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Oskarshamn site investigation

Hydraulic injection tests in borehole KLX27A, 2008

Subarea Laxemar

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March 2008

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

This report concerns a study which was conducted for SKB. The conclusions and viewpoints presented in the report are those of the authors and do not necessarily coincide with those of the client.

Data in SKB's database can be changed for different reasons. Minor changes in SKB's database will not necessarily result in a revised report. Data revisions may also be presented as supplements, available at www.skb.se.

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Abstract

Hydraulic injection tests have been performed in Borehole KLX27A 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 KLX27A performed between 16th of January and 10th of February 2008.

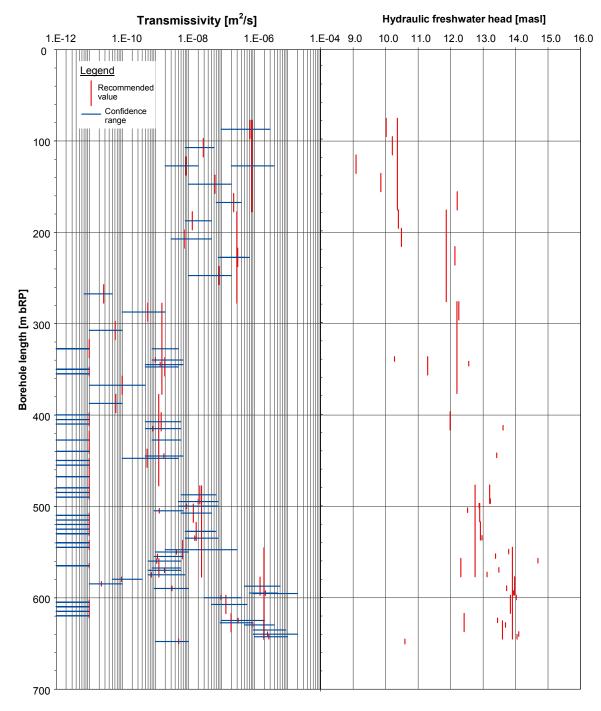
The objective of the hydrotests was to describe the rock around the borehole with respect of hydraulic parameters, mainly transmissivity (T) and hydraulic conductivity (K) at different measurement scales of 100 m, 20 m and 5 m sections. Transient evaluation during flow and recovery period provided additional information such as flow regimes, hydraulic boundaries and cross-over flows. Constant pressure injection tests were conducted between 77.30–650.56 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 KLX27A 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 KLX27A. Testerna utfördes mellan den 16 januari till den 10 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 77,30–650,56 m borrhålslängd. Resultaten av testutvärderingen presenteras som transmissivitet, hydraulisk konduktivitet och grundvattennivå uttryckt i ekvivalent sötvattenpelare (fresh-water head).



Borehole KLX27A – Summary of results.

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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 KLX27A between 16th of January and 10th of February 2008 following the methodology described in SKB MD 323.001e and in the activity plan AP PS 400-07-056 (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 KLX27A. The commission was conducted by Golder Associates AB and Golder Associates GmbH.

Borehole KLX27A is situated in the Laxemar area approximately 5 km west of the nuclear power plant of Simpevarp, Figure 1-1. The borehole was drilled from August to November 2007 at 650.56 m length with an inner diameter of 197 m to a depth of 73.50 m and further on of 76 mm to the bottom of the borehole. The inclination of the borehole is –65.37°. The upper 14.76 m is cased with large diameter telescopic casing ranging from diameter (outer diameter) 208–323 mm. A cone casing is placed from 72.28 m to 77.02 m ranging from diameter (outer diameter) 84–104 mm.

The work was carried out in accordance with activity plan AP PS 400-07-056. 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 Hydraulic injection tests in borehole KLX27A	Number AP PS 400-07-056	Version 1.0
Method Descriptions	Number	Version
Hydraulic injection tests	SKB MD 323.001e	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 620.010e	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

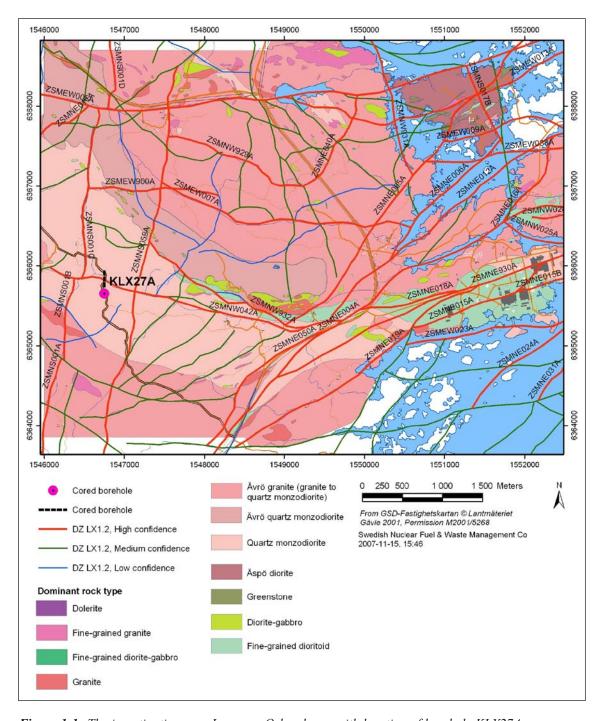


Figure 1-1. The investigation area Laxemar, Oskarshamn with location of borehole KLX27A.

2 Objective and scope

The objective of the hydrotests in borehole KLX27A 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 and a final single packer test to cover the bottom of the borehole. 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. Furthermore, a single packer test was conducted at a depth of 645.20 m to the bottom of the hole. The used single packer tool consists of a modified tool design to keep the test section as short as possible.

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 16th of January and 10th of February 2008.

Between 357.30 m to 397.30 m, 417.30 m to 437.30 m and 457.30 m to 477.30 m no 5 m tests were performed because the appropriate 20 m sections show 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 –65.37° and adapting to the next appropriate section limits of the 20 m sections. Due to the inclination and length of the borehole, the 5 m sections cover finally a true vertical depth of 306.64 m to 586.55 m below top of casing (ToC).

Table 2-1. Performed injection tests at borehole KLX27A.

No. of injection tests*	Interval	Positions	Time/test	Total test time
6	100 m	77.30–645.20 m	125 min	12.5 hrs
29	20 m	77.30-645.20 m	90 min	43.5 hrs
46	5 m	337.30-645.20 m	90 min	69.0 hrs
Single Packer**	5.36 m	645.20-650.56 m	90 min	1.5 hrs
Total:				126.5 hrs

^{*}Excluding repeated tests; **conducted with a modified tool.

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.

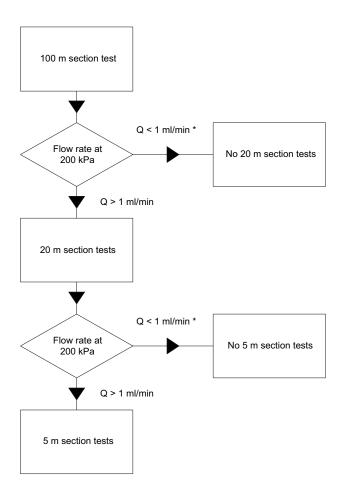
Table 2-2. Information about KLX27A (from SICADA 2007-12-12).

Title	Value				
Old idcode name (s): Comment: Borehole length (m): Reference level:	KLX27A No comment e 650.56 ToC	xists			
Drilling period (s):	From date 2007-08-15 2007-10-08	To date 2007-08-27 2007-11-21	Secup (m) 0.16 75.60	Seclow (m) 75.60 650.56	Drilling type Percussion drilling Core drilling
Starting point coordinate: (centerpoint of ToC)	Length (m) 0.00 3.00	Northing (m) 6365608.29 6365609.54	Easting (m) 1546742.63 1546742.65	Elevation (m.a.s.l.) 16.98 14.25	Coord system RT90-RHB70 RT90-RHB70
Angles:	Length (m) 0.000	Bearing 0.73	Inclination (– = –65.37	down)	RT90-RHB70
Borehole diameter:	Secup (m) 0.16 9.20 14.76 73.50 75.60 77.02	Seclow (m) 9.20 14.76 73.50 75.60 77.02 650.56	Hole diam (m) 0.341 0.254 0.197 0.157 0.086 0.076		
Core diameter:	Secup (m) 75.60 76.12	Seclow (m) 76.12 650.56	Core diam (m) 0.072 0.050		
Casing diameter:	Secup (m) 0.00 0.16	Seclow (m) 14.76 9.20	Case in (m) 0.200 0.310	Case out (m) 0.208 0.323	
Cone dimensions:	Secup (m) 72.28 75.28	Seclow (m) 75.28 77.02	Cone in (m) 0.100 0.080	Cone out (m) 0.104 0.084	
Grove milling:	Length (m) 100.000 150.000 200.000 250.000 300.000 400.000 450.000 500.000 600.000 630.000	Trace detectable YES			

2.2 Injection tests

Injection tests were conducted according to the Activity Plan AP PS 400-07-056 and the method description for hydraulic injection tests, SKB MD 323.001e (SKB internal documents). Tests were done in 100 m test sections between 77.30–645.20 m below ToC, in 20 m test sections between 77.30–645.20 m below ToC and in 5 m test sections between 337.30–645.20 m below ToC with the exception of the sections between 357.30–397.30 m, 417.30–437.30 m and 457.30–477.30 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). An additional single packer test was performed from 645.20 m to the bottom of the borehole. The measurements were performed with SKBs 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 KLX27A were conducted.



^{*} eventually tests performed after specific discussion with SKB

Figure 2-1. Flow chart for test sections.

Table 2-3. Tests performed.

KLX27A 77.30–177.30 3 1 080118 19:33:00 080118 10:30:00 KLX27A 177.30–277.30 3 1 080118 17:05:00 080118 15:24:00 KLX27A 277.30–377.30 3 1 080118 17:05:00 080118 23:07:00 KLX27A 377.30–477.30 3 1 080119 12:09:00 080119 11:50:00 KLX27A 377.30–477.30 3 1 080119 15:26:00 080119 13:47:00 KLX27A 377.30–477.30 3 1 080120 19:30:00 080120 11:28:00 KLX27A 545.20–645:20 3 1 080120 19:30:00 080122 11:30:00 KLX27A 77.30–97.30 3 1 080122 19:33:00 080122 10:02:00 KLX27A 177.30–197.30 3 1 080122 19:38:00 080122 15:07:00 KLX27A 177.30–197.30 3 1 080122 15:34:00 080122 17:07:00 KLX27A 177.30–197.30 3 1 080122 15:44:00 080122 17:07:00 KLX27A 177.30–297.30 3	Bh ID	Test section (m bToC)	Test type ¹⁾	Test no	Test start date, time	Test stop date, time
KLX27A 277.30–377.30 3 1 080118 17:05:00 080118 23:07:00 KLX27A 377.30–477.30 3 1 080119 09:51:00 080119 11:50:00 KLX27A 377.30–477.30 3 2 080119 12:09:00 080119 17:30:00 KLX27A 477.30–577.30 3 1 080120 09:30:00 080121 17:30:00 KLX27A 477.30–97.30 3 1 080121 17:33:00 080121 18:57:00 KLX27A 97.30–117.30 3 1 080122 10:43:00 080122 12:18:00 KLX27A 177.30–137.30 3 1 080122 15:34:00 080122 12:18:00 KLX27A 137.30–157.30 3 1 080122 15:34:00 080122 15:07:00 KLX27A 137.30–157.30 3 1 080122 15:34:00 080122 17:07:00 KLX27A 137.30–157.30 3 1 080122 15:44:00 080122 12:10:00 KLX27A 137.30–257.30 3 1 080123 14:55:00 080123 14:43:00 KLX27A 237.30–267.30 3	KLX27A	77.30–177.30	3	1	080118 08:23:00	080118 10:30:00
KLX27A 377.30-477.30 3 1 080119 09:51:00 080119 11:50:00 KLX27A 377.30-477.30 3 2 080119 12:09:00 080119 13:47:00 KLX27A 545.20-645.20 3 1 080119 15:26:00 080120 11:28:00 KLX27A 545.20-645.20 3 1 080121 17:33:00 080120 11:28:00 KLX27A 77.30-97.30 3 1 080122 10:33:00 080122 10:02:00 KLX27A 97.30-117.30 3 1 080122 10:43:00 080122 15:07:00 KLX27A 117.30-137.30 3 1 080122 13:38:00 080122 15:07:00 KLX27A 157.30-177.30 3 1 080122 17:51:00 080122 17:07:00 KLX27A 157.30-177.30 3 1 080122 17:51:00 080122 21:12:00 KLX27A 157.30-297.30 3 1 080123 10:54:00 080123 12:22:00 KLX27A 297.30-257.30 3 1 080123 13:32:00 080123 19:21:00 KLX27A 257.30-277.30 4B	KLX27A	177.30-277.30	3	1	080118 13:33:00	080118 15:24:00
KLX27A 377.30-477.30 3 2 080119 12:09:00 080119 13:47:00 KLX27A 477.30-577.30 3 1 080119 15:26:00 080119 17:30:00 KLX27A 545.20-645.20 3 1 080120 09:30:00 080121 11:28:00 KLX27A 77.30-97.30 3 1 080122 10:33:00 080121 11:25:00 KLX27A 97.30-117.30 3 1 080122 10:43:00 080122 12:16:00 KLX27A 117.30-137.30 3 1 080122 10:43:00 080122 17:07:00 KLX27A 117.30-137.30 3 1 080122 13:38:00 080122 17:07:00 KLX27A 157.30-197.30 3 1 080122 17:51:00 080122 17:07:00 KLX27A 177.30-197.30 3 1 080123 10:54:00 080122 12:10:00 KLX27A 177.30-297.30 3 1 080123 10:54:00 080123 14:43:00 KLX27A 237.30-257.30 3 1 080123 10:54:00 080123 14:43:00 KLX27A 257.30-277.30 4B	KLX27A	277.30-377.30	3	1	080118 17:05:00	080118 23:07:00
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KLX27A 617.30–637.30 3 1 080128 10:56:00 080128 12:19:00 KLX27A 625.20–645.20 3 1 080128 13:24:00 080128 14:44:00 KLX27A 337.30–342.30 3 1 080130 14:37:00 080130 16:15:00 KLX27A 342.30–347.30 3 1 080130 16:51:00 080130 18:32:00 KLX27A 347.30–352.30 3 1 080131 08:35:00 080131 09:23:00 KLX27A 352.30–357.30 3 1 080131 09:56:00 080131 10:33:00	KLX27A	577.30-597.30	3	1	080127 18:07:00	080127 19:30:00
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KLX27A 337.30-342.30 3 1 080130 14:37:00 080130 16:15:00 KLX27A 342.30-347.30 3 1 080130 16:51:00 080130 18:32:00 KLX27A 347.30-352.30 3 1 080131 08:35:00 080131 09:23:00 KLX27A 352.30-357.30 3 1 080131 09:56:00 080131 10:33:00	KLX27A	617.30-637.30	3	1	080128 10:56:00	080128 12:19:00
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KLX27A 347.30–352.30 3 1 080131 08:35:00 080131 09:23:00 KLX27A 352.30–357.30 3 1 080131 09:56:00 080131 10:33:00	KLX27A	337.30-342.30	3	1	080130 14:37:00	080130 16:15:00
KLX27A 352.30-357.30 3 1 080131 09:56:00 080131 10:33:00	KLX27A	342.30-347.30	3	1	080130 16:51:00	080130 18:32:00
	KLX27A	347.30-352.30	3	1	080131 08:35:00	080131 09:23:00
KLX27A 397.30-402.30 3 1 080131 11:31:00 080131 12:10:00	KLX27A	352.30-357.30	3	1	080131 09:56:00	080131 10:33:00
	KLX27A	397.30-402.30	3	1	080131 11:31:00	080131 12:10:00

Bh ID	Test section (m bToC)	Test type ¹⁾	Test no	Test start date, time	Test stop date, time
KLX27A	402.30-407.30	3	1	080131 13:28:00	080131 14:07:00
KLX27A	407.30-412.30	3	1	080131 14:39:00	080131 15:18:00
KLX27A	412.30-417.30	3	1	080131 15:50:00	080131 17:29:00
KLX27A	437.30-442.30	3	1	080131 18:13:00	080131 18:51:00
KLX27A	442.30-447.30	3	1	080201 08:29:00	080201 09:11:00
KLX27A	442.30-447.30	3	2	080207 13:26:00	080207 15:07:00
KLX27A	447.30-452.30	3	1	080201 09:43:00	080201 10:22:00
KLX27A	452.30-457.30	3	1	080201 10:54:00	080201 11:35:00
KLX27A	477.30-482.30	3	1	080201 13:16:00	080201 13:54:00
KLX27A	482.30-487.30	3	1	080201 14:25:00	080201 15:04:00
KLX27A	487.30-492.30	3	1	080201 15:33:00	080201 16:12:00
KLX27A	492.30-497.30	3	1	080201 16:47:00	080201 18:51:00
KLX27A	497.30-502.30	3	1	080202 08:26:00	080202 09:50:00
KLX27A	502.30-507.30	3	1	080202 10:21:00	080202 11:41:00
KLX27A	507.30-512.30	3	1	080202 13:19:00	080202 13:57:00
KLX27A	512.30-517.30	3	1	080202 14:47:00	080202 15:26:00
KLX27A	517.30-522.30	3	1	080202 15:57:00	080202 16:34:00
KLX27A	522.30-527.30	3	1	080202 17:07:00	080202 17:45:00
KLX27A	527.30-532.30	3	1	080203 08:43:00	080203 09:22:00
KLX27A	532.30-537.30	3	1	080203 09:54:00	080203 11:19:00
KLX27A	537.30-542.30	3	1	080203 11:51:00	080203 12:29:00
KLX27A	542.30-547.30	3	1	080203 13:01:00	080203 13:41:00
KLX27A	547.30-552.30	3	1	080203 15:16:00	080203 16:41:00
KLX27A	552.30-557.30	3	1	080203 17:16:00	080203 19:29:00
KLX27A	557.30-562.30	3	1	080204 08:38:00	080204 10:17:00
KLX27A	562.30-567.30	3	1	080204 10:40:00	080204 11:18:00
KLX27A	567.30-572.30	3	1	080204 12:28:00	080204 14:07:00
KLX27A	572.30-577.30	3	1	080204 14:39:00	080204 16:15:00
KLX27A	577.30-582.30	4B	1	080204 16:44:00	080204 19:23:00
KLX27A	582.30-587.30	4B	1	080205 08:24:00	080205 10:05:00
KLX27A	587.30-592.30	3	1	080205 10:35:00	080205 12:03:00
KLX27A	592.30-597.30	3	1	080205 13:05:00	080205 14:27:00
KLX27A	597.30-602.30	3	1	080205 14:58:00	080205 16:19:00
KLX27A	602.30-607.30	3	1	080205 16:55:00	080205 17:35:00
KLX27A	607.30-612.30	3	1	080205 18:08:00	080205 18:47:00
KLX27A	612.30-617.30	3	1	080206 08:28:00	080206 09:06:00
KLX27A	617.30-622.30	3	1	080206 09:36:00	080206 10:16:00
KLX27A	622.30-627.30	3	1	080206 10:47:00	080206 12:10:00
KLX27A	627.30-632.30	3	1	080206 13:09:00	080206 14:32:00
KLX27A	632.30-637.30	3	1	080206 15:07:00	080206 16:31:00
KLX27A	637.30-642.30	3	1	080206 17:02:00	080206 18:25:00
KLX27A	640.20-645.20	3	1	080207 08:33:00	080207 09:54:00
KLX27A	645.20–650.56	3	1	080209 13:18:00	080209 15:17:00

 $^{^{1)}}$ 3: Injection test; 4B: pulse injection test.

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.

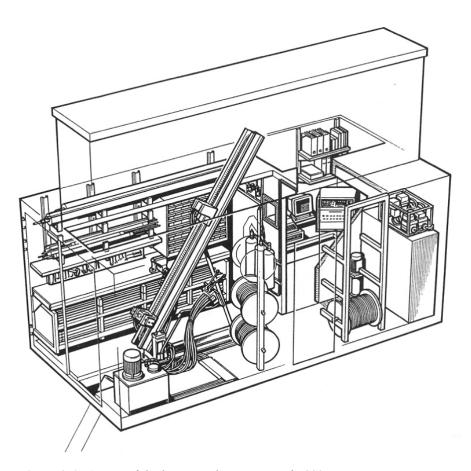


Figure 3-1. A view of the layout and equipment of PSS2.



Photo 1. Hydraulic rig.



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

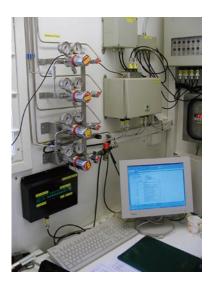


Photo 3. Computer room, displays and gas regulators.



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 3 kPa/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 3 kPa/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 (\pm 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 Figures 3-2 (double packer) and 3-3 (single packer).

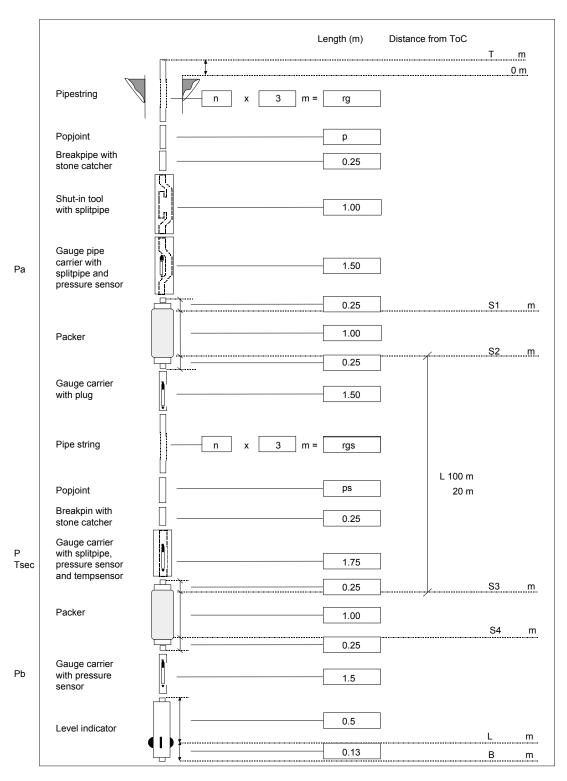


Figure 3-2. Schematic drawing of the down-hole equipment in the PSS2 system (double packer).

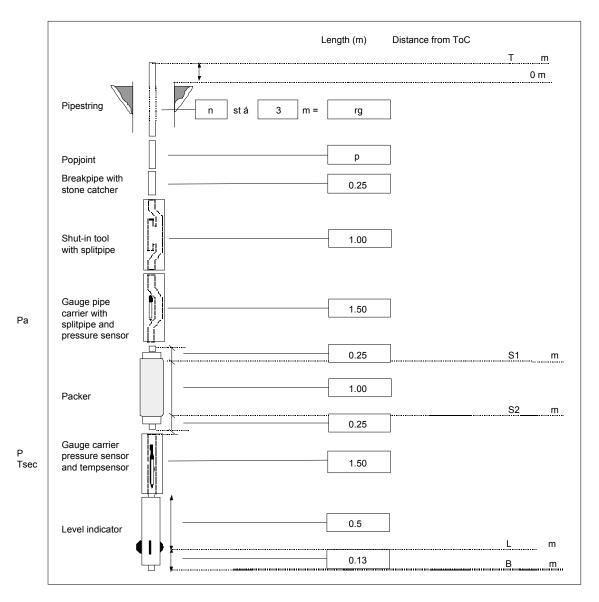


Figure 3-3. Schematic drawing of the down-hole equipment in the PSS2 system (single packer) utilised in the bottom section 645.20–650.56 m.

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
$Q_{\text{small}} \\$	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	
$p_{\text{in,out}}$	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	Senso	rs	Equipment at	fecting WBS co	pefficient	
ID	Test section (m)	Type	Position (m fr ToC)	Position	Function	Outer diameter (mm)	Net water volume in test section (m³)
KLX27A	77.30–177.30	p _a p T p _b L	75.30 176.43 176.26 179.30 180.55	Test section	Signal cable Pump string Packer line	9.1 33 6	0.359
KLX27A	77.30–97.30	p _a p T p _b L	75.30 96.43 96.26 99.30 99.55	Test section	Signal cable Pump string Packer line	9.1 33 6	0.072
KLX27A	337.30–342.30	p _a p T p _b L	335.30 336.43 336.26 344.30 344.55	Test section	Signal cable Pump string Packer line	9.1 33 6	0.018
KLX27A	645.20–650.56	p _a p T	643.20 646.20 646.03	Test section	Signal cable Pump string Packer line	9.1 33 6	0.019

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 3-4.

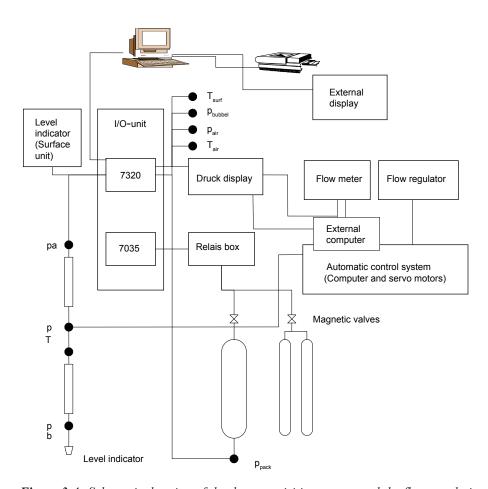


Figure 3-4. Schematic drawing of the data acquisition system and the flow regulation control system in PSS2.

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 Multikabel and hoses for packer and test valve. Clean the tubings with hot steam.
 Level 2!
- Filling injection tank with water out of the borehole HLX10.
- 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.

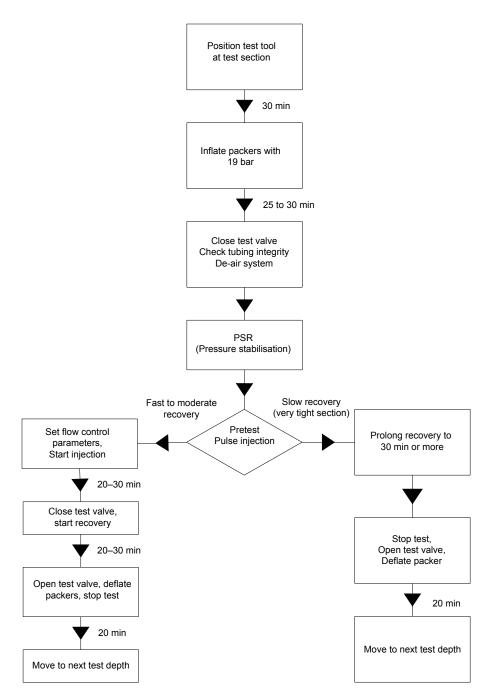


Figure 4-1. Flow chart for test performance.

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 but close to that value.

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. 2,000 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-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/ and /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 analysed 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 slow (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 shows an example of a typical pressure versus time evolution for such a tight section.

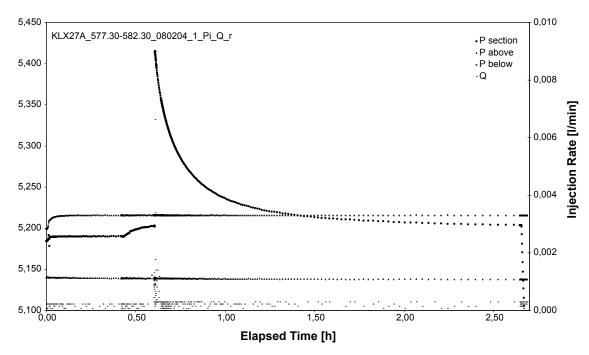


Figure 4-2. Typical pressure versus time plot of a pulse injection test.

• 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.

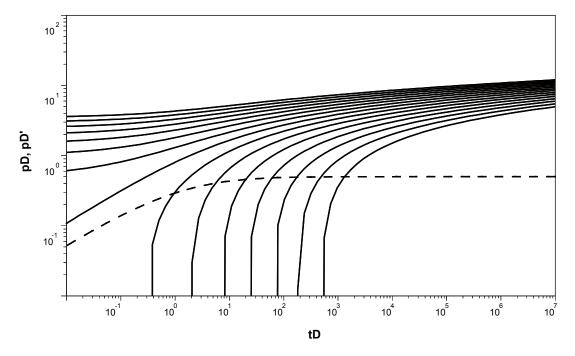


Figure 4-3. Deconvolution type curve set for pulse test analysis.

4.5.4 Correlation between storativity and skin factor

For the analysis of the conducted hydraulic tests below 100 m depth a storativity of $1 \cdot 10^{-6}$ and for hydraulic tests above 100 m a storativity of $1 \cdot 10^{-3}$ is assumed (SKB MD 320.004e). Based on this assumption the skin is 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 t₂.
- 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 t₂.

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

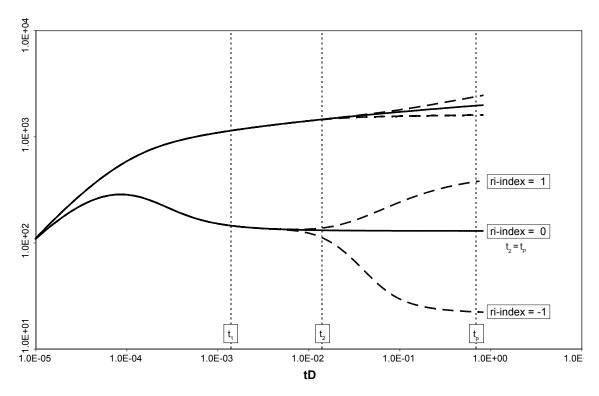


Figure 4-4. Schematic plot of the assignments for the ri-indices.

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/.

Calculation of the radius of influence

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

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

 T_T recommended inner zone transmissivity [m²/s]

t₂ 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/:

$$S_T = 0.0007 \cdot T_T^{0.5} [-]$$

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 be 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 meters 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/m³ (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 meters 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 $h_{\rm iwf}$ 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

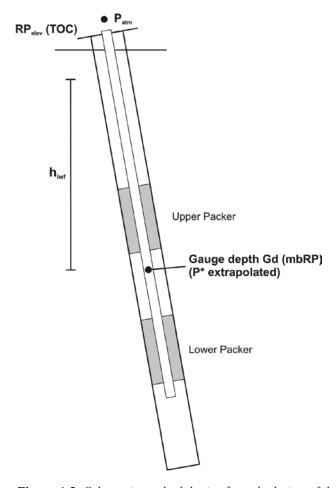


Figure 4-5. Schematic methodologies for calculation of the freshwater head.

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 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

Malfunctions of the pressure transducer at position Pa (pressure above test section) were observed during performance of the single packer test. As this value is of minor importance for the evaluation of the conducted injection test, it was agreed by SKB to proceed with the test

Some intervals were not tested because tests at the previous larger scale showed flow below the measurement limit of the equipment. Specifically the intervals that were not tested at the 5 m scale for this reason are the following,

297.30-317.30 m

317.30-337.30 m

357.30-377.30 m

377.30-397.30 m

417.30-437.30 m

457.30-477.30 m

This does however not constitute an nonconformity since this adopted approach is specififed in the activityplan and does not deviate from the planed test schedule.

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, 5.3 the 5 m tests and 5.4 the single packer test. 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 Tables 6-1 and 6-2 of the Summary chapter. In addition, the results are presented in Appendices 2, 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 400-07-056; SKB controlling document).

5.1 100 m single-hole injection tests

In the following, the 100 m section tests conducted in borehole KLX27A are presented and analysed.

5.1.1 Section 77.30–177.30 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 to 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. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 1.2 L/min at start of the CHi phase to 0.8 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). With the exception of the relative fast recovery of the CHir phase, 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 slight noisy but flat derivative, indicating radial flow. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a steep downward trend at middle times indicating a high positive skin and 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 2.1.

Selected representative parameters

The recommended transmissivity of $8.4\cdot10^{-7}$ m²/s was derived from the analysis of the CHi phase, which shows slight better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0\cdot10^{-7}$ m²/s to $4.0\cdot10^{-6}$ m²/s. The flow dimension displayed during the test is 2. 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 1,604.4 kPa.

Apart from the relative high skin derived from the CHir phase, both phases show consistency. No further analysis is recommended.

5.1.2 Section 177.30–277.30 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 to 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 202 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 2.8 L/min at start of the CHi phase to 0.72 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 slight noisy but flat derivative at middle and late times, indicating 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 stabilisation at middle times followed by a downward trend at late times, indicating a change of transmissivity at some distance to the borehole. A two shell composite model with radial flow and wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2.2.

Selected representative parameters

The recommended transmissivity of $2.9 \cdot 10^{-7}$ m²/s was derived from the analysis of the CHir phase, which shows slight better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-8}$ m²/s to $7.0 \cdot 10^{-7}$ m²/s. The flow dimension displayed during the test is 2. 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 2,503.9 kPa.

Apart from the different flow models used for analysis (homogeneous for the CHi and composite for the CHir phase), both phases show consistency. No further analysis is recommended.

5.1.3 Section 277.30–377.30 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 206 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.019 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). 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 slight noisy but flat derivative at middle times, followed by a downward slope and a further horizontal stabilisation at late times. A two shell composite radial flow model was chosen for the analysis of the CHi phase. The

derivative of the CHir phase shows a downward slope and beginning of a horizontal stabilisation at late times. However, the skin dominated slope could be matched sufficiently only by using a two shell composite model with radial flow, wellbore storage and skin. The analysis is presented in Appendix 2.3.

Selected representative parameters

The recommended transmissivity of $1.6 \cdot 10^{-9}$ m²/s was derived from the analysis of the CHi phase (inner zone), which shows a good horizontal stabilisation of the derivative despite of the noisy data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-10}$ m²/s to $5.0 \cdot 10^{-9}$ m²/s. The flow dimension displayed during the test is 2. 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 3,388.5 kPa.

Apart from the noisy data of the CHi phase, both phases show a very good consistency. No further analysis is recommended.

5.1.4 Section 377.30–477.30 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. Because of a power breakdown at the end of the pulse test, a new test sequence was conducted consisting of a constant pressure injection phase (CHi) and a recovery phase (CHir). 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 10 mL/min at start of the CHi phase to 3 mL/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 slight noisy but flat derivative at middle times and late times. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase covers only wellbore storage dominated response with transition to skin dominated response. Therefore, despite of the good data quality, the analysis shows a relative high level of ambiguity. However, an analysis using a homogenous flow model with radial flow, wellbore storage and skin was used for analysis. The analysis is presented in Appendix 2.4.

Selected representative parameters

The recommended transmissivity of $1.3\cdot10^{-9}$ m²/s was derived from the analysis of the CHi phase, which shows a good horizontal stabilisation of the derivative despite of the noisy data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0\cdot10^{-10}$ m²/s to $6.0\cdot10^{-9}$ m²/s. The flow dimension displayed during the test is 2. According to a too short recovery phase which implied a too high level of uncertainty, a straight line extrapolation in a Horner plot was not performed. Therefore, no static pressure measured at transducer depth could be derived from the CHir phase.

Apart from the noisy data of the CHi phase and the too short recovery phase, both phases show a good consistency. No further analysis is recommended.

5.1.5 Section 477.30–577.30 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 206 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 0.12 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 slight noisy but flat derivative at middle and late times, indicating 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 stabilisation at late times. A homogeneous radial flow model with wellbore storage and skin was chosen for the analysis. Both phases show a negative skin which indicated a higher transmissivity of the close surrounding of the borehole wall. The analysis is presented in Appendix 2.5.

Selected representative parameters

The recommended transmissivity of $2.5 \cdot 10^{-8}$ m²/s was derived from the analysis of the CHir phase, which shows slight better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $9.0 \cdot 10^{-9}$ m²/s to $6.0 \cdot 10^{-8}$ m²/s. The flow dimension displayed during the test is 2. 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 5,145.7 kPa.

Both phases show a very good consistency. No further analysis is recommended.

5.1.6 Section 545.20–645.20 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 207 kPa. A hydraulic connection to the bottom zone was observed during the CHi and CHir phases. The pressure in the bottom zone rose sharply at the beginning of the injection and increased during the further injection slightly up to a difference of 35 kPa. During the recovery the pressure in the bottom zone dropped steadily to the undisturbed pressure before start of injection. The injection rate decreased from 14.0 L/min at start of the CHi phase to 7.08 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). Despite of the crossflow to the bottom zone, 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 slight noisy but flat derivative at

middle times, followed by a downward slope and a further flat derivative at late times, 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 steep slope at the skin dominated part of the pressure recovery. To match this slope, a two shell composite model with radial flow model, wellbore storage and skin was chosen for the analysis. The CHir phase shows a negative skin which indicated a higher transmissivity of the close surrounding of the borehole wall. The analysis is presented in Appendix 2.6.

Selected representative parameters

The recommended transmissivity of $1.9 \cdot 10^{-6}$ m²/s was derived from the analysis of the CHir phase (inner zone), which shows slight better data and derivative quality. According to the test performance, the matched transmissivity especially of the outer zones is understood as influenced by the crossflow and not representative for the formation. The confidence range for the interval transmissivity is estimated with a relative wide range to be $9.0 \cdot 10^{-7}$ m²/s to $2.0 \cdot 10^{-5}$ m²/s. The flow dimension displayed during the test is 2. 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 5.746.3 kPa.

According to the crossflow effects and a difference in skin (positive at the CHi phase and negative at the CHir phase), both phases show limited consistency. A full numerical test simulation may help to figure out the range of influence originated by the observed crossflow.

5.2 20 m single-hole injection tests

In the following, the 20 m section tests conducted in borehole KLX27A are presented and analysed.

5.2.1 Section 77.30–97.30 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 0.9 L/min at start of the CHi phase to 0.6 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). With the exception of the relative fast recovery of the CHir phase, 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 slight noisy but flat derivative, indicating radial flow. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a steep downward trend at middle times indicating a high positive skin and 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 2.7.

The recommended transmissivity of $7.4 \cdot 10^{-7}$ m²/s was derived from the analysis of the CHi phase, which shows slight better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-7}$ m²/s to $3.0 \cdot 10^{-6}$ m²/s. The flow dimension displayed during the test is 2. 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 891.6 kPa.

Apart from the relative high skin derived from the CHir phase, both phases show consistency. No further analysis is recommended.

5.2.2 Section 97.30–117.30 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 to 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 50 mL/min at start of the CHi phase to 25 mL/min at the end, indicating a medium to low interval transmissivity (consistent with the pulse recovery). The Chi phase is a little bit noisy and the Chir phase shows a relative fast 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 derivative of the CHi phase is noisy but shows a trend of horizontal stabilisation at middle and late times, indicating radial flow. The CHi phase was analysed using an infinite acting homogeneous radial flow model. The derivative of the CHir phase shows a downward trend at middle times and a beginning of 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 2.8.

Selected representative parameters

The recommended transmissivity of $2.8\cdot10^{-8}$ m²/s was derived from the analysis of the CHi phase, which shows horizontal stabilisation. The confidence range for the interval transmissivity is estimated to be $8.0\cdot10^{-9}$ m²/s to $6.0\cdot10^{-8}$ m²/s. A flow dimension of 2 was assumed for the test. 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 1,071.1 kPa.

The analyses of the CHi and CHir phases show good consistency, with the exception of the high skin value derived from the CHir phase. No further analysis is recommended.

5.2.3 Section 117.30–137.30 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 7 mL/min at start of the CHi phase to 5 mL/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate the recorded data of the CHi phase is noisy, but still amenable 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 is noisy but shows a flat derivative at late times, indicating a flow dimension of 2 (radial flow). The CHir phase shows a downward trend at late times. This behaviour indicates a transition from wellbore storage and skin dominated flow to pure formation flow. Both phases were analysed using a radial infinite acting homogeneous flow model. The analysis is presented in Appendix 2.9.

Selected representative parameters

The recommended transmissivity of $8.5 \cdot 10^{-9}$ 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 $8.5 \cdot 10^{-9}$ m²/s to $2.0 \cdot 10^{-9}$ m²/s. A flow dimension of 2 was assumed for the test. 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 1,237.6 kPa.

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

5.2.4 Section 137.30-157.30 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 7 mL/min at start of the CHi phase to 5 mL/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate the recorded data of the CHi phase is noisy, but still amenable for quantitative analysis. The CHir phase shows a fast recovery, which adds uncertainty to the derived parameters.

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 but shows a flat derivative at late times, indicating a flow dimension of 2 (radial flow). The CHir phase shows a steep downward trend at middle times followed by horizontal stabilisation at late times. A radial infinite acting homogeneous flow model was chosen for both phases. The analysis is presented in Appendix 2.10.

The recommended transmissivity of $6.4\cdot10^{-8}$ m²/s was derived from the analysis of the CHi phase, which shows the clearest radial flow and best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0\cdot10^{-8}$ m²/s to $2.0\cdot10^{-7}$ m²/s. A flow dimension of 2 was assumed for the test. 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 1,422.5 kPa.

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

5.2.5 Section 157.30–177.30 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 to 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, after initial oscillations induced by the regulation unit, from 0.7 L/min at start of the CHi phase to 0.1 L/min at the end, indicating a low to 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. The upward trend was interpreted as the transition to a zone of lower transmissivity and analysed using a two shell composite flow model. The derivative of the CHir phase is consistent with the CHi phase, indicating a decreasing transmissivity at some distance from the borehole. A two shell composite model with wellbore storage and skin was chosen for the analysis of the CHir phase. The analysis is presented in Appendix 2.11.

Selected representative parameters

The recommended transmissivity of $2.4 \cdot 10^{-7}$ 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 $7.0 \cdot 10^{-8}$ m²/s to $4.0 \cdot 10^{-7}$ m²/s. The flow dimension displayed during the test is 2. 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 1,619.8 kPa.

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

5.2.6 Section 177.30-197.30 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 to 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 198 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 60 mL/min at start of the CHi phase to 32 mL/min at the end, indicating a low to 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 downward slope at middle times and a trend of horizontal stabilisation at late times. The CHi phase was matched using a radial composite flow model. The derivative of the CHir phase shows a downward slope at middle times, indicating an increase of transmissivity at some distance from the borehole. A two shell composite model with increasing transmissivity was chosen for the analysis of the CHir phase. The analysis is presented in Appendix 2.12.

Selected representative parameters

The recommended transmissivity of $1.3\cdot10^{-8}$ 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 $8.0\cdot10^{-9}$ m2/s to $5.0\cdot10^{-8}$ m²/s. The flow dimension displayed during the test is 2. 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 1,782.0 kPa.

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

5.2.7 Section 197.30-217.30 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 12 mL/min at start of the CHi phase to 9 mL/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate the recorded data of the CHi phase is noisy, but still amenable 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 is noisy throughout the test phase. An average of the derivative can be considered as horizontal stabilisation, indicating radial flow. The CHi phase was analysed using a homogeneous radial flow model. The derivative of the CHir phase shows wellbore storage and skin dominated flow and a trend to horizontal stabilisation at late times. A homogeneous radial flow model with wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2.13.

The recommended transmissivity of $7.8 \cdot 10^{-9}$ 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 $3.0 \cdot 10^{-9}$ m²/s to $5.0 \cdot 10^{-8}$ m²/s. A flow dimension of 2 was assumed for the test. 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 1,960.1 kPa.

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

5.2.8 Section 217.30–237.30 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 0.89 L/min at start of the CHi phase to 0.55 L/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). With the exception of the relative fast recovery of the CHir phase, 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 slight noisy but flat derivative, indicating radial flow. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a steep downward trend at middle times, indicating a high positive skin, and 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 2.14.

Selected representative parameters

The recommended transmissivity of $3.1\cdot10^{-7}$ m²/s was derived from the analysis of the CHi phase, which shows better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $9.0\cdot10^{-8}$ m²/s to $5.0\cdot10^{-7}$ m²/s. The flow dimension displayed during the test is 2. 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 2,153.2 kPa.

Apart from the relative high skin derived from the CHir phase, both phases show consistency. No further analysis is recommended.

5.2.9 Section 237.30-257.30 m, test no. 1 and 2, injection

Comments to test

The first test was cancelled due to unstable pressure conditions during the constant pressure injection phase. The regulation unit switched between the pump and vessel causing an increasing injection pressure. The second test was performed without technical problems. This comment describes the second 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 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 254 kPa. The higher dp was chosen to avoid switching between the vessel and the pump. 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 0.13 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 early times, followed by an upward trend at middle times and a trend of horizontal stabilisation at late times. The derivative of the CHir phase shows an upward slope at middle and late times without reaching horizontal stabilisation. Both phases were analysed using a composite radial flow model. The analysis is presented in Appendix 2.15.

Selected representative parameters

The recommended transmissivity of $8.5 \cdot 10^{-8}$ 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 $1.0 \cdot 10^{-8}$ m²/s to $2.0 \cdot 10^{-7}$ m²/s. The flow dimension used for the analysis is 2. The static pressure could not be extrapolated.

No further analysis is recommended.

5.2.10 Section 257.30-277.30 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 very slow recovery of the pulse test indicated a very low formation transmissivity. Based on this result no constant pressure injection test was performed. Instead, the recovery of the pulse injection test was prolonged and analysed.

During the brief injection phase of the pulse injection a total volume of about 7.3 mL was injected (derived from the flow meter readings). This injected volume produced a pressure increase of 223 kPa. Using a dV/dP approach, the wellbore storage coefficient relevant for the subsequent pressure recovery can be calculated to $4.9 \cdot 10^{-11}$ m³/Pa. It should be noted though that there is uncertainty connected with the determination of the wellbore storage coefficient, which will implicitly translate into uncertainty in the derived transmissivity.

Flow regime and calculated parameters

For the interpretation a flow dimension of 2 (radial flow) was assumed. In case of the present test the deconvolved PI pressure derivative shows a continuing upward trend without horizontal stabilisation. The PI phase was analysed using a radial homogeneous flow model. The analysis is presented in Appendix 2.16.

The recommended transmissivity of $2.7 \cdot 10^{-11}$ m²/s was derived from the analysis of the Pi phase. The confidence range for the interval transmissivity is estimated to be $7.0 \cdot 10^{-12}$ to $5.0 \cdot 10^{-11}$ m²/s. The analysis was conducted using a flow dimension of 2. The static pressure could not be extrapolated due to the very low transmissivity.

5.2.11 Section 277.30-297.30 m, test no. 1 and 2, injection

Comments to test

The first test was cancelled due to problems with the regulation unit and unstable pressure conditions during the constant pressure injection phase. The second test was performed without technical problems. This comment describes the second 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 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 to the adjacent zones was observed. The injection rate oscillated during the CHi phase around 2 mL/m, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate the recorded date is noisy and adds uncertainty to the 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 is very noisy (due to the low injection rate) and does not allow flow model identification. The derivative of the CHir phase shows a continues downward trend, indication a transition from wellbore storage and skin dominated flow to pure formation flow. The Both phases were analysed using a homogeneous radial flow model. The analysis is presented in Appendix 2.17.

Selected representative parameters

The recommended transmissivity of $5.9\cdot10^{-10}$ 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 $1.0\cdot10^{-10}$ m²/s to $2.0\cdot10^{-9}$ m²/s. A flow dimension of 2 was assumed for the test analysis. 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 2,684.0 kPa.

No further analysis is recommended.

5.2.12 Section 297.30-317.30 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 very slow recovery of the pulse test indicated a very low formation transmissivity. Based on this result no constant pressure injection test was performed. Instead, the recovery of the pulse injection test was prolonged and analysed.

During the brief injection phase of the pulse injection a total volume of about 12 mL was injected (derived from the flow meter readings). This injected volume produced a pressure increase of 208 kPa. Using a dV/dP approach, the wellbore storage coefficient relevant for the subsequent pressure recovery can be calculated to 5.8·10⁻¹¹ m³/Pa. It should be noted though that there is uncertainty connected with the determination of the wellbore storage coefficient, which will implicitly translate into uncertainty in the derived transmissivity.

Flow regime and calculated parameters

For the interpretation a flow dimension of 2 (radial flow) was assumed. In case of the present test the deconvolved PI pressure derivative shows a continuing upward trend without horizontal stabilisation. The PI phase was analysed using a radial homogeneous flow model. The analysis is presented in Appendix 2.18.

Selected representative parameters

The recommended transmissivity of $6.1 \cdot 10^{-11}$ m²/s was derived from the analysis of the Pi phase. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-11}$ to $1.0 \cdot 10^{-10}$ m²/s. The analysis was conducted using a flow dimension of 2. The static pressure could not be extrapolated due to the very low transmissivity.

5.2.13 Section 317.30-337.30 m, test no. 1, pulse 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). A preliminary pulse injection test should have shown a first estimate of the formation transmissivity. However, after inflating the packers and closing the test valve, the pressure rose by approx. 5 kPa. After conducting the pre-pulse the pressure decreases slowly and showed a horizontal stabilization. This phenomenon (no pulse recovery) can be attributed to a combination of a very tight section and a prolonged packer expansion (T probably smaller than 1E–11 m²/s). Due to the overlapping of pressure response and packer compliance the test was skipped. The test phase is not analysable.

The measured data is presented in Appendix 2.19.

Selected representative parameters

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

No further analysis recommended.

5.2.14 Section 337.30–357.30 m, test no. 1, injection

Comments to test

The test design consisted of a constant pressure injection phase (CHi) and a recovery phase (CHir).

The CHi phase was conducted using a pressure difference of 213 kPa. No hydraulic connection to the adjacent zones was observed. The test was conducted using the injection vessel with N2 backpressure. The injection rate decreased from 19 mL/min at start of the CHi phase to 6 mL/min at the end, indicating a relative low interval transmissivity (consistent with the pulse recovery). The regulation unit worked well, but the recorded flow data of the Chi phase is noisy. 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 derivative and a homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a slight downward trend at late times and is still influenced by wellbore storage and skin. A homogeneous radial flow model with wellbore storage and skin was chosen for the analysis. The analysis is presented in Appendix 2.20.

Selected representative parameters

The recommended transmissivity of $1.9\cdot10^{-9}$ m²/s was derived from the analysis of the CHir phase, which shows a better data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0\cdot10^{-10}$ m²/s to $5.0\cdot10^{-9}$ m²/s. The analysis was conducted using a flow dimension of 2. 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 3,203.5 kPa.

Both phases show good consistency. No further analysis is recommended.

5.2.15 Section 357.30-377.30 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). After inflating the packers and closing the test valve, the pressure increased by approx. 60 kPa. However, an injection phase was conducted using the vessel with N2 backpressure. The flow rate dropped below the measurement limit of 1 mL/min after approx. 10 min. The pressure during this phase was rising and the subsequent recovery was very slow. This phenomenon can be attributed to a tight section (T probably smaller than $1.0 \cdot 10^{-10} \text{ m}^2/\text{s}$) and a prolonged packer expansion. None of the test phases is analysable.

The measured data is presented in Appendix 2.21.

Selected representative parameters

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

No further analysis is recommended.

5.2.16 Section 377.30-397.30 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 very slow recovery of the pulse test indicated a very low formation transmissivity. Based on this result no constant pressure injection test was performed. Instead, the recovery of the pulse injection test was prolonged and analysed.

During the brief injection phase of the pulse injection a total volume of about 11 mL was injected (derived from the flow meter readings). This injected volume produced a pressure increase of 227 kPa. Using a dV/dP approach, the wellbore storage coefficient relevant for the subsequent pressure recovery can be calculated to 5.0·10⁻¹¹ m³/Pa. It should be noted though that there is uncertainty connected with the determination of the wellbore storage coefficient, which will implicitly translate into uncertainty in the derived transmissivity.

Flow regime and calculated parameters

For the interpretation a flow dimension of 2 (radial flow) was assumed. In case of the present test the deconvolved PI pressure derivative shows a horizontal stabilization at early and middle times, indicating radial flow. At late times a steep upward trend is apparent, which can be attributed to the uncertainty of the initial pulse pressure. However, a radial homogeneous flow model was used for the analysis. The analysis is presented in Appendix 2.22.

Selected representative parameters

The recommended transmissivity of $6.4 \cdot 10^{-11}$ m²/s was derived from the analysis of the Pi phase. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-11}$ to $1.0 \cdot 10^{-10}$ m²/s. The analysis was conducted using a flow dimension of 2. The static pressure could not be extrapolated due to the very low transmissivity.

5.2.17 Section 397.30-417.30 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 relative 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 test was conducted with the injection vessel using N2 backpressure. The injection rate decreased from 9 mL/min at start of the CHi phase to 2 mL/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). The recorded flow rate of the CHi phase is noisy and adds uncertainty to the 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 derivative, which does not allow a flow model identification. However, a homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows an upward trend at early and middle times, followed by a change in slope at late times. This behaviour indicates a transition from wellbore storage and skin dominated flow to pure formation flow. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.23.

Selected representative parameters

The recommended transmissivity of $1.5\cdot10^{-9}$ m²/s was derived from the analysis of the CHir phase, which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0\cdot10^{-10}$ m²/s to $6.0\cdot10^{-9}$ m²/s. A flow dimension of 2 was assumed. 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 3.738.4 kPa.

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

5.2.18 Section 417.30-437.30 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). After inflating the packers and closing the test valve, the pressure increased by approx. 50 kPa. To verify the response during the pressure static recovery phase, an injection phase was conducted using the vessel with N2 backpressure. The flow rate dropped below the measurement limit of 1 mL/min, immediately. This phenomenon can be attributed to a tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s) and a prolonged packer expansion. None of the test phases is analysable.

The measured data is presented in Appendix 2.24.

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.

5.2.19 Section 437.30-457.30 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 test was conducted with the injection vessel using N2 backpressure. The injection rate decreased from 3 mL/min at start of the CHi phase to 1 mL/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). The recorded flow rate of the CHi phase is noisy and adds uncertainty to the 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 derivative, which does not allow a flow model identification. However, a homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows an upward trend, because the pressure response is still influenced by wellbore storage. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.24.

Selected representative parameters

The recommended transmissivity of $5.6 \cdot 10^{-10}$ m²/s was derived from the analysis of the CHir phase, which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-10}$ m²/s to $5.0 \cdot 10^{-9}$ m²/s. A flow dimension of 2 was assumed. Due to the low formation transmissivity no static pressure was derived.

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

5.2.20 Section 457.30-477.30 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). After inflating the packers and closing the test valve, the pressure increased by approx. 40 kPa. To verify the response during the pressure static recovery phase, an injection phase was conducted using the vessel with N2 backpressure. The flow rate dropped below the measurement limit of 1 mL/min, immediately. This phenomenon can be attributed to a tight section (T probably smaller than $1.0 \cdot 10^{-11}$ m²/s) and a prolonged packer expansion. None of the test phases is analysable.

The measured data is presented in Appendix 2.26.

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.

5.2.21 Section 477.30-497.30 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 194 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 13 mL/min at start of the CHi phase to 12 mL/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). The automatic regulation unit worked well, but recorded flow rate is noisy. 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 derivative, which does not allow a flow model identification. However, a homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a downward trend at middle times and late times, which is indicative for a transition from wellbore storage and skin dominated flow to pure formation flow. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.27.

Selected representative parameters

The recommended transmissivity of $2.2 \cdot 10^{-8}$ m²/s was derived from the analysis of the CHir phase, which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $6.0 \cdot 10^{-9}$ m²/s to $7.0 \cdot 10^{-8}$ m²/s. A flow dimension of 2 was assumed. 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 4,451.9 kPa.

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

5.2.22 Section 497.30-517.30 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 28 mL/min at start of the CHi phase to 17 mL/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 an upward trend at middle times and a slight horizontal stabilization at late times. The derivative of the CHir phase is consistent to the derivative of the CHi phase. Both derivatives indicate a change in transmissivity at some distance from the borehole and a two shell composite flow model was used for the analysis. The analysis is presented in Appendix 2.28.

Selected representative parameters

The recommended transmissivity of $1.4\cdot10^{-8}$ 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 $6.0\cdot10^{-9}$ m²/s to $5.0\cdot10^{-8}$ m²/s. The flow dimension during the test is 2. 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 4,623.8 kPa.

The analyses of both phases show good consistency. No further analysis is recommended.

5.2.23 Section 517.30-537.30 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 197 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 42 mL/min at start of the CHi phase to 27 mL/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 derivatives of the CHi and CHir phase show a horizontal stabilization at middle times followed by a downward trend at late times. This is indicative for an increase in transmissivity away from the borehole. A two shell composite flow model was chosen for the analysis of both phases. The analysis is presented in Appendix 2.29.

The recommended transmissivity of $1.7 \cdot 10^{-8}$ m²/s was derived from the analysis of the CHir phase (inner zone), which shows the best horizontal stabilization and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-9}$ m²/s to $7.0 \cdot 10^{-8}$ m²/s. The flow dimension during the test is 2. 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 4,798.9 kPa.

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

5.2.24 Section 537.30-557.30 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 to 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 214 kPa. No hydraulic connection to the adjacent zones was observed. The test was conducted using the injection vessel with N2 backpressure and the pressure dropped approx. 6 kPa during the CHi phase. The injection rate decreased from 15 mL/min at start of the CHi phase to 6 mL/min at the end, indicating a medium to low interval transmissivity (consistent with the pulse recovery). The CHi phase is noisy, but still amenable 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 relatively flat derivative. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a downward trend at middle and late times, which is indicative for a transition from wellbore storage and skin dominated flow to pure formation flow. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.30.

Selected representative parameters

The recommended transmissivity of $6.7 \cdot 10^{-9}$ m²/s was derived from the analysis of the CHir phase, which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $2.0 \cdot 10^{-9}$ m²/s to $3.0 \cdot 10^{-7}$ m²/s. A flow dimension of 2 was assumed. 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 4,907.9 kPa.

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

5.2.25 Section 557.30-577.30 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 to 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 205 kPa. No hydraulic connection to the adjacent zones was observed. The test was conducted using the injection vessel with N2 backpressure and the pressure dropped approx. 4 kPa during the CHi phase. The injection rate decreased from 9 mL/min at start of the CHi phase to 3 mL/min at the end, indicating a medium to low interval transmissivity (consistent with the pulse recovery). The CHi phase is noisy, but still amenable 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 relatively flat derivative. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase is still influenced by wellbore storage and skin dominated flow. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.31.

Selected representative parameters

The recommended transmissivity of $1.3 \cdot 10^{-9}$ m²/s was derived from the analysis of the CHir phase, which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-10}$ m²/s to $6.0 \cdot 10^{-9}$ m²/s. A flow dimension of 2 was assumed. 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 4,141.4 kPa.

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

5.2.26 Section 577.30-597.30 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. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 1 L/min at start of the CHi phase to 0.96 L/min at the end, indicating a relatively high interval transmissivity (consistent with the pulse recovery). The automatic regulation unit worked well. However, the recorded data of the CHi phase is noisy. The subsequent CHir phase shows a fast recovery. Therefore, the results of the analyses should be regarded as order of magnitude, only.

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 derivative. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The early time data of the derivative of the CHir phase is not very conclusive, but it shows a steep downward trend, indicating a high positive skin. A horizontal stabilization is apparent at middle and late times. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.32.

The recommended transmissivity of $5.1\cdot10^{-6}$ m²/s was derived from the analysis of the CHir phase. The confidence range for the interval transmissivity is estimated to be $5.0\cdot10^{-7}$ m²/s to $6.0\cdot10^{-6}$ m²/s. The flow dimension displayed during the test is 2. 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 5,331.8 kPa.

The analyses of the CHi and CHir phases show consistency, with the exception of the very high skin derived from the CHir phase. No further analysis is recommended.

5.2.27 Section 597.30-617.30 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 to 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 196 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 111 mL/min at start of the CHi phase to 71 mL/min at the end, indicating a medium interval transmissivity (consistent with the pulse recovery). The automatic regulation unit worked well. However, a slight change of the pressure difference occurred during the injection phase. The subsequent CHir phase shows a fast recovery. However, both phases are still amenable 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 slight noisy, but flat derivative, indicating radial flow. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a steep downward trend followed by a kind of horizontal stabilization, indicating a high positive skin. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.33.

Selected representative parameters

The recommended transmissivity of $1.4\cdot10^{-7}$ m²/s was derived from the analysis of the CHi phase, which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $5.0\cdot10^{-8}$ m²/s to $6.0\cdot10^{-7}$ m²/s. The flow dimension displayed during the test is 2. 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 5,504.2 kPa.

The analyses of the CHi and CHir phases show consistency, with the exception of the relative high skin derived from the CHir phase. No further analysis is recommended.

5.2.28 Section 617.30-637.30 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 to 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 237 kPa. During the injection the pressure rose by 20 kPa in the bottom zone, indicating a connection to the adjacent zones. The injection rate decreased from 3.4 L/min at start of the CHi phase to 1.6 L/min at the end, indicating a medium to 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 derivative of the CHi phase shows a downward trend indicating an increase in transmissivity at some distance from the borehole. A two shell composite radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows downward trend, as well, and a composite radial flow model with wellbore storage and skin was used for the analysis. The analysis is presented in Appendix 2.34.

Selected representative parameters

The recommended transmissivity of $2.0 \cdot 10^{-7}$ 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 $9.0 \cdot 10^{-8}$ m²/s to $9.0 \cdot 10^{-7}$ m²/s. The flow dimension displayed during the test is 2. 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 5,663.2 kPa.

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

5.2.29 Section 625.20-645.20 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. During the injection the pressure rose by 30 kPa in the bottom zone, indicating a connection to the adjacent zones. The injection rate decreased from 13 L/min at start of the CHi phase to 6 L/min at the end, indicating a high interval transmissivity (consistent with the pulse recovery). With the exception of some oscillations at the start of the CHi phase, 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 slight horizontal stabilization at early times followed by a downward trend at middle times and a kind of a horizontal stabilization at a lower level. This is indicative for an increase in transmissivity at some distance from the borehole. With the exception of the horizontal stabilization at late times the derivative of the CHir phase is consistent to the behaviour of the CHi derivative. Both phases were analysed using a two shell composite flow model. The analysis is presented in Appendix 2.35.

The recommended transmissivity of $1.9 \cdot 10^{-6}$ 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 $9.0 \cdot 10^{-7}$ m²/s to $9.0 \cdot 10^{-6}$ m²/s. The flow dimension displayed during the test is 2. 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 5.743.2 kPa.

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

5.3 5 m single-hole injection tests

In the following, the 5 m section tests conducted in borehole KLX27A are presented and analysed.

5.3.1 Section 337.30-342.30 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 to 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 211 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 15 mL/min at start of the CHi phase to 4 mL/min at the end, indicating a medium to low interval transmissivity (consistent with the pulse recovery). With the exception of the relative noisy data of the CHi phase, caused by the low flow rate, 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 is noisy and shows a downward trend at late times. The CHir phase is less noisy, but shows the same behaviour at late times, indicating a change in transmissivity or flow dimension at some distance to the borehole. A two shell composite with increasing transmissivity away from the borehole was chosen for the analysis of both phases. The analysis is presented in Appendix 2.36.

Selected representative parameters

The recommended transmissivity of $1.0\cdot10^{-9}$ m²/s was derived from the analysis of the CHi phase. The confidence range for the interval transmissivity is estimated to be $8.0\cdot10^{-10}$ m²/s to $7.0\cdot10^{-9}$ m²/s. The flow dimension displayed during the test is 2. 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 3,063.1 kPa.

Both phases show consistency. No further analysis is recommended.

5.3.2 Section 342.30–347.30 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 206 kPa. No hydraulic connection to the adjacent zones was observed. During the entire flow period, the injection rate oscillated between 1 and 2 mL, indicating a low interval transmissivity (consistent with the pulse recovery). The CHi data are very noisy and the results of the analysis of this phase should be regarded as order of magnitude 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 CHi phase is too noisy and no flow model indentification is possible. The CHir derivative is less noisy, but the duration was too short to see horizontal stabilization. The phase is still in transition from wellbore dominated flow to pure formation flow. Both phases were analysed using an infinite acting homogeneous radial flow model. The analysis is presented in Appendix 2.37.

Selected representative parameters

The recommended transmissivity of $1.4\cdot10^{-9}$ m²/s was derived from the analysis of the CHir phase, which shows the best data quality. The confidence range for the interval transmissivity is estimated to be $5.0\cdot10^{-10}$ m²/s to $7.0\cdot10^{-9}$ m²/s. The flow dimension used for the analysis is 2. 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 3,127.8 kPa.

No further analysis is recommended.

5.3.3 Section 347.30–352.30 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 increased by 60 kPa in 30 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.

The measured data are presented in Appendix 2.38.

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 352.30–357.30 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 increased by 170 kPa in 10 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.

The measured data are presented in Appendix 2.39.

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 397.30–402.30 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 increased by 193 kPa in 10 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.

The measured data are presented in Appendix 2.40.

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 402.30–407.30 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 increased by 88 kPa in 10 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.

The measured data are presented in Appendix 2.41.

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.

5.3.7 Section 407.30–412.30 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 increased by 102 kPa in 10 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.

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.

5.3.8 Section 412.30-417.30 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 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 5 mL/min at start of the CHi phase to 1.8 mL/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). With the exception of the relative noisy data of the CHi phase, caused by the low flow rate, 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 derivative with a kind of a horizontal stabilization at middle and late times. The CHir phase is of better quality and shows a trend to horizontal stabilization at late times, indicating radial flow. Both phases were analysed using an infinite acting homogeneous radial flow model. The analysis is presented in Appendix 2.43.

Selected representative parameters

The recommended transmissivity of $8.3\cdot10^{-10}$ 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 $5.0\cdot10^{-10}$ m²/s to $6.0\cdot10^{-9}$ m²/s. The flow dimension displayed during the test is 2. 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 3,754.4 kPa.

Regarding the low flow rate and the quality of the CHi phase data, both phases show consistency. No further analysis is recommended.

5.3.9 Section 437.30-442.30 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 increased by 140 kPa in 10 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.

The measured data are presented in Appendix 2.44.

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 442.30-447.30 m, test no. 1 and 2, injection

Comments to test

The first test was cancelled after the pressure in the interval kept rising during packer inflation. When running out of hole with the tool after performing the 5 m double packer tests, it was decided to stop at this test depth and repeat this test. This comment describes the second test.

The test design consisted of a preliminary pulse injection test conducted with the goal of deriving a first estimate of the formation transmissivity. After inflating the packers, the interval pressure increased by 60 kPa in 20 minutes and become stable. The pressure response and the recovery of the pulse test indicated 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 173 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate oscillated during the CHi phase around 1 mL/m, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate, the data of the CHi phase are very noisy and the results of the analysis of this phase should be regarded as order of magnitude 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 CHi phase is too noisy to identify a flow dimension. The CHir derivative shows wellbore dominated flow. Both phases were analysed using an infinite acting homogeneous radial flow model. The analysis is presented in Appendix 2.45.

Selected representative parameters

The recommended transmissivity of $1.8\cdot10^{-9}$ 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 $5.0\cdot10^{-10}$ m²/s to $7.0\cdot10^{-9}$ m²/s. The flow dimension used for the analysis is 2. 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 4,015.9 kPa.

No further analysis is recommended.

5.3.11 Section 447.30–452.30 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 increased by 232 kPa in 10 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.

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 $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.12 Section 452.30-457.30 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 increased by 97 kPa in 15 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.

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.

5.3.13 Section 477.30-482.30 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 increased by 163 kPa in 10 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than 1.0·10⁻¹¹ m²/s). None of the test phases is analysable.

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.

5.3.14 Section 482.30-487.30 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 increased by 64 kPa in 10 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.

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.

5.3.15 Section 487.30-492.30 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 increased by 97 kPa in 10 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.

The measured data are presented in Appendix 2.50.

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 492.30-497.30 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 to 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 21 mL/min at start of the CHi phase to 10 mL/min at the end, indicating a medium to 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 is noisy but seems to be horizontal at middle and late times. The CHir derivative is of better quality and shows a horizontal stabilization at late times, indicating radial flow. Both phases were analysed using an infinite acting homogeneous radial flow model. The analysis is presented in Appendix 2.51.

The recommended transmissivity of $2.0 \cdot 10^{-8}$ m²/s was derived from the analysis of the CHir phase, which shows the better data and derivative quality and a clear horizontal stabilization. The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-9}$ m²/s to $8.0 \cdot 10^{-8}$ m²/s. The flow dimension displayed during the test is 2. 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 4,452.1 kPa.

Both phases show consistency. No further analysis is recommended.

5.3.17 Section 497.30-502.30 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 to 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 37 mL/min at start of the CHi phase to 13 mL/min at the end, indicating a medium to 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 an upward slope at middle and late times. This is indicative for a change in flow dimension or decreasing transmissivity away from the borehole. The CHir phase shows similar behaviour. After transition from wellbore storage and skin effects dominated flow to formation flow, the derivative shows an upward slope. In both cases the upward slope was interpreted as a change in transmissivity. Both phases were analysed using a radial two shell composite flow model. The analysis is presented in Appendix 2.52.

Selected representative parameters

The recommended transmissivity of $8.8 \cdot 10^{-9}$ m²/s was derived from the analysis of the CHi phase (inner zone). The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-9}$ m²/s to $8.0 \cdot 10^{-8}$ m²/s. Though no horizontal stabilization of the derivative was reached, a flow dimension of 2 was assumed. 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 4.492.4 kPa.

Both phases show consistency. No further analysis is recommended.

5.3.18 Section 502.30-507.30 m, test no. 1, injection

Comments to test

The test consisted of a constant pressure injection phase (CHi) and a recovery phase (CHir) was conducted. Due to the reaction during packer inflation, no pulse test was conducted.

The CHi phase was conducted using a pressure difference of 194 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 4.5 mL/min at start of the CHi phase to about 2 mL/min at the end, indicating low interval transmissivity. Due to the low flow rate, the CHi phase is noisy and the results should be regarded as order of magnitude 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 CHi phase is noisy and no clear shape can be seen. The CHir phase was too short to reach radial flow and the derivative shows the transition from wellbore dominated flow to pure formation flow. Both phases were analysed using an infinite acting homogeneous radial flow model. The analysis is presented in Appendix 2.53.

Selected representative parameters

The recommended transmissivity of $1.3\cdot10^{-9}$ 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 $9.0\cdot10^{-10}$ m²/s to $7.0\cdot10^{-9}$ m²/s. Though no horizontal stabilization of the derivative was reached, a flow dimension of 2 was assumed. 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 4,532.8 kPa.

Both phases show consistency. No further analysis is recommended.

5.3.19 Section 507.30-512.30 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 increased by 137 kPa in 10 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than 1.0·10⁻¹¹ m²/s). None of the test phases is analysable.

The measured data are presented in Appendix 2.54.

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.

5.3.20 Section 512.30-517.30 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 increased by 181 kPa in 10 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.

The measured data are presented in Appendix 2.55.

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.

5.3.21 Section 517.30-522.30 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 increased by 266 kPa in 10 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than 1.0·10⁻¹¹ m²/s). None of the test phases is analysable.

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.

5.3.22 Section 522.30-527.30 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 increased by 44 kPa in 10 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.

The measured data are presented in Appendix 2.57.

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.

5.3.23 Section 527.30-532.30 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 increased by 76 kPa in 10 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.

The measured data are presented in Appendix 2.58.

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.

5.3.24 Section 532.30-537.30 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 to 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 40 mL/min at start of the CHi phase to 24 mL/min at the end, indicating a medium to 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 is noisy but shows a horizontal part at middle and late times, indicating radial flow. The CHi phase was analysed using an infinite acting homogeneous radial flow model. The derivative of the CHir phase shows an upward slope at late middle times followed by a horizontal stabilization. At late times, the derivative shows a downward trend. The analysis of the CHir phase was conducted using a two shell composite flow model with wellbore storage and skin. The analysis is presented in Appendix 2.59.

Selected representative parameters

The recommended transmissivity of $1.6 \cdot 10^{-8}$ m²/s was derived from the analysis of the CHi phase, which shows a clear horizontal stabilization. The confidence range for the interval transmissivity is estimated to be $8.0 \cdot 10^{-9}$ m²/s to $8.0 \cdot 10^{-8}$ m²/s. The flow dimension displayed during the test is 2. 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 4,799.4 kPa.

Both phases show some inconsistencies regarding the flow model. The derived transmissivities are similar. Therefore, no further analysis is recommended.

5.3.25 Section 537.30-542.30 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 increased by 162 kPa in 10 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.

The measured data are presented in Appendix 2.60.

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.

5.3.26 Section 542.30-547.30 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 increased by 279 kPa in 10 min and kept rising. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than 1.0·10⁻¹¹ m²/s). None of the test phases is analysable.

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 $1.0 \cdot 10^{-11}$ m²/s.

No further analysis is recommended.

5.3.27 Section 547.30-552.30 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 to 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 205 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate decreased from 9.5 mL/min at start of the CHi phase to 4.5 mL/min at the end, indicating a medium to low interval transmissivity (consistent with the pulse recovery). Except the noisy data of the CHi phase, 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 CHi phase is noisy and does not show a clear shape. The derivative of the CHir phase shows at late times the transition from wellbore dominated flow to formation flow. Both phases were analysed using an infinite acting radial flow model. The analysis is presented in Appendix 2.62.

Selected representative parameters

The recommended transmissivity of $4.4\cdot10^{-9}$ 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 $1.0\cdot10^{-9}$ m²/s to $1.0\cdot10^{-8}$ m²/s. The analyses were conducted using a flow dimension of 2. 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 4,938.3 kPa.

No further analysis is recommended.

5.3.28 Section 552.30-557.30 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 to 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 approx. 3.5 mL/min at start of the CHi phase to approx. 1.5 mL/min at the end, indicating a medium to low interval transmissivity (consistent with the pulse recovery). With exception of the noise of the CHi phase, 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 is noisy and does not show a clear horizontal stabilization. A flow dimension of 2 (radial flow) was assumed. The derivative of the CHir phase shows at late times the transition from wellbore dominated flow to formation flow. Both phases were analysed using an infinite acting radial flow model. The analysis is presented in Appendix 2.63.

Selected representative parameters

The recommended transmissivity of $1.2 \cdot 10^{-9}$ 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 $9.0 \cdot 10^{-10}$ m²/s to $7.0 \cdot 10^{-9}$ m²/s. The analyses were conducted using a flow dimension of 2. 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 4,977.8 kPa.

No further analysis is recommended.

5.3.29 Section 557.30-562.30 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 175 kPa. No hydraulic connection to the adjacent zones was observed. The injection rate oscillated during the entire CHi phase between 1 and 1.5 mL/min, indicating a low interval transmissivity (consistent with the pulse recovery). The CHi data are very noisy and therefore the quality is not good. The results of the analysis of this phase should be regarded as order of magnitude only. The data quality of the CHir phase is good 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 derivative of the CHi phase is noisy and does not show a clear horizontal stabilization. A flow dimension of 2 (radial flow) was assumed. The derivative of the CHir phase shows at late times the transition from wellbore dominated flow to formation flow. Both phases were analysed using an infinite acting radial flow model. The analysis is presented in Appendix 2.64.

The recommended transmissivity of $1.1\cdot10^{-9}$ 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 $6.0\cdot10^{-10}$ m²/s to $6.0\cdot10^{-9}$ m²/s. The analyses were conducted using a flow dimension of 2. 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 5,034.1 kPa.

Both phases show consistency. No further analysis is recommended.

5.3.30 Section 562.30-567.30 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 increased by 146 kPa in 10 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.

The measured data are presented in Appendix 2.65.

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 567.30-572.30 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 194 kPa. No hydraulic connection to the adjacent zones was observed. The test was conducted with the injection vessel and N2 backpressure. The injection rate oscillates at around 1 mL/min, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate the recorded data is very noisy. 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 derivative, which does not allow a flow model identification. However, a homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a downward trend at middle times and late times, which is indicative for a transition from wellbore storage and skin dominated flow to pure formation flow. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.66.

The recommended transmissivity of $1.9 \cdot 10^{-9}$ m²/s was derived from the analysis of the CHir phase, which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $6.0 \cdot 10^{-10}$ m²/s to $6.0 \cdot 10^{-9}$ m²/s. A flow dimension of 2 was assumed. 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 5,109.5 kPa.

No further analysis is recommended.

5.3.32 Section 572.30-577.30 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 208 kPa. No hydraulic connection to the adjacent zones was observed. The test was conducted using the injection vessel with N2 backpressure. The injection rate decreased from approx. 6 mL/min at start of the CHi phase to approx. 3 mL/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). With exception of the noise of the recorded flow data of the CHi phase, 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 relatively flat derivative. An infinite acting radial flow model was used for the analysis of the CHi phase. The derivative of the CHir phase shows a horizontal stabilization at late times. A homogeneous flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.67.

Selected representative parameters

The recommended transmissivity of $7.6 \cdot 10^{-10}$ 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 $6.0 \cdot 10^{-10}$ m²/s to $8.0 \cdot 10^{-9}$ m²/s. The analyses were conducted using a flow dimension of 2. 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 5,149.3 kPa.

The analyses of both phases show consistency. No further analysis is recommended.

5.3.33 Section 577.30-582.30 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 very slow recovery of the pulse test indicated a very low formation transmissivity. Based on this result no constant pressure injection test was performed. Instead, the recovery of the pulse injection test was prolonged and analysed.

During the brief injection phase of the pulse injection a total volume of about 3 mL was injected (derived from the flow meter readings). This injected volume produced a pressure increase of 218 kPa. Using a dV/dP approach, the wellbore storage coefficient relevant for the subsequent pressure recovery can be calculated to $1.4 \cdot 10^{-11}$ m³/Pa. It should be noted though that there is uncertainty connected with the determination of the wellbore storage coefficient, which will implicitly translate into uncertainty in the derived transmissivity.

Flow regime and calculated parameters

For the interpretation a flow dimension of 2 (radial flow) was assumed. In case of the present test the deconvolved PI pressure derivative shows a horizontal stabilization at early times, followed by an upward trend at middle times and a new horizontal stabilization at late times. This behaviour is indicative for a change in transmissivity at some distance from the borehole. A two shell composite flow model with decreasing transmissivity was used for the analysis. The analysis is presented in Appendix 2.68.

Selected representative parameters

The recommended transmissivity of $9.4 \cdot 10^{-11}$ m²/s was derived from the analysis of the Pi phase (outer zone). The confidence range for the interval transmissivity is estimated to be $5.0 \cdot 10^{-11}$ to $4.0 \cdot 10^{-10}$ m²/s. The flow dimension displayed during the test is 2. The static pressure could not be extrapolated due to the very low transmissivity.

5.3.34 Section 582.30-587.30 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 very slow recovery of the pulse test indicated a very low formation transmissivity. Based on this result no constant pressure injection test was performed. Instead, the recovery of the pulse injection test was prolonged and analysed.

During the brief injection phase of the pulse injection a total volume of about 2 mL was injected (derived from the flow meter readings). This injected volume produced a pressure increase of 199 kPa. Using a dV/dP approach, the wellbore storage coefficient relevant for the subsequent pressure recovery can be calculated to $7.0 \cdot 10^{-12}$ m³/Pa. It should be noted though that there is uncertainty connected with the determination of the wellbore storage coefficient, which will implicitly translate into uncertainty in the derived transmissivity.

Flow regime and calculated parameters

For the interpretation a flow dimension of 2 (radial flow) was assumed. In case of the present test the deconvolved PI pressure derivative shows a horizontal stabilization at early times and middle times, indicating radial flow. The short downward trend at late times can be attributed to the uncertainty of the pulse initial pressure. Therefore, the early and middle time was considered for the analysis, only. The analysis is presented in Appendix 2.69.

Selected representative parameters

The recommended transmissivity of $2.3 \cdot 10^{-11}$ m²/s was derived from the analysis of the Pi phase. The confidence range for the interval transmissivity is estimated to be $1.0 \cdot 10^{-11}$ to $1.0 \cdot 10^{-10}$ m²/s. The flow dimension displayed during the test is 2. The static pressure could not be extrapolated due to the very low transmissivity.

5.3.35 Section 587.30-592.30 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 to 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. During the injection the flow rate was intensely oscillating. The average flow is approx. 7 mL/min, indicating a low to medium interval transmissivity (consistent with the pulse recovery). Due to the oscillations the CHi phase is not 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 derivative of the CHir shows a horizontal stabilization at middle times and a downward trend at late times, indicating an increase in transmissivity at some distance from the borehole. A two shell composite flow model with wellbore storage and skin was used for the analysis. The analysis is presented in Appendix 2.70.

Selected representative parameters

The recommended transmissivity of $3.2 \cdot 10^{-9}$ 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 $9.0 \cdot 10^{-10}$ m²/s to $1.0 \cdot 10^{-8}$ m²/s. The flow dimension displayed during the test is 2. 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 5.285.7 kPa.

No further analysis is recommended.

5.3.36 Section 592.30-597.30 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 relative 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 1.2 L/min at start of the CHi phase to 1.1 L/min at the end, indicating a relatively high interval transmissivity (consistent with the pulse recovery). The automatic regulation unit worked well. However, the recorded data of the CHi phase is noisy. The subsequent CHir phase shows a fast recovery. Therefore, the results of the analyses should be regarded as order of magnitude, only.

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 derivative. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The early time data of the derivative of the CHir phase is not very conclusive. A kind of a horizontal stabilization is apparent at middle and late times. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.71.

Selected representative parameters

The recommended transmissivity of $2.2 \cdot 10^{-6}$ m²/s was derived from the analysis of the CHi phase, which shows slight better data quality. The confidence range for the interval transmissivity is estimated to be $7.0 \cdot 10^{-7}$ m²/s to $5.0 \cdot 10^{-6}$ m²/s. The flow dimension displayed during the test is 2. 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 5,331.8 kPa.

The analyses of the CHi and CHir phases show consistency, with the exception of the high skin derived from the CHir phase. Due to the noise in the data and the fast recovery, no further analysis is recommended.

5.3.37 Section 597.30-602.30 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 to 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 76 mL/min at start of the CHi phase to 72 mL/min at the end, indicating a low to medium interval transmissivity (consistent with the pulse recovery). The automatic regulation unit worked well. However, the recorded data of the CHi phase is noisy. The subsequent CHir phase shows a relative fast recovery. Therefore, the results of the analyses should be regarded as order of magnitude, only.

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 derivative. A homogeneous radial flow model was chosen for the analysis of the CHi phase. The early time data of the derivative of the CHir phase is not very conclusive, but it shows a steep downward trend, indicating a high positive skin. A horizontal stabilization is apparent at middle and late times. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.72.

Selected representative parameters

The recommended transmissivity of $9.8\cdot 10^{-8}$ m²/s was derived from the analysis of the CHi phase. The confidence range for the interval transmissivity is estimated to be $3.0\cdot 10^{-8}$ m²/s to $4.0\cdot 10^{-7}$ m²/s. The flow dimension displayed during the test is 2. 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 5,375.6 kPa.

The analyses of the CHi and CHir phases show consistency, with the exception of the very high skin derived from the CHir phase. No further analysis is recommended.

5.3.38 Section 602.30-607.30 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 approx. 40 kPa in 10 minutes. This phenomenon is caused by

prolonged packer expansion in a very tight section (T probably smaller than $1E-11 \text{ m}^2/\text{s}$). None of the test phases is analysable.

The measured data is presented in Appendix 2.73.

Selected representative parameters

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

No further analysis recommended.

5.3.39 Section 607.30-612.30 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 approx. 75 kPa in 15 minutes. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than 1E–11 m²/s). None of the test phases is analysable.

The measured data is presented in Appendix 2.74.

Selected representative parameters

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

No further analysis recommended.

5.3.40 Section 612.30-617.30 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 approx. 95 kPa in 10 minutes. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than 1E–11 m²/s). None of the test phases is analysable.

The measured data is presented in Appendix 2.75.

Selected representative parameters

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

No further analysis recommended.

5.3.41 Section 617.30-622.30 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 approx. 70 kPa in 10 minutes. This phenomenon is caused by prolonged packer expansion in a very tight section (T probably smaller than 1E–11 m²/s). None of the test phases is analysable.

The measured data is presented in Appendix 2.76.

Selected representative parameters

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

No further analysis recommended.

5.3.42 Section 622.30-627.30 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 to 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 207 kPa. During the injection the pressure rose by 20 kPa in the bottom zone, indicating a connection to the adjacent zone. The injection rate decreased from 2.0 L/min at start of the CHi phase to 1.2 L/min at the end, indicating a medium to high interval transmissivity (consistent with the pulse recovery). The automatic regulation unit worked well, but the recorded data is noisy. 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 CHi phase is noisy and does not allow flow model identification. However, an infinite acting radial flow model was used for the analysis. The derivative of the CHir phase shows a horizontal stabilization at middle times followed by an downward trend at late times indicating an increase in transmissivity at some distance from the borehole. Therefore, a composite radial flow model with wellbore storage and skin was used for the analysis. The analysis is presented in Appendix 2.77.

Selected representative parameters

The recommended transmissivity of $3.2 \cdot 10^{-7}$ 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 $1.0 \cdot 10^{-7}$ m²/s to $2.0 \cdot 10^{-6}$ m²/s. The flow dimension displayed during the test is 2. 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 5.587.1 kPa.

The analyses of the CHi and CHir phases show an inconsistency regarding the flow model, which can be attributed to the poor data quality of the CHi phase. No further analysis is recommended.

5.3.43 Section 627.30-632.30 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 to 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 198 kPa. During the injection the pressure rose by 10 kPa in the bottom zone, indicating a connection to the adjacent zone. The injection rate decreased from 1.2 L/min at start of the CHi phase to 0.8 L/min at the end, indicating a medium to 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 derivative of the CHi phase shows a downward trend at middle times and a kind of a horizontal stabilization. This is indicative for a change in transmissivity away from the test interval. The derivative of the CHir phase shows a horizontal stabilization at middle times followed by a downward trend at late times. This is consistent to the derivative of the CHi phase. Both phases were matched using a two shell composite radial flow model with increasing transmissivity. The analysis is presented in Appendix 2.78.

Selected representative parameters

The recommended transmissivity of $9.0 \cdot 10^{-7}$ 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 $5.0 \cdot 10^{-7}$ m²/s to $4.0 \cdot 10^{-6}$ m²/s. The flow dimension displayed during the test is 2. 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 5.632.7 kPa.

Both analyses show some inconsistency regarding the inner zone transmissivity, which can be explained by the different skins derived from the analyses. However, regarding the used flow models the analyses show consistency. No further analysis is recommended.

5.3.44 Section 632.30-637.30 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 to 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 198 kPa. During the injection the pressure rose by approx. 5 kPa in the bottom zone, indicating a connection to the adjacent zone. The injection rate decreased from 1.0 L/min at start of the CHi phase to 0.7 L/min at the end, indicating a medium to 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 derivative of the CHi phase shows a horizontal stabilization at early times followed by a downward trend at middle times and a new horizontal stabilization at a lower lever at late times. This is consistent with an increase of transmissivity at some distance from the borehole. A two shell composite flow model was used 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 at late times, which is consistent to the CHi phase. A 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 2.79.

Selected representative parameters

The recommended transmissivity of $7.9 \cdot 10^{-7}$ 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 $5.0 \cdot 10^{-7}$ m²/s to $4.0 \cdot 10^{-6}$ m²/s. The flow dimension displayed during the test is 2. 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 5,671.5 kPa.

The analyses of both phases show consistency. No further analysis is recommended.

5.3.45 Section 637.30-642.30 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. During the injection the pressure rose by approx. 110 kPa in the bottom zone, indicating a connection to the adjacent zone. The injection rate decreased from 9.5 L/min at start of the CHi phase to 5.9 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 derivatives of the CHi and CHir phase show a horizontal stabilization at early times followed by a downward trend at middle times and a new horizontal stabilization at a lower lever at late times. This is consistent with an increase of transmissivity at some distance from the borehole. A two shell composite flow model was used for the analysis of both phases. The analysis is presented in Appendix 2.80.

Selected representative parameters

The recommended transmissivity of $2.5 \cdot 10^{-6}$ 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 $9.0 \cdot 10^{-7}$ m²/s to $2.0 \cdot 10^{-5}$ m²/s. The flow dimension displayed during the test is 2. 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 5.723.2 kPa.

The analyses of both phases show consistency. No further analysis is recommended.

5.3.46 Section 640.20-645.20 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. During the injection the pressure rose by approx. 35 kPa in the bottom zone, indicating a connection to the adjacent

zone. The injection rate decreased from 9.8 L/min at start of the CHi phase to 6.3 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 derivatives of the CHi phase shows a horizontal stabilization at early times followed by a downward trend at middle times and a new horizontal stabilization at a lower lever at late times. This indicates an increase of transmissivity at some distance from the borehole. With the exception of the horizontal stabilization at late times, the behaviour is consistent to the behaviour of the CHir phase. A two shell composite flow model was used for the analysis of both phases. The analysis is presented in Appendix 2.81.

Selected representative parameters

The recommended transmissivity of $2.7 \cdot 10^{-6}$ 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 $1.0 \cdot 10^{-6}$ m²/s to $1.0 \cdot 10^{-5}$ m²/s. The flow dimension displayed during the test is 2. 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 5.747.7 kPa.

The analyses of both phases show consistency. No further analysis is recommended.

5.4 Single packer injection test

In the following, the single packer test conducted in borehole KLX27A is presented and analysed.

5.4.1 Section 645.20–650.56 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 209 kPa. The test was conducted using the injection vessel wit N2 backpressure. The injection rate decreased from 5 mL/min at start of the CHi phase to 3 mL/min at the end, indicating a low interval transmissivity (consistent with the pulse recovery). Due to the low flow rate the recorded data during the injection phase is noisy. 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 derivative, which does not allow a flow model identification. However, a homogeneous radial flow model was chosen for the analysis of the CHi phase. The derivative of the CHir phase shows a downward trend at middle times and late times, which is indicative for a transition from wellbore storage and skin dominated flow to pure formation flow. A homogeneous radial flow model with wellbore storage and skin was used for the analysis of the CHir phase. The analysis is presented in Appendix 2.82.

Selected representative parameters

The recommended transmissivity of $5.1\cdot10^{-9}$ m²/s was derived from the analysis of the CHir phase, which shows the best data and derivative quality. The confidence range for the interval transmissivity is estimated to be $1.0\cdot10^{-9}$ m²/s to $1.0\cdot10^{-8}$ m²/s. A flow dimension of 2 was assumed. 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 5,759.9 kPa.

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 KLX27A (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 (m³/s)	Q _m (m³/s)	t _p (s)	t _F (s)	p₀ (kPa)	p _i (kPa)	p _p (kPa)	p _⊧ (kPa)	Te _w (°C)	Test phases measured Analysed test phases marked bold
77.30	177.30	080118 08:23	080118 10:30	1.35E-05	1.41E-05	1,800	1,800	1,608	1,605	1,803	1,605	9.5	CHi / CHir
177.30	277.30	080118 13:33	080118 15:24	1.20E-05	1.44E-05	1,800	1,800	2,495	2,513	2,715	2,511	10.8	CHi / CHir
277.30	377.30	080118 17:05	080118 23:07	1.00E-07	1.17E-07	1,800	14,400	3,385	3,396	3,602	3,390	12.2	CHi / CHir
377.30	477.30	080119 09:51	080119 11:50	4.83E-08	5.50E-08	1,800	1,800	4,257	4,265	4,487	4,355	13.6	CHi / CHir
477.30	577.30	080119 12:09	080119 13:47	8.33E-07	1.02E-06	1,800	1,800	5,136	5,153	5,359	5,174	14.9	CHi / CHir
545.20	645.20	080119 15:26	080,119 17:30	1.18E-04	1.27E-04	1,800	1,800	5,723	5,749	5,956	5,749	14.8	CHi / CHir
77.30	97.30	080120 09:30	080120 11:28	9.32E-06	9.68E-06	1,200	1,200	896	891	1,090	892	8.2	CHi / CHir
97.30	117.30	080121 17:33	080121 18:57	4.17E-07	4.50E-07	1,200	1,200	1,076	1,072	1,270	1,072	8.5	CHi / CHir
117.30	137.30	080122 08:37	080122 10:02	8.33E-08	8.03E-08	1,200	1,200	1,253	1,244	1,442	1,244	8.8	CHi / CHir
137.30	157.30	080122 10:43	080122 12:18	8.83E-07	9.00E-07	1,200	1,200	1,431	1,421	1,619	1,424	9.2	CHi / CHir
157.30	177.30	080122 13:38	080122 15:07	1.97E-06	2.20E-06	1,200	1,200	1,608	1,612	1,812	1,630	9.4	CHi / CHir
177.30	197.30	080122 15:44	080122 17:07	5.33E-07	6.00E-07	1,200	10,800	1,790	1,791	1,989	1,784	9.7	CHi / CHir
197.30	217.30	080122 17:51	080122 22:12	1.33E-07	1.50E-07	1,200	1,200	1,963	1,968	2,167	1,973	10.0	CHi / CHir
217.30	237.30	080123 08:45	080123 10:20	9.13E-06	1.05E-05	1,200	1,200	2,141	2,154	2,353	2,154	10.3	CHi / CHir
237.30	257.30	080123 10:54	080123 12:22	2.12E-06	3.37E-06	1,200	1,200	2,321	2,362	2,616	2,452	10.6	CHi / CHir
257.30	277.30	080123 13:32	080123 14:43	#NV	#NV	10	7,200	2,496	2,517	2,741	2,532	10.8	Pi
277.30	297.30	080123 14:51	080123 16:03	1.30E-03	2.42E-08	1,200	10,800	2,675	2,701	2,902	2,689	11.1	CHi / CHir
297.30	317.30	080123 16:42	080123 19:21	#NV	#NV	10	3,600	2,851	2,883	3,091	2,929	11.4	Pi
317.30	337.30	080124 08:40	080124 09:19	#NV	#NV	#NV	#NV	3,026	#NV	#NV	#NV	11.7	_
337.30	357.30	080124 15:06	080124 20:02	8.33E-08	1.03E-07	1,200	1,200	3,201	3,223	3,436	3,236	12.0	CHi / CHir
357.30	377.30	080125 08:42	080125 10:27	#NV	#NV	#NV	#NV	3,379	#NV	#NV	#NV	12.2	_
377.30	397.30	080125 11:05	080125 12:42	#NV	#NV	10	10,800	3,560	3,591	3,799	3,624	12.5	Pi
397.30	417.30	080125 13:24	080126 08:39	3.33E-08	4.12E-08	1,200	1,200	3,734	3,759	3,957	3,801	12.8	CHi / CHir
417.30	437.30	080126 11:10	080126 12:01	#NV	#NV	#NV	#NV	3,910	#NV	#NV	#NV	13.1	_

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 (m³/s)	Q _m (m³/s)	t _p (s)	t _F (s)	p₀ (kPa)	p _i (kPa)	p₅ (kPa)	p _⊧ (kPa)	Te _w (°C)	Test phases measured Analysed test phases marked bold
437.30	457.30	080126 13:38	080126 15:00	1.83E-08	2.33E-08	1,200	1,200	4,086	4,107	4,309	4,211	13.4	CHi / CHir
457.30	477.30	080126 15:37	080126 16:30	#NV	#NV	#NV	#NV	4,260	#NV	#NV	#NV	13.6	-
477.30	497.30	080126 17:13	080126 18:43	1.85E-07	1.98E-07	1,200	1,200	4,436	4,460	4,654	4,456	13.9	CHi / CHir
497.30	517.30	080127 08:40	080127 10:07	2.50E-07	2.83E-07	1,200	1,200	4,614	4,629	4,828	4,651	14.2	CHi / CHir
517.30	537.30	080127 10:48	080127 12:13	4.50E-07	6.33E-07	1,200	1,200	4,788	4,805	5,002	4,810	14.4	CHi / CHir
537.30	557.30	080127 12:56	080127 14:28	1.00E-07	1.00E-07	1,200	1,200	4,964	4,980	5,194	4,982	14.7	CHi / CHir
557.30	577.30	080127 15:38	080127 17:20	5.67E-08	6.83E-08	1,200	1,200	5,140	5,173	5,378	5,184	15.0	CHi / CHir
577.30	597.30	080127 18:07	080127 19:30	1.60E-05	1.62E-05	1,200	1,200	5,315	5,331	5,529	5,531	15.2	CHi / CHir
597.30	617.30	080128 08:48	080128 10:10	1.18E-06	1.20E-06	1,200	1,200	5,490	5,503	5,699	5,504	15.5	CHi / CHir
617.30	637.30	080128 10:56	080128 12:19	2.65E-05	2.92E-05	1,200	1,200	5,665	5,681	5,918	5,683	15.7	CHi / CHir
625.30	645.30	080128 13:24	080128 14:44	1.05E-04	1.14E-04	1,200	1,200	5,735	5,749	5,947	5,751	15.8	CHi / CHir
337.30	342.30	080130 14:37	080130 16:15	6.67E-08	8.33E-08	1,200	1,200	3,071	3,085	3,296	3,101	11.8	CHi / CHir
342.30	347.30	080130 16:51	080130 18:32	1.67E-08	2.17E-08	1,200	1,200	3,114	3,141	3,347	3,146	11.8	CHi / CHir
347.30	352.30	080131 08:35	080131 09:23	#NV	#NV	#NV	#NV	3,160	#NV	#NV	#NV	12.0	-
352.30	357.30	080131 09:56	080131 10:33	#NV	#NV	#NV	#NV	3,203	#NV	#NV	#NV	12.0	-
397.30	402.30	080131 11:31	080131 12:10	#NV	#NV	#NV	#NV	3,602	#NV	#NV	#NV	12.6	_
402.30	407.30	080131 13:28	080131 14:07	#NV	#NV	#NV	#NV	3,646	#NV	#NV	#NV	12.7	_
407.30	412.30	080131 14:39	080131 15:18	#NV	#NV	#NV	#NV	3,690	#NV	#NV	#NV	12.8	-
412.30	417.30	080131 15:50	080131 17:29	3.00E-08	3.33E-08	1,200	1,200	3,734	3,765	3,960	3,786	12.8	CHi / CHir
437.30	442.30	080131 18:13	080131 18:51	#NV	#NV	#NV	#NV	3,954	#NV	#NV	#NV	13.2	_
442.30	447.30	080201 08:29	080201 09:11	1.67E-08	1.67E-08	1,200	1,200	3,400	4,063	4,234	4,069	13.3	CHi / CHir
447.30	452.30	080207 13:26	080207 15:07	#NV	#NV	#NV	#NV	4,041	#NV	#NV	#NV	13.3	_
452.30	457.30	080201 09:43	080201 10:22	#NV	#NV	#NV	#NV	4,086	#NV	#NV	#NV	13.4	-
477.30	482.30	080201 10:54	080201 11:35	#NV	#NV	#NV	#NV	4,306	#NV	#NV	#NV	13.7	-
482.30	487.30	080201 13:16	080201 13:54	#NV	#NV	#NV	#NV	4,350	#NV	#NV	#NV	13.8	-
487.30	492.30	080201 14:25	080201 15:04	#NV	#NV	#NV	#NV	4,393	#NV	#NV	#NV	13.9	-
492.30	497.30	080201 15:33	080201 16:12	1.83E-07	1.83E-07	1,200	3,600	4,437	4,452	4,651	4,453	13.9	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 (m³/s)	Q _m (m³/s)	t _p (s)	t _F (s)	p₀ (kPa)	p _i (kPa)	p _p (kPa)	p _F (kPa)	Te _w (°C)	Test phases measured Analysed test phases marked bold
497.30	502.30	080202 08:26	080202 09:50	2.17E-07	2.67E-07	1,200	1,200	4,483	4,499	4,694	4,513	14.1	CHi / CHir
502.30	507.30	080202 10:21	080202 11:41	3.00E-08	3.33E-08	1,200	1,200	4,526	4,552	4,749	4,557	14.1	CHi / CHir
507.30	512.30	080202 13:19	080202 13:57	#NV	#NV	#NV	#NV	4,569	#NV	#NV	#NV	14.2	-
512.30	517.30	080202 14:47	080202 15:26	#NV	#NV	#NV	#NV	4,612	#NV	#NV	#NV	14.2	-
517.30	522.30	080202 15:57	080202 16:34	#NV	#NV	#NV	#NV	4,657	#NV	#NV	#NV	14.3	-
522.30	527.30	080202 17:07	080202 17:45	#NV	#NV	#NV	#NV	4,700	#NV	#NV	#NV	14.3	-
527.30	532.30	080203 08:43	080203 09:22	#NV	#NV	#NV	#NV	4,748	#NV	#NV	#NV	14.5	-
532.30	537.30	080203 09:54	080203 11:19	4.00E-07	4.50E-07	1,200	1,200	4,791	4,806	5,005	4,811	14.5	CHi / CHir
537.30	542.30	080203 11:51	080203 12:29	#NV	#NV	#NV	#NV	4,834	#NV	#NV	#NV	14.6	-
542.30	547.30	080203 13:01	080203 13:41	#NV	#NV	#NV	#NV	4,877	#NV	#NV	#NV	14.6	_
547.30	552.30	080203 15:16	080203 16:41	7.67E-08	8.33E-08	1,200	1,200	4,926	4,943	5,155	4,941	14.7	CHi / CHir
552.30	557.30	080203 17:16	080203 19:29	2.50E-08	2.83E-08	1,200	3,600	4,965	4,985	5,184	4,980	14.7	CHi / CHir
557.30	562.30	080204 08:38	080204 10:17	1.67E-08	2.00E-08	1,200	1,200	5,011	5,058	5,233	5,056	14.8	CHi / CHir
562.30	567.30	080204 10:40	080204 11:18	#NV	#NV	#NV	#NV	5,053	#NV	#NV	#NV	14.9	_
567.30	572.30	080204 12:28	080204 14:07	1.83E-08	1.83E-08	1,200	1,200	5,097	5,127	5,333	5,133	14.9	CHi / CHir
572.30	577.30	080204 14:39	080204 16:15	5.00E-08	5.00E-08	1,200	1,200	5,141	5,162	5,370	5,183	15.0	CHi / CHir
577.30	582.30	080204 16:44	080204 19:23	#NV	#NV	10	7,200	5,185	5,202	5,415	5,204	15.0	Pi
582.30	587.30	080205 08:24	080205 10:05	#NV	#NV	10	3,600	5,229	5,251	5,454	5,269	15.1	Pi
587.30	592.30	080205 10:35	080205 12:03	9.50E-08	1.17E-07	1,200	1,200	5,273	5,288	5,488	5,289	15.2	CHi / CHir
592.30	597.30	080205 13:05	080205 14:27	1.87E-05	1.87E-05	1,200	1,200	5,317	5,331	5,530	5,331	15.3	CHi / CHir
597.30	602.30	080205 14:58	080205 16:19	1.20E-06	1.23E-06	1,200	1,200	5,358	5,374	5,573	5,375	15.3	CHi / CHir
602.30	607.30	080205 16:55	080205 17:35	#NV	#NV	#NV	#NV	5,403	#NV	#NV	#NV	15.4	_
607.30	612.30	080205 18:08	080205 18:47	#NV	#NV	#NV	#NV	5,447	#NV	#NV	#NV	15.4	_
612.30	617.30	080206 08:28	080206 09:06	#NV	#NV	#NV	#NV	5,491	#NV	#NV	#NV	15.5	_
617.30	622.30	080206 09:36	080206 10:16	#NV	#NV	#NV	#NV	5,534	#NV	#NV	#NV	15.6	_
622.30	627.30	080206 10:47	080206 12:10	1.92E-05	2.07E-05	1,200	1,200	5,578	5,598	5,805	5,597	15.6	CHi / CHir
627.30	632.30	080206 13:09	080206 14:32	1.32E-05	1.35E-05	1,200	1,200	5,622	5,632	5,830	5,631	15.7	CHi / CHir

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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 (m³/s)	Q _m (m³/s)	t _p (s)	t _F (s)	p₀ (kPa)	p _i (kPa)	p _p (kPa)	p _F (kPa)	Te _w (°C)	Test phases measured Analysed test phases marked bold
632.30	637.30	080206 15:07	080206 16:31	1.10E-05	1.12E-05	1,200	1,200	5,665	5,672	5,870	5,672	15.7	CHi / CHir
637.30	642.30	080206 17:02	080206 18:25	9.88E-05	1.04E-04	1,200	1,200	5,709	5,724	5,923	5,725	15.5	CHi / CHir
640.20	645.20	080207 08:33	080207 09:54	1.05E-04	1.10E-04	1,200	1,200	5,735	5,749	5,948	5,750	15.8	CHi / CHir
645.20	650.56	080209 13:18	080209 15:17	5.00E-08	5.17E-08	1,200	2,400	5,752	5,769	5,978	5,764	15.8	CHi / CHir

Nomenclature	
Q_p	Flow in test section immediately before stop of flow [m³/s].
Q_m	Arithmetical mean flow during perturbation phase [m³/s].
р	Duration of perturbation phase [s].
	Duration of recovery phase [s].
ı	Pressure in borehole before packer inflation [kPa].
	Pressure in test section before start of flowing [kPa].
)	Pressure in test section before stop of flowing [kPa].
	Pressure in test section at the end of the recovery [kPa].
w	Temperature in test section.
st phases	CHi Constant Head injection phase.
	CHir: Recovery phase following the constant head injection phase.
	Pi: Pulse injection phase.
ŧNV	Not analysed/no values.

