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Forsmark site investigation

Single-hole injection tests in boreholes KFM06A and KFM06B

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June 2005

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Abstract

Borehole KFM06A is the sixth deep core-drilled borehole within the site investigations in the Forsmark area. It is designed as a so called telescopic borehole, with an enlarged diameter in the upper approximately 100 m, enables installation of certain bulkyborehole equipment. The borehole is inclined, c 60 degrees from the horizontal plane, about 1,000 m deep and cased to a depth of about 100 m. The borehole diameter is about 77 mm in the interval 102–1,000 m.

Borehole KFM06B is also a core-drilled borehole, but only approximately 100 m deep, situated about 4 metres from KFM06A. The borehole is sub-vertical and is cased to a depth of about 4.5 m. The upper 6 metres have a diameter only slightly larger (86–116 mm) than the rest of the borehole, where the diameter is about 77 mm.

This report presents injection tests performed using the pipe string system PSS3 in boreholes KFM06A and KFM06B and the test results.

The main aim of the injection tests in KFM06A and KFM06B was to characterize the hydraulic conditions of the rock adjacent to the borehole on different measurement scales (100 m, 20 m and 5 m). However in the shallower borehole KFM06B tests were only conducted on a 5 m scale. Hydraulic parameters such as transmissivity and hydraulic conductivity were determined using analysis methods for stationary as well as transient conditions together with the dominating flow regime and possible outer hydraulic boundaries. In addition, a comparison with the results of previously performed difference flow logging in KFM06A was made. No difference flow logging was previously performed in KFM06B.

The injection tests gave consistent results on the different measurement scales regarding transmissivity. During most of the tests, some period with pseudo-radial flow could be identified from the injection period, making a relatively straight-forward transient evaluation possible. However, the recovery periods in KFM06A were often strongly affected by wellbore storage, making a transient evaluation of this period more difficult. In KFM06B, pseudo-stationary flow often occurred during both the injection and recovery period.

The injection test results were generally consistent with the results from the previous difference flow logging in KFM06A. However, the agreement between the results of the two methods was slightly lower, particularly for low transmissivity values, than for earlier measured boreholes in the Forsmark area.

The injection tests provide a database for statistical analysis of the hydraulic conductivity distribution along the borehole on the different measurement scales. Basic statistical parameters are presented in this report.

Sammanfattning

Borrhål KFM06A är det sjätte djupa kärnborrhålet inom platsundersökningarna i Forsmarksområdet. Det är utfört som ett så kallat teleskopborrhål för att göra det möjligt att installera viss borrhålsutrustning i de övre, ca 100 m med större diameter än resten av borrhålet. Borrhålet är ca 1 000 m djupt, lutar ca 60 grader från horisontalplanet och är försett med foderrör till ca 102 m djup. Borrhålsdiametern är ca 77 mm i intervallet 102–1 000 m.

Borrhål KFM06B är också ett kärnborrhål, men bara ca 100 m djupt, beläget ungefär 4 m ifrån KFM06A. Borrhålet är nästan vertikalt och är försett med ett foderrör till ca 4,5 m. De övre 6 metrarna har bara en något större diameter (ca 100 mm) än resten av borrhålet där diametern är ca 77 mm.

Denna rapport beskriver genomförda injektionstester med rörgångssystemet PSS3 i borrhål KFM06A och KFM06B samt resultaten från desamma.

Huvudsyftet med injektionstesterna var att karaktärisera de hydrauliska förhållandena av berget i anslutning till borrhålet i olika mätskalor (100 m, 20 m och 5 m). I det grundare borrhålet KFM06B genomfördes däremot testerna endast i 5 m skala. Hydrauliska parametrar såsom transmissivitet och hydraulisk konduktivitet bestämdes med hjälp av analysmetoder för såväl stationära som transienta förhållanden tillsammans med dominerande flödesregim och eventuella yttre hydrauliska randvillkor.

En jämförelse med resultaten av den tidigare utförda differensflödesloggningen i KFM06A gjordes också. I KFM06B har ingen differensflödesloggning gjorts.

Injektionstesterna gav samstämmiga resultat för de olika mätskalorna beträffande transmissivitet. Under de flesta tester kunde en viss period med pseudoradiellt flöde identifieras från flödesperioden, vilket möjliggjorde en standardmässig transient utvärdering. Återhämtningsperioden i KFM06A var däremot ofta starkt påverkad av brunnsmagasins-effekter, vilket gjorde en unik transient utvärdering av denna period svårare. I KFM06B uppträdde ofta pseudostationärt flöde under både injektions- och återhämtningsfasen.

Injektionstesterna gav över lag samstämmiga resultat med den tidigare utförda differensflödesloggningen i KFM06A. Det kan däremot noteras att överensstämmelsen mellan de två metoderna var lägre, speciellt för låga transmissiviteter, än för de borrhål som tidigare undersökts i Forsmark.

Resultaten från injektionstesterna utgör en databas för statistisk analys av den hydrauliska konduktivitetens fördelning längs borrhålet i de olika mätskalorna. Viss statistisk analys har utförts inom ramen för denna aktivitet och grundläggande statistiska parametrar presenteras i rapporten.

Contents

1 Introduction

The injection tests in boreholes KFM06A and KFM06B at Forsmark, Sweden, were carried out during March and April of 2005 by Geosigma AB. The borehole KFM06A was the sixth deep cored borehole within the on-going site investigation in the Forsmark area. The borehole is a so called telescopic borehole. It is designed as a so called telescopic borehole, with an enlarged diameter in the upper approximately 100 m, enables installation of certain bulkyborehole equipment. The borehole is inclined, c 60 degrees from the horizontal plane, about 1,000 m deep and cased to a depth of about 100 m. The borehole diameter is about 77 mm in the interval 102.1–1,000.64 m.. Borehole KFM06B is situated about 4 metres from KFM06A and is also core drilled, but only c 100 m deep. This hole is sub-vertical, cased to c 4.5 m depth and has a diameter of approximately 77 mm along the entire borehole below 6 metres. The location of the boreholes is shown in Figure 1-1.

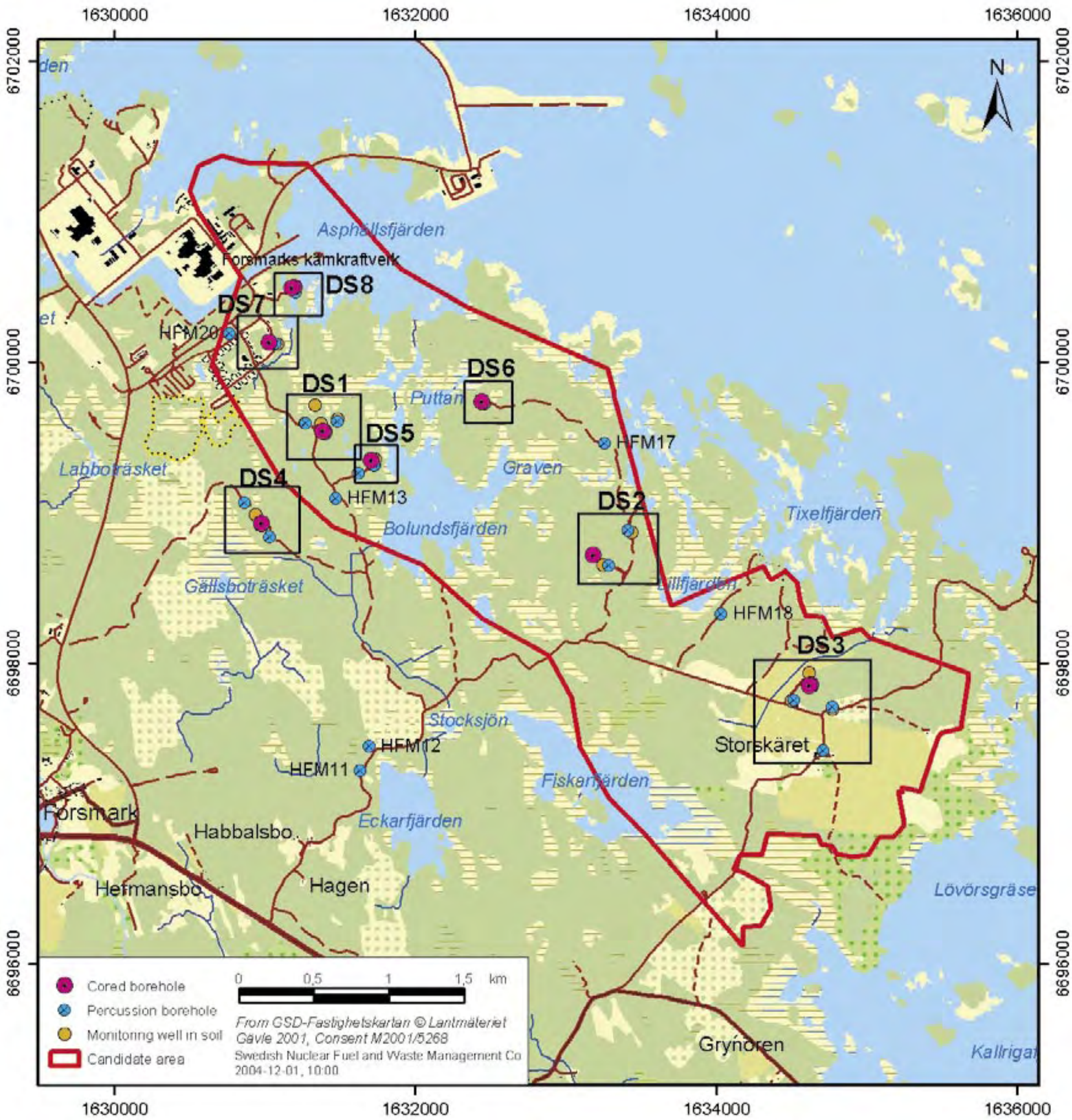

Figure 1-1. *The investigation area at Forsmark including the candidate area selected for more detailed investigations. Boreholes KFM06A and KFM06B are situated at drill site DS6.*

In KFM06A, difference flow logging was previously performed during October 2004. According to the results of this investigation, 99 conductive fractures were detected and the most conductive ones were found at 130.3 m, 181.2 m, 218.2 m, 238.0 m and 269.3 m. Below 400 m, only 6 conductive fractures were encountered, Rouhiainen and Sokolnicki (2005) /1/.

This document reports the results obtained from the injection tests in boreholes KFM06A and KFM06B. The activity is performed within the Forsmark site investigation. The work was carried out in compliance with the SKB internal controlling documents presented in Table 1-1. Data and results were delivered to the SKB site characterization database.

Table 1-1. SKB internal controlling documents for performance of the activity.

Activity Plans	Number	Version
Hydraulic injection tests in borehole KFM06A with PSS3	AP PF 400-04-122	1.0
Hydraulic injection tests in borehole KFM06B with PSS3	AP PF 400-05-005	1.0
Method descriptions	**Number**	**Version**
Mätsystembeskrivning (MSB) – Allmän del. Pipe String System (PSS3)	SKB MD 345.100	1.0
Mätsystembeskrivning för: Kalibrering, PSS3	SKB MD 345.122	1.0
Mätsystembeskrivning för: Skötsel, service, serviceprotokoll, PSS3	SKB MD 345.124	1.0
Metodbeskrivning för hydrauliska injektionstester	SKB MD 323.001	1.0
Instruktion för analys av injektions- och enhålspumptester	SKB MD 320.004	1.0
Instruktion för rengöring av borrhålsutrustning och viss markbaserad utrustning	SKB MD 600.004	1.0

2 Objectives

The main aim of the injection tests in boreholes KFM06A and KFM06B was to characterize the hydraulic properties of the rock adjacent to the borehole on different measurement scales (100 m, 20 m and 5 m). In the shallower borehole KFM06B, however, tests were only conducted on the 5 m scale. The primary parameter to be determined was hydraulic transmissivity from which hydraulic conductivity can be derived. The results of the injection tests provide a database which can be used for statistical analyses of the hydraulic conductivity distribution along the borehole on different measurement scales. Basic statistical analyses are presented in this report.

Other hydraulic parameters of interest were flow regimes and outer hydraulic boundaries. These parameters were analysed using transient evaluation on the test responses during the flow- and recovery periods.

A comparison with the results of the previously performed difference flow logging in KFM06A was also included in the activity, as a check of the plausibility of the test results. Further, the combined analysis of the injection tests and the difference flow logging provides a more comprehensive understanding of the hydraulic conditions of boreholes KFM06A. No difference flow logging was previously performed in KFM06B, so comparisons with the results from the injection tests in this borehole could not be made.

3 Scope

3.1 Borehole data

Technical data of the tested boreholes are shown in Tables 3-1A and 3-1B and in Appendix 4. The reference point of the boreholes is defined as the centre of top of casing (ToC), given as "Elevation" in the table below. The Swedish National coordinate system (RT90) is used for the horizontal coordinates together with RHB70 for the elevation. "Northing" and "Easting" refer to the top of the boreholes.

Table 3-1A. Technical data of borehole KFM06A (printout from SKB database, SICADA).

Borehole length (m):	1,000.640				
Drilling Period(s):	**From Date**	**To Date**	**Secup(m)**	**Seclow(m)**	**Drilling Type**
	2003-11-11	2003-11-21	0.000	100.750	Percussion d.
	2004-06-14	2004-09-21	100.640	1,000.640	Core drilling
Starting point coordinate:	**Length(m)**	**Northing(m)**	**Easting(m)**	**Elevation**	**Coord System**
	0.000	6699732.880	1632442.510	4.100	RT90-RHB70
Angles:	**Length(m)**	**Bearing**	**Inclination (– = down)**		
	0.000	300.920	–60.250		
Borehole diameter:	**Secup(m)**	**Seclow(m)**	**Hole Diam(m)**		
	0.000	2.120	0.415		
	2.120	12.300	0.333		
	12.300	100.590	0.243		
	100.590	100.640	0.164		
	100.640	102.190	0.086		
	102.190	1000.640	0.077		
Core diameter:	**Secup(m)**	**Seclow(m)**	**Core Diam(m)**		
	100.640	102.100	0.072		
	102.100	1000.640	0.051		
Casing diameter:	**Secup(m)**	**Seclow(m)**	**Case In(m)**	**Case Out(m)**	
	0.000	100.350	0.200	0.208	
	0.190	2.120	0.392	0.407	
	0.190	12.300	0.309	0.324	
	100.350	100.400	0.170	0.208	

Table 3-1B. Technical data of borehole KFM06B (printout from SKB database, SICADA).

Borehole length (m):	100.330				
Drilling Period(s):	**From Date**	**To Date**	**Secup (m)**	**Seclow (m)**	**Drilling Type**
	2004-05-26	2003-06-08	0.000	100.330	Core drilling
Starting point coordinate:	**Length(m)**	**Northing (m)**	**Easting (m)**	**Elevation**	**Coord System**
	0.000	6699732.240	1632446.410	4.130	RT90-RHB70
Angles:	**Length(m)**	**Bearing**	**Inclination (– = down)**		
	0.000	296.960	–83.520		
Borehole diameter:	**Secup(m)**	**Seclow (m)**	**Hole Diam (m)**		
	0.000	3.880	0.116		
	3.880	4.610	0.101		
	4.610	6.330	0.086		
	6.330	100.330	0.077		
Core diameter:	**Secup(m)**	**Seclow (m)**	**Core Diam (m)**		
	2.510	6.330	0.072		
	6.330	100.330	0.051		
Casing diameter:	**Secup(m)**	**Seclow (m)**	**Case In (m)**	**Case Out (m)**	
	0.000	4.610	0.078	0.090	

3.2 Tests performed

The injection tests in borehole KFM06A and KFM06B, performed according to Activity Plan AP PF 400-04-122 and AP PF 400-05-005 respectively (see Table 1-1), are listed in Table 3-2A and 3-2B. The injection tests were carried out with the Pipe String System (PSS3). The test procedure and the equipment is described in the measurement system description for PSS (SKB MD 345.100) and in the corresponding method descriptions for hydraulic injection tests (SKB MD 323.001, Table 1-1).

Some of the tests were not performed as intended because the time required for achieving a constant head in the test section was judged to be too long or, in other cases, equipment malfunctions caused pressure and/or flow rate disturbances. Whenever such disturbances were expected to affect data evaluation, the test was repeated. Test number (Test no in Table 3-2A and 3-2B) refers to the number of tests performed in the actual section. For evaluation, only data from the last test in each section were used.

The upper and lower packer positions for the injection test sections were as close as possible to the section limits used during the previous difference flow logging in 5 m sections in KFM06A, Rouhiainen and Sokolnicki (2005) /1/. However, in the difference flow logging in KFM06A, the measurement sections in the borehole turned out to be slightly longer than 5 m after the length calibration of the measurements. In addition, some of the injection test sections were shifted intentionally from the section limits used during the difference flow logging in order to avoid cavities in the borehole. Therefore, the section limits used for the injection tests and difference flow logging respectively differed with a maximum of 2.13 m along the borehole. However, for a majority of the test, the maximum difference was less than 0.5 m.

Table 3-2A. Single-hole injection tests performed in borehole KFM06A.

Borehole Bh ID	Test section secup	 seclow	Section length	Test type[1)] (1–6)	Test no	Test start date, time YYYYMMDD hh:mm	Test stop date, time YYYYMMDD hh:mm
KFM06A	105.50	205.50	100.00	3	1	20050317 10:35	20050317 12:32
KFM06A	205.50	305.50	100.00	3	1	20050317 14:57	20050317 16:47
KFM06A	305.50	405.50	100.00	3	1	20050317 18:36	20050318 09:40
KFM06A	405.50	505.50	100.00	3	1	20050318 11:22	20050318 14:09
KFM06A	505.50	605.50	100.00	3	1	20050321 09:44	20050321 11:45
KFM06A	605.50	705.50	100.00	3	1	20050321 14:05	20050321 15:58
KFM06A	705.50	805.50	100.00	3	1	20050321 17:38	20050321 19:29
KFM06A	805.50	905.50	100.00	3	1	20050323 09:00	20050323 11:05
KFM06A	887.00	987.00	100.00	3	1	20050323 13:41	20050323 15:36
KFM06A	107.50	127.50	20.00	3	1	20050405 06:31	20050405 07:54
KFM06A	127.50	147.50	20.00	3	1	20050404 23:15	20050405 00:28
KFM06A	147.50	167.50	20.00	3	1	20050404 21:32	20050404 22:49
KFM06A	165.50	185.50	20.00	3	1	20050404 19:43	20050404 20:59
KFM06A	185.50	205.50	20.00	3	1	20050404 18:00	20050404 19:17
KFM06A	205.50	225.50	20.00	3	1	20050330 07:02	20050330 08:21
KFM06A	225.50	245.50	20.00	3	1	20050330 08:49	20050330 10:04
KFM06A	245.50	265.50	20.00	3	1	20050330 10:29	20050330 11:45
KFM06A	265.50	285.50	20.00	3	1	20050330 12:56	20050330 14:12
KFM06A	285.50	305.50	20.00	3	1	20050330 14:41	20050330 15:56
KFM06A	305.50	325.50	20.00	3	2	20050404 15:42	20050404 16:57
KFM06A	325.50	345.50	20.00	3	1	20050330 18:06	20050330 19:27
KFM06A	345.50	365.50	20.00	3	1	20050330 19:57	20050330 21:26
KFM06A	365.50	385.50	20.00	3	1	20050330 21:51	20050330 23:27
KFM06A	385.50	405.50	20.00	3	1	20050331 09:52	20050331 11:11
KFM06A	405.50	425.50	20.00	3	1	20050331 11:38	20050331 13:52
KFM06A	425.50	445.50	20.00	3	1	20050331 14:16	20050331 15:02
KFM06A	445.50	465.50	20.00	3	1	20050331 15:38	20050331 16:56
KFM06A	465.50	485.50	20.00	3	1	20050331 17:18	20050331 18:33
KFM06A	485.50	505.50	20.00	3	1	20050331 18:55	20050331 19:38
KFM06A	605.50	625.50	20.00	3	1	20050331 21:33	20050331 22:50
KFM06A	625.50	645.50	20.00	3	1	20050331 23:14	20050331 23:57
KFM06A	645.50	665.50	20.00	3	1	20050401 06:35	20050401 07:51
KFM06A	665.50	685.50	20.00	3	1	20050401 08:13	20050401 08:57
KFM06A	685.50	705.50	20.00	3	1	20050401 09:19	20050401 10:03
KFM06A	705.50	725.50	20.00	3	1	20050401 10:24	20050401 11:05
KFM06A	725.50	745.50	20.00	3	1	20050401 12:20	20050401 13:37
KFM06A	745.50	765.50	20.00	3	1	20050401 14:12	20050401 15:32
KFM06A	765.50	785.50	20.00	3	1	20050401 16:43	20050401 18:07
KFM06A	785.50	805.50	20.00	3	1	20050401 18:40	20050401 19:56
KFM06A	805.50	825.50	20.00	3	1	20050401 20:19	20050401 21:36
KFM06A	825.50	845.50	20.00	3	1	20050401 21:56	20050401 22:41
KFM06A	845.50	865.50	20.00	3	1	20050404 06:12	20050404 06:58
KFM06A	865.50	885.50	20.00	3	1	20050404 07:15	20050404 08:01
KFM06A	885.50	905.50	20.00	3	1	20050404 08:27	20050404 09:11

Borehole	Test section		Section length	Test type[1)]	Test no	Test start date, time	Test stop date, time
Bh ID	secup	seclow		(1–6)		YYYYMMDD hh:mm	YYYYMMDD hh:mm
KFM06A	107.50	112.50	5.00	3	1	20050405 19:41	20050405 21:07
KFM06A	112.50	117.50	5.00	3	1	20050405 21:21	20050405 22:40
KFM06A	117.50	122.50	5.00	3	2	20050406 06:24	20050406 07:48
KFM06A	122.50	127.50	5.00	3	1	20050406 08:56	20050406 10:22
KFM06A	127.50	132.50	5.00	3	1	20050406 10:36	20050406 11:57
KFM06A	132.50	137.50	5.00	3	1	20050406 13:11	20050406 14:34
KFM06A	136.50	141.50	5.00	3	1	20050406 14:51	20050406 16:13
KFM06A	141.50	146.50	5.00	3	1	20050406 16:37	20050406 17:51
KFM06A	146.50	151.50	5.00	3	1	20050406 18:08	20050406 19:25
KFM06A	147.50	152.50	5.00	3	1	20050406 19:34	20050406 20:14
KFM06A	152.50	157.50	5.00	3	1	20050406 20:24	20050406 21:39
KFM06A	157.50	162.50	5.00	3	1	20050406 21:49	20050406 23:05
KFM06A	162.50	167.50	5.00	3	1	20050406 23:17	20050407 00:33
KFM06A	165.50	170.50	5.00	3	1	20050407 06:25	20050407 07:42
KFM06A	170.50	175.50	5.00	3	2	20050421 14:24	20050421 15:50
KFM06A	175.50	180.50	5.00	3	1	20050407 09:40	20050407 11:01
KFM06A	180.50	185.50	5.00	3	1	20050407 11:16	20050407 13:45
KFM06A	185.50	190.50	5.00	3	1	20050407 14:00	20050407 15:20
KFM06A	190.50	195.50	5.00	3	1	20050407 15:30	20050407 16:46
KFM06A	195.50	200.50	5.00	3	1	20050407 17:01	20050407 18:17
KFM06A	200.50	205.50	5.00	3	1	20050407 18:29	20050407 19:53
KFM06A	205.50	210.50	5.00	3	1	20050407 20:04	20050407 21:23
KFM06A	210.50	215.50	5.00	3	1	20050407 21:37	20050407 23:01
KFM06A	215.50	220.50	5.00	3	1	20050407 23:16	20050408 00:30
KFM06A	220.50	225.50	5.00	3	1	20050408 06:21	20050408 07:41
KFM06A	225.50	230.50	5.00	3	1	20050408 07:58	20050408 09:16
KFM06A	230.50	235.50	5.00	3	1	20050408 09:31	20050408 10:45
KFM06A	235.50	240.50	5.00	3	2	20050415 15:48	20050415 17:02
KFM06A	240.50	245.50	5.00	3	1	20050408 13:17	20050408 14:35
KFM06A	245.50	250.50	5.00	3	1	20050408 14:52	20050408 16:13
KFM06A	250.50	255.50	5.00	3	1	20050408 16:27	20050408 17:45
KFM06A	255.50	260.50	5.00	3	1	20050408 17:56	20050408 19:11
KFM06A	260.50	265.50	5.00	3	1	20050408 19:23	20050408 20:39
KFM06A	265.50	270.50	5.00	3	1	20050411 17:47	20050411 19:07
KFM06A	267.50	272.50	5.00	3	1	20050411 19:34	20050411 20:49
KFM06A	272.50	277.50	5.00	3	1	20050411 21:07	20050411 22:29
KFM06A	275.50	280.50	5.00	3	1	20050411 22:42	20050411 23:37
KFM06A	280.50	285.50	5.00	3	1	20050412 06:03	20050412 06:45
KFM06A	285.50	290.50	5.00	3	1	20050412 07:02	20050412 07:44
KFM06A	290.50	295.50	5.00	3	1	20050412 07:55	20050412 09:10
KFM06A	295.50	300.50	5.00	3	1	20050412 09:26	20050412 10:42
KFM06A	300.50	305.50	5.00	3	1	20050412 10:55	20050412 13:04
KFM06A	305.50	310.50	5.00	3	1	20050412 13:59	20050412 15:18
KFM06A	310.50	315.50	5.00	3	1	20050412 15:34	20050412 16:54
KFM06A	315.50	320.50	5.00	3	1	20050412 17:15	20050412 18:31
KFM06A	320.50	325.50	5.00	3	1	20050412 18:46	20050412 20:04
KFM06A	325.50	330.50	5.00	3	1	20050412 20:26	20050412 21:44
KFM06A	330.50	335.50	5.00	3	1	20050412 22:01	20050412 23:19
KFM06A	335.50	340.50	5.00	3	1	20050413 06:08	20050413 07:25
KFM06A	340.50	345.50	5.00	3	1	20050413 07:37	20050413 08:54

Borehole Bh ID	Test section secup	 seclow	Section length	Test type[1)] (1–6)	Test no	Test start date, time YYYYMMDD hh:mm	Test stop date, time YYYYMMDD hh:mm
KFM06A	345.50	350.50	5.00	3	1	20050413 09:09	20050413 10:29
KFM06A	348.00	353.00	5.00	3	2	20050415 13:31	20050415 14:48
KFM06A	353.00	358.00	5.00	3	1	20050413 12:28	20050413 13:42
KFM06A	355.50	360.50	5.00	3	1	20050413 13:54	20050413 15:12
KFM06A	360.50	365.50	5.00	3	1	20050414 06:08	20050414 07:22
KFM06A	365.50	370.50	5.00	3	1	20050414 07:34	20050414 08:14
KFM06A	370.00	375.00	5.00	3	1	20050414 08:22	20050414 09:36
KFM06A	375.50	380.50	5.00	3	1	20050414 09:50	20050414 10:31
KFM06A	380.50	385.50	5.00	3	1	20050414 10:45	20050414 11:59
KFM06A	385.50	390.50	5.00	3	1	20050414 12:49	20050414 13:29
KFM06A	390.50	395.50	5.00	3	1	20050414 13:47	20050414 15:01
KFM06A	395.50	400.50	5.00	3	1	20050414 15:29	20050414 16:50
KFM06A	400.50	405.50	5.00	3	1	20050414 17:01	20050414 17:48
KFM06A	405.50	410.50	5.00	3	1	20050414 18:00	20050414 19:15
KFM06A	410.50	415.50	5.00	3	1	20050414 19:28	20050414 20:43
KFM06A	415.50	420.50	5.00	3	1	20050414 20:58	20050414 21:40
KFM06A	420.50	425.50	5.00	3	1	20050414 21:52	20050414 23:07
KFM06A	445.50	450.50	5.00	3	1	20050414 23:36	20050415 09:05
KFM06A	450.50	455.50	5.00	3	1	20050415 09:18	20050415 09:57
KFM06A	455.50	460.50	5.00	3	1	20050415 10:10	20050415 10:51
KFM06A	460.50	465.50	5.00	3	1	20050415 11:02	20050415 11:43

[1)] 3: Injection test

Table 3-2B. Single-hole injection tests performed in borehole KFM06B.

Bore hole Bh ID	Test section secup	 seclow	Section length	Test type[1)] (1–6)	Test no	Test start date, time YYYYMMDD hh:mm	Test stop date, time YYYYMMDD hh:mm
KFM06B	8.00	13.00	5.00	3	1	2005-04-25 20:04	2005-04-25 21:47
KFM06B	13.00	18.00	5.00	3	1	2005-04-26 08:01	2005-04-26 09:20
KFM06B	14.00	19.00	5.00	3	1	2005-04-26 09:35	2005-04-26 10:53
KFM06B	19.00	24.00	5.00	3	1	2005-04-26 11:02	2005-04-26 13:19
KFM06B	24.00	29.00	5.00	3	1	2005-04-26 13:31	2005-04-26 14:46
KFM06B	28.00	33.00	5.00	3	1	2005-04-26 14:59	2005-04-26 16:18
KFM06B	33.00	38.00	5.00	3	1	2005-04-26 16:35	2005-04-26 17:54
KFM06B	38.00	43.00	5.00	3	1	2005-04-27 15:02	2005-04-27 16:18
KFM06B	43.00	48.00	5.00	3	1	2005-04-27 16:49	2005-04-27 18:03
KFM06B	48.00	53.00	5.00	3	1	2005-04-27 18:17	2005-04-27 19:32
KFM06B	53.00	58.00	5.00	3	1	2005-04-29 08:41	2005-04-29 09:55
KFM06B	58.00	63.00	5.00	3	1	2005-04-27 19:47	2005-04-27 21:04
KFM06B	63.00	68.00	5.00	3	1	2005-04-28 08:35	2005-04-28 09:51
KFM06B	68.00	73.00	5.00	3	1	2005-04-28 10:06	2005-04-28 11:22
KFM06B	73.00	78.00	5.00	3	1	2005-04-28 11:36	2005-04-28 13:38
KFM06B	78.00	83.00	5.00	3	1	2005-04-28 13:50	2005-04-28 15:05
KFM06B	83.00	88.00	5.00	3	1	2005-04-28 15:15	2005-04-28 16:33
KFM06B	88.00	93.00	5.00	3	1	2005-04-28 16:46	2005-04-28 18:01

[1)] 3: Injection test

3.3 Equipment checks

The PSS3 equipment was fully serviced, according to SKB internal controlling documents (SKB MD 345.124, service, and SKB MD 345.122, calibration), in December 2004.

Functioning checks of the equipment were performed during the installation of the PSS equipment at the test site. In order to check the function of the pressure sensors, the air pressure was recorded and found to be as expected. While lowering, the sensors showed good agreement with the total head of water ($p/\rho g$). The temperature sensor displayed expected values in both air and water.

Simple functioning checks of down-hole sensors were done at every change of test section interval. Checks were also made continuously while lowering the pipe string along the borehole.

4 Description of equipment

4.1 Overview

4.1.1 Measurement container

All of the equipment needed to perform the injection tests is located in a steel container (Figure 4-1). The container is divided into two compartments; a data-room and a workshop. The container is placed on pallets in order to obtain a suitable working level in relation to the borehole casing.

The hoisting rig is of a hydraulic chain-feed type. The jaws, holding the pipe string, are opened hydraulically and closed mechanically by springs. The rig is equipped with a load transmitter and the load limit may be adjusted. The maximum load is 22 kN.

The packers and the test valve are operated hydraulically by water filled pressure vessels. Expansion and release of packers, as well as opening and closing of the test valve, is done using magnetic valves controlled by the software in the data acquisition system.

The injection system consists of a tank, a pump and a flow metre. The injection flow rate may be manually or automatically controlled. At small flow rates, a water filled pressure vessel connected to a nitrogen gas regulator is used instead of the pump.

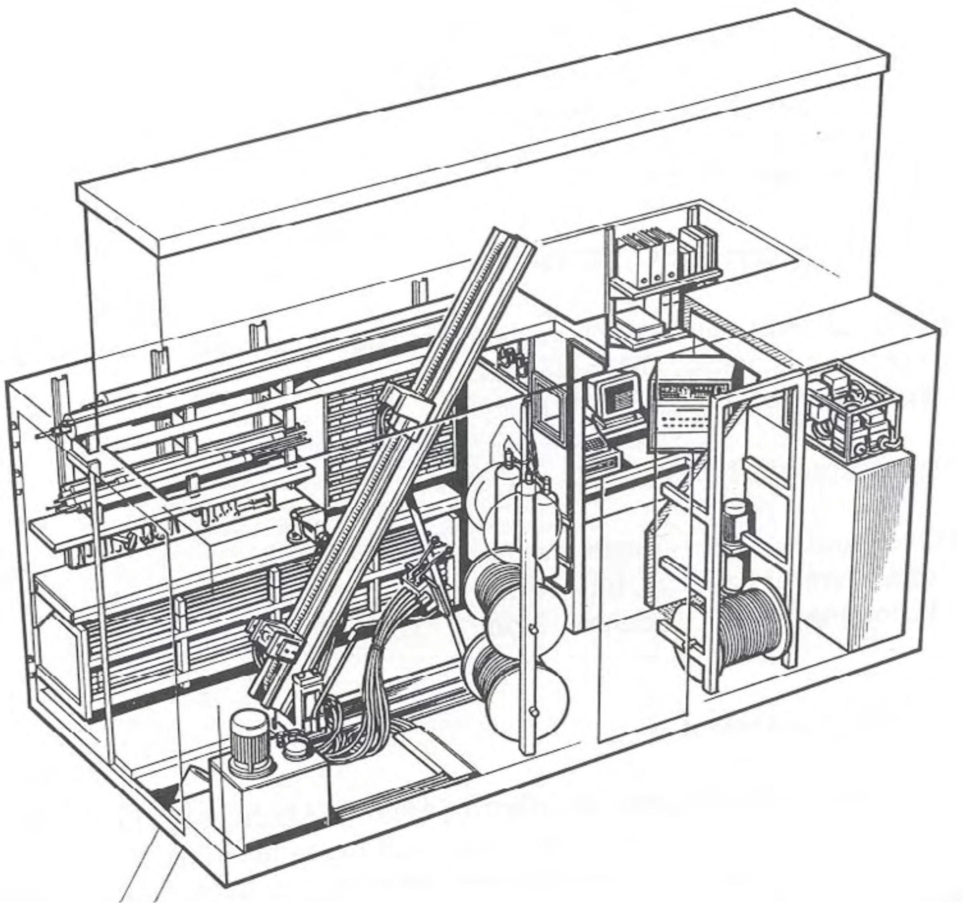

Figure 4-1. *Outline of the PSS3 container with equipment.*

4.1.2 Down-hole equipment

A schematic drawing of the down-hole equipment is shown in Figure 4-2. The pipe string consists of aluminium pipes of 3 m length, connected by stainless steel taps sealed with double o-rings. Pressure is measured above (P_a), within (P) and below (P_b) the test section, which is isolated by two packers. The groundwater temperature in the test section is also measured. The hydraulic connection between the pipe string and the test section can be closed or opened by a test valve operated by the measurement system.

At the lower end of the borehole equipment, a level indicator (calliper type) gives a signal as the reference depth marks along the borehole are passed.

The length of the test section may be varied (5, 20 or 100 metres).

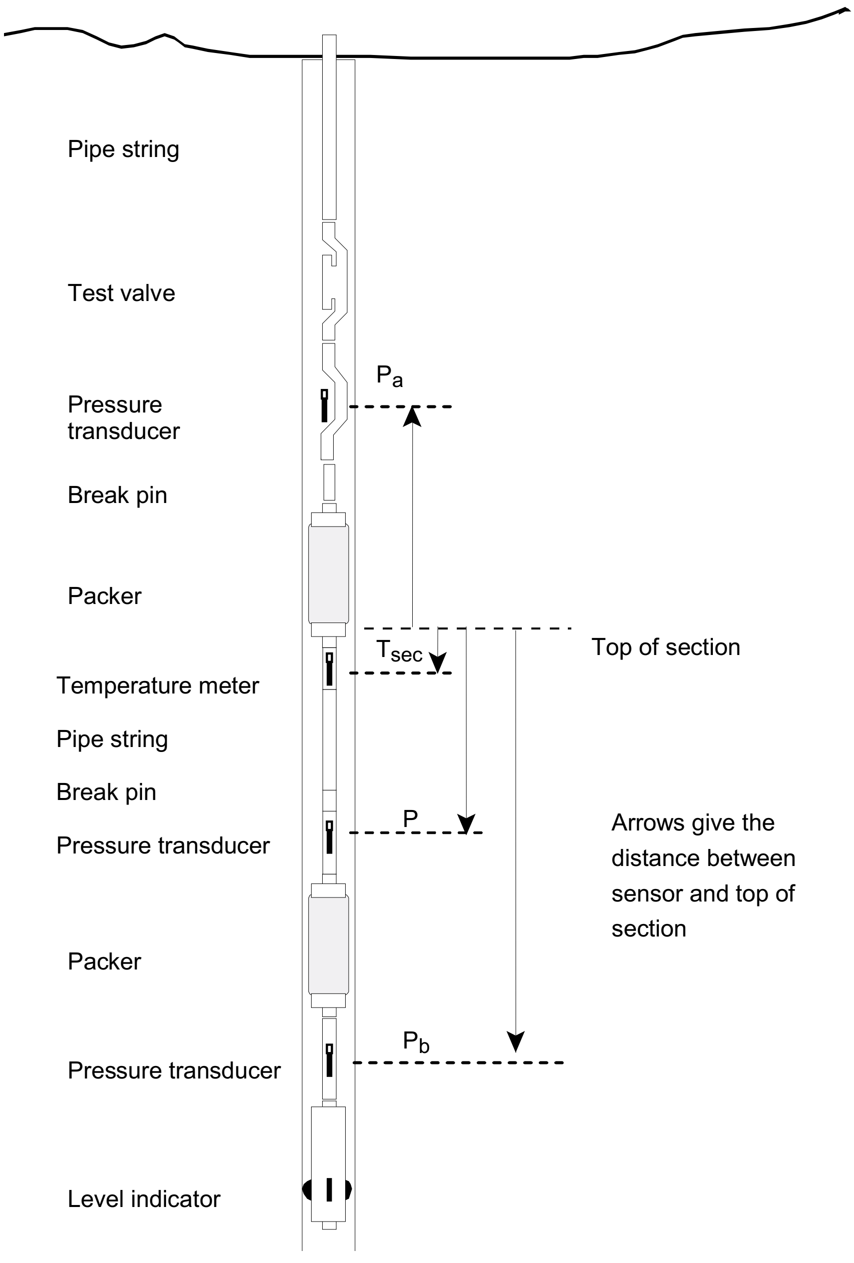

Figure 4-2. *Schematic drawing of the down-hole equipment in the PSS3 system.*

4.2 Measurement sensors

Technical data for the measurement sensors in the PSS system together with corresponding data of the system are shown in Table 4-1. The sensors are components of the PSS system. The accuracy of the PSS system may also be affected by the I/O-unit, cf Figure 4-3, and the calibration of the system.

The sensor positions are fixed relative to the top of the test section. In Table 4-2, the position of the sensors is given with top of test section as reference (Figure 4-2).

Table 4-1. Technical data for sensors together with estimated data for the PSS system (based on current experience).

Technical specification					
Parameter		**Unit**	**Sensor**	**PSS**	**Comments**
Absolute pressure	Output signal	mA	4–20		
	Meas. range	MPa	0–13.5		
	Resolution	kPa	< 1.0		
	Accuracy[1)]	% F.S	0.1		
Differential pressure, 200 kPa	Accuracy	kPa		< ± 5	Estimated value
Temperature	Output signal	mA	4–20		
	Meas. range	°C	0–32		
	Resolution	°C	< 0.01		
	Accuracy	°C	± 0.1		
Flow Qbig	Output signal	mA	4–20		
	Meas. range	m^3/s	$1.67 \cdot 10^{-5}$–$1.67 \cdot 10^{-3}$		The specific accuracy is depending on actual flow
	Resolution	m^3/s	$6.7 \cdot 10^{-8}$		
	Accuracy[2)]	% O.R	0.15–0.3	0.4–2	
Flow Qsmall	Output signal	mA	4–20		
	Meas. range	m^3/s	$1.67 \cdot 10^{-8}$–$1.67 \cdot 10^{-5}$		The specific accuracy is depending on actual flow
	Resolution	m^3/s	$6.7 \cdot 10^{-10}$		
	Accuracy[2)]	% O.R	0.1–0.4	0.5–20	

[1)] 0.1% of Full Scale. Includes hysteresis, linearity and repeatability.
[2)] Maximum error in % of actual reading (% o.r.). The higher numbers correspond to the lower flow.

Table 4-2. Position of sensors in the borehole and displacement volume of equipment in the test section.

Parameter	**Length of test section (m)**			
	KFM06A			**KFM06B**
	5	**20**	**100**	**5**
Equipment displacement volume in test section [1)]	3.6	13	61	3.6
Total volume of test section [2)]	23	93	466	23
Position for sensor P_a, pressure above test section, (m above secup) [3)]	1.88	1.87	1.85	1.88
Position for sensor P, pressure in test section, (m above secup) [3)]	–4.11	–19.13	–99.11	–4.15
Position for sensor T_{sec}, Temperature in test section, (m above secup) [3)]	–0.98	–0.98	–0.95	–0.98
Position for sensor P_b, pressure below test section, (m above secup) [3)]	–7.00	–22.00	–102.00	–6.99

[1)] Displacement volume in test section due to pipe string, signal cable, sensors and packer ends (in litre).
[2)] Total volume of test section (V = section length*π*$d^2/4$).
[3)] Position of sensor relative top of test section. A negative value indicates a position below top of test section, (secup).

4.3 Data acquisition system

The data acquisition system in the PSS equipment contains a standard office PC connected to an I/O-unit (Datascan 7320). Using the Orchestrator software, pumping and injection tests are monitored and borehole sensor data are collected. In addition to the borehole parameters, packer and atmospheric pressure, container air temperature and water temperature are logged. Test evaluation may be performed on-site after a conducted test. An external display enables monitoring of test parameters.

The data acquisition system may be used to start and stop the automatic control system (computer and servo motors). These are connected as shown in Figure 4-3. The control system monitors the flow regulator and uses differential pressure across the regulating valve together with pressure in test section as input signals.

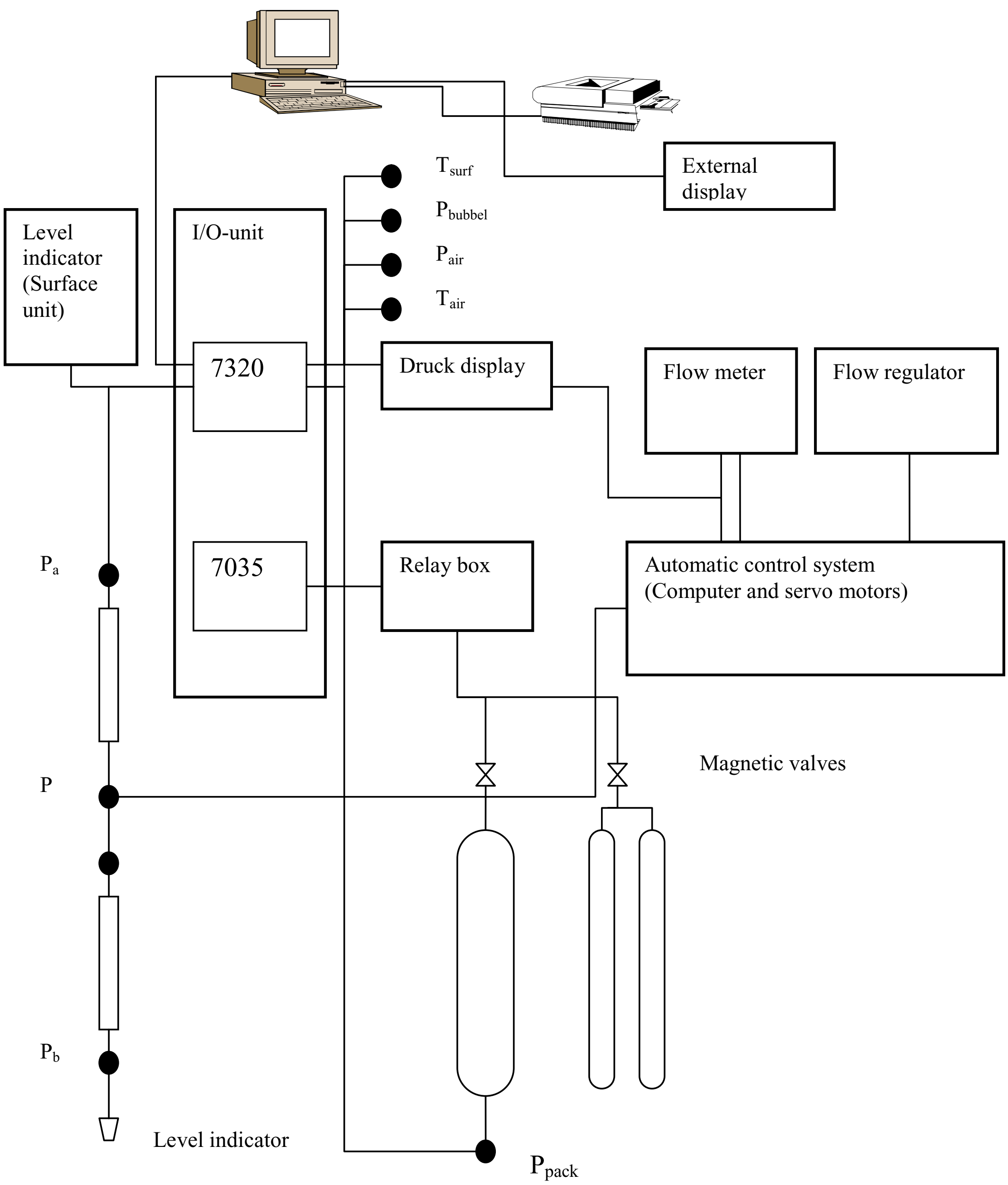

Figure 4-3. *Schematic drawing of the data acquisition system and the automatic control system in PSS.*

5 Execution

5.1 Preparation

5.1.1 Calibration

All sensors included in PSS are calibrated at the Geosigma engineering service station in Uppsala. Calibration is generally performed prior to each measurement campaign. Results from calibration, e.g. calibration constants, of sensors are kept in a document folder in PSS. If a sensor is replaced at the test site, calibration constants are altered as well. If a new, un-calibrated, sensor is to be used, calibration may be performed afterwards and data re-calculated.

5.1.2 Functioning checks

Equipment functioning checks were performed during the establishment of PSS at the test site. Simple function checks of down-hole sensors were done at every change of test section length, as well as while lowering the pipe string along the borehole.

5.1.3 Cleaning of equipment

Cleaning of the borehole equipment was performed according to the cleaning instruction (SKB MD 600.004, see Table 1-1), level 1.

5.2 Test performance

5.2.1 Test principle

The injection tests in KFM06A and KFM06B were carried out while maintaining a constant head of generally 200 kPa (20 m) in the test section. Before start of the injection period, approximately steady-state pressure conditions prevailed in the test section. After the injection period, the pressure recovery was measured.

For injection tests with 20 m and 5 m section length, the injection phase was interrupted if the injection flow was clearly below the measurement limit. Thereafter, the recovery was measured for at least 5 minutes to verify the low conductivity of the section.

5.2.2 Test procedure

Generally, the tests were performed according to the Activity Plans AP PF 400-04-122 and AP PF 400-05-005. Exceptions to this are presented in section 5.5.

A test cycle includes the following phases: 1) Transfer of down-hole equipment to the next section, 2) Packer inflation, 3) Pressure stabilisation, 4) Injection, 5) Pressure recovery and 6) Packer deflation.

The estimated times for the various phases are presented in Table 5-1. Regarding the packer inflation times and actual injection and recovery times, slightly different procedures were used for the tests in 100 m sections compared to the tests in 20 m and 5 m sections in accordance with AP PF 400-04-122. Furthermore, slightly longer test times were used for the tests in 100 m sections, cf Table 5-1.

Table 5-1. Packer inflation times, pressure stabilisation times and test times used for the injection tests in KFM06A and KFM06B.

Test section length (m)	Packer inflation time (min)	Time for pressure stabilisation (min)	Injection period (min)	Recovery period (min)	Total time/test (min)[1]
100	30	15	30	30	105
20	25	5	20	20	70
5	25	5	20	20	70

[1] Exclusive of trip times in the borehole

5.2.3 Test strategy

Firstly, injection tests in 100 m sections were performed in KFM06A in the interval 105.5–987.0 m. The limits of the test sections were, as far as possible, the same as were used by the difference flow logging, to facilitate comparison of the results.

Secondly, injection tests in 20 m sections were carried out in the intervals 107.5–505.5 m and 605.5–905.5 m. All 100 m sections within these intervals were measured in five successive injection tests using a 20 m section length.

Finally, injection tests with 5 m section length were conducted in all 20 m sections with a definable flow rate in the intervals 107.5–425.5 m and 445.5–465.5 m. Four tests using a 5 m section length were performed within the 20 m intervals. The total number of injection tests was, thus, dependent on the results of the previous tests.

Since the results of the tests in 100 m sections would have a strong effect on the continued test program, it was particularly important to ensure reliable results of these tests, including sections close to the lower measurement limit.

In borehole KFM06B, injection tests were only conducted with 5 m section length in the interval 8.0–93.0 m.

5.3 Data handling

With the PSS system, primary data are handled using the Orchestrator software (Version 2.3.8). During a test, data are continuously logged in *.odl-files. After the test is finished, a report file (*.ht2) with space separated data is generated. The *.ht2-file (mio-format) contains logged parameters as well as test-specific information, such as calibration constants and background data. The parameters are presented as percentage of sensor measurement range and not in engineering units. The report file in ASCII-format is the raw data file delivered to the data base SICADA.

The *.ht2-files are automatically named with borehole id, top of test section and date and time of test start (as for example __KFM06A_0105.50_200503171035.ht2). The name differs slightly from the convention stated in Instructions for analysis of injection and single-borehole pump test, SKB MD 320.004.

Using the IPPLOT software (Version 3.0), the *.ht2-files are converted to parameter files suitable for plotting using the code SKB-plot and analysis with the AQTESOLV software.

A backup of data files was created on a regular basis by CD-storage and by sending the files to the Geosigma office in Uppsala by a file transfer protocol. A file description table is presented in Appendix 1.

5.4 Analysis and interpretation

5.4.1 General

As described in section 5.2.1, the injection tests in KFM06A and KFM06B were performed as transient constant head tests followed by a pressure recovery period. From the injection period, the (reciprocal) flow rate versus time was plotted in log-log and lin-log diagrams together with the corresponding derivative. From the recovery period, the pressure was plotted versus Agarwal equivalent time in lin-log and log-log diagrams, respectively, together with the corresponding derivative. The routine data processing of the measured data was done according to the Instruction for analysis of injection and single-hole pumping tests (SKB MD 320.004).

For evaluation of the test data, no corrections of the measured flow rate and absolute pressure data (e.g. due to barometric pressure variations or tidal fluctuations) have been made. For short-time single-hole tests, such corrections are generally not needed, unless very small pressure changes are applied. No subtraction of the barometric pressure from the measured absolute pressure has been made, since the length of the test periods are short relative to the time scale for barometric pressure changes. In addition, pressure differences rather than the pressure magnitudes are used by the evaluation.

5.4.2 Measurement limit for flow rate and specific flow rate

The estimated standard lower measurement limit for flow rate for injection tests with PSS is c 1 mL/min ($1.7 \cdot 10^{-8}$ m^3/s). However, if the flow rate for a test was close to, or below, the standard lower measurement limit, a test-specific estimate of the lower measurement limit of flow rate was made. The test-specific lower limit was based on the measurement noise level of the flow rate before and after the injection period. The decisive factor for the varying lower measurement limit is not identified, but it might be of both technical and hydraulic character. For approximately 20 per cent of the injection tests in KFM06A, the actual lower measurement limit of the flow rate was estimated ranging from $5.2 \cdot 10^{-9}$ m^3/s to $7.7 \cdot 10^{-9}$ m^3/s.

The lower measurement limit for transmissivity is defined in terms of the specific flow rate (Q/s). The minimum specific flow rate corresponds to the estimated lower measurement limit of the flow rate together with the actual injection pressure during the test, see Table 5-2. The intention during this test campaign was to use a standard injection pressure of 200 kPa (20 m water column). However, for some test sections in KFM06A, the actual injection pressure was considerably different. The highest injection pressure during the tests in KFM06A was 256 kPa and for nine of the tests the injection pressure was below 100 kPa. In KFM06B the injection pressure was below 100 kPa for three of the tests and the highest injection pressure was 202 kPa. A low injection pressure is often the result of a test section of low conductivity due to a pressure increase, caused by packer expansion, before the injection start. A highly conductive section may also result in a low injection pressure due to limited flow capacity of PSS. The estimated test specific lower measurement limit for the specific flow rate in KFM06A ranged from $2.6 \cdot 10^{-10}$ m^2/s to $3.85 \cdot 10^{-10}$ m^2/s.

Whenever the final flow rate (Q_p) was not defined (i.e. not clearly above the measurement noise before and after the injection period), the estimated lower measurement limit for specific flow rate was based on the estimated lower measurement limit for flow rate for the specific test and a standard injection pressure of 200 kPa. This is done in order to avoid excessively high, apparent estimates of the specific flow rate for these low conductivity sections, which would have been resulted if the actual pressure difference at start of injection had been used as injection pressure (since the actual pressure difference often was significantly less than 200 kPa, see above).

The lower measurement limits for the flow rate correspond to different values of steady-state transmissivity, T_M, depending on the section lengths used in the factor C_M in Moye's formula, as described in the Instruction for analysis of injection and single-hole pumping tests (SKB MD 320.004), see Table 5-2.

Table 5-2. Estimated lower measurement limit for specific flow rate and steady-state transmissivity for different injection pressures, measurement scales and estimated lower measurement limits for flow rate for the injection tests in boreholes KFM06A and KFM06B.

r_w (m)	L_w (m)	Q-measl-L (m^3/s)	Injection pressure (kPa)	Q/s-measl-L (m^2/s)	Factor C_M in Moye's formula	T_M-measl-L (m^2/s)
0.0385	100	1.7E–08	100	1.6E–09	1.30	2.1E–09
0.0385	100	1.7E–08	200	8.2E–10	1.30	1.1E–09
0.0385	100	1.7E–08	300	5.5E–10	1.30	7.1E–10
0.0385	100	1.2E–08	100	1.1E–09	1.30	1.5E–09
0.0385	100	1.2E–08	200	5.7E–10	1.30	7.4E–10
0.0385	100	1.2E–08	300	3.8E–10	1.30	5.0E–10
0.0385	100	5.0E–09	100	4.9E–10	1.30	6.4E–10
0.0385	100	5.0E–09	200	2.5E–10	1.30	3.2E–10
0.0385	100	5.0E–09	300	1.6E–10	1.30	2.1E–10
0.0385	20	1.7E–08	100	1.6E–09	1.04	1.7E–09
0.0385	20	1.7E–08	200	8.2E–10	1.04	8.5E–10
0.0385	20	1.7E–08	300	5.5E–10	1.04	5.7E–10
0.0385	20	1.2E–08	100	1.1E–09	1.04	1.2E–09
0.0385	20	1.2E–08	200	5.7E–10	1.04	6.0E–10
0.0385	20	1.2E–08	300	3.8E–10	1.04	4.0E–10
0.0385	20	5.0E–09	100	4.9E–10	1.04	5.1E–10
0.0385	20	5.0E–09	200	2.5E–10	1.04	2.6E–10
0.0385	20	5.0E–09	300	1.6E–10	1.04	1.7E–10
0.0385	5	1.7E–08	100	1.6E–09	0.82	1.3E–09
0.0385	5	1.7E–08	200	8.2E–10	0.82	6.7E–10
0.0385	5	1.7E–08	300	5.5E–10	0.82	4.5E–10
0.0385	5	1.2E–08	100	1.1E–09	0.82	9.4E–10
0.0385	5	1.2E–08	200	5.7E–10	0.82	4.7E–10
0.0385	5	1.2E–08	300	3.8E–10	0.82	3.1E–10
0.0385	5	5.0E–09	100	4.9E–10	0.82	4.0E–10
0.0385	5	5.0E–09	200	2.5E–10	0.82	2.0E–10
0.0385	5	5.0E–09	300	1.6E–10	0.82	1.3E–10

The practical upper measurement limit of hydraulic transmissivity for the PSS system is estimated at a flow rate of c 30 L/min ($5 \cdot 10^{-4}$ m^3/s) and an injection pressure of c 1 m. Thus, the upper measurement limit for the specific flow rate is $5 \cdot 10^{-4}$ m^2/s. However, the practical upper measurement limit may vary, depending on e.g. depth of the test section (friction losses in the pipe string).

5.4.3 Qualitative analysis

Initially, a qualitative evaluation of actual flow regimes, e.g. wellbore storage (WBS), pseudo-radial flow regime (PRF), pseudo-spherical flow regime (PSF) and pseudo-stationary flow regime (PSS), respectively, was performed. In addition, indications of outer boundary conditions during the tests were identified. The qualitative evaluation was mainly interpreted from the log-log plots of flow rate and pressure together with the corresponding derivatives.

In particular, time intervals with pseudo-radial flow, reflected by a constant (horizontal) derivative in the test diagrams, were identified. Pseudo-linear flow may, at the beginning of the test, be reflected by a straight line of slope 0.5 or less in log-log diagrams, both for the measured variable (flow rate or pressure) and the derivative. A true spherical flow regime is reflected by a straight line with a slope of –0.5 for the derivative. However, other slopes may indicate transitions to pseudo-spherical (leaky) or pseudo-stationary flow. The latter flow regime corresponds to almost stationary conditions with a derivative approaching zero.

The interpreted flow regimes can also be described in terms of the distance from the borehole:

- **Inner zone:** Representing very early responses that may represent the fracture properties close to the borehole which may possibly be affected by turbulent head losses. These properties are generally reflected by the skin factor.
- **Middle zone:** Representing the first response from which it is considered possible to evaluate the hydraulic properties of the formation close to the borehole.
- **Outer zone:** Representing the response at late times of hydraulic structure(s) connected to the hydraulic feature for the middle zone. Sometimes it is possible to deduce the possible character of the actual feature or boundary and evaluate the hydraulic properties.

Due to the limited resolution of the flow metre and pressure sensor, the derivative may some times erroneously indicate a false horizontal line by the end of periods with pseudo-stationary flow. Apparent no-flow (NFB) and constant head boundaries (CHB), or equivalent boundary conditions of fractures, are reflected by an increase/decrease of the derivative, respectively.

5.4.4 Quantitative analysis

A preliminary steady-state analysis of transmissivity according to Moye's formula (denoted T_M) was made for the injection period for all tests in conjunction with the qualitative analysis according to the following equation:

$$T_M = \frac{Q_p \cdot \rho_w \cdot g}{dp_p} \cdot C_M \qquad (5\text{-}1)$$

$$C_M = \frac{1 + \ln\left(\frac{L_w}{2r_w}\right)}{2\pi} \qquad (5\text{-}2)$$

Q_p = flow rate by the end of the flow period (m^3/s)
ρ_w = density of water (kg/m^3)
g = acceleration of gravity (m/s^2)
C_M = geometrical shape factor (–)
dp_p = $p_p - p_i$ (Pa)
r_w = borehole radius (m)
L_w = section length (m)

From the results of the qualitative evaluation, appropriate interpretation models for the quantitative evaluation of the tests were selected. When possible, transient analysis was made on both the injection and recovery periods of the tests.

The transient analysis was performed using a special version of the test analysis software AQTESOLV, which enables both visual and automatic type curve matching. The quantitative transient evaluation is generally carried out as an iterative process of manual type curve matching and automatic matching. For the injection period, a model based on the Jacob and Lohman (1952) solution /2/ was applied for estimating the transmissivity and skin factor for an assumed value on the storativity when a certain period with pseudo-radial flow could be identified. The model is based on the effective wellbore radius concept to account for non-zero (negative) skin factors according to Hurst, Clark and Brauer (1969) /3/.

In borehole KFM06A and KFM06B, the storativity was calculated using an empirical regression relationship between storativity and transmissivity, see Equation 5-3 (Rhén et al. (1997) /4/. Firstly, the transmissivity and skin factor was obtained by type curve matching on the data curve using a fixed storativity value of 10^{-6}, according to the instruction SKB MD 320.004. From the transmissivity value obtained, the storativity was then calculated according to Equation 5-3 and the type curve matching was repeated. In most cases the change of storativity did not significantly alter the calculated transmissivity by the new type curve matching. Instead, the estimated skin factor, which is strongly correlated to the storativity using the effective borehole radius concept, was altered correspondingly.

$$S = 0.0007 \cdot T^{0.5} \qquad (5\text{-}3)$$

S = storativity (–)
T = transmissivity (m^2/s)

For transient analysis of the recovery period, a model presented by Dougherty-Babu (1984) /5/ was used when a certain period with pseudo-radial flow could be identified. In this model, a variety of transient solutions for flow in fractured porous media is available, accounting for e.g. wellbore storage and skin effects, double porosity etc. The solution for wellbore storage and skin effects is analogous to the corresponding solution presented in Earlougher (1977) /6/ based on the effective wellbore radius concept to account for non-zero (negative) skin factors. However, for tests in isolated test sections, wellbore storage is represented by a radius of a fictive standpipe (denoted fictive casing radius, r (c)) connected to the test section, cf Equation 5-6. This concept is equivalent to calculating the wellbore storage coefficient C from the compressibility in an isolated test section according to Equation 5-5.

The model by Dougherty-Babu (1984) was used to estimate the transmissivity and skin factor from the recovery period. The storativity was calculated using Equation 5-3 in the same way as described above for the transient analysis of the injection period. In addition, the wellbore storage coefficient was estimated, both from the simulated value on the fictive casing radius r (c) and from the slope of 1:1 in the log-log recovery plots.

For tests characterized by pseudo-spherical (leaky) flow or pseudo-stationary flow during the injection period, a model by Hantush (1959) /7/ for constant head tests was adopted for the evaluation. In this model, the skin factor is not separated but can be calculated from the simulated effective borehole radius according to Equation 5-4. This model also allows calculation of the wellbore storage coefficient according to Equation 5-6. In addition, the leakage coefficient K'/b' can be calculated from the simulated leakage factor r/B. The corresponding model for constant flow rate tests, Hantush (1955) /8/, was applied for evaluation of the recovery period for tests showing pseudo-spherical- or pseudo-stationary flow during this period.

$$\zeta = \ln(r_w/r_{wf}) \qquad (5\text{-}4)$$

ζ = skin factor

r_w = borehole radius (m)

r_{wf} = effective borehole radius

Some tests showed fracture responses (a slope of 0.5 or less in a log-log plot). Models for single fractures were then used for the transient analysis as a complement to the standard models. Both models by Ozkan-Raghavan (1991a) /9/ and (1991b) /10/ for a vertical fracture and the model by Gringarten-Ramey (1974) /11/ for a horizontal fracture were employed. In these cases, the test section length was used to convert K and S_s to T and S, respectively, after analysis by fracture models. The quotient K_x/K_y of the hydraulic conductivity in the x and the y-direction, respectively, was assumed to be 1.0 (one). Type curve matching provided values of K_x and L_f, where L_f is the theoretical fracture length.

The different transient estimates of transmissivity from the injection and recovery period, respectively, were then compared and examined. One of these was chosen as the best representative value of the transient transmissivity of the formation adjacent to the test section. This value is denoted T_T. In cases with more than one pseudo-radial flow regime during the injection or recovery period, the first one is assumed as the most representative for the hydraulic conditions in the rock close to the tested section. In most cases, the transient estimates of transmissivity from the injection period were considered more representative than those from the recovery period. The recovery responses were often strongly affected by wellbore storage and, frequently, no pseudo-radial flow regime was reached. In addition, pseudo-stationary flow sometimes occurred during the recovery period.

Finally, a representative value of transmissivity of the test section, T_R, was chosen from T_T and T_M. In general, the transmissivity from the transient evaluation, T_T, was considered as the best estimate. In only 5 out of 89 tests with a definable final flow rate in KFM06A the steady-state transmissivity, T_M, was chosen as the most representative value of transmissivity of the test section. The latter transmissivity was chosen whenever a transient evaluation of the test data was not possible. The corresponding number for KFM06B was one out of 18 tests. Whenever the flow rate by the end of the injection period (Q_p) was too low to be defined, and thus neither T_T nor T_M could be estimated, the representative transmissivity for the test section was considered to be less than T_M based on the estimated lower measurement limit for Q/s (i.e. $T_R < T_M$ = Q/s-measl-L · C_M).

Estimated values of the borehole storage coefficient, C, based on actual borehole geometrical data and assumed fluid properties are shown in Table 5-3. The net water volume in the test section, V_w, has in Table 5-3 been calculated by subtracting the volume of equipment in the test section (pipes and thin hoses) from the total volume of the test section. For an isolated test section, the wellbore storage coefficient, C, may be calculated as by Almén et al. (1986) /12/:

$$C = V_w \cdot c_w = L_w \cdot \pi \cdot r_w^2 \cdot c_w \qquad (5\text{-}5)$$

V_w = water volume in test section (m^3)

r_w = nominal borehole radius (m)

L_w = section length (m)

c_w = compressibility of water (Pa^{-1})

When appropriate, estimation of the actual borehole storage coefficient C in the test sections was made from the recovery period, based on the early borehole response with 1:1 slope in the log-log diagrams. The coefficient C was calculated only for tests with a well-defined line of slope 1:1 in the beginning of the recovery period. In the most conductive sections, this period occurred during very short periods at early test times. The latter values may be compared with the net values of C based on geometry (Table 5-3).

Furthermore, when using the model by Dougherty-Babu (1984), a fictive casing radius, r (c), is obtained from the parameter estimation of the recovery period. This value can then be used for calculating C as by Almén et al. (1986) /12/:

$$C = \frac{\pi \cdot r(c)^2}{\rho \cdot g} \qquad (5\text{-}6)$$

Although this calculation was not done regularly and the results are not presented in this report, the calculations corresponded in most cases well to the value of C obtained from the line of slope 1:1 in the beginning of the recovery period.

The estimated values of C from the tests may differ from the net values in Table 5-3 based on geometry. For example, the effective compressibility for an isolated test section may sometimes be higher than the water compressibility due to e.g. packer compliance, resulting in increased C-values.

The radius of influence at a certain time may be estimated from Jacob's approximation of the Theis' well function, Cooper and Jacob (1946) /13/:

Table 5-3. Calculated net values of the wellbore storage coefficient C for injection tests with different section length, based on the actual geometrical properties of the borehole and equipment configuration in the test section.

r_w (m)	L_w (m)	Volume of test section (m^3)	Volume of equipment in section (m^3)	V_w (m^3)	C_{net} (m^3/Pa)
0.03865	100	0.469	0.061	0.408	$1.9 \cdot 10^{-10}$
0.03865	20	0.094	0.013	0.081	$3.7 \cdot 10^{-11}$
0.03865	5	0.023	0.004	0.020	$9.2 \cdot 10^{-12}$

$$r_i = \sqrt{\frac{2.25Tt}{S}} \tag{5-7}$$

T = representative transmissivity from the test (m^2/s)

S = storativity estimated from Equation 5-3

r_i = radius of influence (m)

t = time after start of injection (s)

If a certain time interval of pseudo-radial flow (PRF) from t_1 to t_2 can be identified during the test, the radius of influence is estimated using time t_2 in Equation 5-7. If no interval of PRF can be identified, the actual total flow time t_p is used. The radius of influence can be used to deduce the length of the hydraulic feature(s) tested.

Furthermore,an r_i-index (–1, 0 or 1) is defined to characterize the hydraulic conditions by the end of the test. The ri-index is defined as shown below. It is assumed that a certain time interval of PRF can be identified between t_1 and t_2 during the test.

- r_i-index = 0: The transient response indicates that the size of the hydraulic feature tested is greater than the radius of influence based on the actual test time ($t_2 = t_p$), i.e. the PRF is continuing at stop of the test. This fact is reflected by a flat derivative at this time.
- r_i-index = 1: The transient response indicates that the hydraulic feature tested is connected to a hydraulic feature with lower transmissivity or an apparent barrier boundary (NFB). This fact is reflected by an increase of the derivative. The size of the hydraulic feature tested is estimated as the radius of influence based on t_2.
- r_i-index = –1: The transient response indicates that the hydraulic feature tested is connected to a hydraulic feature with higher transmissivity or an apparent constant head boundary (CHB). This fact is reflected by a decrease of the derivative. The size of the hydraulic feature tested is estimated as the radius of influence based on t_2.

If a certain time interval of PRF cannot be identified during the test, the r_i-indices –1 and 1 are defined as above. In such cases the radius of influence is estimated using the flow time t_p in Equation 5-7.

5.5 Nonconformities

The test program in KFM06A was carried out according to the Activity Plan AP PF 400-04-122 with the following exceptions:

- The temperature sensors in the injection water at the ground surface, T_{surf}, and in the logging cabin, T_{air}, were out of order during the injection tests.

The test program in KFM06B was carried out according to the Activity Plan AP PF 400-05-005 with the following exceptions:

- The Tecalan hose connected to P_{bubbel}, the transducer measuring the ground water level, could not be put into position in the borehole before testing. This was due to the small diameter of the borehole which made it impossible to get it down to the ground water surface.
- The temperature sensors in the injection water at the ground surface, T_{surf}, and in the logging cabin, T_{air}, were out of order during the injection tests.

- After seven tests, one of the pressure sensors broke down and the sensor measuring the pressure above the test section (P_a) was replaced by a new sensor which was not calibrated prior to the measurements. The sensor was calibrated after the field campaign and the reported pressures in SICADA were recalculated. However, the raw data files and the linear diagrams in Apppendix 3 were not redone. This applies to the tests performed below 38.0 m in KFM06B.

6 Results

6.1 Nomenclature and symbols

The nomenclature and symbols used for the results of the injection tests in KFM06A and KFM06B are in accordance with the Instruction for analysis of injection and single-hole pumping tests (SKB MD 320.004). Additional symbols are explained in the text and in Appendix 5. Symbols used by the AQTESOLV software are explained in Appendix 3.

6.2 Routine evaluation of the single-hole injection tests

6.2.1 General test data

General test data and selected pressure and flow data from all tests are listed in Appendix 2.1 and 2.2, respectively.

During the injection tests in KFM06A, drilling was on-going in the upper part of KFM06C, which is located close to KFM06A. However, no injection tests were performed in the upper part of borehole KFM06A while drilling was performed in KFM06C. The pressure and flow rate in the tests in KFM06A were therefore assumed to be unaffected by these activities. However, for some tests the pressure above the test section was affected.

6.2.2 Length corrections

The down-hole equipment is supplied with a level indicator located c 3 m below the lower packer in the test section, see Figure 4-2. The level indicator transmits a signal each time a reference mark in the borehole is passed. In KFM06A, reference marks were milled into the borehole wall at every 50 m (with a few exceptions).

During the injection tests in KFM06A with the PSS, length reference marks were detected as presented in Table 6-1. As seen from Table 6-1, six of the length marks in the lower half of the borehole were not detected. At each mark, the length scale for the injection tests was adjusted according to the reported length to the reference mark. The tests with 20 m and 5 m section length above the first reference mark were adjusted according to the first detected reference mark by the tests in 100 m sections.

The largest difference between the reported and measured lengths at the reference marks during the injection tests was 0.18 m, at the 750 m reference mark. The difference between two consecutive measurements over a 100 m borehole interval was 0.06 m or less in all cases. A comparison of the measurements performed with different section lengths results in a maximum difference of 0.03 m.

Since the length scale was adjusted in the field every time a reference mark was passed, and because the difference between consecutive marks was small, it was not found worthwhile to make any further adjustments after the measurements, e.g. by linear interpolation between reference marks.

Table 6-1. Detected reference marks during the injection tests in KFM06A.

Borehole length (m)	Detected during the injection tests in 100 m sections	Detected during the injection tests in 20 m sections	Detected during the injection tests in 5 m sections
152	yes	yes	yes
200	yes	yes	yes
250	yes	yes	yes
301	yes	yes	yes
350	yes	yes	yes
400	yes	yes	yes
450	yes	yes	yes
500	yes	yes	–
550	yes	yes	–
600	yes	yes	–
648	yes	yes	–
700	no	no	–
750	yes	yes	–
800	no	no	–
850	no	no	–
900	no	no	–
950	no	–	–
980	no	–	–

Since no reference marks exist in KFM06B, no length corrections have been made in this borehole. According to the drawing (technical data) in the appendix to the Activity Plan AP PF 400-05-005 of KFM06B there is a cavity at borehole length 54.65 m. The level indicator transmitted a signal when passing 54.65 m, showing that the position according to PSS is in compliance with the technical drawing.

6.2.3 General results

For the injection tests, transient evaluation was conducted, whenever possible, both on the injection and recovery periods (T_f and T_s, respectively) according to the methods described in section 5.4.4. The steady-state transmissivity (T_M) was calculated by Moye's formula according to Equation 5-1. Transient evaluation was performed for all tests for which a significant flow rate, Q_p, could be identified, see section 5.4.2. The quantitative analysis was conducted using the AQTESOLV software.

A summary of the results of the routine evaluation of the injection tests is presented, test by test, in Table 6-2A for KFM06A and in Table 6-2B for KFM06B. Selected test diagrams are presented in Appendix 3. In general, one linear diagram showing the entire test sequence together with lin-log and log-log diagrams from the injection and recovery periods, respectively, are presented. The quantitative analysis was performed from such diagrams using the AQTESOLV software. From tests with a flow rate below the estimated lower measurement limit for the specific test, only the linear diagram is presented. The results of the routine evaluation of the tests in boreholes KFM06A and KFM06B are also compiled in appropriate tables in Appendix 5 to be stored in the SICADA database.

Table 6-2A. Summary of the routine evaluation of the single-hole injection tests in borehole KFM06A.

Secup (m)	Seclow (m)	Test start YYYYMMDD hh:mm	b (m)	Flow regime [1] injection	recovery	T_M (m^2/s)	T_f (m^2/s)	T_s (m^2/s)	T_T (m^2/s)	T_R [2] (m^2/s)	ξ (–)	t_1 (s)	t_2 (s)	dte_1 (s)	dte_2 (s)	C (m^3/Pa)	r_i (m)	r_i–index (–)
105.5	205.5	20050317 10:35	100	PRF(–>NFB)	PRF	1.83E–04	7.22E–05	7.51E–05	7.22E–05	7.22E–05	–5.69	300	1,000	50	1,200		165.23	1
205.5	305.5	20050317 14:57	100	PRF	PRF–>PSF	1.53E–04	6.96E–05	7.10E–05	6.96E–05	6.96E–05	–5.07	100	1,800	50	300		219.73	0
305.5	405.5	20050317 18:36	100	PLF/PRF	PLF/PRF	5.84E–06	1.09E–06	1.54E–06	1.09E–06	1.09E–06							78.14	1
405.5	505.5	20050318 11:22	100	PLF/PRF–>NFB	WBS–>	1.05E–08	2.15E–09	2.21E–09	2.15E–09	2.15E–09	–5.29	100	1,000			1.47E–09	12.20	1
505.5	605.5	20050321 09:44	100	–	–	<4.23E–10				<4.23E–10								
605.5	705.5	20050321 14:05	100	PRF	WBS–>	1.58E–09	5.96E–10	5.96E–10	5.96E–10	5.96E–10	–2.70	100	1,000			1.91E–10	8.86	–1
705.5	805.5	20050321 17:38	100	PLF	PLF	8.73E–07	1.10E–07	1.05E–07	1.10E–07	1.10E–07							44.03	1
805.5	905.5	20050323 09:00	100	PLF/PRF	WBS–>	3.23E–09	4.66E–10	3.44E–10	4.66E–10	4.66E–10	–5.01					2.85E–10	11.24	1
887.0	987.0	20050323 13:41	100	–	–	<5.01E–10				<5.01E–10								
107.5	127.5	20050405 06:31	20	PRF	PLF/PRF	2.90E–05	6.88E–06	8.26E–06	6.88E–06	6.88E–06	–6.71	200	1,200				100.58	0
127.5	147.5	20050404 23:15	20	PRF	(PRF)	1.17E–04	5.62E–05	6.80E–05	5.62E–05	5.62E–05	–5.46	500	1,100	200	800		162.83	0
147.5	167.5	20050404 21:32	20	PRF	PRF?–>PSF	8.31E–07	8.10E–07	6.05E–07	8.10E–07	8.10E–07	–1.09	60	1,200				58.92	0
165.5	185.5	20050404 19:43	20	PRF–>PSF	PLF–>PRF–>(PSF)	2.01E–05	6.66E–06	7.30E–06	6.66E–06	6.66E–06	–5.77	50	500	100	400		64.39	–1
185.5	205.5	20050404 18:00	20	PRF	PSF–>NFB	8.77E–08	4.94E–08	7.68E–08	4.94E–08	4.94E–08	–3.08	40	1,200				29.28	0
205.5	225.5	20050330 07:02	20	PRF	PLF–>(PRF)	3.15E–05	1.11E–05	7.36E–06	1.11E–05	1.11E–05	–5.91	200	1,200	400	800		113.46	0
225.5	245.5	20050330 08:49	20	PSF	PLF–>(PRF)–>PSF	1.88E–05	5.63E–06	4.56E–06	5.63E–06	5.63E–06	–5.57						96.18	–1
245.5	265.5	20050330 10:29	20	PLF	PLF	7.42E–08	3.72E–09	2.65E–08	2.65E–08	2.65E–08							25.15	1
265.5	285.5	20050330 12:56	20	PRF	PSF–>NFB?	3.88E–05	5.65E–05	4.33E–05	5.65E–05	5.65E–05	1.10	300	1,200				170.23	0
285.5	305.5	20050330 14:41	20	(PRF)–>NFB	(PRF)	2.28E–07	2.27E–07	3.77E–07	3.77E–07	3.77E–07	–6.25	50	300				48.48	0
305.5	325.5	20050404 15:42	20	NFB	PLF	4.08E–07		1.62E–07	1.62E–07	4.08E–07							50.12	1
325.5	345.5	20050330 18:06	20	PRF	WBS–>PRF	1.51E–07	1.43E–07	1.90E–07	1.90E–07	1.90E–07	1.34	250	1,200	250	600		28.99	0
345.5	365.5	20050330 19:57	20	PRF–>NFB	PRF–>NFB	3.89E–06	3.06E–06	5.08E–06	3.06E–06	3.06E–06	–3.18	100	300	50	80		41.05	1
365.5	385.5	20050330 21:51	20	PRF–>PSF?	WBS–>PRF	4.34E–08	3.70E–08	4.75E–08	3.70E–08	3.70E–08	–0.83	80	600	200	650	1.72E–10	19.26	–1
385.5	405.5	20050331 09:52	20	NFB	PLF–>NFB	3.90E–07		4.89E–07	4.89E–07	3.90E–07	–5.88						49.42	1
405.5	425.5	20050331 11:38	20	PLF	WBS–>	9.14E–09	1.91E–09	1.94E–09	1.91E–09	1.91E–09						1.41E–09	13.08	1
425.5	445.5	20050331 14:16	20	–	–	<3.37E–10				<3.37E–10								
445.5	465.5	20050331 15:38	20	PRF–>NFB?	WBS–>	2.14E–09	1.45E–09	1.21E–09	1.45E–09	1.45E–09	–1.75	20	300			5.64E–11	6.06	1
465.5	485.5	20050331 17:18	20	–	–	<3.37E–10				<3.37E–10								
485.5	505.5	20050331 18:55	20	–	–	<3.37E–10				<3.37E–10								

Secup (m)	Seclow (m)	Test start YYYYMMDD hh:mm	b (m)	Flow regime 1) injection	recovery	T_M (m^2/s)	T_f (m^2/s)	T_s (m^2/s)	T_T (m^2/s)	T_R 2) (m^2/s)	ξ (–)	t_1 (s)	t_2 (s)	dte_1 (s)	dte_2 (s)	C (m^3/Pa)	r_i (m)	r_i–index (–)
605.5	625.5	20050331 21:33	20	PRF–>PSF	WBS–>	1.29E–09	1.12E–09	1.13E–09	1.12E–09	1.12E–09	0.23	30	500			5.52E–11	7.33	–1
625.5	645.5	20050331 23:14	20	–	–	<2.73E–10				<2.73E–10								
645.5	665.5	20050401 06:35	20	PRF->NFB	WBS	3.69E–10	1.40E–10		1.40E–10	1.40E–10	–3.36	10	100			3.96E–11	1.95	1
665.5	685.5	20050401 08:13	20	–	–	<3.37E–10				<3.37E–10								
685.5	705.5	20050401 09:19	20	–	–	<2.73E–10				<2.73E–10								
705.5	725.5	20050401 10:24	20	–	–	<3.37E–10				<3.37E–10								
725.5	745.5	20050401 12:20	20	PLF	PLF	7.61E–07	1.19E–07	2.31E–07	1.19E–07	1.19E–07							36.72	1
745.5	765.5	20050401 14:12	20	PRF	WBS–>PRF?	2.01E–09	7.42E–10	4.21E–10	7.42E–10	7.42E–10	–3.54	60	1,200				10.25	0
765.5	785.5	20050401 16:43	20	PRF–>NFB	PRF–>NFB	5.69E–08	1.76E–08	1.29E–07	1.76E–08	1.76E–08	–5.77	50	100	20	100		6.53	1
785.5	805.5	20050401 18:40	20	PLF–>PRF?	WBS–>	1.87E–09	4.00E–10	3.90E–10	4.00E–10	4.00E–10						6.95E–11	8.88	1
805.5	825.5	20050401 20:19	20	PLF–>PRF?	WBS–>	2.81E–09	6.47E–10	8.87E–10	6.47E–10	6.47E–10	–4.53					8.16E–11	10.01	1
825.5	845.5	20050401 21:56	20	–	–	<2.73E–10				<2.73E–10								
845.5	865.5	20050404 06:12	20	–	–	<3.37E–10				<3.37E–10								
865.5	885.5	20050404 07:15	20	–	–	<4.02E–10				<4.02E–10								
885.5	905.5	20050404 08:27	20	–	–	<3.37E–10				<3.37E–10								
107.5	112.5	20050405 19:41	5	PSF	PSF	8.03E–08	9.55E–08	1.08E–07	9.55E–08	9.55E–08	–0.18						34.80	–1
112.5	117.5	20050405 21:21	5	(PRF)	PLF–>(PRF)	1.85E–06	7.07E–07	4.97E–07	4.97E–07	4.97E–07	–6.50						52.32	0
117.5	122.5	20050406 06:24	5	NFB	PLF–>	4.32E–10		3.19E–10	3.19E–10	3.19E–10	–6.34						8.37	1
122.5	127.5	20050406 08:56	5	PRF	PLF	2.09E–05	5.82E–06	6.86E–06	5.82E–06	5.82E–06	–6.81	300	1,200				96.46	0
127.5	132.5	20050406 10:36	5	PRF	PRF–>PSF	7.87E–05	4.61E–05	4.02E–05	4.61E–05	4.61E–05	–5.47	100	1,200	40	100		161.83	0
132.5	137.5	20050406 13:11	5	PSF	PSF	9.15E–06	6.69E–06	6.39E–06	6.69E–06	6.69E–06	–3.55						100.55	–1
136.5	141.5	20050406 14:51	5	PRF1–>PRF2	PRF–>NFB	3.08E–07	1.67E–07	5.40E–07	1.67E–07	1.67E–07	–4.33	800	1,200	5	30		39.67	0
141.5	146.5	20050406 16:37	5	PRF–>NFB	PSF	6.22E–07	4.75E–07	4.77E–07	4.75E–07	4.75E–07	–3.91	80	700				39.38	1
146.5	151.5	20050406 18:08	5	PRF	WBS–>	4.03E–10	2.13E–10	1.74E–10	2.13E–10	2.13E–10	–2.34	100	1,200			3.87E–11	7.50	0
147.5	152.5	20050406 19:34	5	–	–	<2.66E–10				<2.66E–10								
152.5	157.5	20050406 20:24	5	PRF–>NFB?	PSS	3.05E–07	7.38E–07	2.29E–07	7.38E–07	7.38E–07	4.94	50	600				40.70	1
157.5	162.5	20050406 21:49	5	PSF–>NFB	PSF	1.09E–07	1.22E–07	1.41E–07	1.22E–07	1.22E–07	0.06						36.99	1
162.5	167.5	20050406 23:17	5	PRF–>PSF	PRF1–>PRF2–>PSF	1.55E–07	1.32E–07	1.31E–07	1.32E–07	1.32E–07	–2.52	200	500	200	500		24.16	–1
165.5	170.5	20050407 06:25	5	PRF	PRF	3.69E–07	1.97E–07	2.59E–07	1.97E–07	1.97E–07	–4.44	150	1,200	400	800		41.38	0

Secup (m)	Seclow (m)	Test start YYYYMMDD hh:mm	b (m)	Flow regime [1] injection	recovery	T_M (m^2/s)	T_f (m^2/s)	T_s (m^2/s)	T_T (m^2/s)	T_R [2] (m^2/s)	ξ (–)	t_1 (s)	t_2 (s)	dte_1 (s)	dte_2 (s)	C (m^3/Pa)	r_i (m)	r_i–index (–)
170.5	175.5	20050421 14:24	5	PRF1–>PRF2–>NFB/PRF3?	WBS–>PSF/PSS	2.43E–09	2.20E–09	1.16E–09	2.20E–09	2.20E–09	–2.03	100	600			1.87E–11	9.51	1
175.5	180.5	20050407 09:40	5	PLF–>PRF	PLF–>PRF	2.57E–06	1.39E–06	8.86E–07	1.39E–06	1.39E–06	–4.87	700	1,200	500	700		67.48	0
180.5	185.5	20050407 11:16	5	PRF	PLF–>PRF–>(PSF)	1.04E–05	7.69E–06	5.01E–06	7.69E–06	7.69E–06	–4.19	500	1,200	100	500		103.41	0
185.5	190.5	20050407 14:00	5	–	–	<3.67E–10				<3.67E–10								
190.5	195.5	20050407 15:30	5	PRF–>NFB	WBS–>PSF	6.86E–09	7.80E–09	7.94E–09	7.80E–09	7.80E–09	–0.49	70	300			3.87E–11	9.23	1
195.5	200.5	20050407 17:01	5	PRF	WBS–>PSF	1.92E–08	1.88E–08	1.52E–08	1.88E–08	1.88E–08	–1.48	80	1,200			8.66E–11	22.99	0
200.5	205.5	20050407 18:29	5	PRF	PSF–>(NFB)	4.33E–08	5.48E–08	4.67E–08	5.48E–08	5.48E–08	–0.15	100	1,200				30.05	0
205.5	210.5	20050407 20:04	5	PRF–>NFB	PRF–>NFB	5.39E–07	2.82E–07	8.71E–07	2.82E–07	2.82E–07	–4.65			60	200		45.62	1
210.5	215.5	20050407 21:37	5	PRF–>NFB	WBS–>PRF–>NFB	2.63E–09	9.72E–10	4.09E–09	9.72E–10	9.72E–10	–5.10	10	100			2.59E–10	3.17	1
215.5	220.5	20050407 23:16	5	PRF	PLF–>PRF?	2.41E–05	1.26E–05	1.07E–05	1.26E–05	1.26E–05	–5.60	150	400				67.54	0
220.5	225.5	20050408 06:21	5	PLF–>PRF?	PLF–>PRF?	1.05E–06	1.97E–07	2.68E–07	1.97E–07	1.97E–07	–6.60						41.70	1
225.5	230.5	20050408 07:58	5	PRF–>NFB	PRF–>NFB	5.00E–09	3.80E–09	1.10E–08	3.80E–09	3.80E–09	–3.35	60	200	130	300	4.16E–11	6.30	1
230.5	235.5	20050408 09:31	5	PRF–>PSF	WBS–>(PRF)	2.04E–09	6.46E–10	5.06E–10	6.46E–10	6.46E–10	–4.18	100	600			9.94E–11	7.00	–1
235.5	240.5	20050415 15:48	5	PSF	PLF–>PRF–>PSF	1.44E–05	4.59E–06	3.95E–06	3.95E–06	3.95E–06	–5.83						87.66	–1
240.5	245.5	20050408 13:17	5	PRF1–>PRF2–>PSF	PRF1–>PRF2	5.31E–09	1.14E–09	1.86E–09	1.86E–09	1.86E–09	–4.15	450	650	400	800		10.53	1
245.5	250.5	20050408 14:52	5	PRF1–>PRF2–>NFB	PRF1–>PRF2	1.17E–08	6.23E–09	2.29E–08	6.23E–09	6.23E–09	–3.87	300	600	400	1,000	5.34E–11	12.34	1
250.5	255.5	20050408 16:27	5	PLF/NFB	PLF–>(PRF)	1.77E–08		2.31E–08	2.31E–08	2.31E–08	–5.44						24.24	1
255.5	260.5	20050408 17:56	5	PLF–>PSF	PLF	3.24E–08	8.76E–09	5.14E–09	5.14E–09	5.14E–09							16.66	1
260.5	265.5	20050408 19:23	5	PLF	WBS–>(PRF)–>NFB	2.11E–09	1.83E–10	2.83E–09	2.83E–09	2.83E–09	–2.47			20	150	2.55E–11	5.06	1
265.5	270.5	20050411 17:47	5	PSF	PSF–>NFB	2.96E–05	4.39E–05	1.48E–05	4.39E–05	4.39E–05	–0.26						161.45	–1
267.5	272.5	20050411 19:34	5	PRF/PSF	PSF–>NFB	2.87E–05	3.02E–05	1.58E–05	3.02E–05	3.02E–05	–2.54						146.56	–1
272.5	277.5	20050411 21:07	5	PRF	(PRF)	1.28E–08	1.08E–08	1.16E–08	1.08E–08	1.08E–08	–1.89	100	1,200				20.04	0
275.5	280.5	20050411 22:42	5	–	–	<2.18E–10				<2.18E–10								
280.5	285.5	20050412 06:03	5	–	–	<2.69E–10				<2.69E–10								
285.5	290.5	20050412 07:02	5	–	–	<2.69E–10				<2.69E–10								
290.5	295.5	20050412 07:55	5	NFB–>CHB	WBS–>NFB	1.57E–09				1.57E–09							12.47	–1
295.5	300.5	20050412 09:26	5	(PRF)–>NFB	(PRF)	1.64E–07	3.05E–07	5.05E–07	5.05E–07	5.05E–07	–6.03						51.96	0

Secup (m)	Seclow (m)	Test start YYYYMMDD hh:mm	b (m)	Flow regime [1] injection	recovery	T_M (m^2/s)	T_f (m^2/s)	T_s (m^2/s)	T_T (m^2/s)	T_R [2] (m^2/s)	ξ (–)	t_1 (s)	t_2 (s)	dte_1 (s)	dte_2 (s)	C (m^3/Pa)	r_i (m)	r_i–index (–)
300.5	305.5	20050412 10:55	5	PRF	PSF–>NFB	2.54E–08	5.96E–08	6.58E–09	5.96E–08	5.96E–08	5.06	70	1,200				30.68	0
305.5	310.5	20050412 13:59	5	NFB	(PRF)	7.38E–08		2.49E–07	2.49E–07	2.49E–07	–7.23						43.53	0
310.5	315.5	20050412 15:34	5	NFB	(PRF)–>NFB	3.26E–09		2.17E–08	2.17E–08	2.17E–08	–6.23						23.88	1
315.5	320.5	20050412 17:15	5	(PRF)	WBS	2.91E–10	7.32E–11		7.32E–11	2.91E–10	–4.06	50	300			1.51E–11	8.19	–1
320.5	325.5	20050412 18:46	5	PLF–>(PRF)	PLF–>	2.44E–07	8.68E–08	5.90E–08	5.90E–08	5.90E–08							30.63	1
325.5	330.5	20050412 20:26	5	PRF/PSF	PSF	2.60E–08	4.99E–08	3.00E–08	3.00E–08	3.00E–08	0.01	100	1,200				25.87	–1
330.5	335.5	20050412 22:01	5	PRF/PSF	PSF	7.40E–09	9.78E–09	6.70E–10	9.78E–09	9.78E–09	1.18	250	1,200				19.53	0
335.5	340.5	20050413 06:08	5	PSF	PSF?	7.79E–08	8.15E–08	8.19E–08	8.15E–08	8.15E–08	–0.96						33.43	–1
340.5	345.5	20050413 07:37	5	PSF	PSF	3.34E–09	1.10E–08	2.24E–08	1.10E–08	1.10E–08	–3.58					1.08E–11	20.26	–1
345.5	35.5	20050413 09:09	5	PRF	WBS–>(PSF)	4.41E–09	6.20E–09	5.32E–09	6.20E–09	6.20E–09	1.22	100	1,200			2.02E–11	17.43	0
348.0	353.0	20050415 13:31	5	PRF	WBS–>	5.39E–10	4.21E–10	7.82E–11	4.21E–10	4.21E–10	–1.30	10	1,200			1.41E–11	8.90	0
353.0	358.0	20050413 12:28	5	PRF–>NFB	PRF–>NFB	3.11E–06	3.36E–06	5.65E–06	3.36E–06	3.36E–06	–2.80	40	200	30	100		34.33	1
355.5	360.5	20050413 13:54	5	PRF–>NFB	PRF–>NFB	3.19E–06	3.54E–06	5.28E–06	3.54E–06	3.54E–06	–2.68	50	200	30	100		34.77	1
360.5	365.5	20050414 06:08	5	PRF	WBS–>(PSF)	3.41E–09	4.42E–09	1.93E–09	4.42E–09	4.42E–09	0.39	30	900			1.58E–11	13.87	0
365.5	370.5	20050414 07:34	5	–	–	<2.36E–10				<2.36E–10								
370.0	375.0	20050414 08:22	5	PRF	WBS–>NFB	4.77E–10	3.01E–10	1.06E–09	3.01E–10	3.01E–10	–1.97	20	1,200	80	300	1.59E–11	8.18	0
375.5	380.5	20050414 09:50	5	–	–	<2.14E–10				<2.14E–10								
380.5	385.5	20050414 10:45	5	PRF	WBS–>	1.56E–08	1.39E–08	1.77E–08	1.39E–08	1.39E–08	–1.74	100	950	700	900	1.20E–10	18.96	0
385.5	390.5	20050414 12:49	5	–	–	<6.86E–10				<6.86E–10								
390.5	395.5	20050414 13:47	5	NFB	PLF–>NFB	2.97E–07				2.97E–07							46.23	1
395.5	400.5	20050414 15:29	5	PRF–>PSF	WBS–>	4.10E–09	1.59E–09	9.24E–10	1.59E–09	1.59E–09	–3.55					7.27E–11	12.51	–1
400.5	405.5	20050414 17:01	5	–	–	<2.28E–10				<2.28E–10								
405.5	410.5	20050414 18:00	5	PRF	WBS–>	4.13E–10	1.76E–10	7.04E–11	1.76E–10	1.76E–10	–3.16	50	1,200			3.19E–11	7.15	0
410.5	415.5	20050414 19:28	5	PLF	WBS–>(PRF)	6.15E–09	1.80E–09	4.15E–09	1.80E–09	1.80E–09							12.92	1
415.5	420.5	20050414 20:58	5	–	–	<2.28E–10				<2.28E–10								
420.5	425.5	20050414 21:52	5	PRF	WBS–>	4.86E–10	3.56E–10	6.72E–10	3.56E–10	3.56E–10	–1.87	20	1,200			1.39E–11	8.53	0
445.5	45.5	20050414 23:36	5	PRF–>NFB?	WBS–>PSF	2.71E–09	4.05E–09	9.40E–10	4.05E–09	4.05E–09	–0.40	10	400			1.91E–11	9.05	1
45.5	455.5	20050415 09:18	5	–	–	<2.26E–10				<2.26E–10								
455.5	460.5	20050415 10:10	5	–	–	<2.26E–10				<2.26E–10								
460.5	465.5	20050415 11:02	5	–	–	<2.46E–10				<2.46E–10								

[1] The acronyms in the column "Flow regime" are as follow: wellbore storage (WBS), pseudo-linear flow (PLF), pseudo-radial flow (PRF), pseudo-spherical flow (PSF), pseudo-stationary flow (PSS) and apparent no-flow boundary (NFB). The flow regime definitions are further discussed in section 5.4.3 above

[2] For the tests where Q_p was not detected, T_R was assumed to be less than T_M based on the estimated Q/s-measl-L.

Table 6-2B. Summary of the routine evaluation of the single-hole injection tests in borehole KFM06B.

Secup (m)	Seclow (m)	Test start YYYYMMDD hh:mm	b (m)	Flow regime [1] injection	recovery	T_M (m²/s)	T_f (m²/s)	T_s (m²/s)	T_T (m²/s)	T_R (m)	ξ (–)	t_1 (s)	t_2 (s)	dte_1 (s)	dte_2 (m³/Pa)	C (m³/Pa)	r_i (m)	r_i–index (–)
8.0	13.0	20050425 20:04	5	PSF	PSF	1.71E–06	1.24E–06	2.00E–06	1.24E–06	1.24E–06	–2.58						66.07	–1
13.0	18.0	20050426 08:01	5	PRF	PSF	6.07E–07	5.43E–07	4.78E–07	4.78E–07	4.78E–07	–2.25	30	500				51.82	–1
14.0	19.0	20050426 09:35	5	PSF–>PSS/CHB	PSF	7.89E–07	5.06E–07	7.16E–07	7.16E–07	7.16E–07	–2.10						57.32	–1
19.0	24.0	20050426 11:02	5	PSF/PRF	PSF	3.23E–07	6.10E–07	3.47E–07	3.47E–07	3.47E–07	–0.75	150	400				47.82	–1
24.0	29.0	20050426 13:31	5	PRF	PSF	7.38E–08	8.50E–08	3.68E–08	8.50E–08	8.50E–08	–0.93	20	1,200				33.54	0
28.0	33.0	20050426 14:59	5	PSF/PSS	PSF–>PSS	7.07E–06	1.01E–05	4.86E–06	4.86E–06	4.86E–06	–3.06						92.52	–1
33.0	38.0	20050426 16:35	5	PSF	PSF	5.03E–05	3.37E–05	3.57E–05	3.37E–05	3.37E–05	–4.12						150.69	–1
38.0	43.0	20050427 15:02	5	PSF–>PSS	PSF–>PSS	1.96E–05	1.78E–05	1.62E–05	1.78E–05	1.78E–05	–2.25						128.38	–1
43.0	48.0	20050427 16:49	5	PSF	PRF–>PSF	2.39E–04	3.05E–04	2.25E–04	2.25E–04	2.25E–04	–3.14						241.34	–1
48.0	53.0	20050427 18:17	5	PSF–>PSS	PLF–>PSF	1.66E–05	8.41E–06	4.25E–06	8.41E–06	8.41E–06	–4.39						106.38	–1
53.0	58.0	20050429 08:41	5	(PRF)	PSF	2.17E–04	4.60E–04	3.18E–04	3.18E–04	2.17E–04	–0.39						239.74	–1
58.0	63.0	20050427 19:47	5	PSF–>PSS?	PSF–>PSS	1.95E–05	1.80E–05	1.59E–05	1.80E–05	1.80E–05	–2.52						128.83	0
63.0	68.0	20050428 08:35	5	PSF	PSF–>PSS	5.08E–06	3.43E–06	6.56E–07	3.43E–06	3.43E–06	–3.44						84.80	–1
68.0	73.0	20050428 10:06	5	PRF	PSF–>PSS	1.95E–07	2.15E–07	1.28E–07	2.15E–07	2.15E–07	–0.18	100	1,000				38.61	–1
73.0	78.0	20050428 11:36	5	PRF	PRF–>PSF	1.20E–08	7.25E–09	8.58E–09	7.25E–09	7.25E–09	–3.14	100	1,200				18.12	0
78.0	83.0	20050428 13:50	5	PRF	PRF/PSF	9.85E–09	9.06E–09	8.80E–09	9.06E–09	9.06E–09	–1.59	80	1,200				19.16	0
83.0	88.0	20050428 15:15	5	PLF–>PRF?	PLF	2.83E–09	7.12E–10	8.49E–10	7.12E–10	7.12E–10							10.23	0
88.0	93.0	20050428 16:46	5	PRF–>PSF	PLF–>	1.88E–08	5.54E–09	5.98E–09	5.54E–09	5.54E–09	–4.57						17.08	–1

[1] The acronyms in the column “Flow regime” are as follow: wellbore storage (WBS), pseudo-linear flow (PLF), pseudo-radial flow (PRF), pseudo-spherical flow (PSF), pseudo-stationary flow (PSS) and apparent no-flow boundary (NFB). The flow regime definitions are further discussed in section 5.4.3 above.

The dominating transient flow regimes during the injection and recovery periods, as interpreted from the qualitative test evaluation, are listed in Table 6-2A and Table 6-2B and are further commented on in section 6.2.4. Several of the responses during the recovery period were strongly influenced by wellbore storage effects. Thus, for many tests, pseudo-radial flow was not reached during this period. On the other hand, during the injection period, a certain time interval with pseudo-radial flow could, in most tests, be identified. Consequently, standard methods for single-hole tests with wellbore storage and skin effects were generally used for the routine evaluation of the tests. The approximate start and stop times of the pseudo-radial flow regime used for the transient evaluation are also listed in Table 6-2.

For a few tests a type curve fit is yet displayed in the diagrams in Appendix 3, despite the estimated parameters from the fit are judged as non- representative and are thus not included in the result tables in SICADA. For these tests, the type curve fit is presented, for example, to illustrate that an assumption of pseudo-radial flow regime is not justified for the test. Instead, some other flow regime is likely to dominate. For example, for test responses showing only wellbore storage and tests approaching a pseudo-stationary flow, no unique transient evaluation is possible.

The transmissivity judged as the most reliable from the transient evaluation of the flow- and recovery periods of the tests was selected as T_T. The associated value of the skin factor is listed in Table 6-2A and Table 6-2B. Since a fairly well-defined time interval with pseudo-radial flow in most cases could be identified from the injection period, the transmissivity calculated from this period is generally considered as the most reliable transmissivity, T_T, from the transient analysis of the injection tests in KFM06A and KFM06B. Furthermore, the transient evaluation of transmissivity from the injection period was for most of the tests also judged as the most representative estimate of transmissivity, T_R.

For those tests where transient evaluation was not possible or not considered representative, T_M was chosen as the representative transmissivity value, T_R. If Q_p was below the actual test-specific measurement limit, the representative transmissivity value was assumed to be less than the estimated T_M, based on Q/s-measl-L, see section 5.4.2 and 5.4.3.

The results of the routine evaluation of the injection tests in boreholes KFM06A and KFM06B are also compiled in appropriate tables in Appendix 5 to be stored in the SICADA database.

In Figure 6-1, a comparison of calculated transmissivities in 5 m sections from steady-state evaluation (T_M) and transmissivity values from the transient evaluation (T_T) is shown. The agreement between the two populations is in general considered as good. The lower standard measurement limit of transmissivity in 5 m sections based on a flow rate of 1 mL/min and an injection pressure of 200 kPa is indicated in the figure.

The wellbore storage coefficient, C, was calculated from the straight line with a unit slope in the log-log diagrams from the recovery period in KFM06A, see Table 6-2A. The coefficient C was only calculated for tests with a well-defined line of unit slope in the beginning of the recovery period. In the most conductive sections, this period occurred during very short intervals at very early times and is not visible in the diagrams. In KFM06B, no well-defined lines with a unit-slope were identified. In sections with a very low transmissivity, the estimates of C may be uncertain due to difficulties in defining an accurate time for the start of the recovery period. Furthermore, the resolution of the pressure sensors causes the recovery to be quite scattered in sections of low transmissivity. The values of C presented in Table 6-2A may be compared with the net values of C in Table 5-3 (based on geometry).

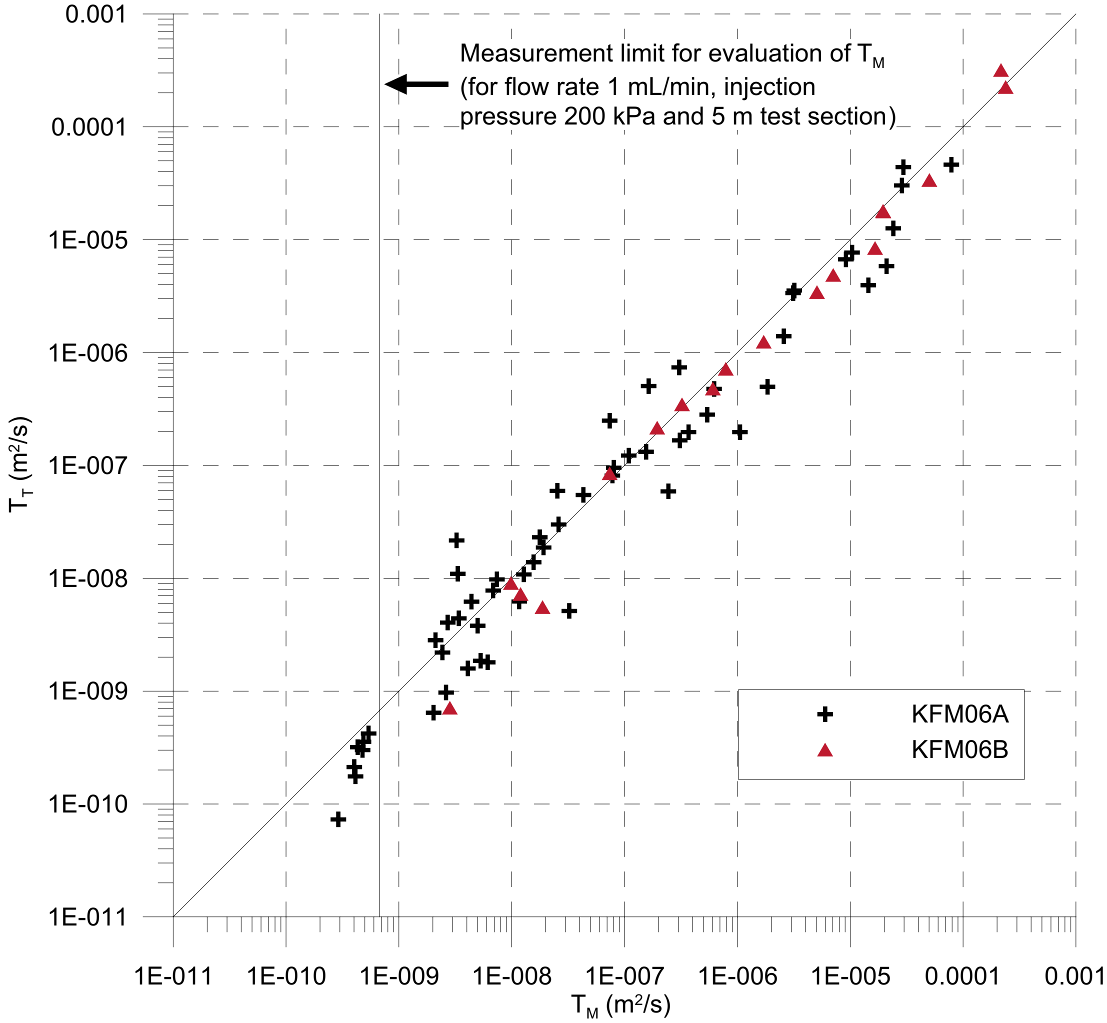

Figure 6-1. *Estimated transmissivities in 5 m sections from steady-state (T_M) and transient (T_T) evaluation in KFM06A and KFM06B.Table 6-2A. Summary of the routine evaluation of the single-hole injection tests in borehole KFM06A.*

The number of tests with a well-defined line of unit slope for which it was possible to calculate C was as follows: 3 of 9 with the 100 m test section resulted in a well-defined 1:1 straight line. The corresponding figures for the 20 m tests were 7 out of 35, and for the 5 m tests 20 out of 29. Table 6-2A shows that there is, in general, a good agreement between the calculated C values from the tests and those listed in Table 5-3, although the calculated values from the tests tend to be slightly higher.

The test in section 405.5–425.5 m resulted in a significantly higher estimate of C than tests in the other 20 m intervals. The 100 m test that straddles the interval 405.5–425.5 m also indicates higher C-values than the other 100 m test intervals. The estimation of C in the dominating 5 m test in the interval 405.5–425.5 m was quite uncertain and not considered as reliable. No reasonable explanation has been found for the significantly higher wellbore storage coefficient estimated from the test in the interval of 405.5–425.5 m. When constructing 95% confidence intervals (using a t-distribution) from calculated values of C from the tests, the values of C listed in Table 5-3 are within these confidence intervals for the 100 m and 20 m sections but slightly lower than the confidence interval for the 5 m sections.

6.2.4 Comments on the tests

Short comments on each test follow below. Tests in the interval 105.5-987.0 m were performed in KFM06A and tests in the interval 8.0-93.0 m were conducted in KFM06B. Flow regimes and hydraulic boundaries, as discussed in section 5.4.3, are in the text referred to as:

WBS = Wellbore storage
PRF = Pseudo-radial flow regime
PLF = Pseudo-linear flow regime
PSF = Pseudo-spherical flow regime
PSS = Pseudo-stationary flow regime
NFB = No-flow boundary
CHB = Constant-head boundary

KFM06A

105.5–205.5 m

Due to the limited flow capacity of the equipment and the high transmissivity of the test section, the injection pressure was only 21.6 kPa. The injection period indicates a PRF transitioning to an apparent NFB after 1,000 s. However, the injection pressure was slightly decreasing during the end of the period which may have disturbed the reciprocal flow rate. The apparent NFB may therefore possibly be an effect of the equipment and not a real character of the rock. The entire recovery period is dominated by a PRF.

205.5–305.5 m

Due to the limited flow capacity of the equipment and the high transmissivity of the test section, the injection pressure was only 28.0 kPa. The derivative during the injection period is relatively unstable, however, a PRF is assumed to dominate the injection period. During the recovery, a PRF is indicated transitioning to a PSF towards the end of the period.

305.5–405.5 m

Both the injection- and recovery period indicate a transitional flow regime between PLF and PRF. The evaluated transient transmissivity considered most representative is a fit with a single fracture model (Ozkan-Raghavan) for the injection period. It is supported by fit with radial flow models for both the injection and recovery period and a single fracture model for the recovery (Gringarten-Ramey).

405.5–505.5 m

The flow rate data are quite scattered during the later part of the injection period. However, the injection period indicates a PRF or possibly a PLF transitioning to an apparent NFB towards the end. The recovery period is dominated by WBS effects and a transition to a possible PRF. The pressure recovered 108 kPa from the head change of 238 kPa, applied during the injection period.

505.5–605.5 m

The test section has a low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. As a result TM, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section.

605.5–705.5 m

Although the derivative is very scattered, the injection period indicates a PRF lasting from c 100 to 1,000 s. The recovery period is dominated by WBS and a transition period.

705.5–805.5 m

The injection period indicates a PLF, possibly transitioning to a PRF after 1,000 s. The recovery is dominated by a PLF throughout the period.

805.5–905.5 m

Due to a drift in the gas pressure regulator, the pressure in the test section decreased by c 4 kPa during the injection period. However, the injection indicates a transition between a PLF and a PRF throughout the period. The recovery is dominated by WBS and a transition period. The evaluated transmissivity for the injection period is supported by a fit with a single fracture model (Ozkan-Raghavan) during the injection and a fit with Dougherty-Babu during the recovery period.

887.0–987.0 m

The test section has a low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. As a result TM, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section.

107.5–127.5 m

During the injection period, the derivative is quite unstable due to problems in regulating a rather low injection pressure. However, a PRF is assumed to dominate from 200 s and throughout the period. The recovery is dominated by a transition from PLF to a possible PRF.

127.5–147.5 m

The injection period indicates a PRF between c 500 s and c 1,100 s. A transition to PRF is indicated at the end of the recovery period. The pressure in the borehole interval above the test section increased by c 6 kPa during the injection period. However, since the transmissivity of the 127.5–147.5 m section is higher than the transmissivity of the 107.5–127.5 m section, this relatively small pressure interference should not have a major impact on the test performed in the section.

147.5–167.5 m

The derivative during the injection period is slightly increasing. However, the flow regime is assumed to be close to a PRF. The initial recovery period indicates a very high skin factor transisitioning to a possible PRF and a PSF by the end. However, the PRF is very uncertain.

165.5–185.5 m

The injection period indicates a PRF transitioning to a PSF. The recovery period shows an early PLF transitioning to a PRF and the start of a possibly PSF.

185.5–205.5 m

The flow rate data are somewhat scattered. However, a PRF is indicated throughout the injection period. The recovery period indicates a PSF transitioning to an apparent NFB.

205.5–225.5 m

The injection period is dominated by a PRF from 200 s throughout the period. The recovery indicates a PLF transitioning towards an approximate PRF by the end of the period.

225.5–245.5 m

The injection period is dominated by a PSF from 200 s throughout the period. The recovery period indicates a PLF transitioning to a PSF, possible with a short PRF in between.

245.5–265.5 m

The injection indicates a PLF throughout the period, possibly associated with fracture flow. The recovery period also indicates a PLF throughout the period. Transient evaluation is problematic for both the injection- and recovery period. However, approximate transient evaluation was attempted based on fracture flow models. The transient evaluation on the recovery period is considered as the most representative.

265.5–285.5 m

The injection pressure changed rather rapidly at c 200 s which explains the change in reciprocal flow rate and derivative at this time. However, a PRF dominates the injection from 300 s throughout the period. The test valve did not close properly at the end of the injection period which disturbed the recovery period. Still, the recovery period indicates a PRF transitioning to an apparent NFB by the end.

285.5–305.5 m

Although the flow rate data are very scattered during the injection period, a possible PRF is indicated at intermediate times transitioning to an apparent NFB by the end. Only an approximate transient evaluation was made on the injection period. The recovery period is dominated by a transition to PRF. The transient evaluation on the recovery period is considered as the most representative.

305.5–325.5 m

The injection pressure was not stable during the test. Hence, the injection period is rather uncertain. However, the entire injection period seems to be dominated by an apparent NFB and no PRF is developed. The recovery is dominated by PLF with a transition towards a possible PRF. No transient evaluation of the injection period is possible.

325.5–345.5 m

A PRF is indicated after c 250 s and throughout the injection period. During the recovery period, WBS and a transition period is indicated during the first c 250 s. A PRF is indicated from c 250 s to the end of the recovery period.

345.5–365.5 m

The injection period indicates a PRF between c 100 s and c 300 s transitioning to an apparent NFB. During the recovery period a short PRF transitioning to a NFB by the end of the test is indicated. The pressure in the borehole interval below the test section increased by c 7 kPa during the injection period. However, since the transmissivity of the 345.5–365.5 m section is higher than the transmissivity below 365.5 m, this relatively small pressure interference should not have a major impact on the test performed in the section.

365.5–385.5 m

During the test a small leakage of c 1.3 mL/min from the pipe string was detected. However, since the final flow rate, Q_p, was much larger than the leakage the evaluation of the test is considered relatively unaffected by this fact. The injection period indicates a PRF with a transition to a possible PSF by the end of the period. The recovery period indicates a PRF preceded by WBS.

385.5–405.5 m

The time to achieve a constant pressure during the injection was unusually long. After c 600 s the automatic regulation system switched from injection pump to pressure vessel and than back again which caused the pressure to drop and affect the flow rate. The injection is dominated by a NFB throughout the period and no transient evaluation on this period is possible. The recovery indicates a PLF up to c 100 s and thereafter an apparent NFB. An approximate transient evaluation was made on the recovery period.

405.5–425.5 m

A PLF dominates the injection period indicating a fracture response. The recovery period is dominated by WBS and a transition period. The pressure only recovered 72 kPa from the head change of 197.8 kPa applied during the injection period, indicating rather low transmissivity.

425.5–445.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity were possible. Hence, in accordance with AP PF 400-04-122 the injection time was shortened. As a result, TM based on Q/s-measl-L was considered to be the most representative transmissivity value for this section. The period of measured recovery showed a pressure increase, indicating that the section is of such low transmissivity that packer expansion still affects the pressure throughout the recovery period.

445.5–465.5 m

The flow rate data are somewhat scattered. However, a rather well-defined PRF is indicated early during the injection period. After c 300 s a transition to a possible NFB or a second PRF is indicated. The recovery period is dominated by WBS and a transition period.

465.5–485.5 m

The test section has a low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result, TM based on Q/s-measl-L was considered to be the most representative transmissivity value for this section.

485.5–505.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result, TM based on Q/s-measl-L was considered to be the most representative transmissivity value for this section. The measured recovery showed a pressure increase indicating that the section is of such low transmissivity that packer expansion still affected the pressure during the recovery period.

605.5–625.5 m

The flow rate data are quite scattered. Still, a PRF is indicated from 30 s to 700 s transitioning to a PSF by the end. The recovery only indicates WBS and a transition period.

625.5–645.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result, TM based on Q/s-measl-L was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

645.5–665.5 m

The flow rate data are quite scattered. Still, a short PRF is weakly indicated in the beginning of the period between c 10–100 s transitioning to a NFB by the end. The recovery only indicates WBS and a short transition period.

665.5–685.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result, Q/s-measl-L was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

685.5–705.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result, Q/s-measl-L was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

705.5–725.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result, Q/s-measl-L was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

725.5–745.5 m

Both the injection- and recovery period are dominated by a PLF indicating a fracture response. No PRF was reached during the flow- or recovery period. The evaluation was thus done with single fracture models. Pressure Pb might indicate hydraulic contact with the borehole section below the test section.

745.5–765.5 m

Although the derivative is scattered, a PRF is indicated between c 60 s and c 1,200 s during the injection period. The recovery period indicates WBS transitioning to a possible PRF by the end.

765.5–785.5 m

The injection period indicates a short PRF in the beginning transitioning to an apparent NFB. The recovery also indicates a short PRF followed by an apparent NFB.

785.5–805.5 m

The injection period indicates a PLF transitioning to a possible PRF. The recovery indicates WBS with a transition to a possible PRF.

805.5–825.5 m

The injection period indicates a PLF transitioning to a possible PRF. The recovery indicates WBS with a transition to a possible PRF.

825.5–845.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result, T_M based on Q/s-measl-L were considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

845.5–865.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result, T_M based on Q/s-measl-L was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

865.5–885.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result, T_M based on Q/s-measl-L was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

885.5–905.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result, T_M based on Q/s-measl-L was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

107.5–112.5 m

Both the injection- and recovery period indicate a PSF.

112.5–117.5 m

Due to a drift in the gas pressure regulator, the pressure in the test section and the reciprocal flow rate were highly disturbed during the entire injection period. The pressure drift caused a trend in the derivative that may not be representative for the rock formation. A transition to an assumed PRF in the injection period might possibly be due to the pressure drift. The recovery period indicates a PLF and a transition to a possible PRF by the end. Transient evaluation of the recovery period is considered as the most representative due to the pressure drift during the injection period.

117.5–122.5 m

The injection period is dominated by an apparent NFB, possibly corresponding to a closed fracture. No representative transient evaluation is thus possible on this period. The recovery period is dominated by WBS effects and a transition period. An approximate transient evaluation was made on this period.

122.5–127.5 m

Due to a drift in the gas pressure regulator, the pressure in the test section and the reciprocal flow rate were disturbed during the entire injection period. The pressure drift caused a trend in the derivative that may not be representative for the rock characteristics. A PRF is assumed by the end of the period. The recovery period indicates a PLF throughout the period. The pressure in the borehole interval below the test section increased by c 2 kPa during the injection period. Since the transmissivity of the 122.5–127.5 m section is much lower than the transmissivity below 127.5 m, this relatively small pressure interference may have resulted in an overestimation of the transmissivity of this section.

127.5–132.5 m

Due to the high flow and low injection pressure, the automatic flow regulation was rather unstable. Therefore the derivative during the injection period is quite scattered. However, a PRF is assumed to dominate the injection period. The recovery period indicates a short PRF transitioning to a PSF by the end. During the injection, the pressure in the borehole intervals below and above the test section increased by c 6 kPa and 2 kPa, respectively. However, since the transmissivity of the 127.5–132.5 m section is higher than the transmissivity above 127.5 m and of the same order of magnitude as the transmissivity below 132.5 m, these relatively small pressure interferences should not have a major impact on the test performed in the section.

132.5–137.5 m

Both the injection- and recovery are dominated by a PSF. The pressure in the borehole interval above the test section increased by c 2 kPa during the injection period. Since the transmissivity of the 132.5–137.5 m section is lower than the transmissivity above 132.5 m, this relatively small pressure interference may have resulted in an overestimation of the transmissivity of this section.

136.5–141.5 m

The injection indicates two separate periods of PRF, the first between 200 and 600 s. and the second from 700 s. and throughout the period. The early PRF period has a lower transmissivity than the later. The recovery period indicates a PLF and a transition to some other flow regime.

141.5–146.5 m

The injection indicates a PRF transitioning to an apparent NFB by the end. The recovery is dominated by a PSF.

146.5–151.5 m

The flow rate data during the injection period are quite scattered. Still, a PRF is indicated during this period. The recovery only indicates WBS and a transition to some other flow regime. The pressure recovered 184 kPa from the head change of 233 kPa applied during the injection period.

147.5–152.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result T_M, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section. The period of measured recovery showed at first a pressure increase indicating that the section is of such low transmissivity that packer expansion still affects the pressure during the recovery period.

152.5–157.5 m

The injection indicates a PRF interrupted by a change in flow rate between c 700– 800 s corresponding to a slight decrease in transmissivity, possibly a NFB or a second PRF. The recovery was almost immediate and the period indicates a near PSS. Hence, the recovery period is not consistent with the injection period.

157.5–162.5 m

An apparent high positive skin factor from a PRF model may indicate a PSF during the beginning of the injection period, possibly transitioning to an apparent NFB by the end giving the appearance of a PRF. The recovery indicates a PSF.

162.5–167.5 m

The injection period indicates a PRF from c 200 s to c 500 s transitioning to a PSF by the end. The recovery period indicates a first PRF from c 30 s. to c 70 s transitioning to another PRF with slightly lower transmissivity from c 200 s to c 500 s. By the end of the recovery period a PSF is weakly indicated

165.5–170.5 m

The injection period indicates a PRF from c 150 s throughout the period. The recovery period indicates a transition to a PRF by the end or the period.

170.5–175.5 m

The injection period indicates two separate PRFs, before and after 100 s. After 600 s the flow regime changes, possibly to a NFB or a third PRF. The pressure recovery is almost complete and the period only indicates WBS transitioning to a PSF or possibly PSS.

175.5–180.5 m

Both the injection- and recovery period indicate a PLF in the beginning transitioning to a PRF by the end. The PRF by the end of the recovery, however, is short and only weakly indicated.

180.5–185.5 m

The injection period indicates a PRF and the recovery a PLF in the beginning transitioning to a PRF. By the end, there is a weak indication of a PSF.

185.5–190.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. As a result TM, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section.

190.5–195.5 m

Due to a drift in the gas pressure regulator, the pressure in the test section decreased c 4 kPa during the injection period. As a result, the reciprocal flow rate was disturbed throughout the injection period. The pressure drift caused an increasing trend in the derivative which may not be representative for the rock. Still, with consideration taken to the pressure drift, a PRF is interpreted as the dominating flow regime during the injection period. The recovery period indicates WBS transitioning to a PSF.

195.5–200.5 m

The flow rate data are quite scattered. Still, a PRF is indicated during the injection period. The recovery period indicates WBS transitioning to a PSF by the end.

200.5–205.5 m

The injection period is dominated by a PRF. The recovery indicates a PSF with a weak indication of an apparent NFB by the end.

205.5–210.5 m

After c 200 s of the injection, the regulation system erroneously switched from pump to pressure vessel and than back again. This is visible as a disturbance in flow rate and - derivative during the injection period. Still, a short PRF transitioning to an apparent NFB or alternatively, a PLF, is indicated during this period. The recovery period also indicates a short PRF followed by an apparent NFB by the end.

210.5–215.5 m

Due to a drift in the gas pressure regulator, the pressure in the test section increased c 2 kPa during the injection period. However, there are no signs that this pressure increase disturbed the reciprocal flow rate. The injection period indicates a short PRF between 10 and 100 s followed by an apparent NFB. The recovery period indicates WBS transitioning to a PRF and eventually an apparent NFB. The pressure recovered 66.7 kPa from the head change of 210 kPa applied during the injection period indicating a rather low transmissivity of the section.

215.5–220.5 m

The injection period indicates a PRF from c 150 s to the end of the injection period. The recovery period is dominated by a PLF, possibly transitioning towards a PRF by the end. The pressure in the borehole interval below the test section increased by c 2 kPa during the injection period. However, since the transmissivity of the 215.5–220.5 m section is of the same order of magnitude as the transmissivity below 220.5 m, this relatively small pressure interference should not have a major impact on the test performed in the section.

220.5–225.5 m

Although the flow rate data and- derivative are very scattered a PLF is weakly indicated during the injection period, possibly transitioning to a PRF by the end. A PLF is also indicated during the recovery period, possibly transitioning to a PRF by the end. Approximate transient evaluation was made for both the injection- and recovery period.

225.5–230.5 m

The injection period indicates a PRF from c 60 s to c 200 s transitioning to an apparent NFB. The recovery period indicates a PRF from c 120 s to c 300 s transitioning to an apparent NFB.

230.5–235.5 m

The injection period indicates a transition period towards a PRF interrupted by a PSF by the end. The recovery period is dominated by WBS in the beginning and a transition period towards a PRF by the end.

235.5–240.5 m

The injection period indicates a PSF. Long time to achieve a constant pressure made the interpretation of flow regimes difficult during the injection period. Thus, only an approximate transient evaluation was made on the later part of this period. The recovery period indicates an initial PLF transitioning to a short PRF and a PSF by the end. The transient evaluation from the recovery was considered to be the most representative for this section.

240.5–245.5 m

The injection period indicates a first PRF from c 50–100 s transitioning to another PRF with slightly lower transmissivity from c 450 s to c 650 s or alternatively, a PLF, possibly reflecting flow in a small fracture with limited extension. By the end of the injection period a PSF is indicated. The recovery period indicates the same behaviour, except the PSF.

245.5–250.5 m

Due to a drift in the gas pressure regulator, the pressure in the test section increased c 2 kPa during the injection period. However, there is no evidence that this pressure increase disturbed the reciprocal flow rate. The injection period indicates an early PRF transitioning to a later PRF followed by a NFB by the end. There are no obvious equipment related effects found that can explain the stepwise decrease in flow rate between 100 and 200 s. The recovery period indicates, just as the injection, an early PRF transitioning to a later PRF by the end.

250.5–255.5 m

The injection period indicates a PLF (fracture flow) or alternatively, an apparent NFB during the entire injection period. No unambiguous transient evaluation is possible on this period. The recovery indicates a PLF and a transition period towards PRF. The pressure only recovered 29 kPa from the head change of 131 kPa applied during the injection period indicating a rather low transmissivity. The responses during the injection- and recovery period are thus not consistent.

255.5–260.5 m

The injection period indicates a PLF (fracture flow) transitioning to a PSF by the end. The recovery period also indicates a PLF (fracture flow). The evaluation of the recovery was made by a model for a horizontal fracture. This evaluation is considered as the most representative.

260.5–265.5 m

The injection period indicates a PLF. The initial recovery period indicates WBS with a transition period towards a PRF transitioning to an apparent NFB, or possibly to another late PRF.

265.5–270.5 m

The flow rate data and -derivative are scattered which makes interpretation of flow regimes difficult for the injection period. The injection period may indicate a PSF or alternatively, a first PRF from c 100 s to c 200 s transitioning to another PRF with slightly higher transmissivity from c 500 s to c 1,000 s. The recovery period indicates a PSF transitioning to an apparent NFB by the end. The test section overlaps the section 267.5–272.5 m and the injection- and recovery responses in these two sections are similar. Hence, the dominating interval of the test section should be 267.5–270.5 m. The pressure in the borehole interval below the test section increased by c 2 kPa during the injection period. However, since the transmissivity of the 265.5–270.5 m section is higher than the transmissivity below 270.5 m, this relatively small pressure interference should not have a major impact on the test performed in the section.

267.5–272.5 m

The injection period indicates a PRF/PSF and the recovery period a PSF transitioning to an apparent NFB by the end. The test section overlaps the section 265.5–270.5 m and the injection- and recovery responses in these two sections are similar. Hence, the dominating interval of the test section should be 267.5–270.5 m.

272.5–277.5 m

The injection period indicates a well-defined PRF from c 100 s to c 1,000 s. and the recovery period a transition towards a PRF by the end.

275.5–280.5 m

The test section has a low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result T_M, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section.

280.5–285.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result T_M, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

285.5–290.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result T_M, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

290.5–295.5 m

The injection period possibly indicates an apparent NFB reaching an apparent CHB by the end or, alternatively, a PLF transitioning to a CHB. The recovery indicates WBS in the beginning, then reaching an apparent NFB or alternatively, a PLF. No unambiguous transient evaluation could be made on the injection or the recovery period.

295.5–300.5 m

The time to achieve a stable injection pressure was unusually long due the rapid decrease of flow rate during the initial phase of the injection. The pressure below the test section increased slightly during the injection. Due to the large variations in flow rate it is difficult to deduce flow regimes during the injection period. Possibly, a short period of a near-PRF may be indicated at intermediate times reaching a NFB by the end. Only an approximate transient evaluation was made on this period. The recovery period indicates a transition period towards a PRF. The pressure only recovered 21 kPa from the head change of 144 kPa applied during the injection period, indicating a rather low transmissivity. The responses during the injection- and recovery period were not consistent. The pressure in the borehole interval above the test section increased by c 2 kPa during the injection period. Since the transmissivity of the 295.5–300.5 m section is lower than the transmissivity above 295,5 m, this relatively small pressure interference may have resulted in an overestimation of the transmissivity of this section.

300.5–305.5 m

The flow rate data are scattered. However, a PRF is assumed to dominate the injection period. The recovery period indicates a PSF transitioning to an apparent NFB.

305.5–310.5 m

C 5 min after start of injection the pressure in the test section increased about 10 kPa and then stabilised. The injection period is dominated by apparent NFB effects and no transient evaluation is possible. The recovery period is dominated by a transition period to a PRF. An approximate transient evaluation was made on this period but it is regarded as very uncertain.

310.5–315.5 m

The injection period is dominated by apparent NFB effects and no transient evaluation is possible. The recovery period weakly indicates a transition to a possible PRF. However, the transition is interrupted by a NFB towards the end of the period.

315.5–320.5 m

The injection period indicates a transition to a possible PRF. Only an approximate transient evaluation is possible. The recovery period only shows WBS effects and no transient evaluation is possible. Steady-state evaluation is considered as the most representative in this case.

320.5–325.5 m

The flow rate data and -derivative are scattered which makes transient interpretation difficult for this period. An initial PLF and a transition period towards a possible PRF are assumed. An approximate transient evaluation was made for this period. The recovery period indicates a PLF and a transition period to a possible PRF. The transient evaluation of this period was made by a single fracture model.

325.5–330.5 m

The flow rate data and -derivate during the injection period are very scattered. However a PRF/PSF is indicated from c 100 s to c 1,000 s. The recovery period is dominated by a PSF.

330.5–335.5 m

The flow rate data and -derivate during the injection period are very scattered. However a PRF/PSF is indicated from c 250 s to c 1,000 s. The recovery period indicates a PSF.

335.5–340.5 m

The injection period indicates a PSF. Also the recovery period shows a PSF or possibly, a short PRF.

340.5–345.5 m

The flow rate data and -derivative are rather scattered. The injection period indicates a PSF after c 30 s and throughout the injection period. The recovery period is also dominated by a PSF throughout the recovery period.

345.5–350.5 m

The flow rate data are quite scattered. Still, a PRF is assumed to dominate the injection period. The recovery period indicates WBS followed by a PSF.

348.0–353.0 m

The flow rate data are quite scattered due to low flow rate. Still, a PRF is assumed to dominate the injection period. The recovery period indicates WBS and a transition to some other flow regime.

353.0–358.0 m

Both the injection and recovery period indicate a PRF followed by an apparent NFB. The test section overlaps the section 355.5–360.5 m and the injection- and recovery responses in these two sections are almost identical. Hence, the dominating interval of the test section should be 355.5–358.0 m. The pressure in the borehole interval below the test section increased by c 6 kPa during the injection period. However, since the transmissivity of the 353–358 m section is of the same order of magnitude as the transmissivity below 358 m, this relatively small pressure interference should not have a major impact on the test performed in the section.

355.5–360.5 m

Both the injection and recovery period indicate a PRF followed by an apparent NFB. The test section overlaps the section 353.0–358.0 m and the injection- and recovery responses in these two sections are almost identical. Hence, the dominating interval of the test section should be 355.5–358.0 m. The pressure in the borehole interval below the test section increased by c 5 kPa during the injection period. However, since the transmissivity of the 355.5–360.5 m section is higher than the transmissivity below 360.5 m, this relatively small pressure interference should not have a major impact on the test performed in the section.

360.5–365.5 m

A PRF is dominating throughout the injection period. The recovery period is indicating an apparent PSF or alternatively, a PRF with an extremely high positive skin factor. The flow rate data and Q-measl-L has been adjusted by a value of -2.5E-9 m^3/s since the average measurement noise was around that value.

365.5–370.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result T_M, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period. Q-measl-L was adjusted -2E-9 m^3/s since the average measurement noise was that value when the actual flow rate was zero.

370.0–375.0 m

The flow rate data are quite scattered. Still, an apparent PRF is assumed to dominate the injection period. The recovery period indicates a WBS and a transition to an apparent NFB. The flow rate data and Q-measl-L was adjusted by a value of -2.5E-9 m^3/s since the average measurement noise was slightly shifted from zero.

375.5–380.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result T_M, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period. Q-measl-L was adjusted by a value of -4E-9 m^3/s due to a small leakage in the pipe string.

380.5–385.5 m

A scattered derivative makes the flow regime interpretation somewhat uncertain. A good type curve fit does however support the interpretation of a PRF dominating throughout the injection period. WBS is dominating the first 20 s of the recovery period. After 20 s a transition is indicated with a very short period of possible PRF at the end. Transient evaluation of injection period is consistent with steady state evaluation. Hence evaluated parameters from transient evaluation of the injection period are considered to be the most representative.

385.5–390.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result T_M, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

390.5–395.5 m

The characteristics of the rock formation tested and the c 100 s to achieve stable pressure in the test section in combination with a disturbance in pressure regulation after c 400 s of the injection period make distinct flow regime interpretation hard and a satisfactory transient evaluation of the injection period impossible. However, a rising trend in the inverse flow derivative can be identified throughout the injection period indicating that an apparent NFB is dominating the period.

The disturbance in pressure after c 400 s of the injection period was caused by an unfortunate combination of a series of normal automatic control system actions. Decreasing flow lead to a change of control valve from RV03 to RV02 (smaller valve). Simultaneously a change to a flow metre with different measurement range occurred. These two events caused the flow to drop for a short period of time which triggered a switch of injection equipment from injection pump to pressure vessel and back to injection pump. During the recovery period, a PLF followed by an apparent NFB after c 100 s is indicated. With no developed PRF or dominating PLF supporting the use of a linear model for transient evaluation, steady state evaluation is considered to be the most representative.

395.5–400.5 m

Due to a drift in the gas pressure regulator, the pressure in the test section increased c 1 kPa during the injection period. However, this relatively small change of the injection pressure is assumed not to significantly affect the test. The injection period indicates a short PRF followed by a PSF. The recovery period indicates WBS and a transition period.

400.5–405.5 m

The test section has a low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result TM, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section.

405.5–410.5 m

The flow rate data are quite scattered. Still, an apparent PRF is assumed to dominate the injection period. The recovery is dominated by WBS effects and a transition to some other flow regime by the end.

410.5–415.5 m

There are indications of a PLF after c 100 s of the injection period transitioning to an apparent NFB by the end. The recovery period indicates WBS transitioning to a possible PRF.

415.5–420.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result T_M, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period.

420.5–425.5 m

The flow rate data and -derivative are quite scattered. Still, an apparent PRF is assumed to dominate the injection period. The recovery period is dominated by WBS effects and a transition to a possible PRF.

445.5–450.5 m

Due to a drift in the gas pressure regulator, the pressure in the test section decreased c 3 kPa during the injection period. As a result, the reciprocal flow rate was disturbed throughout the injection period. The pressure drift caused an increasing trend in the derivative that may not be representative for the rock formation. Still, with consideration taken to the pressure drift, the injection period indicates a PRF followed by an apparent NFB. The recovery indicates WBS transitioning to possible PSF or alternatively, a PRF with a very high positive skin factor.

450.5–455.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result TM, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period. Due to a small leakage in the pipe string, Q-measl-L was adjusted by a value of -2.5E-9 m^3/.

455.5–460.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result TM, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period. Due to a small leakage in the pipe string, Q-measl-L was adjusted by a value of -2.5E-9 m^3/.

460.5–465.5 m

The test section has a very low transmissivity. Since the flow rate was not detectable, neither steady-state nor transient evaluation of transmissivity was possible. Hence, the injection time was shortened. As a result TM, based on Q/s-measl-L, was considered to be the most representative transmissivity value for this section. The period of measured recovery only showed a pressure increase indicating that the section is of such low transmissivity that packer expansion affects the pressure throughout the period. Due to a small leakage in the pipe string, Q-measl-L was adjusted by a value of -2.0E-9 m^3/.

KFM06B

8.0–13.0 m

Both the injection- and recovery period are dominated by a PSF.

13.0–18.0 m

Although both the flow rate data and -derivative are very scattered, a period of PRF is indicated between 200 and 500 s during the injection period. After 500 s a valve change followed by a change of flow metre makes interpretation difficult. The recovery period is dominated by a PSF.

14.0–19.0 m

The injection period indicates a PRF transitioning to a PSS or an apparent CHB. The recovery period is dominated by a PSF.

19.0–24.0 m

Although the flow rate derivative is pretty unstable, a PRF/PSF is indicated from c 150 to c 400 s. during the injection period. A PSF is indicated during the recovery period.

24.0–29.0 m

The flow rate is somewhat unstable due to a slightly oscillating injection pressure (+/–1 kPa). However, a PRF is assumed to dominate the injection period. The recovery period indicates a PSF.

28.0–33.0 m

The time to achieve a stable injection pressure was unusually long in this case and other flow regimes may therefore be disguised during early times of the injection period. The injection period indicates a PSF approaching a PSS by the end. The recovery period also indicates a PSF approaching a PSS.

33.0–38.0 m

Both the injection- and recovery period indicate a PSF.

38.0–43.0 m

Both the injection- and recovery period indicate PSF approaching a PSS.

43.0–48.0 m

Although the flow rate and derivative are very scattered, a PSF is indicated during the injection period. The recovery period indicates an early and short PRF transitioning to a PSF by the end.

48.0–53.0 m

The injection period indicates a PSF transitioning to a PSS. The recovery indicates a PLF in the beginning transitioning to a PSF by the end.

53.0–58.0 m

The flow rate was very high and thus the injection pressure low during the injection period. Furthermore, a change in the shunt valve after c 120 s had a major impact on the flow rate which is clearly visible in the lin-log plot. Hence, interpretation of flow regimes during the injection period is quite uncertain. However, a PRF is weakly indicated. The recovery period indicates a PSF. However, the recovery derivative is quite scattered due to the small change in pressure. The transient transmissivity of both the injection and recovery period is regarded as uncertain. The pressure in the borehole interval below the test section increased by c 4 kPa during the injection period. However, since the transmissivity of the 53–58 m section is higher than the transmissivity below 58 m, this relatively small pressure interference should not have a major impact on the test performed in the section.

58.0–63.0 m

Both the injection- and recovery period indicate a PSF transitioning to a PSS. The pressure in the borehole interval below the test section increased by c 5 kPa during the injection period. However, since the transmissivity of the 58–63 m section is higher than the transmissivity below 63 m, this relatively small pressure interference should not have a major impact on the test performed in the section.

63.0–68.0 m

Both the injection- and recovery indicate a PSF. Furthermore, the recovery period indicates a PSS towards the end of the period. The pressure in the borehole interval below the test section increased by c 5 kPa during the injection period. However, since the transmissivity of the 63–68 m section is higher than the transmissivity below 68 m, this relatively small pressure interference should not have a major impact on the test performed in the section.

68.0–73.0 m

The injection is assumed to be dominated by a PRF. The recovery period indicates a PSF transitioning to PSS.

73.0–78.0 m

The injection period is assumed to be dominated by a PRF. The recovery period indicates an early short PRF transitioning to a PSF.

78.0–83.0 m

The flow rate data are quite scattered. However, a PRF is assumed to dominate the injection period. The recovery indicates a PRF, possibly transitioning to a PSF by the end.

83.0–88.0 m

The injection period indicates a PLF, possibly transitioning to a PRF. The evaluated transmissivity for the injection period is supported by a single fracture model (Ozkan Raghavan). The recovery period only indicates a PLF. Hence, the transmissivity for the recovery is evaluated using a single fracture model (Gringarten-Ramey) which is supported by fit with Dougherty-Babu model.

88.0–93.0 m

The injection period indicates a short initial PRF transiting to a PSF by the end. The recovery period indicates a PLF and a transition period.

6.2.5 Flow regimes

As discussed in section 5.4.4, several of the recovery periods were dominated by wellbore storage effects and no pseudo-radial flow period was reached. On the other hand, some time interval of pseudo-radial flow could in most cases be identified from the injection period. A summary of the frequency of identified flow regimes on different scales is presented in Table 6-3, which shows all identified flow regimes during the tests. For example, a pseudo-radial flow regime (PRF) transitioning to a pseudo-spherical flow regime (PSF) will contribute to one observation of PRF and one observation of PSF. The numbers within parenthesis denote the number of tests where the actual flow regime is the only one present.

It should be noted that the interpretation of flow regimes is only tentative and only based on visual inspection of the data curves. It should also be observed that the number of tests with a pseudo-linear flow regime during the beginning of the injection period may be underestimated due to the fact that a certain time is required for achieving a constant pressure, which fact may mask the initial flow regime.

Table 6-3. Interpreted flow regimes during the injection tests in KFM06A and KFM06B.

Borehole	Section length (m)	Number of tests	Number of tests with definable Q_p	Injection period PLF	PRF	PSF	PSS	NFB	Recovery period WBS	PLF	PRF	PSF	PSS	NFB
KFM06A	5	71	58	7(2)	42(20)	15(6)	0(0)	19(5)	19(7)	12(4)	25(6)	22(8)	2(1)	15(0)
KFM06A	20	35	24	5(3)	18(8)	4(1)	0(0)	7(2)	9(6)	8(3)	12(2)	5(0)	0(0)	5(0)
KFM06A	100	9	7	4(1)	6(2)	0(0)	0(0)	2(0)	3(3)	2(1)	3(1)	1(0)	0(0)	0(0)
KFM06B	5	18	18	1(0)	9(6)	11(4)	5(0)	0(0)	0(0)	3(2)	3(0)	16(7)	5(0)	0(0)

Table 6-3 shows that a certain period of pseudo-radial flow could be identified from the injection period in c 75% and 50% of the tests with a definable final flow rate for KFM06A and KFM06B, respectively. In KFM06A, this percentage is higher for the tests in 100 m sections compared to the tests in 20 m and 5 m. For the recovery period, the corresponding result is c 45% for KFM06A but only c 17% for KFM06B. It is also noticeable that pseudo-spherical and pseudo-stationary flow are more common for the tests in KFM06B than in KFM06A.

For c 50% of the tests in both boreholes, more than one flow regime could be identified. The most common transitions in KFM06A during the injection period were from pseudo-radial flow to an apparent no-flow boundary. During the recovery period in KFM06A the following transitions were almost equally common (in order with the most common firstly): PLF–>PRF, PRF–>NFB, PRF–>PSF, PSF–>NFB, WBS–>PRF and WBS–>PSF. In KFM06B the most common transitions during both the injection and the recovery period were from pseudo-spherical flow to pseudo-stationary flow.

6.3 Comparison of transmissivity values on different test scales

The transmissivity values considered the most representative, T_R, from the injection tests in KFM06A in the tested sections of 100 m, 20 m and 5 m length, respectively, are shown in Figure 6-2. The figure also shows T_R from the injection tests in KFM06B. This figure demonstrates a good agreement between results obtained from tests on different scales in KFM06A. A consistency check of the transmissivity values on the different scales was made by summation of calculated values from smaller scales (20 m and 5 m) and comparing with the estimated values in longer sections (100 m and 20 m). Since KFM06B was measured only with a 5 m section, no such comparison could be made regarding that borehole.

In Table 6-4, estimated transmissivity values in 100 m and 20 m test sections in KFM06A according to steady-state (T_M) and most representative evaluation (T_R) are listed together with summed transmissivities in 20 m and 5 m sections over the corresponding 100 m and 20 m sections for KFM06A. In addition, the corresponding sum of transmissivities from the difference flow logging in 5 m sections (SUM T_D) is displayed for each section.

In Table 6-4, when the transmissivity values are below the measurement limit (Q_p could not be defined), the most representative transmissivity value, T_R, was considered to be less than T_M, based on Q/s-measl-L, for the test section. The measurement limit values are included in the summed values in Table 6-4. This leads to overestimated values of the summed transmissivities, which is particularly true for the summed transmissivities from the difference flow logging in 5 m sections, due to the increased (cumulative) lower measurement limit for these tests, see Rouhiainen and Sokolnicki (2005) /1/.

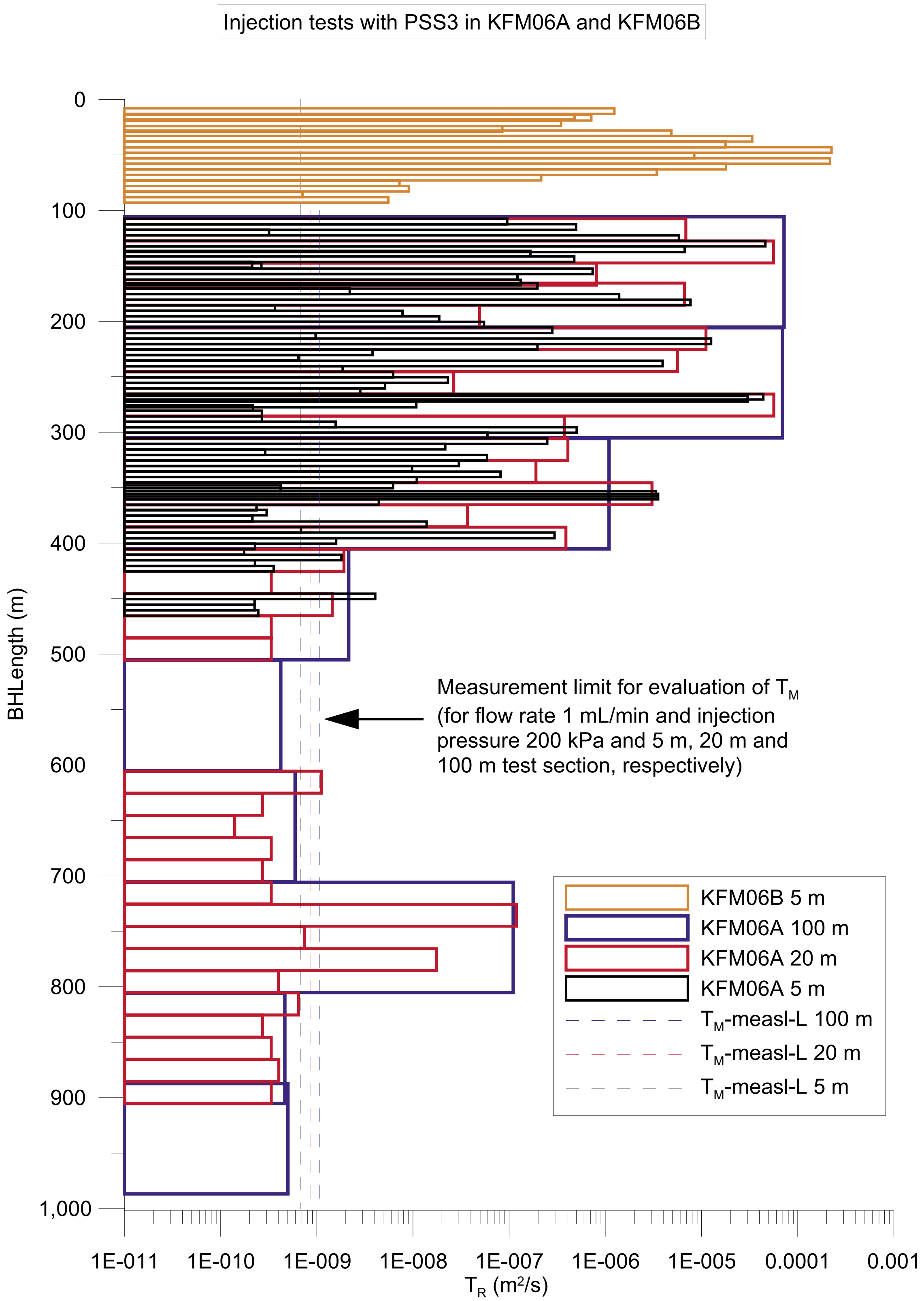

Figure 6-2. *Estimated best representative transmissivity values (T_R) for sections of 100 m, 20 m and 5 m length in boreholes KFM06A and KFM06B. Estimated transmissivity values for the lower standard measurement limit from stationary evaluation (T_M-measl-L) for different test section lengths are also shown.*

Table 6-4. Estimated transmissivity values in 100 m and 20 m test sections together with summed up transmissivity values in 20 m and 5 m sections in the corresponding borehole intervals from the injection tests in KFM06A. In addition, the corresponding sum of transmissivity values from the difference flow logging in 5 m sections is shown.

Bore-hole Idcode	Secup inj.test (m)	Seclow inj.test (m)	L_w (m)	T_M inj. tests (m^2/ s)	T_R inj. tests (m^2/s)	SUM T_M(20 m) inj. tests (m^2/s)	SUM T_R(20 m) inj. tests (m^2/s)	SUM T_M(5 m) inj. tests (m^2/s)	SUM T_R (5 m) inj. tests (m^2/s)	Secup diff-flow log (m)	Seclow diff-flow log (m)	SUM-T_D(5 m) diff-flow log (m^2/s)
KFM06A	105.50	205.50	100.00	1.83E–04	7.22E–05	1.67E–04 [2)]	7.06E–05 [2)]	1.26E–04 [2)]	7.02E–05 [2)]	105.44	205.62	9.44E–05
KFM06A	205.50	305.50	100.00	1.53E–04	6.96E–05	8.94E–05	7.36E–05	9.86E–05 [1)]	9.17E–05 [1)]	205.62	305.76	5.06E–05
KFM06A	305.50	405.50	100.00	5.84E–06	1.09E–06	4.88E–06	4.08E–06	7.06E–06 [1)]	7.68E–06 [1)]	305.77	405.88	1.16E–06
KFM06A	405.50	505.50	100.00	1.05E–08	2.15E–09	1.23E–08	4.37E–09	1.07E–08 [3)]	7.31E–09 [3)]	405.88	505.98	1.76E–08
KFM06A	505.50	605.50	100.00	<4.23E–10	<4.23E–10	n.m. 20 m	n.m. 20 m	n.m. 5 m	n.m. 5 m	505.98	606.15	1.81E–08
KFM06A	605.50	705.50	100.00	1.58E–09	5.96E–10	2.54E–09	2.14E–09	n.m. 5 m	n.m. 5 m	606.16	706.33	1.69E–08
KFM06A	705.50	805.50	100.00	8.73E–07	1.10E–07	8.22E–07	1.38E–07	n.m. 5 m	n.m. 5 m	706.34	806.53	3.74E–07
KFM06A	805.50	905.50	100.00	3.23E–09	4.66E–10	4.15E–09	2.00E–09	n.m. 5 m	n.m. 5 m	806.54	906.83	1.83E–08
KFM06A	887.00	987.00	100.00	<5.01E–10	<5.01E–10	n.m. 20 m	n.m. 20 m	n.m. 5 m	n.m. 5 m	886.77	987.06	1.83E–08
KFM06A	107.50	127.50	20.00	2.90E–05	6.88E–06			2.29E–05	6.41E–06	110.46	130.50	3.57E–05
KFM06A	127.50	147.50	20.00	1.17E–04	5.62E–05			8.88E–05 [2)]	5.34E–05 [2)]	125.50	150.55	4.41E–05
KFM06A	147.50	167.50	20.00	8.31E–07	8.10E–07			5.69E–07	9.92E–07	150.56	170.58	1.55E–06
KFM06A	165.50	185.50	20.00	2.01E–05	6.66E–06			1.33E–05	9.28E–06	165.58	185.60	1.31E–05
KFM06A	185.50	205.50	20.00	8.77E–08	4.94E–08			6.97E–08	8.18E–08	185.61	205.62	6.31E–09
KFM06A	205.50	225.50	20.00	3.15E–05	1.11E–05			2.57E–05	1.31E–05	205.62	225.63	1.25E–05
KFM06A	225.50	245.50	20.00	1.88E–05	5.63E–06			1.45E–05	3.96E–06	225.64	245.68	8.03E–06
KFM06A	245.50	265.50	20.00	7.42E–08	2.65E–08			6.39E–08	3.73E–08	245.69	265.71	2.29E–08
KFM06A	265.50	285.50	20.00	3.88E–05	5.65E–05			5.82E–05 [1)]	7.41E–05 [1)]	265.72	285.73	3.00E–05
KFM06A	285.50	305.50	20.00	2.28E–07	3.77E–07			1.91E–07	5.66E–07	285.73	305.76	1.56E–08
KFM06A	305.50	325.50	20.00	4.08E–07	4.08E–07			3.22E–07	3.30E–07	305.77	325.79	7.11E–08
KFM06A	325.50	345.50	20.00	1.51E–07	1.90E–07			1.15E–07	1.32E–07	325.80	345.81	3.17E–08
KFM06A	345.50	365.50	20.00	3.89E–06	3.06E–06			6.31E–06 [1)]	6.91E–06 [1)]	345.82	365.84	1.02E–06
KFM06A	365.50	385.50	20.00	4.34E–08	3.70E–08			1.66E–08	1.46E–08	365.84	385.86	5.41E–09
KFM06A	385.50	405.50	20.00	3.90E–07	3.90E–07			3.02E–07	2.99E–07	385.86	405.88	2.88E–08
KFM06A	405.50	425.50	20.00	9.14E–09	1.91E–09			7.27E–09	2.56E–09	405.88	425.90	3.58E–09
KFM06A	425.50	445.50	20.00	<3.37E–10	<3.37E–10			n.m. 5 m	n.m. 5 m	425.90	445.92	3.59E–09

Bore-hole Idcode	Secup inj.test (m)	Seclow inj.test (m)	L_w (m)	T_M inj. tests (m^2/ s)	T_R inj. tests (m^2/s)	SUM T_M(20 m) inj. tests (m^2/s)	SUM T_R(20 m) inj. tests (m^2/s)	SUM T_M(5 m) inj. tests (m^2/s)	SUM T_R (5 m) inj. tests (m^2/s)	Secup diff-flow log (m)	Seclow diff-flow log (m)	SUM-T_D(5 m) diff-flow log (m^2/s)
KFM06A	445.50	465.50	20.00	2.14E–09	1.45E–09			3.41E–09	4.75E–09	445.92	465.93	3.18E–09
KFM06A	465.50	485.50	20.00	<3.37E–10	<3.37E–10			n.m. 5 m	n.m. 5 m	465.94	485.96	3.60E–09
KFM06A	485.50	505.50	20.00	<3.37E–10	<3.37E–10			n.m. 5 m	n.m. 5 m	485.96	505.98	3.60E–09
KFM06A	605.50	625.50	20.00	1.29E–09	1.12E–09			n.m. 5 m	n.m. 5 m	606.16	626.20	2.97E–09
KFM06A	625.50	645.50	20.00	<2.73E–10	<2.73E–10			n.m. 5 m	n.m. 5 m	626.20	646.23	3.63E–09
KFM06A	645.50	665.50	20.00	3.69E–10	1.40E–10			n.m. 5 m	n.m. 5 m	646.23	666.26	2.99E–09
KFM06A	665.50	685.50	20.00	<3.37E–10	<3.37E–10			n.m. 5 m	n.m. 5 m	666.26	686.29	3.64E–09
KFM06A	685.50	705.50	20.00	<2.73E–10	<2.73E–10			n.m. 5 m	n.m. 5 m	686.30	706.33	3.64E–09
KFM06A	705.50	725.50	20.00	<3.37E–10	<3.37E–10			n.m. 5 m	n.m. 5 m	706.34	726.35	3.64E–09
KFM06A	725.50	745.50	20.00	7.61E–07	1.19E–07			n.m. 5 m	n.m. 5 m	726.35	746.37	3.33E–07
KFM06A	745.50	765.50	20.00	2.01E–09	7.42E–10			n.m. 5 m	n.m. 5 m	746.38	766.42	3.65E–09
KFM06A	765.50	785.50	20.00	5.69E–08	1.76E–08			n.m. 5 m	n.m. 5 m	766.44	786.48	2.98E–08
KFM06A	785.50	805.50	20.00	1.87E–09	4.00E–10			n.m. 5 m	n.m. 5 m	786.49	806.53	3.66E–09
KFM06A	805.50	825.50	20.00	2.81E–09	6.47E–10			n.m. 5 m	n.m. 5 m	806.54	826.58	3.66E–09
KFM06A	825.50	845.50	20.00	<2.73E–10	<2.73E–10			n.m. 5 m	n.m. 5 m	826.59	846.63	3.66E–09
KFM06A	845.50	865.50	20.00	<3.37E–10	<3.37E–10			n.m. 5 m	n.m. 5 m	846.65	866.69	3.66E–09
KFM06A	865.50	885.50	20.00	<4.02E–10	<4.02E–10			n.m. 5 m	n.m. 5 m	866.70	886.75	3.65E–09
KFM06A	885.50	905.50	20.00	<3.37E–10	<3.37E–10			n.m. 5 m	n.m. 5 m	886.77	906.83	3.65E–09

[1] Partly overlapping sections
[2] Partly overlapping sections and measured intervals not identical
[3] Interval only partly measured
n.m. = not measured

In Figure 6-3, transmissivity values considered as the most representative for 100 m and 20 m sections (T_R–100 m and T_R–20 m, respectively) in KFM06A are plotted versus the sum of the transmissivity values considered most representative in 5 m sections in the corresponding intervals (SUM T_R–5 m). The lower measurement limit of T_M for the different section lengths (Q_p = 1 mL/min and an assumed pressure difference of 200 kPa) together with the cumulative measurement limit for the sum of 5 m sections are also shown in the figure.

Figure 6-3 indicates a good agreement between measured transmissivity values in longer sections and summed transmissivity values in corresponding 5 m sections for the injection tests.

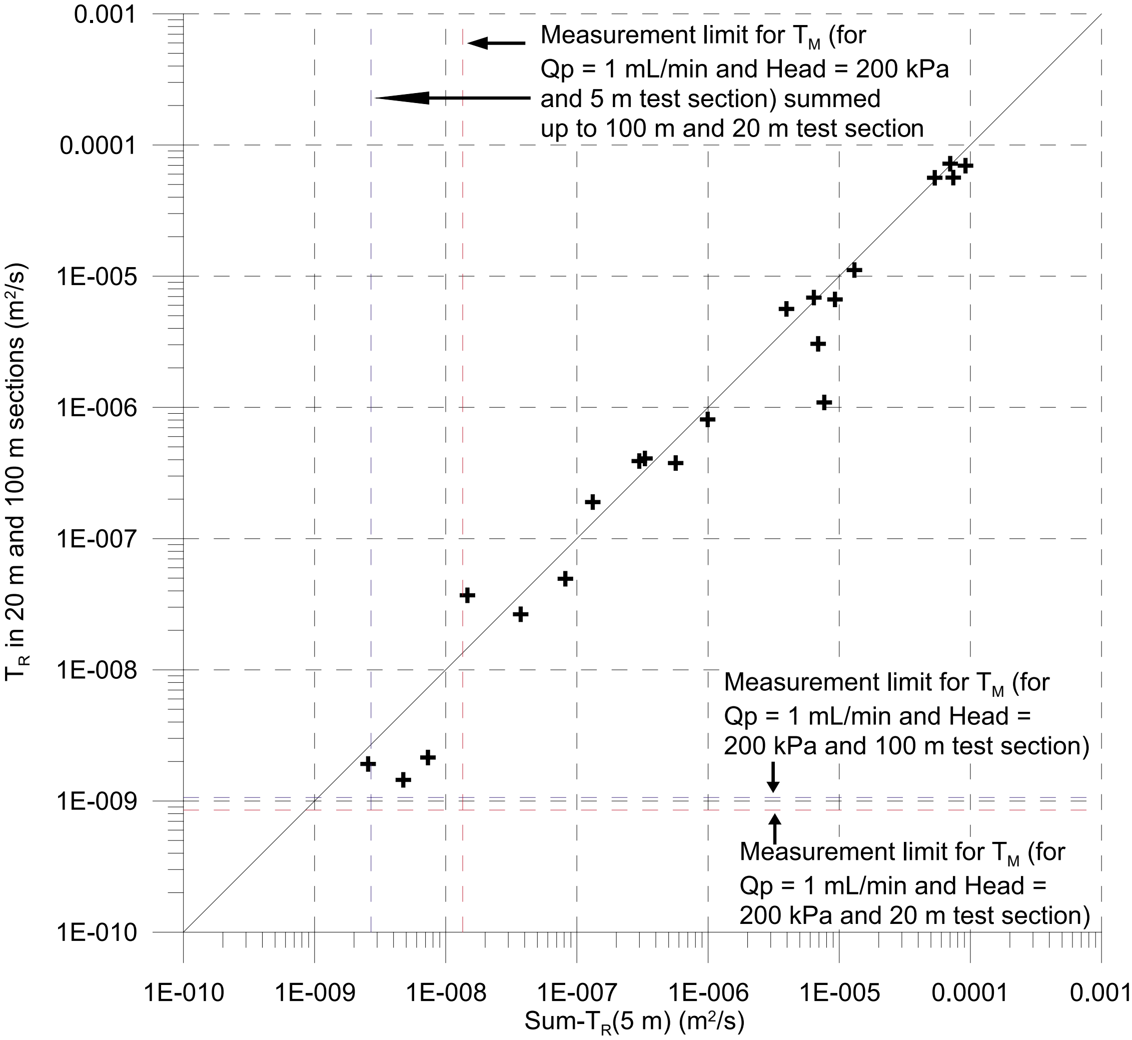

Figure 6-3. *Transmissivity values considered most representative (T_R) for 100 m and 20 m sections versus the sum of most representative transmissivity values (T_R) in 5 m sections in the corresponding borehole intervals from the injection tests in KFM06A together with the standard lower measurement limit at different scales.*

6.4 Comparison with results from the difference flow logging in KFM06A

As discussed in section 3.2, the upper and lower limits of the measured sections for the injection tests and the difference flow logging deviated up to 2.13 m in KFM06A. In order to compare sections deviating more than 0.5 m in a correct way the results from the difference flow logging were used. The position of the dominating flow anomaly in the actual section was utilized to decide which of two possible sections to be used for the comparison.

In Figure 6-4, a comparison is made of the calculated steady-state- (T_M) and most representative transmissivity (T_R) from the injection tests in 5 m sections with the calculated transmissivity values in the corresponding 5 m sections from the difference flow logging (T_D) in KFM06A. In Figure 6-5, T_R and T_D are plotted versus borehole length. The presented measurement limit for the difference flow logging is the practical lower measurement limit (varying along the borehole).

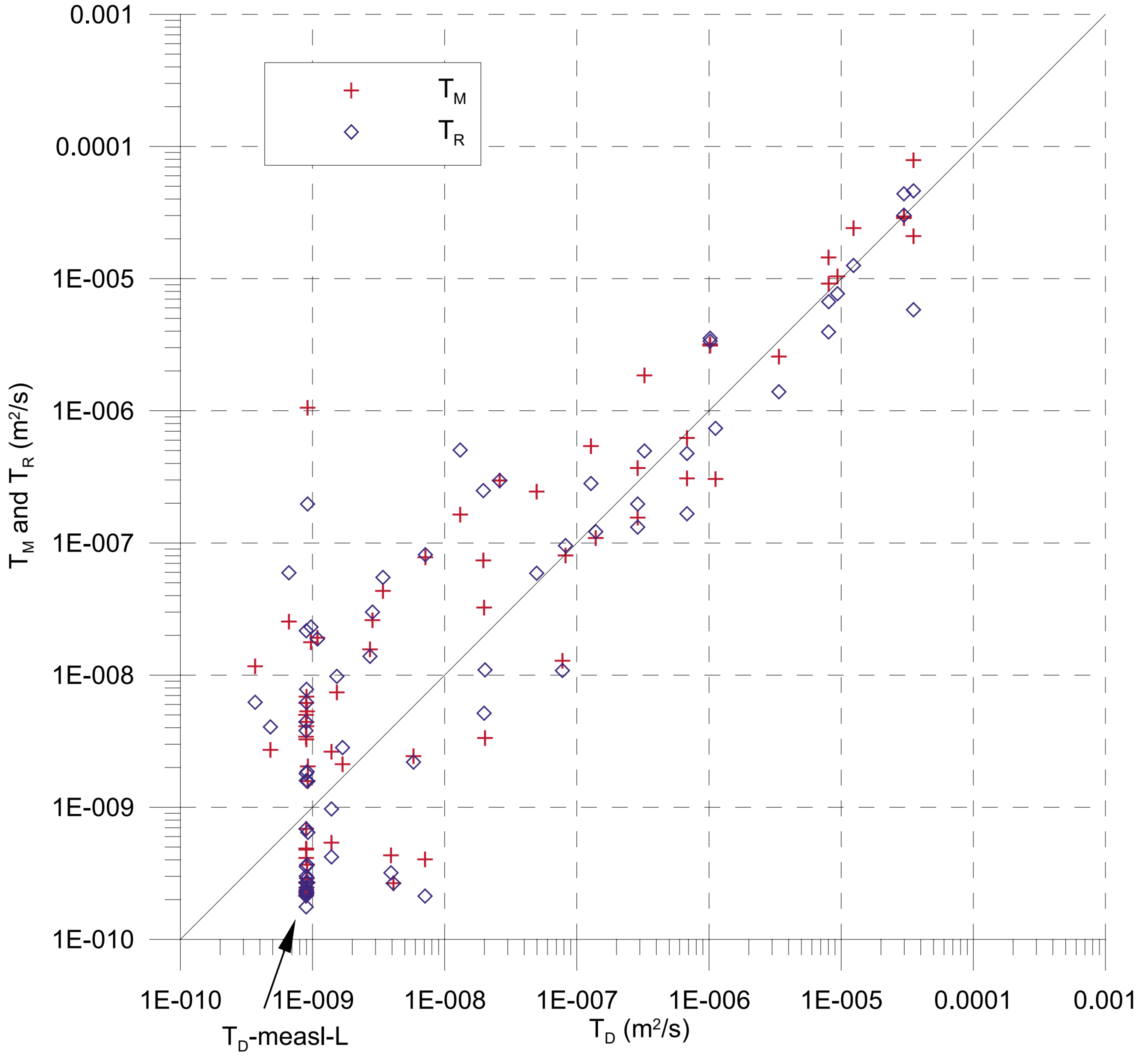

Figure 6-4. *Comparison of estimated steady-state (T_M) and most representative (T_R) transmissivity values from the injection tests in 5 m sections with estimated transmissivity values in the corresponding 5 m sections from the previous difference flow logging (T_D) in KFM06A.*

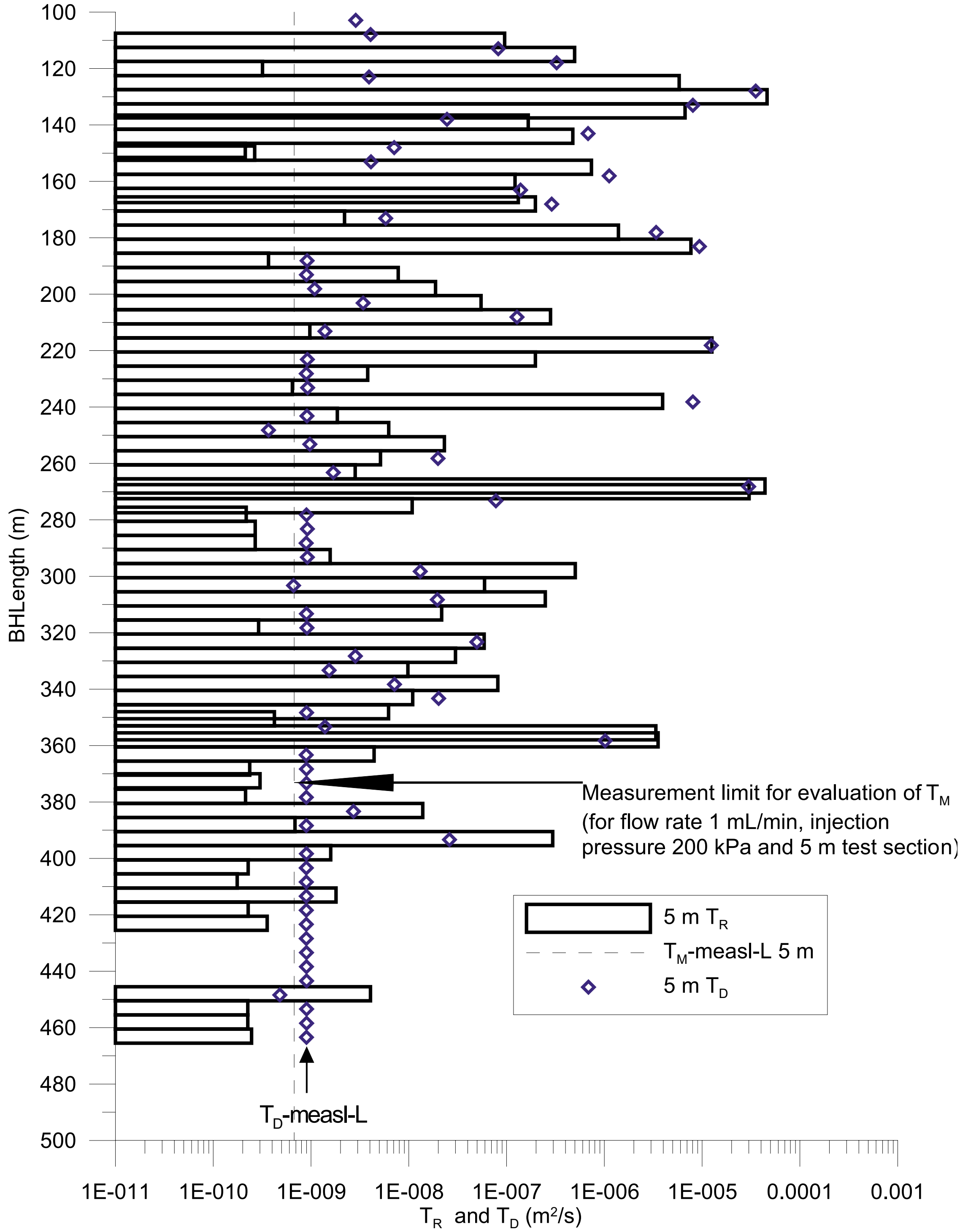

Figure 6-5. *Comparison of most representative (T_R) transmissivity values from the injection tests in 5 m sections with estimated transmissivity values in the corresponding 5 m sections from the previous difference flow logging (T_D) in KFM06A.*

Figure 6-4 indicates a rather good agreement between the estimated transmissivity values from the injection tests and the difference flow logging, respectively, particularly for transmissivities above the practical lower measurement limit for the difference flow logging. However, the data in the plot appear to be slightly more scattered than in the corresponding plots for some of the other boreholes, e.g. KFM03A /14/, KFM04A /15/ and KFM05A /16/, particularly for transmissivity values slightly higher than the practical lower measurement limit for the difference flow logging. It should also be noted that the two methods differ regarding assumptions and associated uncertainties. Potential uncertainties for difference flow logging results are discussed in Ludvigson et al. (2002) /17/ and for injection tests in Andersson et al. (1993) /18/.

For the difference flow logging, the practical lower measurement limit for transmissivity was in most sections of KFM06A estimated at approximately $9 \cdot 10^{-10}$ m^2/s, cf Figure 6-5. This limit is higher than the corresponding test-specific measurement limit for the injection tests in KFM06A, cf Table 6-2. This is clearly seen in Figure 6-4 as a difference between T_D, T_M and T_R, respectively, for low transmissivity values.

In Figure 6-6, a comparison is made of the estimated steady-state transmissivity values from the injection tests in 100 m and 20 m test sections with summed transmissivity values for 5 m sections from the difference flow logging (SUM T_D(5 m)) in the corresponding borehole intervals. The latter sums are shown in Table 6-4. Figure 6-6 shows that the estimated transmissivity values from the injection tests in 100 m and 20 m sections are distributed over a much wider range than the sum of transmissivity values from the difference flow logging. This is partly a result of the lower measurement limit values being included in the sum for the difference flow logging. In Figure 6-7, T_R and SUM T_D (5 m) are plotted versus the borehole length for the injection test intervals in 20 m and 100 m sections.

The results in Figure 6-6 are consistent with the results in Figure 6-4, even though the number of tests exceeding the lower measurement limit for the difference flow logging in Figure 6-6 is relatively low.

For the difference flow logging, the flow period in the borehole prior to the flow measurements was much longer than the flow period for the injection tests. Therefore, the difference flow logging is assumed to predominantly measure interconnected, conductive fracture networks reaching further away from the borehole whereas the injection tests also may sample fractures with limited extension, close to the borehole. This fact may possibly explain the significantly higher T_R from the injection tests than T_D from difference flow logging in some of the 5 m and 20 m sections, assuming that the fractures in these sections are of limited extent and not connected to a larger fracture network. Thus, the transmissivity of such fractures is assumed to decrease with increasing flow times, possibly reflected by effects of apparent no-flow boundaries during the injection tests. However, during short injection tests, such effects may not always be seen.

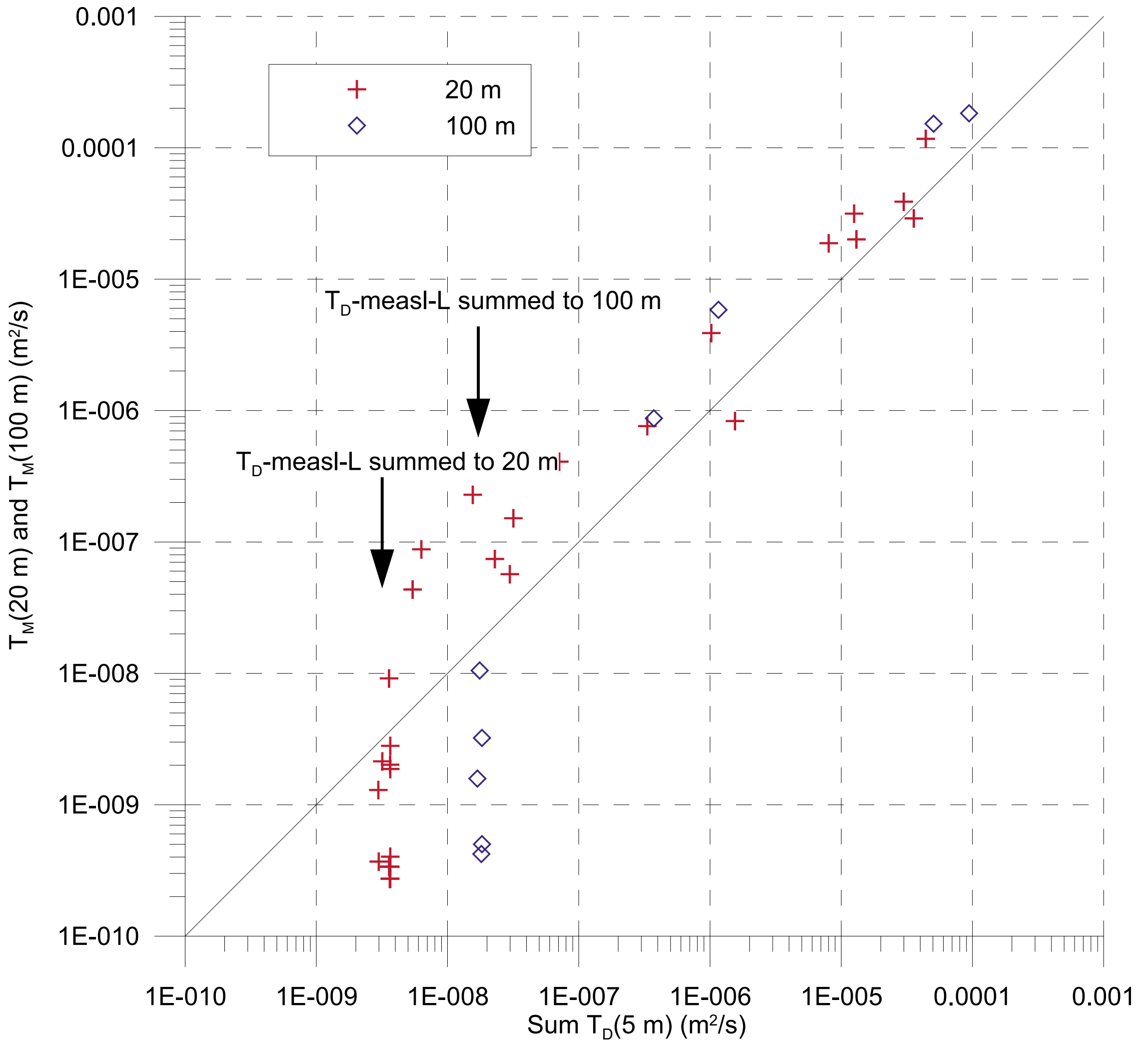

Figure 6-6. *Comparison of estimated steady-state transmissivity values from injection tests in 20 m and 100 m sections with summed transmissivity values in 5 m sections in the corresponding borehole intervals from difference flow logging in KFM06A.*

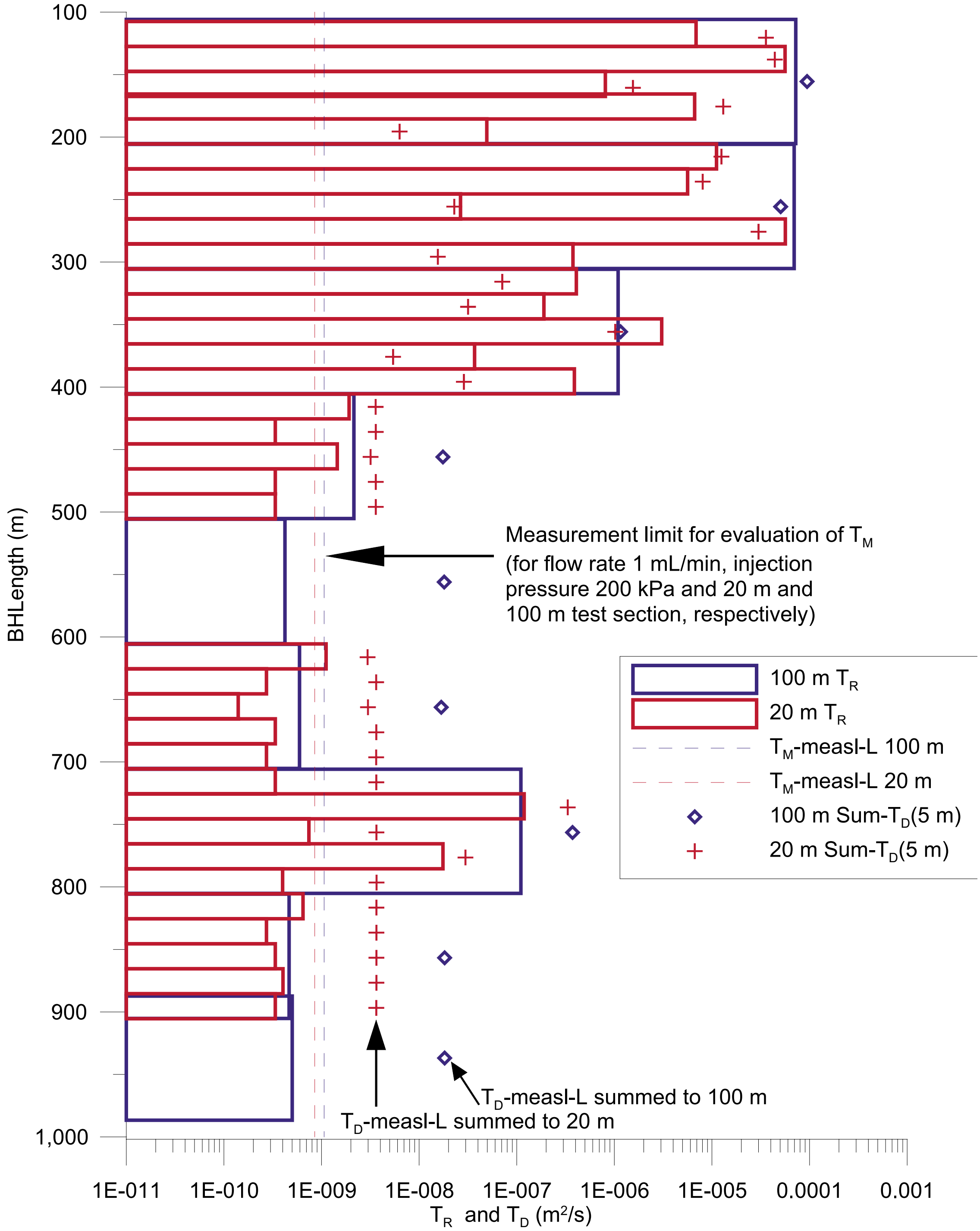

Figure 6-7. *Comparison of most representative (TR) transmissivity values from injection tests in 20 m and 100 m sections with summed transmissivity values in 5 m sections in the corresponding borehole intervals from difference flow logging in KFM06A.*

6.5 Basic statistics of hydraulic conductivity distributions in different scales

Some basic statistical parameters were calculated for the steady-state hydraulic conductivity (K_M) distributions in different scales (100 m, 20 m and 5 m) from the injection tests in boreholes KFM06A and KFM06B. The hydraulic conductivity is obtained by dividing the transmissivity by the section length, in this case T_M/L_w. Results from tests where Q_p was below the estimated test-specific measurement limit were not included in the statistical analyses of K_M. The same basic statistical parameters were derived for the hydraulic conductivity considered most representative ($K_R = T_R/L_w$), including all tests. In the statistical analysis, the logarithm (base 10) of K_M and K_R was used. Selected results are shown in Table 6-5. It should be noted that the statistics for the different section lengths is based on different borehole intervals.

Table 6-5. Basic statistical parameters for steady-state hydraulic conductivity (K_M) and hydraulic conductivity considered most representative (K_R) in borehole KFM06A and KFM06B. L_w = section length, m = arithmetic mean, s = standard deviation.

Parameter	Unit	KFM06A L_w = 100 m	KFM06A L_w = 20 m	KFM06A L_w = 20 m	KFM06A L_w = 5 m	KFM06B Lw = 5 m
Measured borehole interval	m	105.50–987.00 [2)]	107.50–505.5 [3)]	605.5–905.5	107.50–465.50 [4), 5)]	8.0–93.0 [6)]
Number of tests	–	9	20	15	71	18
N:o of tests below E.L.M.L.[1)]	–	2	3	8	13	0
m ($Log_{10}(K_M)$)	Log_{10}(m/s)	–8.30	–7.35	–9.54	–7.98	–6.64
s ($Log_{10}(K_M)$)	–	2.15	1.41	1.15	1.50	1.52
m ($Log_{10}(K_R)$)	Log_{10}(m/s)	–9.46	–8.04	–10.45	–8.48	–6.77
s ($Log_{10}(K_R)$)	–	2.22	1.74	0.78	1.60	1.60

[1)] Number of tests where Q_p could not be defined (E.L.M.L. = estimated test-specific lower measurement limit)
[2)] Sections 805.5–905.5 and 887.0–987.0 partly overlapping.
[3)] Sections 147.5–167.5 and 165.5–185.5 partly overlapping.
[4)] The following sections are partly overlapping: 132.5–137.5 and 136.5–141.5, 146.5–151.5 and 147.5–152.5, 162.5–167.5 and 165.5–170.5, 265.5–270.5 and 267.5–272.5, 272.5–277.5 and 275.5–280.5, 345.5–350.5 and 348.0–353.0, 353.0–358.0 and 355.5–360.5.
[5)] The interval 425.5–445.5 was not measured with 5 m section.
[6)] Sections 13.0–18.0 and 14.0–19.0 and sections 24.0–29.0 and 28.0–33.0 are partly overlapping.

6.6 Comparison of results from different hydraulic tests in KFM06A

In Table 6-6, a comparison of estimated transmissivity values from different hydraulic tests in KFM06A is presented. It should be observed that the summed transmissivity values for the injection tests only include the tests actually performed for each section length. However, the most conductive sections are measured.

Table 6-6 shows that the results of the different test methods used in borehole KFM06A gave consistent results. The total transmissivity of KFM06A is dominated by the intervals between 127.5–132.5 m and 265.5–272.5 m.

Table 6-6. Comparison of calculated transmissivity values from different hydraulic tests in borehole KFM06A.

Hydraulic test method	Sum of T (m^2/s)	Borehole interval and length of interval (m)		
		105.50–987.00	105.50–505.5	100.43–992.08
Injection tests	$\sum T_M$(100 m)	3.42E–04	3.42E–04	
	$\sum T_R$(100 m)	1.43E–04	1.43E–04	
	$\sum T_M$(20 m)	2.62E–04 [1)]	2.61E–04 [2)]	
	$\sum T_R$(20 m)	1.48E–04 [1)]	1.48E–04 [2)]	
	$\sum T_M$(5 m)		2.31E–04 [3)]	
	$\sum T_R$(5 m)		1.70E–04 [3)]	
Difference flow logging	$\sum T_D$(5 m)		1.11E–04 [4)]	1.11E–04
	$\sum T_{Df}$ (flow anomalies)		1.08E–04	1.08E–04
Pumping test in conjunction with difference flow logging	T_M			1.97E–04 [5)]

1) Actual measured intervals were 107.5–505.5 and 605.5–905.5 m.
2) Actual measured interval was 107.5–505.5 m.
3) Actual measured intervals were 107.5–425.5 m and 445.5–465.5 m.
4) Actual measured interval was 105.44–505.98 m.
5) The pumping test includes the entire non-cased borehole: 100.40–1,000.64 m.

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8 Appendices

Appendix 1 File description table

Appendix 2.1 General test data

Appendix 2.2 Pressure and flow data

Appendix 3 Test diagrams – Injection tests

Appendix 4 Borehole technical data

Appendix 5 Sicada tables

Appendix 1. File description table

Bh id	**Test section**		**Test type**	**Test no**	**Test start** Date, time	**Test stop** Date, time	**Data files of raw and primary data**	**Parameters in file**	**Comments**
idcode	(m)	(m)	(1-6)[1)]		YYYYMMDD hh:mm	YYYYMMDD hh:mm	__Borehole id_secup_date and time of test start		
KFM06A	105.50	205.50	3	1	20050317 10:35	20050317 12:32	__KFM06A_0105.50_200503171035.ht2	P, Q, Te	
KFM06A	205.50	305.50	3	1	20050317 14:57	20050317 16:47	__KFM06A_0205.50_200503171457.ht2	P, Q, Te	
KFM06A	305.50	405.50	3	1	20050317 18:36	20050318 09:40	__KFM06A_0305.50_200503171836.ht2	P, Q, Te	
KFM06A	405.50	505.50	3	1	20050318 11:22	20050318 14:09	__KFM06A_0405.50_200503181122.ht2	P, Q, Te	
KFM06A	505.50	605.50	3	1	20050321 09:44	20050321 11:45	__KFM06A_0505.50_200503210944.ht2	P, Q, Te	
KFM06A	605.50	705.50	3	1	20050321 14:05	20050321 15:58	__KFM06A_0605.50_200503211405.ht2	P, Q, Te	
KFM06A	705.50	805.50	3	1	20050321 17:38	20050321 19:29	__KFM06A_0705.50_200503211738.ht2	P, Q, Te	
KFM06A	805.50	905.50	3	1	20050323 09:00	20050323 11:05	__KFM06A_0805.50_200503230900.ht2	P, Q, Te	
KFM06A	887.00	987.00	3	1	20050323 13:41	20050323 15:36	__KFM06A_0887.00_200503231341.ht2	P, Q, Te	
KFM06A	107.50	127.50	3	1	20050405 06:31	20050405 07:54	__KFM06A_0107.50_200504050631.ht2	P, Q, Te	
KFM06A	127.50	147.50	3	1	20050404 23:15	20050405 00:28	__KFM06A_0127.50_200504042315.ht2	P, Q, Te	
KFM06A	147.50	167.50	3	1	20050404 21:32	20050404 22:49	__KFM06A_0147.50_200504042132.ht2	P, Q, Te	
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KFM06A	205.50	225.50	3	1	20050330 07:02	20050330 08:21	__KFM06A_0205.50_200503300702.ht2	P, Q, Te	
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KFM06A	245.50	265.50	3	1	20050330 10:29	20050330 11:45	__KFM06A_0245.50_200503301029.ht2	P, Q, Te	
KFM06A	265.50	285.50	3	1	20050330 12:56	20050330 14:12	__KFM06A_0265.50_200503301256.ht2	P, Q, Te	
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KFM06A	305.50	325.50	3	1	20050330 16:23	20050330 17:44	__KFM06A_0305.50_200503301623.ht2	P, Q, Te	
KFM06A	305.50	325.50	3	2	20050404 15:42	20050404 16:57	__KFM06A_0305.50_200504041542.ht2	P, Q, Te	
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KFM06A	345.50	365.50	3	1	20050330 19:57	20050330 21:26	__KFM06A_0345.50_200503301957.ht2	P, Q, Te	
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KFM06A	465.50	485.50	3	1	20050331 17:18	20050331 18:33	__KFM06A_0465.50_200503311718.ht2	P, Q, Te	
KFM06A	485.50	505.50	3	1	20050331 18:55	20050331 19:38	__KFM06A_0485.50_200503311855.ht2	P, Q, Te	
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KFM06A	625.50	645.50	3	1	20050331 23:14	20050331 23:57	__KFM06A_0625.50_200503312314.ht2	P, Q, Te	
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Bh id	Test section		Test type	Test no	Test start Date, time	Test stop Date, time	Data files of raw and primary data	Parameters in file	Comments
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KFM06A	725.50	745.50	3	1	20050401 12:20	20050401 13:37	__KFM06A_0725.50_200504011220.ht2	P, Q, Te	
KFM06A	745.50	765.50	3	1	20050401 14:12	20050401 15:32	__KFM06A_0745.50_200504011412.ht2	P, Q, Te	
KFM06A	765.50	785.50	3	1	20050401 16:43	20050401 18:07	__KFM06A_0765.50_200504011643.ht2	P, Q, Te	
KFM06A	785.50	805.50	3	1	20050401 18:40	20050401 19:56	__KFM06A_0785.50_200504011840.ht2	P, Q, Te	
KFM06A	805.50	825.50	3	1	20050401 20:19	20050401 21:36	__KFM06A_0805.50_200504012019.ht2	P, Q, Te	
KFM06A	825.50	845.50	3	1	20050401 21:56	20050401 22:41	__KFM06A_0825.50_200504012156.ht2	P, Q, Te	
KFM06A	845.50	865.50	3	1	20050404 06:12	20050404 06:58	__KFM06A_0845.50_200504040612.ht2	P, Q, Te	
KFM06A	865.50	885.50	3	1	20050404 07:15	20050404 08:01	__KFM06A_0865.50_200504040715.ht2	P, Q, Te	
KFM06A	885.50	905.50	3	1	20050404 08:27	20050404 09:11	__KFM06A_0885.50_200504040827.ht2	P, Q, Te	
KFM06A	107.50	112.50	3	1	20050405 19:41	20050405 21:07	__KFM06A_0107.50_200504051941.ht2	P, Q, Te	
KFM06A	112.50	117.50	3	1	20050405 21:21	20050405 22:40	__KFM06A_0112.50_200504052121.ht2	P, Q, Te	
KFM06A	117.50	122.50	3	1	20050405 22:56	20050405 00:12	__KFM06A_0117.50_200504052256.ht2	P, Q, Te	
KFM06A	117.50	122.50	3	2	20050406 06:24	20050406 07:48	__KFM06A_0117.50_200504060624.ht2	P, Q, Te	
KFM06A	122.50	127.50	3	1	20050406 08:56	20050406 10:22	__KFM06A_0122.50_200504060856.ht2	P, Q, Te	
KFM06A	127.50	132.50	3	1	20050406 10:36	20050406 11:57	__KFM06A_0127.50_200504061036.ht2	P, Q, Te	
KFM06A	132.50	137.50	3	1	20050406 13:11	20050406 14:34	__KFM06A_0132.50_200504061311.ht2	P, Q, Te	
KFM06A	136.50	141.50	3	1	20050406 14:51	20050406 16:13	__KFM06A_0136.50_200504061451.ht2	P, Q, Te	
KFM06A	141.50	146.50	3	1	20050406 16:37	20050406 17:51	__KFM06A_0141.50_200504061637.ht2	P, Q, Te	
KFM06A	146.50	151.50	3	1	20050406 18:08	20050406 19:25	__KFM06A_0146.50_200504061808.ht2	P, Q, Te	
KFM06A	147.50	152.50	3	1	20050406 19:34	20050406 20:14	__KFM06A_0147.50_200504061934.ht2	P, Q, Te	
KFM06A	152.50	157.50	3	1	20050406 20:24	20050406 21:39	__KFM06A_0152.50_200504062024.ht2	P, Q, Te	
KFM06A	157.50	162.50	3	1	20050406 21:49	20050406 23:05	__KFM06A_0157.50_200504062149.ht2	P, Q, Te	
KFM06A	162.50	167.50	3	1	20050406 23:17	20050407 00:33	__KFM06A_0162.50_200504062317.ht2	P, Q, Te	
KFM06A	165.50	170.50	3	1	20050407 06:25	20050407 07:42	__KFM06A_0165.50_200504070625.ht2	P, Q, Te	
KFM06A	170.50	175.50	3	1	20050407 08:08	20050407 09:26	__KFM06A_0170.50_200504070808.ht2	P, Q, Te	
KFM06A	170.50	175.50	3	2	20050421 14:24	20050421 15:50	__KFM06A_0170.50_200504211424.ht2	P, Q, Te	
KFM06A	175.50	180.50	3	1	20050407 09:40	20050407 11:01	__KFM06A_0175.50_200504070940.ht2	P, Q, Te	
KFM06A	180.50	185.50	3	1	20050407 11:16	20050407 13:45	__KFM06A_0180.50_200504071116.ht2	P, Q, Te	
KFM06A	185.50	190.50	3	1	20050407 14:00	20050407 15:20	__KFM06A_0185.50_200504071400.ht2	P, Q, Te	
KFM06A	190.50	195.50	3	1	20050407 15:30	20050407 16:46	__KFM06A_0190.50_200504071530.ht2	P, Q, Te	
KFM06A	195.50	200.50	3	1	20050407 17:01	20050407 18:17	__KFM06A_0195.50_200504071701.ht2	P, Q, Te	
KFM06A	200.50	205.50	3	1	20050407 18:29	20050407 19:53	__KFM06A_0200.50_200504071829.ht2	P, Q, Te	
KFM06A	205.50	210.50	3	1	20050407 20:04	20050407 21:23	__KFM06A_0205.50_200504072004.ht2	P, Q, Te	
KFM06A	210.50	215.50	3	1	20050407 21:37	20050407 23:01	__KFM06A_0210.50_200504072137.ht2	P, Q, Te	
KFM06A	215.50	220.50	3	1	20050407 23:16	20050408 00:30	__KFM06A_0215.50_200504072316.ht2	P, Q, Te	
KFM06A	220.50	225.50	3	1	20050408 06:21	20050408 07:41	__KFM06A_0220.50_200504080621.ht2	P, Q, Te	

Bh id	Test section		Test type	Test no	Test start Date, time	Test stop Date, time	Data files of raw and primary data	Parameters in file	Comments
idcode	(m)	(m)	(1-6)[1)]		YYYYMMDD hh:mm	YYYYMMDD hh:mm	__Borehole id_secup_date and time of test start		
KFM06A	225.50	230.50	3	1	20050408 07:58	20050408 09:16	__KFM06A_0225.50_200504080758.ht2	P, Q, Te	
KFM06A	230.50	235.50	3	1	20050408 09:31	20050408 10:45	__KFM06A_0230.50_200504080931.ht2	P, Q, Te	
KFM06A	235.50	240.50	3	1	20050408 10:56	20050408 13:03	__KFM06A_0235.50_200504081056.ht2	P, Q, Te	
KFM06A	235.50	240.50	3	2	20050415 15:48	20050415 17:02	__KFM06A_0235.50_200504151548.ht2	P, Q, Te	
KFM06A	240.50	245.50	3	1	20050408 13:17	20050408 14:35	__KFM06A_0240.50_200504081317.ht2	P, Q, Te	
KFM06A	245.50	250.50	3	1	20050408 14:52	20050408 16:13	__KFM06A_0245.50_200504081452.ht2	P, Q, Te	
KFM06A	250.50	255.50	3	1	20050408 16:27	20050408 17:45	__KFM06A_0250.50_200504081627.ht2	P, Q, Te	
KFM06A	255.50	260.50	3	1	20050408 17:56	20050408 19:11	__KFM06A_0255.50_200504081756.ht2	P, Q, Te	
KFM06A	260.50	265.50	3	1	20050408 19:23	20050408 20:39	__KFM06A_0260.50_200504081923.ht2	P, Q, Te	
KFM06A	265.50	270.50	3	1	20050411 17:47	20050411 19:07	__KFM06A_0265.50_200504111747.ht2	P, Q, Te	
KFM06A	267.50	272.50	3	1	20050411 19:34	20050411 20:49	__KFM06A_0267.50_200504111934.ht2	P, Q, Te	
KFM06A	272.50	277.50	3	1	20050411 21:07	20050411 22:29	__KFM06A_0272.50_200504112107.ht2	P, Q, Te	
KFM06A	275.50	280.50	3	1	20050411 22:42	20050411 23:37	__KFM06A_0275.50_200504112242.ht2	P, Q, Te	
KFM06A	280.50	285.50	3	1	20050412 06:03	20050412 06:45	__KFM06A_0280.50_200504120603.ht2	P, Q, Te	
KFM06A	285.50	290.50	3	1	20050412 07:02	20050412 07:44	__KFM06A_0285.50_200504120702.ht2	P, Q, Te	
KFM06A	290.50	295.50	3	1	20050412 07:55	20050412 09:10	__KFM06A_0290.50_200504120755.ht2	P, Q, Te	
KFM06A	295.50	300.50	3	1	20050412 09:26	20050412 10:42	__KFM06A_0295.50_200504120926.ht2	P, Q, Te	
KFM06A	300.50	305.50	3	1	20050412 10:55	20050412 13:04	__KFM06A_0300.50_200504121055.ht2	P, Q, Te	
KFM06A	305.50	310.50	3	1	20050412 13:59	20050412 15:18	__KFM06A_0305.50_200504121359.ht2	P, Q, Te	
KFM06A	310.50	315.50	3	1	20050412 15:34	20050412 16:54	__KFM06A_0310.50_200504121534.ht2	P, Q, Te	
KFM06A	315.50	320.50	3	1	20050412 17:15	20050412 18:31	__KFM06A_0315.50_200504121715.ht2	P, Q, Te	
KFM06A	320.50	325.50	3	1	20050412 18:46	20050412 20:04	__KFM06A_0320.50_200504121846.ht2	P, Q, Te	
KFM06A	325.50	330.50	3	1	20050412 20:26	20050412 21:44	__KFM06A_0325.50_200504122026.ht2	P, Q, Te	
KFM06A	330.50	335.50	3	1	20050412 22:01	20050412 23:19	__KFM06A_0330.50_200504122201.ht2	P, Q, Te	
KFM06A	335.50	340.50	3	1	20050413 06:08	20050413 07:25	__KFM06A_0335.50_200504130608.ht2	P, Q, Te	
KFM06A	340.50	345.50	3	1	20050413 07:37	20050413 08:54	__KFM06A_0340.50_200504130737.ht2	P, Q, Te	
KFM06A	345.50	350.50	3	1	20050413 09:09	20050413 10:29	__KFM06A_0345.50_200504130909.ht2	P, Q, Te	
KFM06A	348.00	353.00	3	1	20050113 10:40	20050113 12:15	__KFM06A_0348.00_200504131040.ht2	P, Q, Te	
KFM06A	348.00	353.00	3	2	20050415 13:31	20050415 14:48	__KFM06A_0348.00_200504151331.ht2	P, Q, Te	
KFM06A	353.00	358.00	3	1	20050413 12:28	20050413 13:42	__KFM06A_0353.00_200504131228.ht2	P, Q, Te	
KFM06A	355.50	360.50	3	1	20050413 13:54	20050413 15:12	__KFM06A_0355.50_200504131354.ht2	P, Q, Te	
KFM06A	360.50	365.50	3	1	20050414 06:08	20050414 07:22	__KFM06A_0360.50_200504140608.ht2	P, Q, Te	
KFM06A	365.50	370.50	3	1	20050414 07:34	20050414 08:14	__KFM06A_0365.50_200504140734.ht2	P, Q, Te	
KFM06A	370.00	375.00	3	1	20050414 08:22	20050414 09:36	__KFM06A_0370.50_200504140822.ht2	P, Q, Te	
KFM06A	375.50	380.50	3	1	20050414 09:50	20050414 10:31	__KFM06A_0375.50_200504140950.ht2	P, Q, Te	
KFM06A	380.50	385.50	3	1	20050414 10:45	20050414 11:59	__KFM06A_0380.50_200504141045.ht2	P, Q, Te	
KFM06A	385.50	390.50	3	1	20050414 12:49	20050414 13:29	__KFM06A_0385.50_200504141249.ht2	P, Q, Te	
KFM06A	390.50	395.50	3	1	20050414 13:47	20050414 15:01	__KFM06A_0390.50_200504141347.ht2	P, Q, Te	
KFM06A	395.50	400.50	3	1	20050414 15:29	20050414 16:50	__KFM06A_0395.50_200504141529.ht2	P, Q, Te	

Bh id	Test section		Test type	Test no	Test start Date, time	Test stop Date, time	Data files of raw and primary data	Parameters in file	Comments
idcode	(m)	(m)	(1-6)[1)]		YYYYMMDD hh:mm	YYYYMMDD hh:mm	__Borehole id_secup_date and time of test start		
KFM06A	400.50	405.50	3	1	20050414 17:01	20050414 17:48	__KFM06A_0400.50_200504141701.ht2	P, Q, Te	
KFM06A	405.50	410.50	3	1	20050414 18:00	20050414 19:15	__KFM06A_0405.50_200504141800.ht2	P, Q, Te	
KFM06A	410.50	415.50	3	1	20050414 19:28	20050414 20:43	__KFM06A_0410.50_200504141928.ht2	P, Q, Te	
KFM06A	415.50	420.50	3	1	20050414 20:58	20050414 21:40	__KFM06A_0415.50_200504142058.ht2	P, Q, Te	
KFM06A	420.50	425.50	3	1	20050414 21:52	20050414 23:07	__KFM06A_0420.50_200504142152.ht2	P, Q, Te	
KFM06A	445.50	450.50	3	1	20050414 23:36	20050415 09:05	__KFM06A_0445.50_200504142336.ht2	P, Q, Te	
KFM06A	450.50	455.50	3	1	20050415 09:18	20050415 09:57	__KFM06A_0450.50_200504150918.ht2	P, Q, Te	
KFM06A	455.50	460.50	3	1	20050415 10:10	20050415 10:51	__KFM06A_0455.50_200504151010.ht2	P, Q, Te	
KFM06A	460.50	465.50	3	1	20050415 11:02	20050415 11:43	__KFM06A_0460.50_200504151102.ht2	P, Q, Te	
KFM06B	8.00	13.00	3	1	20050425 20:04	20050425 21:47	__KFM06B_0008.00_200504252004.ht2	P, Q, Te	
KFM06B	13.00	18.00	3	1	20050426 08:01	20050426 09:20	__KFM06B_0013.00_200504260801.ht2	P, Q, Te	
KFM06B	14.00	19.00	3	1	20050426 09:35	20050426 10:53	__KFM06B_0014.00_200504260935.ht2	P, Q, Te	
KFM06B	19.00	24.00	3	1	20050426 11:02	20050426 13:19	__KFM06B_0019.00_200504261102.ht2	P, Q, Te	
KFM06B	24.00	29.00	3	1	20050426 13:31	20050426 14:46	__KFM06B_0024.00_200504261331.ht2	P, Q, Te	
KFM06B	28.00	33.00	3	1	20050426 14:59	20050426 16:18	__KFM06B_0028.00_200504261459.ht2	P, Q, Te	
KFM06B	33.00	38.00	3	1	20050426 16:35	20050426 17:54	__KFM06B_0033.00_200504261635.ht2	P, Q, Te	
KFM06B	38.00	43.00	3	1	20050427 15:02	20050427 16:18	__KFM06B_0038.00_200504271502.ht2	P, Q, Te	
KFM06B	43.00	48.00	3	1	20050427 16:49	20050427 18:03	__KFM06B_0043.00_200504271649.ht2	P, Q, Te	
KFM06B	48.00	53.00	3	1	20050427 18:17	20050427 19:32	__KFM06B_0048.00_200504271817.ht2	P, Q, Te	
KFM06B	53.00	58.00	3	1	20050429 08:41	20050429 09:55	__KFM06B_0053.00_200504290841.ht2	P, Q, Te	
KFM06B	58.00	63.00	3	1	20050427 19:47	20050427 21:04	__KFM06B_0058.00_200504271947.ht2	P, Q, Te	
KFM06B	63.00	68.00	3	1	20050428 08:35	20050428 09:51	__KFM06B_0063.00_200504280835.ht2	P, Q, Te	
KFM06B	68.00	73.00	3	1	20050428 10:06	20050428 11:22	__KFM06B_0068.00_200504281006.ht2	P, Q, Te	
KFM06B	73.00	78.00	3	1	20050428 11:36	20050428 13:38	__KFM06B_0073.00_200504281136.ht2	P, Q, Te	
KFM06B	78.00	83.00	3	1	20050428 13:50	20050428 15:05	__KFM06B_0078.00_200504281350.ht2	P, Q, Te	
KFM06B	83.00	88.00	3	1	20050428 15:15	20050428 16:33	__KFM06B_0083.00_200504281515.ht2	P, Q, Te	
KFM06B	88.00	93.00	3	1	20050428 16:46	20050428 18:01	__KFM06B_0088.00_200504281646.ht2	P, Q, Te	

[1)] 3: Injection test

Appendix 2.1. General test data

Borehole:	KFM06A
Testtype:	CHir (Constant Head injection and recovery)
Field crew:	C. Hjerne, K. Gokall-Norman, P Thur, T. Svensson, A. Lindquist
General comment:	

Test section secup	**Test section seclow**	**Test start**	**Start of flow period**	**Stop of flow period**	**Test stop**	**Total flow time t_p**	**Total recovery time t_F**
(m)	(m)	YYYYMMDD hh:mm	YYYYMMDD hh:mm:ss	YYYYMMDD hh:mm:ss	YYYYMMDD hh:mm	(min)	(min)
105.50	205.50	20050317 10:35	20050317 11:30:04	20050317 12:00:21	20050317 12:32	30	30
205.50	305.50	20050317 14:57	20050315 15:44:47	20050315 16:15:05	20050317 16:47	30	30
305.50	405.50	20050317 18:36	20050318 08:37:27	20050318 09:07:45	20050318 09:40	30	30
405.50	505.50	20050318 11:22	20050318 13:06:51	20050318 13:37:09	20050318 14:09	30	30
505.50	605.50	20050321 09:44	20050321 10:42:58	20050321 11:13:05	20050321 11:45	30	30
605.50	705.50	20050321 14:05	20050321 14:55:31	20050321 15:25:53	20050321 15:58	30	30
705.50	805.50	20050321 17:38	20050321 18:26:48	20050321 18:57:03	20050321 19:29	30	30
805.50	905.50	20050323 09:00	20050323 10:02:34	20050323 10:32:55	20050323 11:05	30	30
887.00	987.00	20050323 13:41	20050323 14:34:17	20050323 15:04:16	20050323 15:36	30	30
107.50	127.50	20050405 06:31	20050405 07:11:39	20050405 07:31:56	20050405 07:54	20	20
127.50	147.50	20050404 23:15	20050404 23:46:10	20050405 00:06:26	20050405 00:28	20	20
147.50	167.50	20050404 21:32	20050404 22:07:04	20050404 22:27:20	20050404 22:49	20	20
165.50	185.50	20050404 19:43	20050404 20:17:24	20050404 20:37:41	20050404 20:59	20	20
185.50	205.50	20050404 18:00	20050404 18:34:52	20050404 18:55:10	20050404 19:17	20	20
205.50	225.50	20050330 07:02	20050330 07:39:12	20050330 07:59:28	20050330 08:21	20	20
225.50	245.50	20050330 08:49	20050330 09:21:37	20050330 09:41:50	20050330 10:04	20	20
245.50	265.50	20050330 10:29	20050330 11:02:34	20050330 11:22:51	20050330 11:45	20	20
265.50	285.50	20050330 12:56	20050330 13:30:03	20050330 13:50:17	20050330 14:12	20	20
285.50	305.50	20050330 14:41	20050330 15:13:47	20050330 15:34:05	20050330 15:56	20	20
305.50	325.50	20050404 15:42	20050404 16:14:36	20050404 16:34:59	20050404 16:57	20	20
325.50	345.50	20050330 18:06	20050330 18:44:50	20050330 19:05:06	20050330 19:27	20	20
345.50	365.50	20050330 19:57	20050330 20:43:49	20050330 21:04:03	20050330 21:26	20	20
365.50	385.50	20050330 21:51	20050330 22:45:10	20050330 23:05:27	20050330 23:27	20	20
385.50	405.50	20050331 09:52	20050331 10:29:17	20050331 10:49:34	20050331 11:11	20	20
405.50	425.50	20050331 11:38	20050331 13:09:31	20050331 13:29:48	20050331 13:52	20	20
425.50	445.50	20050331 14:16	20050331 14:52:34	20050331 14:55:10	20050331 15:02	3	5
445.50	465.50	20050331 15:38	20050331 16:13:42	20050331 16:33:59	20050331 16:56	20	20
465.50	485.50	20050331 17:18	20050331 17:50:59	20050331 18:11:19	20050331 18:33	20	20
485.50	505.50	20050331 18:55	20050331 19:28:33	20050331 19:31:26	20050331 19:38	3	5
605.50	625.50	20050331 21:33	20050331 22:07:35	20050331 22:27:53	20050331 22:50	20	20
625.50	645.50	20050331 23:14	20050331 23:46:49	20050331 23:50:07	20050331 23:57	3	5
645.50	665.50	20050401 06:35	20050401 07:08:39	20050401 07:29:00	20050401 07:51	20	20
665.50	685.50	20050401 08:13	20050401 08:46:58	20050401 08:49:25	20050401 08:57	2	6
685.50	705.50	20050401 09:19	20050401 09:54:05	20050401 09:56:01	20050401 10:03	2	5
705.50	725.50	20050401 10:24	20050401 10:56:58	20050401 10:58:03	20050401 11:05	1	5
725.50	745.50	20050401 12:20	20050401 12:54:23	20050401 13:14:39	20050401 13:37	20	20
745.50	765.50	20050401 14:12	20050401 14:50:05	20050401 15:10:24	20050401 15:32	20	20
765.50	785.50	20050401 16:43	20050401 17:24:40	20050401 17:44:59	20050401 18:07	20	20
785.50	805.50	20050401 18:40	20050401 19:13:52	20050401 19:34:19	20050401 19:56	20	20
805.50	825.50	20050401 20:19	20040401 20:53:44	20040401 21:14:09	20050401 21:36	20	20
825.50	845.50	20050401 21:56	20050401 22:29:29	20050401 22:34:25	20050401 22:41	5	5
845.50	865.50	20050404 06:12	20050404 06:47:52	20050404 06:50:55	20050404 06:58	3	5
865.50	885.50	20050404 07:15	20050404 07:51:41	20050404 07:54:13	20050404 08:01	3	5
885.50	905.50	20050404 08:27	20050404 09:01:21	20050404 09:04:23	20050404 09:11	3	5
107.50	112.50	20050405 19:41	20050405 20:24:38	20050405 20:44:57	20050405 21:07	20	20
112.50	117.50	20050405 21:21	20050405 21:58:07	20050405 22:18:25	20050405 22:40	20	20
117.50	122.50	20050406 06:24	20050406 07:06:22	20050406 07:26:44	20050406 07:48	20	20
122.50	127.50	20050406 08:56	20050406 09:39:51	20050406 10:00:09	20050406 10:22	20	20
127.50	132.50	20050406 10:36	20050406 11:14:28	20050406 11:34:46	20050406 11:57	20	20
132.50	137.50	20050406 13:11	20050406 13:52:05	20050406 14:12:21	20050406 14:34	20	20
136.50	141.50	20050406 14:51	20050406 15:31:05	20050406 15:51:24	20050406 16:13	20	20
141.50	146.50	20050406 16:37	20050406 17:09:15	20050406 17:29:34	20050406 17:51	20	20
146.50	151.50	20050406 18:08	20050406 18:42:36	20050406 19:02:55	20050406 19:25	20	20
147.50	152.50	20050406 19:34	20050406 20:05:56	20050406 20:07:02	20050406 20:14	1	5
152.50	157.50	20050406 20:24	20050406 20:56:50	20050406 21:17:09	20050406 21:39	20	20
157.50	162.50	20050406 21:49	20050406 22:22:43	20050406 22:43:02	20050406 23:05	20	20
162.50	167.50	20050406 23:17	20050406 23:51:17	20050407 00:11:34	20050407 00:33	20	20
165.50	170.50	20050407 06:25	20050407 06:59:50	20050407 07:20:07	20050407 07:42	20	20

Test section secup	Test section seclow	Test start	Start of flow period	Stop of flow period	Test stop	Total flow time t_p	Total recovery time t_F
(m)	(m)	YYYYMMDD hh:mm	YYYYMMDD hh:mm:ss	YYYYMMDD hh:mm:ss	YYYYMMDD hh:mm	(min)	(min)
170.50	175.50	20050421 14:24	20050421 15:07:48	20050421 15:28:11	20050421 15:50	20	20
175.50	180.50	20050407 09:40	20050407 10:18:30	20050407 10:38:47	20050407 11:01	20	20
180.50	185.50	20050407 11:16	20050407 13:02:38	20050407 13:22:54	20050407 13:45	20	20
185.50	190.50	20050407 14:00	20050407 14:37:58	20050407 14:58:04	20050407 15:20	20	20
190.50	195.50	20050407 15:30	20050407 16:03:44	20050407 16:24:03	20050407 16:46	20	20
195.50	200.50	20050407 17:01	20050407 17:34:35	20050407 17:54:54	20050407 18:17	20	20
200.50	205.50	20050407 18:29	20050407 19:11:14	20050407 19:31:33	20050407 19:53	20	20
205.50	210.50	20050407 20:04	20050407 20:40:44	20050407 21:01:04	20050407 21:23	20	20
210.50	215.50	20050407 21:37	20050407 22:19:03	20050407 22:39:21	20050407 23:01	20	20
215.50	220.50	20050407 23:16	20050407 23:48:18	20050408 00:08:38	20050408 00:30	20	20
220.50	225.50	20050408 06:21	20050408 06:59:13	20050408 07:19:32	20050408 07:41	20	20
225.50	230.50	20050408 07:58	20050408 08:34:23	20050408 08:54:42	20050408 09:16	20	20
230.50	235.50	20050408 09:31	20050408 10:03:19	20050408 10:23:38	20050408 10:45	20	20
235.50	240.50	20050415 15:48	20050415 16:19:44	20050415 16:40:02	20050415 17:02	20	20
240.50	245.50	20050408 13:17	20050408 13:53:22	20050408 14:13:43	20050408 14:35	20	20
245.50	250.50	20050408 14:52	20050408 15:30:53	20050408 15:51:13	20050408 16:13	20	20
250.50	255.50	20050408 16:27	20050408 17:02:45	20050408 17:23:05	20050408 17:45	20	20
255.50	260.50	20050408 17:56	20050408 18:28:39	20050408 18:48:58	20050408 19:11	20	20
260.50	265.50	20050408 19:23	20050408 19:57:20	20050408 20:17:40	20050408 20:39	20	20
265.50	270.50	20050411 17:47	20050411 18:24:34	20050411 18:44:58	20050411 19:07	20	20
267.50	272.50	20050411 19:34	20050411 20:07:24	20050411 20:27:40	20050411 20:49	20	20
272.50	277.50	20050411 21:07	20050411 21:46:25	20050411 22:06:46	20050411 22:29	20	20
275.50	280.50	20050411 22:42	20050411 23:21:43	20050411 23:29:35	20050411 23:37	8	5
280.50	285.50	20050412 06:03	20050412 06:37:05	20050412 06:38:26	20050412 06:45	1	5
285.50	290.50	20050412 07:02	20050412 07:35:01	20050412 07:37:01	20050412 07:44	2	5
290.50	295.50	20050412 07:55	20050412 08:27:56	20050412 08:48:17	20050412 09:10	20	20
295.50	300.50	20050412 09:26	20050412 09:59:46	20050412 10:20:07	20050412 10:42	20	20
300.50	305.50	20050412 10:55	20050412 12:22:12	20050412 12:42:32	20050412 13:04	20	20
305.50	310.50	20050412 13:59	20050412 14:35:39	20050412 14:56:33	20050412 15:18	21	20
310.50	315.50	20050412 15:34	20050412 16:11:34	20050412 16:32:04	20050412 16:54	21	20
315.50	320.50	20050412 17:15	20050412 17:48:55	20050412 18:09:18	20050412 18:31	20	20
320.50	325.50	20050412 18:46	20050412 19:22:10	20050412 19:42:31	20050412 20:04	20	20
325.50	330.50	20050412 20:26	20050412 21:02:05	20050412 21:22:28	20050412 21:44	20	20
330.50	335.50	20050412 22:01	20050412 22:36:35	20050412 22:56:56	20050412 23:19	20	20
335.50	340.50	20050413 06:08	20050413 06:42:33	20050413 07:02:51	20050413 07:25	20	20
340.50	345.50	20050413 07:37	20050413 08:11:43	20050413 08:32:03	20050413 08:54	20	20
345.50	350.50	20050413 09:09	20050413 09:47:02	20050413 10:07:23	20050413 10:29	20	20
348.00	353.00	20050415 13:31	20050415 14:05:43	20050415 14:26:07	20050415 14:48	20	20
353.00	358.00	20050413 12:28	20050413 12:59:59	20050413 13:20:17	20050413 13:42	20	20
355.50	360.50	20050413 13:54	20050413 14:29:56	20050413 14:50:14	20050413 15:12	20	20
360.50	365.50	20050414 06:08	20050414 06:40:24	20050414 07:00:45	20050414 07:22	20	20
365.50	370.50	20050414 07:34	20050414 08:05:42	20050414 08:06:50	20050414 08:14	1	5
370.00	375.00	20050414 08:22	20050414 08:54:14	20050414 09:14:35	20050414 09:36	20	20
375.50	380.50	20050414 09:50	20050414 10:22:33	20050414 10:24:07	20050414 10:31	2	5
380.50	385.50	20050414 10:45	20050414 11:17:10	20050414 11:37:31	20050414 11:59	20	20
385.50	390.50	20050414 12:49	20050414 13:21:15	20050414 13:22:22	20050414 13:29	1	5
390.50	395.50	20050414 13:47	20050414 14:19:10	20050414 14:39:31	20050414 15:01	20	20
395.50	400.50	20050414 15:29	20050414 16:07:30	20050414 16:27:51	20050414 16:50	20	20
400.50	405.50	20050414 17:01	20050414 17:32:56	20050414 17:41:00	20050414 17:48	8	5
405.50	410.50	20050414 18:00	20050414 18:32:57	20050414 18:53:20	20050414 19:15	20	20
410.50	415.50	20050414 19:28	20050414 20:00:53	20050414 20:21:17	20050414 20:43	20	20
415.50	420.50	20050414 20:58	20050414 21:30:03	20050414 21:33:06	20050414 21:40	3	5
420.50	425.50	20050414 21:52	20050414 22:25:06	20050414 22:45:29	20050414 23:07	20	20
445.50	450.50	20050414 23:36	20050415 08:22:31	20050415 08:42:51	20050415 09:05	20	20
450.50	455.50	20050415 09:18	20050415 09:49:10	20050415 09:50:18	20050415 09:57	1	5
455.50	460.50	20050415 10:10	20050415 10:42:11	20050415 10:43:44	20050415 10:51	2	5
460.50	465.50	20050415 11:02	20050415 11:34:27	20050415 11:35:34	20050415 11:43	1	5

Borehole:	KFM06B
Testtype:	CHir (Constant Head injection and recovery)
Field crew:	C. Hjerne, K. Gokall-Norman, T. Svensson, A. Lindquist
General comment:	

Test section secup	**Test section seclow**	**Test start**	**Start of flow period**	**Stop of flow period**	**Test stop**	**Total flow time t_p**	**Total recovery time t_F**
(m)	(m)	YYYYMMDD hh:mm	YYYYMMDD hh:mm:ss	YYYYMMDD hh:mm:ss	YYYYMMDD hh:mm	(min)	(min)
8.00	13.00	20050425 20:04	20050425 21:05:12	20050425 21:25:30	20050425 21:47	20	20
13.00	18.00	20050426 08:01	20050426 08:37:29	20050426 08:57:48	20050426 09:20	20	20
14.00	19.00	20050426 09:35	20050426 10:10:38	20050426 10:30:57	20050426 10:53	20	20
19.00	24.00	20050426 11:02	20050426 12:36:35	20050426 12:56:54	20050426 13:19	20	20
24.00	29.00	20050426 13:31	20050426 14:03:37	20050426 14:23:55	20050426 14:46	20	20
28.00	33.00	20050426 14:59	20050426 15:35:35	20050426 15:55:53	20050426 16:18	20	20
33.00	38.00	20050426 16:35	20060426 17:11:35	20060426 17:31:52	20050426 17:54	20	20
38.00	43.00	20050427 15:02	20050427 15:36:08	20050427 15:56:24	20050427 16:18	20	20
43.00	48.00	20050427 16:49	20050427 17:20:52	20050427 17:41:05	20050427 18:03	20	20
48.00	53.00	20050427 18:17	20050427 18:49:29	20050427 19:09:43	20050427 19:32	20	20
53.00	58.00	20050429 08:41	20050429 09:13:19	20050429 09:33:34	20050429 09:55	20	20
58.00	63.00	20050427 19:47	20050427 20:21:26	20050427 20:41:43	20050427 21:04	20	20
63.00	68.00	20050428 08:35	20050428 09:09:05	20050428 09:29:13	20050428 09:51	20	20
68.00	73.00	20050428 10:06	20050428 10:39:28	20050428 10:59:46	20050428 11:22	20	20
73.00	78.00	20050428 11:36	20050428 12:55:56	20050428 13:16:15	20050428 13:38	20	20
78.00	83.00	20050428 13:50	20050428 14:23:07	20050428 14:43:26	20050428 15:05	20	20
83.00	88.00	20050428 15:15	20050428 15:50:40	20050428 16:11:01	20050428 16:33	20	20
88.00	93.00	20050428 16:46	20050428 17:18:24	20050428 17:38:43	20050428 18:01	20	20

Appendix 2.2. Pressure and flow data

Summary of pressure and flow data for all tests in KFM06A

Test section		Pressure			Flow		
secup	seclow	p_i	p_p	p_F	Q_p 1)	Q_m 2)	V_p 2)
(m)	(m)	(kPa)	(kPa)	(kPa)	(m^3/s)	(m^3/s)	(m^3)
105.50	205.50	973.22	994.39	975.96	3.04E-04	3.76E-04	6.85E-01
205.50	305.50	1822.52	1850.02	1825.26	3.29E-04	3.80E-04	6.89E-01
305.50	405.50	2660.00	2766.44	2696.57	4.87E-05	7.33E-05	1.33E-01
405.50	505.50	3497.07	3730.17	3625.09	1.92E-07	5.69E-07	1.04E-03
505.50	605.50	4333.59	4511.27	4489.80			
605.50	705.50	5148.80	5365.00	5234.05	2.69E-08	5.92E-08	1.08E-04
705.50	805.50	5941.31	6147.17	6020.66	1.41E-05	2.44E-05	4.43E-02
805.50	905.50	6743.70	6964.57	6844.11	5.59E-08	1.04E-07	1.89E-04
887.00	987.00	7429.94	7585.60	7578.45			
107.50	127.50	1008.41	1048.56	1015.01	1.14E-04	1.52E-04	1.85E-01
127.50	147.50	1178.93	1209.18	1181.68	3.45E-04	4.14E-04	5.04E-01
147.50	167.50	1350.01	1534.42	1350.56	1.50E-05	1.65E-05	2.01E-02
165.50	185.50	1505.39	1614.59	1513.92	2.14E-04	2.55E-04	3.11E-01
185.50	205.50	1678.40	1870.37	1701.50	1.64E-06	1.92E-06	2.34E-03
205.50	225.50	1829.12	1905.85	1838.47	2.36E-04	2.94E-04	3.59E-01
225.50	245.50	2000.70	2132.20	2005.68	2.41E-04	2.76E-04	3.35E-01
245.50	265.50	2172.36	2386.90	2295.02	1.55E-06	3.46E-06	4.22E-03
265.50	285.50	2339.03	2447.95	2343.43	4.13E-04	4.36E-04	5.31E-01
285.50	305.50	2511.21	2643.20	2621.21	2.94E-06	1.20E-05	1.48E-02
305.50	325.50	2696.85	2878.70	2820.34	7.25E-06	2.37E-05	2.92E-02
325.50	345.50	2846.19	3049.31	2853.35	3.00E-06	3.35E-06	4.09E-03
345.50	365.50	3012.87	3213.51	3055.78	7.62E-05	9.01E-05	1.10E-01
365.50	385.50	3182.29	3381.55	3188.89	8.45E-07	9.38E-07	1.14E-03
385.50	405.50	3346.48	3555.10	3489.23	7.94E-06	2.30E-05	2.80E-02
405.50	425.50	3517.84	3711.73	3641.60	1.73E-07	4.90E-07	5.98E-04
425.50	445.50	3756.01	3910.31	3927.09			
445.50	465.50	3854.10	4076.70	3885.28	4.65E-08	6.39E-08	7.80E-05
465.50	485.50	4048.65	4242.83	4182.87			
485.50	505.50	4236.36	4407.30	4419.39			
605.50	625.50	5195.82	5401.80	5204.36	2.60E-08	3.82E-08	4.65E-05
625.50	645.50	5388.76	5563.27	5594.90			
645.50	665.50	5536.04	5732.41	5619.11	7.07E-09	1.50E-08	1.81E-05
665.50	685.50	5694.46	5893.72	5927.68			
685.50	705.50	5847.80	6055.45	6065.76			
705.50	725.50	6030.28	6219.09	6284.68			
725.50	745.50	6144.83	6347.95	6229.13	1.51E-05	2.61E-05	3.18E-02
745.50	765.50	6328.15	6543.36	6365.55	4.23E-08	6.42E-08	7.84E-05
765.50	785.50	6470.06	6705.21	6582.83	1.31E-06	2.61E-06	3.18E-03
785.50	805.50	6659.28	6846.03	6728.04	3.41E-08	5.82E-08	7.15E-05
805.50	825.50	6810.96	7005.97	6872.72	5.34E-08	8.86E-08	1.09E-04
825.50	845.50	7003.63	7164.53	7186.25			
845.50	865.50	7229.02	7360.07	7387.03			
865.50	885.50	7359.53	7508.87	7530.59			
885.50	905.50	7501.17	7662.61	7682.97			
107.50	112.50	996.02	1207.95	997.12	2.11E-06	2.18E-06	2.66E-03
112.50	117.50	1040.03	1122.54	1067.54	1.89E-05	2.76E-05	3.36E-02
117.50	122.50	1087.34	1352.78	1300.22	1.42E-08		
122.50	127.50	1125.30	1169.31	1132.45	1.14E-04	1.52E-04	1.86E-01
127.50	132.50	1168.75	1208.91	1172.61	3.91E-04	4.66E-04	5.71E-01
132.50	137.50	1212.00	1263.30	1212.21	5.81E-05	6.17E-05	7.55E-02
136.50	141.50	1246.45	1359.07	1257.31	4.30E-06	5.63E-06	6.88E-03
141.50	146.50	1288.66	1492.19	1289.21	1.57E-05	2.06E-05	2.51E-02
146.50	151.50	1346.84	1575.30	1395.38	1.14E-08	1.77E-08	2.13E-05
147.50	152.50	1405.15	1581.86	1568.10			
152.50	157.50	1381.91	1627.00	1382.73	9.24E-06	9.80E-06	1.20E-02
157.50	162.50	1425.60	1678.12	1426.19	3.40E-06	3.48E-06	4.24E-03
162.50	167.50	1469.09	1624.90	1472.94	2.99E-06	3.29E-06	4.01E-03
165.50	170.50	1496.18	1696.41	1509.25	9.14E-06	1.08E-05	1.31E-02
170.50	175.50	1531.49	1765.70	1532.59	7.05E-08	9.08E-08	1.11E-04
175.50	180.50	1582.40	1825.26	1600.00	7.73E-05	9.57E-05	1.17E-01
180.50	185.50	1625.00	1788.90	1637.96	2.11E-04	2.51E-04	3.05E-01
185.50	190.50	1742.48	1900.90	1795.28			
190.50	195.50	1715.94	1939.96	1823.89	1.90E-07	2.59E-07	3.17E-04

Test section		Pressure			Flow		
secup	seclow	p_i	p_p	p_F	Q_p [1)]	Q_m [2)]	V_p [2)]
(m)	(m)	(kPa)	(kPa)	(kPa)	(m^3/s)	(m^3/s)	(m^3)
195.50	200.50	1756.51	1971.58	1802.43	5.10E-07	5.85E-07	7.14E-04
200.50	205.50	1796.80	2036.22	1801.88	1.28E-06	1.39E-06	1.70E-03
205.50	210.50	1839.84	1958.60	1862.39	7.93E-06	9.88E-06	1.21E-02
210.50	215.50	1891.13	2097.27	2031.82	6.70E-08	1.77E-07	2.16E-04
215.50	220.50	1922.76	2011.46	1932.80	2.64E-04	3.27E-04	4.00E-01
220.50	225.50	1967.18	2092.73	2001.56	1.64E-05	2.84E-05	3.47E-02
225.50	230.50	2015.45	2213.34	2112.67	1.23E-07	1.93E-07	2.35E-04
230.50	235.50	2067.57	2261.19	2102.23	4.88E-08	7.46E-08	9.12E-05
235.50	240.50	2089.70	2223.80	2094.60	2.40E-04	2.72E-04	3.31E-01
240.50	245.50	2142.24	2336.55	2163.83	1.28E-07	1.60E-07	1.95E-04
245.50	250.50	2185.83	2403.66	2294.20	3.14E-07	4.83E-07	5.90E-04
250.50	255.50	2227.65	2355.94	2327.76	2.82E-07	8.43E-07	1.03E-03
255.50	260.50	2266.14	2429.51	2311.25	6.56E-07	1.10E-06	1.35E-03
260.50	265.50	2313.03	2580.92	2410.26	7.01E-08	1.13E-07	1.38E-04
265.50	270.50	2342.50	2453.59	2347.42	4.07E-04	4.18E-04	5.07E-01
267.50	272.50	2361.10	2489.57	2365.48	4.56E-04	4.58E-04	5.56E-01
272.50	277.50	2403.37	2651.95	2410.35	3.95E-07	4.64E-07	5.67E-04
275.50	280.50	2467.13	2644.71	2621.59			
280.50	285.50	2580.95	2696.01	2703.12			
285.50	290.50	2608.32	2736.64	2786.30			
290.50	295.50	2559.20	2775.64	2660.43	4.21E-08	9.35E-08	1.14E-04
295.50	300.50	2597.51	2738.70	2719.00	2.86E-06	1.26E-05	1.57E-02
300.50	305.50	2636.63	2876.73	2662.62	7.55E-07	8.11E-07	9.92E-04
305.50	310.50	2682.33	2756.75	2747.46	6.79E-07	6.09E-06	7.56E-03
310.50	315.50	2726.51	2954.87	2942.81	2.18E-08	8.32E-07	1.02E-03
315.50	320.50	2815.31	2979.75	2812.57	5.92E-09		
320.50	325.50	2806.00	3017.78	2860.73	6.41E-06	9.94E-06	1.22E-02
325.50	330.50	2851.84	3052.26	2853.07	6.46E-07	6.95E-07	8.51E-04
330.50	335.50	2890.55	3088.79	2890.83	1.82E-07	1.79E-07	2.19E-04
335.50	340.50	2932.42	3131.06	2937.34	1.92E-06	2.07E-06	2.53E-03
340.50	345.50	2975.78	3173.20	2976.20	8.15E-08	8.80E-07	1.08E-03
345.50	350.50	3017.23	3257.20	3016.69	1.31E-07	1.43E-07	1.75E-04
348.00	353.00	3056.36	3244.90	3040.22	1.38E-08	1.81E-08	2.18E-05
353.00	358.00	3078.67	3274.30	3120.67	7.53E-05	8.97E-05	1.10E-01
355.50	360.50	3115.74	3300.80	3152.41	7.30E-05	8.62E-05	1.05E-01
360.50	365.50	3149.15	3371.85	3145.84	9.69E-08	1.10E-07	1.35E-04
365.50	370.50	3236.68	3416.72	3538.75			
370.00	375.00	3239.14	3459.40	3308.37	1.30E-08	1.93E-08	2.32E-05
375.50	380.50	3353.38	3498.26	3573.22			
380.50	385.50	3309.88	3491.83	3316.58	3.52E-07	3.99E-07	4.88E-04
385.50	390.50	3385.53	3570.49	3762.57			
390.50	395.50	3393.33	3551.34	3497.16	5.80E-06	1.65E-05	2.02E-02
395.50	400.50	3444.90	3655.87	3456.67	1.07E-07	1.39E-07	1.70E-04
400.50	405.50	3493.74	3699.65	3661.34			
405.50	410.50	3561.19	3741.23	3609.90	9.20E-09	1.85E-08	2.23E-05
410.50	415.50	3563.37	3775.54	3712.78	1.65E-07	5.14E-07	6.30E-04
415.50	420.50	3638.35	3825.64	3972.17			
420.50	425.50	3653.27	3869.43	3687.06	1.30E-08	1.81E-08	2.18E-05
445.50	450.50	3855.60	4093.10	3888.44	7.98E-08	9.67E-08	1.18E-04
450.50	455.50	4040.57	4118.41	4258.92			
455.50	460.50	3997.06	4160.42	4195.44			
460.50	465.50	4015.81	4202.01	4357.96			

Summary of pressure and flow data for all tests in KFM06B

Test section		Pressure			Flow		
secup	**seclow**	**p_i**	**p_p**	**p_F**	**Q_p 1)**	**Q_m 2)**	**V_p 2)**
(m)	(m)	(kPa)	(kPa)	(kPa)	(m^3/s)	(m^3/s)	(m^3)
8.00	13.00	158.49	298.86	160.68	2.97E-05	2.97E-05	3.62E-02
13.00	18.00	207.19	406.39	211.02	1.50E-05	1.45E-05	1.76E-02
14.00	19.00	217.05	416.65	222.52	1.95E-05	1.92E-05	2.34E-02
19.00	24.00	264.66	465.9	268.49	8.05E-06	8.62E-06	1.05E-02
24.00	29.00	314.32	513.66	314.46	1.82E-06	2.01E-06	2.45E-03
28.00	33.00	351.12	449.48	350.02	8.60E-05	8.71E-05	1.06E-01
33.00	38.00	399.82	488.88	400.37	5.54E-04	5.81E-04	7.05E-01
38.00	43.00	425.74	530.18	427.26	2.54E-04	2.54E-04	3.09E-01
43.00	48.00	475.21	488.95	475.63	4.06E-04	4.14E-04	5.03E-01
48.00	53.00	524	655.37	524.54	2.70E-04	2.81E-04	3.41E-01
53.00	58.00	571.82	593.26	572.37	5.75E-04	5.89E-04	7.15E-01
58.00	63.00	621.84	742.08	622.39	2.90E-04	2.95E-04	3.59E-01
63.00	68.00	670.21	863.15	670.21	1.21E-04	1.28E-04	1.54E-01
68.00	73.00	718.72	921.97	719.13	4.90E-06	5.39E-06	6.58E-03
73.00	78.00	768.05	968.27	771.35	2.97E-07	3.60E-07	4.40E-04
78.00	83.00	818.62	1007.71	827.97	2.30E-07	2.73E-07	3.34E-04
83.00	88.00	876.07	1066.12	938.45	6.67E-08	1.11E-07	1.36E-04
88.00	93.00	913.58	1114.22	931.30	4.66E-07	5.91E-07	7.21E-04

1) No value indicates a flow below measurement limit (measurement limit is unique for each test but nominally 1.67 E-8 m^3/s).
2) No value indicates that the parameter could not be calculated due to low and uncertain flow rates during a major part of flow period

p_i	Pressure in test section before start of flow period
p_p	Pressure in test section before stop of flow period
p_F	Pressure in test section at the end of recovery period
Q_p	Flow rate just before stop of flow period
Q_m	Mean (arithmetic) flow rate during flow period
V_p	Total volume injected during the flow period

Appendix 3. Test diagrams – Injection Tests

In the following pages diagrams are presented for all test sections. A linear diagram of pressure and flow rate is presented for each test. For most tests lin-log and log-log diagrams are presented, from injection and recovery period respectively.

Nomenclature for Aqtesolv:
T = transmissivity (m^2/s)
S = storativity (-)
K_z/K_r = ratio of hydraulic conductivities in the vertical and radial direction (set to 1)
Sw = skin factor
r(w) = borehole radius (m)
r(c) = effective casing radius (m)
C = well loss constant (set to 0)
r/B = leakage factor (-)

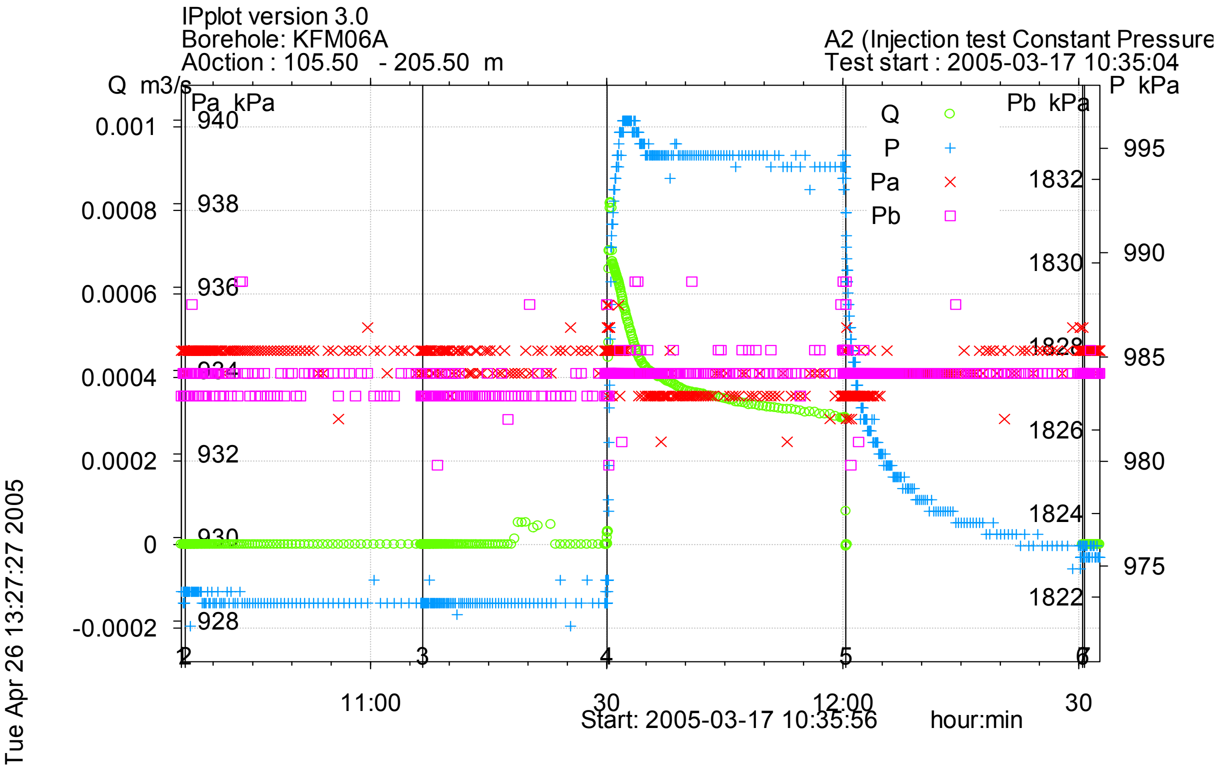


Figure A3-1. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 105.5-205.5 m in borehole KFM06A.*

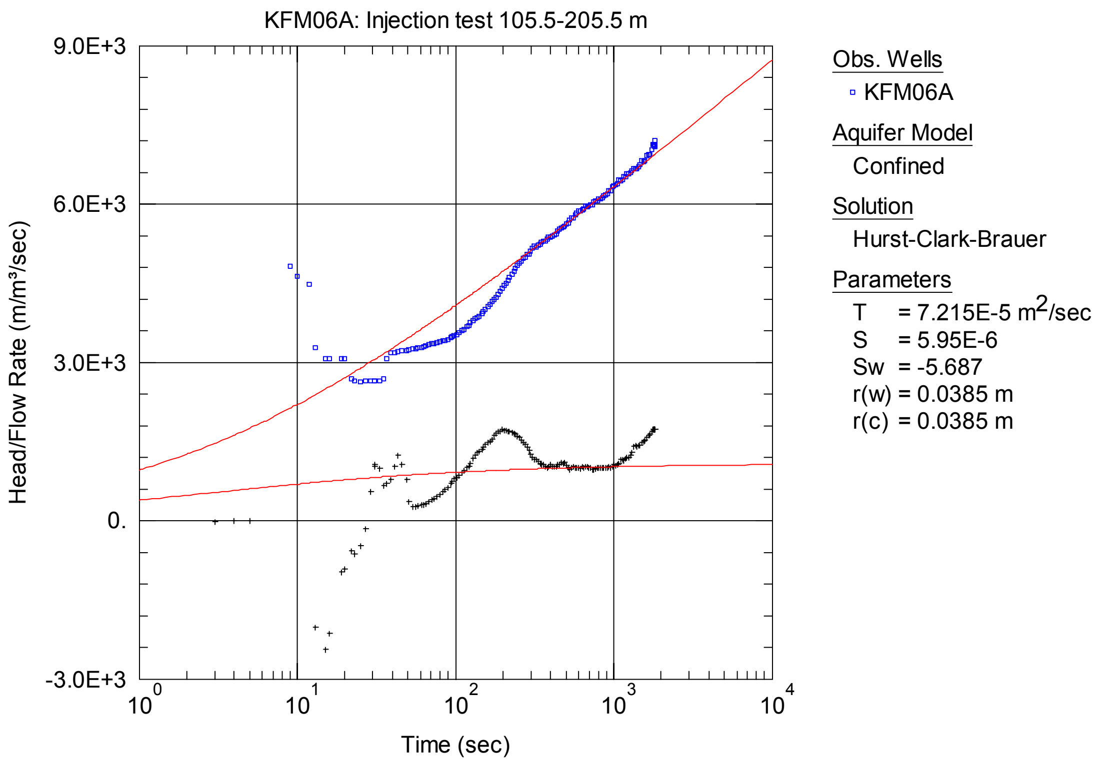


Figure A3-2. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 105.5-205.5 m in KFM06A.*

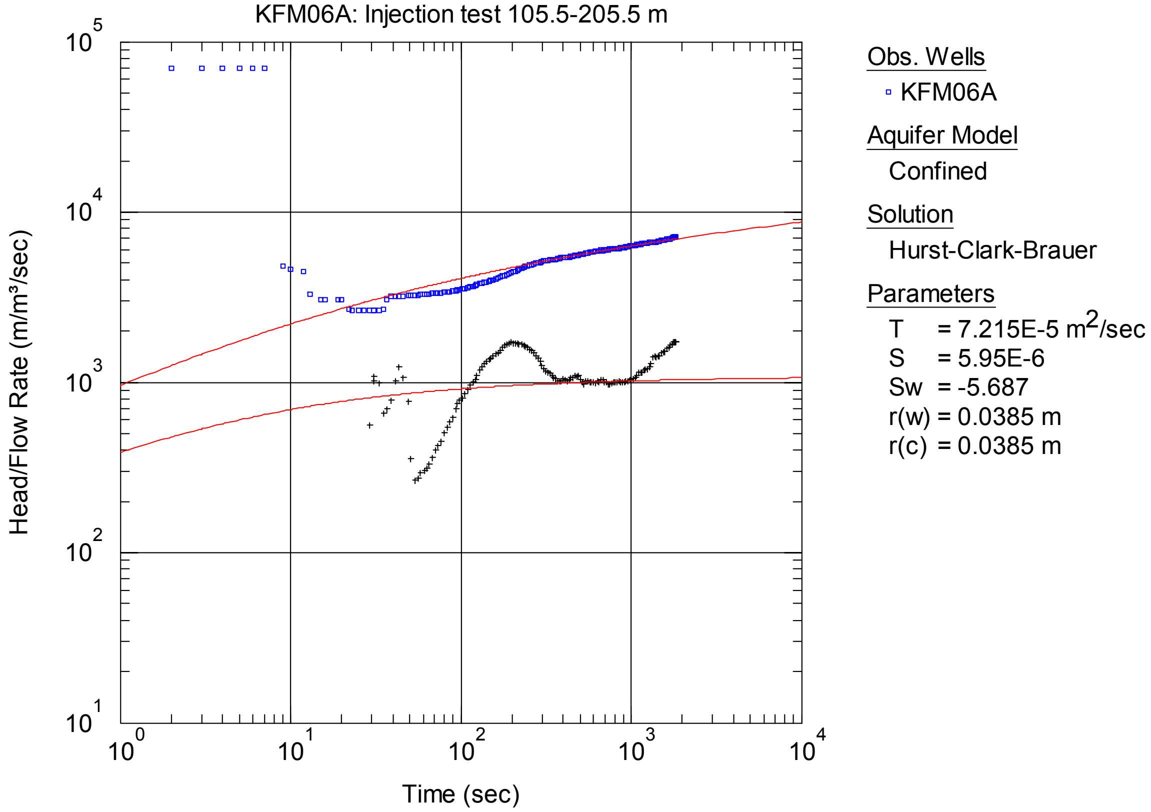


Figure A3-3. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 105.5-205.5 m in KFM06A.*

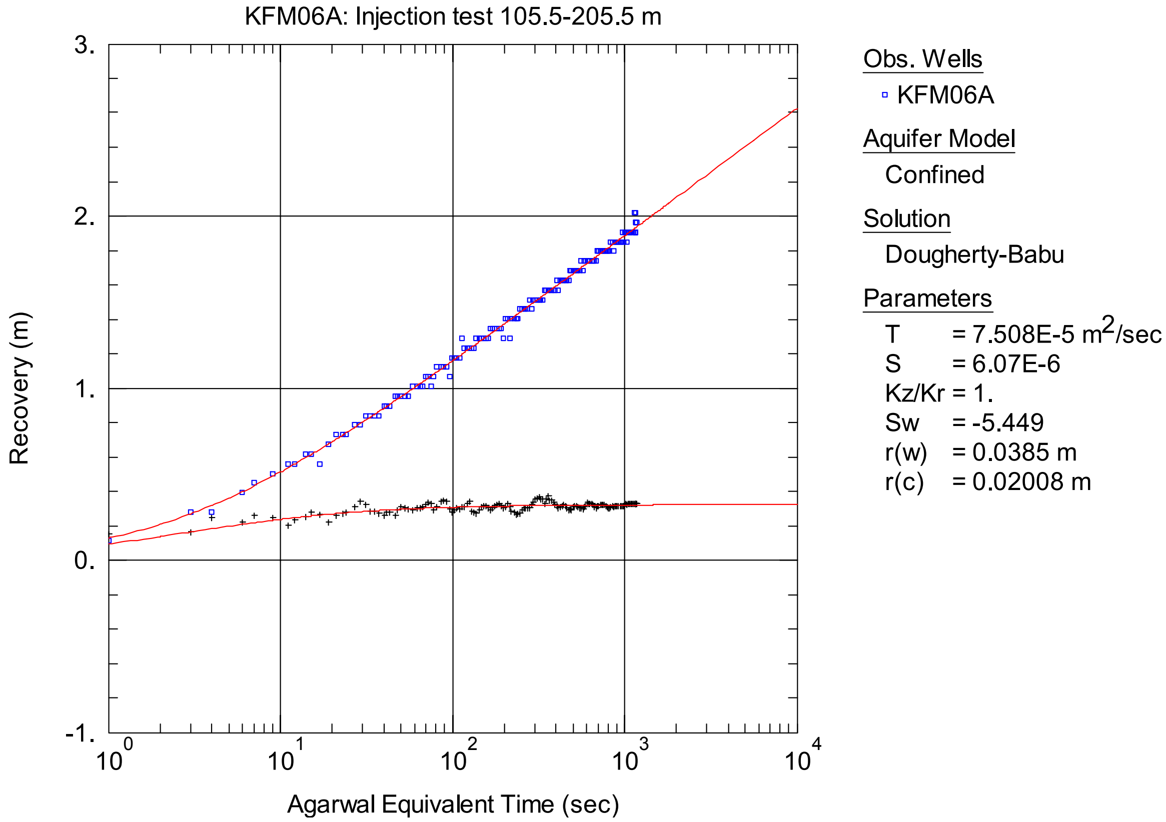


Figure A3-4. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 105.5-205.5 m in KFM06A.*

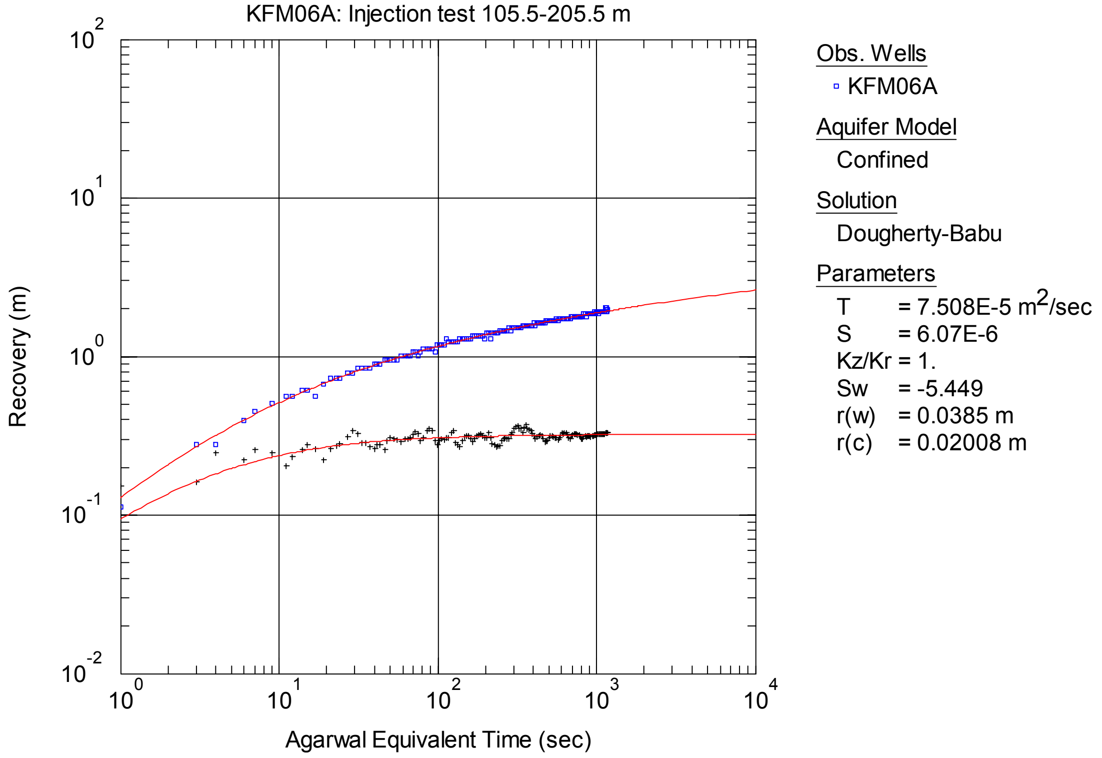


Figure A3-5. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 105.5-205.5 m in KFM06A.*

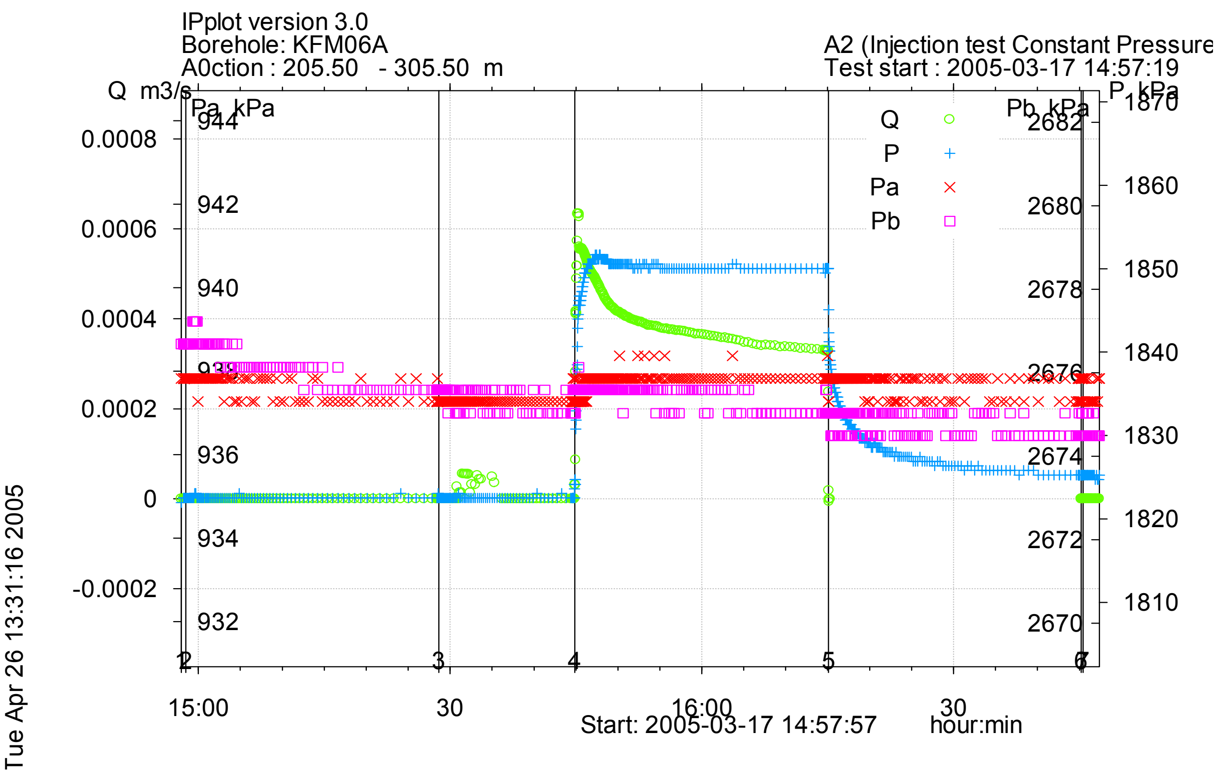


Figure A3-6. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 205.5-305.5 m in borehole KFM06A.*

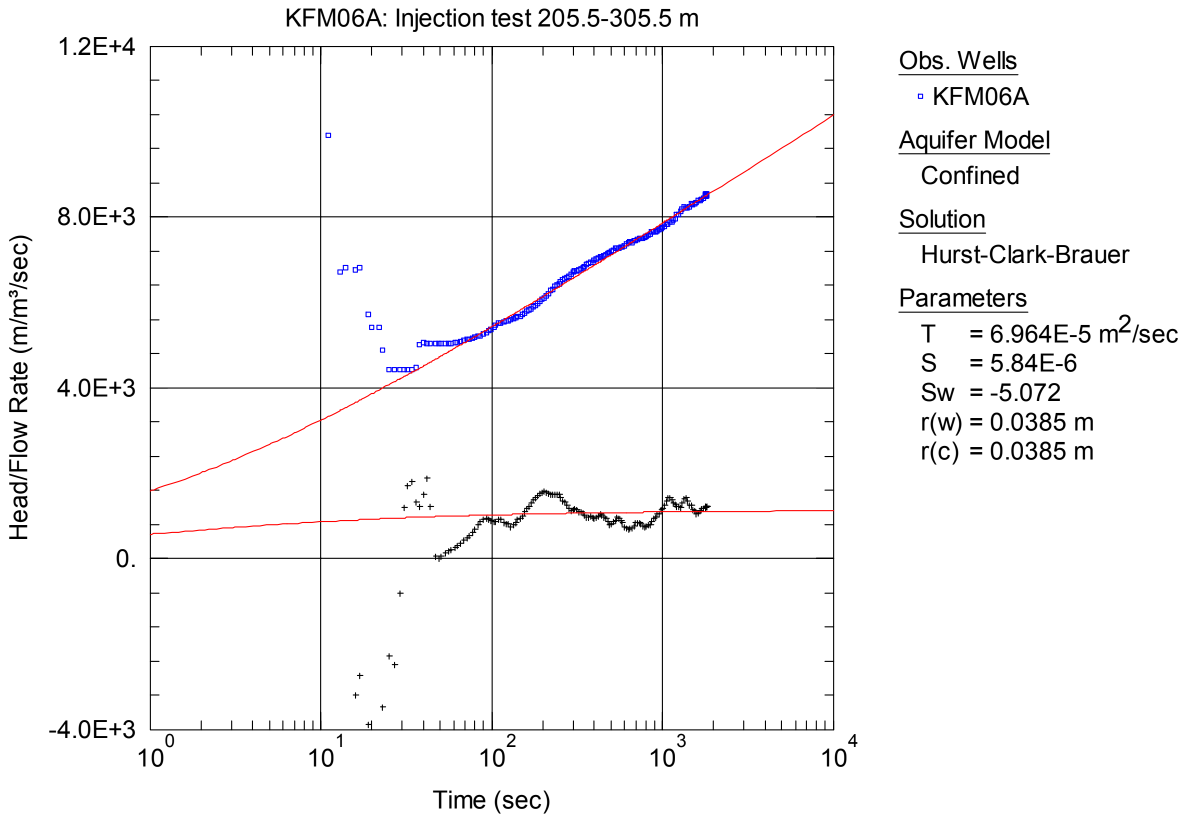


Figure A3-7. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 205.5-305.5 m in KFM06A.*

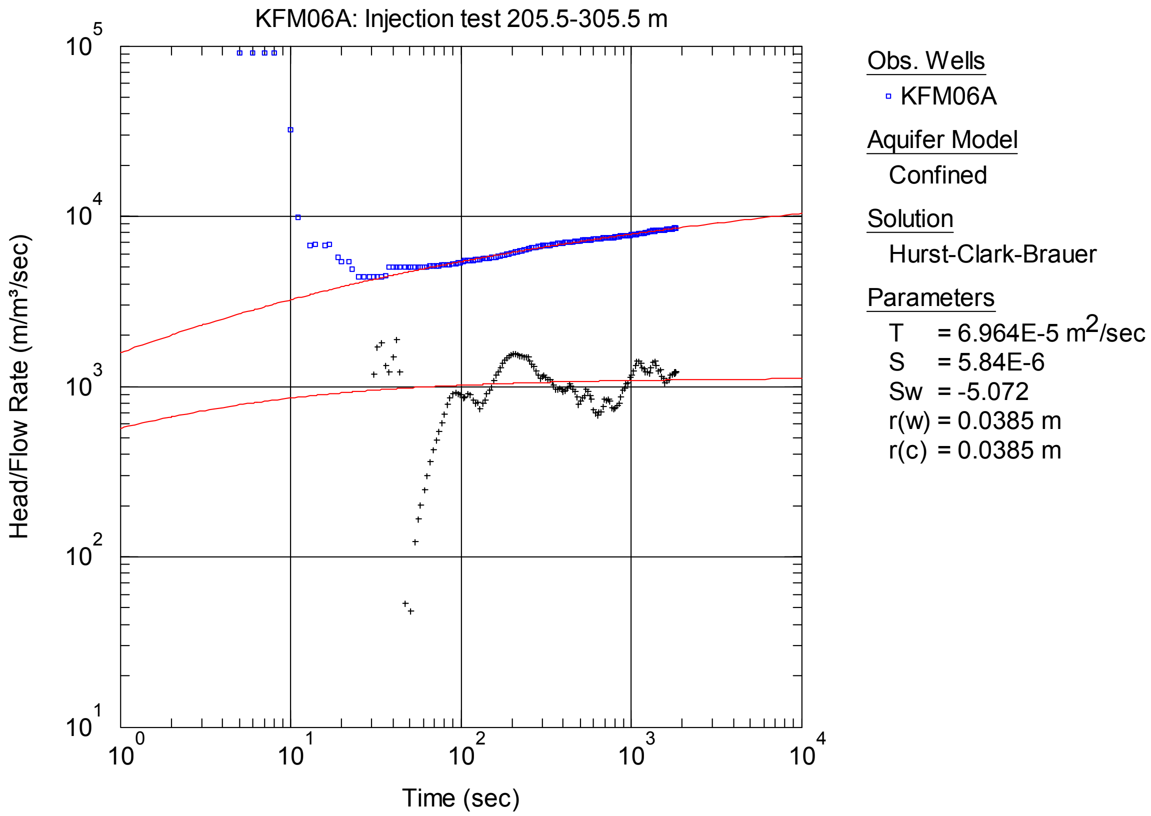


Figure A3-8. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 205.5-305.5 m in KFM06A.*

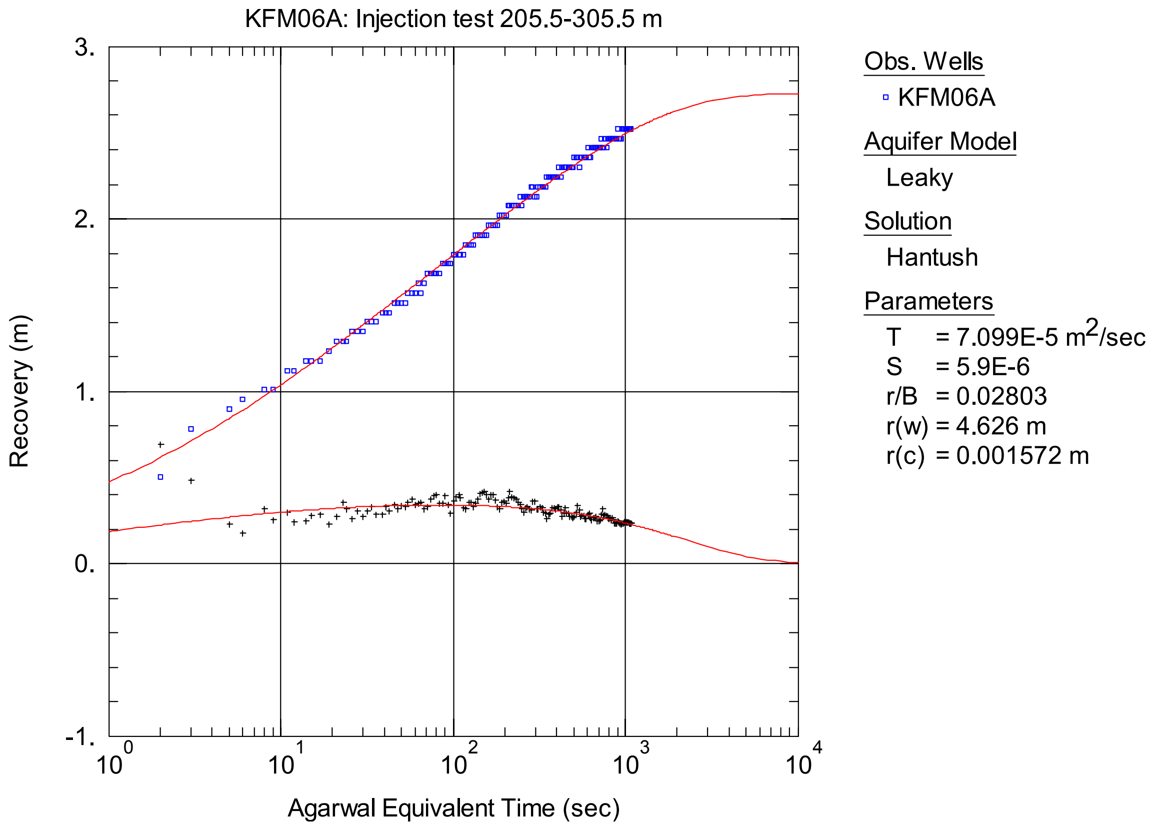


Figure A3-9. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 205.5-305.5 m in KFM06A.*

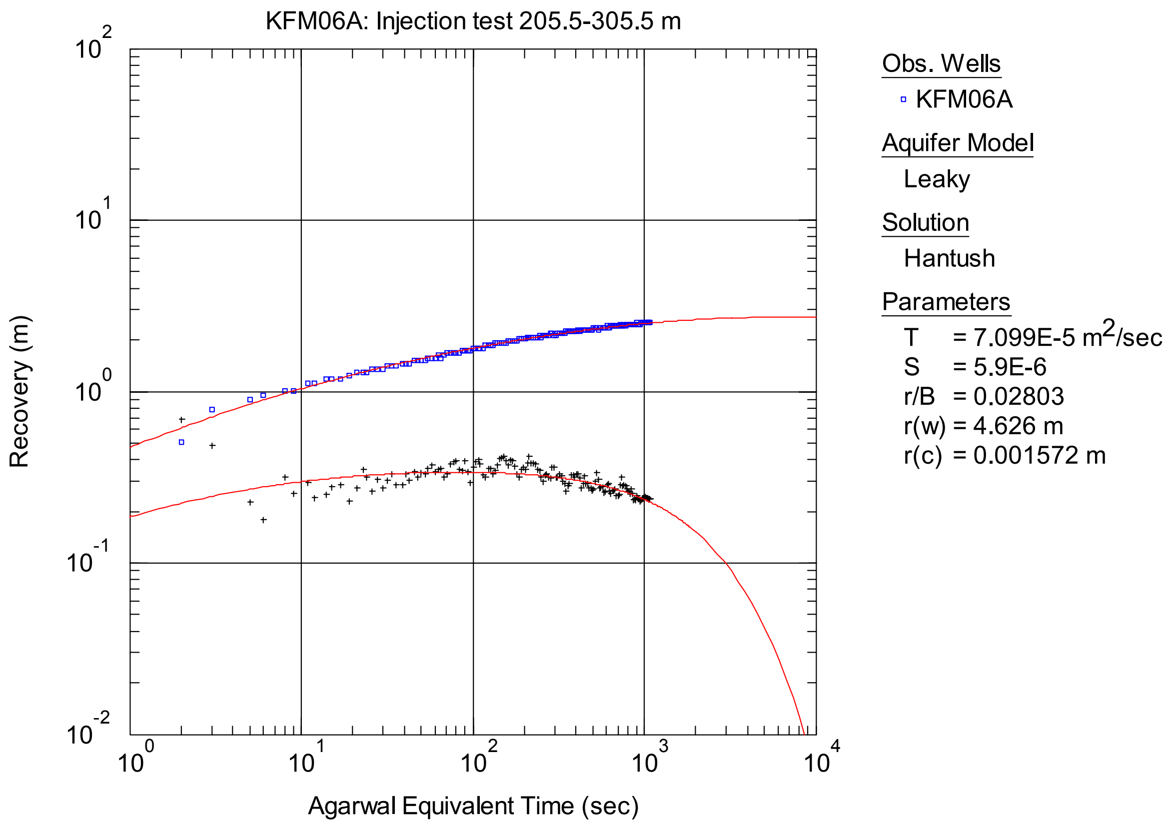


Figure A3-10. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 205.5-305.5 m in KFM06A.*

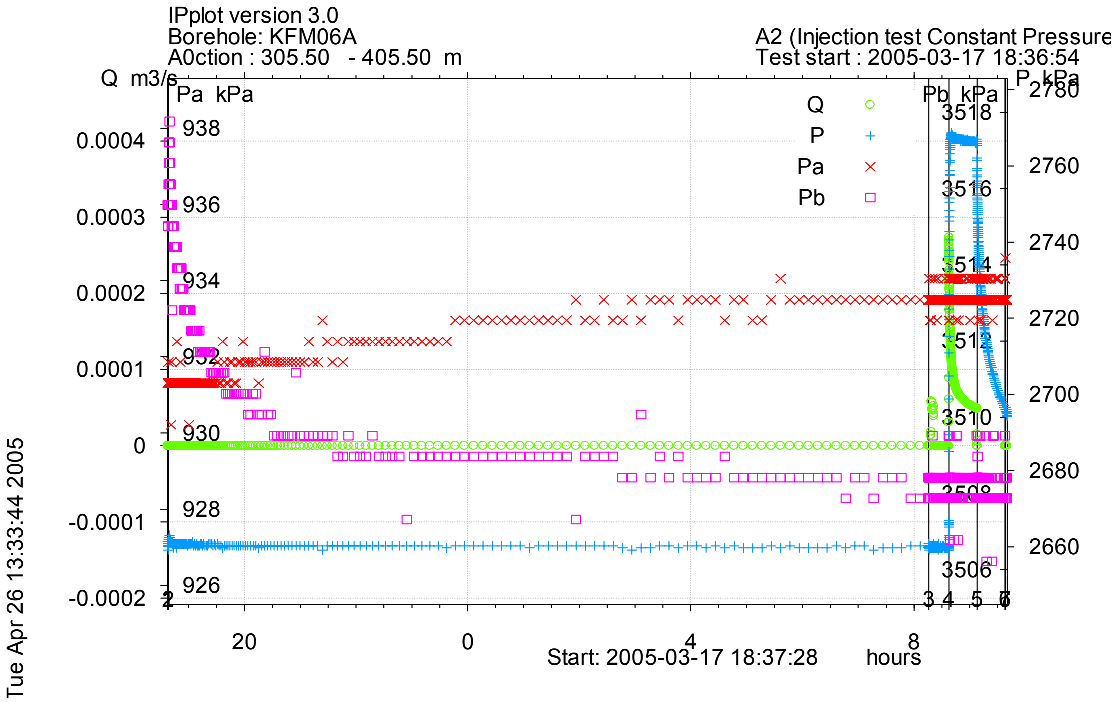


Figure A3-11. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 305.5-405.5 m in borehole KFM06A.

