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Oskarshamn site investigation

Single-hole injection tests in borehole KSH02

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September 2004

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Keywords: Simpevarp, KSH02, Hydrogeology, Hydraulic tests, Pumping test, Injection test, Hydraulic parameters, Transmissivity.

Abstract

The borehole KSH02 is a so called telescopic borehole in order to make it possible to install certain borehole equipment in the upper c 80 m with larger diameter. The borehole is sub-vertical, c 1,000 m deep and cased to c 80 m depth. The borehole diameter is c 76 mm in the interval 80–1,000 m.

The main aims of the injection tests in borehole KSH02 were mainly, to perform a hydro geological characterisation of the borehole on different measurement scales (100 m, 20 m and 5 m) and to provide information of flow regimes and possible outer hydraulic boundaries of the tested sections from the transient test evaluation. Furthermore, the injection tests provide a database for statistical analysis of the hydraulic conductivity distribution along the borehole on the different measurement scales.

The injection tests showed consistent results on the different measurement scales regarding transmissivity. During most of the tests a certain period with pseudo-radial flow could be identified from the flow period making a standard transient evaluation possible. However, the recovery period for most tests was strongly affected by wellbore storage effects due to the low-conductive borehole, making a unique transient evaluation on this period more difficult.

Sammanfattning

Borrhål KSH02 i Simpevarp är ett så kallat teleskopborrhål för att göra det möjligt att installera viss borrhålsutrustning i de övre, c 80 m med större diameter. Borrhålet är subvertikalt, c 1 000 m djupt och försett med foderrör till c 80 m djup. Borrhålsdiametern är c 76 mm i intervallet 80–1 000 m.

De huvudsakliga syftena med injektionstesterna i borrhål KSH02 var främst att göra en hydrogeologisk karaktärisering av borrhålet i olika mätskalor (100 m, 20 m och 5 m) och att ge information om flödesregimer och eventuella yttre hydrauliska randvillkor för de testade sektionerna från den transienta testutvärderingen.

Resultaten från injektionstesterna utgör även en databas för statistisk analys av den hydrauliska konduktivitetens fördelning längs borrhålet i de olika mätskalorna.

Injektionstesterna gav samstämmiga resultat för de olika mätskalorna beträffande transmissivitet. Under de flesta tester kunde en viss period med pseudo-radiellt flöde identifieras från flödesperioden, vilket möjliggjorde en standardmässig transient utvärdering. Återhämtningsperioden för de flesta tester var däremot starkt påverkat av brunnsmagasinseffekter på grund av det de låga konduktiviteterna borrhålet, vilket gjorde en unik transient utvärdering av denna period svårare.

Contents

1 Introduction

The measurements were carried out during August–November 2003 by GEOSIGMA AB, following the methodology described in SKB MD 323.001 and 321.003 and the activity plan AP PS 400-03-43 (SKB internal controlling documents). Data and results were delivered to the SKB site characterization database SICADA with field note number Simpevarp 185.

Borehole KSH02 was the second deep cored borehole within the frame of the on-going site investigation in the Simpevarp area and is of SKB hydrochemical type. It is a so called telescopic borehole to make it possible to install certain borehole equipment in the upper c 80 m with larger diameter. The borehole is sub-vertical, c 1,000 m deep and cased to c 80 m depth. The borehole diameter is c 76 mm in the interval c 80–1,000 m. The location of the borehole is shown in Figure 1-1.

This report describes the results and primary data evaluation of the hydraulic injection tests and pumping tests in borehole KSH02, performed with the Pipe String System No 2 (PSS2).

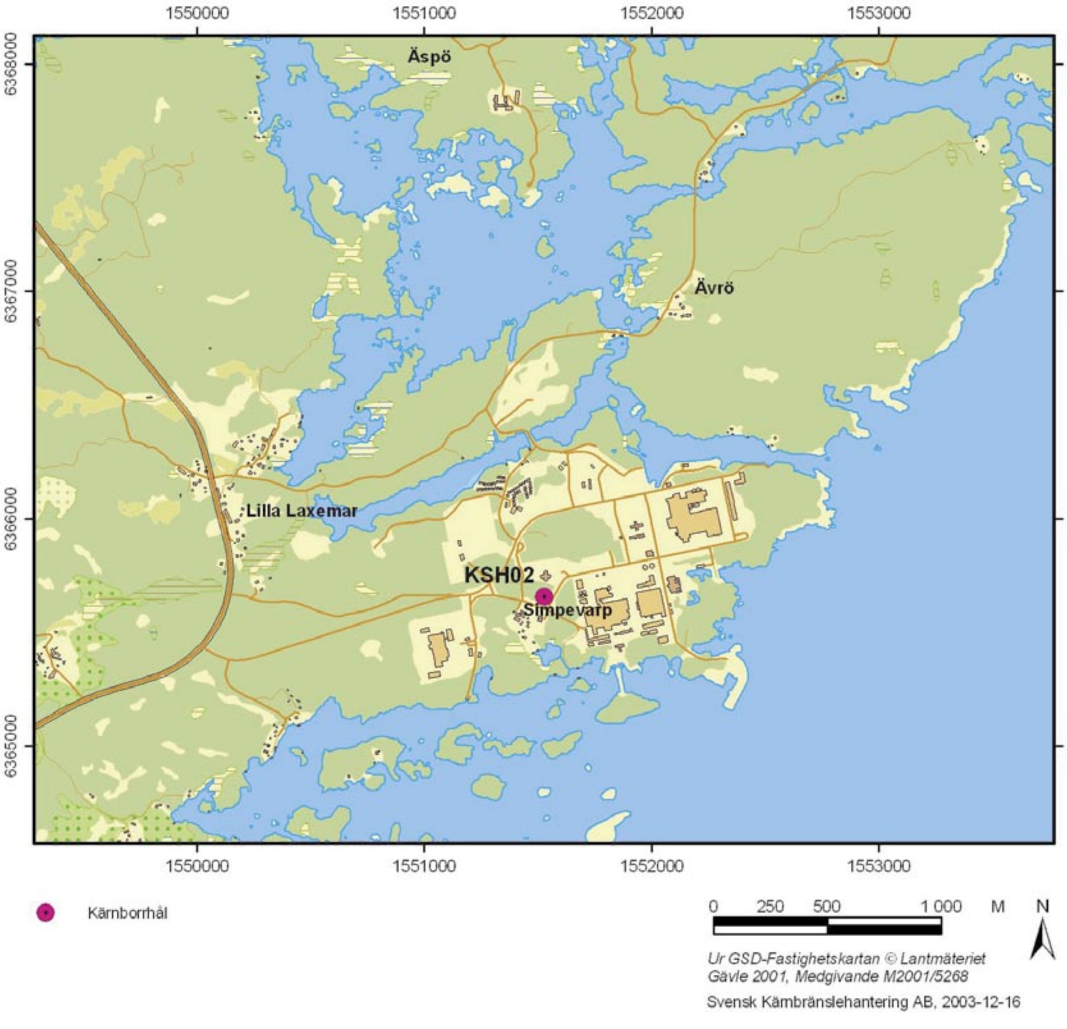

Figure 1-1. *Site map showing the location of borehole KSH02 on the Simpevarp peninsula.*

2 Objective

The main aim of the hydraulic tests in borehole KSH02 was firstly, to perform a hydro geological characterisation of the rock with respect to its hydraulic properties, at different measurement scales (100 m, 20 m and 5 m). Furthermore, transient evaluation of the test responses during the flow- and recovery period may provide additional information on flow regimes and potential outer hydraulic boundaries for the sections tested.

3 Scope

3.1 Boreholes

Technical data of the borehole tested are shown in Table 3-1. The reference point in the boreholes is always the centre of top of casing (ToC), given as Elevation in the table below. The Swedish National coordinate system (RT90) is used in the x-y-direction together with RHB70 in the z-direction. Northing and Easting refer to the top of the boreholes at the ground surface. The borehole diameter in Table 3-1 refers to the final diameter of the drill bit after drilling to full depth.

Table 3-1. Technical data of the borehole KSH02 (from SICADA).