Table 6-2. Results from analysis of hydraulic tests in KLX27A (for nomenclature see Appendix 4 and below).

Interval p	osition	Stationary parameter		Transien Flow reg	t analysis ime	Formation	n parameters	s									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 -	dt₁ min	dt ₂ min	p* kPa	h _{wif} m.a.s.l.
77.30	177.30	6.7E-07	8.7E-07	2	WBS2	8.4E-07	#NV	2.9E-06	#NV	8.4E-07	2.0E-07	4.0E-06	2.9E-10	1.6	0.43	12.58	1,604.4	10.36
177.30	277.30	5.8E-07	7.6E-07	2	WBS22	4.3E-07	#NV	2.9E-07	5.8E-07	2.9E-07	8.0E-08	7.0E-07	2.8E-09	-2.8	0.85	3.83	2,503.9	11.87
277.30	377.30	4.8E-09	6.2E-09	22	WBS22	1.6E-09	3.1E-09	1.2E-09	3.0E-09	1.6E-09	8.0E-10	5.0E-09	2.8E-10	-1.4	1.28	3.82	3,388.5	12.19
377.30	477.30	2.1E-09	2.8E-09	2	WBS2	1.3E-09	#NV	1.1E-09	#NV	1.3E-09	8.0E-10	6.0E-09	2.4E-10	0.2	0.83	21.14	#NV	#NV
477.30	577.30	4.0E-08	5.2E-08	2	WBS2	2.5E-08	#NV	2.5E-08	#NV	2.5E-08	9.0E-09	6.0E-08	1.9E-10	-1.4	3.02	15.39	5,145.7	12.75
545.20	645.20	5.6E-06	7.3E-06	22	WBS22	7.6E-06	1.9E-05	1.9E-06	9.7E-06	1.9E-06	9.0E-07	2.0E-05	5.3E-10	-4.2	1.23	3.07	5,746.3	13.90
77.30	97.30	4.6E-07	4.8E-07	2	WBS2	7.4E-07	#NV	1.9E-06	#NV	7.4E-07	1.0E-07	3.0E-06	7.1E-11	3.6	0.51	8.81	891.6	10.01
97.30	117.30	2.1E-08	2.2E-08	2	WBS2	2.8E-08	#NV	9.1E-08	#NV	2.8E-08	8.0E-09	6.0E-08	5.1E-11	3.8	1.70	11.06	1,071.1	10.21
117.30	137.30	4.1E-09	4.3E-09	2	WBS2	3.6E-09	#NV	8.5E-09	#NV	8.5E-09	2.0E-09	2.0E-08	5.9E-11	10.1	1.51	#NV	1,237.6	9.09
137.30	157.30	4.4E-08	4.6E-08	2	WBS2	6.4E-08	#NV	1.5E-07	#NV	6.4E-08	1.0E-08	2.0E-07	4.6E-11	4.6	0.74	13.83	1,422.5	9.85
157.30	177.30	9.7E-08	1.0E-07	22	WBS22	1.2E-07	7.2E-08	2.4E-07	1.3E-07	2.4E-07	7.0E-08	4.0E-07	7.5E-11	5.4	0.49	1.28	1,619.8	12.20
177.30	197.30	2.6E-08	2.8E-08	22	WBS22	1.3E-08	2.6E-08	3.6E-09	1.8E-08	1.3E-08	8.0E-09	5.0E-08	4.3E-10	-1.0	0.76	2.51	1,782.0	10.39
197.30	217.30	6.6E-09	6.9E-09	2	WBS2	5.8E-09	#NV	7.8E-09	#NV	7.8E-09	3.0E-09	5.0E-08	1.1E-10	1.6	#NV	#NV	1,960.1	10.48
217.30	237.30	4.5E-07	4.7E-07	2	WBS2	3.1E-07	#NV	2.3E-06	#NV	3.1E-07	9.0E-08	5.0E-07	4.6E-11	0.6	1.46	15.90	2,153.2	12.13
237.30	257.30	8.2E-08	8.6E-08	22	WBS22	7.3E-08	2.9E-08	8.5E-08	1.7E-08	8.5E-08	1.0E-08	2.0E-07	1.9E-09	-3.1	#NV	#NV	#NV	#NV
257.30	277.30	#NV	#NV	#NV	WBS2	#NV	#NV	2.7E-11	#NV	2.7E-11	7.0E-12	5.0E-11	4.9E-11	-2.5	#NV	#NV	#NV	#NV
277.30	297.30	1.1E-09	1.1E-09	2	WBS2	1.0E-09	#NV	5.9E-10	#NV	5.9E-10	1.0E-10	2.0E-09	5.7E-11	2.1	#NV	#NV	2,684.0	12.25
297.30	317.30	#NV	#NV	#NV	2	#NV	#NV	6.1E-11	#NV	6.1E-11	1.0E-11	1.0E-10	5.8E-11	-1.3	#NV	#NV	#NV	#NV
317.30	337.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
337.30	357.30	3.8E-09	4.0E-09	2	WBS2	1.2E-09	#NV	1.9E-09	#NV	1.9E-09	5.0E-10	5.0E-09	8.4E-11	-0.4	#NV	#NV	3,203.5	11.30
357.30	377.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-10	1.0E-11	5.0E-10	#NV	#NV	#NV	#NV	#NV	#NV
377.30	397.30	#NV	#NV	#NV	2	#NV	#NV	6.4E-11	#NV	6.4E-11	1.0E-11	1.0E-10	5.0E-11	1.2	1.68	30.60	#NV	#NV
397.30	417.30	1.7E-09	1.7E-09	2	WBS2	9.1E-10	#NV	1.5E-09	#NV	1.5E-09	5.0E-10	6.0E-09	8.6E-11	1.9	#NV	#NV	3,738.4	11.98
417.30	437.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
437.30	457.30	8.9E-10	9.3E-10	2	WBS2	8.0E-10	#NV	5.6E-10	#NV	5.6E-10	1.0E-10	5.0E-09	9.2E-11	0.7	#NV	#NV	#NV	#NV
457.30	477.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
477.30	497.30	9.4E-09	9.8E-09	2	WBS2	1.3E-08	#NV	2.2E-08	#NV	2.2E-08	6.0E-09	7.0E-08	4.5E-11	5.0	#NV	#NV	4,451.9	13.20

Interval p	osition	Stationary parameter		Transien Flow regi	t analysis ime	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} m ² /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 -	dt₁ min	dt ₂ min	p* kPa	h _{wif} m.a.s.l.
497.30	517.30	1.2E-08	1.3E-08	22	WBS22	2.1E-08	8.5E-09	1.4E-08	6.2E-09	1.4E-08	6.0E-09	5.0E-08	5.6E-11	1.0	1.09	3.62	4,623.8	12.89
517.30	537.30	2.2E-08	2.3E-08	22	WBS22	1.3E-08	2.1E-08	1.7E-08	2.9E-08	1.7E-08	8.0E-09	7.0E-08	3.5E-11	0.0	1.03	5.47	4,799.7	12.92
537.30	557.30	4.6E-09	4.8E-09	2	WBS2	4.1E-09	#NV	6.7E-09	#NV	6.7E-09	2.0E-09	3.0E-07	5.6E-11	5.6	#NV	#NV	4,970.9	12.68
557.30	577.30	2.7E-09	2.8E-09	2	WBS2	1.8E-09	#NV	1.3E-09	#NV	1.3E-09	8.0E-10	6.0E-09	5.6E-11	-0.2	#NV	#NV	5,141.4	12.32
577.30	597.30	7.9E-07	8.3E-07	2	WBS2	1.5E-06	#NV	5.1E-06	#NV	1.5E-06	5.0E-07	6.0E-06	7.0E-11	5.8	1.32	14.69	5,331.8	13.97
597.30	617.30	5.9E-08	6.2E-08	2	WBS2	1.4E-07	#NV	2.5E-07	#NV	1.4E-07	5.0E-08	6.0E-07	4.0E-11	9.5	1.10	4.72	5,504.2	13.84
617.30	637.30	1.1E-06	1.2E-06	22	WBS22	4.6E-07	1.1E-06	2.0E-07	6.5E-07	2.0E-07	9.0E-08	9.0E-07	7.9E-10	-4.4	1.69	4.42	5,663.2	12.42
625.30	645.30	5.2E-06	5.4E-06	22	WBS22	3.1E-06	3.1E-05	1.9E-06	9.6E-06	1.9E-06	9.0E-07	9.0E-06	1.5E-09	-4.1	1.34	3.76	5,743.3	13.59
337.30	342.30	3.1E-09	2.6E-09	22	WBS22	1.0E-09	2.0E-09	4.3E-10	1.1E-09	1.0E-09	8.0E-10	7.0E-09	2.1E-11	-1.1	0.97	3.69	3,063.1	10.27
342.30	347.30	8.0E-10	6.6E-10	2	WBS22	7.2E-10	#NV	1.4E-09	#NV	1.4E-09	5.0E-10	7.0E-09	1.9E-11	6.0	#NV	#NV	3,127.8	12.56
347.30	352.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
352.30	357.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
397.30	402.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
402.30	407.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
407.30	412.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
412.30	417.30	1.5E-09	1.3E-09	2	WBS2	1.2E-09	#NV	8.3E-10	#NV	8.3E-10	5.0E-10	6.0E-09	2.0E-11	0.3	#NV	#NV	3,754.4	13.61
437.30	442.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
442.30	447.30	9.6E-10	7.9E-10	2	WBS2	5.4E-10	#NV	1.8E-09	#NV	1.8E-09	5.0E-10	7.0E-09	3.4E-11	10.4	#NV	#NV	4,015.9	13.42
447.30	452.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
452.30	457.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
477.30	482.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
482.30	487.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
487.30	492.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
492.30	497.30	9.0E-09	7.5E-09	2	WBS2	9.6E-09	#NV	2.0E-08	#NV	2.0E-08	5.0E-09	8.0E-08	1.3E-11	8.9	2.48	21.08	4,452.1	13.22
497.30	502.30	1.1E-08	9.0E-09	22	WBS22	8.8E-09	4.9E-09	3.0E-08	7.9E-09	8.8E-09	5.0E-09	8.0E-08	1.7E-11	0.0	0.57	2.23	4,492.4	12.88
502.30	507.30	1.5E-09	1.2E-09	2	WBS2	1.0E-09	#NV	1.3E-09	#NV	1.3E-09	9.0E-10	7.0E-09	3.0E-11	2.4	#NV	#NV	4,532.8	12.52
507.30	512.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
512.30	517.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
517.30	522.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1 0 = 13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV

Interval p	osition	Stationary parameter		Transien Flow reg	t analysis ime	Formation	n parameters	S									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 -	dt₁ min	dt₂ min	p* kPa	h _{wif} m.a.s.l.
522.30	527.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
527.30	532.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
532.30	537.30	2.0E-08	1.6E-08	2	WBS22	1.6E-08	#NV	3.1E-08	1.4E-08	1.6E-08	8.0E-09	8.0E-08	1.1E-11	0.4	0.6	16.3	4,799.4	12.97
537.30	542.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
542.30	547.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
547.30	552.30	3.6E-09	2.9E-09	2	WBS2	3.5E-09	#NV	4.4E-09	#NV	4.4E-09	1.0E-09	1.0E-08	1.5E-11	3.9	#NV	#NV	4,938.3	13.79
552.30	557.30	1.2E-09	1.0E-09	2	WBS2	9.7E-10	#NV	1.2E-09	#NV	1.2E-09	9.0E-10	7.0E-09	2.2E-11	2.6	#NV	#NV	4,977.8	13.38
557.30	562.30	9.3E-10	7.7E-10	2	WBS2	7.7E-10	#NV	1.1E-09	#NV	1.1E-09	6.0E-10	6.0E-09	1.8E-11	3.8	#NV	#NV	5,034.1	14.69
562.30	567.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
567.30	572.30	8.7E-10	7.2E-10	2	WBS2	5.1E-10	#NV	1.9E-09	#NV	1.9E-09	6.0E-10	6.0E-09	1.9E-11	10.7	#NV	#NV	5,109.5	13.49
572.30	577.30	2.4E-09	2.0E-09	2	WBS2	1.4E-09	#NV	7.6E-10	#NV	7.6E-10	6.0E-10	8.0E-09	1.8E-11	-0.8	1.78	15.54	5,149.3	13.12
577.30	582.30	#NV	#NV	#NV	22	#NV	#NV	1.8E-10	9.4E-11	9.4E-11	5.0E-11	4.0E-10	1.4E-11	1.7	13.7	44.7	#NV	#NV
582.30	587.30	#NV	#NV	#NV	2	#NV	#NV	2.3E-11	#NV	2.3E-11	1.0E-11	1.0E-10	7.0E-12	1.1	1.8	26.3	#NV	#NV
587.30	592.30	4.7E-09	3.9E-09	NA	WBS22	NA	NA	3.2E-09	8.0E-09	3.2E-09	9.0E-10	1.0E-08	1.1E-11	0.6	#NV	#NV	5,285.7	13.72
592.30	597.30	9.2E-07	7.6E-07	2	WBS2	2.2E-06	#NV	3.9E-06	#NV	2.2E-06	7.0E-07	5.0E-06	2.8E-11	8.2	0.8	13.8	5,331.5	13.94
597.30	602.30	5.9E-08	4.9E-08	2	WBS2	9.8E-08	#NV	3.9E-07	#NV	9.8E-08	3.0E-08	4.0E-07	1.0E-11	5.2	0.8	14.9	5,375.6	14.02
602.30	607.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
607.30	612.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
612.30	617.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
617.30	622.30	#NV	#NV	#NV	#NV	#NV	#NV	#NV	#NV	1.0E-11	1.0E-13	1.0E-11	#NV	#NV	#NV	#NV	#NV	#NV
622.30	627.30	9.1E-07	7.5E-07	2	WBS22	7.2E-07	#NV	3.2E-07	1.1E-06	3.2E-07	1.0E-07	2.0E-06	8.5E-10	-3.3	1.1	3.38	5,587.1	13.44
627.30	632.30	6.5E-07	5.4E-07	22	WBS22	3.6E-07	3.6E-06	9.0E-07	2.2E-06	9.0E-07	5.0E-07	4.0E-06	6.3E-11	3.2	0.2	0.97	5,632.7	13.69
632.30	637.30	5.5E-07	4.5E-07	22	WBS22	9.1E-07	4.6E-06	7.9E-07	2.2E-06	7.9E-07	5.0E-07	4.0E-06	3.1E-11	3.5	0.1	0.80	5,671.5	13.26
637.30	642.30	4.9E-06	4.0E-06	22	WBS22	2.7E-06	1.3E-05	2.5E-06	1.0E-05	2.5E-06	9.0E-07	2.0E-05	6.4E-10	-3.2	0.4	2.09	5,723.2	14.10
640.20	645.20	5.2E-06	4.3E-06	22	WBS22	3.0E-06	9.9E-06	2.7E-06	9.1E-06	2.7E-06	1.0E-06	1.0E-05	1.9E-09	-3.1	0.5	1.93	5,747.7	14.04
645.20	650.56	2.4E-09	2.0E-09	2	WBS2	2.4E-09	#NV	5.1E-09	#NV	5.1E-09	1.0E-09	1.0E-08	4.7E-11	10.3	0.5	13.9	5,759.9	10.59

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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.
С	Wellbore storage coefficient.
ξ	Skin factor (calculated based on a storativity of 1·10 ⁻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 KLX27A (see Section 4.5.5 for details and nomenclature).

Borehole secup (m)	Borehole seclow (m)	Recommended transmissivity T _⊤ (m²/s)	Time t ₂ for radius of influence calculation (s)	Ri-index (–)	Radius of influence (m)
77.30	177.30	8.41E-07	1,800	0	91.78
177.30	277.30	2.92E-07	230	– 1	25.17
277.30	377.30	1.57E-09	229	– 1	6.81
377.30	477.30	1.27E-09	1,800	0	18.09
477.30	577.30	2.50E-08	1,800	0	38.11
545.20	645.20	1.94E-06	184	– 1	36.18
77.30	97.30	7.36E-07	1,200	0	72.48
97.30	117.30	2.82E-08	1,200	0	32.07
117.30	137.30	8.46E-09	1,200	0	23.73
137.30	157.30	6.39E-08	1,200	0	39.34
157.30	177.30	2.35E-07	77	1	13.78
177.30	197.30	1.31E-08	151	– 1	9.38
197.30	217.30	7.80E-09	1,200	0	23.26
217.30	237.30	3.13E-07	1,200	0	58.53
237.30	257.30	8.53E-08	#NV	1	#NV
257.30	277.30	2.73E-11	7,200	0	13.86
277.30	297.30	5.89E-10	10,800	0	36.57
297.30	317.30	6.26E-12	3,600	0	6.78
317.30	337.30	1.00E-11	#NV	#NV	#NV
337.30	357.30	1.94E-09	1,200	0	16.42
357.30	377.30	1.00E-10	#NV	#NV	#NV
377.30	397.30	6.36E-11	1,836	0	8.64
397.30	417.30	1.51E-09	1,200	0	15.43
417.30	437.30	1.00E-11	#NV	#NV	#NV
437.30	457.30	5.64E-10	1,200	0	12.06
457.30	477.30	1.00E-11	#NV	#NV	#NV
477.30	497.30	2.22E-08	1,200	0	30.21
497.30	517.30	1.42E-08	217	1	11.49
517.30	537.30	1.72E-08	328	-1	14.82
537.30	557.30	6.70E-09	1,200	0	22.39
557.30	577.30	1.28E-09	1,200	0	14.80
577.30	597.30	1.49E-06	1,200	0	86.46
597.30	617.30	1.36E-07	1,200	0	47.52
617.30	637.30	1.96E-07	265	– 1	24.48
625.30	645.30	1.91E-06	226	– 1	39.89
337.30	342.30	1.01E-09	221	– 1	5.99
342.30	347.30	1.41E-09	1,200	0	15.16
347.30	352.30	1.00E-11	#NV	#NV	#NV
352.30	357.30	1.00E-11	#NV	#NV	#NV
397.30	402.30	1.00E-11	#NV	#NV	#NV
402.30	407.30	1.00E-11	#NV	#NV	#NV
407.30	412.30	1.00E-11	#NV	#NV	#NV
412.30	417.30	8.29E-10	1,200	0	13.28
437.30	442.30	1.00E-11	#NV	#NV	#NV
442.30	447.30	1.81E-09	1,200	0	16.14

Borehole secup (m)	Borehole seclow (m)	Recommended transmissivity T_T (m²/s)	Time t₂ for radius of influence calculation (s)	Ri-index (–)	Radius of influence (m)
447.30	452.30	1.00E-11	#NV	#NV	#NV
452.30	457.30	1.00E-11	#NV	#NV	#NV
477.30	482.30	1.00E-11	#NV	#NV	#NV
482.30	487.30	1.00E-11	#NV	#NV	#NV
487.30	492.30	1.00E-11	#NV	#NV	#NV
492.30	497.30	1.99E-08	1,265	0	30.18
497.30	502.30	8.76E-09	134	1	7.99
502.30	507.30	1.32E-09	1,200	0	14.92
507.30	512.30	1.00E-11	#NV	#NV	#NV
512.30	517.30	1.00E-11	#NV	#NV	#NV
517.30	522.30	1.00E-11	#NV	#NV	#NV
522.30	527.30	1.00E-11	#NV	#NV	#NV
527.30	532.30	1.00E-11	#NV	#NV	#NV
532.30	537.30	1.57E-08	1,200	0	27.70
537.30	542.30	1.00E-11	#NV	#NV	#NV
542.30	547.30	1.00E-11	#NV	#NV	#NV
547.30	552.30	4.36E-09	1,200	0	20.11
552.30	557.30	1.15E-09	3,600	0	24.96
557.30	562.30	1.09E-09	1,200	0	14.22
562.30	567.30	1.00E-11	#NV	#NV	#NV
567.30	572.30	1.89E-09	1,200	0	16.32
572.30	577.30	7.57E-10	1,200	0	12.98
577.30	582.30	9.53E-12	2,680	1	6.50
582.30	587.30	2.43E-12	3,600	0	5.35
587.30	592.30	3.21E-09	1,200	– 1	18.63
592.30	597.30	2.15E-06	1,200	0	94.76
597.30	602.30	9.78E-08	1,200	0	43.76
602.30	607.30	1.00E-11	#NV	#NV	#NV
607.30	612.30	1.00E-11	#NV	#NV	#NV
612.30	617.30	1.00E-11	#NV	#NV	#NV
617.30	622.30	1.00E-11	#NV	#NV	#NV
622.30	627.30	3.21E-07	203	– 1	24.23
627.30	632.30	8.99E-07	58	– 1	16.75
632.30	637.30	7.87E-07	48	– 1	14.78
637.30	642.30	2.50E-06	126	– 1	31.84
640.20	645.20	2.72E-06	116	– 1	31.19
645.20	650.56	5.08E-09	2,400	0	29.55

The Figures 6-1 to 6-3 present the transmissivity, conductivity and hydraulic freshwater head profiles.

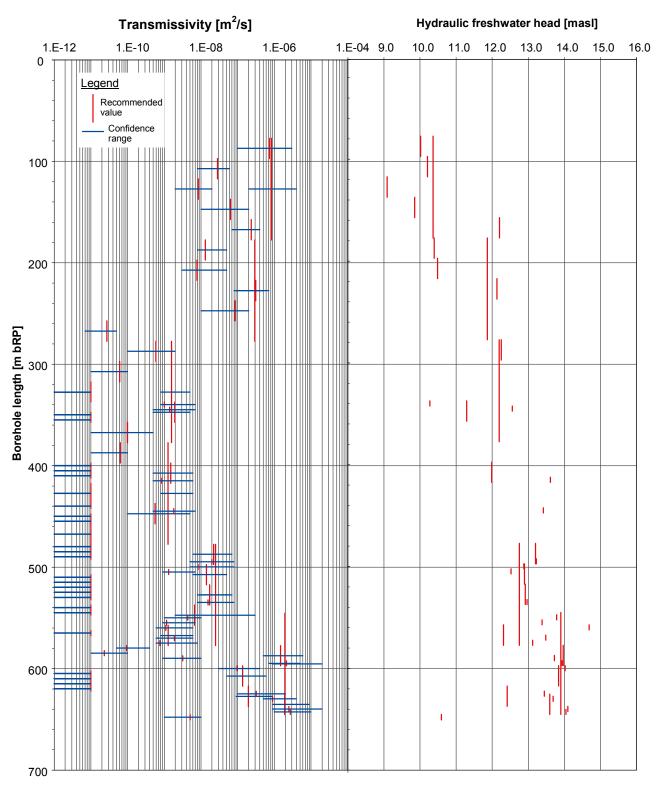


Figure 6-1. Results summary – profiles of transmissivity and equivalent freshwater head, transmissivities derived from injection tests, freshwater head extrapolated.

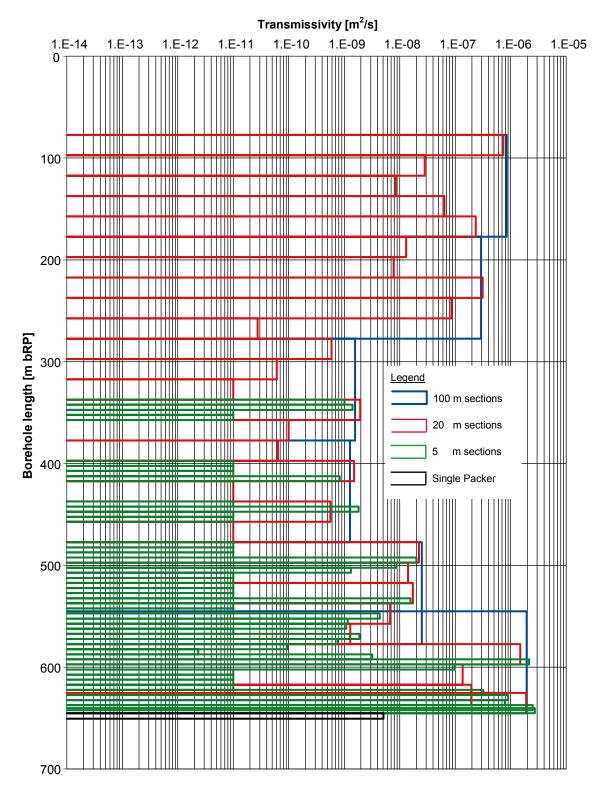


Figure 6-2. Results summary – profile of transmissivity.

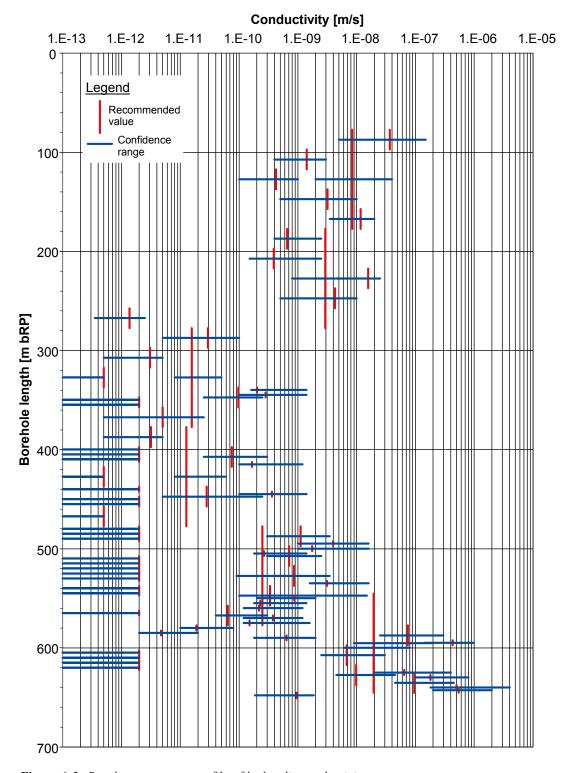


Figure 6-3. Results summary – profile of hydraulic conductivity.

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 by less than one order of magnitude from the transmissivities derived from the transient analysis.

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.

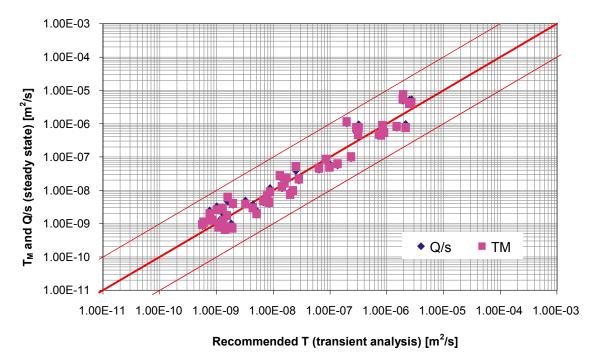


Figure 6-4. Correlation analysis of transmissivities derived by steady state and transient methods.

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:

$$c = \frac{\Delta V}{\Delta p} \times \frac{1}{V} [1/\text{Pa}]$$

 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 2·10⁵ 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 $1\cdot10^{-10}$ 1/Pa.

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.

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	3.10-10
20	0.091	8·10 ⁻¹¹
100	0.454	2·10 ⁻¹¹
Average compressibility:		1.10-10

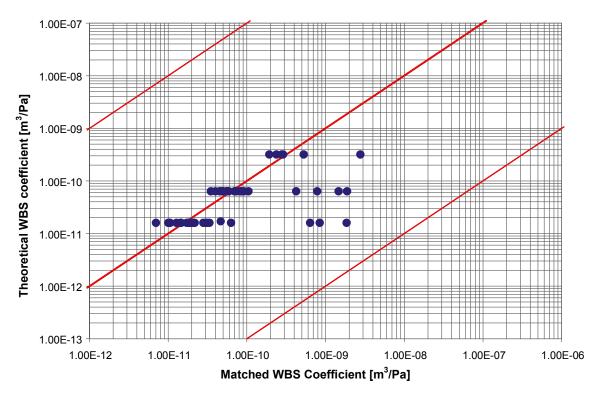


Figure 6-5. Correlation analysis of theoretical and matched wellbore storage coefficients.

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.

In few cases the tests were not analysable because the compliance phase following the packer inflation was to long or because the conducted preliminary pulse did not recover. Both responses are indicative for a very low interval transmissivity and a transmissivity value of $1 \cdot 10^{-11}$ m²/s was recommended (regarded as the upper limit of the confidence range).

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 five cases the preliminary pulse was prolonged and the recommended transmissivity range from $2.3 \cdot 10^{-11}$ m²/s to $9.4 \cdot 10^{-11}$ m²/s.

The recommended transmissivities derived from the conducted injection tests (CHi and CHir) range between $5.6 \cdot 10^{-10}$ m²/s and $2.7 \cdot 10^{-06}$ m²/s.

A few of the 20 m sections show a slightly higher transmissivity than the appropriate 100 m section. The same was observed at a few of the 5 m section tests in comparison to the appropriate 20 m sections. However, the differences are small and covered by the confidence ranges. Furthermore, in a few cases the derived higher transmissivities can be explained by crossflows to the adjacent zones.

7.2 Equivalent freshwater head

Figure 6-1 presents a profile of the derived equivalent freshwater head expressed in meters 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 9.09 m to 14.69 m. The highest freshwater head was measured between 557 m and 562 m, whereas the lowest freshwater head was measured between 117 m and 137 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, 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 $1 \cdot 10^{-8}$ m²/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

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APPENDIX 1

File Description Table

HYDROTESTING WITH PSS TEST- AND FILEPROTOCOL				I PSS	DRILLHOLE IDENTIFICATION NO.: KLX17A					
				OCOL	Testorder dated: 2008-01-16					
Teststart	İ	Interval boundar	ies	Nan	ne of Datafiles	Testtype	Copied to	Plotted	Sign.	
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)		
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2008-01-18	13:33	177.30	277.30	KLX27A_177.30_200801181333.ht2	KLX27A_177.30-277.30_080118_1_CHir_Q_r.csv	Chir	10.02.2008	18.01.2008		
2008-01-18	17:05	277.30	377.30	KLX27A_0277.30_200801181705.ht2	KLX27A_277.30-377.30_080118_1_CHir_Q_r.csv	Chir	10.02.2008	19.01.2008		
2008-01-19	12:09	377.30	477.30	KLX27A_0377.30_200801191208.ht2	KLX27A_377.30-477.30_080119_2_CHir_Q_r.csv	Chir	10.02.2008	19.01.2008		
2008-01-19	15:26	477.30	577.30	KLX27A_0477.30_200801191526.ht2	KLX27A_477.30-577.30_080119_1_CHir_Q_r.csv	Chir	10.02.2008	20.01.2008		
2008-01-20	09:30	545.20	645.20	KLX27A_0545.20_200801200930.ht2	KLX27A_545.20-645.20_080120_1_CHir_Q_r.csv	Chir	10.02.2008	21.01.2008		
2008-01-21	17:33	77.30	97.30	KLX27A_0077.30_200801211733.ht2	KLX27A_77.30-97.30_080121_1_CHir_Q_r.csv	Chir	10.02.2008	22.01.2008		
2008-01-22	09:37	97.30	117.30	KLX27A_0097.30_200801220837.ht2	KLX27A_97.30-117.30_080122_1_CHir_Q_r.csv	Chir	10.02.2008	22.01.2008		
2008-01-22	10:43	117.30	137.30	KLX27A_0117.30_200801221043.ht2	KLX27A_117.30-137.30_080122_1_CHir_Q_r.csv	Chir	10.02.2008	22.01.2008		
2008-01-22	13:38	137.30	157.30	KLX27A_0137.30_200801221338.ht2	KLX27A_137.30-157.30_080122_1_CHir_Q_r.csv	Chir	10.02.2008	22.01.2008		
2008-01-22	15:44	157.30	177.30	KLX27A_0157.30_200801221544.ht2	KLX27A_157.30-177.30_080122_1_CHir_Q_r.csv	Chir	10.02.2008	22.01.2008		
2008-01-22	17:51	177.30	197.30	KLX27A_0177.30_200801221751.ht2	KLX27A_177.30-197.30_080122_1_CHir_Q_r.csv	Chir	10.02.2008	23.01.2008		
2008-01-23	08:45	197.30	217.30	KLX27A_0197.30_200801230845.ht2	KLX27A_197.30-217.30_080123_1_CHir_Q_r.csv	Chir	10.02.2008	23.01.2008		
2008-01-23	10:54	217.30	237.30	KLX27A_0217.30_200801231054.ht2	KLX27A_217.30-237.30_080123_1_CHir_Q_r.csv	Chir	10.02.2008	23.01.2008		
2008-01-23	13:32	237.30	257.30	KLX27A_0237.30_200801231332.ht2	KLX27A_237.30-257.30_080123_1_CHir_Q_r.csv	Chir	10.02.2008	23.01.2008		
2008-01-23	14:51	237.30	257.30	KLX27A_0237.30_200801231451.ht2	KLX27A_237.30-257.30_080123_2_CHir_Q_r.csv	Chir	10.02.2008	23.01.2008		

HYDROTESTING WITH PSS			WITH	PSS	DRILLHOLE IDENTIFICATION NO.: KLX17A					
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2008-01-23	16:42	257.30	277.30	KLX27A_0257.30_200801231642.ht2	KLX27A_257.30-277.30_080123_1_Pi_Q_r.csv	Pi	10.02.2008	24.01.2008		
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2008-01-24	15:06	277.30	297.30	KLX27A_0277.30_200801241506.ht2	KLX27A_277.30-297.30_080124_2_CHir_Q_r.csv	Chir	10.02.2008	25.01.2008		
2008-01-25	08:42	297.30	317.30	KLX27A_0297.30_200801250842.ht2	KLX27A_297.30-317.30_080125_1_Pi_Q_r.csv	Pi	10.02.2008	25.01.2008		
2008-01-25	11:05	317.30	337.30	KLX27A_0317.30_200801251105.ht2	KLX27A_317.30-337.30_080125_1_Pi_Q_r.csv	Pi	10.02.2008	25.01.2008		
2008-01-25	13:24	337.30	357.30	KLX27A_0337.30_200801251324.ht2	KLX27A_337.30-357.30_080125_1_CHir_Q_r.csv	Chir	10.02.2008	25.01.2008		
2008-01-25	15:31	357.30	377.30	KLX27A_0357.30_200801251531.ht2	KLX27A_357.30-377.30_080125_1_CHir_Q_r.csv	Chir	10.02.2008	25.01.2008		
2008-01-25	17:35	377.30	397.30	KLX27A_0377.30_200801251735.ht2	KLX27A_377.30-397.30_080125_1_Pi_Q_r.csv	Pi	10.02.2008	26.01.2008		
2008-01-26	08:39	397.30	417.30	KLX27A_0397.30_200801260839.ht2	KLX27A_397.30-417.30_080126_1_CHir_Q_r.csv	Chir	10.02.2008	26.01.2008		
2008-01-26	11:10	417.30	437.30	KLX27A_0417.30_200801261110.ht2	KLX27A_417.30-437.30_080126_1_CHir_Q_r.csv	Chir	10.02.2008	26.01.2008		
2008-01-26	13:38	437.30	457.30	KLX27A_0437.30_200801261338.ht2	KLX27A_437.30-457.30_080126_1_CHir_Q_r.csv	Chir	10.02.2008	26.01.2008		
2008-01-26	15:37	457.30	477.30	KLX27A_0457.30_200801261537.ht2	KLX27A_457.30-477.30_080126_1_CHir_Q_r.csv	Chir	10.02.2008	26.01.2008		
2008-01-26	17:13	477.30	497.30	KLX27A_0477.30_200801261713.ht2	KLX27A_477.30-497.30_080126_1_CHir_Q_r.csv	Chir	10.02.2008	27.01.2008		
2008-01-27	08:40	497.30	517.30	KLX27A_0497.30_200801270840.ht2	KLX27A_497.30-517.30_080127_1_CHir_Q_r.csv	Chir	10.02.2008	27.01.2008		
2008-01-27	10:48	517.30	537.30	KLX27A_0517.30_200801271048.ht2	KLX27A_517.30-537.30_080127_1_CHir_Q_r.csv	Chir	10.02.2008	27.01.2008		
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HYDROTESTING WITH PSS				PSS	DRILLHOLE IDENTIFICATION NO.: KLX17A					
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2008-01-27	18:07	577.30	597.30	KLX27A_0577.30_200801271807.ht2	KLX27A_577.30-597.30_080127_1_CHir_Q_r.csv	Chir	10.02.2008	28.01.2008		
2008-01-28	08:48	597.30	617.30	KLX27A_0597.30_200801280848.ht2	KLX27A_597.30-617.30_080128_1_CHir_Q_r.csv	Chir	10.02.2008	28.01.2008		
2008-01-28	10:56	617.30	637.30	KLX27A_0617.30_200801281056.ht2	KLX27A_617.30-637.30_080128_1_CHir_Q_r.csv	Chir	10.02.2008	28.01.2008		
2008-01-28	13:24	625.20	645.20	KLX27A_0625.20_200801281324.ht2	KLX27A_625.20-645.20_080128_1_CHir_Q_r.csv	Chir	10.02.2008	28.01.2008		
2008-01-30	14:37	337.30	342.30	KLX27A_0337.30_200801301437.ht2	KLX27A_337.30-342.30_080130_1_CHir_Q_r.csv	Chir	10.02.2008	30.01.2008		
2008-01-30	16:51	342.30	347.30	KLX27A_0342.30_200801301651.ht2	KLX27A_342.30-347.30_080130_1_CHir_Q_r.csv	Chir	10.02.2008	31.01.2008		
2008-01-31	08:35	347.30	352.30	KLX27A_0347.30_200801310835.ht2	KLX27A_347.30-352.30_080131_1_CHir_Q_r.csv	Chir	10.02.2008	31.01.2008		
2008-01-31	09:56	352.30	357.30	KLX27A_0352.30_200801310956.ht2	KLX27A_352.30-357.30_080131_1_CHir_Q_r.csv	Chir	10.02.2008	31.01.2008		
2008-01-31	11:31	397.30	402.30	KLX27A_0397.30_200801311131.ht2	KLX27A_397.30-402.30_080131_1_CHir_Q_r.csv	Chir	10.02.2008	31.01.2008		
2008-01-31	13:28	402.30	407.30	KLX27A_0402.30_200801311328.ht2	KLX27A_402.30-407.30_080131_1_CHir_Q_r.csv	Chir	10.02.2008	31.01.2008		
2008-01-31	14:39	407.30	412.30	KLX27A_0407.30_200801311439.ht2	KLX27A_407.30-412.30_080131_1_CHir_Q_r.csv	Chir	10.02.2008	31.01.2008		
2008-01-31	15:50	412.30	417.30	KLX27A_0412.30_200801311550.ht2	KLX27A_412.30-417.30_080131_1_CHir_Q_r.csv	Chir	10.02.2008	31.01.2008		
2008-01-31	18:13	437.30	442.30	KLX27A_0437.30_200801311813.ht2	KLX27A_437.30-442.30_080131_1_CHir_Q_r.csv	Chir	10.02.2008	01.02.2008		
2008-02-01	08:29	442.30	447.30	KLX27A_0442.30_200802010829.ht2	KLX27A_442.30-447.30_080201_1_CHir_Q_r.csv	Chir	10.02.2008	01.02.2008		

HYDROTESTING WITH PSS			WITH	PSS	DRILLHOLE IDENTIFICATION NO.: KLX17A				
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2008-02-01	10:54	452.30	457.30	KLX27A_0452.30_200802011054.ht2	KLX27A_452.30-457.30_080201_1_CHir_Q_r.csv	Chir	10.02.2008	01.02.2008	
2008-02-01	13:16	477.30	482.30	KLX27A_0477.30_200802011316.ht2	KLX27A_477.30-482.30_080201_1_CHir_Q_r.csv	Chir	10.02.2008	01.02.2008	
2008-02-01	14:25	482.30	487.30	KLX27A_0482.30_200802011425.ht2	KLX27A_482.30-487.30_080201_1_CHir_Q_r.csv	Chir	10.02.2008	01.02.2008	
2008-02-01	15:33	487.30	492.30	KLX27A_0487.30_200802011533.ht2	KLX27A_487.30-492.30_080201_1_CHir_Q_r.csv	Chir	10.02.2008	01.02.2008	
2008-02-01	16:47	492.30	497.30	KLX27A_0492.30_200802011647.ht2	KLX27A_492.30-497.30_080201_1_CHir_Q_r.csv	Chir	10.02.2008	02.02.2008	
2008-02-02	08:26	497.30	502.30	KLX27A_0497.30_200802020826.ht2	KLX27A_497.30-502.30_080202_1_CHir_Q_r.csv	Chir	10.02.2008	02.02.2008	
2008-02-02	10:21	502.30	507.30	KLX27A_0502.30_200802021021.ht2	KLX27A_502.30-507.30_080202_1_CHir_Q_r.csv	Chir	10.02.2008	02.02.2008	
2008-02-02	13:19	507.30	512.30	KLX27A_0507.30_200802021319.ht2	KLX27A_507.30-512.30_080202_1_CHir_Q_r.csv	Chir	10.02.2008	02.02.2008	
2008-02-02	14:47	512.30	517.30	KLX27A_0512.30_200802021447.ht2	KLX27A_512.30-517.30_080202_1_CHir_Q_r.XLS	Chir	10.02.2008	02.02.2008	
2008-02-02	15:57	517.30	522.30	KLX27A_0517.30_200802021557.ht2	KLX27A_517.30-522.30_080202_1_CHir_Q_r.csv	Chir	10.02.2008	02.02.2008	
2008-02-02	17:07	522.30	527.30	KLX27A_0522.30_200802021707.ht2	KLX27A_522.30-527.30_080202_1_CHir_Q_r.csv	Chir	10.02.2008	03.02.2008	
2008-02-03	08:43	527.30	532.30	KLX27A_0527.30_200802030843.ht2	KLX27A_527.30-532.30_080203_1_CHir_Q_r.csv	Chir	10.02.2008	03.02.2008	
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2008-02-03	11:51	537.30	542.30	KLX27A_0537.30_200802031151.ht2	KLX27A_537.30-542.30_080203_1_CHir_Q_r.csv	Chir	10.02.2008	03.02.2008	

HYDROTESTING WITH PSS			WITH	PSS	DRILLHOLE IDENTIFICATION NO.: KLX17A					
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2008-02-03	15:16	547.30	552.30	KLX27A_0547.30_200802031516.ht2	KLX27A_547.30-552.30_080203_1_CHir_Q_r.csv	Chir	10.02.2008	03.02.2008		
2008-02-03	17:16	552.30	557.30	KLX27A_0552.30_200802031716.ht2	KLX27A_552.30-557.30_080203_1_CHir_Q_r.csv	Chir	10.02.2008	04.02.2008		
2008-02-04	08:38	557.30	562.30	KLX27A_0557.30_200802040838.ht2	KLX27A_557.30-562.30_080204_1_CHir_Q_r.csv	Chir	10.02.2008	04.02.2008		
2008-02-04	10:40	562.30	567.30	KLX27A_0562.30_200802041040.ht2	KLX27A_562.30-567.30_080204_1_CHir_Q_r.csv	Chir	10.02.2008	04.02.2008		
2008-02-04	12:28	567.30	572.30	KLX27A_0567.30_200802041228.ht2	KLX27A_567.30-572.30_080204_1_CHir_Q_r.csv	Chir	10.02.2008	04.02.2008		
2008-02-04	14:39	572.30	577.30	KLX27A_0572.30_200802041439.ht2	KLX27A_572.30-577.30_080204_1_CHir_Q_r.csv	Chir	10.02.2008	04.02.2008		
2008-02-04	16:44	577.30	582.30	KLX27A_0577.30_200802041644.ht2	KLX27A_577.30-582.30_080204_1_Pi_Q_r.csv	Pi	10.02.2008	05.02.2008		
2008-02-05	08:24	582.30	587.30	KLX27A_0582.30_200802050824.ht2	KLX27A_582.30-587.30_080205_1_Pi_Q_r.csv	Pi	10.02.2008	05.02.2008		
2008-02-05	10:35	587.30	592.30	KLX27A_0587.30_200802051035.ht2	KLX27A_587.30-592.30_080205_1_CHir_Q_r.csv	Chir	10.02.2008	05.02.2008		
2008-02-05	13:05	592.30	597.30	KLX27A_0592.30_200802051305.ht2	KLX27A_592.30-597.30_080205_1_CHir_Q_r.csv	Chir	10.02.2008	05.02.2008		
2008-02-05	14:58	597.30	602.30	KLX27A_0597.30_200802051458.ht2	KLX27A_597.30-602.30_080205_1_CHir_Q_r.csv	Chir	10.02.2008	05.02.2008		
2008-02-05	16:55	602.30	607.30	KLX27A_0602.30_200802051655.ht2	KLX27A_602.30-607.30_080205_1_CHir_Q_r.csv	Chir	10.02.2008	05.02.2008		
2008-02-05	18:08	607.30	612.30	KLX27A_0607.30_200802051808.ht2	KLX27A_607.30-612.30_080205_1_CHir_Q_r.csv	Chir	10.02.2008	06.02.2008		
2008-02-06	08:28	612.30	617.30	KLX27A_0612.30_200802060828.ht2	KLX27A_612.30-617.30_080206_1_CHir_Q_r.csv	Chir	10.02.2008	06.02.2008		

Borehole: KLX27A Page 1/7

HYDROTESTING WITH PSS				I PSS	DRILLHOLE IDENTIFICATION NO.: KLX17A					
TEST- AND FILEPROTOCOL					Testorder dated: 2008-01-16					
Teststart	Interval boundaries		ies	Nan	Name of Datafiles		Copied to	Plotted	Sign.	
Date	Time	Upper	Lower	(*.HT2-file)	(*.CSV-file)		disk/CD	(date)		
2008-02-06	09:36	617.30	622.30	KLX27A_0617.30_200802060936.ht2	KLX27A_617.30-622.30_080206_1_CHir_Q_r.csv	Chir	10.02.2008	06.02.2008		
2008-02-06	10:47	622.30	627.30	KLX27A_0622.30_200802061047.ht2	KLX27A_622.30-627.30_080206_1_CHir_Q_r.csv	Chir	10.02.2008	06.02.2008		
2008-02-06	13:09	627.30	632.30	KLX27A_0627.30_200802061309.ht2	KLX27A_627.30-632.30_080206_1_CHir_Q_r.csv	Chir	10.02.2008	06.02.2008		
2008-02-06	15:07	632.30	637.30	KLX27A_0632.30_200802061507.ht2	KLX27A_632.30-637.30_080206_1_CHir_Q_r.csv	Chir	10.02.2008	06.02.2008		
2008-02-06	17:02	637.30	642.30	KLX27A_0637.30_200802061702.ht2	KLX27A_637.30-642.30_080206_1_CHir_Q_r.csv	Chir	10.02.2008	07.02.2008		
2008-02-07	08:33	640.20	645.20	KLX27A_0640.20_200802070833.ht2	KLX27A_640.20-645.20_080207_1_CHir_Q_r.csv	Chir	10.02.2008	07.02.2008		
2008-02-07	13:26	442.30	447.30	KLX27A_0442.30_200802071326.ht2	KLX27A_442.30-447.30_080207_2_CHir_Q_r.csv	Chir	10.02.2008	07.02.2008		
2008-02-09	13:18	645.20	650.56	KLX27A_0645.20_200802091318.ht2	KLX27A_645.20-650.56_080209_1_CHir_Q_r.csv	Chir	10.02.2008	10.02.2008		

APPENDIX 2

Analysis diagrams

Borehole: KLX27A Page 2-1/1

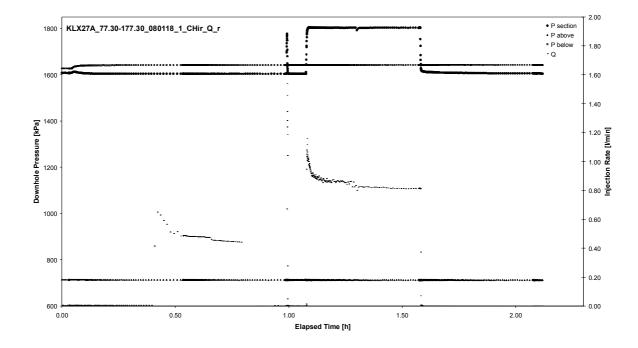
Test: 77.30 – 177.30 m

APPENDIX 2-1

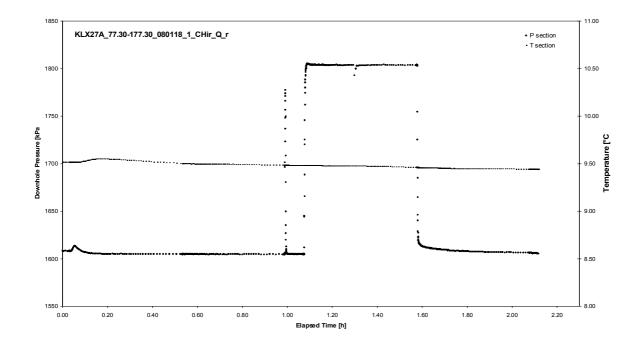
Test 77.30 – 177.30 m

Analysis diagrams

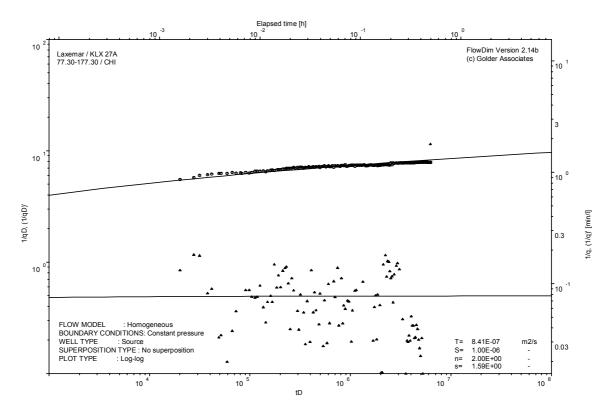
Test: 77.30 – 177.30 m



Pressure and flow rate vs. time; cartesian plot



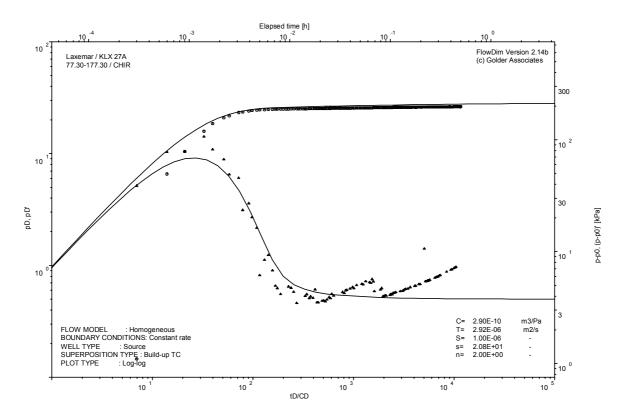
Test: 77.30 – 177.30 m



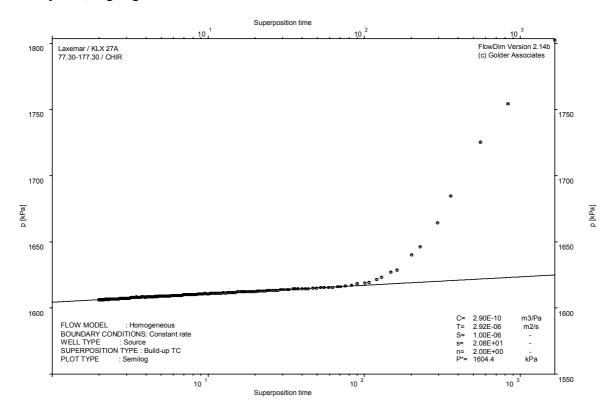
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Borehole: KLX27A

Test: 77.30 - 177.30 m



CHIR phase; log-log match



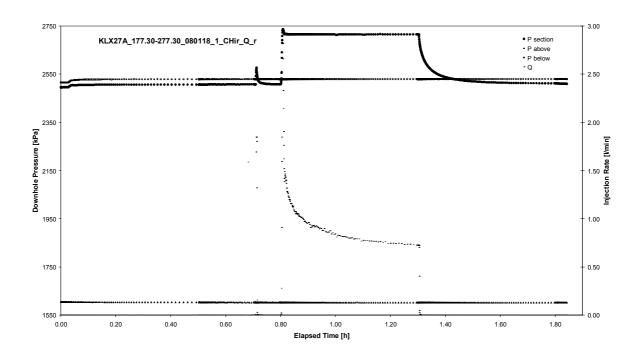
CHIR phase; HORNER match

Test: 177.30 – 277.30 m

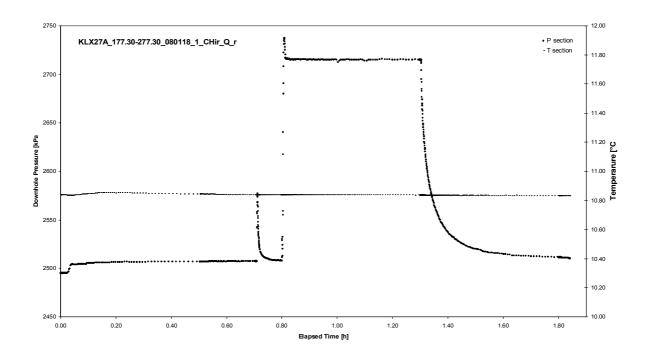
APPENDIX 2-2

Test 177.30 – 277.30 m

Test: 177.30 – 277.30 m

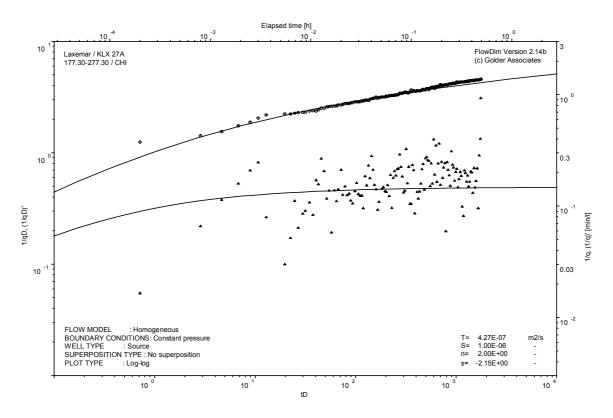


Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

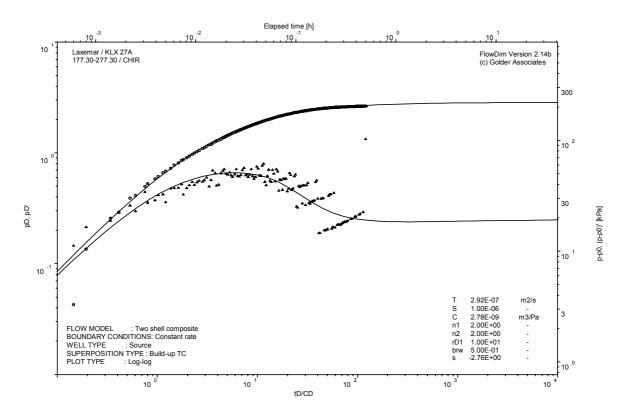
Test: 177.30 – 277.30 m

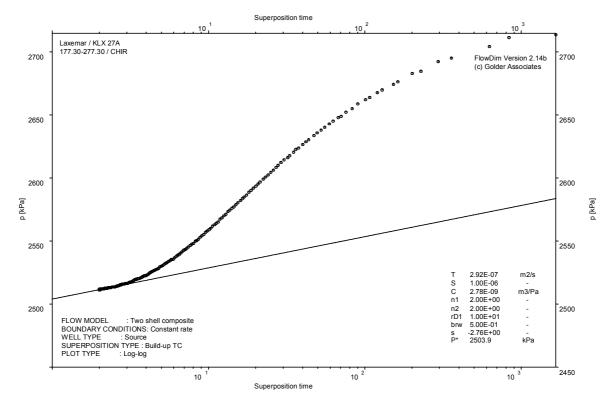


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Borehole: KLX27A

Test: 177.30 – 277.30 m





CHIR phase; HORNER match

Test: 277.30 – 377.30 m

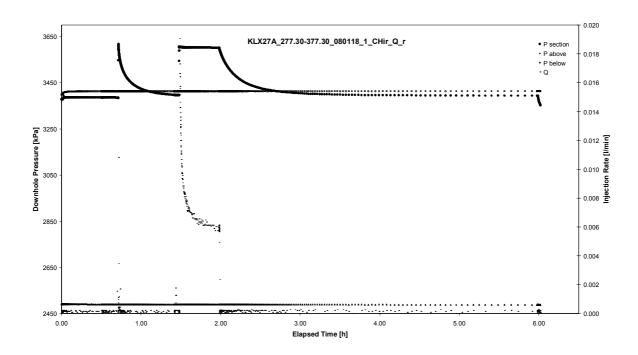
APPENDIX 2-3

Test 277.30 – 377.30 m

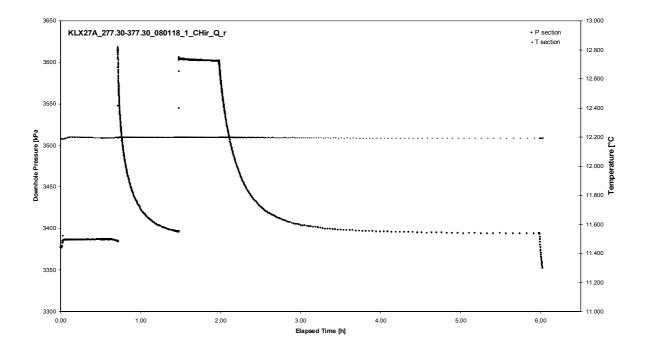
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Borehole: KLX27A

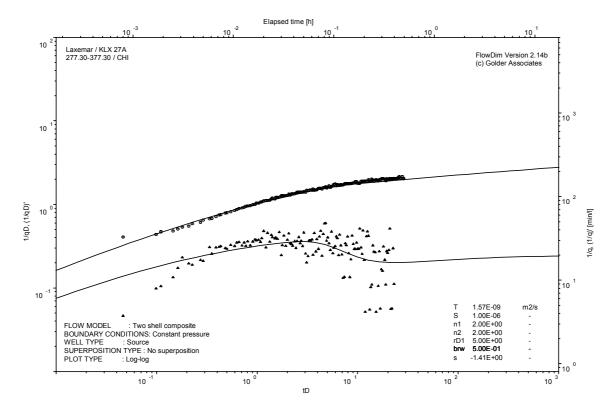
Test: 277.30 - 377.30 m



Pressure and flow rate vs. time; cartesian plot

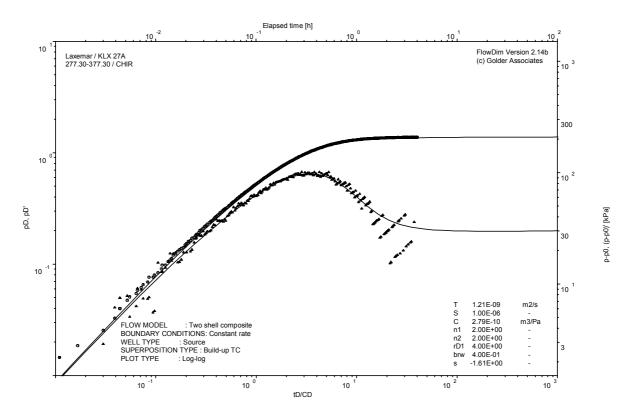


Test: 277.30 – 377.30 m

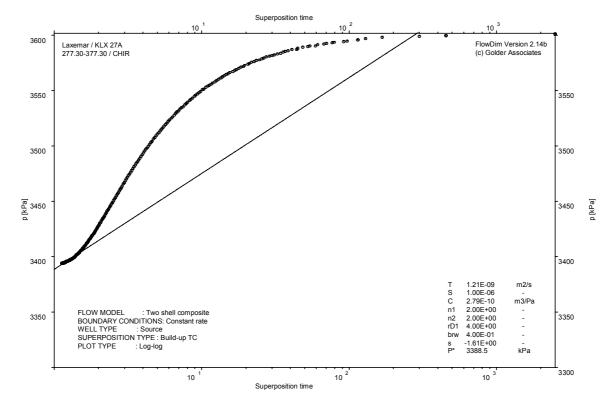


Borehole: KLX27A

Test: 277.30 – 377.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

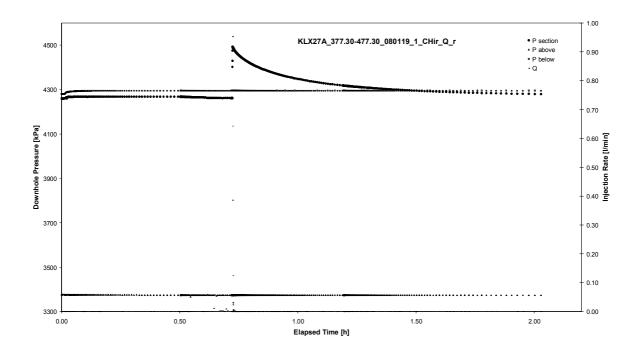
Test: 377.30 – 477.30 m

APPENDIX 2-4

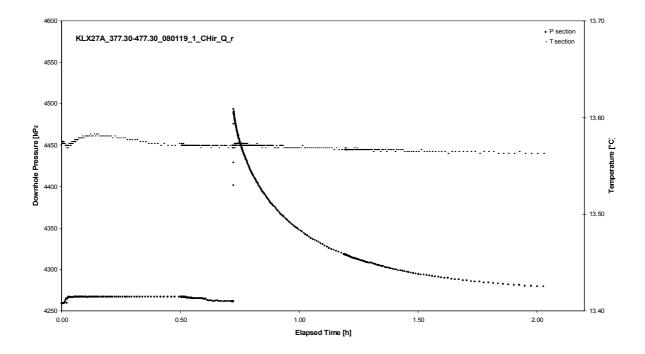
Test 377.30 – 477.30 m

Borehole: KLX27A

Test: 377.30 – 477.30 m



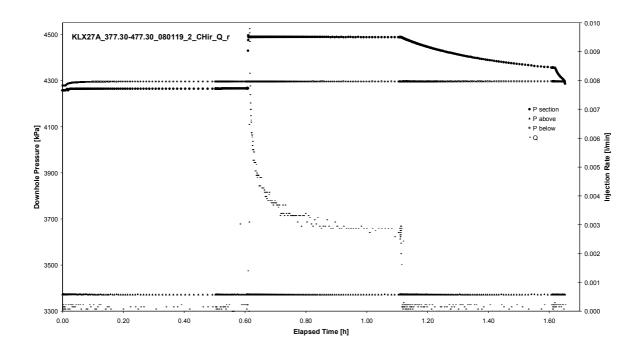
Pressure and flow rate vs. time; cartesian plot (repeated)



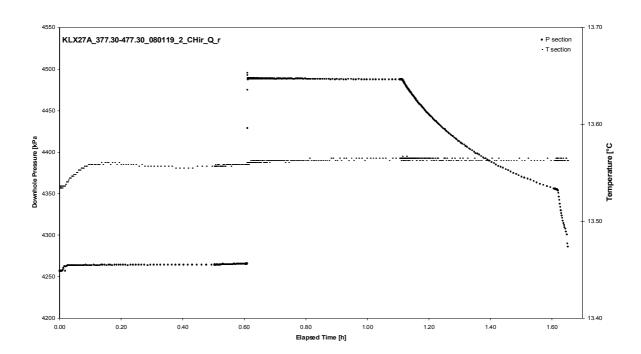
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Borehole: KLX27A

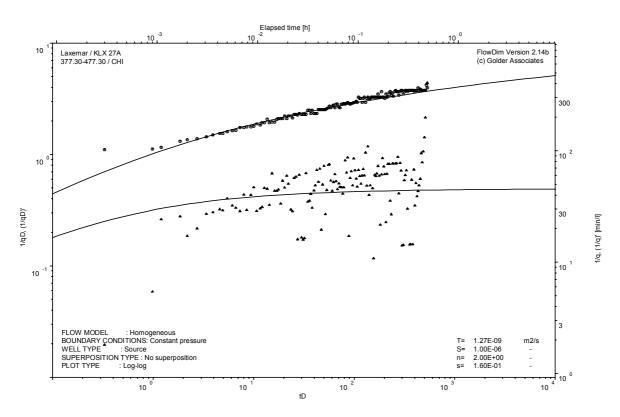
Test: 377.30 – 477.30 m



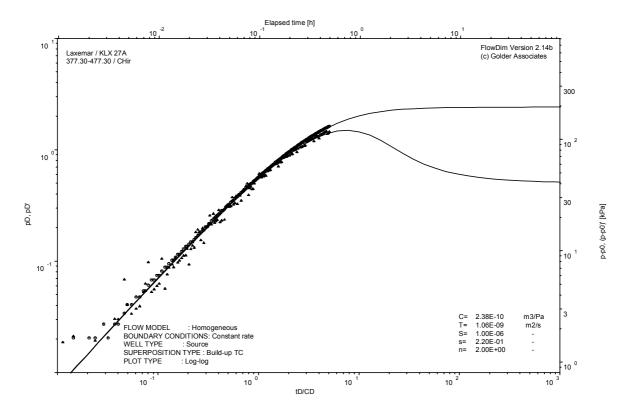
Pressure and flow rate vs. time; cartesian plot



Test: 377.30 – 477.30 m



Test: 377.30 – 477.30 m



CHIR phase; log-log match

Not Analysable

Test: 477.30 – 577.30 m

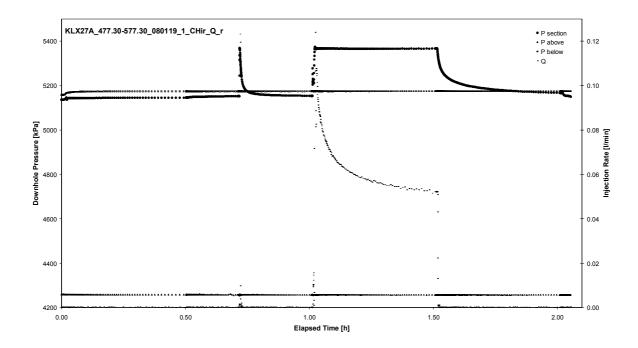
APPENDIX 2-5

Test 477.30 – 577.30 m

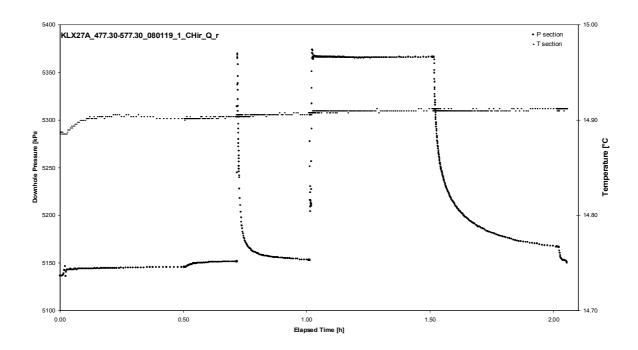
Page 2-5/2

Borehole: KLX27A

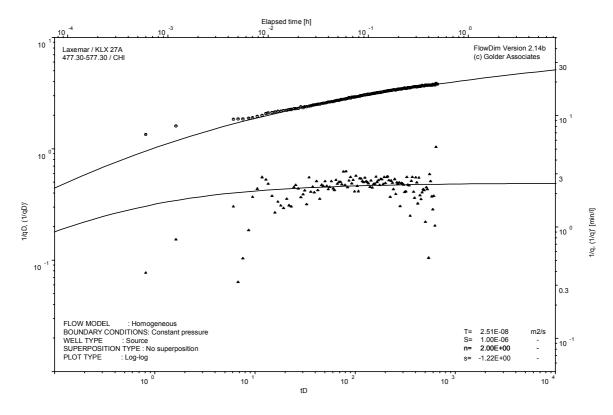
Test: 477.30 – 577.30 m



Pressure and flow rate vs. time; cartesian plot

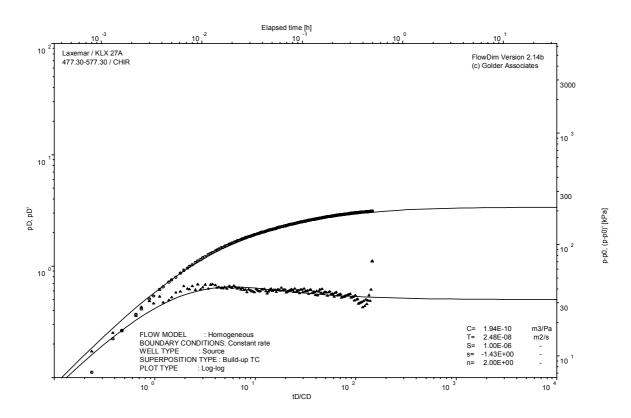


Test: 477.30 – 577.30 m

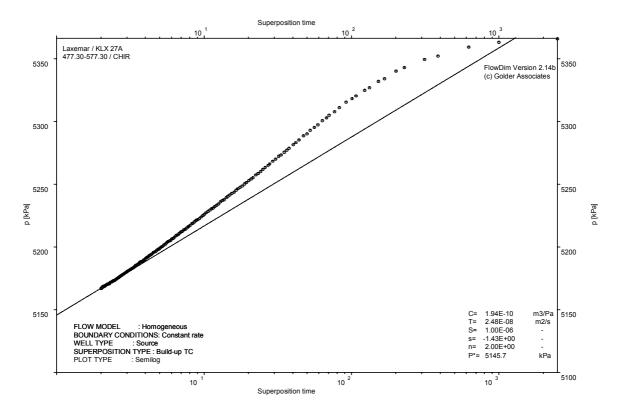


Borehole: KLX27A

Test: 477.30 – 577.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Test: 545.20 – 645.20 m

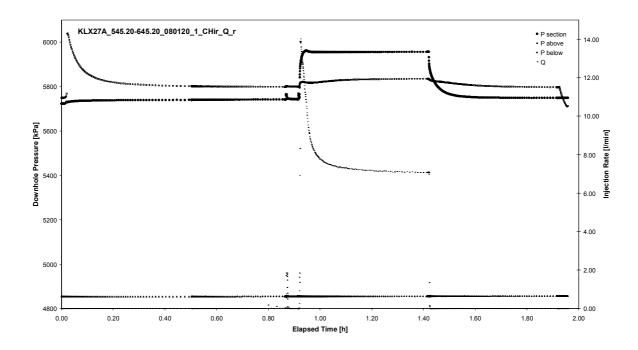
APPENDIX 2-6

Test 545.20 – 645.20 m

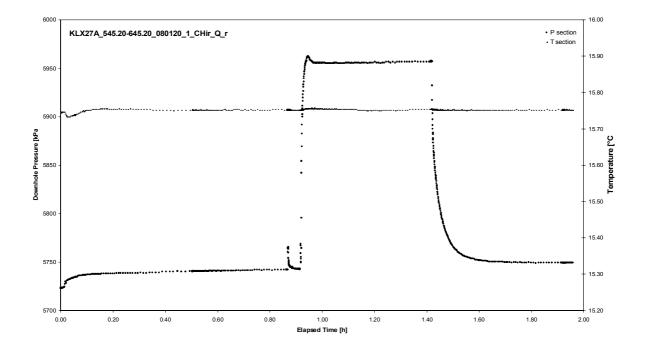
Page 2-6/2

Borehole: KLX27A

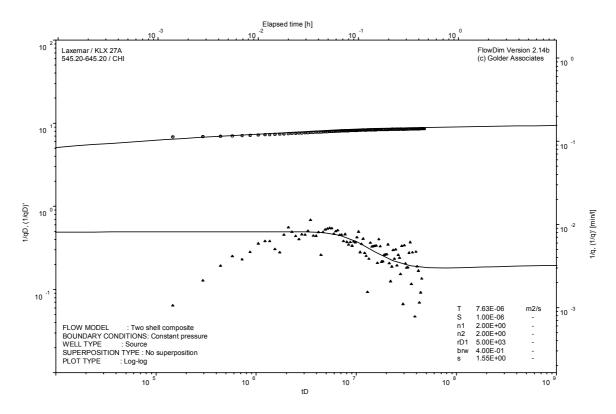
Test: 545.20 – 645.20 m



Pressure and flow rate vs. time; cartesian plot

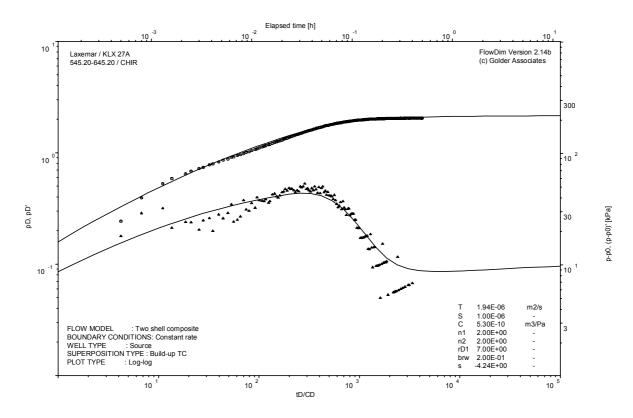


Test: 545.20 – 645.20 m

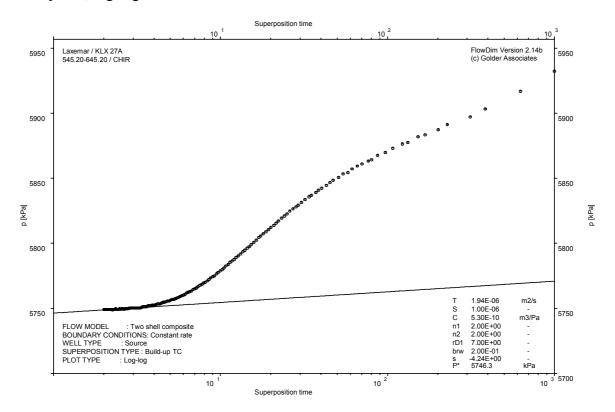


Borehole: KLX27A

Test: 545.20 – 645.20 m



CHIR phase; log-log match



CHIR phase; HORNER match

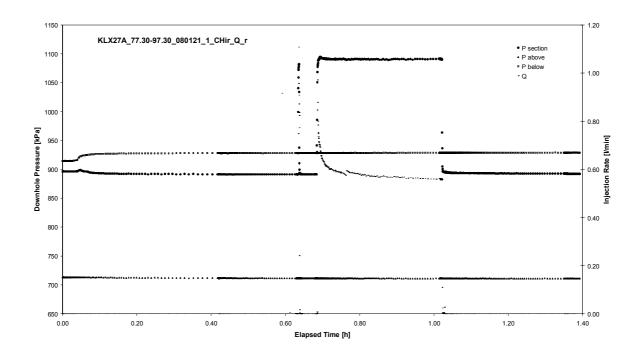
Test: 77.30 - 97.30 m

APPENDIX 2-7

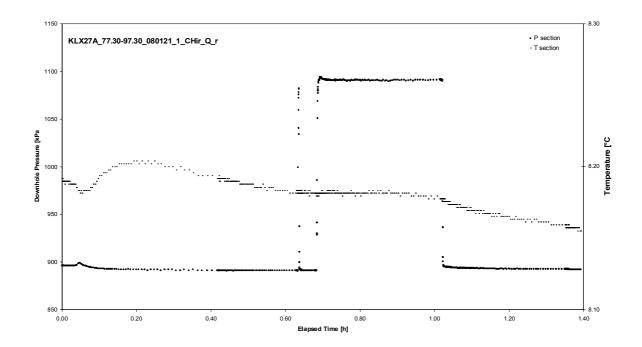
Test 77.30 – 97.30 m

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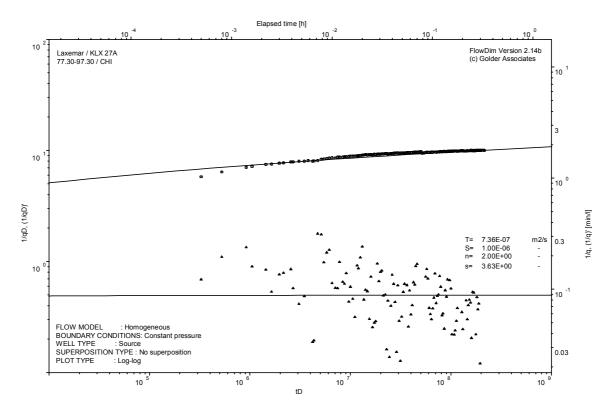
Borehole: KLX27A Test: 77.30 – 97.30 m



Pressure and flow rate vs. time; cartesian plot

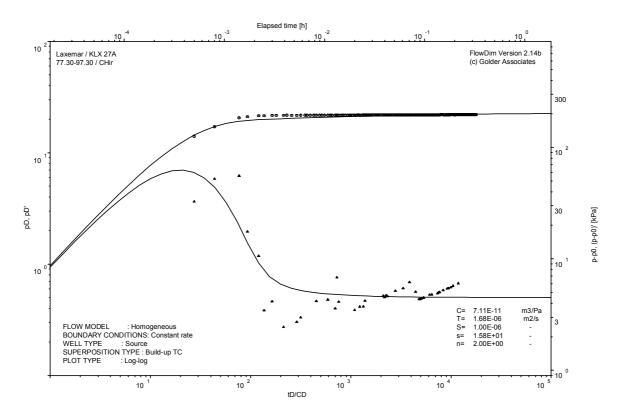


Test: 77.30 - 97.30 m

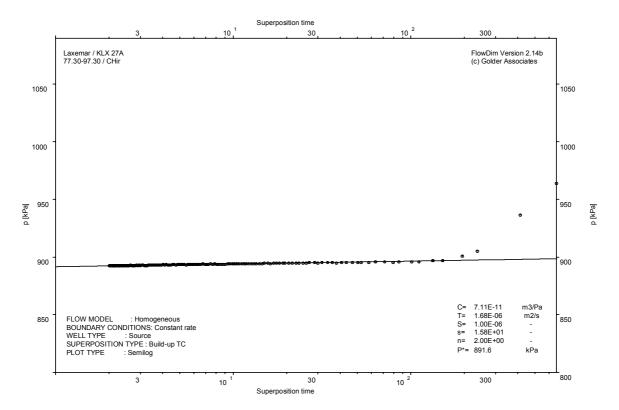


Borehole: KLX27A

Test: 77.30 - 97.30 m



CHIR phase; log-log match



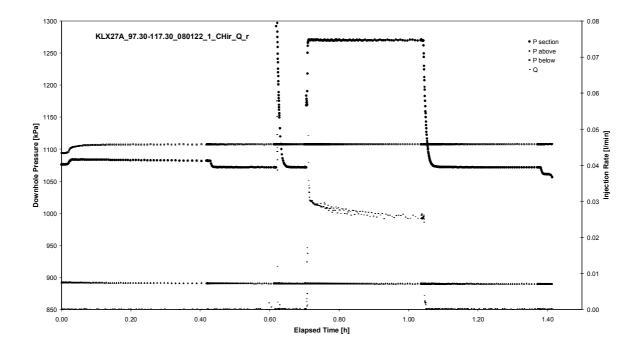
CHIR phase; HORNER match

Test: 97.30 – 117.30 m

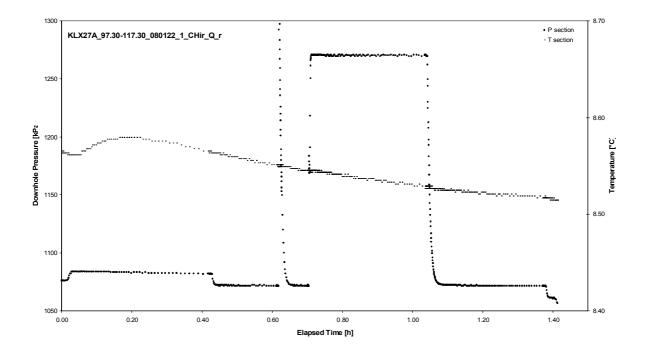
APPENDIX 2-8

Test 97.30 – 117.30 m

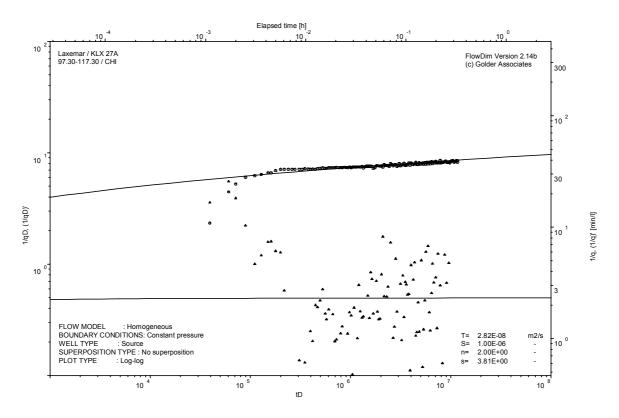
Test: 97.30 – 117.30 m



Pressure and flow rate vs. time; cartesian plot



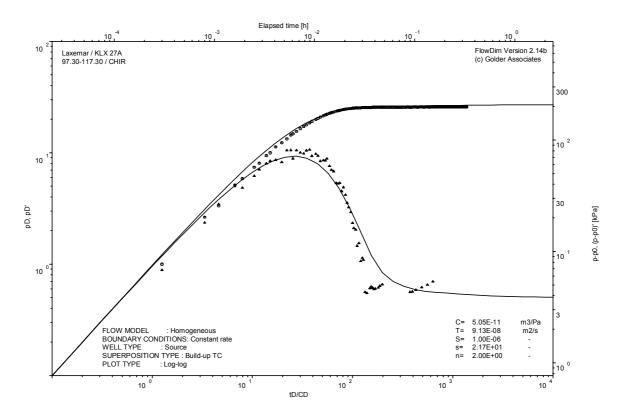
Test: 97.30 – 117.30 m



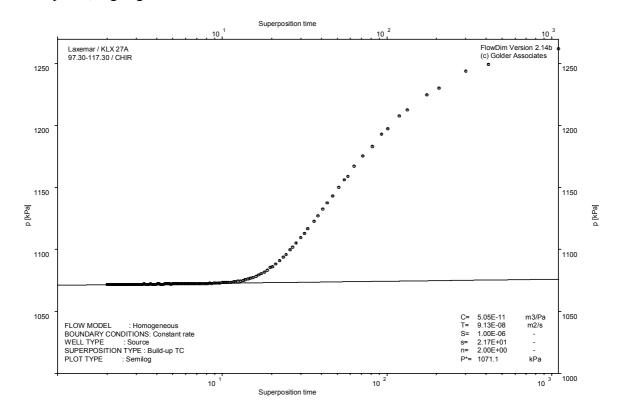
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Borehole: KLX27A

Test: 97.30 – 117.30 m



CHIR phase; log-log match



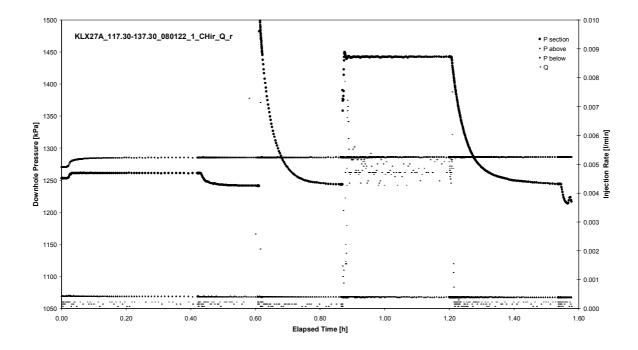
CHIR phase; HORNER match

Test: 117.30 – 137.30 m

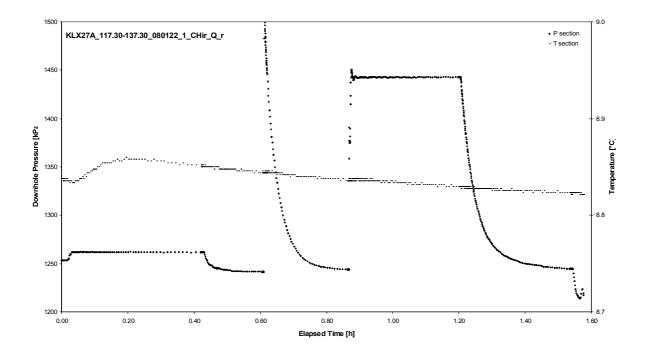
APPENDIX 2-9

Test 117.30 – 137.30 m

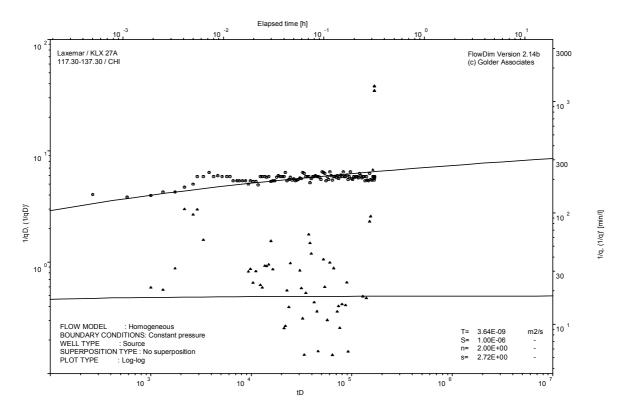
Test: 117.30 – 137.30 m



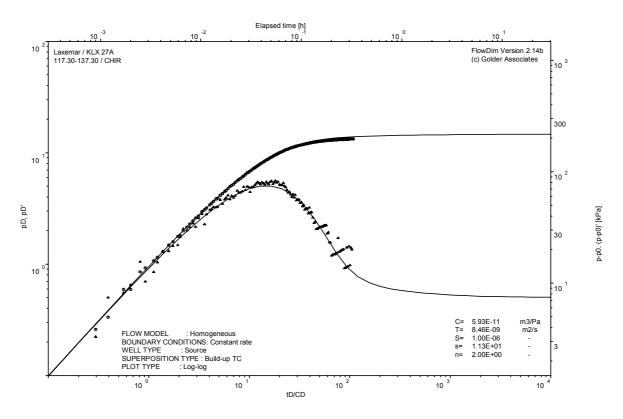
Pressure and flow rate vs. time; cartesian plot



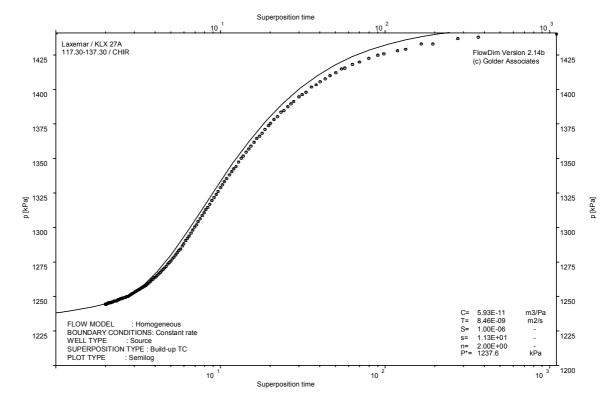
Test: 117.30 – 137.30 m



Test: 117.30 – 137.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-10/1

Test: 137.30 – 157.30 m

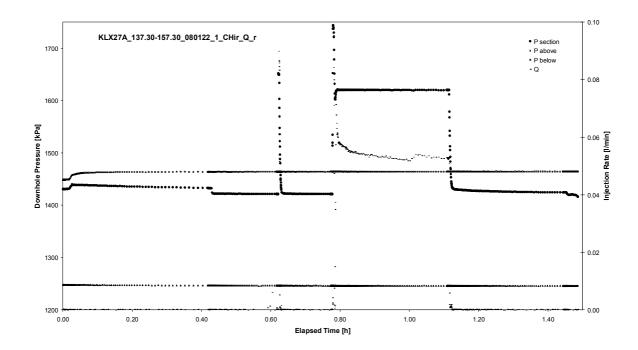
APPENDIX 2-10

Test 137.30 – 157.30 m

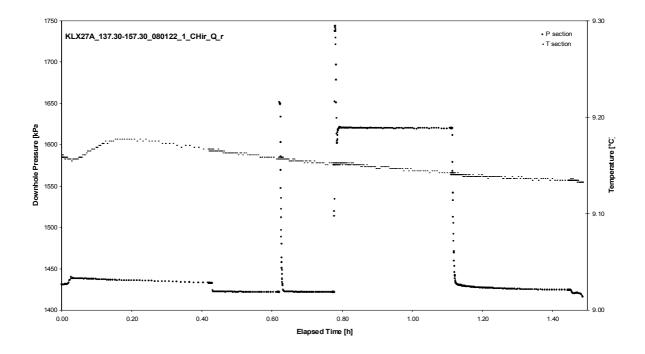
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Borehole: KLX27A

Test: 137.30 – 157.30 m



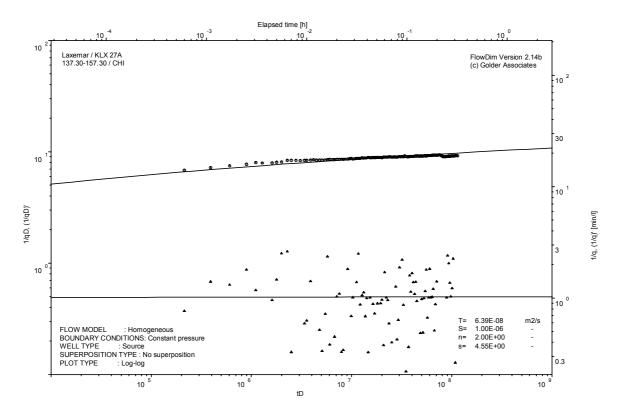
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-10/3

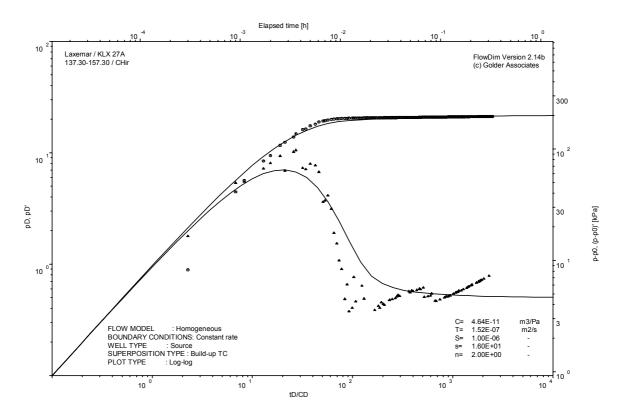
Test: 137.30 – 157.30 m



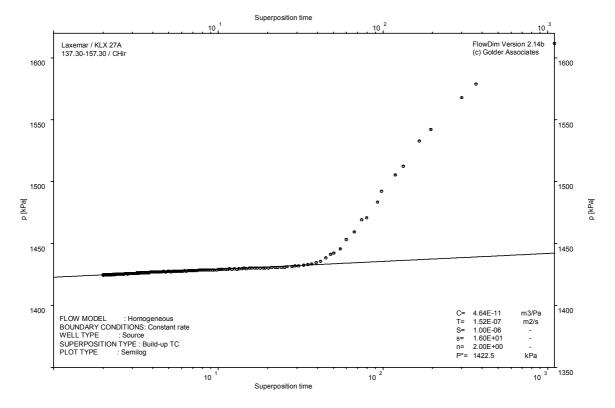
CHI phase; log-log match

Borehole: KLX27A

Test: 137.30 – 157.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-11/1

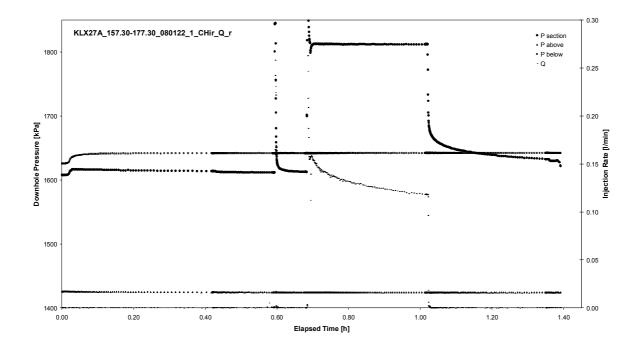
Test: 157.30 – 177.30 m

APPENDIX 2-11

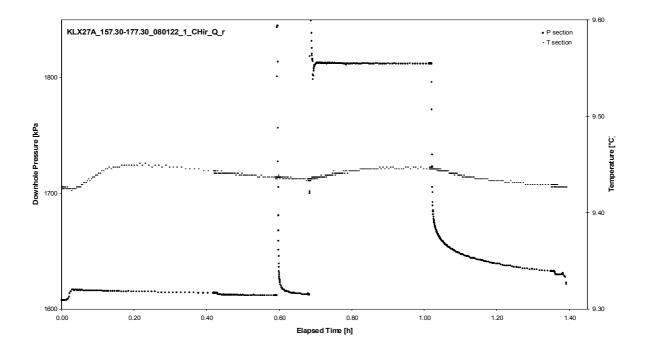
Test 157.30 – 177.30 m

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Borehole: KLX27A Test: 157.30 – 177.30 m



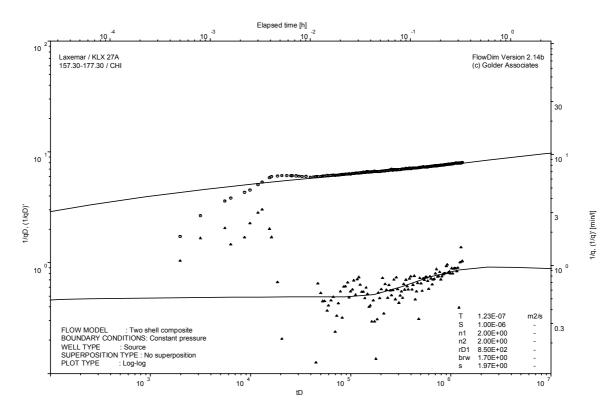
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-11/3

Test: 157.30 – 177.30 m

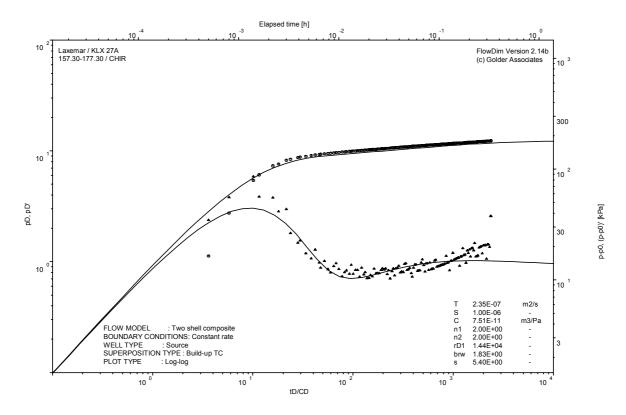


CHI phase; log-log match

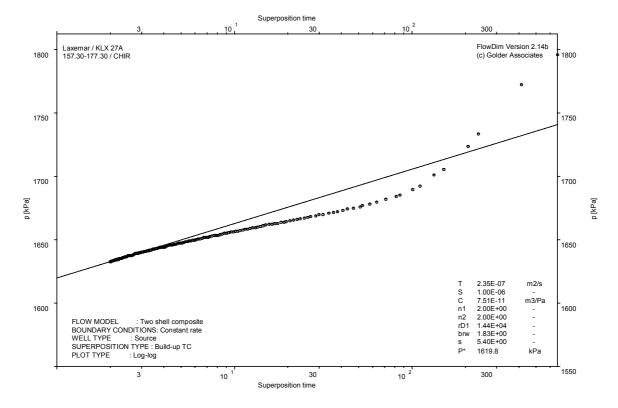
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Borehole: KLX27A