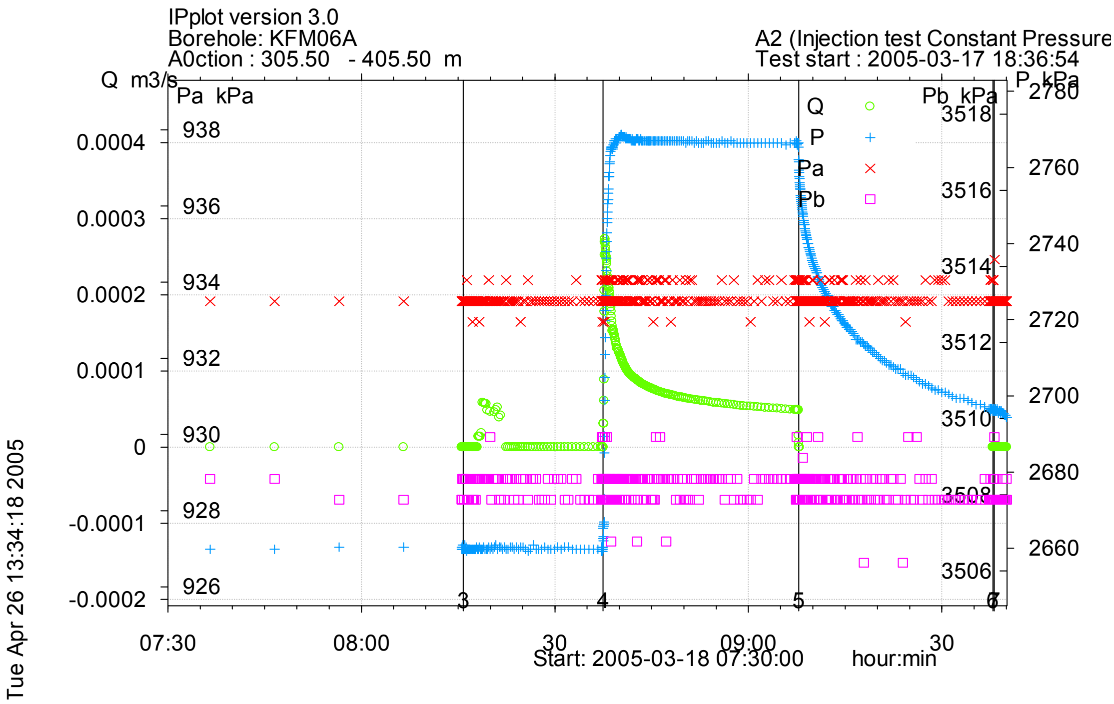


Figure A3-12. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 305.5-405.5 m in borehole KFM06A.

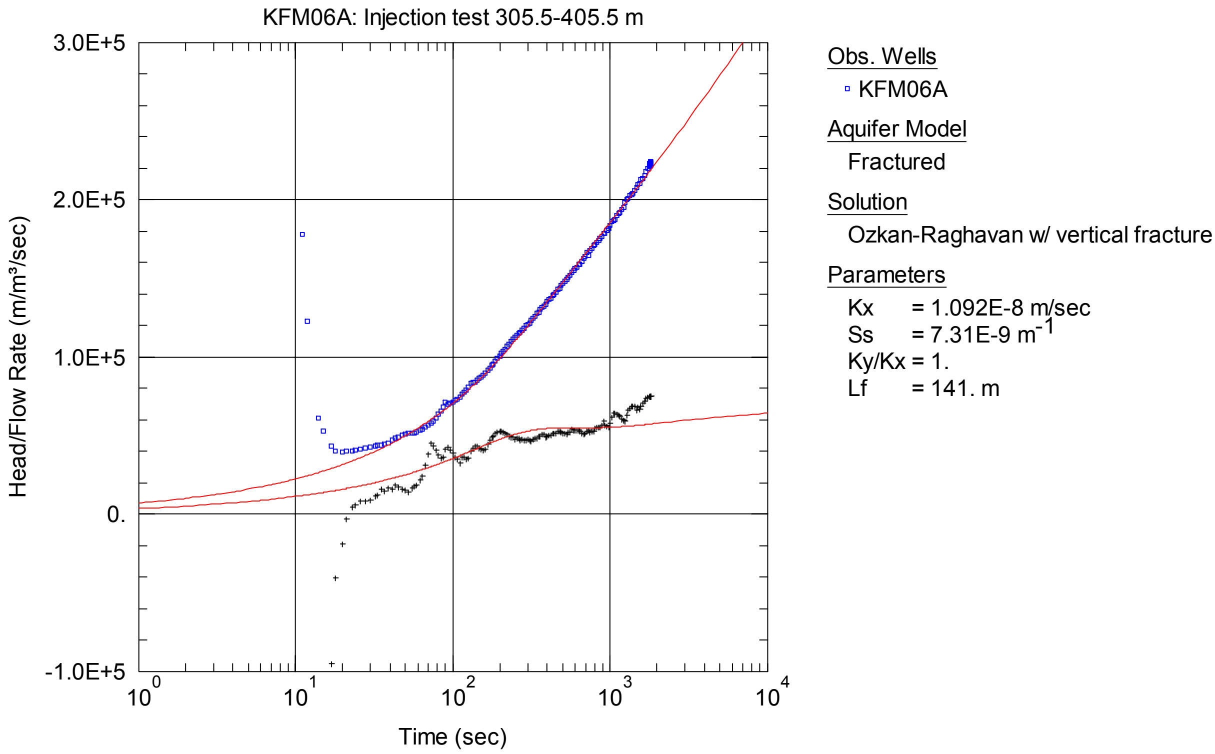


Figure A3-13. *Lin-log plot of head/flow rate (□) and derivative (+) versus time showing fit to Ozkan-Raghavan model, from the injection test in section 305.5-405.5 m in KFM06A.*

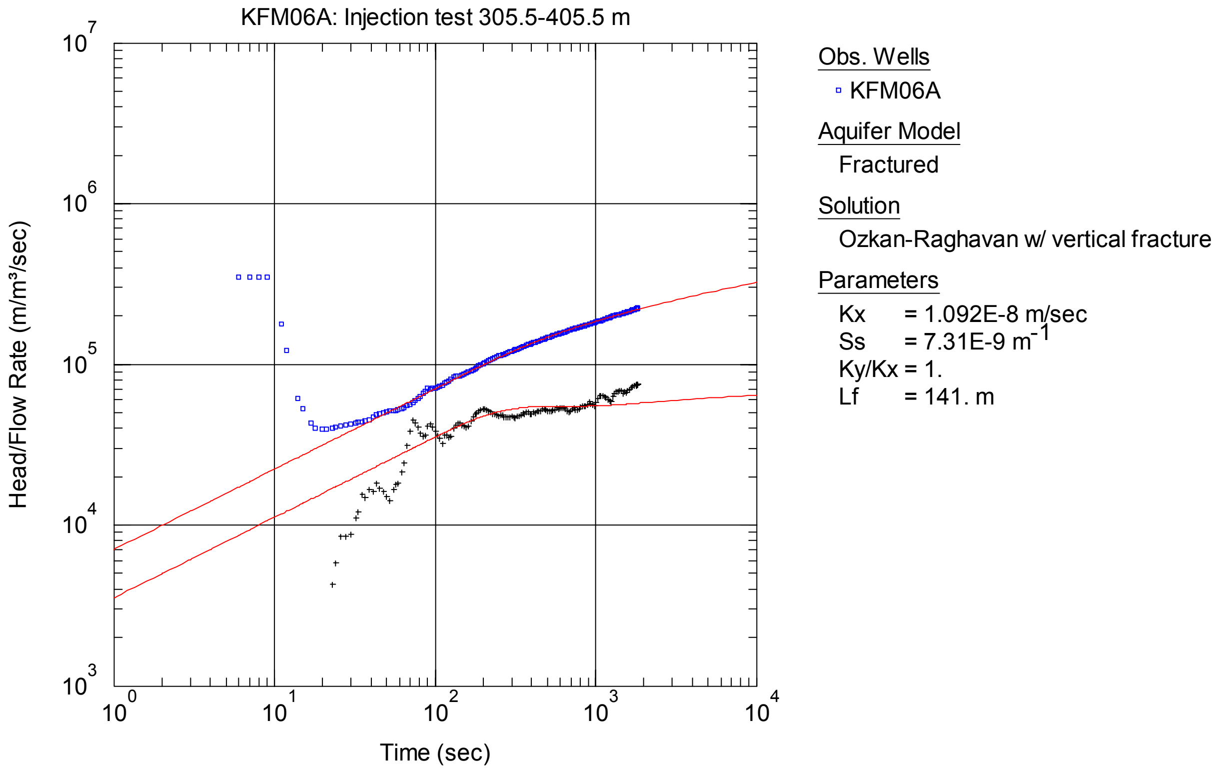


Figure A3-14. *Log-log plot of head/flow rate (□) and derivative (+) versus time showing fit to Ozkan-Raghavan model, from the injection test in section 305.5-405.5 m in KFM06A.*

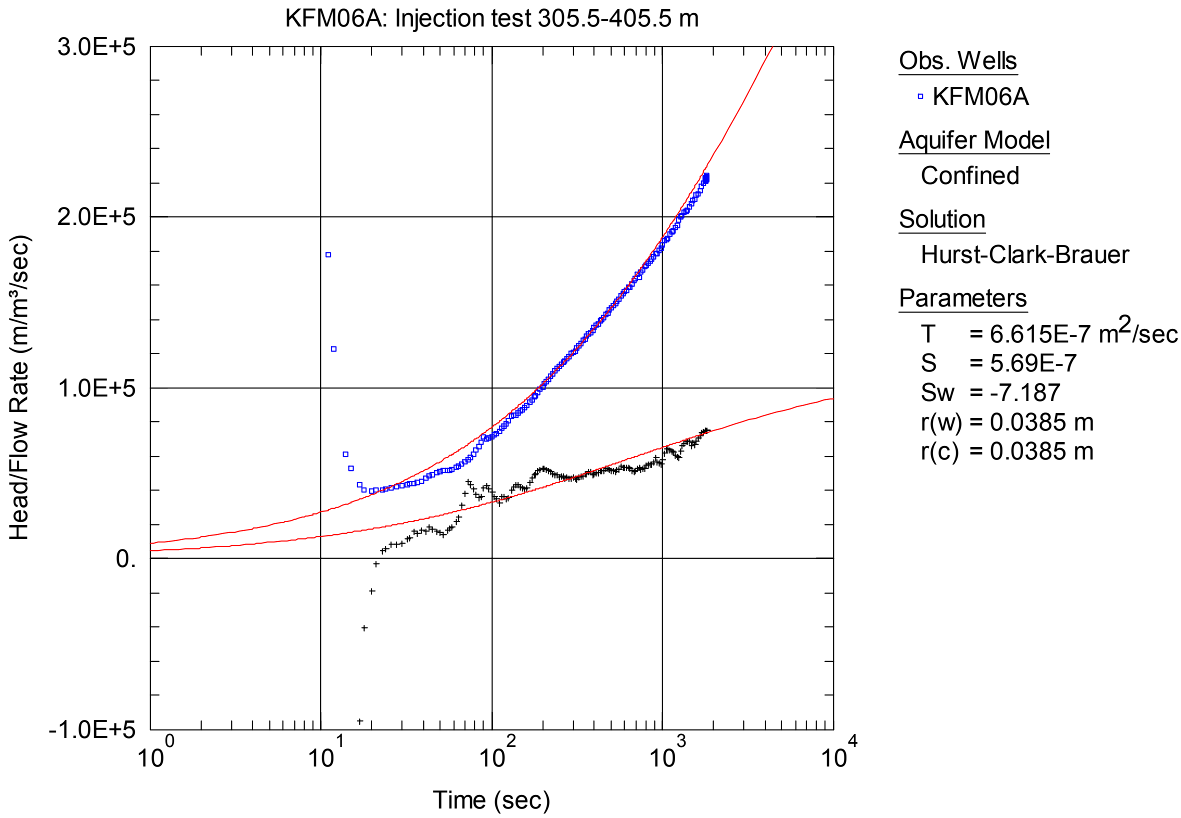


Figure A3-15. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 305.5-405.5 m in KFM06A.*

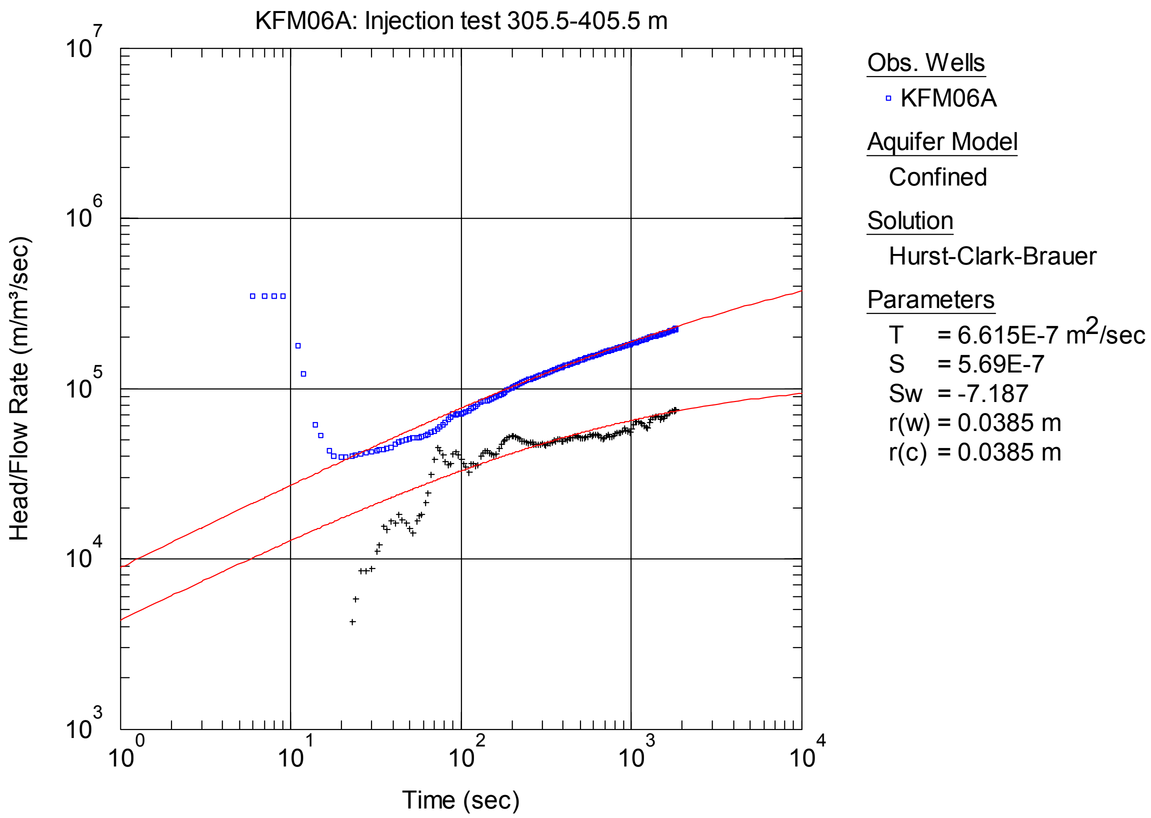


Figure A3-16. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 305.5-405.5 m in KFM06A.*

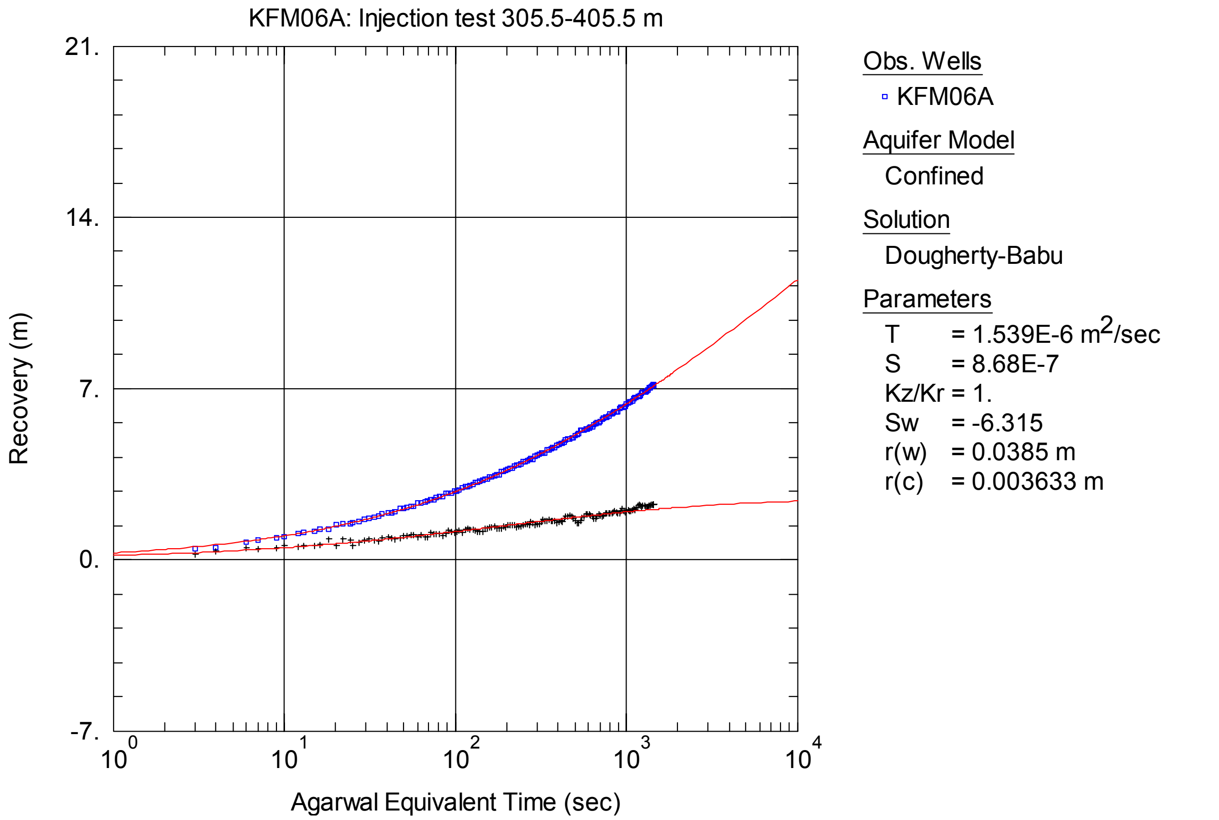


Figure A3-17. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 305.5-405.5 m in KFM06A.*

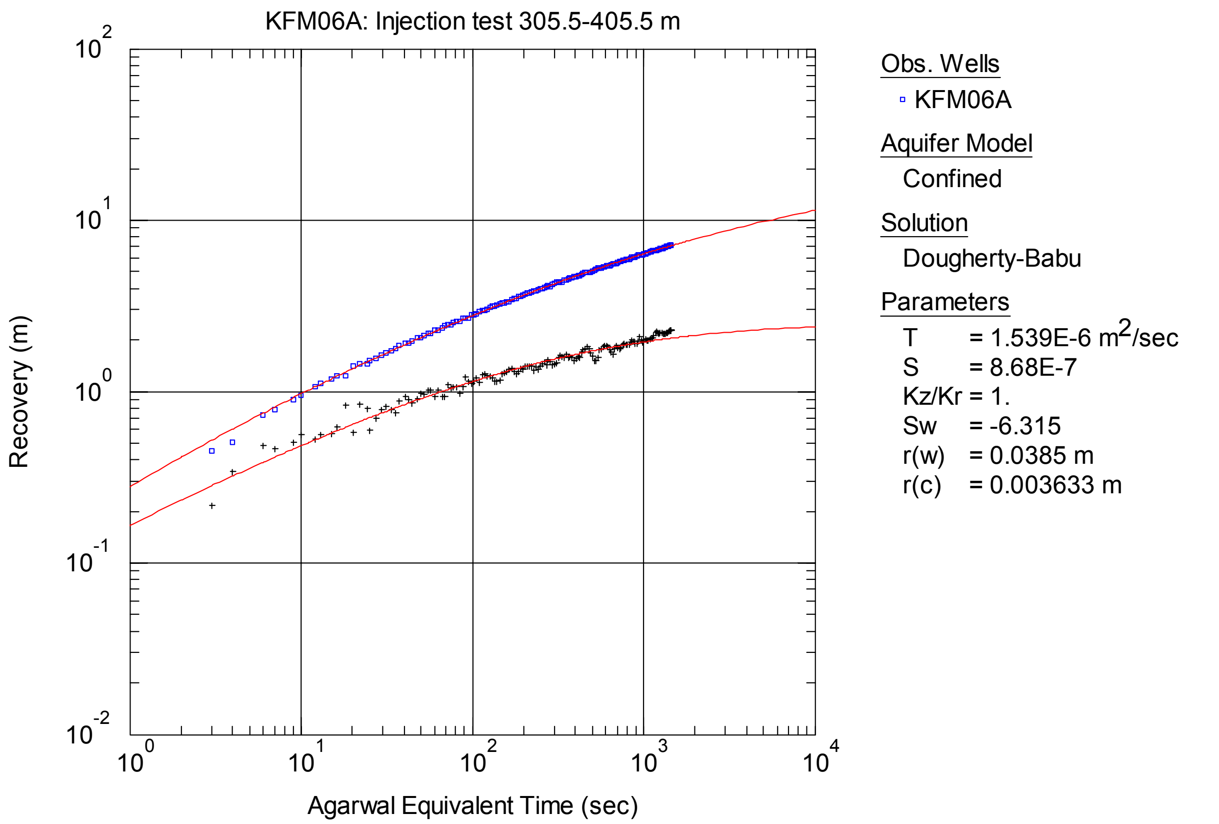


Figure A3-18. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 305.5-405.5 m in KFM06A.*

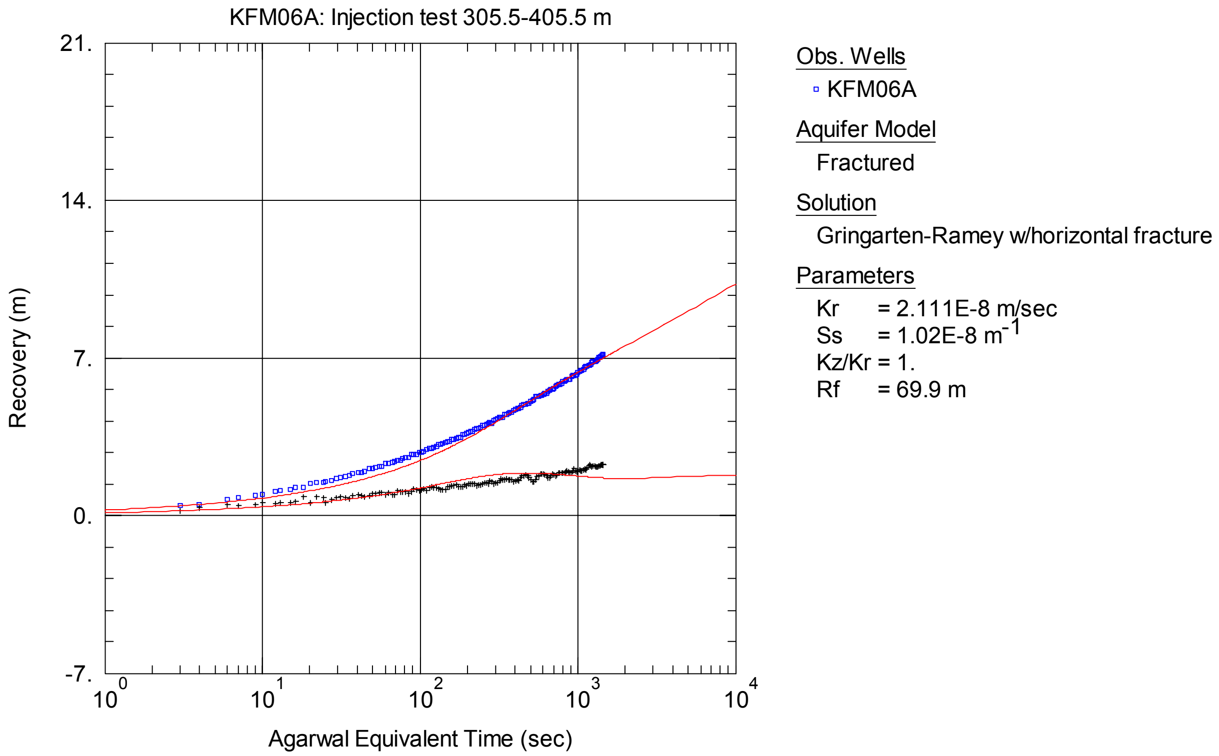


Figure A3-19. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time showing fit to Gringarten-Ramey solution, from the injection test in section 305.5-405.5 m in KFM06A.*

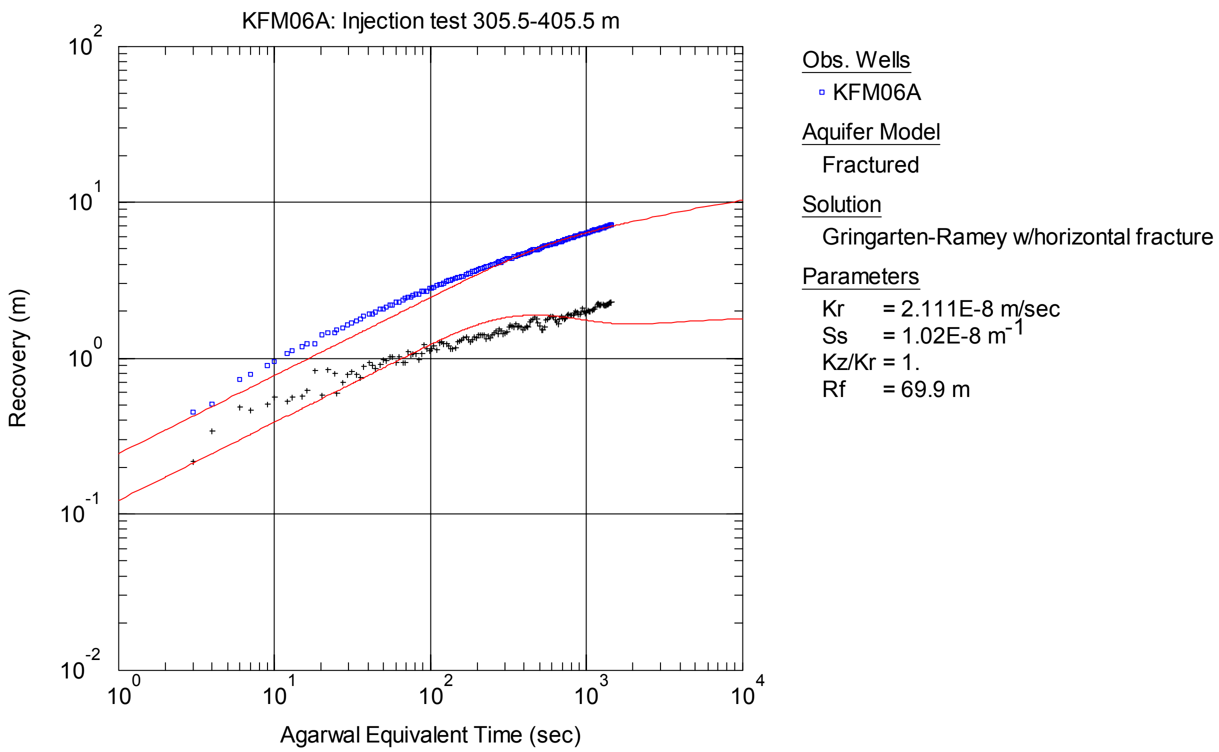


Figure A3-20. *Log-log plot of recovery (□) and derivative (+) versus equivalent time Gringarten-Ramey solution, from the injection test in section 305.5-405.5 m in KFM06A.*

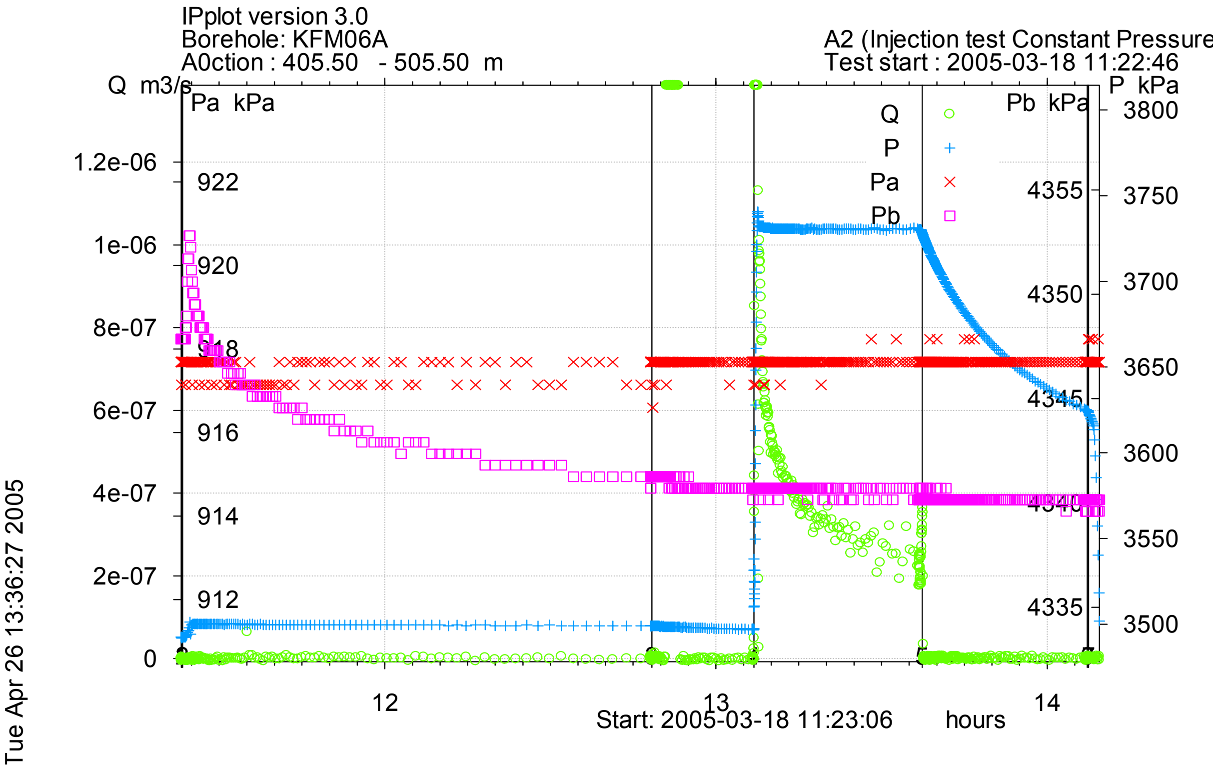


Figure A3-21. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 405.5-505.5 m in borehole KFM06A.*

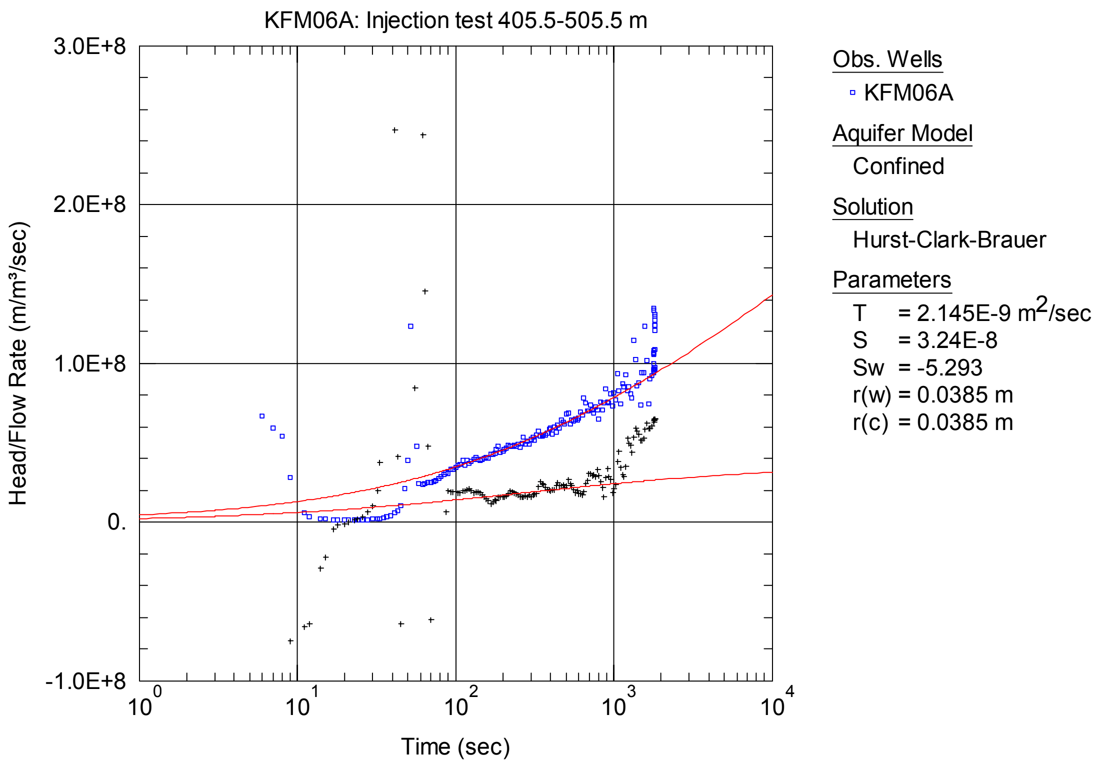


Figure A3-22. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 405.5-505.5 m in KFM06A.*

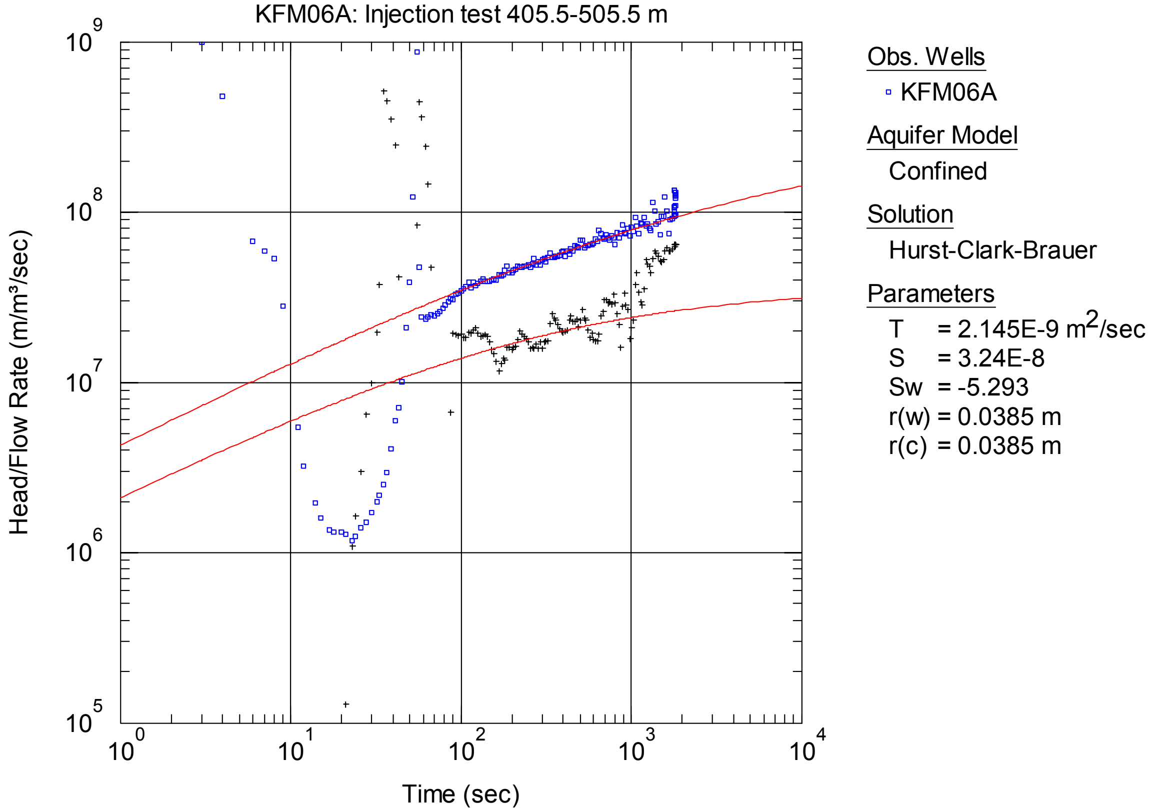


Figure A3-23. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 405.5-505.5 m in KFM06A.*

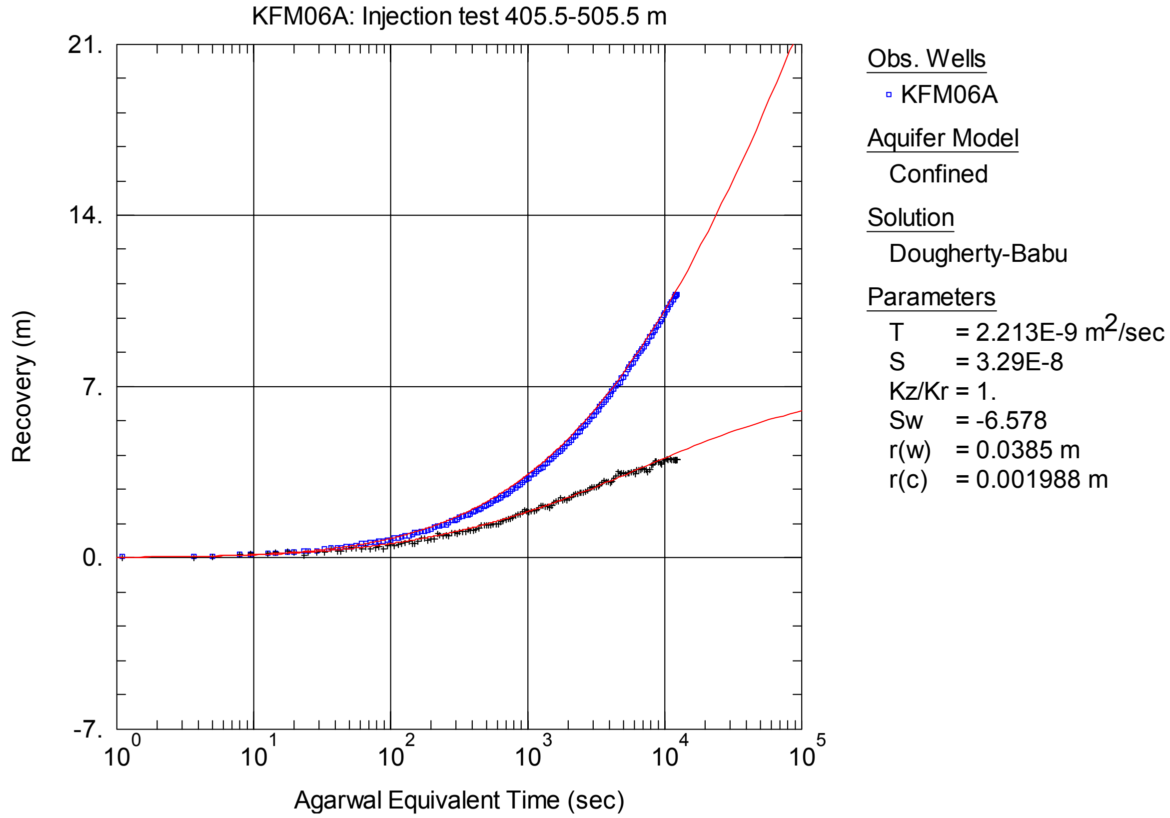


Figure A3-24. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 405.5-505.5 m in KFM06A.*

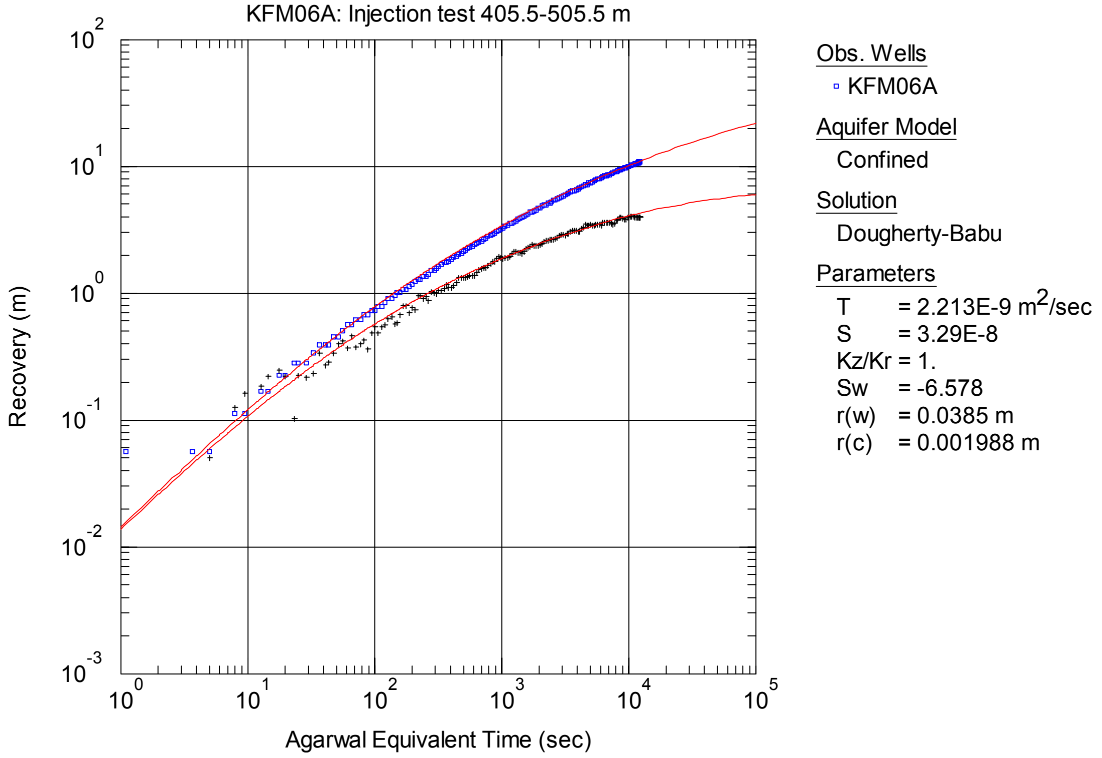


Figure A3-25. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 405.5-505.5 m in KFM06A.*

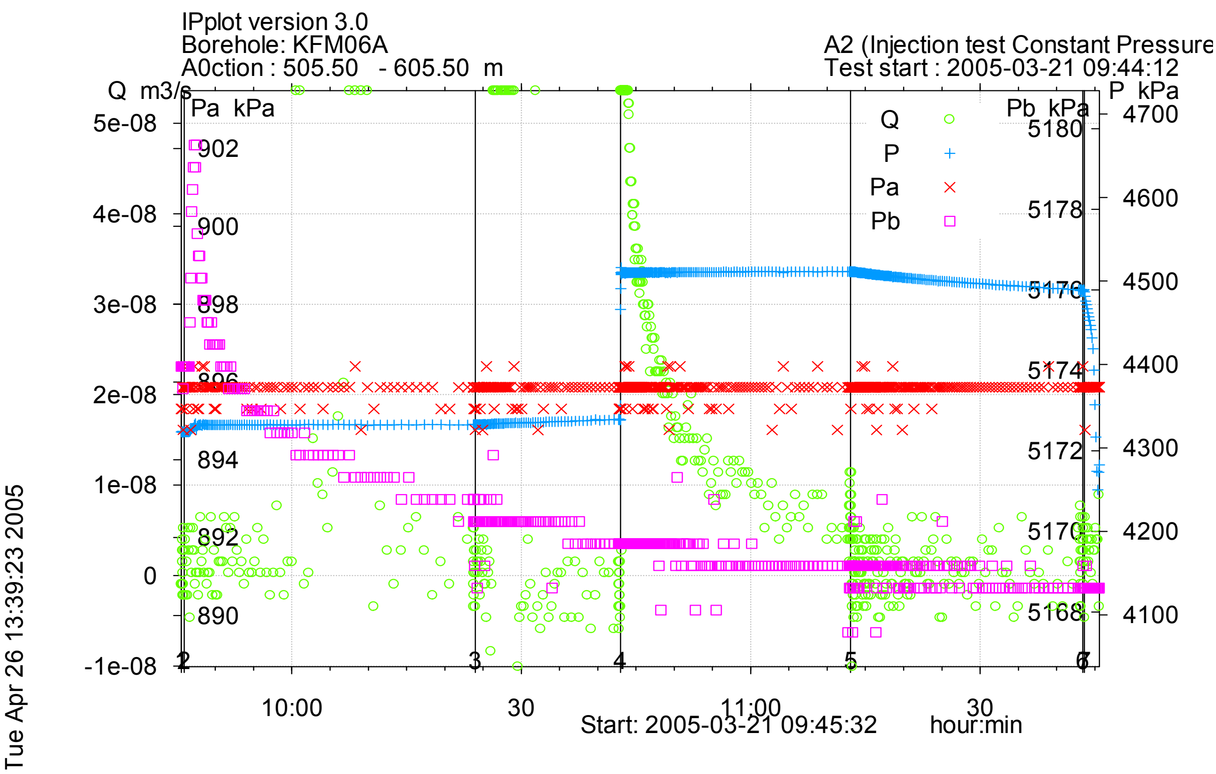


Figure A3-26. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 505.5-605.5 m in borehole KFM06A.*

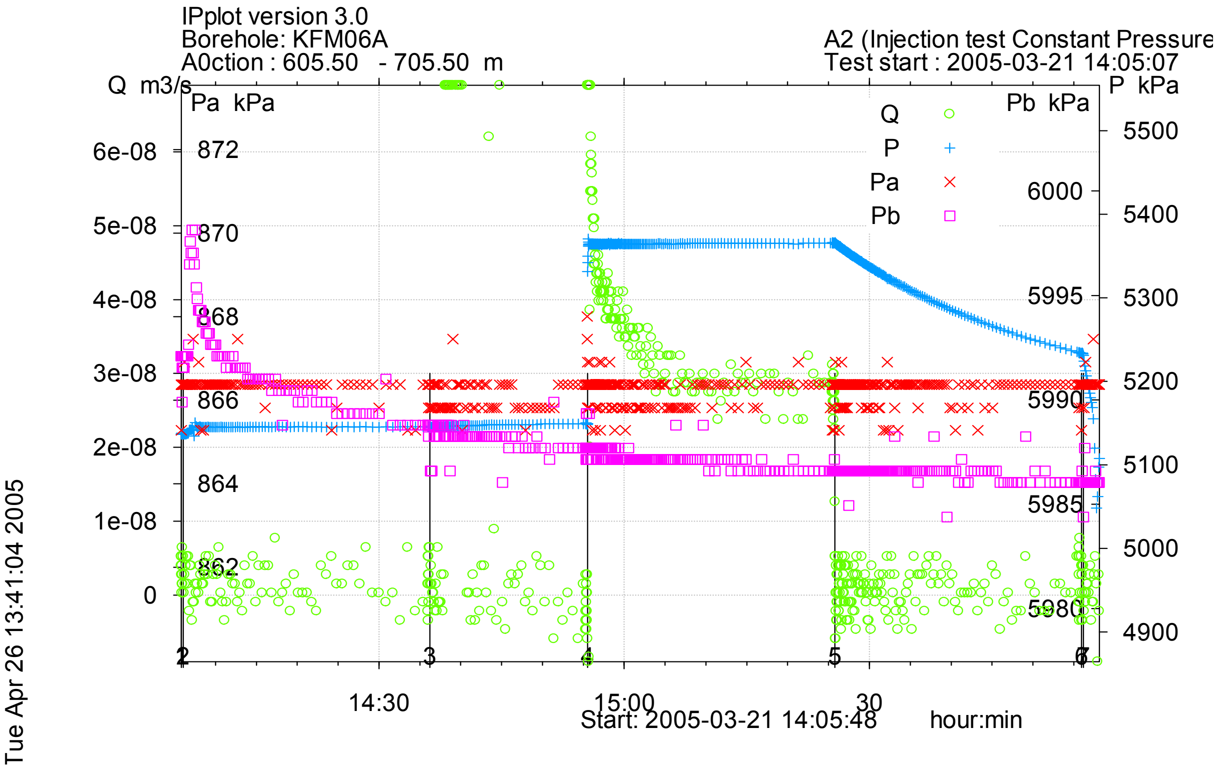


Figure A3-27. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 605.5-705.5 m in borehole KFM06A.*

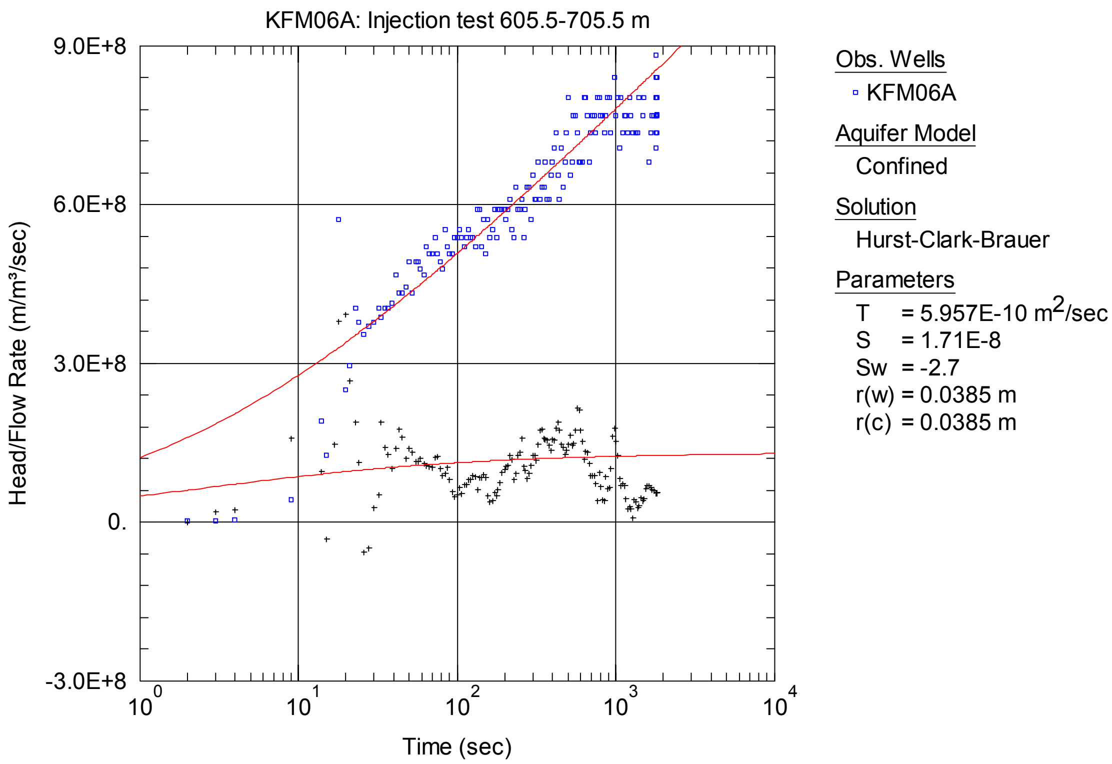


Figure A3-28. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 605.5-705.5 m in KFM06A.*

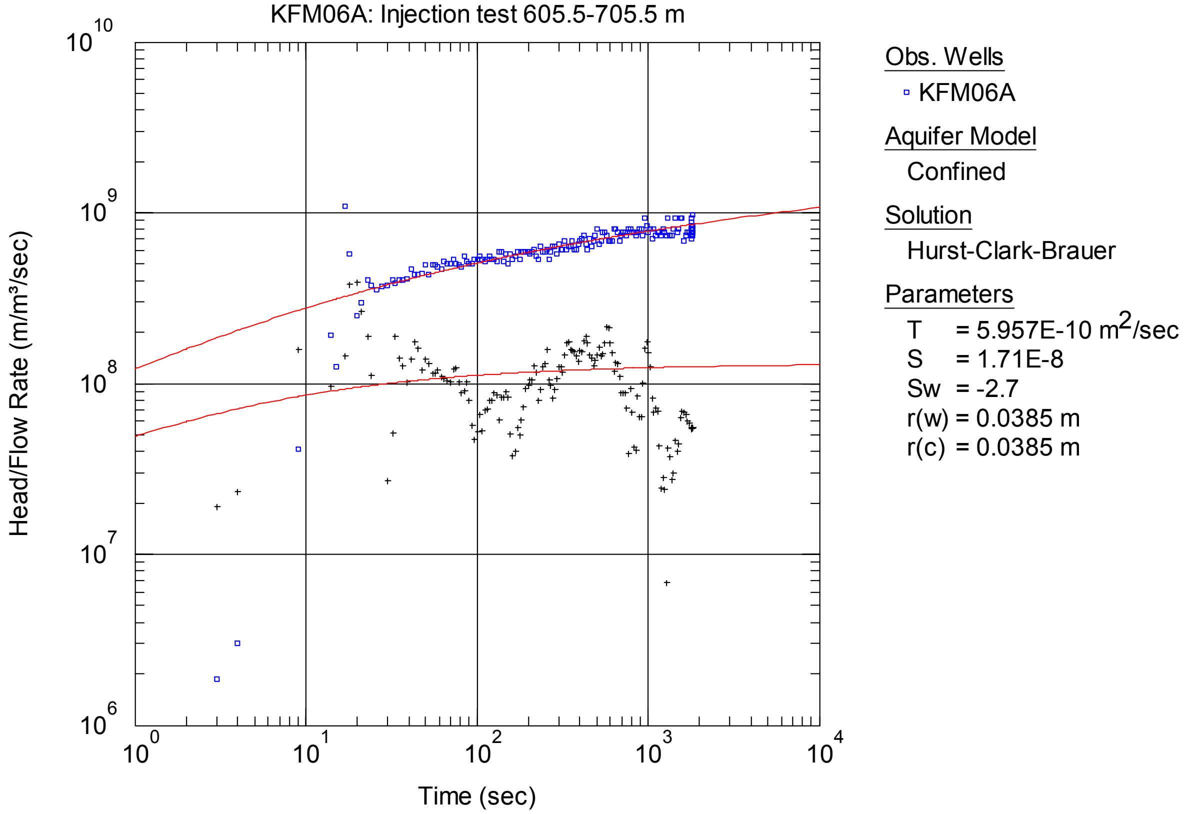


Figure A3-29. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 605.5-705.5 m in KFM06A.*

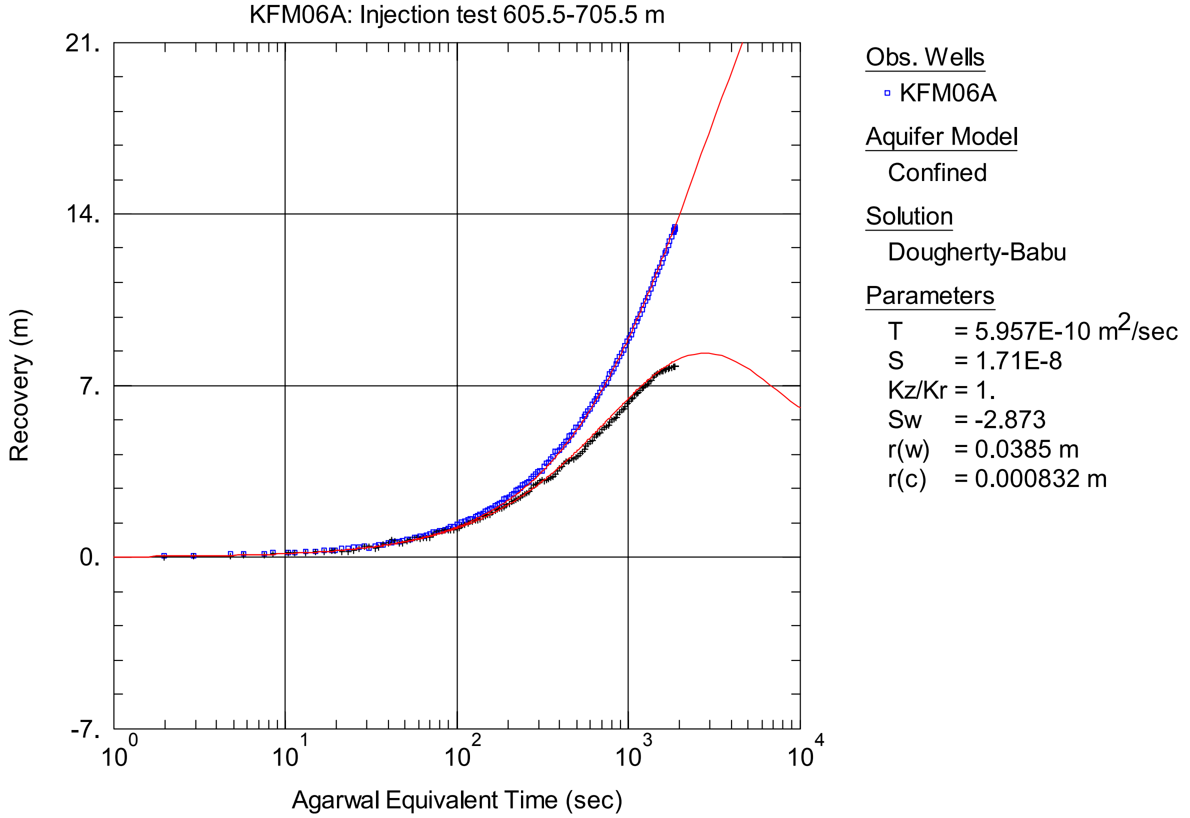


Figure A3-30. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 605.5-705.5 m in KFM06A.*

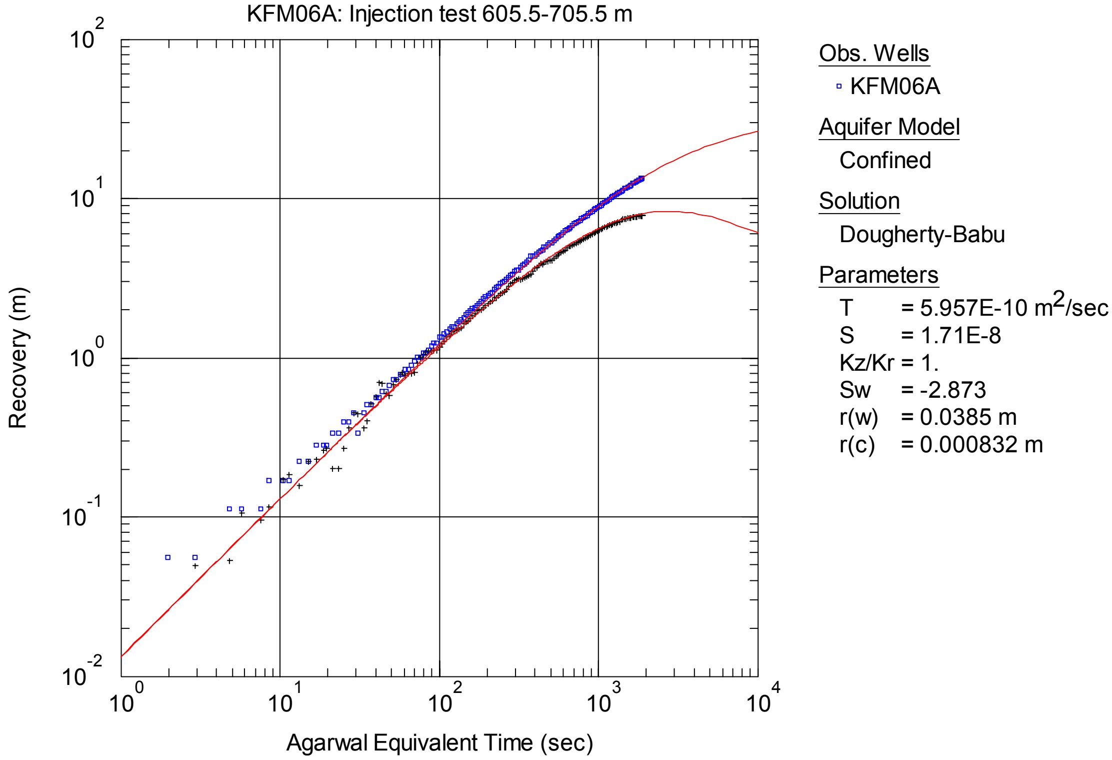


Figure A3-31. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 605.5-705.5 m in KFM06A.*

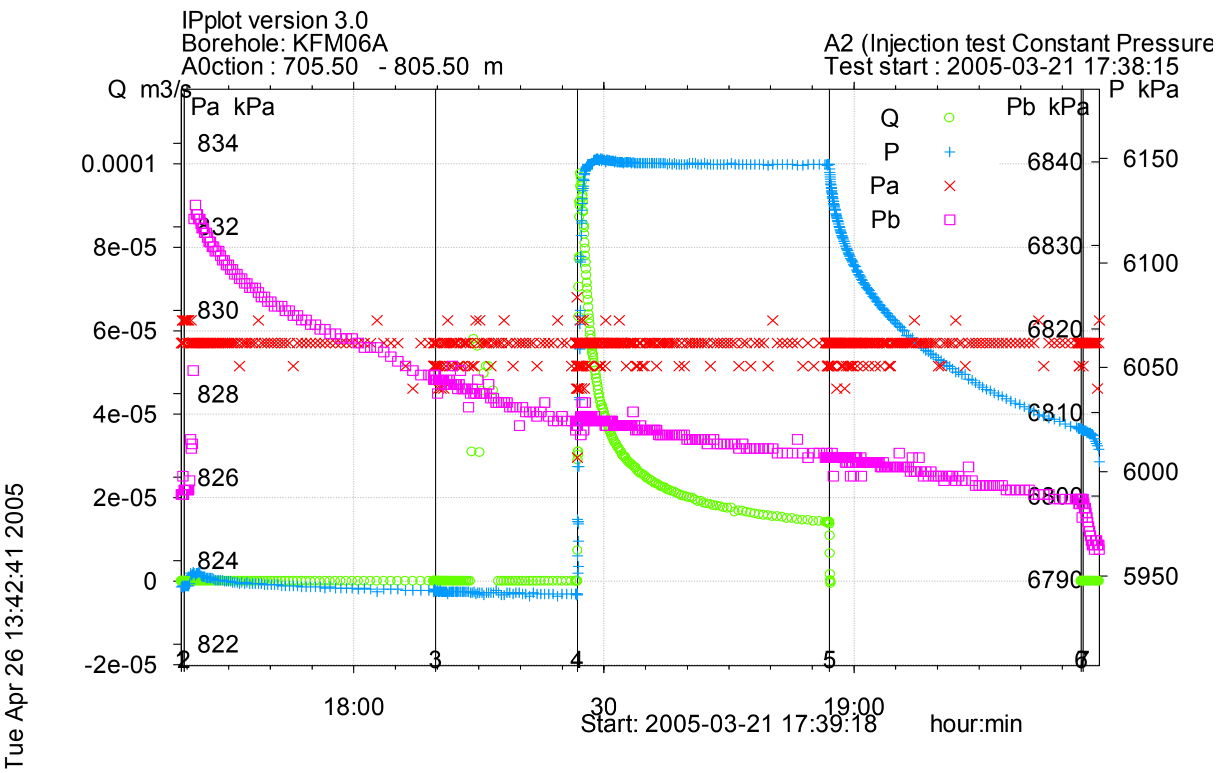


Figure A3-32. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 705.5-805.5 m in borehole KFM06A.*

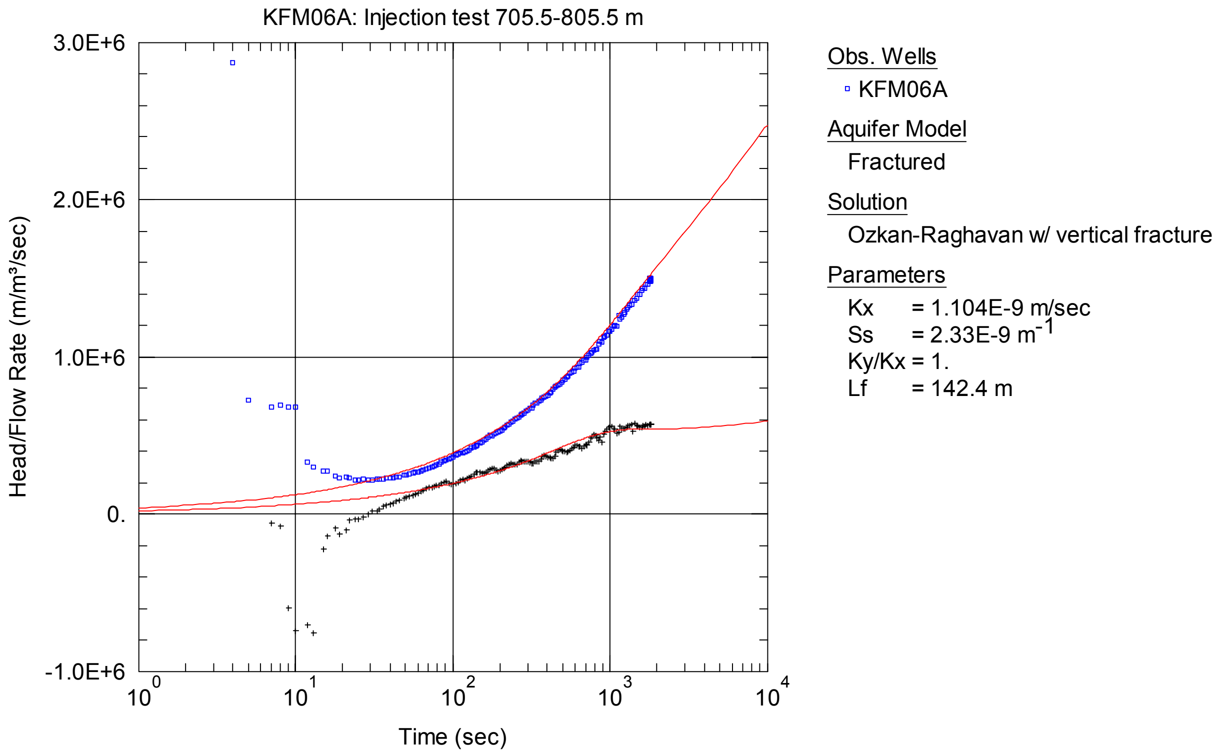


Figure A3-33. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Ozkan-Raghavan solution, from the injection test in section 705.5-805.5 m in KFM06A.*

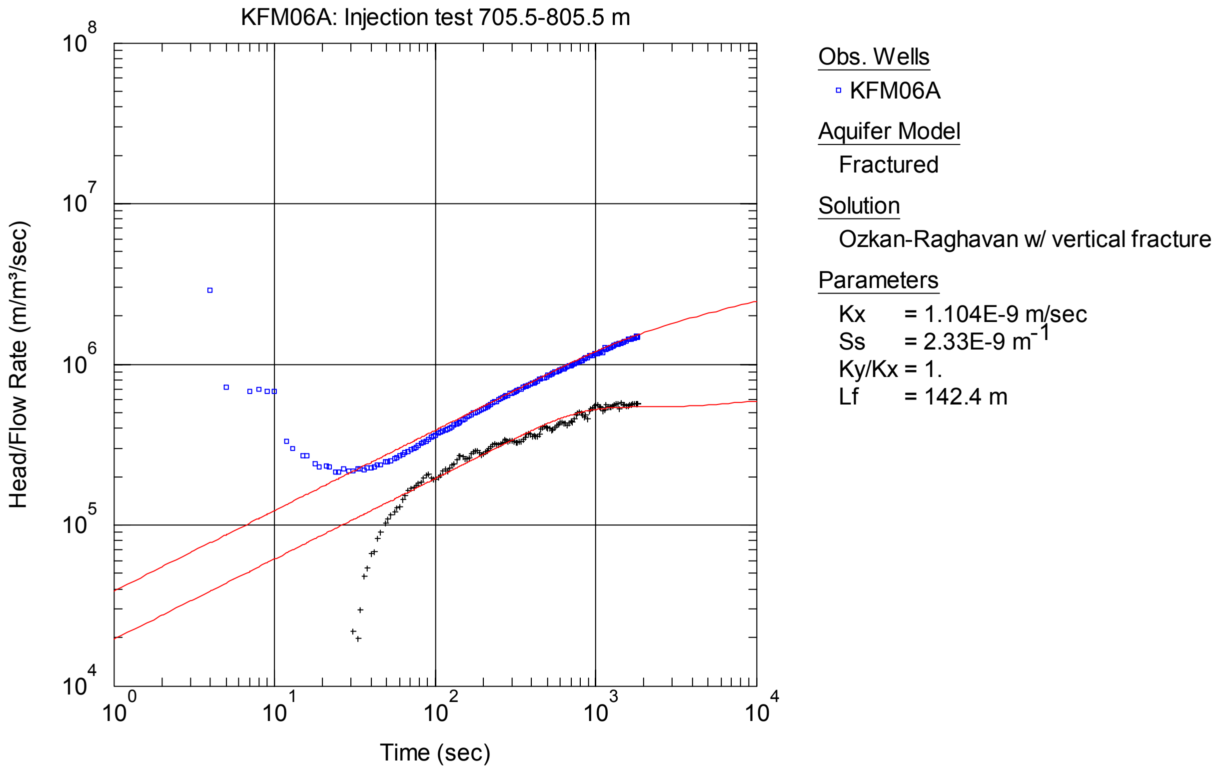


Figure A3-34. *Log-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Ozkan-Raghavan solution, from the injection test in section 705.5-805.5 m in KFM06A.*

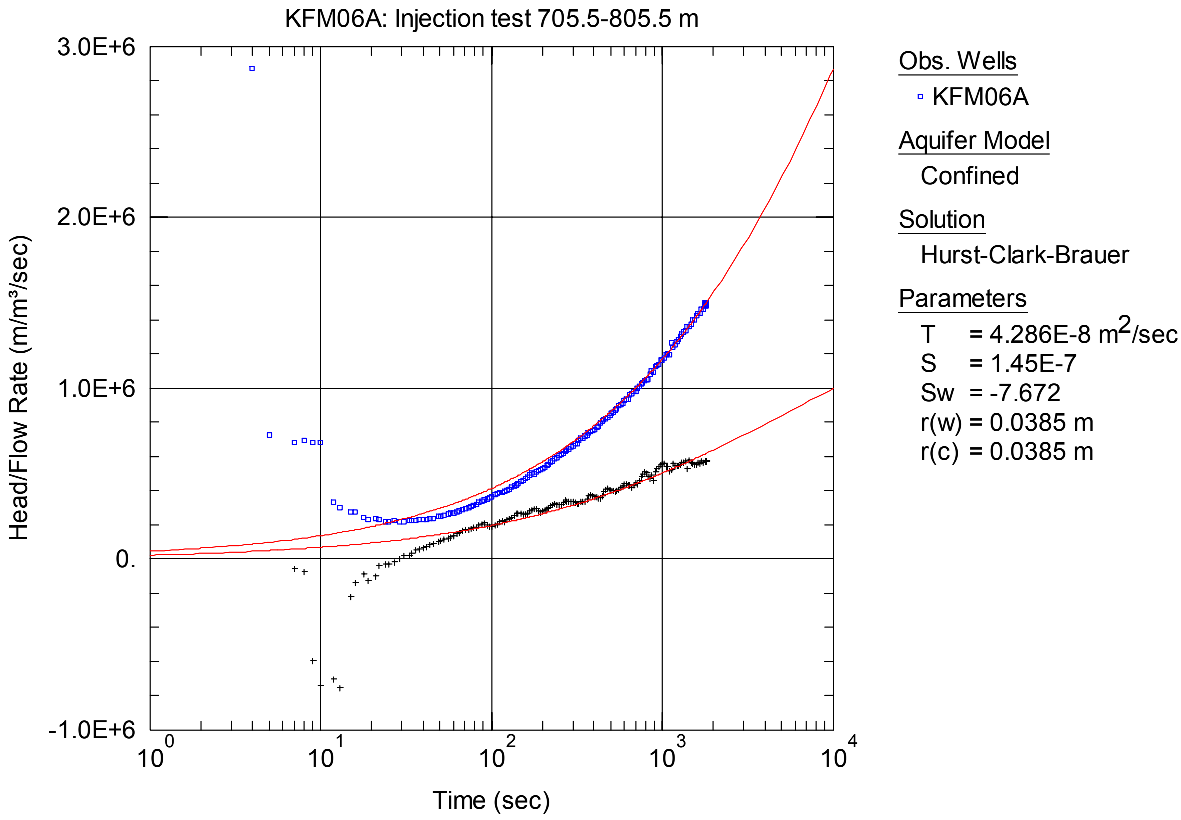


Figure A3-35. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 705.5-805.5 m in KFM06A.*

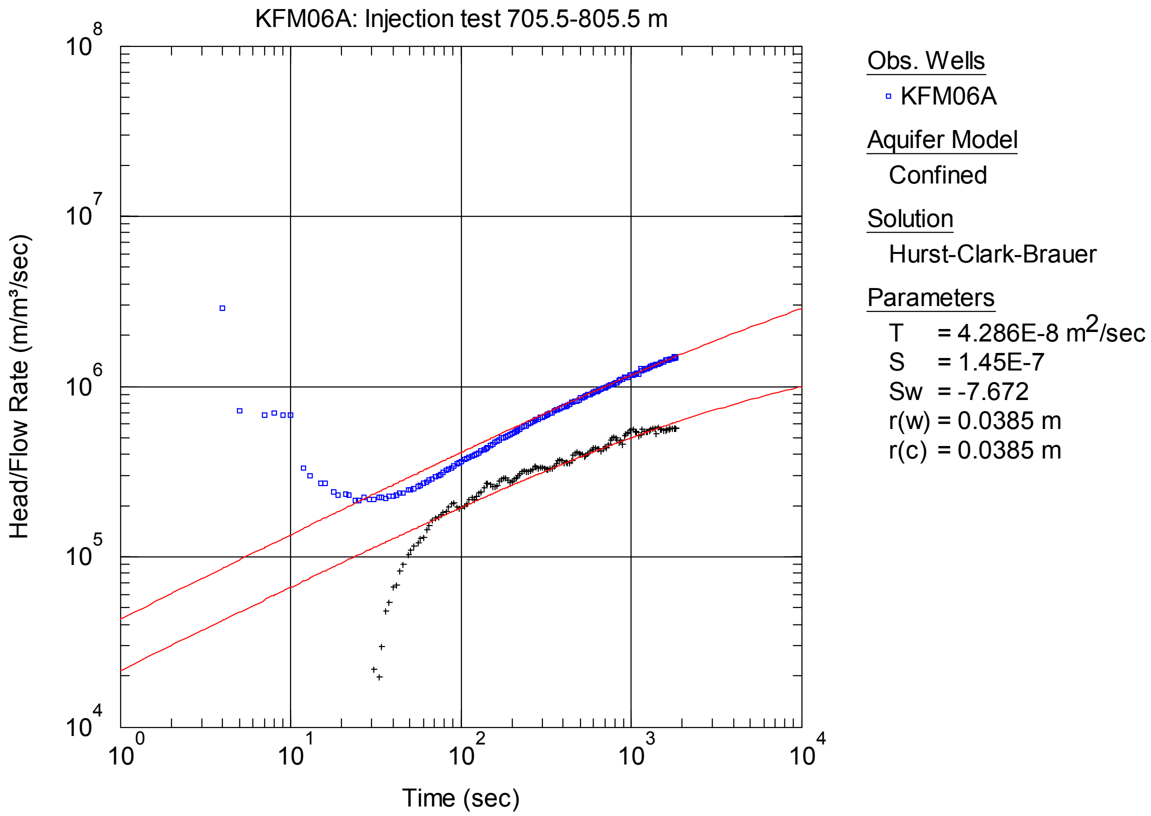


Figure A3-36. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 705.5-805.5 m in KFM06A.*

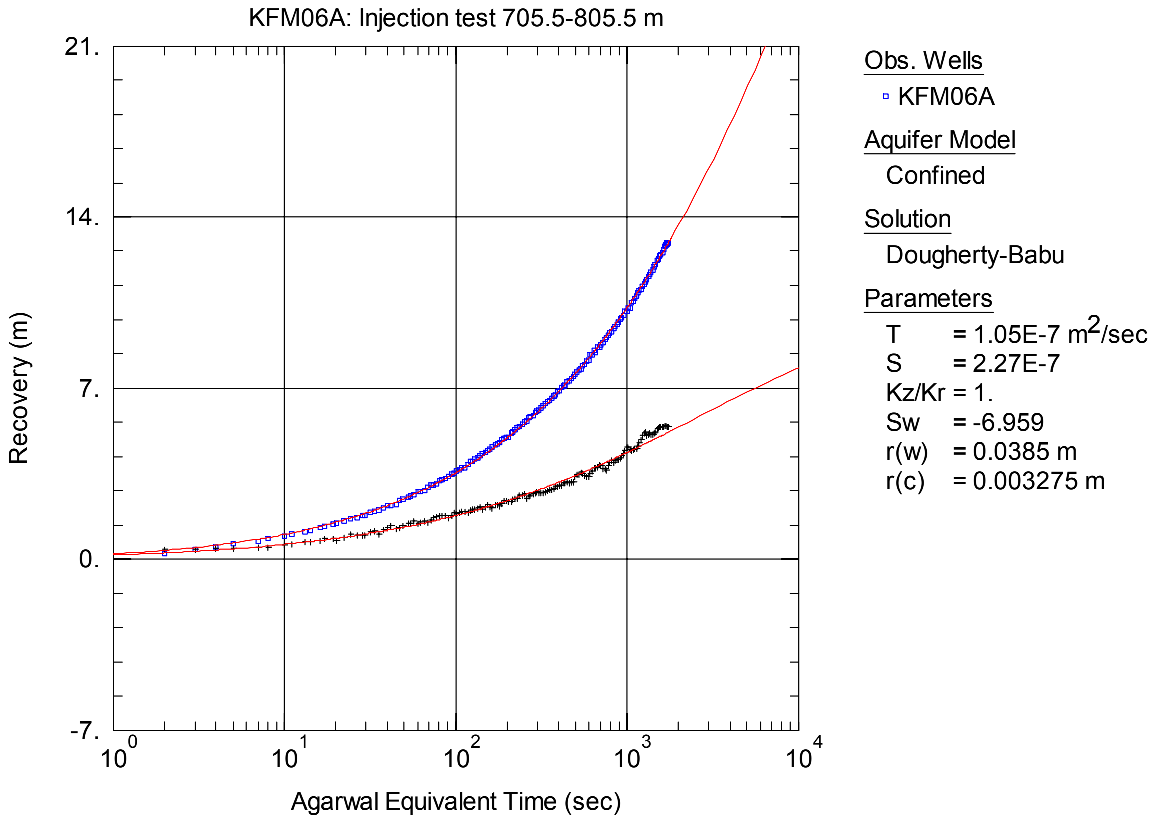


Figure A3-37. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 705.5-805.5 m in KFM06A.*

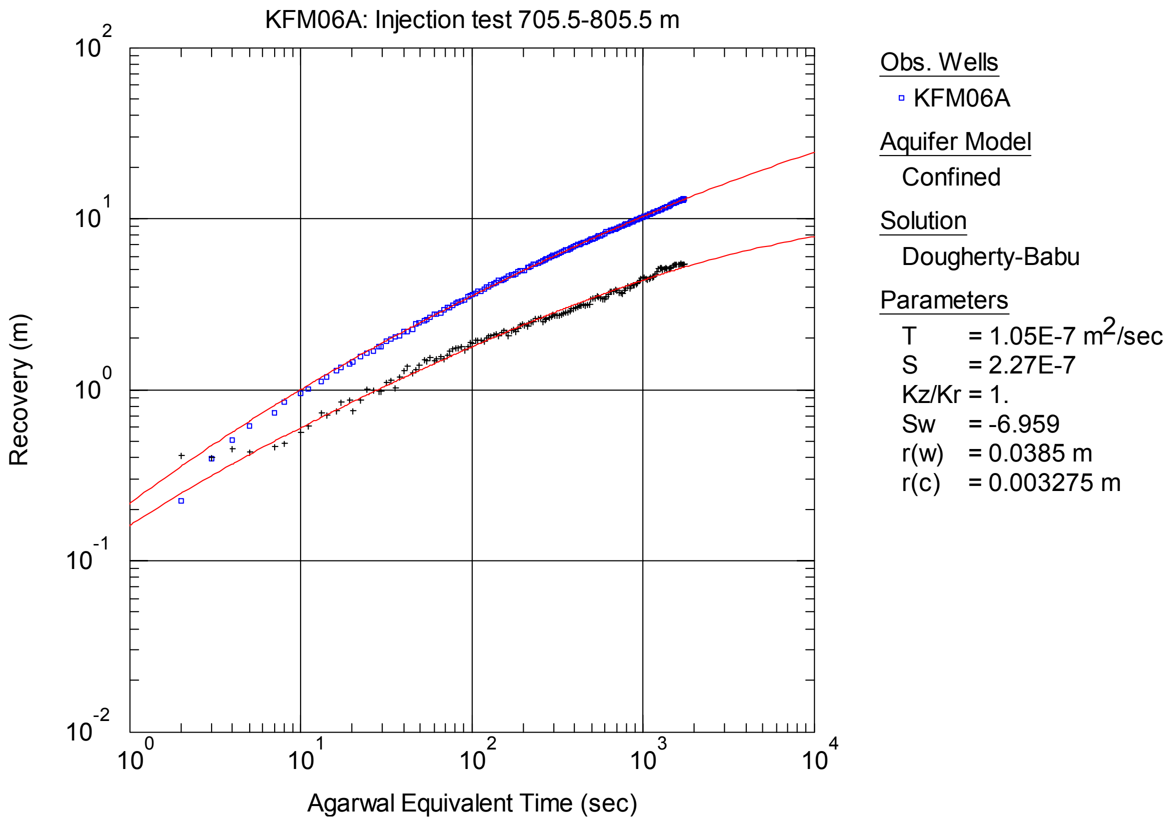


Figure A3-38. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 705.5-805.5 m in KFM06A.*

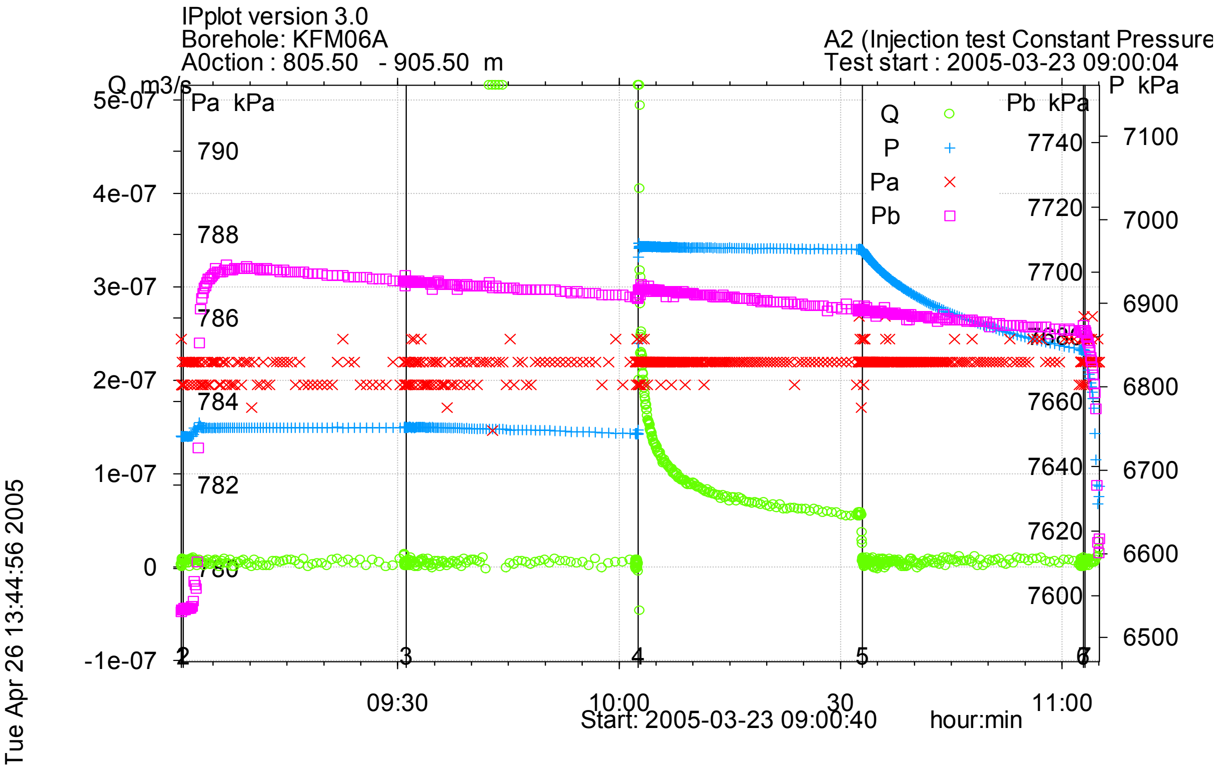


Figure A3-39. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 805.5-905.5 m in borehole KFM06A.*

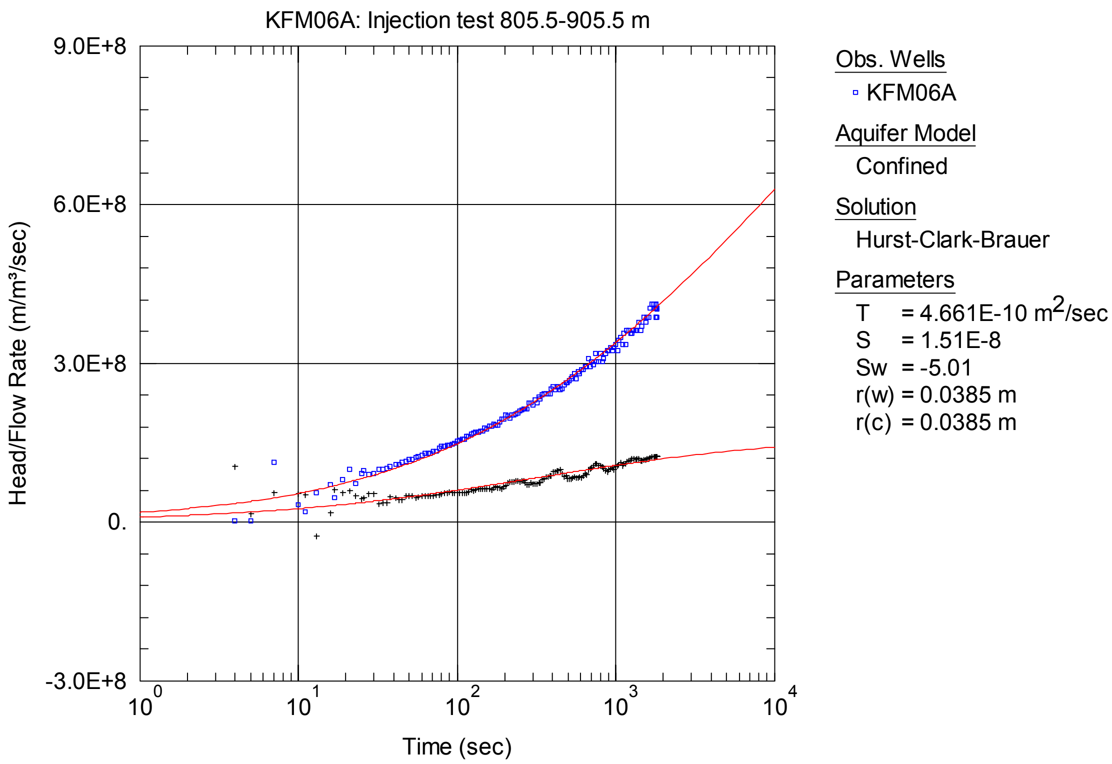


Figure A3-40. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 805.5-905.5 m in KFM06A.*

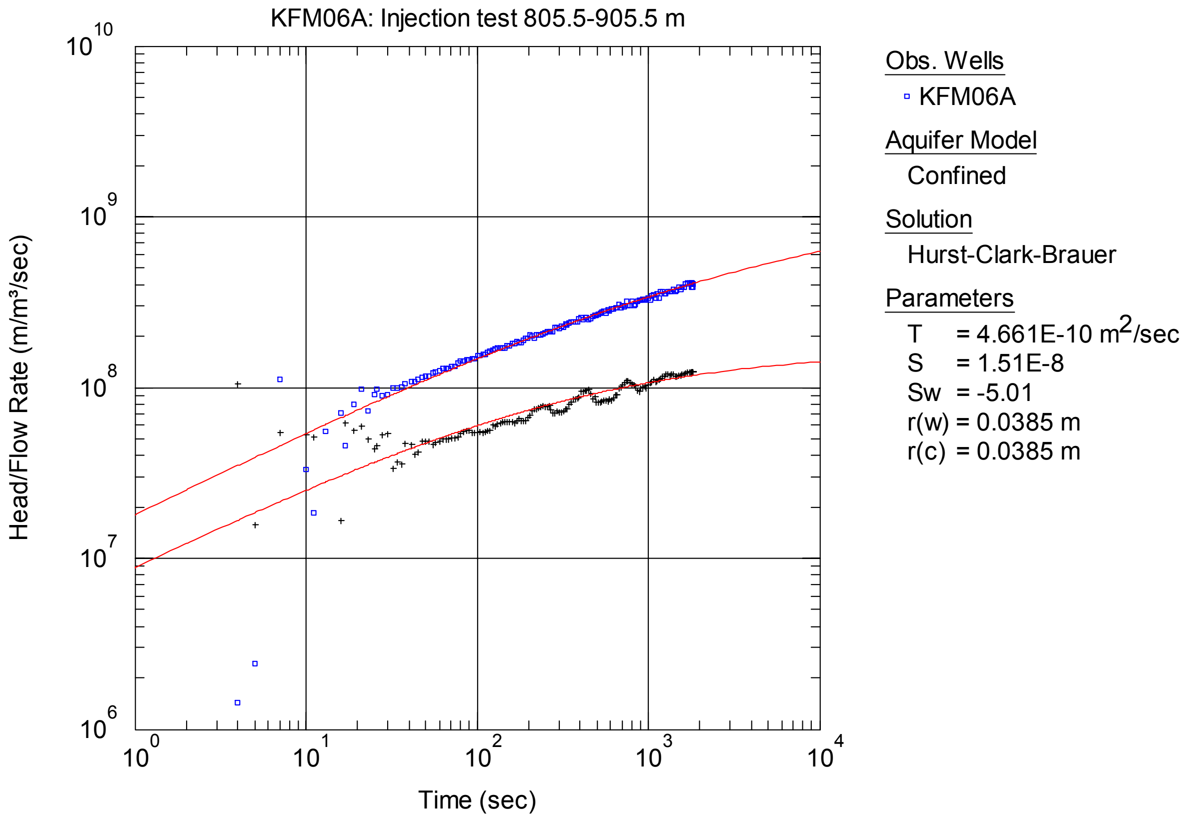


Figure A3-41. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 805.5-905.5 m in KFM06A.*

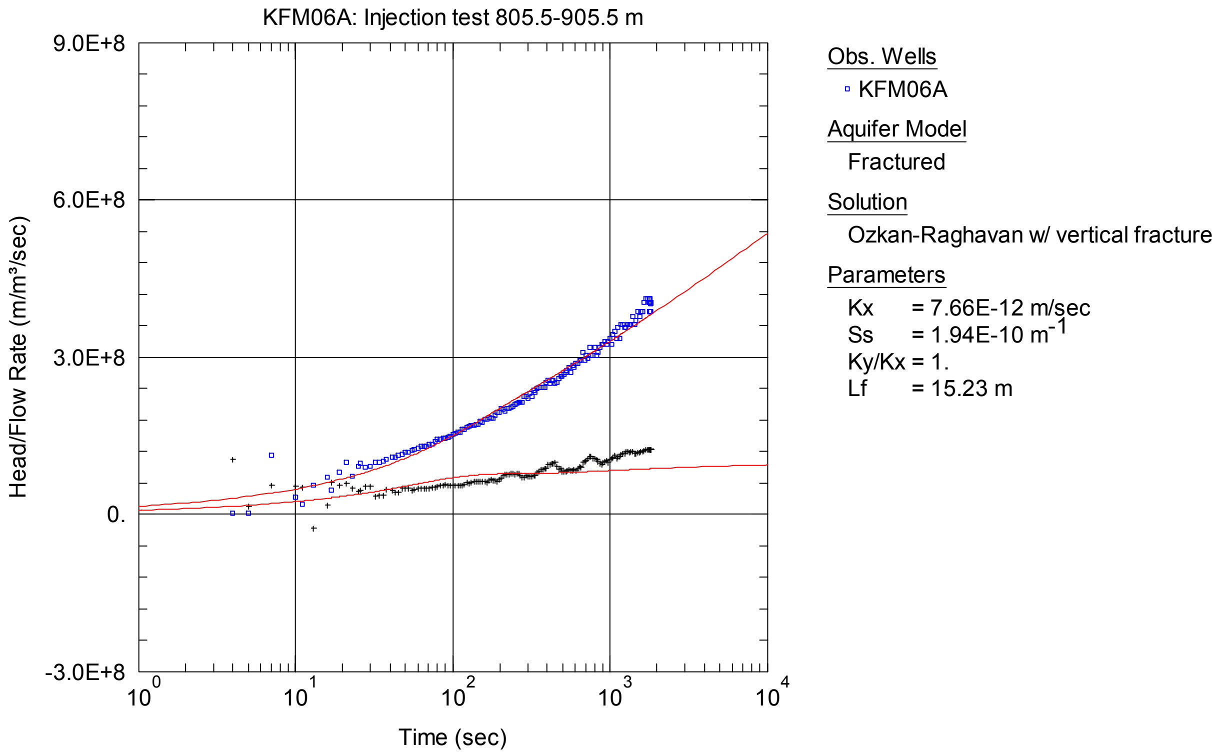


Figure A3-42. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Ozkan-Raghavan solution, from the injection test in section 805.5-905.5 m in KFM06A.*

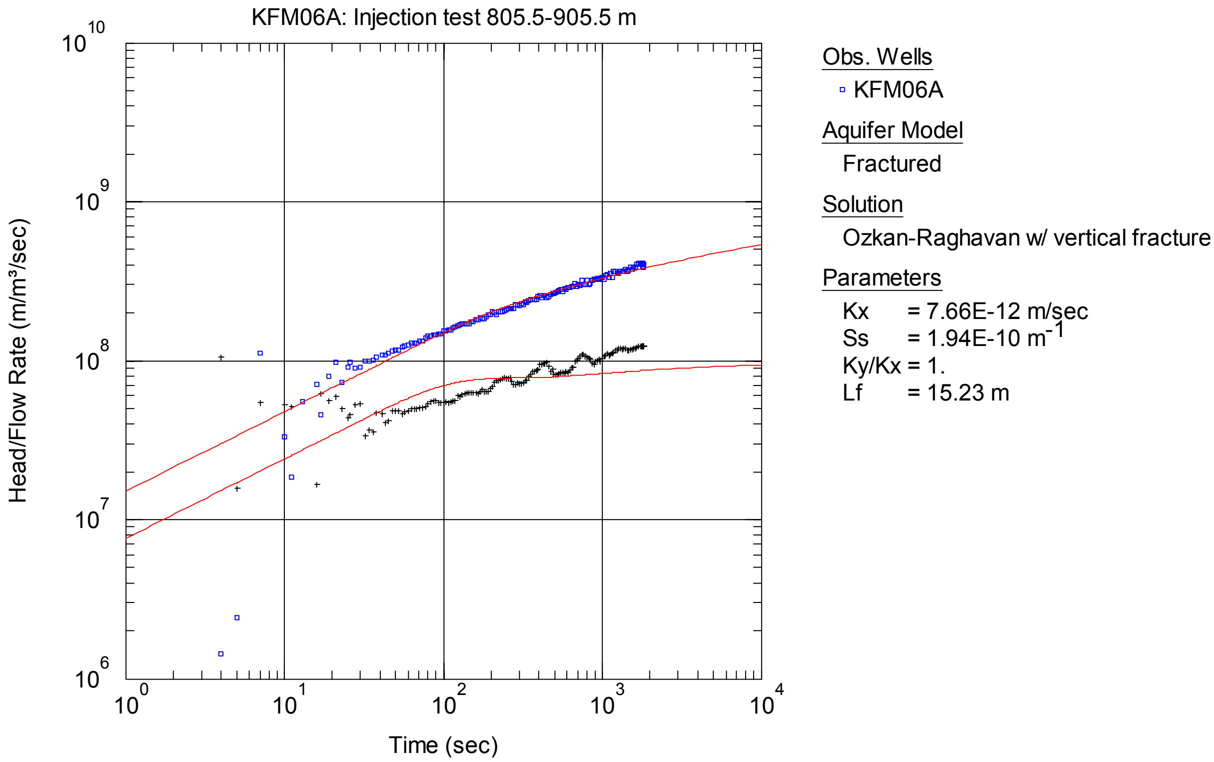


Figure A3-43. Log-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Ozkan-Raghavan solution, from the injection test in section 805.5-905.5 m in KFM06A.

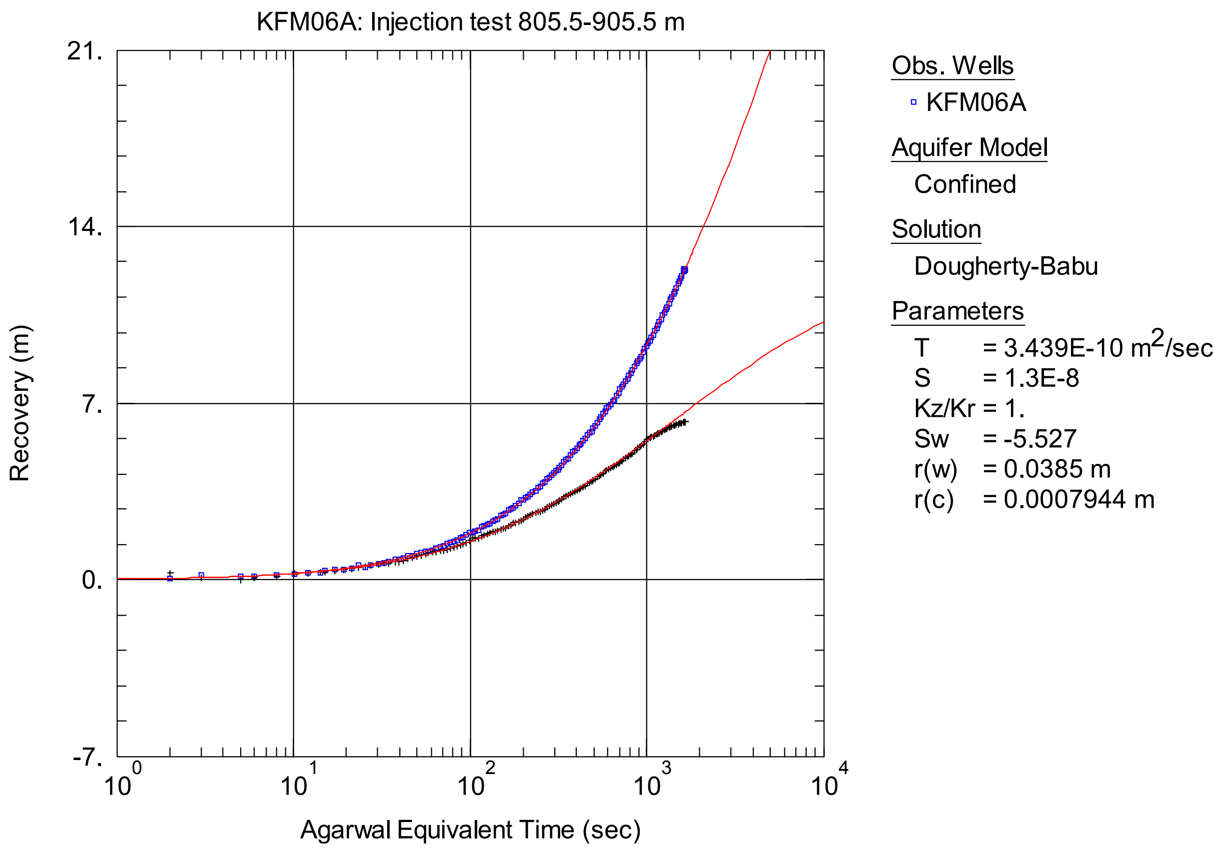


Figure A3-44. Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 805.5-905.5 m in KFM06A.

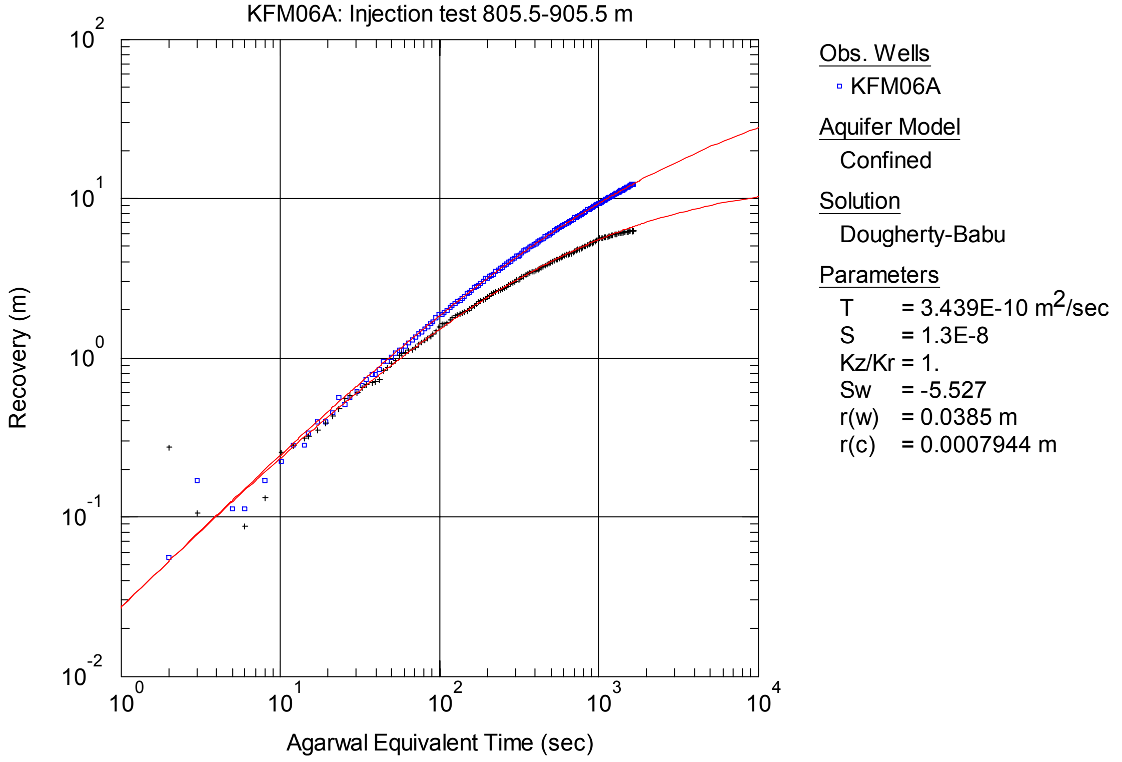


***Figure A3-45.** Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 805.5-905.5 m in KFM06A.*

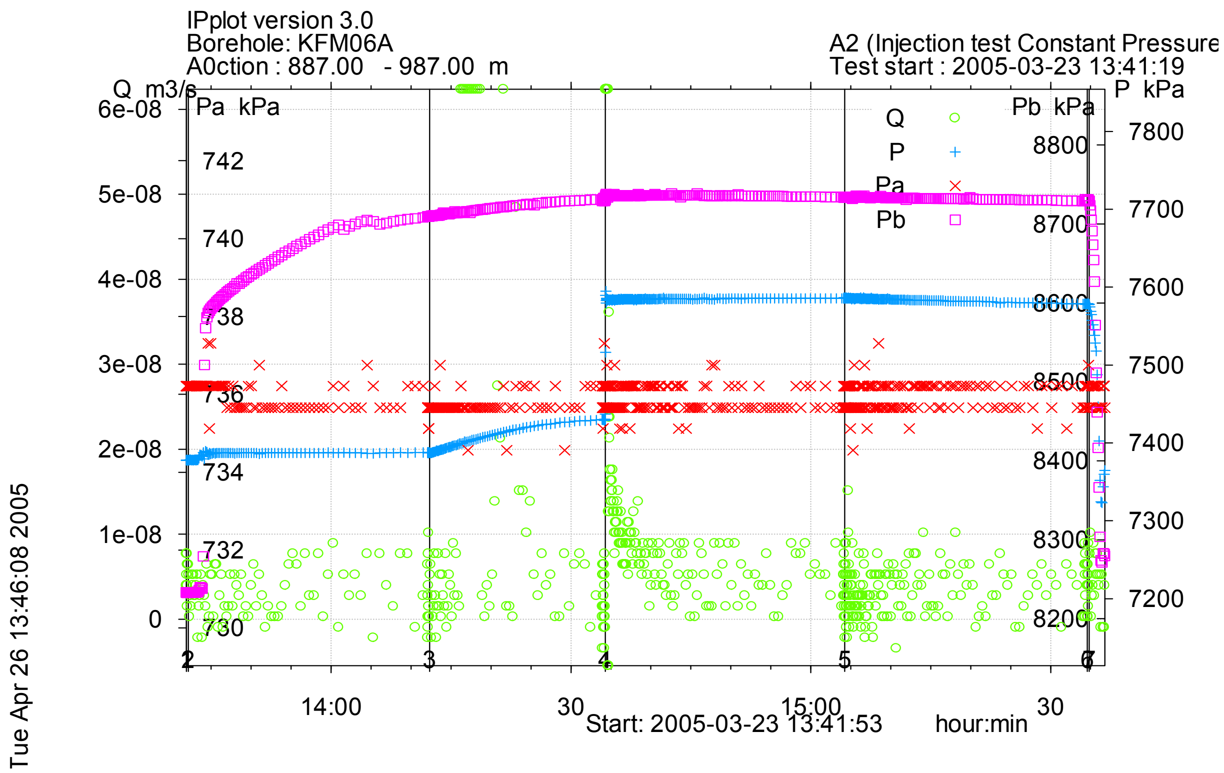


***Figure A3-46.** Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 887.0-987.0 m in borehole KFM06A.*

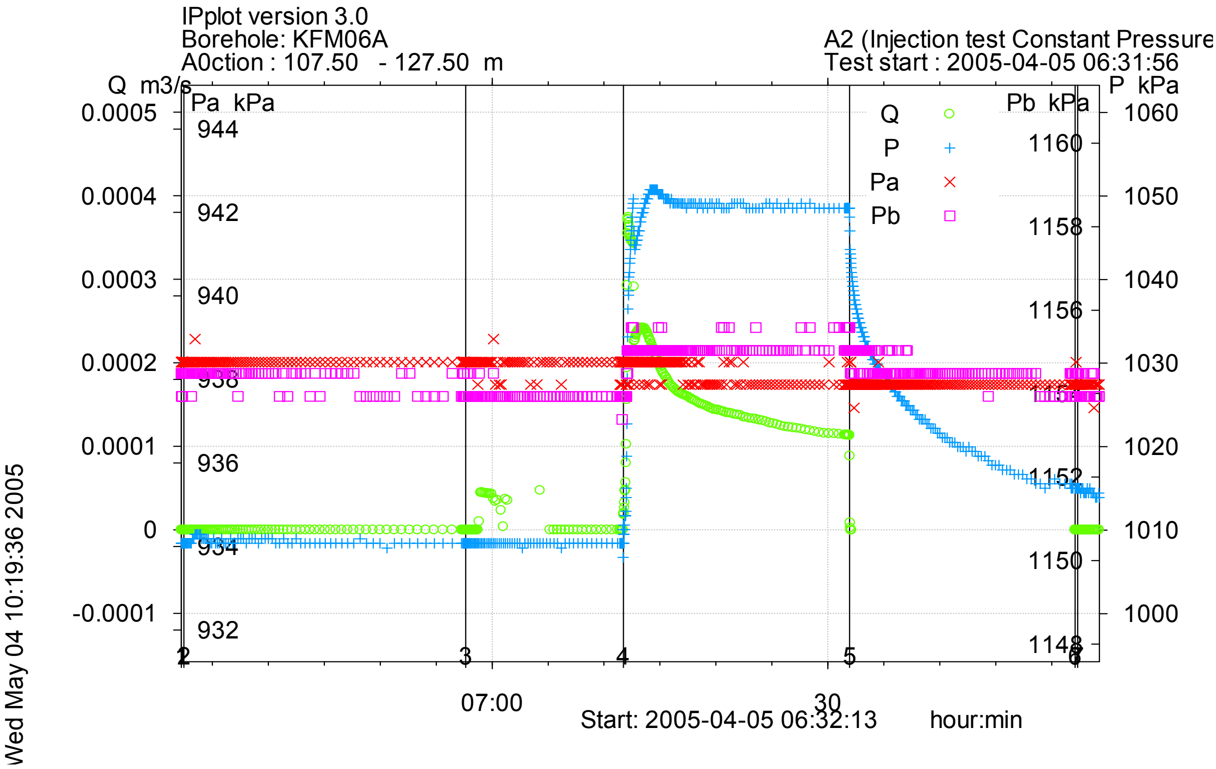


__Figure A3-47.__ Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 107.5-127.5 m in borehole KFM06A.

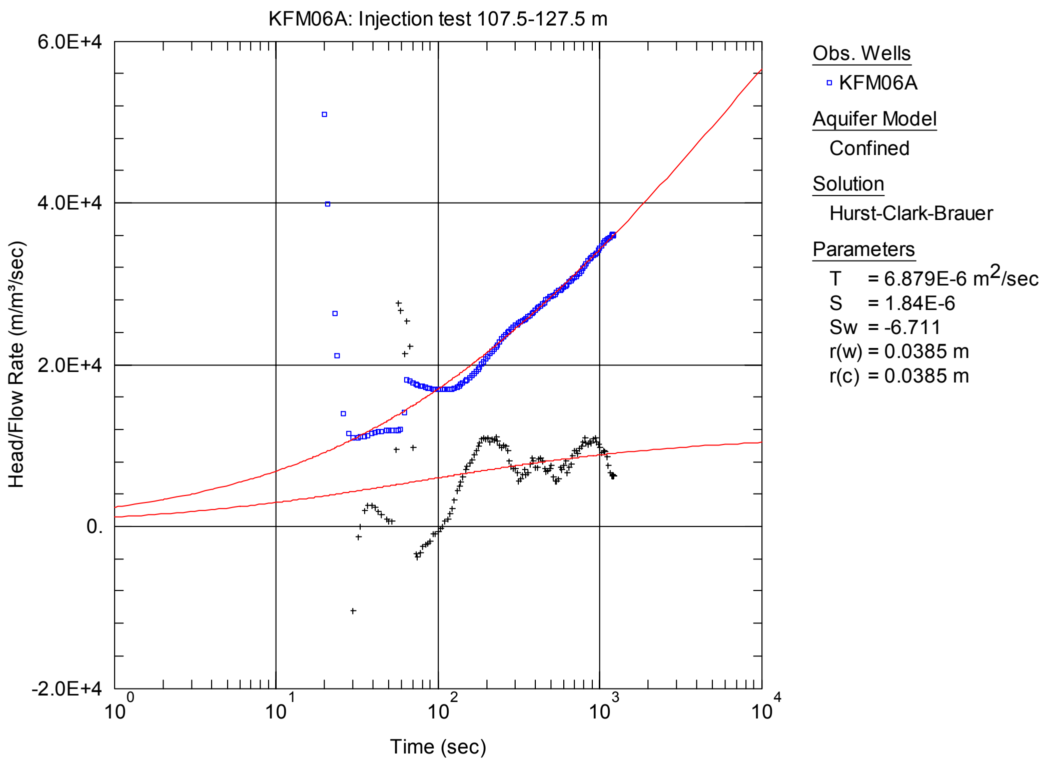


__Figure A3-48.__ Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 107.5-127.5 m in KFM06A.

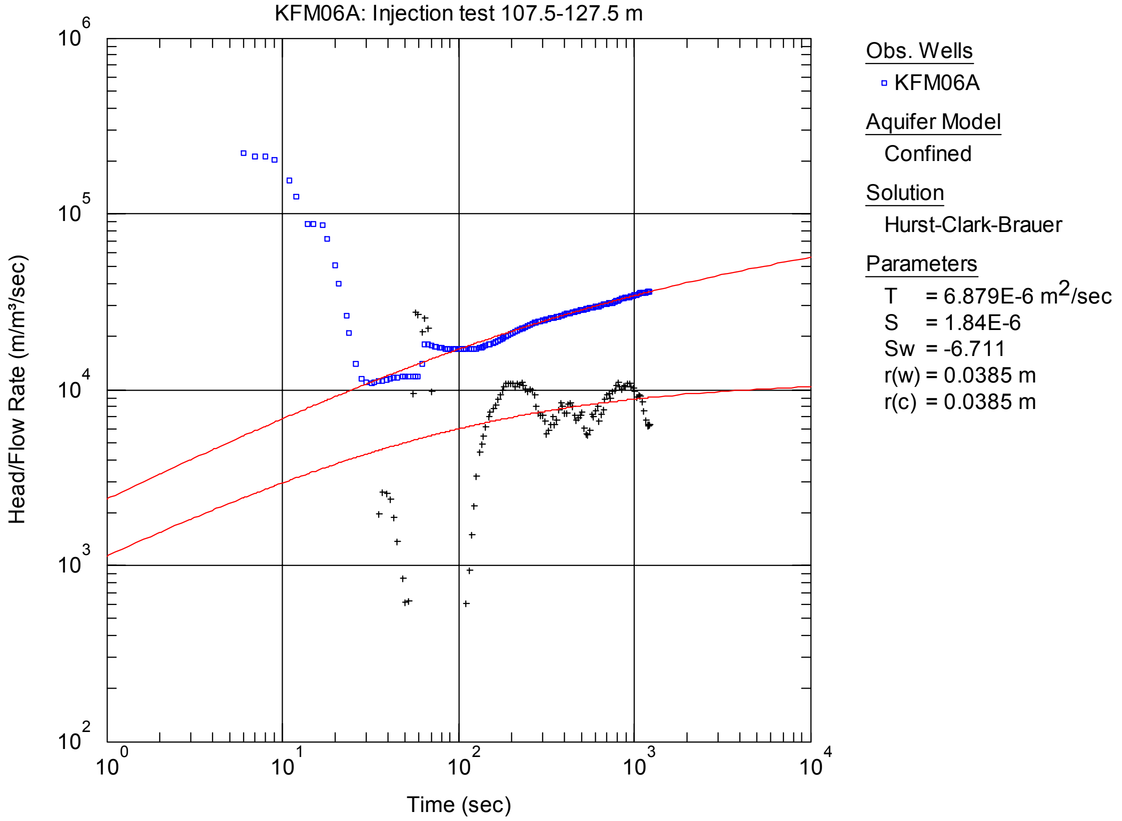


Figure A3-49. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 107.5-127.5 m in KFM06A.*

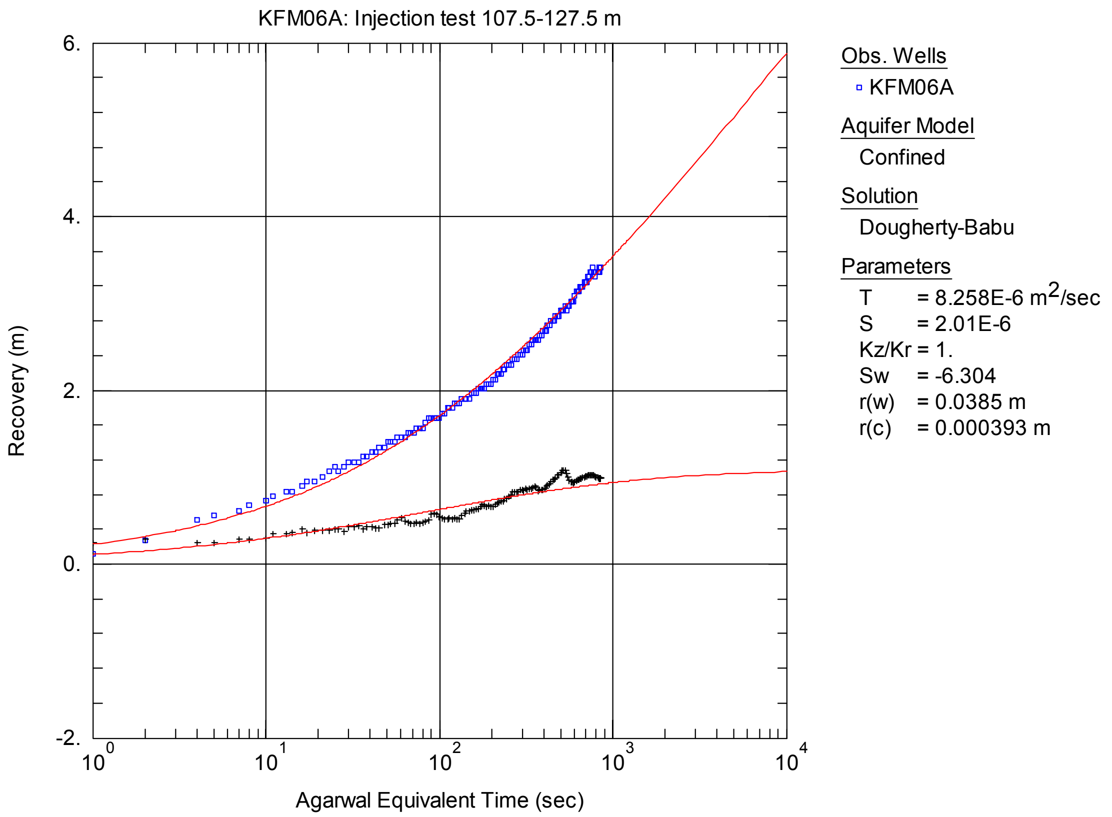


Figure A3-50. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 107.5-127.5 m in KFM06A.*

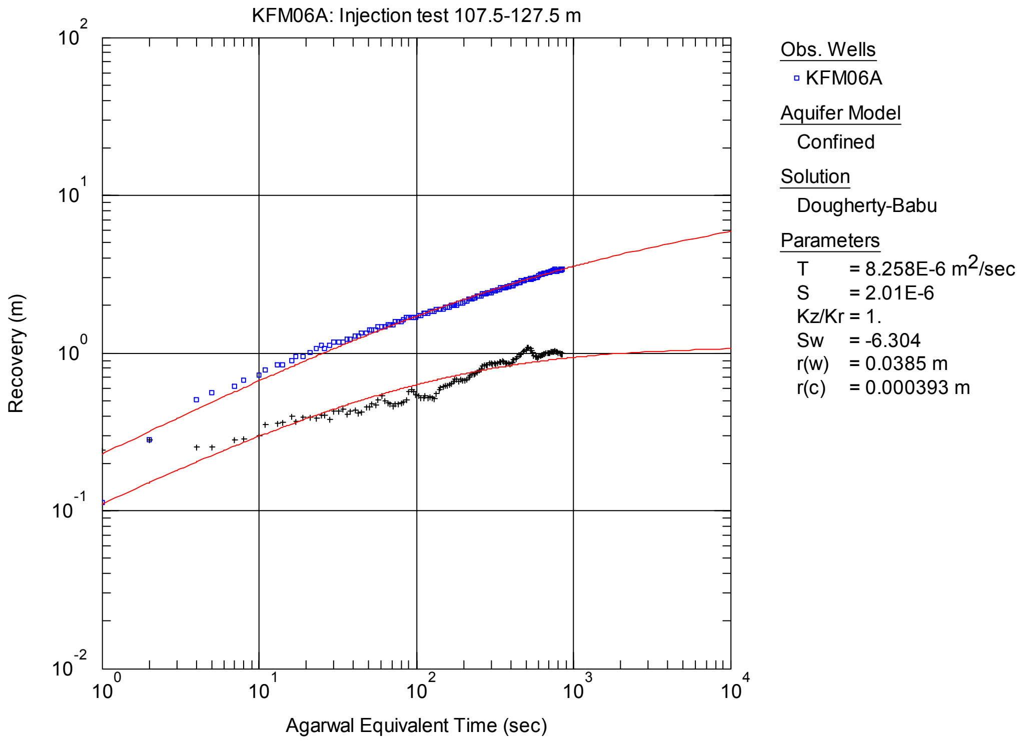


Figure A3-51. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 107.5-127.5 m in KFM06A.*

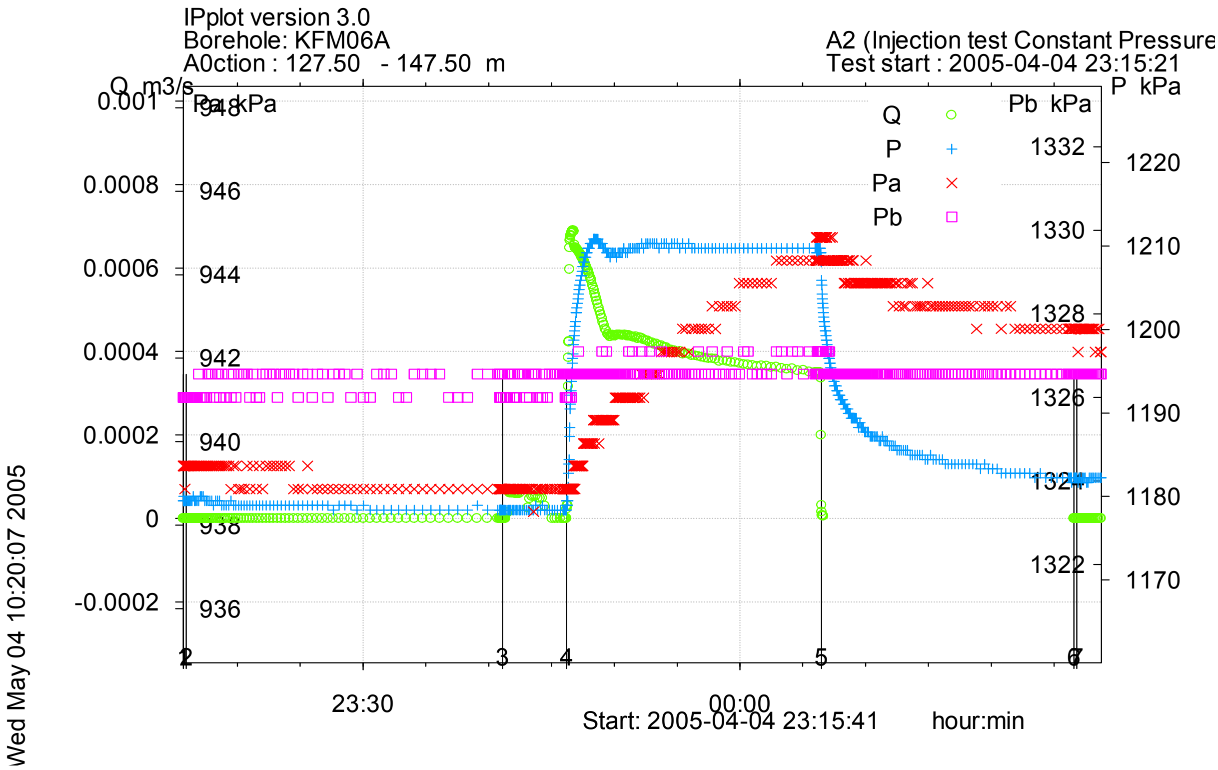


Figure A3-52. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 127.5-147.5 m in borehole KFM06A.*

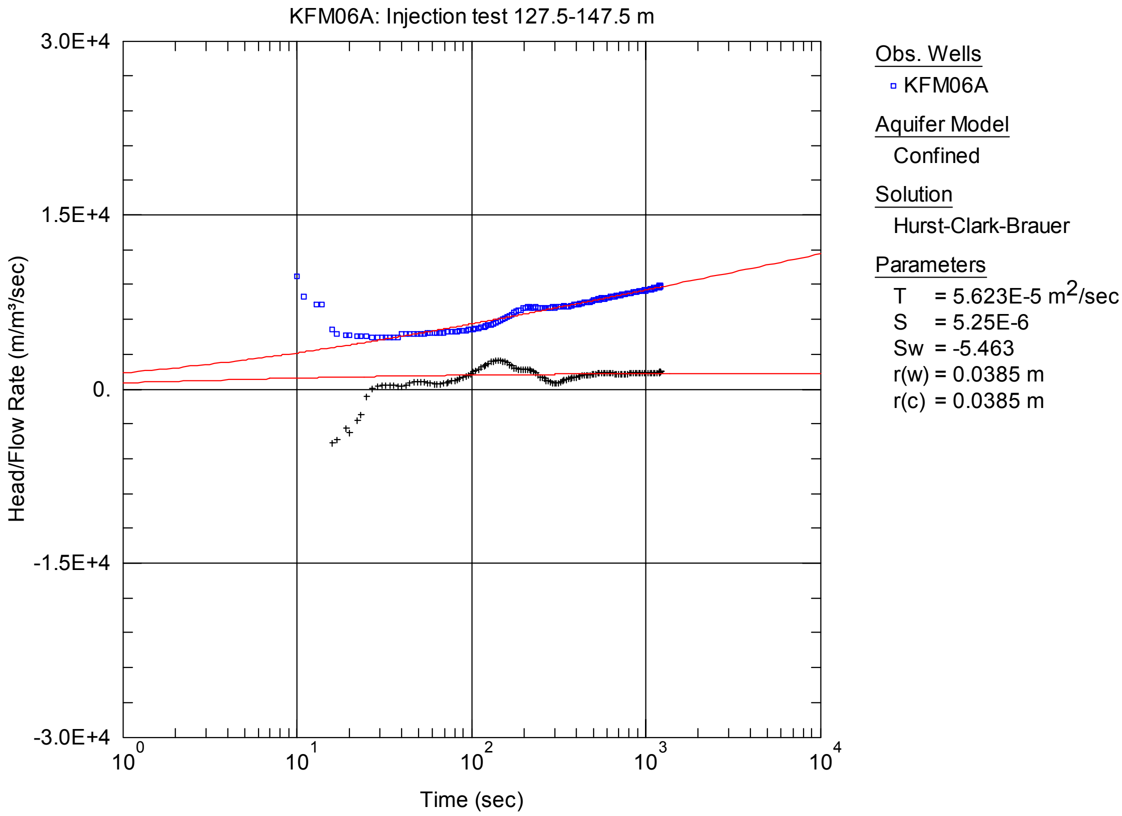


Figure A3-53. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 127.5-147.5 m in KFM06A.*

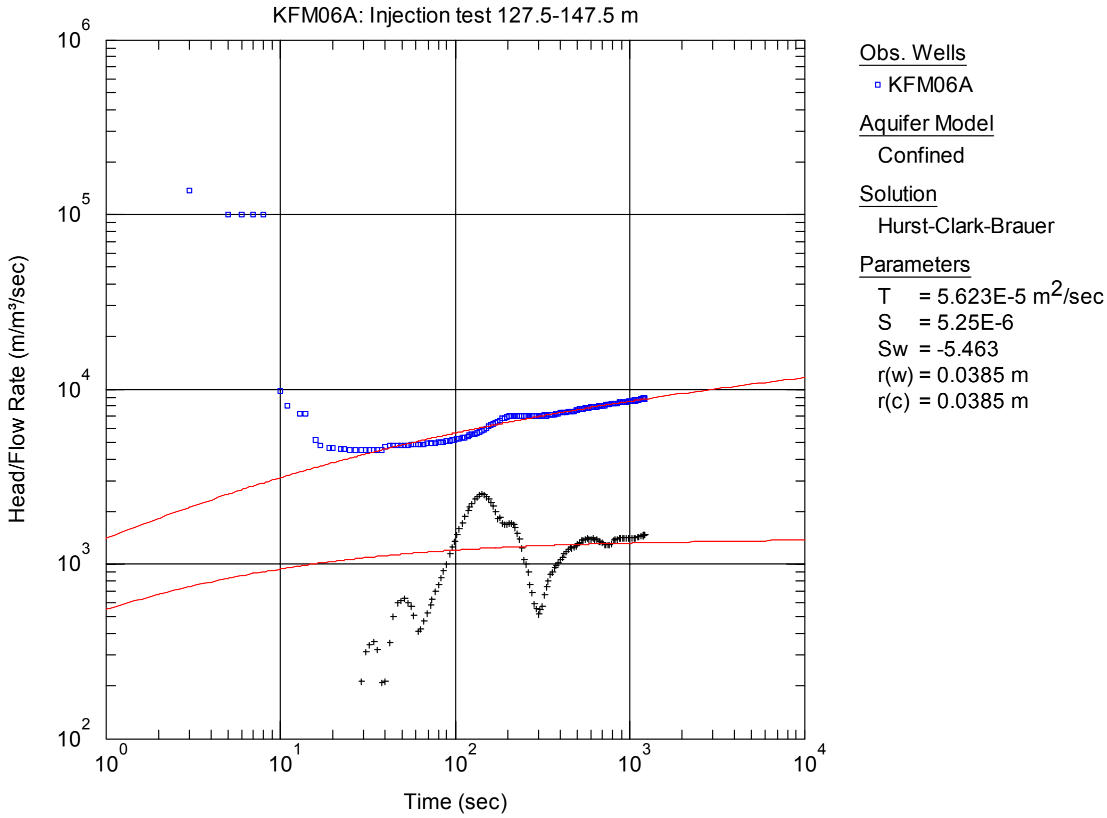


Figure A3-54. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 127.5-147.5 m in KFM06A.*

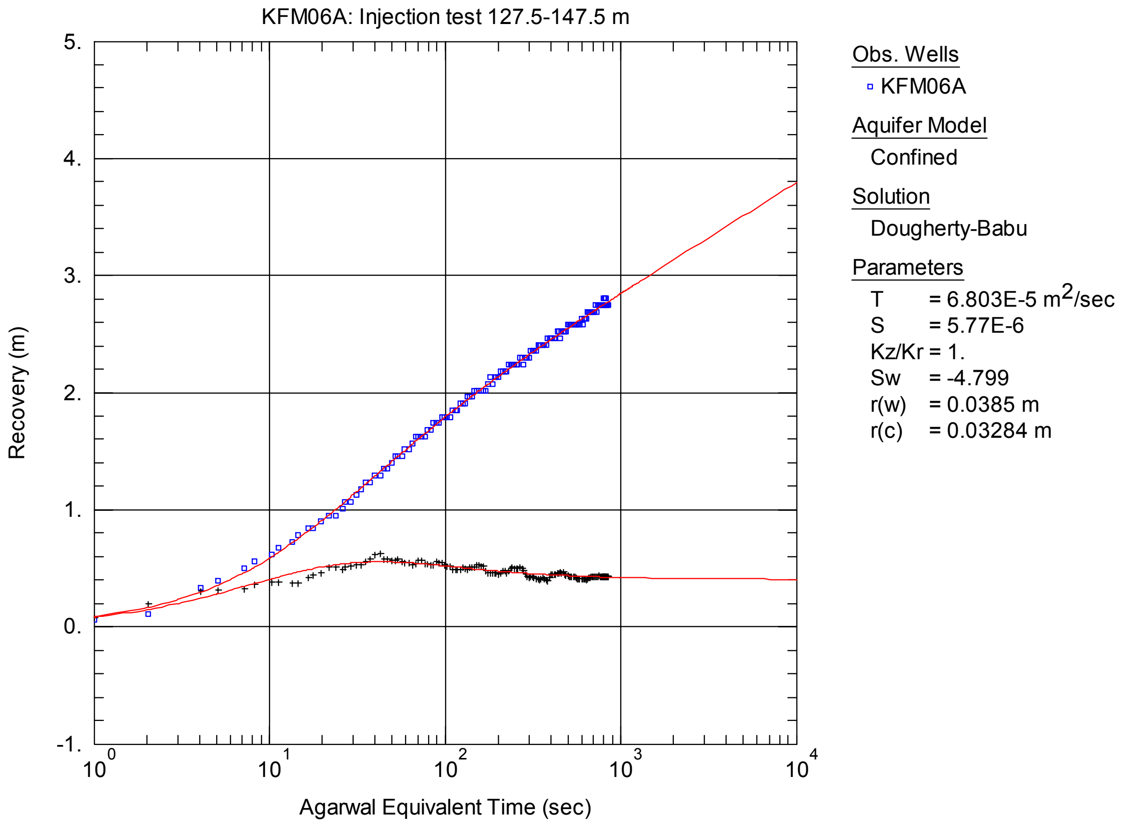


Figure A3-55. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 127.5-147.5 m in KFM06A.*

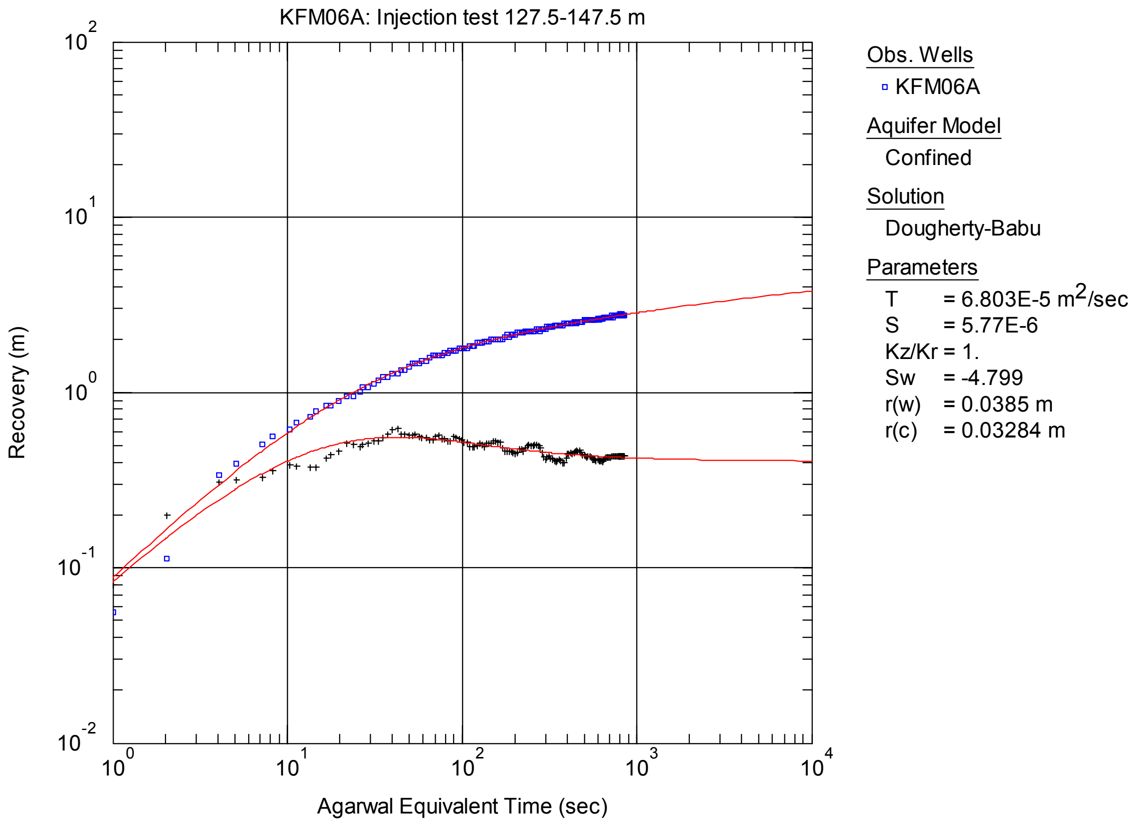


Figure A3-56. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 127.5-147.5 m in KFM06A.*

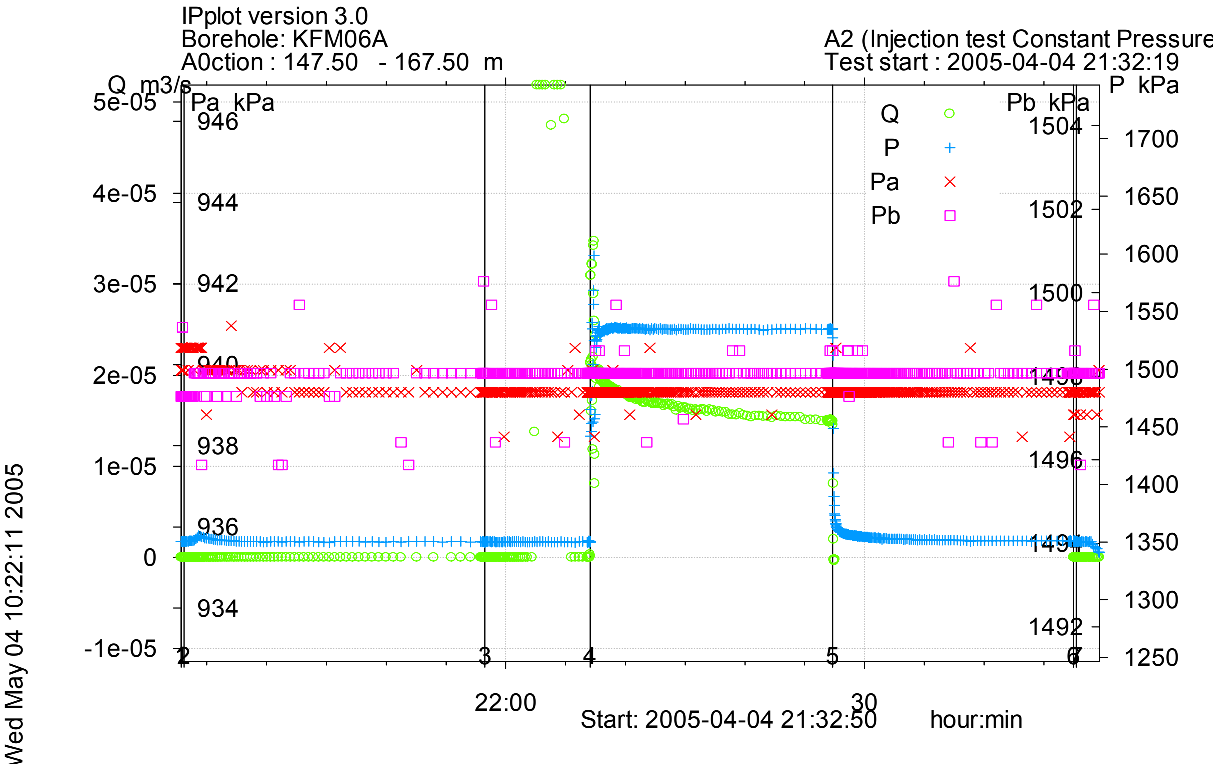


Figure A3-57. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 147.5-167.5 m in borehole KFM06A.

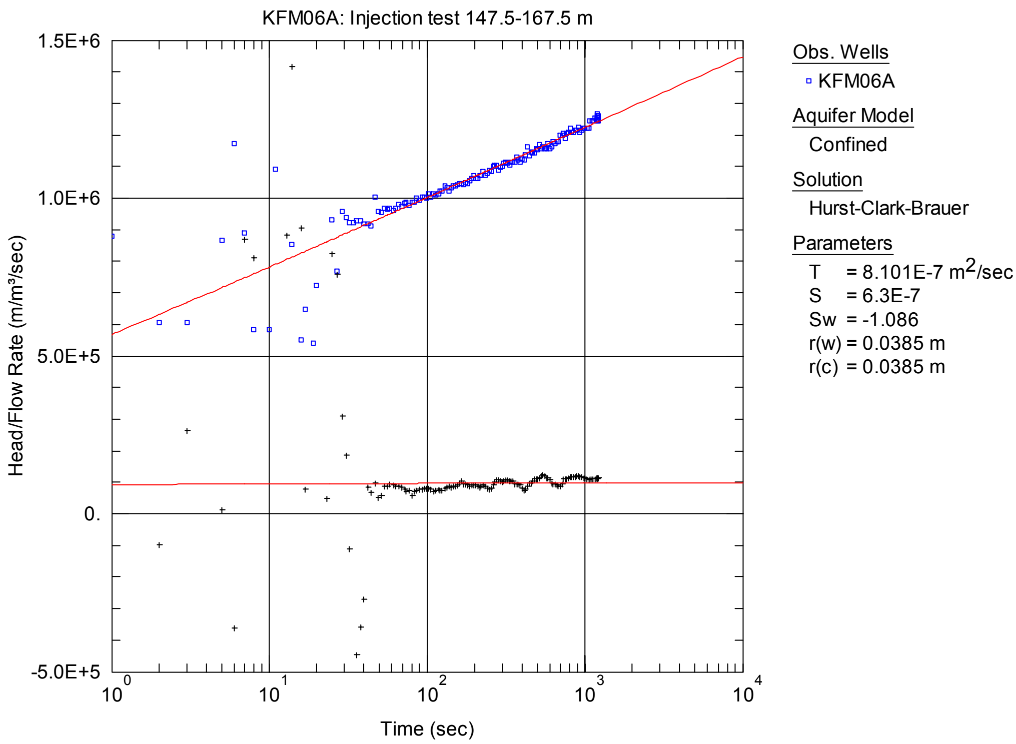


Figure A3-58. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 147.5-167.5 m in KFM06A.

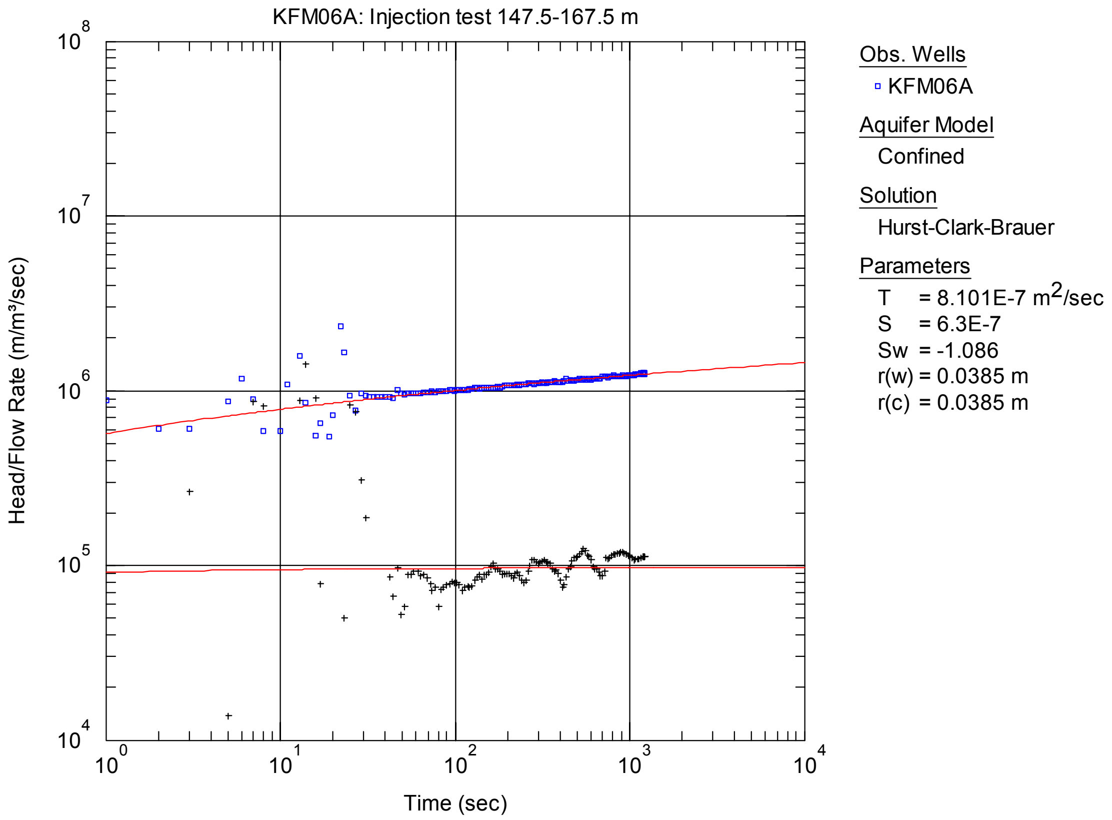


Figure A3-59. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 147.5-167.5 m in KFM06A.*

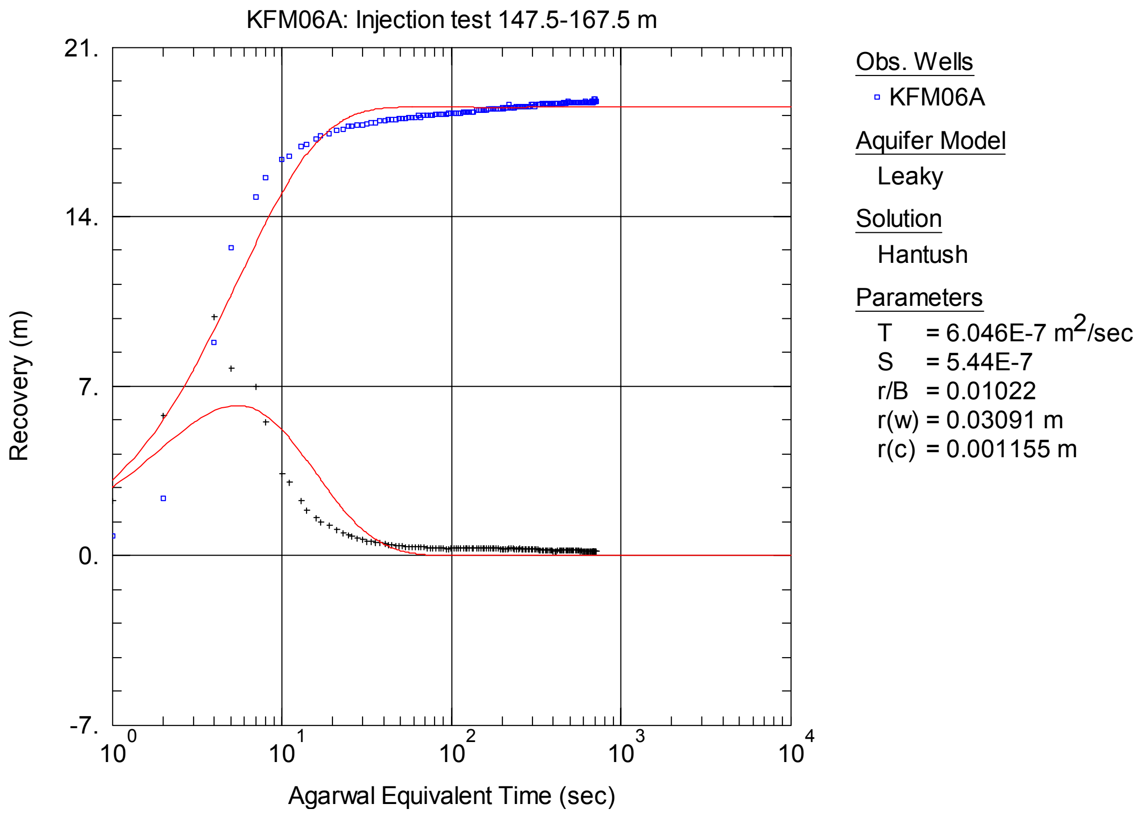


Figure A3-60. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 147.5-167.5 m in KFM06A.*

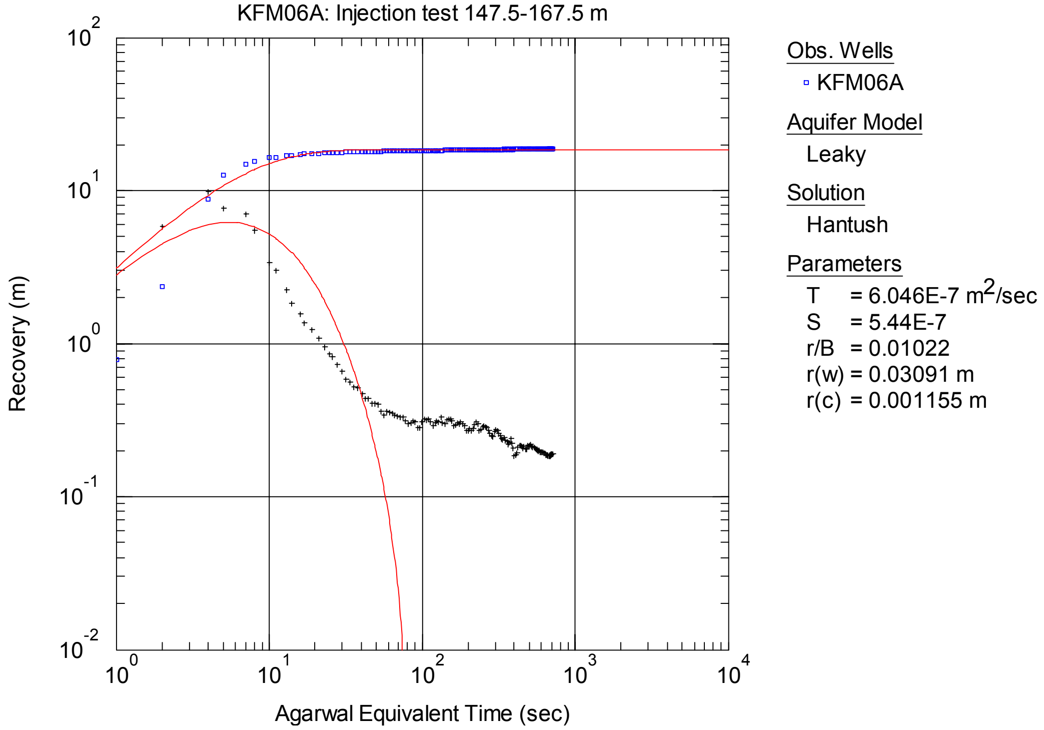


Figure A3-61. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 147.5-167.5 m in KFM06A.*

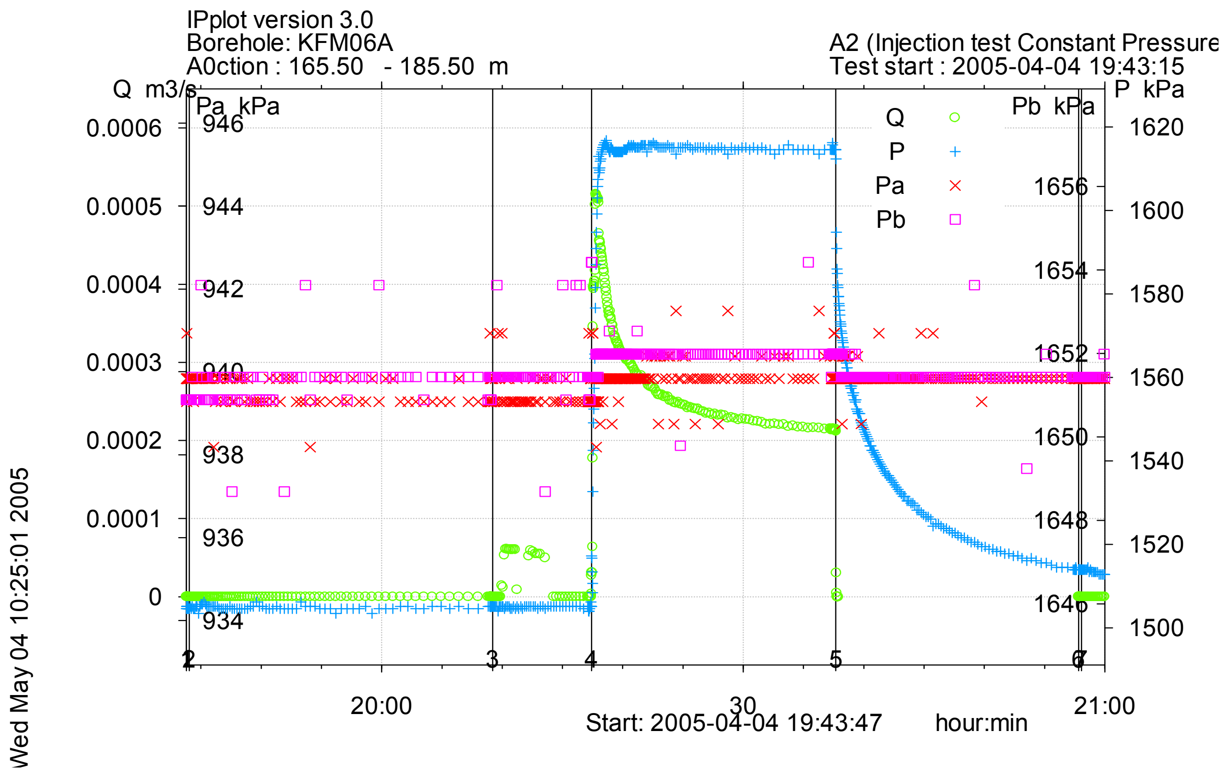


Figure A3-62. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 165.5-185.5 m in borehole KFM06A.*

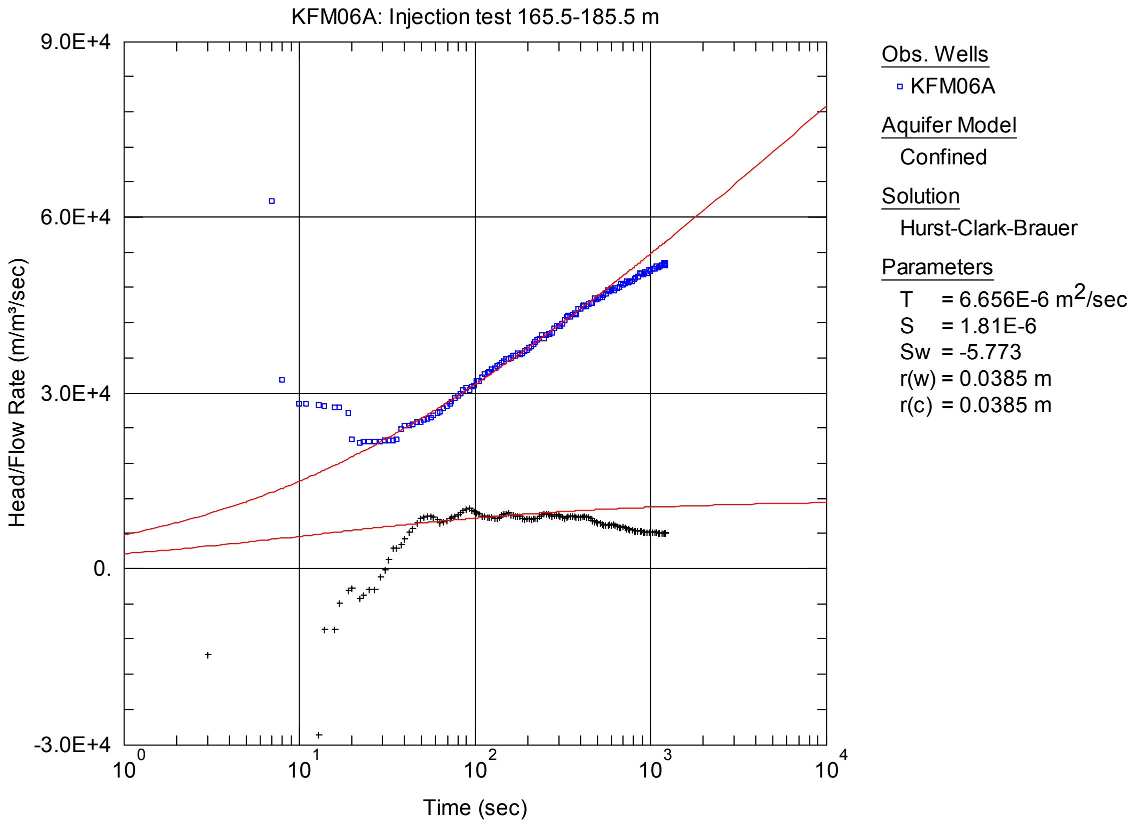


Figure A3-63. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 165.5-185.5 m in KFM06A.*

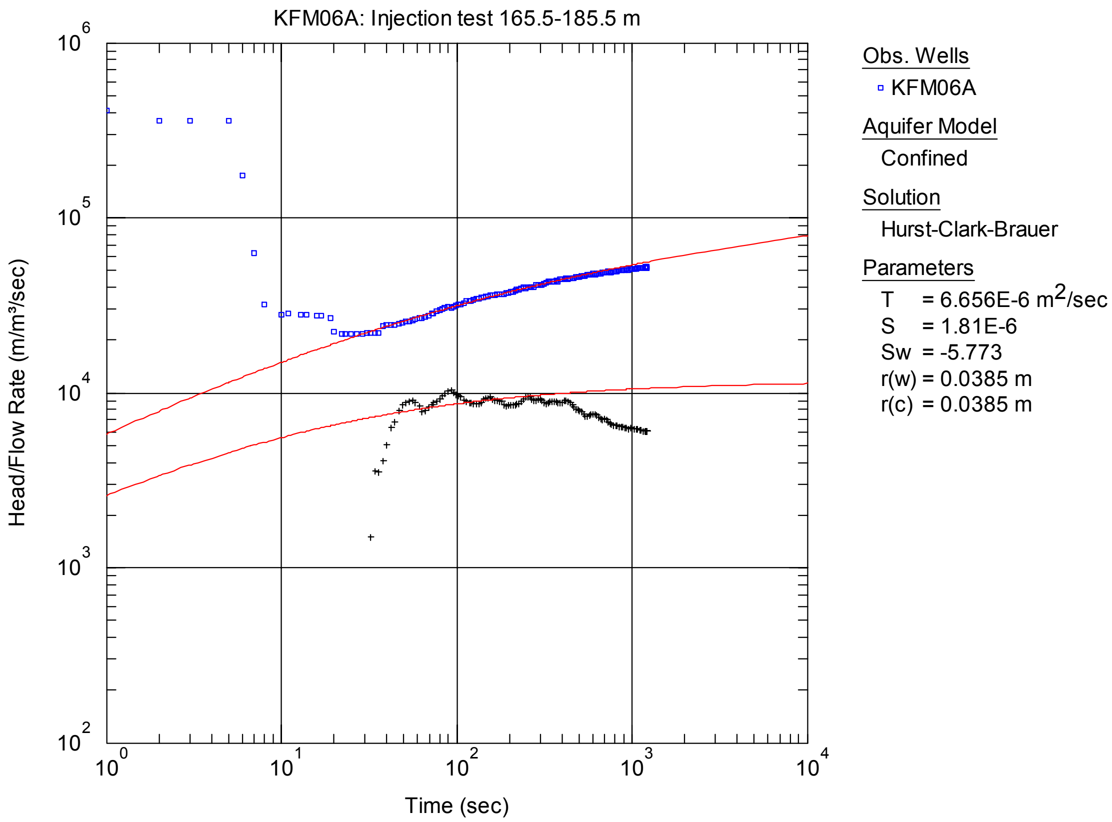


Figure A3-64. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 165.5-185.5 m in KFM06A.*

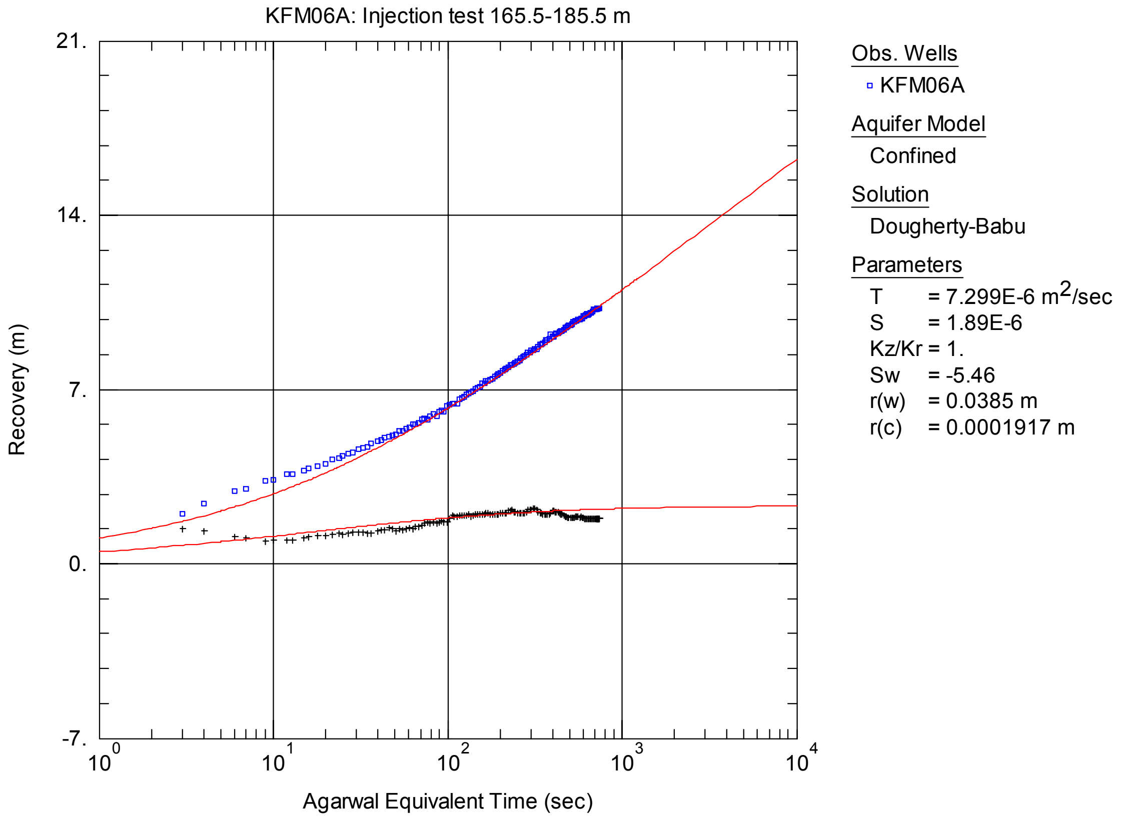


Figure A3-65. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 165.5-185.5 m in KFM06A.*

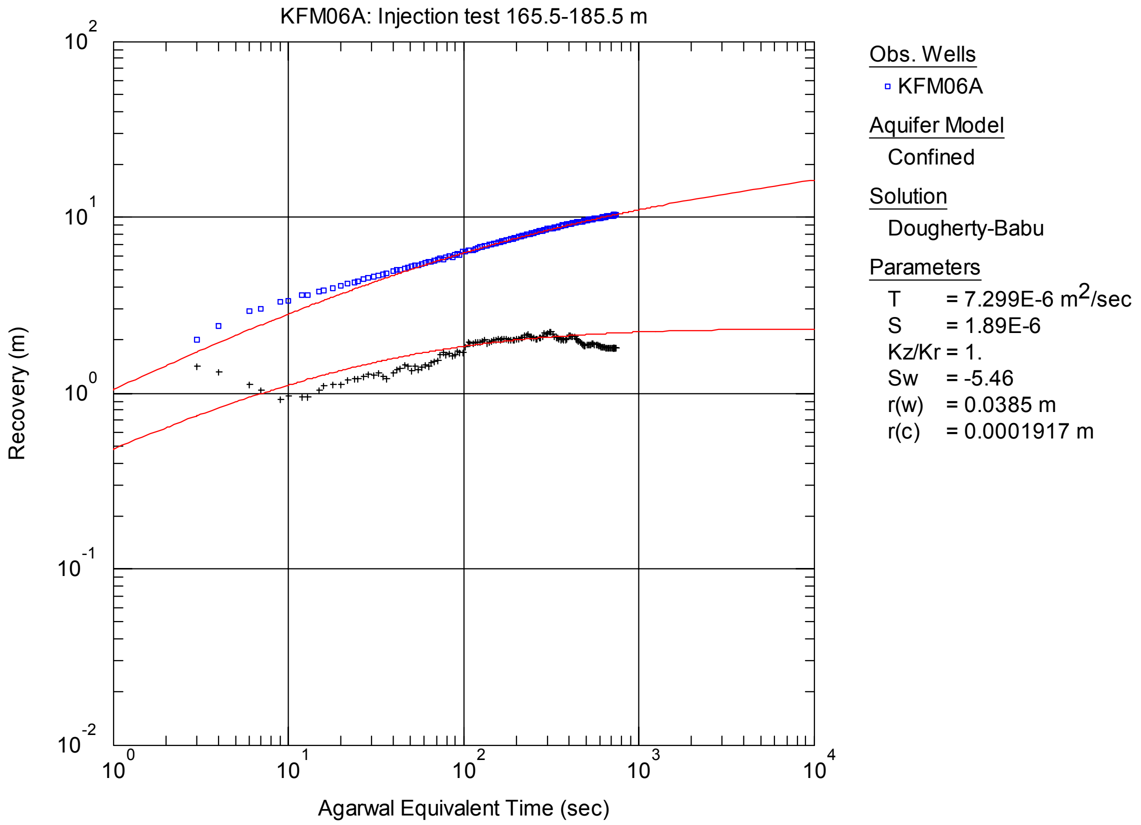


Figure A3-66. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 165.5-185.5 m in KFM06A.*

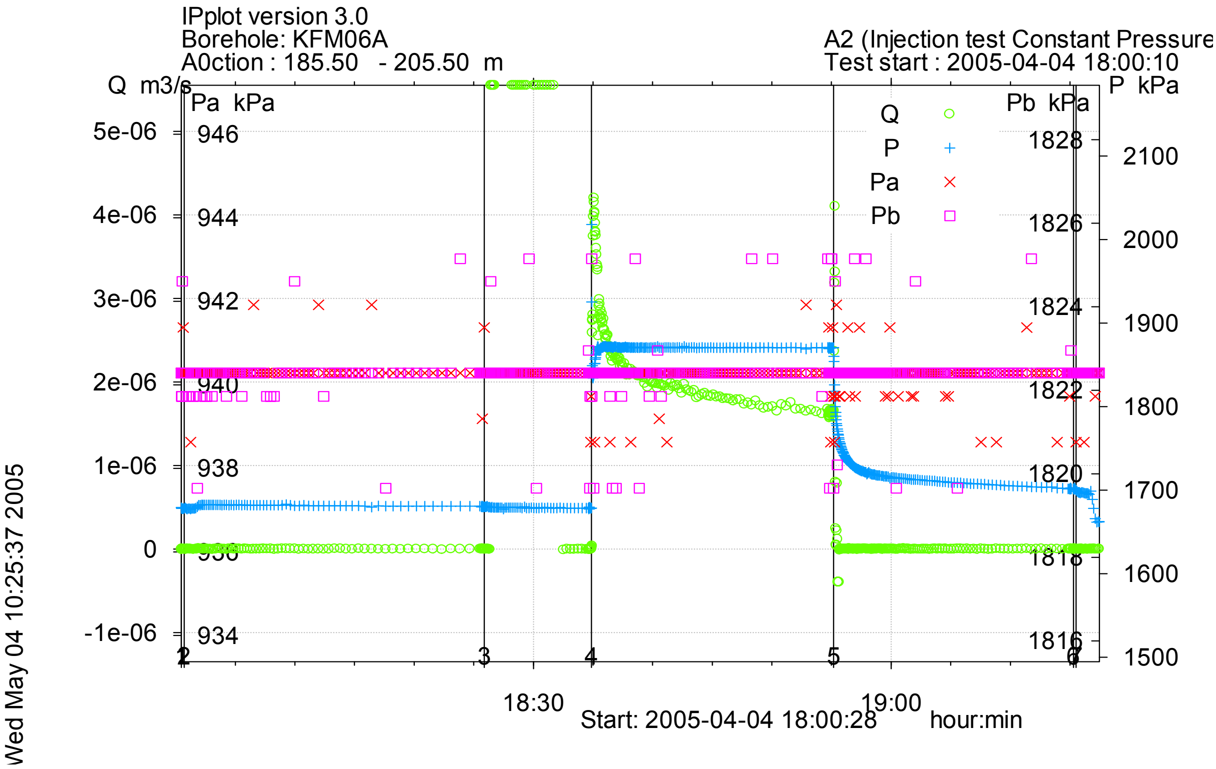


Figure A3-67. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 185.5-205.5 m in borehole KFM06A.

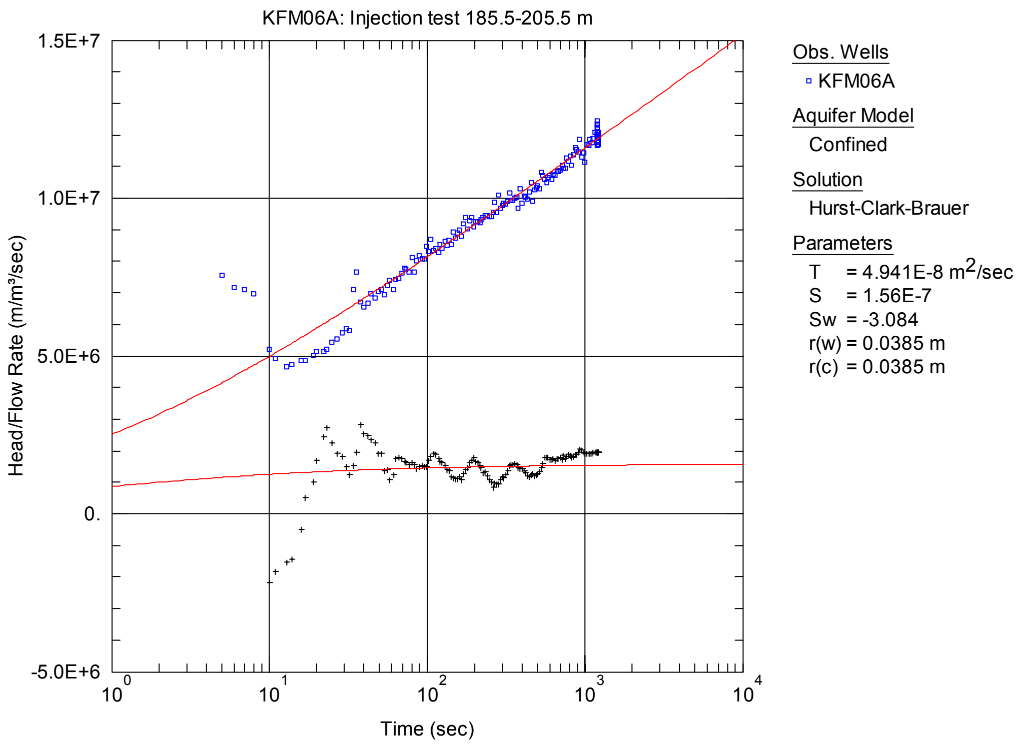


Figure A3-68. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 185.5-205.5m in KFM06A.

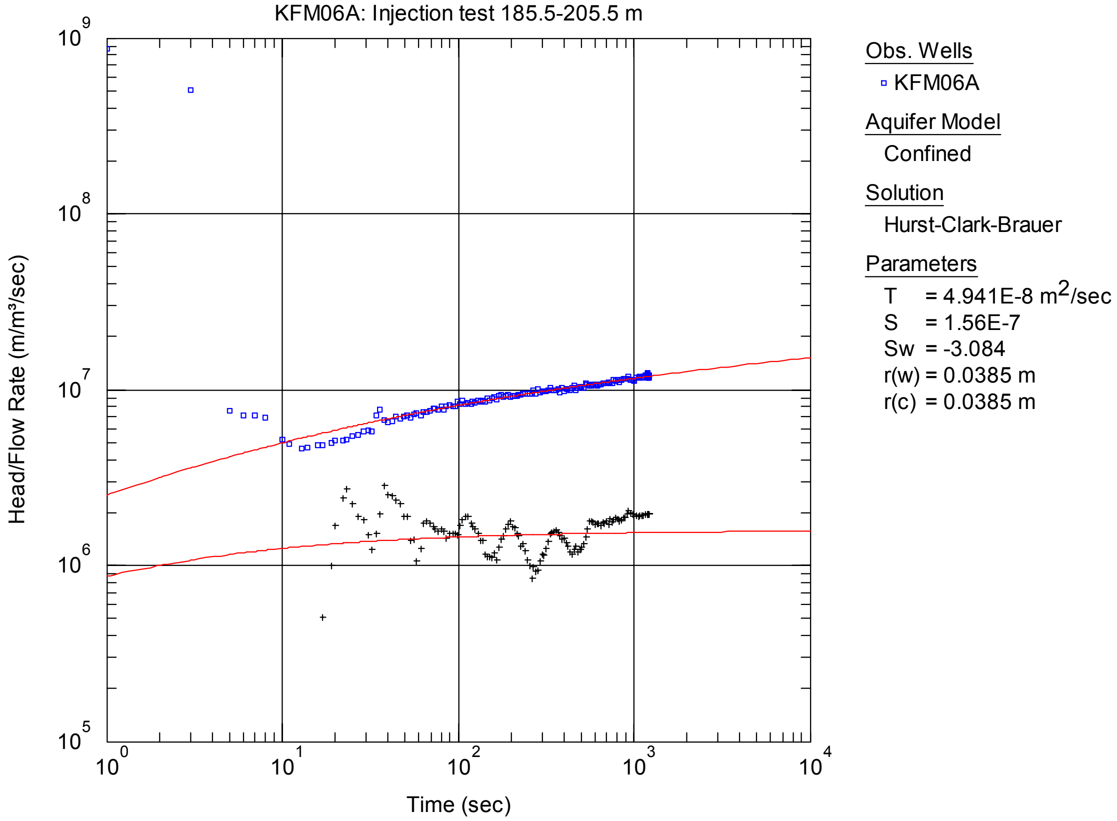


Figure A3-69. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 185.5-205.5 m in KFM06A.*

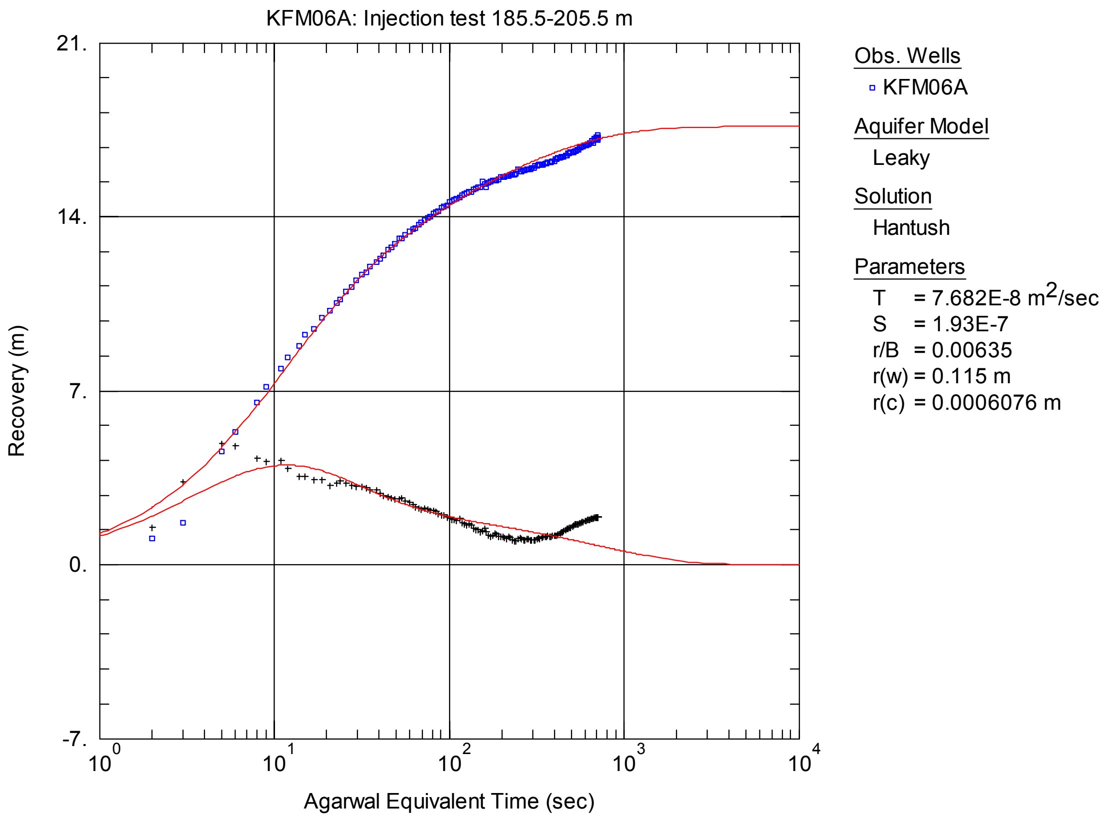


Figure A3-70. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 185.5-205.5 m in KFM06A.*

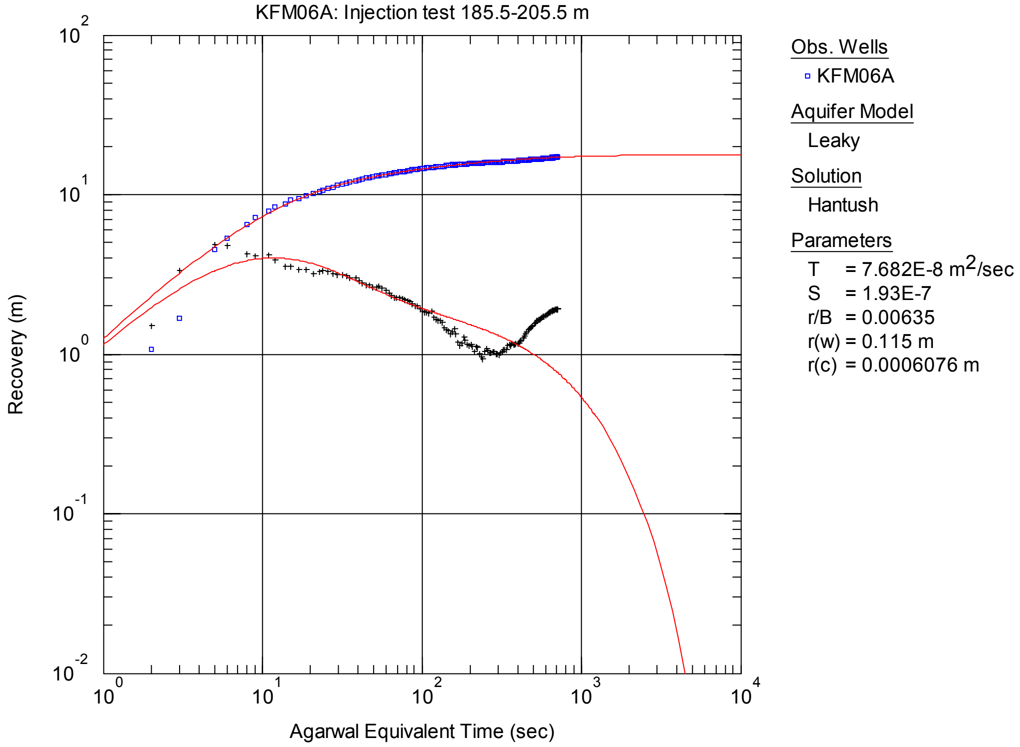


Figure A3-71. Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 185.5-205.5m in KFM06A.

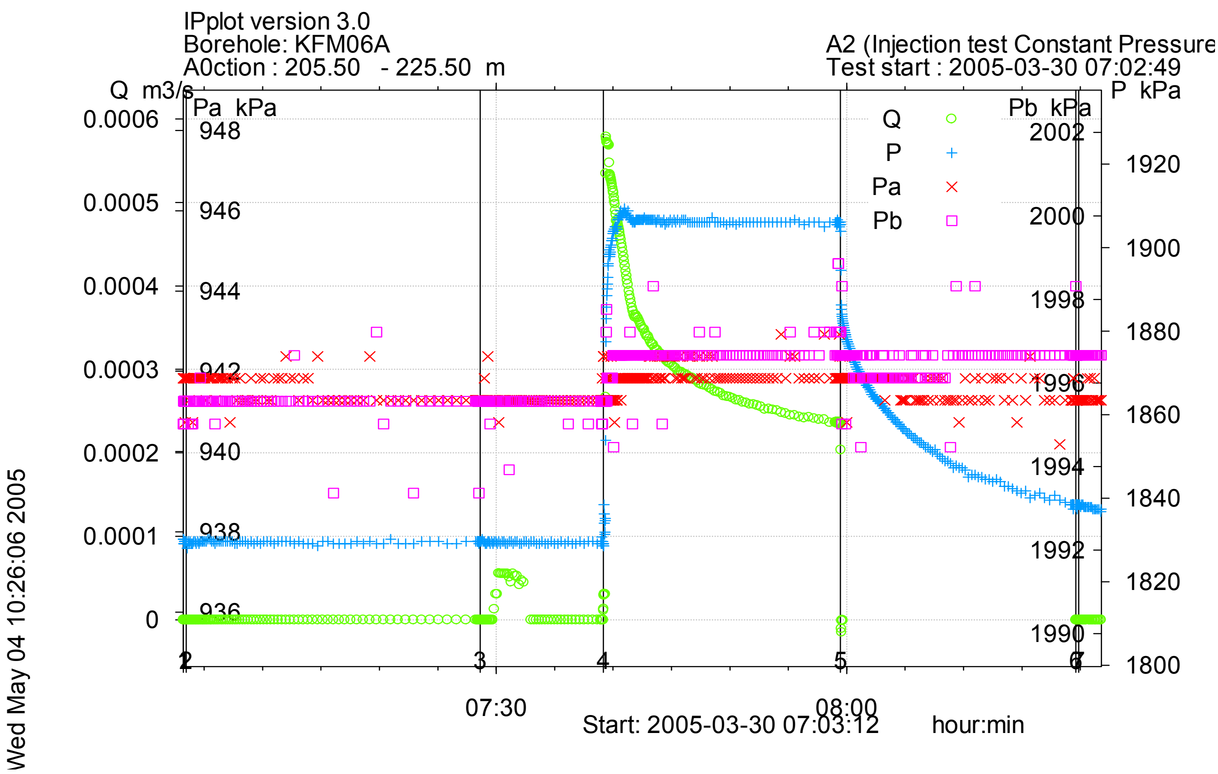


Figure A3-72. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 205.5-225.5 m in borehole KFM06A.

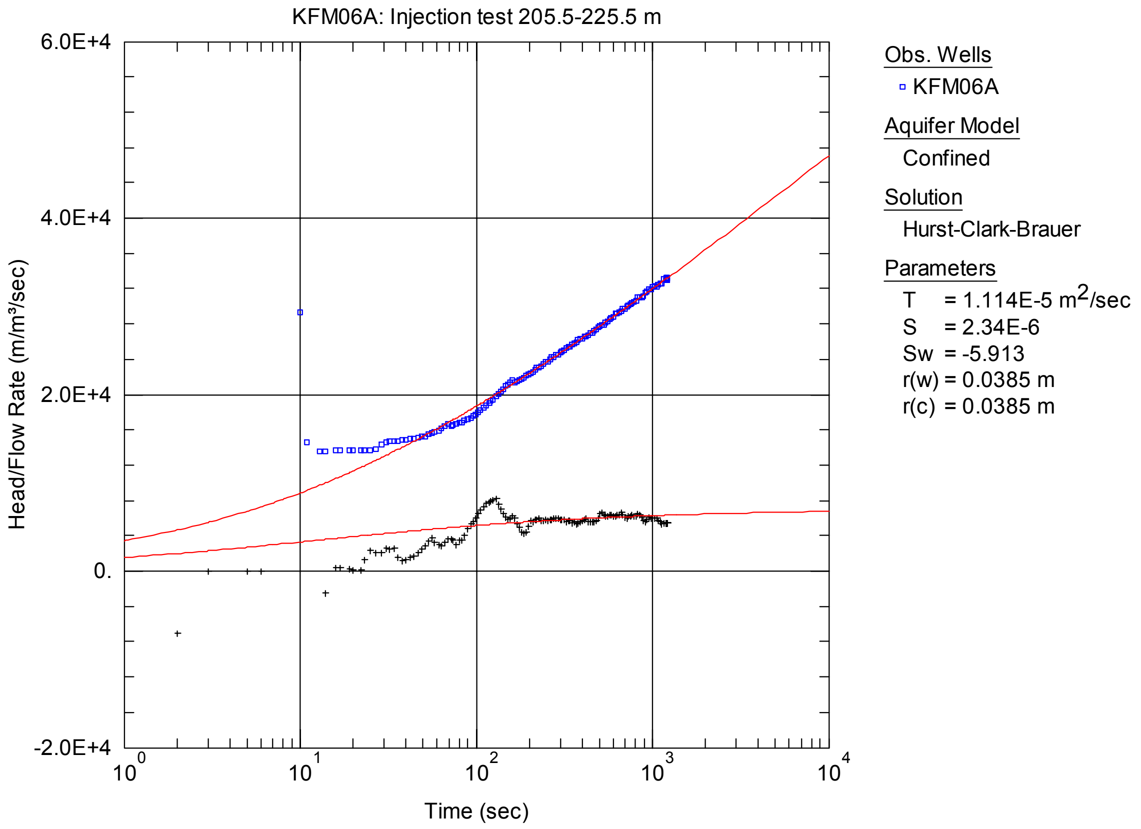


Figure A3-73. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 205.5-225.5 m in KFM06A.*

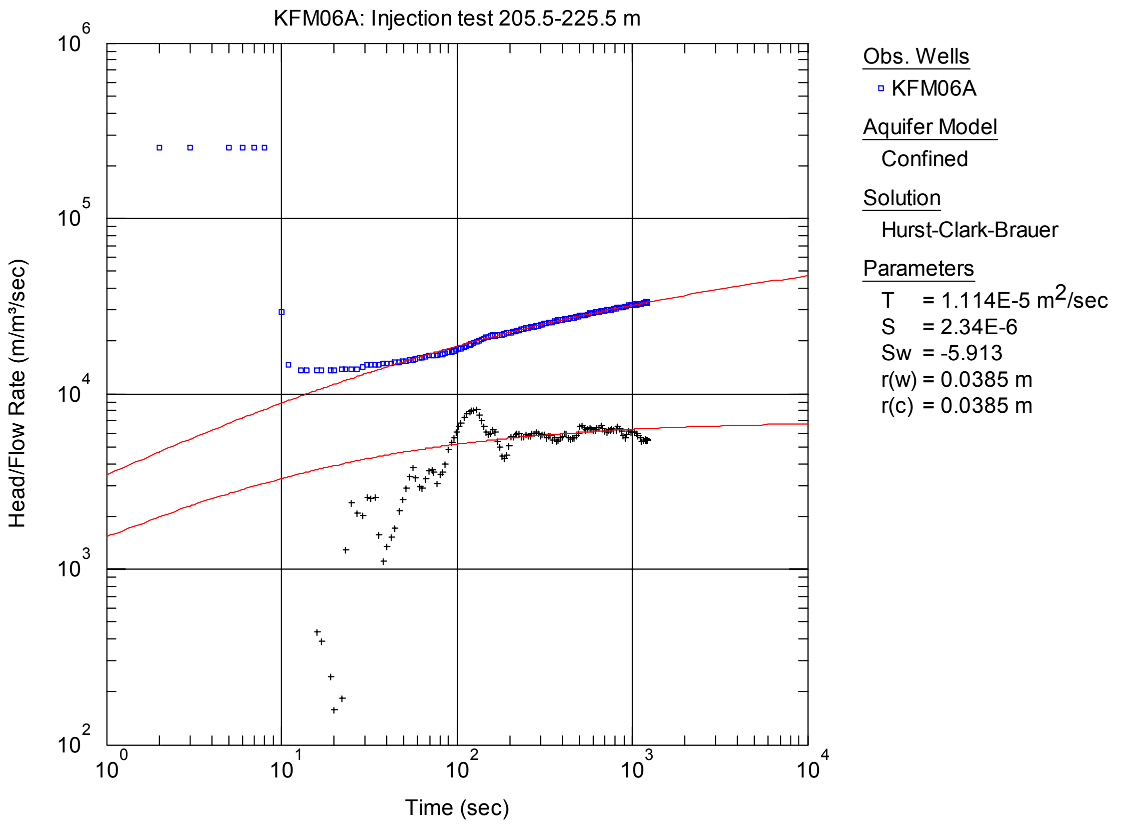


Figure A3-74. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 205.5-225.5 m in KFM06A.*

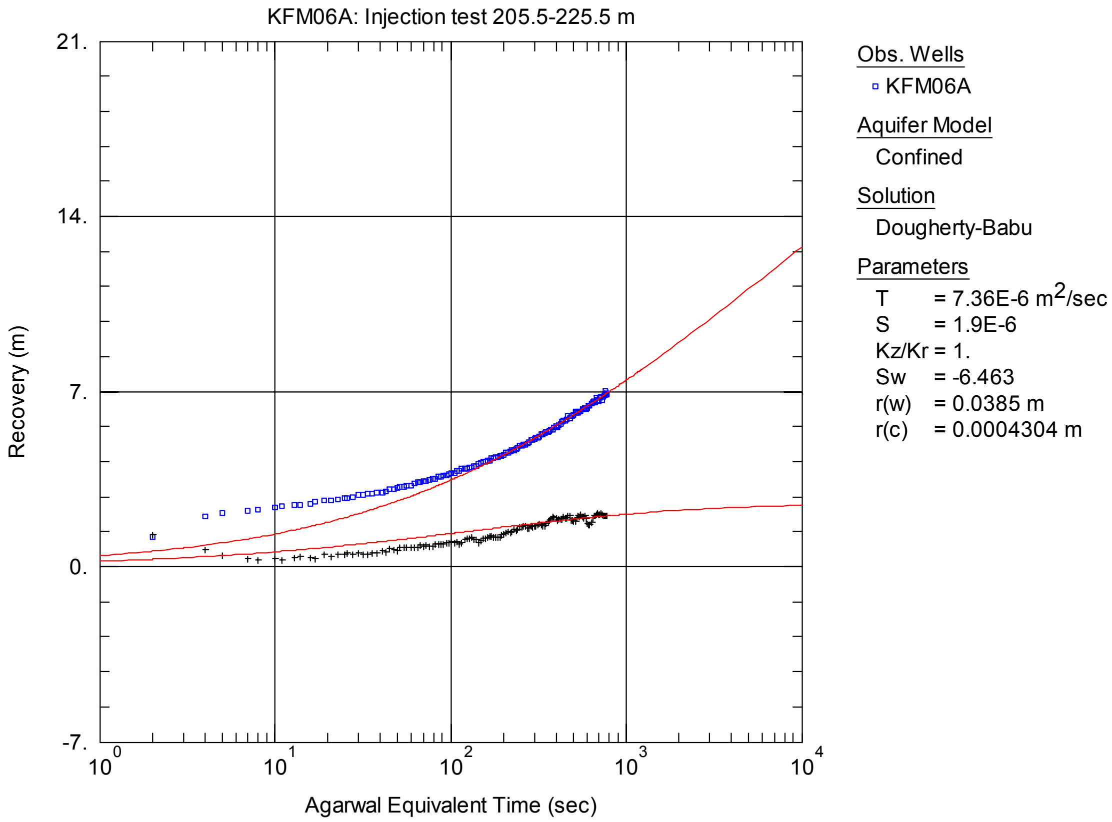


Figure A3-75. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 205.5-225.5 m in KFM06A.*

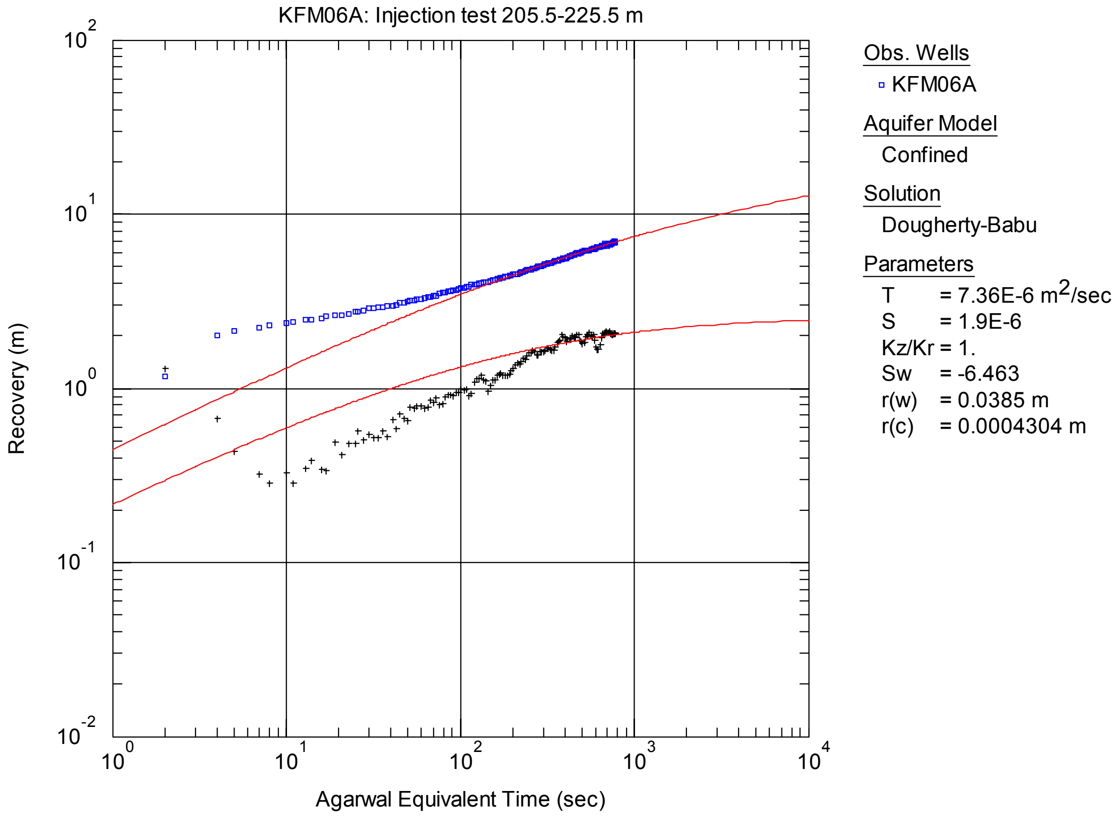


Figure A3-76. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 205.5-225.5 m in KFM06A.*

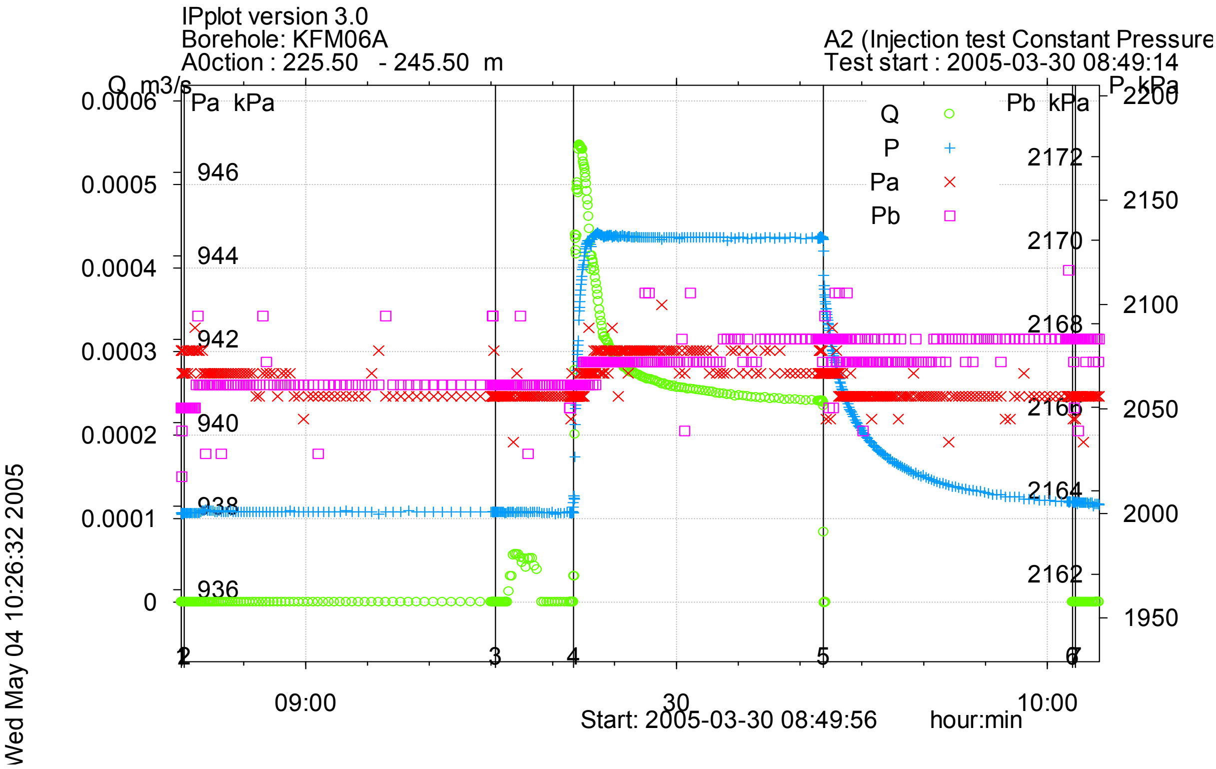


Figure A3-77. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 225.5-245.5 m in borehole KFM06A.*

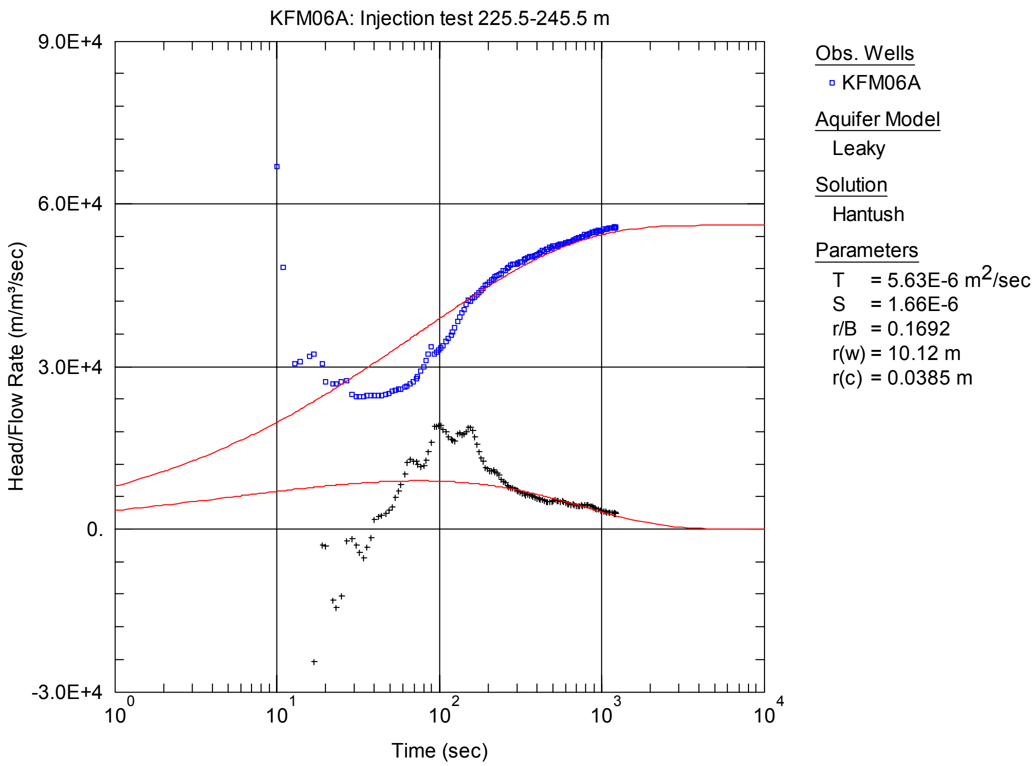


Figure A3-78. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 225.5-245.5 m in KFM06A.*

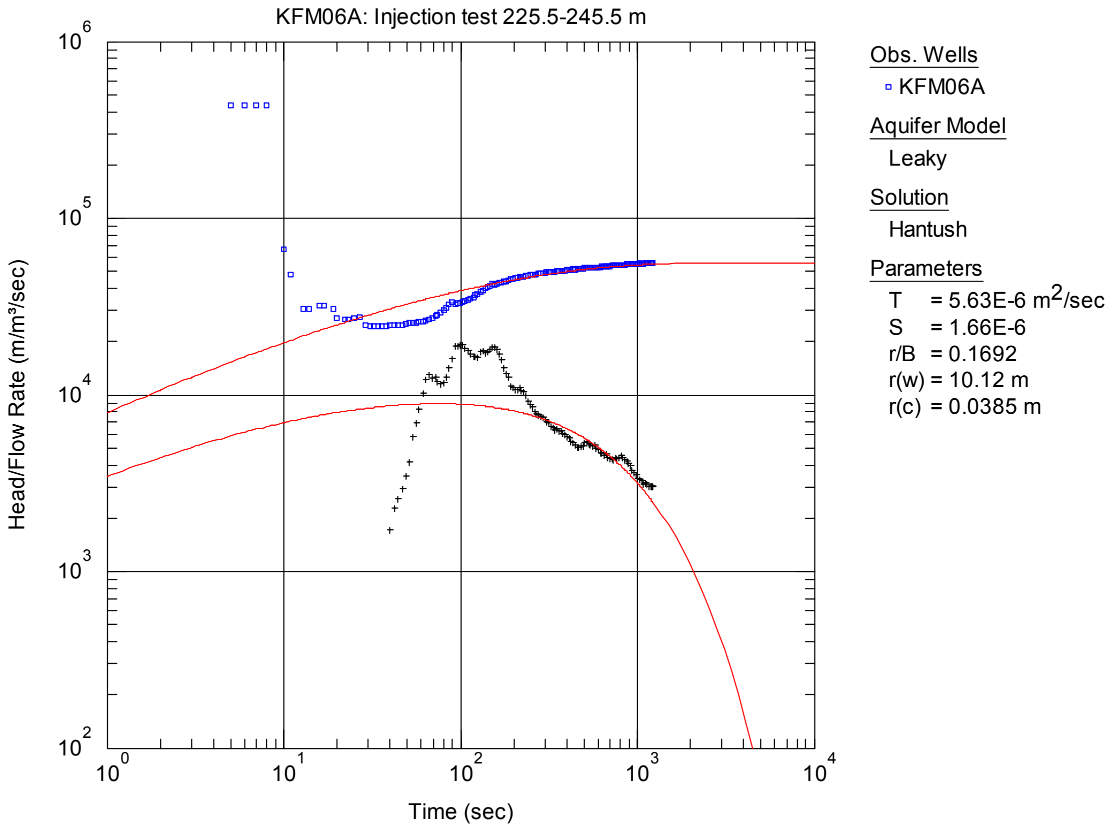


Figure A3-79. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 225.5-245.5 m in KFM06A.*

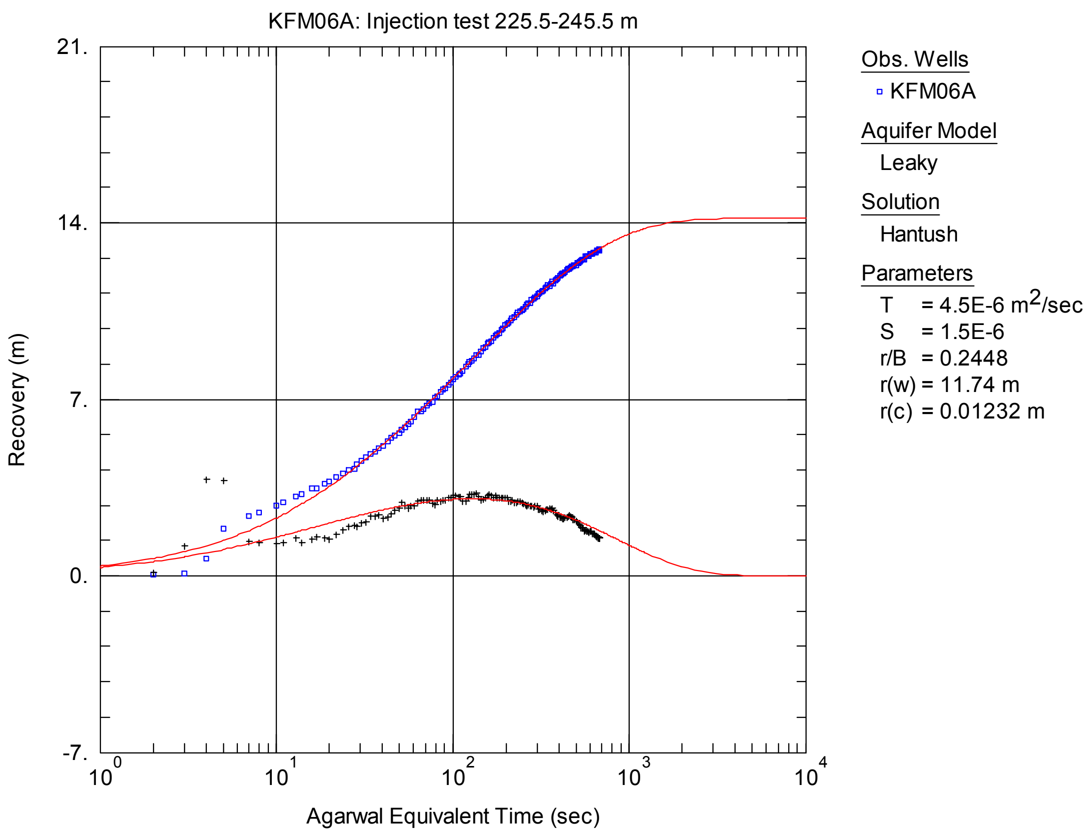


Figure A3-80. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 225.5-245.5 m in KFM06A.*

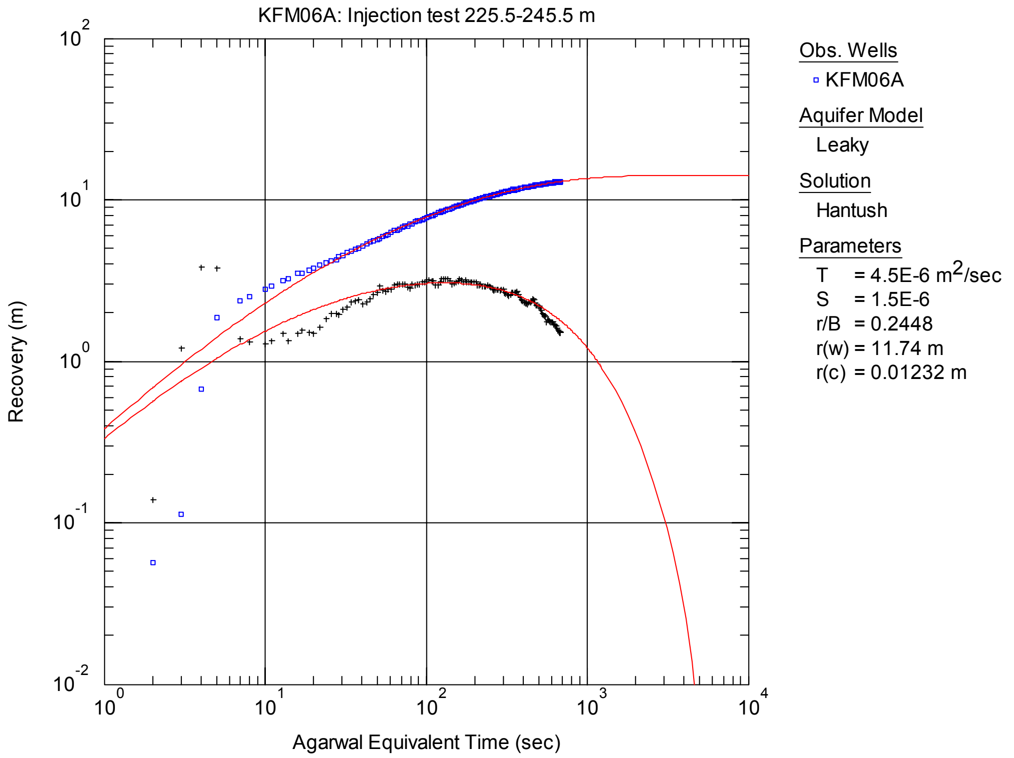


Figure A3-81. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 225.5-245.5 m in KFM06A.*

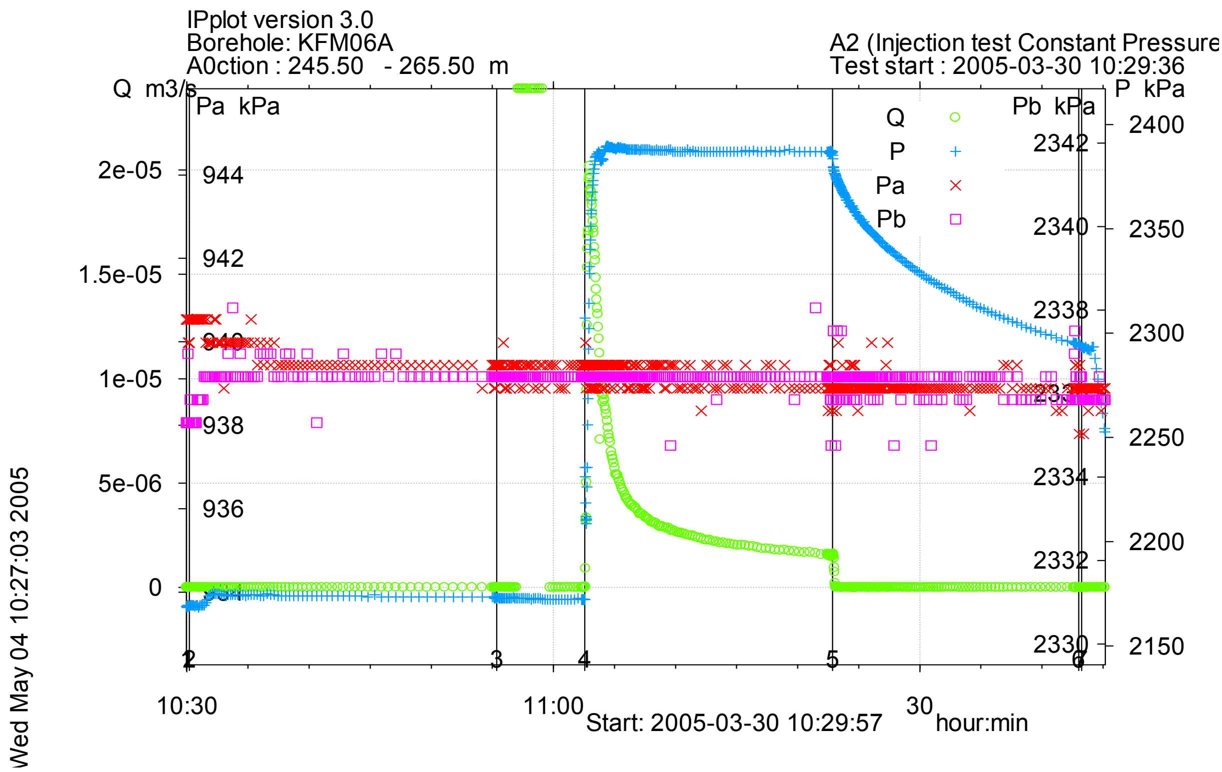


Figure A3-82. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 245.5-265.5 m in borehole KFM06A.*

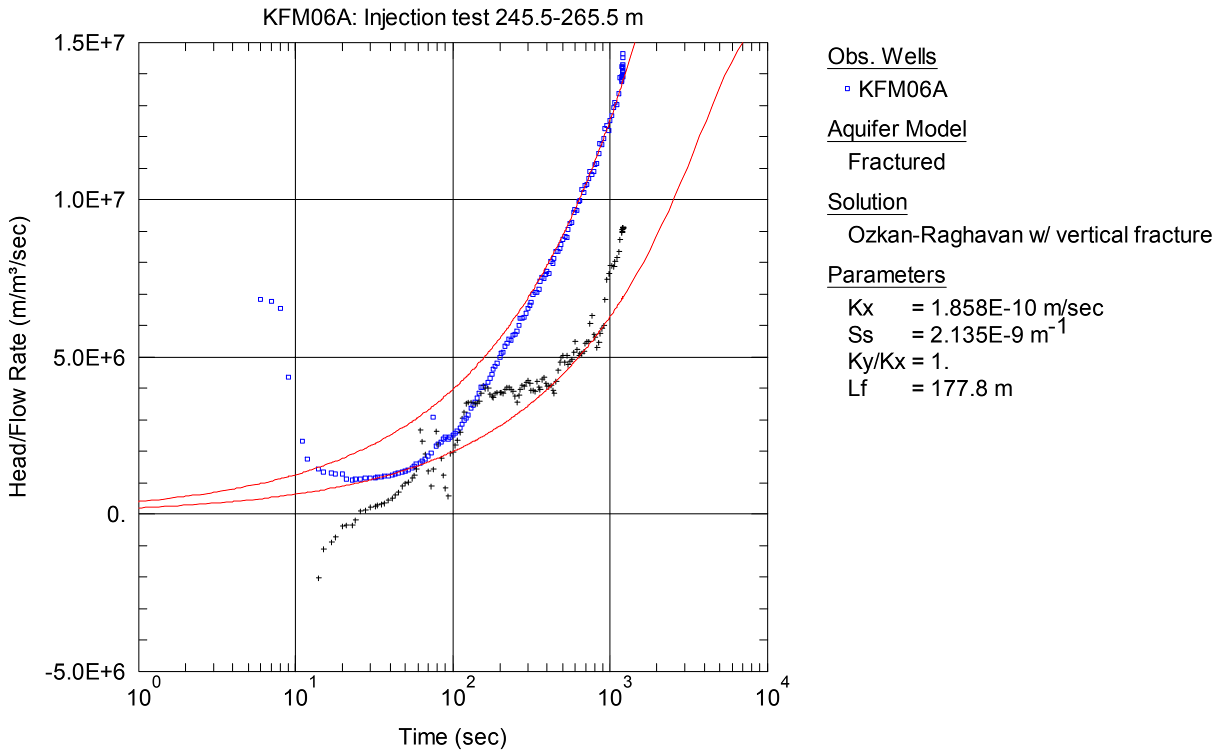


Figure A3-83. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 245.5-265.5m in KFM06A.*

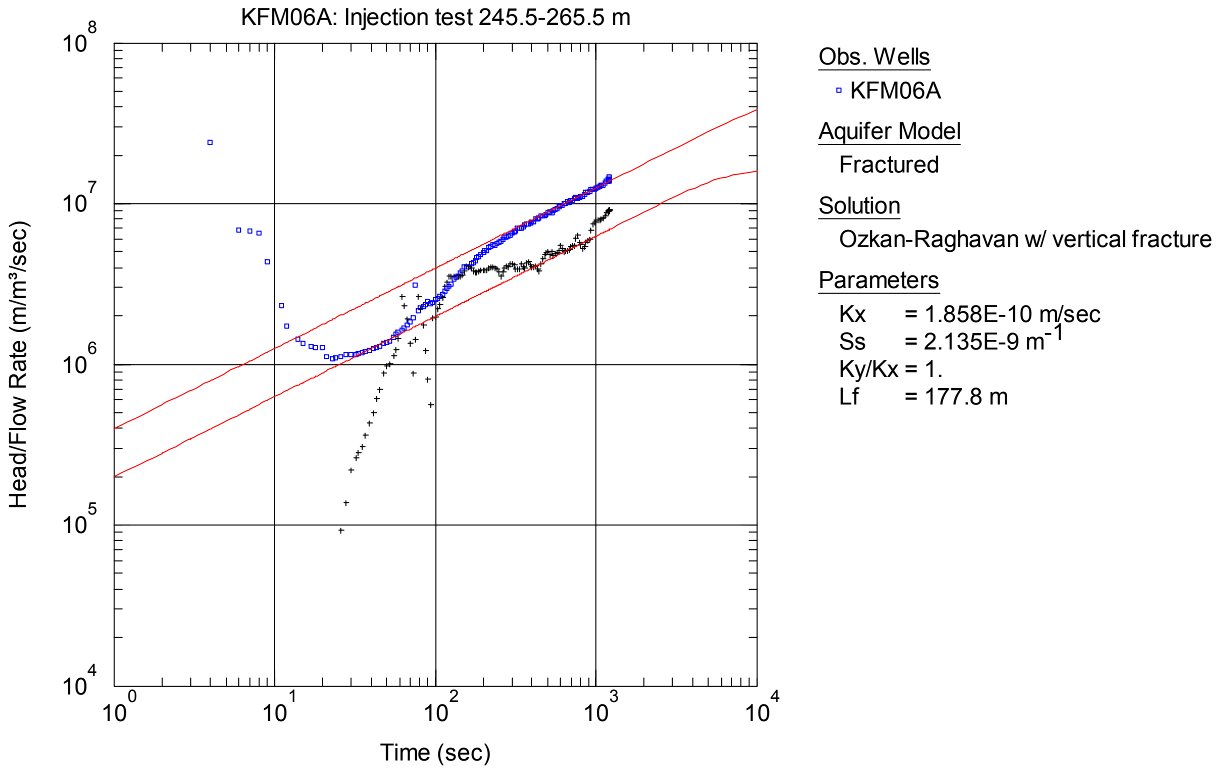


Figure A3-84. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 245.5-265.5m in KFM06A.*

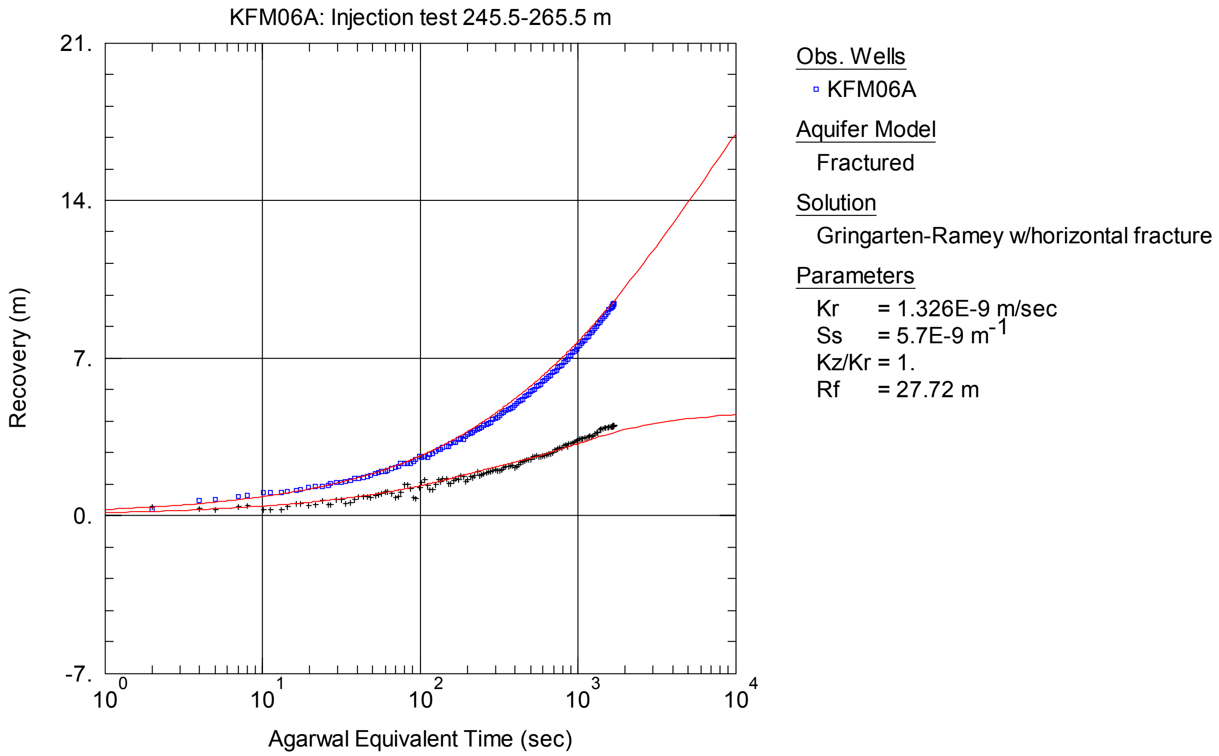


Figure A3-85. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 245.5-265.5 m in KFM06A.*

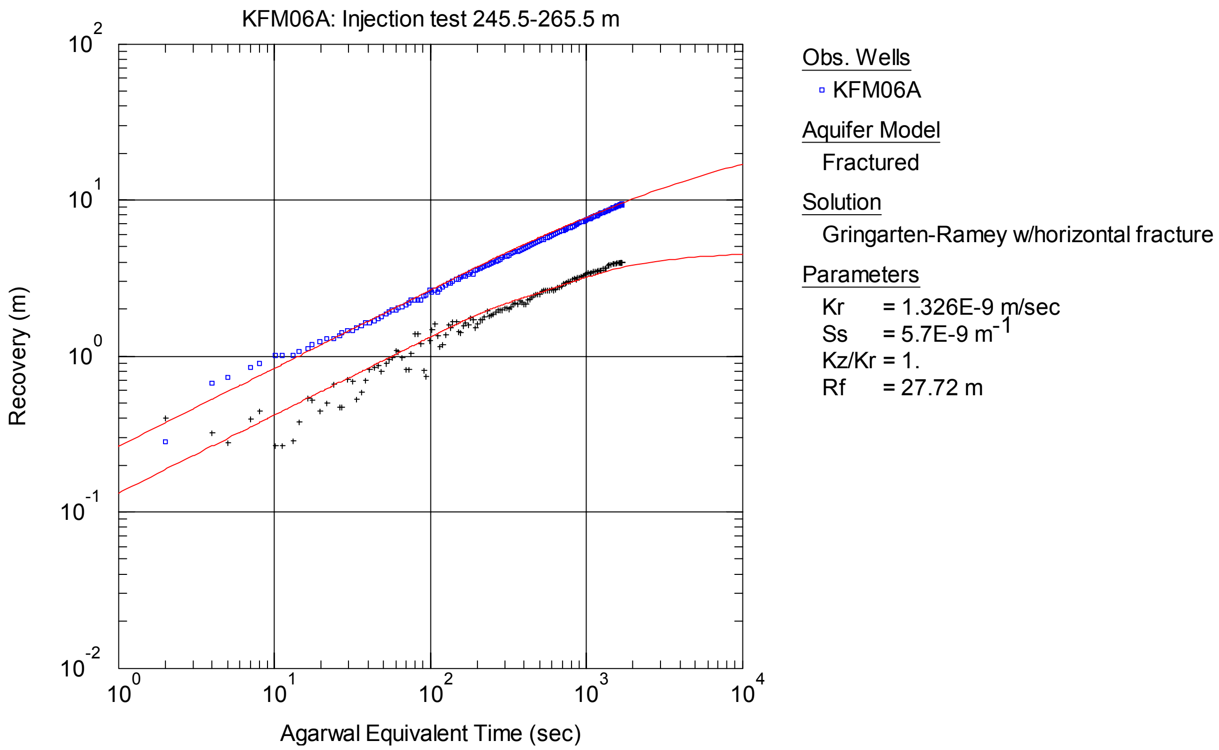


Figure A3-86. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 245.5-265.5 m in KFM06A.*

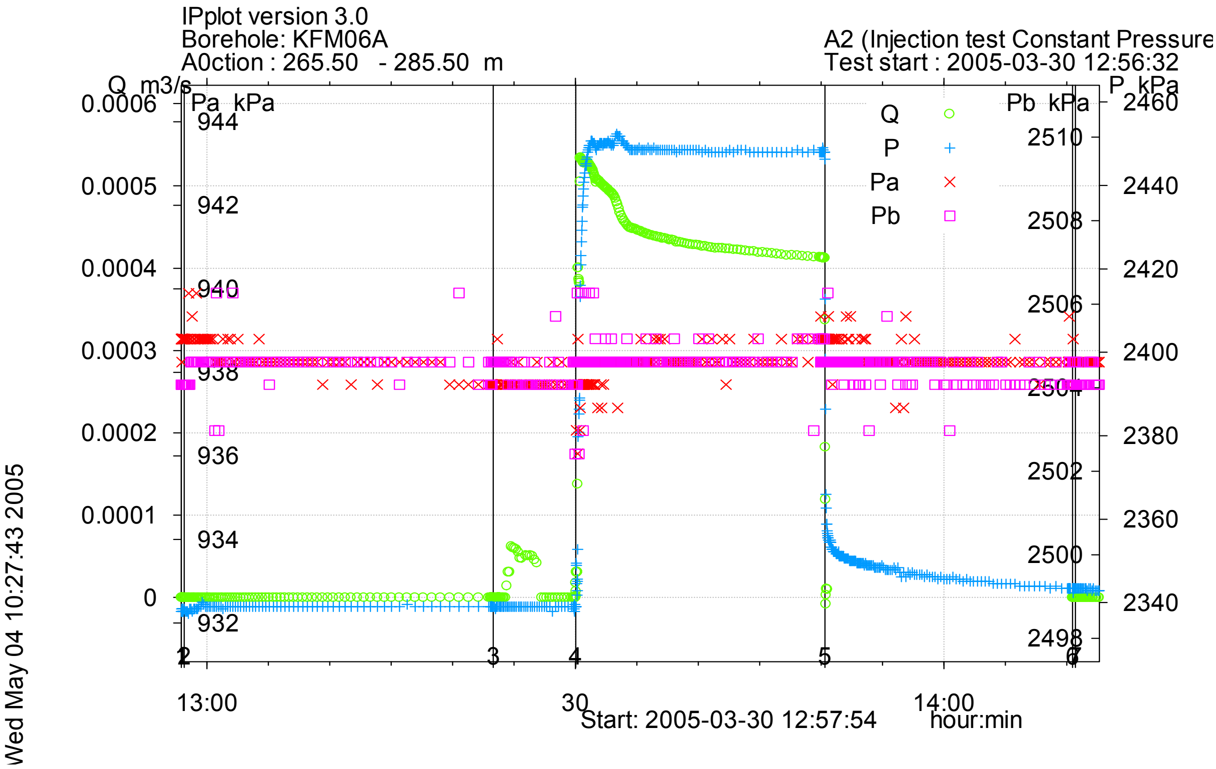


Figure A3-87. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 265.5-285.5 m in borehole KFM06A.

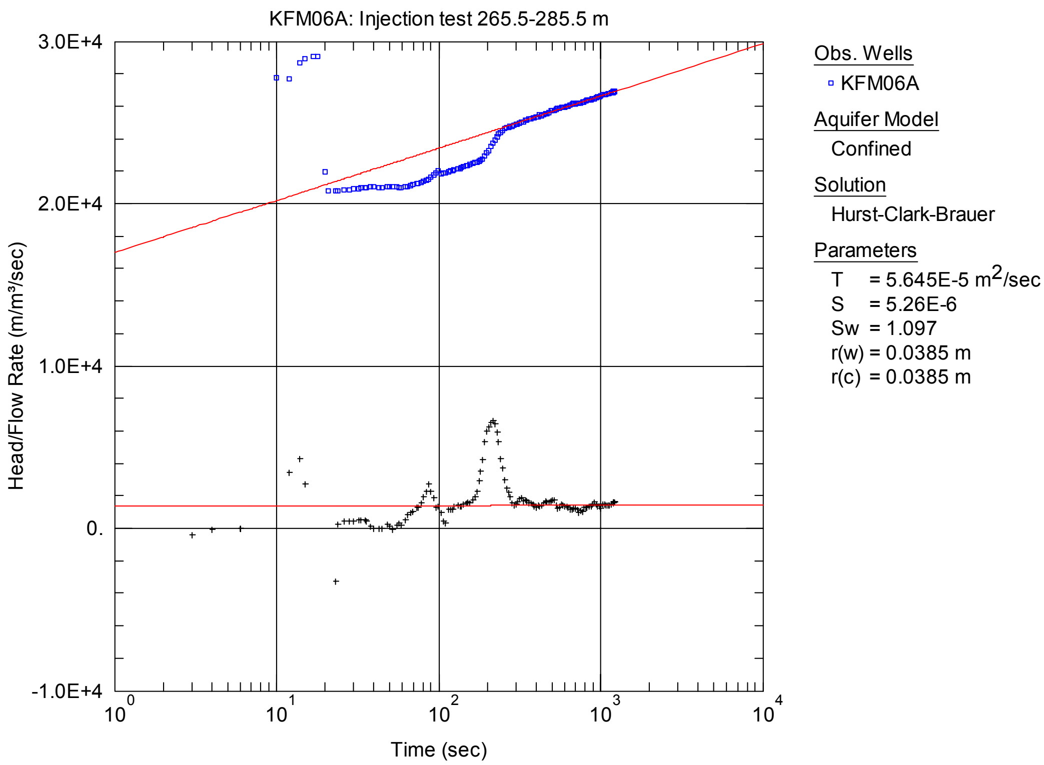


Figure A3-88. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 265.5-285.5 m in KFM06A.

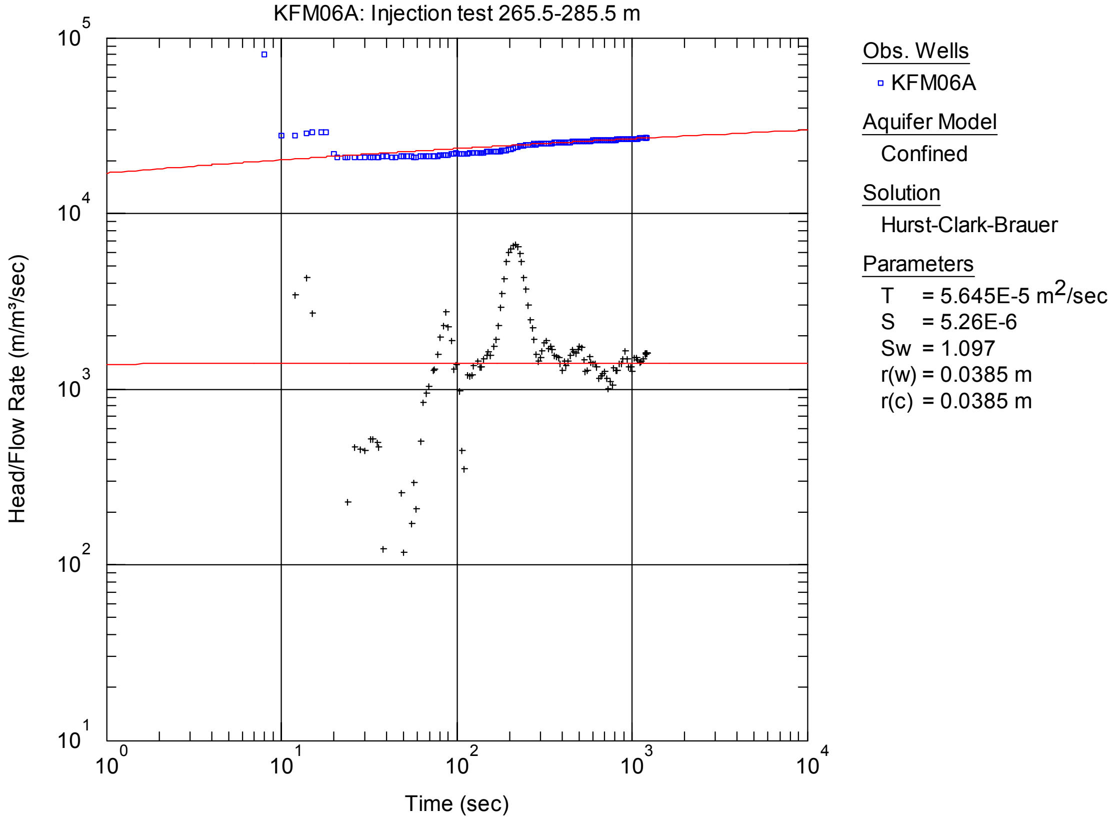


Figure A3-89. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 265.5-285. m in KFM06A.*

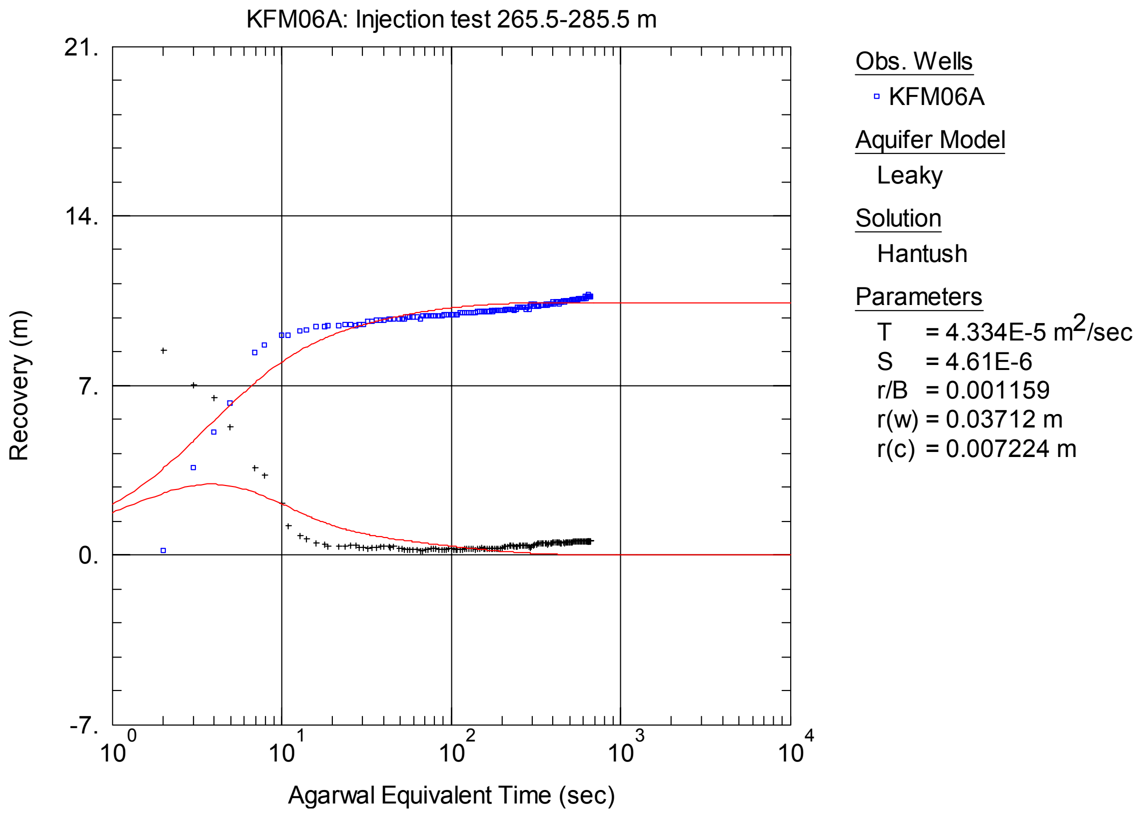


Figure A3-90. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 265.5-285. m in KFM06A.*

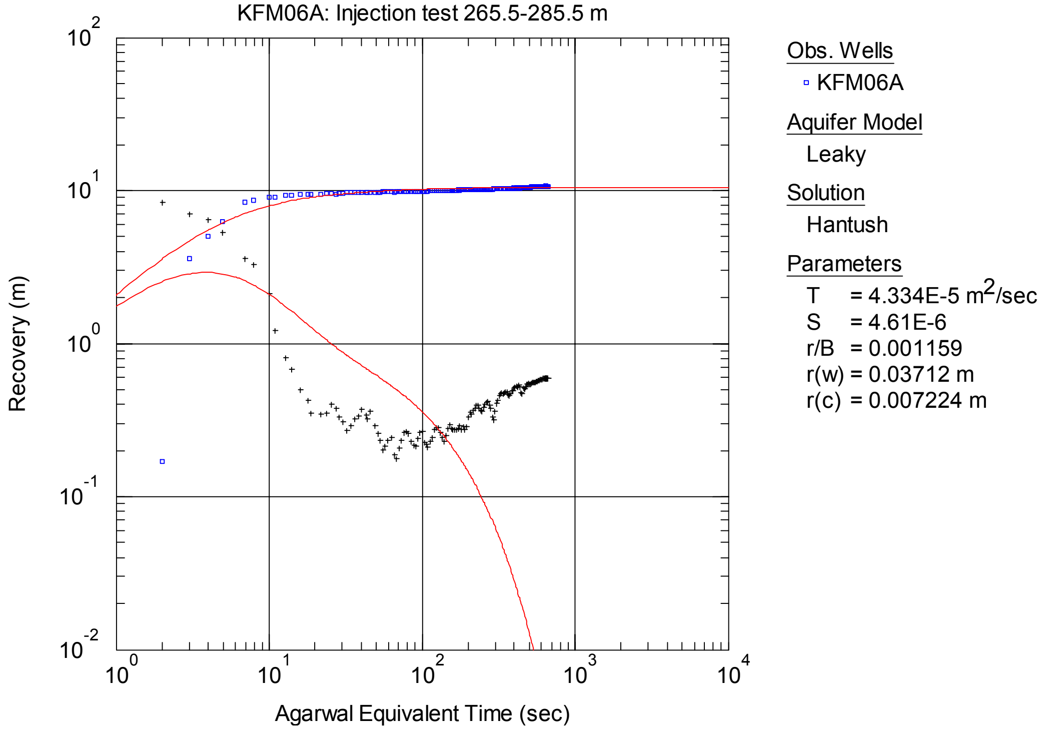


Figure A3-91. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 265.5-285. m in KFM06A.*

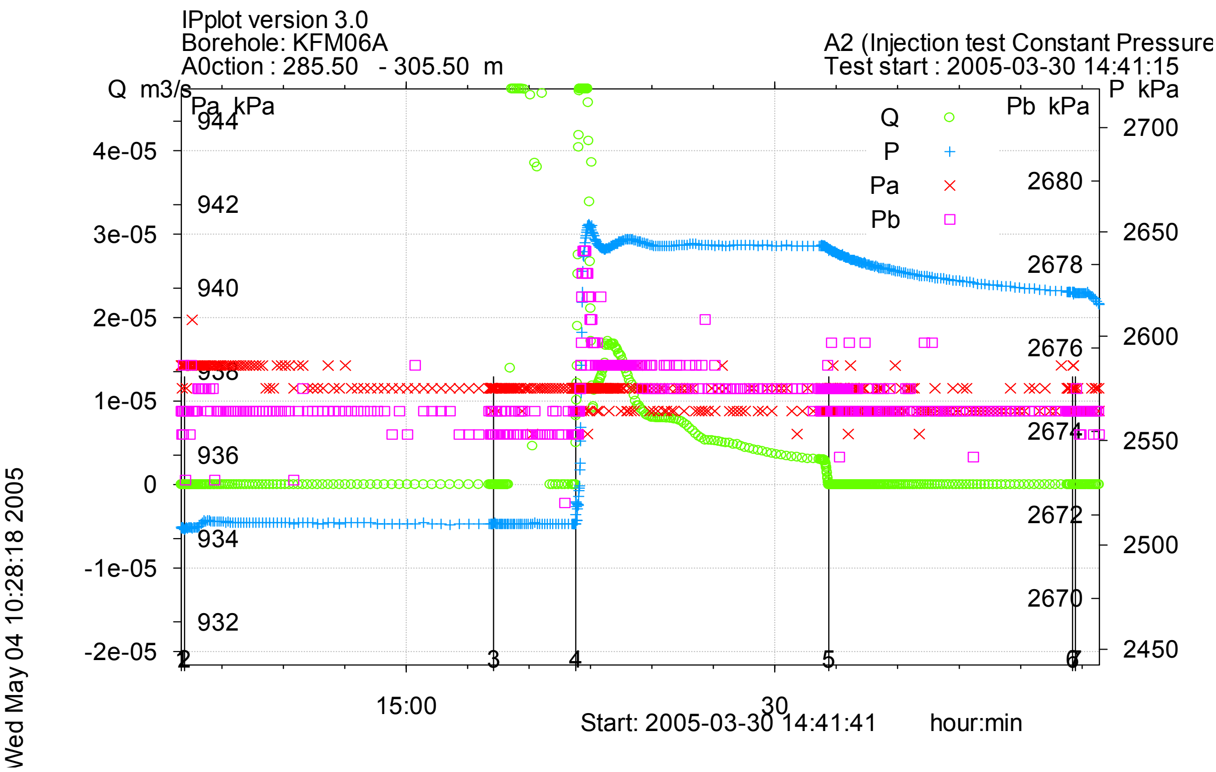


Figure A3-92. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 285.5-305.5 m in borehole KFM06A.*

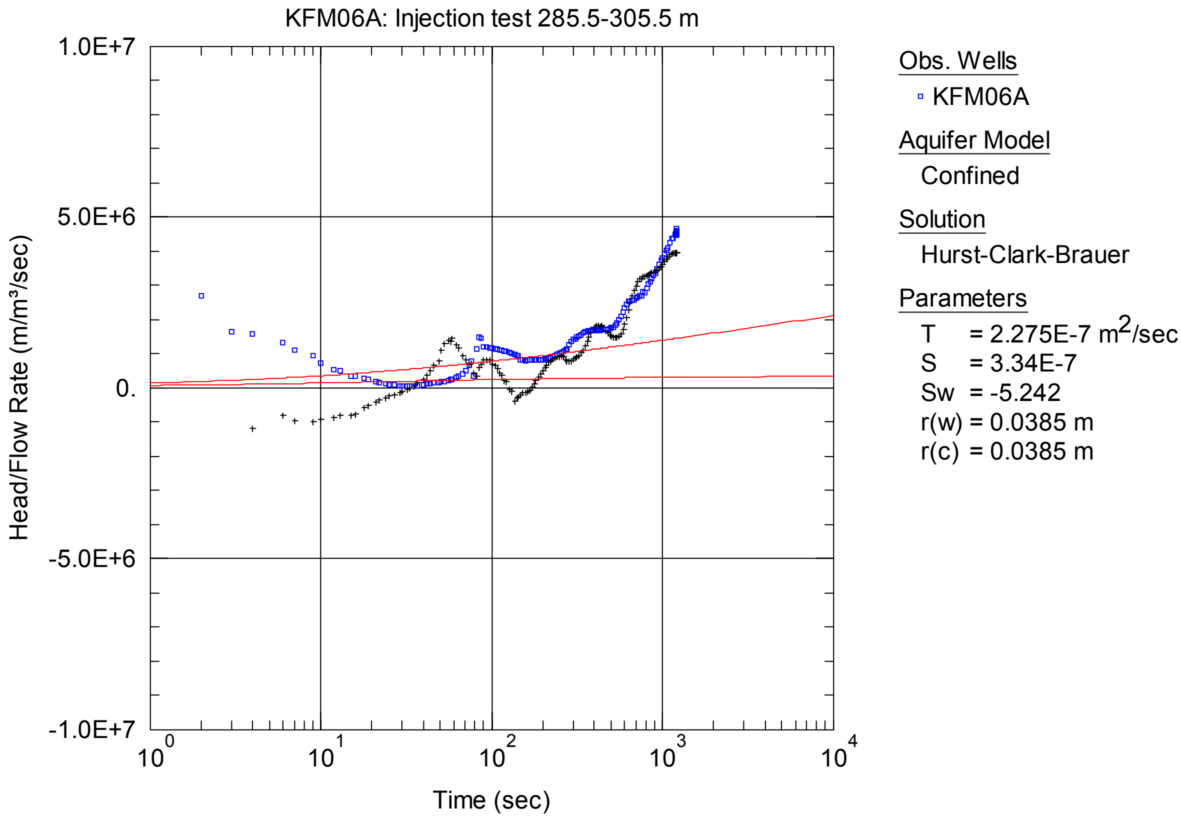


Figure A3-93. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 285.5-305.5 m in KFM06A.*

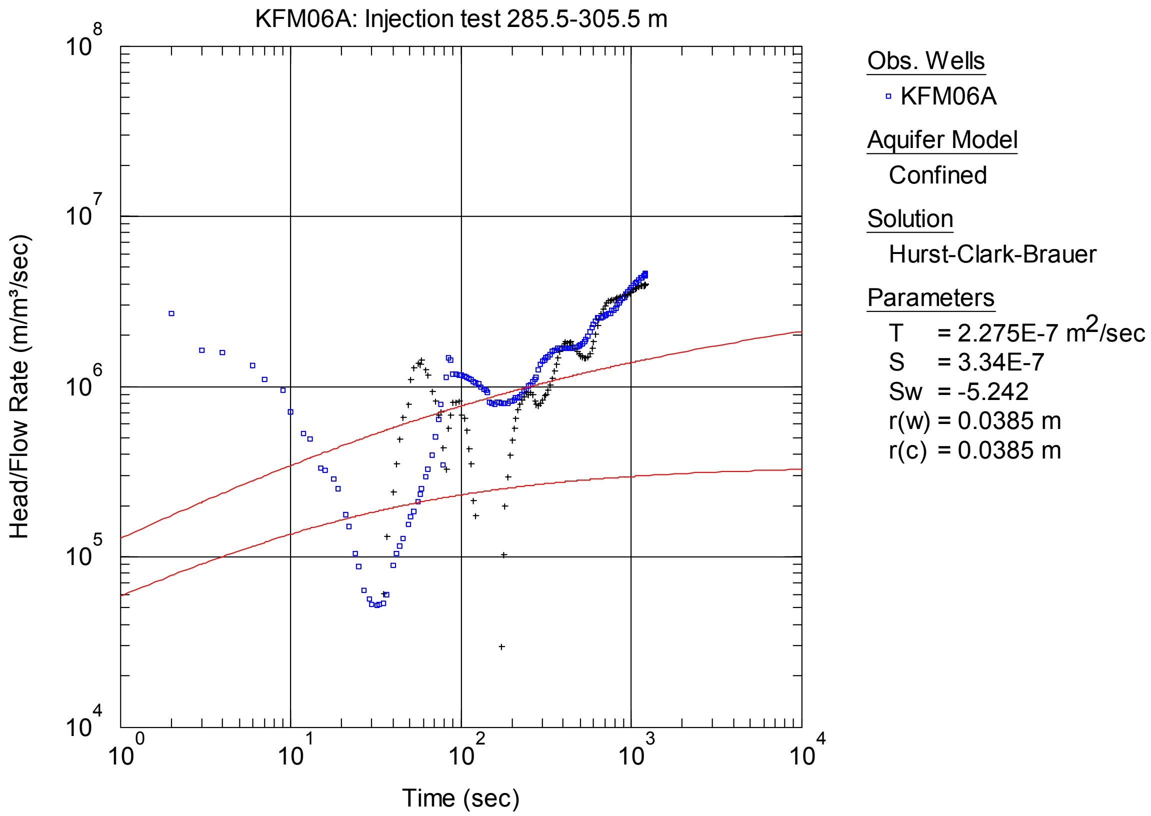


Figure A3-94. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 285.5-305.5 m in KFM06A.*

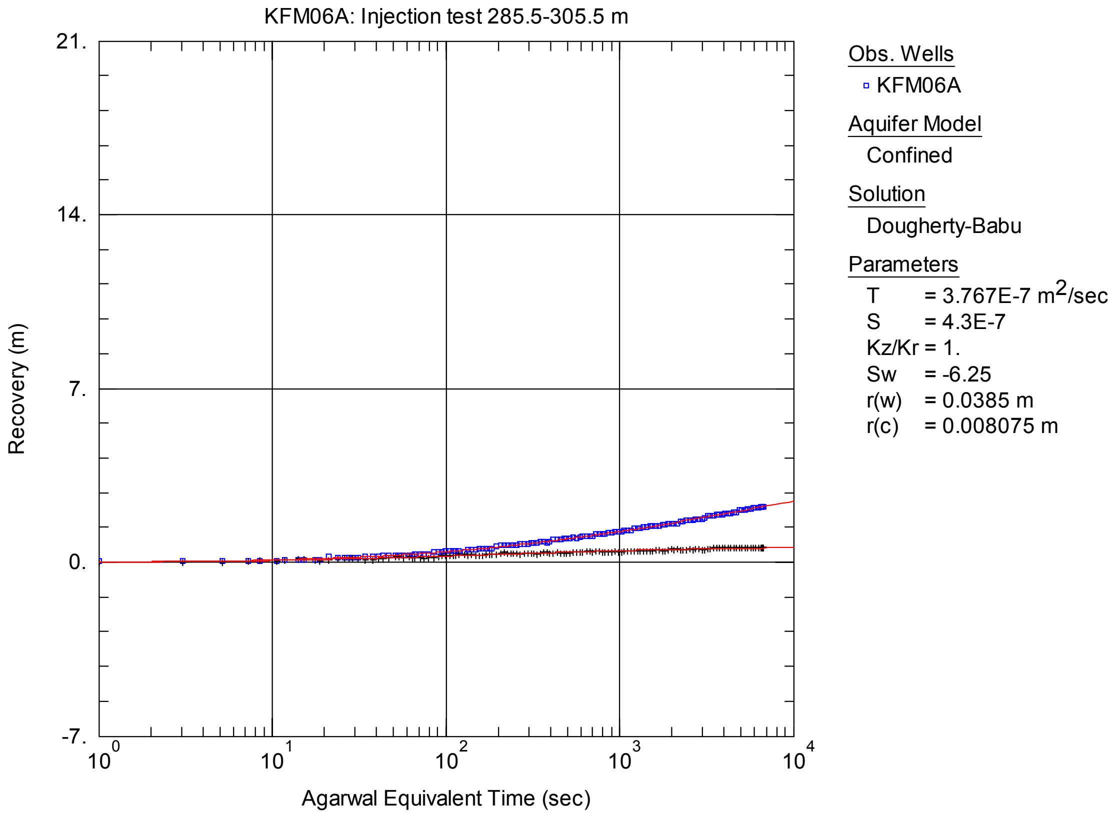


Figure A3-95. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 285.5-305.5 m in KFM06A.*

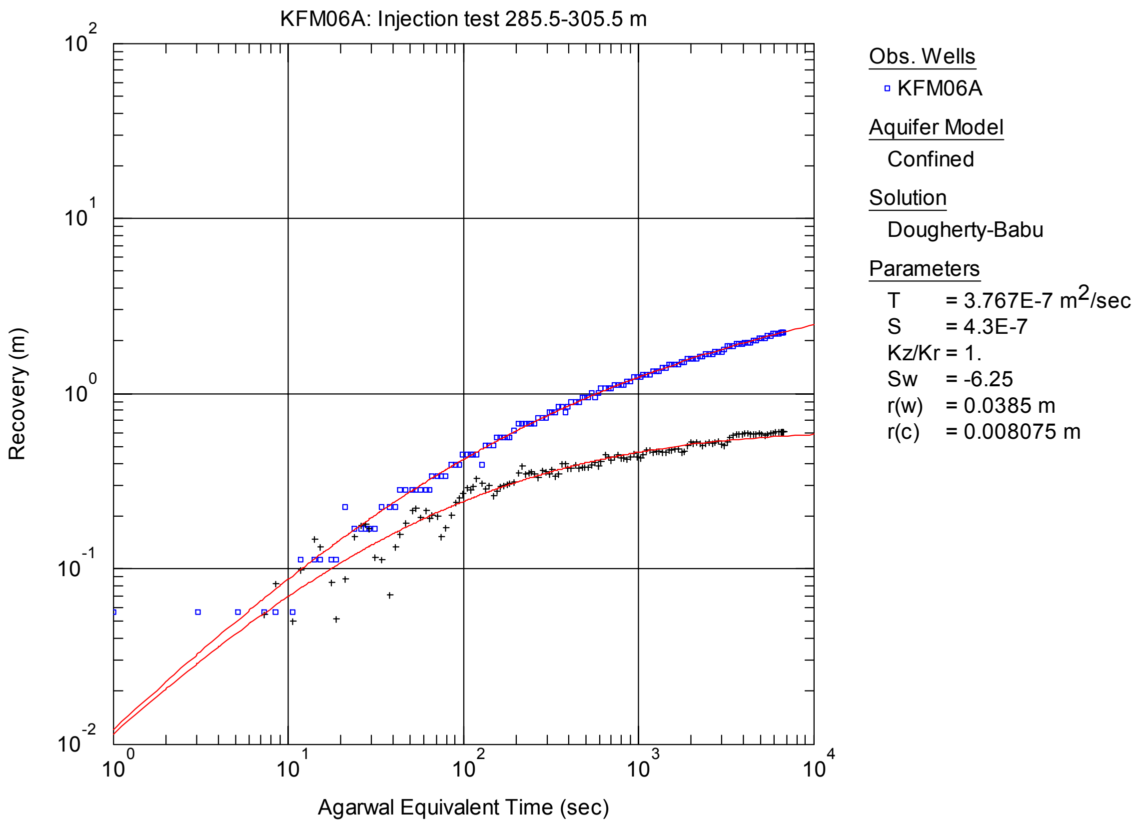


Figure A3-96. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 285.5-305.5 m in KFM06A.*

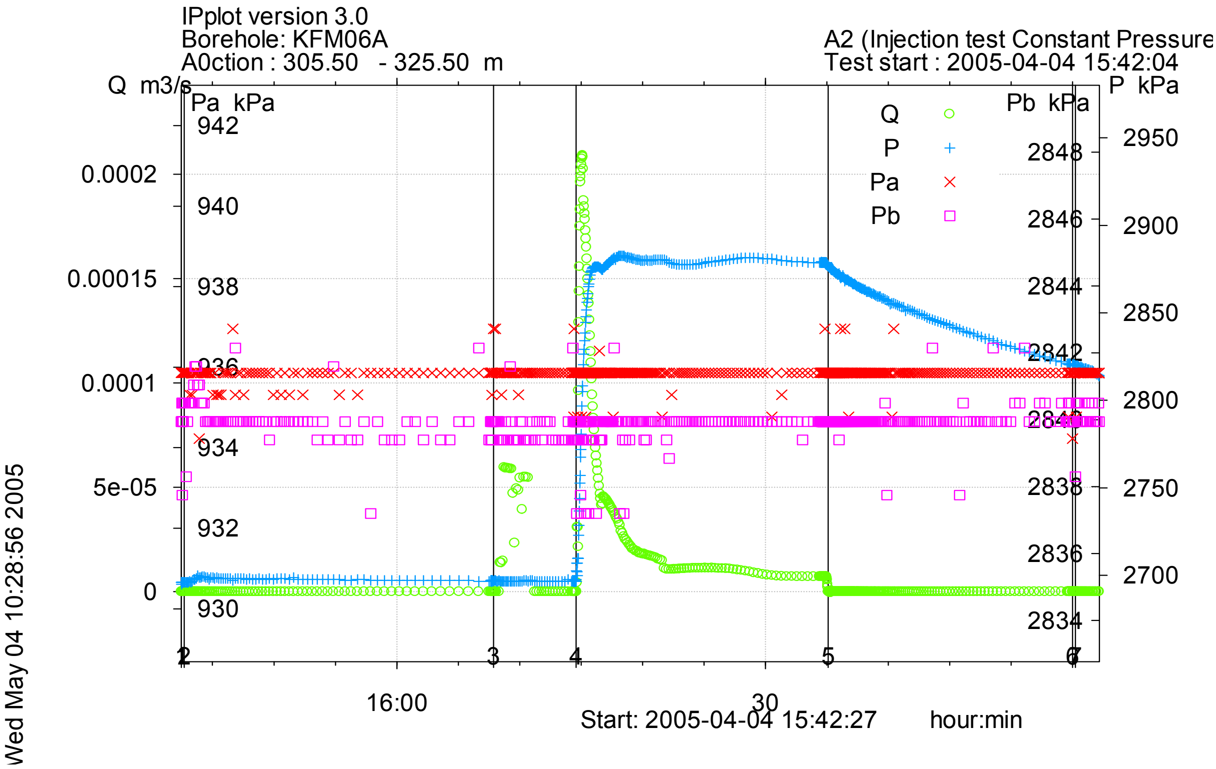


Figure A3-97. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 305.5-325.5 m in borehole KFM06A.

