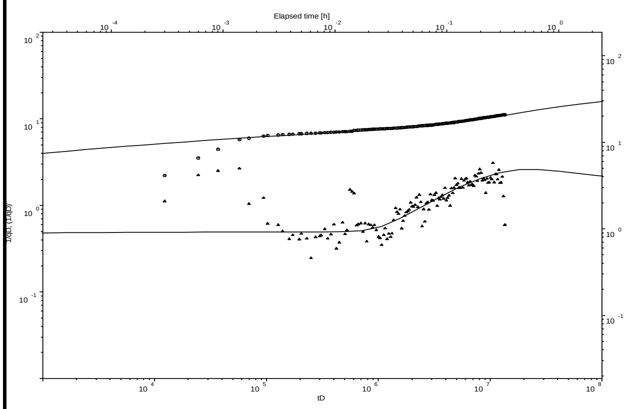
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070213 19:22
Test section from - to (m):	263.00-283.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

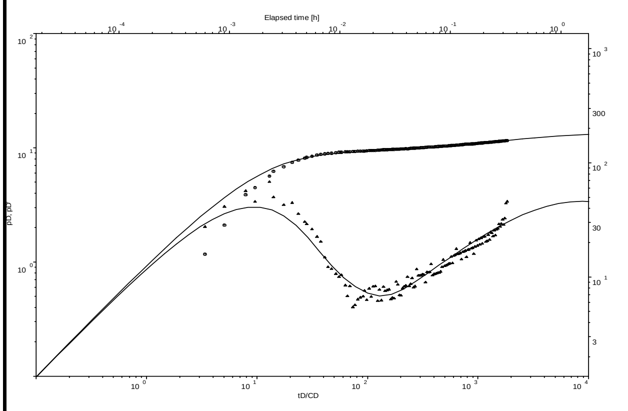
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	2658		
p_i (kPa) =	2655		
p_p(kPa) =	2847	p_F (kPa) =	2690
Q_p (m^3/s)=	7.98E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	10.4		
Derivative fact.=	0.02	Derivative fact.=	0.07
Results		**Results**	
Q/s (m^2/s)=	4.1E-08		
T_M (m^2/s)=	4.3E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.7E-08	T (m^2/s) =	2.2E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	8.7E-10	K_s (m/s) =	1.1E-09
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	4.6E-11
C_D (-) =	NA	C_D (-) =	5.0E-03
ξ (-) =	2.73	ξ (-) =	4.96
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	4.6E-11
dt_2 (min) =	#NV	C_D (-) =	5.0E-03
T_T (m^2/s) =	1.7E-08	ξ (-) =	2.73
S (-) =	1.0E-06		
K_s (m/s) =	8.7E-10		
S_s (1/m) =	5.0E-08		

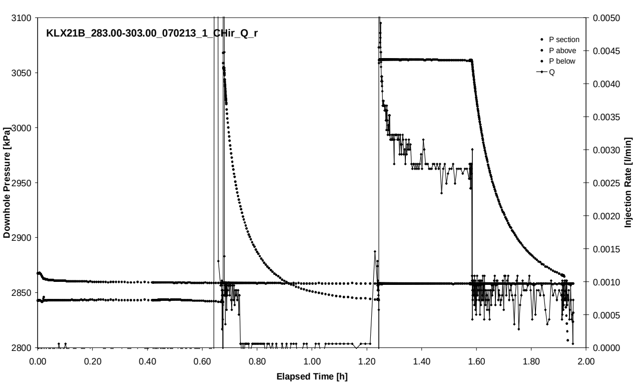
Comments:

The recommended transmissivity of 1.7•10-8 m2/s was derived from the analysis of the CHi phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-8 m2/s to 3.0•10-7 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 2,662.0 kPa.

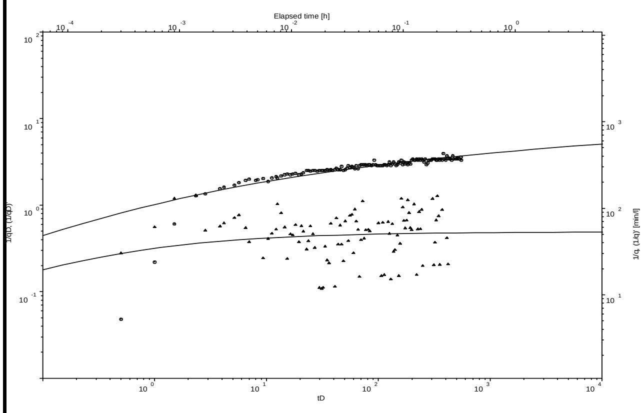
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070213 22:19
Test section from - to (m):	283.00-303.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

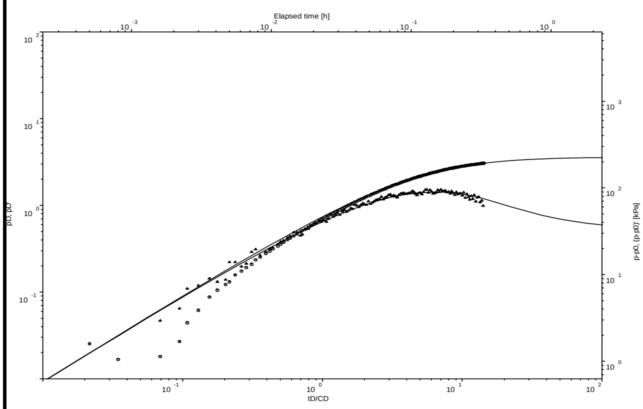
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	2843		
p_i (kPa) =	2843		
p_p(kPa) =	3061	p_F (kPa) =	2864
Q_p (m^3/s)=	4.39E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	10.6		
Derivative fact.=	0.09	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	2.0E-09		
T_M (m^2/s)=	2.1E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.94	dt_1 (min) =	#NV
dt_2 (min) =	8.54	dt_2 (min) =	#NV
T (m^2/s) =	1.1E-09	T (m^2/s) =	1.3E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	5.5E-11	K_s (m/s) =	6.7E-11
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	7.2E-11
C_D (-) =	NA	C_D (-) =	7.9E-03
ξ (-) =	-0.25	ξ (-) =	0.13
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	7.2E-11
dt_2 (min) =	#NV	C_D (-) =	7.9E-03
T_T (m^2/s) =	1.3E-09	ξ (-) =	0.13
S (-) =	1.0E-06		
K_s (m/s) =	6.7E-11		
S_s (1/m) =	5.0E-08		

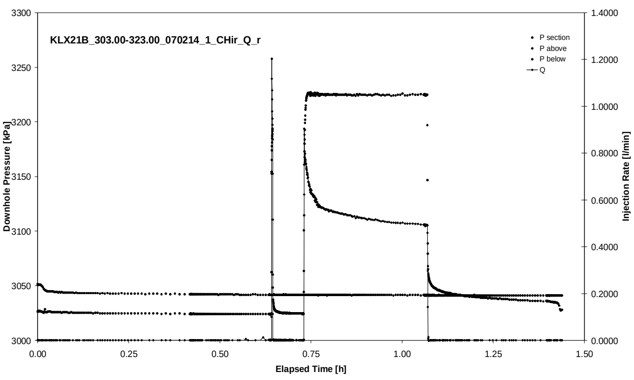
Comments:

The recommended transmissivity of 1.3•10-9 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 8.0•10-10 m2/s to 3.0•10-9 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 2,829.9 kPa.

Test Summary Sheet

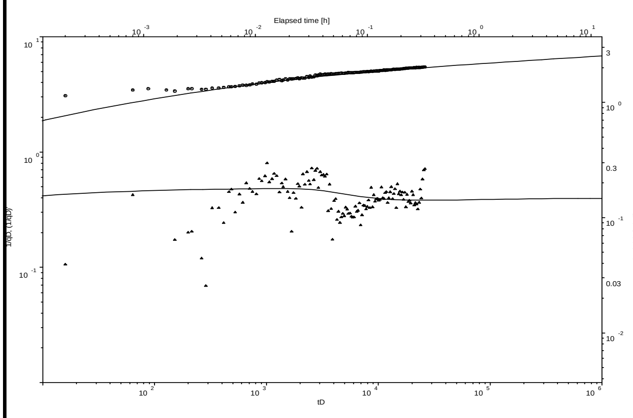
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070214 01:09
Test section from - to (m):	303.00-323.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

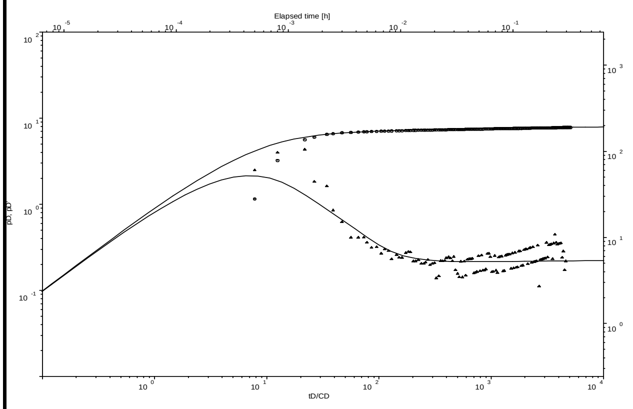


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3026		
p_i (kPa) =	3024		
p_p(kPa) =	3225	p_F (kPa) =	3036
Q_p (m^3/s)=	8.18E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	10.8		
Derivative fact.=	0.10	Derivative fact.=	0.06
Results		**Results**	
Q/s (m^2/s)=	4.0E-07		
T_M (m^2/s)=	4.2E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	7.81	dt_1 (min) =	2.06
dt_2 (min) =	21.86	dt_2 (min) =	17.77
T (m^2/s) =	4.4E-07	T (m^2/s) =	1.3E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.2E-08	K_s (m/s) =	6.4E-08
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	8.5E-11
C_D (-) =	NA	C_D (-) =	9.4E-03
ξ (-) =	-1.19	ξ (-) =	2.34
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	7.81	C (m^3/Pa) =	8.5E-11
dt_2 (min) =	21.86	C_D (-) =	9.4E-03
T_T (m^2/s) =	4.4E-07	ξ (-) =	-1.19
S (-) =	1.0E-06		
K_s (m/s) =	2.2E-08		
S_s (1/m) =	5.0E-08		

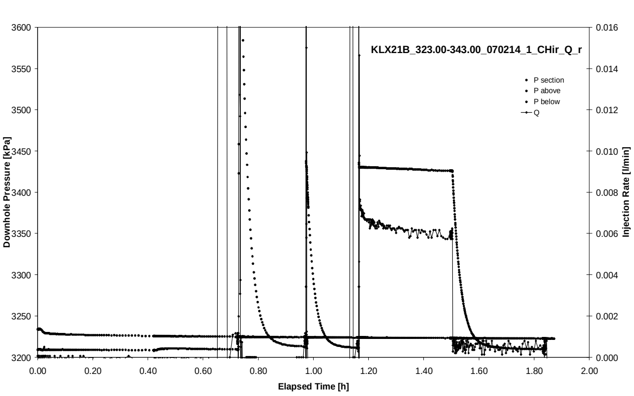
Comments:

The recommended transmissivity of 4.4E-07 m2/s was derived from the analysis of the CHi phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 2.0E-07 m2/s to 3.0E-06 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 3,031.8 kPa.

Test Summary Sheet

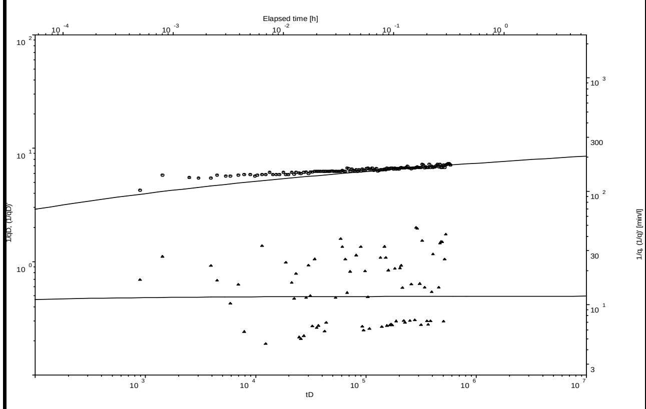
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070214 06:37
Test section from - to (m):	323.00-343.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

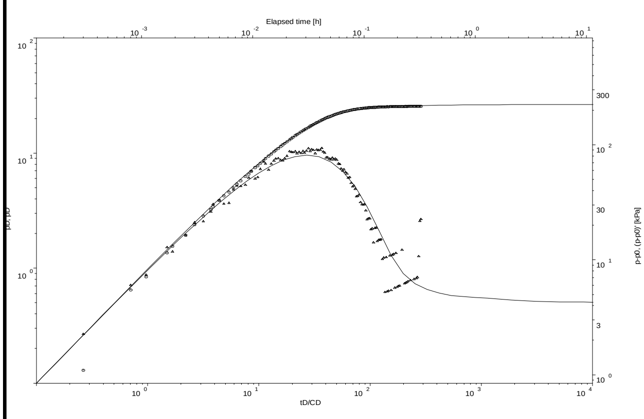


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3209		
p_i (kPa) =	3210		
p_p(kPa) =	3425	p_F (kPa) =	3210
Q_p (m^3/s)=	9.58E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	11.1		
Derivative fact.=	0.05	Derivative fact.=	0.01
Results		**Results**	
Q/s (m^2/s)=	4.4E-09		
T_M (m^2/s)=	4.6E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.20	dt_1 (min) =	#NV
dt_2 (min) =	3.50	dt_2 (min) =	#NV
T (m^2/s) =	5.1E-09	T (m^2/s) =	1.9E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.5E-10	K_s (m/s) =	9.6E-10
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	4.6E-11
C_D (-) =	NA	C_D (-) =	5.1E-03
ξ (-) =	2.48	ξ (-) =	21.03
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	4.6E-11
dt_2 (min) =	#NV	C_D (-) =	5.1E-03
T_T (m^2/s) =	1.9E-08	ξ (-) =	21.03
S (-) =	1.0E-06		
K_s (m/s) =	9.6E-10		
S_s (1/m) =	5.0E-08		

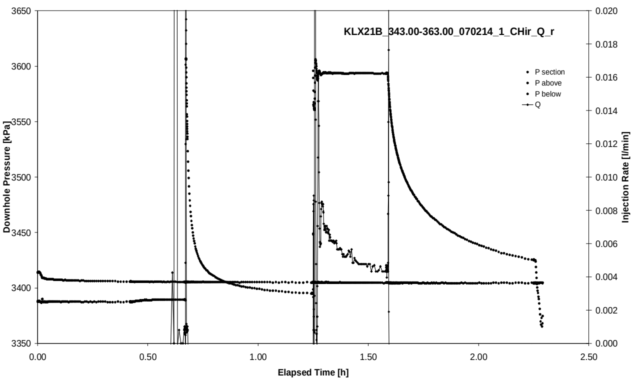
Comments:

The recommended transmissivity of 1.9•10-8 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 3.0•10-9 m2/s to 3.0•10-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 3,206.5 kPa.

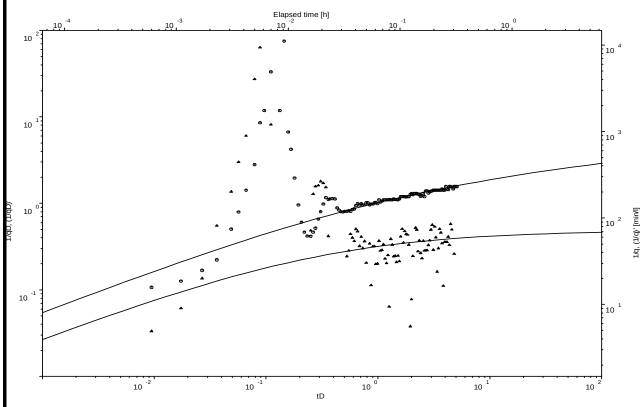
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070214 09:15
Test section from - to (m):	343.00-363.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

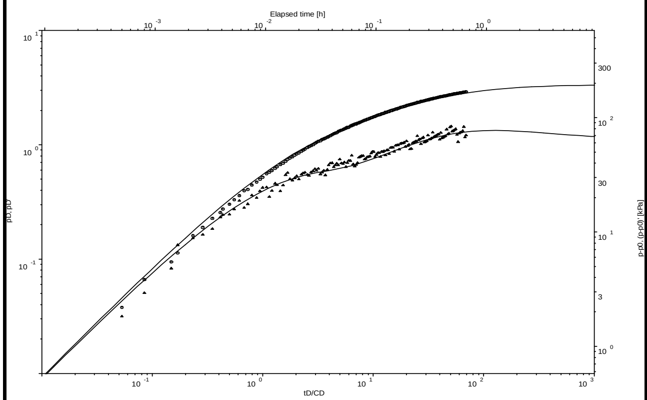
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3388		
p_i (kPa) =	3395		
p_p(kPa) =	3593	p_F (kPa) =	3424
Q_p (m^3/s)=	7.17E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	11.4		
Derivative fact.=	0.08	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	3.6E-09		
T_M (m^2/s)=	3.7E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	8.9E-10	T (m^2/s) =	2.6E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	4.4E-11	K_s (m/s) =	1.3E-10
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	5.7E-11
C_D (-) =	NA	C_D (-) =	6.3E-03
ξ (-) =	-2.47	ξ (-) =	-1.51
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	5.7E-11
dt_2 (min) =	#NV	C_D (-) =	6.3E-03
T_T (m^2/s) =	2.6E-09	ξ (-) =	-1.51
S (-) =	1.0E-06		
K_s (m/s) =	1.3E-10		
S_s (1/m) =	5.0E-08		

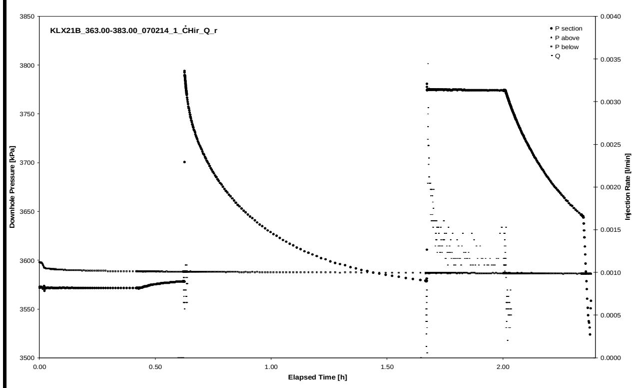
Comments:

The recommended transmissivity of 2.6•10-9 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 6.0•10-10 m2/s to 4.0•10-9 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,396.4 kPa.

Test Summary Sheet

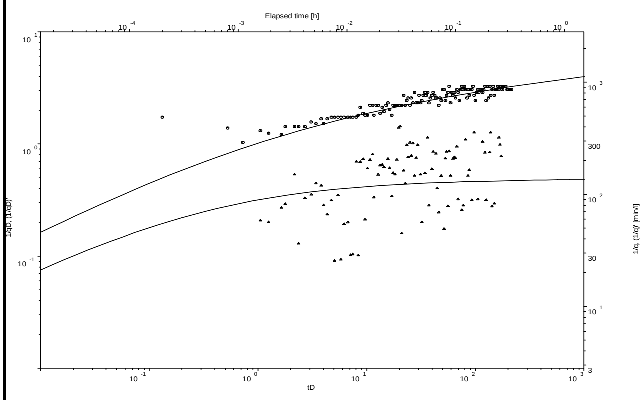
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070214 12:16
Test section from - to (m):	363.00-383.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

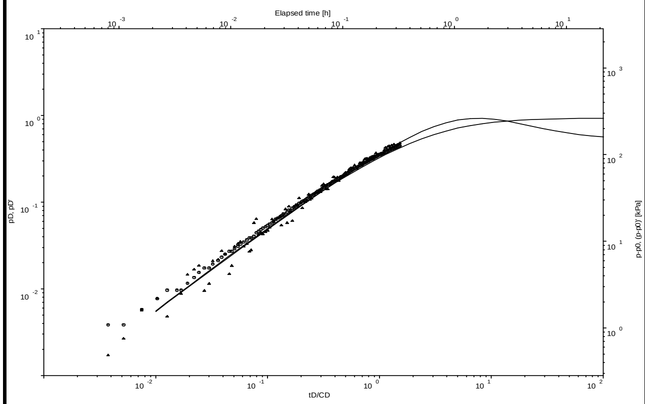


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3572		
p_i (kPa) =	3581		
p_p(kPa) =	3773	p_F (kPa) =	3643
Q_p (m^3/s)=	1.83E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	11.6		
Derivative fact.=	0.13	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	9.4E-10		
T_M (m^2/s)=	9.8E-10		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.16	dt_1 (min) =	#NV
dt_2 (min) =	7.81	dt_2 (min) =	#NV
T (m^2/s) =	4.8E-10	T (m^2/s) =	1.2E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.4E-11	K_s (m/s) =	6.0E-12
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	5.8E-11
C_D (-) =	NA	C_D (-) =	6.4E-03
ξ (-) =	-0.30	ξ (-) =	-0.92
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	1.16	C (m^3/Pa) =	5.8E-11
dt_2 (min) =	7.81	C_D (-) =	6.4E-03
T_T (m^2/s) =	4.8E-10	ξ (-) =	-0.30
S (-) =	1.0E-06		
K_s (m/s) =	2.4E-11		
S_s (1/m) =	5.0E-08		

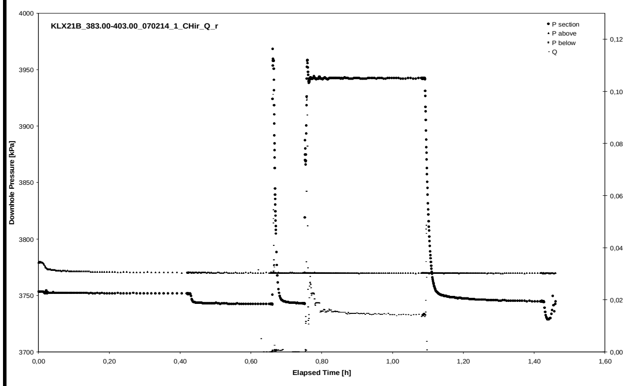
Comments:

The recommended transmissivity of 4.8•10-10 m2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-10 m2/s to 6.0•10-10 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using straight line extrapolation in the Horner plot because of a too short recovery phase.

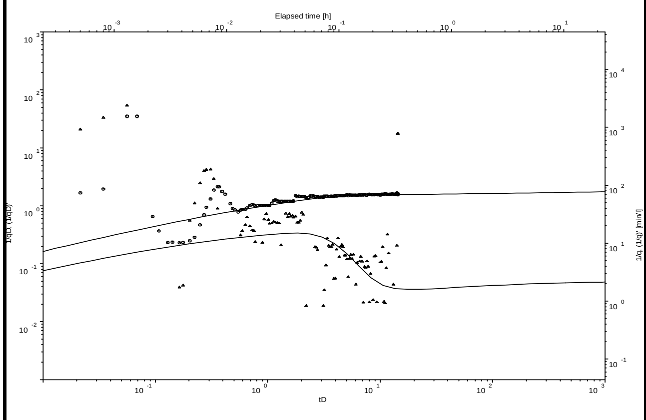
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070214 15:20
Test section from - to (m):	383.00-403.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

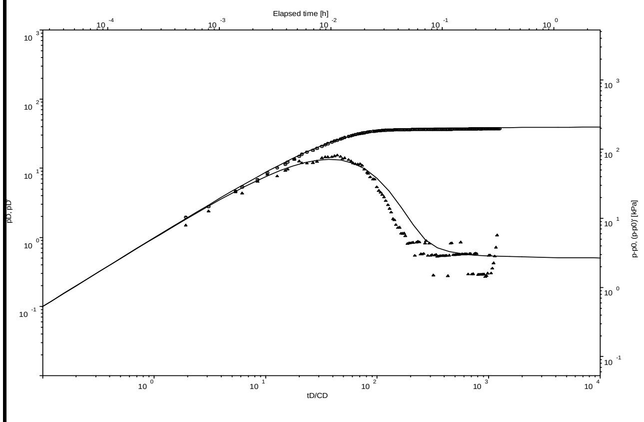
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	3753		
p_i (kPa) =	3742		
p_p(kPa) =	3942	p_F (kPa) =	3745
Q_p (m^3/s)=	0.00E+00		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	11.9		
Derivative fact.=	0.07	Derivative fact.=	0.07
Results		**Results**	
Q/s (m^2/s)=	0.0E+00		
T_M (m^2/s)=	0.0E+00		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	9.97
dt_2 (min) =	#NV	dt_2 (min) =	16.45
T (m^2/s) =	3.0E-09	T (m^2/s) =	7.9E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.5E-10	K_s (m/s) =	4.0E-09
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	4.7E-11
C_D (-) =	NA	C_D (-) =	5.2E-03
ξ (-) =	-2.57	ξ (-) =	3.26
T_{GRF}(m^2/s) =		T_{GRF}(m^2/s) =	
S_{GRF}(-) =		S_{GRF}(-) =	
D_{GRF} (-) =		D_{GRF} (-) =	

Selected representative parameters.			
dt_1 (min) =	9.97	C (m^3/Pa) =	4.7E-11
dt_2 (min) =	16.45	C_D (-) =	5.2E-03
T_T (m^2/s) =	7.9E-08	ξ (-) =	3.26
S (-) =	1.0E-06		
K_s (m/s) =	4.0E-09		
S_s (1/m) =	5.0E-08		

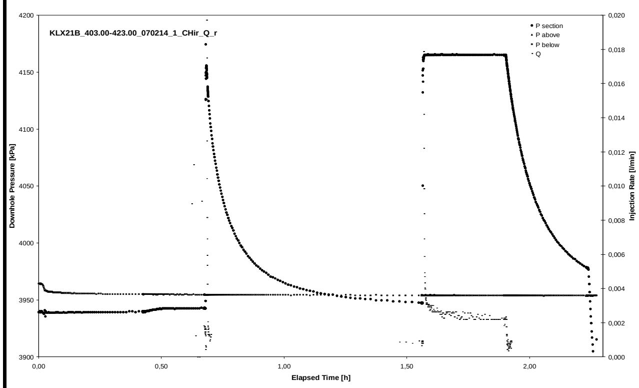
Comments:

The recommended transmissivity of 7.9•10-8 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-9 m2/s to 9.0•10-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,741.7 kPa.

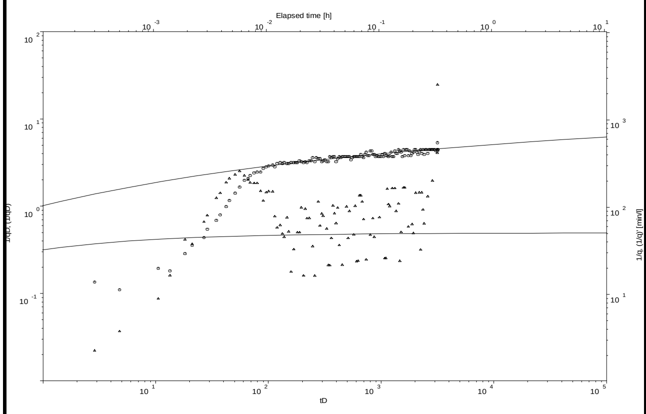
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070214 17:28
Test section from - to (m):	403.00-423.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

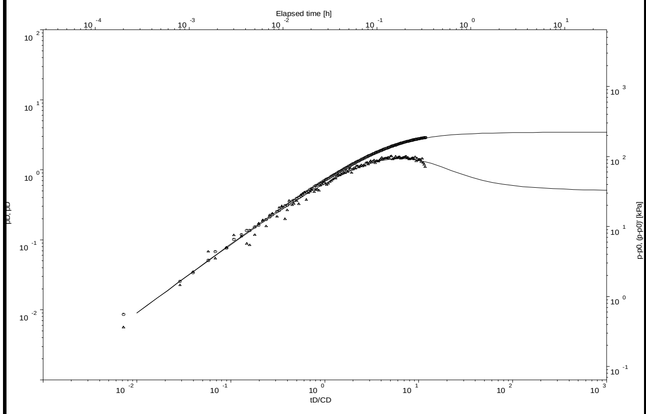
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	3939		
p_i (kPa) =	3948		
p_p(kPa) =	4165	p_F (kPa) =	3976
Q_p (m^3/s)=	3.65E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	12.2		
Derivative fact.=	0.11	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.7E-09		
T_M (m^2/s)=	1.7E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.81	dt_1 (min) =	#NV
dt_2 (min) =	15.11	dt_2 (min) =	#NV
T (m^2/s) =	1.2E-09	T (m^2/s) =	1.2E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	6.0E-11	K_s (m/s) =	6.0E-11
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	7.7E-11
C_D (-) =	NA	C_D (-) =	8.4E-03
ξ (-) =	1.65	ξ (-) =	0.09
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	7.7E-11
dt_2 (min) =	#NV	C_D (-) =	8.4E-03
T_T (m^2/s) =	1.2E-09	ξ (-) =	0.09
S (-) =	1.0E-06		
K_s (m/s) =	6.0E-11		
S_s (1/m) =	5.0E-08		

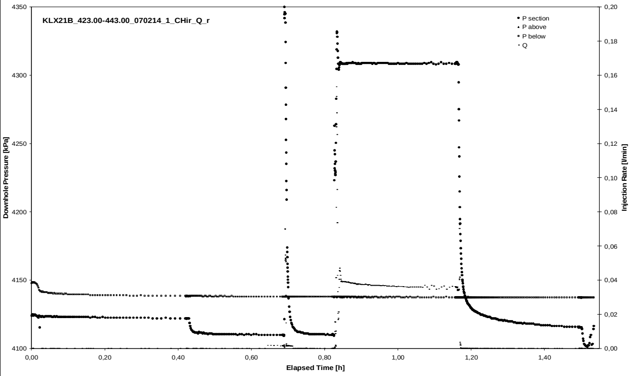
Comments:

The recommended transmissivity of 1.2•10-9 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-9 m2/s to 3.0•10-9 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,940.2 kPa.

Test Summary Sheet

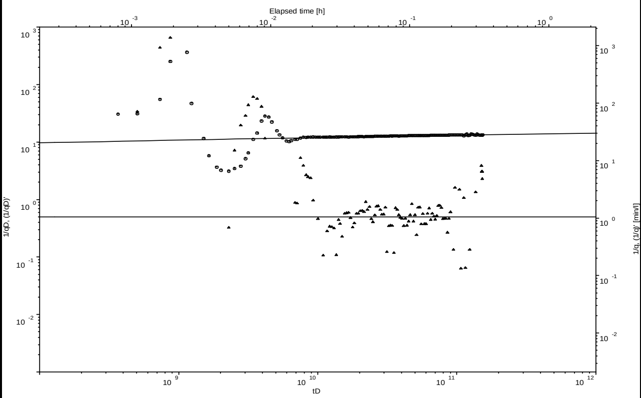
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070214 20:27
Test section from - to (m):	423.00-443.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

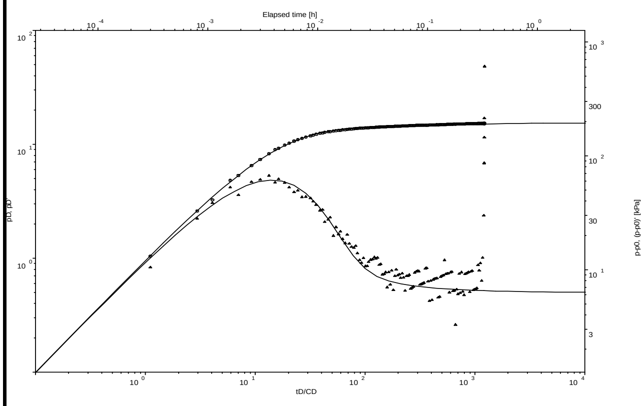


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4125		
p_i (kPa) =	4110		
p_p(kPa) =	4308	p_F (kPa) =	4115
Q_p (m^3/s)=	5.77E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	12.5		
Derivative fact.=	0.08	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	2.9E-08		
T_M (m^2/s)=	3.0E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.90	dt_1 (min) =	2.75
dt_2 (min) =	11.55	dt_2 (min) =	16.88
T (m^2/s) =	6.2E-08	T (m^2/s) =	7.7E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.1E-09	K_s (m/s) =	3.9E-09
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	4.8E-11
C_D (-) =	NA	C_D (-) =	5.3E-03
ξ (-) =	7.45	ξ (-) =	9.54
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	1.90	C (m^3/Pa) =	4.8E-11
dt_2 (min) =	11.55	C_D (-) =	5.3E-03
T_T (m^2/s) =	6.2E-08	ξ (-) =	7.45
S (-) =	1.0E-06		
K_s (m/s) =	3.1E-09		
S_s (1/m) =	5.0E-08		

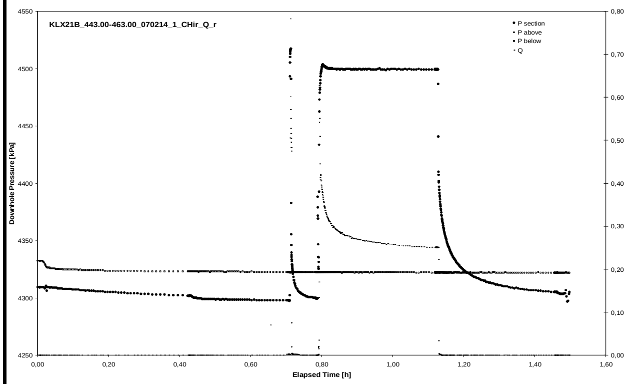
Comments:

The recommended transmissivity of 6.2•10-8 m2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 4.0•10-8 m2/s to 9.0•10-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,110.0 kPa.

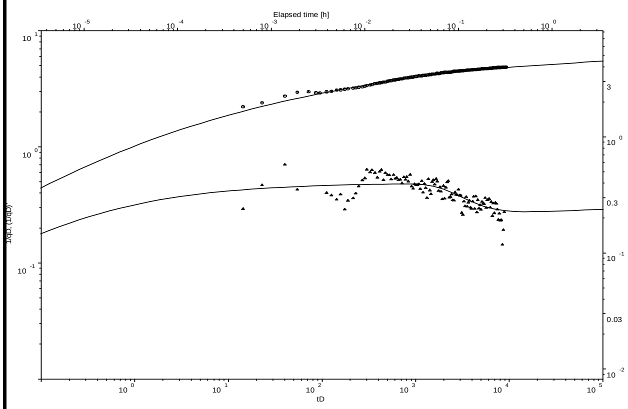
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070214 23:06
Test section from - to (m):	443.00-463.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

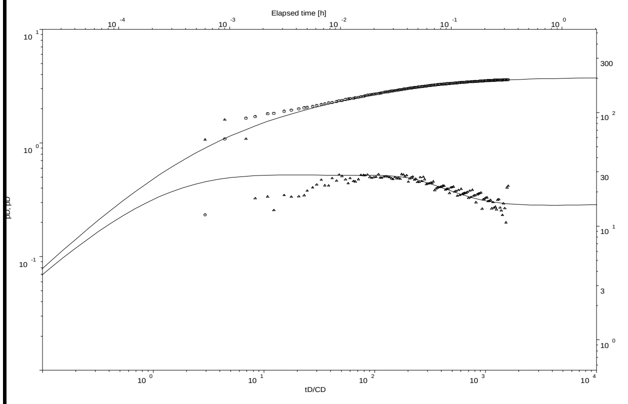
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4309		
p_i (kPa) =	4300		
p_p(kPa) =	4499	p_F (kPa) =	4304
Q_p (m^3/s)=	4.18E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	12.7		
Derivative fact.=	0.08	Derivative fact.=	0.06
Results		**Results**	
Q/s (m^2/s)=	2.1E-07		
T_M (m^2/s)=	2.2E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.52	dt_1 (min) =	0.50
dt_2 (min) =	1.75	dt_2 (min) =	1.54
T (m^2/s) =	1.6E-07	T (m^2/s) =	1.3E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	8.0E-09	K_s (m/s) =	6.6E-09
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	6.2E-11
C_D (-) =	NA	C_D (-) =	6.8E-03
ξ (-) =	-1.31	ξ (-) =	-2.10
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	0.50	C (m^3/Pa) =	6.2E-11
dt_2 (min) =	1.54	C_D (-) =	6.8E-03
T_T (m^2/s) =	1.3E-07	ξ (-) =	-2.10
S (-) =	1.0E-06		
K_s (m/s) =	6.6E-09		
S_s (1/m) =	5.0E-08		

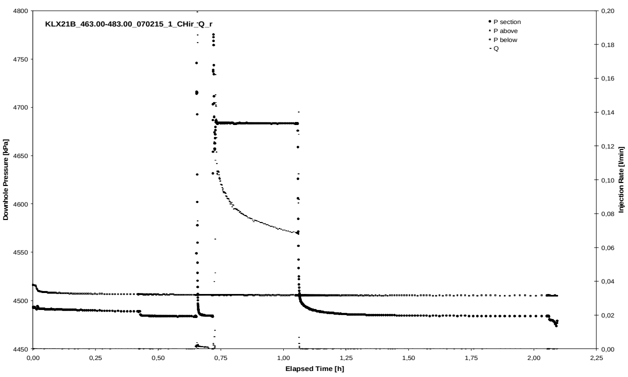
Comments:

The recommended transmissivity of 1.3•10-7 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-7 m2/s to 3.0•10-7 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,294.8 kPa.

Test Summary Sheet

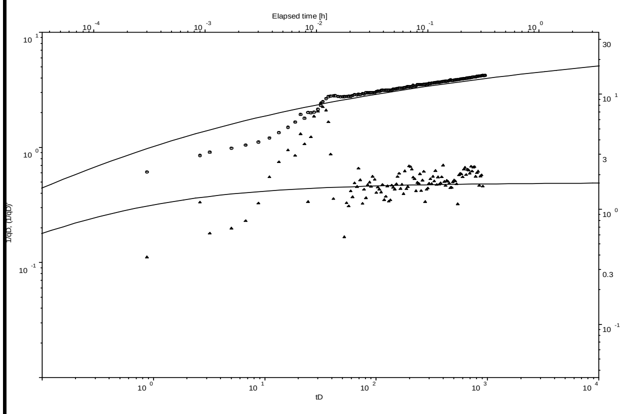
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070215 01:22
Test section from - to (m):	463.00-483.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

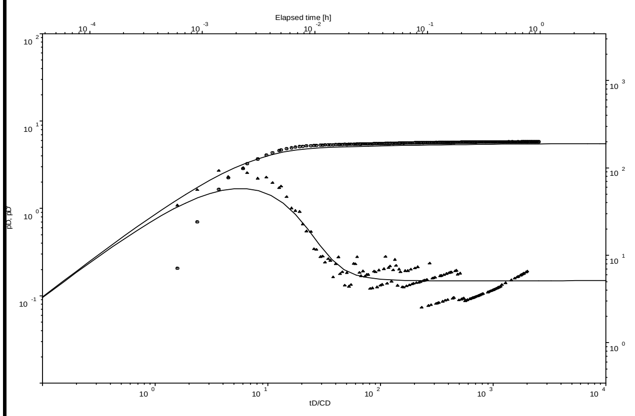


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4493		
p_i (kPa) =	4483		
p_p(kPa) =	4684	p_F (kPa) =	4484
Q_p (m^3/s)=	1.13E-06		
tp (s) =	1200	t_F (s) =	3600
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	13.0		
Derivative fact.=	0.09	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	5.5E-08		
T_M (m^2/s)=	5.8E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.39	dt_1 (min) =	#NV
dt_2 (min) =	18.72	dt_2 (min) =	#NV
T (m^2/s) =	3.8E-08	T (m^2/s) =	6.3E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.9E-09	K_s (m/s) =	3.2E-09
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	5.6E-11
C_D (-) =	NA	C_D (-) =	6.1E-03
ξ (-) =	-1.74	ξ (-) =	1.41
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	1.39	C (m^3/Pa) =	5.6E-11
dt_2 (min) =	18.72	C_D (-) =	6.1E-03
T_T (m^2/s) =	3.8E-08	ξ (-) =	-1.74
S (-) =	1.0E-06		
K_s (m/s) =	1.9E-09		
S_s (1/m) =	5.0E-08		

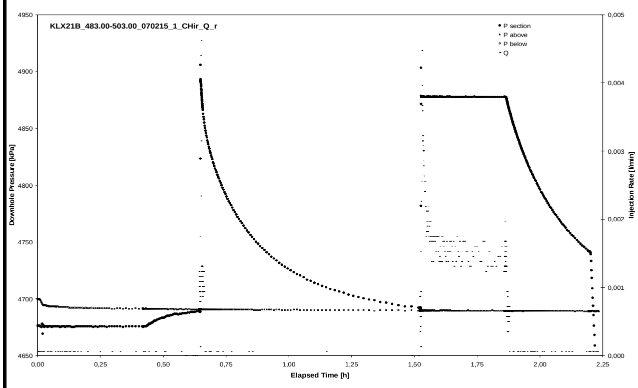
Comments:

The recommended transmissivity of 3.8E-08 m2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 2.0E-08 m2/s to 4.0E-07 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 4,482.9 kPa.

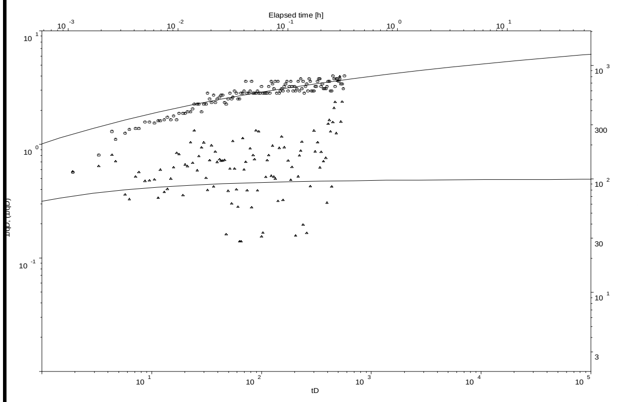
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070215 06:36
Test section from - to (m):	483.00-503.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

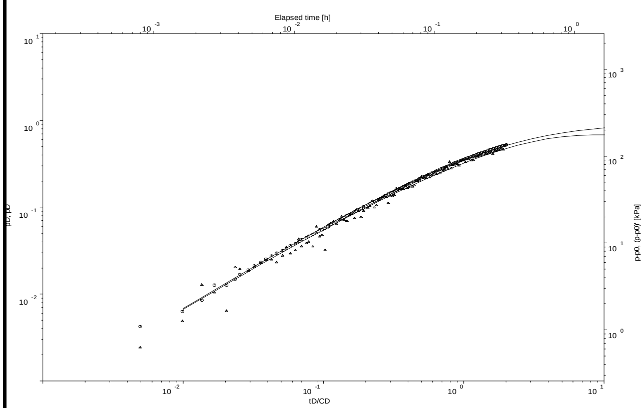
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4676		
p_i (kPa) =	4691		
p_p(kPa) =	4875	p_F (kPa) =	4741
Q_p (m^3/s)=	2.42E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	13.3		
Derivative fact.=	0.09	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.3E-09		
T_M (m^2/s)=	1.3E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	7.0E-10	T (m^2/s) =	1.7E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.5E-11	K_s (m/s) =	8.7E-12
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	6.4E-11
C_D (-) =	NA	C_D (-) =	7.1E-03
ξ (-) =	0.00	ξ (-) =	-1.57
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	6.4E-11
dt_2 (min) =	#NV	C_D (-) =	7.1E-03
T_T (m^2/s) =	7.0E-10	ξ (-) =	0.00
S (-) =	1.0E-06		
K_s (m/s) =	3.5E-11		
S_s (1/m) =	5.0E-08		

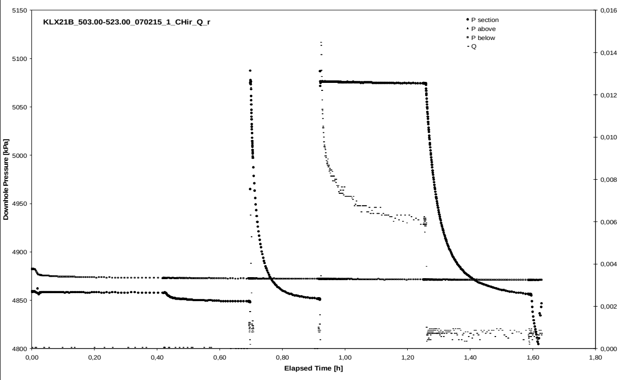
Comments:

The recommended transmissivity of 7.0•10-10 m2/s was derived from the analysis of the CHi phase, which shows the better data quality. The confidence range for the interval transmissivity is estimated to be 2.0•10-10 m2/s to 2.0•10-9 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth of 4663.1 kPa was derived from the CHir phase using type curve extrapolation in the Horner plot.

Test Summary Sheet

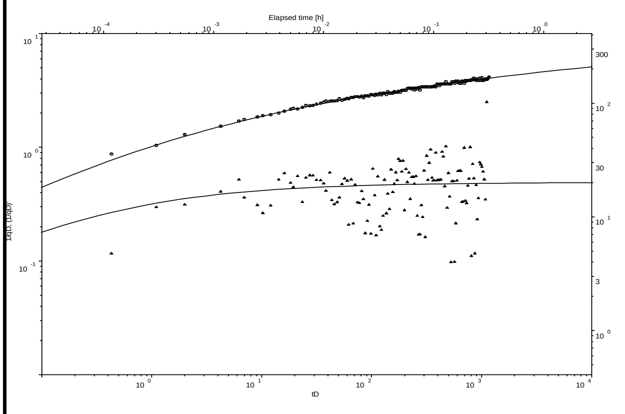
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070215 09:32
Test section from - to (m):	503.00-523.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

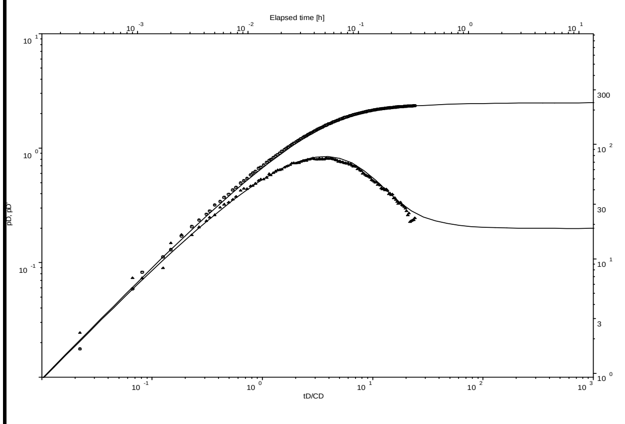


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4858		
p_i (kPa) =	4851		
p_p(kPa) =	5073	p_F (kPa) =	4855
Q_p (m^3/s)=	9.78E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	13.6		
Derivative fact.=	0.08	Derivative fact.=	0.11
Results		**Results**	
Q/s (m^2/s)=	4.3E-09		
T_M (m^2/s)=	4.5E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.63	dt_1 (min) =	#NV
dt_2 (min) =	14.62	dt_2 (min) =	#NV
T (m^2/s) =	2.9E-09	T (m^2/s) =	2.0E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.4E-10	K_s (m/s) =	9.9E-11
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	6.1E-11
C_D (-) =	NA	C_D (-) =	6.8E-03
ξ (-) =	-0.33	ξ (-) =	-0.95
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	6.1E-11
dt_2 (min) =	#NV	C_D (-) =	6.8E-03
T_T (m^2/s) =	2.0E-09	ξ (-) =	-0.95
S (-) =	1.0E-06		
K_s (m/s) =	9.9E-11		
S_s (1/m) =	5.0E-08		

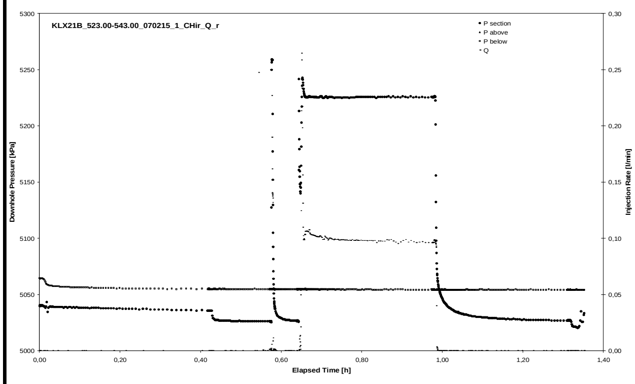
Comments:

The recommended transmissivity of 2.0•10-9 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-9 m2/s to 6.0•10-9 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,837.1 kPa.

Test Summary Sheet

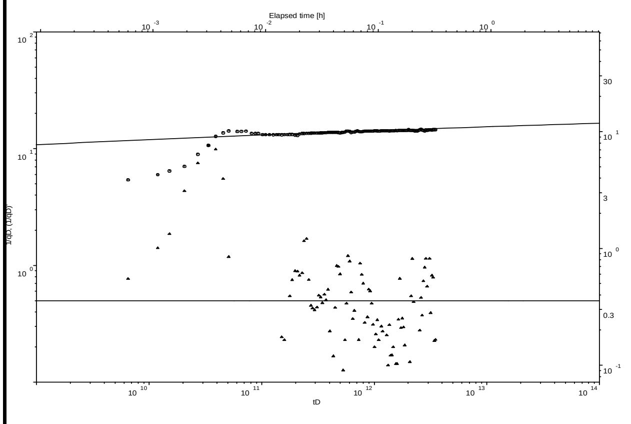
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070215 11:42
Test section from - to (m):	523.00-543.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

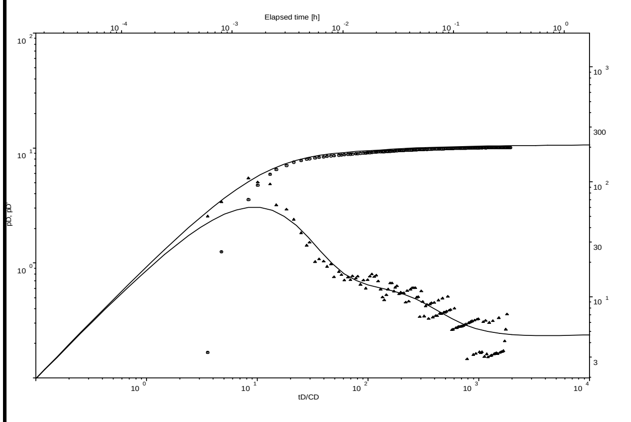


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5040		
p_i (kPa) =	5026		
p_p(kPa) =	5226	p_F (kPa) =	5027
Q_p (m^3/s)=	1.58E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	13.9		
Derivative fact.=	0.07	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	7.7E-08		
T_M (m^2/s)=	8.1E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.34	dt_1 (min) =	#NV
dt_2 (min) =	16.66	dt_2 (min) =	#NV
T (m^2/s) =	1.8E-07	T (m^2/s) =	1.3E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	9.1E-09	K_s (m/s) =	6.6E-09
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	5.1E-11
C_D (-) =	NA	C_D (-) =	5.6E-03
ξ (-) =	8.49	ξ (-) =	4.90
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	5.1E-11
dt_2 (min) =	#NV	C_D (-) =	5.6E-03
T_T (m^2/s) =	1.3E-07	ξ (-) =	4.90
S (-) =	1.0E-06		
K_s (m/s) =	6.6E-09		
S_s (1/m) =	5.0E-08		

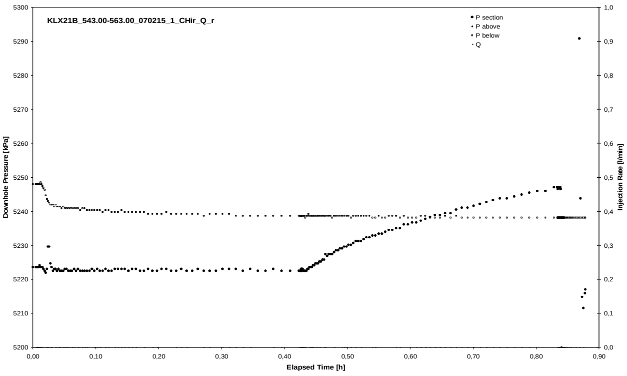
Comments:

The recommended transmissivity of 1.3E-07 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 8.0E-08 m2/s to 4.0E-07 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,024.0 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070215 14:01
Test section from - to (m):	543.00-563.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	5224		
p_i (kPa) =	5247		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	14.0		
Derivative fact.=	#NV	Derivative fact.=	#NV
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	5.0E-13	K_s (m/s) =	NA
S_s (1/m) =	5.0E-08	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	5.0E-13		
S_s (1/m) =	5.0E-08		

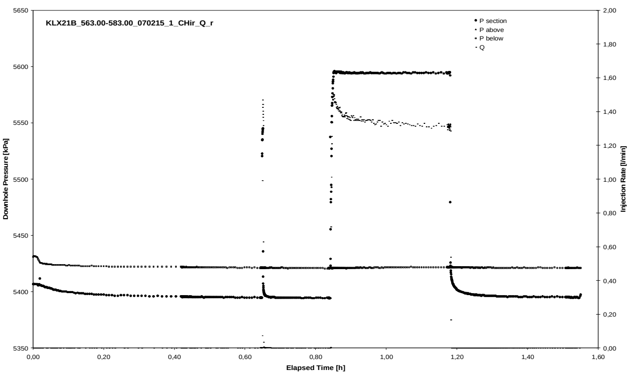
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

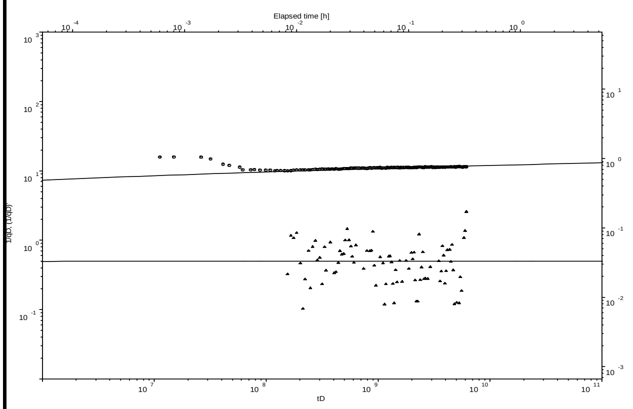
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070215 15:30
Test section from - to (m):	563.00-583.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

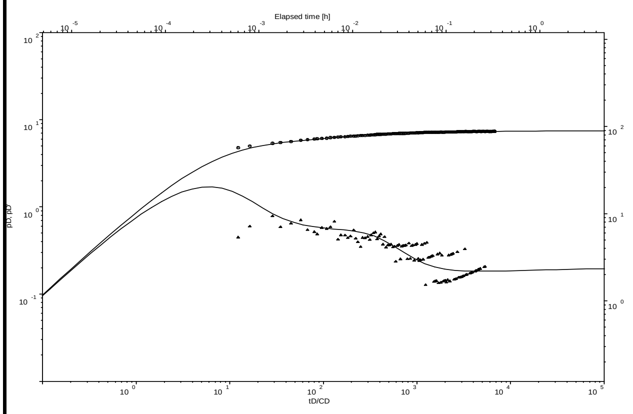


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5407		
p_i (kPa) =	5394		
p_p(kPa) =	5595	p_F (kPa) =	5394
Q_p (m^3/s)=	2.20E-05		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	14.3		
Derivative fact.=	0.05	Derivative fact.=	0.08
Results		**Results**	
Q/s (m^2/s)=	1.1E-06		
T_M (m^2/s)=	1.1E-06		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.65	dt_1 (min) =	0.28
dt_2 (min) =	14.33	dt_2 (min) =	0.62
T (m^2/s) =	2.0E-06	T (m^2/s) =	2.9E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	9.8E-08	K_s (m/s) =	1.5E-07
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.3E-10
C_D (-) =	NA	C_D (-) =	3.6E-02
ξ (-) =	4.12	ξ (-) =	0.52
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	0.28	C (m^3/Pa) =	3.3E-10
dt_2 (min) =	0.62	C_D (-) =	3.6E-02
T_T (m^2/s) =	2.9E-06	ξ (-) =	0.52
S (-) =	1.0E-06		
K_s (m/s) =	1.5E-07		
S_s (1/m) =	5.0E-08		

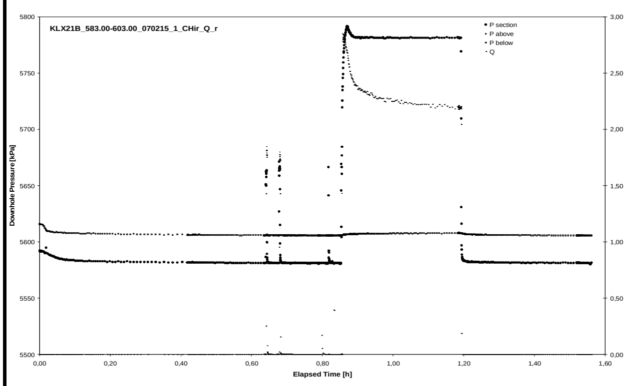
Comments:

The recommended transmissivity of 2.9•10-6 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-6 m2/s to 8.0•10-6 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 5,394.4 kPa.

Test Summary Sheet

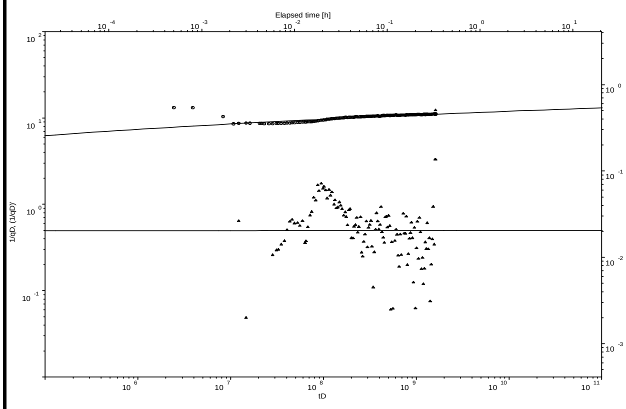
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070215 17:52
Test section from - to (m):	583.00-603.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

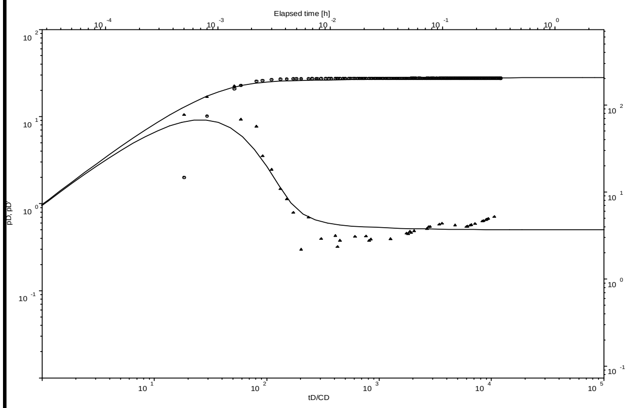


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5592		
p_i (kPa) =	5581		
p_p(kPa) =	5781	p_F (kPa) =	5581
Q_p (m^3/s)=	3.67E-05		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	14.6		
Derivative fact.=	0.06	Derivative fact.=	0.03
Results		**Results**	
Q/s (m^2/s)=	1.8E-06		
T_M (m^2/s)=	1.9E-06		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	2.88	dt_1 (min) =	0.67
dt_2 (min) =	13.65	dt_2 (min) =	11.66
T (m^2/s) =	3.2E-06	T (m^2/s) =	8.1E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.6E-07	K_s (m/s) =	4.1E-07
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	5.0E-10
C_D (-) =	NA	C_D (-) =	5.5E-02
ξ (-) =	3.21	ξ (-) =	19.90
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	2.88	C (m^3/Pa) =	5.0E-10
dt_2 (min) =	13.65	C_D (-) =	5.5E-02
T_T (m^2/s) =	3.2E-06	ξ (-) =	3.21
S (-) =	1.0E-06		
K_s (m/s) =	1.6E-07		
S_s (1/m) =	5.0E-08		

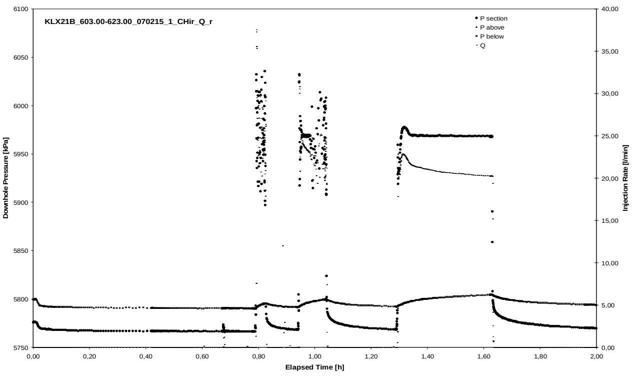
Comments:

The recommended transmissivity of 3.2E-06 m2/s was derived from the analysis of the CHi phase, which shows a fairly good data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0E-06 m2/s to 1.0E-05 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,580.9 kPa.