Test: 157.30 – 177.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-12/1

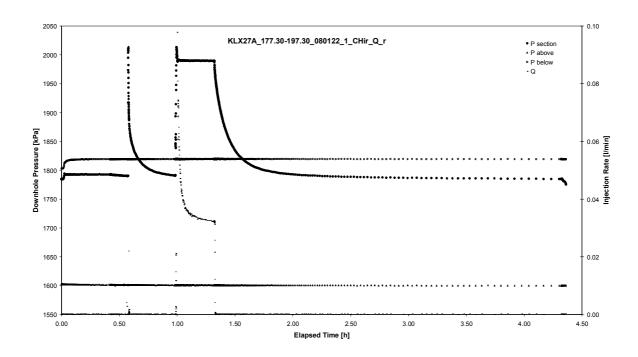
Test: 177.30 – 197.30 m

APPENDIX 2-12

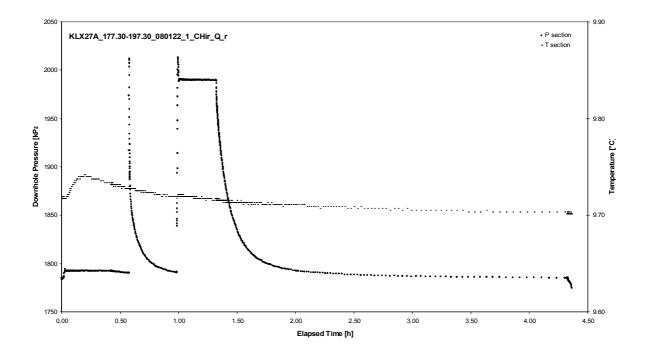
Test 177.30 – 197.30 m

Page 2-12/2

Borehole: KLX27A Test: 177.30 – 197.30 m



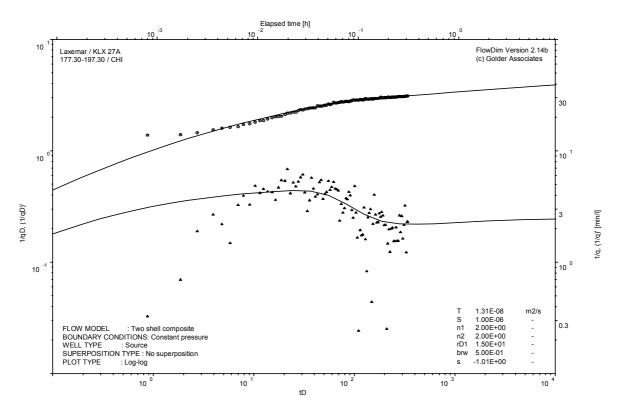
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-12/3

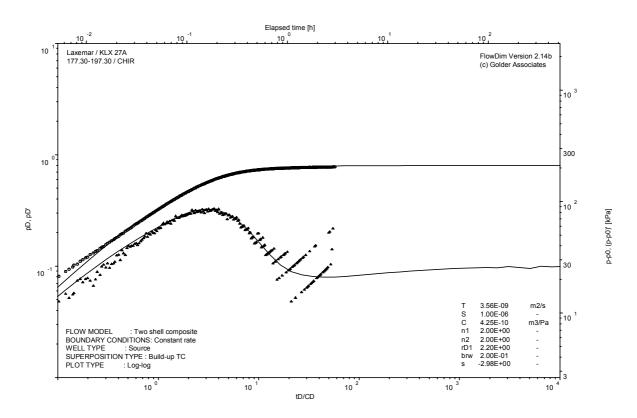
Test: 177.30 – 197.30 m



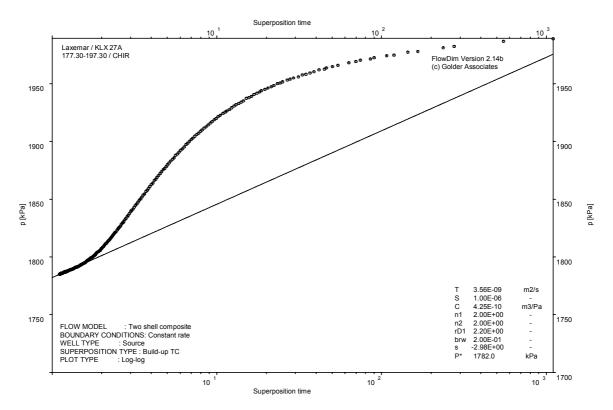
CHI phase; log-log match

Borehole: KLX27A

Test: 177.30 – 197.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-13/1

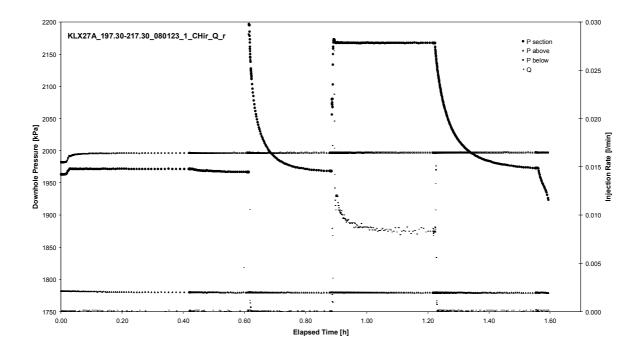
Test: 197.30 – 217.30 m

APPENDIX 2-13

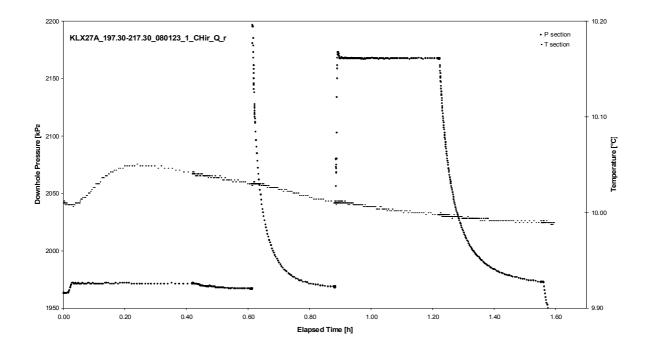
Test 197.30 – 217.30 m

Borehole: KLX27A Page 2-13/2

Test: 197.30 – 217.30 m



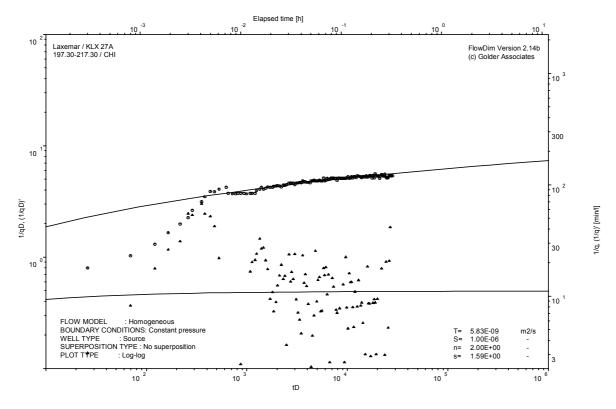
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-13/3

Test: 197.30 – 217.30 m

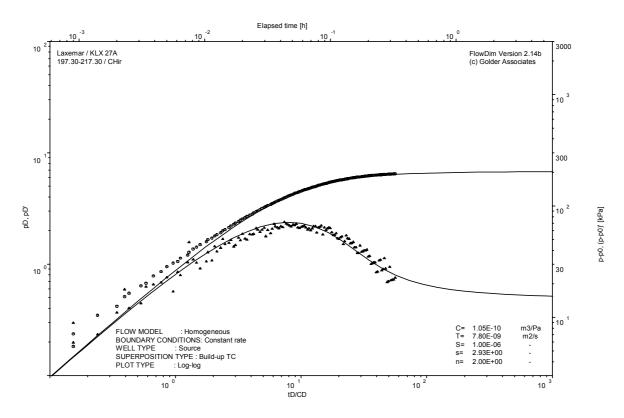


CHI phase; log-log match

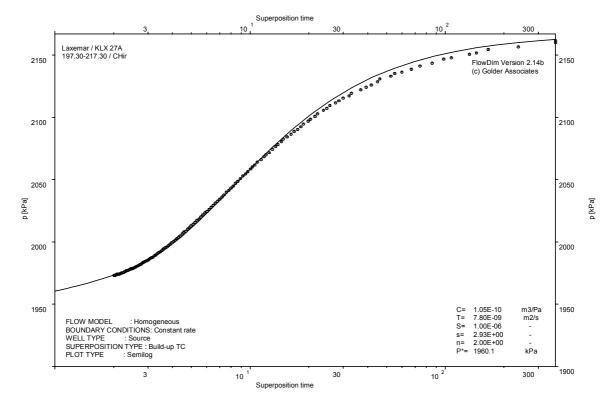
Page 2-13/4

Borehole: KLX27A

Test: 197.30 – 217.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-14/1

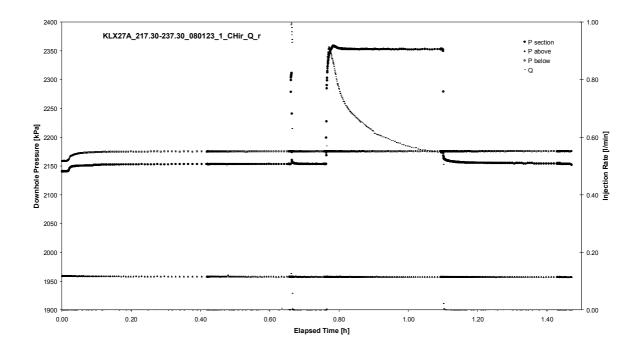
Test: 217.30 – 237.30 m

APPENDIX 2-14

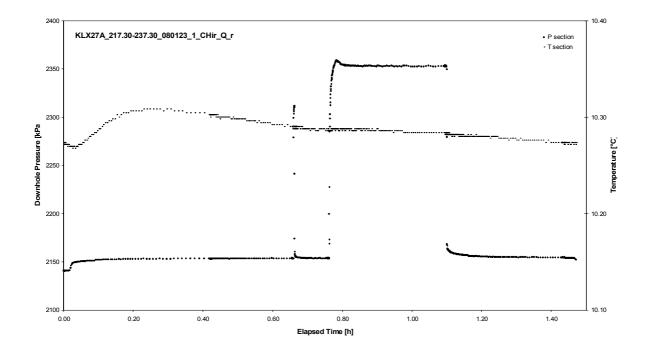
Test 217.30 – 237.30 m

Page 2-14/2

Borehole: KLX27A Test: 217.30 – 237.30 m



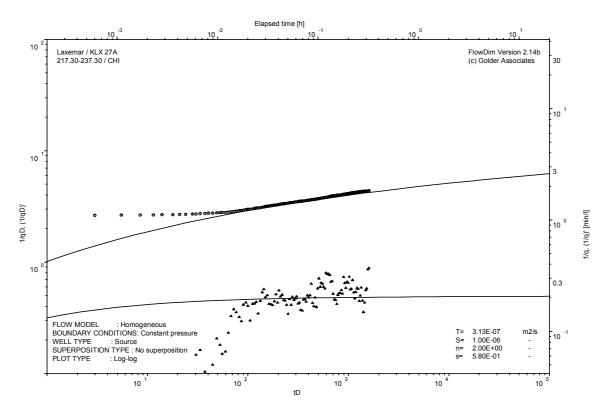
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-14/3

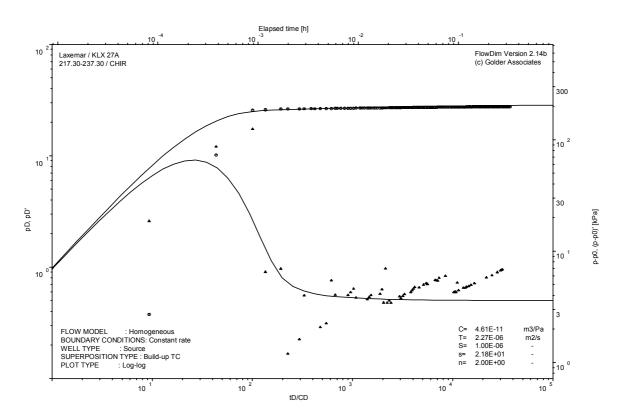
Test: 217.30 – 237.30 m



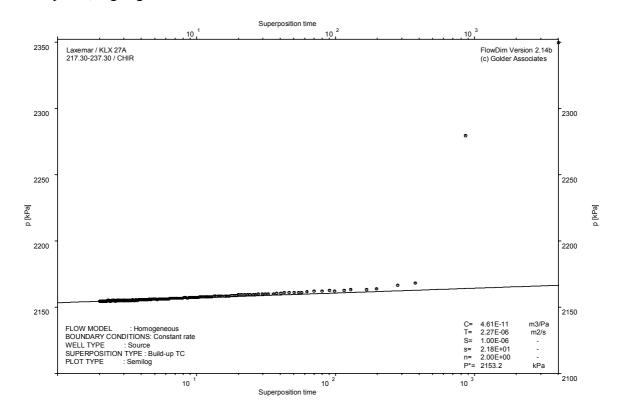
CHI phase; log-log match

Borehole: KLX27A

Test: 217.30 – 237.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-15/1

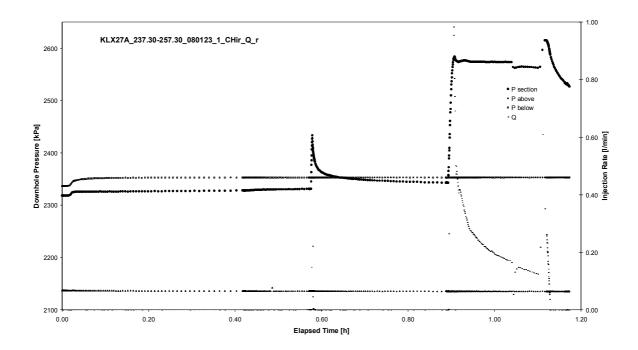
Test: 237.30 – 257.30 m

APPENDIX 2-15

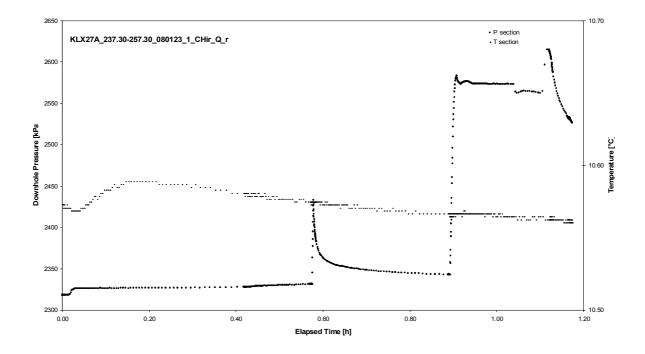
Test 237.30 – 257.30 m

Page 2-15/2

Borehole: KLX27A Test: 237.30 – 257.30 m



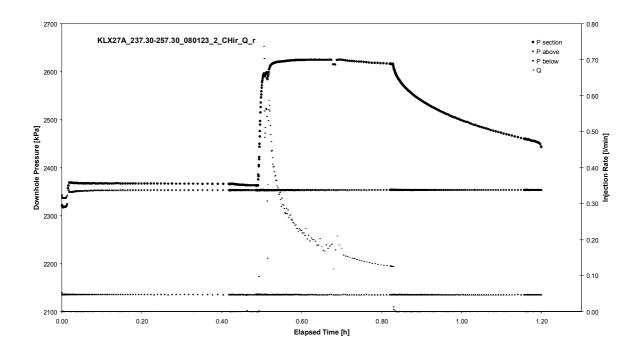
Pressure and flow rate vs. time; cartesian plot (repeated)



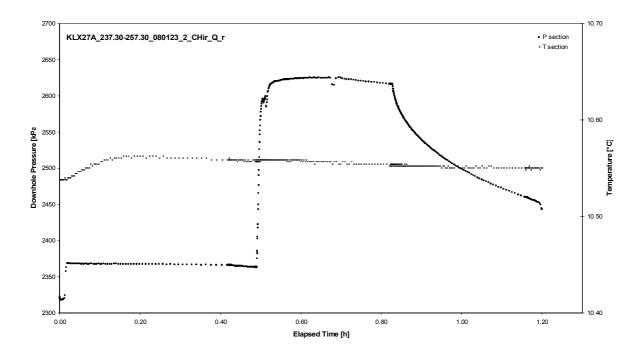
Interval pressure and temperature vs. time; cartesian plot (repeated)

Page 2-15/3

Borehole: KLX27A Test: 237.30 – 257.30 m



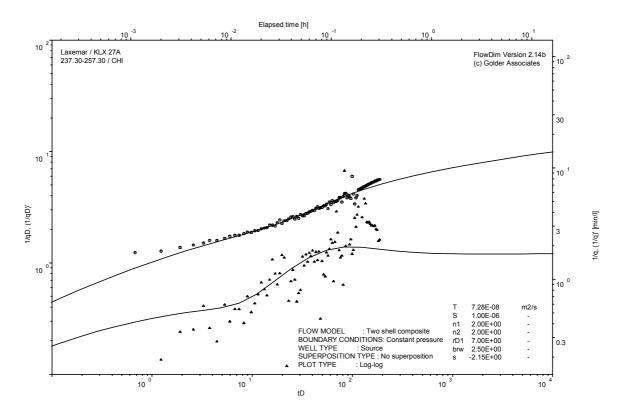
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-15/4

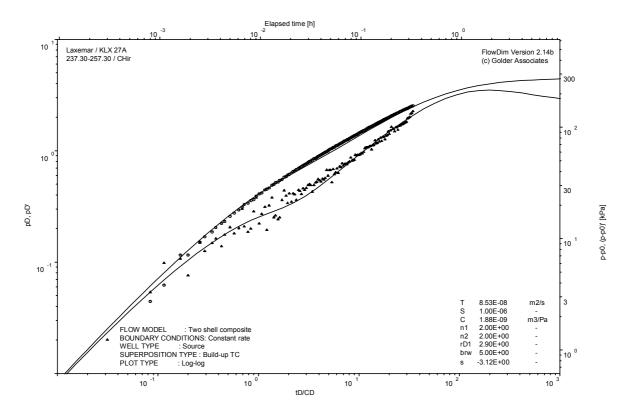
Test: 237.30 – 257.30 m



CHI phase; log-log match

Borehole: KLX27A Page 2-15/5

Test: 237.30 – 257.30 m



CHIR phase; log-log match

Not Analysable

Borehole: KLX27A Page 2-16/1

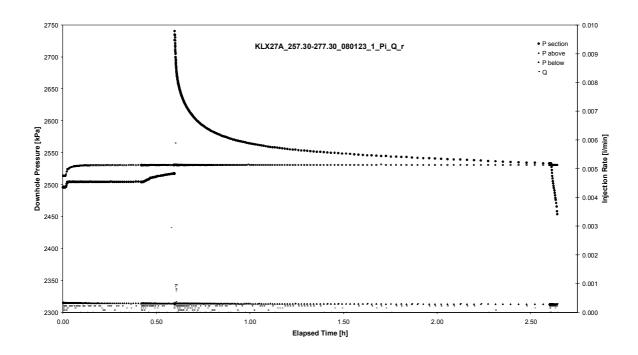
Test: 257.30 – 277.30 m

APPENDIX 2-16

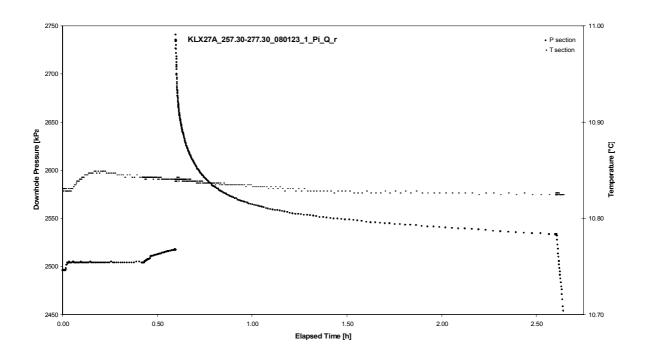
Test 257.30 – 277.30 m

Page 2-16/2

Borehole: KLX27A Test: 257.30 – 277.30 m



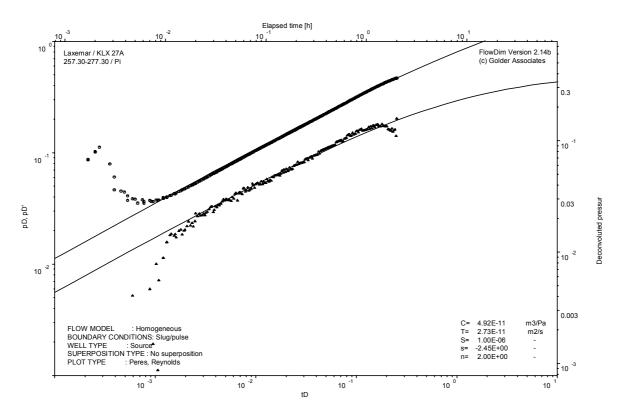
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-16/3

Test: 257.30 – 277.30 m



Pulse injection; deconvolution match

Borehole: KLX27A Page 2-17/1

Test: 277.30 – 297.30 m

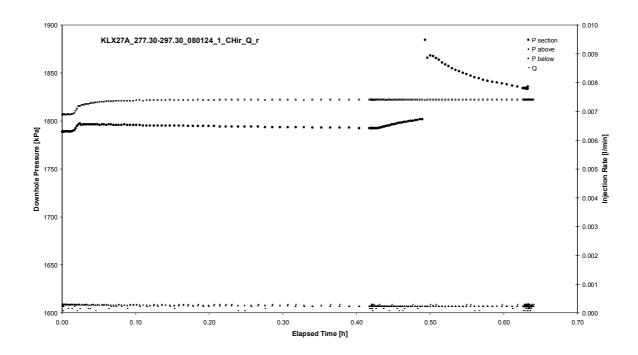
APPENDIX 2-17

Test 277.30 – 297.30 m

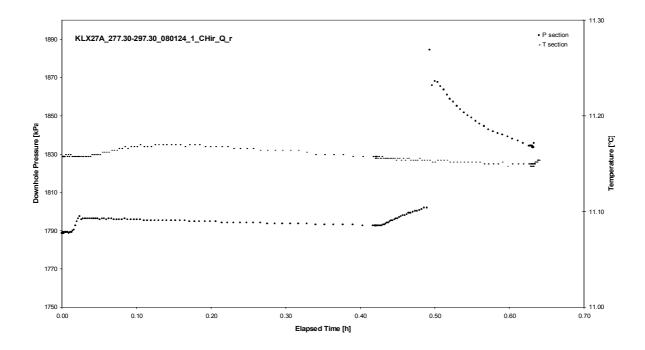
Page 2-17/2

Borehole: KLX27A

Test: 277.30 – 297.30 m



Pressure and flow rate vs. time; cartesian plot (repeated)

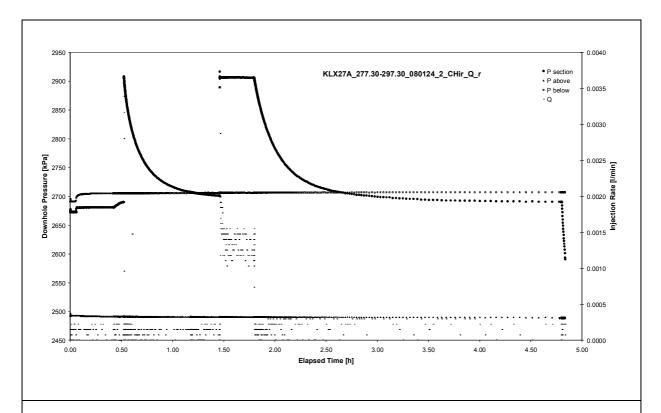


Interval pressure and temperature vs. time; cartesian plot (repeated)

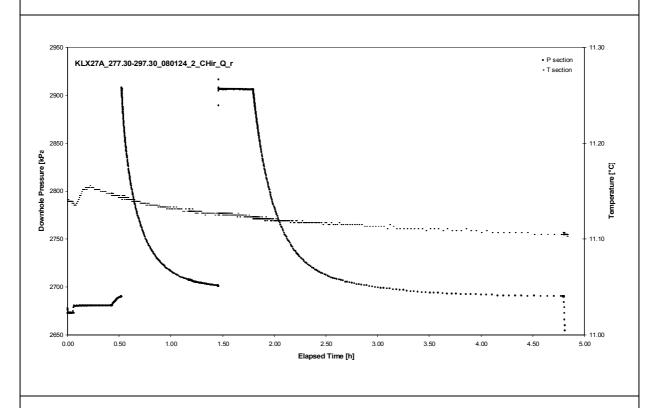
Page 2-17/3

Borehole: KLX27A

Test: 277.30 – 297.30 m



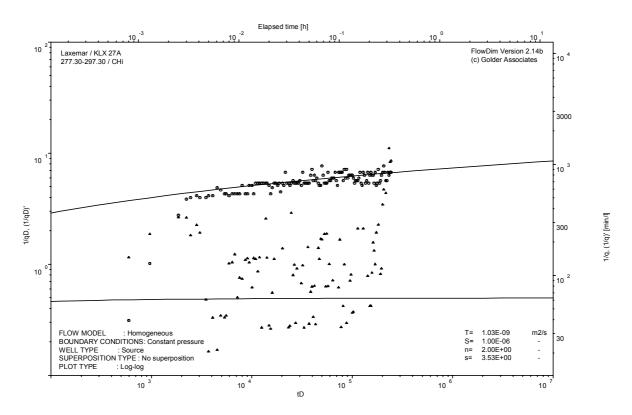
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-17/4

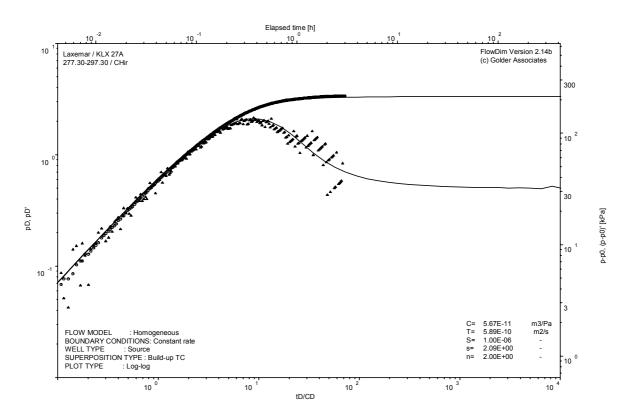
Test: 277.30 – 297.30 m



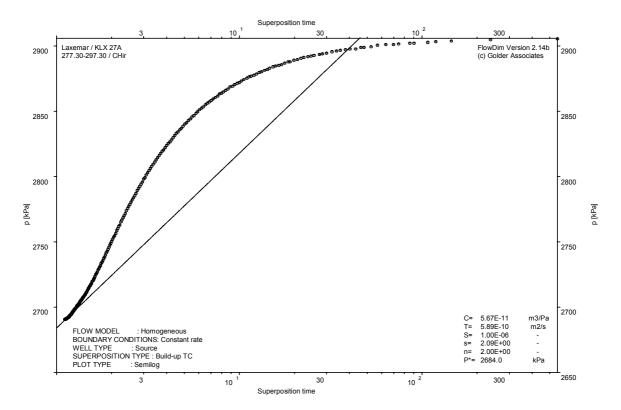
CHI phase; log-log match

Borehole: KLX27A

Test: 277.30 – 297.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-18/1

Test: 297.30 – 317.30 m

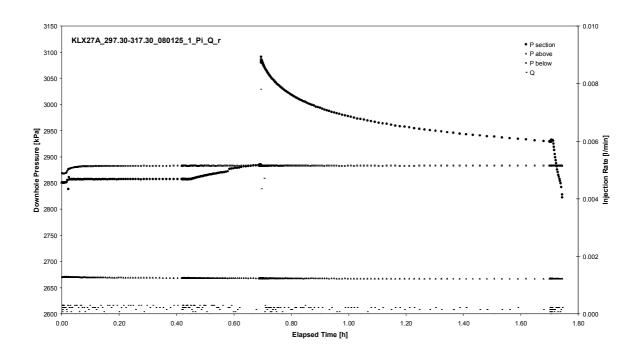
APPENDIX 2-18

Test 297.30 – 317.30 m

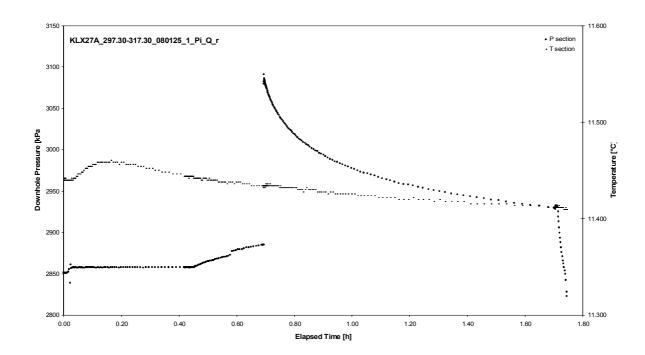
Page 2-18/2

Borehole: KLX27A

Test: 297.30 – 317.30 m



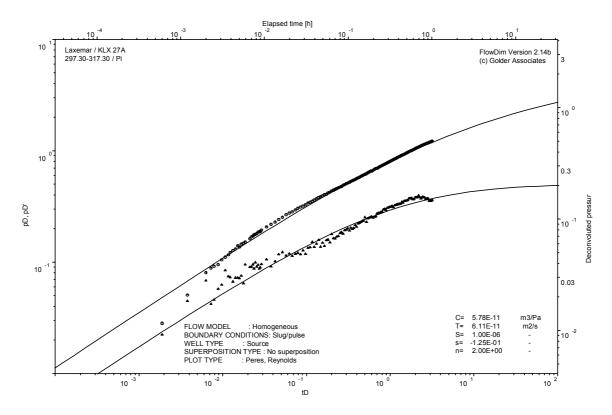
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-18/3

Test: 297.30 – 317.30 m



Pulse injection; deconvolution match

Borehole: KLX27A Page 2-19/1

Test: 317.30 – 337.30 m

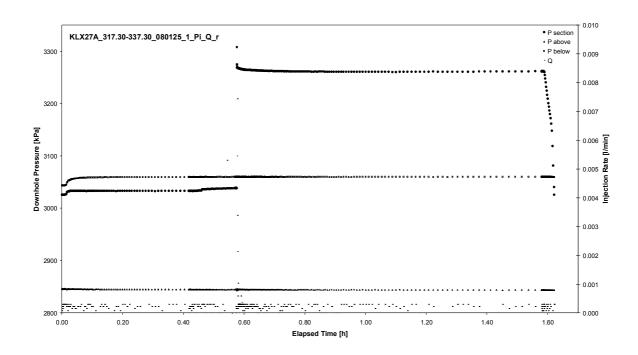
APPENDIX 2-19

Test 317.30 – 337.30 m

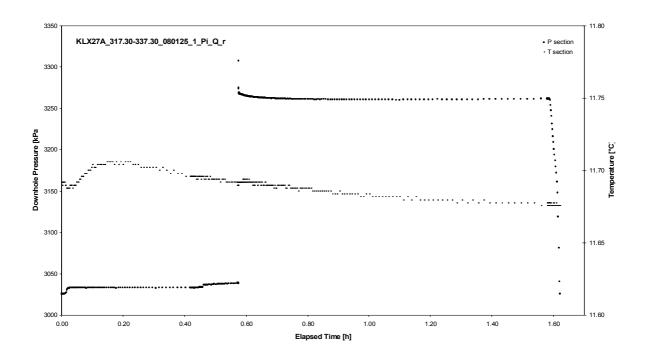
Page 2-19/2

Borehole: KLX27A

Test: 317.30 - 337.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-19/3
Test: 317.30 – 337.30 m

Not analysed

Pulse injection; deconvolution match

Borehole: KLX27A Page 2-20/1

Test: 337.30 – 357.30 m

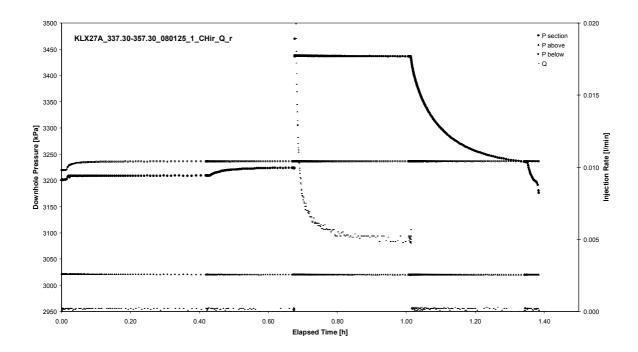
APPENDIX 2-20

Test 337.30 – 357.30 m

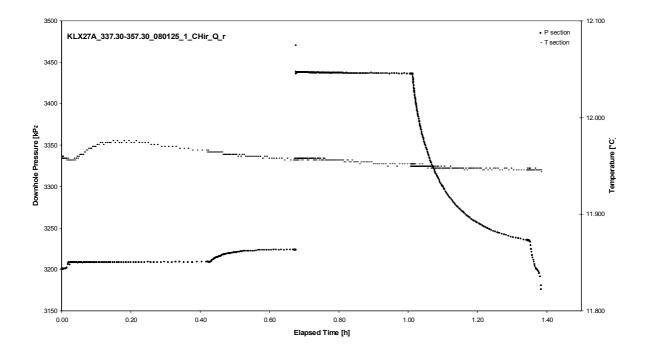
Page 2-20/2

Borehole: KLX27A

Test: 337.30 – 357.30 m

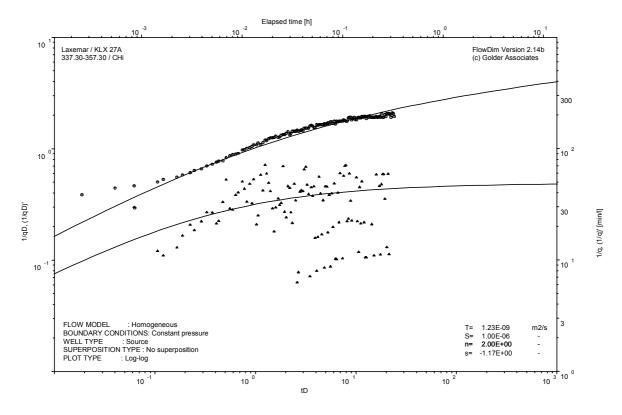


Pressure and flow rate vs. time; cartesian plot



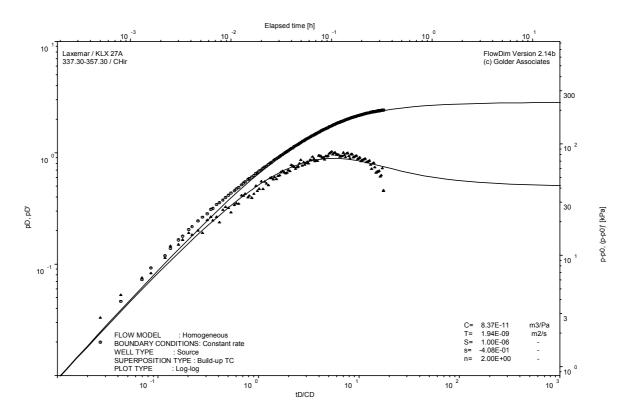
Borehole: KLX27A Page 2-20/3

Test: 337.30 – 357.30 m

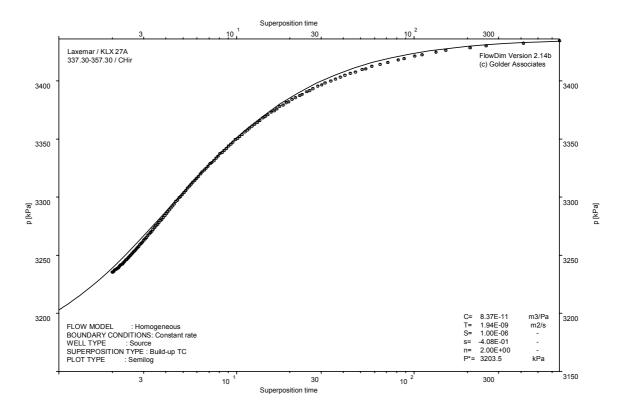


Borehole: KLX27A

Test: 337.30 – 357.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-21/1

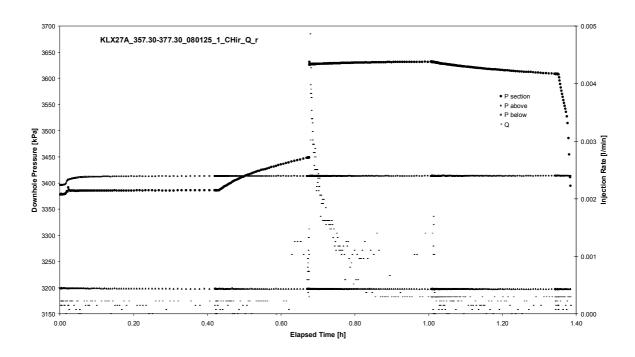
Test: 357.30 - 377.30 m

APPENDIX 2-21

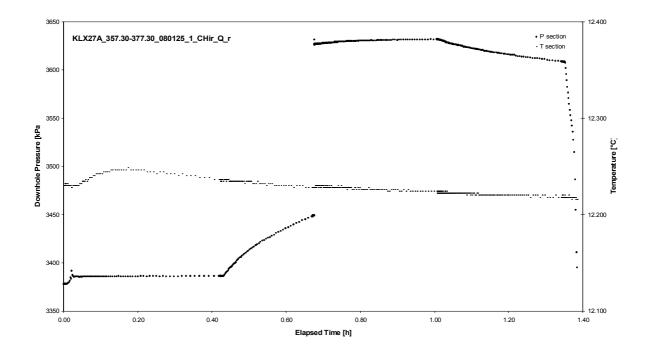
Test 357.30 – 377.30 m

Borehole: KLX27A Page 2-21/2

Test: 357.30 – 377.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-21/3

Test: 357.30 – 377.30 m

Not analysed

Borehole: Test:	KLX27A 357.30 – 377.30 m		Page 2-21/4
		Not analysed	
CHIR pha	se; log-log match		
Criffe pila	se, log log materi		
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-22/1

Test: 377.30 - 397.30 m

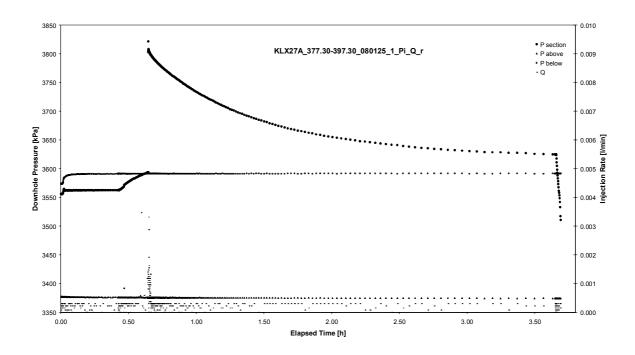
APPENDIX 2-22

Test 377.30 – 397.30 m

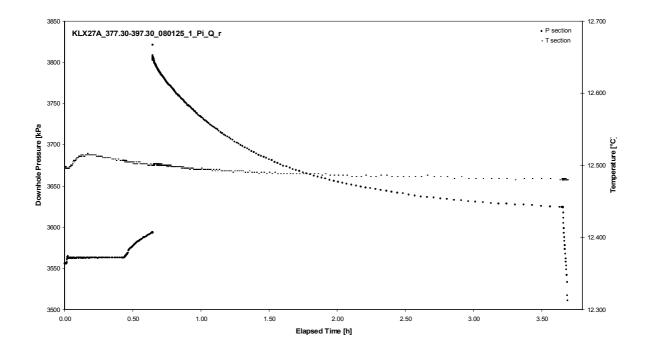
Page 2-22/2

Borehole: KLX27A

Test: 377.30 – 397.30 m

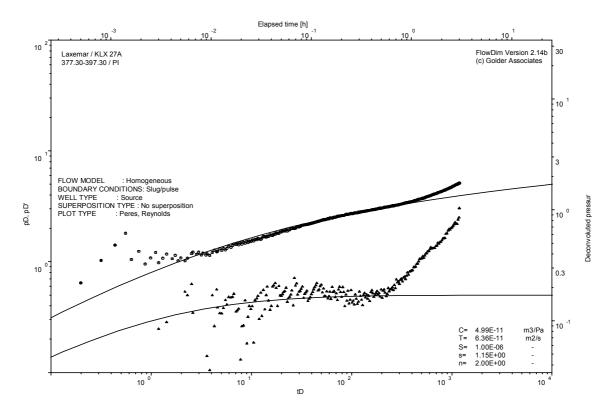


Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-22/3

Test: 377.30 - 397.30 m



Pulse injection; deconvolution match

Borehole: KLX27A Page 2-23/1

Test: 397.30 – 417.30 m

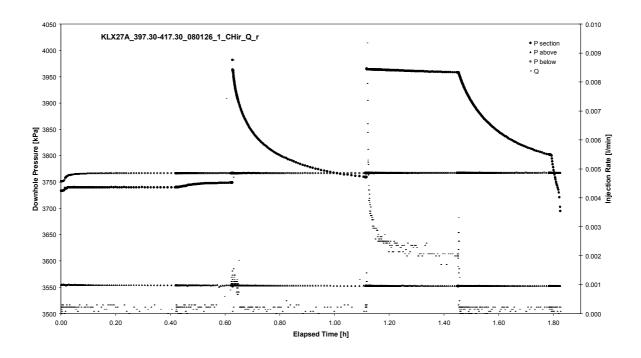
APPENDIX 2-23

Test 397.30 – 417.30 m

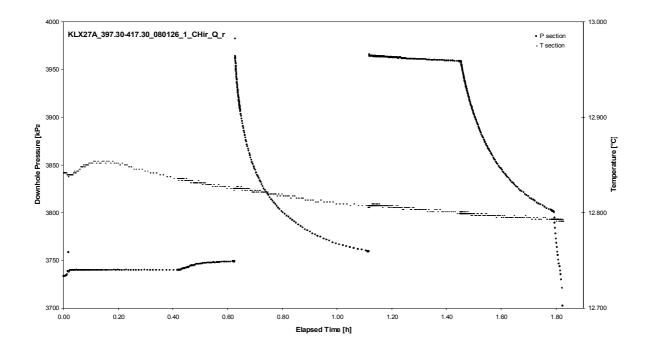
Page 2-23/2

Borehole: KLX27A

Test: 397.30 – 417.30 m

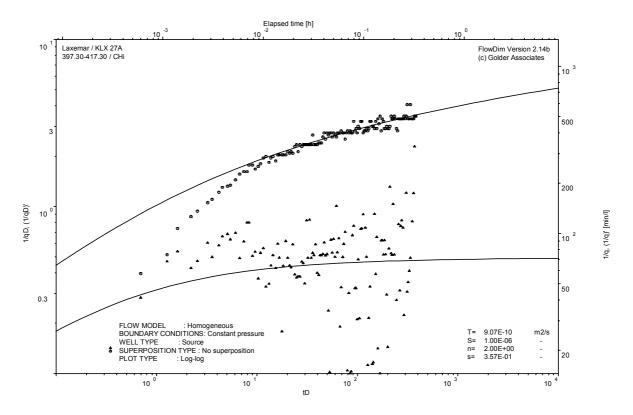


Pressure and flow rate vs. time; cartesian plot



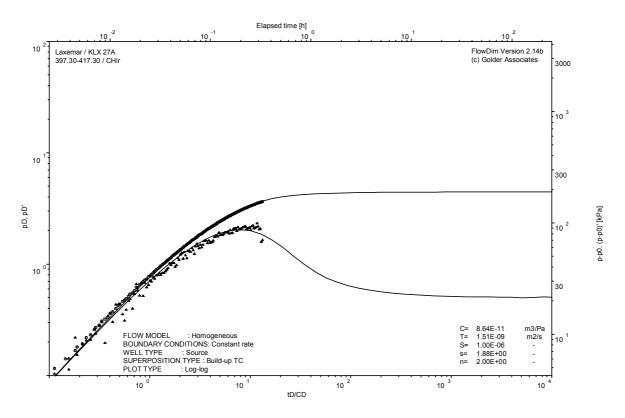
Borehole: KLX27A Page 2-23/3

Test: 397.30 – 417.30 m

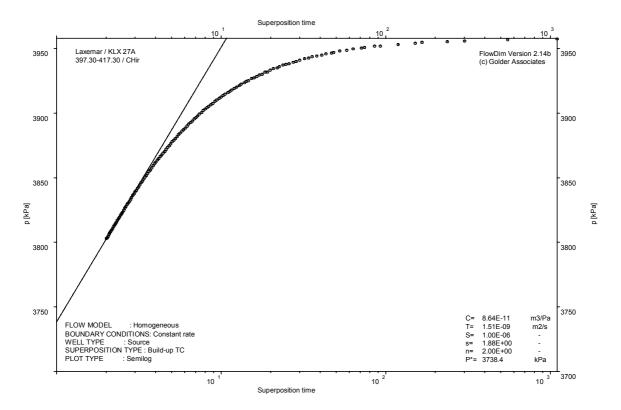


Borehole: KLX27A

Test: 397.30 – 417.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-24/1

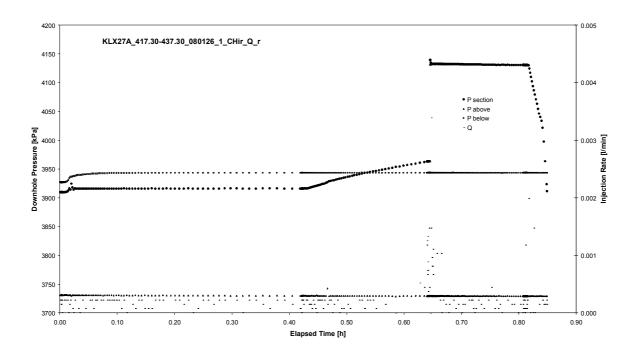
Test: 417.30 – 437.30 m

APPENDIX 2-24

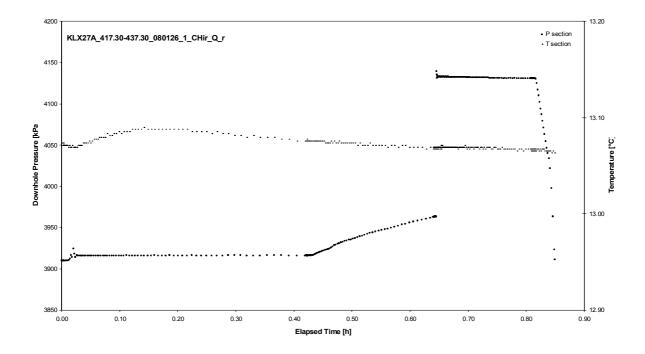
Test 417.30 – 437.30 m

Borehole: KLX27A

Test: 417.30 – 437.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-24/3

Test: 417.30 – 437.30 m

Not analysed

Borehole: Test:	KLX27A 417.30 – 437.30 m		Page 2-24/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	
		1 vot unuty seu	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-25/1

Test: 437.30 – 457.30 m

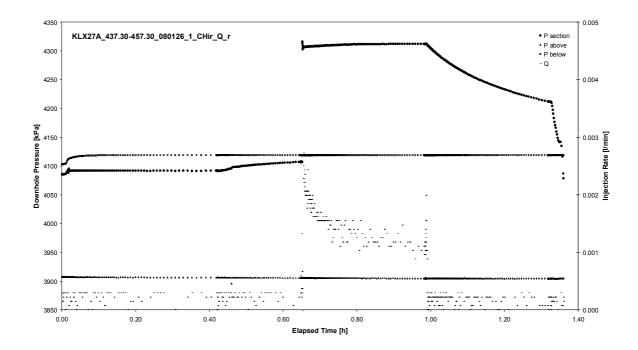
APPENDIX 2-25

Test 437.30 – 457.30 m

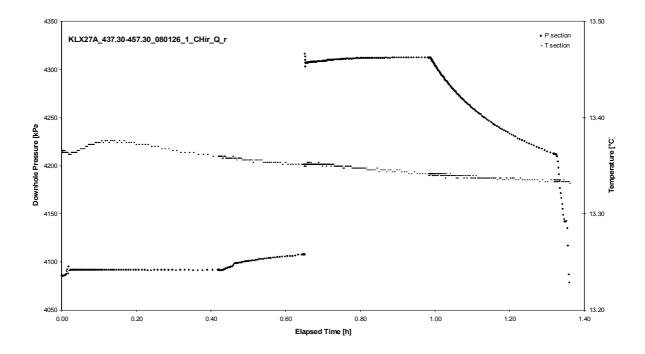
Page 2-25/2

Borehole: KLX27A

Test: 437.30 – 457.30 m

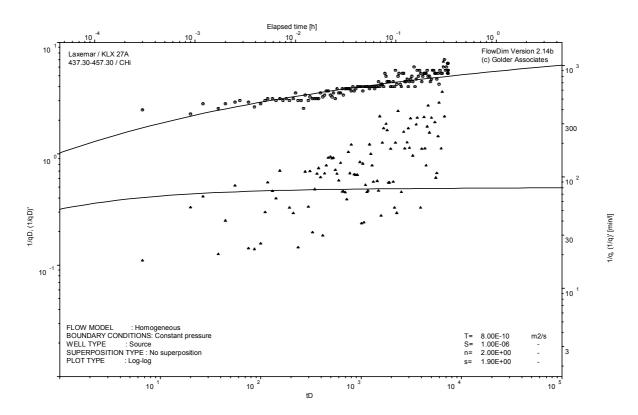


Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-25/3

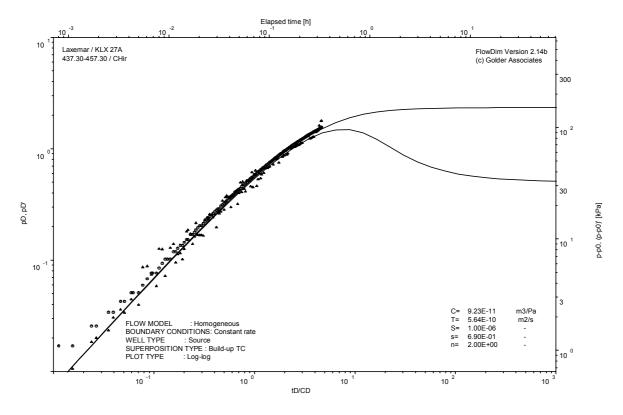
Test: 437.30 – 457.30 m



Page 2-25/4

Test: 437.30 – 457.30 m

Borehole: KLX27A



CHIR phase; log-log match

Not analysed

Borehole: KLX27A Page 2-26/1

Test: 457.30 – 477.30 m

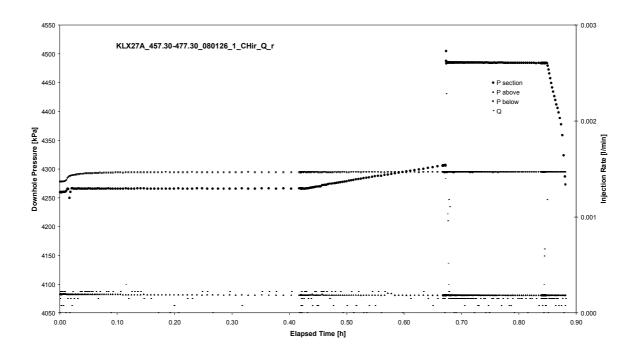
APPENDIX 2-26

Test 457.30 – 477.30 m

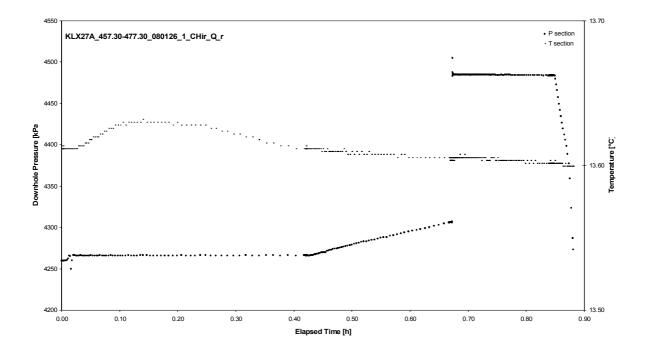
Page 2-26/2

Borehole: KLX27A

Test: 457.30 – 477.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-26/3

Test: 457.30 – 477.30 m

Not analysed

Borehole: Test:	KLX27A 457.30 – 477.30 m		Page 2-26/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	

CHIR phase; HORNER match

Borehole: KLX27A Page 2-27/1

Test: 477.30 – 497.30 m

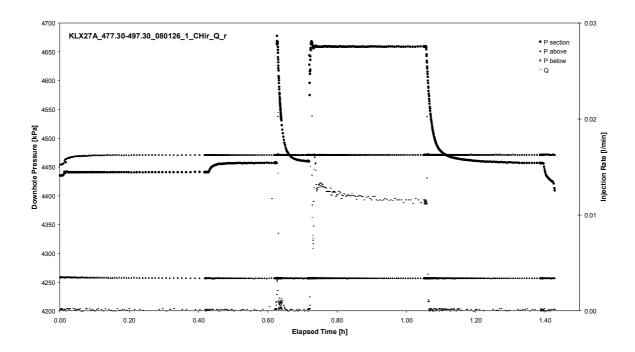
APPENDIX 2-27

Test 477.30 – 497.30 m

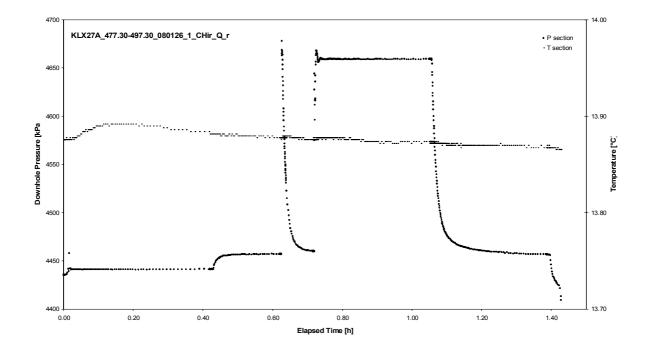
Page 2-27/2

Borehole: KLX27A

Test: 477.30 – 497.30 m

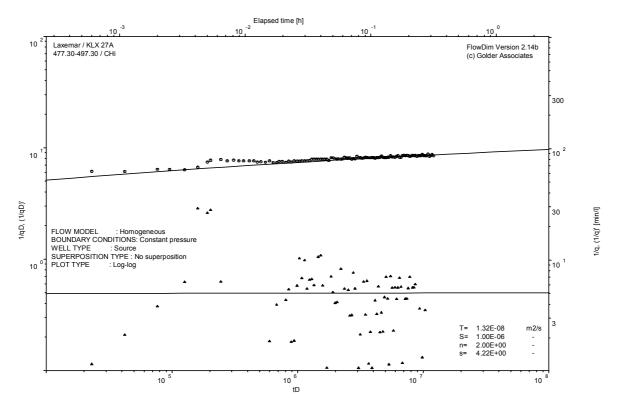


Pressure and flow rate vs. time; cartesian plot



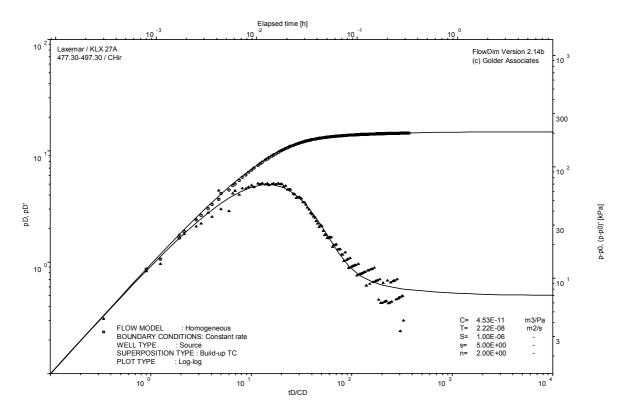
Borehole: KLX27A Page 2-27/3

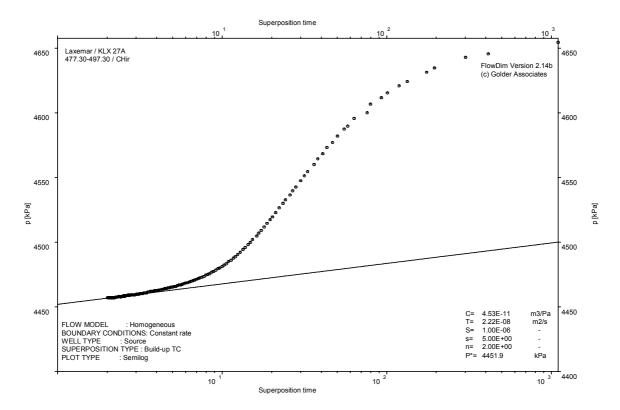
Test: 477.30 – 497.30 m



Borehole: KLX27A

Test: 477.30 – 497.30 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-28/1

Test: 497.30 – 517.30 m

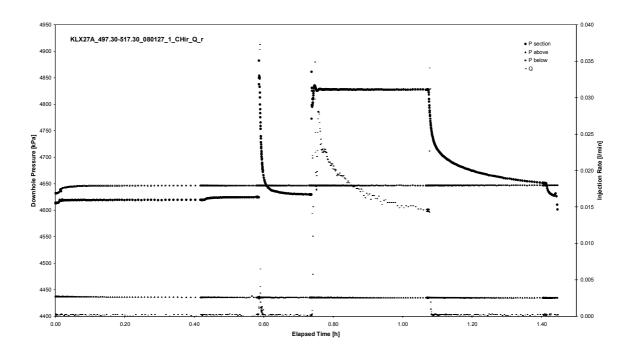
APPENDIX 2-28

Test 497.30 – 517.30 m

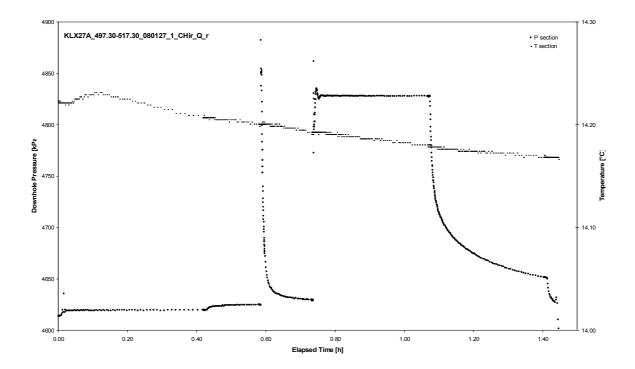
Page 2-28/2

Borehole: KLX27A

Test: 497.30 – 517.30 m



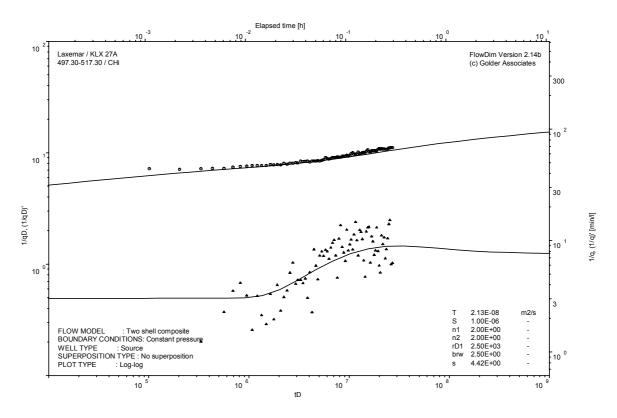
Pressure and flow rate vs. time; cartesian plot



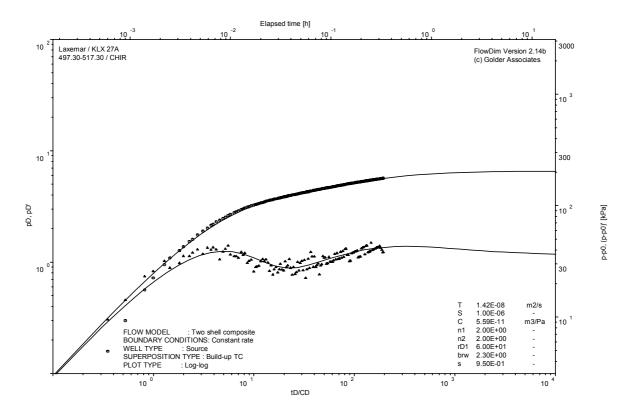
Interval pressure and temperature vs. time; cartesian plot

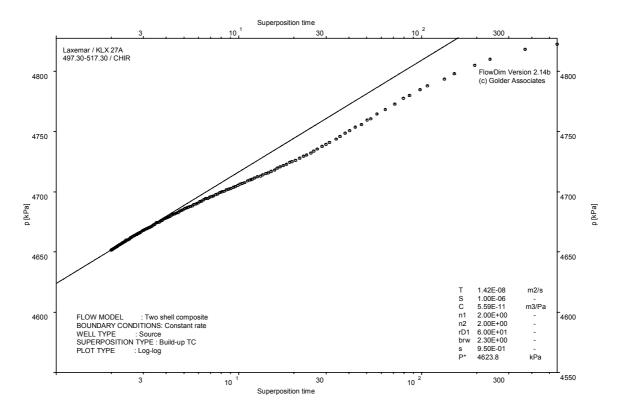
Borehole: KLX27A Page 2-28/3

Test: 497.30 – 517.30 m



Test: 497.30 – 517.30 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-29/1

Test: 517.30 – 537.30 m

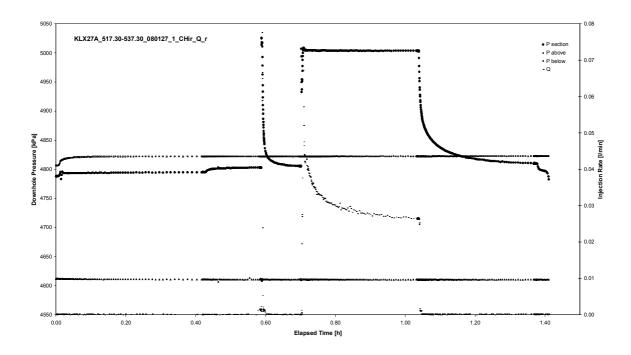
APPENDIX 2-29

Test 517.30 – 537.30 m

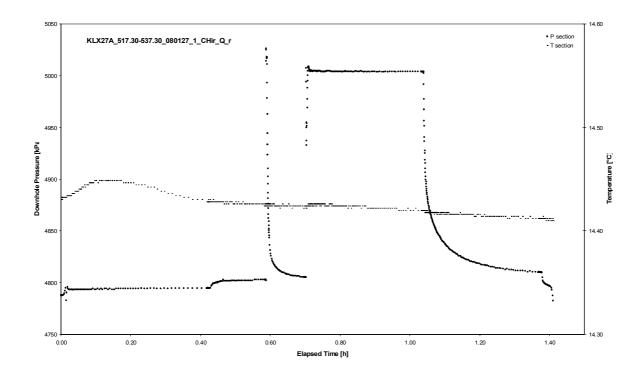
Page 2-29/2

Borehole: KLX27A

Test: 517.30 – 537.30 m

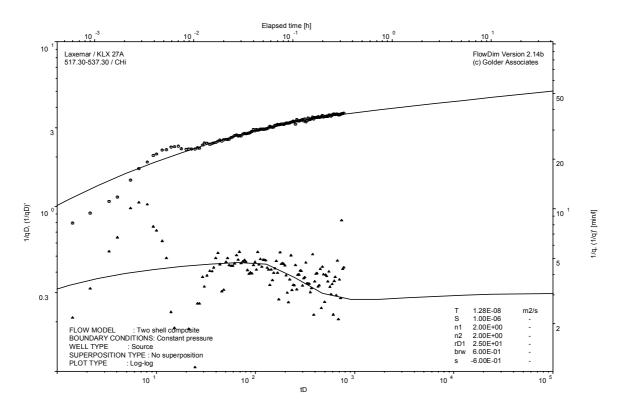


Pressure and flow rate vs. time; cartesian plot

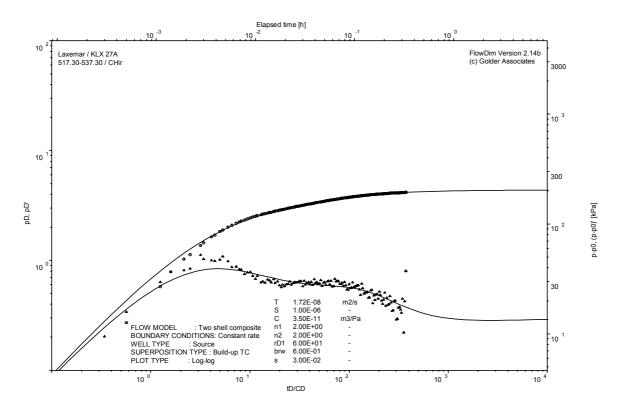


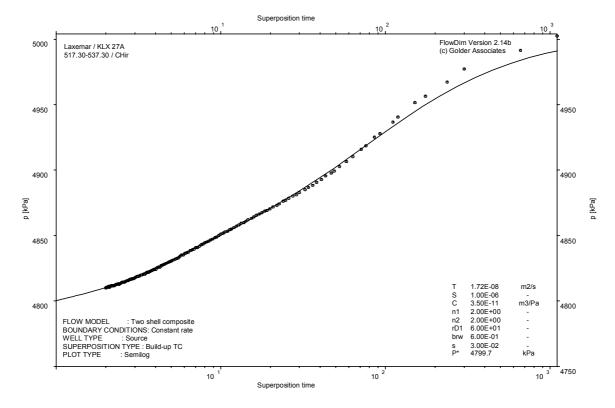
Borehole: KLX27A Page 2-29/3

Test: 517.30 – 537.30 m



Test: 517.30 – 537.30 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-30/1

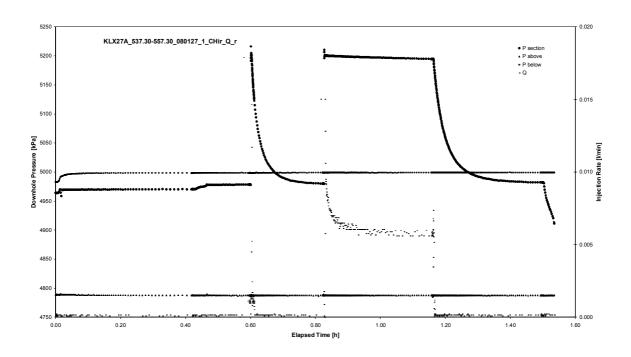
Test: 537.30 – 557.30 m

APPENDIX 2-30

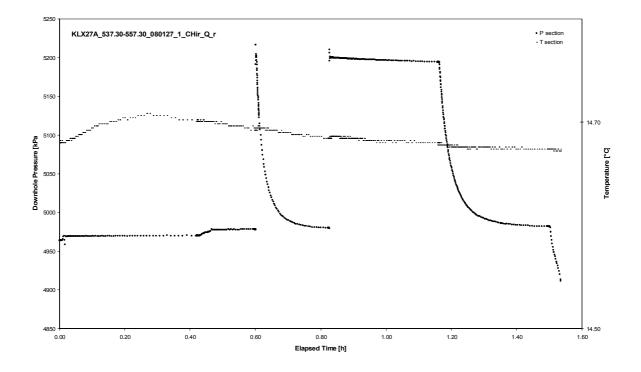
Test 537.30 – 557.30 m

Borehole: KLX27A Page 2-30/2

Test: 537.30 – 557.30 m

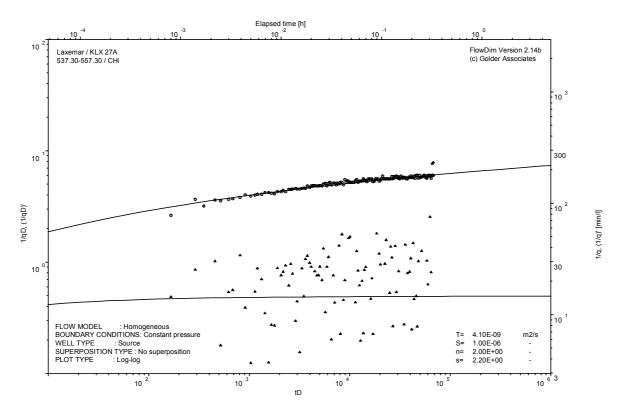


Pressure and flow rate vs. time; cartesian plot

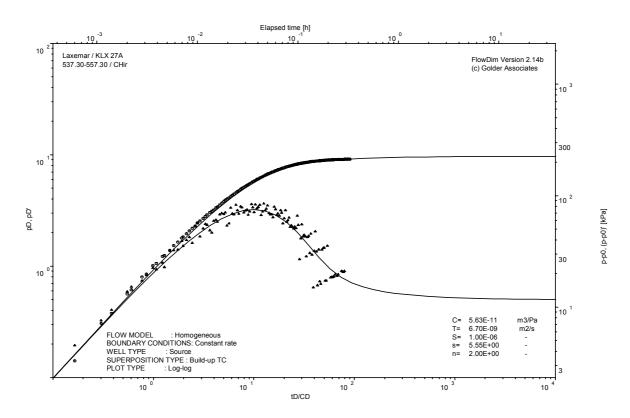


Borehole: KLX27A Page 2-30/3

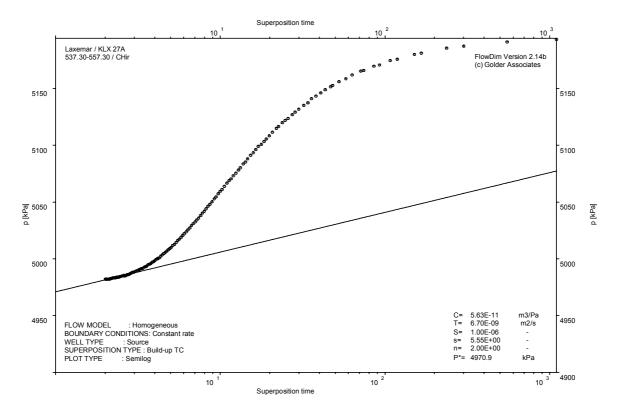
Test: 537.30 – 557.30 m



Test: 537.30 – 557.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-31/1

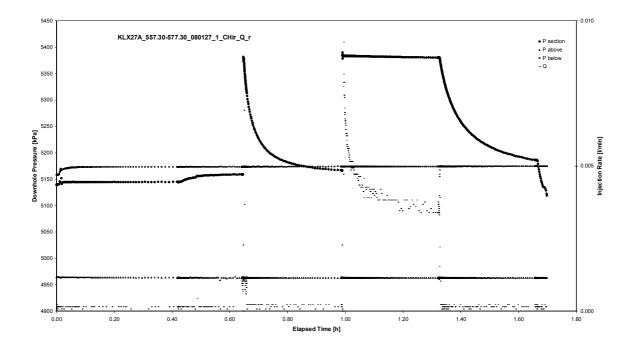
Test: 557.30 – 577.30 m

APPENDIX 2-31

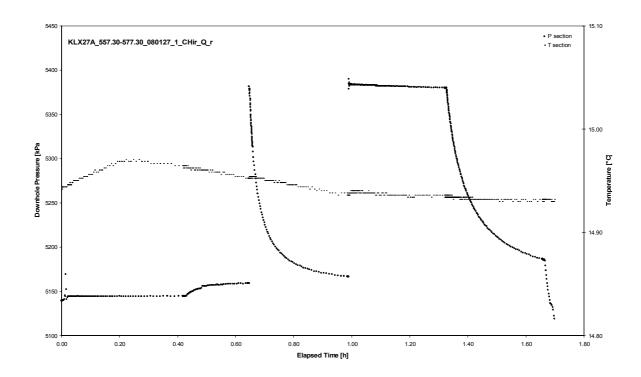
Test 557.30 – 577.30 m

Borehole: KLX27A Page 2-31/2

Test: 557.30 – 577.30 m

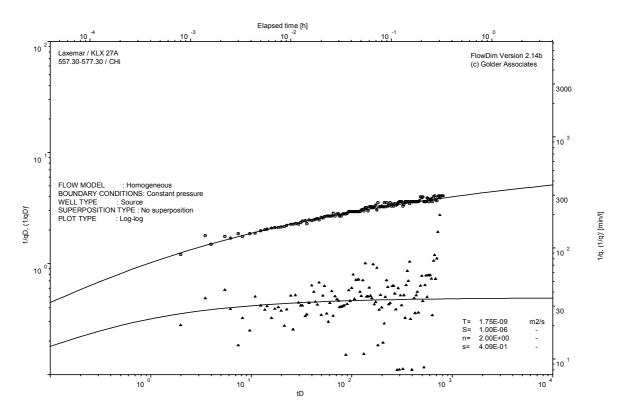


Pressure and flow rate vs. time; cartesian plot

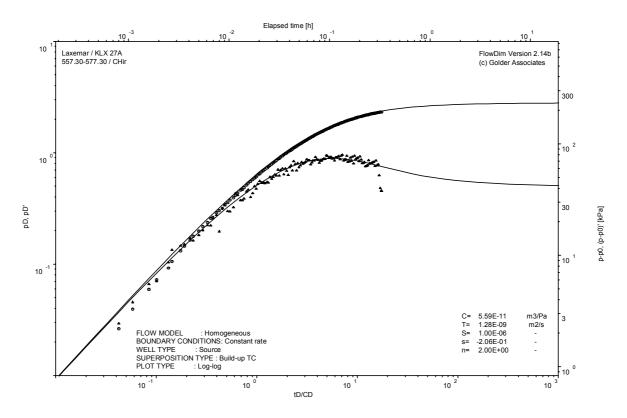


Borehole: KLX27A Page 2-31/3

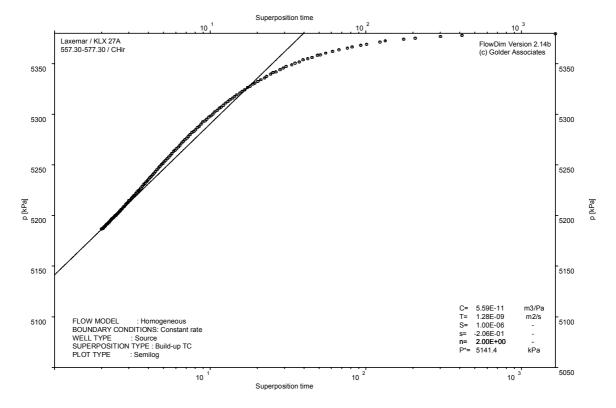
Test: 557.30 – 577.30 m



Test: 557.30 – 577.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-32/1

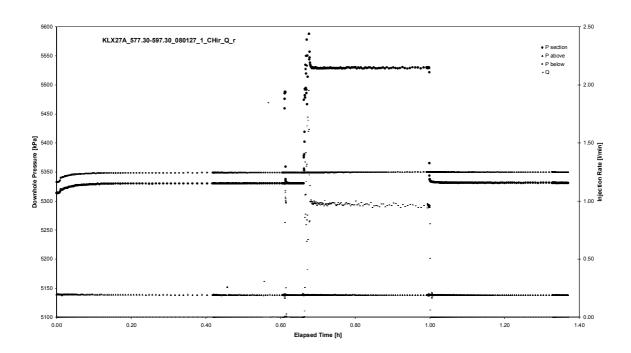
Test: 577.30 – 597.30 m

APPENDIX 2-32

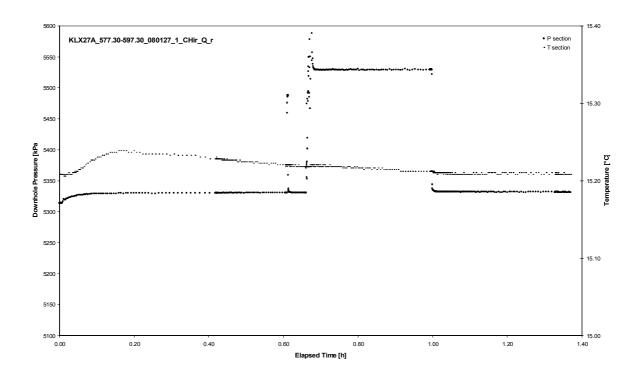
Test 577.30 – 597.30 m

Borehole: KLX27A Page 2-32/2

Test: 577.30 – 597.30 m

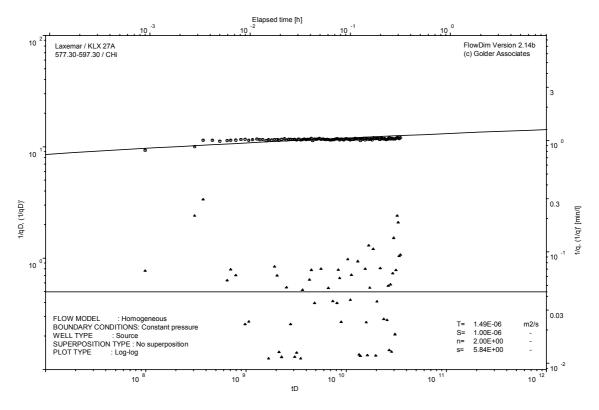


Pressure and flow rate vs. time; cartesian plot

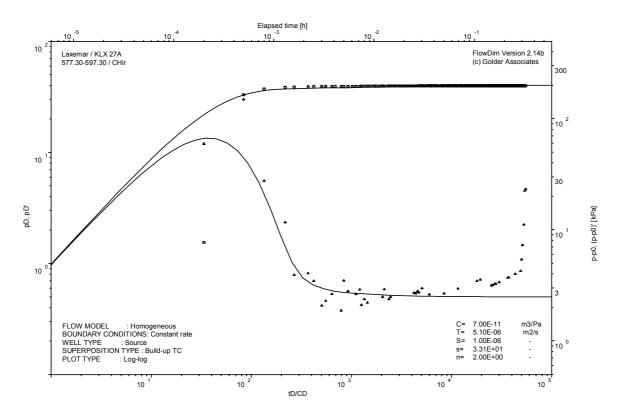


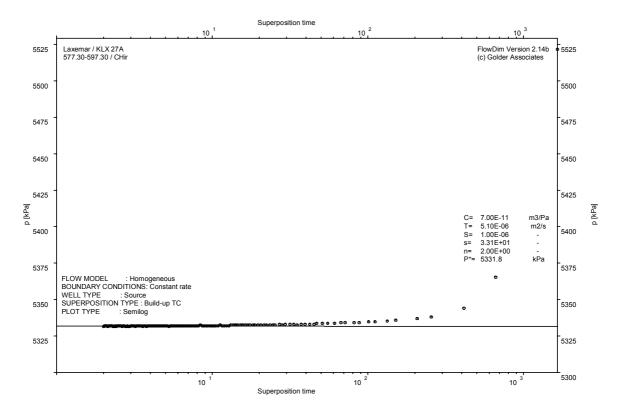
Borehole: KLX27A Page 2-32/3

Test: 577.30 – 597.30 m



Test: 577.30 – 597.30 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-33/1

Test: 597.30 – 617.30 m

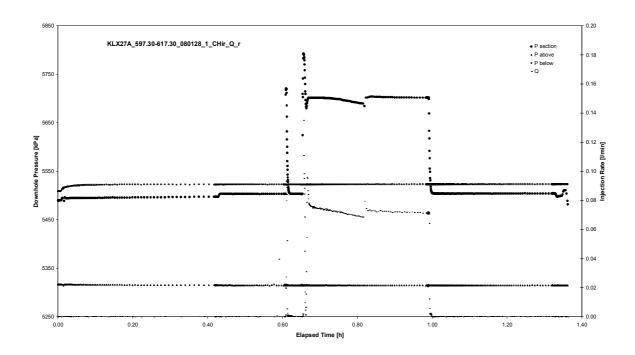
APPENDIX 2-33

Test 597.30 – 617.30 m

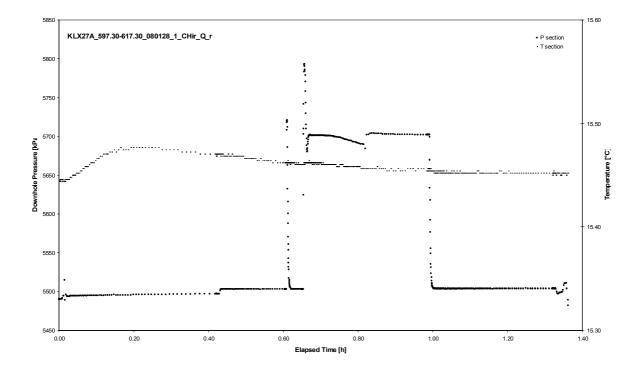
Page 2-33/2

Borehole: KLX27A

Test: 597.30 – 617.30 m

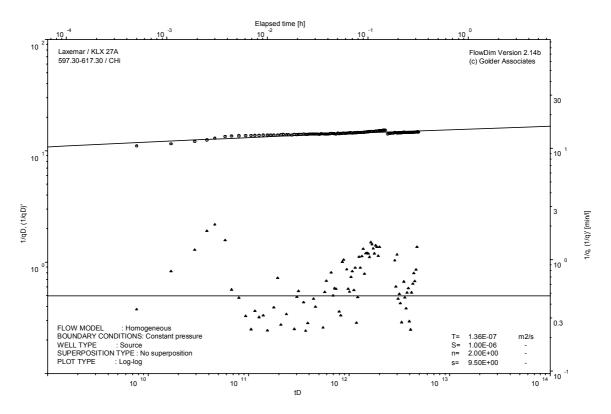


Pressure and flow rate vs. time; cartesian plot

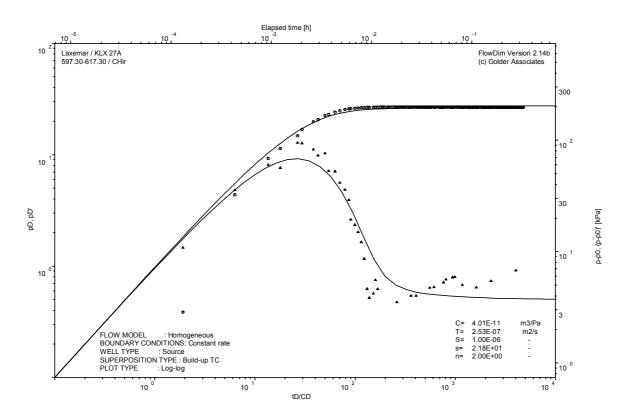


Borehole: KLX27A Page 2-33/3

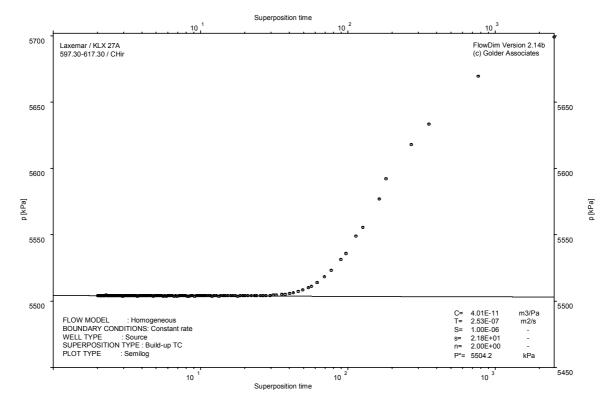
Test: 597.30 – 617.30 m



Test: 597.30 – 617.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-34/1

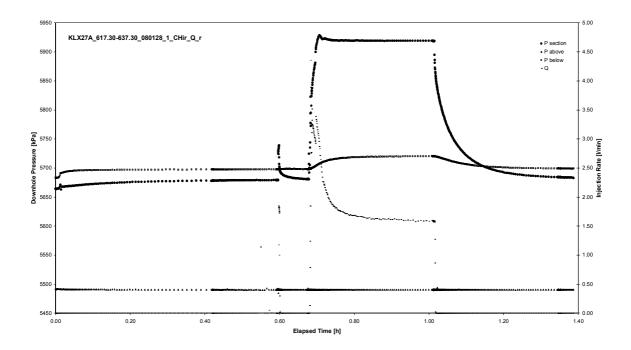
Test: 617.30 – 637.30 m

APPENDIX 2-34

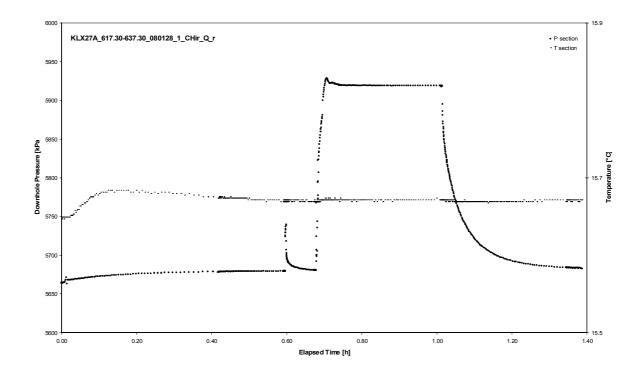
Test 617.30 – 637.30 m

Page 2-34/2

Borehole: KLX27A Test: 617.30 – 637.30 m

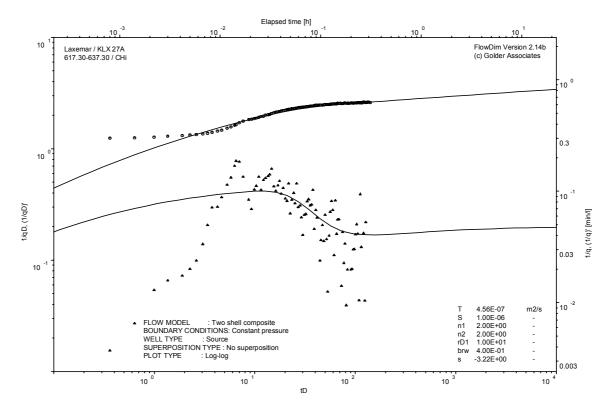


Pressure and flow rate vs. time; cartesian plot

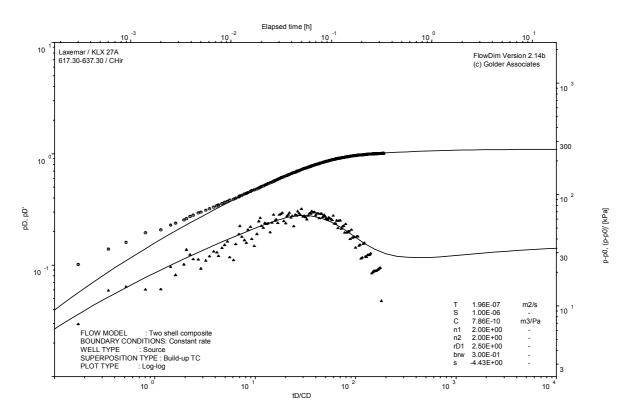


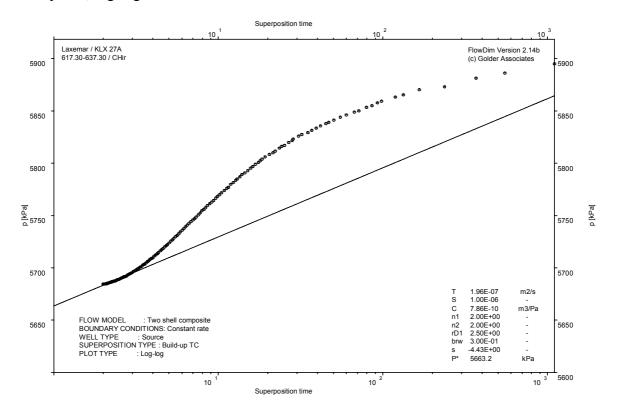
Borehole: KLX27A Page 2-34/3

Test: 617.30 – 637.30 m



Test: 617.30 – 637.30 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-35/1

Test: 625.20 – 645.20 m

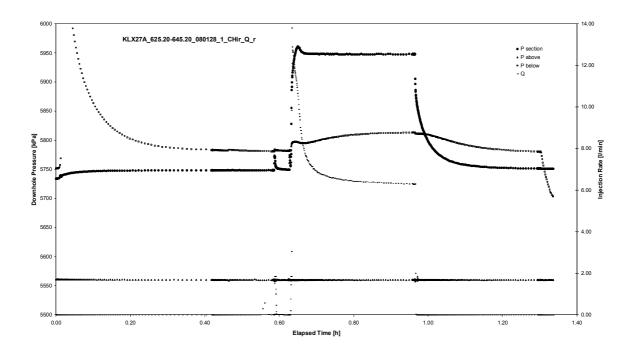
APPENDIX 2-35

Test 625.20 – 645.20 m

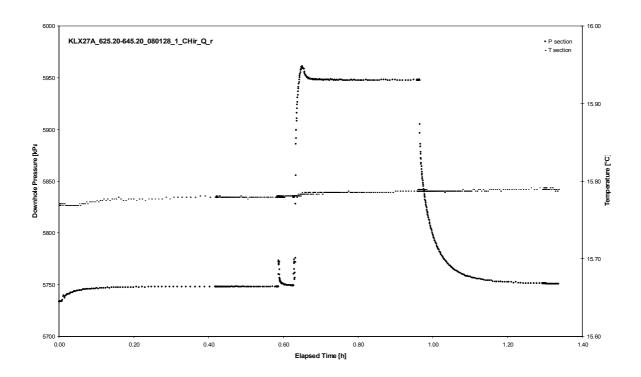
Page 2-35/2

Borehole: KLX27A

Test: 625.20 – 645.20 m

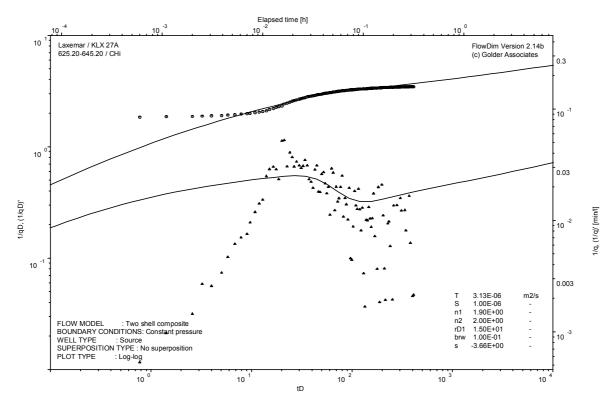


Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-35/3

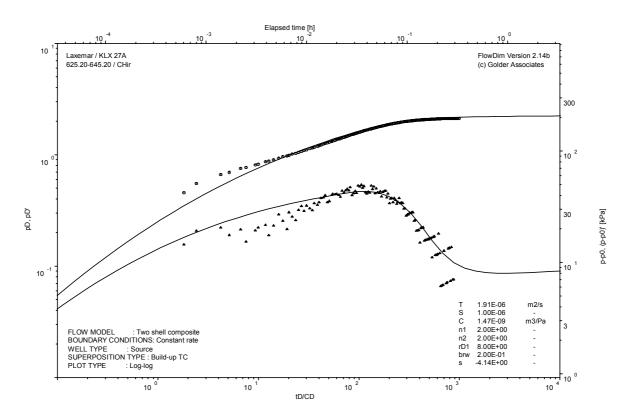
Test: 625.20 – 645.20 m



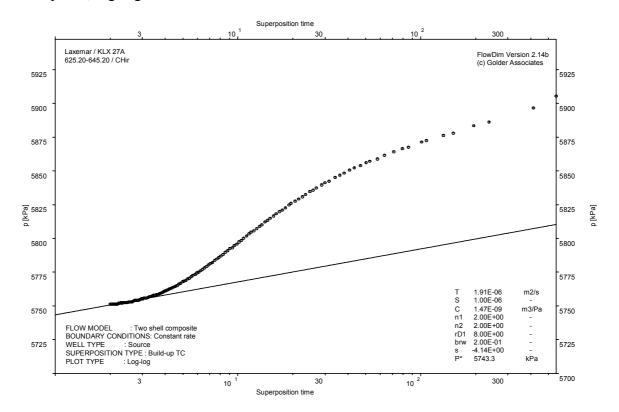
Page 2-35/4

Borehole: KLX27A

Test: 625.20 – 645.20 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-36/1

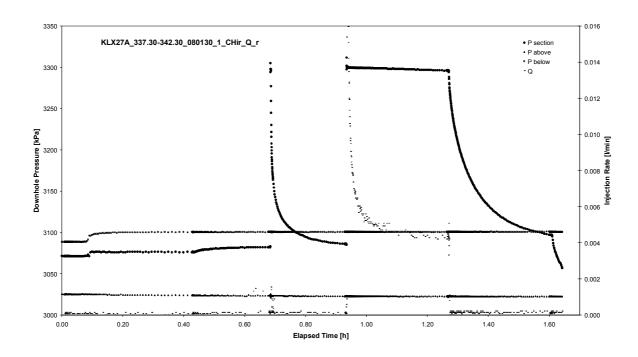
Test: 337.30 – 342.30 m

APPENDIX 2-36

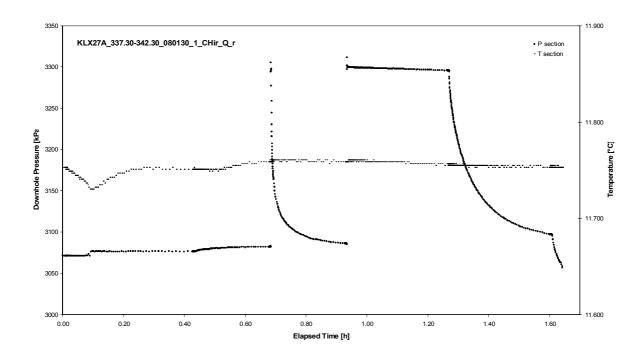
Test 337.30 – 342.30 m

Borehole: KLX27A Page 2-36/2

Test: 337.30 – 342.30 m

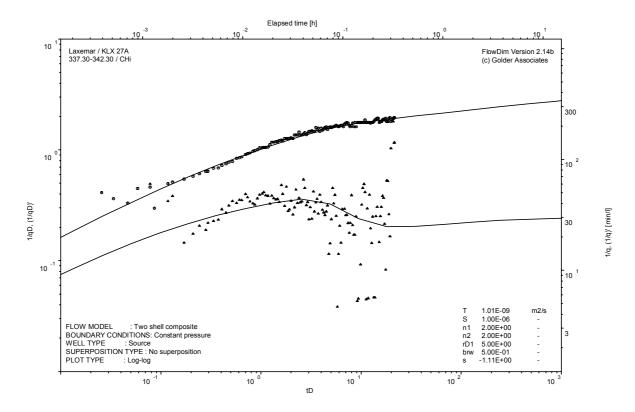


Pressure and flow rate vs. time; cartesian plot

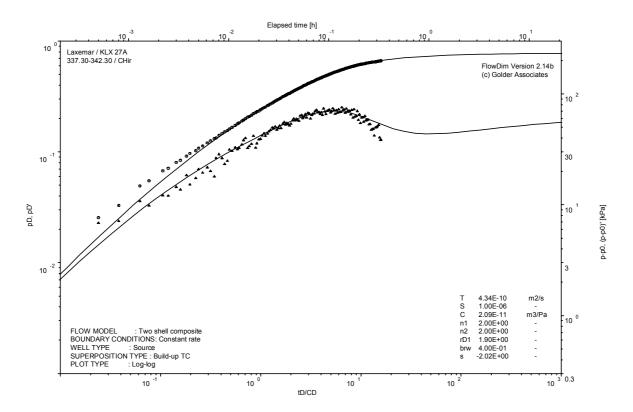


Borehole: KLX27A Page 2-36/3

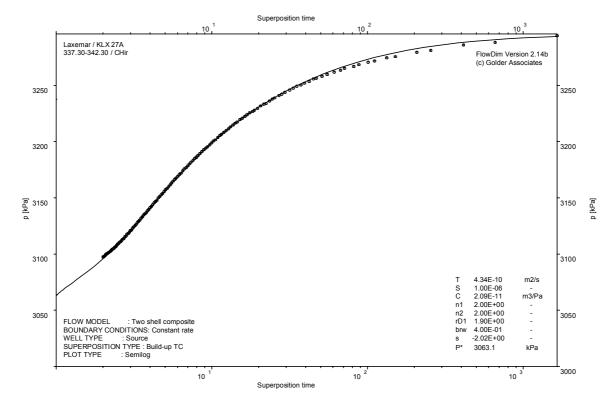
Test: 337.30 – 342.30 m



Test: 337.30 – 342.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-37/1

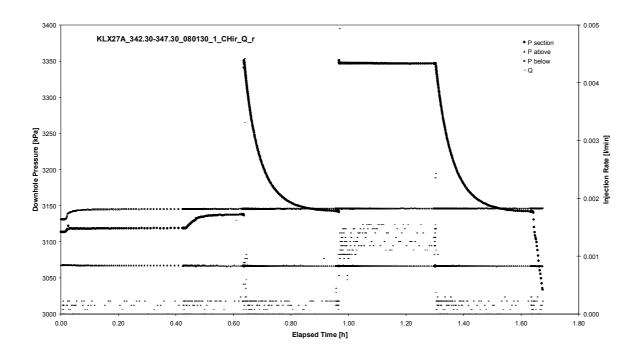
Test: 342.30 – 347.30 m

APPENDIX 2-37

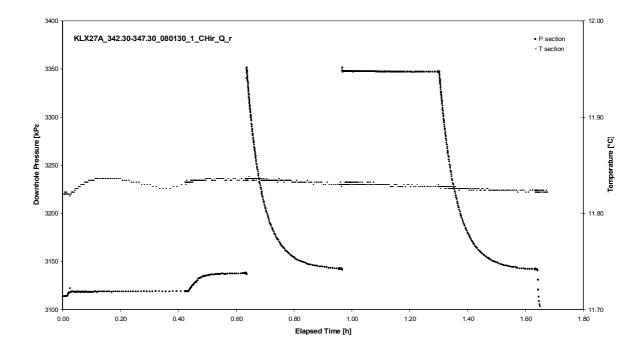
Test 342.30 – 347.30 m

Page 2-37/2

Borehole: KLX27A Test: 342.30 – 347.30 m

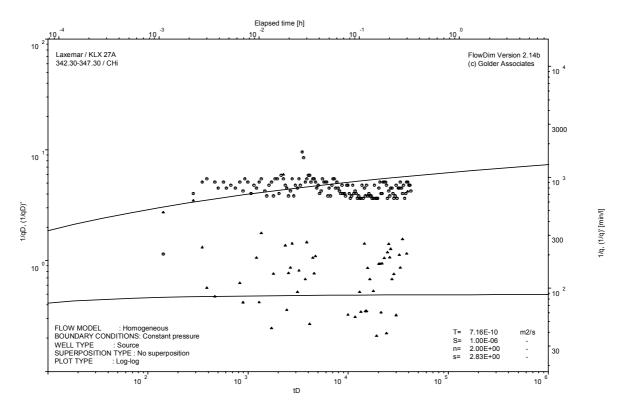


Pressure and flow rate vs. time; cartesian plot



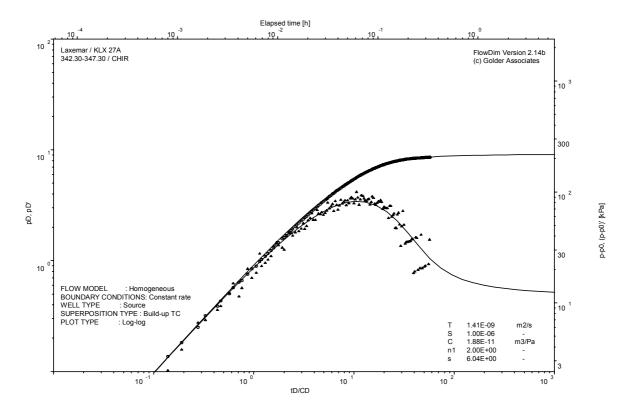
Borehole: KLX27A Page 2-37/3

Test: 342.30 - 347.30 m

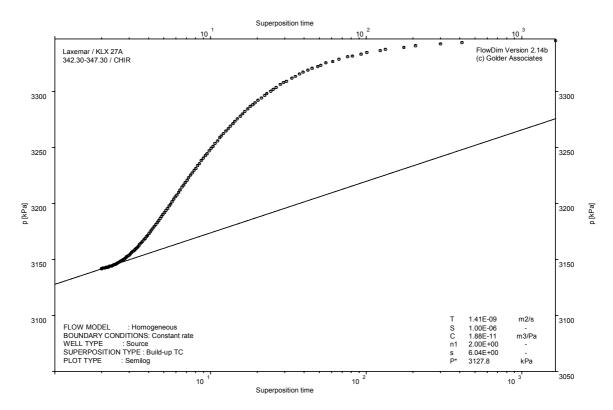


Borehole: KLX27A

Test: 342.30 – 347.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-38/1

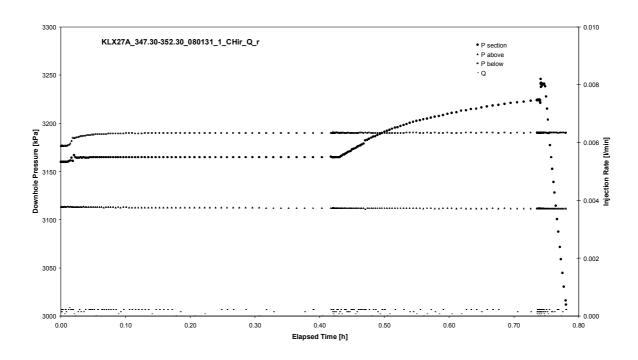
Test: 347.30 - 352.30 m

APPENDIX 2-38

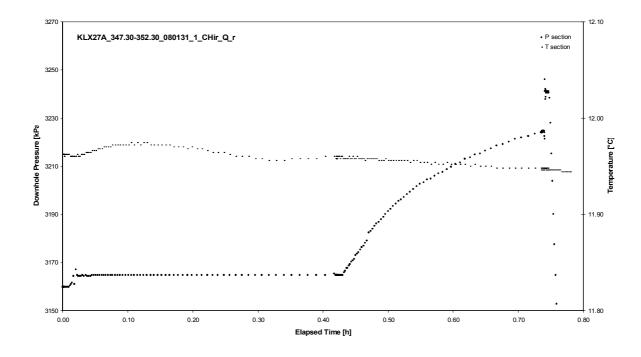
Test 347.30 – 352.30 m

Borehole: KLX27A Page 2-38/2

Test: 347.30 - 352.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-38/3

Test: 347.30 – 352.30 m

Not analysed

Borehole: Test:	KLX27A 347.30 – 352.30 m		Page 2-38/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	