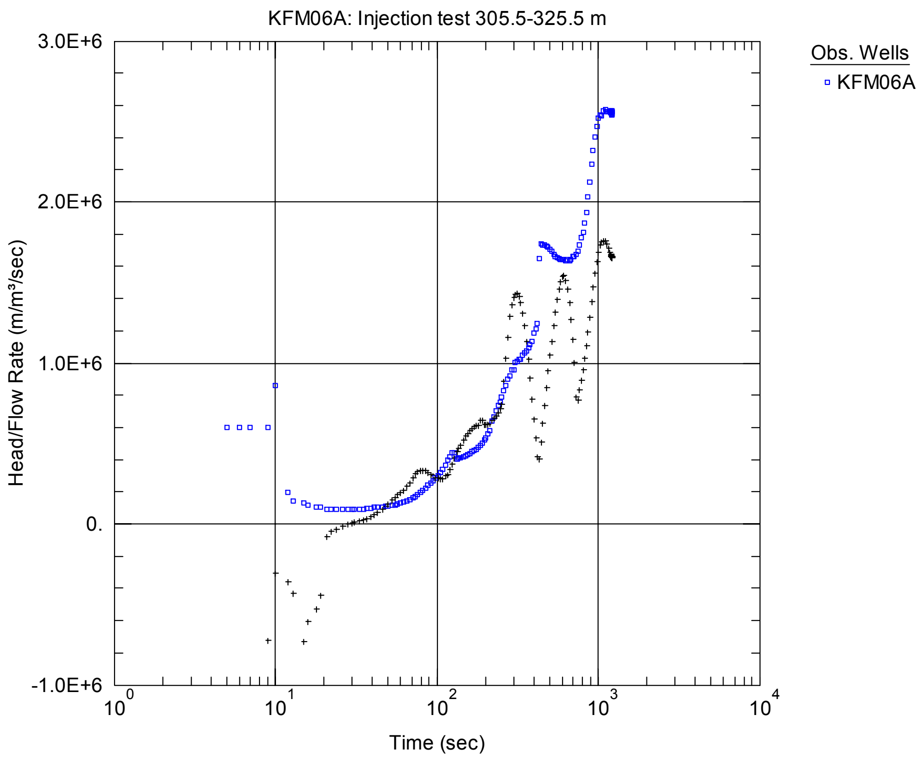


Figure A3-98. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 305.5-325.5 m in KFM06A.

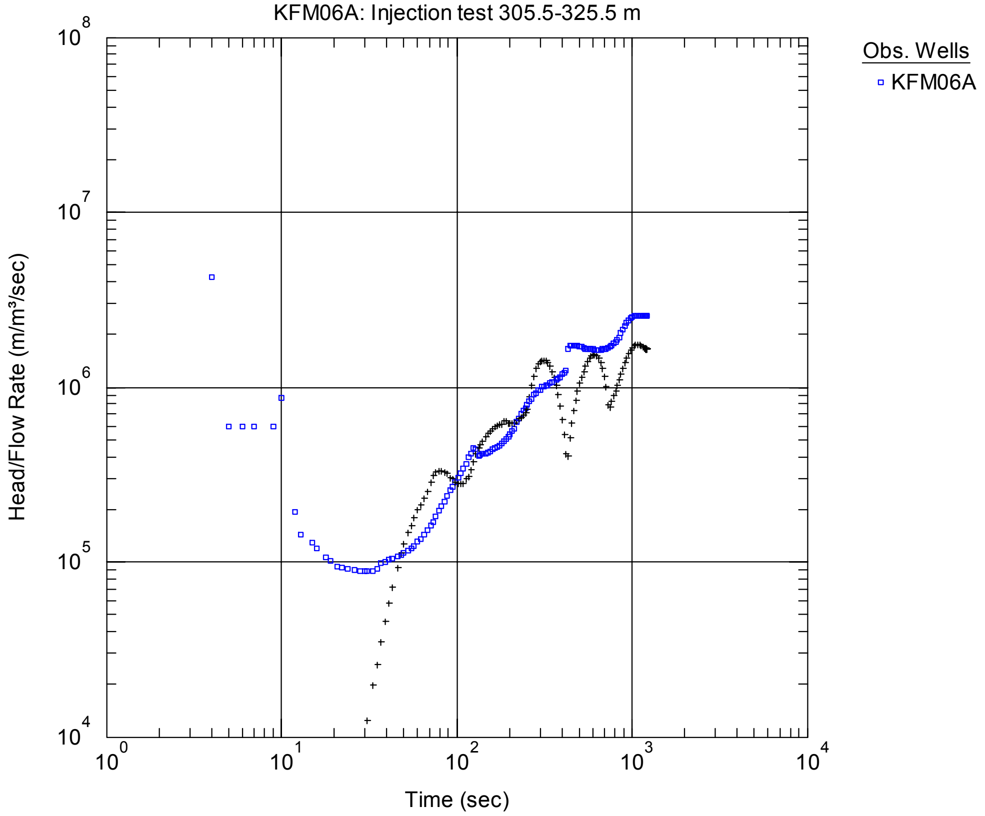


Figure A3-99. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 305.5-325.5 m in KFM06A.*

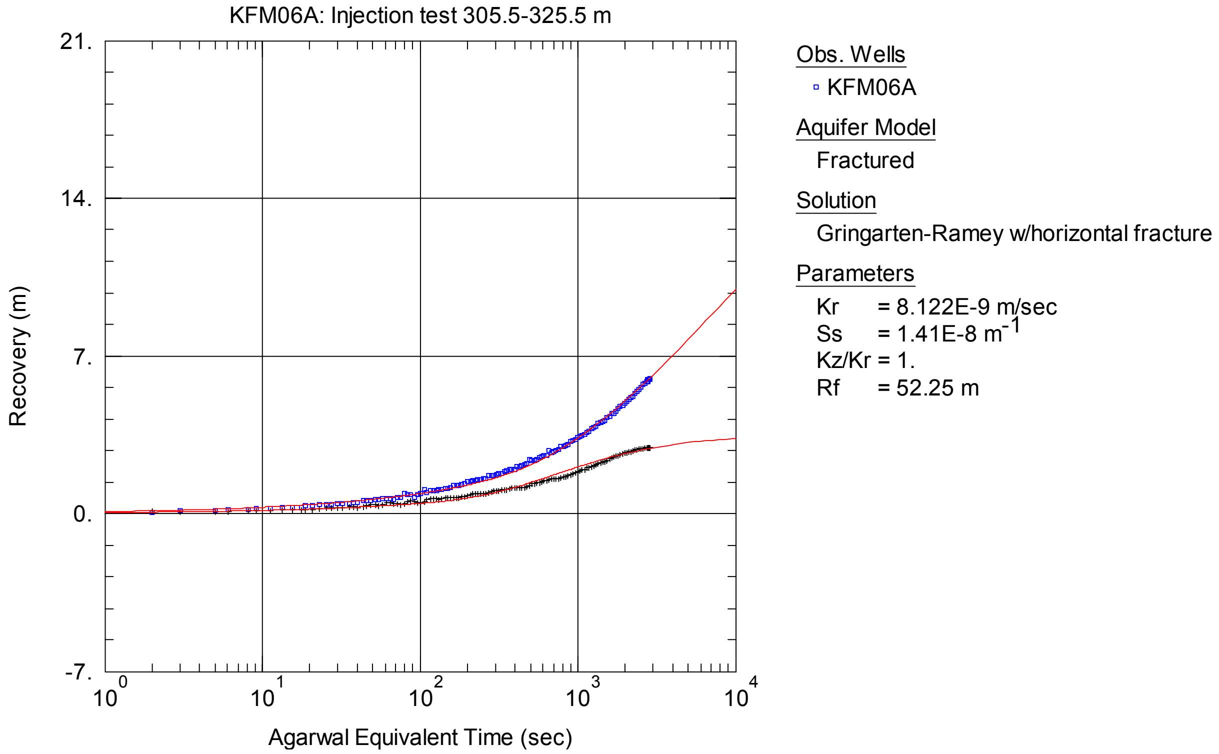


Figure A3-100. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 305.5-325.5 m in KFM06A.*

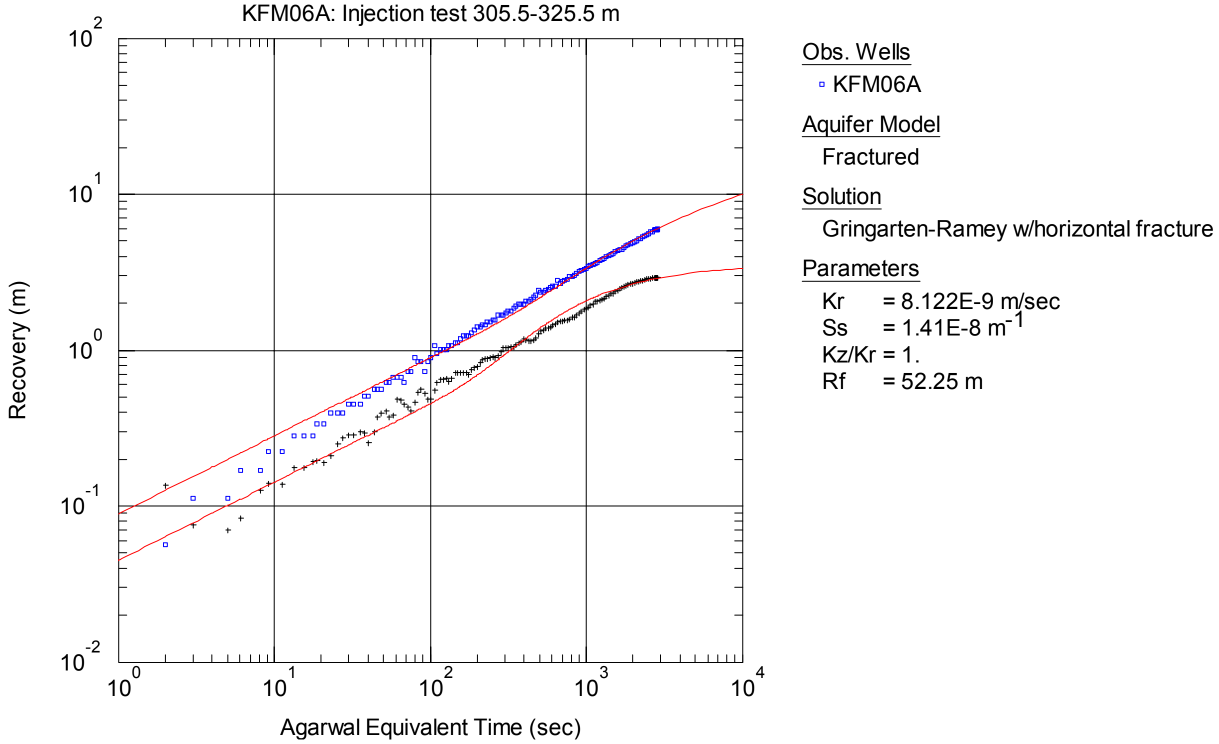


Figure A3-101. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 305.5-325.5 m in KFM06A.*

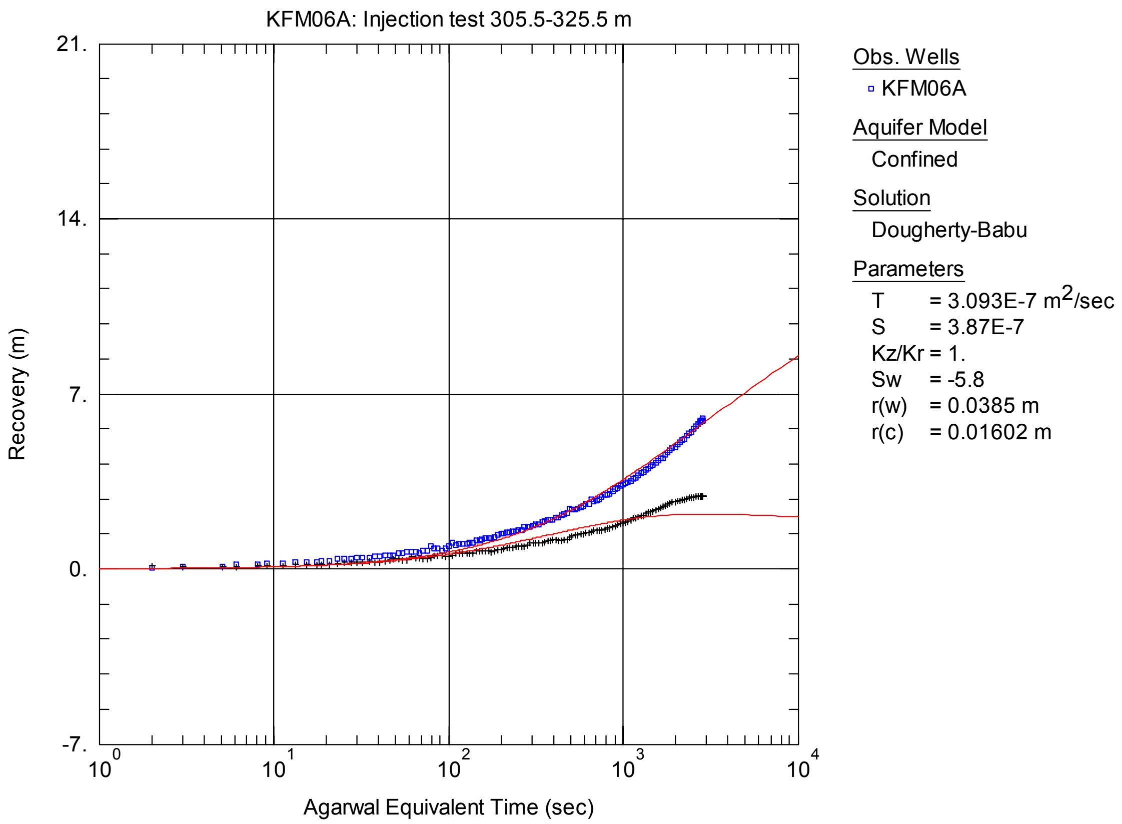


Figure A3-102. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 305.5-325.5 m in KFM06A.*

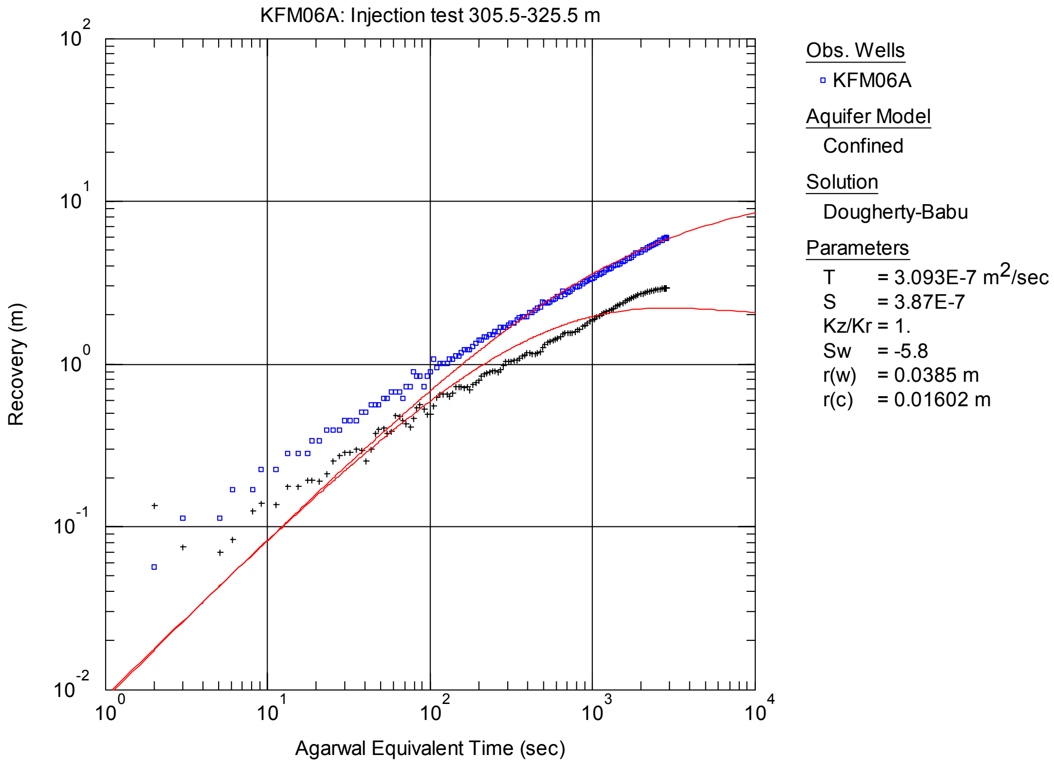


Figure A3-103. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 305.5-325.5 m in KFM06A.*

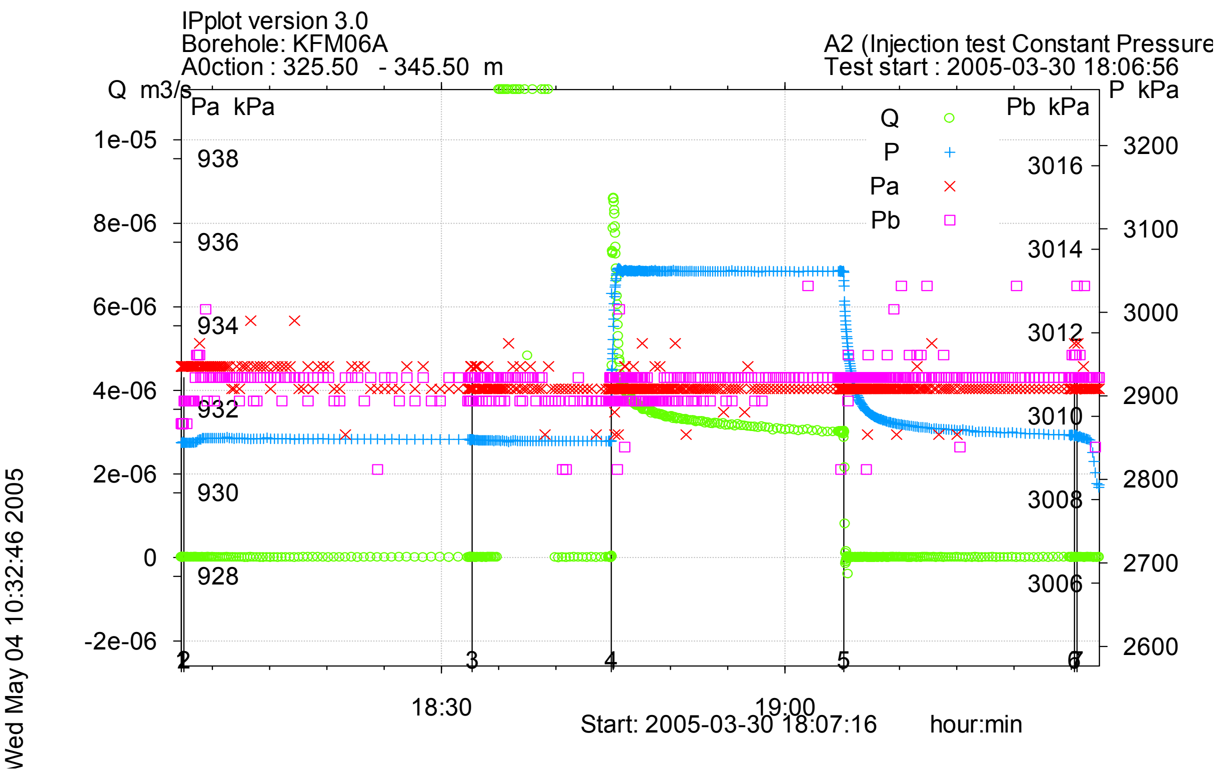


Figure A3-104. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 325.5-345.5 m in borehole KFM06A.*

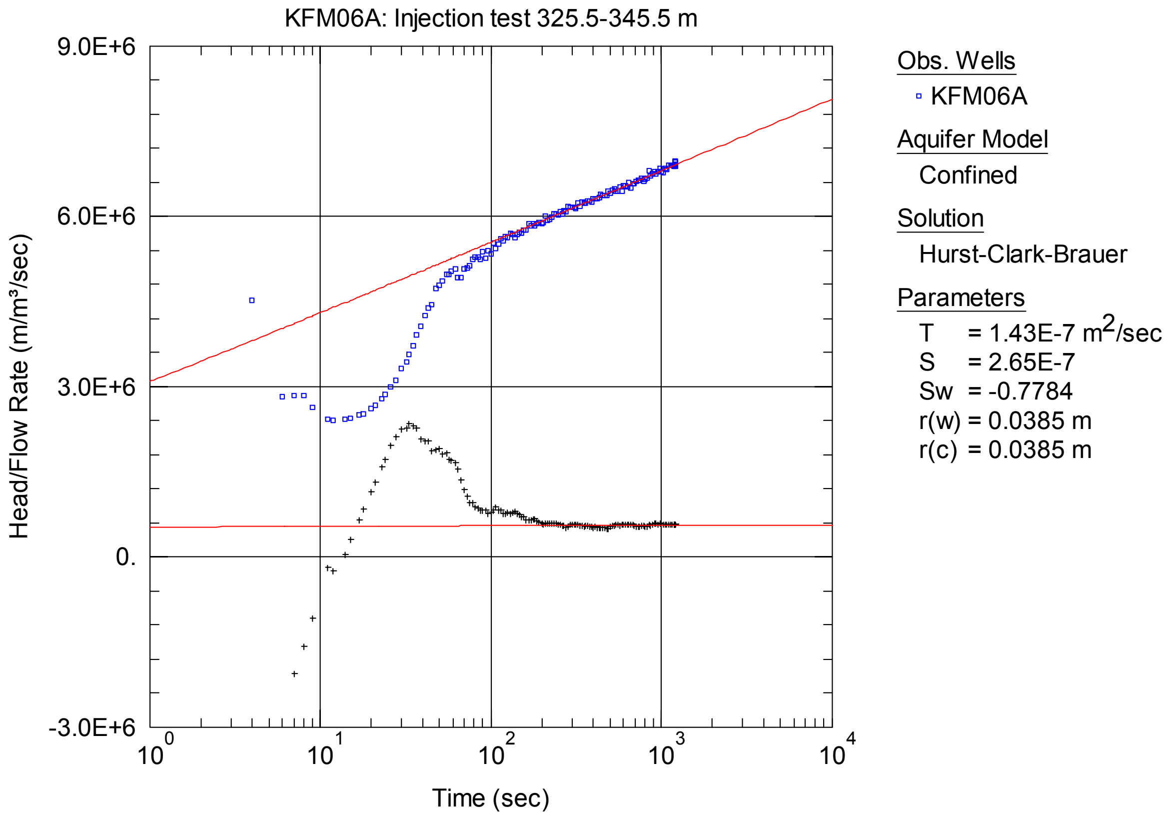


Figure A3-105. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 325.5-345.5 m in KFM06A.*

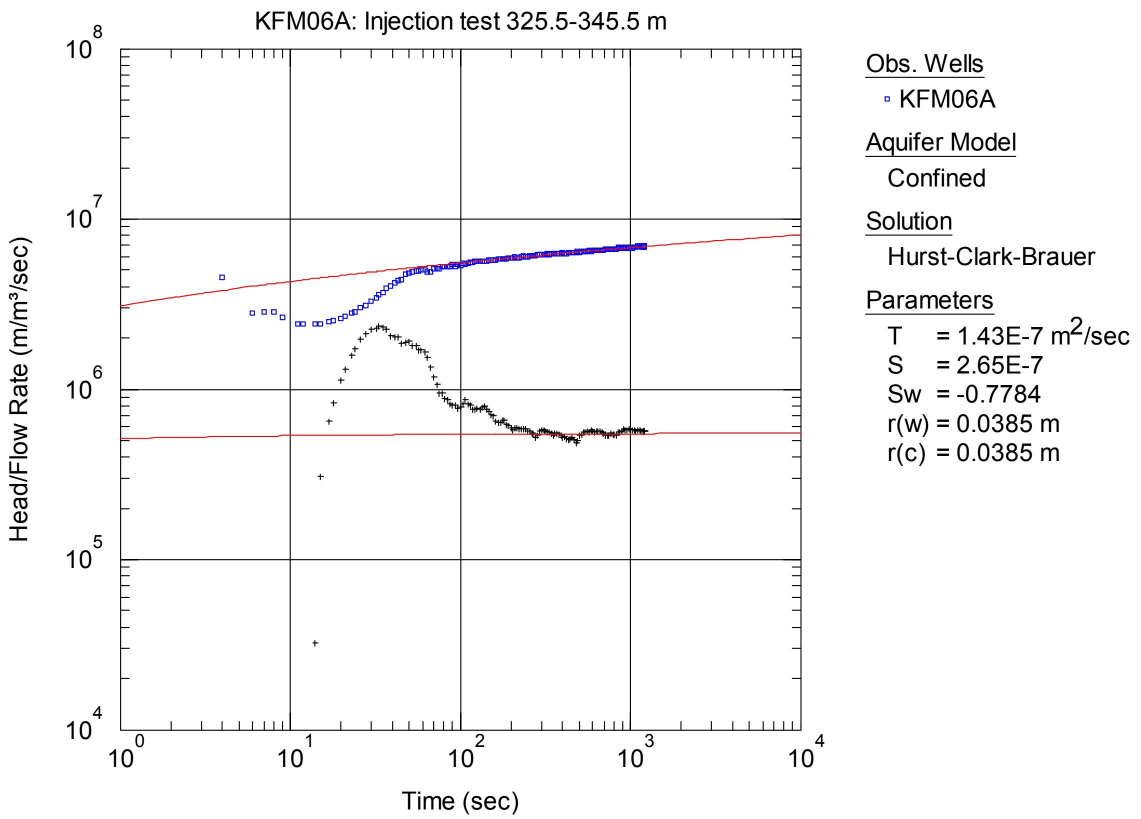


Figure A3-106. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 325.5-345.5 m in KFM06A.*

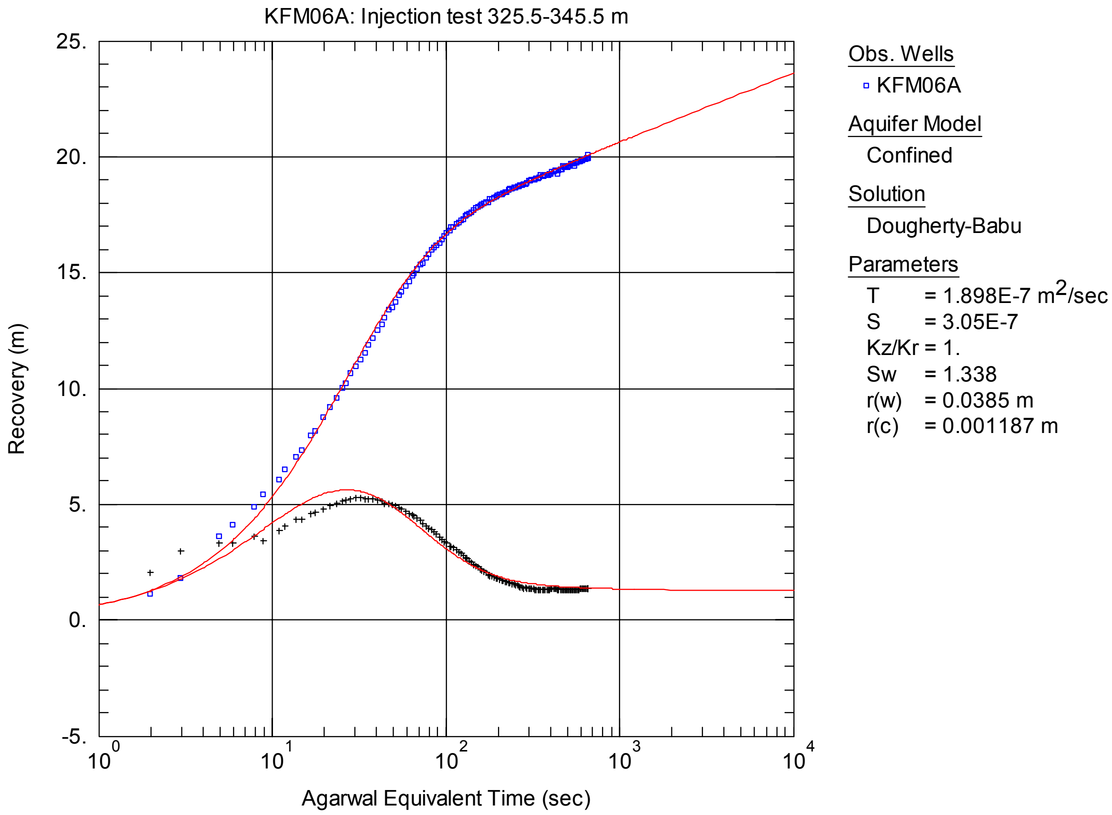


Figure A3-107. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 325.5-345.5 m in KFM06A.*

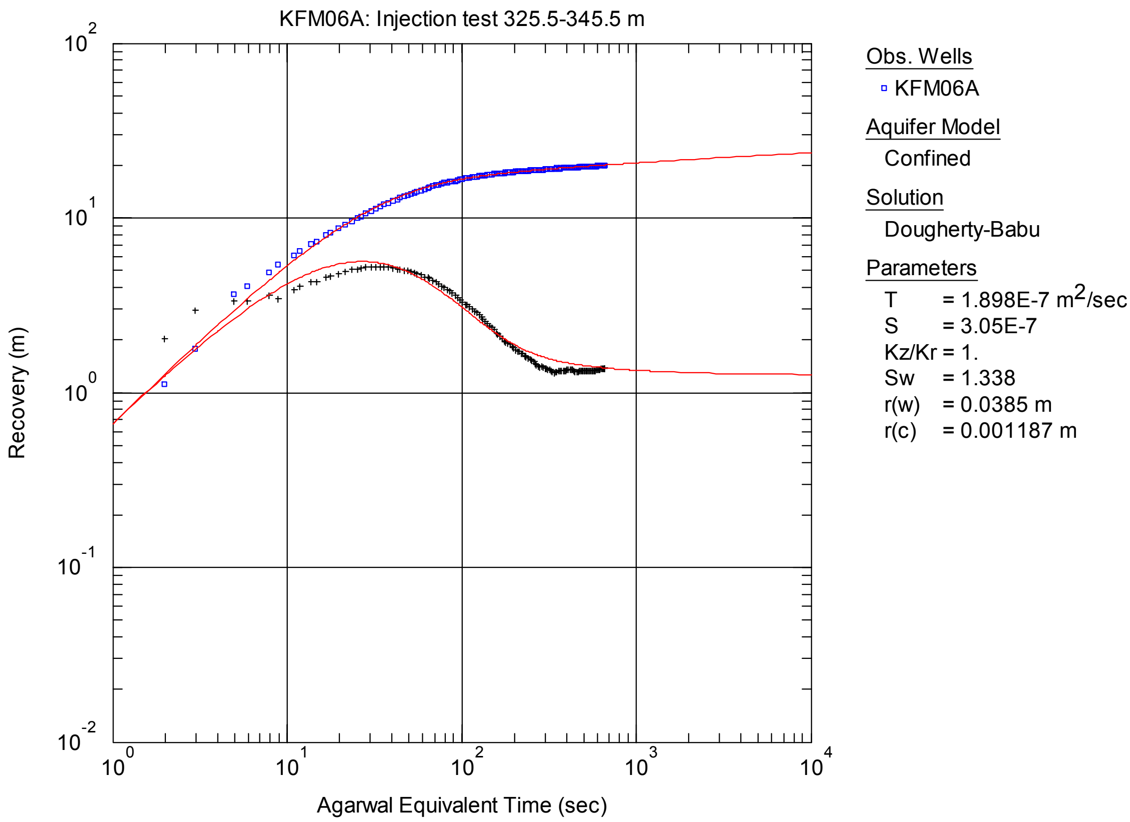


Figure A3-108. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 325.5-345.5 m in KFM06A.*

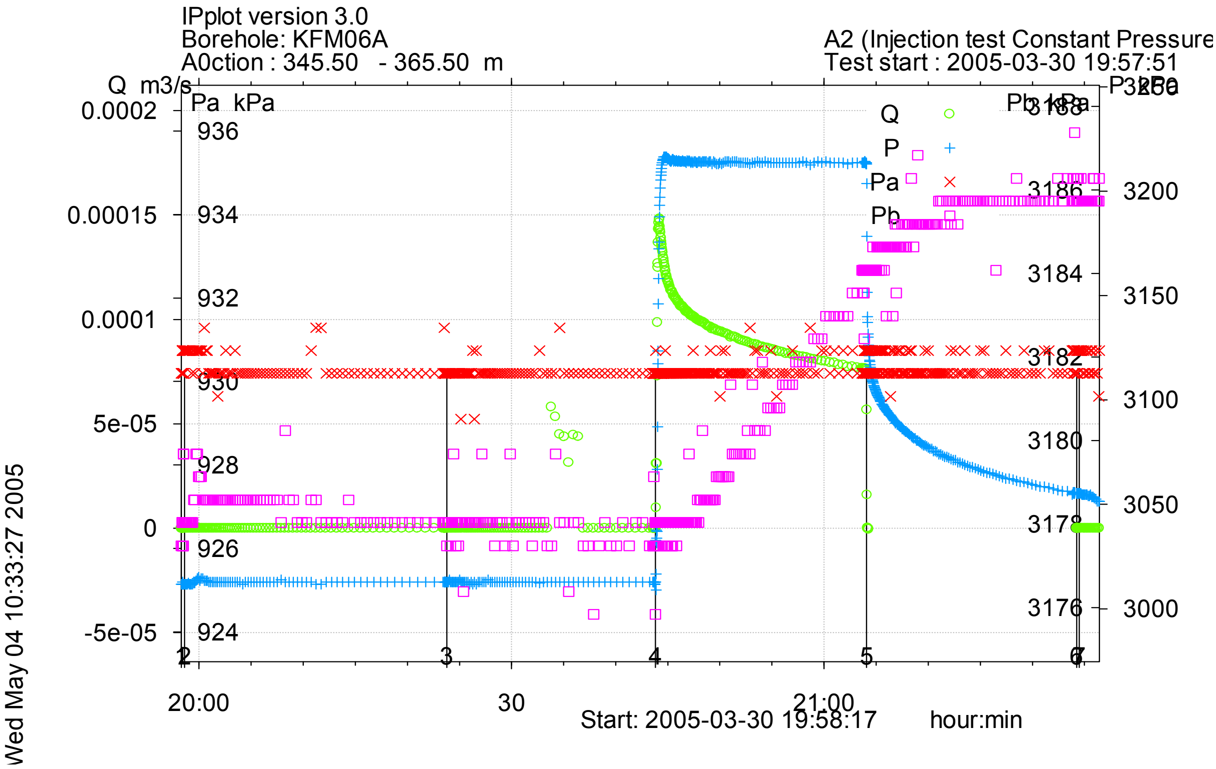


Figure A3-109. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 345.5-365.5 m in borehole KFM06A.*

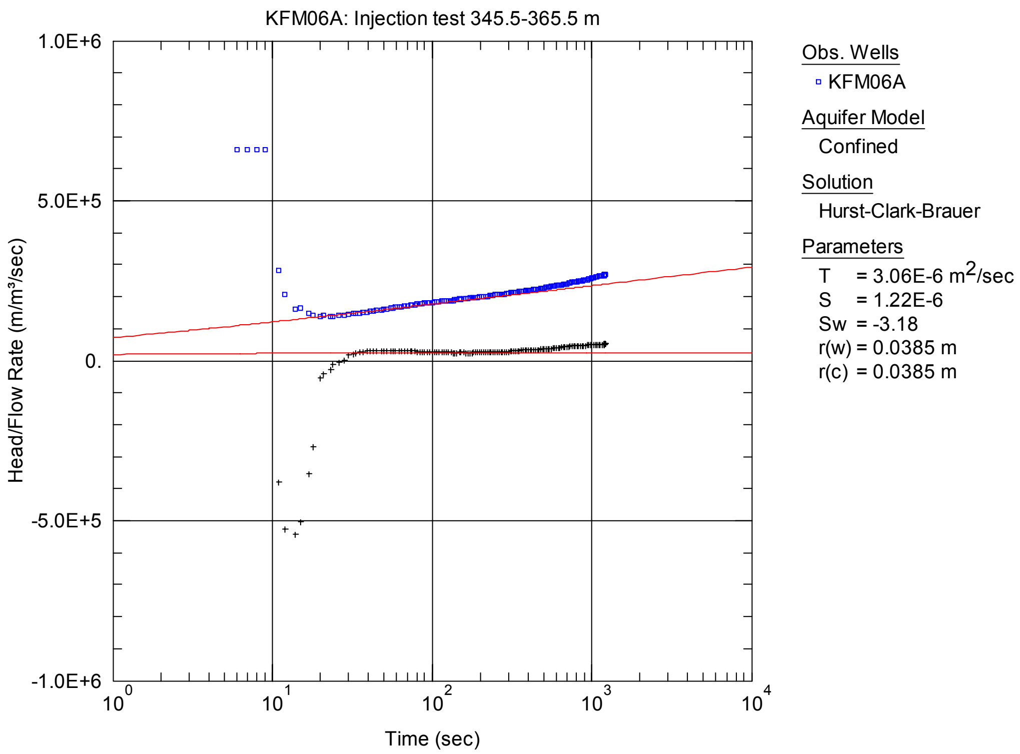


Figure A3-110. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 345.5-365.5 m in KFM06A.*

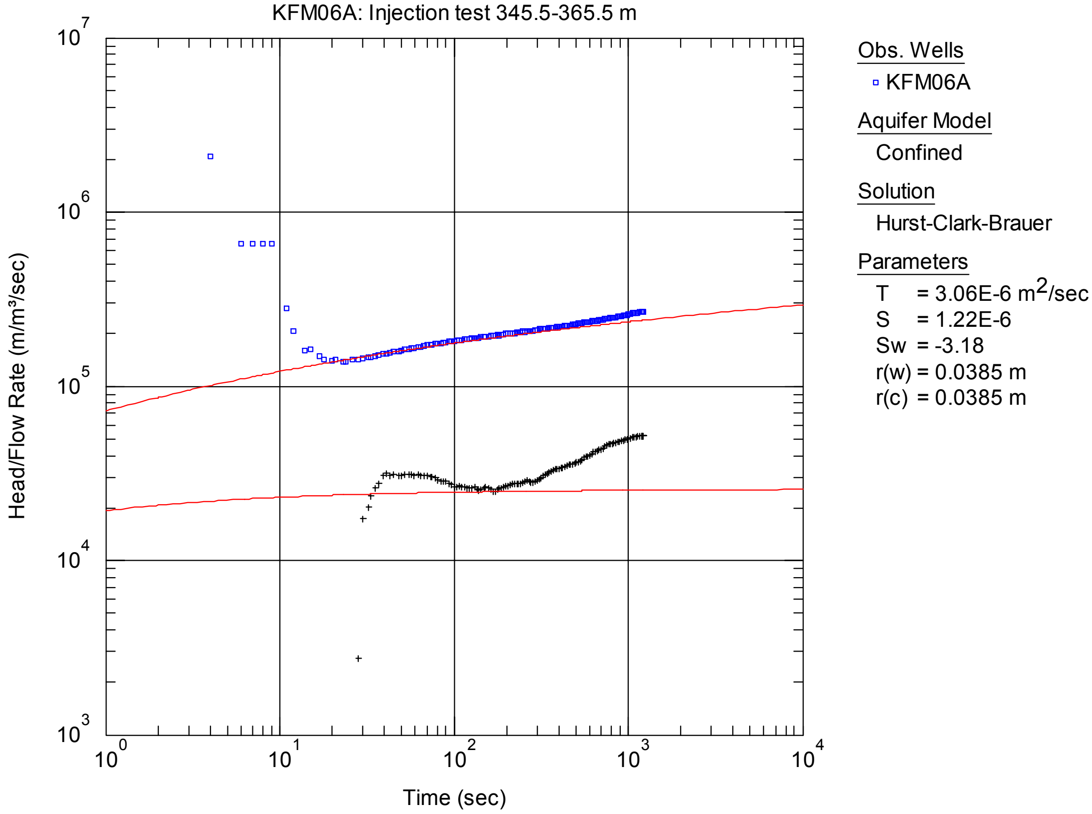


Figure A3-111. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 345.5-365.5 m in KFM06A.*

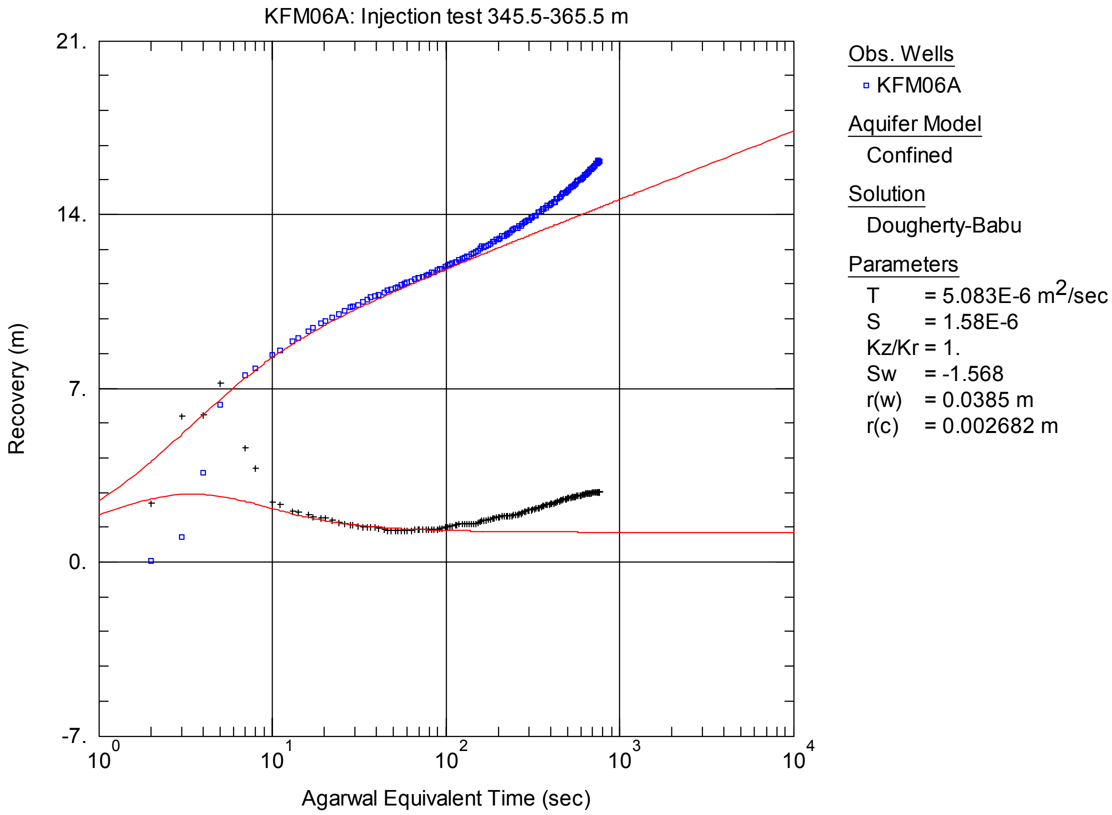


Figure A3-112. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 345.5-365.5 m in KFM06A.*

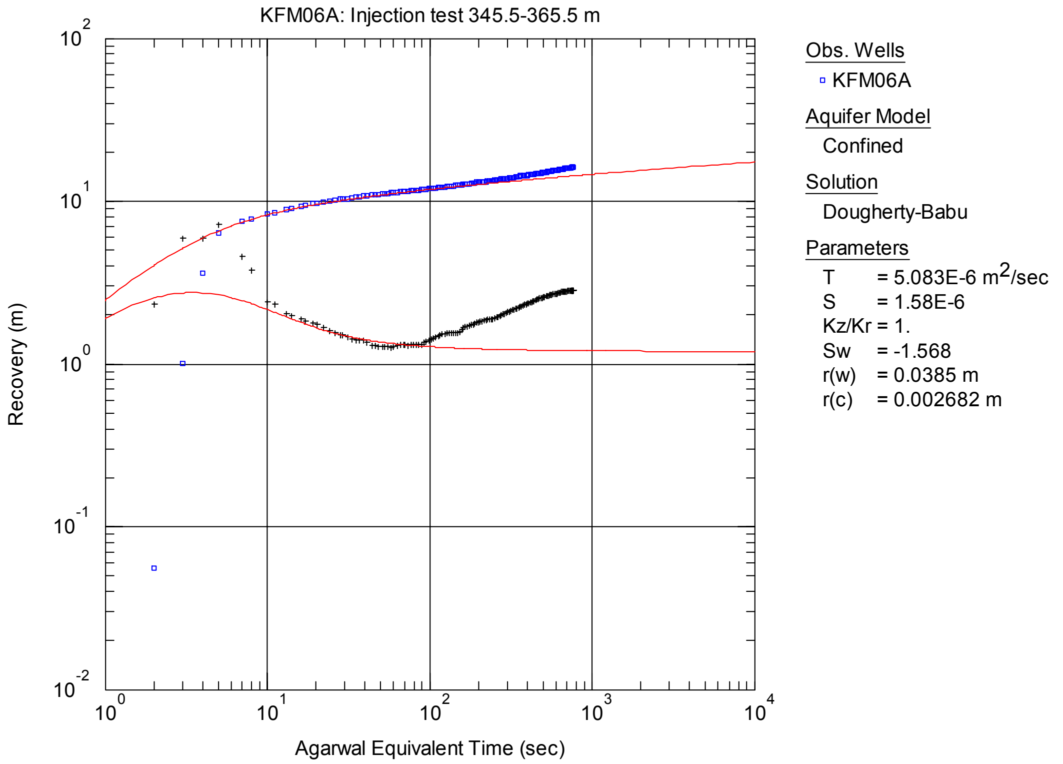


Figure A3-113. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 345.5-365.5 m in KFM06A.*

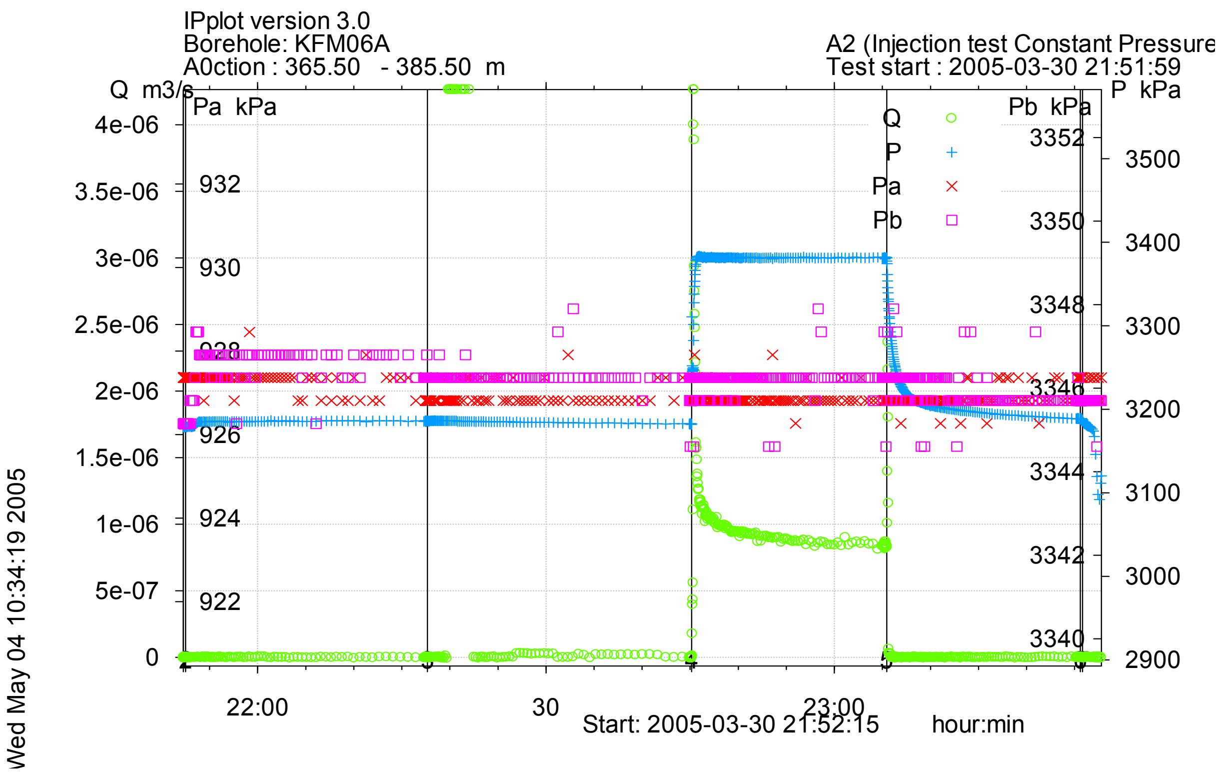


Figure A3-114. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 365.5-385.5 m in borehole KFM06A.*

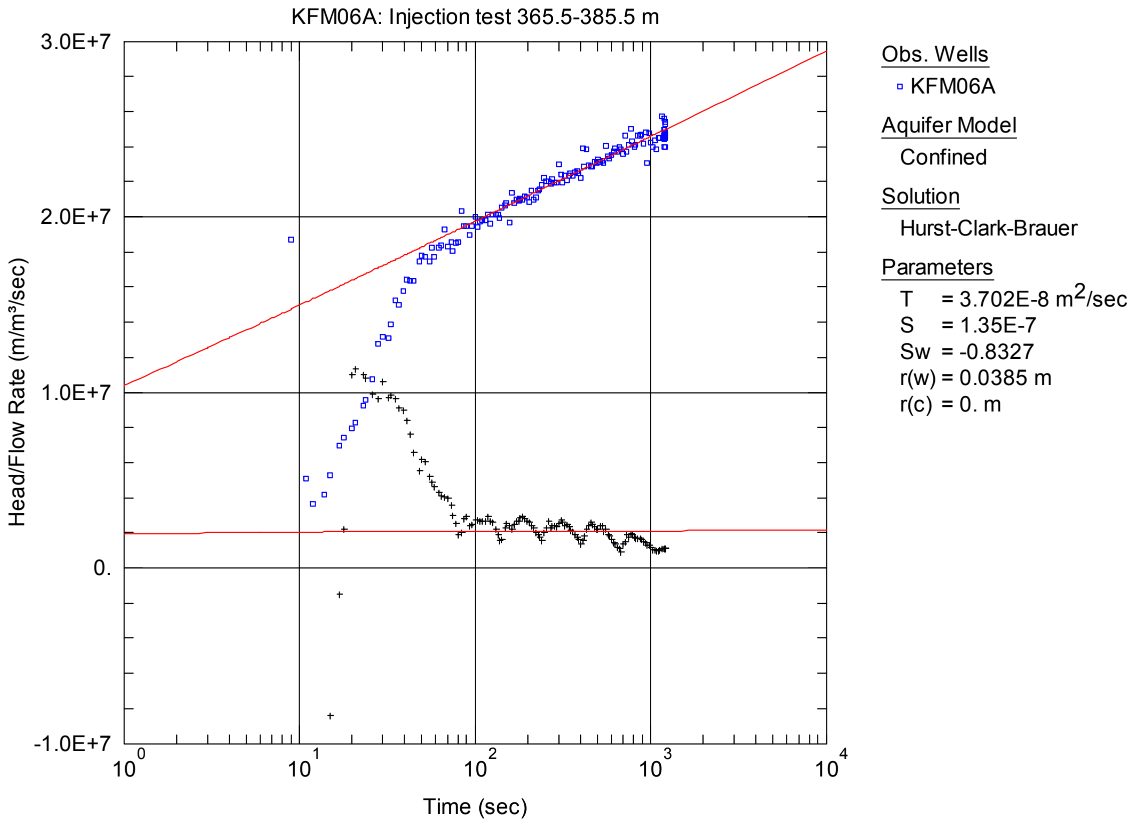


Figure A3-115. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 365.5-385.5 m in KFM06A.*

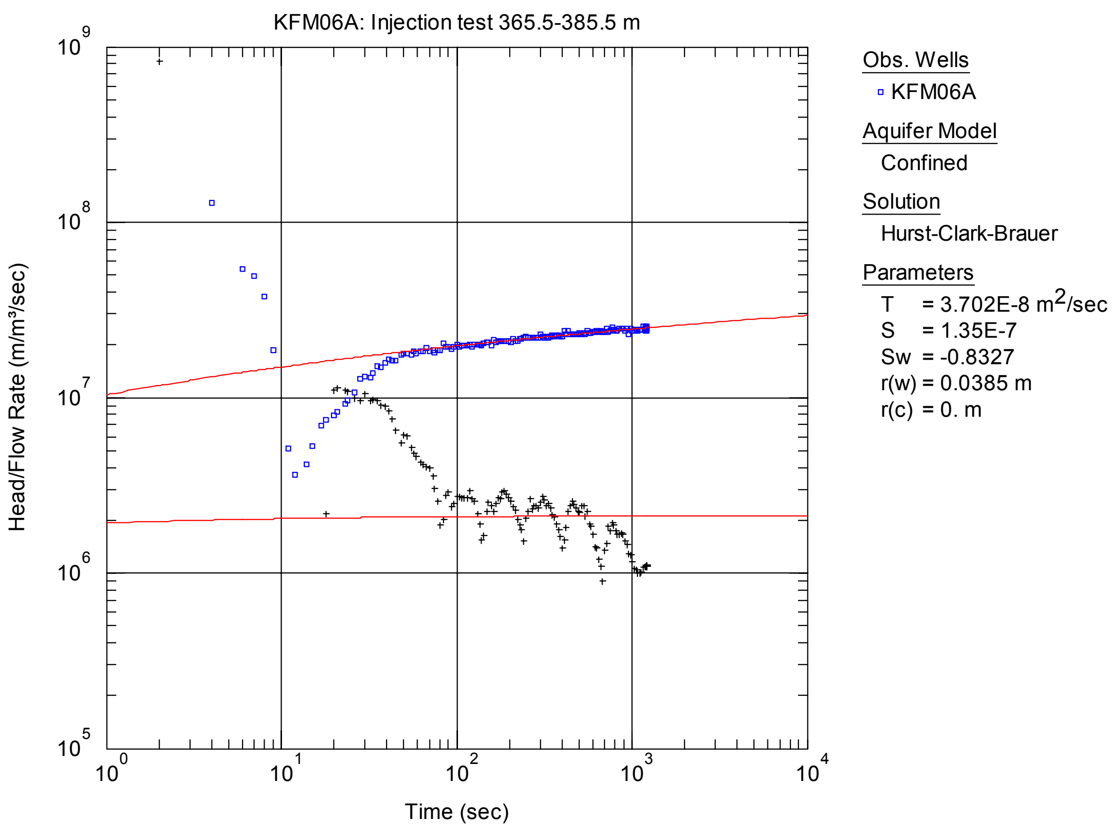


Figure A3-116. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 365.5-385.5 m in KFM06A.*

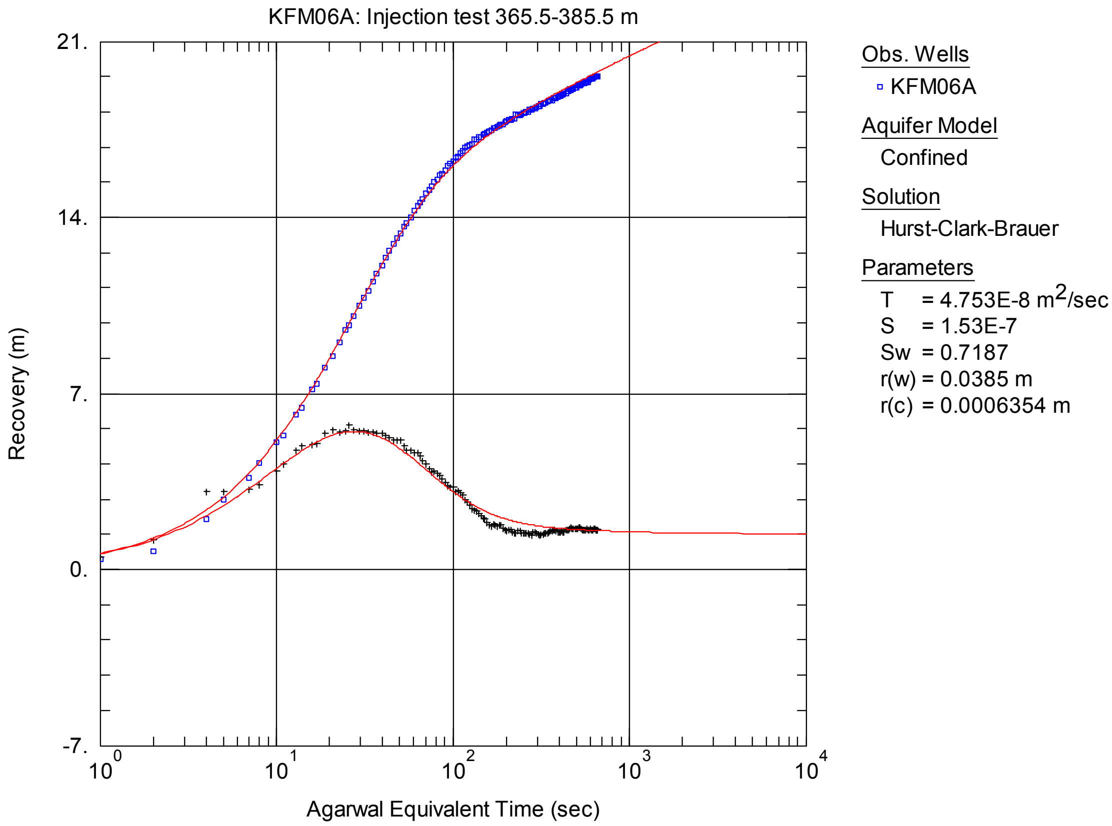


Figure A3-117. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 365.5-385.5 m in KFM06A.*

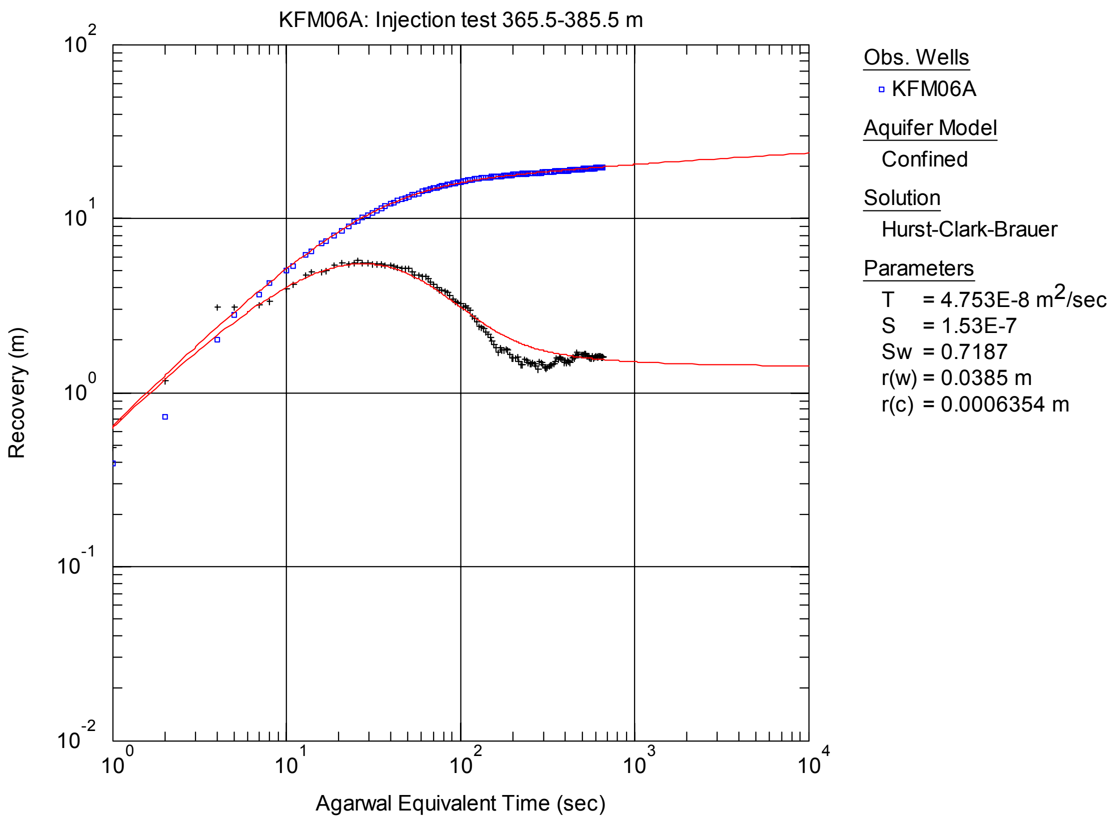


Figure A3-118. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 365.5-385.5 m in KFM06A.*

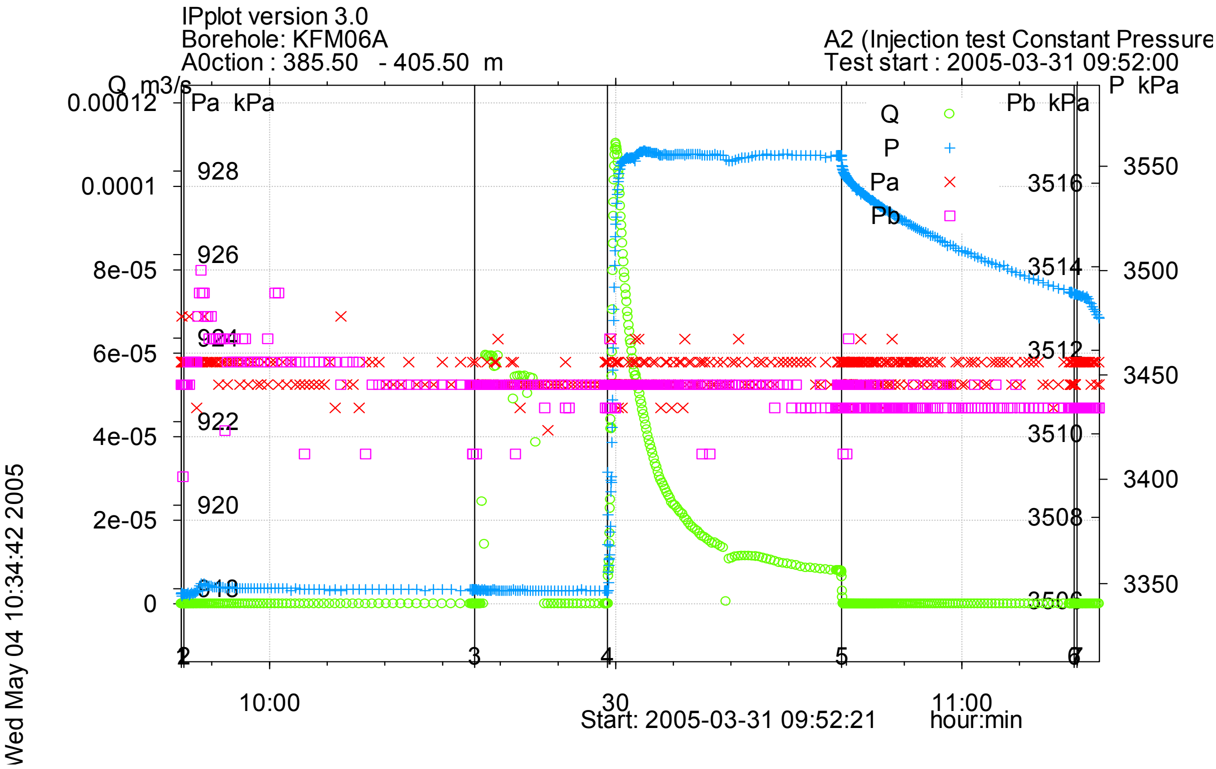


Figure A3-119. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 385.5-405.5 m in borehole KFM06A.*

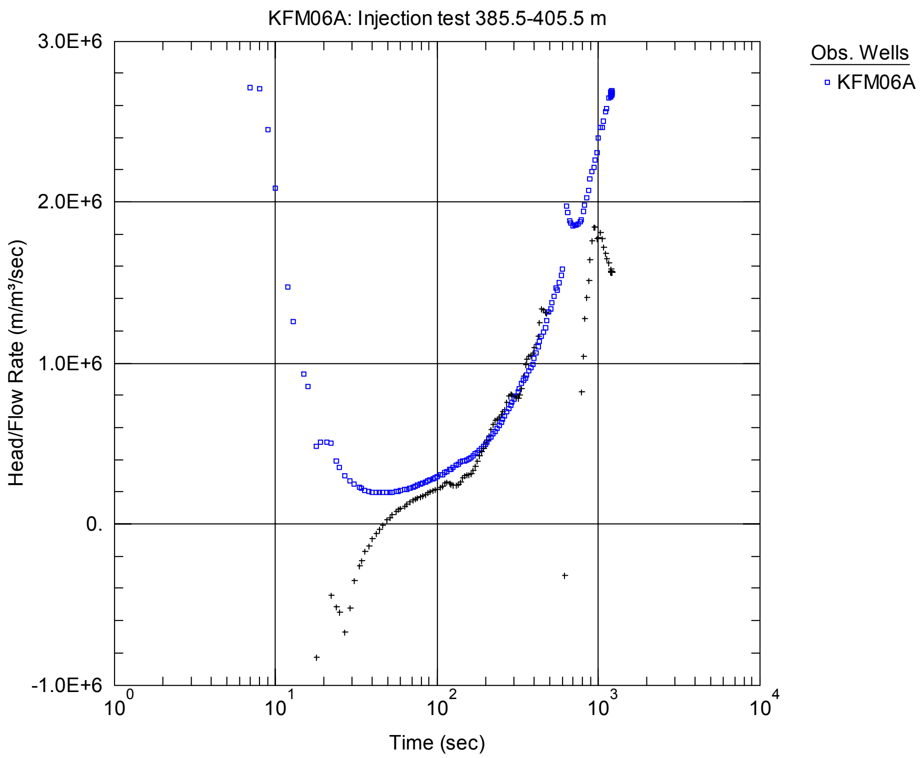


Figure A3-120. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 385.5-405.5 m in KFM06A.*

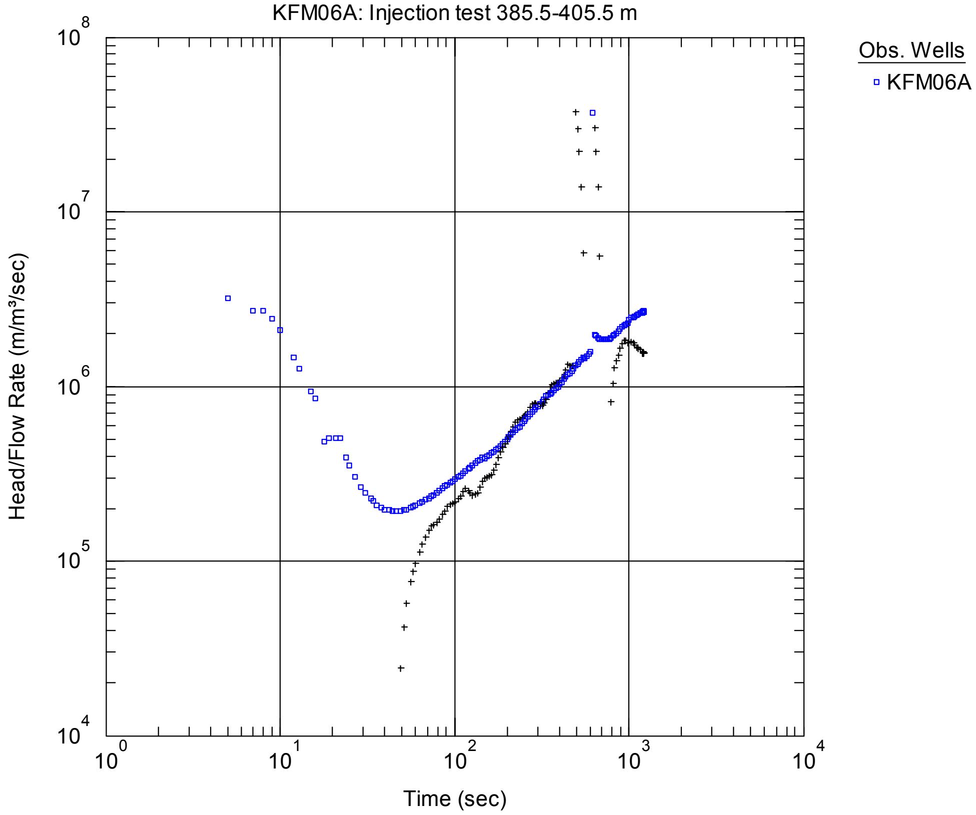


Figure A3-121. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 385.5-405.5 m in KFM06A.*

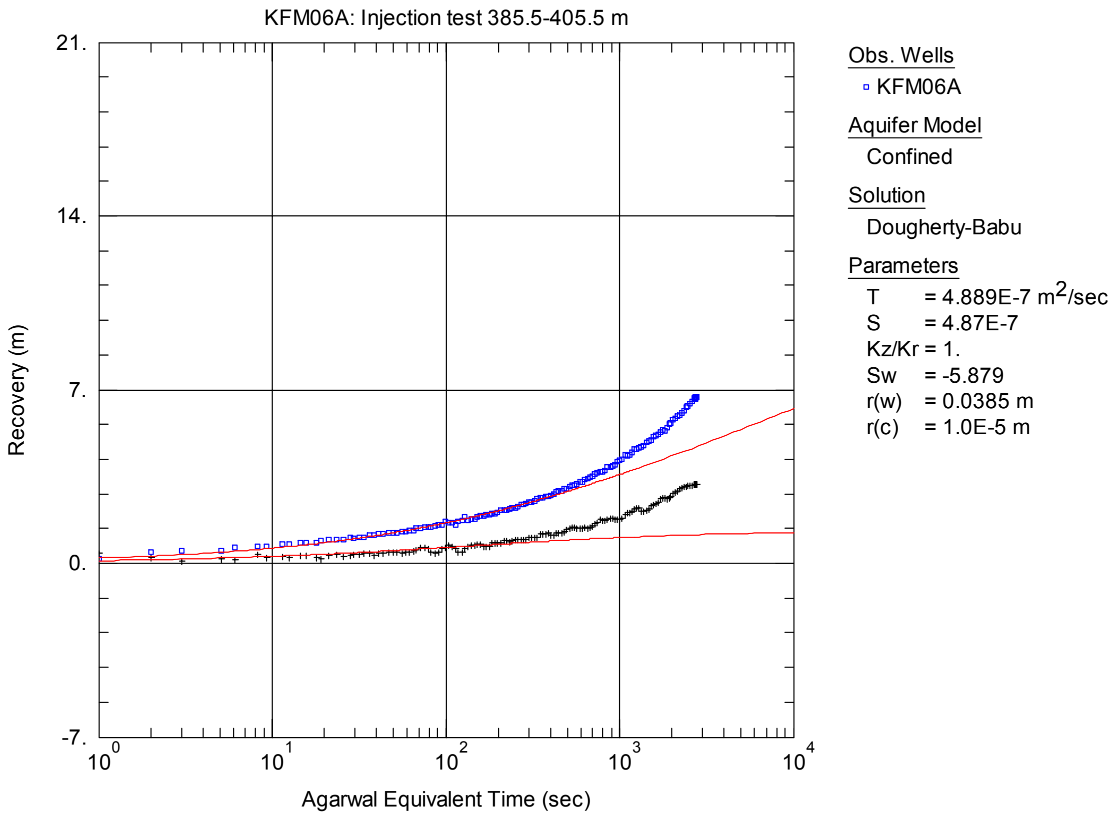


Figure A3-122. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 385.5-405.5 m in KFM06A.*

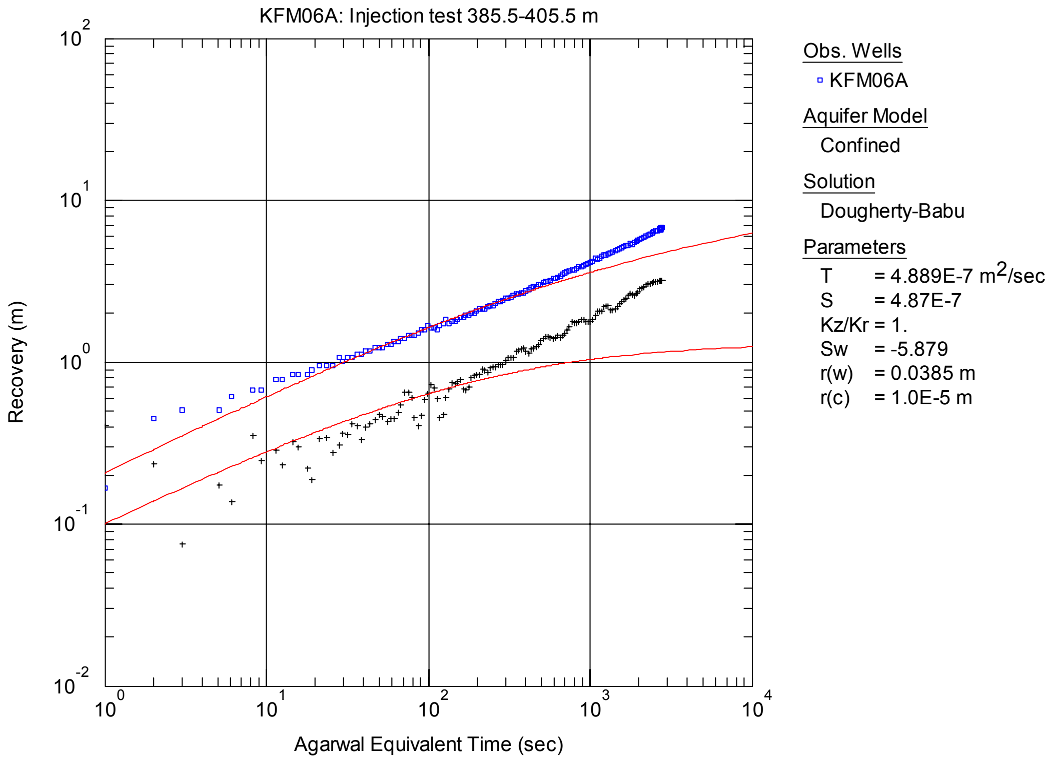


Figure A3-123. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 385.5-405.5 m in KFM06A.*

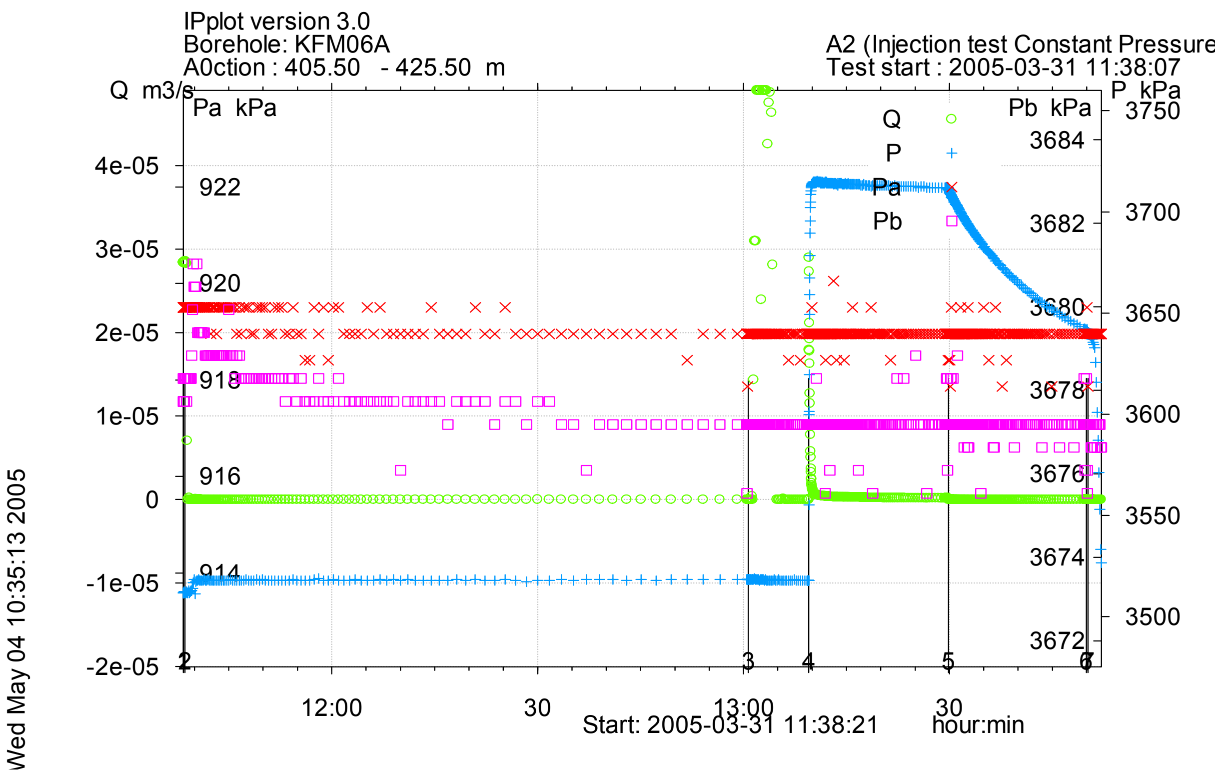


Figure A3-124. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 405.5-425.5 m in borehole KFM06A.*

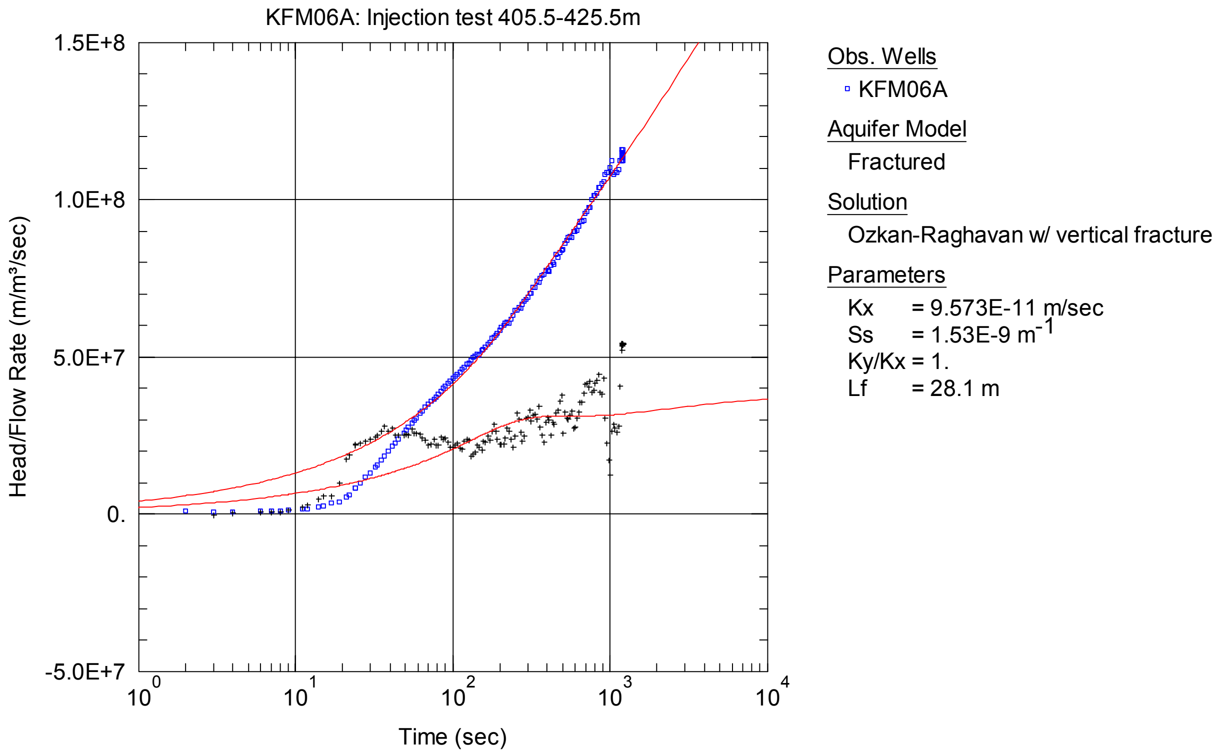


Figure A3-125. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 405.5-425.5 m in KFM06A.*

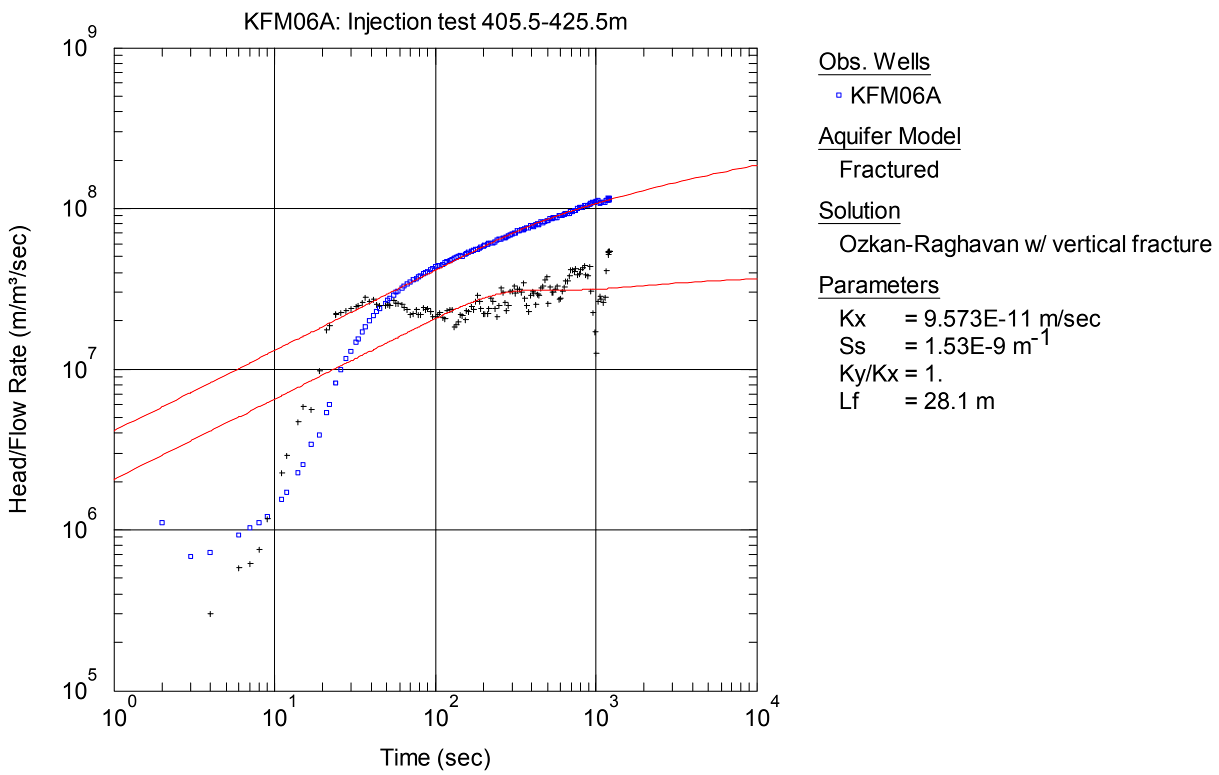


Figure A3-126. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 405.5-425.5 m in KFM06A.*

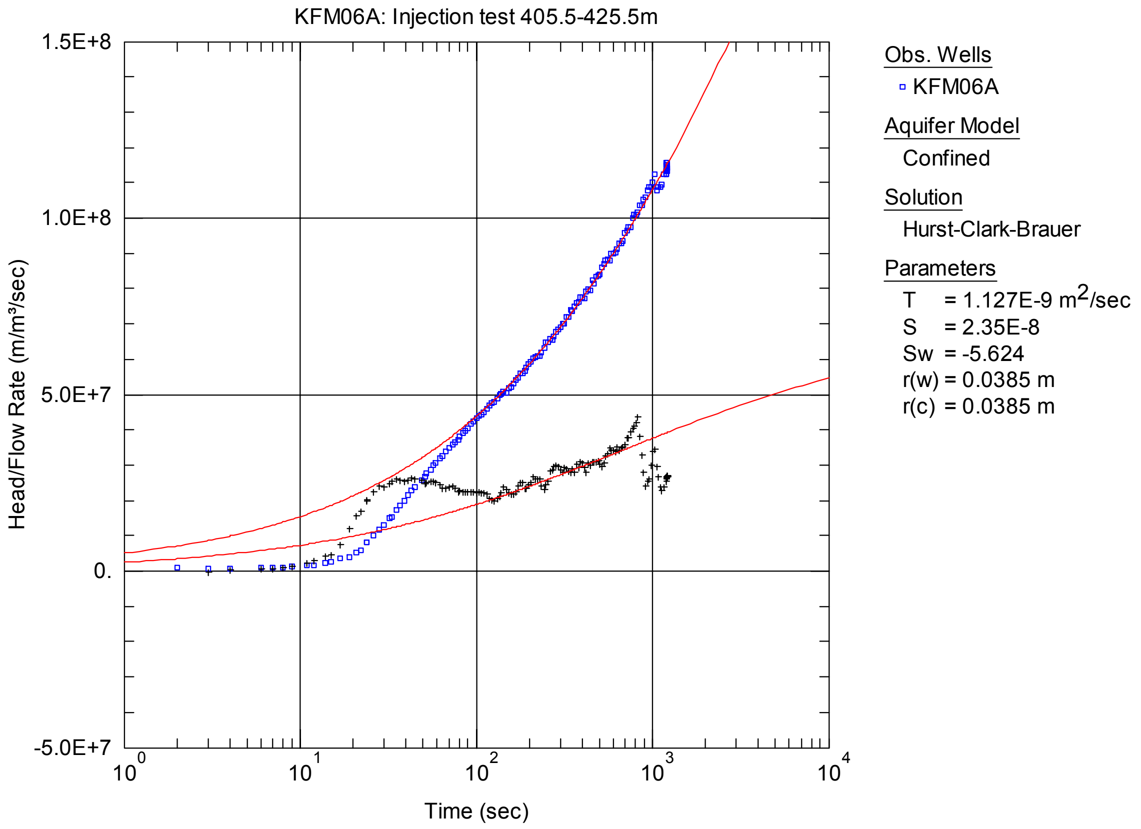


Figure A3-127. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 405.5-425.5 m in KFM06A.*

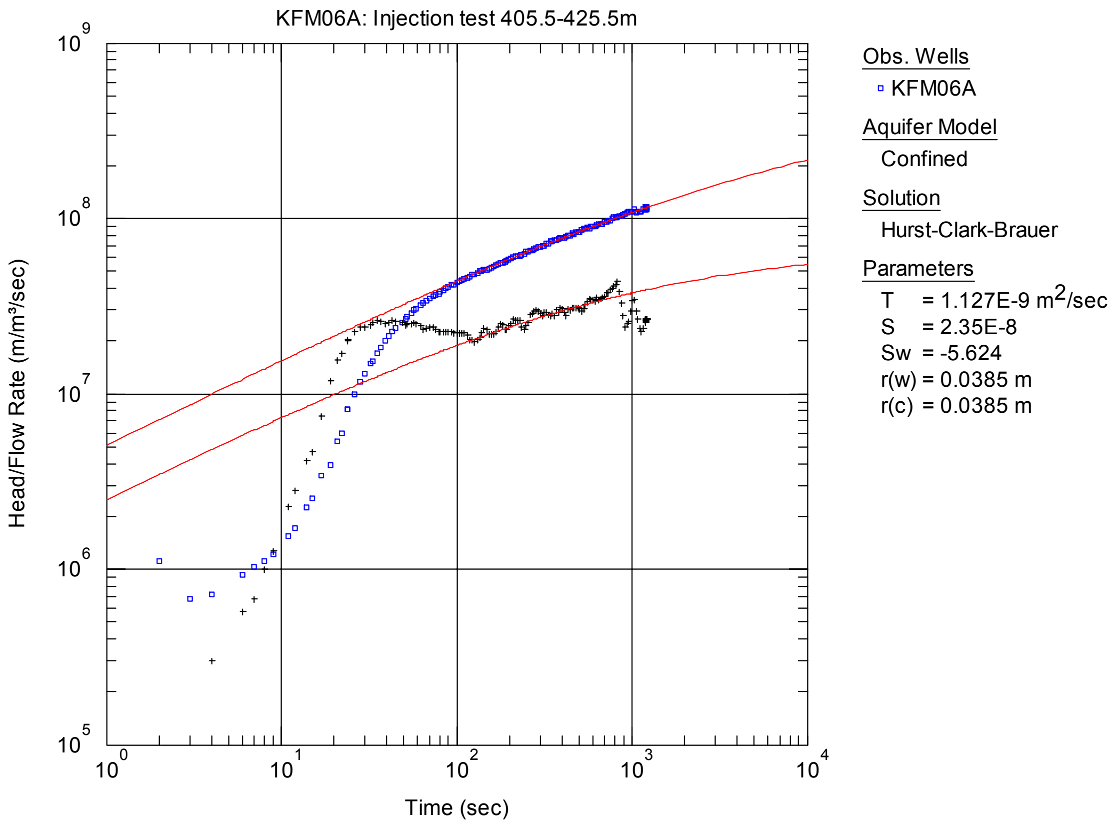


Figure A3-128. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 405.5-425.5 m in KFM06A.*

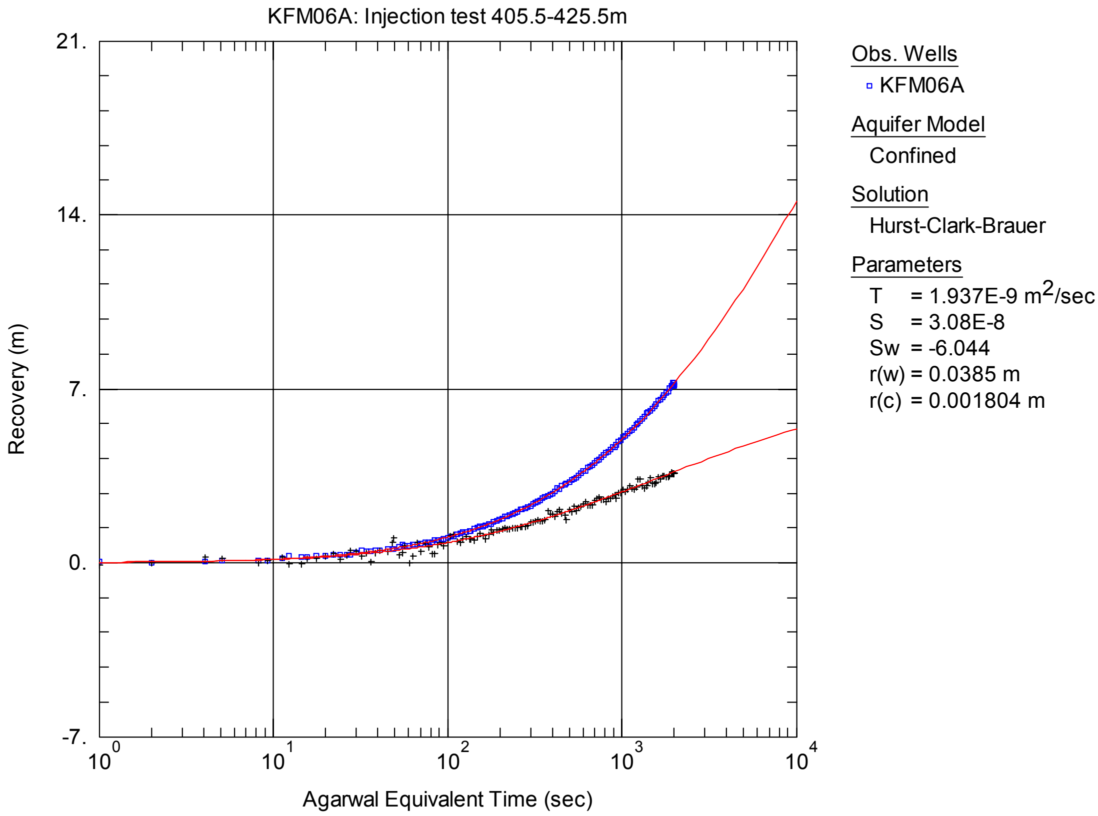


Figure A3-129. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 405.5-425.5 m in KFM06A.*

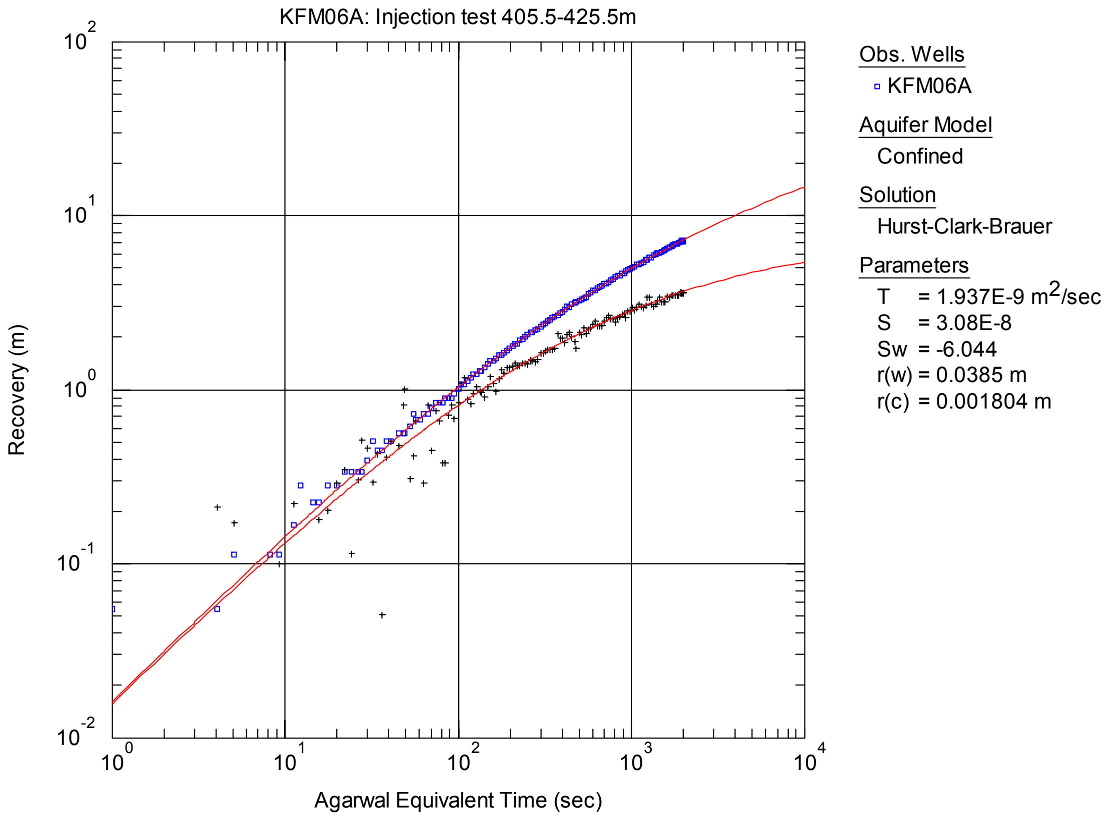


Figure A3-130. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 405.5-425.5 m in KFM06A*

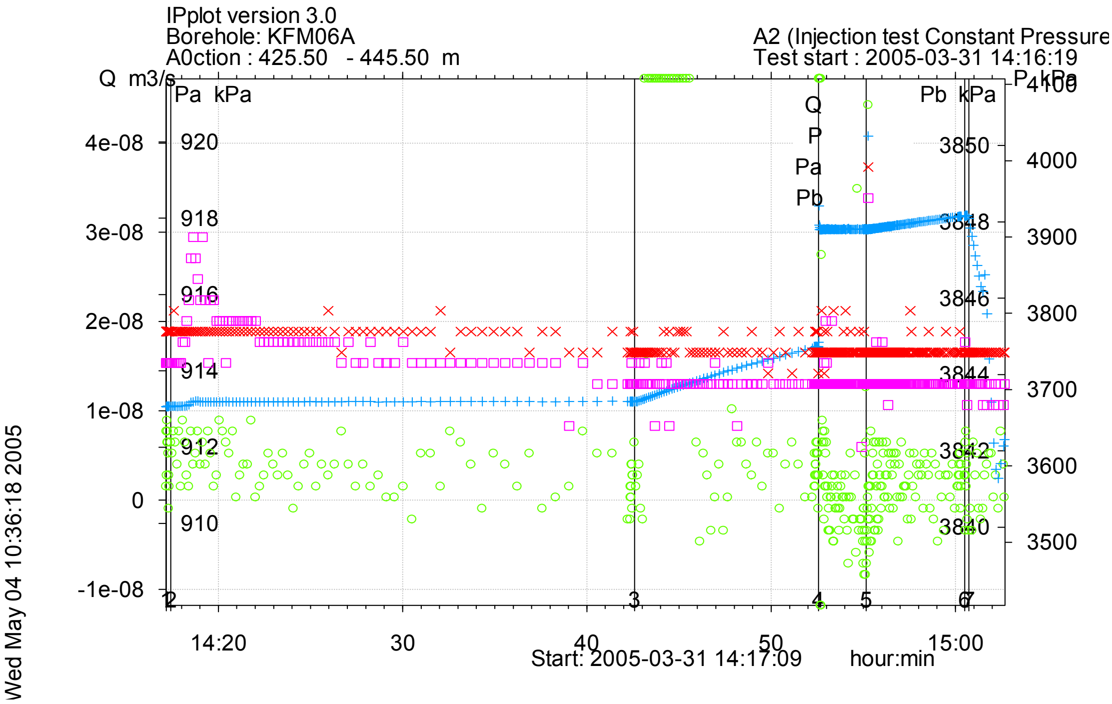


__Figure A3-131.__ Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 425.5-445.5 m in borehole KFM06A.

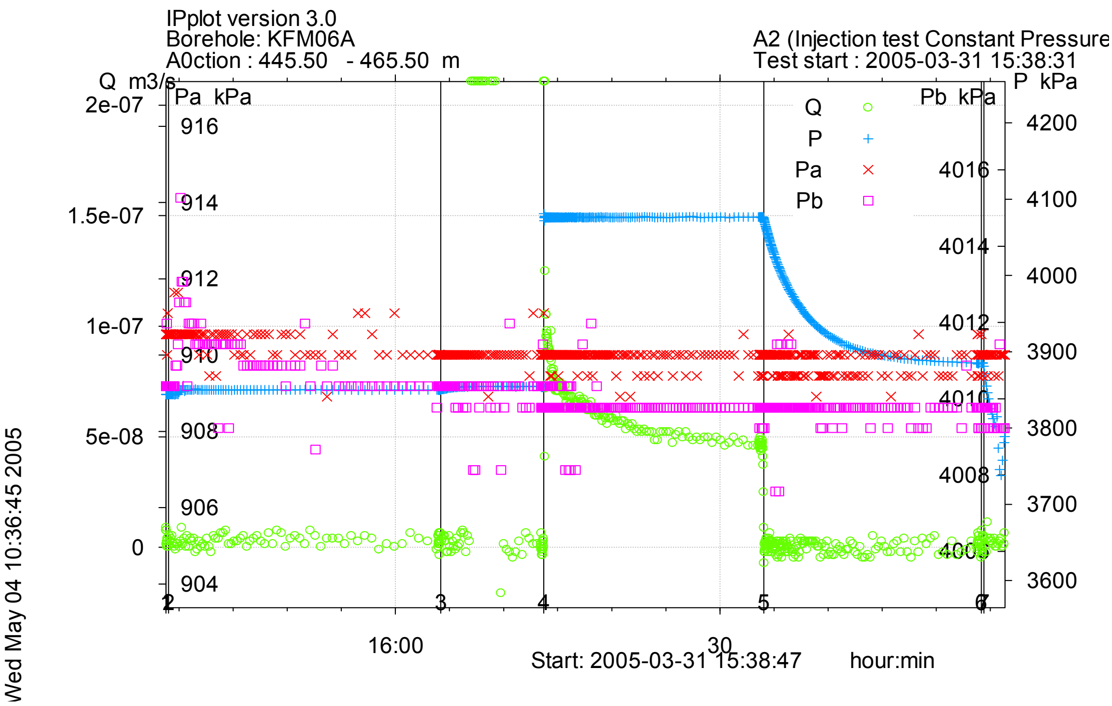


__Figure A3-132.__ Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 445.5-465.5 m in borehole KFM06A.

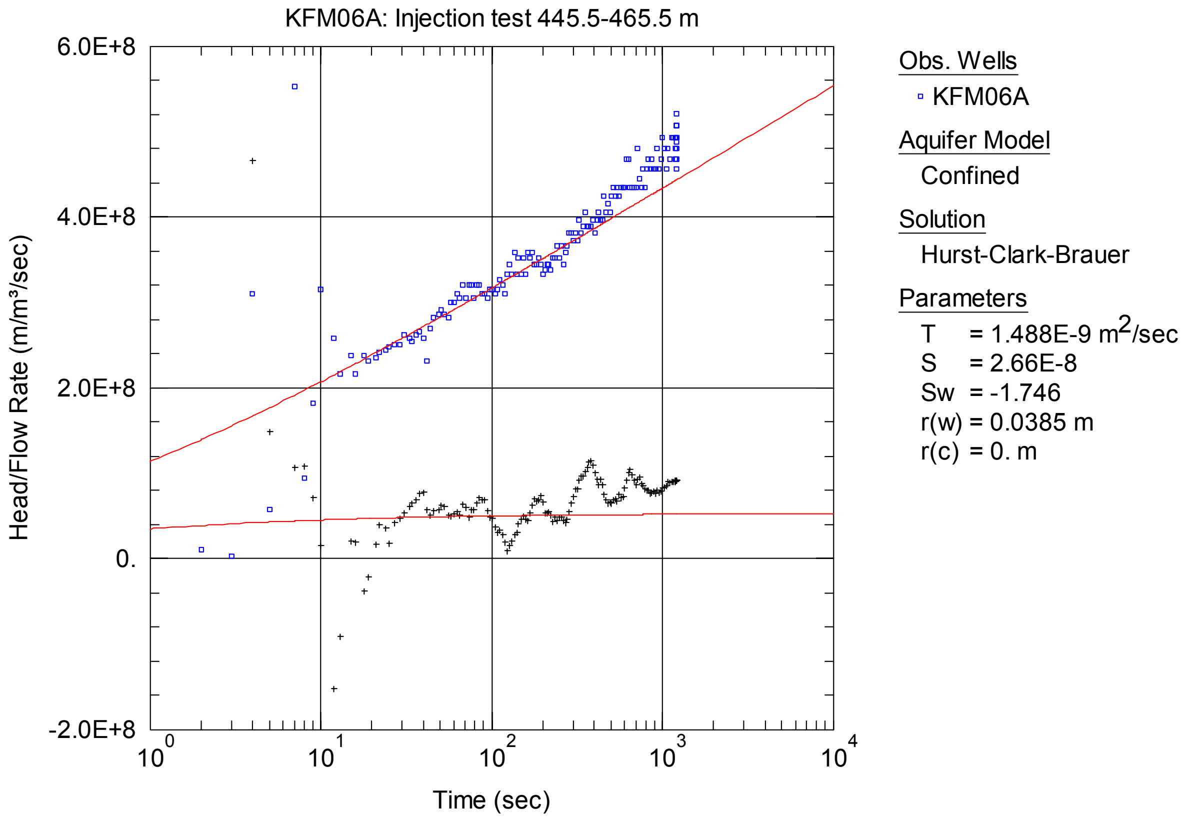


Figure A3-133. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 445.5-465.5 m in KFM06A.*

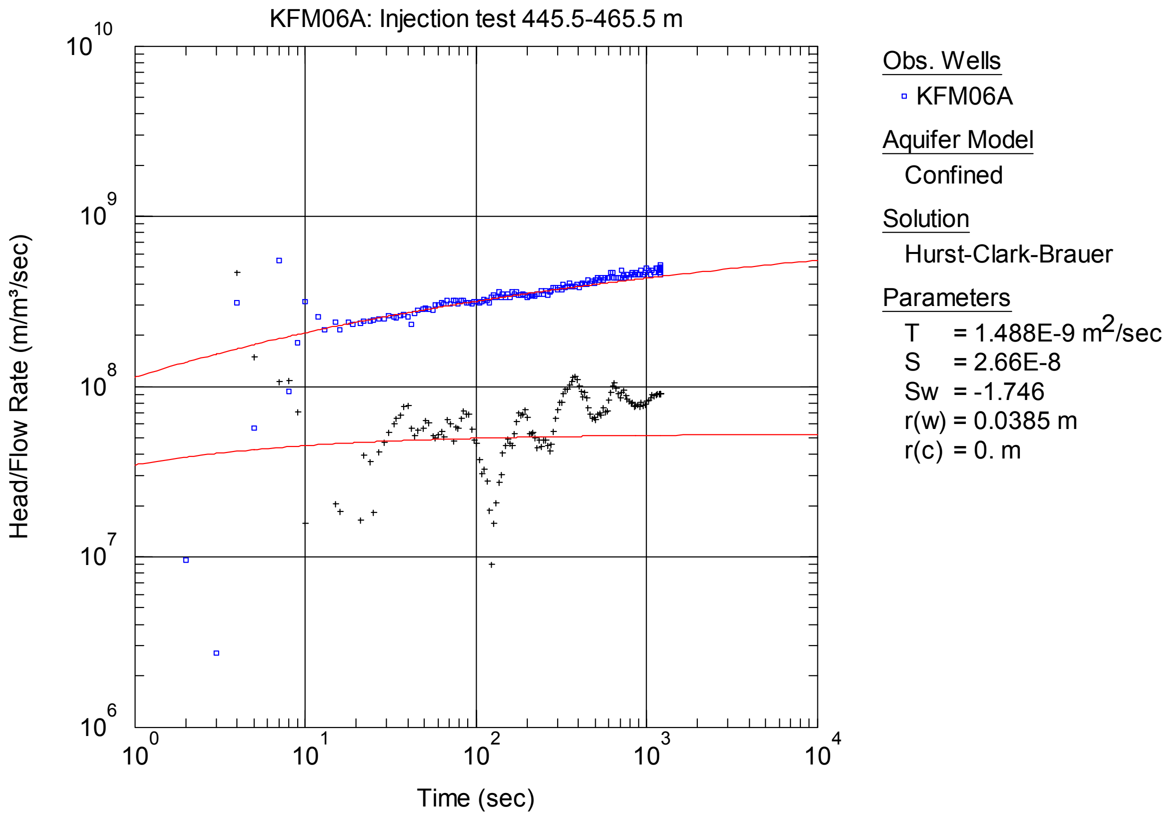


Figure A3-134. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 445.5-465.5 m in KFM06A.*

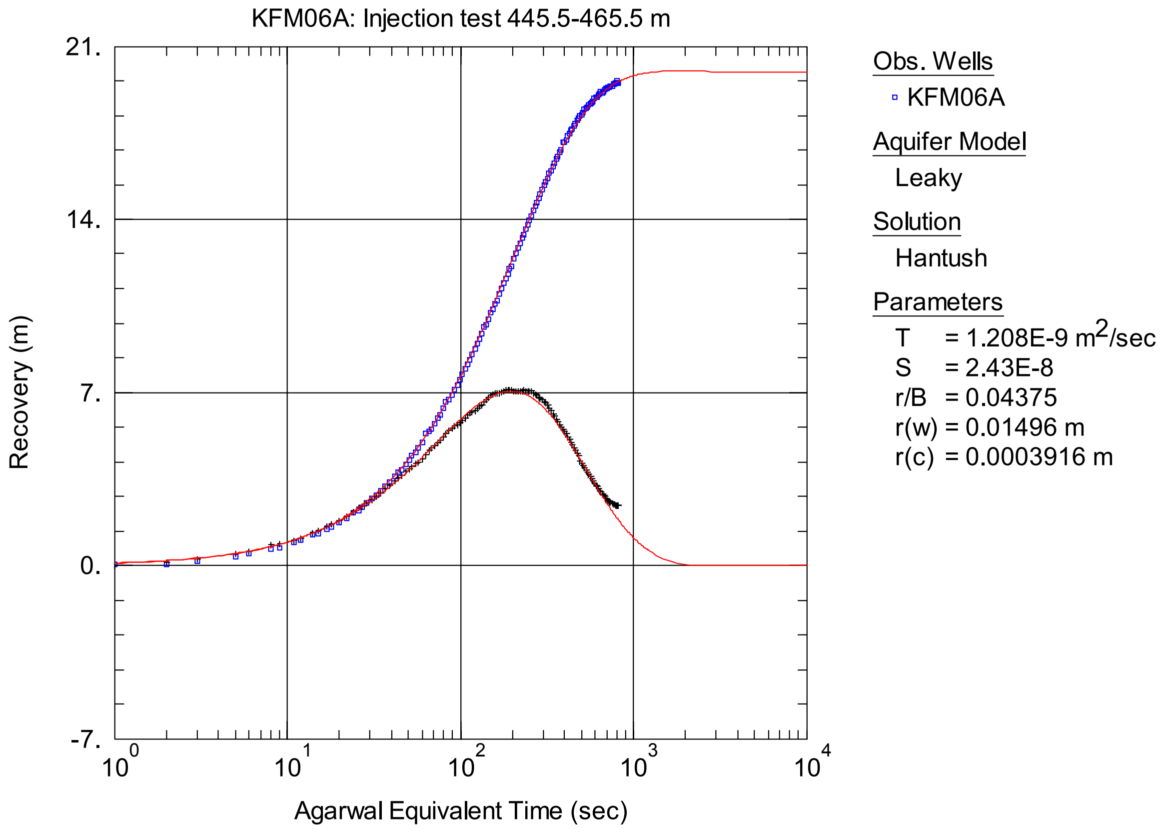


Figure A3-135. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 445.5-465.5 m in KFM06A.*

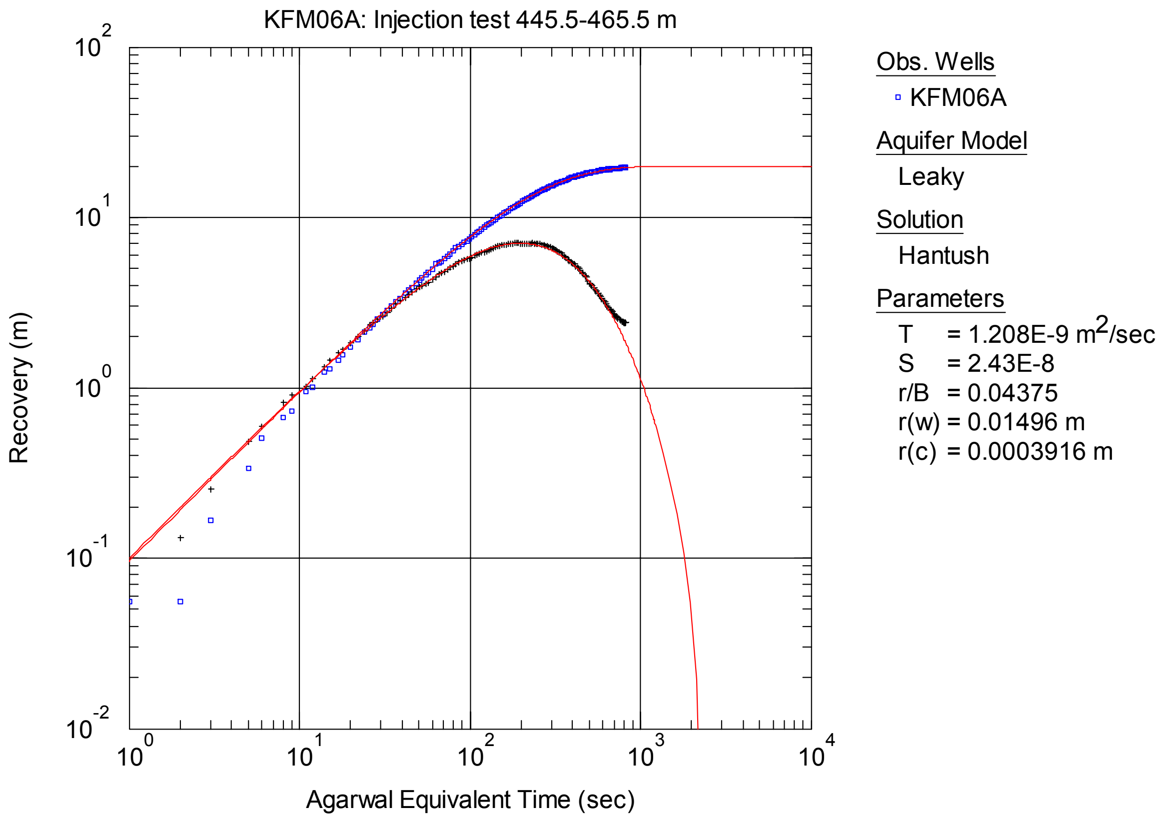


Figure A3-136. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 445.5-465.5 m in KFM06A.*

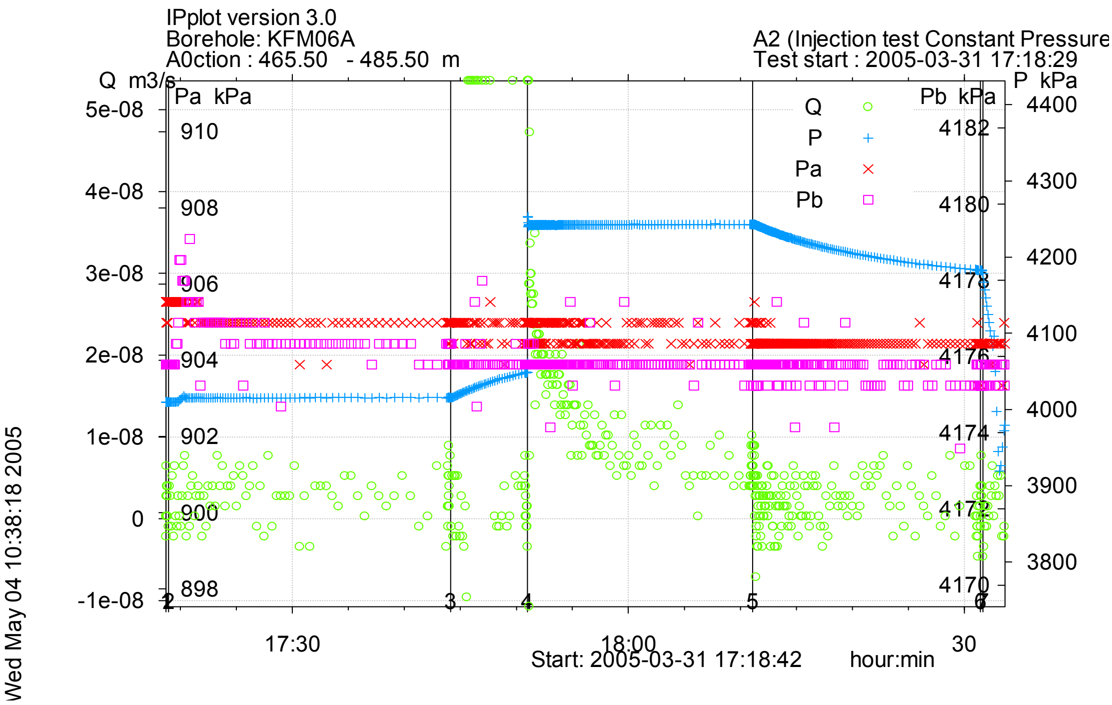


Figure A3-137. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 465.5-485.5 m in borehole KFM06A.

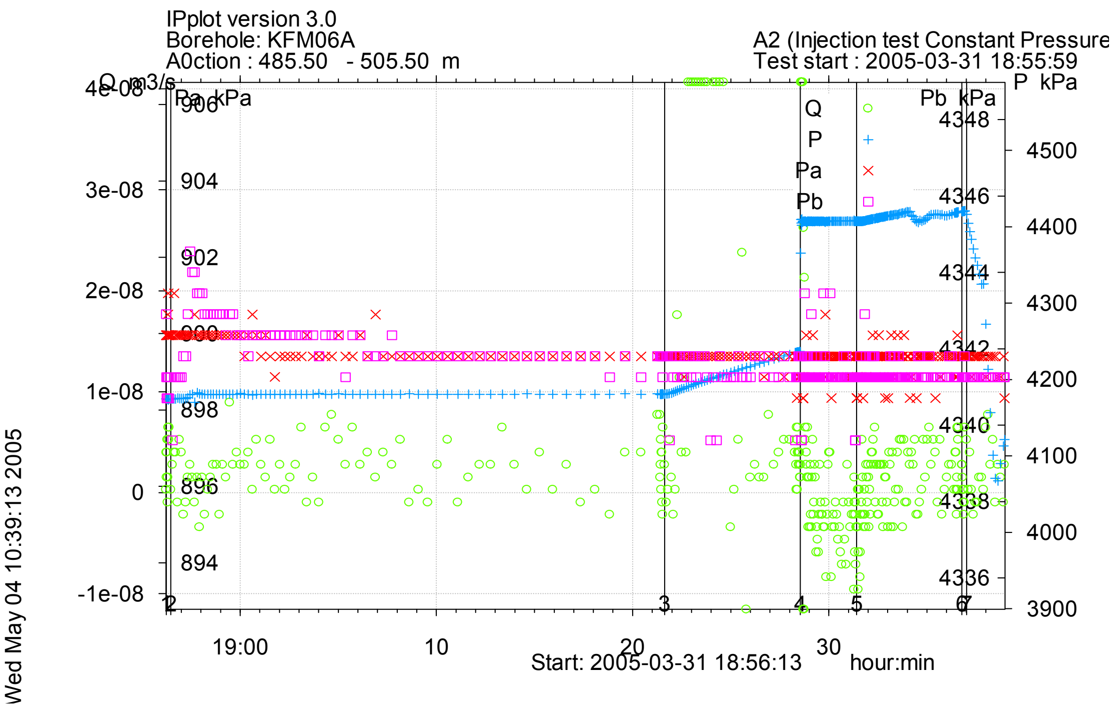


Figure A3-138. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 485.5-505.5 m in borehole KFM06A.

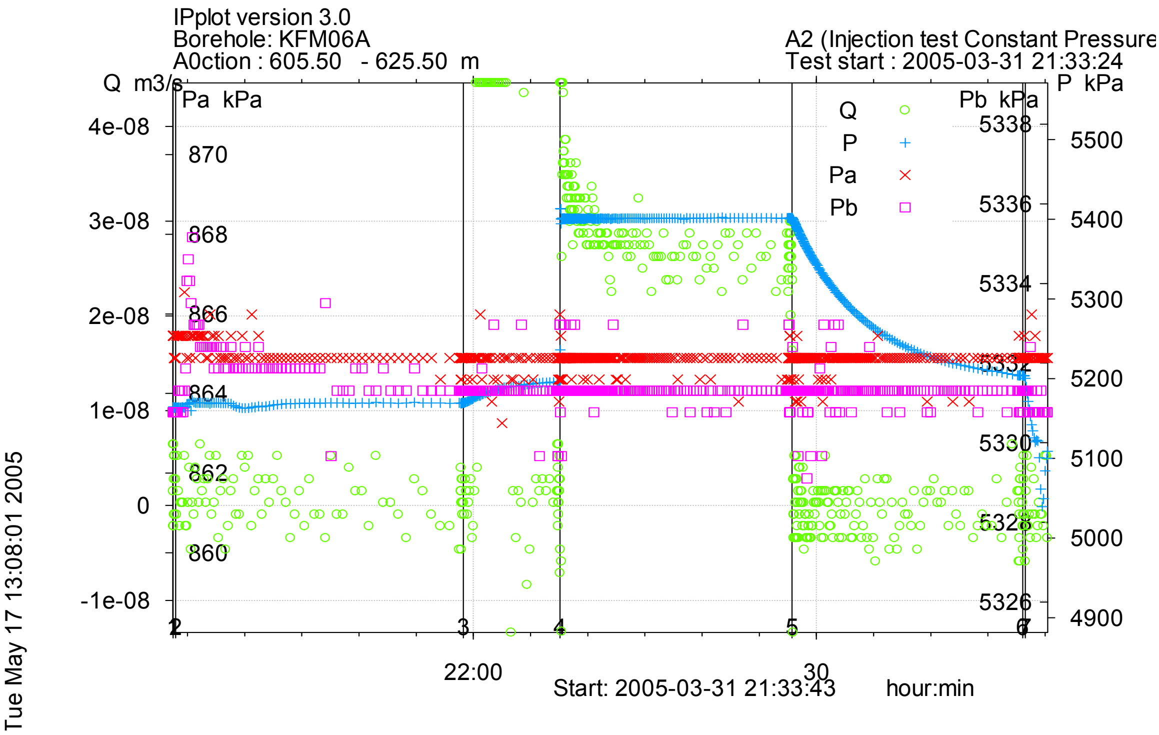


Figure A3-139. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 605.5-625.5 m in borehole KFM06A.*

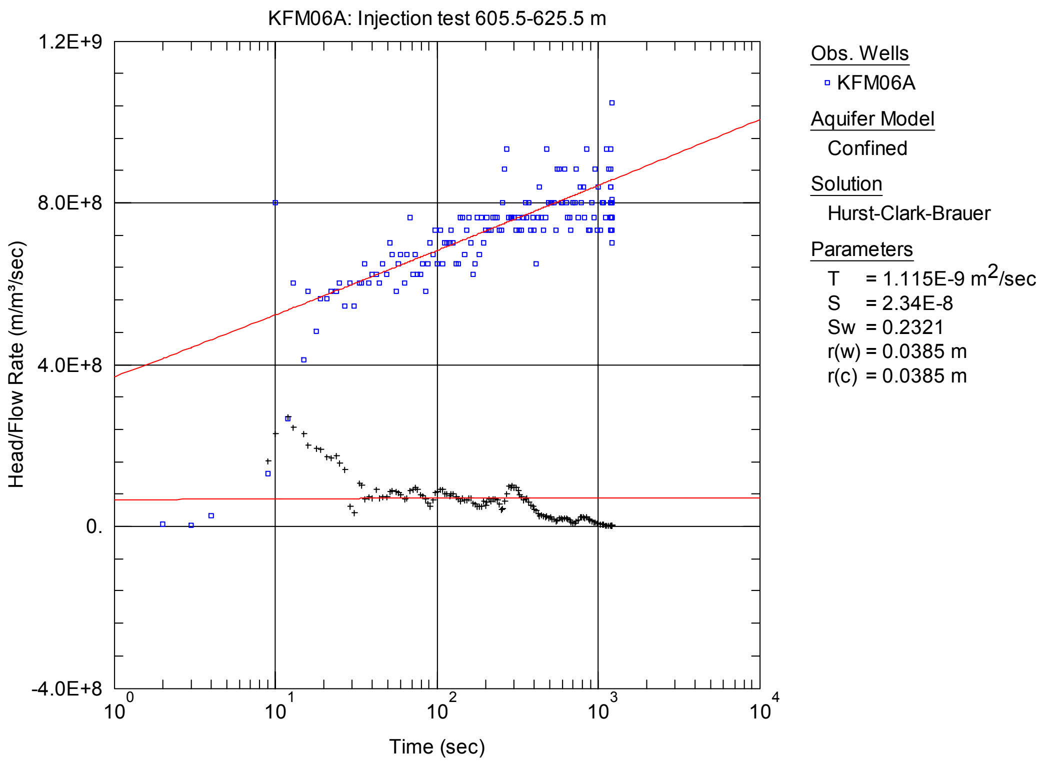


Figure A3-140. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 605.5-625.5 m in KFM06A.*

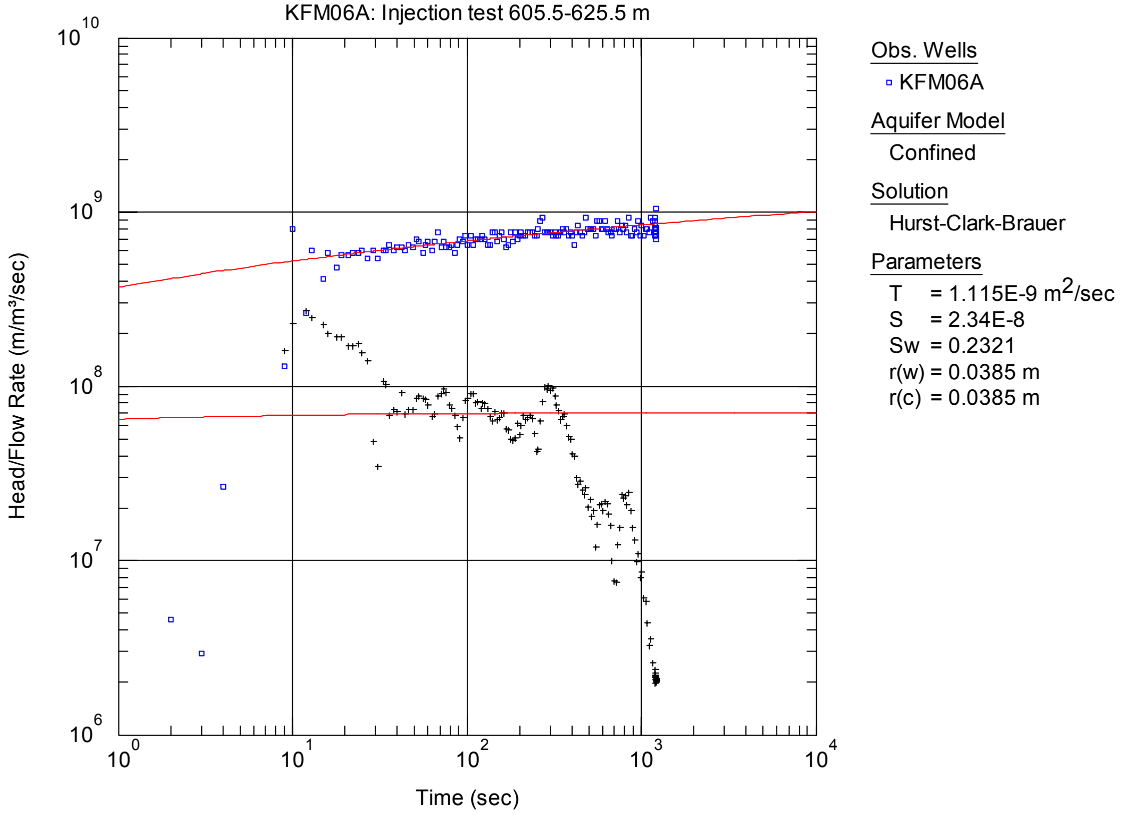


Figure A3-141. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 605.5-625.5 m in KFM06A.*

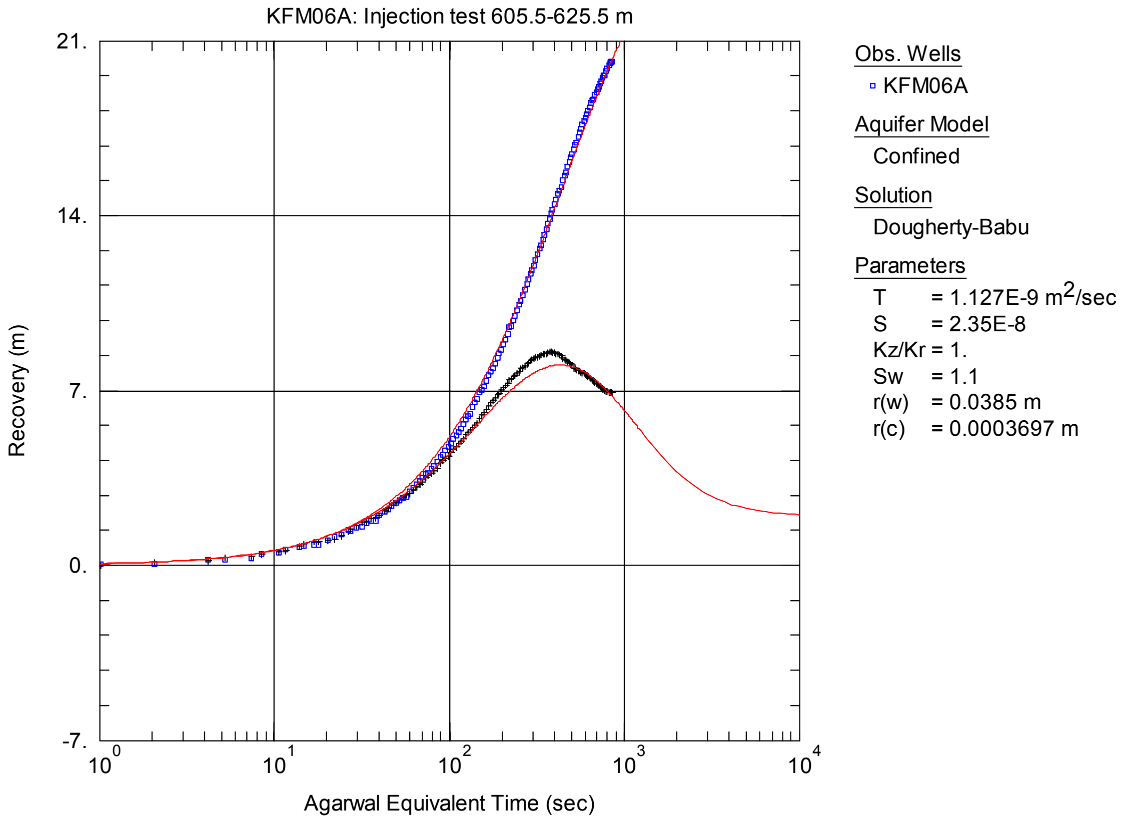


Figure A3-142. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 605.5-625.5 m in KFM06A.*

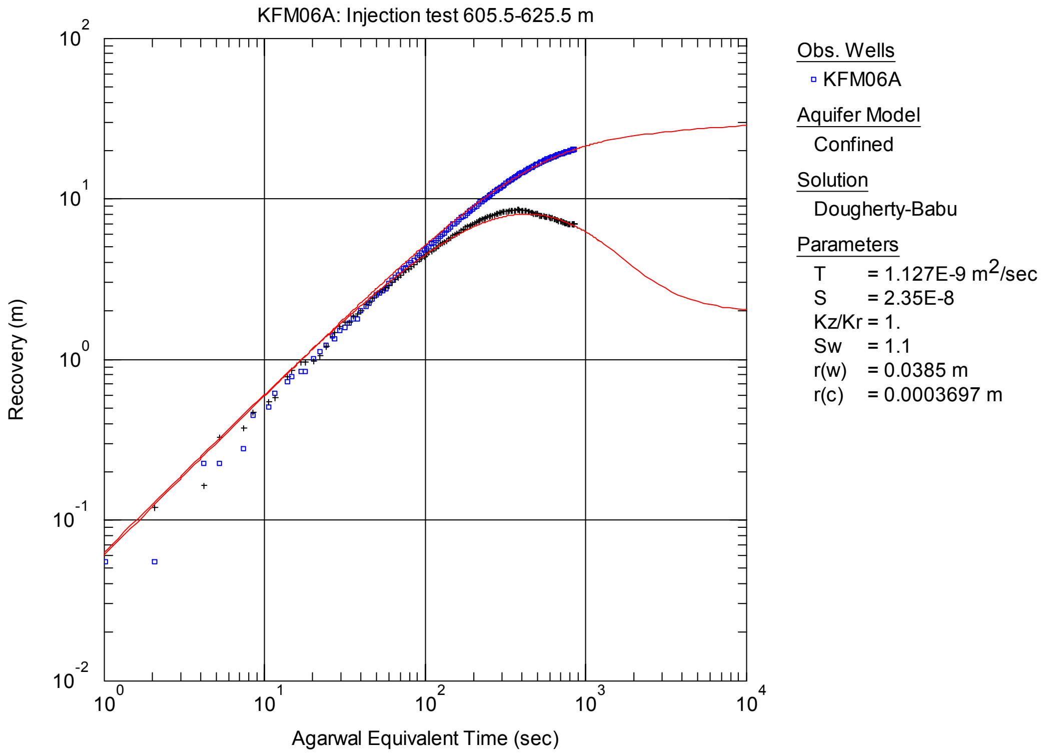


Figure A3-143. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 605.5-625.5 m in KFM06A.*

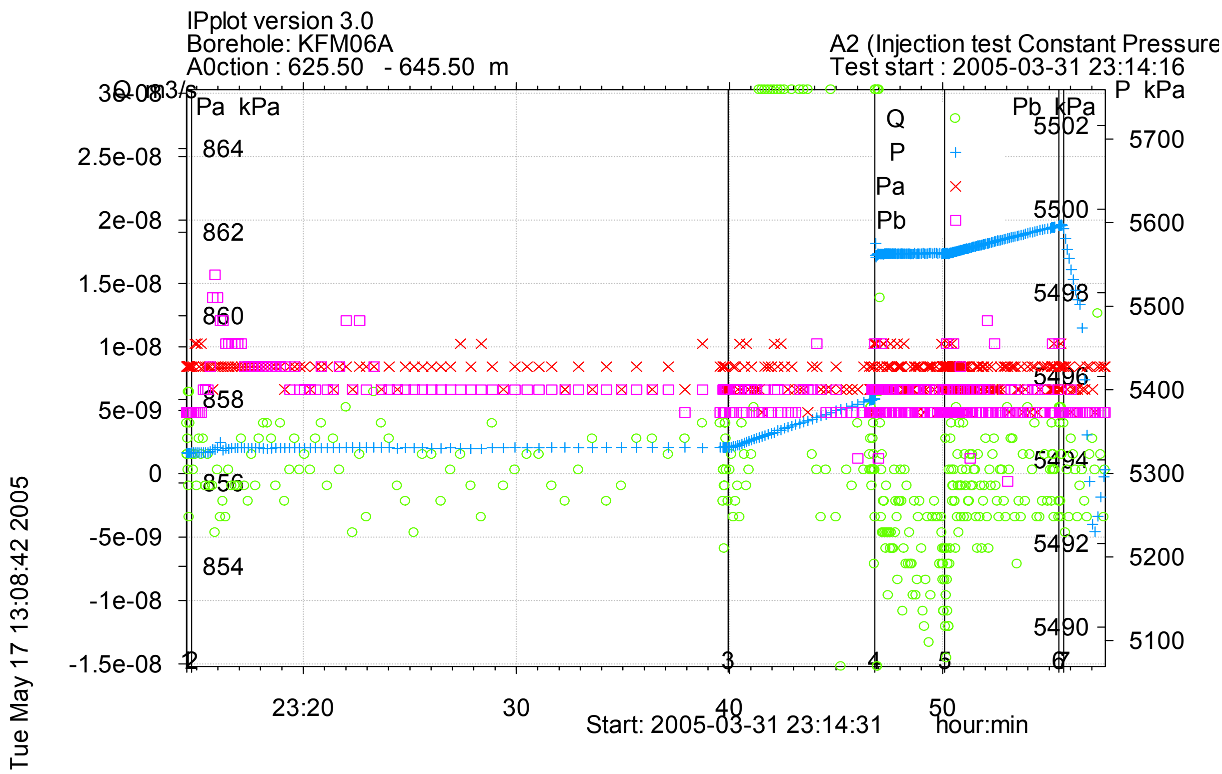


Figure A3-144. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 625.5-645.5 m in borehole KFM06A.*

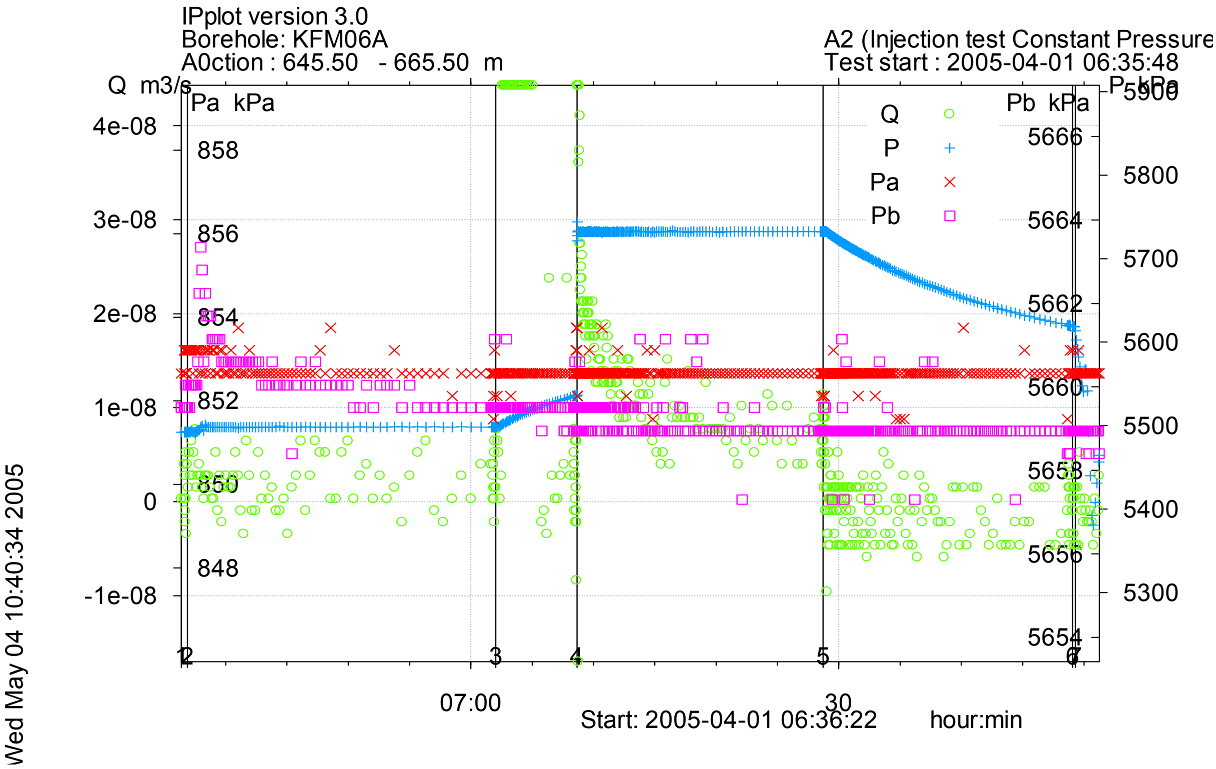


Figure A3-145. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 645.5-665.5 m in borehole KFM06A.*

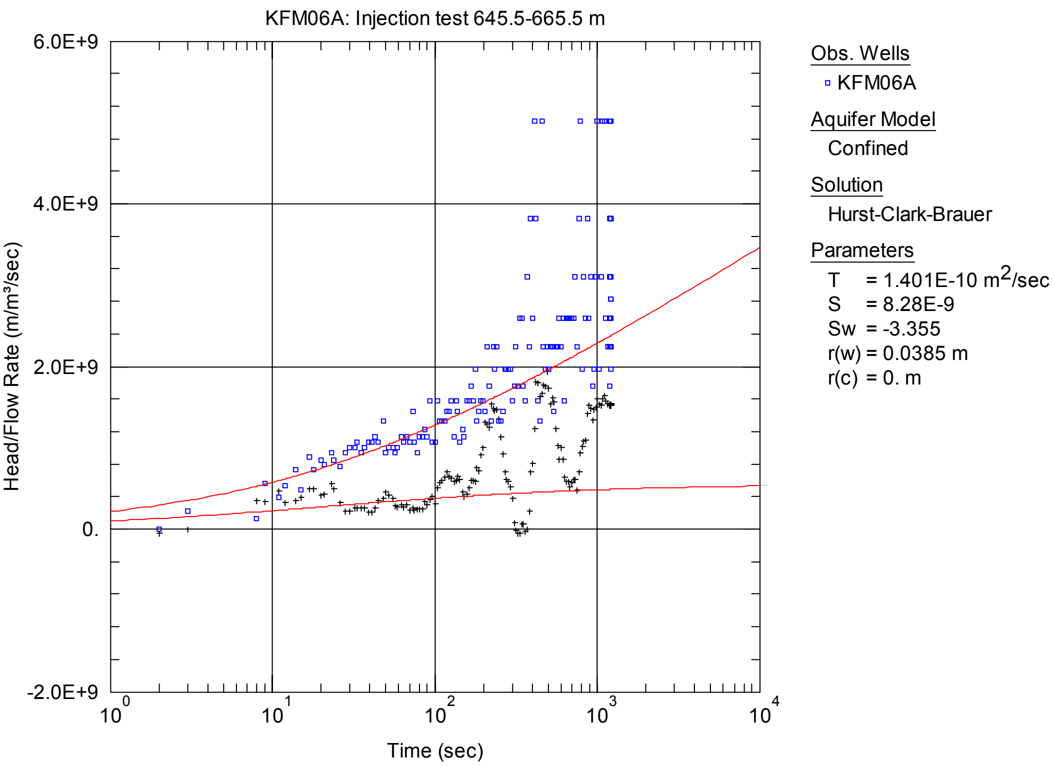


Figure A3-146. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 645.5-665.5 m in KFM06A.*

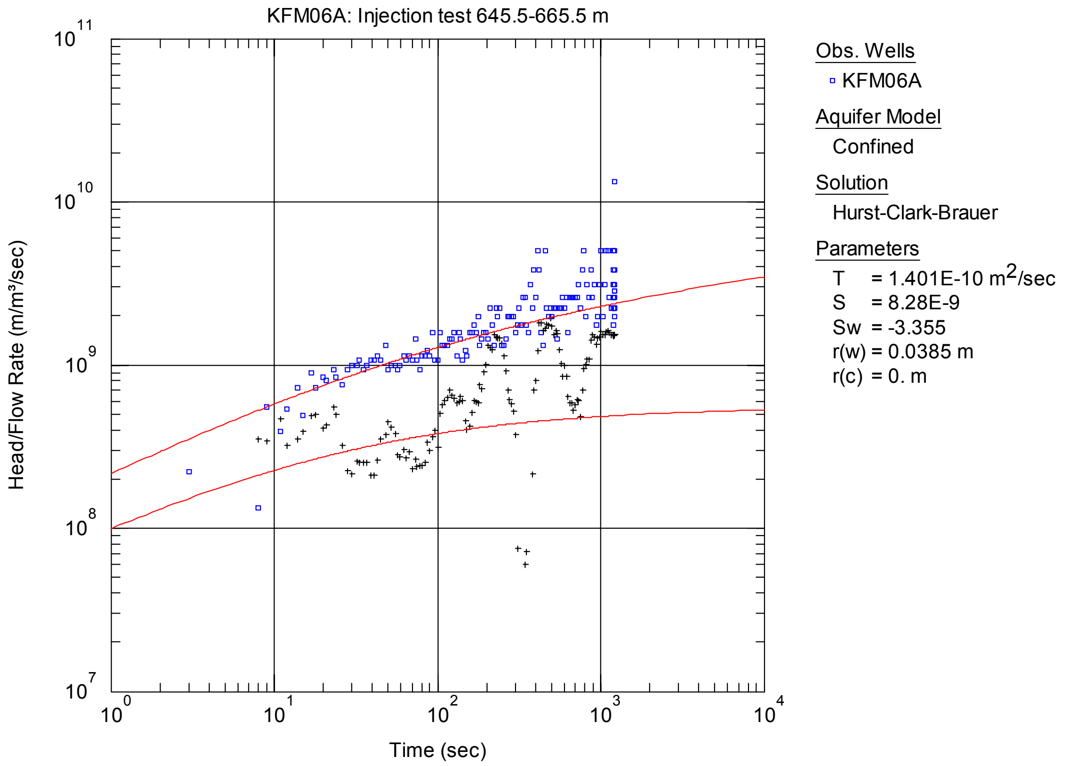


Figure A3-147. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 645.5-665.5 m in KFM06A.*

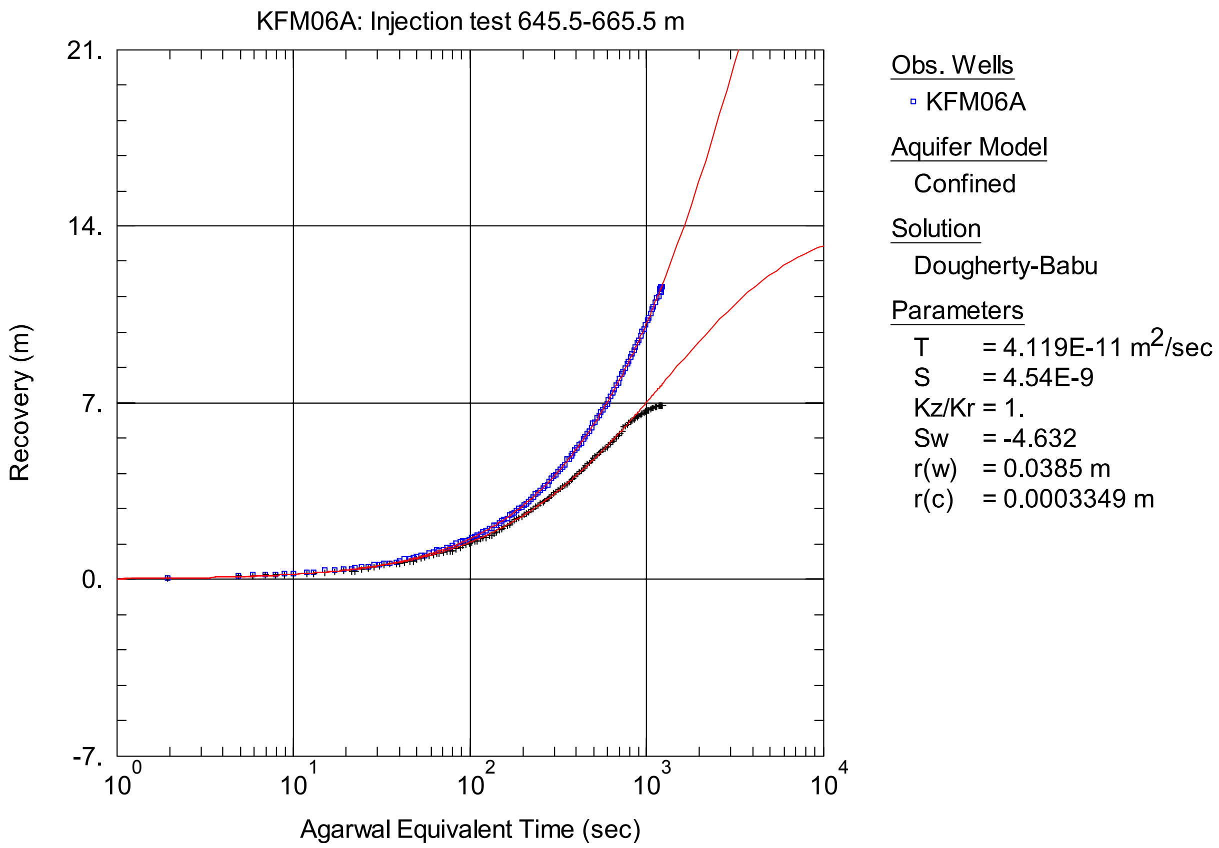


Figure A3-148. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 645.5-665.5 m in KFM06A.*

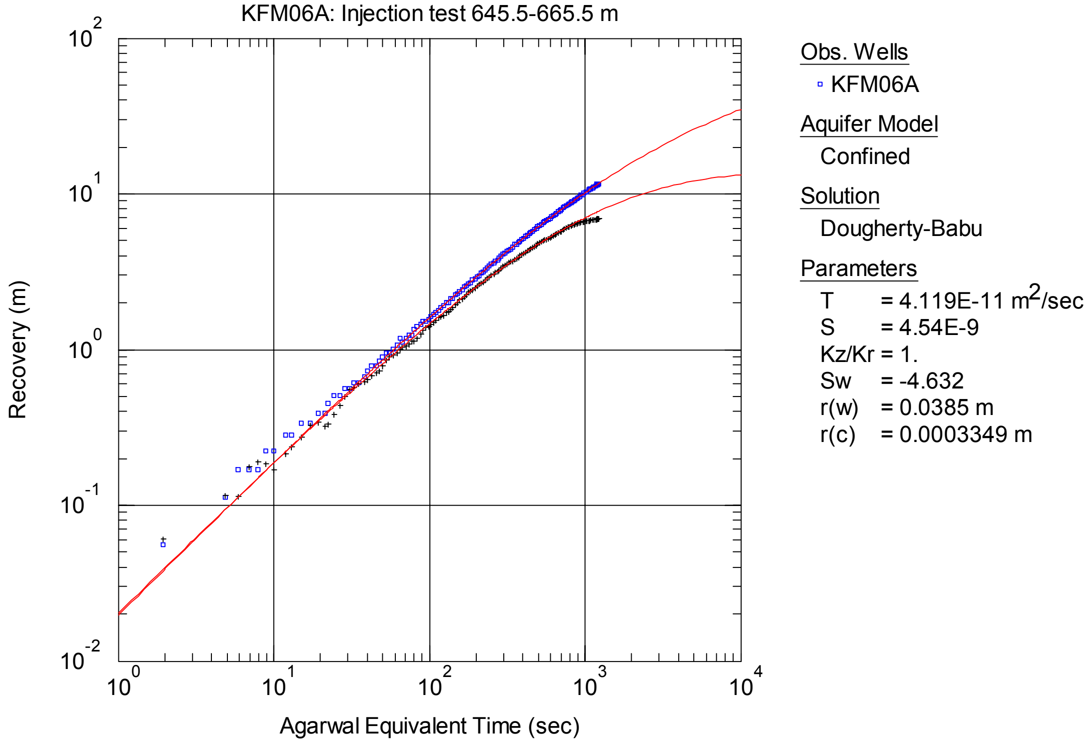


Figure A3-149. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 645.5-665.5 m in KFM06A.*

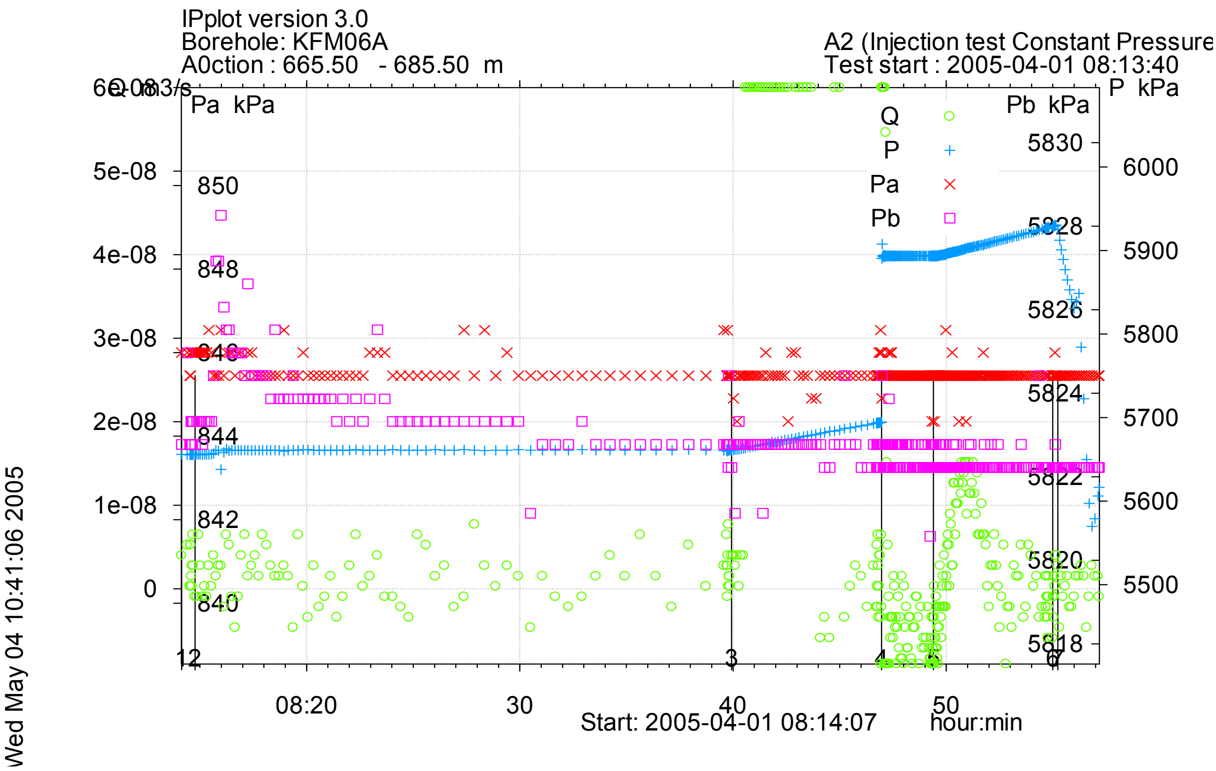


Figure A3-150. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 665.5-685.5 m in borehole KFM06A.*

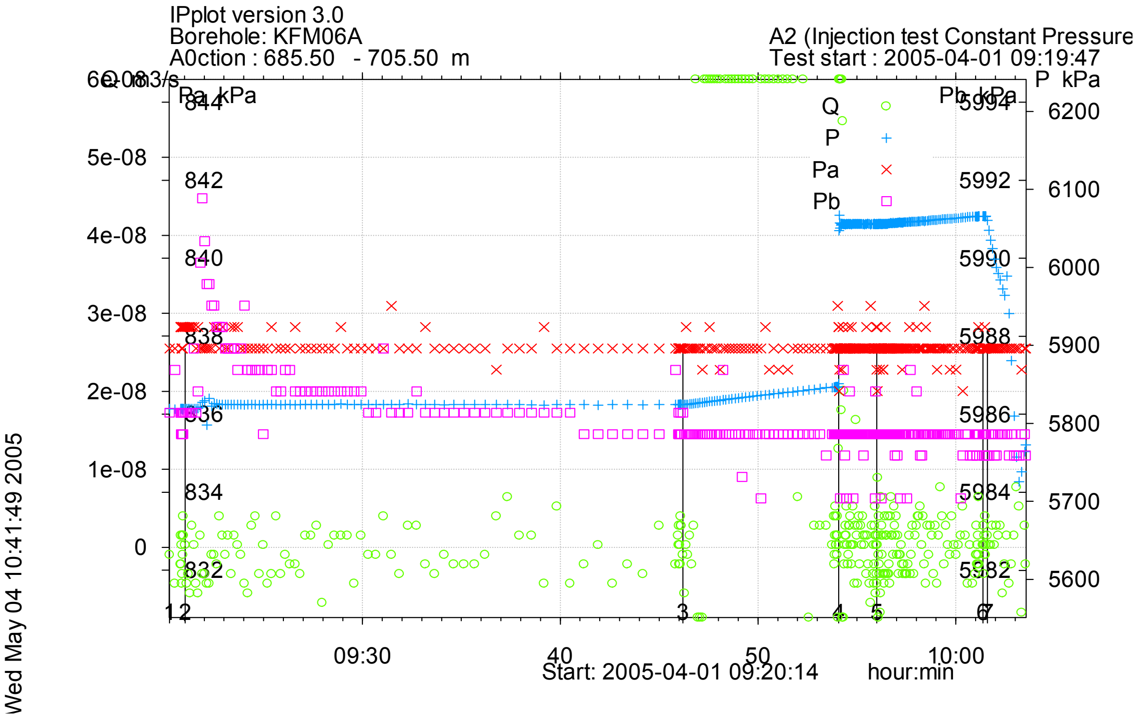


Figure A3-151. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 685.5-705.5 m in borehole KFM06A.*

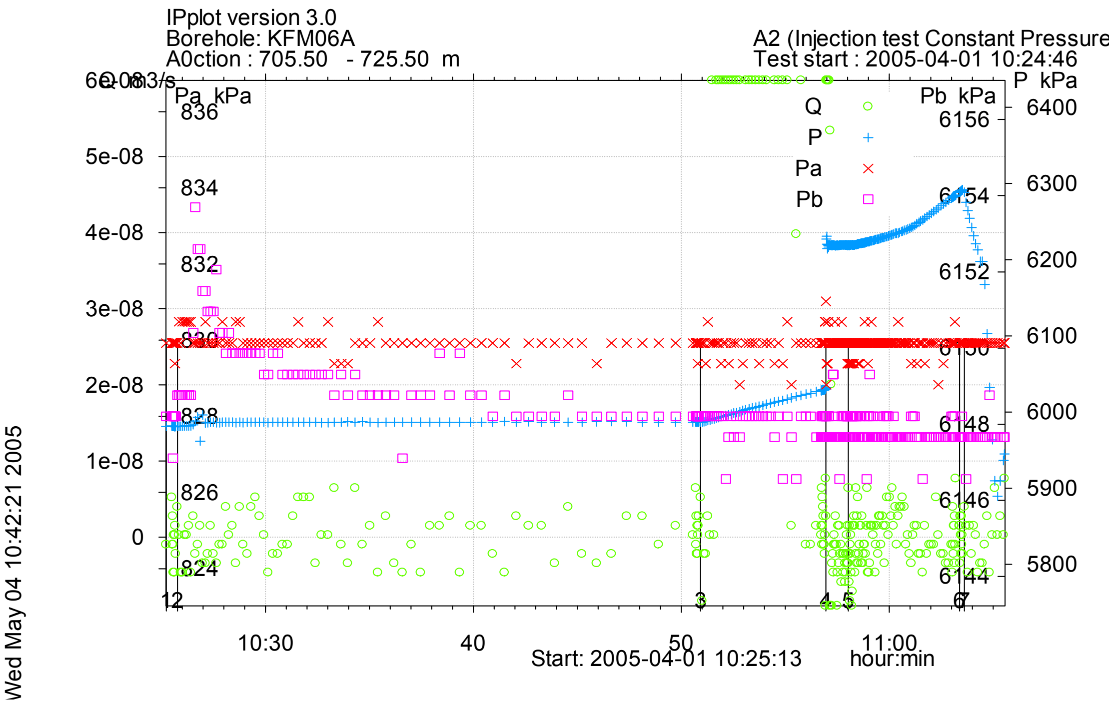


Figure A3-152. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 705.5-725.5 m in borehole KFM06A.*

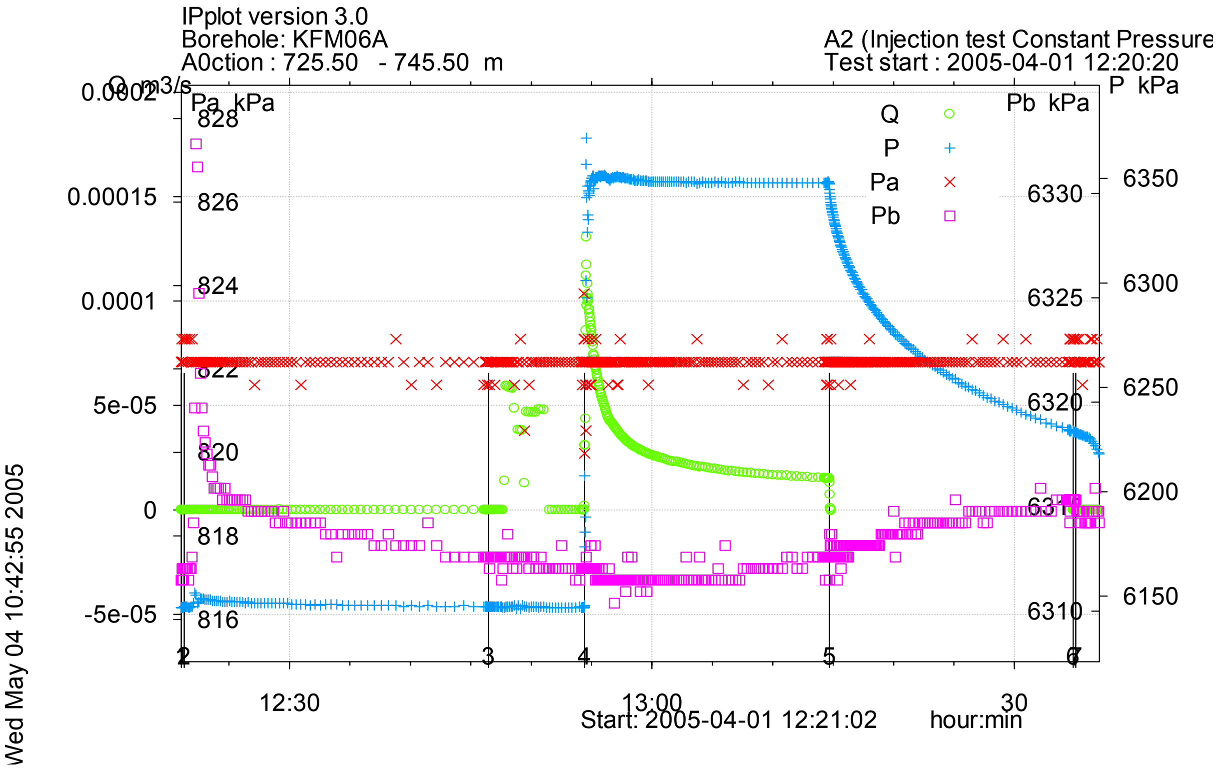


Figure A3-153. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 725.5-745.5 m in borehole KFM06A.*

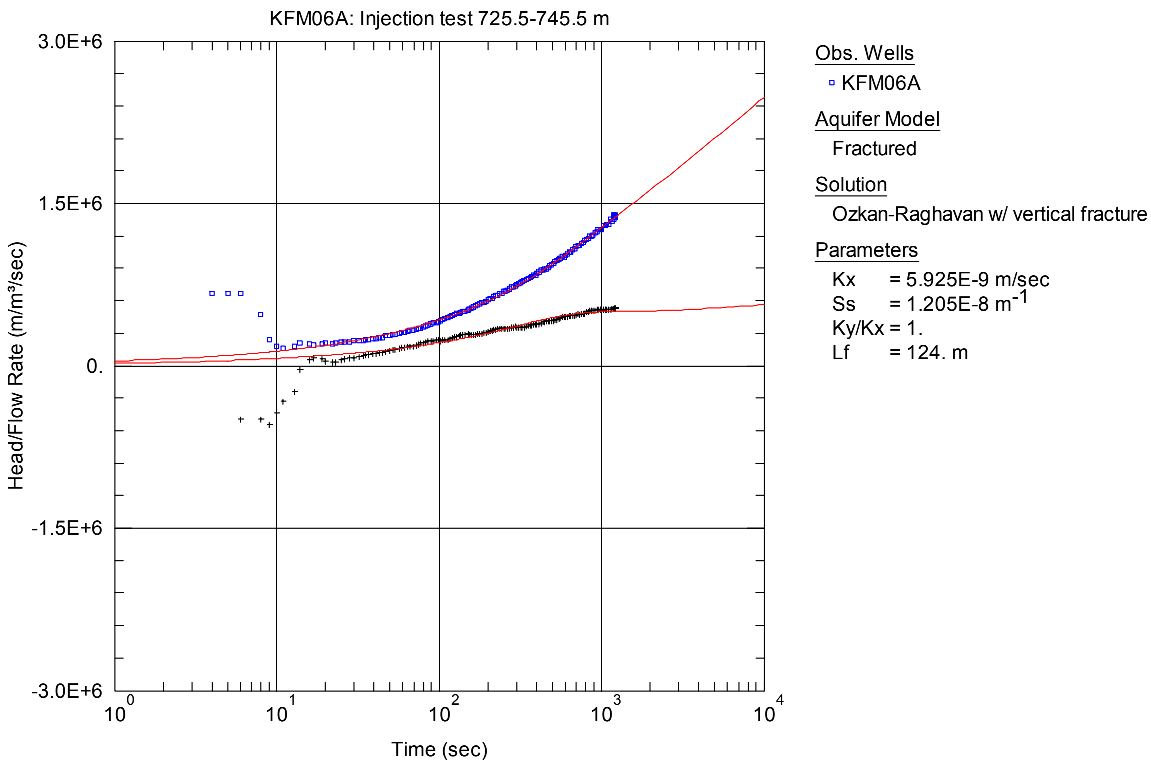


Figure A3-154. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 725.5-745.5 m in KFM06A.*

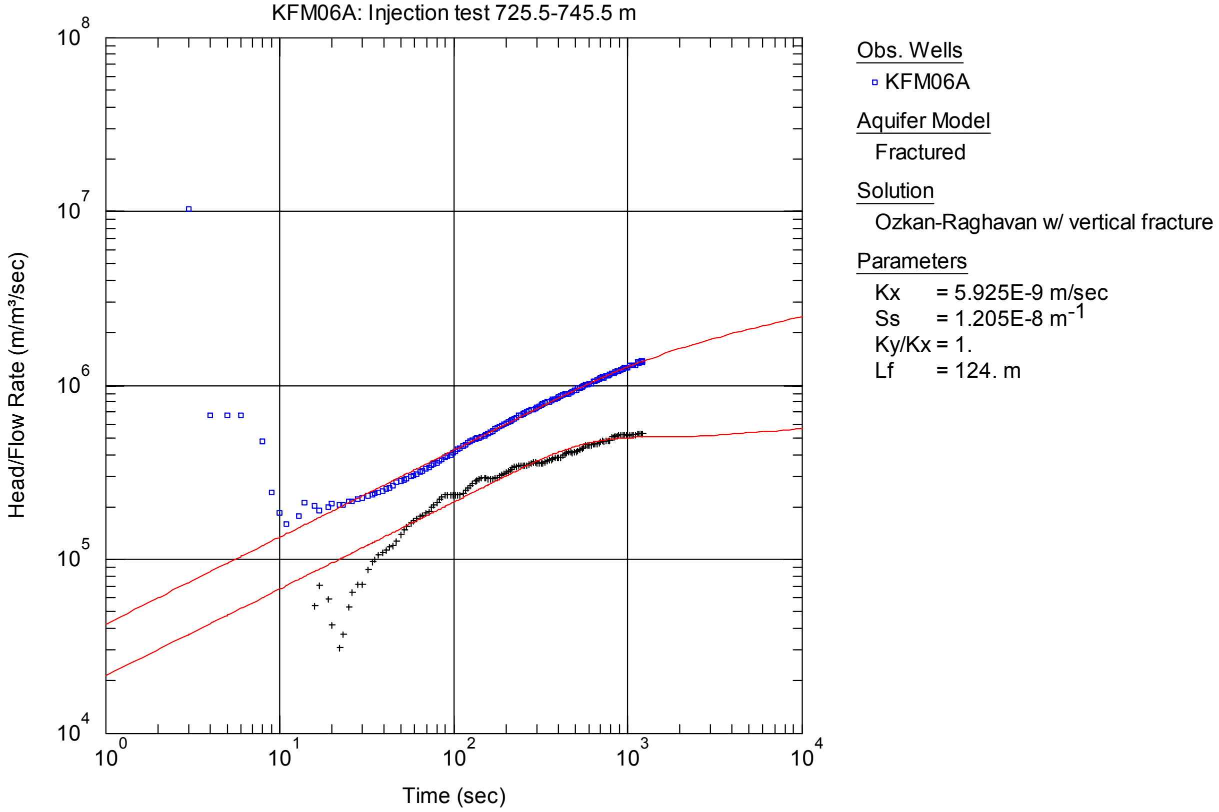


Figure A3-155. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 725.5-745.5 m in KFM06A.*

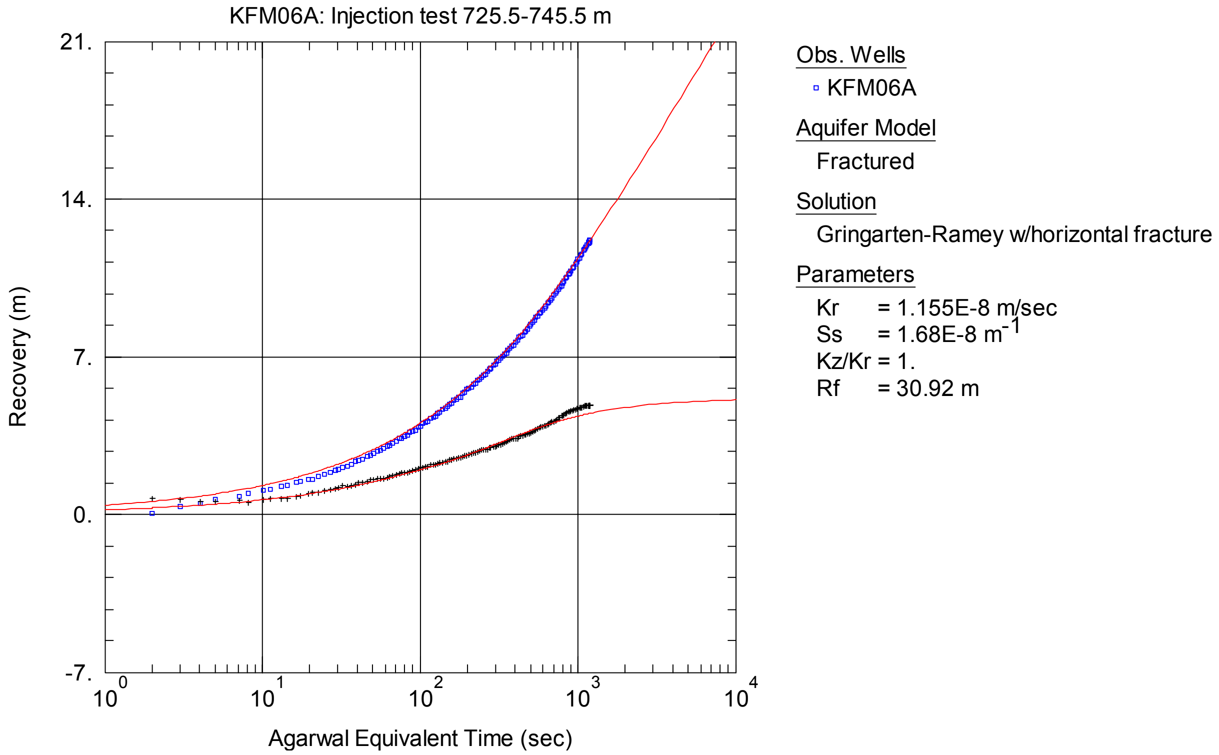


Figure A3-156. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 725.5-745.5 m in KFM06A.*

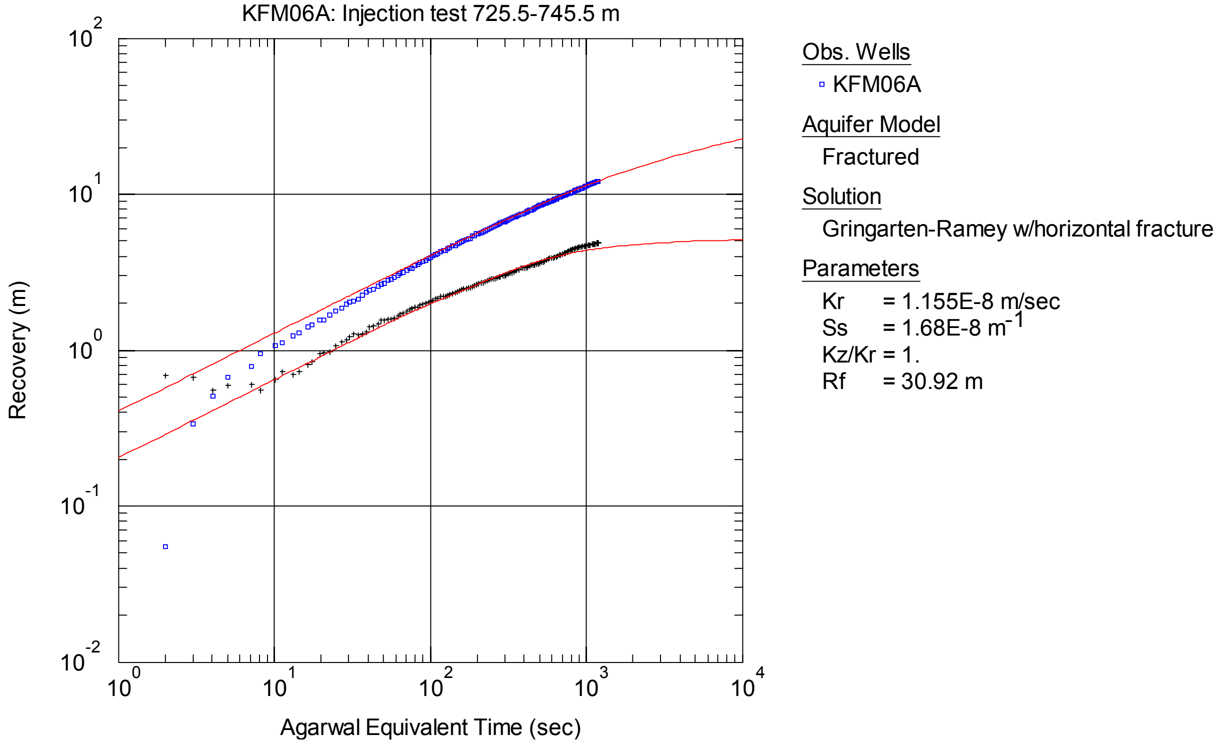


Figure A3-157. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 725.5-745.5 m in KFM06A.*

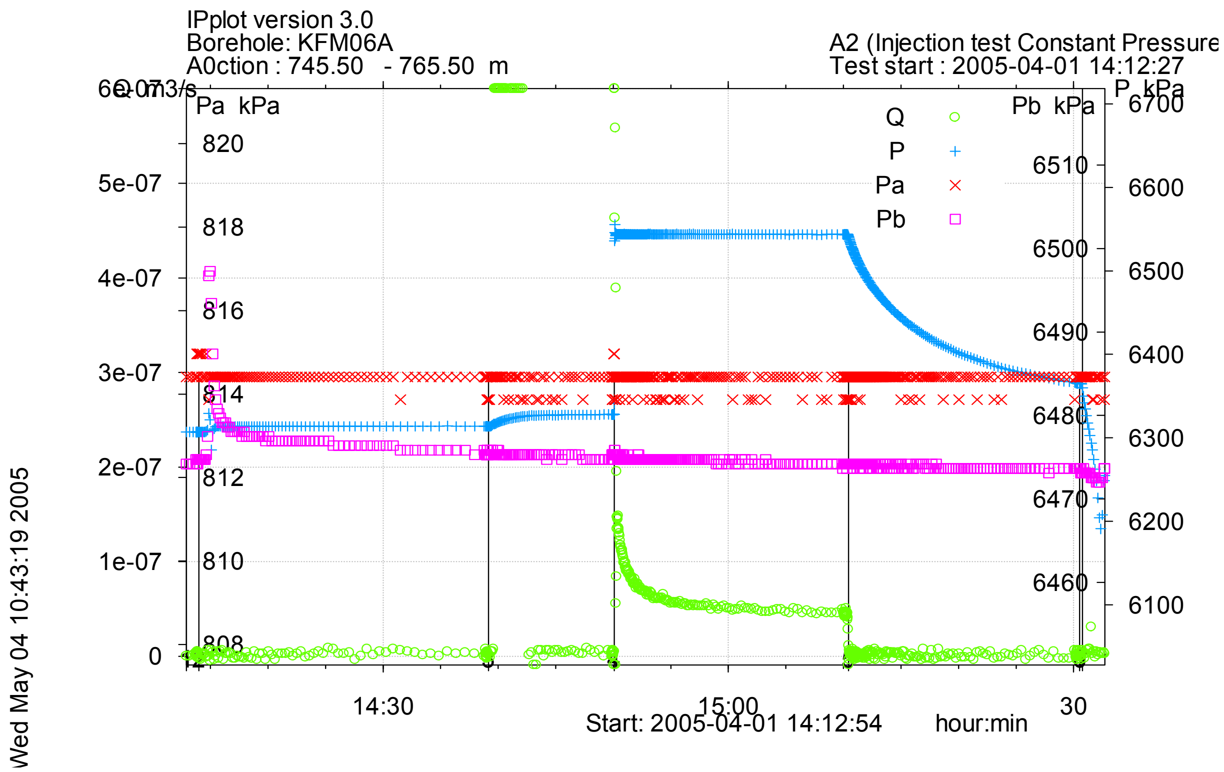


Figure A3-158. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 745.5-765.5 m in borehole KFM06A.*

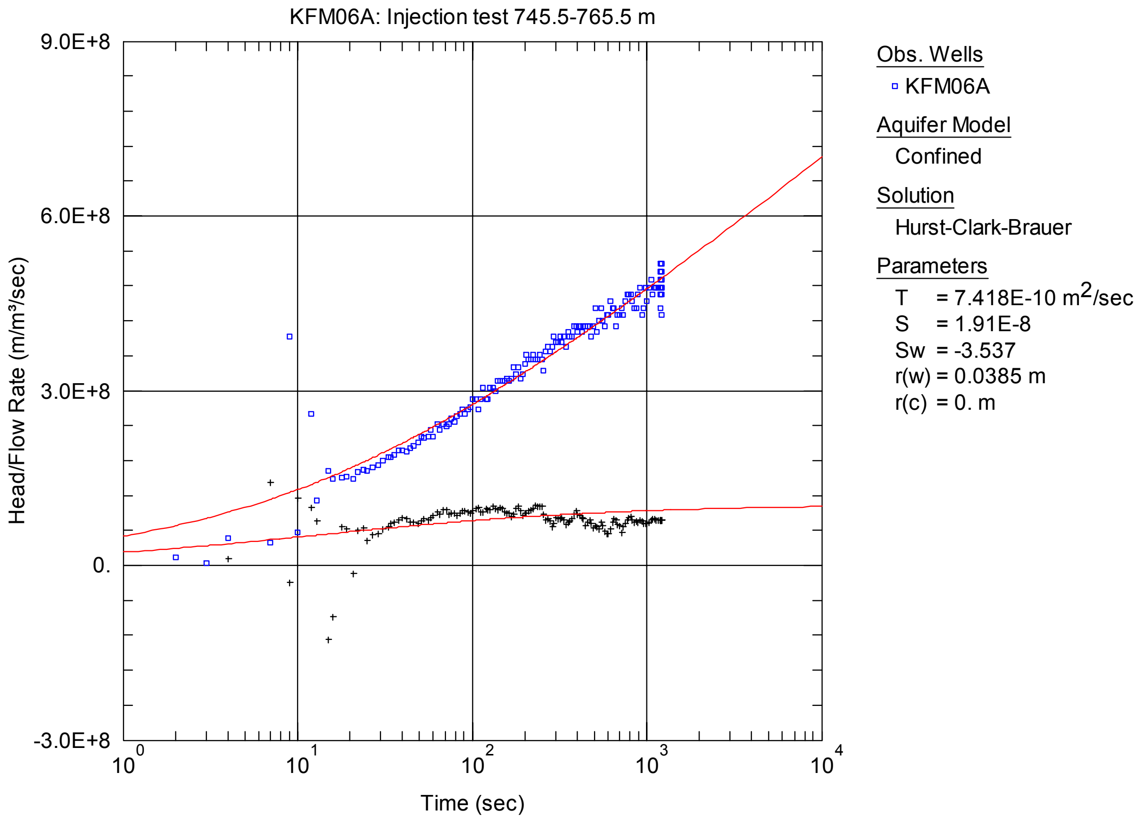


Figure A3-159. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 745.5-765.5 m in KFM06A.*

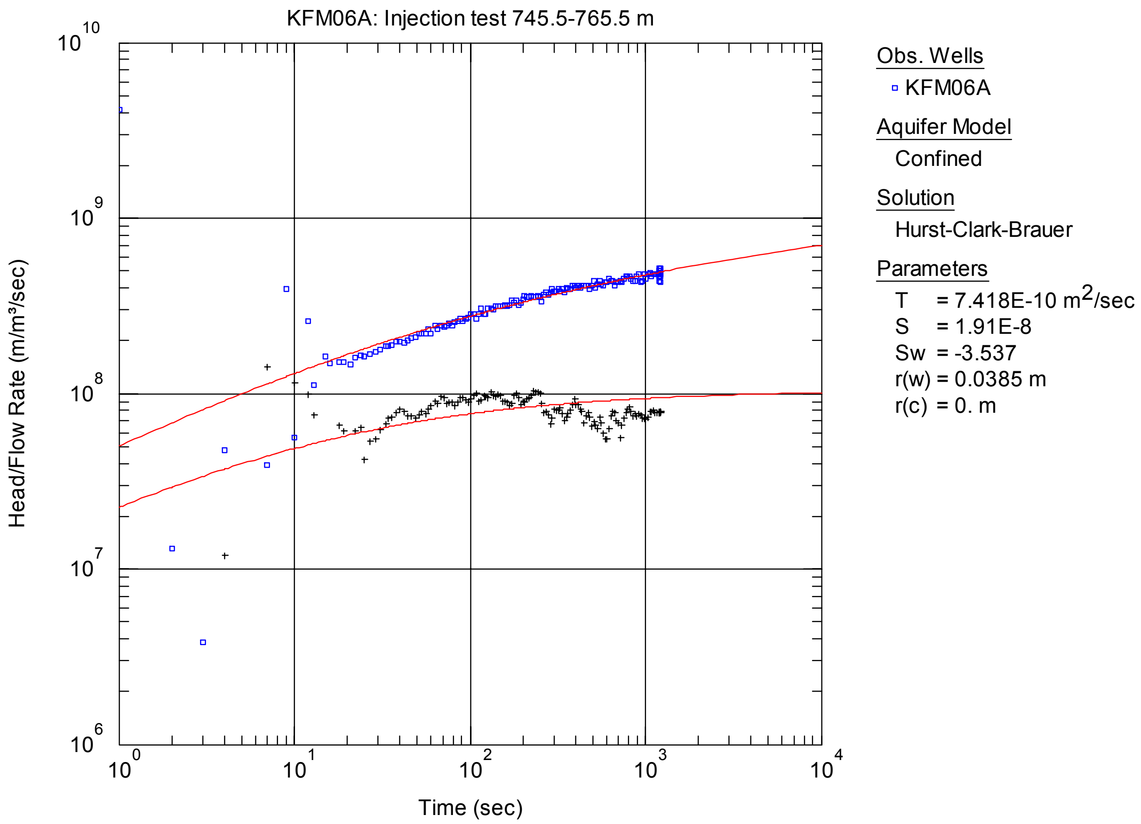


Figure A3-160. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 745.5-765.5 m in KFM06A.*

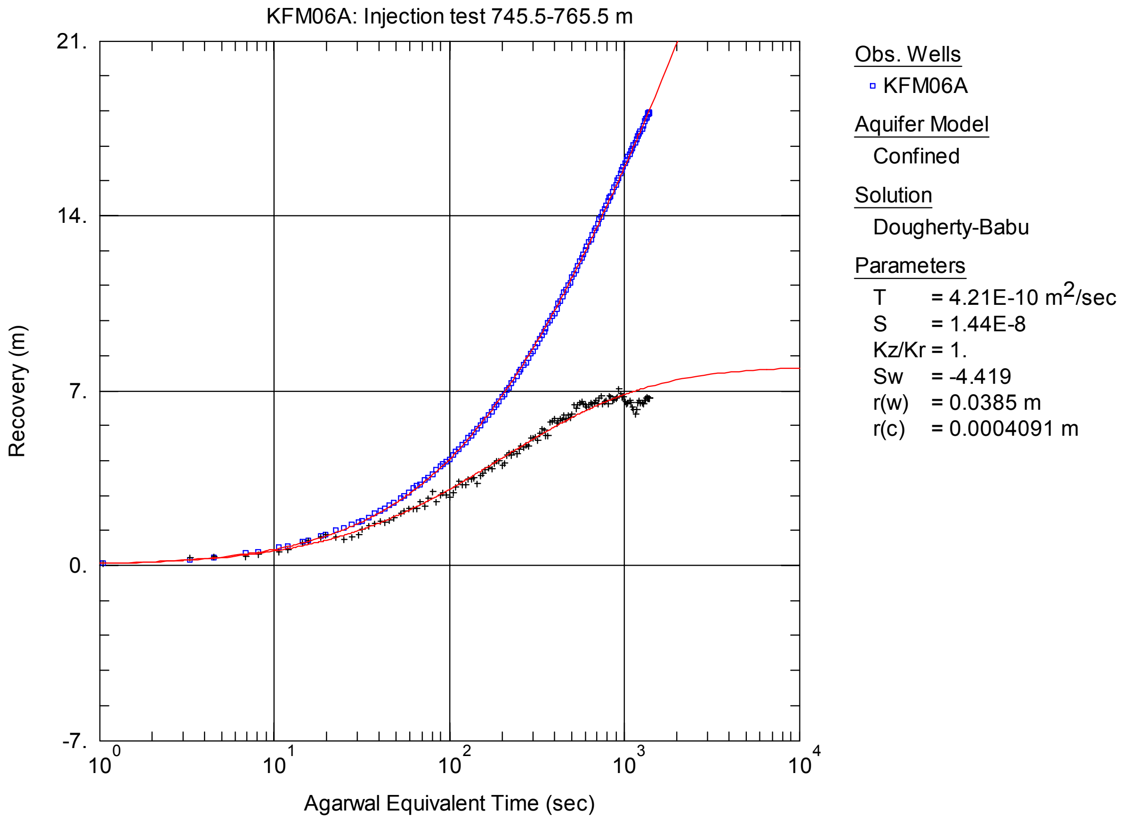


Figure A3-161. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 745.5-765.5 m in KFM06A.*

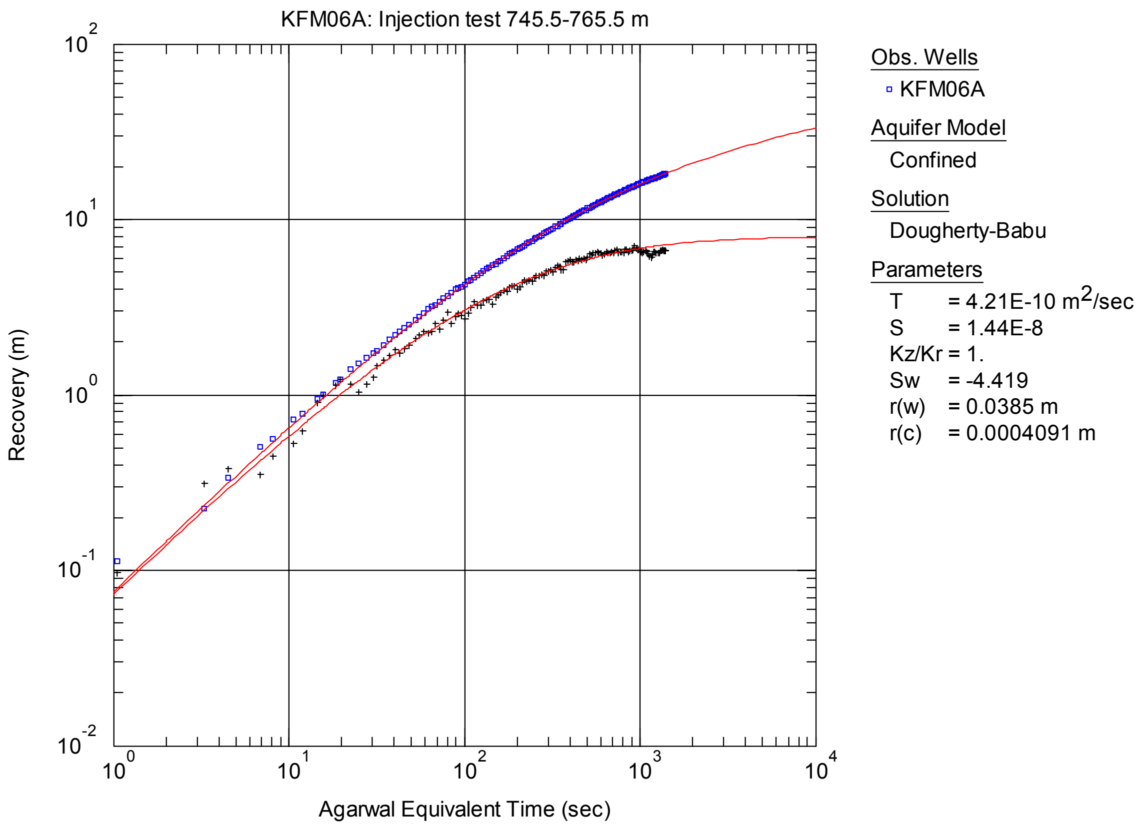


Figure A3-162. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 745.5-765.5 m in KFM06A.*

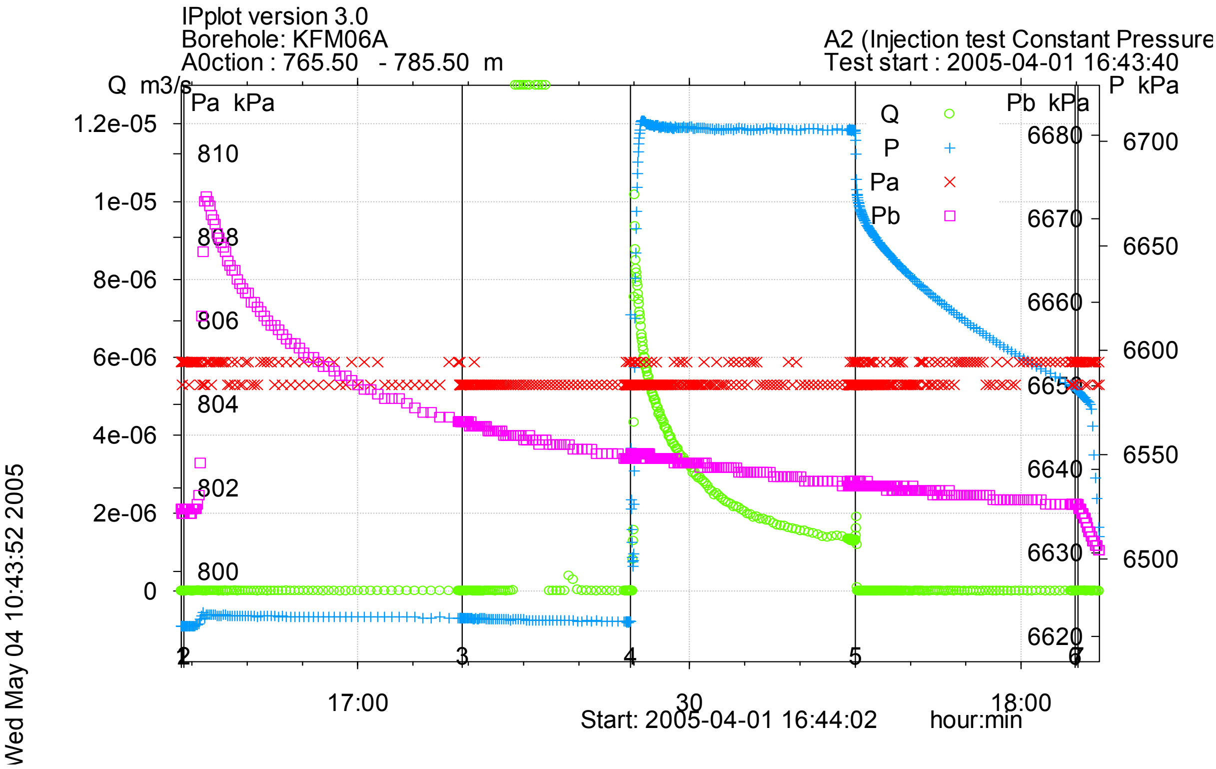


Figure A3-163. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 765.5-785.5 m in borehole KFM06A.*

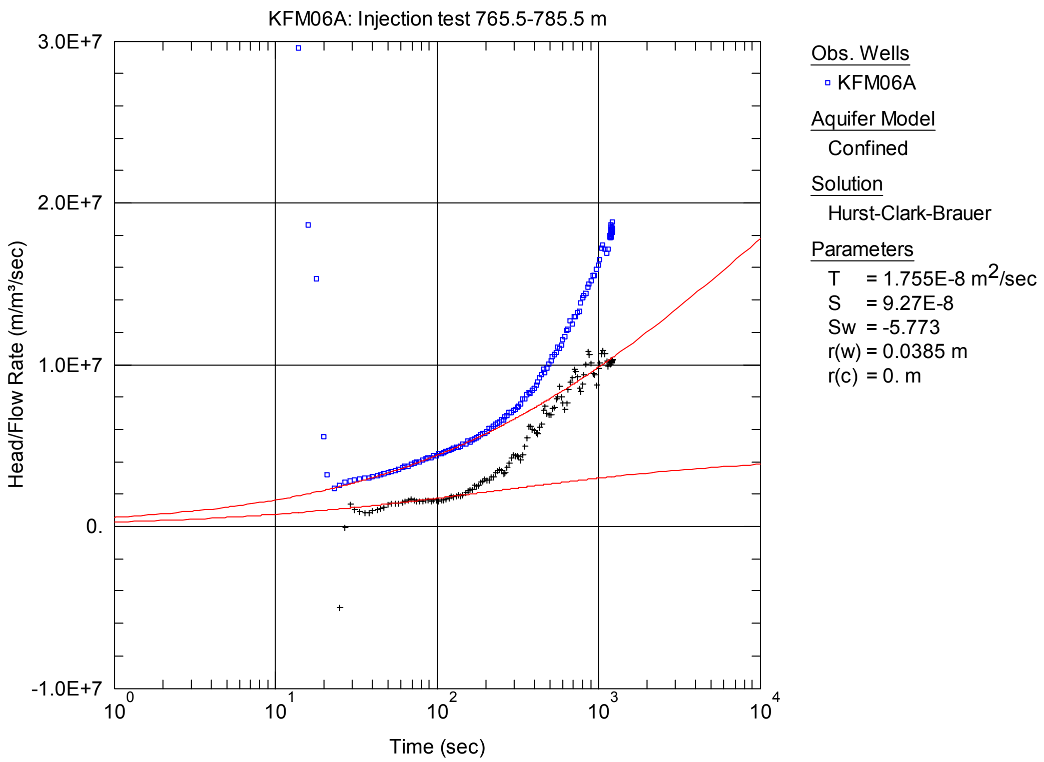


Figure A3-164. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 765.5-785.5 m in KFM06A.*

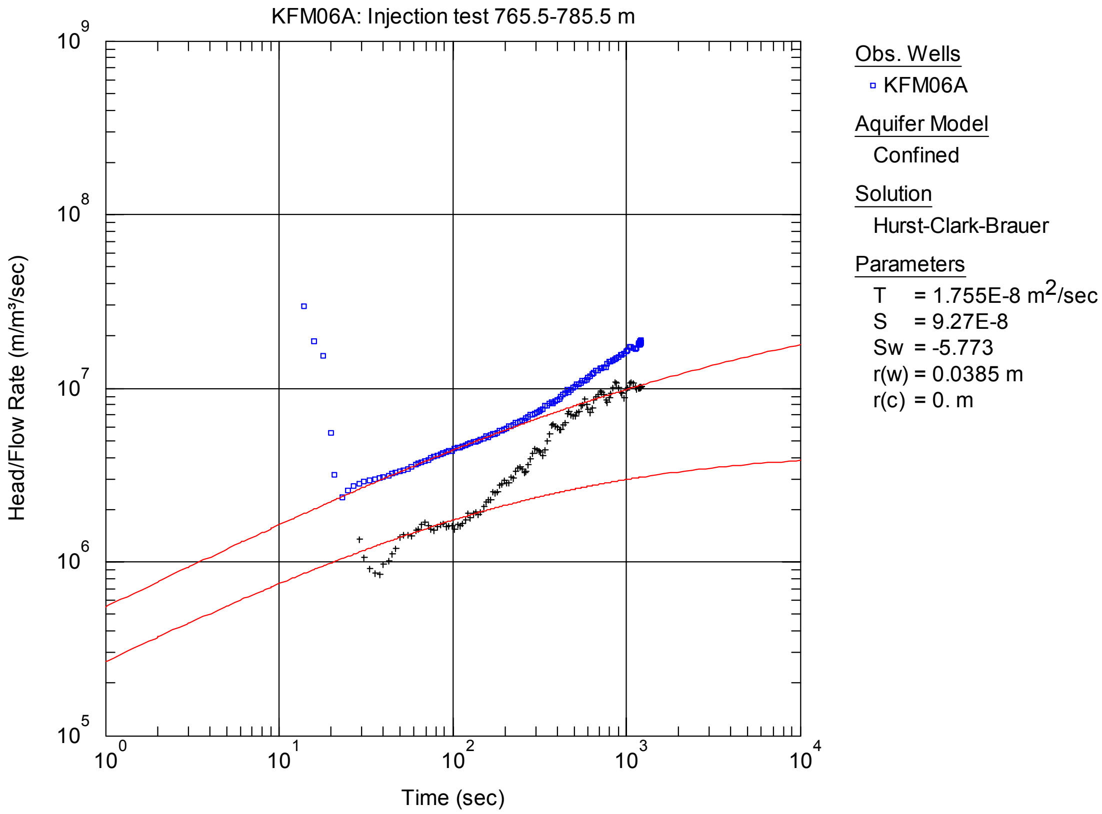


Figure A3-165. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 765.5-785.5 m in KFM06A.*

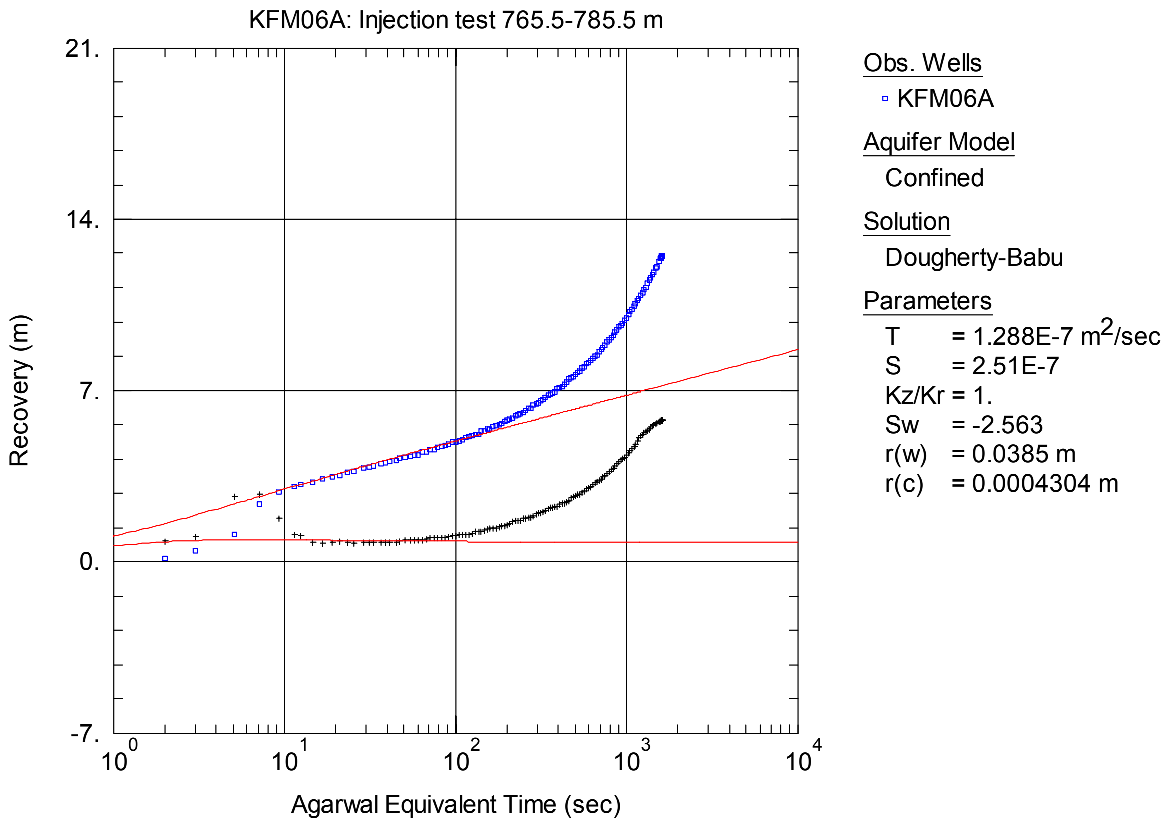


Figure A3-166. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 765.5-785.5 m in KFM06A.*

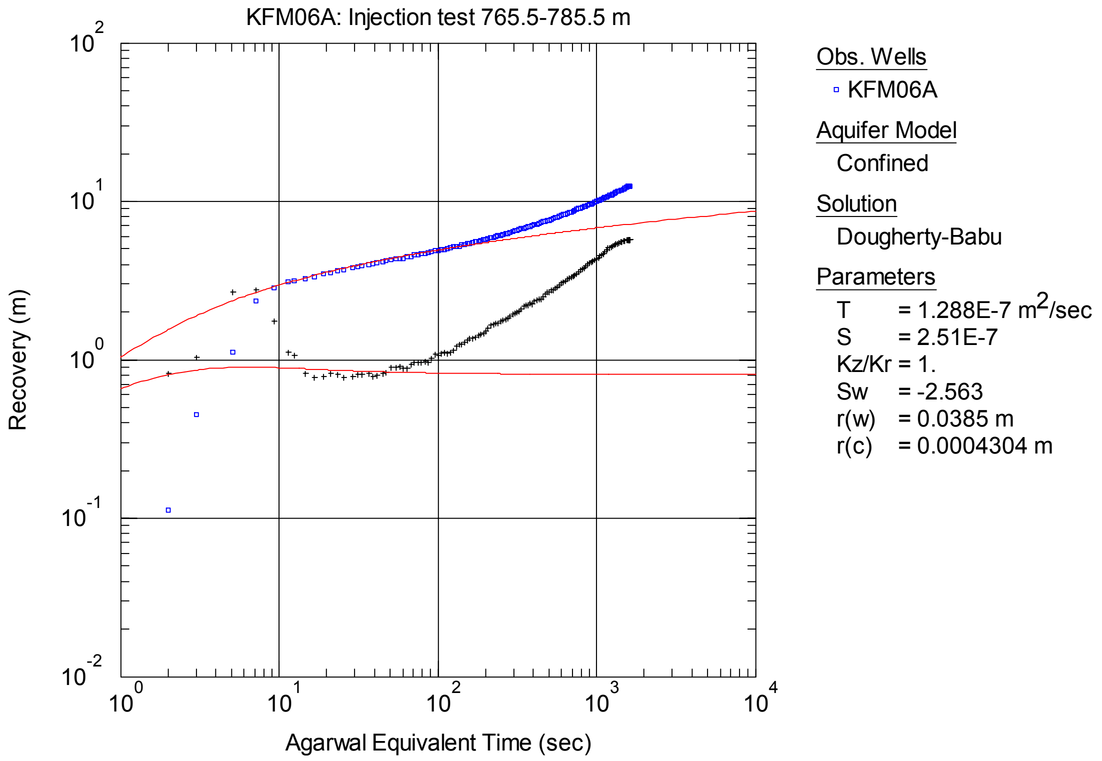


Figure A3-167. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 765.5-785.5 m in KFM06A.*

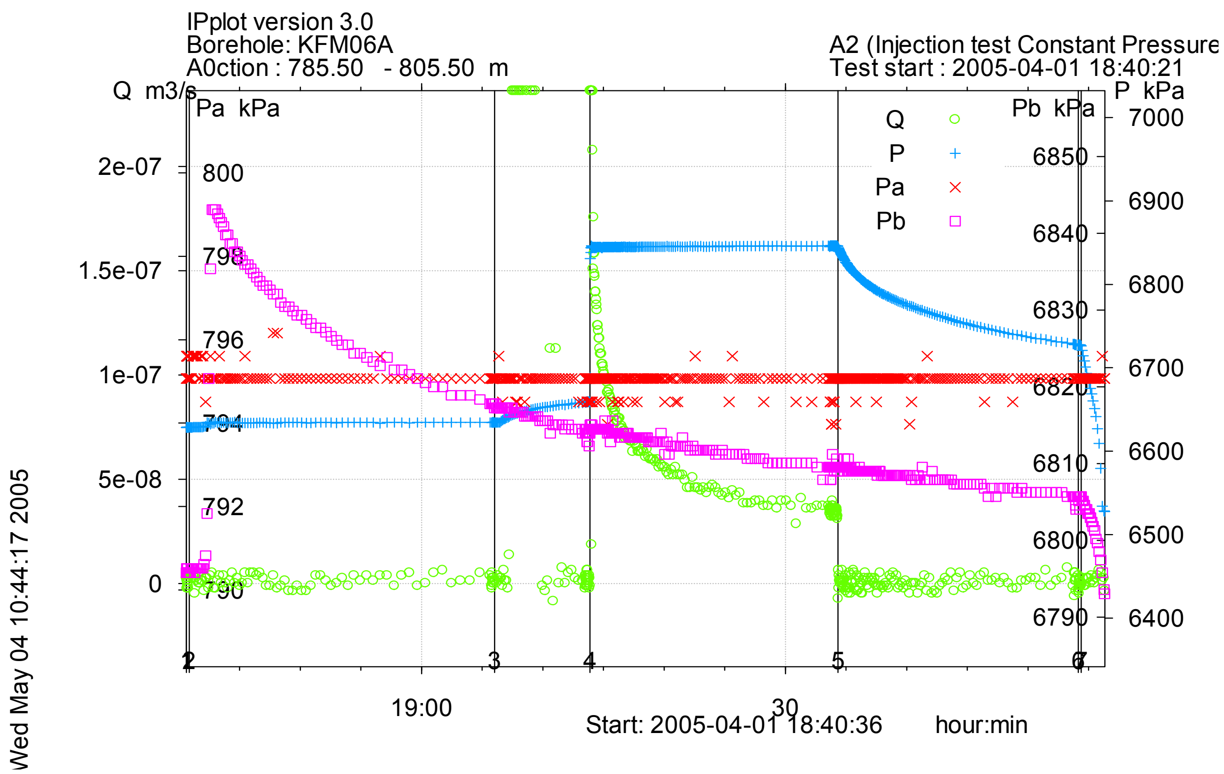


Figure A3-168. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 785.5-805.5 m in borehole KFM06A.*

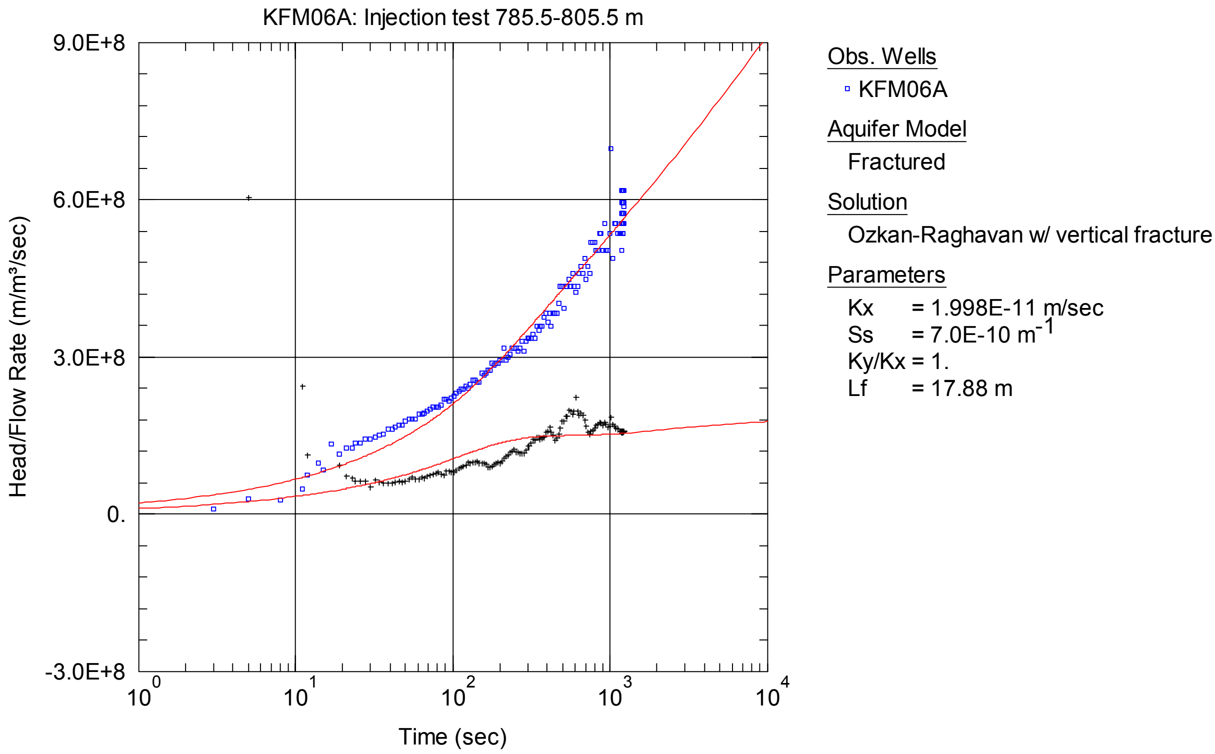


Figure A3-169. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Ozkan-Raghavan model, from the injection test in section 785.5-805.5 m in KFM06A.*

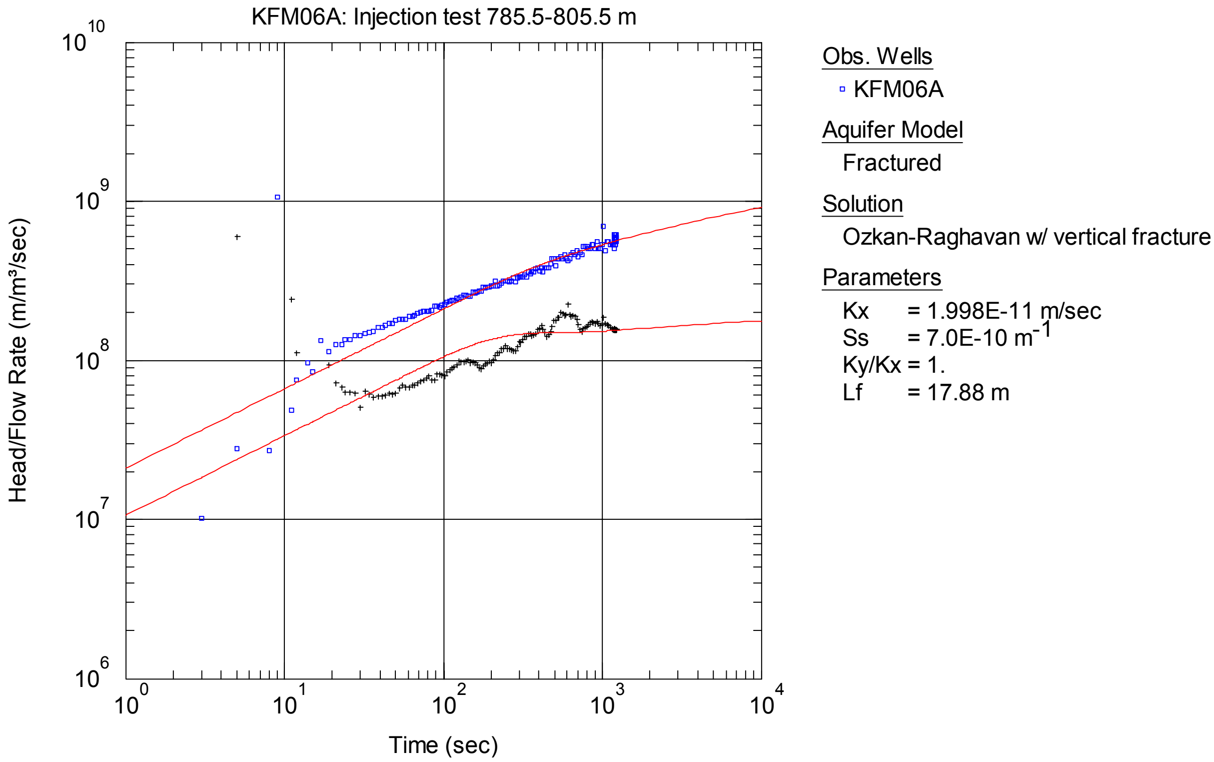


Figure A3-170. *Log-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Ozkan-Raghavan model, from the injection test in section 785.5-805.5 m in KFM06A.*

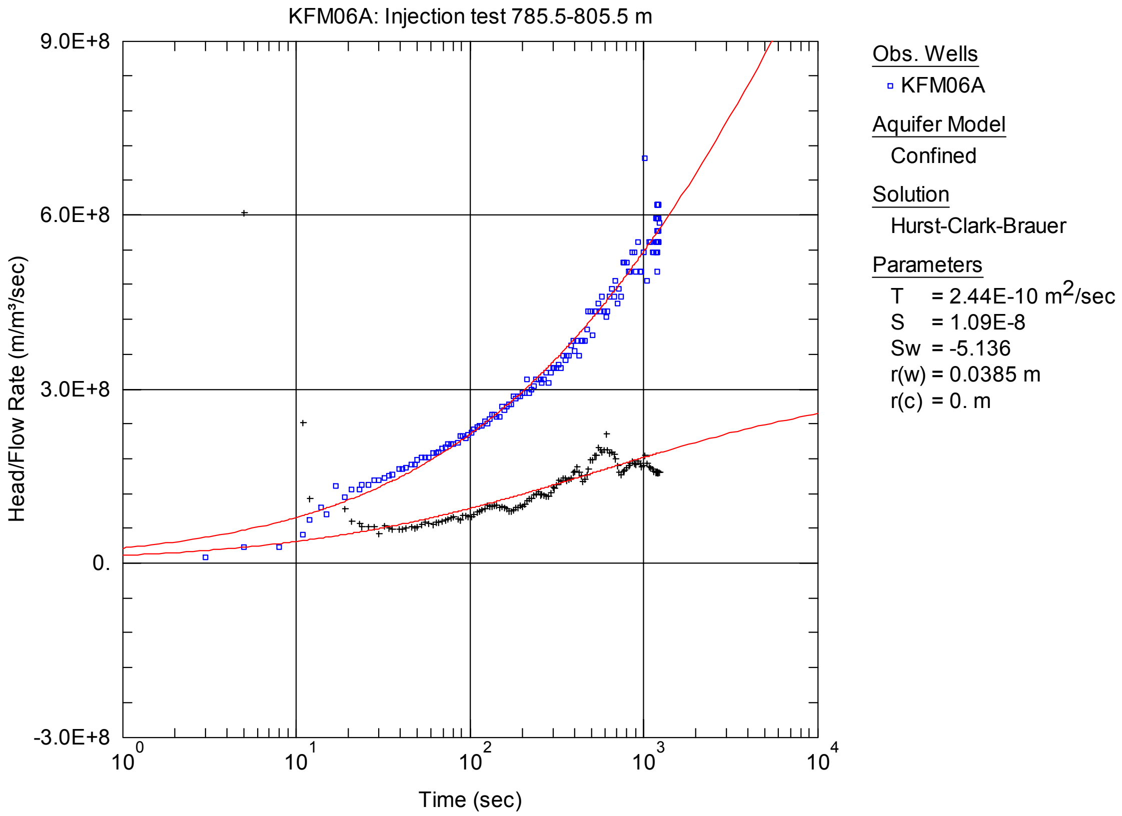


Figure A3-171. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 785.5-805.5 m in KFM06A.*

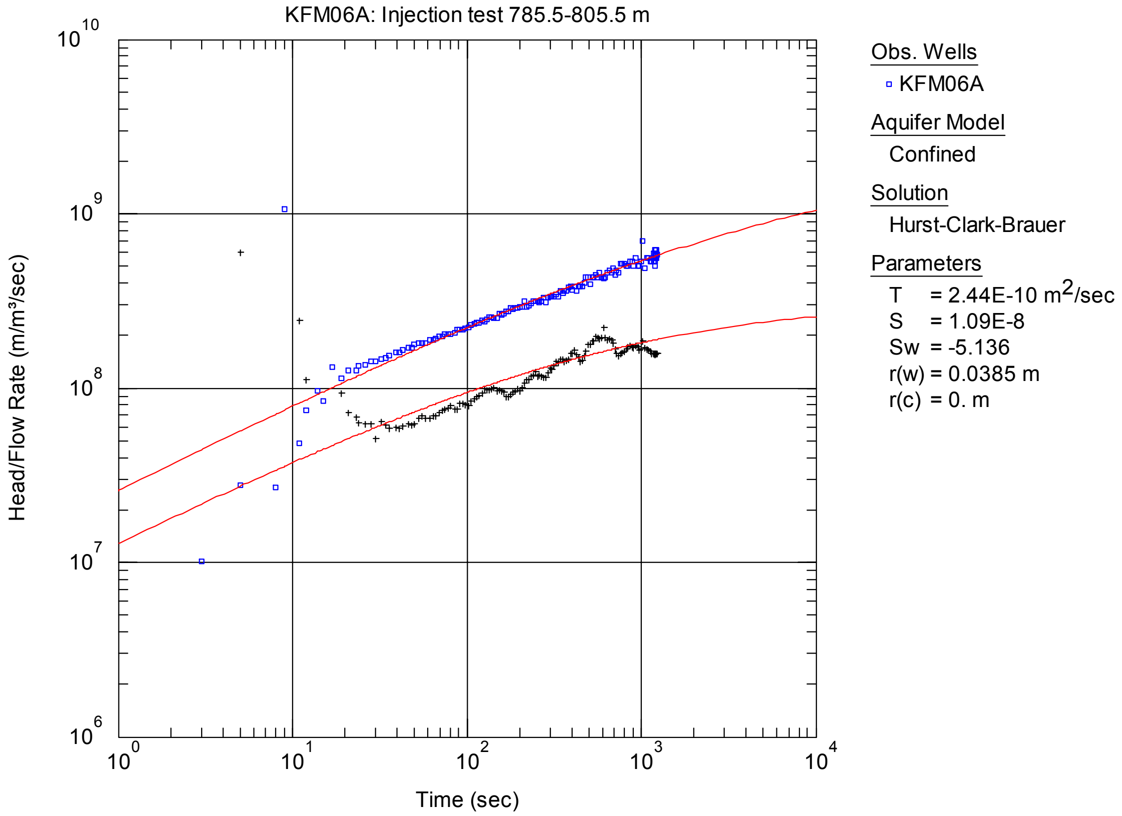


Figure A3-172. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 785.5-805.5 m in KFM06A.*

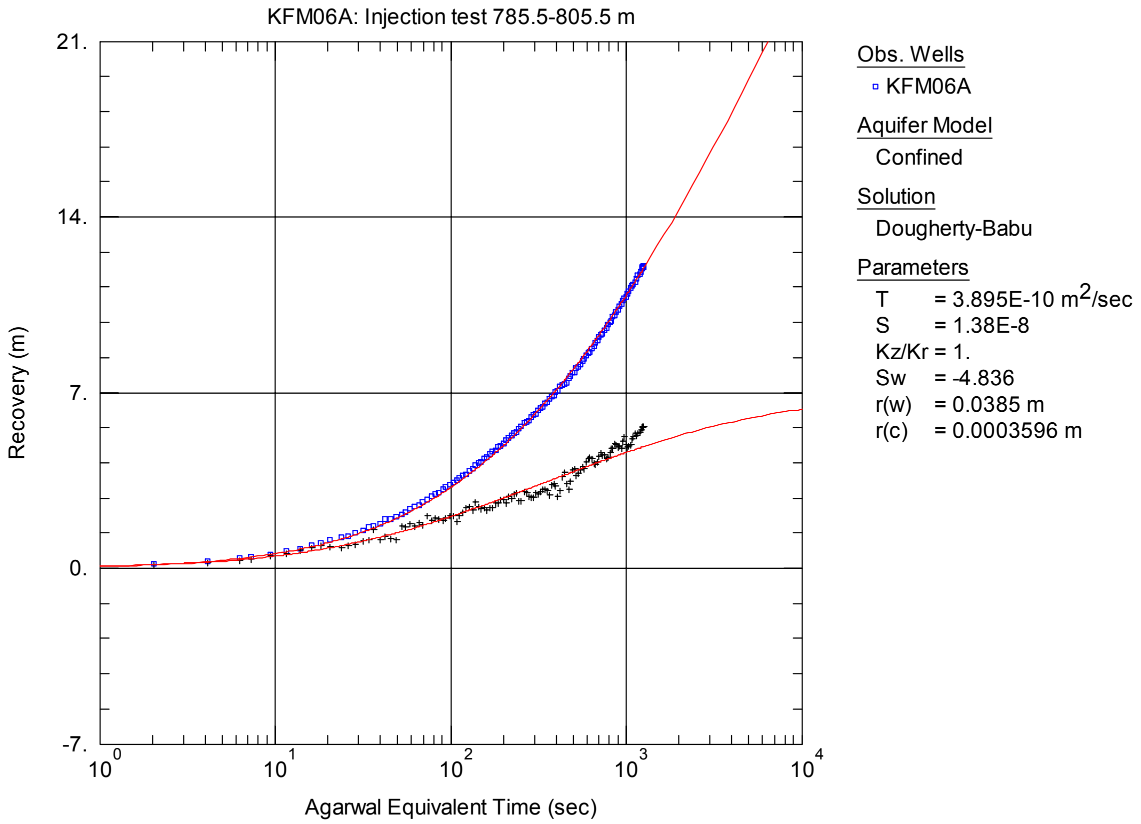


Figure A3-173. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 785.5-805.5 m in KFM06A.*

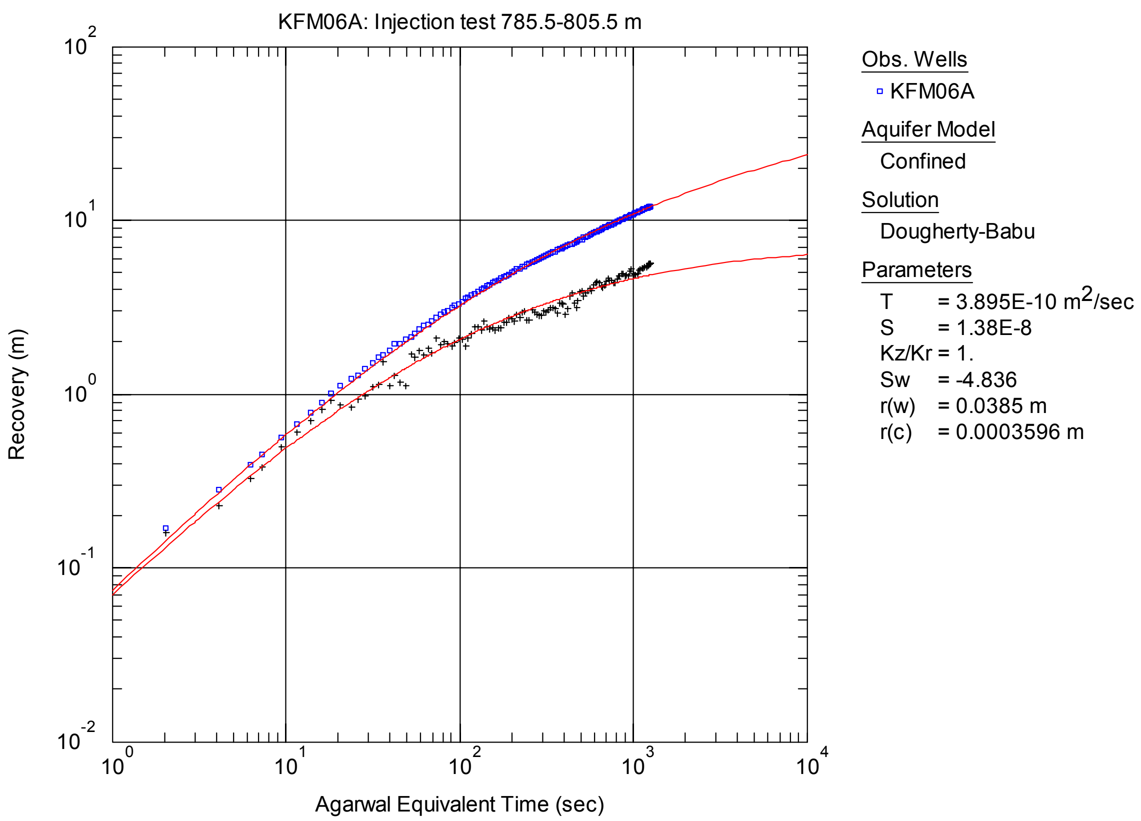


Figure A3-174. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 785.5-805.5 m in KFM06A.*

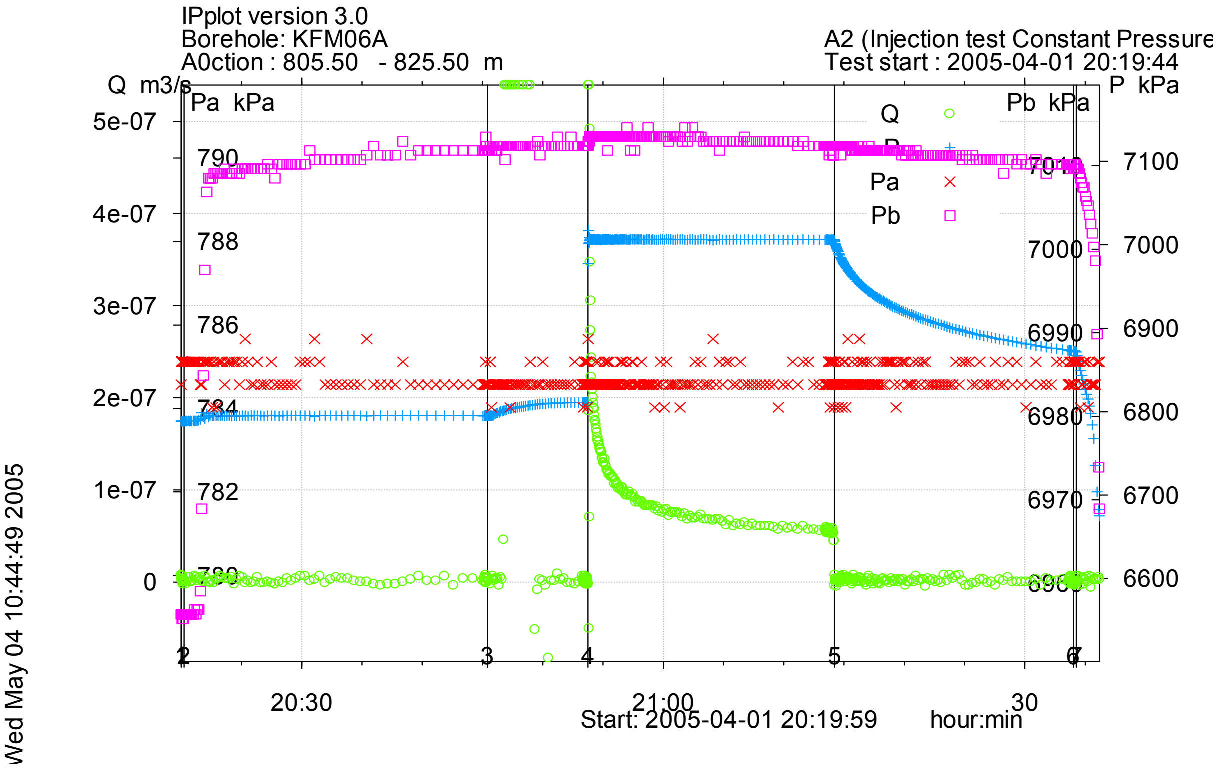


Figure A3-175. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 805.5-825.5 m in borehole KFM06A.*

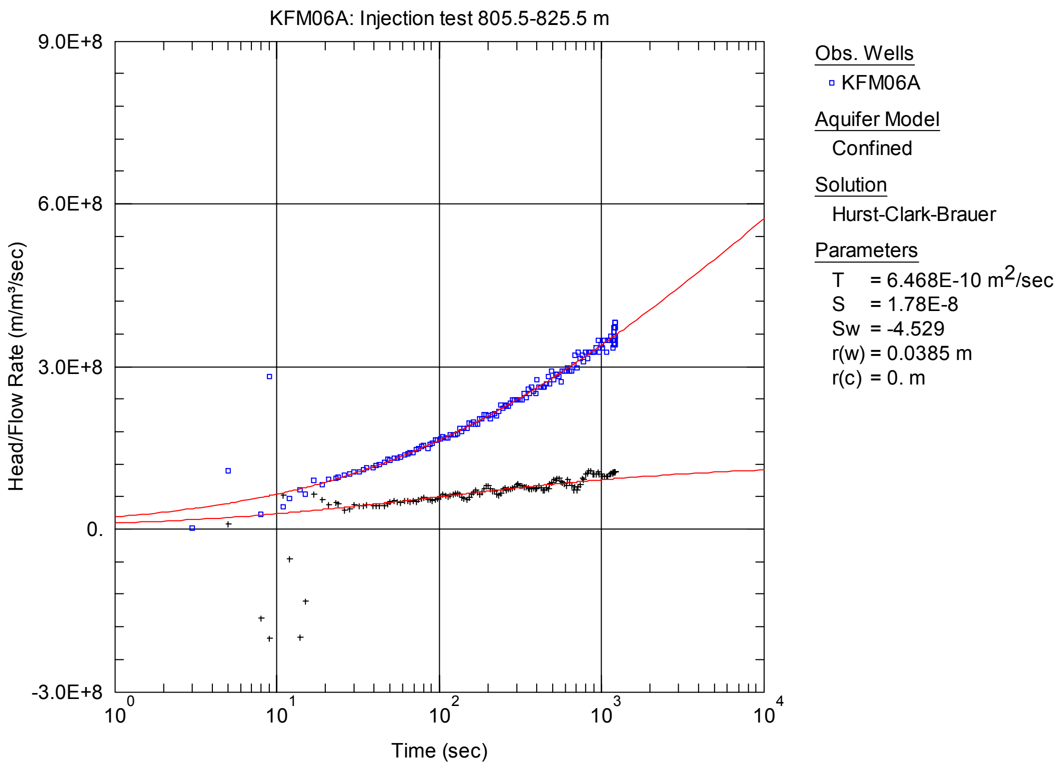


Figure A3-176. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 805.5-825.5m in KFM06A.*

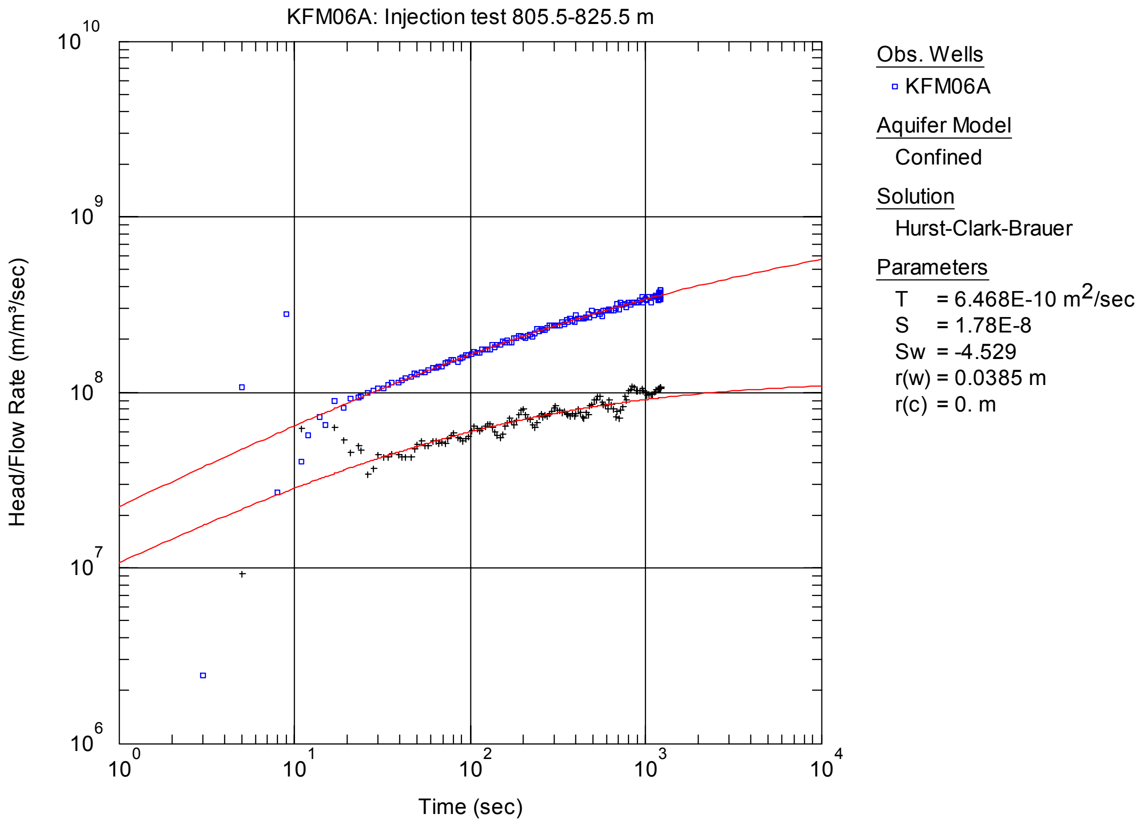


Figure A3-177. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 805.5-825.5 m in KFM06A.*

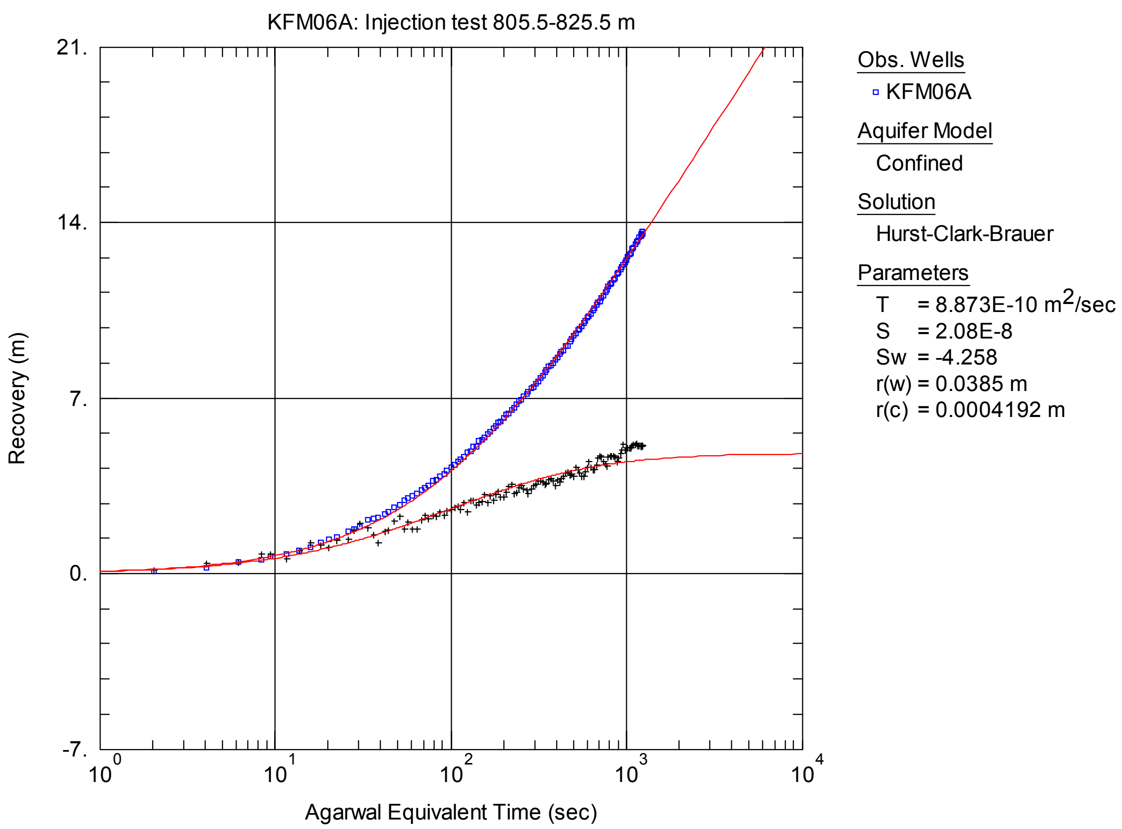


Figure A3-178. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 805.5-825.5 m in KFM06A.*

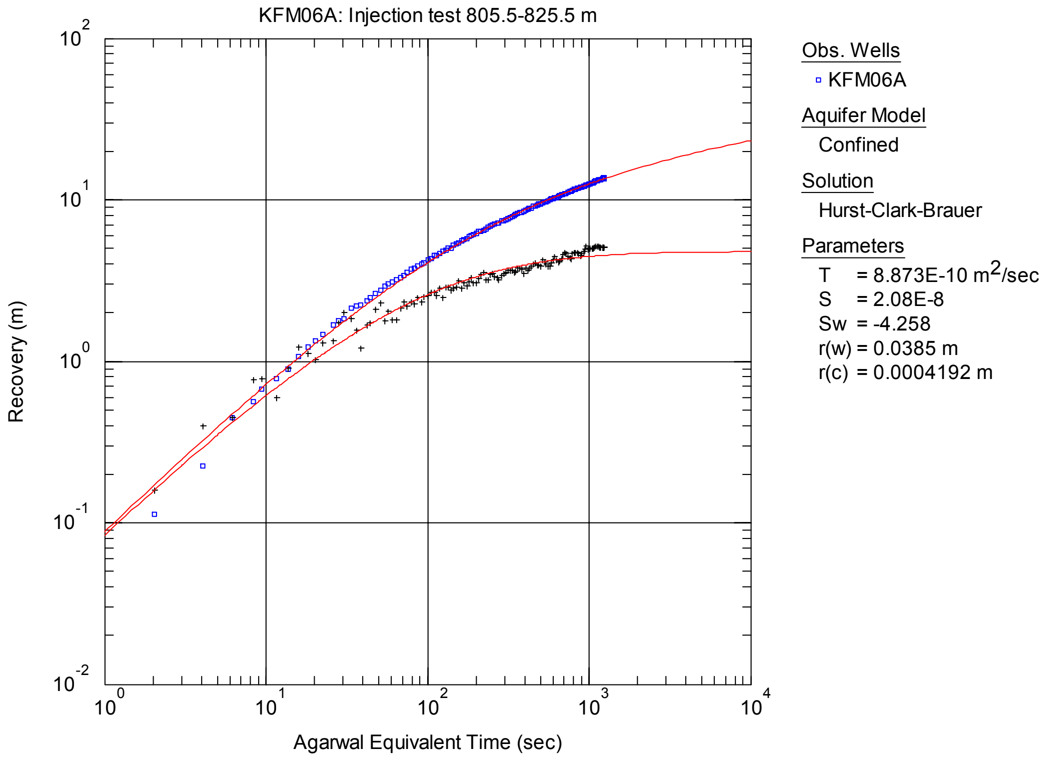


Figure A3-179. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 805.5-825.5 m in KFM06A.*

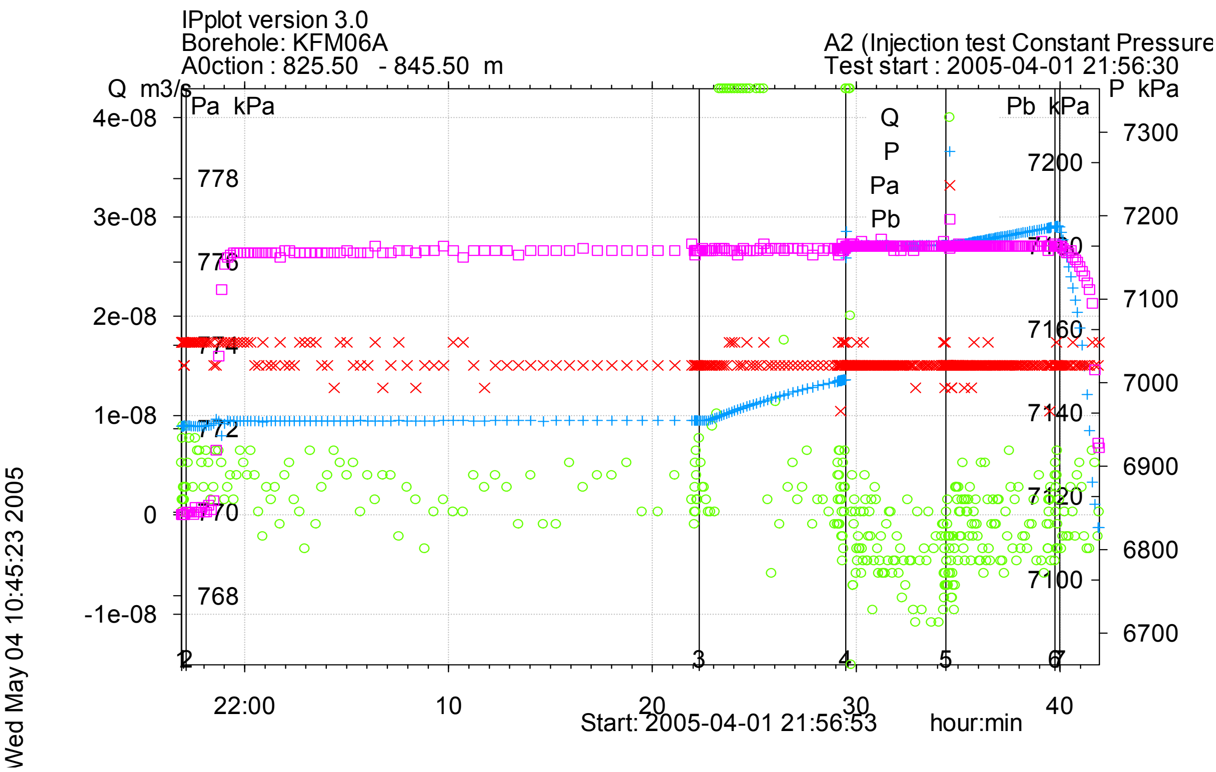


Figure A3-180. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 825.5-845.5 m in borehole KFM06A.*

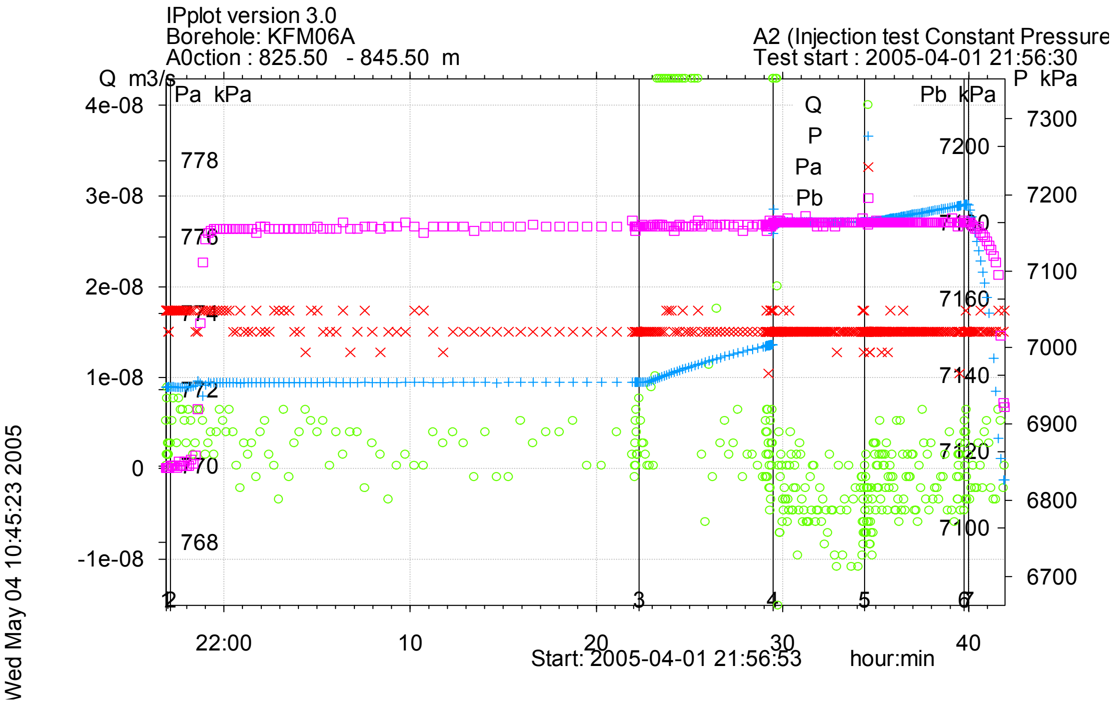


Figure A3-181. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 845.5-865.5 m in borehole KFM06A.

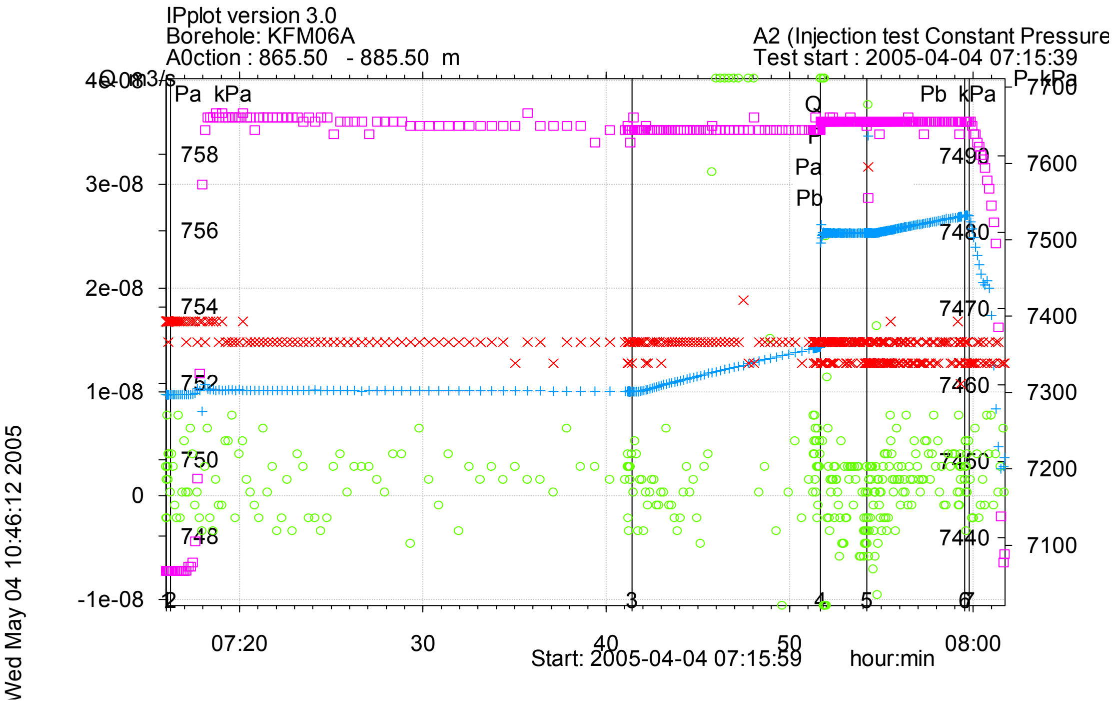


Figure A3-182. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 865.5-885.5 m in borehole KFM06A.