Test Summary Sheet

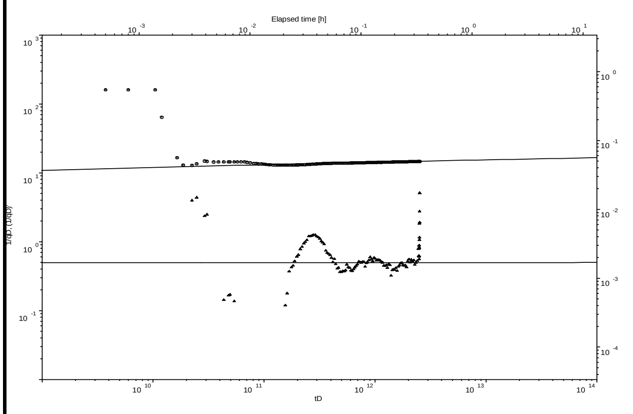
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070215 20:13
Test section from - to (m):	603.00-623.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

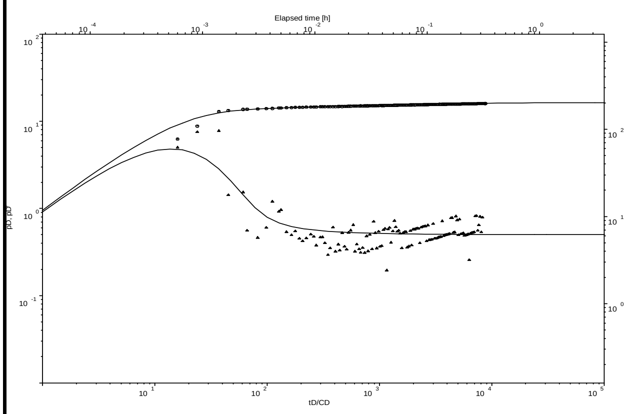


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5776		
p_i (kPa) =	5769		
p_p(kPa) =	5968	p_F (kPa) =	5770
Q_p (m^3/s)=	3.37E-04		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	14.1		
Derivative fact.=	0.07	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	1.7E-05		
T_M (m^2/s)=	1.7E-05		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	3.55	dt_1 (min) =	0.59
dt_2 (min) =	18.75	dt_2 (min) =	18.20
T (m^2/s) =	3.8E-05	T (m^2/s) =	4.4E-05
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.9E-06	K_s (m/s) =	2.2E-06
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.8E-09
C_D (-) =	NA	C_D (-) =	4.2E-01
ξ (-) =	5.63	ξ (-) =	7.35
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	3.55	C (m^3/Pa) =	3.8E-09
dt_2 (min) =	18.75	C_D (-) =	4.2E-01
T_T (m^2/s) =	3.8E-05	ξ (-) =	5.63
S (-) =	1.0E-06		
K_s (m/s) =	1.9E-06		
S_s (1/m) =	5.0E-08		

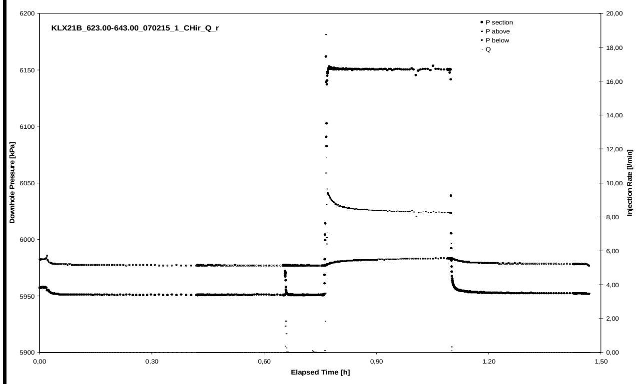
Comments:

The recommended transmissivity of 3.8•10-5 m2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-5 m2/s to 6.0•10-5 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 5,764.7 kPa.

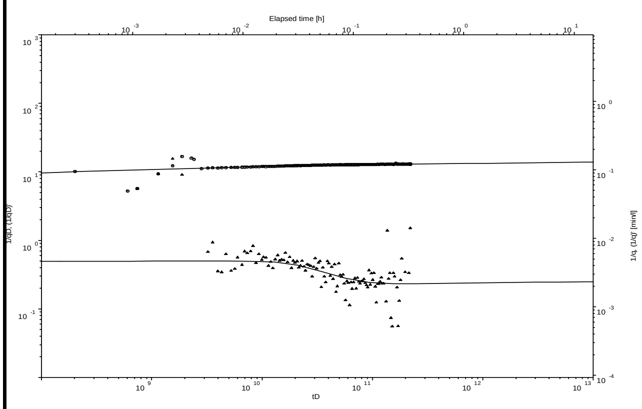
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070215 23:08
Test section from - to (m):	623.00-643.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

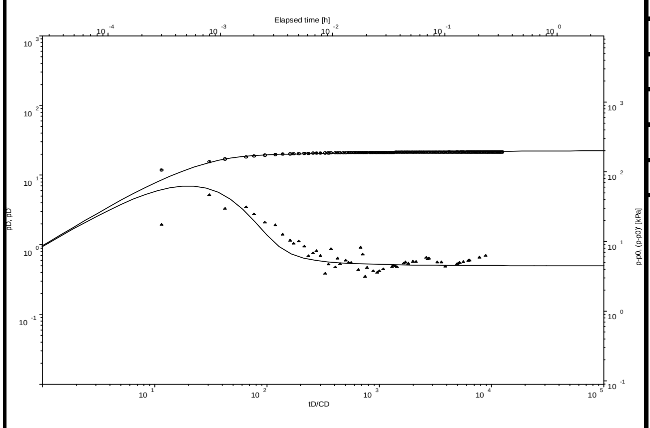
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5958		
p_i (kPa) =	5952		
p_p(kPa) =	6150	p_F (kPa) =	5952
Q_p (m^3/s)=	1.38E-04		
tp (s) =	1200	t_F (s) =	1200
S el S* (-)=	1.00E-06	S el S* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	15.1		
Derivative fact.=	0.07	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	6.8E-06		
T_M (m^2/s)=	7.1E-06		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.42	dt_1 (min) =	0.55
dt_2 (min) =	0.89	dt_2 (min) =	9.98
T (m^2/s) =	2.8E-05	T (m^2/s) =	2.5E-05
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.4E-06	K_s (m/s) =	1.2E-06
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.5E-09
C_D (-) =	NA	C_D (-) =	1.6E-01
ξ (-) =	4.93	ξ (-) =	13.60
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	0.55	C (m^3/Pa) =	1.5E-09
dt_2 (min) =	9.98	C_D (-) =	1.6E-01
T_T (m^2/s) =	2.5E-05	ξ (-) =	13.60
S (-) =	1.0E-06		
K_s (m/s) =	1.2E-06		
S_s (1/m) =	5.0E-08		

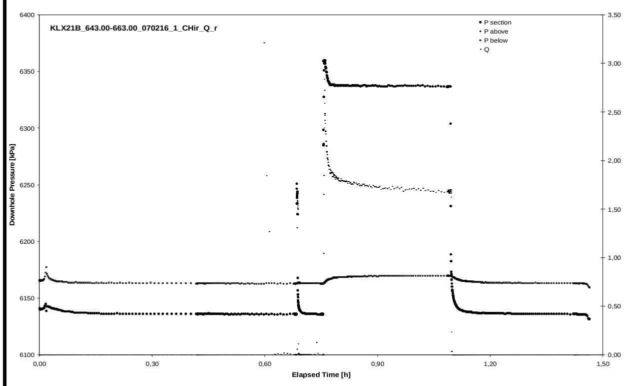
Comments:

The recommended transmissivity of 2.5E-05 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 5.0E-06 m2/s to 4.0E-05 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,952.1 kPa.

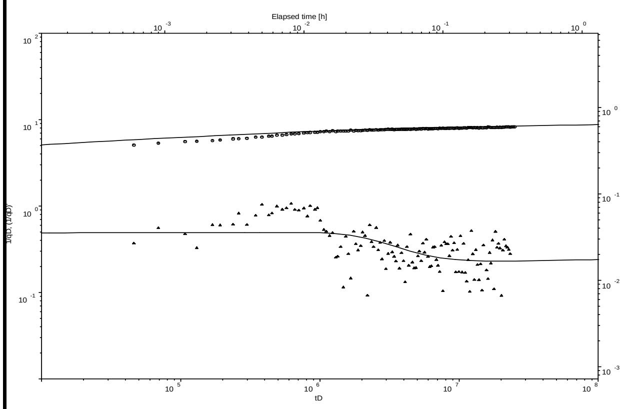
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070216 01:18
Test section from - to (m):	643.00-663.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

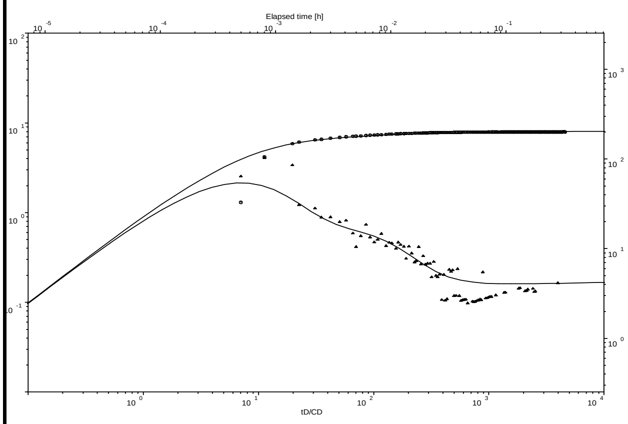
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6140		
p_i (kPa) =	6136		
p_p(kPa) =	6337	p_F (kPa) =	6136
Q_p (m^3/s)=	2.80E-05		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	15.8		
Derivative fact.=	0.11	Derivative fact.=	0.04
Results		**Results**	
Q/s (m^2/s)=	1.4E-06		
T_M (m^2/s)=	1.4E-06		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.08	dt_1 (min) =	10.02
dt_2 (min) =	0.87	dt_2 (min) =	14.04
T (m^2/s) =	1.8E-06	T (m^2/s) =	1.8E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	9.0E-08	K_s (m/s) =	9.0E-08
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.0E-10
C_D (-) =	NA	C_D (-) =	3.3E-02
ξ (-) =	1.42	ξ (-) =	1.72
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	10.02	C (m^3/Pa) =	3.0E-10
dt_2 (min) =	14.04	C_D (-) =	3.3E-02
T_T (m^2/s) =	1.8E-06	ξ (-) =	1.72
S (-) =	1.0E-06		
K_s (m/s) =	9.0E-08		
S_s (1/m) =	5.0E-08		

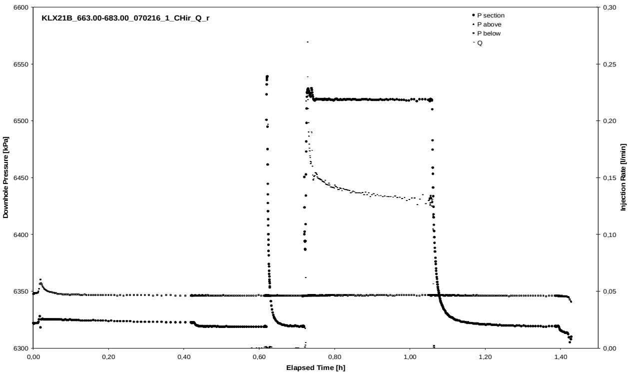
Comments:

The recommended transmissivity of 1.8E-06 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 8.0E-07 m2/s to 6.0E-06 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,135.2 kPa.

Test Summary Sheet

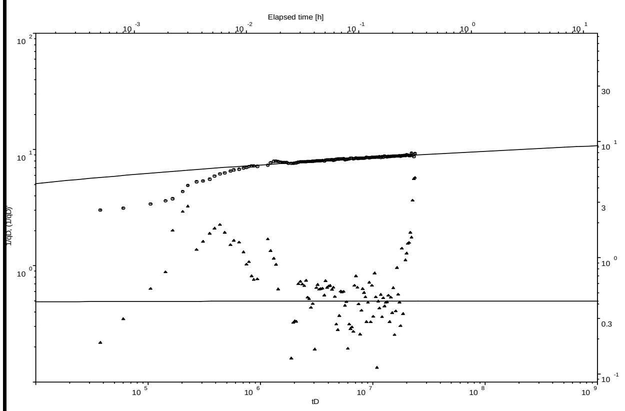
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070216 06:38
Test section from - to (m):	663.00-683.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

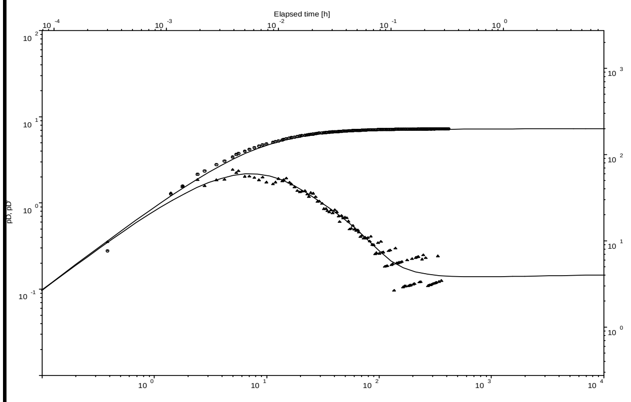


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6322		
p_i (kPa) =	6314		
p_p(kPa) =	6518	p_F (kPa) =	6319
Q_p (m^3/s)=	2.20E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.2		
Derivative fact.=	0.08	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	1.1E-07		
T_M (m^2/s)=	1.1E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.73	dt_1 (min) =	#NV
dt_2 (min) =	13.18	dt_2 (min) =	#NV
T (m^2/s) =	1.5E-07	T (m^2/s) =	1.3E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	7.5E-09	K_s (m/s) =	6.7E-09
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.4E-10
C_D (-) =	NA	C_D (-) =	2.6E-02
ξ (-) =	2.65	ξ (-) =	1.82
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	2.4E-10
dt_2 (min) =	#NV	C_D (-) =	2.6E-02
T_T (m^2/s) =	1.3E-07	ξ (-) =	1.82
S (-) =	1.0E-06		
K_s (m/s) =	6.7E-09		
S_s (1/m) =	5.0E-08		

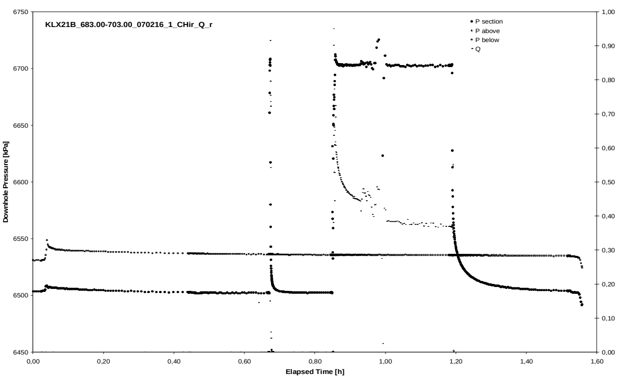
Comments:

The recommended transmissivity of 1.3E-07 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 8.0E-08 m2/s to 6.0E-07 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,316.3 kPa.

Test Summary Sheet

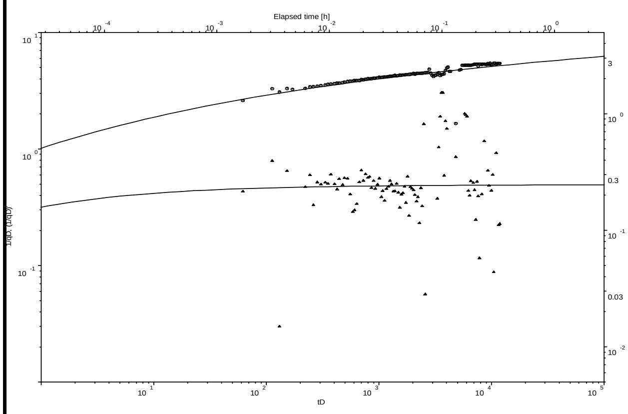
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070216 08:52
Test section from - to (m):	683.00-703.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

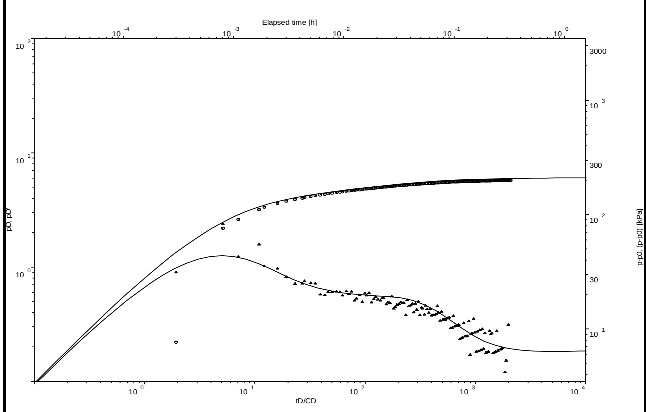


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6503		
p_i (kPa) =	6502		
p_p(kPa) =	6704	p_F (kPa) =	6504
Q_p (m^3/s)=	6.13E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.5		
Derivative fact.=	0.04	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	3.0E-07		
T_M (m^2/s)=	3.1E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.70	dt_1 (min) =	0.58
dt_2 (min) =	15.72	dt_2 (min) =	1.63
T (m^2/s) =	2.6E-07	T (m^2/s) =	3.4E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.3E-08	K_s (m/s) =	1.7E-08
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.2E-10
C_D (-) =	NA	C_D (-) =	1.3E-02
ξ (-) =	-1.44	ξ (-) =	-0.13
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.58	C (m^3/Pa) =	1.2E-10
dt_2 (min) =	1.63	C_D (-) =	1.3E-02
T_T (m^2/s) =	3.4E-07	ξ (-) =	-0.13
S (-) =	1.0E-06		
K_s (m/s) =	1.7E-08		
S_s (1/m) =	5.0E-08		

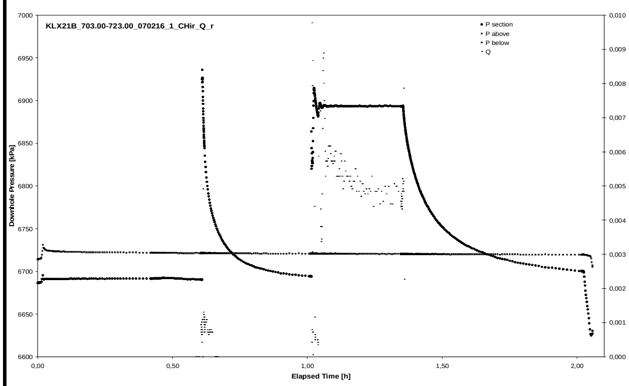
Comments:

The recommended transmissivity of 3.4•10-7 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-7 m2/s to 1.0•10-6 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,499.5 kPa.

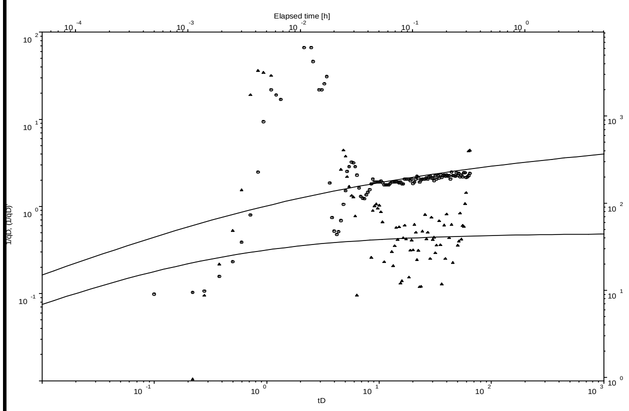
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070216 10:59
Test section from - to (m):	703.00-723.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

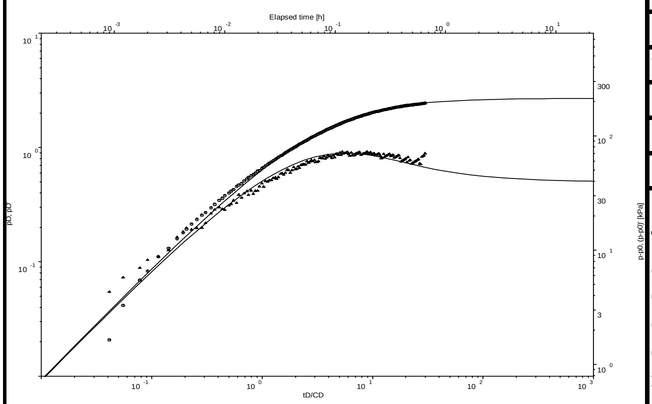
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6691		
p_i (kPa) =	6694		
p_p(kPa) =	6893	p_F (kPa) =	6699
Q_p (m^3/s)=	8.07E-08		
tp (s) =	1200	t_F (s) =	2400
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.8		
Derivative fact.=	0.10	Derivative fact.=	0.04
Results		**Results**	
Q/s (m^2/s)=	4.0E-09		
T_M (m^2/s)=	4.2E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	4.42	dt_1 (min) =	#NV
dt_2 (min) =	16.28	dt_2 (min) =	#NV
T (m^2/s) =	1.4E-09	T (m^2/s) =	2.0E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	7.2E-11	K_s (m/s) =	9.8E-11
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	9.9E-11
C_D (-) =	NA	C_D (-) =	1.1E-02
ξ (-) =	-1.44	ξ (-) =	-1.19
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	9.9E-11
dt_2 (min) =	#NV	C_D (-) =	1.1E-02
T_T (m^2/s) =	2.0E-09	ξ (-) =	-1.19
S (-) =	1.0E-06		
K_s (m/s) =	9.8E-11		
S_s (1/m) =	5.0E-08		

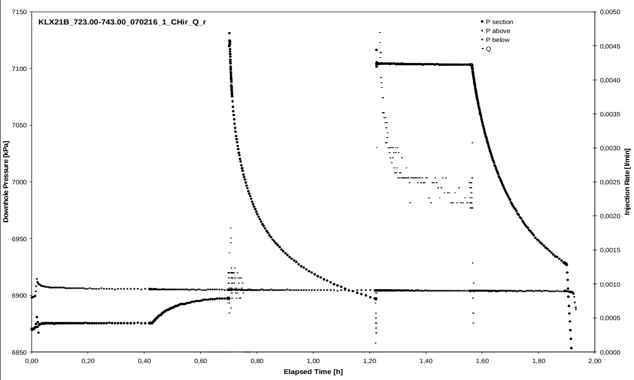
Comments:

The recommended transmissivity of 2.0E-09 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0E-09 m2/s to 5.0E-09 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,674.4 kPa.

Test Summary Sheet

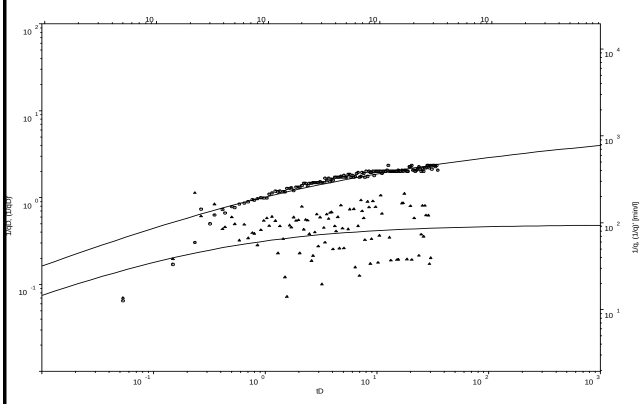
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070216 13:59
Test section from - to (m):	723.00-743.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

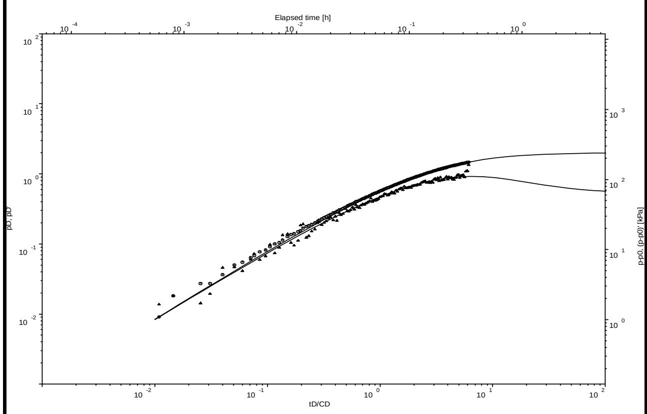


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6875		
p_i (kPa) =	6898		
p_p(kPa) =	7102	p_F (kPa) =	6927
Q_p (m^3/s)=	3.67E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	17.1		
Derivative fact.=	0.06	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.8E-09		
T_M (m^2/s)=	1.8E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	6.6E-10	T (m^2/s) =	6.1E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.3E-11	K_s (m/s) =	3.0E-11
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	7.4E-11
C_D (-) =	NA	C_D (-) =	8.2E-03
ξ (-) =	3.66	ξ (-) =	-1.04
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	7.4E-11
dt_2 (min) =	#NV	C_D (-) =	8.2E-03
T_T (m^2/s) =	6.1E-10	ξ (-) =	-1.04
S (-) =	1.0E-06		
K_s (m/s) =	3.0E-11		
S_s (1/m) =	5.0E-08		

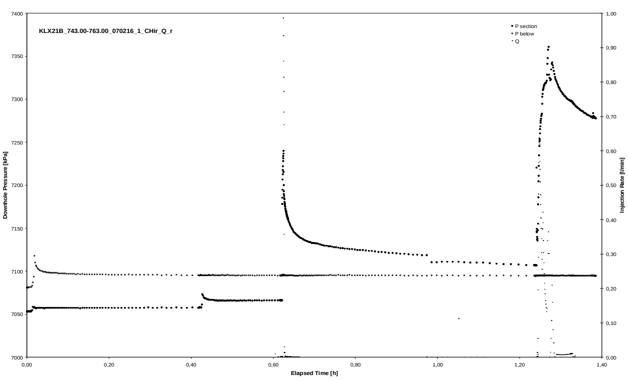
Comments:

The recommended transmissivity of 6.1•10-10 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 5.0•10-10 m2/s to 3.0•10-9 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,861.0 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	2
Borehole ID:	KLX21B	Test start:	070216 18:09
Test section from - to (m):	743.00-763.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

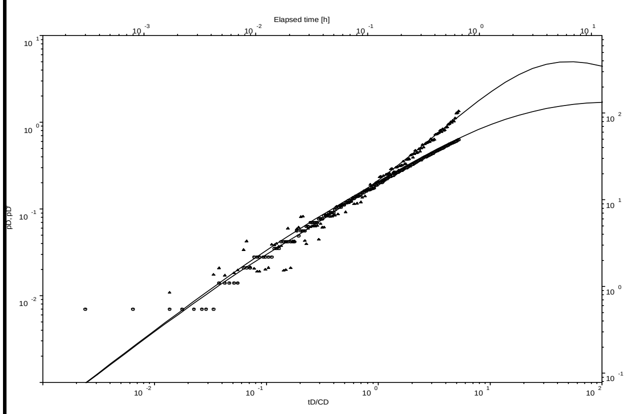


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	7058		
p_i (kPa) =	7062		
p_p(kPa) =	#BEZUG!	p_F (kPa) =	7209
Q_p (m^3/s)=	1.00E-07		
tp (s) =	1200	t_F (s) =	2400
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	17.4		
Derivative fact.=	#NV	Derivative fact.=	0.07
Results		**Results**	
Q/s (m^2/s)=	5.0E-09		
T_M (m^2/s)=	5.2E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	NA	T (m^2/s) =	2.3E-09
S (-) =	NA	S (-) =	1.0E-06
K_s (m/s) =	NA	K_s (m/s) =	1.1E-10
S_s (1/m) =	NA	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.3E-09
C_D (-) =	NA	C_D (-) =	3.6E-01
ξ (-) =	NA	ξ (-) =	-2.93
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	3.3E-09
dt_2 (min) =	#NV	C_D (-) =	3.6E-01
T_T (m^2/s) =	2.3E-09	ξ (-) =	-2.93
S (-) =	1.0E-06		
K_s (m/s) =	1.1E-10		
S_s (1/m) =	5.0E-08		

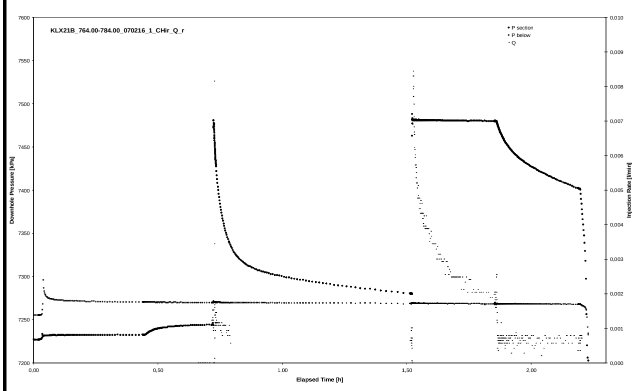
Comments:

The recommended transmissivity of 2.3•10-9 m2/s was derived from the analysis of the CHir phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-9 m2/s to 2.0•10-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using straight line extrapolation in the Horner plot because of a too short recovery phase.

Test Summary Sheet

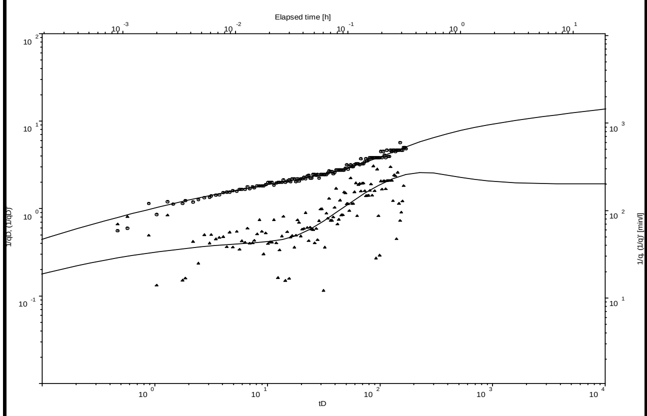
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070216 20:51
Test section from - to (m):	764.00-784.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

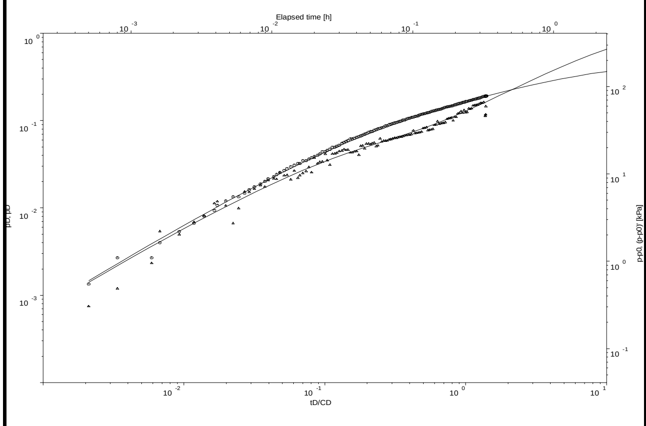


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	7227		
p_i (kPa) =	7280		
p_p(kPa) =	7477	p_F (kPa) =	7401
Q_p (m^3/s)=	3.17E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	17.7		
Derivative fact.=	0.08	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	1.6E-09		
T_M (m^2/s)=	1.6E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.35	dt_1 (min) =	#NV
dt_2 (min) =	1.39	dt_2 (min) =	#NV
T (m^2/s) =	1.3E-09	T (m^2/s) =	2.0E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	6.3E-11	K_s (m/s) =	9.8E-12
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	9.6E-11
C_D (-) =	NA	C_D (-) =	1.1E-02
ξ (-) =	-0.90	ξ (-) =	-2.97
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	9.6E-11
dt_2 (min) =	#NV	C_D (-) =	1.1E-02
T_T (m^2/s) =	2.0E-10	ξ (-) =	-2.97
S (-) =	1.0E-06		
K_s (m/s) =	9.8E-12		
S_s (1/m) =	5.0E-08		

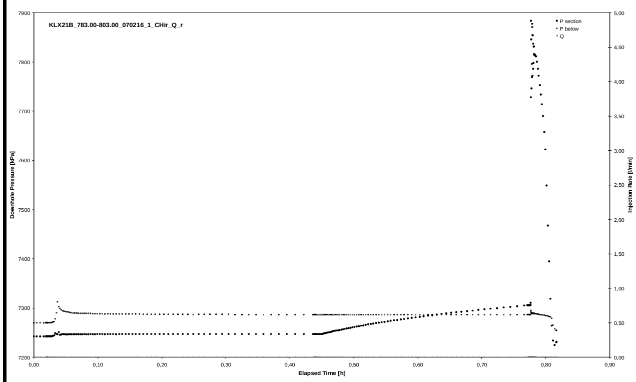
Comments:

The recommended transmissivity of 2.0•10-10 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 6.0•10-11 m2/s to 3.0•10-9 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using type curve extrapolation in the Horner plot because of a too short recovery phase.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070216 23:47
Test section from - to (m):	783.00-803.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	7242		
p_i (kPa) =	7305		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	0	t_F (s) =	0
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	17.8		
Derivative fact.=	#NV	Derivative fact.=	#NV
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	5.0E-13	K_s (m/s) =	NA
S_s (1/m) =	5.0E-08	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	5.0E-13		
S_s (1/m) =	5.0E-08		

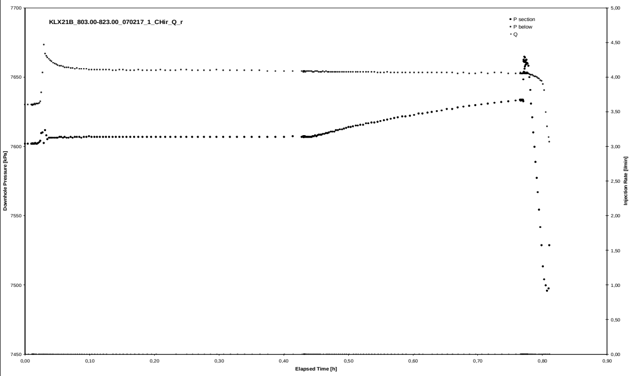
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070216 01:20
Test section from - to (m):	803.00-823.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	7602		
p_i (kPa) =	7632		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	18.2		
Derivative fact.=	#NV	Derivative fact.=	#NV
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	5.0E-13	K_s (m/s) =	NA
S_s (1/m) =	5.0E-08	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysable

Log-Log plot incl. derivatives- recovery period

Not analysable

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	5.0E-13		
S_s (1/m) =	5.0E-08		

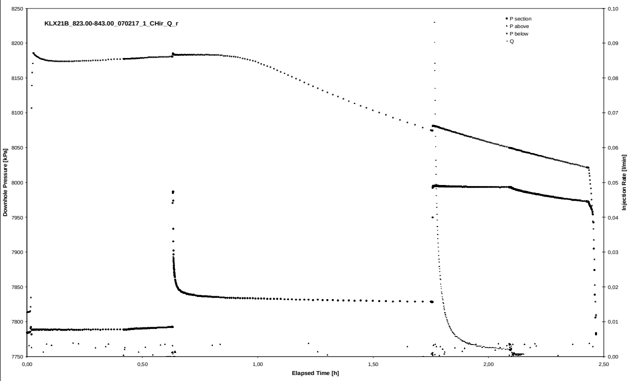
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

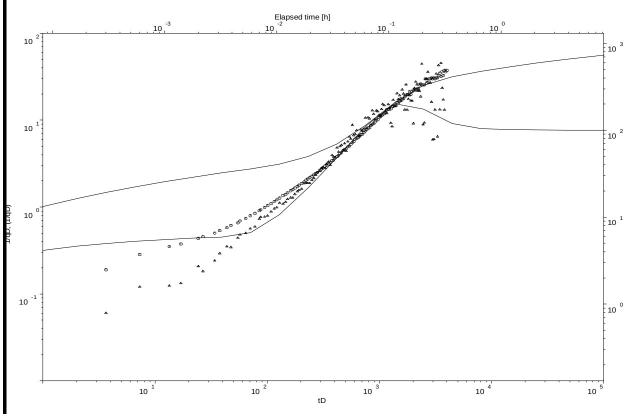
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070217 07:00
Test section from - to (m):	823.00-843.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

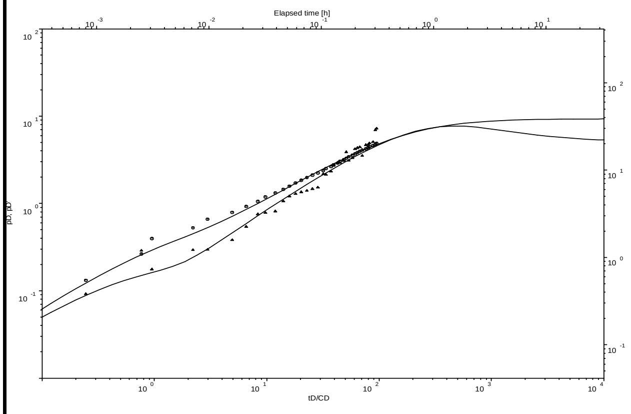
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	7788		
p_i (kPa) =	7828		
p_p(kPa) =	7991	p_F (kPa) =	7971
Q_p (m^3/s)=	4.00E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	18.5		
Derivative fact.=	0.07	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	2.4E-09		
T_M (m^2/s)=	2.5E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	7.6E-10	T (m^2/s) =	6.9E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.8E-11	K_s (m/s) =	3.4E-10
S_s (1/m) =	5.0E-08	S_s (1/m) =	5.0E-08
C (m^3/Pa) =	NA	C (m^3/Pa) =	8.0E-08
C_D (-) =	NA	C_D (-) =	8.8E+00
ξ (-) =	-0.45	ξ (-) =	-3.76
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	8.0E-08
dt_2 (min) =	#NV	C_D (-) =	8.8E+00
T_T (m^2/s) =	6.9E-09	ξ (-) =	-3.76
S (-) =	1.0E-06		
K_s (m/s) =	3.4E-10		
S_s (1/m) =	5.0E-08		

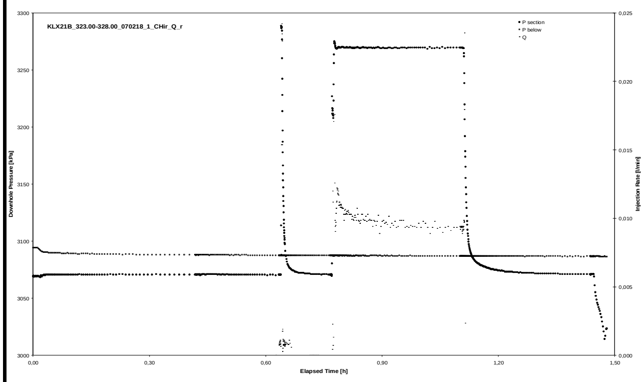
Comments:

The recommended transmissivity of 6.9•10-9 m2/s was derived from the analysis of the CHir phase (outer zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 5.0•10-10 m2/s to 8.0•10-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using type curve extrapolation in the Horner plot because of a too short recovery phase.

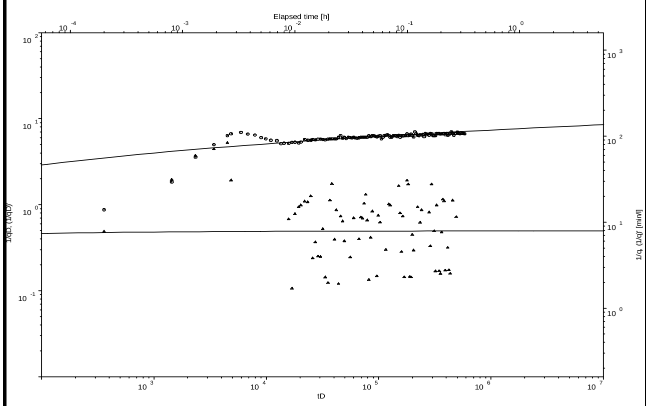
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070218 06:40
Test section from - to (m):	323.00-328.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

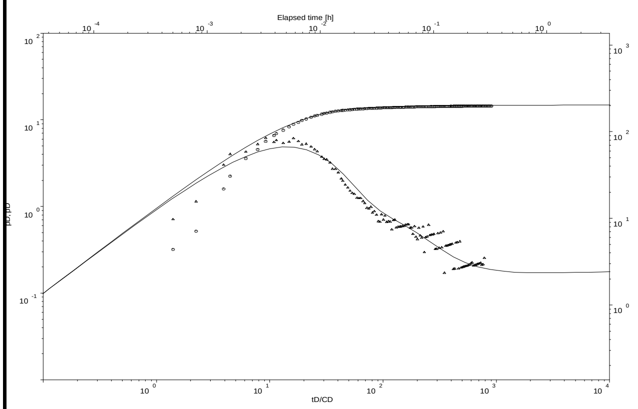
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3069		
p_i (kPa) =	3071		
p_p(kPa) =	3270	p_F (kPa) =	3071
Q_p (m^3/s)=	1.57E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.06	Derivative fact.=	0.06
Results		**Results**	
Q/s (m^2/s)=	7.7E-09		
T_M (m^2/s)=	6.4E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.06	dt_1 (min) =	3.62
dt_2 (min) =	12.13	dt_2 (min) =	10.23
T (m^2/s) =	8.2E-09	T (m^2/s) =	1.9E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.6E-09	K_s (m/s) =	3.7E-09
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.6E-11
C_D (-) =	NA	C_D (-) =	1.8E-03
ξ (-) =	2.24	ξ (-) =	10.10
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.			
dt_1 (min) =	3.62	C (m^3/Pa) =	1.6E-11
dt_2 (min) =	10.23	C_D (-) =	1.8E-03
T_T (m^2/s) =	1.9E-08	ξ (-) =	10.10
S (-) =	1.0E-06		
K_s (m/s) =	3.7E-09		
S_s (1/m) =	2.0E-07		

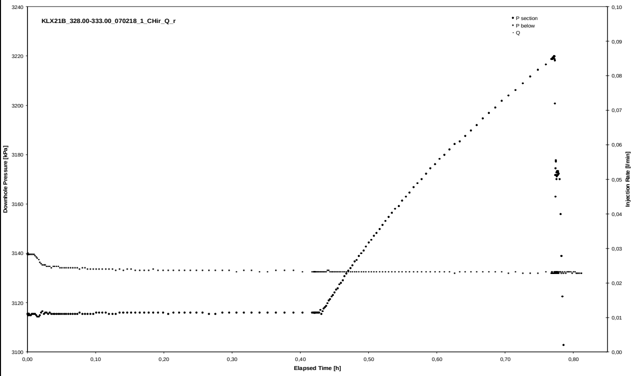
Comments:

The recommended transmissivity of 1.9•10-8 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 5.0•10-9 m2/s to 3.0•10-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,068.8 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070218 08:36
Test section from - to (m):	328.00-333.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3115		
p_i (kPa) =	3219		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#WERT!
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

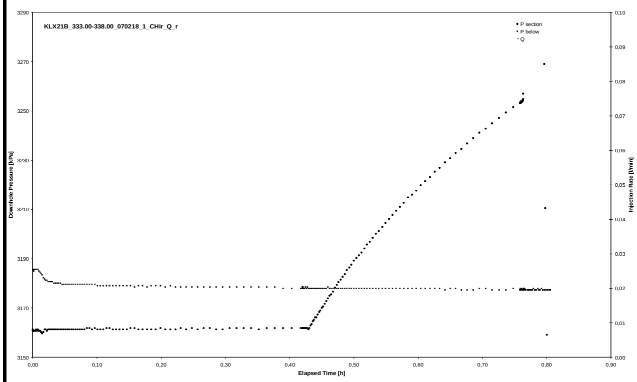
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070218 09:54
Test section from - to (m):	333.00-338.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3161		
p_i (kPa) =	3162		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#WERT!
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

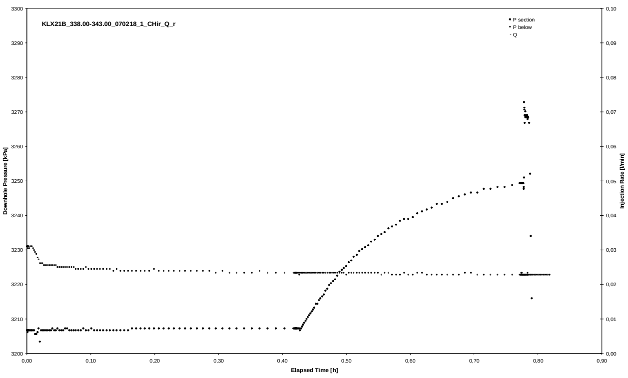
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070218 11:14
Test section from - to (m):	338.00-343.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	3207		
p_i (kPa) =	3249		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

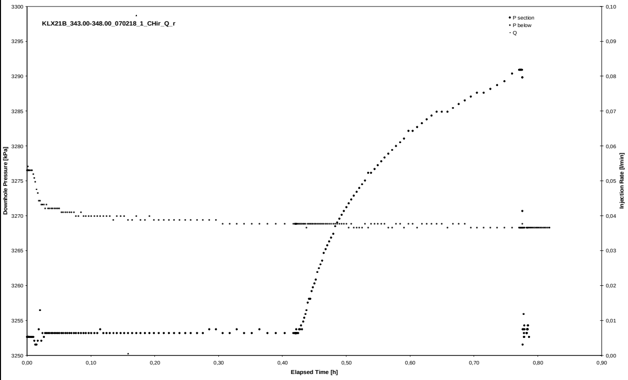
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070218 12:30
Test section from - to (m):	343.00-348.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3252		
p_i (kPa) =	3253		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#WERT!	t_F (s) =	#WERT!
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

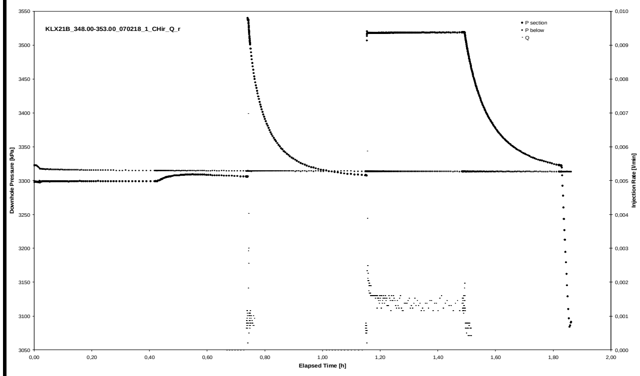
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

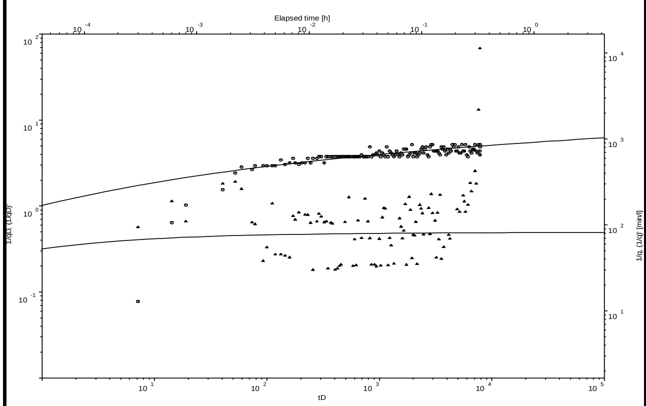
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070218 14:32
Test section from - to (m):	348.00-353.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

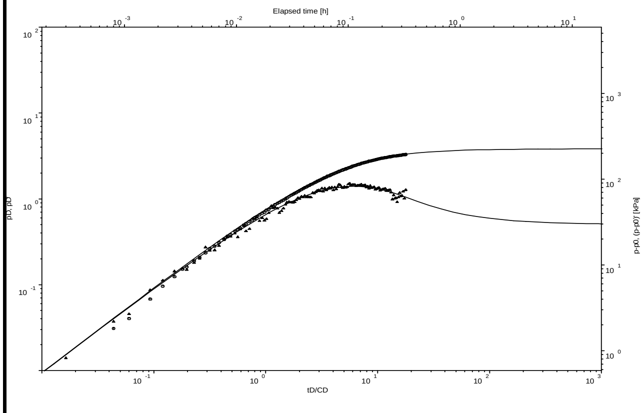


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3298		
p_i (kPa) =	3307		
p_p(kPa) =	3519	p_F (kPa) =	3322
Q_p (m^3/s)=	2.18E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.19	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.0E-09		
T_M (m^2/s)=	8.3E-10		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.25	dt_1 (min) =	#NV
dt_2 (min) =	10.43	dt_2 (min) =	#NV
T (m^2/s) =	7.4E-10	T (m^2/s) =	6.6E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.5E-10	K_s (m/s) =	1.3E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.8E-11
C_D (-) =	NA	C_D (-) =	3.1E-03
ξ (-) =	1.28	ξ (-) =	0.60
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	2.8E-11
dt_2 (min) =	#NV	C_D (-) =	3.1E-03
T_T (m^2/s) =	6.6E-10	ξ (-) =	0.60
S (-) =	1.0E-06		
K_s (m/s) =	1.3E-10		
S_s (1/m) =	2.0E-07		

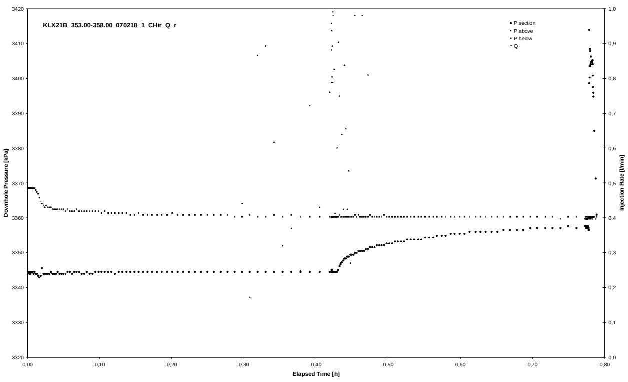
Comments:

The recommended transmissivity of 6.6•10-10 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 5.0•10-10 m2/s to 1.0•10-9 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,290.6 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070218 16:52
Test section from - to (m):	353.00-358.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	3344		
p_i (kPa) =	3357		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

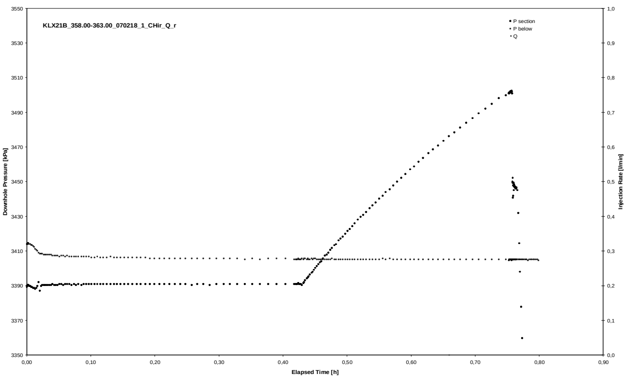
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070218 18:10
Test section from - to (m):	358.00-363.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3390		
p_i (kPa) =	9999		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

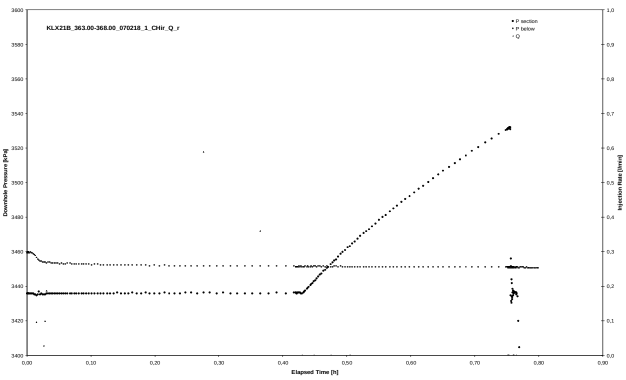
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070218 19:32
Test section from - to (m):	363.00-368.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	3436		
p_i (kPa) =	3531		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

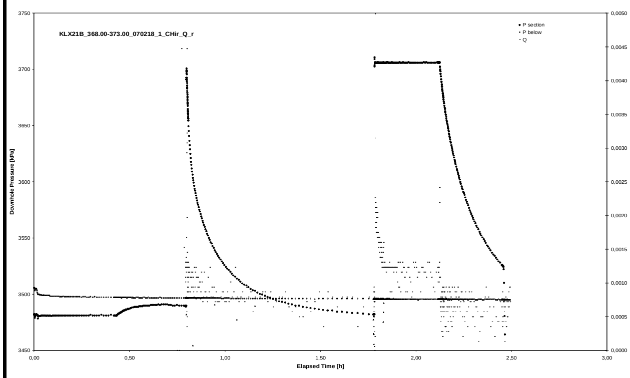
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

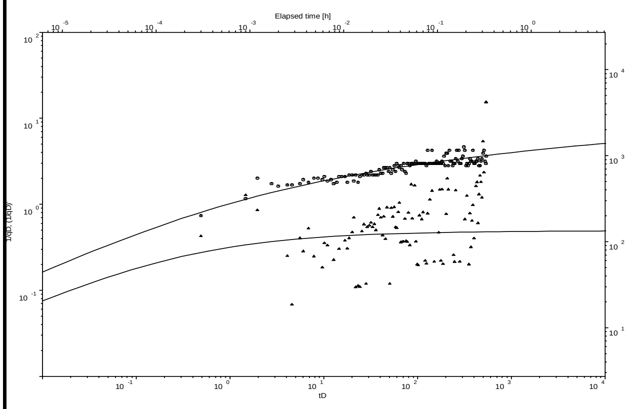
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070218 20:49
Test section from - to (m):	368.00-373.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

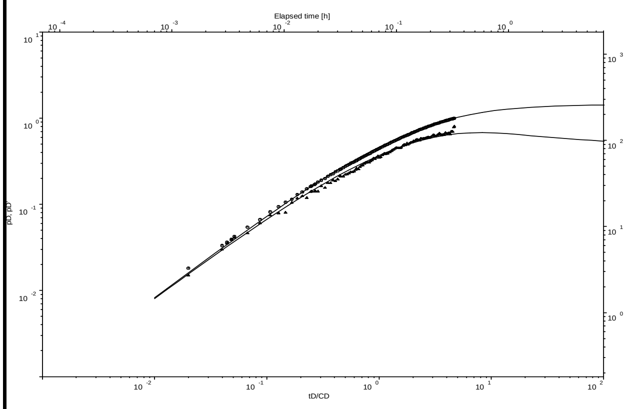


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3482		
p_i (kPa) =	3482		
p_p(kPa) =	3706	p_F (kPa) =	3524
Q_p (m^3/s)=	1.69E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.18	Derivative fact.=	0.06
Results		**Results**	
Q/s (m^2/s)=	7.4E-10		
T_M (m^2/s)=	6.1E-10		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.68	dt_1 (min) =	#NV
dt_2 (min) =	14.70	dt_2 (min) =	#NV
T (m^2/s) =	4.3E-10	T (m^2/s) =	1.7E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	8.5E-11	K_s (m/s) =	3.5E-11
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.8E-11
C_D (-) =	NA	C_D (-) =	3.1E-03
ξ (-) =	0.21	ξ (-) =	-1.16
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	2.8E-11
dt_2 (min) =	#NV	C_D (-) =	3.1E-03
T_T (m^2/s) =	1.7E-10	ξ (-) =	-1.16
S (-) =	1.0E-06		
K_s (m/s) =	3.5E-11		
S_s (1/m) =	2.0E-07		

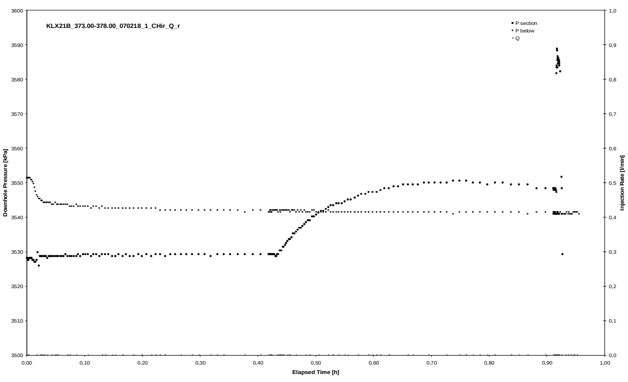
Comments:

The recommended transmissivity of 1.7•10-10 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-10 m2/s to 7.0•10-10 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using type curve extrapolation in the Horner plot because of a too short recovery phase.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	2
Borehole ID:	KLX21B	Test start:	070219 19:45
Test section from - to (m):	373.00-378.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	3526		
p_i (kPa) =	3553		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	0.00E+00		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

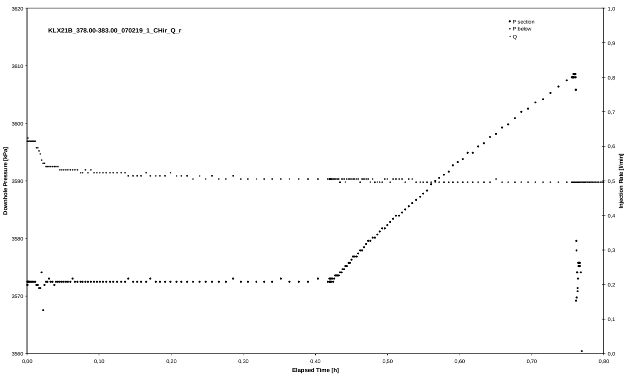
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070219 21:05
Test section from - to (m):	378.00-383.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, 2·r_w (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	3572		
p_i (kPa) =	3608		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	0.00E+00		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

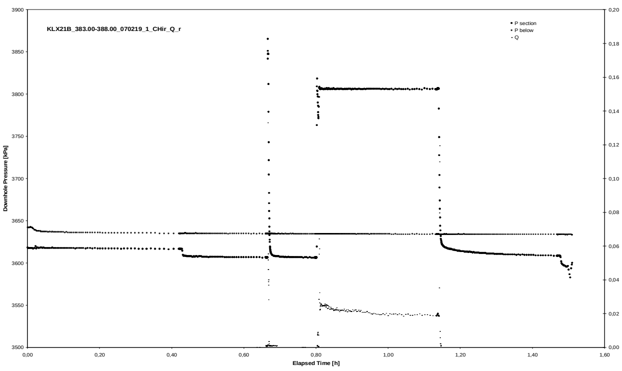
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

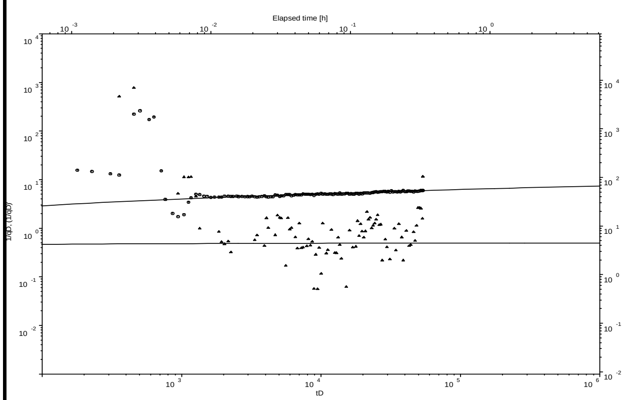
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070219 22:56
Test section from - to (m):	383.00-388.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

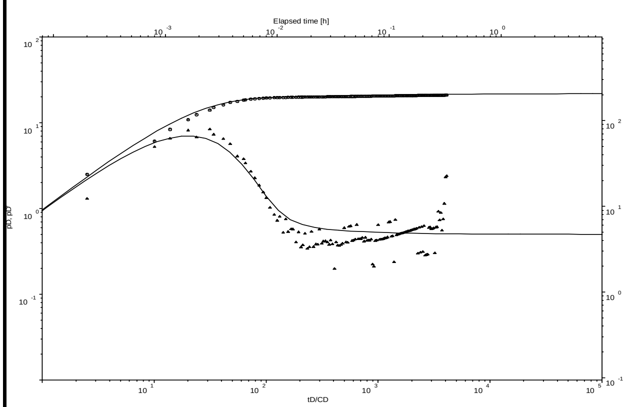


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	3617		
p_i (kPa) =	3607		
p_p(kPa) =	3806	p_F (kPa) =	3608
Q_p (m^3/s)=	3.17E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.05	Derivative fact.=	0.06
Results		**Results**	
Q/s (m^2/s)=	1.6E-08		
T_M (m^2/s)=	1.3E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.24	dt_1 (min) =	1.06
dt_2 (min) =	17.47	dt_2 (min) =	17.78
T (m^2/s) =	1.4E-08	T (m^2/s) =	5.7E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.9E-09	K_s (m/s) =	1.1E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.1E-11
C_D (-) =	NA	C_D (-) =	1.2E-03
ξ (-) =	0.75	ξ (-) =	16.10
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	1.06	C (m^3/Pa) =	1.1E-11
dt_2 (min) =	17.78	C_D (-) =	1.2E-03
T_T (m^2/s) =	5.7E-08	ξ (-) =	16.10
S (-) =	1.0E-06		
K_s (m/s) =	1.1E-08		
S_s (1/m) =	2.0E-07		