Borehole length (m):	1,001.110				
Drilling Period (s):	**From Date**	**To Date**	**Secup (m)**	**Seclow (m)**	**Drilling Type**
	2003-01-27	2003-03-03	0.000	100.400	Percussion drilling
	2003-01-28	2003-06-11	65.850	1,001.110	Core drilling
Starting point coordinate:	**Length (m)**	**Northing (m)**	**Easting (m)**	**Elevation**	**Coord System**
	0.000	6365658.321	1551528.939	5.490	RT90-RHB70
Angles:	**Length (m)**	**Bearing**	**Inclination (– = down)**		
	1,001.110	330.23	85.419		
Borehole diameter:	**Secup (m)**	**Seclow (m)**	**Hole Diam (m)**		
	0.000	3.550	0.390		
	3.550	16.780	0.265		
	16.780	100.300	0.248		
	65.850	80.000	0.086		
	80.000	1,001.110	0.076		
Core diameter:	**Secup (m)**	**Seclow (m)**	**Core Diam (m)**		
	65.850	67.250	0.072		
	67.250	1,001.110	0.050		
Casing diameter:	**Secup (m)**	**Seclow (m)**	**Case In (m)**	**Case Out (m)**	
	0.000	65.850	0.200	0.208	
	0.000	16.780	0.265	0.273	
	16.780	65.810	0.200	0.208	
	62.360	62.660	0.196	0.200	
	62.660	65.300	0.108	0.108	
	65.300	65.360	0.084	0.088	
	65.360	80.000	0.080	0.084	
	65.810	65.850	0.170	0.208	

3.2 Tests performed

The pumping tests performed according to Activity Plan AP PS 400-03-043 (SKB internal controlling document) in borehole KSH02 are listed in Table 3-2. Test number (Test no) shows the number of tests that have been performed in the actual section. The pumping tests were carried out with the Pipe String System, PSS2. The tests are described, together with the equipment, in the description of the measurement system for PSS, SKB MD 345.100, and in the corresponding methodology descriptions for pumping tests, SKB MD 321.003 (SKB internal controlling documents).

The injection tests performed according to Activity Plan AP PS 400-03-043 (SKB internal controlling document) in borehole KSH02 are listed in Table 3-3. Test number (Test no) shows the number of tests that have been performed in the actual section.

Tests were done in 100 m, 20 m test sections between 204–1,004 m below ToC and in 5 m test sections between 300–700 m below ToC. The criteria for performing injection tests in 20 m and 5 m test sections was as follows:

- for the 20 m sections a measurable flow of > 0,001 L/min in the previously performed tests at 100 m test scale,
- for the 5 m sections a measurable flow of > 0,001 L/min in the previously performed tests in at 20 m test scale.

The injection tests were carried out with the Pipe String System, PSS2. The tests are described, together with the equipment, in the description of the measurement system for PSS, SKB MD 345.100, and in the corresponding methodology descriptions for hydraulic injection tests, SKB MD 323.001 (SKB internal controlling documents).

Table 3-2. Single-hole pumping tests performed in borehole KSH02.

Borehole	Test section		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
KSH02	419	424	1B	1	20030902 08:00	20030908 13:15
KSH02	575	580	1B	1	20030909 18:55	20030917 14:16

1B: Pumping test – submersible pump, 3: Injection test.

Table 3-3. Single-hole injection tests performed in borehole KSH02.

Borehole	Test section		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
KSH02	101.50	201.50	3	1	20030924 08:01	20030924 11:01
KSH02	201.50	301.50	3	1	20030924 11:12	20030924 14:42
KSH02	301.50	401.50	3	1	20030924 14:44	20030924 17:01
KSH02	401.50	501.50	3	1	20030924 17:47	20030924 19:49
KSH02	501.50	601.50	3	1	20030925 08:02	20030925 11:03
KSH02	601.50	701.50	3	1	20030926 08:05	20030926 09:48
KSH02	701.50	801.50	3	1	20031001 07:22	20031001 09:13
KSH02	801.50	901.50	3	1	20030930 10:48	20030930 12:37
KSH02	897.00	997.00	3	1	20030930 13:35	20030930 15:25
KSH02	81.50	101.50	3	1	20031002 09:07	20031002 10:27
KSH02	101.50	121.50	3	1	20031002 10:47	20031002 12:08
KSH02	121.50	141.50	3	1	20031002 12:34	20031002 13:44
KSH02	141.50	161.50	3	1	20031002 14:05	20031002 15:14

Borehole	Test section		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
KSH02	161.50	181.50	3	1	20031002 15:31	20031002 16:40
KSH02	181.50	201.50	3	1	20031002 16:59	20031002 18:10
KSH02	201.50	221.50	3	1	20031003 07:26	20031003 08:39
KSH02	221.50	241.50	3	1	20031006 13:53	20031006 15:25
KSH02	241.50	261.50	3	1	20031006 16:13	20031006 17:39
KSH02	261.50	281.50	3	1	20031007 07:52	20031007 09:20
KSH02	281.50	301.50	3	1	20031007 10:36	20031007 12:07
KSH02	301.50	321.50	3	1	20031007 14:11	20031007 15:48
KSH02	321.50	341.50	3	1	20031007 16:11	20031007 18:00
KSH02	341.50	361.50	3	1	20031008 08:03	20031008 09:36
KSH02	361.50	381.50	3	1	20031008 10:04	20031008 11:40
KSH02	381.50	401.50	3	1	20031008 12:06	20031008 14:11
KSH02	401.50	421.50	3	1	20031008 14:44	20031008 16:11
KSH02	421.50	441.50	3	1	20031008 16:26	20031008 17:59
KSH02	441.50	461.50	3	1	20031009 07:54	20031009 09:26
KSH02	461.50	481.50	3	1	20031009 09:51	20031009 11:50
KSH02	481.50	501.50	3	1	20031009 12:42	20031009 14:13
KSH02	501.50	521.50	3	1	20031009 15:30	20031009 16:28
KSH02	521.50	541.50	3	1	20031009 17:31	20031009 19:46
KSH02	541.50	561.50	3	1	20031010 08:06	20031010 09:38
KSH02	561.50	581.50	3	1	20031010 10:01	20031010 11:48
KSH02	581.50	601.50	3	1	20031014 07:24	20031014 08:49
KSH02	601.50	621.50	3	1	20031014 09:16	20031014 10:38
KSH02	621.50	641.50	3	1	20031014 11:00	20031014 12:20
KSH02	641.50	661.50	3	1	20031014 13:00	20031014 14:20
KSH02	661.50	681.50	3	1	20031014 14:44	20031014 16:00
KSH02	681.50	701.50	3	1	20031014 16:24	20031014 17:48
KSH02	701.50	721.50	3	1	20031014 18:11	20031014 19:27
KSH02	721.50	741.50	3	1	20031015 07:45	20031015 09:02
KSH02	741.50	761.50	3	1	20031015 09:22	20031015 10:41
KSH02	761.50	781.50	3	1	20031015 11:07	20031015 12:24
KSH02	781.50	801.50	3	1	20031015 13:15	20031015 14:40
KSH02	801.50	821.50	3	1	20031015 14:57	20031015 17:25
KSH02	821.50	841.50	3	1	20031015 17:50	20031015 18:41
KSH02	841.50	861.50	3	1	20031015 19:29	20031015 20:43
KSH02	861.50	881.50	3	1	20031016 07:29	20031016 08:45
KSH02	881.50	901.50	3	1	20031016 09:07	20031016 10:22
KSH02	901.50	921.50	3	1	20031016 10:40	20031016 11:54
KSH02	921.50	941.50	3	1	20031016 12:29	20031016 13:50
KSH02	941.50	961.50	3	1	20031016 14:15	20031016 15:22
KSH02	961.50	981.50	3	1	20031020 15:52	20031020 17:09
KSH02	301.50	306.50	3	1	20031022 11:53	20030512 17:24
KSH02	306.50	311.50	3	1	20031022 13:38	20031022 14:51
KSH02	311.50	316.50	3	1	20031022 15:06	20031022 16:20

Borehole	Test section		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
KSH02	316.50	321.50	3	1	20031022 16:37	20031022 17:45
KSH02	321.50	326.50	3	1	20031022 17:57	20031022 19:05
KSH02	326.50	331.50	3	1	20031023 07:18	20031023 08:33
KSH02	331.50	336.50	3	1	20031023 08:42	20031023 09:59
KSH02	336.50	341.50	3	1	20031023 10:12	20031023 11:27
KSH02	341.50	346.50	3	1	20031023 11:38	20031023 13:06
KSH02	346.50	351.50	3	1	20031023 13:16	20031023 14:31
KSH02	351.50	356.50	3	1	20031023 14:43	20031023 15:59
KSH02	356.50	361.50	3	1	20031023 16:12	20031023 17:26
KSH02	361.50	366.50	3	1	20031023 17:33	20031023 18:47
KSH02	366.50	371.50	3	1	20031024 07:08	20031024 08:34
KSH02	371.50	376.50	3	1	20031028 08:10	20031028 09:53
KSH02	376.50	381.50	3	1	20031028 10:45	20031028 12:07
KSH02	381.50	386.50	3	1	20031028 13:25	20031028 15:03
KSH02	386.50	391.50	3	1	20031028 15:09	20031028 16:52
KSH02	391.50	396.50	3	1	20031029 07:01	20031029 08:22
KSH02	396.50	401.50	3	1	20031029 08:47	20031029 10:13
KSH02	401.50	406.50	3	1	20031029 10:53	20031029 12:14
KSH02	406.50	411.50	3	1	20031029 13:04	20031029 14:28
KSH02	411.50	416.50	3	1	20031029 14:40	20031029 16:03
KSH02	416.50	421.50	3	1	20031029 16:28	20031029 17:52
KSH02	421.50	426.50	3	1	20031029 18:14	20031029 19:48
KSH02	426.50	431.50	3	1	20031030 07:02	20031030 08:21
KSH02	431.50	436.50	3	1	20031030 08:36	20031030 09:57
KSH02	436.50	441.50	3	1	20031030 10:10	20031030 11:28
KSH02	441.50	446.50	3	1	20031030 11:42	20031030 14:12
KSH02	446.50	451.50	3	1	20031030 14:29	20031030 15:37
KSH02	451.50	456.50	3	1	20031030 15:56	20031030 17:19
KSH02	456.50	461.50	3	1	20031030 17:46	20031030 19:07
KSH02	461.50	466.50	3	1	20031030 19:23	20031030 20:42
KSH02	466.50	471.50	3	1	20031103 13:47	20031103 15:03
KSH02	471.50	476.50	3	1	20031103 15:23	20031103 16:51
KSH02	476.50	481.50	3	1	20031103 17:05	20031103 18:30
KSH02	481.50	486.50	3	1	20031104 07:07	20031104 08:29
KSH02	486.50	491.50	3	1	20031104 08:44	20031104 10:10
KSH02	491.50	496.50	3	1	20031104 10:25	20031104 11:50
KSH02	496.50	501.50	3	1	20031104 12:01	20031104 13:57
KSH02	501.50	506.50	3	1	20031104 14:13	20031104 15:39
KSH02	506.50	511.50	3	1	20031104 15:52	20031104 17:13
KSH02	511.50	516.50	3	1	20031104 17:27	20031104 18:30
KSH02	516.50	521.50	3	1	20031105 07:18	20031105 08:16
KSH02	521.50	526.50	3	1	20031105 08:35	20031105 10:26
KSH02	526.50	531.50	3	1	20031105 10:35	20031105 11:57
KSH02	531.50	536.50	3	1	20031105 12:12	20031105 13:42