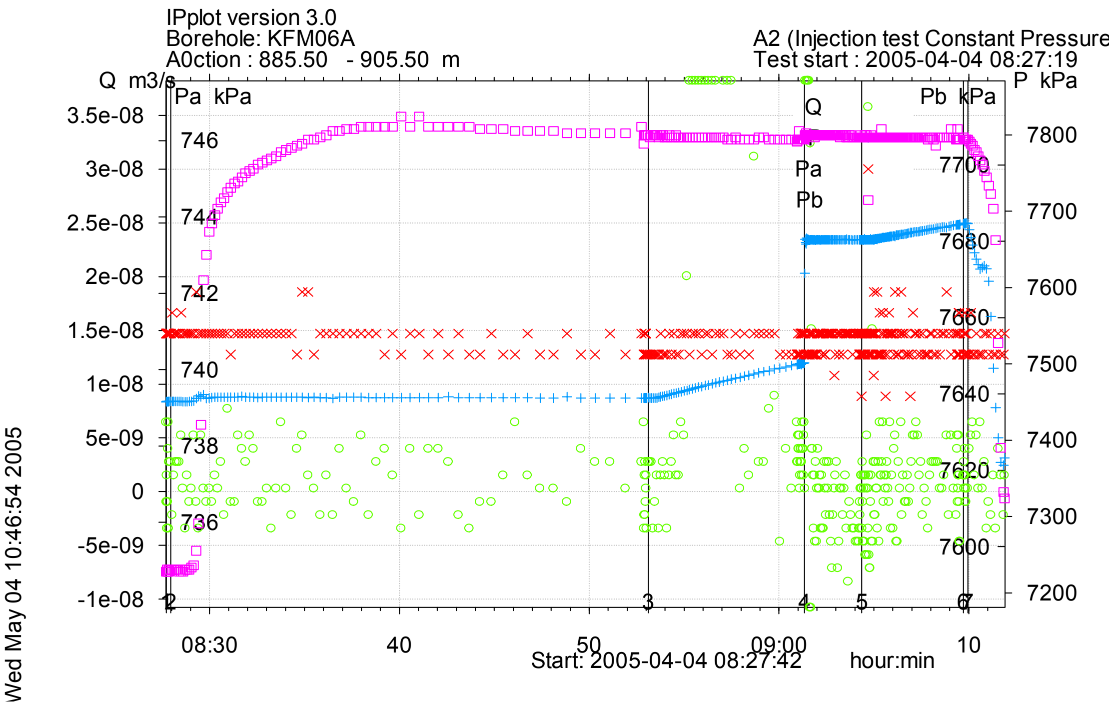


__Figure A3-183.__ Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 885.5-905.5 m in borehole KFM06A.

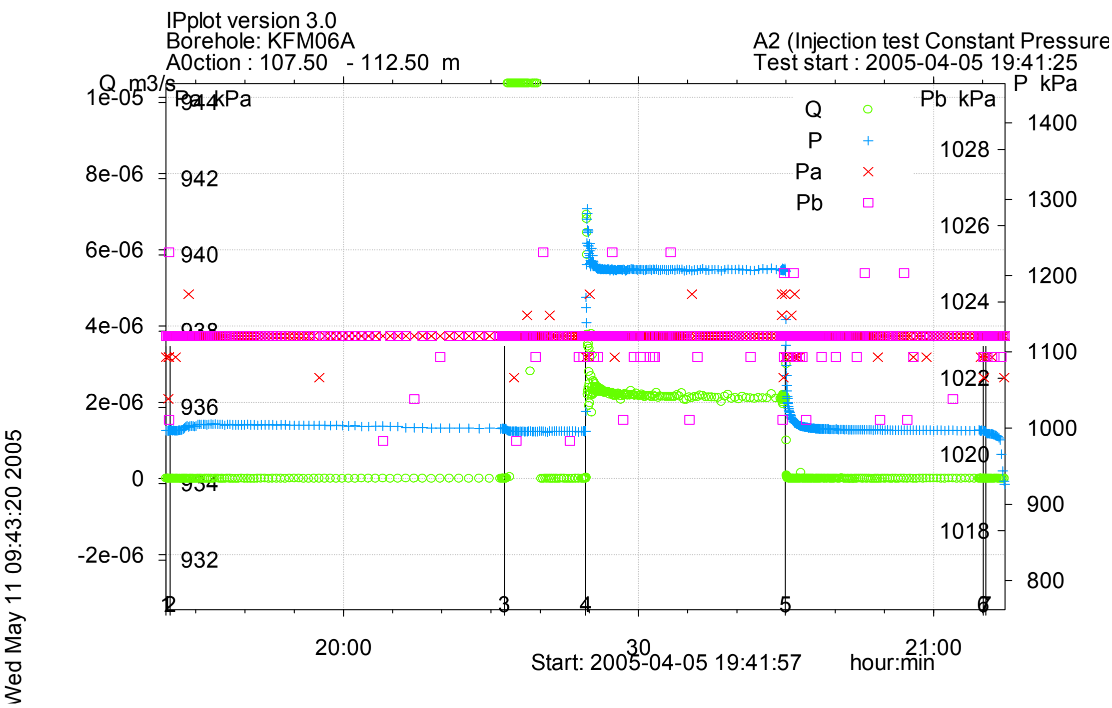


__Figure A3-184.__ Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 107.5-112.5 m in borehole KFM06A.

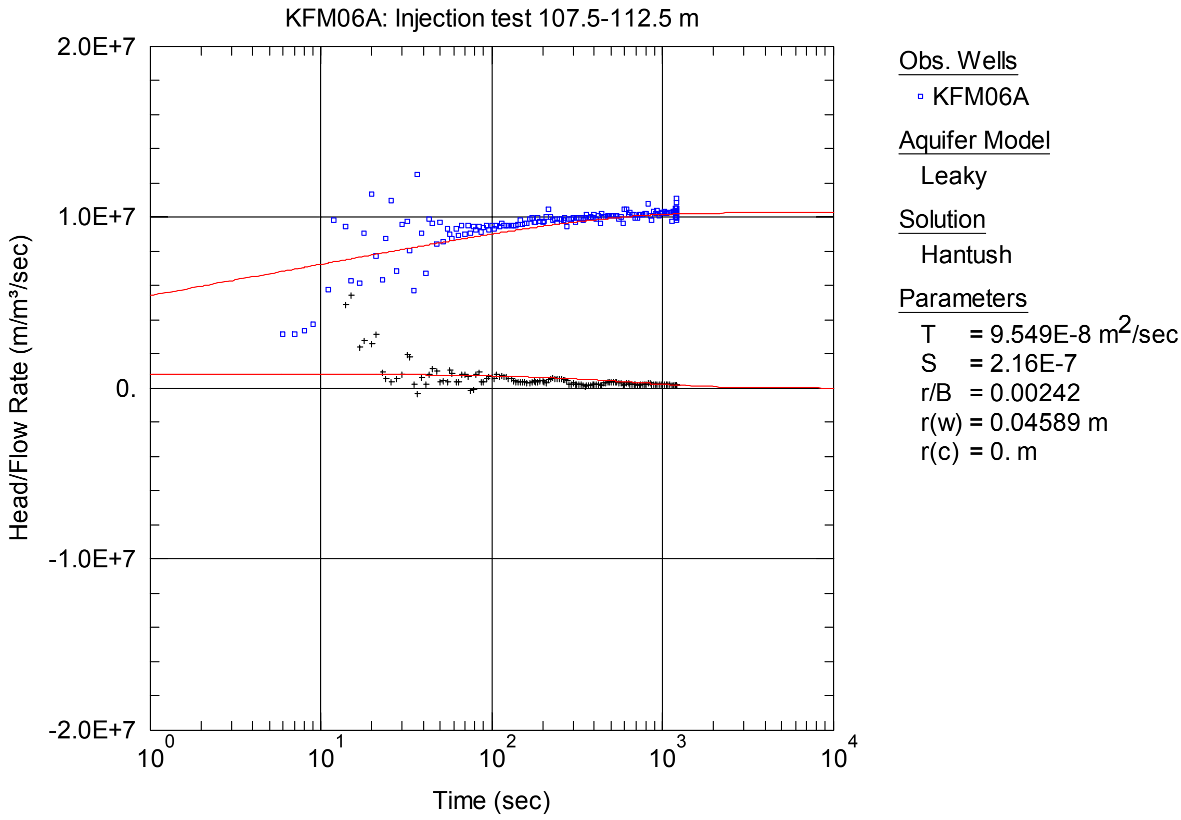


Figure A3-185. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 107.5-112.5 m in KFM06A.*

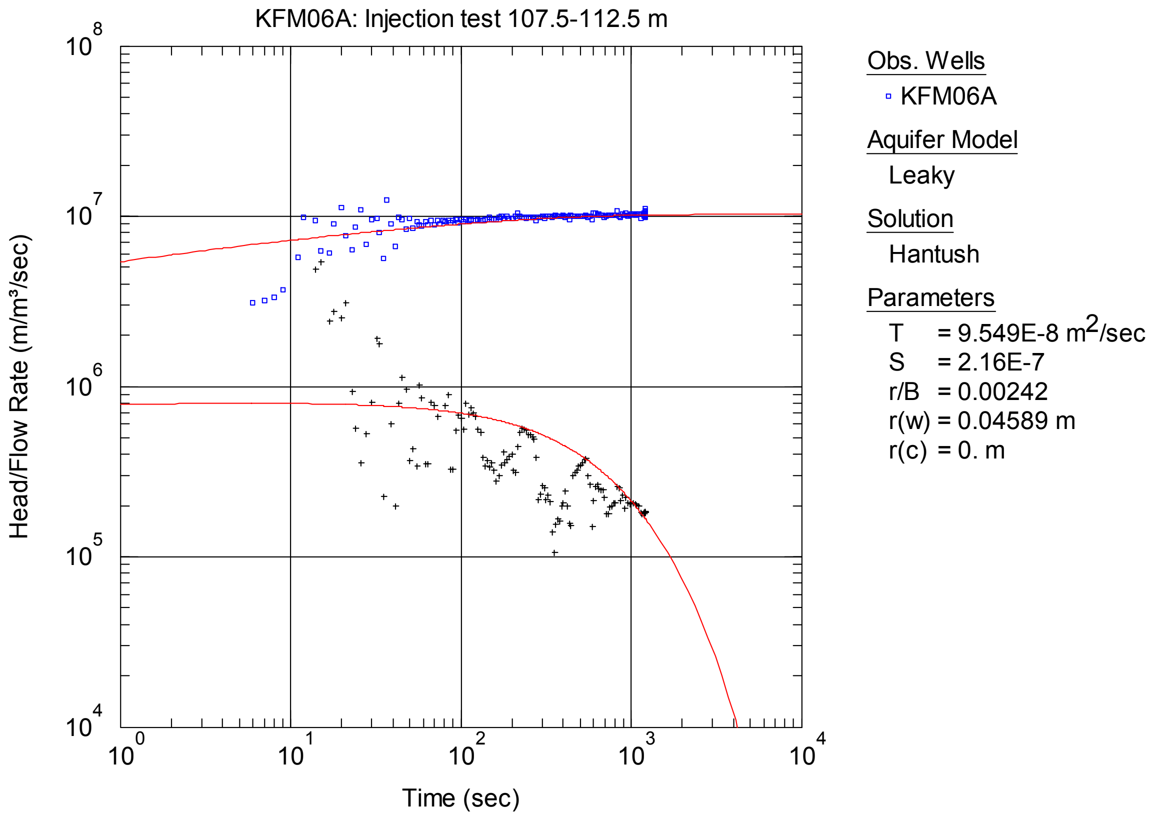


Figure A3-186. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 107.5-112.5 m in KFM06A.*

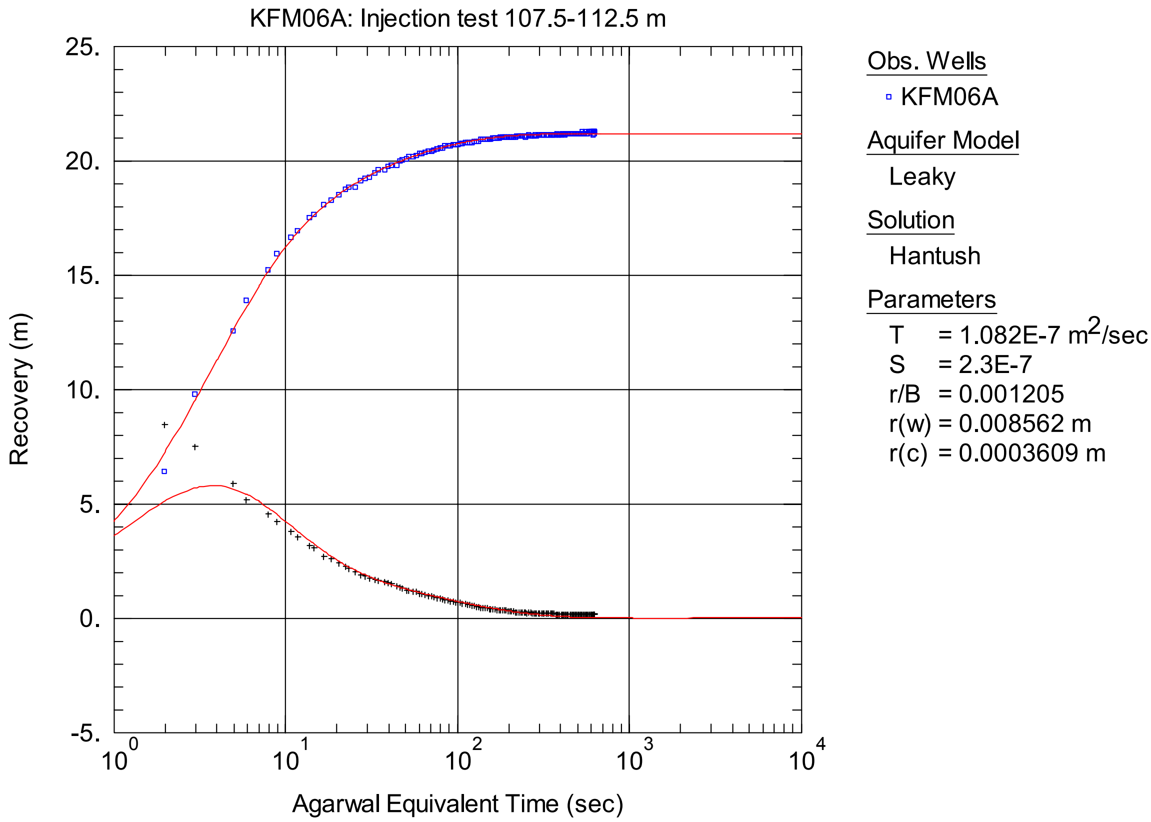


Figure A3-187. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 107.5-112.5 m in KFM06A.*

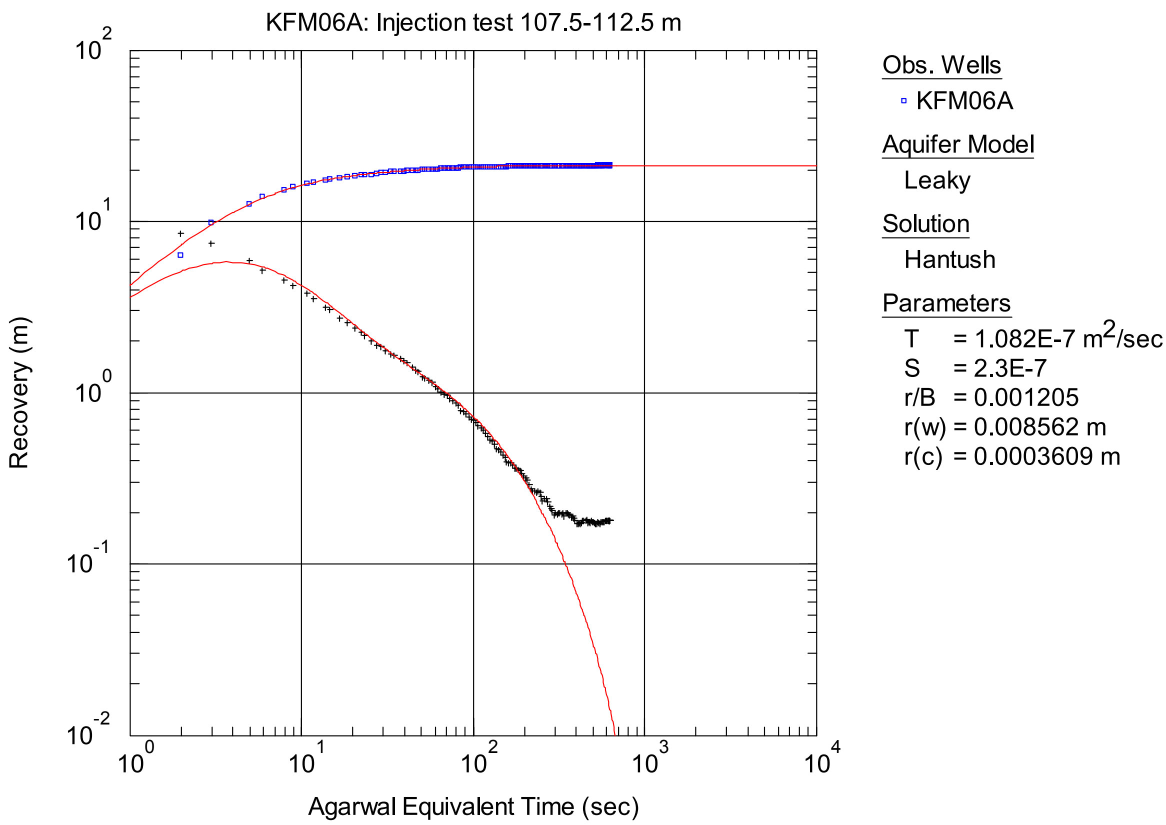


Figure A3-188. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 107.5-112.5 m in KFM06A.*

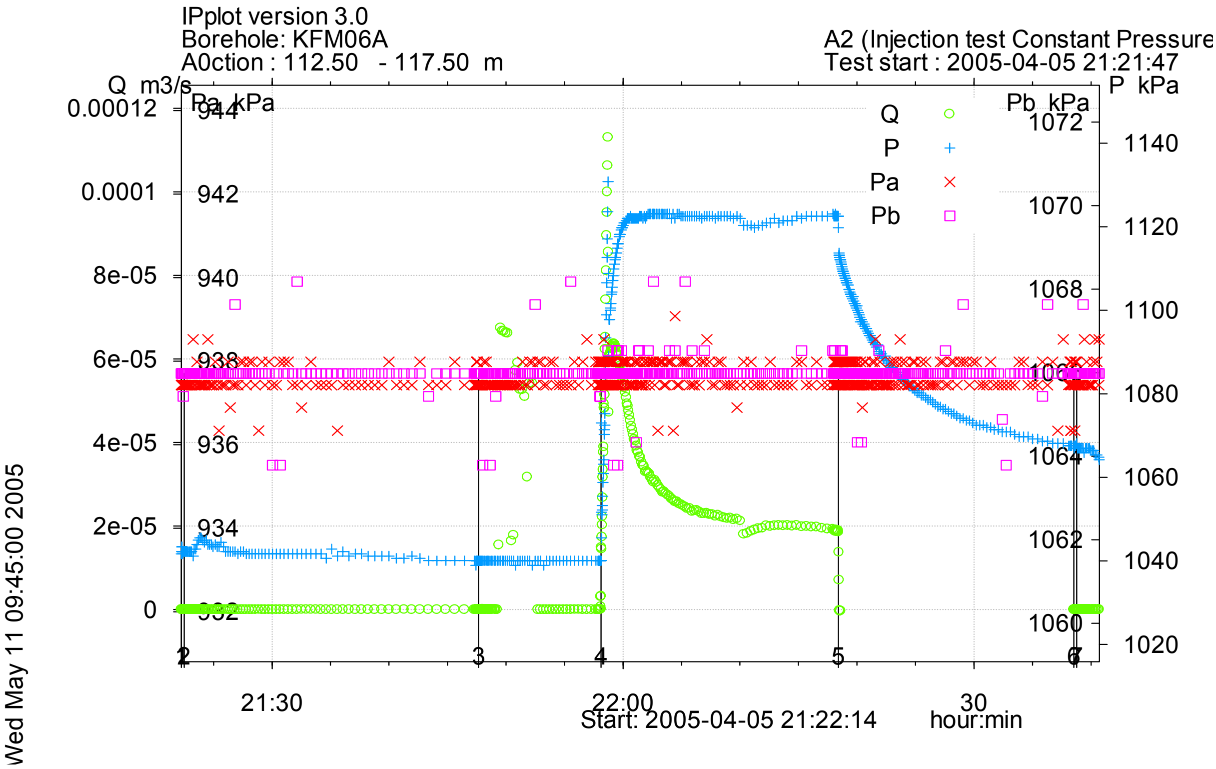


Figure A3-189. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 112.5-117.5 m in borehole KFM06A.

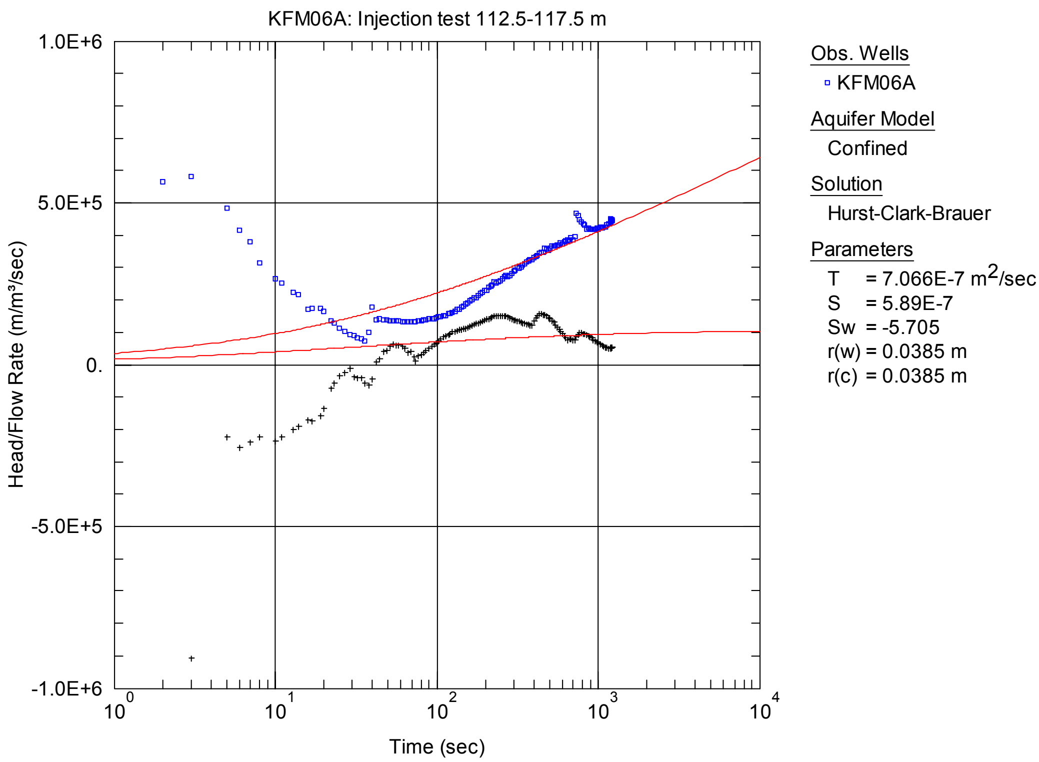


Figure A3-190. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 112.5-117.5 m in KFM06A.

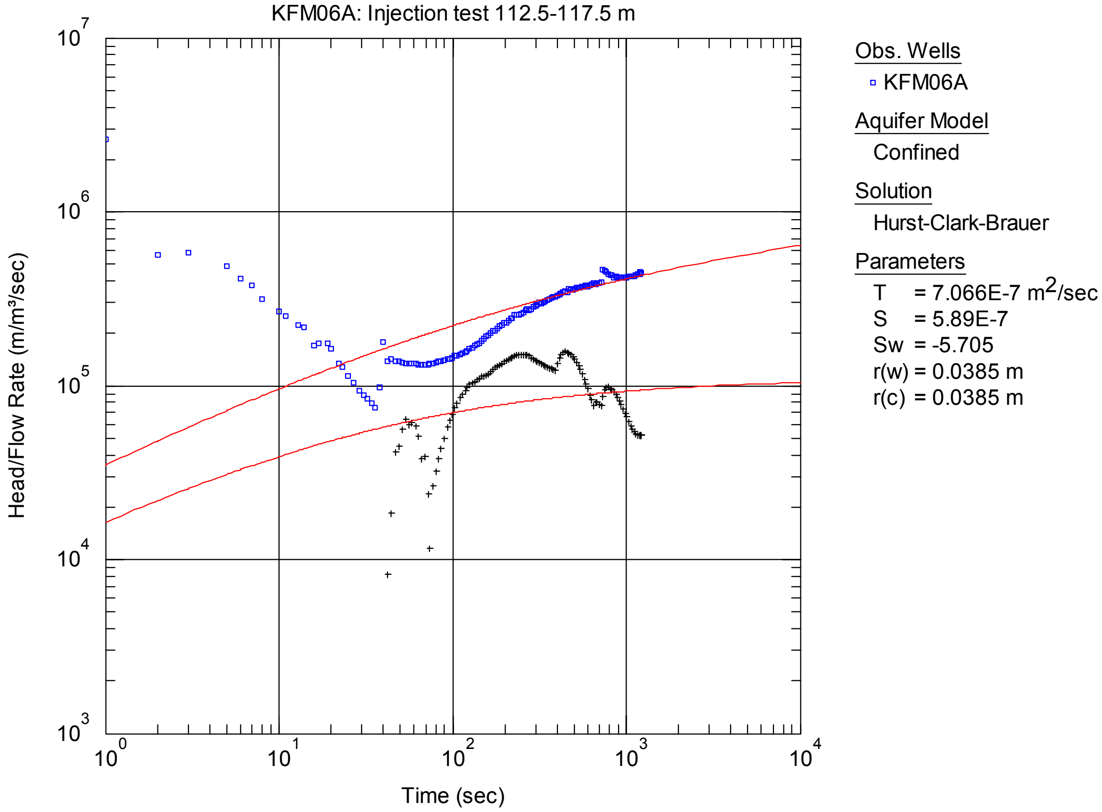


Figure A3-191. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 112.5-117.5 m in KFM06A.*

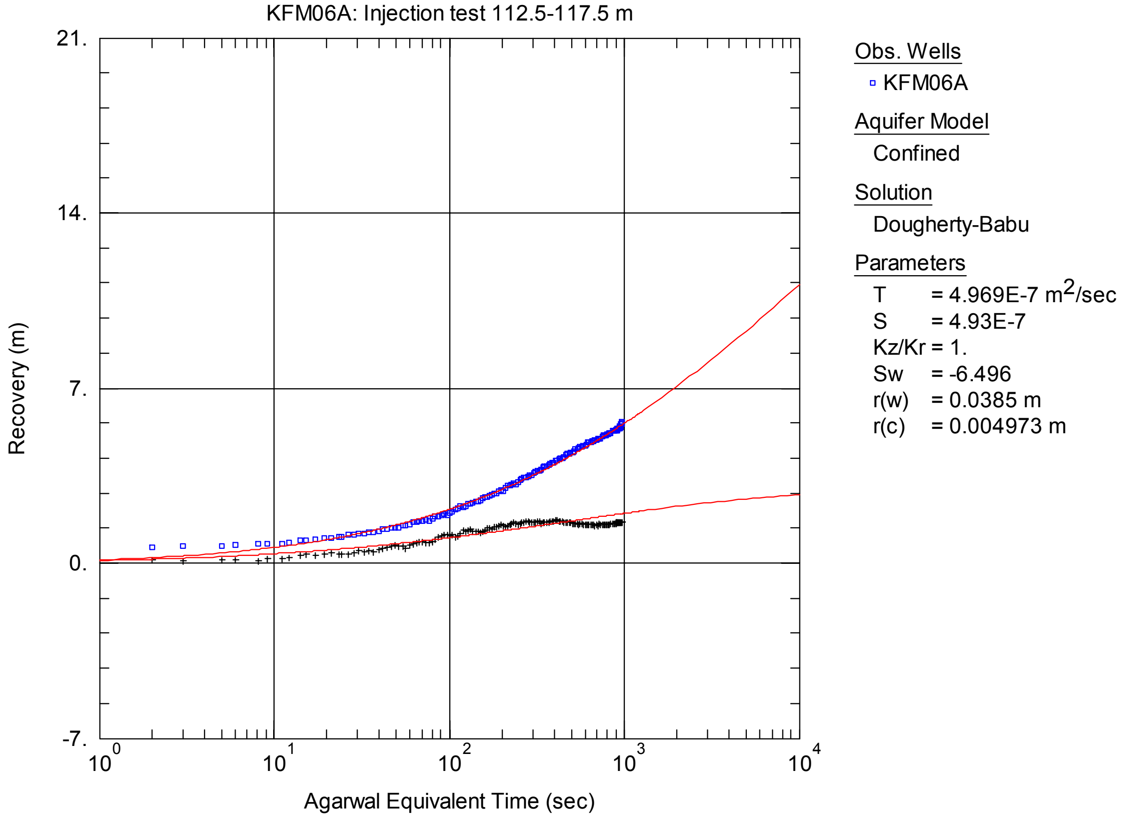


Figure A3-192. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 112.5-117.5 m in KFM06A.*

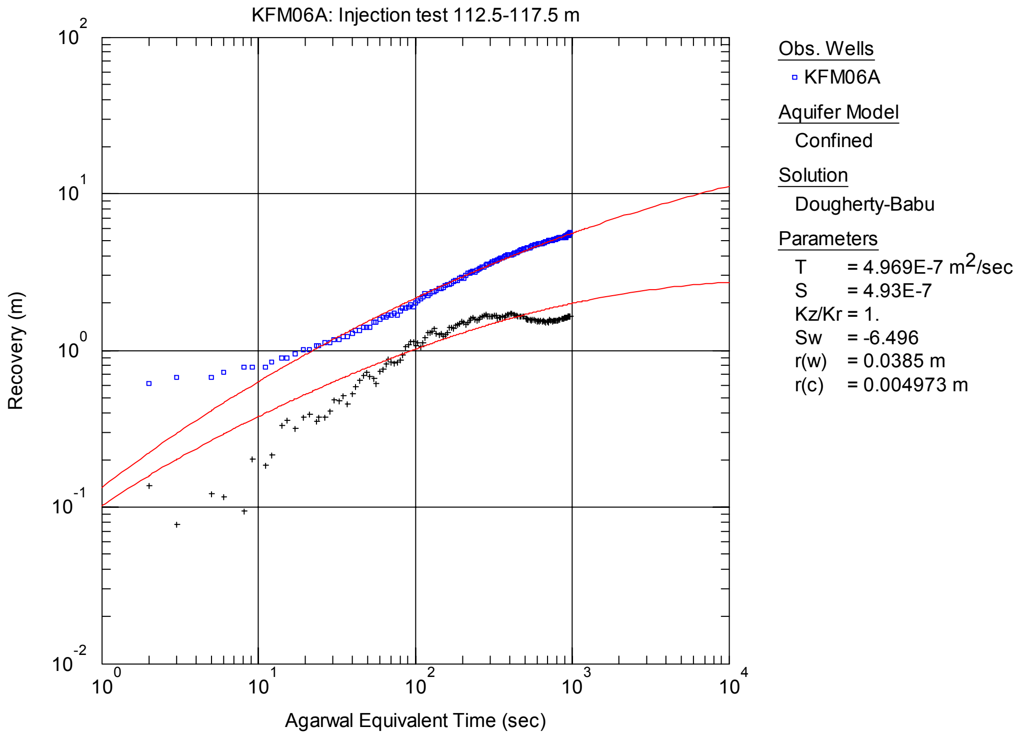


Figure A3-193. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 112.5-117.5 m in KFM06A.*

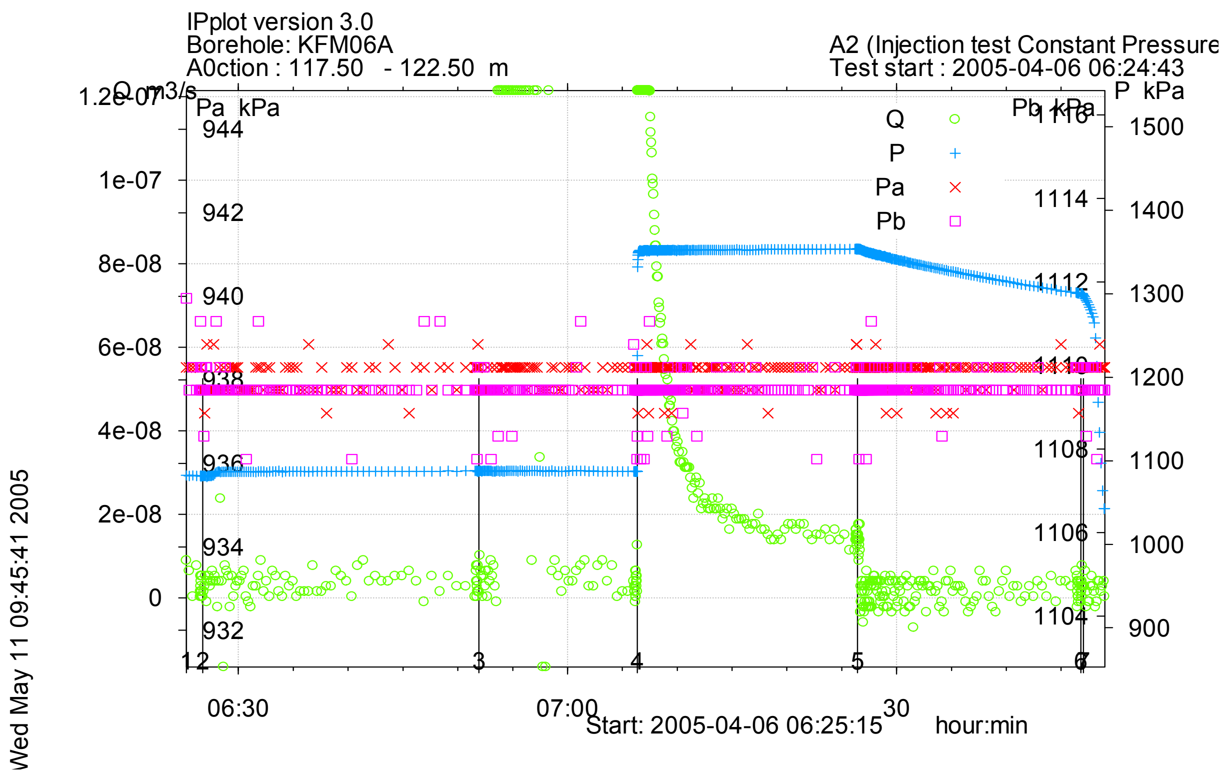


Figure A3-194. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 117.5-122.5 m in borehole KFM06A.*

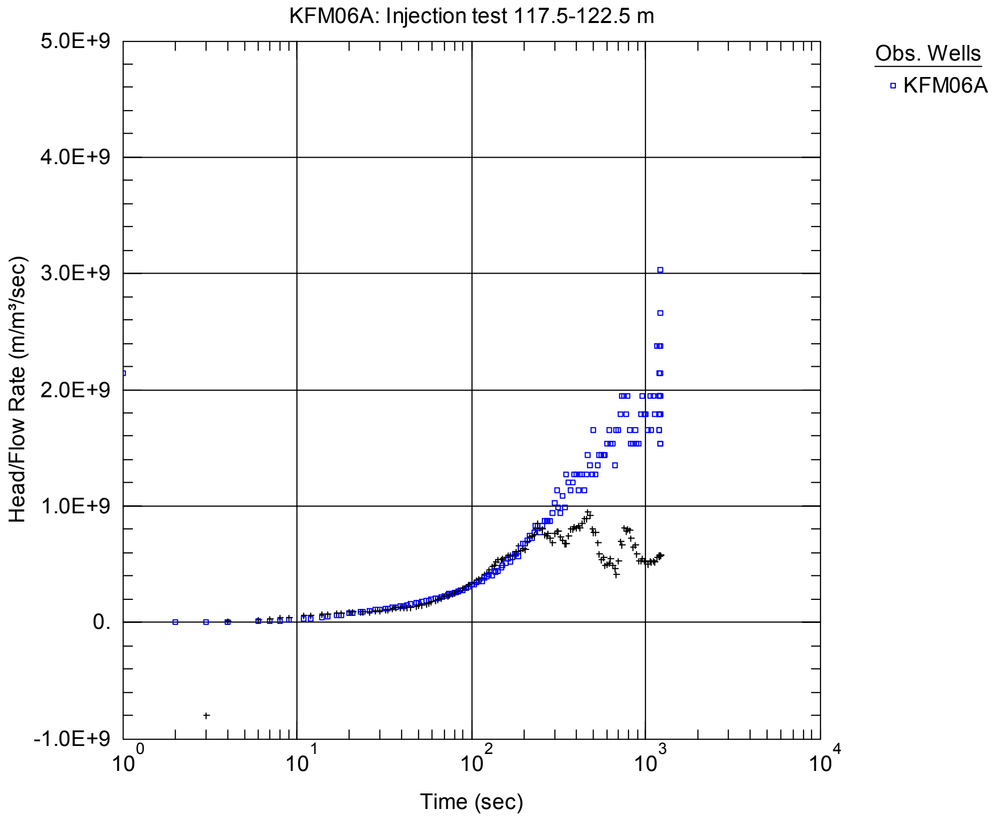


Figure A3-195. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 117.5-122.5 m in KFM06A.*

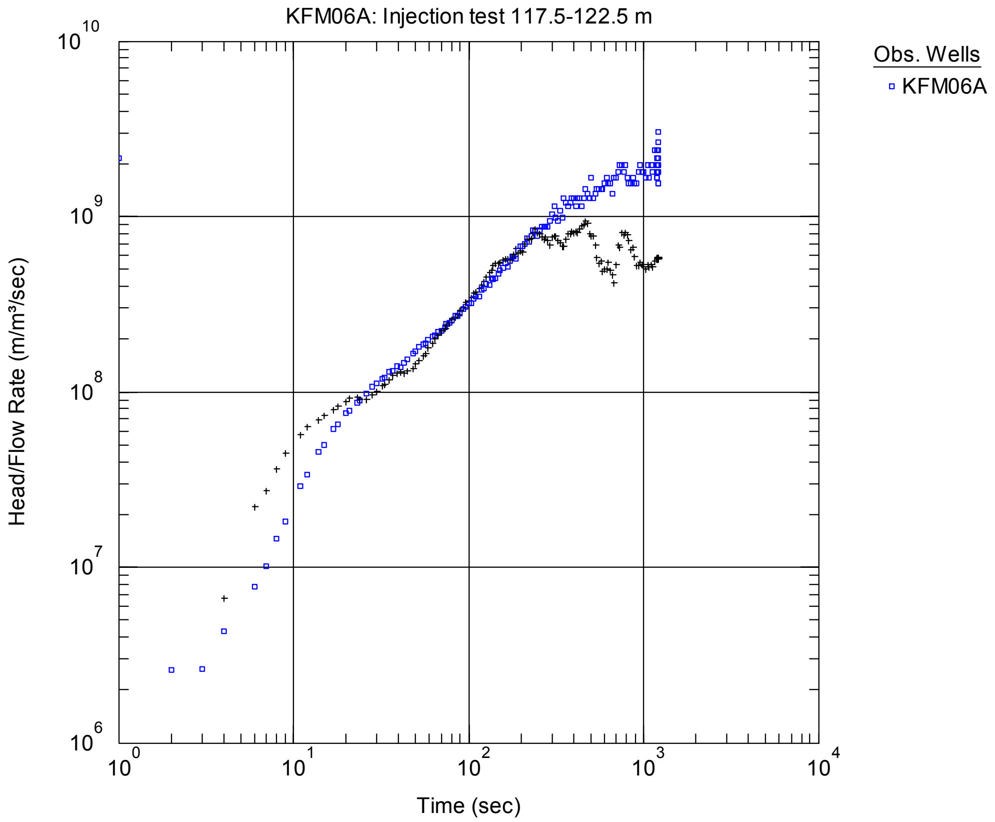


Figure A3-196. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 117.5-122.5 m in KFM06A.*

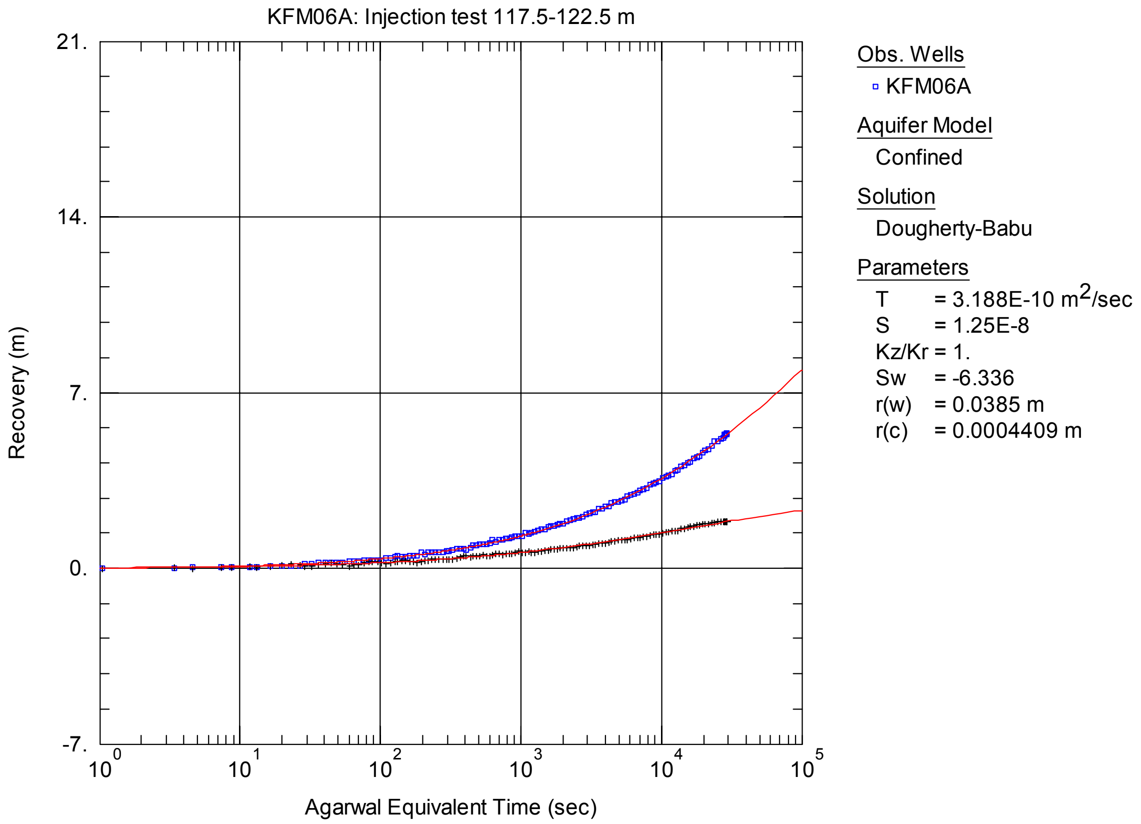


Figure A3-197. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 117.5-122.5 m in KFM06A.*

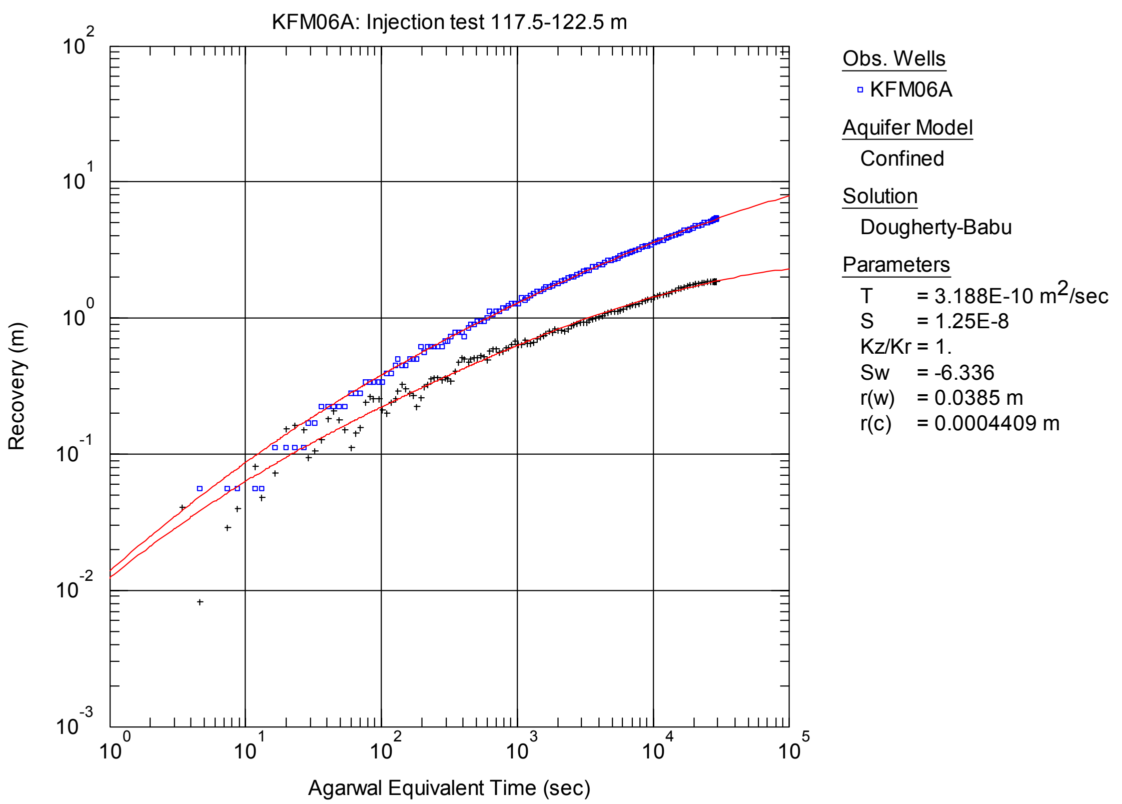


Figure A3-198. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 117.5-122.5 m in KFM06A.*

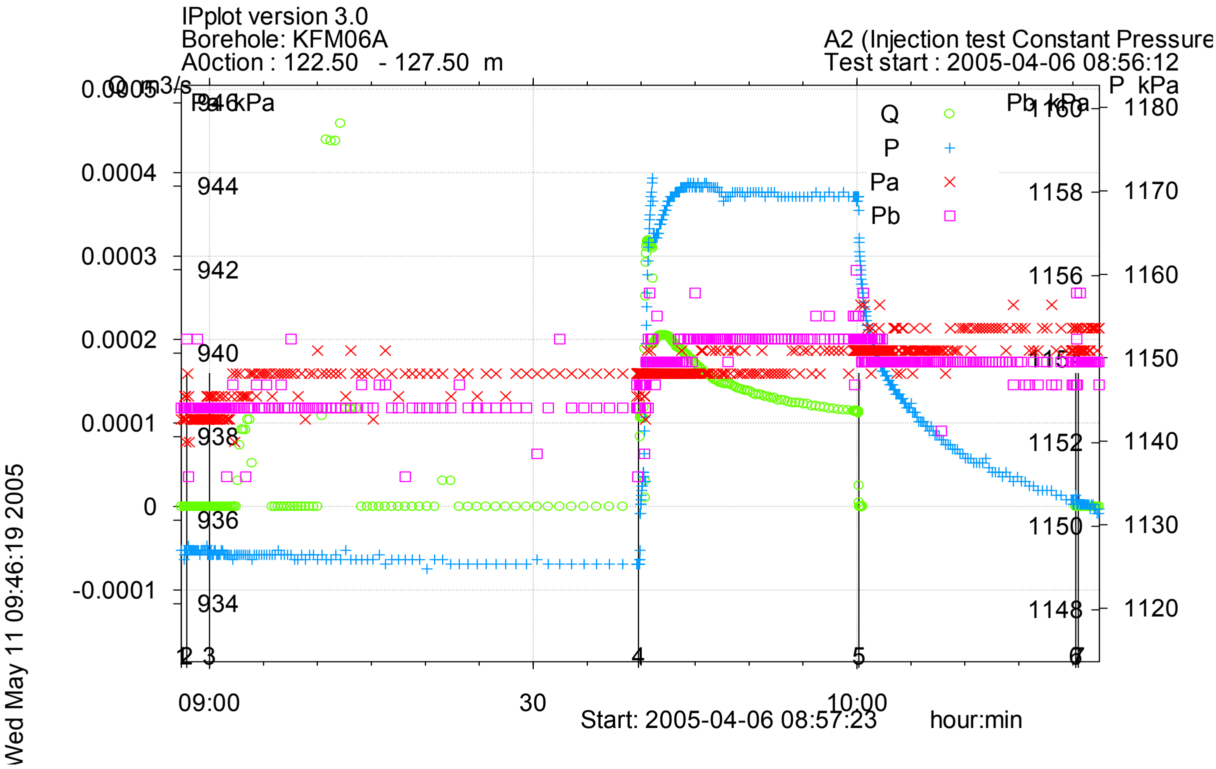


Figure A3-199. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 122.5-127.5 m in borehole KFM06A.

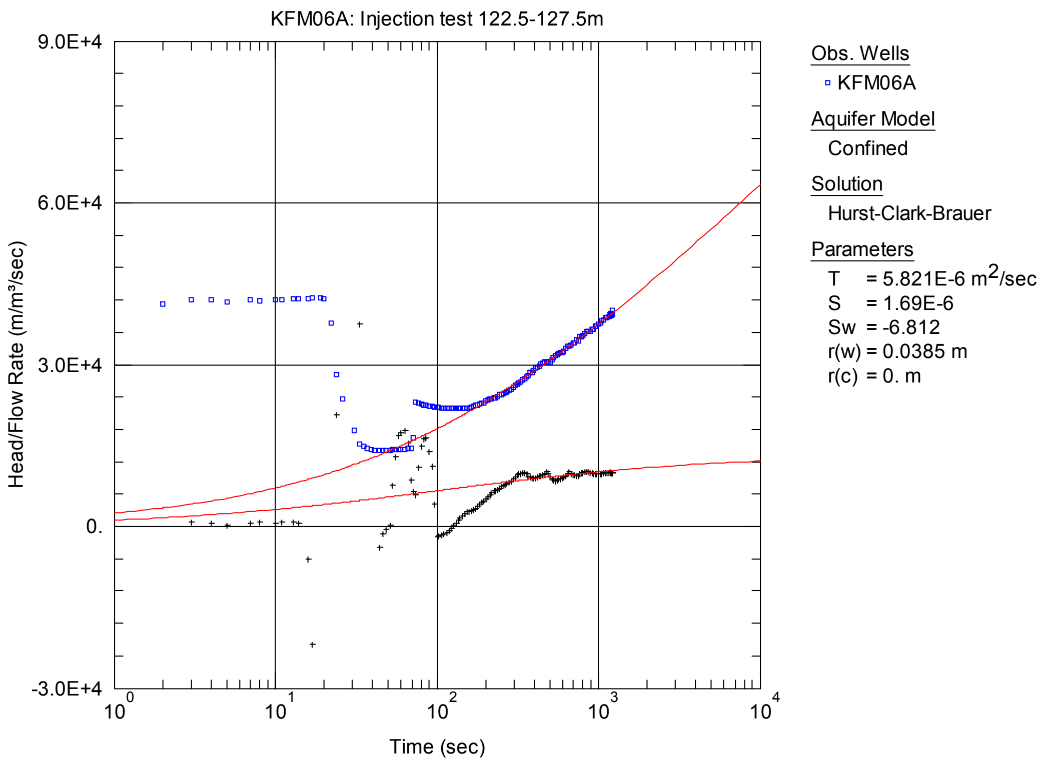


Figure A3-200. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 122.5-127.5 m in KFM06A.

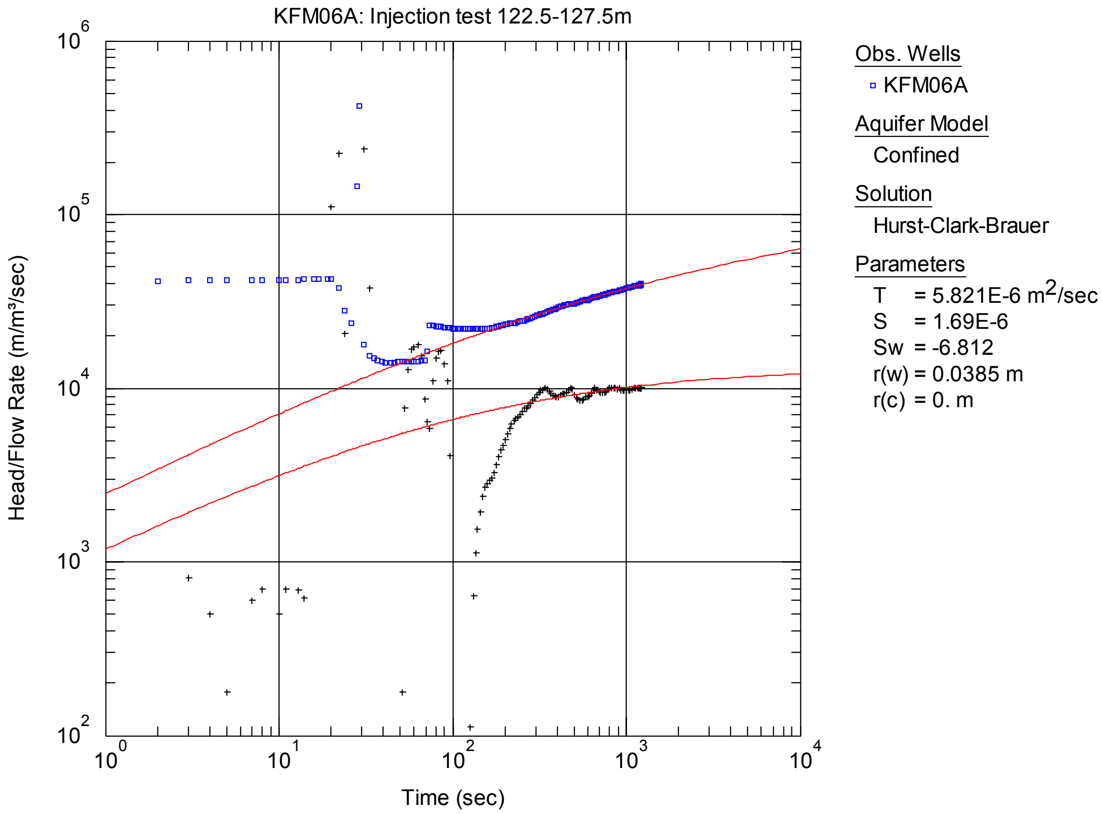


Figure A3-201. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 122.5-127.5 m in KFM06A.*

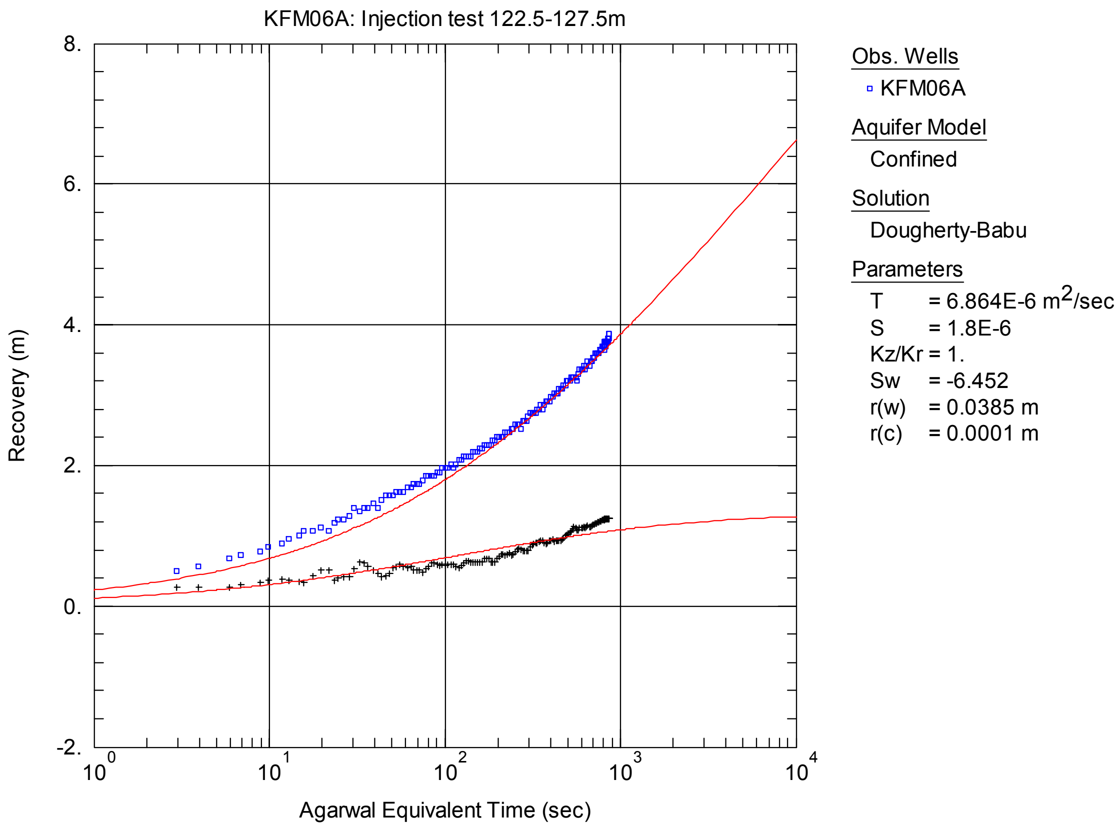


Figure A3-202. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 122.5-127.5 m in KFM06A.*

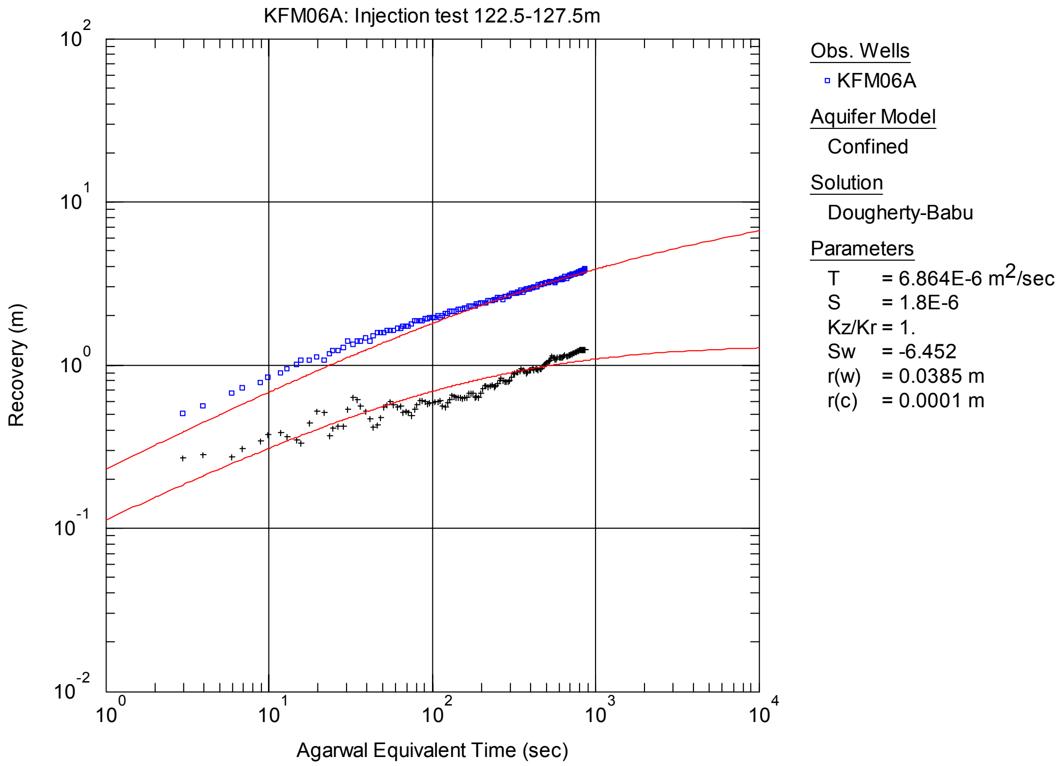


Figure A3-203. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 122.5-127.5 m in KFM06A.*

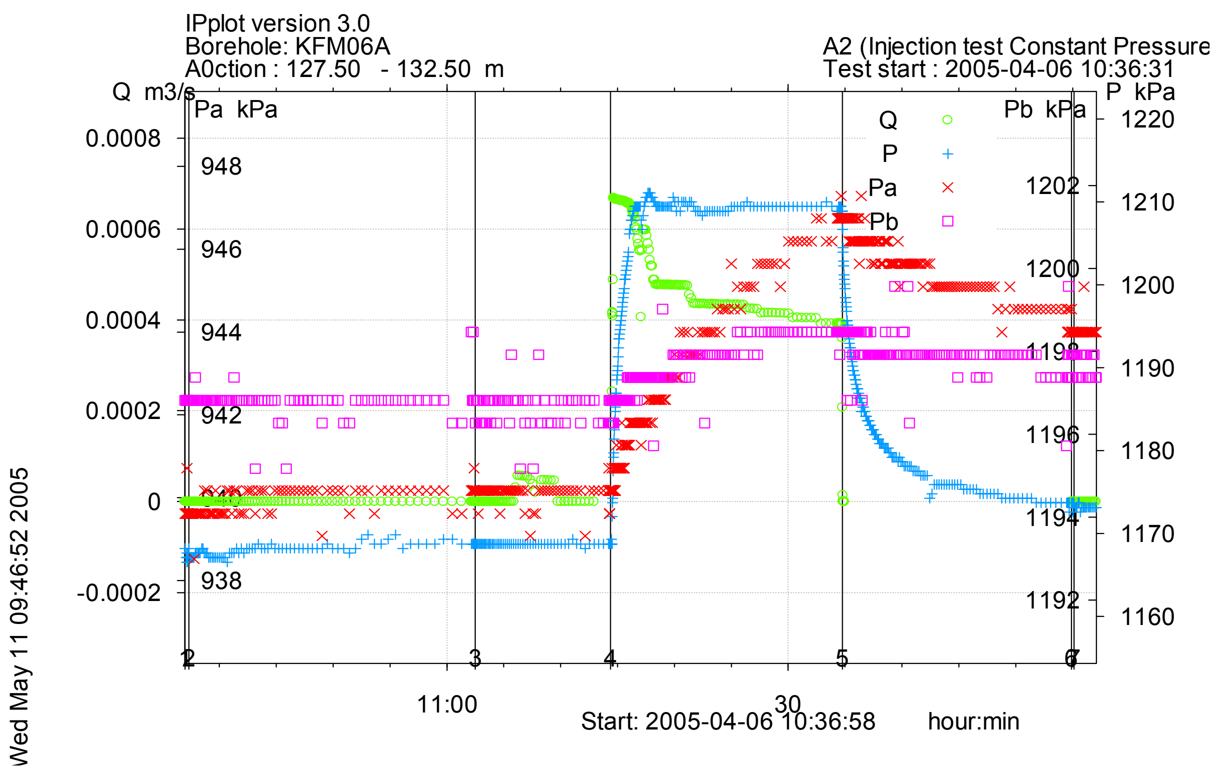


Figure A3-204. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 127.5-132.5 m in borehole KFM06A.*

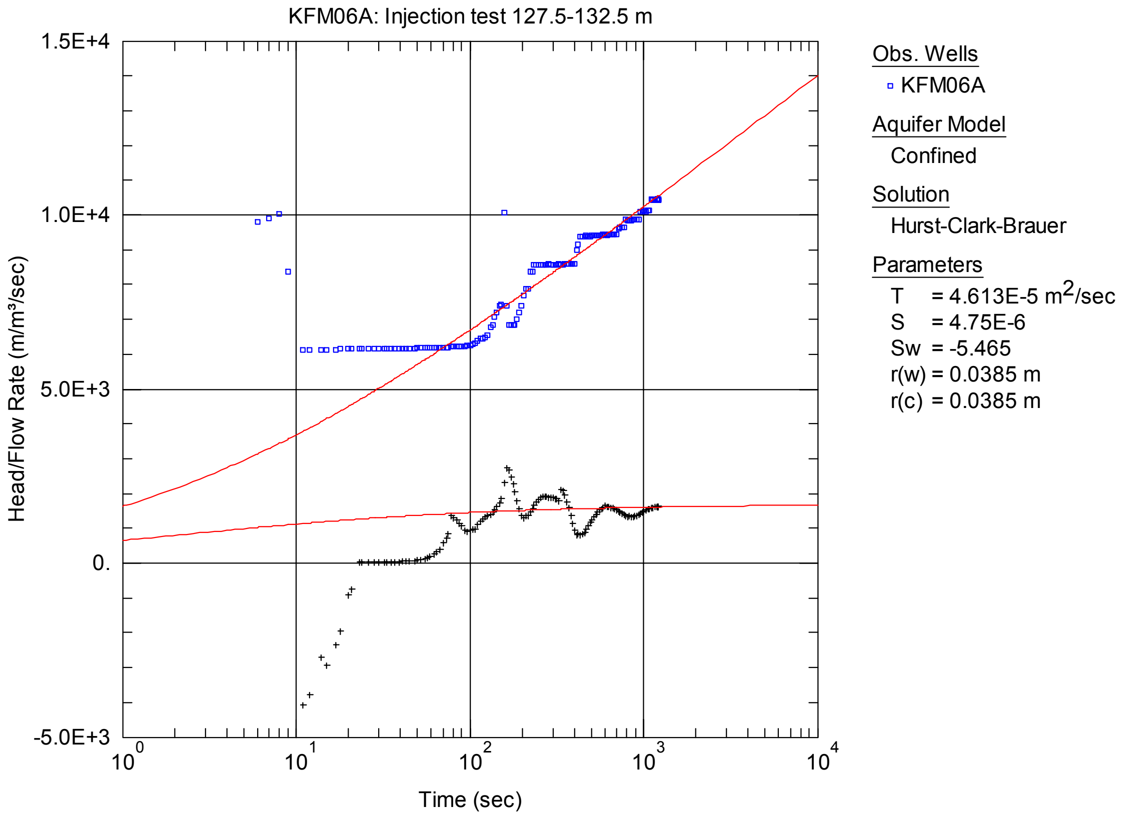


Figure A3-205. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 127.5-132.5 m in KFM06A.*

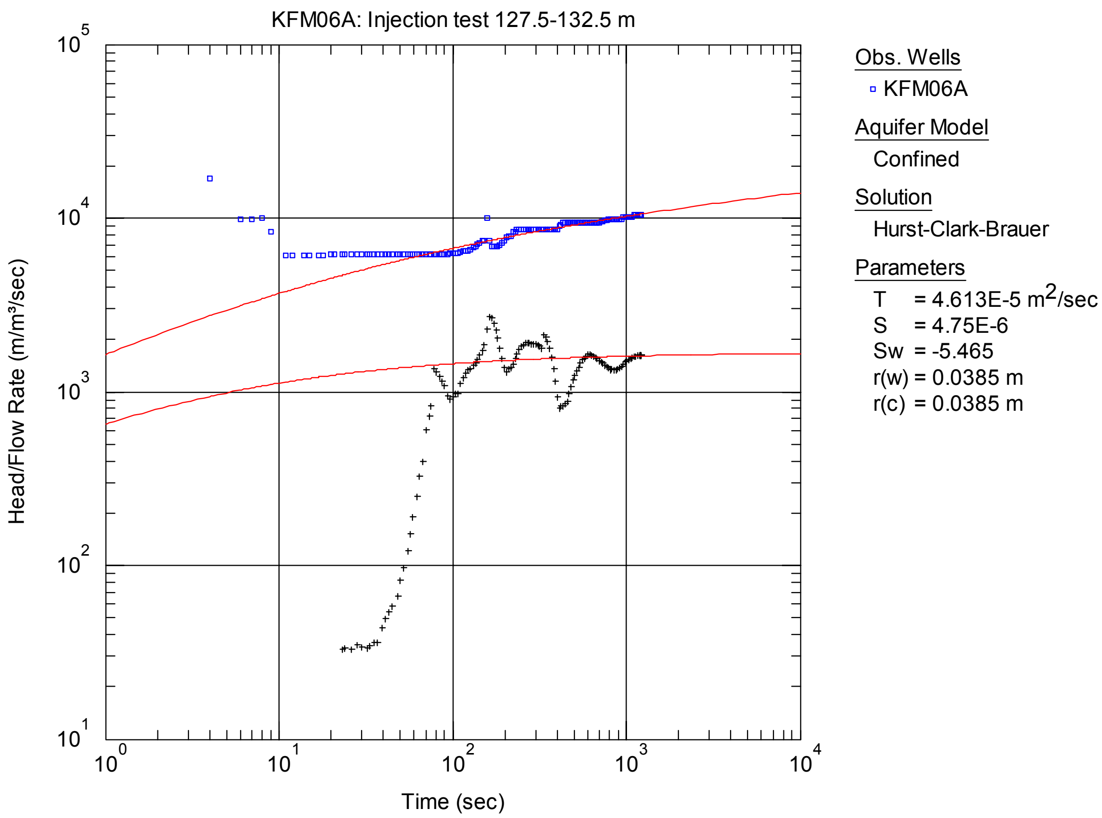


Figure A3-206. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 127.5-132.5 m in KFM06A.*

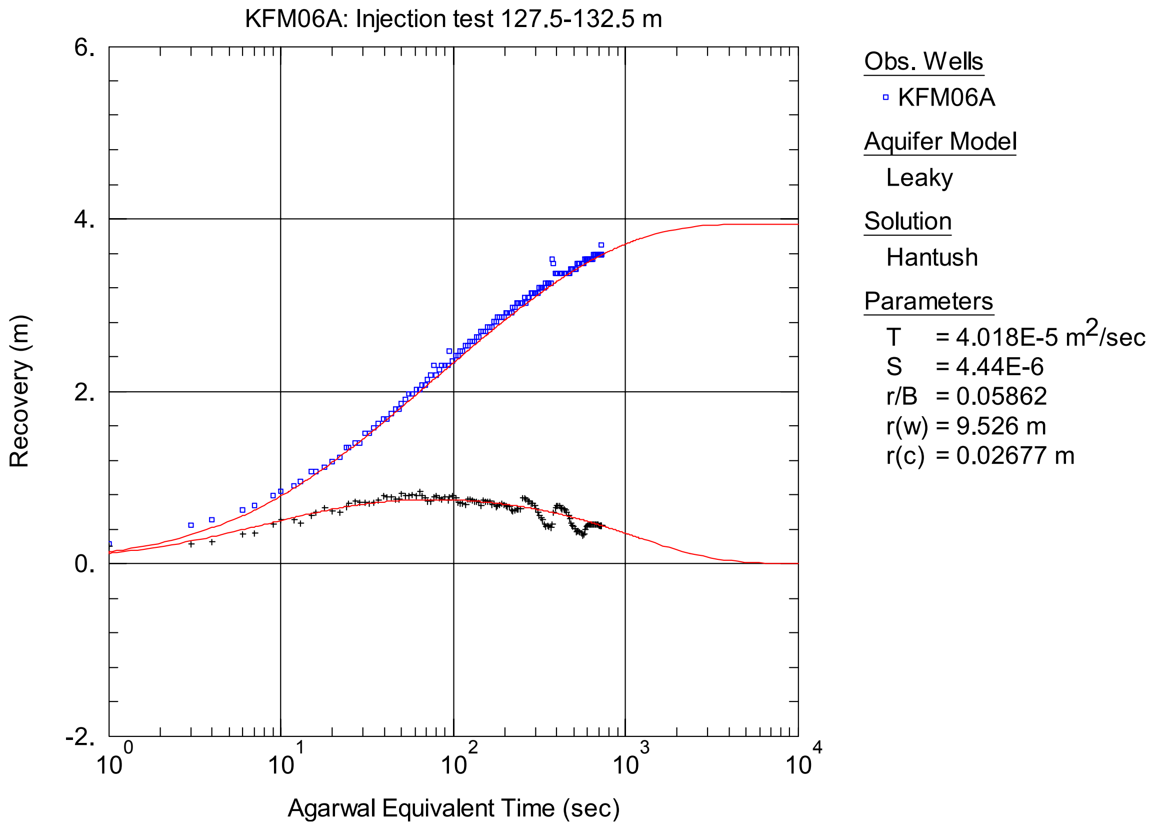


Figure A3-207. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 127.5-132.5 m in KFM06A.*

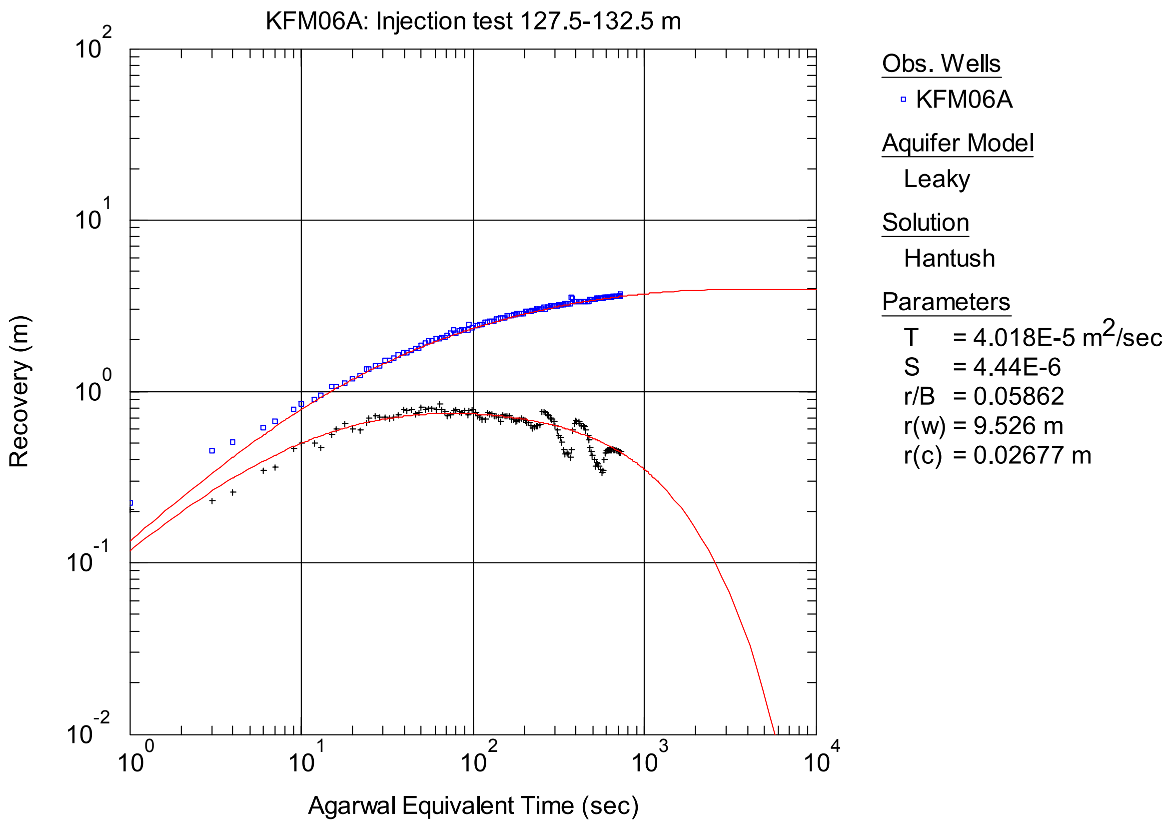


Figure A3-208. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 127.5-132.5 m in KFM06A.*

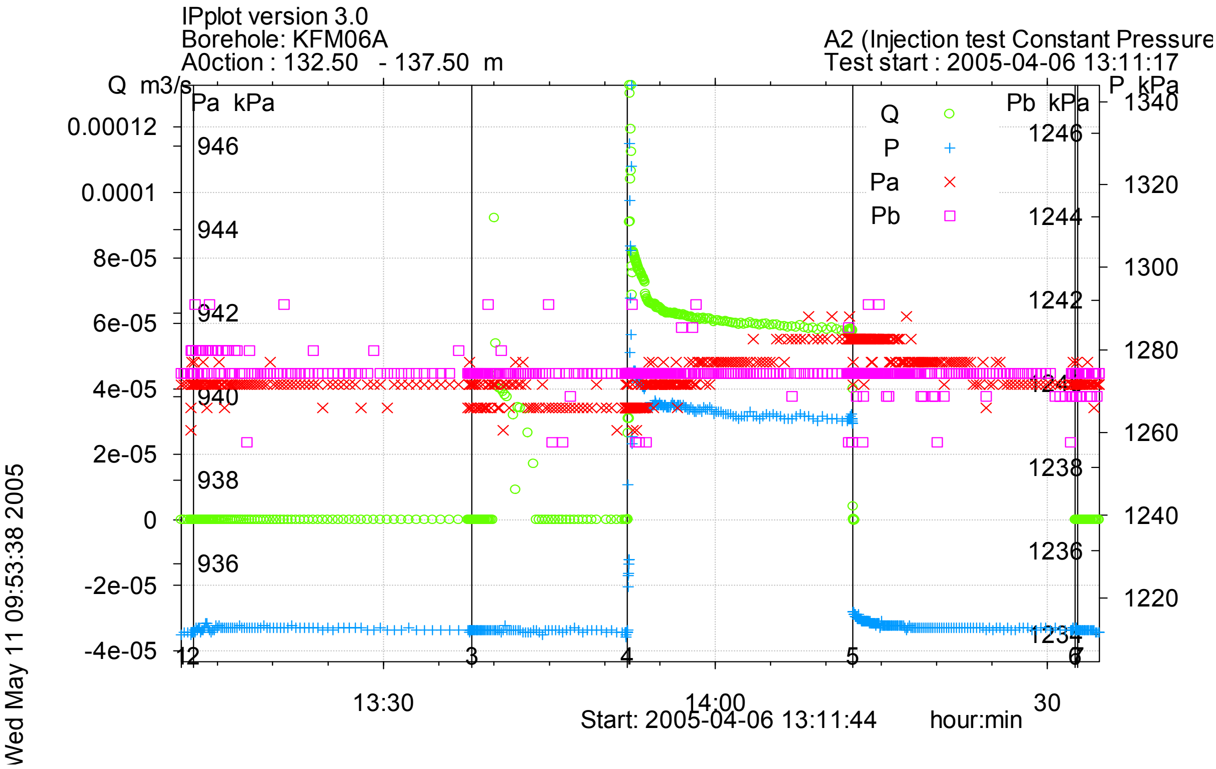


Figure A3-209. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 132.5-137.5 m in borehole KFM06A.

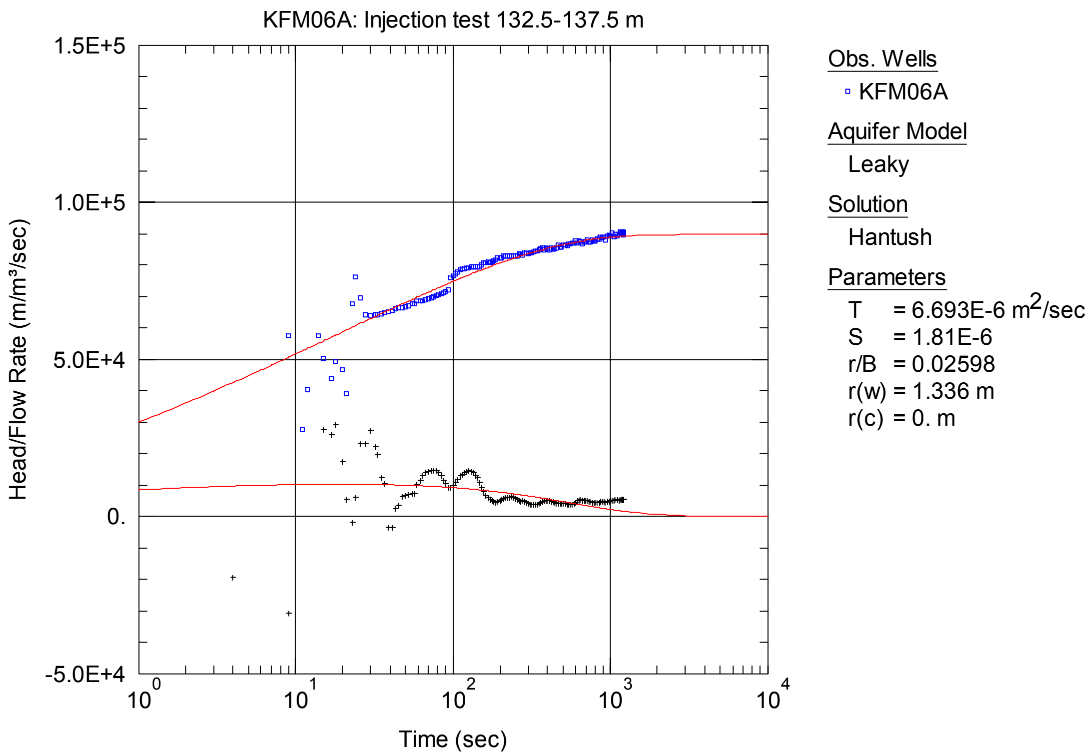


Figure A3-210. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 132.5-137.5 m in KFM06A.

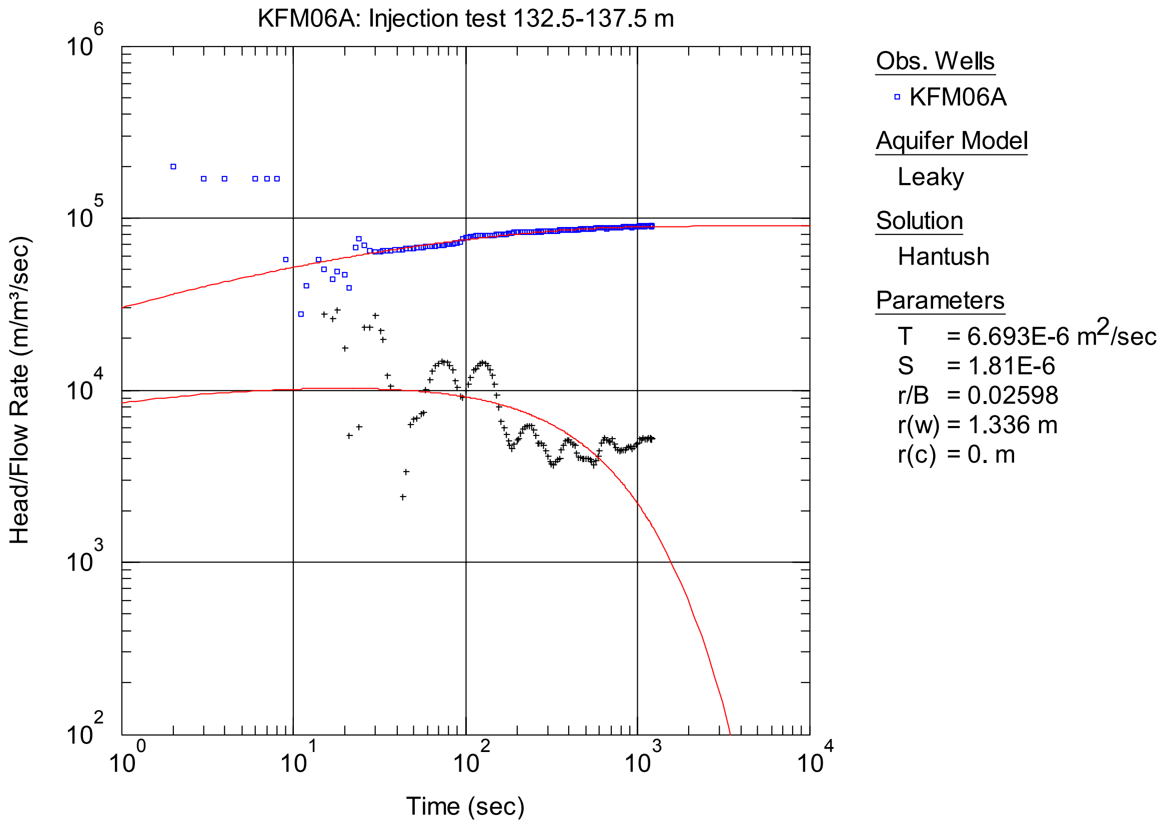


Figure A3-211. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 132.5-137.5 m in KFM06A.*

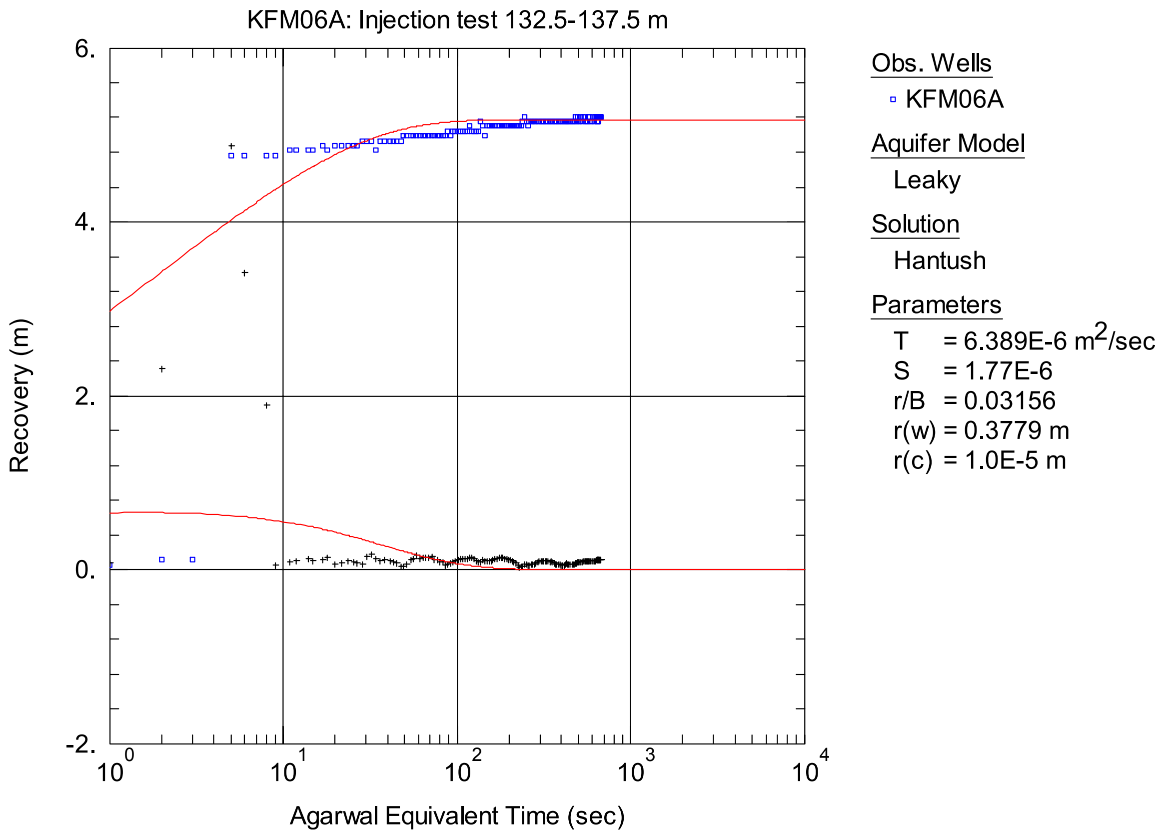


Figure A3-212. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 132.5-137.5 m in KFM06A.*

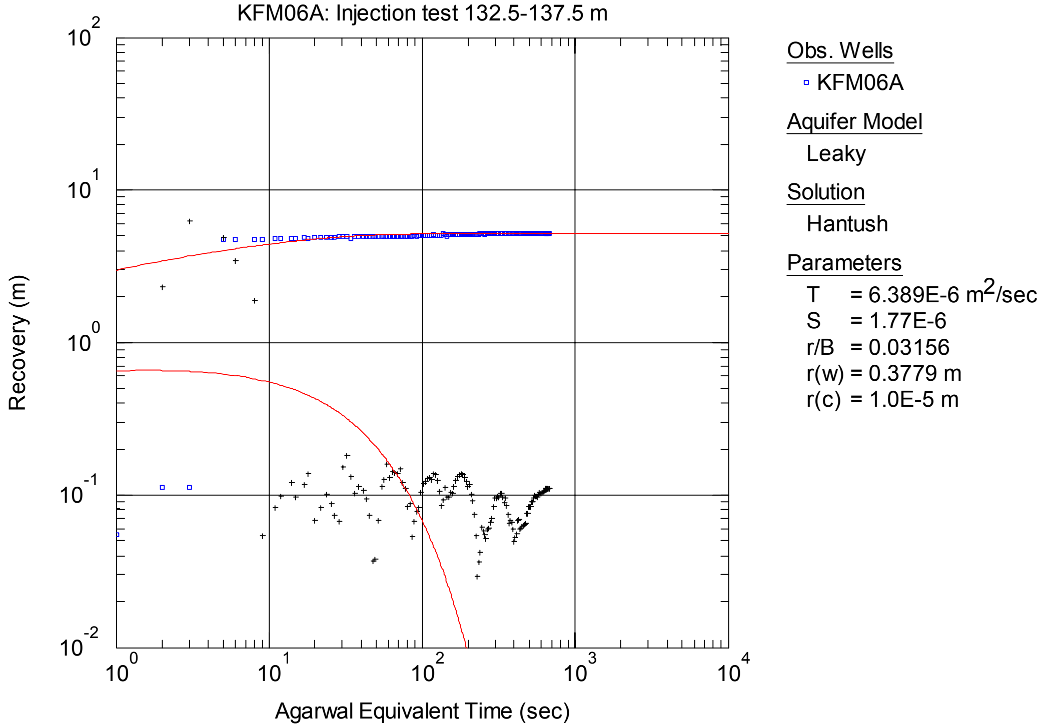


Figure A3-213. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 132.5-137.5 m in KFM06A.*

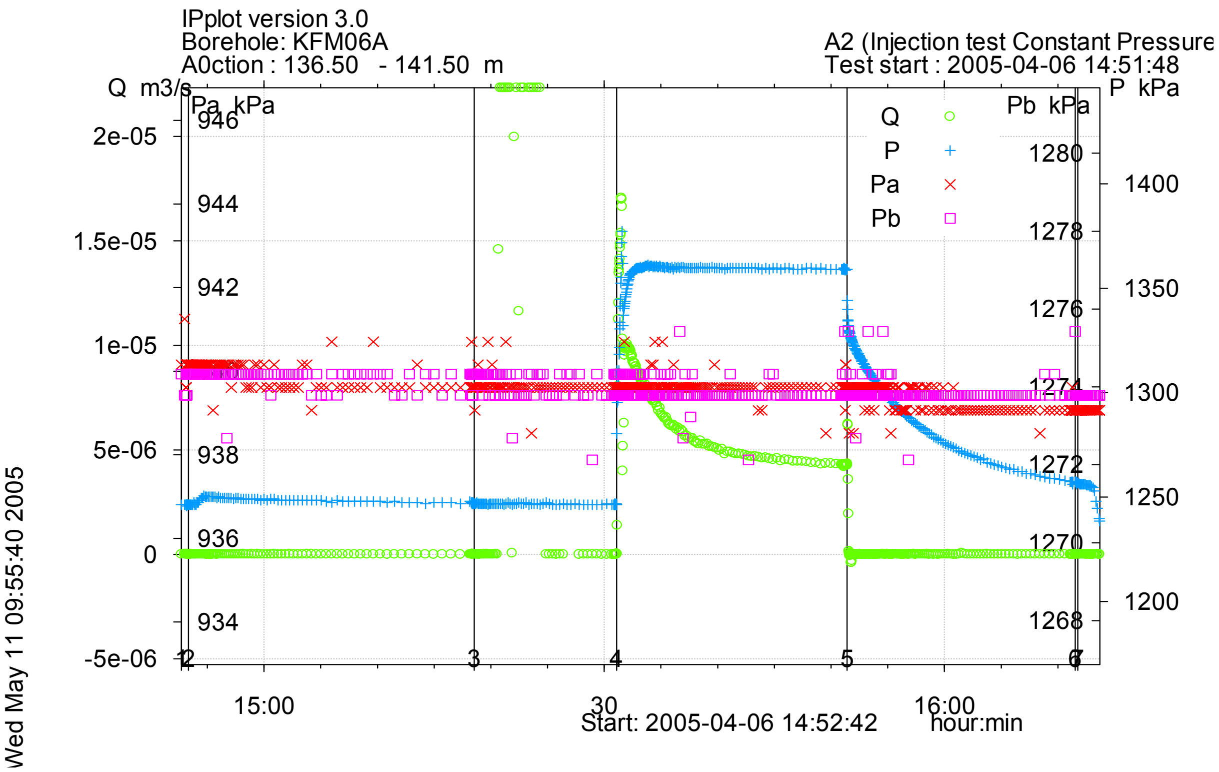


Figure A3-214. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 136.5-141.5 m in borehole KFM06A.*

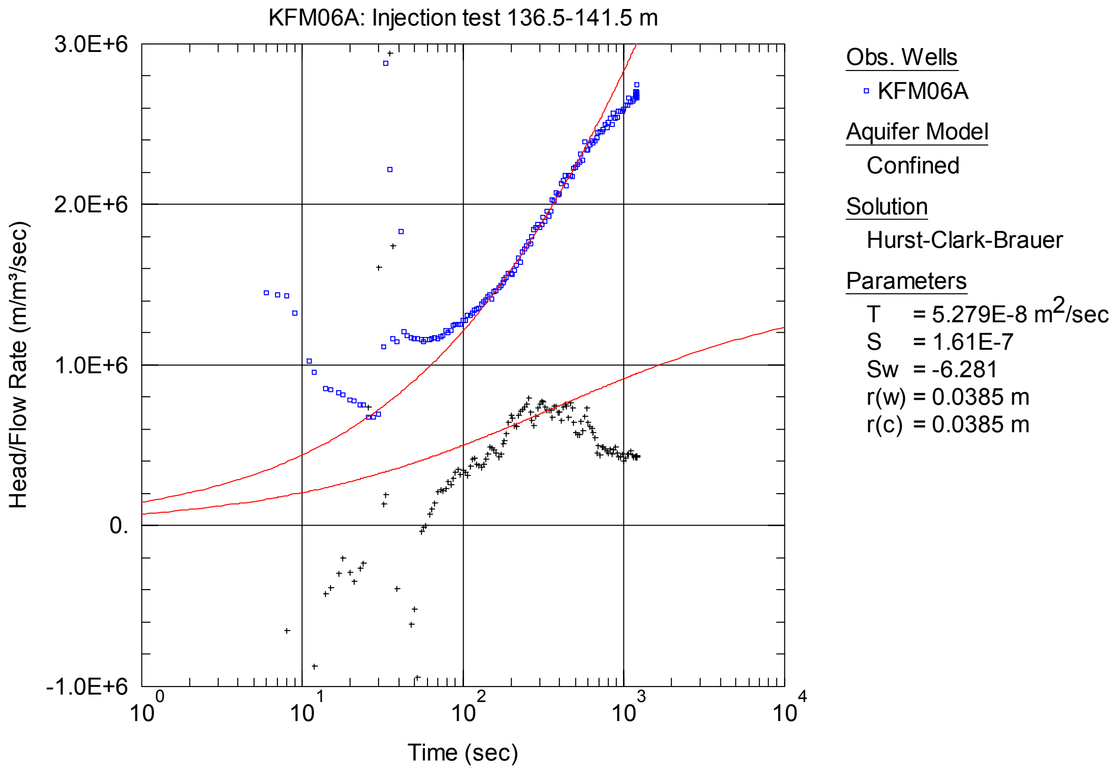


Figure A3-215. *Lin-log plot of head/flow rate (□) and derivative (+) versus time showing fit to the early PRF, from the injection test in section 136.5-141.5 m in KFM06A.*

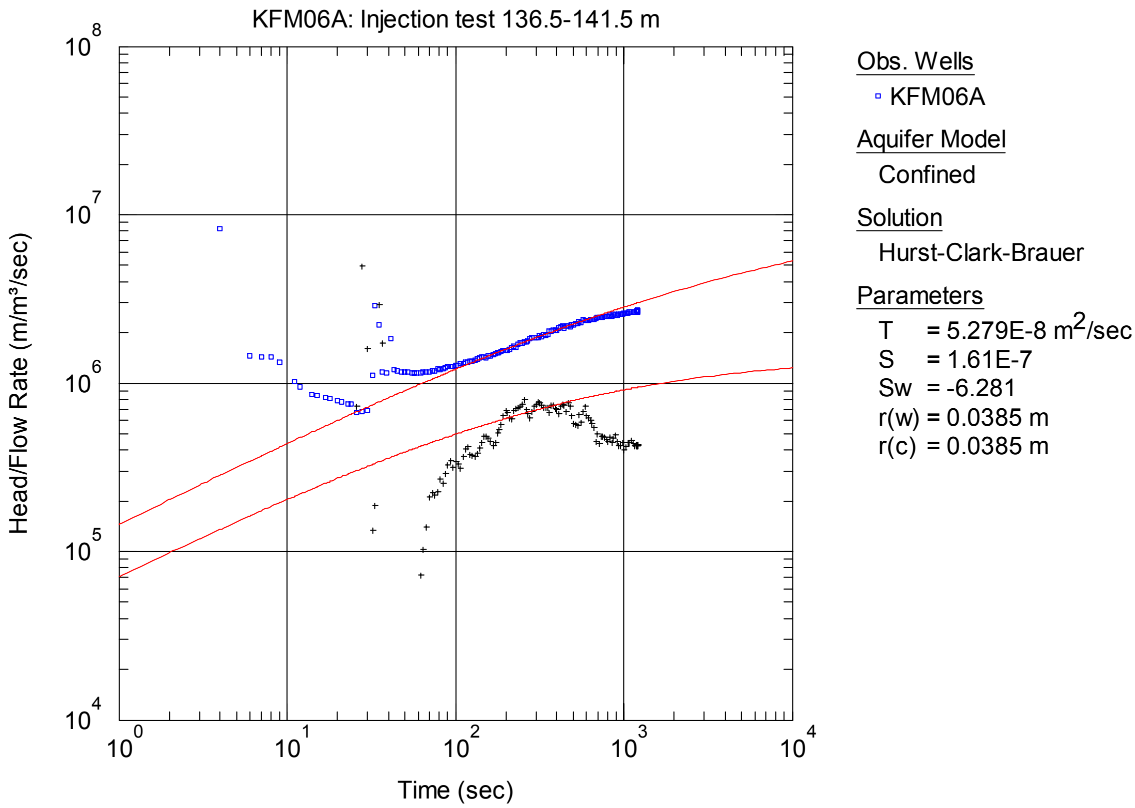


Figure A3-216. *Log-log plot of head/flow rate (□) and derivative (+) versus time showing fit to the early PRF, from the injection test in section 136.5-141.5 m in KFM06A.*

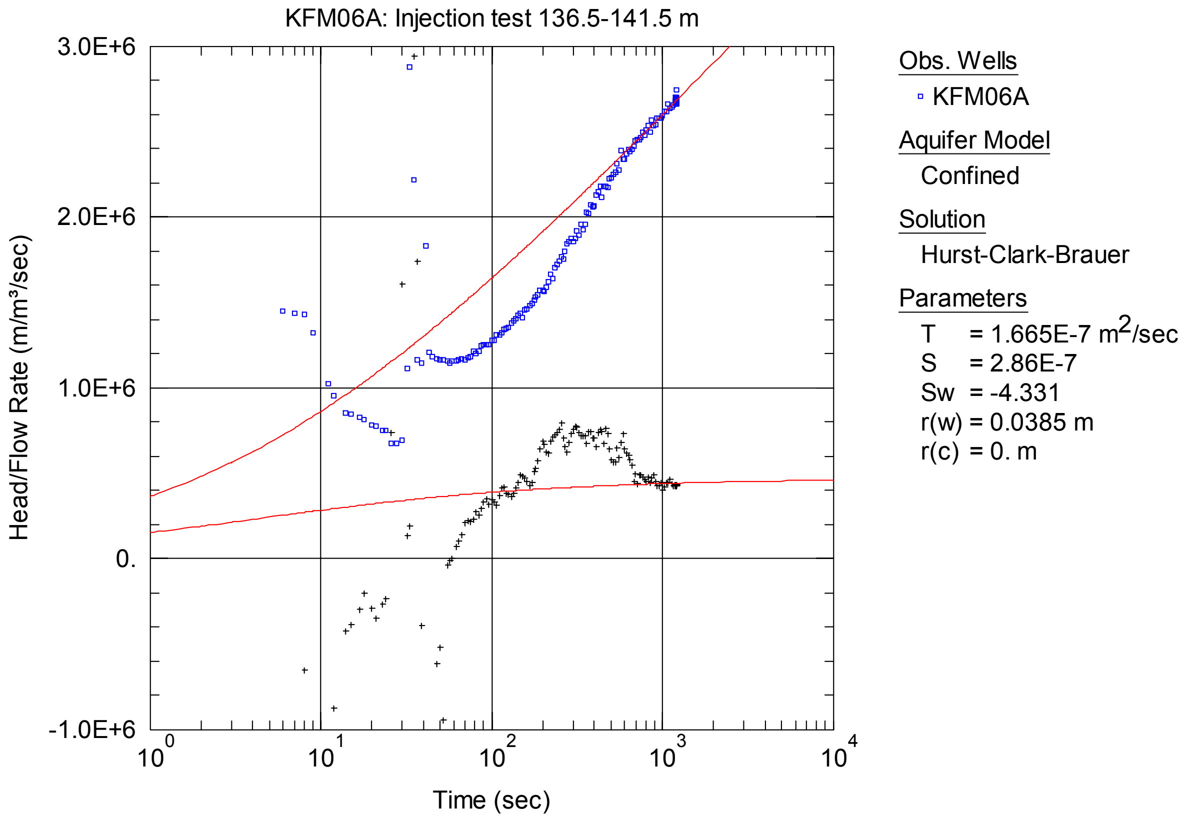


Figure A3-217. *Lin-log plot of head/flow rate (□) and derivative (+) versus time showing fit to the late PRF, from the injection test in section 136.5-141.5 m in KFM06A.*

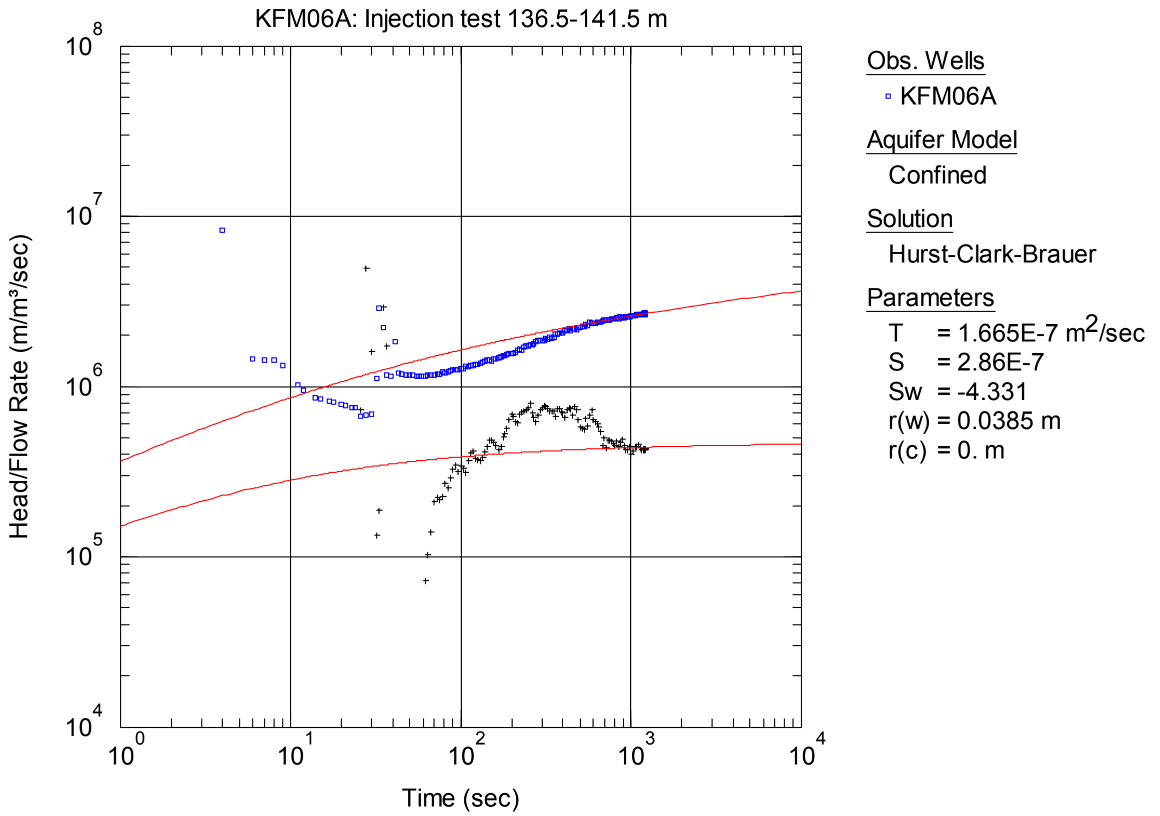


Figure A3-218. *Log-log plot of head/flow rate (□) and derivative (+) versus time showing fit to the late PRF, from the injection test in section 136.5-141.5 m in KFM06A.*

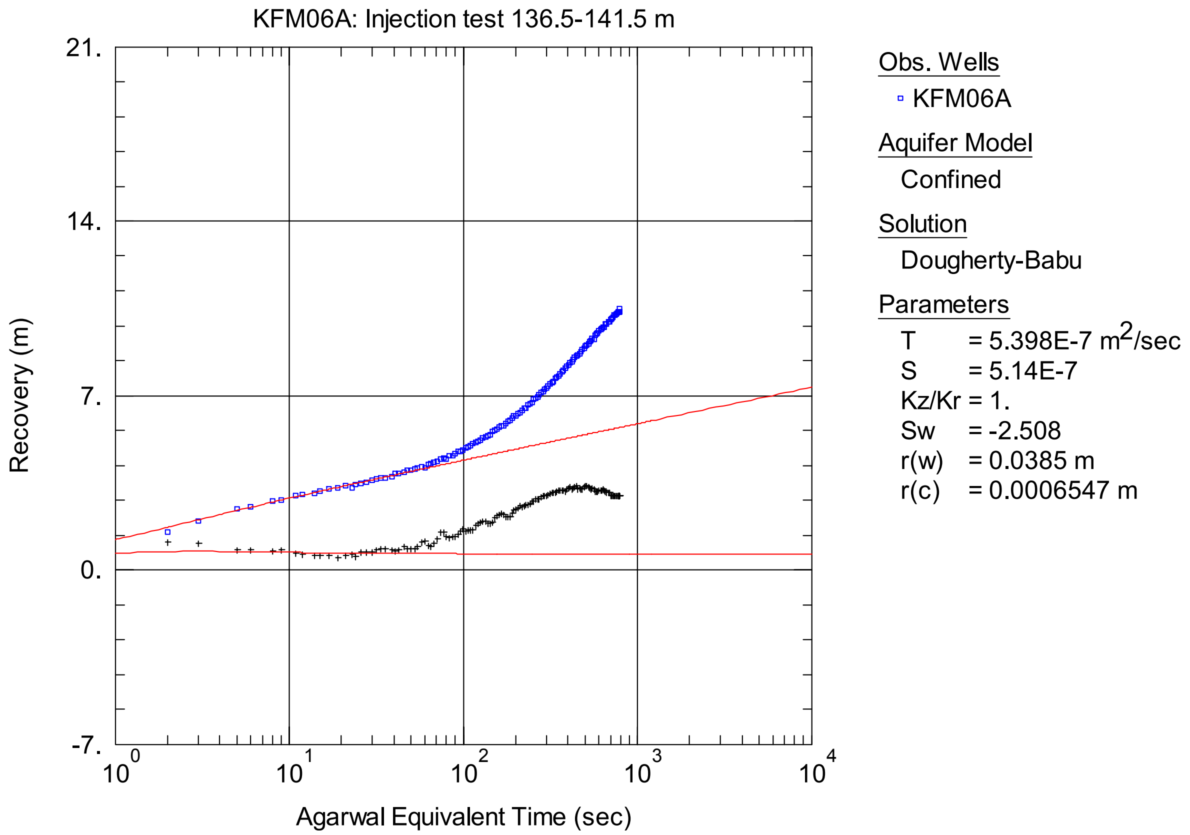


Figure A3-219. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 136.5-141.5 m in KFM06A.*

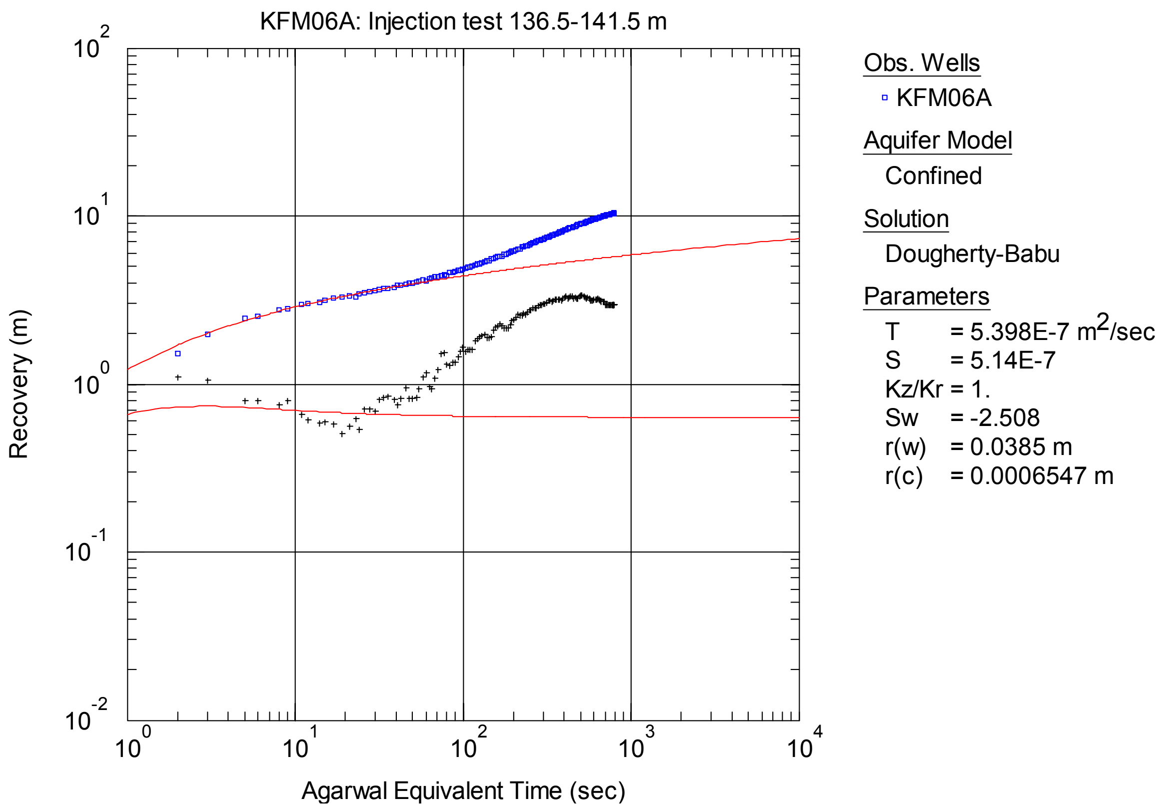


Figure A3-220. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 136.5-141.5 m in KFM06A.*

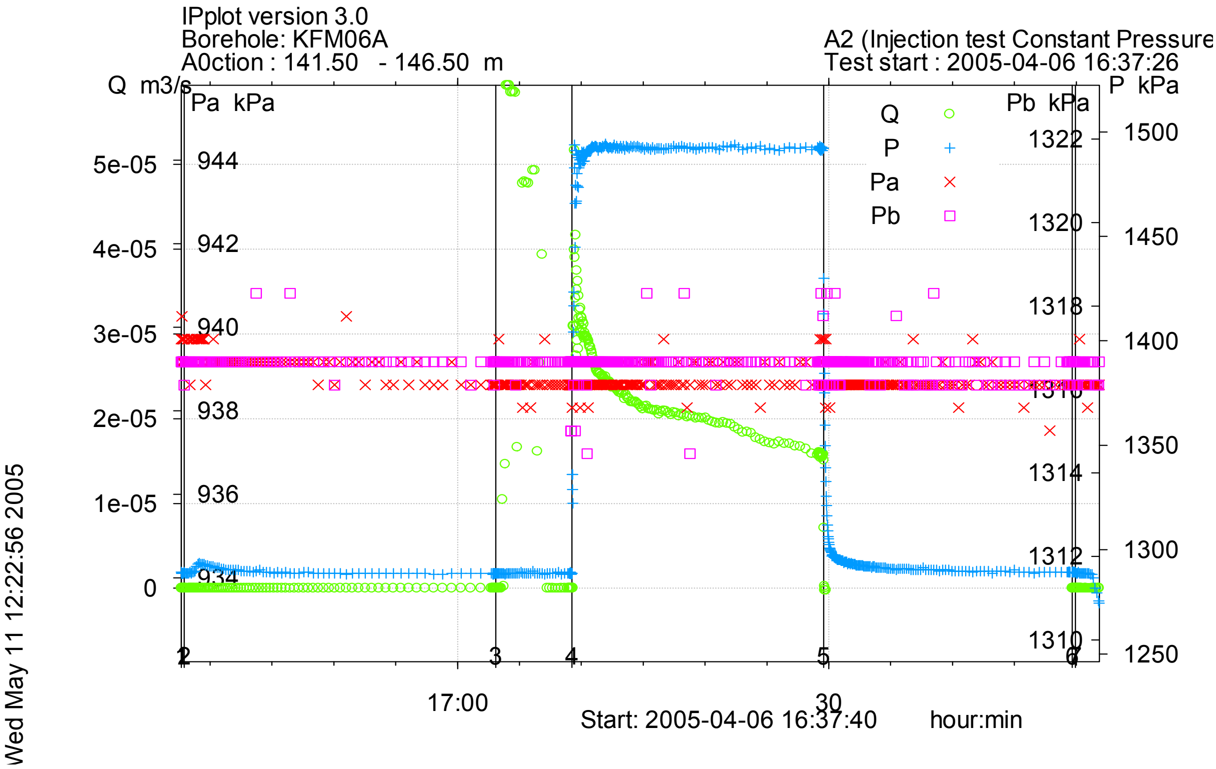


Figure A3-221. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 141.5-146.5 m in borehole KFM06A.*

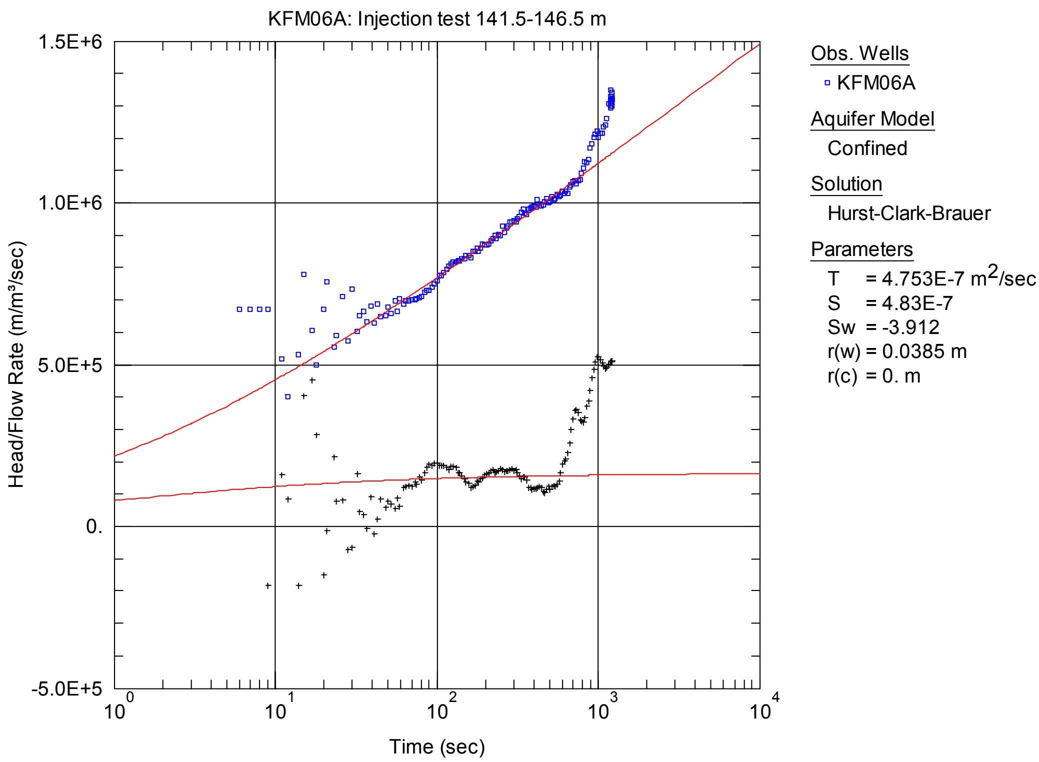


Figure A3-222. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 141.5-146.5 m in KFM06A.*

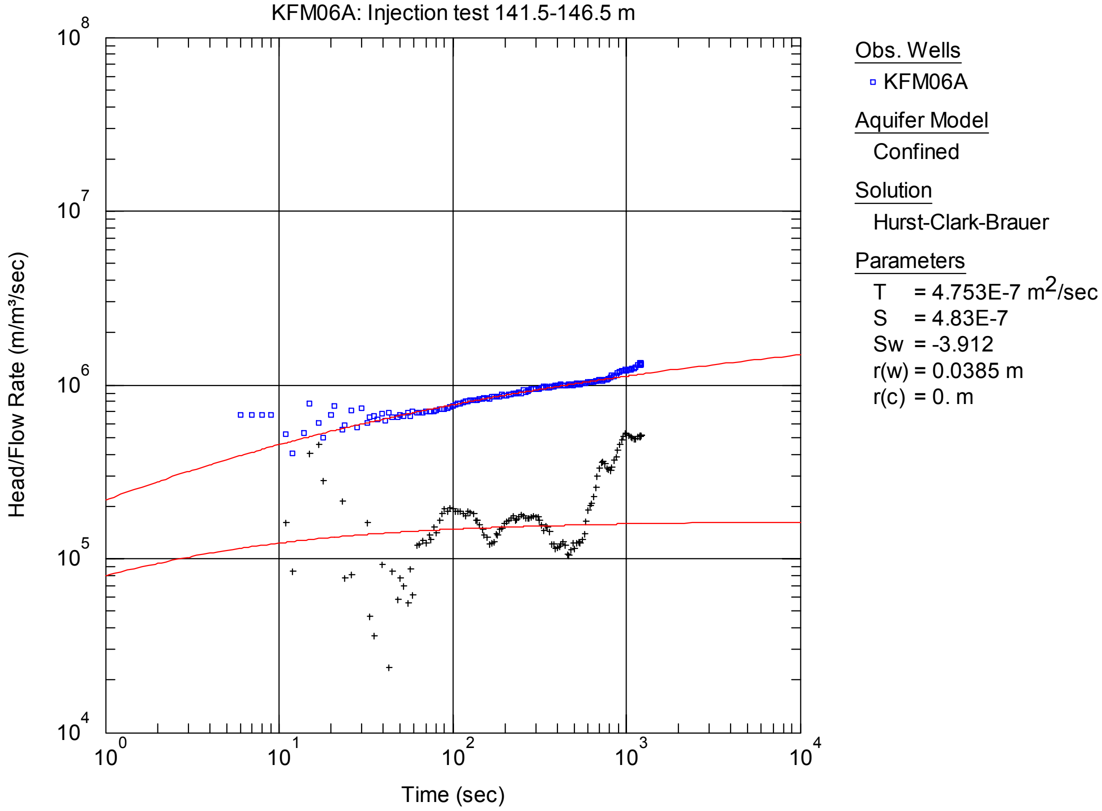


Figure A3-223. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 141.5-146.5 m in KFM06A.*

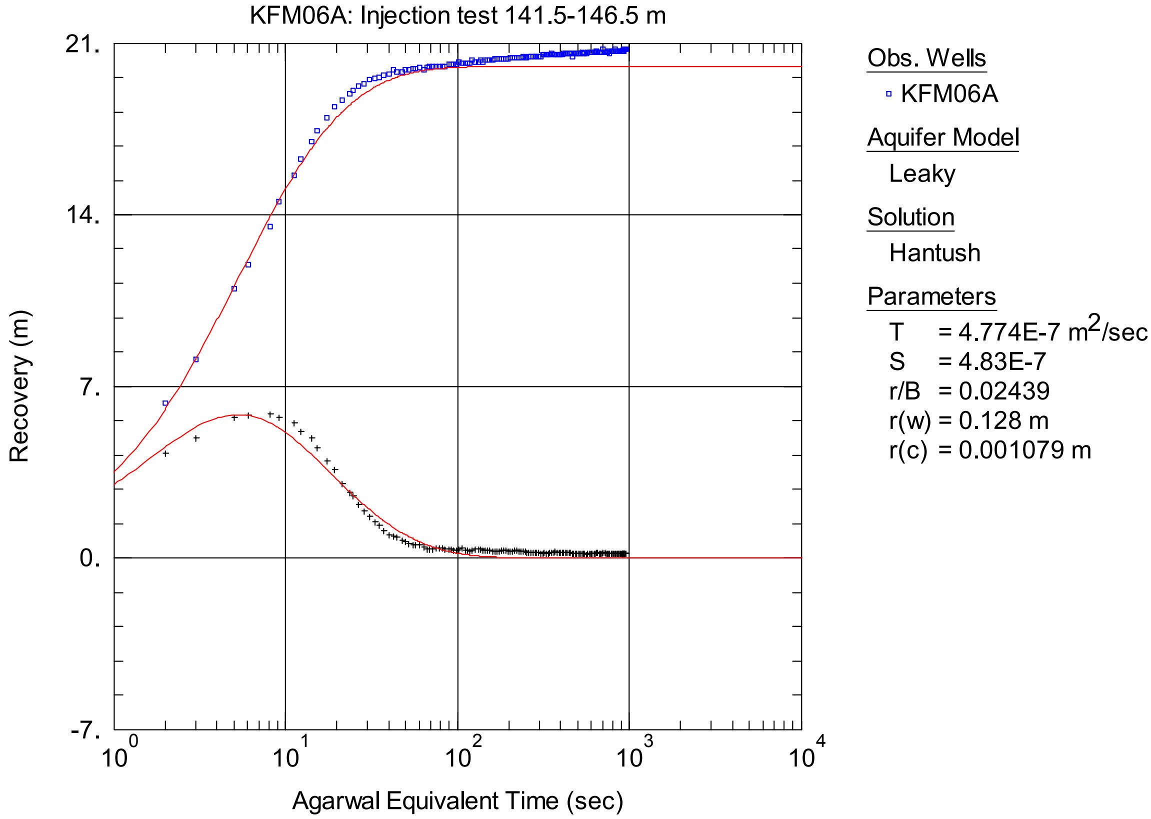


Figure A3-224. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 141.5-146.5 m in KFM06A.*

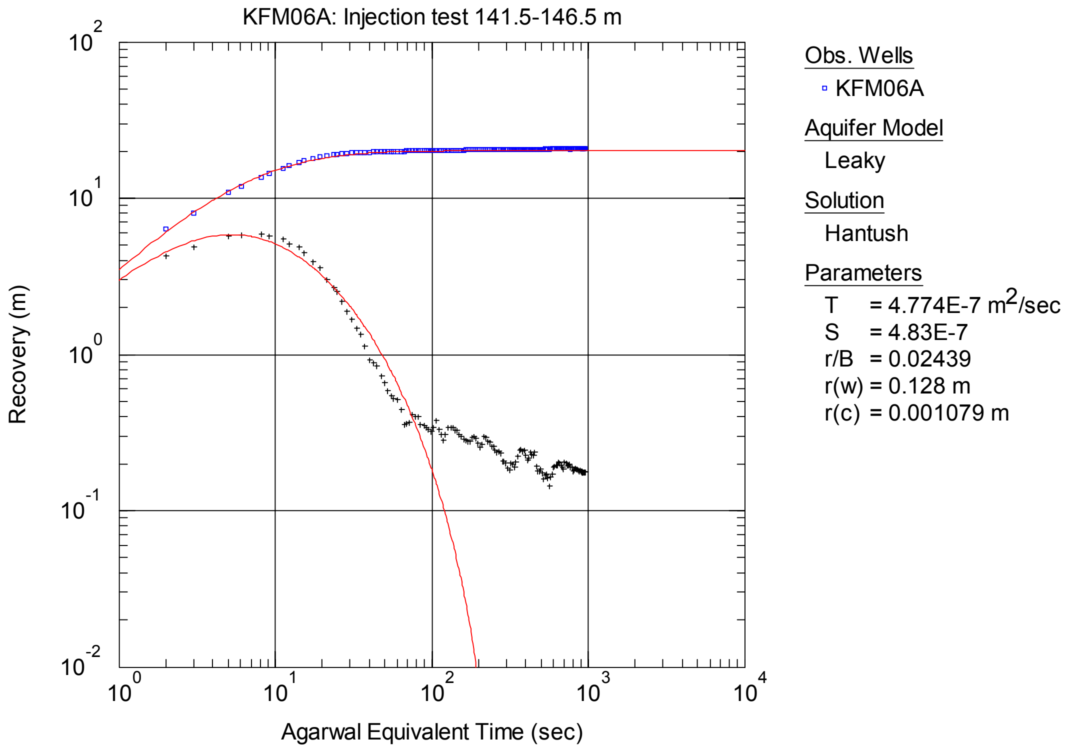


Figure A3-225. Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 141.5-146.5 m in KFM06A.

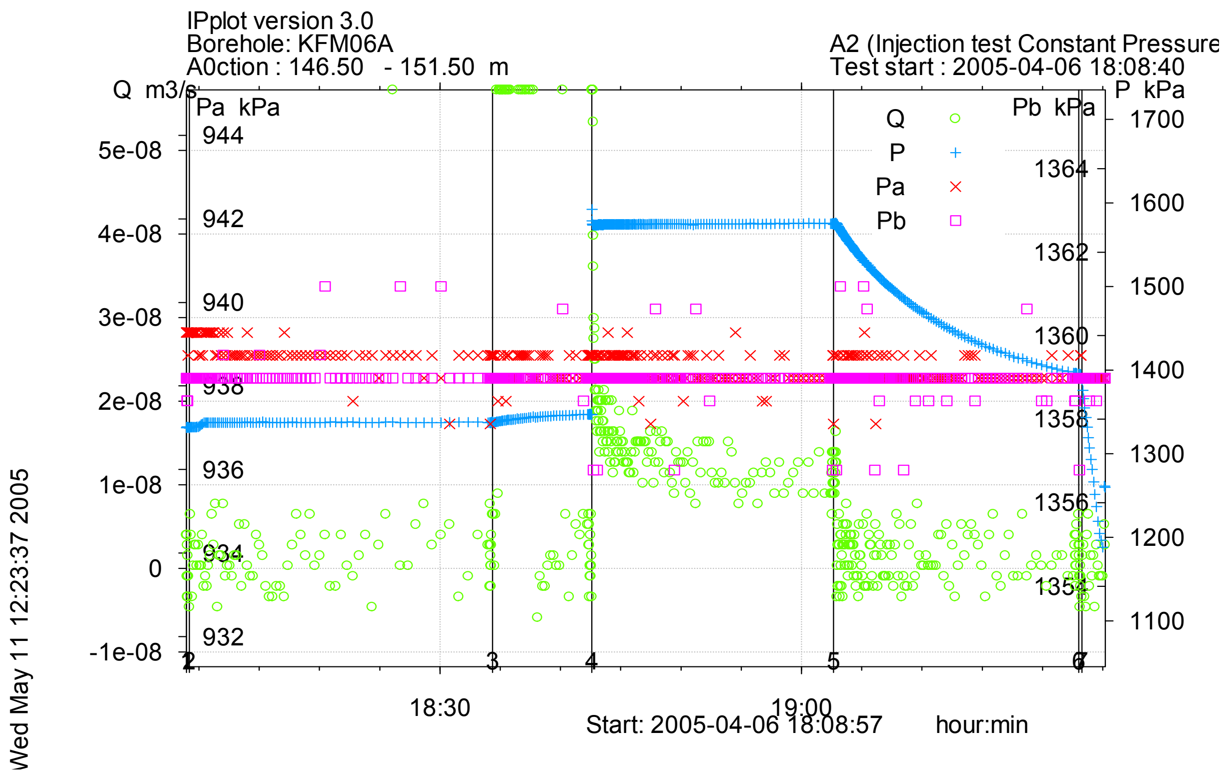


Figure A3-226. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 146.5-151.5 m in borehole KFM06A.

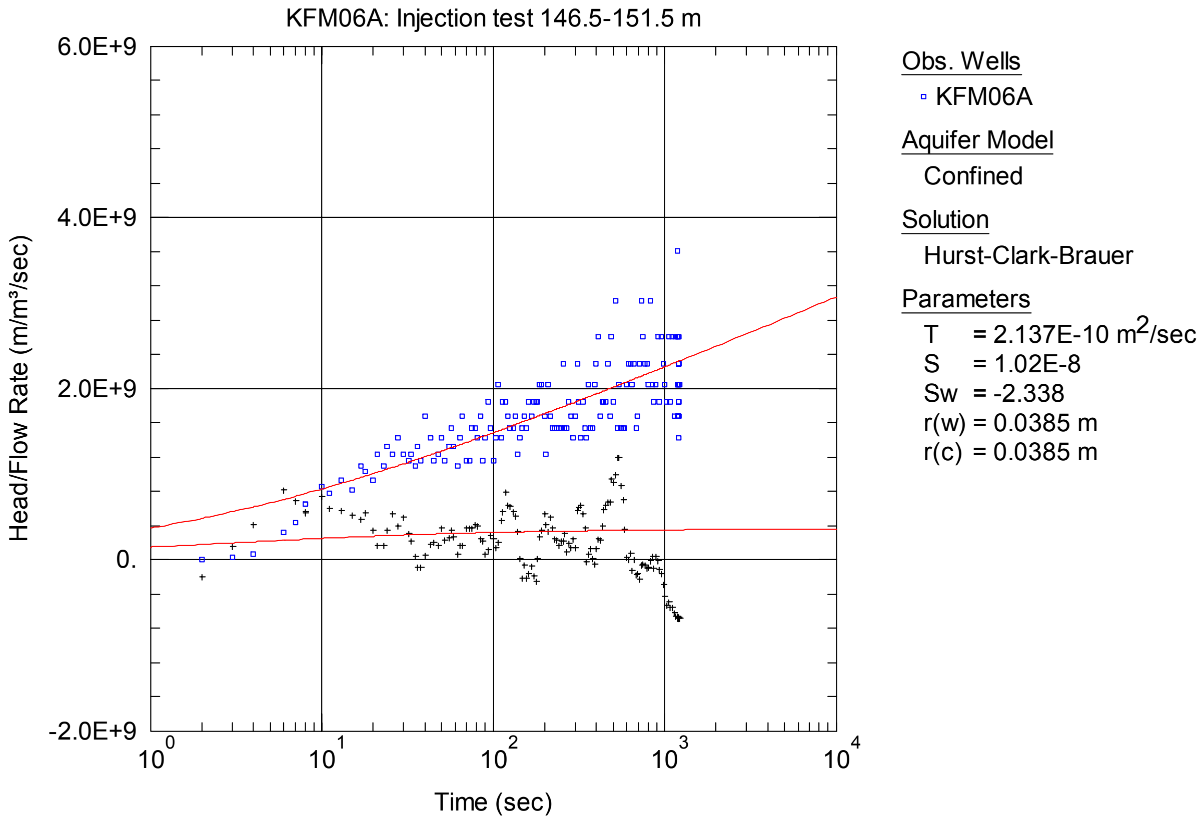


Figure A3-227. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 146.5-151.5 m in KFM06A.*

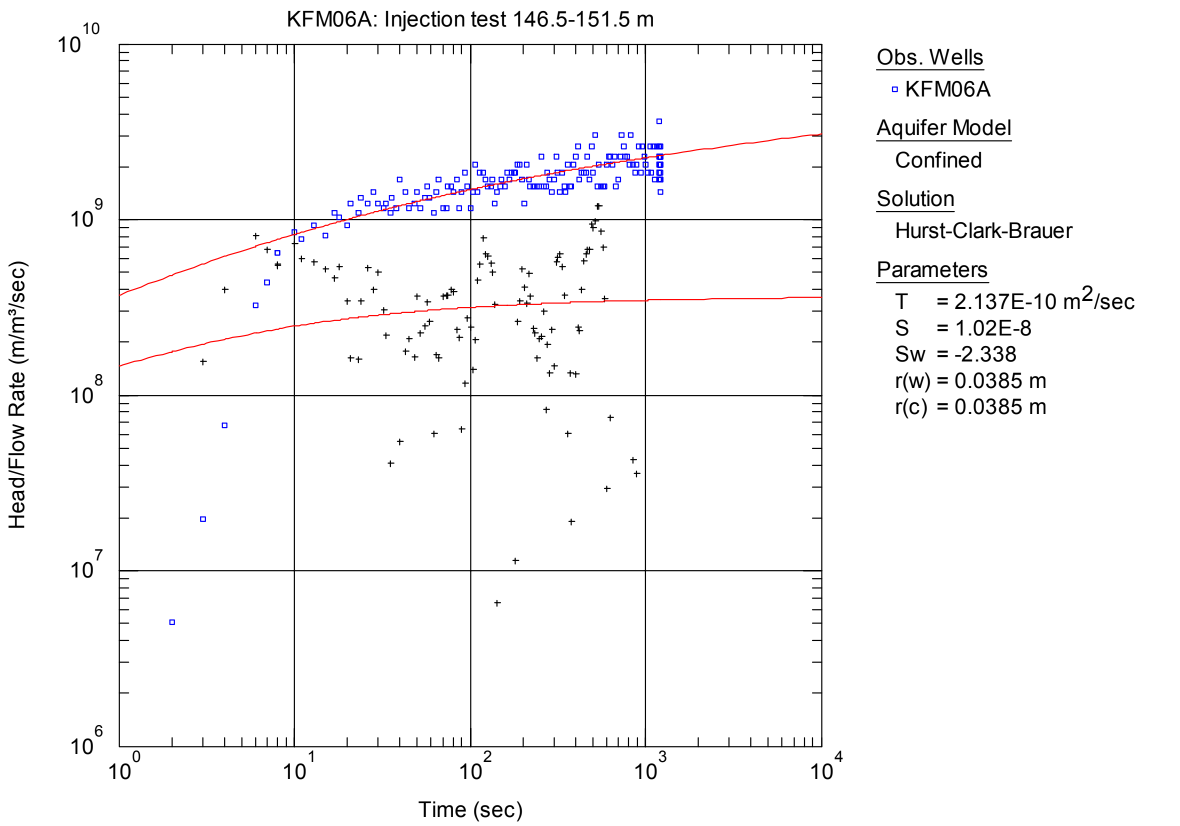


Figure A3-228. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 146.5-151.5 m in KFM06A.*

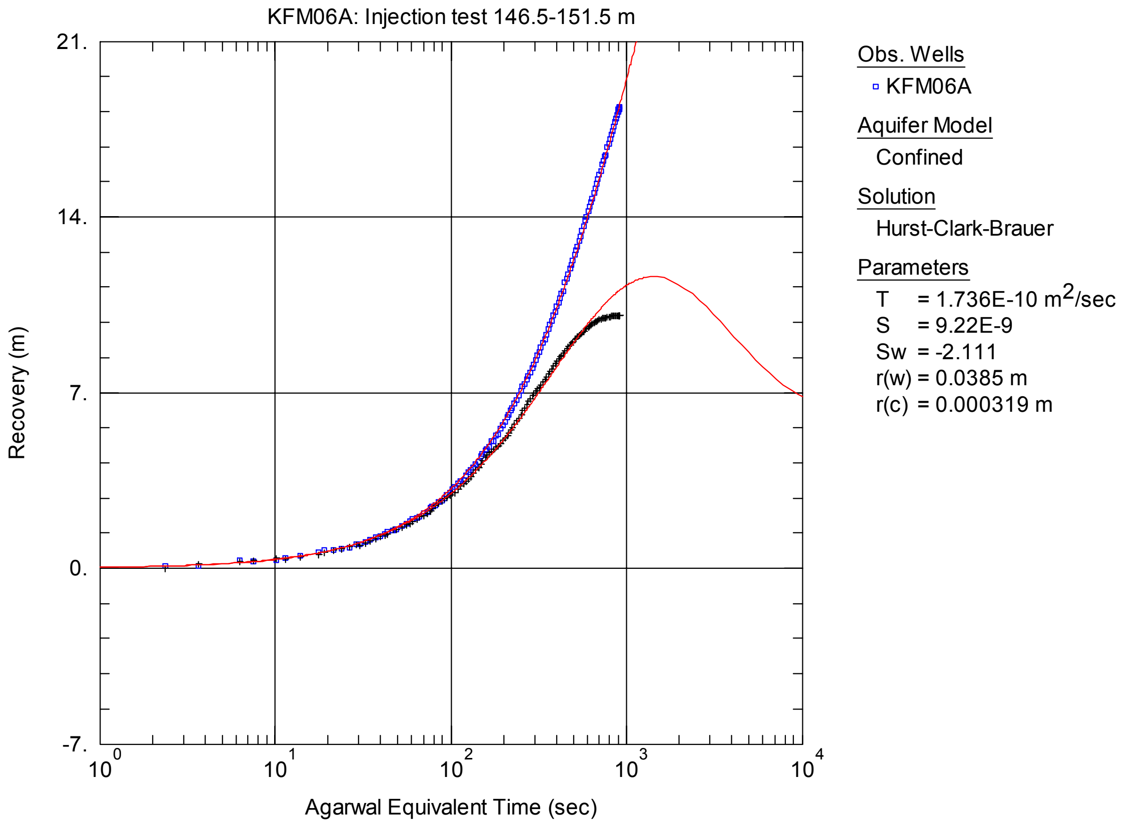


Figure A3-229. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 146.5-151.5 m in KFM06A.*

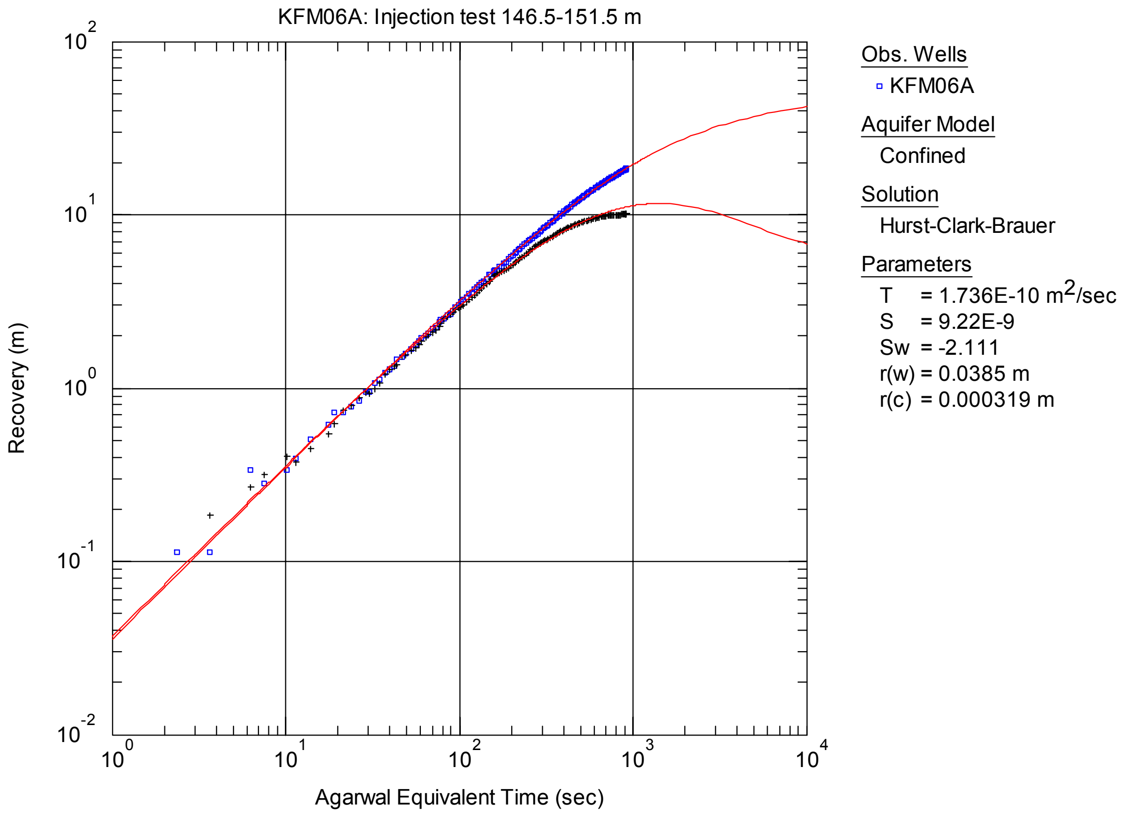


Figure A3-230. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 146.5-151.5 m in KFM06A.*

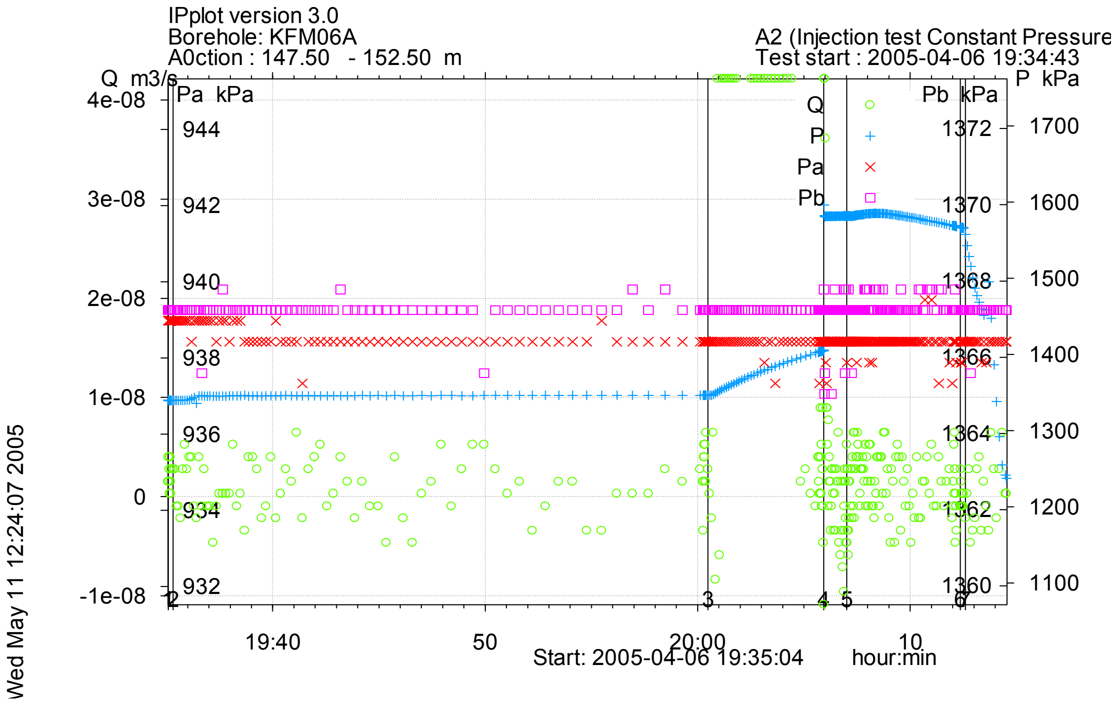


Figure A3-231. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 147.5-152.5 m in borehole KFM06A.*

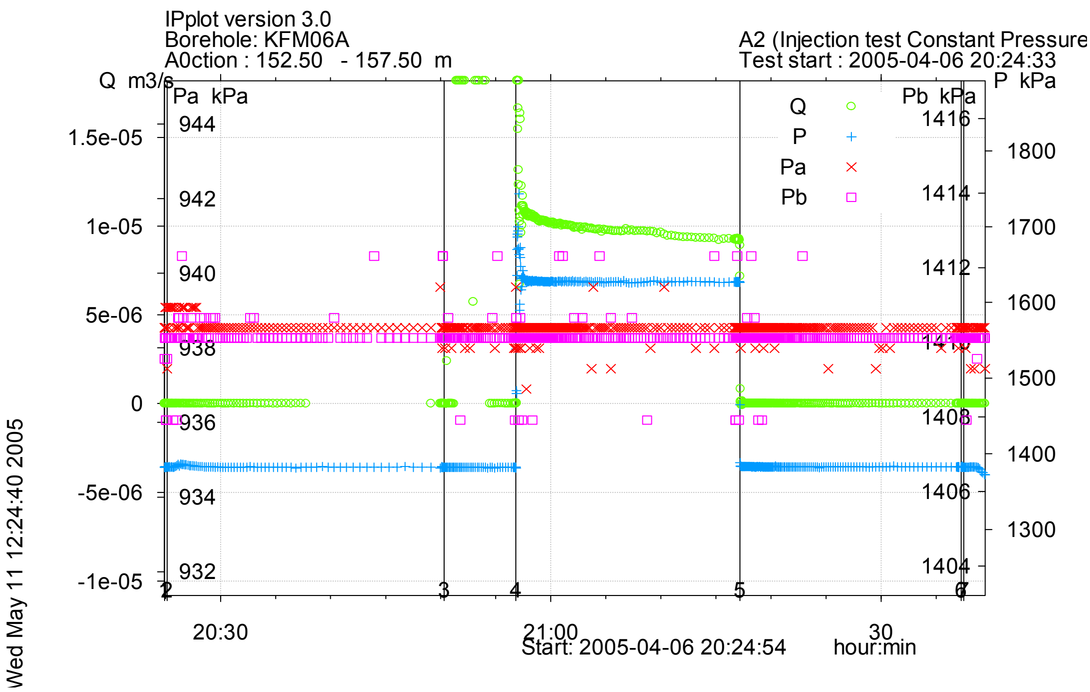


Figure A3-232. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 152.5-157.5 m in borehole KFM06A.*

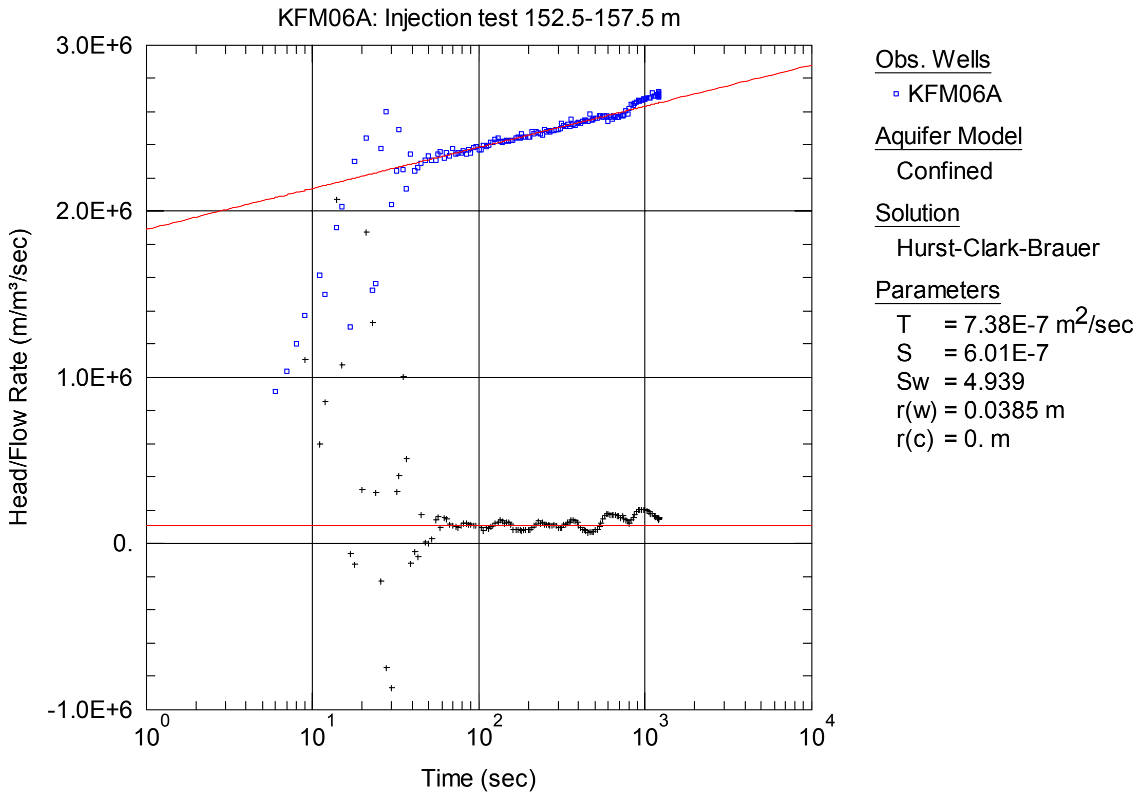


Figure A3-233. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 152.5-157.5 m in KFM06A.*

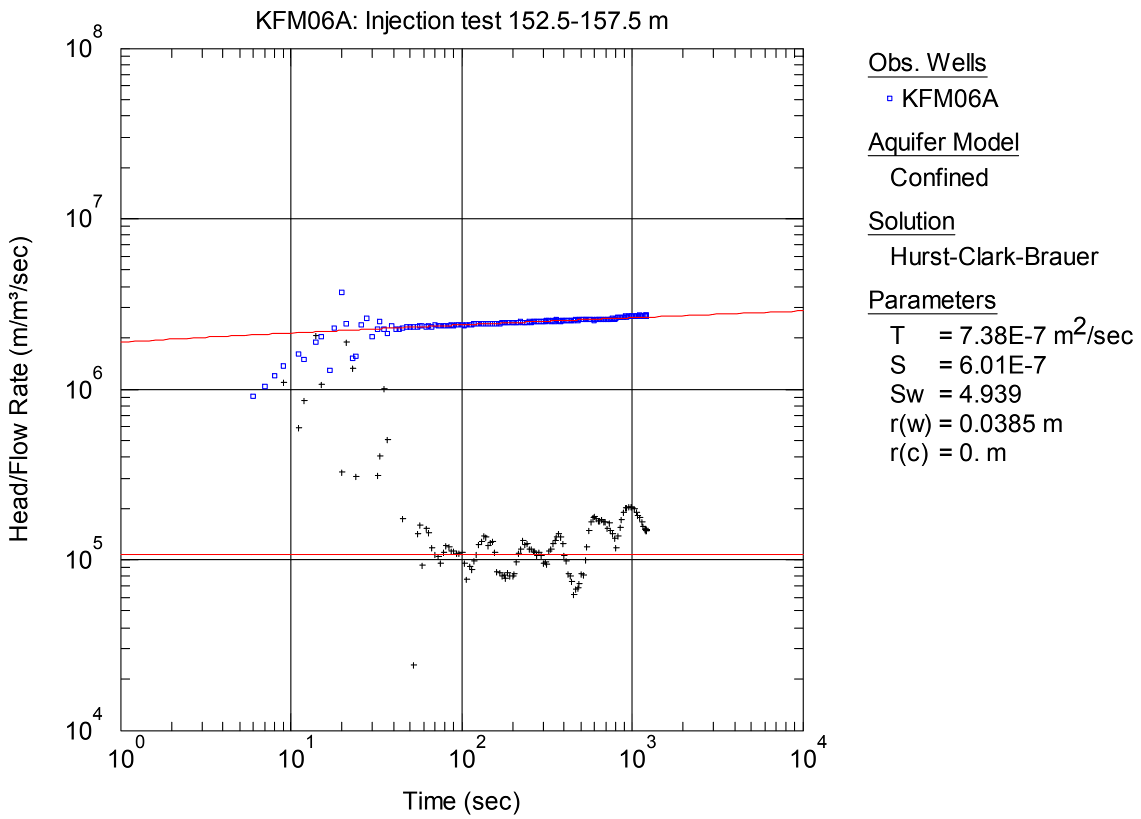


Figure A3-234. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 152.5-157.5 m in KFM06A.*

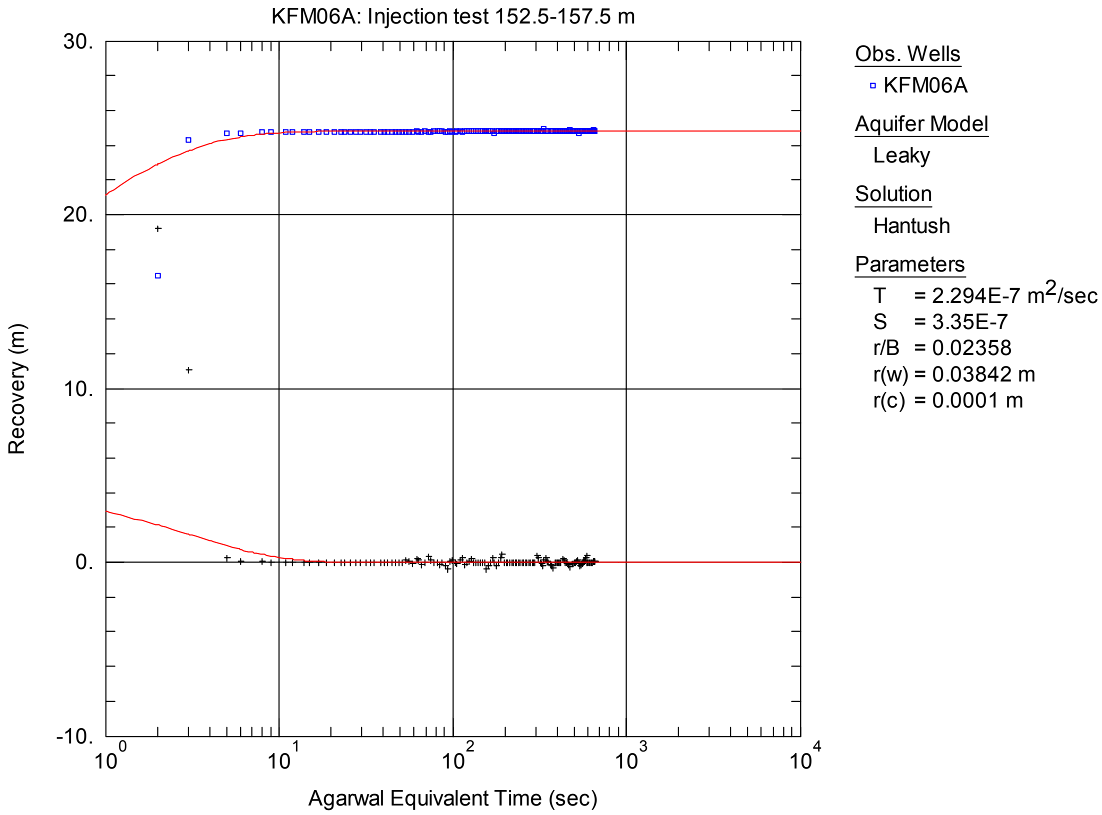


Figure A3-235. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 152.5-157.5 m in KFM06A.*

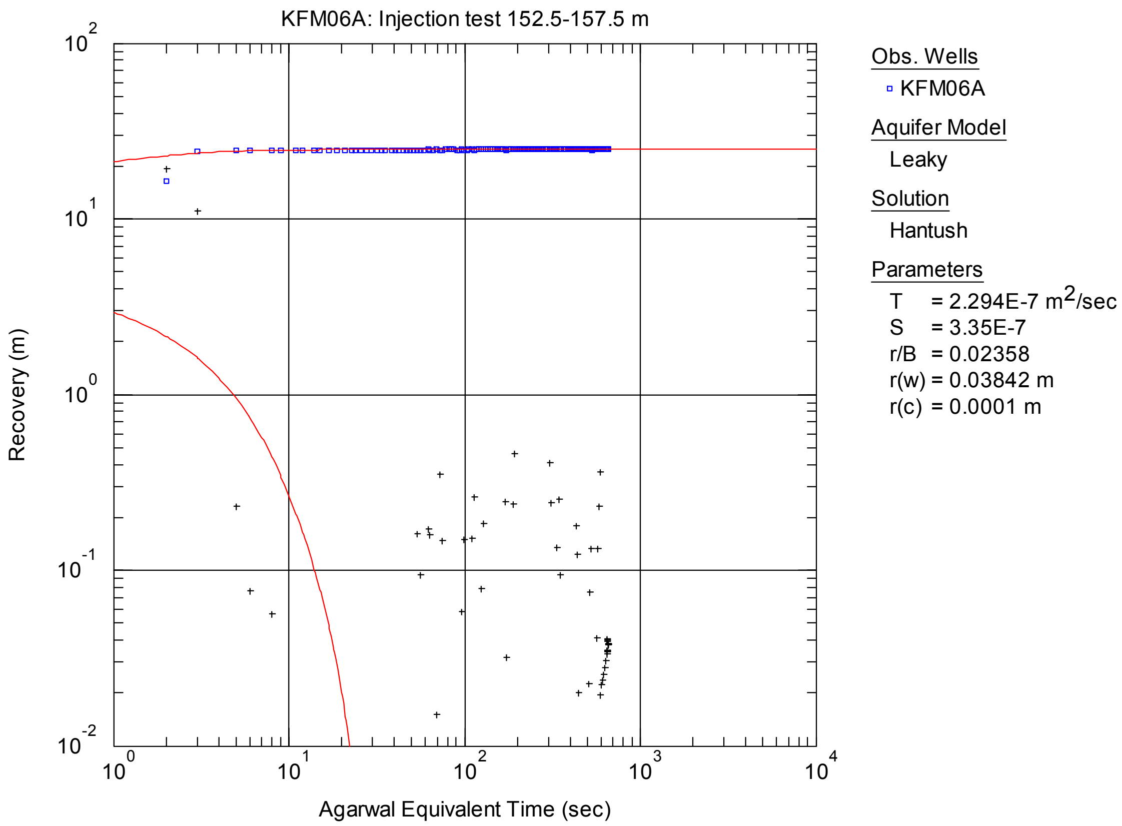


Figure A3-236. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 152.5-157.5 m in KFM06A.*

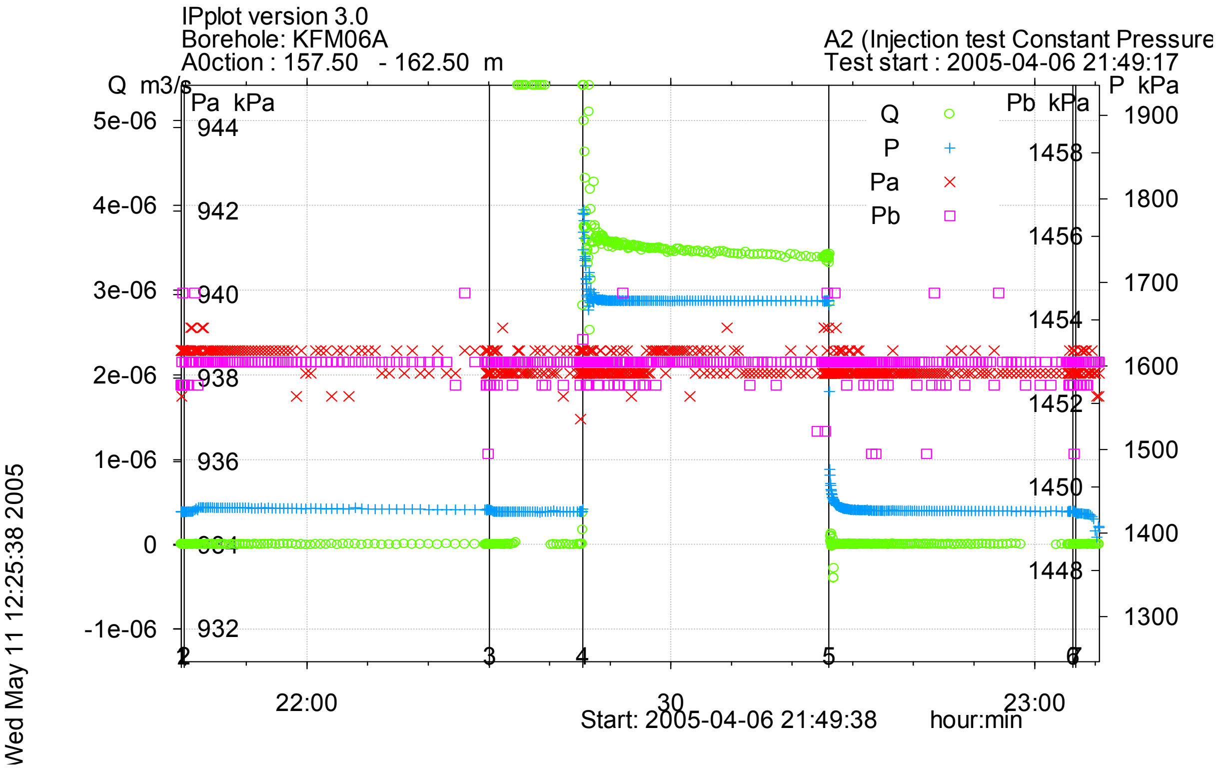


Figure A3-237. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 157.5-162.5 m in borehole KFM06A.*

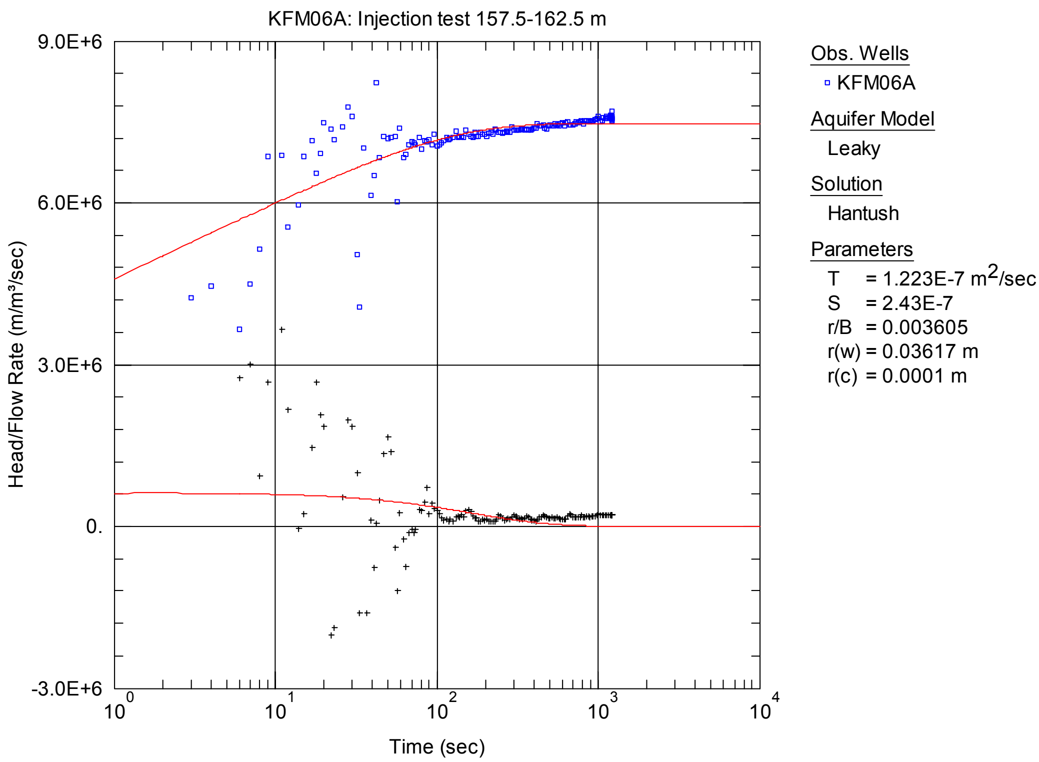


Figure A3-238. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 157.5-162.5 m in KFM06A.*

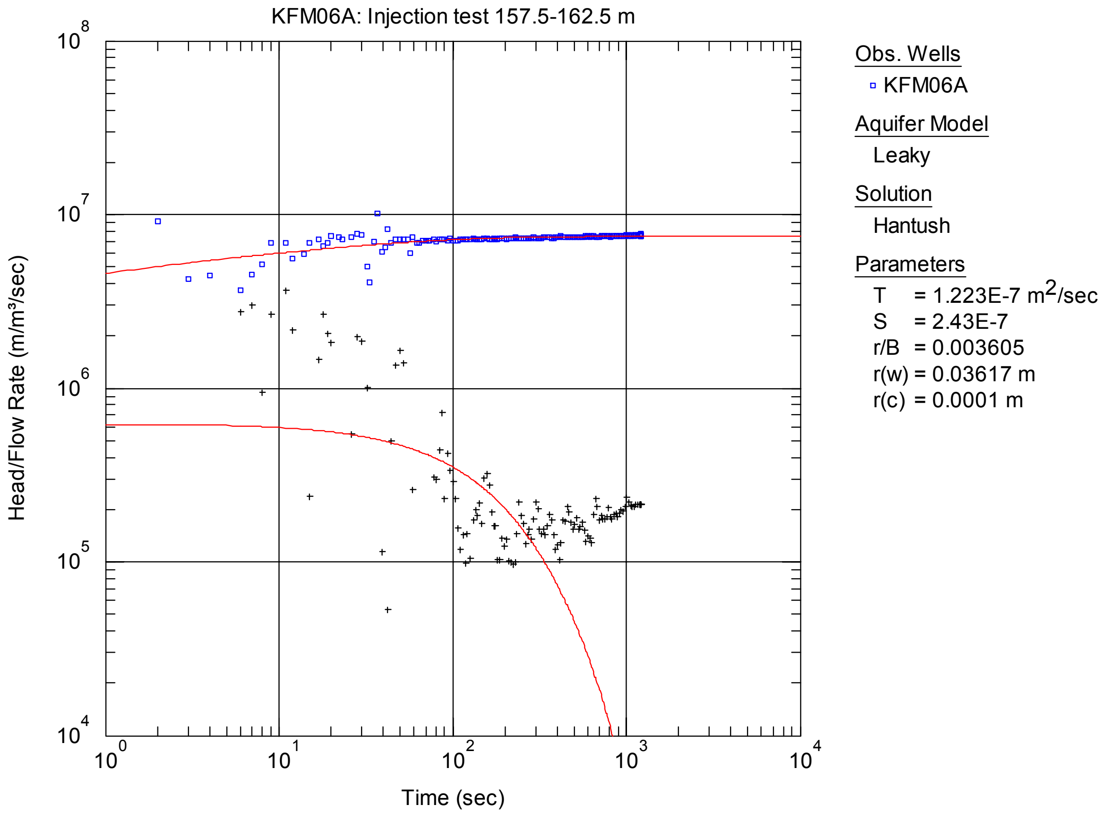


Figure A3-239. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 157.5-162.5 m in KFM06A.*

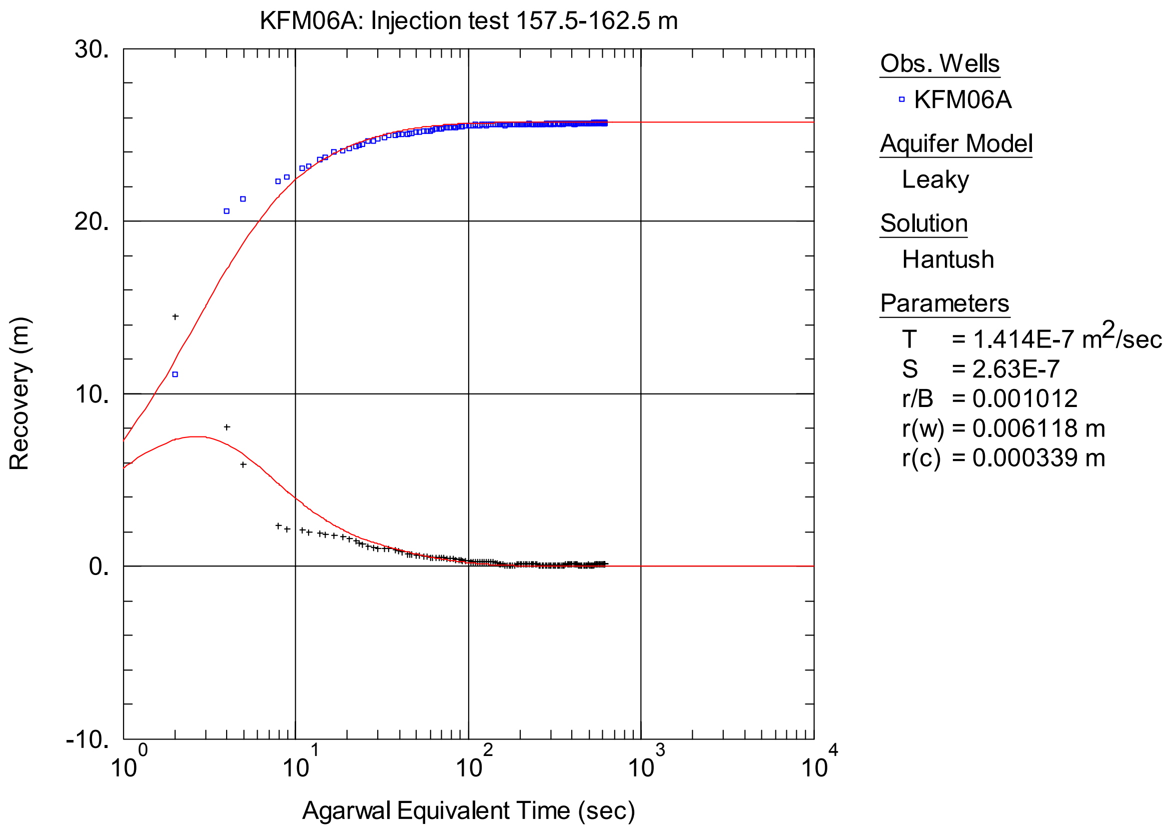


Figure A3-240. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 157.5-162.5 m in KFM06A.*

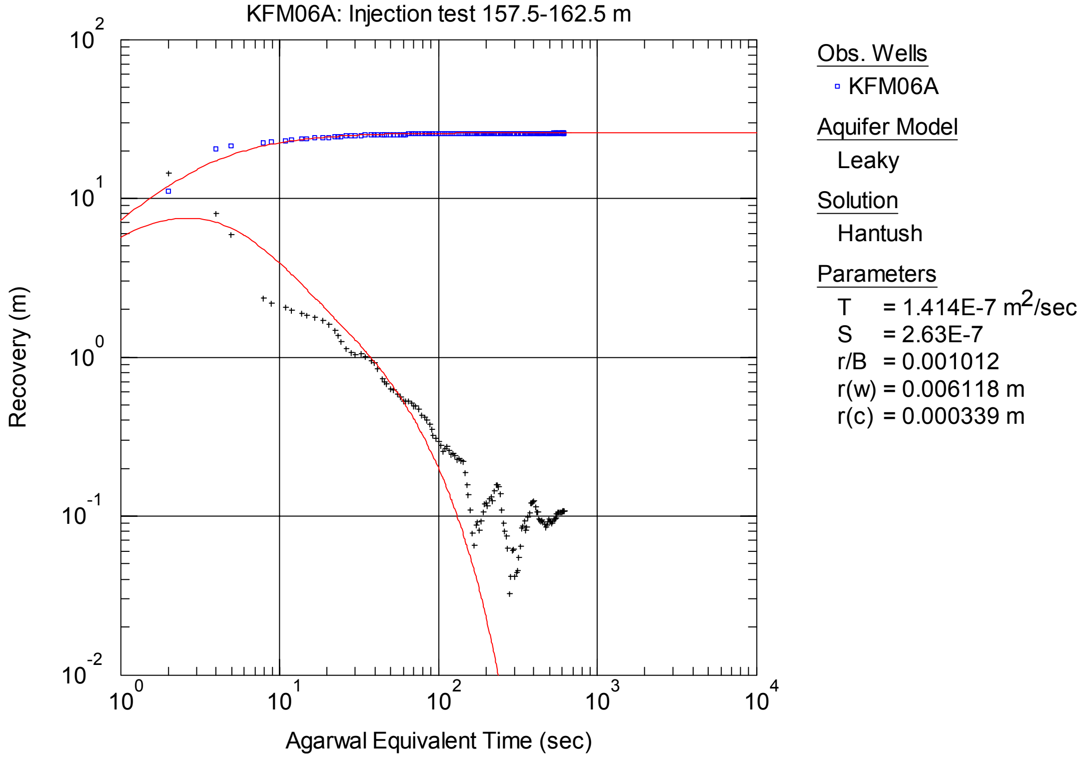


Figure A3-241. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 157.5-162.5 m in KFM06A.*

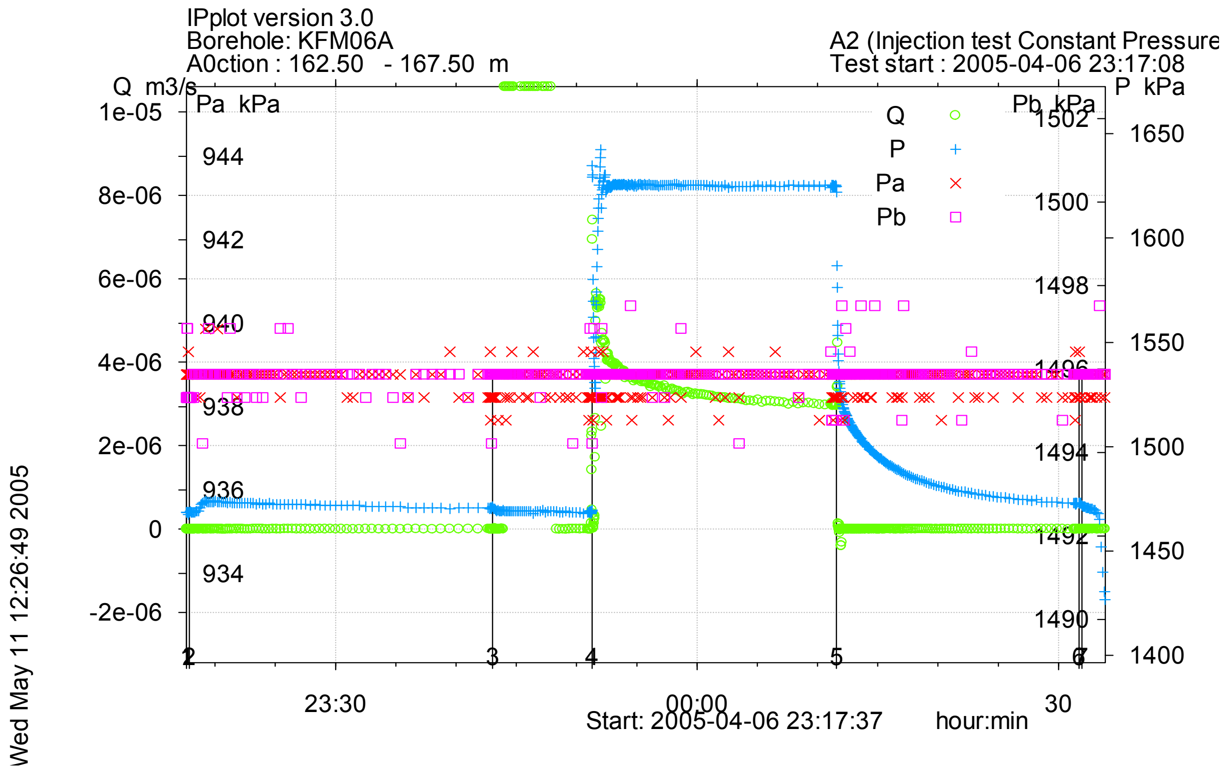


Figure A3-242. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 162.5-167.5 m in borehole KFM06A.*

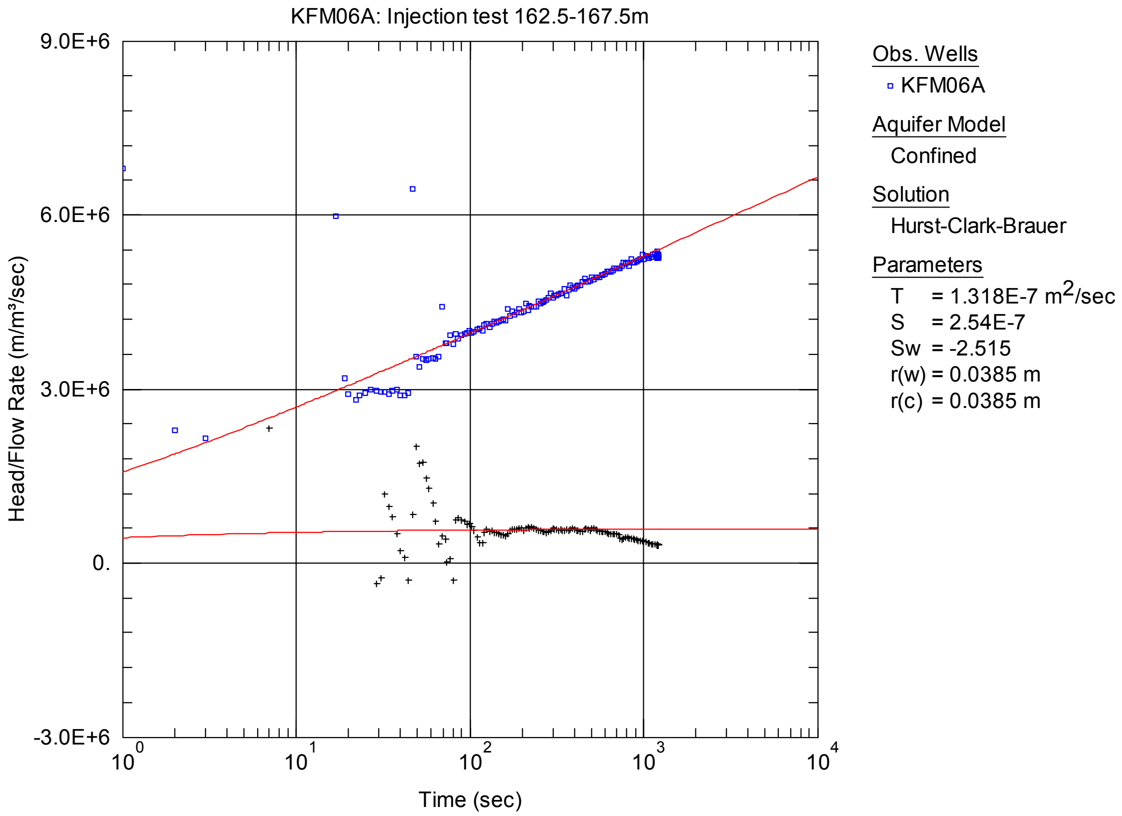


Figure A3-243. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 162.5-167.5 m in KFM06A.*

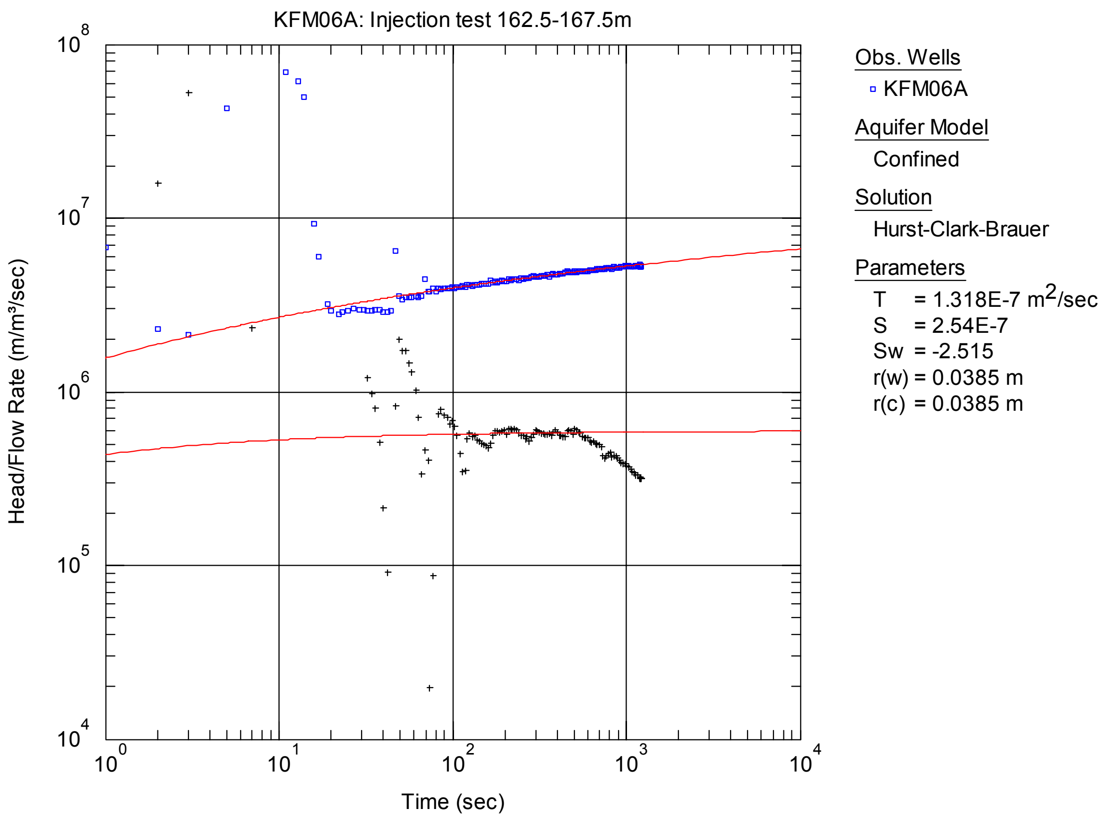


Figure A3-244. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 162.5-167.5 m in KFM06A.*

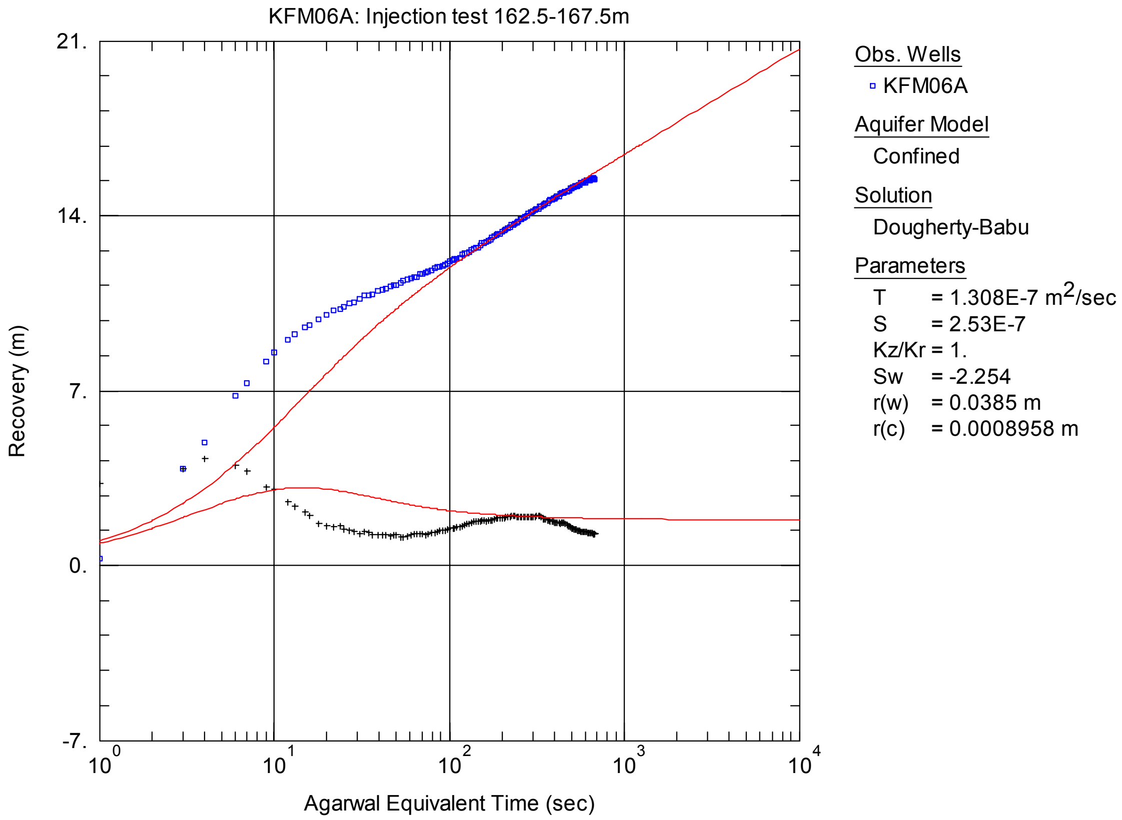


Figure A3-245. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 162.5-167.5 m in KFM06A.*

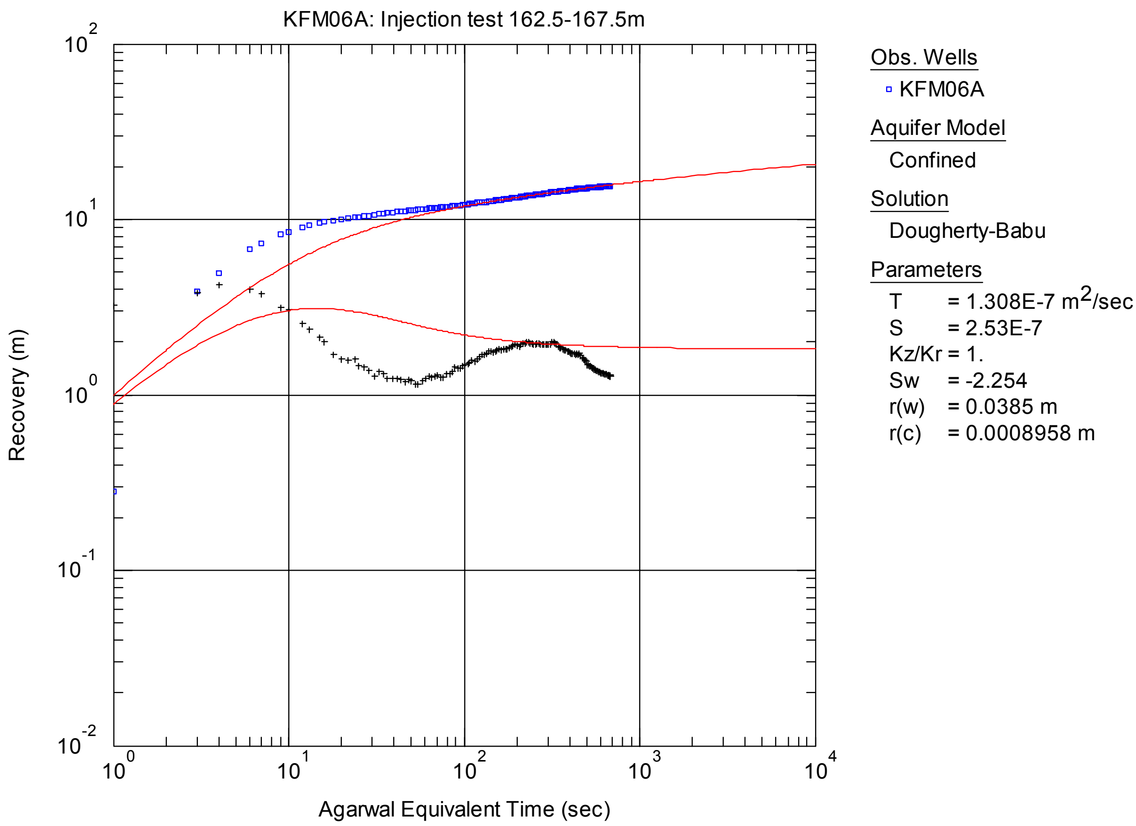


Figure A3-246. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 162.5-167.5 m in KFM06A.*

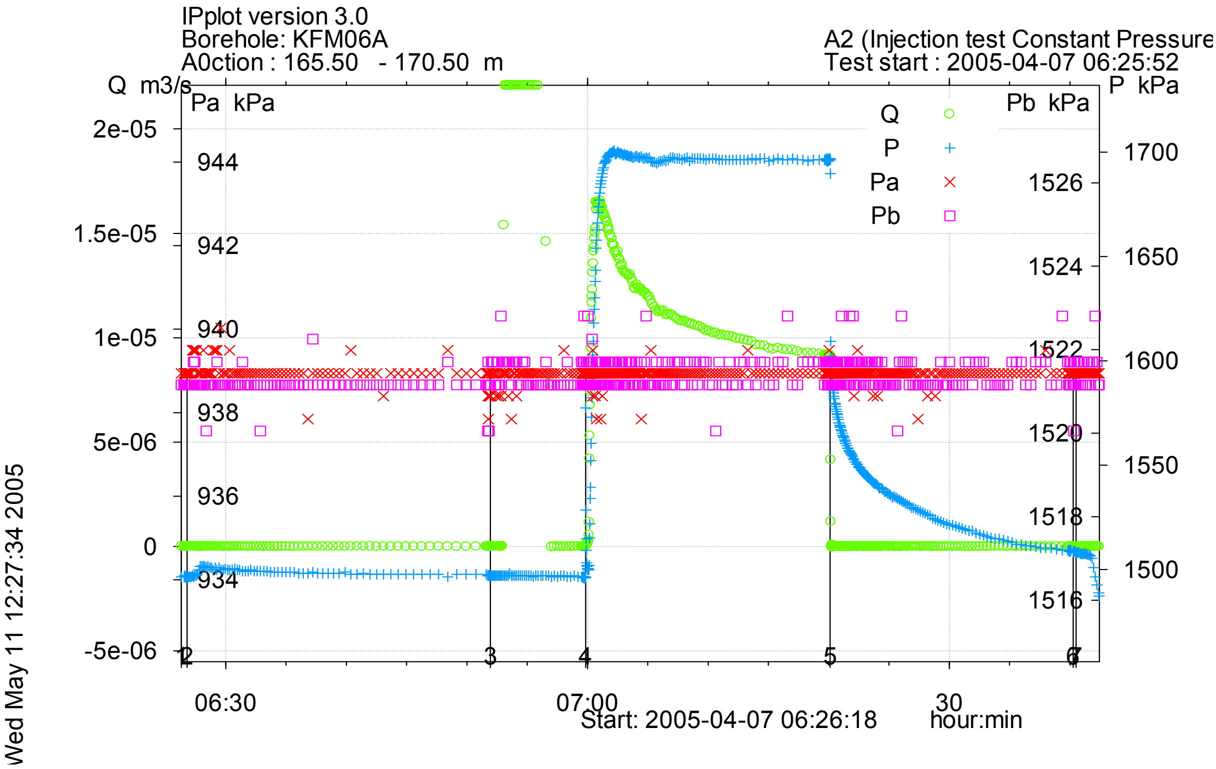


Figure A3-247.*Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 165.5-170.5 m in borehole KFM06A.*

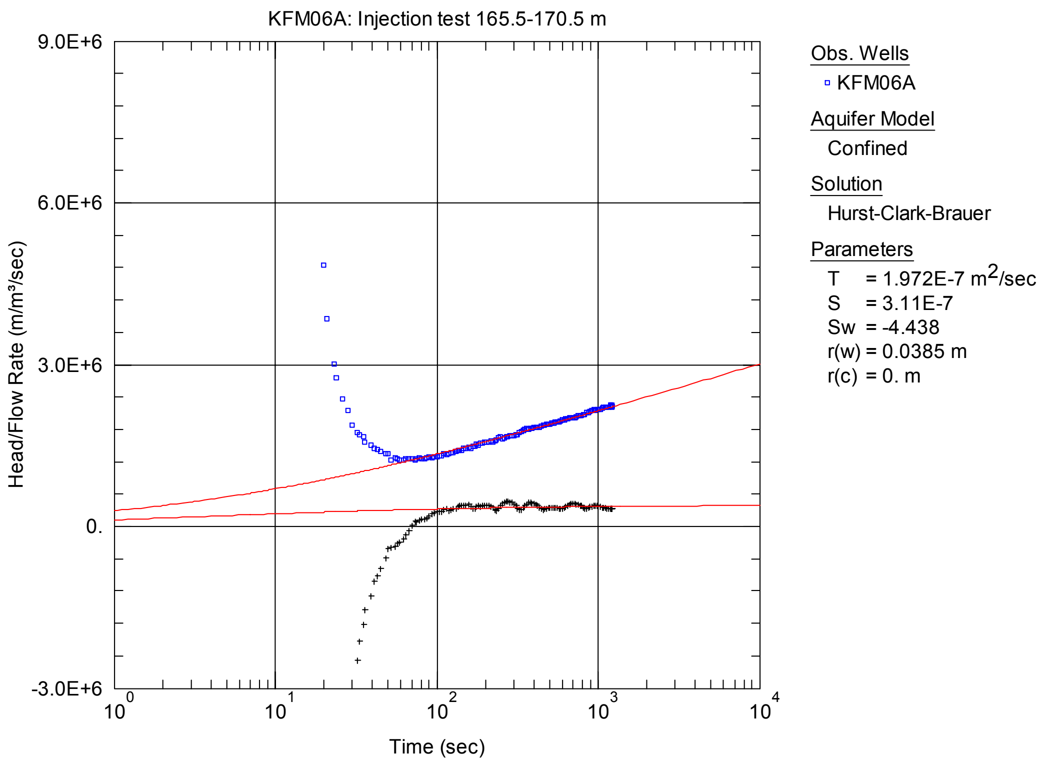


Figure A3-248. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 165.5-170.5 m in KFM06A.*

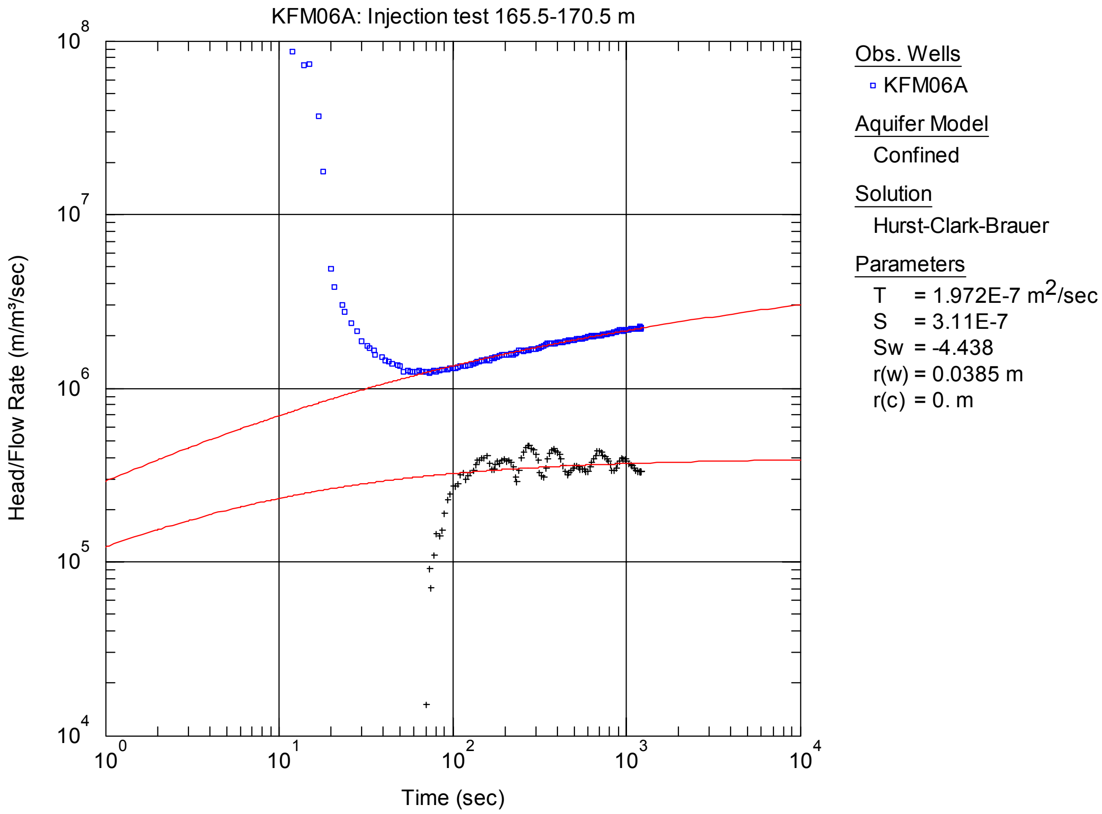


Figure A3-249. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 165.5-170.5 m in KFM06A.*

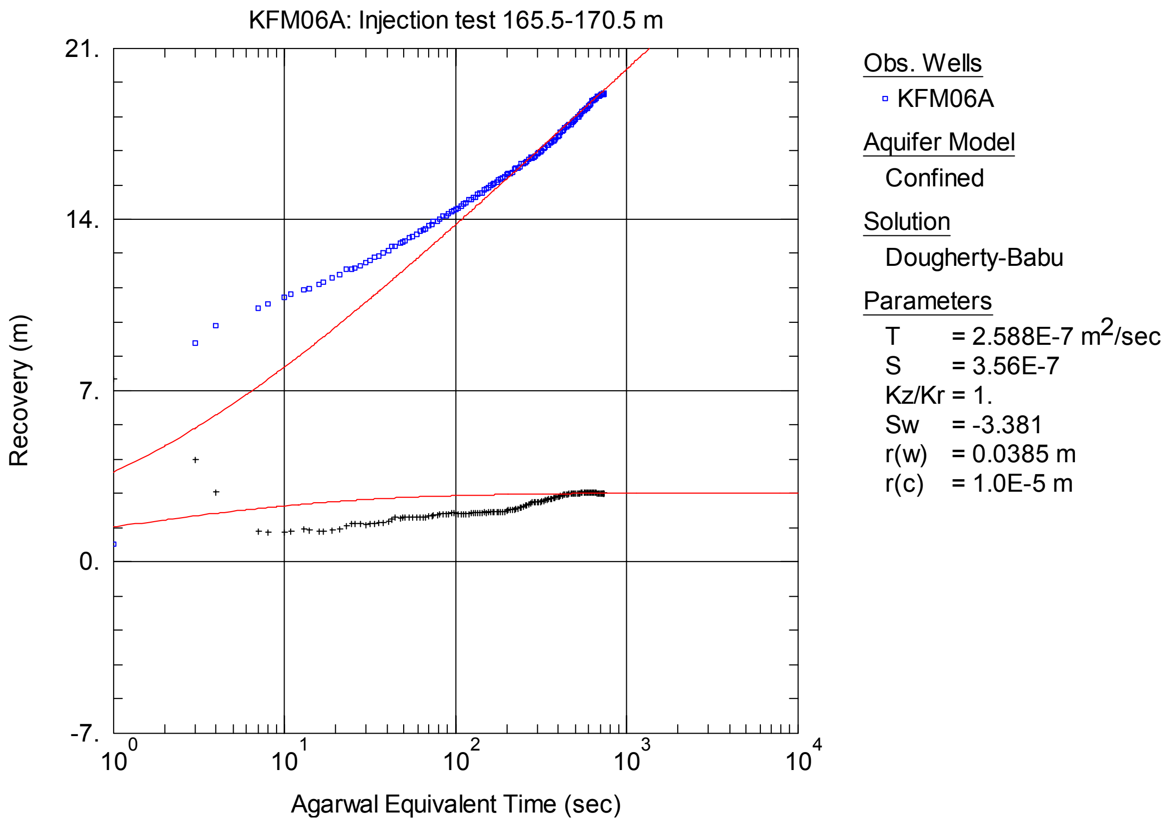


Figure A3-250. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 165.5-170.5 m in KFM06A.*

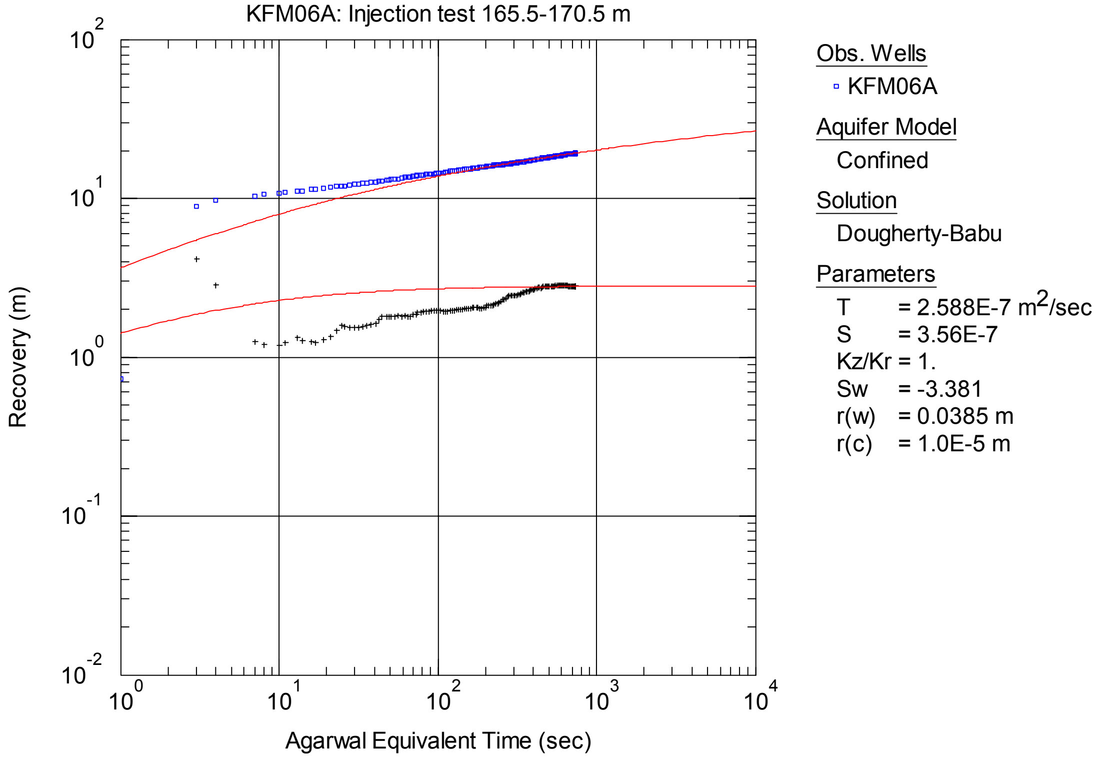


Figure A3-251. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 165.5-170.5 m in KFM06A.*

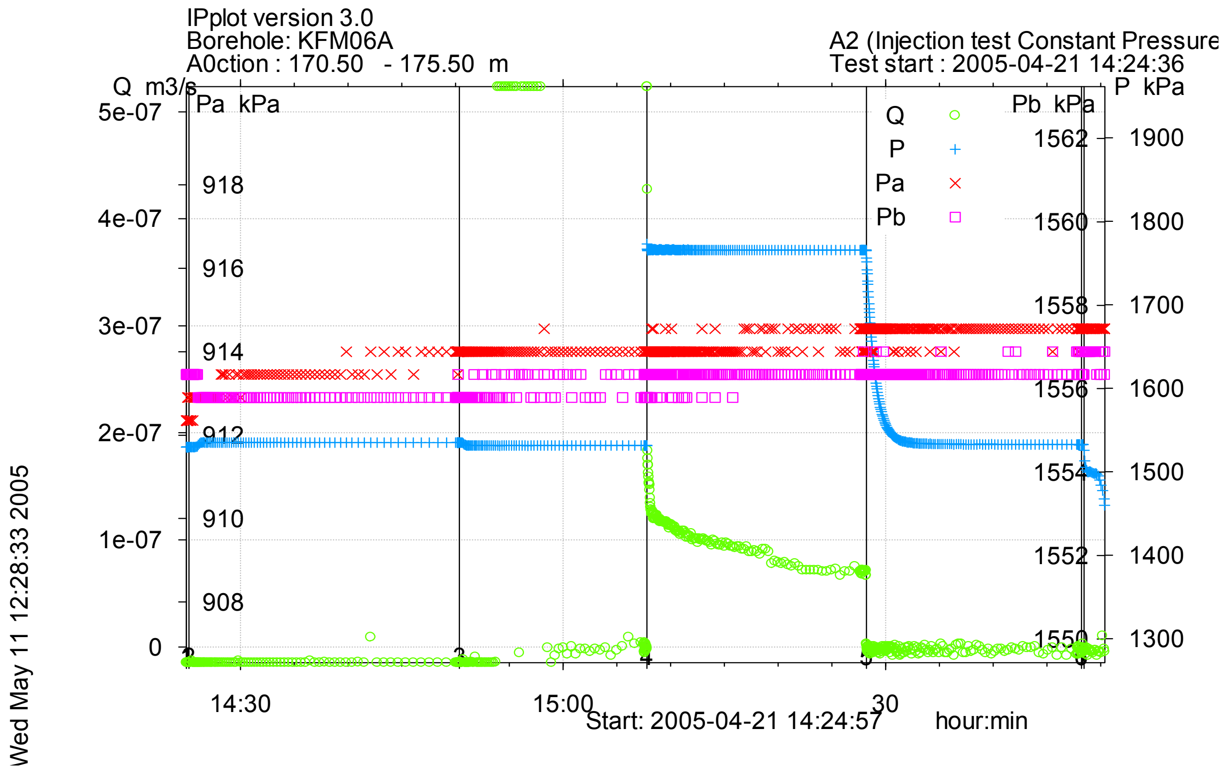


Figure A3-252. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 170.5-175.5 m in borehole KFM06A.*

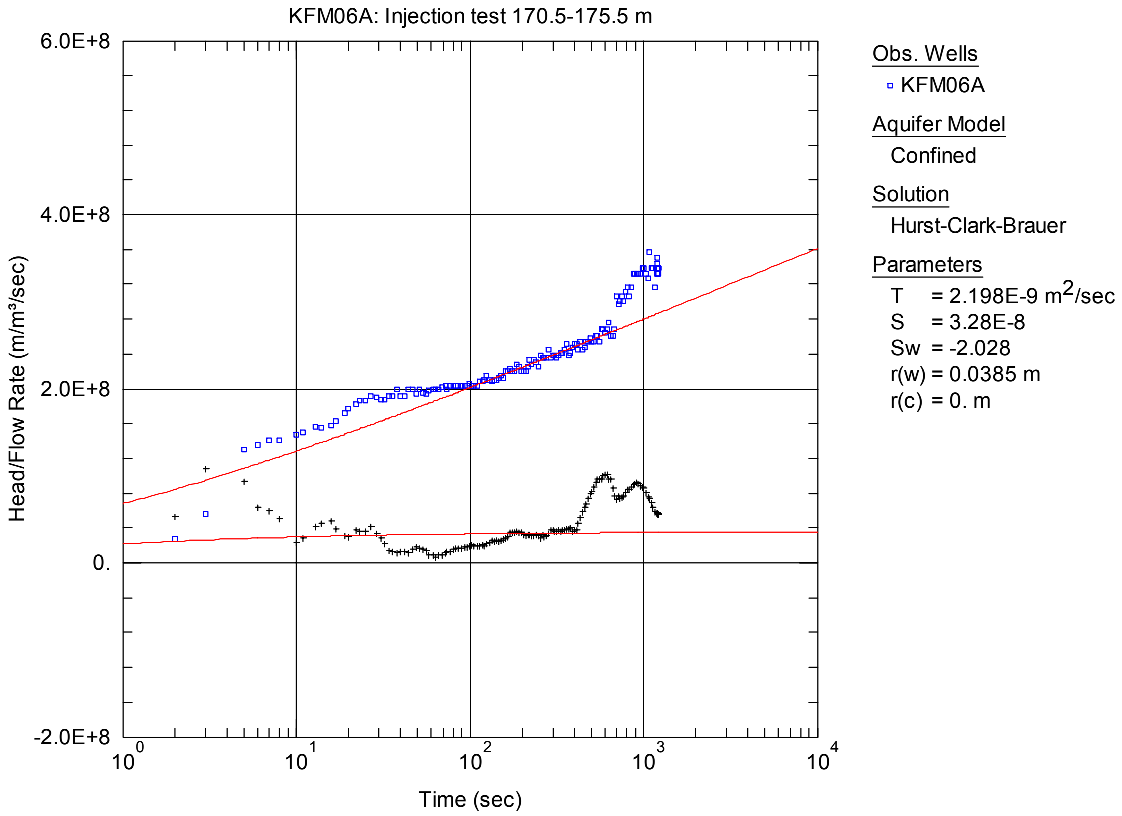


Figure A3-253. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 170.5-175.5 m in KFM06A.*

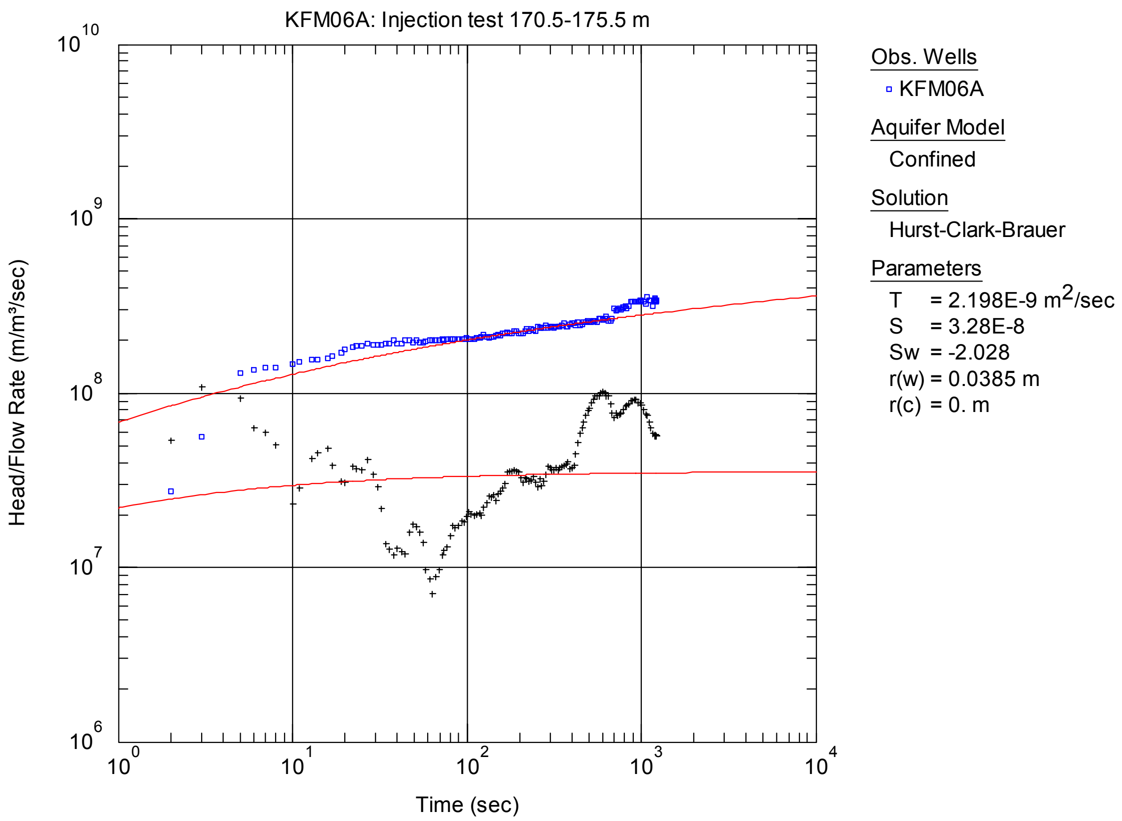


Figure A3-254. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 170.5-175.5 m in KFM06A.*

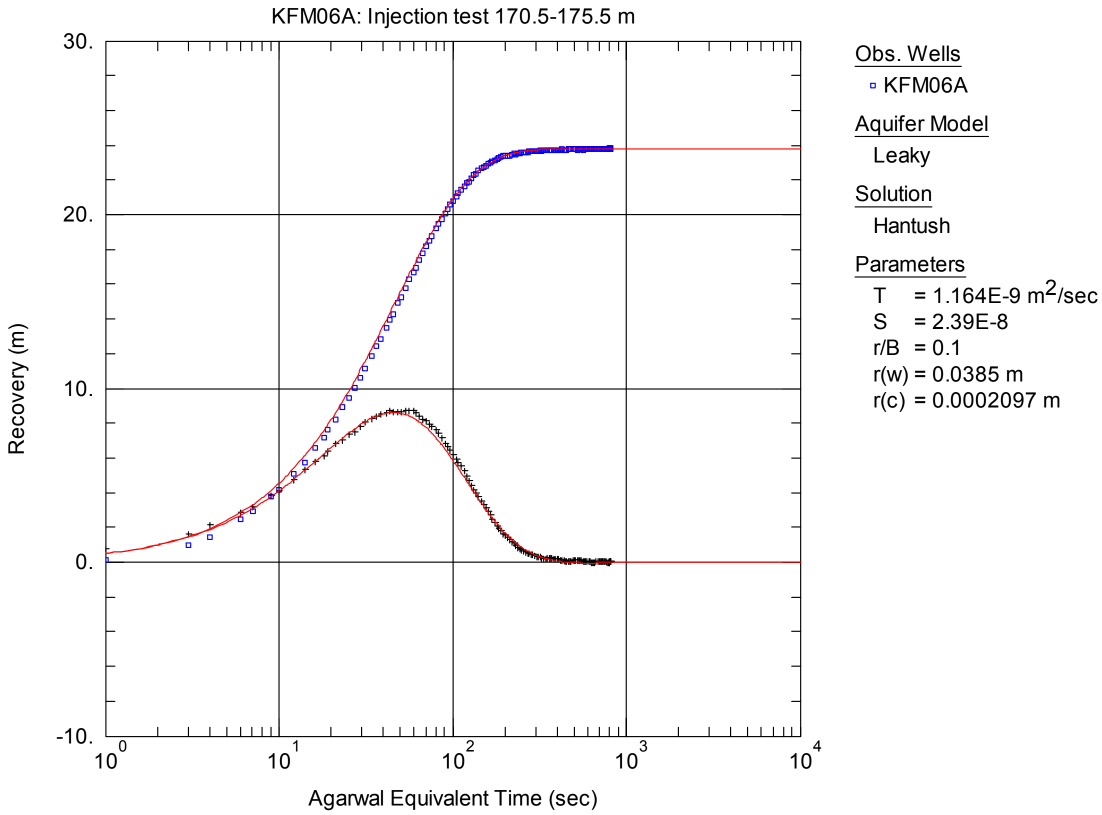


Figure A3-255. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 170.5-175.5 m in KFM06A.*

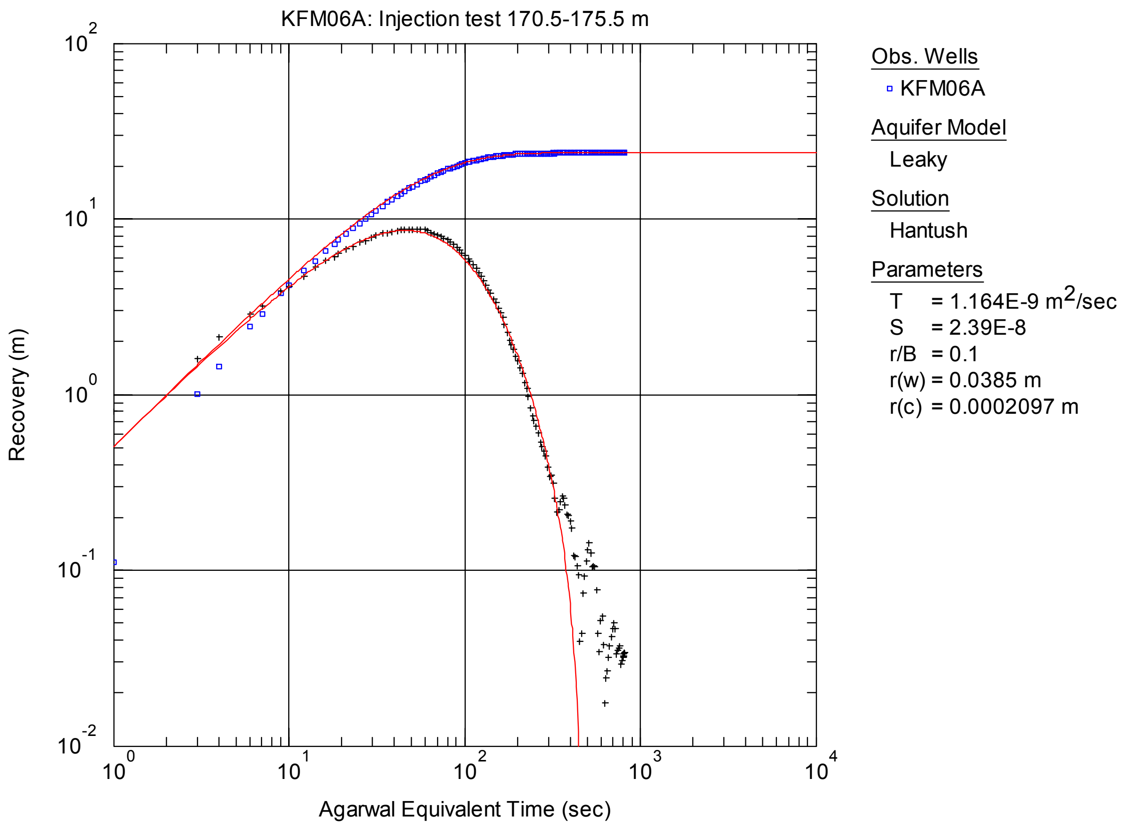


Figure A3-256. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 170.5-175.5 m in KFM06A.*

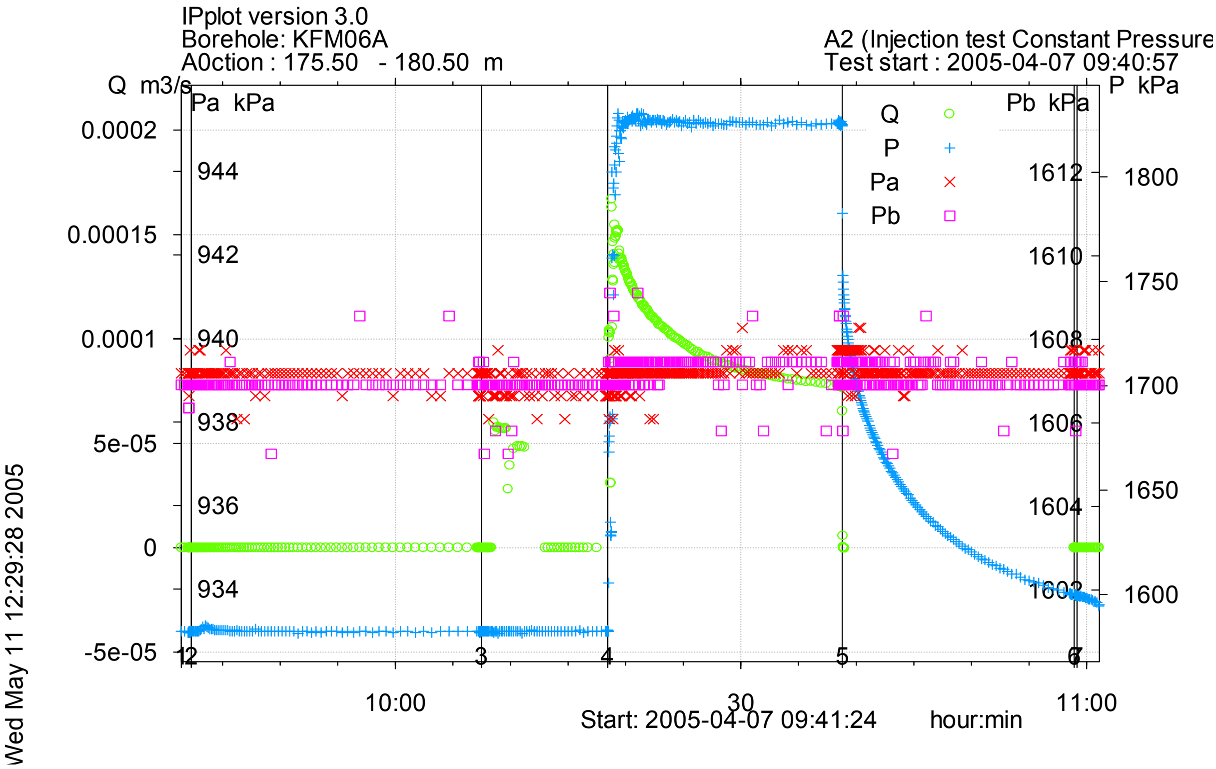


Figure A3-257. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 175.5-180.5 m in borehole KFM06A.

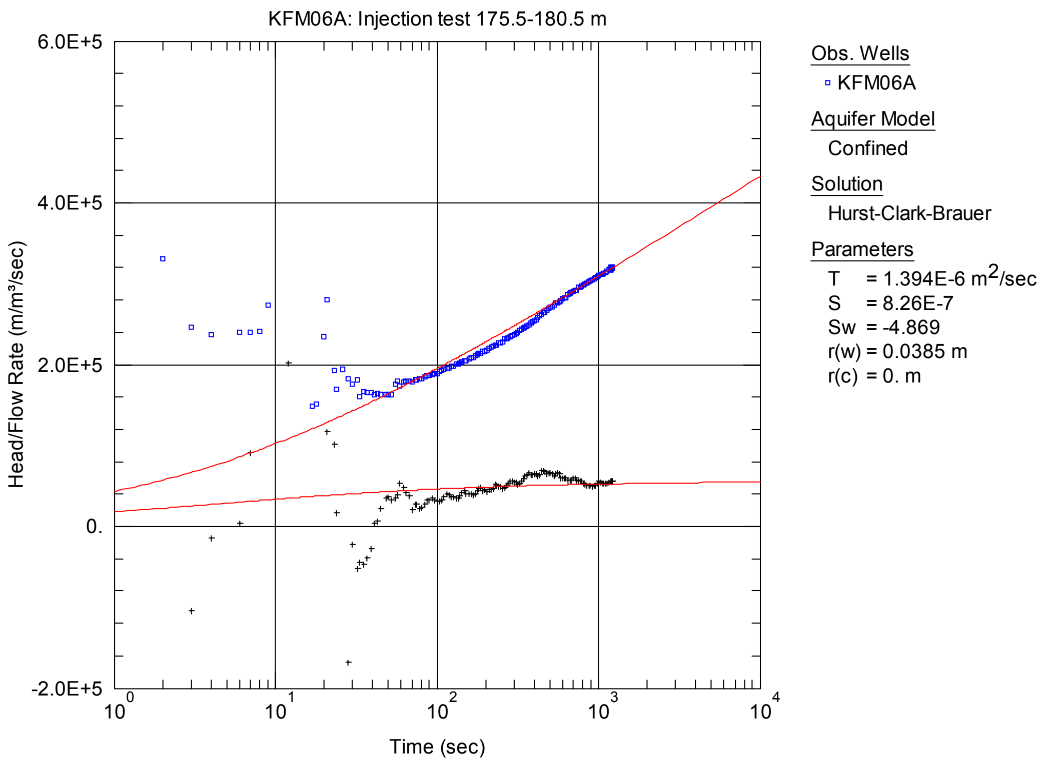


Figure A3-258. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 175.5-180.5 m in KFM06A.

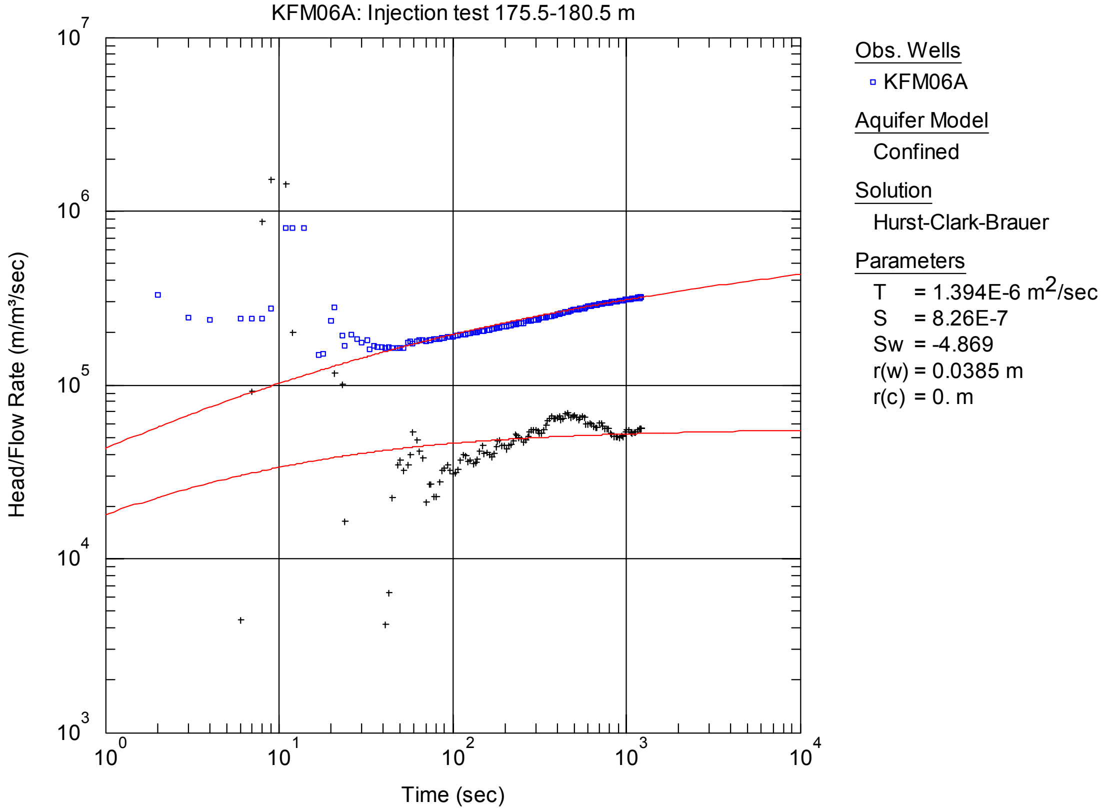


Figure A3-259. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 175.5-180.5 m in KFM06A.*

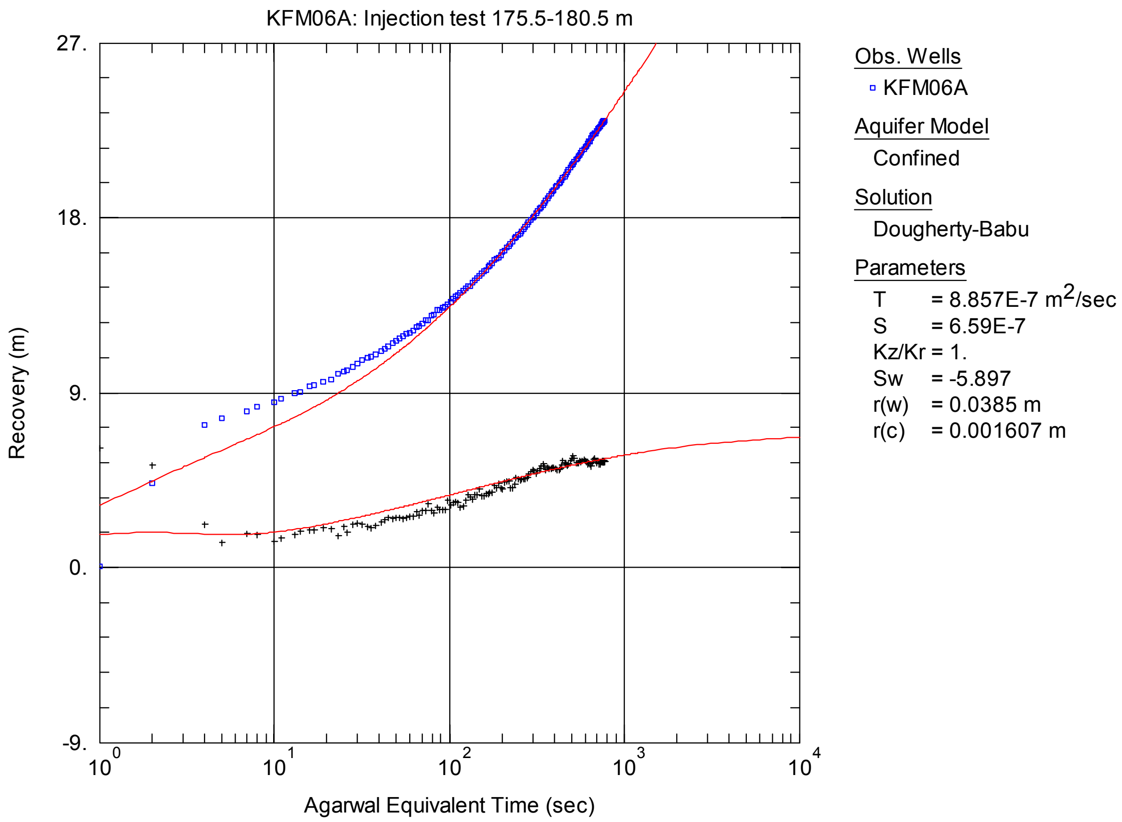


Figure A3-260. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 175.5-180.5 m in KFM06A.*

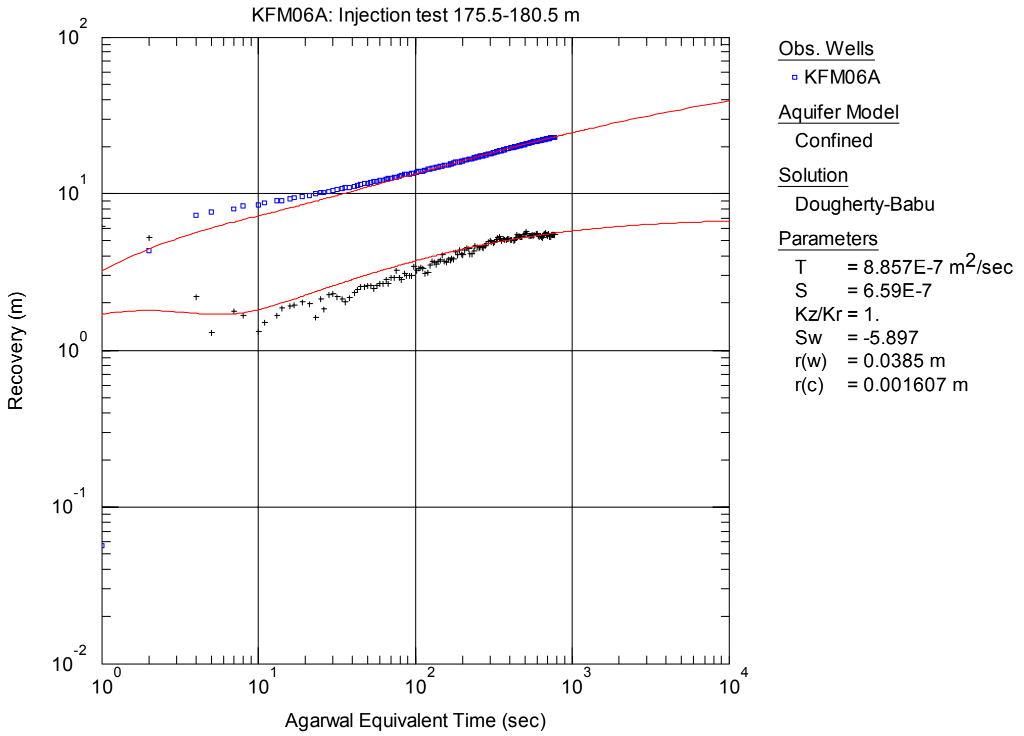


Figure A3-261. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 175.5-180.5 m in KFM06A.*

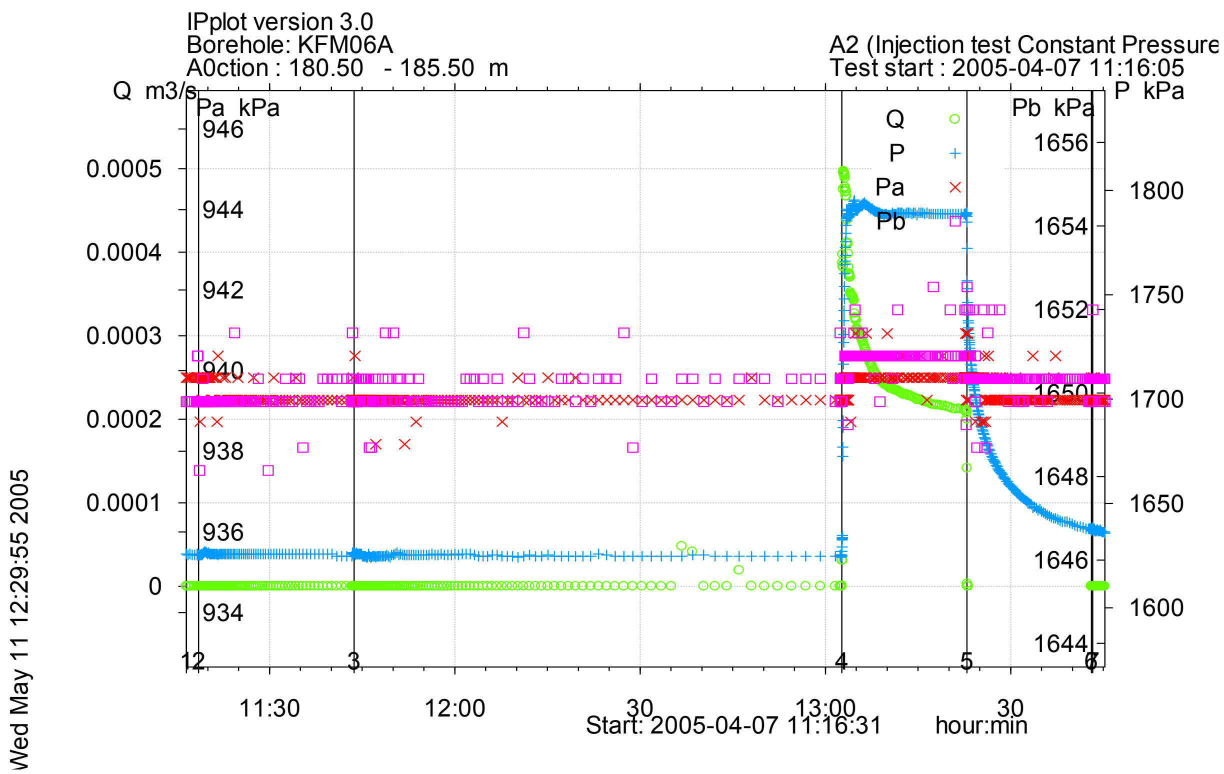


Figure A3-262. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 180.5-185.5 m in borehole KFM06A.*

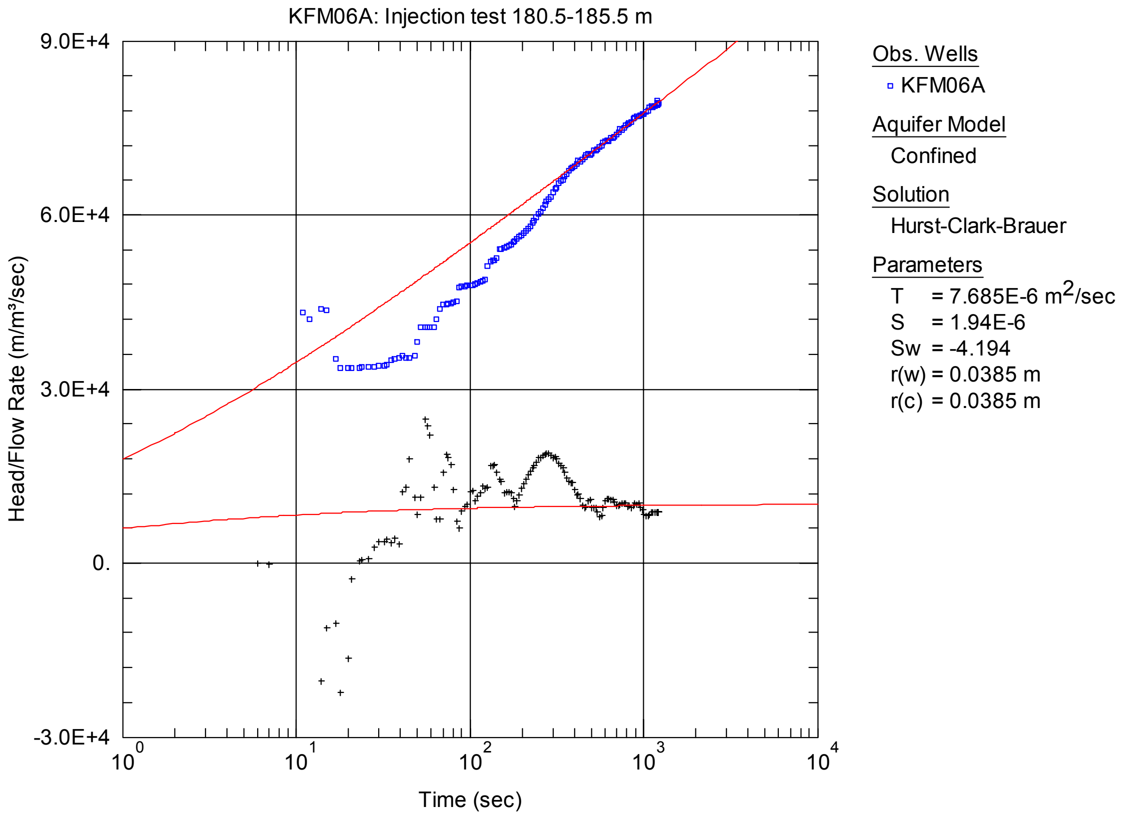


Figure A3-263. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 180.5-185.5 m in KFM06A.*

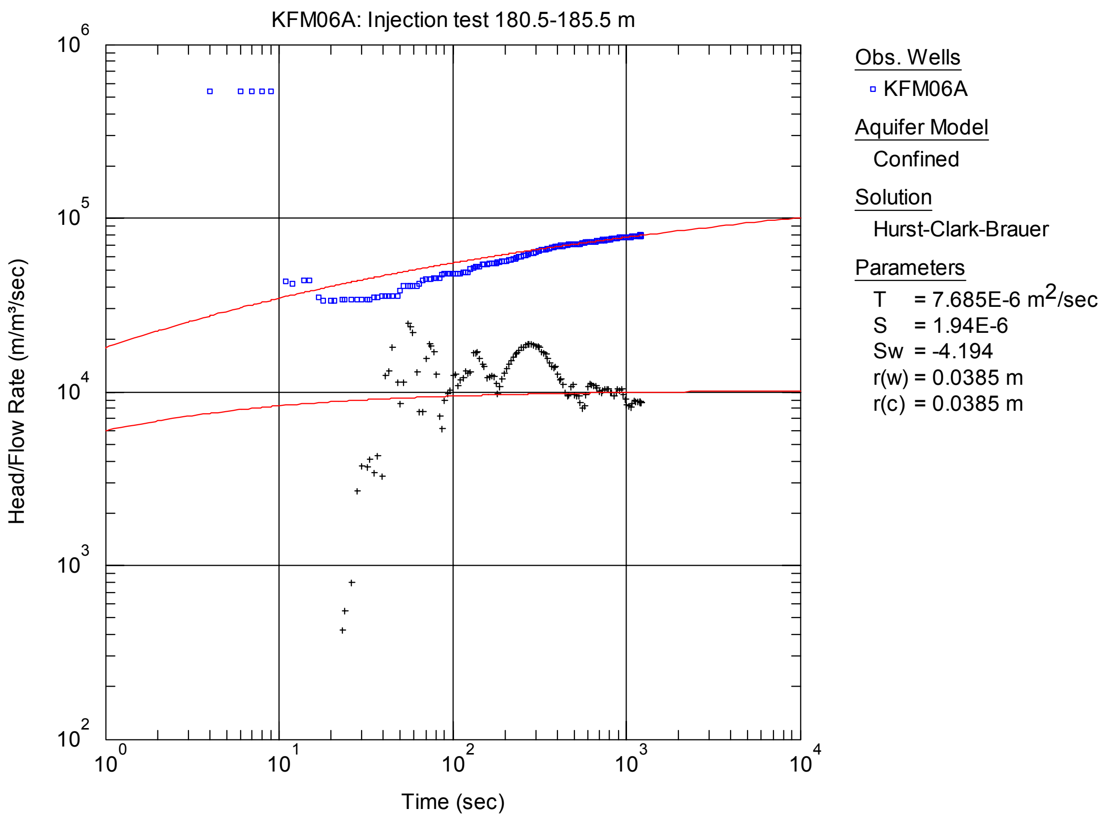


Figure A3-264. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 180.5-185.5 m in KFM06A.*

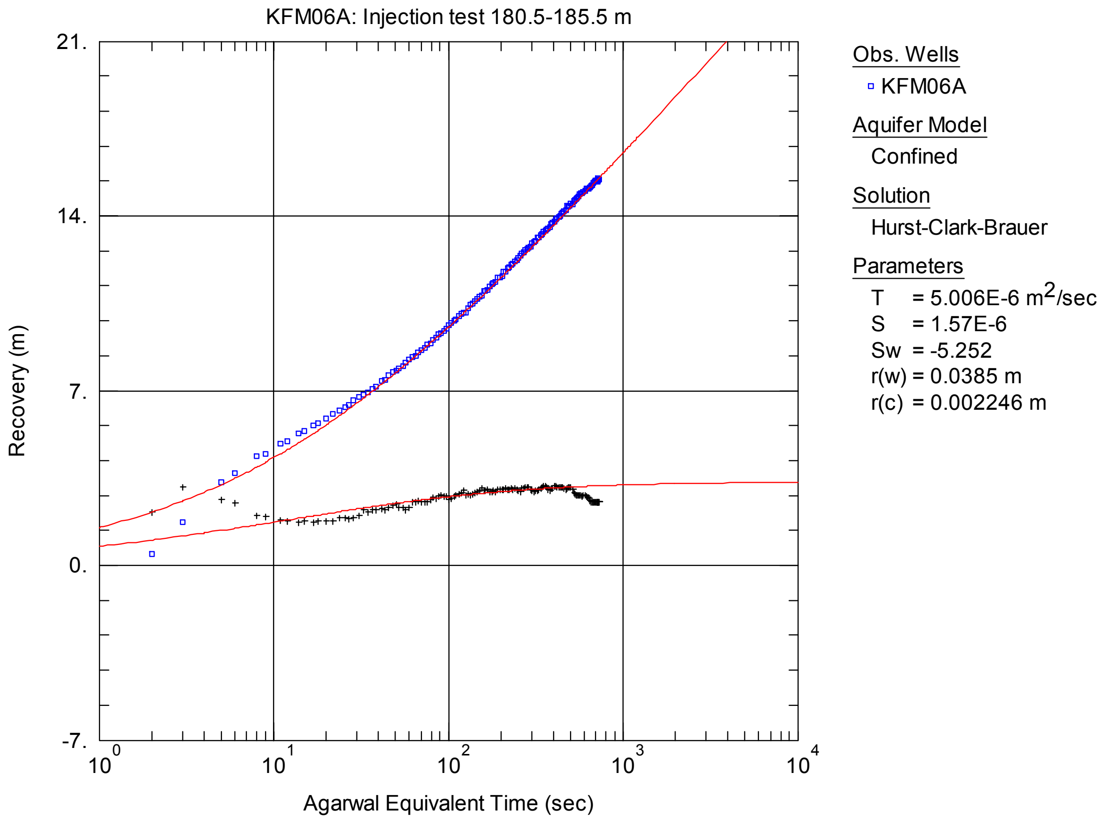


Figure A3-265. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 180.5-185.5 m in KFM06A.*

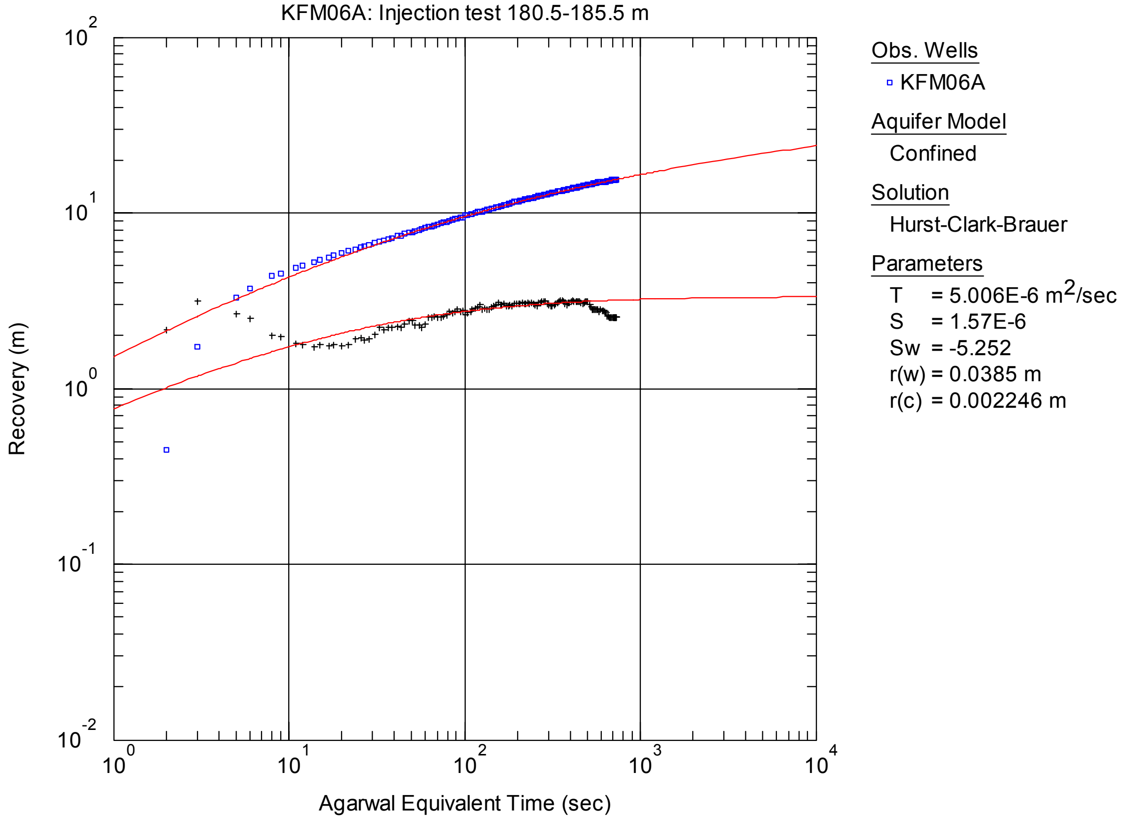


Figure A3-266. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 180.5-185.5 m in KFM06A.*

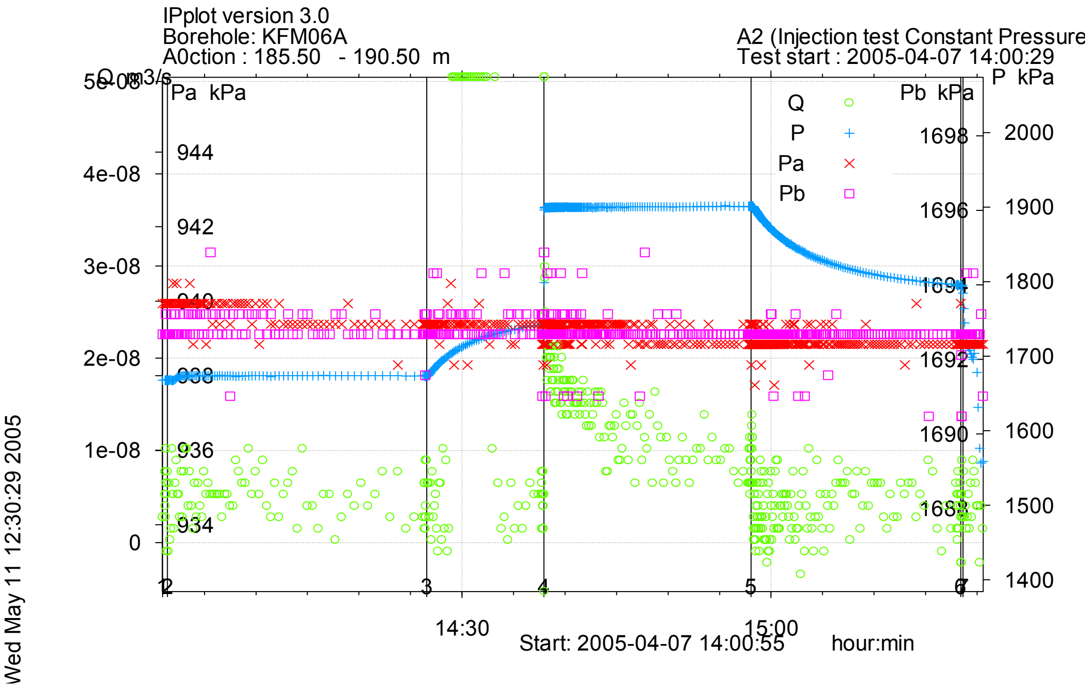


Figure A3-267. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 185.5-190.5 m in borehole KFM06A.

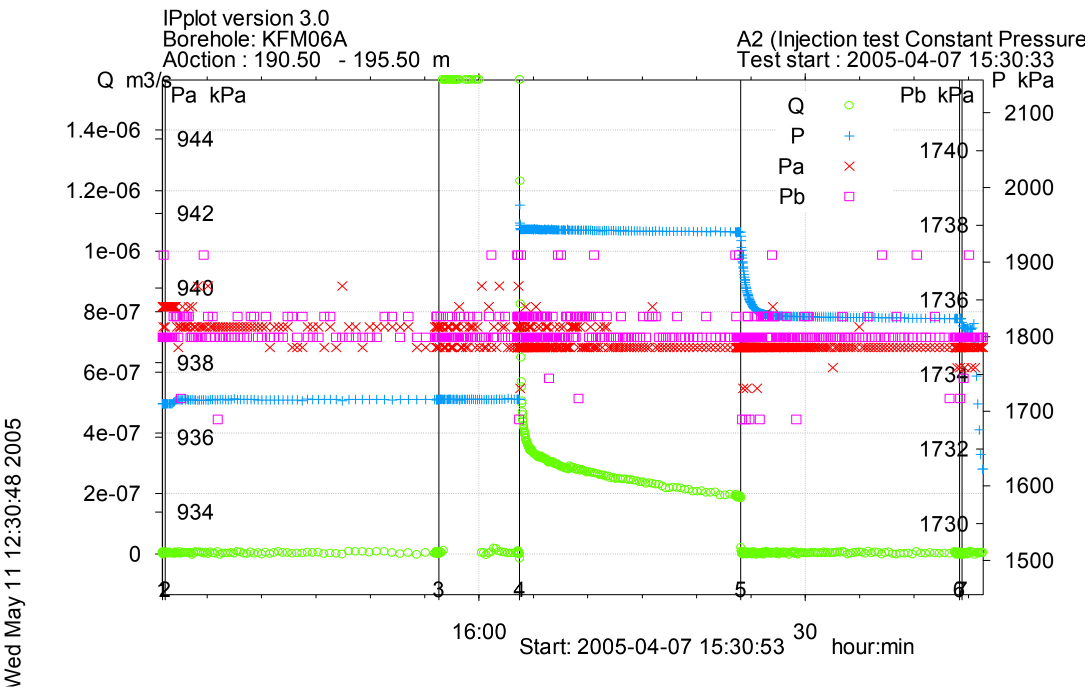


Figure A3-268. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 190.5-195.5 m in borehole KFM06A.

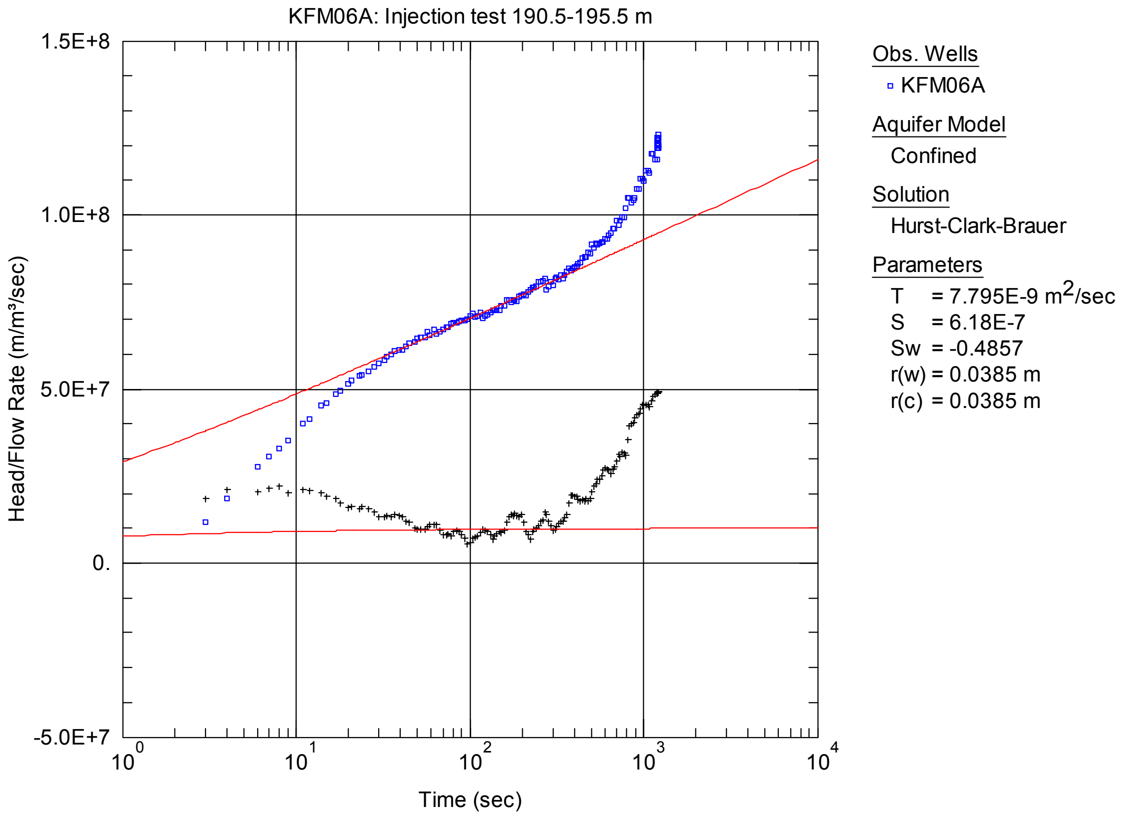


Figure A3-269. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 190.5-195.5 m in KFM06A.*

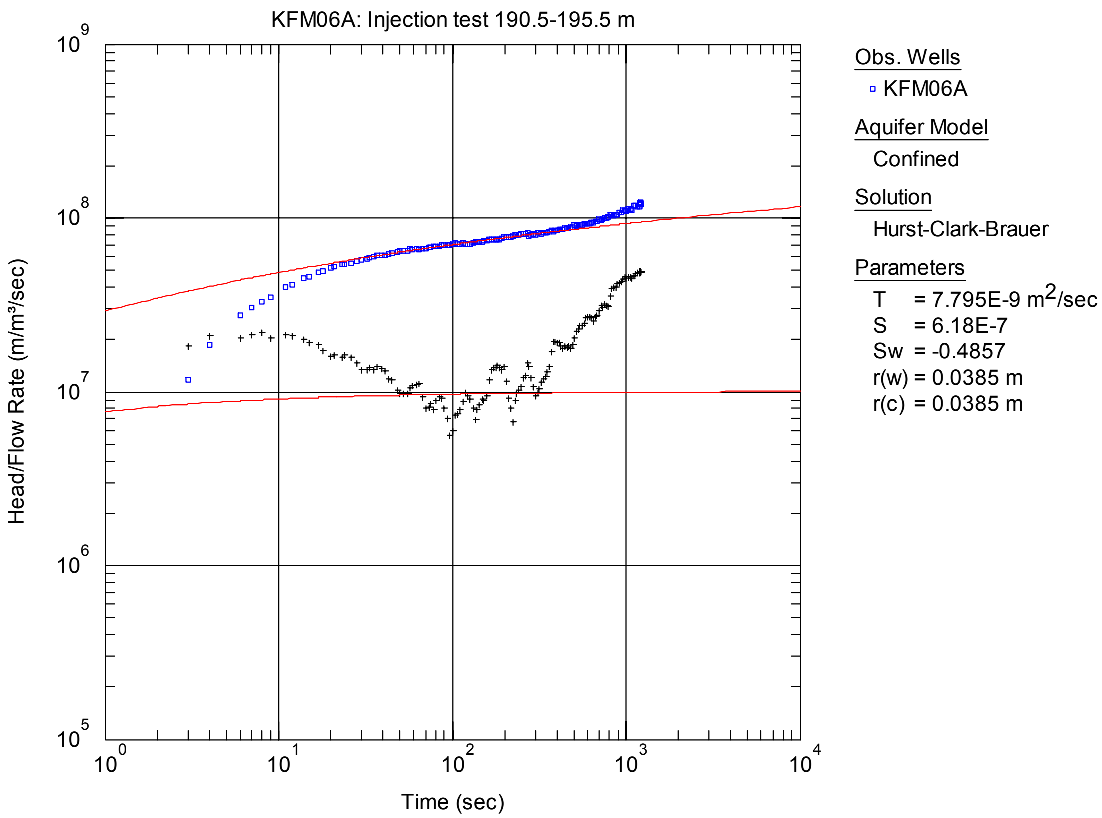


Figure A3-270. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 190.5-195.5 m in KFM06A.*

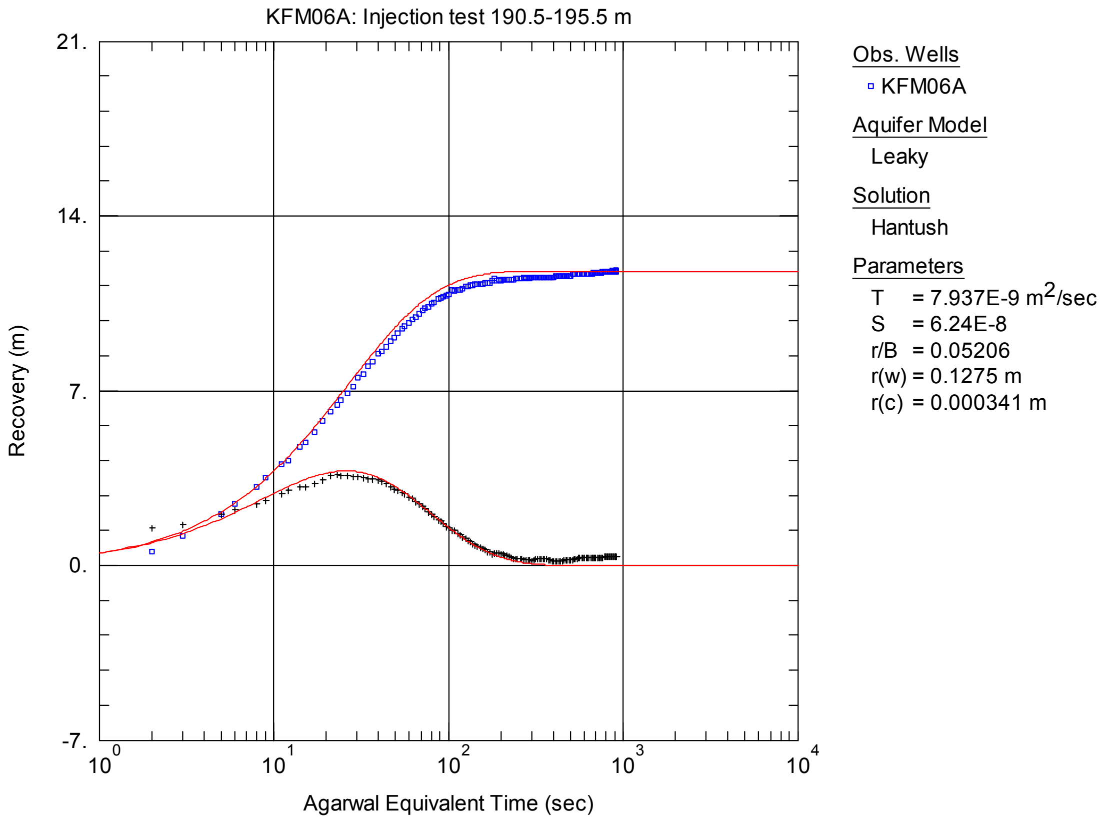


Figure A3-271. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 190.5-195.5 m in KFM06A.*

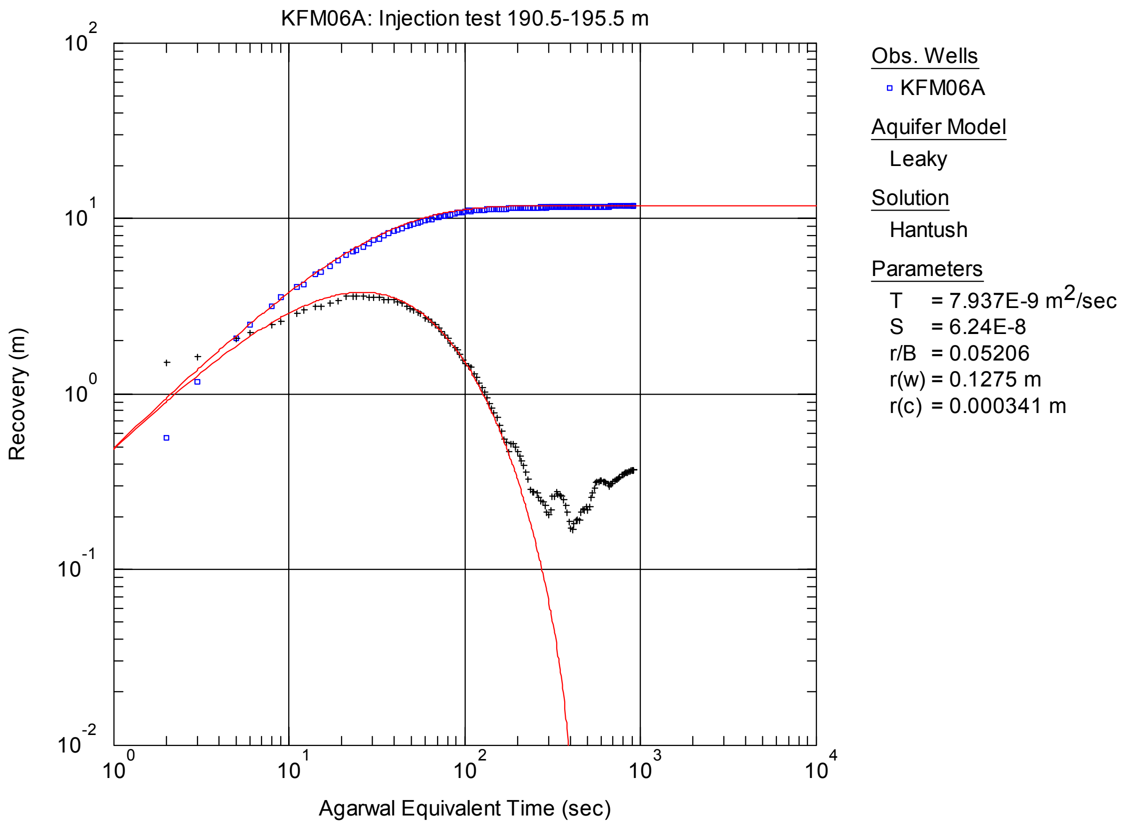


Figure A3-272. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 190.5-195.5 m in KFM06A.*

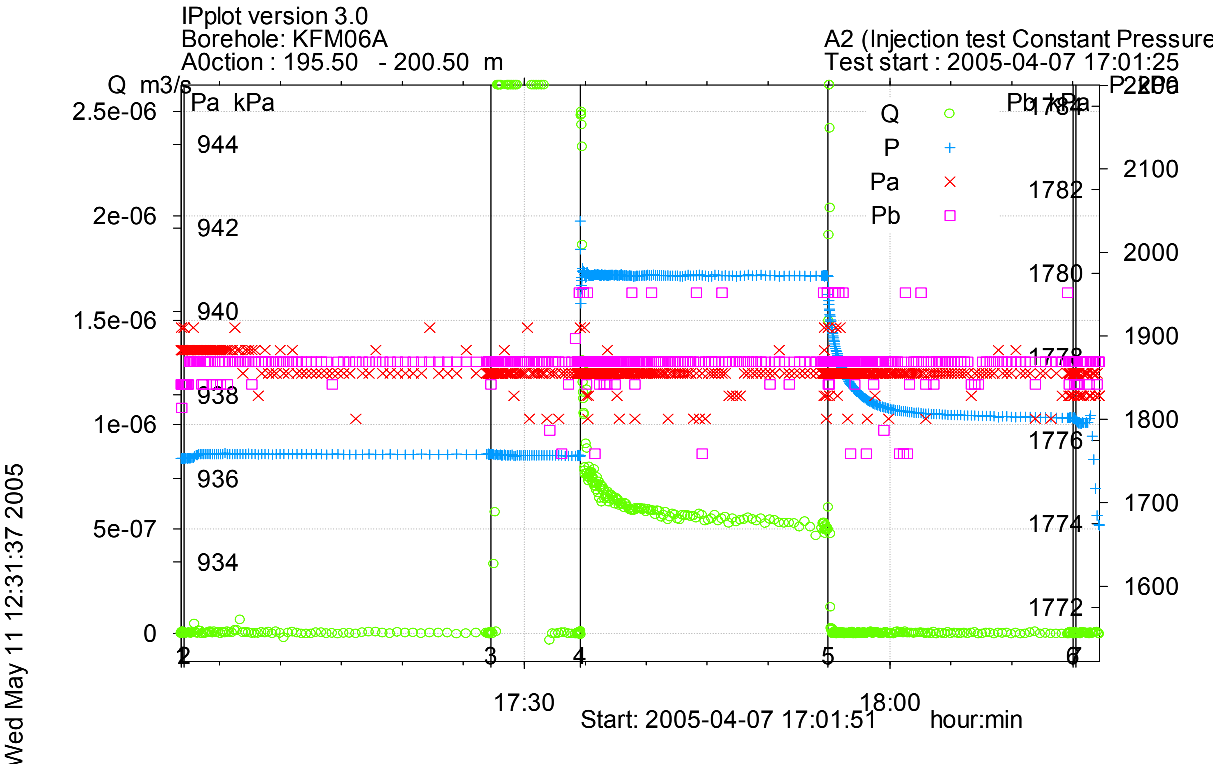


Figure A3-273. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 195.5-200.5 m in borehole KFM06A.