CHIR phase; HORNER match

Borehole: KLX27A Page 2-39/1

Test: 352.30 – 357.30 m

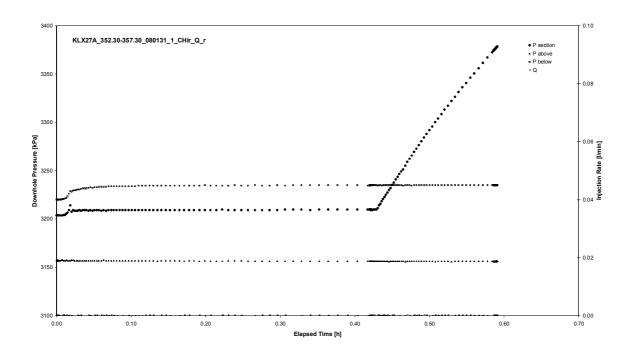
APPENDIX 2-39

Test 352.30 – 357.30 m

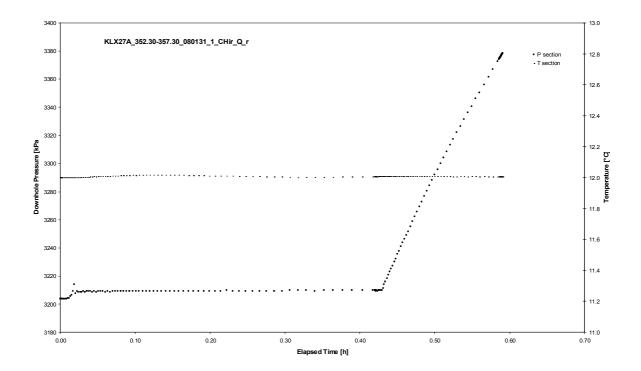
Page 2-39/2

Borehole: KLX27A

Test: 352.30 – 357.30 m



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-39/3

Test: 352.30 – 357.30 m

Not analysed

Borehole: Test:	KLX27A 352.30 – 357.30 m		Page 2-39/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-40/1

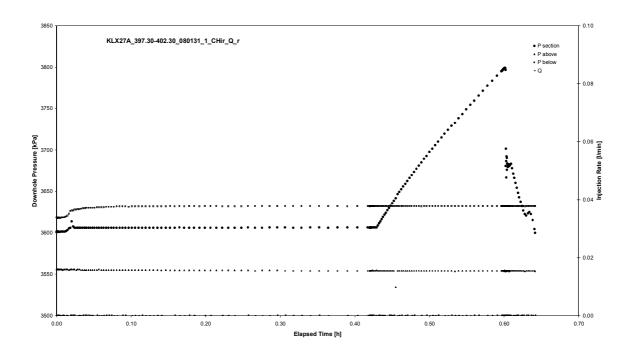
Test: 397.30 – 402.30 m

APPENDIX 2-40

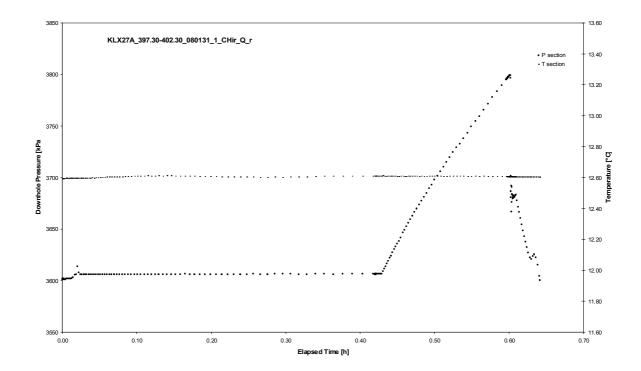
Test 397.30 – 402.30 m

Page 2-40/2

Borehole: KLX27A Test: 397.30 – 402.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-40/3

Test: 397.30 – 402.30 m

Not analysed

Borehole: Test:	KLX27A 397.30 – 402.30 m		Page 2-40/4
		Not analysed	
CHIR nha	se; log-log match		
Стик рна	se, log-log maten		
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-41/1

Test: 402.30 – 407.30 m

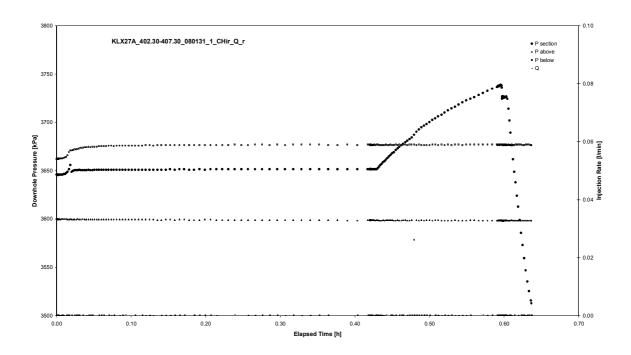
APPENDIX 2-41

Test 402.30 – 407.30 m

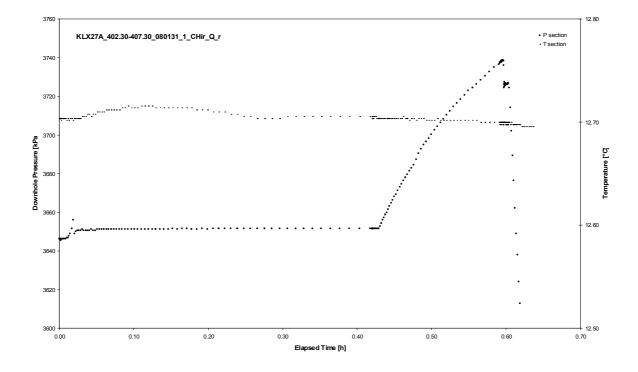
Page 2-41/2

Borehole: KLX27A

Test: 402.30 – 407.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-41/3

Test: 402.30 – 407.30 m

Not analysed

Borehole: Test:	KLX27A 402.30 – 407.30 m		Page 2-41/4
		Not analysed	
CHIR pha	se; log-log match		
Crifft pila	se, log log maten		
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-42/1

Test: 407.30 – 412.30 m

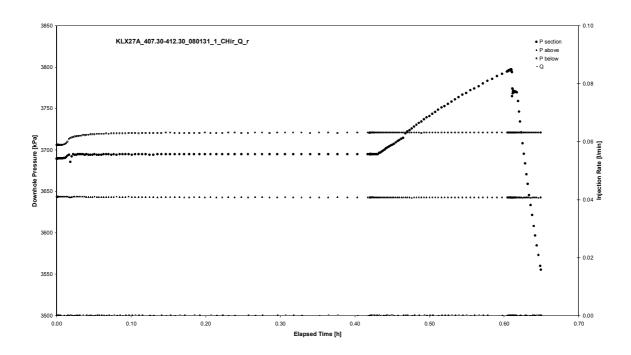
APPENDIX 2-42

Test 407.30 – 412.30 m

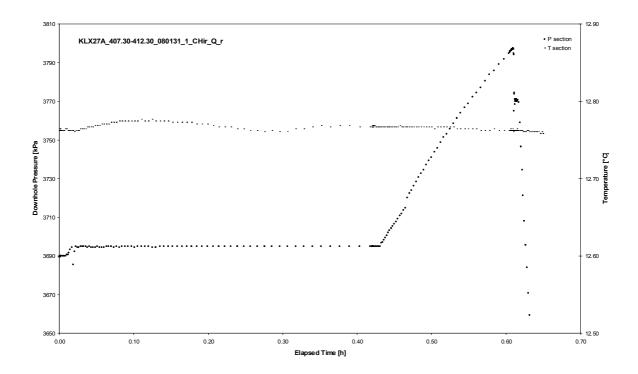
Page 2-42/2

Borehole: KLX27A

Test: 407.30 – 412.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-42/3

Test: 407.30 – 412.30 m

Not analysed

Borehole: Test:	KLX27A 407.30 – 412.30 m		Page 2-42/4
		Not analysed	
CHIR phas	se; log-log match		
		Not analysed	

CHIR phase; HORNER match

Borehole: KLX27A Page 2-43/1

Test: 412.30 – 417.30 m

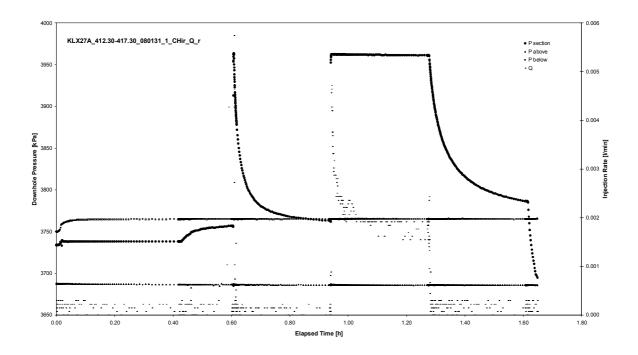
APPENDIX 2-43

Test 412.30 – 417.30 m

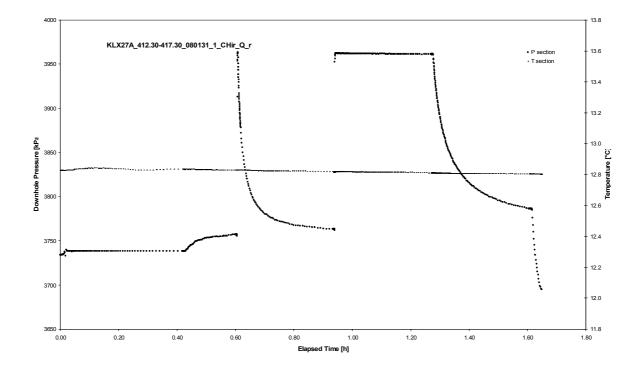
Page 2-43/2

Borehole: KLX27A

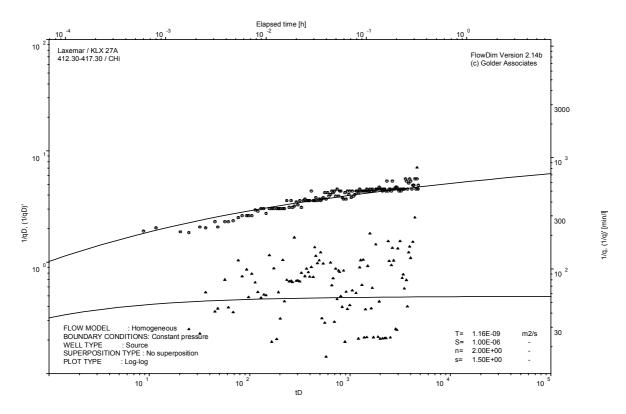
Test: 412.30 – 417.30 m



Pressure and flow rate vs. time; cartesian plot



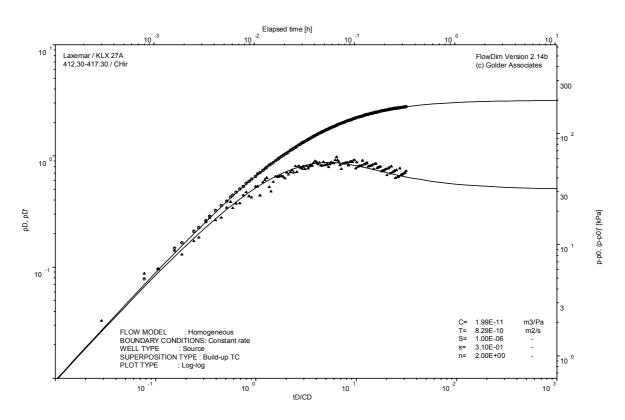
Test: 412.30 – 417.30 m

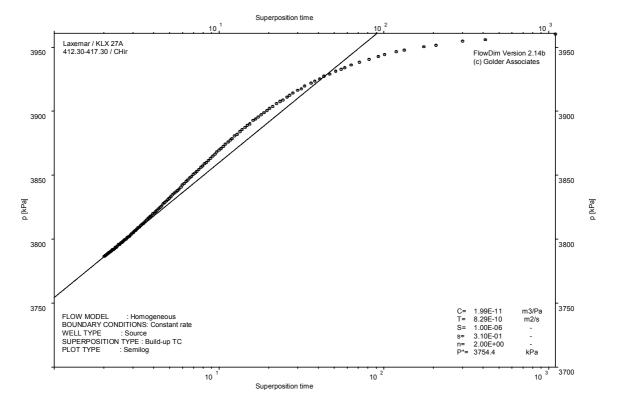


CHI phase; log-log match

Borehole: KLX27A

Test: 412.30 – 417.30 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-44/1

Test: 437.30 – 442.30 m

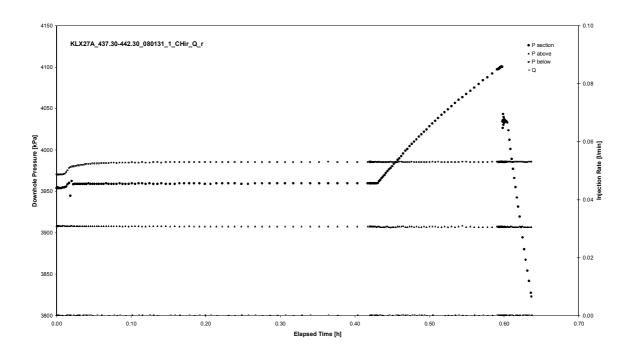
APPENDIX 2-44

Test 437.30 – 442.30 m

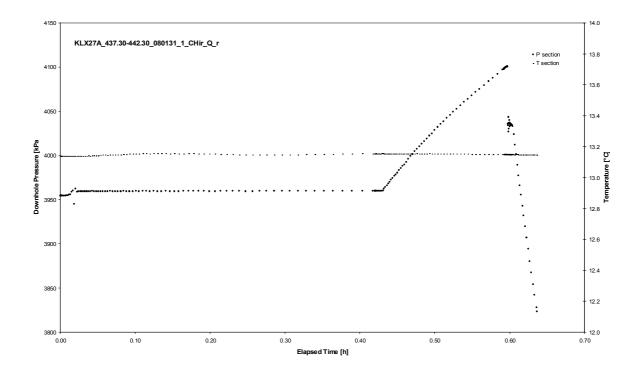
Page 2-44/2

Borehole: KLX27A

Test: 437.30 – 442.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-44/3

Test: 437.30 – 442.30 m

Not analysed

Borehole: Test:	KLX27A 437.30 – 442.30 m		Page 2-44/4
		Not analysed	
CHIR pha	se; log-log match		
		Net analysed	
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-45/1

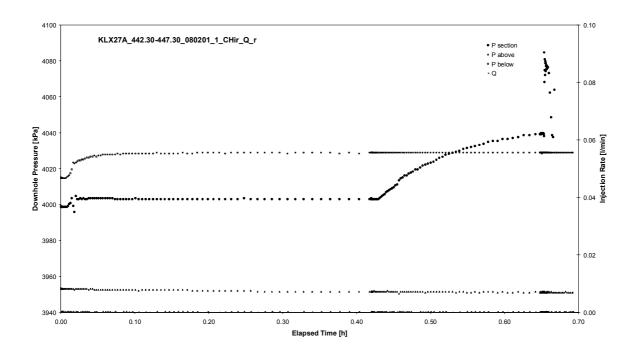
Test: 442.30 – 447.30 m

APPENDIX 2-45

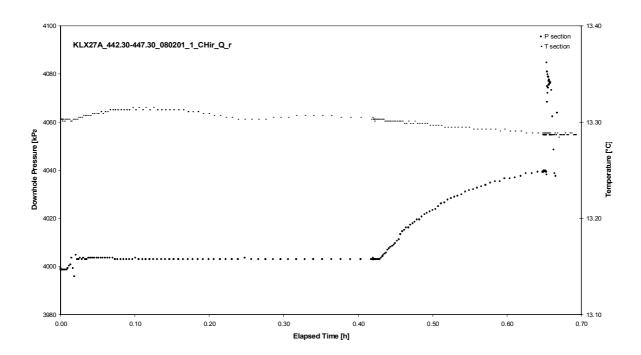
Test 442.30 – 447.30 m

Page 2-45/2

Borehole: KLX27A Test: 442.30 – 447.30 m



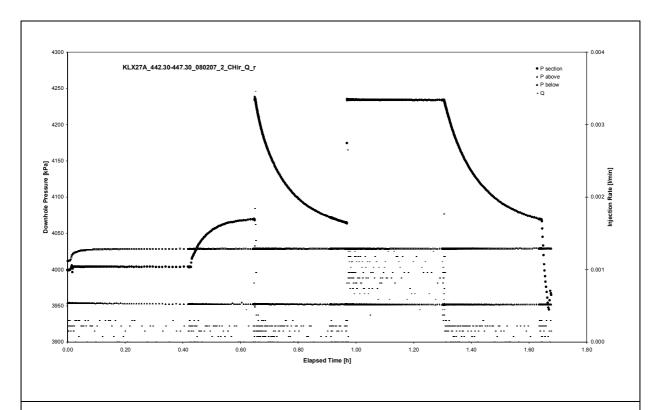
Pressure and flow rate vs. time; cartesian plot (repeated)



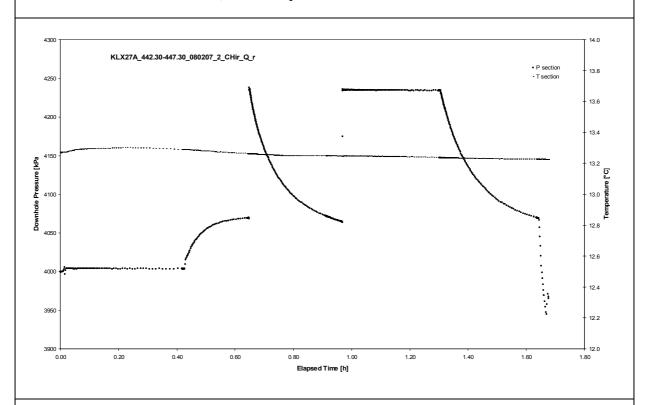
Page 2-45/3

Borehole: KLX27A

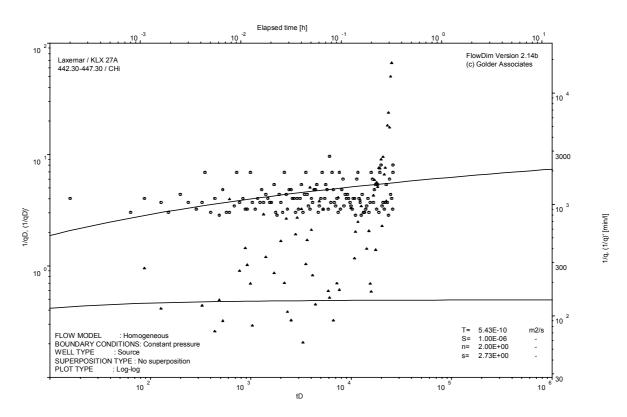
Test: 442.30 – 447.30 m



Pressure and flow rate vs. time; cartesian plot



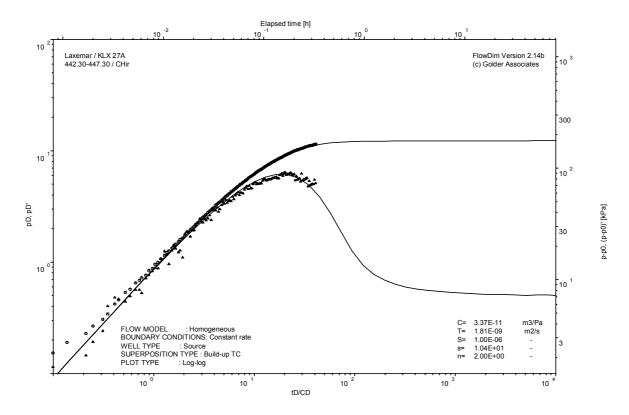
Test: 442.30 – 447.30 m



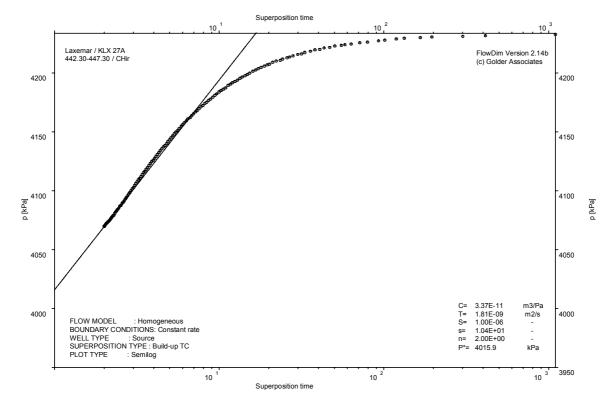
CHI phase; log-log match

Borehole: KLX27A

Test: 442.30 – 447.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-46/1

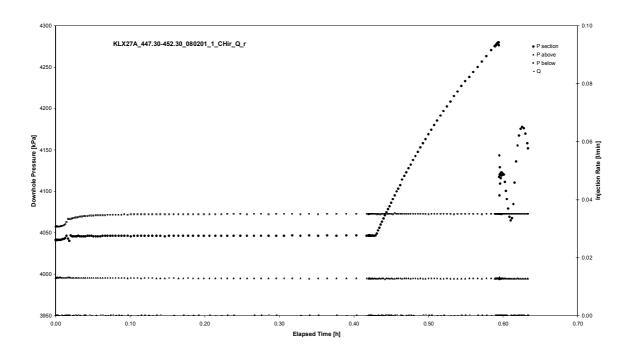
Test: 447.30 – 452.30 m

APPENDIX 2-46

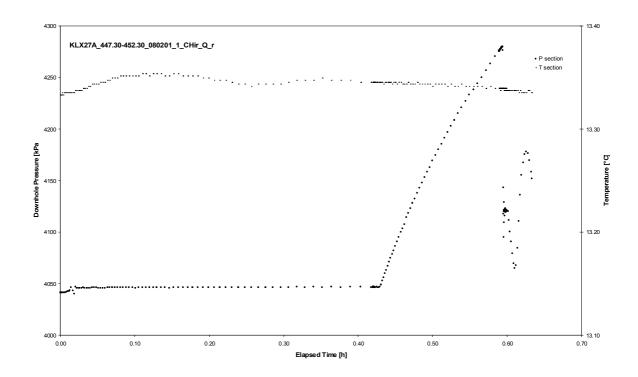
Test 447.30 – 452.30 m

Page 2-46/2

Borehole: KLX27A Test: 447.30 – 452.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-46/3

Test: 447.30 – 452.30 m

Not analysed

Borehole: Test:	KLX27A 447.30 – 452.30 m		Page 2-46/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	
		1 (or analysea	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-47/1

Test: 452.30 – 457.30 m

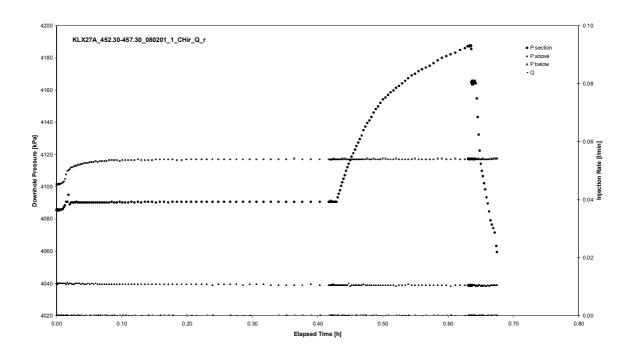
APPENDIX 2-47

Test 452.30 – 457.30 m

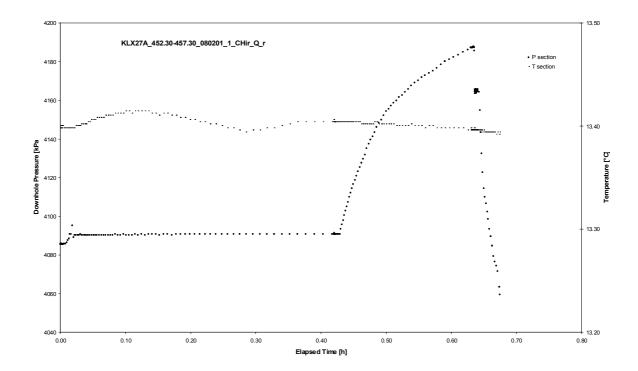
Page 2-47/2

Borehole: KLX27A

Test: 452.30 – 457.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-47/3

Test: 452.30 – 457.30 m

Not analysed

Borehole: Test:	KLX27A 452.30 – 457.30 m		Page 2-47/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-48/1

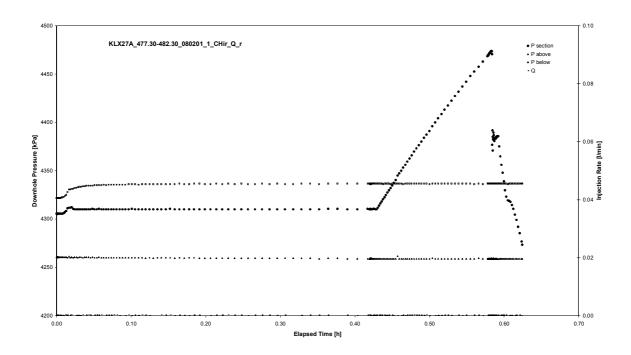
Test: 477.30 – 482.30 m

APPENDIX 2-48

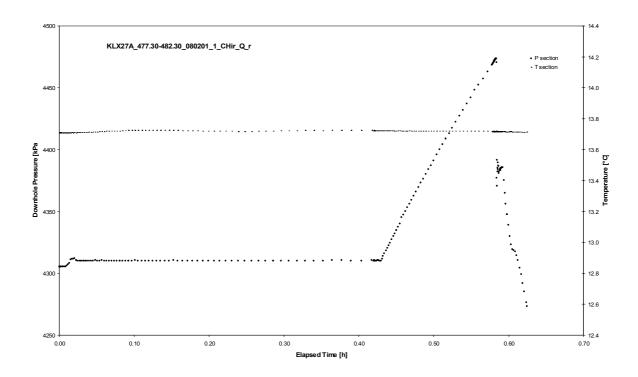
Test 477.30 – 482.30 m

Borehole: KLX27A

Test: 477.30 – 482.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-48/3

Test: 477.30 – 482.30 m

Not analysed

Borehole: Test:	KLX27A 477.30 – 482.30 m		Page 2-48/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	

CHIR phase; HORNER match

Borehole: KLX27A Page 2-49/1

Test: 482.30 – 487.30 m

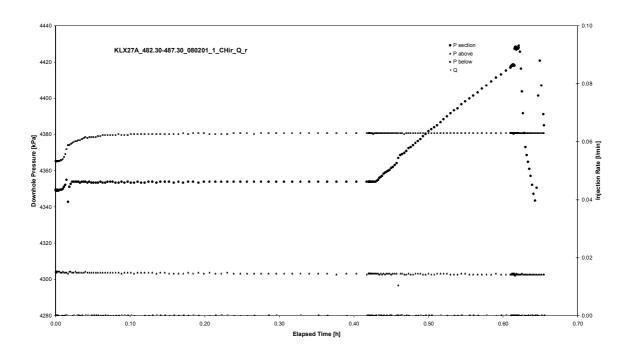
APPENDIX 2-49

Test 482.30 – 487.30 m

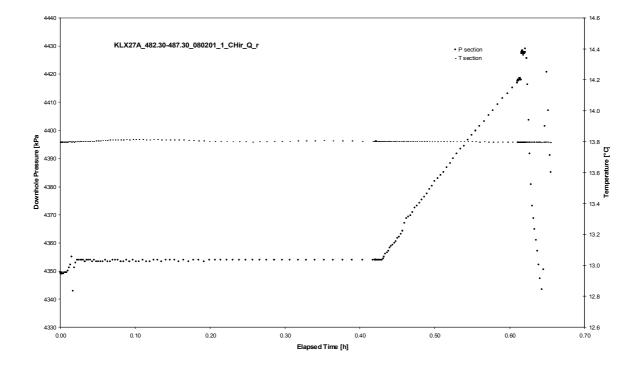
Page 2-49/2

Borehole: KLX27A

Test: 482.30 – 487.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-49/3

Test: 482.30 – 487.30 m

Not analysed

Borehole: Test:	KLX27A 482.30 – 487.30 m		Page 2-49/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-50/1

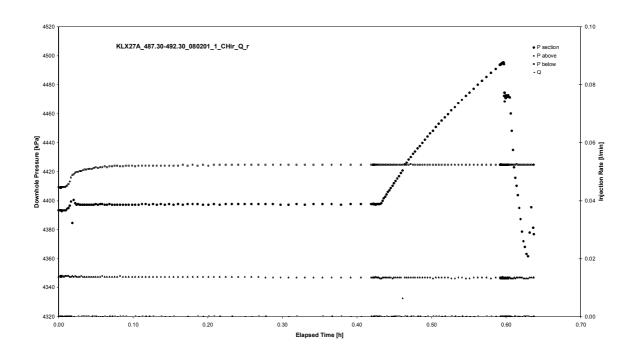
Test: 487.30 – 492.30 m

APPENDIX 2-50

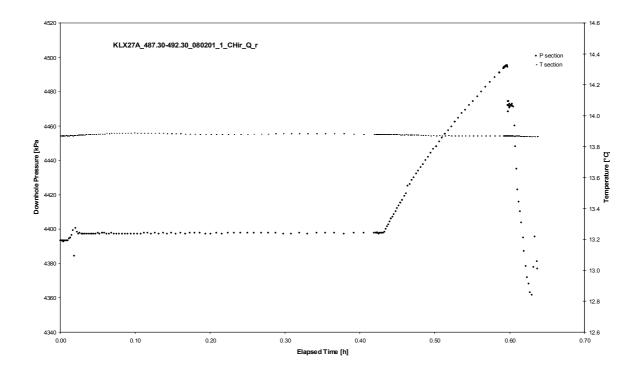
Test 487.30 – 492.30 m

Borehole: KLX27A

Test: 487.30 – 492.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-50/3

Test: 487.30 – 492.30 m

Not analysed

Borehole: Test:	KLX27A 487.30 – 492.30 m		Page 2-50/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-51/1

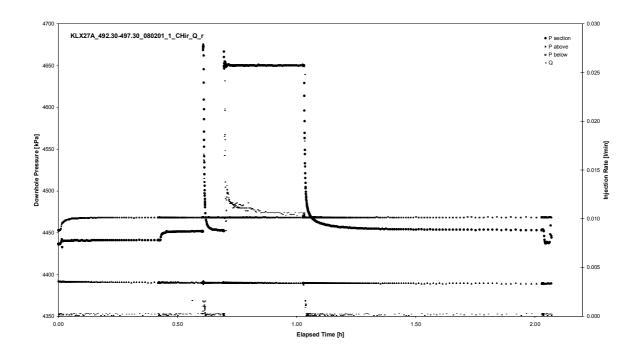
Test: 492.30 – 497.30 m

APPENDIX 2-51

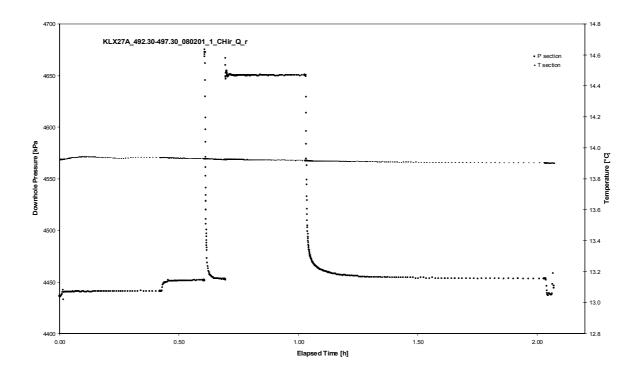
Test 492.30 – 497.30 m

Borehole: KLX27A

Test: 492.30 – 497.30 m

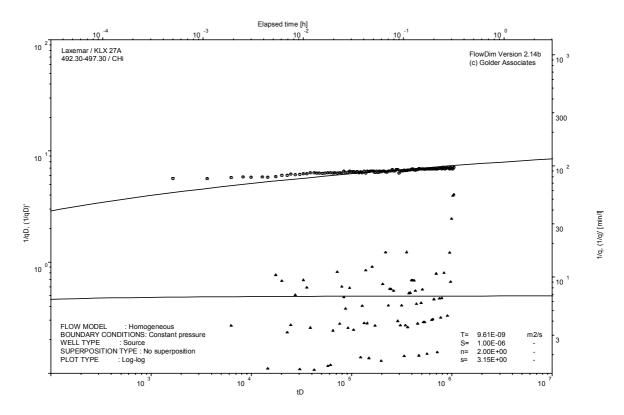


Pressure and flow rate vs. time; cartesian plot



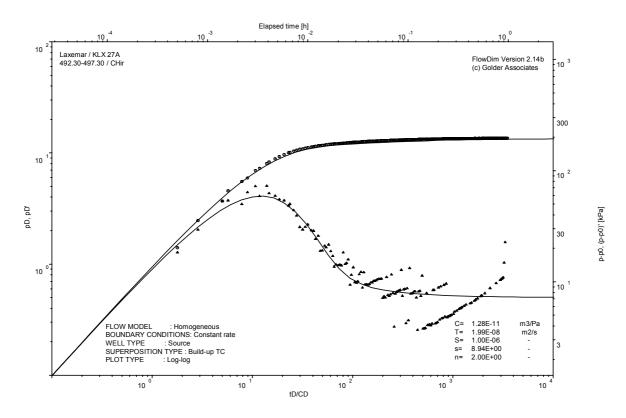
Borehole: KLX27A Page 2-51/3

Test: 492.30 – 497.30 m

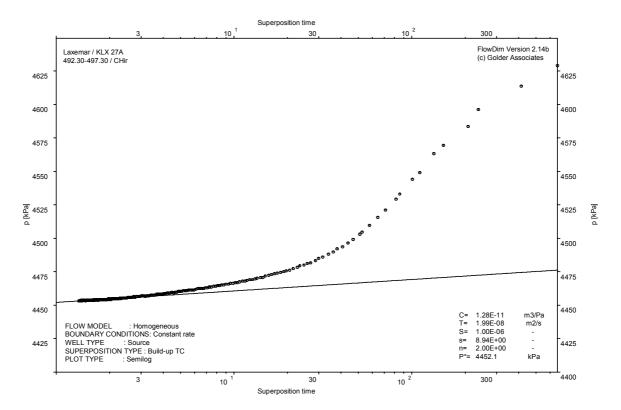


Borehole: KLX27A

Test: 492.30 – 497.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-52/1

Test: 497.30 – 502.30 m

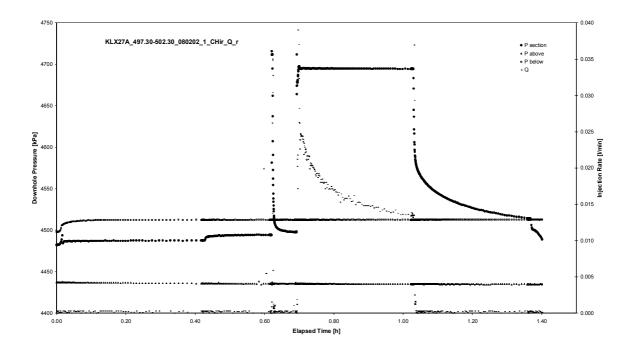
APPENDIX 2-52

Test 497.30 – 502.30 m

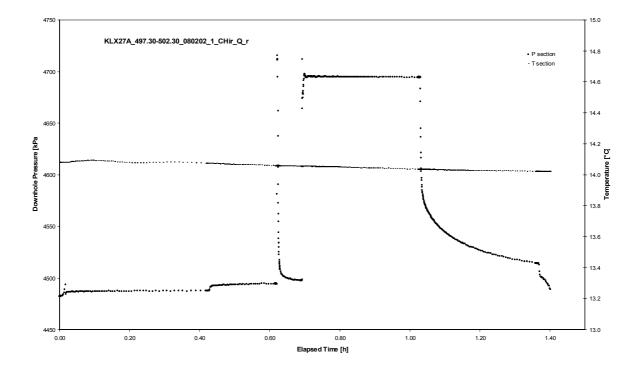
Page 2-52/2

Borehole: KLX27A

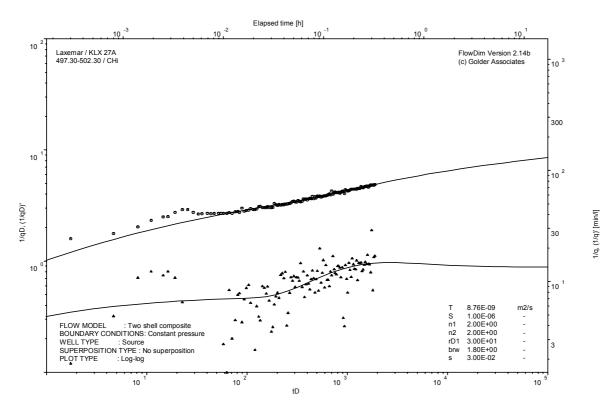
Test: 497.30 – 502.30 m



Pressure and flow rate vs. time; cartesian plot



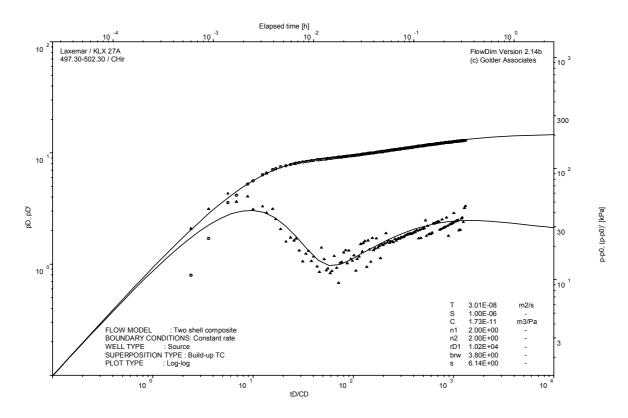
Test: 497.30 – 502.30 m



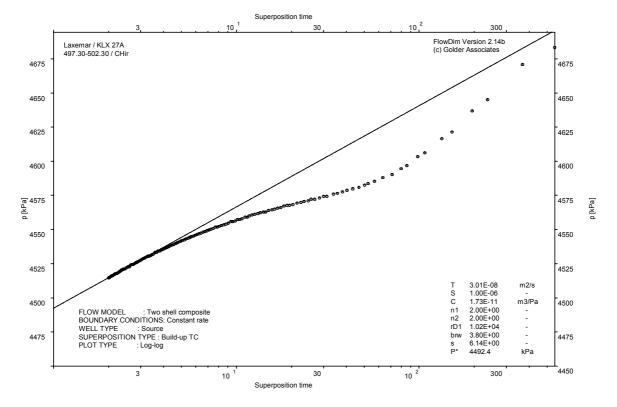
CHI phase; log-log match

Borehole: KLX27A

Test: 497.30 – 502.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-53/1

Test: 502.30 - 507.30 m

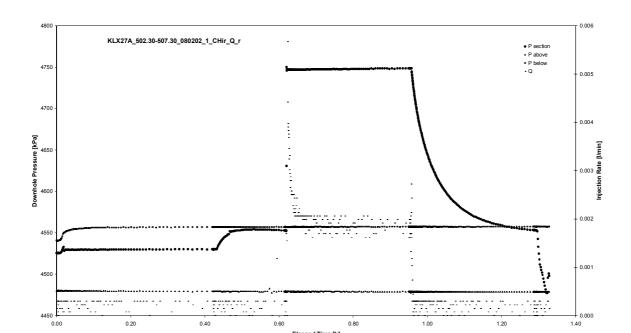
APPENDIX 2-53

Test 502.30 – 507.30 m

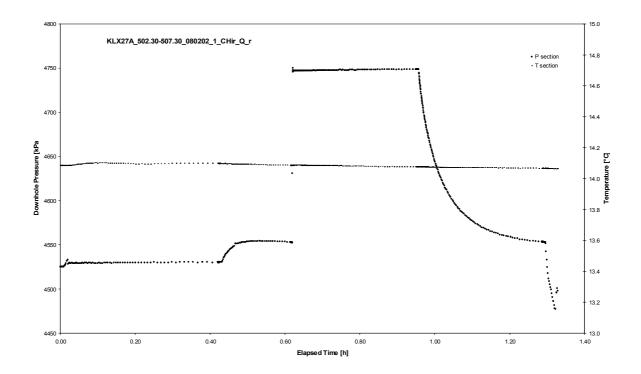
Page 2-53/2

Test: 502.30 – 507.30 m

Borehole: KLX27A

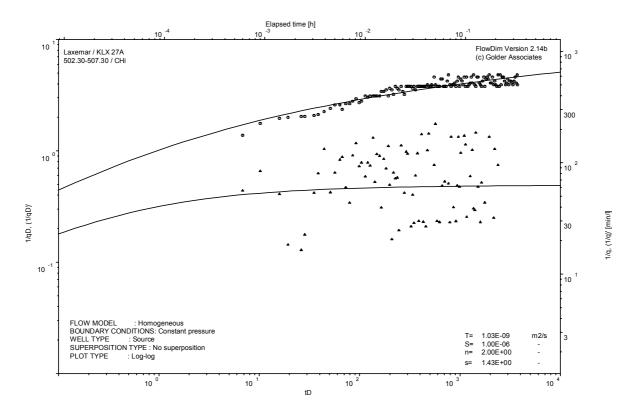


Pressure and flow rate vs. time; cartesian plot



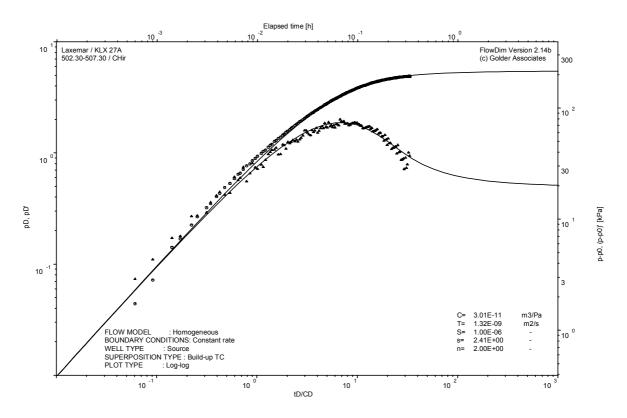
Borehole: KLX27A Page 2-53/3

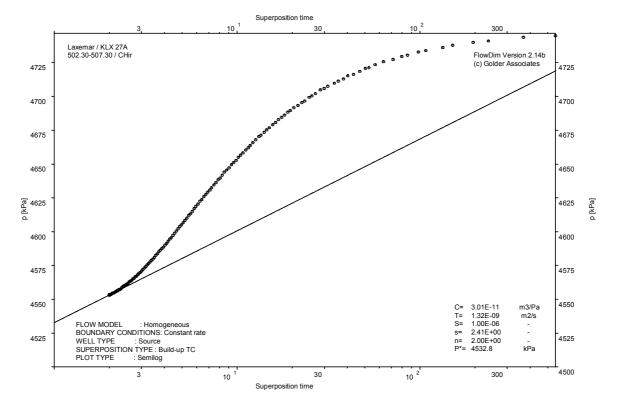
Test: 502.30 – 507.30 m



Borehole: KLX27A

Test: 502.30 – 507.30 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-54/1

Test: 507.30 – 512.30 m

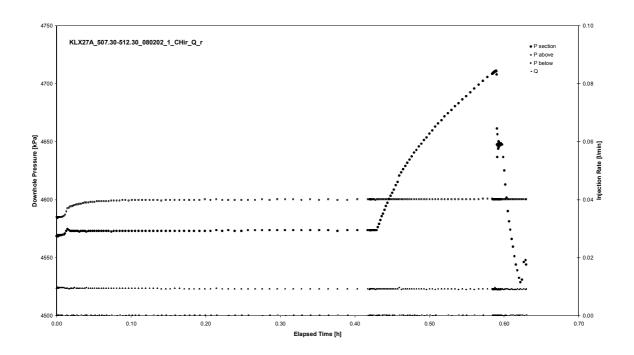
APPENDIX 2-54

Test 507.30 – 512.30 m

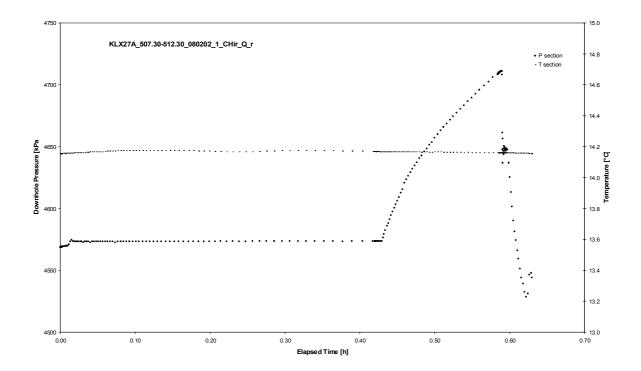
Page 2-54/2

Borehole: KLX27A

Test: 507.30 – 512.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-54/3

Test: 507.30 – 512.30 m

Not analysed

Borehole: Test:	KLX27A 507.30 – 512.30 m		Page 2-54/4
		Not analysed	
CHIR pha	se; log-log match		
Tools Provi	,		
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-55/1

Test: 512.30 – 517.30 m

APPENDIX 2-55

Test 512.30 – 517.30 m

Page 2-55/2

0.02

Borehole: KLX27A Test: 512.30 – 517.30 m

4850

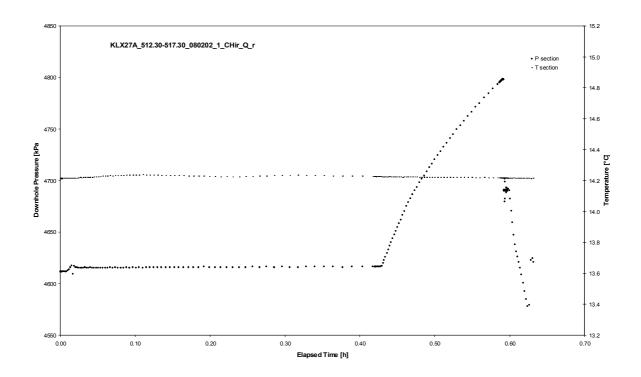
KLX27A_512.30-517.30_080202_1_CHir_Q_r

P section
P above
P below
P below
O 0.08

4750

4650

Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-55/3

Test: 512.30 – 517.30 m

Not analysed

Borehole: Test:	KLX27A 512.30 – 517.30 m		Page 2-55/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	

CHIR phase; HORNER match

Borehole: KLX27A Page 2-56/1

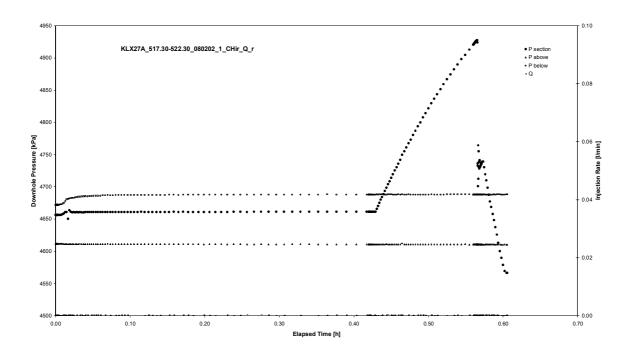
Test: 517.30 – 522.30 m

APPENDIX 2-56

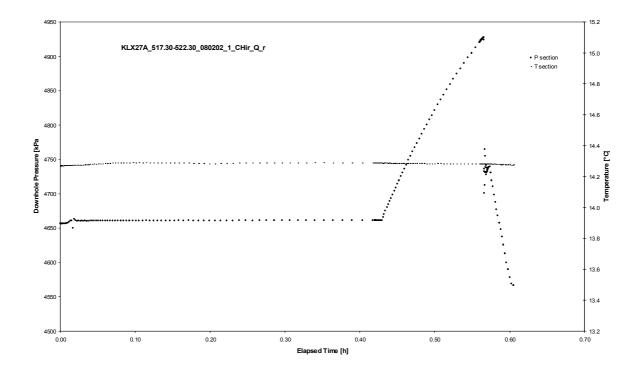
Test 517.30 – 522.30 m

Borehole: KLX27A Page 2-56/2

Test: 517.30 – 522.30 m



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-56/3

Test: 517.30 – 522.30 m

Not analysed

Borehole: Test:	KLX27A 517.30 – 522.30 m		Page 2-56/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	

CHIR phase; HORNER match

Borehole: KLX27A Page 2-57/1

Test: 522.30 – 527.30 m

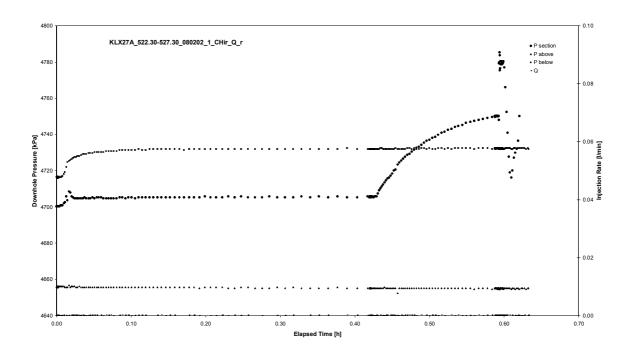
APPENDIX 2-57

Test 522.30 – 527.30 m

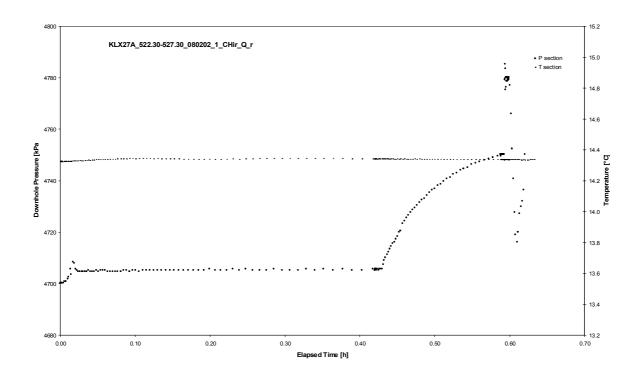
Page 2-57/2

Borehole: KLX27A

Test: 522.30 – 527.30 m



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-57/3

Test: 522.30 – 527.30 m

Not analysed

Borehole: KLX27A Test: 522.30 – 527	7.30 m	Page 2-57/4
	Not analysed	
CHIR phase; log-log ma	atch	
	Not analysed	
CHIR phase; HORNER	match	

Borehole: KLX27A Page 2-58/1

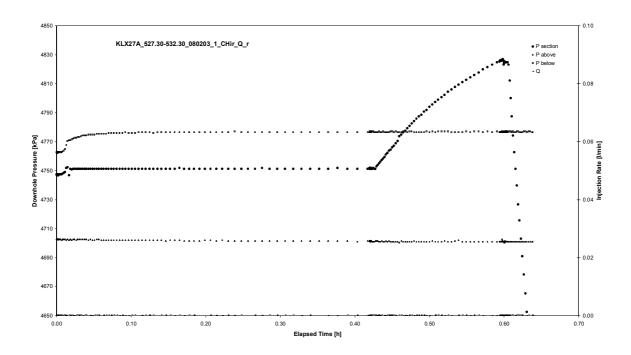
Test: 527.30 – 532.30 m

APPENDIX 2-58

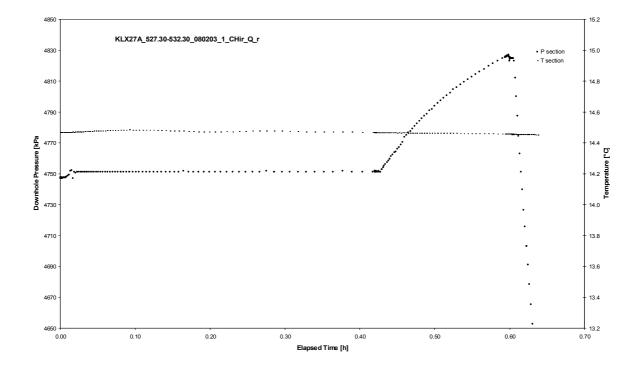
Test 527.30 – 532.30 m

Borehole: KLX27A Page 2-58/2

Test: 527.30 – 532.30 m



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-58/3

Test: 527.30 – 532.30 m

Not analysed

Borehole: Test:	KLX27A 527.30 – 532.30 m		Page 2-58/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	

CHIR phase; HORNER match

Borehole: KLX27A Page 2-59/1

Test: 532.30 – 537.30 m

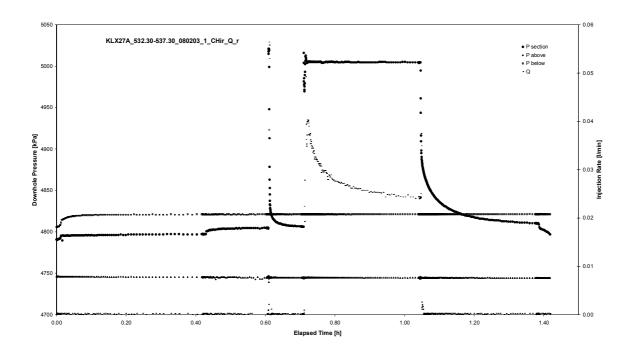
APPENDIX 2-59

Test 532.30 – 537.30 m

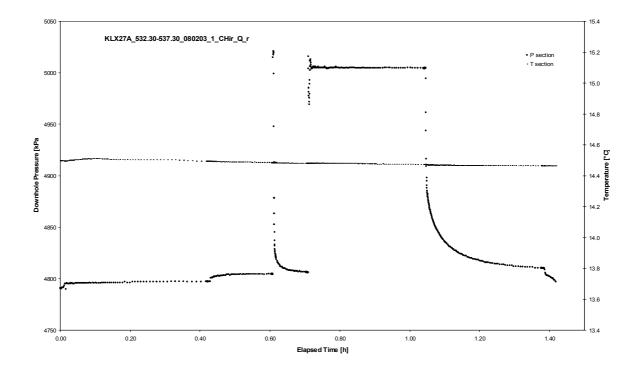
Page 2-59/2

Borehole: KLX27A

Test: 532.30 – 537.30 m



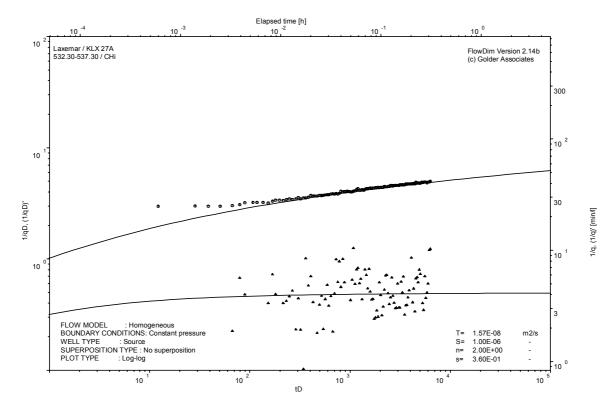
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-59/3

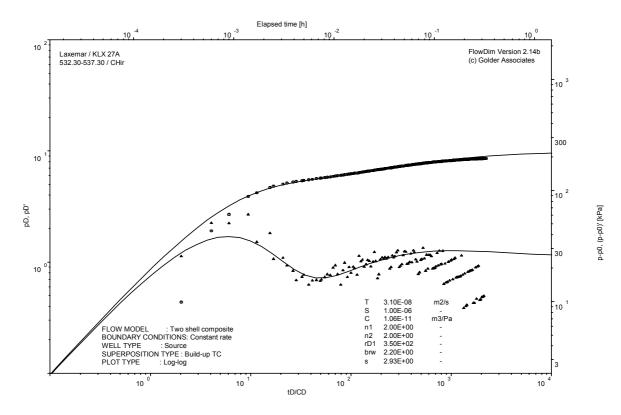
Test: 532.30 – 537.30 m



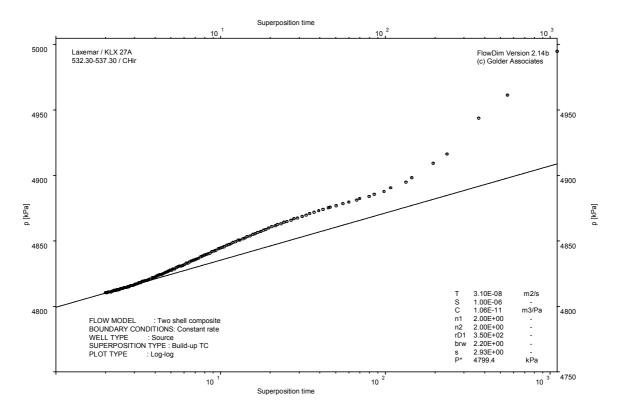
Page 2-59/4

Test: 532.30 – 537.30 m

Borehole: KLX27A



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-60/1

Test: 537.30 – 542.30 m

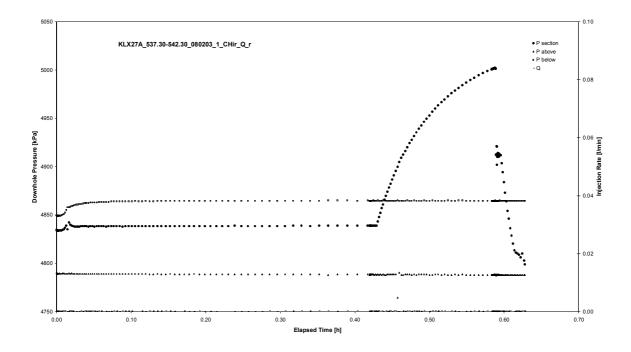
APPENDIX 2-60

Test 537.30 – 542.30 m

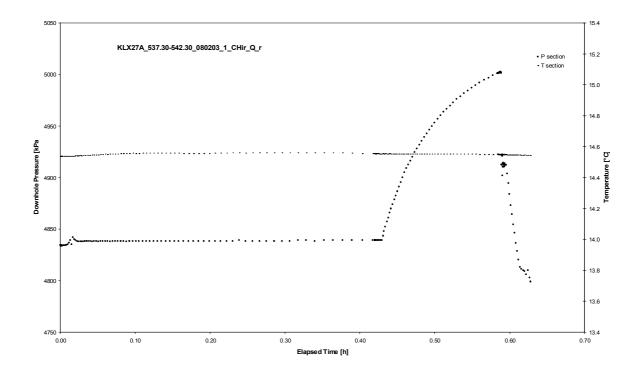
Page 2-60/2

Test: 537.30 – 542.30 m

Borehole: KLX27A



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-60/3

Test: 537.30 – 542.30 m

Not analysed

Borehole: Test:	KLX27A 537.30 – 542.30 m		Page 2-60/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	
CUID nho	se; HORNER match		
CITIK Pila	se, HONNER match		

Borehole: KLX27A Page 2-61/1

Test: 542.30 – 547.30 m

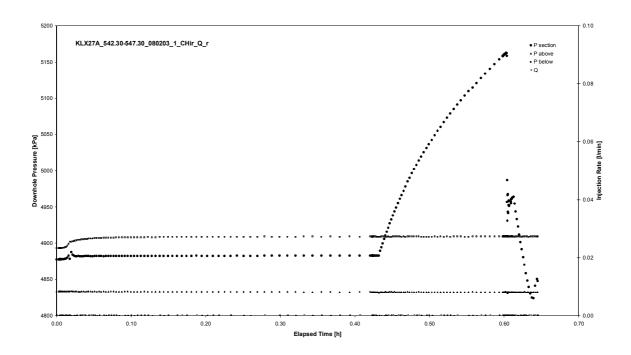
APPENDIX 2-61

Test 542.30 – 547.30 m

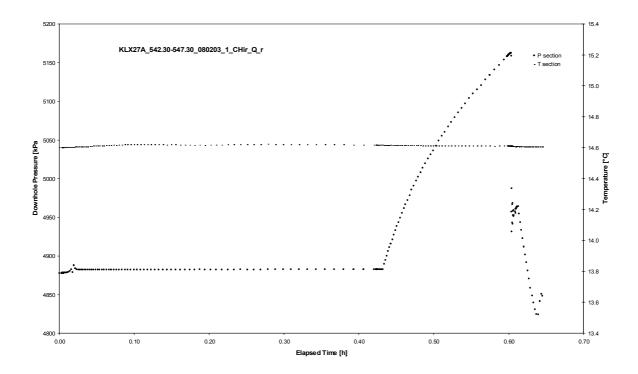
Page 2-61/2

Borehole: KLX27A

Test: 542.30 – 547.30 m



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-61/3

Test: 542.30 – 547.30 m

Not analysed

Borehole: Test:	KLX27A 542.30 – 547.30 m		Page 2-61/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-62/1

Test: 547.30 – 552.30 m

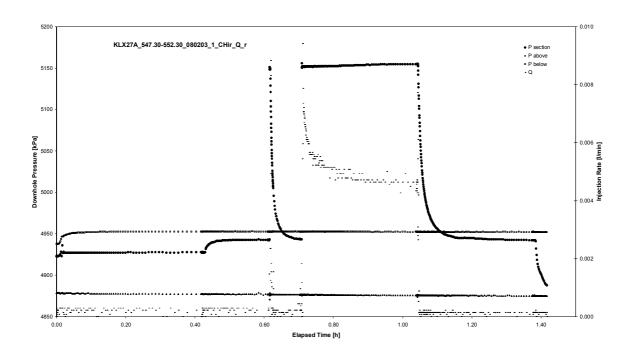
APPENDIX 2-62

Test 547.30 – 552.30 m

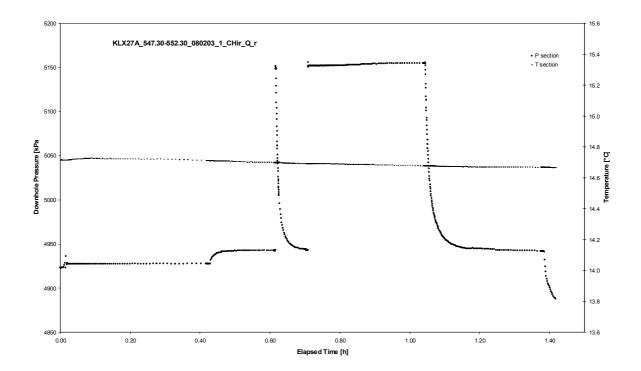
Page 2-62/2

Borehole: KLX27A

Test: 547.30 – 552.30 m



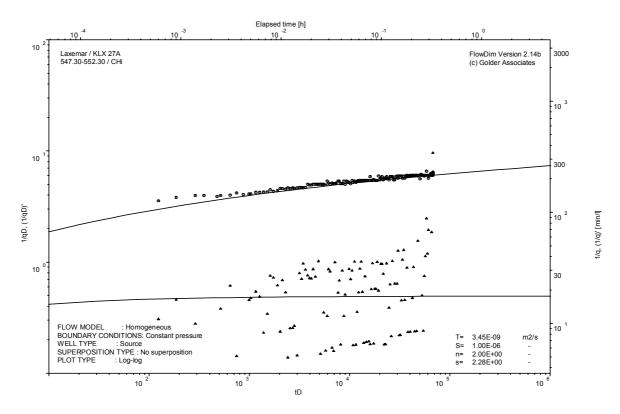
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

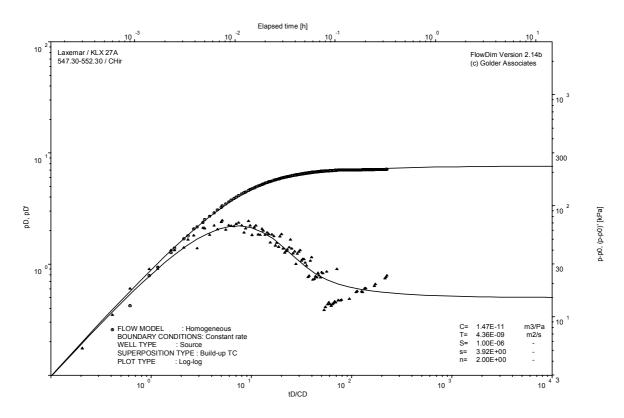
Borehole: KLX27A Page 2-62/3

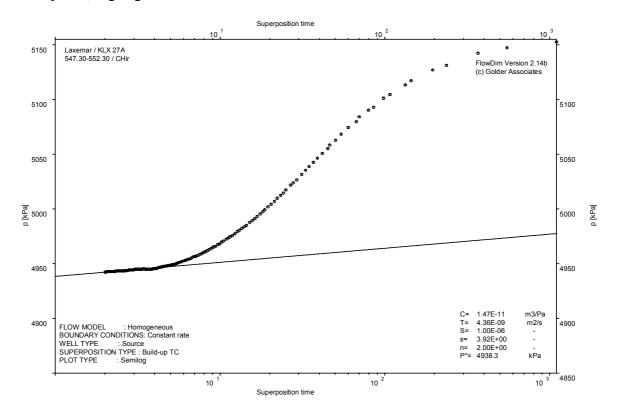
Test: 547.30 – 552.30 m



Borehole: KLX27A

Test: 547.30 – 552.30 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-63/1

Test: 552.30 – 557.30 m

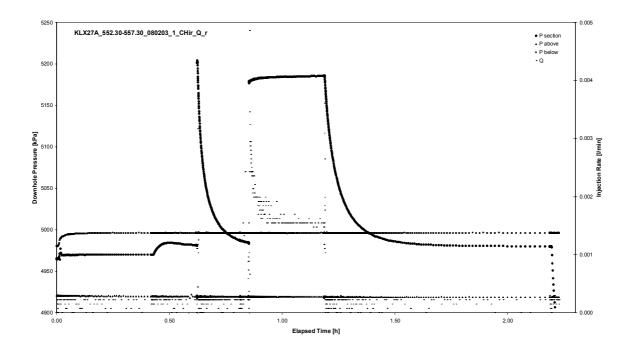
APPENDIX 2-63

Test 552.30 – 557.30 m

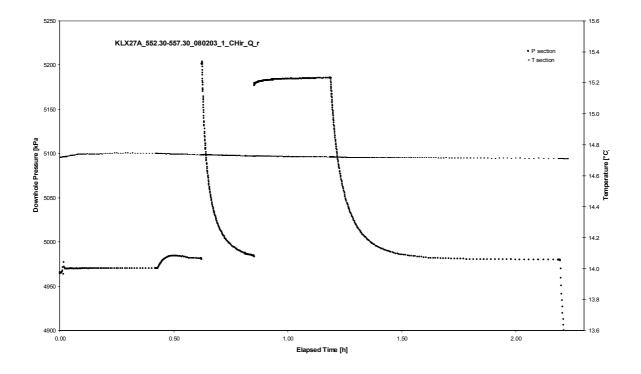
Page 2-63/2

Borehole: KLX27A

Test: 552.30 – 557.30 m



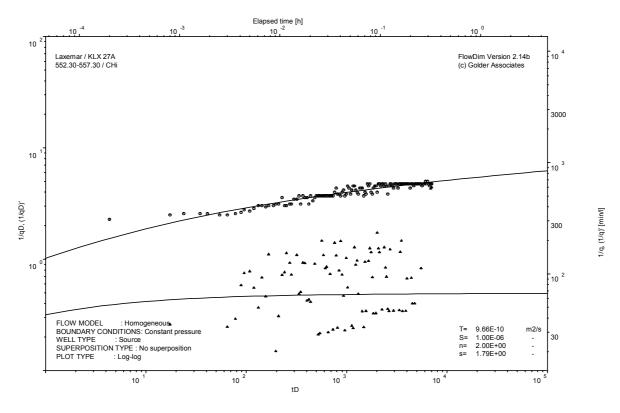
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

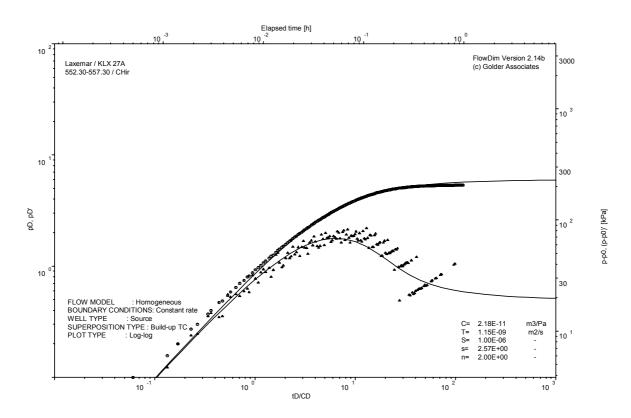
Borehole: KLX27A Page 2-63/3

Test: 552.30 – 557.30 m

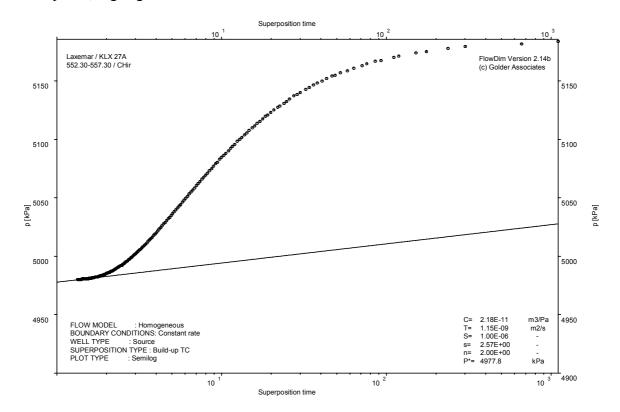


Borehole: KLX27A

Test: 552.30 – 557.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

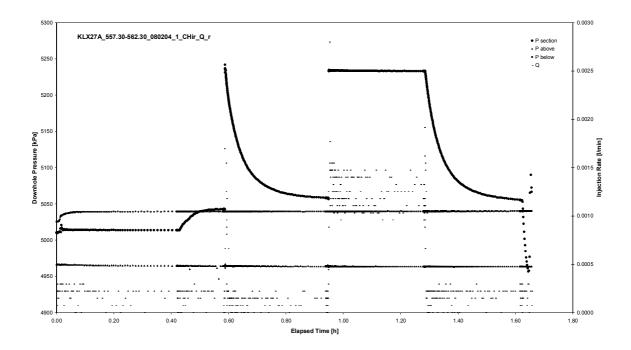
Borehole: KLX27A Page 2-64/1

Test: 557.30 – 562.30 m

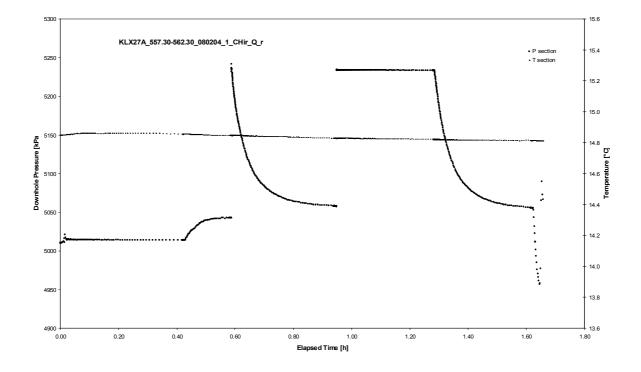
APPENDIX 2-64

Test 557.30 – 562.30 m

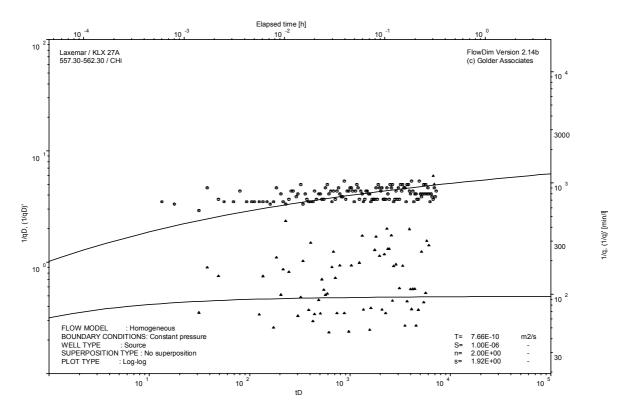
Test: 557.30 – 562.30 m



Pressure and flow rate vs. time; cartesian plot

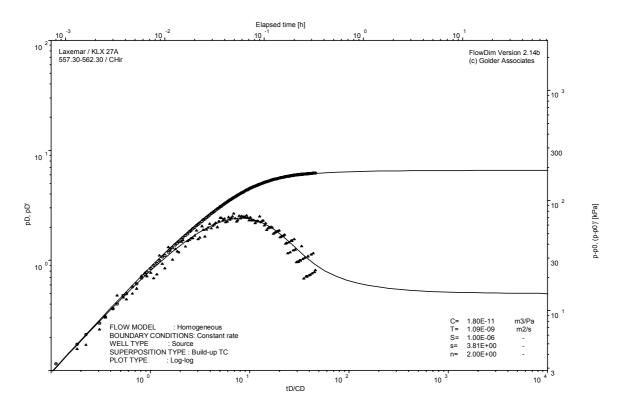


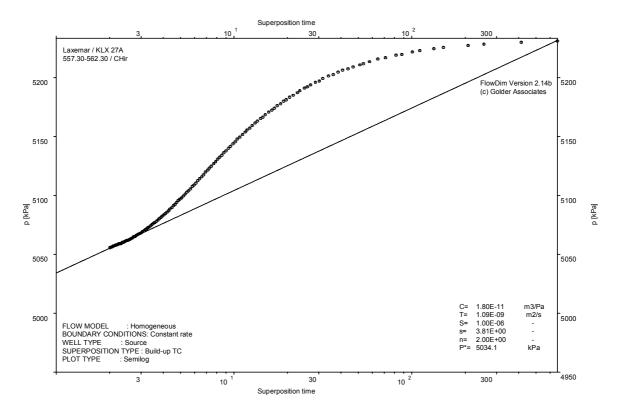
Test: 557.30 – 562.30 m



Borehole: KLX27A

Test: 557.30 – 562.30 m





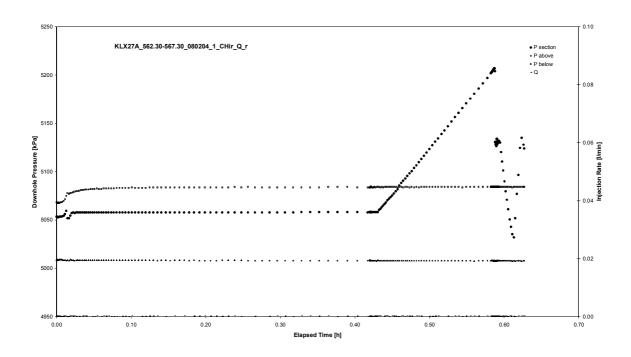
CHIR phase; HORNER match

Test: 562.30 – 567.30 m

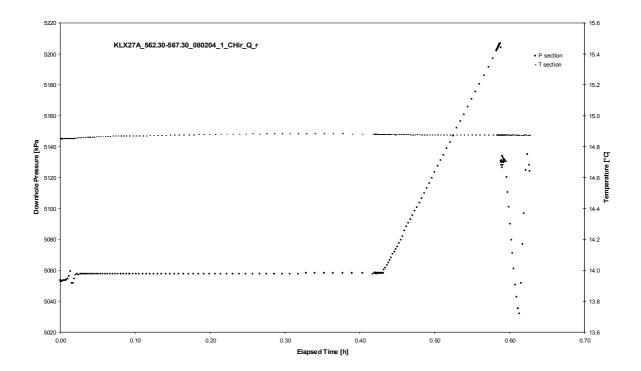
APPENDIX 2-65

Test 562.30 – 567.30 m

Test: 562.30 – 567.30 m



Pressure and flow rate vs. time; cartesian plot



Test: 562.30 – 567.30 m

Not analysed

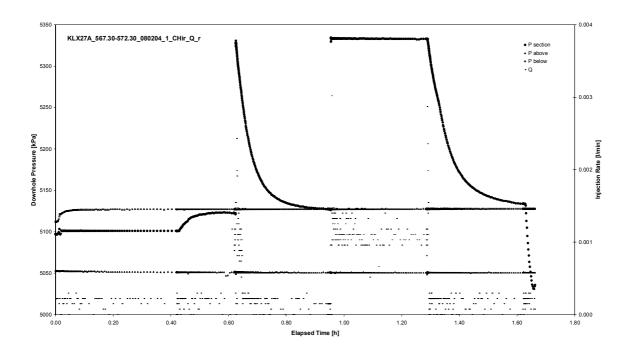
Borehole: Test:	KLX27A 562.30 – 567.30 m		Page 2-65/4
		Not analysed	
CHIR pha	se; log-log match		
· ·			
		Not analysed	
CHIR pha	se; HORNER match		

Test: 567.30 – 572.30 m

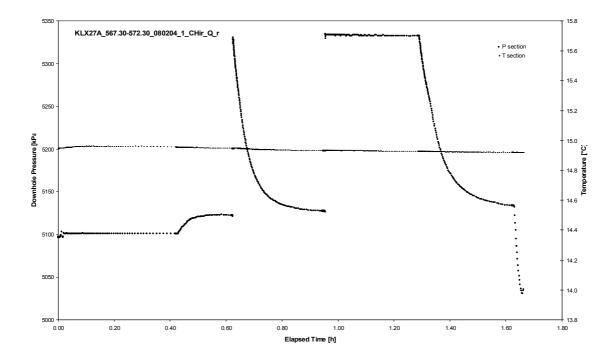
APPENDIX 2-66

Test 567.30 – 572.30 m

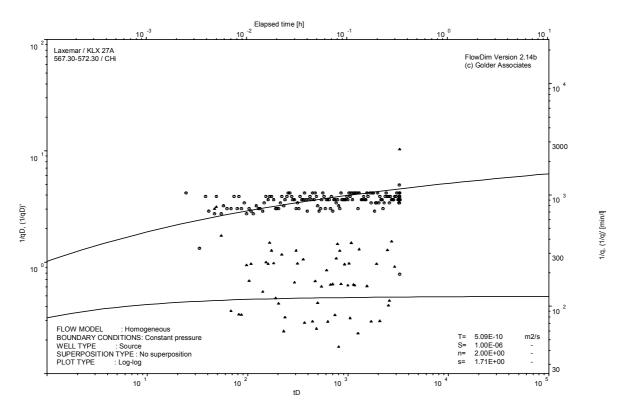
Test: 567.30 – 572.30 m



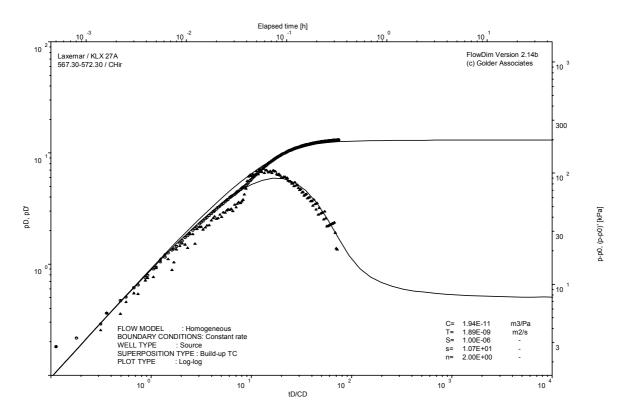
Pressure and flow rate vs. time; cartesian plot



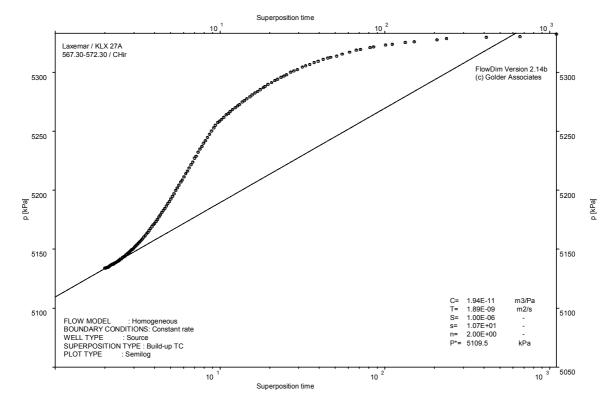
Test: 567.30 – 572.30 m



Test: 567.30 – 572.30 m



CHIR phase; log-log match



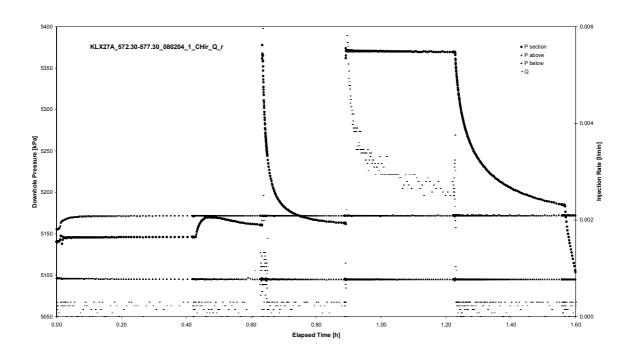
CHIR phase; HORNER match

Test: 572.30 – 577.30 m

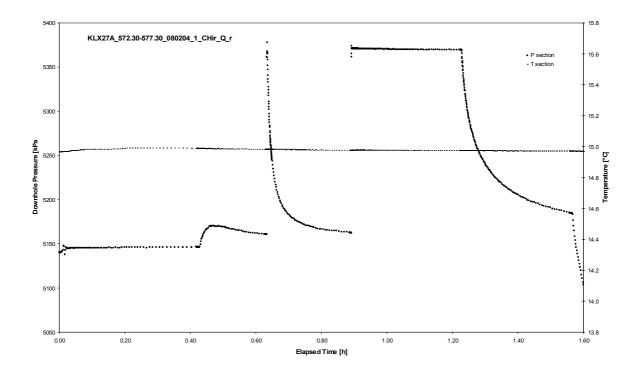
APPENDIX 2-67

Test 572.30 – 577.30 m

Test: 572.30 – 577.30 m

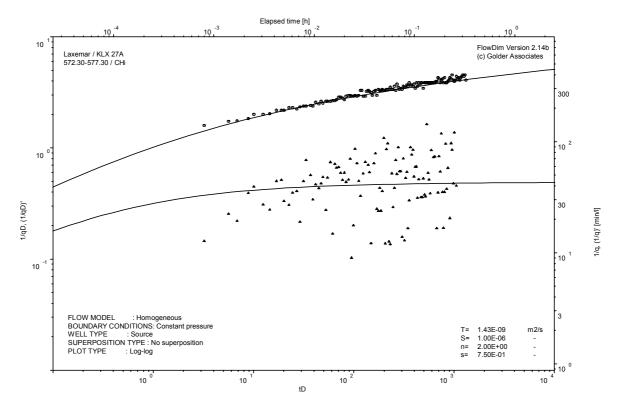


Pressure and flow rate vs. time; cartesian plot



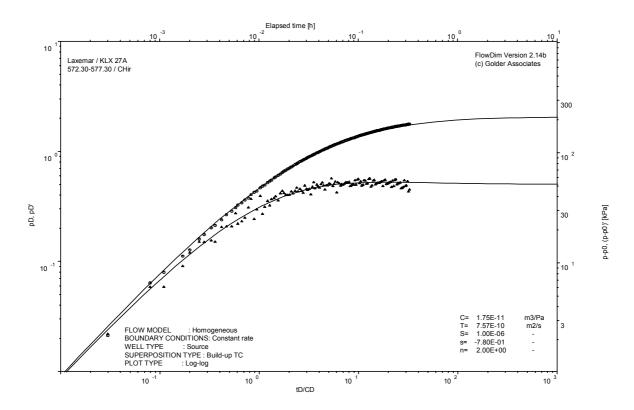
Interval pressure and temperature vs. time; cartesian plot

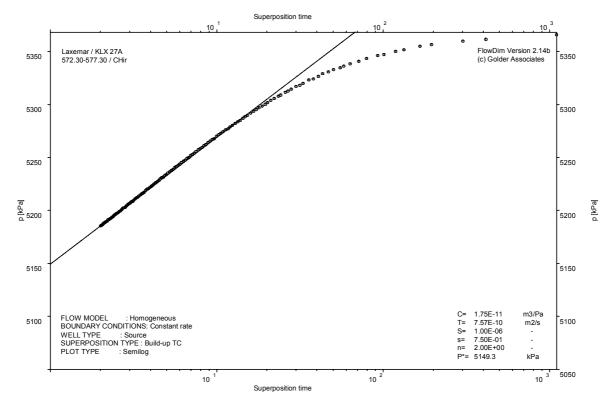
Test: 572.30 – 577.30 m



Borehole: KLX27A

Test: 572.30 – 577.30 m





CHIR phase; HORNER match

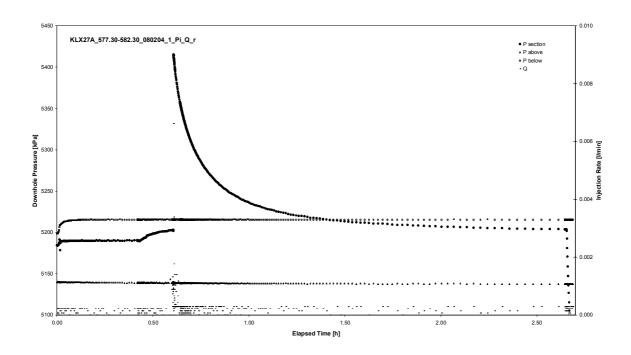
Test: 577.30 – 582.30 m

APPENDIX 2-68

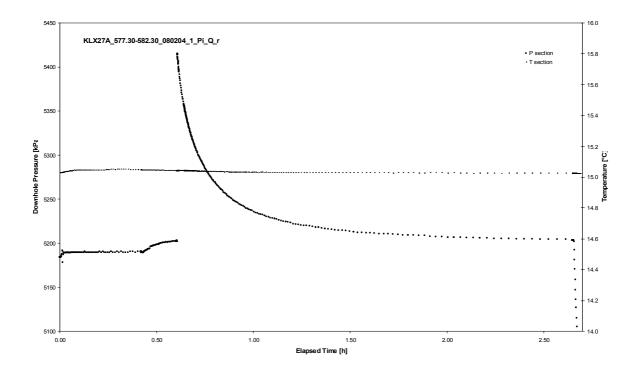
Test 577.30 – 582.30 m

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Borehole: KLX27A Test: 577.30 – 582.30 m

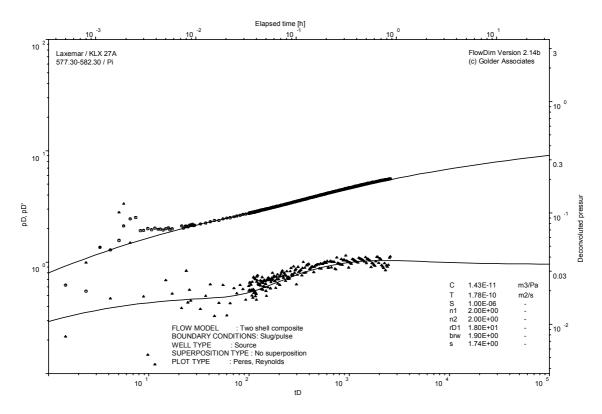


Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Test: 577.30 – 582.30 m



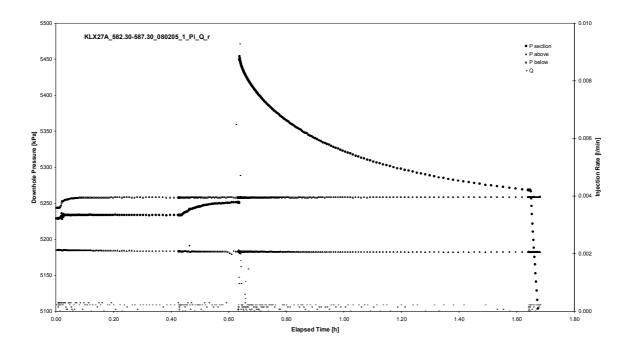
Pulse injection; deconvolution match

Test: 582.30 – 587.30 m

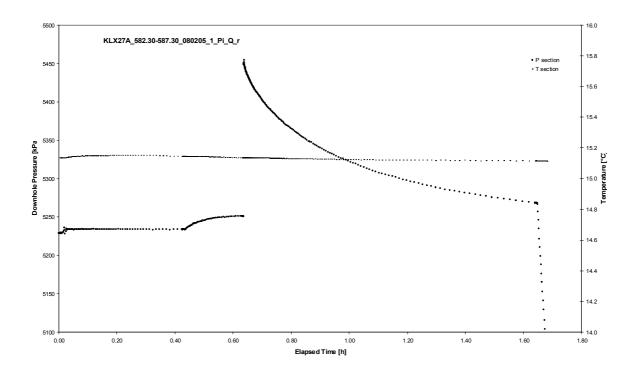
APPENDIX 2-69

Test 582.30 – 587.30 m

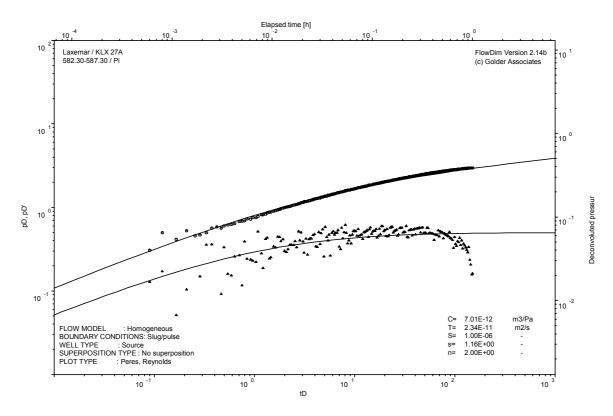
Test: 582.30 – 587.30 m



Pressure and flow rate vs. time; cartesian plot



Test: 582.30 – 587.30 m



Pulse injection; deconvolution match

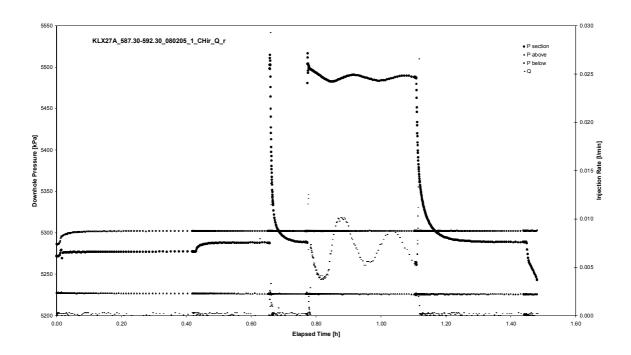
Test: 587.30 – 592.30 m

APPENDIX 2-70

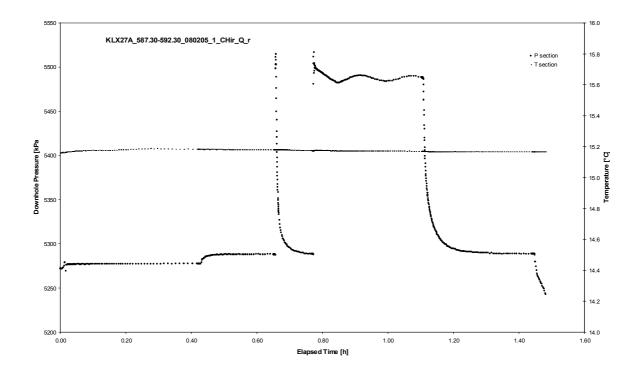
Test 587.30 – 592.30 m

Page 2-70/2

Borehole: KLX27A Test: 587.30 – 592.30 m



Pressure and flow rate vs. time; cartesian plot

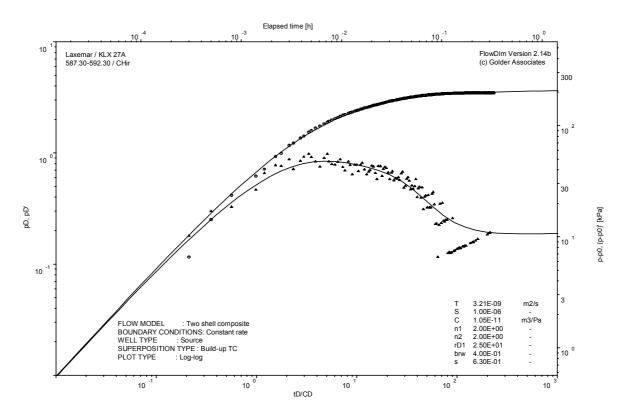


Test: 587.30 – 592.30 m

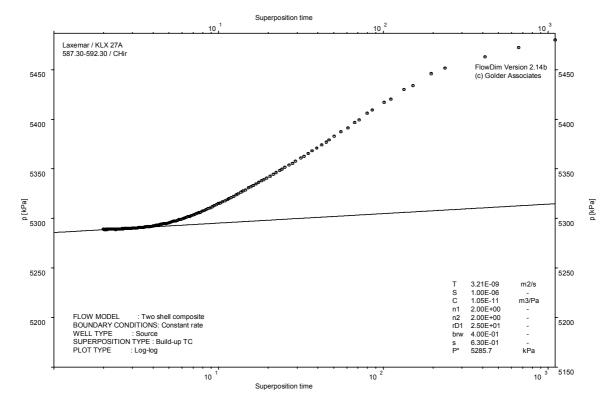
Not analysable

Borehole: KLX27A

Test: 587.30 – 592.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Test: 592.30 – 597.30 m

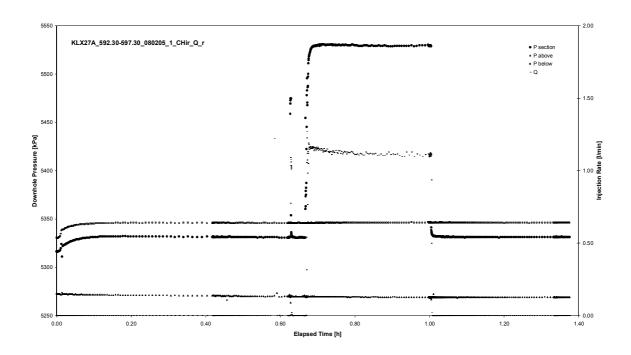
APPENDIX 2-71

Test 592.30 – 597.30 m

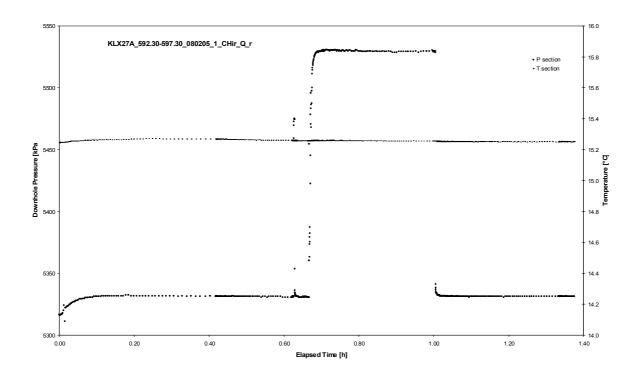
Page 2-71/2

Borehole: KLX27A

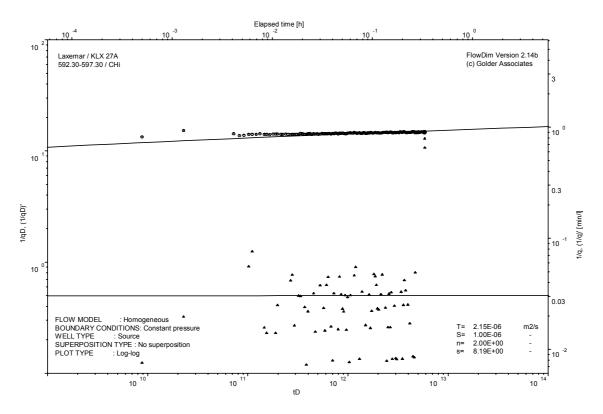
Test: 592.30 – 597.30 m



Pressure and flow rate vs. time; cartesian plot

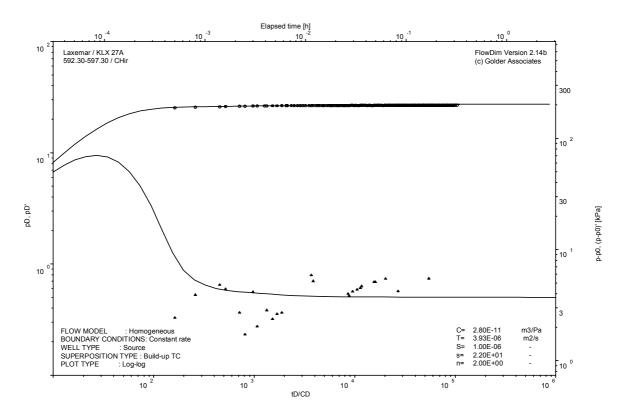


Test: 592.30 – 597.30 m

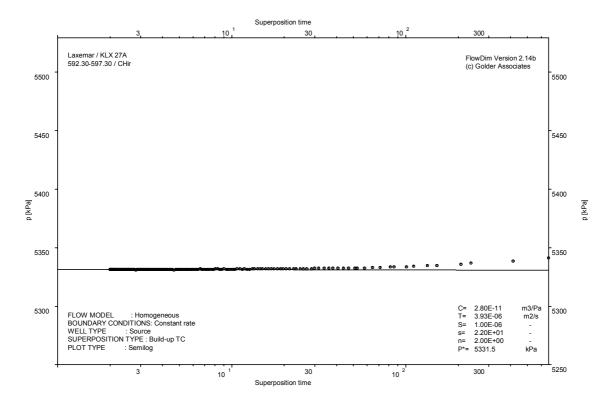


Borehole: KLX27A

Test: 592.30 – 597.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Test: 597.30 – 602.30 m