Borehole	Test section		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
KSH02	536.50	541.50	3	1	20031105 13:53	20031105 15:12
KSH02	541.50	546.50	3	1	20031105 15:19	20031105 16:15
KSH02	546.50	551.50	3	1	20031105 17:17	20031105 18:08
KSH02	551.50	556.50	3	1	20031106 07:03	20031106 08:25
KSH02	556.50	561.50	3	1	20031106 08:35	20031106 10:17
KSH02	561.50	566.50	3	1	20031106 10:30	20031106 11:50
KSH02	566.50	571.50	3	1	20031106 12:09	20031106 13:28
KSH02	571.50	576.50	3	1	20031106 13:40	20031106 15:06
KSH02	576.50	581.50	3	1	20031106 15:19	20031106 16:42
KSH02	581.50	586.50	3	1	20031106 16:51	20031106 18:21
KSH02	586.50	591.50	3	1	20031107 07:06	20031107 08:34
KSH02	591.50	596.50	3	1	20031110 13:39	20031110 14:58
KSH02	596.50	601.50	3	1	20031110 15:09	20031110 16:19
KSH02	601.50	606.50	3	1	20031110 16:25	20031110 17:39
KSH02	606.50	611.50	3	1	20031111 07:07	20031111 08:24
KSH02	611.50	616.50	3	1	20031111 08:31	20031111 09:14
KSH02	616.50	621.50	3	1	20031111 09:23	20031111 10:19
KSH02	621.50	626.50	3	1	20031111 10:29	20031111 11:23
KSH02	626.50	631.50	3	1	20031111 11:29	20031111 12:53
KSH02	631.50	636.50	3	1	20031111 13:01	20031111 14:15
KSH02	636.50	641.50	3	1	20031111 14:33	20031111 15:54
KSH02	641.50	646.50	3	1	20031111 16:03	20031111 17:16
KSH02	646.50	651.50	3	1	20031111 17:22	20031111 18:26
KSH02	651.50	656.50	3	1	20031112 07:07	20031112 08:21
KSH02	656.50	661.50	3	1	20031112 08:30	20031112 09:34
KSH02	661.50	666.50	3	1	20031112 09:40	20031112 10:49
KSH02	666.50	671.50	3	1	20031112 11:02	20031112 12:15
KSH02	671.50	676.50	3	1	20031112 12:35	20031112 13:50
KSH02	676.50	681.50	3	1	20031112 13:56	20031112 15:13
KSH02	681.50	686.50	3	1	20031112 15:23	20031112 16:15
KSH02	686.50	691.50	3	1	20031112 16:23	20031112 19:17
KSH02	691.50	696.50	3	1	20031113 07:04	20031113 08:18
KSH02	696.50	701.50	3	1	20031113 08:26	20031113 09:42

1B: Pumping test – submersible pump, 3: Injection test.

3.3 Control of equipment

The PSS2 equipment was partly maintained according to SKB MB 345.122 (service) and SKB MB 345.122 (calibration) in August 2003. A complementary calibration of pressure sensors was also performed.

Functioning checks of the equipment were performed during the establishment of PSS at the test site. To check the function of the pressure sensors, the pressure in air was recorded and found to be as expected. Submerged in water while lowering, the sensors coincided well to the total head of water (p/ρg) and barometric pressure. The temperature sensor showed expected values in both air and water.

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

4 Description of equipment

4.1 Overview

4.1.1 Measurement container

All equipment needed to perform the injection tests is located in a steel container (Figure 4-1). The container is divided into a data-room and workshop compartment. The container is placed on pallets to get a correct working level in relation to the borehole casing.

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

Water filled pressure vessels operate the packers and the test valve. Expansion and release of packers as well as opening and closing of the test valve is done by magnetic valves controlled by the software in the data acquisition system.

The injection system consists of a tank, a pump and a flow meter unit at the surface. 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.

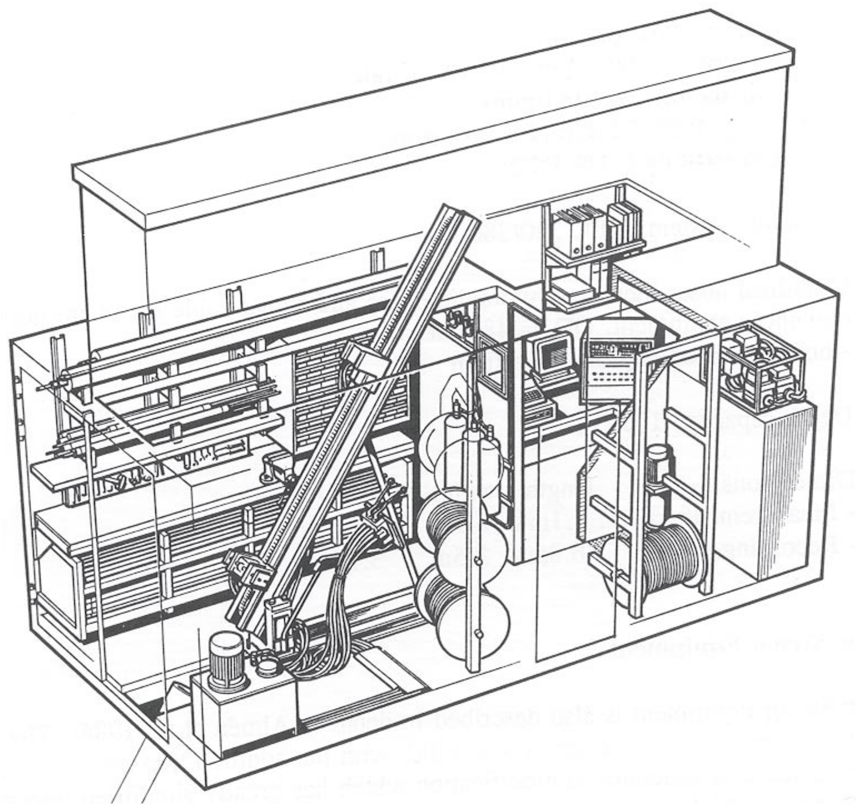

Figure 4-1. *Outline of the PSS3 container with equipment.*

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 (Pa), within (P) and below the test section (Pb), which is isolated by two packers. Also the groundwater temperature in the test section is 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 end of the borehole equipment a level indicator (caliper type) gives a signal when the reference depth marks along the borehole are passed.