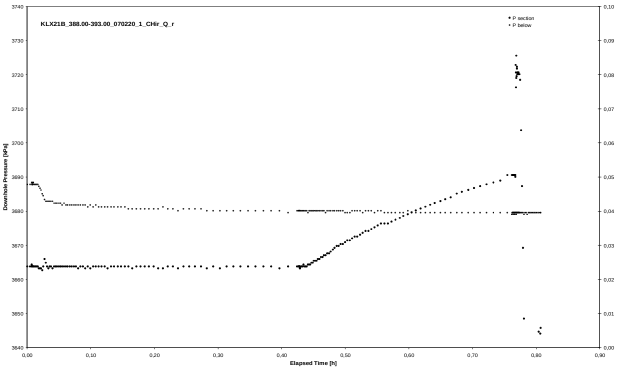
Comments:

The recommended transmissivity of 5.7•10-8 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-8 m2/s to 6.0•10-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,606.1 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070220 01:01
Test section from - to (m):	388.00-393.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3664		
p_i (kPa) =	3689		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

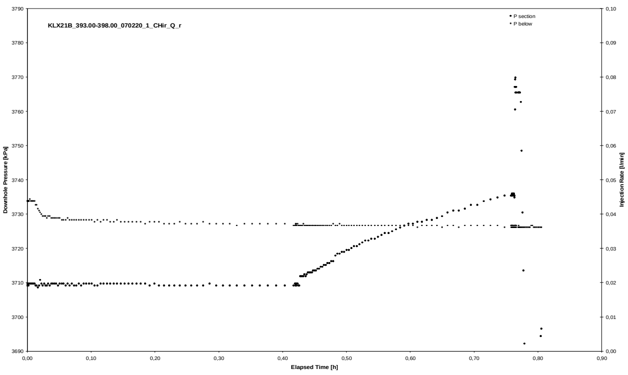
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070220 06:24
Test section from - to (m):	393.00-398.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3710		
p_i (kPa) =	3736		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#WERT!	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed

Log-Log plot incl. derivatives- recovery period

Not analysed

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

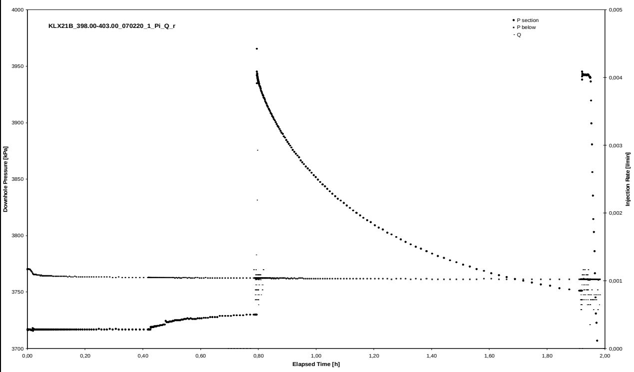
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	PI
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070220 07:37
Test section from - to (m):	398.00-403.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

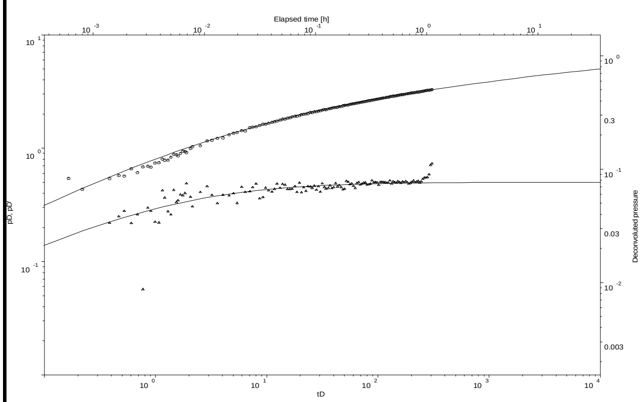
Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3716		
p_i (kPa) =	3730		
p_p(kPa) =	3943	p_F (kPa) =	3751
Q_p (m^3/s)=	#NV		
tp (s) =	10.002	t_F (s) =	4020
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	#NV	Derivative fact.=	0.8
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	3.70
dt_2 (min) =	#NV	dt_2 (min) =	53.62
T (m^2/s) =	NA	T (m^2/s) =	5.1E-11
S (-) =	NA	S (-) =	1.0E-06
K_s (m/s) =	NA	K_s (m/s) =	1.0E-11
S_s (1/m) =	NA	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.8E-11
C_D (-) =	NA	C_D (-) =	2.0E-03
ξ (-) =	NA	ξ (-) =	0.38
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	3.70	C (m^3/Pa) =	1.8E-11
dt_2 (min) =	53.62	C_D (-) =	2.0E-03
T_T (m^2/s) =	5.1E-11	ξ (-) =	0.38
S (-) =	1.0E-06		
K_s (m/s) =	1.0E-11		
S_s (1/m) =	2.0E-07		

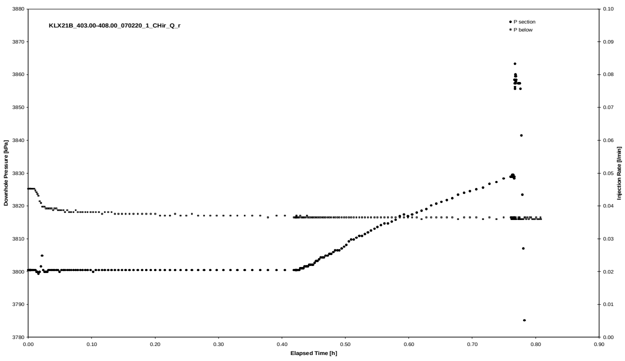
Comments:

The recommended transmissivity of 5.1E-11 m2/s was derived from the analysis of the PI phase. The confidence range for the interval transmissivity is estimated to be 3.0E-11 m2/s to 7.0E-11 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth could not be extrapolated.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070220 10:05
Test section from - to (m):	403.00-408.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3800		
p_i (kPa) =	3829		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#WERT!	t_F (s) =	#WERT!
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

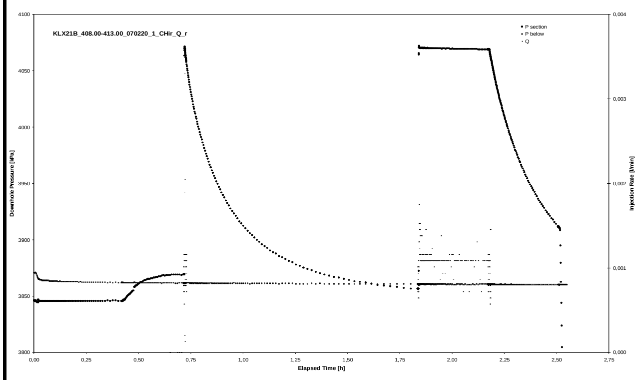
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	Pi
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070220 11:21
Test section from - to (m):	408.00-413.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

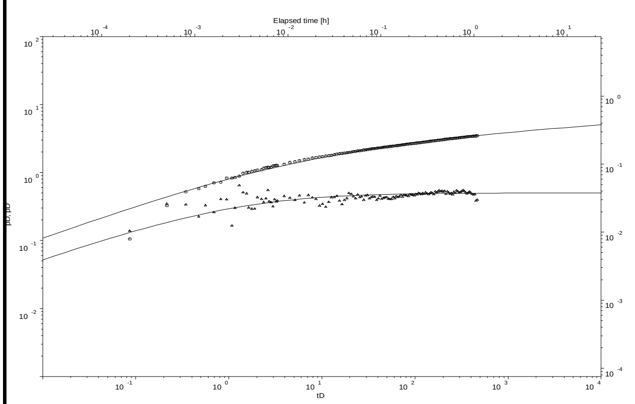
Linear plot Q and p



Log-Log plot incl. derivates- flow period

Not analyzed

Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3845		
p_i (kPa) =	3869		
p_p(kPa) =	4072	p_F (kPa) =	3856
Q_p (m^3/s)=	#NV		
tp (s) =	9.6	t_F (s) =	4020
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	0.19	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	1.76
dt_2 (min) =	#NV	dt_2 (min) =	59.02
T (m^2/s) =	NA	T (m^2/s) =	2.7E-11
S (-) =	NA	S (-) =	1.0E-06
K_s (m/s) =	NA	K_s (m/s) =	5.4E-12
S_s (1/m) =	NA	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	4.2E-11
C_D (-) =	NA	C_D (-) =	4.6E-03
ξ (-) =	NA	ξ (-) =	0.0E+00
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	1.76	C (m^3/Pa) =	4.2E-11
dt_2 (min) =	59.02	C_D (-) =	4.6E-03
T_T (m^2/s) =	2.7E-11	ξ (-) =	0.0E+00
S (-) =	1.0E-06		
K_s (m/s) =	5.4E-12		
S_s (1/m) =	2.0E-07		

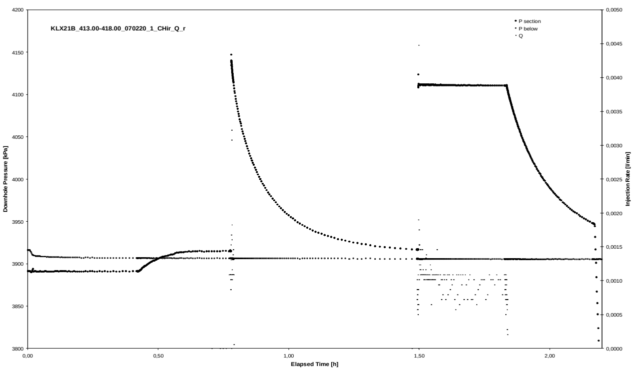
Comments:

The recommended transmissivity of 2.7E-11 m2/s was derived from the analysis of the PI phase. The confidence range for the interval transmissivity is estimated to be 2.0•10-11 m2/s to 8.0•10-10 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth could not be extrapolated.

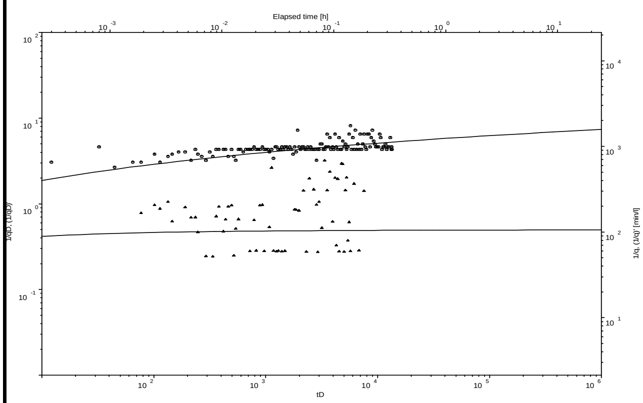
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070220 14:19
Test section from - to (m):	413.00-418.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

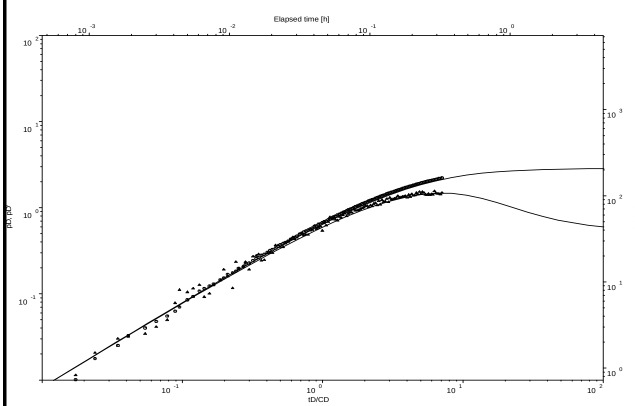
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3891		
p_i (kPa) =	3917		
p_p(kPa) =	4110	p_F (kPa) =	3946
Q_p (m^3/s)=	1.45E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.23	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	7.3E-10		
T_M (m^2/s)=	6.1E-10		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.37	dt_1 (min) =	#NV
dt_2 (min) =	8.23	dt_2 (min) =	#NV
T (m^2/s) =	6.3E-10	T (m^2/s) =	3.5E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.3E-10	K_s (m/s) =	7.0E-11
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.7E-11
C_D (-) =	NA	C_D (-) =	4.1E-03
ξ (-) =	1.62	ξ (-) =	1.46
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	3.7E-11
dt_2 (min) =	#NV	C_D (-) =	4.1E-03
T_T (m^2/s) =	3.5E-10	ξ (-) =	1.46
S (-) =	1.0E-06		
K_s (m/s) =	7.0E-11		
S_s (1/m) =	2.0E-07		

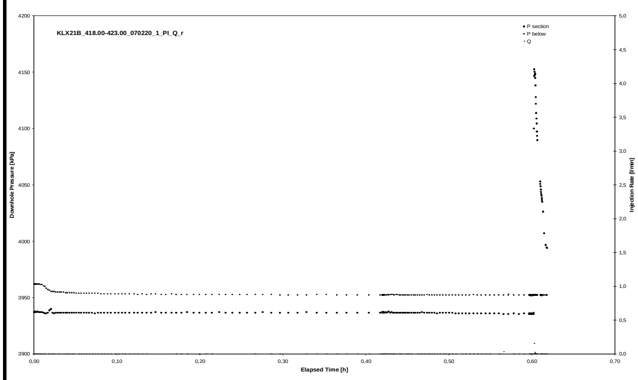
Comments:

The recommended transmissivity of 3.5•10-10 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 2.0•10-10 m2/s to 8.0•10-10 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 3,893.1 kPa.

Test Summary Sheet

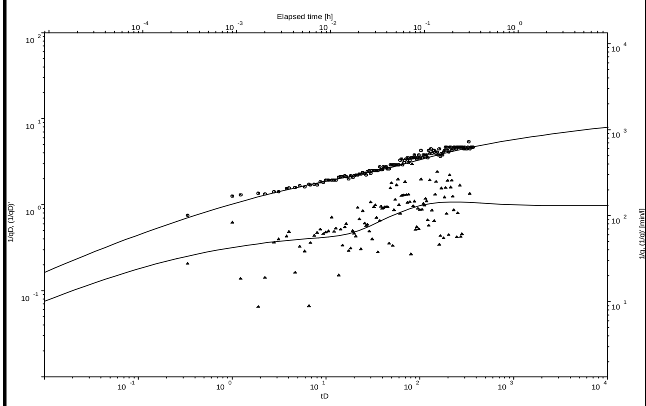
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	2
Borehole ID:	KLX21B	Test start:	070220 17:35
Test section from - to (m):	418.00-423.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

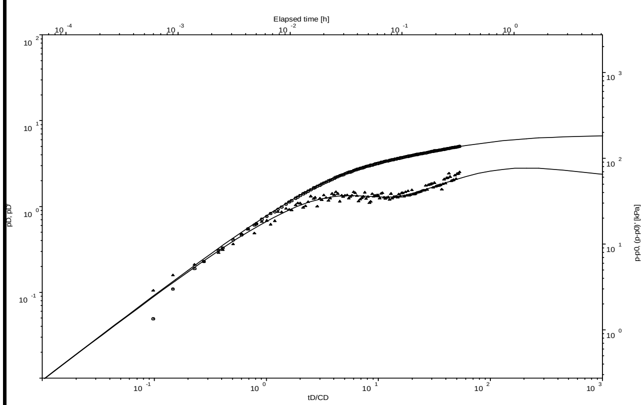


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3937		
p_i (kPa) =	3952		
p_p(kPa) =	4142	p_F (kPa) =	4002
Q_p (m^3/s)=	2.67E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.09	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.4E-09		
T_M (m^2/s)=	1.1E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.17	dt_1 (min) =	#NV
dt_2 (min) =	0.40	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-09	T (m^2/s) =	1.9E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.0E-10	K_s (m/s) =	3.8E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.7E-11
C_D (-) =	NA	C_D (-) =	3.0E-03
ξ (-) =	-0.41	ξ (-) =	1.03
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	2.7E-11
dt_2 (min) =	#NV	C_D (-) =	3.0E-03
T_T (m^2/s) =	1.9E-09	ξ (-) =	1.03
S (-) =	1.0E-06		
K_s (m/s) =	3.8E-10		
S_s (1/m) =	2.0E-07		

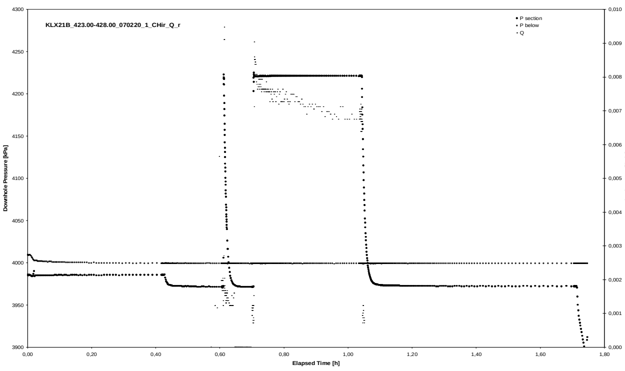
Comments:

The recommended transmissivity of 1.9•10-9 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 3.0•10-10 m2/s to 3.0•10-9 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using type curve extrapolation in the Horner plot because of a too short recovery phase.

Test Summary Sheet

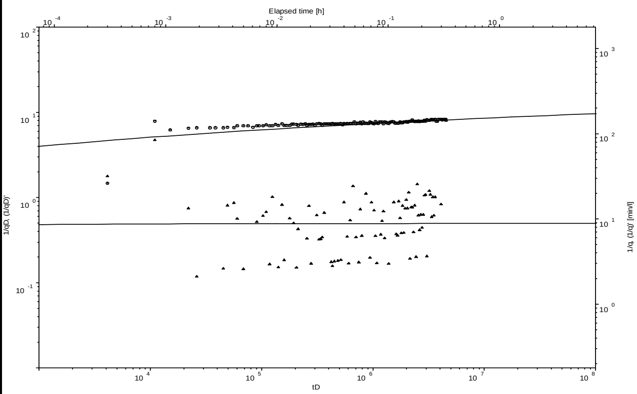
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070220 20:09
Test section from - to (m):	423.00-428.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

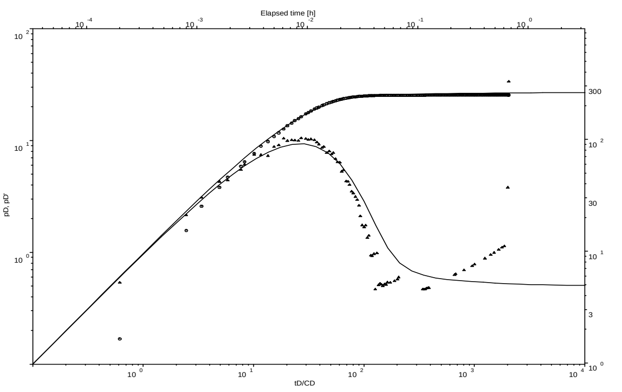


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	3984		
p_i (kPa) =	3972		
p_p(kPa) =	4221	p_F (kPa) =	3973
Q_p (m^3/s)=	1.13E-07		
tp (s) =	1200	t_F (s) =	2400
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.08	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	4.4E-09		
T_M (m^2/s)=	3.7E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.40	dt_1 (min) =	6.65
dt_2 (min) =	15.45	dt_2 (min) =	32.40
T (m^2/s) =	5.9E-09	T (m^2/s) =	2.0E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.2E-09	K_s (m/s) =	4.0E-09
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.5E-11
C_D (-) =	NA	C_D (-) =	1.6E-03
ξ (-) =	3.42	ξ (-) =	21.60
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	6.65	C (m^3/Pa) =	1.5E-11
dt_2 (min) =	32.40	C_D (-) =	1.6E-03
T_T (m^2/s) =	2.0E-08	ξ (-) =	21.60
S (-) =	1.0E-06		
K_s (m/s) =	4.0E-09		
S_s (1/m) =	2.0E-07		

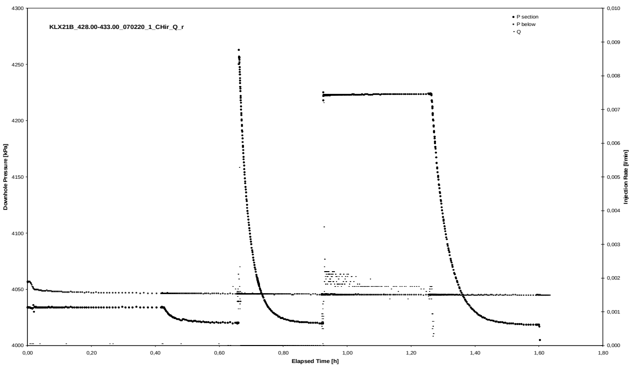
Comments:

The recommended transmissivity of 2.0E-8 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 3.0E-9 m2/s to 2.0E-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 3,972.3 kPa.

Test Summary Sheet

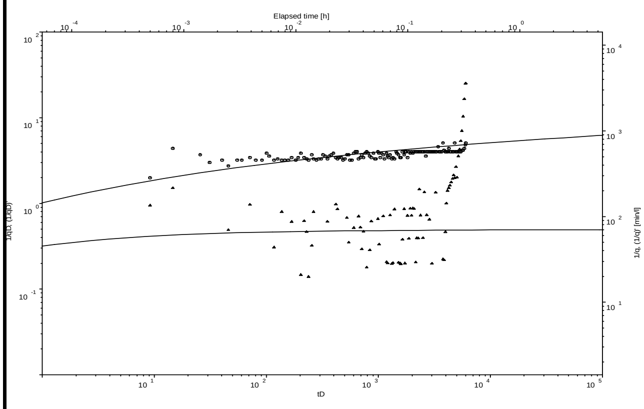
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070220 22:30
Test section from - to (m):	428.00-433.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

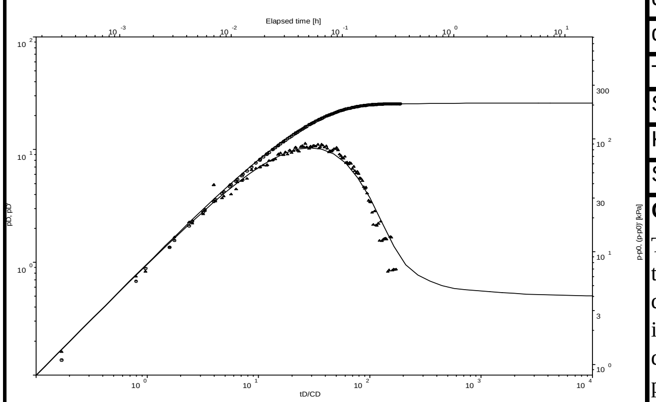


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4034		
p_i (kPa) =	4020		
p_p(kPa) =	4224	p_F (kPa) =	4019
Q_p (m^3/s)=	2.67E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.17	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.3E-09		
T_M (m^2/s)=	1.1E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.75	dt_1 (min) =	#NV
dt_2 (min) =	13.00	dt_2 (min) =	#NV
T (m^2/s) =	9.0E-10	T (m^2/s) =	5.8E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.8E-10	K_s (m/s) =	5.8E-03
S_s (1/m) =	2.0E-07	S_s (1/m) =	1.7E-04
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.4E-11
C_D (-) =	NA	C_D (-) =	2.6E-03
ξ (-) =	1.05	ξ (-) =	21.40
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	2.4E-11
dt_2 (min) =	#NV	C_D (-) =	2.6E-03
T_T (m^2/s) =	5.8E-09	ξ (-) =	21.40
S (-) =	1.0E-06		
K_s (m/s) =	5.8E-03		
S_s (1/m) =	1.7E-04		

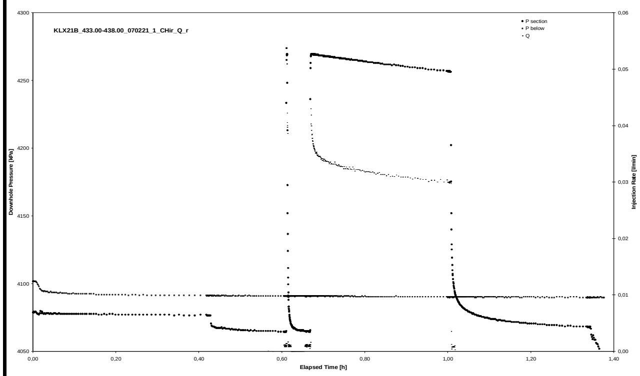
Comments:

The recommended transmissivity of 5.8•10-9 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 8.0•10-10 m2/s to 6.0•10-9 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,014.8 kPa.

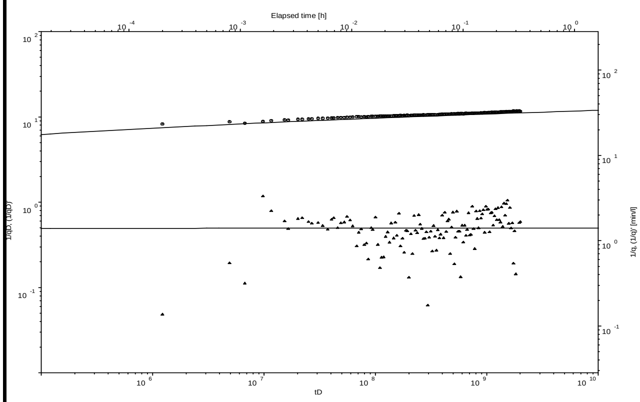
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 00:31
Test section from - to (m):	433.00-438.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

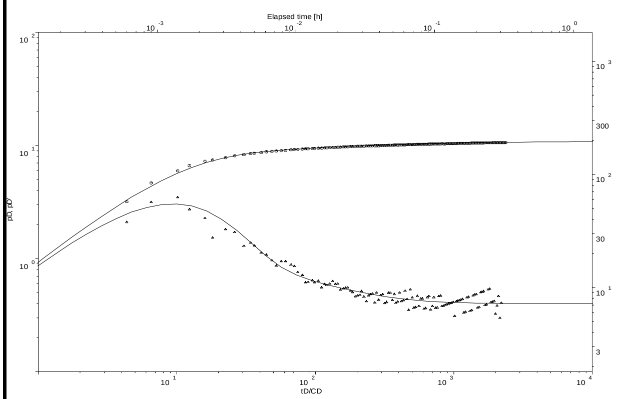
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4079		
p_i (kPa) =	4065		
p_p(kPa) =	4256	p_F (kPa) =	4068
Q_p (m^3/s)=	4.95E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	0.07	Derivative fact.=	0.04
Results		**Results**	
Q/s (m^2/s)=	2.5E-08		
T_M (m^2/s)=	2.1E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.16	dt_1 (min) =	4.92
dt_2 (min) =	16.21	dt_2 (min) =	19.10
T (m^2/s) =	4.8E-08	T (m^2/s) =	4.6E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	9.6E-09	K_s (m/s) =	9.2E-09
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.5E-11
C_D (-) =	NA	C_D (-) =	1.6E-03
ξ (-) =	5.42	ξ (-) =	5.52
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.			
dt_1 (min) =	0.16	C (m^3/Pa) =	1.5E-11
dt_2 (min) =	16.21	C_D (-) =	1.6E-03
T_T (m^2/s) =	4.8E-08	ξ (-) =	5.42
S (-) =	1.0E-06		
K_s (m/s) =	9.2E-09		
S_s (1/m) =	2.0E-07		

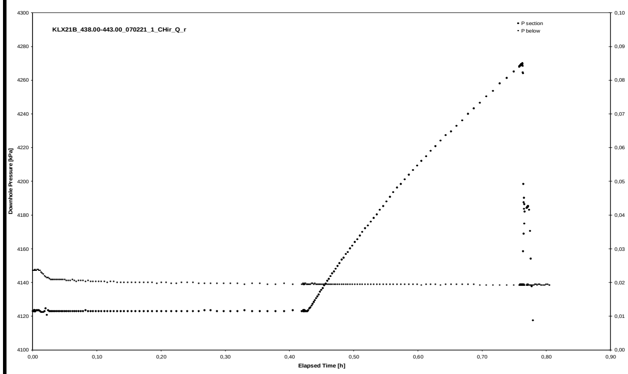
Comments:

The recommended transmissivity of 4.8•10-8 m2/s was derived from the analysis of the CHi phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-8 m2/s to 6.0•10-8 m2/s. The analyses were conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,062.8 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 06:31
Test section from - to (m):	438.00-443.00	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	4123		
p_i (kPa) =	4123		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#WERT!	t_F (s) =	#WERT!
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

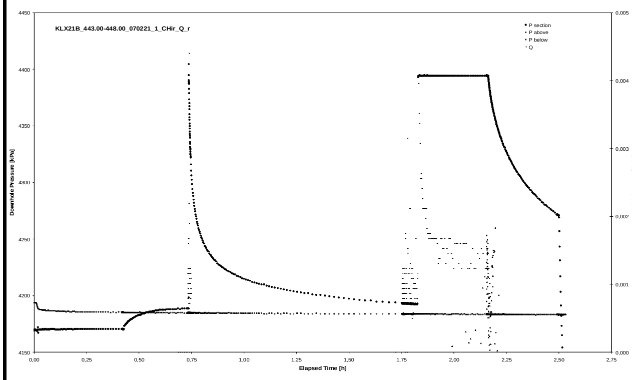
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

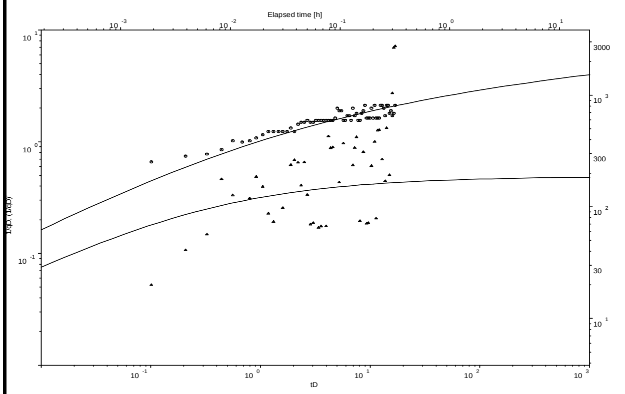
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 07:48
Test section from - to (m):	443.00-448.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

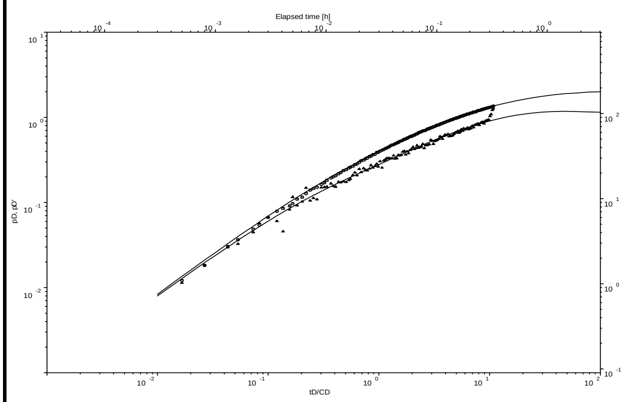


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4170		
p_i (kPa) =	4192		
p_p(kPa) =	4394	p_F (kPa) =	4270
Q_p (m^3/s)=	2.30E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.07	Derivative fact.=	0.04
Results		**Results**	
Q/s (m^2/s)=	1.1E-09		
T_M (m^2/s)=	9.2E-10		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	4.2E-10	T (m^2/s) =	4.7E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	8.4E-11	K_s (m/s) =	9.4E-11
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.3E-11
C_D (-) =	NA	C_D (-) =	3.6E-03
ξ (-) =	-1.48	ξ (-) =	-1.78
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	3.3E-11
dt_2 (min) =	#NV	C_D (-) =	3.6E-03
T_T (m^2/s) =	4.7E-10	ξ (-) =	-1.78
S (-) =	1.0E-06		
K_s (m/s) =	9.4E-11		
S_s (1/m) =	2.0E-07		

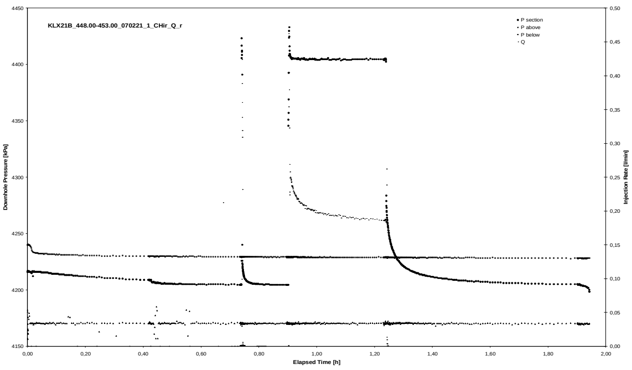
Comments:

The recommended transmissivity of 4.7•10-10 m2/s was derived from the analysis of the CHir phase (inner zone), which shows a good data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-10 m2/s to 6.0•10-10 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, could not be derived from the CHir phase using type curve extrapolation in the Horner plot because of a too short recovery phase.

Test Summary Sheet

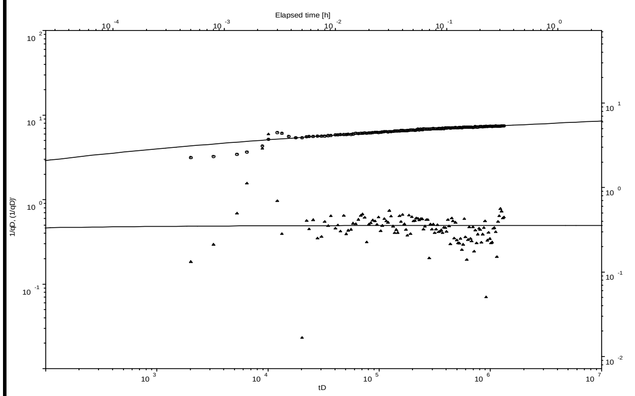
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 10:45
Test section from - to (m):	448.00-453.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

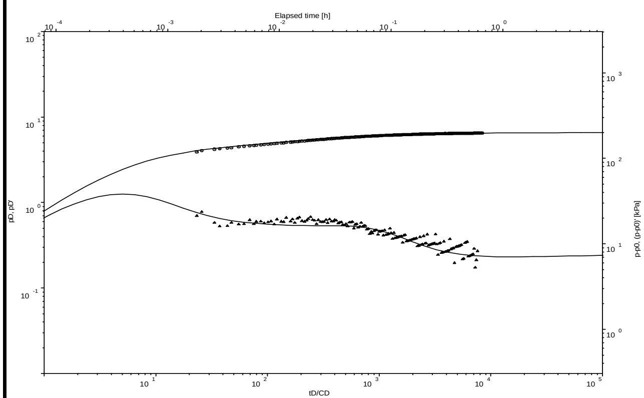


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4216		
p_i (kPa) =	4204		
p_p(kPa) =	4405	p_F (kPa) =	4204
Q_p (m^3/s)=	3.07E-06		
tp (s) =	1200	t_F (s) =	2400
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.09	Derivative fact.=	0.07
Results		**Results**	
Q/s (m^2/s)=	1.5E-07		
T_M (m^2/s)=	1.2E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.35	dt_1 (min) =	0.48
dt_2 (min) =	16.15	dt_2 (min) =	2.46
T (m^2/s) =	1.8E-07	T (m^2/s) =	1.7E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.6E-08	K_s (m/s) =	3.4E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.1E-11
C_D (-) =	NA	C_D (-) =	3.4E-03
ξ (-) =	1.4E+00	ξ (-) =	5.5E-01
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	0.48	C (m^3/Pa) =	3.1E-11
dt_2 (min) =	2.46	C_D (-) =	3.4E-03
T_T (m^2/s) =	1.7E-07	ξ (-) =	5.5E-01
S (-) =	1.0E-06		
K_s (m/s) =	3.4E-08		
S_s (1/m) =	2.0E-07		

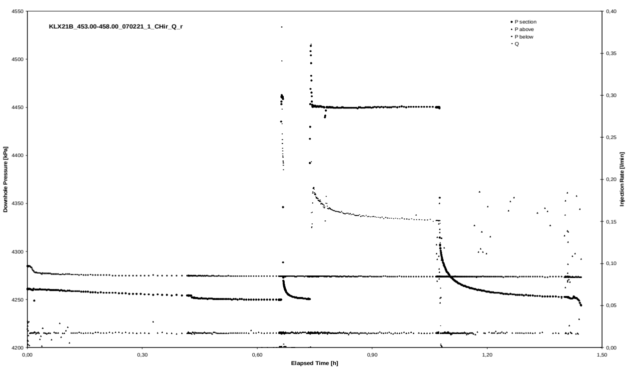
Comments:

The recommended transmissivity of 1.7•10-7 m2/s was derived from the analysis of the CHir phase (inner zone), which shows a good data and derivative quality. The confidence range for the interval transmissivity is estimated to be 9.0•10-8 m2/s to 4.0•10-7 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,201.3 kPa.

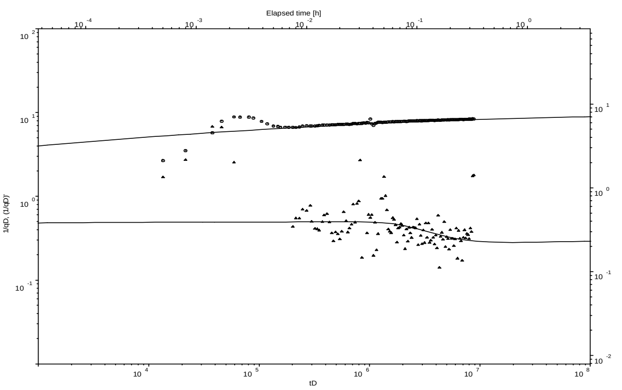
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 13:18
Test section from - to (m):	453.00-458.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

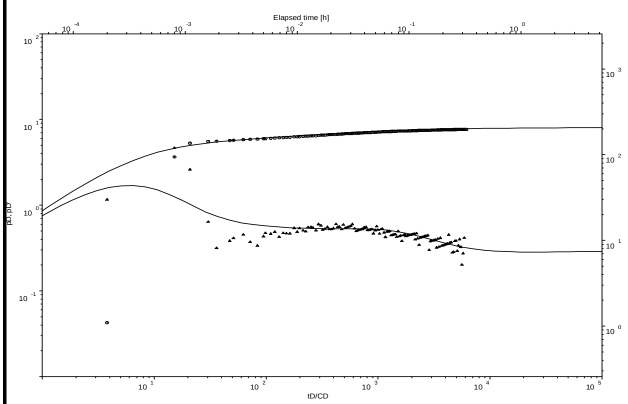
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4261		
p_i (kPa) =	4250		
p_p(kPa) =	4450	p_F (kPa) =	4253
Q_p (m^3/s)=	2.53E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.08	Derivative fact.=	0.08
Results		**Results**	
Q/s (m^2/s)=	1.2E-07		
T_M (m^2/s)=	1.0E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.45	dt_1 (min) =	0.38
dt_2 (min) =	2.50	dt_2 (min) =	2.63
T (m^2/s) =	1.6E-07	T (m^2/s) =	1.6E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.2E-08	K_s (m/s) =	3.2E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.0E-11
C_D (-) =	NA	C_D (-) =	2.1E-03
ξ (-) =	2.09	ξ (-) =	1.93
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	0.38	C (m^3/Pa) =	2.0E-11
dt_2 (min) =	2.63	C_D (-) =	2.1E-03
T_T (m^2/s) =	1.6E-07	ξ (-) =	1.93
S (-) =	1.0E-06		
K_s (m/s) =	3.2E-08		
S_s (1/m) =	2.0E-07		

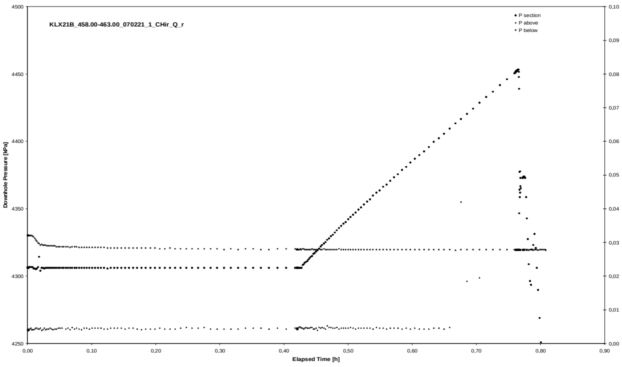
Comments:

The recommended transmissivity of 1.6•10-7 m2/s was derived from the analysis of the CHir phase (inner zone), which is consistent with the inner zone transmissivity from the CHi phase. The confidence range for the interval transmissivity is estimated to be 9.0•10-8 m2/s to 3.0•10-7 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,245.1 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 15:10
Test section from - to (m):	458.00-463.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	4307		
p_i (kPa) =	4453		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

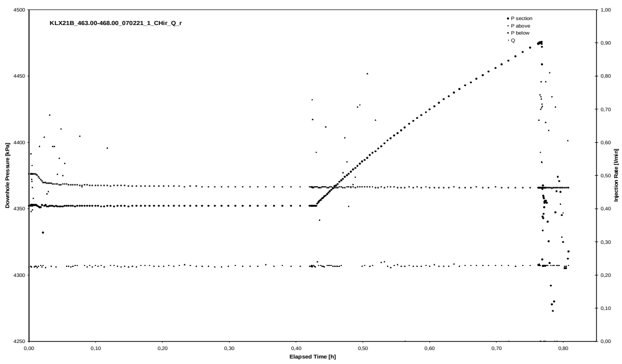
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 16:30
Test section from - to (m):	463.00-468.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	4352		
p_i (kPa) =	4476		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

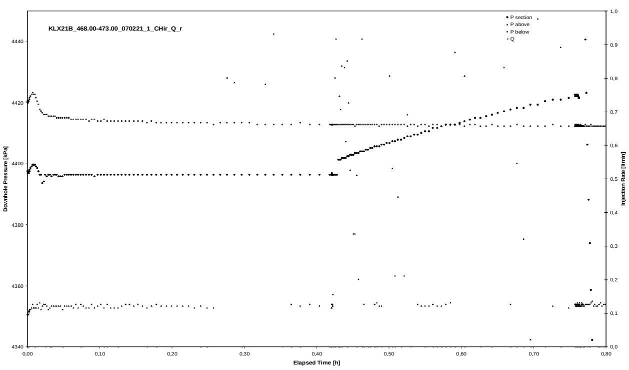
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0•10-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 17:46
Test section from - to (m):	468.00-473.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4396		
p_i (kPa) =	4422		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	0.00E+00		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

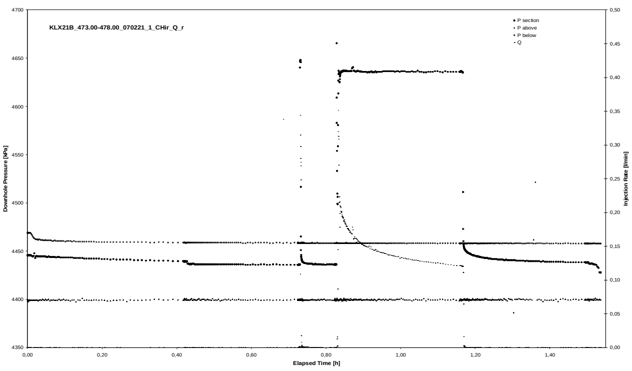
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

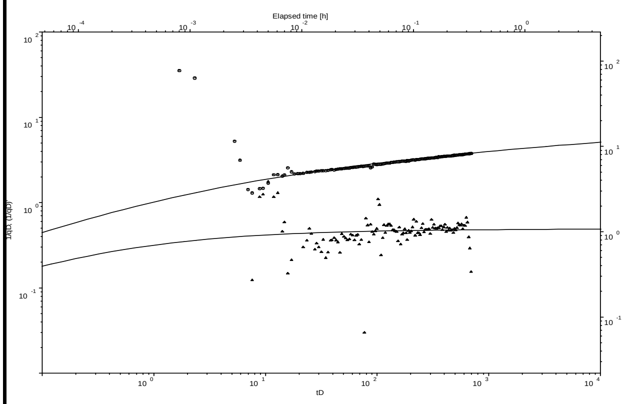
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 19:07
Test section from - to (m):	473.00-478.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

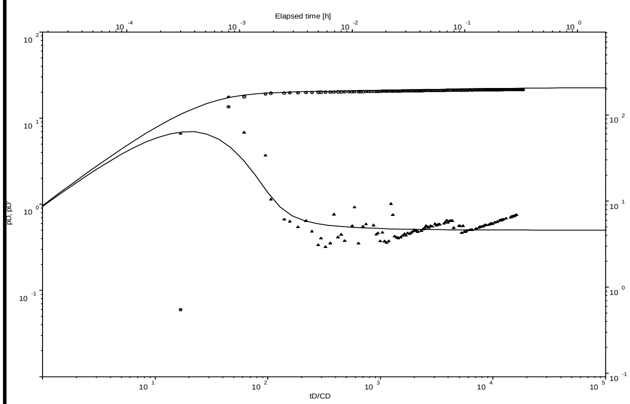


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4446		
p_i (kPa) =	4436		
p_p(kPa) =	4636	p_F (kPa) =	4432
Q_p (m^3/s)=	2.00E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.06	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	9.8E-08		
T_M (m^2/s)=	8.1E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	2.82	dt_1 (min) =	0.75
dt_2 (min) =	16.62	dt_2 (min) =	7.57
T (m^2/s) =	5.9E-08	T (m^2/s) =	4.0E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.2E-08	K_s (m/s) =	8.0E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.7E-11
C_D (-) =	NA	C_D (-) =	1.8E-03
ξ (-) =	-2.12	ξ (-) =	4.32
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	2.82	C (m^3/Pa) =	1.7E-11
dt_2 (min) =	16.62	C_D (-) =	1.8E-03
T_T (m^2/s) =	5.9E-08	ξ (-) =	-2.12
S (-) =	1.0E-06		
K_s (m/s) =	1.2E-08		
S_s (1/m) =	2.0E-07		

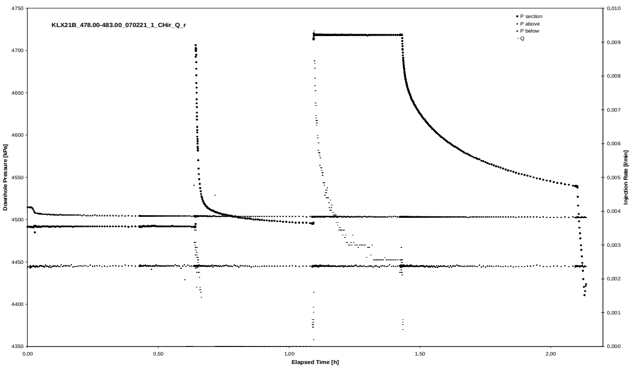
Comments:

The recommended transmissivity of 5.9•10-8 m2/s was derived from the analysis of the CHi phase, which is of good data and derivative quality and consistent with the analysis result of the CHir phase. The confidence range for the interval transmissivity is estimated to be 4.0•10-8 m2/s to 5.0•10-7 m2/s. The test phases were analysed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,436.0 kPa.

Test Summary Sheet

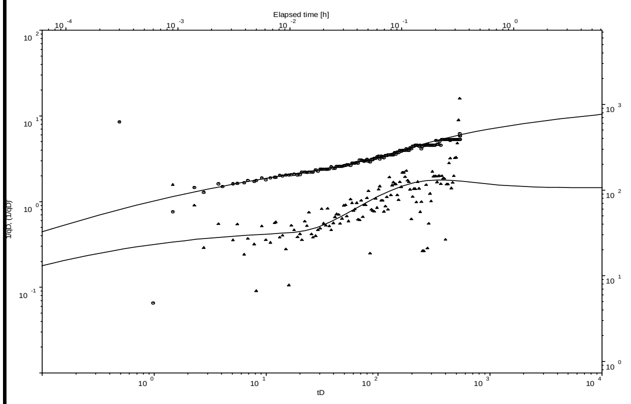
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 21:08
Test section from - to (m):	478.00-483.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

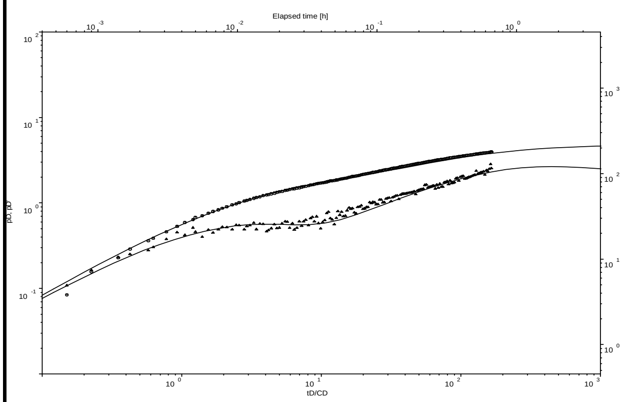


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4491		
p_i (kPa) =	4496		
p_p(kPa) =	4718	p_F (kPa) =	4538
Q_p (m^3/s)=	4.17E-08		
tp (s) =	1200	t_F (s) =	2400
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.08	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.8E-09		
T_M (m^2/s)=	1.5E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.18	dt_1 (min) =	0.62
dt_2 (min) =	0.52	dt_2 (min) =	1.94
T (m^2/s) =	1.6E-09	T (m^2/s) =	2.1E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.2E-10	K_s (m/s) =	4.2E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.9E-11
C_D (-) =	NA	C_D (-) =	2.1E-03
ξ (-) =	-0.45	ξ (-) =	-0.97
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.62	C (m^3/Pa) =	1.9E-11
dt_2 (min) =	1.94	C_D (-) =	2.1E-03
T_T (m^2/s) =	2.1E-09	ξ (-) =	-0.97
S (-) =	1.0E-06		
K_s (m/s) =	4.2E-10		
S_s (1/m) =	2.0E-07		

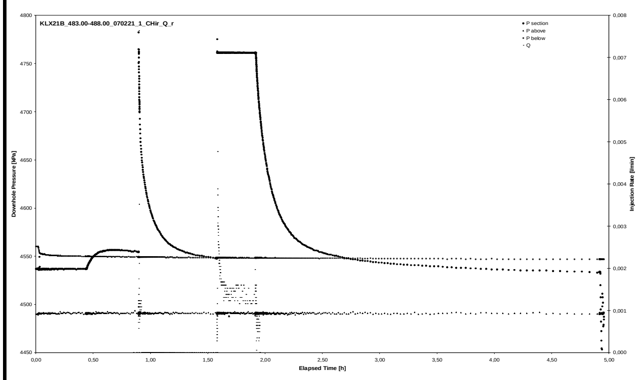
Comments:

The recommended transmissivity of 2.1•10-9 m2/s was derived from the analysis of the CHir phase (inner zone), which is of good data and derivative quality and consistent with the analysis result of the CHi phase. The confidence range for the interval transmissivity is estimated to be 4.0•10-10 m2/s to 2.0•10-9 m2/s. The test phases were analysed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,494.9 kPa.

Test Summary Sheet

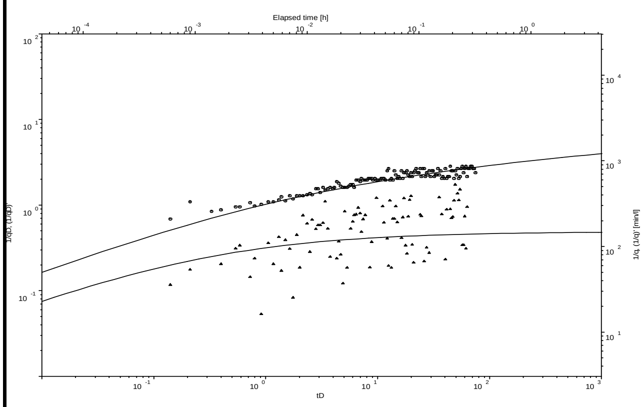
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070221 23:52
Test section from - to (m):	483.00-488.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

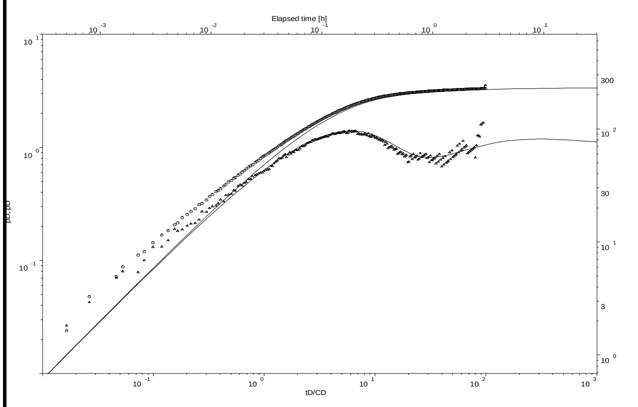


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4537		
p_i (kPa) =	4548		
p_p(kPa) =	4759	p_F (kPa) =	4534
Q_p (m^3/s)=	2.05E-08		
tp (s) =	1200	t_F (s) =	10800
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.09	Derivative fact.=	0.06
Results		**Results**	
Q/s (m^2/s)=	9.5E-10		
T_M (m^2/s)=	7.9E-10		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.15	dt_1 (min) =	#NV
dt_2 (min) =	15.02	dt_2 (min) =	#NV
T (m^2/s) =	4.1E-10	T (m^2/s) =	5.7E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	8.2E-11	K_s (m/s) =	1.1E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.9E-11
C_D (-) =	NA	C_D (-) =	4.3E-03
ξ (-) =	-0.73	ξ (-) =	0.42
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	1.15	C (m^3/Pa) =	3.9E-11
dt_2 (min) =	15.02	C_D (-) =	4.3E-03
T_T (m^2/s) =	4.1E-10	ξ (-) =	-0.73
S (-) =	1.0E-06		
K_s (m/s) =	8.2E-11		
S_s (1/m) =	2.0E-07		

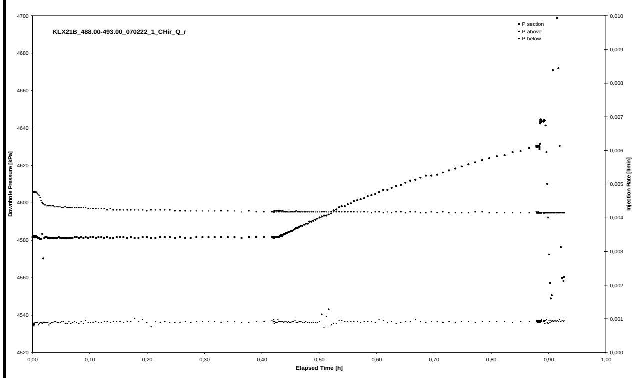
Comments:

The recommended transmissivity of 4.1•10-10 m2/s was derived from the analysis of the CHi phase, which displayed the clearest derivative stabilisation. The confidence range for the interval transmissivity is estimated to be 1.0•10-10 m2/s to 9.0•10-10 m2/s. The test phases were analysed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,522.1 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070222 06:18
Test section from - to (m):	488.00-493.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4582		
p_i (kPa) =	4582		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#WERT!
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =		ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

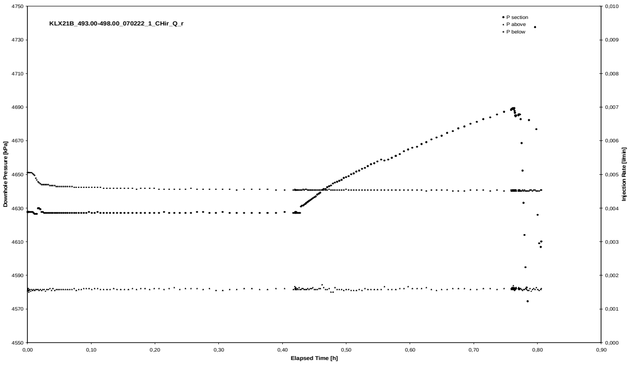
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070222 07:39
Test section from - to (m):	493.00-498.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	4628		
p_i (kPa) =	4689		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#WERT!
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =		ξ (-) =	
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

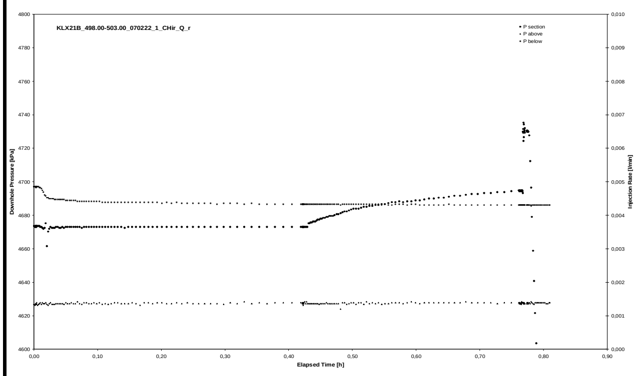
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070222 08:57
Test section from - to (m):	498.00-503.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4673		
p_i (kPa) =	4673		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#WERT!	t_F (s) =	#WERT!
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

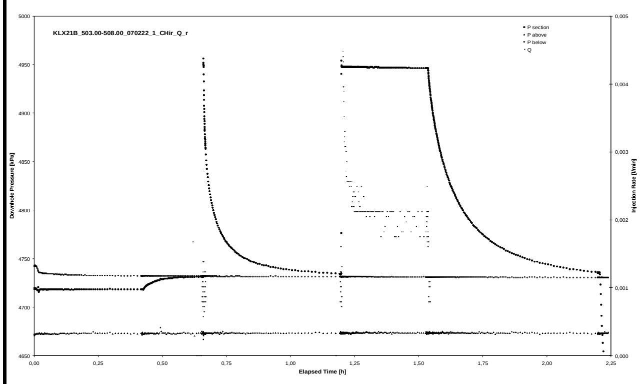
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

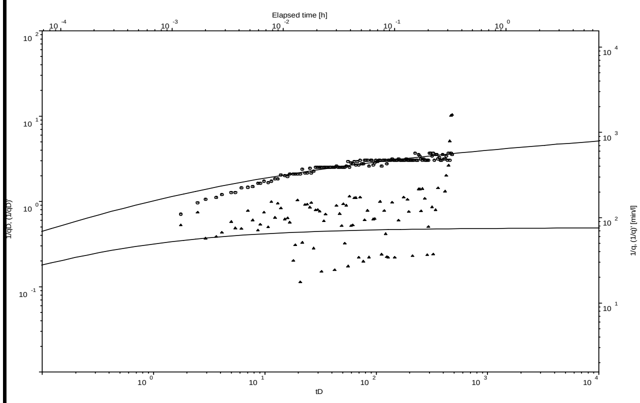
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070222 10:10
Test section from - to (m):	503.00-508.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

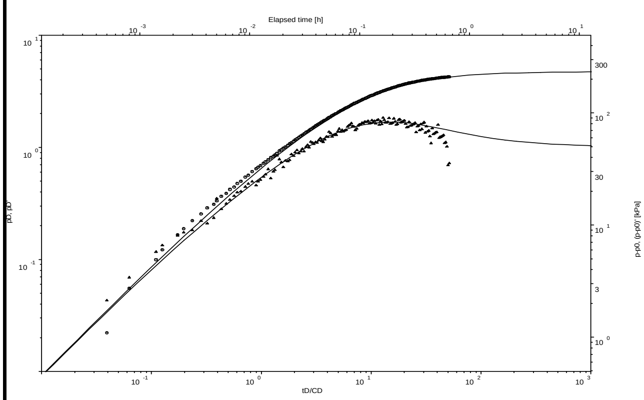


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4718		
p_i (kPa) =	4735		
p_p(kPa) =	4945	p_F (kPa) =	4736
Q_p (m^3/s)=	3.50E-08		
tp (s) =	1200	t_F (s) =	2400
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.09	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.6E-09		
T_M (m^2/s)=	1.3E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	2.00	dt_1 (min) =	#NV
dt_2 (min) =	12.04	dt_2 (min) =	#NV
T (m^2/s) =	8.0E-10	T (m^2/s) =	1.2E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.6E-10	K_s (m/s) =	2.4E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.4E-11
C_D (-) =	NA	C_D (-) =	3.8E-03
ξ (-) =	-0.15	ξ (-) =	-0.65
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	3.4E-11
dt_2 (min) =	#NV	C_D (-) =	3.8E-03
T_T (m^2/s) =	1.2E-09	ξ (-) =	-0.65
S (-) =	1.0E-06		
K_s (m/s) =	2.4E-10		
S_s (1/m) =	2.0E-07		

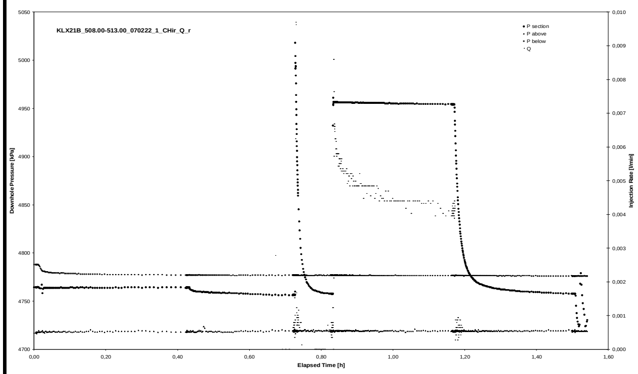
Comments:

The recommended transmissivity of 1.2•10-9 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality and is consistent with the CHi analysis. The confidence range for the interval transmissivity is estimated to be 4.0•10-10 m2/s to 3.0•10-9 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,708.8 kPa.