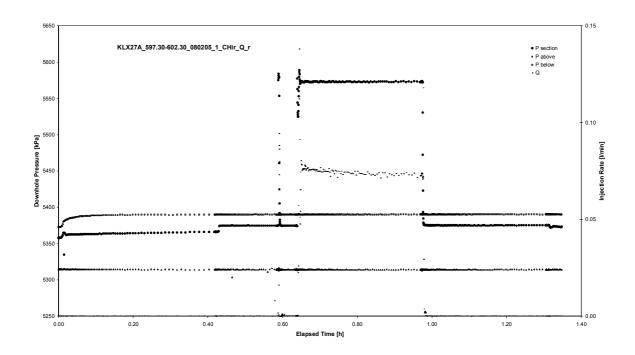
APPENDIX 2-72

Test 597.30 – 602.30 m

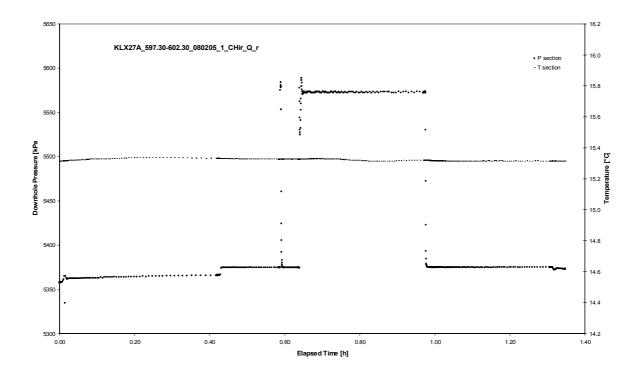
Page 2-72/2

Borehole: KLX27A

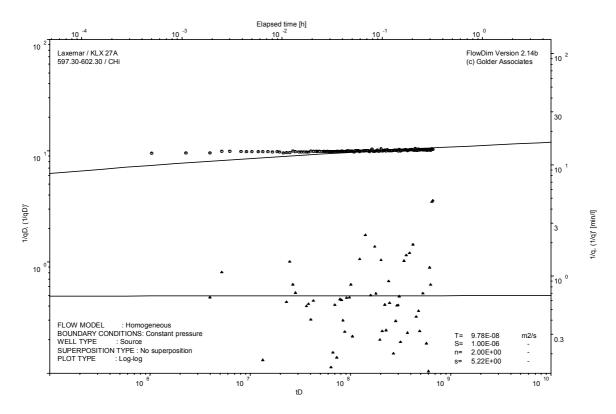
Test: 597.30 – 602.30 m



Pressure and flow rate vs. time; cartesian plot

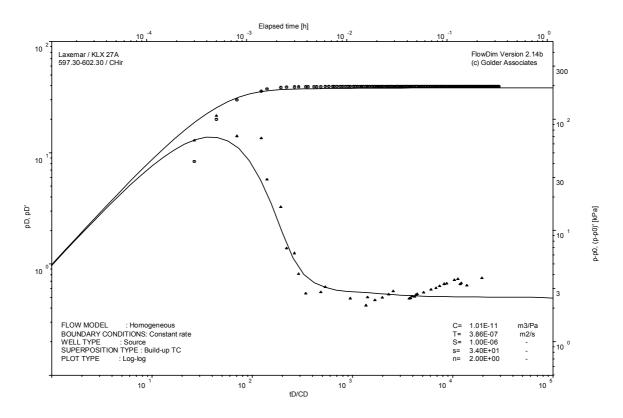


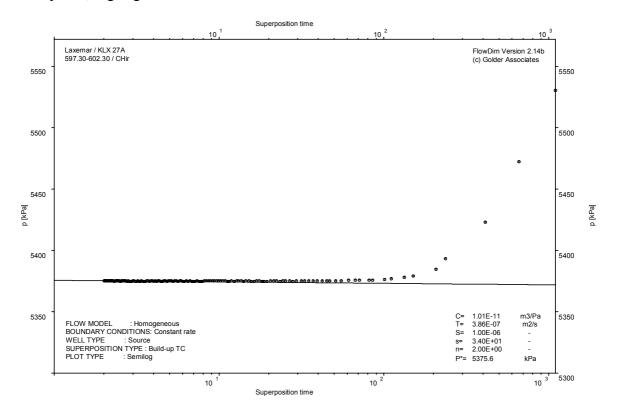
Test: 597.30 – 602.30 m



Borehole: KLX27A

Test: 597.30 – 602.30 m





CHIR phase; HORNER match

Test: 602.30 - 607.30 m

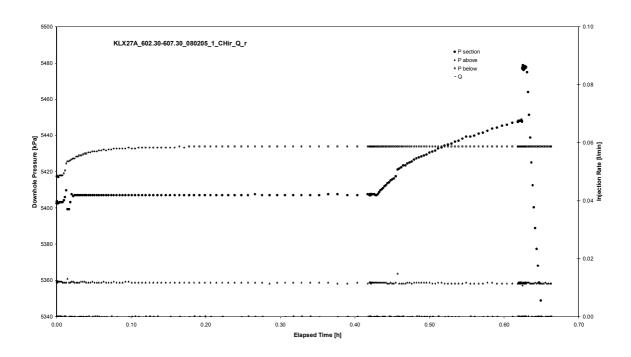
APPENDIX 2-73

Test 602.30 – 607.30 m

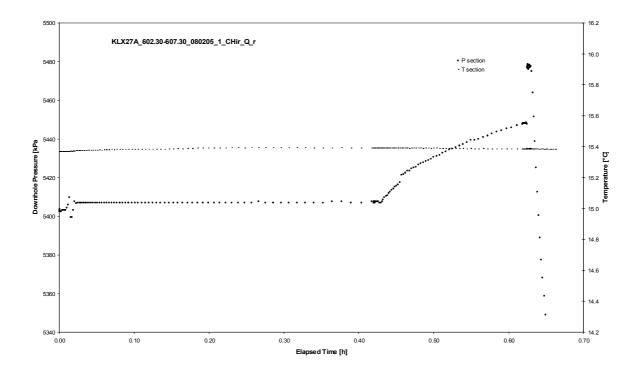
Page 2-73/2

Borehole: KLX27A

Test: 602.30 – 607.30 m



Pressure and flow rate vs. time; cartesian plot



Test: 602.30 – 607.30 m

Not analysed

Borehole: Test:	KLX27A 602.30 – 607.30 m		Page 2-73/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	
CHIR pha	se; HORNER match		

Borehole: KLX27A Page 2-74/1

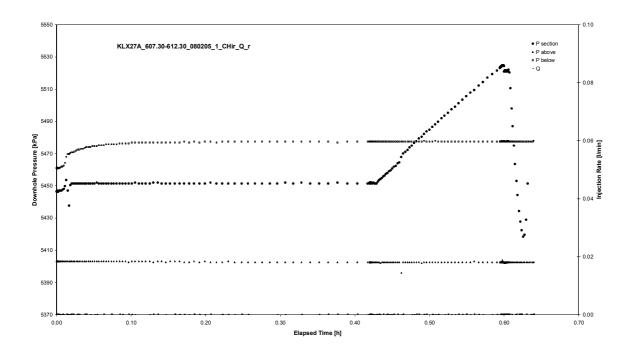
Test: 607.30 – 612.30 m

APPENDIX 2-74

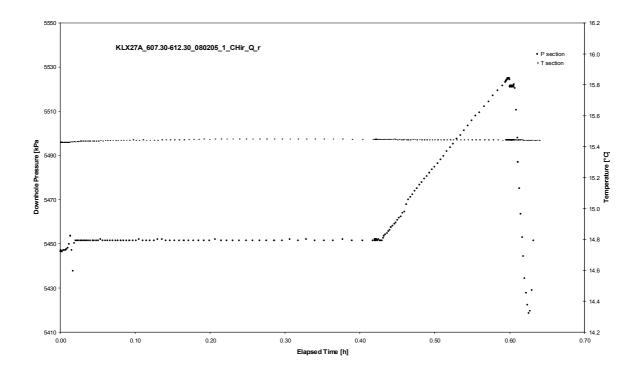
Test 607.30 – 612.30 m

Page 2-74/2

Borehole: KLX27A Test: 607.30 – 612.30 m



Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-74/3

Test: 607.30 – 612.30 m

Not analysed

Borehole: Test:	KLX27A 607.30 – 612.30 m		Page 2-74/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	

CHIR phase; HORNER match

Borehole: KLX27A Page 2-75/1

Test: 612.30 – 617.30 m

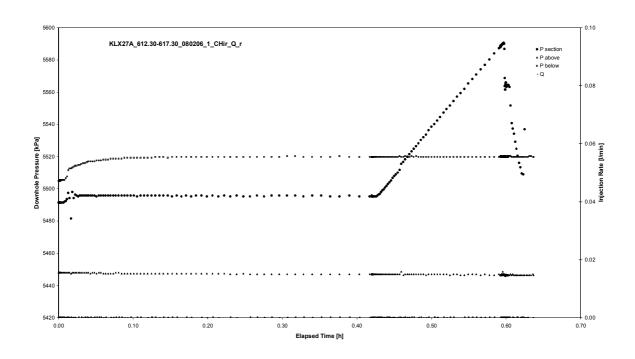
APPENDIX 2-75

Test 612.30 – 617.30 m

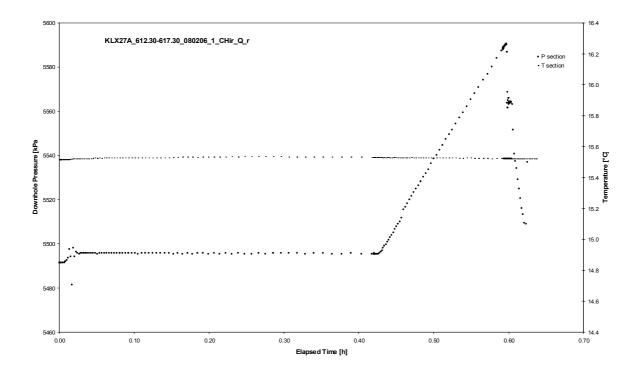
Page 2-75/2

Borehole: KLX27A

Test: 612.30 – 617.30 m



Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

Borehole: KLX27A Page 2-75/3

Test: 612.30 – 617.30 m

Not analysed

Borehole: Test:	KLX27A 612.30 – 617.30 m		Page 2-75/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	

CHIR phase; HORNER match

Borehole: KLX27A Page 2-76/1

Test: 617.30 – 622.30 m

APPENDIX 2-76

Test 617.30 – 622.30 m

Page 2-76/2

Borehole: KLX27A Test: 617.30 – 622.30 m

S630

KLX27A_617.30-622.30_080206_1_CHir_O_r

P section
P above
P below
O08

008

009

5570

5580

5580

004

005

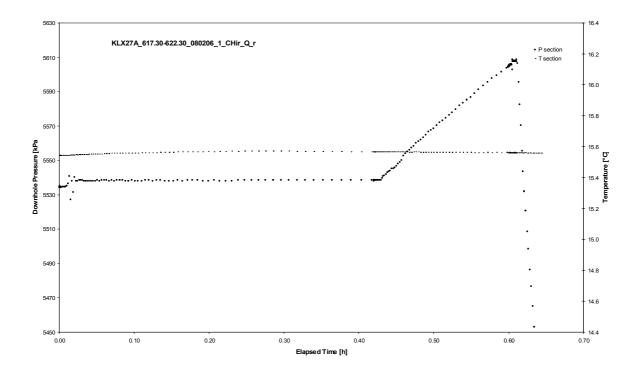
5570

005

006

Pressure and flow rate vs. time; cartesian plot

0.20



Borehole: KLX27A Page 2-76/3

Test: 617.30 – 622.30 m

Not analysed

Borehole: Test:	KLX27A 617.30 – 622.30 m		Page 2-76/4
		Not analysed	
CHIR pha	se; log-log match		
		Not analysed	

CHIR phase; HORNER match

Borehole: KLX27A Page 2-77/1

Test: 622.30 – 627.30 m

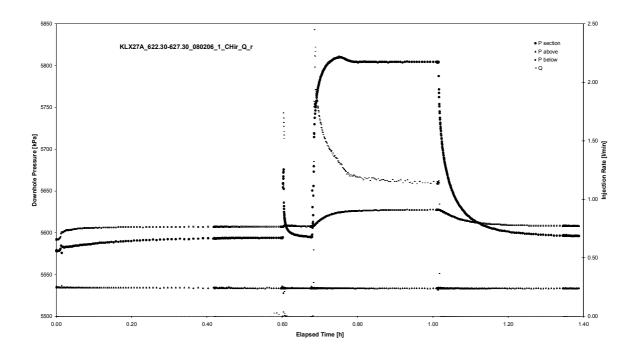
APPENDIX 2-77

Test 622.30 – 627.30 m

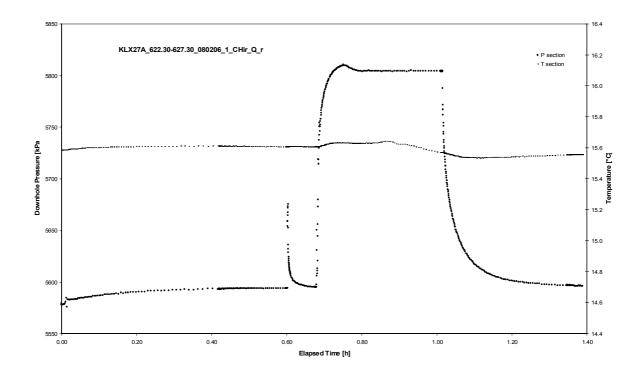
Page 2-77/2

Borehole: KLX27A

Test: 622.30 – 627.30 m

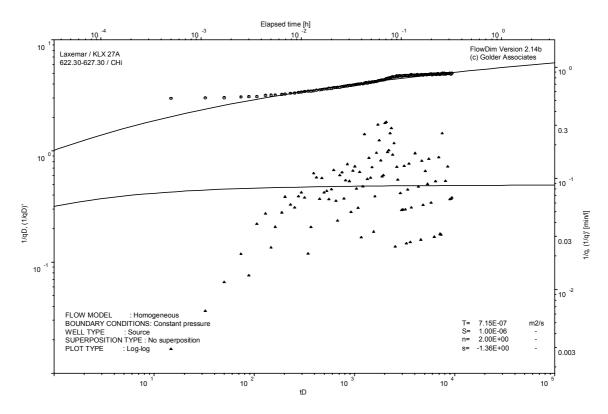


Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-77/3

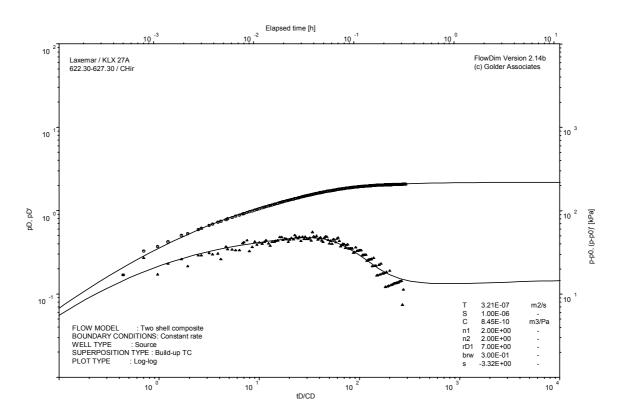
Test: 622.30 – 627.30 m

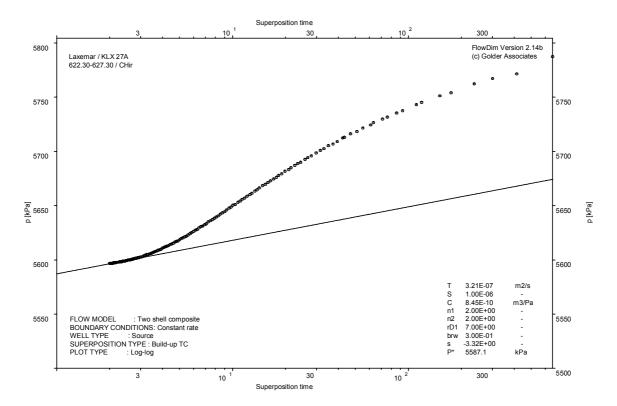


CHI phase; log-log match

Borehole: KLX27A

Test: 622.30 – 627.30 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-78/1

Test: 627.30 – 632.30 m

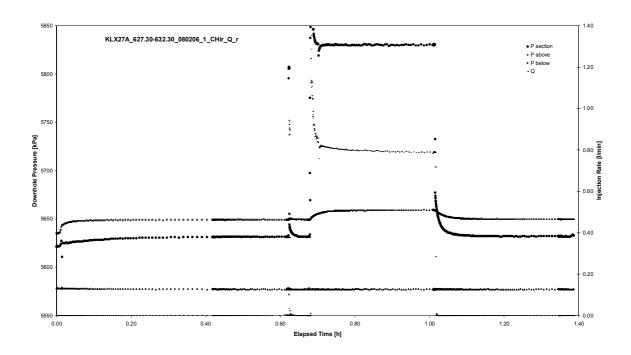
APPENDIX 2-78

Test 627.30 – 632.30 m

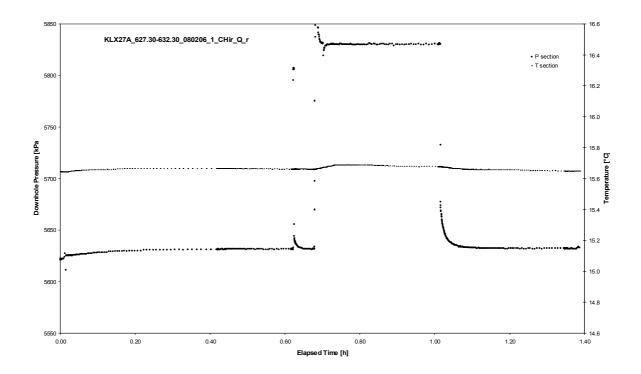
Page 2-78/2

Borehole: KLX27A

Test: 627.30 – 632.30 m

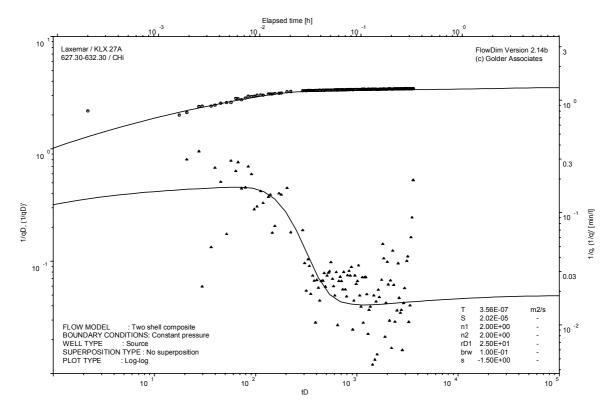


Pressure and flow rate vs. time; cartesian plot



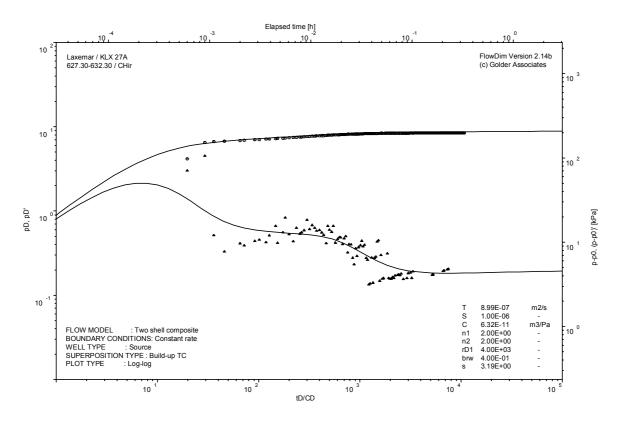
Borehole: KLX27A Page 2-78/3

Test: 627.30 – 632.30 m

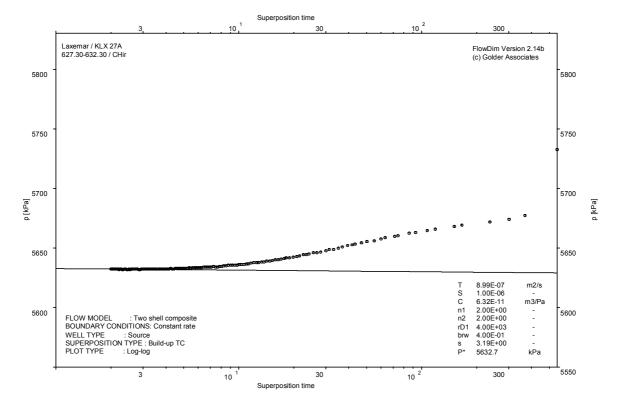


Borehole: KLX27A

Test: 627.30 – 632.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-79/1

Test: 632.30 – 637.30 m

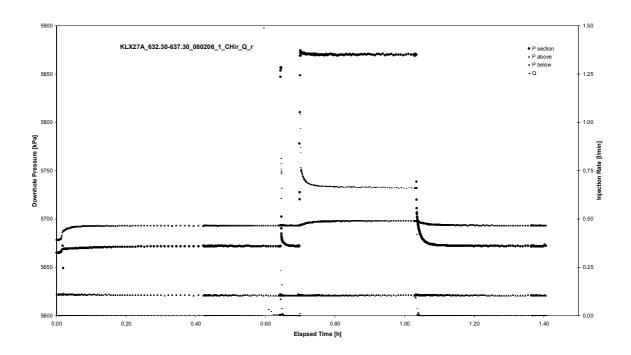
APPENDIX 2-79

Test 632.30 – 637.30 m

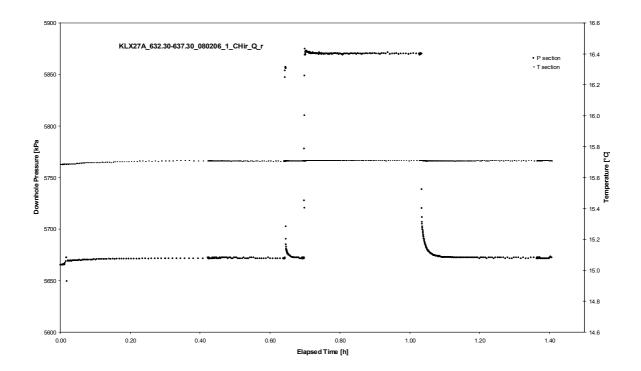
Page 2-79/2

Borehole: KLX27A

Test: 632.30 – 637.30 m

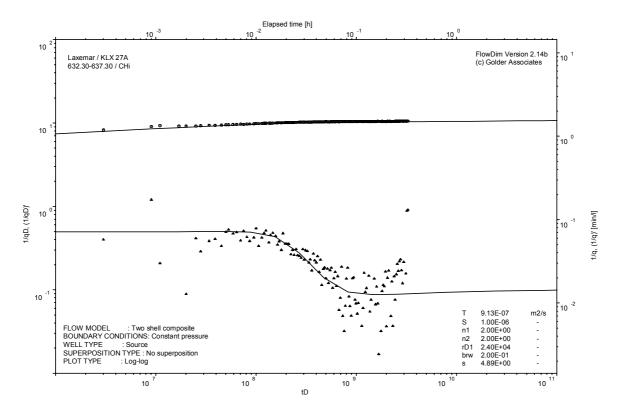


Pressure and flow rate vs. time; cartesian plot



Borehole: KLX27A Page 2-79/3

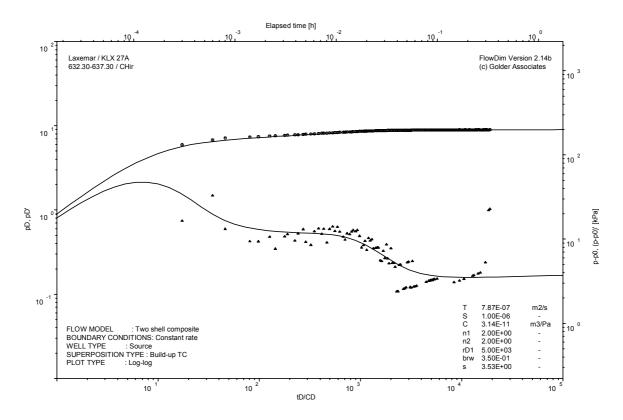
Test: 632.30 – 637.30 m

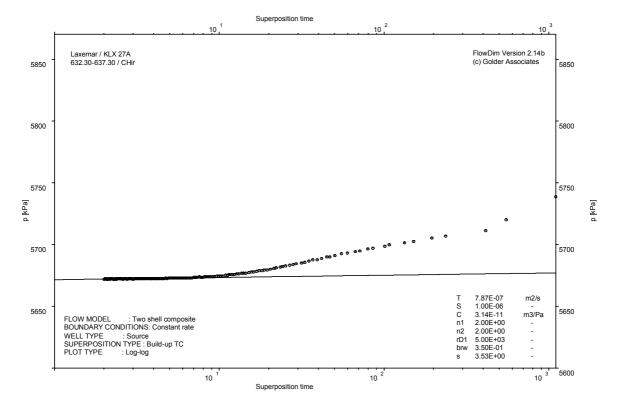


CHI phase; log-log match

Borehole: KLX27A

Test: 632.30 – 637.30 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-80/1

Test: 637.30 – 642.30 m

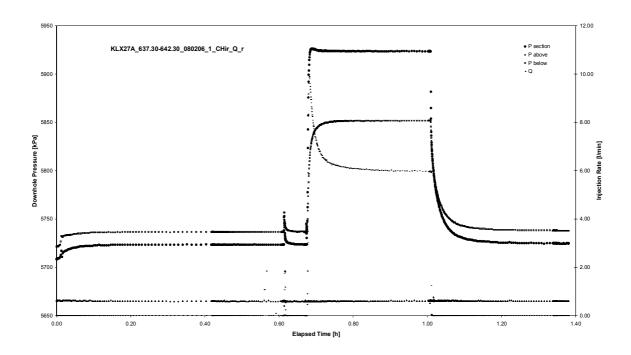
APPENDIX 2-80

Test 637.30 – 642.30 m

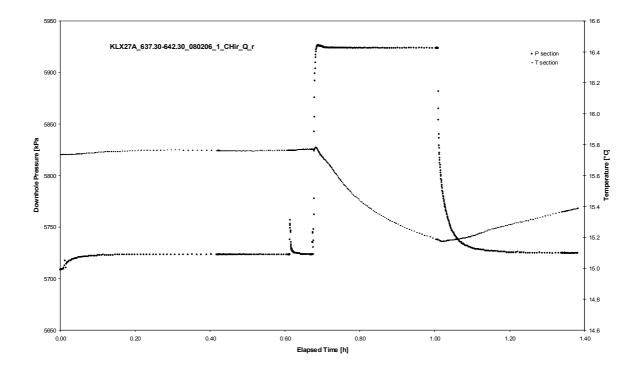
Page 2-80/2

Borehole: KLX27A

Test: 637.30 – 642.30 m

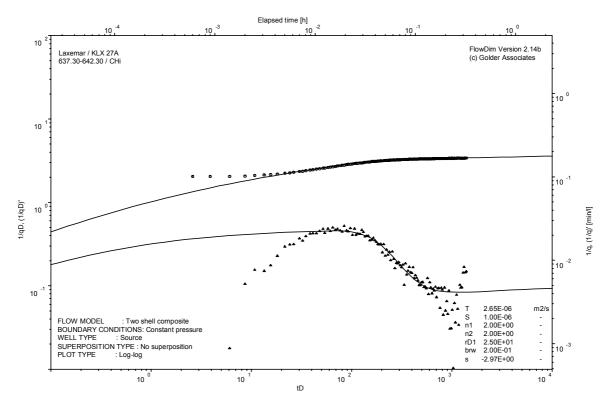


Pressure and flow rate vs. time; cartesian plot



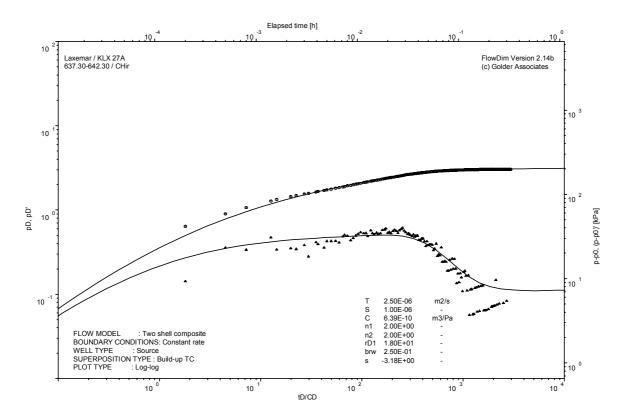
Borehole: KLX27A Page 2-80/3

Test: 637.30 – 642.30 m

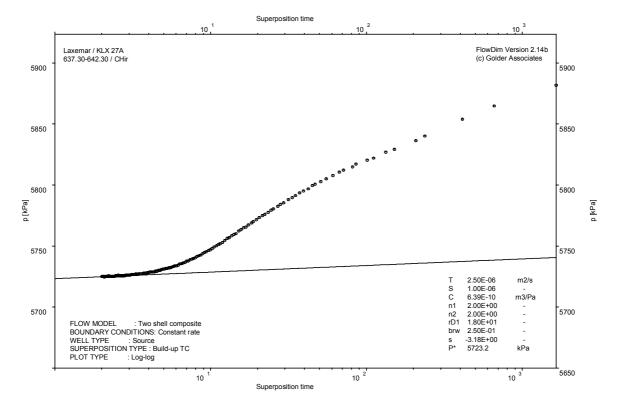


Borehole: KLX27A

Test: 637.30 – 642.30 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A Page 2-81/1

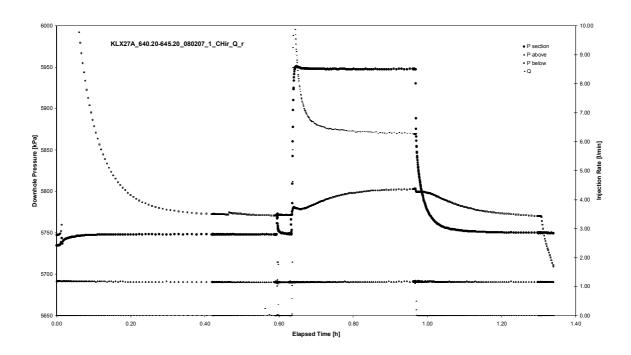
Test: 640.20 – 645.20 m

APPENDIX 2-81

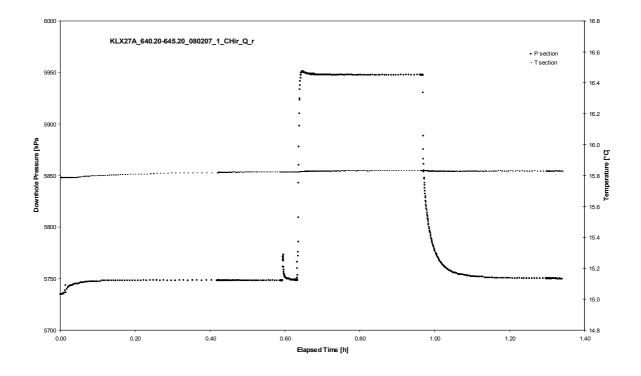
Test 640.20 – 645.20 m

Page 2-81/2

Borehole: KLX27A Test: 640.20 – 645.20 m



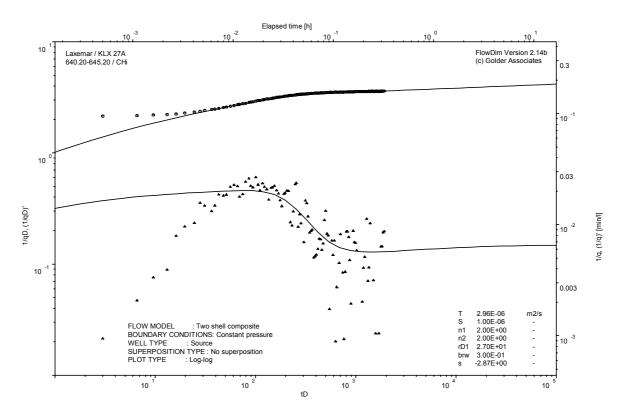
Pressure and flow rate vs. time; cartesian plot



Interval pressure and temperature vs. time; cartesian plot

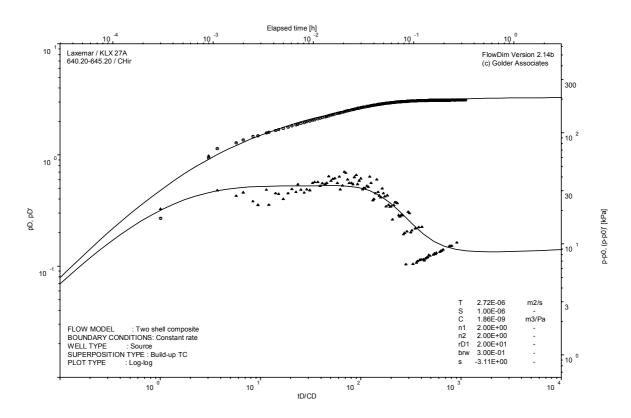
Borehole: KLX27A Page 2-81/3

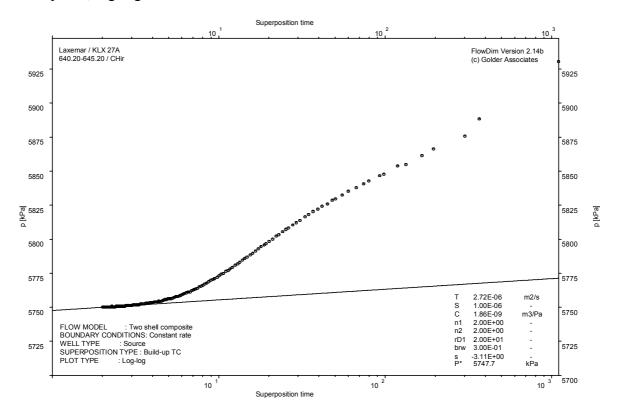
Test: 640.20 – 645.20 m



Borehole: KLX27A

Test: 640.20 – 645.20 m





CHIR phase; HORNER match

Borehole: KLX27A Page 2-82/1

Test: 645.20 – 650.56 m

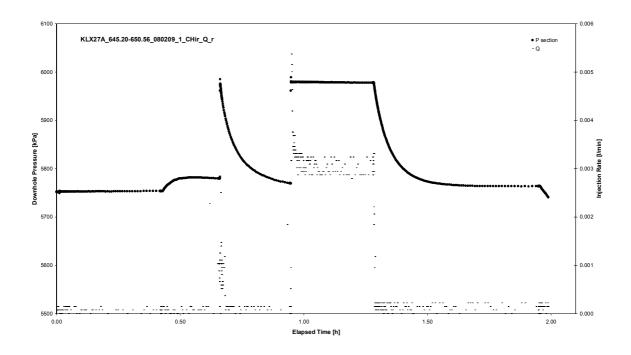
APPENDIX 2-82

Test 645.20 – 650.56 m

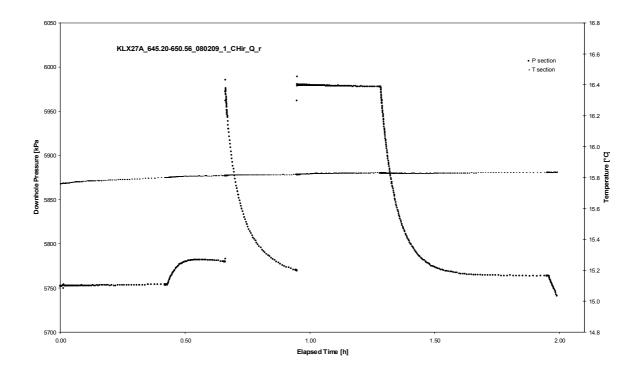
Page 2-82/2

Borehole: KLX27A

Test: 645.20 – 650.56 m

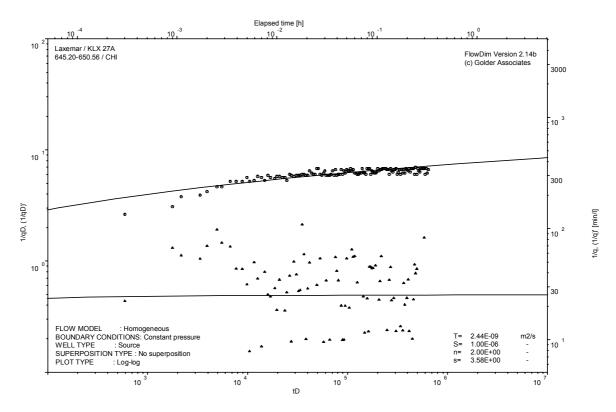


Pressure and flow rate vs. time; cartesian plot



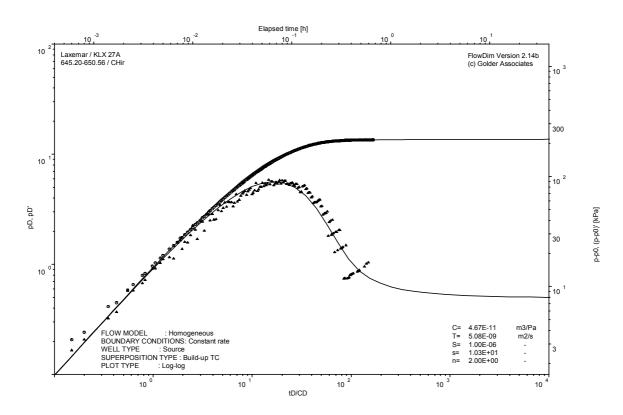
Borehole: KLX27A Page 2-82/3

Test: 645.20 – 650.56 m

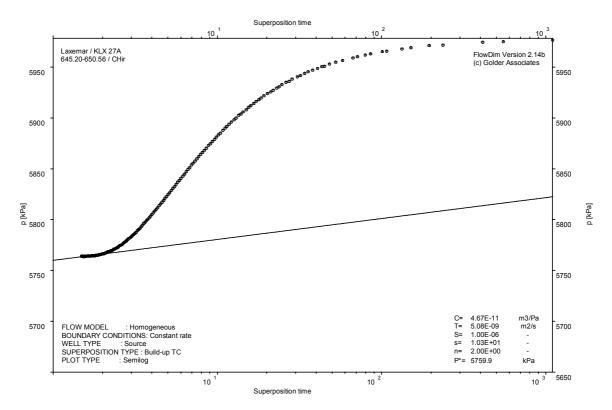


Borehole: KLX27A

Test: 645.20 – 650.56 m



CHIR phase; log-log match



CHIR phase; HORNER match

Borehole: KLX27A

APPENDIX 3

Test Summary Sheets

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxemar	Test no:			1
Develop ID:	VI VOZA	Took obout:			000440 00.00
Borehole ID:	KLX2/A	Test start:			080118 08:23
Test section from - to (m):	77.30-177.30	Responsible for			Philipp Wol Erik Löfgrer
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Crist	an Enachescu
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	1
		p ₀ (kPa) =	1608		
1800 KLX27A_77.30-177.30_080118_1_CHir_Q_r	7 2.00	p _i (kPa) =	1605	(B)	1.50
1600	1.60	$p_p(kPa) =$		p _F (kPa) =	160:
3	• P section • P above • P below • O F	$Q_p (m^3/s) =$	1.35E-05		100
To 1400 -	- 1.20 m - 1.00 d - 1.00 d d c	tp (s) =		t _F (s) =	1800
8 1200 - 9 E	1.00 & 5 0.80 & 5	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
§ 1000	+ 0.60	EC _w (mS/m)=	0.5		
800	- 0.40	Temp _w (gr C)=	9.5	Derivative fact.=	0.0
	- 0.20	Derivative fact.=	0.07	Derivative fact.=	0.0
0.00 0.50 1.00 Elapsed 7	1.50 2.00				
***		Results		Results	
		Q/s $(m^2/s)=$	6.7E-07		
Log-Log plot incl. derivates- flo	ow period	$T_M (m^2/s) =$	8.7E-07		
<u> </u>	•	Flow regime:	transient	Flow regime:	transient
Elapsed time (h)		$dt_1 \text{ (min)} =$	0.43	$dt_1 \text{ (min)} =$	0.0
10 2 10 2	10,1	dt_2 (min) =	12.58	dt_2 (min) =	9.2
	10	$T (m^2/s) =$	8.4E-07	$T (m^2/s) =$	2.9E-0
	3	S (-) =	1.0E-06	. ,	1.0E-0
10 1	<u>.</u>	$K_s (m/s) =$	8.4E-09	$K_s (m/s) =$	2.9E-0
90 90 9 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	10 °	$S_s (1/m) =$	1.0E-08	$S_s (1/m) =$	1.0E-0
	0.3	$C (m^3/Pa) =$	NA	C (m ³ /Pa) =	2.9E-1
10 %	,	C _D (-) =	NA	C _D (-) =	3.2E-0
,,,,,,,, .	10 1	ξ (-) =	1.1	ξ (-) =	20.8
	0.03	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ⁴ 10 ⁵	10 ° 10 ′ 10 °	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			
		$dt_1 (min) =$		$C (m^3/Pa) =$	2.9E-10
Elapsed time [h]		$dt_2 (min) =$		C_D (-) =	3.2E-0
		$T_T (m^2/s) =$	8.4E-07		1.
	300	S (-) =	1.0E-06		
	10 2	K_s (m/s) =	8.4E-09		
10		$S_s(1/m) =$	1.0E-08		
	30	Comments:			
	1 1			8.4E-7 m2/s was de	
10 0	10' 8	analysis of the CHi		ows slight better dat e interval transmiss	
	3	estimated to be 2E-			
		during the test is 2.	The static press	ure measured at tran	sducer depth,
					1
10 1 10 2 EDICO	10 ° 10 °	was derived from the Horner plot to a val			apolation in the

	Test Su	mmary Sheet			
Project:	Oskarshamn site investiga				CHi
Area:	Laxer	mar Test no:			
Borehole ID:	KI X	27A Test start:			080118 13:33
Test section from - to (m):	177.30-277	.30 Responsible for test execution:			Philipp Wol Erik Löfgrer
Section diameter, 2·r _w (m):	0.0	076 Responsible for		Crist	ian Enachescu
		test evaluation:		-	
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	ı
2750 T	т 3.0	p ₀ (kPa) =	2495		
KLX27A_177.30-277.30_080118_1_CHir_Q_r	P section P above P below	р _і (кРа) =	2513		
2550	2.50	· P ()		p _F (kPa) =	251
중 2350 ·	2.00	$Q_p (m^3/s) =$	1.20E-05		
2 2350 -		$tp(s) = Sel S^*(-)=$		t _F (s) =	180
Az 2150 -	1.5(§ 3 el 3 (-)-	1.00E-06	S el S [*] (-)=	1.00E-0
å ₁₉₅₀ -	1.00		10.0		
1750 -	0.50	Temp _w (gr C)=	10.8	Derivative fact.=	
		Derivative fact.=	0.04	Derivative fact.=	
0.00 0.20 0.40 0.60 0.80 Elapsed	1.00 1.20 1.40 1.60 1.80 Time [h]				
		Results		Results	
		Q/s $(m^2/s)=$	5.8E-07		
Log-Log plot incl. derivates- fl	ow period	$T_{\rm M} (m^2/s) =$	7.6E-07		
99 p	- · · / · · · · · ·	Flow regime:	transient	Flow regime:	transient
Elapsed time (n]	$dt_1 (min) =$		$dt_1 \text{ (min)} =$	0.8
10 10 10 10 10 10	10,"	$dt_2 \text{ (min)} =$		$dt_2 \text{ (min)} =$	3.8
		$T (m^2/s) =$		$T(m^2/s) =$	2.9E-0
a		S (-) =	1.0E-06	` ′	1.0E-0
10 0		$K_s (m/s) =$		$K_s (m/s) =$	2.9E-0
		S _s (1/m) =		S _s (1/m) =	1.0E-0
		$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	2.8E-0
10 1	•	₀₃ C _D (-) =	NA	$C_D(-) =$	3.1E-0
		ξ (-) =	-2.2	ξ (-) =	-2.
	1	3 ()			
	10 ² 10 ³ 10 ⁴	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ° 10 ¹ tC	10 10 10	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	0.		
		dt_1 (min) =		C (m³/Pa) =	2.8E-0
Elapsed time [N 10, 10 1 10, 11 10]		$dt_2 (min) =$		$C_D(-) =$	3.1E-0
10		$T_T (m^2/s) =$	2.9E-07		-2.
	300	S (-) =	1.0E-06		
	10	$K_s (m/s) =$	2.9E-09		
10°		$S_s(1/m) =$	1.0E-08		
	30	Comments:	, · · · ·	00 OF 7 2/ -	. 10
].//	10			f 2.9E-7 m2/s was de hows slight better da	
10 -1		analysis of the Chi		ange for the interva	
•	3			7 m2/s. The flow dir	
		displayed during th	e test is 2. The s	tatic pressure measu	ired at
10° 10 1	10 2 10 3 10 4			the CHir phase using value of 2,503.9 kl	
ID/CD					la.

	Test S	Sumr	nary Sheet			
Project:	Oskarshamn site invest	igation	Test type:[1]			CHir
Area:	La	axemar	Test no:			1
Danahala ID.	1/	1. 207.4	T4 -44.			000440 47:05
Borehole ID:	K	LXZ/A	Test start:			080118 17:05
Test section from - to (m):	277.30-	377.30	Responsible for			Philipp Wolf
Section diameter, 2·r _w (m):		0.076	test execution: Responsible for		Crist	Erik Löfgren an Enachescu
occion diameter, 2 i _w (m).		0.070	test evaluation:		Olist	an Enachesco
Linear plot Q and p			Flow period		Recovery period	
			Indata		Indata	
			p ₀ (kPa) =	3385		
3650 - KLX27A_277.30-377.30)_080118_1_CHir_Q_r	0.020	p _i (kPa) =	3396		
3450	Pabove Pbelow O	0.018	$p_p(kPa) =$		p _F (kPa) =	3390
	Ţ	0.014	$Q_p (m^3/s) =$	1.00E-07		
2 3250 - 8 4 3050 -		- 0.012 W	tp (s) =		t _F (s) =	14400
8 3050 -		Gion Rate	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
2850 -		0.008	EC _w (mS/m)=			
		- 0.004	Temp _w (gr C)=	12.2		
2650		0.002	Derivative fact.=	0.08	Derivative fact.=	0.03
0.00 1.00 2.00 3.00	4.00 5.00 6.00	⊥ 0.000				
Elapsed Ti	me [h]		Results		Results	
				4.8E-09		
Log-Log plot incl. derivates- flo	ow poriod		$Q/s (m^2/s) =$	6.2E-09		
Log-Log plot incl. derivates- in	ow period		T _M (m ² /s)= Flow regime:	transient	Flow regime:	transient
			dt ₁ (min) =		dt ₁ (min) =	14.89
10 -3 10 -2 Elapsed time (h	. 10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	1	$dt_1 \text{ (min)} =$ $dt_2 \text{ (min)} =$		$dt_1 \text{ (min)} =$ $dt_2 \text{ (min)} =$	28.43
		ŀ	$T (m^2/s) =$		$T (m^2/s) =$	1.2E-09
		10 3	S (-) =	1.0E-06	, ,	1.0E-06
10 1			$K_s (m/s) =$		K _s (m/s) =	1.2E-11
	and the same of th	7	$S_s (1/m) =$		S _s (1/m) =	1.0E-08
10°	•	10 ² [viii.	$C (m^3/Pa) =$	NA	C (m ³ /Pa) =	2.8E-10
· · · · · · · · · · · · · · · · · · ·		1/4,01/4)	$C_D(-) =$	NA	$C_D(-) =$	3.1E-02
10 1	** ***	10 1	ξ(-) =		ξ(-) =	-1.6
•	gaga a		5()		5()	
		ļ.,.	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ⁻¹ 10 ⁰	10 ¹ 10 ²	10 3	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
			D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period		Selected represe	ntative paran		
			$dt_1 (min) =$	1.28	$C (m^3/Pa) =$	2.8E-10
Elapsed time [h]	10. 40.1	0.2	$dt_2 (min) =$	3.82	$C_D(-) =$	3.1E-02
10 5		10 3	$T_T (m^2/s) =$	1.6E-09		-1.4
			S (-) =	1.0E-06		
		300	K _s (m/s) =	1.6E-11		
10 °	-	10 2	$S_s (1/m) =$	1.0E-08		
J. Jacobson	The state of the s	· · · · · · · · · · · · · · · · · · ·	Comments:	-	-	-
		30 100-001.0			f 1.6E-9 m2/s was de	
10 1	*	8			ne), which shows a g	
· //		10 1			confidence range for -10 m2/s to 5E-9 m2	
./.		3			is 2. The static pres	
10 1 10 0	10 10 10 10	.]	at transducer depth,	was derived fro	om the CHir phase u	sing straight
tD/CD			line extrapolation in	the Horner plo	t to a value of 3,388	.5 kPa.

	Test Sumi	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHir
Area:	Laxemai	Test no:			2
Danah ala ID:	I/I \/07A	T4 - 44.			000440 40:00
Borehole ID:	KLX2/A	Test start:			080119 12:09
Test section from - to (m):	377.30-477.30	Responsible for			Philipp Wolf
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Crist	Erik Löfgrer ian Enachescu
occion diameter, 2 1 _W (m).	0.070	test evaluation:		Orist	ian Enachesce
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	4257		
4500 -	0.010	p _i (kPa) =	4265		
KLX27A_377.30-477.30_080119_2_CHIr_Q_r	0.009	$p_p(kPa) =$	4487	p _F (kPa) =	435
4300	0.008	$Q_p (m^3/s) =$	4.83E-08		
£ 4100 -	• P section + 0.007 • P above • P below • 0.006 €	tp (s) =	1800	t _F (s) =	180
4100 - 98 3000 -	- 0.005 A	S el S [*] (-)=		S el S [*] (-)=	1.00E-0
- 3500 1	- 0.004 - 0.004	EC _w (mS/m)=		0 0 0 (-)-	
3700 - Many Many Many Many Many Many Many Many	- 0.003	Temp _w (gr C)=	13.6		
3500 -	- 0.002	Derivative fact.=		Derivative fact.=	0.0
	0.001	Derivative lact.	0.12	Derivative fact.	0.0
3300 HTHATY A 4 A 4 A 4 A 4 A 4 A 4 A 4 A 4 A 4 A	1.00 1.20 1.40 1.60		<u> </u>		
		Results		Results	
		$Q/s (m^2/s)=$	2.1E-09		1
Log-Log plot incl. derivates- flo	ow period	$T_{M} (m^{2}/s) =$	2.8E-09		
Log-Log plot mei. denvates- m	ow period	Flow regime:	transient	Flow regime:	transient
				dt ₁ (min) =	#NV
Elapsed time [h]	19. ⁻¹	at ()		` ,	#NV
1		a ()		$dt_2 (min) =$	
	300	$T (m^2/s) =$		$T (m^2/s) =$	1.1E-09
· · · · · · · · · · · · · · · · · · ·	102	S (-) =	1.0E-06	` '	1.0E-0
10 °	100 mg	K_s (m/s) =		$K_s (m/s) =$	1.1E-1
	30	$S_s (1/m) =$	1	$S_s (1/m) =$	1.0E-08
		$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	2.4E-1
10 4	10 1	$C_D(-) =$	NA	$C_D(-) =$	2.6E-0
	,	ξ (-) =	0.2	ξ (-) =	0.5
10 ° 10 ¹	10 ² 10 ³ 10 ⁴	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
Į.		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			
		$dt_1 (min) =$	0.83	O (III /I U)	2.4E-1
Elapsed time [h]		$dt_2 (min) =$		$C_D(-) =$	2.6E-0
		$T_T (m^2/s) =$	1.3E-09		0.2
	300	S (-) =	1.0E-06		
	110 2	K_s (m/s) =	1.3E-11		
10 0		$S_s(1/m) =$	1.0E-08		
	30 8	Comments:			
	[80			f 1.3E-9 m2/s was de	
10 ⁻¹	10 1			ows a good horizon	
7.	ļ_			y data and derivative	
	3			nsmissivity is estim nension displayed di	
	10 °			nension displayed di y phase which impli	
10 ⁻¹ , 10 ⁻⁰ tD/CD	10 ¹ 10 ² 10 ³			extrapolation in a Ho	
				pressure measured a	

	Test Sumi	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHi
Area:	Laxemai	Test no:			
Borehole ID:	KLX27 <i>P</i>	Test start:			080119 15:26
Test cestion from to (m):					
Test section from - to (m):	4//.30-5//.30	Responsible for test execution:			Philipp Wol Erik Löfgrer
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescı
Lincon plat O and p		test evaluation:		Recovery period	
Linear plot Q and p		Flow period Indata		Indata	
		p ₀ (kPa) =	5136		
		$p_0 (kPa) = p_i (kPa) =$	5153		
5400 -	KLX27A_477.30-577.30_080119_1_CHir_Q_r	$p_i(kPa) =$ $p_p(kPa) =$		p _F (kPa) =	517
5200 -	• P below → Q				317
		$Q_p (m^3/s) =$	8.33E-07		100
G 5000 -	0.08 (Grand)	tp (s) =		t _F (s) =	180
<u>වේ</u> 4800 -	T 0.06 8	S el S (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
4600 -	90 90 7 0.04	EC _w (mS/m)=			
		Temp _w (gr C)=	14.9		
4400 -	0.02	Derivative fact.=	0.05	Derivative fact.=	0.0
0.00 0.50 1.0 Elapse	0.00 0 1.50 2.00 ed Time [h]				
		Results		Results	
		$Q/s (m^2/s) =$	4.0E-08		
Log-Log plot incl. derivates-	flow period	$T_{\rm M} (m^2/s) =$	5.2E-08		
		Flow regime:	transient	Flow regime:	transient
Elapsed tim	aft	dt_1 (min) =	1.10	$dt_1 (min) =$	3.0
10 1 10 2 10 2	101 ⁻¹ 101 ⁰	$dt_2 \text{ (min)} =$		$dt_2 \text{ (min)} =$	15.3
	30	$T (m^2/s) =$		$T (m^2/s) =$	2.5E-0
a00.00.00	10 1	S (-) =	1.0E-06	` /	1.0E-0
10.51	<u>.</u>	$K_s (m/s) =$		$K_s (m/s) =$	2.5E-1
*	3	S _s (1/m) =		$S_s(1/m) =$	1.0E-0
	Property of the contract of th	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	1.9E-1
	10° 10	2 ()	NA	- · ·	2.1E-0
10 -1	• • • • • • • • • • • • • • • • • • • •	$C_D(-) = $		C _D (-) = ξ (-) =	-1.
	0.3	ξ (-) =	-1.2	ς (-) –	-1.
	10 -1	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ° 10 1	10 ² 10 ³ 10 ⁴	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives	- recovery period	Selected represe			
J - J		dt_1 (min) =	3.02	<u></u>	1.9E-1
Elaosed time II	n)	$dt_2 (min) =$		$C(m/Pa) = C_D(-) =$	2.1E-0
10 ² 10, 3 10, 2 10, 10	·	$T_T (m^2/s) =$	2.5E-08		-1.4
	3000	S (-) =	1.0E-06		-1.
		$S(-) = K_s(m/s) =$	2.5E-10		
10 1	10 3	$\frac{R_s(11/s)}{S_s(1/m)} =$	1.0E-08		
	300	- , ,	1.0⊑-06		
		Comments:		62 5E 9 2/ 1	wired from 4
ā		The 1 1		i/ ⊃H-x m //c wac da	
	102	The recommended			ita and
10"	102	analysis of the CHir	phase, which sl	hows slight better da	
10"	To 2	analysis of the CHir derivative quality.	r phase, which sl The confidence r		transmissivity
10 5	30	analysis of the CHii derivative quality. I is estimated to be 9	r phase, which shall be confidence in E-9 m2/s to 6E-6	hows slight better da range for the interval	l transmissivity mension
10 0 10 10 10 10	30 30 10 '	analysis of the CHir derivative quality. It is estimated to be 9 displayed during the transducer depth, w	r phase, which so The confidence r E-9 m2/s to 6E-6 e test is 2. The so as derived from	hows slight better data range for the interval 8 m2/s. The flow dir	l transmissivity nension red at g straight line

	Test Sumi	mary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Lavema	Test no:			
Alea.	Laxema	rest no.			
Borehole ID:	KLX27A	Test start:			080120 09:30
Test section from - to (m):	545.20-645.20	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Criet	Erik Löfgrer ian Enachescu
Section diameter, 21 _W (iii).	0.070	test evaluation:		Crist	ian Enachesco
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p_0 (kPa) =	5723		
KLX27A_545.20-645.20_080120_1_CHir_Q_r	• P section • 14.00	p _i (kPa) =	5749		
5000	Pabove Pelow	$p_p(kPa) =$	5956	p _F (kPa) =	574
5800	12.00	$Q_p (m^3/s) =$	1.18E-04		
2000 - 20	10.00	tp (s) =	1800	t _F (s) =	180
3 8 8 6 5400 h	n Rate (Loning)	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
out out out out out out out out out out	6.00	EC _w (mS/m)=		0 0.0 ()	
8 5200 -	4.00	Temp _w (gr C)=	15.8		
5000 -	2.00	Derivative fact.=	0.04	Derivative fact.=	0.0
4800	1.20 1.40 1.60 1.80 2.00	20		20111411101401	
Elapsed Tim		DIt-		Dazulta	
		Results	F 6F 06	Results	1
	· .	Q/s (m^2/s)=	5.6E-06		
Log-Log plot incl. derivates- flo	w perioa	$T_{\rm M} ({\rm m}^2/{\rm s}) =$	7.3E-06		
		Flow regime:	transient	Flow regime:	transient
Elapsed time (h)	101	$dt_1 (min) =$		$dt_1 (min) =$	1.23
10 - 7	10 °	$dt_2 (min) =$		$dt_2 (min) =$	3.0
-		$T (m^2/s) =$		$T (m^2/s) =$	1.9E-0
10 1	10 1	S (-) =	1.0E-06	, ,	1.0E-0
	10	$K_s (m/s) =$		$K_s (m/s) =$	1.9E-0
		$S_s (1/m) =$	1.0E-08	$S_s (1/m) =$	1.0E-0
	10 2	C (m ³ /Pa) =	NA	C (m³/Pa) =	5.3E-1
		$^{\sharp}$ C _D (-) =	NA	$C_D(-) =$	5.8E-0
10 -1	10 3	ξ (-) =	1.6	ξ (-) =	-4.2
		- , 2, ,	NA	- , 2, ₂	NA
10° 10°	10 ⁷ 10 ⁸ 10 ⁹	$T_{GRF}(m^2/s) =$	NA NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) = D_{GRF}(-) =$	NA	$S_{GRF}(-) = D_{GRF}(-) =$	NA
log Log plot incl. dorivatives, r	accovery period	- GRI ()		- OKI ()	INA
Log-Log plot incl. derivatives- r	ecovery periou	Selected represe		<u> </u>	E 2F 44
		dt ₁ (min) =		$C (m^3/Pa) =$	5.3E-10
Elapsed time [h]	, 10,1	dt ₂ (min) =		C _D (-) =	5.8E-0
		$T_T (m^2/s) =$	1.9E-06		-4.2
	300	S (-) =	1.0E-06		ļ
		$K_s (m/s) =$	1.9E-08		
10°	10 2	$S_s (1/m) =$	1.0E-08		
	30	Comments:			
				1.9E-6 m2/s was de	
10 -1	10 1			one), which shows sl	
				nce range for the into	
	3			lative wide range to lisplayed during the	
				er depth, was derive	
10 ¹ 10 ²	10 ³ 10 ⁴ 10 ⁵	CHir phase using st	raight line extra	polation in the Horn	
		value of 5.746.3 kP			

	Test	Sumr	nary Sheet			
Project:	Oskarshamn site inves	tigation	Test type:[1]			CHi
Area:	l :	avemar	Test no:			
Aica.		axcillai	rest no.			!
Borehole ID:	k	KLX27A	Test start:			080121 17:33
Test section from - to (m):	77.3	0-97 30	Responsible for			Philipp Wol
rest section from - to (m).	77.50	0-07.00	test execution:			Erik Löfgrer
Section diameter, 2·r _w (m):		0.076	Responsible for		Crist	an Enachescu
Linear plat O and p			test evaluation:		Banavani nadad	
Linear plot Q and p			Flow period Indata		Recovery period Indata	
			p ₀ (kPa) =	896	iiiuata	I
1150		1.20	p _i (kPa) =	891		
KLX27A_77.30-97.30_080121_1_CHir_Q_r	P section P above P below		$p_{i}(RPa) =$ $p_{p}(RPa) =$		p _F (kPa) =	892
1050	P below	- 1.00		9.32E-06		072
1000 -		- 0.80	$\frac{Q_p (m^3/s)=}{tp (s)} =$		t _F (s) =	1200
950 - 950 -	·	- 0.60 Page [//wh/]				1.00E-06
90 9 80 -		0.60 R	S el S [*] (-)= EC _w (mS/m)=	1.00E-00	S el S [*] (-)=	1.00E-00
800 -		+ 0.40 =	Temp _w (gr C)=	8.2		
750 -		+ 0.20	Derivative fact.=		Derivative fact.=	0.02
700 -			Derivative fact.	0.03	Derivative fact.	0.02
0.00 0.20 0.40 0.60 Elapsed	0.80 1.00 1.20 Time [h]	1.40				
			Results		Results	
			$Q/s (m^2/s)=$	4.6E-07		
Log-Log plot incl. derivates- fl	low period		$T_{\rm M} (m^2/s) =$	4.8E-07		
33 p			Flow regime:	transient	Flow regime:	transient
			$dt_1 (min) =$		$dt_1 (min) =$	0.57
10 2	10,12	o.°	$dt_2 \text{ (min)} =$		$dt_2 (min) =$	6.04
		10 1	$T (m^2/s) =$		$T (m^2/s) =$	1.7E-06
		,	S (-) =	1.0E-06	. ,	1.0E-06
10 1			$K_s (m/s) =$		$K_s (m/s) =$	8.4E-08
		10 °	$S_s(1/m) =$		S _s (1/m) =	5.0E-08
in tudo)		(f (mint)	C (m ³ /Pa) =	NA	$C (m^3/Pa) =$	7.1E-1
200		0.3	$C_D(-) =$	NA	$C_D(-) =$	7.8E-03
10		10 -1	ξ(-) =		ξ(-) =	15.8
•			3()		5 ()	
	**	0.03	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 5 10 6	10 ⁷ 10 ⁸	10 9	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
			D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period		Selected represe	ntative paran		
			$dt_1 (min) =$		C (m ³ /Pa) =	7.1E-1
Elapsed time [h]	. 10, ⁻²		$dt_2 (min) =$		$C_D(-) =$	7.8E-03
10			$T_T (m^2/s) =$	7.4E-07		3.6
		300	S (-) =	1.0E-06	, ,	
	possesses a final to		K_s (m/s) =	3.7E-08		
10 1		10 2	$S_s (1/m) =$	5.0E-08		
		30 🕫	Comments:			
· /.		L(p-p0) [le	The recommended t	transmissivity of	7.4E-7 m2/s was de	erived from the
\		10 1 8		phase, which sh	ows slight better dat	a and derivativ
10 2		t				14 1
10 2	The same of the sa		quality. The confide			
10 8	The state of the s	3	quality. The confide estimated to be 1E-	7 m2/s to 3E-6 r	n2/s. The flow dime	nsion displayed
10 0	· · · · · · · · · · · · · · · · · · ·	3 10 0	quality. The confide estimated to be 1E-' during the test is 2.	7 m2/s to 3E-6 r The static press		nsion displayed sducer depth,

	Test S	Sumn	nary Sheet			
Project:	Oskarshamn site invest	igation	Test type:[1]			CHi
Area:	La	xemar	Test no:			1
D 1 1 1D	14		T			000400 00 0
Borehole ID:	K	LX2/A	Test start:			080122 08:37
Test section from - to (m):	97.30-	117.30	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):		0.076	test execution: Responsible for		Criet	Erik Löfgrer an Enachescu
occuon diameter, 2 m (m).		0.070	test evaluation:		Orist	an Enachesce
Linear plot Q and p			Flow period		Recovery period	
			Indata		Indata	
			p ₀ (kPa) =	1076		
1300 KLX27A_97.30-117.30_080122_1_CHir_Q		0.08	p _i (kPa) =	1072		
1250 *	P section P above P below	0.07	$p_p(kPa) =$	1270	p _F (kPa) =	107
1200 -		0.06	$Q_p (m^3/s) =$	4.17E-07		
京 1150 - 圣		- 0.05 (min)	tp (s) =	1200	t _F (s) =	120
1100		0.04	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
90 1050 -	· ·	- 0.03	EC _w (mS/m)=		()	
å ₁₀₀₀ -	A STATE OF THE PARTY OF THE PAR	0.02	Temp _w (gr C)=	8.5		
950		0.01	Derivative fact.=	0.07	Derivative fact.=	0.0
900		1,00				
0.00 0.20 0.40 0.60 Elapsed	0.80 1.00 1.20 1.40 Time [h]					
			Results		Results	<u>I</u>
			Q/s $(m^2/s)=$	2.1E-08		
Log-Log plot incl. derivates- fl	ow period		$T_M (m^2/s) =$	2.2E-08		
	•		Flow regime:	transient	Flow regime:	transient
Elapsed time (h)			$dt_1 \text{ (min)} =$	1.70	$dt_1 \text{ (min)} =$	#NV
10 ² 10 . 10	2	7	$dt_2 (min) =$		$dt_2 (min) =$	#NV
		300	$T (m^2/s) =$		$T (m^2/s) =$	9.1E-0
1		10 2	S (-) =	1.0E-06	/	1.0E-0
10 13			K _s (m/s) =		K _s (m/s) =	4.6E-0
A D D D D D D D D D D D D D D D D D D D		30	S _s (1/m) =		$S_s(1/m) =$	5.0E-0
		min()	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	5.1E-1
,		10, (1/q), 1/4	- ' · ·	NA	a	5.6E-0
10 0		3	$C_{D}(-) = $ $\xi(-) =$		$C_{D}(-) = \xi(-) =$	21.
	Andrew Arthur Committee		Ç (-) –	0.0	ç (-) –	21.
••		10 °	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ⁴ 10 ⁵	10 6 10 7 1	0 0	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
			D_{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period		Selected represe			
	, p		$dt_1 (min) =$	-	C (m ³ /Pa) =	5.1E-1
Elapsed time (h)	2 4 -		dt_1 (min) =		$C_D(-) =$	5.6E-0
10 2 10 10		7	$T_T (m^2/s) =$	2.8E-08		3.02-0.
		300	S (-) =	1.0E-06		3.0
		7	K _s (m/s) =	1.4E-09		
10 1	a.	10 2	$S_s(1/m) =$	5.0E-08		
fr. and a second	Je.		Comments:	J.U⊑-U0		<u> </u>
· ·	*	30 [6 ³] [0 ⁴]		transmissivity of	22 0E 0 m2/a waa da	vrived from the
,	*\ \$	10 1 004	analysis of the CHi		2.8E-8 m2/s was de ows horizontal stabi	
10	and with				nsmissivity is estimated	
		3	m2/s to 6E-8 m2/s.	A flow dimension	on of 2 was assumed	for the test.
		ļ			sducer depth, was d	
10 0 10 1	10 ² 10 ³ 1				polation in the Horn	er plot to a
tD/CD		-	value of 1,071.1 kP	_		

	Test Sumi	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHi
Area:	Laxemar	Test no:			
Borehole ID:	KLX27A	Test start:			080122 10:43
Test section from - to (m):	117.30-137.30	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Crist	Erik Löfgrer ian Enachescu
Section diameter, 21 _W (III).	0.070	test evaluation:		Crist	ian Enachesco
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	1253		
1500 KLX2:	7A_117.30-137.30_080122_1_CHir_Q_r	p _i (kPa) =	1244		
1450 -	• Pabove • 0.009 • Pbelow	$p_p(kPa) =$	1442	p _F (kPa) =	124
1400	0.008	$Q_p (m^3/s) =$	8.33E-08		
電 1350 -	0.006	tp (s) =	1200	t _F (s) =	120
1300 -	0.005	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
901 1250	0.004	EC _w (mS/m)=		()	
δ ₁₂₀₀ -	0.003	Temp _w (gr C)=	8.8		
1150 -	0.002	Derivative fact.=	0.12	Derivative fact.=	0.0
1050 TALL PAR PARA A A A A A A A A A A A A A A A	0.001 0.000				
0.00 0.20 0.40 0.60 0.8 Elapsed	0 1.00 1.20 1.40 1.60				
		Results		Results	1
		Q/s $(m^2/s)=$	4.1E-09		
Log-Log plot incl. derivates- fl	ow period	$T_{\rm M} (m^2/s) =$	4.3E-09		
	period.	Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =		dt ₁ (min) =	#NV
10 2 Elapsed time [h]	192-1	$dt_2 (min) =$		$dt_2 (min) =$	#NV
1	3000	$T (m^2/s) =$		$T (m^2/s) =$	8.5E-09
	10 3	S (-) =	1.0E-06	,	1.0E-0
10 1		$K_s (m/s) =$		K _s (m/s) =	4.2E-1
10	300	$S_s(1/m) =$		$S_s(1/m) =$	5.0E-0
	10° [Nu	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	5.9E-1
•	I July I	~ · / ·	NA	- '	6.5E-0
10 %	30	-6()		C _D (-) =	10.
	10	ξ (-) =	2.1	ξ (-) =	10.
	• . •	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ³ 10 ⁴ tD	10 5 10 7	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		$D_{GRF}(-) =$	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			1
. 5 = -9 p24 wolltagitoo		dt_1 (min) =	#NV	C (m ³ /Pa) =	5.9E-1
Elapsed time [h]	0	$dt_2 \text{ (min)} =$	#NV	$C_D(-) =$	6.5E-0
10 2 10, 10, 10,	10 3	$T_T (m^2/s) =$	8.5E-09		10.
		S (-) =	1.0E-06		10.
	300	$K_s (m/s) =$	4.2E-10		
10 1		$S_s(1/m) =$	5.0E-08		
Salar Marie	10 2	Comments:	J.UL-00		I
A STATE OF THE STA	30		transmissizity of	f & 5•10 0 m2/a yraa	darived from
10 °				f 8.5•10-9 m2/s was th shows the better of	
	10 1			range for the interval	
<i>!</i> :		is estimated to be 21	E-9 m2/s to 2E-	8 m2/s. A flow dime	ension of 2 was
	3			sure measured at tra	
10 10	10 2 10 3 10 4	was derived from th	ie CHir phase us	sing straight line extr	rapolation in the
10/CD	10 10	Horner plot to a val	no of 1 227 4 1-1	Do.	

Test S	Sumr	nary Sheet			
Oskarshamn site investi	gation	Test type:[1]			CHi
Lo	vomor	Tost no:			
La	xemai	restrio.			ļ
KL	_X27A	Test start:			080122 13:38
127 20 1	157 20	Dosponsible for			Philipp Wol
137.30-1	157.30				Erik Löfgrer
	0.076			Cristi	an Enachescu
		test evaluation:			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
			1 42 1	Indata	
	- 0.40				
P sedion P above	0.10			n (kDo.) =	1.42
P below	- 0.08			ρ _F (κΡα) =	1424
				4 (2) -	120
	- 0.06 Light 100.0				1.000.00
	edion 8		1.00E-06	S el S (-)=	1.00E-0
	<u>=</u>	· ·	0.3		
	0.02			Devisetive feet -	0.0
		Derivative fact.=	0.02	Derivative fact.=	0.0
0.80 1.00 1.20 1.40 Time [h]	⊥ _{0.00}				
		Posults		Posults	
			4 4F-08	Nesuits	I
low period		` '			
on ponou					transient
		_		_	2.39
2	7	, ,		, ,	7.79
	10 2				1.5E-0
	-			/	1.0E-0
······	30				7.6E-0
	10 1				5.0E-0
	[min/]			- ,	4.6E-1
	144.(14g)				5.1E-0
	1.				16
	F ¹⁰	3()		5()	
	0.3	$T_{CDF}(m^2/s) =$	NA	$T_{CDF}(m^2/s) =$	NA
10 ⁷ 10 ⁸ 10	o o		NA		NA
			NA		NA
recovery period			ntative paran		
		$dt_1 (min) =$	_		4.6E-1
	_	$dt_2 (min) =$			5.1E-03
					4.6
	300	S (-) =		,	
3.0000000000000000000000000000000000000	1	K_s (m/s) =			
•••	10 2	$S_s(1/m) =$			
>		Comments:			<u> </u>
-1					
:	30 (9)	The recommended to	transmissivity of	6.4E-8 m2/s was de	erived from the
	30 del (od d) od d	analysis of the CHi	phase, which sh	6.4E-8 m2/s was decows the clearest radi	ial flow and
i i i i i i i i i i i i i i i i i i i	30 Gg J0d d) 'Ct d	analysis of the CHi best data and deriva	phase, which sh trive quality. The	ows the clearest radi	ial flow and or the interval
i.	30 Gall (50d-d) 70d-d	analysis of the CHi best data and deriva transmissivity is est	phase, which shative quality. The imated to be 1E	ows the clearest radio e confidence range f -8 m2/s to 2E-7 m2	ial flow and or the interval 2/s. A flow
102 103 10	30 Gel (104 d	analysis of the CHi best data and deriva transmissivity is est dimension of 2 was	phase, which shative quality. The imated to be 1E assumed for the	ows the clearest radi	ial flow and for the interval 2/s. A flow sure measured
	Oskarshamn site investi La KI 137.30- 100 120 140 Now period	Coskarshamn site investigation Laxemar KLX27A 137.30-157.30 0.076 0.06 Processor Processor O.00 Investigation Invest	Flow period Indata p_0 (kPa) = p_i (kPa	Coskarshamn site investigation Test type:[1]	Coskarshamn site investigation Test type:[1]

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigatio				CHi
Area:	Laxema	r Test no:			1
Borehole ID:	KLX27/	A Test start:			080122 15:44
					
Test section from - to (m):	157.30-177.3	0 Responsible for test execution:			Philipp Wol Erik Löfgrer
Section diameter, 2·r _w (m):	0.07	6 Responsible for		Crist	ian Enachescu
		test evaluation:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		00000000000000
Linear plot Q and p		Flow period		Recovery period	
		Indata	1608	Indata	
	• 0.30	$p_0 (kPa) =$			
1800	KLX27A_157.30-177.30_080122_1_CHir_Q_r	$p_i (kPa) = p_o(kPa) =$	1612	p _F (kPa) =	1630
	P below - 0.25		1.97E-06		1030
夏 1700 -	0.20	$Q_{p} (m^{3}/s) = $ $tp (s) =$		t _F (s) =	1200
Eg. 1700 - 490 Hand	Race (Initial)				1.00E-0
8 1600	0.15 Section Rs	S el S * (-)= EC $_w$ (mS/m)=	1.00E-00	S el S [*] (-)=	1.00E-0
8	0.10	Temp _w (gr C)=	9.4		
1500 -	- 0.05	Derivative fact.=		Derivative fact.=	0.02
1400		Derivative fact	0.02	Derivative fact.=	0.0.
0.00 0.20 0.40 0.60	0.00 0.80 1.00 1.20 1.40 od Time [h]				
		Results	<u> </u>	Results	1
		Q/s $(m^2/s)=$	9.6E-08		
Log-Log plot incl. derivates-	flow period	$T_{\rm M} ({\rm m}^2/{\rm s}) =$	1.0E-07		
		Flow regime:	transient	Flow regime:	transient
Bapsed time (h) 2 101 ⁻⁴ 101 ⁰	$dt_1 (min) =$	0.94	dt ₁ (min) =	0.49
10 2		dt_2 (min) =	2.80	dt_2 (min) =	1.28
	30	$T (m^2/s) =$	1.2E-07	$T (m^2/s) =$	2.4E-0
		S (-) =	1.0E-06	, ,	1.0E-0
10 1	10 1	$K_s (m/s) =$	6.2E-09	$K_s (m/s) =$	1.2E-08
	3 5	$S_s(1/m) =$	5.0E-08	$S_s (1/m) =$	5.0E-08
	•	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	7.5E-1
10 0	10°	C _D (-) =	NA	C _D (-) =	8.3E-03
	0.3	ξ (-) =	2.	ξ (-) =	5.4
10 ³ 10 ⁴ tE	10 - 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
Log-Log plot incl. derivatives	- recovery period	Selected represe			
		$dt_1 (min) =$		C (m ³ /Pa) =	7.5E-1
Elapsed time (h)		dt_2 (min) =	1.28	$C_D(-) =$	8.3E-03
10 -	10 3	$T_T (m^2/s) =$	2.4E-07		5.4
	300	S (-) =	1.0E-06		
1	300	$K_s (m/s) =$	1.2E-08		
The second secon	10 2	$S_s(1/m) =$	5.0E-08		
	• Of Behavior	Comments:			
/. >	No. Dors			f 2.4E-7 m2/s was de	
	10 1			one), which shows the	
				ange for the interval -7 m2/s. The flow d	
	3			tatic pressure measu	
_ * 					
10 ° 10 ° tDXCD	10 2 10 3 10 4	transducer depth, w		the CHir phase using value of 1,619.8 kl	

	Test S	Sumn	nary Sheet			
Project:	Oskarshamn site invest	igation	Test type:[1]			CHi
Area:	La	xemar	Test no:			1
Borehole ID:	K	LX27A	Test start:			080122 17:51
Task as aking forms to (m)						Dhillia - Wall
Test section from - to (m):	177.30-	197.30	Responsible for test execution:			Philipp Wol Erik Löfgrer
Section diameter, 2·r _w (m):		0.076	Responsible for		Crist	ian Enachescu
			test evaluation:		Production and the state of the	00000000000000
Linear plot Q and p			Flow period		Recovery period	
			Indata	1700	Indata	
0000		0.40	p ₀ (kPa) =	1790		
2050 KLX27A_177.30-197.30_08	P above	T 0.10	$p_i(kPa) =$	1791	n (kDo.) =	178
1950 -	• P below → Q	0.08	$p_p(kPa) =$		p _F (kPa) =	1/8
1900 -			$Q_{p} (m^{3}/s) =$ $tp (s) =$	5.33E-07	t _F (s) =	1080
9 1850 -		- 0.06 (Vmin)	-F (-)			1.00E-0
8 1800 1750 -		- 0.04 - 0.04	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
1700		Ē	$EC_w (mS/m)=$ $Temp_w(gr C)=$	9.7		
1650 -		0.02	Derivative fact.=		Derivative fact.=	0.0
1600		0.00	Derivative lact.	0.03	Derivative fact.	0.0
0.00 0.50 1.00 1.50 2.00 Elapsed T		4.50				
			Results		Results	
			$Q/s (m^2/s) =$	2.6E-08		
og-Log plot incl. derivates- fl	ow period		$T_M (m^2/s)=$	2.8E-08		
			Flow regime:	transient	Flow regime:	transient
Elapsed time [h]			dt_1 (min) =	0.76	dt_1 (min) =	#NV
10 1		7	dt_2 (min) =	2.59	dt_2 (min) =	#NV
		-	$T (m^2/s) =$	1.3E-08	$T (m^2/s) =$	1.8E-0
A Designation of the second se		30	S (-) =	1.0E-06	S (-) =	1.0E-0
10 °		10 1	$K_s (m/s) =$	6.6E-10	$K_s (m/s) =$	9.0E-1
			$S_s (1/m) =$	5.0E-08	$S_s (1/m) =$	5.0E-0
		- s (Main) (M	$C (m^3/Pa) =$	NA	C (m³/Pa) =	4.3E-1
10 -1	· ·	10 °	$C_D(-) =$	NA	$C_D(-) =$	4.7E-0
·		į	ξ (-) =	-1.	ξ (-) =	-3
•		0.3				
10 ° 10 °	40.2 40.3	10.4	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
tD		-	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
			D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period		Selected represe	-		
			dt_1 (min) =		C (m³/Pa) =	4.3E-10
Elapsed time [h]		7	dt_2 (min) =		C _D (-) =	4.7E-02
			$T_T (m^2/s) =$	1.3E-08		-1
		10 3	S (-) =	1.0E-06		
0.00		300	K_s (m/s) =	6.6E-10		
		1	$S_s(1/m) =$	5.0E-08		
	,*	10 ² Red (i)	Comments:			
The state of the s	-	- Pod 6-00			1.3E-8 m2/s was de	
10 1		30			ne), which shows the range for the interval	
		10 1			ange for the interval 8 m2/s. The flow dir	
					tatic pressure measu	
		F				
10 ° 10 ' 10 ND	10 ² 10 ³ 10	3 1	transducer depth, w		the CHir phase usin value of 1,782.0 kF	

	Test	Sumn	nary Sheet				
Project:	Oskarshamn site inves					CHi	
Area:	L	axemar	Test no:				
Borehole ID:	k	KLX27A	Test start:		080123 08:		
Test section from - to (m):	197.30-		Responsible for test execution:			Philipp Wol Erik Löfgrer	
Section diameter, 2·r _w (m):			Responsible for		Crist	ian Enachescı	
	<u> </u>		test evaluation:			70000000000000	
Linear plot Q and p			Flow period		Recovery period		
			Indata	1062	Indata	1	
2200 T		T 0.030	$p_0 (kPa) =$	1963			
KLX27A_197.30-217.30_080123_1_CHir_Q_r	P section P above	0.030	p _i (kPa) =	1968	n (IsDa) -	107	
2100 7	• P below • Q	- 0.025	$p_p(kPa) =$		p _F (kPa) =	197	
	\	- 0.020	$Q_p (m^3/s) =$	1.33E-07			
2000 - 8 2000 -		Rate [imin]	tp (s) =		t _F (s) =	120	
90 1950		+ 0.015 Report	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0	
1900 -	N . '	- 0.010	EC _w (mS/m)=				
1850 -	and the same of th		Temp _w (gr C)=	10.0			
1800 -		+ 0.005	Derivative fact.=	0.07	Derivative fact.=	0.0	
1750 0.00 0.20 0.40 0.60 0.80	1.00 1.20 1.40 1.60						
Elapsed Ti	me [h]		Results		Results		
				6.6E-09	Results	1	
lan lan mistimal danimatas fl			$Q/s (m^2/s) =$				
Log-Log plot incl. derivates- flo	ow period		$T_M (m^2/s) =$	6.9E-09		4	
			Flow regime:	transient	Flow regime:	transient	
Elapsed time [h]	10,1	19.1	dt ₁ (min) =		dt ₁ (min) =	#NV	
10			dt ₂ (min) =		$dt_2 (min) =$	#NV	
		10 3	$T (m^2/s) =$		$T (m^2/s) =$	7.8E-0	
		300	S (-) =	1.0E-06	, ,	1.0E-0	
10 1		-	$K_s (m/s) =$		$K_s (m/s) =$	3.9E-1	
9900		10 ²	S _s (1/m) =		S _s (1/m) =	5.0E-0	
· · · · · · · · · · · · · · · · · · ·		m (1/d/[m]	C (m ³ /Pa) =	NA	$C (m^3/Pa) =$	1.1E-1	
10 0		30 2	$C_D(-) =$	NA	$C_D(-) =$	1.2E-0	
	a grand and	10 1	ξ (-) =	1.6	ξ (-) =	2.9	
	****		- , 2, ,	NA	T (21)	NA	
10 ² 10 ³	10 4 10 5	10 6	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA	
			S _{GRF} (-) =	NA	$S_{GRF}(-) = D_{GRF}(-) =$	NA	
Log-Log plot incl. derivatives-	rocovery period		D _{GRF} (-) = Selected repres		- OI(I ()	INA	
Log-Log plot ilici. derivatives-	recovery period		dt ₁ (min) =			1.1E-1	
Elapsed time (h)					$C (m^3/Pa) = C_D (-) =$		
10 2 10	.10,10,000	3000	G ()		O D ()	1.2E-0	
		10 3	$T_T (m^2/s) =$	7.8E-09		2.	
		10	S (-) =	1.0E-06			
10 1		300	$K_s (m/s) =$	3.9E-10			
			S _s (1/m) =	5.0E-08			
	***	10 ² Rely (00	Comments:				
	White.	900			7.8E-9 m2/s was do		
10	7	30			nows the better data he interval transmiss		
• //		1.			n2/s. A flow dimens		
		10 1	estimated to be 3E	- <i>7</i> 1112/3 tO <i>3</i> L-0 1	112/3. / 1 110 W GIIIICII.		
		10 '			sure measured at tra		
9 BEED	10 ²	10 3	assumed for the tes	st. The static pres the CHir phase us	sure measured at tra sing straight line ext	insducer depth,	

	Test	Sumn	nary Sheet				
Project:	Oskarshamn site inves					CHi	
Area:	La	axemar	Test no:			1	
Borehole ID:	K	LX27A	Test start:		080123 10		
Test section from - to (m):	217.30-	237.30	Responsible for test execution:			Philipp Woli Erik Löfgrer	
Section diameter, 2·r _w (m):		0.076	Responsible for		Crist	an Enachescu	
			test evaluation:	****************	Production and a second and a second	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Linear plot Q and p			Flow period		Recovery period		
			Indata	2141	Indata	1	
2400			p ₀ (kPa) =	2141			
KLX27A_217.30-237.30_080123_1_CHir_Q_r	Psection Pabove	1.00	p _i (kPa) =	2154	n /IdDa) =	215	
2300 -	- Pbelow - q	0.80	$p_p(kPa) =$		p _F (kPa) =	215	
2250 - T			$Q_{p} (m^{3}/s) = $ $tp (s) =$	9.13E-06	4 (2) -	120	
g 2200 -		+ 0.60 min]	-1- (-)		$t_F(s) =$	1.00E-0	
82 2150 - 2150 - 2150 -		- 0.40 lujecţiou B	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-0	
2050 -		Ē	$EC_w (mS/m)=$ $Temp_w(gr C)=$	10.3			
2000 -		0.20	Derivative fact.=		Derivative fact.=	0.0	
1950		0.00	Delivative lact	0.02	Derivative fact.=	0.0.	
0.00 0.20 0.40 0.60 Elapsed	0.80 1.00 1.20 1.40 Time [h]						
			Results		Results		
			Q/s $(m^2/s)=$	4.5E-07			
Log-Log plot incl. derivates- f	low period		$T_M (m^2/s)=$	4.7E-07			
			Flow regime:	transient	Flow regime:	transient	
Elapsed time (N)		dt_1 (min) =	1.46	dt_1 (min) =	0.32	
10 2	. 10	30	dt_2 (min) =	15.90	dt_2 (min) =	3.03	
			$T (m^2/s) =$	3.1E-07	$T (m^2/s) =$	2.3E-0	
-		10 1	S (-) =	1.0E-06	S (-) =	1.0E-0	
10 1			$K_s (m/s) =$	1.6E-08	$K_s (m/s) =$	1.1E-0	
		T,	$S_s (1/m) =$	5.0E-08	$S_s (1/m) =$	5.0E-0	
0 6 0 0 0 0 0 0 000 000 000 000		10 ° Il	$C (m^3/Pa) =$	NA	C (m³/Pa) =	4.6E-1	
10 °		1/0, (1	$C_D(-) =$	NA	$C_D(-) =$	5.1E-0	
And the same		0.3	ξ (-) =	.6	ξ (-) =	21.8	
	•	10 -1					
* * * · · · · · · · · · · · · · · · · ·	······		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA	
10 ¹ 10 ²	10 3 10 4	10 °	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA	
			D_{GRF} (-) =	NA	D_{GRF} (-) =	NA	
Log-Log plot incl. derivatives-	recovery period		Selected represe	-			
			$dt_1 (min) =$		C (m³/Pa) =	4.6E-1	
Elapsed time [b]		 ,	dt_2 (min) =		C _D (-) =	5.1E-0	
		-	$T_T (m^2/s) =$	3.1E-07		.(
····	0+ 0 + 0 accord and 200	300	S (-) =	1.0E-06			
_: .		10 2	K_s (m/s) =	1.6E-08			
10			$S_s(1/m) =$	5.0E-08			
/ .		y [kPa]	Comments:				
		10 00-00,00	The recommended to				
10 0	والمنته مسته معتمدهم والمواجعة		analysis of the CHi		ows better data and te interval transmissi		
•	.*	3	estimated to be 9E-				
			during the test is 2.				
=							
10 ¹ 10 ²	10 ³ 10 ⁴	10 0	was derived from the Horner plot to a val			apolation in the	

	Test Su	nmary Sheet			
Project:	Oskarshamn site investigat				CHi
Area:	Laxer	nar Test no:			2
Borehole ID:	KLX2	7A Test start:			080123 14:51
Test section from - to (m):	237.30-257	.30 Responsible for test execution:			Philipp Wol Erik Löfgrer
Section diameter, 2·r _w (m):	0.0	76 Responsible for		Crist	ian Enachescu
l in a su mi at O and m		test evaluation:			7.00.0000000000000000000000000000000000
Linear plot Q and p		Flow period Indata		Recovery period Indata	
		p ₀ (kPa) =	2321		1
2700 1	T 0.80	p _i (kPa) =	2362		
KLX27A_237.30-257.30_080123_2_CHir_Q_r	P section P above P below O.70			p _F (kPa) =	245
2600	0.60	·	2.12E-06		243.
₹ ²⁵⁰⁰ -		$\frac{Q_p (m^3/s)=}{tp (s)} =$		t _F (s) =	120
2500 - 2000 - 2400 -	10.50	th (a) -		S el S [*] (-)=	1.00E-0
² ↓	- 0.75	S el S [*] (-)= EC _w (mS/m)=	1.00L-00	S el S (-)=	1.00L-0
Ž 2300	_h	Tames (as C)-	10.6		
2200 -	0.10	Derivative fact -		Derivative fact.=	0.0
2100	0.00	Derivative last.	0.07	Berrative ract.	0.0
0.00 0.20 0.40 0.60 Elapsed T	0.80 1.00 1.20				
		Results		Results	
		Q/s $(m^2/s)=$	8.2E-08		
Log-Log plot incl. derivates- flo	ow period	$T_{\rm M}$ (m ² /s)=	8.6E-08		
		Flow regime:	transient	Flow regime:	transient
Elapsed time (h)		$dt_1 (min) =$	#NV	dt_1 (min) =	#NV
10, 10, 10, 10, 10, 10		dt_2 (min) =	#NV	dt_2 (min) =	#NV
		$T (m^2/s) =$	7.3E-08	$T (m^2/s) =$	8.5E-0
	30	S (-) =	1.0E-06		1.0E-0
10 1		$K_s (m/s) =$	3.6E-09	$K_s (m/s) =$	4.3E-0
	· ·	$S_s(1/m) =$	5.0E-08	$S_s(1/m) =$	5.0E-0
a sharesanda da mara d	3	$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	1.9E-0
10°		[₹] C _D (-) =	NA	$C_D(-) =$	2.1E-0
	10°	ξ (-) =	-2.2	ξ (-) =	-3.
	0.3				
10 10	10 ² 10 ³ 10 ⁴	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
ш		$S_{GRF}(-) =$	NA	$S_{GRF}(-)$ =	NA
		D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected repres			
		$dt_1 (min) =$	#NV	$C (m^3/Pa) =$	1.9E-0
Elapsed time [h]	10.1	$dt_2 (min) =$	#NV	$C_D(-) =$	2.1E-0
	300	$T_T (m^2/s) =$	8.5E-08		-3.
		S (-) =	1.0E-06		
	Jorgan Marie 102	$K_s (m/s) =$	4.3E-09		
0.2		$S_s(1/m) =$	5.0E-08		
10.5	ug-Freeze				
no no no no no no no no no no no no no n	30	Comments:		00.5F.6.5/	
	30	The recommended		f 8.5E-8 m2/s was d	
10.5		The recommended analysis of the CHi	ir phase (inner zo	one), which shows th	ne better data
10		The recommended analysis of the CHi and derivative qual	ir phase (inner zo lity. The confide	one), which shows the nce range for the int	ne better data erval
10 4		The recommended analysis of the CHi and derivative qual transmissivity is es	ir phase (inner zo lity. The confident timated to be 1E	one), which shows th	ne better data erval s. The flow

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation				Р
Area:	Laxemar	Test no:			1
wod.	Edxoma	1 660 116.			'
Borehole ID:	KLX27A	Test start:			080123 16:42
Test section from - to (m):	257.30-277.30	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Crist	Erik Löfgrer ian Enachescu
` '	0.010	test evaluation:		Ono.	ian Enachicoc
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	2496		
2750 KLX27A 257.30-277	7.30_080123_1_Pi_Q_r • P section	p _i (kPa) =	2517		
2700 -	P above - 0.009	$p_p(kPa) =$	2741	p _F (kPa) =	2532
2650	0.007	$Q_p (m^3/s) =$	NA		
क 2600 - 2500 -	- 0.00.0	tp (s) =		t_F (s) =	720
g 2500	0.005 BB 500.0	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
0 2000 P	- 0.004 g	EC _w (mS/m)=			
2400	0.003	Temp _w (gr C)=	10.8		
2350	0.002	Derivative fact.=	NA	Derivative fact.=	0.0
2300	1.50 2.00 2.50				
Elapsed 1	Time [h]	Results		Results	
			NA	Nesuits	
Log-Log plot incl. derivates- fl	ow period	Q/s $(m^2/s)=$	NA		
Log-Log plot ilici. derivates- il	ow period	T _M (m ² /s)= Flow regime:		Flow ragima:	transient
		dt ₁ (min) =	transient NA	Flow regime: dt ₁ (min) =	NA
		` '	NA	$dt_1 (min) = $ $dt_2 (min) = $	NA
		2 ()	NA		2.7E-1
		$T (m^2/s) = S (-) =$	NA	$T (m^2/s) = S (-) =$	1
		• ()	NA NA	• ()	1.0E-00
		3 (- /	NA NA	9 ()	
Not an	nalysed	$S_s(1/m) =$	NA	$S_s(1/m) =$	5.0E-08
		$C (m^3/Pa) = C_D (-) =$		$C (m^3/Pa) = C_D (-) =$	4.9E-1
		-0()	NA	-0()	5.4E-03
		ξ (-) =	NA	ξ (-) =	-2.:
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	entative paran	neters.	
		dt ₁ (min) =	NA	$C (m^3/Pa) =$	4.9E-1
Elapsed time [h]	10,	dt ₂ (min) =	NA	$C_D(-) =$	5.4E-03
U .		$T_T (m^2/s) =$	2.7E-11	ξ (-) =	-2.
	0.3	S (-) =	1.0E-06		
	10 1	K _s (m/s) =	1.4E-12		
10-1		S _s (1/m) =	5.0E-08		
· · · · · · · · · · · · · · · · · · ·	0.03	Comments:			
in the second	z zavodelet j			f 2.7E-11 m2/s was	
10 2	10 -2 80	analysis of the Pi p	hase. The confid	ence range for the in	nterval
	+			-12 to 5E-11 m2/s.	
	0.003	1 . 1 .			
	0.003	was conducted using			pressure could
10 3 10 4	0.000	was conducted usin not be extrapolated			pressure could

	Test S	umn	nary Sheet			
Project:	Oskarshamn site investig					CHir
Area:	Lax	emar	Test no:			2
Borehole ID:	KL	X27A	Test start:		080124 15:0	
Test section from - to (m):	277.30-2	97.30	Responsible for			Stephan Rohs
			test execution:			er van der Wal
Section diameter, 2·r _w (m):			Responsible for test evaluation:		Crist	ian Enachescu
Linear plot Q and p			Flow period		Recovery period	
o p.o.			Indata		Indata	
			p ₀ (kPa) =	2675		
2950		0.0040	p _i (kPa) =	2701		
2900 KLX27.	A_277.30-297.30_080124_2_CHir_Q_r	0.0035	$p_p(kPa) =$		p _F (kPa) =	2689
2850	+0	0.0030		2.17E-08		200.
2800			$Q_{p} (m^{3}/s) = $ $tp (s) =$		t _F (s) =	120
E 2750		0.0025 [www]				_
8 2700 9 E		0.0020 Last	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
2500	1 +	0.0015	EC _w (mS/m)=	11.		
2550	•	0.0010	Temp _w (gr C)=	11.1		
The Port To The Country of the Count	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩	0.0005	Derivative fact.=	0.2	Derivative fact.=	0.02
2450 4.50 1.00 1.50 2.00 2.50 Elapsed T	10 3.00 3.50 4.00 4.50 5.00 ma [h]	0.0000				
			Results		Results	•
			Q/s $(m^2/s)=$	1.1E-09		
Log-Log plot incl. derivates- fl	ow period		$T_M (m^2/s) =$	1.1E-09		
			Flow regime:	transient	Flow regime:	transient
			dt ₁ (min) =	0.98	$dt_1 (min) =$	NA
10 2 10, 3 10, 2	10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	o ⁴	dt_2 (min) =	11.66	dt_2 (min) =	NA
			$T (m^2/s) =$		$T (m^2/s) =$	5.9E-10
	30	000	S (-) =	1.0E-06	, ,	1.0E-06
10 4	;		K _s (m/s) =		K _s (m/s) =	2.9E-1
a series and a ser	on one of the order	0 1	S _s (1/m) =		S _s (1/m) =	5.0E-08
	30	man a	$C (m^3/Pa) =$	NA	C (m ³ /Pa) =	5.7E-1
		14.(14)		NA	$C_D(-) =$	6.2E-0
10 0		o ²				2.4
			ξ (-) =	3.3	ξ (-) =	2.
			$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ³ 10 ⁴ tD	10 ⁵ 10 ⁶ 10 ⁷		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
			D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period		Selected represe			1
5 - 5 p			$dt_1 (min) =$	NA	C (m ³ /Pa) =	5.7E-11
Facedon 6	1		$dt_1 \text{ (min)} =$ $dt_2 \text{ (min)} =$	NA	$C (m /Pa) =$ $C_D (-) =$	6.2E-03
enapsed time (n		٦.	۳۰۷ (۱۱۱۱۱۱) –			2.
10 1 10 2 Esupose table (n			T (m2/a) -	5 0⊑_10	<i>- ۱</i> ۱ ۲ ۲	
10 10 2 capped large (r		300	$T_T (m^2/s) =$	5.9E-10		-
10 19 Committing to			S (-) =	1.0E-06		
10 19 19 19 19 19 19 19 19 19 19 19 19 19		300	S (-) = K _s (m/s) =	1.0E-06 2.9E-11		
10 10 10 10 10 10 10 10 10 10 10 10 10 1	192		S (-) = K _s (m/s) = S _s (1/m) =	1.0E-06		
10 10 10 10 10 10 10 10 10 10 10 10 10 1			S (-) = K _s (m/s) = S _s (1/m) = Comments:	1.0E-06 2.9E-11 5.0E-08		
10 19 19 19 19 19 19 19 19 19 19 19 19 19			$S(-) = K_s(m/s) = S_s(1/m) = Comments:$	1.0E-06 2.9E-11 5.0E-08 ransmissivity of	f 5.9E10 m2/s was d	erived from the
10 10 State of the state of the		30 [e ₃),(04	$S(-) = K_s(m/s) = S_s(1/m) = Comments:$ The recommended to analysis of the CHira	1.0E-06 2.9E-11 5.0E-08 ransmissivity of phase (inner zo	f 5.9E10 m2/s was d	erived from the
10 10 10 10 10 10 10 10 10 10 10 10 10 1		30 [e ₃),(04	S (-) = K _s (m/s) = S _s (1/m) = Comments: The recommended tanalysis of the CHirand derivative quali	1.0E-06 2.9E-11 5.0E-08 ransmissivity of phase (inner zo ty. The confider	f 5.9E10 m2/s was done), which shows the range for the into	erived from the e better data erval
10 10 10 10 10 10 10 10 10 10 10 10 10 1		30 Real (00 d)	S (-) = K _s (m/s) = S _s (1/m) = Comments: The recommended tanalysis of the CHirand derivative qualitransmissivity is est	1.0E-06 2.9E-11 5.0E-08 ransmissivity of phase (inner zo ty. The confider imated to be 1E	f 5.9E10 m2/s was d one), which shows th nee range for the into -10 m2/s to 2E-9 m2	erived from the e better data erval 2/s. The flow
10 10 10 EDGE		30 [e ₃),(04	S (-) = K _s (m/s) = S _s (1/m) = Comments: The recommended tanalysis of the CHirand derivative qualitransmissivity is est dimension used for	1.0E-06 2.9E-11 5.0E-08 ransmissivity of phase (inner zo ty. The confider imated to be 1E the analysis is 2	f 5.9E10 m2/s was d one), which shows th nee range for the into -10 m2/s to 2E-9 m2	erived from the the better data the erval the flow the measured at