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

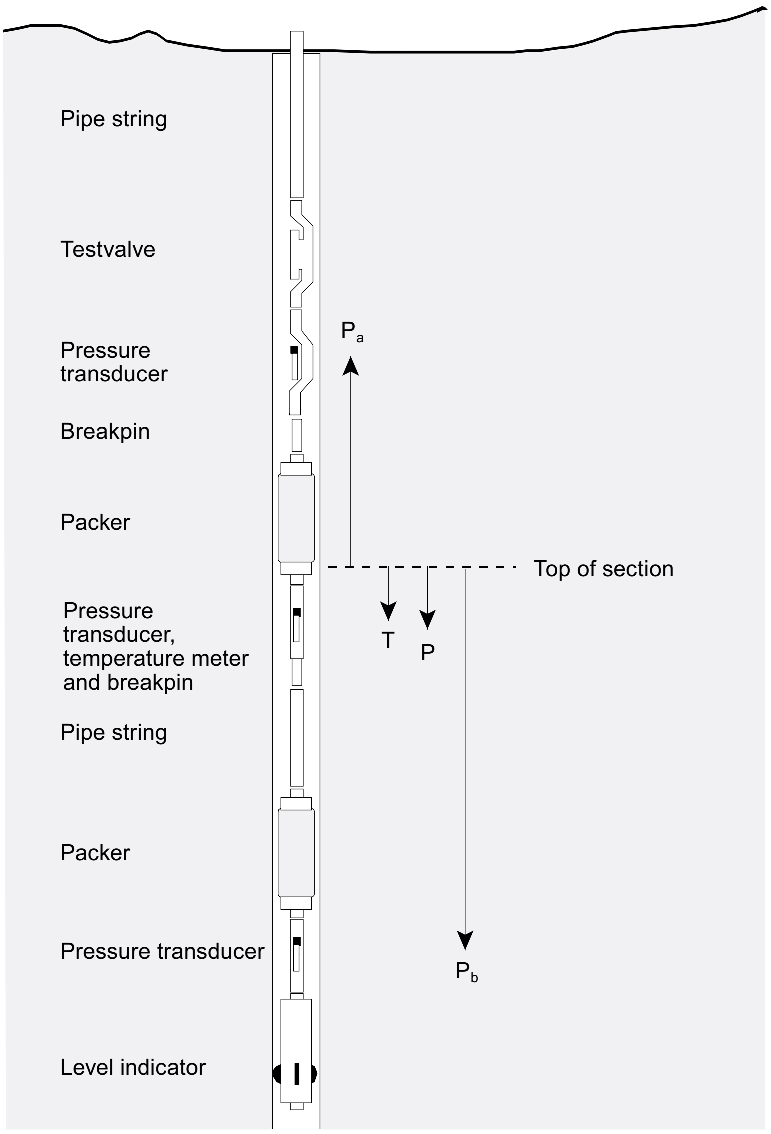

Figure 4-2. *Schematic drawing of the down-hole equipment in the PSS3 system.*

4.2 Measurement sensors

Technical specifications of the measurement sensors included in the PSS system together with corresponding data of the system are shown in Table 4-1. The data on absolute pressure and temperature are valid for the sensors in the borehole as well as for the sensors in the measurement container (measuring air pressure, packer pressure and air temperature).

Table 4-1. Technical data of sensors together with estimated data of the PSS (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	1.67×10^{-5}–1.67×10^{-3}		
	Resolution	m^3/s	6.7×10^{-8}		
	Accuracy[2)]	% O.R	0.15–3	0.2–1	The specific accuracy is depending on actual flow
Flow Qsmall	Output signal	mA	4–20		
	Meas range	m^3/s	1.67×10^{-8}–1.67×10^{-5}		
	Resolution	m^3/s	6.7×10^{-10}		
	Accuracy[2)]	% O.R	0.4–10	0.4–20	The specific accuracy is depending on actual flow

[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.

The position of borehole sensors are fixed relative the top of the test section, given a specific length of test section. In Table 4-2 the position of sensors are given with top of test section as reference (Figure 4-2).

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

Parameter	Length of test section (m)		
	5	**20**	**100**
Equipment displacement volume in test section (L) [1)]	3	12	58
Total volume of test section (L) [2)]	23	91	453
Sensor position (m above secup) [3)]			
Pa, pressure above test section	1.85	1.85	1.85
P, pressure in test section	–4.4	–19.4	–99.4
Tsec, Temperature in test section	–3.75	–18.75	–98.75

Parameter	Length of test section (m)		
	5	20	100
Pb, pressure below test section	–7.05	–22.05	–102.05

[1)] Displacement volume in test section due to pipe string, signal cable and packer ends (in litre).
[2)] Total volume of test section (V=π*d2/4*section length)
[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 PSS contains an ordinary office PC connected to an I/O-unit (Datascan 7320). With the software Orchestrator, pump- and injection tests are monitored and borehole sensor data collected. Along with the borehole parameters, packer and atmospheric pressure together with cabin and water temperature are logged. Test evaluation can be performed at site after a conducted test. An external display makes it possible to supervise test parameters.

The data acquisition system can start and stop the automatic control system (computer and servo motors), these are connected as shown in Figure 4-3. The control system monitor the flow regulator and uses differential pressure over the regulating valve together with pressure in test section as input signals.

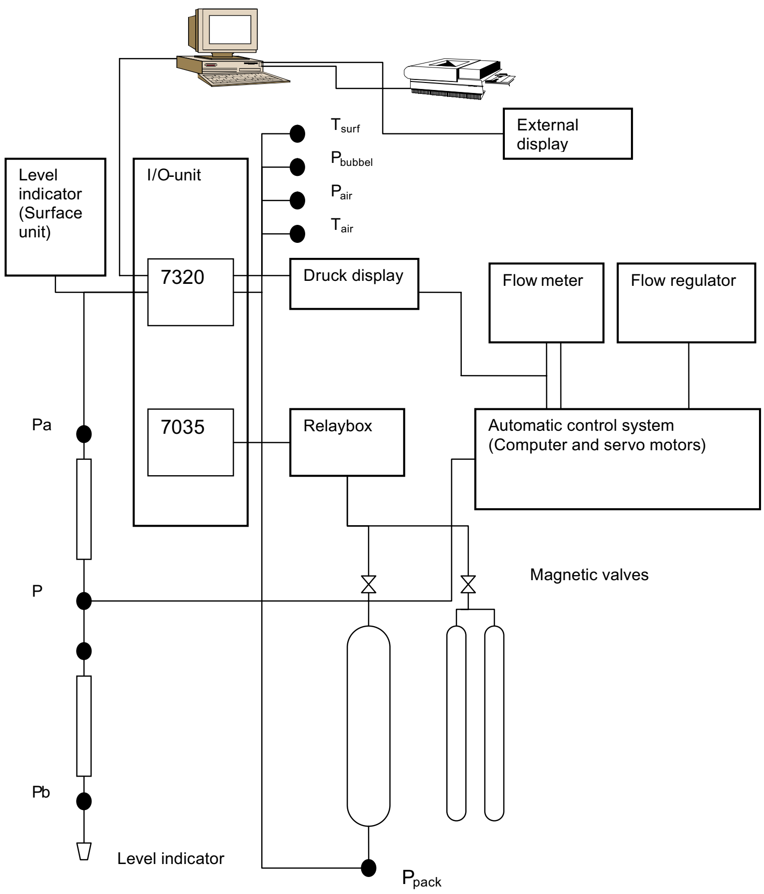

Figure 4-3. Schematic drawing of the data acquisition system and the automatic control system in PSS.

5 Execution

5.1 Preparations

5.1.1 Calibration

All sensors included in PSS are calibrated at GEOSIGMA engineering service station in Uppsala. Calibration is generally performed prior to every measurement campaign. For these measurements, only the downhole pressure sensors were calibrated prior to the measurement campaign. Results from calibration e.g. calibration constants, of all sensors are kept in a document folder in PSS. If a sensor is replaced at the test site, calibration constants are changed. If a new, not calibrated sensor has to be used, calibration can be performed afterwards and data recalculated.

5.1.2 Functional inspections

Functioning checks of equipment were performed during the establishment of PSS at test site. Simple function checks of down hole sensors were done at every change of test section length. Checks were also done while lowering the pipe string along the borehole.

5.2 Test performance

5.2.1 Test principle

The injection tests in KSH02 were carried out with a constant head of c 200 kPa (20 m) in the test section. Before start of the injection period, approximately steady-state pressure conditions should prevail in the test section. After the injection period, the pressure recovery was measured.

The primary purpose with the pumping tests was the sampling of water. However, the tests were conducted and analysed as constant drawdown pumping tests. After the pumping period, the pressure recovery was measured.

6.2.2 Test procedure

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/Pumping, 5) Pressure recovery and 6) Packer deflation.

The estimated time for each phase is presented in Table 5-1. Regarding the packer inflation times and actual injection-recovery times, slightly different alternatives were used for the tests in 100 m sections compared to the tests in 20 m and 5 m sections. Due to longer test sections a slightly longer packer inflation time and pressure stabilisation time were used to minimise the risk of e.g. packer compliance in the 100 m sections. Furthermore, slightly longer test times were used for these tests, cf Table 5-1.

Since the results of the tests in 100 m sections will have a strong effect on the continued test program it is particularly important to ensure reliable results of these tests, including sections close to the lower measurement limit. Regarding the tests in 20 m and 5 m sections, standard packer inflation times and test times were used.

Table 5-1. Packer inflation times, pressure stabilisation times and test times used for the injection tests in KSH02.

Test section length (m)	Packer inflation time (min)	Time for pressure stabilisation (min)	Injection phase (min)	Recovery phase (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 packer deflation time and trip times in the borehole.