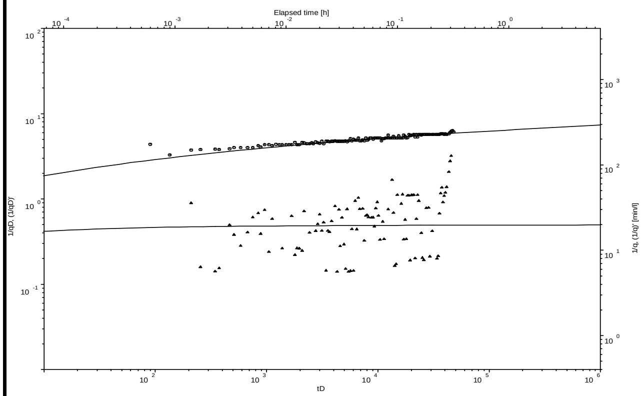
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070222 12:52
Test section from - to (m):	508.00-513.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

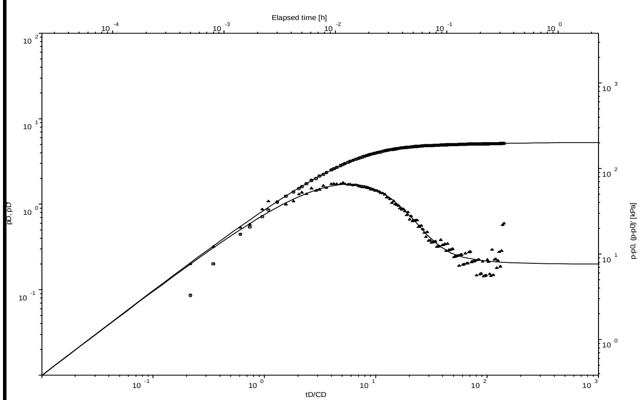
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4764		
p_i (kPa) =	4758		
p_p(kPa) =	4956	p_F (kPa) =	4757
Q_p (m^3/s)=	6.72E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.09	Derivative fact.=	0.06
Results		**Results**	
Q/s (m^2/s)=	3.3E-09		
T_M (m^2/s)=	2.7E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.45	dt_1 (min) =	#NV
dt_2 (min) =	14.29	dt_2 (min) =	#NV
T (m^2/s) =	3.3E-09	T (m^2/s) =	3.2E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	6.6E-10	K_s (m/s) =	6.4E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.7E-11
C_D (-) =	NA	C_D (-) =	1.9E-03
ξ (-) =	1.45	ξ (-) =	2.00
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	1.7E-11
dt_2 (min) =	#NV	C_D (-) =	1.9E-03
T_T (m^2/s) =	3.2E-09	ξ (-) =	2.00
S (-) =	1.0E-06		
K_s (m/s) =	6.4E-10		
S_s (1/m) =	2.0E-07		

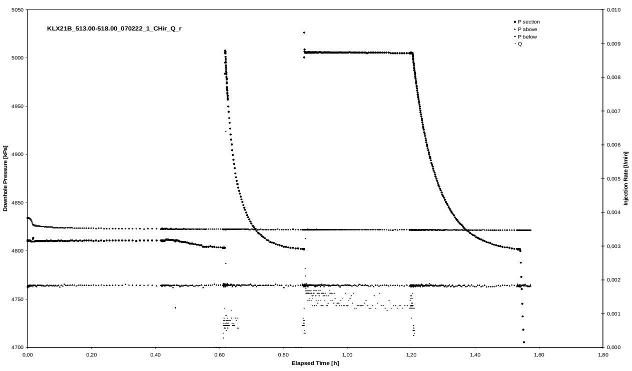
Comments:

The recommended transmissivity of 3.2•10-9 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality and is consistent with the CHi analysis. The confidence range for the interval transmissivity is estimated to be 2.0•10-9 m2/s to 9.0•10-9 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,752.3 kPa.

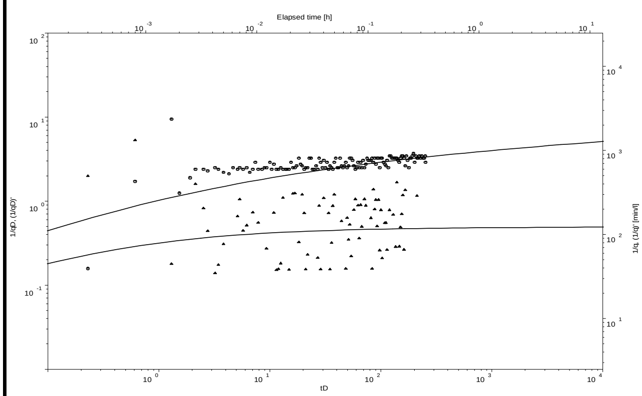
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070222 14:50
Test section from - to (m):	513.00-518.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

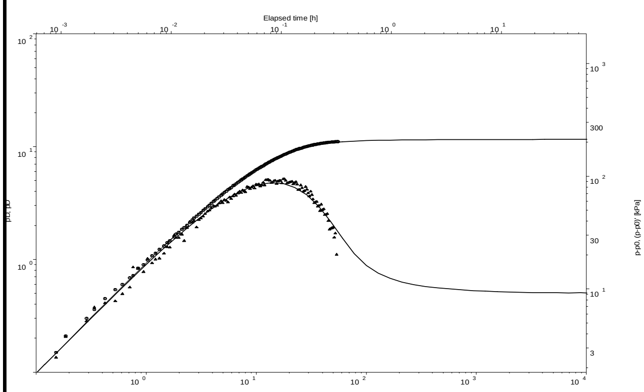
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4811		
p_i (kPa) =	4802		
p_p(kPa) =	5005	p_F (kPa) =	4802
Q_p (m^3/s)=	1.94E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.14	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	9.4E-10		
T_M (m^2/s)=	7.7E-10		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.43	dt_1 (min) =	#NV
dt_2 (min) =	117.84	dt_2 (min) =	#NV
T (m^2/s) =	5.1E-10	T (m^2/s) =	2.1E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.0E-10	K_s (m/s) =	4.2E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.8E-11
C_D (-) =	NA	C_D (-) =	3.1E-03
ξ (-) =	-0.26	ξ (-) =	7.85
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	2.8E-11
dt_2 (min) =	#NV	C_D (-) =	3.1E-03
T_T (m^2/s) =	2.1E-09	ξ (-) =	7.85
S (-) =	1.0E-06		
K_s (m/s) =	4.2E-10		
S_s (1/m) =	2.0E-07		

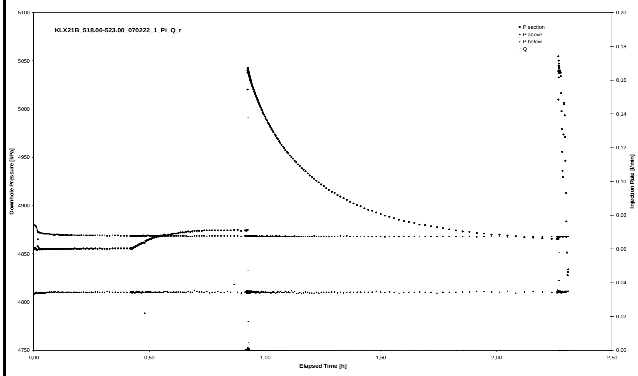
Comments:

The recommended transmissivity of 2.1•10-9 m2/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 5.0•10-10 m2/s to 2.0•10-9 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,790.8 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	Pi
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070222 16:54
Test section from - to (m):	518.00-523.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

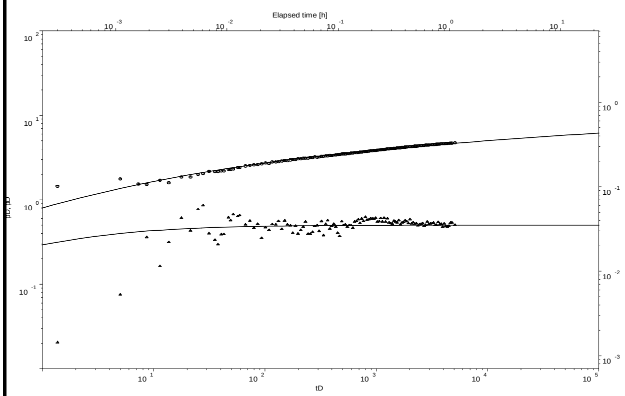
Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4856		
p_i (kPa) =	4847		
p_p(kPa) =	5042	p_F (kPa) =	4865
Q_p (m^3/s)=	#NV		
tp (s) =	10.002	t_F (s) =	4800
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=		Derivative fact.=	0.07
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	0.88
dt_2 (min) =	#NV	dt_2 (min) =	67.35
T (m^2/s) =	NA	T (m^2/s) =	1.5E-10
S (-) =	NA	S (-) =	1.0E-06
K_s (m/s) =	NA	K_s (m/s) =	3.0E-11
S_s (1/m) =	NA	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.4E-11
C_D (-) =	NA	C_D (-) =	2.6E-03
ξ (-) =	NA	ξ (-) =	1.26
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.88	C (m^3/Pa) =	2.4E-11
dt_2 (min) =	67.35	C_D (-) =	2.6E-03
T_T (m^2/s) =	1.5E-10	ξ (-) =	
S (-) =	1.0E-06		
K_s (m/s) =	3.0E-11		
S_s (1/m) =	2.0E-07		

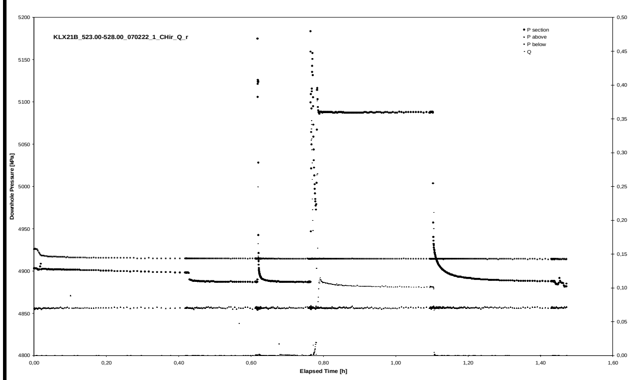
Comments:

The recommended transmissivity of 1.5E-10 m2/s was derived from the analysis of the PI phase. The confidence range for the interval transmissivity is estimated to be 8.0E-11 m2/s to 3.0E-10 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth could not be extrapolated.

Test Summary Sheet

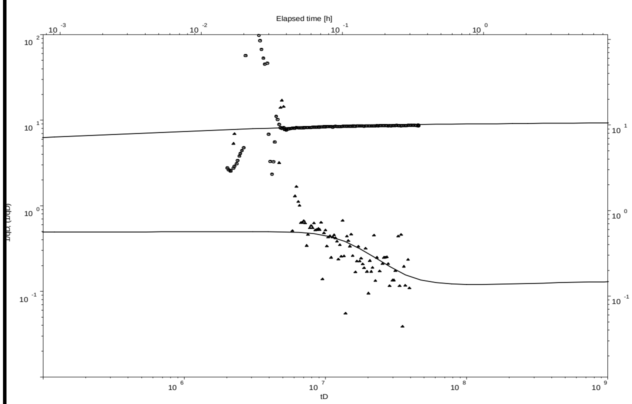
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070222 19:39
Test section from - to (m):	523.00-528.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

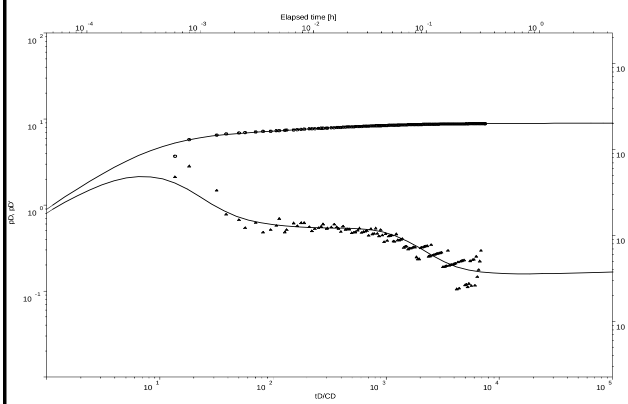


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4903		
p_i (kPa) =	4887		
p_p(kPa) =	5088	p_F (kPa) =	4888
Q_p (m^3/s)=	1.69E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.06	Derivative fact.=	0.07
Results		**Results**	
Q/s (m^2/s)=	8.3E-08		
T_M (m^2/s)=	6.8E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	0.35
dt_2 (min) =	#NV	dt_2 (min) =	1.93
T (m^2/s) =	1.1E-07	T (m^2/s) =	1.2E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.2E-08	K_s (m/s) =	2.4E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.3E-11
C_D (-) =	NA	C_D (-) =	1.4E-03
ξ (-) =	3.07	ξ (-) =	3.30
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	0.35	C (m^3/Pa) =	1.3E-11
dt_2 (min) =	1.93	C_D (-) =	1.4E-03
T_T (m^2/s) =	1.2E-07	ξ (-) =	3.30
S (-) =	1.0E-06		
K_s (m/s) =	2.4E-08		
S_s (1/m) =	2.0E-07		

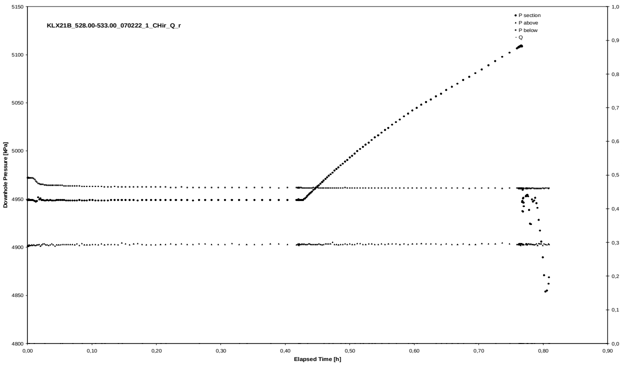
Comments:

The recommended transmissivity of 1.2•10-7 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the best derivative stabilisation. The confidence range for the interval transmissivity is estimated to be 1.0•10-7 m2/s to 5.0•10-7 m2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 4,885.4 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070222 22:02
Test section from - to (m):	528.00-533.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	4949		
p_i (kPa) =	5109		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

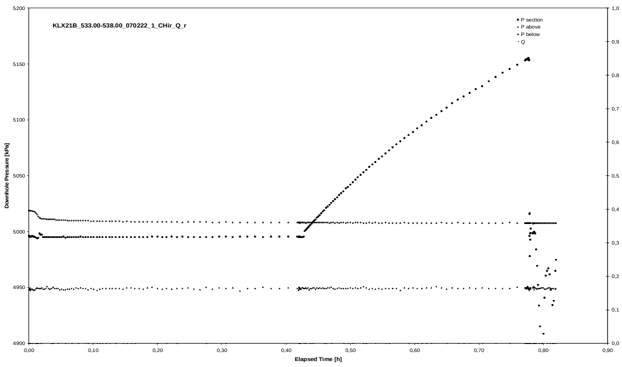
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070222 23:18
Test section from - to (m):	533.00-538.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	4996		
p_i (kPa) =	5154		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

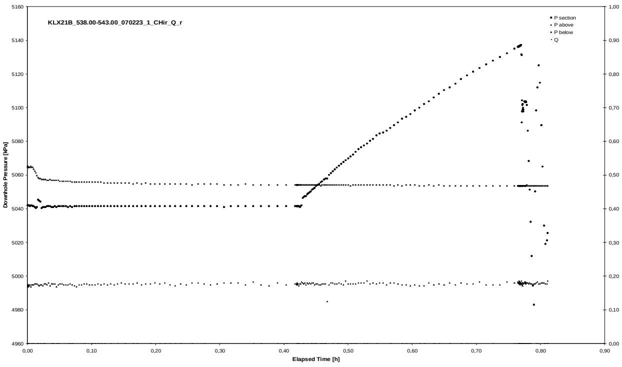
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070223 00:39
Test section from - to (m):	538.00-543.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	5042		
p_i (kPa) =	5137		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

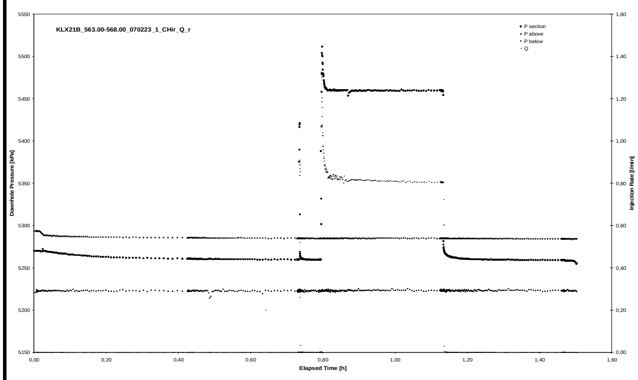
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

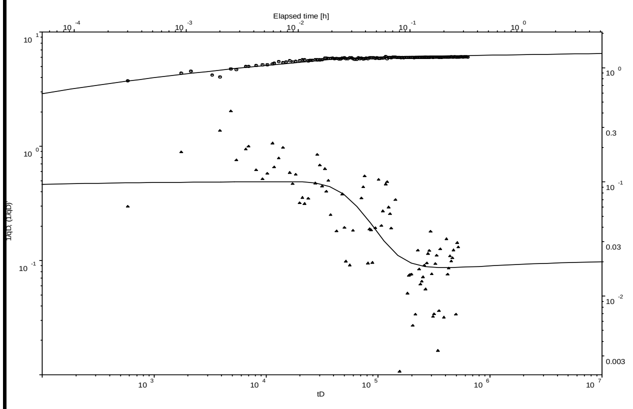
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070223 06:41
Test section from - to (m):	563.00-568.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

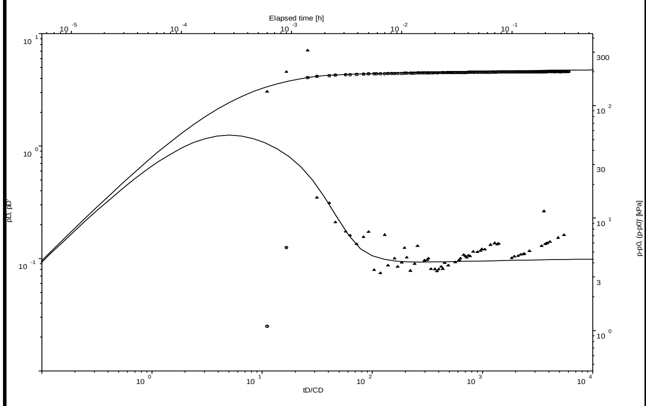


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5270		
p_i (kPa) =	5260		
p_p(kPa) =	5459	p_F (kPa) =	5259
Q_p (m^3/s)=	1.34E-05		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.06	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	6.6E-07		
T_M (m^2/s)=	5.5E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	7.22	dt_1 (min) =	0.60
dt_2 (min) =	14.30	dt_2 (min) =	13.27
T (m^2/s) =	3.2E-06	T (m^2/s) =	2.4E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	6.4E-07	K_s (m/s) =	4.8E-07
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	6.1E-11
C_D (-) =	NA	C_D (-) =	6.7E-03
ξ (-) =	0.10	ξ (-) =	0.21
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.60	C (m^3/Pa) =	6.1E-11
dt_2 (min) =	13.27	C_D (-) =	6.7E-03
T_T (m^2/s) =	2.4E-06	ξ (-) =	0.21
S (-) =	1.0E-06		
K_s (m/s) =	4.8E-07		
S_s (1/m) =	2.0E-07		

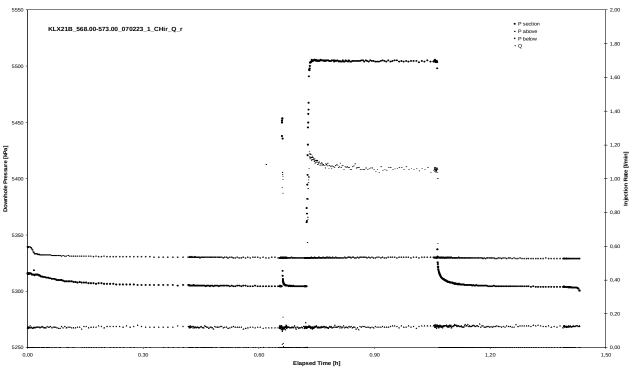
Comments:

The recommended transmissivity of 2.4E-6 m2/s was derived from the analysis of the CHir phase (outer zone), which shows the best horizontal derivative stabilisation. The confidence range for the interval transmissivity is estimated to be 3.0E-7 m2/s to 4.0E-6 m2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,258.1 kPa.

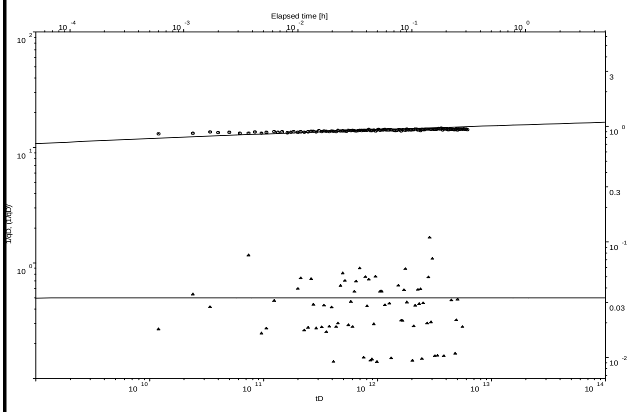
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070223 08:35
Test section from - to (m):	568.00-573.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

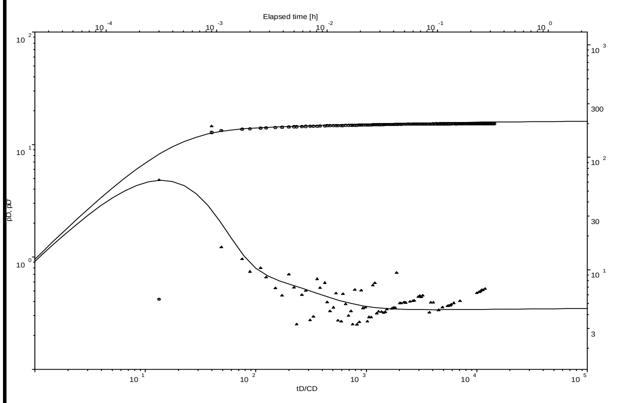
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	5315		
p_i (kPa) =	5305		
p_p(kPa) =	5504	p_F (kPa) =	5304
Q_p (m^3/s)=	1.74E-05		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.07	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	8.6E-07		
T_M (m^2/s)=	7.1E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.36	dt_1 (min) =	2.08
dt_2 (min) =	13.37	dt_2 (min) =	13.57
T (m^2/s) =	2.0E-06	T (m^2/s) =	3.1E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	4.0E-07	K_s (m/s) =	6.2E-07
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.1E-10
C_D (-) =	NA	C_D (-) =	1.2E-02
ξ (-) =	7.60	ξ (-) =	9.16
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	2.08	C (m^3/Pa) =	1.1E-10
dt_2 (min) =	13.57	C_D (-) =	1.2E-02
T_T (m^2/s) =	3.1E-06	ξ (-) =	9.16
S (-) =	1.0E-06		
K_s (m/s) =	6.2E-07		
S_s (1/m) =	2.0E-07		

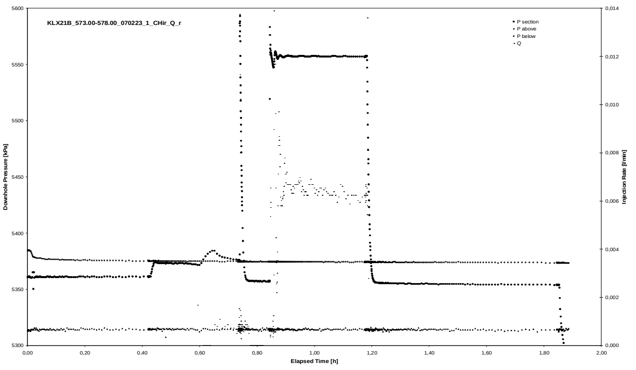
Comments:

The recommended transmissivity of 3.1E-6 m2/s was derived from the analysis of the CHir phase (outer zone), which shows the best horizontal derivative stabilisation. The confidence range for the interval transmissivity is estimated to be 5.0E-7 m2/s to 4.0E-6 m2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,302.7 kPa.

Test Summary Sheet

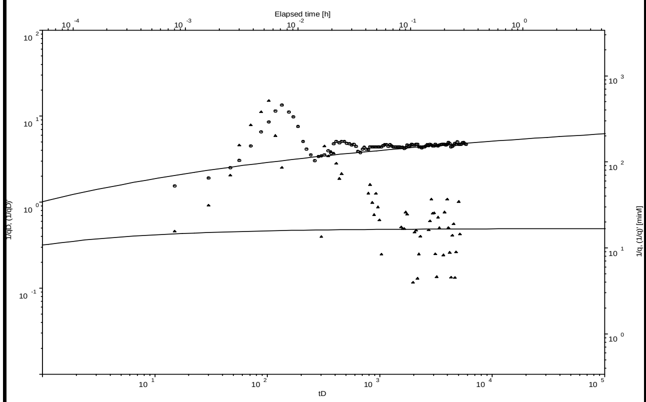
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070223 10:28
Test section from - to (m):	573.00-578.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

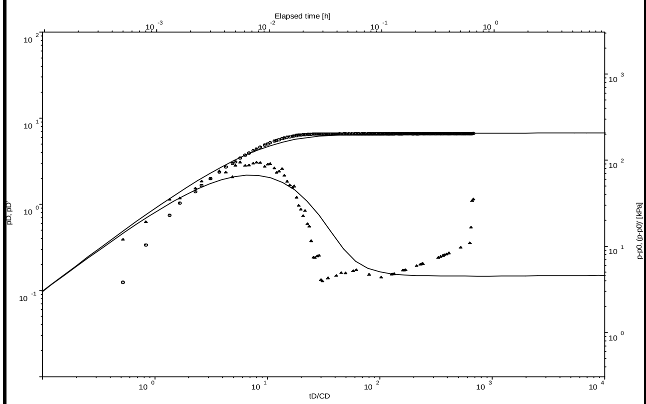


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5361		
p_i (kPa) =	5358		
p_p(kPa) =	5558	p_F (kPa) =	5354
Q_p (m^3/s)=	1.03E-07		
tp (s) =	1200	t_F (s) =	2400
S el S* (-)=	1.00E-06	S el S* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.08	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	5.1E-09		
T_M (m^2/s)=	4.2E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	5.28	dt_1 (min) =	#NV
dt_2 (min) =	16.51	dt_2 (min) =	#NV
T (m^2/s) =	3.8E-09	T (m^2/s) =	5.5E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	7.6E-10	K_s (m/s) =	1.1E-09
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.2E-11
C_D (-) =	NA	C_D (-) =	1.3E-03
ξ (-) =	0.34	ξ (-) =	3.22
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	5.28	C (m^3/Pa) =	1.2E-11
dt_2 (min) =	16.51	C_D (-) =	1.3E-03
T_T (m^2/s) =	3.8E-09	ξ (-) =	0.34
S (-) =	1.0E-06		
K_s (m/s) =	7.6E-10		
S_s (1/m) =	2.0E-07		

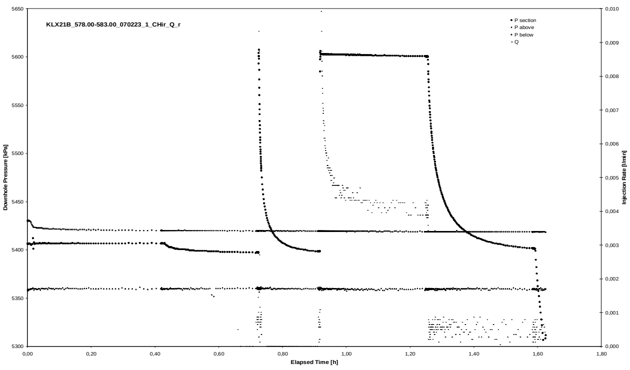
Comments:

The recommended transmissivity of 3.8E-9 m2/s was derived from the analysis of the CHi phase, which shows the best horizontal derivative stabilisation. The confidence range for the interval transmissivity is estimated to be 3.0E-9 m2/s to 3.0E-8 m2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,353.9 kPa.

Test Summary Sheet

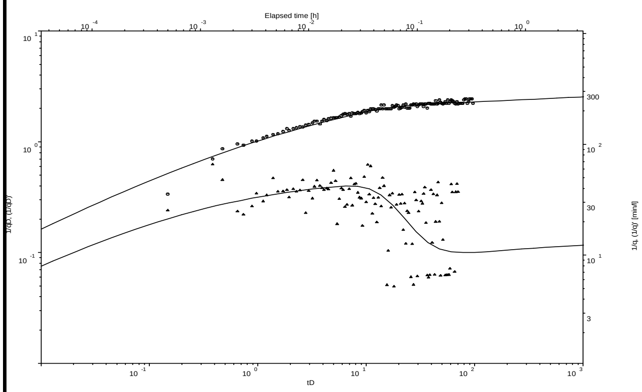
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070223 12:50
Test section from - to (m):	578.00-583.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

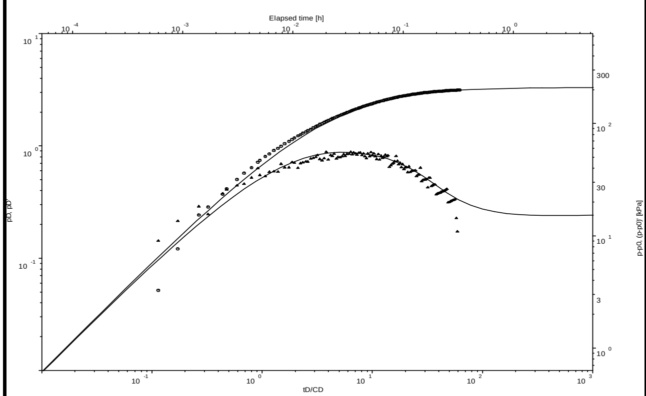


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5406		
p_i (kPa) =	5399		
p_p(kPa) =	5601	p_F (kPa) =	5401
Q_p (m^3/s)=	6.67E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	#NV		
Derivative fact.=	0.12	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	3.2E-09		
T_M (m^2/s)=	2.7E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.2E-09	T (m^2/s) =	1.9E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.4E-10	K_s (m/s) =	3.8E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.3E-11
C_D (-) =	NA	C_D (-) =	2.5E-03
ξ (-) =	-1.17	ξ (-) =	-0.45
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	2.3E-11
dt_2 (min) =	#NV	C_D (-) =	2.5E-03
T_T (m^2/s) =	1.9E-09	ξ (-) =	-0.45
S (-) =	1.0E-06		
K_s (m/s) =	3.8E-10		
S_s (1/m) =	2.0E-07		

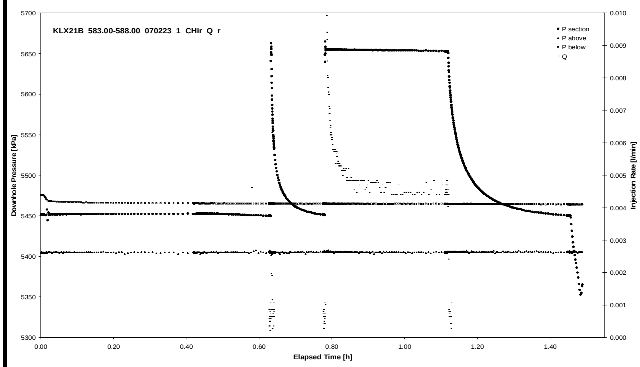
Comments:

The recommended transmissivity of 1.9•10-9 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be 9.0•10-10 m2/s to 6.0•10-9 m2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 5,386.4 kPa.

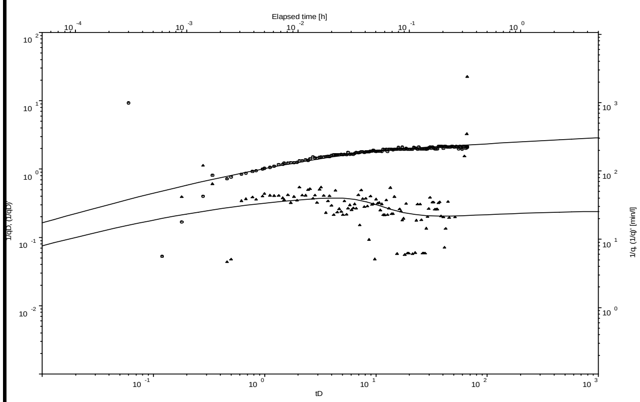
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070223 14:54
Test section from - to (m):	583.00-588.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

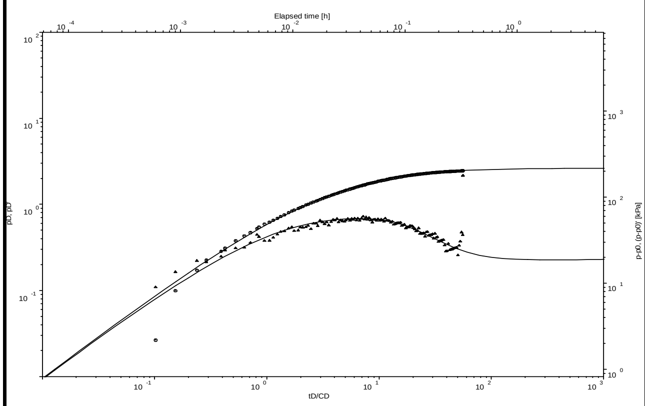
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	5451		
p_i (kPa) =	5451		
p_p(kPa) =	5653	p_F (kPa) =	5450
Q_p (m^3/s)=	7.67E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	14.7		
Derivative fact.=	0.07	Derivative fact.=	0.03
Results		**Results**	
Q/s (m^2/s)=	3.7E-09		
T_M (m^2/s)=	3.1E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.2E-09	T (m^2/s) =	1.6E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.4E-10	K_s (m/s) =	3.2E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.2E-11
C_D (-) =	NA	C_D (-) =	2.4E-03
ξ (-) =	1.36	ξ (-) =	-1.03
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	2.2E-11
dt_2 (min) =	#NV	C_D (-) =	2.4E-03
T_T (m^2/s) =	1.6E-09	ξ (-) =	-1.03
S (-) =	1.0E-06		
K_s (m/s) =	3.2E-10		
S_s (1/m) =	2.0E-07		

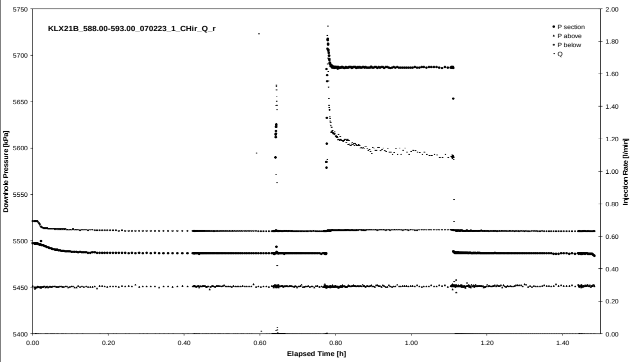
Comments:

The recommended transmissivity of 1.6•10-9 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be 1.0•10-9 m2/s to 5.0•10-9 m2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 5,433.0 kPa.

Test Summary Sheet

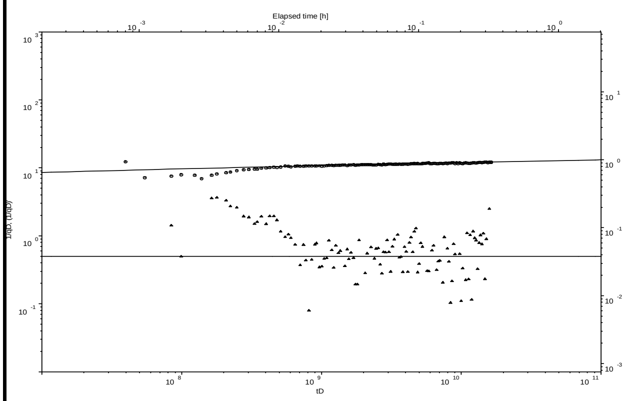
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070223 16:51
Test section from - to (m):	588.00-593.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

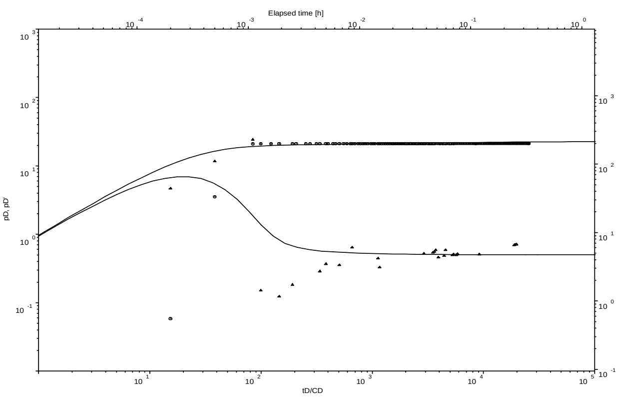


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5498		
p_i (kPa) =	5487		
p_p(kPa) =	5686	p_F (kPa) =	5485
Q_p (m^3/s)=	1.80E-05		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	14.6		
Derivative fact.=	0.08	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	8.9E-07		
T_M (m^2/s)=	7.3E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.94	dt_1 (min) =	0.30
dt_2 (min) =	11.78	dt_2 (min) =	7.18
T (m^2/s) =	1.7E-06	T (m^2/s) =	3.2E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.4E-07	K_s (m/s) =	6.4E-07
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	9.5E-11
C_D (-) =	NA	C_D (-) =	1.0E-02
ξ (-) =	4.68	ξ (-) =	15.00
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.94	C (m^3/Pa) =	9.5E-11
dt_2 (min) =	11.78	C_D (-) =	1.0E-02
T_T (m^2/s) =	1.7E-06	ξ (-) =	4.68
S (-) =	1.0E-06		
K_s (m/s) =	3.4E-07		
S_s (1/m) =	2.0E-07		

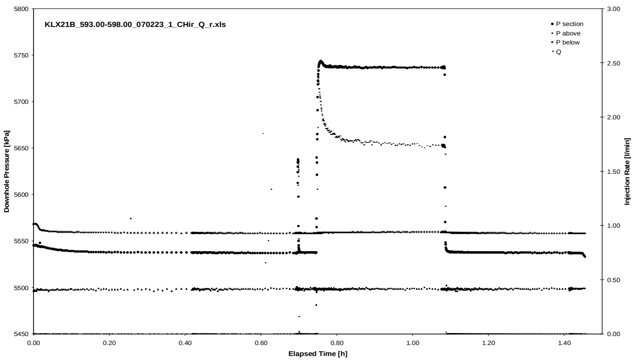
Comments:

The recommended transmissivity of 1.7E-6 m2/s was derived from the analysis of the CHi phase, which shows a fairly good data and derivative quality and the best horizontal derivative stabilisation. The CHir phase shows a very fast recovery, therefore the analysis is considered as less representative than the CHi phase. The confidence range for the interval transmissivity is estimated to be 5.0E-7 m2/s to 4.0E-6 m2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,486.0 kPa.

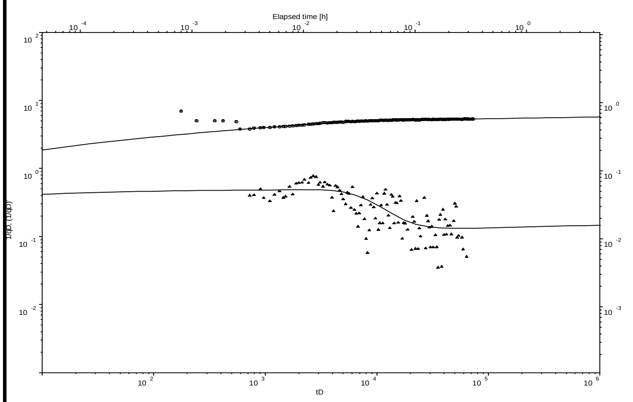
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070223 18:50
Test section from - to (m):	593.00-598.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

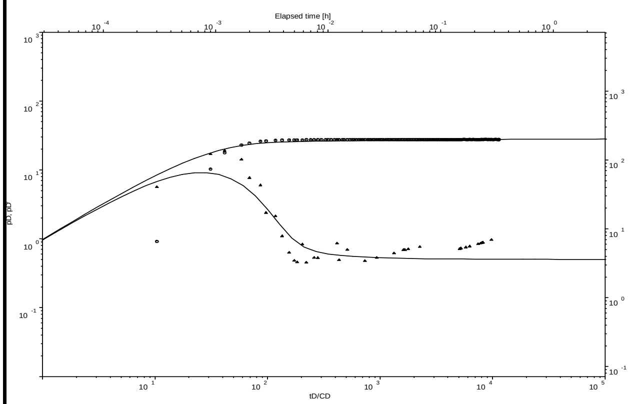
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	5545		
p_i (kPa) =	5537		
p_p(kPa) =	5735	p_F (kPa) =	5537
Q_p (m^3/s)=	2.87E-05		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	14.7		
Derivative fact.=	0.07	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.4E-06		
T_M (m^2/s)=	1.2E-06		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.25	dt_1 (min) =	0.75
dt_2 (min) =	1.31	dt_2 (min) =	16.94
T (m^2/s) =	1.2E+06	T (m^2/s) =	6.5E+06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.4E+05	K_s (m/s) =	#WERT!
S_s (1/m) =	2.0E-07	S_s (1/m) =	#WERT!
C (m^3/Pa) =	NA	C (m^3/Pa) =	4.3E-10
C_D (-) =	NA	C_D (-) =	4.8E-02
ξ (-) =	-1.31	ξ (-) =	1.99
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	0.25	C (m^3/Pa) =	4.3E-10
dt_2 (min) =	1.31	C_D (-) =	4.8E-02
T_T (m^2/s) =	1.2E+06	ξ (-) =	-1.31
S (-) =	1.0E-06		
K_s (m/s) =	2.4E+05		
S_s (1/m) =	2.0E-07		

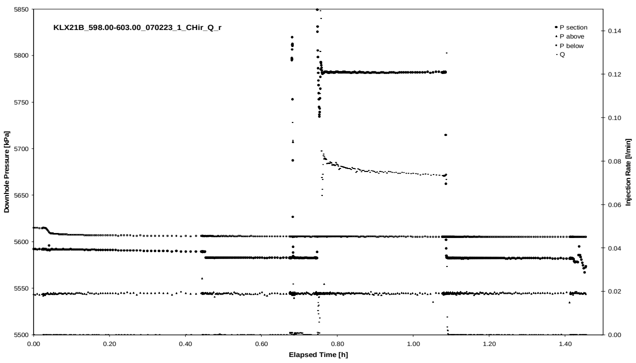
Comments:

The recommended transmissivity of 1.2E-6 m2/s was derived from the analysis of the CHi phase, which shows a fairly good data and derivative quality and the best horizontal derivative stabilisation. The CHir phase shows a very fast recovery, therefore the analysis is considered as less representative than the CHi phase. The confidence range for the interval transmissivity is estimated to be 5.0E-7 m2/s to 8.0E-6 m2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,537.0 kPa.

Test Summary Sheet

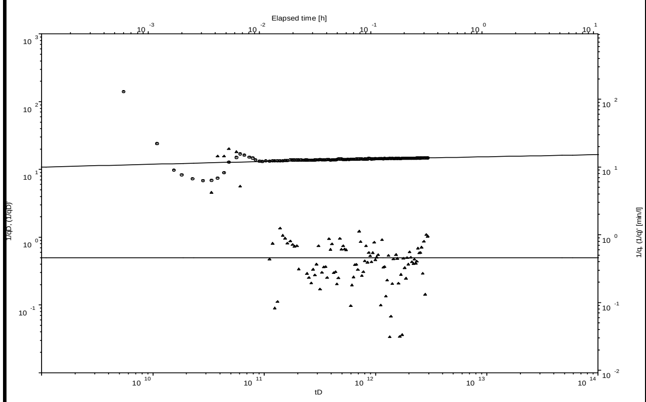
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070223 22:03
Test section from - to (m):	598.00-603.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

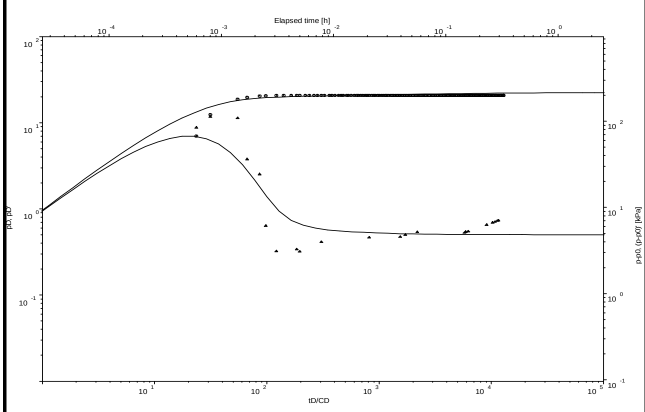


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5592		
p_i (kPa) =	5582		
p_p(kPa) =	5782	p_F (kPa) =	5581
Q_p (m^3/s)=	1.23E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	14.8		
Derivative fact.=	0.08	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	6.0E-08		
T_M (m^2/s)=	5.0E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.74	dt_1 (min) =	0.47
dt_2 (min) =	14.78	dt_2 (min) =	17.77
T (m^2/s) =	1.4E-07	T (m^2/s) =	2.1E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.8E-08	K_s (m/s) =	4.2E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.2E-11
C_D (-) =	NA	C_D (-) =	1.3E-03
ξ (-) =	8.53	ξ (-) =	16.00
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.74	C (m^3/Pa) =	1.2E-11
dt_2 (min) =	14.78	C_D (-) =	1.3E-03
T_T (m^2/s) =	1.4E-07	ξ (-) =	8.53
S (-) =	1.0E-06		
K_s (m/s) =	2.8E-08		
S_s (1/m) =	2.0E-07		

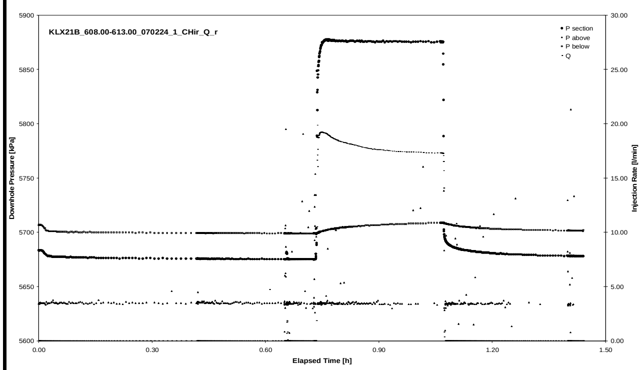
Comments:

The recommended transmissivity of 1.4E-7 m2/s was derived from the analysis of the CHi phase, which shows a fairly good data and derivative quality and the best horizontal derivative stabilisation. The CHir phase shows a very fast recovery, therefore the analysis is considered as less representative than the CHi phase. The confidence range for the interval transmissivity is estimated to be 1.0E-7 m2/s to 2.0E-6 m2/s. The analysis was performed using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,581.8 kPa.

Test Summary Sheet

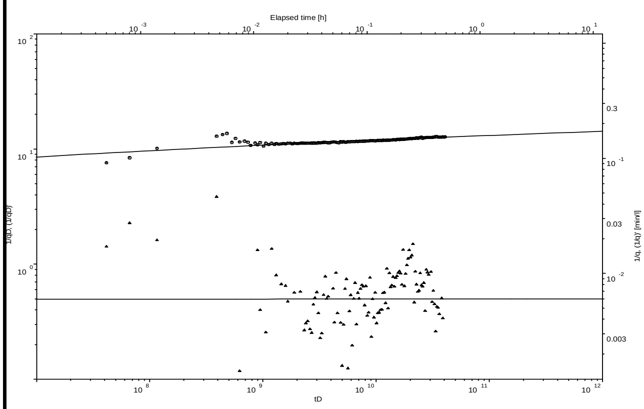
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070224 00:00
Test section from - to (m):	603.00-608.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

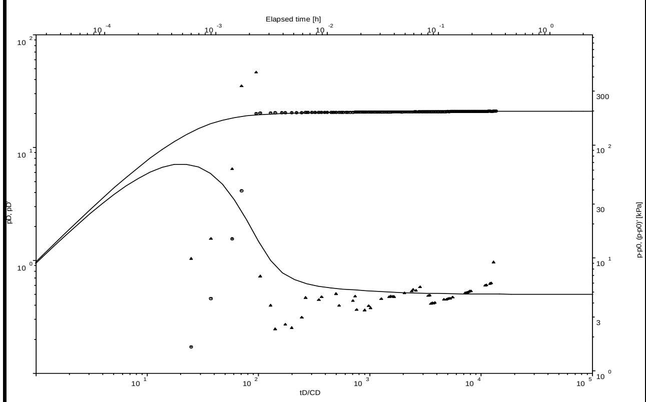


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5638		
p_i (kPa) =	5630		
p_p(kPa) =	5829	p_F (kPa) =	5629
Q_p (m^3/s)=	1.09E-04		
tp (s) =	1800	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	14.5		
Derivative fact.=	0.06	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	5.4E-06		
T_M (m^2/s)=	4.4E-06		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.20	dt_1 (min) =	2.39
dt_2 (min) =	27.40	dt_2 (min) =	16.20
T (m^2/s) =	1.1E-05	T (m^2/s) =	1.9E-05
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.2E-06	K_s (m/s) =	3.8E-06
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.0E-09
C_D (-) =	NA	C_D (-) =	1.1E-01
ξ (-) =	4.00	ξ (-) =	13.80
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	1.20	C (m^3/Pa) =	1.0E-09
dt_2 (min) =	27.40	C_D (-) =	1.1E-01
T_T (m^2/s) =	1.1E-05	ξ (-) =	4.00
S (-) =	1.0E-06		
K_s (m/s) =	2.2E-06		
S_s (1/m) =	2.0E-07		

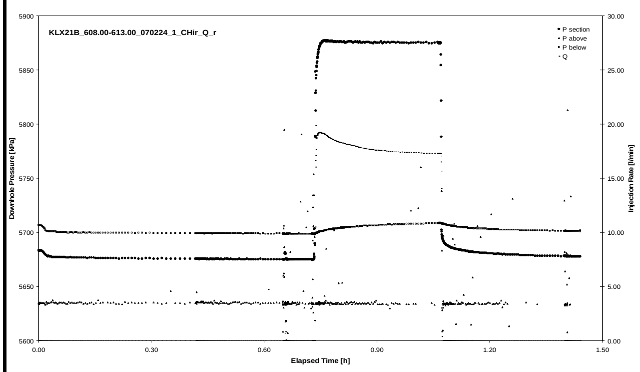
Comments:

The recommended transmissivity of 1.1•10-5 m2/s was derived from the analysis of the CHi phase, which shows the better derivative stabilisation. Due to the very fast pressure recovery, the CHir phase is considered as less representative. The confidence range for the interval transmissivity is estimated to be 3.0•10-6 m2/s to 3.0•10-5 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 5,627.7 kPa.

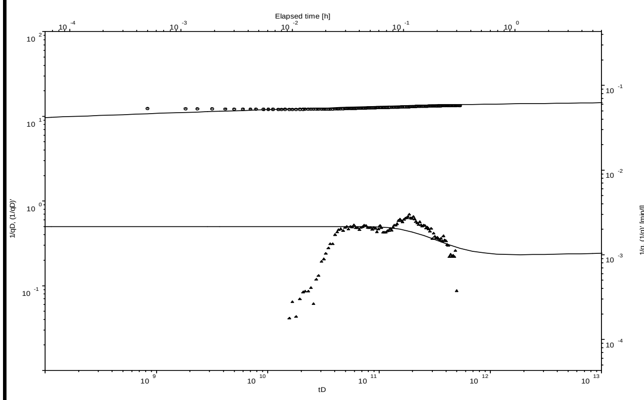
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070224 06:15
Test section from - to (m):	608.00-613.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

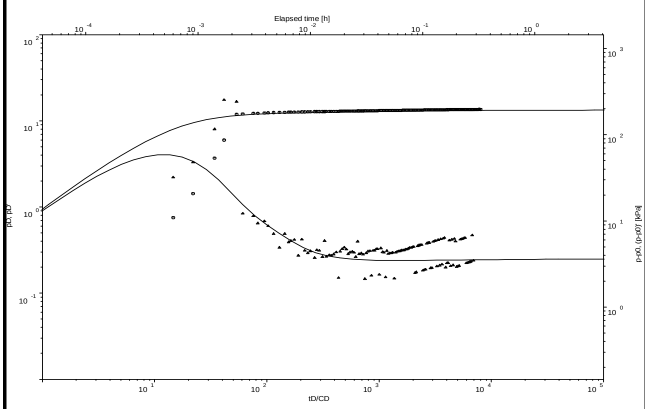
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	5683		
p_i (kPa) =	5675		
p_p(kPa) =	5875	p_F (kPa) =	5678
Q_p (m^3/s)=	2.88E-04		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	14.2		
Derivative fact.=	0.09	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	1.4E-05		
T_M (m^2/s)=	1.2E-05		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.78	dt_1 (min) =	1.52
dt_2 (min) =	3.78	dt_2 (min) =	17.02
T (m^2/s) =	3.0E-05	T (m^2/s) =	3.2E-05
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	6.0E-06	K_s (m/s) =	6.4E-06
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.0E-09
C_D (-) =	NA	C_D (-) =	3.3E-01
ξ (-) =	5.00	ξ (-) =	5.51
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.			
dt_1 (min) =	1.78	C (m^3/Pa) =	3.0E-09
dt_2 (min) =	3.78	C_D (-) =	3.3E-01
T_T (m^2/s) =	3.0E-05	ξ (-) =	5.00
S (-) =	1.0E-06		
K_s (m/s) =	6.0E-06		
S_s (1/m) =	2.0E-07		

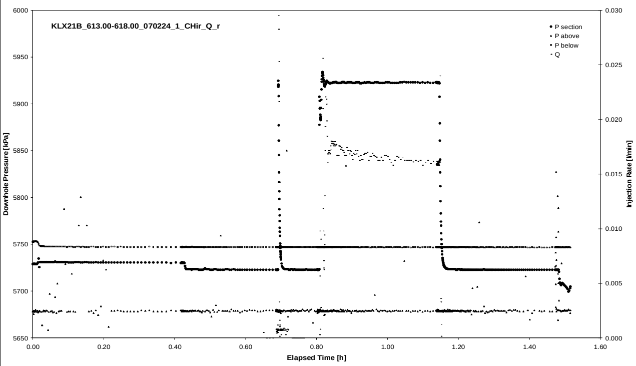
Comments:

The recommended transmissivity of 3.0E-5 m2/s was derived from the analysis of the CHi phase (inner zone), which shows the best derivative stabilisation. Due to the very fast pressure recovery, the CHir phase is considered as less representative. The confidence range for the interval transmissivity is estimated to be 1.0E-5 m2/s to 8.0E-5 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,675.3 kPa.

Test Summary Sheet

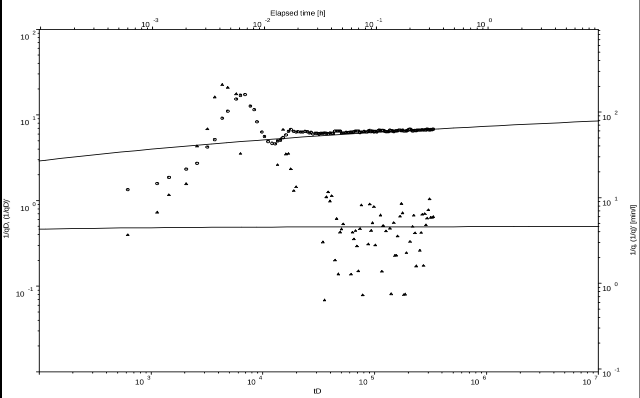
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070224 08:06
Test section from - to (m):	613.00-618.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

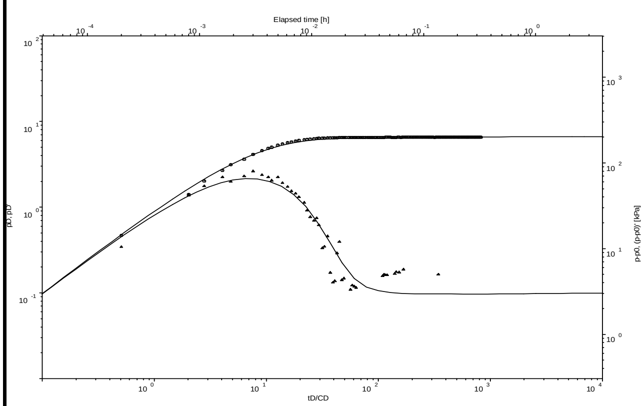


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5728		
p_i (kPa) =	5723		
p_p(kPa) =	5922	p_F (kPa) =	5722
Q_p (m^3/s)=	2.65E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	15.1		
Derivative fact.=	0.07	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.3E-08		
T_M (m^2/s)=	1.1E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	2.85	dt_1 (min) =	#NV
dt_2 (min) =	16.70	dt_2 (min) =	#NV
T (m^2/s) =	1.4E-08	T (m^2/s) =	1.5E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	2.8E-09	K_s (m/s) =	3.0E-09
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.3E-11
C_D (-) =	NA	C_D (-) =	1.4E-03
ξ (-) =	2.13	ξ (-) =	3.28
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	1.3E-11
dt_2 (min) =	#NV	C_D (-) =	1.4E-03
T_T (m^2/s) =	1.5E-08	ξ (-) =	3.28
S (-) =	1.0E-06		
K_s (m/s) =	3.0E-09		
S_s (1/m) =	2.0E-07		

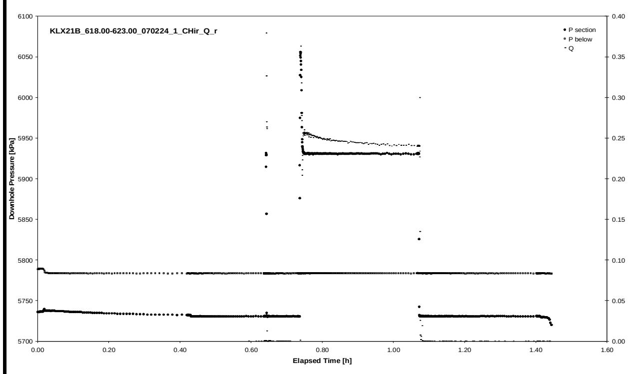
Comments:

The recommended transmissivity of 1.5E-8 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be 8.0E-9 m2/s to 8.0E-8 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,722.7 kPa.

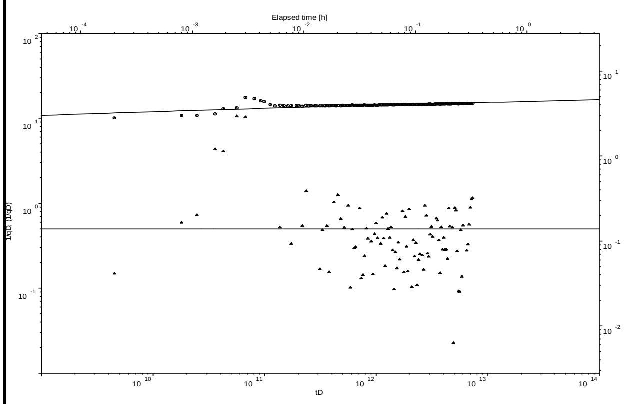
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070224 10:03
Test section from - to (m):	618.00-623.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

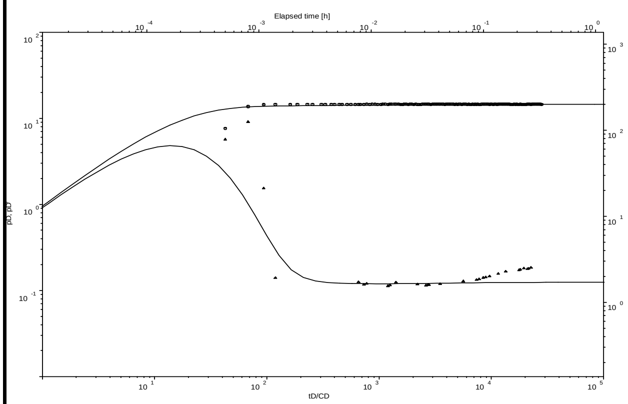
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5736		
p_i (kPa) =	5730		
p_p(kPa) =	5930	p_F (kPa) =	5730
Q_p (m^3/s)=	4.00E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	15.4		
Derivative fact.=	0.03	Derivative fact.=	0.07
Results		**Results**	
Q/s (m^2/s)=	2.0E-07		
T_M (m^2/s)=	1.6E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.37	dt_1 (min) =	0.46
dt_2 (min) =	15.30	dt_2 (min) =	2.47
T (m^2/s) =	4.7E-07	T (m^2/s) =	4.7E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	9.4E-08	K_s (m/s) =	9.4E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.3E-11
C_D (-) =	NA	C_D (-) =	1.4E-03
ξ (-) =	8.39	ξ (-) =	10.20
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	0.37	C (m^3/Pa) =	1.3E-11
dt_2 (min) =	15.30	C_D (-) =	1.4E-03
T_T (m^2/s) =	4.7E-07	ξ (-) =	8.39
S (-) =	1.0E-06		
K_s (m/s) =	9.4E-08		
S_s (1/m) =	2.0E-07		

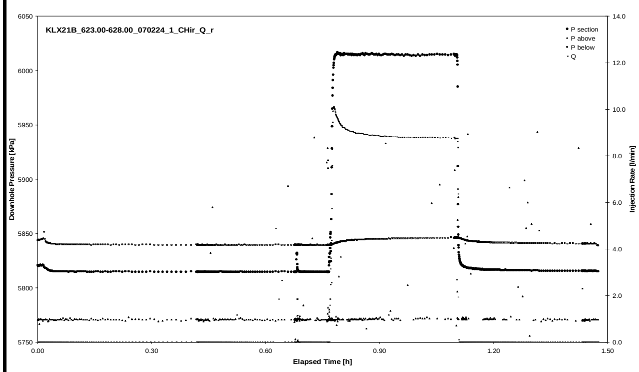
Comments:

The recommended transmissivity of 4.7E-7 m2/s was derived from the analysis of the CHi phase, which shows (despite of some background noise) a good derivative stabilisation. Due to the very fast pressure recovery, the CHir phase is considered as less representative. The confidence range for the interval transmissivity is estimated to be 1.0E-7 m2/s to 3.0E-6 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,730.7 kPa.