	Test S	Sumr	nary Sheet				
Project:	Oskarshamn site invest					Р	
Area:	La	xemar	Test no:			,	
Borehole ID:	К	LX27A	Test start:		080125 08:4		
Test section from - to (m):	297.30-	317.30	Responsible for test execution:			Philipp Wol Erik Löfgrer	
Section diameter, 2·r _w (m):		0.076	Responsible for		Crist	ian Enachescu	
			test evaluation:			700000000000000	
Linear plot Q and p			Flow period		Recovery period		
			Indata	2051	Indata		
3150		- 0.010	p ₀ (kPa) =	2851			
	7.30-317.30_080125_1_Pi_Q_r	0.010	p _i (kPa) =	2883		202	
3050 -	Pbelow - Q	0.008	$p_p(kPa) =$		p _F (kPa) =	292	
3000 -	***************************************	l _	$Q_p (m^3/s) =$	NA 10	t /->	120	
<u>y</u> 2900 -		- 0.006 Figure -	tp (s) =		t _F (s) =	120	
g 2850	7	- 0.004 Pection Ba	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0	
2800 -		7 0.004 ≧	EC _w (mS/m)=				
2750 -		0.002	Temp _w (gr C)=	11.4			
2650			Derivative fact.=	NA	Derivative fact.=	0.0	
0.00 0.20 0.40 0.60 0.80		0.000					
Elapsed T	ime [h]		Results		Results		
				NA	Results		
an Landot incl. devivetes fl	aw pariad		Q/s $(m^2/s)=$	NA NA			
Log-Log plot incl. derivates- fl	ow perioa		$T_M (m^2/s) =$		<u> </u>	4	
			Flow regime:	transient	Flow regime:	transient	
			dt ₁ (min) =	NA	dt ₁ (min) =	NA	
			dt ₂ (min) =	NA	dt ₂ (min) =	NA 0.4E.4	
			$T (m^2/s) =$	NA	$T (m^2/s) =$	6.1E-1	
			S (-) =	NA	S (-) =	1.0E-0	
			$K_s (m/s) =$	NA	$K_s (m/s) =$	3.1E-1	
Not an	alysed		$S_s(1/m) =$	NA	$S_s(1/m) =$	5.0E-0	
	•		$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	5.8E-1	
			$C_D(-) =$	NA	$C_D(-) =$	6.4E-0	
			ξ (-) =	NA	ξ (-) =	-1.3	
			$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA	
			S _{GRF} (-) =	NA	S _{GRF} (-) =	NA	
			D _{GRF} (-) =	NA	D _{GRF} (-) =	NA	
Log-Log plot incl. derivatives-	recovery period		Selected represe				
Elegrand Simo No			dt ₁ (min) =	NA	$C (m^3/Pa) =$	5.8E-1	
10 1 19, 4 19, 3 19, 3 19, 2	19. 19. 19. 19. 19. 19. 19. 19.		dt ₂ (min) =	NA	C _D (-) =	6.4E-0	
		ľ	$T_T (m^2/s) =$	6.1E-11		-1.3	
		10 °	S (-) =	1.0E-06			
10 0 1			$K_s (m/s) =$	3.1E-12			
	/	0.3	$S_s(1/m) =$	5.0E-08			
. 0,21:02-77	The state of the s	nsaad pay	Comments:				
John States	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Deconolid			f 6.1E-11 m2/s was		
10 1		0.03			ence range for the in- -11 to 1E-10 m2/s.		
/, //		1					
/:/			was conducted usir	ng a flow dimens	ion of 2. The static	pressure could	
		10 -2	was conducted usir not be extrapolated			pressure could	

	Test 9	Sumn	nary Sheet			
Project:	Oskarshamn site invest	tigation	Test type:[1]			Pi
A			T4			
Area:	La	axemar	Test no:			1
Borehole ID:	K	LX27A	Test start:			080125 11:05
Test section from - to (m):	317.30-	337.30	Responsible for			Philipp Wolf
Section diameter, 2·r _w (m):		0.076	test execution: Responsible for		Crist	Erik Löfgrer tian Enachescu
•		0.0.0	test evaluation:			
Linear plot Q and p			Flow period		Recovery period	1
			Indata		Indata	
			p ₀ (kPa) =	3026		
3300 KLX27A_317.30-3	37.30_080125_1_Pi_Q_r	0.010	p _i (kPa) =	NA		
3300	•	0.009	$p_p(kPa) =$	NA	p _F (kPa) =	NA
3200 -	P section P above P below	0.007	$Q_p (m^3/s) =$	NA		
(4A)	:	[Jmin]	tp (s) =		t_F (s) =	NA
Dominge Pressure [F/9]	<u>.</u>	tion Rate [S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
3000 -	•	- 0.004 -	EC _w (mS/m)=			
		0.003	Temp _w (gr C)=	11.7		
2900 -		0.001	Derivative fact.=	NA	Derivative fact.=	NA
2800 0.00 0.20 0.40 0.60 0.80	1.00 1.20 1.40 1.60	0.000				
Elapsed Ti						
			Results		Results	
			$Q/s (m^2/s) =$	NA		
Log-Log plot incl. derivates- flo	ow period		$T_M (m^2/s)=$	NA		
			Flow regime:	transient	Flow regime:	transient
			dt_1 (min) =	NA	dt_1 (min) =	NA
			dt_2 (min) =	NA	dt_2 (min) =	NA
			$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-11
			S (-) =	NA	S (-) =	1.0E-06
			$K_s (m/s) =$	NA	$K_s (m/s) =$	NA
			$S_s(1/m) =$	NA	$S_s(1/m) =$	NA
Not and	alysed		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. derivatives-	recovery period		Selected repres			1
	-		$dt_1 (min) =$	NA .	C (m ³ /Pa) =	NA
			$dt_2 \text{ (min)} =$	NA	$C_D(-) =$	NA
			$T_T (m^2/s) =$	1.0E-11		NA
			S (-) =	1.0E-06		
			$K_s (m/s) =$	5.0E-13		
			$S_s(1/m) =$	5.0E-08		
Not an	alvsed		Comments:			1
			Based on the test re transmissivity is lo		ed packer compliar n2/s.	ace) the interval

	Test	Sumr	nary Sheet			
Project:	Oskarshamn site inves	tigation	Test type:[1]			CHi
Area:	Li	axemar	Test no:			1
Borehole ID:	k	(LX27A	Test start:			080125 13:24
Test section from - to (m):	337.30-	-357.30	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):		0.076	test execution: Responsible for		Criet	Erik Löfgrer ian Enachescu
Section diameter, 21 _W (iii).		0.070	test evaluation:		Clist	ian Enachescu
Linear plot Q and p			Flow period		Recovery period	
			Indata		Indata	
			p ₀ (kPa) =	3201		
3500 KLX27A_337.30-357.30_080125_1_CHir_Q_r		0.020	p _i (kPa) =	3223		
3450 -	P accion P above P below		$p_p(kPa) =$	3436	p _F (kPa) =	3230
3350 -		0.015	$Q_p (m^3/s) =$	8.33E-08		
3300 - 9 3250 -		Fig.	tp (s) =	1200	t _F (s) =	1200
3250		n Rate [Vmln]	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
8 3200 3150	,	Injection	EC _w (mS/m)=		(/	
3100 -	however the same of the same o	- 0.005	Temp _w (gr C)=	12		
3050 -			Derivative fact.=	0.04	Derivative fact.=	0.0
2950 0.00 0.20 0.40 0.60	0.80 1.00 1.20 1.40	0.000				
0.00 0.20 0.40 0.60 Elapsed T						
			Results		Results	
			$Q/s (m^2/s)=$	3.8E-09		
Log-Log plot incl. derivates- fl	ow period		$T_M (m^2/s)=$	4.0E-09		
			Flow regime:	transient	Flow regime:	transient
.3 Elapsed time [h]	-1 0	1	dt_1 (min) =	2.95	dt_1 (min) =	NA
10 1	. , 10, . , , , , , , , , , , , , , , , , , ,	<u>'</u>	dt_2 (min) =	14.68	dt_2 (min) =	NA
		-	$T (m^2/s) =$	1.2E-09	$T (m^2/s) =$	1.9E-0
	The same of the sa	300	S (-) =	1.0E-06	S (-) =	1.0E-0
10 °		10 2	$K_s (m/s) =$	6.2E-11	$K_s (m/s) =$	9.7E-1
	a da a da a da a da a da a da a da a d	-	$S_s (1/m) =$	5.0E-08	$S_s(1/m) =$	5.0E-0
	and the same	30 [wiw] ft	C (m ³ /Pa) =	NA	C (m³/Pa) =	8.4E-1
		10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	C _D (-) =	NA	C _D (-) =	9.2E-0
: •	• -		ξ (-) =	-1.2	ξ (-) =	-,-
		3				
			$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
. 10 ⁻¹ 10 ⁻⁸ 10	10 10 2	10 3 10	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
			D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period		Selected represe	ntative paran	neters.	
			dt_1 (min) =	NA	$C (m^3/Pa) =$	8.4E-1
Elapsed time (h)			$dt_2 (min) =$	NA	$C_D(-) =$	9.2E-0
10 1			$T_T (m^2/s) =$	1.9E-09		4
		300	S (-) =	1.0E-06		
			K_s (m/s) =	9.7E-11		
10 °	A STATE OF THE STA	10 2	S _s (1/m) =	5.0E-08		
			Comments:			<u> </u>
.23/3/		bpot (kPa)		transmissivity of	f 1.9E-9 m2/s was d	erived from the
10 1		10 1 6	analysis of the CHi			
; <i>/</i>			quality. The confide	ence range for th	ne interval transmiss	ivity is
		3			m2/s. The analysis	
		10 0			atic pressure measur hase using straight l	
		10.3	uenin, was derived	nom me Chir p	nase using straight I	iiie
10 ⁻¹ 10 ⁰	10 1 10 2	10			value of 3203.5 kP	

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation				CHir
A == 0 :	Lavaman	Took may			4
Area:	Laxemar	i est no:			1
Borehole ID:	KLX27A	Test start:			080125 15:31
Test section from - to (m):	357.30-377.30	Responsible for			Philipp Wolf
Continuation of a (m):	0.070	test execution:		Criet	Erik Löfgren
Section diameter, 2·r _w (m):	0.076	Responsible for test evaluation:		Crist	ian Enachescu
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	3379		
3700 KLX27A_357.30-377.30_080125_1_CHir_Q_r	0.005	p _i (kPa) =	3449		
3650		$p_p(kPa) =$	3631	p _F (kPa) =	3608
3550 -	P section P above P bislow	$Q_p (m^3/s) =$	1.67E-08		
ङ्क ₃₅₀₀ - १		tp (s) =	1200	t _F (s) =	1200
8 3450 3400	- 0.003 (Pure)	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
3350 ·	0.002	EC _w (mS/m)=			
3300	**************************************	Temp _w (gr C)=	12.2		
3250	1 Tyl	Derivative fact.=	NA	Derivative fact.=	NA
3150 0.00 0.20 0.40 0.60	0.80 1.00 1.20 1.40				
Elapsed					
		Results		Results	
		$Q/s (m^2/s) =$	NA		
Log-Log plot incl. derivates- f	low period	$T_M (m^2/s)=$	NA		
		Flow regime:	transient	Flow regime:	transient
		dt_1 (min) =	NA	dt_1 (min) =	NA
		$dt_2 (min) =$	NA	$dt_2 (min) =$	NA
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-10
		S (-) =	NA	S (-) =	NA
		K _s (m/s) =	NA	K _s (m/s) =	NA
Not a	nalysed	$S_s(1/m) =$	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
I and an all (C. 1. C. 1. C. 1.		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			INIA
		$dt_1 (min) =$	NA	$C (m^3/Pa) =$	NA
		$dt_2 (min) =$	NA 4.05.40	$C_D(-) =$	NA
		$T_T (m^2/s) =$	1.0E-10	ξ(-) =	NA
		$S(-) = K_s(m/s) =$	NA NA		
		3 (- /			
		S _s (1/m) = Comments:	NA		
Not a	nalysed			ed packer complian	ce) the interval

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			Р
Area:	Laxemar	Tost no:			
Alea.	Laxemai	restrio.			!
Borehole ID:	KLX27A	Test start:			080125 17:35
Test section from - to (m):	377.30-397.30	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Crist	Erik Löfgrer ian Enachescu
ocotion diameter, 2 m (m).	0.070	test evaluation:		Onot	ian Endonesse
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	3560		
3850	0.010 • P section	p _i (kPa) =	3591		
3800 KLX27A_377	.30-397.30_080125_1_Pi_Q_r	$p_p(kPa) =$	3799	p _F (kPa) =	362
3790	0.007	$Q_p (m^3/s) =$	NA		
₹ 2 3650	7 0.000	tp (s) =	10	t_F (s) =	1080
3600	- 0.005	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
3550	0.004	EC _w (mS/m)=		,	
3500	- 0.003	Temp _w (gr C)=	12.5		
3450	0.002	Derivative fact.=	#NV	Derivative fact.=	NA
3350 0.00 0.50 1.00 1.50	2.00 2.50 3.00 3.50				
	d Time [h]	Results		Deculto	
			NIA	Results	
landan olakimal darkerkan k	flores are said al	$Q/s (m^2/s) =$	NA		
Log-Log plot incl. derivates-	now period	$T_M (m^2/s) =$	NA		
		Flow regime:	transient	Flow regime:	transient
		$dt_1 (min) =$	NA	$dt_1 (min) =$	1.68
		$dt_2 (min) =$	NA	$dt_2 (min) =$	30.60
		$T (m^2/s) =$	NA	$T (m^2/s) =$	6.4E-1
		S (-) =	NA	S (-) =	1.0E-0
		$K_s (m/s) =$	NA	K_s (m/s) =	3.2E-1
Not a	nnalysed	$S_s(1/m) =$	NA	$S_s(1/m) =$	3.2E-1
		$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	5.0E-1
		$C_D(-) =$	NA	$C_D(-) =$	5.5E-0
		ξ (-) =	NA	ξ (-) =	1.2
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives	- recovery period	Selected represe	entative paran		
-		$dt_1 \text{ (min)} =$	NA .	$C (m^3/Pa) =$	5.0E-1
Elapsed time	[h] 10 10 10 10 10 10 10 10 10 10 10 10 10	$dt_2 (min) =$	NA	$C_D(-) =$	5.5E-0
10 2	30	$T_T (m^2/s) =$	6.4E-11		1.3
1	10 1	S (-) =	1.0E-06		
		$K_s (m/s) =$	3.2E-12		
10	3	S _s (1/m) =	3.2E-12		
	10° 50	Comments:	1 12	<u> </u>	
	10 di perinou		transmissivity of	f 6.4E-11 m2/s was	derived from the
10 °	03			ence range for the in	
	1 / Company	transmissivity is est	imated to be 1E	-11 to 1E-10 m2/s.	The analysis
	10 -1			ion of 2. The static	pressure could
		not be extrapolated	due to the very	low transmissivity.	
10 ⁰ 10 ¹ ti	10 ⁻ 10 ⁴				
10 % 10 %	D 10 2 10 2	not be extrapolated			

	Test	Sumn	nary Sheet			
Project:	Oskarshamn site inves	tigation	Test type:[1]			CHir
Area:	Li	axemar	Test no:			1
Borehole ID:	k	KLX27A	Test start:			080126 08:39
Test section from - to (m):	397.30-	-417.30	Responsible for			Philipp Wolf
Section diameter, 2·r _w (m):		0.076	test execution: Responsible for		Crist	Erik Löfgren ian Enachescu
Coulon diameter, 2 1 _W (m).		0.070	test evaluation:		Onot	an Endonesse
Linear plot Q and p			Flow period		Recovery period	
			Indata		Indata	
			p ₀ (kPa) =	3734		
4050 KLX27A_397.30-417.30_080126_fl_CHir_Q_r	. Duration	0.010	p _i (kPa) =	3759		
4000 - 3950 -	Pabove Pbelow	0.009	$p_p(kPa) =$	3957	p _F (kPa) =	380
3900 -		0.008	$Q_p (m^3/s) =$	3.33E-08		
₹ 3850 -		0.007	tp (s) =	1200	t _F (s) =	1200
3800 -	<u> </u>	0.005 E	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
8 3750 3700 -	}	0.004 ju	$EC_w (mS/m) =$		0 0.0 ()	
3650 -	The Landson of the Control of the Co	0.003	Temp _w (gr C)=	12.8		
3600 -	Mark Mark Mark Mark Mark Mark Mark Mark	0.002	Derivative fact.=	0.17	Derivative fact.=	0.02
3550 1740 1 4 14 14 14 14 14 14 14 14 14 14 14 14 14		0.001	20	***	20	
	.00 1.20 1.40 1.60 1.80 me [h]	0.000				
			Results	<u> </u>	Results	<u> </u>
			Q/s $(m^2/s)=$	1.7E-09		
Log-Log plot incl. derivates- flo	ow period		$T_M (m^2/s) =$	1.7E-09		
<u> </u>	•		Flow regime:	transient	Flow regime:	transient
			dt ₁ (min) =		dt ₁ (min) =	NA
Elapsed Sme [h]	, , , , , , , , , , , , , , , , , , , ,	-	$dt_2 \text{ (min)} =$		$dt_2 (min) =$	NA
		10 3	$T (m^2/s) =$		$T (m^2/s) =$	1.5E-09
}		500	S (-) =	1.0E-06	. ,	1.0E-06
3	The state of the s		K _s (m/s) =		$K_s (m/s) =$	7.6E-1
300 Spr	•	200	$S_s(1/m) =$		$S_s(1/m) =$	5.0E-08
		min/l		0.0L-00		8.6E-1
		10 ² (Jayr.) tyr	$C (m^3/Pa) =$		$C (m^3/Pa) =$	
		50	$C_D(-) =$	NA 0.4	$C_D(-) =$	9.5E-03
0.3	* * * * * * * * * * * * * * * * * * * *		ξ (-) =	0.4	ξ (-) =	1.3
8	 .e	20	- , 2, ,	NA	- , 2, ,	NA
10 ° 10 ′ tD	10 2 10 3	10 4	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA
				NA	$D_{GRF}(-) =$	NA
Log-Log plot incl. derivatives-	racovary pariod		D _{GRF} (-) = Selected represe			INA
Log-Log plot ilici. delivatives-	recovery period		_	NA		8.6E-1
				NA NA	$C (m^3/Pa) = C_0 (-) =$	9.5E-0
10, ² 10, ¹ 10,0		7	Gt2 ()		Э Б ()	
		3000	$T_T (m^2/s) =$	1.5E-09		1.9
		10 3	S (-) =	1.0E-06		
30 1			$K_s (m/s) =$	7.6E-11		
		300	$S_s(1/m) =$	5.0E-08		
and it		10 ° 10	Comments:		31.50.0.57	. 10 -
And the second s		p. 00 (0.00 p. 00			1.5E-9 m2/s was do nows the best data a	
10 °		30			nows the best data at the interval transmiss	
					m2/s. A flow dimer	
"zesese".		10 1	assumed. The static			
10° 10' 10'DIGD	10 ² 10 ³ 1	10 4	from the CHir phase	e using straight l		
ID/CD			to a value of 3,738.	4 kPa.		

	Test	Sumn	nary Sheet				
Project:	Oskarshamn site inves	tigation	Test type:[1]			CHi	
Area:	1.	ovomor	Test no:				
Alea.	L	ахентан	restrio.				
Borehole ID:	k	KLX27A	Test start:		080126 11:1		
Test section from - to (m):	417.30-		Responsible for test execution:			Philipp Wol Erik Löfgrer	
Section diameter, 2·r _w (m):			Responsible for		Crist	ian Enachescu	
			test evaluation:				
Linear plot Q and p			Flow period		Recovery period		
			Indata		Indata		
			p ₀ (kPa) =	3910			
KLX27A_417.30-437.30_080126_1_CHir_Q_r		0.005	p _i (kPa) =	NA	- (I-D-)	27.4	
4100 -		0.004	$p_p(kPa) =$	NA	p _F (kPa) =	NA	
4050 -	P section P above P below		$Q_{p} (m^{3}/s) =$ $to (s) =$	NA	t _c (s) =	120	
G/4 4000 -	<u> </u>	20000 Fate [lmin]	(P)	NA 1.00E.06	(0)	1.00E-0	
gg 3950 -		0.002 e	S el S [*] (-)= EC _w (mS/m)=	1.00E-06	S el S [*] (-)=	1.00E-0	
3850		E	Temp _w (gr C)=	13.1			
3800 -		- 0.001	Derivative fact.=	NA	Derivative fact.=	NA	
3750	-		Derivative lact	NA	Derivative fact.=	IVA	
0.00 0.10 0.20 0.30 0.40 Elapsed Ti	0.50 0.60 0.70 0.80	0.000					
			Results		Results		
			Q/s $(m^2/s)=$	NA	rtesuits		
Log-Log plot incl. derivates- flo	ow period		$T_{\rm M} (m^2/s) =$	NA			
-og -og plot mon domatico in	on ponou		Flow regime:	transient	Flow regime:	transient	
			dt ₁ (min) =	NA	dt ₁ (min) =	NA	
			$dt_2 \text{ (min)} =$	NA	$dt_2 (min) =$	NA	
			$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-1	
			S (-) =	NA	S (-) =	1.0E-0	
			$K_s (m/s) =$	NA	$K_s (m/s) =$	5.0E-1	
			S _s (1/m) =	NA	S _s (1/m) =	5.0E-0	
Not an	alysed		C (m ³ /Pa) =	NA	C (m ³ /Pa) =	NA	
			$C_D(-) =$	NA	$C_D(-) =$	NA	
			ξ(-) =	NA	ξ(-) =	NA	
			3 ()		3()		
			$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA	
			$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA	
			D _{GRF} (-) =	NA	D _{GRF} (-) =	NA	
Log-Log plot incl. derivatives-	recovery period		Selected represe	entative paran	eters.		
			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 (-) =	1.0E-06			
			$K_s (m/s) =$	5.0E-13			
			$S_s(1/m) =$	5.0E-08			
Not an	alysed		Comments:				
			Based on the test re transmissivity is se		ed packer complian s.	ce) the interval	

	Test	Sumn	nary Sheet			
Project:	Oskarshamn site invest	tigation	Test type:[1]			CHii
Area:	La	axemar	Test no:			1
Borehole ID:	К	LX27A	Test start:			080126 13:38
Test section from - to (m):	437.30-	457.30	Responsible for			Philipp Wol
			test execution:			Erik Löfgrer
Section diameter, 2·r _w (m):		0.076	Responsible for test evaluation:		Cristi	an Enachescu
Linear plot Q and p			Flow period		Recovery period	
			Indata		Indata	
			p ₀ (kPa) =	4086		
4350 KLX27A_437.30-457.30_080126_1_CHir_Q_r		0.005	p _i (kPa) =	4107		
4300 -	P section P above P below		$p_p(kPa) =$	4309	p _F (kPa) =	4211
4250 -		0.004	$Q_p (m^3/s) =$	1.83E-08		
<u>8</u> 4150 -	Ļ	0.003 jg	tp (s) =	1200	t _F (s) =	1200
9 4100 9	:	tion Rate [l/min]	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
2 4050 -		- 0.002 <u>tg</u>	EC _w (mS/m)=			
3950	THIN WAN A	0.001	Temp _w (gr C)=	13.4		
3900	*		Derivative fact.=	0.15	Derivative fact.=	0.02
3850 0.00 0.20 0.40 0.60	0.80 1.00 1.20	0.000				
Elapsed 1						
			Results		Results	
			Q/s $(m^2/s)=$	8.9E-10		
Log-Log plot incl. derivates- fl	ow period		$T_M (m^2/s) =$	9.3E-10		
			Flow regime:	transient	Flow regime:	transient
Elapsed time (h)		-	dt ₁ (min) =		dt ₁ (min) =	#NV #NV
10	- Linguis	10 3	$dt_2 (min) =$		$dt_2 (min) =$	
·			$T (m^2/s) = S (-) =$	1.0E-06	$T (m^2/s) = S (-) =$	5.6E-10 1.0E-06
10 °		300	$K_s (m/s) =$		$K_s(m/s) =$	2.8E-1
10		10 2	S _s (1/m) =		$S_s(1/m) =$	5.0E-08
		[min]	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	9.2E-11
4		30 John 1/4 (1/4)	$C_D(-) =$	NA	$C_D(-) =$	1.0E-02
		10 1	ξ(-) =		ξ(-) =	0.7
			3 ()		3 ()	
	· · · · · · · · · · · · · · · · · · ·	3	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 10 2 tD	10 ³ 10 ⁴ 1	0 "	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
			D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period		Selected represe	ntative paran	neters.	
			dt_1 (min) =	NA	C (m ³ /Pa) =	9.2E-11
10 1 Elapsed time (h		- 1	dt_2 (min) =	NA	C _D (-) =	1.0E-02
		300	$T_T (m^2/s) =$	5.6E-10		0.7
			S (-) =	1.0E-06		
1		10 2	K _s (m/s) =	2.8E-11		
10 °]		F .	$S_s(1/m) =$	5.0E-08		
10 *		30	- ' '			
		30 (868)	Comments:			
		30 ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° ° °	Comments: The recommended to		f 5.6E-10 m2/s was o	
10. ⁴		30 100-010-01	Comments: The recommended analysis of the CHir	phase, which sl	hows the best data as	nd derivative
10 ° 10 ° 10 ° 10 ° 10 ° 10 ° 10 ° 10 °		ම ලෙන් (Gr d) වරය	Comments: The recommended analysis of the CHir quality. The confide estimated to be 1E-	phase, which shence range for the 10 m2/s to 5E-9	hows the best data and interval transmission m2/s. A flow dimen	nd derivative ivity is sion of 2 was
10. ⁴		30 [sal (00-d) 0 d d	Comments: The recommended analysis of the CHir quality. The confide estimated to be 1E-	phase, which shence range for the 10 m2/s to 5E-9	hows the best data and interval transmiss	nd derivative ivity is sion of 2 was

	Test Sumi	mary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHir
Area:	Lavemar	Test no:			1
Alea.	Laxemai	restrio.			ı
Borehole ID:	KLX27A	Test start:	(080126 15:37
Test section from - to (m):	457.30-477.30	Responsible for test execution:			Philipp Wolf Erik Löfgren
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	tian Enachescu
		test evaluation:		<u></u>	
Linear plot Q and p		Flow period		Recovery period	1
		Indata	12.50	Indata	1
		p ₀ (kPa) =	4260		
4550 KLX27A_457.30-477.30_080126_1_CHir_Q_r	0.003	p _i (kPa) =	NA	(1.5)	214
4450 -	P section P above	$p_p(kPa) =$	NA	p _F (kPa) =	NA
4400 ·	P below 0.002	$Q_p (m^3/s) =$	NA		127.
4350 -	· · [thmin] or	tp (s) =	NA	t _F (s) =	NA
88 4300 4 4250 1	nijection Rate [Inhin]	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
4250	0.001	EC _w (mS/m)=			
4150 -		Temp _w (gr C)=	13.6		
4100		Derivative fact.=	NA	Derivative fact.=	NA
4050 PAN V V A A A A A A A A A A A A A A A A A	0.50 0.60 0.70 0.80 0.90				
Elapsed T	ime [h]				
		Results		Results	
		Q/s $(m^2/s)=$	NA		
Log-Log plot incl. derivates- fl	ow period	$T_M (m^2/s)=$	NA		
		Flow regime:	transient	Flow regime:	transient
		dt_1 (min) =	NA	dt_1 (min) =	NA
		dt_2 (min) =	NA	dt_2 (min) =	NA
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-11
		S (-) =	NA	S (-) =	1.0E-06
		$K_s (m/s) =$	NA	$K_s (m/s) =$	5.0E-13
Not on	alama d	$S_s(1/m) =$	NA	$S_s(1/m) =$	5.0E-08
Not an	arysed	$C (m^3/Pa) =$	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. derivatives-	recovery period	Selected represe		neters.	
		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 (-) =	1.0E-06		
		$K_s (m/s) =$	5.0E-13		
		$S_s (1/m) =$	5.0E-08		
Not an	alysed	Comments:			
		Based on the test re transmissivity is se		ed packer compliar s.	ace) the interval

	Test Sumi	nary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxema	Test no:			1
Borehole ID:	KLX27A	Test start:			080126 17:13
Test section from - to (m):	477.30-497.30	Responsible for			Philipp Wol
react desirent ment to (m).	117.00 107.00	test execution:			Erik Löfgrer
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescı
		test evaluation:		-	76699999
Linear plot Q and p		Flow period		Recovery period	
		Indata	T	Indata	r
		p ₀ (kPa) =	4436		
4650	(LX27A_477.30-497.30_080126_1_CHir_Q_r Psection	p _i (kPa) =	4460		
4600	P below - Q	$p_p(kPa) =$		p _F (kPa) =	4450
4550		$Q_p (m^3/s) =$	1.85E-07		
'8' 4500 -	0.02	tp (s) =		t _F (s) =	120
4450	Is fection Rate [Irrar]	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
2 4400 - I	1 9	EC_w (mS/m)=			
4350 -		Temp _w (gr C)=	13.9		
4300		Derivative fact.=	0.09	Derivative fact.=	0.0
4200	0.80 1.00 1.20 1.40				
Elapsed	Time [h]	Results		Results	
			0.45.00	Results	ı
		Q/s $(m^2/s)=$	9.4E-09		
og-Log plot incl. derivates- fl	ow period	$T_{\rm M} ({\rm m}^2/{\rm s}) =$	9.8E-09		
		Flow regime:	transient	Flow regime:	transient
10.3 Elapsed time [h]		$dt_1 (min) =$		$dt_1 (min) =$	NA
10 2		$dt_2 (min) =$		dt_2 (min) =	NA
	300	$T (m^2/s) =$		$T (m^2/s) =$	2.2E-0
		S (-) =	1.0E-06	S (-) =	1.0E-0
10 1	10 2	$K_s (m/s) =$	6.6E-10	K_s (m/s) =	1.1E-0
		$S_s(1/m) =$	5.0E-08	$S_s (1/m) =$	5.0E-0
• •	30	$C (m^3/Pa) =$	NA	C (m³/Pa) =	4.5E-1
10 0	10 1	$C_D(-) =$	NA	C _D (-) =	5.0E-0
	A A A A A A A A A A A A A A A A A A A	ξ (-) =	4.2	ξ (-) =	5
	3 · · · ·				
10.5	107	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
tD		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	ntative paran	neters.	
		dt_1 (min) =	NA	$C (m^3/Pa) =$	4.5E-1
Elapsed time [h]	10	dt ₂ (min) =	NA	C _D (-) =	5.0E-03
10	10 3	$T_T (m^2/s) =$	2.2E-08		5
		S (-) =	1.0E-06		
_	300	K_s (m/s) =	1.1E-09		
10 1	10 ²	S _s (1/m) =	5.0E-08		
A. A. A. A. A. A. A. A. A. A. A. A. A. A		Comments:	1 - 30		<u> </u>
	30		transmissivity of	2.2E-8 m2/s was de	erived from the
10 0	The state of the s			nows the best data a	
	10 1	quality. The confide	ence range for th	e interval transmiss	ivity is
<i>f</i> .	: <u> </u>	estimated to be 6E-	9 m2/s to 7E-8 r	n2/s. A flow dimens	sion of 2 was
		assumed. The static			
10 ° 10 1	10 ² 10 ³ 10 ⁴	from the CHir phase		ine extrapolation in	the Horner plo
		to a value of 4,451.	y KPa.		

	Test Sumn	nary Sheet			
Project:	Oskarshamn site investigation				CH
Area:	Laxemar	Test no:			
Borehole ID:	KLX27A	Test start:			080127 08:4
Test section from - to (m):	497.30-517.30	Responsible for test execution:			Philipp Wo Erik Löfgre
Section diameter, 2·r _w (m):		Responsible for		Cristi	an Enachesc
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	Ī
		p ₀ (kPa) =	4614		
KLX27A_497.30-517.30_080127_1_CHir_Q_r	• P section	p _i (kPa) =	4629		
4800	P section P above P below P below Q	$p_p(kPa) =$		p _F (kPa) =	465
4800	0030	$Q_p (m^3/s) =$	2.50E-07		
4700	0.025	tp (s) =		t_F (s) =	120
1 4700 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
400	0015	EC _w (mS/m)=			
4650 -	- 0.010	Temp _w (gr C)=	14.2		
4500	0.00%	Derivative fact.=	0.11	Derivative fact.=	0.0
4400 0.00 0.20 0.40 0.50 Elapsed Time	20 1.00 1.20 1.40				
Elapsed Time	(N	Results		Results	
		Q/s $(m^2/s)=$	1.2E-08		
.og-Log plot incl. derivates- flo	w period	$T_{M} (m^{2}/s) =$	1.3E-08		
eg-Log plot ilici. delivates- lio	w period	Flow regime:	transient	Flow regime:	transient
		$dt_1 \text{ (min)} =$		dt ₁ (min) =	1.0
Elapsed time [h]		$dt_1 (min) =$ $dt_2 (min) =$		$dt_1 (min) =$ $dt_2 (min) =$	3.6
	300				
		$T (m^2/s) =$		$T (m^2/s) = S(-) =$	1.4E-0
	10 2	S (-) =	1.0E-06	, ,	1.0E-0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		$K_s (m/s) =$		$K_s (m/s) =$	7.1E-1
	W	$S_s(1/m) =$		$S_s(1/m) =$	5.0E-0
	10 10 10 10	$C (m^3/Pa) =$	NA	C (m ³ /Pa) =	5.6E-1
10°		C _D (-) =	NA	C _D (-) =	6.2E-0
	3	ξ (-) =	4.4	ξ (-) =	
•	10 °	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ⁵ 10 ⁶ tD	10 7 10 8 10 9	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
og-Log plot incl. derivatives- r	ecovery period	Selected represe			147 (
= Prot mon donadires-1	TTTTOIJ POITOG	dt ₁ (min) =		C (m ³ /Pa) =	5.6E-1
Elapsed time [h]	10 1	$dt_1 (min) =$ $dt_2 (min) =$		$C (m /Pa) =$ $C_D (-) =$	6.2E-0
10 2 10 10 10 10 10 10 10 10 10 10 10 10 10	3000	` ,	1.4E-08		0.∠⊑-0
	10 3	$T_T (m^2/s) = $ $S (-) = $			
	110	9 ()	1.0E-06 7.1E-10		
10 1	300	K _s (m/s) =			
		$S_s(1/m) =$	5.0E-08		
35	10 ² Red JOC	Comments:		31.45.0.5/	. 10 .
A Property of the second secon	The state of the s			1.4E-8 m2/s was dene), which shows the	
10 January 10 January	30			one), which shows the ange for the interval	
/.	10 1			8 m2/s. The flow dir	
/.		the test is 2. The sta	atic pressure me	asured at transducer	depth, was
10 ° 10 ¹ tD/CD	10 2 10 3 10 4	derived from the CI Horner plot to a val			ation in the

	Test Sumn	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			СН
Area:	Laxemar	Test no:			
Borehole ID:	KLX27A	Test start:			080127 10:4
Test section from - to (m):	517.30-537.30	Responsible for			Pilipp Wo
		test execution:			Erik Löfgre
Section diameter, 2·r _w (m):	0.076	Responsible for		Cristi	an Enachesc
inear plot Q and p		test evaluation: Flow period		Recovery period	
Inear plot Q and p		Indata		Indata	
			4700	muata	1
5050 v	7.0.05	p ₀ (kPa) =	4788		
5000	KLX27A_517.30-537.30_080127_1_CHir_Q_r P above P below 7 0.07	p _i (kPa) =	4805	(1.5.)	401
4920 -	P Delow 0.07	$p_p(kPa) =$		p _F (kPa) =	481
4900	0.05	$Q_p (m^3/s) =$	4.50E-07		
- 4500	0.05	tp (s) =		$t_F(s) =$	120
400	0.04	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
8 4750 ·		EC _w (mS/m)=			
4700	0.02	Temp _w (gr C)=	14.4		
4500	0.01	Derivative fact.=	0.06	Derivative fact.=	0.0
4250 0.30 0.40 0.60 Elapsed	0.00 1.00 1.20 1.40 Time[h]				
		Results	<u> </u>	Results	<u> </u>
		Q/s $(m^2/s)=$	2.2E-08		
og-Log plot incl. derivates- fl	ow period	$T_M (m^2/s) =$	2.3E-08		
		Flow regime:	transient	Flow regime:	transient
Elaosed time (h)		dt_1 (min) =	1.00	dt_1 (min) =	1.0
10 1 10 1 Eupsed trifle (n)	10.°	dt_2 (min) =	3.19	dt_2 (min) =	5.4
		$T (m^2/s) =$		$T (m^2/s) =$	1.7E-0
	50	S (-) =	1.0E-06	/	1.0E-0
3	20	$K_s (m/s) =$		$K_s (m/s) =$	8.6E-1
		S _s (1/m) =		S _s (1/m) =	5.0E-0
10 0	10 ¹ [kuul ftv	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	3.5E-1
	1 ta ri	$C_D(-) =$	NA	a	3.9E-0
0.3				$\frac{C_D(-)}{\xi(-)} =$	0.5L-C
•	2	ξ (-) =	0	ς (-)	
10 ¹ 10 ²	10 3 10 4 10 6	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
og-Log plot incl. derivatives-	recovery period	Selected represe	ntative paran		
		$dt_1 (min) =$		$C (m^3/Pa) =$	3.5E-1
_ Elapsed time [h]		$dt_2 (min) =$		$C_D(-) =$	3.9E-0
10 2 10,2	10,"	$T_T (m^2/s) =$	1.7E-08		0.02
	3000	S (-) =	1.0E-06		
	10 3	$K_s (m/s) =$	8.6E-10		
10 1		$S_s(11/s) =$ $S_s(1/m) =$	5.0E-08		<u> </u>
	300		3.0L-08		
	हार्थ, (b) जे जे (b) जे	Comments:		21.75.0 2/ 1	. 10 4
10 °	god d			1.7E-8 m2/s was done), which shows the	
	30			ve quality. The conf	
//.	10 1			mated to be 8E-9 m	
	2 4	m2/s. The flow dim	ension during th	e test is 2. The stati	c pressure
10 ° 10 ¹ 1D/CD	10 2 10 3 10 4	measured at transdu	icer depth, was o	lerived from the CH	ir phase using
				rner plot to a value	

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxemar	Test no:			1
Borehole ID:	KI Y27A	Test start:			080127 12:56
Test section from - to (m):	537.30-577.30	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Crist	Erik Löfgrer ian Enachescu
cootion diameter, 21w (m).	0.070	test evaluation:		01100	ari Eriadrioco
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	4964		
KLX27A_537.30-557.30_080127_1_CHir_Q_r	0.020	p _i (kPa) =	4980		
2000	P places P below Q	$p_p(kPa) =$	5194	p _F (kPa) =	498
5150 -	0.015	$Q_p (m^3/s) =$	1.00E-07		
\$ 5000		tp (s) =	1200	t _F (s) =	120
2000 D	- anno 8	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
4000	· Profession	EC _w (mS/m)=		(/	
4900	0.005	Temp _w (gr C)=	14.7		
4800	:	Derivative fact.=	0.05	Derivative fact.=	
4800	: :				
0.00 0.20 0.40 0.60 0.00 Elapsed Tin	1.00 1.20 1.40 1.60 no [h]				
		Results		Results	
		Q/s $(m^2/s)=$	4.6E-09		
Log-Log plot incl. derivates- flo	w period	$T_M (m^2/s)=$	4.8E-09		
		Flow regime:	transient	Flow regime:	transient
Elapsed time (h)	-1 0	$dt_1 (min) =$	0.49	dt_1 (min) =	NA
10 2 10, 10, 10,		dt_2 (min) =	12.74	dt_2 (min) =	NA
1	10 3	$T (m^2/s) =$	4.1E-09	$T (m^2/s) =$	6.7E-0
1		S (-) =	1.0E-06	S (-) =	1.0E-0
10 1	300	$K_s (m/s) =$	2.1E-10	$K_s (m/s) =$	3.4E-1
*		$S_s (1/m) =$	5.0E-08	S _s (1/m) =	5.0E-0
·	10 ² BARRA	$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	5.6E-1
10.0	30	$C_D(-) =$	NA	C _D (-) =	6.2E-0
		ξ(-) =		ξ(-) =	5.6
	10 1				
	10 4 10 5 10 6 3	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	ntative paran	neters.	
		dt_1 (min) =	NA	C (m ³ /Pa) =	5.6E-1
Elapsed time (h)		dt_2 (min) =	NA	C _D (-) =	6.2E-0
		$T_T (m^2/s) =$	6.7E-09	ξ (-) =	5.0
	10 3	S (-) =	1.0E-06		
	300	K_s (m/s) =	3.4E-10		
1		$S_s(1/m) =$	5.0E-08		
10 1					
	10 ²	Comments:			
TO STATE OF THE PARTY OF THE PA	10 ²	The recommended		f 6.7E-9 m2/s was d	
	110 ² 88 88 88 88 88 88 88 88 88 88 88 88 88	The recommended analysis of the CHir	phase, which sl	hows the best data a	nd derivative
TO STATE OF THE PARTY OF THE PA	10 ² g g g g g g g g g g g g g g g g g g g	The recommended analysis of the CHirquality. The confide	phase, which sl ence range for th	hows the best data a ne interval transmiss	nd derivative ivity is
TO STATE OF THE PARTY OF THE PA	30	The recommended analysis of the CHir quality. The confident estimated to be 2E-	phase, which shence range for the m2/s to 3E-7 r	hows the best data a ne interval transmiss m2/s. A flow dimens	nd derivative ivity is ion of 2 was
TO TO TO DOOD	30	The recommended analysis of the CHirquality. The confide	phase, which slence range for the m2/s to 3E-7 r pressure measu	hows the best data a ne interval transmiss n2/s. A flow dimens red at transducer de	nd derivative ivity is ion of 2 was pth, was derived

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation				CHir
Area:	Lavoma	Test no:			1
Alca.	Laxema	restrio.			ı
Borehole ID:	KLX27A	Test start:			080127 15:38
Test section from - to (m):	557 30-577 30	Responsible for			Philipp Wolf
rest section from - to (iii).	337.30-377.30	test execution:			Erik Löfgren
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
		test evaluation:	***************		7000000000000
Linear plot Q and p		Flow period		Recovery period	
		Indata	5140	Indata	Ī
9450	T 0.010	p ₀ (kPa) =	5140 5173		
KLX27A_557.30-577.30_080127_1_CHir_Q_r	Pactor Pators Pibrios Pibrios Pibrios	p _i (kPa) =			£10A
5350	· o	$p_p(kPa) =$		p _F (kPa) =	5184
		$Q_p (m^3/s) =$	5.67E-08		1200
2 5000 ·	Communication Co	tp (s) =		$t_F(s) =$	1200
g 5150		S el S [*] (-)= EC _w (mS/m)=	1.00E-06	S el S [*] (-)=	1.00E-06
		Temp _w (gr C)=	14.9		
5000		Derivative fact.=		Derivative fact.=	0.02
4950 T		Derivative fact	0.12	Derivative fact.=	0.02
4000 0.00 0.20 0.40 0.00 0.80 Elapsec	1.50 1.20 1.40 1.50 1.80 1.80 Time [h]				
		Results		Results	
		$Q/s (m^2/s) =$	2.7E-09		
Log-Log plot incl. derivates- f	low period	$T_{\rm M} (m^2/s) =$	2.8E-09		
-3 -3 p	, , , , , , , , , , , , , , , , , , ,	Flow regime:	transient	Flow regime:	transient
		$dt_1 (min) =$		dt ₁ (min) =	NA
10 2		$dt_2 \text{ (min)} =$		dt_2 (min) =	NA
	3000	$T (m^2/s) =$		$T (m^2/s) =$	1.3E-09
		S (-) =	1.0E-06	, ,	1.0E-06
10 1	10 -	$K_s (m/s) =$	8.8E-11	K_s (m/s) =	6.4E-11
	300	$S_s (1/m) =$	5.0E-08	$S_s (1/m) =$	5.0E-08
المحمد المعالم المحمد ا	-	C (m³/Pa) =	NA	C (m³/Pa) =	5.6E-11
10 °	10 2	⁸ C _D (-) =	NA	C _D (-) =	6.2E-03
	20	ξ (-) =	.4	ξ (-) =	2
100 100	10 1	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
tD		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	entative paran	neters.	
		$dt_1 (min) =$	NA	C (m ³ /Pa) =	5.6E-11
Elapsed time (1] 10. ⁻¹	dt_2 (min) =	NA	$C_D(-) =$	6.2E-03
		$T_T (m^2/s) =$	1.3E-09		2
	300	S (-) =	1.0E-06		
10 %	10 ²	$K_s (m/s) =$	6.4E-11		
		$S_s(1/m) =$	5.0E-08		
a Articles	30	Comments:			
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- 10 ¹			f 1.3E-9 m2/s was d	
10 4				hows the best data a ne interval transmiss	
/: ·	3			m2/s. A flow dimer	
	c o	assumed. The static	pressure measu	red at transducer de	pth, was derived
10 -1 10 ° 10 IC	10 ¹ 10 ² 10 ³	from the CHir phase		line extrapolation in	the Horner plot
		to a value of 4,141.	4 KPa.		

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation				CHii
Area:	l avema	r Test no:			1
Al Ca.	Laxema	restrio.			'
Borehole ID:	KLX27A	Test start:			080127 18:07
Test section from - to (m):	577.30-597.30	Responsible for			Philipp Wol
()		test execution:			Erik Löfgrer
Section diameter, 2·r _w (m):	0.076	Responsible for		Cristi	ian Enachescu
Linear plot Q and p		test evaluation: Flow period		Recovery period	
Emour prot & una p		Indata		Indata	
		p ₀ (kPa) =	5315		
5600	250	p _i (kPa) =	5331		
KLX27A_577.30-597.30_080127_1_CHir_Q_r	P section P above P below	$p_p(kPa) =$		p _F (kPa) =	5531
5500	200	$Q_p (m^3/s) =$	1.60E-05		
9450		tp (s) =		t _F (s) =	1200
8 5000	1150 Cleaning	S el S [*] (-)=		S el S [*] (-)=	1.00E-06
2000 Sand	100 d	EC _w (mS/m)=		()	
5250		Temp _w (gr C)=	15.2		
5200	• 0.50	Derivative fact.=	0.07	Derivative fact.=	0.04
5150					
0.00 0.20 0.40 0.50 Elapsed Ti	0.20 1.00 1.20 1.40 inne (h)				
		Results		Results	
		Q/s $(m^2/s)=$	7.9E-07		
Log-Log plot incl. derivates- flo	ow period	$T_{\rm M} (m^2/s) =$	8.3E-07		
		Flow regime:	transient	Flow regime:	transient
Elapsed time (h)	, , , 10 °	dt_1 (min) =	1.32	dt_1 (min) =	0.22
10 2		dt_2 (min) =	14.69	dt_2 (min) =	6.86
	3	$T (m^2/s) =$	1.5E-06	$T (m^2/s) =$	5.1E-06
		S (-) =	1.0E-06	S (-) =	1.0E-06
10	10 °	$K_s (m/s) =$		K_s (m/s) =	2.6E-07
	0.3	$S_s (1/m) =$	5.0E-08	$S_s(1/m) =$	5.0E-08
•	1	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	7.0E-1
10 0	10-1-5	$C_D(-) =$	NA	$C_D(-) =$	7.7E-03
•	0.03	ξ (-) =	5.8	ξ (-) =	33.1
10 10 10 2	10 10 10 10 10 2	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
tD.		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			705.44
. 10. ⁴	10.2 10.1	dt ₁ (min) =		$C (m^3/Pa) =$	7.0E-11
10 2	700	dt ₂ (min) =		$C_D(-) =$	7.7E-03
	L DD. 00.000 0000	$T_T (m^2/s) = S (-) = $	1.5E-06 1.0E-06		5.8
	10 2	$S(-) = K_s(m/s) =$	7.5E-08		
10 1		$S_s (11/s) = S_s (1/m) = S_s (1/m)$	7.5E-08 5.0E-08		
	30	Comments:	3.0⊑-00		<u> </u>
· \·	10 1	3	ransmissivity of	f 5.1E-6 m2/s was de	erived from the
•	. 9			fidence range for the	
10 0	ا معنون مر ا	analysis of the CHII			
10 0	of the second se	transmissivity is est	imated to be 5E	-7 m2/s to 6E-6 m2/	
10 0	3	transmissivity is est dimension displaye	imated to be 5E d during the test	is 2. The static pres	sure measured
10 TO DICE	100	transmissivity is est dimension displayed at transducer depth,	imated to be 5E d during the test was derived fro		sure measured sing straight

	Test Sumn	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHi
Area:	Laxemar	Test no:			
Borehole ID:	KLX27A	Test start:			080128 08:48
Test section from - to (m):	597 30-617 30	Responsible for			Philipp Wol
rest section from - to (m).	397.30-017.30	test execution:			Erik Löfgrer
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	an Enachesci
		test evaluation:		Production of the contract of	000000000000
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	1
		p ₀ (kPa) =	5490		
KLX27A_597.30-617.30_680128_1_CHir_Q_r	0.20 • P section	p _i (kPa) =	5503		
5750	+ P above + 0.18 • P below • 0.16	$p_p(kPa) =$		p _F (kPa) =	550
	0.14	$Q_p (m^3/s) =$	1.18E-06		
	0.12 😨	tp (s) =		t_F (s) =	120
8 550 - 8 550 -	0.10	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
5450	0.08	EC _w (mS/m)=			
. :	- 0.06	Temp _w (gr C)=	15.5		
5350	0.04	Derivative fact.=	0.06	Derivative fact.=	0.0
5250	0.02				
Elapsed 1	ime (h)	Results		Results	
			5.9E-08		
og-Log plot incl. derivates- fl	ow pariod	Q/s $(m^2/s)=$	6.2E-08		
Log-Log plot mei. denvates- m	ow period	T _M (m ² /s)= Flow regime:			transient
		_	transient	Flow regime:	transient
10, -3 10	10,-1	dt ₁ (min) =		dt ₁ (min) =	1.4
		$dt_2 (min) =$		$dt_2 (min) =$	6.3
	30	$T (m^2/s) =$		$T (m^2/s) =$	2.5E-0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		S (-) =	1.0E-06	` ,	1.0E-0
10	110	$K_s (m/s) =$		$K_s (m/s) =$	1.3E-0
	, 3	$S_s(1/m) =$		$S_s(1/m) =$	5.0E-0
	In The Control of the	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	4.0E-1
10 0	100	$C_D(-) =$	NA	$C_D(-) =$	4.4E-0
	03	ξ(-) =	9.5	ξ (-) =	21.
• • • • • • • • • • • • • • • • • • • •	•	- , 2, ,	NA	- , 2, <u>)</u>	NA
10 ¹⁰ 10 ¹¹	10 12 10 13 10 14 10 1	$T_{GRF}(m^2/s) =$		$T_{GRF}(m^2/s) =$	
		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
1 10 11 0		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
og-Log plot incl. derivatives-	recovery period	Selected represe			4.0= :
===		dt ₁ (min) =		C (m ³ /Pa) =	4.0E-1
10, 5 10, 4 Elapsed time (h) 10 10 10 10 10 10 10 10 10 10 10 10 10	10,-1	$dt_2 (min) =$		C _D (-) =	4.4E-0
		$T_T (m^2/s) =$	1.4E-07		9.
	300	S (-) =	1.0E-06		
<i></i>	10 2	$K_s (m/s) =$	6.8E-09		
10	<u>~.</u>	$S_s(1/m) =$	5.0E-08		
//	30	Comments:			
/.	10, 101			1.4E-7 m2/s was de	
10 °	10 ' 4			ows the best data an	
				e interval transmissi	
	3			m2/s. The flow dime	
<u> </u>	10 °			ure measured at tran sing straight line extr	
10 ° 10 10 tb/CD	10 ² 10 ³ 10 ⁴	Horner plot to a val	-		apoianon in th

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxemar	Test no:			1
Borehole ID:	KLX27A	Test start:			080128 10:56
Test section from - to (m):	617.30-637.30	Responsible for		Philipp Erik I (
	0.070	test execution:		0:1	Erik Löfgrer
Section diameter, 2·r _w (m):	0.076	Responsible for test evaluation:		Crist	ian Enachescı
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	5665		
9650	5.00	p _i (kPa) =	5681		
KLX27A_617.30-637.30_080128_1_CHir_Q_r 5000	P section P bloow P bloow P bloow	$p_p(kPa) =$		p _F (kPa) =	568
5850 -	4.00	•	2.65E-05		200
5800	3.50	$Q_{p} (m^{3}/s) = $ tp (s) =		t _F (s) =	120
Rd 5750	3.00 Garage				1.00E-0
§ 5700	230 6	S el S* (-)=	1.00E-00	S el S [*] (-)=	1.00E-0
\$ asso	200 #	EC _w (mS/m)=	16.5		<u> </u>
5550	1.00	Temp _w (gr C)=	15.7	5	0.0
5500	0.50	Derivative fact.=	0.02	Derivative fact.=	0.0
5450 0.00 0.20 0.40 0.50 Filmsed 7	0.80 1.00 1.20 1.40				
сырэне і	une [r]	Results		Daguita	
			4.45.00	Results	1
		Q/s $(m^2/s)=$	1.1E-06		
og-Log plot incl. derivates- fl	ow period	$T_{\rm M} ({\rm m}^2/{\rm s}) =$	1.1E-06		
		Flow regime:	transient	Flow regime:	transient
Elapsed time (h	01	$dt_1 (min) =$	NA	$dt_1 (min) =$	1.6
10 1		dt_2 (min) =	NA	dt_2 (min) =	4.4
	10 °	$T (m^2/s) =$		$T (m^2/s) =$	2.0E-0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		S (-) =	1.0E-06	S (-) =	1.0E-0
10 6	0.3	K_s (m/s) =		K_s (m/s) =	9.8E-0
	10 1	$S_s(1/m) =$	5.0E-08	$S_s(1/m) =$	5.0E-0
	[buul by	$C (m^3/Pa) =$	NA	C (m ³ /Pa) =	7.9E-1
10-1	0.03	$C_D(-) =$	NA	$C_D(-) =$	8.7E-0
		ξ (-) =	-3.2	ξ (-) =	-4.4
	10				
·	0.003	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ° 10 °	10 ² 10 ³ 10 ⁴	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	ntative paran	neters.	
		dt_1 (min) =	1.69	$C (m^3/Pa) =$	7.9E-10
Elapsed time [h]	.10,1	dt ₂ (min) =		$C_D(-) =$	8.7E-0
10		$T_T (m^2/s) =$	2.0E-07		-4.
	10 3	S (-) =	1.0E-06		
	700	K_s (m/s) =	9.8E-09		
10 °	300	$S_s(1/m) =$	5.0E-08		
	10 ²	Comments:			I
	3,004		transmissivity of	f 2.0E-7 m2/s was de	erived from the
10 1	30 8			one), which shows th	
	A 10 ¹	derivative quality.	The confidence r	ange for the interval	l transmissivity
				7 m2/s. The flow dir	
L	3			tatic pressure measu	
10 ° 10 10 10 (E)(CD	10 ² 10 ³ 10 ⁴			the CHir phase using value of 5,663.2 kF	
		extrapolation in the	Tromer prot to a	. , a.a.c 01 5,005.2 KI	u.

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHi
Area:	Laxemar	Test no:			
Borehole ID:	KLX27A	Test start:			080128 13:24
Test section from - to (m):	625 20 645 20	Responsible for			Philipp Wol
rest section from - to (m).	023.20-043.20	test execution:			Erik Löfgrer
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescı
		test evaluation:			000000000000
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	5735		
KLX27A_625.20-645.20_080128_1_CHir_Q_r	14.00 ▼ P section	p _i (kPa) =	5749		
5900	P audion P audion P below Q	$p_p(kPa) =$		p _F (kPa) =	575
5850	10.00	$Q_p (m^3/s) =$	1.05E-04		
\$ 5500	Lo Gran	tp (s) =		t _F (s) =	120
0 5720	Con Res (7	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
5700 -	, co a	EC _w (mS/m)=			
5650 -	4.00	Temp _w (gr C)=	15.8		
5550	- 2.00	Derivative fact.=	0	Derivative fact.=	0.0
5500 0.00 0.40 0.50 Elapsed Ti	0.00 1.00 1.20 1.40 mm [h]				
		Results		Results	
		Q/s $(m^2/s)=$	5.2E-06		
og-Log plot incl. derivates- flo	ow period	$T_{\rm M} (m^2/s) =$	5.4E-06		
	•	Flow regime:	transient	Flow regime:	transient
Elapsed time (h)		$dt_1 \text{ (min)} =$	NA	$dt_1 \text{ (min)} =$	1.3
10 1 10	10."	$dt_2 \text{ (min)} =$	NA	$dt_2 (min) =$	3.7
	0.3	$T (m^2/s) =$		$T (m^2/s) =$	1.9E-0
	10 ⁻¹	S (-) =	1.0E-06	/	1.0E-0
10 °		$K_s (m/s) =$		$K_s (m/s) =$	9.6E-0
	0.03	$S_s(1/m) =$		$S_s(1/m) =$	5.0E-0
		C (m ³ /Pa) =	NA	C (m ³ /Pa) =	1.5E-0
···	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- ' · ·	NA	- 1	1.6E-0
10 1	0.003	$C_D(-) =$ $\xi(-) =$		C _D (-) =	-4.
. •		ξ (-) =	-3.7	ξ (-) =	-4.
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ° 10 1	10 2 10 3 10 4	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
og-Log plot incl. derivatives-	recovery period	Selected represe			<u></u>
	, person	$dt_1 \text{ (min)} =$	-	C (m ³ /Pa) =	1.5E-0
Elapsed time [h]		$dt_1 (min) =$ $dt_2 (min) =$		$C (m /Pa) =$ $C_D (-) =$	1.6E-0
10 1 10, 3 10, 3	10,"	$T_T (m^2/s) =$	1.9E-06		-4.
		S (-) =	1.0E-06		-4.
1	300	$S(-) = K_s(m/s) =$	9.6E-08		
10 °	10 ²				
.:	and the state of t		5.0E-08		
	30 80	Comments:		C1.0F.62/	
	10 1			f 1.9E-6 m2/s was do one), which shows th	
10 1	10			one), which shows the ange for the interval	
Y /		acrivative quality.			
	3	is estimated to be 9	E-7 m2/s to 9E-6	6 m2/s. The flow dir	nension
	3	is estimated to be 93 displayed during the			
10.0 10.0 10.00	102 102 100 100	displayed during the	e test is 2. The s	tatic pressure measu the CHir phase usin	red at

	Test	Sumr	nary Sheet			
Project:	Oskarshamn site invest					CHi
Area:	La	axemar	Test no:			1
Borehole ID:	К	LX27A	Test start:			080130 14:37
Test section from - to (m):	337.30-	342.30	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):		0.076	test execution: Responsible for		Criet	Linda Höcker ian Enachescu
Section diameter, 21 _w (iii).		0.070	test evaluation:		Clist	ian Enachesci
Linear plot Q and p	•		Flow period		Recovery period	
			Indata		Indata	
			p ₀ (kPa) =	3071		
3350	•	0.016	p _i (kPa) =	3085		
KLX27A_337.30-342.30_080130_1_CHir_Q_r	P section P above P below	0.014	$p_p(kPa) =$	3296	p _F (kPa) =	310
		0.012	$Q_p (m^3/s) =$	6.67E-08		
3250	\ \	0.010	tp (s) =		t _F (s) =	120
<u>0</u> , 2000 -	\	Rate [limin]	S el S [*] (-)=		S el S [*] (-)=	1.00E-0
AG 3150 -		helpo	EC _w (mS/m)=	1.00L-00	S el S (-)=	1.00L-0
3100	1	0.006	Temp _w (gr C)=	11.8		
		0.004	Derivative fact.=		Derivative fact.=	0.02
3050		0.002	Derivative lact	0.12	Derivative fact.=	0.0.
3000 0.00 0.20 0.40 0.60 0.80 Elapsed	1.00 1.20 1.40 1.80	0.000				
			Results		Results	
			Q/s $(m^2/s)=$	3.1E-09		
_og-Log plot incl. derivates- f	low poriod		` '	2.6E-09		
Log-Log plot incl. derivates- i	low period		T _M (m ² /s)= Flow regime:	transient	Flow regime:	transient
			dt ₁ (min) =			NA
30, 30, 10, 3		,	, ,		, ,	
10 1			dt ₂ (min) =		$dt_2 (min) =$	NA 1.05.11
1		300	$T (m^2/s) =$		$T (m^2/s) =$	4.3E-10
	·		S (-) =	1.0E-06		1.0E-06
0 8 As a second second		10 ²	$K_s (m/s) =$		$K_s (m/s) =$	8.7E-1
		30 [M	$S_s (1/m) =$		S _s (1/m) =	2.0E-07
		1/4 (1/4).	$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	2.1E-1
10 -1		10 1	$C_D(-) =$	NA	$C_D(-) =$	2.3E-0
	• •	3	ξ(-) =	-1.1	ξ (-) =	-2.0
10 ·1 10 ° ED	10 ¹ 10 ² 10	ļ	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
			$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
			D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives	recovery period		Selected represe	ntative paran	neters.	
			dt_1 (min) =	0.97	$C (m^3/Pa) =$	2.1E-1
10 ° Elapsed time (r	10,-1	⊐	dt ₂ (min) =	3.69	$C_D(-) =$	2.3E-03
1			$T_T (m^2/s) =$	1.0E-09		-1.1
		10 2	S (-) =	1.0E-06		1
	and the same of th		U ()			
- Company of the Company		30	K _s (m/s) =	2.0E-10		
10°		30		2.0E-10 2.0E-07		
10	Accession of the Control of the Cont	30	K _s (m/s) =			
10°	Activities of the second secon	30	K _s (m/s) = S _s (1/m) = Comments:	2.0E-07		erived from the
10 ⁴		30	$K_s (m/s) = S_s (1/m) = Comments:$ The recommended	2.0E-07	f 1.0E-9 m2/s was do	
10 °		30	K _s (m/s) = S _s (1/m) = Comments: The recommended analysis of the CHi transmissivity is est	2.0E-07 transmissivity of phase. The confirmated to be 8E	f 1.0E-9 m2/s was do idence range for the -10 m2/s to 7E-9 m2	interval 2/s. The flow
10 °		30 (egg) 25(d) 75(d)	K _s (m/s) = S _s (1/m) = Comments: The recommended analysis of the CHi transmissivity is est dimension displayed	2.0E-07 transmissivity of phase. The conf imated to be 8E d during the test	f 1.0E-9 m2/s was do idence range for the -10 m2/s to 7E-9 m2 is 2. The static pres	interval 2/s. The flow sure measured
10 ⁻¹	3 10 10 10 1	30 (feel) (bodd) pol d	K _s (m/s) = S _s (1/m) = Comments: The recommended analysis of the CHi transmissivity is est dimension displayed at transducer depth,	2.0E-07 transmissivity of phase. The conf imated to be 8E d during the test was derived fro	f 1.0E-9 m2/s was do idence range for the -10 m2/s to 7E-9 m2 is 2. The static pres	e interval 2/s. The flow sure measured sing type curve

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation	on Test type:[1]			CHi
Area:	Laxem	ar Test no:			
Borehole ID:	KLX27	'A Test start:			080130 16:51
Test section from - to (m):	342.30-347.3	Responsible for			Philipp Wol
()		test execution:			Linda Höcker
Section diameter, 2·r _w (m):	0.07	6 Responsible for		Crist	ian Enachescu
Linear plat O and p		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata	2114	Indata	ı
3400 T	1,005	p ₀ (kPa) =	3114		
KLX27A_342.39-347.39_080130_1_CHir_Q_r	P section P above P below	p _i (kPa) =	3141	- (I-D-)	214
3350	O 004	$p_p(kPa) =$		p _F (kPa) =	314
3300		$Q_p (m^3/s) =$	1.67E-08		
हु 3250 - ह	0.003			t_F (s) =	120
3200-	: \	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
3150 -	0.002	Low (mo/m)			
3100		Temp _w (gr C)=	11.8		
3050	0.001	Derivative fact.=	0.19	Derivative fact.=	
3000 0.00 0.20 0.40 0.60 0.80	1.00 1.20 1.40 1.60 1.80				
Elapsed 1	(h)	Results		Results	
		Q/s $(m^2/s)=$	7.9E-10		
og-Log plot incl. derivates- fl	ow period	$T_M (m^2/s) =$	6.6E-10		
-3 -3		Flow regime:	transient	Flow regime:	transient
		$dt_1 \text{ (min)} =$		$dt_1 \text{ (min)} =$	NA
Elapsed time (h) 10, 3 10, 2 10 2	10,-1	$dt_2 \text{ (min)} =$		$dt_2 \text{ (min)} =$	NA
	10 4	$T (m^2/s) =$		$T (m^2/s) =$	1.4E-0
		S (-) =	1.0E-06	/	1.0E-0
	3000	$K_s (m/s) =$		$K_s (m/s) =$	2.8E-1
	10 °	$S_s(1/m) =$		$S_s(1/m) =$	2.0E-0
	° • **********	5	NA	- ,	1.9E-1
	300	$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	2.1E-0
10 10	· · · · · · · · · · · · · · · · · · ·	$C_D(-) =$		$C_D(-) =$	6.
		ξ (-) =	2.0	ξ (-) =	6.
	30	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ² 10 ³	10 ⁴ 10 ⁵ 10 ⁶	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	ntative paran		
<u> </u>	• •	$dt_1 \text{ (min)} =$	NA	C (m ³ /Pa) =	1.9E-1
Elapsed time [h]	0	$dt_2 \text{ (min)} =$	NA	$C_D(-) =$	2.1E-0
10 2	10,	$T_T (m^2/s) =$	1.4E-09		6.
	10 3	S (-) =	1.0E-06		0.
		$K_s (m/s) =$	2.8E-10		
10 1	300	$S_s(11/s) =$ $S_s(1/m) =$	2.0E-10		
	102	Comments:	2.UL-U1		
	A. A. A. A. A. A. A. A. A. A. A. A. A. A	2	tranomicoivity of	f 1.4E-9 m2/s was d	erived from the
10.01	30	analysis of the CHi			
				insmissivity is estim	
<i>*</i>	10 1	10 m2/s to 7E-9 m2	s. The flow din	nension used for the	analysis is 2.
/	İ	The static pressure	measured at trar	sducer depth, was d	
	t.				
10 ⁻¹ 10 ⁰	10 ¹ 10 ² 10 ³			polation in the Horn	ner plot to a

Project: Area: Borehole ID: Test section from - to (m):	Oskarshamn site investig	ation				CHi	
Borehole ID:		emar					
Borehole ID:		Laxemar Tes					
	KLX27A Te		restrio.				
Test section from - to (m):			Test start:			0801301 08:3	
	347.30-35	52.30	Responsible for		Philipp W		
0 " " , 0 , ,			test execution:		Linda Höck		
Section diameter, 2·r _w (m):	().076	Responsible for test evaluation:		Crist	ian Enachescı	
Linear plot Q and p			Flow period		Recovery period		
· ·			Indata		Indata		
			p ₀ (kPa) =	3160			
3300 KLX27A_347.30-382.30_080131_1_CHir_Q_r		0.010	p _i (kPa) =	NA			
3250 -	P section P above P below Q		$p_p(kPa) =$	NA	p _F (kPa) =	NA	
	я	0.008	$Q_p (m^3/s) =$	NA			
3200	<u> </u>	0.006 🖫	tp (s) =	NA	t _F (s) =	NA	
3150 San San San San San San San San San San	·	flon Rate [kmin]	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0	
Total and a 3100	• •	0.004	EC _w (mS/m)=		` '		
3100	:		Temp _w (gr C)=	12			
3050 -	:	0.002	Derivative fact.=	NA	Derivative fact.=	NA	
<u>, , , , , , , , , , , , , , , , , , , </u>	• •						
0.00 0.10 0.20 0.30 0.40 Elapsed Tin		→ 0.000 1.80					
			Results		Results		
			$Q/s (m^2/s) =$	NA			
Log-Log plot incl. derivates- flow period			$T_M (m^2/s) =$	NA			
			Flow regime:	transient	Flow regime:	transient	
			$dt_1 (min) =$	NA	dt ₁ (min) =	NA	
			dt_2 (min) =	NA	dt_2 (min) =	NA	
			$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-1	
			S (-) =	NA	S (-) =	1.0E-06	
			K_s (m/s) =	NA	$K_s (m/s) =$	2.0E-12	
			$S_s (1/m) =$	NA	$S_s(1/m) =$	2.0E-07	
Not and	alysed		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. derivatives-	recovery period		Selected represe	entative param	neters.		
			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 (-) =	1.0E-06			
			K _s (m/s) =	2.0E-12			
			$S_s (1/m) =$	2.0E-07			
Not and	alysed		Comments:				
			Based on the test re transmissivity is set			ce) the interval	

	Test Sumi	mary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHir
Area:	Laxema	r Test no:			1
Borehole ID:	KLX27 <i>F</i>	Test start:			0801301 09:56
T ()	050 00 057 00				DI 'II' 14/ II
Test section from - to (m):	352.30-357.30	Responsible for test execution:			Philipp Wolf Linda Höckert
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	T
		p ₀ (kPa) =	3203		
KLX27A_362.30-357.30_080131_1_CHir_Q_r	P section P section P show P below	p _i (kPa) =	NA		
3350 -	P baltow - Q 0.09	$p_p(kPa) =$	NA	p _F (kPa) =	NA
		$Q_p (m^3/s) =$	NA		
(Fig.) 2000 - 20	0.00 @	tp (s) =	NA	t_F (s) =	NA
2250	<u>/</u> [S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
&	J	EC _w (mS/m)=			
	0.02	Temp _w (gr C)=	12		
2000		Derivative fact.=	NA	Derivative fact.=	NA
3100	0.40 0.50 0.60 0.70				
Elapsoc	Time (h)	Results		Results	
			NA	Results	I
Log-Log plot incl. derivates- f	low pariod	Q/s $(m^2/s)=$	NA		
Log-Log plot filet. derivates- i	low period	T _M (m ² /s)= Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =	NA	dt ₁ (min) =	NA
		$dt_1 (min) =$ $dt_2 (min) =$	NA	$dt_1 (min) =$ $dt_2 (min) =$	NA
			NA		1.0E-1
		$T (m^2/s) =$	NA NA	T (m2/s) = S (-) =	1.0E-1
		S (-) =		- ()	
		$K_s (m/s) =$	NA	$K_s (m/s) =$ $S_s (1/m) =$	2.0E-12
Not a	nalysed	S _s (1/m) =	NA	o s ()	2.0E-07
		$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	NA
		$C_D(-) =$	NA	$C_D(-) =$	NA
		ξ (-) =	NA	ξ (-) =	NA
		T (m²(a) -	NA	T (m²/a) -	NA
		$\frac{T_{GRF}(m^2/s) =}{S_{GRF}(-)} =$	NA	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA
		$D_{GRF}(-) =$	NA	$D_{GRF}(-) =$	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			IVA
Log-Log plot filel. delivatives	- recovery period	dt ₁ (min) =	NA	-	NA
		$dt_1 (min) =$ $dt_2 (min) =$	NA	$C (m^3/Pa) = C_D (-) =$	NA
			1.0E-11		NA
		$T_{T} (m^{2}/s) = S (-) =$	1.0E-11		INC
		$K_s (m/s) =$	2.0E-12		
		$S_s (1/m) =$	2.0E-12 2.0E-07		
	1 1	Comments:	2.UE-U/	<u> </u>	
Not a	nalysed			ged packer complian s.	ce) the interval

	Test Sun	nmary Sheet					
Project:	Oskarshamn site investigati	on Test type:[1]			CHir		
Area:	Laxem	nar Test no:			1		
71100.					1		
Borehole ID:	KLX2	7A Test start:		0801301 11:3			
Test section from - to (m):	397.30-402.	30 Responsible for		Philipp Wo			
Section diameter, 2·r _w (m):	0.0	test execution: 76 Responsible for		Crist	Linda Höcker Cristian Enachescu		
dection diameter, 21 _W (m).	0.0	test evaluation:		Crisi	lian Enachescu		
Linear plot Q and p		Flow period		Recovery period	1		
		Indata		Indata			
		p ₀ (kPa) =	3601				
XLX27A_397.30-402.30_080131_1_CHir_Q_r	P section P show P balow P balow	p _i (kPa) =	NA				
3800 -	P below Q	$p_p(kPa) = Q_p(m^3/s) =$	NA	p _F (kPa) =	NA		
3750 -	3750		NA				
Total 2000 -	, in the second	tp (s) =	NA	t _F (s) =	NA		
200		S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-06		
	···· /	Low (mo/m)=					
3600	10.02	Temp _w (gr C)=	12.6				
350	a a a a decimando minutarian antica a a a a a a a a a a a a a a a a a a	Derivative fact.=	NA	Derivative fact.=	NA		
3000 0.10 0.20 0.30 Elapsed	0.40 0.50 0.50 0.70						
		Results		Results			
		Q/s $(m^2/s)=$	NA	Results	T		
Log-Log plot incl. derivates- fl	low period	$T_{M} (m^{2}/s) =$	NA		 		
Log-Log plot mei. denvates- n	low period	Flow regime:	transient	Flow regime:	transient		
		dt ₁ (min) =	NA	dt ₁ (min) =	NA		
		$dt_2 (min) =$	NA	$dt_2 \text{ (min)} =$	NA		
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-11		
			NA	S (-) =	1.0E-06		
		$S(-) = K_s(m/s) =$	NA	$K_s (m/s) =$	2.0E-12		
		S _s (1/m) =	NA	$S_s(1/m) =$	2.0E-07		
Not ar	nalysed	$C (m^3/Pa) =$	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. derivatives-	recovery period	Selected repres		neters.			
		dt_1 (min) =	NA	C (m ³ /Pa) =	NA		
		dt_2 (min) =	NA	$C_D(-) =$	NA		
		$T_T (m^2/s) =$	1.0E-11		NA		
		S (-) =	1.0E-06				
		$K_s (m/s) =$	2.0E-12				
		$S_s(1/m) =$	2.0E-07				
Not ar	nalysed			ged packer complian	ice) the interval		
		transmissivity is se	. to 1.0L-11 III2/	·.			

Project: O Area: Borehole ID: Test section from - to (m): Section diameter, 2·r _w (m): Linear plot Q and p	KL 402.30-4	X27A 07.30 0.076	Test type:[1] Test no: Test start: Responsible for test execution: Responsible for test evaluation: Flow period Indata p ₀ (kPa) = p _i (kPa) = p _p (kPa) = Q _p (m³/s)= tp (s) =	3636 NA NA NA	Cristi Recovery period Indata p _F (kPa) =	CH 080131 13:2 Philipp Wo Linda Höcke an ENAcheso
Borehole ID: Test section from - to (m): Section diameter, 2·r _w (m): Linear plot Q and p	402.30-4	X27A 07.30 0.076	Test start: Responsible for test execution: Responsible for test evaluation: Flow period Indata p ₀ (kPa) = p _i (kPa) = p _p (kPa) = Q _p (m³/s)=	NA NA	Recovery period Indata	Philipp Wo Linda Höcke an ENAcheso
Borehole ID: Test section from - to (m): Section diameter, 2·r _w (m): Linear plot Q and p	402.30-4	X27A 07.30 0.076	Test start: Responsible for test execution: Responsible for test evaluation: Flow period Indata p ₀ (kPa) = p _i (kPa) = p _p (kPa) = Q _p (m³/s)=	NA NA	Recovery period Indata	Philipp Wo Linda Höcke an ENAcheso
Test section from - to (m): Section diameter, 2·r _w (m): Linear plot Q and p	402.30-4	07.30 0.076	Responsible for test execution: Responsible for test evaluation: Flow period Indata p ₀ (kPa) = p _i (kPa) = p _p (kPa) = Q _p (m³/s)=	NA NA	Recovery period Indata	Philipp Wo Linda Höcke an ENAcheso
Section diameter, 2·r _w (m): Linear plot Q and p KLX37A_462.30-467.30_486731_1_CH6_Q_r	P parties P plans P fram 15	0.076	test execution: Responsible for test evaluation: Flow period Indata p ₀ (kPa) = p _i (kPa) = p _p (kPa) = Q _p (m³/s)=	NA NA	Recovery period Indata	Linda Höcke an ENAcheso
Linear plot Q and p KLX27A_462.30-467.30_686131_1_CH6_Q_F	F matrix F plane F ham C plane	on New Selection 2	Responsible for test evaluation: Flow period Indata p ₀ (kPa) = p _i (kPa) = p _p (kPa) = Q _p (m³/s)=	NA NA	Recovery period Indata	an ENAcheso
Linear plot Q and p KLX27A_462.30-467.30_686131_1_CH6_Q_F	F matrix F plane F ham C plane	on New Selection 2	test evaluation: Flow period Indata $p_0 (kPa) = p_i (kPa) = p_p(kPa) = 0$ $p_p(kPa) = 0$ $p_p(kPa) = 0$	NA NA	Recovery period Indata	
300 KLX27A_402.30-407.30_000131_1_CPMr_Q_T		0.10 plotted when planted in the process of the control of the con	Indata p ₀ (kPa) = p _i (kPa) = p _p (kPa) = Q _p (m ³ /s)=	NA NA	Indata	
3730 -		Projection Table (plants)	$p_0 (kPa) =$ $p_i (kPa) =$ $p_j (kPa) =$ $p_p (kPa) =$ $Q_p (m^3/s) =$	NA NA		
3700 -		niportion Rate (January)	$p_i (kPa) =$ $p_p(kPa) =$ $Q_p (m^3/s) =$	NA NA	p _F (kPa) =	
3700 -		a.co. Department of the control of t	$p_p(kPa) = $ $Q_p(m^3/s) = $	NA	p _F (kPa) =	
3700 -		nidection Rase (femina)	$Q_p (m^3/s) =$		p _F (kPa) =	
		inject for Rose (faming)		NT A	、 - /	NA
		Legection Rate (Marien)	tp (s) =	INA		
10 mm 200		Injection Rate (Mm		NA	t_F (s) =	NA
**************************************		noot inject	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
3000			EC _w (mS/m)=			
	:		Temp _w (gr C)=	12.7		
3050 -		0.02	Derivative fact.=	NA	Derivative fact.=	NA
		1				
200 0.10 0.20 0.30 0.40 Elapsed Time [h]	0.50 0.50	0.70				
			Results	_	Results	
			$Q/s (m^2/s)=$	NA		
Log-Log plot incl. derivates- flow լ	period		$T_M (m^2/s)=$	NA		
			Flow regime:	transient	Flow regime:	transient
			dt ₁ (min) =	NA	dt ₁ (min) =	NA
			dt_2 (min) =	NA	dt_2 (min) =	NA
			$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-1
			S (-) =	NA	S (-) =	1.0E-0
			$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-1
			S _s (1/m) =	NA	S _s (1/m) =	2.0E-0
Not aNAlys	sed		C (m ³ /Pa) =	NA	C (m ³ /Pa) =	NA
			$C_D(-) =$	NA	$C_D(-) =$	NA
			ξ(-) =	NA	ξ(-) =	NA
			3()		5()	
			$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
			$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
			D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives- reco	overy period		Selected represe			1
<u> </u>	••		dt ₁ (min) =	NA	C (m ³ /Pa) =	NA
			$dt_2 \text{ (min)} =$	NA	$C_D(-) =$	NA
			$T_T (m^2/s) =$	1.0E-11		NA
			S (-) =	1.0E-06		
			$K_s (m/s) =$	2.0E-12		
			$S_s(1/m) =$	2.0E-07		
Not aNAlys	sed		Comments:			
			Based on the test re transmissivity is se		ed packer complian s.	ce) the interva

	Test Sumi	mary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHi
Area:	Laxema	Test no:			1
Borehole ID:	KLX27A	Test start:			080131 14:39
Toot a action from to (m):	407 20 442 20	Deepensible for			Dhiling Wal
Test section from - to (m):	407.30-412.30	Responsible for test execution:			Philipp Wol- Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	T
100	200	p ₀ (kPa) =	3690		
KLX27A_407.30-412.30_080131_1_CHir_Q_r	• P section • P section	p _i (kPa) =	NA	(1.5.)	3.7.4
3000 -	1000	$p_p(kPa) =$	NA	p _F (kPa) =	NA
3750		$Q_p (m^3/s) =$	NA		
200 200		tp (s) =	NA	t _F (s) =	NA
8 B. Seco	e collon Rase	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
8	aos ^{\$}	EC _w (mS/m)=			
3000 -	•	Temp _w (gr C)=	12.8		
3050	•	Derivative fact.=	NA	Derivative fact.=	NA
3000 0.00 0.10 0.20 0.30	0.40 0.50 0.60 0.70				
Elaps	0.70 U.SO U.SO 0.70				
		Results		Results	
		Q/s $(m^2/s)=$	NA		
Log-Log plot incl. derivates-	flow period	$T_{\rm M} (m^2/s) =$	NA		
		Flow regime:	transient	Flow regime:	transient
		dt_1 (min) =	NA	$dt_1 (min) =$	NA
		dt_2 (min) =	NA	$dt_2 (min) =$	NA
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-1
		S (-) =	NA	S (-) =	1.0E-0
		$K_s (m/s) =$	NA	K_s (m/s) =	2.0E-1
Not	analysed	$S_s (1/m) =$	NA	$S_s(1/m) =$	2.0E-0
1101.6	marysed	$C (m^3/Pa) =$	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. derivatives	- recovery period	Selected represe			
		$dt_1 (min) =$	NA	C (m ³ /Pa) =	NA
		$dt_2 (min) =$	NA	$C_D(-) =$	NA
		$T_T (m^2/s) =$	1.0E-11		NA
		S (-) =	1.0E-06		
		$K_s (m/s) =$	2.0E-12		
		$S_s (1/m) =$	2.0E-07		
Not a	analysed	Comments:			
		Based on the test re transmissivity is set		ged packer complian s.	ce) the interval

	Test S	Sumn	nary Sheet			
Project:	Oskarshamn site invest					CHi
Area:	La	xemar	Test no:			1
Borehole ID:	K	LX27A	Test start:			080131 15:50
Test section from - to (m):	412.30-	417.30	Responsible for			Philipp Wol
()			test execution:			Linda Höcker
Section diameter, 2·r _w (m):		0.076	Responsible for		Crist	ian Enachescı
Linear plot O and p			test evaluation: Flow period		Bonovani pariod	
Linear plot Q and p			Indata		Recovery period	
				2724	muata	1
4000		0.006	p ₀ (kPa) = p _i (kPa) =	3734 3765		
KLX27A_412.30-417.30_080131_1_CHir_Q_r	P section P above P below				n (kDo.) =	270
3050 1		0.005	$p_p(kPa) =$		p _F (kPa) =	378
3900 -	· ·	0.004	$Q_p (m^3/s) =$	3.00E-08		120
G 2050		e [ivinin]	tp (s) =		t _F (s) =	120
		Page 500.00 -	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
*		0.002	EC _w (mS/m)=			
3750	· · · · · ·		Temp _w (gr C)=	12.8		
3700	<u> </u>	0.001	Derivative fact.=	0.11	Derivative fact.=	0.0
3650 0.00 0.20 0.40 0.00 0.80 Elapsed	1.00 1.20 1.40 1.50 d Times [h]	0.000				
			Results		Results	
			Q/s $(m^2/s)=$	1.5E-09		
Log-Log plot incl. derivates- f	low period		$T_{\rm M} (m^2/s) =$	1.2E-09		
99 p			Flow regime:	transient	Flow regime:	transient
			dt ₁ (min) =		$dt_1 (min) =$	NA
10 2 10 3 Elapsed time [h]		1	$dt_2 (min) =$		$dt_2 (min) =$	NA
			$T (m^2/s) =$		$T (m^2/s) =$	8.3E-10
		3000	S (-) =	1.0E-06	, ,	1.0E-0
d			$K_s (m/s) =$		K _s (m/s) =	1.7E-1
	·	10	$S_s(1/m) =$		S _s (1/m) =	2.0E-0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		300 Minim	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	2.0E-1
• • • • • • • • • • • • • • • • • • • •		1/4.(1/4)*	$C_D(-) =$	NA	$C_D(-) =$	2.2E-0
10"		10 ²	ξ(-) =		ξ(-) =	0.3
	The second of th	30	<i>□</i> (-) –	1.0	S (-) -	0.0
			$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ¹ 10 ²	10 ³ 10 ⁴ 10 ¹	•	S _{GRF} (-) =	NA	S _{GRF} (-) =	NA
			D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	- recovery period		Selected represe	ntative paran	neters.	<u>#</u>
			dt_1 (min) =	NA	$C (m^3/Pa) =$	2.0E-1
Elapsed time (*	[h]	184 J	dt ₂ (min) =	NA	$C_D(-) =$	2.2E-0
		1	$T_T (m^2/s) =$	8.3E-10		0.3
10 1		200	I _T (III /S) =			
10		300	S (-) =	1.0E-06		
		300				
o de la companya del companya de la companya del companya de la co	potromen.	300	S (-) =	1.0E-06		
	potronelly.	300	S (-) = K _s (m/s) =	1.0E-06 1.7E-10		
10 To 10 To	San San San San San San San San San San	300 100 2 10	$S(-) = K_s(m/s) = S_s(1/m) = Comments:$	1.0E-06 1.7E-10 2.0E-07		derived from the
10 3	popular de la companya de la company	10 ²	$S(-) = K_s(m/s) = S_s(1/m) = Comments:$ The recommended analysis of the CHii	1.0E-06 1.7E-10 2.0E-07 transmissivity of	f 8.3E-10 m2/s was on the better data	and derivative
10 10 10 10 10 10 10 10 10 10 10 10 10 1	potromen.	10 ²	S (-) = K _s (m/s) = S _s (1/m) = Comments: The recommended analysis of the CHin quality. The confider	1.0E-06 1.7E-10 2.0E-07 transmissivity of phase, which shence range for the	f 8.3E-10 m2/s was on the better data the interval transmiss	and derivative ivity is
10 ° 2	property.	30 (eg) (5° d) dd	S (-) = K _s (m/s) = S _s (1/m) = Comments: The recommended analysis of the CHir quality. The confide estimated to be 5E-	1.0E-06 1.7E-10 2.0E-07 transmissivity of phase, which shence range for the 10 m2/s to 6E-9	f 8.3E-10 m2/s was on the better data the interval transmiss m2/s. The flow dim	and derivative ivity is ension
10 ° 10 ° 10 ° 10 ° 10 ° 10 ° 10 ° 10 °	10 to 10	10 ²	S (-) = K _s (m/s) = S _s (1/m) = Comments: The recommended analysis of the CHir quality. The confide estimated to be 5E-displayed during the	1.0E-06 1.7E-10 2.0E-07 transmissivity of phase, which sience range for the 10 m2/s to 6E-9 et test is 2. The s	f 8.3E-10 m2/s was on the better data the interval transmiss m2/s. The flow dim	and derivative ivity is ension red at

	Test Sumr	nary Sheet				
Project:	Oskarshamn site investigation	Test type:[1]			CHir	
Area:	Laxemar	Test no:			1	
Alca.	Laxemai	rest no.			ı	
Borehole ID:	KLX27A	Test start:	080131 18:			
Test section from - to (m):	437.30-442.30	Responsible for	for		Philipp Wolf	
0 ()	0.070	test execution:		Linda Höckert		
Section diameter, 2·r _w (m):	0.076	Responsible for test evaluation:		ian Enachescu		
Linear plot Q and p		Flow period		Recovery period	i i i i i i i i i i i i i i i i i i i	
		Indata		Indata		
		p_0 (kPa) =	3954			
4150 KLX27A_437.30.442.30_080131_1_CHir_Q_r	0.10 • P section	p _i (kPa) =	NA			
4100	P section P above P ballow O	$p_p(kPa) =$	NA	p _F (kPa) =	NA	
4000 -		$Q_p (m^3/s) =$	NA			
Para con contract con		tp (s) =	NA	t_F (s) =	NA	
		S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06	
\$ 000 F		EC _w (mS/m)=				
3900	* * * * * *****************************	Temp _w (gr C)=	13.2			
3850 -	0.02	Derivative fact.=	NA	Derivative fact.=	NA	
3000 - 0.10 0.20 0.30	0.40 0.20 0.50 0.70					
Elapsed 1	inne (h)	Danista.		Danista.		
		Results	NA	Results	1	
Log-Log plot incl. derivates- fl	au pariad	Q/s $(m^2/s)=$	NA NA			
Log-Log plot filet. defivates- fi	ow period	T _M (m ² /s)= Flow regime:	transient	Flow regime:	transient	
		dt ₁ (min) =	NA	dt ₁ (min) =	NA	
			NA	$dt_1 (min) =$ $dt_2 (min) =$	NA	
		$dt_2 (min) = T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-11	
		S (-) =	NA	S (-) =	1.0E-06	
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-12	
		S _s (1/m) =	NA	$S_s(1/m) =$	2.0E-07	
Not ar	alysed	$C (m^3/Pa) =$	NA	C (m ³ /Pa) =	NA	
		$C_D(-) =$	NA	$C_D(-) =$	NA	
		ξ (-) =	NA	ξ(-) =	NA	
			1			
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA	
		S _{GRF} (-) =	NA	$S_{GRF}(-) =$	NA	
		D_{GRF} (-) =	NA	D _{GRF} (-) =	NA	
Log-Log plot incl. derivatives-	recovery period	Selected represe		neters.		
		dt_1 (min) =	NA	C (m ³ /Pa) =	NA	
		dt_2 (min) =	NA	$C_D(-) =$	NA	
		$T_T (m^2/s) =$	1.0E-11		NA	
		S (-) =	1.0E-06			
		$K_s (m/s) =$	2.0E-12		<u> </u>	
		$S_s(1/m) =$	2.0E-07			
Not ar	alysed	Comments: Based on the test retransmissivity is set			ice) the interval	

Oskarshamn site investigation				Chi
Laxema	ar Test no:			
	i i est no.			2
KLX27	A Test start:			08027 13:26
442 20 447 3	O Posponsible for			Philipp Wol
442.30-447.3				Linda Höcker
0.07			Crist	ian Enachescı
	test evaluation:			
			Indata	
Paction Patove Patove				
P below	·			406
				120
O.O.O. Barrens	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
<u>.</u>	EC _w (mS/m)=			
0.001	Temp _w (gr C)=	13.3		
	Derivative fact.=	0.2	Derivative fact.=	0.0
100 120 1.40 1.60 1.80				
(P)	Results		Results	
		9.6E-10		
w period	· · · · · ·			
··· policu				transient
	_		_	NA
.10.1	, ,		, ,	NA
:				1.8E-09
10 *			, ,	1.0E-0
3000			` '	3.6E-1
			. ,	2.0E-0
10 3				3.4E-1
				3.7E-0
300				10.4
- 10 ²	ς (-) –	2.1	Ç(-) –	10
20	$T_{GPE}(m^2/s) =$	NA	$T_{GPF}(m^2/s) =$	NA
10 ⁴ 10 ⁵ 10 ⁶		NA		NA
		NA		NA
ecovery period		ntative paran		
	$dt_1 (min) =$	NA .		3.4E-1
,,,10, ⁰ ,,,,,10, ¹	$dt_2 (min) =$	NA		3.7E-0
10 3	` ′			10.4
300				
10 ²				
	© Comments:			<u> </u>
30	2	transmissivity of	f 1.8E-9 m2/s was de	erived from the
	analysis of the CHir	phase, which sl	hows the better data	and derivative
10 1			ne interval transmiss	
1		10 0/	m2/a The flow dim	encion used for
3	estimated to be 5E-			
10 2 10 3 10 4	the analysis is 2. Th	e static pressure		ucer depth, was
	442.30-447.3 0.07 100 100 100 100 100 100 10	Flow period Indata $p_{0} (kPa) = p_{i} (kPa) = p_{i} (kPa) = q_{i} (kP$	Results $Q/s \ (m^2/s) = 0.064$ $Q/s \ (m^2/s) = 0.064$ $Q/s \ (m^2/s) = 0.064$ $Q/s \ (m^3/p) = 0.064$ $Q/s \ (m^3/p) = 0.064$ $Q/s \ (m^3/p) = 0.064$ $Q/s \ (m^3/p) = 0.064$ $Q/s \ (m^3/s) = 0.06$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

	Test Sumr	nary Sheet				
Project:	Oskarshamn site investigation	Test type:[1]			CHir	
Area:	Laxemar	Test no:			1	
71100.					'	
Borehole ID:	KLX27A	Test start:		080201 09:4		
Test section from - to (m):	447.30-452.30	Responsible for	for		Philipp Wolf	
Continuation of a (m):	0.070	test execution:		Linda Höckert ian Enachescu		
Section diameter, 2·r _w (m):	0.076	Responsible for test evaluation:		ian Enachescu		
Linear plot Q and p	<u> </u>	Flow period		Recovery period	1	
		Indata		Indata		
		p ₀ (kPa) =	4041			
4300 KLX27A_447.30-452.30_080201_1_CHir_Q_r	0.10	p _i (kPa) =	NA			
4250 *	P section P above P below O	$p_p(kPa) =$	NA	p _F (kPa) =	NA	
420		$Q_p (m^3/s) =$	NA			
F 6. 4150	0.05 g	tp (s) =	NA	t _F (s) =	NA	
Ed. 4100 - 1	ion Rase Bla	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06	
1 8 400°	004	EC _w (mS/m)=				
4000		Temp _w (gr C)=	13.3			
4000	0.02	Derivative fact.=	NA	Derivative fact.=	NA	
3000 0.10 0.20 0.30	0,40 0,50 0,50 0,70					
Elapsed 1	Time (h)					
		Results	Inia	Results		
		Q/s (m^2/s)=	NA		ļ	
Log-Log plot incl. derivates- fl	ow period	$T_M (m^2/s) =$	NA · · ·			
		Flow regime:	transient	Flow regime:	transient	
		dt ₁ (min) =	NA	dt ₁ (min) =	NA	
		$dt_2 (min) =$	NA	$dt_2 (min) =$	NA 4.0E.44	
		$T (m^2/s) = S (-) =$	NA	$T (m^2/s) = S (-) =$	1.0E-11	
		• ()	NA	• ()	1.0E-06	
		$K_s (m/s) =$	NA NA	$K_s (m/s) =$	2.0E-12 2.0E-07	
Not ar	nalysed	$S_s(1/m) =$	NA	$S_s(1/m) =$	2.0E-07	
		$C (m^3/Pa) = C_D (-) =$	NA	$C (m^3/Pa) = C_D (-) =$	NA	
		-0()	NA	-0()	NA	
		ξ (-) =	INA	ξ (-) =	INA	
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA	
		$S_{GRF}(III / S) =$	NA	$S_{GRF}(III / S) =$	NA	
		D_{GRF} (-) =	NA	D _{GRF} (-) =	NA	
Log-Log plot incl. derivatives-	recovery period	Selected represe			<u> </u>	
J J,	71 · · ·	$dt_1 \text{ (min)} =$	NA	C (m ³ /Pa) =	NA	
		$dt_2 \text{ (min)} =$	NA	$C_D(-) =$	NA	
		$T_T (m^2/s) =$	1.0E-11		NA	
		S (-) =	1.0E-06			
		$K_s (m/s) =$	2.0E-12			
		$S_s(1/m) =$	2.0E-07			
Not ar	nalysed	Comments:			1	
		Based on the test re transmissivity is set			ice) the interval	

	Test Sumr	nary Sheet				
Project:	Oskarshamn site investigation				CHir	
Area:	Laxemar	Test no:			1	
Alca.	Laxemai	restrio.			ı	
Borehole ID:	KLX27A	Test start:		080201 10:		
Test section from - to (m):	452.30-457.30	Responsible for			Philipp Wolf	
Continuation On (m)	0.070	test execution: Responsible for		Criet	Linda Höcker ian Enachescu	
Section diameter, 2·r _w (m):	0.076	test evaluation:		Clist	ian Enachescu	
Linear plot Q and p		Flow period		Recovery period	1	
		Indata		Indata		
		p ₀ (kPa) =	4086			
4200 KLX27A_452.30-457.30_080.201_1_CHir_Q_r	0.10	p _i (kPa) =	NA			
4180	P section P above P below Q	$p_p(kPa) =$	NA	p _F (kPa) =	NA	
4160	•	$Q_p (m^3/s) =$	NA			
4140 -		tp (s) =	NA	t _F (s) =	NA	
4120 8 4120	N S S S S S S S S S S S S S S S S S S S	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06	
1 m m m m m m m m m m m m m m m m m m m		EC _w (mS/m)=		` ,		
4080 -	· .	Temp _w (gr C)=	13.4			
4020	÷	Derivative fact.=	NA	Derivative fact.=	NA	
4940						
4020 0.00 0.10 0.20 0.30 0.4 Elapsed 1	0 0.50 0.50 0.70 0.80					
		Results		Results		
		$Q/s (m^2/s)=$	NA			
Log-Log plot incl. derivates- fl	ow period	$T_M (m^2/s) =$	NA			
0 0.	·	Flow regime:	transient	Flow regime:	transient	
		$dt_1 \text{ (min)} =$	NA	dt ₁ (min) =	NA	
		$dt_2 (min) =$	NA	dt_2 (min) =	NA	
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-11	
		S (-) =	NA	S (-) =	1.0E-06	
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-12	
		S _s (1/m) =	NA	S _s (1/m) =	2.0E-07	
Not an	alysed	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	NA	
		$C_D(-) =$	NA	$C_D(-) =$	NA	
		ξ(-) =	NA	ξ(-) =	NA	
		<i>⊳</i> (⁻) −		S (-) -		
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA	
		$S_{GRF}(III/S) =$ $S_{GRF}(-) =$	NA	$S_{GRF}(m/s) =$ $S_{GRF}(-) =$	NA	
		$D_{GRF}(-)$ =	NA	D _{GRF} (-) =	NA	
Log-Log plot incl. derivatives-	recovery period	Selected represe			<u> </u>	
-3 3 p		dt_1 (min) =	NA	C (m ³ /Pa) =	NA	
		dt_1 (min) =	NA	$C_D(-) =$	NA	
		$T_T (m^2/s) =$	1.0E-11		NA	
		S (-) =	1.0E-06		1	
		$K_s (m/s) =$	2.0E-12			
		$S_s(1/m) =$	2.0E-07			
N T-1	almad	Comments:	2.02 07			
Not an	arysed		esnonse (prolong	ed packer complian	ce) the interval	
		transmissivity is set			,	