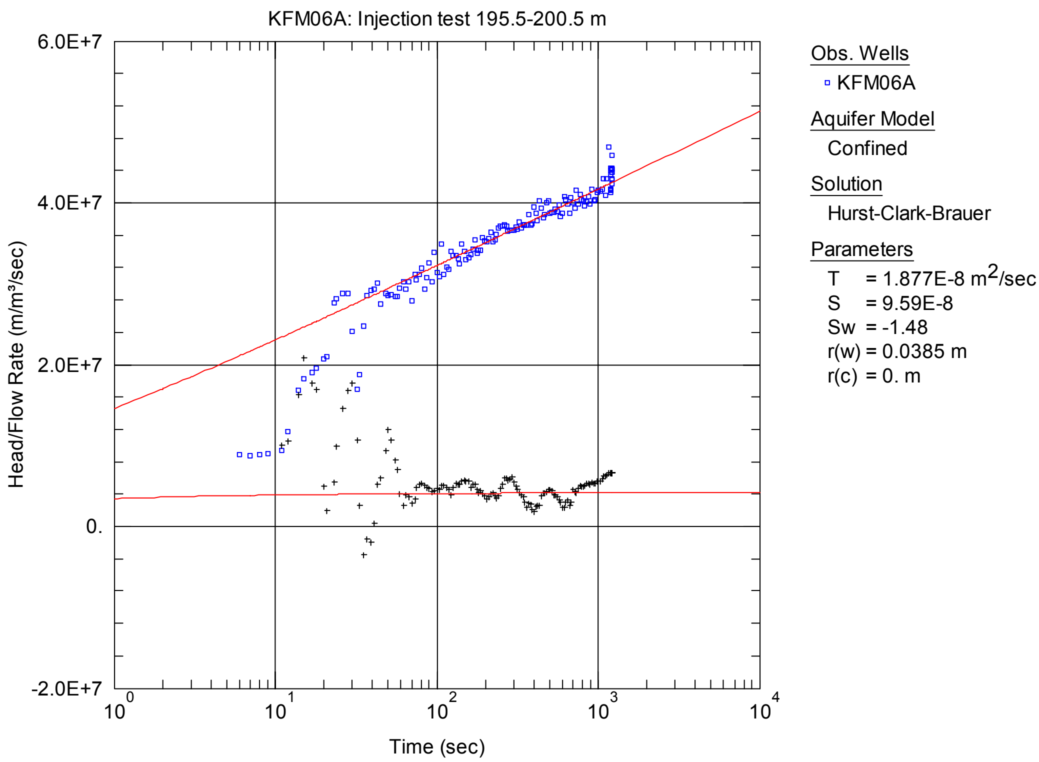


Figure A3-274. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 195.5-200.5 m in KFM06A.

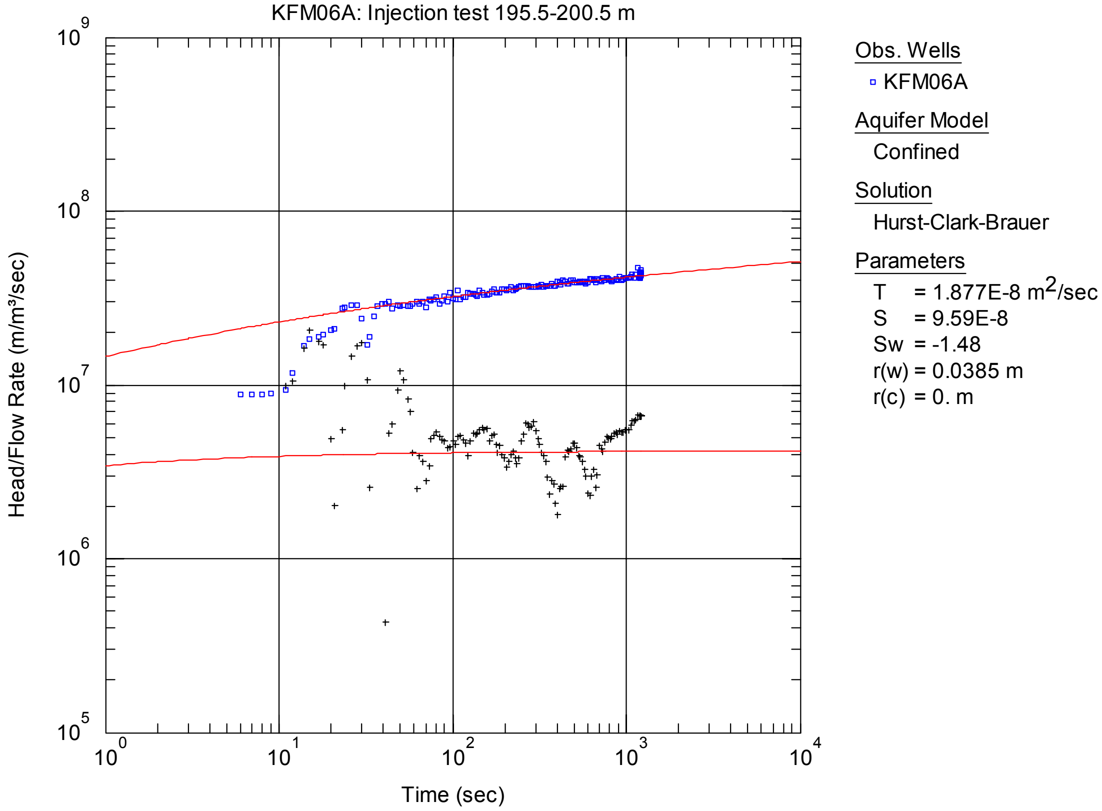


Figure A3-275. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 195.5-200.5 m in KFM06A.*

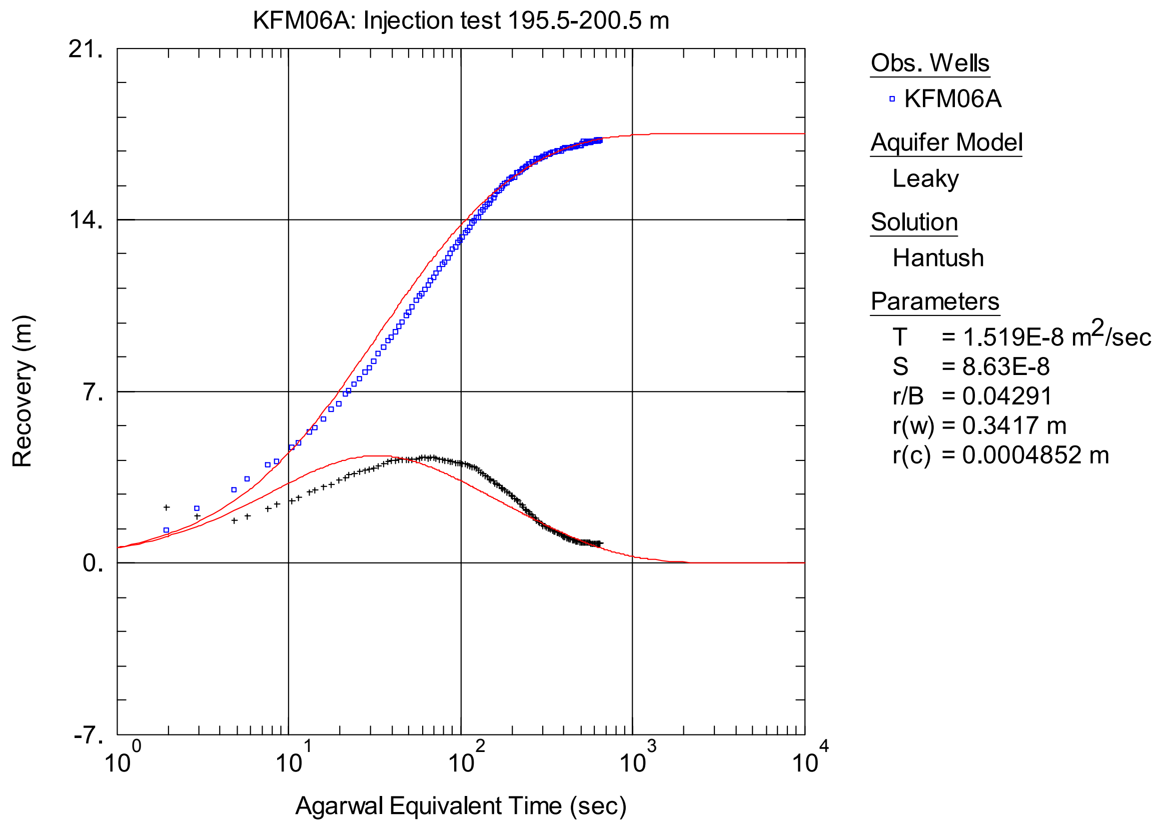


Figure A3-276. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 195.5-200.5 m in KFM06A.*

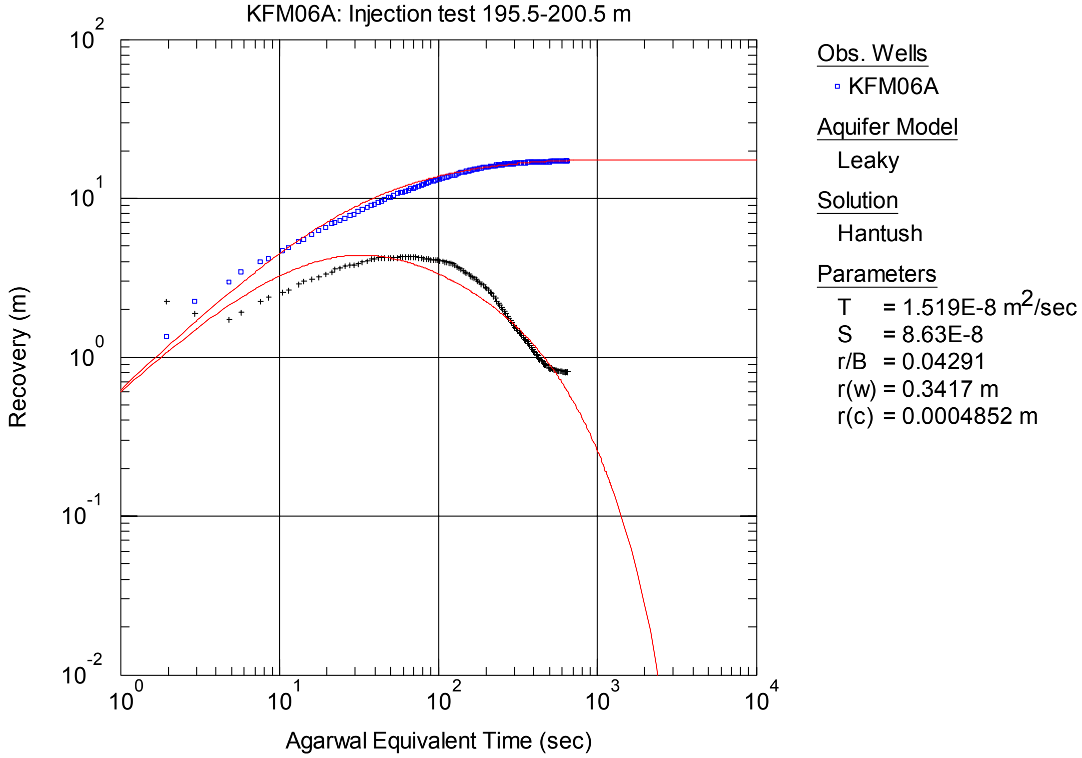


***Figure A3-277.** Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 195.5-200.5 m in KFM06A.*

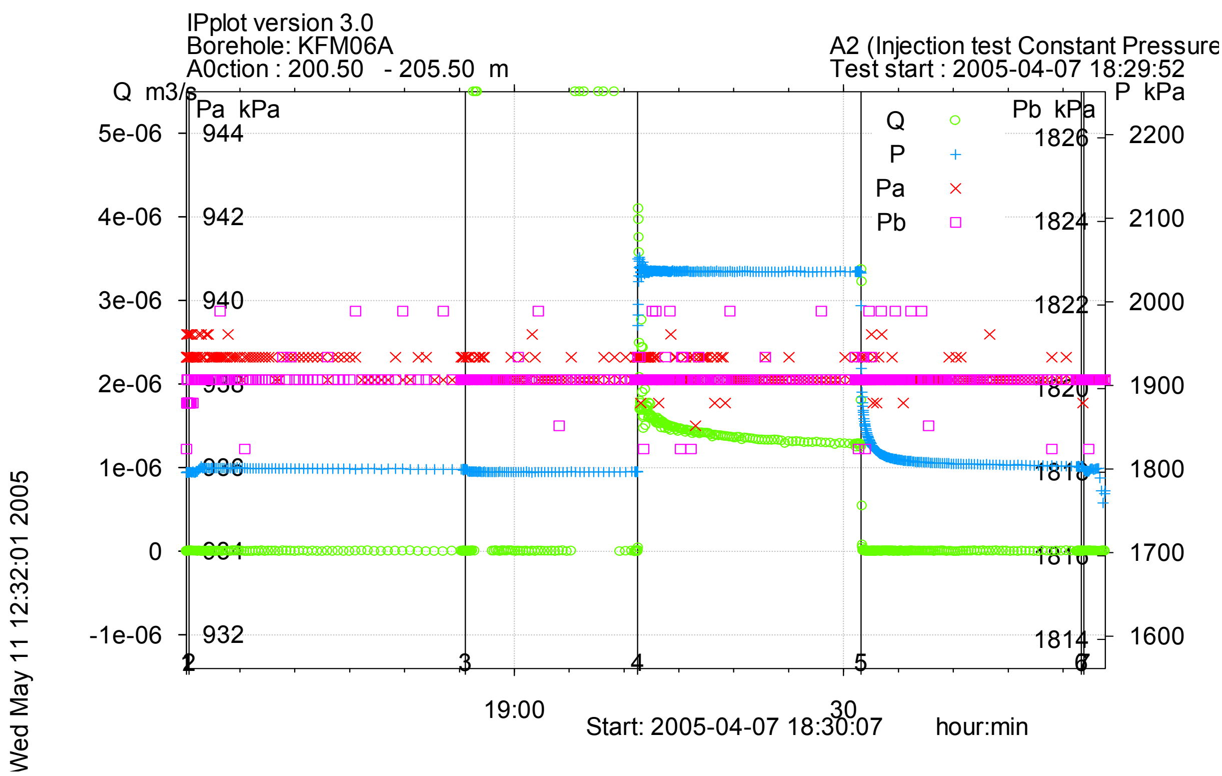


***Figure A3-278.** Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 200.5-205.5 m in borehole KFM06A.*

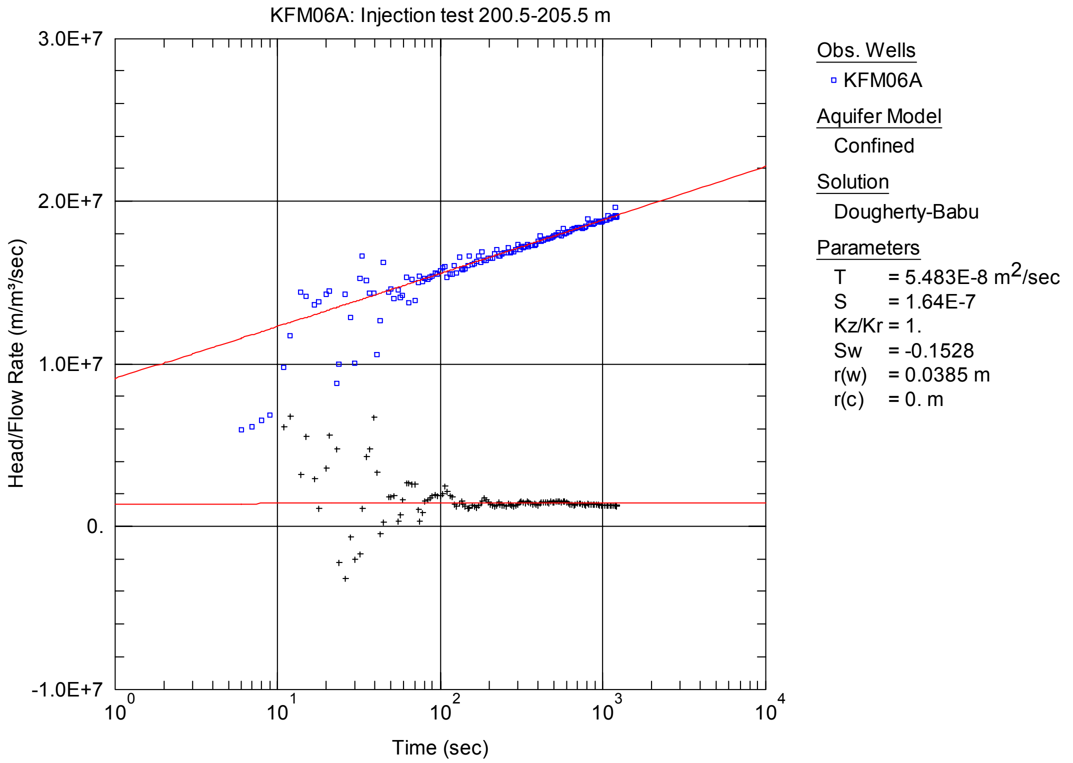


Figure A3-279. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 200.5-205.5 m in KFM06A.*

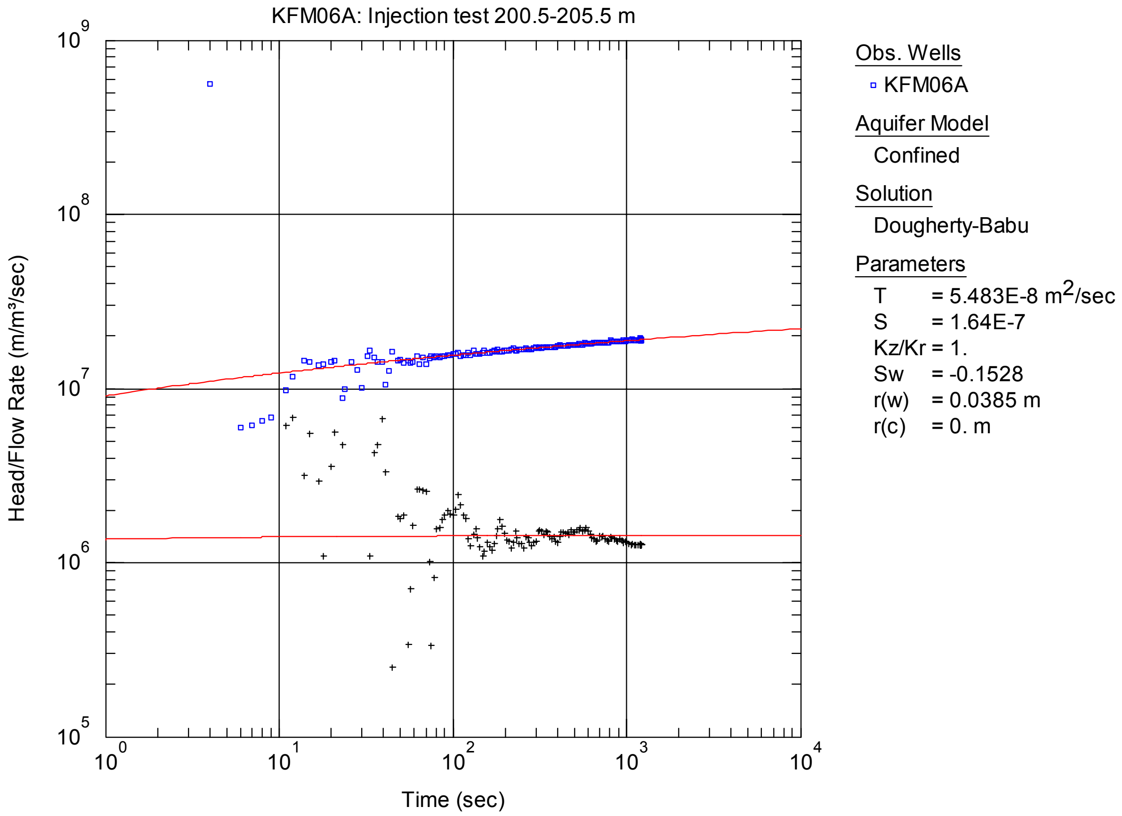


Figure A3-280. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 200.5-205.5 m in KFM06A.*

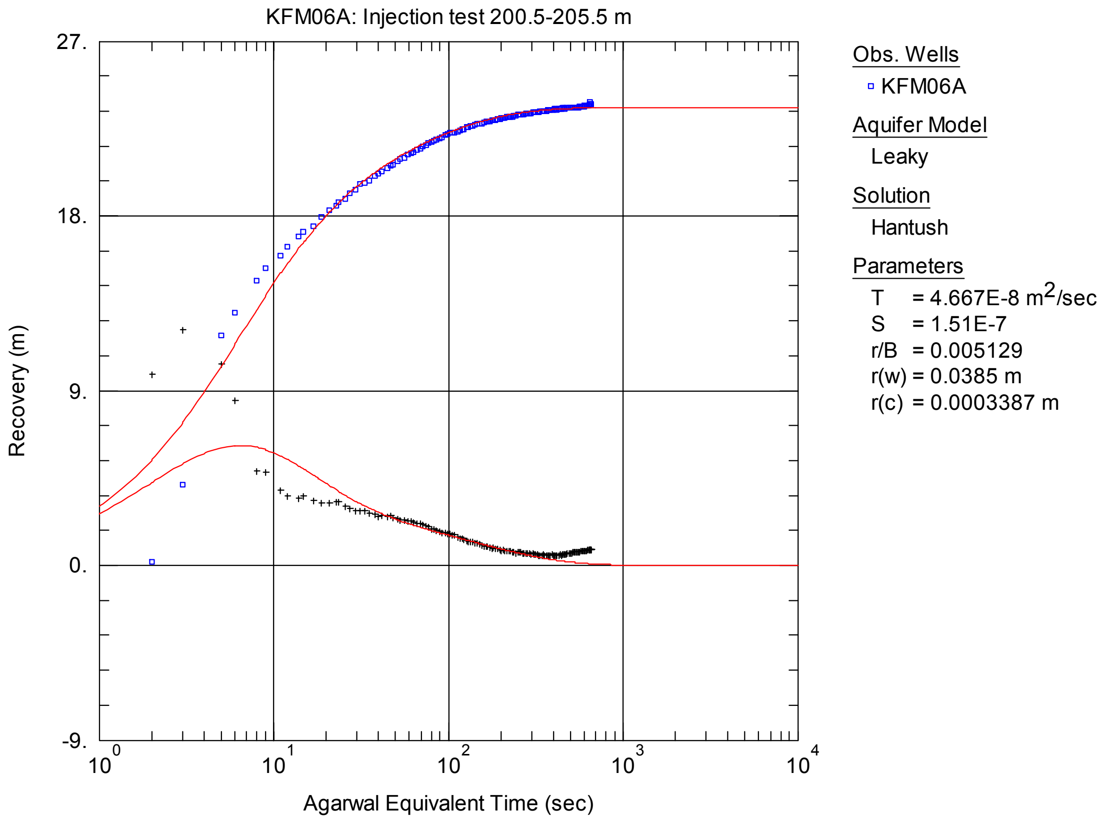


Figure A3-281. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 200.5-205.5 m in KFM06A.*

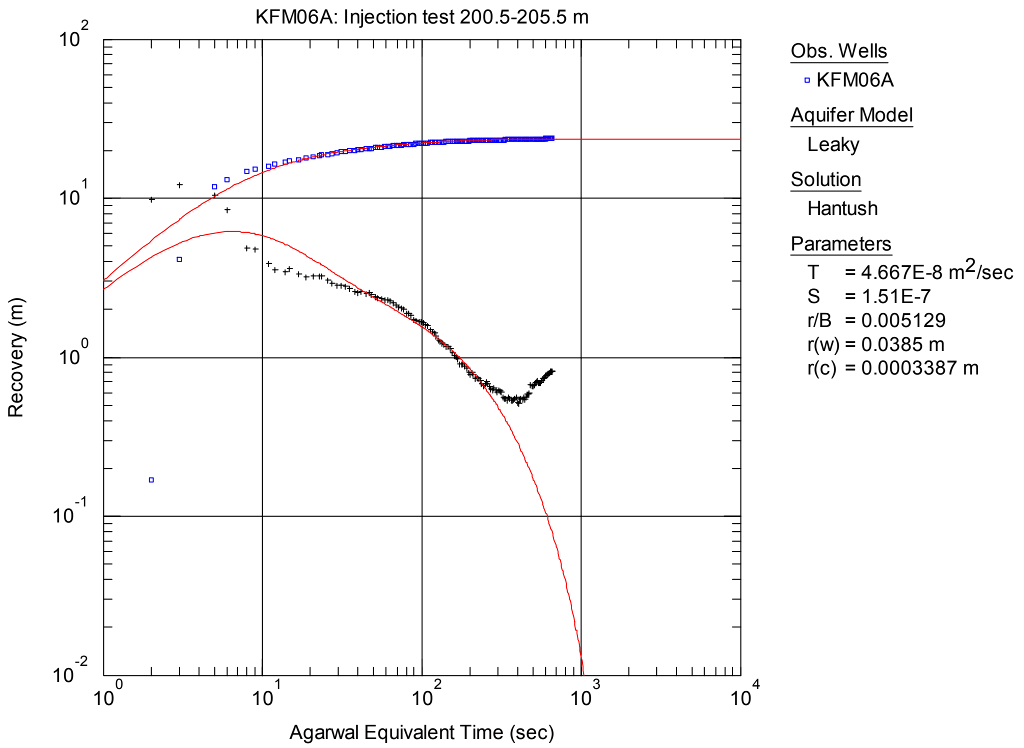


Figure A3-282. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 200.5-205.5 m in KFM06A.*

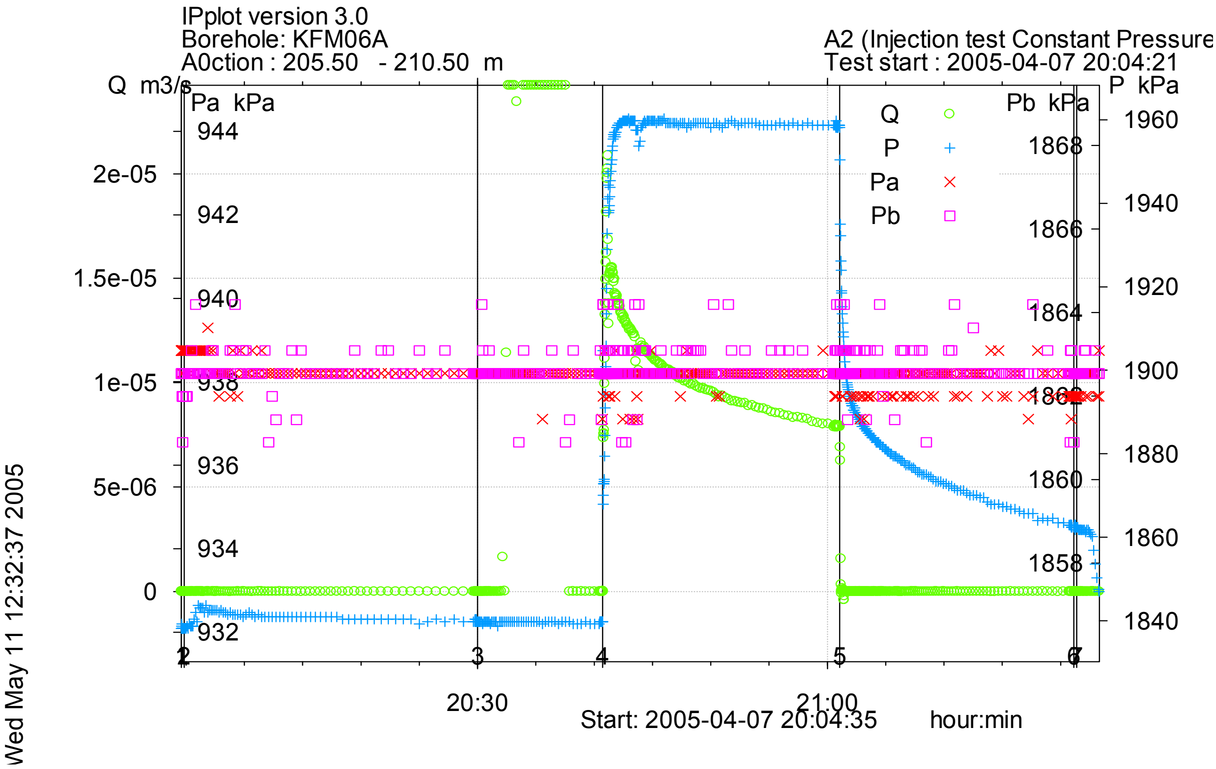


Figure A3-283. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 205.5-210.5 m in borehole KFM06A.

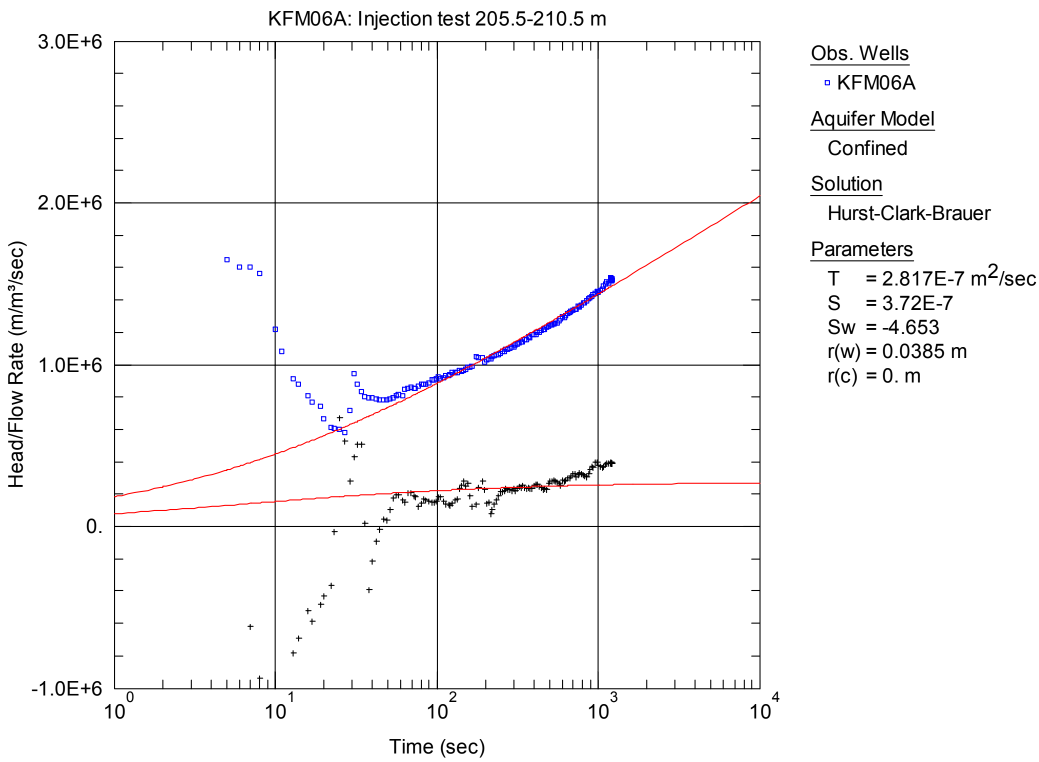


Figure A3-284. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 205.5-210.5 m in KFM06A.

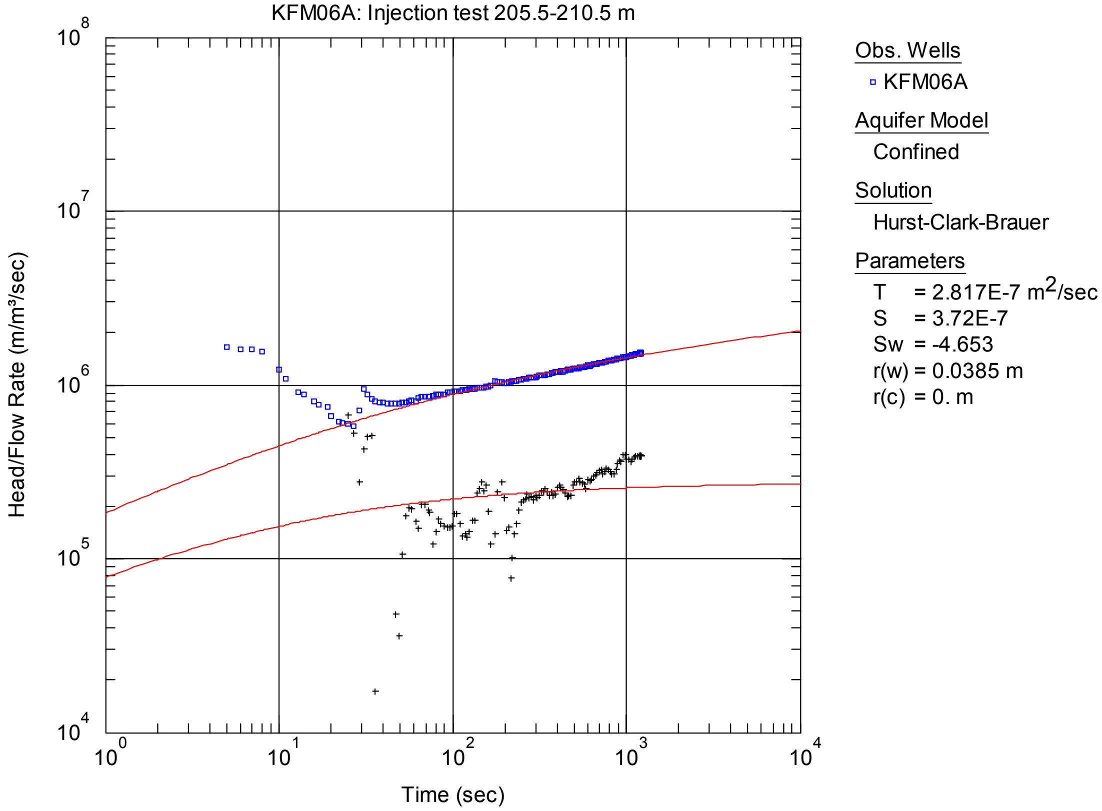


Figure A3-285. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 205.5-210.5 m in KFM06A.*

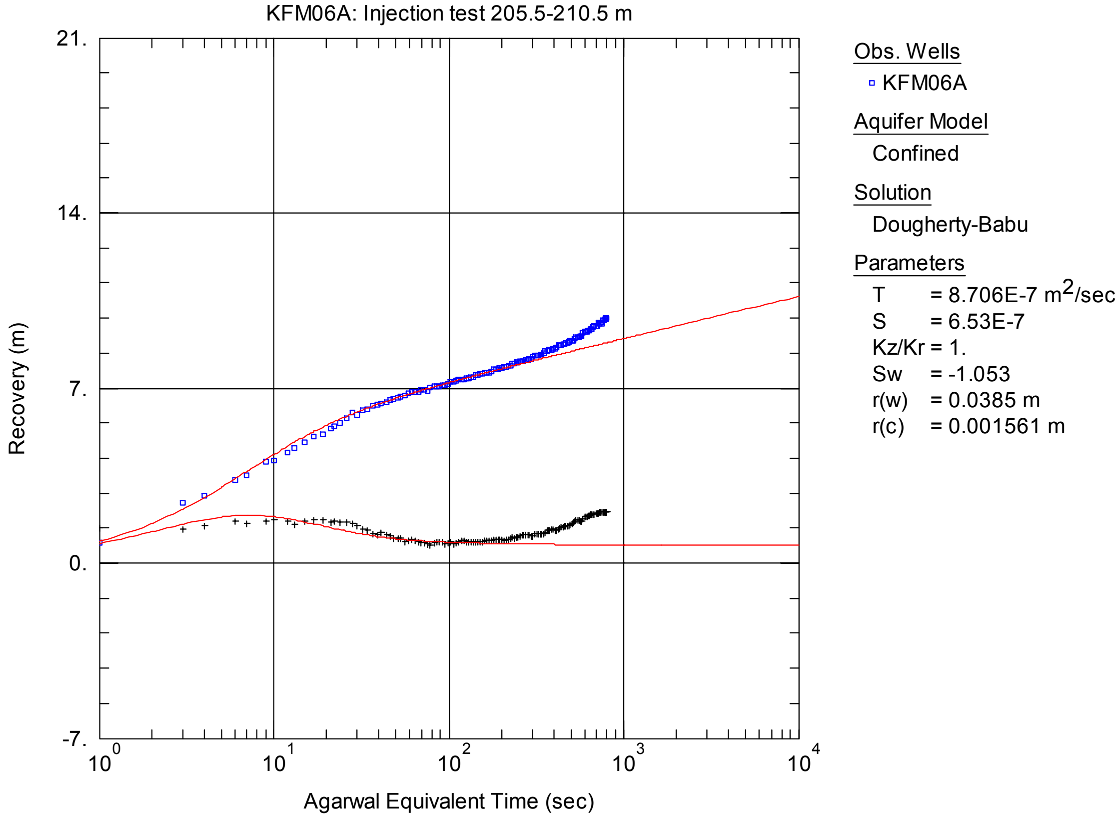


Figure A3-286. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 205.5-210.5 m in KFM06A.*

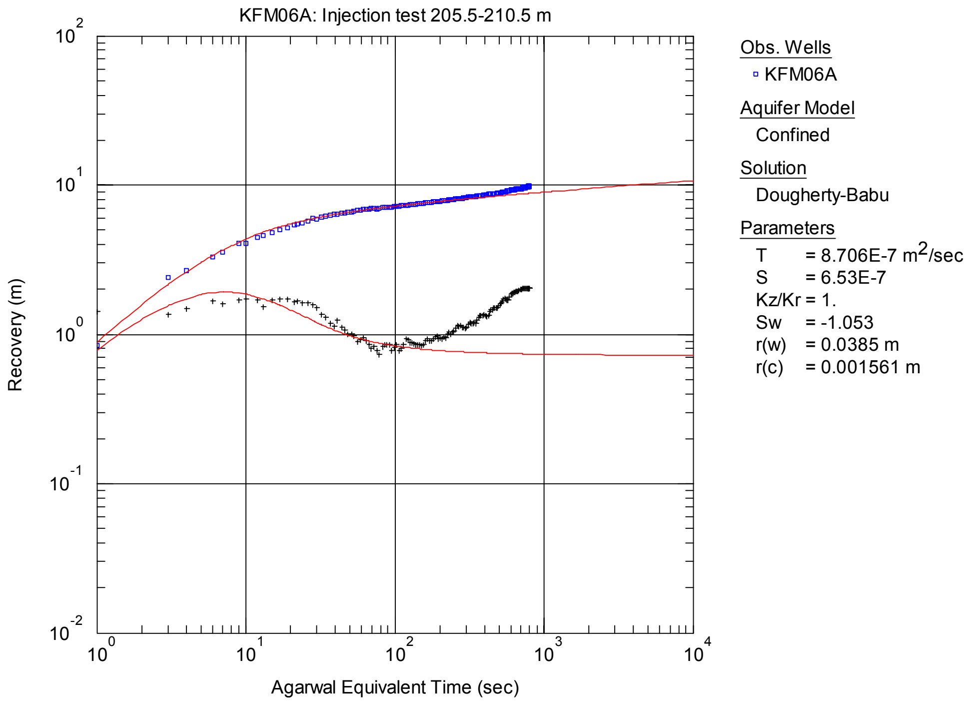


Figure A3-287. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 205.5-210.5 m in KFM06A.*

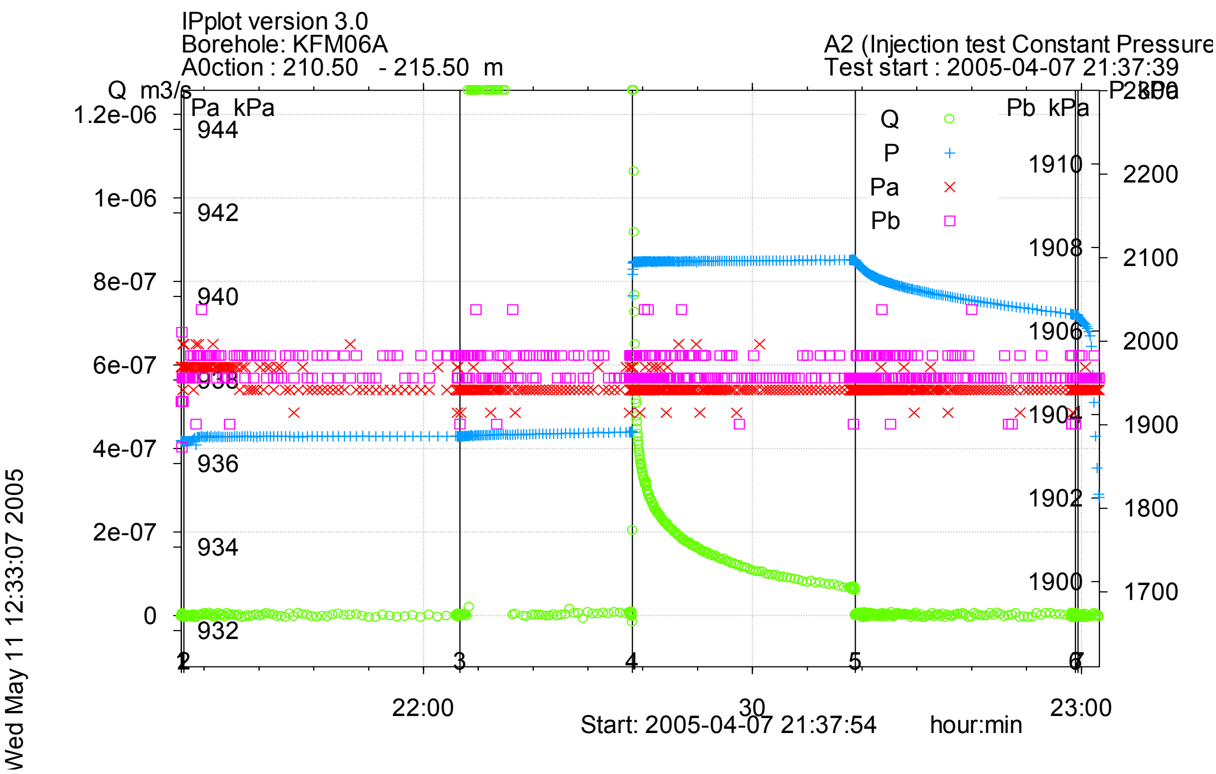


Figure A3-288. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 210.5-215.5 m in borehole KFM06A.*

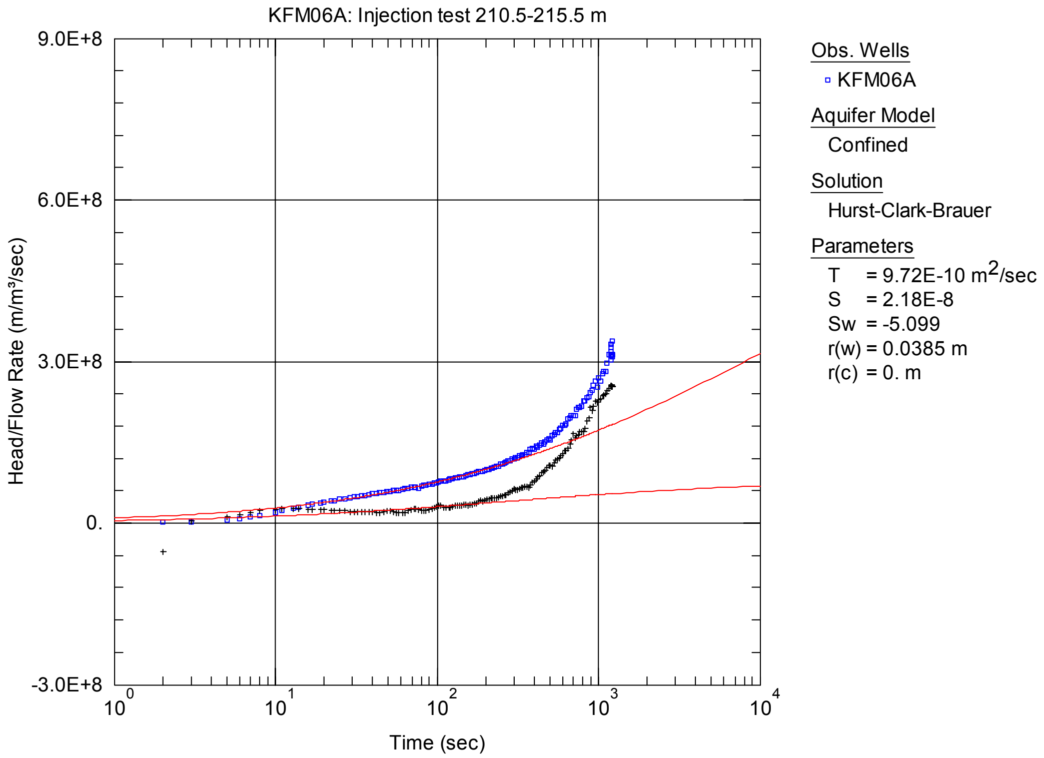


Figure A3-289. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 210.5-215.5 m in KFM06A.*

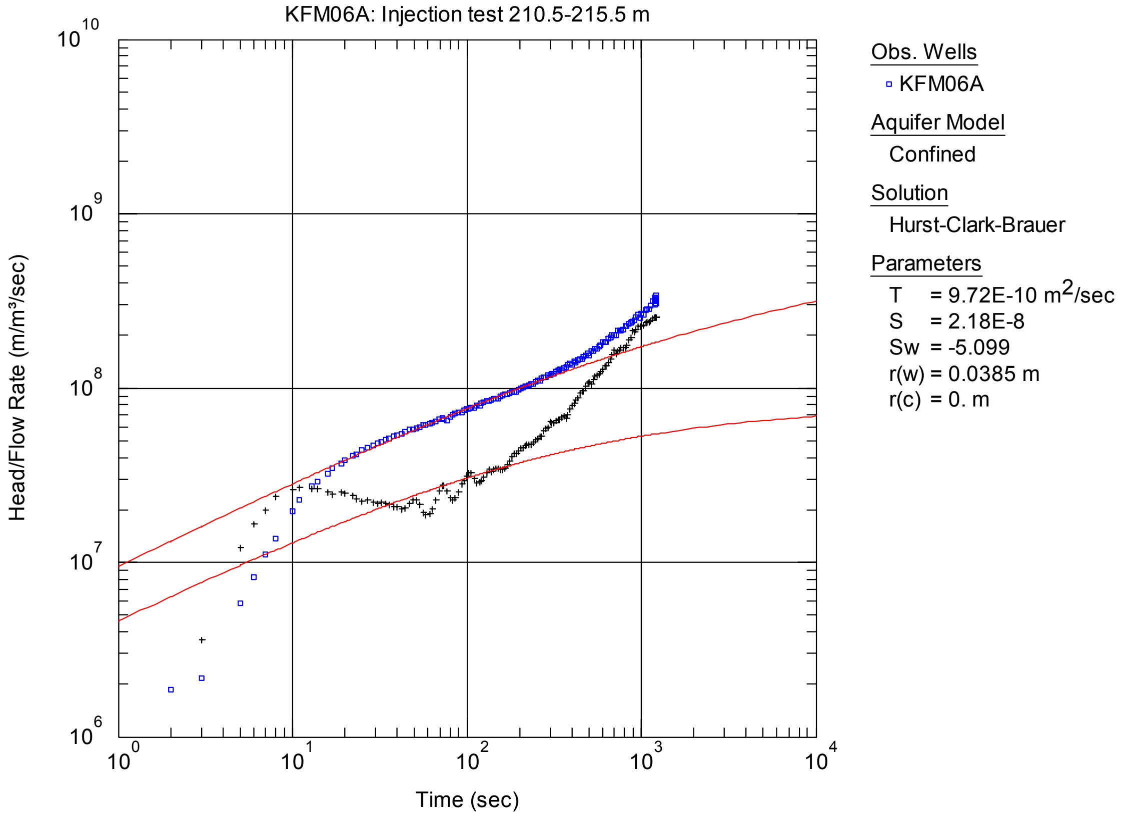


Figure A3-290. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 210.5-215.5 m in KFM06A.*

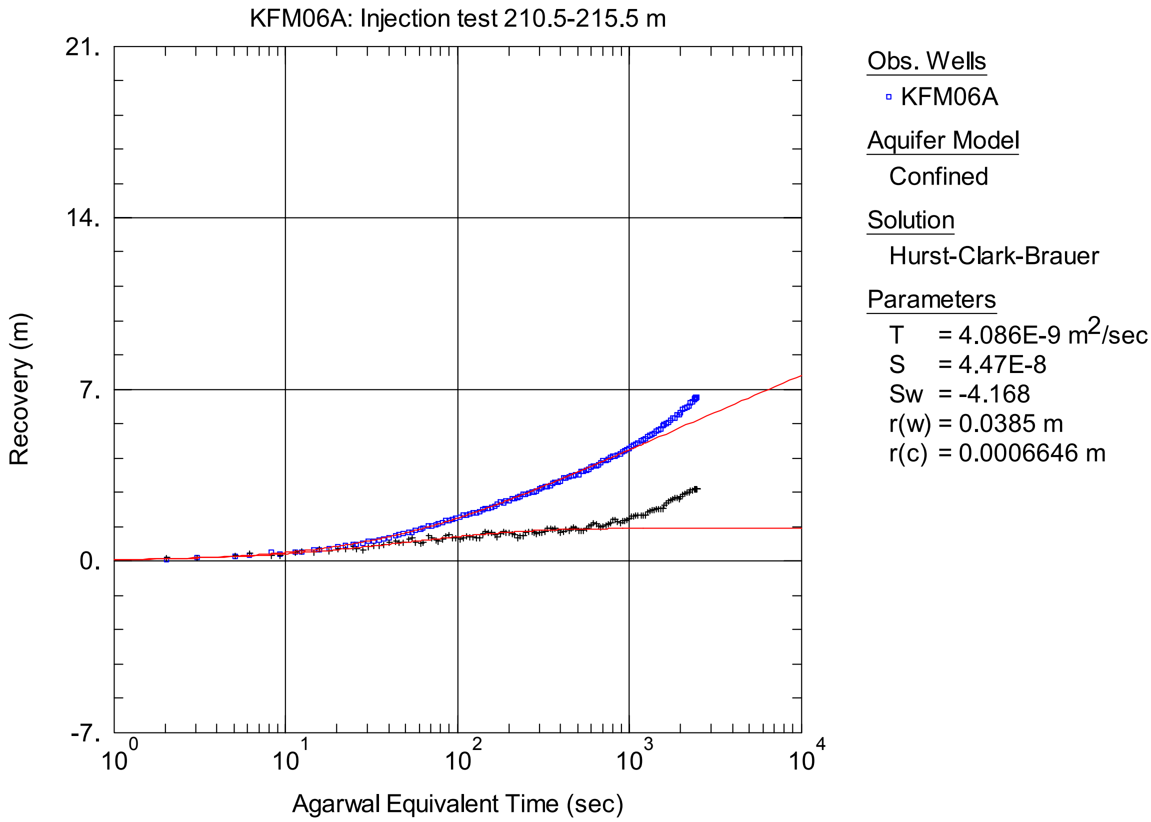


Figure A3-291. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 210.5-215.5 m in KFM06A.*

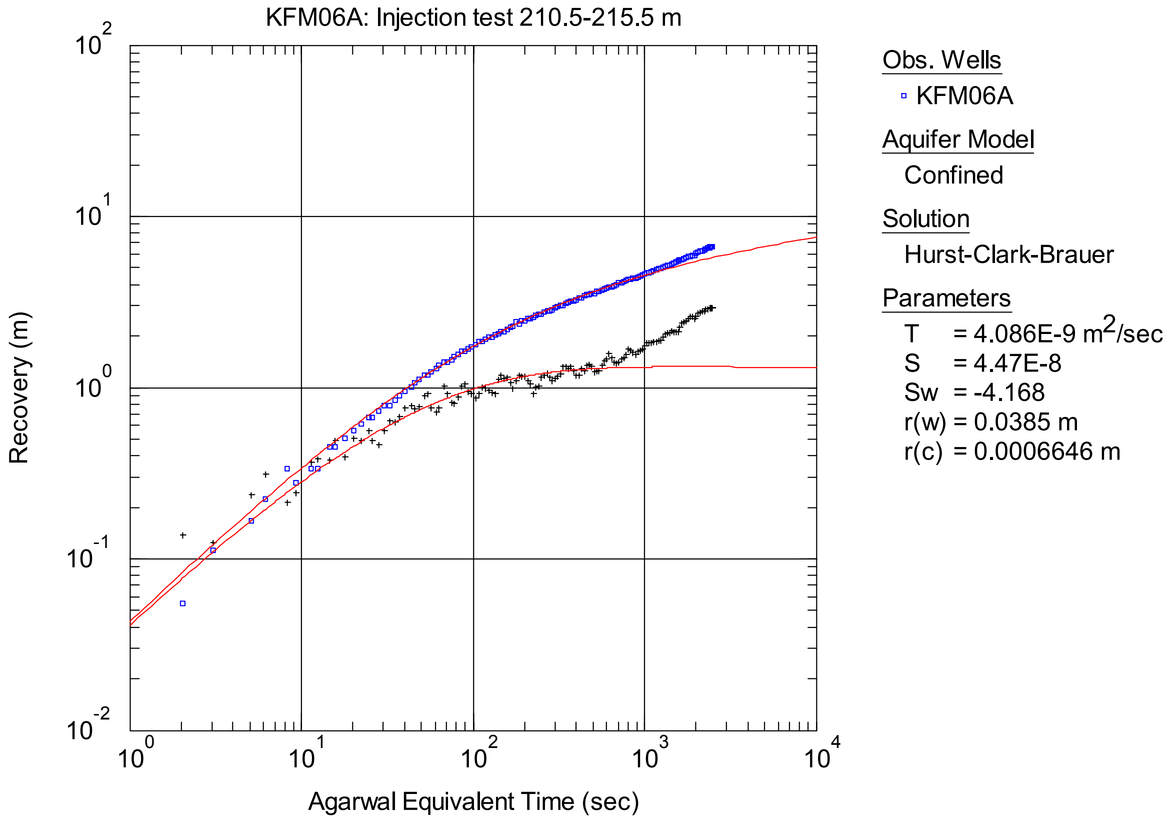


Figure A3-292. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 210.5-215.5 m in KFM06A.*

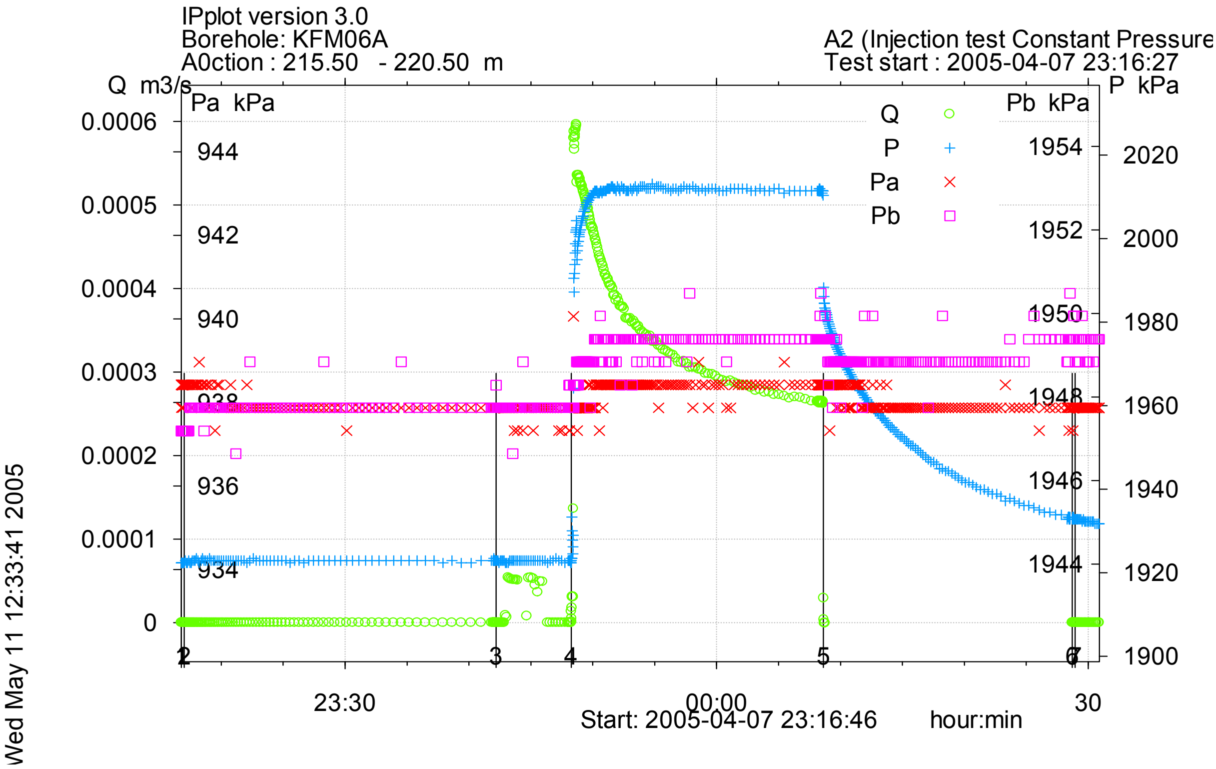


Figure A3-293. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 215.5-220.5 m in borehole KFM06A.*

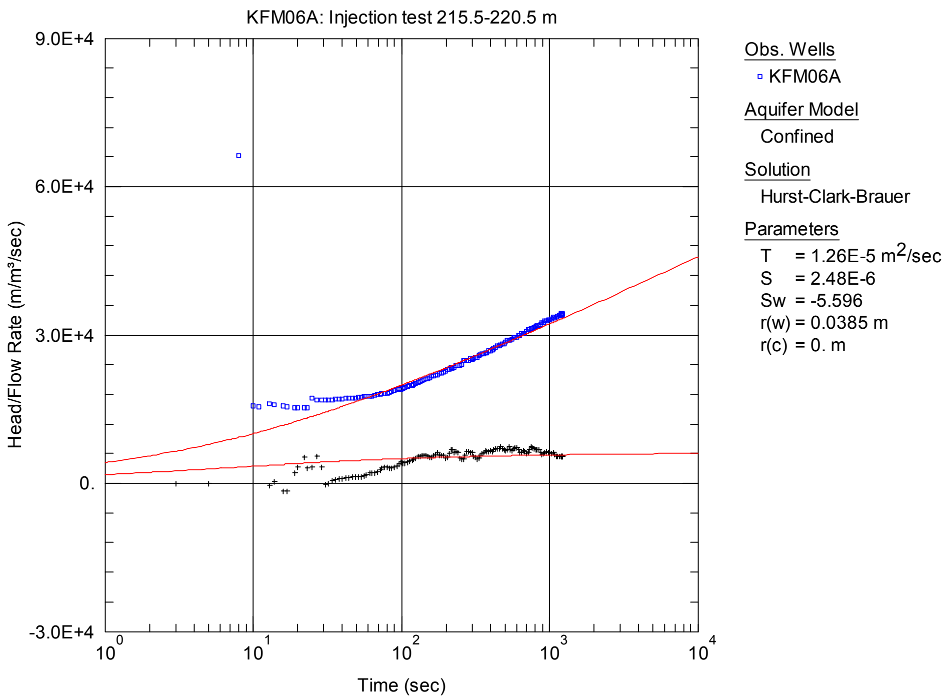


Figure A3-294. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 215.5-220.5 m in KFM06A.*

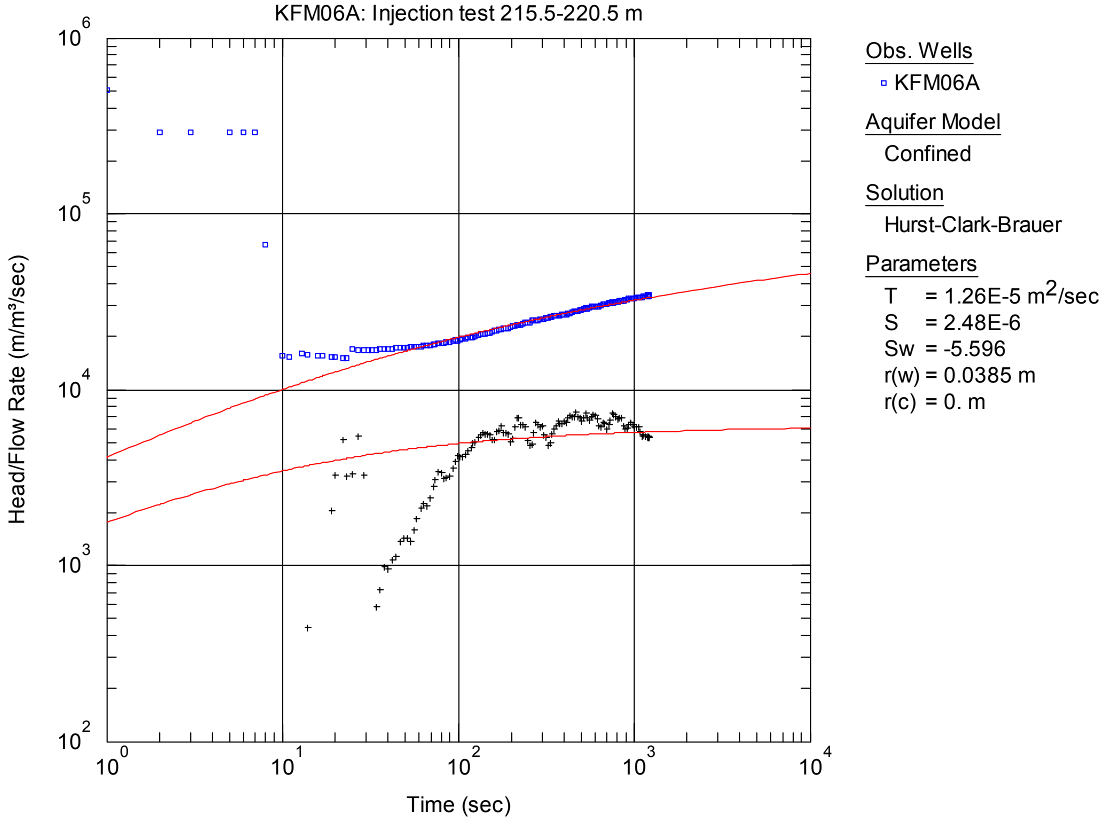


Figure A3-295. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 215.5-220.5 m in KFM06A.*

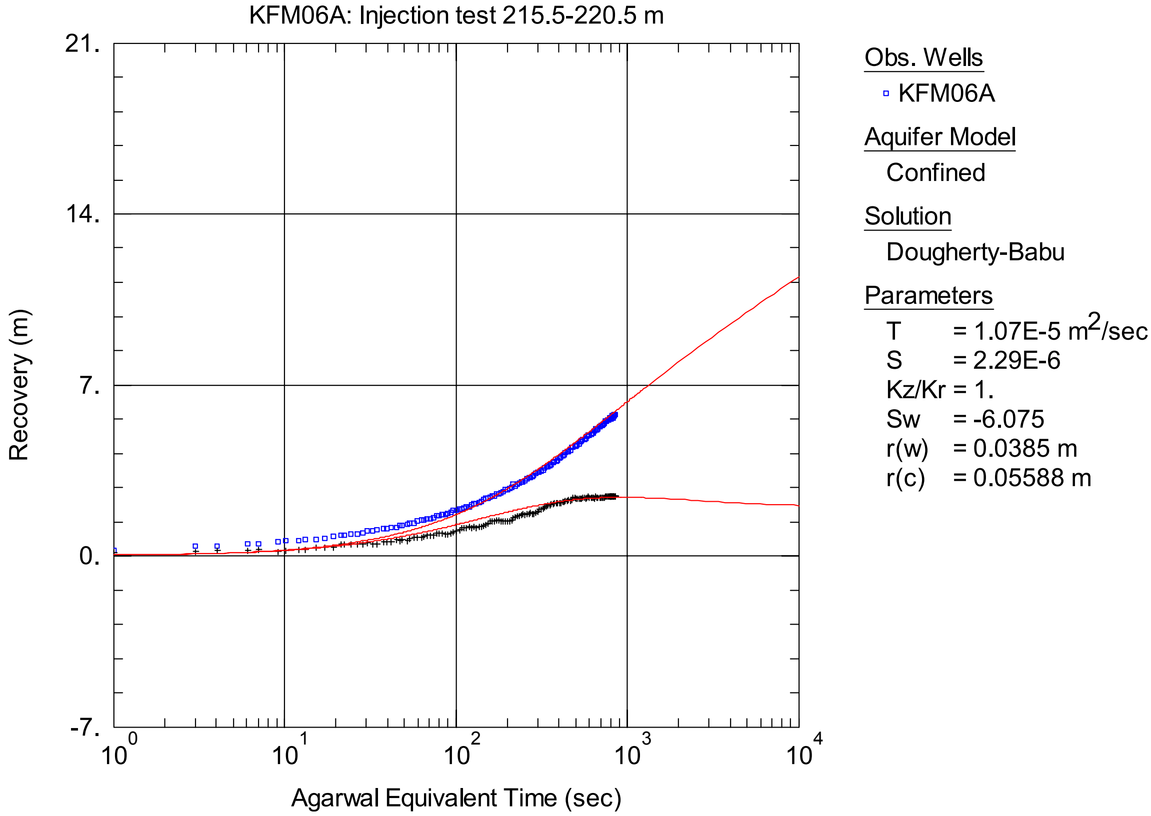


Figure A3-296. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 215.5-220.5 m in KFM06A.*

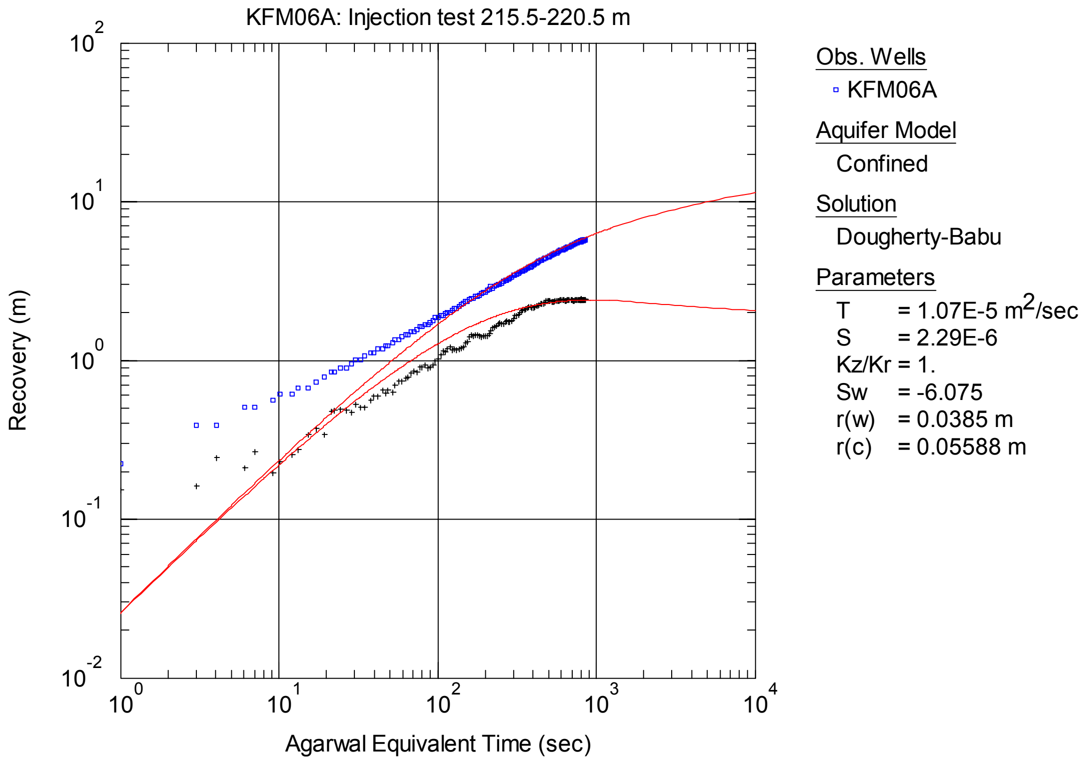


Figure A3-297. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 215.5-220.5 m in KFM06A.*

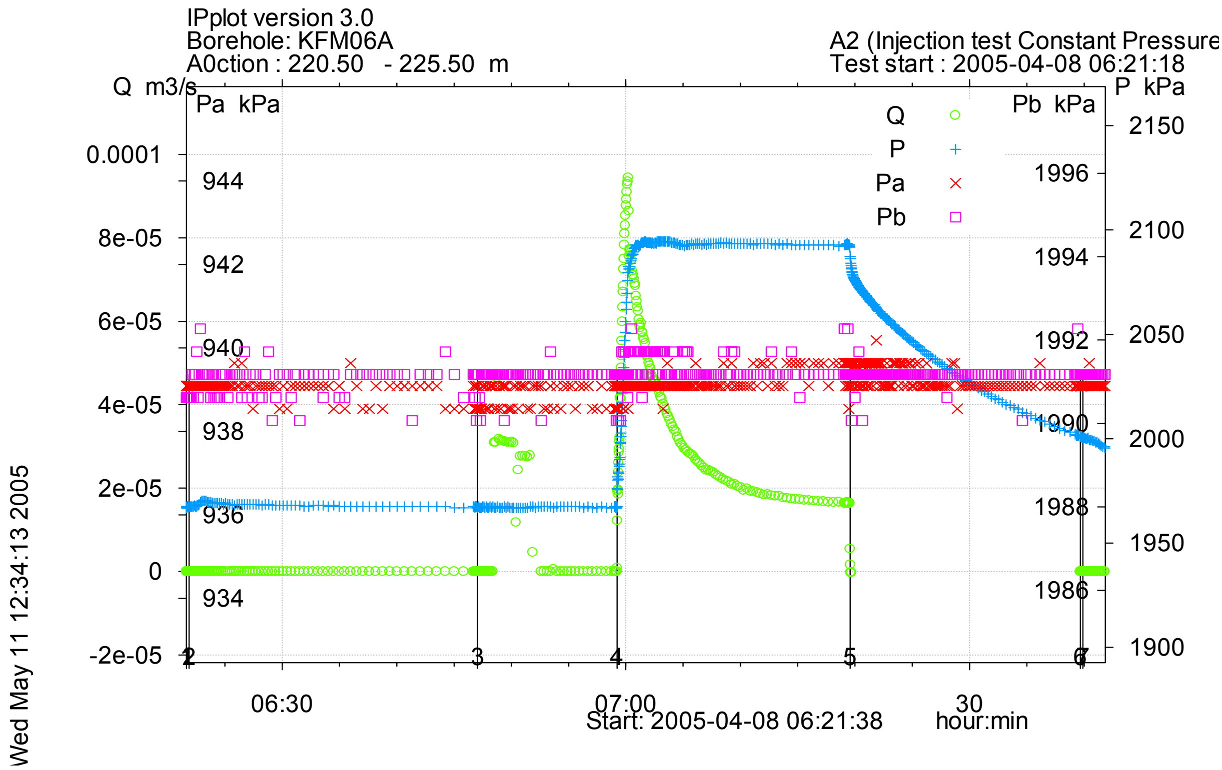


Figure A3-298. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 220.5-225.5 m in borehole KFM06A.*

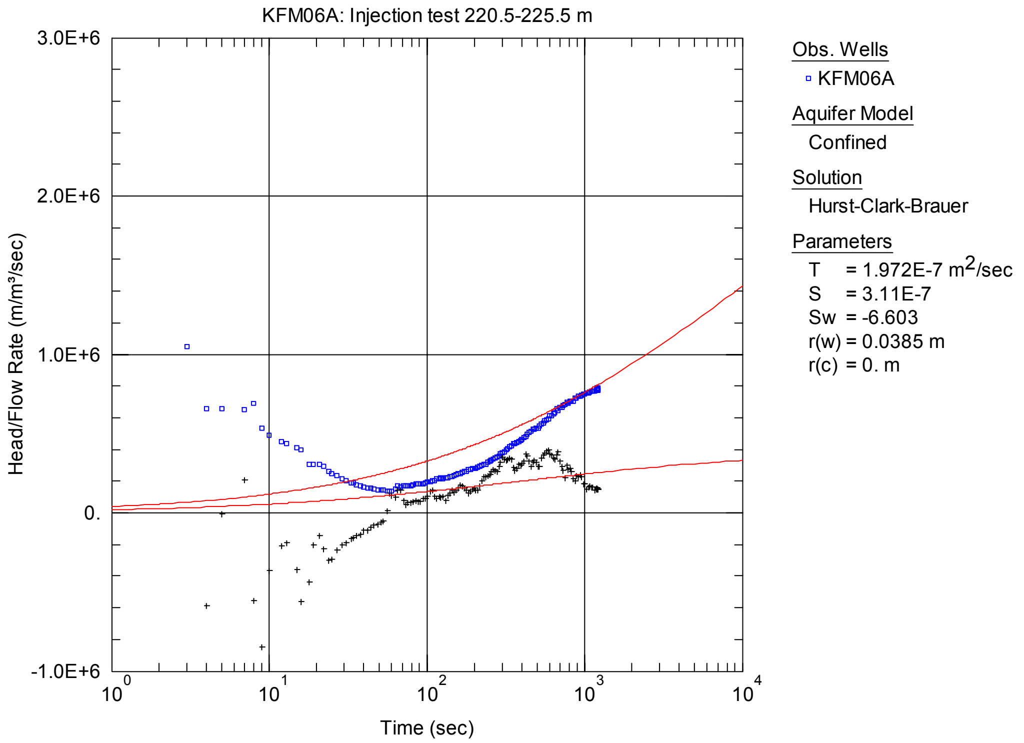


Figure A3-299. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 220.5-225.5 m in KFM06A.*

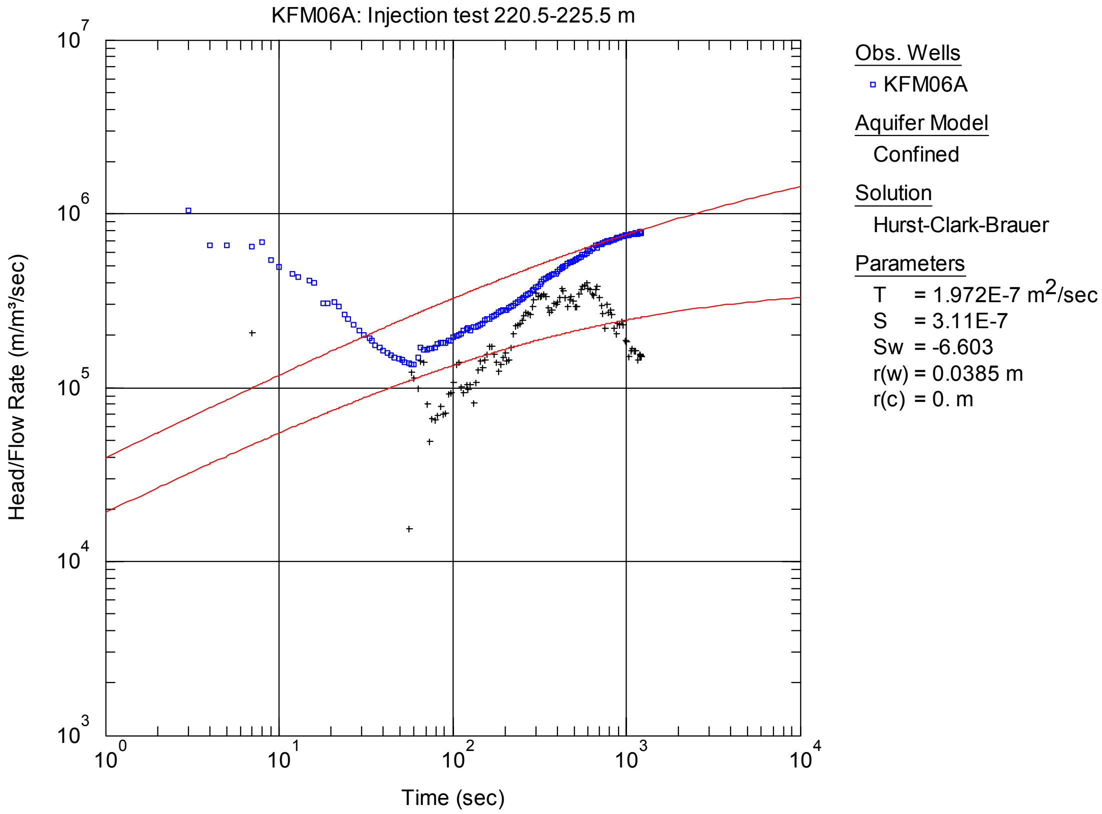


Figure A3-300. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 220.5-225.5 m in KFM06A.*

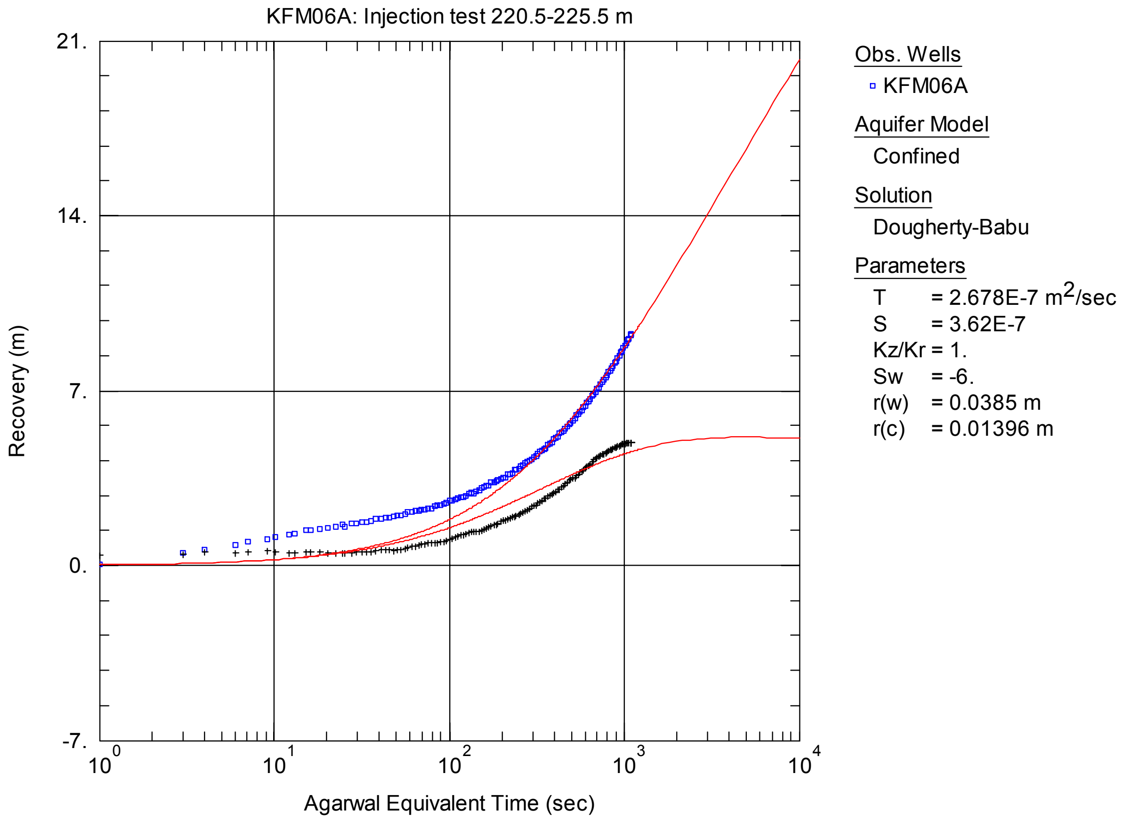


Figure A3-301.*Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 220.5-225.5 m in KFM06A.*

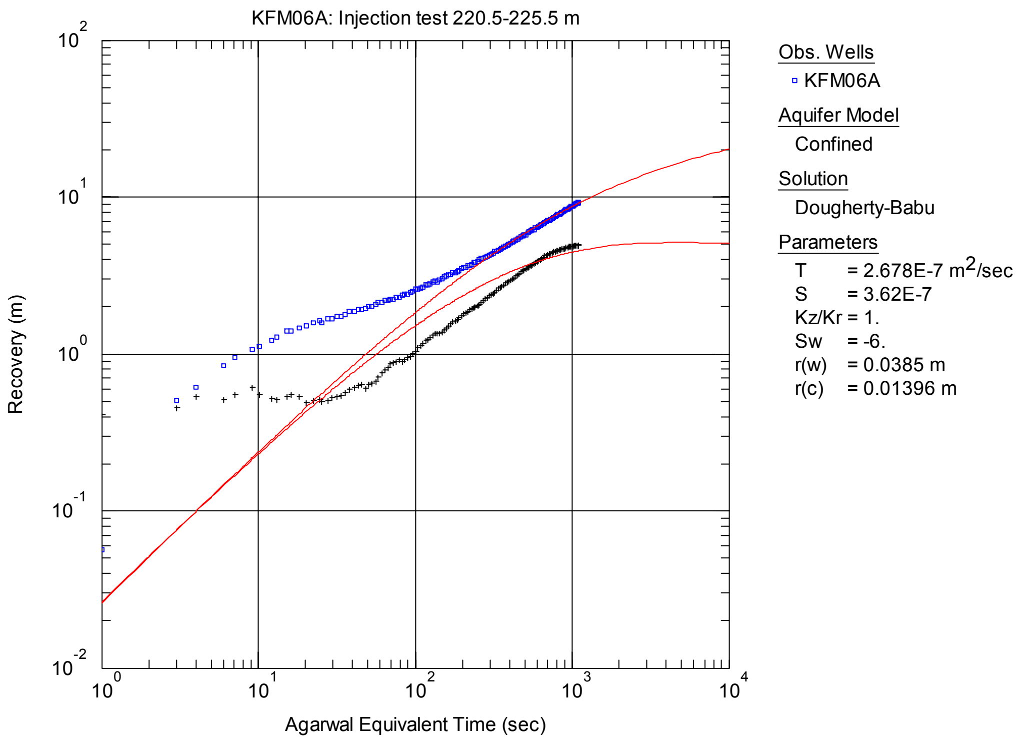


Figure A3-302. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 220.5-225.5 m in KFM06A.*

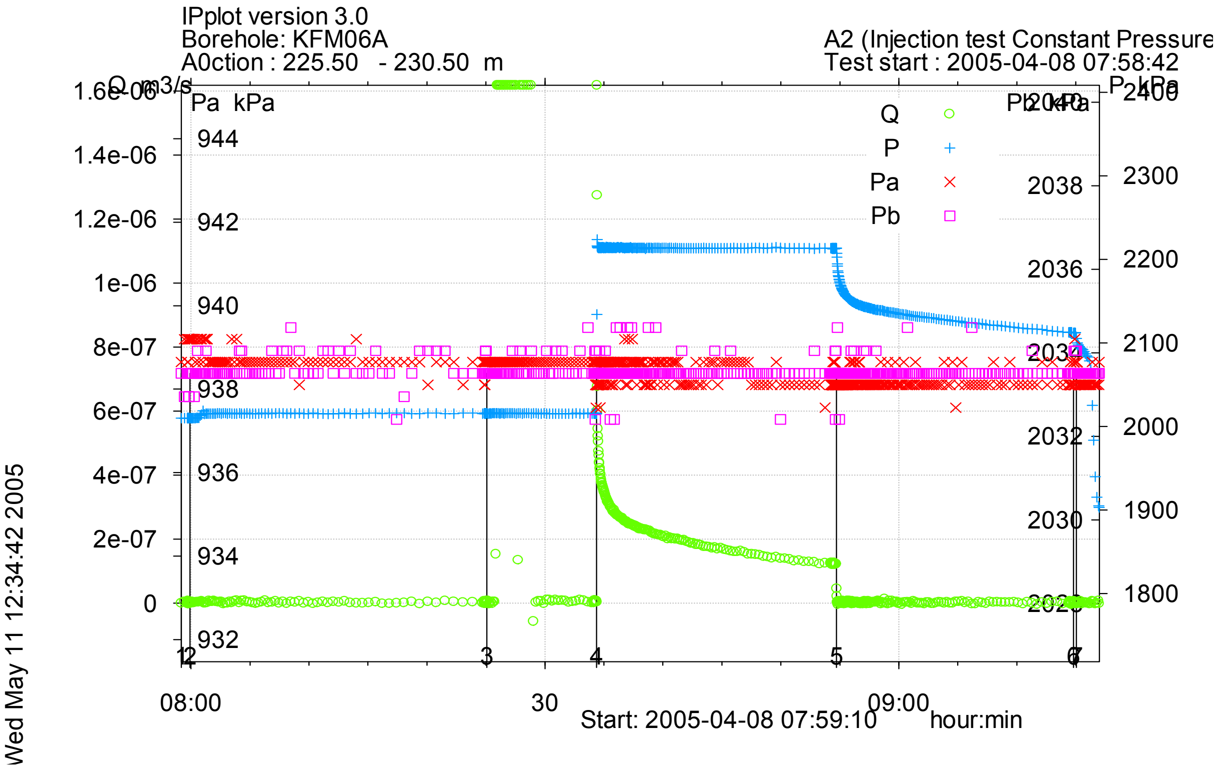


Figure A3-303. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 225.5-230.5 m in borehole KFM06A.*

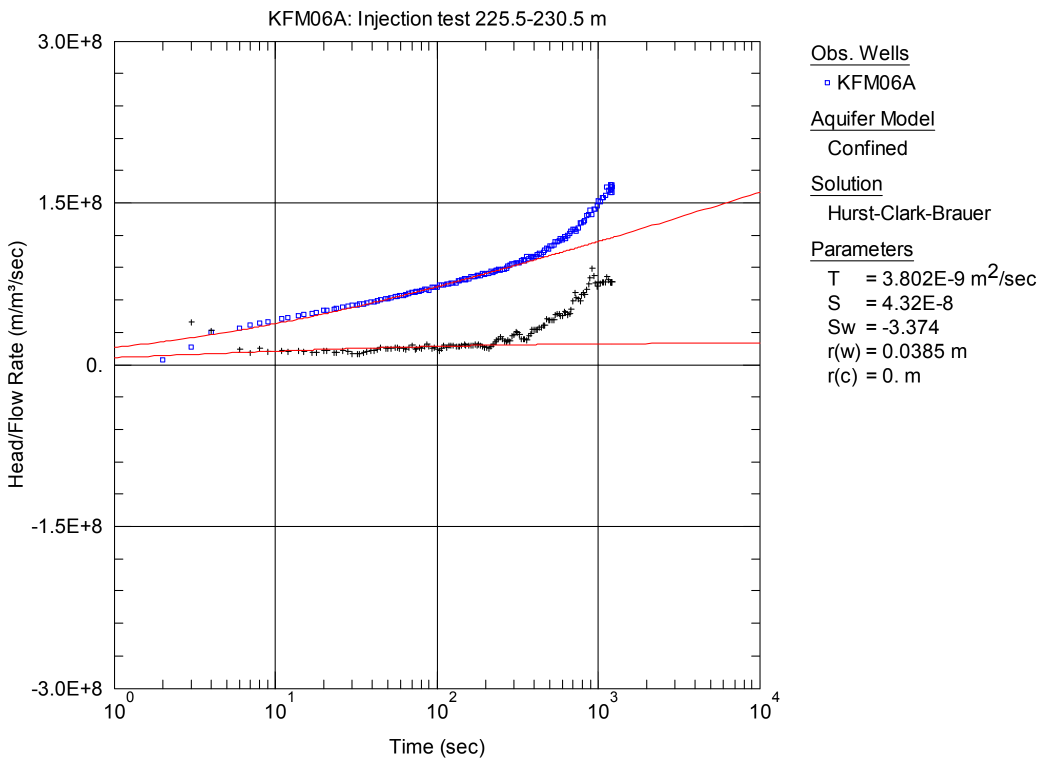


Figure A3-304. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 225.5-230.5 m in KFM06A.*

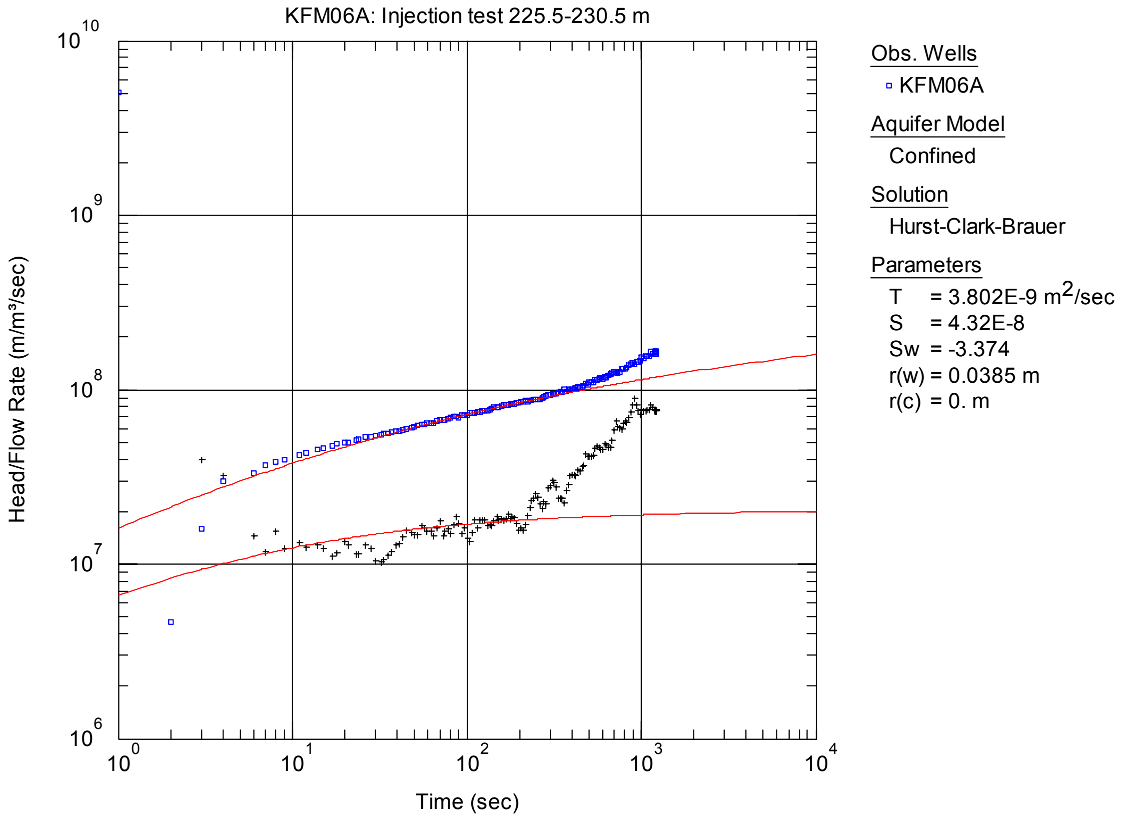


Figure A3-305. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 225.5-230.5 m in KFM06A.*

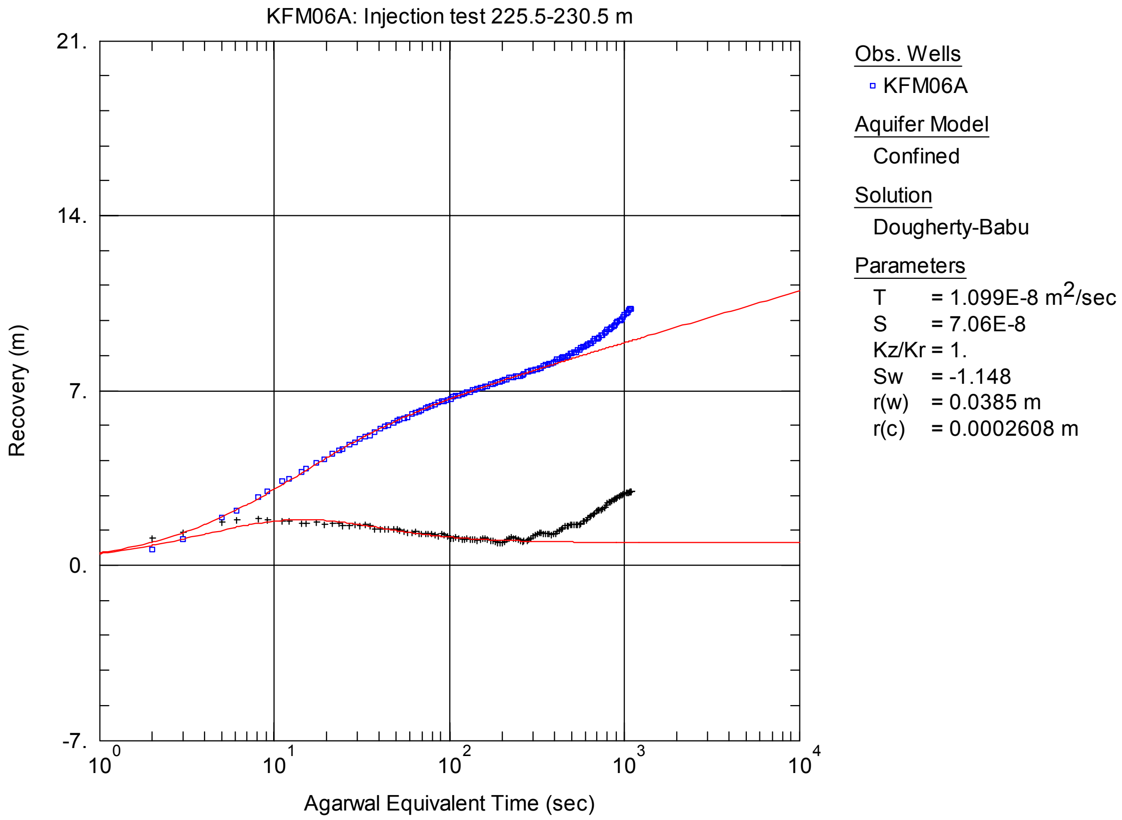


Figure A3-306. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 225.5-230.5 m in KFM06A.*

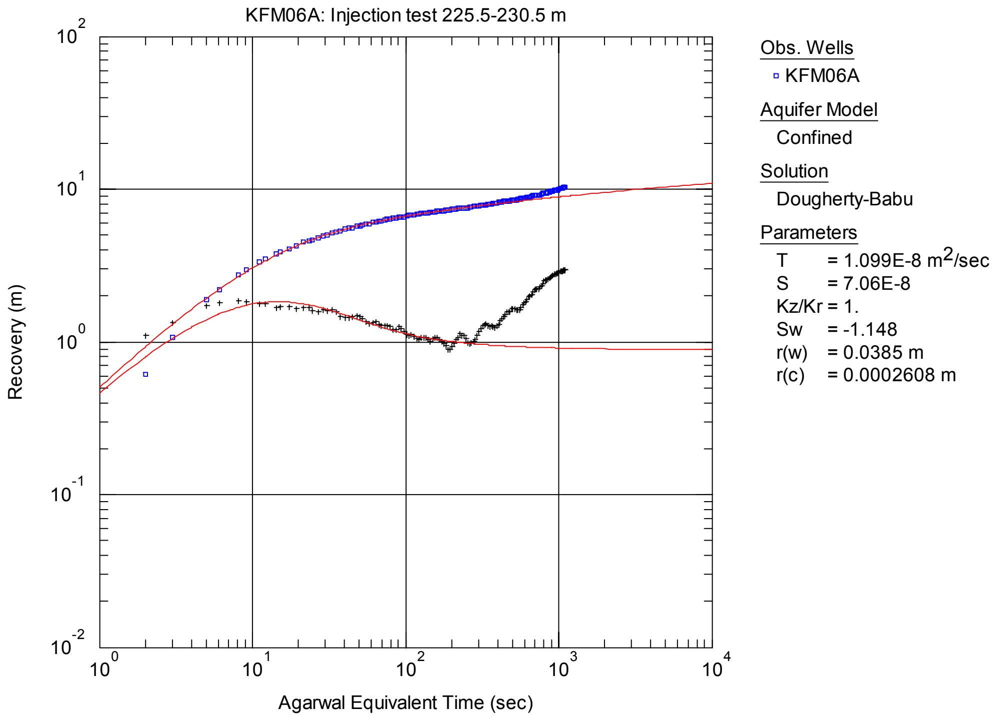


Figure A3-307. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 225.5-230.5 m in KFM06A.*

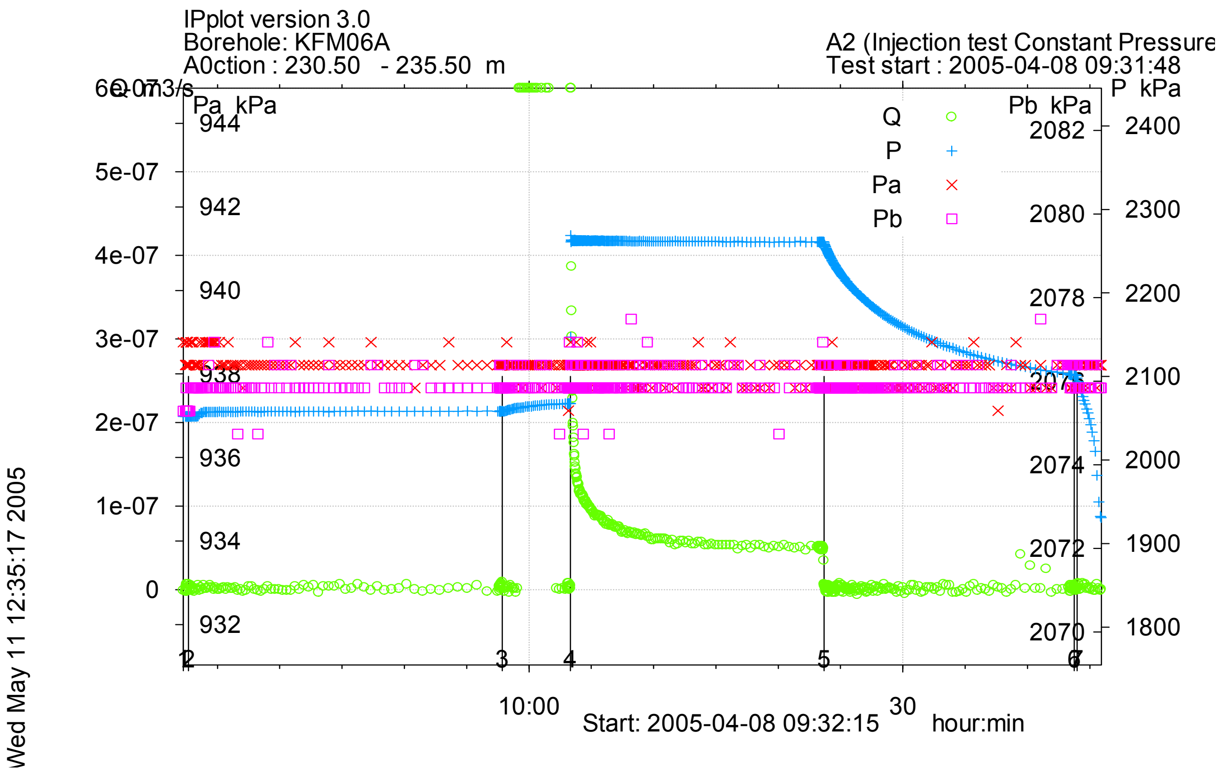


Figure A3-308. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 230.5-235.5 m in borehole KFM06A.*

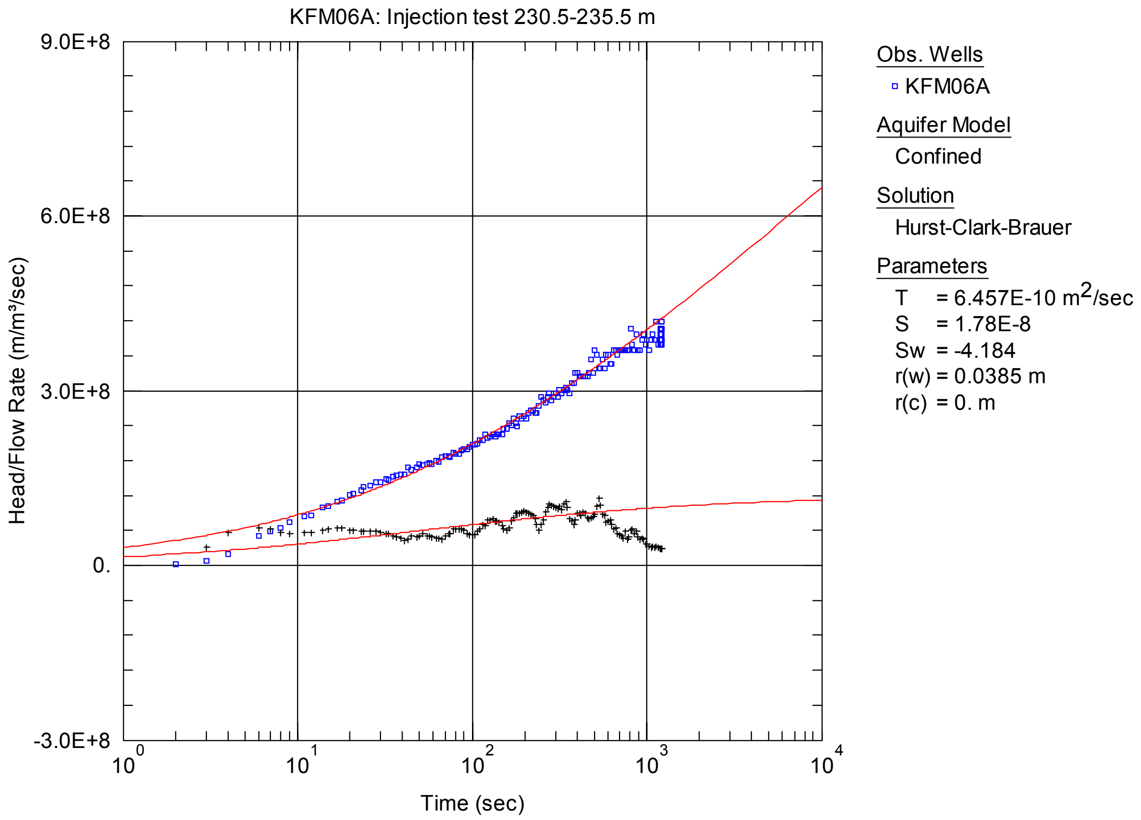


Figure A3-309. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 230.5-235.5 m in KFM06A.*

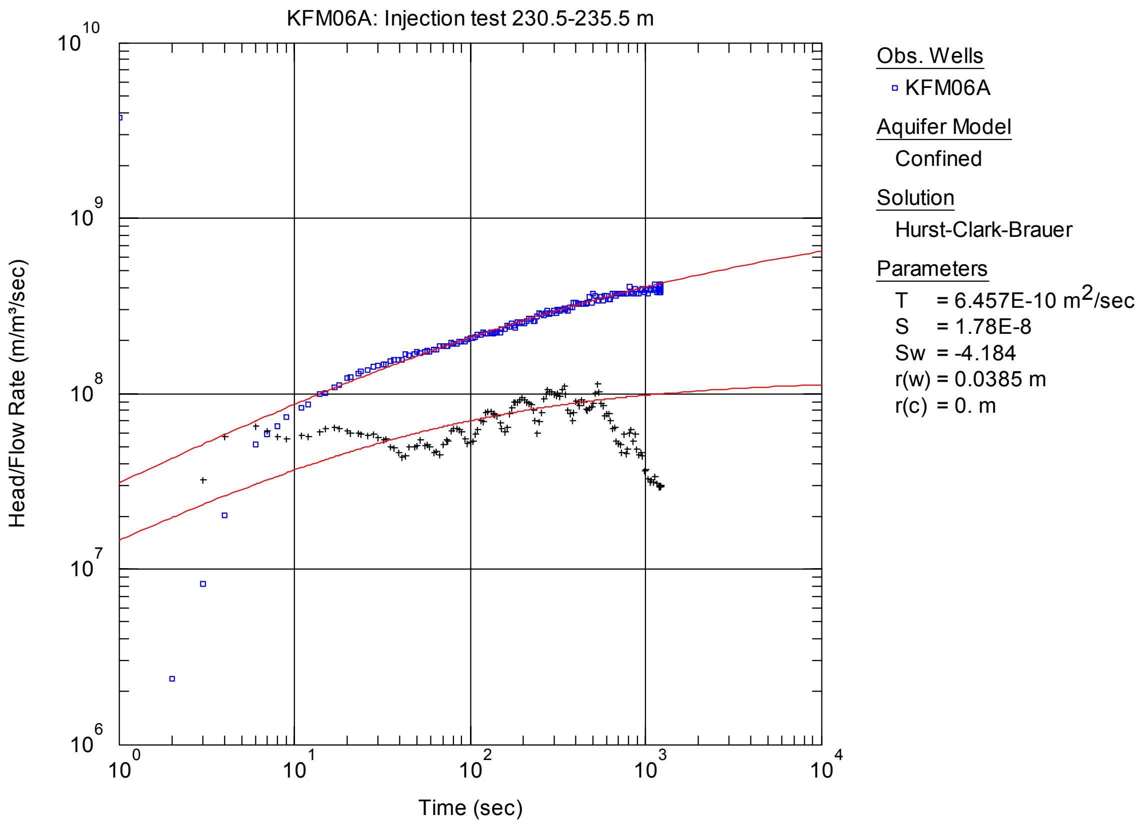


Figure A3-310. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 230.5-235.5 m in KFM06A.*

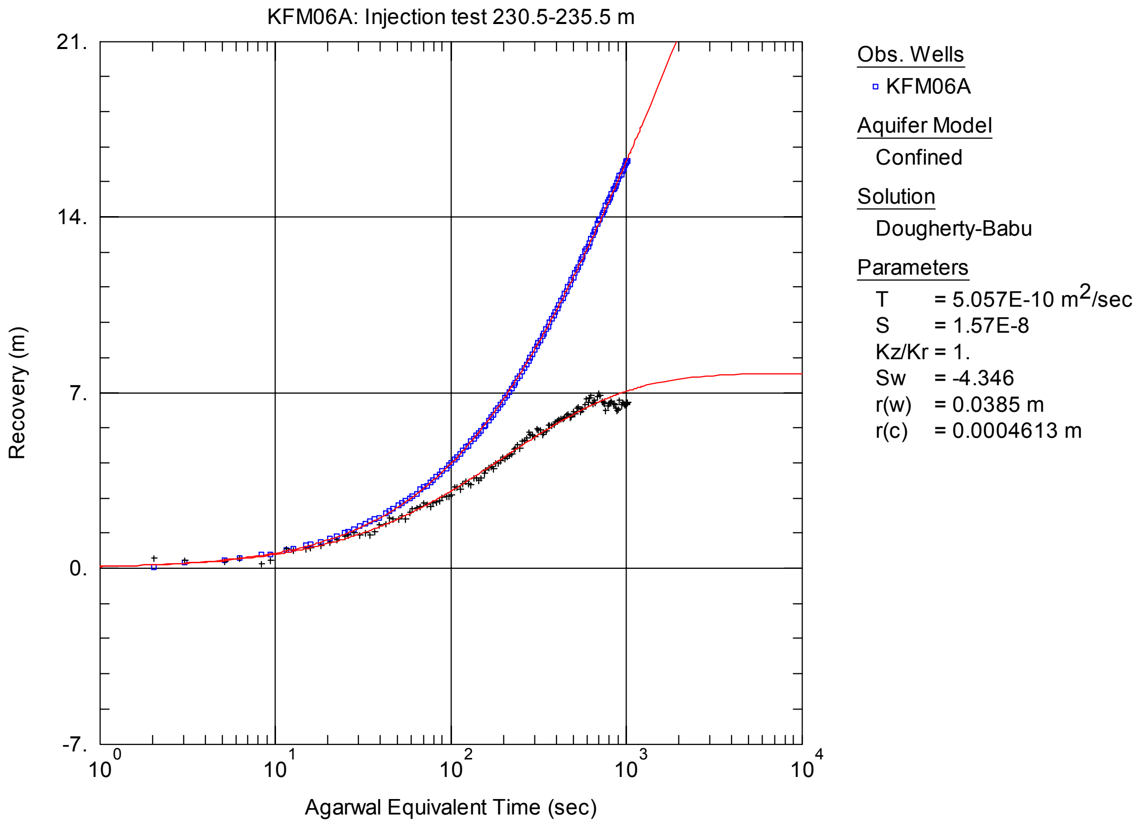


Figure A3-311. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 230.5-235.5 m in KFM06A.*

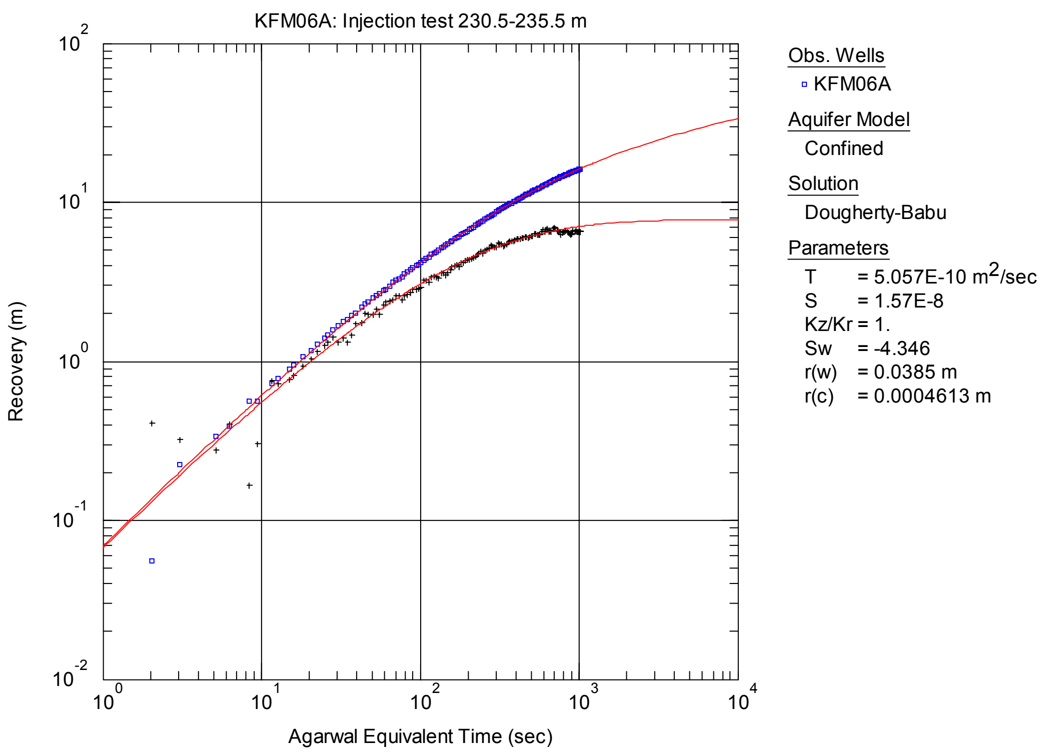


Figure A3-312. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 230.5-235.5 m in KFM06A.*

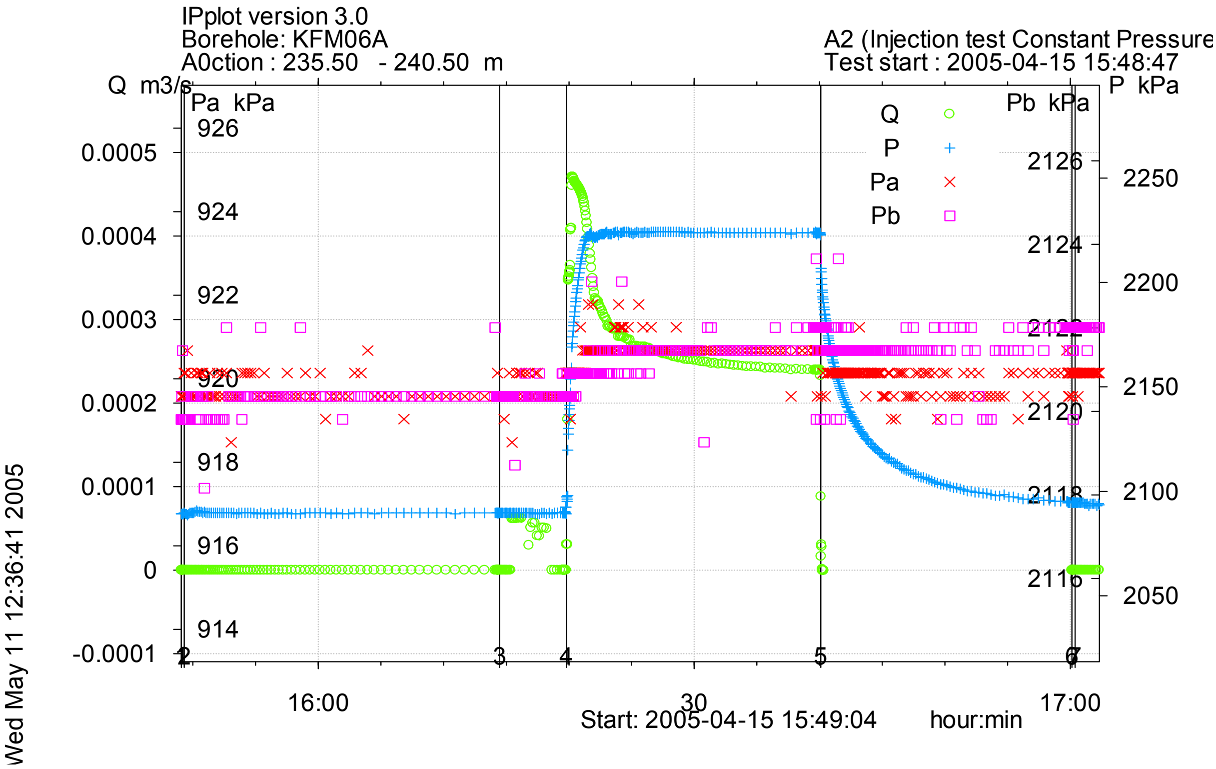


Figure A3-313. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 235.5-240.5 m in borehole KFM06A.

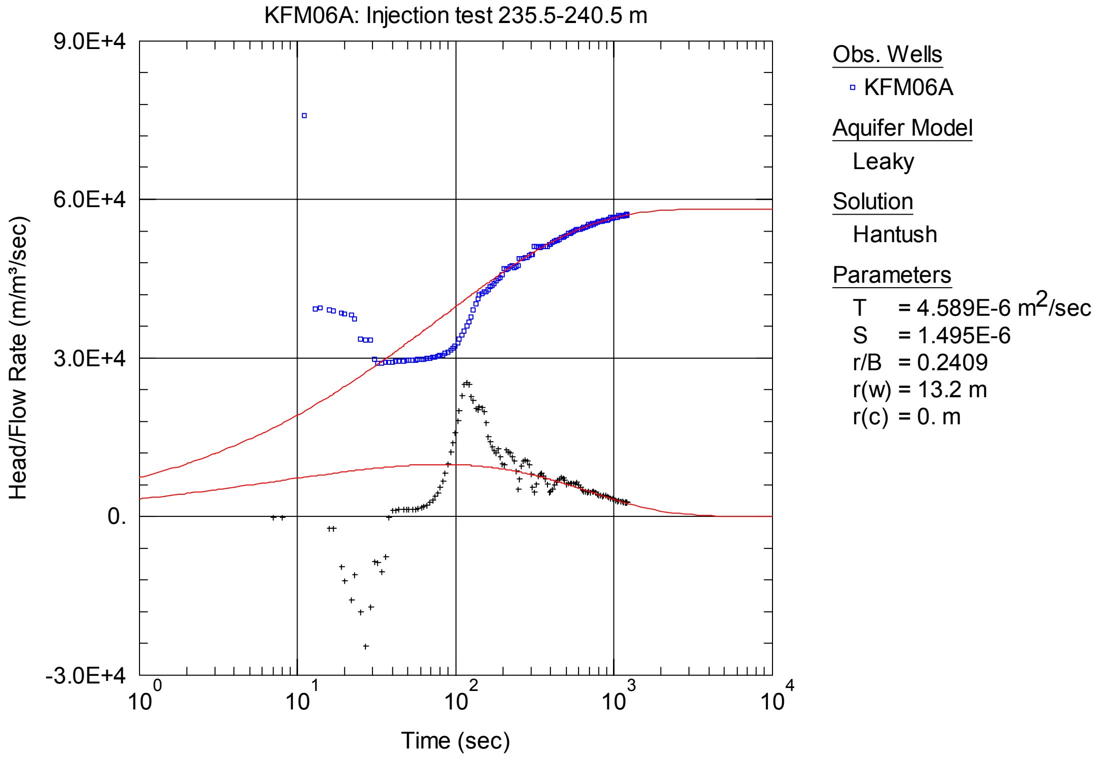


Figure A3-314. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 235.5-240.5 m in KFM06A.

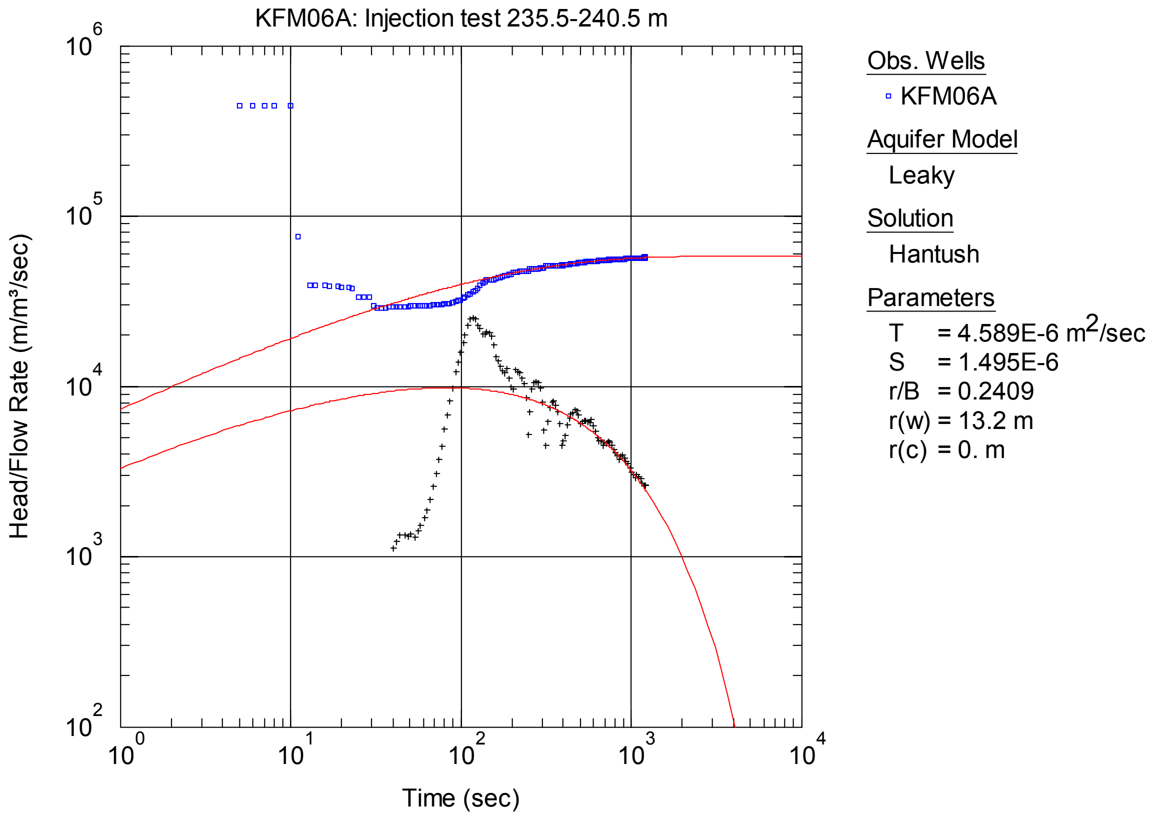


Figure A3-315. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 235.5-240.5 m in KFM06A.*

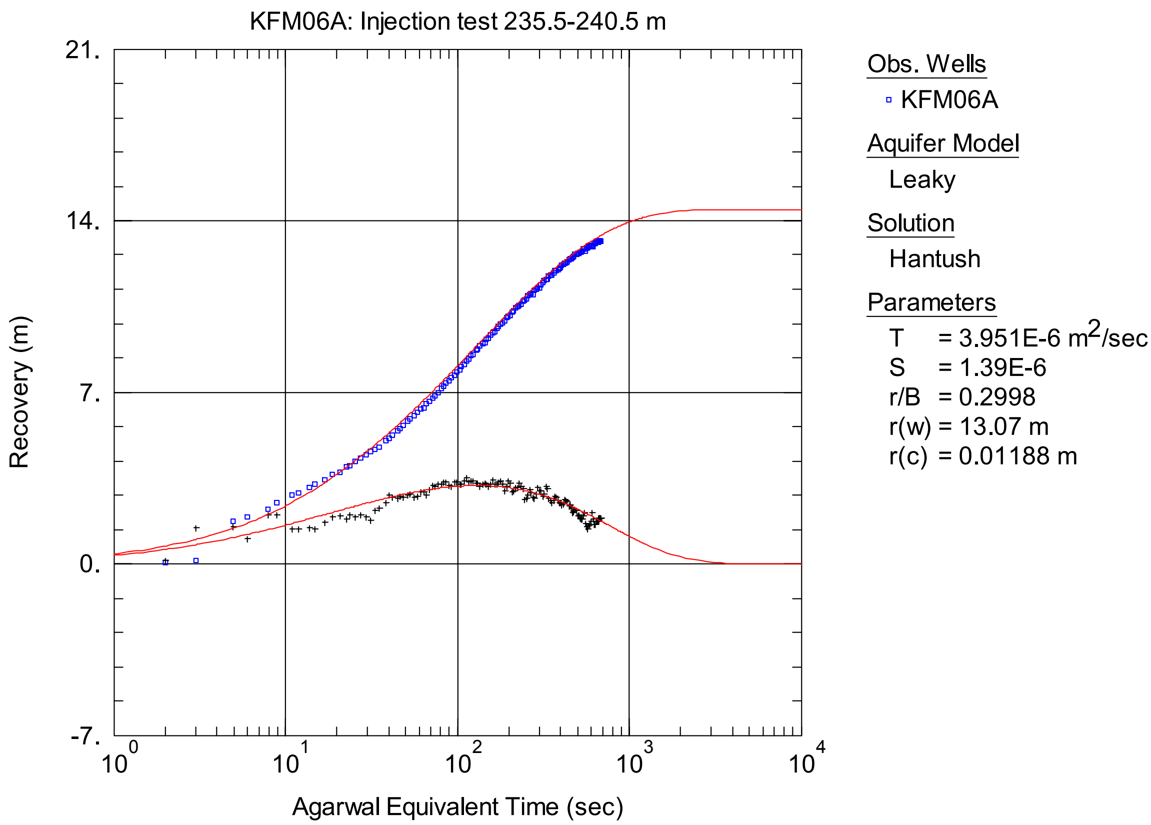


Figure A3-316. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 235.5-240.5 m in KFM06A.*

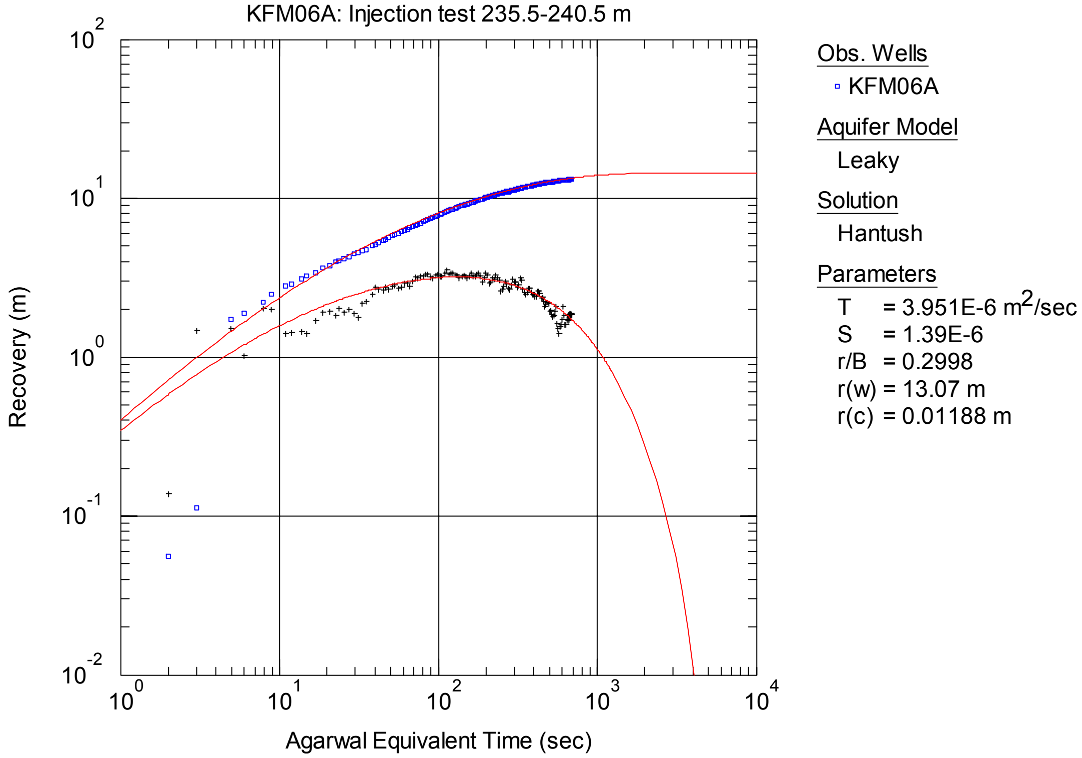


Figure A3-317. Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 235.5-240.5 m in KFM06A.

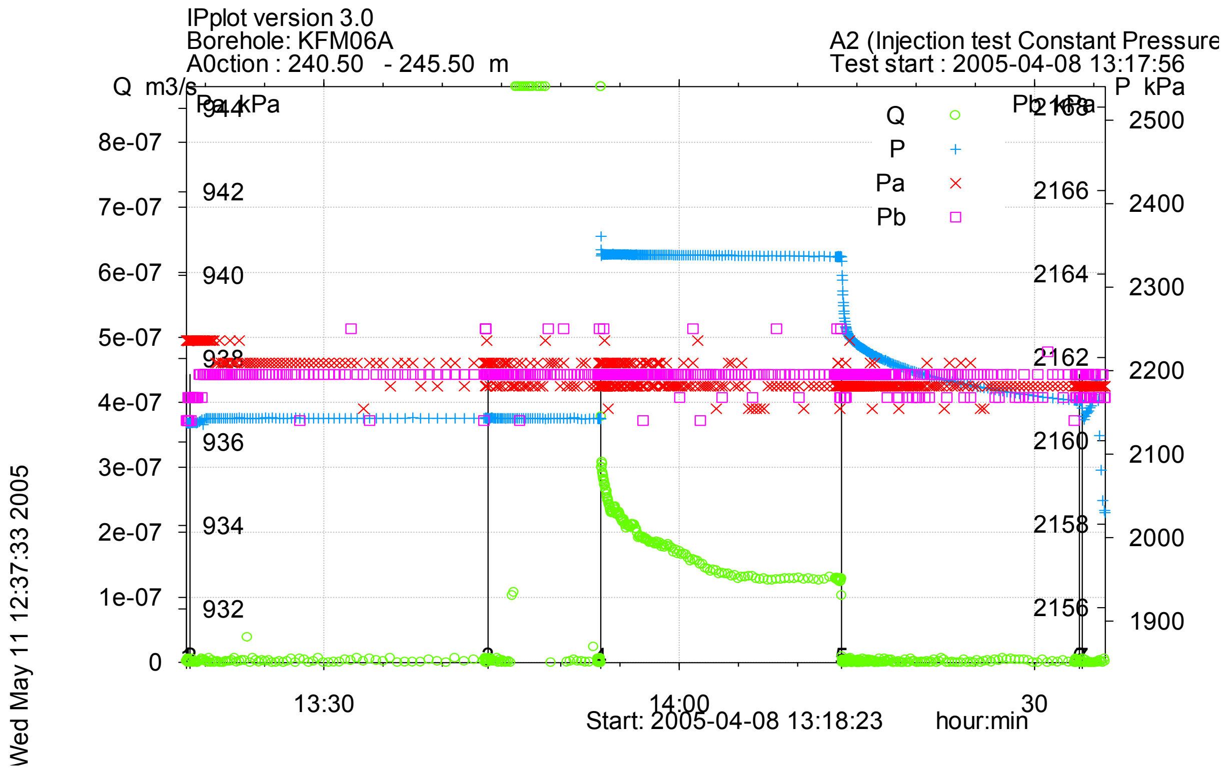


Figure A3-318. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 240.5-245.5 m in borehole KFM06A.

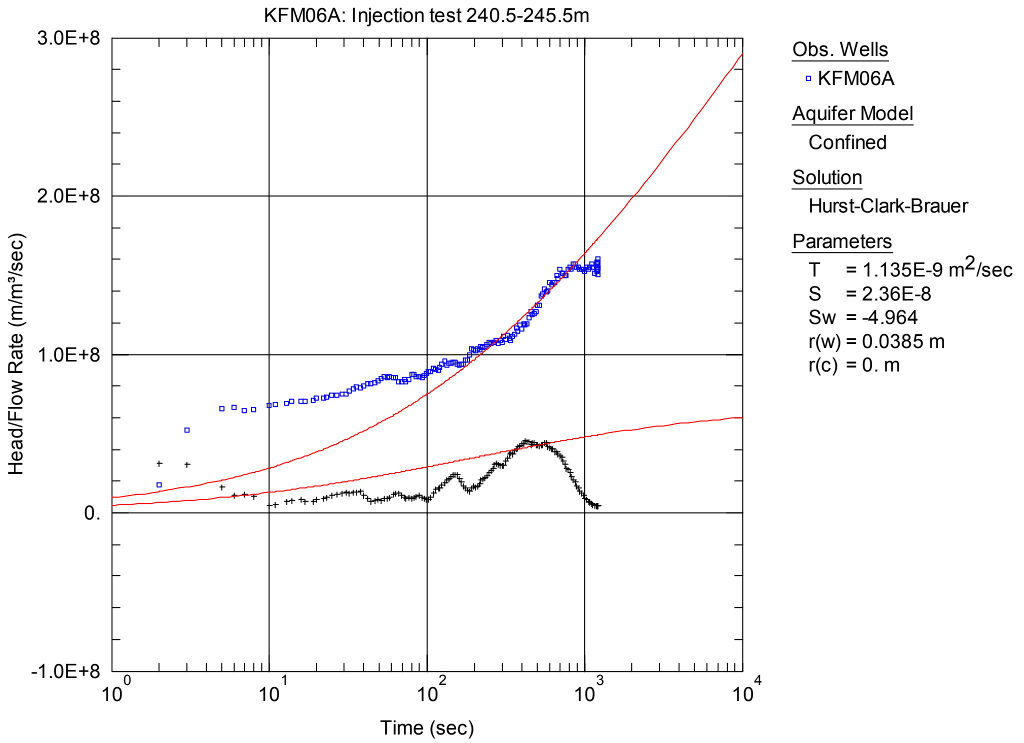


Figure A3-319. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 240.5-245.5 m in KFM06A.*

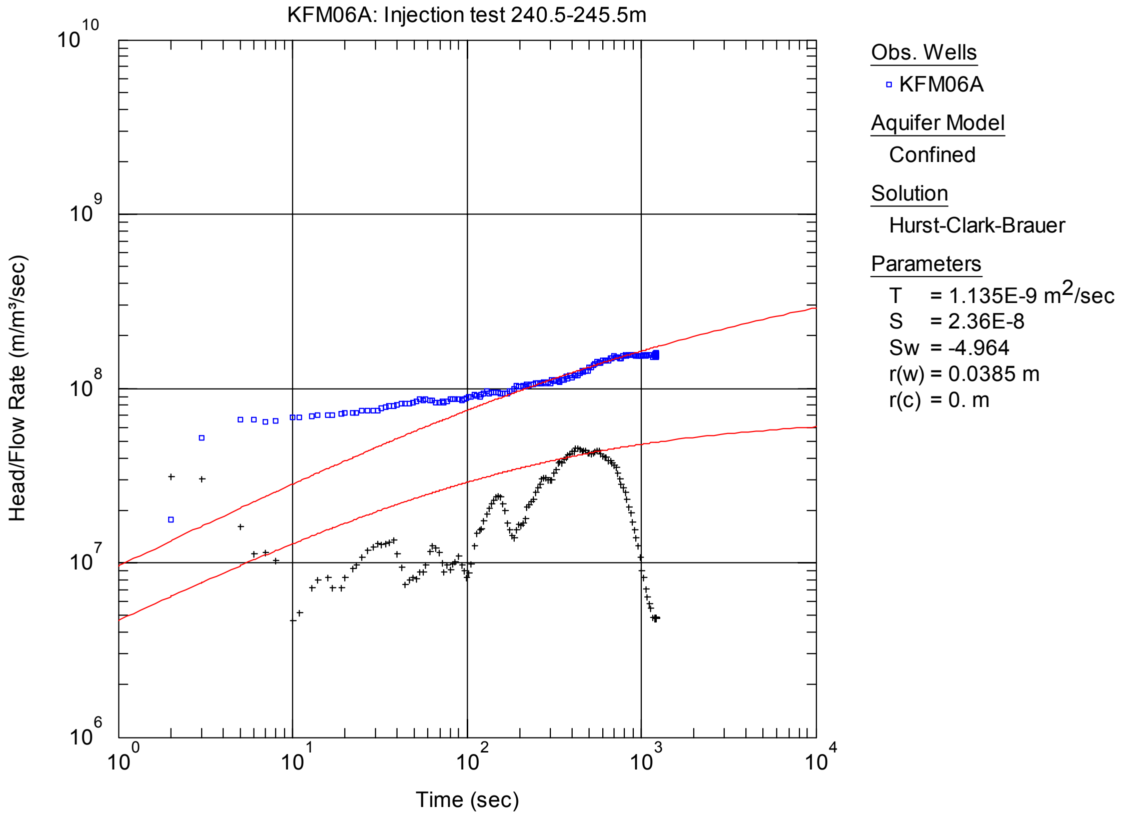


Figure A3-320. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 240.5-245.5 m in KFM06A.*

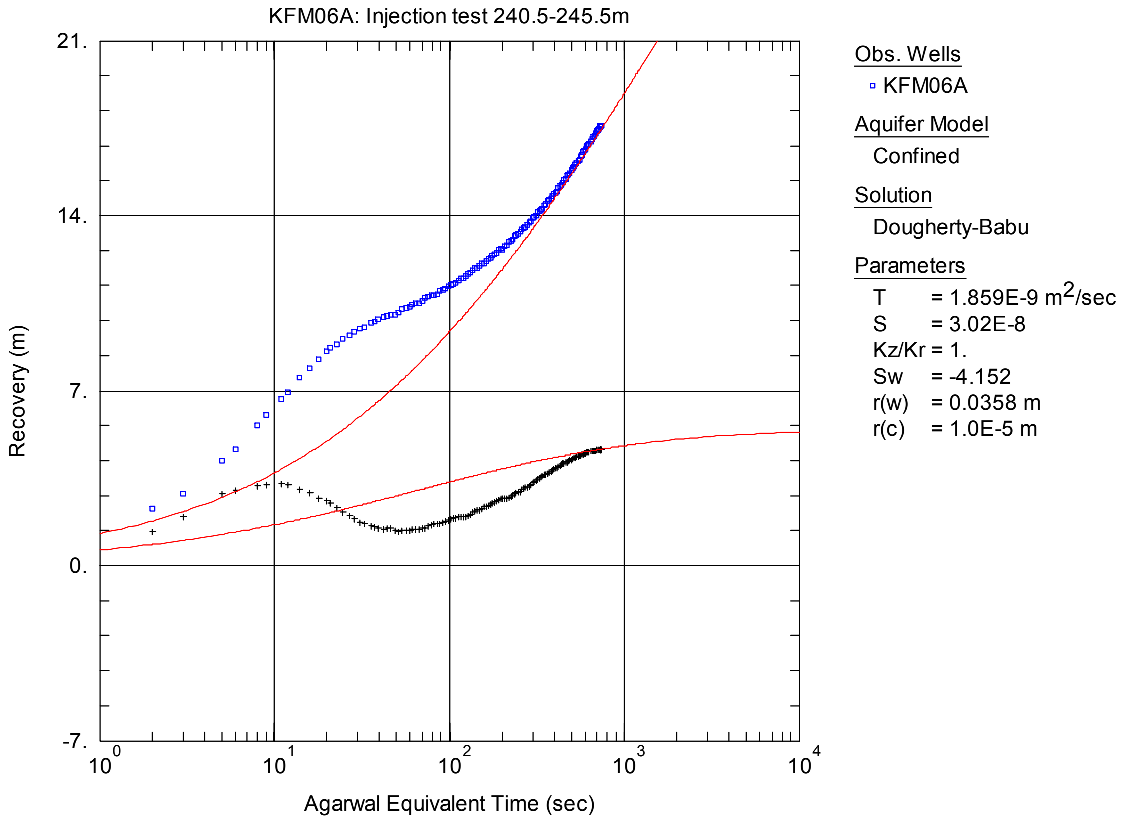


Figure A3-321. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 240.5-245.5 m in KFM06A.*

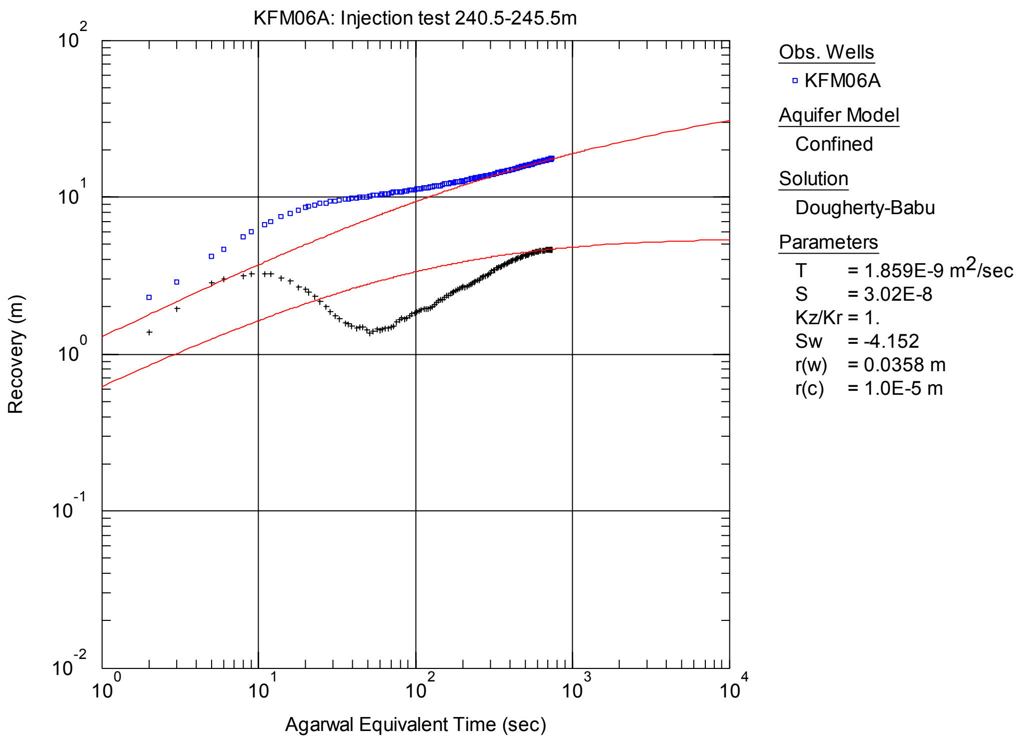


Figure A3-322. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 240.5-245.5 m in KFM06A.*

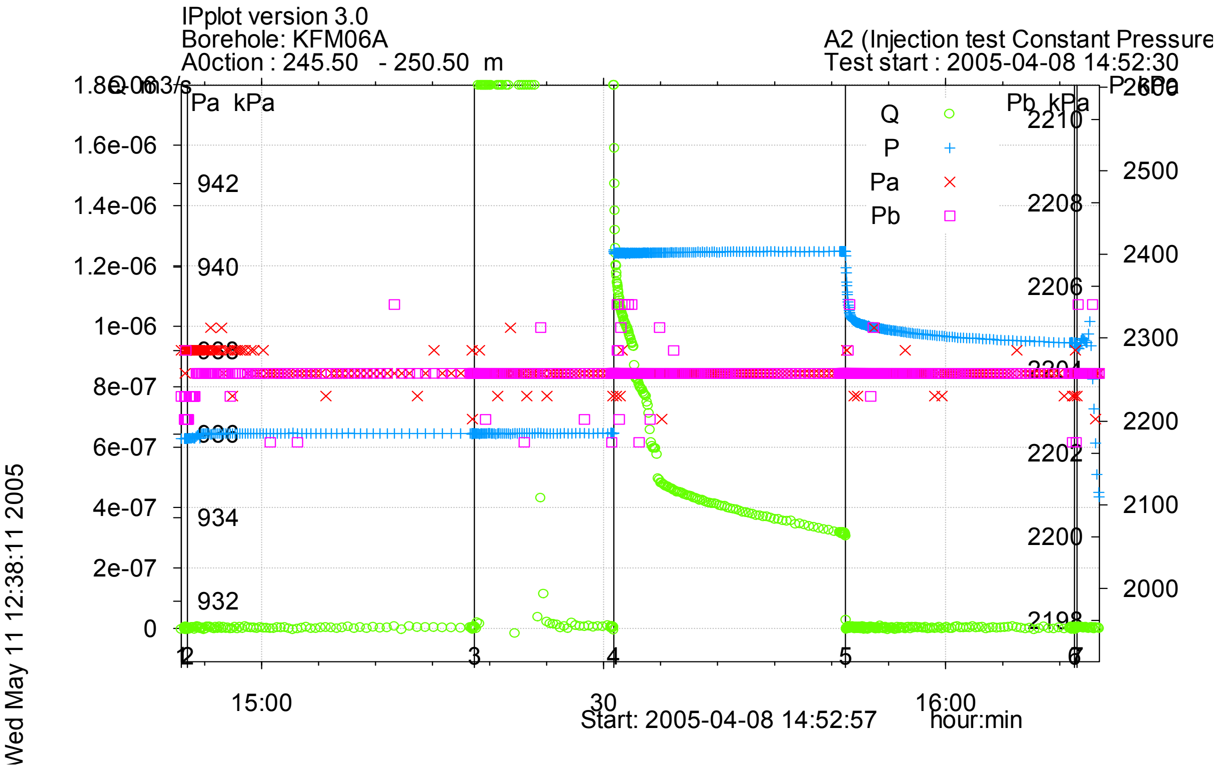


Figure A3-323. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 245.5-250.5 m in borehole KFM06A.*

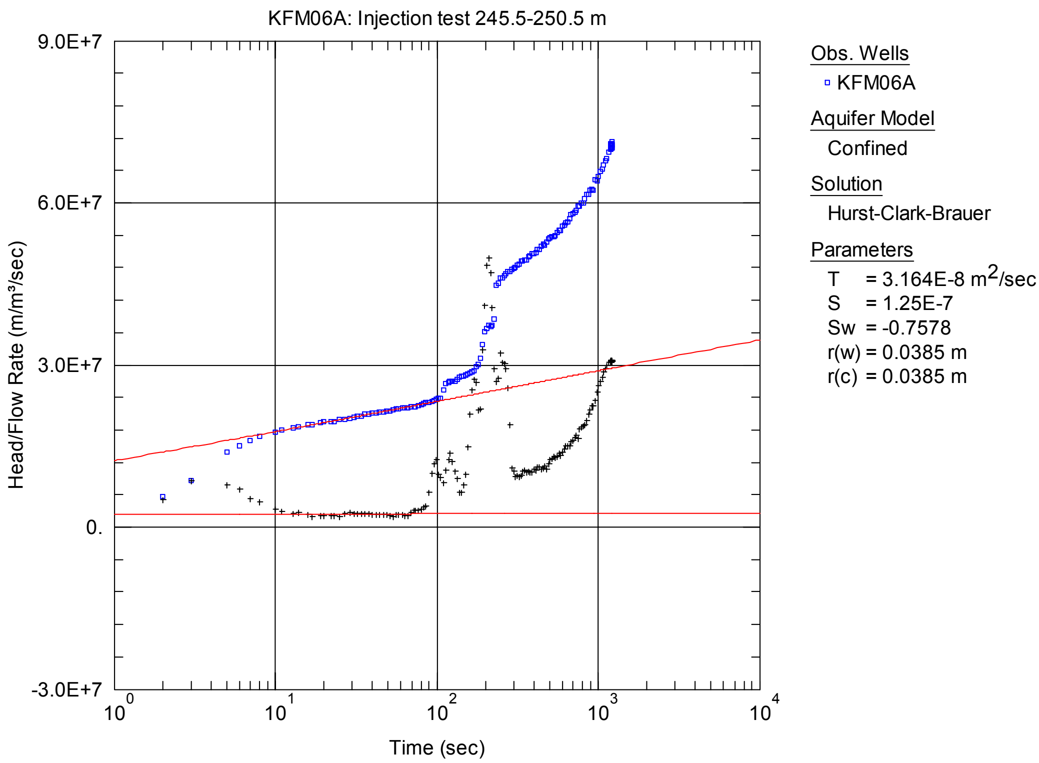


Figure A3-324. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the first PRF, from the injection test in section 245.5-250.5 m in KFM06A.*

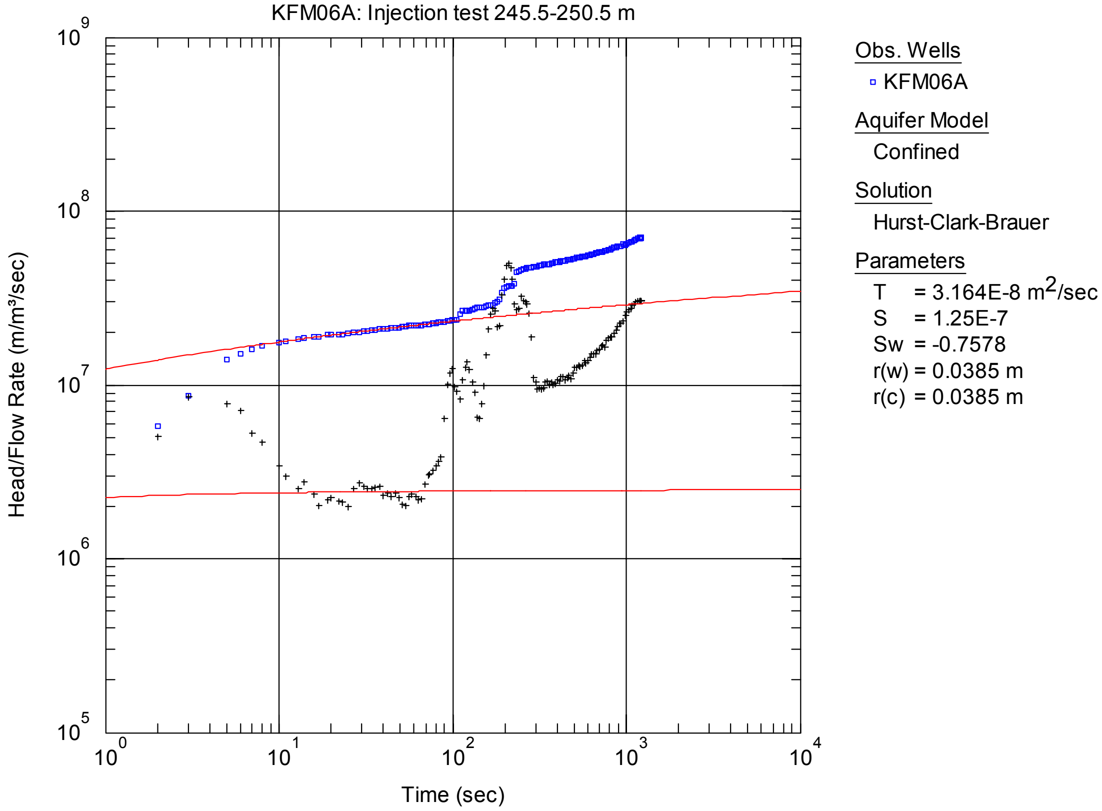


Figure A3-325. *Log-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the first PRF, from the injection test in section 245.5-250.5 m in KFM06A.*

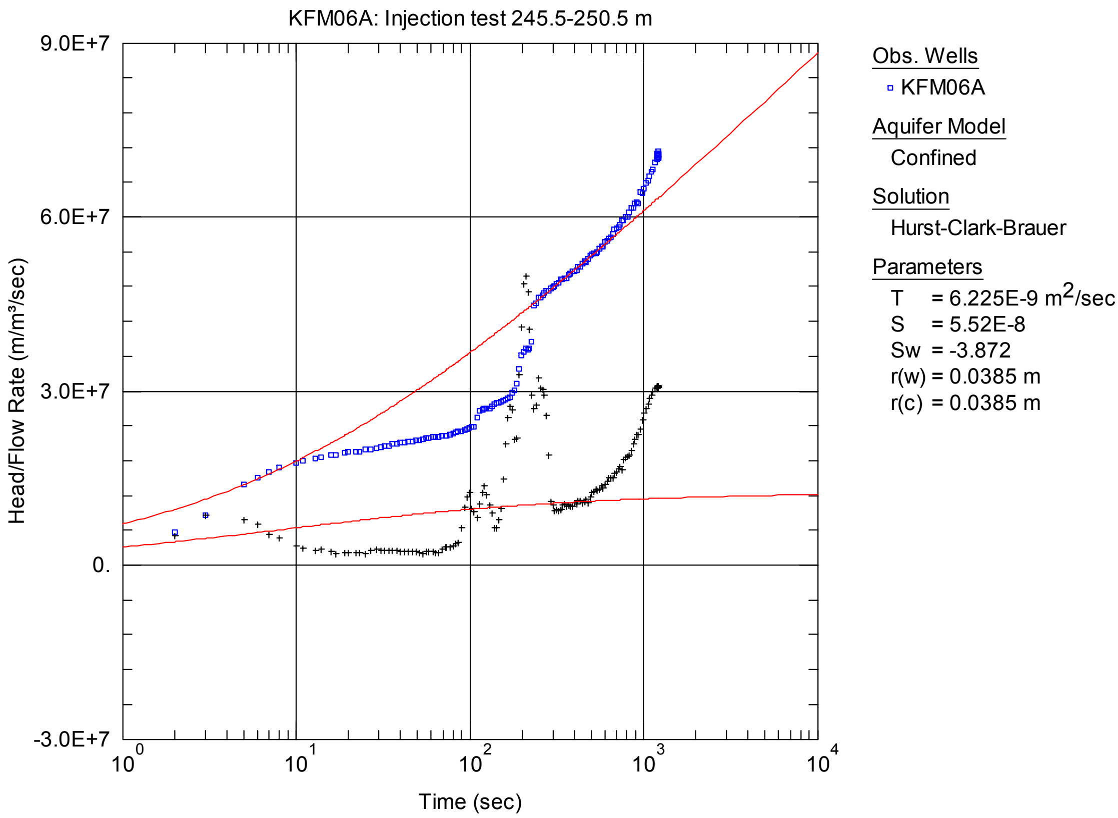


Figure A3-326. *Lin-log plot of head/flow rate (□) and derivative (+) versus time showing fit to the second PRF, from the injection test in section 245.5-250.5 m in KFM06A.*

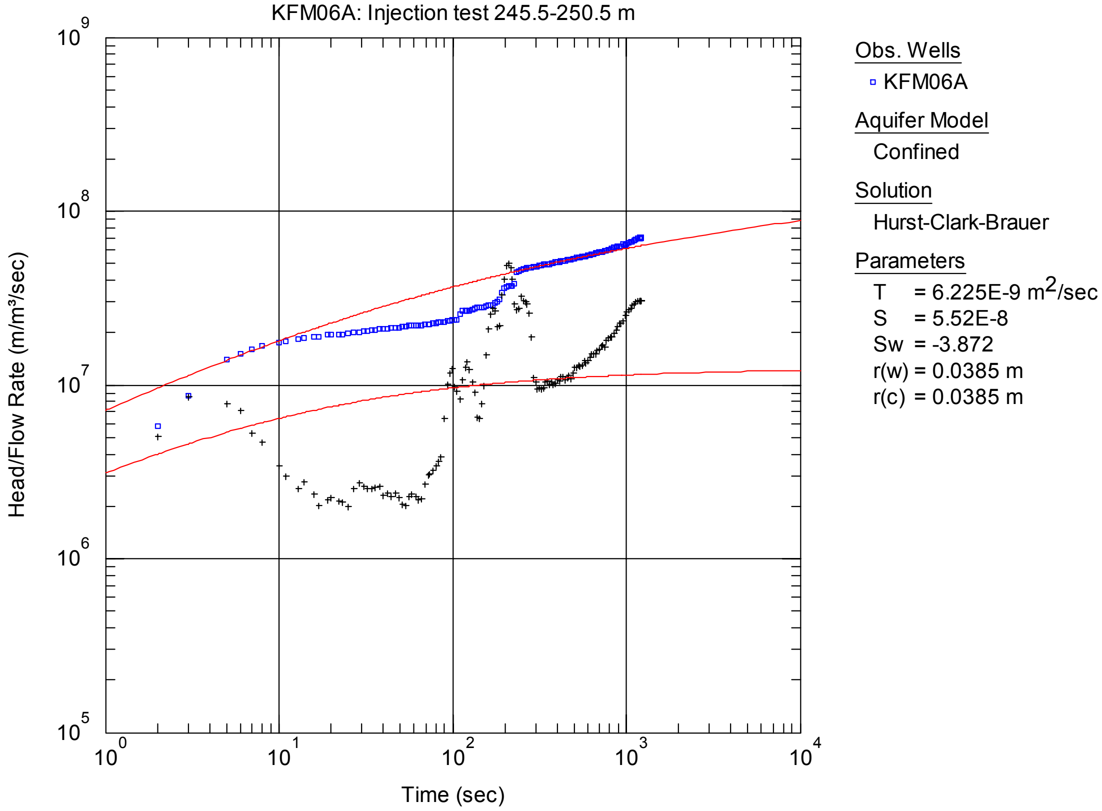


Figure A3-327. *Log-log plot of head/flow rate (□) and derivative (+) versus time showing fit to the second PRF, from the injection test in section 245.5-250.5 m in KFM06A.*

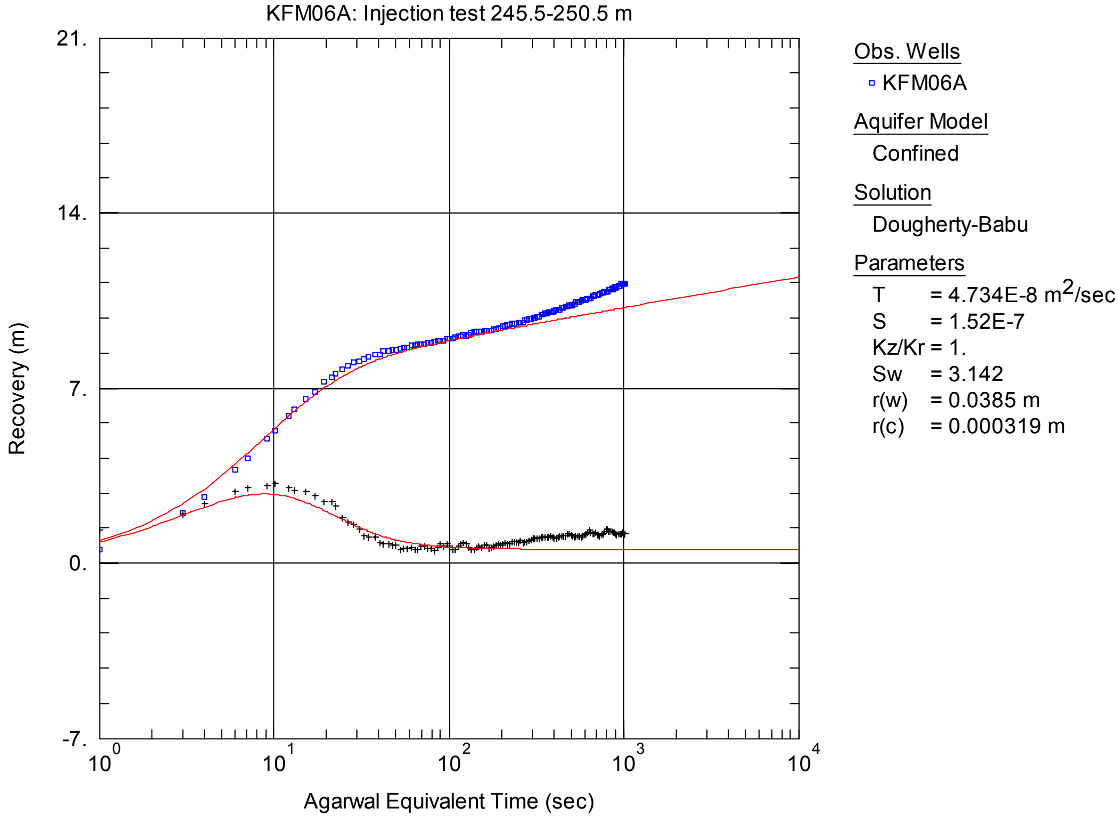


Figure A3-328. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time showing fit to the first PRF, from the injection test in section 245.5-250.5 m in KFM06A.*

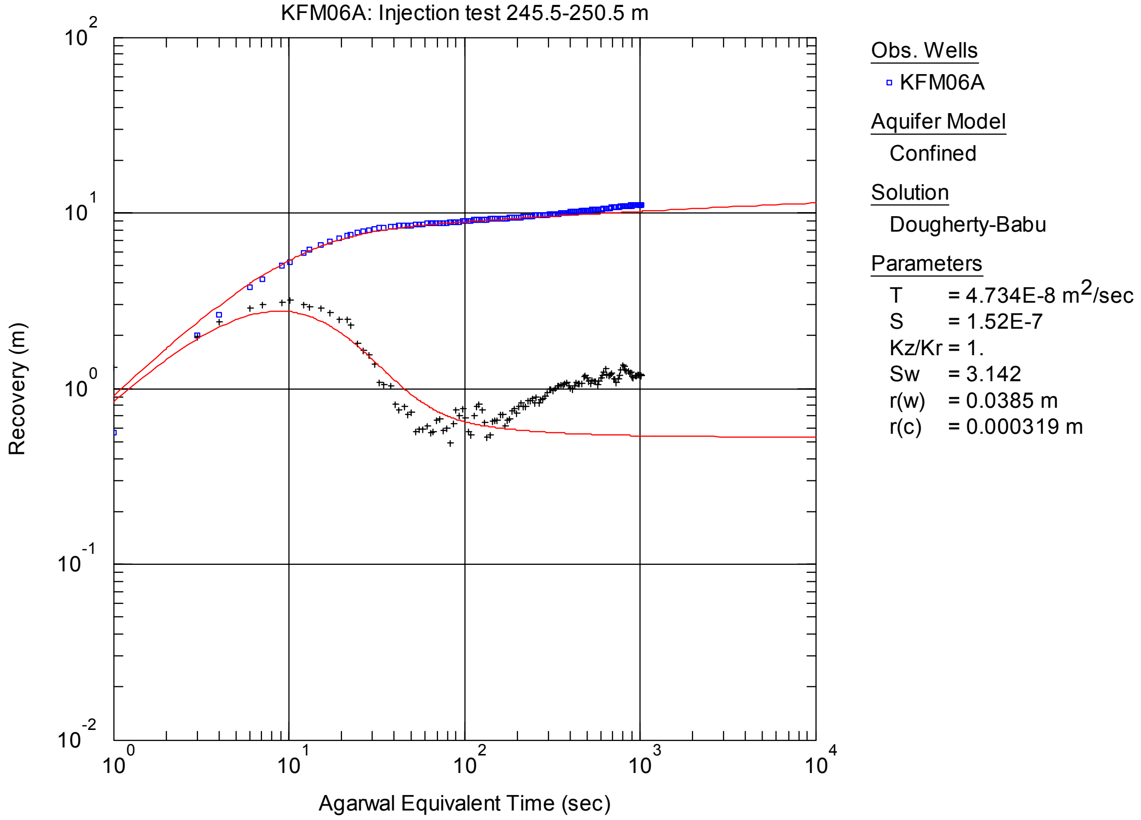


Figure A3-329. *Log-log plot of recovery (□) and derivative (+) versus equivalent time showing fit to the first PRF, from the injection test in section 245.5-250.5 m in KFM06A.*

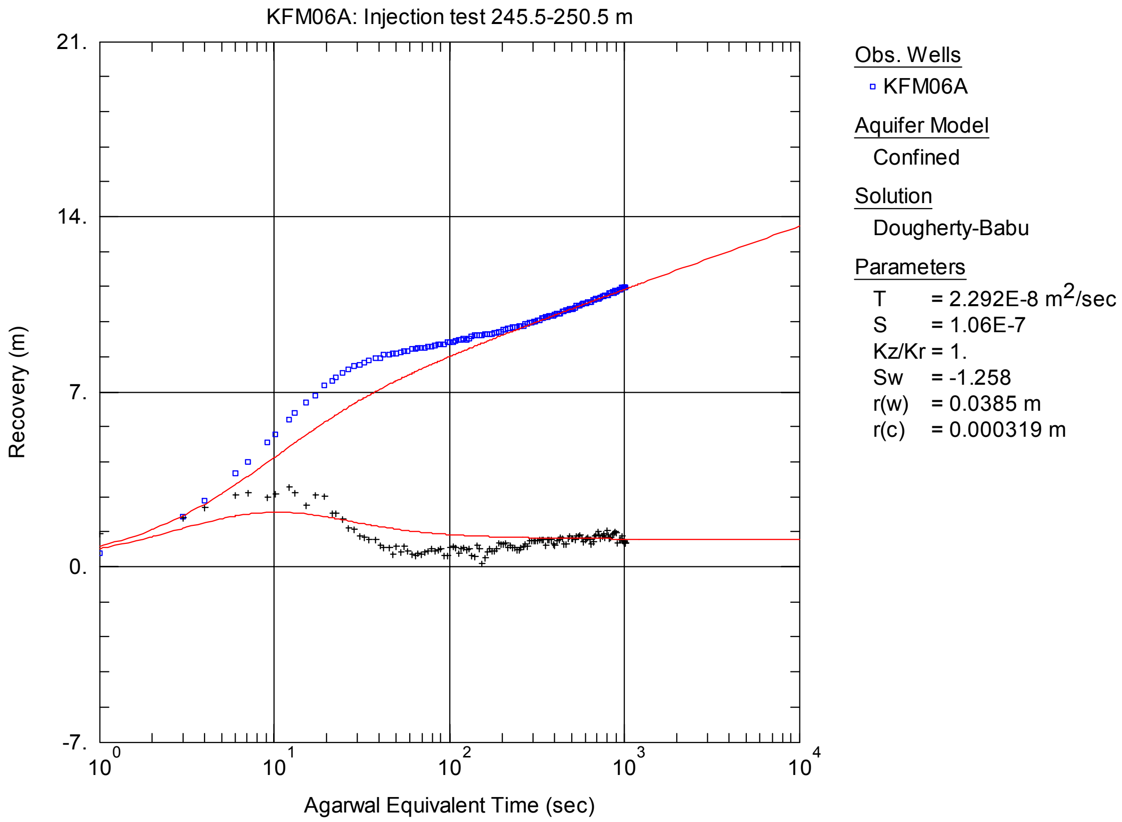


Figure A3-330. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time showing fit to the second PRF, from the injection test in section 245.5-250.5 m in KFM06A.*

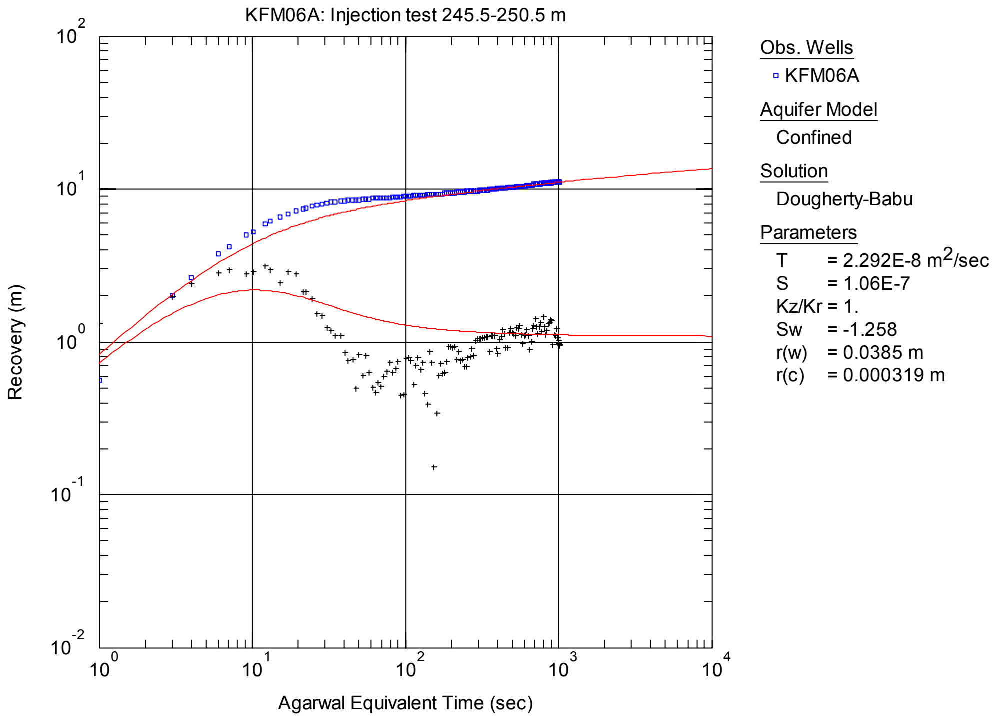


Figure A3-331. *Log-log plot of recovery (□) and derivative (+) versus equivalent time showing fit to the second PRF, from the injection test in section 245.5-250.5 m in KFM06A.*

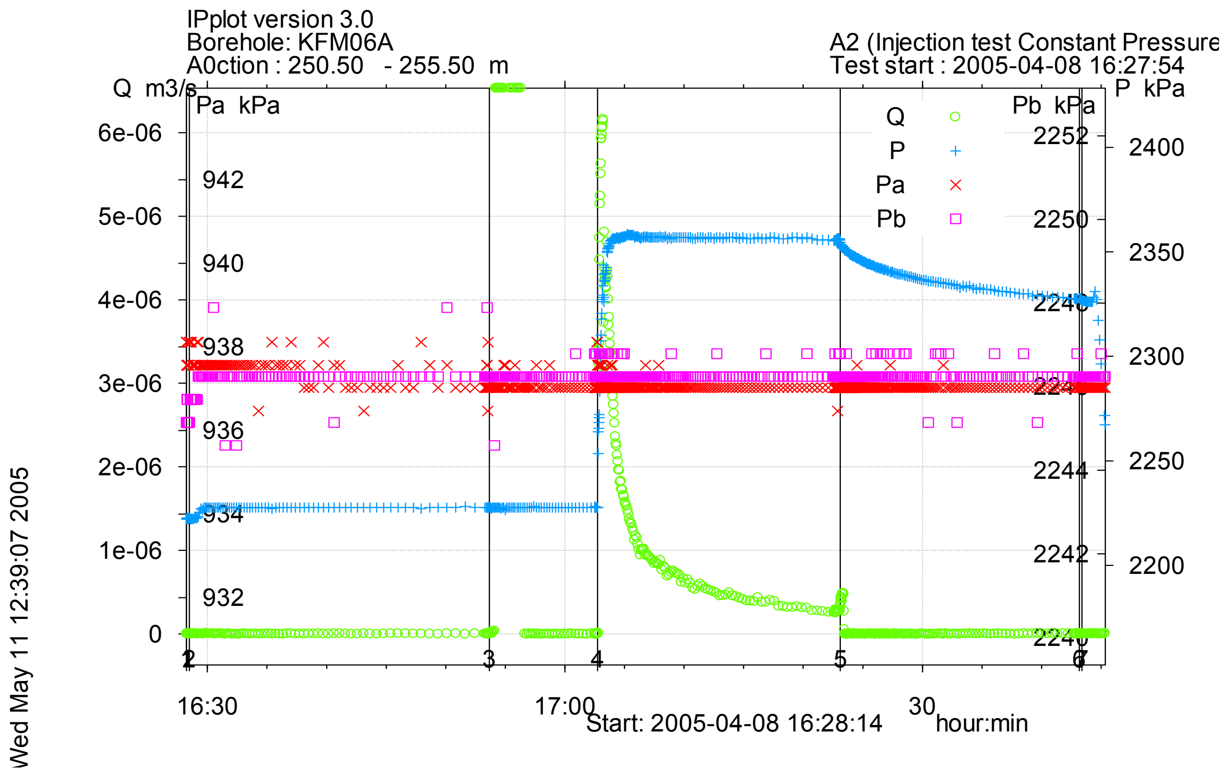


Figure A3-332. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 250.5-255.5 m in borehole KFM06A.*

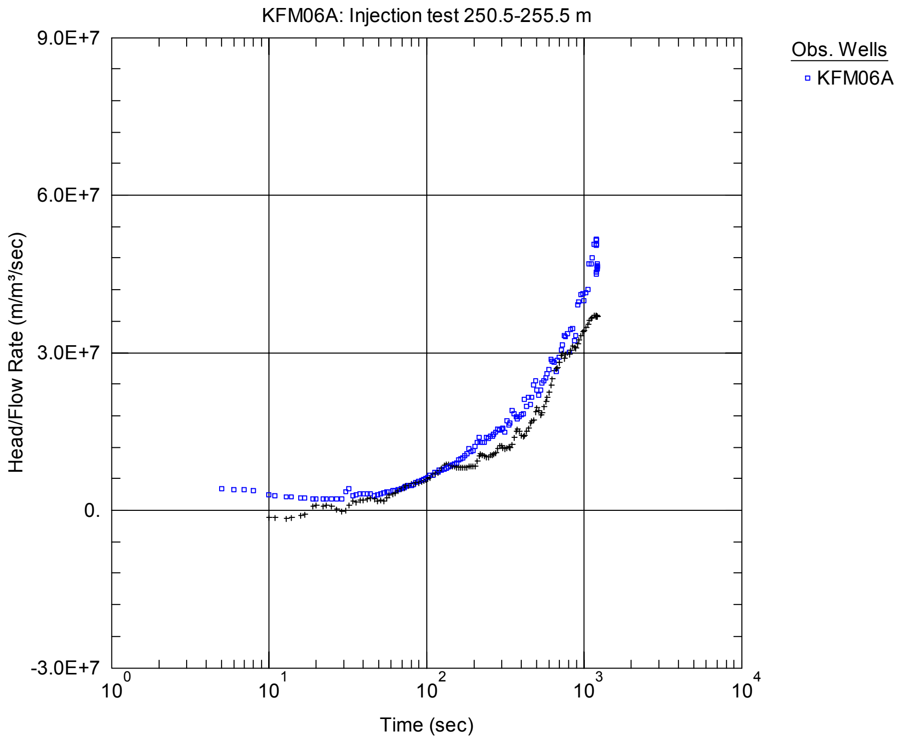


Figure A3-333. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 250.5-255.5 m in KFM06A.*

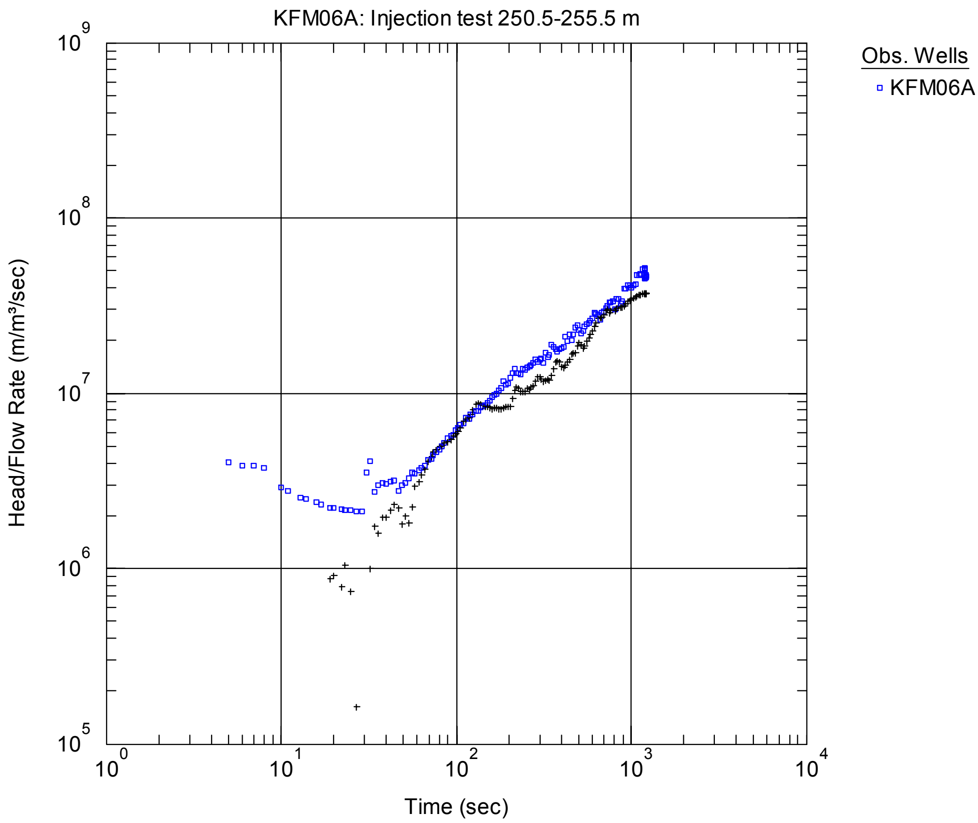


Figure A3-334. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 250.5-255.5 m in KFM06A.*

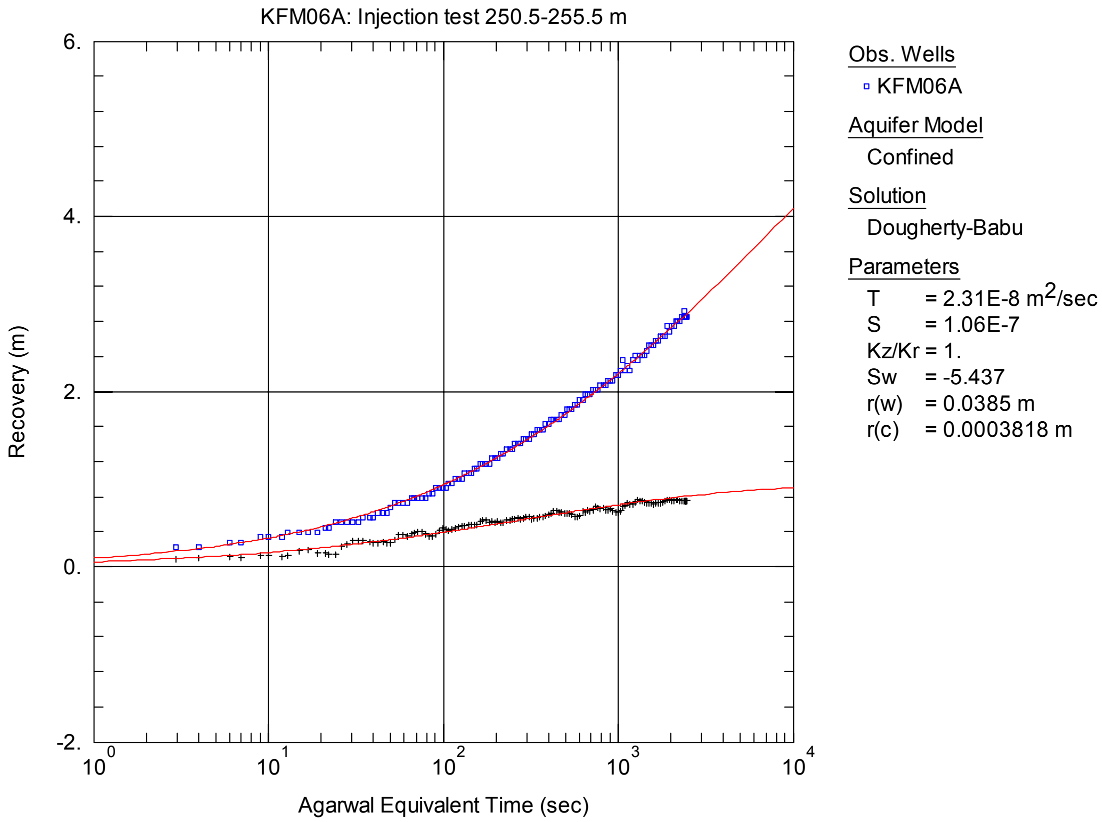


Figure A3-335. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 250.5-255.5 m in KFM06A.*

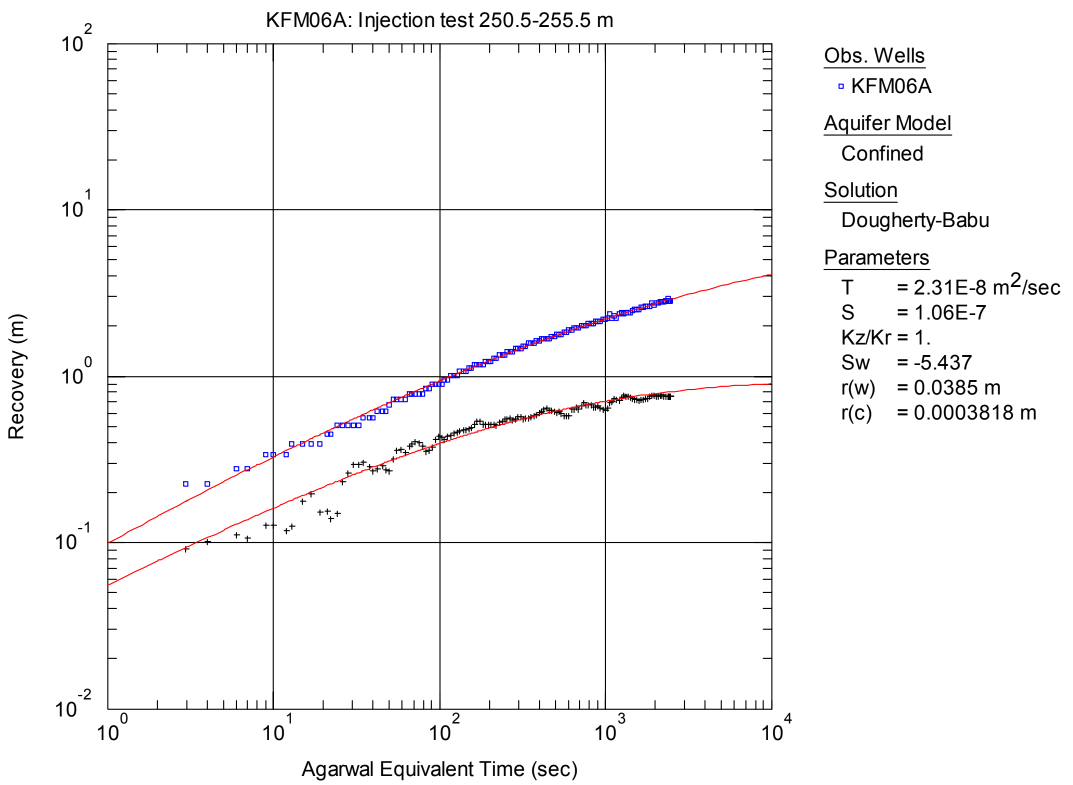


Figure A3-336. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 250.5-255.5 m in KFM06A.*

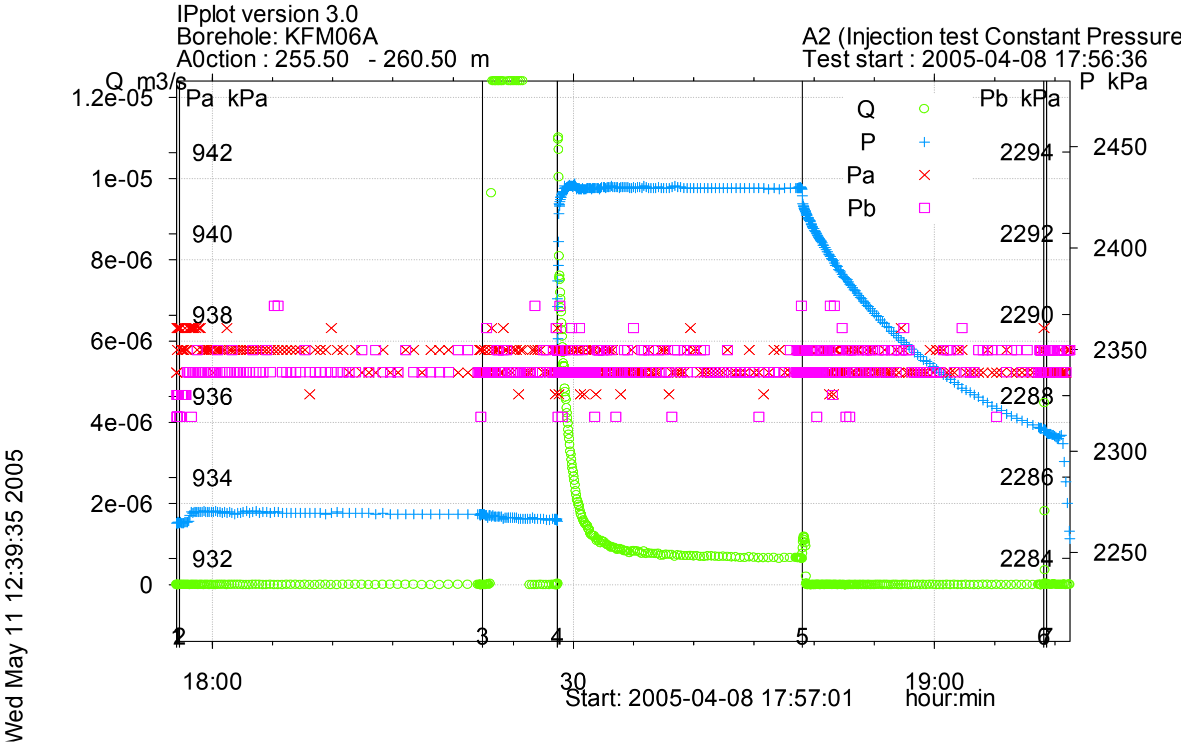


Figure A3-337. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 255.5-260.5 m in borehole KFM06A.*

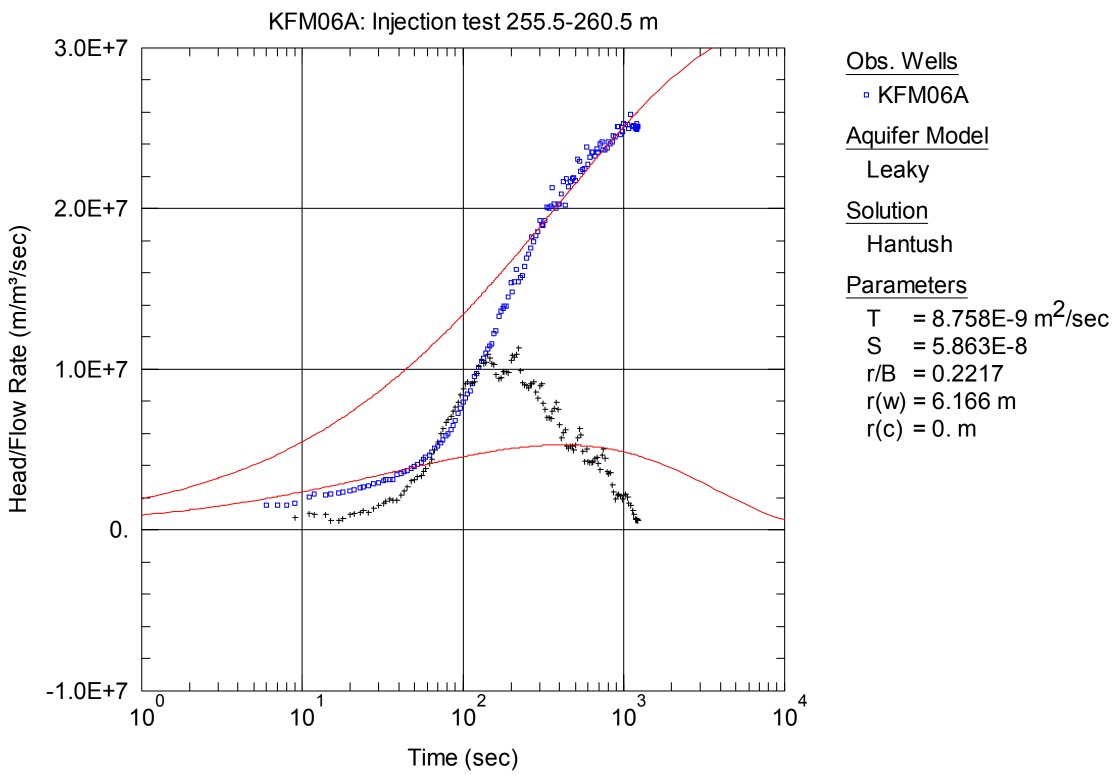


Figure A3-338. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 255.5-260.5 m in KFM06A.*

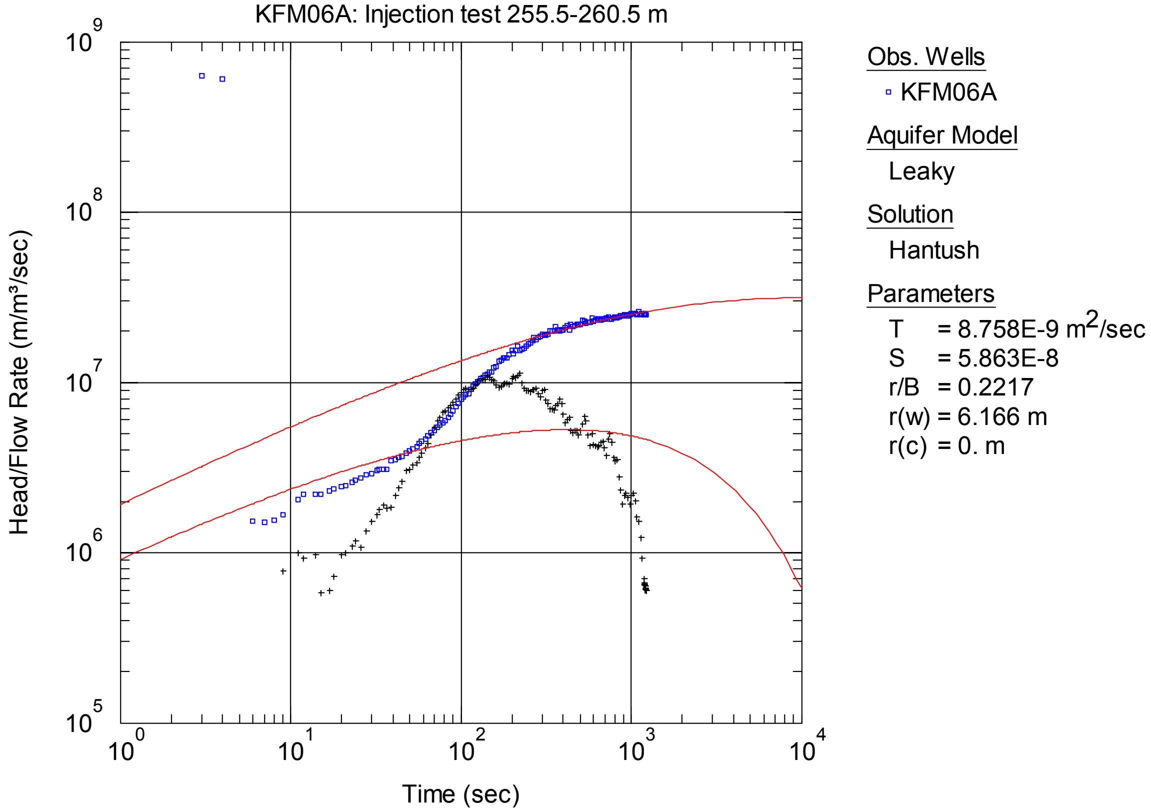


Figure A3-339. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 255.5-260.5 m in KFM06A.*

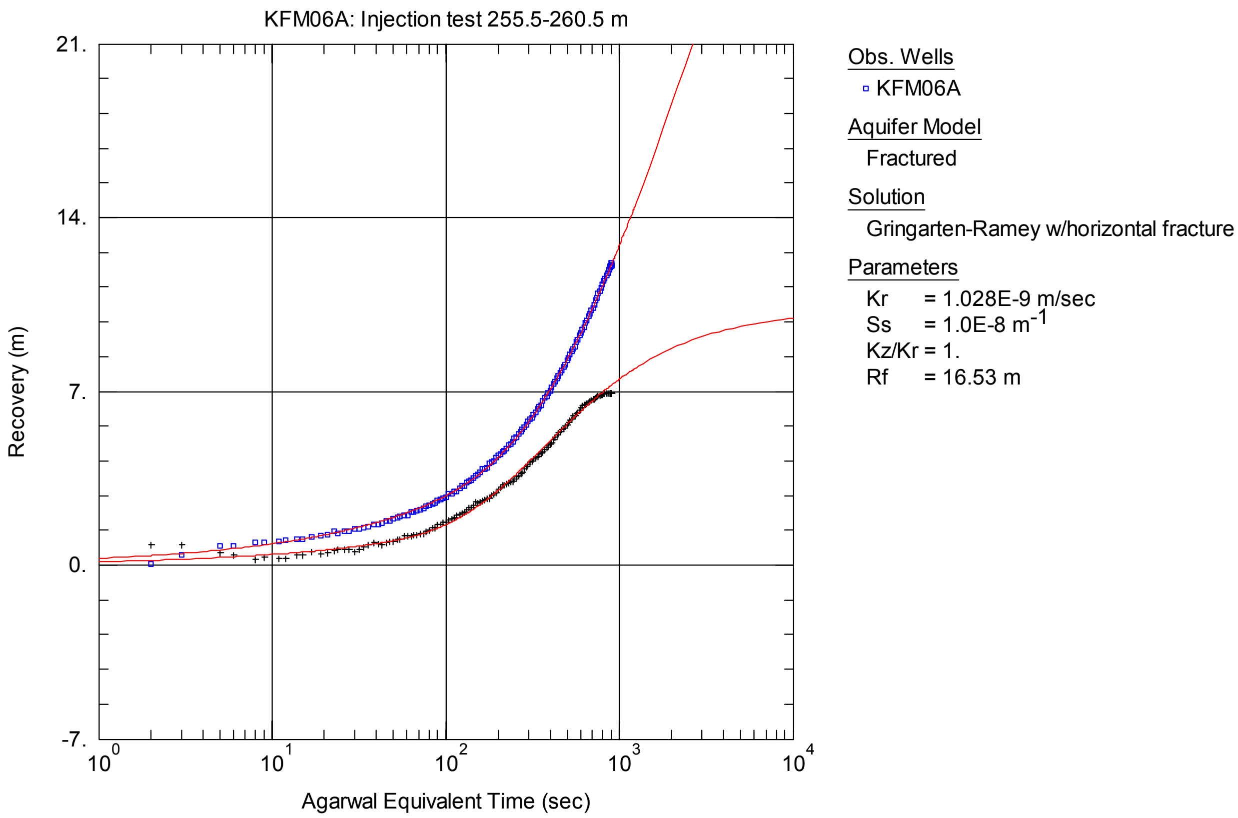


Figure A3-340. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 255.5-260.5 m in KFM06A.*

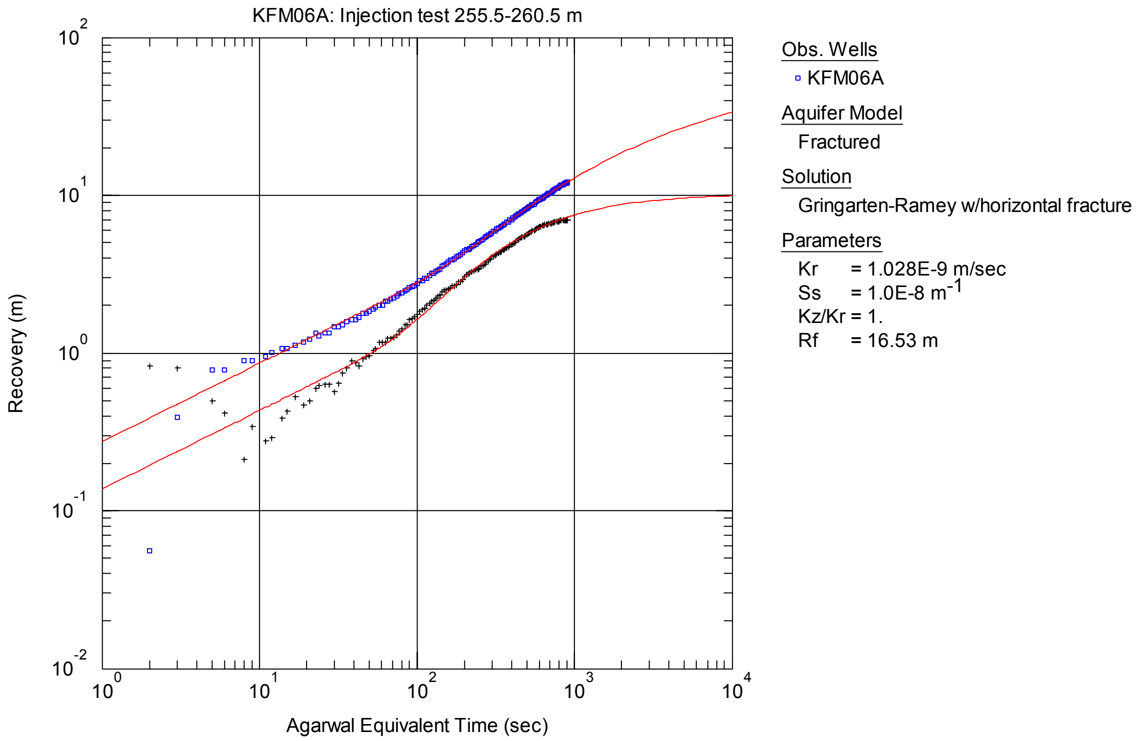


Figure A3-341. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 255.5-260.5 m in KFM06A.*

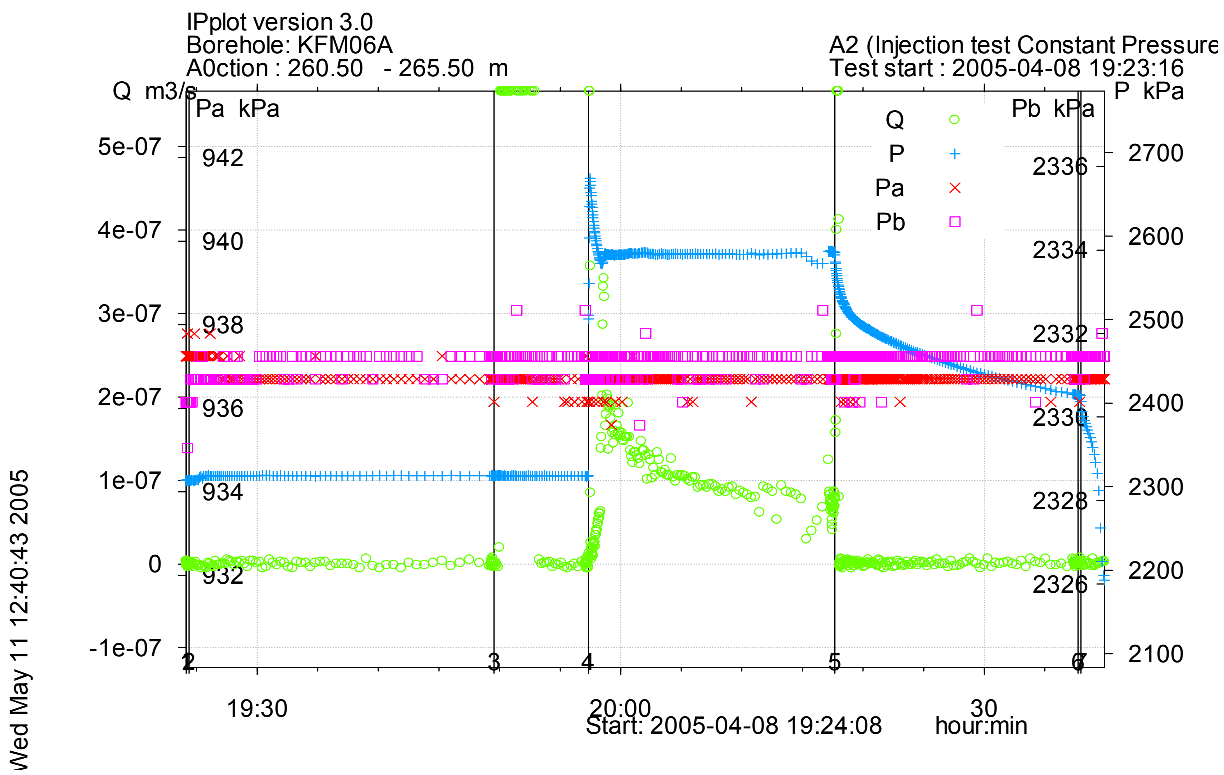


Figure A3-342. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 260.5-265.5 m in borehole KFM06A.*

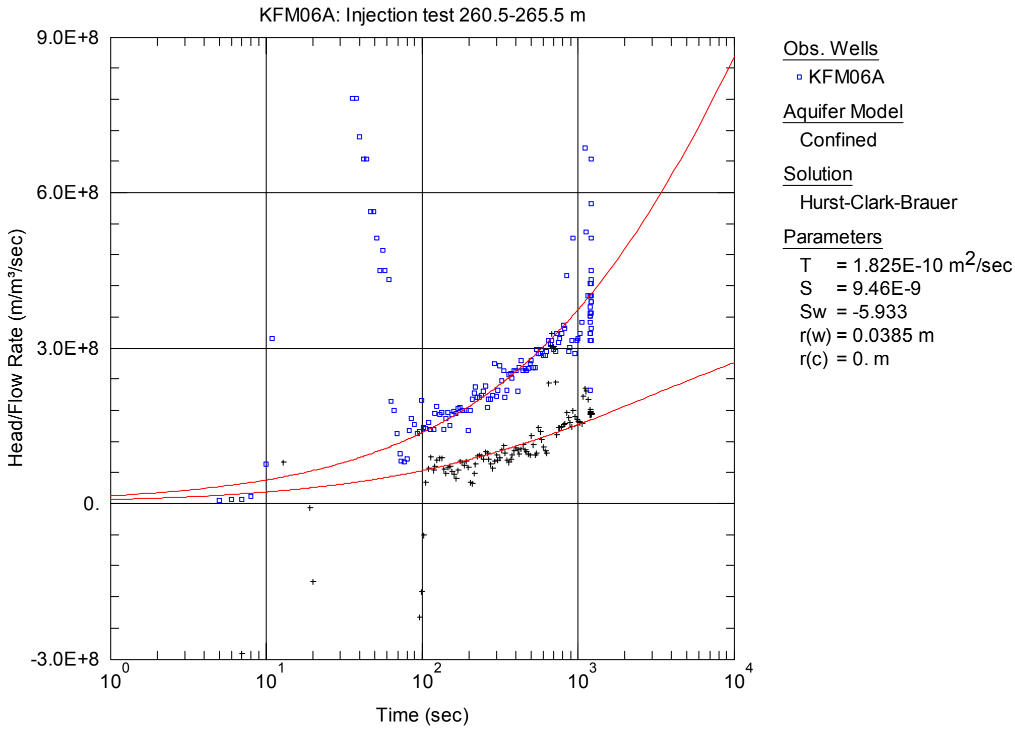


Figure A3-343. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 260.5-265.5 m in KFM06A.*

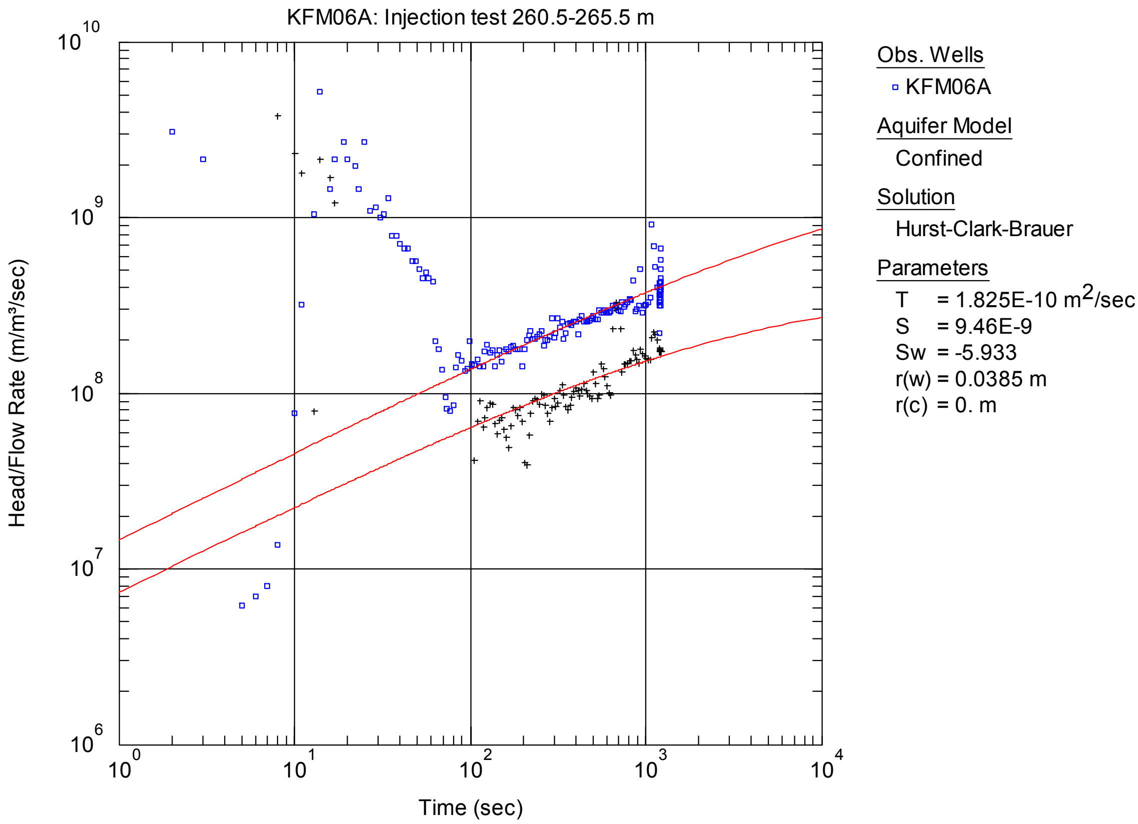


Figure A3-344. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 260.5-265.5 m in KFM06A.*

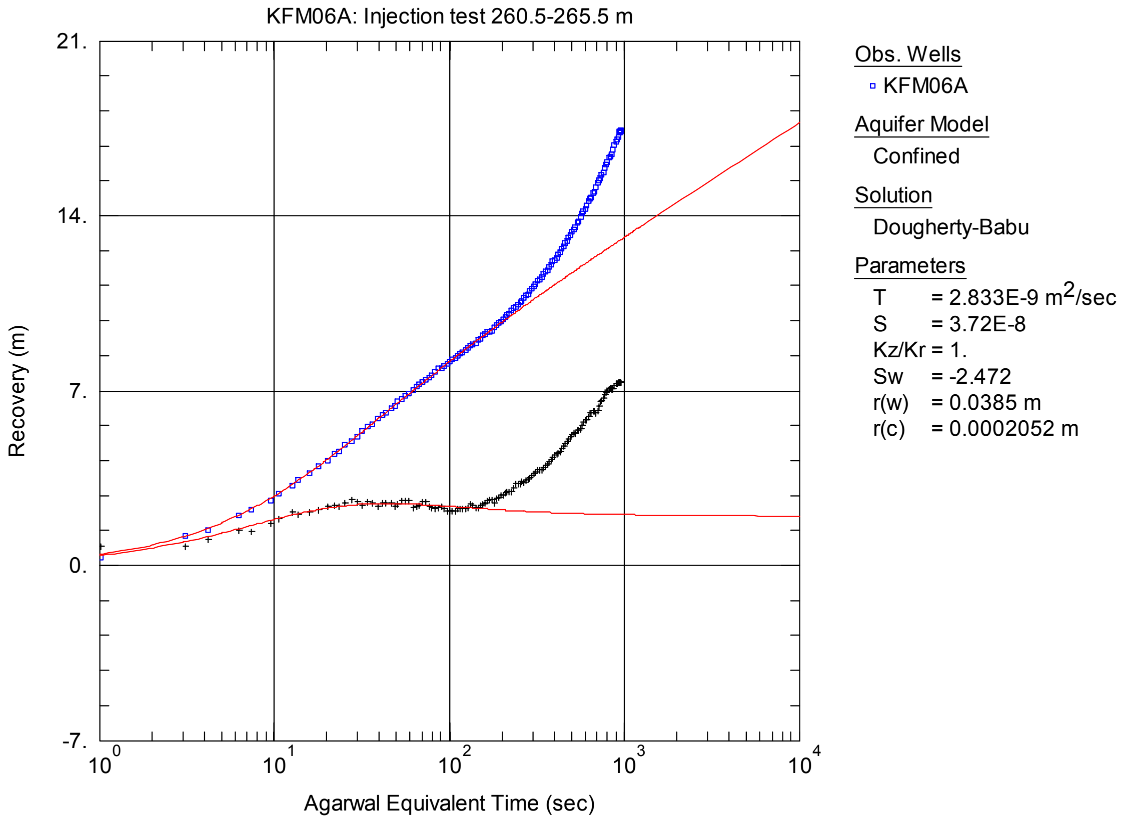


Figure A3-345. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 260.5-265.5 m in KFM06A.*

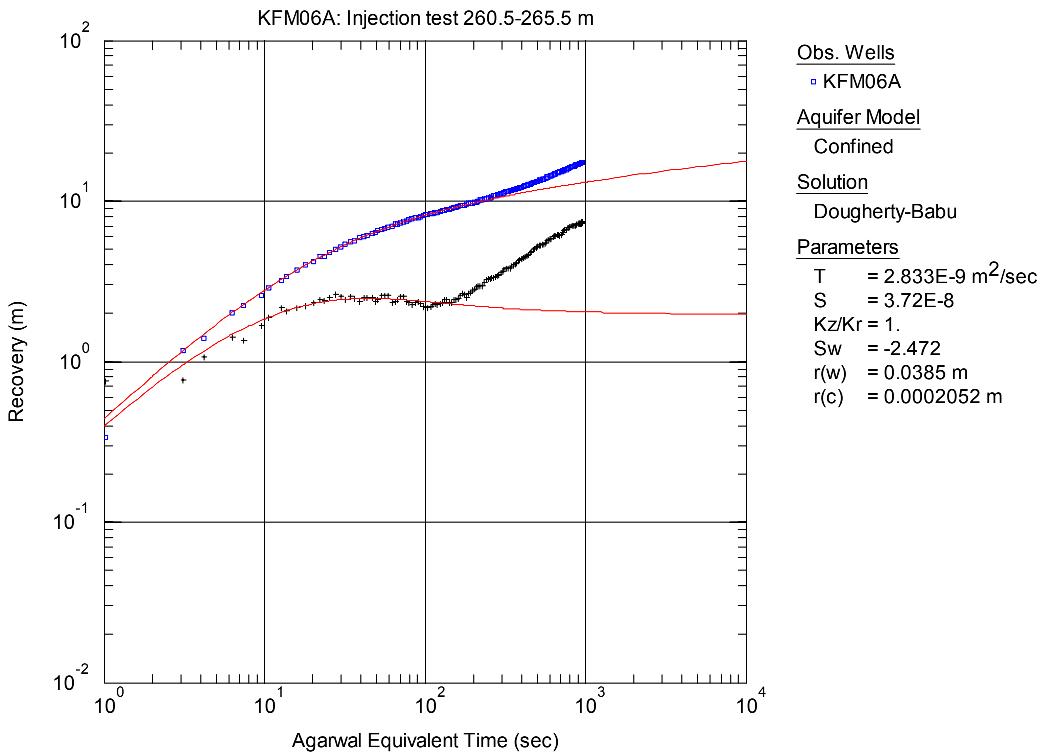


Figure A3-346. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 260.5-265.5 m in KFM06A.*

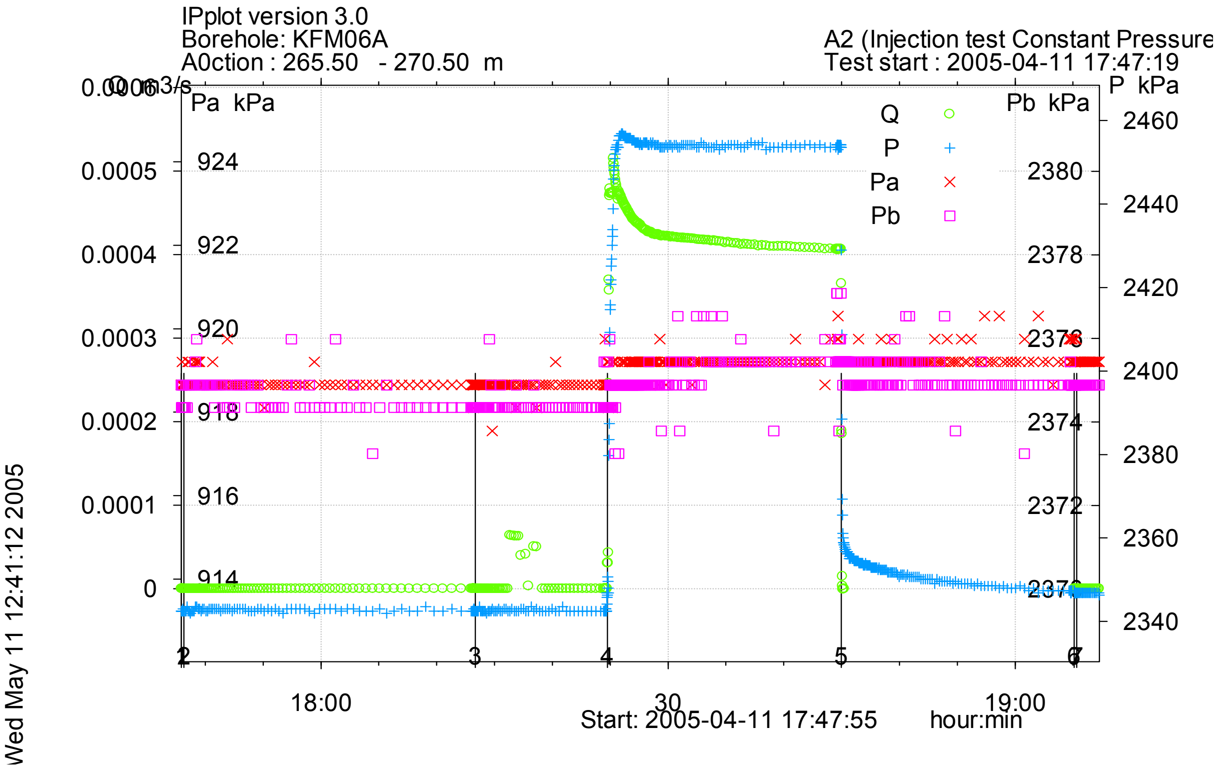


Figure A3-347. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 265.5-270.5 m in borehole KFM06A.*

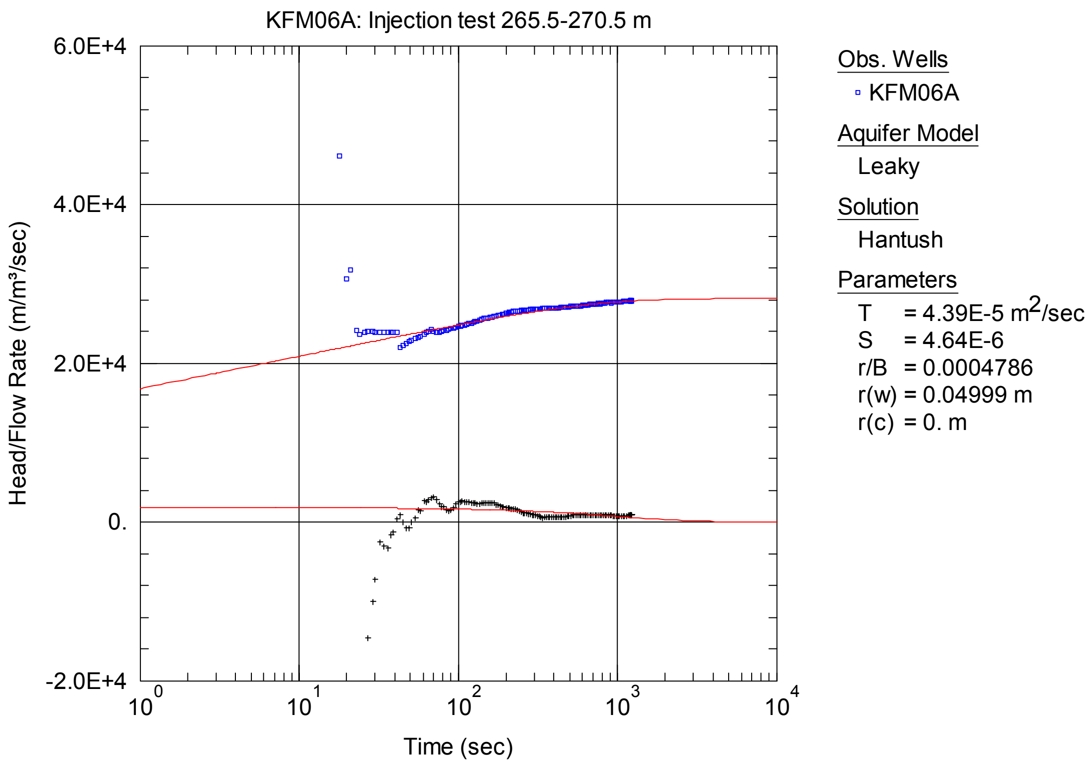


Figure A3-348. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Hantush solution, from the injection test in section 265.5-270.5 m in KFM06A.*

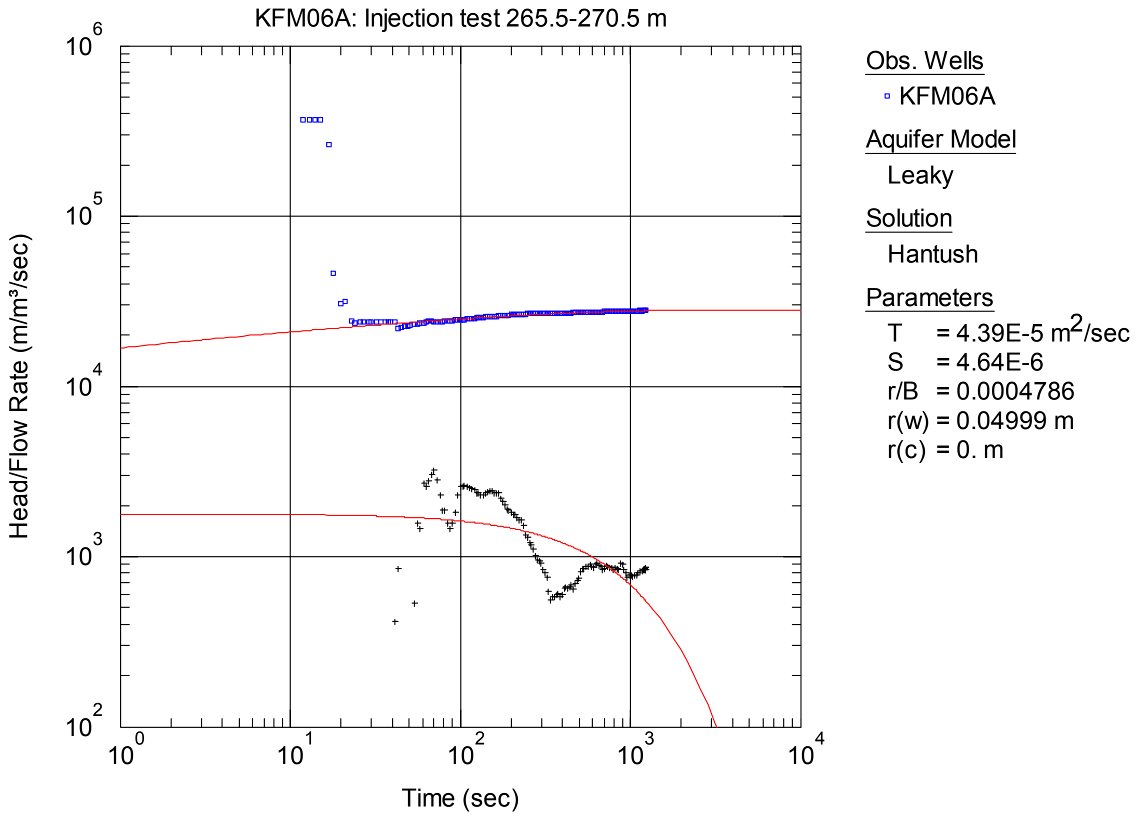


Figure A3-349. *Log-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Hantush solution, from the injection test in section 265.5-270.5 m in KFM06A.*

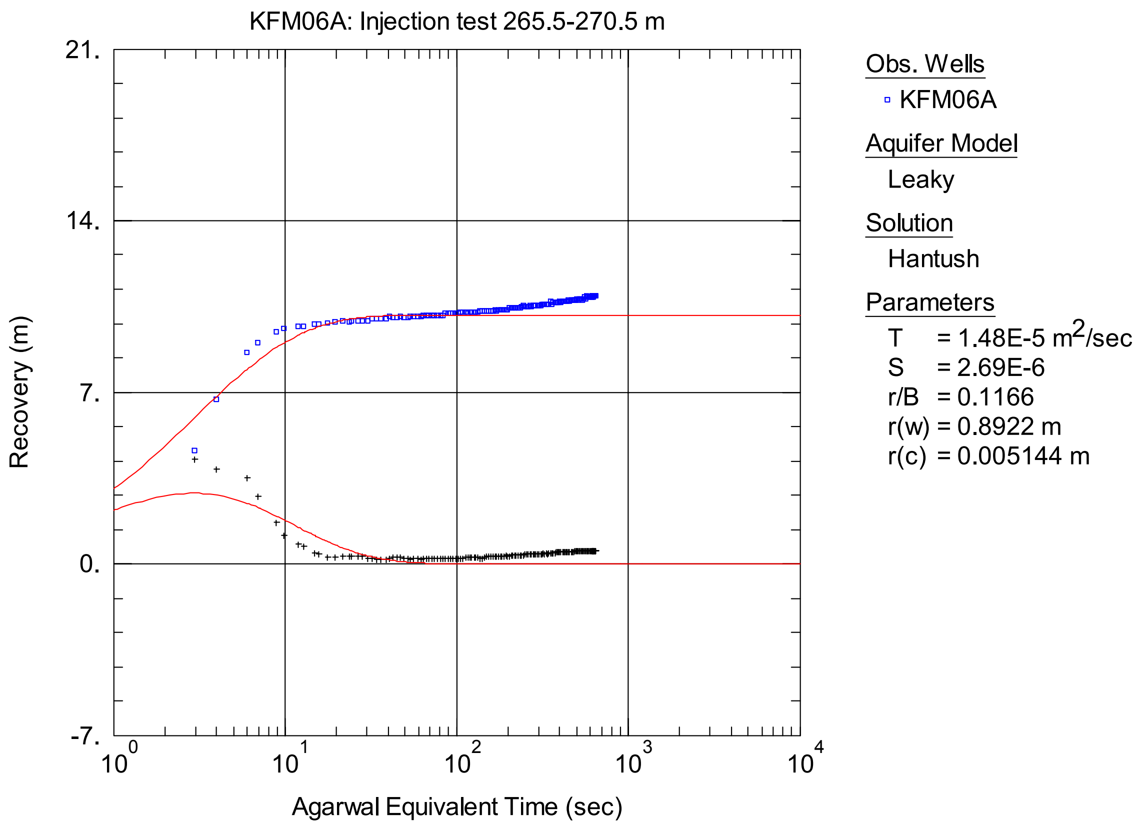


Figure A3-350. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 265.5-270.5 m in KFM06A.*

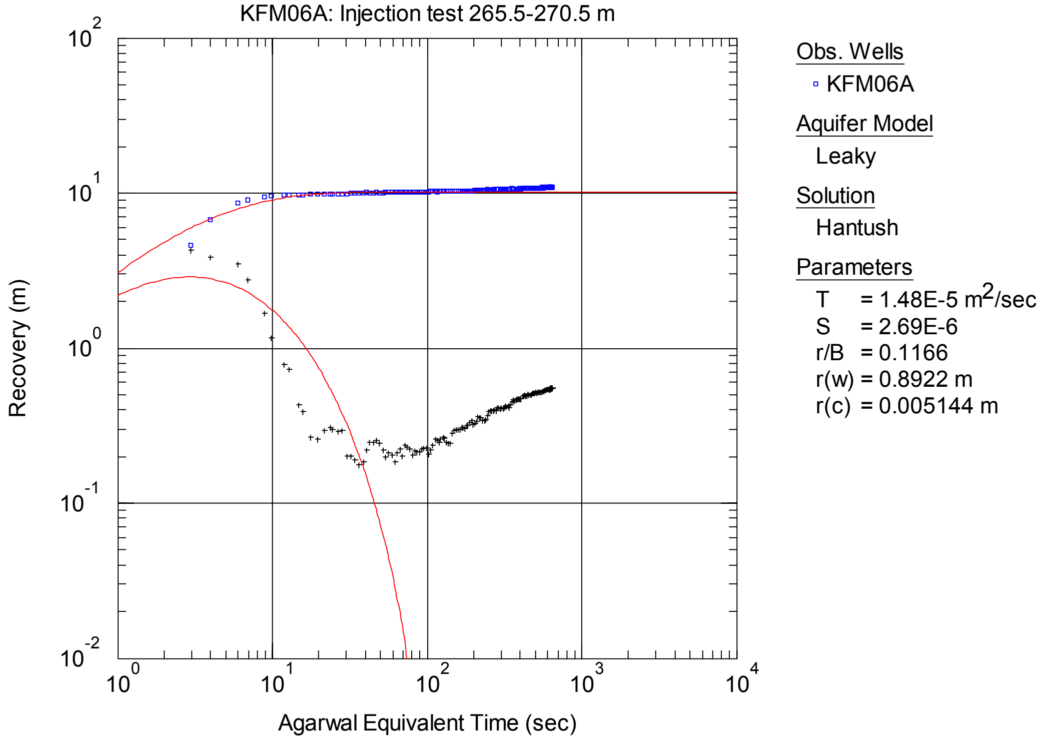


Figure A3-351. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 265.5-270.5 m in KFM06A.*

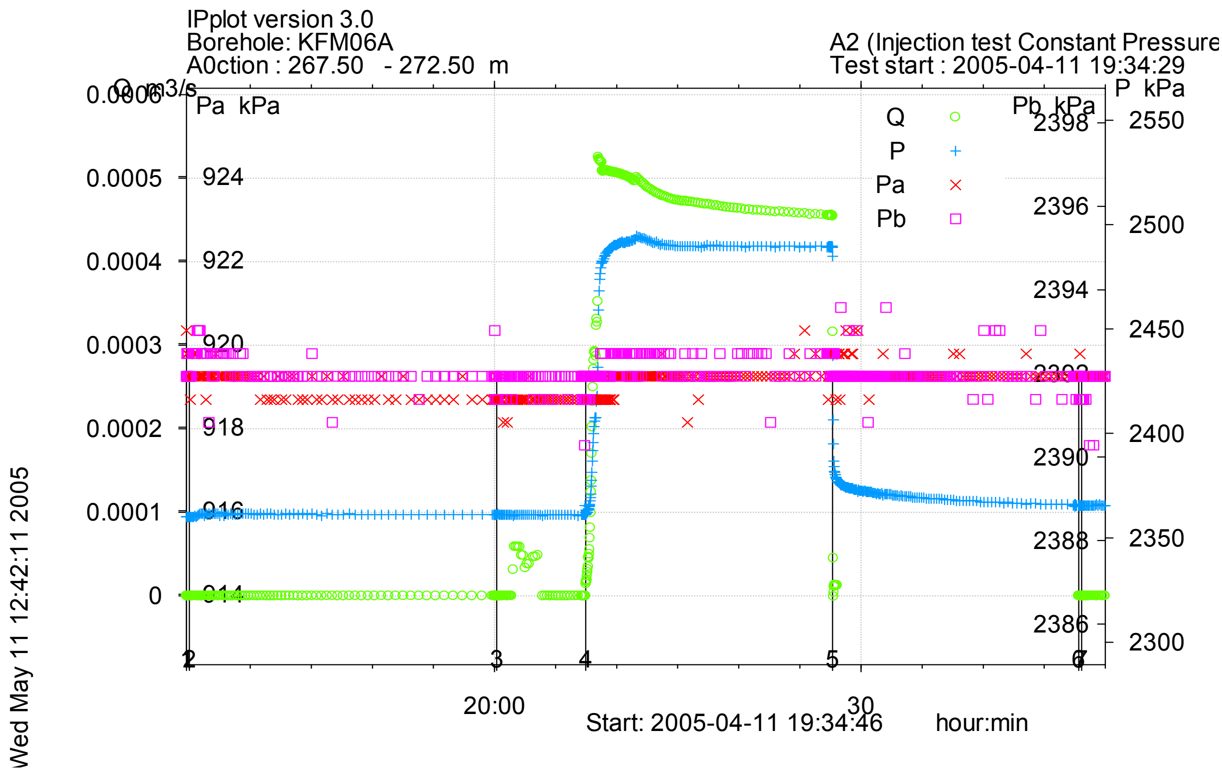


Figure A3-352. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 267.5-272.5 m in borehole KFM06A.*

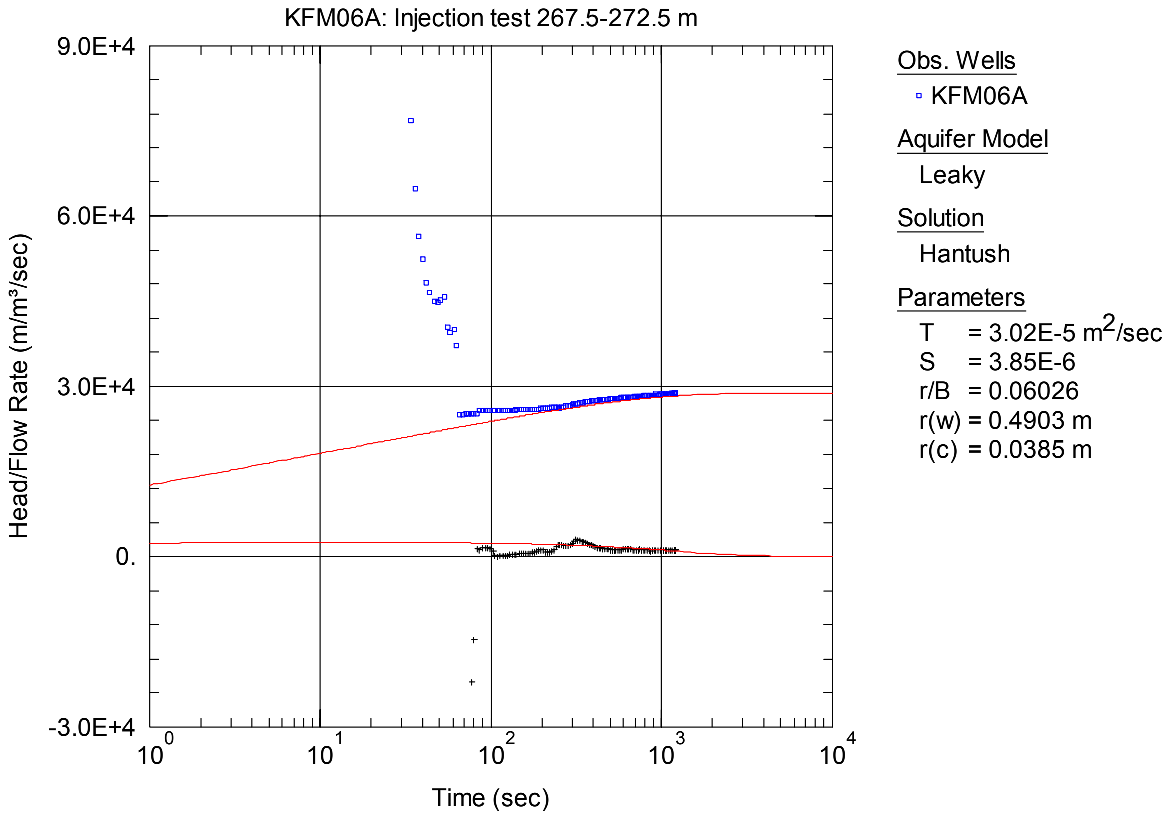


Figure A3-353. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 267.5-272.5 m in KFM06A.*

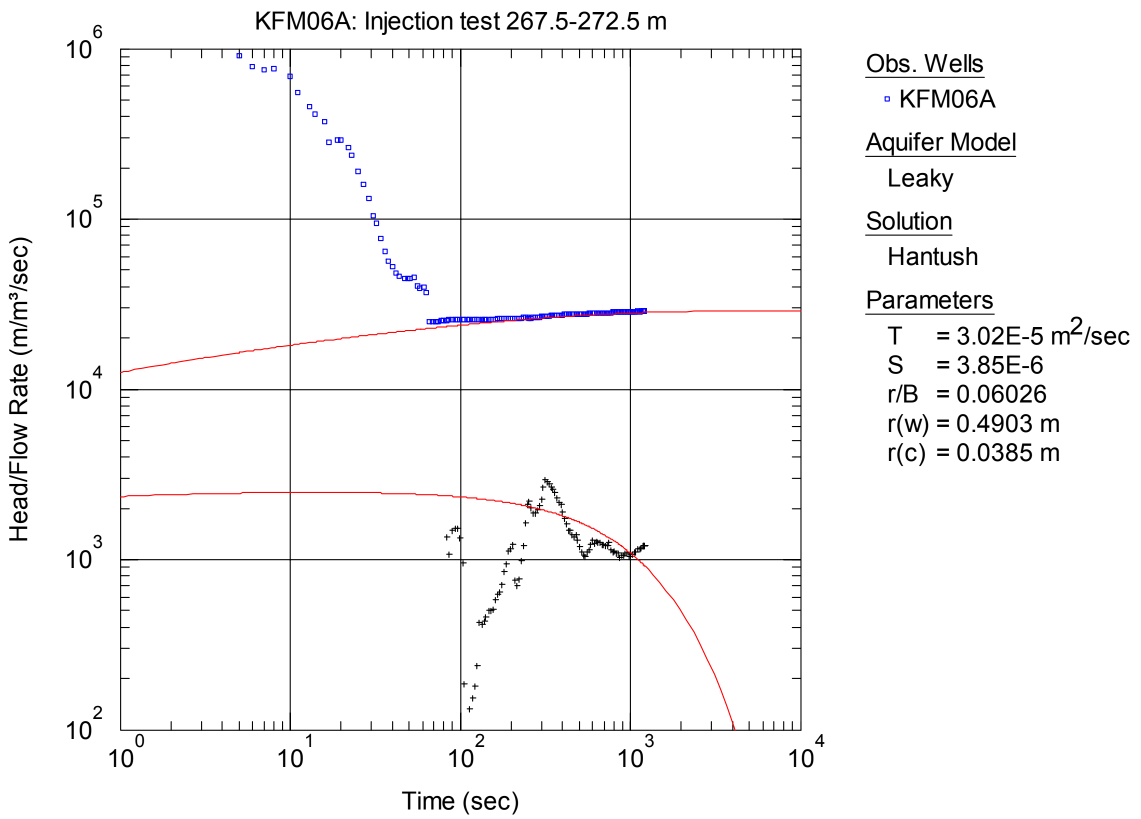


Figure A3-354. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 267.5-272.5 m in KFM06A.*

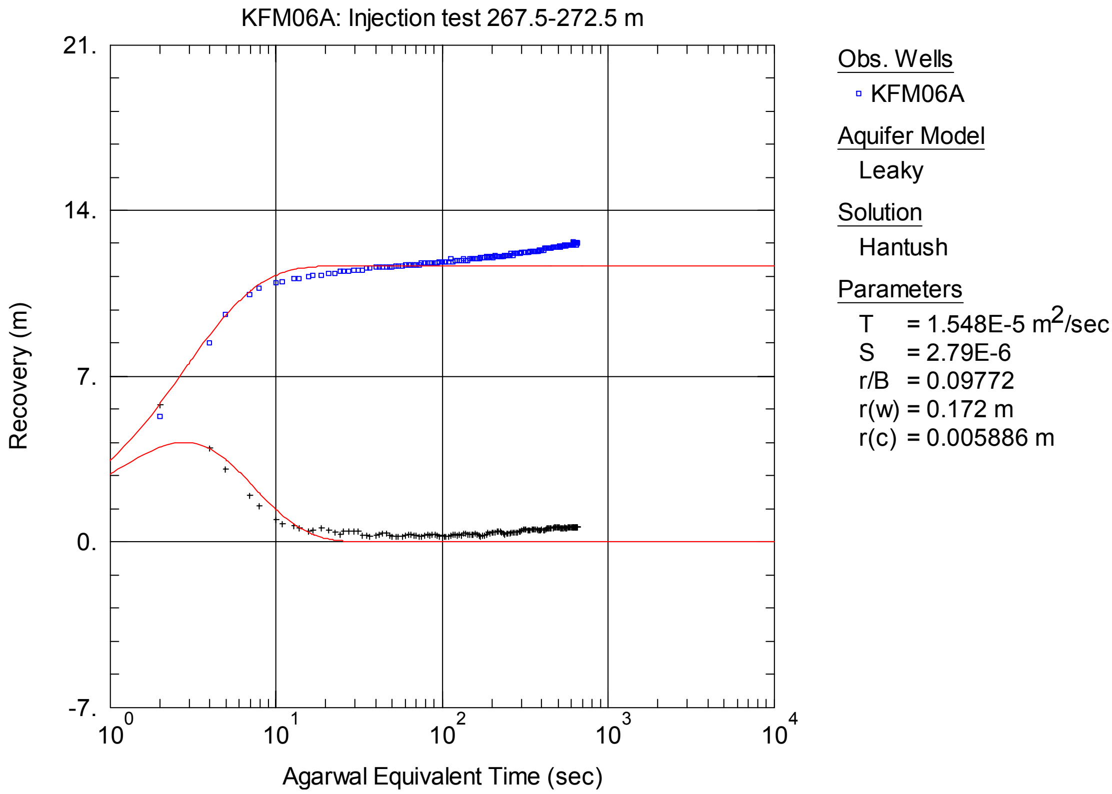


Figure A3-355. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 267.5-272.5 m in KFM06A.*

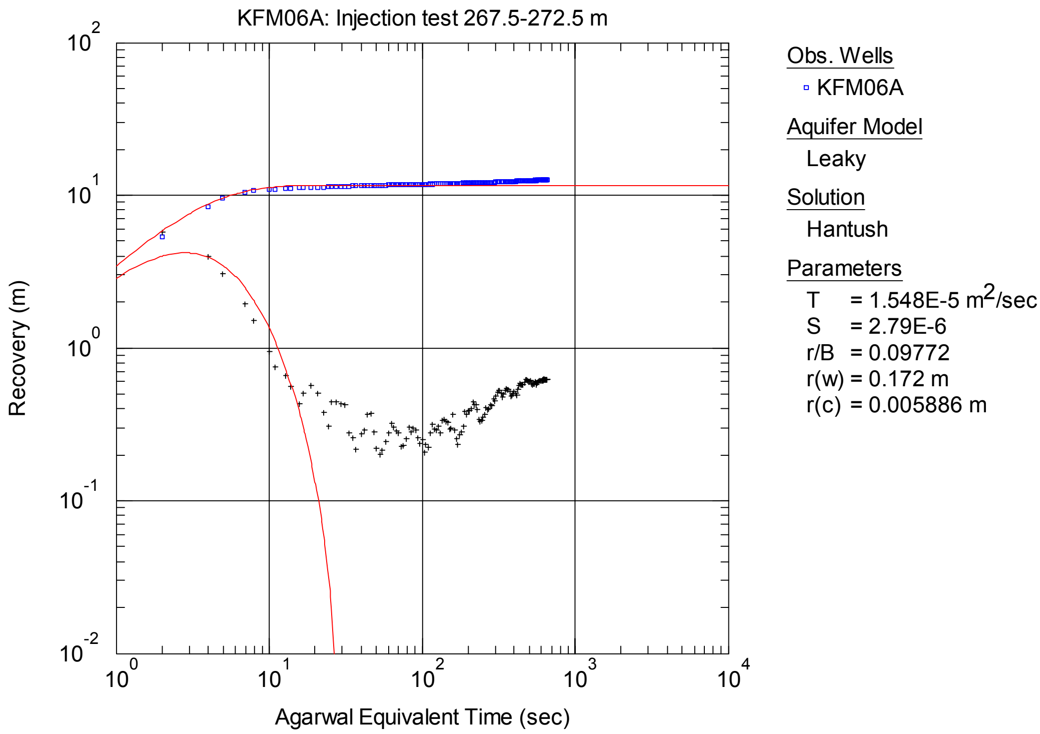


Figure A3-356. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 267.5-272.5 m in KFM06A.*

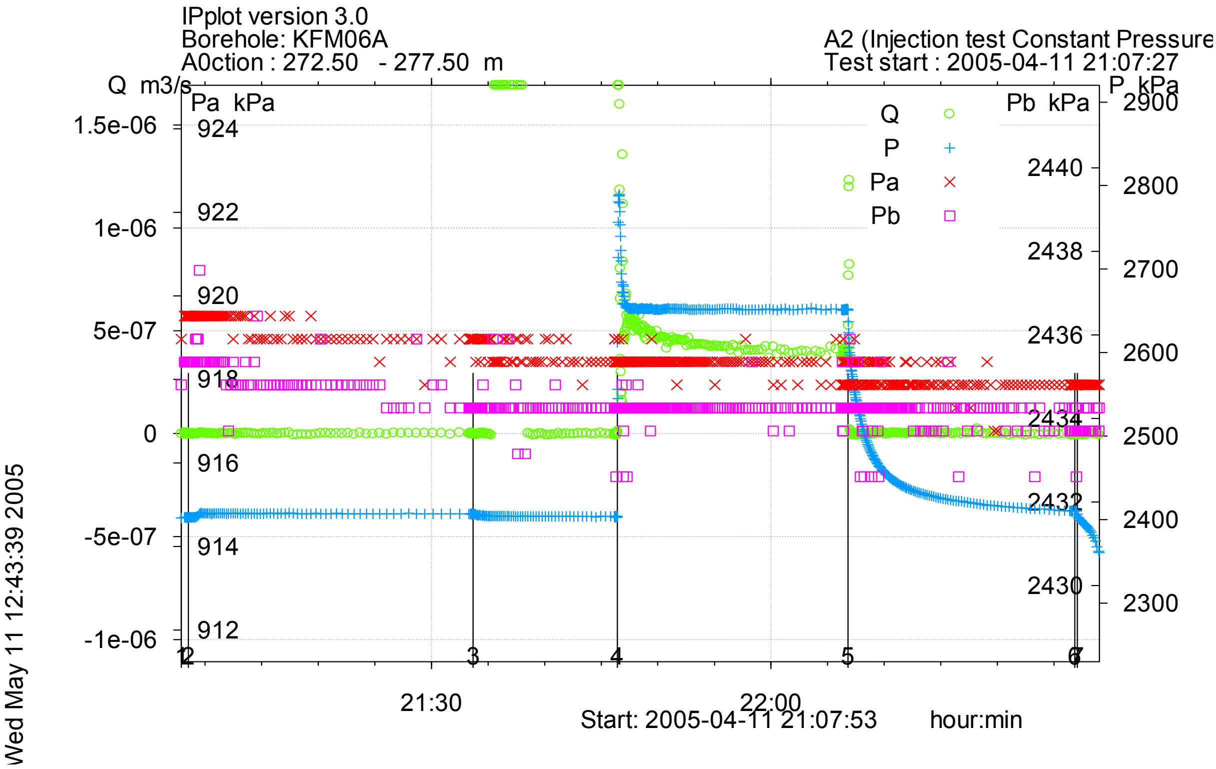


Figure A3-357. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 272.5-277.5 m in borehole KFM06A.

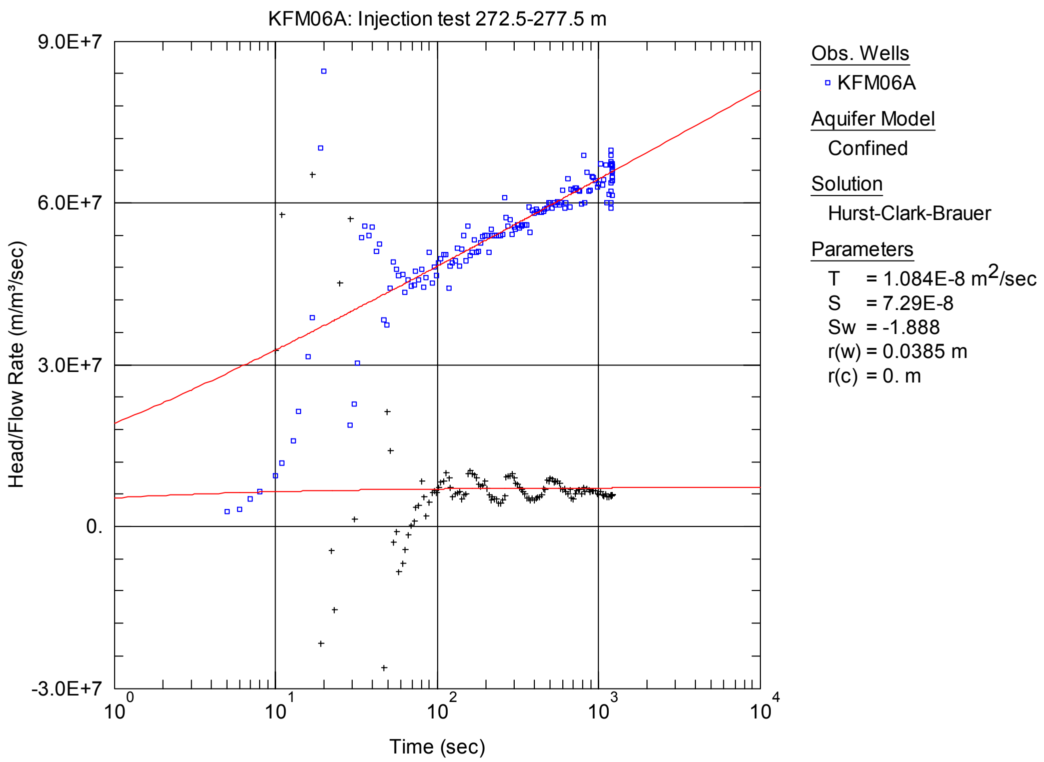


Figure A3-358. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 272.5-277.5 m in KFM06A.

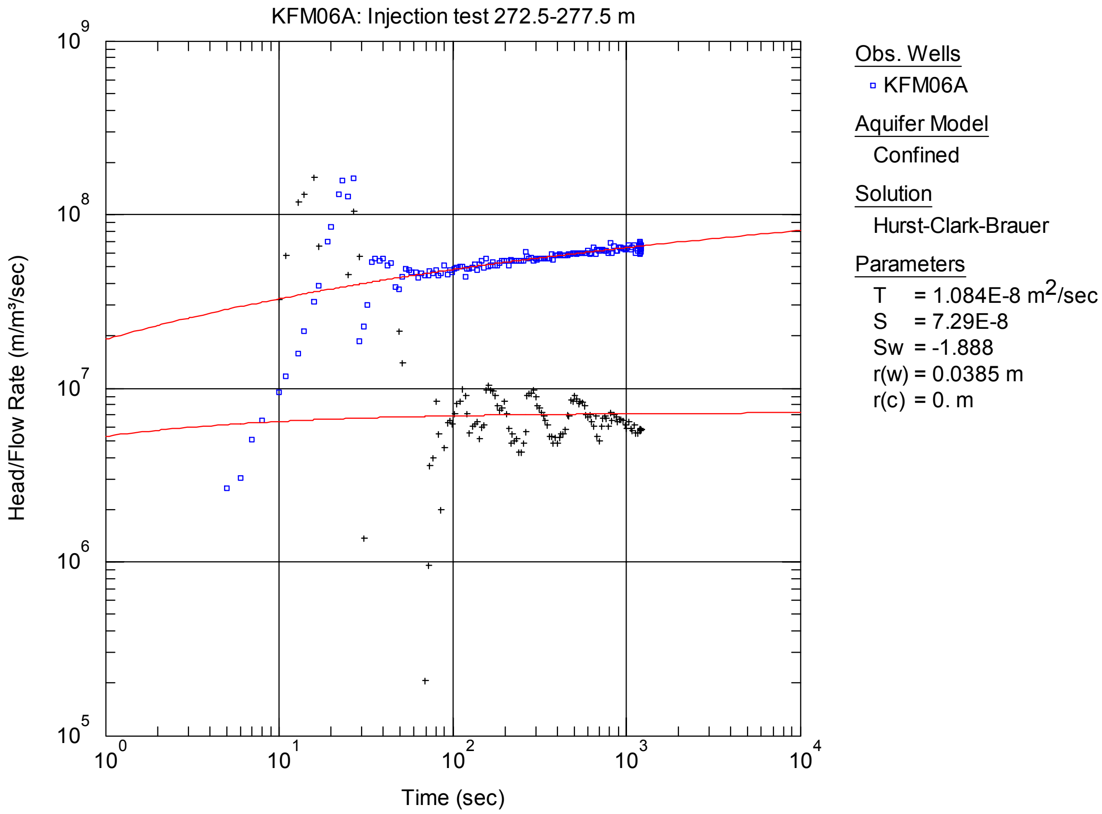


Figure A3-359. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 272.5-277.5 m in KFM06A.*

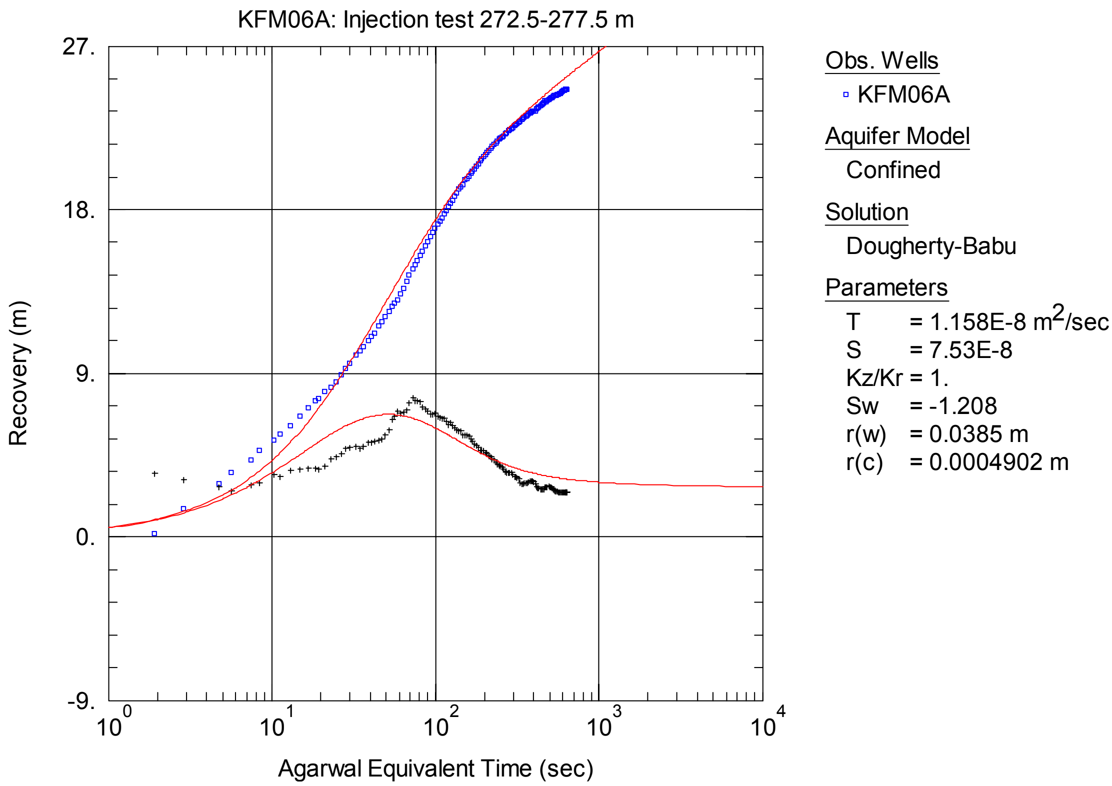


Figure A3-360. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 272.5-277.5 m in KFM06A.*

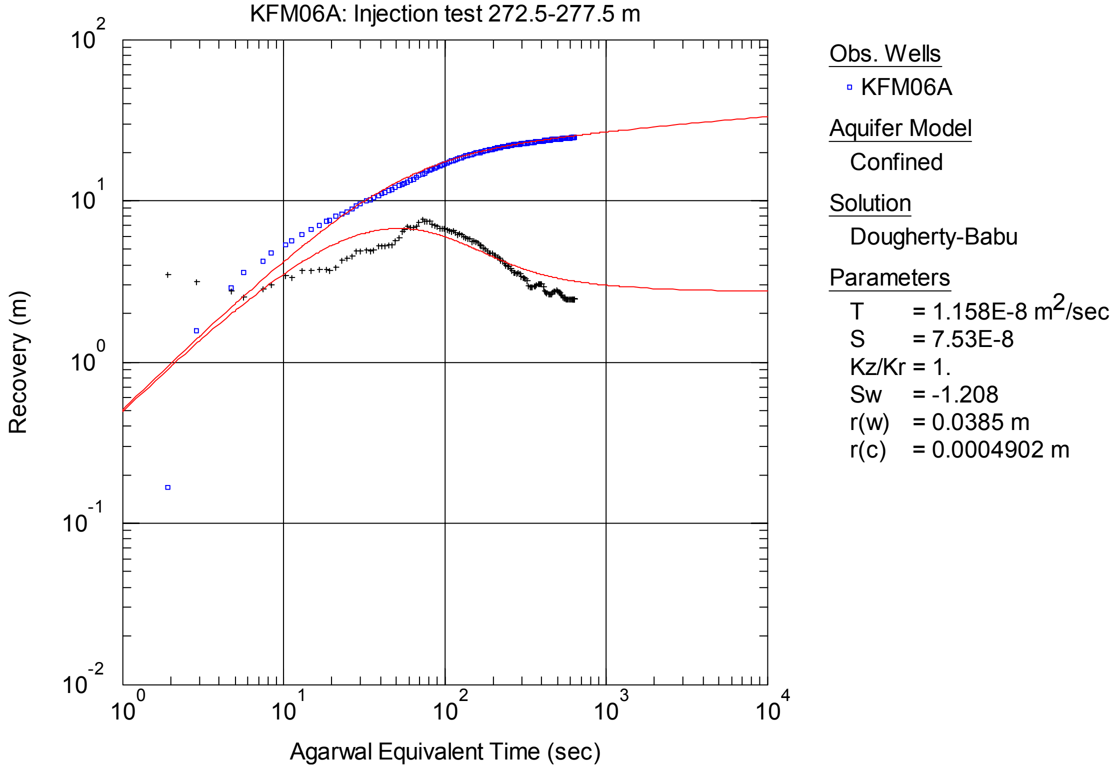


Figure A3-361. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 272.5-277.5 m in KFM06A.*

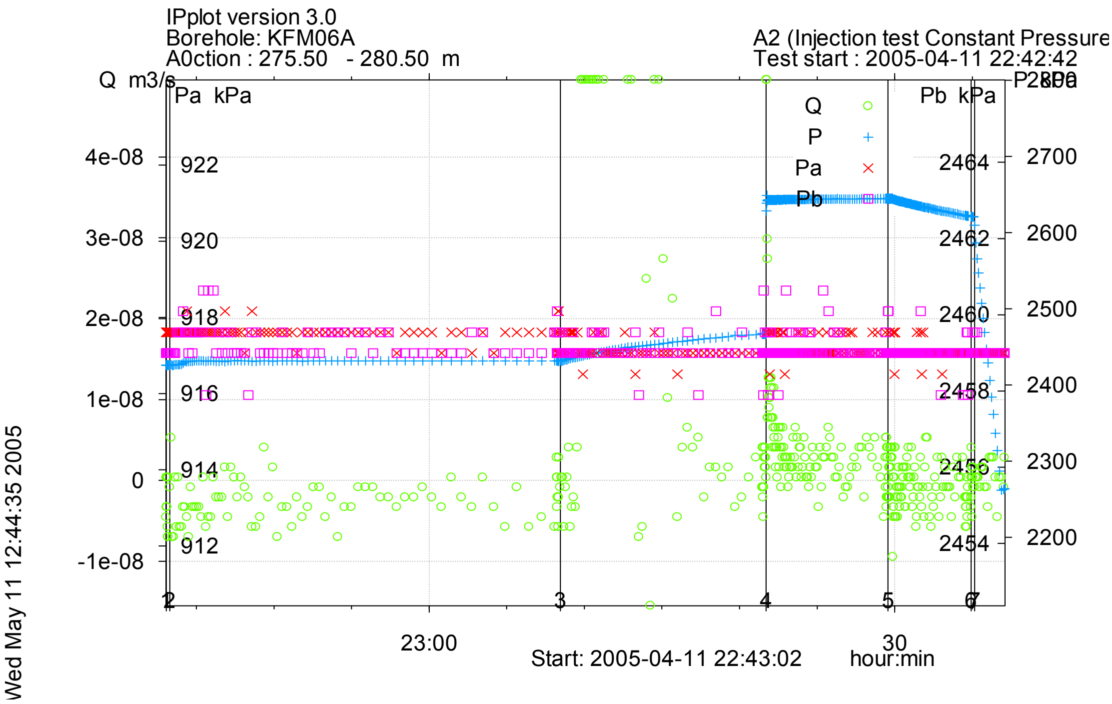


Figure A3-362. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 275.5-280.5 m in borehole KFM06A.*

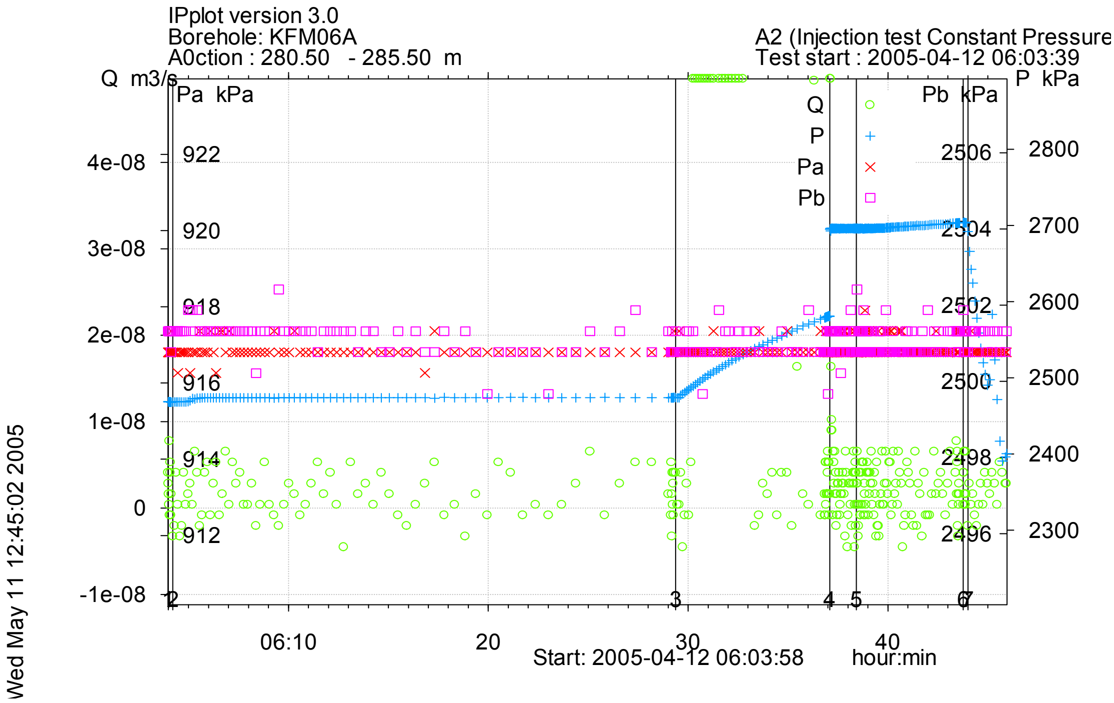


__Figure A3-363.__ Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 280.5-285.5 m in borehole KFM06A.

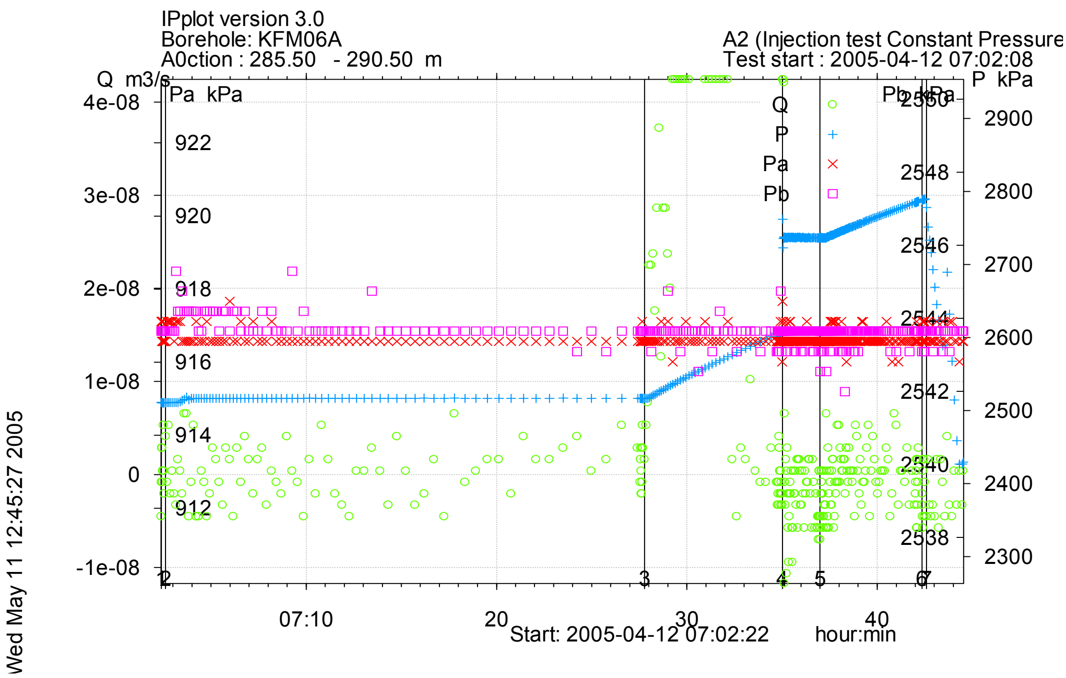


__Figure A3-364.__ Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 285.5-290.5 m in borehole KFM06A.

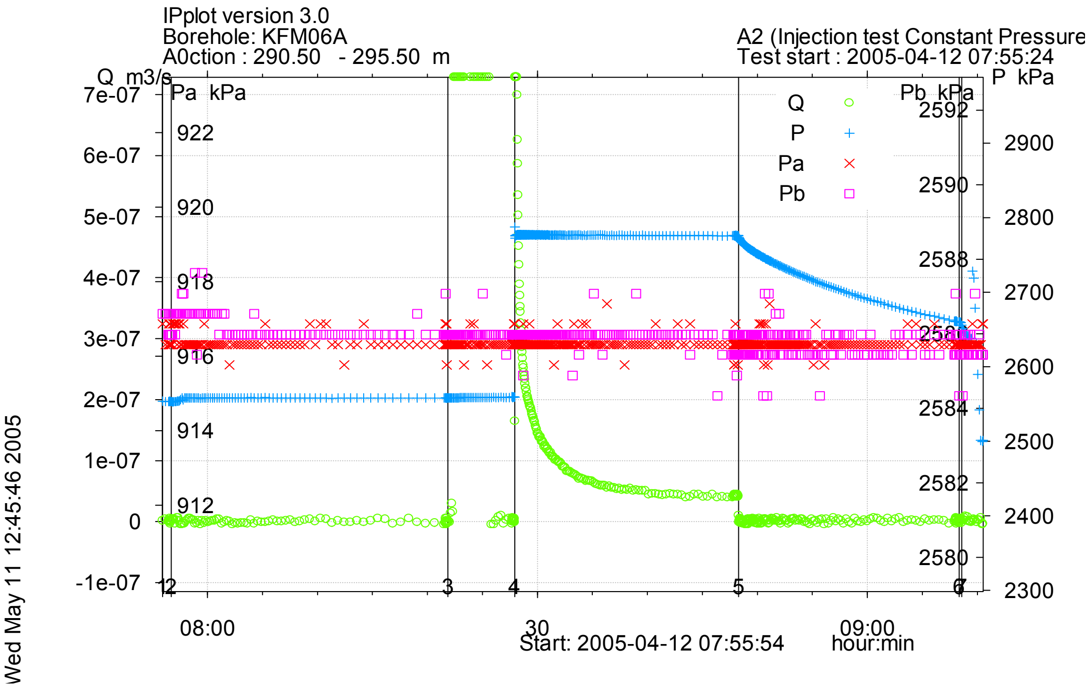


Figure A3-365. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 290.5-295.5.5 m in borehole KFM06A.