Test Summary Sheet

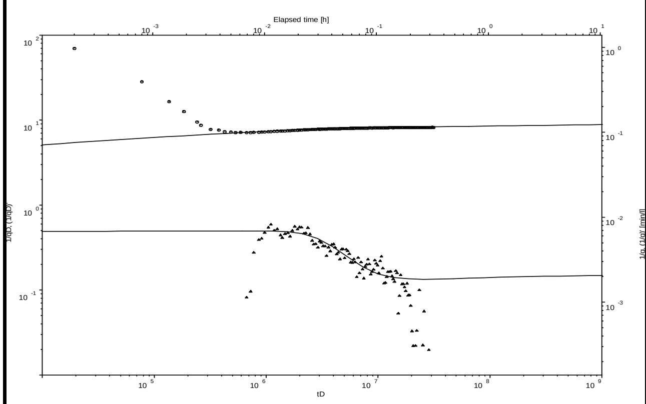
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070224 12:24
Test section from - to (m):	623.00-628.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

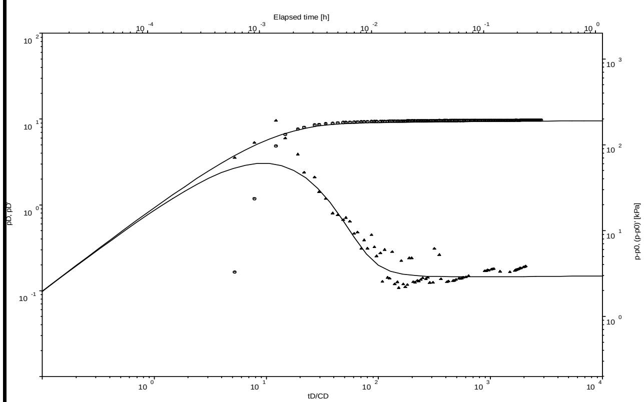


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5820		
p_i (kPa) =	5814		
p_p(kPa) =	6014	p_F (kPa) =	5815
Q_p (m^3/s)=	1.46E-04		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	15.0		
Derivative fact.=	0.07	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	7.1E-06		
T_M (m^2/s)=	5.9E-06		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.60	dt_1 (min) =	#NV
dt_2 (min) =	1.06	dt_2 (min) =	#NV
T (m^2/s) =	9.4E-06	T (m^2/s) =	1.2E-05
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.9E-06	K_s (m/s) =	2.4E-06
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.1E-09
C_D (-) =	NA	C_D (-) =	3.4E-01
ξ (-) =	0.71	ξ (-) =	2.85
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	0.60	C (m^3/Pa) =	3.1E-09
dt_2 (min) =	1.06	C_D (-) =	3.4E-01
T_T (m^2/s) =	9.4E-06	ξ (-) =	0.71
S (-) =	1.0E-06		
K_s (m/s) =	1.9E-06		
S_s (1/m) =	2.0E-07		

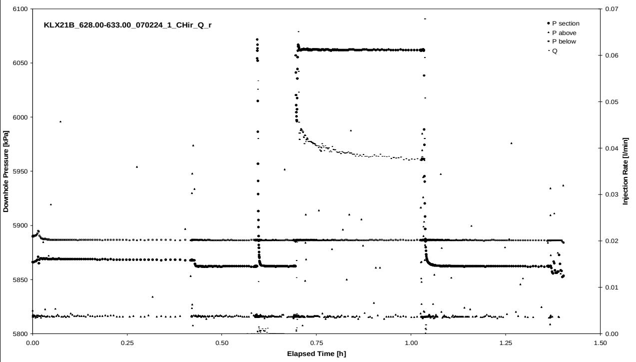
Comments:

The recommended transmissivity of 9.4E-6 m2/s was derived from the analysis of the CHi phase (inner zone), which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be 5.0E-6 m2/s to 5.0E-5 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,814.8 kPa.

Test Summary Sheet

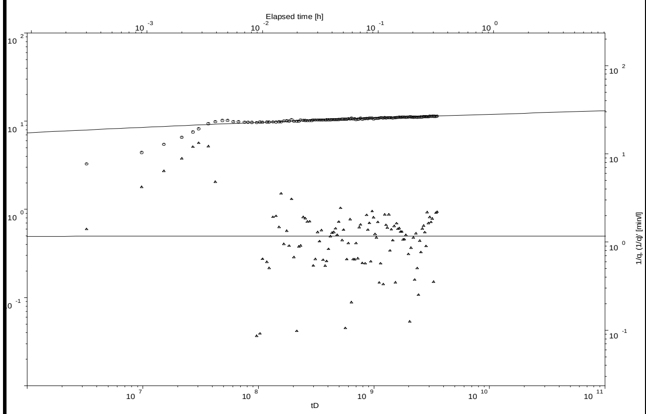
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070224 14:15
Test section from - to (m):	628.00-633.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

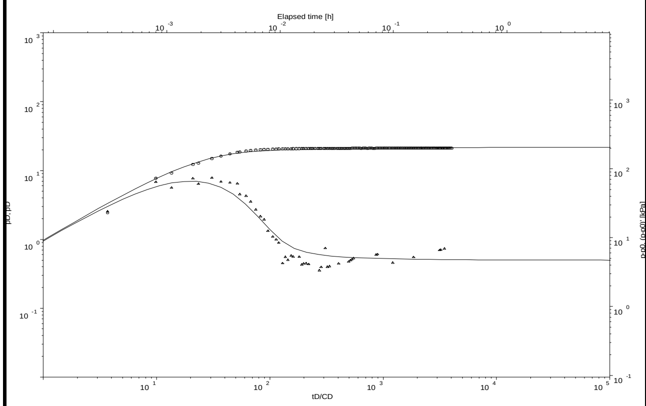


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5866		
p_i (kPa) =	5862		
p_p(kPa) =	6062	p_F (kPa) =	5862
Q_p (m^3/s)=	6.28E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=		Derivative fact.=	
Results		**Results**	
Q/s (m^2/s)=	3.1E-08		
T_M (m^2/s)=	2.5E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.83	dt_1 (min) =	1.97
dt_2 (min) =	15.20	dt_2 (min) =	15.68
T (m^2/s) =	5.6E-08	T (m^2/s) =	1.1E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.1E-08	K_s (m/s) =	2.2E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.0E-11
C_D (-) =	NA	C_D (-) =	2.2E-03
ξ (-) =	5.64	ξ (-) =	15.72
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.83	C (m^3/Pa) =	2.0E-11
dt_2 (min) =	15.20	C_D (-) =	2.2E-03
T_T (m^2/s) =	5.6E-08	ξ (-) =	5.64
S (-) =	1.0E-06		
K_s (m/s) =	1.1E-08		
S_s (1/m) =	2.0E-07		

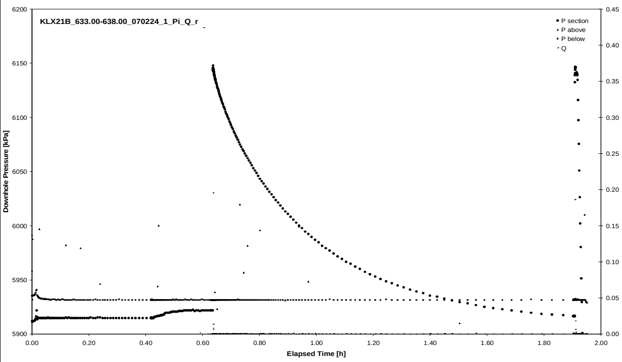
Comments:

The recommended transmissivity of 5.6•10-8 m2/s was derived from the analysis of the CHi phase, which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be 2.0•10-8 m2/s to 8.0•10-8 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,860.6 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	Pi
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070224 16:07
Test section from - to (m):	633.00-638.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2\cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

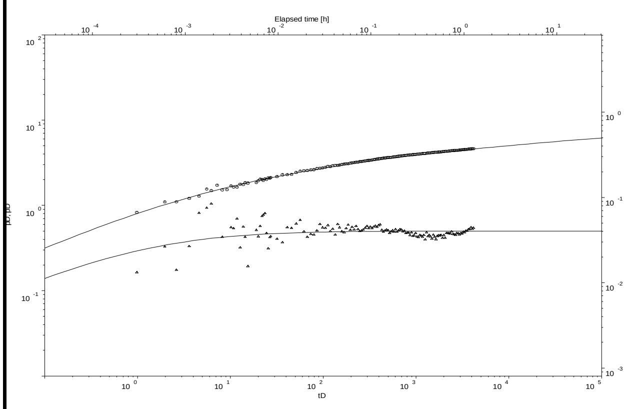
Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5911		
p_i (kPa) =	5922		
p_p(kPa) =	6148	p_F (kPa) =	5917
Q_p (m^3/s)=	#NV		
tp (s) =	10.02	t_F (s) =	4020
S el S* (-)=	1.00E-06	S el S* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	15.8		
Derivative fact.=		Derivative fact.=	0.08
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	1.13
dt_2 (min) =	#NV	dt_2 (min) =	6.95
T (m^2/s) =		T (m^2/s) =	7.9E-11
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	0.0E+00	K_s (m/s) =	1.6E-11
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.5E-11
C_D (-) =	NA	C_D (-) =	1.6E-03
ξ (-) =	NA	ξ (-) =	1.4E+00
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	1.13	C (m^3/Pa) =	1.5E-11
dt_2 (min) =	6.95	C_D (-) =	1.6E-03
T_T (m^2/s) =	7.9E-11	ξ (-) =	1.4E+00
S (-) =	1.0E-06		
K_s (m/s) =	1.6E-11		
S_s (1/m) =	2.0E-07		

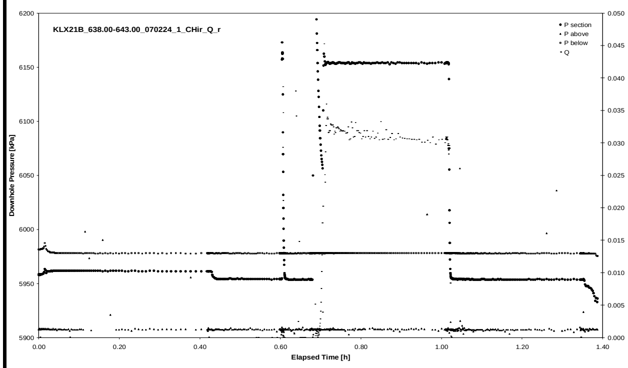
Comments:

The recommended transmissivity of 7.9E-11 m2/s was derived from the analysis of the PI phase. The confidence range for the interval transmissivity is estimated to be 6.0E-11 m2/s to 4.0E-10 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth could not be extrapolated.

Test Summary Sheet

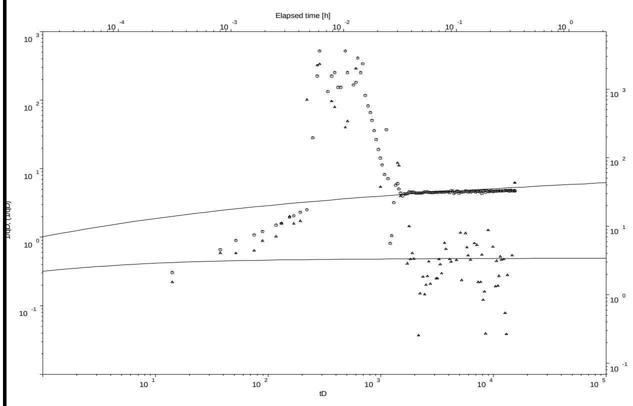
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070224 18:33
Test section from - to (m):	638.00-643.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

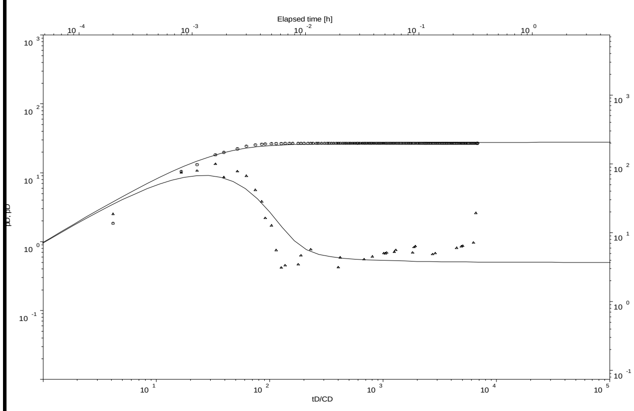


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	5958		
p_i (kPa) =	5953		
p_p(kPa) =	6153	p_F (kPa) =	5953
Q_p (m^3/s)=	5.00E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	15.9		
Derivative fact.=	0.05	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	2.5E-08		
T_M (m^2/s)=	2.0E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	2.35	dt_1 (min) =	1.21
dt_2 (min) =	18.71	dt_2 (min) =	14.56
T (m^2/s) =	1.9E-08	T (m^2/s) =	1.1E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.8E-09	K_s (m/s) =	2.2E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.3E-11
C_D (-) =	NA	C_D (-) =	1.4E-03
ξ (-) =	0.00	ξ (-) =	21.70
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	2.35	C (m^3/Pa) =	1.3E-11
dt_2 (min) =	18.71	C_D (-) =	1.4E-03
T_T (m^2/s) =	1.9E-08	ξ (-) =	0.00
S (-) =	1.0E-06		
K_s (m/s) =	3.8E-09		
S_s (1/m) =	2.0E-07		

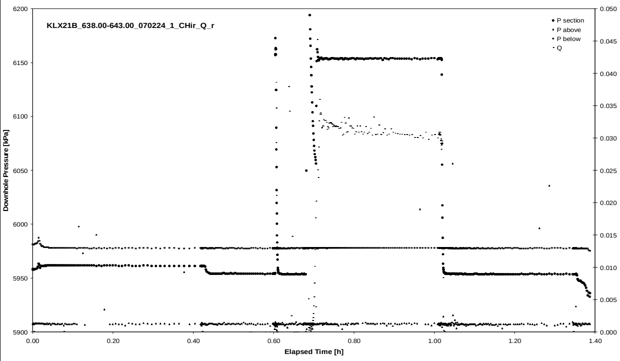
Comments:

The recommended transmissivity of 1.9E-8 m2/s was derived from the analysis of the CHi phase, which shows the best horizontal stabilisation of the derivative with a skin of zero. The confidence range for the interval transmissivity is estimated to be 8.0E-9 m2/s to 4.0E-8 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,953.7 kPa.

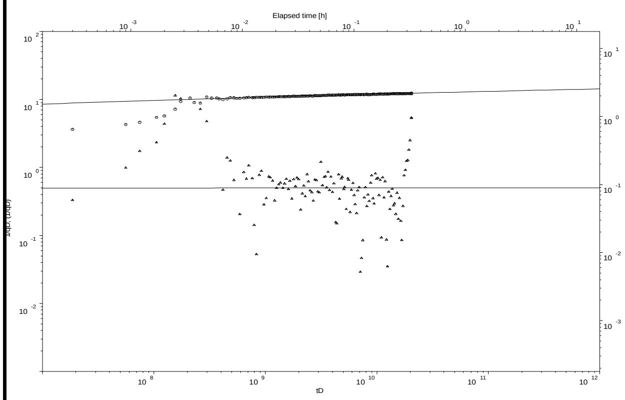
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070224 21:04
Test section from - to (m):	643.00-648.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

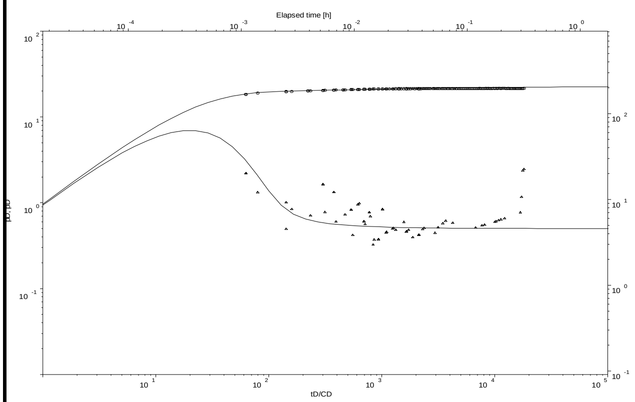
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6004		
p_i (kPa) =	5999		
p_p(kPa) =	6199	p_F (kPa) =	5999
Q_p (m^3/s)=	7.66E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	15.9		
Derivative fact.=	0.06	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	3.8E-07		
T_M (m^2/s)=	3.1E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.40	dt_1 (min) =	0.75
dt_2 (min) =	13.28	dt_2 (min) =	12.86
T (m^2/s) =	7.3E-07	T (m^2/s) =	1.4E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.5E-07	K_s (m/s) =	2.8E-07
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	5.6E-11
C_D (-) =	NA	C_D (-) =	6.1E-03
ξ (-) =	5.23	ξ (-) =	15.22
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	0.40	C (m^3/Pa) =	5.6E-11
dt_2 (min) =	13.28	C_D (-) =	6.1E-03
T_T (m^2/s) =	7.3E-07	ξ (-) =	5.23
S (-) =	1.0E-06		
K_s (m/s) =	1.5E-07		
S_s (1/m) =	2.0E-07		

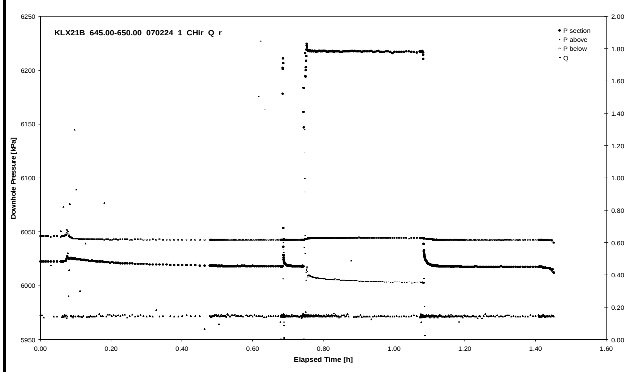
Comments:

The recommended transmissivity of 7.3E-7 m2/s was derived from the analysis of the CHi phase, which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be 3.0E-7 m2/s to 1.0E-6 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 5,999.6 kPa.

Test Summary Sheet

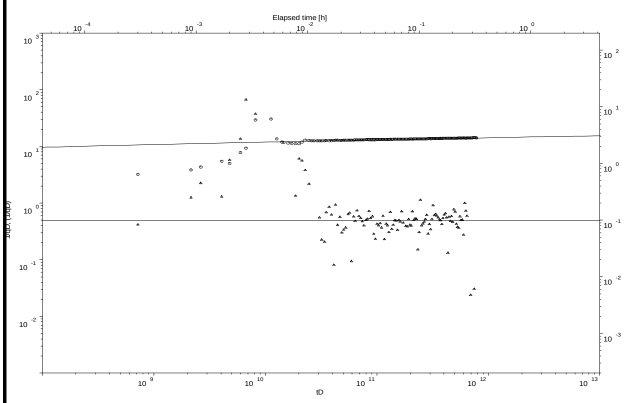
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070224 22:53
Test section from - to (m):	645.00-650.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

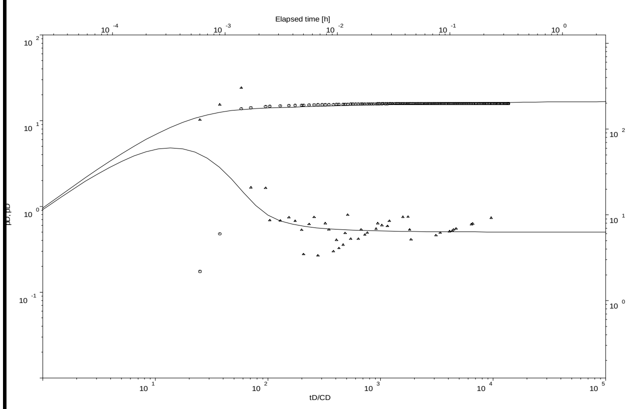


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6022		
p_i (kPa) =	6018		
p_p(kPa) =	6217	p_F (kPa) =	6017
Q_p (m^3/s)=	5.83E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16		
Derivative fact.=	0.06	Derivative fact.=	0.01
Results		**Results**	
Q/s (m^2/s)=	2.9E-07		
T_M (m^2/s)=	2.4E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.77	dt_1 (min) =	0.50
dt_2 (min) =	14.67	dt_2 (min) =	6.79
T (m^2/s) =	6.5E-07	T (m^2/s) =	7.7E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.3E-07	K_s (m/s) =	1.5E-07
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	4.3E-11
C_D (-) =	NA	C_D (-) =	4.7E-03
ξ (-) =	7.10	ξ (-) =	9.20
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.77	C (m^3/Pa) =	4.3E-11
dt_2 (min) =	14.67	C_D (-) =	4.7E-03
T_T (m^2/s) =	6.5E-07	ξ (-) =	7.10
S (-) =	1.0E-06		
K_s (m/s) =	1.3E-07		
S_s (1/m) =	2.0E-07		

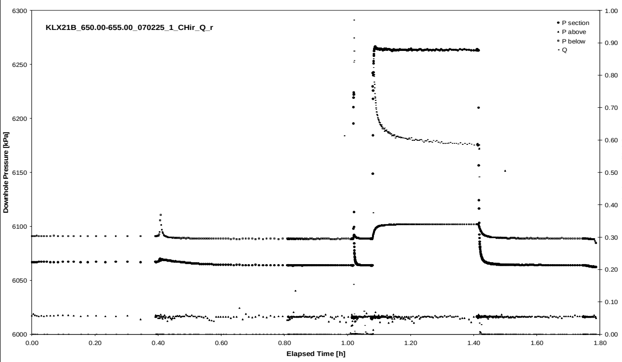
Comments:

The recommended transmissivity of 6.5E-7 m2/s was derived from the analysis of the CHi phase, which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be 3.0E-7 m2/s to 8.0E-7 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,017.2 kPa.

Test Summary Sheet

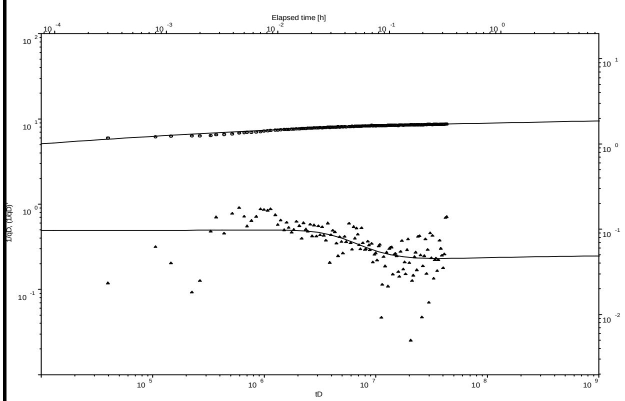
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 00:44
Test section from - to (m):	650.00-655.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

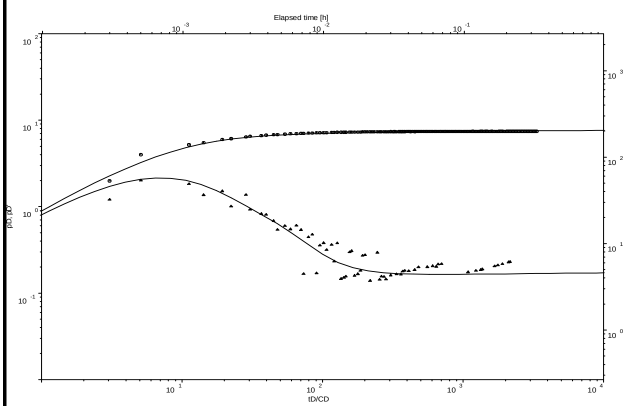


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6067		
p_i (kPa) =	6064		
p_p(kPa) =	6263	p_F (kPa) =	6062
Q_p (m^3/s)=	9.73E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.0		
Derivative fact.=	0.08	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	4.8E-07		
T_M (m^2/s)=	4.0E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.15	dt_1 (min) =	#NV
dt_2 (min) =	1.12	dt_2 (min) =	#NV
T (m^2/s) =	6.7E-07	T (m^2/s) =	5.9E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.3E-07	K_s (m/s) =	1.2E-07
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.3E-10
C_D (-) =	NA	C_D (-) =	1.5E-02
ξ (-) =	2.19	ξ (-) =	2.12
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	0.15	C (m^3/Pa) =	1.3E-10
dt_2 (min) =	1.12	C_D (-) =	1.5E-02
T_T (m^2/s) =	6.7E-07	ξ (-) =	2.19
S (-) =	1.0E-06		
K_s (m/s) =	1.3E-07		
S_s (1/m) =	2.0E-07		

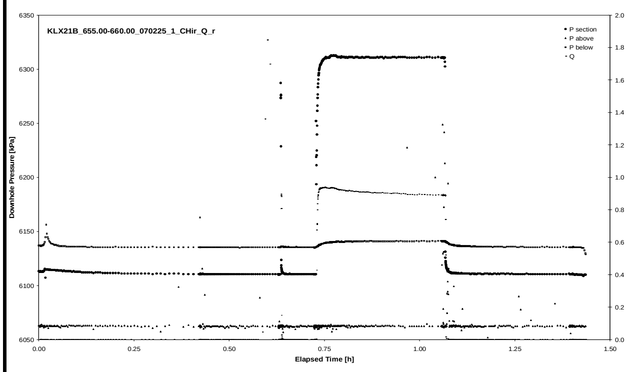
Comments:

The recommended transmissivity of 6.7E-7 m2/s was derived from the analysis of the CHi phase (inner zone), which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be 3.0E-7 m2/s to 3.0E-6 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,063.2 kPa.

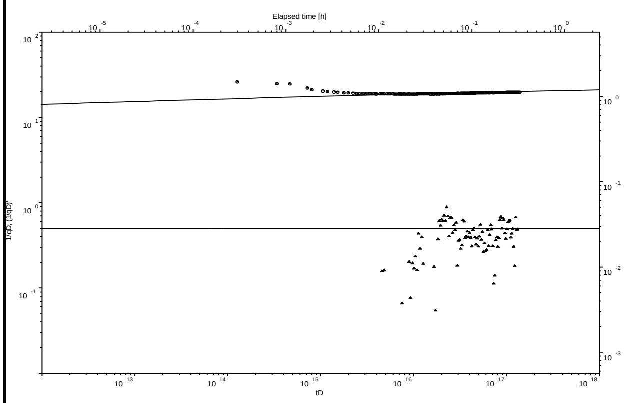
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 06:21
Test section from - to (m):	655.00-660.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

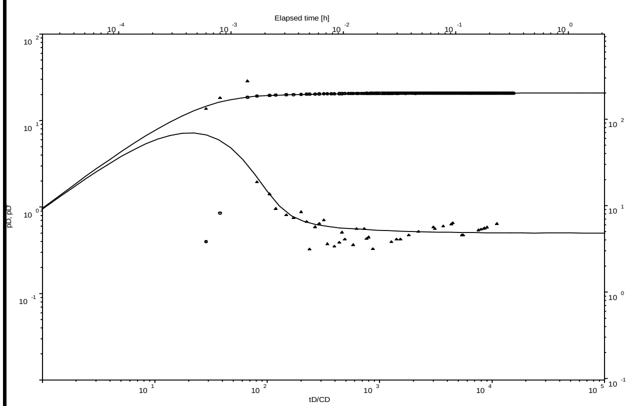
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6113		
p_i (kPa) =	6110		
p_p(kPa) =	6311	p_F (kPa) =	6110
Q_p (m^3/s)=	1.48E-05		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.1		
Derivative fact.=	0.07	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	7.2E-07		
T_M (m^2/s)=	6.0E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.60	dt_1 (min) =	11.38
dt_2 (min) =	5.82	dt_2 (min) =	18.71
T (m^2/s) =	2.3E-06	T (m^2/s) =	2.5E-06
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	4.6E-07	K_s (m/s) =	4.9E-07
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.2E-10
C_D (-) =	NA	C_D (-) =	1.3E-02
ξ (-) =	12.50	ξ (-) =	14.80
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	11.38	C (m^3/Pa) =	1.2E-10
dt_2 (min) =	18.71	C_D (-) =	1.3E-02
T_T (m^2/s) =	2.5E-06	ξ (-) =	14.80
S (-) =	1.0E-06		
K_s (m/s) =	4.9E-07		
S_s (1/m) =	2.0E-07		

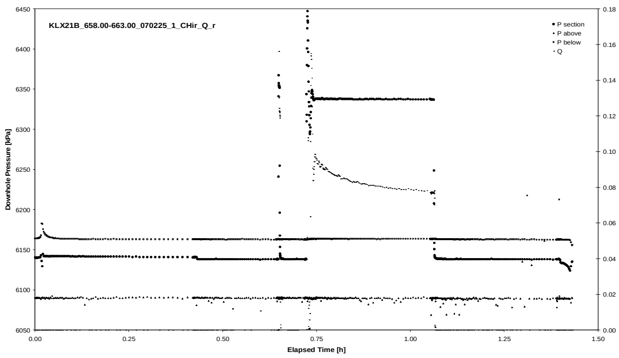
Comments:

The recommended transmissivity of 2.5•10-6 m2/s was derived from the analysis of the CHir phase, which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be 5.0•10-7 m2/s to 4.0•10-6 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,110.2 kPa.

Test Summary Sheet

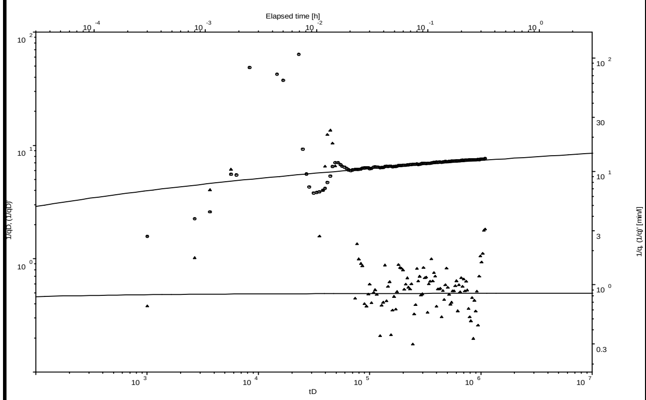
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 08:15
Test section from - to (m):	658.00-663.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

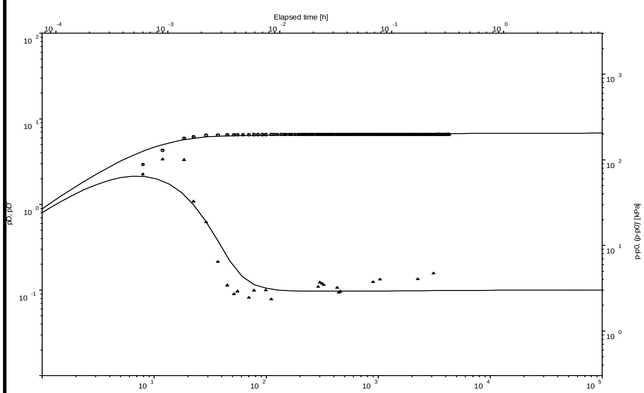


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	6140		
p_i (kPa) =	6138		
p_p(kPa) =	6338	p_F (kPa) =	6138
Q_p (m^3/s)=	1.28E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.2		
Derivative fact.=	0.04	Derivative fact.=	0.03
Results		**Results**	
Q/s (m^2/s)=	6.3E-08		
T_M (m^2/s)=	5.2E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.75	dt_1 (min) =	#NV
dt_2 (min) =	16.52	dt_2 (min) =	#NV
T (m^2/s) =	7.7E-08	T (m^2/s) =	7.2E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.5E-08	K_s (m/s) =	1.4E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.3E-11
C_D (-) =	NA	C_D (-) =	1.4E-03
ξ (-) =	1.43	ξ (-) =	3.30
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	1.75	C (m^3/Pa) =	1.3E-11
dt_2 (min) =	16.52	C_D (-) =	1.4E-03
T_T (m^2/s) =	7.7E-08	ξ (-) =	1.43
S (-) =	1.0E-06		
K_s (m/s) =	1.5E-08		
S_s (1/m) =	2.0E-07		

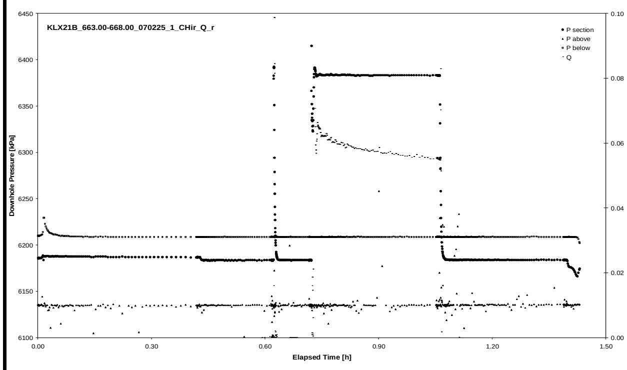
Comments:

The recommended transmissivity of 7.7E-8 m2/s was derived from the analysis of the CHi phase, which shows the better horizontal stabilisation of the derivative. The CHir phase shows a relative fast recovery and is understood as less representative. The confidence range for the interval transmissivity is estimated to be 4.0E-8 m2/s to 5.0E-7 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,138.1 kPa.

Test Summary Sheet

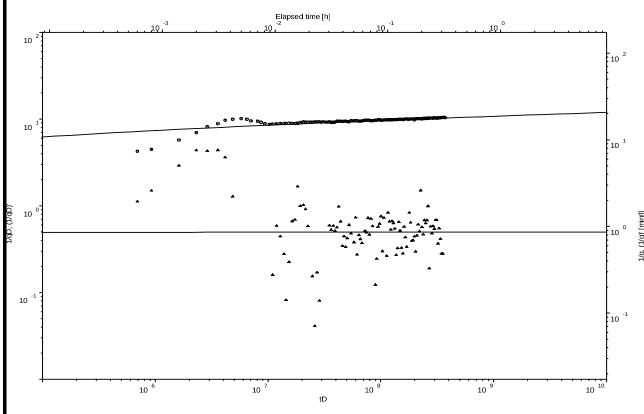
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 10:07
Test section from - to (m):	663.00-668.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

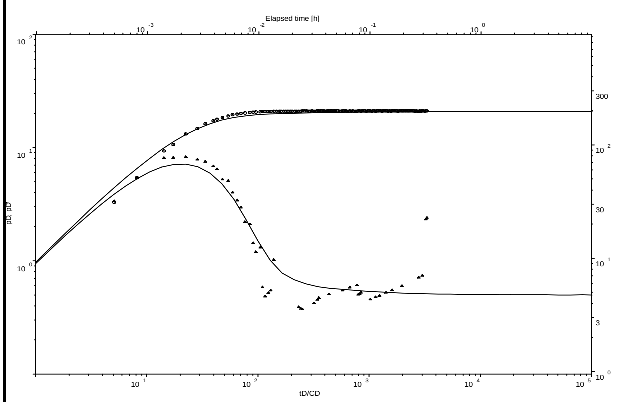


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6186		
p_i (kPa) =	6182		
p_p(kPa) =	6382	p_F (kPa) =	6184
Q_p (m^3/s)=	9.18E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.2		
Derivative fact.=	0.05	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	4.5E-08		
T_M (m^2/s)=	3.7E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.67	dt_1 (min) =	2.57
dt_2 (min) =	14.72	dt_2 (min) =	11.62
T (m^2/s) =	7.5E-08	T (m^2/s) =	1.6E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.5E-08	K_s (m/s) =	3.2E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.6E-11
C_D (-) =	NA	C_D (-) =	4.0E-03
ξ (-) =	4.36	ξ (-) =	15.40
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	0.67	C (m^3/Pa) =	3.6E-11
dt_2 (min) =	14.72	C_D (-) =	4.0E-03
T_T (m^2/s) =	7.5E-08	ξ (-) =	4.36
S (-) =	1.0E-06		
K_s (m/s) =	1.5E-08		
S_s (1/m) =	2.0E-07		

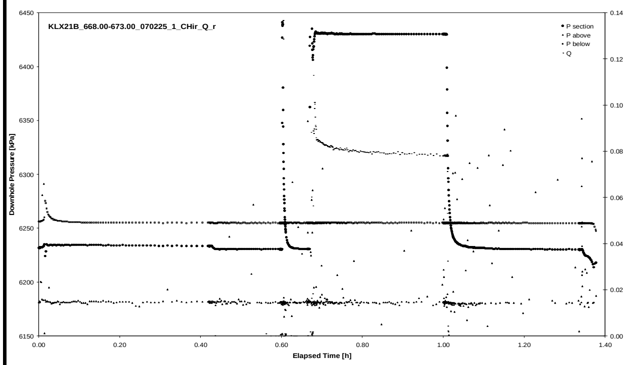
Comments:

The recommended transmissivity of 7.5E-8 m2/s was derived from the analysis of the CHi phase, which shows the better derivative stabilisation despite of some background noise. The confidence range for the interval transmissivity is estimated to be 2.0E-8 m2/s to 2.0E-7 m2/s. The analyses were conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,183.7 kPa.

Test Summary Sheet

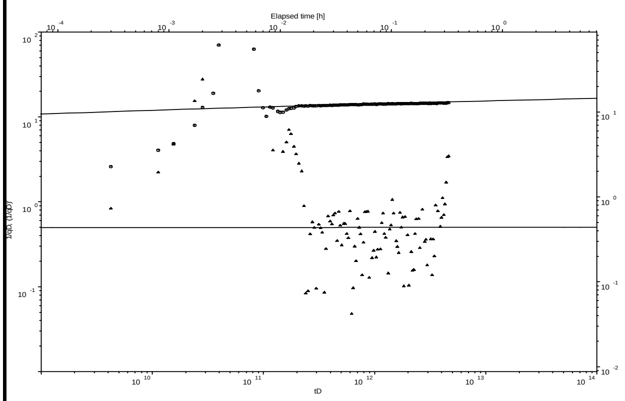
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 11:57
Test section from - to (m):	668.00-673.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

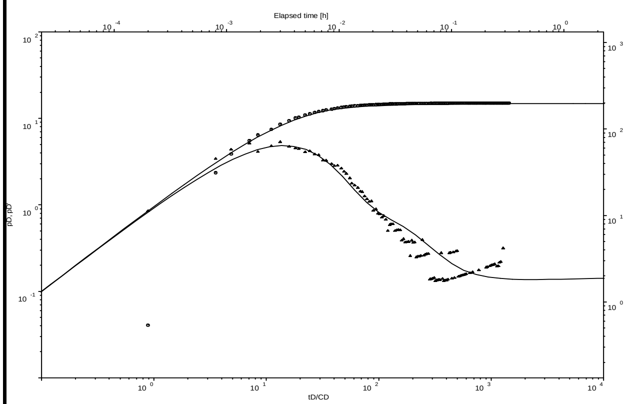


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6232		
p_i (kPa) =	6230		
p_p(kPa) =	6430	p_F (kPa) =	6230
Q_p (m^3/s)=	1.33E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.3		
Derivative fact.=	0.05	Derivative fact.=	0.07
Results		**Results**	
Q/s (m^2/s)=	6.5E-08		
T_M (m^2/s)=	5.4E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.22	dt_1 (min) =	#NV
dt_2 (min) =	16.52	dt_2 (min) =	#NV
T (m^2/s) =	1.5E-07	T (m^2/s) =	1.6E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.0E-08	K_s (m/s) =	3.2E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	8.2E-11
C_D (-) =	NA	C_D (-) =	9.1E-03
ξ (-) =	8.73	ξ (-) =	9.27
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	8.2E-11
dt_2 (min) =	#NV	C_D (-) =	9.1E-03
T_T (m^2/s) =	1.6E-07	ξ (-) =	9.27
S (-) =	1.0E-06		
K_s (m/s) =	3.2E-08		
S_s (1/m) =	2.0E-07		

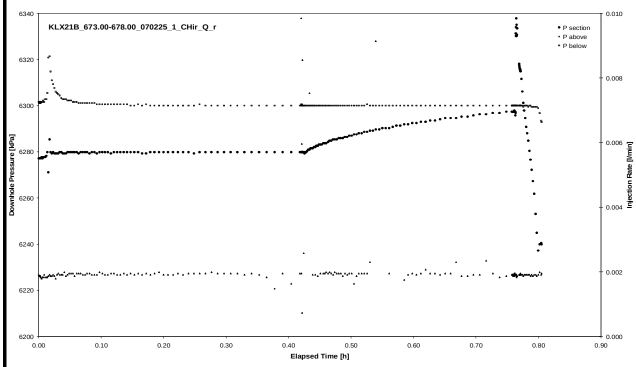
Comments:

The recommended transmissivity of 1.6•10-7 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality compared with the noisy data of the CHi phase. The confidence range for the interval transmissivity is estimated to be 4.0•10-8 m2/s to 6.0•10-7 m2/s. The analyses were conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,229.1 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 14:08
Test section from - to (m):	673.00-678.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	6277		
p_i (kPa) =	6280		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

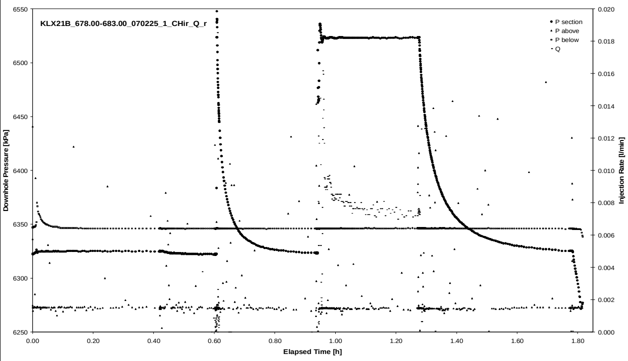
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

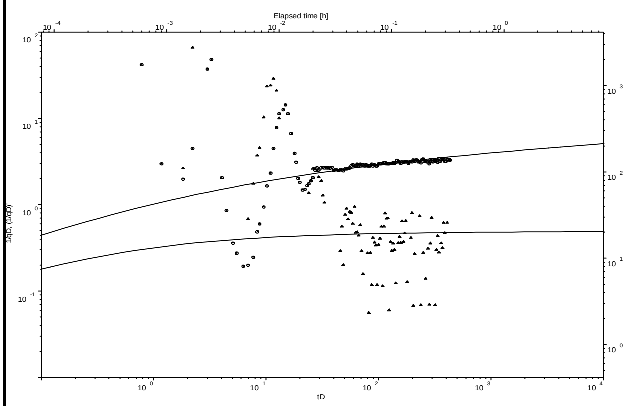
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 15:24
Test section from - to (m):	678.00-683.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

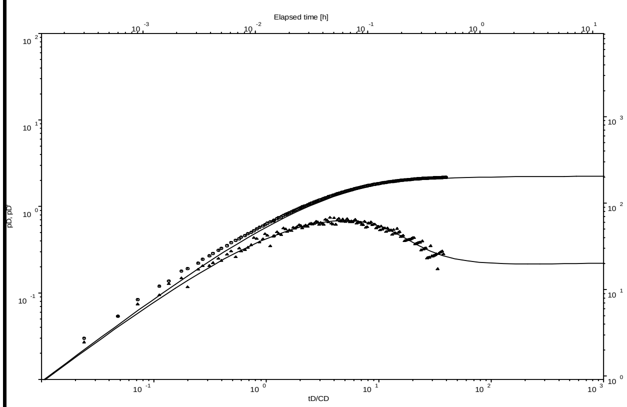


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6324		
p_i (kPa) =	6323		
p_p(kPa) =	6524	p_F (kPa) =	6324
Q_p (m^3/s)=	1.23E-07		
tp (s) =	1200	t_F (s) =	1800
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.5		
Derivative fact.=	0.09	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	6.0E-09		
T_M (m^2/s)=	5.0E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	3.07	dt_1 (min) =	#NV
dt_2 (min) =	17.87	dt_2 (min) =	#NV
T (m^2/s) =	3.1E-09	T (m^2/s) =	2.5E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	6.2E-10	K_s (m/s) =	4.9E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	7.1E-11
C_D (-) =	NA	C_D (-) =	7.8E-03
ξ (-) =	-0.82	ξ (-) =	-0.62
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	7.1E-11
dt_2 (min) =	#NV	C_D (-) =	7.8E-03
T_T (m^2/s) =	2.5E-09	ξ (-) =	-0.62
S (-) =	1.0E-06		
K_s (m/s) =	4.9E-10		
S_s (1/m) =	2.0E-07		

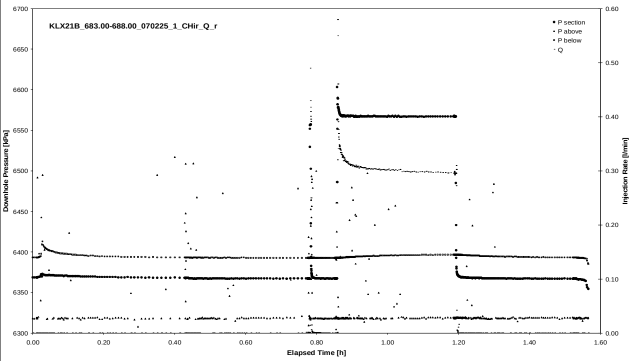
Comments:

The recommended transmissivity of 2.5•10-9 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality compared with the noisy data of the CHi phase. The confidence range for the interval transmissivity is estimated to be 1.0•10-9 m2/s to 7.0•10-9 m2/s. The analyses were conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,315.2 kPa.

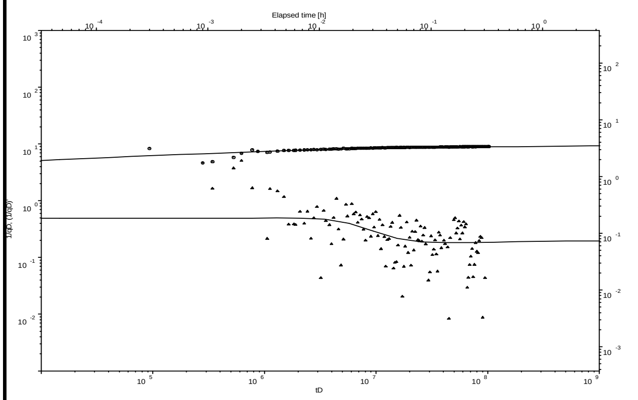
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 17:38
Test section from - to (m):	683.00-688.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

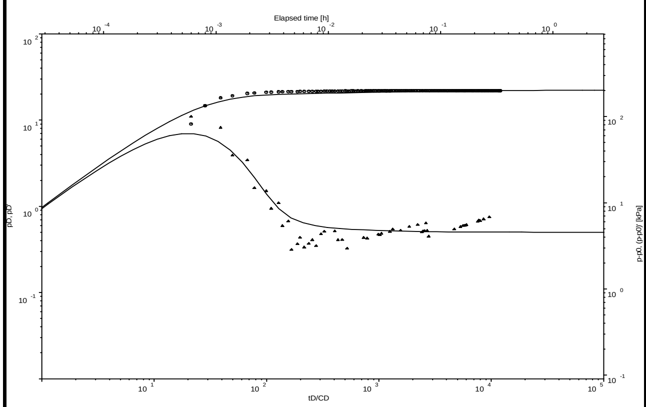
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	6368		
p_i (kPa) =	6368		
p_p(kPa) =	6567	p_F (kPa) =	6365
Q_p (m^3/s)=	4.90E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.5		
Derivative fact.=	0.05	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	2.4E-07		
T_M (m^2/s)=	2.0E-07		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.32	dt_1 (min) =	0.55
dt_2 (min) =	0.68	dt_2 (min) =	9.95
T (m^2/s) =	3.5E-07	T (m^2/s) =	8.7E-07
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	7.0E-08	K_s (m/s) =	1.7E-07
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	5.7E-11
C_D (-) =	NA	C_D (-) =	6.2E-03
ξ (-) =	2.94	ξ (-) =	15.20
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	0.32	C (m^3/Pa) =	5.7E-11
dt_2 (min) =	0.68	C_D (-) =	6.2E-03
T_T (m^2/s) =	3.5E-07	ξ (-) =	2.94
S (-) =	1.0E-06		
K_s (m/s) =	7.0E-08		
S_s (1/m) =	2.0E-07		

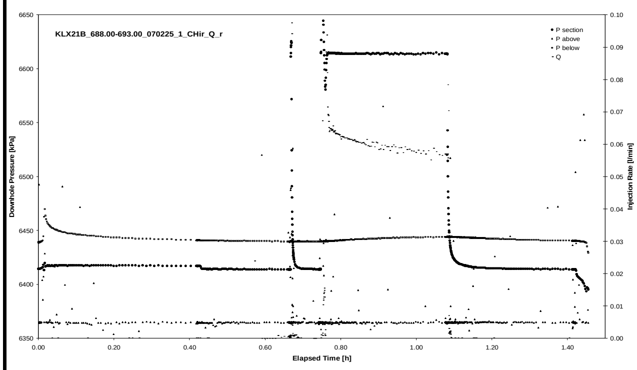
Comments:

The recommended transmissivity of 3.5E-7 m2/s was derived from the analysis of the CHi phase (inner zone), which shows a good horizontal stabilisation in connection with a small skin factor. The confidence range for the interval transmissivity is estimated to be 1.0E-7 m2/s to 1.0E-6 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,367.8 kPa.

Test Summary Sheet

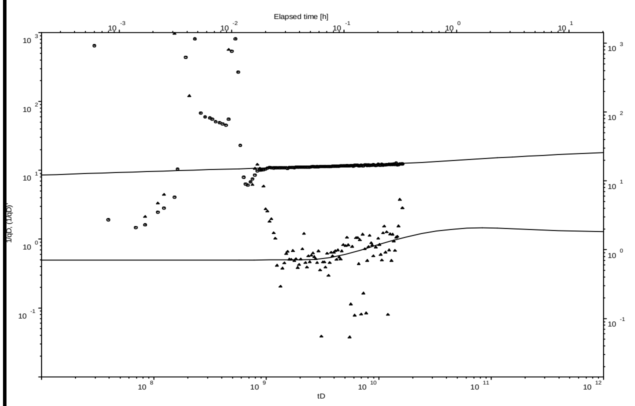
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 19:40
Test section from - to (m):	688.00-693.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

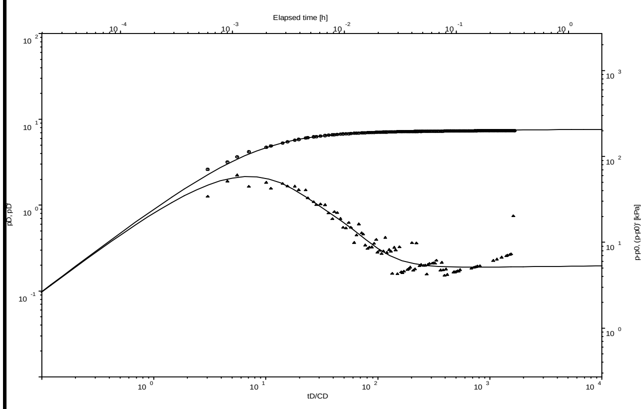


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6415		
p_i (kPa) =	6414		
p_p(kPa) =	6614	p_F (kPa) =	6413
Q_p (m^3/s)=	9.83E-07		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.6		
Derivative fact.=	0.07	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	4.8E-08		
T_M (m^2/s)=	4.0E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	1.52	dt_1 (min) =	#NV
dt_2 (min) =	4.46	dt_2 (min) =	#NV
T (m^2/s) =	9.1E-08	T (m^2/s) =	5.8E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.8E-08	K_s (m/s) =	1.2E-08
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.7E-11
C_D (-) =	NA	C_D (-) =	2.9E-03
ξ (-) =	6.14	ξ (-) =	2.92
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	2.7E-11
dt_2 (min) =	#NV	C_D (-) =	2.9E-03
T_T (m^2/s) =	5.8E-08	ξ (-) =	2.92
S (-) =	1.0E-06		
K_s (m/s) =	1.2E-08		
S_s (1/m) =	2.0E-07		

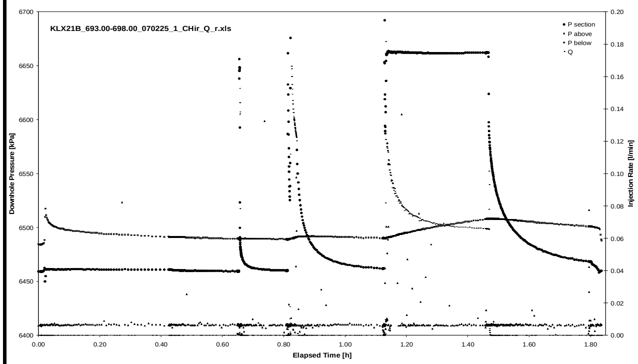
Comments:

The recommended transmissivity of 5.8E-8 m2/s was derived from the analysis of the CHir phase (inner zone), which shows a better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 2.0E-8 m2/s to 3.0E-7 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,411.5 kPa.

Test Summary Sheet

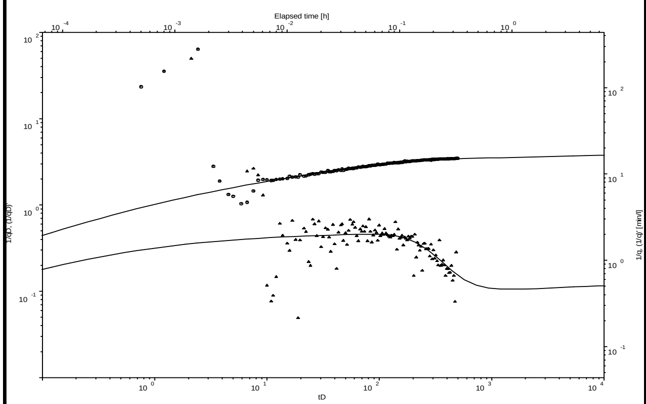
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 21:57
Test section from - to (m):	693.00-698.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

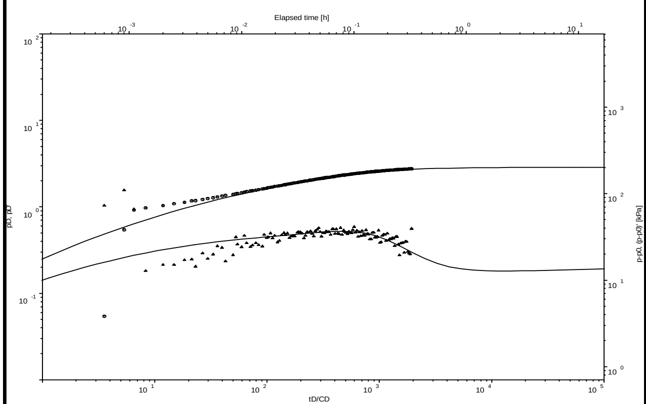


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6459		
p_i (kPa) =	6462		
p_p(kPa) =	6662	p_F (kPa) =	6466
Q_p (m^3/s)=	1.09E-06		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.7		
Derivative fact.=	0.07	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	5.4E-08		
T_M (m^2/s)=	4.4E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.55	dt_1 (min) =	#NV
dt_2 (min) =	4.70	dt_2 (min) =	#NV
T (m^2/s) =	3.0E-08	T (m^2/s) =	2.7E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	6.0E-09	K_s (m/s) =	5.4E-09
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	1.1E-11
C_D (-) =	NA	C_D (-) =	1.2E-03
ξ (-) =	-1.95	ξ (-) =	-2.37
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	1.1E-11
dt_2 (min) =	#NV	C_D (-) =	1.2E-03
T_T (m^2/s) =	2.7E-08	ξ (-) =	-2.37
S (-) =	1.0E-06		
K_s (m/s) =	5.4E-09		
S_s (1/m) =	2.0E-07		

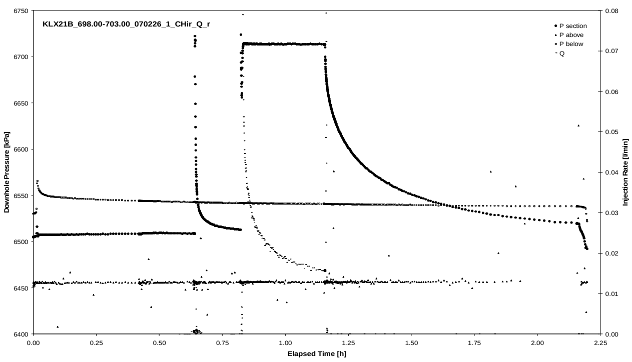
Comments:

The recommended transmissivity of 2.7•10-8 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be 2.0•10-8 m2/s to 3.0•10-7 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,450.0 kPa.

Test Summary Sheet

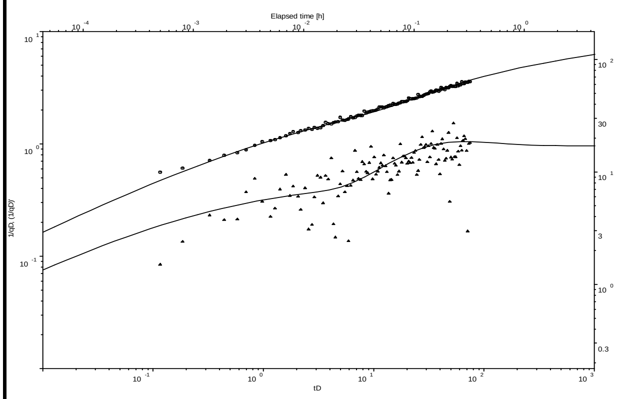
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070225 00:12
Test section from - to (m):	698.00-703.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

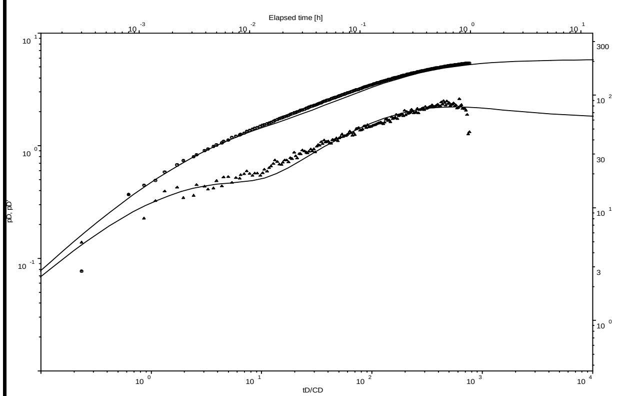


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6505		
p_i (kPa) =	6513		
p_p(kPa) =	6713	p_F (kPa) =	6519
Q_p (m^3/s)=	2.62E-07		
tp (s) =	1200	t_F (s) =	3600
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.7		
Derivative fact.=	0.07	Derivative fact.=	0.05
Results		**Results**	
Q/s (m^2/s)=	1.3E-08		
T_M (m^2/s)=	1.1E-08		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	7.3E-09	T (m^2/s) =	1.6E-08
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.5E-09	K_s (m/s) =	3.2E-09
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	4.8E-11
C_D (-) =	NA	C_D (-) =	5.2E-03
ξ (-) =	-2.18	ξ (-) =	-2.13
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	4.8E-11
dt_2 (min) =	#NV	C_D (-) =	5.2E-03
T_T (m^2/s) =	1.6E-08	ξ (-) =	-2.13
S (-) =	1.0E-06		
K_s (m/s) =	3.2E-09		
S_s (1/m) =	2.0E-07		

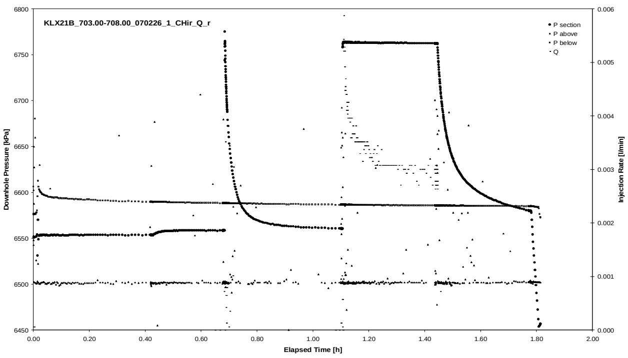
Comments:

The recommended transmissivity of 1.6E-8 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the better data and derivative quality. The confidence range for the interval transmissivity is estimated to be 2.0E-9 m2/s to 2.0E-8 m2/s. The flow dimension displayed during the test is 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,496.1 kPa.