5.3 Data handling

With the PSS system primary data are handled with the software Orchestrator (version 2.3.8). During a test, data are continuously logged in binary files. After the test is finished an ascii 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 etc. The parameters are presented in percentage of sensor measurement range and not in engineering units. This is the raw data file.

The *.ht2-files are automatically named with borehole id, top of test section and data and time of test start (as for example ___KSH02_0306.50_200310221338.ht2). The name differs slightly from the convention stated in Instructions for analysis of injection and single-borehole pump test, SKB MD 320.004 (SKB internal controlling document).

With the software IPPLOT (version 2.0) the *.ht2-files are converted to parameter files, suitable for analysis with the code SKB-plot or with the software AQTESOLV.

A backup of data files were done each day by floppy/CD-storage and by sending the files to the Geosigma office in Uppsala by e-mail. A file description table is presented in Appendix 5.

5.4 Analyses and interpretation

As discussed in Section 5.2.1, the injection tests in KSH02 were performed as transient constant head tests followed by a pressure recovery period. The routine data processing of the measured data was according to the Instruction for analysis of injection- and single-hole pumping tests (SKB MD 320.004e, internal document). From the flow period the flow rate and reciprocal flow rate versus time was plotted in log-log and lin-log diagrams, respectively together with the corresponding derivatives. From the recovery period the pressure and pressure change was plotted versus Agarwal equivalent time in lin-log and log-log diagrams, respectively together with the corresponding derivatives.

Firstly, a qualitative evaluation of actual flow regimes, e.g. wellbore storage (WBS), pseudo-radial flow (PRF), pseudo-spherical flow (PSF) and pseudo-steady-state flow (PSS), respectively was performed. In addition, evidences of outer boundary conditions during the tests were identified. The qualitative evaluation was made from the log-log diagrams of the responses during the flow- and recovery period. In particular, time intervals with pseudo-radial flow, reflected by a constant (horizontal) derivative in the test diagrams, were identified. Apparent no-flow (NFB) and constant head boundaries (CHB) or corresponding boundary conditions of fractures are reflected by an increase/decrease of the derivative, respectively. In addition, a preliminary steady-state analysis of transmissivity T_M was made on the flow period for all tests according to Moye's formula:

$$T_M = \frac{Q_p \cdot \rho_w \cdot g}{dp_p} \cdot C_M$$

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

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 methods for the quantitative evaluation of the tests were selected. If possible, transient analysis was made both on the flow- and recovery period of the tests. Most of the responses during the recovery period were strongly influenced by wellbore storage effects. Thus, pseudo-radial flow was seldom reached during this period. On the other hand, during the flow period a certain time interval with pseudo-radial flow could, in most tests, be identified from the corresponding derivative. Consequently, standard methods for single-hole tests, influenced by wellbore storage and skin effects, in an equivalent porous medium were used by the routine evaluation 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. Thus, the quantitative transient evaluation is performed as an iterative process of type curve matching and non-linear regression. For the injection phase, a model based on the /Jacob and Lohman, 1952/ solution was used for estimating transmissivity and skin factor for an assumed value on the storativity. The model uses the effective wellbore radius concept to account for non-zero (negative) skin factors according to /Hurst et al. 1969/. While performing the analysis, storativity was assumed to $S = 1 \times 10^{-6}$ according to the instruction SKB MD 320.004 (SKB internal controlling document).

Some tests showed fracture responses (e.g. a slope 1:2 in the log-log plots) and thus fracture models were also used in the transient analysis of these tests. Both the models by /Gringarten and Witherspoon, 1972/ for a vertical fracture and /Gringarten and Ramey, 1974/ for a horizontal fracture were tested. In such cases, the test section length was used to convert K and S_s to T and S respectively. The quote K_x/K_y (hydraulic conductivity anisotropy) was assumed to be 1 (one). Type curve matching provided K_x and L_f, where L_f is the theoretical length of the fracture.

For transient analysis of the recovery period, a model presented by /Dougherty and Babu, 1984/ was used. 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/ 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) connected to the test section, cf Eqn (5-3). This concept is equivalent to calculating the wellbore storage coefficient C from the compressibility in an isolated test section according to Eqn (5-2).

The model by /Dougherty and Babu, 1984/ was used to estimate the transmissivity and skin factor from the recovery period for an assumed value on the storativity. 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 plots.

After the transient analysis of each test, the different estimates of transmissivity, based on e.g. pseudo-radial flow regimes during the flow and recovery period, respectively, fracture models etc. were checked and one of them was selected as the best estimate of transmissivity from the transient evaluation (T_T). Whenever more than one pseudo-radial flow regime was developed during the flow- or recovery period, the first regime developed was judged as the most representative for the hydraulic conditions in the rock close to the tested section by the transient analysis. Finally, the transmissivity value considered as the most representative for the actual test was selected (either T_M or T_T). The representative value of T is denoted T_R.

In most cases, the transient estimates of transmissivity from the flow period were considered more accurate than those from the recovery period since the recovery responses were often highly affected by wellbore storage and no pseudo-radial flow regime was reached in many cases. For tests where no pseudo-radial flow regime was developed, but approaching a pseudo-spherical or pseudo-stationary flow regime by the end of the test, the steady-state evaluation according to Moye's formula (T_M) was considered as the most representative estimate of transmissivity (T_R).

A simple estimate of the possible range for the most representative estimate of T_R was also performed. The range is intended to describe the range of T_R obtained from either an acceptable type curve match (transient analysis) or an acceptable interpretation of Q_p (in Moye´s formula). Hereby, whenever T_R comes from the transient analysis, the range of T_R is rather subjective but may still be a useful measure of how well the actual type curve matches the test data.

The reason for giving a range for T_R when T_M is judged as the most representative estimate, is that in some test sections of low hydraulic conductivity the flow rate was close to the lower measurement limit. Thus, the resolution of the flow rate measurements in this range caused uncertainties in interpreting a representative value of Q_p. Accordingly, the stated range of T_R depends of the estimated range of the interpreted Q_p. It is important that the range of T_R should not be viewed as the actual uncertainty in T or the accuracy of T. Variations in estimated T from different model assumptions or different flow regimes are far greater than the range presented here for the most representative estimates of T.

Whenever a pseudo-radial flow regime was identified during the recovery period, a Horner pressure (p*) was estimated by extrapolating the recovery data to the (inverted) Horner time dt/(tp + dt) = 1.

Estimations of the borehole storage coefficient C, based on actual borehole geometrical data and assumed fluid properties (net values) are shown in Table 5-2. The total volume of equipment contained in the test section (e.g. pipes and thin hoses) has been subtracted from the total volume of the test section by the calculation of the water volume V_w in the test section in Table 5-2.

For an isolated test section the wellbore storage coefficient C may be theoretically calculated as /e.g. Earlougher, 1977/:

$$C = V_w \times c_w \tag{5-2}$$

V_w = water volume in test section (m^3),
c_w = compressibility of water (Pa^{-1}).

Table 5-2. Calculated net values of the wellbore storage coefficient for injection tests with different section length, based on the actual geometrical properties.

Borehole	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)
KSH02	0.038	100	0.453	0.058	0.395	1.7×10^{-10}
KSH02	0.038	20	0.091	0.012	0.079	3.5×10^{-11}
KSH02	0.038	5	0.023	0.003	0.02	8.8×10^{-12}

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 only calculated for tests with a well-defined line of slope 1:1 in the beginning of the recovery period. In the most conductive test sections this period occurred at, and during, very short times and no estimations of C are made. The estimated values on C may be compared with the net values in Table 5-2 based on geometrical properties of the borehole and equipment.

Furthermore, when using the model by /Dougherty and Babu, 1984/ a fictive casing radius, r(c), (radius of an equivalent standpipe) representing wellbore storage, is obtained from the simulation. The value on r(c) can then be used for calculating C as described in /Almén et al. 1986/:

$$C = \frac{\pi \cdot r(c)^2}{\rho_w \cdot g} \tag{5-3}$$

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

The estimated values on C from the tests may differ from the net values based on geometry due to deviations of the actual geometrical borehole properties from the anticipated, e.g. borehole diameter. Furthermore, the effective compressibility for an isolated test section may sometimes be higher than the compressibility of water due to e.g. packer compliance, resulting in increased C-values.

The hydraulic (freshwater) head distribution along the borehole is determined in the following way. Firstly, the measured barometric pressure (p_a) before start of flow period was subtracted from the pressure in test section before start of flow period (p_i), or Horner pressure whenever such pressure was estimated. The hydraulic (freshwater head) at a certain elevation (from TOC) is then calculated according to the following expression:

$$h_{wif} = (p_i - p_a)/(\rho_w \times g) + z \qquad (5\text{-}4)$$

h_{wif} = freshwater head in test section before start of flow period (m.a.s.l),
p_i = pressure in test section before start of flow period (Pa). Whenever a Horner pressure, p*, was estimated it was used instead of p_i. For pumping tests, p_f was used for calculating the freshwater head,
p_a = barometric pressure before start of flow period (Pa),
ρ_w = density of freshwater (kg/m^3), 1,000 kg/m^3 is assumed,
g = acceleration of gravity (m/s^2), 9.81 m/s^2 is assumed according to SKB MD 320.004 (SKB internal controlling document),
z = elevation of measurement point (m.a.s.l.).