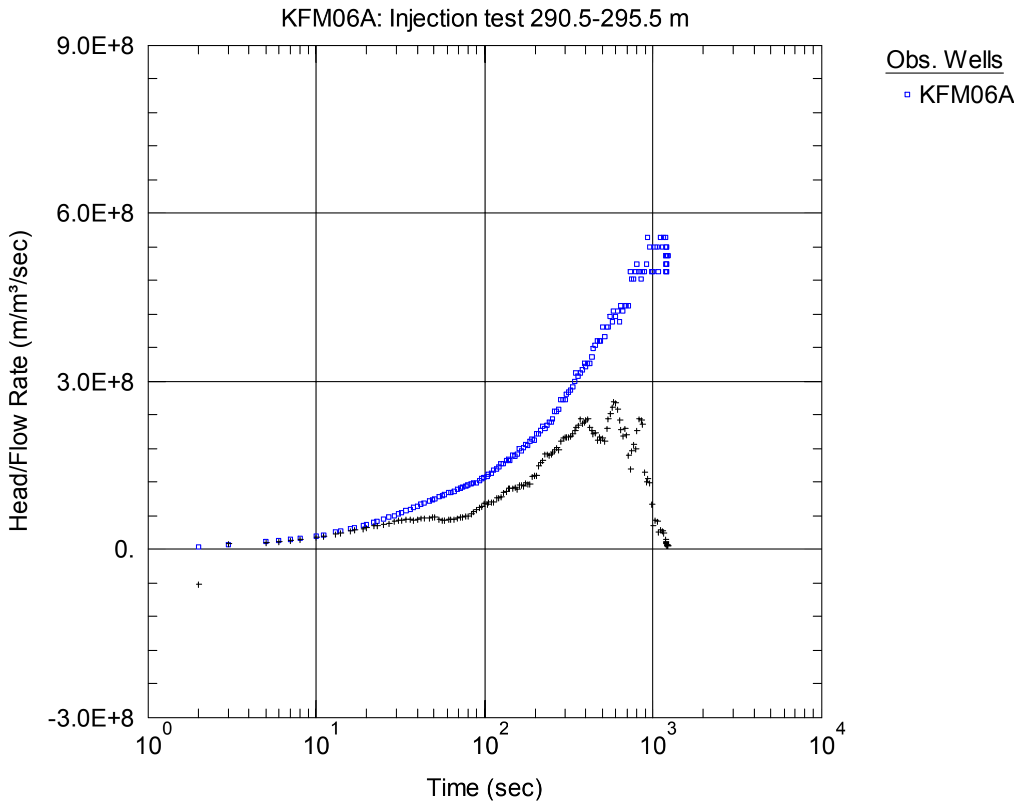


Figure A3-366. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 290.5-295.5 m in KFM06A.

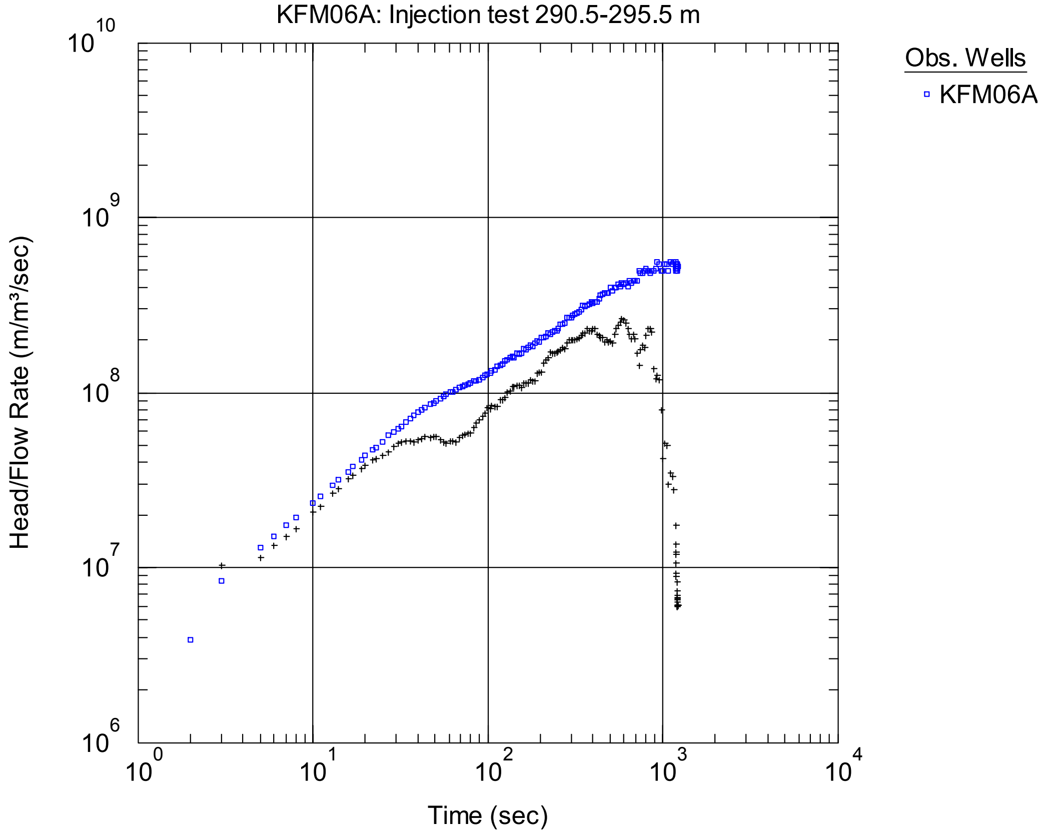


Figure A3-367. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 290.5-295.5 m in KFM06A.*

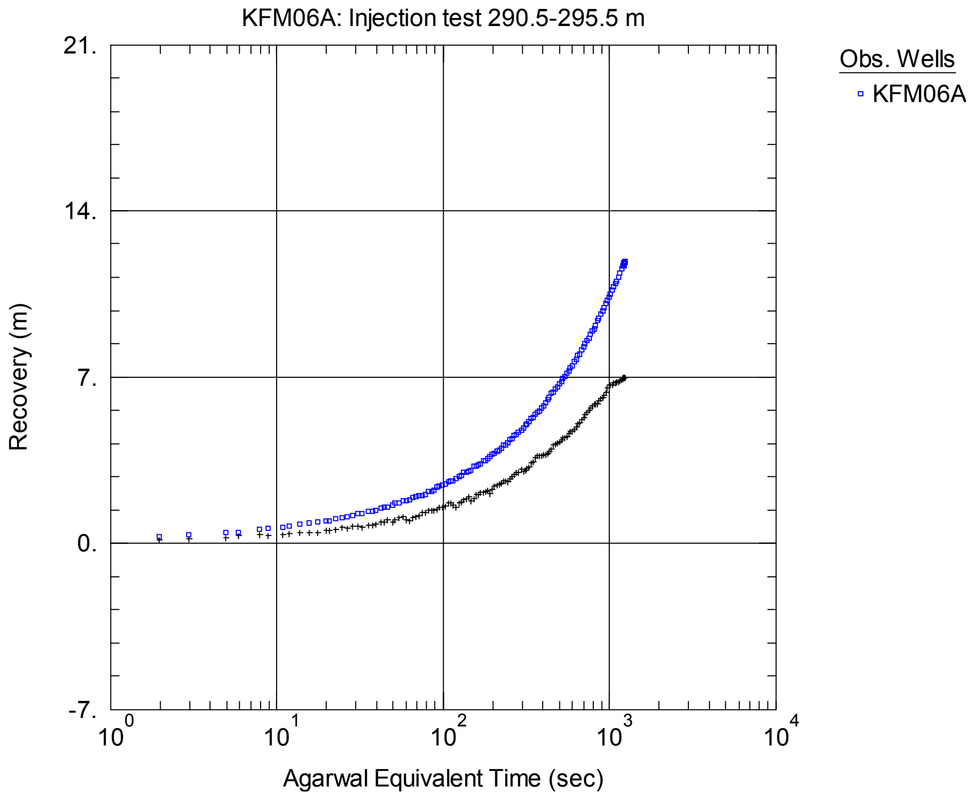


Figure A3-368. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 290.5-295.5 m in KFM06A.*

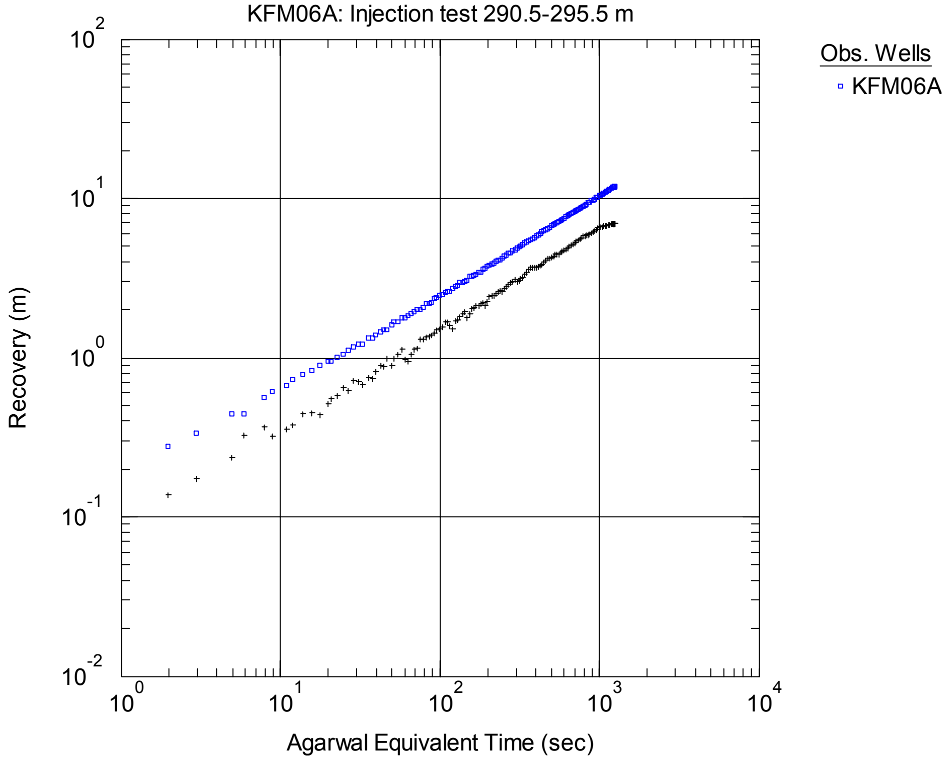


Figure A3-369. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 290.5-295.5 m in KFM06A.*

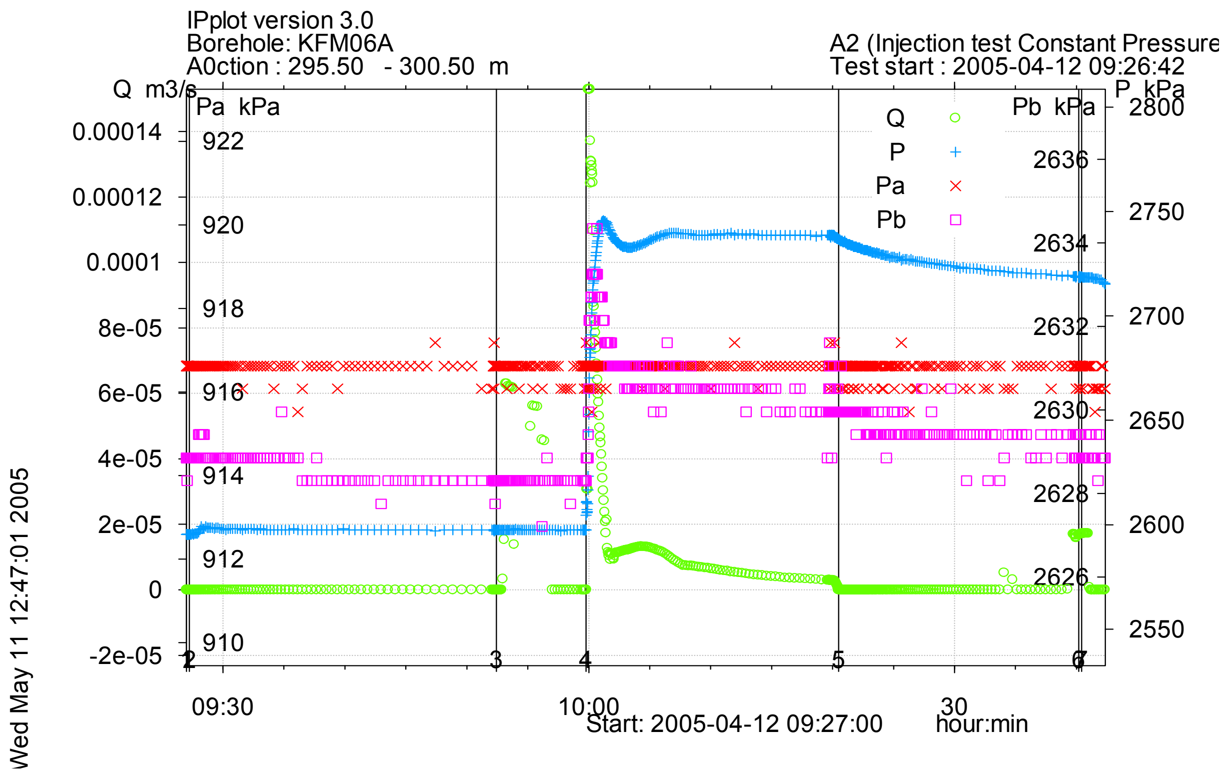


Figure A3-370. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 295.5-300.5 m in borehole KFM06A.*

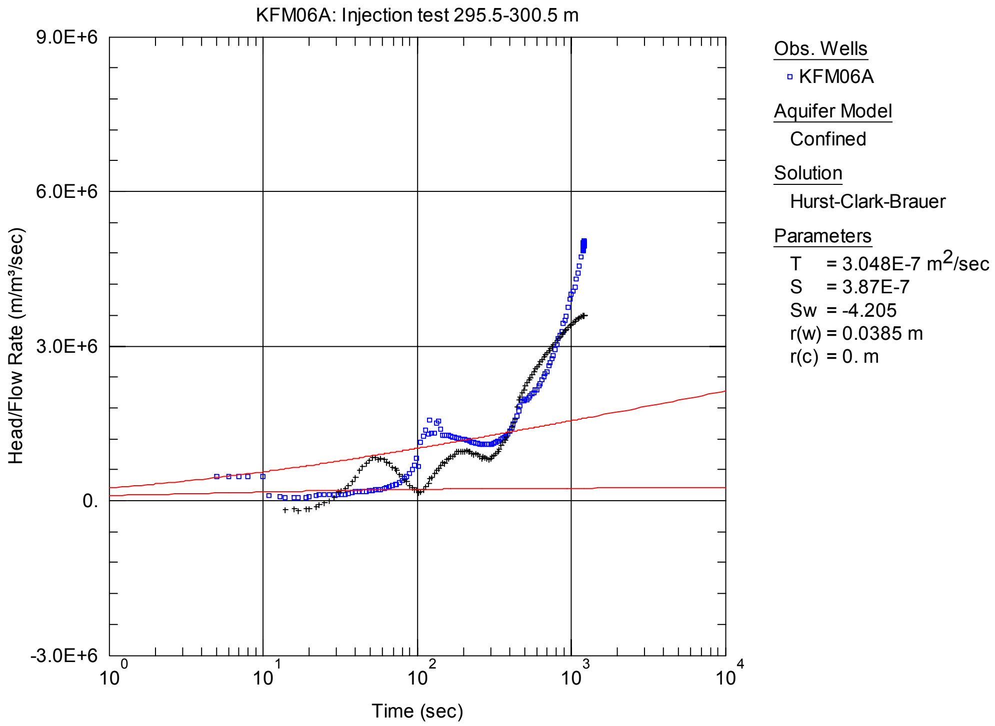


Figure A3-371. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 295.5-300.5 m in KFM06A.*

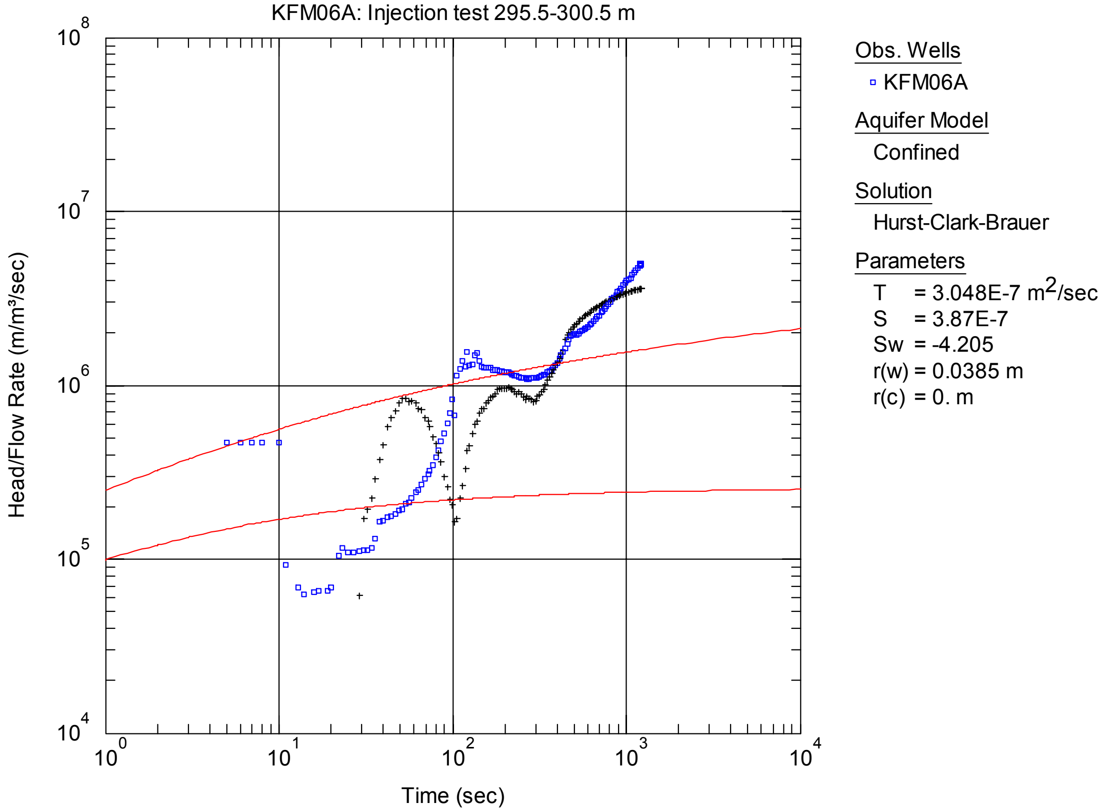


Figure A3-372. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 295.5-300.5 m in KFM06A.*

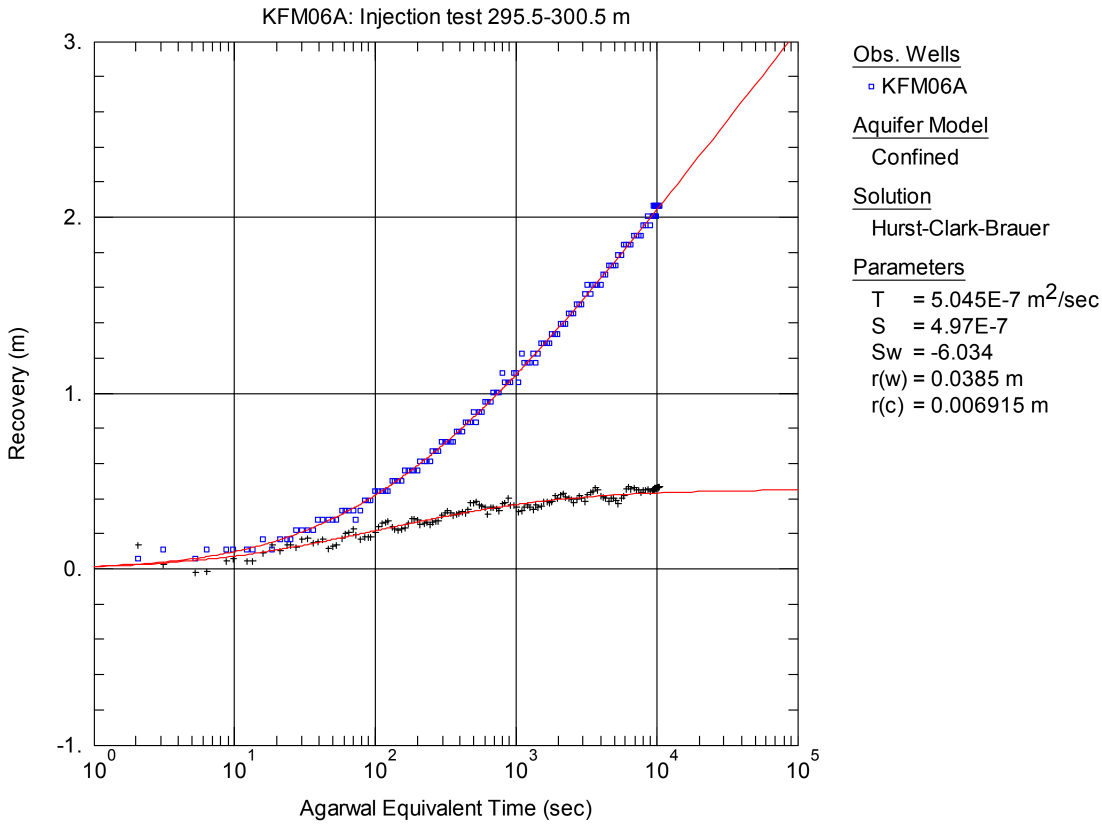


Figure A3-373. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 295.5-300.5 m in KFM06A.*

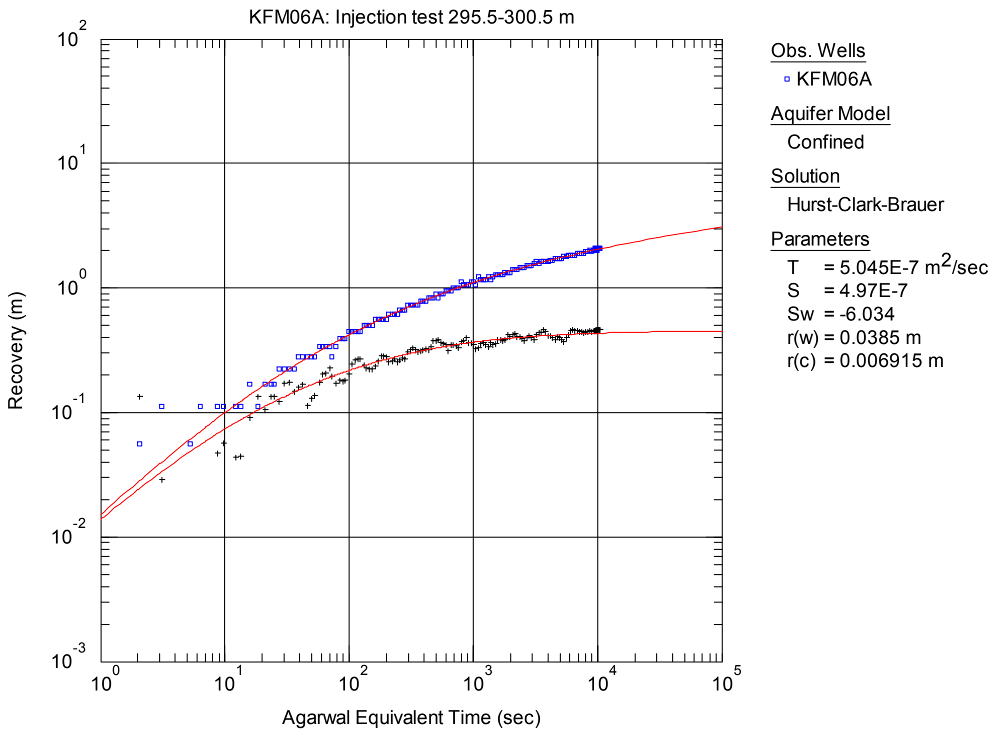


Figure A3-374. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 295.5-300.5 m in KFM06A.*

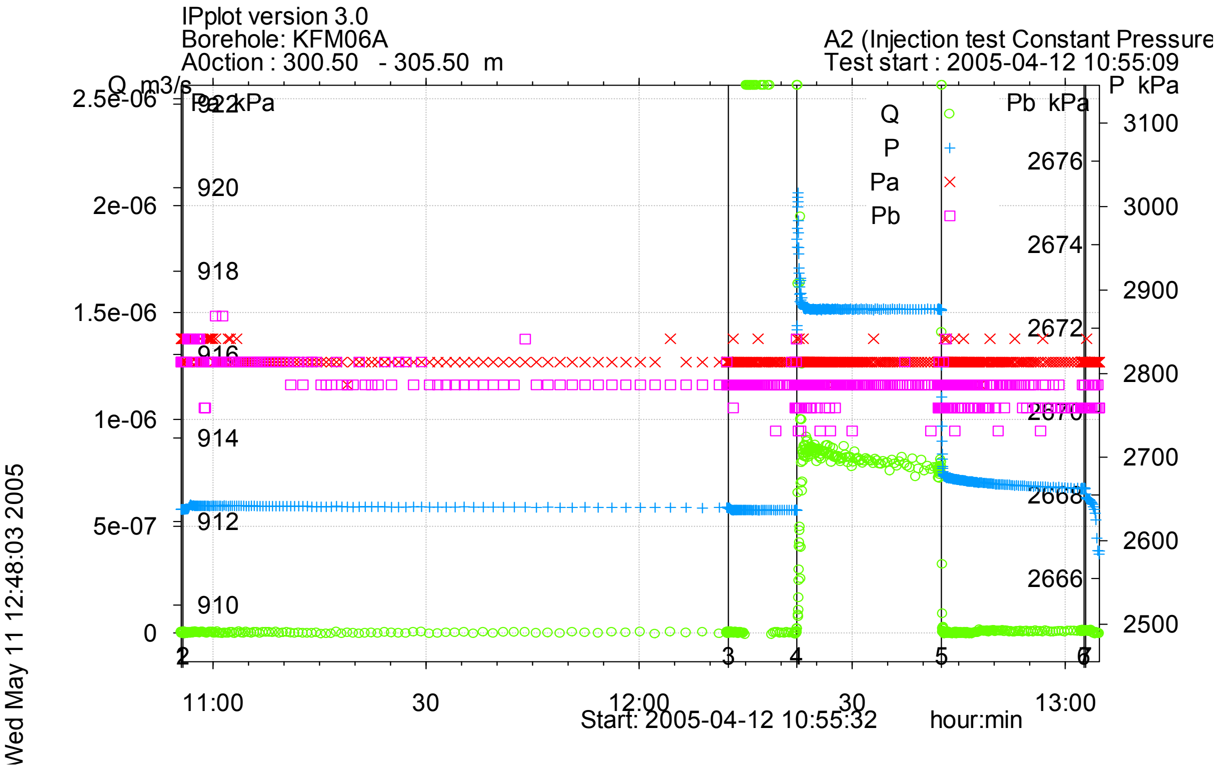


Figure A3-375. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 300.5-305.5 m in borehole KFM06A.

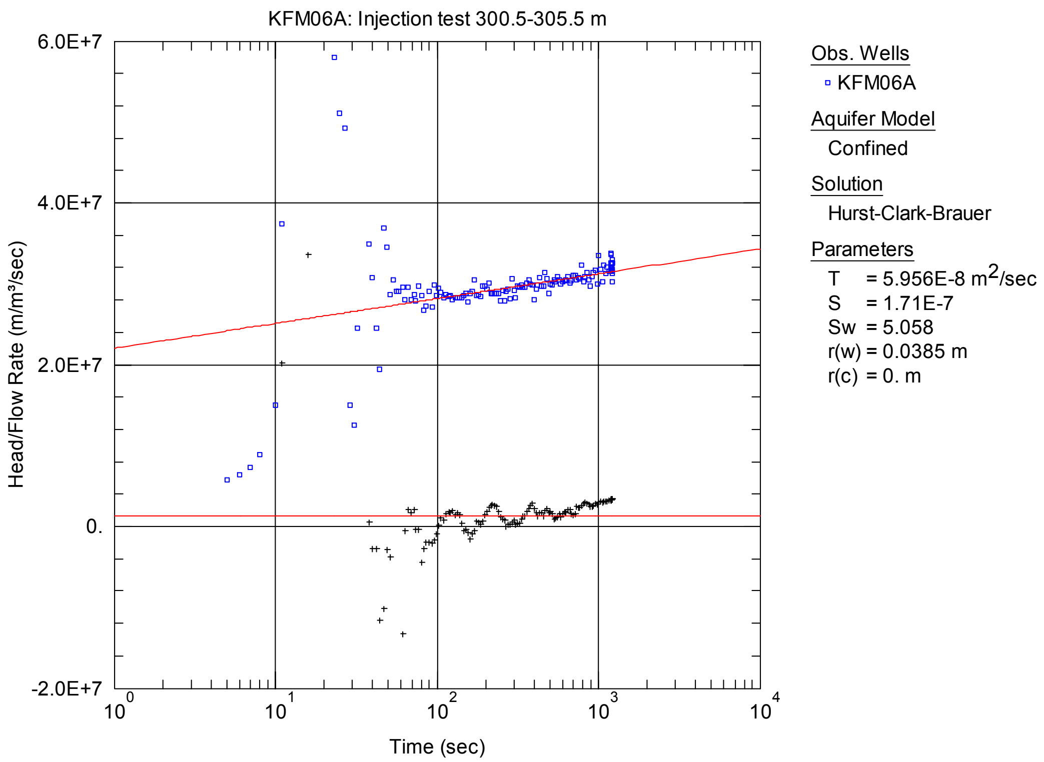


***Figure A3-376.** Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 300.5-305.5 m in KFM06A.*

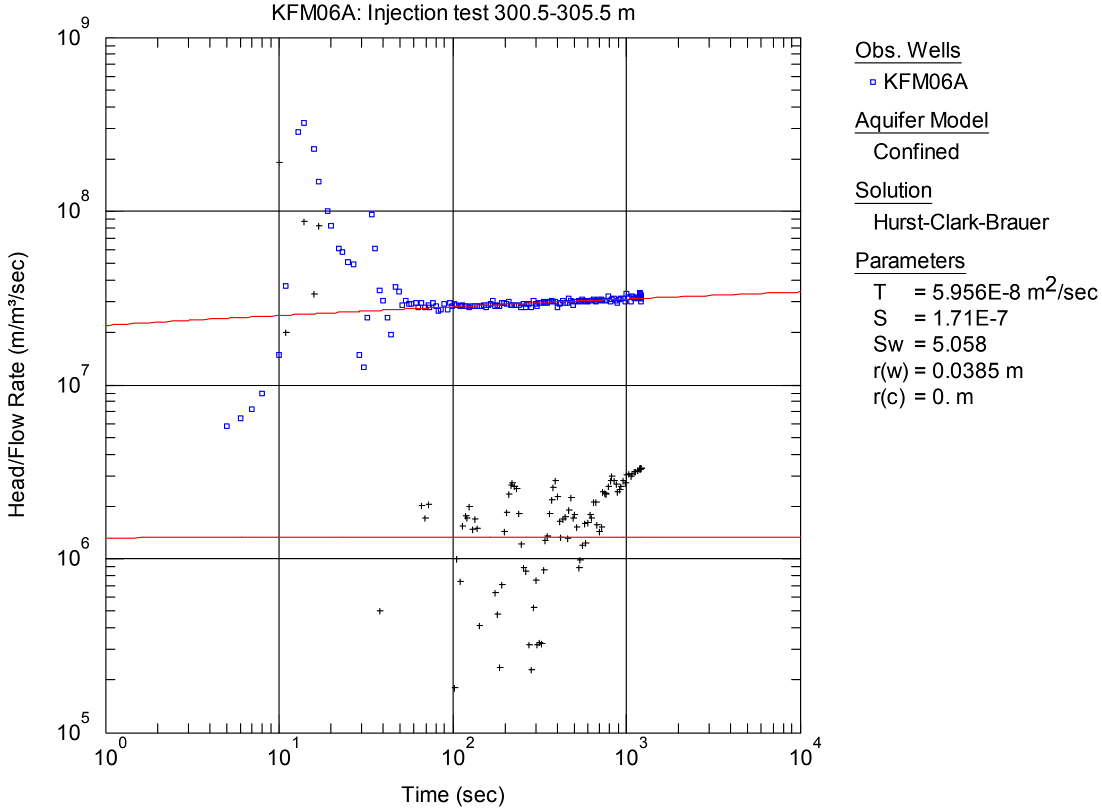


Figure A3-377. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 300.5-305.5 m in KFM06A.*

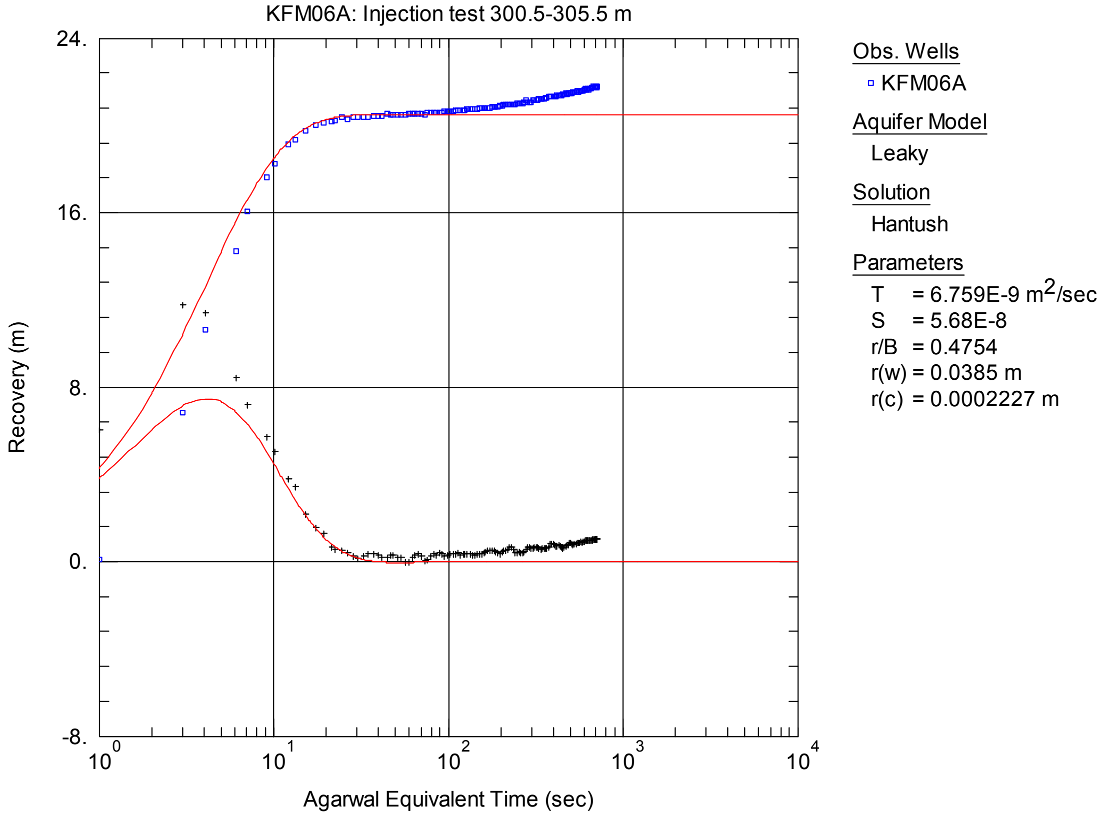


Figure A3-378. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 300.5-305.5 m in KFM06A.*

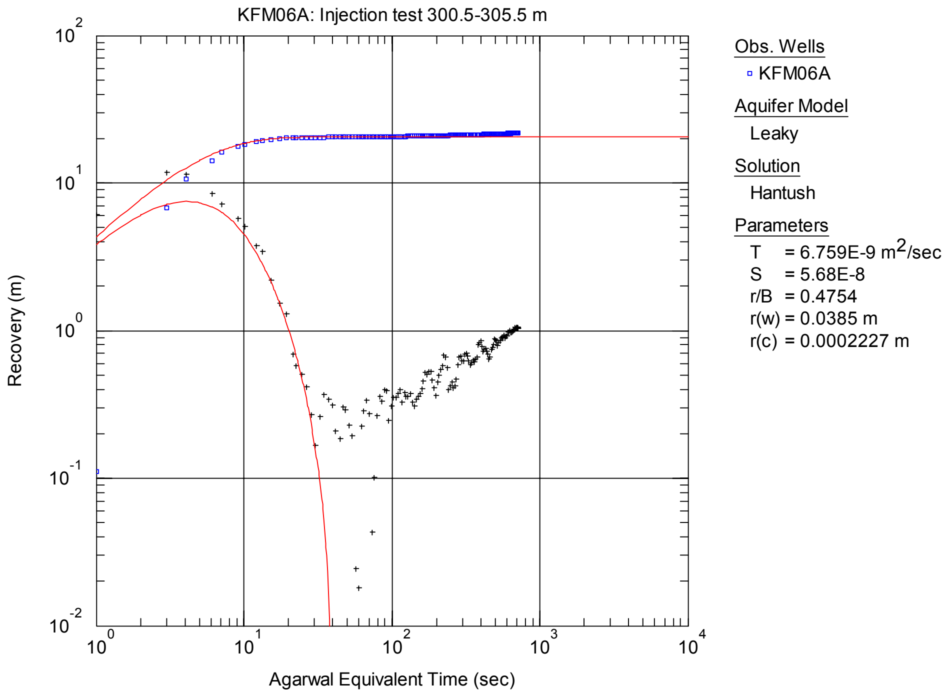


Figure A3-379. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 300.5-305.5 m in KFM06A.*

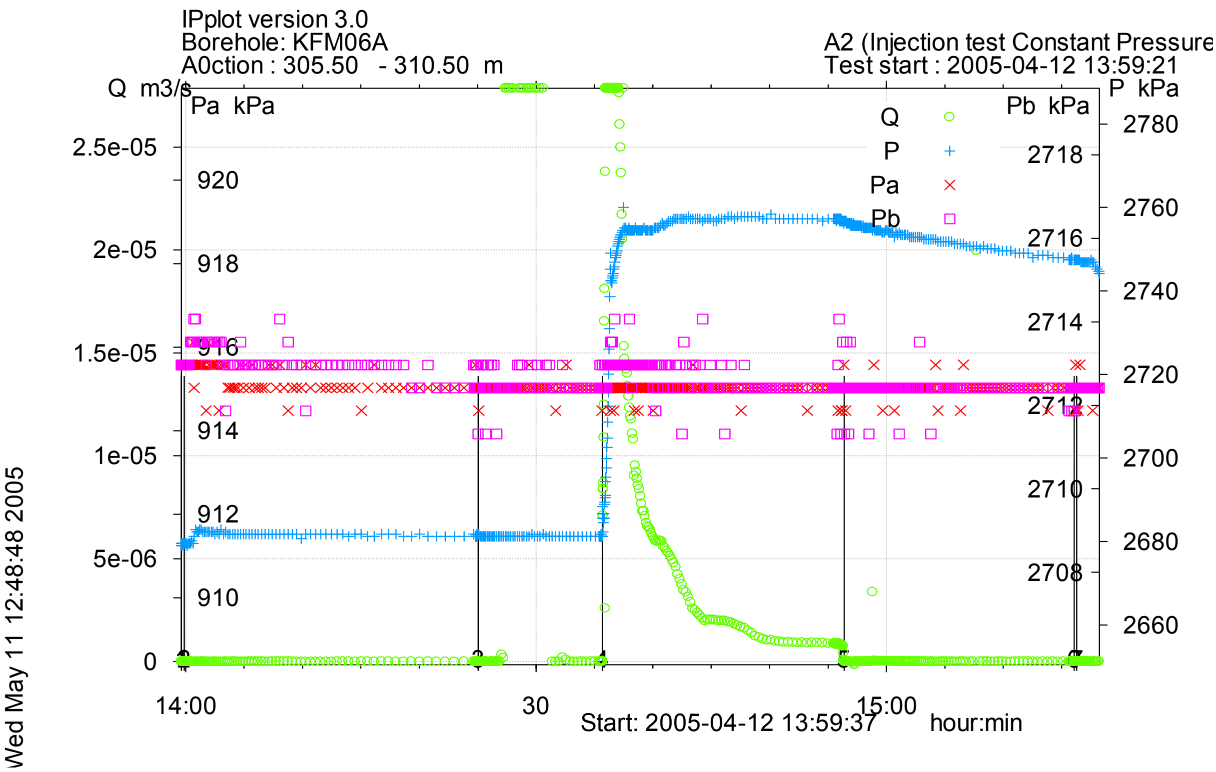


Figure A3-380. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 305.5-310.5 m in borehole KFM06A.*

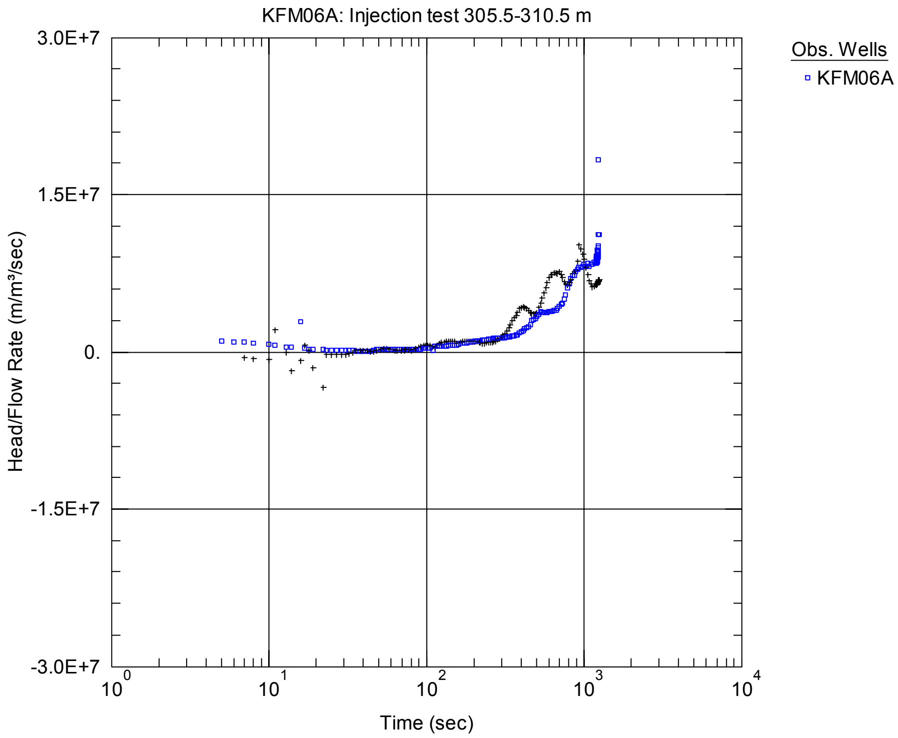


Figure A3-381. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 305.5-310.5 m in KFM06A.*

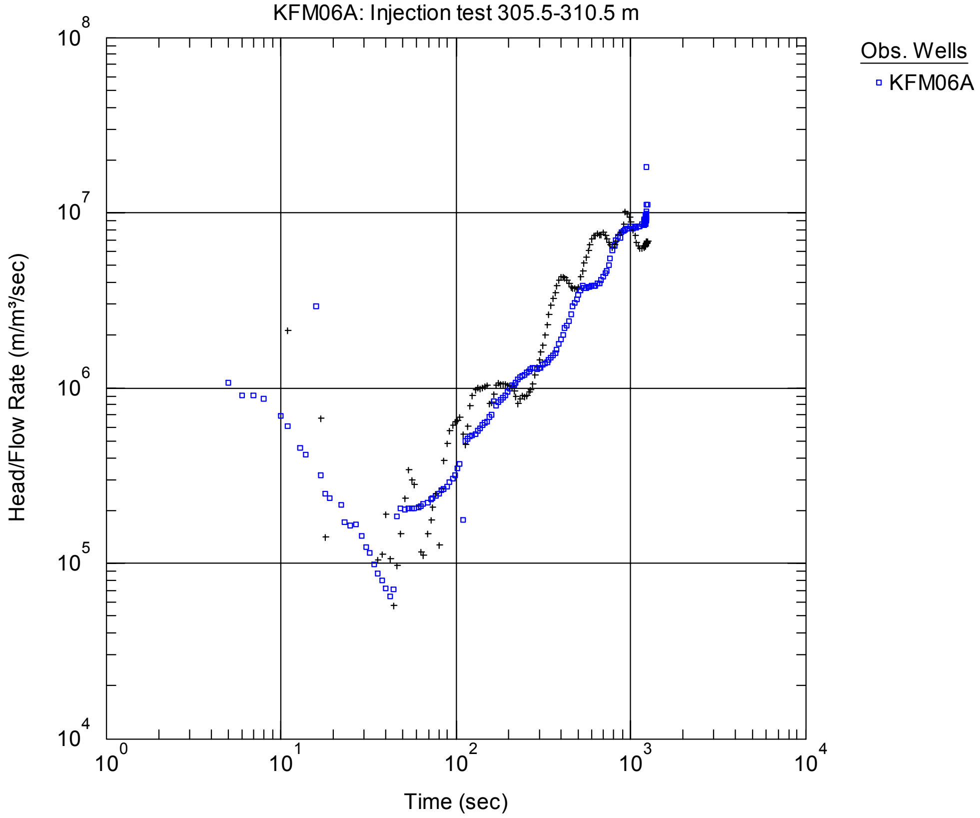


Figure A3-382. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 305.5-310.5 m in KFM06A.*

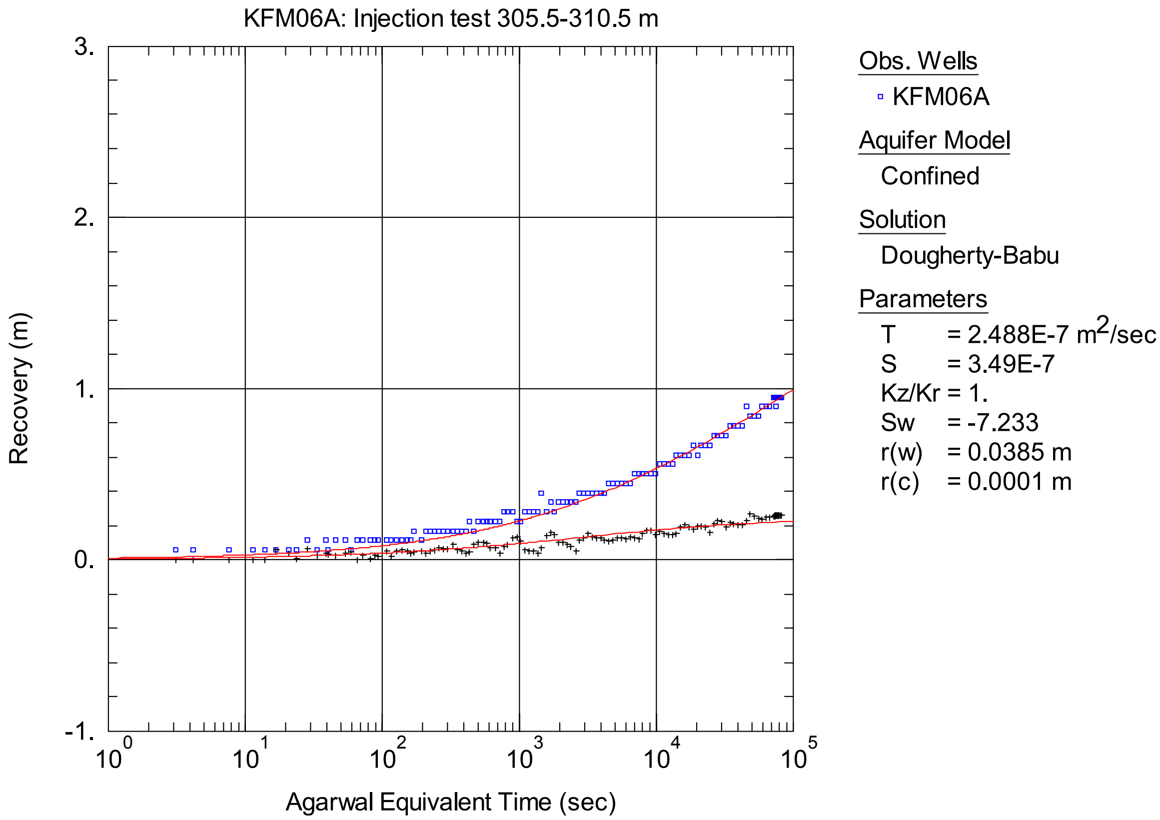


Figure A3-383. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 305.5-310.5 m in KFM06A.*

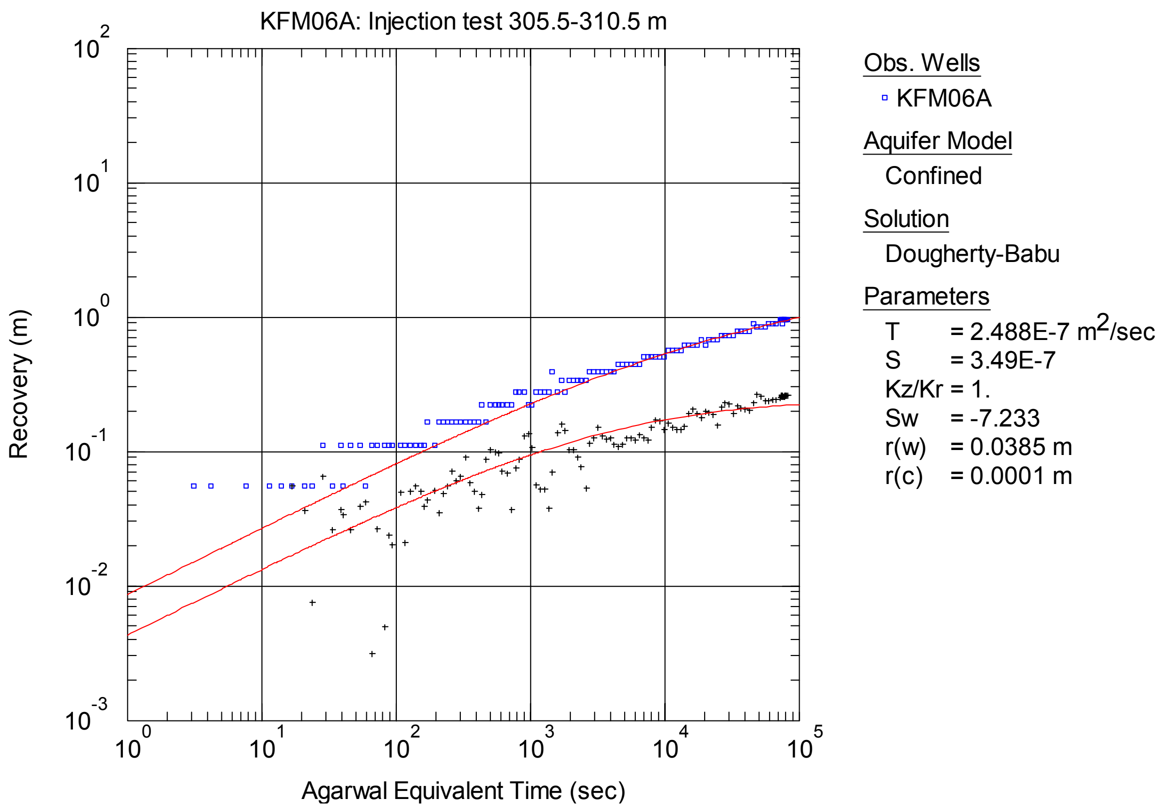


Figure A3-384. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 305.5-310.5 m in KFM06A.*

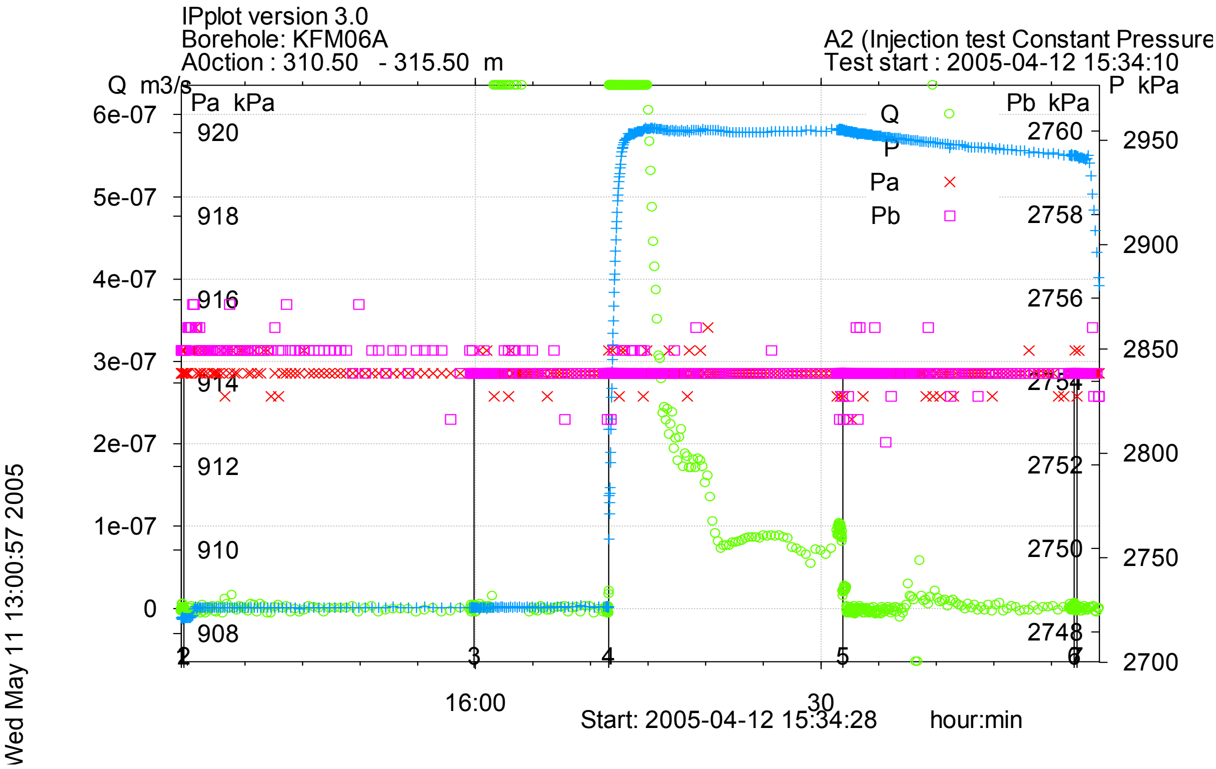


Figure A3-385. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 310.5-315.5 m in borehole KFM06A.*

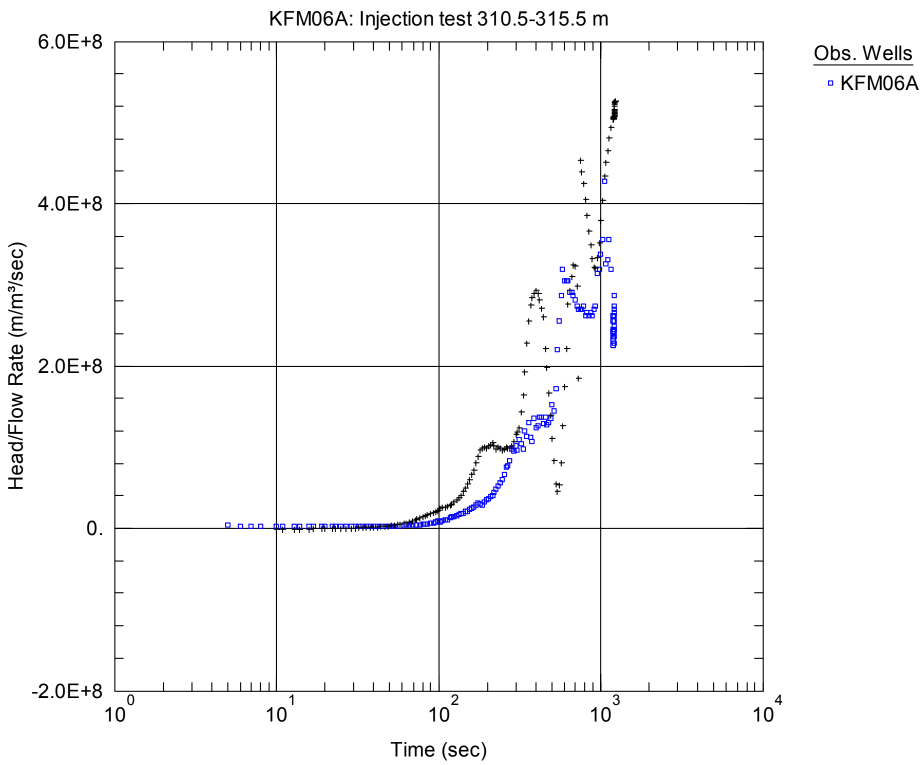


Figure A3-386. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 310.5-315.5 m in KFM06A.*

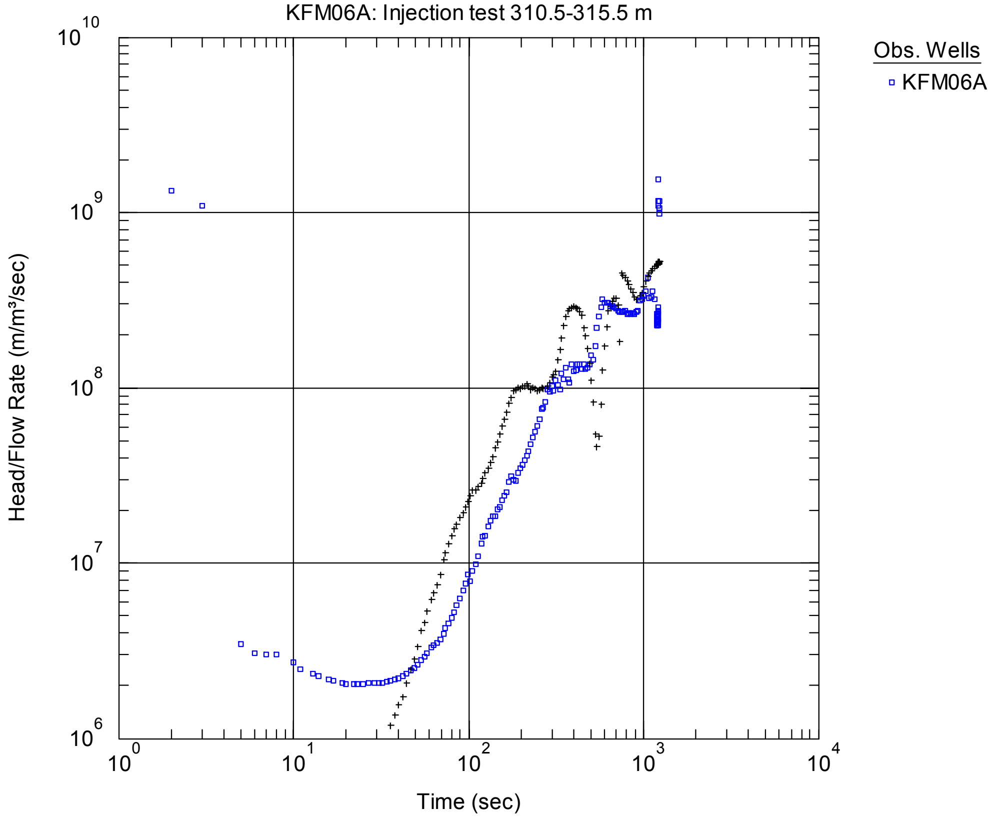


__Figure A3-387.__ Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 310.5-315.5 m in KFM06A.

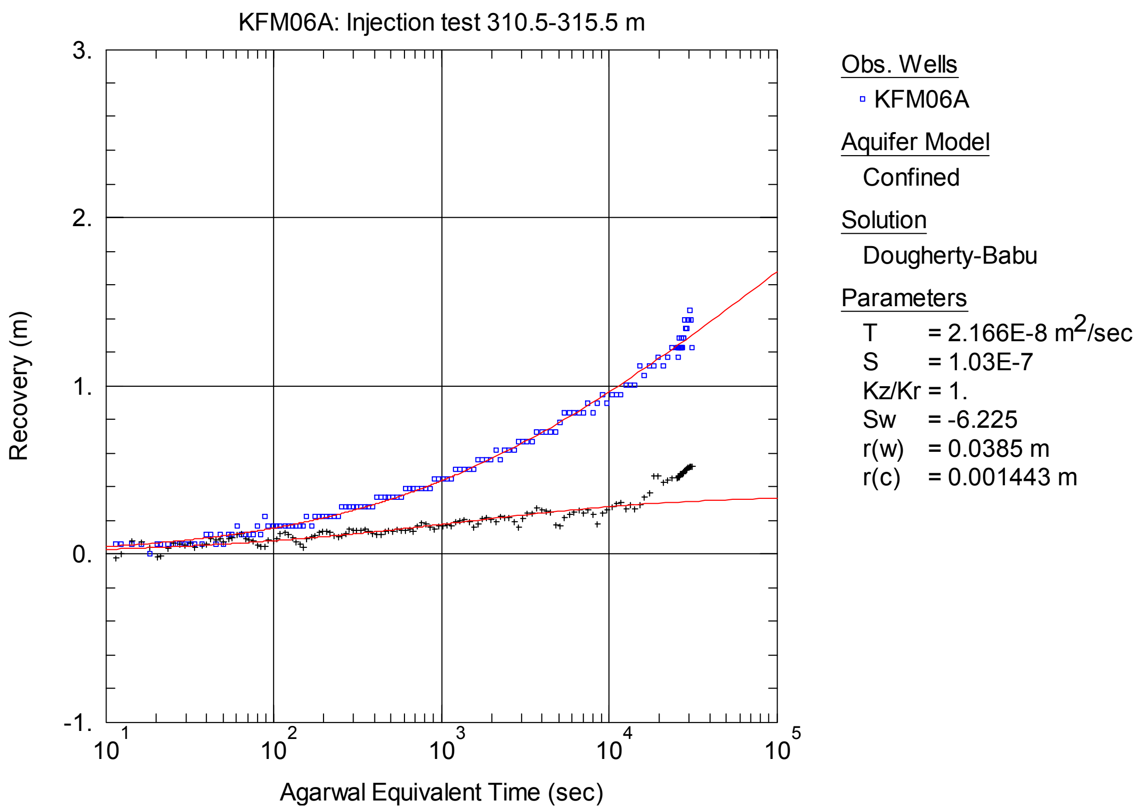


__Figure A3-388.__ Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 310.5-315.5 m in KFM06A.

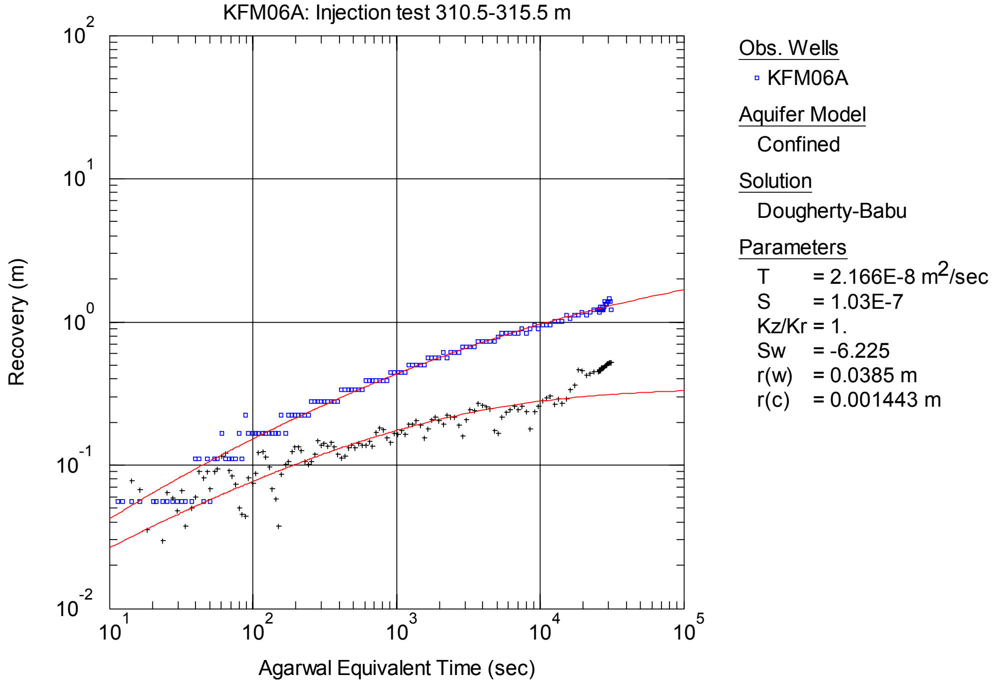


Figure A3-389. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 310.5-315.5 m in KFM06A.*

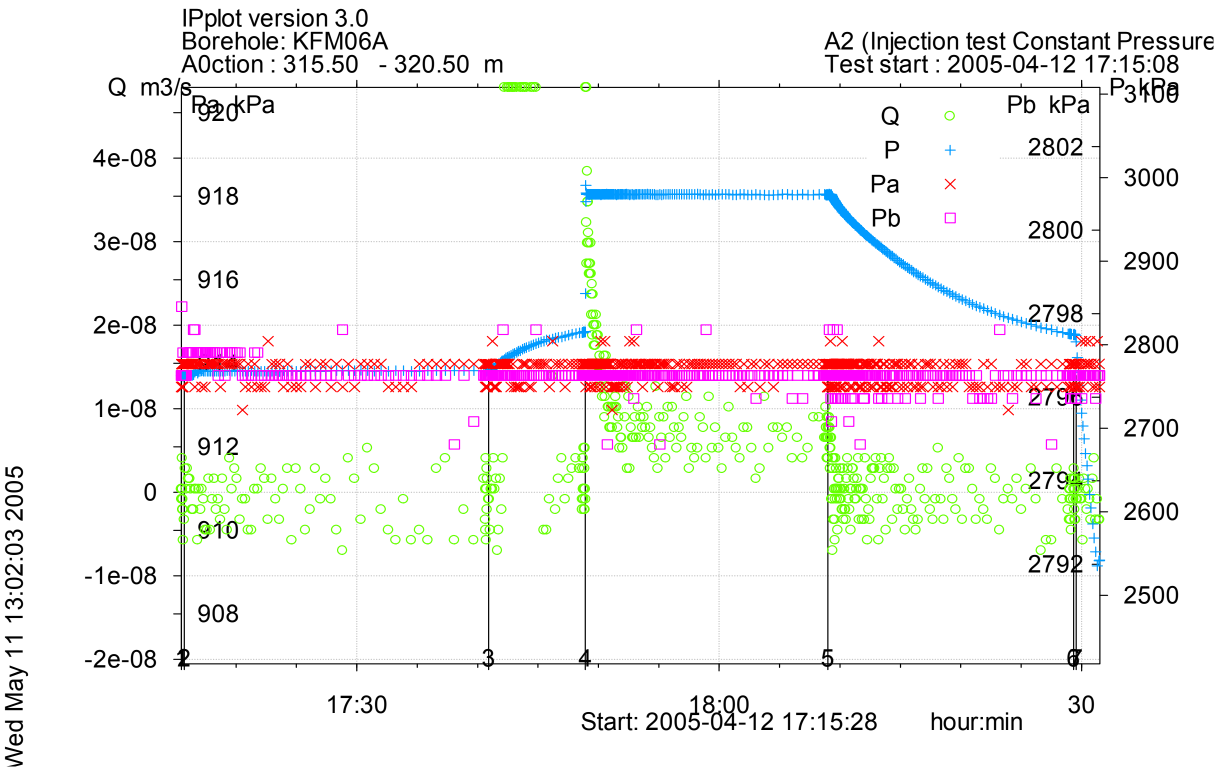


Figure A3-390. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 315.5-320.5 m in borehole KFM06A.*

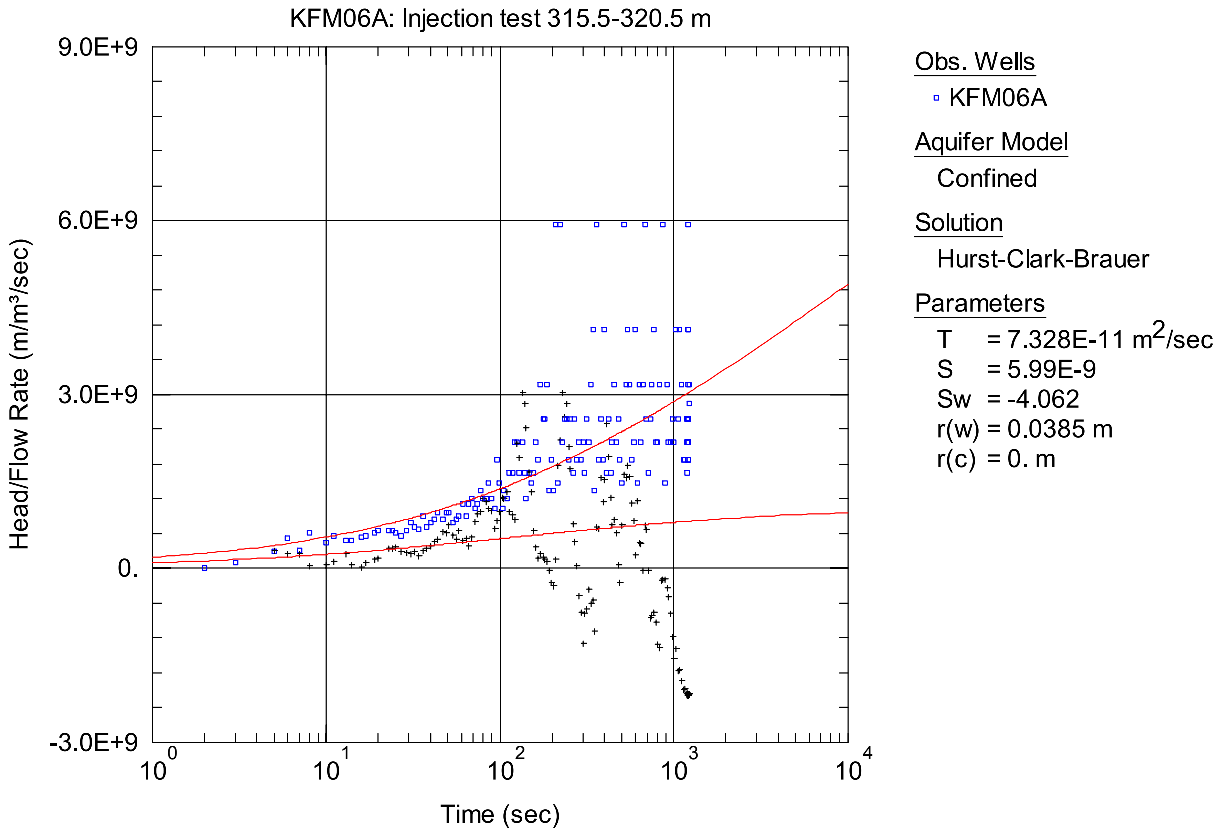


Figure A3-391. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 315.5-320.5 m in KFM06A.*

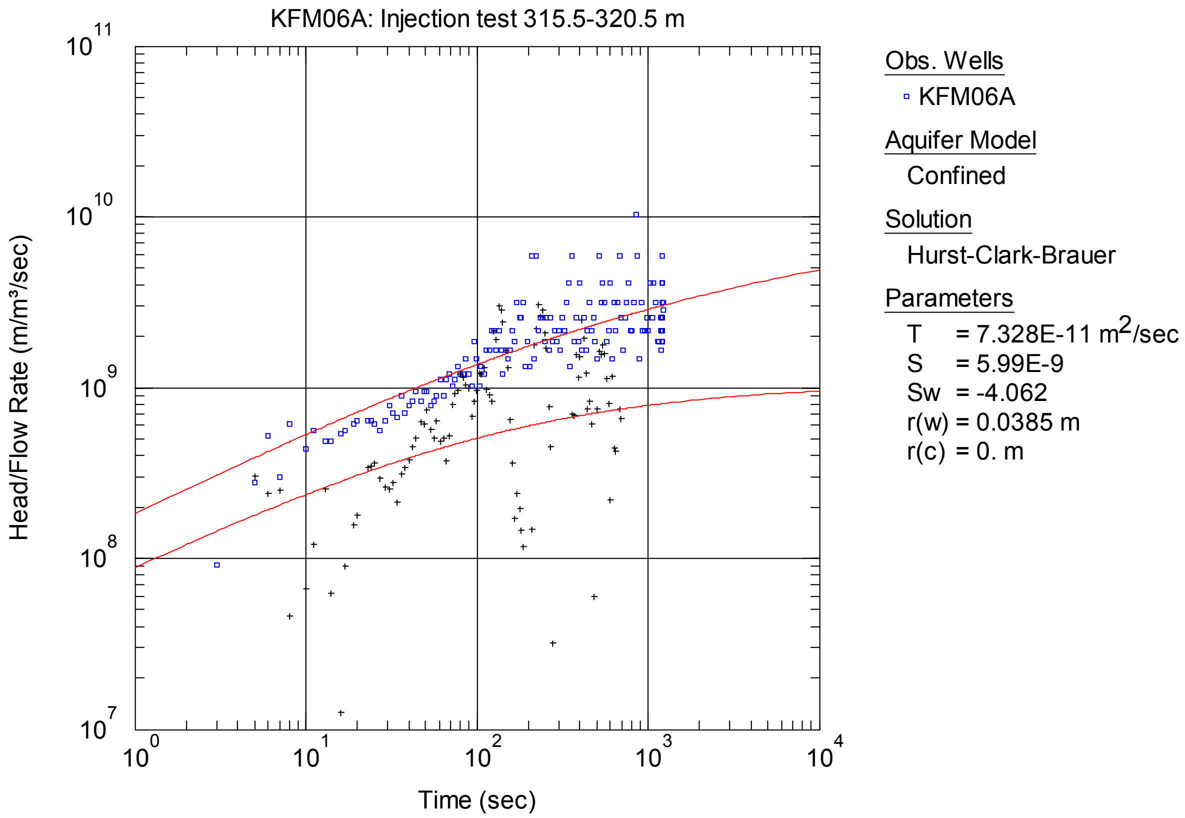


Figure A3-392. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 315.5-320.5 m in KFM06A.*

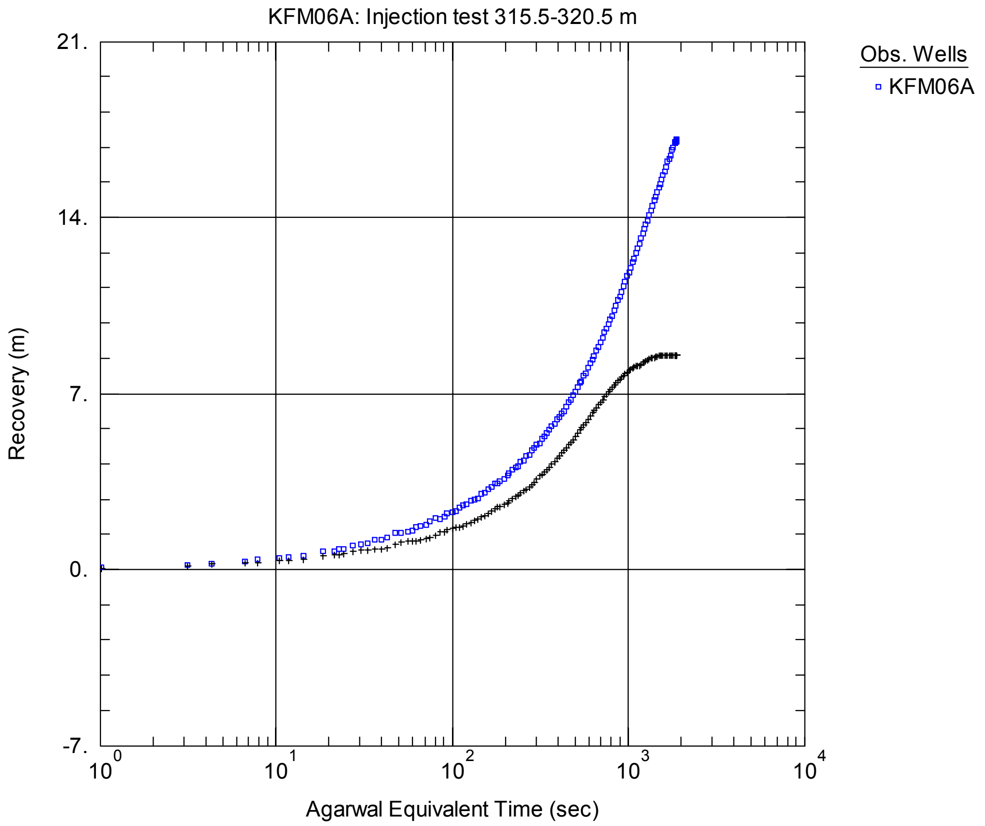


Figure A3-393. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 315.5-320.5 m in KFM06A.*

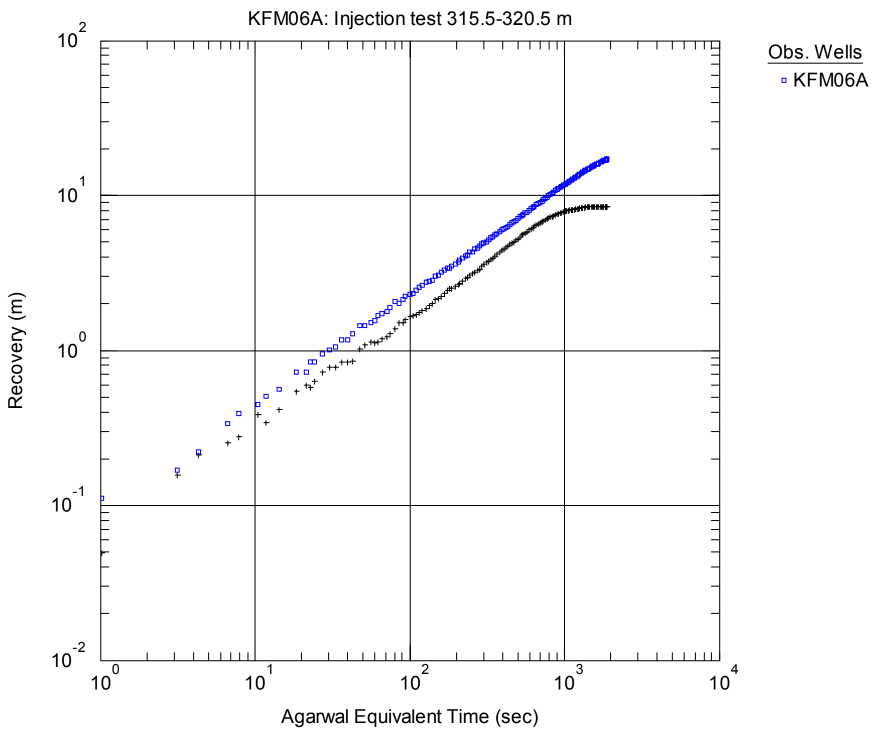


Figure A3-394. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 315.5-320.5 m in KFM06A.*

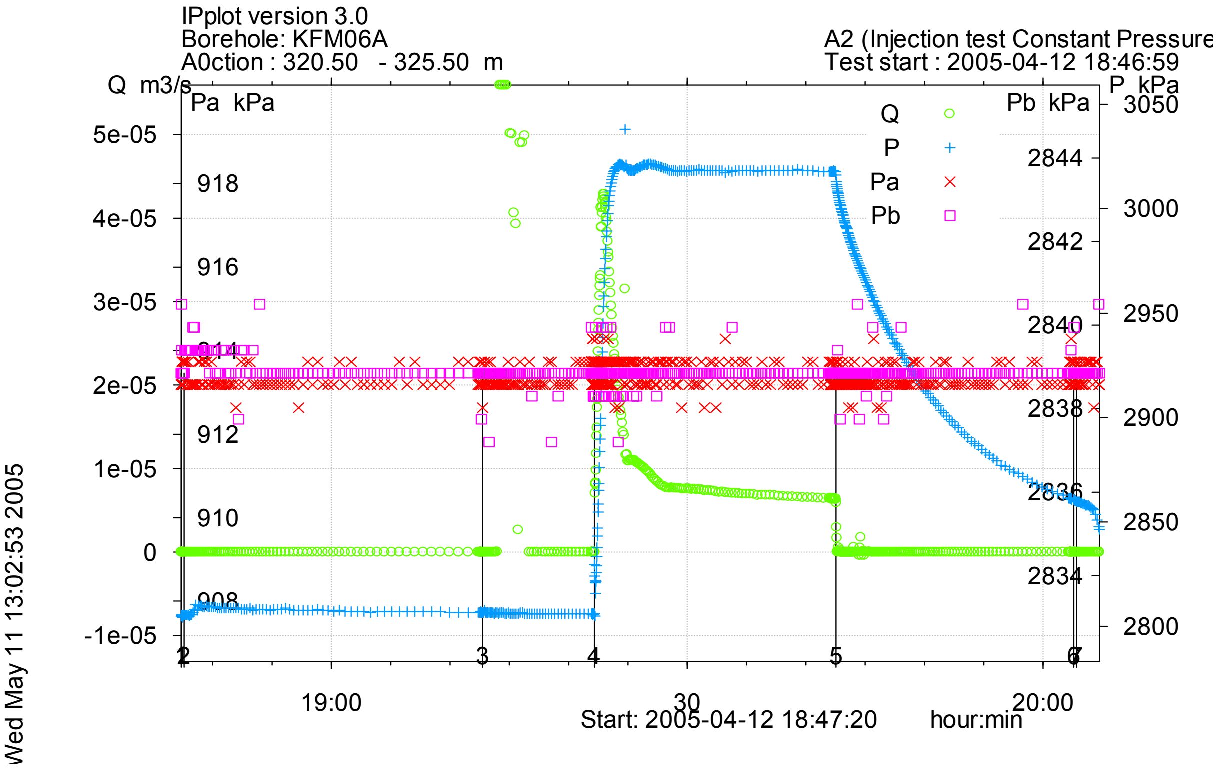


Figure A3-395. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 320.5-325.5 m in borehole KFM06A.*

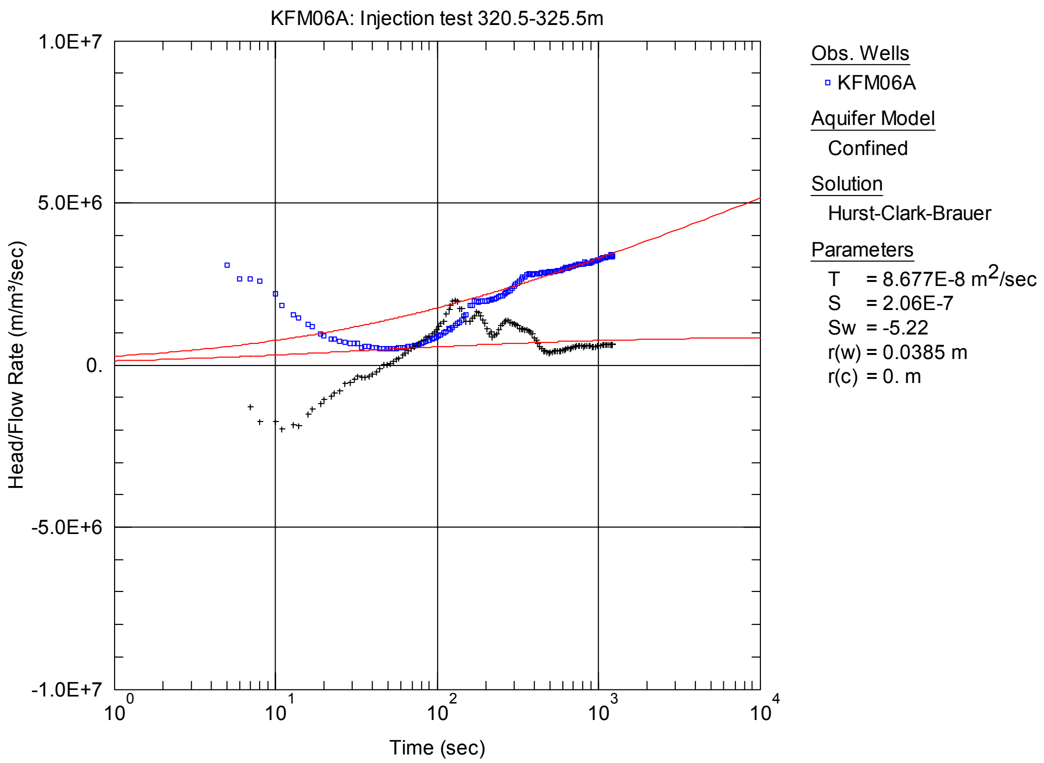


Figure A3-396. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 320.5-325.5 m in KFM06A.*

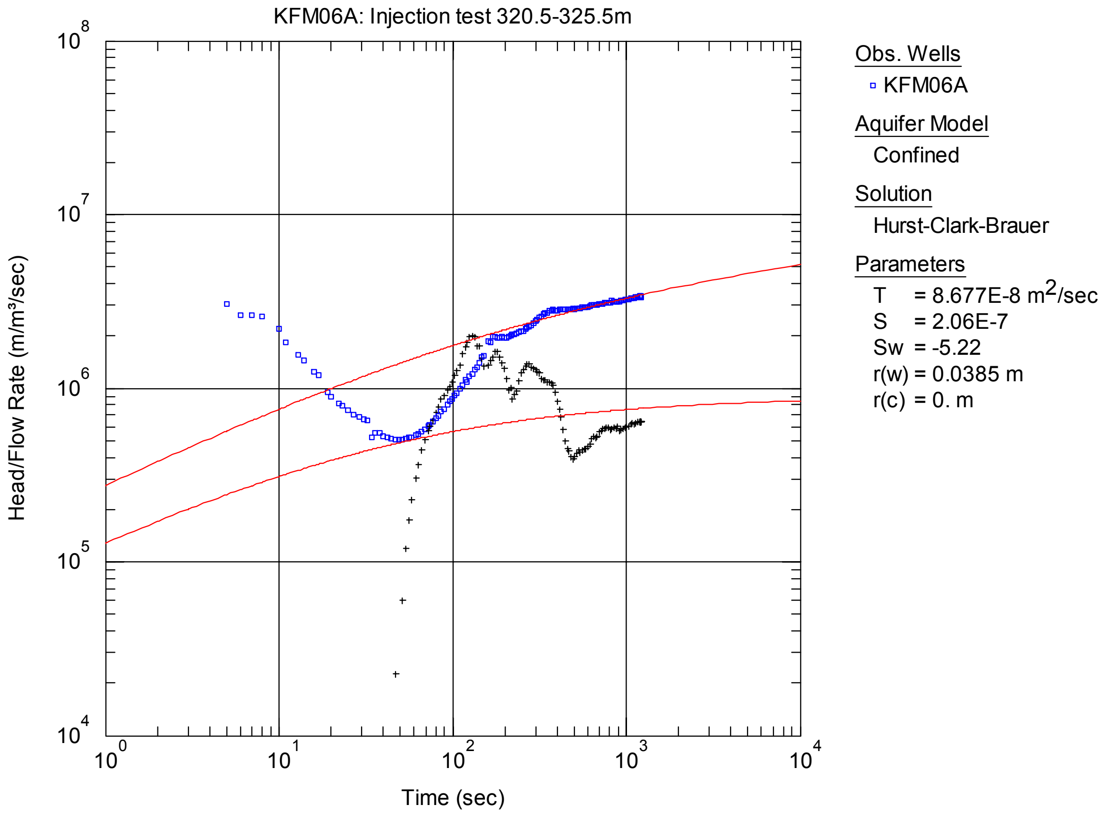


Figure A3-397. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 320.5-325.5 m in KFM06A.*

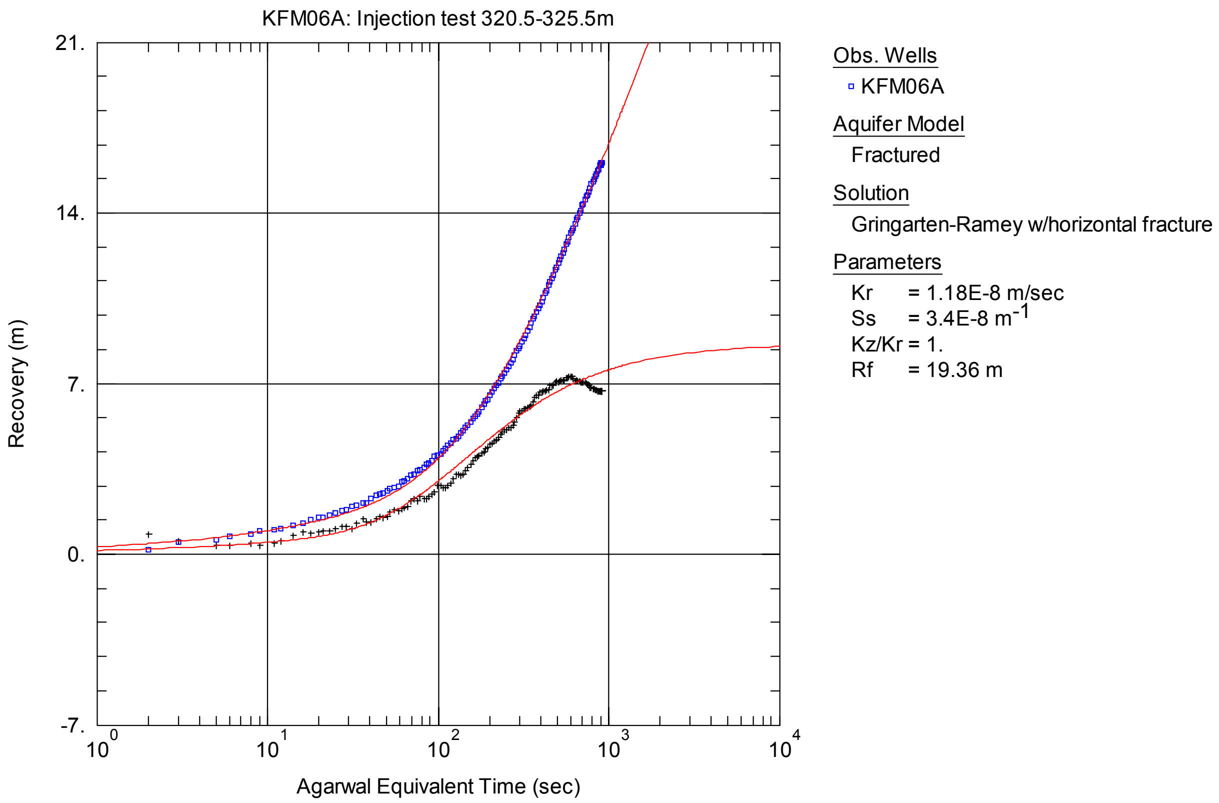


Figure A3-398. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 320.5-325.5 m in KFM06A.*

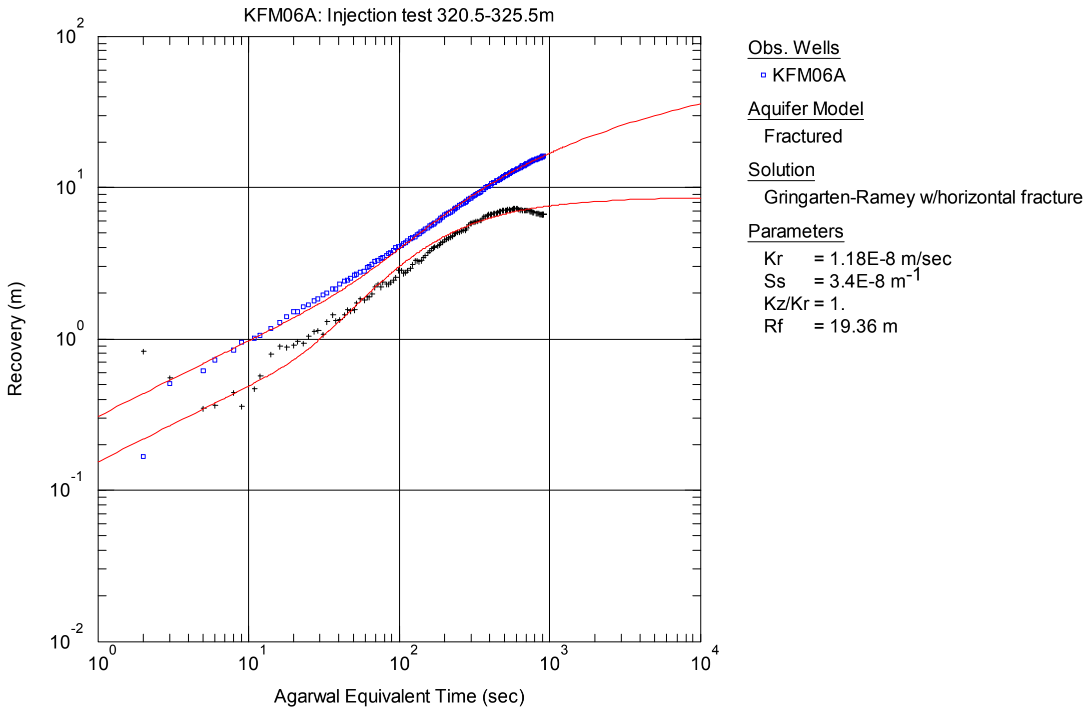


Figure A3-399. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 320.5-325.5 m in KFM06A.*

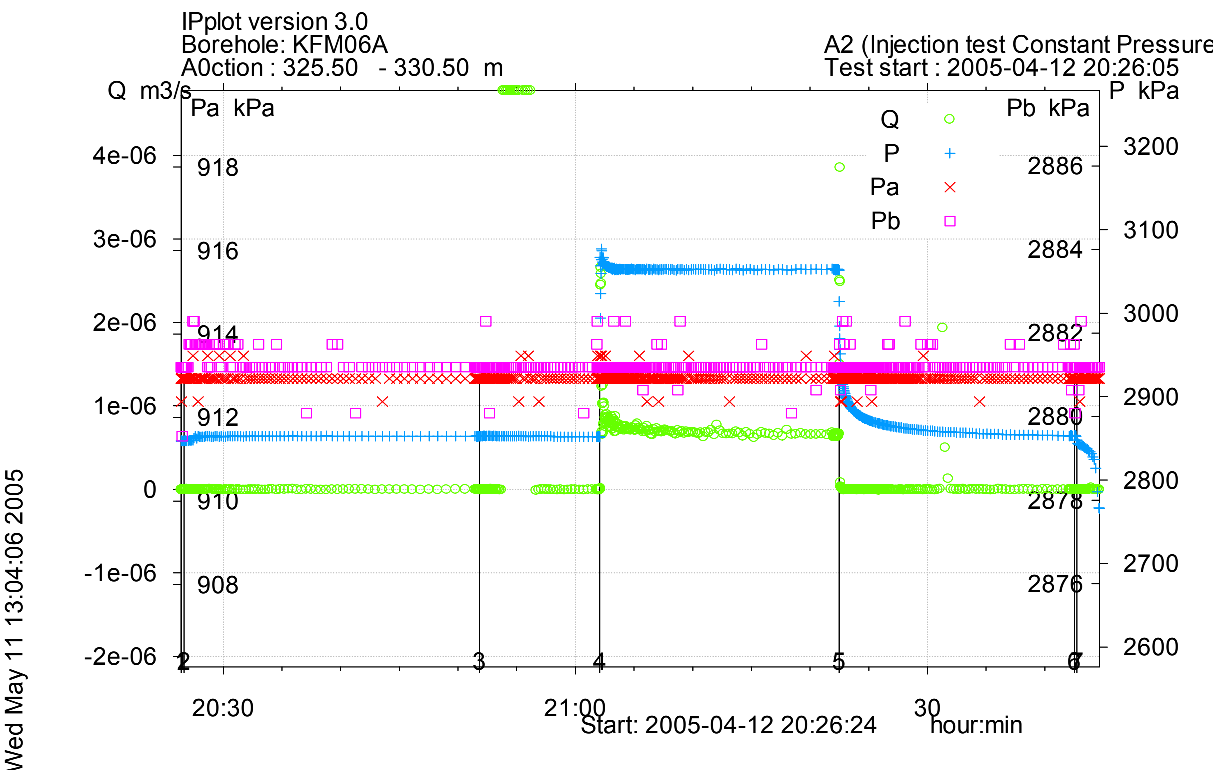


Figure A3-400. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 325.5-330.5 m in borehole KFM06A.*

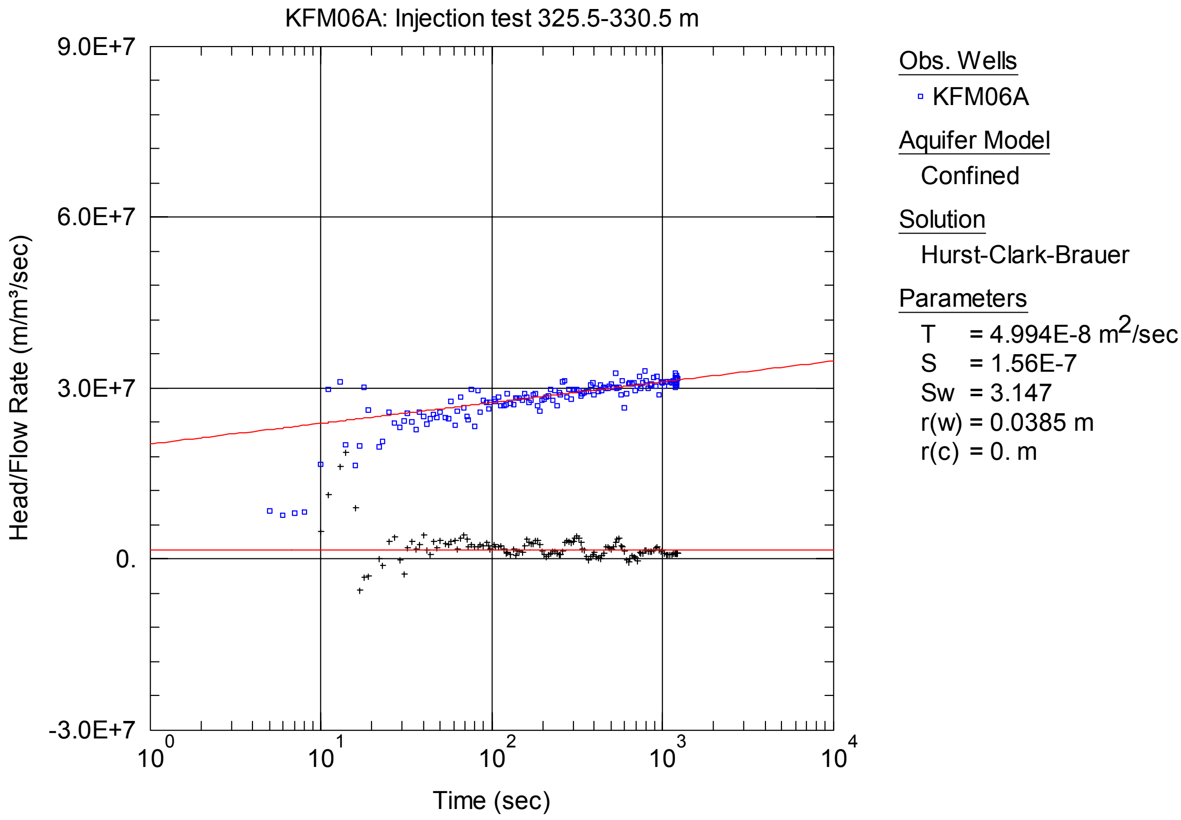


Figure A3-401. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 325.5-330.5 m in KFM06A.*

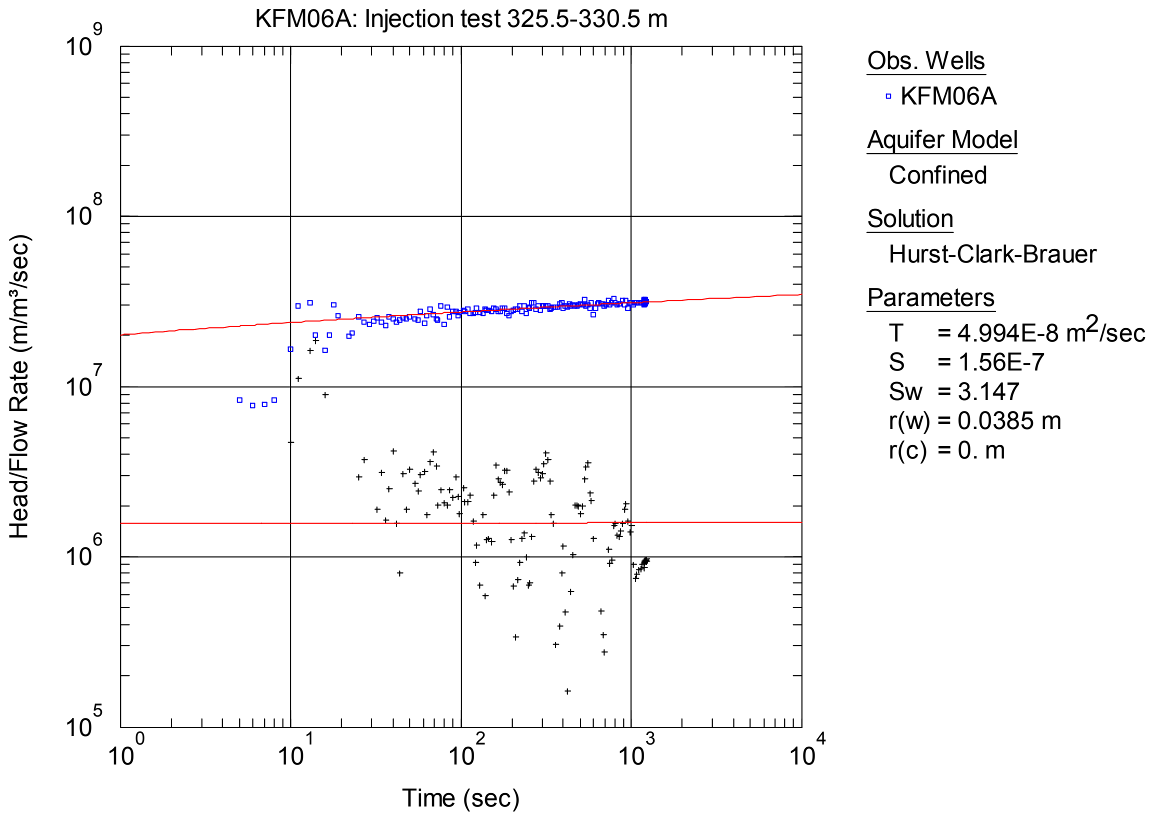


Figure A3-402. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 325.5-330.5 m in KFM06A.*

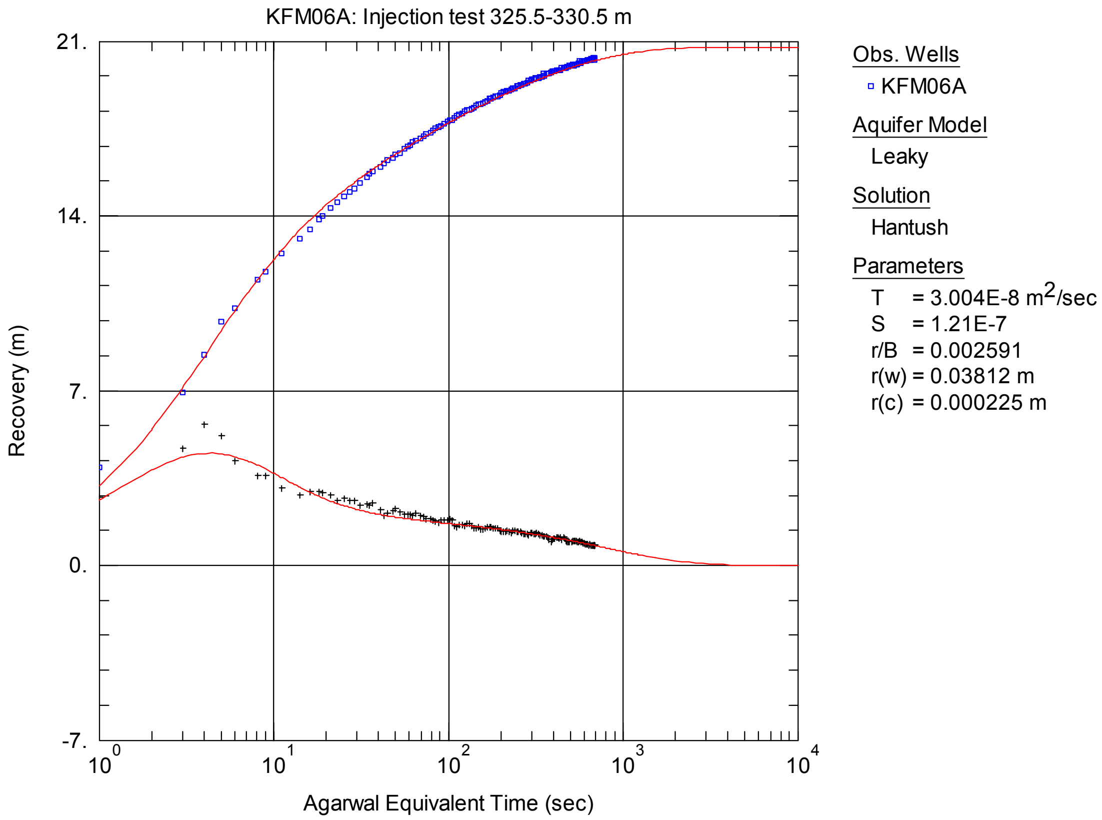


Figure A3-403. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 325.5-330.5 m in KFM06A.*

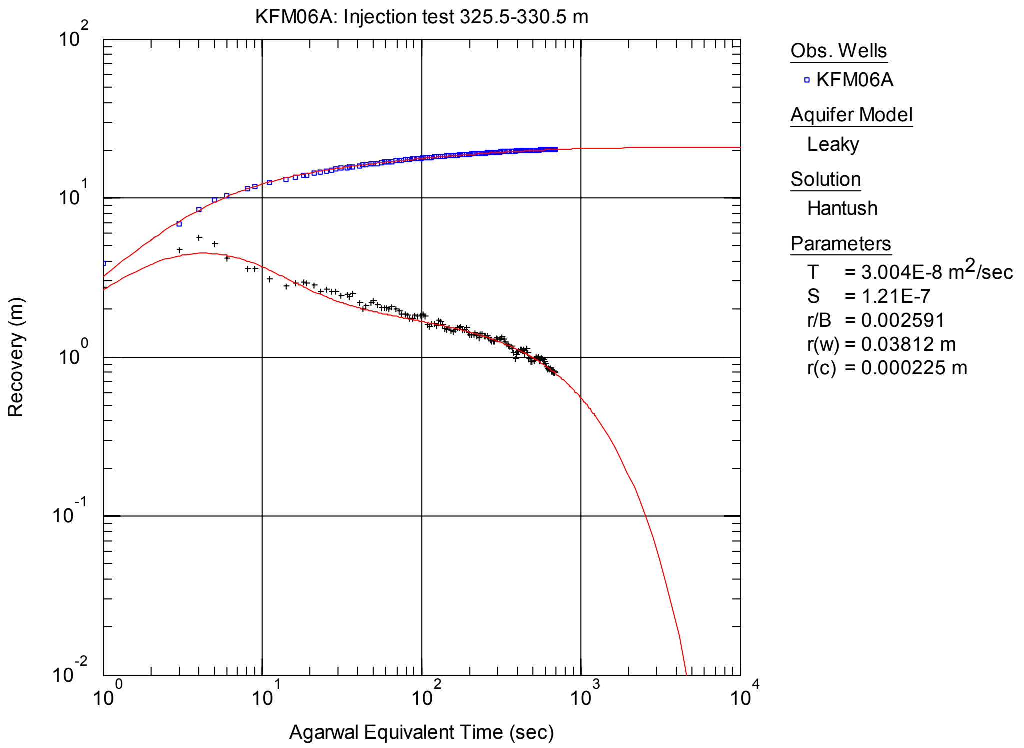


Figure A3-404. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 325.5-330.5 m in KFM06A.*

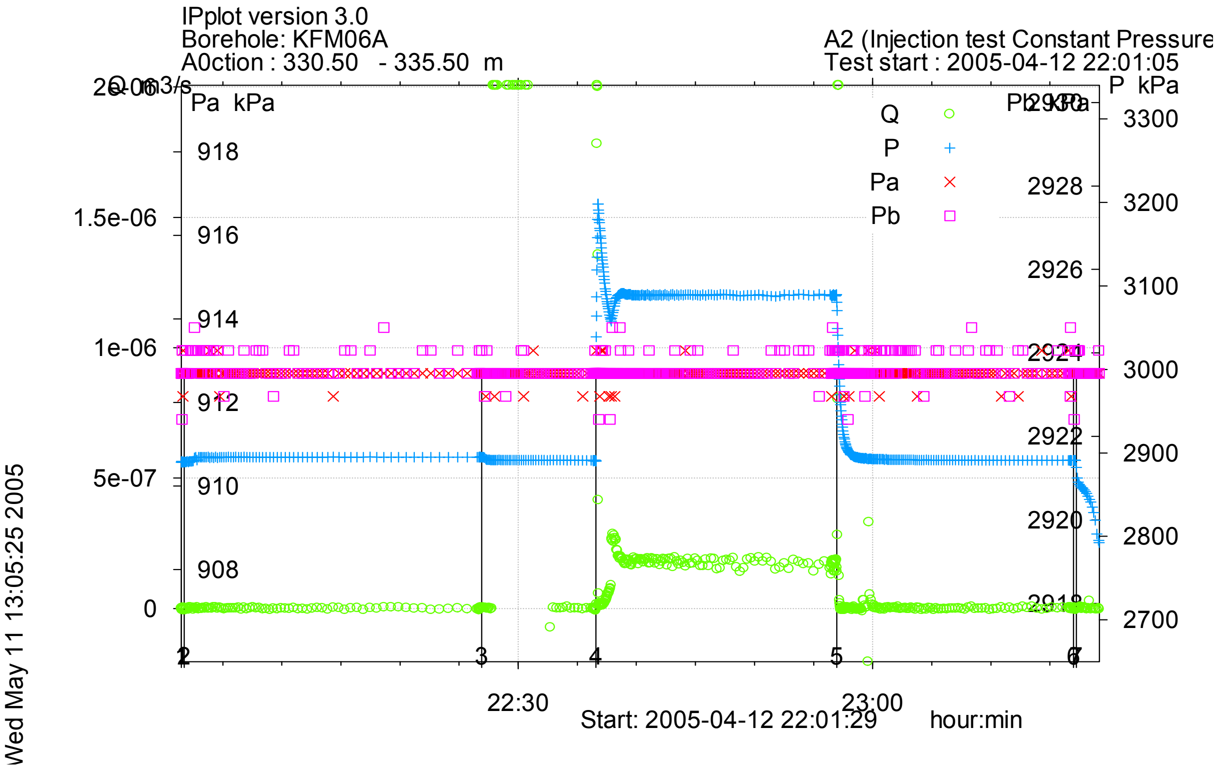


Figure A3-405. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 330.5-335.5 m in borehole KFM06A.*

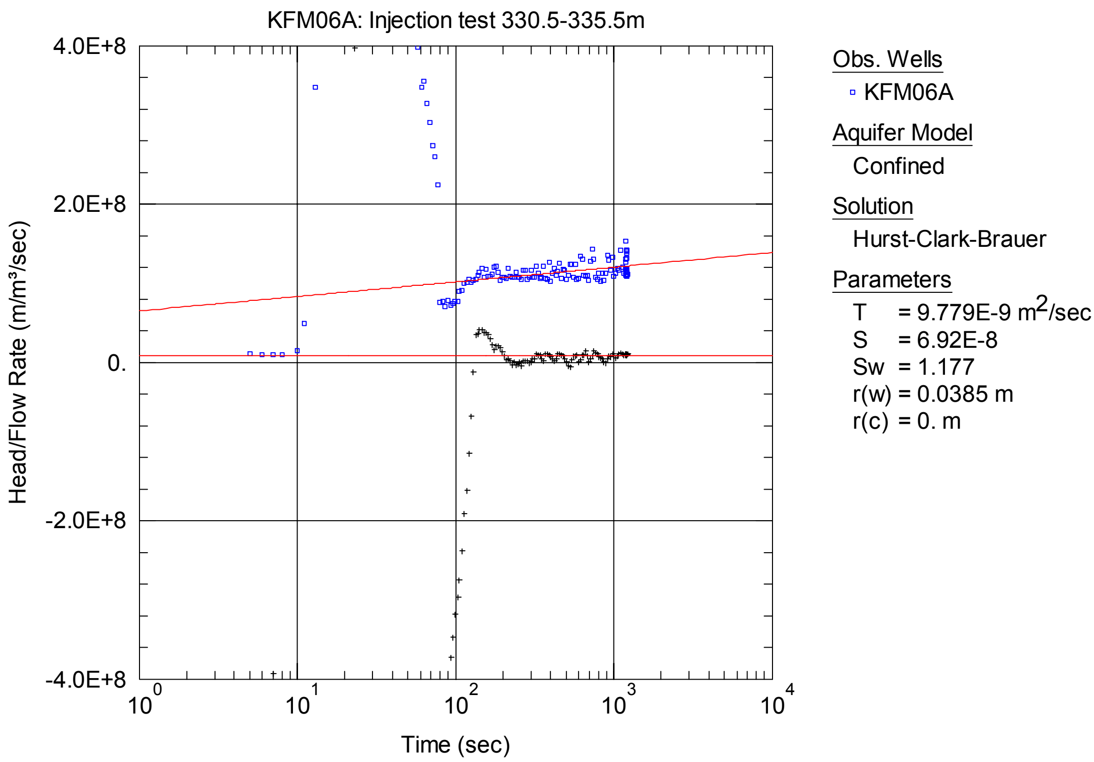


Figure A3-406. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 330.5-335.5 m in KFM06A.*

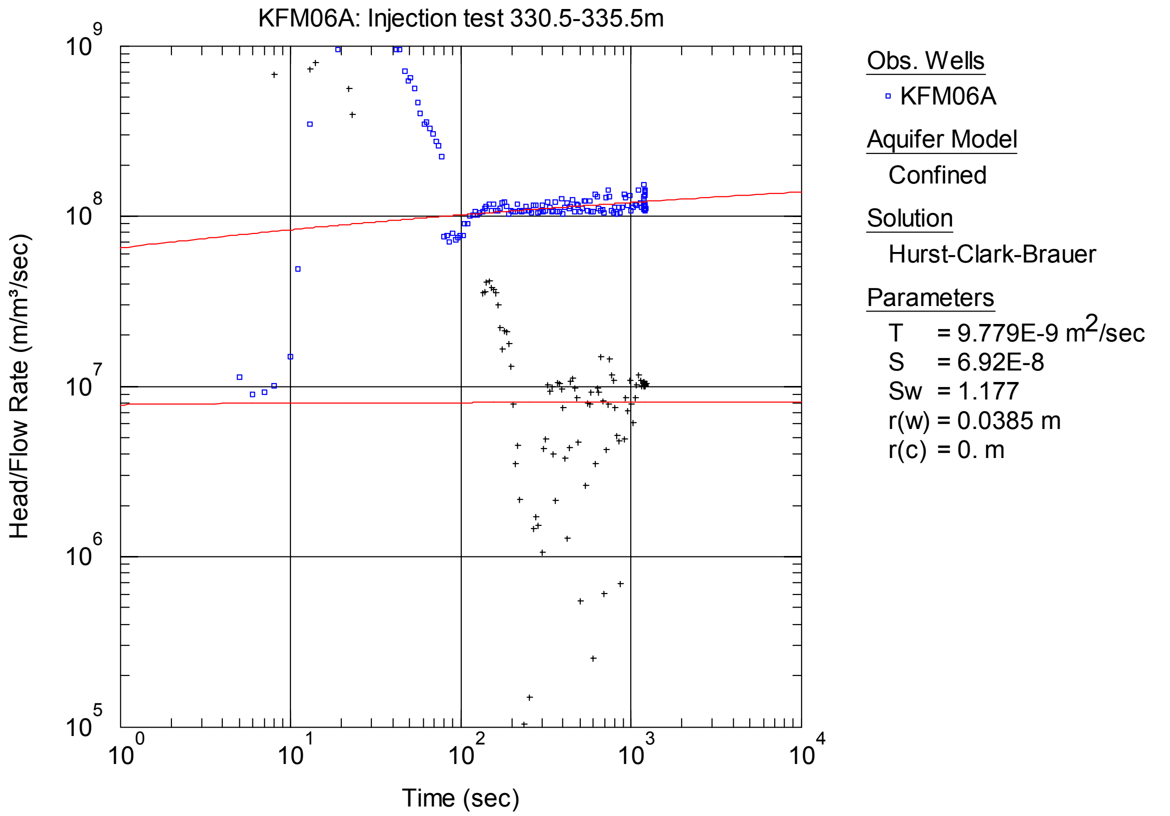


Figure A3-407. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 330.5-335.5 m in KFM06A.*

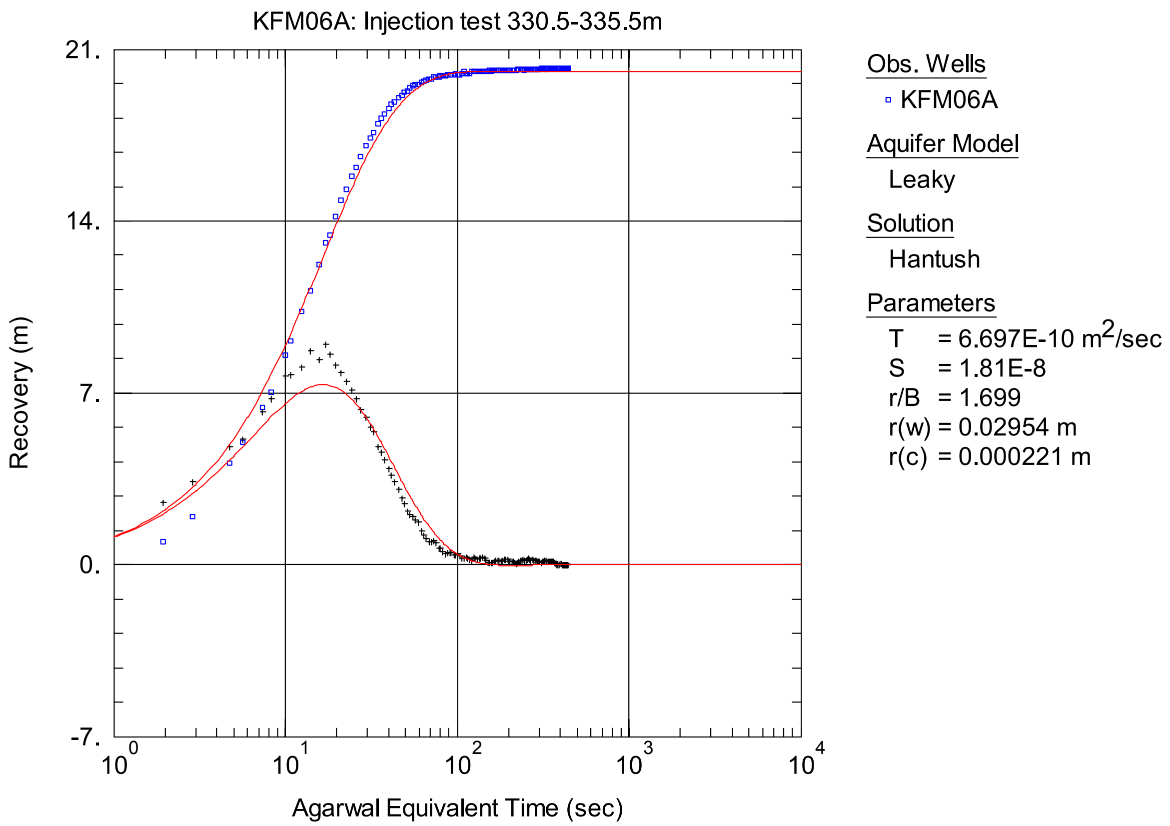


Figure A3-408. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 330.5-335.5 m in KFM06A.*

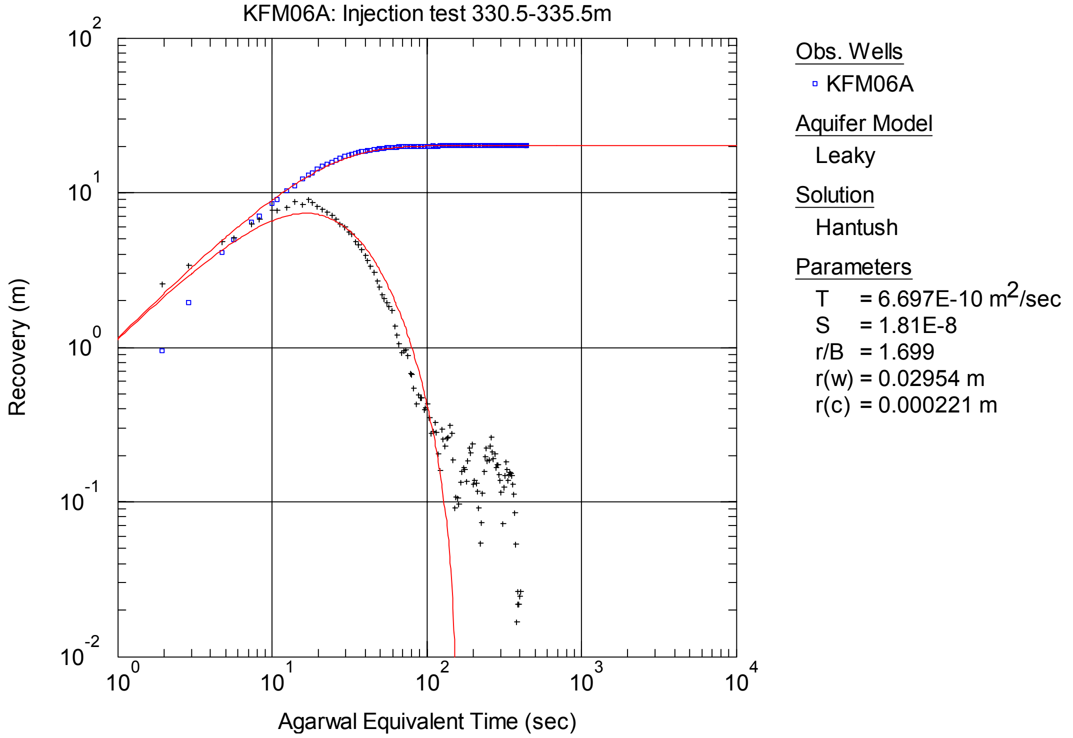


Figure A3-409. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 330.5-335.5 m in KFM06A.*

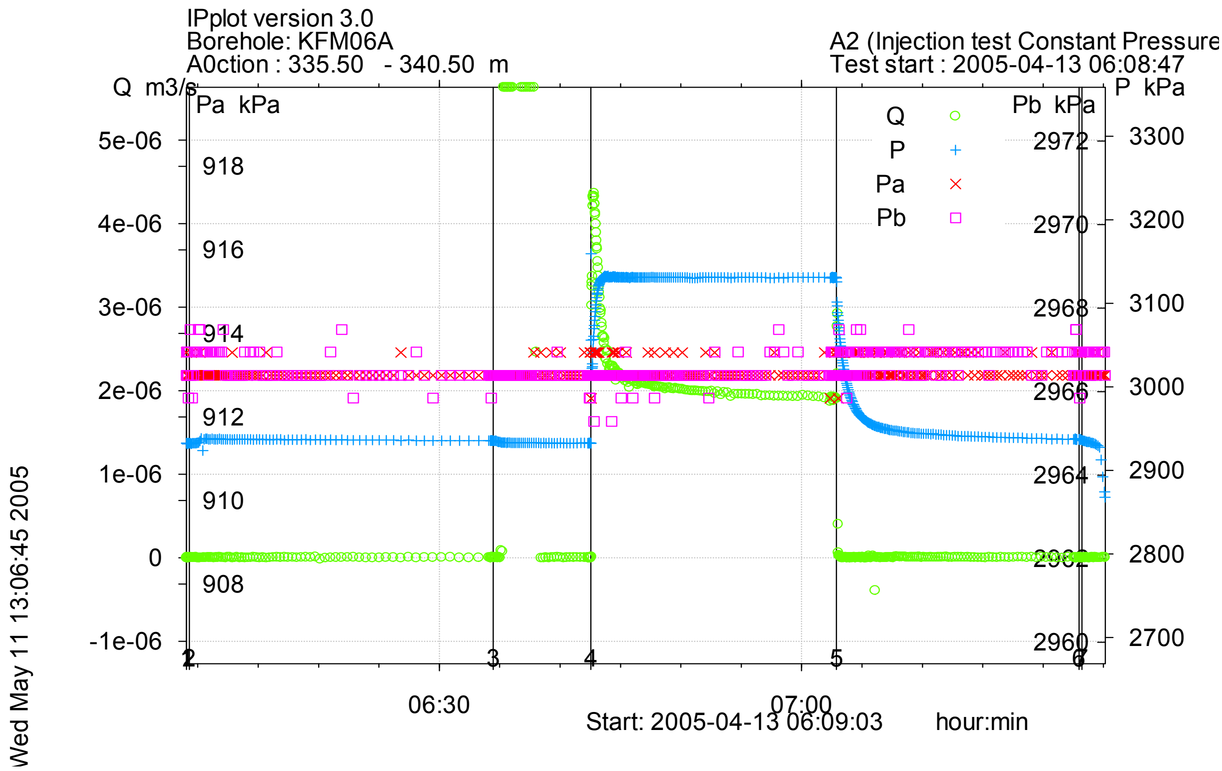


Figure A3-410. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 335.5-340.5 m in borehole KFM06A.*

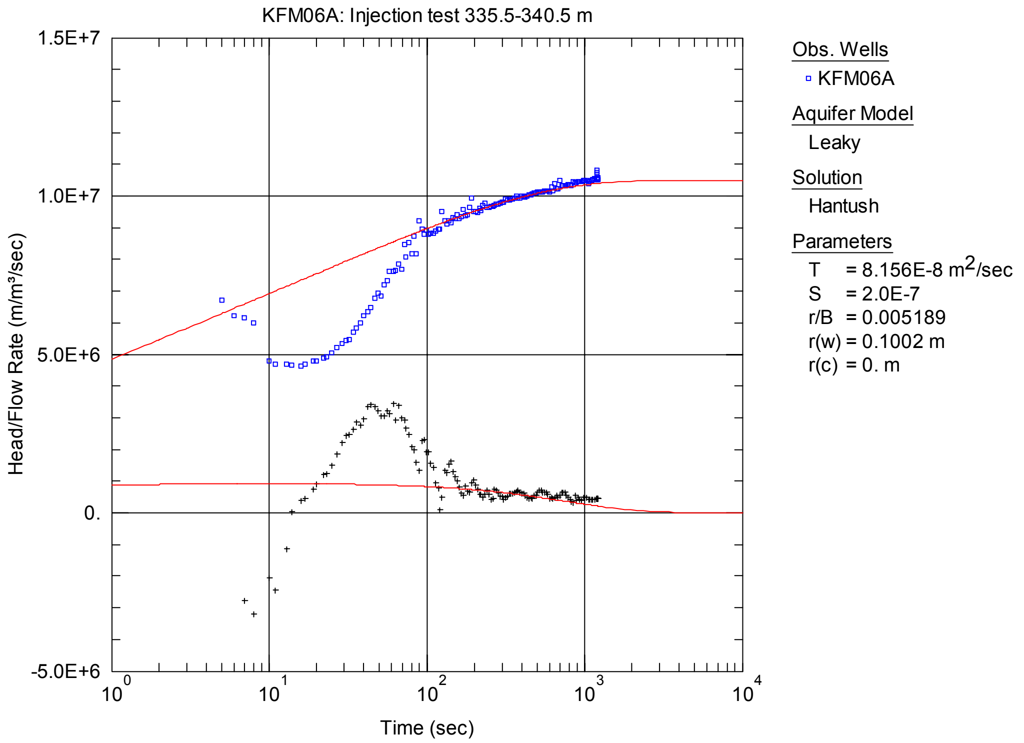


Figure A3-411. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 335.5-340.5 m in KFM06A.*

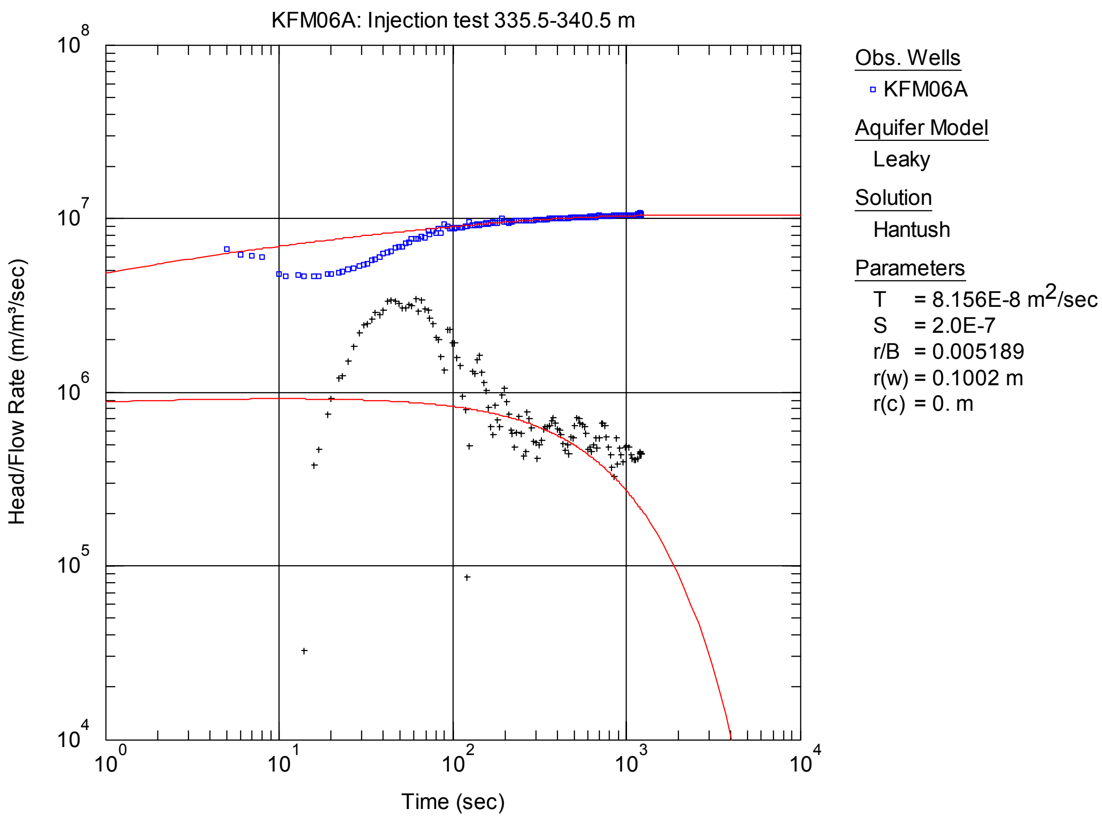


Figure A3-412. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 335.5-340.5 m in KFM06A.*

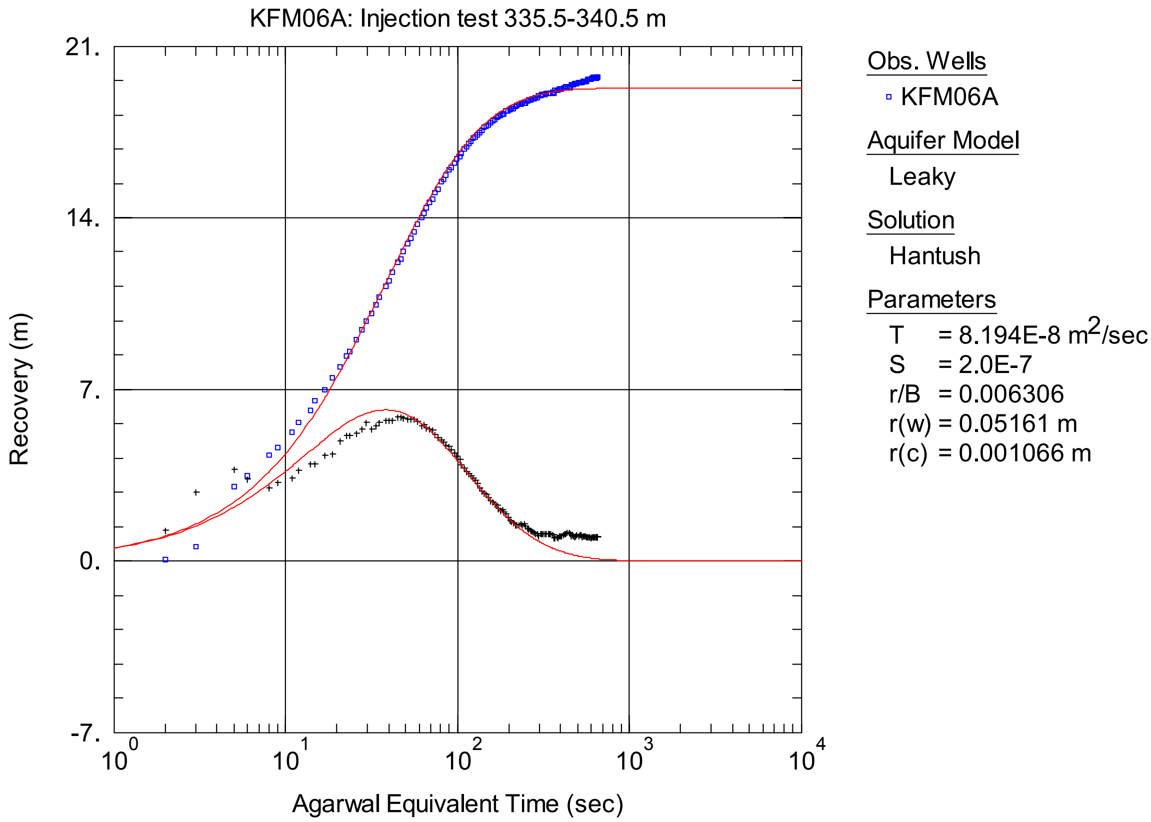


Figure A3-413. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 335.5-340.5 m in KFM06A.*

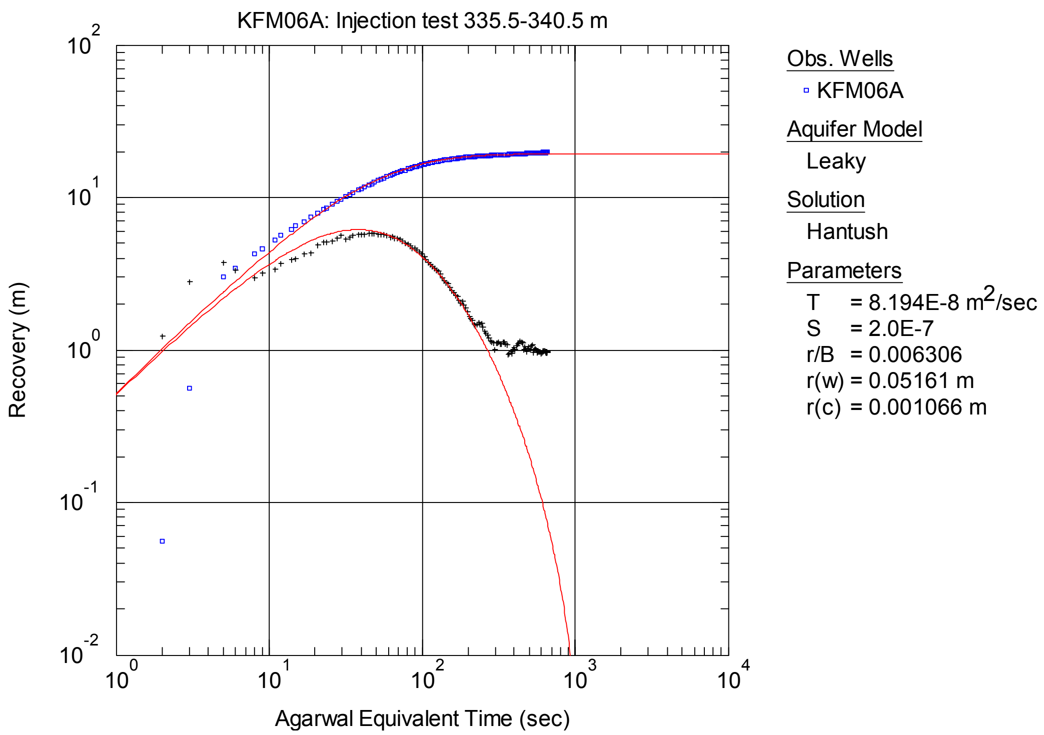


Figure A3-414. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 335.5-340.5 m in KFM06A.*

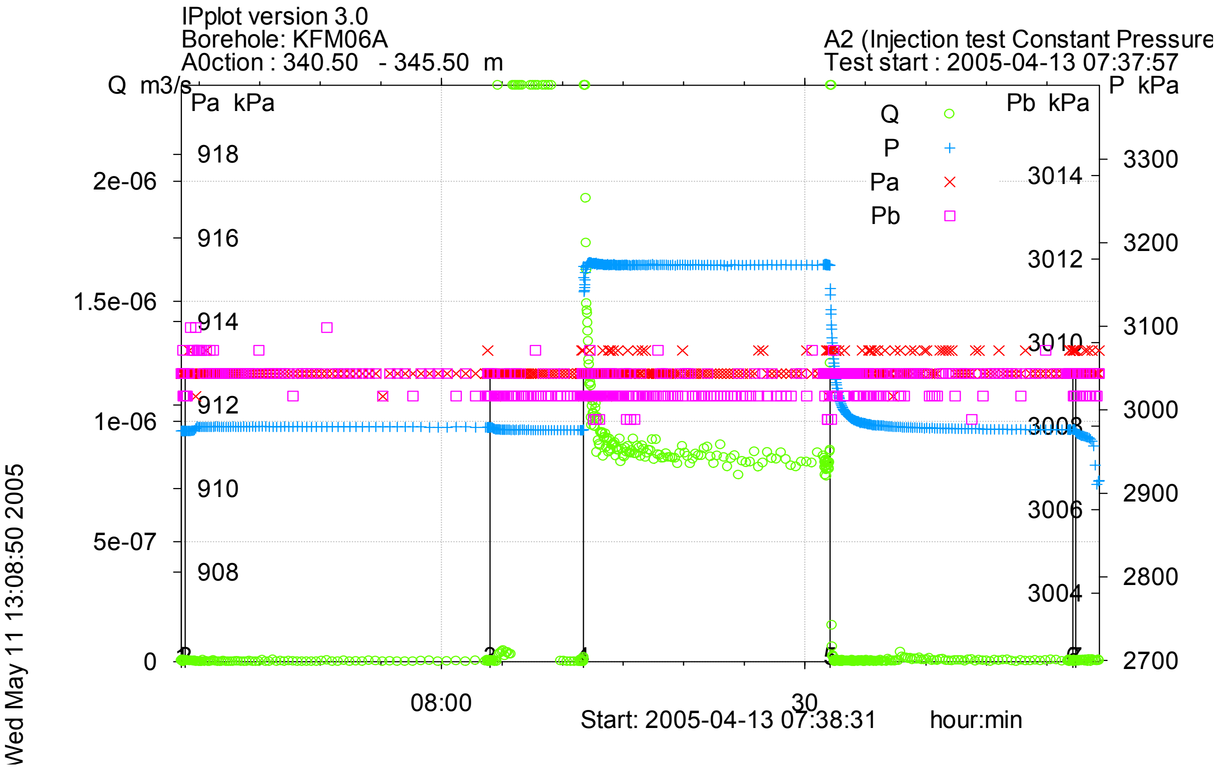


Figure A3-415. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 340.5-345.5 m in borehole KFM06A.*

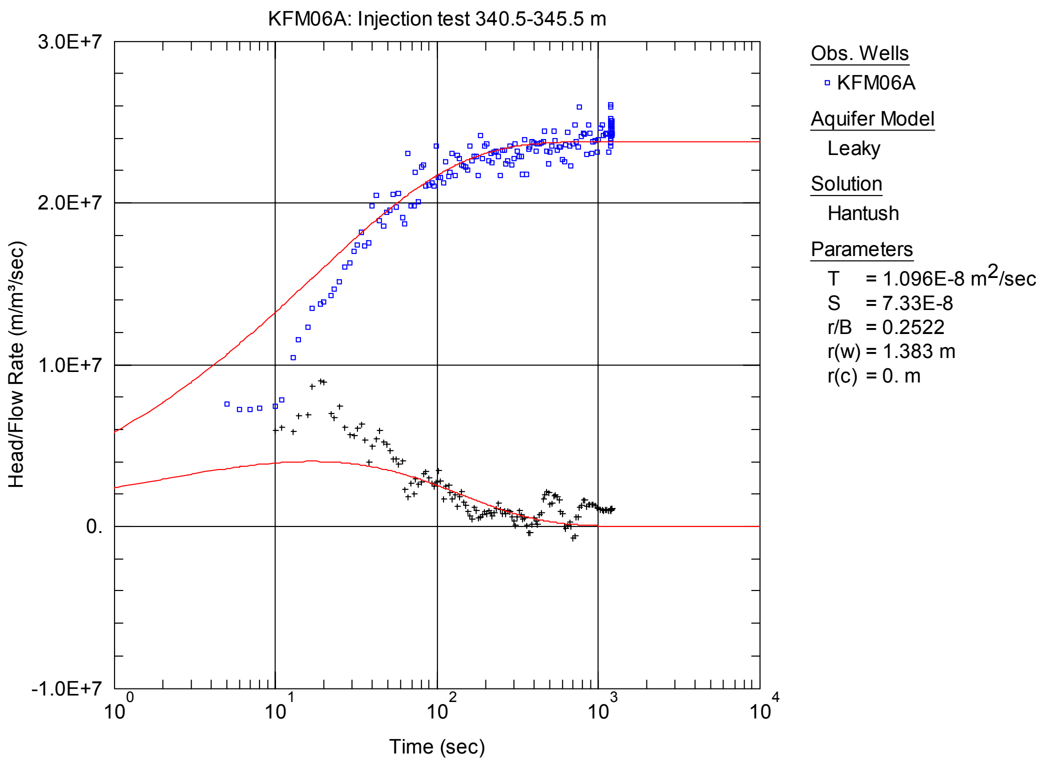


Figure A3-416. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 340.5-345.5 m in KFM06A.*

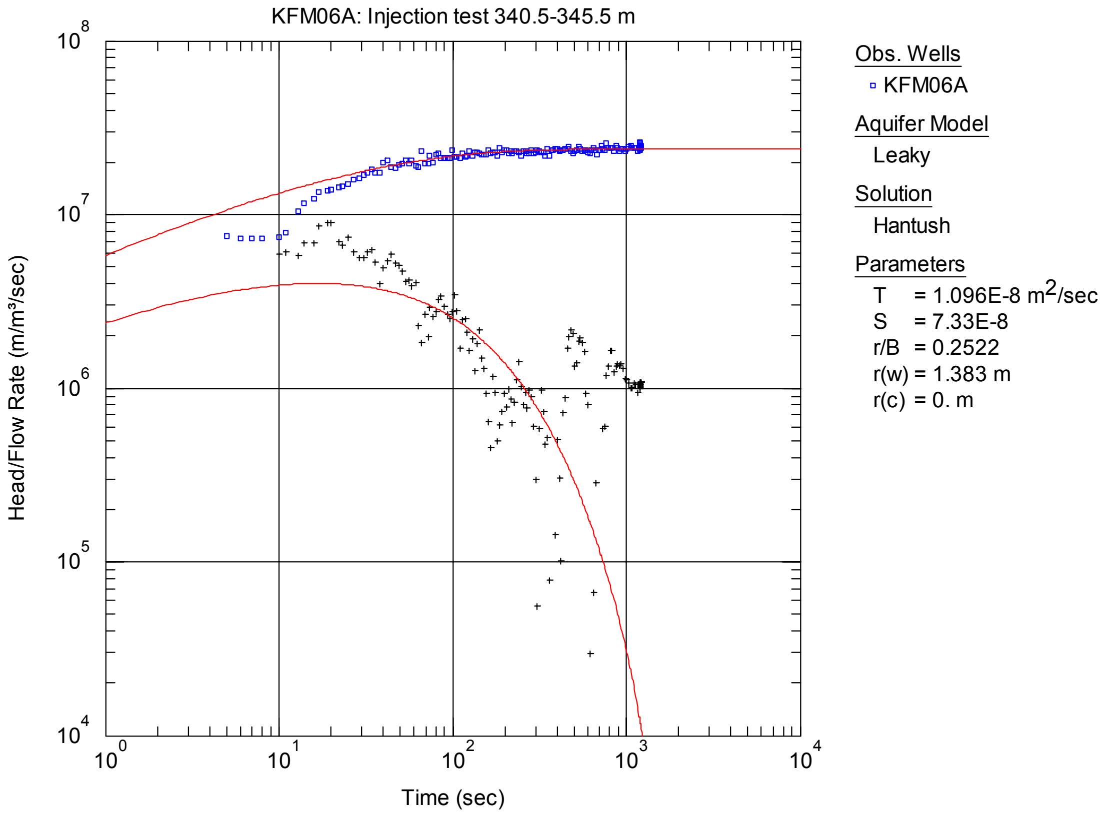


Figure A3-417. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 340.5-345.5 m in KFM06A.*

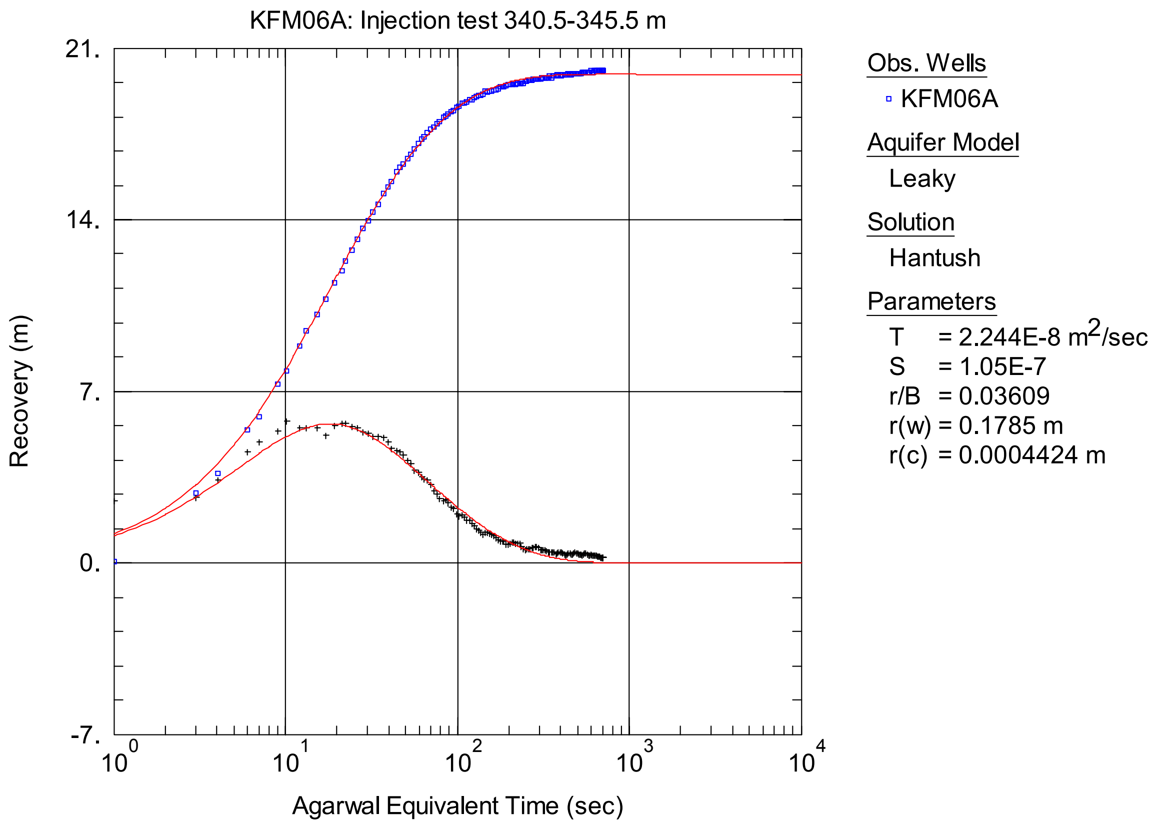


Figure A3-418. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 340.5-345.5 m in KFM06A.*

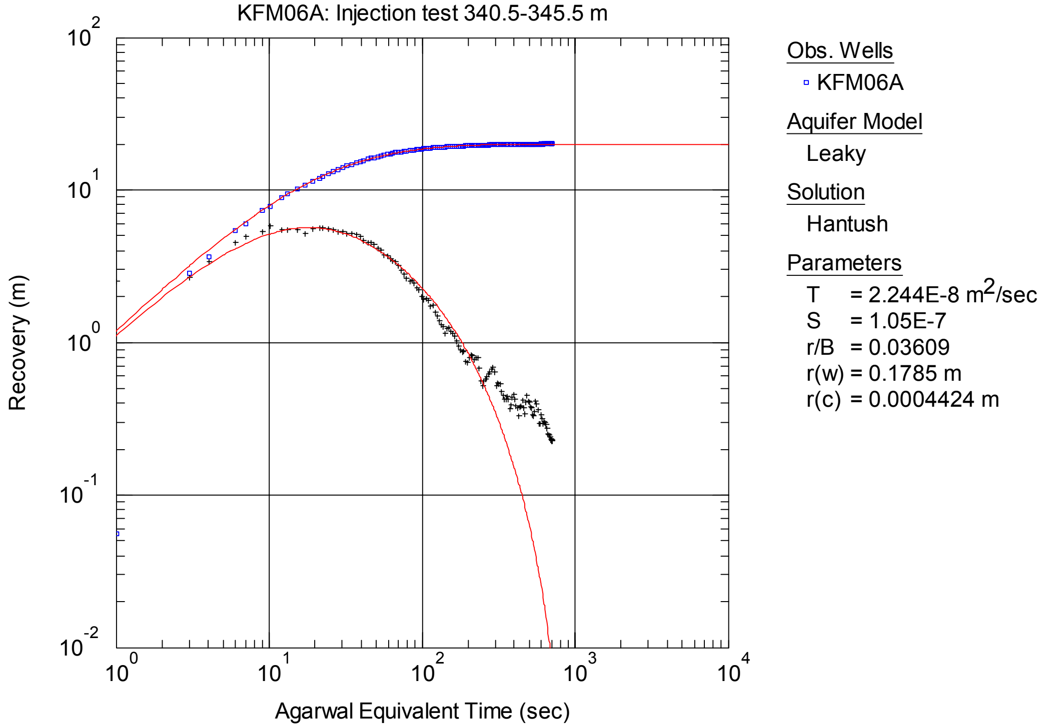


Figure A3-419. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 340.5-345.5 m in KFM06A.*

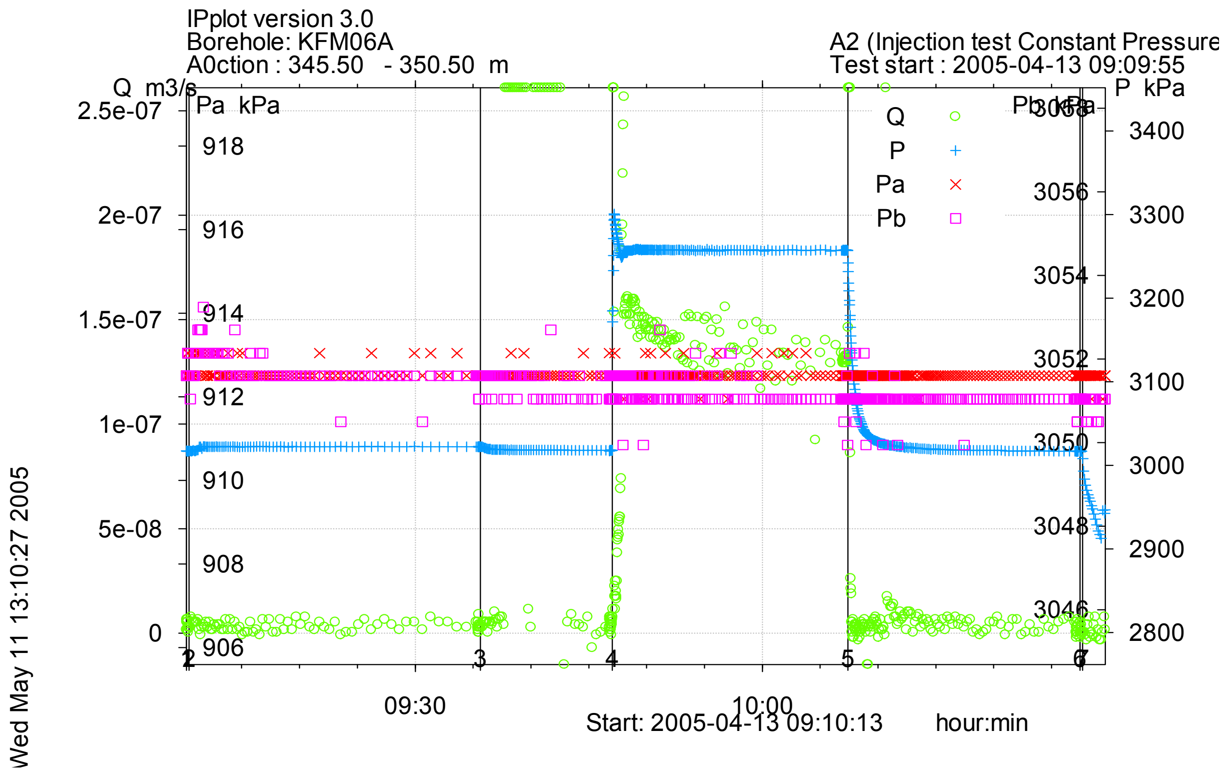


Figure A3-420. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 345.5-350.5 m in borehole KFM06A.*

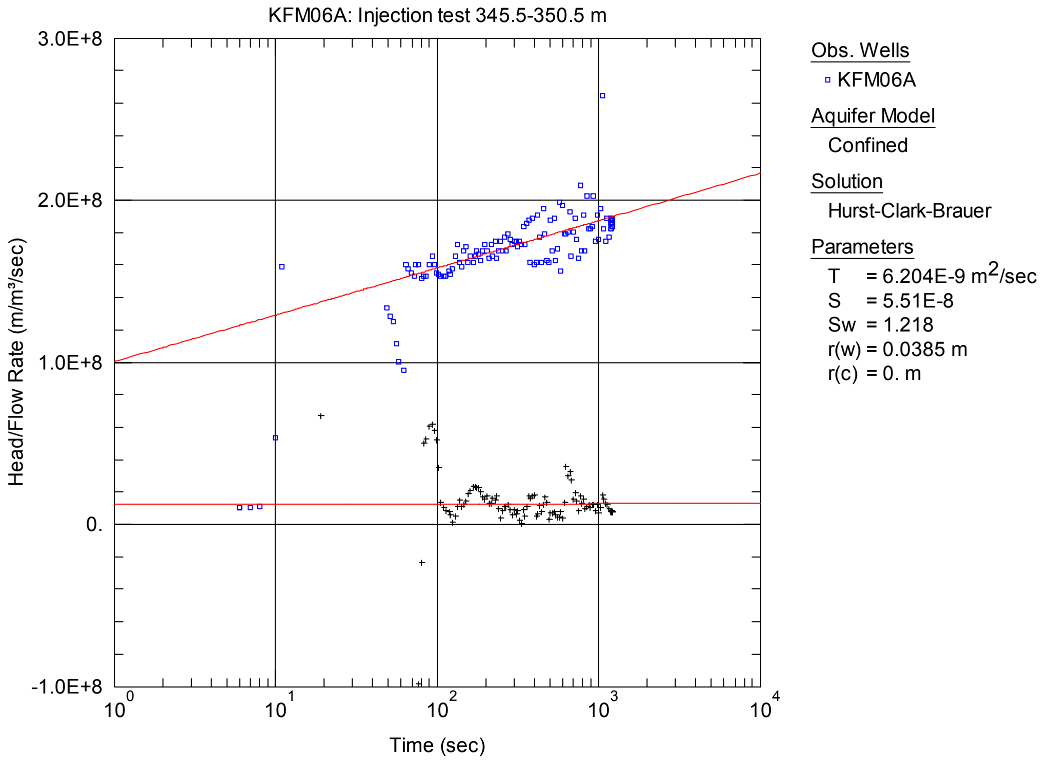


Figure A3-421. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 345.5-350.5 m in KFM06A.*

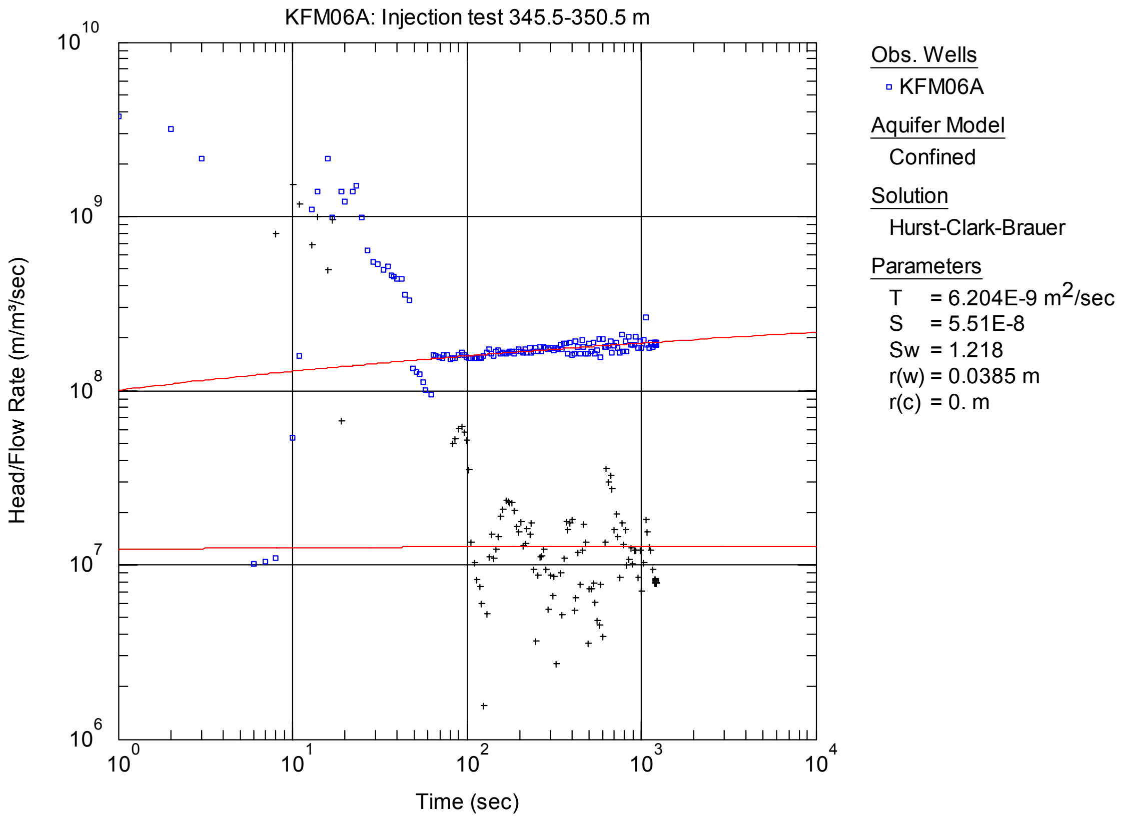


Figure A3-422. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 345.5-350.5 m in KFM06A.*

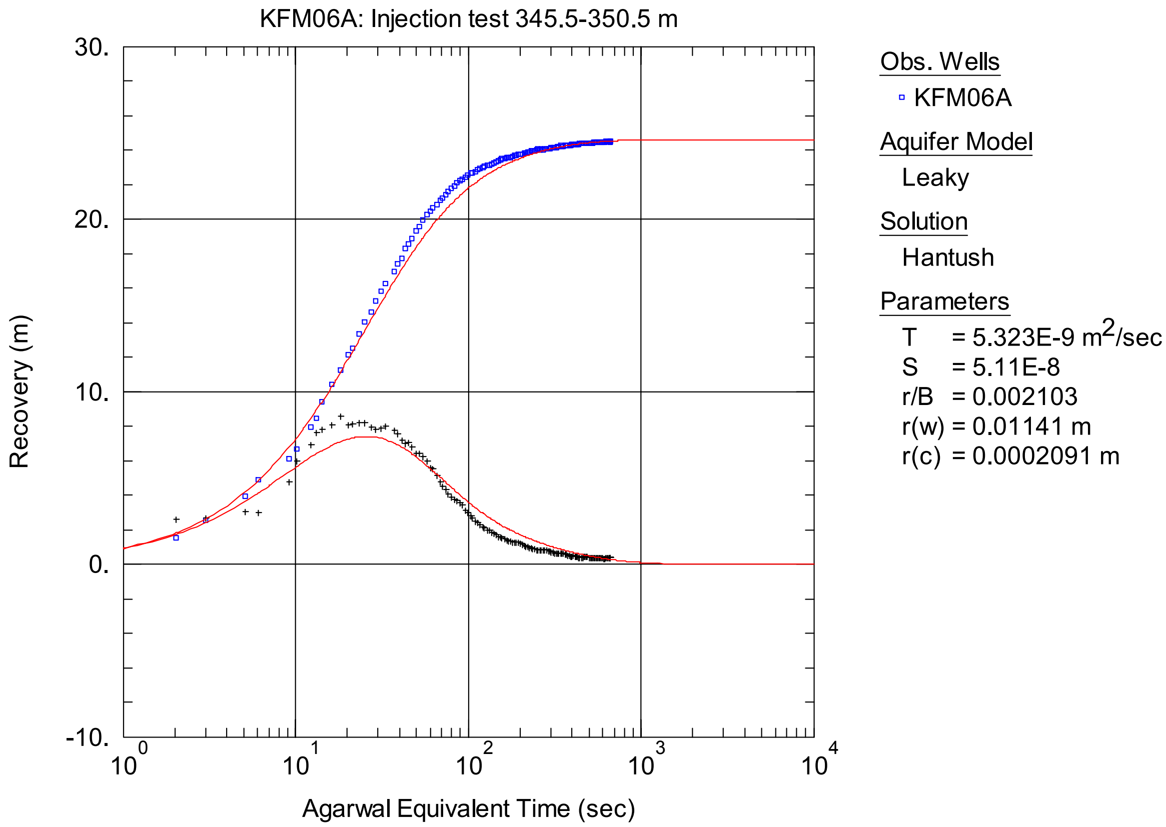


Figure A3-423. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 345.5-350.5 m in KFM06A.*

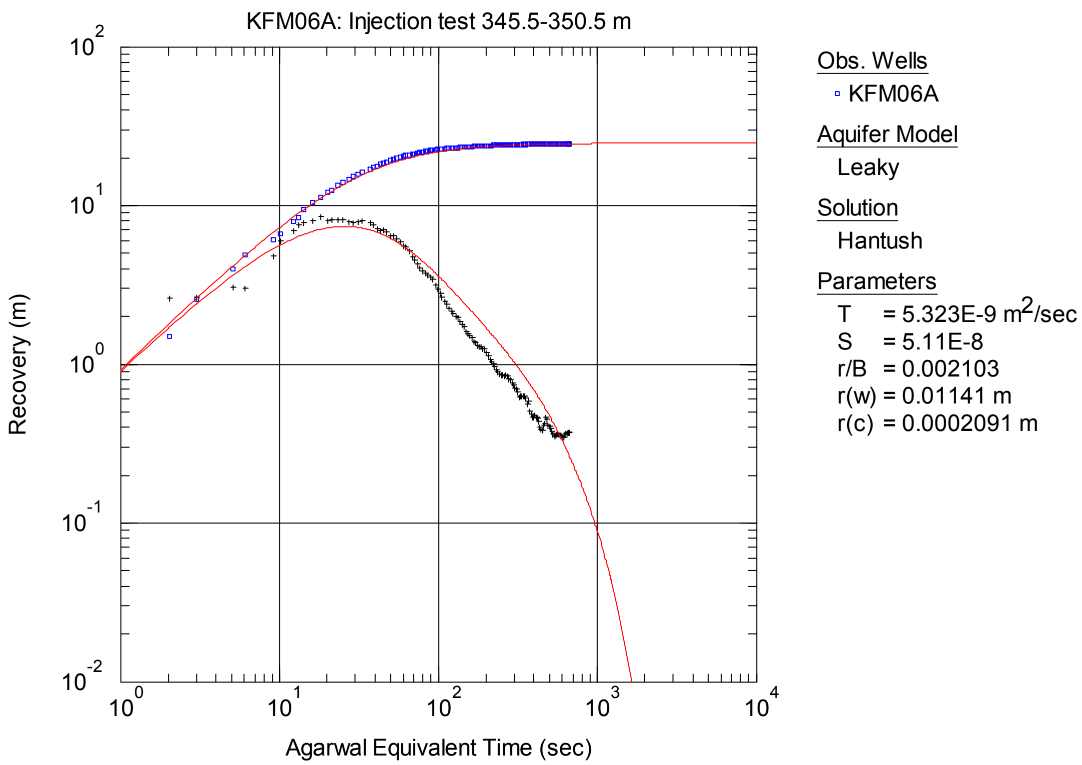


Figure A3-424. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 345.5-350.5 m in KFM06A.*

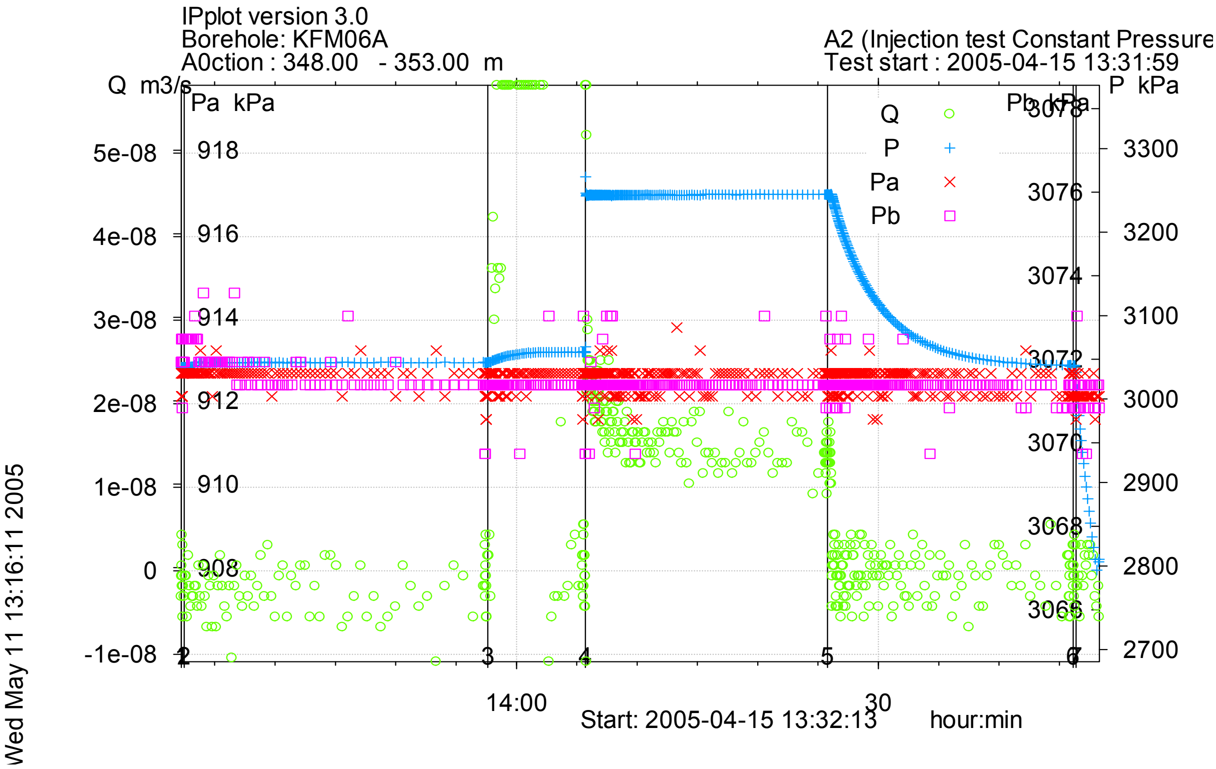


Figure A3-425. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 348.0-353.0 m in borehole KFM06A.*

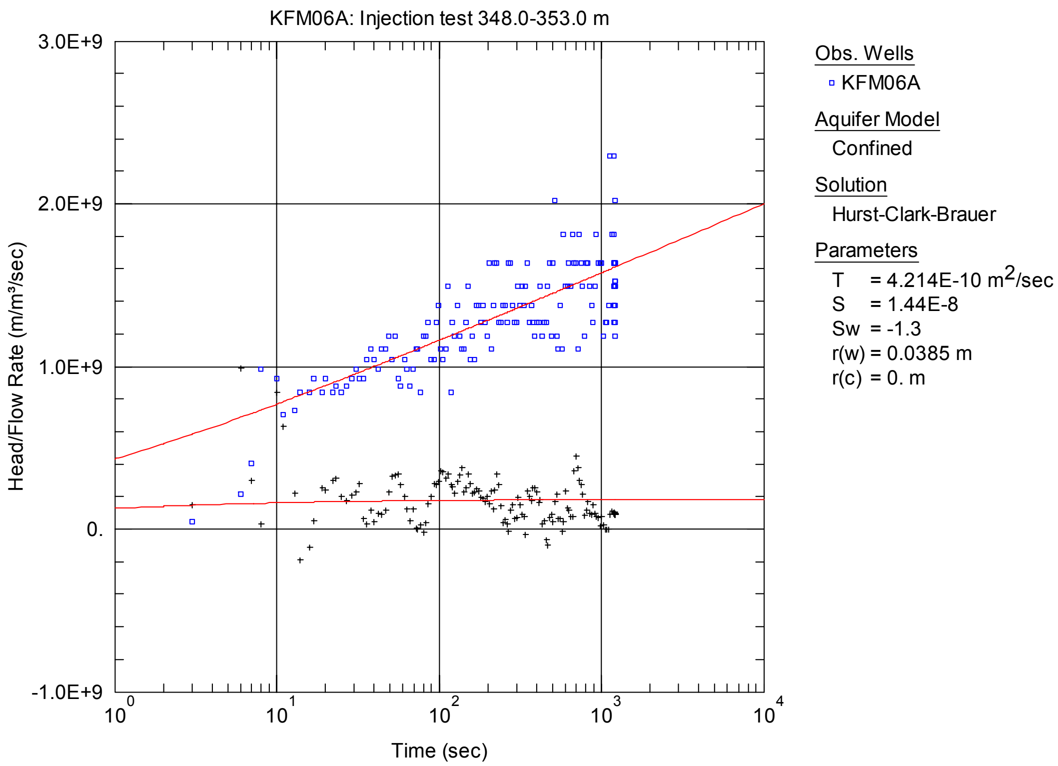


Figure A3-426. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 348.0-353.0 m in KFM06A.*

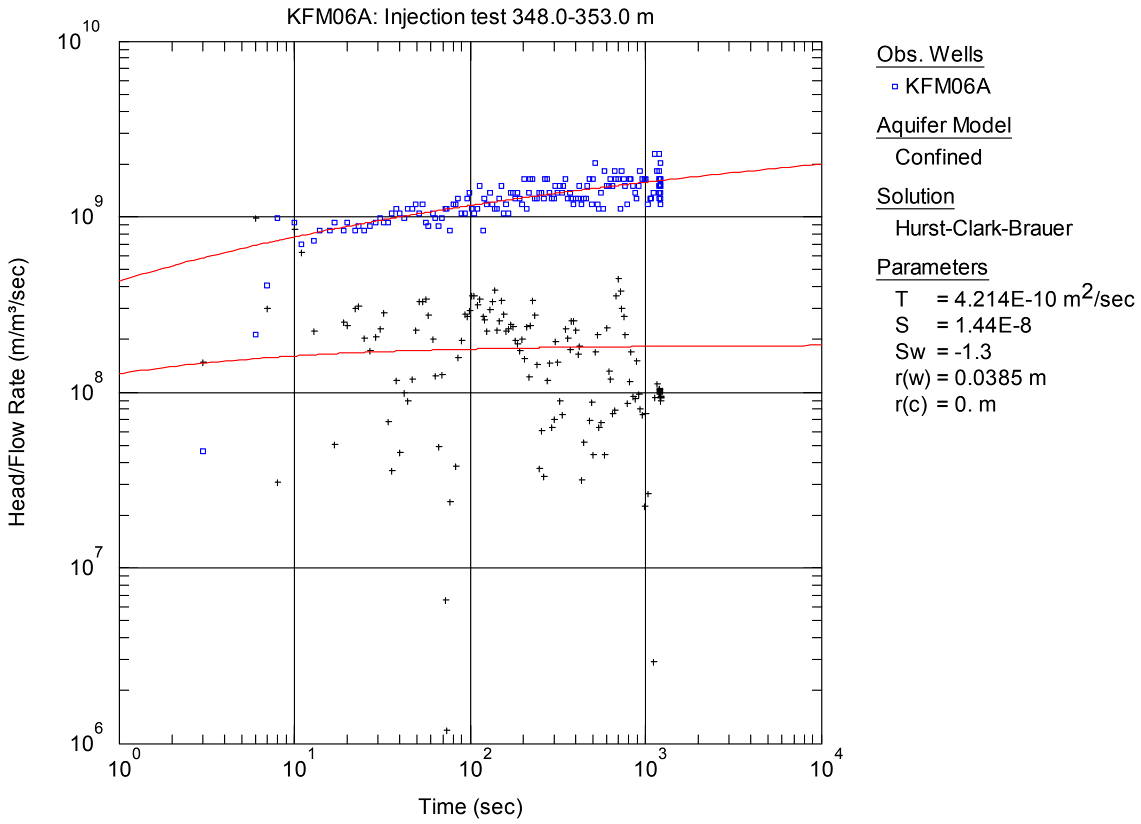


Figure A3-427. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 348.0-353.0 m in KFM06A.*

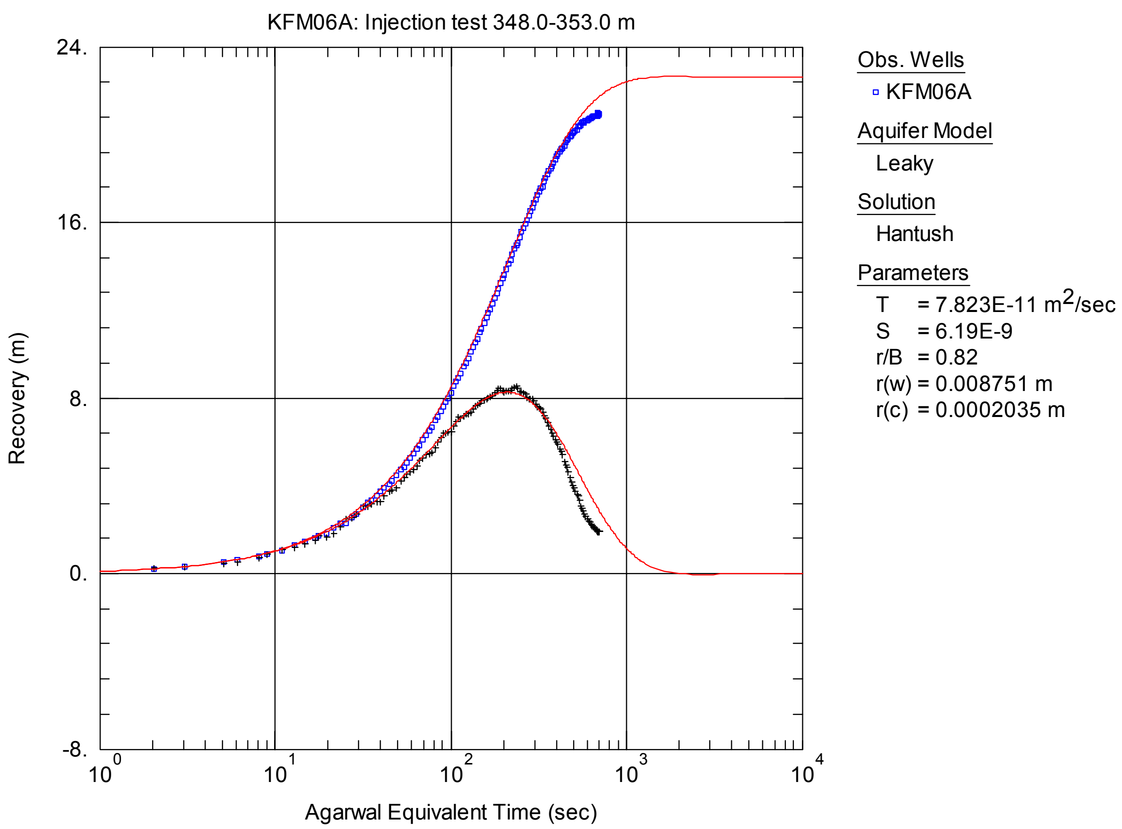


Figure A3-428. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 348.0-353.0 m in KFM06A.*

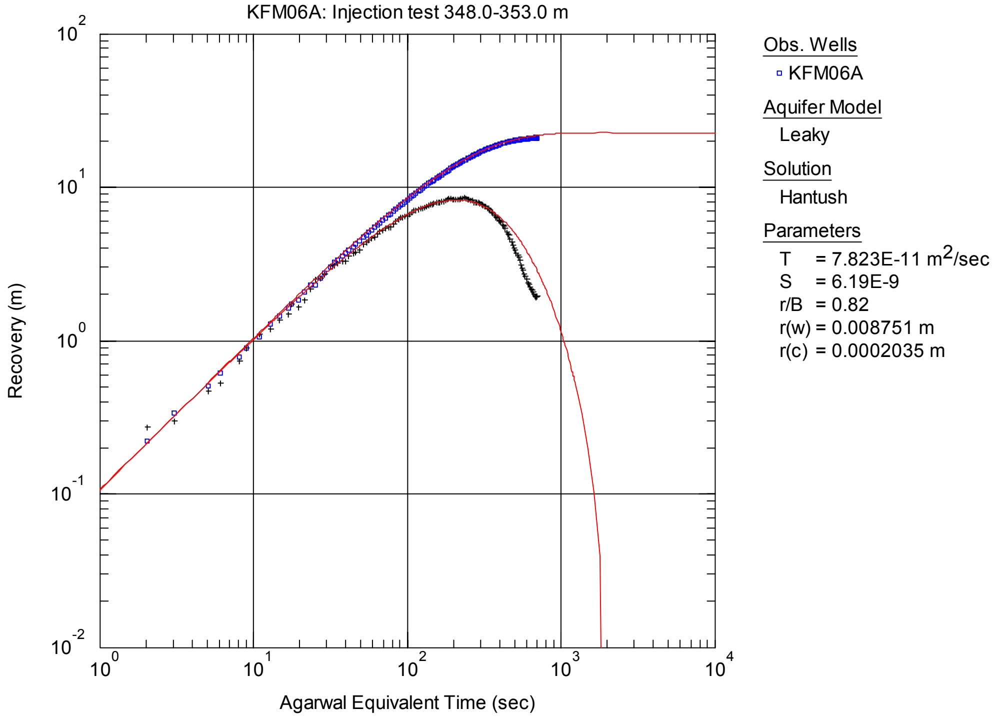


Figure A3-429. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 348.0-353.0 m in KFM06A.*

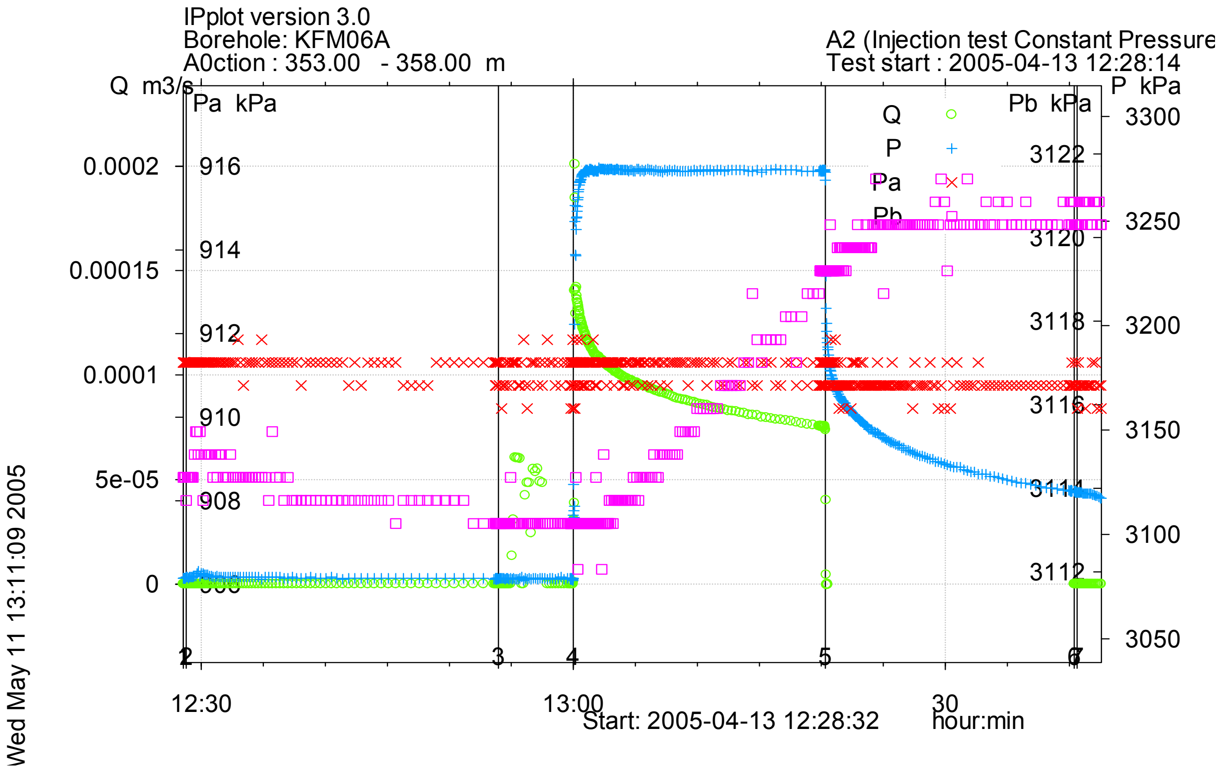


Figure A3-430. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 353.0-358.0 m in borehole KFM06A.*

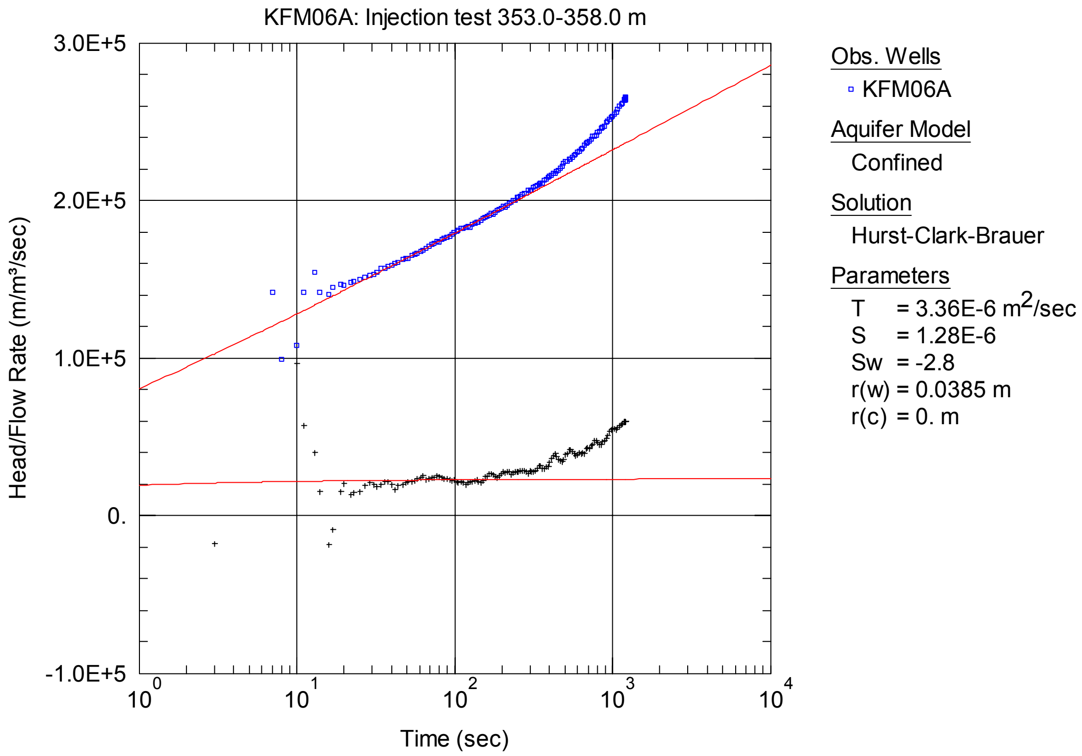


Figure A3-431. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 353.0-358.0 m in KFM06A.*

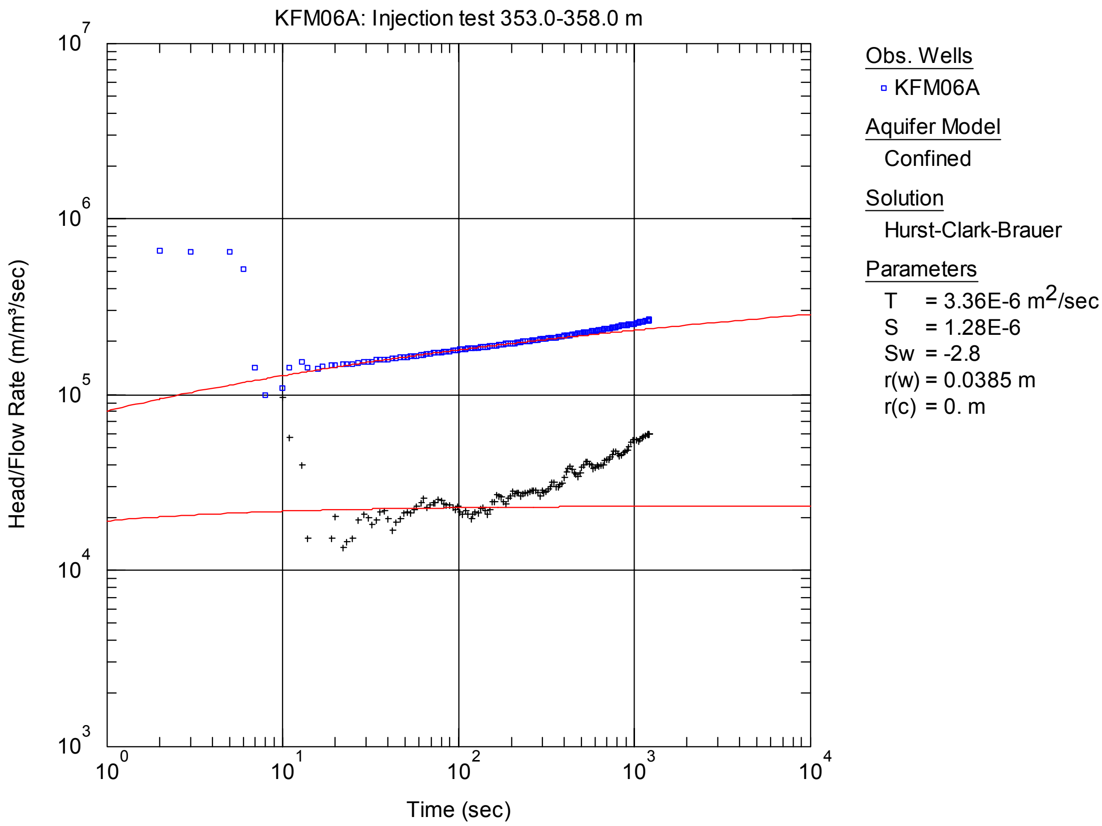


Figure A3-432. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 353.0-358.0 m in KFM06A.*

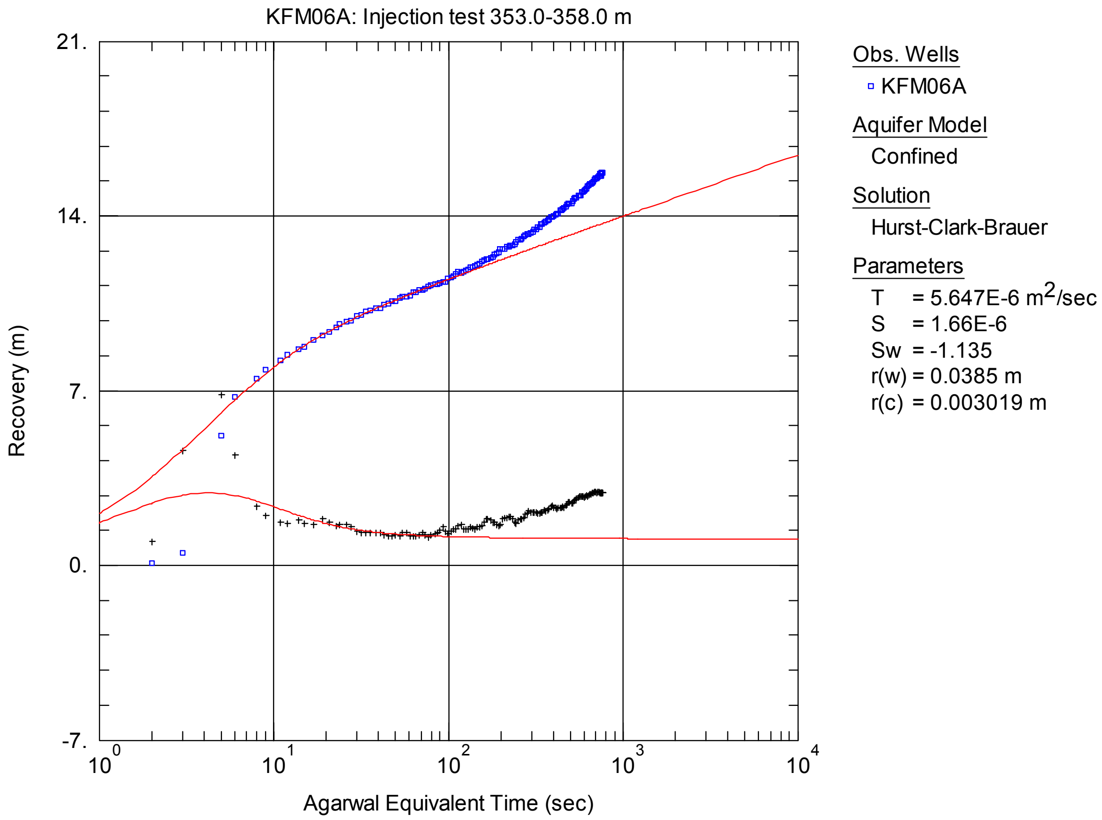


Figure A3-433. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 353.0-358.0 m in KFM06A.*

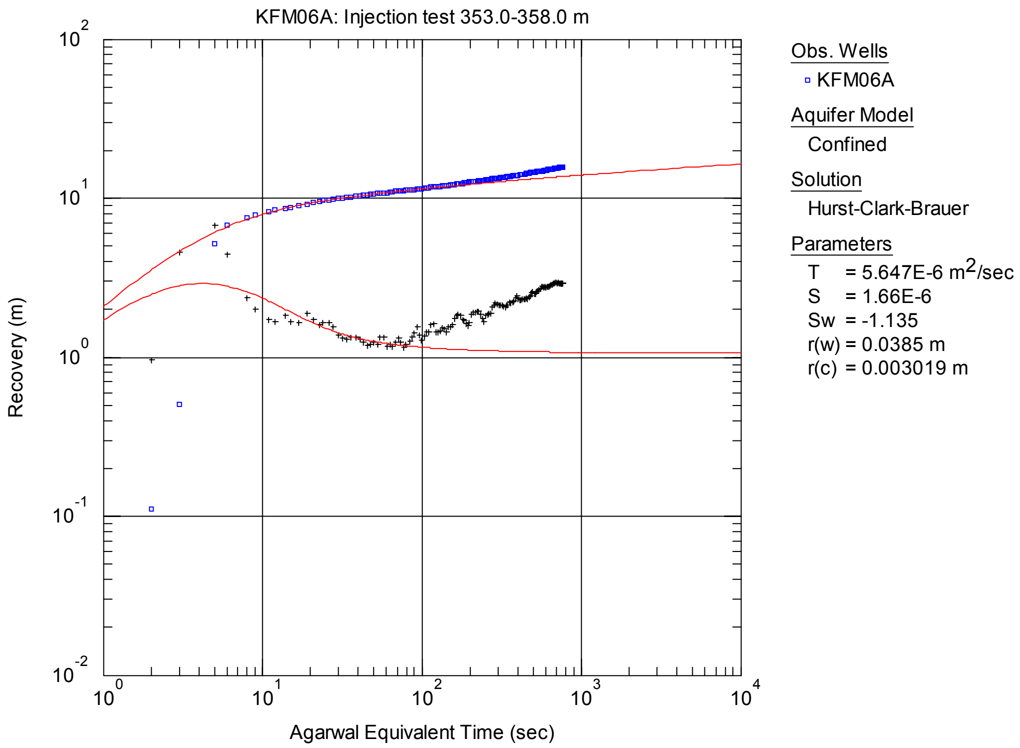


Figure A3-434. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 353.0-358.0 m in KFM06A.*

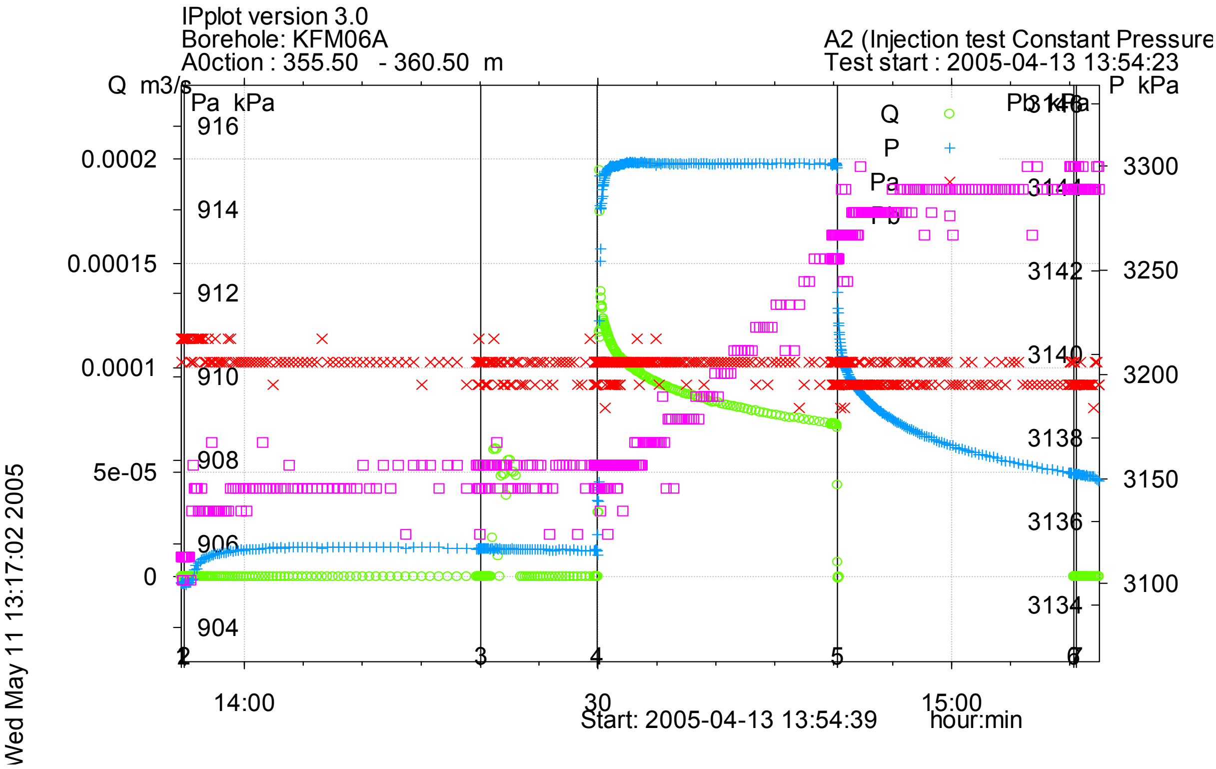


Figure A3-435. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 355.5-360.5 m in borehole KFM06A.*

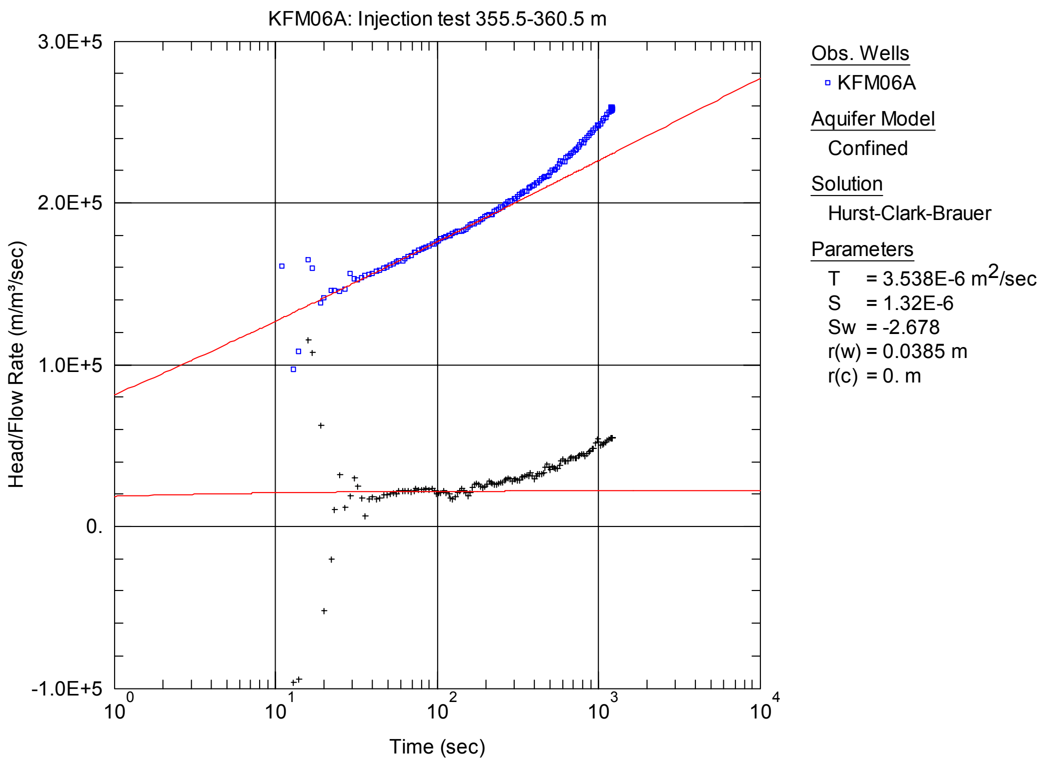


Figure A3-436. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 355.5-360.5 m in KFM06A.*

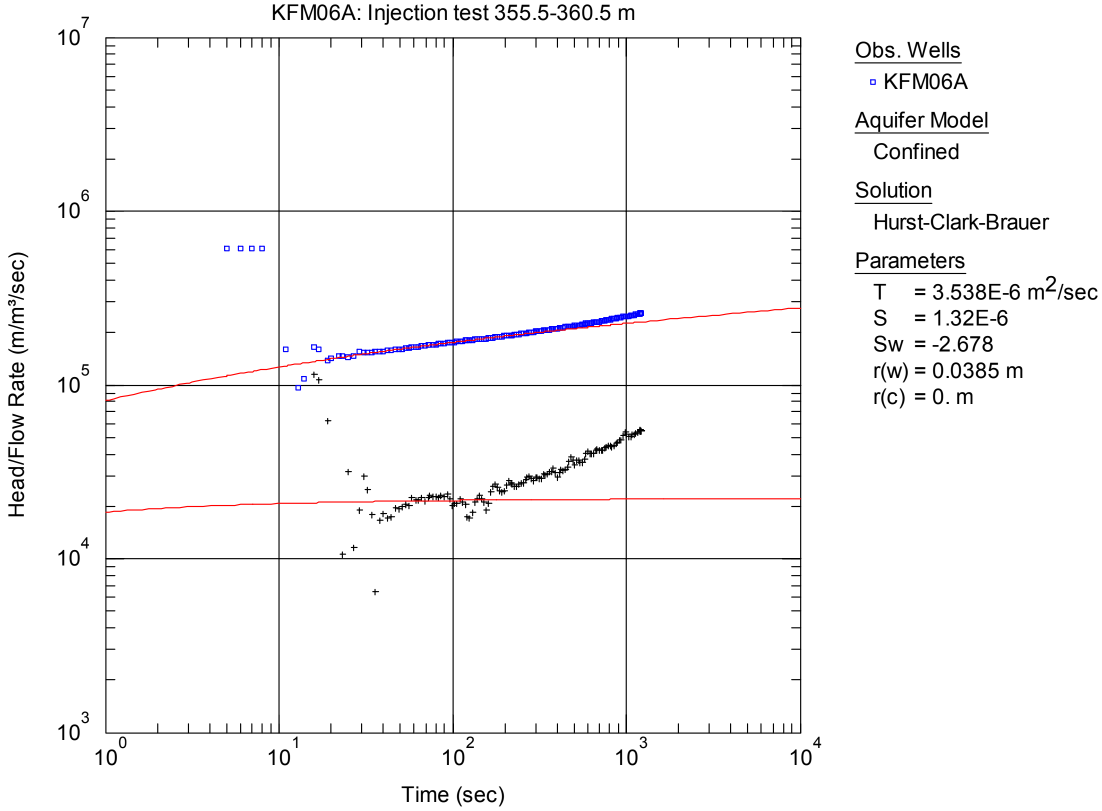


Figure A3-437. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 355.5-360.5 m in KFM06A.*

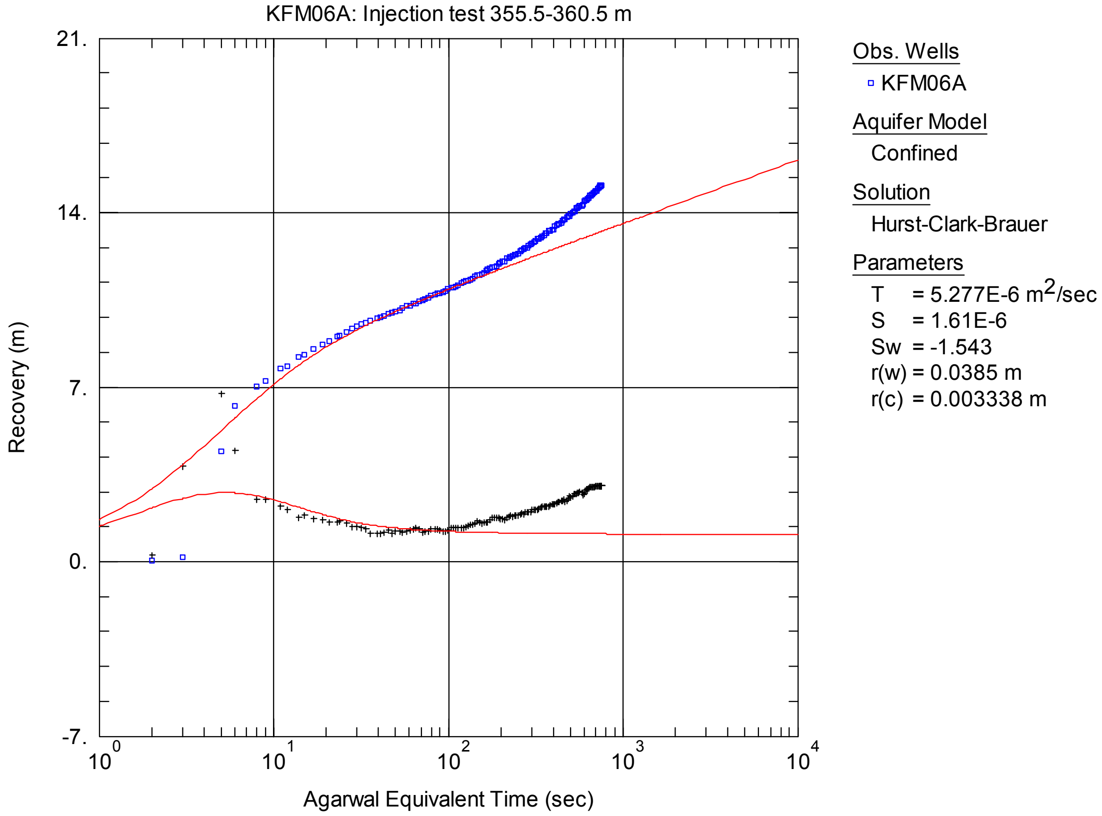


Figure A3-438. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 355.5-360.5 m in KFM06A.*

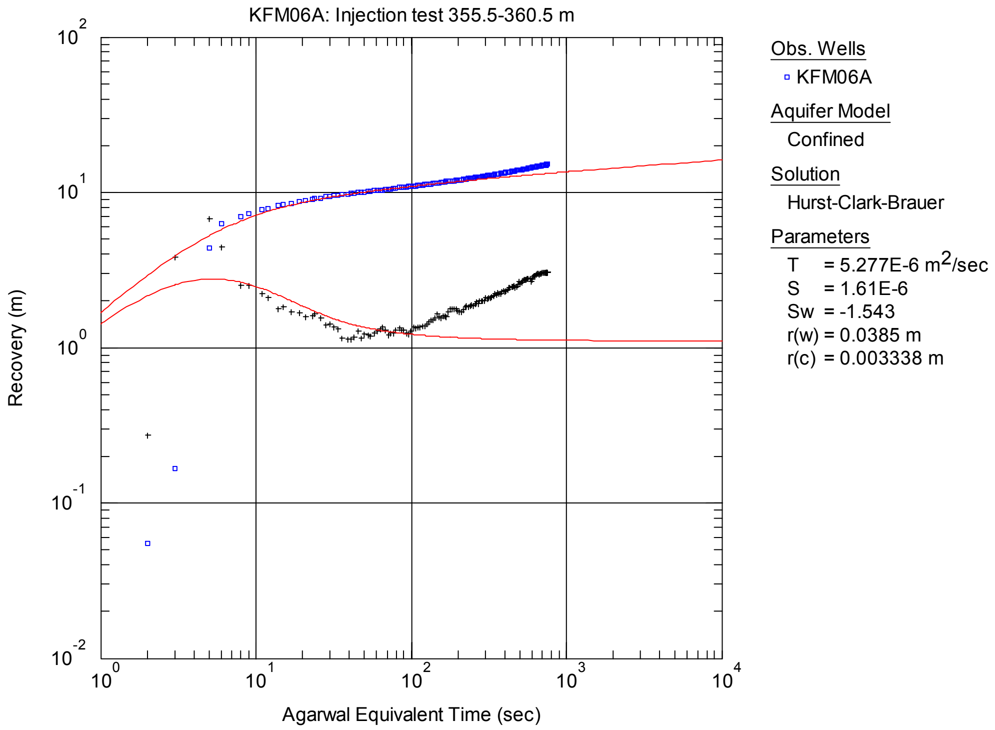


Figure A3-439. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 355.5-360.5 m in KFM06A.*

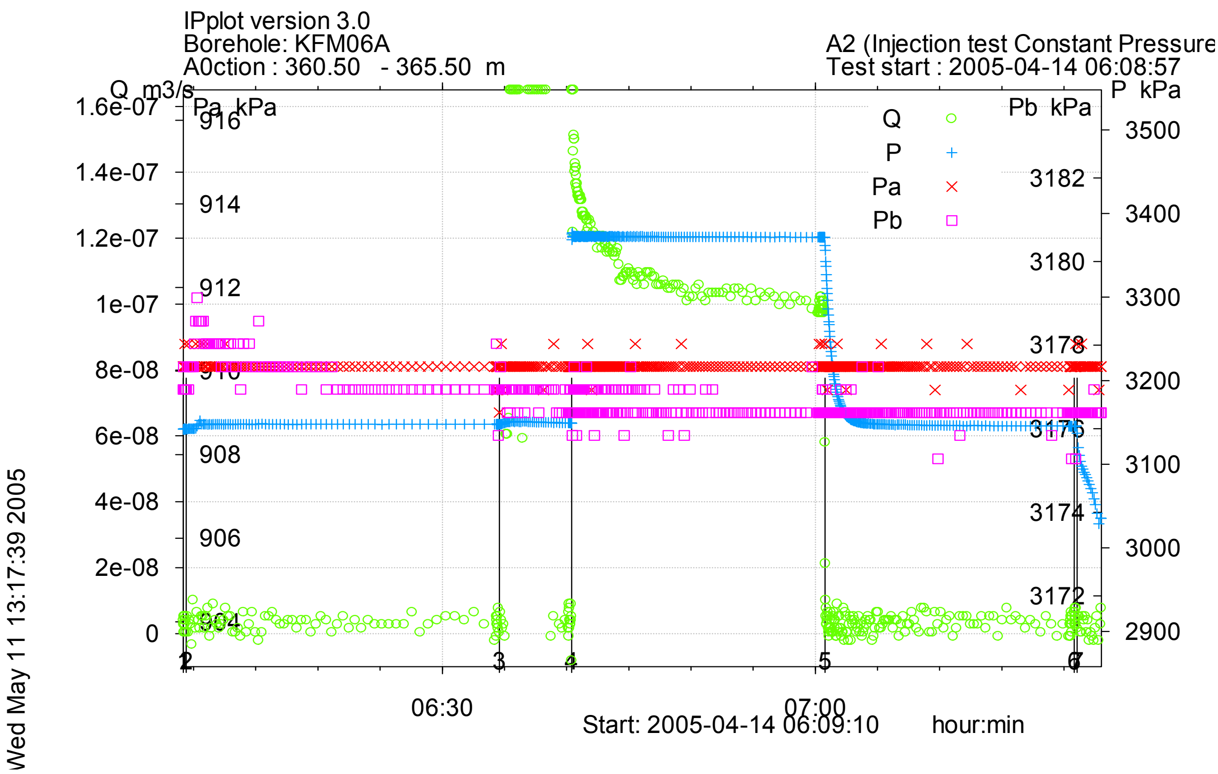


Figure A3-440. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 360.5-365.5 m in borehole KFM06A.*

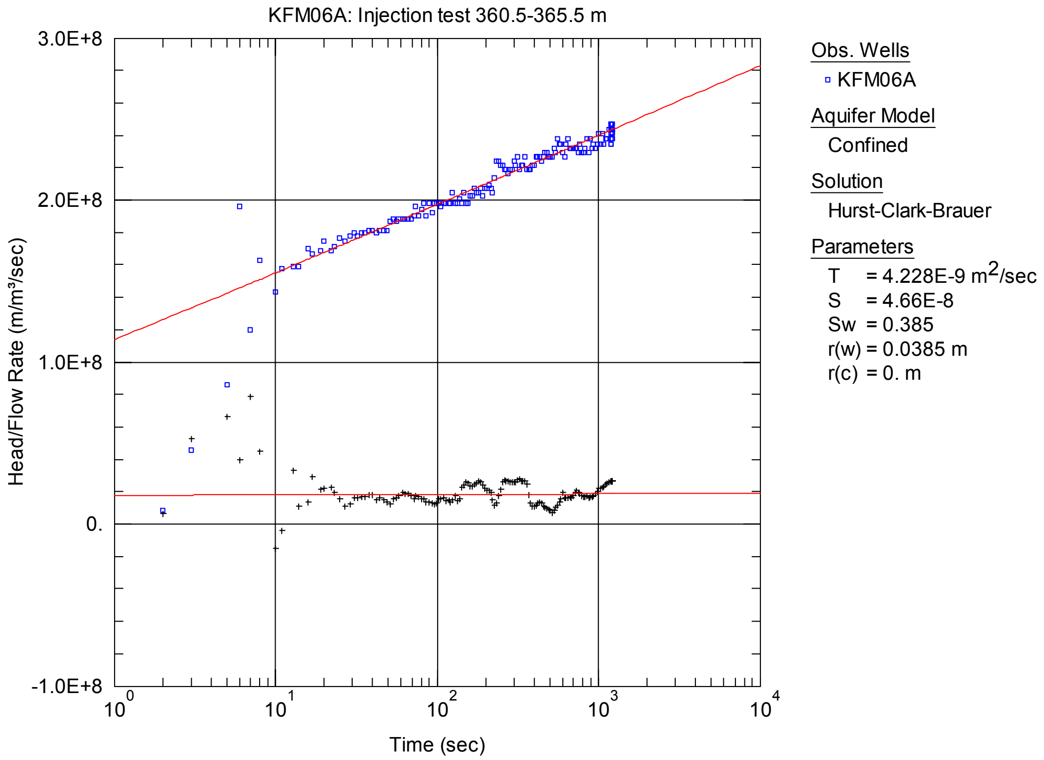


Figure A3-441. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 360.5-365.5 m in KFM06A.*

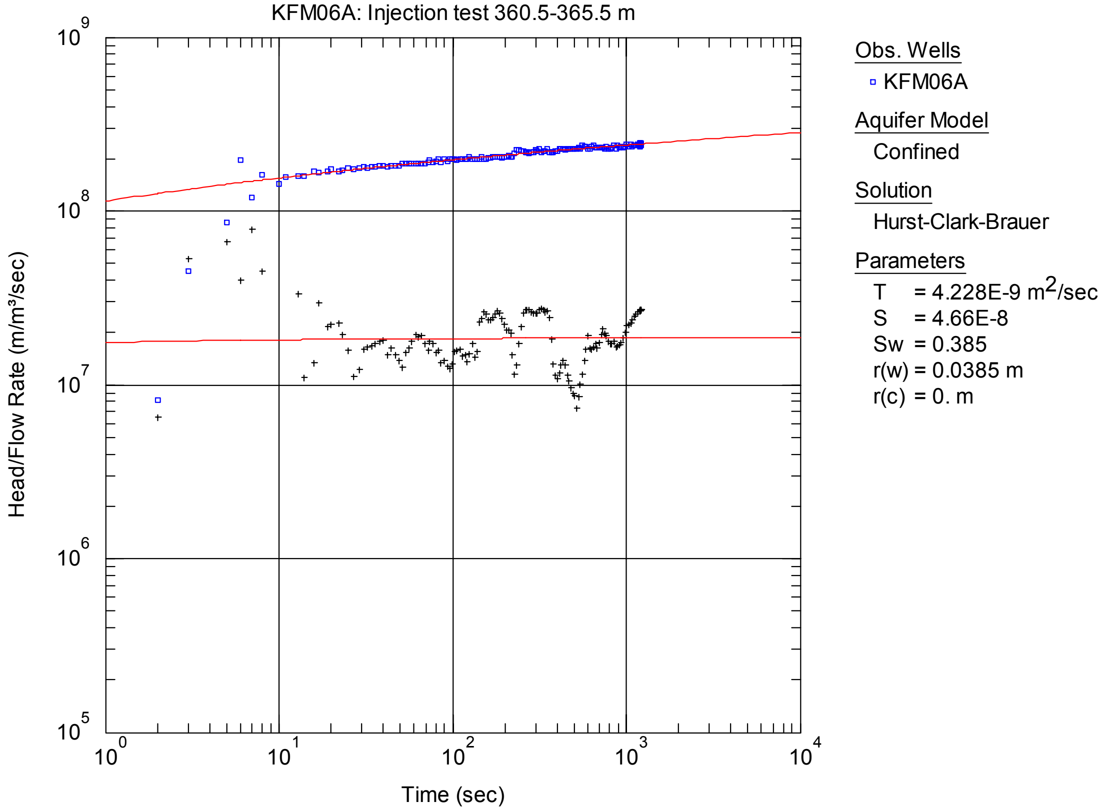


Figure A3-442. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 360.5-365.5 m in KFM06A.*

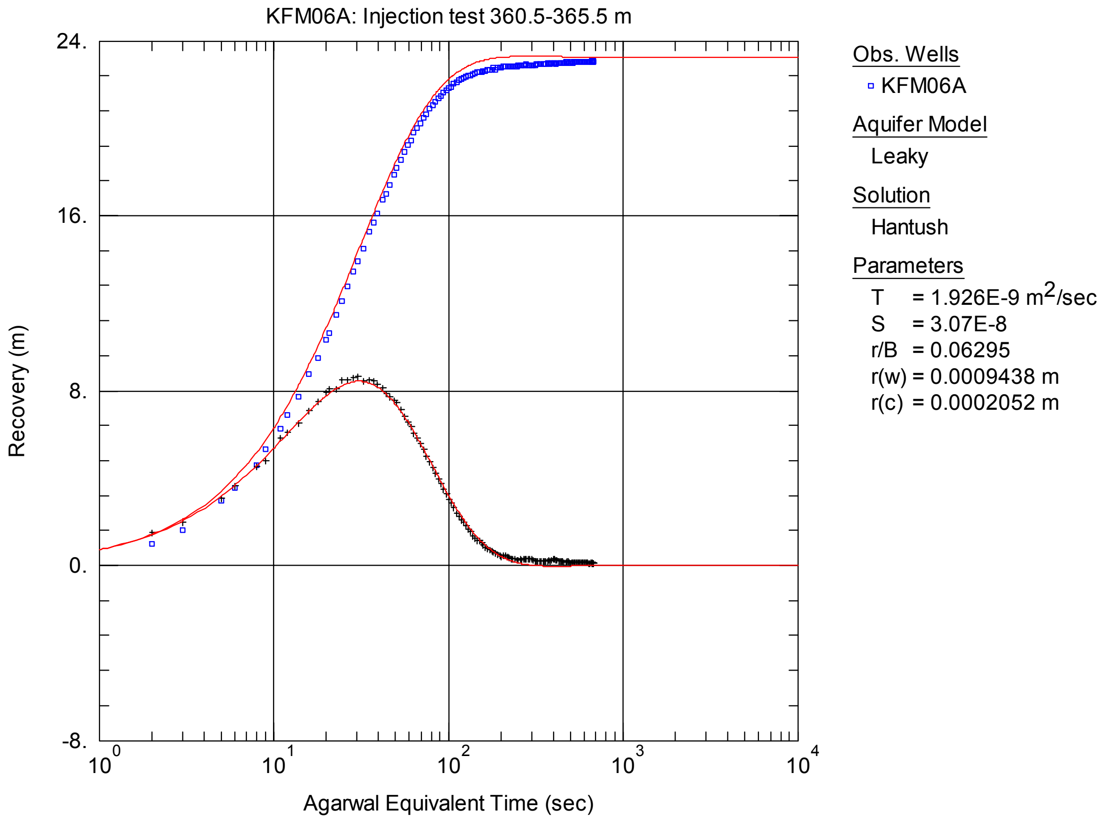


Figure A3-443. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 360.5-365.5 m in KFM06A.*

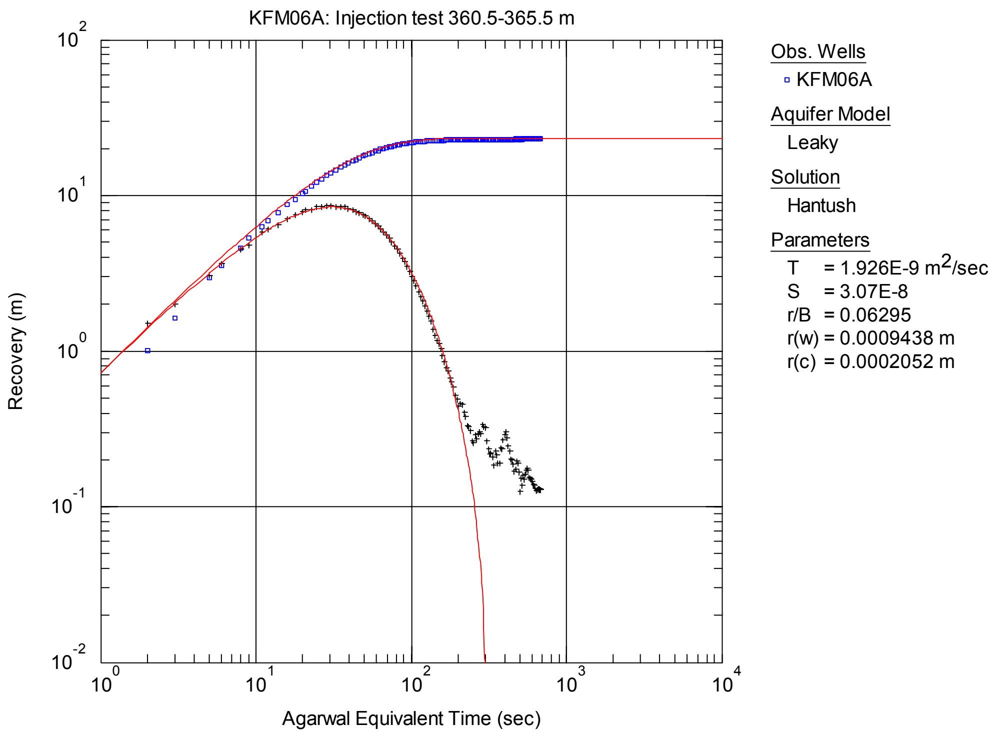


Figure A3-444. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 360.5-365.5 m in KFM06A.*

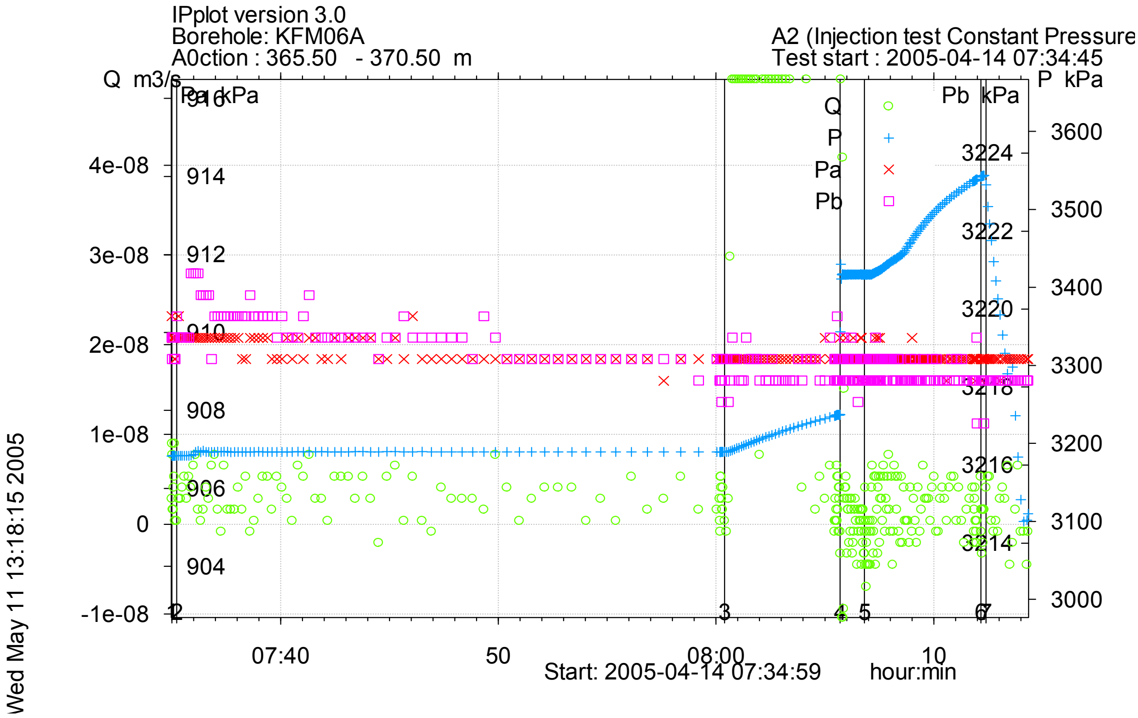


Figure A3-445. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 365.5-370.5 m in borehole KFM06A.*

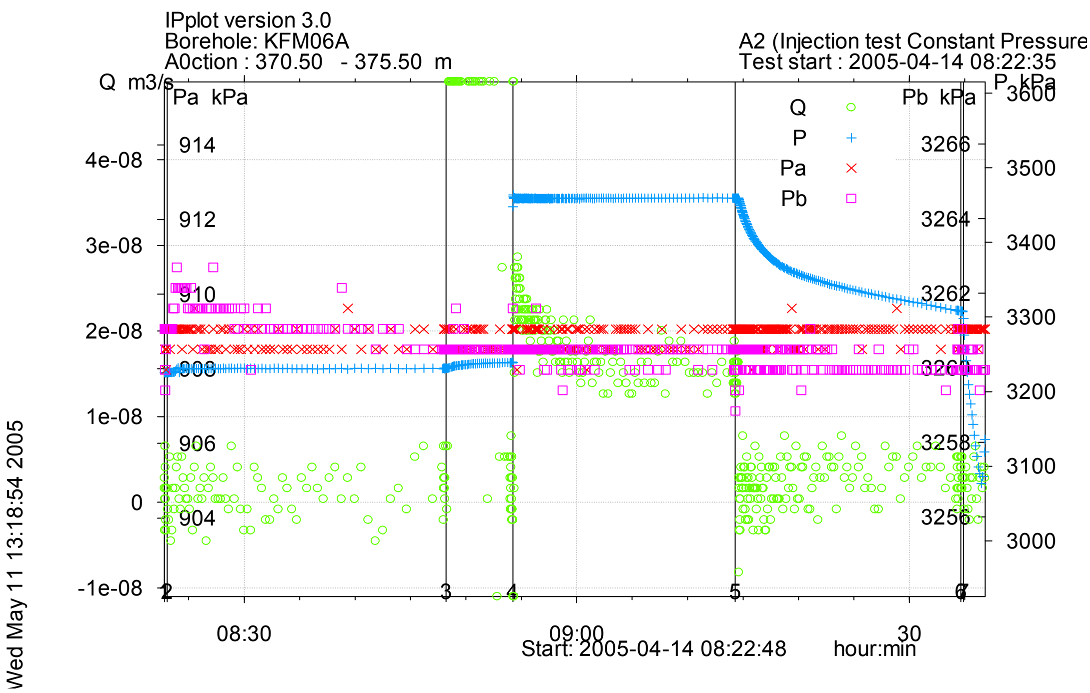


Figure A3-446. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 370.5-375.5 m in borehole KFM06A.*

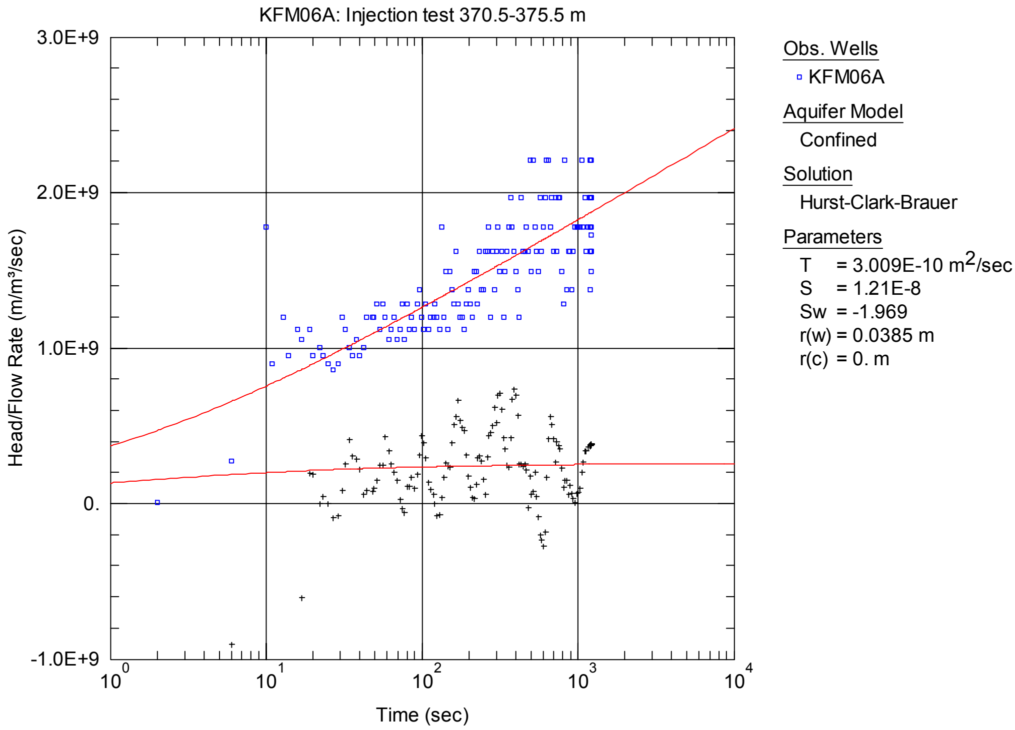


Figure A3-447. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 370.5-375.5 m in KFM06A.*

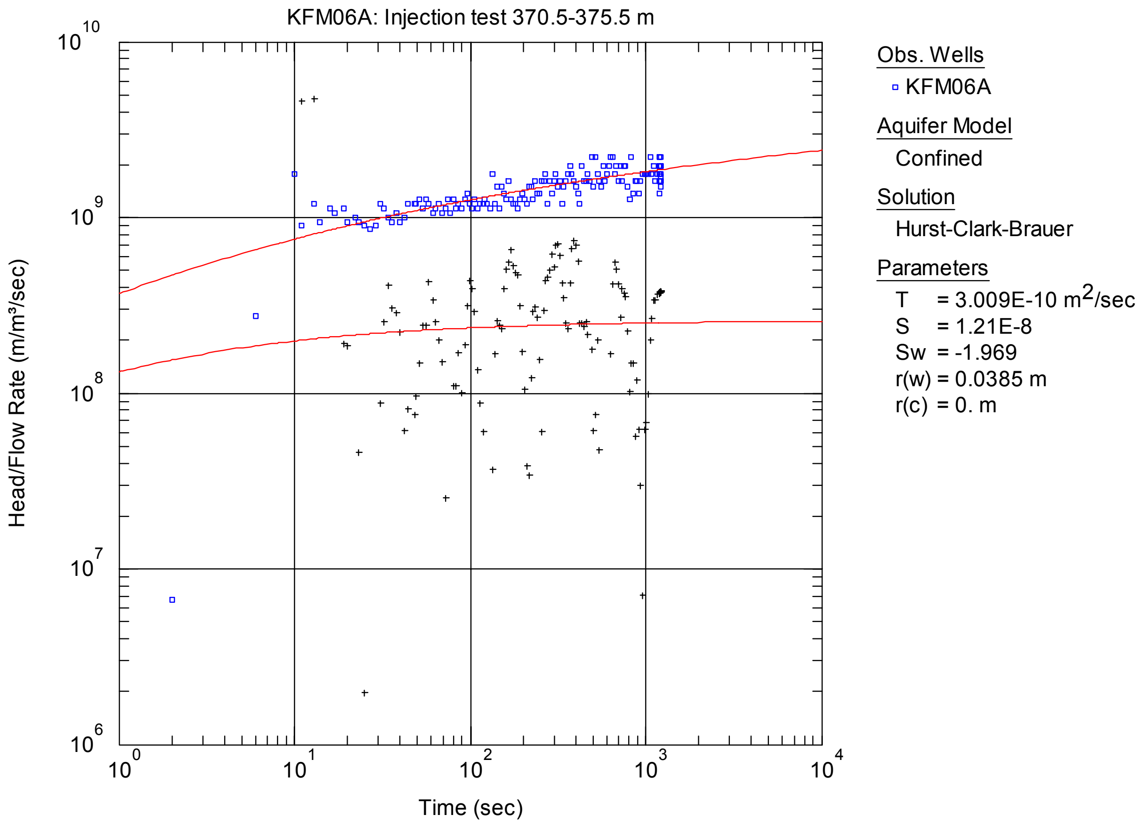


Figure A3-448. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 370.5-375.5 m in KFM06A.*

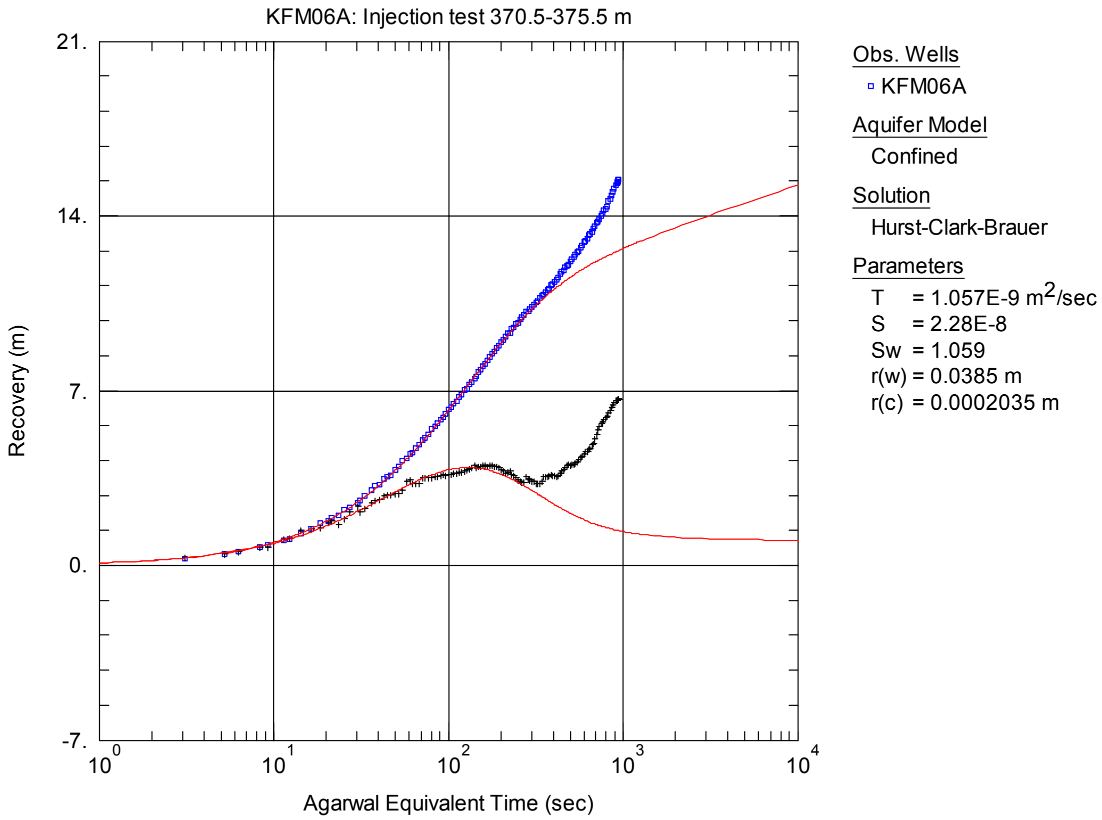


Figure A3-449. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 370.5-375.5 m in KFM06A.*

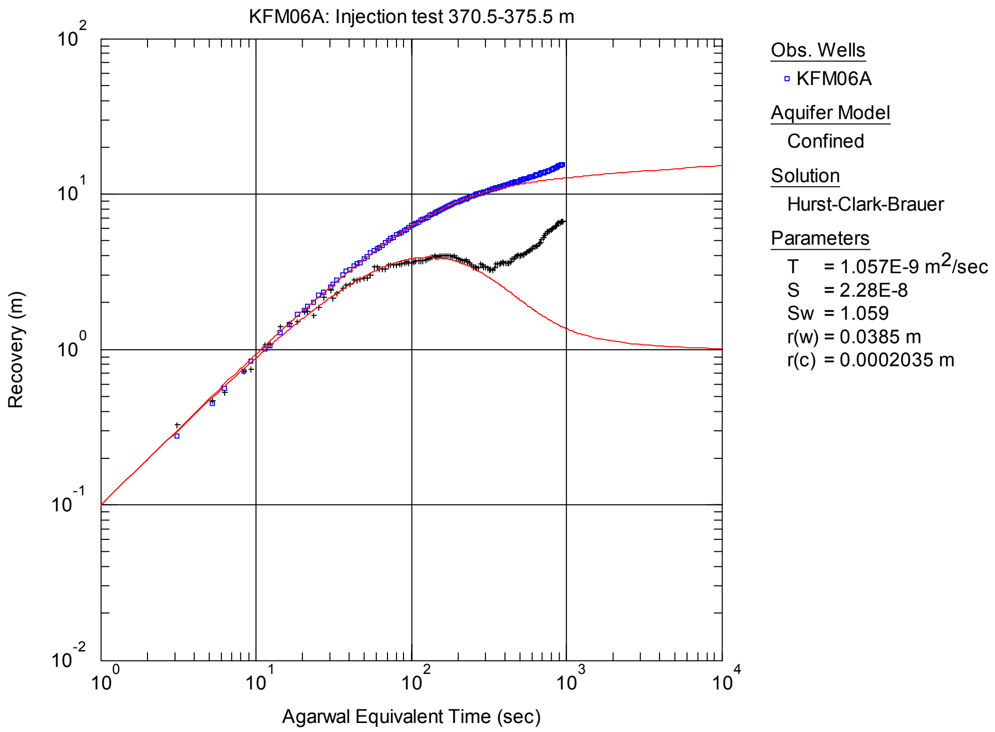


Figure A3-450. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 370.5-375.5 m in KFM06A.*

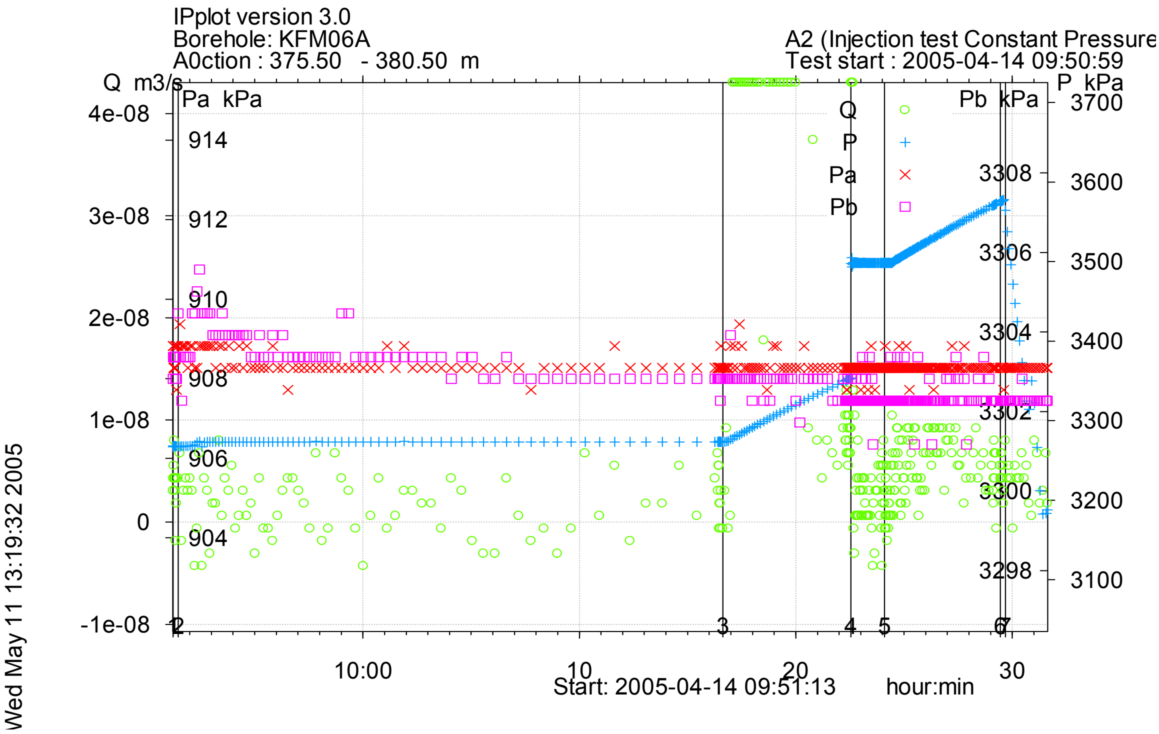


Figure A3-451. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 375.5-380.5 m in borehole KFM06A.*

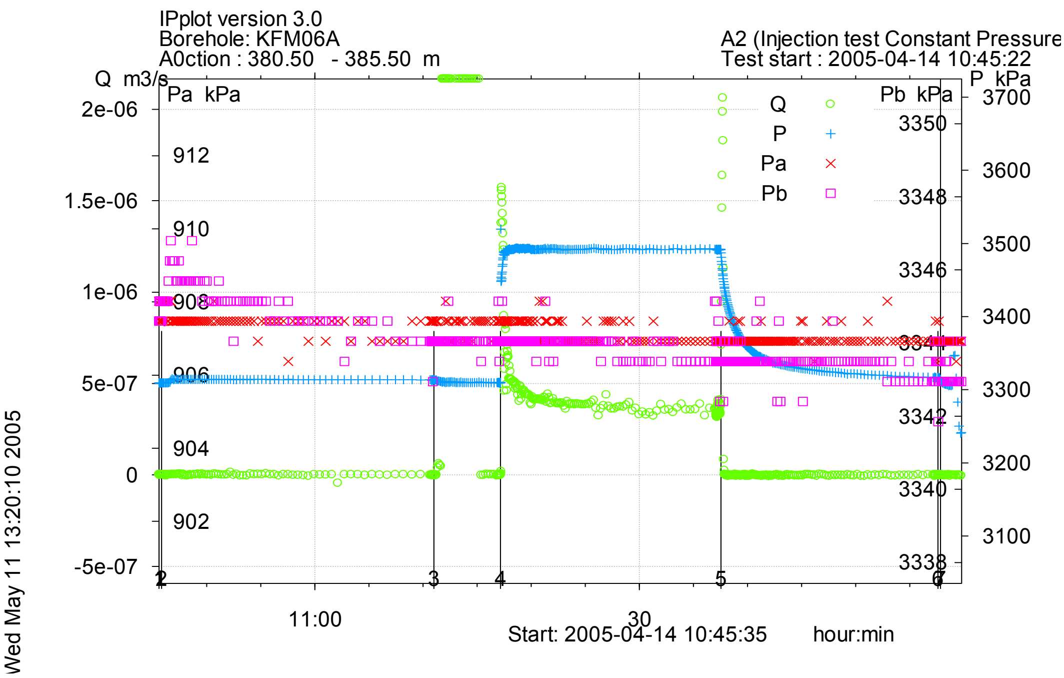


Figure A3-452. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 380.5-385.5 m in borehole KFM06A.*

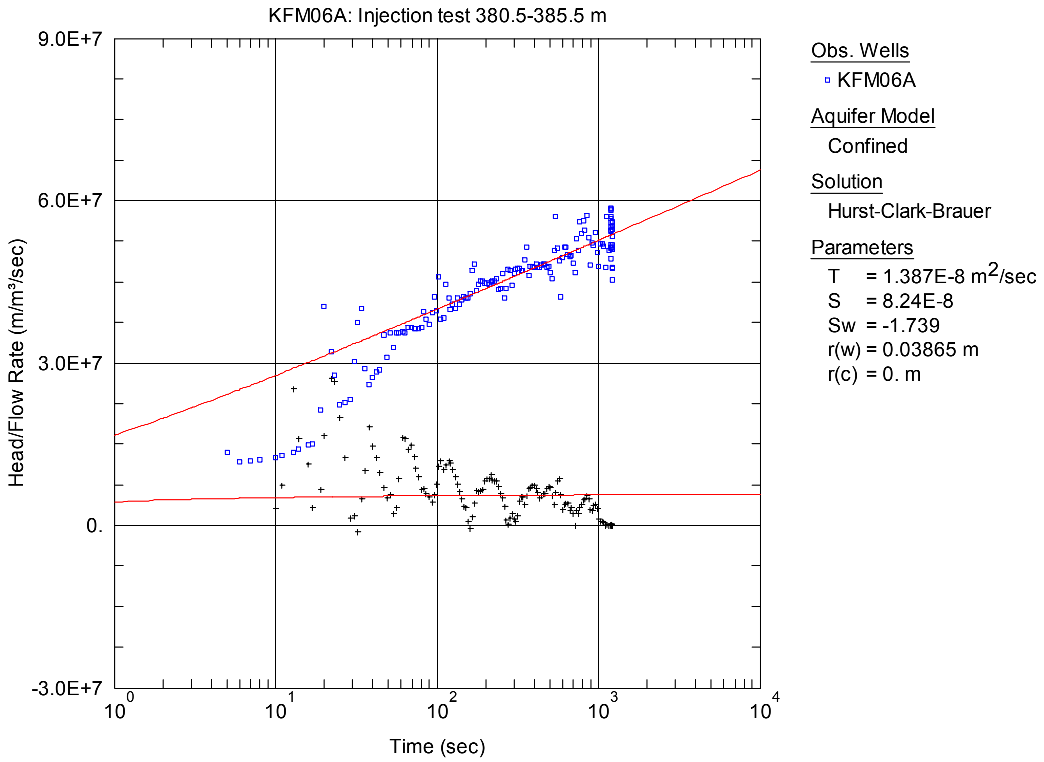


Figure A3-453. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 380.5-385.5 m in KFM06A.*

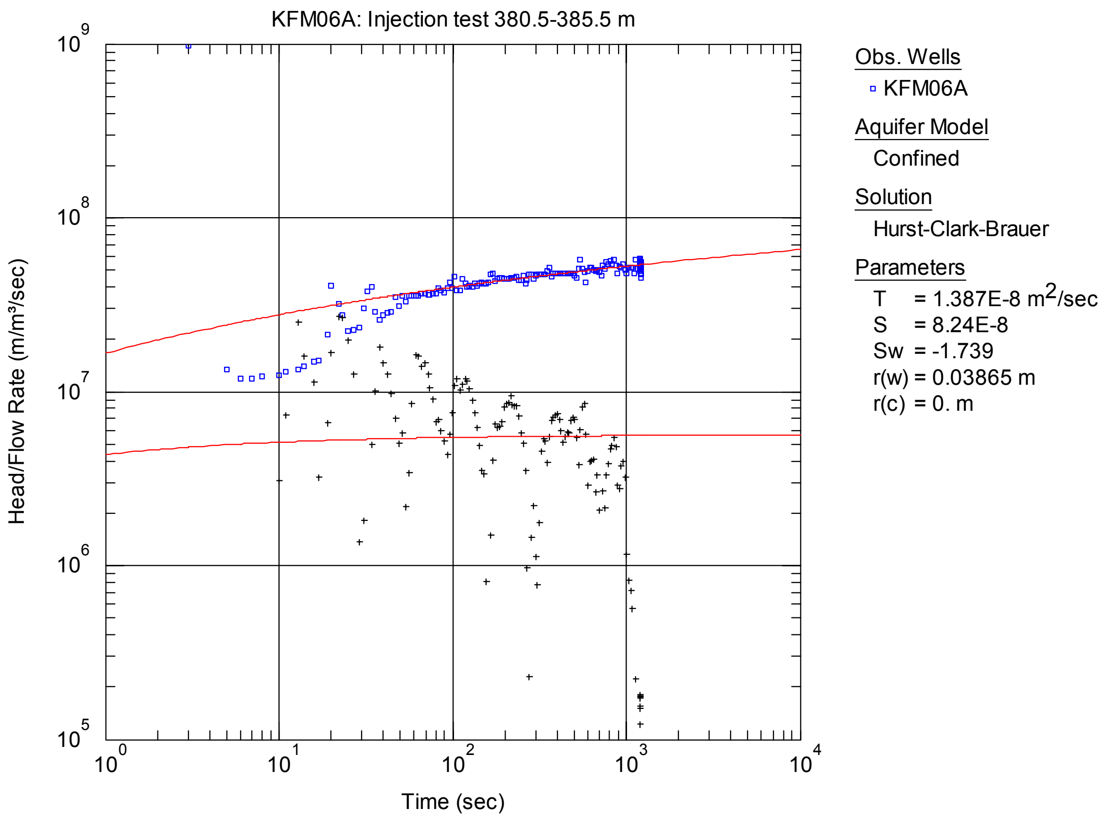


Figure A3-454. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 380.5-385.5 m in KFM06A.*

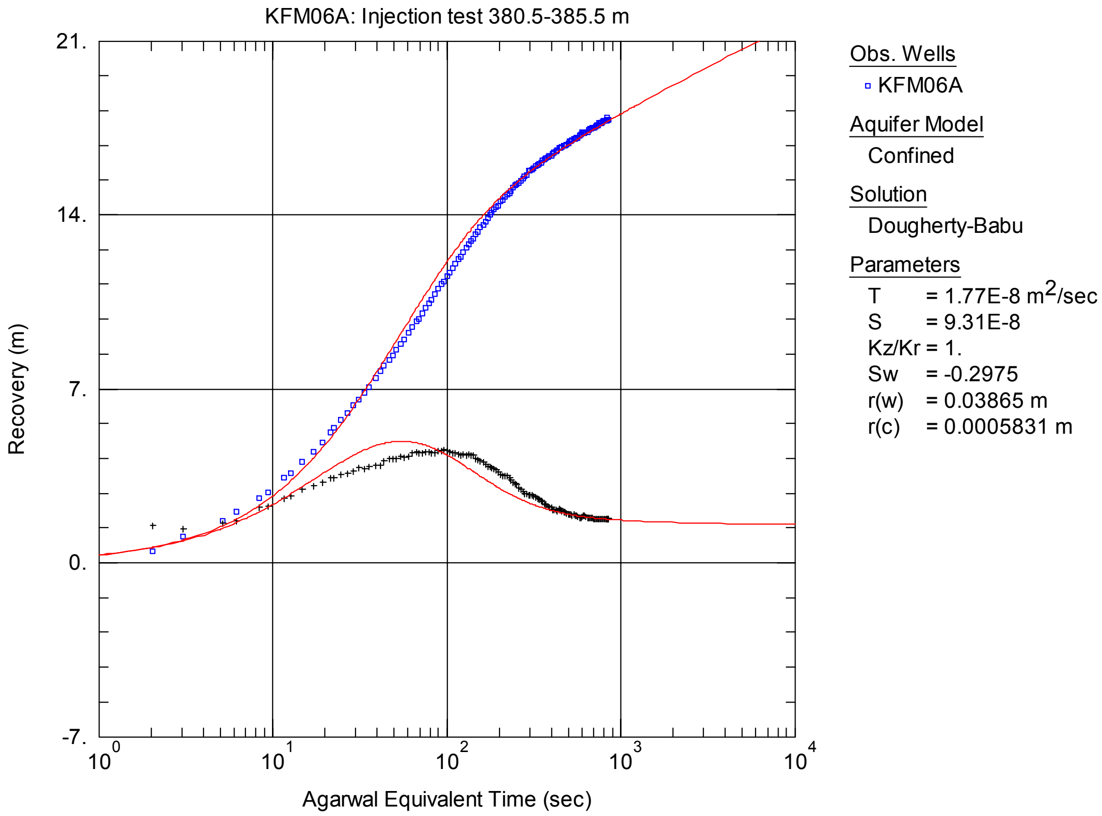


Figure A3-455. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 380.5-385.5 m in KFM06A.*

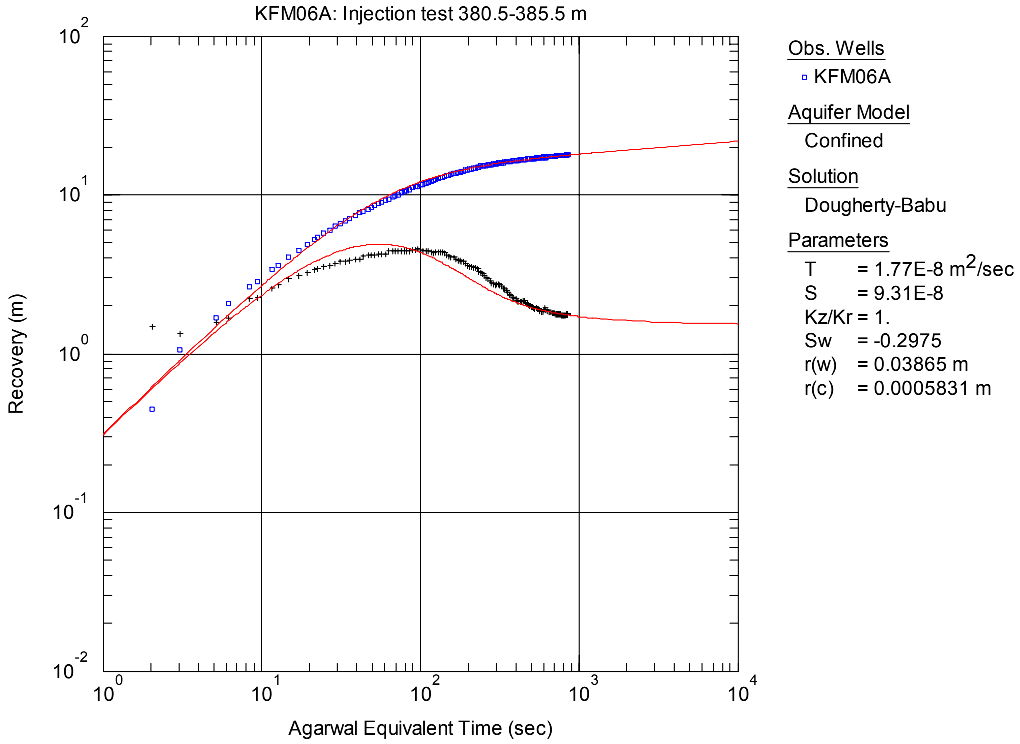


Figure A3-456. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 380.5-385.5 m in KFM06A.*

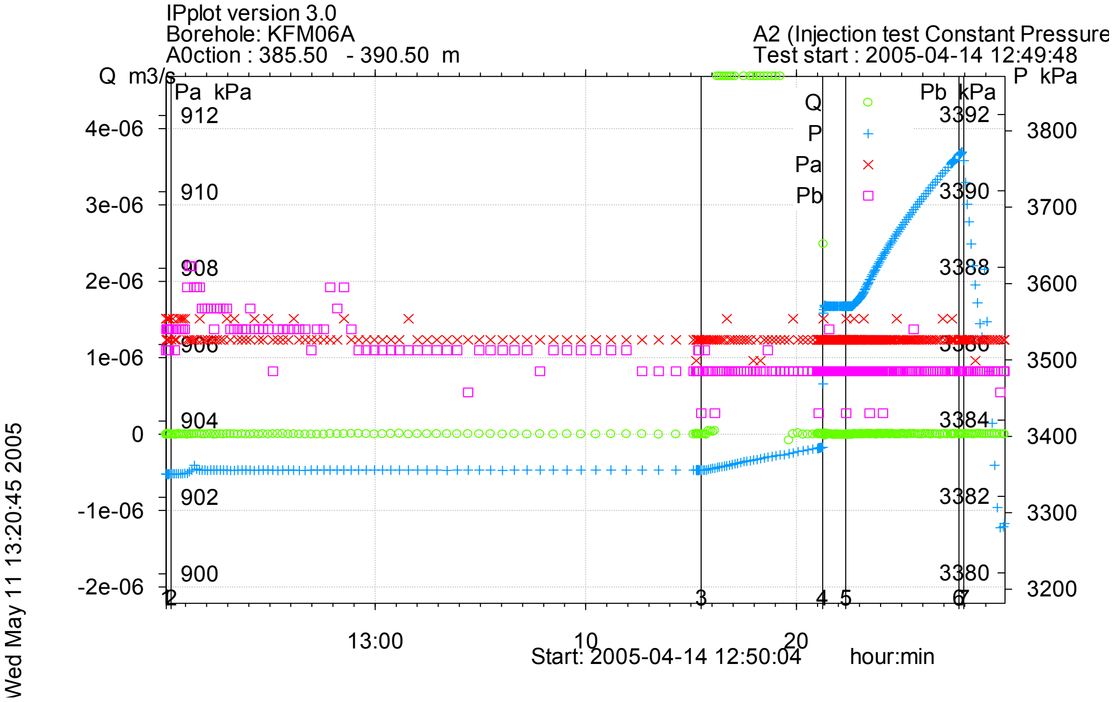


Figure A3-457. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 385.5-390.5 m in borehole KFM06A.*