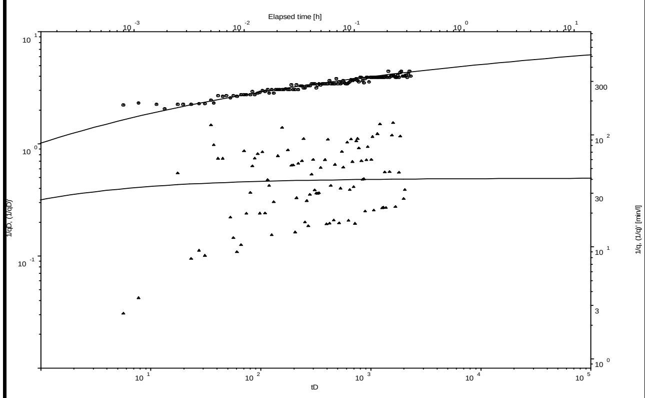
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070226 06:17
Test section from - to (m):	703.00-708.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

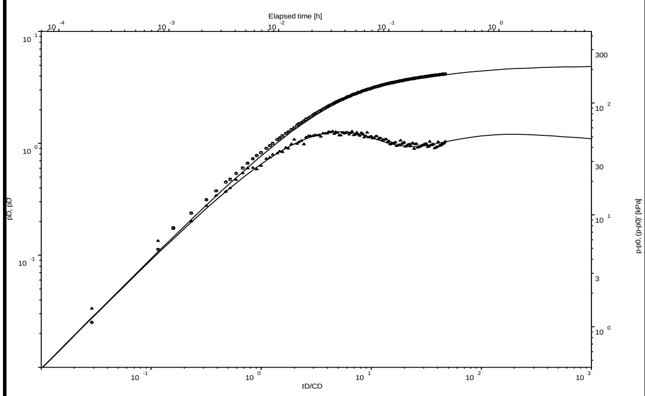
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	6552		
p_i (kPa) =	6561		
p_p(kPa) =	6763	p_F (kPa) =	6578
Q_p (m^3/s)=	4.83E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.8		
Derivative fact.=	0.07	Derivative fact.=	0.04
Results		**Results**	
Q/s (m^2/s)=	2.3E-09		
T_M (m^2/s)=	1.9E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	0.98	dt_1 (min) =	#NV
dt_2 (min) =	15.35	dt_2 (min) =	#NV
T (m^2/s) =	1.6E-09	T (m^2/s) =	1.9E-09
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	3.2E-10	K_s (m/s) =	3.8E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	3.1E-11
C_D (-) =	NA	C_D (-) =	3.4E-03
ξ (-) =	29.90	ξ (-) =	0.55
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	3.1E-11
dt_2 (min) =	#NV	C_D (-) =	3.4E-03
T_T (m^2/s) =	1.9E-09	ξ (-) =	0.55
S (-) =	1.0E-06		
K_s (m/s) =	3.8E-10		
S_s (1/m) =	2.0E-07		

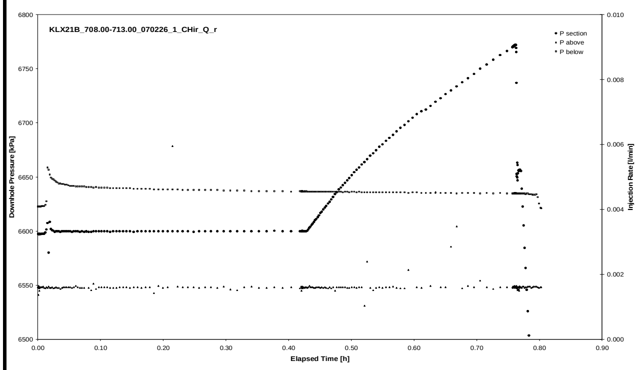
Comments:

The recommended transmissivity of 1.9E-9 m2/s was derived from the analysis of the CHir phase (inner zone), which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be 8.0E-10 m2/s to 3.0E-9 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,550.8 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070226 08:32
Test section from - to (m):	708.00-713.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	6596		
p_i (kPa) =	6600		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

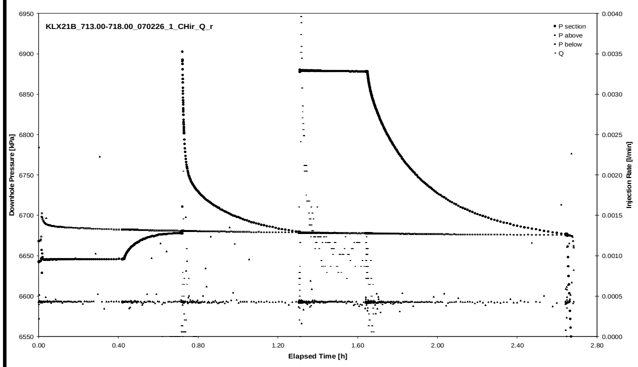
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

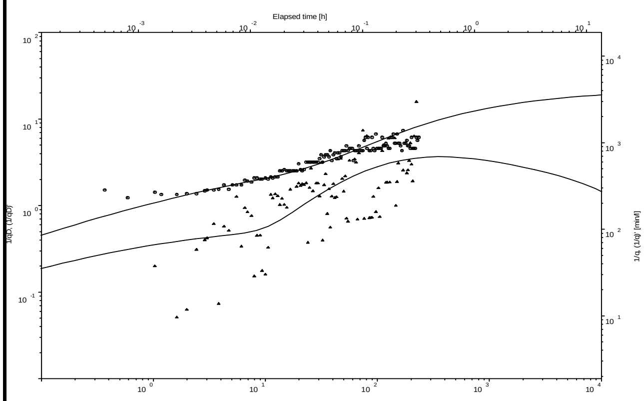
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070226 09:45
Test section from - to (m):	713.00-718.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

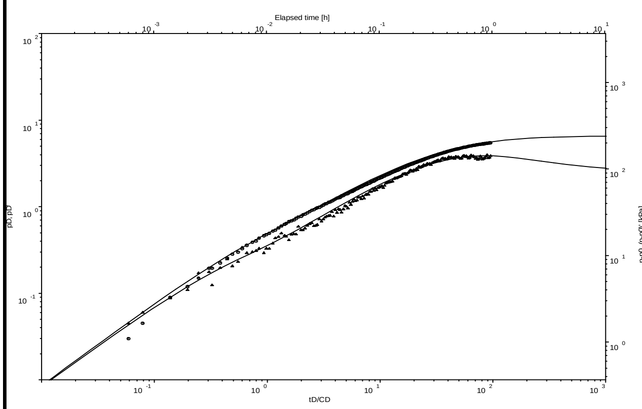


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6645		
p_i (kPa) =	6680		
p_p(kPa) =	6878	p_F (kPa) =	6677
Q_p (m^3/s)=	1.45E-08		
tp (s) =	1200	t_F (s) =	3600
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	16.9		
Derivative fact.=	0.07	Derivative fact.=	0.04
Results		**Results**	
Q/s (m^2/s)=	7.2E-10		
T_M (m^2/s)=	5.9E-10		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	6.4E-11	T (m^2/s) =	1.8E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	1.3E-11	K_s (m/s) =	3.6E-11
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.1E-11
C_D (-) =	NA	C_D (-) =	2.3E-03
ξ (-) =	-0.48	ξ (-) =	-1.01
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	2.1E-11
dt_2 (min) =	#NV	C_D (-) =	2.3E-03
T_T (m^2/s) =	1.8E-10	ξ (-) =	-1.01
S (-) =	1.0E-06		
K_s (m/s) =	3.6E-11		
S_s (1/m) =	2.0E-07		

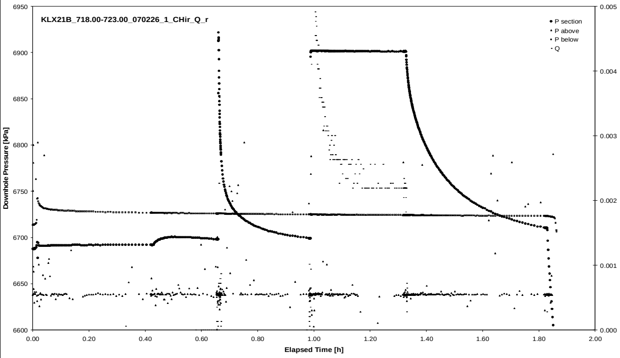
Comments:

The recommended transmissivity of 1.8E-10 m2/s was derived from the analysis of the CHir phase (outer zone), which shows the best horizontal stabilisation of the derivative and best data and derivative quality. The confidence range for the interval transmissivity is estimated to be 5.0E-11 m2/s to 9.0E-10 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using straight line extrapolation in the Horner plot to a value of 6,637.5 kPa.

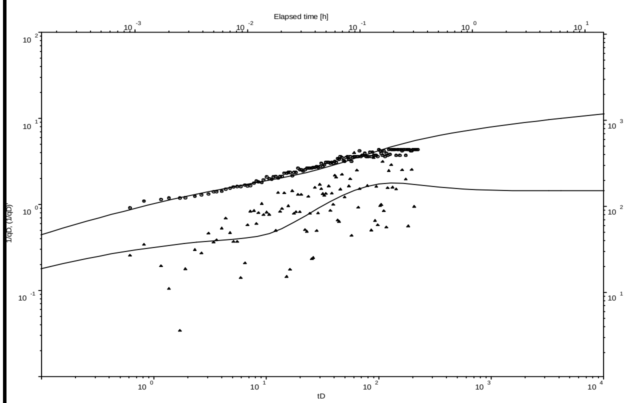
Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070226 12:51
Test section from - to (m):	718.00-723.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

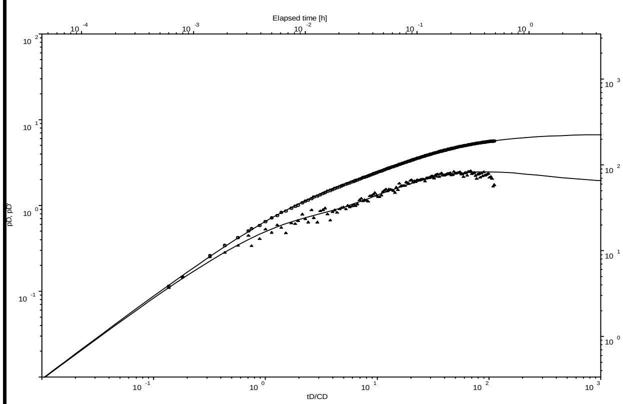
Linear plot Q and p



Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	6691		
p_i (kPa) =	6698		
p_p(kPa) =	6900	p_F (kPa) =	6710
Q_p (m^3/s)=	3.65E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	17.0		
Derivative fact.=	0.04	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.8E-09		
T_M (m^2/s)=	1.5E-09		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	6.98	dt_1 (min) =	#NV
dt_2 (min) =	15.35	dt_2 (min) =	#NV
T (m^2/s) =	4.1E-10	T (m^2/s) =	6.1E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	8.2E-11	K_s (m/s) =	1.2E-10
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.2E-11
C_D (-) =	NA	C_D (-) =	2.4E-03
ξ (-) =	0.75	ξ (-) =	-0.43
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	2.2E-11
dt_2 (min) =	#NV	C_D (-) =	2.4E-03
T_T (m^2/s) =	6.1E-10	ξ (-) =	-0.43
S (-) =	1.0E-06		
K_s (m/s) =	1.2E-10		
S_s (1/m) =	2.0E-07		

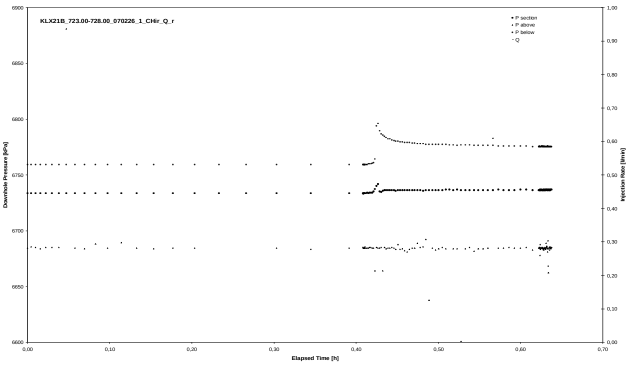
Comments:

The recommended transmissivity of 6.1•10-10 m2/s was derived from the analysis of the CHir phase (outer zone), which shows the best horizontal stabilisation of the derivative and best data and derivative quality. The confidence range for the interval transmissivity is estimated to be 3.0•10-10 m2/s to 3.0•10-9 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,670.6 kPa.

Test Summary Sheet

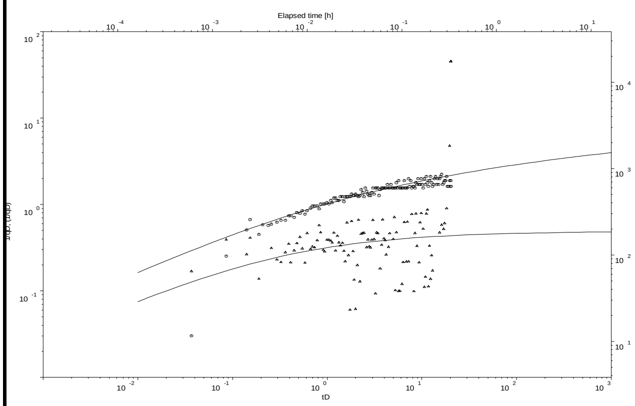
Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	2
Borehole ID:	KLX21B	Test start:	070226 16:33
Test section from - to (m):	723.00-728.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p

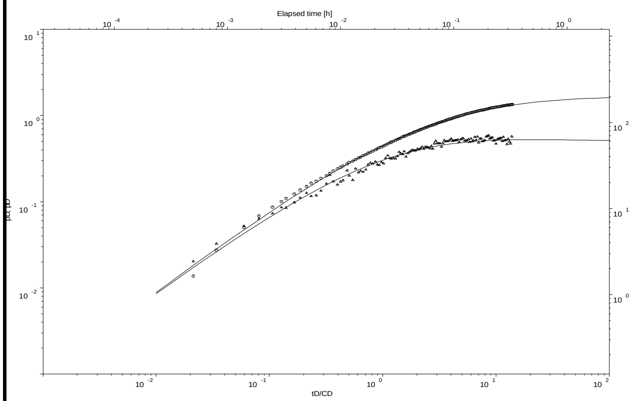


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6733		
p_i (kPa) =	6757		
p_p(kPa) =	6939	p_F (kPa) =	6775
Q_p (m^3/s)=	2.06E-08		
tp (s) =	1200	t_F (s) =	1200
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	17.1		
Derivative fact.=	0.14	Derivative fact.=	0.02
Results		**Results**	
Q/s (m^2/s)=	1.1E-09		
T_M (m^2/s)=	9.2E-10		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	7.45	dt_2 (min) =	19.48
T (m^2/s) =	3.7E-10	T (m^2/s) =	3.8E-10
S (-) =	1.0E-06	S (-) =	1.0E-06
K_s (m/s) =	7.4E-11	K_s (m/s) =	7.6E-11
S_s (1/m) =	2.0E-07	S_s (1/m) =	2.0E-07
C (m^3/Pa) =	NA	C (m^3/Pa) =	2.1E-11
C_D (-) =	NA	C_D (-) =	2.3E-03
ξ (-) =	-1.36	ξ (-) =	-1.56
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period



Log-Log plot incl. derivatives- recovery period



Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	2.1E-11
dt_2 (min) =	19.48	C_D (-) =	2.3E-03
T_T (m^2/s) =	3.8E-10	ξ (-) =	-1.56
S (-) =	1.0E-06		
K_s (m/s) =	7.6E-11		
S_s (1/m) =	2.0E-07		

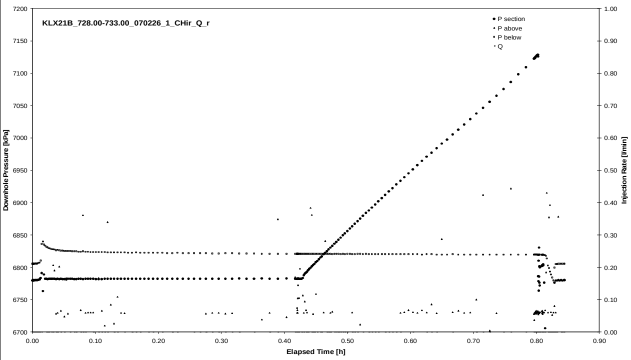
Comments:

The recommended transmissivity of 3.8•10-10 m2/s was derived from the analysis of the CHir phase, which shows the best horizontal stabilisation of the derivative. The confidence range for the interval transmissivity is estimated to be 2.0•10-10 m2/s to 8.0•10-10 m2/s. The analysis was conducted using a flow dimension of 2 (radial flow). The static pressure measured at transducer depth, was derived from the CHir phase using type curve extrapolation in the Horner plot to a value of 6,734.6 kPa.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070226 18:46
Test section from - to (m):	728.00-733.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6780		
p_i (kPa) =	7124		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

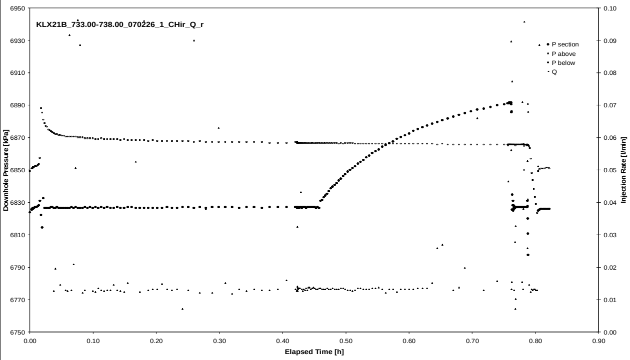
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070226 20:01
Test section from - to (m):	733.00-738.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa) =	6826		
p_i (kPa) =	6892		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =		ξ (-) =	
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Selected representative parameters.

dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

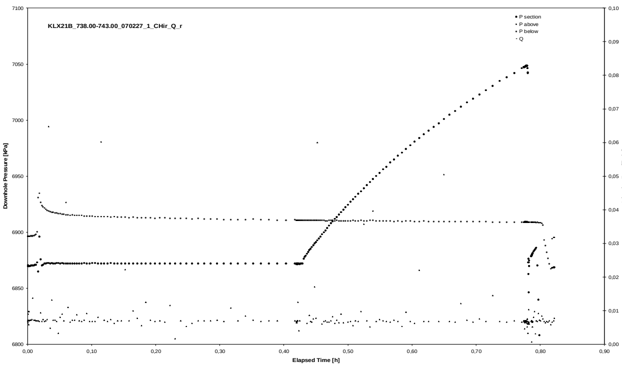
Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

Test Summary Sheet

Project:	Oskarshamn site investigation	Test type:[1]	CHir
Area:	Laxemar	Test no:	1
Borehole ID:	KLX21B	Test start:	070226 06:22
Test section from - to (m):	738.00-743.00 m	Responsible for test execution:	Reinder van der Wall Jörg Böhner
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	Cristian Enachescu

Linear plot Q and p



Log-Log plot incl. derivates- flow period

Not analysed.

Log-Log plot incl. derivatives- recovery period

Not analysed.

Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa) =	6870		
p_i (kPa) =	7049		
p_p(kPa) =	#NV	p_F (kPa) =	#NV
Q_p (m^3/s)=	#NV		
tp (s) =	#NV	t_F (s) =	#NV
S el S^* (-)=	1.00E-06	S el S^* (-)=	1.00E-06
EC_w (mS/m)=			
$Temp_w$(gr C)=	8.9		
Derivative fact.=	NA	Derivative fact.=	NA
Results		**Results**	
Q/s (m^2/s)=	#NV		
T_M (m^2/s)=	#NV		
Flow regime:	transient	Flow regime:	transient
dt_1 (min) =	#NV	dt_1 (min) =	#NV
dt_2 (min) =	#NV	dt_2 (min) =	#NV
T (m^2/s) =	1.0E-11	T (m^2/s) =	NA
S (-) =	1.0E-06	S (-) =	NA
K_s (m/s) =	2.0E-12	K_s (m/s) =	NA
S_s (1/m) =	2.0E-07	S_s (1/m) =	NA
C (m^3/Pa) =	NA	C (m^3/Pa) =	NA
C_D (-) =	NA	C_D (-) =	NA
ξ (-) =	NA	ξ (-) =	NA
T_{GRF}(m^2/s) =	NA	T_{GRF}(m^2/s) =	NA
S_{GRF}(-) =	NA	S_{GRF}(-) =	NA
D_{GRF} (-) =	NA	D_{GRF} (-) =	NA

Selected representative parameters.			
dt_1 (min) =	#NV	C (m^3/Pa) =	NA
dt_2 (min) =	#NV	C_D (-) =	NA
T_T (m^2/s) =	1.0E-11	ξ (-) =	NA
S (-) =	1.0E-06		
K_s (m/s) =	2.0E-12		
S_s (1/m) =	2.0E-07		

Comments:

Based on the test response (prolonged packer compliance) the interval transmissivity is set to 1.0E-11 m2/s.

APPENDIX 4

Nomenclature

Character	SICADA designation	Explanation	Dimension	Unit
Variables, constants				
A_w		Horizontal area of water surface in open borehole, not including area of signal cables, etc.	$[L^2]$	m^2
b		Aquifer thickness (Thickness of 2D formation)	[L]	m
B		Width of channel	[L]	m
L		Corrected borehole length	[L]	m
L_0		Uncorrected borehole length	[L]	m
L_p		Point of application for a measuring section based on its centre point or centre of gravity for distribution of transmissivity in the measuring section.	[L]	m
L_w		Test section length.	[L]	m
dL		Step length, Positive Flow Log - overlapping flow logging. (step length, PFL)	[L]	m
r		Radius	[L]	m
r_w		Borehole, well or soil pipe radius in test section.	[L]	m
r_{we}		Effective borehole, well or soil pipe radius in test section. (Consideration taken to skin factor)	[L]	m
r_s		Distance from test section to observation section, the shortest distance.	[L]	m
r_t		Distance from test section to observation section, the **interpreted** shortest distance via conductive structures.	[L]	m
r_D		Dimensionless radius, $r_D=r/r_w$	-	-
z		Level above reference point	[L]	m
z_r		Level for reference point on borehole	[L]	m
z_{wu}		Level for test section (section that is being flowed), upper limitation	[L]	m
z_{wl}		Level for test section (section that is being flowed), lower limitation	[L]	m
z_{ws}		Level for sensor that measures response in test section (section that is flowed)	[L]	m
z_{ou}		Level for observation section, upper limitation	[L]	m
z_{ol}		Level for observation section, lower limitation	[L]	m
z_{os}		Level for sensor that measures response in observation section	[L]	m
E		Evaporation: hydrological budget:	$[L^3/(T L^2)]$ $[L^3/T]$	mm/y, mm/d, m^3/s
ET		Evapotranspiration hydrological budget:	$[L^3/(T L^2)]$ $[L^3/T]$	mm/y, mm/d, m^3/s
P		Precipitation hydrological budget:	$[L^3/(T L^2)]$ $[L^3/T]$	mm/y, mm/d, m^3/s
R		Groundwater recharge hydrological budget:	$[L^3/(T L^2)]$ $[L^3/T]$	mm/y, mm/d, m^3/s
D		Groundwater discharge hydrological budget:	$[L^3/(T L^2)]$ $[L^3/T]$	mm/y, mm/d, m^3/s
Q_R		Run-off rate	$[L^3/T]$	m^3/s
Q_p		Pumping rate	$[L^3/T]$	m^3/s
Q_I		Infiltration rate	$[L^3/T]$	m^3/s
Q		Volumetric flow. Corrected flow in flow logging ($Q_1 – Q_0$) (Flow rate)	$[L^3/T]$	m^3/s
Q_0		Flow in test section during undisturbed conditions (flow logging).	$[L^3/T]$	m^3/s
Q_p		Flow in test section immediately before stop of flow. Stabilised pump flow in flow logging.	$[L^3/T]$	m^3/s

Character	SICADA designation	Explanation	Dimension	Unit
Q_m		Arithmetical mean flow during perturbation phase.	$[L^3/T]$	m^3/s
Q_1		Flow in test section during pumping with pump flow Q_{p1}, (flow logging).	$[L^3/T]$	m^3/s
Q_2		Flow in test section during pumping with pump flow Q_{p1}, (flow logging).	$[L^3/T]$	m^3/s
ΣQ	SumQ	Cumulative volumetric flow along borehole	$[L^3/T]$	m^3/s
ΣQ_0	SumQ0	Cumulative volumetric flow along borehole, undisturbed conditions (ie, not pumped)	$[L^3/T]$	m^3/s
ΣQ_1	SumQ1	Cumulative volumetric flow along borehole, with pump flow Q_{p1}	$[L^3/T]$	m^3/s
ΣQ_2	SumQ2	Cumulative volumetric flow along borehole, with pump flow Q_{p2}	$[L^3/T]$	m^3/s
ΣQ_{C1}	SumQC1	Corrected cumulative volumetric flow along borehole, ΣQ_1-ΣQ_0	$[L^3/T]$	m^3/s
ΣQ_{C2}	SumQC2	Corrected cumulative volumetric flow along borehole, ΣQ_2-ΣQ_0	$[L^3/T]$	m^3/s
q		Volumetric flow per flow passage area (Specific discharge (Darcy velocity, Darcy flux, Filtration velocity)).	$([L^3/T*L^2]$	m/s
V		Volume	$[L^3]$	m^3
V_w		Water volume in test section.	$[L^3]$	m^3
V_p		Total water volume injected/pumped during perturbation phase.	$[L^3]$	m^3
v		Velocity	$([L^3/T*L^2]$	m/s
v_a		Mean transport velocity (Average linear velocity (Average linear groundwater velocity, Mean microscopic velocity));. $v_a=q/n_e$	$([L^3/T*L^2]$	m/s
t		Time	[T]	hour,min,s
t_0		Duration of rest phase before perturbation phase.	[T]	s
t_p		Duration of perturbation phase. (from flow start as far as p_p).	[T]	s
t_F		Duration of recovery phase (from p_p to p_F).	[T]	s
t_1, t_2 etc		Times for various phases during a hydro test.	[T]	hour,min,s
dt		Running time from start of flow phase and recovery phase respectively.	[T]	s
dt_e		$dt_e = (dt \cdot tp) / (dt + tp)$ Agarwal equivalent time with dt as running time for recovery phase.	[T]	s
t_D		$t_D = T \cdot t / (S \cdot r_w^2)$. Dimensionless time	-	-
p		Static pressure; including non-dynamic pressure which depends on water velocity. Dynamic pressure is normally ignored in estimating the potential in groundwater flow relations.	$[M/(LT)^2]$	kPa
p_a		Atmospheric pressure	$[M/(LT)^2]$	kPa
p_t		Absolute pressure; $p_t=p_a+p_g$	$[M/(LT)^2]$	kPa
p_g		Gauge pressure; Difference between absolute pressure and atmospheric pressure.	$[M/(LT)^2]$	kPa
p_0		Initial pressure before test begins, prior to packer expansion.	$[M/(LT)^2]$	kPa
p_i		Pressure in measuring section before start of flow.	$[M/(LT)^2]$	kPa
p_f		Pressure during perturbation phase.	$[M/(LT)^2]$	kPa
p_s		Pressure during recovery.	$[M/(LT)^2]$	kPa
p_p		Pressure in measuring section before flow stop.	$[M/(LT)^2]$	kPa
p_F		Pressure in measuring section at end of recovery.	$[M/(LT)^2]$	kPa
p_D		$p_D=2\pi \cdot T \cdot p/(Q \cdot \rho_w g)$, Dimensionless pressure	-	-
dp		Pressure difference, drawdown of pressure surface between two points of time.	$[M/(LT)^2]$	kPa

Character	SICADA designation	Explanation	Dimension	Unit
dp_f		$dp_f = p_i - p_f$ or $= p_f – p_i$, drawdown/pressure increase of pressure surface between two points of time during perturbation phase. dp_f usually expressed positive.	$[M/(LT)^2]$	kPa
dp_s		$dp_s = p_s – p_p$ or $= p_p – p_s$, pressure increase/drawdown of pressure surface between two points of time during recovery phase. dp_s usually expressed positive.	$[M/(LT)^2]$	kPa
dp_p		$dp_p = p_i – p_p$ or $= p_p – p_i$, **maximal** pressure increase/drawdown of pressure surface between two points of time during perturbation phase. dp_p expressed positive.	$[M/(LT)^2]$	kPa
dp_F		$dp_F = p_p – p_F$ or $= p_F – p_p$, **maximal** pressure increase/drawdown of pressure surface between two points of time during recovery phase. dp_F expressed positive.	$[M/(LT)^2]$	kPa
H		Total head; (potential relative a reference level) (indication of h for phase as for p). $H=h_e+h_p+h_v$	[L]	m
h		Groundwater pressure level (hydraulic head (piezometric head; possible to use for level observations in boreholes, static head)); (indication of h for phase as for p). $h=h_e+h_p$	[L]	m
h_e		Height of measuring point (Elevation head); Level above reference level for measuring point.	[L]	m
h_p		Pressure head; Level above reference level for height of measuring point of stationary column of water giving corresponding static pressure at measuring point	[L]	m
h_v		Velocity head; height corresponding to the lifting for which the kinetic energy is capable (usually neglected in hydrogeology)	[L]	m
s		Drawdown; Drawdown from undisturbed level (same as dh_p, positive)	[L]	m
s_p		Drawdown in measuring section before flow stop.	[L]	m
			[L]	
h_0		Initial above reference level before test begins, prior to packer expansion.	[L]	m
h_i		Level above reference level in measuring section before start of flow.	[L]	m
h_f		Level above reference level during perturbation phase.	[L]	m
h_s		Level above reference level during recovery phase.	[L]	m
h_p		Level above reference level in measuring section before flow stop.	[L]	m
h_F		Level above reference level in measuring section at end of recovery.	[L]	m
dh		Level difference, drawdown of water level between two points of time.	[L]	m
dh_f		$dh_f = h_i - h_f$ or $= h_f – h_i$, drawdown/pressure increase of pressure surface between two points of time during perturbation phase. dh_f usually expressed positive.	[L]	m
dh_s		$dh_s = h_s – h_p$ or $= h_p – h_s$, pressure increase/drawdown of pressure surface between two points of time during recovery phase. dh_s usually expressed positive.	[L]	m
dh_p		$dh_p = h_i – h_p$ or $= h_p –h_i$, maximal pressure increase/drawdown of pressure surface between two points of time during perturbation phase. dh_p expressed positive.	[L]	m
dh_F		$dh_F = h_p – h_F$ or $= h_F – h_p$, maximal pressure increase/drawdown of pressure surface between two points of time during perturbation phase. dh_F expressed positive.	[L]	m
Te_w		Temperature in the test section (taken from temperature logging). Temperature		^oC
Te_{w0}		Temperature in the test section during undisturbed conditions (taken from temperature logging).		^oC

Character	SICADA designation	Explanation	Dimension	Unit
Te_o		Temperature in the observation section (taken from temperature logging). Temperature		^oC
EC_w		Electrical conductivity of water in test section.		mS/m
EC_{w0}		Electrical conductivity of water in test section during undisturbed conditions.		mS/m
EC_o		Electrical conductivity of water in observation section		mS/m
TDS_w		Total salinity of water in the test section.	$[M/L^3]$	mg/L
TDS_{w0}		Total salinity of water in the test section during undisturbed conditions.	$[M/L^3]$	mg/L
TDS_o		Total salinity of water in the observation section.	$[M/L^3]$	mg/L
g		Constant of gravitation (9.81 $m*s^{-2}$) (Acceleration due to gravity)	$[L/T^2]$	m/s^2
π	pi	Constant (approx 3.1416).	[-]	
r		Residual. r= p_c-p_m , r= h_c-h_m, etc. Difference between measured data (p_m, h_m, etc) and estimated data (p_c, h_c, etc)		
ME		Mean error in residuals. $ME = \frac{1}{n}\sum_{i=1}^{n} r_i$		
NME		Normalized ME. NME=ME/(x_{MAX}-x_{MIN}), x: measured variable considered.		
MAE		Mean absolute error. $MAE = \frac{1}{n}\sum_{i=1}^{n} \lvert r_i \rvert$		
NMAE		Normalized MAE. NMAE=MAE/(x_{MAX}-x_{MIN}), x: measured variable considered.		
RMS		Root mean squared error. $RMS = \left(\frac{1}{n}\sum_{i=1}^{n} r_i^2\right)^{0.5}$		
NRMS		Normalized RMR. NRMR=RMR/(x_{MAX}-x_{MIN}), x: measured variable considered.		
SDR		Standard deviation of residual. $SDR = \left(\frac{1}{n-1}\sum_{i=1}^{n} (r_i - ME)^2\right)^{0.5}$		
SEMR		Standard error of mean residual. $SEMR = \left(\frac{1}{n(n-1)}\sum_{i=1}^{n} (r_i - ME)^2\right)^{0.5}$		
Parameters				
Q/s		Specific capacity s=dp_p or s=s_p=h_0-h_p (open borehole)	$[L^2/T]$	m^2/s
D		Interpreted flow dimension according to Barker, 1988.	[-]	-
dt_1		Time of starting for semi-log or log-log evaluated characteristic counted from start of flow phase and recovery phase respectively.	[T]	s
dt_2		End of time for semi-log or log-log evaluated characteristic counted from start of flow phase and recovery phase respectively.	[T]	s
dt_L		Response time to obtain 0.1 m (or 1 kPa) drawdown in observation section counted from start of recovery phase.	[T]	s
TB		Flow capacity in a one-dimensional structure of width B and transmissivity T. Transient evaluation of one-dimensional structure	$[L^3/T]$	m^3/s
T		Transmissivity	$[L^2/T]$	m^2/s
T_M		Transmissivity according to Moye (1967)	$[L^2/T]$	m^2/s
T_Q		Evaluation based on Q/s and regression curve between Q/s and T, as example see Rhén et al (1997) p. 190.	$[L^2/T]$	m^2/s
T_S		Transmissivity evaluated from slug test	$[L^2/T]$	m^2/s

Character	SICADA designation	Explanation	Dimension	Unit
T_D		Transmissivity evaluated from PFL-Difference Flow Meter	$[L^2/T]$	m^2/s
T_I		Transmissivity evaluated from Impeller flow log	$[L^2/T]$	m^2/s
T_{Sf}, T_{Lf}		Transient evaluation based on semi-log or log-log diagram for perturbation phase in injection or pumping.	$[L^2/T]$	m^2/s
T_{Ss}, T_{Ls}		Transient evaluation based on semi-log or log-log diagram for recovery phase in injection or pumping.	$[L^2/T]$	m^2/s
T_T		Transient evaluation (log-log or lin-log). Judged best evaluation of T_{Sf}, T_{Lf}, T_{Ss}, T_{Ls}	$[L^2/T]$	m^2/s
T_{NLR}		Evaluation based on non-linear regression.	$[L^2/T]$	m^2/s
T_{Tot}		Judged most representative transmissivity for particular test section and (in certain cases) evaluation time with respect to available data (made by SKB at a later stage).	$[L^2/T]$	m^2/s
K		Hydraulic conductivity	[L/T]	m/s
K_s		Hydraulic conductivity based on spherical flow model	[L/T]	m/s
K_m		Hydraulic conductivity matrix, intact rock	[L/T]	m/s
k		Intrinsic permeability	$[L^2]$	m^2
kb		Permeability-thickness product: $kb=k\cdot b$	$[L^3]$	m^3
SB		Storage capacity in a one-dimensional structure of width B and storage coefficient S. Transient evaluation of one-dimensional structure	[L]	m
SB*		Assumed storage capacity in a one-dimensional structure of width B and storage coefficient S. Transient evaluation of one-dimensional structure	[L]	m
S		Storage coefficient, (Storativity)	[-]	-
S*		Assumed storage coefficient	[-]	-
S_y		Theoretical specific yield of water (Specific yield; unconfined storage. Defined as total porosity (n) minus retention capacity (S_r)	[-]	-
S_{ya}		Specific yield of water (Apparent specific yield); unconfined storage, field measuring. Corresponds to volume of water achieved on draining saturated soil or rock in free draining of a volumetric unit. $S_{ya}= S_y$ (often called S_y in literature)	[-]	-
S_r		Specific retention capacity, (specific retention of water, field capacity) (Specific retention); unconfined storage. Corresponds to water volume that the soil or rock has left after free draining of saturated soil or rock.	[-]	-
S_f		Fracture storage coefficient	[-]	-
S_m		Matrix storage coefficient	[-]	-
S_{NLR}		Storage coefficient, evaluation based on non-linear regression	[-]	-
S_{Tot}		Judged most representative storage coefficient for particular test section and (in certain cases) evaluation time with respect to available data (made by SKB at a later stage).	[-]	-
S_s		Specific storage coefficient; confined storage.	[1/L]	1/m
S_s*		Assumed specific storage coefficient; confined storage.	[1/L]	1/m
c_f		Hydraulic resistance: The hydraulic resistance is an aquitard with a flow vertical to a two-dimensional formation. The inverse of c is also called Leakage coefficient. c_f=b´/K´ where b´ is thickness of the aquitard and K´ its hydraulic conductivity across the aquitard.	[T]	s
L_f		Leakage factor: $L_f = (K\cdot b\cdot c_f)^{0.5}$ where K represents characteristics of the aquifer.	[L]	m
ξ	Skin	Skin factor	[-]	-

Character	SICADA designation	Explanation	Dimension	Unit
ξ^*	Skin	Assumed skin factor	[-]	-
C		Wellbore storage coefficient	$[(LT^2)\cdot M^2]$	m^3/Pa
C_D		$C_D = C\cdot\rho_w g /(2\pi\cdot S\cdot r_w^2)$, Dimensionless wellbore storage coefficient	[-]	-
ω	Stor-ratio	$\omega= S_f /(S_f + S_m)$, storage ratio (Storativity ratio); the ratio of storage coefficient between that of the fracture and total storage.	[-]	-
λ	Interflow-coeff	$\lambda= \alpha\cdot (K_m / K_f) \cdot r_w^2$ interporosity flow coefficient.	[-]	-
T_{GRF}		Transmissivity interpreted using the GRF method	$[L^2/T]$	m^2/s
S_{GRF}		Storage coefficient interpreted using the GRF method	[1/L]	1/m
D_{GRF}		Flow dimension interpreted using the GRF method	[-]	-
c_w		Water compressibility; corresponding to β in hydrogeological literature.	$[(LT^2)/M]$	1/Pa
c_r		Pore-volume compressibility, (rock compressibility); Corresponding to α/n in hydrogeological literature.	$[(LT^2)/M]$	1/Pa
c_t		$c_t = c_r + c_w$, total compressibility; compressibility per volumetric unit of rock obtained through multiplying by the total porosity, n. (Presence of gas or other fluids can be included in c_t if the degree of saturation (volume of respective fluid divided by n) of the pore system of respective fluid is also included)	$[(LT^2)/M]$	1/Pa
nc_t		Porosity-compressibility factor: $nc_t= n\cdot c_t$	$[(LT^2)/M]$	1/Pa
nc_tb		Porosity-compressibility-thickness product: $nc_tb= n\cdot c_t.b$	$[(L^2T^2)/M]$	m/Pa
n		Total porosity	-	-
n_e		Kinematic porosity, (Effective porosity)	-	-
e		Transport aperture. $e = n_e\cdot b$	[L]	m
ρ	Density	Density	$[M/L^3]$	$kg/(m^3)$
ρ_w	Density-w	Fluid density in measurement section during pumping/injection	$[M/L^3]$	$kg/(m^3)$
ρ_o	Density-o	Fluid density in observation section	$[M/L^3]$	$kg/(m^3)$
ρ_{sp}	Density-sp	Fluid density in standpipes from measurement section	$[M/L^3]$	$kg/(m^3)$
μ	my	Dynamic viscosity	[M/LT]	Pa s
μ_w	my	Dynamic viscosity (Fluid density in measurement section during pumping/injection)	[M/LT]	Pa s
FC_T		Fluid coefficient for intrinsic permeability, transference of k to K; $K=FC_T\cdot k$; $FC_T=\rho_w\cdot g/ \mu_w$	[1/LT]	1/(ms)
FC_S		Fluid coefficient for porosity-compressibility, transference of c_t to S_s ; $S_s=FC_S\cdot n\cdot c_t$; $FC_S=\rho_w\cdot g$	$[M/T^2L^2]$	Pa/m
Index on K, T and S				
S		S: semi-log		
L		L: log-log		
f		Pump phase or injection phase, designation following S or L (withdrawal)		
s		Recovery phase, designation following S or L (recovery)		
NLR		NLR: Non-linear regression. Performed on the entire test sequence, perturbation and recovery		
M		Moye		
GRF		Generalised Radial Flow according to Barker (1988)		
m		Matrix		
f		Fracture		
T		Judged best evaluation based on transient evaluation.		

Character	SICADA designation	Explanation	Dimension	Unit
Tot		Judged most representative parameter for particular test section and (in certain cases) evaluation time with respect to available data (made by SKB at a later stage).		
b		Bloch property in a numerical groundwater flow model		
e		Effective property (constant) within a domain in a numerical groundwater flow model.		
Index on p and Q				
0		Initial condition, undisturbed condition in open holes		
i		Natural, "undisturbed" condition of formation parameter		
f		Pump phase or injection phase (withdrawal, flowing phase)		
s		Recovery, shut-in phase		
p		Pressure or flow in measuring section at end of perturbation period		
F		Pressure in measuring section at end of recovery period.		
m		Arithmetical mean value		
c		Estimated value. The index is placed last if index for “where” and “what” are used. Simulated value		
m		Measured value. The index is placed last if index for “where” and “what” are used. Measured value		
Some miscellaneous indexes on p and h				
w		Test section (final difference pressure during flow phase in test section can be expressed dp_{wp}; First index shows “where” and second index shows “what”)		
o		Observation section (final difference pressure during flow phase in observation section can be expressed dp_{op}; First index shows “where” and second index shows “what”)		
f		Fresh-water head. Water is normally pumped up from section to measuring hoses where pressure and level are observed. Density of the water is therefore approximately the same as that of the measuring section. Measured groundwater level is therefore normally represented by what is defined as point-water head. If pressure at the measuring level is recalculated to a level for a column of water with density of fresh water above the measuring point it is referred to as fresh-water head and h is indicated last by an f. Observation section (final level during flow phase in observation section can be expressed h_{opf}; the first index shows “where” and the second index shows “what” and the last one “recalculation”)		

APPENDIX 5

SICADA data tables

APPENDIX 5-1

SICADA data tables (Injection tests)

(Simplified version v1.4)

SICADA/Data Import Template

File Identity	
Created By	
Created	

Compiled By	
Quality Check For Delivery	
Delivery Approval	

Activity Type	KLX 21B KLX 21B - Injection test
Project	AP PS 400-07-005

Activity Information						Additional Activity Data				
						C10	P20	P200	P220	R25
Idcode	Start Date	Stop Date	Secup (m)	Seclow (m)	Section No	Company	Field crew manager	Field crew	evaluating data	Report
KLX 21B	2007-02-06 08:00	2007-02-28 08:00	103.00	843.00		Golder Associates	Reinder van der Wall	Reinder van der Wall, Jörg Böhner, Mesgena Gebrezghi, Erik Löfgren, Daniel Nordborg,	Reinder van der Wall, Jörg Böhner	Reinder van der Wall

Table	plu_s_hole_test_d
	PLU Injection and pumping, General information

Column	Datatype	Unit	Column Description
site	CHAR		Investigation site name
activity_type	CHAR		Activity type code
start_date	DATE		Date (yymmdd hh:mm:ss)
stop_date	DATE		Date (yymmdd hh:mm:ss)
project	CHAR		project code
idcode	CHAR		Object or borehole identification code
secup	FLOAT	m	Upper section limit (m)
seclow	FLOAT	m	Lower section limit (m)
section_no	INTEGER	number	Section number
test_type	CHAR		Test type code (1-7), see table description
formation_type	CHAR		1: Rock, 2: Soil (superficial deposits)
start_flow_period	DATE	yyyymmdd	Date & time of pumping/injection start (YYYY-MM-DD hh:mm:ss)
stop_flow_period	DATE	yyyymmdd	Date & time of pumping/injection stop (YYYY-MM-DD hh:mm:ss)
flow_rate_end_qp	FLOAT	m**3/s	Flow rate at the end of the flowing period
value_type_qp	CHAR		0:true value,-1<lower meas.limit1:>upper meas.limit
mean_flow_rate_qm	FLOAT	m**3/s	Arithmetic mean flow rate during flow period
q_measl__l	FLOAT	m**3/s	Estimated lower measurement limit of flow rate
q_measl__u	FLOAT	m**3/s	Estimated upper measurement limit of flow rate
tot_volume_vp	FLOAT	m**3	Total volume of pumped or injected water
dur_flow_phase_tp	FLOAT	s	Duration of the flowing period of the test
dur_rec_phase_tf	FLOAT	s	Duration of the recovery period of the test
initial_head_hi	FLOAT	m	Hydraulic head in test section at start of the flow period
head_at_flow_end_hp	FLOAT	m	Hydraulic head in test section at stop of the flow period.
final_head_hf	FLOAT	m	Hydraulic head in test section at stop of recovery period.
initial_press_pi	FLOAT	kPa	Groundwater pressure in test section at start of flow period
press_at_flow_end_pp	FLOAT	kPa	Groundwater pressure in test section at stop of flow period.
final_press_pf	FLOAT	kPa	Ground water pressure at the end of the recovery period.
fluid_temp_tew	FLOAT	oC	Measured section fluid temperature, see table description
fluid_elcond_ecw	FLOAT	mS/m	Measured section fluid el. conductivity,see table descr.
fluid_salinity_tdsw	FLOAT	mg/l	Total salinity of section fluid based on EC,see table descr.
fluid_salinity_tdswm	FLOAT	mg/l	Tot. section fluid salinity based on water sampling,see...
reference	CHAR		SKB report No for reports describing data and evaluation
comments	VARCHAR		Short comment to data
error_flag	CHAR		If error_flag = "*" then an error occured and an error
in_use	CHAR		If in_use = "*" then the activity has been selected as
sign	CHAR		Signature for QA data accknowledge (QA - OK)
lp	FLOAT	m	Hydraulic point of application

idcode	start_date	stop_date	secup	seclow	section_no	test_type	formation_type	start_flow_period	stop_flow_period	flow_rate_end_qp	value_type_qp	mean_flow_rate_qm	q_measl__l	q_measl__u	tot_volume_vp
KLX 21B	2007-02-08 17:57:00	2007-02-08 20:28:00	103.00	203.00		3	1	2007-02-08 19:26:00	2007-02-08 19:56:00	5.00E-04	0	4.09E-04	1.67E-08	8.33E-04	7.36E-01
KLX 21B	2007-02-09 08:42:00	2007-02-09 10:42:00	203.00	303.00		3	1	2007-02-09 09:40:20	2007-02-09 10:10:20	1.08E-06	0	1.31E-06	1.67E-08	8.33E-04	2.36E-03
KLX 21B	2007-02-09 12:45:00	2007-02-09 14:49:00	303.00	403.00		3	1	2007-02-09 13:40:07	2007-02-09 14:10:07	7.33E-06	0	8.20E-06	1.67E-08	8.33E-04	1.48E-02
KLX 21B	2007-02-09 16:53:00	2007-02-09 19:00:00	403.00	503.00		3	1	2007-02-09 17:58:37	2007-02-09 18:28:37	5.00E-06	0	5.58E-06	1.67E-08	8.33E-04	1.01E-02
KLX 21B	2007-02-09 21:47:00	2007-02-10 00:17:00	503.00	603.00		3	1	2007-02-09 23:15:25	2007-02-09 23:45:25	5.32E-05	0	5.49E-05	1.67E-08	8.33E-04	9.89E-02
KLX 21B	2007-02-10 08:23:00	2007-02-10 10:25:00	603.00	703.00		3	1	2007-02-10 09:23:34	2007-02-10 09:53:34	4.73E-04	0	4.96E-04	1.67E-08	8.33E-04	8.93E-01
KLX 21B	2007-02-10 12:20:00	2007-02-10 15:49:00	703.00	803.00		3	1	2007-02-11 14:47:53	2007-02-10 15:17:53	2.00E-07	0	5.43E-07	1.67E-08	8.33E-04	9.78E-04
KLX 21B	2007-02-11 11:45:00	2007-02-11 13:20:00	103.00	123.00		3	1	2007-02-11 12:38:09	2007-02-11 12:58:09	5.58E-04	0	5.71E-04	1.67E-08	8.33E-04	6.85E-01
KLX 21B	2007-02-12 14:42:00	2007-02-11 16:10:00	123.00	143.00		3	1	2007-02-11 15:28:15	2007-02-11 15:48:15	6.92E-04	0	7.49E-04	1.67E-08	8.33E-04	8.98E-01
KLX 21B	2007-02-11 17:08:00	2007-02-11 18:38:00	143.00	163.00		3	1	2007-02-11 17:58:51	2007-02-11 18:18:51	1.06E-04	0	1.07E-04	1.67E-08	8.33E-04	1.28E-01
KLX 21B	2007-02-11 19:26:00	2007-02-11 20:16:00	163.00	183.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-12 15:16:00	2007-02-12 15:38:00	163.00	183.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-13 07:10:00	2007-02-13 09:10:00	163.00	183.00		3	1	2007-02-13 08:28:39	2007-02-13 08:48:39	3.77E-08	0	4.93E-08	1.67E-08	8.33E-04	5.92E-05
KLX 21B	2007-02-11 22:06:00	2007-02-11 22:43:00	183.00	203.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-13 09:56:00	2007-02-13 11:51:00	183.00	203.00		3	1	2007-02-13 11:09:46	2007-02-13 11:29:46	8.17E-07	0	8.83E-07	1.67E-08	8.33E-04	1.06E-03
KLX 21B	2007-02-13 12:58:00	2007-02-13 14:26:00	203.00	223.00		3	1	2007-02-13 13:44:27	2007-02-13 14:04:27	7.43E-07	0	8.63E-07	1.67E-08	8.33E-04	1.04E-03
KLX 21B	2007-02-13 15:11:00	2007-02-13 16:52:00	223.00	243.00		3	1	2007-02-13 16:10:21	2007-02-13 16:30:21	4.03E-03	0	7.27E-08	1.67E-08	8.33E-04	8.72E-05
KLX 21B	2007-02-13 17:44:00	2007-02-13 18:35:00	243.00	263.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-13 19:22:00	2007-02-13 20:56:00	263.00	283.00		3	1	2007-02-13 20:14:56	2007-02-13 20:34:56	7.98E-07	0	9.62E-07	1.67E-08	8.33E-04	1.15E-03
KLX 21B	2007-02-13 22:19:00	2007-02-14 00:16:00	283.00	303.00		3	1	2007-02-13 23:34:50	2007-02-13 23:54:50	4.39E-08	0	5.41E-08	1.67E-08	8.33E-04	6.49E-05
KLX 21B	2007-02-14 01:09:00	2007-02-14 02:35:00	303.00	323.00		3	1	2007-02-14 01:53:45	2007-02-14 02:13:45	8.18E-06	0	8.95E-06	1.67E-08	8.33E-04	1.07E-02
KLX 21B	2007-02-14 06:37:00	2007-02-14 08:29:00	323.00	343.00		3	1	2007-02-14 07:47:54	2007-02-14 08:07:54	9.58E-08	0	1.04E-07	1.67E-08	8.33E-04	1.25E-04
KLX 21B	2007-02-14 09:15:00	2007-02-14 11:32:00	343.00	363.00		3	1	2007-02-14 10:30:34	2007-02-14 10:50:34	7.17E-08	0	9.72E-08	1.67E-08	8.33E-04	1.17E-04
KLX 21B	2007-02-14 12:16:00	2007-02-14 14:39:00	363.00	383.00		3	1	2007-02-14 13:57:40	2007-02-14 14:17:40	1.83E-08	0	2.15E-08	1.67E-08	8.33E-04	2.58E-05
KLX 21B	2007-02-14 15:20:00	2007-02-14 16:48:00	383.00	403.00		3	1	2007-02-14 16:06:32	2007-02-14 16:26:32	2.27E-07	0	2.68E-07	1.67E-08	8.33E-04	3.22E-04
KLX 21B	2007-02-14 17:28:00	2007-02-14 19:45:00	403.00	423.00		3	1	2007-02-14 19:02:59	2007-02-14 19:22:59	3.65E-08	0	4.91E-08	1.67E-08	8.33E-04	5.89E-05
KLX 21B	2007-02-14 20:27:00	2007-02-14 21:59:00	423.00	443.00		3	1	2007-02-14 21:17:59	2007-02-14 21:37:59	5.77E-07	0	6.22E-07	1.67E-08	8.33E-04	7.46E-04
KLX 21B	2007-02-14 23:06:00	2007-02-15 00:35:00	443.00	463.00		3	1	2007-02-14 23:54:41	2007-02-15 00:14:41	6.20E-08	0	4.55E-06	1.67E-08	8.33E-04	5.46E-03
KLX 21B	2007-02-15 01:22:00	2007-02-15 03:27:00	463.00	483.00		3	1	2007-02-15 02:05:52	2007-02-15 02:25:52	1.13E-06	0	1.39E-06	1.67E-08	8.33E-04	1.67E-03
KLX 21B	2007-02-15 06:36:00	2007-02-15 08:50:00	483.00	503.00		3	1	2007-02-15 08:08:44	2007-02-15 08:28:44	2.42E-08	0	2.85E-08	1.67E-08	8.33E-04	3.42E-05
KLX 21B	2007-02-15 09:32:00	2007-02-15 11:10:00	503.00	523.00		3	1	2007-02-15 10:28:09	2007-02-15 10:48:09	9.78E-08	0	1.17E-07	1.67E-08	8.33E-04	1.40E-04
KLX 21B	2007-02-15 11:42:00	2007-02-15 13:04:00	523.00	543.00		3	1	2007-02-15 12:22:01	2007-02-15 12:42:01	1.58E-06	0	1.66E-06	1.67E-08	8.33E-04	1.99E-03
KLX 21B	2007-02-15 14:01:00	2007-02-15 14:54:00	543.00	563.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-15 15:30:00	2007-02-15 17:03:00	563.00	583.00		3	1	2007-02-15 16:21:08	2007-02-15 16:41:08	2.20E-05	0	2.23E-05	1.67E-08	8.33E-04	2.68E-02
KLX 21B	2007-02-15 17:52:00	2007-02-15 19:25:00	583.00	603.00		3	1	2007-02-15 18:43:54	2007-02-15 19:03:54	3.67E-05	0	3.81E-05	1.67E-08	8.33E-04	4.57E-02
KLX 21B	2007-02-15 20:13:00	2007-02-15 22:12:00	603.00	623.00		3	1	2007-02-15 21:32:03	2007-02-15 21:52:03	1.67E-04	0	3.46E-04	1.67E-08	8.33E-04	4.15E-01
KLX 21B	2007-02-15 23:08:00	2007-02-16 00:36:00	623.00	643.00		3	1	2007-02-15 23:54:42	2007-02-16 00:14:42	1.38E-04	0	1.41E-04	1.67E-08	8.33E-04	1.69E-01
KLX 21B	2007-02-16 01:18:00	2007-02-16 02:45:00	643.00	663.00		3	1	2007-02-16 02:03:50	2007-02-16 02:23:50	2.80E-05	0	2.92E-05	1.67E-08	8.33E-04	3.50E-02
KLX 21B	2007-02-16 06:38:00	2007-02-16 08:03:00	663.00	683.00		3	1	2007-02-16 07:21:48	2007-02-16 07:41:48	2.20E-06	0	2.33E-06	1.67E-08	8.33E-04	2.80E-03
KLX 21B	2007-02-16 08:52:00	2007-02-16 10:25:00	683.00	703.00		3	1	2007-02-16 09:43:54	2007-02-16 10:03:54	6.13E-06	0	7.47E-06	1.67E-08	8.33E-04	8.96E-03
KLX 21B	2007-02-16 10:59:00	2007-02-16 13:03:00	703.00	723.00		3	1	2007-02-16 12:01:09	2007-02-16 12:21:09	8.07E-08	0	9.92E-08	1.67E-08	8.33E-04	1.19E-04
KLX 21B	2007-02-16 13:59:00	2007-02-16 15:33:00	723.00	743.00		3	1	2007-02-16 15:13:45	2007-02-16 15:33:45	3.67E-08	0	4.88E-08	1.67E-08	8.33E-04	5.86E-05
KLX 21B	2007-02-16 16:38:00	2007-02-16 18:02:00	743.00	763.00		3	1	2007-02-16 17:52:52	2007-02-16 17:57:47	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-16 18:09:00	2007-02-16 19:51:00	743.00	763.00		3	1	2007-02-16 18:49:40	2007-02-16 19:09:40	1.00E-07	0	5.70E-07	1.67E-08	8.33E-04	6.84E-04
KLX 21B	2007-02-16 20:51:00	2007-02-16 23:04:00	764.00	784.00		3	1	2007-02-16 22:22:55	2007-02-16 22:42:55	3.17E-08	0	5.10E-08	1.67E-08	8.33E-04	6.12E-05
KLX 21B	2007-02-16 23:47:00	2007-02-17 00:14:00	783.00	803.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-17 01:20:00	2007-02-17 02:09:00	803.00	823.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-17 07:00:00	2007-02-17 09:28:00	823.00	843.00		3	1	2007-02-17 08:46:04	2007-02-17 09:06:04	4.00E-08	0	1.82E-07	1.67E-08	8.33E-04	2.18E-04
KLX 21B	2007-02-18 06:40:00	2007-02-18 08:09:00	323.00	328.00		3	1	2007-02-18 07:27:29	2007-02-18 07:47:29	1.57E-07	0	1.65E-07	1.67E-08	8.33E-04	1.97E-04
KLX 21B	2007-02-18 08:36:00	2007-02-18 09:26:00	328.00	333.00		3	1	#NV	#NV	#NV	-1	-	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-18 09:54:00	2007-02-18 10:43:00	333.00	338.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-18 11:14:00	2007-02-18 12:04:00	338.00	343.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-18 12:30:00	2007-02-18 13:18:00	343.00	348.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-18 14:32:00	2007-02-18 16:24:00	348.00	353.00		3	1	2007-02-18 15:42:27	2007-02-18 16:02:27	2.18E-08	0	2.48E-08	1.67E-08	8.33E-04	2.98E-05
KLX 21B	2007-02-18 16:52:00	2007-02-18 17:40:00	353.00	358.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-18 18:10:00	2007-02-18 18:58:00	358.00	363.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-18 19:32:00	2007-02-18 20:21:00	363.00	368.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-18 20:49:00	2007-02-18 23:18:00	368.00	373.00		3	1	2007-02-18 22:36:55	2007-02-18 22:56:55	1.69E-08	0	2.02E-08	1.67E-08	8.33E-04	2.42E-05
KLX 21B	2007-02-18 23:48:00	2007-02-19 00:48:00	373.00	378.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-19 19:45:00	2007-02-19 20:34:00	373.00	378.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-19 21:05:00	2007-02-19 21:54:00	378.00	383.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-19 22:56:00	2007-02-10 00:26:00	383.00	388.00		3	1	2007-02-19 23:45:18	2007-02-20 00:05:18	3.45E-07	0	3.17E-07	1.67E-08	8.33E-04	3.80E-04
KLX 21B	2007-02-20 01:01:00	2007-02-20 01:50:00	388.00	393.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-20 06:24:00	2007-02-20 07:12:00	393.00	398.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-20 07:37:00	2007-02-20 09:37:00	398.00	403.00		4B	1	2007-02-20 08:25:51	2007-02-20 08:26:01	#NV	-1	7.78E-07	1.67E-08	8.33E-04	7.78E-06
KLX 21B	2007-02-20 10:05:00	2007-02-20 10:54:00	403.00	408.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV