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHi
Area:	Laxemar	Test no:			1
Alea.	Laxemai	restrio.			'
Borehole ID:	KLX27A	Test start:			080201 13:16
Test section from - to (m):	477.30-482.30	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Crist	Linda Höcker ian Enachescu
ocoulon diameter, 2 Tw (m).	0.070	test evaluation:		Onot	ian Endonesse
Linear plot Q and p		Flow period		Recovery period	ı
		Indata		Indata	
		p ₀ (kPa) =	4306		
KLX27A_477.30-482.30_080201_1_CHir_Q_r	• P section	p _i (kPa) =	NA		
4450 -	P section P shows P ballow Q 0.00	$p_p(kPa) =$	NA	p _F (kPa) =	NA
4400	/ /	$Q_p (m^3/s) =$	1.67E-04		
(e ₀)		tp (s) =	NA	t_F (s) =	NA
4350	o o o o o o o o o o o o o o o o o o o	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
4000		EC _w (mS/m)=			
		Temp _w (gr C)=	13.7		
4250	- 0.02	Derivative fact.=	NA	Derivative fact.=	NA
4200 0.10 0.20 0.30	0.40 0.50 0.60 0.70				
0.00 0.10 0.20 0.30 Elaps	sed Time (N				
		Results		Results	
		Q/s $(m^2/s)=$	NA		
Log-Log plot incl. derivates-	flow period	$T_{\rm M} (m^2/s) =$	NA		
		Flow regime:	transient	Flow regime:	transient
		dt_1 (min) =	NA	dt_1 (min) =	NA
		dt_2 (min) =	NA	dt_2 (min) =	NA
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-1
		S (-) =	NA	S (-) =	1.0E-06
		$K_s (m/s) =$	NA	K _s (m/s) =	2.0E-12
27.		$S_s(1/m) =$	NA	S _s (1/m) =	2.0E-0
Not a	nnalysed	$C (m^3/Pa) =$	NA	C (m³/Pa) =	NA
		C _D (-) =	NA	C _D (-) =	NA
		ξ (-) =	NA	ξ(-) =	NA
			Î		
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives	- recovery period	Selected repres	entative paran	neters.	<u> </u>
		$dt_1 (min) =$	NA	C (m ³ /Pa) =	NA
		$dt_2 (min) =$	NA	$C_D(-) =$	NA
		$T_T (m^2/s) =$	1.0E-11		NA
		S (-) =	1.0E-06		
		$K_s (m/s) =$	2.0E-12		
		S _s (1/m) =	2.0E-07		
Not a	analysed	Comments:			
11011	y	Based on the test re	esponse (prolong	ed packer complian	ce) the interval
		transmissivity is se			,
1					
1					

	Test S	umr	nary Sheet				
Project:	Oskarshamn site investi	gation	Test type:[1]			CH	
A == 0.	l av		Took no.				
Area:	Lax	kemar	Test no:				
Borehole ID:	KL	X27A	Test start:			080201 14:2	
Test section from - to (m):	482.30-4	87.30	Responsible for test execution:	Philipp Wol Linda Höcker			
Section diameter, 2·r _w (m):		0.076	Responsible for		Crist	ian Enacheso	
• •			test evaluation:				
Linear plot Q and p			Flow period		Recovery period	1	
			Indata	•	Indata		
			p ₀ (kPa) =	4350			
%440 KLX27A_482.30-487.30_080201_1_CHir_Q_r	P section P above	0.10	p _i (kPa) =	NA			
4420	P sacton P shows P below O	0.08	$p_p(kPa) =$	NA	p _F (kPa) =	NA	
4400			$Q_p (m^3/s) =$	NA			
§ 4100			tp (s) =	NA	t _F (s) =	NA	
Fe Class		ection Rate	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0	
8 4540. •	:	0.04 불	EC _w (mS/m)=				
4320		0.02	Temp _w (gr C)=	13.8			
4300		1000	Derivative fact.=	NA	Derivative fact.=	NA	
4280	0.40 0.50 0.60	0.00					
Elapsed Ti	me [h]						
			Results		Results		
			Q/s $(m^2/s)=$	NA			
Log-Log plot incl. derivates- flo	ow period		$T_{\rm M} (m^2/s) =$	NA			
			Flow regime:	transient	Flow regime:	transient	
			$dt_1 (min) =$	NA	dt_1 (min) =	NA	
			dt_2 (min) =	NA	dt_2 (min) =	NA	
			$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-1	
			S (-) =	NA	S (-) =	1.0E-0	
			K_s (m/s) =	NA	$K_s (m/s) =$	2.0E-1	
N. A	1 1		$S_s (1/m) =$	NA	$S_s (1/m) =$	2.0E-0	
Not an	arysed		C (m³/Pa) =	NA	C (m³/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. derivatives-	recovery period		Selected represe	entative param			
			dt_1 (min) =	NA	C (m ³ /Pa) =	NA	
			dt ₂ (min) =	NA	C _D (-) =	NA	
			$T_T (m^2/s) =$	1.0E-11		NA	
			S (-) =	1.0E-06			
			K _s (m/s) =	2.0E-12			
			$S_s (1/m) =$	2.0E-07			
Not analysed			Comments:				
			Based on the test re transmissivity is set		ed packer complian s.	ce) the interval	

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation				CHir
Area:	Laxema	r Test no:			1
Borehole ID:	KI Y27/	Test start:			080201 15:33
Test section from - to (m):	487.30-492.30	Responsible for test execution:			Philipp Wolf Linda Höckert
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
4520 🕶	• 0.10	p ₀ (kPa) =	4393		
KLX27A_487.30-492.30_080201_1_CHir_Q_r	Pascion Patow Posiow	p _i (kPa) =	NA	(1.5.)	77.
4480	Q 0.06	$p_p(kPa) =$	NA	p _F (kPa) =	NA
4460 -	/ : I	$Q_p (m^3/s) =$	NA		
(eg.g) 4440 -	· · · · · · · · · · · · · · · · · · ·	tp (s) =	NA	t _F (s) =	NA
g 420 0	10.00 Hg mg mg mg mg mg mg mg mg mg mg mg mg mg	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
4300		EC _w (mS/m)=	12.2		
4350 -		Temp _w (gr C)=	13.9		27.4
4340	a a a a a administrativa de a a administrativa de a a a a a a a a a a a a a a a a a a	Derivative fact.=	NA	Derivative fact.=	NA
4320 0.00 0.10 0.20 0.30	0.00 0.50 0.70 aid Time (h)				
		Deculto		Deculto	
		Results	NA	Results	
Lan Lan platinal daminatas d	ilanı paviad	Q/s $(m^2/s)=$			
Log-Log plot incl. derivates- f	low period	$T_{\rm M}$ (m ² /s)=	NA	Flavora sima a	transiant
		Flow regime: dt ₁ (min) =	transient NA	Flow regime:	transient NA
		$dt_1 (min) =$ $dt_2 (min) =$	NA NA	$dt_1 (min) = $ $dt_2 (min) = $	NA
			NA		1.0E-11
		$T (m^2/s) = S (-) =$	NA	T (m2/s) = S (-) =	1.0E-11
		$K_s (m/s) =$	NA	$K_s(m/s) =$	2.0E-12
		$S_s(1/m) =$	NA	$S_s(11/s) = S_s(1/m) = S_s(1/m)$	2.0E-12
Not a	nalysed	$C (m^3/Pa) =$	NA	, ,	NA
		$C_D(-) =$	NA	$C (m^3/Pa) = C_D (-) =$	NA
			NA	ξ(-) =	NA
		ξ (-) =	INA	S (-) –	IVA
		T (m²(n) -	NA	T (m²/a) -	NA
		$\frac{T_{GRF}(m^2/s) =}{S_{GRF}(-)} =$	NA	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA
		$D_{GRF}(-)$ =	NA	$D_{GRF}(-) =$	NA
Log-Log plot incl. derivatives	- recovery period	Selected represe			
J - J p		$dt_1 \text{ (min)} =$	NA	$C (m^3/Pa) =$	NA
		$dt_2 \text{ (min)} =$	NA	$C_D(-) =$	NA
		$T_T (m^2/s) =$	1.0E-11		NA
		S (-) =	1.0E-06		
		K_s (m/s) =	2.0E-12		
		$S_s(1/m) =$	2.0E-07		
Not a	nalysed	Comments:			
		Based on the test re transmissivity is se		ged packer complian s.	ce) the interval

	Test S	Sumn	nary Sheet			
Project:	Oskarshamn site investi	gation	Test type:[1]			CHi
Area:	Lax	xemar	Test no:			1
Borehole ID:	KL	_X27A	Test start:	080201 16:4		
Test section from - to (m):	402.20.4	107 20	Responsible for			Philipp Wol
rest section from - to (m).	492.30-4	+97.30	test execution:			Linda Höcker
Section diameter, 2·r _w (m):		0.076	Responsible for		Crist	ian Enachescu
			test evaluation:		*********************	2000000000000000
Linear plot Q and p			Flow period		Recovery period	
			Indata	4.42.7	Indata	1
4700 T		0.000	p ₀ (kPa) =	4437		
KLX27A_492.30-497.30_080201_1_CHir_Q_r	P section P above P below O		$p_i (kPa) =$ $p_o(kPa) =$	4452	p _F (kPa) =	445
4600	•0	0.025		1.83E-07	ρ _F (KFa) =	443.
4000		- 0.020	$Q_p (m^3/s) = tp (s) =$		t _F (s) =	3600
- 4200 ·		to Denies			S el S [*] (-)=	1.00E-0
84 egg-4200		Injection Rate	S el S [*] (-)= EC _w (mS/m)=	1.00E-00	S el S (-)=	1.00E-0
4400		0.010	Temp _w (gr C)=	13.9		
**************************************	e e	- 0.005	Derivative fact.=		Derivative fact.=	0.0
4400			Benvative last.	0.00	Derivative fact.	0.0
4320 0.00 0.50 1.00 Elapsed 1	1.50 2.00 Time (h)	0.000				
			Results		Results	
			$Q/s (m^2/s)=$	9.0E-09		
Log-Log plot incl. derivates- fl	ow period		$T_M (m^2/s) =$	7.5E-09		
	<u> </u>		Flow regime:	transient	Flow regime:	transient
Elapsed time (h)			$dt_1 (min) =$	0.49	$dt_1 (min) =$	2.48
10 ⁴ 10 ³ 10 ⁴		ļ,,, ,	$dt_2 (min) =$	14.61	dt_2 (min) =	21.0
		10	$T (m^2/s) =$	9.6E-09	$T (m^2/s) =$	2.0E-0
		300	S (-) =	1.0E-06	. ,	1.0E-0
10 1			$K_s (m/s) =$	1.9E-09	$K_s (m/s) =$	4.0E-0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	•	10 2	S _s (1/m) =	2.0E-07	$S_s (1/m) =$	2.0E-0
	•	30 (tuin)) (t	C (m ³ /Pa) =	NA	C (m³/Pa) =	1.3E-1
10 °		1/4.(1/4	C _D (-) =	NA	C _D (-) =	1.4E-0
· · ·		10 1	ξ (-) =	3.2	ξ (-) =	8.9
	Land Contract	3				
<u> </u>	· · · · · · · · · · · · · · · · · · ·	ļ	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ³ 10 ⁴ tD	10 10 10		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
			D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period		Selected represe			
			$dt_1 (min) =$	2.48	O (III /I d)	1.3E-1
Elapsed time [h]		1,	$dt_2 (min) =$		C _D (-) =	1.4E-0
		10	$T_T (m^2/s) =$	2.0E-08		8.9
		300	S (-) =	1.0E-06		
10 ¹		[.	$K_s (m/s) = S_s (1/m) =$	4.0E-09		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		10 2		2.0E-07		
	*	30 g-0	Comments:		L	
10 0		900			f 2.0E-8 m2/s was do hows the better data	
	The state of the s	10 1			ization. The confide	
	· · · · · · · · · · · · · · · · · · ·		the interval transmis	ssivity is estimat	ted to be 5E-9 m2/s	to 8E-8 m2/s.
		3			ng the test is 2. The	
10 ° 10 ¹ tD/CD	10 ² 10 ³ 10 ⁴	4			derived from the CH rner plot to a value	
			• Scraiged time extranc		ruer morto a Value i	UL 4 4 3 / T KPA

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxemar	Test no:			
Borehole ID:	KLX27A	Test start:			080202 08:26
Test section from - to (m):	497.30-502.30	Responsible for test execution:			Philipp Wol Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for			an Enachescu
• •		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	4483		
4750	0.040 *P section	p _i (kPa) =	4499		
4708	P action P above P below Q	$p_p(kPa) =$	4694	p _F (kPa) =	451
4650	2.030	$Q_p (m^3/s) =$	2.17E-07		
: .	0.025	tp (s) =	1200	t _F (s) =	1200
8 400 mg / 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0.020 8	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
\$ 4000 ·	0.015	EC _w (mS/m)=		. ,	
400	2010	Temp _w (gr C)=	14.1		
4450		Derivative fact.=	0.11	Derivative fact.=	0.0
3					
0.00 0.20 0.40 0.50 0. Elapsed Time	0.000 1.00 1.40 (h)				
		Results		Results	<u>l</u>
		Q/s $(m^2/s)=$	1.1E-08		
Log-Log plot incl. derivates- flo	w period	$T_M (m^2/s) =$	9.0E-09		
<u> </u>	•	Flow regime:	transient	Flow regime:	transient
		$dt_1 \text{ (min)} =$	0.57	$dt_1 \text{ (min)} =$	0.5
Elapsed time (h) 10 2 10 2 10 2 10 2 10 2 10 2 10 2 10	-1 10,° 10,1	$dt_2 (min) =$		$dt_2 (min) =$	1.3
	10 3	$T (m^2/s) =$		$T (m^2/s) =$	3.0E-0
	300	S (-) =	1.0E-06	/	1.0E-0
d	300	$K_s (m/s) =$		$K_s (m/s) =$	6.0E-0
	10 ²	$S_s(1/m) =$		S _s (1/m) =	2.0E-0
0 *0 *00 000	D.A.M.	$C (m^3/Pa) =$	NA	C (m ³ /Pa) =	1.7E-1
·	30	$C_D(-) =$	NA	$C_D(-) =$	1.9E-0
10 %	10 1			ξ(-) =	6.
		ξ(-) =	0.0	Ç (-) –	0.
	3	- , 2,)	NA	- , 2, ,	NA
10 1 10 2 ED	10 10 10 5	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA
		$S_{GRF}(-) = D_{GRF}(-) =$	NA	$D_{GRF}(-) =$	NA
Log-Log plot incl. derivatives- r	acovery period	Selected represe			INA
Log-Log piot ilici. delivatives- f	ecovery periou	dt ₁ (min) =	0.57		1.7E-1
Elapsed time [h]	4			$C (m^3/Pa) = C_D (-) =$	1.7E-1 1.9E-0
10 2 1012	10,	$dt_2 (min) =$		` '	1.9E-0.
		$T_{T}(m^{2}/s) = S(-) =$	8.8E-09	ξ(-) =	0.0
	300	9 ()	1.0E-06		
10 1		$K_s (m/s) =$	1.8E-09		
7,5,4	. 10 *	$S_s(1/m) =$	2.0E-07		
	30	Comments:	,	20.0.10.027	1 : 10
10.0	8			8.8•10-9 m2/s was zone). The confider	
	10 1			ted to be 5.0•10-9 m	
				ation of the derivative	
	3	a flow dimension of	f 2 was assumed	. The static pressure	measured at
				d CIT: 1 .	1 . 1 .
10 ° 10 ¹ tD/CD	10 ² 10 ³ 10 ⁴	transducer depth, w		the CHII phase usin value of 4,492.4 kI	

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHir
Area:	Laxemar	Test no:			1
Borehole ID:	KLX27A	Test start:			080202 10:21
Test section from - to (m):	502.30-507.30	Responsible for			Philipp Wolf
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Criet	Linda Höckert ian Enachescu
Section diameter, 21 _w (iii).	0.070	test evaluation:		Clist	ian Enachescu
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	4526		
KLX27A_502.30-507.30_802202_1_CHir_Q_r	0.006	p _i (kPa) =	4552		
4750	Paedion Pabove Pholow O 0.005	$p_p(kPa) =$	4749	p _F (kPa) =	4557
4700	\	$Q_p (m^3/s) =$	3.00E-08		
· · ·	0.004	tp (s) =	1200	t _F (s) =	1200
450	7 20 00 00 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1	S el S [*] (-)=		S el S [*] (-)=	1.00E-06
60 4000	: lifedon	EC _w (mS/m)=		3 61 3 (-)-	
4050	0.002	Temp _w (gr C)=	14.1		
	0.001	Derivative fact.=		Derivative fact.=	0.02
		20		20	
4420 0.00 0.20 0.40 0.60 Elapsed	0.000 1.000 1.20 1.400 Time (h)				
		Results		Results	
		$Q/s (m^2/s)=$	1.5E-09		
Log-Log plot incl. derivates- f	low period	$T_M (m^2/s) =$	1.2E-09		
	ien penieu	Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =		dt ₁ (min) =	NA
Elapsed time [h]	10.2	$dt_2 \text{ (min)} =$		$dt_2 \text{ (min)} =$	NA
		$T (m^2/s) =$		$T (m^2/s) =$	1.3E-09
8 8 8 9 9	300	S (-) =	1.0E-06	` '	1.0E-06
. 10 %		K _s (m/s) =		K _s (m/s) =	2.6E-10
·	102	S _s (1/m) =		$S_s(1/m) =$	2.0E-07
(day)	30	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	3.0E-11
	• days	a ' / \	NA	~	3.3E-03
10 -1	10 1	C _D (-) = ε (-)		$C_D(-) = $ $\xi(-) = $	2.4
		ξ(-) =	1.4	ς (-) –	2.7
	3	T (21)	NA	T (21)	NA
10 ° 10 ° tD	10 2 10 3 10 4	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$D_{GRF}(-)$ =	NA	$S_{GRF}(-) = D_{GRF}(-) =$	NA
Log-Log plot incl. derivatives-	racovary pariod	Selected represe			IVA
Log-Log plot illoi. delivatives.	1000 voi y periou	dt ₁ (min) =	NA	C (m ³ /Pa) =	3.0E-11
.3Elapsed time (t	n) ., o	$dt_1 (min) =$ $dt_2 (min) =$	NA NA	$C (m^3/Pa) =$ $C_D (-) =$	3.3E-03
10 1		, ,	1.3E-09		3.3E-03 2.4
		$T_{T} (m^{2}/s) =$ $S (-) =$	1.0E-06		2.4
/*	10 ²	$K_s (m/s) =$	2.6E-10		
10°	TA.	$S_s(1/m) =$	2.0E-10 2.0E-07		
<i>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</i>	30	Comments:	∠.UE-U/		
	10 1	The recommended	tranomicairit	f 1 3E 0 m2/2 J	arized from the
10 1	9 00	analysis of the CHi			
ı + ′ ′	3	quality. The confide	ence range for th	e interval transmiss	ivity is
/·					
<i></i>	710 °	estimated to be 9E-			
<i>/</i> ·		stabilization of the	derivative was re	eached, a flow dime	nsion of 2 was
10 ⁻¹ 10 ⁻⁰ soci	10 1 10 2		derivative was re pressure measu	eached, a flow dime red at transducer de	nsion of 2 was pth, was derived

	Test Sumr	nary Sheet				
Project:	Oskarshamn site investigation	Test type:[1]			CHir	
Area:	Laxemar	Toot no:			1	
Alea.	Laxemai	restrio.		I		
Borehole ID:	KLX27A	Test start:		080202		
Test section from - to (m):	507.30-512.30	Responsible for test execution:			Philipp Wolf Linda Höckerf	
Section diameter, 2·r _w (m):	0.076	Responsible for		Cris	tian Enachescu	
	0.01	test evaluation:				
Linear plot Q and p		Flow period		Recovery period	d	
		Indata		Indata		
		p ₀ (kPa) =	4569			
4750 KLX27A_507.39-512.39_080202_1_CHir_Q_r	0.10 Pector Patove Patove	p _i (kPa) =	NA		<u> </u>	
4700 -	P Declare P Declare O Declare	$p_p(kPa) =$	NA	p _F (kPa) =	NA	
		$Q_p (m^3/s) =$	NA		<u> </u>	
4650	• • • • • • • • • • • • • • • • • • •	tp (s) =	NA	t_F (s) =	NA	
(eg) amos es a cocut		S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06	
8 4000	- Ook M	EC _w (mS/m)=				
400	· · · · · · · · · · · · · · · · · · ·	Temp _w (gr C)=	14.2		<u> </u>	
*************************************	• • • • • • • • • • • • • • • • • • • •	Derivative fact.=	NA	Derivative fact.=	NA	
4500 0.00 0.10 0.20 0.30	0.40 0.50 0.60 0.70					
Elap	Sed Time [h]					
		Results		Results		
		Q/s $(m^2/s)=$	NA		<u> </u>	
Log-Log plot incl. derivates-	flow period	$T_{\rm M} (m^2/s) =$	NA			
		Flow regime:	transient	Flow regime:	transient	
		$dt_1 (min) =$	NA	dt_1 (min) =	NA	
		dt_2 (min) =	NA	dt_2 (min) =	NA	
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-11	
		S (-) =	NA	S (-) =	1.0E-06	
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-12	
Not :	analysed	$S_s(1/m) =$	NA	$S_s(1/m) =$	2.0E-07	
14017	anarysed	$C (m^3/Pa) =$	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. derivatives	s- recovery period	Selected repres				
		$dt_1 (min) =$	NA	$C (m^3/Pa) =$	NA	
		dt_2 (min) =	NA	$C_D(-) =$	NA	
		$T_T (m^2/s) =$	1.0E-11		NA	
		S (-) =	1.0E-06			
		$K_s (m/s) =$	2.0E-12			
		$S_s (1/m) =$	2.0E-07			
Not a	analysed	Comments:				
				ged packer compliar	nce) the interval	
		transmissivity is se	t to 1.0E-11 m2/	S.		

	Test S	umn	nary Sheet			
Project:	Oskarshamn site investig	gation	Test type:[1]			CH
Area:	Lax	emar	Test no:			
Borehole ID:	KI	X27Δ	Test start:			080202 14:4
Test section from - to (m):	512.30-5	17.30	Responsible for test execution:			Philipp Wo Linda Höcke
Section diameter, 2·r _w (m):		0.076	Responsible for		Crist	ian Enacheso
			test evaluation:			
Linear plot Q and p			Flow period		Recovery period	
			Indata p ₀ (kPa) =	4612	Indata	1
4650		T 0.10	$p_0 (kPa) =$ $p_i (kPa) =$	4612 NA		
KLX27A_512.30-517.30_080202_1_CHir_Q_r	Paccion Pabros Pakow Planow		$p_{p}(kPa) =$	NA NA	p _F (kPa) =	NA
4000 -		0.08	$Q_{p} (m^{3}/s) =$	NA	ρ _F (Ki α) –	IVA
4750	/		tp (s) =		t _F (s) =	NA
Teal terms a cross-	/	Rate [Ymin]			S el S [*] (-)=	1.00E-0
Downtholes		P Injection i	S el S [*] (-)= EC _w (mS/m)=	1.00£ 00	J El J (-)-	1.001-0
4000	/		Temp _w (gr C)=	14.2		
4000		0.02	Derivative fact.=	NA	Derivative fact.=	NA
4550 0.00 0.10 0.20 0.30 Elapsed	0.40 0.50 0.50 Time [h]	0.00				
			Results		Results	1
			$Q/s (m^2/s)=$	NA		
Log-Log plot incl. derivates- fl	low period		$T_{\rm M} (m^2/s) =$	NA		
			Flow regime:	transient	Flow regime:	transient
			dt_1 (min) =	NA	dt_1 (min) =	NA
			dt_2 (min) =	NA	dt_2 (min) =	NA
			$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-1
			S (-) =	NA	S (-) =	1.0E-0
			$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-1
Not as	nalysed		$S_s (1/m) =$	NA	$S_s(1/m) =$	2.0E-0
Not al	larysea		$C (m^3/Pa) =$	NA	C (m³/Pa) =	NA
			$C_D(-) =$	NA	$C_D(-) =$	NA
			ξ (-) =	NA	ξ (-) =	NA
			2	NI A	2	NIA.
			$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
			$S_{GRF}(-) =$	NA NA	S _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period		D _{GRF} (-) = Selected represe	NA ntative param	D _{GRF} (-) =	NA
Log-Log piot ilici. derivatives-	recovery period		dt ₁ (min) =	NA		NA
			$dt_1 (min) =$ $dt_2 (min) =$	NA NA	$C (m^3/Pa) = C_D (-) =$	NA
			$T_T (m^2/s) =$	1.00E-11		NA
			S (-) =	1.00E-11		. " .
			K _s (m/s) =	2.0E-12		
			S _s (1/m) =	2.0E-07		
Not as	nalysed		Comments:			1
- 00	-		Based on the test re transmissivity is set		ed packer complian s.	ce) the interval

	Test Sum	mary Sheet				
Project:	Oskarshamn site investigation	n Test type:[1]			CHir	
		-				
Area:	Laxema	ar Test no:			1	
Borehole ID:	KLX27	A Test start:		080202 15:57		
Test section from - to (m):	517.30-522.3	0 Responsible for			Philipp Wolf	
	0.05	test execution:			Linda Höcker	
Section diameter, 2·r _w (m):	0.07	6 Responsible for test evaluation:		Crist	tian Enachescu	
Linear plot Q and p		Flow period		Recovery period	1	
		Indata		Indata		
		p ₀ (kPa) =	4657			
4850	2.00	p _i (kPa) =	NA		1	
KLX27A_617.30-522.30_080202_1_CHir_Q_r	P action P above P below Q	$p_p(kPa) =$	NA	p _F (kPa) =	NA	
4850	0.05	$Q_p (m^3/s) =$	NA		1	
4000 · .	, and E	tp (s) =	NA	t_F (s) =	NA	
Ted 1750	none parameter (management of the parameter (S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06	
- 1700 -	<u> </u>	EC _w (mS/m)=		Ī ,		
4650		Temp _w (gr C)=	14.3			
4600	0.02	Derivative fact.=	NA	Derivative fact.=	NA	
4550	200					
4500 0.00 0.10 0.20 0.30 Elapsed T	0.40 0.20 0.20 0.70					
		Results		Results		
		Q/s $(m^2/s)=$	NA			
Log-Log plot incl. derivates- fl	ow period	$T_{\rm M} (m^2/s) =$	NA			
	<u> </u>	Flow regime:	transient	Flow regime:	transient	
		$dt_1 (min) =$	NA	$dt_1 (min) =$	NA	
		dt_2 (min) =	NA	dt_2 (min) =	NA	
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-11	
		S (-) =	NA	S (-) =	1.0E-06	
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-12	
		S _s (1/m) =	NA	$S_s (1/m) =$	2.0E-07	
Not an	alysed	$C (m^3/Pa) =$	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. derivatives-	recovery period	Selected repres	entative paran			
		$dt_1 (min) =$	NA	$C (m^3/Pa) =$	NA	
		dt_2 (min) =	NA	$C_D(-) =$	NA	
		$T_T (m^2/s) =$	1.0E-11		NA	
		S (-) =	1.0E-06			
		$K_s (m/s) =$	2.0E-12			
		$S_s (1/m) =$	2.0E-07			
Not an	alysed	Comments:				
				ged packer complian	ice) the interval	
		transmissivity is se	t to 1.0E-11 m2/	S.		

	Test Sum	mary Sheet				
Project:	Oskarshamn site investigation	Test type:[1]			CHir	
Area:	Laxema	r Test no:			1	
	20.707110					
Borehole ID:	KLX27	Test start:	080202 17:0			
Test section from - to (m):	522.30-527.30	Responsible for			Philipp Wolf	
		test execution:			Linda Höckert	
Section diameter, 2·r _w (m):	0.076	Responsible for test evaluation:		Crist	ian Enachescu	
Linear plot Q and p		Flow period		Recovery period		
		Indata	-1	Indata	•] •] •] •] •] •] •] •] •] •]	
		p ₀ (kPa) =	4700			
4000 KLX27A_522.30-527.30_080202_1_CHir_Q_r	0.10	p _i (kPa) =	NA			
4780	P above	$p_p(kPa) =$	NA	p _F (kPa) =	NA	
4760 -		$Q_p (m^3/s) =$	NA			
C 470	· · · · · · · · · · · · · · · · · · ·	tp (s) =	NA	t_F (s) =	NA	
4720	like con land li	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-06	
å 400		EC _w (mS/m)=				
4550	+ 0.022	Temp _w (gr C)=	14.3		27.4	
4550		Derivative fact.=	NA	Derivative fact.=	NA	
4640 0.00 0.10 0.20 0.30 Elapsed	0.40 0.50 0.50 0.70					
справо	ime [n]	Results		Results		
			NA	Results	I	
Log-Log plot incl. derivates- fl	ow period	Q/s $(m^2/s)=$ T _M $(m^2/s)=$	NA			
Log-Log plot mei. denvates- n	ow period	Flow regime:	transient	Flow regime:	transient	
		dt ₁ (min) =	NA	dt ₁ (min) =	NA	
		$dt_2 (min) =$	NA	dt_2 (min) =	NA	
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-11	
		S (-) =	NA	S (-) =	1.0E-06	
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-12	
		$S_s (1/m) =$	NA	$S_s(1/m) =$	2.0E-07	
Not ar	nalysed	$C (m^3/Pa) =$	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. derivatives-	recovery period	Selected represe		-	Taxa	
		dt ₁ (min) =	NA	$C (m^3/Pa) =$	NA	
		$dt_2 (min) =$	NA 1.0F.11	C _D (-) =	NA	
		$T_T (m^2/s) =$	1.0E-11 1.0E-06		NA	
		$S(-) = K_s(m/s) =$	2.0E-12			
		$S_s(1/m) =$	2.0E-12 2.0E-07			
Ma4 a	nalysed	Comments:	Z.JL=01	<u> </u>	<u> </u>	
1,00 a.	ini yood	Based on the test re transmissivity is se		ged packer complian s.	ce) the interval	

	Test S	umr	nary Sheet				
Project:	Oskarshamn site investig	gation	Test type:[1]			CHi	
A == 0.	Lav		Took no.				
Area:	Lax	temar	Test no:				
Borehole ID:	KL	X27A	Test start:		080203 08:4		
Test section from - to (m):	527.30-5	32.30	Responsible for test execution:			Philipp Wol	
Section diameter, 2·r _w (m):		0.076	Responsible for		Crist	tian Enachescu	
• •			test evaluation:	<u> </u>			
Linear plot Q and p			Flow period		Recovery period	1	
			Indata	_	Indata		
			p ₀ (kPa) =	4748			
KLX27A_527.30-532.30_080203_1_CHir_Q_r	Paction Parture	0.10	p _i (kPa) =	NA		<u> </u>	
4910	P below Q	0.08	$p_p(kPa) =$	NA	p _F (kPa) =	NA	
4790			$Q_p (m^3/s) =$	NA			
Po 4770	· · · · · · · · · · · · · · · · · · ·	0.05	tp (s) =	NA	t _F (s) =	NA	
4750		P P P P P P P P P P P P P P P P P P P	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-06	
A730 ·	•	0.04 B	EC _w (mS/m)=				
4710	6 8 8 2 Malana nanananananananananananananananana	+ 0.02	Temp _w (gr C)=	14.5			
4570		0.02	Derivative fact.=	NA	Derivative fact.=	NA	
4550 0.00 0.10 0.20 0.30	0.40 0.50 0.00	0.00					
Elapsed T							
			Results		Results		
			Q/s $(m^2/s)=$	NA			
Log-Log plot incl. derivates- flo	ow period		$T_M (m^2/s)=$	NA			
			Flow regime:	transient	Flow regime:	transient	
			dt_1 (min) =	NA	dt_1 (min) =	NA	
			dt_2 (min) =	NA	dt_2 (min) =	NA	
			$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-11	
			S (-) =	NA	S (-) =	1.0E-06	
			$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-12	
			$S_s (1/m) =$	NA	$S_s (1/m) =$	2.0E-07	
Not an	alysed		$C (m^3/Pa) =$	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. derivatives-	recovery period		Selected repres			1	
	<u>-</u>		$dt_1 \text{ (min)} =$	NA .	C (m ³ /Pa) =	NA	
			$dt_2 \text{ (min)} =$	NA	$C_D(-) =$	NA	
			$T_T (m^2/s) =$	1.0E-11		NA	
			S (-) =	1.0E-06			
			$K_s (m/s) =$	2.0E-12			
			S _s (1/m) =	2.0E-07		†	
Not an	alvsed		Comments:			1	
			Based on the test re transmissivity is se		ed packer complian s.	ice) the interval	

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation				CHir
Area:	Laxemar	Test no:			1
71100.	Eaxemai	1 651 110.			'
Borehole ID:	KLX27A	Test start:			080203 09:54
Test section from - to (m):	532.30-537.30	Responsible for			Philipp Wolf
		test execution:			Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for test evaluation:		Crist	ian Enachescu
Linear plot Q and p		Flow period		Recovery period	
zmear pret q and p		Indata		Indata	
		p ₀ (kPa) =	4791	IIIdata	1
9050	1 006	p _i (kPa) =	4806		
KLX27A_532.30-537.30_080203_1_CHir_Q_r	P action P acros P below	$p_p(kPa) =$		p _F (kPa) =	4811
	0.05		4.00E-07		4011
4950	-	$Q_p (m^3/s) =$			120/
Fundamental and a second	[Desemble of	tp (s) =		t _F (s) =	1200
B 4 00 4 4 5 5 0 4 5 5 0 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	0.00 8	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
	0.02	EC _w (mS/m)=			
	`	Temp _w (gr C)=	14.5		0 -
4720	0.01	Derivative fact.=	0.04	Derivative fact.=	0.01
4700 0.00 0.40 0.50 Elapsed	0.00 1.00 1.20 1.40 Time (h)				
		Results		Results	
		$Q/s (m^2/s)=$	2.0E-08		
Log-Log plot incl. derivates- fl	low period	$T_{\rm M} (m^2/s) =$	1.6E-08		
	,	Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =		dt ₁ (min) =	0.26
Elapsed time (h)		$dt_2 \text{ (min)} =$		$dt_2 \text{ (min)} =$	0.80
		$T (m^2/s) =$		$T (m^2/s) =$	3.1E-08
	300	S (-) =	1.0E-06		1.0E-06
	10 ²	$K_s (m/s) =$		$K_s (m/s) =$	6.2E-09
10		$S_s(1/m) =$		$S_s(1/m) =$	2.0E-07
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	30	-	NA		1.1E-11
CON	J. (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	$C (m^3/Pa) =$	NA	$C (m^3/Pa) = C_D (-) =$	1.1E-11
10 0		$C_D(-) =$			2.9
· , · , · , · .	3	ξ (-) =	0.4	ξ(-) =	2.8
	•••	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ¹ 10 ²	10 3 10 4 10 5	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			ı
<u> </u>		$dt_1 \text{ (min)} =$	0.62		1.1E-11
Elapsed time [h]	10, 2	$dt_2 \text{ (min)} =$		$C_D(-) =$	1.2E-03
10 2		$T_T (m^2/s) =$	1.6E-08		0.4
	10 3	S (-) =	1.0E-06		J.,
	300	$K_s (m/s) =$	3.1E-09		
10 1	300	$S_s(1/m) =$	2.0E-07		
a la la la la la la la la la la la la la	10 ²	Comments:	1 2.32 37	<u> </u>	
i	(S)	1	transmissivity of	f 1.6E-8 m2/s was d	erived from the
10 0	30 8			ows a clear horizon	
[And	The confidence ran	ge for the interv	al transmissivity is e	estimated to be
		8E-9 m2/s to 8E-8 i			
l	3			t transducer depth, v	
10 ⁰ 10 ¹	10 ² 10 ³ 10 ⁴	to a value of 4,799.		line extrapolation in	me Horner plot
		u varue or 4,779.	. A. u.		

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHir
Area:	Laxema	Test no:			1
Borehole ID:	KLX27A	Test start:			080203 11:51
Test section from - to (m):	537.30-542.30	Responsible for test execution:			Philipp Wol
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
. ,		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	4834		
KLX27A_537.30-542.30_080203_1_CHir_Q_r	• Psection • Psection	p _i (kPa) =	NA	(1.5.)	27.4
5000	P section P above P below P below O 0	$p_p(kPa) =$	NA	p _F (kPa) =	NA
4050 -		$Q_p (m^3/s) =$	NA		27.4
[PGH] our	- 0.00 pg	tp (s) =	NA	t _F (s) =	NA
# 4000 -	oze sepada	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
4550	100 E	EC _w (mS/m)=			
		Temp _w (gr C)=	14.6		
4000		Derivative fact.=	NA	Derivative fact.=	NA
4750 0.00 0.10 0.20 0.30	040 0.50 0.60 0.70				
Elaps	sed Time [h]	D Ita		D!6-	
		Results	INIA	Results	
		Q/s (m ² /s)=	NA		
Log-Log plot incl. derivates-	now period	$T_M (m^2/s) =$	NA	<u> </u>	4
		Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =	NA	$dt_1 (min) =$	NA
		$dt_2 \text{ (min)} =$	NA	dt ₂ (min) =	NA 1.05.1
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-1
		S (-) =	NA	S (-) =	1.0E-0
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-1
Not a	analysed	S _s (1/m) =	NA	$S_s(1/m) =$	2.0E-0
		$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	NA
		$C_D(-) =$	NA	$C_D(-) =$	NA
		ξ (-) =	NA	ξ (-) =	NA
		2	NIA.	2	NIA.
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		S _{GRF} (-) =	NA	$S_{GRF}(-) =$	NA
log log plotical daminations	, recovery paried	D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives	- recovery period	Selected represe			INΙΛ
		dt ₁ (min) =	NA	$C (m^3/Pa) =$	NA
		$dt_2 (min) =$	NA 1 OF 11	C _D (-) =	NA
		$T_T (m^2/s) =$	1.0E-11		NA
		S (-) =	1.0E-06		
		$K_s (m/s) =$	2.0E-12 2.0E-07		
		S _s (1/m) = Comments:	2.UE-U/		
NOT 2	analysed	Based on the test re transmissivity is set			ce) the interval

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHir
Area:	Laxemar	Test no:			1
Alea.	Laxemai	restrio.			1
Borehole ID:	KLX27A	Test start:			080203 13:01
Test section from - to (m):	542.30-547.30	Responsible for test execution:	Philipp Linda Hö		
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	tian Enachescu
, ,		test evaluation:	<u> </u>		
Linear plot Q and p		Flow period		Recovery period	k
		Indata		Indata	_
		p ₀ (kPa) =	4877		<u> </u>
KLX27A_542.30-547.30_080203_1_CHir_Q_r	P section P show P blow	p _i (kPa) =	NA	(1.5.)	127.
9190 *	P below Q 0.08	$p_p(kPa) =$	NA	p _F (kPa) =	NA
5100	/	$Q_p (m^3/s) =$	NA		27.4
(2000 ·	0.00 [m]	tp (s) =	NA	t _F (s) =	NA
\$ 2000 -	Company of the compan	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
8 4000	4 • • • • • • • • • • • • • • • • •	EC _w (mS/m)=	111		<u> </u>
4900		Temp _w (gr C)=	14.6		27.4
4850 -		Derivative fact.=	NA	Derivative fact.=	NA
4000 0.50 0.50 0.20 0.30 Element	0.40 0.50 0.50 0.70				
шараво	ene (d	Results		Results	
			NA	Results	T
Log-Log plot incl. derivates- fl	ow pariod	Q/s $(m^2/s)=$	NA		
Log-Log plot ilici. derivates- il	ow period	T _M (m ² /s)= Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =	NA	dt ₁ (min) =	NA
		$dt_1 \text{ (min)} =$ $dt_2 \text{ (min)} =$	NA	$dt_1 (min) =$ $dt_2 (min) =$	NA
		2	NA	2	1.0E-11
		T (m2/s) = S (-) =	NA	T (m²/s) = S (-) =	1.0E-11
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-12
		$S_s(11/s) = S_s(1/m) = S_s(1/m)$	NA	$S_s(11/s) = S_s(1/m) = S_s(1/m)$	2.0E-12
Not ar	alysed	$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	NA
		$C_D(-) =$	NA	$C_D(-) =$	NA
		ξ(-) =	NA	ξ(-) =	NA
		ç (-) —	10.1	ç (-) —	10/1
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			1
<u> </u>		$dt_1 \text{ (min)} =$	NA	$C (m^3/Pa) =$	NA
		$dt_2 \text{ (min)} =$	NA	$C_D(-) =$	NA
		$T_T (m^2/s) =$	1.0E-11		NA
		S (-) =	1.0E-06		
		$K_s (m/s) =$	2.0E-12		
		S _s (1/m) =	2.0E-07		
Not ar	alysed	Comments:			1
1.00 at	y 		esponse (prolong	ged packer complian	ice) the interval
		transmissivity is se			

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxema	ar Test no:			
Borehole ID:	KLX27	A Test start:			080203 15:16
Test section from - to (m):	547.30-552.3	0 Responsible for			Philipp Wol
		test execution:			Linda Höcker
Section diameter, 2·r _w (m):	0.07	6 Responsible for test evaluation:		Crist	ian Enachescı
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	4926		
KLX27A_547.30-552.30_080293_1_CHir_Q_r	0.010	p _i (kPa) =	4943		
9150	P section P above P below Q	$p_p(kPa) =$	5155	p _F (kPa) =	494
5100	0.008	$Q_p (m^3/s) =$	7.67E-08		
To a second	0.000 2	tp (s) =	1200	t_F (s) =	120
		S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
9000	0.004	EC _w (mS/m)=		()	
420		Temp _w (gr C)=	14.7		
4000	0.002	Derivative fact.=	0.08	Derivative fact.=	
400 nm n n n n n n n n n n n n n n n n n	0.00 1.00 1.20 1.40				
Elapsed T	line (h)	Results		Results	
		$Q/s (m^2/s) =$	3.5E-09		
og-Log plot incl. derivates- fl	ow period		2.9E-09		
Log-Log plot men denvates- m	ow period	T _M (m ² /s)= Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =		dt ₁ (min) =	NA
Elapsed time [h]	10,-1	$dt_1 (min) =$ $dt_2 (min) =$		$dt_1 (min) =$ $dt_2 (min) =$	NA
	3000	$T (m^2/s) =$		$T (m^2/s) =$	4.4E-0
	10 3	S (-) =	1.0E-06	` '	1.0E-0
		$K_s (m/s) =$		$K_s (m/s) =$	8.7E-1
10	300	$S_s(1/m) =$		$S_s(1/m) =$	2.0E-0
	10 ²	$C_s(7/11)$ = $C_s(7/11)$ = $C_s(7/11)$ =	NA	C (m ³ /Pa) =	1.5E-1
		$C_D(-) =$	NA	$C(m/Pa) = C_D(-) =$	1.6E-0
10	30			ξ(-) =	3.9
	*	ξ (-) =	2.3	ς (-) =	3.,
	and a mark a a a a	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ² 10 ³	10 ⁴ 10 ⁵ 10 ⁶	$S_{GRF}(-) =$	NA	$S_{GRF}(III / S) =$	NA
		$D_{GRF}(-) =$	NA	$D_{GRF}(-) =$	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			101
-og -og plot mon domatitos	Todavary pariou	dt ₁ (min) =	NA	C (m ³ /Pa) =	1.5E-1
Elapsed time [h]	101	$dt_2 \text{ (min)} =$	NA	$C_D(-) =$	1.6E-0
10 2	.30,	$T_T (m^2/s) =$	4.4E-09		3.9
	10 3	S (-) =	1.0E-06		0.0
		$K_s (m/s) =$	8.7E-10		
10 1	300	$S_s(1/m) =$	2.0E-07		
	2	Comments:	2.0L-01		
A service services .	10 2	6	transmissivity of	f 4.4E-9 m2/s was d	erived from the
10 °	30			hows the better data	
· /	par.			ne interval transmiss	
/.	10 1	estimated to be 1E-	9 m2/s to 1E-8 1	m2/s. The analyses v	vere conducted
<i></i>				atic pressure measur	
10 ° 10 1 tD/CD	10 2 10 3 10 4 3			hase using straight l	
		extrapolation in the	Horner plat to	1 1/2 hip of /1 (12 V 2 let	Da .

	Test Sumi	nary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxemai	Test no:			
Borehole ID:	VI V27A	Test start:			080203 17:16
Borellole ID.	NLX21P	rest start.			060203 17.10
Test section from - to (m):	552.30-557.30	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Crist	Linda Höcker ian Enachesci
	0.01	test evaluation:			
Linear plot Q and p		Flow period		Recovery period	1
		Indata	40.5	Indata	1
	100	p ₀ (kPa) =	4965		
KLX27A_552.30-557.30_000203_1_CHir_Q_r	P section P station P below P below O	p _i (kPa) =	4985	n (kDa) =	400
5200	- Q - Q - Q - Q - Q - Q - Q - Q - Q - Q	$p_p(kPa) =$		p _F (kPa) =	498
5150		$Q_p (m^3/s) = $	2.50E-08		260
5 5100		tp (0)		tr (0)	360 1.00E-0
P	rys ction Re	S el S [*] (-)= EC _w (mS/m)=	1.00E-00	S el S [*] (-)=	1.00E-0
		Temp _w (gr C)=	14.7		
	1001	Derivative fact.=		Derivative fact.=	
4900	<u> </u>	Delivative lact	0.12	Derivative fact.	
4900 0.00 0.50 1.00 Elapsed Ti	1.00 2.00 ma [h]				
		Results		Results	I
		Q/s $(m^2/s)=$	1.2E-09		
og-Log plot incl. derivates- fl	ow period	$T_{\rm M} (m^2/s) =$	1.0E-09		
		Flow regime:	transient	Flow regime:	transient
Elapsed time [h]		dt_1 (min) =	0.41	dt_1 (min) =	NA
10 2 10 10 10 10 10 10 10 10 10 10 10 10 10	10 4	dt_2 (min) =	12.49	dt_2 (min) =	NA
		$T (m^2/s) =$	9.7E-10	$T (m^2/s) =$	1.2E-0
	3000	S (-) =	1.0E-06	S (-) =	1.0E-0
10 1	*40.3	$K_s (m/s) =$	1.9E-10	$K_s (m/s) =$	2.3E-1
· · · · · · · · · · · · · · · · · · ·	·	$S_s (1/m) =$	2.0E-07	$S_s(1/m) =$	2.0E-0
	300	$C (m^3/Pa) =$	NA	C (m ³ /Pa) =	2.2E-1
10 0	ž	$C_D(-) =$	NA	$C_D(-) =$	2.4E-0
	10	ξ (-) =	1.8	ξ (-) =	2.
	30				
10 1 10 2	10 3 10 4 10 5	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
tD		S _{GRF} (-) =	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			1 0054
Elapso d time to		dt ₁ (min) =	NA	$C (m^3/Pa) =$	2.2E-1
10 ² Elapsed time (h)	191 3000	dt ₂ (min) =	NA 4 0F 00	C _D (-) =	2.4E-0
	1000	$T_T (m^2/s) =$	1.2E-09		2.
	10 3	S (-) =	1.0E-06		
10 1		K _s (m/s) =	2.3E-10		
	300	$S_s (1/m) =$	2.0E-07		
	10 ²	Comments:			
				f 1.2E-9 m2/s was d	
	30	analysis of the CHir quality. The confide			
;;*/	10 1	estimated to be 9E-			
1 ./				atic pressure measur	
<i>-</i>	†				
10 ¹ 10 ⁰ ED/CD	10 1 10 2 10 3	depth, was derived extrapolation in the	from the CHir p	hase using straight l	ine

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxema	ar Test no:			
Borehole ID:	KLX27	A Test start:			080204 08:38
Test section from - to (m):	557 30-562 3	0 Responsible for			Philipp Wol
rest essuer from to (m).	007.00 002.0	test execution:			Linda Höcker
Section diameter, 2·r _w (m):	0.07	6 Responsible for test evaluation:		Crist	ian Enachescu
Linear plot Q and p		Flow period		Recovery period	
· · · · · · · · · · · · · · · · · · ·		Indata		Indata	
		p ₀ (kPa) =	5011		
5300	0.0030	p _i (kPa) =	5058		
KLX27A_557.30-562.30_080204_1_CHir_Q_r	P section P above P below	$p_p(kPa) =$	5233	p _F (kPa) =	505
5300	1002	$Q_{p} (m^{3}/s) =$	1.67E-08		1
· 5150	0.0020	tp(s) =		t _F (s) =	120
8 s ssoo		S el S [*] (-)=		S el S [*] (-)=	1.00E-0
a stranger		EC _w (mS/m)=	1.002 00	3 61 3 (-)-	1.002 0
9000	0.0010	Temp _w (gr C)=	14.8		
	0.0005	Derivative fact.=		Derivative fact.=	0.0
4500		Delivative fact.	0.13	Derivative fact	0.0
0.00 0.20 0.40 0.50 0.10 Elapsed Time (h	.00 1.20 1.40 1.60 1.80				
		Results	0.05.40	Results	1
		Q/s $(m^2/s)=$	9.3E-10		
Log-Log plot incl. derivates- flov	v period	$T_{\rm M} ({\rm m}^2/{\rm s}) =$	7.7E-10		
		Flow regime:	transient	Flow regime:	transient
3 Bapsed time [h]		$dt_1 (min) =$		dt ₁ (min) =	NA
10 2		$dt_2 (min) =$		$dt_2 (min) =$	NA
1	10	$T (m^2/s) =$		$T (m^2/s) =$	1.1E-0
†	3000	S (-) =	1.0E-06	, ,	1.0E-0
10 1		K_s (m/s) =		K_s (m/s) =	2.2E-1
	10 ³	$S_s (1/m) =$		$S_s(1/m) =$	2.0E-0
		$C (m^3/Pa) =$	NA	C (m³/Pa) =	1.8E-1
10 10	300	[₹] C _D (-) =	NA	$C_D(-) =$	2.0E-0
	10 ²	ξ (-) =	1.9	ξ (-) =	3.
	30	- , 2,)	NA	- , 2, ,	NA
10 ¹ 10 ²	10 3 10 4 10 5	$T_{GRF}(m^2/s) =$	NA NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) = D_{GRF}(-) =$	NA NA	$S_{GRF}(-) = D_{GPF}(-) =$	NA
Log Log platinal desireatives, we	accusing married	- GRI ()		- GRI ()	INA
Log-Log plot incl. derivatives- re	ecovery period	Selected represe	NA		1 4054
Elapsed time [h]		dt ₁ (min) =		$C (m^3/Pa) =$	1.8E-1
10 2 10,3	10,0	$dt_2 (min) =$	NA	C _D (-) =	2.0E-0
	10 ³	$T_T (m^2/s) =$	1.1E-09		3.5
	10	S (-) =	1.0E-06		
10 *]	300	K_s (m/s) =	2.2E-10		
		$S_s (1/m) =$	2.0E-07		
Continuing.	10 ²	हु Comments:			
A STATE OF THE STA	į			f 1.1E-9 m2/s was d	
10	30	analysis of the CHi			
	10 1	quality. The confidence estimated to be 6E-		ne interval transmiss	
<i>.</i>	Į.			m2/s. The analyses atic pressure measure	
10 10 10 10 10 10 10 10 10 10 10 10 10 1	10 2 10 3	depth, was derived			
tD/CD		extrapolation in the			
		_			

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHir
Area:	Laxemar	Test no:			1
Alca.	Laxemai	rest no.			ľ
Borehole ID:	KLX27A	Test start:			080204 10:40
Test section from - to (m):	562.30-567.30	Responsible for			Philipp Wolf
Section diameter 2:r (m):	0.076	test execution: Responsible for		Criet	Linda Höckeri ian Enachescu
Section diameter, 2·r _w (m):	0.076	test evaluation:		Crist	ian Enachescu
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p_0 (kPa) =	5053		
5250 KLX27A_562.30-567.30_080204_1_CHir_Q_r	0.10	p _i (kPa) =	NA		
5200 -	P pacton P show P below O	$p_p(kPa) =$	NA	p _F (kPa) =	NA
	/ [$Q_p (m^3/s) =$	NA		
9190 -	000 ह	tp (s) =	NA	t_F (s) =	NA
(g) 1 as 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.00 Feb.	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
5000 Pool		EC _w (mS/m)=			
	;	Temp _w (gr C)=	14.9		
5000	- 0.02	Derivative fact.=	NA	Derivative fact.=	NA
4050 0.00 0.10 0.20 0.30	0.40 0.20 0.80 0.70				
Elapsed	Time [h]				
		Results	N. I.A.	Results	ı
		Q/s $(m^2/s)=$	NA		
Log-Log plot incl. derivates- f	low period	$T_{\rm M} ({\rm m}^2/{\rm s}) =$	NA		
		Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =	NA	$dt_1 (min) =$	NA
		dt ₂ (min) =	NA	dt_2 (min) =	NA 1.05.11
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-11
		S (-) =	NA	S (-) =	1.0E-06
		K_s (m/s) =	NA	$K_s (m/s) =$	2.0E-12
Not a	nalysed	S _s (1/m) =	NA	$S_s (1/m) =$	2.0E-07
	•	$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	NA
		C _D (-) =	NA	C _D (-) =	NA
		ξ (-) =	NA	ξ (-) =	NA
		T (==2/=)	NA	T (==2/=)	NA
		$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA
		$D_{GRF}(-) =$	NA	$D_{GRF}(-) =$	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			INA
For blot mor delivatives.		dt ₁ (min) =	NA	C (m ³ /Pa) =	NA
		$dt_1 \text{ (min)} =$ $dt_2 \text{ (min)} =$	NA	$C(m/Pa) = C_D(-) =$	NA
		$T_T (m^2/s) =$	1.0E-11		NA
		S (-) =	1.0E-11		
		$K_s (m/s) =$	2.0E-12		
		$S_s(1/m) =$	2.0E-12		
N-4	nalysed	Comments:	2.32 37	<u> </u>	
		Based on the test re transmissivity is set		ed packer complian s.	ce) the interval

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxemar	Test no:			
Borehole ID:	KI X27A	Test start:			080204 12:28
Test section from - to (m):	567.30-572.30	Responsible for test execution:			Philipp Wol Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	5097		
S350 KLX27A_567.30-572.30_080204_1_CHir_Q_r	• P section	p _i (kPa) =	5127		
5300	P section P store P below Q	$p_p(kPa) =$	5333	p _F (kPa) =	513
5250	0.003	$Q_p (m^3/s) =$	1.83E-08		
	· Press	tp (s) =	1200	t_F (s) =	120
: \	· \	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
9500		EC _w (mS/m)=			
9100	-0.001	Temp _w (gr C)=	14.9		
5000		Derivative fact.=	0.19	Derivative fact.=	0.0
0.00 0.20 0.40 0.50 0.80 Elepsed Tim	1.00 120 1.40 1.60 1.80 me [h]				
		Results		Results	<u> </u>
		$Q/s (m^2/s) =$	8.7E-10		
Log-Log plot incl. derivates- flo		$T_{\rm M} (m^2/s) =$	7.2E-10		
99 prot	7 F 004	Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =		$dt_1 \text{ (min)} =$	NA
Elapsed time (h)		$dt_2 (min) =$		$dt_2 \text{ (min)} =$	NA
	F ₁₀ *	$T (m^2/s) =$		$T (m^2/s) =$	1.9E-0
		S (-) =	1.0E-06	\ /	1.0E-0
10 1	3000	K_s (m/s) =		$K_s (m/s) =$	3.8E-1
்	· · · · · · · · · · · · · · · · · · ·	$S_s(1/m) =$		$S_s(1/m) =$	2.0E-0
• • • • • • • • • • • • • • • • • • • •	To Dear	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	1.9E-1
• • • • • • • • • • • • • • • • • • • •	300	$C_D(-) =$	NA	$C_D(-) =$	2.1E-0
	102	ξ(-) =		ξ (-) =	10.
:					
10 ¹ 10 ²	10 ³ 10 ⁴ 10 ⁵	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
to		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	ntative paran	neters.	
		$dt_1 (min) =$	NA	C (m ³ /Pa) =	1.9E-1
Elapsed time [h]		dt_2 (min) =	NA	$C_D(-) =$	2.1E-0
	10 3	$T_T (m^2/s) =$	1.9E-09		10.
	300	S (-) =	1.0E-06		
10 1		$K_s (m/s) =$	3.8E-10		
	10 2	$S_s(1/m) =$	2.0E-07		
	***	Comments:			
	30 8			f 1.9E-9 m2/s was de	
10"	10 1			hows the best data a ne interval transmiss	
<i>J.</i>				m2/s. A flow dimer	
<i>f.</i>					vrus
. :/:	3	assumed. The static			pth, was derive
10 0 10/00	10 2 10 2		pressure measu e using straight	red at transducer de	

	Test Sumn	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHi
Area:	Laxemar	Test no:			1
Borehole ID:	KLX27A	Test start:			080204 14:39
Test section from - to (m):	572.30-577.30	Responsible for			Philipp Wol
		test execution:			Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for		Cristi	ian Enachescı
Linear plot Q and p		test evaluation: Flow period		Recovery period	
Lillear plot Q and p		Indata		Indata	
		p ₀ (kPa) =	5141	iiiuata	1
5400	0.000				
KLX27A_572.30-577.30_080204_1_CHir_Q_r	P action P above P below	p _i (kPa) =	5162	n /kDa \ -	510
3350	· P coulow	$p_p(kPa) =$		p _F (kPa) =	518.
5300	0.004	$Q_p (m^3/s) =$	5.00E-08		120
<u></u>	- Legendo	tp (s) =		t _F (s) =	120
00 200	la de la companya del companya de la companya de la companya del companya de la companya del la companya de la	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
**	0002	EC _w (mS/m)=			
3150		Temp _w (gr C)=	15		
5100		Derivative fact.=	0.1	Derivative fact.=	0.0
0.00 0.20 0.40 0.00 0.30 Elapsed Tin	1.00 120 1.40 1.00 (h)				
		Results	•	Results	II.
		Q/s $(m^2/s)=$	2.4E-09		
og-Log plot incl. derivates- flo	ow period	$T_{\rm M}$ (m ² /s)=	1.9E-09		
	-	Flow regime:	transient	Flow regime:	transient
Elaosed time Ihi		dt ₁ (min) =	0.41	dt ₁ (min) =	1.78
10 1 10, 10 10 10 10 10 10 10 10 10 10 10 10 10	2	dt_2 (min) =	14.00	dt_2 (min) =	15.54
	and the second	$T (m^2/s) =$		$T (m^2/s) =$	7.6E-1
a median de la maria	300	S (-) =	1.0E-06	. ,	1.0E-0
10 0	10 2	$K_s (m/s) =$		K _s (m/s) =	1.5E-1
		S _s (1/m) =		S _s (1/m) =	2.0E-0
	30	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	1.8E-1
	Libert West	$C_D(-) =$	NA	$C_D(-) =$	1.9E-0
10 -1	-	ξ(-) =		ξ(-) =	-0.
	3	ç (-) –	0.0	ç (-) –	-0.
	40.0	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10° 10 1	10 2 10 3 10 6	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	ntative paran		1
		dt ₁ (min) =	-	$C (m^3/Pa) =$	1.8E-1
Elapsed time [h]	10. ⁻¹ 10.0 10.1	dt_2 (min) =		$C_D(-) =$	1.9E-0
10 1		$T_T (m^2/s) =$	7.6E-10		-0.8
	300	S (-) =	1.0E-06		
		K_s (m/s) =	1.5E-10		
10 °	10 2	S _s (1/m) =	2.0E-07		
A Company of the Comp	- Control of the Cont	Comments:			<u> </u>
A Comment	30 68 (004)		transmissivity of	7.6E-10 m2/s was o	derived from th
10-1	10 1			nows the better data	
M.				e interval transmiss	
	3	estimated to be 6E-	10 m2/s to 8E-9	m2/s. The analyses	were conducted
/	,			atic pressure measur	
. 10 -1 10 0 tDICD	10 ¹ 10 ² 10 ³			hase using straight li value of 5,149.3 kF	
		extraporation in the	Troumer brot to a	. vaiue 01 J, 147.J KI	u.

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			Р
Area:	Laxemar	Test no:			
Borehole ID:	KLX27A	Test start:			080204 16:44
Test section from - to (m):	577.30-582.30	Responsible for test execution:		Philipp \ Linda Höc	
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
Lincon what O and w		test evaluation:			
Linear plot Q and p		Flow period Indata		Recovery period Indata	
		p ₀ (kPa) =	5185		
5450	T 0.010	$p_0 (kPa) =$ $p_i (kPa) =$	5202		
KLX27A_577.30-582.30_080204_1_Pi_Q_r	P section P phone P below P below O	$p_i(kPa) =$ $p_p(kPa) =$		p _F (kPa) =	520
5400	· o			ρ _F (κΡα) =	320
5350		$Q_p (m^3/s) =$	NA		
<u>a</u> 2000	-0.000 Grand	tp (s) =		t _F (s) =	720
2 220 E	ector Res	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
	2.004 \$	EC _w (mS/m)=			
5000	0.002	Temp _w (gr C)=	15.0		
5150	<u>:</u>	Derivative fact.=	NA	Derivative fact.=	0.0
5100	1.50 2.00 2.50				
Elaps	ed Time (h)	Danista		D!#-	
		Results	NA	Results	ı
		Q/s (m^2/s)=			
Log-Log plot incl. derivates-	now period	$T_{\rm M} (m^2/s) =$	NA · ·		
		Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =	NA	dt ₁ (min) =	13.6
		$dt_2 (min) =$	NA	$dt_2 (min) =$	44.6
		$T (m^2/s) =$	NA	$T(m^2/s) =$	9.4E-1
		S (-) =	NA	S (-) =	1.0E-0
		$K_s (m/s) =$	NA	K_s (m/s) =	1.9E-1
Not a	analysed	$S_s (1/m) =$	NA	$S_s (1/m) =$	2.0E-0
		$C (m^3/Pa) =$	NA	C (m³/Pa) =	1.4E-1
		$C_D(-) =$	NA	$C_D(-) =$	1.6E-0
		ξ (-) =	NA	ξ (-) =	1.
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives	- recovery period	Selected represe	-		
		$dt_1 (min) =$		C (m ³ /Pa) =	1.4E-1
10 2 Elapsed tim	[N] .''	dt_2 (min) =		$C_D(-) =$	1.6E-0
	3	$T_T (m^2/s) =$	9.4E-11		1.
	10 °	S (-) =	1.0E-06		
		K_s (m/s) =	1.9E-11		
10 1	0.3	$S_s(1/m) =$	2.0E-07		
	10.1 10.0 Mg	Comments:			
O CONTROL STATE ASSAULT	10 phagas			f 9.4•10-11 m2/s wa	
10 0	0.03			one). The confidence	
	-			to be $5.0 \cdot 10 - 11$ to 4 ng the test is 2. The	
	10 -2			e very low transmiss	
10 1 10 2	10 3 10 4 10 5	l said so or oraup	and to the		,-

Project: Oskarshamn site in Area: Borehole ID:	nvestigation Laxemar				Р
Borehole ID:		Toot no:			
Borehole ID:		HESLIIO.			1
Test section from - to (m): 582	KLX27A	Test start:			080205 08:24
I		Responsible for test execution:			Philipp Wol
Section diameter, 2·r _w (m):		Responsible for		Crist	ian Enachescu
, ,		test evaluation:	<u> </u>		
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
***	- 0.010	p ₀ (kPa) =	5229		
KLX27A_582.30-587.30_080205_1_Pi_Q_r	• P section	p _i (kPa) =	5251		
560	P section P showe P below Q OD06	$p_p(kPa) =$		p _F (kPa) =	526
5400		$Q_p (m^3/s) =$	NA		
P 5500	0.000 (C	tp (s) =		t_F (s) =	3600
5000	ect ion Rate	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
8 500	0.004	EC _w (mS/m)=			
500		Temp _w (gr C)=	15.1		
51500 ·	:	Derivative fact.=	NA	Derivative fact.=	0.0
200 CS CA CS CS CS CS CS CS CS CS CS CS CS CS CS	507 0,000				
		Results		Results	
		$Q/s (m^2/s) =$	NA		
Log-Log plot incl. derivates- flow period		$T_M (m^2/s) =$	NA		
		Flow regime:	transient	Flow regime:	transient
		$dt_1 (min) =$	NA	dt ₁ (min) =	1.7
		$dt_2 (min) =$	NA	$dt_2 (min) =$	26.30
		$T (m^2/s) =$	NA	$T (m^2/s) =$	2.3E-1
		S (-) =	NA	S (-) =	1.0E-0
		K _s (m/s) =	NA	$K_s (m/s) =$	4.7E-12
		S _s (1/m) =	NA	S _s (1/m) =	2.0E-0
Not analysed		C (m ³ /Pa) =	NA	C (m ³ /Pa) =	7.0E-12
		$C_D(-) =$	NA	$C_D(-) =$	7.7E-04
			NA		1.72-0-
		ξ (-) =	IVA	ξ (-) =	1
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives- recovery period		Selected represe			
3 - 3 p - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3		$dt_1 (min) =$	1.77	C (m ³ /Pa) =	7.0E-12
Elapsed time [h]		$dt_2 (min) =$		$C_D(-) =$	7.7E-04
10 2	10 1	$T_T (m^2/s) =$	2.3E-11		1.2
‡		S (-) =	1.0E-06		1
10 1	10 0	K _s (m/s) =	4.7E-12		
		S _s (1/m) =	2.0E-07		
		Comments:	2.52 57		
10	10 1 auf payrow		transmissivity of	£2.3E-11 m2/s was	derived from the
	Dec			ence range for the in	
10.7	10 -2	transmissivity is es	timated to be 1E-	-11 to 1E-10 m2/s.	The flow
·				is 2. The static pres	sure could not
<u> </u>		be extrapolated due	e to the very low	transmissivity.	
10 ⁻¹ 10 ⁰ 10 ¹ 10 ²	10 3				

	Test Sumi	nary Sheet			
Project:	Oskarshamn site investigation				CHir
Area:	Lavema	Test no:			1
Alea.	Laxeillai	restrio.			!
Borehole ID:	KLX27A	Test start:			080205 10:35
Test section from - to (m):	507 20 502 20	Responsible for	<u> </u>		Philipp Wolf
rest section from - to (iii).	507.50-592.30	test execution:			Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for	1	Crist	ian Enachescu
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	•
		p ₀ (kPa) =	5273		
KLX27A_587.30-592.30_080205_1_CHir_Q_r	• P section	p _i (kPa) =	5288		
5000	P section P paction P pation P pation Q 0.025	$p_p(kPa) =$		p _F (kPa) =	5289
5450	9,000	$Q_p (m^3/s) =$	9.50E-08		
<u>a</u> 5400		tp (s) =		t_F (s) =	1200
8 S350	0011 001 001 001	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
2330	2000	EC _w (mS/m)=			
5300		Temp _w (gr C)=	15.2		
5250	• •	Derivative fact.=	NA	Derivative fact.=	0.0
0.00 0.20 0.40 0.00 0.1	0.000				
Elapsed	Time (h)				
		Results		Results	1
		$Q/s (m^2/s) =$	4.7E-09		
Log-Log plot incl. derivates- fl	low period	$T_M (m^2/s)=$	3.8E-09		
		Flow regime:	transient	Flow regime:	transient
		$dt_1 (min) =$	NA	$dt_1 (min) =$	NA
		dt_2 (min) =	NA	dt_2 (min) =	NA
		$T (m^2/s) =$	NA	$T (m^2/s) =$	3.2E-09
		S (-) =	NA	S (-) =	1.0E-06
		$K_s (m/s) =$	NA	K_s (m/s) =	6.4E-10
Not ar	nalysed	$S_s (1/m) =$	NA	$S_s(1/m) =$	2.0E-07
Tvot di	illiysed	C (m³/Pa) =	NA	C (m³/Pa) =	1.1E-1
		$C_D(-) =$	NA	$C_D(-) =$	1.2E-03
		ξ (-) =	NA	ξ (-) =	0.6
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		S _{GRF} (-) =	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	entative param	neters.	
		dt_1 (min) =	NA	C (m ³ /Pa) =	1.1E-1
			NIA	$C_D(-) =$	1.2E-03
Elapsed time (h	1)	dt_2 (min) =	NA	- 10 ()	<u> </u>
10 19 19 19 10 10 10 10 10 10 10 10 10 10 10 10 10	10 10 2 10 10 10 10 10 10 10 10 10 10 10 10 10	$dt_2 (min) = T_T (m^2/s) =$	3.2E-09		0.0
Elapsed time (h.	10. 10. 10. 10. 10. 10. 10. 10. 10. 10.	· ,		ξ(-) =	0.6
10 Elapsod time (h	10 2 300 300 300 300 300 300 300 300 300	$T_T (m^2/s) =$	3.2E-09	ξ (-) =	0.6
10 Elapsed time (h	300	$T_{T}(m^{2}/s) = S(-) =$	3.2E-09 1.0E-06	ξ (-) =	0.6
Elepsed time [h	10° 200 200 200 200 200 200 200 200 200 2	$T_T (m^2/s) = S (-) = K_s (m/s) =$	3.2E-09 1.0E-06 6.4E-10	ξ (-) =	0.6
10 10 Elepsed time (h	100 100 100 100 100 100 100 100 100 100	$T_T (m^2/s) =$ $S (-) =$ $K_s (m/s) =$ $S_s (1/m) =$ Comments: The recommended	3.2E-09 1.0E-06 6.4E-10 2.0E-07 transmissivity of	ξ (-) = f 3.2E-9 m2/s was do	erived from the
Elapsed time (h	20 20	$T_T (m^2/s) =$ $S (-) =$ $K_s (m/s) =$ $S_s (1/m) =$ Comments: The recommended analysis of the CHi	3.2E-09 1.0E-06 6.4E-10 2.0E-07 transmissivity of r phase, which sl	ξ (-) = f3.2E-9 m2/s was do hows the better data	erived from the
Elapsed time (h	20 20	$T_T (m^2/s) =$ $S (-) =$ $K_s (m/s) =$ $S_s (1/m) =$ Comments: The recommended analysis of the CHi quality. The confid-	3.2E-09 1.0E-06 6.4E-10 2.0E-07 transmissivity of r phase, which slence range for the	ξ (-) = f3.2E-9 m2/s was do hows the better data the interval transmiss	erived from the and derivative ivity is
Elapsed time (h	20 20	T_T (m ² /s) = S (-) = K _s (m/s) = S _s (1/m) = Comments: The recommended analysis of the CHi quality. The confidestimated to be 9E-	3.2E-09 1.0E-06 6.4E-10 2.0E-07 transmissivity of r phase, which slence range for th: 10 m2/s to 1E-8	ξ (-) = f 3.2E-9 m2/s was do hows the better data be interval transmiss m2/s. The flow dim	erived from the and derivative ivity is ension
Elapsed time (h	30 30 30 30 30 30 30 30 30 30 30 30 30 3	T _T (m²/s) = S (-) = K _s (m/s) = S _s (1/m) = Comments: The recommended analysis of the CHi quality. The confidestimated to be 9E-displayed during th	3.2E-09 1.0E-06 6.4E-10 2.0E-07 transmissivity of r phase, which slence range for the 10 m2/s to 1E-8 e test is 2. The si	ξ (-) = f3.2E-9 m2/s was do hows the better data the interval transmiss	erived from the and derivative ivity is ension red at

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigatio				CHii
Area:	Laxema	r Test no:			1
Borehole ID:	KLX27	A Test start:			080205 13:05
Test section from to (m):	E02 20 E07 2	O Deenensible for			Dhilinn Mal
Test section from - to (m):	592.30-597.3	0 Responsible for test execution:			Philipp Wol
Section diameter, 2·r _w (m):	0.07	6 Responsible for		Crist	ian Enachescu
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p_0 (kPa) =	5317		
KLX27A_592.30-597.30_080205_1_CHir_Q_r	2.00 • P section	p _i (kPa) =	5331		
5550	P section P above P below Q	$p_p(kPa) =$		p _F (kPa) =	5331
: :	1.50	$Q_p (m^3/s) =$	1.87E-05		
2450		tp (s) =	1200	t_F (s) =	1200
24 5400	1.00 mg	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
Download	pod.	$EC_w (mS/m)=$			
5350	- 0.50	Temp _w (gr C)=	15.3		
		Derivative fact.=	0.08	Derivative fact.=	0.02
5250	0.80 1.00 1.20 1.40				
Elapsed T	ime [h]	Results		Results	
			9.2E-07	Nesuits	1
Log-Log plot incl. derivates- flo	our poried	Q/s $(m^2/s)=$	7.6E-07		
Log-Log plot incl. derivates- in	ow period	$T_{\rm M}$ (m ² /s)=			transiant
		Flow regime:	transient	Flow regime:	transient
Elapsed time (h)	10,-1	$dt_1 (min) =$		$dt_1 (min) =$	0.08
	3	$dt_2 (min) =$		dt_2 (min) =	5.33
		$T (m^2/s) =$		$T (m^2/s) =$	3.9E-06
* * * * * * * * * * * * * * * * * * *	10 °	S (-) =	1.0E-06		1.0E-06
10 1		$K_s (m/s) =$		$K_s (m/s) =$	7.9E-0
	0.3	$S_s(1/m) =$		$S_s (1/m) =$	2.0E-07
and setting	10 -1	$C (m^3/Pa) =$	NA	C (m³/Pa) =	2.8E-11
10 °		^g C _D (-) =	NA	$C_D(-) =$	3.1E-03
	0.03	ξ (-) =	8.2	ξ (-) =	22.0
** *	10-2				
10 10 10 11	10 22 10 33 10 44	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
tD.		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	_		
		$dt_1 (min) =$	0.77	C (m³/Pa) =	2.8E-11
10 -4 10 -3 Elapsed time [h]		$dt_2 (min) =$		C _D (-) =	3.1E-03
	300	$T_T (m^2/s) =$	2.2E-06	• •	8.2
		S (-) =	1.0E-06		
10 1	10 ²	$K_s (m/s) =$	4.3E-07		
		$S_s(1/m) =$	2.0E-07		
	30	Comments:			•
	10 '	The recommended	transmissivity of	f 2.2E-6 m2/s was de	erived from the
10	Anna a	analysis of the CHi	phase, which sh	ows slight better dat	a quality. The
	3			nsmissivity is estim	
•	F10 °			sion displayed durin	
10 ² 10 ³ tDrCD	10 4 10 5 10			sducer depth, was d	
		CHir phase using st value of 5,331.8 kP		polation in the Horn	er plot to a
			(1		

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxem	ar Test no:			
Borehole ID:	KI Y27	'A Test start:			080205 14:58
Test section from - to (m):	597.30-602.3	Responsible for test execution:			Philipp Wol
Section diameter, 2·r _w (m):	0.07	76 Responsible for		Crist	Linda Höcker an Enachescu
	0.0.	test evaluation:		0	
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p_0 (kPa) =	5358		
6650 KLX27A_997.30-602.30_080205_1_CHir_Q_r .	0.15	p _i (kPa) =	5374		
KLAZ/A_397.30-802.30_000205_1_UHII_Q_F	P section P above P below Q	$p_p(kPa) =$	5573	p _F (kPa) =	537:
5550		$Q_p (m^3/s) =$	1.20E-06		
\$	+ 0.10 	tp (s) =	1200	t_F (s) =	120
5450 -	e graduation of the control of the c	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
5400 -	i inpeter	EC _w (mS/m)=		(/	
330	0.05	Temp _w (gr C)=	15.3		<u> </u>
3300		Derivative fact.=	0.05	Derivative fact.=	0.0
5250	0.00				
0.00 0.20 0.40 0.60 Elapsed	0.80 1.00 1.20 1.40	Results		Decelle	
			E 0E 00	Results	
	 	Q/s $(m^2/s)=$	5.9E-08		
Log-Log plot incl. derivates- f	ow period	$T_{\rm M} ({\rm m}^2/{\rm s}) =$	4.9E-08		
		Flow regime:	transient	Flow regime:	transient
10, ⁻⁴ Elapsed time (h)		$dt_1 (min) =$		$dt_1 (min) =$	0.30
10 2	10 2	dt_2 (min) =		dt_2 (min) =	4.10
1	į	$T (m^2/s) =$		$T (m^2/s) =$	3.9E-0
	30	S (-) =	1.0E-06	S (-) =	1.0E-0
10 ¹	10 1	$K_s (m/s) =$	2.0E-08	$K_s (m/s) =$	7.7E-0
		$S_s (1/m) =$	2.0E-07	$S_s (1/m) =$	2.0E-0
	·	$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	1.0E-1
10 °	· · · · · · · · ·	$C_D(-) =$	NA	$C_D(-) =$	1.1E-0
•	10 °	ξ (-) =	5.2	ξ (-) =	34.0
	0.3				
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ° 10 ′ tD	10 ° 10 ° 10 °	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D_{GRF} (-) =	NA	D_{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	ntative paran	neters.	
		dt_1 (min) =	0.80	$C (m^3/Pa) =$	1.0E-1
Elapsed time (h)	101-2101-4	dt_2 (min) =		C _D (-) =	1.1E-0
	300	$T_T (m^2/s) =$	9.8E-08		5.2
		S (-) =	1.0E-06		1
· · ·	10 2	K_s (m/s) =	2.0E-08		
10 1	1	$S_s(1/m) =$	2.0E-07		
\.	30	© Comments:		<u>I</u>	<u> </u>
	10 1	8	transmissivity of	f 9.8E-8 m2/s was de	erived from the
1/				fidence range for the	
10 0					
10 5	3	transmissivity is est			
10 8	3	dimension displayed	d during the test	is 2. The static pres	sure measured
10 1 10 2	9 10°	dimension displayed at transducer depth,	d during the test was derived fro	is 2. The static pres	sure measured sing straight

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHi
Area:	Laxema	r Test no:			1
Borehole ID:	KLX27/	Test start:			080205 16:55
Test section from - to (m):	602.30-607.30	Responsible for test execution:			Philipp Wol Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for	for Cristia		ian Enachescu
		test evaluation:		<u></u>	
Linear plot Q and p		Flow period		Recovery period	
		Indata	5.400	Indata	I
5000 r	4 0.10	p ₀ (kPa) =	5403		
KLX27A_602.30-607.30_080205_1_CHir_Q_r	Paction Patore Patore Patore	p _i (kPa) =	NA	- (I-D-)	27.4
5400	P action P a tore P b done O	$p_p(kPa) =$	NA	p _F (kPa) =	NA
5460		$Q_p (m^3/s) =$	NA	t /-\	27.4
540 ease		tp (s) =	NA 1 00E 06	t _F (s) =	NA
5420		S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
8 5400		EC _w (mS/m)=	15.4		
5380	•	Temp _w (gr C)=	15.4		NA
5360		Derivative fact.=	NA	Derivative fact.=	NA
5340 0.00 0.10 0.20 0.30 Elepsed	0.40 0.50 0.60 0.70				
		Results		Results	
		Q/s $(m^2/s)=$	NA	resuits	
Log-Log plot incl. derivates- fl	ow period	$T_{\rm M} (m^2/s) =$	NA		
Log-Log plot ilici. delivates- il	ow period	Flow regime:	transient	Flow regime:	transient
		$dt_1 (min) =$	NA	dt ₁ (min) =	NA
		$dt_2 (min) =$	NA	$dt_2 \text{ (min)} =$	NA
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-1
		S (-) =	NA	S (-) =	1.0E-06
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-1
		$S_s(1/m) =$	NA	S _s (1/m) =	2.0E-0
Not ar	alysed	$C (m^3/Pa) =$			NA
		$C_D(-) =$			NA
		ξ (-) =			NA
		5()		5()	
		$T_{GRF}(m^2/s) =$	NA	$T_{opr}(m^2/e) =$	NA
		$S_{GRF}(III / S) =$	NA		NA
		$D_{GRF}(-) =$			NA
Log-Log plot incl. derivatives-	recovery period		NA D _{GRF} (-) = entative parameters.		1
<u> </u>		$dt_1 (min) =$	NA	C (m ³ /Pa) =	NA
		$dt_2 \text{ (min)} =$	NA	$C_D(-) =$	NA
		$T_T (m^2/s) =$	1.0E-11		NA
		S (-) =	1.0E-06		
		K_s (m/s) =	2.0E-12		
		$S_s(1/m) =$	2.0E-07		
Not ar	alvsed	Comments:	•		
		Based on the test re transmissivity is lov			ce) the interval

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHi
Area:	Laxemar	Test no:			1
Borehole ID:	KLX27A	Test start:	 		080205 18:08
Test section from - to (m):	607.30-612.30	Responsible for test execution:			Philipp Wol
Section diameter, 2·r _w (m):	0.076	Responsible for	r Cristian Er		ian Enachescu
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
-	2.00	p ₀ (kPa) =	5547		
KLX27A_607.30-612.30_080205_1_CHir_Q_r	P section P above Pablow	p _i (kPa) =	NA		
5510	P below Q	$p_p(kPa) =$	NA	p _F (kPa) =	NA
5480		$Q_p (m^3/s) =$	NA		
[6] 5470		tp (s) =	NA	t _F (s) =	NA
5450 5450	jung ang mangang	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
- 5430 ·		EC _w (mS/m)=			
5410	0.02	Temp _w (gr C)=	15.4		
5380		Derivative fact.=	NA	Derivative fact.=	NA
5370 0.00 0.10 0.20 0.30 Element	0.40 0.50 0.50 0.70				
Сприяс	rune frd	Deculto		Desults	
		Results	INIA	Results	
		Q/s (m^2/s)=	NA		
Log-Log plot incl. derivates- fi	ow period	$T_{\rm M} (m^2/s) =$	NA		
		Flow regime:	transient	Flow regime:	transient
		$dt_1 (min) =$	NA	dt ₁ (min) =	NA
		$dt_2 (min) =$	NA	dt ₂ (min) =	NA 1.05.1
		$T (m^2/s) =$	NA	$T (m^2/s) =$	1.0E-1
		S (-) =	NA	S (-) =	1.0E-0
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-1
Not ar	alysed	$S_s (1/m) =$	NA	$S_s(1/m) =$	2.0E-0
	•	$C (m^3/Pa) =$	NA	$C (m^3/Pa) =$	NA
		$C_D(-) =$	NA	$C_D(-) =$	NA
		ξ (-) =	NA	ξ (-) =	NA
		2	NIA.	2	NIA
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
Pig-Log plot incl. derivates- flow period Not analysed Not analysed Not analysed		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe			NΙΑ
		$dt_1 (min) =$	NA	$C (m^3/Pa) =$	NA
		$dt_2 (min) =$	NA 1 OF 11	C _D (-) =	NA
		$T_T (m^2/s) =$	1.0E-11		NA
		S (-) =	1.0E-06		
		$K_s (m/s) =$ $S_c (1/m) =$	2.0E-12 2.0E-07		
		$S_s (1/m) =$ Comments:	2.UE-U/		
inot ar	latysed			ed packer complian n2/s.	ce) the interval

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHir
Area:	Laxema	r Test no:			1
71100.					
Borehole ID:	KLX27A	Test start:			080206 08:28
Test section from - to (m):	612.30-617.30	Responsible for			Philipp Wolf
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for	Linda Hö Cristian Enac		
Coulon diameter, 21w (m).	0.07	test evaluation:			
Linear plot Q and p		Flow period		Recovery period	1
		Indata		Indata	
		p ₀ (kPa) =	5491		
KLX27A_612.30-617.30_080206_1_CHir_Q_r	. P section 0. to	p _i (kPa) =	NA		
5580 *	Р меском Р адохи Р harbow О	$p_p(kPa) =$	NA	p _F (kPa) =	NA
5540		$Q_p (m^3/s) =$	NA		
5000	000 1	tp (s) =	NA	t _F (s) =	NA
	Section Res (Tree)	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
8 5410	004 E	EC _w (mS/m)=	1.5.5		
5460	0.02	Temp _w (gr C)=	15.5		27.4
540		Derivative fact.=	NA	Derivative fact.=	NA
5420 0.00 0.10 0.20 0.30 Elapsed	0.40 0.50 0.00 0.70				
		Results		Results	
		Q/s $(m^2/s)=$	NA	Results	
Log-Log plot incl. derivates- fl	ow period	$T_{\rm M} (m^2/s) =$	NA		
20g 20g plot mon dont dico	on ponou	Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =	NA	dt ₁ (min) =	NA
		$dt_2 (min) =$	NA	dt_2 (min) =	NA
		$T (m^2/s) =$	NA	$T(m^2/s) =$	1.0E-11
		S (-) =	NA	S (-) =	1.0E-06
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-12
		S _s (1/m) =	NA	$S_s (1/m) =$	2.0E-07
Not ar	alysed	$C (m^3/Pa) =$	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. derivatives-	recovery period	Selected represe			
		$dt_1 (min) =$	NA	$C (m^3/Pa) =$	NA
		$dt_2 (min) =$	NA	C _D (-) =	NA
		$T_T (m^2/s) =$	1.0E-11		NA
		S (-) =	1.0E-06		
		$K_s (m/s) =$	2.0E-12		
		S _s (1/m) = Comments:	2.0E-07		
Not ar	alysed			ged packer complian n2/s.	ce) the interval

Project: Oskarshamn site ir Area: Borehole ID:	Laxemar KLX27A 7.30-622.30 0.076	Test type:[1] Test no: Test start: Responsible for test execution: Responsible for test evaluation: Flow period Indata p ₀ (kPa) = p _p (kPa) = Q _p (m³/s)= tp (s) = S el S (-)= EC _w (mS/m)=	5534 NA NA NA NA	Crist Recovery period Indata p _F (kPa) =	CHir 1 080206 09:36 Philipp Wolf Linda Höckert ian Enachescu
Borehole ID: Test section from - to (m): Section diameter, 2·r _W (m): Linear plot Q and p	7.30-622.30 0.076 0.076 0.076 0.00 0.00 0.00 0.00	Test start: Responsible for test execution: Responsible for test evaluation: Flow period Indata p ₀ (kPa) = p _i (kPa) = Q _p (m³/s)= tp (s) = S el S (-)=	NA NA NA	Recovery period Indata	Philipp Wolf Linda Höckert ian Enachescu
Borehole ID: Test section from - to (m): Section diameter, 2·r _w (m): Linear plot Q and p	7.30-622.30 0.076 0.076 0.076 0.00 0.00 0.00 0.00	Test start: Responsible for test execution: Responsible for test evaluation: Flow period Indata p ₀ (kPa) = p _i (kPa) = Q _p (m³/s)= tp (s) = S el S (-)=	NA NA NA	Recovery period Indata	Philipp Wolf Linda Höckert ian Enachescu
Test section from - to (m): Section diameter, 2·r _w (m): Linear plot Q and p	7.30-622.30 0.076 0.076 1.7 Section 1.7 S	Responsible for test execution: Responsible for test evaluation: Flow period Indata p ₀ (kPa) = p _i (kPa) = Q _p (m³/s)= tp (s) = S el S (-)=	NA NA NA	Recovery period Indata	Philipp Wolf Linda Höckert ian Enachescu
Section diameter, 2·r _W (m): Linear plot Q and p MXZ7A_61736-6230_86696_1_CHP_Q_r MX27A_61736-6230_86696_1_CHP_Q_r	0.076	test execution: Responsible for test evaluation: Flow period Indata $p_0 (kPa) = p_i (kPa) = p_p(kPa) = Q_p (m^3/s) = tp (s) = S el S (-) =$	NA NA NA	Recovery period Indata	Linda Höckert ian Enachescu
Linear plot Q and p	- F section - F se	Responsible for test evaluation: Flow period Indata $p_0 (kPa) = p_i (kPa) = p_p(kPa) = Q_p (m^3/s) = tp (s) = S el S (-) =$	NA NA NA	Recovery period Indata	ian Enachescu
Linear plot Q and p	- F section - F se	test evaluation: Flow period Indata $p_0 (kPa) = p_i (kPa) = p_p(kPa) = Q_p (m^3/s) = tp (s) = S el S (-) =$	NA NA NA	Recovery period Indata	
MIXTA_6173-62239_88096_1_CHa_Q_r 500 500 500 500 500 500 500 5		Indata $p_0 \text{ (kPa)} =$ $p_i \text{ (kPa)} =$ $p_p \text{ (kPa)} =$ $Q_p \text{ (m}^3/\text{s)} =$ $p_p \text{ (m}^3/\text{s)} =$ $p_p \text{ (m}^3/\text{s)} =$	NA NA NA	Indata	
## 100		$p_0 (kPa) =$ $p_i (kPa) =$ $p_p (kPa) =$ $p_p (kPa) =$ $Q_p (m^3/s) =$ $p_p (kPa) =$	NA NA NA		
500 500 500 500 500 500 500 500		$p_{i} (kPa) =$ $p_{p}(kPa) =$ $Q_{p} (m^{3}/s) =$ $tp (s) =$ $S el S (-) =$	NA NA NA	p _F (kPa) =	
000 000 000 000 000 000 000 000 000 00		$p_p(kPa) = Q_p (m^3/s) = tp (s) = S el S (-) =$	NA NA	p _F (kPa) =	
000 000 000 000 000 000 000 000 000 00		$Q_{p} (m^{3}/s) =$ tp (s) = $S el S^{*} (-) =$	NA	p _F (kPa) =	
677 600 600 600 600 600 600 600 600 600		tp (s) = S el S [*] (-)=		, ,	NA
5600 Section 100 S		S el S [*] (-)=	NA		
500 500 500 500 500 500 500 500 500 500				t _F (s) =	NA
540 00 010 020 030 044 020 020		I EC _w (mS/m)=	1.00E-06	S el S [*] (-)=	1.00E-06
540 00 010 020 030 040 070 070					<u> </u>
5420 m. 010 020 030 040 070 070	<u>:</u>	Temp _w (gr C)=	15.6		27.4
ESS CASS CASS CASS CASS CASS CASS CASS C		Derivative fact.=	NA	Derivative fact.=	NA
	0.70				
		Results		Results	
		Q/s $(m^2/s)=$	NA	resuits	T
Log-Log plot incl. derivates- flow period		$T_{M} (m^{2}/s) =$	NA		<u> </u>
Log-Log plot mei. denvates- now period		Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =	NA	dt ₁ (min) =	NA
		$dt_2 \text{ (min)} =$	NA	$dt_2 (min) =$	NA
		$T (m^2/s) =$	NA	$T(m^2/s) =$	1.0E-11
		S (-) =	NA	S (-) =	1.0E-06
		$K_s (m/s) =$	NA	$K_s (m/s) =$	2.0E-12
		S _s (1/m) =	NA	S _s (1/m) =	2.0E-07
Not analysed		$C (m^3/Pa) =$	NA	C (m ³ /Pa) =	NA
		$C_D(-) =$	NA	$C_D(-) =$	NA
		ξ (-) =	NA	ξ (-) =	NA
					1
		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
		S _{GRF} (-) =	NA	S _{GRF} (-) =	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives- recovery period		Selected represe		neters.	
		dt ₁ (min) =	NA	C (m ³ /Pa) =	NA
		dt_2 (min) =	NA	C _D (-) =	NA
		$T_T (m^2/s) =$	1.0E-11		NA
		S (-) =	1.0E-06		
		$K_s (m/s) =$	2.0E-12		
		$S_s (1/m) =$	2.0E-07		
Not analysed		Comments:			
		Based on the test re transmissivity is lov		ed packer complian n2/s.	ce) the interval

	Test Sumn	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHi
Area:	Laxemar	Test no:			1
Danahala ID.	I/I VOZA	T4 -44			000000 40:4
Borehole ID:	KLX2/A	Test start:			080206 10:47
Test section from - to (m):	622.30-627.30	Responsible for			Philipp Wol
Section diameter, 2·r _w (m):	0.076	test execution: Responsible for		Criet	Linda Höcker an Enachescu
Section diameter, 21 _w (III).		test evaluation:		Crist	an Enachesci
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	5578		
5850	*P section	p _i (kPa) =	5598		
KLX27A_622.30-627.30_080206_1_CHir_Q_r	P section P shows P below	$p_p(kPa) =$	5805	p _F (kPa) =	559
5750	200	$Q_p (m^3/s) =$	1.92E-05		
Te .	1.50 🕏	tp (s) =	1200	t _F (s) =	1200
2.200 -	The pivit	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
90 2550 -	100 4	EC _w (mS/m)=		0 0.0 ()	
5600		Temp _w (gr C)=	15.6		
***************************************	0.50	Derivative fact.=	0.01	Derivative fact.=	0.0
0.00 0.20 0.40 0.60 Elapse	0.00 1.00 1.00 1.40 d Time (h)				
		Results		Results	
		$Q/s (m^2/s)=$	9.1E-07		
Log-Log plot incl. derivates-	low period	$T_{\rm M} (m^2/s) =$	7.5E-07		
	To the position	Flow regime:	transient	Flow regime:	transient
		dt ₁ (min) =		dt ₁ (min) =	1.1
Elapsed tim	a [h]	$dt_2 (min) =$		$dt_2 \text{ (min)} =$	3.3
	10 °	$T (m^2/s) =$		$T (m^2/s) =$	3.2E-0
* 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		S (-) =	1.0E-06	, ,	1.0E-0
	0.3	K _s (m/s) =		K _s (m/s) =	6.4E-0
10	10 -1	$S_s(1/m) =$		$S_s(1/m) =$	2.0E-0
((day)		C (m ³ /Pa) =	NA	C (m ³ /Pa) =	8.5E-1
, add	0.03	a ' / \	NA	- 11	9.3E-0
10 -1		C _D (-) =		C _D (-) =	-3.
	10 -2	ξ (-) =	-1.4	ξ (-) =	-3.
	0.003	- , 2, ,	NA	- , 2, ,	NA
10 1 10 2	10 ³ 10 ⁴ 10 ⁵	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA	$T_{GRF}(m^2/s) =$	NA
		$D_{GRF}(-)$ =	NA	$S_{GRF}(-) = D_{GRF}(-) =$	NA
Log-Log plot incl. derivatives	rocovery period	Selected represe			INA
Log-Log plot ilici. derivatives	- recovery period	dt ₁ (min) =	-		Q 5E 1
_ Elapsed tim	n (h)	,	1.11	$C (m^3/Pa) =$	8.5E-10
10 2 10 10 2	10	$dt_2 (min) =$		C _D (-) =	9.3E-0
		$T_T (m^2/s) =$	3.2E-07		-3.3
10 1	10 3	S (-) =	1.0E-06		
		$K_s (m/s) =$	6.4E-08		
_		$S_s(1/m) =$	2.0E-07		
10°	10 2 [6-8] 100	Comments:	, • • • · ·	C2.0F.7 2/ -	. 10 -
· · · · · · · · · · · · · · · · · · ·	**************************************			f 3.2E-7 m2/s was done), which shows the	
10 -1	10	derivative quality.			
	•			6 m2/s. The flow dir	
1	†			tatic pressure measu	
+	į l				
10° 10° 10	/CD 10 2 10 3 10 4	transducer depth, w	as derived from	the CHir phase using value of 5,587.1 kl	g straight line

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation				CHir
Area:	Laxemar	Test no:			1
Alea.	Laxemai	restrio.			ļ
Borehole ID:	KLX27A	Test start:			080206 13:09
Test section from - to (m):	627 20 622 20	Responsible for			Dhiling Walt
rest section from - to (iii).	027.30-032.30	test execution:			Philipp Wolf Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata	5.622	Indata	
5850	T 140	p ₀ (kPa) =	5622		_
KLX27A_627.30-632.30_080206_1_CHir_Q_r	P section P store P below 120	p _i (kPa) =	5632	- (I-D-)	5.63:
5800	• P Subov 1.20	$p_p(kPa) =$		p _F (kPa) =	5631
5750	1.00	$Q_p (m^3/s) =$	1.32E-05		120
legel ann	. 0.00 (Quantity of the control of t	tp (s) =		t _F (s) =	1200
5700 -	· • • • • • • • • • • • • • • • • • • •	S el S* (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
		EC _w (mS/m)=	1		
		Temp _w (gr C)=	15.7	Danisa (. f. f	0.00
3000	0.20	Derivative fact.=	0.05	Derivative fact.=	0.03
5550 0.00 0.20 0.40 0.50 Elapsed T	0.80 1.00 1.20 1.40				
		Results		Results	
			6.5E-07	Results	
Log-Log plot incl. derivates- fl	ow poriod	Q/s $(m^2/s)=$	5.4E-07		
Log-Log plot incl. derivates- in	ow period	T _M (m ² /s)= Flow regime:		Flow regime:	transiant
		dt ₁ (min) =	transient NA	Flow regime: dt ₁ (min) =	transient 0.22
Elapsed time (h) 10,-1 10,0	$dt_1 (min) =$ $dt_2 (min) =$	NA NA	, ,	0.22
	3				9.0E-07
· · · · · · · · · · · · · · · · · · ·	10 °	$T (m^2/s) = S (-) =$	1.0E-06	$T (m^2/s) = S (-) =$	1.0E-06
		0 ()			1.8E-07
10 10	0.3	$K_s (m/s) =$ $S_s (1/m) =$		$K_s (m/s) =$ $S_s (1/m) =$	2.0E-07
(rebu)	10 1		2.0E-07		6.3E-11
		C (m³/Pa) =	NA	$C (m^3/Pa) =$	7.0E-03
10 -1	0.03	C _D (-) =		C _D (-) =	3.2
		ξ (-) =	-1.5	ξ(-) =	3.2
1	10 2	T (2)	NA	- , 2, ,	NA
10 ¹ 10 ²	10 3 10 4 10 5	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA
		$S_{GRF}(-) = D_{GRF}(-) =$	NA	$D_{GRF}(-) =$	NA
Log-Log plot incl. derivatives-	rocovery period	Selected represe			INA
Log-Log plot ilici. delivatives-	recovery period	dt ₁ (min) =	0.22		6.3E-11
Elapsed time (ni 2	$dt_1 \text{ (min)} =$ $dt_2 \text{ (min)} =$		$C (m^3/Pa) = C_D (-) =$	7.0E-03
10 2 10, 10, 10, 10, 10		2	9.0E-07		3.2
	10 3	$T_T (m^2/s) =$ $S (-) =$	1.0E-06	¬ (-) =	3.2
10 1		$K_s (m/s) =$	1.8E-07		
	10 2	$\frac{R_s(11/s)}{S_s(1/m)} =$	2.0E-07		
	į	Comments:	2.00-07		
B 10°	The state of the s		transmissivity of	f 9.0E-7 m2/s was d	erived from the
	10 ' 8			one), which shows the	
10 -1	- 11. - 1 1	derivative quality.	The confidence r	ange for the interva	l transmissivity
	10 °	is estimated to be 5			
	į	displayed during the			
10 ¹ 10 ²	10 ³ 10 ⁴ 10 ⁵			the CHir phase using value of 5,632.7 kl	
		chapolation in the	Troiner prot to a	uiue 01 5,052. / Ki	

	Test Sum	mary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxema	r Test no:			1
Borehole ID:	KLX27A	Test start:			080206 15:07
Test section from - to (m):	632.30-637.30	Responsible for			Philipp Wol
		test execution:			Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
Linear plot Q and p		test evaluation: Flow period		Recovery period	
Lillear plot & and p		Indata		Indata	
		p ₀ (kPa) =	5665		Ī
2000	1 1.00	$p_0 (kPa) =$ $p_i (kPa) =$	5672		
KLX27A_632.30-637.30_080206_1_CHir_Q_r	* P section • P shows * P below * P below 1.25			n (kDa) -	5.07
	* P bislow * 1.25	$p_p(kPa) =$		p _F (kPa) =	5672
5000	1.00	$Q_p (m^3/s) =$	1.10E-05		
red as	Mining	tp (s) =		t _F (s) =	1200
5750.	0.75	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
5700	1.50	EC _w (mS/m)=			
		Temp _w (gr C)=	15.7		
5000 -	0.25	Derivative fact.=	0.12	Derivative fact.=	0.04
0.00 0.20 0.40 0.50 Elapsed	0.00 1.00 1.20 1.40 Time (h)				
		Results		Results	<u> </u>
		Q/s $(m^2/s)=$	5.5E-07		
Log-Log plot incl. derivates- fl	ow period	$T_M (m^2/s) =$	4.5E-07		
	<u> </u>	Flow regime:	transient	Flow regime:	transient
		$dt_1 \text{ (min)} =$	0.22	$dt_1 \text{ (min)} =$	0.14
Elapsed time (h		$dt_2 \text{ (min)} =$		$dt_2 \text{ (min)} =$	0.80
	10 '	$T (m^2/s) =$		$T (m^2/s) =$	7.9E-07
		S (-) =	1.0E-06	\ /	1.0E-06
10 1	10 °	$K_s (m/s) =$		$K_s (m/s) =$	1.6E-0
	į	$S_s(1/m) =$		$S_s(1/m) =$	2.0E-0
10 0	•		2.0E-07 NA		3.1E-1
	10 5	$C (m^3/Pa) =$		$C (m^3/Pa) =$	
·		$C_D(-) =$	NA	$C_D(-) =$	3.5E-03
10 1	10 -2	ξ (-) =	4.9	ξ (-) =	3.5
	•	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ⁷ 10 ⁶ 8D	10 ⁹ 10 ¹⁰ 10 ¹¹	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	ntative paran		1
		$dt_1 (min) =$	0.14		3.1E-11
Elapsed time	h) 10, ² 10, ¹ 10.0	$dt_2 \text{ (min)} =$		$C_D(-) =$	3.5E-03
10		$T_T (m^2/s) =$	7.9E-07		3.5
	10 3	S (-) =	1.0E-06		
10 1		$K_s (m/s) =$	1.6E-07		
	10 2	$S_s(1/m) =$	2.0E-07		
		Comments:	2.0L-07		
10 0		€	ronamiaaivity o	67.0E.7 m2/a waa da	wired from the
	10			f 7.9E-7 m2/s was do one), which shows th	
1		anarysis of the CIII			
	· and · care	derivative quality	the confidence i	ange for the interva-	
10 1		derivative quality. This is estimated to be 55			
10 4	10°	is estimated to be 5	E-7 m2/s to 4E-		nension
10 ⁴	10 2 10 4 10 5	is estimated to be 5. displayed during the transducer depth, w	E-7 m2/s to 4E- e test is 2. The s as derived from	6 m2/s. The flow dir	nension red at g straight line

	Test Sumn	nary Sheet			
Project:	Oskarshamn site investigation	Test type:[1]			CHir
Area:	Laxemar	Test no:			1
Borehole ID:	KLX27A	Test start:			080206 17:02
Test section from - to (m):	637 30-642 30	Responsible for			Philipp Wolf
rest section from - to (m).	007.00-042.00	test execution:			Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
Line on plat O and p		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata	5700	Indata	ī
3050	¶ 12.00	p ₀ (kPa) =	5709		
KLX27A_637.30-642.30_080206_1_CHir_Q_r	P saction P show P below	p _i (kPa) =	5724		570
5000 -	- 10.00	$p_p(kPa) =$		p _F (kPa) =	5725
5050	200	$Q_p (m^3/s)=$	9.88E-05		
(reg) on	(topag)	tp (s) =		$t_F(s) =$	1200
8 0000 ·	eco Pass	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
5750	4.00	EC _w (mS/m)=			
		Temp _w (gr C)=	15.5		
5700		Derivative fact.=	0.09	Derivative fact.=	0.03
5550 0.50 0.40 0.50 Elapsed	0.00 1.00 1.20 1.40 Time (h)				
		Results		Results	
		Q/s $(m^2/s)=$	4.9E-06		
Log-Log plot incl. derivates- fl	ow period	$T_M (m^2/s) =$	4.0E-06		
		Flow regime:	transient	Flow regime:	transient
Elapsed time (dt ₁ (min) =	0.58	dt_1 (min) =	0.40
10 2 10,4 10,3	10	$dt_2 \text{ (min)} =$	1.71	$dt_2 \text{ (min)} =$	2.09
		$T (m^2/s) =$		$T (m^2/s) =$	2.5E-06
, q	10 °	S (-) =	1.0E-06	` '	1.0E-06
10		$K_s (m/s) =$		$K_s (m/s) =$	5.0E-07
	10 -1	S _s (1/m) =		S _s (1/m) =	2.0E-07
GB 10 °	Injustice	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	6.4E-10
	in the second se	- ' '	NA		7.0E-02
	10 2	$C_D(-) = $		C _D (-) = ξ (-) =	-3.2
10 -1	7. A.A.	ξ (-) =	-2.0	ζ(-) –	-5.2
	10 -3	$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 ° 10 °	10 2 10 3 10 4	$S_{GRF}(-) =$	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	entative paran		1
<u> </u>	<u>, , , , , , , , , , , , , , , , , , , </u>	dt ₁ (min) =	0.40	$C (m^3/Pa) =$	6.4E-10
Elapsed time	[h]10, -2	$dt_2 (min) =$		$C_D(-) =$	7.0E-02
10 2		$T_T (m^2/s) =$	2.5E-06		-3.2
		S (-) =	1.0E-06		
10 1	10 3	K _s (m/s) =	5.0E-07		
		$S_s(1/m) =$	2.0E-07		
سىسىس	10 2	Comments:	1 2.32 37	<u> </u>	<u> </u>
100	- Land Cook		transmissivity of	f 2.5E-6 m2/s was d	erived from the
				one), which shows th	
10 -1	10 1	derivative quality.	The confidence r	ange for the interva	l transmissivity
		is estimated to be 9	E-7 m2/s to 2E-	5 m2/s. The flow dir	nension
	10 °			tatic pressure measu	
10 10 tDx	10 10 10			the CHir phase using value of 5,723.2 kl	
		CAHAPOIAHOH III IIIE	morner prot w	. value 01 J, /43.4 Kl	u.