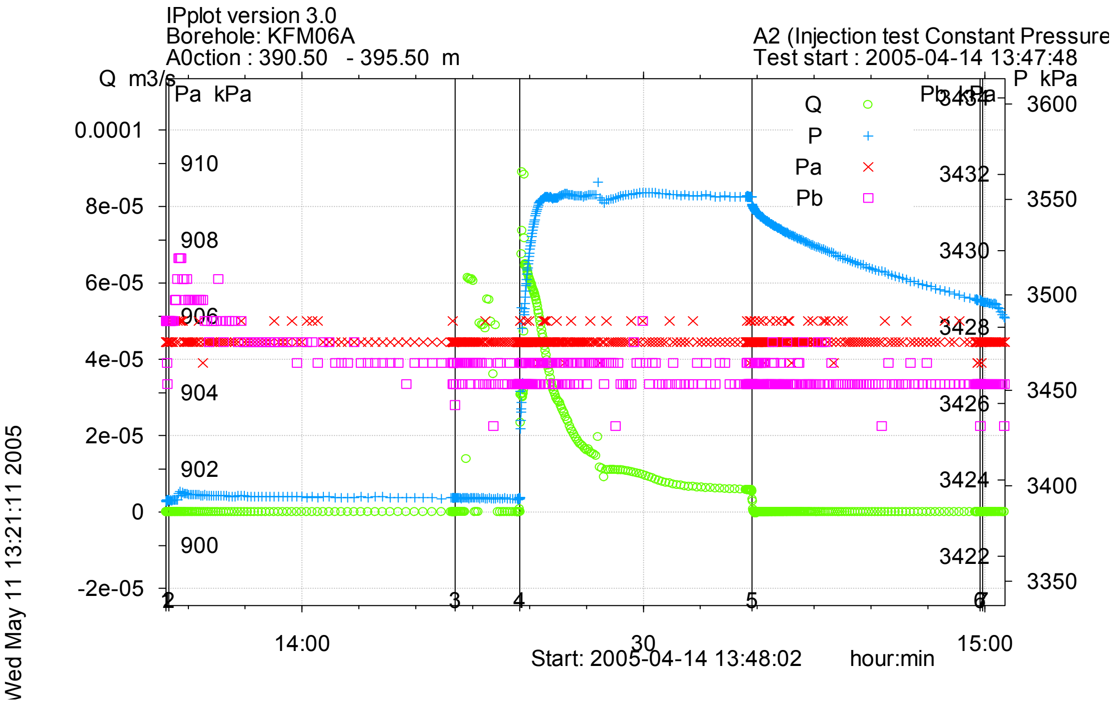


Figure A3-458. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 390.5-395.5 m in borehole KFM06A.*

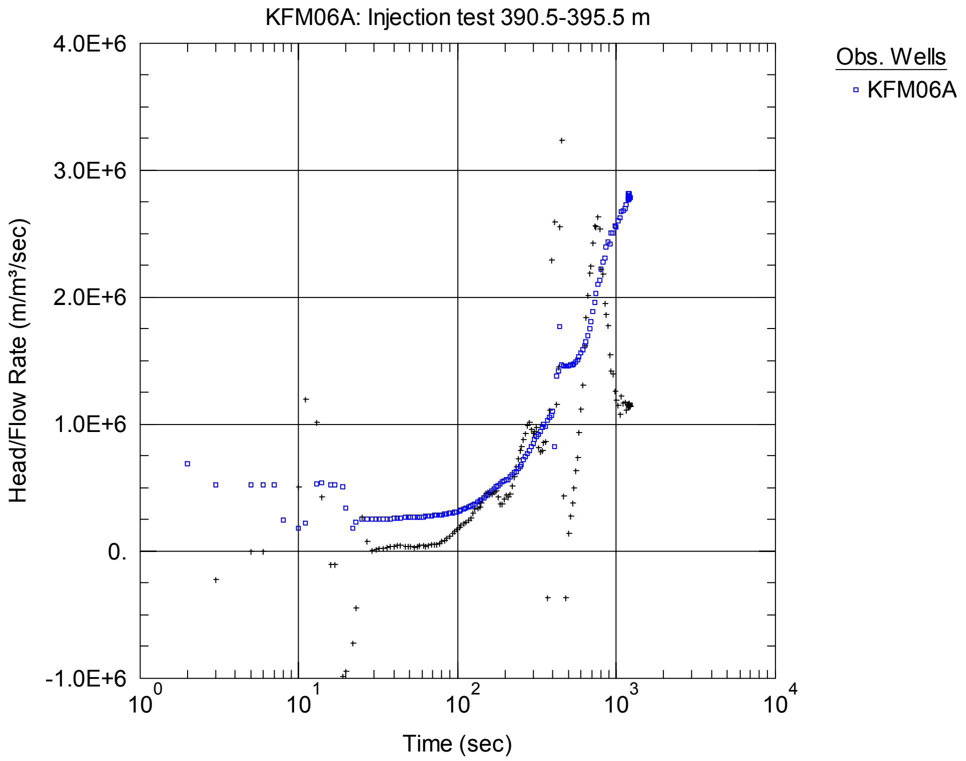


Figure A3-459. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 390.5-395.5 m in KFM06A.*

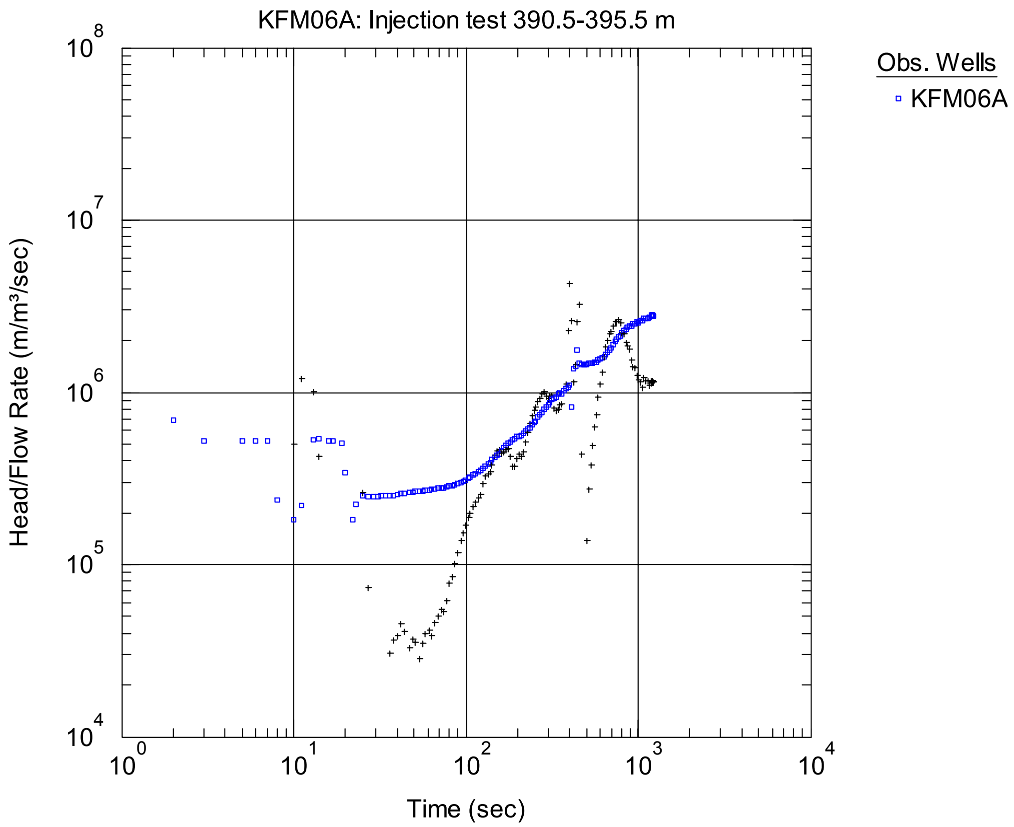


Figure A3-460. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 390.5-395.5 m in KFM06A.*

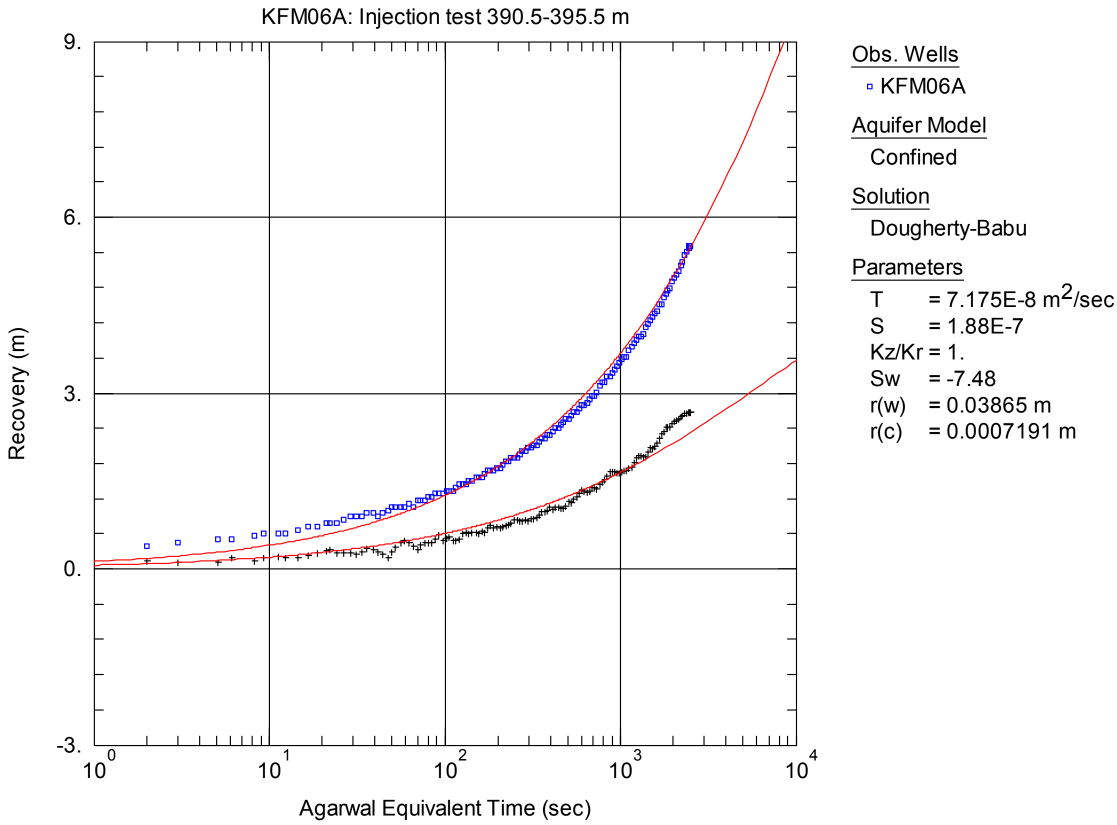


Figure A3-461. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 390.5-395.5 m in KFM06A.*

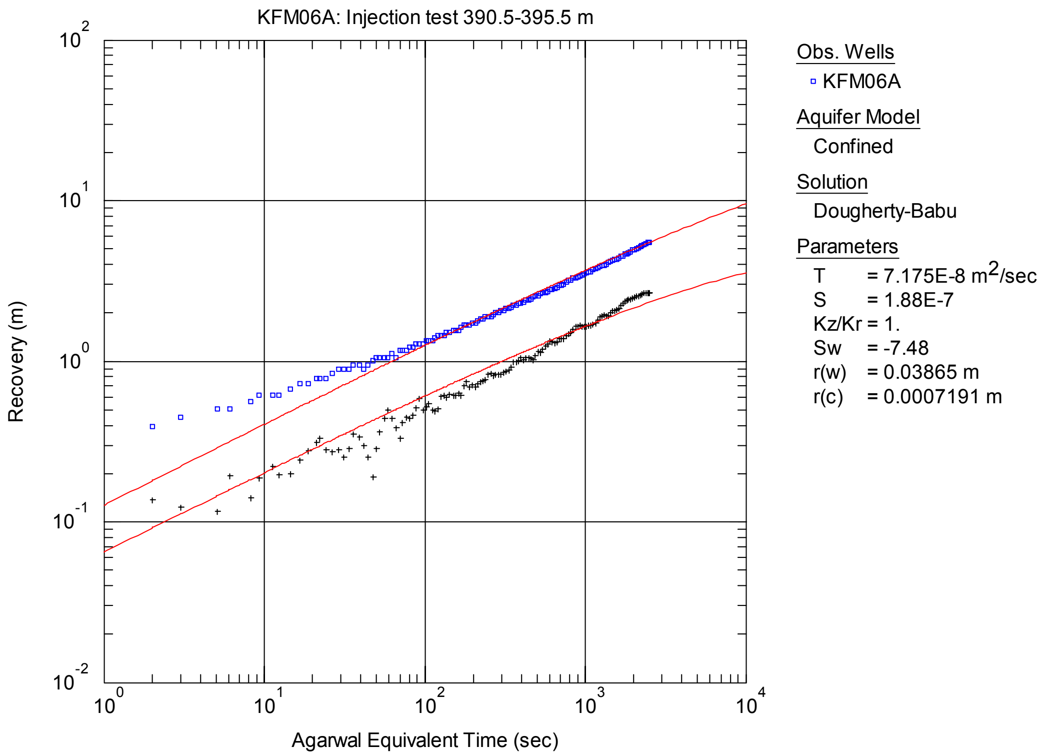


Figure A3-462. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 390.5-395.5 m in KFM06A.*

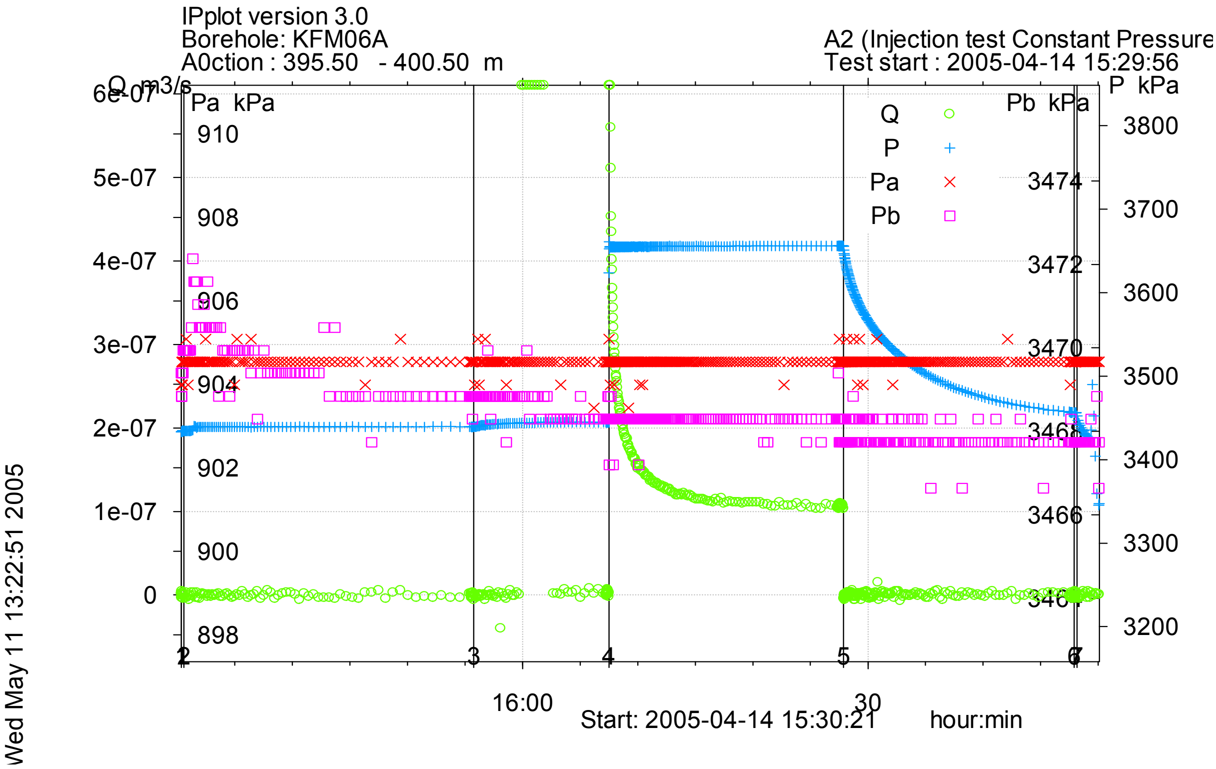


Figure A3-463. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 395.5-400.5 m in borehole KFM06A.*

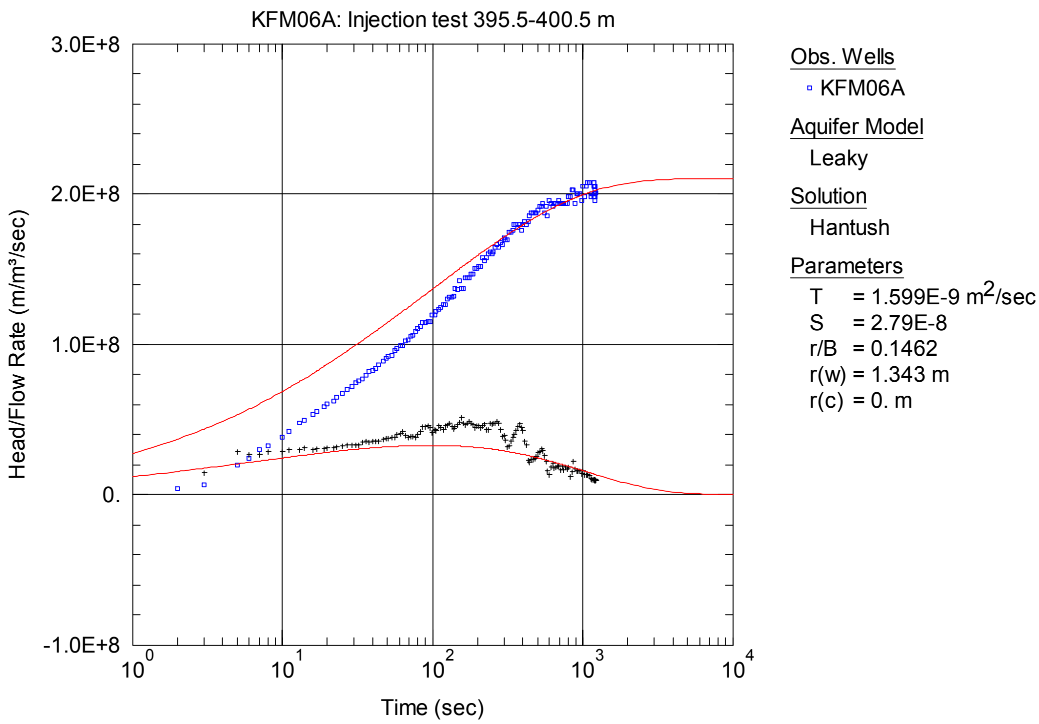


Figure A3-464. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 395.5-400.5 m in KFM06A.*

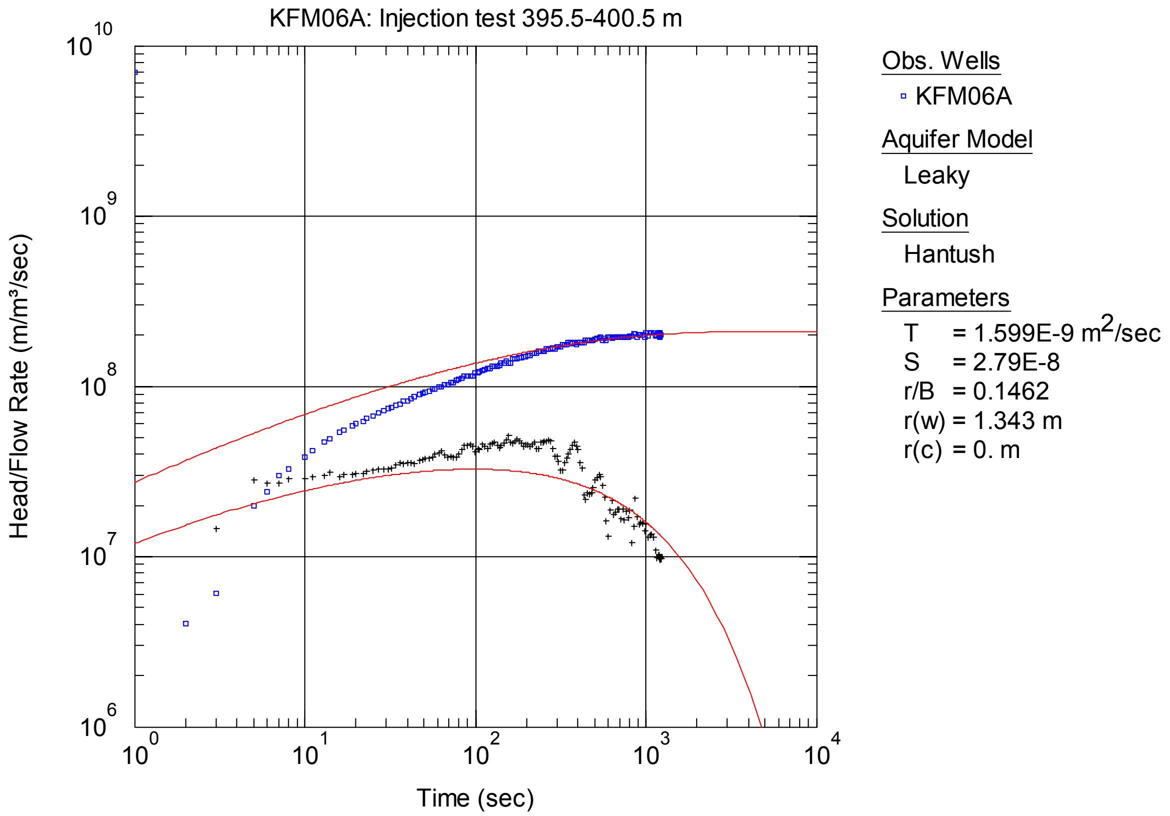


Figure A3-465. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 395.5-400.5 m in KFM06A.*

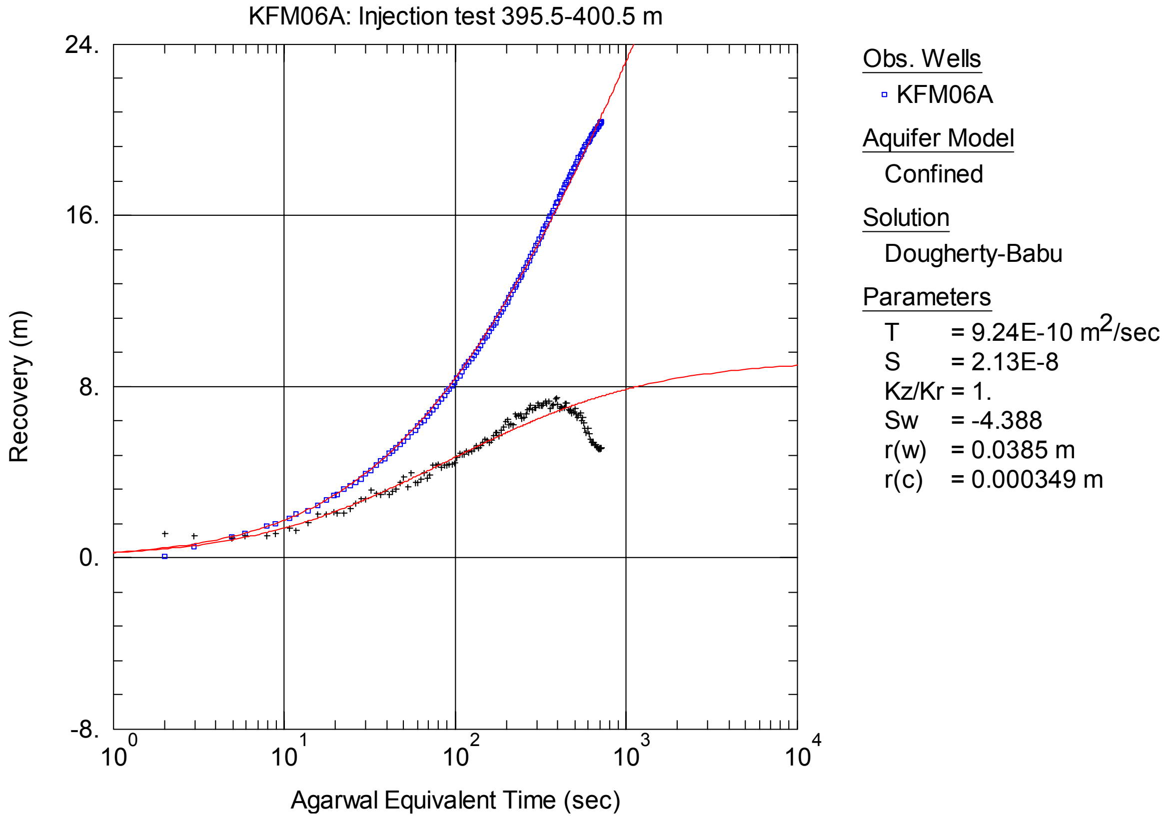


Figure A3-466. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 395.5-400.5 m in KFM06A.*

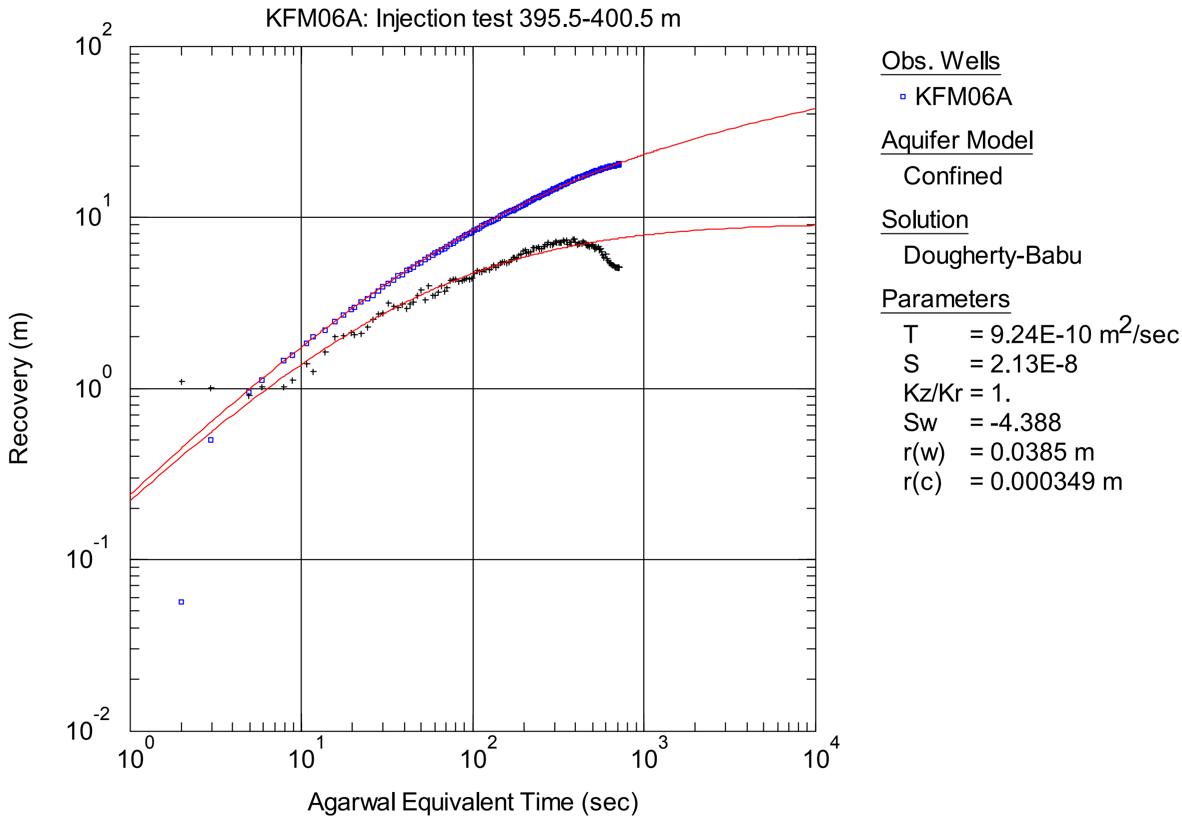


Figure A3-467. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 395.5-400.5 m in KFM06A.*

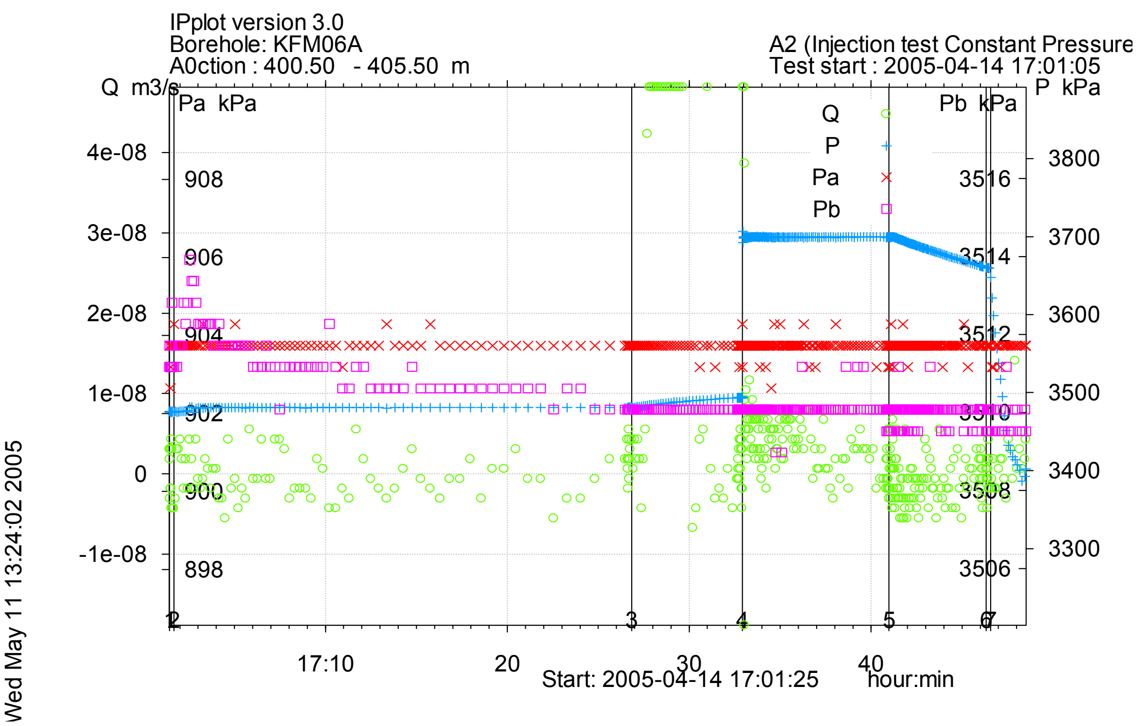


Figure A3-468. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 400.5-405.5 m in borehole KFM06A.*

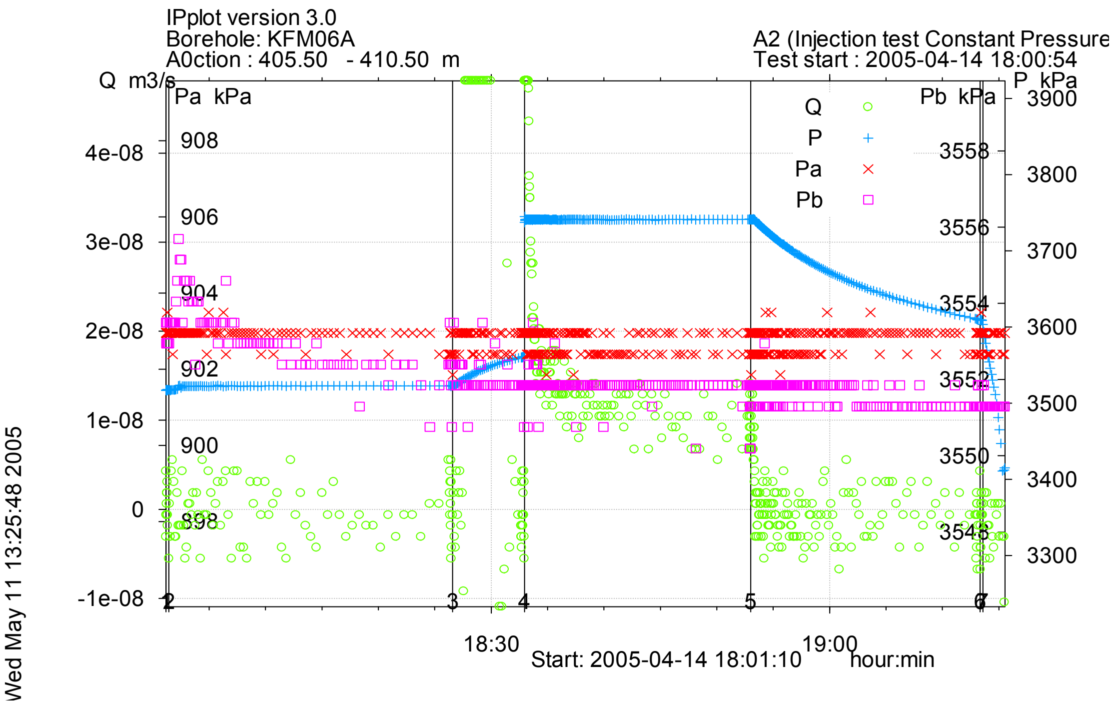


Figure A3-469. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 405.5-410.5 m in borehole KFM06A.*

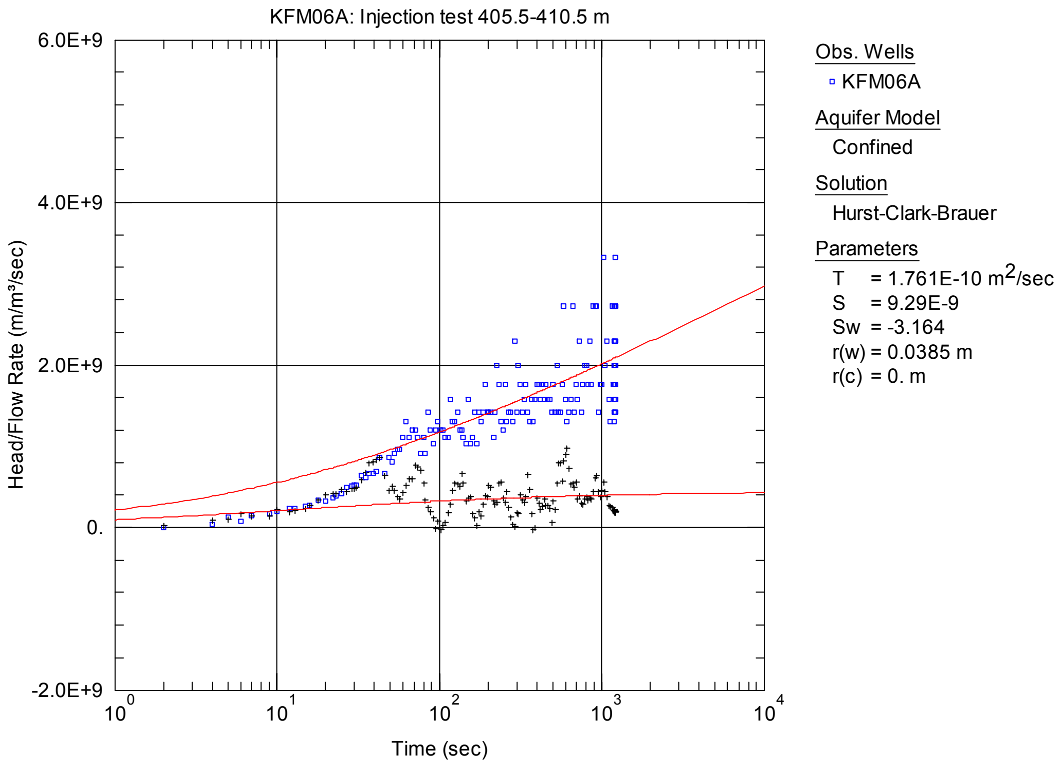


Figure A3-470. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 405.5-410.5 m in KFM06A.*

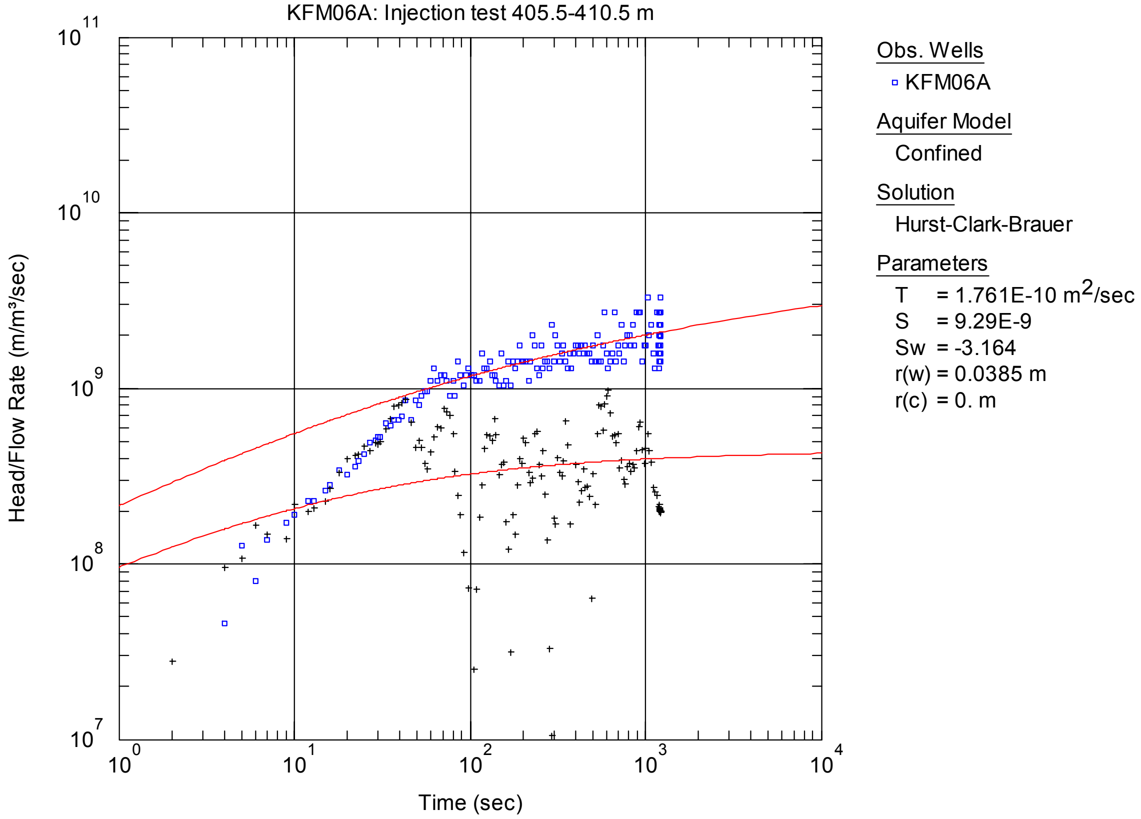


Figure A3-471. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 405.5-410.5 m in KFM06A.*

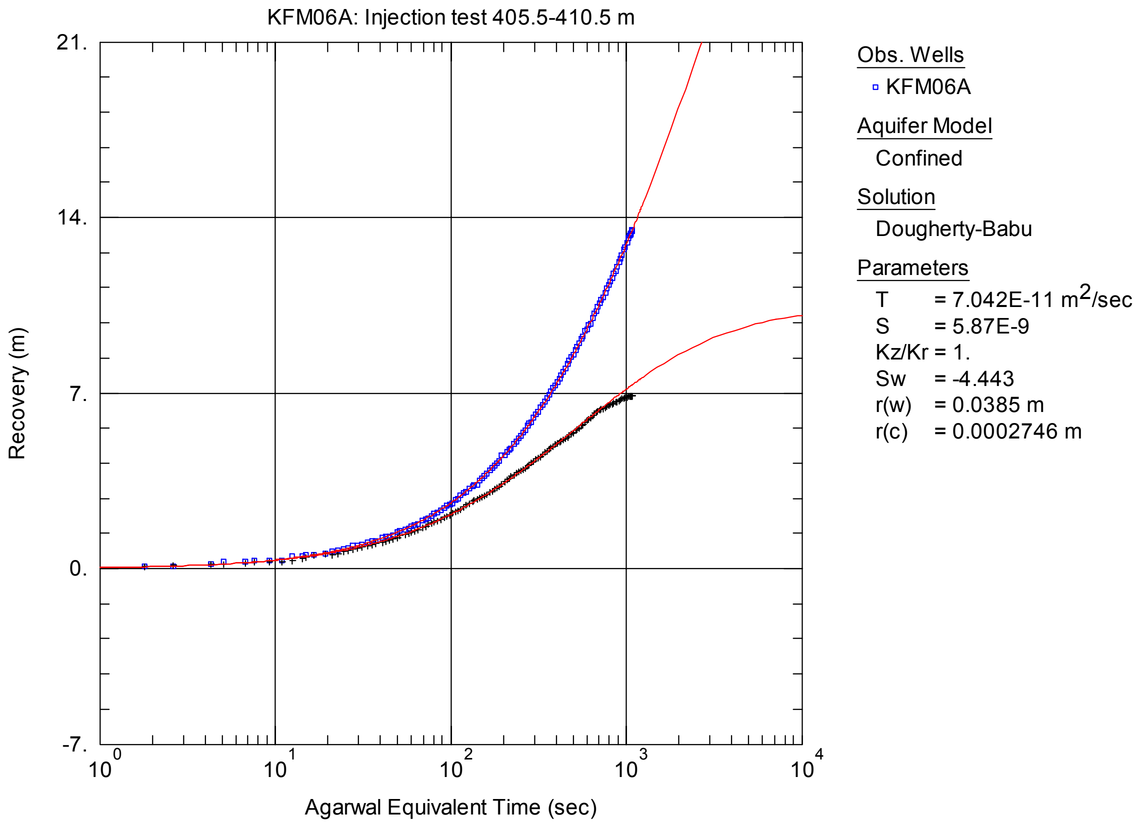


Figure A3-472. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 405.5-410.5 m in KFM06A.*

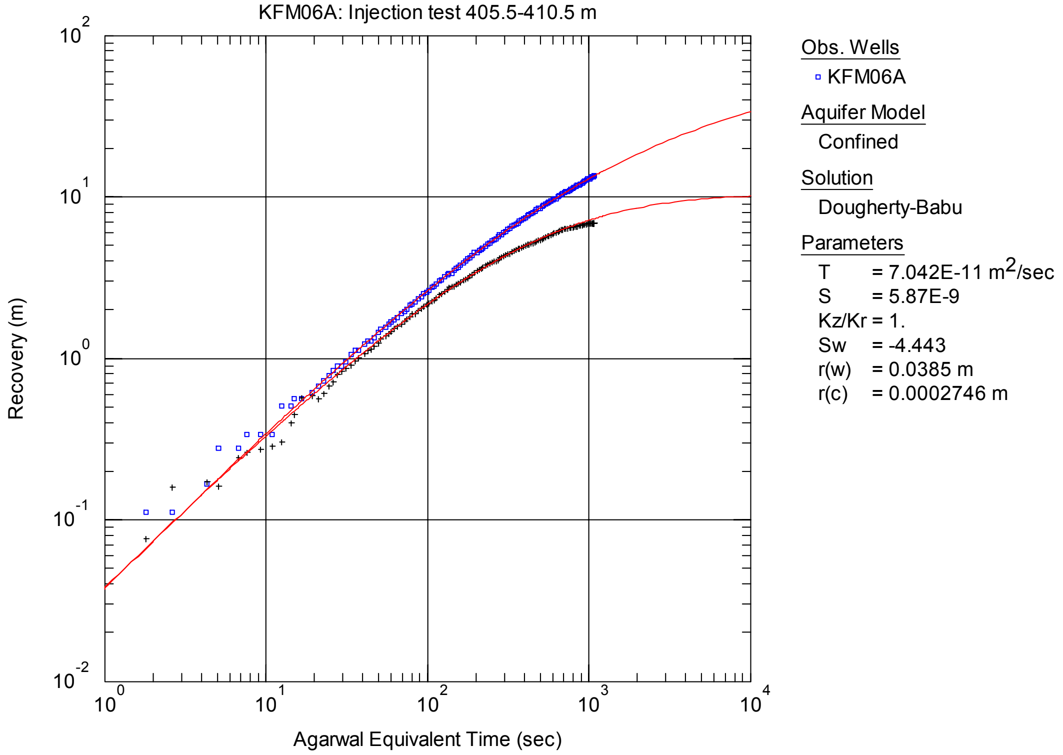


Figure A3-473. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 405.5-410.5 m in KFM06A.*

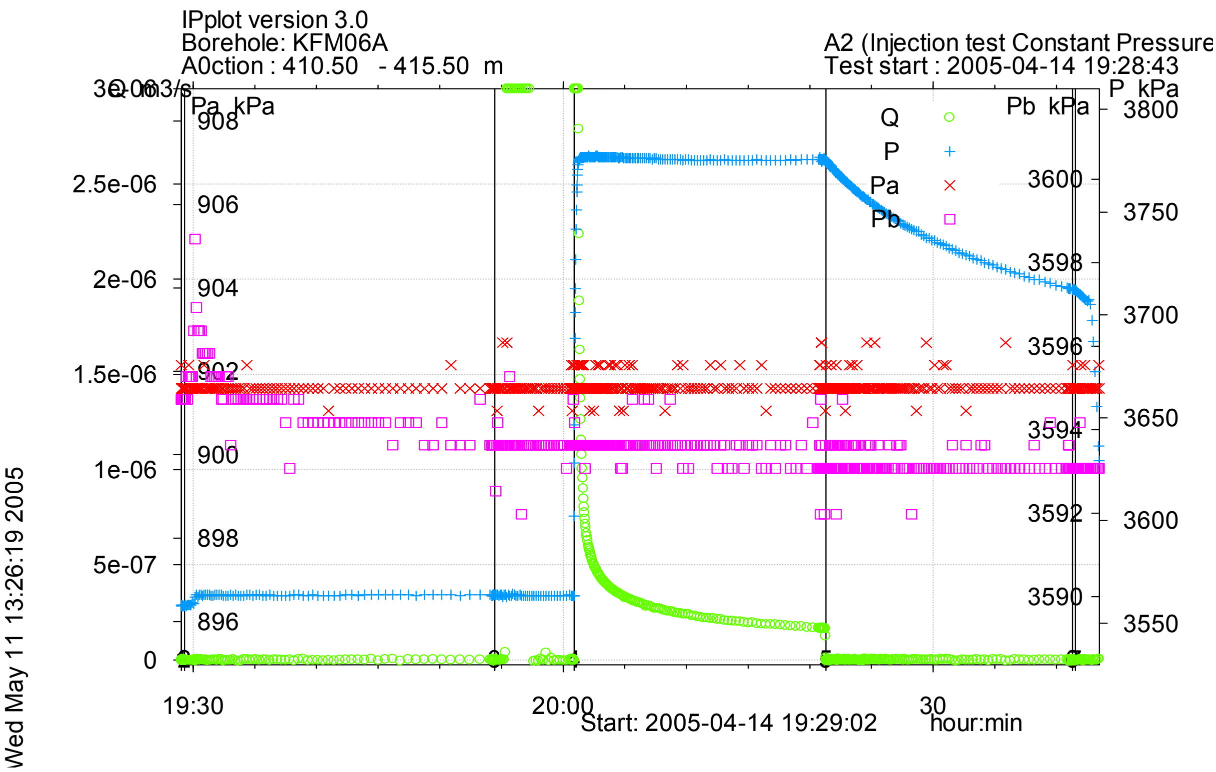


Figure A3-474. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 410.5-415.5 m in borehole KFM06A.*

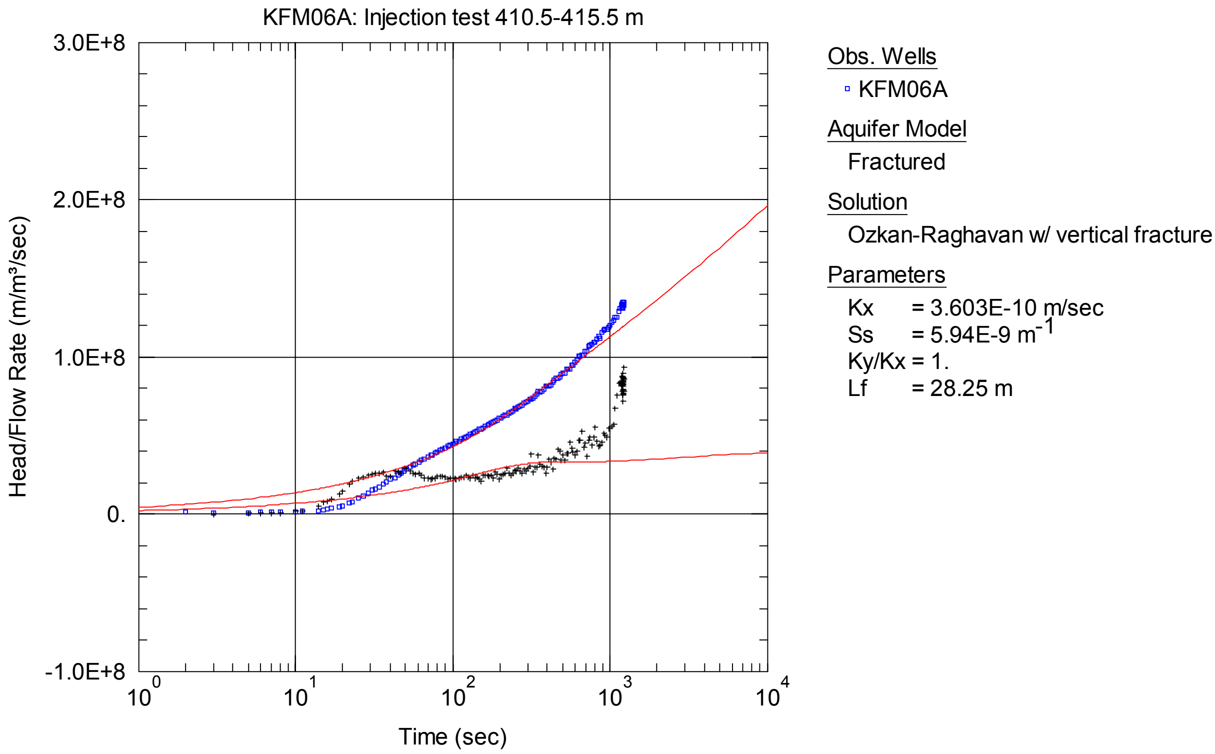


Figure A3-475. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 410.5-415.5 m in KFM06A*

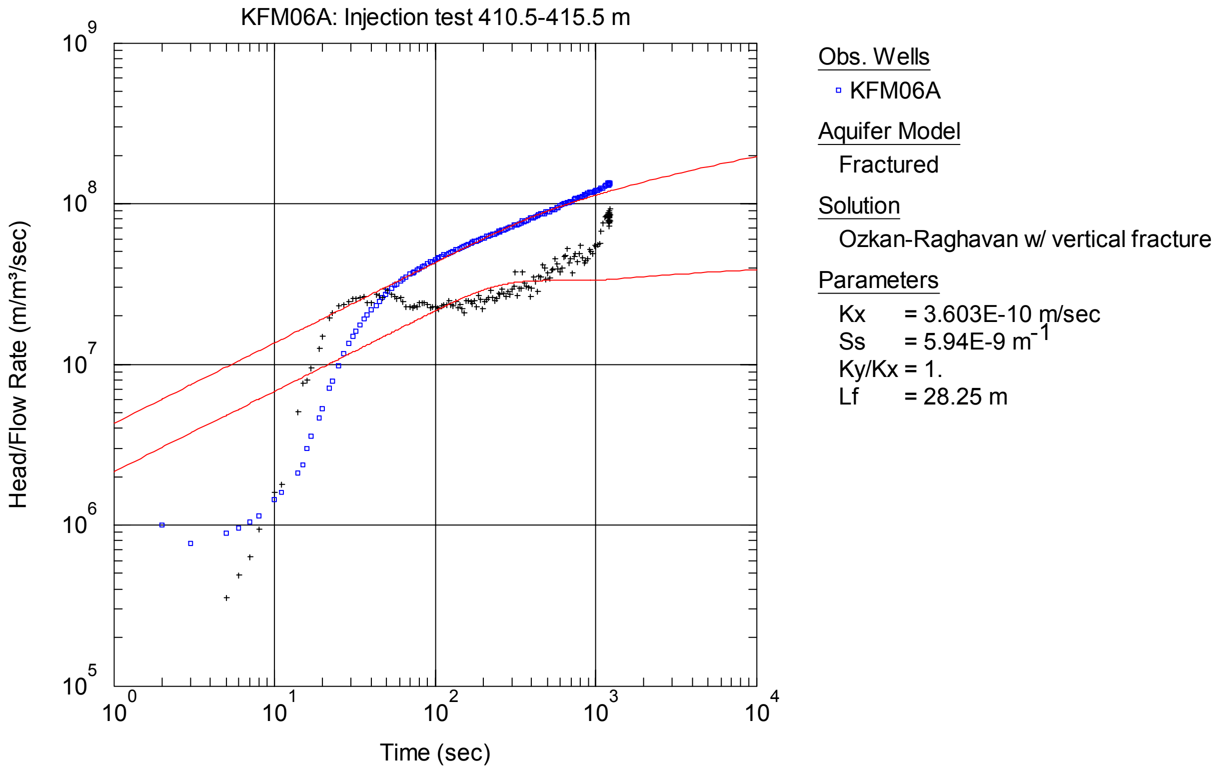


Figure A3-476. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 410.5-415.5 m in KFM06A.*

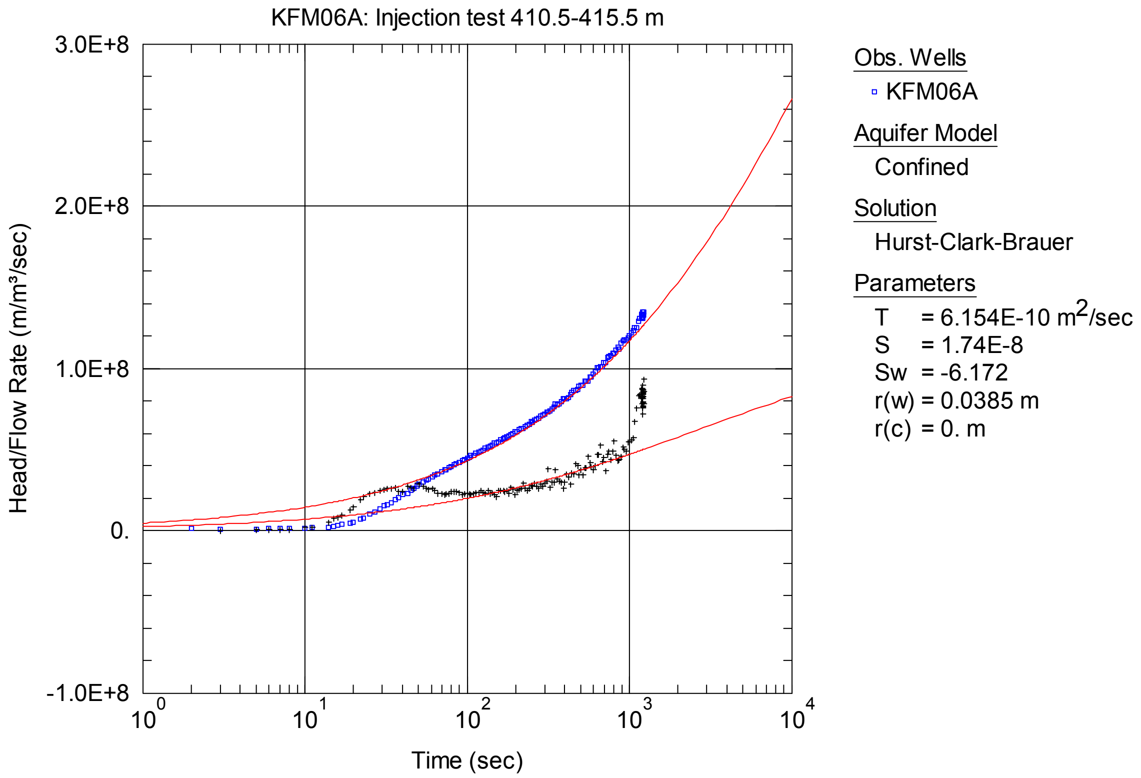


Figure A3-477. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 410.5-415.5 m in KFM06A.*

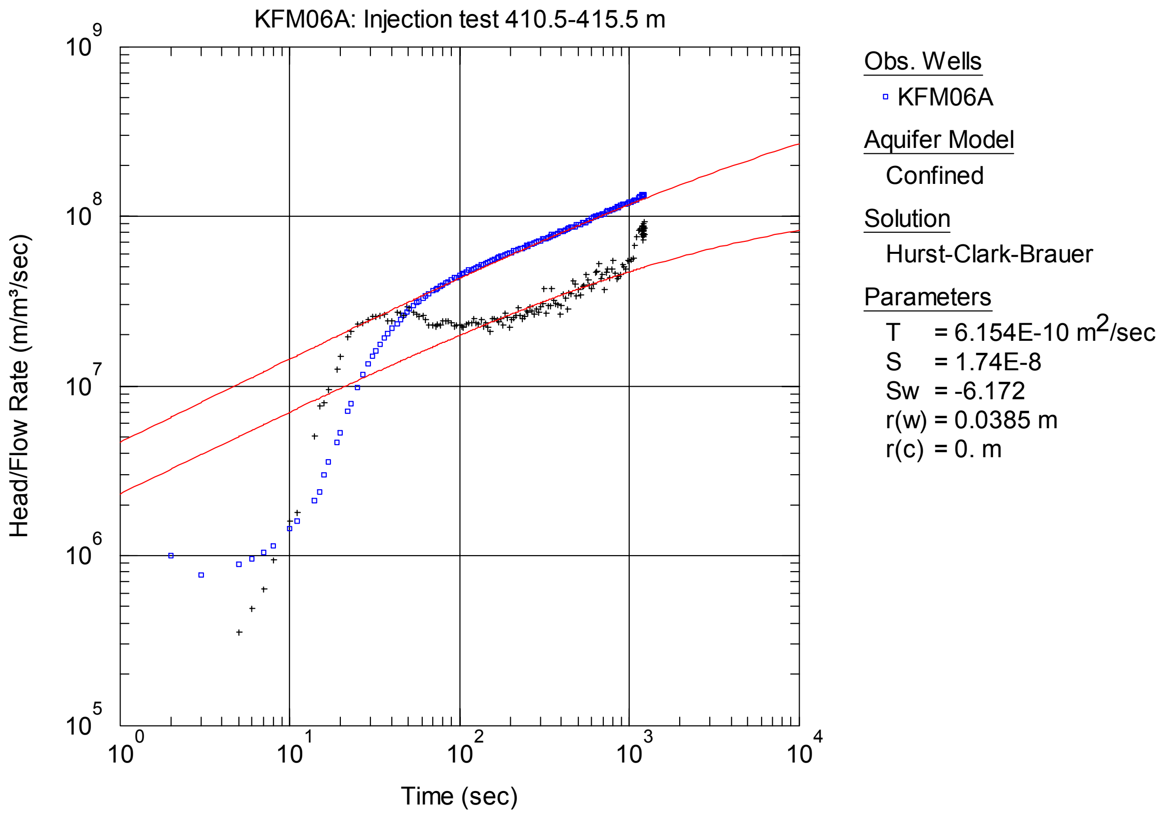


Figure A3-478. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 410.5-415.5 m in KFM06A.*

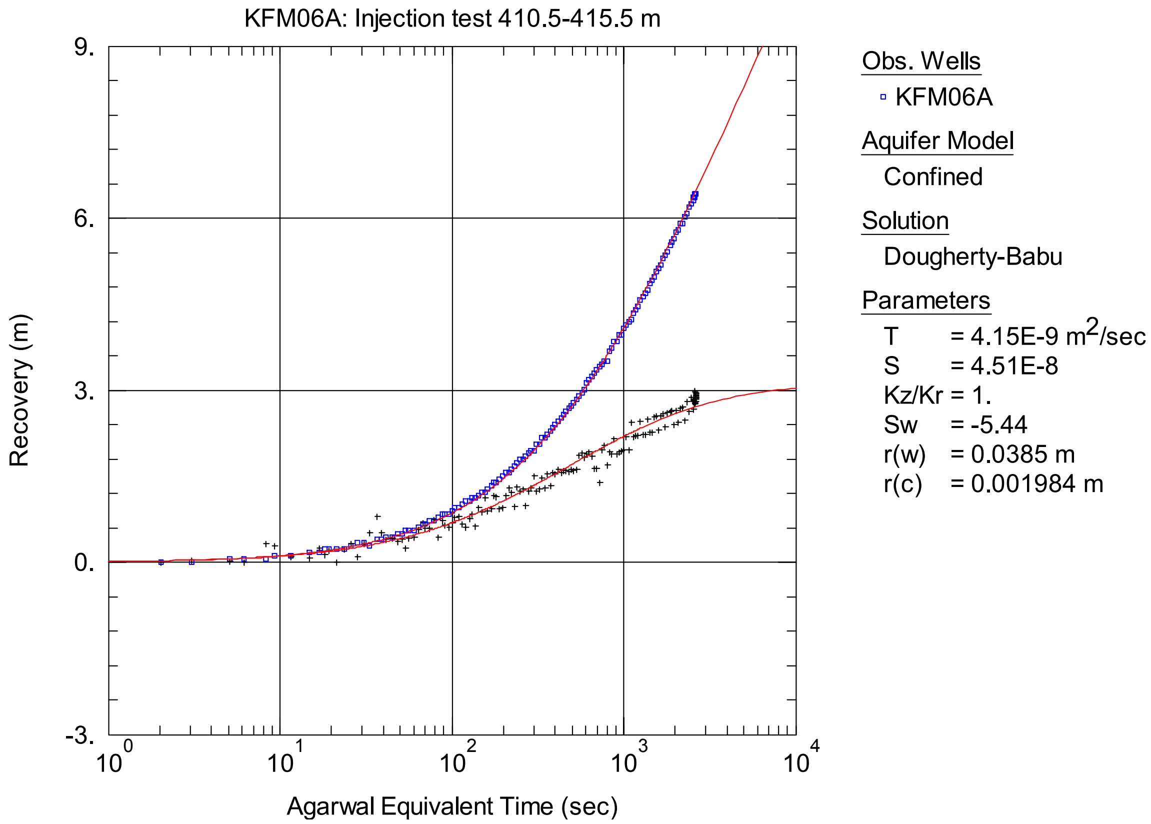


Figure A3-479. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 410.5-415.5 m in KFM06A.*

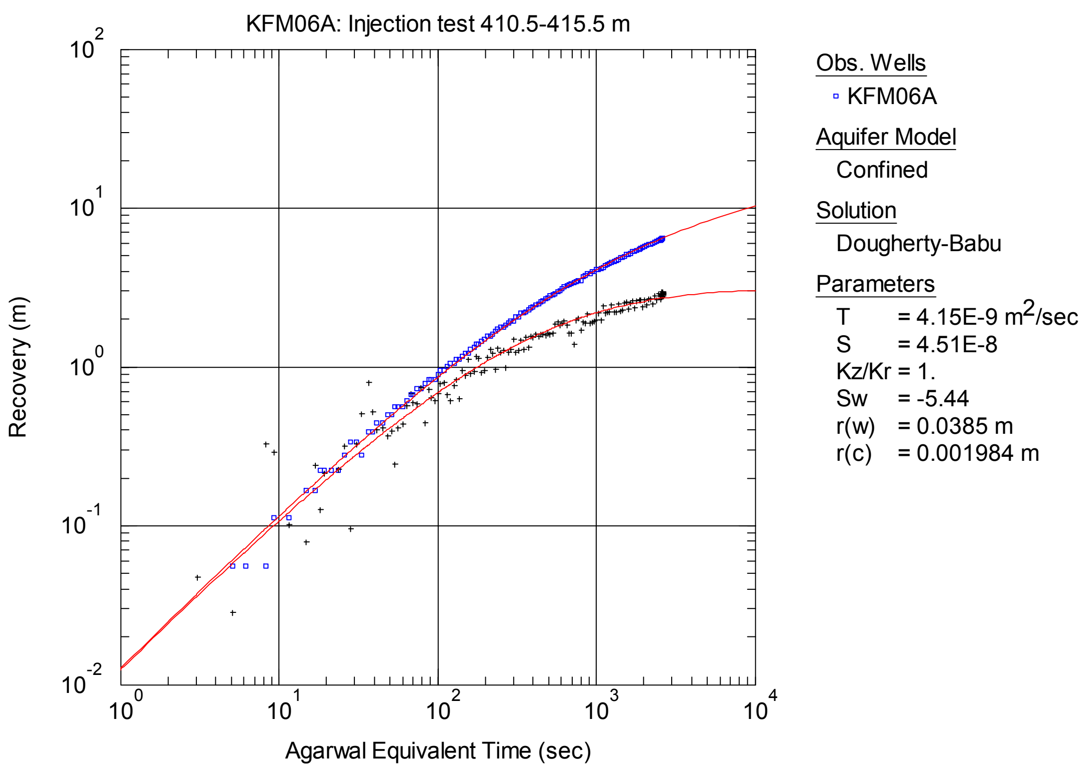


Figure A3-480. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 410.5-415.5 m in KFM06A.*

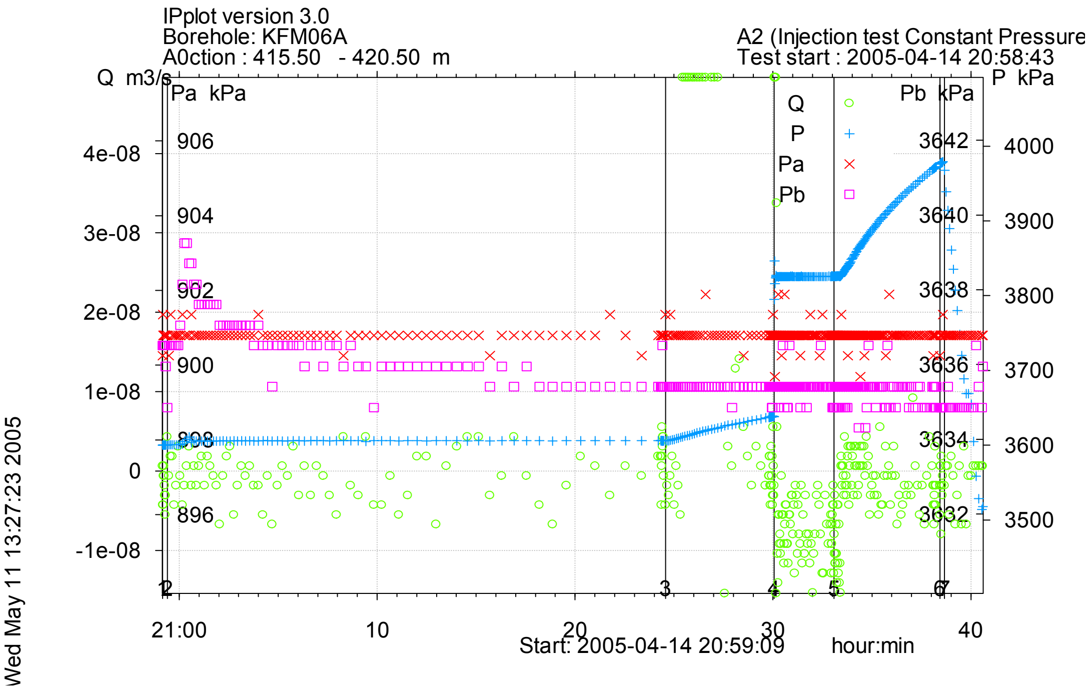


Figure A3-481. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 415.5-420.5 m in borehole KFM06A.*

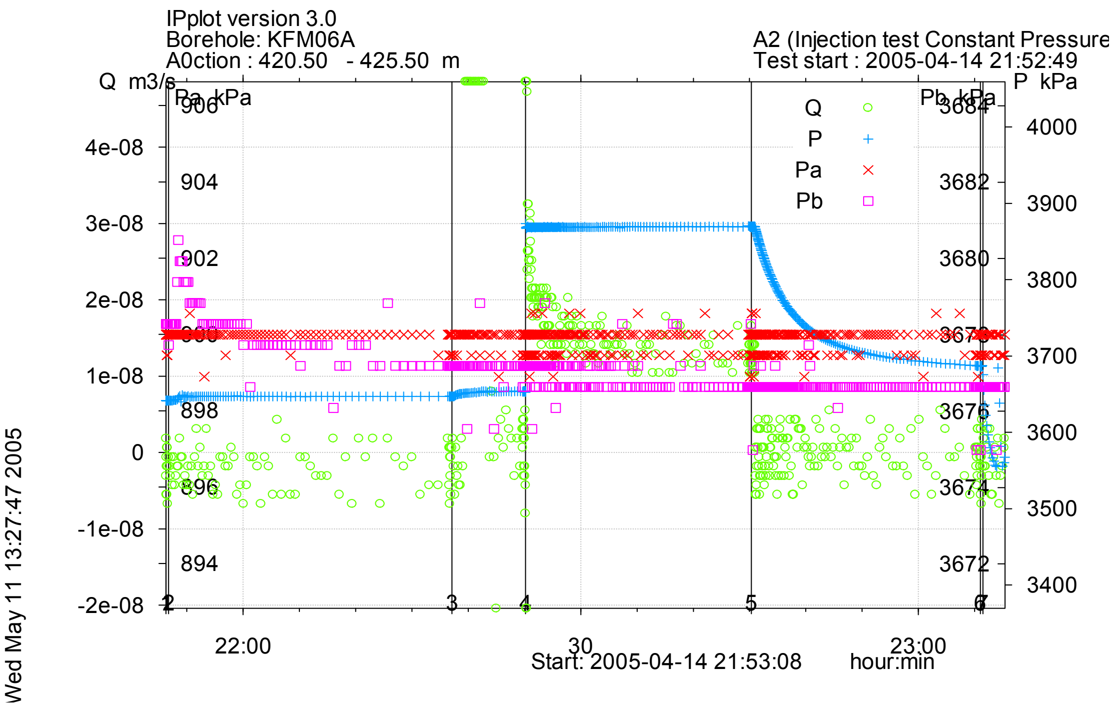


Figure A3-482. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 420.5-425.5 m in borehole KFM06A.*

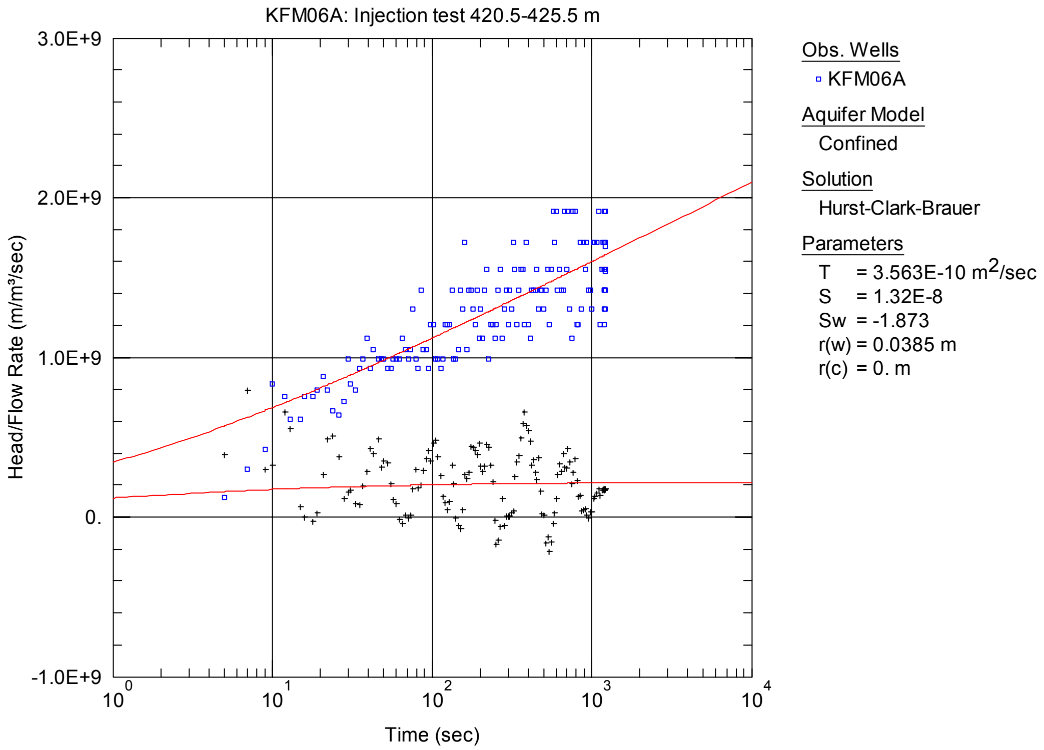


Figure A3-483. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 420.5-425.5 m in KFM06A.*

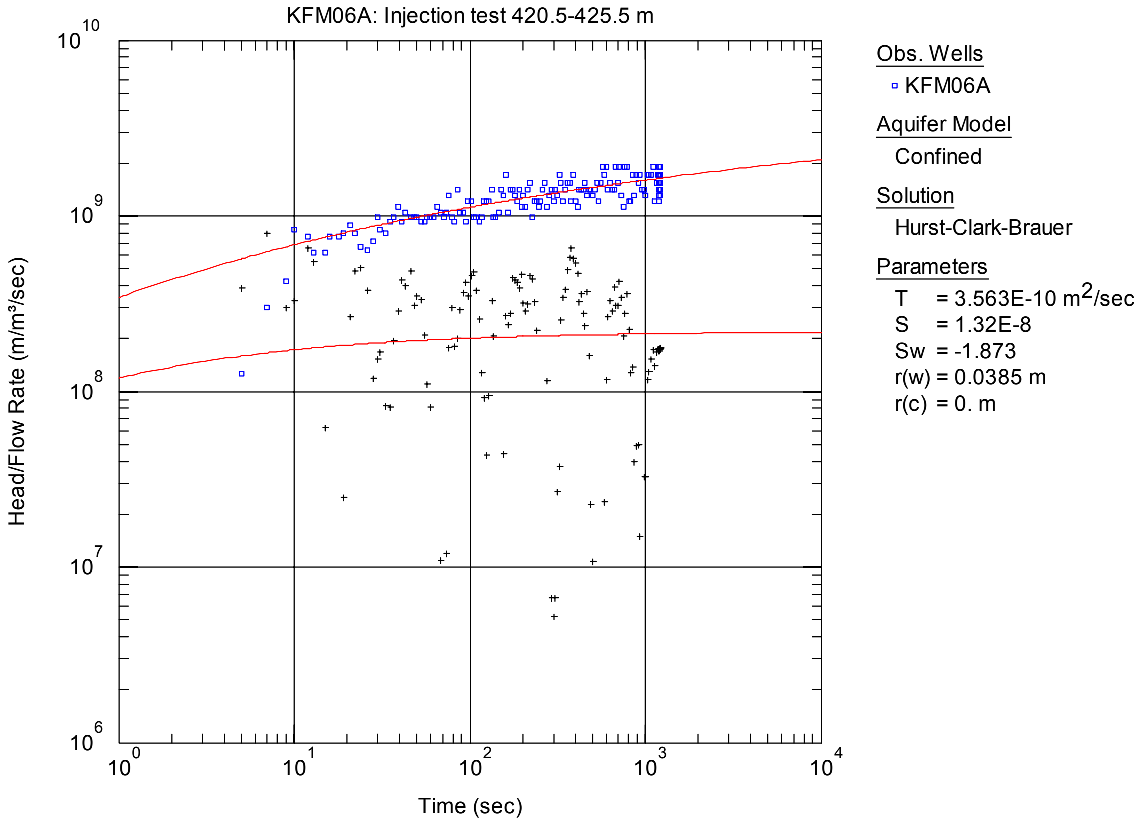


Figure A3-484. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 420.5-425.5 m in KFM06A.*

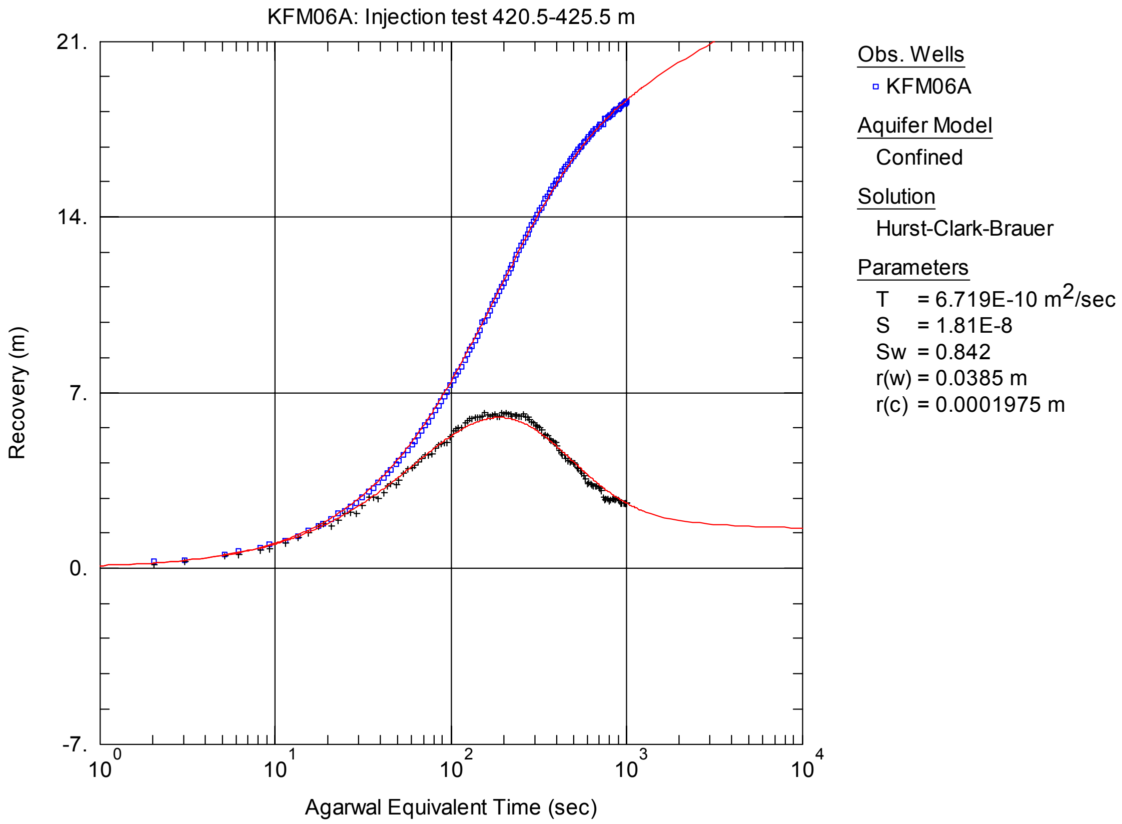


Figure A3-485. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 420.5-425.5 m in KFM06A.*

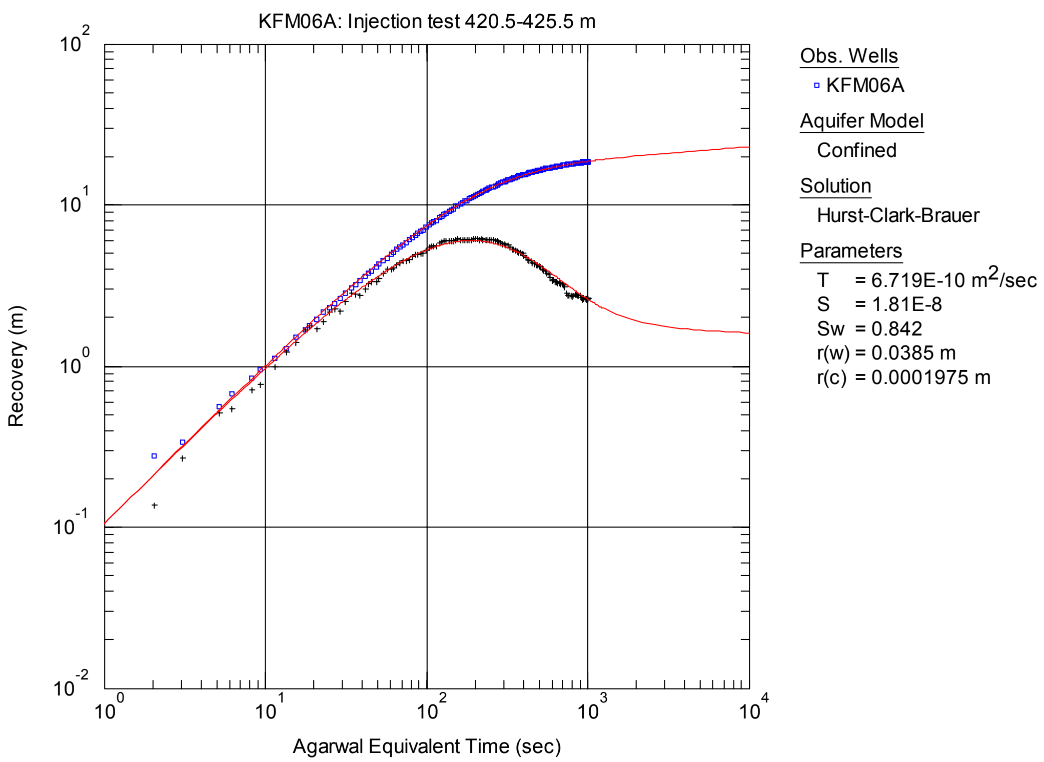


Figure A3-486. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 420.5-425.5 m in KFM06A.*

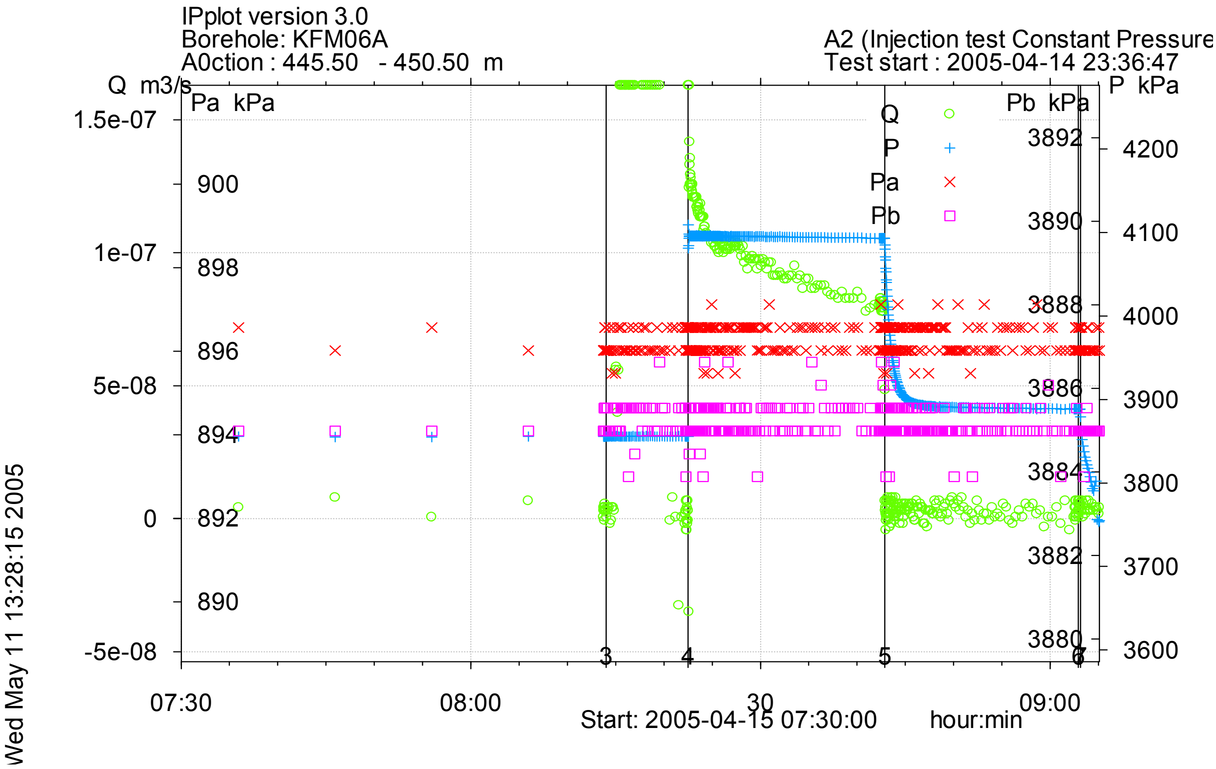


Figure A3-487. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 445.5-450.5 m in borehole KFM06A.

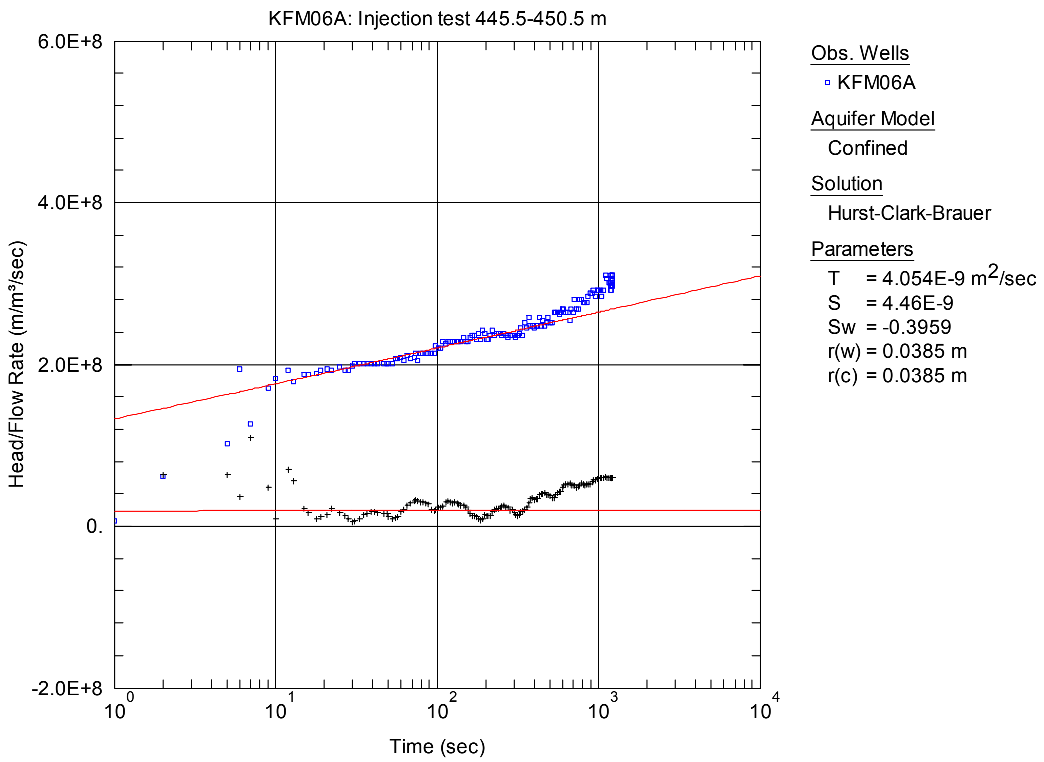


Figure A3-488. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 445.5-450.5 m in KFM06A.

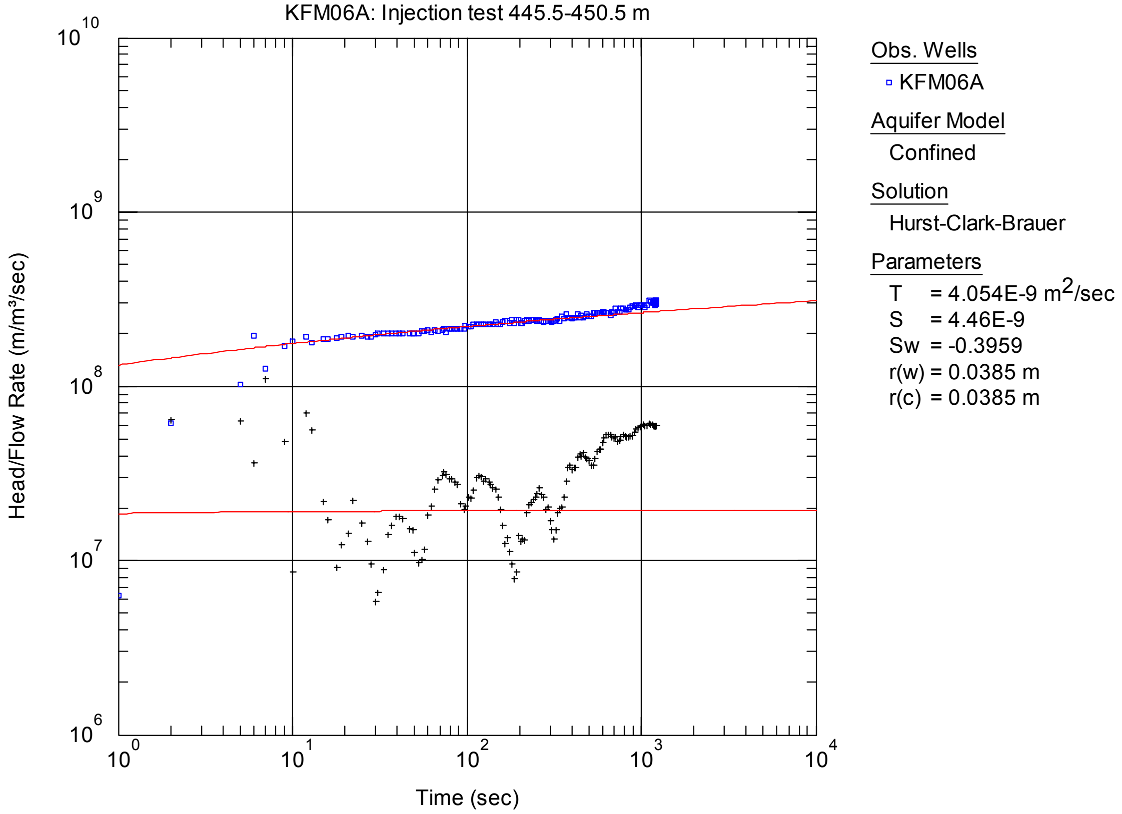


Figure A3-489. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 445.5-450.5 m in KFM06A.*

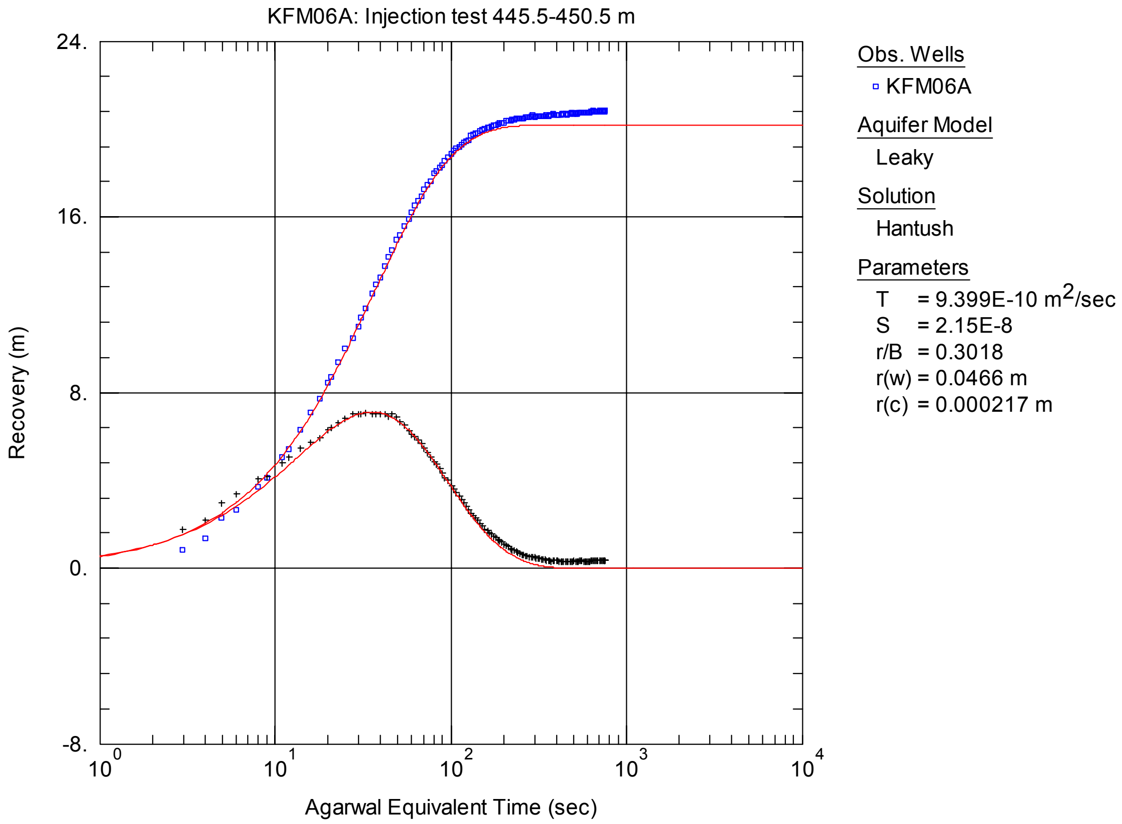


Figure A3-490. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 445.5-450.5 m in KFM06A.*

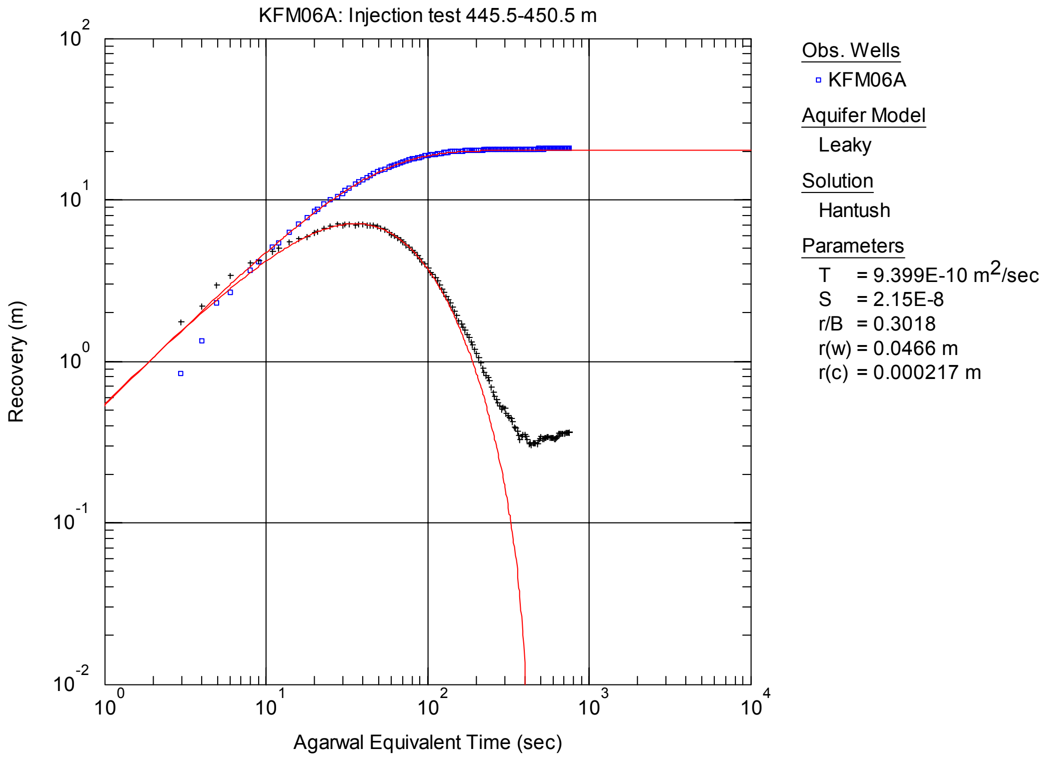


Figure A3-491. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 445.5-450.5 m in KFM06A.*

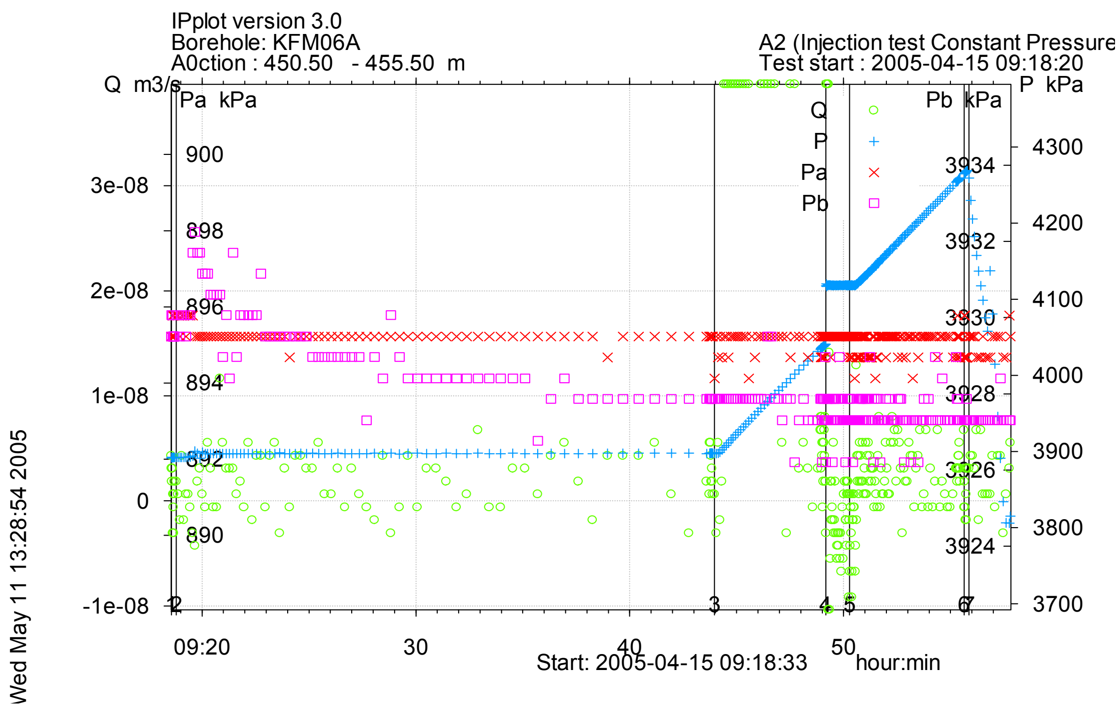


Figure A3-492. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 450.5-455.5m in borehole KFM06A.*

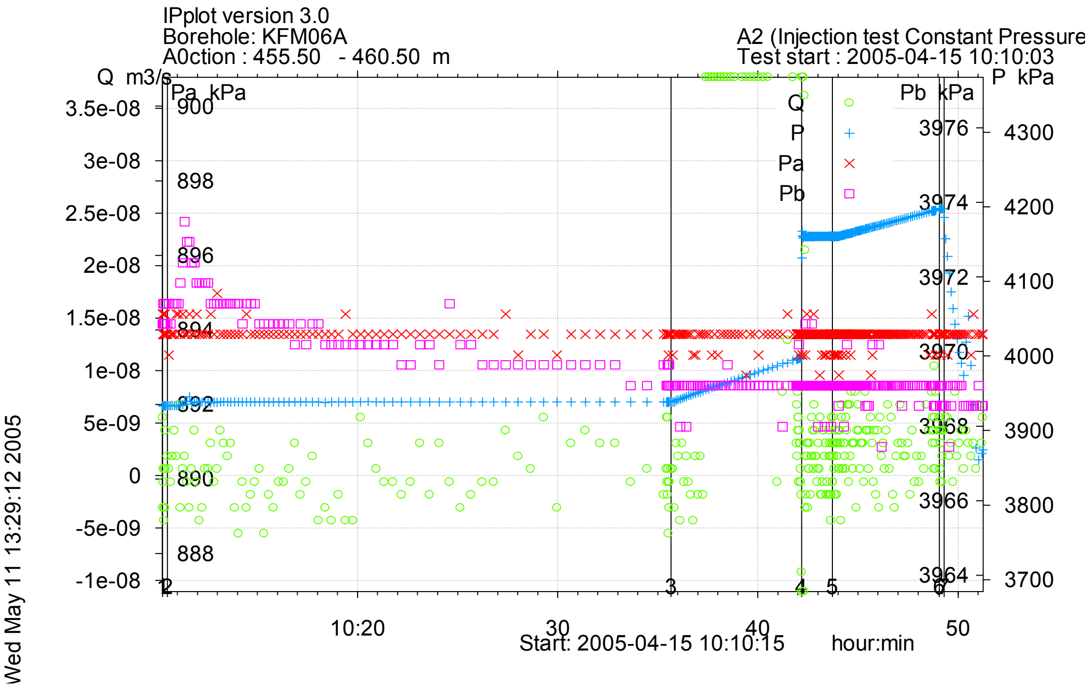


Figure A3-493. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 455.5-460.5 m in borehole KFM06A.*

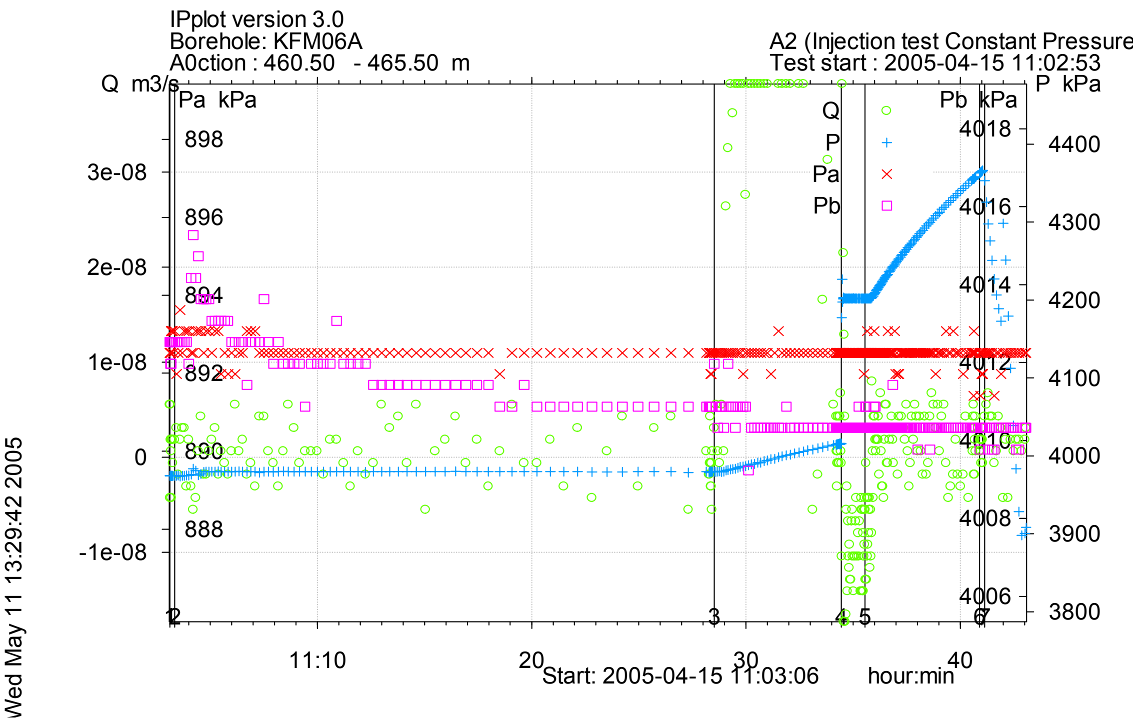


Figure A3-494. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 460.5-465.5 m in borehole KFM06A.*

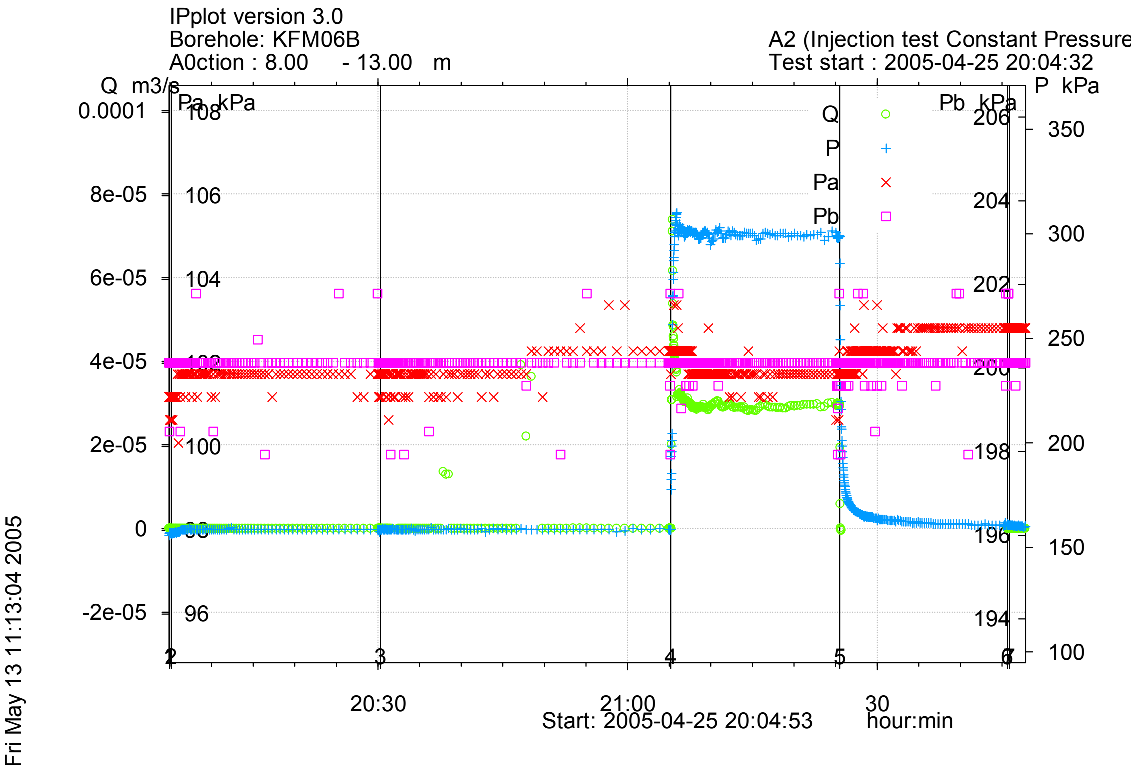


Figure A3-495. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 8.0-13.0 m in borehole KFM06B.*

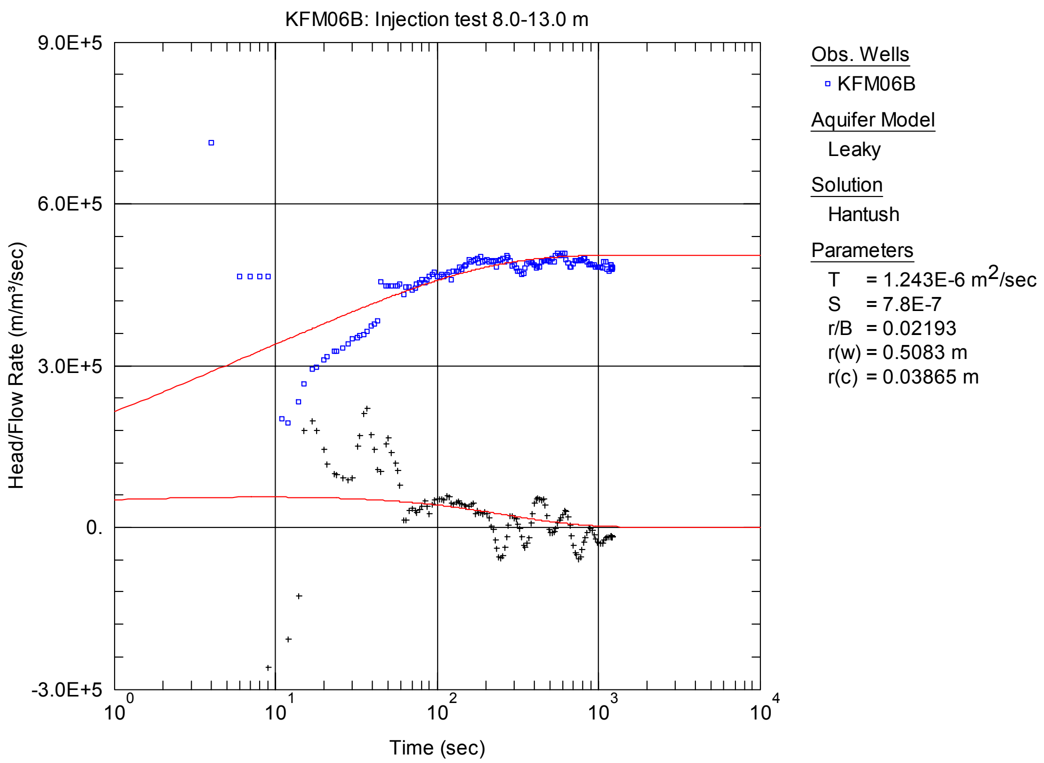


Figure A3-496. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 8.0-13.0 m in KFM06B.*

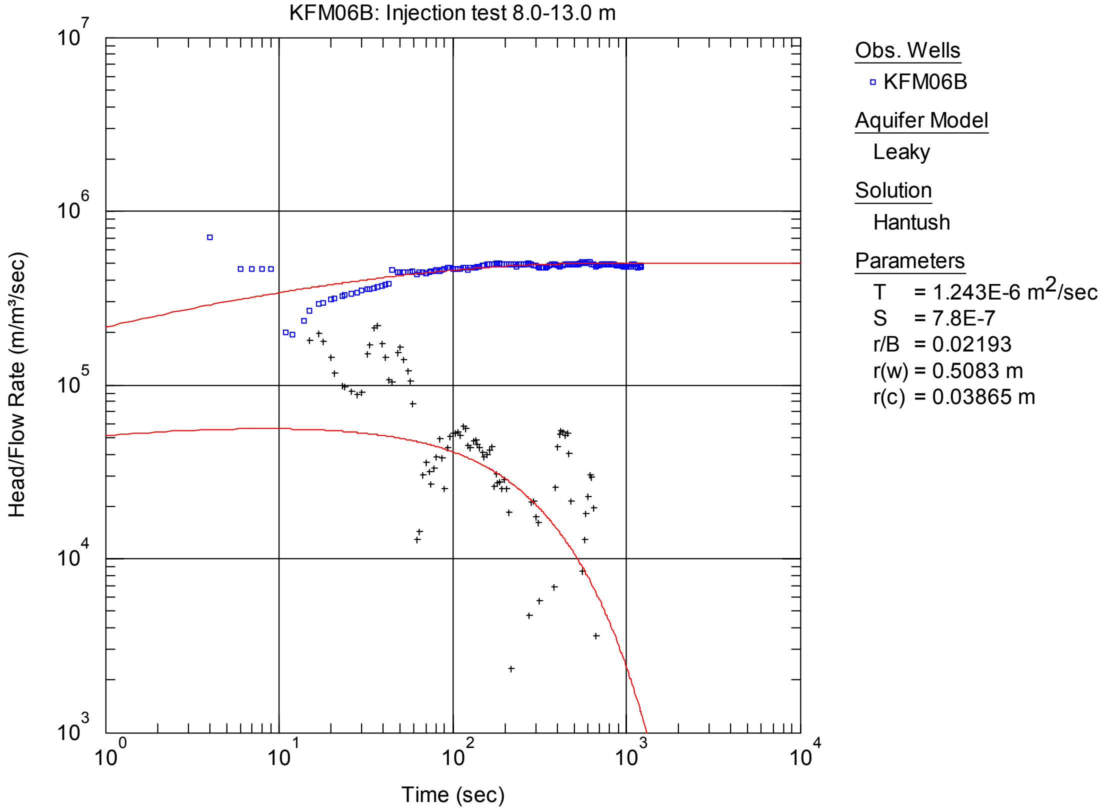


Figure A3-497. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 8.0-13.0 m in KFM06B.*

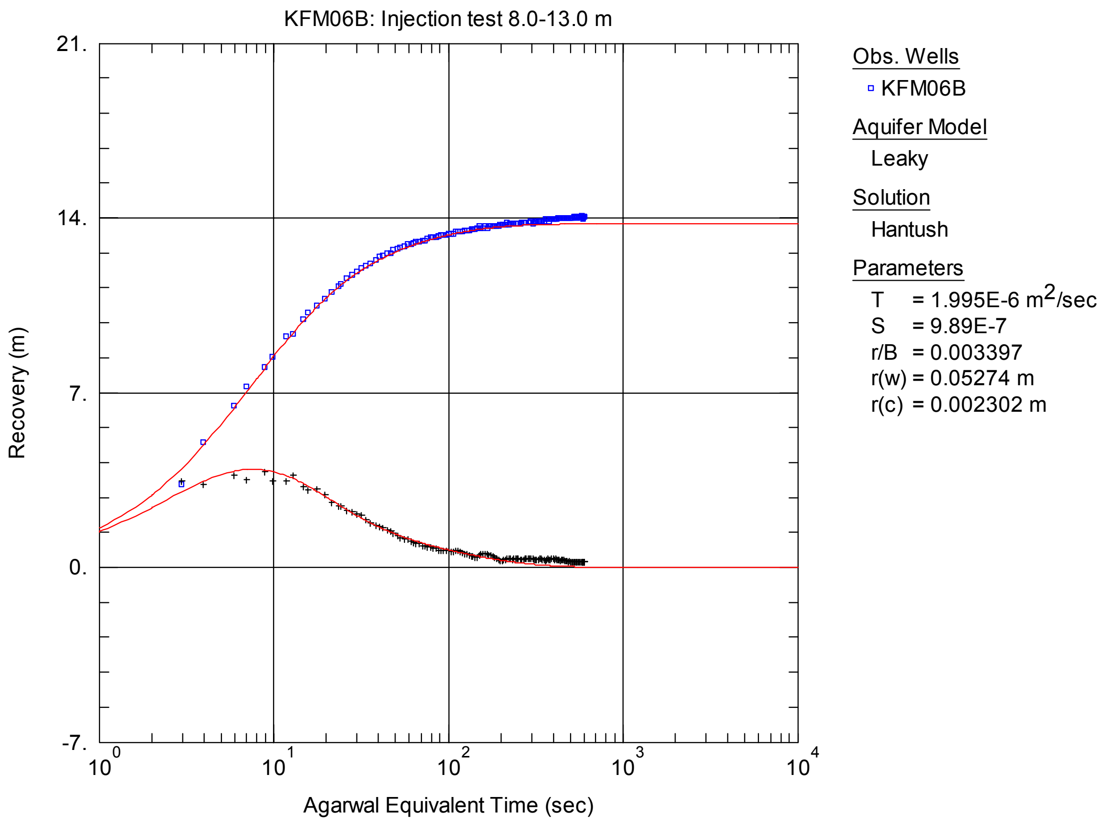


Figure A3-498. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 8.0-13.0 m in KFM06B.*

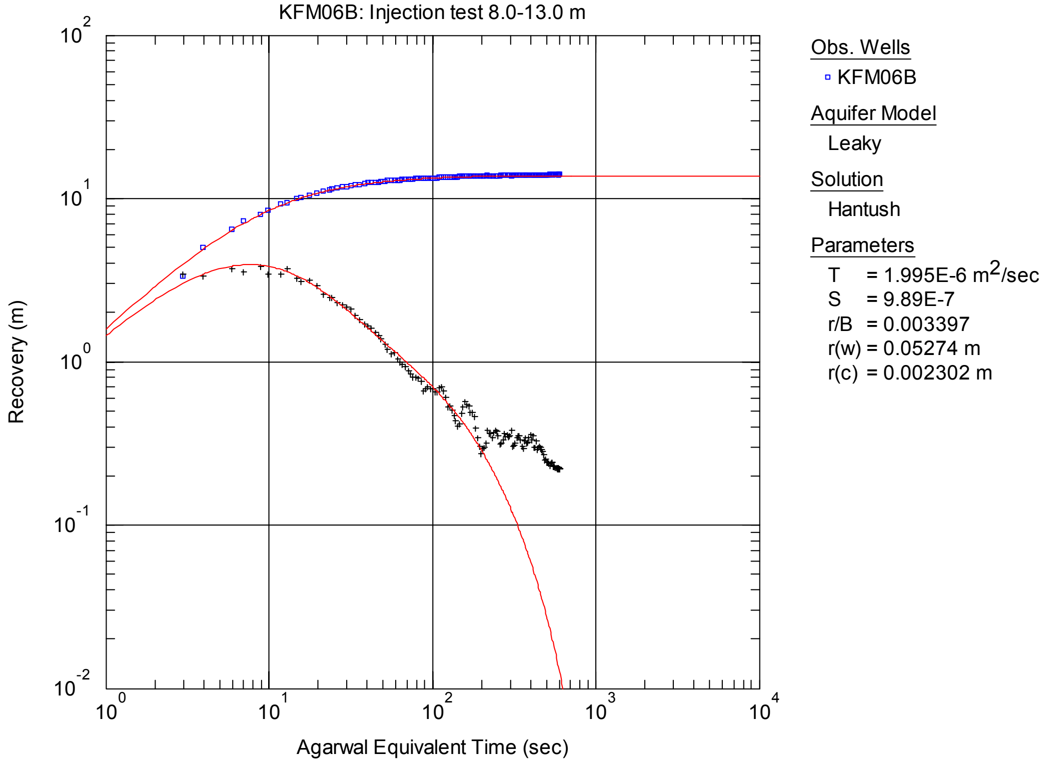


Figure A3-499. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 8.0-13.0 m in KFM06B.*

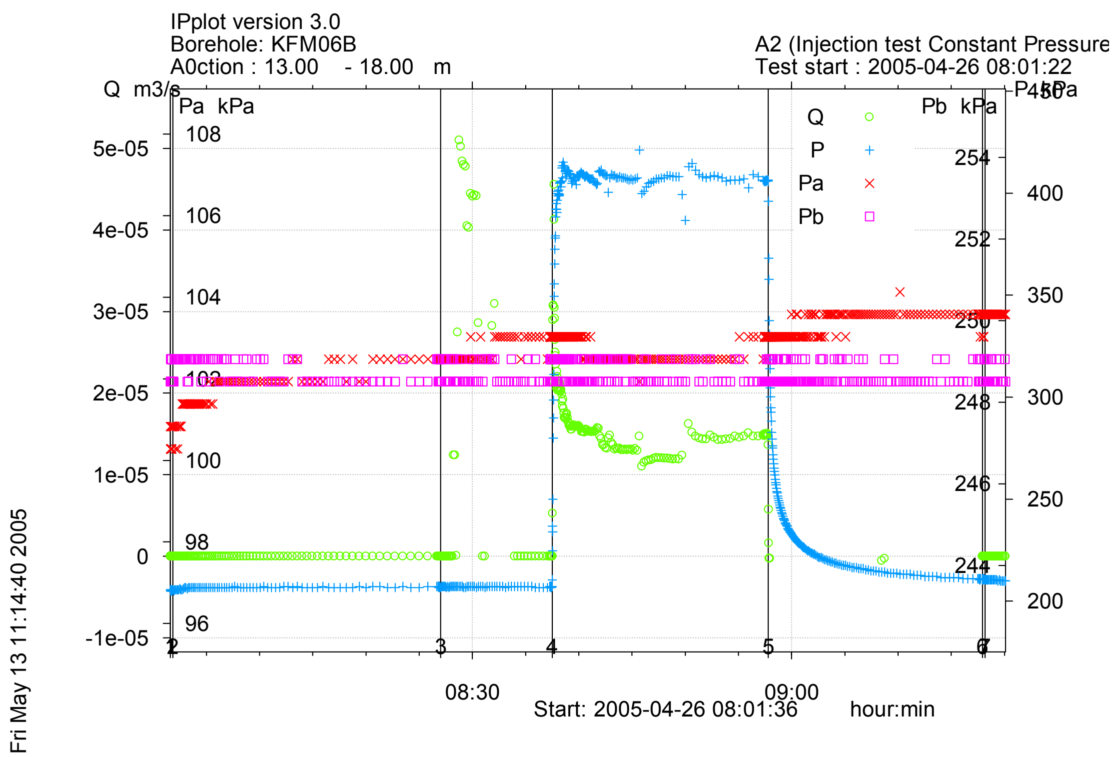


Figure A3-500. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 13.0-18.0 m in borehole KFM06B.*

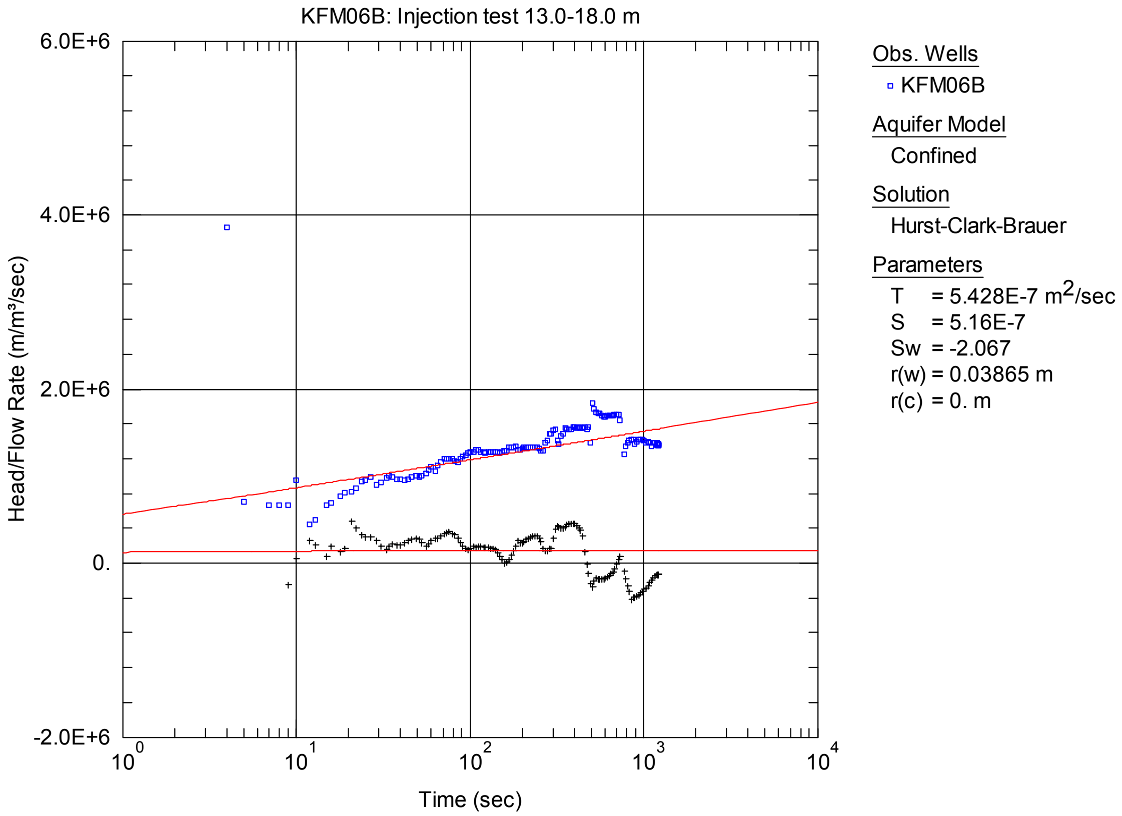


Figure A3-501. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 13.0-18.0 m in KFM06B.*

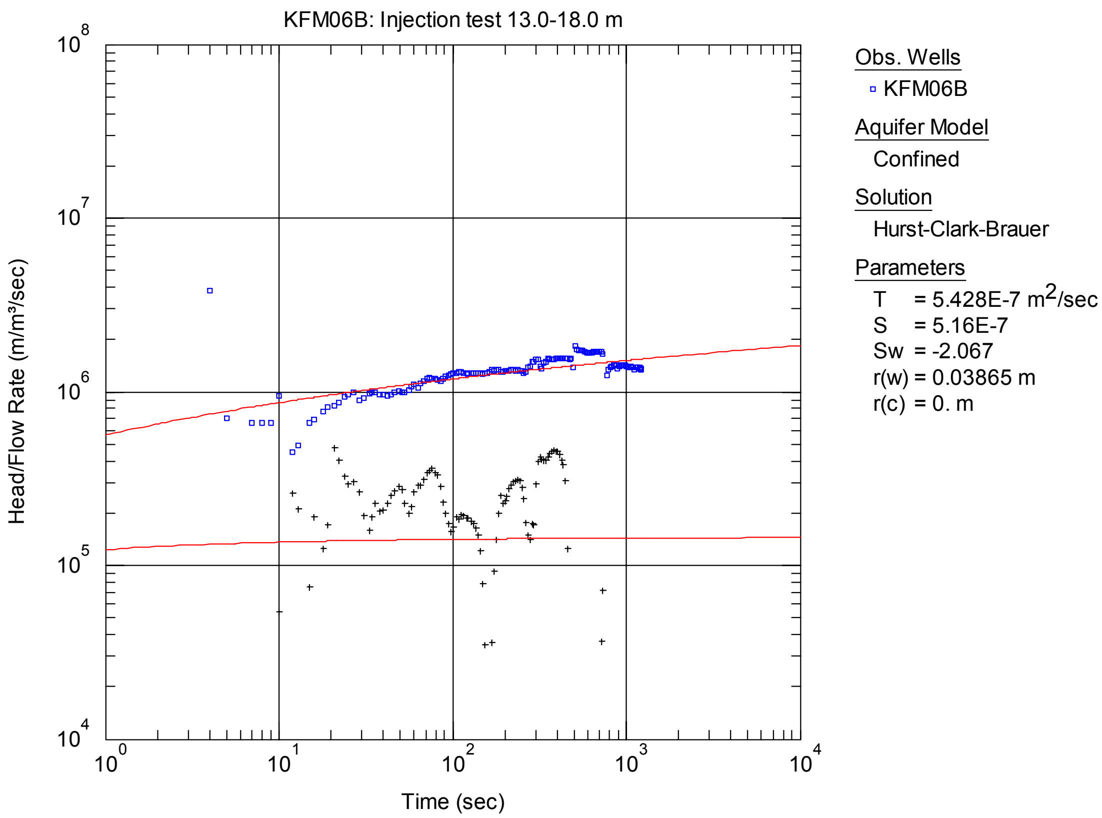


Figure A3-502. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 13.0-18.0 m in KFM06B.*

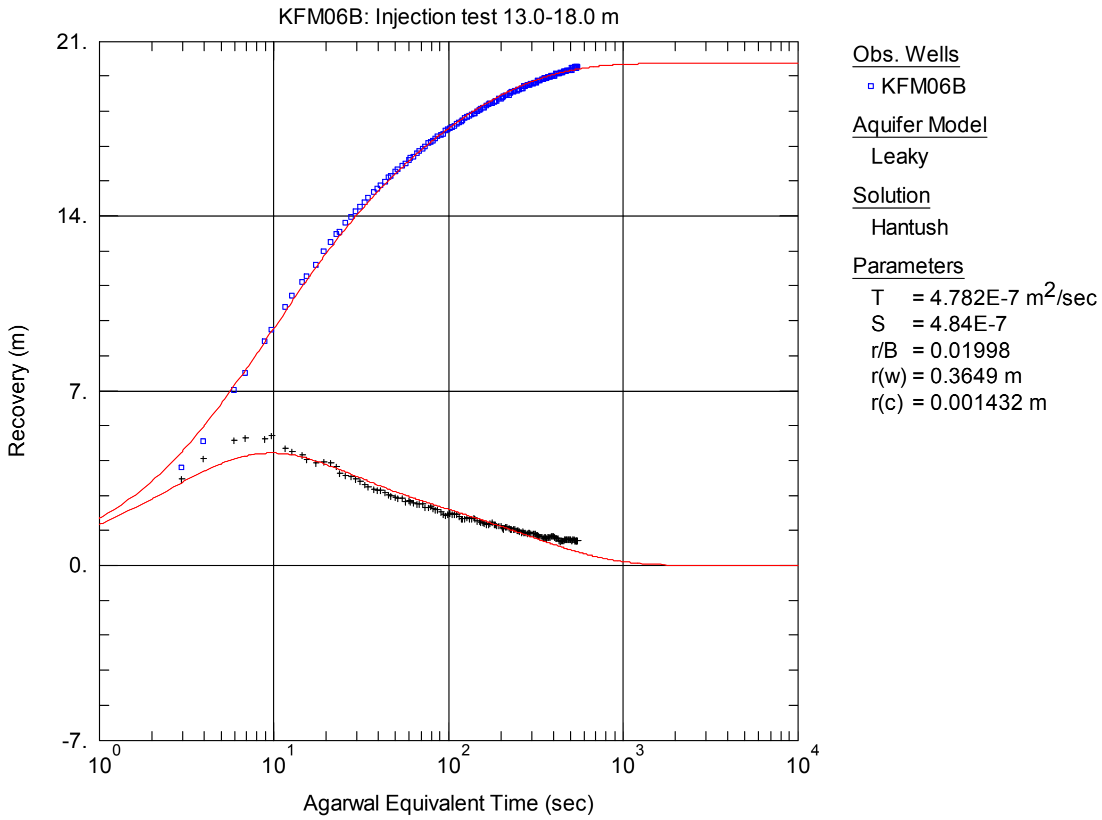


Figure A3-503. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 13.0-18.0 m in KFM06B.*

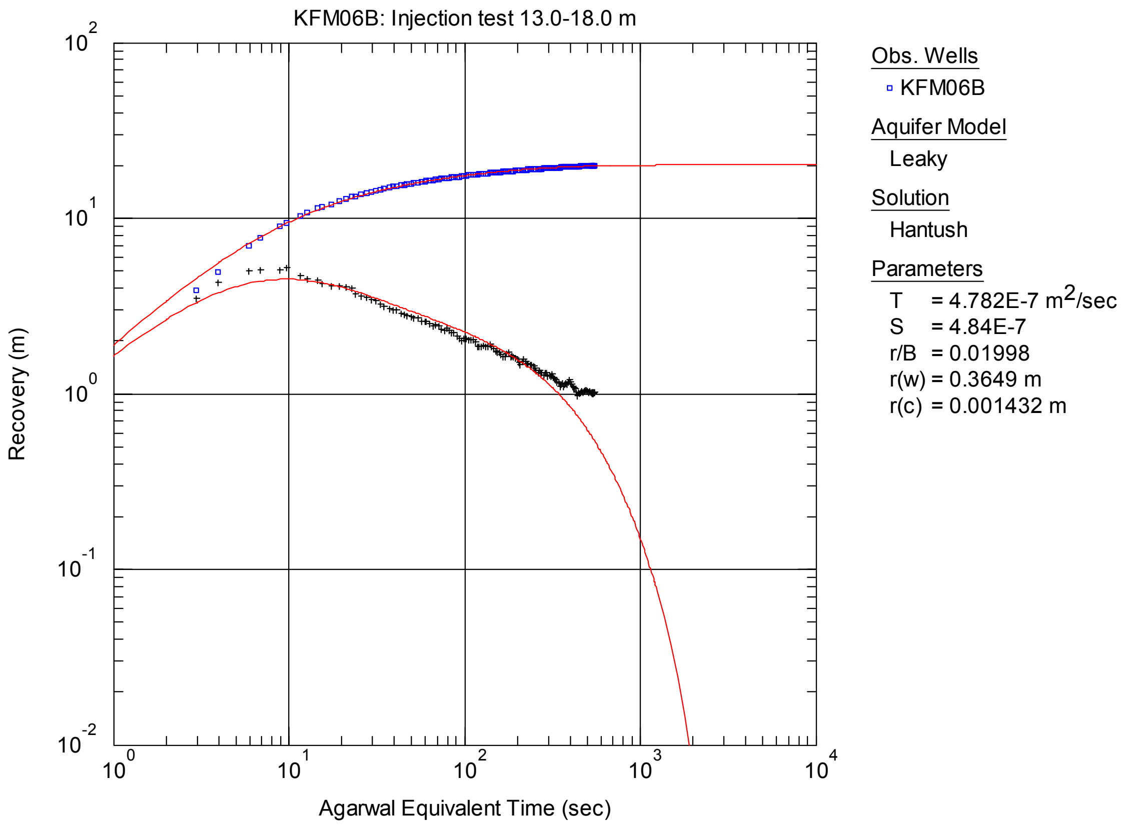


Figure A3-504. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 13.0-18.0 m in KFM06B.*

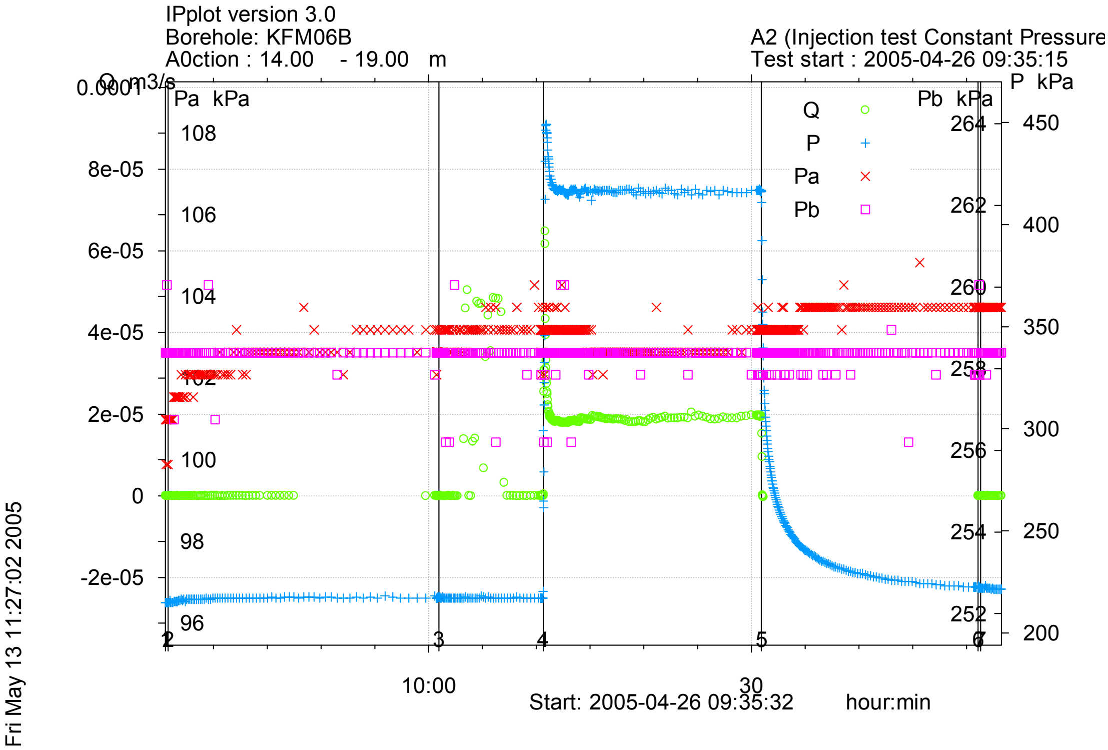


Figure A3-505. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 14.0-19.0 m in borehole KFM06B.*

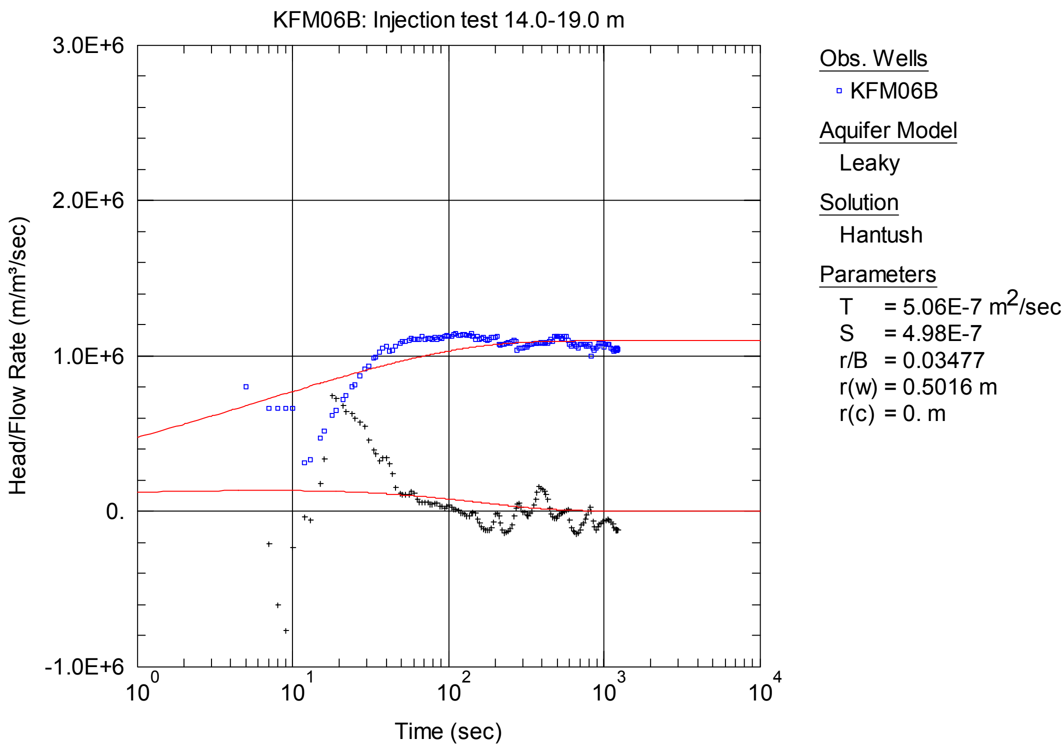


Figure A3-506. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 14.0-19.0 m in KFM06B.*

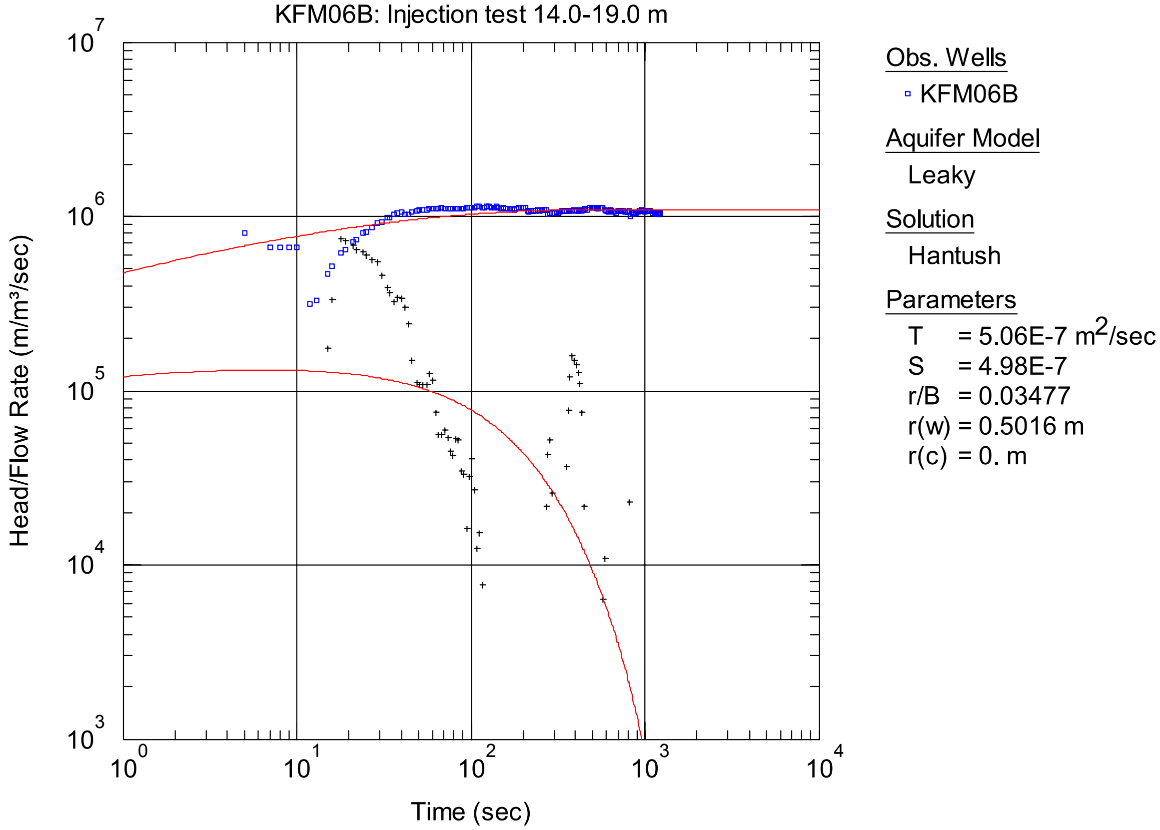


Figure A3-507. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 14.0-19.0 m in KFM06B.*

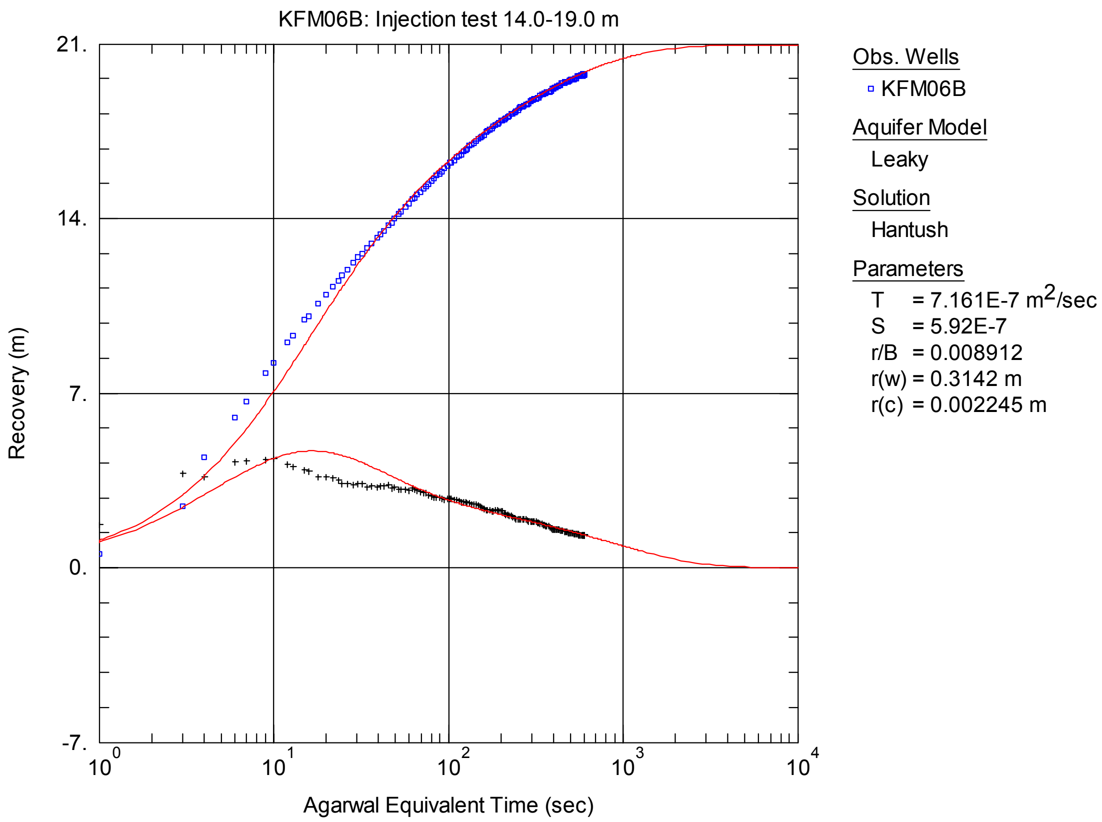


Figure A3-508. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 14.0-19.0 m in KFM06B.*

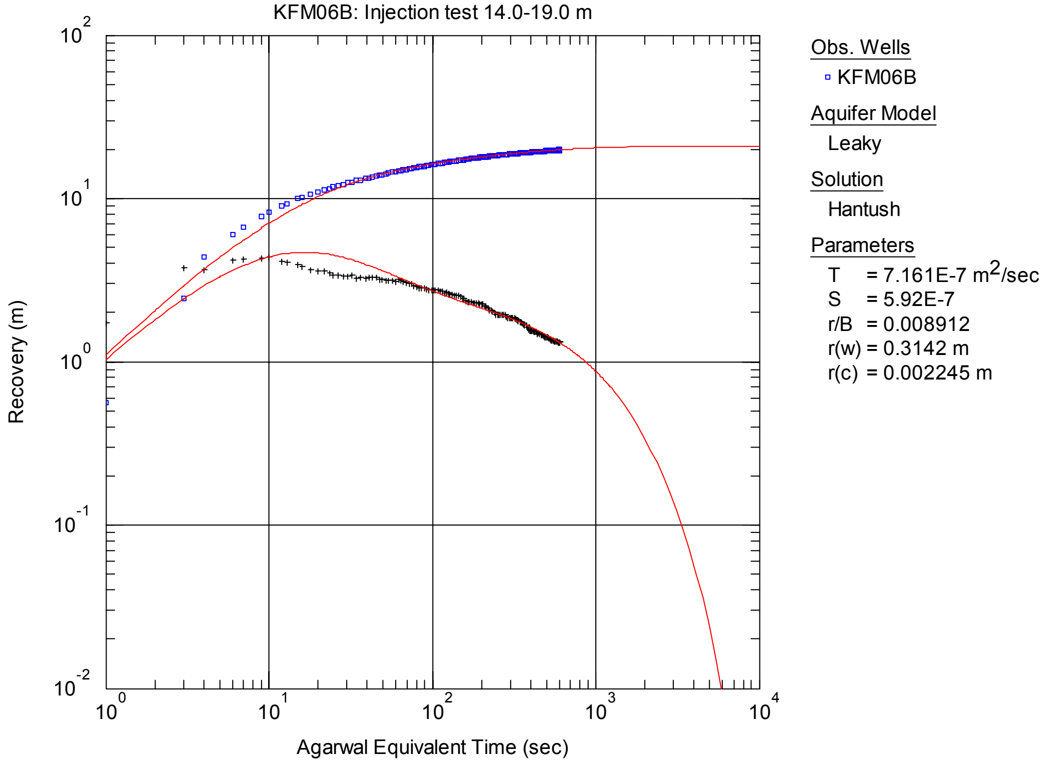


Figure A3-509. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 14.0-19.0 m in KFM06B.*

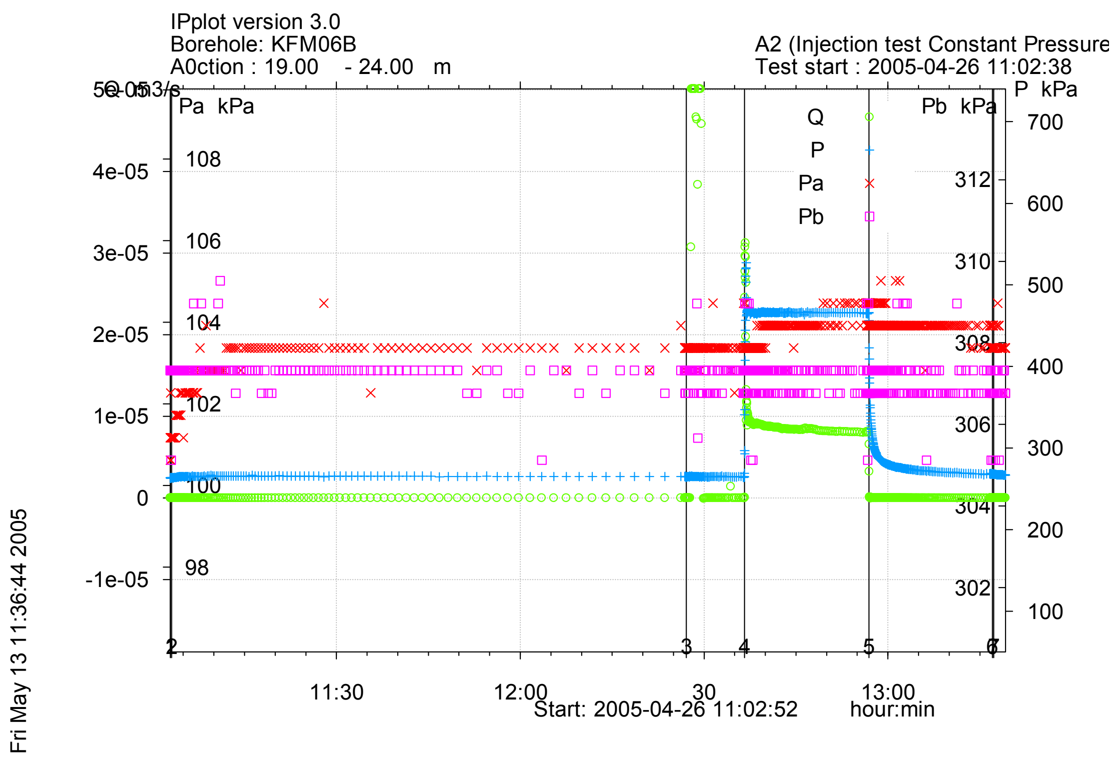


Figure A3-510. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 19.0-24.0 m in borehole KFM06B.*

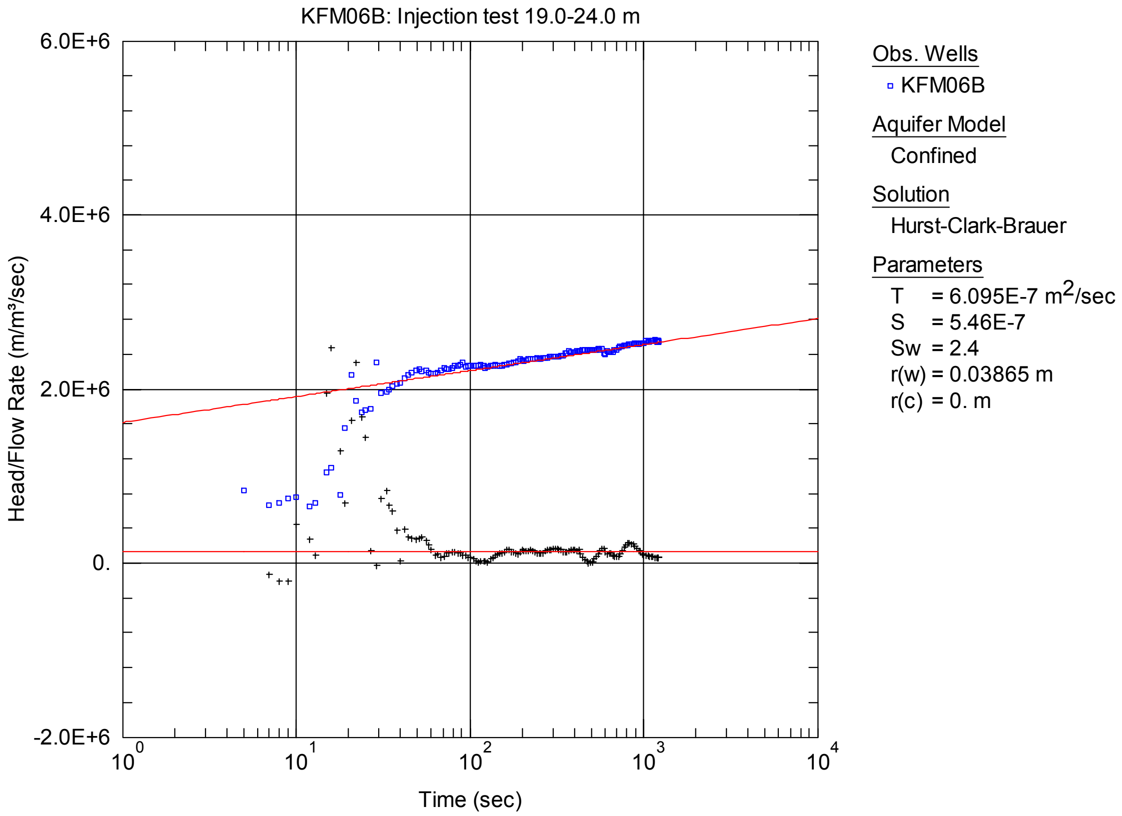


Figure A3-511. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 19.0-24.0 m in KFM06B.*

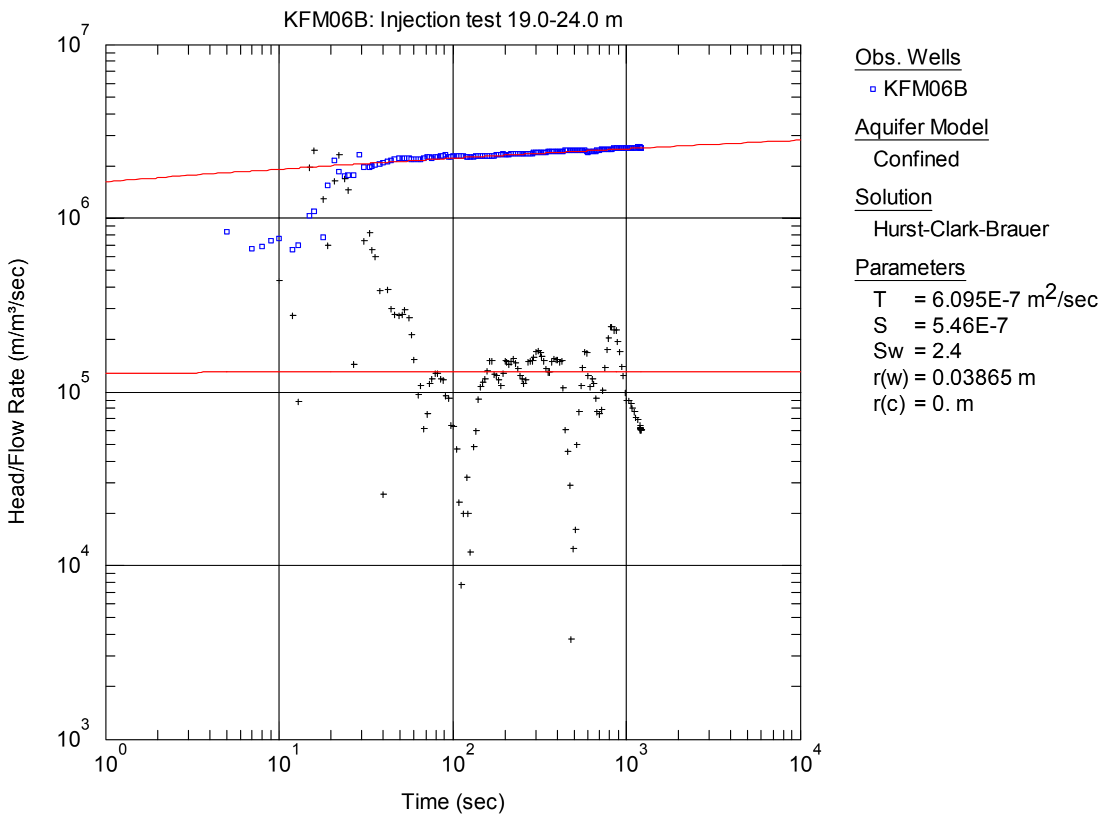


Figure A3-512. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 19.0-24.0 m in KFM06B.*

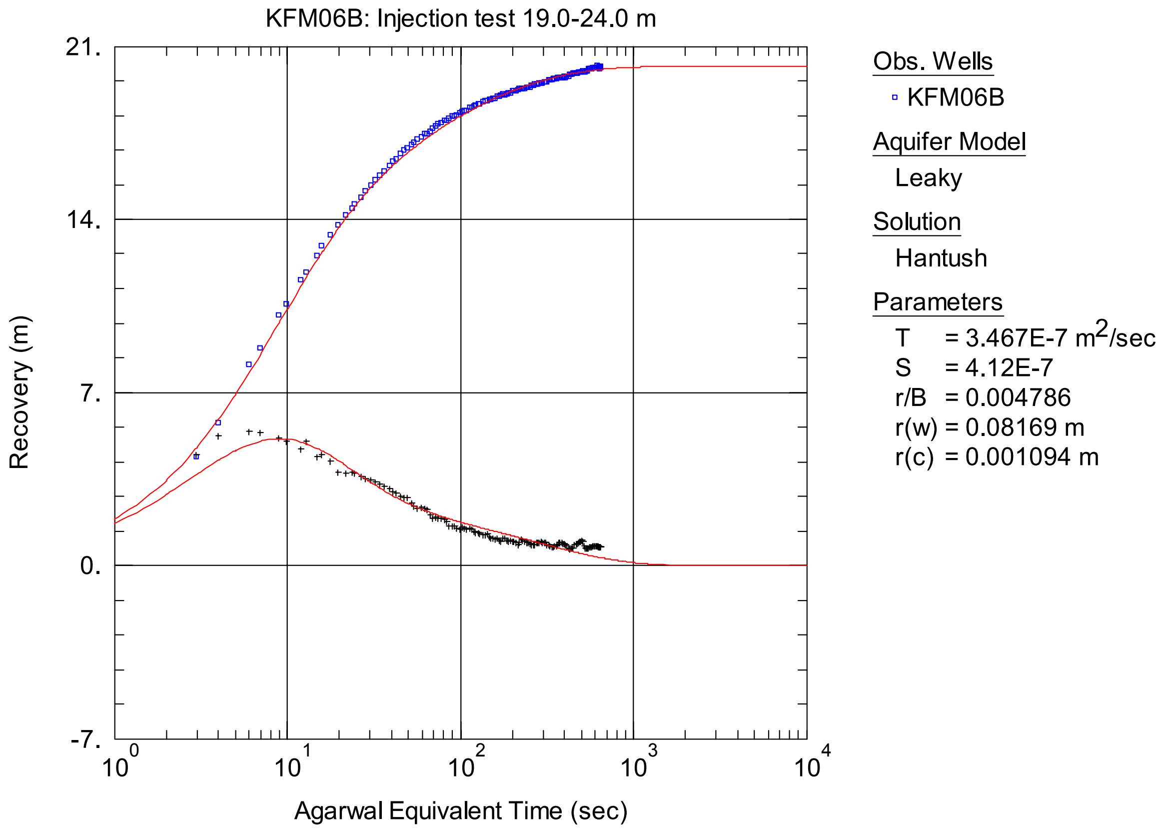


Figure A3-513. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 19.0-24.0 m in KFM06B.*

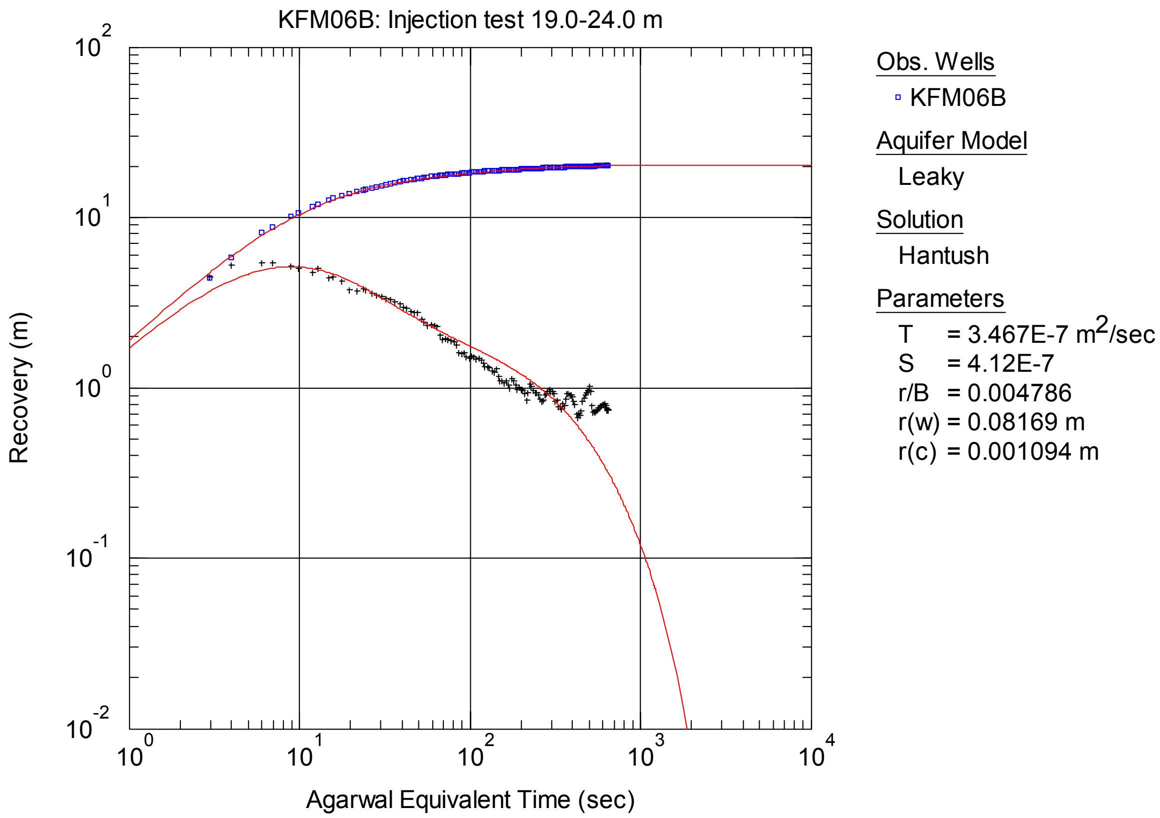


Figure A3-514. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 19.0-24.0 m in KFM06B.*

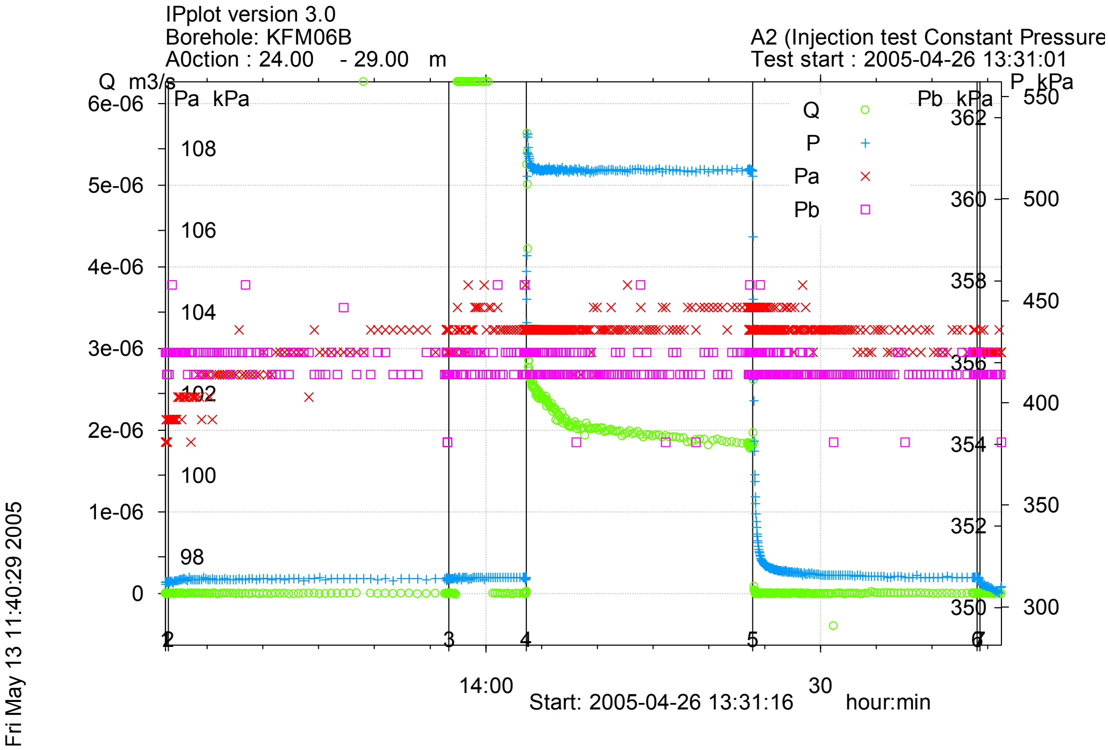


Figure A3-515. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 24.0-29.0 m in borehole KFM06B.*

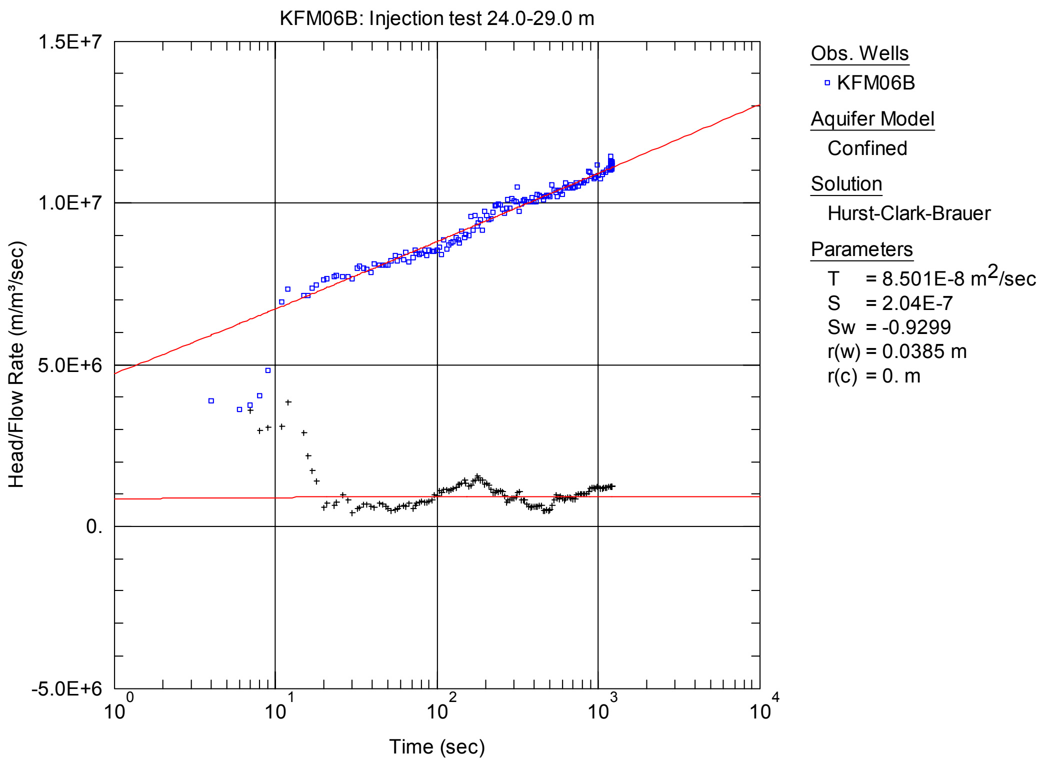


Figure A3-516. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 24.0-29.0 m in KFM06B.*

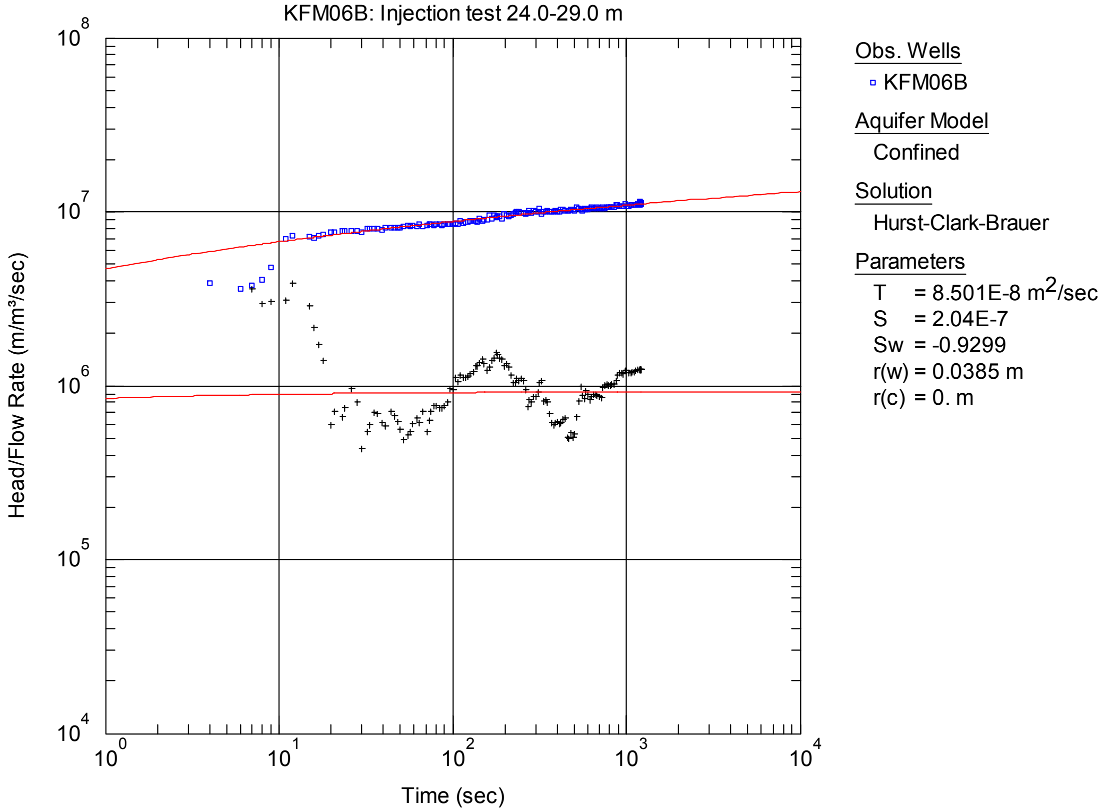


Figure A3-517. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 24.0-29.0 m in KFM06B.*

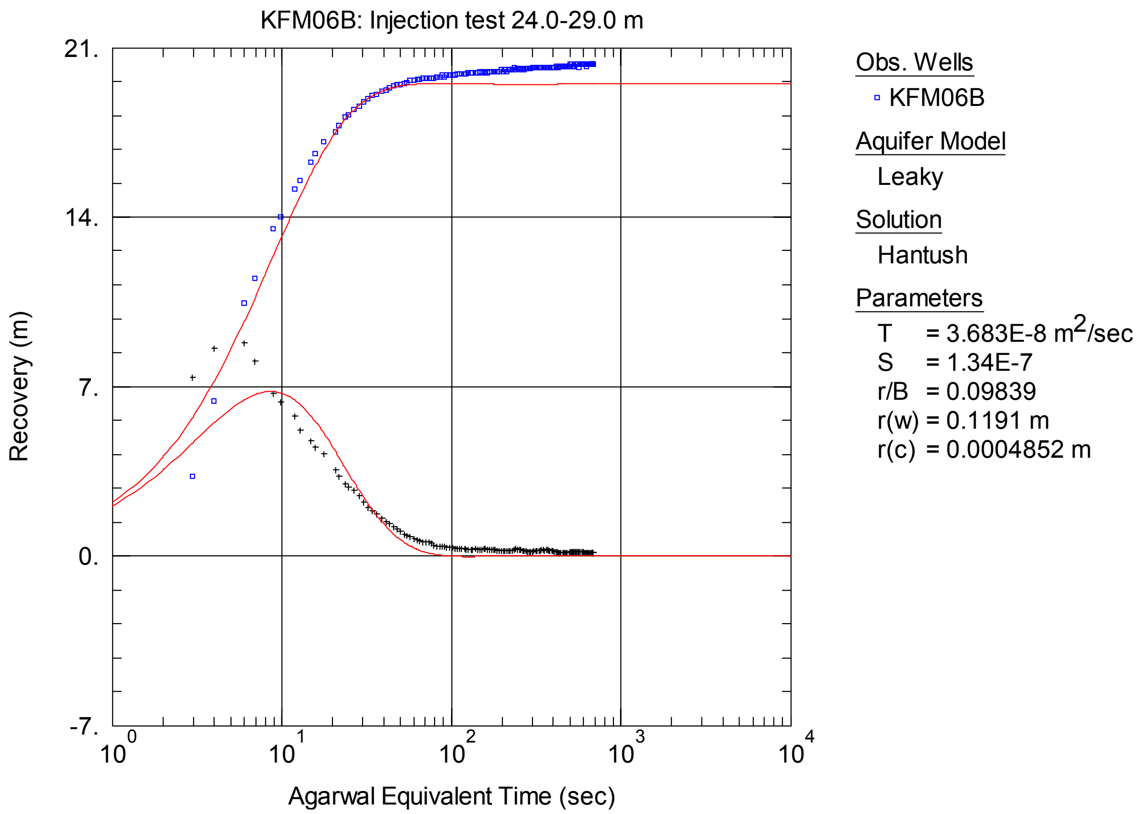


Figure A3-518. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 24.0-29.0 m in KFM06B.*

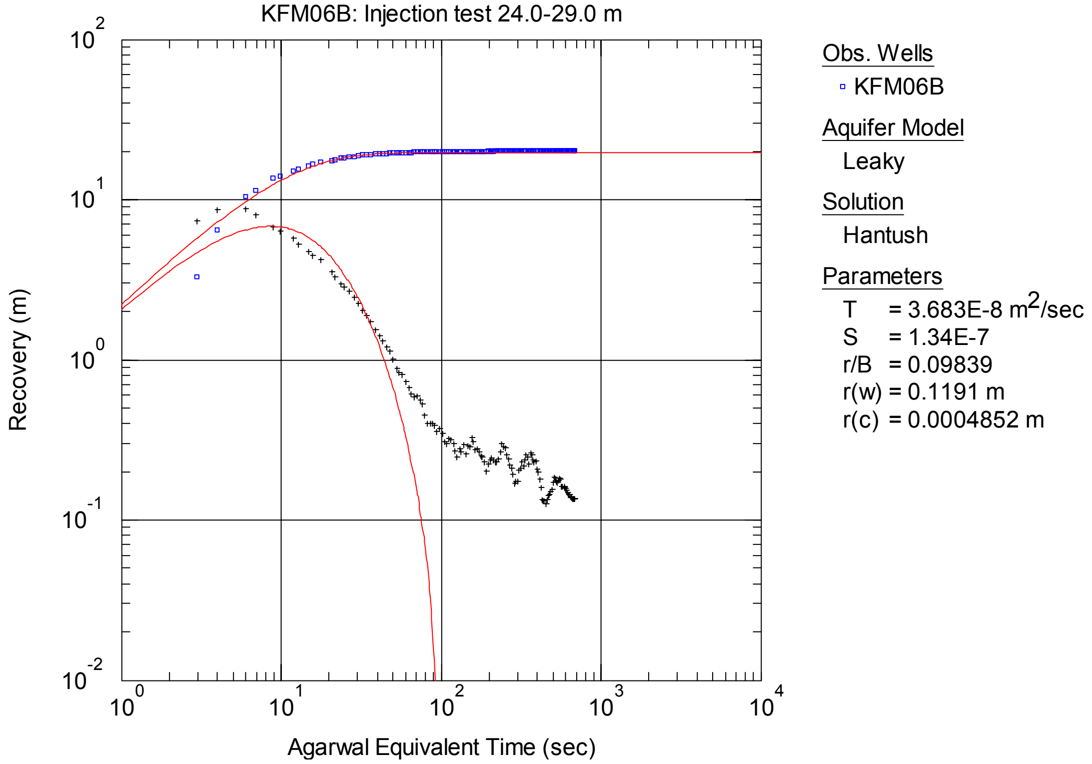


Figure A3-519. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 24.0-29.0 m in KFM06B.*

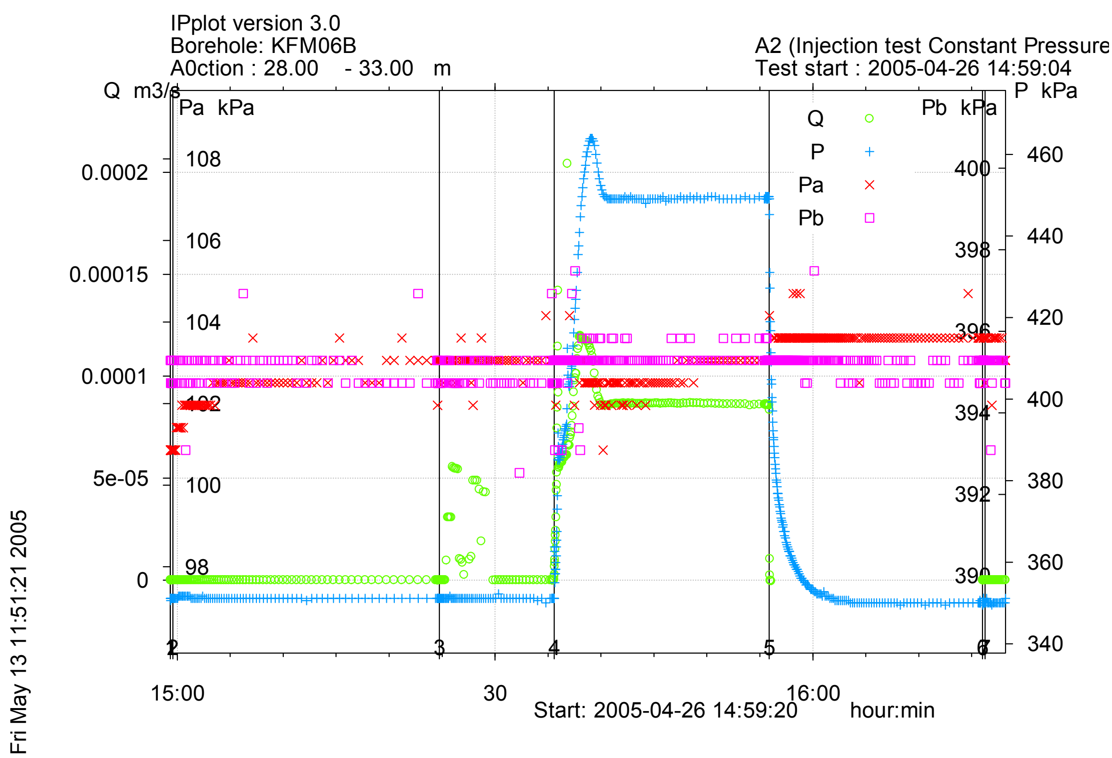


Figure A3-520. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 28.0-33.0 m in borehole KFM06B.*

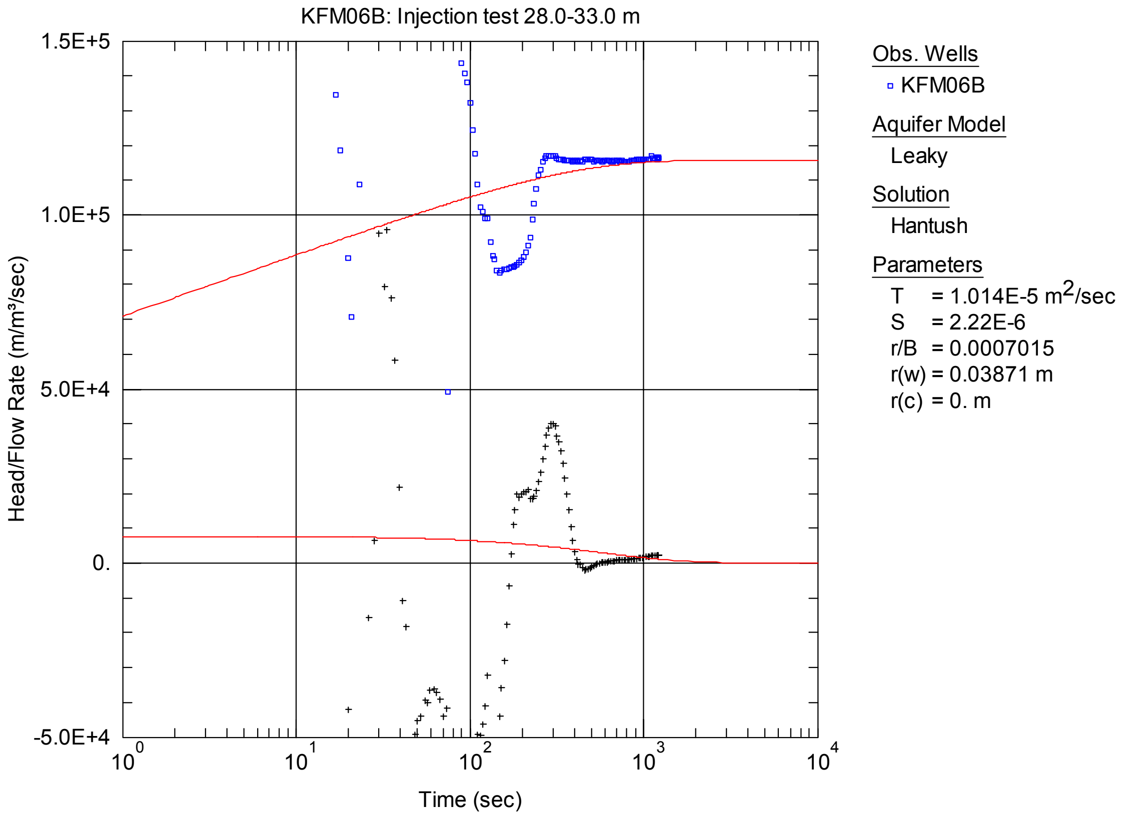


Figure A3-521. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 28.0-33.0 m in KFM06B.*

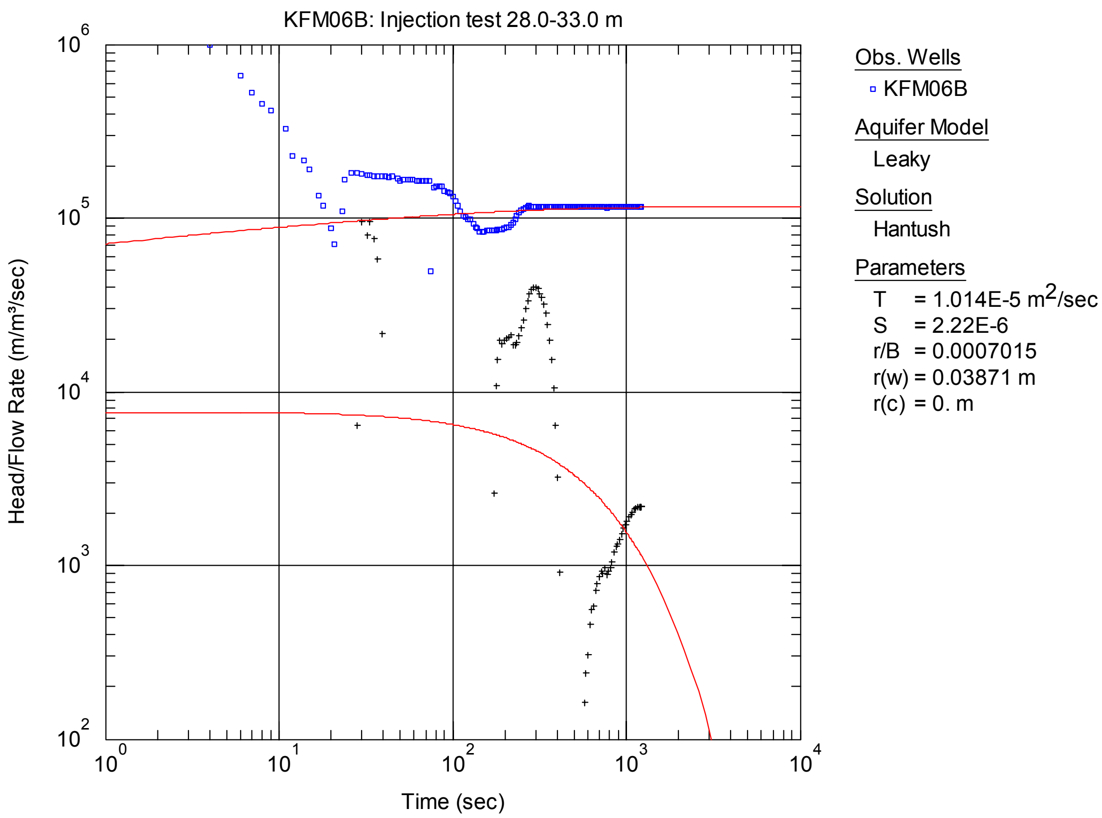


Figure A3-522. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 28.0-33.0 m in KFM06B.*

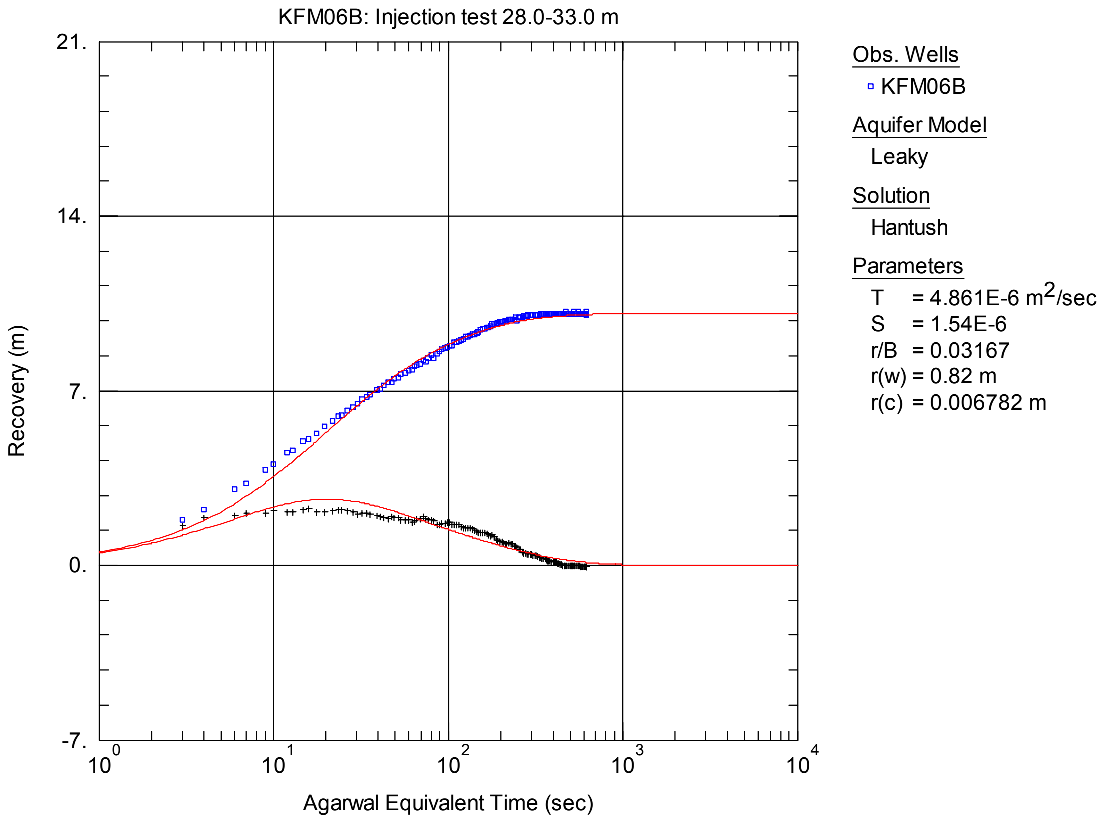


Figure A3-523. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 28.0-33.0 m in KFM06B.*

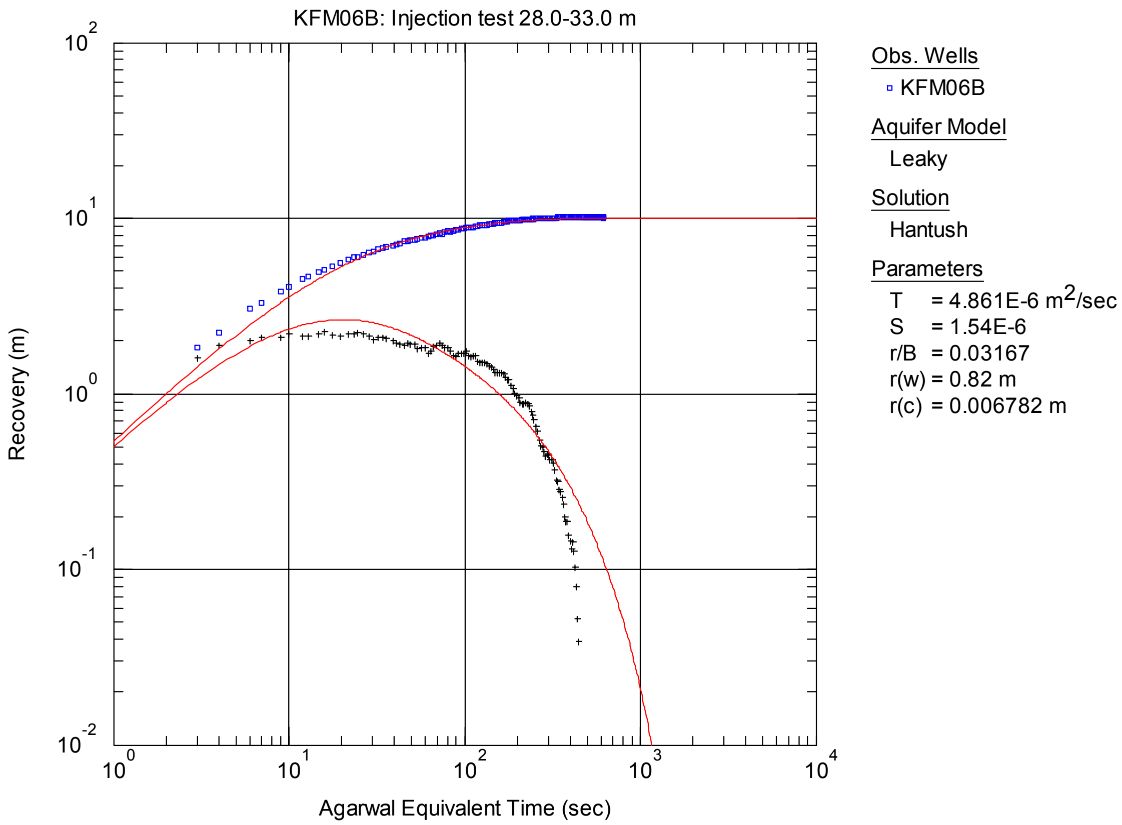


Figure A3-524. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 28.0-33.0 m in KFM06B.*

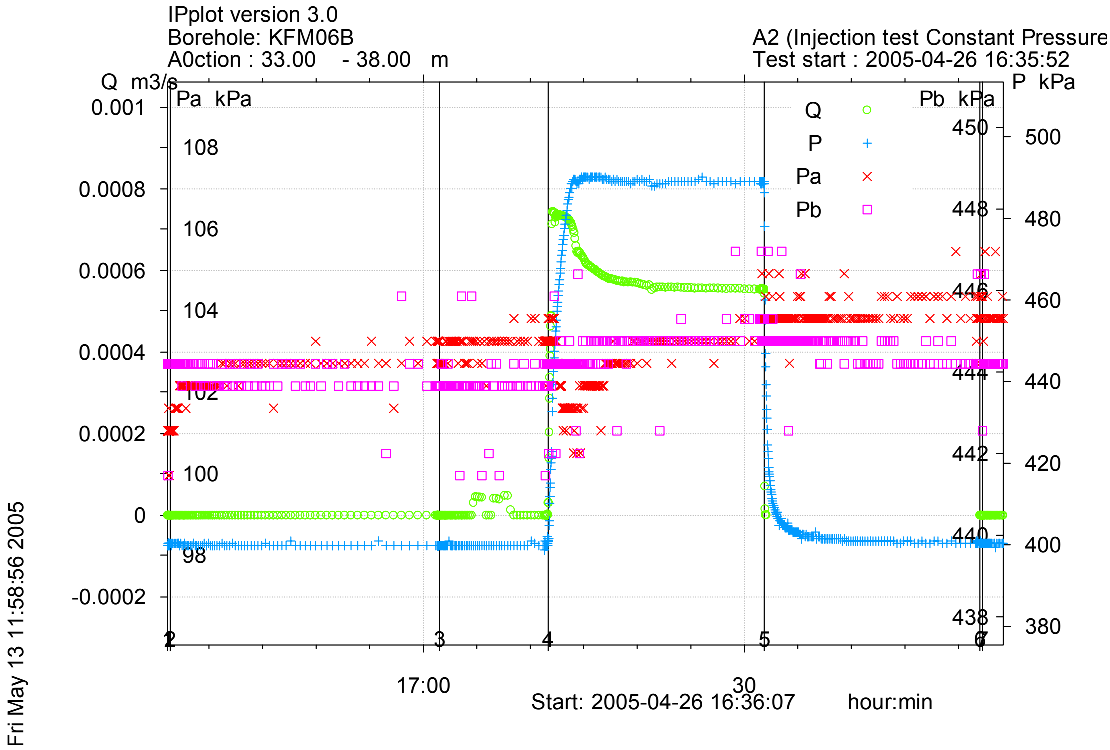


Figure A3-525. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 33.0-38.0 m in borehole KFM06B.*

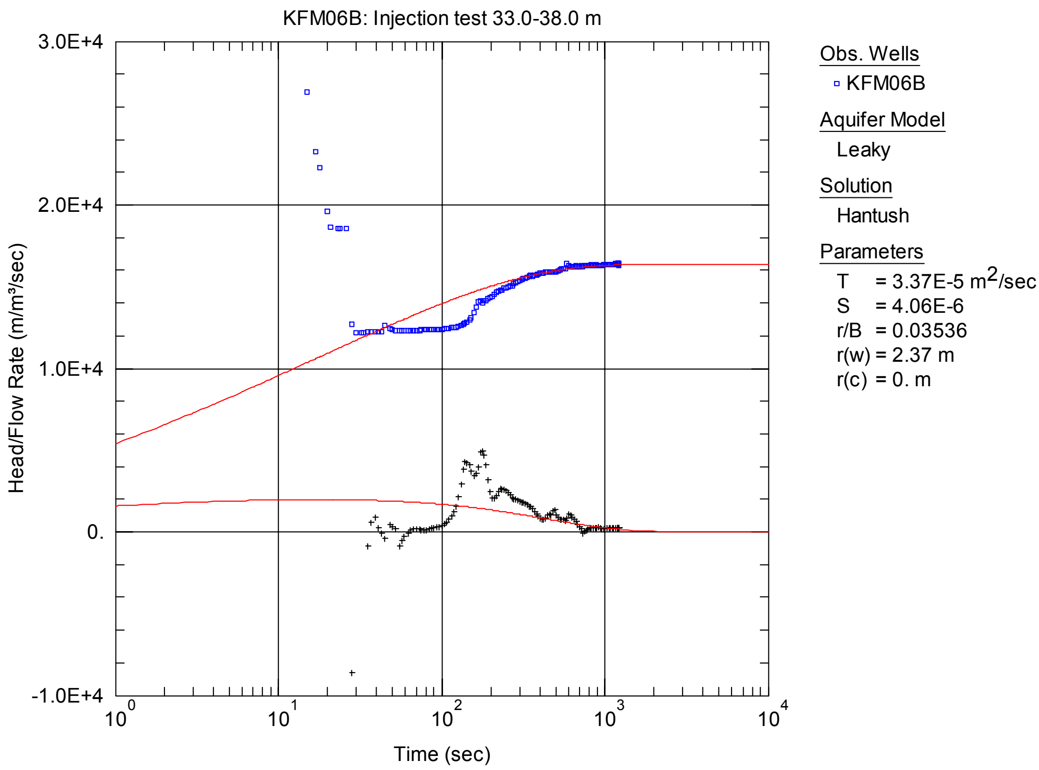


Figure A3-526. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 33.0-38.0 m in KFM06B.*

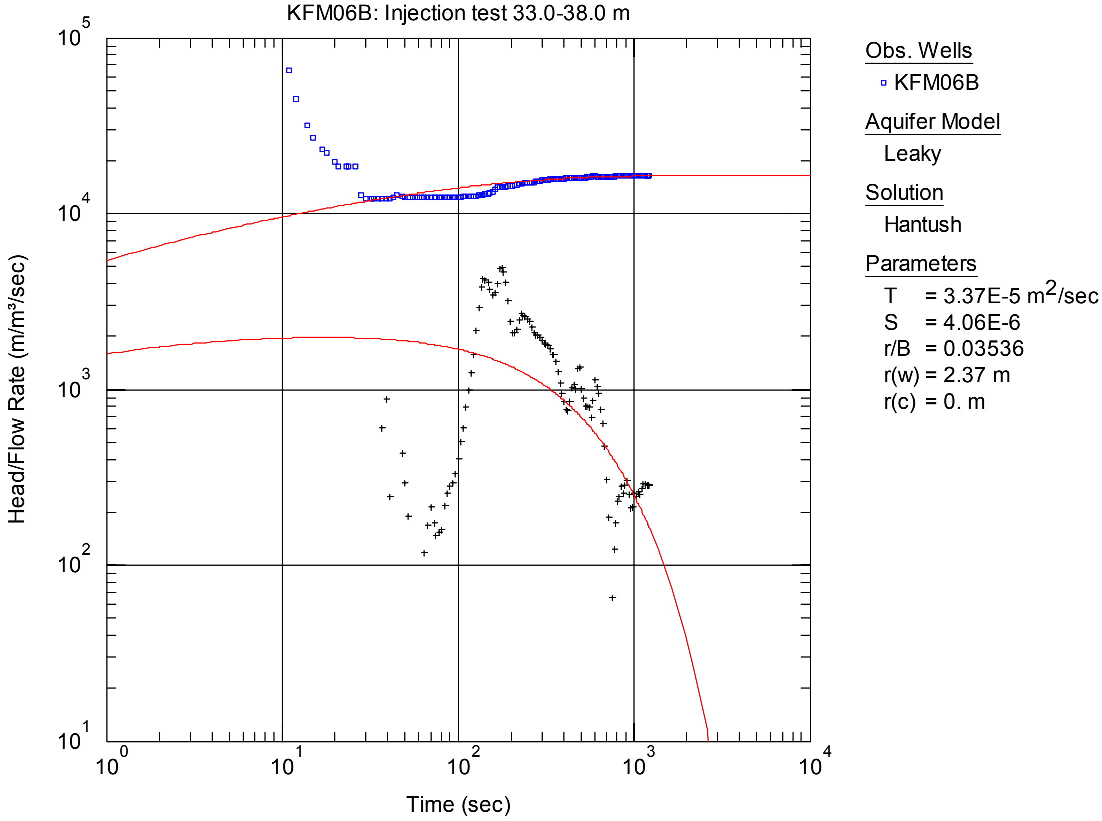


Figure A3-527. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 33.0-38.0 m in KFM06B.*

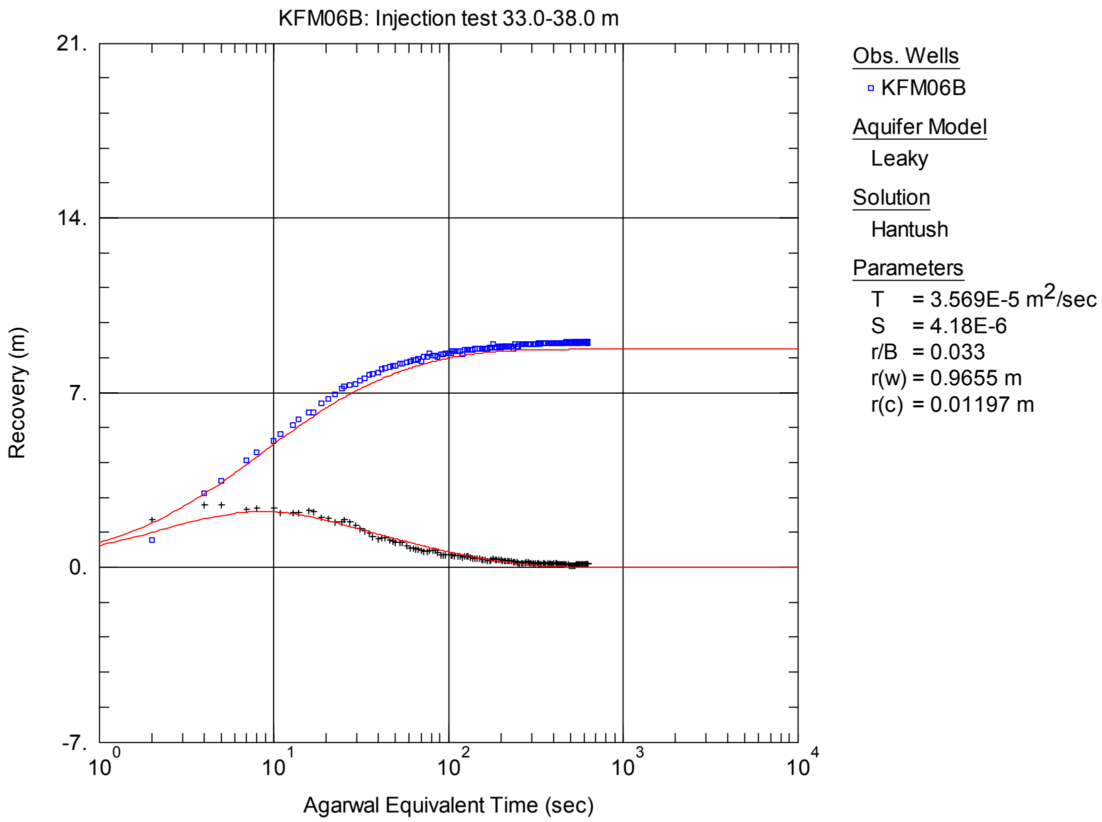


Figure A3-528. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 33.0-38.0 m in KFM06B.*

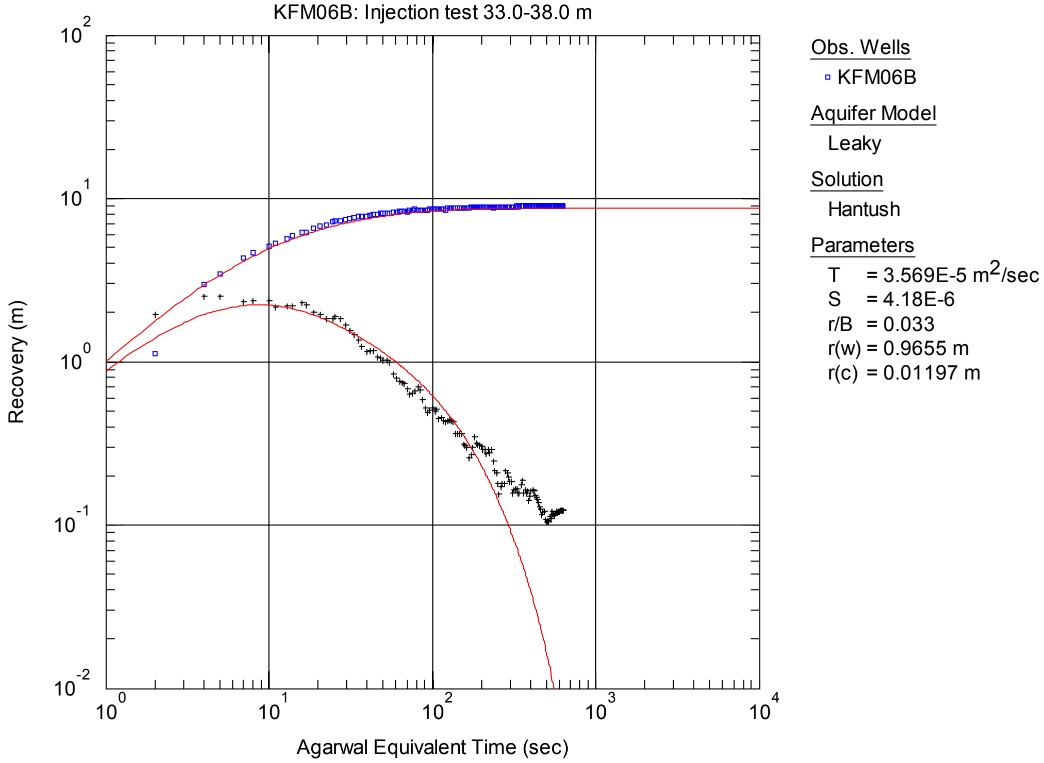


Figure A3-529. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 33.0-38.0 m in KFM06B.*

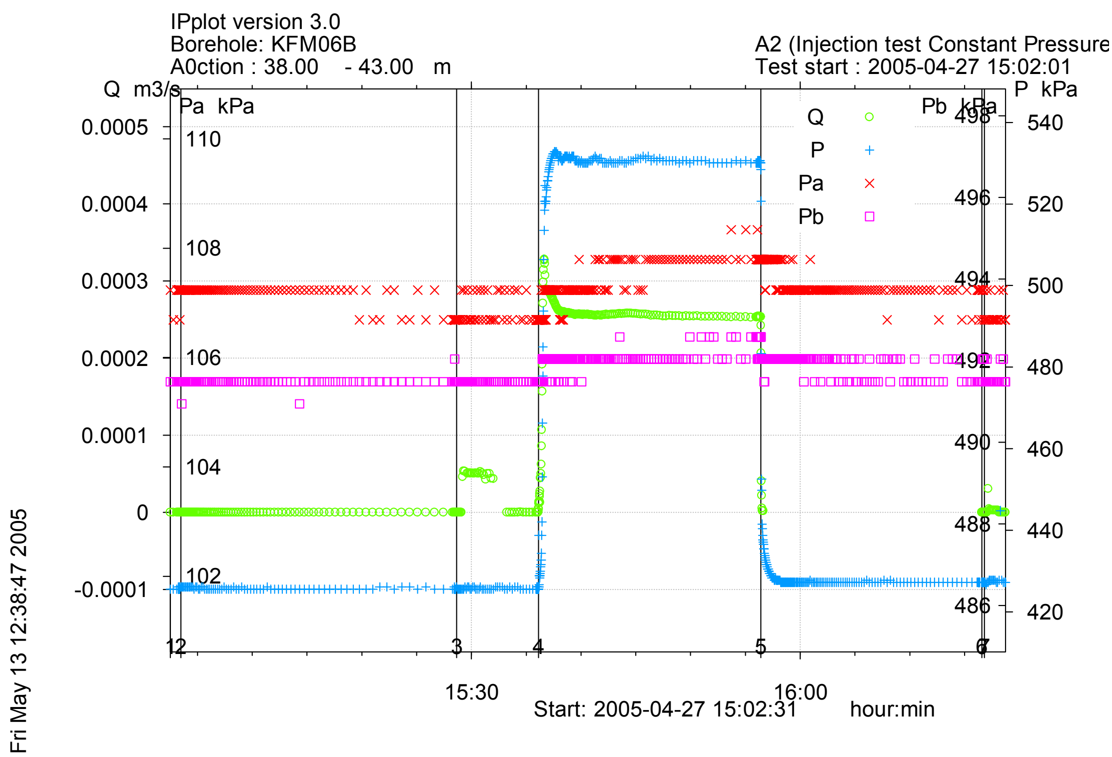


Figure A3-530. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 38.0-43.0 m in borehole KFM06B.*

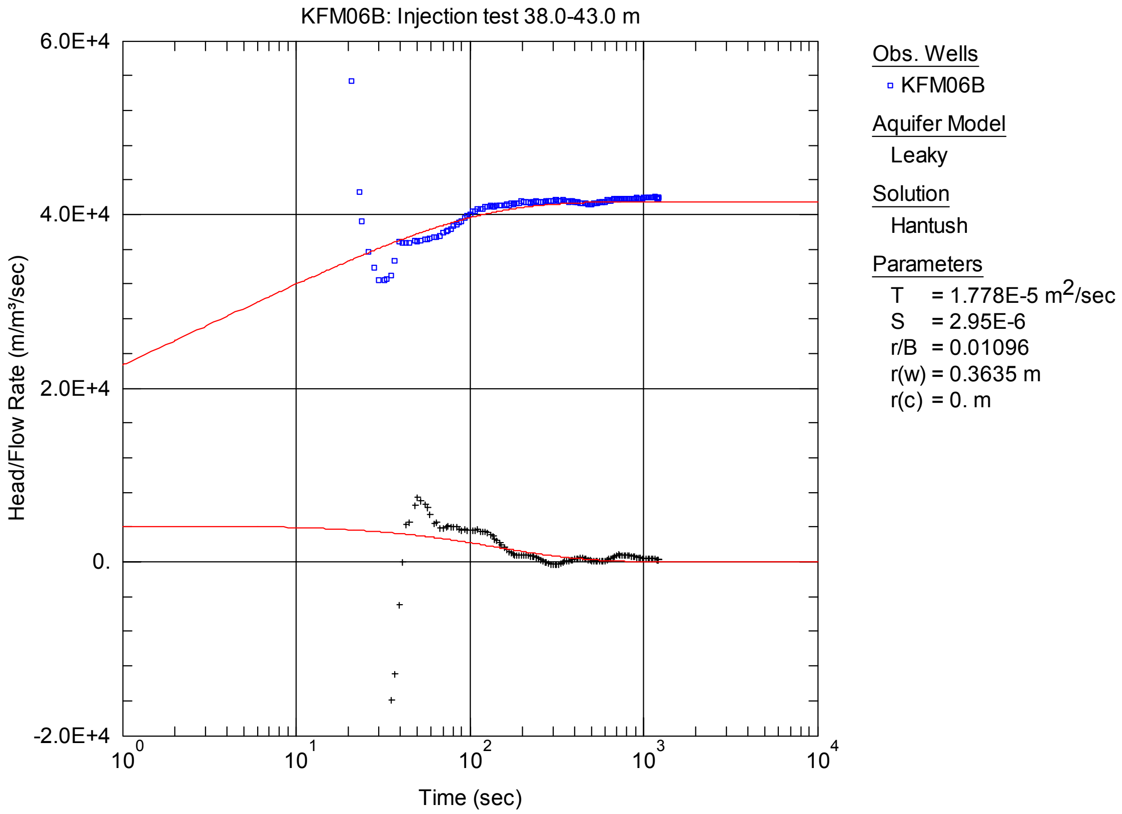


Figure A3-531. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 38.0-43.0 m in KFM06B.*

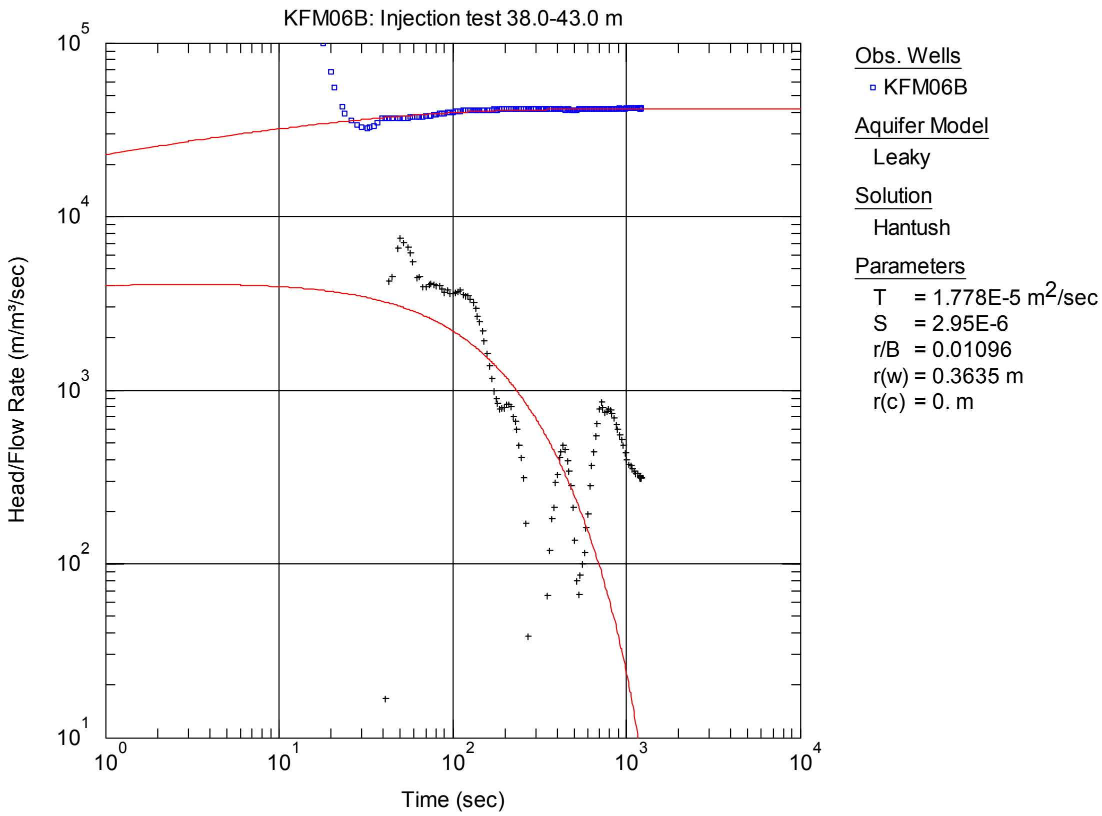


Figure A3-532. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 38.0-43.0 m in KFM06B.*

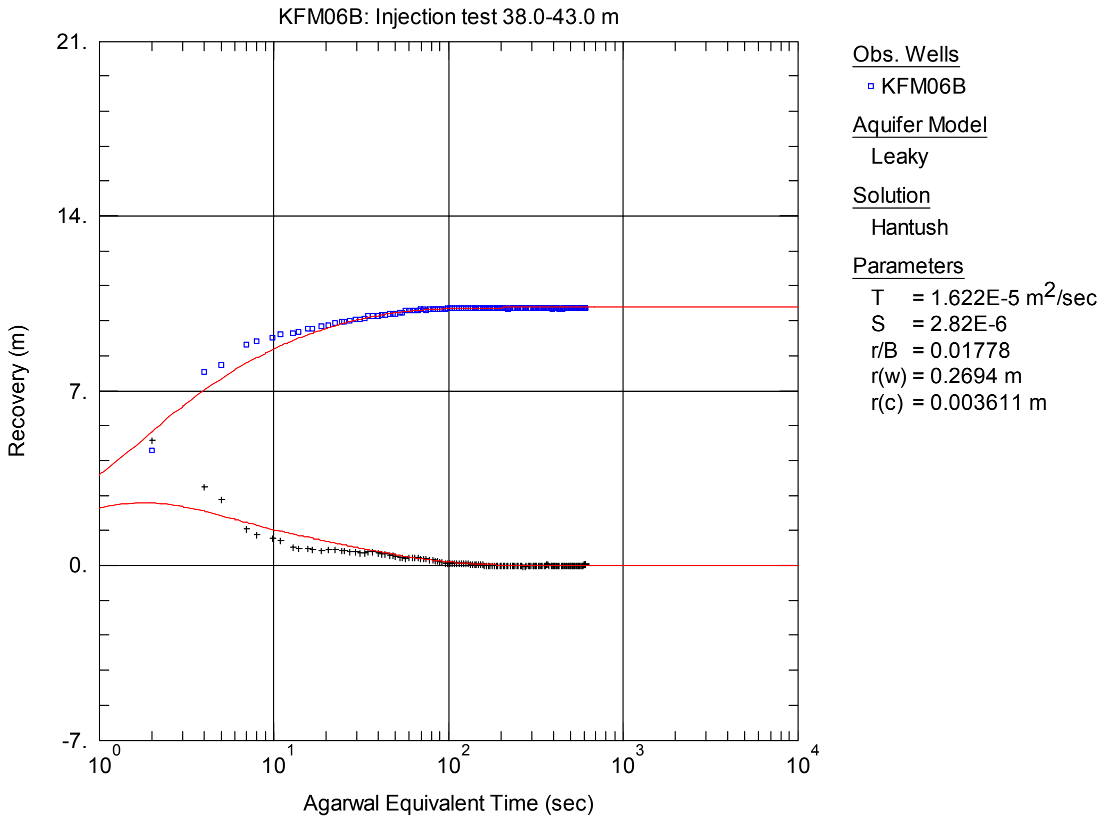


Figure A3-533. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 38.0-43.0 m in KFM06B.*

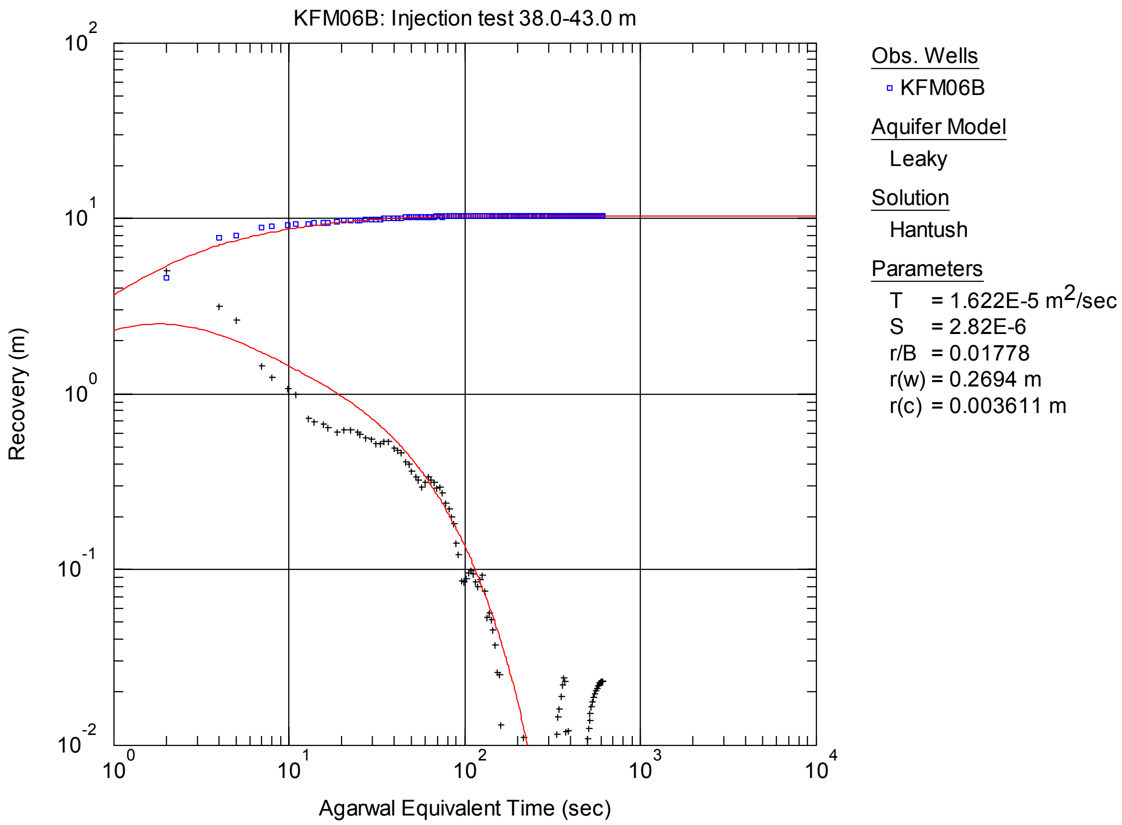


Figure A3-534. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 38.0-43.0 m in KFM06B.*

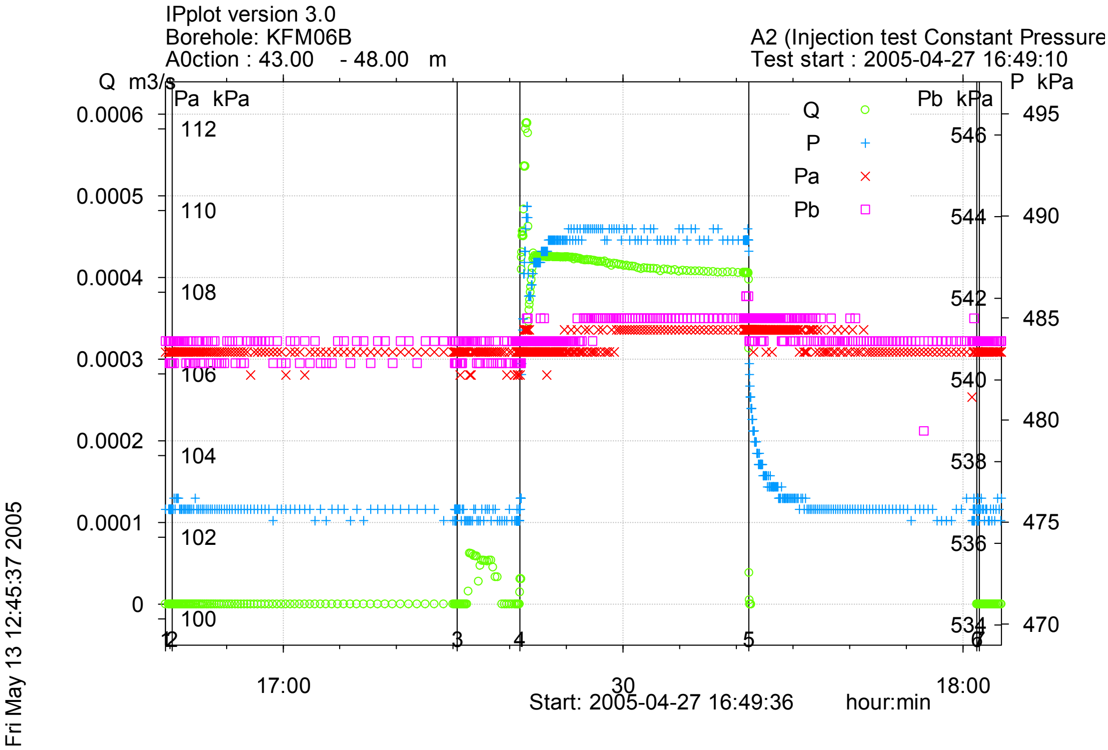


Figure A3-535. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 43.0-48.0 m in borehole KFM06B.*

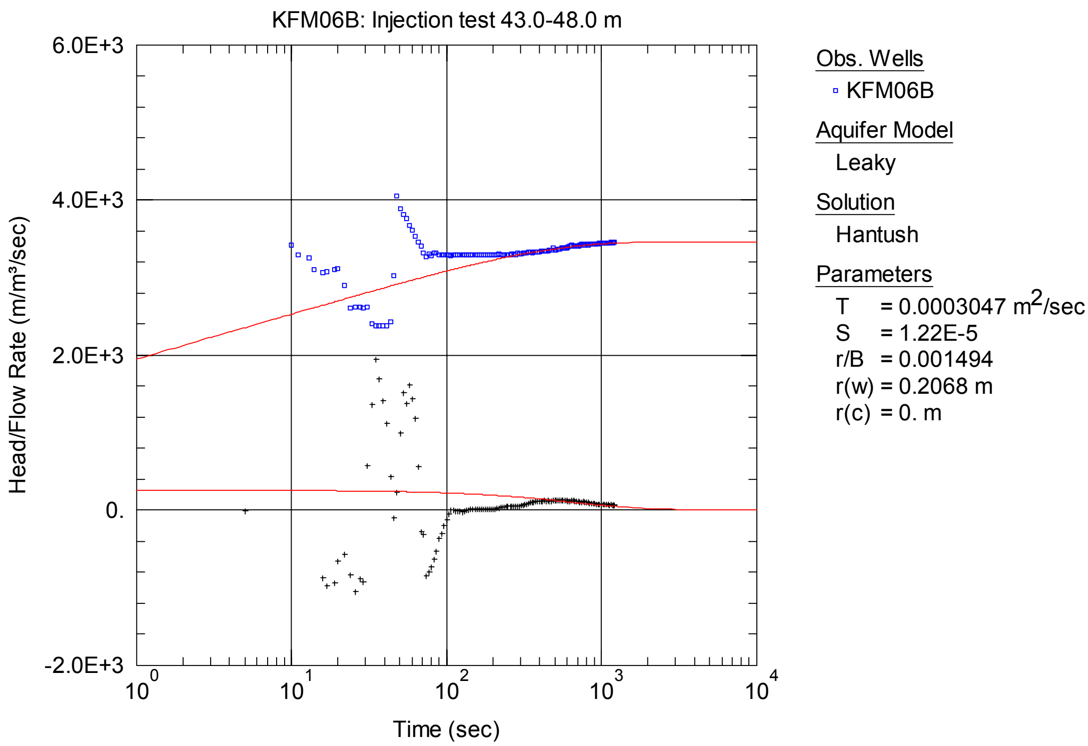


Figure A3-536. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 43.0-48.0 m in KFM06B.*

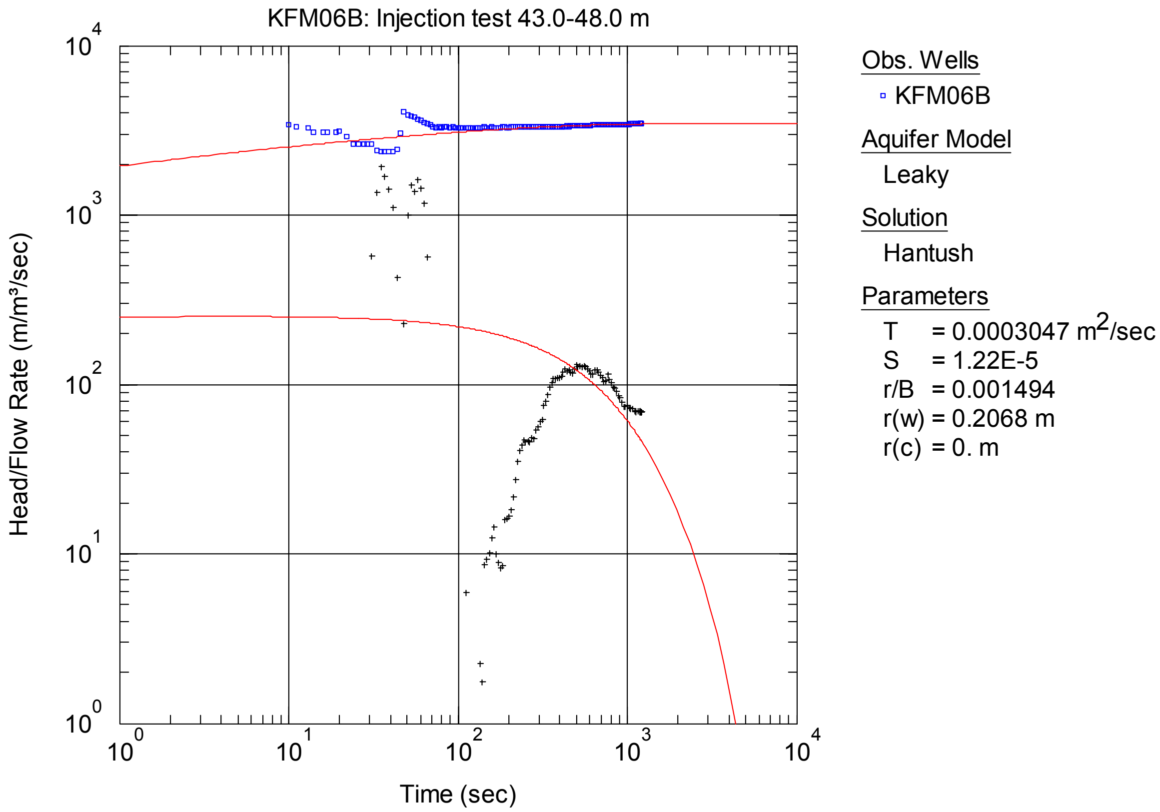


Figure A3-537. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 43.0-48.0 m in KFM06B.*

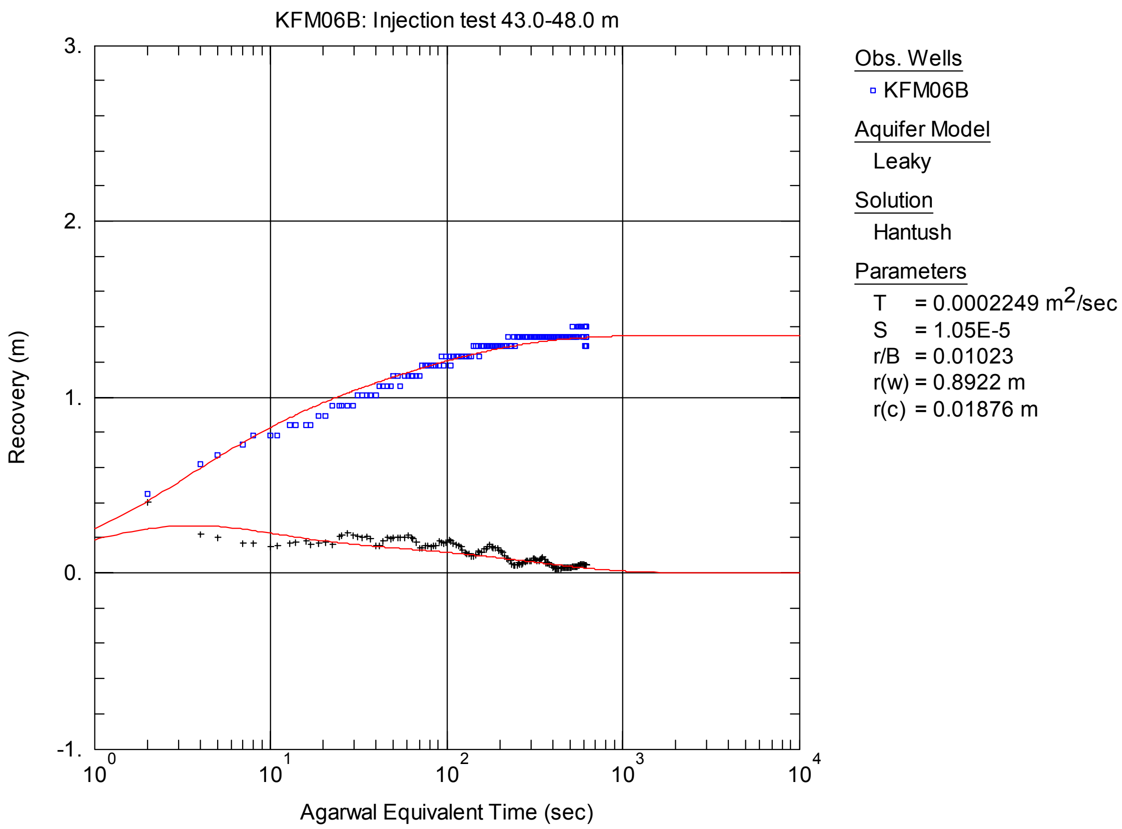


Figure A3-538. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 43.0-48.0 m in KFM06B.*

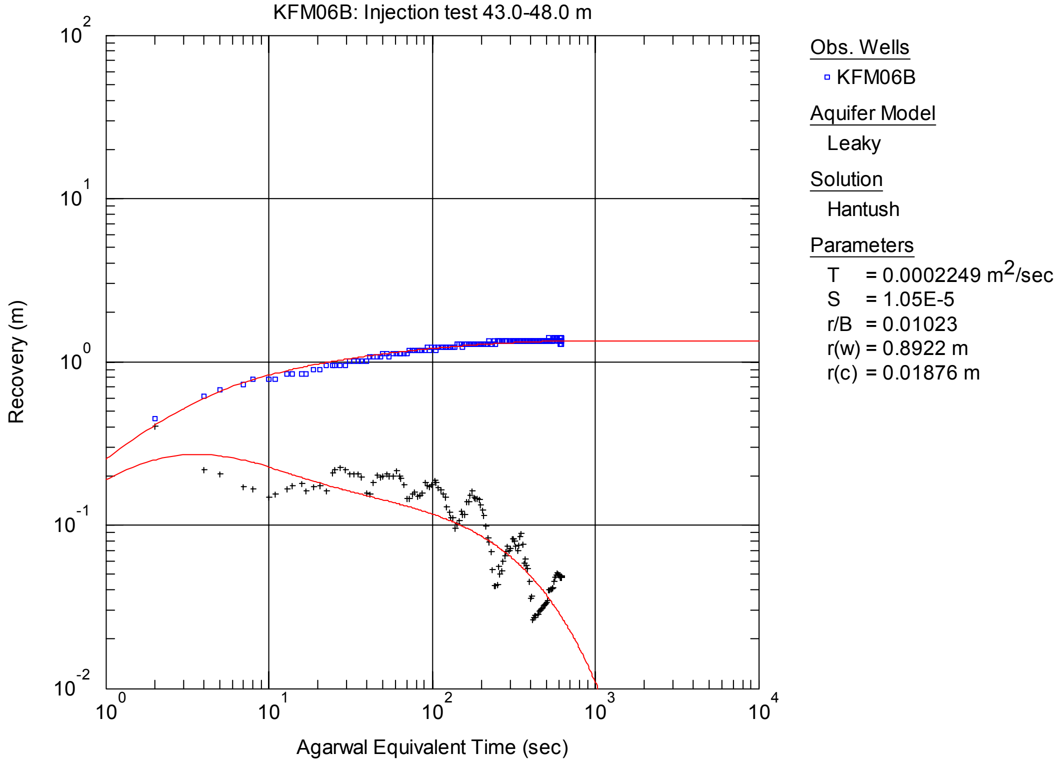


Figure A3-539. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 43.0-48.0 m in KFM06B.*

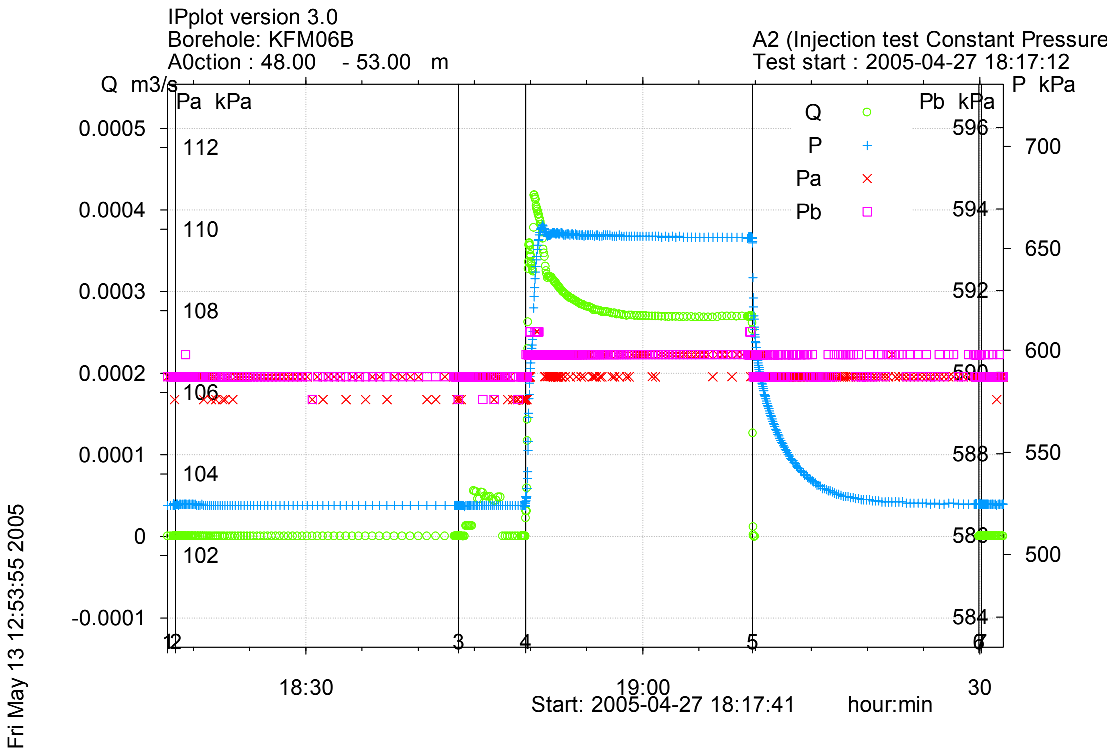


Figure A3-540. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 48.0-53.0 m in borehole KFM06B.*

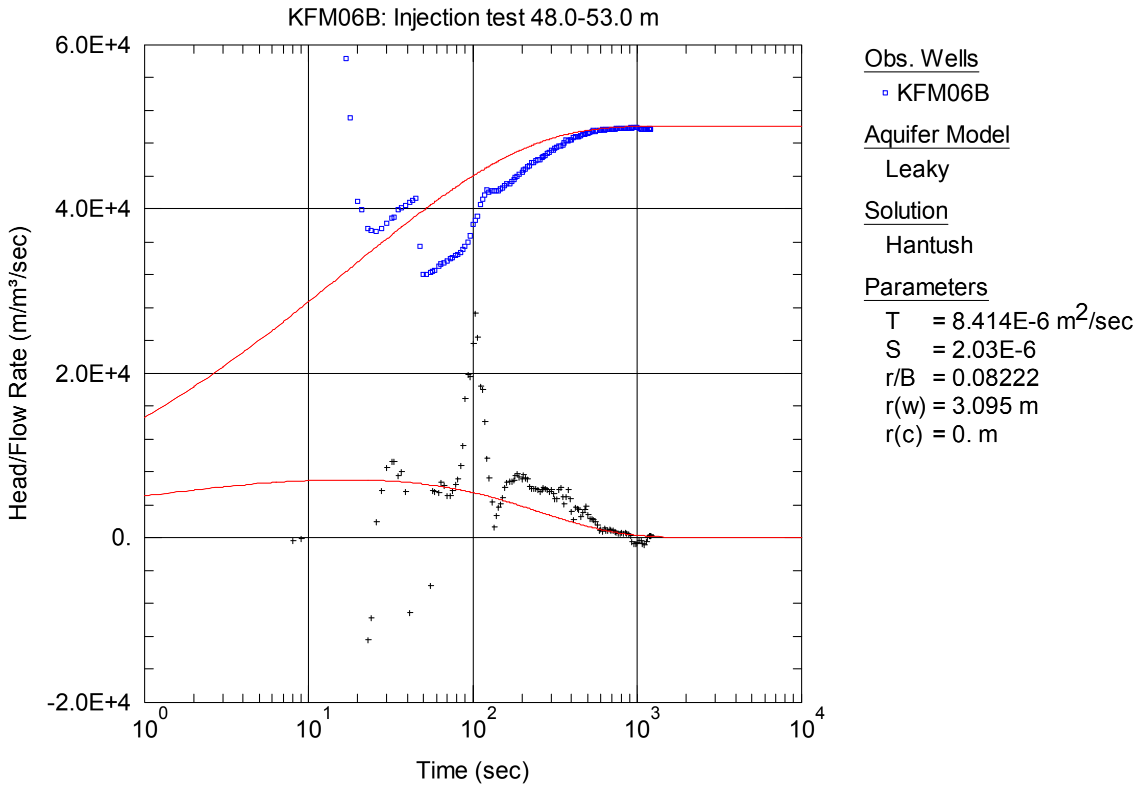


Figure A3-541. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 48.0-53.0 m in KFM06B.*

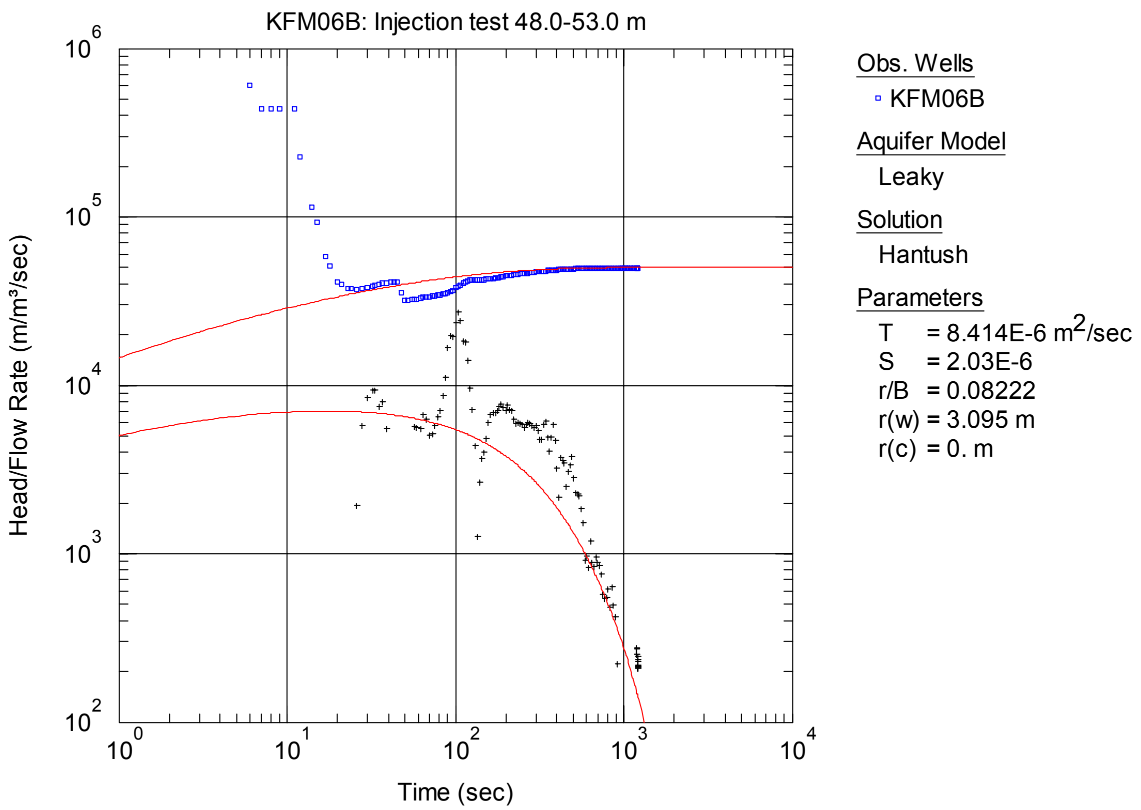


Figure A3-542. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 48.0-53.0 m in KFM06B.*

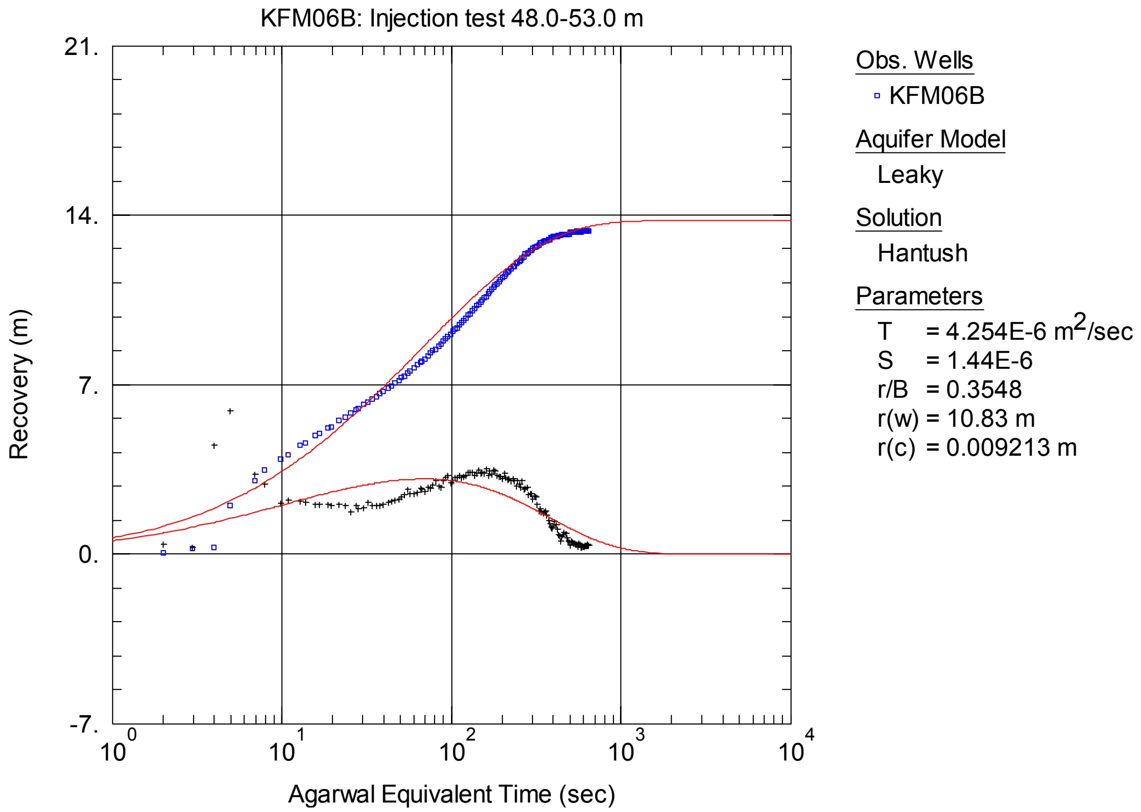


Figure A3-543. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 48.0-53.0 m in KFM06B.*

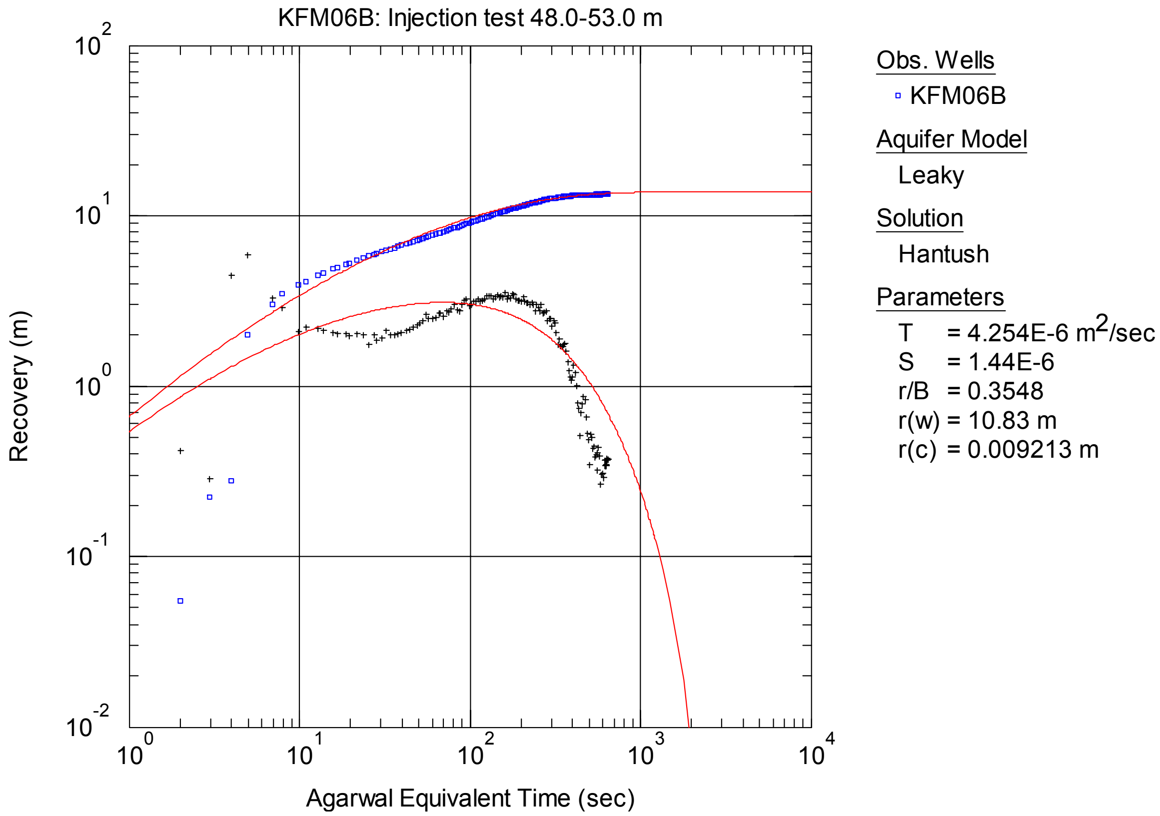


Figure A3-544. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 48.0-53.0 m in KFM06B.*

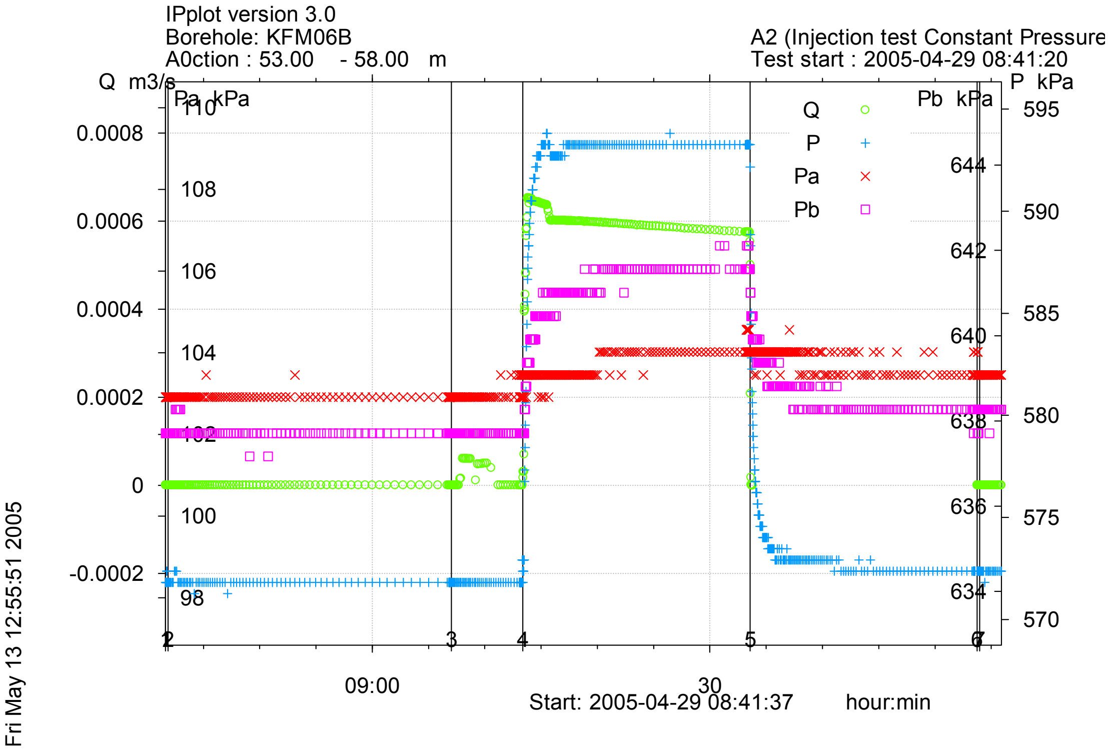


Figure A3-545. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 53.0-58.0 m in borehole KFM06B.*

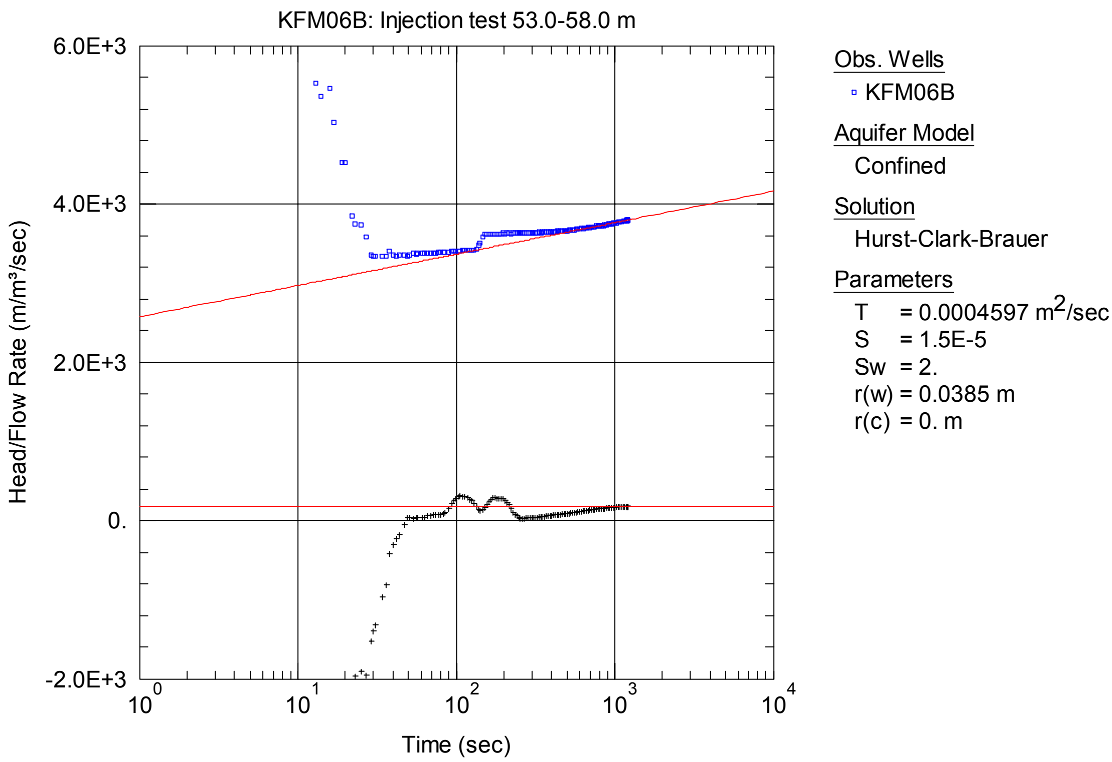


Figure A3-546. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 53.0-58.0 m in KFM06B.*

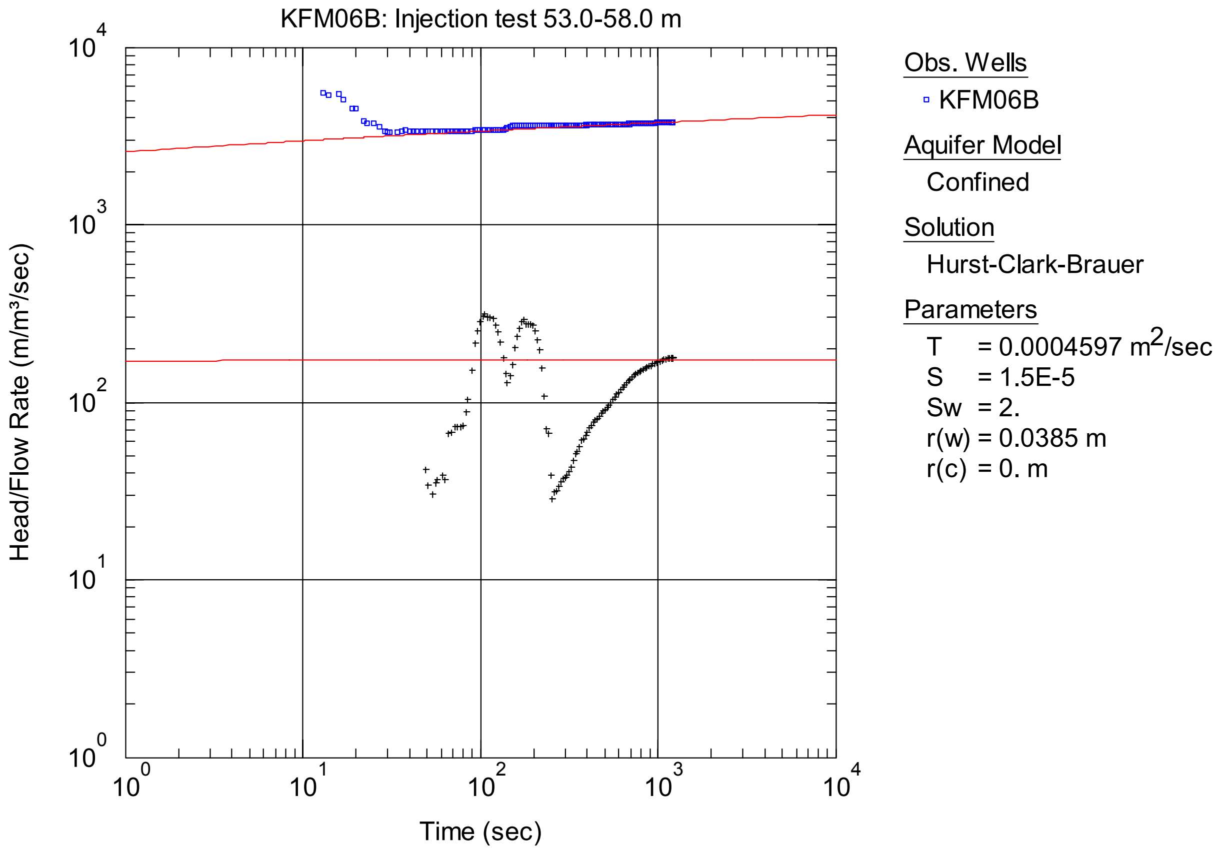


Figure A3-547. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 53.0-58.0 m in KFM06B.*

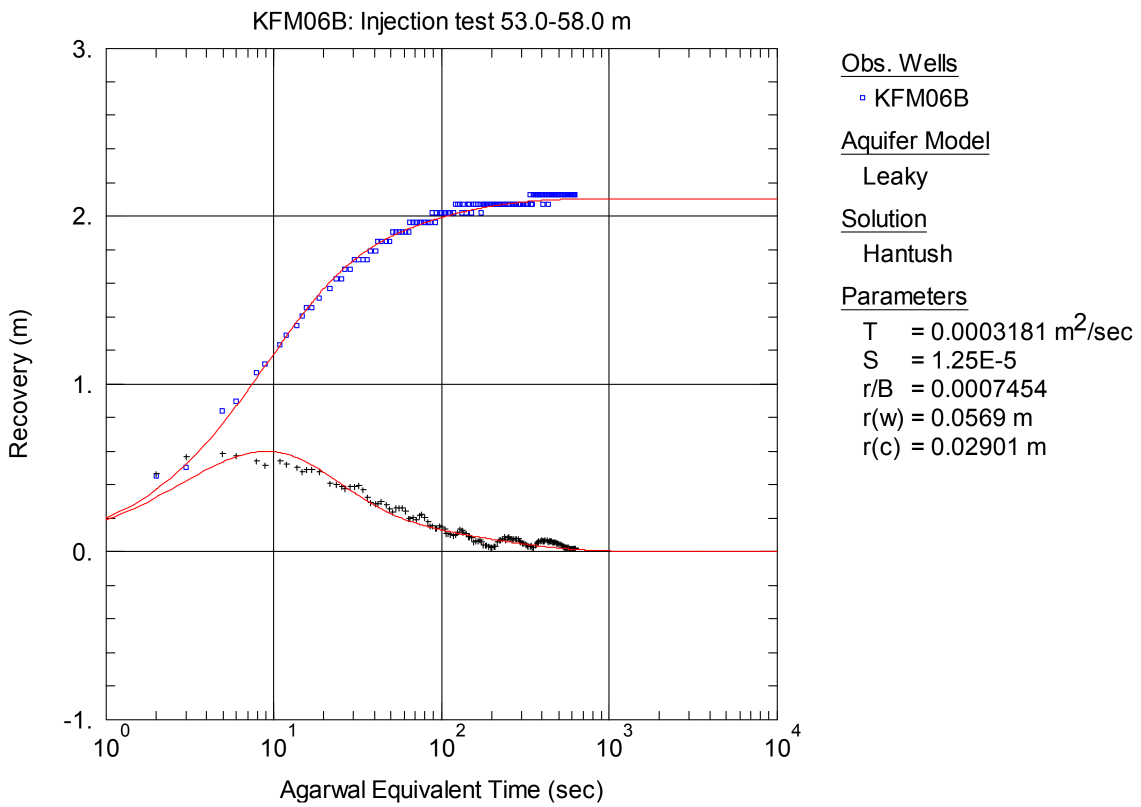


Figure A3-548. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 53.0-58.0 m in KFM06B.*

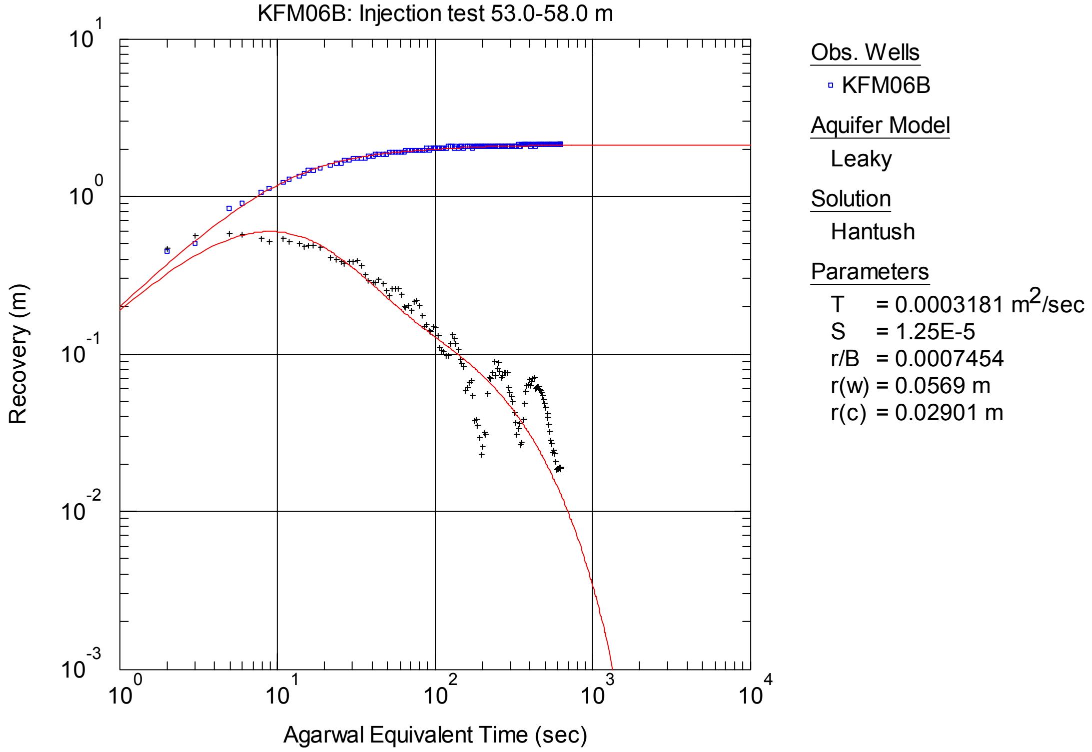


Figure A3-549. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 53.0-58.0 m in KFM06B.*

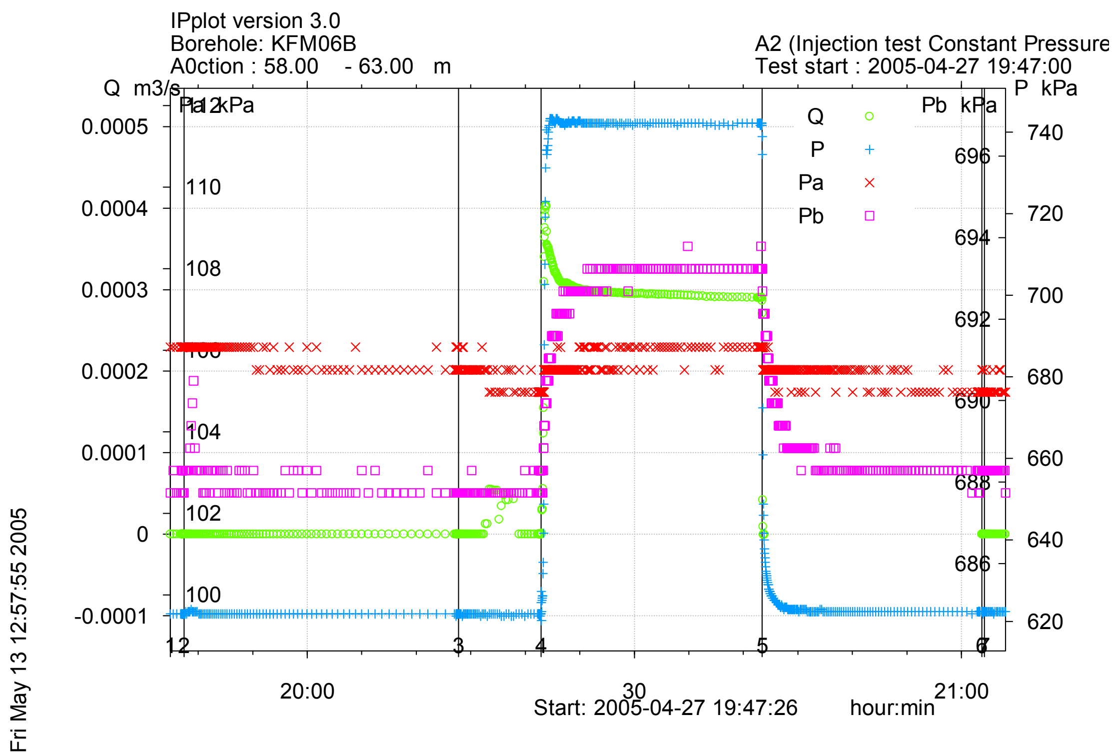


Figure A3-550. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 58.0-63.0 m in borehole KFM06B.*

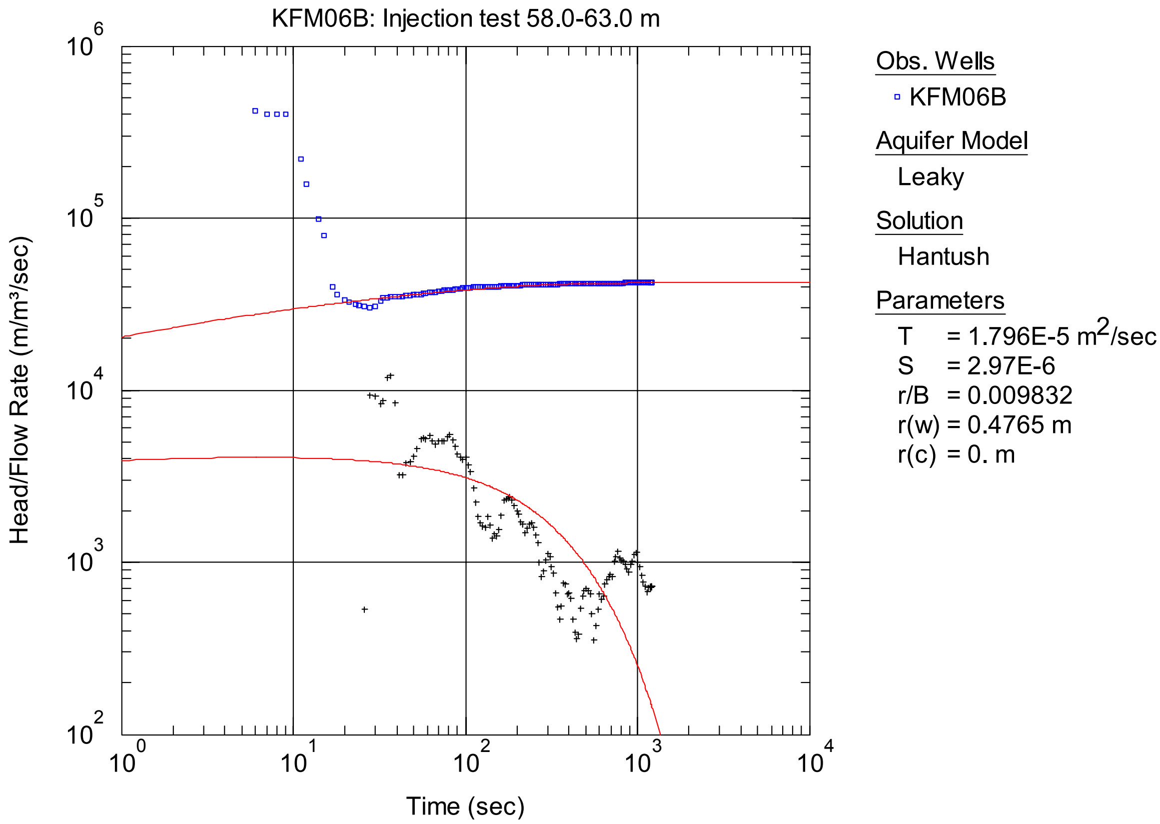


Figure A3-551. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 58.0-63.0 m in KFM06B.*

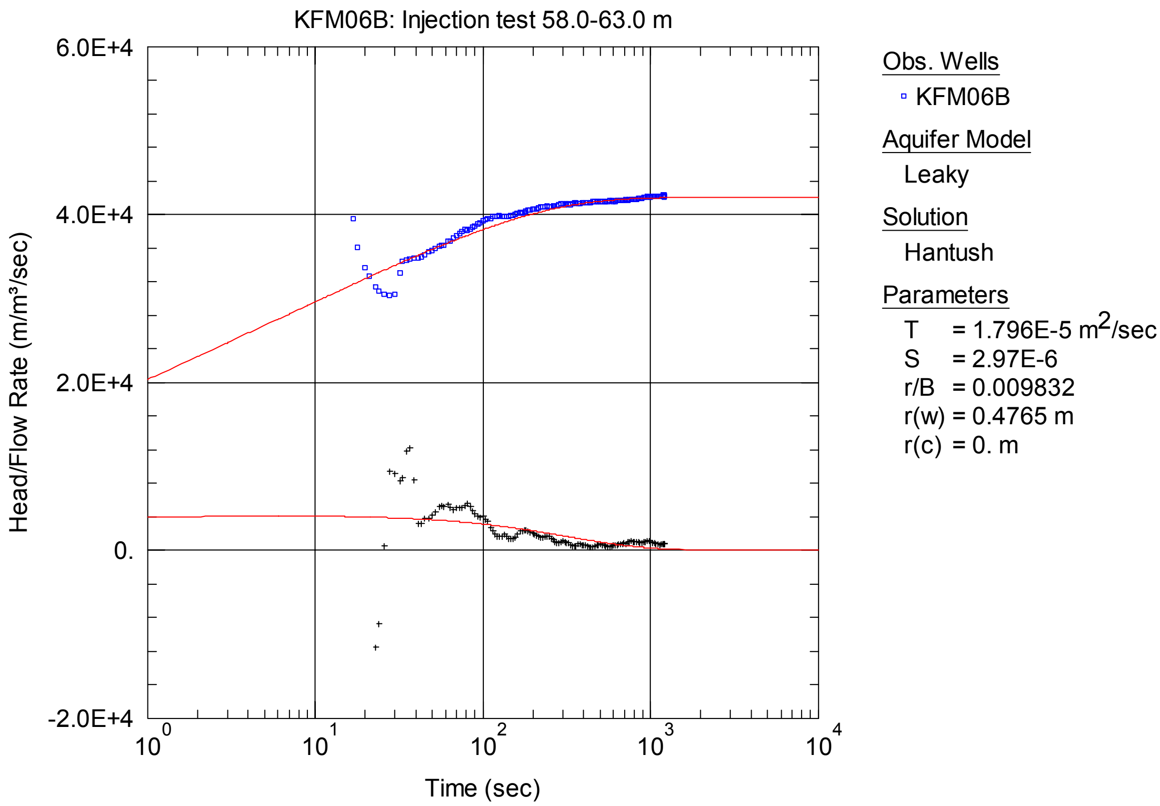


Figure A3-552. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 58.0-63.0 m in KFM06B.*

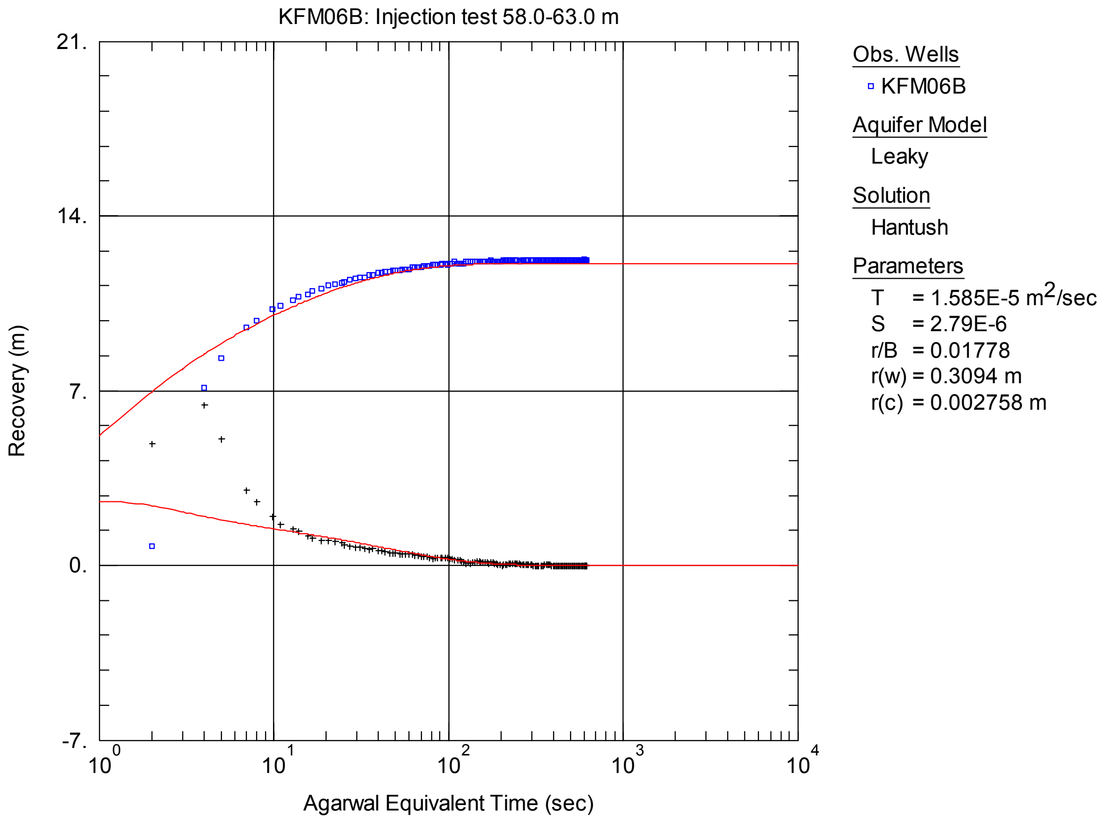


Figure A3-553. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 58.0-63.0 m in KFM06B.*

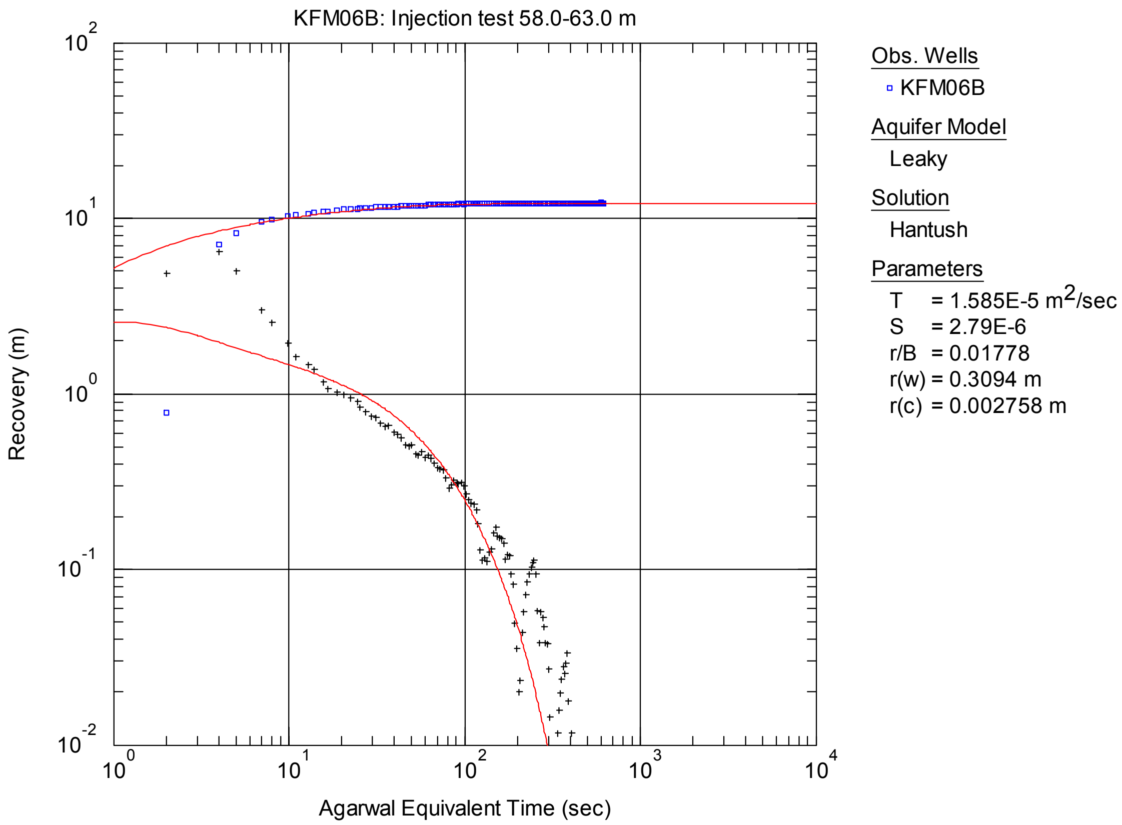


Figure A3-554. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 58.0-63.0 m in KFM06B.*

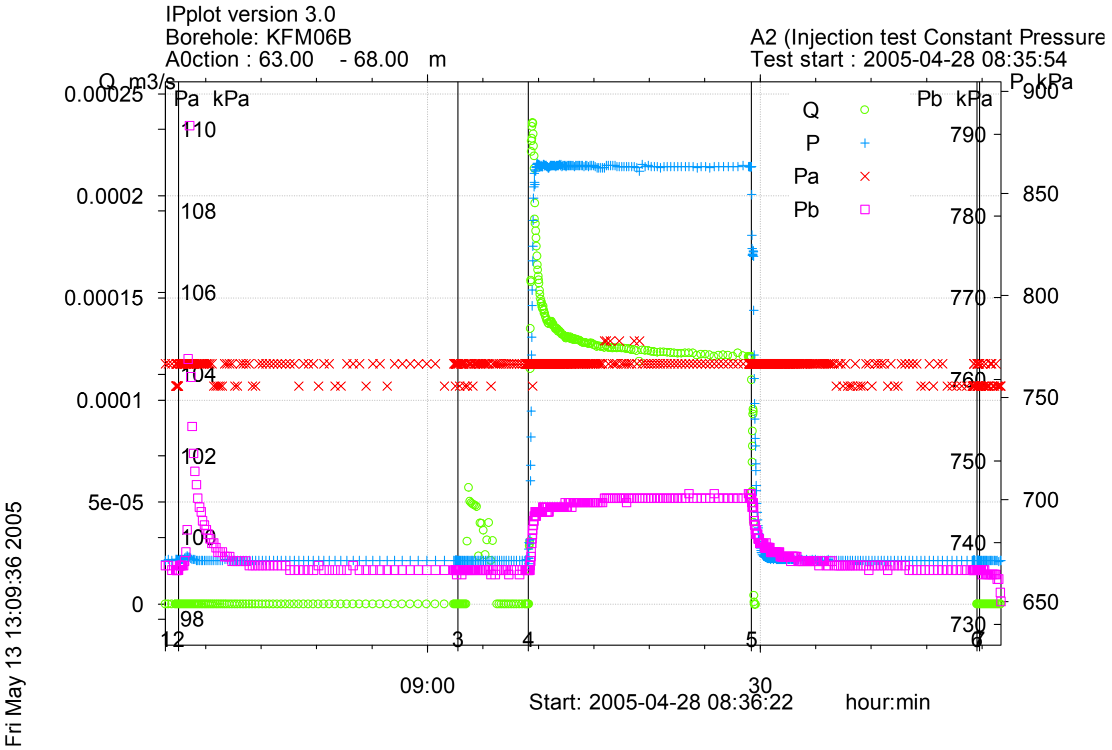


Figure A3-555. Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 63.0-68.0 m in borehole KFM06B.