idcode	secup	seclow	dur_flow_phase_tp	dur_rec_phase_tf	initial_head_hi	ow_end_hp	final_head_hf	initial_press_pi	press_at_flow_end_pp	final_press_pf	fluid_temp_tew	fluid_elcond_ecw	fluid_salinity_tdsw	fluid_salinity_tdswm	reference	comments	lp
KLX 21B	103.00	203.00	1800	1800			7.22	1923	1935	1925	8.4						153.00
KLX 21B	203.00	303.00	1800	1800			6.66	2840	3042	2863	9.6						253.00
KLX 21B	303.00	403.00	1800	1800			8.24	3754	3954	3772	10.7						353.00
KLX 21B	403.00	503.00	1800	1800			6.67	4662	4863	4669	12.0						453.00
KLX 21B	503.00	603.00	1800	1800			7.68	5583	5787	5583	13.4						553.00
KLX 21B	603.00	703.00	1800	1800			8.18	6497	6698	6691	13.8						653.00
KLX 21B	703.00	803.00	1800	1800			#NV	7438	7641	7550	16.9						753.00
KLX 21B	103.00	123.00	1200	1200			6.93	1189	1220	1190	9.0						113.00
KLX 21B	123.00	143.00	1200	1200			7.22	1375	1397	1376	9.4						133.00
KLX 21B	143.00	163.00	1200	1200			7.30	1559	1759	1559	9.1						153.00
KLX 21B	163.00	183.00	#NV	#NV			#NV	#NV	#NV	#NV	#NV						173.00
KLX 21B	163.00	183.00	#NV	#NV			#NV	#NV	#NV	#NV	#NV						173.00
KLX 21B	163.00	183.00	1200	1200			8.06	1746	1945	1787	9.3						173.00
KLX 21B	183.00	203.00	#NV	#NV			#NV	#NV	#NV	#NV	#NV						193.00
KLX 21B	183.00	203.00	1200	1200			6.71	1920	2120	1921	9.4						193.00
KLX 21B	203.00	223.00	1200	1200			7.30	2107	2308	2110	9.7						213.00
KLX 21B	223.00	243.00	1200	1200			6.23	2289	2506	2288	9.9						233.00
KLX 21B	243.00	263.00	#NV	#NV			#NV	2504	#NV	#NV	10.1						253.00
KLX 21B	263.00	283.00	1200	1200			7.75	2655	2847	2690	10.4						273.00
KLX 21B	283.00	303.00	1200	1200			6.25	2843	3061	2864	10.6						293.00
KLX 21B	303.00	323.00	1200	1200			8.22	3024	3225	3036	10.8						313.00
KLX 21B	323.00	343.00	1200	1200			7.43	3210	3425	3210	11.1						333.00
KLX 21B	343.00	363.00	1200	1200			8.18	3395	3593	3424	11.4						353.00
KLX 21B	363.00	383.00	1200	1200			#NV	3581	3773	3643	11.6						373.00
KLX 21B	383.00	403.00	1200	1200			6.17	3742	3942	3745	11.9						393.00
KLX 21B	403.00	423.00	1200	1200			7.79	3948	4165	3976	12.2						413.00
KLX 21B	423.00	443.00	1200	1200			6.47	4110	4308	4115	12.5						433.00
KLX 21B	443.00	463.00	1200	1200			6.68	4300	4499	4304	12.7						453.00
KLX 21B	463.00	483.00	1200	3600			7.24	4483	4683	4484	13.0						473.00
KLX 21B	483.00	503.00	1200	1200			7.00	4691	4875	4741	13.3						493.00
KLX 21B	503.00	523.00	1200	1200			6.12	4851	5073	4855	13.6						513.00
KLX 21B	523.00	543.00	1200	1200			6.57	5026	5226	5027	13.9						533.00
KLX 21B	543.00	563.00	#NV	#NV			#NV	5247	#NV	#NV	14.0						553.00
KLX 21B	563.00	583.00	1200	1200			7.13	5394	5595	5394	14.3						573.00
KLX 21B	583.00	603.00	1200	1200			7.55	5581	5781	5581	14.6						593.00
KLX 21B	603.00	623.00	1200	1200			7.71	5769	5968	5770	14.1						613.00
KLX 21B	623.00	643.00	1200	1200			8.23	5952	6150	5952	15.1						633.00
KLX 21B	643.00	663.00	1200	1200			8.33	6136	6337	6136	15.8						653.00
KLX 21B	663.00	683.00	1200	1200			8.22	6314	6518	6319	16.2						673.00
KLX 21B	683.00	703.00	1200	1200			8.33	6502	6704	6504	16.5						693.00
KLX 21B	703.00	723.00	1200	2400			7.58	6694	6893	6699	16.8						713.00
KLX 21B	723.00	743.00	1200	1200			8.03	6898	7102	6927	17.1						733.00
KLX 21B	743.00	763.00	#NV	#NV			#NV	#NV	#NV	#NV	#NV						753.00
KLX 21B	743.00	763.00	1200	2400			#NV	7062	7260	7209	17.4						753.00
KLX 21B	764.00	784.00	1200	1200			#NV	7280	7477	7401	17.7						774.00
KLX 21B	783.00	803.00	#NV	#NV			#NV	7305	#NV	#NV	17.8						793.00
KLX 21B	803.00	823.00	#NV	#NV			#NV	7632	#NV	#NV	18.2						813.00
KLX 21B	823.00	843.00	1200	1200			#NV	7828	7991	7971	18.5						833.00
KLX 21B	323.00	328.00	1200	1200			7.34	3071	3270	3071	#NV						325.50
KLX 21B	328.00	333.00	#NV	#NV			#NV	3219	#NV	#NV	#NV						330.50
KLX 21B	333.00	338.00	#NV	#NV			#NV	3162	#NV	#NV	#NV						335.50
KLX 21B	338.00	343.00	#NV	#NV			#NV	3249	#NV	#NV	#NV						340.50
KLX 21B	343.00	348.00	#NV	#NV			#NV	3253	#NV	#NV	#NV						345.50
KLX 21B	348.00	353.00	1200	1200			6.70	3307	3519	3322	#NV						350.50
KLX 21B	353.00	358.00	#NV	#NV			#NV	3357	#NV	#NV	#NV						355.50
KLX 21B	358.00	363.00	#NV	#NV			#NV	3502	#NV	#NV	#NV						360.50
KLX 21B	363.00	368.00	#NV	#NV			#NV	3531	#NV	#NV	#NV						365.50
KLX 21B	368.00	373.00	1200	1200			#NV	3482	3706	3524	#NV						370.50
KLX 21B	373.00	378.00	#NV	#NV			#NV	3548	#NV	#NV	#NV						375.50
KLX 21B	373.00	378.00	#NV	#NV			#NV	3553	#NV	#NV	#NV						375.50
KLX 21B	378.00	383.00	#NV	#NV			#NV	3608	#NV	#NV	#NV						380.50
KLX 21B	383.00	388.00	1200	1200			6.31	3607	3806	3608	#NV						385.50
KLX 21B	388.00	393.00	#NV	#NV			#NV	3689	#NV	#NV	#NV						390.50
KLX 21B	393.00	398.00	#NV	#NV			#NV	3736	#NV	#NV	#NV						395.50
KLX 21B	398.00	403.00	10	4020			#NV	3730	3943	3751	#NV						400.50
KLX 21B	403.00	408.00	#NV	#NV			#NV	3829	#NV	#NV	#NV						405.50

idcode	start_date	stop_date	secup	seclow	section_no	test_type	formation_type	start_flow_period	stop_flow_period	flow_rate_end_qp	value_type_qp	mean_flow_rate_qm	q_measl__l	q_measl__u	tot_volume_vp
KLX 21B	2007-02-20 11:21:00	2007-02-20 13:54:00	408.00	413.00		4B	1	2007-02-20 12:05:18	2007-02-20 12:05:28	#NV	-1	1.20E-07	1.67E-08	8.33E-04	1.20E-06
KLX 21B	2007-02-20 14:19:00	2007-02-20 16:32:00	413.00	418.00		3	1	2007-02-20 15:49:49	2007-02-20 16:09:49	1.45E-08	0	1.63E-08	1.67E-08	8.33E-04	1.96E-05
KLX 21B	2007-02-20 16:56:00	2007-02-20 17:34:00	418.00	423.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-20 17:35:00	2007-02-20 19:26:00	418.00	423.00		3	1	2007-02-20 18:44:44	39133.79495	2.67E-08	0	3.49E-08	1.67E-08	8.33E-04	4.19E-05
KLX 21B	2007-02-20 20:09:00	2007-02-20 21:54:00	423.00	428.00		3	1	2007-02-20 20:51:55	2007-02-20 21:11:55	1.13E-07	0	1.22E-07	1.67E-08	8.33E-04	1.46E-04
KLX 21B	2007-02-20 22:30:00	2007-02-21 00:08:00	428.00	433.00		3	1	2007-02-20 23:26:01	2007-02-20 23:46:01	2.67E-08	0	2.99E-08	1.67E-08	8.33E-04	3.59E-05
KLX 21B	2007-02-21 00:31:00	2007-02-21 01:54:00	433.00	438.00		3	1	2007-02-21 01:12:20	2007-02-21 01:32:20	4.95E-07	0	5.32E-07	1.67E-08	8.33E-04	6.38E-04
KLX 21B	2007-02-21 06:31:00	2007-02-21 07:20:00	438.00	443.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-21 07:48:00	2007-02-21 10:20:00	443.00	448.00		3	1	2007-02-21 09:38:30	2007-02-21 09:58:30	2.30E-08	0	2.73E-08	1.67E-08	8.33E-04	3.28E-05
KLX 21B	2007-02-21 10:45:00	2007-02-21 12:42:00	448.00	453.00		3	1	2007-02-21 11:40:20	2007-02-21 12:00:20	3.07E-06	0	3.32E-06	1.67E-08	8.33E-04	3.98E-03
KLX 21B	2007-02-21 13:18:00	2007-02-21 14:45:00	453.00	458.00		3	1	2007-02-21 14:03:32	2007-02-21 14:23:32	2.53E-06	0	2.65E-06	1.67E-08	8.33E-04	3.18E-03
KLX 21B	2007-02-21 15:10:00	2007-02-21 15:59:00	458.00	463.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-21 16:30:00	2007-02-21 17:19:00	463.00	468.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-21 17:46:00	2007-02-21 18:35:00	468.00	473.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-21 19:07:00	2007-02-21 20:36:00	473.00	478.00		3	1	2007-02-21 19:57:06	2007-02-21 20:17:06	2.00E-06	0	2.35E-06	1.67E-08	8.33E-04	2.82E-03
KLX 21B	2007-02-21 21:08:00	2007-02-21 23:16:00	478.00	483.00		3	1	2007-02-21 22:14:11	2007-02-21 22:34:11	4.17E-08	0	6.05E-08	1.67E-08	8.33E-04	7.26E-05
KLX 21B	2007-02-21 23:52:00	2007-02-21 23:53:00	483.00	488.00		3	1	2007-02-21 01:28:19	2007-02-21 01:48:19	2.05E-08	0	2.48E-08	1.67E-08	8.33E-04	2.97E-05
KLX 21B	2007-02-22 06:18:00	2007-02-22 07:14:00	488.00	493.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-22 07:39:00	2007-02-22 08:28:00	493.00	498.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-22 08:57:00	2007-02-22 09:46:00	498.00	503.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-22 10:10:00	2007-02-22 12:25:00	503.00	508.00		3	1	2007-02-22 11:23:00	2007-02-22 11:43:00	3.50E-08	0	3.68E-08	1.67E-08	8.33E-04	4.42E-05
KLX 21B	2007-02-22 12:52:00	2007-02-22 14:25:00	508.00	513.00		3	1	2007-02-22 13:43:19	2007-02-22 14:03:19	6.72E-08	0	7.74E-08	1.67E-08	8.33E-04	9.29E-05
KLX 21B	2007-02-22 14:50:00	2007-02-22 16:25:00	513.00	518.00		3	1	2007-02-22 15:43:21	2007-02-22 16:03:21	1.94E-08	0	2.44E-08	1.67E-08	8.33E-04	2.93E-05
KLX 21B	2007-02-22 16:54:00	2007-02-22 19:13:00	518.00	523.00		4B	1	2007-02-22 17:50:22	2007-02-22 17:50:32	#NV	-1	3.50E-07	1.67E-08	8.33E-04	3.50E-06
KLX 21B	2007-02-22 19:39:00	2007-02-22 21:08:00	523.00	528.00		3	1	2007-02-22 20:26:05	2007-02-22 20:46:05	1.69E-06	0	1.78E-06	1.67E-08	8.33E-04	2.14E-03
KLX 21B	2007-02-22 22:02:00	2007-02-22 22:51:00	528.00	533.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-22 23:18:00	2007-02-23 00:08:00	533.00	538.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-23 00:39:00	2007-02-23 01:28:00	538.00	543.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-23 06:41:00	2007-02-23 08:11:00	563.00	568.00		3	1	2007-02-23 07:29:40	2007-02-23 07:49:40	1.34E-05	0	1.36E-05	1.67E-08	8.33E-04	1.64E-02
KLX 21B	2007-02-23 08:35:00	2007-02-23 10:01:00	568.00	573.00		3	1	2007-02-23 09:18:59	2007-02-23 09:38:59	1.74E-05	0	1.78E-05	1.67E-08	8.33E-04	2.14E-02
KLX 21B	2007-02-23 10:28:00	2007-02-23 12:39:00	573.00	578.00		3	1	2007-02-23 11:19:48	2007-02-23 11:19:48	1.03E-07	0	1.08E-07	1.67E-08	8.33E-04	1.30E-04
KLX 21B	2007-02-23 12:50:00	2007-02-23 14:28:00	578.00	583.00		3	1	2007-02-23 13:46:11	2007-02-23 14:06:11	6.67E-08	0	7.62E-08	1.67E-08	8.33E-04	9.14E-05
KLX 21B	2007-02-23 14:54:00	2007-02-23 16:24:00	583.00	588.00		3	1	2007-02-23 15:42:02	2007-02-23 16:02:02	7.67E-08	0	8.52E-08	1.67E-08	8.33E-04	1.02E-04
KLX 21B	2007-02-23 16:51:00	2007-02-23 18:20:00	588.00	593.00		3	1	2007-02-23 17:38:42	2007-02-23 17:58:42	1.80E-05	0	1.91E-05	1.67E-08	8.33E-04	2.29E-02
KLX 21B	2007-02-23 18:50:00	2007-02-23 20:17:00	593.00	598.00		3	1	2007-02-23 19:35:18	2007-02-23 19:55:18	1.80E-05	0	2.97E-05	1.67E-08	8.33E-04	3.57E-02
KLX 21B	2007-02-23 22:03:00	2007-02-23 23:31:00	598.00	603.00		3	1	2007-02-23 22:49:02	2007-02-23 23:09:02	1.23E-06	0	1.67E-04	1.67E-08	8.33E-04	2.00E-01
KLX 21B	2007-02-24 00:00:00	2007-02-24 01:53:00	603.00	608.00		3	1	2007-02-24 01:01:30	2007-02-24 01:31:30	1.09E-04	0	1.14E-04	1.67E-08	8.33E-04	2.05E-01
KLX 21B	2007-02-24 06:15:00	2007-02-24 07:41:00	608.00	613.00		3	1	2007-02-24 06:59:51	2007-02-24 07:19:51	2.88E-04	0	2.97E-04	1.67E-08	8.33E-04	3.56E-01
KLX 21B	2007-02-24 08:06:00	2007-02-24 09:37:00	613.00	618.00		3	1	2007-02-24 08:55:03	2007-02-24 09:15:03	2.65E-07	0	2.82E-07	1.67E-08	8.33E-04	3.38E-04
KLX 21B	2007-02-24 10:03:00	2007-02-24 11:29:00	618.00	623.00		3	1	2007-02-24 10:47:53	2007-02-24 11:07:53	4.00E-06	0	4.09E-06	1.67E-08	8.33E-04	4.91E-03
KLX 21B	2007-02-24 12:24:00	2007-02-24 13:52:00	623.00	628.00		3	1	2007-02-24 13:10:54	2007-02-24 13:30:54	1.46E-04	0	1.48E-04	1.67E-08	8.33E-04	1.78E-01
KLX 21B	2007-02-24 14:15:00	2007-02-24 15:40:00	628.00	633.00		3	1	2007-02-24 14:58:11	2007-02-24 15:18:11	6.28E-07	0	6.57E-07	1.67E-08	8.33E-04	7.88E-04
KLX 21B	2007-02-24 16:07:00	2007-02-24 18:04:00	633.00	638.00		4B	1	2007-02-24 16:45:54	2007-02-24 16:46:04	#NV	-1	3.62E-07	1.67E-08	8.33E-04	3.62E-06
KLX 21B	2007-02-24 18:33:00	2007-02-24 19:57:00	638.00	643.00		3	1	2007-02-24 19:15:06	2007-02-24 19:35:06	5.00E-07	0	5.32E-07	1.67E-08	8.33E-04	6.38E-04
KLX 21B	2007-02-24 21:04:00	2007-02-24 22:28:00	643.00	648.00		3	1	2007-02-24 21:45:46	2007-02-24 22:05:46	7.66E-06	0	8.02E-06	1.67E-08	8.33E-04	9.62E-03
KLX 21B	2007-02-24 22:53:00	2007-02-25 00:20:00	645.00	650.00		3	1	2007-02-24 23:38:41	2007-02-24 23:58:41	5.83E-06	0	6.15E-06	1.67E-08	8.33E-04	7.38E-03
KLX 21B	2007-02-25 00:44:00	2007-02-25 02:31:00	650.00	655.00		3	1	2007-02-25 01:49:48	2007-02-25 02:09:48	9.73E-06	0	1.01E-05	1.67E-08	8.33E-04	1.21E-02
KLX 21B	2007-02-25 06:21:00	2007-02-25 07:47:00	655.00	660.00		3	1	2007-02-25 07:05:28	2007-02-25 07:25:28	1.48E-05	0	1.51E-05	1.67E-08	8.33E-04	1.81E-02
KLX 21B	2007-02-25 08:15:00	2007-02-25 09:41:00	658.00	663.00		3	1	2007-02-25 08:59:48	2007-02-25 09:19:48	1.28E-06	0	1.39E-06	1.67E-08	8.33E-04	1.67E-03
KLX 21B	2007-02-25 10:07:00	2007-02-25 11:33:00	663.00	668.00		3	1	2007-02-25 10:51:47	2007-02-25 11:11:47	9.18E-07	0	9.73E-07	1.67E-08	8.33E-04	1.17E-03
KLX 21B	2007-02-25 11:57:00	2007-02-25 13:20:00	668.00	673.00		3	1	2007-02-25 12:38:39	2007-02-25 12:58:39	1.33E-06	0	1.34E-06	1.67E-08	8.33E-04	1.61E-03
KLX 21B	2007-02-25 14:08:00	2007-02-25 14:57:00	673.00	678.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-25 15:24:00	2007-02-25 17:31:00	678.00	683.00		3	1	2007-02-25 16:21:00	2007-02-25 16:41:00	1.23E-07	0	1.44E-07	1.67E-08	8.33E-04	1.73E-04
KLX 21B	2007-02-25 17:38:00	2007-02-25 19:11:00	683.00	688.00		3	1	2007-02-25 18:29:57	2007-02-25 18:49:57	4.90E-06	0	5.07E-06	1.67E-08	8.33E-04	6.08E-03
KLX 21B	2007-02-25 19:40:00	2007-02-25 21:07:00	688.00	693.00		3	1	2007-02-25 20:25:25	2007-02-25 20:45:25	9.83E-07	0	1.01E-06	1.67E-08	8.33E-04	1.21E-03
KLX 21B	2007-02-25 21:57:00	2007-02-25 23:47:00	693.00	698.00		3	1	2007-02-25 23:05:48	2007-02-25 23:25:48	1.09E-06	0	1.23E-06	1.67E-08	8.33E-04	1.47E-03
KLX 21B	2007-02-26 00:12:00	2007-02-26 02:22:00	698.00	703.00		3	1	2007-02-26 01:02:47	2007-02-26 01:22:47	2.62E-07	0	3.67E-07	1.67E-08	8.33E-04	4.40E-04
KLX 21B	2007-02-26 06:17:00	2007-02-26 08:06:00	703.00	708.00		3	1	2007-02-26 07:24:08	2007-02-26 07:44:08	4.83E-08	0	5.42E-08	1.67E-08	8.33E-04	6.50E-05
KLX 21B	2007-02-26 08:32:00	2007-02-26 09:20:00	708.00	713.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-26 09:45:00	2007-02-26 12:44:00	713.00	718.00		3	1	2007-02-26 11:03:57	2007-02-26 11:23:57	1.45E-08	0	2.09E-08	1.67E-08	8.33E-04	2.51E-05
KLX 21B	2007-02-26 12:51:00	2007-02-26 14:42:00	718.00	723.00		3	1	2007-02-26 13:50:54	2007-02-26 14:10:54	3.65E-08	0	4.63E-08	1.67E-08	8.33E-04	5.55E-05
KLX 21B	2007-02-26 15:07:00	2007-02-26 15:46:00	723.00	728.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-26 16:33:00	2007-02-26 18:20:00	723.00	728.00		3	1	2007-02-26 17:38:53	2007-02-26 17:58:53	2.06E-08	0	2.93E-08	1.67E-08	8.33E-04	3.52E-05
KLX 21B	2007-02-26 18:46:00	2007-02-26 19:37:00	728.00	733.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-26 20:01:00	2007-02-26 20:51:00	733.00	738.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV
KLX 21B	2007-02-27 06:22:00	2007-02-27 07:13:00	738.00	743.00		3	1	#NV	#NV	#NV	-1	#NV	1.67E-08	8.33E-04	#NV

idcode	secup	seclow	dur_flow_phase_tp	dur_rec_phase_tf	initial_head_hi	ow_end_hp	final_head_hf	initial_press_pi	press_at_flow_end_pp	final_press_pf	fluid_temp_tew	fluid_elcond_ecw	fluid_salinity_tdsw	fluid_salinity_tdswm	reference	comments	lp
KLX 21B	408.00	413.00	10	4020			#NV	3869	4072	3856	#NV						410.50
KLX 21B	413.00	418.00	1200	1200			7.64	3917	4110	3946	#NV						415.50
KLX 21B	418.00	423.00	#NV	#NV			#NV	3937	#NV	#NV	#NV						420.50
KLX 21B	418.00	423.00	1200	1200			#NV	3952	4142	4002	#NV						420.50
KLX 21B	423.00	428.00	1200	2400			6.40	3972	4221	3973	#NV						425.50
KLX 21B	428.00	433.00	1200	1200			6.08	4020	4224	4019	#NV						430.50
KLX 21B	433.00	438.00	1200	1200			6.31	4065	4256	4068	#NV						435.50
KLX 21B	438.00	443.00	#NV	#NV			#NV	4123	#NV	#NV	#NV						440.50
KLX 21B	443.00	448.00	1200	1200			#NV	4192	4394	4270	#NV						445.50
KLX 21B	448.00	453.00	1200	1200			6.46	4204	4405	4204	#NV						450.50
KLX 21B	453.00	458.00	1200	1200			6.27	4250	4450	4253	#NV						455.50
KLX 21B	458.00	463.00	#NV	#NV			#NV	4453	#NV	#NV	#NV						460.50
KLX 21B	463.00	468.00	#NV	#NV			#NV	4476	#NV	#NV	#NV						465.50
KLX 21B	468.00	473.00	#NV	#NV			#NV	4422	#NV	#NV	#NV						470.50
KLX 21B	473.00	478.00	1200	1200			7.11	4436	4636	4432	#NV						475.50
KLX 21B	478.00	483.00	1200	1200			8.46	4496	4718	4538	#NV						480.50
KLX 21B	483.00	488.00	1200	10800			6.58	4548	4759	4534	#NV						485.50
KLX 21B	488.00	493.00	#NV	#NV			#NV	4582	#NV	#NV	#NV						490.50
KLX 21B	493.00	498.00	#NV	#NV			#NV	4689	#NV	#NV	#NV						495.50
KLX 21B	498.00	503.00	#NV	#NV			#NV	4673	#NV	#NV	#NV						500.50
KLX 21B	503.00	508.00	1200	2400			7.00	4735	4945	4736	#NV						505.50
KLX 21B	508.00	513.00	1200	1200			6.78	4758	4956	4757	#NV						510.50
KLX 21B	513.00	518.00	1200	1200			6.05	4802	5005	4802	#NV						515.50
KLX 21B	518.00	523.00	10	4800			#NV	4847	5042	4865	#NV						520.50
KLX 21B	523.00	528.00	1200	1200			6.39	4887	5088	4888	#NV						525.50
KLX 21B	528.00	533.00	#NV	#NV			#NV	5109	#NV	#NV	#NV						530.50
KLX 21B	533.00	538.00	#NV	#NV			#NV	5154	#NV	#NV	#NV						535.50
KLX 21B	538.00	543.00	#NV	#NV			#NV	5137	#NV	#NV	#NV						540.50
KLX 21B	563.00	568.00	1200	1200			7.18	5260	5459	5259	#NV						565.50
KLX 21B	568.00	573.00	1200	1200			7.08	5305	5504	5304	#NV						570.50
KLX 21B	573.00	578.00	1200	2400			7.65	5358	5558	5354	#NV						575.50
KLX 21B	578.00	583.00	1200	1200			6.32	5399	5601	5401	#NV						580.50
KLX 21B	583.00	588.00	1200	1200			6.42	5451	5653	5450	14.7						585.50
KLX 21B	588.00	593.00	1200	1200			7.17	5487	5686	5485	14.6						590.50
KLX 21B	593.00	598.00	1200	1200			7.73	5537	5735	5537	14.7						595.50
KLX 21B	598.00	603.00	1200	1200			7.65	5582	5782	5581	14.8						600.50
KLX 21B	603.00	608.00	1800	1200			7.69	5630	5829	5629	14.5						605.50
KLX 21B	608.00	613.00	1200	1200			7.89	5675	5875	5678	14.2						610.50
KLX 21B	613.00	618.00	1200	1200			8.07	5723	5922	5722	15.1						615.50
KLX 21B	618.00	623.00	1200	1200			4.24	5730	5930	5730	15.4						620.50
KLX 21B	623.00	628.00	1200	1200			8.17	5814	6014	5815	15.0						625.50
KLX 21B	628.00	633.00	1200	1200			8.20	5862	6062	5862	15.7						630.50
KLX 21B	633.00	638.00	10	4020			#NV	5922	6148	5917	15.8						635.50
KLX 21B	638.00	643.00	1200	1200			8.40	5953	6153	5953	15.9						640.50
KLX 21B	643.00	648.00	1200	1200			8.43	5999	6199	5999	15.9						645.50
KLX 21B	645.00	650.00	1200	1200			8.37	6018	6217	6017	16.0						647.50
KLX 21B	650.00	655.00	1200	1200			8.42	6064	6263	6062	16.0						652.50
KLX 21B	655.00	660.00	1200	1200			8.57	6110	6311	6110	16.1						657.50
KLX 21B	658.00	663.00	1200	1200			8.62	6138	6338	6138	16.2						660.50
KLX 21B	663.00	668.00	1200	1200			8.63	6182	6382	6184	16.2						665.50
KLX 21B	668.00	673.00	1200	1200			8.62	6230	6430	6230	16.3						670.50
KLX 21B	673.00	678.00	#NV	#NV			#NV	6280	#NV	#NV	#NV						675.50
KLX 21B	678.00	683.00	1200	1800			8.11	6323	6524	6324	16.5						680.50
KLX 21B	683.00	688.00	1200	1200			8.83	6368	6567	6365	16.5						685.50
KLX 21B	688.00	693.00	1200	1200			8.64	6414	6614	6413	16.6						690.50
KLX 21B	693.00	698.00	1200	1200			7.93	6462	6662	6466	16.7						695.50
KLX 21B	698.00	703.00	1200	3600			7.99	6513	6713	6519	16.7						700.50
KLX 21B	703.00	708.00	1200	1200			8.92	6561	6763	6578	16.8						705.50
KLX 21B	708.00	713.00	#NV	#NV			#NV	6600	#NV	#NV	#NV						710.50
KLX 21B	713.00	718.00	1200	3600			8.47	6680	6878	6677	16.9						715.50
KLX 21B	718.00	723.00	1200	1800			7.20	6698	6900	6710	17.0						720.50
KLX 21B	723.00	728.00	#NV	#NV			#NV	#NV	#NV	#NV	#NV						725.50
KLX 21B	723.00	728.00	1200	1200			9.07	6757	6939	6775	17.1						725.50
KLX 21B	728.00	733.00	#NV	#NV			#NV	7124	#NV	#NV	#NV						730.50
KLX 21B	733.00	738.00	#NV	#NV			#NV	6892	#NV	#NV	#NV						735.50
KLX 21B	738.00	743.00	#NV	#NV			#NV	7049	#NV	#NV	#NV						740.50

Table	plu_s_hole_test_ed1
	PLU Single hole tests, pumping/injection. Basic evaluation

Column	Datatype	Unit	Column Description
site	CHAR		Investigation site name
activity_type	CHAR		Activity type code
start_date	DATE		Date (yymmdd hh:mm:ss)
stop_date	DATE		Date (yymmdd hh:mm:ss)
project	CHAR		project code
idcode	CHAR		Object or borehole identification code
secup	FLOAT	m	Upper section limit (m)
seclow	FLOAT	m	Lower section limit (m)
section_no	INTEGER	number	Section number
test_type	CHAR		Test type code (1-7), see table description!
formation_type	CHAR		Formation type code. 1: Rock, 2: Soil (superficial deposits)
lp	FLOAT	m	Hydraulic point of application for test section, see descr.
seclen_class	FLOAT	m	Planned ordinary test interval during test campaign.
spec_capacity_q_s	FLOAT	m**2/s	Specific capacity (Q/s) of test section, see table descript.
value_type_q_s	CHAR		0:true value,-1:Q/s<lower meas.limit,1:Q/s>upper meas.limit
transmissivity_tq	FLOAT	m**2/s	Tranmissivity based on Q/s, see table description
value_type_tq	CHAR		0:true value,-1:TQ<lower meas.limit,1:TQ>upper meas.limit.
bc_tq	CHAR		Best choice code. 1 means TQ is best choice of T, else 0
transmissivity_moye	FLOAT	m**2/s	Transmissivity,TM, based on Moye (1967)
bc_tm	CHAR		Best choice code. 1 means Tmoye is best choice of T, else 0
value_type_tm	CHAR		0:true value,-1:TM<lower meas.limit,1:TM>upper meas.limit.
hydr_cond_moye	FLOAT	m/s	K_M: Hydraulic conductivity based on Moye (1967)
formation_width_b	FLOAT	m	b:Aquifer thickness repr. for T(generally b=Lw) ,see descr.
width_of_channel_b	FLOAT	m	B:Inferred width of formation for evaluated TB
tb	FLOAT	m**3/s	TB:Flow capacity in 1D formation of T & width B, see descr.
l_measl_tb	FLOAT	m**3/s	Estimated lower meas. limit for evaluated TB,see description
u_measl_tb	FLOAT	m**3/s	Estimated upper meas. limit of evaluated TB,see description
sb	FLOAT	m	SB:S=storativity,B=width of formation,1D model,see descript.
assumed_sb	FLOAT	m	SB* : Assumed SB,S=storativity,B=width of formation,see...
leakage_factor_lf	FLOAT	m	Lf:1D model for evaluation of Leakage factor
transmissivity_tt	FLOAT	m**2/s	TT:Transmissivity of formation, 2D radial flow model,see...
value_type_tt	CHAR		0:true value,-1:TT<lower meas.limit,1:TT>upper meas.limit,
bc_tt	CHAR		Best choice code. 1 means TT is best choice of T, else 0
l_measl_q_s	FLOAT	m**2/s	Estimated lower meas. limit for evaluated TT,see table descr
u_measl_q_s	FLOAT	m**2/s	Estimated upper meas. limit for evaluated TT,see description
storativity_s	FLOAT		S:Storativity of formation based on 2D rad flow,see descr.
assumed_s	FLOAT		Assumed Storativity,2D model evaluation,see table descr.
bc_s	FLOAT		Best choice of S (Storativity) ,see descr.
ri	FLOAT	m	Radius of influence
ri_index	CHAR		ri index=index of radius of influence :-1,0 or 1, see descr.
leakage_coeff	FLOAT	1/s	K'/b':2D rad flow model evaluation of leakage coeff,see desc
hydr_cond_ksf	FLOAT	m/s	Ksf:3D model evaluation of hydraulic conductivity,see desc.
value_type_ksf	CHAR		0:true value,-1:Ksf<lower meas.limit,1:Ksf>upper meas.limit,
l_measl_ksf	FLOAT	m/s	Estimated lower meas.limit for evaluated Ksf,see table desc.
u_measl_ksf	FLOAT	m/s	Estimated upper meas.limit for evaluated Ksf,see table descr
spec_storage_ssf	FLOAT	1/m	Ssf:Specific storage,3D model evaluation,see table descr.
assumed_ssf	FLOAT	1/m	Ssf*:Assumed Spec.storage,3D model evaluation,see table des.
c	FLOAT	m**3/pa	C: Wellbore storage coefficient; flow or recovery period
cd	FLOAT		CD: Dimensionless wellbore storage coefficient
skin	FLOAT		Skin factor;best estimate of flow/recovery period,see descr.
dt1	FLOAT	s	Estimated start time of evaluation, see table description
dt2	FLOAT	s	Estimated stop time of evaluation. see table description
t1	FLOAT	s	Start time for evaluated parameter from start flow period
t2	FLOAT	s	Stop time for evaluated parameter from start of flow period
dte1	FLOAT	s	Start time for evaluated parameter from start of recovery
dte2	FLOAT	s	Stop time for evaluated parameter from start of recovery
p_horner	FLOAT	kPa	p*:Horner extrapolated pressure, see table description
transmissivity_t_nlr	FLOAT	m**2/s	T_NLR Transmissivity based on None Linear Regression...
storativity_s_nlr	FLOAT		S_NLR=storativity based on None Linear Regression,see..
value_type_t_nlr	CHAR		0:true value,-1:T_NLR<lower meas.limit,1:>upper meas.limit
bc_t_nlr	CHAR		Best choice code. 1 means T_NLR is best choice of T, else 0
c_nlr	FLOAT	m**3/pa	Wellbore storage coefficient, based on NLR, see descr.
cd_nlr	FLOAT		Dimensionless wellbore storage constant, see table descrip.
skin_nlr	FLOAT		Skin factor based on Non Linear Regression,see desc.
transmissivity_t_grf	FLOAT	m**2/s	T_GRF:Transmissivity based on Genelized Radial Flow,see...
value_type_t_grf	CHAR		0:true value,-1:T_GRF<lower meas.limit,1:>upper meas.limit
bc_t_grf	CHAR		Best choice code. 1 means T_GRF is best choice of T, else 0
storativity_s_grf	FLOAT		S_GRF:Storativity based on Generalized Radial Flow, see des.
flow_dim_grf	FLOAT		Inferred flow dimesion based on Generalized Rad. Flow model
comment	VARCHAR	no_unit	Short comment to the evaluated parameters
error_flag	CHAR		If error_flag = "*" then an error occured and an error
in_use	CHAR		If in_use = "*" then the activity has been selected as
sign	CHAR		Signature for QA data accknowledge (QA - OK)

idcode	start_date	stop_date	secup	seclow	section_no	test_type	formation_type	lp	seclen_class	spec_capacity_q_s	value_type_q_s	transmissivity_tq	value_type_tq	bc_tq	transmissivity_moye
KLX 21B	2007-02-08 17:57:00	2007-02-08 20:28:00	103.00	203.00		3	1	153.00	100	4.09E-04	0				5.32E-04
KLX 21B	2007-02-09 08:42:00	2007-02-09 10:42:00	203.00	303.00		3	1	253.00	100	5.26E-08	0				6.85E-08
KLX 21B	2007-02-09 12:45:00	2007-02-09 14:49:00	303.00	403.00		3	1	353.00	100	3.60E-07	0				4.68E-07
KLX 21B	2007-02-09 16:53:00	2007-02-09 19:00:00	403.00	503.00		3	1	453.00	100	2.44E-07	0				3.18E-07
KLX 21B	2007-02-09 21:47:00	2007-02-10 00:17:00	503.00	603.00		3	1	553.00	100	2.56E-06	0				3.33E-06
KLX 21B	2007-02-10 08:23:00	2007-02-10 10:25:00	603.00	703.00		3	1	653.00	100	2.31E-05	0				3.01E-05
KLX 21B	2007-02-10 12:20:00	2007-02-10 15:49:00	703.00	803.00		3	1	753.00	100	9.67E-09	0				1.26E-08
KLX 21B	2007-02-11 11:45:00	2007-02-11 13:20:00	103.00	123.00		3	1	113.00	20	1.76E-04	0				1.85E-04
KLX 21B	2007-02-12 14:42:00	2007-02-11 16:10:00	123.00	143.00		3	1	133.00	20	3.09E-04	0				3.23E-04
KLX 21B	2007-02-11 17:08:00	2007-02-11 18:38:00	143.00	163.00		3	1	153.00	20	5.20E-06	0				5.44E-06
KLX 21B	2007-02-13 07:10:00	2007-02-13 09:10:00	163.00	183.00		3	1	173.00	20	1.86E-09	0				1.94E-09
KLX 21B	2007-02-13 09:56:00	2007-02-13 11:51:00	183.00	203.00		3	1	193.00	20	4.01E-08	0				4.19E-08
KLX 21B	2007-02-13 12:58:00	2007-02-13 14:26:00	203.00	223.00		3	1	213.00	20	3.63E-08	0				3.80E-08
KLX 21B	2007-02-13 15:11:00	2007-02-13 16:52:00	223.00	243.00		3	1	233.00	20	3.04E-09	0				3.18E-09
KLX 21B	2007-02-13 17:44:00	2007-02-13 18:35:00	243.00	263.00		3	1	253.00	20	#NV	-1				#NV
KLX 21B	2007-02-13 19:22:00	2007-02-13 20:56:00	263.00	283.00		3	1	273.00	20	4.08E-08	0				4.27E-08
KLX 21B	2007-02-13 22:19:00	2007-02-14 00:16:00	283.00	303.00		3	1	293.00	20	1.98E-09	0				2.07E-09
KLX 21B	2007-02-14 01:09:00	2007-02-14 02:35:00	303.00	323.00		3	1	313.00	20	3.99E-07	0				4.18E-07
KLX 21B	2007-02-14 06:37:00	2007-02-14 08:29:00	323.00	343.00		3	1	333.00	20	4.37E-09	0				4.57E-09
KLX 21B	2007-02-14 09:15:00	2007-02-14 11:32:00	343.00	363.00		3	1	353.00	20	3.55E-09	0				3.71E-09
KLX 21B	2007-02-14 12:16:00	2007-02-14 14:39:00	363.00	383.00		3	1	373.00	20	9.37E-10	0				9.80E-10
KLX 21B	2007-02-14 15:20:00	2007-02-14 16:48:00	383.00	403.00		3	1	393.00	20	1.11E-08	0				1.16E-08
KLX 21B	2007-02-14 17:28:00	2007-02-14 19:45:00	403.00	423.00		3	1	413.00	20	1.65E-09	0				1.73E-09
KLX 21B	2007-02-14 20:27:00	2007-02-14 21:59:00	423.00	443.00		3	1	433.00	20	2.86E-08	0				2.91E-08
KLX 21B	2007-02-14 23:06:00	2007-02-15 00:35:00	443.00	463.00		3	1	453.00	20	2.06E-07	0				2.16E-07
KLX 21B	2007-02-15 01:22:00	2007-02-15 03:27:00	463.00	483.00		3	1	473.00	20	5.53E-08	0				5.79E-08
KLX 21B	2007-02-15 06:36:00	2007-02-15 08:50:00	483.00	503.00		3	1	493.00	20	1.29E-09	0				1.35E-09
KLX 21B	2007-02-15 09:32:00	2007-02-15 11:10:00	503.00	523.00		3	1	513.00	20	4.32E-09	0				4.52E-09
KLX 21B	2007-02-15 11:42:00	2007-02-15 13:04:00	523.00	543.00		3	1	533.00	20	7.75E-08	0				8.11E-08
KLX 21B	2007-02-15 14:01:00	2007-02-15 14:54:00	543.00	563.00		3	1	553.00	20	#NV	-1				#NV
KLX 21B	2007-02-15 15:30:00	2007-02-15 17:03:00	563.00	583.00		3	1	573.00	20	1.08E-06	0				1.12E-06
KLX 21B	2007-02-15 17:52:00	2007-02-15 19:25:00	583.00	603.00		3	1	593.00	20	1.80E-06	0				1.88E-06
KLX 21B	2007-02-15 20:13:00	2007-02-15 22:12:00	603.00	623.00		3	1	613.00	20	1.66E-05	0				1.75E-05
KLX 21B	2007-02-15 23:08:00	2007-02-16 00:36:00	623.00	643.00		3	1	633.00	20	6.81E-06	0				7.13E-06
KLX 21B	2007-02-16 01:18:00	2007-02-16 02:45:00	643.00	663.00		3	1	653.00	20	1.37E-06	0				1.43E-06
KLX 21B	2007-02-16 06:38:00	2007-02-16 08:03:00	663.00	683.00		3	1	673.00	20	1.06E-07	0				1.11E-07
KLX 21B	2007-02-16 08:52:00	2007-02-16 10:25:00	683.00	703.00		3	1	693.00	20	2.98E-07	0				3.12E-07
KLX 21B	2007-02-16 10:59:00	2007-02-16 13:03:00	703.00	723.00		3	1	713.00	20	3.98E-09	0				4.16E-09
KLX 21B	2007-02-16 13:59:00	2007-02-16 15:33:00	723.00	743.00		3	1	733.00	20	1.76E-09	0				1.84E-09
KLX 21B	2007-02-16 18:09:00	2007-02-16 19:51:00	743.00	763.00		3	1	753.00	20	4.95E-09	0				5.18E-09
KLX 21B	2007-02-16 20:51:00	2007-02-16 23:04:00	764.00	784.00		3	1	774.00	20	1.58E-09	0				1.65E-09
KLX 21B	2007-02-16 23:47:00	2007-02-17 00:14:00	783.00	803.00		3	1	793.00	20	#NV	-1				#NV
KLX 21B	2007-02-17 01:20:00	2007-02-17 02:09:00	803.00	823.00		3	1	813.00	20	#NV	-1				#NV
KLX 21B	2007-02-17 07:00:00	2007-02-17 09:28:00	823.00	843.00		3	1	833.00	20	2.41E-09	0				2.52E-09
KLX 21B	2007-02-18 06:40:00	2007-02-18 08:09:00	323.00	328.00		3	1	325.50	5	7.72E-09	0				6.38E-09
KLX 21B	2007-02-18 08:36:00	2007-02-18 09:26:00	328.00	333.00		3	1	330.50	5	#NV	-1				#NV
KLX 21B	2007-02-18 09:54:00	2007-02-18 10:43:00	333.00	338.00		3	1	335.50	5	#NV	-1				#NV
KLX 21B	2007-02-18 11:14:00	2007-02-18 12:04:00	338.00	343.00		3	1	340.50	5	#NV	-1				#NV
KLX 21B	2007-02-18 12:30:00	2007-02-18 13:18:00	343.00	348.00		3	1	345.50	5	#NV	-1				#NV
KLX 21B	2007-02-18 14:32:00	2007-02-18 16:24:00	348.00	353.00		3	1	350.50	5	1.01E-09	0				8.33E-10
KLX 21B	2007-02-18 16:52:00	2007-02-18 17:40:00	353.00	358.00		3	1	355.50	5	#NV	-1				#NV
KLX 21B	2007-02-18 18:10:00	2007-02-18 18:58:00	358.00	363.00		3	1	360.50	5	#NV	-1				#NV
KLX 21B	2007-02-18 19:32:00	2007-02-18 20:21:00	363.00	368.00		3	1	365.50	5	#NV	-1				#NV
KLX 21B	2007-02-18 20:49:00	2007-02-18 23:18:00	368.00	373.00		3	1	370.50	5	7.40E-10	0				6.11E-10
KLX 21B	2007-02-19 19:45:00	2007-02-19 20:34:00	373.00	378.00		3	1	375.50	5	#NV	-1				#NV
KLX 21B	2007-02-19 21:05:00	2007-02-19 21:54:00	378.00	383.00		3	1	380.50	5	#NV	-1				#NV
KLX 21B	2007-02-19 22:56:00	2007-02-10 00:26:00	383.00	388.00		3	1	385.50	5	1.56E-08	0				1.29E-08
KLX 21B	2007-02-20 01:01:00	2007-02-20 01:50:00	388.00	393.00		3	1	390.50	5	#NV	-1				#NV
KLX 21B	2007-02-20 06:24:00	2007-02-20 07:12:00	393.00	398.00		3	1	395.50	5	#NV	-1				#NV
KLX 21B	2007-02-20 07:37:00	2007-02-20 09:37:00	398.00	403.00		4B	1	400.50	5	#NV	-1				#NV
KLX 21B	2007-02-20 10:05:00	2007-02-20 10:54:00	403.00	408.00		3	1	405.50	5	#NV	-1				#NV
KLX 21B	2007-02-20 11:21:00	2007-02-20 13:54:00	408.00	413.00		4B	1	410.50	5	8.49E-10	0				7.01E-10
KLX 21B	2007-02-20 14:19:00	2007-02-20 16:32:00	413.00	418.00		3	1	415.50	5	7.34E-10	0				6.06E-10

idcode	secup	seclow	bc_tm	value_type_tm	hydr_cond_moye	formation_width_b	width_of_channel_b	tb	l_measl_tb	u_measl_tb	sb	assumed_sb	leakage_factor_lf	transmissivity_tt	value_type_tt	bc_tt	l_measl_q_s	u_measl_q_s
KLX 21B	103.00	203.00	0	0	5.32E-06									5.58E-04	0	1	2.00E-04	8.00E-04
KLX 21B	203.00	303.00	0	0	6.85E-10									3.30E-08	0	1	2.00E-08	2.00E-07
KLX 21B	303.00	403.00	0	0	4.68E-09									4.22E-07	0	1	3.00E-07	2.00E-06
KLX 21B	403.00	503.00	0	0	3.18E-09									2.15E-07	0	1	1.00E-07	6.00E-07
KLX 21B	503.00	603.00	0	0	3.33E-08									8.23E-06	0	1	1.00E-06	1.00E-05
KLX 21B	603.00	703.00	0	0	3.01E-07									5.08E-05	0	1	2.00E-05	7.00E-05
KLX 21B	703.00	803.00	0	0	1.26E-10									1.10E-08	0	1	1.00E-09	2.00E-08
KLX 21B	103.00	123.00	0	0	9.25E-06									2.86E-04	0	1	1.00E-04	5.00E-04
KLX 21B	123.00	143.00	0	0	1.62E-05									2.92E-04	0	1	1.00E-04	5.00E-04
KLX 21B	143.00	163.00	0	0	2.72E-07									1.34E-05	0	1	8.00E-06	5.00E-05
KLX 21B	163.00	183.00	0	0	9.70E-11									1.14E-09	0	1	8.00E-10	3.00E-09
KLX 21B	183.00	203.00	0	0	2.10E-09									6.76E-08	0	1	5.00E-08	4.00E-07
KLX 21B	203.00	223.00	0	0	1.90E-09									2.36E-08	0	1	1.00E-08	5.00E-07
KLX 21B	223.00	243.00	0	0	1.59E-10									3.38E-09	0	1	1.00E-09	1.00E-08
KLX 21B	243.00	263.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	263.00	283.00	0	0	2.14E-09									1.75E-08	0	1	1.00E-08	3.00E-07
KLX 21B	283.00	303.00	0	0	1.04E-10									1.34E-09	0	1	8.00E-10	3.00E-09
KLX 21B	303.00	323.00	0	0	2.09E-08									4.36E-07	0	1	2.00E-07	3.00E-06
KLX 21B	323.00	343.00	0	0	2.29E-10									1.91E-08	0	1	3.00E-09	3.00E-08
KLX 21B	343.00	363.00	0	0	1.86E-10									2.62E-09	0	1	6.00E-10	4.00E-09
KLX 21B	363.00	383.00	0	0	4.90E-11									4.82E-10	0	1	1.00E-10	6.00E-10
KLX 21B	383.00	403.00	0	0	5.80E-10									7.90E-08	0	1	1.00E-09	9.00E-08
KLX 21B	403.00	423.00	0	0	8.65E-11									1.19E-09	0	1	1.00E-09	3.00E-09
KLX 21B	423.00	443.00	0	0	1.46E-09									6.20E-08	0	1	4.00E-08	9.00E-08
KLX 21B	443.00	463.00	0	0	1.08E-08									1.32E-07	0	1	1.00E-07	3.00E-07
KLX 21B	463.00	483.00	0	0	2.90E-09									3.78E-08	0	1	2.00E-08	4.00E-07
KLX 21B	483.00	503.00	0	0	6.75E-11									7.02E-10	0	1	2.00E-10	2.00E-09
KLX 21B	503.00	523.00	0	0	2.26E-10									1.97E-09	0	1	1.00E-09	6.00E-09
KLX 21B	523.00	543.00	0	0	4.06E-09									1.32E-07	0	1	8.00E-08	4.00E-07
KLX 21B	543.00	563.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	563.00	583.00	0	0	5.60E-08									2.92E-06	0	1	1.00E-06	8.00E-06
KLX 21B	583.00	603.00	0	0	9.40E-08									3.17E-06	0	1	1.00E-06	1.00E-05
KLX 21B	603.00	623.00	0	0	8.75E-07									3.84E-05	0	1	1.00E-05	6.00E-05
KLX 21B	623.00	643.00	0	0	3.57E-07									2.45E-05	0	1	5.00E-06	4.00E-05
KLX 21B	643.00	663.00	0	0	7.15E-08									1.80E-06	0	1	8.00E-07	6.00E-06
KLX 21B	663.00	683.00	0	0	5.55E-09									1.33E-07	0	1	8.00E-08	6.00E-07
KLX 21B	683.00	703.00	0	0	1.56E-08									3.35E-07	0	1	1.00E-07	1.00E-06
KLX 21B	703.00	723.00	0	0	2.08E-10									1.96E-09	0	1	1.00E-09	5.00E-09
KLX 21B	723.00	743.00	0	0	9.20E-11									6.36E-10	0	1	5.00E-10	3.00E-09
KLX 21B	743.00	763.00	0	0	2.59E-10									1.14E-08	0	1	1.00E-09	2.00E-08
KLX 21B	764.00	784.00	0	0	8.25E-11									1.95E-10	0	1	6.00E-11	3.00E-09
KLX 21B	783.00	803.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	803.00	823.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	823.00	843.00	0	0	1.26E-10									6.85E-09	0	1	5.00E-10	8.00E-08
KLX 21B	323.00	328.00	0	0	1.28E-09									1.93E-08	0	1	5.00E-09	3.00E-08
KLX 21B	328.00	333.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	333.00	338.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	338.00	343.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	343.00	348.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	348.00	353.00	0	0	1.67E-10									6.59E-10	0	1	5.00E-10	1.00E-09
KLX 21B	353.00	358.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	358.00	363.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	363.00	368.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	368.00	373.00	0	0	1.22E-10									1.74E-10	0	1	1.00E-10	7.00E-10
KLX 21B	373.00	378.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	378.00	383.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	383.00	388.00	0	0	2.58E-09									5.70E-08	0	1	1.00E-08	6.00E-08
KLX 21B	388.00	393.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	393.00	398.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	398.00	403.00	0	-1	#NV									5.14E-11	0	1	3.00E-11	7.00E-11
KLX 21B	403.00	408.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	408.00	413.00	0	0	1.40E-10									2.70E-11	0	1	2.00E-11	8.00E-10
KLX 21B	413.00	418.00	0	0	1.21E-10									3.50E-10	0	1	2.00E-10	8.00E-10

idcode	secup	seclow	storativity_s	assumed_s	bc_s	ri	ri_index	leakage_coeff	hydr_cond_ksf	value_type_ksf	l_measl_ksf	u_measl_ksf	spec_storage_ssf	assumed_ssf	c	cd	skin	dt1	dt2
KLX 21B	103.00	203.00	1.00E-06	1.00E-06		465.81	0								2.46E-07	2.7E+01	-3.90	30	540
KLX 21B	203.00	303.00	1.00E-06	1.00E-06		40.85	1								2.87E-10	3.2E-02	6.69	698	1764
KLX 21B	303.00	403.00	1.00E-06	1.00E-06		33.12	1								2.40E-10	2.6E-02	-0.11	9	331
KLX 21B	403.00	503.00	1.00E-06	1.00E-06		21.43	-1								1.33E-10	1.5E-02	-1.51	16	194
KLX 21B	503.00	603.00	1.00E-06	1.00E-06		162.35	0								6.41E-10	7.1E-02	1.33	18	1051
KLX 21B	603.00	703.00	1.00E-06	1.00E-06		255.87	0								6.17E-09	6.8E-01	4.40	410	1678
KLX 21B	703.00	803.00	1.00E-06	1.00E-06		16.60	1								2.15E-09	2.4E-01	-3.88	104	515
KLX 21B	103.00	123.00	1.00E-06	1.00E-06		127.71	1								3.75E-08	4.1E+00	1.60	29	189
KLX 21B	123.00	143.00	1.00E-06	1.00E-06		143.15	1								3.98E-08	4.4E+00	-4.18	25	235
KLX 21B	143.00	163.00	1.00E-06	1.00E-06		149.72	0								8.58E-10	9.5E-02	8.05	232	1089
KLX 21B	163.00	183.00	1.00E-06	1.00E-06		14.38	0								6.94E-11	7.6E-03	-1.00	514	1117
KLX 21B	183.00	203.00	1.00E-06	1.00E-06		39.90	0								6.75E-11	7.4E-03	4.75	124	1006
KLX 21B	203.00	223.00	1.00E-06	1.00E-06		30.67	0								6.79E-11	7.5E-03	-1.39	64	1116
KLX 21B	223.00	243.00	1.00E-06	1.00E-06		18.87	0								5.41E-11	6.0E-03	2.68	24	460
KLX 21B	243.00	263.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	263.00	283.00	1.00E-06	1.00E-06		#NV	1								4.55E-11	5.0E-03	2.73	#NV	#NV
KLX 21B	283.00	303.00	1.00E-06	1.00E-06		#NV	-1								7.16E-11	7.9E-03	0.13	#NV	#NV
KLX 21B	303.00	323.00	1.00E-06	1.00E-06		63.60	0								8.51E-11	9.4E-03	-1.19	469	1200
KLX 21B	323.00	343.00	1.00E-06	1.00E-06		#NV	-1								5.01E-11	5.5E-03	21.03	#NV	#NV
KLX 21B	343.00	363.00	1.00E-06	1.00E-06		#NV	1								5.70E-11	6.3E-03	-1.51	#NV	#NV
KLX 21B	363.00	383.00	1.00E-06	1.00E-06		11.59	0								5.82E-11	6.4E-03	-0.30	70	469
KLX 21B	383.00	403.00	1.00E-06	1.00E-06		41.49	0								4.73E-11	5.2E-03	32.60	598	987
KLX 21B	403.00	423.00	1.00E-06	1.00E-06		14.53	0								7.65E-11	8.4E-03	0.09	#NV	#NV
KLX 21B	423.00	443.00	1.00E-06	1.00E-06		39.05	0								4.81E-11	5.3E-03	7.45	114	693
KLX 21B	443.00	463.00	1.00E-06	1.00E-06		13.06	-1								6.19E-11	6.8E-03	-2.10	30	92
KLX 21B	463.00	483.00	1.00E-06	1.00E-06		34.50	0								5.55E-11	6.1E-03	-1.74	83	1123
KLX 21B	483.00	503.00	1.00E-06	1.00E-06		12.74	0								6.44E-11	7.1E-03	0.00	#NV	#NV
KLX 21B	503.00	523.00	1.00E-06	1.00E-06		#NV	-1								6.14E-11	6.8E-03	-0.95	#NV	#NV
KLX 21B	523.00	543.00	1.00E-06	1.00E-06		#NV	-1								5.12E-11	5.6E-03	4.90	#NV	#NV
KLX 21B	543.00	563.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	563.00	583.00	1.00E-06	1.00E-06		17.96	-1								3.28E-10	3.6E-02	0.52	17	37
KLX 21B	583.00	603.00	1.00E-06	1.00E-06		104.42	0								5.08E-10	5.6E-02	3.21	173	819
KLX 21B	603.00	623.00	1.00E-06	1.00E-06		194.80	0								3.80E-09	4.2E-01	5.60	213	1125
KLX 21B	623.00	643.00	1.00E-06	1.00E-06		174.10	0								1.47E-09	1.6E-01	13.58	33	599
KLX 21B	643.00	663.00	1.00E-06	1.00E-06		75.93	-1								2.95E-10	3.3E-02	1.72	601	842
KLX 21B	663.00	683.00	1.00E-06	1.00E-06		#NV	-1								2.40E-10	2.6E-02	1.82	#NV	#NV
KLX 21B	683.00	703.00	1.00E-06	1.00E-06		17.01	-1								1.20E-10	1.3E-02	-0.13	35	98
KLX 21B	703.00	723.00	1.00E-06	1.00E-06		#NV	-1								9.86E-11	1.1E-02	-1.19	#NV	#NV
KLX 21B	723.00	743.00	1.00E-06	1.00E-06		#NV	1								7.44E-11	8.2E-03	-1.04	#NV	#NV
KLX 21B	743.00	763.00	1.00E-06	1.00E-06		#NV	1								3.27E-09	3.6E-01	-2.93	#NV	#NV
KLX 21B	764.00	784.00	1.00E-06	1.00E-06		#NV	1								1.07E-10	1.2E-02	-2.97	#NV	#NV
KLX 21B	783.00	803.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	803.00	823.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	823.00	843.00	1.00E-06	1.00E-06		#NV	1								5.15E-10	5.7E-02	-3.76	#NV	#NV
KLX 21B	323.00	328.00	1.00E-06	1.00E-06		20.86	-1								1.59E-11	1.8E-03	10.09	217	614
KLX 21B	328.00	333.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	333.00	338.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	338.00	343.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	343.00	348.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	348.00	353.00	1.00E-06	1.00E-06		#NV	-1								2.78E-11	3.1E-03	0.60	#NV	#NV
KLX 21B	353.00	358.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	358.00	363.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	363.00	368.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	368.00	373.00	1.00E-06	1.00E-06		8.99	0								2.81E-11	3.1E-03	-1.16	#NV	#NV
KLX 21B	373.00	378.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	378.00	383.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	383.00	388.00	1.00E-06	1.00E-06		38.24	0								1.05E-11	1.2E-03	16.10	64	1067
KLX 21B	388.00	393.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	393.00	398.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	398.00	403.00	1.00E-06	1.00E-06		12.13	0								1.81E-11	2.0E-03	0.39	222	3217
KLX 21B	403.00	408.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	408.00	413.00	1.00E-06	1.00E-06		10.32	0								4.69E-12	5.2E-04	0.93	106	3541
KLX 21B	413.00	418.00	1.00E-06	1.00E-06		#NV	-1								3.71E-11	4.1E-03	1.46	#NV	#NV