6 Results

In the following, the results of all tests are presented and analysed. In Chapter 6.3 the results of the injection tests with 100m, 20m and the 5m section length are presented. The results are given as general comments to the test performance, identified flow regimes and calculated parameters and finally, the parameters which are considered as most representative are chosen and justification is given. All results are also summarised in Table 7-1 and 7-2 of the synthesis in Chapter 7.

The nomenclature and symbols used for the results of the injection and pumping tests are according to the methodology instruction for analysis of single-hole injection- and pumping tests, SKB MD 320.004 (SKB internal controlling document). Nomenclature and symbols used in this report are also described in appendix 1.

Comments on tests and interpreted flow regimes for all tests are found in this section, while general test data for all tests are presented in Chapter 7 together with the basic results (estimates of hydraulic parameters). Finally, lin-lin, lin-log and log-log plots for all tests are found in Appendix 3.

6.1 Lower measurement limit

The estimated, standard lower measurement limit of flow rate for the injection tests in KSH02A was defined as 1 mL/min (1.7×10^{-8} m^3/s). Tests with a final flow rate Q_p less than 1 mL/min were considered as below the measurement limit, i.e Q_p was used as the governing parameter in the decision whether the test was below the measurement limit or not. For tests with $Q_p < 1$ mL/min, neither steady-state nor transient evaluation of transmissivity was made.

A standard injection pressure of c 200 kPa (20 m) was used during the tests. The lower measurement limit of specific flow is based on a minimal flow rate of 1 mL/min and an injection head of 20 m, i.e. Q/s-measl-L = 8.5E–10 m^2/s. The minimal flow rate of 1 mL/min and an injection pressure of 200 kPa corresponds to slightly different values of the corresponding minimal steady-state transmissivity T_M-min, depending on the length of the test section used in the factor C_M in Moye's formula (Eqn. 5-1).

In Table 6-1, the estimated, standard lower measurement limit for specific flow (Q/s-measl-L) together with the corresponding values on T_M-min for different section lengths are presented. These values may be considered as the estimated lower measurement limit of steady-state transmissivity. However, lower values may occasionally be calculated from the transient test evaluation. Such tests are still considered as above the measurement limit for transmissivity since the value of Q_p is the governing parameter.

Table 6-1. Estimated standard lower measurement limits for specific flow and steady-state transmissivity for injection tests on different measurement scales.

Borehole	r_w (m)	L_w (m)	Q-measl-L (m^3/s)	Injection pressure (kPa)	Q/s-measl-L (m^2/s)	Factor C in Moye's formula	T_M-min (m^2/s)
KSH02	0.038	100	1.7×10^{-8}	200	8.5×10^{-10}	1.30	1.1×10^{-9}
KSH02	0.038	20	1.7×10^{-8}	200	8.5×10^{-10}	1.05	8.6×10^{-10}
KSH02	0.038	5	1.7×10^{-8}	200	8.5×10^{-10}	0.825	6.8×10^{-10}

6.2 Length corrections

The down-hole equipment contains 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 every time a reference mark in the borehole is passed. In KSH02, reference marks were milled in the borehole wall at approx every 50 m.

During the injection tests in KFM03A with PSS, correction were made every time a new length reference mark was detected according to table.

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

Before the pumping test in section 419–424 m was performed, a length correction was made against the reference mark at 415 m. The deviation was –0.18 m, which is in good accordance with the deviations during the injection tests.

Table 6-2. Length corrections for tests with different section length during the injection tests in KSH02.

Borehole length (m)	Length correction (m)		
	5 m	20 m	100 m
105	–0.04	–0.04	
153		–0.06	–0.06
203	–0.09	–0.10	–0.09
256	–0.11	–0.12	–0.13
317	–0.16	–0.17	–0.14
362	–0.17	–0.17	–0.18
415	–0.20	–0.19	–0.18
468	–0.24	–0.24	–0.24
519	–0.25	–0.27	–0.27
571	–0.26	–0.28	–0.27
624	–0.33	–0.36	–0.35
674	–0.35	–0.38	–0.38
727		–0.38	–0.38
780		–0.47	–0.40

Borehole length (m)	Length correction (m)		
	5 m	20 m	100 m
830		–0.41	–0.42
852		–0.45	–0.49
900		–0.44	–0.47
950		–0.47	–0.48

6.3 Injection tests

6.3.1 Section 101.5–201.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. A leakage to section above is observed during the injection period, causing the water level in the borehole to increase c 0.6 m. Due to failure in one downhole pressure sensor, no relevant pressure above test section was measured. Injection phase prevailed for c 30 min and recovery was measured c 30 min, complete recovery was not obtained during this period.

Flow regime and calculated parameters

For the flow period, two separate pseudo-radial flow regimes are indicated. The first between c 200 and c 500 s, the second after c 800 s. The first of the two pseudo-radial flow regimes is assumed to best represent the formation adjacent to the borehole.

Range of parameters and recommended parameters

The chosen T_R (from the first pseudo-radial flow regime during flow period) is quite well defined as 2.3E-06 and a possible range is judged to be 2.2E-06 – 2.5E-06 m^2/s, the transient evaluation of the pseudo-radial flow regime during recovery also results in a transmissivity of 2.3E-06 m^2/s. T_M according to Moye’s formula is 4.8E-06 m^2/s.

6.3.2 Section 201.5–301.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Due to failure in one downhole pressure sensor, no relevant pressure above test section was measured. Injection phase prevailed for c 30 min and recovery was measured c 30 min.

Flow regime and calculated parameters

For the flow period, a clear pseudo-radial flow regime is indicated from c 100 s. For the recovery period, no well-defined pseudo-radial flow regime is indicated. A pseudo-spherical flow regime is indicated by the end of the test.

Range of parameters and recommended parameters

The transient estimation of T from the pseudo-radial flow regime during the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 7.1E-08 m^2/s with the range 6.4E-08 – 7.8E-08 m^2/s.

6.3.3 Section 301.5–401.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Due to failure in one downhole pressure sensor, no relevant pressure above test section was measured. Injection phase prevailed for c 30 min and recovery was measured c 30 min.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 100 s. A sudden change in flow rate occurs after c 1,000 s, no reasonable explanation for this change is found. For the recovery period, no pseudo-radial flow regime is indicated, it rather shows tendencies of developing a pseudo-spherical flow regime.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.4E–07 m^2/s with the range 1.3E–07 – 1.5E–07 m^2/s.

6.3.4 Section 401.5–501.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Due to failure in one downhole pressure sensor, no relevant pressure above test section was measured. Injection phase prevailed for c 30 min and recovery was measured c 30 min.

Flow regime and calculated parameters

During the flow period, a well-defined pseudo-radial flow regime is indicated from c 100 s. For the recovery period no clear WBS effects are seen. A pseudo-radial or possibly a pseudo-spherical flow regime is indicated for the recovery period from c 100 s. Type curve matching on the recovery period resulted in a high skin factor (> = 5) which further may indicate a pseudo-spherical flow regime.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 9.7E–07 m^2/s with the range 7.8E–07 – 1.2E–06 m^2/s.

6.3.5 Section 501.5–601.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Due to failure in one downhole pressure sensor, no relevant pressure above test section was measured. Injection phase prevailed for c 30 min and recovery was measured c 30 min.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 400 s. For the recovery period, tendencies of a pseudo-radial flow regime are seen although it approaches pseudo-spherical flow. No WBS effects are seen during recovery.

The type curve matching for the flow period resulted in a strongly negative skin factor (–4.2) which may indicate the presence of a dominant fracture within the section.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.5E–07 m^2/s with the range 1.2E–07 – 1.8E–07 m^2/s.

6.3.6 Section 601.5–701.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Due to failure in one downhole pressure sensor, no relevant pressure above test section was measured. Injection phase prevailed for c 30 min and recovery was measured c 30 min.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 100 s and persists until c 700 s where some disturbances are seen. For the recovery period, a fracture response (slope ~ 1:2) is indicated from the start of recovery until c 100 s where a slow transition begins into a pseudo-radial and possibly, a pseudo-spherical flow regime by the end of recovery.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.3E–07 m^2/s with the range 2.1E–07 – 2.5E–07 m^2/s.

6.3.7 Section 701.5–801.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Due to failure in one downhole pressure sensor, no relevant pressure above test section was measured. Injection phase prevailed for c 30 min and recovery was measured c 30 min.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 100 s to 300 s. After c 300 s indications of outer (no-flow) boundary effects appear and persist until c 1,000 s. This fact may possibly be explained by the presence of a conductive fracture with limited extent and/or decrease in aperture. After c 1,000 s there are indications of positive boundary effects. For the recovery period, a well-defined pseudo-radial flow regime is indicated from c 200 s to 700 s.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during recovery period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.8E–07 m^2/s with the range 3.2E–07 – 4.4E–07 m^2/s. The best judged T is not significantly different than T_f (estimated from transient analysis of the pseudo-radial flow regime during the flow period) i.e. 4.4E–07 m^2/s.