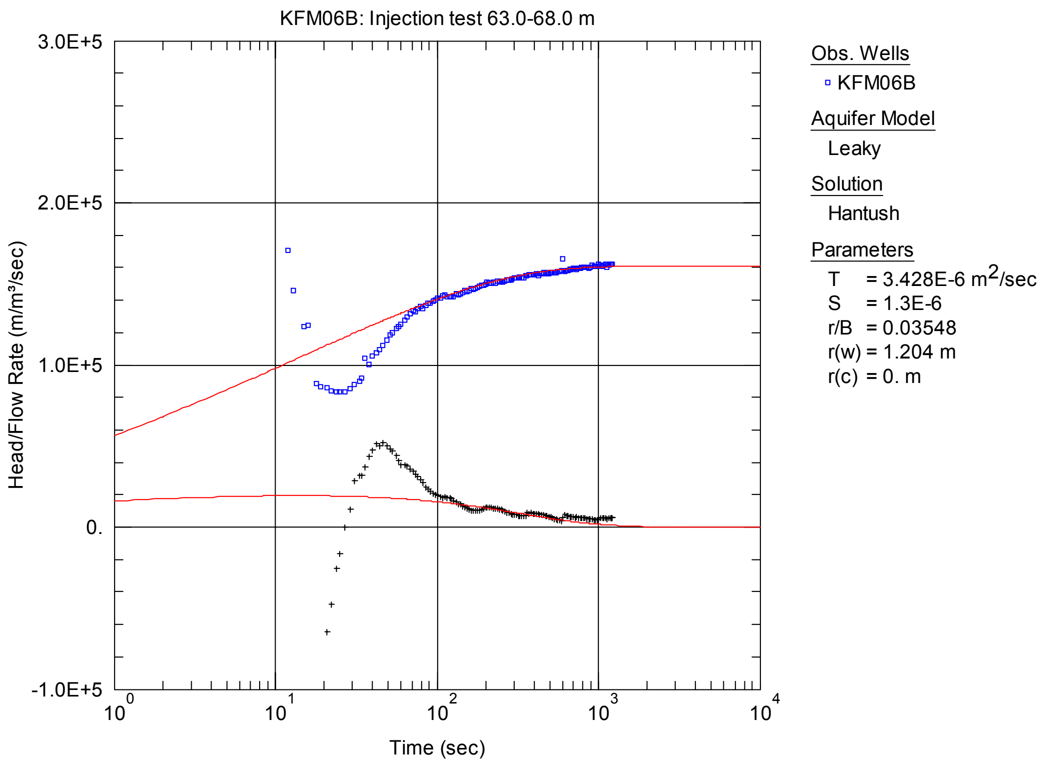


Figure A3-556. Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 63.0-68.0 m in KFM06B.

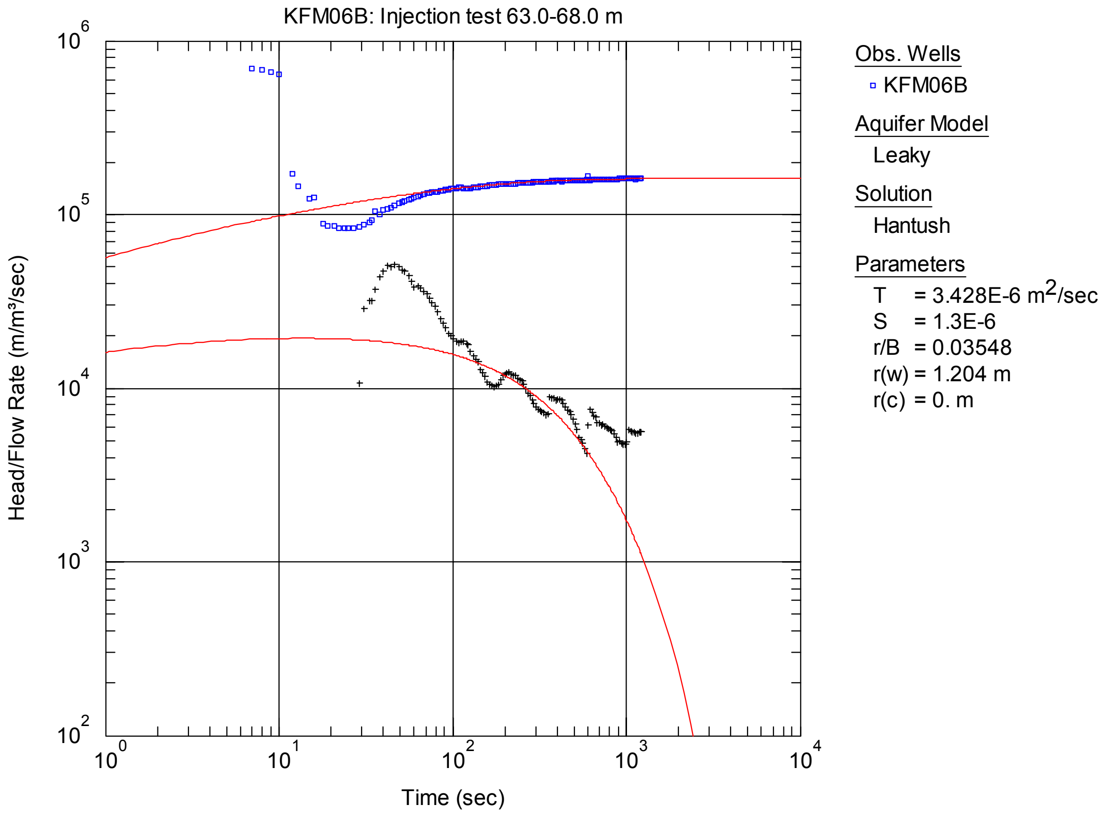


Figure A3-557. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 63.0-68.0 m in KFM06B.*

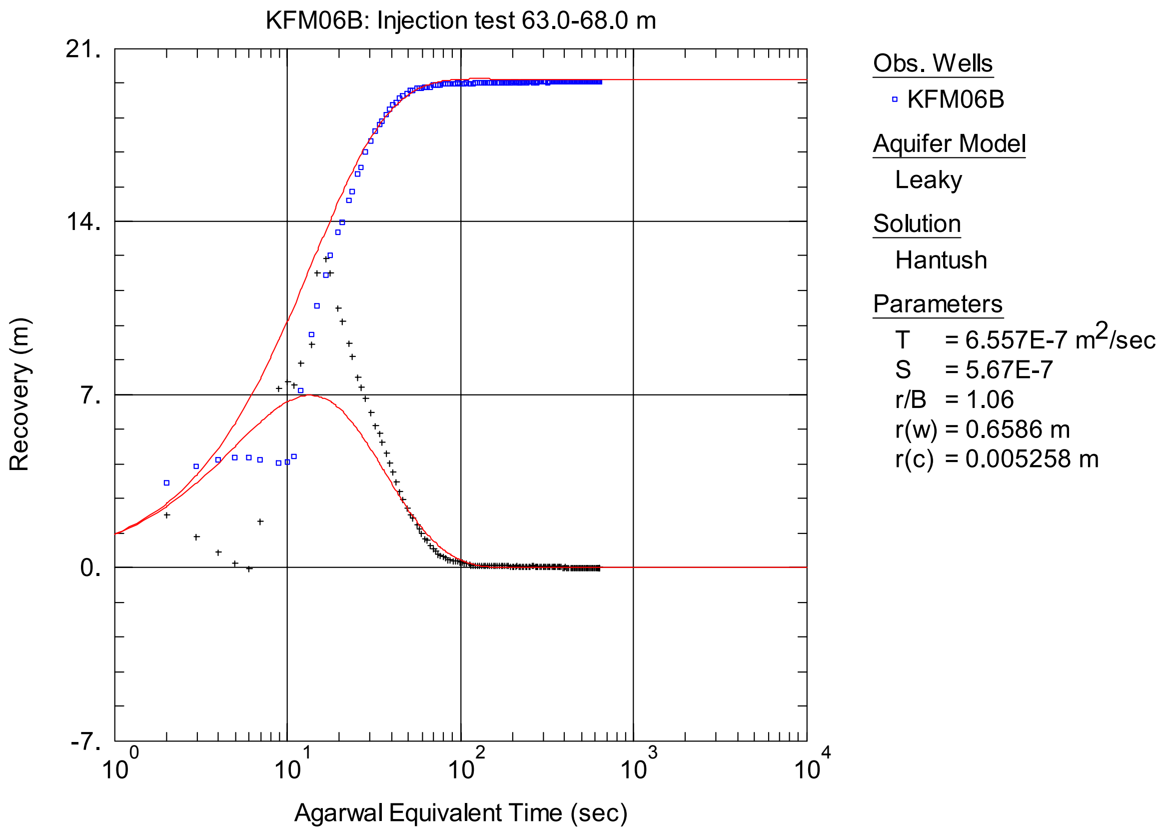


Figure A3-558. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 63.0-68.0 m in KFM06B.*

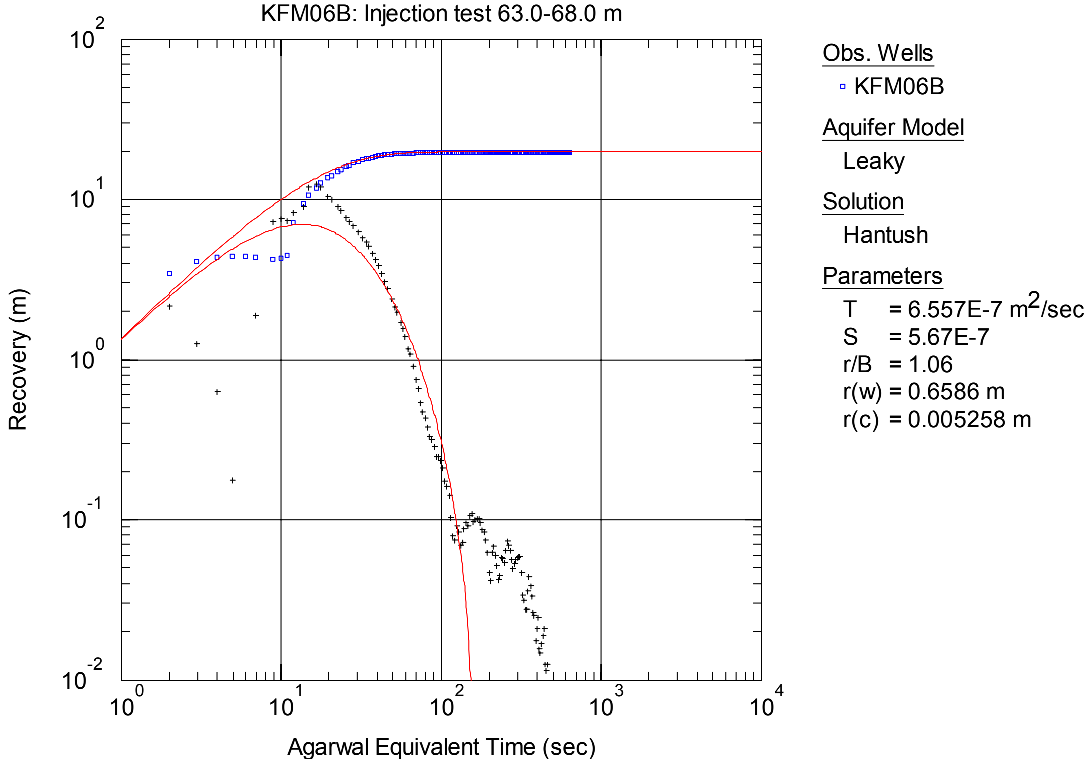


Figure A3-559. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 63.0-68.0 m in KFM06B.*

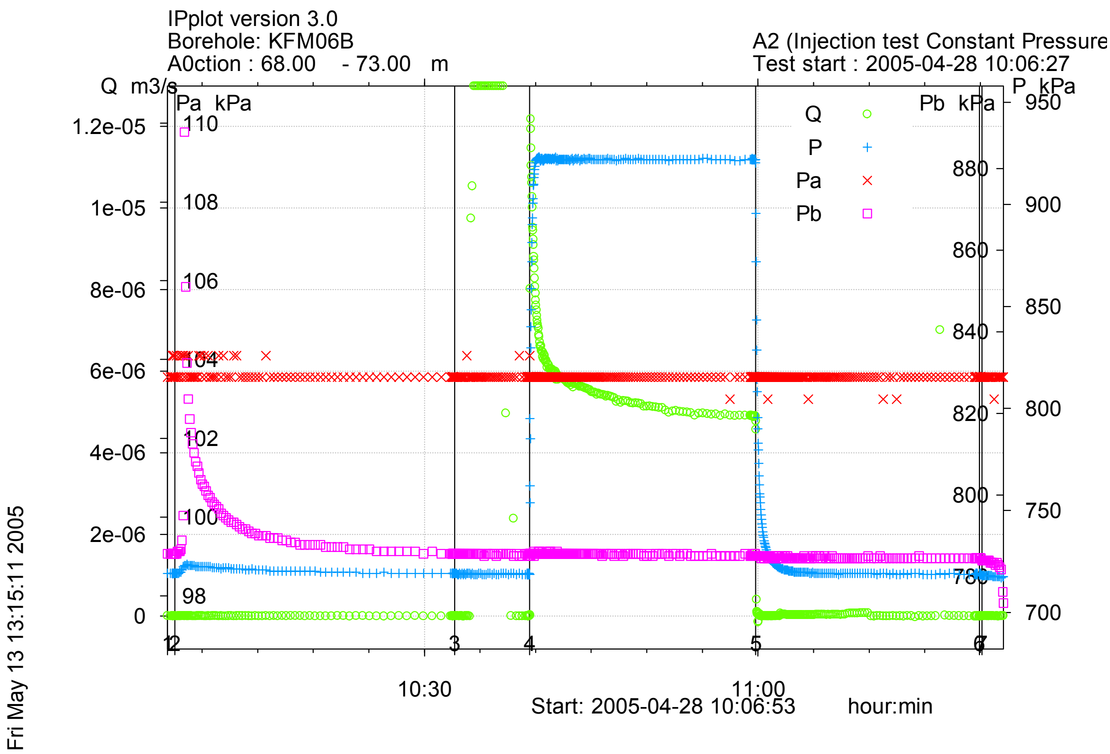


Figure A3-560. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 68.0-73.0 m in borehole KFM06B.*

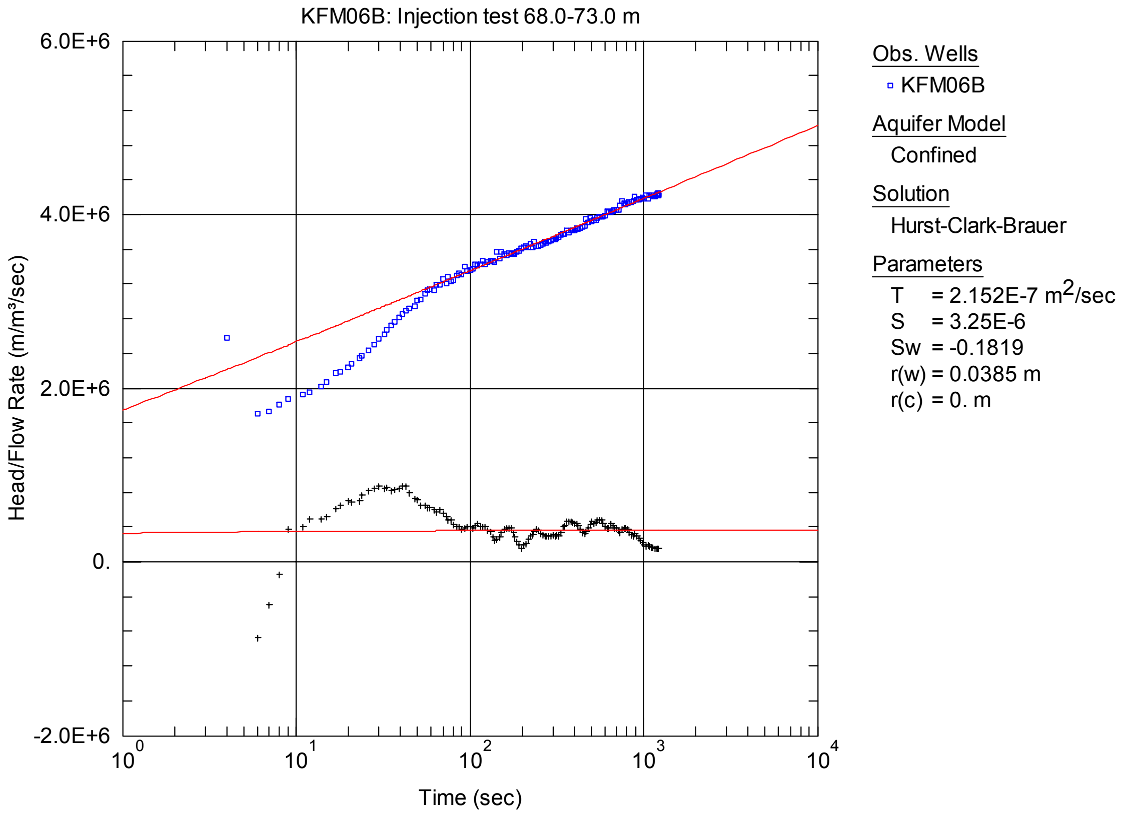


Figure A3-561. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 68.0-73.0 m in KFM06B.*

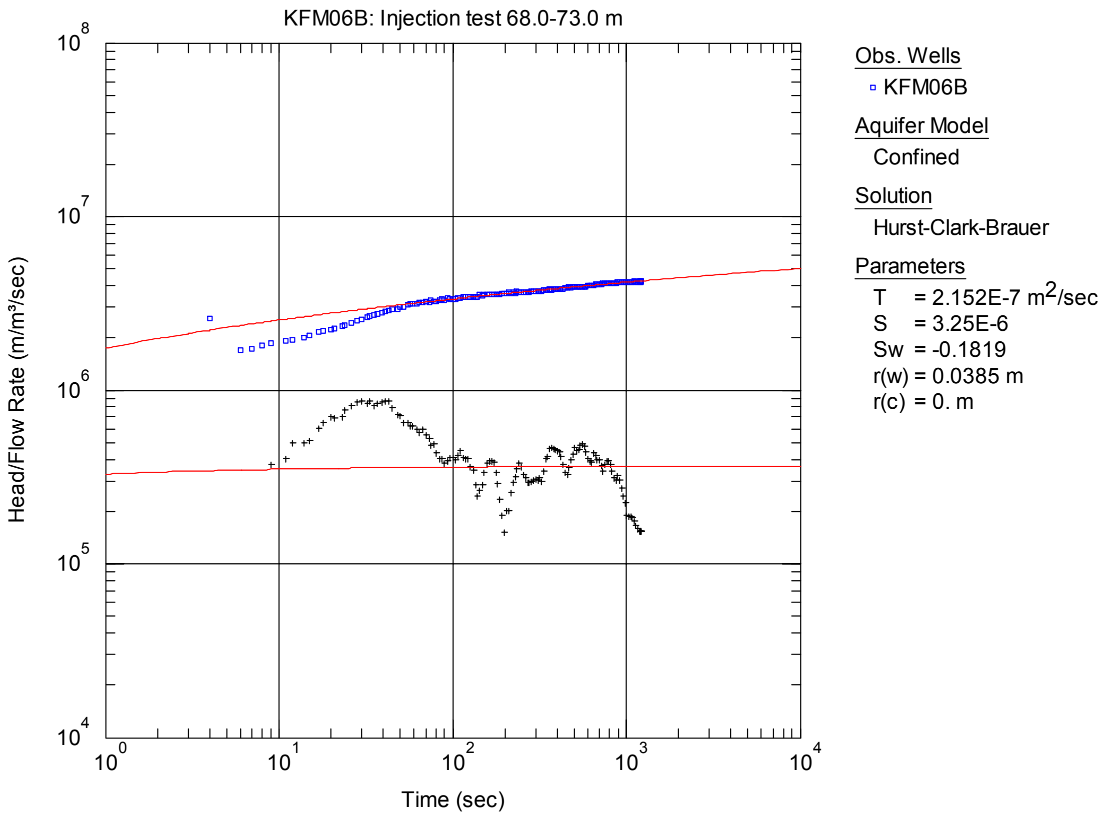


Figure A3-562. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 68.0-73.0 m in KFM06B.*

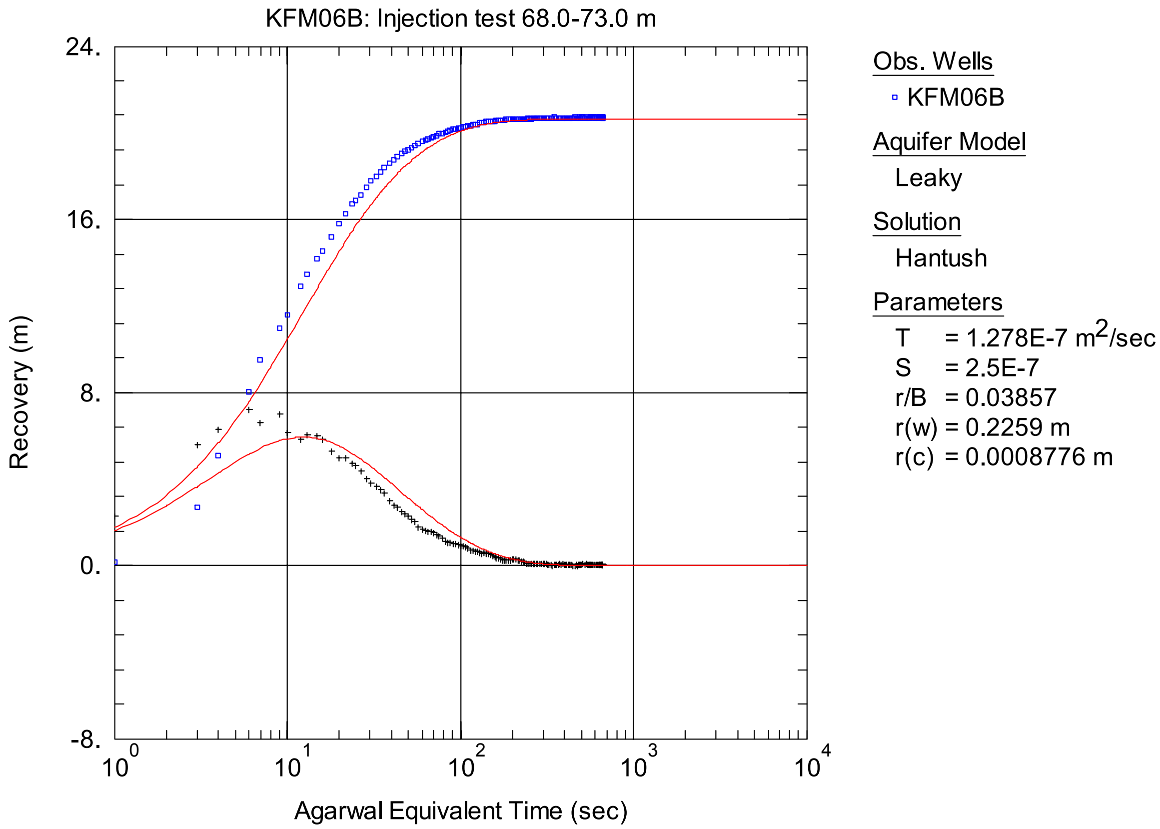


Figure A3-563. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 68.0-73.0 m in KFM06B.*

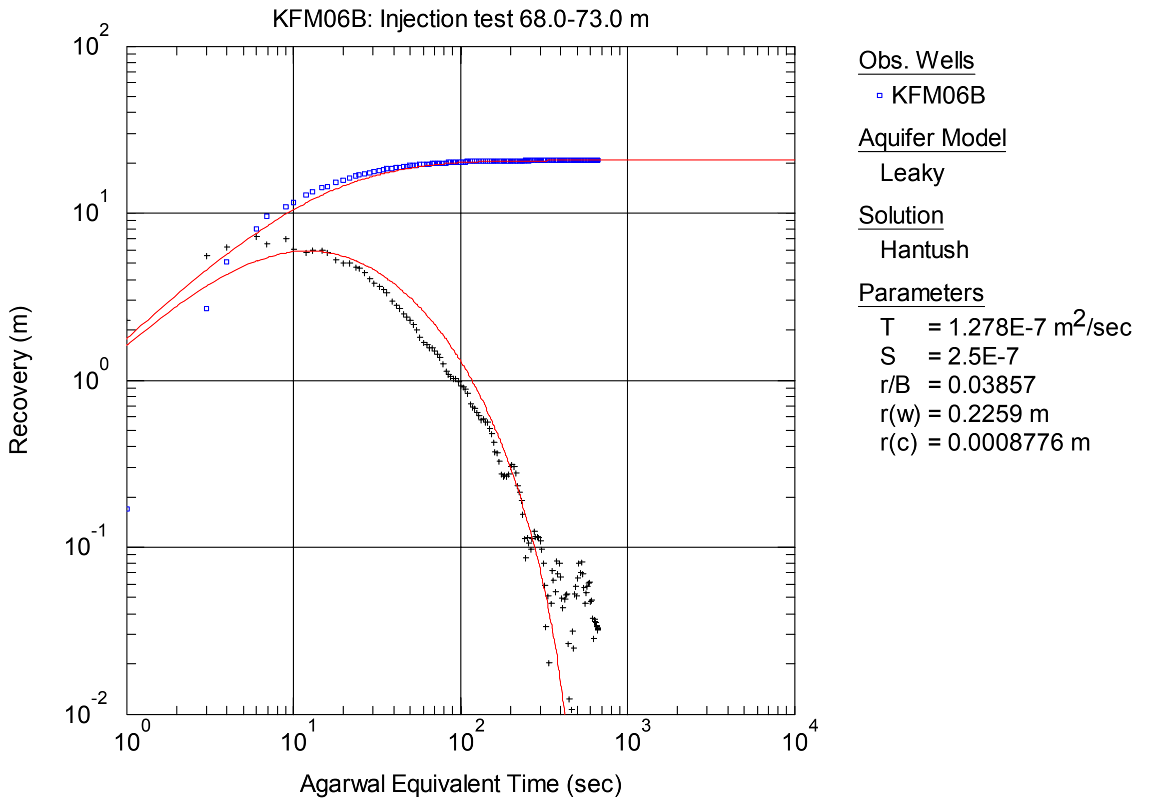


Figure A3-564. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 68.0-73.0 m in KFM06B.*

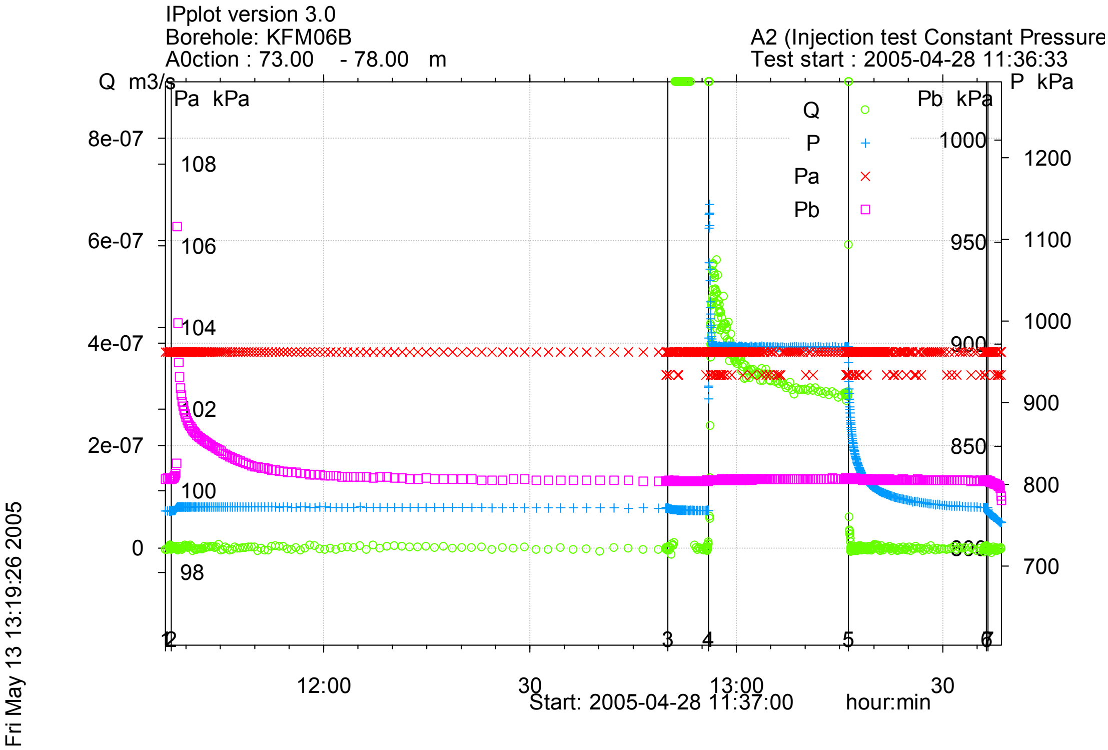


Figure A3-565. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 73.0-78.0 m in borehole KFM06B.*

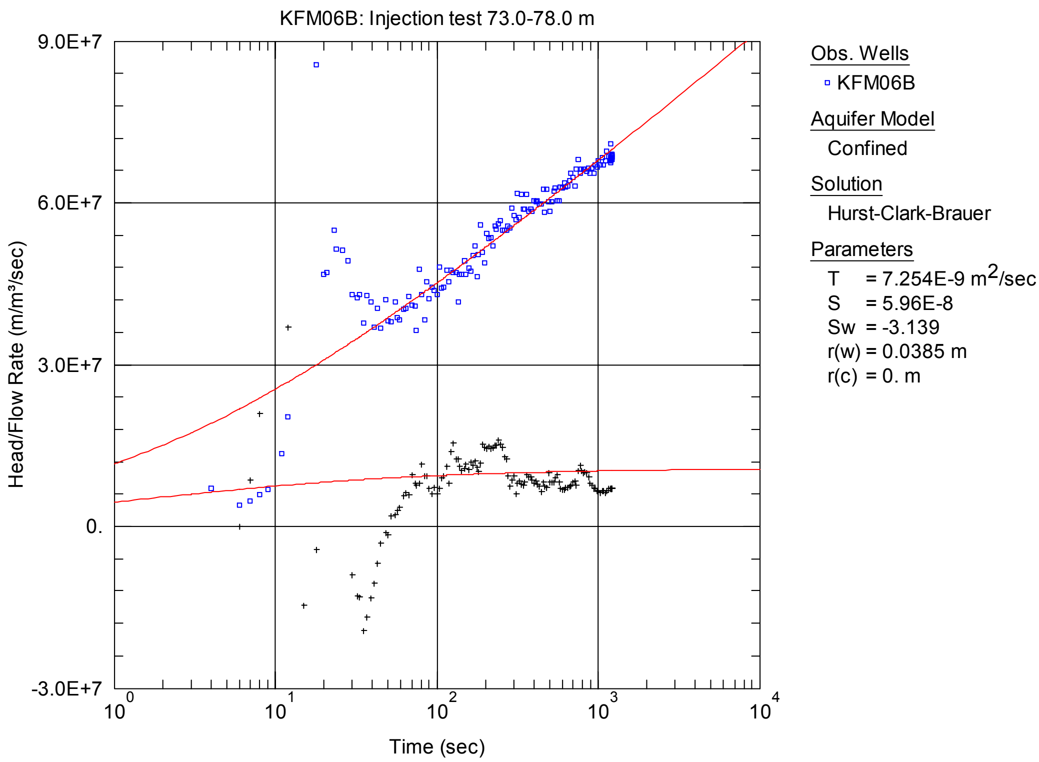


Figure A3-566. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 73.0-78.0 m in KFM06B.*

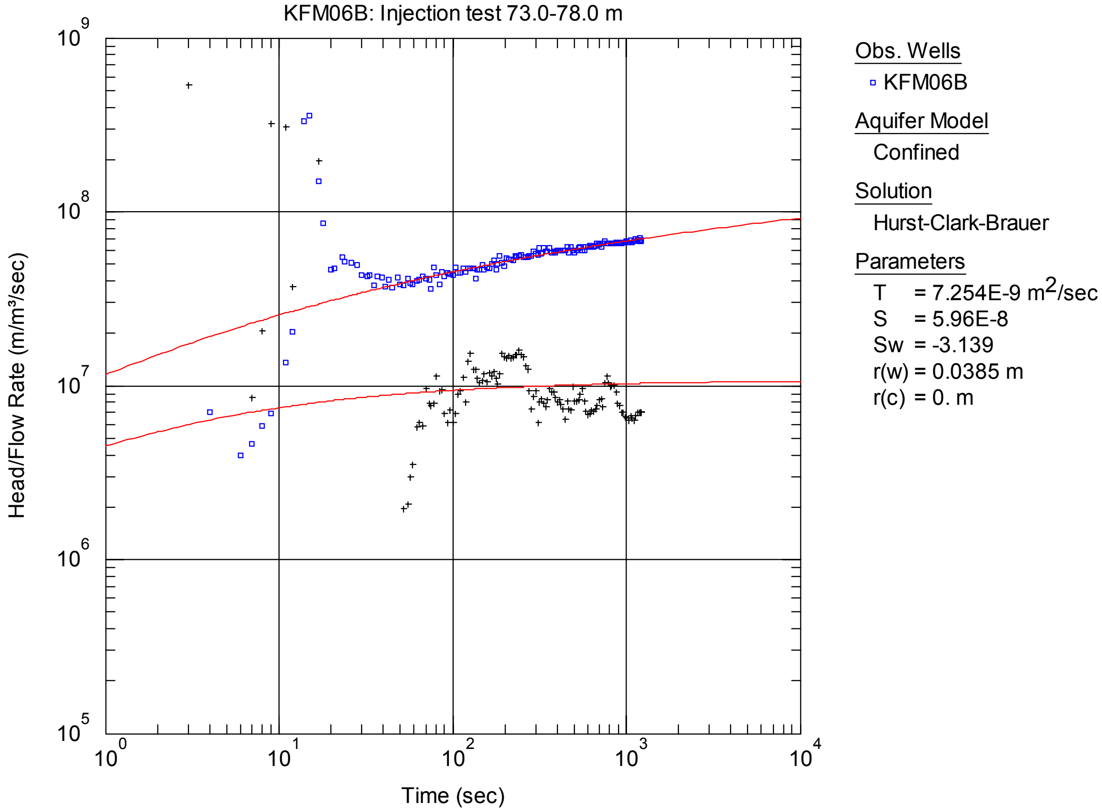


Figure A3-567. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 73.0-78.0 m in KFM06B.*

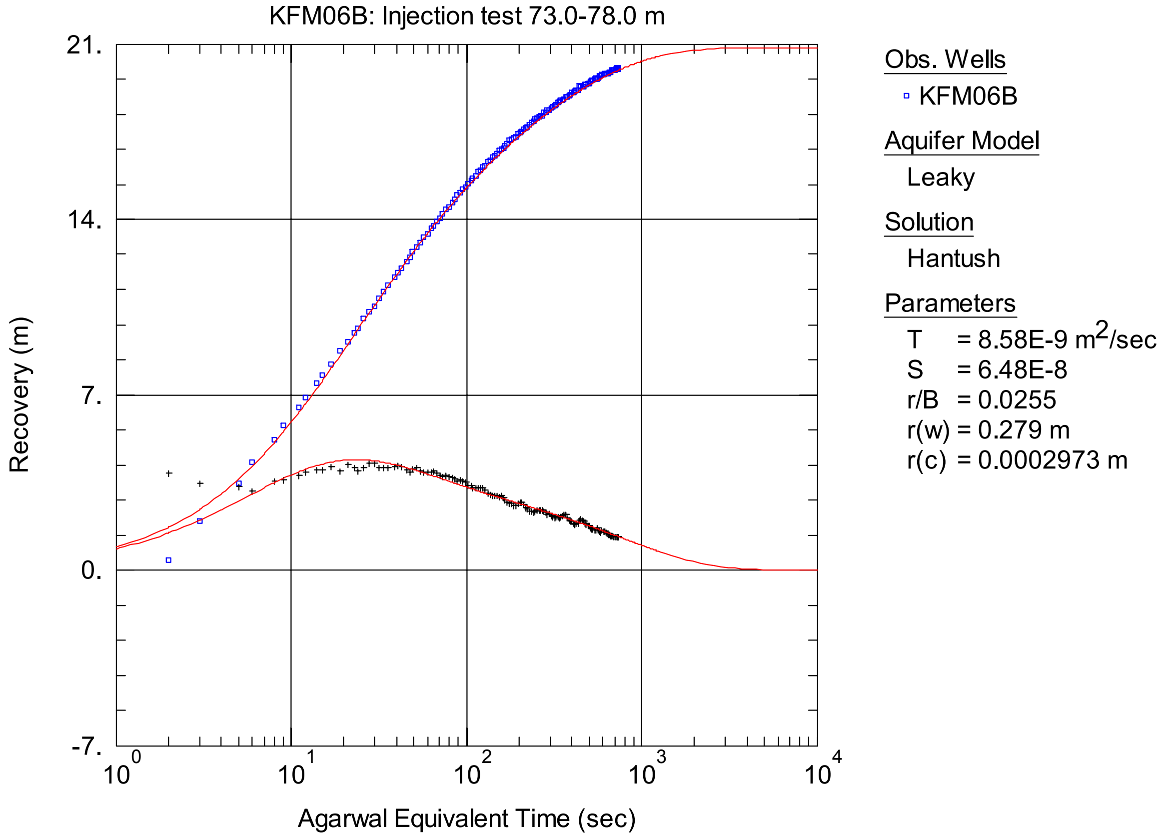


Figure A3-568. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 73.0-78.0 m in KFM06B.*

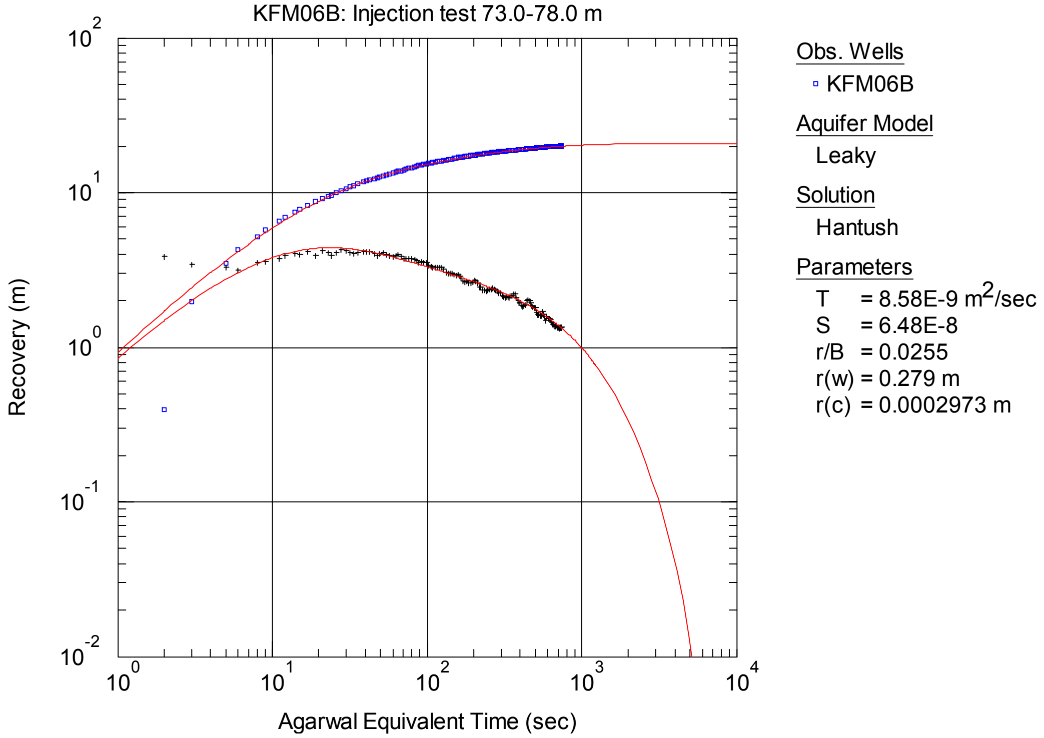


Figure A3-569. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 73.0-78.0 m in KFM06B.*

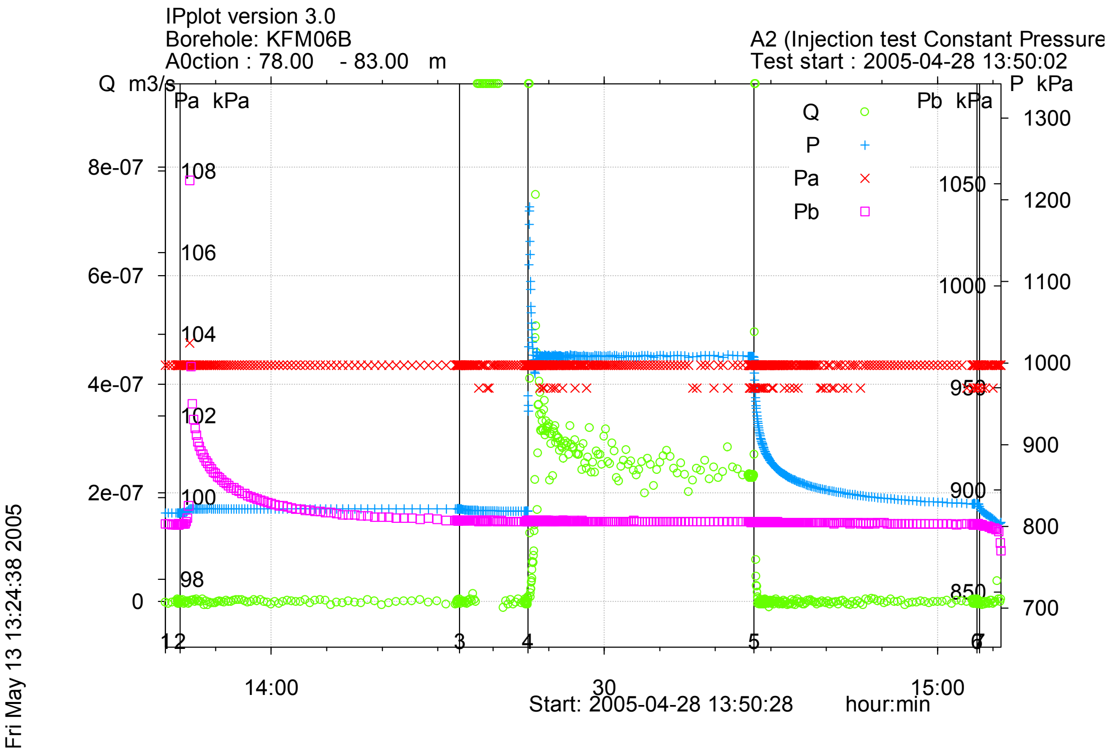


Figure A3-570. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 78.0-83.0 m in borehole KFM06B.*

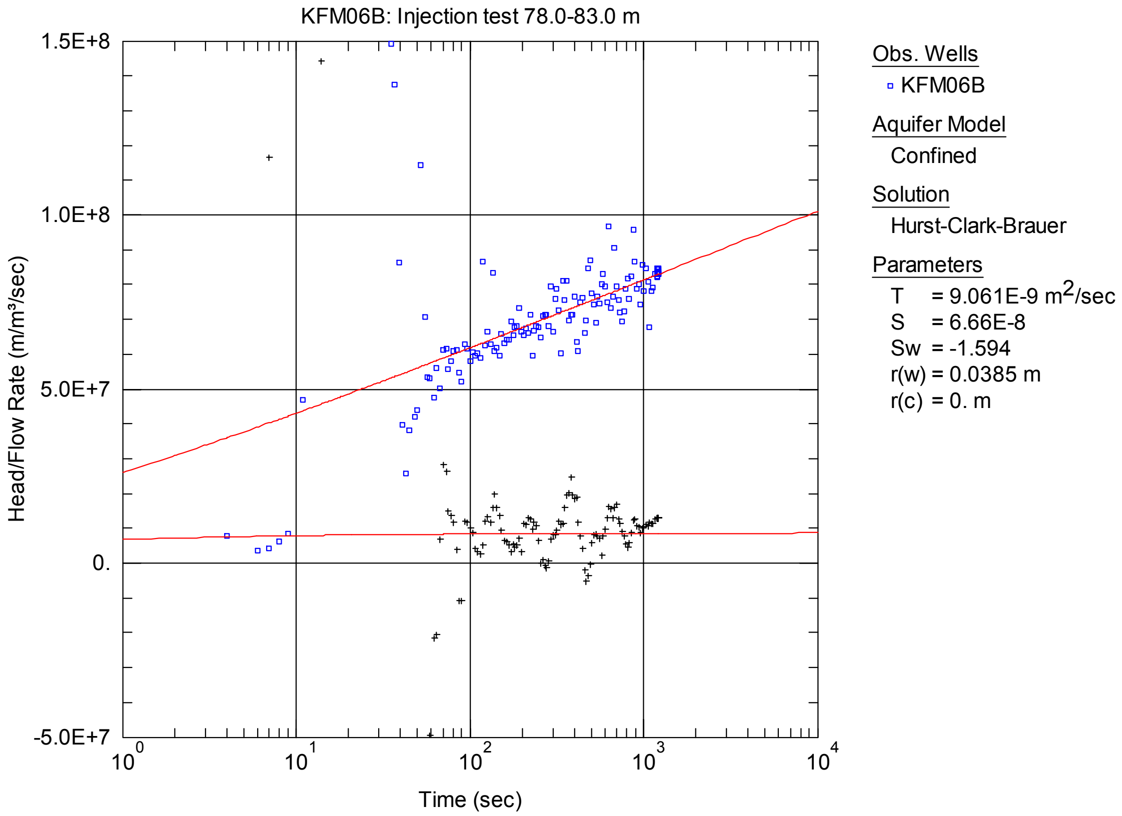


Figure A3-571. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 78.0-83.0 m in KFM06B.*

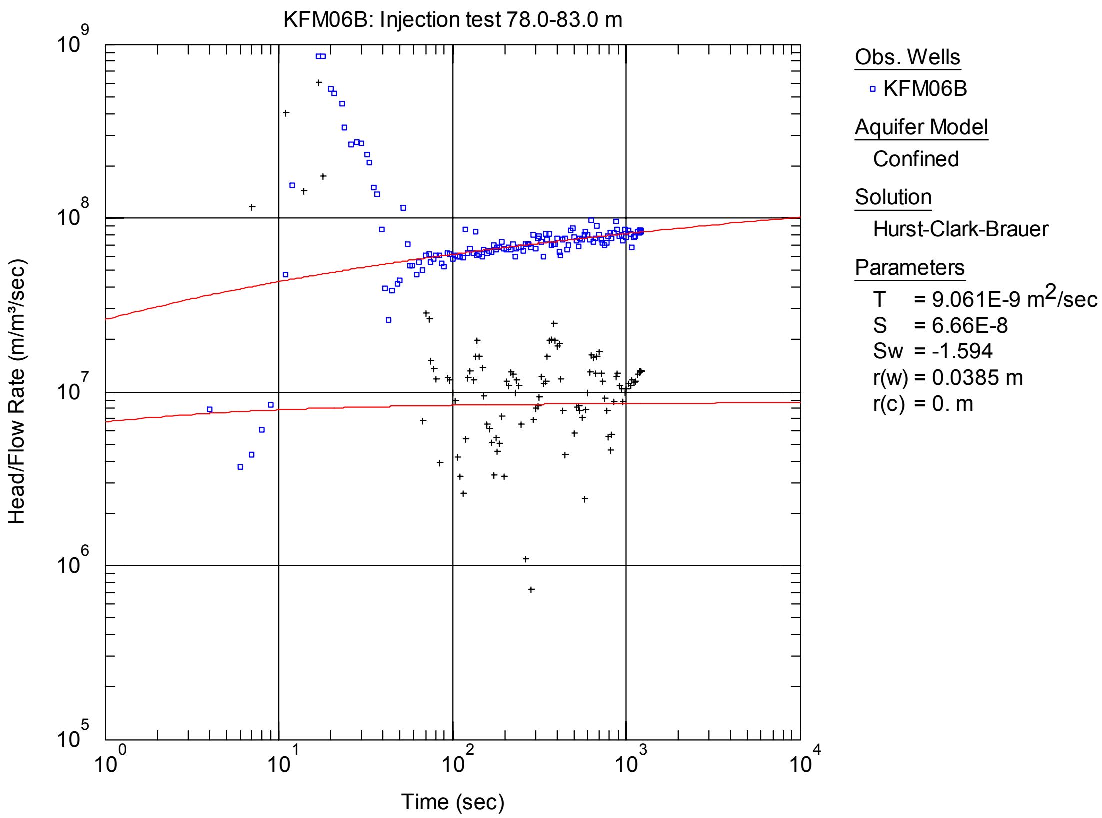


Figure A3-572. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 78.0-83.0 m in KFM06B.*

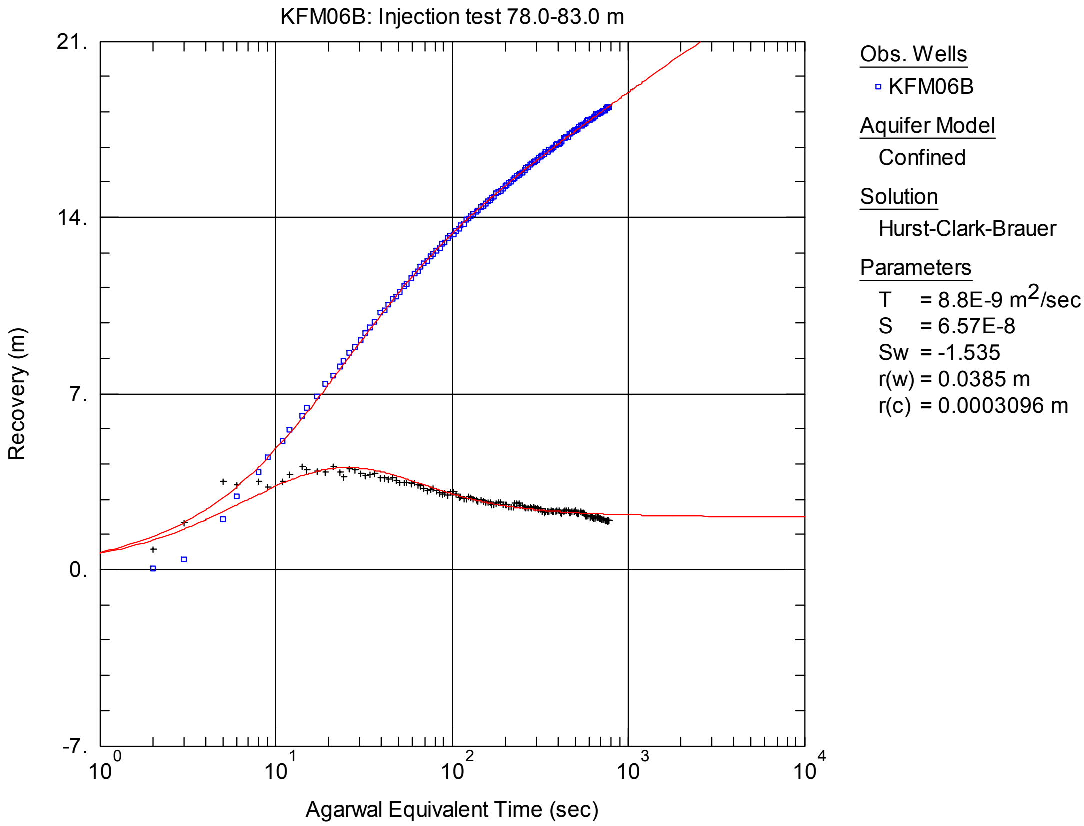


Figure A3-573. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 78.0-83.0 m in KFM06B.*

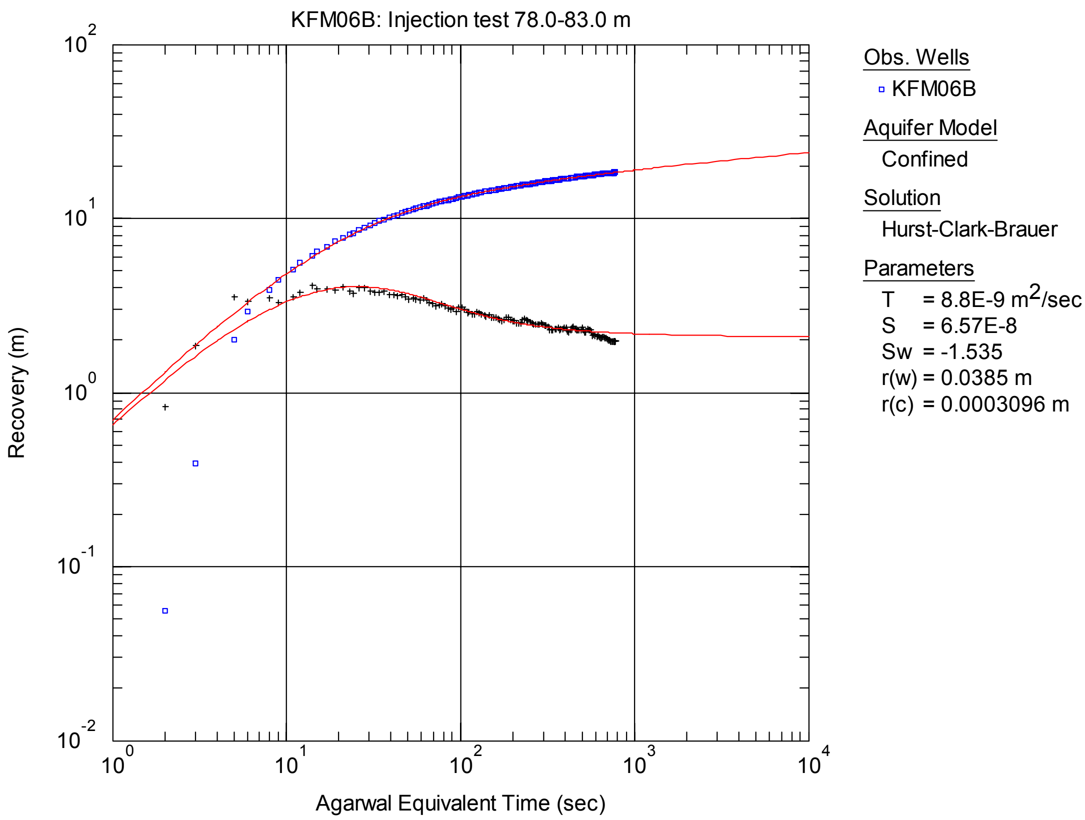


Figure A3-574. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, from the injection test in section 78.0-83.0 m in KFM06B.*

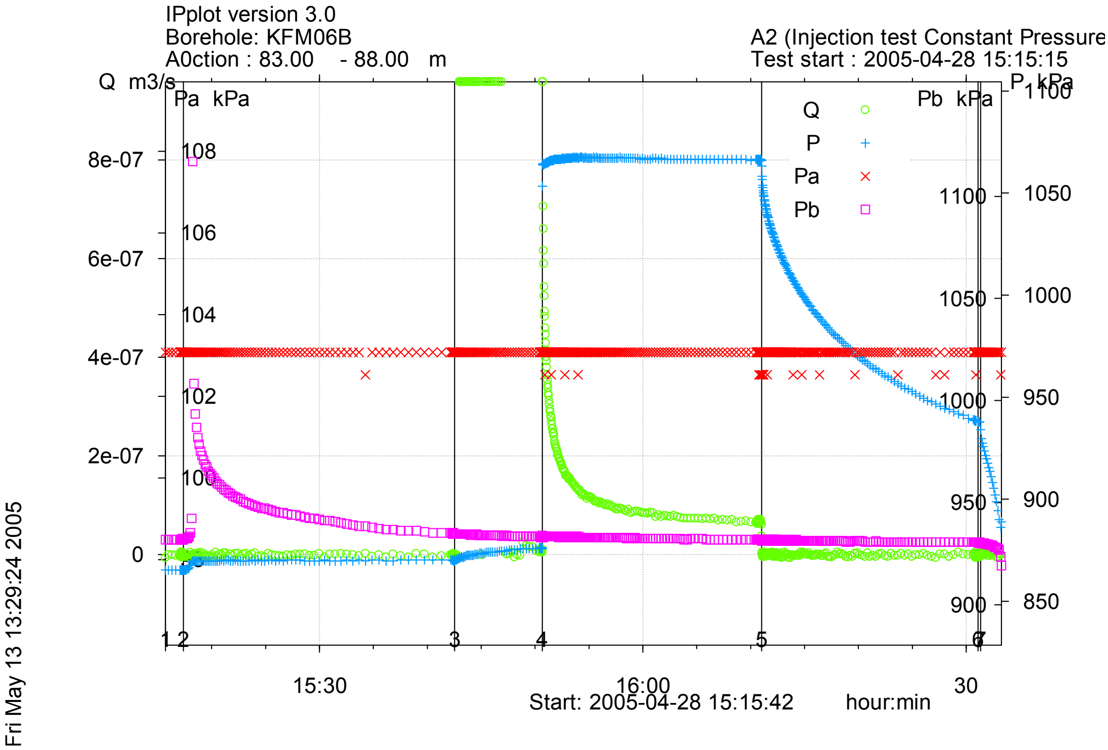


Figure A3-575. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 83.0-88.0 m in borehole KFM06B.*

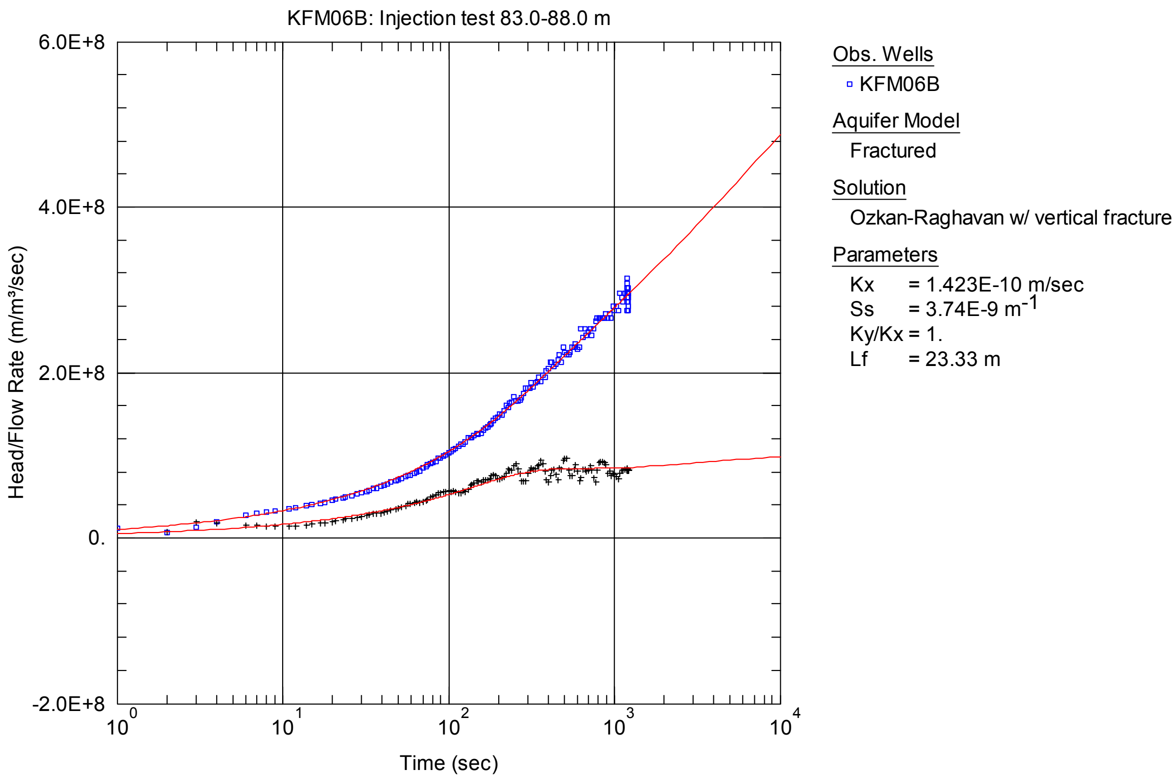


Figure A3-576. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Ozkan-Raghavan solution, from the injection test in section 83.0-88.0 m in KFM06B.*

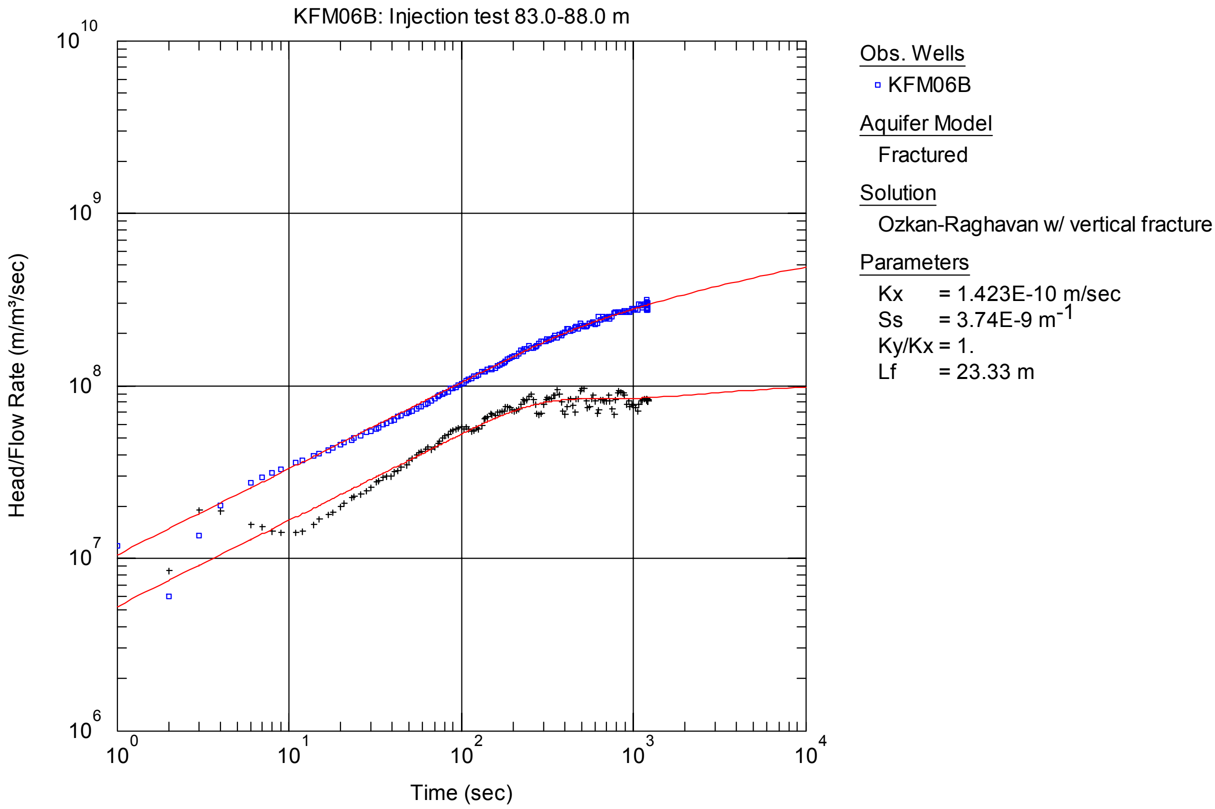


Figure A3-577. *Log-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Ozkan-Raghavan solution, from the injection test in section 83.0-88.0 m in KFM06B.*

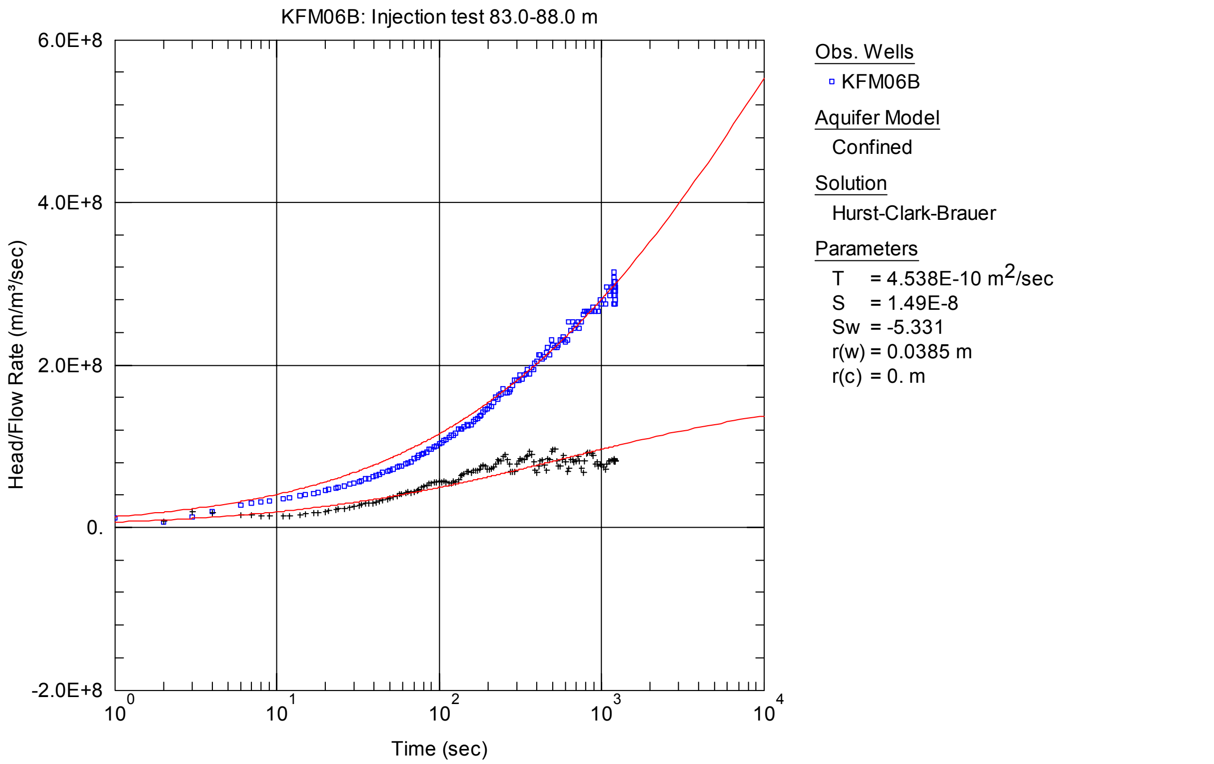


Figure A3-578. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Hurst-Clark-Brauer solution, from the injection test in section 83.0-88.0 m in KFM06B.*

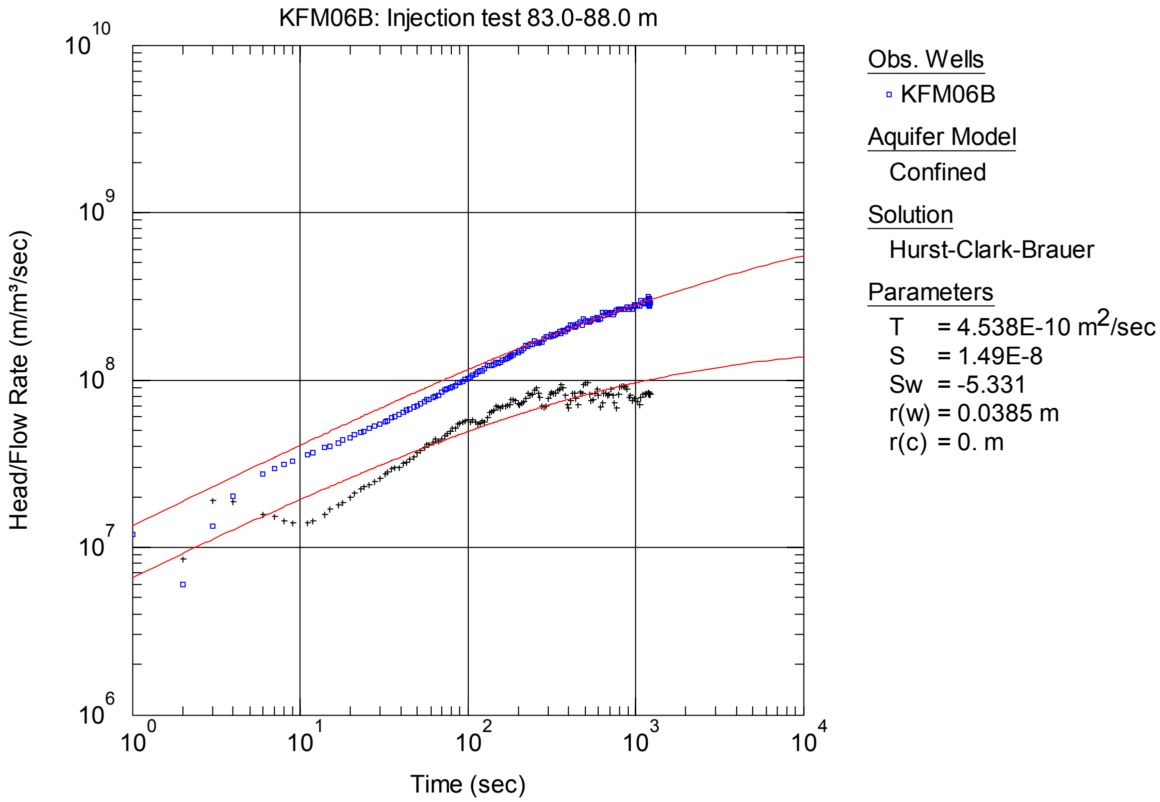


Figure A3-579. *Log-log plot of head/flow rate (□) and derivative (+) versus time, showing fit to the Hurst-Clark-Brauer solution, from the injection test in section 83.0-88.0 m in KFM06B.*

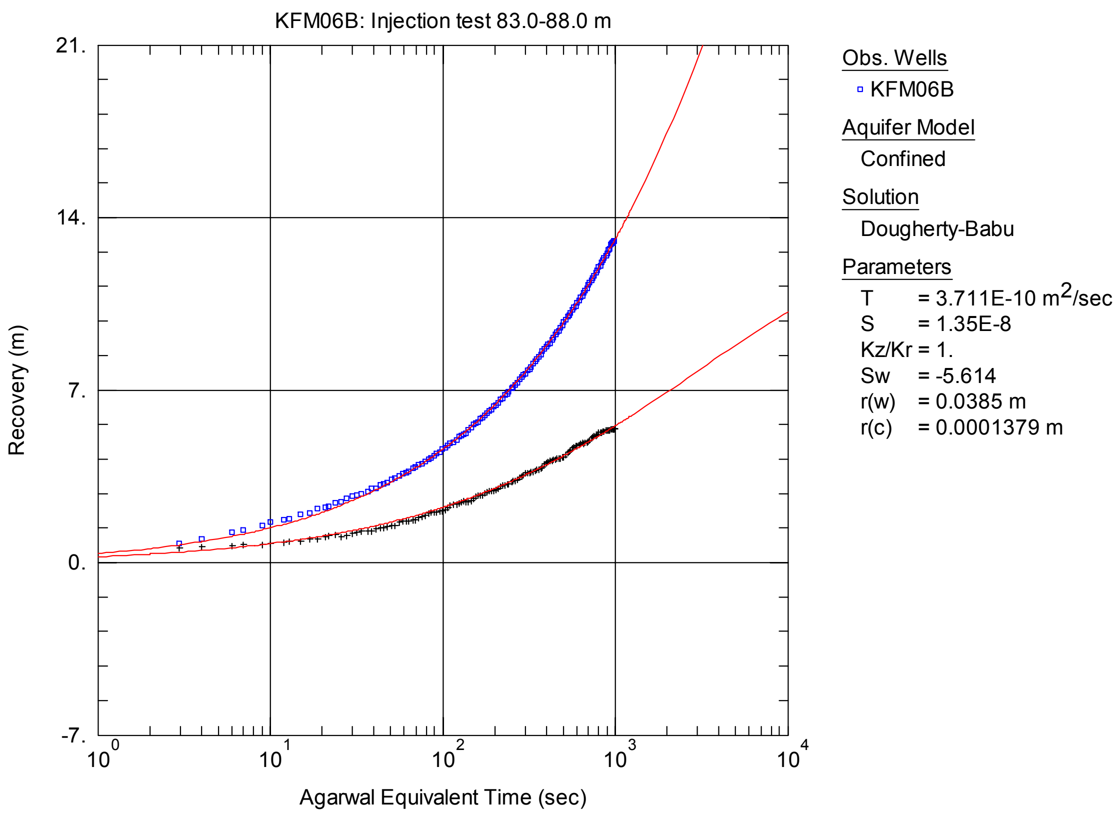


Figure A3-580. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, showing fit to the Dougherty-Babu solution, from the injection test in section 83.0-88.0 m in KFM06B.*

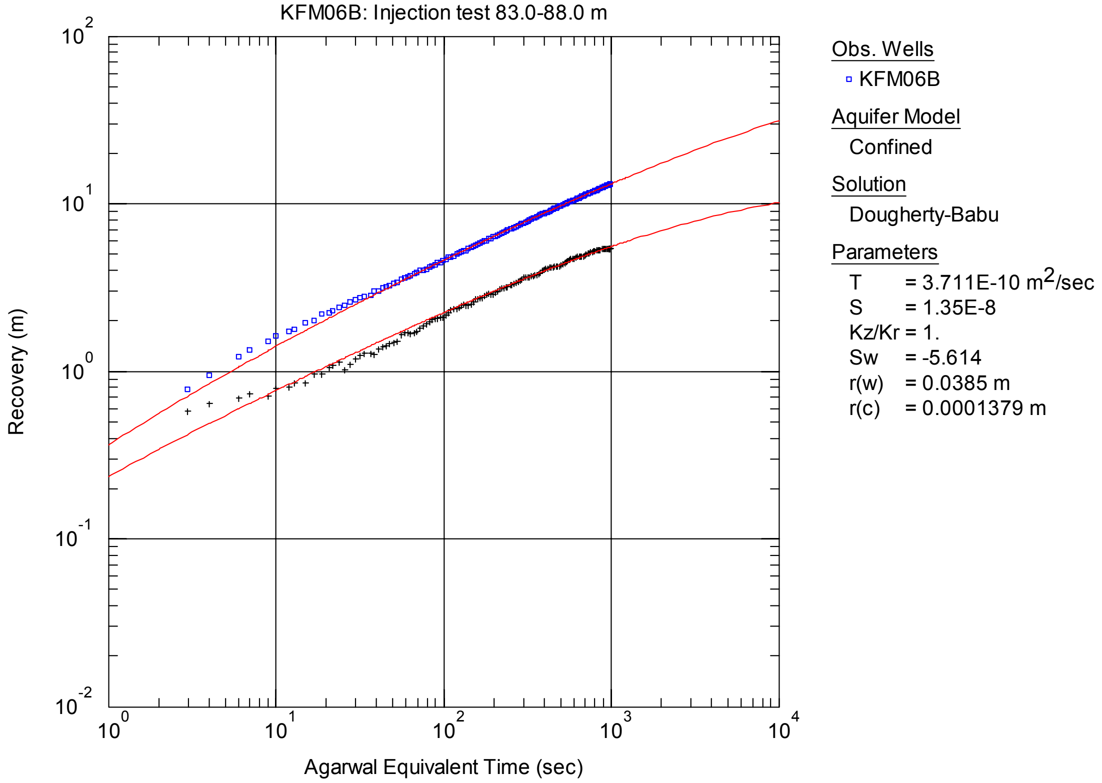


Figure A3-581. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, showing fit to the Dougherty-Babu solution, from the injection test in section 83.0-88.0 m in KFM06B.*

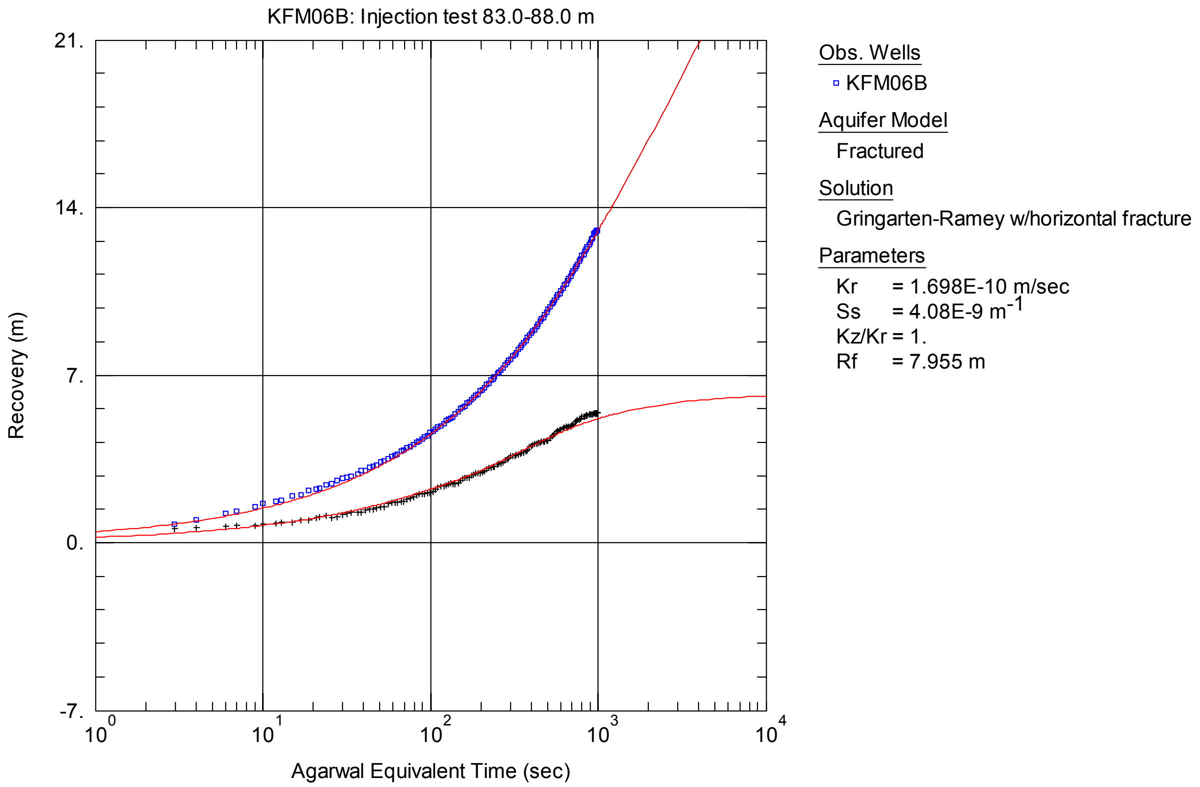


Figure A3-582. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, showing fit to the Gringarten-Ramey solution, from the injection test in section 83.0-88.0 m in KFM06B.*

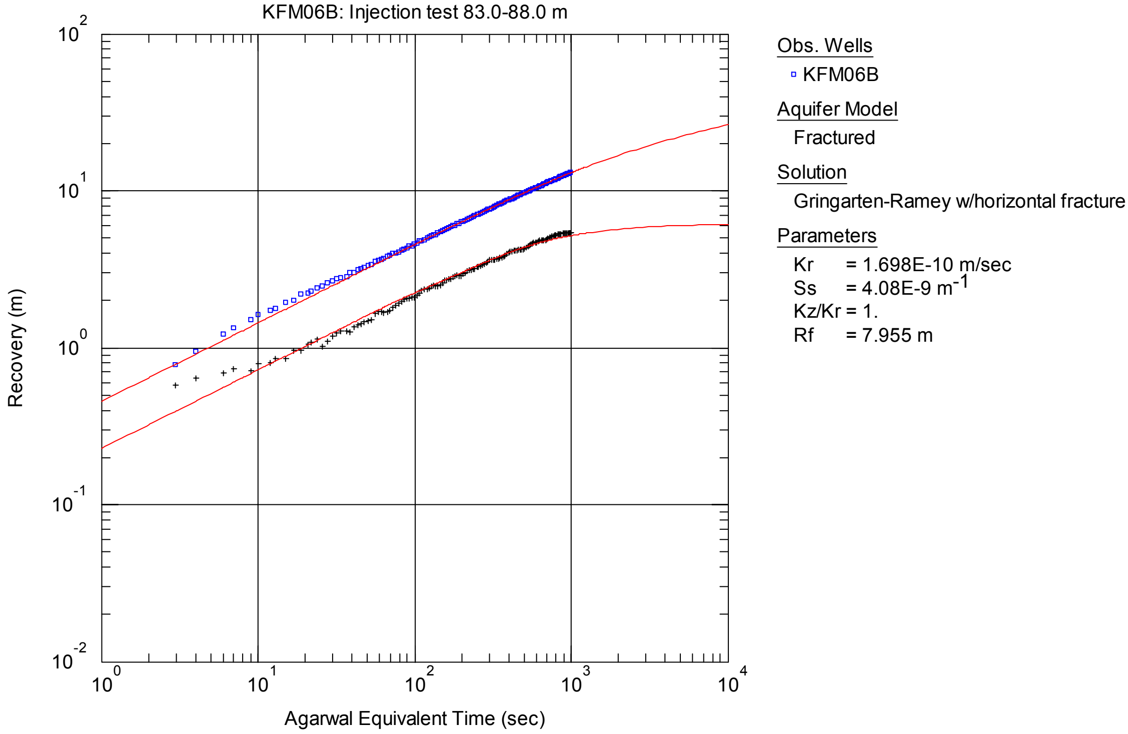


Figure A3-583. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, showing fit to the Gringarten-Ramey solution, from the injection test in section 83.0-88.0 m in KFM06B.*

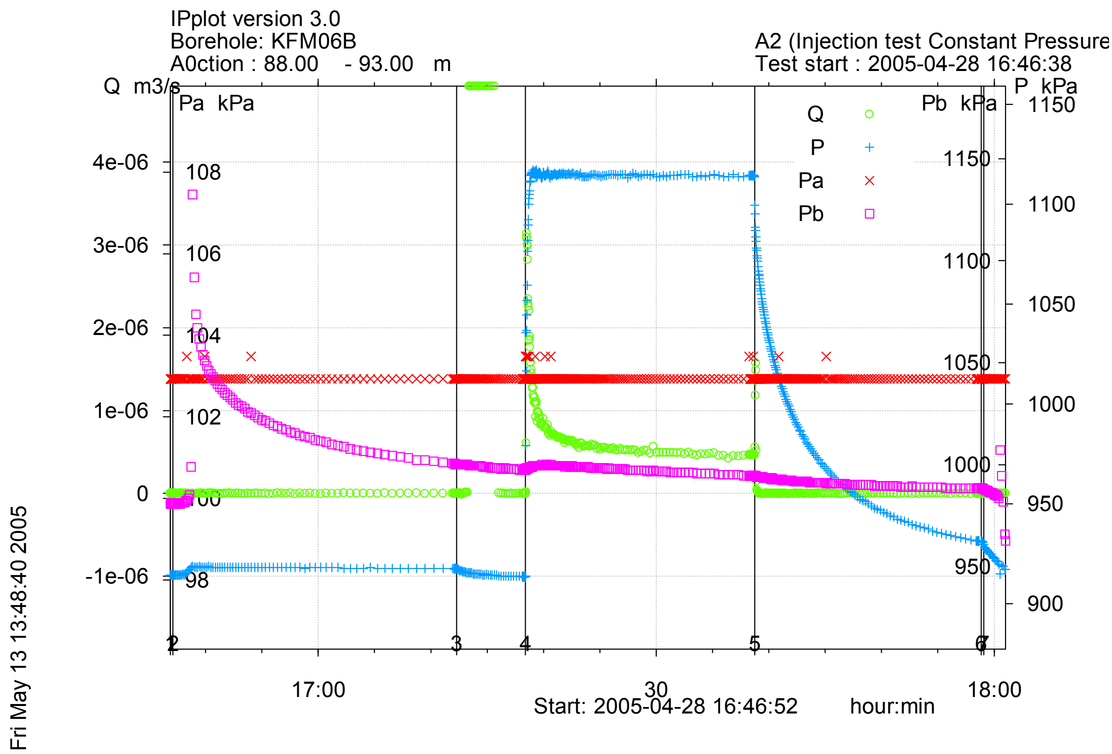


Figure A3-584. *Linear plot of flow rate (Q), pressure (P), pressure above section (Pa) and pressure below section (Pb) versus time from the injection test in section 88.0-93.0 m in borehole KFM06B.*

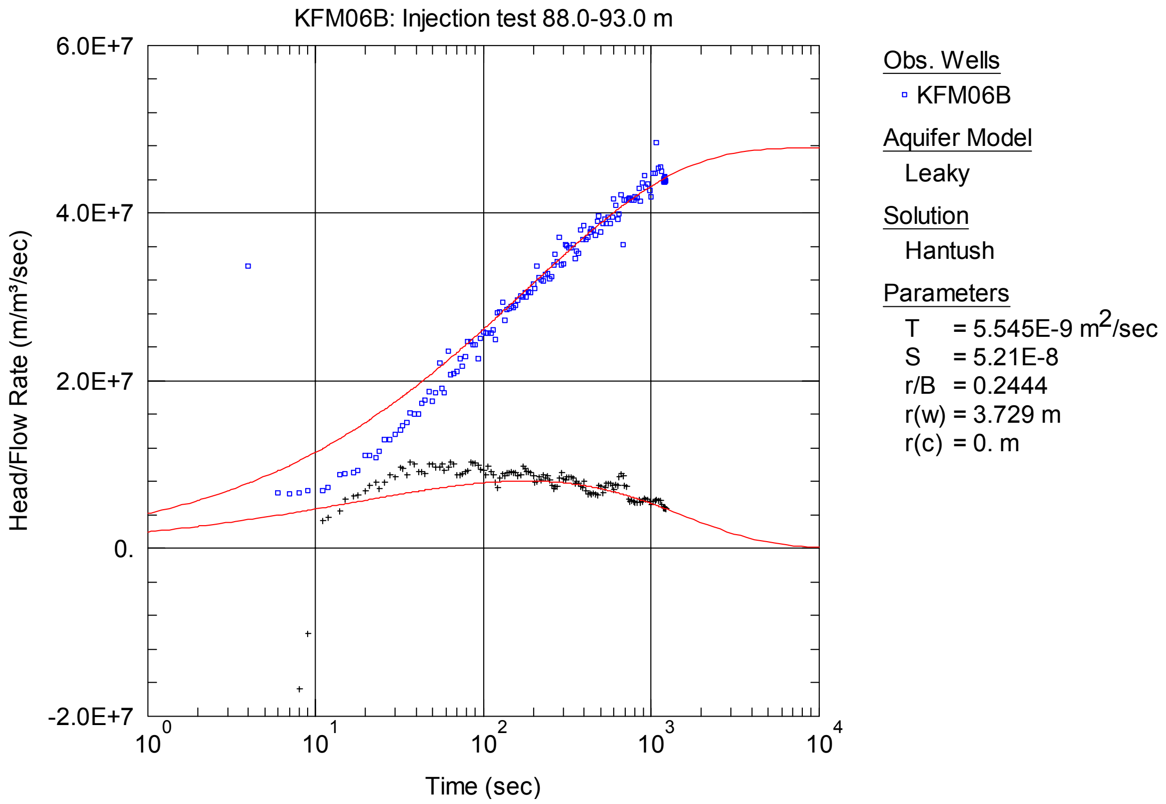


Figure A3-585. *Lin-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 88.0-93.0 m in KFM06B.*

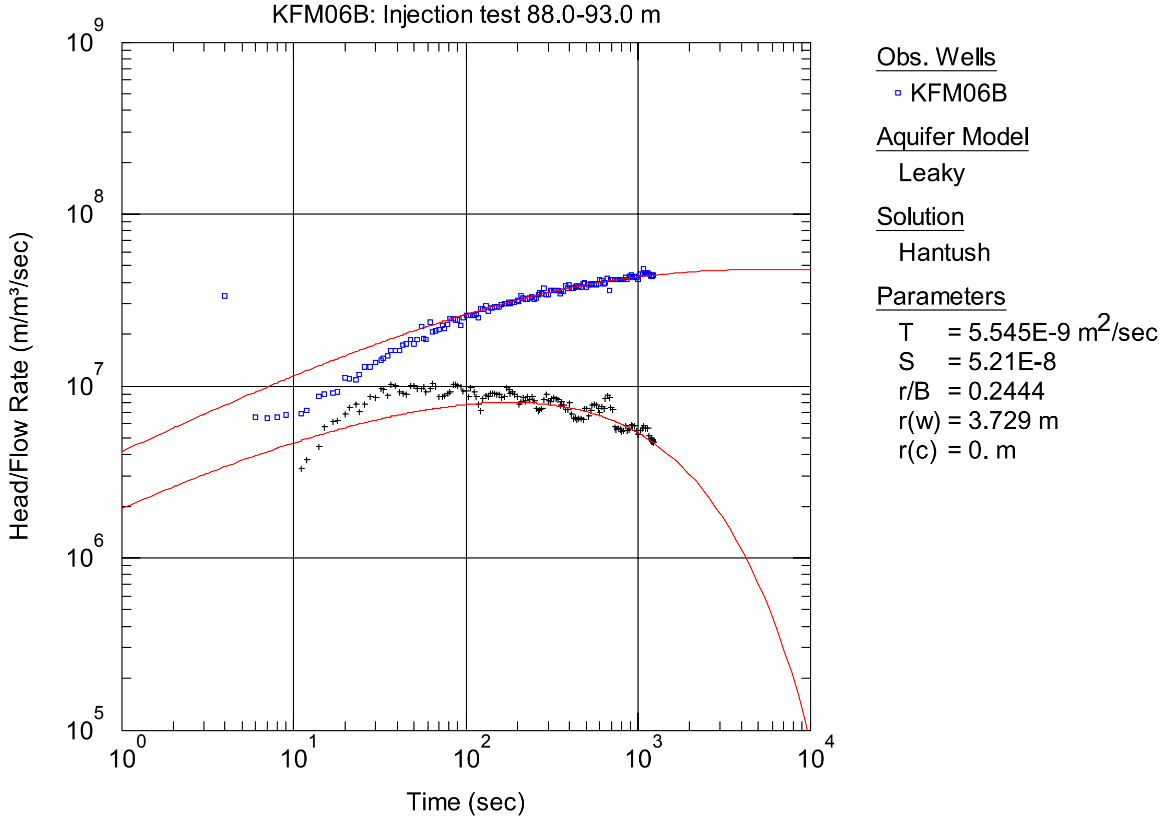


Figure A3-586. *Log-log plot of head/flow rate (□) and derivative (+) versus time, from the injection test in section 88.0-93.0 m in KFM06B.*

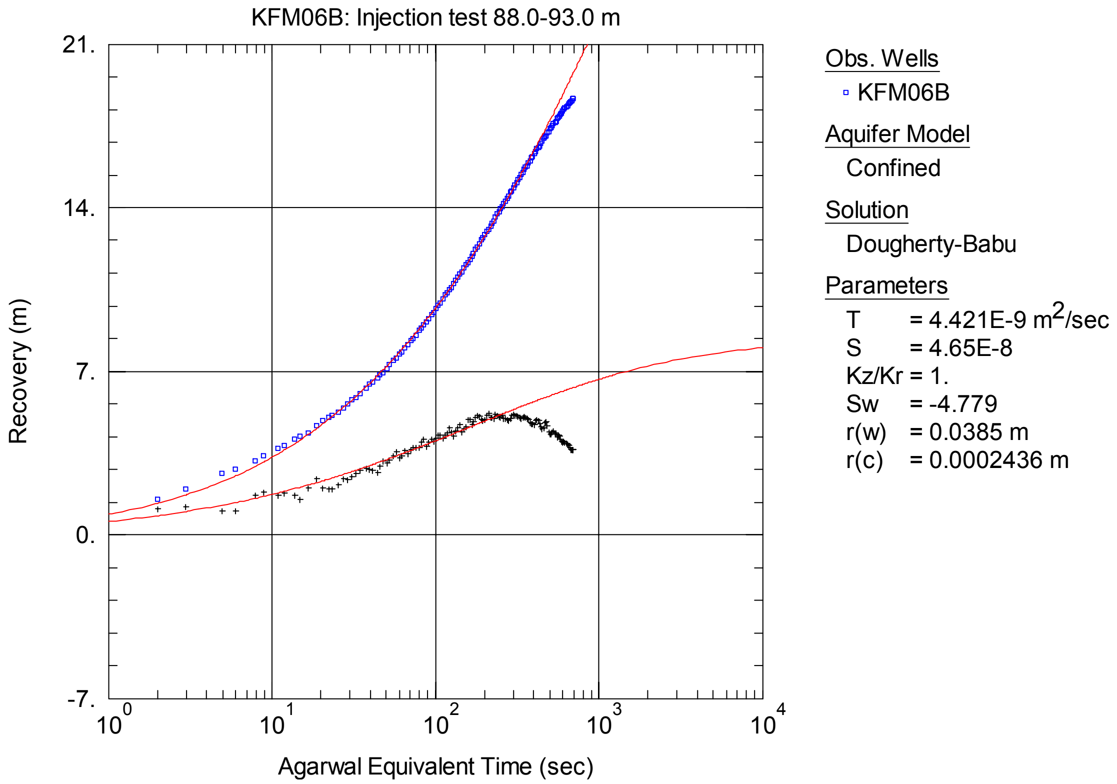


Figure A3-587. *Lin-log plot of recovery (□) and derivative (+) versus equivalent time, showing fit to the Dougherty-Babu solution, from the injection test in section 88.0-93.0 m in KFM06B.*

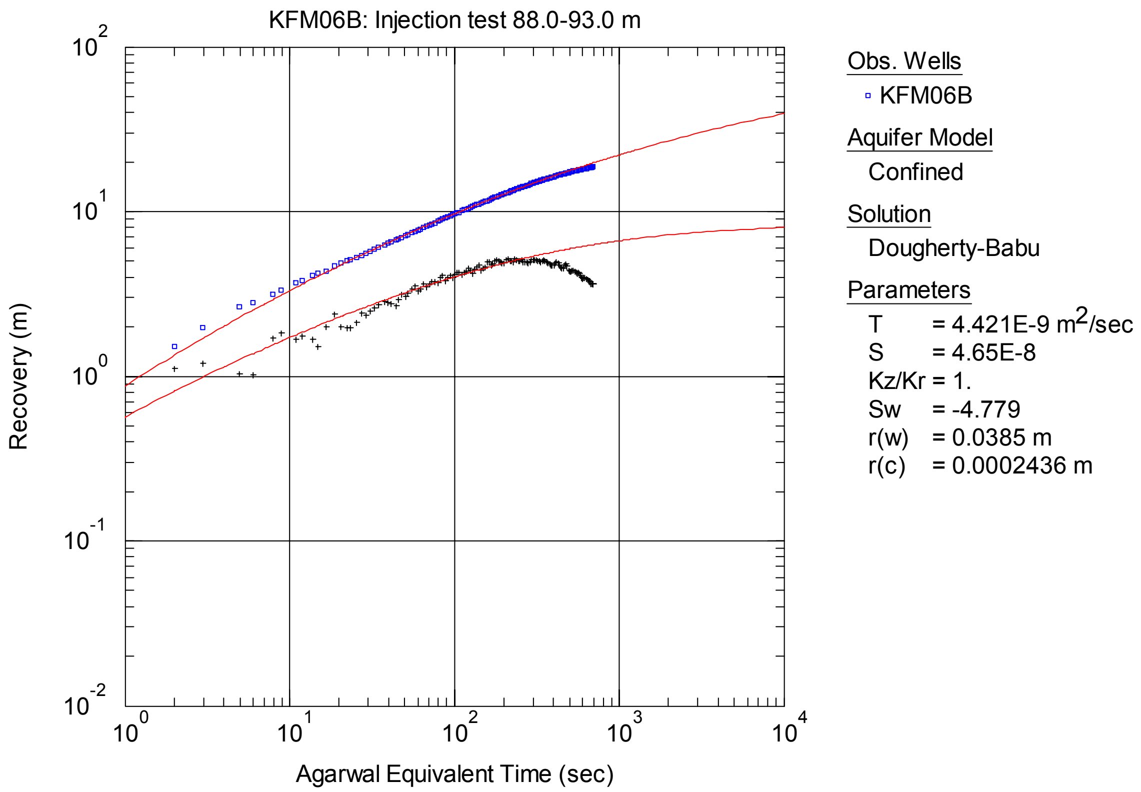


Figure A3-588. *Log-log plot of recovery (□) and derivative (+) versus equivalent time, showing fit to the Dougherty-Babu solution, from the injection test in section 88.0-93.0 m in KFM06B.*

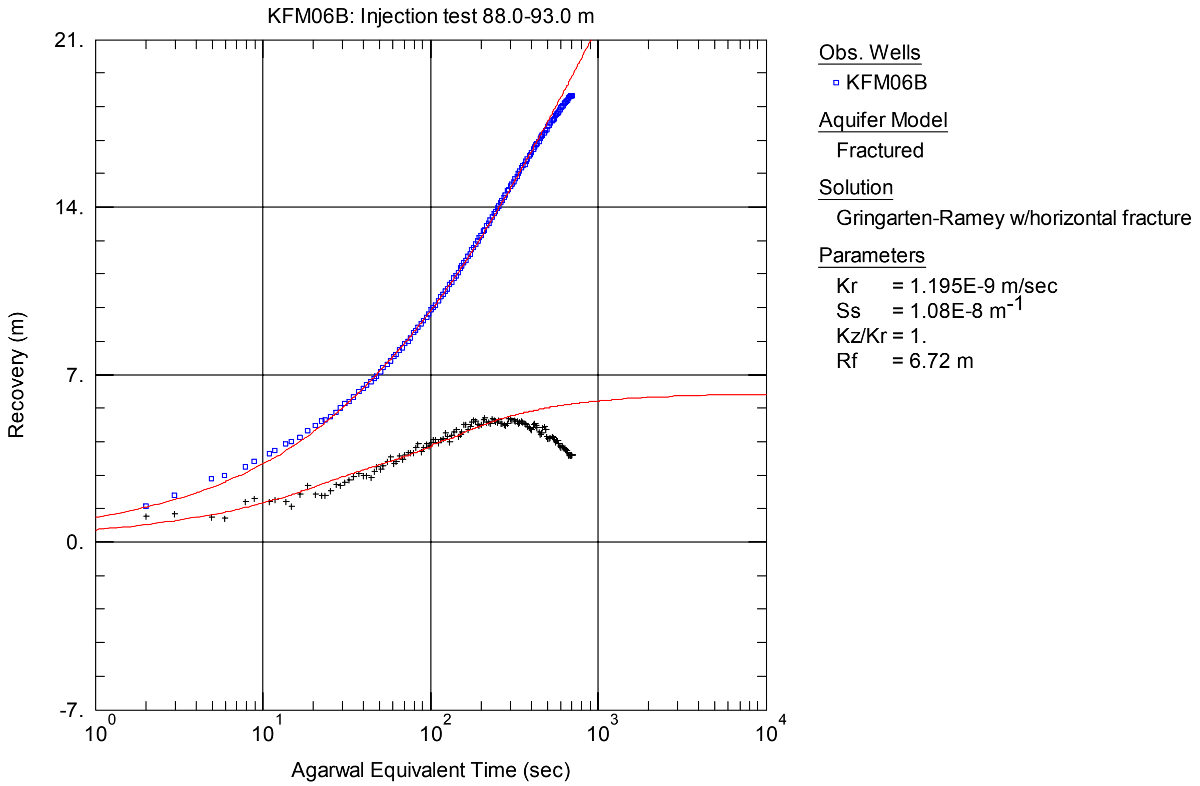


***Figure A3-589.** Lin-log plot of recovery (□) and derivative (+) versus equivalent time, showing fit to the Gringarten-Ramey solution, from the injection test in section 88.0-93.0 m in KFM06B.*

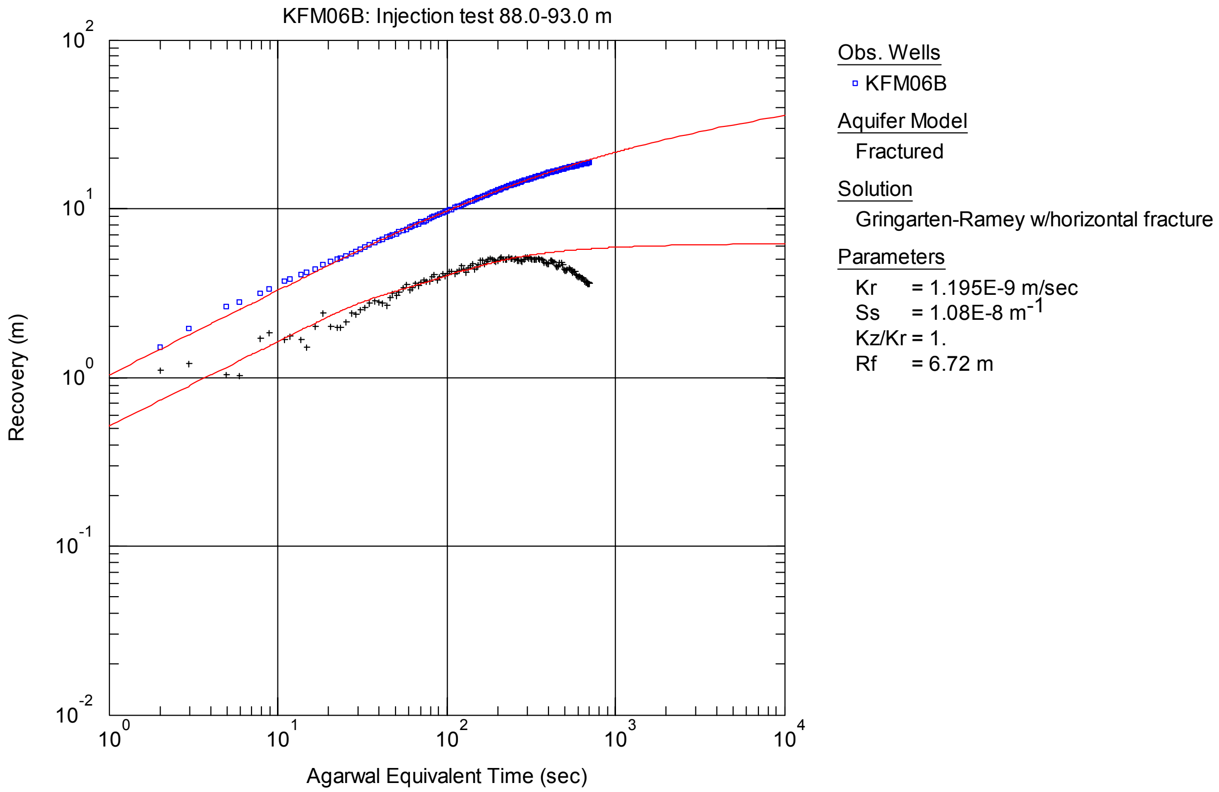
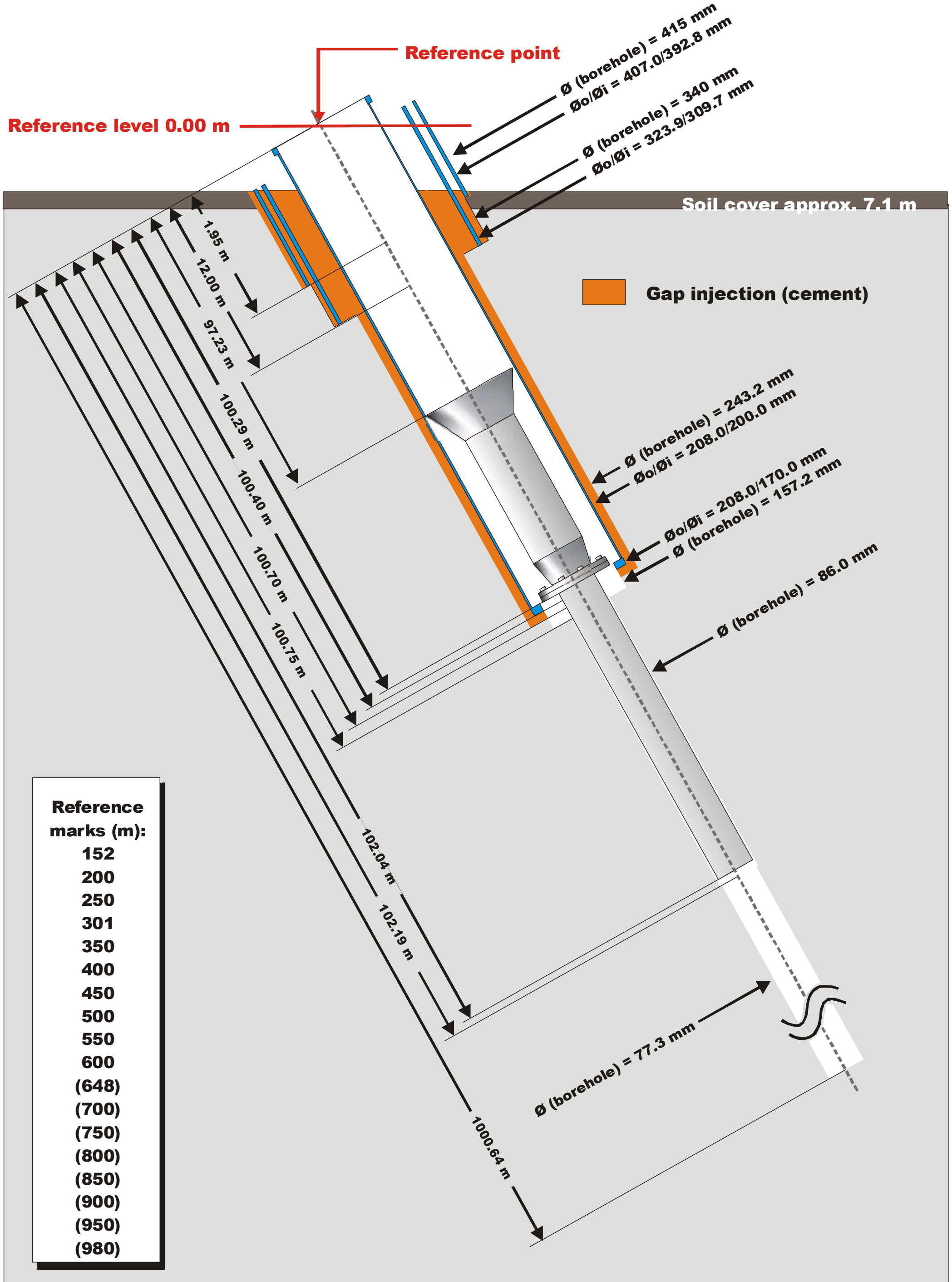


***Figure A3-590.** Log-log plot of recovery (□) and derivative (+) versus equivalent time, showing fit to the Gringarten-Ramey solution, from the injection test in section 88.0-93.0 m in KFM06B.*

Appendix 4. Borehole technical data

Technical data

Borehole KFM06A



Northing:	6699732.88 (m), RT90 2,5 gon V 0:-15
Easting:	1632442.51 (m), RT90 2,5 gon V 0:-15
Elevation:	4.10 (m), RHB 70
Orientation	
Bearing (degrees):	300.92^{o}
Inclination (degrees):	-60.25^{o}
Borehole	
Length:	1000.64 m

Percussion drilling period

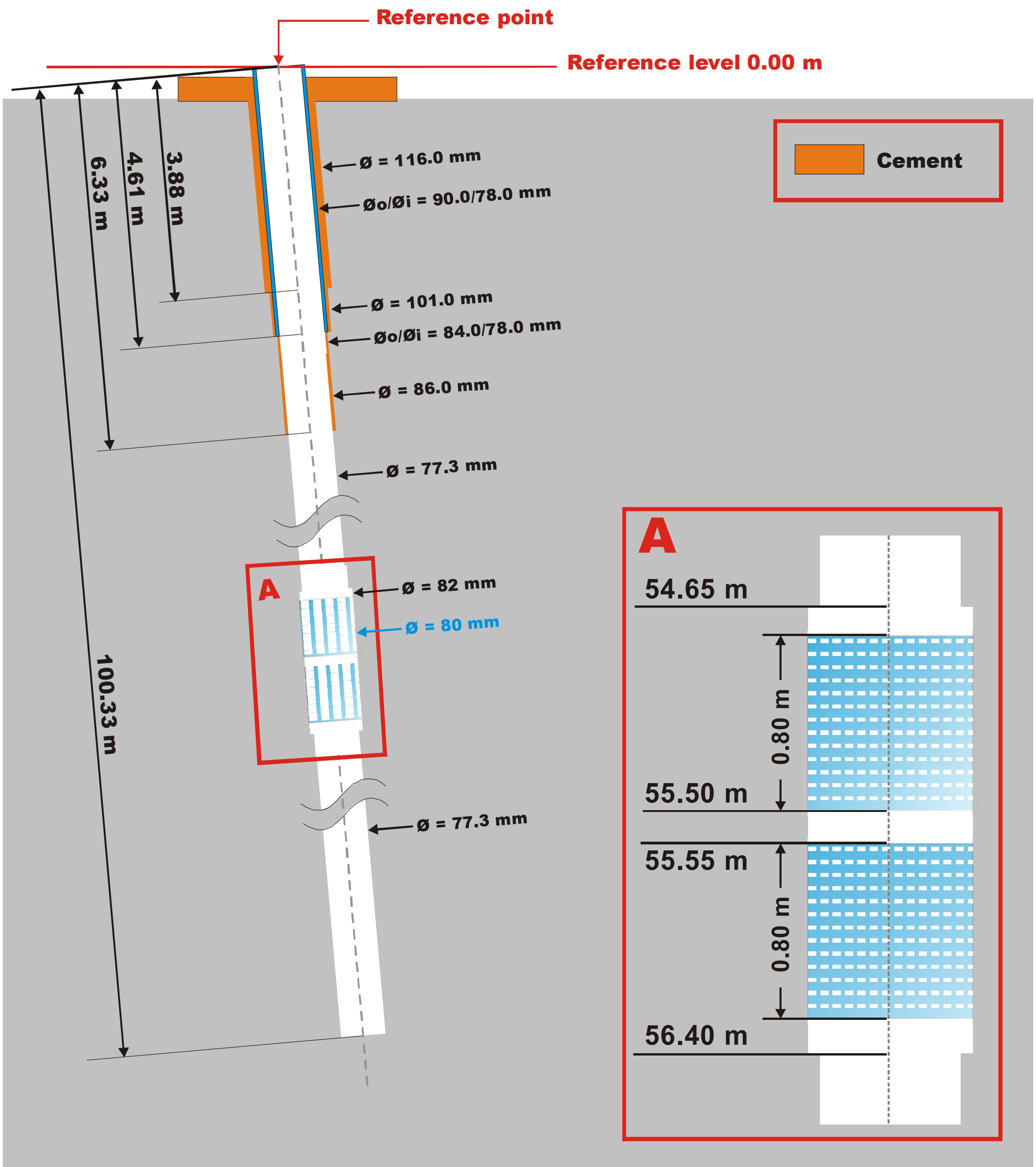
Drilling start date:	
Drilling stop date:	

Core drilling period

Drilling start date:	2004-06-14
Drilling stop date:	2004-09-21

Technical data

Borehole KFM06B



Drilling reference point		**Drilling period**	
Northing:	**6699732.24 (m), RT90 2,5 gon V 0:-15**	**Drilling start date:**	**2004-05-26**
Easting:	**1632446.41 (m), RT90 2,5 gon V 0:-15**	**Drilling stop date:**	**2004-06-08**
Elevation:	**4.13 (m), RHB 70**		
Orientation			
Bearing:	**296.96°**		
Inclination:	**-83.6°**		
Length:	**100.33 m**		

Appendix 5. Sicada tables

Nomenclature plu_s_hole_test_d

Column	Datatype	Unit	Column Description	Alt. Symbol
site	CHAR		Investigation site name	
activity_type	CHAR		Activity type code	
start_date	DATE		Date (yymmdd hh:mm:ss)	
stop_date	DATE		Date (yymmdd hh:mm:ss)	
project	CHAR		project code	
idcode	CHAR		Object or borehole identification code	
secup	FLOAT	m	Upper section limit (m)	
seclow	FLOAT	m	Lower section limit (m)	
section_no	INTEGER	number	Section number	
test_type	CHAR		Test type code (1-7), see table description	
formation_type	CHAR		1: Rock, 2: Soil (superficial deposits)	
start_flow_period	DATE	yyyymmdd	Date & time of pumping/injection start (YYYY-MM-DD hh:mm:ss)	
stop_flow_period	DATE	yyyymmdd	Date & time of pumping/injection stop (YYYY-MM-DD hh:mm:ss)	
flow_rate_end_qp	FLOAT	m**3/s	Flow rate at the end of the flowing period	
value_type_qp	CHAR		0:true value,-1<lower meas.limit1:>upper meas.limit	
mean_flow_rate_qm	FLOAT	m**3/s	Arithmetic mean flow rate during flow period	
q_measl__l	FLOAT	m**3/s	Estimated lower measurement limit of flow rate	**Q-measl-L**
q_measl__u	FLOAT	m**3/s	Estimated upper measurement limit of flow rate	Q-measl-U
tot_volume_vp	FLOAT	m**3	Total volume of pumped or injected water	
dur_flow_phase_tp	FLOAT	s	Duration of the flowing period of the test	
dur_rec_phase_tf	FLOAT	s	Duration of the recovery period of the test	
initial_head_hi	FLOAT	m	Hydraulic head in test section at start of the flow period	
head_at_flow_end_hp	FLOAT	m	Hydraulic head in test section at stop of the flow period.	
final_head_hf	FLOAT	m	Hydraulic head in test section at stop of recovery period.	
initial_press_pi	FLOAT	kPa	Groundwater pressure in test section at start of flow period	
press_at_flow_end_pp	FLOAT	kPa	Groundwater pressure in test section at stop of flow period.	
final_press_pf	FLOAT	kPa	Ground water pressure at the end of the recovery period.	
fluid_temp_tew	FLOAT	oC	Measured section fluid temperature, see table description	
fluid_elcond_ecw	FLOAT	mS/m	Measured section fluid el. conductivity,see table descr.	
fluid_salinity_tdsw	FLOAT	mg/l	Total salinity of section fluid based on EC,see table descr.	
fluid_salinity_tdswm	FLOAT	mg/l	Tot. section fluid salinity based on water sampling,see...	
reference	CHAR		SKB report No for reports describing data and evaluation	
comments	VARCHAR		Short comment to data	
error_flag	CHAR		If error_flag = "*" then an error occured and an error	
in_use	CHAR		If in_use = "*" then the activity has been selected as	
sign	CHAR		Signature for QA data accknowledge (QA - OK)	
lp	FLOAT	m	Hydraulic point of application	

Nomenclature plu_s_hole_test_ed1

Column	Datatype	Unit	Column Description	Alt. Symbol
site	CHAR		Investigation site name	
activity_type	CHAR		Activity type code	
start_date	DATE		Date (yymmdd hh:mm:ss)	
stop_date	DATE		Date (yymmdd hh:mm:ss)	
project	CHAR		project code	
idcode	CHAR		Object or borehole identification code	
secup	FLOAT	m	Upper section limit (m)	
seclow	FLOAT	m	Lower section limit (m)	
section_no	INTEGER	number	Section number	
test_type	CHAR		Test type code (1-7), see table description!	
formation_type	CHAR		Formation type code. 1: Rock, 2: Soil (superficial deposits)	
lp	FLOAT	m	Hydraulic point of application for test section, see descr.	
seclen_class	FLOAT	m	Planned ordinary test interval during test campaign.	
spec_capacity_q_s	FLOAT	m**2/s	Specific capacity (Q/s) of test section, see table descript.	Q/s
value_type_q_s	CHAR		0:true value,-1:Q/s<lower meas.limit,1:Q/s>upper meas.limit	
transmissivity_tq	FLOAT	m**2/s	Tranmissivity based on Q/s, see table description	
value_type_tq	CHAR		0:true value,-1:TQ<lower meas.limit,1:TQ>upper meas.limit.	
bc_tq	CHAR		Best choice code. 1 means TQ is best choice of T, else 0	
transmissivity_moye	FLOAT	m**2/s	Transmissivity,TM, based on Moye (1967)	T_M
bc_tm	CHAR		Best choice code. 1 means Tmoye is best choice of T, else 0	
value_type_tm	CHAR		0:true value,-1:TM<lower meas.limit,1:TM>upper meas.limit.	
hydr_cond_moye	FLOAT	m/s	K_M: Hydraulic conductivity based on Moye (1967)	K_M
formation_width_b	FLOAT	m	b:Aquifer thickness repr. for T(generally b=Lw) ,see descr.	b
width_of_channel_b	FLOAT	m	B:Inferred width of formation for evaluated TB	
tb	FLOAT	m**3/s	TB:Flow capacity in 1D formation of T & width B, see descr.	
l_measl_tb	FLOAT	m**3/s	Estimated lower meas. limit for evaluated TB,see description	
u_measl_tb	FLOAT	m**3/s	Estimated upper meas. limit of evaluated TB,see description	
sb	FLOAT	m	SB:S=storativity,B=width of formation,1D model,see descript.	
assumed_sb	FLOAT	m	SB* : Assumed SB,S=storativity,B=width of formation,see...	
leakage_factor_lf	FLOAT	m	Lf:1D model for evaluation of Leakage factor	
transmissivity_tt	FLOAT	m**2/s	TT:Transmissivity of formation, 2D radial flow model,see...	T_T
value_type_tt	CHAR		0:true value,-1:TT<lower meas.limit,1:TT>upper meas.limit,	
bc_tt	CHAR		Best choice code. 1 means TT is best choice of T, else 0	
l_measl_q_s	FLOAT	m**2/s	Estimated lower meas. limit for evaluated TT,see table descr	Q/s-measl-L
u_measl_q_s	FLOAT	m**2/s	Estimated upper meas. limit for evaluated TT,see description	Q/s-measl-U
storativity_s	FLOAT		S:Storativity of formation based on 2D rad flow,see descr.	
assumed_s	FLOAT		Assumed Storativity,2D model evaluation,see table descr.	
bc_s	FLOAT		Best choice of S (Storativity) ,see descr.	
ri	FLOAT	m	Radius of influence	
ri_index	CHAR		ri index=index of radius of influence :-1,0 or 1, see descr.	
leakage_coeff	FLOAT	1/s	K'/b':2D rad flow model evaluation of leakage coeff,see desc	
hydr_cond_ksf	FLOAT	m/s	Ksf:3D model evaluation of hydraulic conductivity,see desc.	
value_type_ksf	CHAR		0:true value,-1:Ksf<lower meas.limit,1:Ksf>upper meas.limit,	
l_measl_ksf	FLOAT	m/s	Estimated lower meas.limit for evaluated Ksf,see table desc.	
u_measl_ksf	FLOAT	m/s	Estimated upper meas.limit for evaluated Ksf,see table descr	
spec_storage_ssf	FLOAT	1/m	Ssf:Specific storage,3D model evaluation,see table descr.	
assumed_ssf	FLOAT	1/m	Ssf*:Assumed Spec.storage,3D model evaluation,see table des.	
c	FLOAT	m**3/pa	C: Wellbore storage coefficient; flow or recovery period	C
cd	FLOAT		CD: Dimensionless wellbore storage coefficient	
skin	FLOAT		Skin factor;best estimate of flow/recovery period,see descr.	ξ
dt1	FLOAT	s	Estimated start time of evaluation, see table description	

Column	Datatype	Unit	Column Description	Alt. Symbol
dt2	FLOAT	s	Estimated stop time of evaluation. see table description	
t1	FLOAT	s	Start time for evaluated parameter from start flow period	t_1
t2	FLOAT	s	Stop time for evaluated parameter from start of flow period	t_2
dte1	FLOAT	s	Start time for evaluated parameter from start of recovery	dte_1
dte2	FLOAT	s	Stop time for evaluated parameter from start of recovery	dte_2
p_horner	FLOAT	kPa	p*:Horner extrapolated pressure, see table description	
transmissivity_t_nlr	FLOAT	m**2/s	T_NLR Transmissivity based on None Linear Regression...	
storativity_s_nlr	FLOAT		S_NLR=storativity based on None Linear Regression,see..	
value_type_t_nlr	CHAR		0:true value,-1:T_NLR<lower meas.limit,1:>upper meas.limit	
bc_t_nlr	CHAR		Best choice code. 1 means T_NLR is best choice of T, else 0	
c_nlr	FLOAT	m**3/pa	Wellbore storage coefficient, based on NLR, see descr.	
cd_nlr	FLOAT		Dimensionless wellbore storage constant, see table descrip.	
skin_nlr	FLOAT		Skin factor based on Non Linear Regression,see desc.	
transmissivity_t_grf	FLOAT	m**2/s	T_GRF:Transmissivity based on Genelized Radial Flow,see...	
value_type_t_grf	CHAR		0:true value,-1:T_GRF<lower meas.limit,1:>upper meas.limit	
bc_t_grf	CHAR		Best choice code. 1 means T_GRF is best choice of T, else 0	
storativity_s_grf	FLOAT		S_GRF:Storativity based on Generalized Radial Flow, see des.	
flow_dim_grf	FLOAT		Inferred flow dimesion based on Generalized Rad. Flow model	
comment	VARCHAR	no_unit	Short comment to the evaluated parameters	
error_flag	CHAR		If error_flag = "*" then an error occured and an error	
in_use	CHAR		If in_use = "*" then the activity has been selected as	
sign	CHAR		Signature for QA data accknowledge (QA - OK)	

Nomenclature plu_s_hole_test_obs

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)

KFM06A plu_s_hole_test_d. Left (This result table to SICADA includes more columns which are empty, these columns are not presented here.)

idcode	start_date	stop_date	secup	seclow	test_type	Formation_type	start_flow_period	stop_flow_period	flow_rate_end_qp	Value_type_qp	mean_flow_rate_qm
KFM06A	20050317 10:35	20050317 12:32	105.50	205.50	3	1	20050317 11:30:04	20050317 12:00:21	3.04E-04	0	3.76E-04
KFM06A	20050317 14:57	20050317 16:47	205.50	305.50	3	1	20050315 15:44:47	20050315 16:15:05	3.29E-04	0	3.80E-04
KFM06A	20050317 18:36	20050318 09:40	305.50	405.50	3	1	20050318 08:37:27	20050318 09:07:45	4.87E-05	0	7.33E-05
KFM06A	20050318 11:22	20050318 14:09	405.50	505.50	3	1	20050318 13:06:51	20050318 13:37:09	1.92E-07	0	5.69E-07
KFM06A	20050321 09:44	20050321 11:45	505.50	605.50	3	1	20050321 10:42:58	20050321 11:13:05		-1	
KFM06A	20050321 14:05	20050321 15:58	605.50	705.50	3	1	20050321 14:55:31	20050321 15:25:53	2.69E-08	0	5.92E-08
KFM06A	20050321 17:38	20050321 19:29	705.50	805.50	3	1	20050321 18:26:48	20050321 18:57:03	1.41E-05	0	2.44E-05
KFM06A	20050323 09:00	20050323 11:05	805.50	905.50	3	1	20050323 10:02:34	20050323 10:32:55	5.59E-08	0	1.04E-07
KFM06A	20050323 13:41	20050323 15:36	887.00	987.00	3	1	20050323 14:34:17	20050323 15:04:16		-1	
KFM06A	20050405 06:31	20050405 07:54	107.50	127.50	3	1	20050405 07:11:39	20050405 07:31:56	1.14E-04	0	1.52E-04
KFM06A	20050404 23:15	20050405 00:28	127.50	147.50	3	1	20050404 23:46:10	20050405 00:06:26	3.45E-04	0	4.14E-04
KFM06A	20050404 21:32	20050404 22:49	147.50	167.50	3	1	20050404 22:07:04	20050404 22:27:20	1.50E-05	0	1.65E-05
KFM06A	20050404 19:43	20050404 20:59	165.50	185.50	3	1	20050404 20:17:24	20050404 20:37:41	2.14E-04	0	2.55E-04
KFM06A	20050404 18:00	20050404 19:17	185.50	205.50	3	1	20050404 18:34:52	20050404 18:55:10	1.64E-06	0	1.92E-06
KFM06A	20050330 07:02	20050330 08:21	205.50	225.50	3	1	20050330 07:39:12	20050330 07:59:28	2.36E-04	0	2.94E-04
KFM06A	20050330 08:49	20050330 10:04	225.50	245.50	3	1	20050330 09:21:37	20050330 09:41:50	2.41E-04	0	2.76E-04
KFM06A	20050330 10:29	20050330 11:45	245.50	265.50	3	1	20050330 11:02:34	20050330 11:22:51	1.55E-06	0	3.46E-06
KFM06A	20050330 12:56	20050330 14:12	265.50	285.50	3	1	20050330 13:30:03	20050330 13:50:17	4.13E-04	0	4.36E-04
KFM06A	20050330 14:41	20050330 15:56	285.50	305.50	3	1	20050330 15:13:47	20050330 15:34:05	2.94E-06	0	1.20E-05
KFM06A	20050404 15:42	20050404 16:57	305.50	325.50	3	1	20050404 16:14:36	20050404 16:34:59	7.25E-06	0	2.37E-05
KFM06A	20050330 18:06	20050330 19:27	325.50	345.50	3	1	20050330 18:44:50	20050330 19:05:06	3.00E-06	0	3.35E-06
KFM06A	20050330 19:57	20050330 21:26	345.50	365.50	3	1	20050330 20:43:49	20050330 21:04:03	7.62E-05	0	9.01E-05
KFM06A	20050330 21:51	20050330 23:27	365.50	385.50	3	1	20050330 22:45:10	20050330 23:05:27	8.45E-07	0	9.38E-07
KFM06A	20050331 09:52	20050331 11:11	385.50	405.50	3	1	20050331 10:29:17	20050331 10:49:34	7.94E-06	0	2.30E-05
KFM06A	20050331 11:38	20050331 13:52	405.50	425.50	3	1	20050331 13:09:31	20050331 13:29:48	1.73E-07	0	4.90E-07
KFM06A	20050331 14:16	20050331 15:02	425.50	445.50	3	1	20050331 14:52:34	20050331 14:55:10		-1	
KFM06A	20050331 15:38	20050331 16:56	445.50	465.50	3	1	20050331 16:13:42	20050331 16:33:59	4.65E-08	0	6.39E-08

idcode	start_date	stop_date	secup	seclow	test_type	Formation_type	start_flow_period	stop_flow_period	flow_rate_end_qp	Value_type_qp	mean_flow_rate_qm
KFM06A	20050331 17:18	20050331 18:33	465.50	485.50	3	1	20050331 17:50:59	20050331 18:11:19		-1	
KFM06A	20050331 18:55	20050331 19:38	485.50	505.50	3	1	20050331 19:28:33	20050331 19:31:26		-1	
KFM06A	20050331 21:33	20050331 22:50	605.50	625.50	3	1	20050331 22:07:35	20050331 22:27:53	2.60E-08	0	3.82E-08
KFM06A	20050331 23:14	20050331 23:57	625.50	645.50	3	1	20050331 23:46:49	20050331 23:50:07		-1	
KFM06A	20050401 06:35	20050401 07:51	645.50	665.50	3	1	20050401 07:08:39	20050401 07:29:00	7.07E-09	0	1.50E-08
KFM06A	20050401 08:13	20050401 08:57	665.50	685.50	3	1	20050401 08:46:58	20050401 08:49:25		-1	
KFM06A	20050401 09:19	20050401 10:03	685.50	705.50	3	1	20050401 09:54:05	20050401 09:56:01		-1	
KFM06A	20050401 10:24	20050401 11:05	705.50	725.50	3	1	20050401 10:56:58	20050401 10:58:03		-1	
KFM06A	20050401 12:20	20050401 13:37	725.50	745.50	3	1	20050401 12:54:23	20050401 13:14:39	1.51E-05	0	2.61E-05
KFM06A	20050401 14:12	20050401 15:32	745.50	765.50	3	1	20050401 14:50:05	20050401 15:10:24	4.23E-08	0	6.42E-08
KFM06A	20050401 16:43	20050401 18:07	765.50	785.50	3	1	20050401 17:24:40	20050401 17:44:59	1.31E-06	0	2.61E-06
KFM06A	20050401 18:40	20050401 19:56	785.50	805.50	3	1	20050401 19:13:52	20050401 19:34:19	3.41E-08	0	5.82E-08
KFM06A	20050401 20:19	20050401 21:36	805.50	825.50	3	1	20040401 20:53:44	20040401 21:14:09	5.34E-08	0	8.86E-08
KFM06A	20050401 21:56	20050401 22:41	825.50	845.50	3	1	20050401 22:29:29	20050401 22:34:25		-1	
KFM06A	20050404 06:12	20050404 06:58	845.50	865.50	3	1	20050404 06:47:52	20050404 06:50:55		-1	
KFM06A	20050404 07:15	20050404 08:01	865.50	885.50	3	1	20050404 07:51:41	20050404 07:54:13		-1	
KFM06A	20050404 08:27	20050404 09:11	885.50	905.50	3	1	20050404 09:01:21	20050404 09:04:23		-1	
KFM06A	20050405 19:41	20050405 21:07	107.50	112.50	3	1	20050405 20:24:38	20050405 20:44:57	2.11E-06	0	2.18E-06
KFM06A	20050405 21:21	20050405 22:40	112.50	117.50	3	1	20050405 21:58:07	20050405 22:18:25	1.89E-05	0	2.76E-05
KFM06A	20050406 06:24	20050406 07:48	117.50	122.50	3	1	20050406 07:06:22	20050406 07:26:44	1.42E-08	0	7.11E-08
KFM06A	20050406 08:56	20050406 10:22	122.50	127.50	3	1	20050406 09:39:51	20050406 10:00:09	1.14E-04	0	1.52E-04
KFM06A	20050406 10:36	20050406 11:57	127.50	132.50	3	1	20050406 11:14:28	20050406 11:34:46	3.91E-04	0	4.66E-04
KFM06A	20050406 13:11	20050406 14:34	132.50	137.50	3	1	20050406 13:52:05	20050406 14:12:21	5.81E-05	0	6.17E-05
KFM06A	20050406 14:51	20050406 16:13	136.50	141.50	3	1	20050406 15:31:05	20050406 15:51:24	4.30E-06	0	5.63E-06
KFM06A	20050406 16:37	20050406 17:51	141.50	146.50	3	1	20050406 17:09:15	20050406 17:29:34	1.57E-05	0	2.06E-05
KFM06A	20050406 18:08	20050406 19:25	146.50	151.50	3	1	20050406 18:42:36	20050406 19:02:55	1.14E-08	0	1.77E-08
KFM06A	20050406 19:34	20050406 20:14	147.50	152.50	3	1	20050406 20:05:56	20050406 20:07:02		-1	
KFM06A	20050406 20:24	20050406 21:39	152.50	157.50	3	1	20050406 20:56:50	20050406 21:17:09	9.24E-06	0	9.80E-06
KFM06A	20050406 21:49	20050406 23:05	157.50	162.50	3	1	20050406 22:22:43	20050406 22:43:02	3.40E-06	0	3.48E-06
KFM06A	20050406 23:17	20050407 00:33	162.50	167.50	3	1	20050406 23:51:17	20050407 00:11:34	2.99E-06	0	3.29E-06
KFM06A	20050407 06:25	20050407 07:42	165.50	170.50	3	1	20050407 06:59:50	20050407 07:20:07	9.14E-06	0	1.08E-05

idcode	start_date	stop_date	secup	seclow	test_type	Formation_type	start_flow_period	stop_flow_period	flow_rate_end_qp	Value_type_qp	mean_flow_rate_qm
KFM06A	20050421 14:24	20050421 15:50	170.50	175.50	3	1	20050421 15:07:48	20050421 15:28:11	7.05E-08	0	9.08E-08
KFM06A	20050407 09:40	20050407 11:01	175.50	180.50	3	1	20050407 10:18:30	20050407 10:38:47	7.73E-05	0	9.57E-05
KFM06A	20050407 11:16	20050407 13:45	180.50	185.50	3	1	20050407 13:02:38	20050407 13:22:54	2.11E-04	0	2.51E-04
KFM06A	20050407 14:00	20050407 15:20	185.50	190.50	3	1	20050407 14:37:58	20050407 14:58:04		-1	
KFM06A	20050407 15:30	20050407 16:46	190.50	195.50	3	1	20050407 16:03:44	20050407 16:24:03	1.90E-07	0	2.59E-07
KFM06A	20050407 17:01	20050407 18:17	195.50	200.50	3	1	20050407 17:34:35	20050407 17:54:54	5.10E-07	0	5.85E-07
KFM06A	20050407 18:29	20050407 19:53	200.50	205.50	3	1	20050407 19:11:14	20050407 19:31:33	1.28E-06	0	1.39E-06
KFM06A	20050407 20:04	20050407 21:23	205.50	210.50	3	1	20050407 20:40:44	20050407 21:01:04	7.93E-06	0	9.88E-06
KFM06A	20050407 21:37	20050407 23:01	210.50	215.50	3	1	20050407 22:19:03	20050407 22:39:21	6.70E-08	0	1.77E-07
KFM06A	20050407 23:16	20050408 00:30	215.50	220.50	3	1	20050407 23:48:18	20050408 00:08:38	2.64E-04	0	3.27E-04
KFM06A	20050408 06:21	20050408 07:41	220.50	225.50	3	1	20050408 06:59:13	20050408 07:19:32	1.64E-05	0	2.84E-05
KFM06A	20050408 07:58	20050408 09:16	225.50	230.50	3	1	20050408 08:34:23	20050408 08:54:42	1.23E-07	0	1.93E-07
KFM06A	20050408 09:31	20050408 10:45	230.50	235.50	3	1	20050408 10:03:19	20050408 10:23:38	4.88E-08	0	7.46E-08
KFM06A	20050415 15:48	20050415 17:02	235.50	240.50	3	1	20050415 16:19:44	20050415 16:40:02	2.40E-04	0	2.72E-04
KFM06A	20050408 13:17	20050408 14:35	240.50	245.50	3	1	20050408 13:53:22	20050408 14:13:43	1.28E-07	0	1.60E-07
KFM06A	20050408 14:52	20050408 16:13	245.50	250.50	3	1	20050408 15:30:53	20050408 15:51:13	3.14E-07	0	4.83E-07
KFM06A	20050408 16:27	20050408 17:45	250.50	255.50	3	1	20050408 17:02:45	20050408 17:23:05	2.82E-07	0	8.43E-07
KFM06A	20050408 17:56	20050408 19:11	255.50	260.50	3	1	20050408 18:28:39	20050408 18:48:58	6.56E-07	0	1.10E-06
KFM06A	20050408 19:23	20050408 20:39	260.50	265.50	3	1	20050408 19:57:20	20050408 20:17:40	7.01E-08	0	1.13E-07
KFM06A	20050411 17:47	20050411 19:07	265.50	270.50	3	1	20050411 18:24:34	20050411 18:44:58	4.07E-04	0	4.18E-04
KFM06A	20050411 19:34	20050411 20:49	267.50	272.50	3	1	20050411 20:07:24	20050411 20:27:40	4.56E-04	0	4.58E-04
KFM06A	20050411 21:07	20050411 22:29	272.50	277.50	3	1	20050411 21:46:25	20050411 22:06:46	3.95E-07	0	4.64E-07
KFM06A	20050411 22:42	20050411 23:37	275.50	280.50	3	1	20050411 23:21:43	20050411 23:29:35		-1	
KFM06A	20050412 06:03	20050412 06:45	280.50	285.50	3	1	20050412 06:37:05	20050412 06:38:26		-1	
KFM06A	20050412 07:02	20050412 07:44	285.50	290.50	3	1	20050412 07:35:01	20050412 07:37:01		-1	
KFM06A	20050412 07:55	20050412 09:10	290.50	295.50	3	1	20050412 08:27:56	20050412 08:48:17	4.21E-08	0	9.35E-08
KFM06A	20050412 09:26	20050412 10:42	295.50	300.50	3	1	20050412 09:59:46	20050412 10:20:07	2.86E-06	0	1.26E-05
KFM06A	20050412 10:55	20050412 13:04	300.50	305.50	3	1	20050412 12:22:12	20050412 12:42:32	7.55E-07	0	8.11E-07
KFM06A	20050412 13:59	20050412 15:18	305.50	310.50	3	1	20050412 14:35:39	20050412 14:56:33	6.79E-07	0	6.09E-06
KFM06A	20050412 15:34	20050412 16:54	310.50	315.50	3	1	20050412 16:11:34	20050412 16:31:54	9.20E-08	0	8.32E-07
KFM06A	20050412 17:15	20050412 18:31	315.50	320.50	3	1	20050412 17:48:55	20050412 18:09:18	5.92E-09	0	1.07E-08
KFM06A	20050412 18:46	20050412 20:04	320.50	325.50	3	1	20050412 19:22:10	20050412 19:42:31	6.41E-06	0	9.94E-06

idcode	start_date	stop_date	secup	seclow	test_type	Formation_type	start_flow_period	stop_flow_period	flow_rate_end_qp	Value_type_qp	mean_flow_rate_qm
KFM06A	20050412 20:26	20050412 21:44	325.50	330.50	3	1	20050412 21:02:05	20050412 21:22:28	6.46E-07	0	6.95E-07
KFM06A	20050412 22:01	20050412 23:19	330.50	335.50	3	1	20050412 22:36:35	20050412 22:56:56	1.82E-07	0	1.79E-07
KFM06A	20050413 06:08	20050413 07:25	335.50	340.50	3	1	20050413 06:42:33	20050413 07:02:51	1.92E-06	0	2.07E-06
KFM06A	20050413 07:37	20050413 08:54	340.50	345.50	3	1	20050413 08:11:43	20050413 08:32:03	8.15E-08	0	8.80E-07
KFM06A	20050413 09:09	20050413 10:29	345.50	350.50	3	1	20050413 09:47:02	20050413 10:07:23	1.31E-07	0	1.43E-07
KFM06A	20050415 13:31	20050415 14:48	348.00	353.00	3	1	20050415 14:05:43	20050415 14:26:07	1.38E-08	0	1.81E-08
KFM06A	20050413 12:28	20050413 13:42	353.00	358.00	3	1	20050413 12:59:59	20050413 13:20:17	7.53E-05	0	8.97E-05
KFM06A	20050413 13:54	20050413 15:12	355.50	360.50	3	1	20050413 14:29:56	20050413 14:50:14	7.30E-05	0	8.62E-05
KFM06A	20050414 06:08	20050414 07:22	360.50	365.50	3	1	20050414 06:40:24	20050414 07:00:45	9.69E-08	0	1.10E-07
KFM06A	20050414 07:34	20050414 08:14	365.50	370.50	3	1	20050414 08:05:42	20050414 08:06:50		-1	
KFM06A	20050414 08:22	20050414 09:36	370.00	375.00	3	1	20050414 08:54:14	20050414 09:14:35	1.30E-08	0	1.93E-08
KFM06A	20050414 09:50	20050414 10:31	375.50	380.50	3	1	20050414 10:22:33	20050414 10:24:07		-1	
KFM06A	20050414 10:45	20050414 11:59	380.50	385.50	3	1	20050414 11:17:10	20050414 11:37:31	3.52E-07	0	3.99E-07
KFM06A	20050414 12:49	20050414 13:29	385.50	390.50	3	1	20050414 13:21:15	20050414 13:22:22		-1	
KFM06A	20050414 13:47	20050414 15:01	390.50	395.50	3	1	20050414 14:19:10	20050414 14:39:31	5.80E-06	0	1.65E-05
KFM06A	20050414 15:29	20050414 16:50	395.50	400.50	3	1	20050414 16:07:30	20050414 16:27:51	1.07E-07	0	1.39E-07
KFM06A	20050414 17:01	20050414 17:48	400.50	405.50	3	1	20050414 17:32:56	20050414 17:41:00		-1	
KFM06A	20050414 18:00	20050414 19:15	405.50	410.50	3	1	20050414 18:32:57	20050414 18:53:20	9.20E-09	0	1.85E-08
KFM06A	20050414 19:28	20050414 20:43	410.50	415.50	3	1	20050414 20:00:53	20050414 20:21:17	1.65E-07	0	5.14E-07
KFM06A	20050414 20:58	20050414 21:40	415.50	420.50	3	1	20050414 21:30:03	20050414 21:33:06		-1	
KFM06A	20050414 21:52	20050414 23:07	420.50	425.50	3	1	20050414 22:25:06	20050414 22:45:29	1.30E-08	0	1.81E-08
KFM06A	20050414 23:36	20050415 09:05	445.50	450.50	3	1	20050415 08:22:31	20050415 08:42:51	7.98E-08	0	9.67E-08
KFM06A	20050415 09:18	20050415 09:57	450.50	455.50	3	1	20050415 09:49:10	20050415 09:50:18		-1	
KFM06A	20050415 10:10	20050415 10:51	455.50	460.50	3	1	20050415 10:42:11	20050415 10:43:44		-1	
KFM06A	20050415 11:02	20050415 11:43	460.50	465.50	3	1	20050415 11:34:27	20050415 11:35:34		-1	

KFM06A plu_s_hole_test_d. Right (This result table to SICADA includes more columns which are empty, these columns are not presented here.)

idcode	secup	seclow	q_measl__l	q_measl__u	tot_volume_vp	dur_flow_phase_tp	dur_rec_phase_tf	initial_press_pi	press_at_flow_end_pp	final_press_pf	fluid_temp_tew
KFM06A	105.50	205.50	1.7E-08	1.0E-03	6.85E-01	1817	1806	973.22	994.39	975.96	8.88
KFM06A	205.50	305.50	1.7E-08	1.0E-03	6.89E-01	1818	1806	1822.52	1850.02	1825.26	8.04
KFM06A	305.50	405.50	1.7E-08	1.0E-03	1.33E-01	1818	1806	2660.00	2766.44	2696.57	8.58
KFM06A	405.50	505.50	1.7E-08	1.0E-03	1.04E-03	1818	1797	3497.07	3730.17	3625.09	9.71
KFM06A	505.50	605.50	6.5E-09	1.0E-03		1807	1821	4333.59	4511.27	4489.80	10.52
KFM06A	605.50	705.50	1.7E-08	1.0E-03	1.08E-04	1822	1810	5148.80	5365.00	5234.05	11.49
KFM06A	705.50	805.50	1.7E-08	1.0E-03	4.43E-02	1815	1811	5941.31	6147.17	6020.66	12.34
KFM06A	805.50	905.50	1.7E-08	1.0E-03	1.89E-04	1821	1796	6743.70	6964.57	6844.11	13.55
KFM06A	887.00	987.00	7.7E-09	1.0E-03		1799	1821	7429.94	7585.60	7578.45	14.44
KFM06A	107.50	127.50	1.7E-08	1.0E-03	1.85E-01	1217	1208	1008.41	1048.56	1015.01	7.57
KFM06A	127.50	147.50	1.7E-08	1.0E-03	5.04E-01	1216	1206	1178.93	1209.18	1181.68	9.10
KFM06A	147.50	167.50	1.7E-08	1.0E-03	2.01E-02	1216	1209	1350.01	1534.42	1350.56	7.63
KFM06A	165.50	185.50	1.7E-08	1.0E-03	3.11E-01	1217	1208	1505.39	1614.59	1513.92	8.51
KFM06A	185.50	205.50	1.7E-08	1.0E-03	2.34E-03	1218	1206	1678.40	1870.37	1701.50	8.08
KFM06A	205.50	225.50	1.7E-08	1.0E-03	3.59E-01	1216	1209	1829.12	1905.85	1838.47	8.33
KFM06A	225.50	245.50	1.7E-08	1.0E-03	3.35E-01	1213	1209	2000.70	2132.20	2005.68	8.30
KFM06A	245.50	265.50	1.7E-08	1.0E-03	4.22E-03	1217	1208	2172.36	2386.90	2295.02	8.52
KFM06A	265.50	285.50	1.7E-08	1.0E-03	5.31E-01	1214	1210	2339.03	2447.95	2343.43	8.30
KFM06A	285.50	305.50	1.7E-08	1.0E-03	1.48E-02	1218	1191	2511.21	2643.20	2621.21	8.70
KFM06A	305.50	325.50	1.7E-08	1.0E-03	2.92E-02	1223	1193	2696.85	2878.70	2820.34	8.80
KFM06A	325.50	345.50	1.7E-08	1.0E-03	4.09E-03	1216	1209	2846.19	3049.31	2853.35	9.05
KFM06A	345.50	365.50	1.7E-08	1.0E-03	1.10E-01	1214	1210	3012.87	3213.51	3055.78	8.86
KFM06A	365.50	385.50	1.7E-08	1.0E-03	1.14E-03	1217	1209	3182.29	3381.55	3188.89	9.40
KFM06A	385.50	405.50	1.7E-08	1.0E-03	2.80E-02	1217	1209	3346.48	3555.10	3489.23	9.39
KFM06A	405.50	425.50	1.7E-08	1.0E-03	5.98E-04	1217	1206	3517.84	3711.73	3641.60	9.69
KFM06A	425.50	445.50	6.5E-09	1.0E-03		156	321	3756.01	3910.31	3927.09	9.84
KFM06A	445.50	465.50	1.7E-08	1.0E-03	7.80E-05	1217	1206	3854.10	4076.70	3885.28	10.02

idcode	secup	seclow	q_measl__l	q_measl__u	tot_volume_vp	dur_flow_phase_tp	dur_rec_phase_tf	initial_press_pi	press_at_flow_end_pp	final_press_pf	fluid_temp_tew
KFM06A	465.50	485.50	6.5E-09	1.0E-03		1220	1221	4048.65	4242.83	4182.87	10.20
KFM06A	485.50	505.50	6.5E-09	1.0E-03		173	322	4236.36	4407.30	4419.39	10.37
KFM06A	605.50	625.50	1.7E-08	1.0E-03	4.65E-05	1218	1210	5195.82	5401.80	5204.36	11.51
KFM06A	625.50	645.50	5.2E-09	1.0E-03		198	321	5388.76	5563.27	5594.90	11.70
KFM06A	645.50	665.50	5.2E-09	1.0E-03	1.81E-05	1221	1221	5536.04	5732.41	5619.11	11.90
KFM06A	665.50	685.50	6.5E-09	1.0E-03		147	336	5694.46	5893.72	5927.68	12.10
KFM06A	685.50	705.50	5.2E-09	1.0E-03		116	322	5847.80	6055.45	6065.76	12.30
KFM06A	705.50	725.50	6.5E-09	1.0E-03		65	321	6030.28	6219.09	6284.68	12.50
KFM06A	725.50	745.50	1.7E-08	1.0E-03	3.18E-02	1216	1210	6144.83	6347.95	6229.13	12.55
KFM06A	745.50	765.50	1.7E-08	1.0E-03	7.84E-05	1219	1206	6328.15	6543.36	6365.55	12.95
KFM06A	765.50	785.50	1.7E-08	1.0E-03	3.18E-03	1219	1193	6470.06	6705.21	6582.83	13.17
KFM06A	785.50	805.50	1.7E-08	1.0E-03	7.15E-05	1227	1189	6659.28	6846.03	6728.04	13.36
KFM06A	805.50	825.50	1.7E-08	1.0E-03	1.09E-04	1225	1189	6810.96	7005.97	6872.72	13.58
KFM06A	825.50	845.50	5.2E-09	1.0E-03		296	321	7003.63	7164.53	7186.25	13.78
KFM06A	845.50	865.50	6.5E-09	1.0E-03		183	321	7229.02	7360.07	7387.03	14.00
KFM06A	865.50	885.50	7.7E-09	1.0E-03		152	321	7359.53	7508.87	7530.59	14.22
KFM06A	885.50	905.50	6.5E-09	1.0E-03		182	321	7501.17	7662.61	7682.97	14.44
KFM06A	107.50	112.50	1.7E-08	1.0E-03	2.66E-03	1219	1208	996.02	1207.95	997.12	7.20
KFM06A	112.50	117.50	1.7E-08	1.0E-03	3.36E-02	1218	1208	1040.03	1122.54	1067.54	7.12
KFM06A	117.50	122.50	6.5E-09	1.0E-03	8.57E-05	1222	1221	1087.34	1352.78	1300.22	7.38
KFM06A	122.50	127.50	1.7E-08	1.0E-03	1.86E-01	1218	1206	1125.30	1169.31	1132.45	7.63
KFM06A	127.50	132.50	1.7E-08	1.0E-03	5.71E-01	1218	1208	1168.75	1208.91	1172.61	9.85
KFM06A	132.50	137.50	1.7E-08	1.0E-03	7.55E-02	1216	1206	1212.00	1263.30	1212.21	7.39
KFM06A	136.50	141.50	1.7E-08	1.0E-03	6.88E-03	1219	1206	1246.45	1359.07	1257.31	7.56
KFM06A	141.50	146.50	1.7E-08	1.0E-03	2.51E-02	1219	1206	1288.66	1492.19	1289.21	7.47
KFM06A	146.50	151.50	7.7E-09	1.0E-03	2.13E-05	1219	1221	1346.84	1575.30	1395.38	7.63
KFM06A	147.50	152.50	6.5E-09	1.0E-03		66	321	1405.15	1581.86	1568.10	7.63
KFM06A	152.50	157.50	1.7E-08	1.0E-03	1.20E-02	1219	1206	1381.91	1627.00	1382.73	7.62
KFM06A	157.50	162.50	1.7E-08	1.0E-03	4.24E-03	1219	1207	1425.60	1678.12	1426.19	7.74
KFM06A	162.50	167.50	1.7E-08	1.0E-03	4.01E-03	1217	1208	1469.09	1624.90	1472.94	7.83
KFM06A	165.50	170.50	1.7E-08	1.0E-03	1.31E-02	1217	1209	1496.18	1696.41	1509.25	7.74

idcode	secup	seclow	q_measl__l	q_measl__u	tot_volume_vp	dur_flow_phase_tp	dur_rec_phase_tf	initial_press_pi	press_at_flow_end_pp	final_press_pf	fluid_temp_tew
KFM06A	170.50	175.50	1.7E-08	1.0E-03	1.11E-04	1223	1200	1531.49	1765.70	1532.59	7.90
KFM06A	175.50	180.50	1.7E-08	1.0E-03	1.17E-01	1217	1208	1582.40	1825.26	1600.00	7.48
KFM06A	180.50	185.50	1.7E-08	1.0E-03	3.05E-01	1216	1209	1625.00	1788.90	1637.96	7.94
KFM06A	185.50	190.50	8.9E-09	1.0E-03		1206	1221	1742.48	1900.90	1795.28	7.96
KFM06A	190.50	195.50	1.7E-08	1.0E-03	3.17E-04	1219	1206	1715.94	1939.96	1823.89	8.04
KFM06A	195.50	200.50	1.7E-08	1.0E-03	7.14E-04	1219	1206	1756.51	1971.58	1802.43	8.05
KFM06A	200.50	205.50	1.7E-08	1.0E-03	1.70E-03	1219	1205	1796.80	2036.22	1801.88	8.12
KFM06A	205.50	210.50	1.7E-08	1.0E-03	1.21E-02	1220	1205	1839.84	1958.60	1862.39	8.13
KFM06A	210.50	215.50	1.7E-08	1.0E-03	2.16E-04	1218	1205	1891.13	2097.27	2031.82	8.16
KFM06A	215.50	220.50	1.7E-08	1.0E-03	4.00E-01	1220	1206	1922.76	2011.46	1932.80	8.22
KFM06A	220.50	225.50	1.7E-08	1.0E-03	3.47E-02	1219	1206	1967.18	2092.73	2001.56	8.26
KFM06A	225.50	230.50	1.7E-08	1.0E-03	2.35E-04	1219	1206	2015.45	2213.34	2112.67	8.29
KFM06A	230.50	235.50	1.7E-08	1.0E-03	9.12E-05	1219	1205	2067.57	2261.19	2102.23	8.33
KFM06A	235.50	240.50	1.7E-08	1.0E-03	3.31E-01	1218	1203	2089.70	2223.80	2094.60	8.34
KFM06A	240.50	245.50	1.7E-08	1.0E-03	1.95E-04	1221	1205	2142.24	2336.55	2163.83	8.41
KFM06A	245.50	250.50	1.7E-08	1.0E-03	5.90E-04	1220	1205	2185.83	2403.66	2294.20	8.45
KFM06A	250.50	255.50	1.7E-08	1.0E-03	1.03E-03	1220	1203	2227.65	2355.94	2327.76	8.49
KFM06A	255.50	260.50	1.7E-08	1.0E-03	1.35E-03	1219	1205	2266.14	2429.51	2311.25	8.54
KFM06A	260.50	265.50	1.7E-08	1.0E-03	1.38E-04	1220	1205	2313.03	2580.92	2410.26	8.56
KFM06A	265.50	270.50	1.7E-08	1.0E-03	5.07E-01	1224	1208	2342.50	2453.59	2347.42	8.70
KFM06A	267.50	272.50	1.7E-08	1.0E-03	5.56E-01	1216	1209	2361.10	2489.57	2365.48	9.01
KFM06A	272.50	277.50	1.7E-08	1.0E-03	5.67E-04	1221	1202	2403.37	2651.95	2410.35	8.73
KFM06A	275.50	280.50	5.3E-09	1.0E-03		472	321	2467.13	2644.71	2621.59	8.69
KFM06A	280.50	285.50	6.5E-09	1.0E-03		81	321	2580.95	2696.01	2703.12	8.71
KFM06A	285.50	290.50	6.5E-09	1.0E-03		120	321	2608.32	2736.64	2786.30	8.78
KFM06A	290.50	295.50	1.7E-08	1.0E-03	1.14E-04	1221	1203	2559.20	2775.64	2660.43	8.80
KFM06A	295.50	300.50	1.7E-08	1.0E-03	1.57E-02	1221	1182	2597.51	2738.70	2719.00	8.77
KFM06A	300.50	305.50	1.7E-08	1.0E-03	9.92E-04	1220	1203	2636.63	2876.73	2662.62	8.87
KFM06A	305.50	310.50	1.7E-08	1.0E-03	7.56E-03	1254	1182	2682.33	2756.75	2747.46	8.92
KFM06A	310.50	315.50	1.7E-08	1.0E-03	1.02E-03	1220	1205	2726.51	2954.87	2942.81	8.93
KFM06A	315.50	320.50	4.1E-09	1.0E-03	1.28E-05	1223	1221	2815.31	2979.75	2812.57	8.97
KFM06A	320.50	325.50	1.7E-08	1.0E-03	1.22E-02	1221	1202	2806.00	3017.78	2860.73	8.95

idcode	secup	seclow	q_measl__l	q_measl__u	tot_volume_vp	dur_flow_phase_tp	dur_rec_phase_tf	initial_press_pi	press_at_flow_end_pp	final_press_pf	fluid_temp_tew
KFM06A	325.50	330.50	1.7E-08	1.0E-03	8.51E-04	1223	1202	2851.84	3052.26	2853.07	9.05
KFM06A	330.50	335.50	1.7E-08	1.0E-03	2.19E-04	1221	1203	2890.55	3088.79	2890.83	9.08
KFM06A	335.50	340.50	1.7E-08	1.0E-03	2.53E-03	1218	1205	2932.42	3131.06	2937.34	9.13
KFM06A	340.50	345.50	1.7E-08	1.0E-03	1.08E-03	1220	1203	2975.78	3173.20	2976.20	9.17
KFM06A	345.50	350.50	1.7E-08	1.0E-03	1.75E-04	1221	1203	3017.23	3257.20	3016.69	9.20
KFM06A	348.00	353.00	5.5E-09	1.0E-03	2.18E-05	1224	1221	3056.36	3244.90	3040.22	9.23
KFM06A	353.00	358.00	1.7E-08	1.0E-03	1.10E-01	1218	1205	3078.67	3274.30	3120.67	8.88
KFM06A	355.50	360.50	1.7E-08	1.0E-03	1.05E-01	1218	1203	3115.74	3300.80	3152.41	8.92
KFM06A	360.50	365.50	5.2E-09	1.0E-03	1.35E-04	1221	1203	3149.15	3371.85	3145.84	9.32
KFM06A	365.50	370.50	5.7E-09	1.0E-03		68	321	3236.68	3416.72	3538.75	9.36
KFM06A	370.00	375.00	5.2E-09	1.0E-03	2.32E-05	1221	1221	3239.14	3459.40	3308.37	9.39
KFM06A	375.50	380.50	5.2E-09	1.0E-03		94	321	3353.38	3498.26	3573.22	9.43
KFM06A	380.50	385.50	1.7E-08	1.0E-03	4.88E-04	1221	1203	3309.88	3491.83	3316.58	9.47
KFM06A	385.50	390.50	1.7E-08	1.0E-03		67	322	3385.53	3570.49	3762.57	9.51
KFM06A	390.50	395.50	1.7E-08	1.0E-03	2.02E-02	1221	1203	3393.33	3551.34	3497.16	9.46
KFM06A	395.50	400.50	1.7E-08	1.0E-03	1.70E-04	1221	1202	3444.90	3655.87	3456.67	9.59
KFM06A	400.50	405.50	5.5E-09	1.0E-03		484	321	3493.74	3699.65	3661.34	9.63
KFM06A	405.50	410.50	5.5E-09	1.0E-03	2.23E-05	1223	1221	3561.19	3741.23	3609.90	9.67
KFM06A	410.50	415.50	1.7E-08	1.0E-03	6.30E-04	1224	1200	3563.37	3775.54	3712.78	9.71
KFM06A	415.50	420.50	5.5E-09	1.0E-03		183	321	3638.35	3825.64	3972.17	9.75
KFM06A	420.50	425.50	5.5E-09	1.0E-03	2.18E-05	1223	1221	3653.27	3869.43	3687.06	9.79
KFM06A	445.50	450.50	1.7E-08	1.0E-03	1.18E-04	1220	1202	3855.60	4093.10	3888.44	9.99
KFM06A	450.50	455.50	5.5E-09	1.0E-03		68	321	4040.57	4118.41	4258.92	10.05
KFM06A	455.50	460.50	5.5E-09	1.0E-03		93	321	3997.06	4160.42	4195.44	10.09
KFM06A	460.50	465.50	6.0E-09	1.0E-03		67	321	4015.81	4202.01	4357.96	10.13

KFM06A plu_s_hole_test_ed1. Left (This result table to SICADA includes more columns which are empty, these columns are not presented here.)

idcode	start_date	stop_date	secup	seclow	test_type	formation_type	spec_capacity_q_s	value_type_q_s	transmissivity_moye	bc_tm	value_type_tm	hydr_cond_moye	formation_width_b
KFM06A	20050317 10:35	20050317 12:32	105.50	205.50	3	1	1.41E-04	0	1.83E-04	0	0	1.83E-06	100.00
KFM06A	20050317 14:57	20050317 16:47	205.50	305.50	3	1	1.17E-04	0	1.53E-04	0	0	1.53E-06	100.00
KFM06A	20050317 18:36	20050318 09:40	305.50	405.50	3	1	4.49E-06	0	5.84E-06	0	0	5.84E-08	100.00
KFM06A	20050318 11:22	20050318 14:09	405.50	505.50	3	1	8.08E-09	0	1.05E-08	0	0	1.05E-10	100.00
KFM06A	20050321 09:44	20050321 11:45	505.50	605.50	3	1	3.25E-10	-1	4.23E-10	0	-1	4.23E-12	100.00
KFM06A	20050321 14:05	20050321 15:58	605.50	705.50	3	1	1.22E-09	0	1.58E-09	0	0	1.58E-11	100.00
KFM06A	20050321 17:38	20050321 19:29	705.50	805.50	3	1	6.72E-07	0	8.73E-07	0	0	8.73E-09	100.00
KFM06A	20050323 09:00	20050323 11:05	805.50	905.50	3	1	2.48E-09	0	3.23E-09	0	0	3.23E-11	100.00
KFM06A	20050323 13:41	20050323 15:36	887.00	987.00	3	1	3.85E-10	-1	5.01E-10	0	-1	5.01E-12	100.00
KFM06A	20050405 06:31	20050405 07:54	107.50	127.50	3	1	2.78E-05	0	2.90E-05	0	0	1.45E-06	20.00
KFM06A	20050404 23:15	20050405 00:28	127.50	147.50	3	1	1.12E-04	0	1.17E-04	0	0	5.84E-06	20.00
KFM06A	20050404 21:32	20050404 22:49	147.50	167.50	3	1	7.96E-07	0	8.31E-07	0	0	4.16E-08	20.00
KFM06A	20050404 19:43	20050404 20:59	165.50	185.50	3	1	1.92E-05	0	2.01E-05	0	0	1.00E-06	20.00
KFM06A	20050404 18:00	20050404 19:17	185.50	205.50	3	1	8.40E-08	0	8.77E-08	0	0	4.39E-09	20.00
KFM06A	20050330 07:02	20050330 08:21	205.50	225.50	3	1	3.02E-05	0	3.15E-05	0	0	1.58E-06	20.00
KFM06A	20050330 08:49	20050330 10:04	225.50	245.50	3	1	1.80E-05	0	1.88E-05	0	0	9.38E-07	20.00
KFM06A	20050330 10:29	20050330 11:45	245.50	265.50	3	1	7.11E-08	0	7.42E-08	0	0	3.71E-09	20.00
KFM06A	20050330 12:56	20050330 14:12	265.50	285.50	3	1	3.72E-05	0	3.88E-05	0	0	1.94E-06	20.00
KFM06A	20050330 14:41	20050330 15:56	285.50	305.50	3	1	2.19E-07	0	2.28E-07	0	0	1.14E-08	20.00
KFM06A	20050404 15:42	20050404 16:57	305.50	325.50	3	1	3.91E-07	0	4.08E-07	1	0	2.04E-08	20.00
KFM06A	20050330 18:06	20050330 19:27	325.50	345.50	3	1	1.45E-07	0	1.51E-07	0	0	7.57E-09	20.00
KFM06A	20050330 19:57	20050330 21:26	345.50	365.50	3	1	3.73E-06	0	3.89E-06	0	0	1.95E-07	20.00
KFM06A	20050330 21:51	20050330 23:27	365.50	385.50	3	1	4.16E-08	0	4.34E-08	0	0	2.17E-09	20.00
KFM06A	20050331 09:52	20050331 11:11	385.50	405.50	3	1	3.73E-07	0	3.90E-07	1	0	1.95E-08	20.00
KFM06A	20050331 11:38	20050331 13:52	405.50	425.50	3	1	8.76E-09	0	9.14E-09	0	0	4.57E-10	20.00
KFM06A	20050331 14:16	20050331 15:02	425.50	445.50	3	1	3.23E-10	-1	3.37E-10	0	-1	1.68E-11	20.00
KFM06A	20050331 15:38	20050331 16:56	445.50	465.50	3	1	2.05E-09	0	2.14E-09	0	0	1.07E-10	20.00
KFM06A	20050331 17:18	20050331 18:33	465.50	485.50	3	1	3.23E-10	-1	3.37E-10	0	-1	1.68E-11	20.00
KFM06A	20050331 18:55	20050331 19:38	485.50	505.50	3	1	3.23E-10	-1	3.37E-10	0	-1	1.68E-11	20.00

idcode	start_date	stop_date	secup	seclow	test_type	formation_type	spec_capacity_q_s	value_type_q_s	transmissivity_moye	bc_tm	value_type_tm	hydr_cond_moye	formation_width_b
KFM06A	20050331 21:33	20050331 22:50	605.50	625.50	3	1	1.24E-09	0	1.29E-09	0	0	6.47E-11	20.00
KFM06A	20050331 23:14	20050331 23:57	625.50	645.50	3	1	2.62E-10	-1	2.73E-10	0	-1	1.37E-11	20.00
KFM06A	20050401 06:35	20050401 07:51	645.50	665.50	3	1	3.53E-10	0	3.69E-10	0	0	1.85E-11	20.00
KFM06A	20050401 08:13	20050401 08:57	665.50	685.50	3	1	3.23E-10	-1	3.37E-10	0	-1	1.68E-11	20.00
KFM06A	20050401 09:19	20050401 10:03	685.50	705.50	3	1	2.62E-10	-1	2.73E-10	0	-1	1.37E-11	20.00
KFM06A	20050401 10:24	20050401 11:05	705.50	725.50	3	1	3.23E-10	-1	3.37E-10	0	-1	1.68E-11	20.00
KFM06A	20050401 12:20	20050401 13:37	725.50	745.50	3	1	7.29E-07	0	7.61E-07	0	0	3.80E-08	20.00
KFM06A	20050401 14:12	20050401 15:32	745.50	765.50	3	1	1.93E-09	0	2.01E-09	0	0	1.01E-10	20.00
KFM06A	20050401 16:43	20050401 18:07	765.50	785.50	3	1	5.45E-08	0	5.69E-08	0	0	2.84E-09	20.00
KFM06A	20050401 18:40	20050401 19:56	785.50	805.50	3	1	1.79E-09	0	1.87E-09	0	0	9.35E-11	20.00
KFM06A	20050401 20:19	20050401 21:36	805.50	825.50	3	1	2.69E-09	0	2.81E-09	0	0	1.40E-10	20.00
KFM06A	20050401 21:56	20050401 22:41	825.50	845.50	3	1	2.62E-10	-1	2.73E-10	0	-1	1.37E-11	20.00
KFM06A	20050404 06:12	20050404 06:58	845.50	865.50	3	1	3.23E-10	-1	3.37E-10	0	-1	1.68E-11	20.00
KFM06A	20050404 07:15	20050404 08:01	865.50	885.50	3	1	3.86E-10	-1	4.02E-10	0	-1	2.01E-11	20.00
KFM06A	20050404 08:27	20050404 09:11	885.50	905.50	3	1	3.23E-10	-1	3.37E-10	0	-1	1.68E-11	20.00
KFM06A	20050405 19:41	20050405 21:07	107.50	112.50	3	1	9.75E-08	0	8.03E-08	0	0	1.61E-08	5.00
KFM06A	20050405 21:21	20050405 22:40	112.50	117.50	3	1	2.25E-06	0	1.85E-06	0	0	3.70E-07	5.00
KFM06A	20050406 06:24	20050406 07:48	117.50	122.50	3	1	5.25E-10	0	4.32E-10	0	0	8.64E-11	5.00
KFM06A	20050406 08:56	20050406 10:22	122.50	127.50	3	1	2.54E-05	0	2.09E-05	0	0	4.19E-06	5.00
KFM06A	20050406 10:36	20050406 11:57	127.50	132.50	3	1	9.56E-05	0	7.87E-05	0	0	1.57E-05	5.00
KFM06A	20050406 13:11	20050406 14:34	132.50	137.50	3	1	1.11E-05	0	9.15E-06	0	0	1.83E-06	5.00
KFM06A	20050406 14:51	20050406 16:13	136.50	141.50	3	1	3.74E-07	0	3.08E-07	0	0	6.16E-08	5.00
KFM06A	20050406 16:37	20050406 17:51	141.50	146.50	3	1	7.56E-07	0	6.22E-07	0	0	1.24E-07	5.00
KFM06A	20050406 18:08	20050406 19:25	146.50	151.50	3	1	4.89E-10	0	4.03E-10	0	0	8.06E-11	5.00
KFM06A	20050406 19:34	20050406 20:14	147.50	152.50	3	1	3.23E-10	-1	2.66E-10	0	-1	5.32E-11	5.00
KFM06A	20050406 20:24	20050406 21:39	152.50	157.50	3	1	3.70E-07	0	3.05E-07	0	0	6.09E-08	5.00
KFM06A	20050406 21:49	20050406 23:05	157.50	162.50	3	1	1.32E-07	0	1.09E-07	0	0	2.18E-08	5.00
KFM06A	20050406 23:17	20050407 00:33	162.50	167.50	3	1	1.88E-07	0	1.55E-07	0	0	3.10E-08	5.00
KFM06A	20050407 06:25	20050407 07:42	165.50	170.50	3	1	4.48E-07	0	3.69E-07	0	0	7.38E-08	5.00
KFM06A	20050421 14:24	20050421 15:50	170.50	175.50	3	1	2.96E-09	0	2.43E-09	0	0	4.87E-10	5.00
KFM06A	20050407 09:40	20050407 11:01	175.50	180.50	3	1	3.12E-06	0	2.57E-06	0	0	5.14E-07	5.00
KFM06A	20050407 11:16	20050407 13:45	180.50	185.50	3	1	1.26E-05	0	1.04E-05	0	0	2.08E-06	5.00
KFM06A	20050407 14:00	20050407 15:20	185.50	190.50	3	1	4.46E-10	-1	3.67E-10	0	-1	7.35E-11	5.00

idcode	start_date	stop_date	secup	seclow	test_type	formation_type	spec_capacity_q_s	value_type_q_s	transmissivity_moye	bc_tm	value_type_tm	hydr_cond_moye	formation_width_b
KFM06A	20050407 15:30	20050407 16:46	190.50	195.50	3	1	8.33E-09	0	6.86E-09	0	0	1.37E-09	5.00
KFM06A	20050407 17:01	20050407 18:17	195.50	200.50	3	1	2.33E-08	0	1.92E-08	0	0	3.83E-09	5.00
KFM06A	20050407 18:29	20050407 19:53	200.50	205.50	3	1	5.26E-08	0	4.33E-08	0	0	8.66E-09	5.00
KFM06A	20050407 20:04	20050407 21:23	205.50	210.50	3	1	6.55E-07	0	5.39E-07	0	0	1.08E-07	5.00
KFM06A	20050407 21:37	20050407 23:01	210.50	215.50	3	1	3.19E-09	0	2.63E-09	0	0	5.25E-10	5.00
KFM06A	20050407 23:16	20050408 00:30	215.50	220.50	3	1	2.92E-05	0	2.41E-05	0	0	4.82E-06	5.00
KFM06A	20050408 06:21	20050408 07:41	220.50	225.50	3	1	1.28E-06	0	1.05E-06	0	0	2.11E-07	5.00
KFM06A	20050408 07:58	20050408 09:16	225.50	230.50	3	1	6.07E-09	0	5.00E-09	0	0	1.00E-09	5.00
KFM06A	20050408 09:31	20050408 10:45	230.50	235.50	3	1	2.47E-09	0	2.04E-09	0	0	4.07E-10	5.00
KFM06A	20050415 15:48	20050415 17:02	235.50	240.50	3	1	1.75E-05	0	1.44E-05	0	0	2.89E-06	5.00
KFM06A	20050408 13:17	20050408 14:35	240.50	245.50	3	1	6.45E-09	0	5.31E-09	0	0	1.06E-09	5.00
KFM06A	20050408 14:52	20050408 16:13	245.50	250.50	3	1	1.42E-08	0	1.17E-08	0	0	2.33E-09	5.00
KFM06A	20050408 16:27	20050408 17:45	250.50	255.50	3	1	2.15E-08	0	1.77E-08	0	0	3.55E-09	5.00
KFM06A	20050408 17:56	20050408 19:11	255.50	260.50	3	1	3.94E-08	0	3.24E-08	0	0	6.49E-09	5.00
KFM06A	20050408 19:23	20050408 20:39	260.50	265.50	3	1	2.57E-09	0	2.11E-09	0	0	4.23E-10	5.00
KFM06A	20050411 17:47	20050411 19:07	265.50	270.50	3	1	3.59E-05	0	2.96E-05	0	0	5.91E-06	5.00
KFM06A	20050411 19:34	20050411 20:49	267.50	272.50	3	1	3.48E-05	0	2.87E-05	0	0	5.73E-06	5.00
KFM06A	20050411 21:07	20050411 22:29	272.50	277.50	3	1	1.56E-08	0	1.28E-08	0	0	2.57E-09	5.00
KFM06A	20050411 22:42	20050411 23:37	275.50	280.50	3	1	2.64E-10	-1	2.18E-10	0	-1	4.35E-11	5.00
KFM06A	20050412 06:03	20050412 06:45	280.50	285.50	3	1	3.27E-10	-1	2.69E-10	0	-1	5.38E-11	5.00
KFM06A	20050412 07:02	20050412 07:44	285.50	290.50	3	1	3.27E-10	-1	2.69E-10	0	-1	5.38E-11	5.00
KFM06A	20050412 07:55	20050412 09:10	290.50	295.50	3	1	1.91E-09	0	1.57E-09	1	0	3.14E-10	5.00
KFM06A	20050412 09:26	20050412 10:42	295.50	300.50	3	1	1.99E-07	0	1.64E-07	0	0	3.27E-08	5.00
KFM06A	20050412 10:55	20050412 13:04	300.50	305.50	3	1	3.09E-08	0	2.54E-08	0	0	5.08E-09	5.00
KFM06A	20050412 13:59	20050412 15:18	305.50	310.50	3	1	8.96E-08	0	7.38E-08	0	0	1.48E-08	5.00
KFM06A	20050412 15:34	20050412 16:54	310.50	315.50	3	1	3.95E-09	0	3.26E-09	0	0	6.51E-10	5.00
KFM06A	20050412 17:15	20050412 18:31	315.50	320.50	3	1	3.53E-10	0	2.91E-10	1	0	5.82E-11	5.00
KFM06A	20050412 18:46	20050412 20:04	320.50	325.50	3	1	2.97E-07	0	2.44E-07	0	0	4.89E-08	5.00
KFM06A	20050412 20:26	20050412 21:44	325.50	330.50	3	1	3.16E-08	0	2.60E-08	0	0	5.21E-09	5.00
KFM06A	20050412 22:01	20050412 23:19	330.50	335.50	3	1	8.99E-09	0	7.40E-09	0	0	1.48E-09	5.00
KFM06A	20050413 06:08	20050413 07:25	335.50	340.50	3	1	9.46E-08	0	7.79E-08	0	0	1.56E-08	5.00
KFM06A	20050413 07:37	20050413 08:54	340.50	345.50	3	1	4.05E-09	0	3.34E-09	0	0	6.67E-10	5.00
KFM06A	20050413 09:09	20050413 10:29	345.50	350.50	3	1	5.36E-09	0	4.41E-09	0	0	8.82E-10	5.00
KFM06A	20050415 13:31	20050415 14:48	348.00	353.00	3	1	6.55E-10	0	5.39E-10	0	0	1.08E-10	5.00

idcode	start_date	stop_date	secup	seclow	test_type	formation_type	spec_capacity_q_s	value_type_q_s	transmissivity_moye	bc_tm	value_type_tm	hydr_cond_moye	formation_width_b
KFM06A	20050413 12:28	20050413 13:42	353.00	358.00	3	1	3.78E-06	0	3.11E-06	0	0	6.22E-07	5.00
KFM06A	20050413 13:54	20050413 15:12	355.50	360.50	3	1	3.87E-06	0	3.19E-06	0	0	6.37E-07	5.00
KFM06A	20050414 06:08	20050414 07:22	360.50	365.50	3	1	4.14E-09	0	3.41E-09	0	0	6.82E-10	5.00
KFM06A	20050414 07:34	20050414 08:14	365.50	370.50	3	1	2.87E-10	-1	2.36E-10	0	-1	4.73E-11	5.00
KFM06A	20050414 08:22	20050414 09:36	370.00	375.00	3	1	5.79E-10	0	4.77E-10	0	0	9.54E-11	5.00
KFM06A	20050414 09:50	20050414 10:31	375.50	380.50	3	1	2.60E-10	-1	2.14E-10	0	-1	4.28E-11	5.00
KFM06A	20050414 10:45	20050414 11:59	380.50	385.50	3	1	1.90E-08	0	1.56E-08	0	0	3.13E-09	5.00
KFM06A	20050414 12:49	20050414 13:29	385.50	390.50	3	1	8.33E-10	-1	6.86E-10	0	-1	1.37E-10	5.00
KFM06A	20050414 13:47	20050414 15:01	390.50	395.50	3	1	3.60E-07	0	2.97E-07	1	0	5.93E-08	5.00
KFM06A	20050414 15:29	20050414 16:50	395.50	400.50	3	1	4.98E-09	0	4.10E-09	0	0	8.20E-10	5.00
KFM06A	20050414 17:01	20050414 17:48	400.50	405.50	3	1	2.77E-10	-1	2.28E-10	0	-1	4.55E-11	5.00
KFM06A	20050414 18:00	20050414 19:15	405.50	410.50	3	1	5.02E-10	0	4.13E-10	0	0	8.26E-11	5.00
KFM06A	20050414 19:28	20050414 20:43	410.50	415.50	3	1	7.46E-09	0	6.15E-09	0	0	1.23E-09	5.00
KFM06A	20050414 20:58	20050414 21:40	415.50	420.50	3	1	2.77E-10	-1	2.28E-10	0	-1	4.55E-11	5.00
KFM06A	20050414 21:52	20050414 23:07	420.50	425.50	3	1	5.90E-10	0	4.86E-10	0	0	9.72E-11	5.00
KFM06A	20050414 23:36	20050415 09:05	445.50	450.50	3	1	3.30E-09	0	2.71E-09	0	0	5.43E-10	5.00
KFM06A	20050415 09:18	20050415 09:57	450.50	455.50	3	1	2.74E-10	-1	2.26E-10	0	-1	4.52E-11	5.00
KFM06A	20050415 10:10	20050415 10:51	455.50	460.50	3	1	2.74E-10	-1	2.26E-10	0	-1	4.52E-11	5.00
KFM06A	20050415 11:02	20050415 11:43	460.50	465.50	3	1	2.99E-10	-1	2.46E-10	0	-1	4.93E-11	5.00

KFM06A plu_s_hole_test_ed1. Right (This result table to SICADA includes more columns which are empty, these columns are not presented here.)

idcode	secup	seclow	transmissivity_tt	value_type_tt	bc_tt	l_measl_q_s	u_measl_q_s	assumed_s	bc_s	ri	ri_index	c	skin	t1	t2	dte1	dte2
KFM06A	105.50	205.50	7.22E-05	0	1	7.7E-09	5.0E-04	5.95E-06	5.95E-06	165.23	1		-5.69	300	1000		
KFM06A	205.50	305.50	6.96E-05	0	1	5.9E-09	5.0E-04	5.84E-06	5.84E-06	219.73	0		-5.07	100	1800		
KFM06A	305.50	405.50	1.09E-06	0	1	1.5E-09	5.0E-04	7.31E-07	7.31E-07	78.14	1						
KFM06A	405.50	505.50	2.15E-09	0	1	7.0E-10	5.0E-04	3.24E-08	3.24E-08	12.20	1	1.47E-09	-5.29	100	1000		
KFM06A	505.50	605.50		-1	0	3.3E-10	5.0E-04										
KFM06A	605.50	705.50	5.96E-10	0	1	7.6E-10	5.0E-04	1.71E-08	1.71E-08	8.86	-1	1.91E-10	-2.70	100	1000		
KFM06A	705.50	805.50	1.10E-07	0	1	7.9E-10	5.0E-04	2.33E-07	2.33E-07	44.03	1						
KFM06A	805.50	905.50	4.66E-10	0	1	7.4E-10	5.0E-04	1.51E-08	1.51E-08	11.24	1	2.85E-10	-5.01				
KFM06A	887.00	987.00		-1	0	3.9E-10	5.0E-04										
0	0.00	0.00		-1	0	8.3E-10	5.0E-04										
KFM06A	107.50	127.50	6.88E-06	0	1	4.1E-09	5.0E-04	1.84E-06	1.84E-06	100.58	0		-6.71	200	1200		
KFM06A	127.50	147.50	5.62E-05	0	1	5.4E-09	5.0E-04	5.25E-06	5.25E-06	162.83	0		-5.46	500	1100		
KFM06A	147.50	167.50	8.10E-07	0	1	8.9E-10	5.0E-04	6.30E-07	6.30E-07	58.92	0		-1.09	60	1200		
KFM06A	165.50	185.50	6.66E-06	0	1	1.5E-09	5.0E-04	1.81E-06	1.81E-06	64.39	-1		-5.77	50	500		
KFM06A	185.50	205.50	4.94E-08	0	1	8.5E-10	5.0E-04	1.56E-07	1.56E-07	29.28	0		-3.08	40	1200		
KFM06A	205.50	225.50	1.11E-05	0	1	2.1E-09	5.0E-04	2.34E-06	2.34E-06	113.46	0		-5.91	200	1200		
KFM06A	225.50	245.50	5.63E-06	0	1	1.2E-09	5.0E-04	1.66E-06	1.66E-06	96.18	-1		-5.57				
KFM06A	245.50	265.50	2.65E-08	0	1	7.6E-10	5.0E-04	1.14E-07	1.14E-07	25.15	1						
KFM06A	265.50	285.50	5.65E-05	0	1	1.5E-09	5.0E-04	5.26E-06	5.26E-06	170.23	0		1.10	300	1200		
KFM06A	285.50	305.50	3.77E-07	0	1	1.2E-09	5.0E-04	4.30E-07	4.30E-07	48.48	0		-6.25				
KFM06A	305.50	325.50	1.62E-07	0	0	9.0E-10	5.0E-04	2.82E-07	2.82E-07	50.12	1						
KFM06A	325.50	345.50	1.90E-07	0	1	8.1E-10	5.0E-04	3.05E-07	3.05E-07	28.99	0		1.34			250	600
KFM06A	345.50	365.50	3.06E-06	0	1	8.2E-10	5.0E-04	1.22E-06	1.22E-06	41.05	1		-3.18	100	300		
KFM06A	365.50	385.50	3.70E-08	0	1	8.2E-10	5.0E-04	1.35E-07	1.35E-07	19.26	-1	1.72E-10	-0.83	80	600		
KFM06A	385.50	405.50	4.89E-07	0	0	7.8E-10	5.0E-04	4.89E-07	4.89E-07	49.42	1		-5.88				
KFM06A	405.50	425.50	1.91E-09	0	1	8.4E-10	5.0E-04	3.06E-08	3.06E-08	13.08	1	1.41E-09					
KFM06A	425.50	445.50		-1	0	3.2E-10	5.0E-04										
KFM06A	445.50	465.50	1.45E-09	0	1	7.3E-10	5.0E-04	2.66E-08	2.66E-08	6.06	1	5.64E-11	-1.75	20	300		

idcode	secup	seclow	transmissivity_tt	value_type_tt	bc_tt	l_measl_q_s	u_measl_q_s	assumed_s	bc_s	ri	ri_index	c	skin	t1	t2	dte1	dte2
KFM06A	465.50	485.50		-1	0	3.2E-10	5.0E-04										
KFM06A	485.50	505.50		-1	0	3.2E-10	5.0E-04										
KFM06A	605.50	625.50	1.12E-09	0	1	7.9E-10	5.0E-04	2.34E-08	2.34E-08	7.33	-1	5.52E-11	0.23	30	500		
KFM06A	625.50	645.50		-1	0	2.6E-10	5.0E-04										
KFM06A	645.50	665.50	1.40E-10	0	1	2.6E-10	5.0E-04	8.28E-09	8.28E-09	1.95	1	3.96E-11	-3.36	10	100		
KFM06A	665.50	685.50		-1	0	3.2E-10	5.0E-04										
KFM06A	685.50	705.50		-1	0	2.6E-10	5.0E-04										
KFM06A	705.50	725.50		-1	0	3.2E-10	5.0E-04										
KFM06A	725.50	745.50	1.19E-07	0	1	8.1E-10	5.0E-04	2.41E-07	2.41E-07	36.72	1						
KFM06A	745.50	765.50	7.42E-10	0	1	7.6E-10	5.0E-04	1.91E-08	1.91E-08	10.25	0		-3.54	60	1200		
KFM06A	765.50	785.50	1.76E-08	0	1	7.0E-10	5.0E-04	9.27E-08	9.27E-08	6.53	1		-5.77	50	100		
KFM06A	785.50	805.50	4.00E-10	0	1	8.8E-10	5.0E-04	1.40E-08	1.40E-08	8.88	1	6.95E-11					
KFM06A	805.50	825.50	6.47E-10	0	1	8.4E-10	5.0E-04	1.78E-08	1.78E-08	10.01	1	8.16E-11	-4.53				
KFM06A	825.50	845.50		-1	0	2.6E-10	5.0E-04										
KFM06A	845.50	865.50		-1	0	3.2E-10	5.0E-04										
KFM06A	865.50	885.50		-1	0	3.9E-10	5.0E-04										
KFM06A	885.50	905.50		-1	0	3.2E-10	5.0E-04										
0	0.00	0.00		-1	0	8.3E-10	5.0E-04										
KFM06A	107.50	112.50	9.55E-08	0	1	7.7E-10	5.0E-04	2.16E-07	2.16E-07	34.80	-1		-0.18				
KFM06A	112.50	117.50	4.97E-07	0	1	2.0E-09	5.0E-04	4.93E-07	4.93E-07	52.32	0		-6.50				
KFM06A	117.50	122.50	3.19E-10	0	1	2.4E-10	5.0E-04	1.25E-08	1.25E-08	8.37	1		-6.34				
KFM06A	122.50	127.50	5.82E-06	0	1	3.7E-09	5.0E-04	1.69E-06	1.69E-06	96.46	0		-6.81	300	1200		
KFM06A	127.50	132.50	4.61E-05	0	1	4.1E-09	5.0E-04	4.75E-06	4.75E-06	161.83	0		-5.47	100	1200		
KFM06A	132.50	137.50	6.69E-06	0	1	3.2E-09	5.0E-04	1.81E-06	1.81E-06	100.55	-1		-3.55				
KFM06A	136.50	141.50	1.67E-07	0	1	1.5E-09	5.0E-04	2.86E-07	2.86E-07	39.67	0		-4.33	800	1200		
KFM06A	141.50	146.50	4.75E-07	0	1	8.0E-10	5.0E-04	4.83E-07	4.83E-07	39.38	1		-3.91	80	700		
KFM06A	146.50	151.50	2.13E-10	0	1	3.3E-10	5.0E-04	1.02E-08	1.02E-08	7.50	0	3.87E-11	-2.34	100	1200		
KFM06A	147.50	152.50		-1	0	3.2E-10	5.0E-04										
KFM06A	152.50	157.50	7.38E-07	0	1	6.7E-10	5.0E-04	6.01E-07	6.01E-07	40.70	1		4.94	50	600		
KFM06A	157.50	162.50	1.22E-07	0	1	6.5E-10	5.0E-04	2.44E-07	2.44E-07	36.99	1		0.06				
KFM06A	162.50	167.50	1.32E-07	0	1	1.0E-09	5.0E-04	2.54E-07	2.54E-07	24.16	-1		-2.52	200	500		
KFM06A	165.50	170.50	1.97E-07	0	1	8.2E-10	5.0E-04	3.11E-07	3.11E-07	41.38	0		-4.44	150	1200		

idcode	secup	seclow	transmissivity_tt	value_type_tt	bc_tt	l_measl_q_s	u_measl_q_s	assumed_s	bc_s	ri	ri_index	c	skin	t1	t2	dte1	dte2
KFM06A	170.50	175.50	2.20E-09	0	1	7.0E-10	5.0E-04	3.28E-08	3.28E-08	9.51	1	1.87E-11	-2.03	100	600		
KFM06A	175.50	180.50	1.39E-06	0	1	6.7E-10	5.0E-04	8.26E-07	8.26E-07	67.48	0		-4.87	700	1200		
KFM06A	180.50	185.50	7.69E-06	0	1	1.0E-09	5.0E-04	1.94E-06	1.94E-06	103.41	0		-4.19	500	1200		
KFM06A	185.50	190.50		-1	0	4.5E-10	5.0E-04										
KFM06A	190.50	195.50	7.80E-09	0	1	7.3E-10	5.0E-04	6.18E-08	6.18E-08	9.23	1	3.87E-11	-0.49	70	300		
KFM06A	195.50	200.50	1.88E-08	0	1	7.6E-10	5.0E-04	9.59E-08	9.59E-08	22.99	0	8.66E-11	-1.48	80	1200		
KFM06A	200.50	205.50	5.48E-08	0	1	6.8E-10	5.0E-04	1.64E-07	1.64E-07	30.05	0		-0.15	100	1200		
KFM06A	205.50	210.50	2.82E-07	0	1	1.4E-09	5.0E-04	3.72E-07	3.72E-07	45.62	1		-4.65				
KFM06A	210.50	215.50	9.72E-10	0	1	7.9E-10	5.0E-04	2.18E-08	2.18E-08	3.17	1	2.59E-10	-5.10	10	100		
KFM06A	215.50	220.50	1.26E-05	0	1	1.8E-09	5.0E-04	2.48E-06	2.48E-06	67.54	0		-5.60	150	400		
KFM06A	220.50	225.50	1.97E-07	0	1	1.3E-09	5.0E-04	3.11E-07	3.11E-07	41.70	1		-6.60				
KFM06A	225.50	230.50	3.80E-09	0	1	8.3E-10	5.0E-04	4.32E-08	4.32E-08	6.30	1	4.16E-11	-3.35	60	200		
KFM06A	230.50	235.50	6.46E-10	0	1	8.4E-10	5.0E-04	1.78E-08	1.78E-08	7.00	-1	9.94E-11	-4.18	100	600		
KFM06A	235.50	240.50	3.95E-06	0	1	1.2E-09	5.0E-04	1.39E-06	1.39E-06	87.66	-1		-5.83				
KFM06A	240.50	245.50	1.86E-09	0	1	8.4E-10	5.0E-04	3.02E-08	3.02E-08	10.53	1		-4.15			400	800
KFM06A	245.50	250.50	6.23E-09	0	1	7.5E-10	5.0E-04	5.52E-08	5.52E-08	12.34	1	5.34E-11	-3.87	300	600		
KFM06A	250.50	255.50	2.31E-08	0	1	1.3E-09	5.0E-04	1.06E-07	1.06E-07	24.24	1		-5.44				
KFM06A	255.50	260.50	5.14E-09	0	1	1.0E-09	5.0E-04	5.02E-08	5.02E-08	16.66	1						
KFM06A	260.50	265.50	2.83E-09	0	1	6.1E-10	5.0E-04	3.72E-08	3.72E-08	5.06	1	2.55E-11	-2.47			20	150
KFM06A	265.50	270.50	4.39E-05	0	1	1.5E-09	5.0E-04	4.64E-06	4.64E-06	161.45	-1		-0.26				
KFM06A	267.50	272.50	3.02E-05	0	1	1.3E-09	5.0E-04	3.85E-06	3.85E-06	146.56	-1		-2.54				
KFM06A	272.50	277.50	1.08E-08	0	1	6.6E-10	5.0E-04	7.29E-08	7.29E-08	20.04	0		-1.89	100	1200		
KFM06A	275.50	280.50		-1	0	2.6E-10	5.0E-04										
KFM06A	280.50	285.50		-1	0	3.3E-10	5.0E-04										
KFM06A	285.50	290.50		-1	0	3.3E-10	5.0E-04										
KFM06A	290.50	295.50		0	0	7.6E-10	5.0E-04			12.47	-1						
KFM06A	295.50	300.50	5.05E-07	0	1	1.2E-09	5.0E-04	4.97E-07	4.97E-07	51.96	0		-6.03				
KFM06A	300.50	305.50	5.96E-08	0	1	6.8E-10	5.0E-04	1.71E-07	1.71E-07	30.68	0		5.06	70	1200		
KFM06A	305.50	310.50	2.49E-07	0	1	2.2E-09	5.0E-04	3.49E-07	3.49E-07	43.53	0		-7.23				
KFM06A	310.50	315.50	2.17E-08	0	1	7.2E-10	5.0E-04	1.03E-07	1.03E-07	23.88	1		-6.23				
KFM06A	315.50	320.50	7.32E-11	0	0	2.4E-10	5.0E-04	5.99E-09	5.99E-09	8.19	-1	1.51E-11	-4.06	50	300		
KFM06A	320.50	325.50	5.90E-08	0	1	7.7E-10	5.0E-04	1.70E-07	1.70E-07	30.63	1						

idcode	secup	seclow	transmissivity_tt	value_type_tt	bc_tt	l_measl_q_s	u_measl_q_s	assumed_s	bc_s	ri	ri_index	c	skin	t1	t2	dte1	dte2
KFM06A	325.50	330.50	3.00E-08	0	1	8.2E-10	5.0E-04	1.21E-07	1.21E-07	25.87	-1		0.01				
KFM06A	330.50	335.50	9.78E-09	0	1	8.3E-10	5.0E-04	6.92E-08	6.92E-08	19.53	0		1.18	250	1200		
KFM06A	335.50	340.50	8.15E-08	0	1	8.2E-10	5.0E-04	2.00E-07	2.00E-07	33.43	-1		-0.96				
KFM06A	340.50	345.50	1.10E-08	0	1	8.3E-10	5.0E-04	7.33E-08	7.33E-08	20.26	-1	1.08E-11	-3.58				
KFM06A	345.50	350.50	6.20E-09	0	1	6.8E-10	5.0E-04	5.51E-08	5.51E-08	17.43	0	2.02E-11	1.22	100	1200		
KFM06A	348.00	353.00	4.21E-10	0	1	2.6E-10	5.0E-04	1.44E-08	1.44E-08	8.90	0	1.41E-11	-1.30	10	1200		
KFM06A	353.00	358.00	3.36E-06	0	1	8.4E-10	5.0E-04	1.28E-06	1.28E-06	34.33	1		-2.80	40	200		
KFM06A	355.50	360.50	3.54E-06	0	1	8.8E-10	5.0E-04	1.32E-06	1.32E-06	34.77	1		-2.68	50	200		
KFM06A	360.50	365.50	4.42E-09	0	1	2.2E-10	5.0E-04	4.66E-08	4.66E-08	13.87	0	1.58E-11	0.39	30	900		
KFM06A	365.50	370.50		-1	0	2.9E-10	5.0E-04										
KFM06A	370.00	375.00	3.01E-10	0	1	2.3E-10	5.0E-04	1.21E-08	1.21E-08	8.18	0	1.59E-11	-1.97	20	1200		
KFM06A	375.50	380.50		-1	0	2.6E-10	5.0E-04										
KFM06A	380.50	385.50	1.39E-08	0	1	9.0E-10	5.0E-04	8.24E-08	8.24E-08	18.96	0	1.20E-10	-1.74	100	950		
KFM06A	385.50	390.50		-1	0	8.3E-10	5.0E-04										
KFM06A	390.50	395.50		0	0	1.0E-09	5.0E-04			46.23	1						
KFM06A	395.50	400.50	1.59E-09	0	1	7.8E-10	5.0E-04	2.79E-08	2.79E-08	12.51	-1	7.27E-11	-3.55				
KFM06A	400.50	405.50		-1	0	2.8E-10	5.0E-04										
KFM06A	405.50	410.50	1.76E-10	0	1	3.0E-10	5.0E-04	9.29E-09	9.29E-09	7.15	0	3.19E-11	-3.16	50	1200		
KFM06A	410.50	415.50	1.80E-09	0	1	7.6E-10	5.0E-04	2.97E-08	2.97E-08	12.92	1						
KFM06A	415.50	420.50		-1	0	2.8E-10	5.0E-04										
KFM06A	420.50	425.50	3.56E-10	0	1	2.5E-10	5.0E-04	1.32E-08	1.32E-08	8.53	0	1.39E-11	-1.87	20	1200		
KFM06A	445.50	450.50	4.05E-09	0	1	6.9E-10	5.0E-04	4.46E-08	4.46E-08	9.05	1	1.91E-11	-0.40	10	400		
KFM06A	450.50	455.50		-1	0	2.7E-10	5.0E-04										
KFM06A	455.50	460.50		-1	0	2.7E-10	5.0E-04										
KFM06A	460.50	465.50		-1	0	3.0E-10	5.0E-04										

KFM06A plu_s_hole_test_obs (This result table to SICADA includes more columns which are empty, these columns are not presented here.)

idcode	start_date	stop_date	secup	seclow	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KFM06A	20050317 10:35	20050317 12:32	105.50	205.50	100.70	104.50	934.48	933.39	934.48				
KFM06A	20050317 10:35	20050317 12:32	105.50	205.50	206.50	1000.64				1827.77	1827.63	1827.35	
KFM06A	20050317 14:57	20050317 16:47	205.50	305.50	100.70	204.50	937.41	937.82	937.27				
KFM06A	20050317 14:57	20050317 16:47	205.50	305.50	306.50	1000.64				2675.45	2675.03	2674.49	
KFM06A	20050317 18:36	20050318 09:40	305.50	405.50	100.70	304.50	933.50	933.64	933.50				
KFM06A	20050317 18:36	20050318 09:40	305.50	405.50	406.50	1000.64				3508.42	3508.28	3507.88	
KFM06A	20050318 11:22	20050318 14:09	405.50	505.50	100.70	404.50	917.69	917.69	917.69				
KFM06A	20050318 11:22	20050318 14:09	405.50	505.50	506.50	1000.64				4340.71	4340.16	4340.16	
KFM06A	20050321 09:44	20050321 11:45	505.50	605.50	100.70	504.50	895.86	895.86	895.86				
KFM06A	20050321 09:44	20050321 11:45	505.50	605.50	606.50	1000.64				5169.70	5169.15	5168.60	
KFM06A	20050321 14:05	20050321 15:58	605.50	705.50	100.70	604.50	867.19	866.37	866.37				
KFM06A	20050321 14:05	20050321 15:58	605.50	705.50	706.50	1000.64				5987.55	5986.73	5986.04	
KFM06A	20050321 17:38	20050321 19:29	705.50	805.50	100.70	704.50	829.35	829.08	829.22				
KFM06A	20050321 17:38	20050321 19:29	705.50	805.50	806.50	1000.64				6808.43	6804.58	6799.08	
KFM06A	20050323 09:00	20050323 11:05	805.50	905.50	100.70	804.50	784.95	784.95	784.95				
KFM06A	20050323 09:00	20050323 11:05	805.50	905.50	906.50	1000.64				7692.26	7688.27	7681.95	
KFM06A	20050323 13:41	20050323 15:36	887.00	987.00	100.70	886.00	736.07	735.66	736.21				
KFM06A	20050323 13:41	20050323 15:36	887.00	987.00	988.00	1000.64				8730.41	8734.12	8729.17	
0			0.00	0.00	0.00	-1.00	0.00	0.00	0.00				
0			0.00	0.00	1.00	0.00				0.00	0.00	0.00	
KFM06A	20050405 06:31	20050405 07:54	107.50	127.50	100.70	106.50	938.41	937.88	937.88				
KFM06A	20050405 06:31	20050405 07:54	107.50	127.50	128.50	1000.64				1153.93	1155.31	1154.48	
KFM06A	20050404 23:15	20050405 00:28	127.50	147.50	100.70	126.50	938.87	944.75	942.70				
KFM06A	20050404 23:15	20050405 00:28	127.50	147.50	148.50	1000.64				1326.28	1326.83	1326.56	
KFM06A	20050404 21:32	20050404 22:49	147.50	167.50	100.70	146.50	939.32	939.32	939.32				
KFM06A	20050404 21:32	20050404 22:49	147.50	167.50	168.50	1000.64				1498.08	1498.08	1498.08	
KFM06A	20050404 19:43	20050404 20:59	165.50	185.50	100.70	164.50	939.70	940.11	939.84				
KFM06A	20050404 19:43	20050404 20:59	165.50	185.50	186.50	1000.64				1651.44	1651.99	1651.44	

idcode	start_date	stop_date	secup	seclow	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KFM06A	20050404 18:00	20050404 19:17	185.50	205.50	100.70	184.50	939.73	940.55	940.28				
KFM06A	20050404 18:00	20050404 19:17	185.50	205.50	206.50	1000.64				1822.41	1822.41	1822.41	
KFM06A	20050330 07:02	20050330 08:21	205.50	225.50	100.70	204.50	941.28	941.96	941.82				
KFM06A	20050330 07:02	20050330 08:21	205.50	225.50	226.50	1000.64				1995.56	1996.94	1996.66	
KFM06A	20050330 08:49	20050330 10:04	225.50	245.50	100.70	224.50	940.63	941.18	940.63				
KFM06A	20050330 08:49	20050330 10:04	225.50	245.50	246.50	1000.64				2166.54	2167.50	2167.64	
KFM06A	20050330 10:29	20050330 11:45	245.50	265.50	100.70	244.50	939.44	938.62	938.89				
KFM06A	20050330 10:29	20050330 11:45	245.50	265.50	266.50	1000.64				2336.40	2336.40	2335.85	
KFM06A	20050330 12:56	20050330 14:12	265.50	285.50	100.70	264.50	937.70	938.38	938.24				
KFM06A	20050330 12:56	20050330 14:12	265.50	285.50	286.50	1000.64				2503.79	2504.75	2504.07	
KFM06A	20050330 14:41	20050330 15:56	285.50	305.50	100.70	284.50	937.60	937.32	937.05				
KFM06A	20050330 14:41	20050330 15:56	285.50	305.50	306.50	1000.64				2673.93	2675.17	2674.49	
KFM06A	20050404 15:42	20050404 16:57	305.50	325.50	100.70	304.50	935.86	935.86	935.86				
KFM06A	20050404 15:42	20050404 16:57	305.50	325.50	326.50	1000.64				2839.81	2839.95	2839.95	
KFM06A	20050330 18:06	20050330 19:27	325.50	345.50	100.70	324.50	932.49	932.49	932.49				
KFM06A	20050330 18:06	20050330 19:27	325.50	345.50	346.50	1000.64				3010.50	3010.92	3011.46	
KFM06A	20050330 19:57	20050330 21:26	345.50	365.50	100.70	344.50	930.19	930.47	930.19				
KFM06A	20050330 19:57	20050330 21:26	345.50	365.50	366.50	1000.64				3177.21	3184.08	3185.74	
KFM06A	20050330 21:51	20050330 23:27	365.50	385.50	100.70	364.50	926.95	926.81	927.36				
KFM06A	20050330 21:51	20050330 23:27	365.50	385.50	386.50	1000.64				3345.97	3345.84	3345.70	
KFM06A	20050331 09:52	20050331 11:11	385.50	405.50	100.70	384.50	923.15	923.02	922.88				
KFM06A	20050331 09:52	20050331 11:11	385.50	405.50	406.50	1000.64				3511.04	3510.76	3510.62	
KFM06A	20050331 11:38	20050331 13:52	405.50	425.50	100.70	404.50	918.96	918.82	918.96				
KFM06A	20050331 11:38	20050331 13:52	405.50	425.50	426.50	1000.64				3677.18	3677.46	3676.08	
KFM06A	20050331 14:16	20050331 15:02	425.50	445.50	100.70	424.50	914.48	914.48	914.48				
KFM06A	20050331 14:16	20050331 15:02	425.50	445.50	446.50	1000.64				3843.75	3843.75	3843.75	
KFM06A	20050331 15:38	20050331 16:56	445.50	465.50	100.70	444.50	910.28	909.87	910.01				
KFM06A	20050331 15:38	20050331 16:56	445.50	465.50	466.50	1000.64				4010.05	4009.63	4009.77	
KFM06A	20050331 17:18	20050331 18:33	465.50	485.50	100.70	464.50	904.98	904.57	904.44				
KFM06A	20050331 17:18	20050331 18:33	465.50	485.50	486.50	1000.64				4175.79	4175.79	4175.79	
KFM06A	20050331 18:55	20050331 19:38	485.50	505.50	100.70	484.50	899.27	899.40	899.40				
KFM06A	20050331 18:55	20050331 19:38	485.50	505.50	506.50	1000.64				4341.39	4340.84	4341.26	

idcode	start_date	stop_date	secup	seclow	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KFM06A	20050331 21:33	20050331 22:50	605.50	625.50	100.70	604.50	865.16	864.89	864.89				
KFM06A	20050331 21:33	20050331 22:50	605.50	625.50	626.50	1000.64				5332.14	5331.31	5330.77	
KFM06A	20050331 23:14	20050331 23:57	625.50	645.50	100.70	624.50	858.64	858.78	858.23				
KFM06A	20050331 23:14	20050331 23:57	625.50	645.50	646.50	1000.64				5495.68	5495.27	5495.13	
KFM06A	20050401 06:35	20050401 07:51	645.50	665.50	100.70	644.50	853.48	852.66	853.21				
KFM06A	20050401 06:35	20050401 07:51	645.50	665.50	666.50	1000.64				5659.22	5658.94	5658.94	
KFM06A	20050401 08:13	20050401 08:57	665.50	685.50	100.70	664.50	846.13	845.17	845.44				
KFM06A	20050401 08:13	20050401 08:57	665.50	685.50	686.50	1000.64				5822.50	5822.36	5822.22	
KFM06A	20050401 09:19	20050401 10:03	685.50	705.50	100.70	684.50	838.23	837.82	837.69				
KFM06A	20050401 09:19	20050401 10:03	685.50	705.50	706.50	1000.64				5985.49	5985.77	5985.49	
KFM06A	20050401 10:24	20050401 11:05	705.50	725.50	100.70	704.50	830.48	829.66	829.93				
KFM06A	20050401 10:24	20050401 11:05	705.50	725.50	726.50	1000.64				6148.20	6148.20	6147.66	
KFM06A	20050401 12:20	20050401 13:37	725.50	745.50	100.70	724.50	822.85	822.17	822.17				
KFM06A	20050401 12:20	20050401 13:37	725.50	745.50	746.50	1000.64				6312.03	6312.58	6315.33	
KFM06A	20050401 14:12	20050401 15:32	745.50	765.50	100.70	744.50	814.68	814.27	814.41				
KFM06A	20050401 14:12	20050401 15:32	745.50	765.50	766.50	1000.64				6474.88	6474.20	6473.64	
KFM06A	20050401 16:43	20050401 18:07	765.50	785.50	100.70	764.50	804.60	804.74	805.01				
KFM06A	20050401 16:43	20050401 18:07	765.50	785.50	786.50	1000.64				6641.32	6638.43	6635.82	
KFM06A	20050401 18:40	20050401 19:56	785.50	805.50	100.70	784.50	795.07	795.07	795.07				
KFM06A	20050401 18:40	20050401 19:56	785.50	805.50	806.50	1000.64				6813.52	6809.67	6805.68	
KFM06A	20050401 20:19	20050401 21:36	805.50	825.50	100.70	804.50	784.57	784.71	785.12				
KFM06A	20050401 20:19	20050401 21:36	805.50	825.50	826.50	1000.64				7012.37	7011.83	7010.18	
KFM06A	20050401 21:56	20050401 22:41	825.50	845.50	100.70	824.50	773.66	773.52	773.52				
KFM06A	20050401 21:56	20050401 22:41	825.50	845.50	846.50	1000.64				7179.50	7180.05	7180.05	
KFM06A	20050404 06:12	20050404 06:58	845.50	865.50	100.70	844.50	765.49	765.21	765.21				
KFM06A	20050404 06:12	20050404 06:58	845.50	865.50	866.50	1000.64				7347.16	7347.71	7347.71	
KFM06A	20050404 07:15	20050404 08:01	865.50	885.50	100.70	864.50	753.08	752.94	753.08				
KFM06A	20050404 07:15	20050404 08:01	865.50	885.50	886.50	1000.64				7493.39	7494.49	7494.49	
KFM06A	20050404 08:27	20050404 09:11	885.50	905.50	100.70	884.50	740.67	740.26	740.95				
KFM06A	20050404 08:27	20050404 09:11	885.50	905.50	906.50	1000.64				7706.69	7707.37	7706.69	
0			0.00	0.00	0.00	-1.00	0.00	0.00	0.00				
0			0.00	0.00	1.00	0.00				0.00	0.00	0.00	

idcode	start_date	stop_date	secup	seclow	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KFM06A	20050405 19:41	20050405 21:07	107.50	112.50	100.70	106.50	937.88	938.15	937.88				
KFM06A	20050405 19:41	20050405 21:07	107.50	112.50	113.50	1000.64				1023.10	1023.10	1023.10	
KFM06A	20050405 21:21	20050405 22:40	112.50	117.50	100.70	111.50	937.57	937.85	937.43				
KFM06A	20050405 21:21	20050405 22:40	112.50	117.50	118.50	1000.64				1065.98	1065.98	1065.98	
KFM06A	20050406 06:24	20050406 07:48	117.50	122.50	100.70	116.50	938.02	938.16	938.29				
KFM06A	20050406 06:24	20050406 07:48	117.50	122.50	123.50	1000.64				1108.72	1109.55	1109.41	
KFM06A	20050406 08:56	20050406 10:22	122.50	127.50	100.70	121.50	939.51	940.06	940.06				
KFM06A	20050406 08:56	20050406 10:22	122.50	127.50	128.50	1000.64				1152.83	1154.90	1153.38	
KFM06A	20050406 10:36	20050406 11:57	127.50	132.50	100.70	126.50	940.17	946.74	944.00				
KFM06A	20050406 10:36	20050406 11:57	127.50	132.50	133.50	1000.64				1196.41	1198.47	1197.37	
KFM06A	20050406 13:11	20050406 14:34	132.50	137.50	100.70	131.50	939.73	941.38	940.28				
KFM06A	20050406 13:11	20050406 14:34	132.50	137.50	138.50	1000.64				1240.25	1239.42	1240.25	
KFM06A	20050406 14:51	20050406 16:13	136.50	141.50	100.70	135.50	939.61	939.61	939.06				
KFM06A	20050406 14:51	20050406 16:13	136.50	141.50	142.50	1000.64				1274.19	1273.78	1273.78	
KFM06A	20050406 16:37	20050406 17:51	141.50	146.50	100.70	140.50	938.76	938.62	938.62				
KFM06A	20050406 16:37	20050406 17:51	141.50	146.50	147.50	1000.64				1316.66	1316.66	1316.10	
KFM06A	20050406 18:08	20050406 19:25	146.50	151.50	100.70	145.50	938.60	938.05	938.18				
KFM06A	20050406 18:08	20050406 19:25	146.50	151.50	152.50	1000.64				1358.98	1358.98	1358.98	
KFM06A	20050406 19:34	20050406 20:14	147.50	152.50	100.70	146.50	938.43	938.43	938.43				
KFM06A	20050406 19:34	20050406 20:14	147.50	152.50	153.50	1000.64				1367.37	1367.37	1367.24	
KFM06A	20050406 20:24	20050406 21:39	152.50	157.50	100.70	151.50	938.54	938.54	938.54				
KFM06A	20050406 20:24	20050406 21:39	152.50	157.50	158.50	1000.64				1410.11	1409.56	1410.11	
KFM06A	20050406 21:49	20050406 23:05	157.50	162.50	100.70	156.50	938.38	938.38	938.11				
KFM06A	20050406 21:49	20050406 23:05	157.50	162.50	163.50	1000.64				1453.13	1452.99	1452.99	
KFM06A	20050406 23:17	20050407 00:33	162.50	167.50	100.70	161.50	938.63	938.63	938.77				
KFM06A	20050406 23:17	20050407 00:33	162.50	167.50	168.50	1000.64				1495.46	1495.60	1495.88	
KFM06A	20050407 06:25	20050407 07:42	165.50	170.50	100.70	164.50	938.94	938.94	938.94				
KFM06A	20050407 06:25	20050407 07:42	165.50	170.50	171.50	1000.64				1521.16	1521.57	1521.71	
KFM06A	20050421 14:24	20050421 15:50	170.50	175.50	100.70	169.50	914.00	914.14	914.55				
KFM06A	20050421 14:24	20050421 15:50	170.50	175.50	176.50	1000.64				1556.34	1556.34	1556.89	
KFM06A	20050407 09:40	20050407 11:01	175.50	180.50	100.70	174.50	938.89	939.72	939.16				
KFM06A	20050407 09:40	20050407 11:01	175.50	180.50	181.50	1000.64				1606.91	1607.19	1606.91	

idcode	start_date	stop_date	secup	seclow	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KFM06A	20050407 11:16	20050407 13:45	180.50	185.50	100.70	179.50	939.27	939.68	939.27				
KFM06A	20050407 11:16	20050407 13:45	180.50	185.50	186.50	1000.64				1650.20	1650.89	1650.34	
KFM06A	20050407 14:00	20050407 15:20	185.50	190.50	100.70	184.50	939.25	939.11	938.84				
KFM06A	20050407 14:00	20050407 15:20	185.50	190.50	191.50	1000.64				1693.36	1692.67	1692.67	
KFM06A	20050407 15:30	20050407 16:46	190.50	195.50	100.70	189.50	938.68	938.41	938.41				
KFM06A	20050407 15:30	20050407 16:46	190.50	195.50	196.50	1000.64				1734.58	1734.99	1734.99	
KFM06A	20050407 17:01	20050407 18:17	195.50	200.50	100.70	194.50	938.52	938.52	938.52				
KFM06A	20050407 17:01	20050407 18:17	195.50	200.50	201.50	1000.64				1777.88	1778.29	1777.88	
KFM06A	20050407 18:29	20050407 19:53	200.50	205.50	100.70	199.50	938.36	938.09	938.09				
KFM06A	20050407 18:29	20050407 19:53	200.50	205.50	206.50	1000.64				1820.21	1820.21	1820.21	
KFM06A	20050407 20:04	20050407 21:23	205.50	210.50	100.70	204.50	937.93	938.20	937.65				
KFM06A	20050407 20:04	20050407 21:23	205.50	210.50	211.50	1000.64				1862.53	1862.53	1862.53	
KFM06A	20050407 21:37	20050407 23:01	210.50	215.50	100.70	209.50	937.90	937.76	937.76				
KFM06A	20050407 21:37	20050407 23:01	210.50	215.50	216.50	1000.64				1905.00	1904.87	1904.87	
KFM06A	20050407 23:16	20050408 00:30	215.50	220.50	100.70	214.50	937.87	938.42	937.87				
KFM06A	20050407 23:16	20050408 00:30	215.50	220.50	221.50	1000.64				1947.75	1949.39	1949.39	
KFM06A	20050408 06:21	20050408 07:41	220.50	225.50	100.70	219.50	938.81	939.22	939.09				
KFM06A	20050408 06:21	20050408 07:41	220.50	225.50	226.50	1000.64				1990.90	1991.17	1991.17	
KFM06A	20050408 07:58	20050408 09:16	225.50	230.50	100.70	224.50	938.10	938.10	938.10				
KFM06A	20050408 07:58	20050408 09:16	225.50	230.50	231.50	1000.64				2033.64	2033.37	2033.51	
KFM06A	20050408 09:31	20050408 10:45	230.50	235.50	100.70	229.50	938.21	938.21	938.21				
KFM06A	20050408 09:31	20050408 10:45	230.50	235.50	236.50	1000.64				2075.83	2076.38	2076.38	
KFM06A	20050415 15:48	20050415 17:02	235.50	240.50	100.70	234.50	919.72	920.68	920.14				
KFM06A	20050415 15:48	20050415 17:02	235.50	240.50	241.50	1000.64				2120.36	2121.46	2122.01	
KFM06A	20050408 13:17	20050408 14:35	240.50	245.50	100.70	239.50	937.62	937.34	937.34				
KFM06A	20050408 13:17	20050408 14:35	240.50	245.50	246.50	1000.64				2161.59	2161.73	2161.59	
KFM06A	20050408 14:52	20050408 16:13	245.50	250.50	100.70	244.50	937.45	937.45	936.91				
KFM06A	20050408 14:52	20050408 16:13	245.50	250.50	251.50	1000.64				2203.91	2203.91	2202.27	
KFM06A	20050408 16:27	20050408 17:45	250.50	255.50	100.70	249.50	937.43	937.02	937.02				
KFM06A	20050408 16:27	20050408 17:45	250.50	255.50	256.50	1000.64				2246.24	2246.24	2246.79	
KFM06A	20050408 17:56	20050408 19:11	255.50	260.50	100.70	254.50	936.86	936.59	936.59				
KFM06A	20050408 17:56	20050408 19:11	255.50	260.50	261.50	1000.64				2288.85	2289.12	2288.58	

idcode	start_date	stop_date	secup	seclow	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KFM06A	20050408 19:23	20050408 20:39	260.50	265.50	100.70	259.50	936.56	936.70	936.70				
KFM06A	20050408 19:23	20050408 20:39	260.50	265.50	266.50	1000.64				2331.18	2331.04	2331.45	
KFM06A	20050411 17:47	20050411 19:07	265.50	270.50	100.70	264.50	918.79	919.20	919.20				
KFM06A	20050411 17:47	20050411 19:07	265.50	270.50	271.50	1000.64				2374.34	2375.99	2374.88	
KFM06A	20050411 19:34	20050411 20:49	267.50	272.50	100.70	266.50	918.66	919.62	919.22				
KFM06A	20050411 19:34	20050411 20:49	267.50	272.50	273.50	1000.64				2391.79	2392.48	2391.93	
KFM06A	20050411 21:07	20050411 22:29	272.50	277.50	100.70	271.50	918.42	918.42	917.87				
KFM06A	20050411 21:07	20050411 22:29	272.50	277.50	278.50	1000.64				2434.25	2434.25	2433.70	
KFM06A	20050411 22:42	20050411 23:37	275.50	280.50	100.70	274.50	917.20	917.06	917.06				
KFM06A	20050411 22:42	20050411 23:37	275.50	280.50	281.50	1000.64				2458.99	2458.99	2457.89	
KFM06A	20050412 06:03	20050412 06:45	280.50	285.50	100.70	279.50	916.95	916.81	917.37				
KFM06A	20050412 06:03	20050412 06:45	280.50	285.50	286.50	1000.64				2500.91	2501.04	2501.31	
KFM06A	20050412 07:02	20050412 07:44	285.50	290.50	100.70	284.50	916.70	916.57	916.57				
KFM06A	20050412 07:02	20050412 07:44	285.50	290.50	291.50	1000.64				2543.51	2543.65	2543.65	
KFM06A	20050412 07:55	20050412 09:10	290.50	295.50	100.70	289.50	916.45	916.17	916.31				
KFM06A	20050412 07:55	20050412 09:10	290.50	295.50	296.50	1000.64				2585.98	2585.57	2585.98	
KFM06A	20050412 09:26	20050412 10:42	295.50	300.50	100.70	294.50	916.62	916.62	916.62				
KFM06A	20050412 09:26	20050412 10:42	295.50	300.50	301.50	1000.64				2628.31	2630.09	2628.85	
KFM06A	20050412 10:55	20050412 13:04	300.50	305.50	100.70	299.50	915.82	915.82	915.82				
KFM06A	20050412 10:55	20050412 13:04	300.50	305.50	306.50	1000.64				2670.36	2670.36	2670.09	
KFM06A	20050412 13:59	20050412 15:18	305.50	310.50	100.70	304.50	914.89	915.03	915.03				
KFM06A	20050412 13:59	20050412 15:18	305.50	310.50	311.50	1000.64				2712.55	2712.69	2712.42	
KFM06A	20050412 15:34	20050412 16:54	310.50	315.50	100.70	309.50	914.23	914.23	914.23				
KFM06A	20050412 15:34	20050412 16:54	310.50	315.50	316.50	1000.64				2754.19	2754.06	2754.19	
KFM06A	20050412 17:15	20050412 18:31	315.50	320.50	100.70	314.50	913.98	913.85	913.98				
KFM06A	20050412 17:15	20050412 18:31	315.50	320.50	321.50	1000.64				2796.52	2796.52	2795.97	
KFM06A	20050412 18:46	20050412 20:04	320.50	325.50	100.70	319.50	913.46	913.18	913.18				
KFM06A	20050412 18:46	20050412 20:04	320.50	325.50	326.50	1000.64				2838.57	2838.85	2838.85	
KFM06A	20050412 20:26	20050412 21:44	325.50	330.50	100.70	324.50	912.93	912.93	912.93				
KFM06A	20050412 20:26	20050412 21:44	325.50	330.50	331.50	1000.64				2881.18	2881.18	2881.18	
KFM06A	20050412 22:01	20050412 23:19	330.50	335.50	100.70	329.50	912.70	912.70	912.70				
KFM06A	20050412 22:01	20050412 23:19	330.50	335.50	336.50	1000.64				2923.51	2923.51	2923.51	

idcode	start_date	stop_date	secup	seclow	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KFM06A	20050413 06:08	20050413 07:25	335.50	340.50	100.70	334.50	913.27	913.27	913.54				
KFM06A	20050413 06:08	20050413 07:25	335.50	340.50	341.50	1000.64				2966.39	2966.53	2966.95	
KFM06A	20050413 07:37	20050413 08:54	340.50	345.50	100.70	339.50	912.88	912.88	912.75				
KFM06A	20050413 07:37	20050413 08:54	340.50	345.50	346.50	1000.64				3008.86	3009.26	3009.26	
KFM06A	20050413 09:09	20050413 10:29	345.50	350.50	100.70	344.50	912.50	912.50	912.50				
KFM06A	20050413 09:09	20050413 10:29	345.50	350.50	351.50	1000.64				3051.18	3050.91	3051.04	
KFM06A	20050415 13:31	20050415 14:48	348.00	353.00	100.70	347.00	912.65	912.65	912.10				
KFM06A	20050415 13:31	20050415 14:48	348.00	353.00	354.00	1000.64				3070.56	3071.38	3071.38	
KFM06A	20050413 12:28	20050413 13:42	353.00	358.00	100.70	352.00	911.44	911.03	910.75				
KFM06A	20050413 12:28	20050413 13:42	353.00	358.00	359.00	1000.64				3113.16	3119.21	3120.31	
KFM06A	20050413 13:54	20050413 15:12	355.50	360.50	100.70	354.50	910.35	909.94	909.81				
KFM06A	20050413 13:54	20050413 15:12	355.50	360.50	361.50	1000.64				3137.35	3142.29	3143.96	
KFM06A	20050414 06:08	20050414 07:22	360.50	365.50	100.70	359.50	910.11	910.11	910.11				
KFM06A	20050414 06:08	20050414 07:22	360.50	365.50	366.50	1000.64				3176.38	3176.38	3176.38	
KFM06A	20050414 07:34	20050414 08:14	365.50	370.50	100.70	364.50	909.46	909.32	909.32				
KFM06A	20050414 07:34	20050414 08:14	365.50	370.50	371.50	1000.64				3218.44	3218.44	3217.07	
KFM06A	20050414 18:00	20050414 19:15	405.50	410.50	100.70	404.50	902.95	902.81	902.95				
KFM06A	20050414 18:00	20050414 19:15	405.50	410.50	411.50	1000.64				3551.58	3551.02	3551.85	
KFM06A	20050414 19:28	20050414 20:43	410.50	415.50	100.70	409.50	901.73	901.46	901.59				
KFM06A	20050414 19:28	20050414 20:43	410.50	415.50	416.50	1000.64				3593.63	3592.80	3593.07	
KFM06A	20050414 20:58	20050414 21:40	415.50	420.50	100.70	414.50	900.93	900.79	900.79				
KFM06A	20050414 20:58	20050414 21:40	415.50	420.50	421.50	1000.64				3635.41	3634.99	3635.41	
KFM06A	20050414 21:52	20050414 23:07	420.50	425.50	100.70	419.50	900.00	900.00	900.00				
KFM06A	20050414 21:52	20050414 23:07	420.50	425.50	426.50	1000.64				3677.18	3677.05	3676.63	
KFM06A	20050414 23:36	20050415 09:05	445.50	450.50	100.70	444.50	896.57	896.29	896.02				
KFM06A	20050414 23:36	20050415 09:05	445.50	450.50	451.50	1000.64				3884.98	3885.25	3885.53	
KFM06A	20050415 09:18	20050415 09:57	450.50	455.50	100.70	449.50	895.22	895.22	894.67				
KFM06A	20050415 09:18	20050415 09:57	450.50	455.50	456.50	1000.64				3927.59	3927.45	3927.31	
KFM06A	20050415 10:10	20050415 10:51	455.50	460.50	100.70	454.50	893.88	893.88	893.88				
KFM06A	20050415 10:10	20050415 10:51	455.50	460.50	461.50	1000.64				3969.08	3968.81	3968.54	
KFM06A	20050415 11:02	20050415 11:43	460.50	465.50	100.70	459.50	892.52	892.39	892.52				
KFM06A	20050415 11:02	20050415 11:43	460.50	465.50	466.50	1000.64				4010.33	4010.33	4010.33	

KFM06B plu_s_hole_test_d. Left (This result table to SICADA includes more columns which are empty, these columns are not presented here.)

idcode	start_date	stop_date	secup	seclow	test_type	Formation_type	start_flow_period	stop_flow_period	flow_rate_end_qp	Value_type_qp	mean_flow_rate_qm
KFM06B	20050425 20:04	20050425 21:47	8.00	13.00	3	1	20050425 21:05:12	20050425 21:25:30	2.97E-05	0	2.97E-05
KFM06B	20050426 08:01	20050426 09:20	13.00	18.00	3	1	20050426 08:37:29	20050426 08:57:48	1.50E-05	0	1.45E-05
KFM06B	20050426 09:35	20050426 10:53	14.00	19.00	3	1	20050426 10:10:38	20050426 10:30:57	1.95E-05	0	1.92E-05
KFM06B	20050426 11:02	20050426 13:19	19.00	24.00	3	1	20050426 12:36:35	20050426 12:56:54	8.05E-06	0	8.62E-06
KFM06B	20050426 13:31	20050426 14:46	24.00	29.00	3	1	20050426 14:03:37	20050426 14:23:55	1.82E-06	0	2.01E-06
KFM06B	20050426 14:59	20050426 16:18	28.00	33.00	3	1	20050426 15:35:35	20050426 15:55:53	8.60E-05	0	8.71E-05
KFM06B	20050426 16:35	20050426 17:54	33.00	38.00	3	1	20060426 17:11:35	20060426 17:31:52	5.54E-04	0	5.81E-04
KFM06B	20050427 15:02	20050427 16:18	38.00	43.00	3	1	20050427 15:36:08	20050427 15:56:24	2.54E-04	0	2.54E-04
KFM06B	20050427 16:49	20050427 18:03	43.00	48.00	3	1	20050427 17:20:52	20050427 17:41:05	4.06E-04	0	4.14E-04
KFM06B	20050427 18:17	20050427 19:32	48.00	53.00	3	1	20050427 18:49:29	20050427 19:09:43	2.70E-04	0	2.81E-04
KFM06B	20050429 08:41	20050429 09:55	53.00	58.00	3	1	20050429 09:13:19	20050429 09:33:34	5.75E-04	0	5.89E-04
KFM06B	20050427 19:47	20050427 21:04	58.00	63.00	3	1	20050427 20:21:26	20050427 20:41:43	2.90E-04	0	2.95E-04
KFM06B	20050428 08:35	20050428 09:51	63.00	68.00	3	1	20050428 09:09:05	20050428 09:29:13	1.21E-04	0	1.28E-04
KFM06B	20050428 10:06	20050428 11:22	68.00	73.00	3	1	20050428 10:39:28	20050428 10:59:46	4.90E-06	0	5.39E-06
KFM06B	20050428 11:36	20050428 13:38	73.00	78.00	3	1	20050428 12:55:56	20050428 13:16:15	2.97E-07	0	3.60E-07
KFM06B	20050428 13:50	20050428 15:05	78.00	83.00	3	1	20050428 14:23:07	20050428 14:43:26	2.30E-07	0	2.73E-07
KFM06B	20050428 15:15	20050428 16:33	83.00	88.00	3	1	20050428 15:50:40	20050428 16:11:01	6.67E-08	0	1.11E-07
KFM06B	20050428 16:46	20050428 18:01	88.00	93.00	3	1	20050428 17:18:24	20050428 17:38:43	4.66E-07	0	5.91E-07

KFM06B plu_s_hole_test_d. Right (This result table to SICADA includes more columns which are empty, these columns are not presented here.)

idcode	secup	seclow	q_measl__l	q_measl__u	tot_volume_vp	dur_flow_phase_tp	dur_rec_phase_tf	initial_press_pi	press_at_flow_end_pp	final_press_pf	fluid_temp_tew
KFM06B	8.00	13.00	1.7E-08	1.0E-03	3.62E-02	1218	1208	158.49	298.86	160.68	10.67
KFM06B	13.00	18.00	1.7E-08	1.0E-03	1.76E-02	1219	1208	207.19	406.39	211.02	9.34
KFM06B	14.00	19.00	1.7E-08	1.0E-03	2.34E-02	1219	1208	217.05	416.65	222.52	10.00
KFM06B	19.00	24.00	1.7E-08	1.0E-03	1.05E-02	1219	1208	264.66	465.90	268.49	6.74
KFM06B	24.00	29.00	1.7E-08	1.0E-03	2.45E-03	1218	1208	314.32	513.66	314.46	6.56
KFM06B	28.00	33.00	1.7E-08	1.0E-03	1.06E-01	1218	1208	351.12	449.48	350.02	11.29
KFM06B	33.00	38.00	1.7E-08	1.0E-03	7.05E-01	1217	1209	399.82	488.88	400.37	14.74
KFM06B	38.00	43.00	1.7E-08	1.0E-03	3.09E-01	1216	1210	425.74	530.18	427.26	13.15
KFM06B	43.00	48.00	1.7E-08	1.0E-03	5.03E-01	1213	1208	475.21	488.95	475.63	11.04
KFM06B	48.00	53.00	1.7E-08	1.0E-03	3.41E-01	1214	1210	524.00	655.37	524.54	11.02
KFM06B	53.00	58.00	1.7E-08	1.0E-03	7.15E-01	1215	1209	571.82	593.26	572.37	11.59
KFM06B	58.00	63.00	1.7E-08	1.0E-03	3.59E-01	1217	1209	621.84	742.08	622.39	11.02
KFM06B	63.00	68.00	1.7E-08	1.0E-03	1.54E-01	1208	1219	670.21	863.15	670.21	7.87
KFM06B	68.00	73.00	1.7E-08	1.0E-03	6.58E-03	1218	1206	718.72	921.97	719.13	6.85
KFM06B	73.00	78.00	1.7E-08	1.0E-03	4.40E-04	1219	1206	768.05	968.27	771.35	6.79
KFM06B	78.00	83.00	1.7E-08	1.0E-03	3.34E-04	1219	1205	818.62	1007.71	827.97	6.84
KFM06B	83.00	88.00	1.7E-08	1.0E-03	1.36E-04	1221	1205	876.07	1066.12	938.45	6.90
KFM06B	88.00	93.00	1.7E-08	1.0E-03	7.21E-04	1219	1206	913.58	1114.22	931.30	6.96

KFM06B plu_s_hole_test_ed1. Left (This result table to SICADA includes more columns which are empty, these columns are not presented here.)

idcode	start_date	stop_date	secup	seclow	test_type	formation_type	spec_capacity_q_s	value_type_q_s	transmissivity_moye	bc_tm	value_type_tm	hydr_cond_moye	formation_width_b
KFM06B	20050425 20:04	20050425 21:47	8.00	13.00	3	1	2.08E-06	0	1.71E-06	0	0	3.42E-07	5.00
KFM06B	20050426 08:01	20050426 09:20	13.00	18.00	3	1	7.37E-07	0	6.07E-07	0	0	1.21E-07	5.00
KFM06B	20050426 09:35	20050426 10:53	14.00	19.00	3	1	9.58E-07	0	7.89E-07	0	0	1.58E-07	5.00
KFM06B	20050426 11:02	20050426 13:19	19.00	24.00	3	1	3.93E-07	0	3.23E-07	0	0	6.47E-08	5.00
KFM06B	20050426 13:31	20050426 14:46	24.00	29.00	3	1	8.96E-08	0	7.38E-08	0	0	1.48E-08	5.00
KFM06B	20050426 14:59	20050426 16:18	28.00	33.00	3	1	8.58E-06	0	7.07E-06	0	0	1.41E-06	5.00
KFM06B	20050426 16:35	20050426 17:54	33.00	38.00	3	1	6.10E-05	0	5.03E-05	0	0	1.01E-05	5.00
KFM06B	20050427 15:02	20050427 16:18	38.00	43.00	3	1	2.38E-05	0	1.96E-05	0	0	3.93E-06	5.00
KFM06B	20050427 16:49	20050427 18:03	43.00	48.00	3	1	2.90E-04	0	2.39E-04	0	0	4.77E-05	5.00
KFM06B	20050427 18:17	20050427 19:32	48.00	53.00	3	1	2.01E-05	0	1.66E-05	0	0	3.32E-06	5.00
KFM06B	20050429 08:41	20050429 09:55	53.00	58.00	3	1	2.63E-04	0	2.17E-04	1	0	4.33E-05	5.00
KFM06B	20050427 19:47	20050427 21:04	58.00	63.00	3	1	2.37E-05	0	1.95E-05	0	0	3.90E-06	5.00
KFM06B	20050428 08:35	20050428 09:51	63.00	68.00	3	1	6.17E-06	0	5.08E-06	0	0	1.02E-06	5.00
KFM06B	20050428 10:06	20050428 11:22	68.00	73.00	3	1	2.36E-07	0	1.95E-07	0	0	3.89E-08	5.00
KFM06B	20050428 11:36	20050428 13:38	73.00	78.00	3	1	1.45E-08	0	1.20E-08	0	0	2.39E-09	5.00
KFM06B	20050428 13:50	20050428 15:05	78.00	83.00	3	1	1.20E-08	0	9.85E-09	0	0	1.97E-09	5.00
KFM06B	20050428 15:15	20050428 16:33	83.00	88.00	3	1	3.44E-09	0	2.83E-09	0	0	5.67E-10	5.00
KFM06B	20050428 16:46	20050428 18:01	88.00	93.00	3	1	2.28E-08	0	1.88E-08	0	0	3.75E-09	5.00

KFM06B plu_s_hole_test_ed1. Right (This result table to SICADA includes more columns which are empty, these columns are not presented here.)

idcode	secup	seclow	transmissivity_tt	value_type_tt	bc_tt	l_measl_q_s	u_measl_q_s	assumed_s	bc_s	ri	ri_index	c	skin	t1	t2	dte1	dte2
KFM06B	8.00	13.00	1.24E-06	0	1	1.2E-09	5.0E-04	7.80E-07	7.80E-07	66.07	-1		-2.58				
KFM06B	13.00	18.00	4.78E-07	0	1	8.2E-10	5.0E-04	4.84E-07	4.84E-07	51.82	-1		-2.25				
KFM06B	14.00	19.00	7.16E-07	0	1	8.2E-10	5.0E-04	5.92E-07	5.92E-07	57.32	-1		-2.10				
KFM06B	19.00	24.00	3.47E-07	0	1	8.1E-10	5.0E-04	4.12E-07	4.12E-07	47.82	-1		-0.75				
KFM06B	24.00	29.00	8.50E-08	0	1	8.2E-10	5.0E-04	2.04E-07	2.04E-07	33.54	0		-0.93	20	1200		
KFM06B	28.00	33.00	4.86E-06	0	1	1.7E-09	5.0E-04	1.54E-06	1.54E-06	92.52	-1		-3.06				
KFM06B	33.00	38.00	3.37E-05	0	1	1.8E-09	5.0E-04	4.06E-06	4.06E-06	150.69	-1		-4.12				
KFM06B	38.00	43.00	1.78E-05	0	1	1.6E-09	5.0E-04	2.95E-06	2.95E-06	128.38	-1		-2.25				
KFM06B	43.00	48.00	2.25E-04	0	1	1.2E-08	5.0E-04	1.05E-05	1.05E-05	241.34	-1		-3.14				
KFM06B	48.00	53.00	8.41E-06	0	1	1.2E-09	5.0E-04	2.03E-06	2.03E-06	106.38	-1		-4.39				
KFM06B	53.00	58.00	3.18E-04	0	0	7.6E-09	5.0E-04	1.25E-05	1.25E-05	239.74	-1		-0.39				
KFM06B	58.00	63.00	1.80E-05	0	1	1.4E-09	5.0E-04	2.97E-06	2.97E-06	128.83	0		-2.52				
KFM06B	63.00	68.00	3.43E-06	0	1	8.5E-10	5.0E-04	1.30E-06	1.30E-06	84.80	-1		-3.44				
KFM06B	68.00	73.00	2.15E-07	0	1	8.0E-10	5.0E-04	3.25E-07	3.25E-07	38.61	-1		-0.18	100	1000		
KFM06B	73.00	78.00	7.25E-09	0	1	8.2E-10	5.0E-04	5.96E-08	5.96E-08	18.12	0		-3.14	100	1200		
KFM06B	78.00	83.00	9.06E-09	0	1	8.6E-10	5.0E-04	6.66E-08	6.66E-08	19.16	0		-1.59	80	1200		
KFM06B	83.00	88.00	7.12E-10	0	1	8.6E-10	5.0E-04	1.87E-08	1.87E-08	10.23	0						
KFM06B	88.00	93.00	5.54E-09	0	1	8.2E-10	5.0E-04	5.21E-08	5.21E-08	17.08	-1		-4.57				

KFM06B plu_s_hole_test_obs (This result table to SICADA includes more columns which are empty, these columns are not presented here.)

idcode	start_date	stop_date	secup	seclow	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KFM06B	20050425 20:04	20050425 21:47	8.00	13.00	4.61	7.00	102.29	101.88	102.84				
KFM06B	20050425 20:04	20050425 21:47	8.00	13.00	14.00	100.33				200.54	200.40	200.13	
KFM06B	20050426 08:01	20050426 09:20	13.00	18.00	4.61	12.00	103.03	103.03	103.58				
KFM06B	20050426 08:01	20050426 09:20	13.00	18.00	19.00	100.33				248.78	248.50	248.50	
KFM06B	20050426 09:35	20050426 10:53	14.00	19.00	4.61	13.00	103.18	103.18	103.73				
KFM06B	20050426 09:35	20050426 10:53	14.00	19.00	20.00	100.33				258.39	258.12	258.39	
KFM06B	20050426 11:02	20050426 13:19	19.00	24.00	4.61	18.00	103.23	104.33	103.92				
KFM06B	20050426 11:02	20050426 13:19	19.00	24.00	25.00	100.33				307.19	307.60	305.12	
KFM06B	20050426 13:31	20050426 14:46	24.00	29.00	4.61	23.00	103.56	103.83	103.01				
KFM06B	20050426 13:31	20050426 14:46	24.00	29.00	30.00	100.33				355.98	356.11	355.71	
KFM06B	20050426 14:59	20050426 16:18	28.00	33.00	4.61	27.00	103.06	103.06	103.61				
KFM06B	20050426 14:59	20050426 16:18	28.00	33.00	34.00	100.33				395.29	395.29	395.29	
KFM06B	20050426 16:35	20050426 17:54	33.00	38.00	4.61	32.00	103.24	103.38	103.80				
KFM06B	20050426 16:35	20050426 17:54	33.00	38.00	39.00	100.33				443.93	445.03	444.20	
KFM06B	20050427 15:02	20050427 16:18	38.00	43.00	4.61	37.00	106.69	107.80	107.23				
KFM06B	20050427 15:02	20050427 16:18	38.00	43.00	44.00	100.33				491.48	492.44	491.48	
KFM06B	20050427 16:49	20050427 18:03	43.00	48.00	4.61	42.00	106.53	107.08	106.53				
KFM06B	20050427 16:49	20050427 18:03	43.00	48.00	49.00	100.33				540.82	541.65	540.95	
KFM06B	20050427 18:17	20050427 19:32	48.00	53.00	4.61	47.00	105.96	106.92	106.38				
KFM06B	20050427 18:17	20050427 19:32	48.00	53.00	54.00	100.33				589.89	590.43	589.89	
KFM06B	20050429 08:41	20050429 09:55	53.00	58.00	4.61	52.00	103.05	104.01	103.45				
KFM06B	20050429 08:41	20050429 09:55	53.00	58.00	59.00	100.33				637.71	641.56	638.27	
KFM06B	20050427 19:47	20050427 21:04	58.00	63.00	4.61	57.00	104.97	106.08	104.97				
KFM06B	20050427 19:47	20050427 21:04	58.00	63.00	64.00	100.33				688.15	693.23	688.28	
KFM06B	20050428 08:35	20050428 09:51	63.00	68.00	4.61	62.00	104.25	104.25	103.71				
KFM06B	20050428 08:35	20050428 09:51	63.00	68.00	69.00	100.33				736.66	745.60	736.66	
KFM06B	20050428 10:06	20050428 11:22	68.00	73.00	4.61	67.00	103.69	103.55	103.55				
KFM06B	20050428 10:06	20050428 11:22	68.00	73.00	74.00	100.33				785.31	785.31	784.49	

idcode	start_date	stop_date	secup	seclow	obs_secup	obs_seclow	pi_above	pp_above	pf_above	pi_below	pp_below	pf_below	comments
KFM06B	20050428 11:36	20050428 13:38	73.00	78.00	4.61	72.00	103.40	103.26	103.40				
KFM06B	20050428 11:36	20050428 13:38	73.00	78.00	79.00	100.33				833.00	834.10	832.86	
KFM06B	20050428 13:50	20050428 15:05	78.00	83.00	4.61	77.00	103.24	102.82	103.24				
KFM06B	20050428 13:50	20050428 15:05	78.00	83.00	84.00	100.33				884.53	884.53	883.43	
KFM06B	20050428 15:15	20050428 16:33	83.00	88.00	4.61	82.00	103.08	102.94	103.08				
KFM06B	20050428 15:15	20050428 16:33	83.00	88.00	89.00	100.33				933.19	931.82	930.72	
KFM06B	20050428 16:46	20050428 18:01	88.00	93.00	4.61	87.00	103.07	102.93	102.93				
KFM06B	20050428 16:46	20050428 18:01	88.00	93.00	94.00	100.33				997.23	994.49	988.43	