idcode	secup	seclow	t1	t2	dte1	dte2	p_horner	transmissivity_t_nlr	storativity_s_nlr	value_type_t_nlr	bc_t_nlr	c_nlr	cd_nlr	skin_nlr	transmissivity_t_grf	value_type_t_grf	bc_t_grf	storativity_s_grf	flow_dim_grf	comment
KLX 21B	103.00	203.00					1925.4													
KLX 21B	203.00	303.00					2834.0													
KLX 21B	303.00	403.00					3762.0													
KLX 21B	403.00	503.00					4659.9													
KLX 21B	503.00	603.00					5582.1													
KLX 21B	603.00	703.00					6498.0													
KLX 21B	703.00	803.00					#NV													
KLX 21B	103.00	123.00					1189.3													
KLX 21B	123.00	143.00					1375.5													
KLX 21B	143.00	163.00					1559.7													
KLX 21B	163.00	183.00					1750.4													
KLX 21B	183.00	203.00					1920.4													
KLX 21B	203.00	223.00					2109.1													
KLX 21B	223.00	243.00					2281.5													
KLX 21B	243.00	263.00					#NV													
KLX 21B	263.00	283.00					2662.0													
KLX 21B	283.00	303.00					2829.9													
KLX 21B	303.00	323.00					3031.8													
KLX 21B	323.00	343.00					3206.5													
KLX 21B	343.00	363.00					3396.4													
KLX 21B	363.00	383.00					#NV													
KLX 21B	383.00	403.00					3741.7													
KLX 21B	403.00	423.00					3940.2													
KLX 21B	423.00	443.00					4110.0													
KLX 21B	443.00	463.00					4294.8													
KLX 21B	463.00	483.00					4482.9													
KLX 21B	483.00	503.00					4663.1													
KLX 21B	503.00	523.00					4837.1													
KLX 21B	523.00	543.00					5024.0													
KLX 21B	543.00	563.00					#NV													
KLX 21B	563.00	583.00					5394.4													
KLX 21B	583.00	603.00					5580.9													
KLX 21B	603.00	623.00					5764.7													
KLX 21B	623.00	643.00					5952.1													
KLX 21B	643.00	663.00					6135.2													
KLX 21B	663.00	683.00					6316.3													
KLX 21B	683.00	703.00					6499.5													
KLX 21B	703.00	723.00					6674.4													
KLX 21B	723.00	743.00					6861.0													
KLX 21B	743.00	763.00					#NV													
KLX 21B	764.00	784.00					#NV													
KLX 21B	783.00	803.00					#NV													
KLX 21B	803.00	823.00					#NV													
KLX 21B	823.00	843.00					#NV													
KLX 21B	323.00	328.00					3068.8													
KLX 21B	328.00	333.00					#NV													
KLX 21B	333.00	338.00					#NV													
KLX 21B	338.00	343.00					#NV													
KLX 21B	343.00	348.00					#NV													
KLX 21B	348.00	353.00					3290.6													
KLX 21B	353.00	358.00					#NV													
KLX 21B	358.00	363.00					#NV													
KLX 21B	363.00	368.00					#NV													
KLX 21B	368.00	373.00					#NV													
KLX 21B	373.00	378.00					#NV													
KLX 21B	378.00	383.00					#NV													
KLX 21B	383.00	388.00					3606.1													
KLX 21B	388.00	393.00					#NV													
KLX 21B	393.00	398.00					#NV													
KLX 21B	398.00	403.00					#NV													
KLX 21B	403.00	408.00					#NV													
KLX 21B	408.00	413.00					#NV													
KLX 21B	413.00	418.00					3893.1													

idcode	start_date	stop_date	secup	seclow	section_no	test_type	formation_type	lp	seclen_class	spec_capacity_q_s	value_type_q_s	transmissivity_tq	value_type_tq	bc_tq	transmissivity_moye
KLX 21B	2007-02-20 17:35:00	2007-02-20 19:26:00	418.00	423.00		3	1	420.50	5	1.38E-09	0				1.14E-09
KLX 21B	2007-02-20 20:09:00	2007-02-20 21:54:00	423.00	428.00		3	1	425.50	5	4.44E-09	0				3.66E-09
KLX 21B	2007-02-20 22:30:00	2007-02-21 00:08:00	428.00	433.00		3	1	430.50	5	1.28E-09	0				1.06E-09
KLX 21B	2007-02-21 00:31:00	2007-02-21 01:54:00	433.00	438.00		3	1	435.50	5	2.54E-08	0				2.10E-08
KLX 21B	2007-02-21 06:31:00	2007-02-21 07:20:00	438.00	443.00		3	1	440.50	5	#NV	-1				#NV
KLX 21B	2007-02-21 07:48:00	2007-02-21 10:20:00	443.00	448.00		3	1	445.50	5	1.12E-09	0				9.22E-10
KLX 21B	2007-02-21 10:45:00	2007-02-21 12:42:00	448.00	453.00		3	1	450.50	5	1.50E-07	0				1.24E-07
KLX 21B	2007-02-21 13:18:00	2007-02-21 14:45:00	453.00	458.00		3	1	455.50	5	1.24E-07	0				1.03E-07
KLX 21B	2007-02-21 15:10:00	2007-02-21 15:59:00	458.00	463.00		3	1	460.50	5	#NV	-1				#NV
KLX 21B	2007-02-21 16:30:00	2007-02-21 17:19:00	463.00	468.00		3	1	465.50	5	#NV	-1				#NV
KLX 21B	2007-02-21 17:46:00	2007-02-21 18:35:00	468.00	473.00		3	1	470.50	5	#NV	-1				#NV
KLX 21B	2007-02-21 19:07:00	2007-02-21 20:36:00	473.00	478.00		3	1	475.50	5	9.81E-08	0				8.10E-08
KLX 21B	2007-02-21 21:08:00	2007-02-21 23:16:00	478.00	483.00		3	1	480.50	5	1.84E-09	0				1.52E-09
KLX 21B	2007-02-21 23:52:00	2007-02-21 23:53:00	483.00	488.00		3	1	485.50	5	9.53E-10	0				7.87E-10
KLX 21B	2007-02-22 06:18:00	2007-02-22 07:14:00	488.00	493.00		3	1	490.50	5	#NV	-1				#NV
KLX 21B	2007-02-22 07:39:00	2007-02-22 08:28:00	493.00	498.00		3	1	495.50	5	#NV	-1				#NV
KLX 21B	2007-02-22 08:57:00	2007-02-22 09:46:00	498.00	503.00		3	1	500.50	5	#NV	-1				#NV
KLX 21B	2007-02-22 10:10:00	2007-02-22 12:25:00	503.00	508.00		3	1	505.50	5	1.64E-09	0				1.35E-09
KLX 21B	2007-02-22 12:52:00	2007-02-22 14:25:00	508.00	513.00		3	1	510.50	5	3.33E-09	0				2.75E-09
KLX 21B	2007-02-22 14:50:00	2007-02-22 16:25:00	513.00	518.00		3	1	515.50	5	9.35E-10	0				7.72E-10
KLX 21B	2007-02-22 16:54:00	2007-02-22 19:13:00	518.00	523.00		4B	1	520.50	5	#NV	-1				#NV
KLX 21B	2007-02-22 19:39:00	2007-02-22 21:08:00	523.00	528.00		3	1	525.50	5	8.26E-08	0				6.82E-08
KLX 21B	2007-02-22 22:02:00	2007-02-22 22:51:00	528.00	533.00		3	1	530.50	5	#NV	-1				#NV
KLX 21B	2007-02-22 23:18:00	2007-02-23 00:08:00	533.00	538.00		3	1	535.50	5	#NV	-1				#NV
KLX 21B	2007-02-23 00:39:00	2007-02-23 01:28:00	538.00	543.00		3	1	540.50	5	#NV	-1				#NV
KLX 21B	2007-02-23 06:41:00	2007-02-23 08:11:00	563.00	568.00		3	1	565.50	5	6.61E-07	0				5.46E-07
KLX 21B	2007-02-23 08:35:00	2007-02-23 10:01:00	568.00	573.00		3	1	570.50	5	8.59E-07	0				7.09E-07
KLX 21B	2007-02-23 10:28:00	2007-02-23 12:39:00	573.00	578.00		3	1	575.50	5	5.07E-09	0				4.18E-09
KLX 21B	2007-02-23 12:50:00	2007-02-23 14:28:00	578.00	583.00		3	1	580.50	5	3.24E-09	0				2.67E-09
KLX 21B	2007-02-23 14:54:00	2007-02-23 16:24:00	583.00	588.00		3	1	585.50	5	3.72E-09	0				3.07E-09
KLX 21B	2007-02-23 16:51:00	2007-02-23 18:20:00	588.00	593.00		3	1	590.50	5	8.87E-07	0				7.32E-07
KLX 21B	2007-02-23 18:50:00	2007-02-23 20:17:00	593.00	598.00		3	1	595.50	5	8.92E-07	0				7.36E-07
KLX 21B	2007-02-23 22:03:00	2007-02-23 23:31:00	598.00	603.00		3	1	600.50	5	1.42E-06	0				1.17E-06
KLX 21B	2007-02-24 00:00:00	2007-02-24 01:53:00	603.00	608.00		3	1	605.50	5	5.36E-06	0				4.42E-06
KLX 21B	2007-02-24 06:15:00	2007-02-24 07:41:00	608.00	613.00		3	1	610.50	5	1.41E-05	0				1.17E-05
KLX 21B	2007-02-24 08:06:00	2007-02-24 09:37:00	613.00	618.00		3	1	615.50	5	1.31E-08	0				1.08E-08
KLX 21B	2007-02-24 10:03:00	2007-02-24 11:29:00	618.00	623.00		3	1	620.50	5	1.96E-07	0				1.62E-07
KLX 21B	2007-02-24 12:24:00	2007-02-24 13:52:00	623.00	628.00		3	1	625.50	5	6.01E-06	0				5.90E-06
KLX 21B	2007-02-24 14:15:00	2007-02-24 15:40:00	628.00	633.00		3	1	630.50	5	3.08E-08	0				2.54E-08
KLX 21B	2007-02-24 16:07:00	2007-02-24 18:04:00	633.00	638.00		4B	1	635.50	5	#NV	-1				#NV
KLX 21B	2007-02-24 18:33:00	2007-02-24 19:57:00	638.00	643.00		3	1	640.50	5	2.45E-08	0				2.02E-08
KLX 21B	2007-02-24 21:04:00	2007-02-24 22:28:00	643.00	648.00		3	1	645.50	5	3.76E-07	0				3.10E-07
KLX 21B	2007-02-24 22:53:00	2007-02-25 00:20:00	645.00	650.00		3	1	647.50	5	2.88E-07	0				2.37E-07
KLX 21B	2007-02-25 00:44:00	2007-02-25 02:31:00	650.00	655.00		3	1	652.50	5	4.80E-07	0				3.96E-07
KLX 21B	2007-02-25 06:21:00	2007-02-25 07:47:00	655.00	660.00		3	1	657.50	5	7.24E-07	0				5.98E-07
KLX 21B	2007-02-25 08:15:00	2007-02-25 09:41:00	658.00	663.00		3	1	660.50	5	6.29E-08	0				5.20E-08
KLX 21B	2007-02-25 10:07:00	2007-02-25 11:33:00	663.00	668.00		3	1	665.50	5	4.50E-08	0				3.72E-08
KLX 21B	2007-02-25 11:57:00	2007-02-25 13:20:00	668.00	673.00		3	1	670.50	5	6.53E-08	0				5.39E-08
KLX 21B	2007-02-25 14:08:00	2007-02-25 14:57:00	673.00	678.00		3	1	675.50	5	#NV	-1				#NV
KLX 21B	2007-02-25 15:24:00	2007-02-25 17:31:00	678.00	683.00		3	1	680.50	5	6.02E-09	0				4.97E-09
KLX 21B	2007-02-25 17:38:00	2007-02-25 19:11:00	683.00	688.00		3	1	685.50	5	2.42E-07	0				1.99E-07
KLX 21B	2007-02-25 19:40:00	2007-02-25 21:07:00	688.00	693.00		3	1	690.50	5	4.82E-08	0				3.98E-08
KLX 21B	2007-02-25 21:57:00	2007-02-25 23:47:00	693.00	698.00		3	1	695.50	5	5.35E-08	0				4.42E-08
KLX 21B	2007-02-26 00:12:00	2007-02-26 02:22:00	698.00	703.00		3	1	700.50	5	1.28E-08	0				1.06E-08
KLX 21B	2007-02-26 06:17:00	2007-02-26 08:06:00	703.00	708.00		3	1	705.50	5	2.35E-09	0				1.94E-09
KLX 21B	2007-02-26 08:32:00	2007-02-26 09:20:00	708.00	713.00		3	1	710.50	5	#NV	-1				#NV
KLX 21B	2007-02-26 09:45:00	2007-02-26 12:44:00	713.00	718.00		3	1	715.50	5	7.16E-10	0				5.91E-10
KLX 21B	2007-02-26 12:51:00	2007-02-26 14:42:00	718.00	723.00		3	1	720.50	5	1.77E-09	0				1.46E-09
KLX 21B	2007-02-26 16:33:00	2007-02-26 18:20:00	723.00	728.00		3	1	725.50	5	1.11E-09	0				9.15E-10
KLX 21B	2007-02-26 18:46:00	2007-02-26 19:37:00	728.00	733.00		3	1	730.50	5	#NV	-1				#NV
KLX 21B	2007-02-26 20:01:00	2007-02-26 20:51:00	733.00	738.00		3	1	735.50	5	#NV	-1				#NV
KLX 21B	2007-02-27 06:22:00	2007-02-27 07:13:00	738.00	743.00		3	1	740.50	5	#NV	-1				#NV

idcode	secup	seclow	bc_tm	value_type_tm	hydr_cond_moye	formation_width_b	width_of_channel_b	tb	l_measl_tb	u_measl_tb	sb	assumed_sb	leakage_factor_lf	transmissivity_tt	value_type_tt	bc_tt	l_measl_q_s	u_measl_q_s
KLX 21B	418.00	423.00	0	0	2.28E-10									1.93E-09	0	1	3.00E-10	3.00E-09
KLX 21B	423.00	428.00	0	0	7.32E-10									1.96E-08	0	1	3.00E-09	2.00E-08
KLX 21B	428.00	433.00	0	0	2.12E-10									5.80E-09	0	1	8.00E-10	6.00E-09
KLX 21B	433.00	438.00	0	0	4.20E-09									4.83E-08	0	1	1.00E-08	6.00E-08
KLX 21B	438.00	443.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	443.00	448.00	0	0	1.84E-10									4.74E-10	0	1	1.00E-10	6.00E-10
KLX 21B	448.00	453.00	0	0	2.48E-08									1.70E-07	0	1	9.00E-08	4.00E-07
KLX 21B	453.00	458.00	0	0	2.06E-08									1.61E-07	0	1	9.00E-08	3.00E-07
KLX 21B	458.00	463.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	463.00	468.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	468.00	473.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	473.00	478.00	0	0	1.62E-08									5.93E-08	0	1	4.00E-08	5.00E-07
KLX 21B	478.00	483.00	0	0	3.04E-10									2.08E-09	0	1	4.00E-10	2.00E-09
KLX 21B	483.00	488.00	0	0	1.57E-10									4.05E-10	0	1	1.00E-10	9.00E-10
KLX 21B	488.00	493.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	493.00	498.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	498.00	503.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	503.00	508.00	0	0	2.70E-10									1.17E-09	0	1	4.00E-10	3.00E-09
KLX 21B	508.00	513.00	0	0	5.50E-10									3.16E-09	0	1	2.00E-09	9.00E-09
KLX 21B	513.00	518.00	0	0	1.54E-10									2.08E-09	0	1	5.00E-10	2.00E-09
KLX 21B	518.00	523.00	0	-1	#NV									1.48E-10	0	1	8.00E-11	3.00E-10
KLX 21B	523.00	528.00	0	0	1.36E-08									1.23E-07	0	1	1.00E-07	5.00E-07
KLX 21B	528.00	533.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	533.00	538.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	538.00	543.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	563.00	568.00	0	0	1.09E-07									2.44E-06	0	1	3.00E-07	4.00E-06
KLX 21B	568.00	573.00	0	0	1.42E-07									3.06E-06	0	1	5.00E-07	4.00E-06
KLX 21B	573.00	578.00	0	0	8.36E-10									3.83E-09	0	1	3.00E-09	3.00E-08
KLX 21B	578.00	583.00	0	0	5.34E-10									1.88E-09	0	1	9.00E-10	6.00E-09
KLX 21B	583.00	588.00	0	0	6.14E-10									1.61E-09	0	1	1.00E-09	5.00E-09
KLX 21B	588.00	593.00	0	0	1.46E-07									1.72E-06	0	1	5.00E-07	4.00E-06
KLX 21B	593.00	598.00	0	0	1.47E-07									1.21E-06	0	1	5.00E-07	8.00E-06
KLX 21B	598.00	603.00	0	0	2.34E-07									1.41E-07	0	1	1.00E-07	2.00E-06
KLX 21B	603.00	608.00	0	0	8.84E-07									1.09E-05	0	1	3.00E-06	3.00E-05
KLX 21B	608.00	613.00	0	0	2.34E-06									3.02E-05	0	1	1.00E-05	8.00E-05
KLX 21B	613.00	618.00	0	0	2.16E-09									1.45E-08	0	1	8.00E-09	8.00E-08
KLX 21B	618.00	623.00	0	0	3.24E-08									4.68E-07	0	1	1.00E-07	3.00E-06
KLX 21B	623.00	628.00	0	0	1.18E-06									9.36E-06	0	1	5.00E-06	5.00E-05
KLX 21B	628.00	633.00	0	0	5.08E-09									5.55E-08	0	1	2.00E-08	8.00E-08
KLX 21B	633.00	638.00	0	-1	#NV									7.88E-11	0	1	6.00E-11	4.00E-10
KLX 21B	638.00	643.00	0	0	4.04E-09									1.88E-08	0	1	8.00E-09	4.00E-08
KLX 21B	643.00	648.00	0	0	6.20E-08									7.30E-07	0	1	3.00E-07	1.00E-06
KLX 21B	645.00	650.00	0	0	4.74E-08									6.52E-07	0	1	3.00E-07	8.00E-07
KLX 21B	650.00	655.00	0	0	7.92E-08									6.65E-07	0	1	3.00E-07	3.00E-06
KLX 21B	655.00	660.00	0	0	1.20E-07									2.45E-06	0	1	5.00E-07	4.00E-06
KLX 21B	658.00	663.00	0	0	1.04E-08									7.70E-08	0	1	4.00E-08	5.00E-07
KLX 21B	663.00	668.00	0	0	7.44E-09									7.50E-08	0	1	2.00E-08	2.00E-07
KLX 21B	668.00	673.00	0	0	1.08E-08									1.60E-07	0	1	4.00E-08	6.00E-07
KLX 21B	673.00	678.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	678.00	683.00	0	0	9.94E-10									2.45E-09	0	1	1.00E-09	7.00E-09
KLX 21B	683.00	688.00	0	0	3.98E-08									3.49E-07	0	1	1.00E-07	1.00E-06
KLX 21B	688.00	693.00	0	0	7.96E-09									5.84E-08	0	1	2.00E-08	3.00E-07
KLX 21B	693.00	698.00	0	0	8.84E-09									2.73E-08	0	1	2.00E-08	3.00E-07
KLX 21B	698.00	703.00	0	0	2.12E-09									1.61E-08	0	1	2.00E-09	2.00E-08
KLX 21B	703.00	708.00	0	0	3.88E-10									1.94E-09	0	1	8.00E-10	3.00E-09
KLX 21B	708.00	713.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	713.00	718.00	0	0	1.18E-10									1.80E-10	0	1	5.00E-11	9.00E-10
KLX 21B	718.00	723.00	0	0	2.92E-10									6.14E-10	0	1	3.00E-10	3.00E-09
KLX 21B	723.00	728.00	0	0	1.83E-10									3.83E-10	0	1	2.00E-10	8.00E-10
KLX 21B	728.00	733.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	733.00	738.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11
KLX 21B	738.00	743.00	0	-1	#NV									1.00E-11	-1	1	1.00E-13	1.00E-11

idcode	secup	seclow	storativity_s	assumed_s	bc_s	ri	ri_index	leakage_coeff	hydr_cond_ksf	value_type_ksf	l_measl_ksf	u_measl_ksf	spec_storage_ssf	assumed_ssf	c	cd	skin	dt1	dt2
KLX 21B	418.00	423.00	1.00E-06	1.00E-06		#NV	1								2.73E-11	3.0E-03	1.03	#NV	#NV
KLX 21B	423.00	428.00	1.00E-06	1.00E-06		37.27	1								1.47E-11	1.6E-03	21.64	399	1944
KLX 21B	428.00	433.00	1.00E-06	1.00E-06		#NV	-1								2.36E-11	2.6E-03	21.41	#NV	#NV
KLX 21B	433.00	438.00	1.00E-06	1.00E-06		36.69	0								1.50E-11	1.7E-03	5.42	10	973
KLX 21B	438.00	443.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	443.00	448.00	1.00E-06	1.00E-06		#NV	1								3.28E-11	3.6E-03	-1.78	#NV	#NV
KLX 21B	448.00	453.00	1.00E-06	1.00E-06		17.59	-1								3.07E-11	3.4E-03	0.55	29	147
KLX 21B	453.00	458.00	1.00E-06	1.00E-06		17.99	-1								1.95E-11	2.1E-03	1.93	23	158
KLX 21B	458.00	463.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	463.00	468.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	468.00	473.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	473.00	478.00	1.00E-06	1.00E-06		38.62	0								1.65E-11	1.8E-03	2.12	169	997
KLX 21B	478.00	483.00	1.00E-06	1.00E-06		5.20	1								1.92E-11	2.1E-03	-0.97	37	116
KLX 21B	483.00	488.00	1.00E-06	1.00E-06		11.10	0								2.75E-11	3.0E-03	-0.73	69	901
KLX 21B	488.00	493.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	493.00	498.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	498.00	503.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	503.00	508.00	1.00E-06	1.00E-06		#NV	-1								3.42E-11	3.8E-03	-0.65	#NV	#NV
KLX 21B	508.00	513.00	1.00E-06	1.00E-06		#NV	0								1.68E-11	1.9E-03	2.00	#NV	#NV
KLX 21B	513.00	518.00	1.00E-06	1.00E-06		#NV	-1								2.84E-11	3.1E-03	7.85	#NV	#NV
KLX 21B	518.00	523.00	1.00E-06	1.00E-06		17.26	0								2.39E-11	2.6E-03	1.26	53	4041
KLX 21B	523.00	528.00	1.00E-06	1.00E-06		14.41	-1								1.25E-11	1.4E-03	3.30	21	116
KLX 21B	528.00	533.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	533.00	538.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	538.00	543.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	563.00	568.00	1.00E-06	1.00E-06		97.75	0								6.08E-11	6.7E-03	0.21	36	796
KLX 21B	568.00	573.00	1.00E-06	1.00E-06		103.47	0								1.11E-10	1.2E-02	9.16	125	814
KLX 21B	573.00	578.00	1.00E-06	1.00E-06		19.47	0								1.22E-11	1.3E-03	0.34	317	991
KLX 21B	578.00	583.00	1.00E-06	1.00E-06		#NV	-1								2.28E-11	2.5E-03	-0.45	#NV	#NV
KLX 21B	583.00	588.00	1.00E-06	1.00E-06		#NV	-1								2.18E-11	2.4E-03	-1.03	#NV	#NV
KLX 21B	588.00	593.00	1.00E-06	1.00E-06		89.62	0								9.49E-11	1.0E-02	4.68	56	707
KLX 21B	593.00	598.00	1.00E-06	1.00E-06		21.06	-1								4.31E-10	4.8E-02	-1.31	15	79
KLX 21B	598.00	603.00	1.00E-06	1.00E-06		47.95	0								1.21E-11	1.3E-03	8.53	44	887
KLX 21B	603.00	608.00	1.00E-06	1.00E-06		174.14	0								1.04E-09	1.1E-01	4.00	72	1644
KLX 21B	608.00	613.00	1.00E-06	1.00E-06		79.79	-1								3.01E-09	3.3E-01	5.00	107	227
KLX 21B	613.00	618.00	1.00E-06	1.00E-06		#NV	-1								1.31E-11	1.4E-03	3.28	#NV	#NV
KLX 21B	618.00	623.00	1.00E-06	1.00E-06		64.72	0								1.26E-11	1.4E-03	8.39	22	918
KLX 21B	623.00	628.00	1.00E-06	1.00E-06		31.61	-1								3.08E-09	3.4E-01	0.71	36	64
KLX 21B	628.00	633.00	1.00E-06	1.00E-06		37.98	0								2.03E-11	2.2E-03	5.64	50	912
KLX 21B	633.00	638.00	1.00E-06	1.00E-06		13.49	0								1.47E-11	1.6E-03	1.43	68	417
KLX 21B	638.00	643.00	1.00E-06	1.00E-06		28.98	0								1.25E-11	1.4E-03	0.00	141	1123
KLX 21B	643.00	648.00	1.00E-06	1.00E-06		72.33	0								5.56E-11	6.1E-03	5.23	24	797
KLX 21B	645.00	650.00	1.00E-06	1.00E-06		70.32	0								4.25E-11	4.7E-03	7.10	46	880
KLX 21B	650.00	655.00	1.00E-06	1.00E-06		16.70	-1								1.34E-10	1.5E-02	2.19	9	67
KLX 21B	655.00	660.00	1.00E-06	1.00E-06		97.90	0								1.18E-10	1.3E-02	14.80	683	1123
KLX 21B	658.00	663.00	1.00E-06	1.00E-06		41.22	0								1.26E-11	1.4E-03	1.43	105	991
KLX 21B	663.00	668.00	1.00E-06	1.00E-06		40.95	0								3.63E-11	4.0E-03	4.36	40	883
KLX 21B	668.00	673.00	1.00E-06	1.00E-06		#NV	-1								8.23E-11	9.1E-03	9.27	#NV	#NV
KLX 21B	673.00	678.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	678.00	683.00	1.00E-06	1.00E-06		#NV	-1								7.09E-11	7.8E-03	-0.62	#NV	#NV
KLX 21B	683.00	688.00	1.00E-06	1.00E-06		11.12	-1								5.66E-11	6.2E-03	2.94	19	41
KLX 21B	688.00	693.00	1.00E-06	1.00E-06		#NV	0								2.67E-11	2.9E-03	2.92	#NV	#NV
KLX 21B	693.00	698.00	1.00E-06	1.00E-06		#NV	-1								1.06E-11	1.2E-03	-2.37	#NV	#NV
KLX 21B	698.00	703.00	1.00E-06	1.00E-06		#NV	-1								4.76E-11	5.2E-03	-2.13	#NV	#NV
KLX 21B	703.00	708.00	1.00E-06	1.00E-06		#NV	0								3.10E-11	3.4E-03	0.55	#NV	#NV
KLX 21B	708.00	713.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	713.00	718.00	1.00E-06	1.00E-06		15.70	0								2.09E-11	2.3E-03	-1.01	#NV	#NV
KLX 21B	718.00	723.00	1.00E-06	1.00E-06		15.09	0								2.17E-11	2.4E-03	-0.43	#NV	#NV
KLX 21B	723.00	728.00	1.00E-06	1.00E-06		10.95	0								2.08E-11	2.3E-03	-1.56	#NV	1169
KLX 21B	728.00	733.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	733.00	738.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV
KLX 21B	738.00	743.00	1.00E-06	1.00E-06		#NV	#NV								#NV	#NV	#NV	#NV	#NV

idcode	secup	seclow	t1	t2	dte1	dte2	p_horner	transmissivity_t_nlr	storativity_s_nlr	value_type_t_nlr	bc_t_nlr	c_nlr	cd_nlr	skin_nlr	transmissivity_t_grf	value_type_t_grf	bc_t_grf	storativity_s_grf	flow_dim_grf	comment
KLX 21B	418.00	423.00					#NV													
KLX 21B	423.00	428.00					3972.3													
KLX 21B	428.00	433.00					4014.8													
KLX 21B	433.00	438.00					4062.8													
KLX 21B	438.00	443.00					#NV													
KLX 21B	443.00	448.00					#NV													
KLX 21B	448.00	453.00					4201.3													
KLX 21B	453.00	458.00					4245.1													
KLX 21B	458.00	463.00					#NV													
KLX 21B	463.00	468.00					#NV													
KLX 21B	468.00	473.00					#NV													
KLX 21B	473.00	478.00					4436.0													
KLX 21B	478.00	483.00					4494.9													
KLX 21B	483.00	488.00					4522.1													
KLX 21B	488.00	493.00					#NV													
KLX 21B	493.00	498.00					#NV													
KLX 21B	498.00	503.00					#NV													
KLX 21B	503.00	508.00					4708.8													
KLX 21B	508.00	513.00					4752.3													
KLX 21B	513.00	518.00					4790.8													
KLX 21B	518.00	523.00					#NV													
KLX 21B	523.00	528.00					4885.4													
KLX 21B	528.00	533.00					#NV													
KLX 21B	533.00	538.00					#NV													
KLX 21B	538.00	543.00					#NV													
KLX 21B	563.00	568.00					5258.1													
KLX 21B	568.00	573.00					5302.7													
KLX 21B	573.00	578.00					5353.9													
KLX 21B	578.00	583.00					5386.4													
KLX 21B	583.00	588.00					5433.0													
KLX 21B	588.00	593.00					5486.0													
KLX 21B	593.00	598.00					5537.0													
KLX 21B	598.00	603.00					5581.8													
KLX 21B	603.00	608.00					5627.7													
KLX 21B	608.00	613.00					5675.3													
KLX 21B	613.00	618.00					5722.7													
KLX 21B	618.00	623.00					5730.7													
KLX 21B	623.00	628.00					5814.8													
KLX 21B	628.00	633.00					5860.6													
KLX 21B	633.00	638.00					#NV													
KLX 21B	638.00	643.00					5953.7													
KLX 21B	643.00	648.00					5999.6													
KLX 21B	645.00	650.00					6017.2													
KLX 21B	650.00	655.00					6063.2													
KLX 21B	655.00	660.00					6110.2													
KLX 21B	658.00	663.00					6138.1													
KLX 21B	663.00	668.00					6183.7													
KLX 21B	668.00	673.00					6229.1													
KLX 21B	673.00	678.00					#NV													
KLX 21B	678.00	683.00					6315.2													
KLX 21B	683.00	688.00					6367.8													
KLX 21B	688.00	693.00					6411.5													
KLX 21B	693.00	698.00					6450.0													
KLX 21B	698.00	703.00					6496.1													
KLX 21B	703.00	708.00					6550.8													
KLX 21B	708.00	713.00					#NV													
KLX 21B	713.00	718.00					6637.5													
KLX 21B	718.00	723.00					6670.6													
KLX 21B	723.00	728.00					6734.6													
KLX 21B	728.00	733.00					#NV													
KLX 21B	733.00	738.00					#NV													
KLX 21B	738.00	743.00					#NV													

Table	plu_s_hole_test_obs
	Data of observation sections of single hole test

Column	Datatype	Unit	Column Description
site	CHAR		Investigation site name
activity_type	CHAR		Activity type code
idcode	CHAR		Object or borehole identification code
start_date	DATE		Date (yymmdd hh:mm:ss)
secup	FLOAT	m	Upper section limit (m)
seclow	FLOAT	m	Lower section limit (m)
obs_secup	FLOAT	m	Upper limit of observation section
obs_seclow	FLOAT	m	Lower limit of observation section
pi_above	FLOAT	kPa	Groundwater pressure above test section,start of flow period
pp_above	FLOAT	kPa	Groundwater pressure above test section,at stop flow period
pf_above	FLOAT	kPa	Groundwater pressure above test section at stop recovery per
pi_below	FLOAT	kPa	Groundwater pressure below test section at start flow period
pp_below	FLOAT	kPa	Groundwater pressure below test section at stop flow period
pf_below	FLOAT	kPa	Groundwater pressure below test section at stop recovery per
comments	VARCHAR		Comment text row (unformatted text)

idcode	start_date	stop_date	secup	seclow	section_no	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KLX 21B	2007-02-08 17:57:00	2007-02-08 20:28:00	103.00	203.00		204.00	858.78	1012	1017	1014	1942	1942	1942	
KLX 21B	2007-02-09 08:42:00	2007-02-09 10:42:00	203.00	303.00		304.00	858.78	1930	1931	1931	2859	2859	2858	
KLX 21B	2007-02-09 12:45:00	2007-02-09 14:49:00	303.00	403.00		404.00	858.78	2846	2847	2846	3772	3772	3772	
KLX 21B	2007-02-09 16:53:00	2007-02-09 19:00:00	403.00	503.00		504.00	858.78	3755	3756	3756	4689	4688	4688	
KLX 21B	2007-02-09 21:47:00	2007-02-10 00:17:00	503.00	603.00		604.00	858.78	4673	4676	4673	5608	5611	5608	
KLX 21B	2007-02-10 08:23:00	2007-02-10 10:25:00	603.00	703.00		704.00	858.78	5586	5587	5586	6537	6539	6538	
KLX 21B	2007-02-10 12:20:00	2007-02-10 15:49:00	703.00	803.00		804.00	858.78	6501	6500	6500	7469	7470	7471	
KLX 21B	2007-02-11 11:45:00	2007-02-11 13:20:00	103.00	123.00		124.00	858.78	#NV	#NV	#NV	1218	1222	1219	
KLX 21B	2007-02-12 14:42:00	2007-02-11 16:10:00	123.00	143.00		144.00	858.78	#NV	#NV	#NV	1396	1398	1396	
KLX 21B	2007-02-11 17:08:00	2007-02-11 18:38:00	143.00	163.00		164.00	858.78	#NV	#NV	#NV	1577	1577	1576	
KLX 21B	2007-02-13 07:10:00	2007-02-13 09:10:00	163.00	183.00		184.00	858.78	#NV	#NV	#NV	1761	1761	1761	
KLX 21B	2007-02-13 09:56:00	2007-02-13 11:51:00	183.00	203.00		204.00	858.78	#NV	#NV	#NV	1944	1944	1943	
KLX 21B	2007-02-13 12:58:00	2007-02-13 14:26:00	203.00	223.00		224.00	858.78	#NV	#NV	#NV	2126	2126	2126	
KLX 21B	2007-02-13 15:11:00	2007-02-13 16:52:00	223.00	243.00		244.00	858.78	#NV	#NV	#NV	2309	2309	2308	
KLX 21B	2007-02-13 17:44:00	2007-02-13 18:35:00	243.00	263.00		264.00	858.78	#NV	#NV	#NV	2492	2492	2492	
KLX 21B	2007-02-13 19:22:00	2007-02-13 20:56:00	263.00	283.00		284.00	858.78	#NV	#NV	#NV	2675	2675	2674	
KLX 21B	2007-02-13 22:19:00	2007-02-14 00:16:00	283.00	303.00		304.00	858.78	#NV	#NV	#NV	2858	2858	2858	
KLX 21B	2007-02-14 01:09:00	2007-02-14 02:35:00	303.00	323.00		324.00	858.78	#NV	#NV	#NV	3042	3041	3041	
KLX 21B	2007-02-14 06:37:00	2007-02-14 08:29:00	323.00	343.00		344.00	858.78	#NV	#NV	#NV	3224	3223	3222	
KLX 21B	2007-02-14 09:15:00	2007-02-14 11:32:00	343.00	363.00		364.00	858.78	#NV	#NV	#NV	3405	3405	3404	
KLX 21B	2007-02-14 12:16:00	2007-02-14 14:39:00	363.00	383.00		384.00	858.78	#NV	#NV	#NV	3587	3587	3586	
KLX 21B	2007-02-14 15:20:00	2007-02-14 16:48:00	383.00	403.00		404.00	858.78	#NV	#NV	#NV	3771	3770	3770	
KLX 21B	2007-02-14 17:28:00	2007-02-14 19:45:00	403.00	423.00		424.00	858.78	#NV	#NV	#NV	3954	3954	3953	
KLX 21B	2007-02-14 20:27:00	2007-02-14 21:59:00	423.00	443.00		444.00	858.78	#NV	#NV	#NV	4138	4137	4137	
KLX 21B	2007-02-14 23:06:00	2007-02-15 00:35:00	443.00	463.00		464.00	858.78	#NV	#NV	#NV	4323	4323	4322	
KLX 21B	2007-02-15 01:22:00	2007-02-15 03:27:00	463.00	483.00		484.00	858.78	#NV	#NV	#NV	4506	4505	4505	
KLX 21B	2007-02-15 06:36:00	2007-02-15 08:50:00	483.00	503.00		504.00	858.78	#NV	#NV	#NV	4689	4689	4689	
KLX 21B	2007-02-15 09:32:00	2007-02-15 11:10:00	503.00	523.00		524.00	858.78	#NV	#NV	#NV	4872	4872	4871	
KLX 21B	2007-02-15 11:42:00	2007-02-15 13:04:00	523.00	543.00		544.00	858.78	#NV	#NV	#NV	5055	5054	5054	
KLX 21B	2007-02-15 14:01:00	2007-02-15 14:54:00	543.00	563.00		564.00	858.78	#NV	#NV	#NV	5238	5238	5238	
KLX 21B	2007-02-15 15:30:00	2007-02-15 17:03:00	563.00	583.00		584.00	858.78	#NV	#NV	#NV	5421	5422	5421	
KLX 21B	2007-02-15 17:52:00	2007-02-15 19:25:00	583.00	603.00		604.00	858.78	#NV	#NV	#NV	5606	5608	5606	
KLX 21B	2007-02-15 20:13:00	2007-02-15 22:12:00	603.00	623.00		624.00	858.78	#NV	#NV	#NV	5792	5804	5794	
KLX 21B	2007-02-15 23:08:00	2007-02-16 00:36:00	623.00	643.00		644.00	858.78	#NV	#NV	#NV	5977	5983	5978	
KLX 21B	2007-02-16 01:18:00	2007-02-16 02:45:00	643.00	663.00		664.00	858.78	#NV	#NV	#NV	6163	6170	6163	
KLX 21B	2007-02-16 06:38:00	2007-02-16 08:03:00	663.00	683.00		684.00	858.78	#NV	#NV	#NV	6346	6347	6346	
KLX 21B	2007-02-16 08:52:00	2007-02-16 10:25:00	683.00	703.00		704.00	858.78	#NV	#NV	#NV	6536	6536	6535	
KLX 21B	2007-02-16 10:59:00	2007-02-16 13:03:00	703.00	723.00		724.00	858.78	#NV	#NV	#NV	6721	6721	6720	
KLX 21B	2007-02-16 13:59:00	2007-02-16 15:33:00	723.00	743.00		744.00	858.78	#NV	#NV	#NV	6905	6904	6904	
KLX 21B	2007-02-16 18:09:00	2007-02-16 19:51:00	743.00	763.00		764.00	858.78	#NV	#NV	#NV	7102	7101	7099	
KLX 21B	2007-02-16 20:51:00	2007-02-16 23:04:00	764.00	784.00		785.00	858.78	#NV	#NV	#NV	7269	7268	7268	
KLX 21B	2007-02-16 23:47:00	2007-02-17 00:14:00	783.00	803.00		804.00	858.78	#NV	#NV	#NV	7287	7287	7287	
KLX 21B	2007-02-17 01:20:00	2007-02-17 02:09:00	803.00	823.00		824.00	858.78	#NV	#NV	#NV	7653	7653	7653	
KLX 21B	2007-02-17 07:00:00	2007-02-17 09:28:00	823.00	843.00		844.00	858.78	#NV	#NV	#NV	8074	8050	8021	
KLX 21B	2007-02-18 06:40:00	2007-02-18 08:09:00	323.00	328.00		329.00	858.78	#NV	#NV	#NV	3088	3087	3087	
KLX 21B	2007-02-18 08:36:00	2007-02-18 09:26:00	328.00	333.00		334.00	858.78	#NV	#NV	#NV	3132	3132	3132	
KLX 21B	2007-02-18 09:54:00	2007-02-18 10:43:00	333.00	338.00		339.00	858.78	#NV	#NV	#NV	3177	3177	3177	
KLX 21B	2007-02-18 11:14:00	2007-02-18 12:04:00	338.00	343.00		344.00	858.78	#NV	#NV	#NV	3223	3223	3223	
KLX 21B	2007-02-18 12:30:00	2007-02-18 13:18:00	343.00	348.00		349.00	858.78	#NV	#NV	#NV	3268	3268	3268	
KLX 21B	2007-02-18 14:32:00	2007-02-18 16:24:00	348.00	353.00		354.00	858.78	#NV	#NV	#NV	3314	3314	3313	
KLX 21B	2007-02-18 16:52:00	2007-02-18 17:40:00	353.00	358.00		359.00	858.78	#NV	#NV	#NV	3360	3360	3360	
KLX 21B	2007-02-18 18:10:00	2007-02-18 18:58:00	358.00	363.00		364.00	858.78	#NV	#NV	#NV	3405	3405	3405	
KLX 21B	2007-02-18 19:32:00	2007-02-18 20:21:00	363.00	368.00		369.00	858.78	#NV	#NV	#NV	3451	3451	3451	
KLX 21B	2007-02-18 20:49:00	2007-02-18 23:18:00	368.00	373.00		374.00	858.78	#NV	#NV	#NV	3496	3496	3496	
KLX 21B	2007-02-19 19:45:00	2007-02-19 20:34:00	373.00	378.00		379.00	858.78	#NV	#NV	#NV	3545	3545	3545	
KLX 21B	2007-02-19 21:05:00	2007-02-19 21:54:00	378.00	383.00		384.00	858.78	#NV	#NV	#NV	3590	3590	3590	
KLX 21B	2007-02-19 22:56:00	2007-02-10 00:26:00	383.00	388.00		389.00	858.78	#NV	#NV	#NV	3635	3634	3634	
KLX 21B	2007-02-20 01:01:00	2007-02-20 01:50:00	388.00	393.00		394.00	858.78	#NV	#NV	#NV	3680	3680	3680	
KLX 21B	2007-02-20 06:24:00	2007-02-20 07:12:00	393.00	398.00		399.00	858.78	#NV	#NV	#NV	3726	3726	3726	
KLX 21B	2007-02-20 07:37:00	2007-02-20 09:37:00	398.00	403.00		404.00	858.78	#NV	#NV	#NV	3762	3762	3761	
KLX 21B	2007-02-20 10:05:00	2007-02-20 10:54:00	403.00	408.00		409.00	858.78	#NV	#NV	#NV	3817	3817	3817	
KLX 21B	2007-02-20 11:21:00	2007-02-20 13:54:00	408.00	413.00		414.00	858.78	#NV	#NV	#NV	3862	3862	3861	
KLX 21B	2007-02-20 14:19:00	2007-02-20 16:32:00	413.00	418.00		419.00	858.78	#NV	#NV	#NV	3906	3905	3905	

idcode	start_date	stop_date	secup	seclow	section_no	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KLX 21B	2007-02-20 17:35:00	2007-02-20 19:26:00	418.00	423.00		424.00	858.78	#NV	#NV	#NV	3952	3952	3952	
KLX 21B	2007-02-20 20:09:00	2007-02-20 21:54:00	423.00	428.00		429.00	858.78	#NV	#NV	#NV	3999	3999	3999	
KLX 21B	2007-02-20 22:30:00	2007-02-21 00:08:00	428.00	433.00		434.00	858.78	#NV	#NV	#NV	4046	4045	4045	
KLX 21B	2007-02-21 00:31:00	2007-02-21 01:54:00	433.00	438.00		439.00	858.78	#NV	#NV	#NV	4091	4090	4090	
KLX 21B	2007-02-21 06:31:00	2007-02-21 07:20:00	438.00	443.00		444.00	858.78	#NV	#NV	#NV	4139	4139	4139	
KLX 21B	2007-02-21 07:48:00	2007-02-21 10:20:00	443.00	448.00		449.00	858.78	#NV	#NV	#NV	4184	4184	4183	
KLX 21B	2007-02-21 10:45:00	2007-02-21 12:42:00	448.00	453.00		454.00	858.78	4171	4171	4170	4229	4229	4228	
KLX 21B	2007-02-21 13:18:00	2007-02-21 14:45:00	453.00	458.00		459.00	858.78	4215	4215	4214	4274	4274	4273	
KLX 21B	2007-02-21 15:10:00	2007-02-21 15:59:00	458.00	463.00		464.00	858.78	4261	4261	4261	4320	4320	4320	
KLX 21B	2007-02-21 16:30:00	2007-02-21 17:19:00	463.00	468.00		469.00	858.78	4307	4307	4307	4366	4366	4366	
KLX 21B	2007-02-21 17:46:00	2007-02-21 18:35:00	468.00	473.00		474.00	858.78	4354	4354	4354	4412	4412	4412	
KLX 21B	2007-02-21 19:07:00	2007-02-21 20:36:00	473.00	478.00		479.00	858.78	4400	4400	4400	4458	4458	4458	
KLX 21B	2007-02-21 21:08:00	2007-02-21 23:16:00	478.00	483.00		484.00	858.78	4445	4446	4445	4504	4503	4503	
KLX 21B	2007-02-21 23:52:00	2007-02-21 23:53:00	483.00	488.00		489.00	858.78	4490	4491	4490	4549	4548	4547	
KLX 21B	2007-02-22 06:18:00	2007-02-22 07:14:00	488.00	493.00		494.00	858.78	4537	4537	4537	4595	4595	4595	
KLX 21B	2007-02-22 07:39:00	2007-02-22 08:28:00	493.00	498.00		499.00	858.78	4582	4582	4582	4640	4640	4640	
KLX 21B	2007-02-22 08:57:00	2007-02-22 09:46:00	498.00	503.00		504.00	858.78	4627	4627	4627	4686	4686	4686	
KLX 21B	2007-02-22 10:10:00	2007-02-22 12:25:00	503.00	508.00		509.00	858.78	4673	4674	4673	4732	4731	4731	
KLX 21B	2007-02-22 12:52:00	2007-02-22 14:25:00	508.00	513.00		514.00	858.78	4719	4719	4719	4777	4777	4776	
KLX 21B	2007-02-22 14:50:00	2007-02-22 16:25:00	513.00	518.00		519.00	858.78	4764	4763	4764	4822	4821	4821	
KLX 21B	2007-02-22 16:54:00	2007-02-22 19:13:00	518.00	523.00		524.00	858.78	4811	4811	4811	4869	4869	4868	
KLX 21B	2007-02-22 19:39:00	2007-02-22 21:08:00	523.00	528.00		529.00	858.78	4856	4857	4857	4915	4915	4915	
KLX 21B	2007-02-22 22:02:00	2007-02-22 22:51:00	528.00	533.00		534.00	858.78	4904	4904	4904	4962	4962	4962	
KLX 21B	2007-02-22 23:18:00	2007-02-23 00:08:00	533.00	538.00		539.00	858.78	4949	4949	4949	5008	5008	5008	
KLX 21B	2007-02-23 00:39:00	2007-02-23 01:28:00	538.00	543.00		544.00	858.78	4997	4997	4997	5054	5054	5054	
KLX 21B	2007-02-23 06:41:00	2007-02-23 08:11:00	563.00	568.00		569.00	858.78	5223	5223	5223	5285	5285	5285	
KLX 21B	2007-02-23 08:35:00	2007-02-23 10:01:00	568.00	573.00		574.00	858.78	5268	5269	5269	5330	5330	5329	
KLX 21B	2007-02-23 10:28:00	2007-02-23 12:39:00	573.00	578.00		579.00	858.78	5313	5315	5312	5375	5375	5374	
KLX 21B	2007-02-23 12:50:00	2007-02-23 14:28:00	578.00	583.00		584.00	858.78	5360	5360	5360	5419	5419	5419	
KLX 21B	2007-02-23 14:54:00	2007-02-23 16:24:00	583.00	588.00		589.00	858.78	5405	5406	5405	5465	5464	5464	
KLX 21B	2007-02-23 16:51:00	2007-02-23 18:20:00	588.00	593.00		594.00	858.78	5451	5452	5451	5510	5512	5510	
KLX 21B	2007-02-23 18:50:00	2007-02-23 20:17:00	593.00	598.00		599.00	858.78	5497	5498	5500	5558	5560	5558	
KLX 21B	2007-02-23 22:03:00	2007-02-23 23:31:00	598.00	603.00		604.00	858.78	5544	5544	5544	5606	5605	5605	
KLX 21B	2007-02-24 00:00:00	2007-02-24 01:53:00	603.00	608.00		609.00	858.78	5591	5591	5590	5654	5662	5653	
KLX 21B	2007-02-24 06:15:00	2007-02-24 07:41:00	608.00	613.00		614.00	858.78	5634	5634	5634	5699	5709	5702	
KLX 21B	2007-02-24 08:06:00	2007-02-24 09:37:00	613.00	618.00		619.00	858.78	5679	5679	5679	5747	5747	5747	
KLX 21B	2007-02-24 10:03:00	2007-02-24 11:29:00	618.00	623.00		624.00	858.78	#NV	#NV	#NV	5784	5784	5783	
KLX 21B	2007-02-24 12:24:00	2007-02-24 13:52:00	623.00	628.00		629.00	858.78	5770	5772	5771	5840	5847	5841	
KLX 21B	2007-02-24 14:15:00	2007-02-24 15:40:00	628.00	633.00		634.00	858.78	5816	5815	5815	5886	5886	5886	
KLX 21B	2007-02-24 16:07:00	2007-02-24 18:04:00	633.00	638.00		639.00	858.78	5861	5861	5860	5932	5932	5932	
KLX 21B	2007-02-24 18:33:00	2007-02-24 19:57:00	638.00	643.00		644.00	858.78	5908	5907	5908	5978	5978	5978	
KLX 21B	2007-02-24 21:04:00	2007-02-24 22:28:00	643.00	648.00		649.00	858.78	5954	5953	5953	6024	6027	6025	
KLX 21B	2007-02-24 22:53:00	2007-02-25 00:20:00	645.00	650.00		651.00	858.78	5972	5972	5972	6043	6044	6043	
KLX 21B	2007-02-25 00:44:00	2007-02-25 02:31:00	650.00	655.00		656.00	858.78	6017	6016	6017	6089	6101	6089	
KLX 21B	2007-02-25 06:21:00	2007-02-25 07:47:00	655.00	660.00		661.00	858.78	6061	6062	6062	6135	6141	6135	
KLX 21B	2007-02-25 08:15:00	2007-02-25 09:41:00	658.00	663.00		664.00	858.78	6090	6090	6089	6163	6163	6163	
KLX 21B	2007-02-25 10:07:00	2007-02-25 11:33:00	663.00	668.00		669.00	858.78	6136	6135	6135	6209	6209	6209	
KLX 21B	2007-02-25 11:57:00	2007-02-25 13:20:00	668.00	673.00		674.00	858.78	6182	6182	6181	6255	6255	6255	
KLX 21B	2007-02-25 14:08:00	2007-02-25 14:57:00	673.00	678.00		679.00	858.78	6227	6227	6227	6300	6300	6300	
KLX 21B	2007-02-25 15:24:00	2007-02-25 17:31:00	678.00	683.00		684.00	858.78	6272	6272	6272	6346	6346	6346	
KLX 21B	2007-02-25 17:38:00	2007-02-25 19:11:00	683.00	688.00		689.00	858.78	6318	6319	6319	6393	6396	6393	
KLX 21B	2007-02-25 19:40:00	2007-02-25 21:07:00	688.00	693.00		694.00	858.78	6364	6364	6364	6440	6445	6441	
KLX 21B	2007-02-25 21:57:00	2007-02-25 23:47:00	693.00	698.00		699.00	858.78	6409	6410	6409	6490	6508	6501	
KLX 21B	2007-02-26 00:12:00	2007-02-26 02:22:00	698.00	703.00		704.00	858.78	6456	6457	6456	6542	6540	6538	
KLX 21B	2007-02-26 06:17:00	2007-02-26 08:06:00	703.00	708.00		709.00	858.78	6502	6501	6502	6587	6586	6585	
KLX 21B	2007-02-26 08:32:00	2007-02-26 09:20:00	708.00	713.00		714.00	858.78	6549	6549	6549	6635	6635	6635	
KLX 21B	2007-02-26 09:45:00	2007-02-26 12:44:00	713.00	718.00		719.00	858.78	6593	6592	6592	6678	6678	6675	
KLX 21B	2007-02-26 12:51:00	2007-02-26 14:42:00	718.00	723.00		724.00	858.78	6638	6637	6638	6725	6724	6723	
KLX 21B	2007-02-26 16:33:00	2007-02-26 18:20:00	723.00	728.00		729.00	858.78	6683	6686	6687	6773	6772	6772	
KLX 21B	2007-02-26 18:46:00	2007-02-26 19:37:00	728.00	733.00		734.00	858.78	6729	6729	6729	6820	6820	6820	
KLX 21B	2007-02-26 20:01:00	2007-02-26 20:51:00	733.00	738.00		739.00	858.78	6776	6776	6776	6866	6866	6866	
KLX 21B	2007-02-27 06:22:00	2007-02-27 07:13:00	738.00	743.00		744.00	858.78	6820	6820	6820	6910	6910	6910	

APPENDIX 5-2

SICADA data tables (Pulse injection tests)

(Simplified version v1.8)

SICADA/Data Import Template

SKB & Ergodata AB 2006

File Identity	
Created By	
Created	

File Time Zone

Compiled By	
Quality Check For Delivery	
Delivery Approval	

Activity Type	HY665 PLU Pulse Test

Project	PLU KLX 21B

Activity Information						Additional Activity Data						
						C30	C40	I160	P20	P200	P220	R240
Idcode	**Start Date**	**Stop Date**	**Secup (m)**	**Seclow (m)**	**Section No**	**Company evaluating data**	**Company performing field work**	**Instrument**	**Field crew manager**	**Field crew**	**Person evaluating data**	**Length calibration type**
KLX 21B	2007-02-20 07:37:00	2007-02-24 18:04:00	398.00	638.00		Golder Associates	Golder Associates	PSS 2	Reinder van der Wall	Reinder van der Wall, Jörg Böhner, Mesgena Gebrezghi, Erik Löfgren, Daniel Nordborg,	Reinder van der Wall, Jörg Böhner	

Table	plu_slug_test_ed
	Slug- & pulse test, calculated and evaluated results

Column	Datatype	Unit	Column Description
site	CHAR		Investigation site name
idcode	CHAR		Object or borehole identification code
secup	FLOAT	m	
seclow	FLOAT	m	Lower section limit (m)
start_date	DATE		Date (yymmdd hh:mm:ss)
stop_date	DATE		Date (yymmdd hh:mm:ss)
activity_type	CHAR		Activity type code
sign	CHAR		Activity QA signature
error_flag	CHAR		*: Data for the activity is erroneous and should not be used
test_type	CHAR		Type of test, one of 7, see table description
formation_type	CHAR		1: Rock, 2: Soil (superficial deposits)
start_flow_period	DATE		Date and time of flow phase start (YYYYMMDD hhmmss)
dur_flow_phase_tp	FLOAT	s	Time for the flowing phase of the test (tp)
dur_rec_phase_tf	FLOAT	s	Time for the recovery phase of the test (tF)
initial_head_h0	FLOAT	m	Initial formation hydraulic head, see table description
initial_displacem_dh0	FLOAT	m	Initial displacement of hydraulic head,see table description
displacem_dh0_p	FLOAT	m	Initial displacement of slugtest,see table description
displacem_dh0_f	FLOAT	m	Initial displacement of bailtest,see table description
head_at_flow_end_hp	FLOAT	m	Hydraulic head at end of flow phase,see table description
final_head_hf	FLOAT	m	Hydraulic head at the end of the recovery,see table descr.
initial_press_pi	FLOAT	kPa	Initial formation pressure
initial_press_diff_dp0	FLOAT	kPa	Initial pressure change from pi at time dt=0,pulse test
press_change_dp0_p	FLOAT	kPa	Initial pressure change;pulse test-measured
press_at_flow_end_pp	FLOAT	kPa	Final pressure at the end of the flowing period
final_press_pf	FLOAT	kPa	Final pressure at the end of the recovery period
formation_width_b	FLOAT	m	b:Interpreted formation thickness repr. for evaluated T,see
transmissivity_ts	FLOAT	m**2/s	Ts: Transmissivity based on slugtest, see table description
value_type_ts	CHAR		0:true value,-1:Ts<lower meas.limit,1:Ts>upper meas.limit
bc_ts	CHAR		Best choice code.1 means Ts is best choice of transm.,else 0
transmissivity_tp	FLOAT	m**2/s	TP: Transmissivity based on pulse test, see table descript.
value_type_tp	CHAR		0:true value,-1:Tp<lower meas.limit,1:Tp>upper meas.limit
bc_tp	CHAR		Best choice code.1 means Tp is best choice of transm.,else 0
l_meas_limit_t	FLOAT	m**2	Estimated lower measurement limit for Ts orTp,see descript.
u_meas_limit_t	FLOAT	m**2	Estimated upper measurement limit for Ts & Tp, see descript.
storativity_s	FLOAT		S= Storativity, see table description
assumed_s	FLOAT		S*=assumed storativity, see table description
skin	FLOAT		Skin factor
assumed_skin	FLOAT		Asumed skin factor
c	FLOAT	m**3/pa	Well bore storage coefficient
fluid_temp_tew	FLOAT	oC	Fluid temperature in the test section, see table description
fluid_elcond_ecw	FLOAT	mS/m	Fluid electric conductivity in test section,see table descri
fluid_salinity_tdsw	FLOAT	mg/l	Total salinity of the test section fluid (EC), see descr.
fluid_salinity_tdswm	FLOAT	mg/l	Total salinity of the test section fluid (samples),see descr
dt1	FLOAT	s	Estimated start time of evaluation, see table description
dt2	FLOAT	s	Estimated stop time of evaluation, see table description
reference	CHAR		SKB report No for reports describing data and evaluation
comments	CHAR		Short comment to evaluated parameters

			(m)	(m)					(s)	(s)	(m)	(m)	(m)	(m)	(m)	(m)	(kPa)	(kPa)
idcode	start_date	stop_date	secup	seclow	section_no	test_type	formation_type	start_flow_period	dur_flow_phase_tp	dur_rec_phase_tf	initial_head_h0	initial_displacem_dh0	displacem_dh0_p	displacem_dh0_f	ow_end_hp	final_head_hf	initial_press_pi	initial_press_diff_dp0
KLX 21B	2007-02-20 07:37:00	2007-02-20 09:37:00	398.00	403.00		4B	1	2007-02-20 08:25:51	10	4020							3730	213
KLX 21B	2007-02-20 11:21:00	2007-02-20 13:54:00	408.00	413.00		4B	1	2007-02-20 12:05:18	10	4020							3869	203
KLX 21B	2007-02-22 16:54:00	2007-02-22 19:13:00	518.00	523.00		4B	1	2007-02-22 17:50:22	10	4800							4847	195
KLX 21B	2007-02-24 16:07:00	2007-02-24 18:04:00	633.00	638.00		4B	1	2007-02-24 16:45:54	10	4020							5922	226

	(m)	(m)	(kPa)	(kPa)	(kPa)	(m)	(m**2/s)			(m**2/s)			(m**2)	(m**2)					(m**3/pa)	(oC)	(mS/m)	(mg/l)	(mg/l)	(s)	(s)		
idcode	secup	seclow	hange_dp0_p	ow_end_pp	final_press_pf	n_width_b	transmissivity_ts	value_type_ts	bc_ts	transmissivity_tp	value_type_tp	bc_tp	l_meas_limit_t	u_meas_limit_t	storativity_s	assumed_s	skin	assumed_skin	c	fluid_temp_tew	cond_ecw	linity_tdsw	inity_tdswm	dt1	dt2	reference	comments
KLX 21B	398.00	403.00		3943	3751					5.14E-11	-1	1	3.00E-11	7.00E-11	1.00E-06	1.00E-06	0.39		1.81E-11	#NV				222	3217		
KLX 21B	408.00	413.00		4072	3856					2.70E-11	-1	1	2.00E-11	8.00E-10	1.00E-06	1.00E-06	0.93		4.69E-12	#NV				106	3541		
KLX 21B	518.00	523.00		5042	4865					1.48E-10	-1	1	8.00E-11	3.00E-10	1.00E-06	1.00E-06	1.26		2.39E-11	#NV				53	4041		
KLX 21B	633.00	638.00		6148	5917					7.88E-11	-1	1	6.00E-11	4.00E-10	1.00E-06	1.00E-06	1.43		1.47E-11	15.8				68	417		

Table	plu_s_hole_test_obs Data of observation sections of single hole test		
Column	**Datatype**	**Unit**	**Column Description**
site	CHAR		Investigation site name
activity_type	CHAR		Activity type code
idcode	CHAR		Object or borehole identification code
start_date	DATE		Date (yymmdd hh:mm:ss)
secup	FLOAT	m	Upper section limit (m)
seclow	FLOAT	m	Lower section limit (m)
sign	CHAR		Activity QA signature
error_flag	CHAR		*: Data for the activity is erroneous and should not be used
obs_secup	FLOAT	m	Upper limit of observation section
obs_seclow	FLOAT	m	Lower limit of observation section
pi_above	FLOAT	kPa	Groundwater pressure above test section,start of flow period
pp_above	FLOAT	kPa	Groundwater pressure above test section,at stop flow period
pf_above	FLOAT	kPa	Groundwater pressure above test section at stop recovery per
pi_below	FLOAT	kPa	Groundwater pressure below test section at start flow period
pp_below	FLOAT	kPa	Groundwater pressure below test section at stop flow period
pf_below	FLOAT	kPa	Groundwater pressure below test section at stop recovery per
comments	VARCHAR		Comment text row (unformatted text)

			(m)	(m)		(m)	(m)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)	(kPa)	
idcode	start_date	stop_date	secup	seclow	section_no	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KLX 21B	2007-02-20 07:37:00	2007-02-20 09:37:00	398.00	403.00		404.00	858.78	#NV	#NV	#NV	3762	3762	3761	
KLX 21B	2007-02-20 11:21:00	2007-02-20 13:54:00	408.00	413.00		414.00	858.78	#NV	#NV	#NV	3862	3862	3861	
KLX 21B	2007-02-22 16:54:00	2007-02-22 19:13:00	518.00	523.00		524.00	858.78	4811	4811	4811	4869	4869	4868	
KLX 21B	2007-02-24 16:07:00	2007-02-24 18:04:00	633.00	638.00		639.00	858.78	5861	5861	5860	5932	5932	5932	