6.3.8 Section 801.5–901.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Due to failure in one downhole pressure sensor, no relevant pressure above test section was measured. Injection phase prevailed for c 30 min and recovery was measured c 30 min. Due to problems with controlling flow rate (automatic control system repeatedly changed between two controller valves), the pressure in measurement section was not stable until after c 120 s of injection.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 200 s persisting during whole the flow period. The recovery period shows indications of WBS effects, a transition to a pseudo-radial flow regime is weakly indicated by the end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.0E–08 m^2/s with the range 9.0E–09 – 1.1E–08 m^2/s.

6.3.9 Section 897–997 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Due to failure in one downhole pressure sensor, no relevant pressure above test section was measured. Injection phase prevailed for c 30 min and recovery was measured c 30 min. Pressure below measurement section (c 3 m borehole length from lowest packer to bottom of borehole) increased remarkably when packers were expanded. The section below measurement section also responded to the injection and recovery in measurement section, although it is not clear whether this is an effect of hydraulic interaction between measurement section and section below or a result of elasticity in the lower packer.

Flow regime and calculated parameters

For both the flow and recovery period, a pseudo-linear flow regime (fracture response, i.e. slope c 1:2) is indicated during the first c 70 s and 100 s for the flow period and recovery period, respectively. For both periods, the pseudo-linear flow regime is followed by indications of a short pseudo-spherical flow regime (c 70–100 s for flow period and c 100–200 s for recovery period). The results indicate a fracture with limited storativity intersecting the test section.

Possible leakage effects are indicated by end of both the flow period and the recovery period. This might be a result of a hydraulic connection between the measurement section and the section below. By the end of the recovery period, a pseudo-stationary flow regime is indicated which would be in accordance with the assumption of hydraulic connection between the measurement section and the section below.

For both periods (flow and recovery), transient evaluation has been performed with models assuming pseudo-radial flow and models assuming a (vertical) fracture of uniform flux intersecting the borehole, respectively. For the latter model the hydraulic conductivity (and specific storativity) is shown in the evaluation diagrams. The transmissivity and storativity is thus calculated by multiplying with the section length (100 m).

Since the fracture response is dominating during the first period of both flow and recovery, it is interpreted as response best representing the hydraulic conditions adjacent to the test section.

Type curve matching for both the flow and recovery period resulted in strongly negative skin factor which could be caused by the assumed fracture.

Range of parameters and recommended parameters

The transient evaluation of T based on the fracture response during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. T_R is 1.7E–07 m^2/s with the range 1.4E–07 – 2.0E–07 m^2/s.

6.3.10 Section 81.5–101.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Pressure below measurement section responded to the injection and recovery in measurement section. Injection in measurement section caused a pressure increase in section below of c 40 kPa.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 80 s and persists during the whole flow period. For the recovery period, a pseudo-radial flow regime develops after c 20 s persisting until c 100 s, then transiting to pseudo-spherical flow by end of the test.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.9E–06 m^2/s with the range 2.2E–06 – 4.0E–06 m^2/s.

6.3.11 Section 101.5–121.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Pressure above measurement section responded to the injection and recovery in measurement section. Injection in measurement section caused a pressure increase in section above of c 10 kPa.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated between c 300 and c 500 s, the second from c 800 s. For the recovery period, a pseudo-radial flow regime is indicated before c 200 s. By the end of the recovery a pseudo-spherical flow regime is indicated. The latter flow regime be a result of a hydraulic connection between the test section and the section above.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.1E–06 m^2/s with the range 2.9E–06 – 3.4E–06 m^2/s.

6.3.12 Section 121.5–141.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The hydraulic conductivity in this section is very low and injection flow rate by end of the flow period was c 3 mL/min. As a result of the low conductivity, it was not possible to maintain a completely constant pressure in the test section, small oscillations persisted throughout the entire flow period.

Flow regime and calculated parameters

Due to the oscillations in pressure (and flow rate) during the injection period it is hard to identify any flow regimes. Anyhow, there are weak indications of a pseudo-radial flow regime after c 600 s injection. For the recovery period, no pseudo-radial flow regime is indicated, only WBS effects.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 7.1E–10 m^2/s with the range 3.0E–10 – 9.0E–10 m^2/s. The somewhat wide range for T_R is mainly due to the oscillations in pressure and flow rate during the flow period.

6.3.13 Section 141.5–161.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to some unknown reason, no flow rate data was recorded during the first 40 s of the flow period. It might be a result of gas in one of the flow meters which caused that flow meter to record negative flow. Pressure in test section was not kept perfectly constant during the test, from c 100 s to end of injection period the pressure in test section decreased approximately linearly 8 kPa.

Flow regime and calculated parameters

By the end of the flow period, a well-defined pseudo-radial flow regime is indicated. The recovery only indicates WBS effects but no pseudo-radial flow.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.2E–09 m^2/s with the range 8.8E–10 – 2.0E–09 m^2/s.

6.3.14 Section 161.5–181.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

The flow period indicates a transition from pseudo-radial flow to pseudo-spherical flow. For the flow period, possible pseudo-radial flow is indicated from c 100 s. The transition to pseudo-spherical flow is more obvious for the recovery period. No transient interpretation is made from the recovery period.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.4E–07 m^2/s with the range 2.3E–07 – 2.5E–07 m^2/s.

6.3.15 Section 181.5–201.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to instabilities in a gas regulator the pressure in test section was not perfectly stable during the injection period. Pressure in test section increased c 7 kPa during the first c 300 s, thereafter pressure fell c 7 kPa during the remaining flow period.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 40 s prevailing to the end of the flow period. The recovery period is highly effected by WBS and no pseudo-radial flow regime is indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.3E–09 m^2/s with the range 1.4E–09 – 5.0E–09 m^2/s.

6.3.16 Section 201.5–221.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, well-defined a pseudo-radial flow regime is indicated from c 100 s prevailing to the end of the flow period. By the end of the flow period, a transition to pseudo-spherical flow was indicated. The recovery period is highly affected by WBS and no pseudo-radial flow regime is developed. The pressure derivative decreases remarkably by the end of the recovery period thus indicating a pseudo-spherical flow regime.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.5E–08 m^2/s with the range 1.2E–08 – 1.8E–08 m^2/s.

6.3.17 Section 221.5–241.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Pressure in measurement section was slightly decreasing before flow period started and thus the pressure after recovery period was somewhat lower than before the flow period.

Flow regime and calculated parameters

For the flow period, a pseudo-stationary (or pseudo-spherical) flow regime is indicated from c 60 s. No reliable, unique transient evaluation of T is possible for the flow period. During the recovery period, WBS effects are indicated followed by a transition to pseudo-spherical and pseudo-stationary flow. Type curve matching on the recovery period with a model based on pseudo-radial flow resulted in a very high apparent skin factor and overestimated T-values which indicates pseudo-spherical to pseudo-stationary flow.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye´s formula for the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 7.3E–09 m^2/s with the range 7.1E–09 – 8.1E–09 m^2/s.

6.3.18 Section 241.5–261.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The pressure in the test section decreased linearly c 13 kPa during the flow period due to water level decrease in the pressure vessel used for injecting water.

Flow regime and calculated parameters

A pseudo-radial flow regime is indicated from c 100 s to the end of the flow period. The recovery period is dominated by WBS effects. No clear flow regime is developed after the WBS-dominated period.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.9E–09 m^2/s with the range 1.6E–09 – 3.0E–09 m^2/s.

6.3.19 Section 261.5–281.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The test section is of very low hydraulic conductivity and Q_p (1.43e–08 m^3/s) is somewhat lower than the lower measuring limit (1.67e–08 m^3/s).

Flow regime and calculated parameters

For the flow period, a potential pseudo-radial flow regime is indicated from c 30 s. For the recovery period, only WBS effects are indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.6E–10 m^2/s with the range 1.8E–10 – 1.0E–09 m^2/s. The relatively wide range for T_R is mainly due to the low flow rate which makes the resolution of flow rate insufficient for better matching of type curve to test data.

6.3.20 Section 281.5–301.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The test section was of significantly higher conductivity than the directly previous tested and stable pressure in test section was not obtained until after c 80 s.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 100 s. For the recovery period, a well-defined pseudo-radial flow regime is indicated from c 100 s.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.1E–08 m^2/s with the range 2.6E–08 – 4.4E–08 m^2/s.

6.3.21 Section 301.5–321.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The pressure in the test section decreased linearly c 6 kPa during the flow period due to water level decrease in the pressure vessel used for injecting water.

Flow regime and calculated parameters

During beginning of the flow period, a pseudo-linear flow regime developed, indicating a fracture response. After c 400 s, a pseudo-radial flow regime is indicated. For the recovery period, WBS effects are indicated but no pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.9E–09 m^2/s with the range 2.0E–09 – 7.0E–09 m^2/s.