	Test Sumr	nary Sheet			
Project:	Oskarshamn site investigation				CHir
Area:	Laxemar	Test no:			1
7 ti od.	Edxomar	1 661 116.			·
Borehole ID:	KLX27A	Test start:			08027 08:33
Test section from - to (m):	640.20-645.20	Responsible for			Philipp Wolf
		test execution:			Linda Höckert
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
Linear plot Q and p		test evaluation: Flow period		Recovery period	
Linear plot & and p		Indata		Indata	
		p ₀ (kPa) =	5735		1
6000 7	10.00	$p_0 (KPa) =$ $p_i (kPa) =$	5749		
KLX27A_640.20-645.20_080207_1_CHir_Q_r	P section P shows P below P below	$p_i(kPa) =$ $p_p(kPa) =$		p _F (kPa) =	5750
	.0	•			3/30
300	7,50	$Q_p (m^3/s) =$	1.05E-04		1200
[K] 0.000 - 0.	200 G	tp (s) =		t _F (s) =	1200
d 0000-	500 8	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-06
	100	EC _w (mS/m)=	1.5.0		
5700	200	Temp _w (gr C)=	15.8		
5700	1.00	Derivative fact.=	0.01	Derivative fact.=	0.01
5000 0.00 0.40 0.00 Elapsed Tim	0.80 1.00 1.20 1.40				
		Results		Results	
			5.2E-06		1
Log-Log plot incl. derivates- flo	w poriod	Q/s $(m^2/s)=$	4.3E-06		
Log-Log plot mer. derivates- ne	ow periou	T _M (m ² /s)= Flow regime:			transiant
		_	transient	Flow regime:	transient
Elapsed time (h)	10. ⁻¹	GC1 ()		dt ₁ (min) =	0.45
10	0.3	$dt_2 (min) =$		$dt_2 (min) =$	1.93
	- 1	$T (m^2/s) =$		$T (m^2/s) =$	2.7E-06
	10	S (-) =	1.0E-06	, ,	1.0E-06
10 0	0.03	$K_s (m/s) =$		$K_s (m/s) =$	5.4E-07
		S _s (1/m) =		$S_s(1/m) =$	2.0E-07
No.	10 ° E. E.	$C (m^3/Pa) =$	NA	C (m ³ /Pa) =	1.9E-09
10 -1	0.003	$C_D(-) =$	NA	$C_D(-) =$	2.1E-01
•		ξ (-) =	-2.9	ξ (-) =	-3.1
•	10 3	2	NIA	2	NIA
10 t 10 2	10 10 10	$T_{GRF}(m^2/s) = S_{GRF}(-) =$	NA NA	$T_{GRF}(m^2/s) =$	NA NA
		GRF()	NA NA	$S_{GRF}(-) = D_{GPF}(-) =$	NA
Log-Log plot incl. derivatives- ı	rocovery period	D _{GRF} (-) = Selected represe		- OR ()	INA
Log-Log plot incl. derivatives- i	ecovery period				1.9E-09
Elapsed time [h]		$dt_1 (min) =$	0.45	0 (III /I a) =	
10 1		$dt_2 (min) =$		C _D (-) =	2.1E-01
	300	$T_{T}(m^{2}/s) = S(-) =$	2.7E-06 1.0E-06		-3.1
	to 2	0 ()			
10 °		$K_s (m/s) =$	5.4E-07		
	100	$S_s(1/m) =$	2.0E-07		<u> </u>
N. d.	Red for	Comments:	tranamia de de	F2 7E 6 m2/a 1	arized from 41.
10-4	10 ' 8			f 2.7E-6 m2/s was done), which shows the	
	3			range for the interva	
		is estimated to be 1	E-6 m2/s to 1E-	5 m2/s. The flow dia	nension
	10 °	displayed during the			
10 ° 10 ° 10 NCD	10 2 10 3 10 4			the CHir phase using	
		extrapolation in the	nomer plot to a	a value of 5,747.7 kl	ra.

	Test Sumi	nary Sheet			
Project:	Oskarshamn site investigation				CHi
Area:	Laxema	Test no:			1
Borehole ID:	KLX27A	Test start:			080209 13:18
Test section from - to (m):	645 20 650 56	Responsible for			Philipp Wol
rest section from - to (m).	045.20-050.50	test execution:			Linda Höcker
Section diameter, 2·r _w (m):	0.076	Responsible for		Crist	ian Enachescu
		test evaluation:			
Linear plot Q and p		Flow period		Recovery period	
		Indata		Indata	
		p ₀ (kPa) =	5752		
KLX27A_645.20-650.56_080209_1_CHir_Q_r	0.006 • P section	p _i (kPa) =	5769		
	• P saction • P above • P below • Q • Q	$p_p(kPa) =$		p _F (kPa) =	576
\ .		$Q_p (m^3/s) =$	5.00E-08		
<u> </u>	1	tp (s) =	1190	t_F (s) =	2400
(Ag) anomal 5000	0000 8000	S el S [*] (-)=	1.00E-06	S el S [*] (-)=	1.00E-0
- C2000	· · · · · · · · · · · · · · · · · · ·	EC _w (mS/m)=			
		Temp _w (gr C)=	15.8		
5000	0.001	Derivative fact.=	0.14	Derivative fact.=	0.0
0.00 0.50 100 Elspad Ti	1.50 2.00 mm [h]				
		Results		Results	
		Q/s $(m^2/s)=$	2.3E-09		
Log-Log plot incl. derivates- flo	ow period	$T_{\rm M} (m^2/s) =$	2.0E-09		
		Flow regime:	transient	Flow regime:	transient
Elapsed time [h]		$dt_1 \text{ (min)} =$	0.52	$dt_1 \text{ (min)} =$	NA
10,4 10,2 10,2		$dt_2 \text{ (min)} =$	13.92	$dt_2 \text{ (min)} =$	NA
	3000	$T (m^2/s) =$		$T (m^2/s) =$	5.1E-0
]	10 3	S (-) =	1.0E-06	. ,	1.0E-0
10 17		$K_s (m/s) =$		K _s (m/s) =	9.5E-10
The second second second	300	S _s (1/m) =		S _s (1/m) =	1.9E-0
	, suit	C (m ³ /Pa) =	NA	C (m ³ /Pa) =	4.7E-1
· ·	10 ²	$C_D(-) =$	NA	$C_D(-) =$	5.1E-0
10	30	ξ(-) =		ξ(-) =	10.3
	10 1	5()	0.0	5 ()	
10 2 10 4		$T_{GRF}(m^2/s) =$	NA	$T_{GRF}(m^2/s) =$	NA
10 10 10 ED	טו טו	S _{GRF} (-) =	NA	$S_{GRF}(-) =$	NA
		D _{GRF} (-) =	NA	D _{GRF} (-) =	NA
Log-Log plot incl. derivatives-	recovery period	Selected represe	ntative paran	neters.	
		dt_1 (min) =	0.52	$C (m^3/Pa) =$	4.7E-1
Elapsed time [h]	10,0	dt_2 (min) =		$C_D(-) =$	5.1E-03
10 -	10 3	$T_T (m^2/s) =$	5.1E-09		10.3
		S (-) =	1.0E-06	• •	
_	300	K_s (m/s) =	9.5E-10		
10 1	Ean 2	$S_s(1/m) =$	1.9E-07		
	¿ " ,	Comments:	<u> </u>		
	30		transmissivity of	f 5.1E-9 m2/s was d	erived from the
10 °				hows the best data a	
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	10 1	quality. The confide	ence range for th	e interval transmiss	ivity is
.:/		estimated to be 1E-	9 m2/s to 1E-8 r	n2/s. A flow dimens	ion of 2 was
/	3	assumed. The static			
10 ° 10 1	10 ² 10 ³ 10 ⁴	from the CHir phase to a value of 5,759.		ine extrapolation in	me Horner plot
			7 K E /I		

Borehole: KLX27A

APPENDIX 4

Nomenclature

Character	SICADA designation	Explanation	Dimension	Unit
Variables,				
A _w		Horizontal area of water surface in open borehole, not	[L ²]	m ²
vv		including area of signal cables, etc.		
b		Aguifer thickness (Thickness of 2D formation)	[L]	m
В		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	[L]	m
- ρ		centre point or centre of gravity for distribution of	[]	
		transmissivity in the measuring section.		
L _w		Test section length.	[L]	m
dĽ		Step length, Positive Flow Log - overlapping flow logging.	[L]	m
		(step length, PFL)	[
r		Radius	[L]	m
r _w		Borehole, well or soil pipe radius in test section.		m
r _{we}		Effective borehole, well or soil pipe radius in test section.	[L]	m
·we		(Consideration taken to skin factor)	[-]	l
r _s		Distance from test section to observation section, the	[L]	m
- 5		shortest distance.	'-'	
r _t		Distance from test section to observation section, the	[L]	m
-1		interpreted shortest distance via conductive structures.	[-]	l
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	[L]	m
∠ wu		limitation	[-]	'''
Z _{Wl}		Level for test section (section that is being flowed), lower	[L]	m
∠wi		limitation	[-]	'''
Z _{ws}		Level for sensor that measures response in test section	[L]	m
—ws		(section that is flowed)	[-]	
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	[L]	m
-05		section	[]	
E		Evaporation:	[L ³ /(T L ²)]	mm/y,
_				mm/d,
		hydrological budget:	[L ³ /T]	m ³ /s
ET		Evapotranspiration	[L ³ /(T L ²)]	mm/y,
			[(/]	mm/d,
		hydrological budget:	[L ³ /T]	m^3/s
Р		Precipitation	[L ³ /(T L ²)]	mm/y,
		r		mm/d,
		hydrological budget:	[L ³ /T]	m ³ /s
R		Groundwater recharge	[L ³ /(T L ²)]	mm/y,
			. /-	mm/d,
		hydrological budget:	[L ³ /T]	m ³ /s
D		Groundwater discharge	[L ³ /(T L ²)]	mm/y,
		and the second s	[(/]	
		hydrological budget:	[L ³ /T]	mm/d, m ³ /s
^		Run-off rate	[L³/T]	m³/s
Q R	†	Pumping rate	[L ³ /T]	m³/s
Q _R		ı · ı ə ·	1 6 7 7 7 3	
Q_p		Infiltration rate	[L ³ /T]	1 m 7/S
Q _p Q _l		Infiltration rate	[L ³ /T]	m³/s
Q _p Q _I				_
Q_p		Volumetric flow. Corrected flow in flow logging $(Q_1 - Q_0)$	[L ³ /T]	m³/s
Q _p Q _l Q		Volumetric flow. Corrected flow in flow logging $(Q_1 - Q_0)$ (Flow rate)	[L ³ /T]	m ³ /s
Q _p Q _I		Volumetric flow. Corrected flow in flow logging $(Q_1 - Q_0)$ (Flow rate) Flow in test section during undisturbed conditions (flow		_
Q _p Q _l Q		Volumetric flow. Corrected flow in flow logging $(Q_1 - Q_0)$ (Flow rate)	[L ³ /T]	m³/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]	m³/s
Q ₂		Flow in test section during pumping with pump flow Q_{p1} , (flow logging).	[L ³ /T]	m³/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]	m³/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]	m³/s
ΣQ_{C2}	SumQC2	Corrected cumulative volumetric flow along borehole, ΣQ_2 - ΣQ_0	[L ³ /T]	m³/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
٧		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,mi n,s
t _o		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,mi n,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	-	-
р		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
Pf		Pressure during perturbation phase.	$[M/(LT)^2]$	kPa
ps		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	Dimension	Unit	
dp _f	3	$dp_f = p_i - p_f$ 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
Н		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 _o , positive)	[L]	m
S p		Drawdown in measuring section before flow stop.	[L]	m
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		°C
Te _{w0}		Temperature in the test section during undisturbed conditions (taken from temperature logging).		°C

Character	SICADA designation	Explanation	Dimension	Unit
Te _o	area gradien	Temperature in the observation section (taken from temperature logging). Temperature		°C
EC _w		Electrical conductivity of water in test section.		mS/m
EC _{w0}		Electrical conductivity of water in test section during		mS/m
0		undisturbed conditions.		
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
TDS₀		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).	[-]	
π 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} r_i $		
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.		
		$SEMR = \left(\frac{1}{n(n-1)} \sum_{i=1}^{n} (r_i - ME)^2\right)^{0.5}$		
Parameter	S			
Q/s		Specific capacity s=dp _p or s=s _p =h ₀ -h _p (open borehole)	[L ² /T]	m²/s
D		Interpreted flow dimension according to Barker, 1988.	[-]	
dt₁		Time of starting for semi-log or log-log evaluated characteristic counted from start of flow phase and recovery phase respectively.	[Т]	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
ТВ		Flow capacity in a one-dimensional structure of width B and transmissivity T. Transient evaluation of one-dimensional structure	[L ³ /T]	m³/s
T		Transmissivity	[L ² /T]	m²/s
T _M		Transmissivity according to Moye (1967)	[L ² /T]	m²/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]	m²/s
Ts		Transmissivity evaluated from slug test	[L ² /T]	m²/s

Character	SICADA designation	Explanation	Dimension	Unit	
T _D		Transmissivity evaluated from PFL-Difference Flow Meter	[L ² /T]	m²/s	
Tı		Transmissivity evaluated from Impeller flow log	[L ² /T]	m²/s	
T_{Sf} , T_{Lf}		Transient evaluation based on semi-log or log-log	[L ² /T]	m²/s	
		diagram for perturbation phase in injection or pumping.	2	2.	
T_{Ss} , T_{Ls}		Transient evaluation based on semi-log or log-log diagram for recovery phase in injection or pumping.	[L ² /T]	m²/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]	m²/s	
T _{NLR}		Evaluation based on non-linear regression.	[L ² /T]	m²/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]	m²/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·b	[L³]	m ³	
NO.		T criticability thickness product. No 10 b	<u> [-]</u>	111	
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).	[-]	-	
<u> </u>		Specific storage coefficient: confined storage	[1/L]	1/m	
S _s		Specific storage coefficient; confined storage.		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 _i =b'/K' where b' is thickness of the aquitard and K' its hydraulic conductivity across the aquitard.	[Т]	S	
L _f		Leakage factor: $L_f = (K \cdot b \cdot c_f)^{0.5}$ where K represents characteristics of the aquifer.	[L]	m	

Character	SICADA designation	Explanation	Dimension	Unit
٤*	Skin	Assumed skin factor	[-]	-
ξ* C		Wellbore storage coefficient	$[(LT^2)\cdot M^2]$	m³/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	[-]	-	
λ	Interflow-coeff	λ = α · (K _m / K _f) · r_w^2 interporosity flow coefficient.	[-]	-
T_GRF		Transmissivity interpreted using the GRF method	[L ² /T]	m²/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
Ct		$c_t = c_r + c_w$, 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·c _t	[(LT ²)/M]	1/Pa
nc _t b		Porosity-compressibility-thickness product: nctb= n·ctb	[(L ² T ²)/M]	m/Pa
n		Total porosity	-	-
n _e		Kinematic porosity, (Effective porosity)	-	-
е		Transport aperture. e = n _e ·b	[L]	m
	D 14 -	Descrit	FN 4 /1 31	1 // 3\
ρ	Density	Density	[M/L ³]	kg/(m³)
ρ _w	Density-w	Fluid density in measurement section during pumping/injection	[M/L ³]	kg/(m³)
ρ_0	Density-o	Fluid density in observation section	[M/L ³]	kg/(m³)
$ ho_{\sf sp}$	Density-sp	Fluid density in standpipes from measurement section	[M/L ³]	kg/(m ³)
μ	my	Dynamic viscosity Dynamic viscosity (Fluid density in measurement section	[M/LT]	Pa s
μ _w	my	during pumping/injection)	[M/LT]	Pa s
FC _T		Fluid coefficient for intrinsic permeability, transference of k to K; K=FC _T ·k; FC _T = ρ_w ·g/ μ_w	[1/LT]	1/(ms)
FCs		Fluid coefficient for porosity-compressibility, transference of c_t to S_s ; S_s = FC_S · n · c_t ; FC_S = ρ_w · g	[M/T ² L ²]	Pa/m
Index on K	, T and S	1	1	-II
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		
М		Moye		
GRF		Generalised Radial Flow according to Barker (1988)		
m		Matrix		
f		Fracture		
Т		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		
е		Effective property (constant) within a domain in a		
C		numerical groundwater flow model.		
Index on p	and Q	Inditionical groundwater new model.	1	
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		
р		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		
С		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 misc	ellaneous inde	xes 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")		
0		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")		

Borehole: KLX27A

APPENDIX 5

SICADA data tables

Borehole: KLX27A

APPENDIX 5-1

SICADA data tables (Injection tests)

SKB		SIC	ADA/	/Data	Impoi	rt Templ	late			olified version v1.4) Ergodata AB 2004		
										J • • • • • • • • • • • • • • • • • • •		
File Identity							Compiled By					
Created By						Quality Chec	k For Delivery	,				
Created						Deli	very Approva					
					-							
Activity Type		KLX 27A				Project		AP PS 4	00-07-056			
		KLX 27A - Injection	test									
					4		•					
Activity Informa	ation					Additional Activity	Data Data					
						C10	P20	P200	P220	R25		
							Field crew		evaluating			
Idcode	Start Date	Stop Date	Secup (m)	Seclow (m)	Section No	Company	manager	Field crew	data	Report		
KLX27A	2008-01-18 08:23	2009-02-08 15:17	77,30	650,56		Golder Associates	Philipp Wolf	Philipp Wolf, Linda Höckert, Erik Löfgren	Philipp Wolf, Reinder van der Wall, Stephan Rohs	Philipp Wolf, Reinder van der Wall, Stephan Rohs		

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</lower>
mean_flow_rate_qm	FLOAT	m**3/s	Arithmetic mean flow rate during flow period
q_measlI	FLOAT	m**3/s	Estimated lower measurement limit of flow rate
q_measlu	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.
nitial_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	оС	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

					section		formation			flow_rate_end_q	value type o	mean flow r			tot volume
idcode	start_date	stop_date	secup	seclow	no	test_type	type	start_flow_period	stop_flow_period	p	p		q_measll	q_measlu	vp
KLX 27A	2008-01-18 08:23:00	2008-01-18 10:30:00	77,30	177,30		3	1	2008-01-18 09:28:33	2008-01-18 09:58:33	1,35E-05	(0 1,41E-05	1,67E-08	8,33E-04	2,53E-02
KLX 27A	2008-01-18 13:33:00	2008-01-18 15:24:00	177,30	277,30		3	1	2008-01-18 14:22:21	2008-01-18 14:52:21	1,20E-05		0 1,44E-05	1,67E-08	8,33E-04	2,59E-02
KLX 27A	2008-01-18 17:05:00	2008-01-18 23:07:00	277,30	377,30		3	1	2008-01-18 18:35:16	2008-01-18 19:05:16	1,00E-07	(0 1,17E-07	1,67E-08	8,33E-04	2,10E-04
KLX 27A	2008-01-19 12:09:00	2008-01-19 13:47:00	377,30	477,30		3	1	2008-01-19 12:47:51	2008-01-19 13:15:51	4,83E-08	(5,50E-08	1,67E-08	8,33E-04	9,90E-05
KLX 27A	2008-01-19 15:26:00	2008-01-19 17:30:00	477,30	577,30		3	1	2008-01-19 16:28:15	2008-01-19 16:58:15	8,33E-07	(0 1,02E-06	1,67E-08	8,33E-04	1,83E-03
KLX 27A	2008-01-20 09:30:00	2008-01-20 11:28:00	545,20	645,20		3	1	2008-01-20 10:26:15	2008-01-20 10:56:15	1,18E-04	(0 1,27E-04	1,67E-08	8,33E-04	2,28E-01
KLX 27A	2008-01-21 17:33:00	2008-01-21 18:57:00	77,30	97,30		3	1	2008-01-21 18:15:04	2008-01-21 18:35:04	9,32E-06	(9,68E-06	1,67E-08	8,33E-04	1,16E-02
KLX 27A	2008-01-22 08:37:00	2008-01-22 10:02:00	97,30	117,30		3	1	2008-01-22 09:20:19	2008-01-22 09:40:19	4,17E-07	(0 4,50E-07	1,67E-08	8,33E-04	5,40E-04
KLX 27A	2008-01-22 10:43:00	2008-01-22 12:18:00	117,30	137,30		3	1	2008-01-22 11:36:31	2008-01-22 11:56:31	8,33E-08	(0 8,03E-08	1,67E-08	8,33E-04	9,64E-05
KLX 27A	2008-01-22 13:38:00	2008-01-22 15:07:00	137,30	157,30		3	1	2008-01-22 14:25:47	2008-01-22 14:45:47	8,83E-07		9,00E-07	1,67E-08	8,33E-04	1,08E-03
KLX 27A	2008-01-22 15:44:00	2008-01-22 17:07:00	157,30	177,30		3	1	2008-01-22 16:25:44	2008-01-22 16:45:44	1,97E-06	(0 2,20E-06	1,67E-08	8,33E-04	2,63E-03
KLX 27A	2008-01-22 17:51:00	2008-01-22 22:12:00	177,30	197,30		3	1	2008-01-22 18:50:48	2008-01-22 19:10:48	5,33E-07		0 6,00E-07	1,67E-08	8,33E-04	7,20E-04
KLX 27A	2008-01-23 08:45:00	2008-01-23 10:20:00	197,30	217,30		3	1	2008-01-23 09:38:57	2008-01-23 09:58:57	1,33E-07		0 1,50E-07	1,67E-08	8,33E-04	1,80E-04
KLX 27A	2008-01-23 10:54:00	2008-01-23 12:22:00	217,30	237,30		3	1	2008-01-23 11:40:30	2008-01-23 12:00:30	9,13E-06		0 1,05E-05	1,67E-08	8,33E-04	1,26E-02
KLX 27A	2008-01-23 14:51:00	2008-01-23 16:03:00	237,30	257,30		3	1	2008-01-23 15:21:33	2008-01-23 15:41:33	2,12E-06		0 3,37E-06	1,67E-08	8,33E-04	4,04E-03
KLX 27A	2008-01-24 15:06:00	2008-01-24 20:02:00	277,30	297,30		3	1	2008-01-24 16:40:07	2008-01-24 17:00:07	1,30E-03		0 2,42E-08	1,67E-08	8,33E-04	2,90E-05
KLX 27A	2008-01-25 13:24:00	2008-01-25 14:47:00	337,30	357,30		3	1	2008-01-25 14:05:20	2008-01-25 14:25:20	8,33E-08		0 1,03E-07	1,67E-08	8,33E-04	1,24E-04
KLX 27A	2008-01-25 15:31:00	2008-01-25 16:54:00	357,30	377,30		3	1	#NV	#NV	#NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-01-26 08:39:00	2008-01-26 10:28:00	397,30	417,30		3	1	2008-01-26 09:46:58	2008-01-26 10:06:58	3,33E-08		0 4,12E-08	1,67E-08	8,33E-04	4,94E-05
KLX 27A	2008-01-26 11:10:00	2008-01-26 12:01:00	417,30	437,30		3	1	#NV	#NV	#NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-01-26 13:38:00	2008-01-26 15:00:00	437,30	457,30		3	1	2008-01-26 14:18:45	2008-01-26 14:38:45	1,83E-08		0 2,33E-08	1,67E-08	8,33E-04	2,80E-05
KLX 27A	2008-01-26 15:37:00	2008-01-26 16:30:00	457,30	477,30		3	1	#NV	#NV	#NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-01-26 17:13:00	2008-01-26 18:43:00	477,30	497,30		3	1	2008-01-26 17:56:54	2008-01-26 18:16:54	1,85E-07		0 1,98E-07	1,67E-08	8,33E-04	2,38E-04
KLX 27A	2008-01-27 08:40:00	2008-01-27 10:07:00	497,30	517,30		3	1	2008-01-27 09:25:28	2008-01-27 09:45:28	2,50E-07		0 2,83E-07	1,67E-08	8,33E-04	3,40E-04
KLX 27A	2008-01-27 10:48:00	2008-01-27 12:13:00	517,30	537,30		3	1	2008-01-27 11:31:13	2008-01-27 11:51:13	4,50E-07		0 6,33E-07	1,67E-08	8,33E-04	7,60E-04
KLX 27A	2008-01-27 12:56:00	2008-01-27 14:28:00	537,30	557,30		3	1	2008-01-27 13:46:57	2008-01-27 14:06:57	1,00E-07		0 1,00E-07	1,67E-08	8,33E-04	1,20E-04
KLX 27A	2008-01-27 15:38:00	2008-01-27 17:20:00	557,30	577,30		3	1	2008-01-27 16:38:41	2008-01-27 16:58:41	5,67E-08		0 6,83E-08	1,67E-08	8,33E-04	8,20E-05
KLX 27A	2008-01-27 18:07:00	2008-01-27 19:30:00	577,30	597,30		3	1	2008-01-27 18:48:04	2008-01-27 19:08:04	1,60E-05		0 1,62E-05	1,67E-08	8,33E-04	1,94E-02
KLX 27A	2008-01-28 08:48:00	2008-01-28 10:10:00	597,30	617,30		3	1	2008-01-28 09:28:21	2008-01-28 09:48:21	1,18E-06		0 1,20E-06	1,67E-08	8,33E-04	1,44E-03
KLX 27A	2008-01-28 10:56:00	2008-01-28 12:19:00	617,30	637,30		3	1	2008-01-28 11:37:39	2008-01-28 11:57:39	2,65E-05		0 2,92E-05	1,67E-08	8,33E-04	3,50E-02
KLX 27A	2008-01-28 13:24:00	2008-01-28 14:44:00	625,20	645,20		3	1	2008-01-28 14:02:19	2008-01-28 14:22:19	1,05E-04		0 1,14E-04	1,67E-08	8,33E-04	1,36E-01
KLX 27A	2008-01-30 14:37:00	2008-01-30 16:15:00	337,30	342,30		3	1	2008-01-30 15:33:54	2008-01-30 15:53:54	6,67E-08		0 8,33E-08	1,67E-08	8,33E-04	1,00E-04
KLX 27A	2008-01-30 16:51:00	2008-01-30 18:32:00	342,30	347,30		3	1	2008-01-30 17:50:31	2008-01-30 18:10:31	1,67E-08		0 2,17E-08	1,67E-08	8,33E-04	2,60E-05
KLX 27A	2008-01-31 08:35:00	2008-01-31 09:23:00	347,30	352,30		3	1	#NV	#NV	#NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-01-31 09:56:00	2008-01-31 10:33:00	352,30	357,30		3	1	#NV	#NV	#NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-01-31 11:31:00	2008-01-31 12:10:00	397,30	402,30		3	1	#NV	#NV	/ #NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-01-31 13:28:00	2008-01-31 14:07:00	402,30	407,30		3	1	#NV	#NV	#NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-01-31 14:39:00	2008-01-31 15:18:00	407,30	412,30		3	1	#NV	#NV	#NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-01-31 15:50:00	2008-01-31 17:29:00	412,30	417,30		3	1	2008-01-31 16:47:39	2008-01-31 17:07:39	3,00E-08		0 3,33E-08	1,67E-08	8,33E-04	4,00E-05
KLX 27A	2008-01-31 18:13:00	2008-01-31 18:51:00	437,30	442,30		3	1	#NV	#NV	#NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-07 13:26:00	2008-02-07 15:07:00	442,30	447,30		3	1	2008-02-07 14:25:04	2008-02-07 14:45:04	1,67E-08		0 1,67E-08	1,67E-08	8,33E-04	2,00E-05
KLX 27A	2008-02-01 09:43:00	2008-02-01 10:22:00	447,30	452,30		3	1	#NV	#NV	#NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-01 10:54:00	2008-02-01 11:35:00	452,30	457,30		3		#NV	#NV	/ #NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-01 13:16:00	2008-02-01 13:54:00	477,30	482,30		3	1	#NV	#NV	/ #NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-01 14:25:00	2008-02-01 15:04:00	482,30	487,30		3	1	#NV	#NV	/ #NV	-	1 #NV	1,67E-08	8,33E-04	
KLX 27A	2008-02-01 15:33:00	2008-02-01 16:12:00	487,30	492,30		3	1	#NV	#NV	/ #NV	-	1 #NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-01 16:47:00	2008-02-01 18:51:00	492,30	497,30		3	1	2008-02-01 17:29:57	2008-02-01 17:29:57	1,83E-07		0 1,83E-07	1,67E-08	8,33E-04	2,20E-04
KLX 27A	2008-02-02 08:26:00	2008-02-02 09:50:00	497,30	502,30		3	1	2008-02-02 09:08:03	2008-02-02 09:28:03	2,17E-07		0 2,67E-07	1,67E-08	8,33E-04	3,20E-04
KLX 27A	2008-02-02 10:21:00	2008-02-02 11:41:00	502,30	507,30		3	1	2008-02-02 10:59:17	2008-02-02 11:19:17	3,00E-08		0 3,33E-08	1,67E-08	8,33E-04	4,00E-05
KLX 27A	2008-02-02 13:19:00	2008-02-02 13:57:00	507,30	512,30		3	1	#NV	#NV	/ #NV	-	1 #NV	1,67E-08	8,33E-04	#NV

			dur_flow_p	dur_rec_ph	initial_head_	ow_end_h final_head_	initial_press_	press_at_flow_e	final_press_p	fluid_temp_t	fluid_elcond_e	fluid_salinity_t	fluid_salinity_t			
idcode	secup			ase_tf			pi .	nd_pp	f	ew	cw	dsw	dswm	reference	comments	lp
KLX 27A	77,30	177,30	1800	1800		10,36	1605	1803	1605	9,5						127,3
KLX 27A	177,30	277,30	1800	1800		11,87	2513	2715	2511	10,8						227,3
KLX 27A	277,30	377,30	1800	14400		12,19	3396	3602	3390							327,3
KLX 27A	377,30	477,30	1800	1800		#NV	4265	4487	4355	13,6						427,3
KLX 27A	477,30	577,30	1800	1800		12,75	5153	5359	5174	14,9						527,3
KLX 27A	545,20	645,20	1800	1800		13,90	5749	5956	5749	14,8						595,2 87,3
KLX 27A	77,30	97,30	1200	1200		10,01	891	1090	892	8,2						87,3
KLX 27A	97,30	117,30	1200	1200		10,21	1072	1270	1072	8,5						107,3
KLX 27A	117,30	137,30	1200	1200		9,09		1442	1244							127,3
KLX 27A	137,30	157,30	1200	1200		9,85	1421	1619	1424	9,2						147,3
KLX 27A	157,30	177,30	1200	1200		12,20	1612	1812	1630	9,4						167,3
KLX 27A	177,30	197,30	1200	10800		10,39	1791	1989	1784	9,7						187,3
KLX 27A	197,30	217,30	1200	1200		10,48	1968	2167	1973	10,0						207,3
KLX 27A	217,30	237,30	1200	1200		12,13	2154	2353	2154	10,3						227,3
KLX 27A	237,30	257,30	1200	1200		#NV	2362	2616	2452	10,6						247,3
KLX 27A	277,30	297,30	1200	10800		12,25	2701	2902	2689	11,1						287,3
KLX 27A	337,30	357,30	1200	1200		11,30	3223	3436	3236	12,0						347,3
KLX 27A	357,30	377,30	#NV	#NV		#NV	#NV	#NV	#NV	12,2						367,3
KLX 27A	397,30	417,30	1200	1200		11,98	3759	3957	3801	12,8						407,3
KLX 27A	417,30	437,30	#NV	#NV		#NV	#NV	#NV	#NV	13,1						427,3
KLX 27A	437,30	457,30	1200	1200		#NV	4107	4309	4211	13,4						447,3 467,3
KLX 27A	457,30	477,30	#NV	#NV		#NV	#NV	#NV	#NV	13,6						467,3
KLX 27A	477,30	497,30	1200	1200		13,20	4460	4654	4456	13,9						487.3
KLX 27A	497,30	517,30	1200	1200		12,89	4629	4828	4651	14,2						507,3
KLX 27A	517,30	537,30	1200	1200		12,92	4805	5002	4810	14,4						527,3
KLX 27A	537,30	557,30	1200	1200		12,7	4980	5194	4982	14,7						547,3
KLX 27A	557,30	577,30	1200	1200		12,32	5173	5378	5184	15,0						567,3
KLX 27A	577,30	597,30	1200	1200		13,97	5331	5529		15,2						587,3
KLX 27A	597,30	617,30	1200	1200		13,84	5503	5699	5504	15,5						607,3
KLX 27A	617,30	637,30	1200	1200		12,42	5681	5918	5683	15,7						627,3
KLX 27A	625,20	645,20	1200	1200		13,59	5749	5947	5751	15,8						635,2
KLX 27A	337,30	342,30	1200	1200		10,27	3085	3296	3101	11,8						339,8
KLX 27A	342,30	347,30	1200	1200		12,56	3141	3347	3146	11,8						344,8
KLX 27A	347,30	352,30	#NV	#NV		#NV	#NV	#NV	#NV	12,0						349,8
KLX 27A	352,30	357,30	#NV	#NV		#NV	#NV	#NV	#NV	12,0						354,8
KLX 27A	397,30	402,30	#NV	#NV		#NV	#NV	#NV	#NV	12,6						399,8
KLX 27A	402,30	407,30	#NV	#NV		#NV	#NV	#NV	#NV	12,7						404,8
KLX 27A	407,30	412,30	#NV	#NV		#NV	#NV	#NV	#NV	12,8						409,8
KLX 27A	412,30	417,30	1200	1200		13,61	3765	3960	3786	12,8						414,8
KLX 27A	437,30	442,30	#NV	#NV		#NV	#NV	#NV	/ #NV	13,2						439,8
KLX 27A	442,30	447,30	1200	1200		13,42	4063	4234	4069	13,3						444,8
KLX 27A	447,30	452,30	#NV	#NV		#NV	#NV	#NV	/ #NV	13,3						449,8
KLX 27A	452,30	457,30	#NV	#NV		#NV	#NV	#NV	/ #NV	13,4						454,8
KLX 27A	477,30	482,30	#NV	#NV		#NV	#NV	#NV	/ #NV	13,7						479,8
KLX 27A	482,30	487,30	#NV	#NV		#NV	#NV	#NV								484,8
KLX 27A	487,30	492,30	#NV	#NV		#NV	#NV	#NV							1	489,8
KLX 27A	492,30	497,30	1200	3600		13,22	4452	4651	~				<u> </u>			494.8
KLX 27A	497,30	502,30	1200	1200		12,88	4499	4694								499,8 504,8
KLX 27A	502,30	507,30	1200	1200		12,52	4552	4749						<u> </u>	1	504.8
KLX 27A	507,30	512,30	#NV	#NV		#NV	#NV	#NV								509,8

					section		formation			flow rate end q va	alue type q	mean_flow_r		l	ot volume
idcode	start_date	stop_date	secup	seclow	no	test_type	type	start_flow_period	stop_flow_period	рр	-71 -1		q_measll	q_measlu \	vp
KLX 27A	2008-02-02 14:47:00	2008-02-02 15:26:00	512,30	517,30		3	1	#N	/ #NV	#NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-02 15:57:00	2008-02-02 16:34:00	517,30	522,30		3	1	#N	/ #NV	#NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-02 17:07:00	2008-02-02 17:45:00	522,30	527,30		3	1	#N	/ #NV	#NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-03 08:43:00	2008-02-03 09:22:00	527,30	532,30		3	1	#N	/ #NV	#NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-03 09:54:00	2008-02-03 11:19:00	532,30	537,30		3	1	2008-02-03 10:37:1	2008-02-03 10:57:13	4,00E-07	0	4,50E-07	1,67E-08	8,33E-04	5,40E-04
KLX 27A	2008-02-03 11:51:00	2008-02-03 12:29:00	537,30	542,30		3	1	#N	/ #NV	#NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-03 13:01:00	2008-02-03 13:41:00	542,30	547,30		3	1	#N	/ #NV	#NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-03 15:16:00	2008-02-03 16:41:00	547,30	552,30		3	1	2008-02-03 15:59:1	2008-02-03 16:19:19	7,67E-08	0	8,33E-08	1,67E-08	8,33E-04	1,00E-04
KLX 27A	2008-02-03 17:16:00	2008-02-03 19:29:00	552,30	557,30		3	1	2008-02-03 18:07:3	2008-02-03 18:27:35	2,50E-08	0	2,83E-08	1,67E-08	8,33E-04	3,40E-05
KLX 27A	2008-02-04 08:38:00	2008-02-04 10:17:00	557,30	562,30		3	1	2008-02-04 09:35:2	2008-02-04 09:55:29	1,67E-08	0	2,00E-08	1,67E-08	8,33E-04	2,40E-05
KLX 27A	2008-02-04 10:40:00	2008-02-04 11:18:00	562,30	567,30		3	1	#N	/ #NV	/ #NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-04 12:28:00	2008-02-04 14:07:00	567,30	572,30		3	1	2008-02-04 13:25:4	2008-02-04 13:45:40	1,83E-08	0	1,83E-08	1,67E-08	8,33E-04	2,20E-05
KLX 27A	2008-02-04 14:39:00	2008-02-04 16:15:00	572,30	577,30		3	1	2008-02-04 15:33:1	2008-02-04 15:53:19	5,00E-08	0	5,00E-08	1,67E-08	8,33E-04	6,00E-05
KLX 27A	2008-02-05 10:35:00	2008-02-05 12:03:00	587,30	592,30		3	1	2008-02-05 11:21:5	2008-02-05 11:41:54	9,50E-08	0	1,17E-07	1,67E-08	8,33E-04	1,40E-04
KLX 27A	2008-02-05 13:05:00	2008-02-05 14:27:00	592,30	597,30		3	1	2008-02-05 13:45:3	2008-02-05 14:05:34	1,87E-05	0	1,87E-05	1,67E-08	8,33E-04	2,24E-02
KLX 27A	2008-02-05 14:58:00	2008-02-05 16:19:00	597,30	602,30		3	1	2008-02-05 15:37:2	1 2008-02-05 15:57:21	1,20E-06	0	1,23E-06	1,67E-08	8,33E-04	1,48E-03
KLX 27A	2008-02-05 16:55:00	2008-02-05 17:35:00	602,30	607,30		3	1	#N	/ #NV	/ #NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-05 18:08:00	2008-02-05 18:47:00	607,30	612,30		3	1	#N	/ #NV	/ #NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-06 08:28:00	2008-02-06 09:06:00	612,30	617,30		3	1	#N	/ #NV	/ #NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-06 09:36:00	2008-02-06 10:16:00	617,30	622,30		3	1	#N	/ #NV	/ #NV	-1	#NV	1,67E-08	8,33E-04	#NV
KLX 27A	2008-02-06 10:47:00	2008-02-06 12:10:00	622,30	627,30		3	1	2008-02-06 11:28:2	2 2008-02-06 11:48:22	1,92E-05	0	2,07E-05	1,67E-08	8,33E-04	2,48E-02
KLX 27A	2008-02-06 13:09:00	2008-02-06 14:32:00	627,30	632,30		3	1	2008-02-06 13:50:2	2 2008-02-06 14:10:22	1,32E-05	0	1,35E-05	1,67E-08	8,33E-04	1,62E-02
KLX 27A	2008-02-06 15:07:00	2008-02-06 16:31:00	632,30	637,30		3	1	2008-02-06 15:49:4	2008-02-06 16:09:45	1,10E-05	0	1,12E-05	1,67E-08	8,33E-04	1,34E-02
KLX 27A	2008-02-06 17:02:00	2008-02-06 18:25:00	637,30	642,30		3	1	2008-02-06 17:43:2	2008-02-06 18:03:20	9,88E-05	0	1,04E-04	1,67E-08	8,33E-04	1,25E-01
KLX 27A	2008-02-07 08:33:00	2008-02-07 09:54:00	640,20	645,20		3	1	2008-02-07 09:12:2	2008-02-07 09:32:28	1,05E-04	0	1,10E-04	1,67E-08	8,33E-04	1,32E-01
KLX 27A	2008-02-09 13:18:00	2008-02-09 15:17:00	645,20	650,56		3	1	2008-02-09 14:15:2	7 2008-02-09 14:35:27	5,00E-08	0	5,17E-08	1,67E-08	8,33E-04	6,20E-05

						head at fl											
			dur_flow_p	dur rec ph	initial head	ow end h	final head	initial_press_	press_at_flow_e	final press p	fluid temp t	fluid elcond e	fluid salinity t	fluid salinity t			
idcode	secup			ase_tf	hi	p	hf	pi	nd_pp	f		cw	dsw	dswm	reference	comments	lp
KLX 27A	512,30	517,30	#NV	/ #NV			#NV	#NV	#N\	/ #NV	14,2						514,8
KLX 27A	517,30	522,30	#NV	#NV			#NV	#NV	#N\	/ #NV	14,3						519,8
KLX 27A	522,30	527,30	#NV	/ #NV			#NV	#NV	#N\	/ #NV	14,3						524,8
KLX 27A	527,30	532,30	#NV	/ #NV			#NV	#NV	#N\	/ #NV	14,5						529,8
KLX 27A	532,30	537,30	1200	1200			12,97	4806	5005	4811	14,5						534,8
KLX 27A	537,30	542,30	#NV	/ #NV			#NV	#NV	#N\	/ #NV	14,6						539,8
KLX 27A	542,30	547,30	#NV	/ #NV			#NV	#NV	#N\	/ #NV	14,6						544,8
KLX 27A	547,30	552,30	1200	1200			13,79	4943	5155	4941	14,7						549,8
KLX 27A	552,30	557,30	1200	3600			13,38	4985	5184	4980	14,7						554,8
KLX 27A	557,30	562,30	1200	1200			14,69		5233	5056	14,8						559,8
KLX 27A	562,30	567,30	#NV	/ #NV			#NV	#NV	#N\	#NV	14,9						564,8
KLX 27A	567,30	572,30					13,49		5333								569,8
KLX 27A	572,30	577,30	1200	1200			13,12	5162	5370	5183	15,0						574,8
KLX 27A	587,30	592,30					13,72		ł		4						589,8
KLX 27A	592,30	597,30	1200	1200			13,94	5331	5530	5331	15,3						594,8
KLX 27A	597,30	602,30	1200	1200			14,02	5374	5573	5375	15,3						599,8
KLX 27A	602,30	607,30	#NV	/ #NV			#NV	#NV	#N\	#NV	15,4						604,8
KLX 27A	607,30	612,30	#NV	/ #NV			#NV	#NV	#N\		15,4						609,8
KLX 27A	612,30	617,30	#NV	/ #NV			#NV	#NV	#N\	#NV	15,5						614,8
KLX 27A	617,30	622,30	#NV	/ #NV			#NV	#NV	#N\		15,6						619,8
KLX 27A	622,30	627,30	1200	1200			13,44	5598	5805	5597	15,6						624,8
KLX 27A	627,30	632,30					13,69		ļ	·····							629,8
KLX 27A	632,30	637,30					13,26	<u> </u>		·							634,8
KLX 27A	637,30	642,30	1200				14,10	5724	5923	5725	15,5						639,8
KLX 27A	640,20	645,20	1200	1200			14,04	5749	5948	5750	15,8						642,7
KLX 27A	645,20	650,56	1200	2400			10,59	5769	5978	5764	15,8						647,9

Table plu_s_hole_test_ed1

PLU Single hole tests, pumping/injection. Basic evaluation

Column	Datatype	Unit	Column Description
site	CHAR	O	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</lower>
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.</lower>
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.</lower>
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.
I_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 ***2/a	Lf:1D model for evaluation of Leakage factor
transmissivity_tt	FLOAT CHAR	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,</lower>
bc_tt	FLOAT	m**2/s	Best choice code. 1 means TT is best choice of T, else 0
l_measl_q_s u_measl_q_s	FLOAT	m**2/s	Estimated lower meas. limit for evaluated TT,see table descr
storativity_s	FLOAT	111 2/5	Estimated upper meas. limit for evaluated TT,see description 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	1170	0:true value,-1:Ksf <lower meas.limit,1:ksf="">upper meas.limit,</lower>
I_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</lower>
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</lower>
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)

							formation type				value_type_q_				$\overline{}$
idcode	start date	stop date	secup	seclow	section no	test_type	P	lp ql	seclen class	spec_capacity_q_s		transmissivity_tq	value_type_tq	bc ta	transmissivity_moye
KLX 27A	_	2008-01-18 10:30:00				3	1	127,30	_	6.69E-07	0		value_type_tq	DC_tq	8.71E-07
KLX 27A		2008-01-18 15:24:00		277,30		3		, ,		5,83E-07	0				7,59E-07
KLX 27A		2008-01-18 23:07:00		377,30		3		-		4,76E-09	0				6.20E-09
KLX 27A		2008-01-18 23:07:00	,	477,30		3		427,30		2,14E-09	0				2,78E-09
KLX 27A		2008-01-19 17:30:00		577,30		3		,	100	3,97E-08	0				5,17E-08
KLX 27A		2008-01-19 17:30:00		645.20		3		,	100	5.59E-06	0				7.28E-06
KLX 27A		2008-01-20 11:28:00	, -	97,30		3		, .		4,59E-07	0				4,80E-07
KLX 27A		2008-01-21 18:37:00	,	117,30		3		,	20	2.06E-08	0				2.16E-08
KLX 27A		2008-01-22 10:02:00	- ,	137,30		3		127,30		4,13E-09	0				4,32E-09
KLX 27A		2008-01-22 15:07:00		157,30		3		,		4,13E-09 4,38E-08	0				4,58E-08
KLX 27A		2008-01-22 17:07:00		177,30		3		, ,	20	9,65E-08	0				1,01E-07
KLX 27A		2008-01-22 17:07:00	,	197,30		3		,		2,64E-08	0				2,76E-08
KLX 27A		2008-01-22 22.12.00		217.30		3		207,30	20	6.57E-09	0				2,76E-08 6.88E-09
KLX 27A		2008-01-23 10:20:00		237,30		3		227,30	20	4,50E-07	0				4,71E-07
				,		3				,	0				,
KLX 27A		2008-01-23 16:03:00	- ,	257,30				211,00	20	8,18E-08	-				8,55E-08
KLX 27A		2008-01-24 20:02:00	,	297,30		3			20	1,10E-09	0				1,11E-09
KLX 27A		2008-01-25 14:47:00		357,30		3		347,30	20	3,84E-09	0				4,01E-09
KLX 27A		2008-01-25 16:54:00		377,30		3		367,30	20	#NV	-1				#NV
KLX 27A		2008-01-26 10:28:00		417,30		3		101,00	20	1,65E-09	0				1,73E-09
KLX 27A		2008-01-26 12:01:00	,	437,30		3		121,00	20	#NV	-1				#NV
KLX 27A		2008-01-26 15:00:00	,	457,30		3		117,00	20	8,90E-10	0				9,31E-10
KLX 27A		2008-01-26 16:30:00		477,30		3		467,30	20	#NV	-1				#NV
KLX 27A		2008-01-26 18:43:00		497,30		3		487,30	20	9,35E-09	0				9,79E-09
KLX 27A		2008-01-27 10:07:00	,	517,30		3		00.,00	20	1,23E-08	0				1,29E-08
KLX 27A		2008-01-27 12:13:00		537,30		3		,	20	2,24E-08	0				2,34E-08
KLX 27A		2008-01-27 14:28:00		557,30		3		547,30	20	4,58E-09	0				4,80E-09
KLX 27A		2008-01-27 17:20:00	,	577,30		3		567,30	20	2,71E-09	0				2,84E-09
KLX 27A		2008-01-27 19:30:00		597,30		3		001,00	20	7,93E-07	0				8,29E-07
KLX 27A		2008-01-28 10:10:00		617,30		3		001,00	20	5,92E-08	0				6,20E-08
KLX 27A		2008-01-28 12:19:00		637,30		3		- ,	20	1,10E-06	0				1,15E-06
KLX 27A		2008-01-28 14:44:00		645,20		3		635,20	20	5,20E-06	0				5,44E-06
KLX 27A	2008-01-30 14:37:00	2008-01-30 16:15:00	,	342,30		3		339,80	5	3,10E-09	0				2,56E-09
KLX 27A	2008-01-30 16:51:00	2008-01-30 18:32:00	342,30	347,30		3	1	344,80	5	7,99E-10	0				6,55E-10
KLX 27A	2008-01-31 08:35:00	2008-01-31 09:23:00	347,30	352,30		3	1	349,80	5	#NV	-1				#NV
KLX 27A	2008-01-31 09:56:00	2008-01-31 10:33:00	352,30	357,30		3	1	354,80	5	#NV	-1				#NV
KLX 27A	2008-01-31 11:31:00	2008-01-31 12:10:00	397,30	402,30		3	1	399,80	5	#NV	-1				#NV
KLX 27A	2008-01-31 13:28:00	2008-01-31 14:07:00	402,30	407,30		3	1	404,80	5	#NV	-1				#NV
KLX 27A	2008-01-31 14:39:00	2008-01-31 15:18:00	407,30	412,30		3	1	409,80	5	#NV	-1				#NV
KLX 27A	2008-01-31 15:50:00	2008-01-31 17:29:00	412,30	417,30		3	1	414,80	5	1,51E-09	0				1,25E-09
KLX 27A	2008-01-31 18:13:00	2008-01-31 18:51:00	437,30	442,30		3	1	439,80	5	#NV	-1				#NV
KLX 27A	2008-02-07 13:26:00	2008-02-07 15:07:00	442,30	447,30		3	1	444,80	5	9,56E-10	0				7,89E-10
KLX 27A	2008-02-01 09:43:00	2008-02-01 10:22:00	447,30	452,30		3	1	449,80	5	#NV	-1				#NV
KLX 27A	2008-02-01 10:54:00	2008-02-01 11:35:00	452,30	457,30		3	1	454,80	5	#NV	-1				#NV
KLX 27A		2008-02-01 13:54:00		482,30		3	1	,	5	#NV	-1				#NV
KLX 27A		2008-02-01 15:04:00		487,30		3		,	5	#NV	-1				#NV
KLX 27A		2008-02-01 16:12:00	,	492,30		3		489,80	5	#NV	-1				#NV
KLX 27A		2008-02-01 18:51:00	492,30	497,30		3		494,80	5	9,04E-09	0		1		7,46E-09
KLX 27A		2008-02-02 09:50:00	497,30	502,30		3		,	5	1,09E-08	0		1		9,00E-09
KLX 27A		2008-02-02 11:41:00	502.30	507,30		3		,	5	1,49E-09	0		1		1,23E-09
KLX 27A		2008-02-02 13:57:00	,	,		3		, ,	5	#NV	-1		1		#NV
/ / / .	2000 02 02 10:10:00	2000 02 02 10:07:00	007,00	012,00	1		<u>'</u>	000,00		#140	'	1	1	1	#144

					hudr oand m	formation wi	width of channel				ī		lookogo foot		value type	1		
idcode	secup	seclow	he tm	value type tm	hydr_cond_m		width_of_channel_ b	tb	I measl tb	u measl tb	ch	assumed sb	leakage_fact	transmissivity_tt	value_type_	bc_tt	l mosel a e u	monel a e
	<u> </u>			value_type_tm			D	lD	I_IIIeasi_tb	u_measi_tb	รม	assumeu_su	loi_ii		1		I_measI_q_s u	
KLX 27A	77,30	177,30	0											8,41E-07			2,00E-07	4,00E-06
KLX 27A	177,30	277,30	0		.,									2,92E-07			8,00E-08	7,00E-07
KLX 27A	277,30	377,30	0		-,									1,57E-09			0,002 10	5,00E-09
KLX 27A	377,30	477,30	0		, -									1,27E-09			-,	6,00E-09
KLX 27A	477,30	577,30	0		-, -						ļ			2,50E-08			9,00E-09	6,00E-08
KLX 27A	545,20	645,20	0		.,									1,94E-06			9,00E-07	2,00E-05
KLX 27A	77,30	97,30	0		,									7,36E-07			1,00E-07	3,00E-06
KLX 27A	97,30	117,30	0		,									2,82E-08			8,00E-09	6,00E-08
KLX 27A	117,30	137,30	0		,									8,46E-09			_,,,,,	2,00E-08
KLX 27A	137,30	157,30	0		,									6,39E-08			1,00E-08	2,00E-07
KLX 27A	157,30	177,30	0		-,									2,35E-07			7,00E-08	4,00E-07
KLX 27A	177,30	197,30	0		,									1,31E-08			0,002 00	5,00E-08
KLX 27A	197,30	217,30	0		-, -									7,80E-09			-,	5,00E-08
KLX 27A	217,30	237,30												3,13E-07			9,00E-08	5,00E-07
KLX 27A	237,30	257,30	0	0	4,28E-09									8,53E-08	0	1	1,00E-08	2,00E-07
KLX 27A	277,30	297,30	0		5,55E-11									5,89E-10	0	1	1,00E-10	2,00E-09
KLX 27A	337,30	357,30	0		,									1,94E-09			5,00E-10	5,00E-09
KLX 27A	357,30	377,30	0		#NV									1,00E-10	-1	1	1,00E-11	5,00E-10
KLX 27A	397,30	417,30	0	0	8,65E-11									1,51E-09	0	1	5,00E-10	6,00E-09
KLX 27A	417,30	437,30	0	-1	#NV									1,00E-11	-1	1	1,00E-13	1,00E-11
KLX 27A	437,30	457,30	0	0	4,66E-11									5,64E-10	0	1	1,00E-10	5,00E-09
KLX 27A	457,30	477,30	0	-1	#NV									1,00E-11	-1	1	1,00E-13	1,00E-11
KLX 27A	477,30	497,30	0	0	4,90E-10									2,22E-08	0	1	6,00E-09	7,00E-08
KLX 27A	497,30	517,30	0	0	6,45E-10									1,42E-08	0	1	6,00E-09	5,00E-08
KLX 27A	517,30	537,30	0	0	1,17E-09									1,72E-08	0	1	8,00E-09	7,00E-08
KLX 27A	537,30	557,30	0	0	2,40E-10									6,70E-09	0	1	2,00E-09	3,00E-07
KLX 27A	557,30	577,30												1,28E-09		1		6,00E-09
KLX 27A	577,30	597,30	0											1,49E-06		1	5,00E-07	6,00E-06
KLX 27A	597,30	617,30	0	0	3,10E-09									1,36E-07	0	1	5,00E-08	6,00E-07
KLX 27A	617,30	637,30	0		,									1,96E-07		1	,	9,00E-07
KLX 27A	625,20	645,20	0		·									1,91E-06			,	9,00E-06
KLX 27A	337,30	342,30	0		·									1,01E-09			8,00E-10	7,00E-09
KLX 27A	342,30	347,30	0											1,41E-09			5,00E-10	7,00E-09
KLX 27A	347,30	352,30	0		·									1,00E-11		1	1,00E-13	1,00E-11
KLX 27A	352,30	357,30	0											1,00E-11			,	1,00E-11
KLX 27A	397,30	402,30	0											1,00E-11			,	1,00E-11
KLX 27A	402,30	407,30	0											1,00E-11			1,00E-13	1,00E-11
KLX 27A	407,30	412,30	0											1,00E-11			1,00E-13	1,00E-11
KLX 27A	412,30	417,30	0											8,29E-10				6,00E-09
KLX 27A	437,30	442,30	0											1,00E-11			,	1,00E-11
KLX 27A	442,30	447,30	0											1,81E-09			5,00E-10	7,00E-09
KLX 27A	447,30	452,30	0								1			1,00E-11			1,00E-13	1,00E-03
KLX 27A	452,30	457,30	0								1			1,00E-11			,	1,00E-11
KLX 27A	452,30	482,30	0								1			1,00E-11			1,002 10	1,00E-11
KLX 27A	482.30	487.30									1			1,00E-11				1,00E-11
KLX 27A	487,30	492,30	0								-			1,00E-11			1,00E-13	1,00E-11
KLX 27A KLX 27A	492,30	492,30	0								1			1,00E-11 1,99E-08			5,00E-09	8,00E-11
KLX 27A KLX 27A	492,30	502,30	0		-,,						1			8,76E-09			, ,	8,00E-08
KLX 27A KLX 27A	497,30 502,30		0		,						1						9,00E-09	7,00E-09
		507,30 512,30			,						1			1,32E-09			,	
KLX 27A	507,30	512,30	U	-1	#INV						1	1		1,00E-11	-1		1,00E-13	1,00E-11

								leakage_c			l measi ks	u measl ks	assumed ss					
idcode	secup	seclow	storativity_s	assumed s	bc s	ri	ri index	oeff		value type ksf		f	spec_storage_ssf f	С	cd	skin	dt1	dt2
KLX 27A	77,30	177,30		1,00E-06		91,78	0						<u> </u>	2,90E-10	3,2E-02	1,59	25,8	754,8
KLX 27A	177,30	277,30	1,00E-06			25,17	-1							2,78E-09				
KLX 27A	277,30	377,30				6,81	-1							2,79E-10				
KLX 27A	377,30	477,30	1,00E-06	1,00E-06		18,09	0							2,38E-10	2,6E-02	0,16	49,8	1268,4
KLX 27A	477,30	577,30	1,00E-06	1,00E-06		38,11	0							1,94E-10	2,1E-02	-1,43	181,2	923,4
KLX 27A	545,20	645,20	1,00E-06	1,00E-06		36,18	-1							5,30E-10	5,8E-02	-4,24	73,8	184,2
KLX 27A	77,30	97,30	1,00E-06	1,00E-06		72,48	0							7,11E-11	7,8E-03	3,63	30,6	528,6
KLX 27A	97,30	117,30	1,00E-06	1,00E-06		32,07	0							5,05E-11	5,6E-03	3,81	102,0	
KLX 27A	117,30	137,30	1,00E-06	1,00E-06		23,73	0							5,93E-11	6,5E-03	10,13	90,6	#NV
KLX 27A	137,30	157,30				39,34	0							4,64E-11				
KLX 27A	157,30	177,30	1,00E-06	,		13,78	1							7,51E-11				
KLX 27A	177,30	197,30	1,00E-06			9,38	-1							4,25E-10	4,7E-02		45,6	
KLX 27A	197,30	217,30	1,00E-06			23,26	0							1,05E-10	1,2E-02			
KLX 27A	217,30	237,30	1,00E-06			58,53	0							4,61E-11	5,1E-03			
KLX 27A	237,30	257,30				#NV	1							1,88E-09				
KLX 27A	277,30	297,30	1,00E-06			36,57	0							5,67E-11	6,2E-03			
KLX 27A	337,30	357,30	1,00E-06			16,42	0							8,37E-11			#NV	
KLX 27A	357,30	377,30	1,00E-06			#NV	#NV							#NV	#NV		#NV	
KLX 27A	397,30	417,30	1,00E-06	,		15,43	0							8,64E-11	9,5E-03	,		
KLX 27A KLX 27A	417,30 437,30	437,30 457,30				#NV 12,06	#NV							#NV 9,23E-11	#NV 1,0E-02		#NV #NV	
KLX 27A	457,30	457,30				#NV	#NV							9,23E-11 #NV	1,0E-02		#NV	
KLX 27A	477,30	497,30	1,00E-06			30,21	#INV							4,53E-11			#NV	
KLX 27A	497.30	517,30	1.00E-06			11,49	1							5,59E-11	6.2E-03		65,4	
KLX 27A	517,30	537,30	,			14,82	-1							3,50E-11		- /		
KLX 27A	537,30	557,30				22,39	0							5,63E-11				
KLX 27A	557,30	577,30	1.00E-06			14,80	0							5,59E-11	6,2E-03		#NV	
KLX 27A	577,30	597,30	1,00E-06			86,46	0							7,00E-11	7,7E-03			
KLX 27A	597,30	617,30				47,52	0							4,01E-11	4.4E-03		66,0	
KLX 27A	617,30	637,30				24,48	-1							7,86E-10	8,7E-02			
KLX 27A	625,20	645,20	1,00E-06	1,00E-06		39,89	-1							1,47E-09	1,6E-01	-4,14	80,4	225,6
KLX 27A	337,30	342,30	1,00E-06	1,00E-06		5,99	-1							2,09E-11	2,3E-03	-1,11	58,2	221,4
KLX 27A	342,30	347,30	1,00E-06	1,00E-06		15,16	0							1,88E-11	2,1E-03	6,04	#NV	#NV
KLX 27A	347,30	352,30	1,00E-06	1,00E-06		#NV	#NV							#NV	#NV	#NV	#NV	#NV
KLX 27A	352,30	357,30		,		#NV	#NV							#NV	#NV		#NV	
KLX 27A	397,30	402,30				#NV	#NV							#NV			#NV	
KLX 27A	402,30	407,30	1,00E-06			#NV	#NV							#NV			#NV	
KLX 27A	407,30	412,30	1,00E-06			#NV	#NV							#NV			#NV	
KLX 27A	412,30	417,30	1,00E-06			13,3	0							1,99E-11	2,2E-03		#NV	
KLX 27A	437,30	442,30				#NV	#NV							#NV	#NV		#NV	
KLX 27A	442,30	447,30				16,1	0							3,37E-11				
KLX 27A	447,30	452,30	1,00E-06			#NV	#NV							#NV	#NV		#NV	
KLX 27A	452,30	457,30	1,00E-06	,		#NV	#NV		1					#NV	#NV		#NV	
KLX 27A KLX 27A	477,30 482,30	482,30	1,00E-06			#NV #NV	#NV #NV		1					#NV #NV	#NV #NV		#NV	
KLX 27A KLX 27A		487,30 492.30	1,00E-06 1.00E-06	,		#NV #NV	#NV #NV		1					#NV #NV			#NV #NV	
KLX 27A KLX 27A	487,30 492,30	492,30	1,00E-06 1,00E-06			30,18	#NV 0		+					1,28E-11	1,4E-03		#NV 148,7	
KLX 27A KLX 27A	492,30	502,30	1,00E-06 1.00E-06			7,99	1							1,28E-11	1,4E-03		34,2	
KLX 27A	502,30	502,30	1,00E-06	,		14,92	0		+					3,01E-11	3,3E-03		#NV	
KLX 27A	507,30	512,30	1,00E-06			#NV	#NV		+					3,01E-11	3,3E-03		#NV	
NLA ZIA	301,30	312,30	1,000-00	1,000-00	'	#INV	#INV		1	1	1			#IN V	#IN V	#IN V	#IN V	#INV

Decode Section Process Proce			1			T		1	atarativity a	value time t nl	I	1			I	value_type_t_g	1	atarativity a	م ماند باداما	
RX 27A 77.50 177.50 277.50 250.50 3888.50						دا م	14-0							-1-11						
KX 27A 177.30 277.30 373.01 20338.6 KX 27A 377.30 177.30 Sabb. KX 27A 377.30 477.30 Sabb. KX 27A 377.30 477.30 Sabb. KX 27A 377.30 477.30 Sabb. KX 27A 377.30 177.30 Sabb. KX 27A 377.30 177.30 Sabb. KX 27A 177.30 Sabb.				1 [12	z at	en a	itez	•	 nir	ır	DC_t_nir	C_nir	ca_nir	SKIN_NIF	transmissivity_t_gri	ırı	bc_t_gri	п	rr	comment
KLX 27A 277.00 377.00 3398.65																				
Kix 27A 377.30 477.30 578.01 574.63		177,30																		
KL 27A 477.30 577.30 574.50 5145.7																				
KIX 277A 77.50 695,20 695,20 697,00 891,6 6 7.75 7.75 97,30 178,00 17																				
Kix 277A 77.30 97.30 891.6																				
KIX 277A 97.30																				
KLX 27A 117,30 137,30 157,30 1472,5 1619,8		77,30																		
KIX 277A 137,30 157,30 177,30 161,30 142,26		97,30																		
KLX 27A 157,30 177,30 177,30 1618 KLX 27A 177,30 178,20 1782,00 1782,00 1782,00 1782,00 1782,00 1880,11 18																				
KIX 27A 177,30 197,30 197,30 1782,0		137,30																		
KIX 27A 197 30 217,30 1960.1 1960.1																				
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KIX 277A 237,30 257,30 SHV KIX 277A 277,30 257,30 SHV KIX 277A 337,30 357,30 SC 30.5 SHV KIX 277A 337,30 357,30 SC 30.5 SHV KIX 277A 357,30 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 ST 30.5 SHV SHX 277A 357,30 SH 30.5 SHV SHX 277A 357,30 SH 30.5 SH 30.5 SHV SHX 277A 357,30 SH 30.5																				
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KIX 277A 397;30 377;30 8NN 8NN 8NN 8NN 8NN 8NN 8NN 8NN 8NN 8N																				
KIX 27A 397,30 417,30 3738.4																				
KIX 27A 417.30 437.30																				
KLX 27A																				
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KLX 27A 497,30 517,30 4623.8			477,30					#NV												
KLX 27A 537,30 537,30 4907,9																				
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KLX 27A 557,30 577,30 597,30 5141,4	KLX 27A																			
KLX 27A 597,30 597,30 1130 5331,8 5331,8 5331,8 5504.2																				
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KLX 27A 337,30 342,30 37,30 3127.8 KLX 27A 347,30 352,30 #NV KLX 27A 352,30 357,30 #NV KLX 27A 397,30 402,30 #NV KLX 27A 402,30 407,30 #NV KLX 27A 407,30 412,30 #NV KLX 27A 412,30 417,30 #NV KLX 27A 442,30 447,30 #NV KLX 27A 447,30 452,30 #NV KLX 27A 452,30 457,30 #NV KLX 27A 477,30 482,30 #NV	KLX 27A																			
KLX 27A 342,30 347,30 352,30 #NV								5743,3												
KLX 27A 347,30 352,30 #NV								3063,1												
KLX 27A 352,30 357,30 #NV KLX 27A 397,30 402,30 #NV KLX 27A 402,30 407,30 #NV KLX 27A 407,30 412,30 #NV KLX 27A 412,30 417,30 3754,4 KLX 27A 437,30 442,30 #NV KLX 27A 447,30 452,30 #NV KLX 27A 452,30 457,30 #NV KLX 27A 477,30 482,30 #NV KLX 27A 477,30 482,30 #NV KLX 27A 482,30 487,30 #NV								3127,8												
KLX 27A 397,30 402,30 #NV																				
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KLX 27A 412,30 417,30 3754,4 KLX 27A 437,30 442,30 #NV KLX 27A 442,30 447,30 4015,9 KLX 27A 447,30 452,30 #NV KLX 27A 452,30 457,30 #NV KLX 27A 477,30 482,30 #NV KLX 27A 477,30 482,30 #NV KLX 27A 482,30 487,30 #NV																				
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KLX 27A 437,30 442,30 #NV KLX 27A 442,30 447,30 4015,9 KLX 27A 447,30 452,30 #NV KLX 27A 452,30 457,30 #NV KLX 27A 477,30 482,30 #NV KLX 27A 482,30 487,30 #NV																				
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INLA 2171 401,401 472,401 #199 #199	KLX 27A	487,30	492,30					#NV												
KLX 27A 492,30 497,30 4452,1																				
KLX 27A 497,30 502,30 4492,4																				
KLX 27A 502,30 507,30 4532,8																				
	KLX 27A	507,30						#NV												

							formation typ				value_type_q_			
idcode	start date	stop date	secup	seclow	section no	test type	e		seclen class	spec capacity q		transmissivity to	value type to bc to	transmissivity move
KLX 27A	2008-02-02 14:47:00	2008-02-02 15:26:00	512,30	517,30	_	3	1	514.80	F	#N		7_1	77777	#NV
KLX 27A	2008-02-02 15:57:00	2008-02-02 16:34:00	,	522,30		3		519,80	5	#N				#NV
KLX 27A	2008-02-02 17:07:00	2008-02-02 17:45:00	- ,	527,30		3	3 1	524,80	5	5 #N				#NV
KLX 27A	2008-02-03 08:43:00	2008-02-03 09:22:00		532,30		3		529,80	5	5 #N				#NV
KLX 27A		2008-02-03 11:19:00	- /	537,30		3		534,80	5	1,97E-0				1,63E-08
KLX 27A		2008-02-03 12:29:00		542,30		3		539,80	5	5 #N				#NV
KLX 27A	2008-02-03 13:01:00			547,30		3	3 1	544,80	5	#N	/ -1			#NV
KLX 27A	2008-02-03 15:16:00	2008-02-03 16:41:00		552,30		3	3 1	549.80	5	3.55E-0	9 0			2,93E-09
KLX 27A	2008-02-03 17:16:00	2008-02-03 19:29:00	,	557,30		3	3 1	554,80	5	1,23E-0	9 0			1,02E-09
KLX 27A	2008-02-04 08:38:00	2008-02-04 10:17:00	557,30	562,30		3	3 1	559,80	5	9,34E-1				7,71E-10
KLX 27A	2008-02-04 10:40:00	2008-02-04 11:18:00		567,30		3	3 1	564,80	5	5 #N'	/ -1			#NV
KLX 27A	2008-02-04 12:28:00	2008-02-04 14:07:00	567,30	572,30		3	3 1	569,80	5	8,73E-1	0 0			7,21E-10
KLX 27A	2008-02-04 14:39:00	2008-02-04 16:15:00	572,30	577,30		3	3 1	574,80	5	2,36E-0	9 0			1,95E-09
KLX 27A	2008-02-05 10:35:00	2008-02-05 12:03:00	587,30	592,30		3	3 1	589,80	5	4,66E-0				3,85E-09
KLX 27A	2008-02-05 13:05:00	2008-02-05 14:27:00	592,30	597,30		3	3 1	594,80	5	9,20E-0	7 0			7,60E-07
KLX 27A	2008-02-05 14:58:00	2008-02-05 16:19:00	597,30	602,30		3	3 1	599,80	5	5,92E-0	8 0			4,88E-08
KLX 27A	2008-02-05 16:55:00	2008-02-05 17:35:00	602,30	607,30		3	3 1	604,80	5	5 #N'	/ -1			#NV
KLX 27A	2008-02-05 18:08:00	2008-02-05 18:47:00	607,30	612,30		3	3 1	609,80	5	#N	/ -1			#NV
KLX 27A	2008-02-06 08:28:00	2008-02-06 09:06:00	612,30	617,30		3	3 1	614,80	5	5 #N'	/ -1			#NV
KLX 27A	2008-02-06 09:36:00	2008-02-06 10:16:00	617,30	622,30		3	1	619,80	5	5 #N'	/ -1			#NV
KLX 27A	2008-02-06 10:47:00	2008-02-06 12:10:00	622,30	627,30		3	1	624,80	5	9,08E-0	7 0			7,50E-07
KLX 27A	2008-02-06 13:09:00	2008-02-06 14:32:00	627,30	632,30		3	1	629,80	5	6,53E-0	7 0			5,38E-07
KLX 27A	2008-02-06 15:07:00	2008-02-06 16:31:00	632,30	637,30		3	1	634,80	5	5,45E-0	7 0			4,50E-07
KLX 27A	2008-02-06 17:02:00	2008-02-06 18:25:00	637,30	642,30		3	1	639,80	5	4,87E-0	6 0			4,02E-06
KLX 27A	2008-02-07 08:33:00	2008-02-07 09:54:00	640,20	645,20		3	1	642,70	5	5,15E-0	6 0			4,25E-06
KLX 27A	2008-02-09 13:18:00	2008-02-09 15:17:00	645,20	650,56		3	1	647,88	5,36	2,35E-0	9 0			1,96E-09

					hydr_cond_m	formation_wi	width_of_chan	nel_					leakage_fac	t	value_type_			
idcode	secup	seclow	bc_tm	value_type_tm	oye	dth_b	b	tb	I_measl_tb	u_measl_t	tb sb	assumed_s	or_lf	transmissivity_tt		bc_tt	l_measl_q_s	u_measl_q_s
KLX 27A	512,30	517,30		0 -1	#NV	1								1,00E-11	1 -1	1	1,00E-13	1,00E-11
KLX 27A	517,30	522,30		0 -1	#NV	1								1,00E-11	1 -1	1	1,00E-13	1,00E-11
KLX 27A	522,30	527,30		0 -1	#NV	1								1,00E-11	1 -1	1	1,00E-13	1,00E-11
KLX 27A	527,30	532,30		0 -1	#NV	1								1,00E-11	1 -1	1	1,00E-13	1,00E-11
KLX 27A	532,30	537,30		0 0	3,26E-09									1,57E-08	3 0	1	8,00E-09	8,00E-08
KLX 27A	537,30	542,30		0 -1	#NV	1								1,00E-11	1 -1	1	1,00E-13	1,00E-11
KLX 27A	542,30	547,30		0 -1	#NV	1								1,00E-11	1 -1	1	1,00E-13	1,00E-11
KLX 27A	547,30	552,30		0 0	5,86E-10	1								4,36E-09	9 0	1	1,00E-09	1,00E-08
KLX 27A	552,30	557,30		0 0	2,04E-10	1								1,15E-09	9 0	1	9,00E-10	7,00E-09
KLX 27A	557,30			0 0	1,54E-10									1,09E-09	9 0	1	6,00E-10	6,00E-09
KLX 27A	562,30			0 -1	,,,,,,									1,00E-11		1	1,00E-13	1,00E-11
KLX 27A	567,30	572,30		0 0	1,44E-10									1,89E-09	9 0	1	6,00E-10	6,00E-09
KLX 27A	572,30			0 0	3,90E-10									7,57E-10	0	1	6,00E-10	8,00E-09
KLX 27A	587,30	592,30		0 0	7,70E-10									3,21E-09	9 0	1	9,00E-10	1,00E-08
KLX 27A	592,30	597,30		0 0	1,52E-07	•								2,15E-06	0	1	7,00E-07	5,00E-06
KLX 27A	597,30	602,30		0 0	9,76E-09									9,78E-08	3 0	1	3,00E-08	4,00E-07
KLX 27A	602,30	607,30		0 -1	#NV	1								1,00E-11	1 -1	1	1,00E-13	1,00E-11
KLX 27A	607,30	612,30		0 -1	#NV	1								1,00E-11	1 -1	1	1,00E-13	1,00E-11
KLX 27A	612,30	617,30		0 -1	#NV	1								1,00E-11	1 -1	1	1,00E-13	1,00E-11
KLX 27A	617,30	622,30		0 -1	#NV	1								1,00E-11	1 -1	1	1,00E-13	1,00E-11
KLX 27A	622,30	627,30		0 0	1,50E-07	•								3,21E-07	7 0	1	1,00E-07	2,00E-06
KLX 27A	627,30	632,30		0 0	1,08E-07	•								9,00E-07	7 0	1	5,00E-07	4,00E-06
KLX 27A	632,30			0 0	9,00E-08									7,87E-07	7 0	1	5,00E-07	4,00E-06
KLX 27A	637,30	642,30		0 0	8,04E-07									2,50E-06	0	1	9,00E-07	2,00E-05
KLX 27A	640,20	645,20		0 0	8,50E-07									2,72E-06	0	1	1,00E-06	1,00E-05
KLX 27A	645,20	650,56		0 0	3,66E-10									5,08E-09	0	1	1,00E-09	1,00E-08

								leakage_c		l measi ks	u measl ks	:	assumed ss					
idcode	secup	seclow	storativity_s	assumed_s	bc_s	ri		oeff	value_type_ksf		f	spec_storage_ssf	f	С	cd	skin	dt1	dt2
KLX 27A	512.30	517.30	1,00E-06	1.00E-06	6	#NV	#NV			İ				#NV	#NV	/ #NV	#NV	#NV
KLX 27A	517,30	522,30	,		6	#NV	#NV							#NV	#NV	#NV	#NV	#NV
KLX 27A	522,30	527,30	1,00E-06	1,00E-06	6	#NV	#NV							#NV	#N∨	#NV	#NV	#NV
KLX 27A	527,30	532,30	1,00E-06	1,00E-06	6	#NV	#NV							#NV	#NV	#NV	#NV	#NV
KLX 27A	532,30	537,30	1,00E-06	1,00E-06	6	27,70	0							1,06E-11	1,2E-03	0,36	37,4	979,9
KLX 27A	537,30	542,30	1,00E-06	1,00E-06	6	#NV	#NV							#NV	#NV	#NV	#NV	#NV
KLX 27A	542,30	547,30	1,00E-06	1,00E-06	6	#NV	#NV							#NV	#NV	#NV	#NV	#NV
KLX 27A	547,30	552,30	1,00E-06	1,00E-06	6	20,11	0							1,47E-11	1,6E-03	3,92	#NV	#NV
KLX 27A	552,30	557,30		,		24,96	0							2,18E-11	2,4E-03	, -		
KLX 27A	557,30	562,30		,		14,22	0							1,80E-11	2,0E-03			#NV
KLX 27A	562,30	567,30				#NV	#NV							#NV	#N∨			#NV
KLX 27A	567,30	572,30	,	,		16,32	0							1,94E-11	2,1E-03			#NV
KLX 27A	572,30	577,30	,	,		12,98	0							1,75E-11	1,9E-03		, -	932,4
KLX 27A	587,30	592,30		,		18,63	-1							1,05E-11	1,2E-03			#NV
KLX 27A	592,30	597,30		,		94,76	0							2,80E-11	3,1E-03	-, -		825,5
KLX 27A	597,30	602,30				43,76	0							1,01E-11	1,1E-03			
KLX 27A	602,30	607,30	,	,		#NV	#NV							#NV	#NV			#NV
KLX 27A	607,30	612,30	,	,		#NV	#NV							#NV				#NV
KLX 27A	612,30	617,30	,	,		#NV	#NV							#NV				#NV
KLX 27A	617,30	622,30		,		#NV	#NV							#NV	#NV			#NV
KLX 27A	622,30	627,30	,	,		24,23	-1							8,45E-10	9,3E-02			203,0
KLX 27A	627,30	632,30		,		16,75	-1							6,32E-11	7,0E-03			
KLX 27A	632,30	637,30		,		14,78	-1							3,14E-11	3,5E-03			
KLX 27A	637,30	642,30	,	,		31,84								6,39E-10	7,0E-02			
KLX 27A	640,20	645,20	,	, , , , , , , ,		31,19	-1							1,86E-09				115,6
KLX 27A	645,20	650,56	1,00E-06	1,00E-06	6	29,55	0							4,67E-11	5,1E-03	10,25	31,0	835,2

	1		1 1			I		storativity s	value_type_t_nl			1	1		value_type_t_g		storativity_s_g flow_dim_g	
idcode	secup	seclow	t1 t2	dte1	dte2	p horner	transmissivity_t_nlr			bc t nlr	c nlr	cd nlr	skin nlr	transmissivity_t_grf		bc_t_grf		comment
KLX 27A	512,30	517,3	0			#NV	,	1						70				
KLX 27A	517,30	522,3				#NV												
KLX 27A	522,30	527,3				#NV												
KLX 27A	527,30	532,3	0			#NV												
KLX 27A	532,30	537,3	0			4799,4												
KLX 27A	537,30	542,3	0			#NV												
KLX 27A	542,30	547,3	0			#NV												
KLX 27A	547,30	552,3	0			4938,3												
KLX 27A	552,30	557,3	0			4977,8												
KLX 27A	557,30	562,3	0			5034,1												
KLX 27A	562,30	567,3				#NV												
KLX 27A	567,30	572,3	0			5109,5												
KLX 27A	572,30	577,3	0			5149,3												
KLX 27A	587,30	592,3				5285,7												
KLX 27A	592,30	597,3	0			5331,5												
KLX 27A	597,30	602,3				5375,6												
KLX 27A	602,30	607,3				#NV												
KLX 27A	607,30	612,3				#NV												
KLX 27A	612,30	617,3				#NV												
KLX 27A	617,30	622,3				#NV												
KLX 27A	622,30	627,3				5587,1												
KLX 27A	627,30	632,3				5632,7												
KLX 27A	632,30	637,3				5671,5												
KLX 27A	637,30	642,3				5723,2												
KLX 27A	640,20	645,2				5747,7												
KLX 27A	645,20	650,5	6			5759,9												

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)

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idaada	otort doto	oton doto		and au	costion no	aha assum	aha aaalaw	ni ahaya	nn shave	nf above	ni halaw	nn holow	nf halaw	oommonto.
idcode	start_date	stop_date	secup	seclow	section_no	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	11 -	pf_below	comments
KLX 27A		2008-01-18 10:30:00	77,30	177,30		178,30	,	713				-	1642	
KLX 27A		2008-01-18 15:24:00	177,30	277,30		278,30		1602	1602				2529	
KLX 27A		2008-01-18 23:07:00	277,30	377,30		378,30	,	2489					3413	
KLX 27A		2008-01-19 13:47:00	377,30	477,30		478,30		3373					4296	
KLX 27A		2008-01-19 17:30:00	477,30	577,30		578,30	,	4257	4257	4257			5174	
KLX 27A		2008-01-20 11:28:00	545,20	645,20		646,20	,	4855					5798	
KLX 27A		2008-01-21 18:57:00	77,30	97,30		98,30		711	711	711	928		928	
KLX 27A		2008-01-22 10:02:00	97,30	117,30		118,30	,	891	891	891	1108		1108	
KLX 27A		2008-01-22 12:18:00	117,30	137,30		138,30		1068					1286	
KLX 27A		2008-01-22 15:07:00	137,30	157,30		158,30	,	1246					1464	
KLX 27A		2008-01-22 17:07:00	157,30	177,30		178,30		1424					1642	
KLX 27A		2008-01-22 22:12:00	177,30	197,30		198,30		1601	1601	1601	1819		1819	
KLX 27A		2008-01-23 10:20:00	197,30	217,30		218,30		1780					1997	
KLX 27A		2008-01-23 12:22:00	217,30	237,30		238,30		1957	1957	1957			2176	
KLX 27A		2008-01-23 16:03:00	237,30	257,30		258,30	,	2135	2135				2354	
KLX 27A		2008-01-24 20:02:00	277,30	297,30		298,30		2491	2491	2491			2707	
KLX 27A		2008-01-25 14:47:00	337,30	357,30		358,30	,	3021	3020				3236	
KLX 27A		2008-01-25 16:54:00	357,30	377,30		378,30	,	#NV	#NV		#NV		#NV	
KLX 27A		2008-01-26 10:28:00	397,30	417,30		418,30	,	3553	3553		3767	3767	3767	
KLX 27A		2008-01-26 12:01:00	417,30	437,30		438,30	,	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A		2008-01-26 15:00:00	437,30	457,30		458,30		3905					4119	
KLX 27A		2008-01-26 16:30:00	457,30	477,30		478,30		#NV	#NV		#NV		#NV	
KLX 27A		2008-01-26 18:43:00	477,30	497,30		498,30	,	4257	4257	4257	4471	4471	4471	
KLX 27A		2008-01-27 10:07:00	497,30	517,30		518,30	,	4436				4647	4647	
KLX 27A		2008-01-27 12:13:00	517,30	537,30		538,30		4611	4610				4822	
KLX 27A		2008-01-27 14:28:00	537,30	557,30		558,30	,	4788					4999	
KLX 27A		2008-01-27 17:20:00	557,30	577,30		578,30		4963					5174	
KLX 27A		2008-01-27 19:30:00	577,30	597,30		598,30	,	5138					5349	
KLX 27A		2008-01-28 10:10:00	597,30	617,30		618,30	,	5316					5524	
KLX 27A		2008-01-28 12:19:00	617,30	637,30		638,30	,	5491	5491	5491	5698		5699	
KLX 27A	2008-01-28 13:24:00	2008-01-28 14:44:00	625,20	645,20		646,20	,	5560					5781	
KLX 27A		2008-01-30 16:15:00	337,30	342,30		343,30		3023					3101	
KLX 27A	2008-01-30 16:51:00	2008-01-30 18:32:00	342,30	347,30		348,30	650,56	3067	3067	3067	3146	3146	3146	
KLX 27A	2008-01-31 08:35:00	2008-01-31 09:23:00	347,30	352,30		353,30	650,56	#NV	#NV	#NV	#NV		#NV	
KLX 27A		2008-01-31 10:33:00	352,30	357,30		358,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-01-31 11:31:00	2008-01-31 12:10:00	397,30	402,30		403,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-01-31 13:28:00	2008-01-31 14:07:00	402,30	407,30		408,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-01-31 14:39:00	2008-01-31 15:18:00	407,30	412,30		413,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-01-31 15:50:00	2008-01-31 17:29:00	412,30	417,30		418,30	650,56	3686	3686	3686	3765	3765	3765	
KLX 27A	2008-01-31 18:13:00	2008-01-31 18:51:00	437,30	442,30		443,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-07 13:26:00	2008-02-07 15:07:00	442,30	447,30		448,30	650,56	3952	3952	3952	4029	4029	4029	
KLX 27A	2008-02-01 09:43:00	2008-02-01 10:22:00	447,30	452,30		453,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-01 10:54:00	2008-02-01 11:35:00	452,30	457,30		458,30		#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A		2008-02-01 13:54:00	477,30	482,30		483,30		#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A		2008-02-01 15:04:00	482,30	487,30		488,30		#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A		2008-02-01 16:12:00	487,30	492,30		493,30		#NV	#NV				#NV	
KLX 27A		2008-02-01 18:51:00	492,30	497,30		498,30		4390					4468	
KLX 27A		2008-02-02 09:50:00	497,30	502,30		503,30		4436					4513	
KLX 27A		2008-02-02 11:41:00	502,30	507,30		508,30	,	4479					4557	
KLX 27A		2008-02-02 13:57:00		512.30		513.30	,	#NV					#NV	
NENZIA	2000-02-02 10.19.00	2000-02-02 10.07.00	301,30	512,50	1	313,30	050,50	πινν	#147	#INV	πΙΝΙ	πίΝν	πINV	1

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 27A	2008-02-02 14:47:00	2008-02-02 15:26:00	512,30	517,30		518,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-02 15:57:00	2008-02-02 16:34:00	517,30	522,30		523,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-02 17:07:00	2008-02-02 17:45:00	522,30	527,30		528,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-03 08:43:00	2008-02-03 09:22:00	527,30	532,30		533,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-03 09:54:00	2008-02-03 11:19:00	532,30	537,30		538,30	650,56	4745	4745	4745	4821	4821	4821	
KLX 27A	2008-02-03 11:51:00	2008-02-03 12:29:00	537,30	542,30		543,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-03 13:01:00	2008-02-03 13:41:00	542,30	547,30		548,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-03 15:16:00	2008-02-03 16:41:00	547,30	552,30		553,30	650,56	4877	4876	4875	4953	4952	4952	
KLX 27A	2008-02-03 17:16:00	2008-02-03 19:29:00	552,30	557,30		558,30	650,56	4920	4919	4919	4996	4996	4996	
KLX 27A	2008-02-04 08:38:00	2008-02-04 10:17:00	557,30	562,30		563,30	650,56	4964	4964	4964	5040	5040	5040	
KLX 27A	2008-02-04 10:40:00	2008-02-04 11:18:00	562,30	567,30		568,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-04 12:28:00	2008-02-04 14:07:00	567,30	572,30		573,30	650,56	5051	5051	5051	5127	5128	5128	
KLX 27A	2008-02-04 14:39:00	2008-02-04 16:15:00	572,30	577,30		578,30	650,56	5095	5095	5095	5172	5172	5172	
KLX 27A	2008-02-05 10:35:00	2008-02-05 12:03:00	587,30	592,30		593,30	650,56	5226	5226	5226	5302	5302	5302	
KLX 27A	2008-02-05 13:05:00	2008-02-05 14:27:00	592,30	597,30		598,30	650,56	5270	5269	5269	5346	5346	5346	
KLX 27A	2008-02-05 14:58:00	2008-02-05 16:19:00	597,30	602,30		603,30	650,56	5314	5314	5315	5390	5390	5390	
KLX 27A	2008-02-05 16:55:00	2008-02-05 17:35:00	602,30	607,30		608,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-05 18:08:00	2008-02-05 18:47:00	607,30	612,30		613,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-06 08:28:00	2008-02-06 09:06:00	612,30	617,30		618,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-06 09:36:00	2008-02-06 10:16:00	617,30	622,30		623,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-02-06 10:47:00	2008-02-06 12:10:00	622,30	627,30		628,30	650,56	5534	5534	5533	5608	5628	5608	
KLX 27A	2008-02-06 13:09:00	2008-02-06 14:32:00	627,30	632,30		633,30	650,56	5577	5578	5578	5649	5659	5650	
KLX 27A	2008-02-06 15:07:00	2008-02-06 16:31:00	632,30	637,30		638,30	650,56	5621	5621	5621	5693	5698	5693	
KLX 27A	2008-02-06 17:02:00	2008-02-06 18:25:00	637,30	642,30		643,30	650,56	5665	5665	5665	5737	5852	5738	
KLX 27A	2008-02-07 08:33:00	2008-02-07 09:54:00	640,20	645,20		646,20	650,56	5690	5692	5691	5771	5803	5770	
KLX 27A	2008-02-09 13:18:00	2008-02-09 15:17:00	645,20	650,56		651,56	650,56	#NV	#NV	#NV	#NV	#NV	#NV	

Borehole: KLX27A

APPENDIX 5-2

SICADA data tables (Pulse injection tests)

SKB		SI	[CAD	A/Dat	a Imp	ort Tem _]	plate			Simplified version v1.8) (B & Ergodata AB 2006		
									- Oi	CD & Ligodala AD 2000	<u>1</u>	
File Identity Created By Created				File Time Zone		Quality	Compiled By Check For Delivery Delivery Approva	1				
Activity Type		HY665 PLU Pulse Test				Project		PLU ł	KLX 27A			
Activity Informa	ation					Additional Activity	Data C40	1160	P20	P200	P220	R240
Idcode	Start Date	Stop Date	Secup (m)	Seclow (m)	Section No	Company evaluating data	Company performing field		Field crew manager	Field crew		Length calibration
KLX 27A	2008-01-23 16:42:00	2008-02-04 19:23:00	257,30	582,30		Golder Associates	Golder Associates	PSS 2	Philipp Wolf	Philipp Wolf, Linda Höckert, Erik Löfgren	Stephan Rohs, Philipp Wolf, Reinder van der Wall	

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</lower>
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</lower>
bc_tp	CHAR		Best choice code.1 means Tp is best choice of transm.,else 0
I_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
С	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	n) (m)	(m) (m	(kPa)	(kPa)
							formation_t			dur_re	c_ initial	_hea initial_dis	oldisplace	displace	ow_end_h	final_hea	initial_pr	initial_press_
idcode	start_date	stop_date	secup	seclow	section_no	test_type	ype	start_flow_period	dur_flow_phase_tp	phase_	tf d_h0	acem_dh	m_dh0_p	m_dh0_f	р	d_hf	ess_pi	diff_dp0
KLX 27A	2008-01-23 16:42:00	2008-01-23 19:21:00	257,30	277,30		4B	1	2008-01-23 17:19:11	10	72	:00						2517	224
KLX 27A	2008-01-25 08:42:00	2008-01-25 10:27:00	297,30	317,30		4B	1	2008-01-25 09:25:55	10	36	00						2883	208
KLX 27A	2008-01-25 11:05:00	2008-01-25 12:42:00	317,30	337,30		4B	1	#NV	#NV	#	٧V						#NV	#NV
KLX 27A	2008-01-25 17:35:00	2008-01-25 21:16:00	377,30	397,30		4B	1	2008-01-25 18:14:24	10	108	00						3591	208
KLX 27A	2008-02-04 16:44:00	2008-02-04 19:23:00	577,30	582,30		4B	1	2008-02-04 17:21:40	10	72	.00						5202	213
KLX 27A	2008-02-05 08:24:00	2008-02-05 10:05:00	582,30	587,30		4B	1	2008-02-05 09:03:23	10	36	00						5251	203

	(m)	(m)	. (kPa	a) (kPa)	(kPa)	(m)	(m**2/s)			(m**2/s)			(m**2)	(m**2	1				(m**3/pa)	(oC)	(mS/m) (mg/l)	_(mg/l)	(s)	(s)		
			hange_d	press_at_fl	final_pre	formation	transmissi	value_typ		transmis	value_ty		l_meas_limit	u_meas_lim	storativit	assumed		assumed		fluid_te	fluid_eld	inity_tds	nity_tds				
idcode	secup	seclow	p0_p	ow_end_pp	ss_pf	_width_b	vity_ts	e_ts	bc_ts	sivity_tp	pe_tp	bc_tp	_t	t_t	y_s	_s	skin	_skin	С	mp_tew	ond_ecv	vw	wm	dt1	dt2	reference	comments
KLX 27A	257,30	277,30		2741	2532					2,73E-11	0	1	7,00E-12	5,00E-11	1,00E-06	1,00E-06	-2,5	5	4,92E-11	10,8				#NV	#NV		
KLX 27A	297,30	317,30		3091	2929					6,11E-11	0	1	1,00E-11	1,00E-10	1,00E-06	1,00E-06	-1,2	2	5,78E-11	11,4				#NV	#NV		
KLX 27A	317,30	337,30		#NV	#NV					1,00E-11	0	1	1,00E-13	1,00E-11	1,00E-06	1,00E-06	#N\	/	#NV	11,7				#NV	#NV		
KLX 27A	377,30	397,30		3799	3624					6,36E-11	0	1	1,00E-11	1,00E-10	1,00E-06	1,00E-06	1,2	2	4,99E-11	12,5				100,8	1836,0		
KLX 27A	577,30	582,30		5415	5204					9,37E-11	0	1	5,00E-11	4,00E-10	1,00E-06	1,00E-06	1,7	7	1,43E-11	15,0				821,4	2679,6		
KLX 27A	582,30	587,30		5454	5269					2,34E-11	0	1	1,00E-11	1,00E-10	1,00E-06	1,00E-06	1,2	2	7,01E-12	15,1				106,2	1577,9		

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)	
ideede	atort data	atan data		a a a law	costion no	aha aaaum	aha aaalaw	ni abawa	nn abaua	nf above	ni balaw	nn holow	nf halaw	
idcode	start_date	stop_date	secup	seclow	section_no	obs_secup	obs_seclow	pi_above	pp_above	pf_above	bi_pelow	pp_below	pf_below	comments
KLX 27A	2008-01-23 16:42:00	2008-01-23 19:21:00	257,30	277,30		278,30	650,56	2313	2313	2313	2531	2531	2531	
KLX 27A	2008-01-25 08:42:00	2008-01-25 10:27:00	297,30	317,30		318,30	650,56	2668	2668	2668	2883	2883	2883	
KLX 27A	2008-01-25 11:05:00	2008-01-25 12:42:00	317,30	337,30		338,30	650,56	#NV	#NV	#NV	#NV	#NV	#NV	
KLX 27A	2008-01-25 17:35:00	2008-01-25 21:16:00	377,30	397,30		398,30	650,56	3376	3375	3375	3591	3591	3591	
KLX 27A	2008-02-04 16:44:00	2008-02-04 19:23:00	577,30	582,30		583,30	650,56	5139	5139	5138	5216	5216	5216	
KLX 27A	2008-02-05 08:24:00	2008-02-05 10:05:00	582,30	587,30		588,30	650,56	5183	5183	5182	5258	5258	5258	