6.3.22 Section 321.5–341.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to problems with controlling flow rate (automatic control system repeatedly changed between two controller valves), the pressure in measurement section was not stable during the injection phase. The pressure in measurement section oscillated c +/– 7 kPa.

Flow regime and calculated parameters

Due to the oscillating flow rate and pressure during the flow period, it is difficult to identify any indications of flow regimes. Weak indications of a pseudo-spherical flow regime are seen during the flow period. For the recovery period, a pseudo-spherical flow regime is indicated from c 500 s. Type curve matching, with a model based on pseudo-radial flow, gave quite high, apparent skin factors for both the flow- and recovery period, which further implies a pseudo-spherical flow regime.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye for the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.4E–08 m^2/s with the range 1.0E–08 – 2.2E–08 m^2/s.

6.3.23 Section 341.5–361.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. The injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 40 s. The recovery phase is dominated by WBS and no pseudo-radial flow regime is indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.2E–09 m^2/s with the range 1.5E–09 – 3.6E–09 m^2/s.

6.3.24 Section 361.5–381.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. The injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a potential pseudo-radial flow regime is indicated from c 200 s. For the recovery phase, a pseudo-spherical flow regime is indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.3E–07 m^2/s with the range 1.6E–07 – 4.0E–07 m^2/s.

6.3.25 Section 381.5–401.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. The injection phase prevailed for c 20 min and recovery was measured c 20 min. The controller valve regulating pressure in the pressure vessel for injecting water was drifting and thus causing varying pressure in the test section. During the ongoing injection phase pressure in the pressure vessel was manually adjusted and hereby the pressure variations in the measurement section were reduced to c +/– 7 kPa.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 30 s. After 200 s, effects from the drifting control valve are dominating over possible flow regimes. For the recovery phase, after initial WBS effects, a pseudo-spherical flow regime is indicated from c 400 s transiting to pseudo-stationary flow regime by end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.5E–08 m^2/s with the range 1.2E–08 – 2.0E–08 m^2/s.

6.3.26 Section 401.5–421.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-spherical flow regime from c 200 s transiting to pseudo-stationary flow is indicated. For the recovery period, after WBS effects, a pseudo-spherical flow regime is developing followed by a pseudo-stationary flow regime. No transient evaluation of T was possible, neither from the flow- nor from the recovery period.

Range of parameters and recommended parameters

Steady-state estimation of T according to Moye, T_M, is judged to be the best representative transmissivity of the formation adjacent to the test section. Thus, T_R is 7.9E–08 m^2/s with the range 7.3E–08 – 8.6E–08 m^2/s.

6.3.27 Section 421.5–441.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

A pseudo-radial, approaching pseudo-spherical flow regime is indicated during both the flow period and the recovery period. For the flow period, the pseudo-radial/pseudo-spherical flow regime is indicated from c 50 s and for the recovery period from c 70 s.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 4.6E–07 m^2/s with the range 3.6E–07 – 6.1E–07 m^2/s.

6.3.28 Section 441.5–461.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The section was of very low conductivity and the pressure increase in test section caused by packer expansion was not fully recovered before start of flow period. Thus, for evaluation of flow period, the constant pressure head during injection was assumed to be p_p–p_0 and not p_p–p_i. Hereby, recovery corresponded better with the flow phase.

Flow regime and calculated parameters

For the flow period, a pseudo-stationary flow regime is developed almost instantaneously and thus no transient evaluation of T is possible. For the recovery period, WBS effects transiting to pseudo-spherical flow regime are seen. An attempt to perform a transient evaluation of T from the recovery period was done, using a model based on pseudo-radial flow, but the resulting apparent, high skin factor in combination with an unreasonably high value of T (in relation to T_M) indicates pseudo-spherical flow.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye for the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 4.6E–09 m^2/s with the range 4.1E–09 – 5.1E–09 m^2/s.

6.3.29 Section 461.5–481.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. At a first attempt to perform the injection test, a pressure wave from the pipe string caused a higher pressure in test section than what was planned. Therefore, the first attempt was interrupted and the test section was allowed to recover for c 30 min before a second attempt to perform the injection test. The second attempt was successful and the injection test could be performed as prescribed.

Flow regime and calculated parameters

For the flow period, a pseudo-radial, approaching to pseudo-spherical flow regime is indicated from c 70 s. For the recovery period, no pseudo-radial flow regime is developed although indications of transition to a pseudo-radial or pseudo-spherical flow regime exist by end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.5E–08 m^2/s with the range 2.5E–08 – 8.3E–08 m^2/s.

6.3.30 Section 481.5–501.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial (close to pseudo-spherical) flow regime is indicated from c 300 s. For the recovery period, a pseudo-spherical flow regime is indicated from c 300 s. No unique transient evaluation could be made from the recovery phase. An attempt to perform a transient evaluation of T from recovery period was done but the apparent high skin factor indicates that a pseudo-radial model is not applicable.

Range of parameters and recommended parameters

The transient evaluation from the pseudo-radial flow regime during the flow period is judged the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.9E–07 m^2/s with the range 1.6E–07 – 3.3E–07 m^2/s.

6.3.31 Section 501.5–521.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to water level decrease in the pressure vessel used for injecting water and manual adjustments of gas pressure on pressure vessel to compensate for decreasing water level, the pressure in the test section was varying during the flow period. In total, pressure in test section varied +/–5 kPa during the flow period.

Flow regime and calculated parameters

Although the flow period is disturbed from oscillating pressure and flow rate, indications of a pseudo-radial flow regime can be identified from c 100 s. For the recovery period, a well-defined pseudo-radial flow regime is indicated from c 300 s.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.9E–09 m^2/s with the range 1.7E–09 – 7.0E–09 m^2/s.

6.3.32 Section 521.5–541.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to a closed valve, two attempts to start the injection failed. Therefore, the first two attempts were interrupted and the test section was allowed to recover for c 20 min before the injection test was started. The third attempt was successful and the injection test could be performed as prescribed.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 500 s. During the recovery period, WBS effects dominate and no pseudo-radial flow regime is developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 4.7E–08 m^2/s with the range 3.9E–08 – 8.0E–08 m^2/s.

6.3.33 Section 541.5–561.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to water level decrease in the pressure vessel used for injecting water and manual adjustments of gas pressure on pressure vessel to compensate for decreasing water level, the pressure in the test section was varying during the flow period. In total, pressure in test section varied c +/–4 kPa during the flow period.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 30 s until at least c 100 s. After 100 s, the pressure variations makes it difficult to identify any flow regimes. For the recovery period, a pseudo-radial flow regime is indicated from c 150 s and persists only until c 200 s. By the end of recovery, a possible second pseudo-radial flow regime is indicated but this is uncertain.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.3E–08 m^2/s with the range 7.0E–09 – 1.5E–08 m^2/s.

6.3.34 Section 561.5–581.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 70 s and remains throughout the entire flow period. For the recovery period, a pseudo-spherical flow regime is indicated from c 100 s and remains throughout the entire recovery period. Type curve matching on recovery data results in a high, apparent positive skin factor (≥ 15) which further indicates that a pseudo-spherical flow regime is dominating.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.0E–07 m^2/s with the range 1.4E–07 – 5.0E–07 m^2/s.

6.3.35 Section 581.5–601.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 100 s to c 400 s. After 400 s, no-flow hydraulic boundary effects are indicated. During the recovery period, a first pseudo-radial flow regime of short persistence is indicated from c 10 to 50 s. A second pseudo/radial flow regime is indicated between c 300 and 400 s. By the end of the recovery, effects of no-flow hydraulic boundary are indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.1E–07 m^2/s with the range 1.7E–07 – 3.0E–07 m^2/s.

6.3.36 Section 601.5–621.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, an approximate pseudo-radial (slightly increasing derivative) flow regime is indicated from c 300 s persisting throughout the entire flow period. For the recovery period, a pseudo-radial flow regime is also indicated from c 300 s persisting throughout the recovery period.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.9E–08 m^2/s with the range 2.7E–08 – 9.0E–08 m^2/s.

6.3.37 Section 621.5–641.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 200 s to the end of the flow period. For the recovery period, a transition to a pseudo-radial flow regime is indicated by the end of recovery.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo/radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.2E–08 m^2/s with the range 7.5E–09 – 1.8E–08 m^2/s.

6.3.38 Section 641.5–661.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. This test was one of the few where the automatic control system not completely managed to create a constant pressure test. The main reason is that the so-called “Kv-curve” for one of the controller valves is not ideal, when turning the controller valve it do not change “Kv” (i.e. ~permeability) as much as would have optimal. The pressure (and flow rate) oscillated significantly during the first 300 s and small oscillations persisted throughout the entire flow period. Still, the flow period is judged as useful for transient evaluation of T.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 600 s. It may have developed earlier but due to the oscillations it is not possible to discern. For the recovery period, a pseudo-spherical (or almost pseudo-stationary) flow regime is indicated from c 300 s and persists throughout the entire recovery period. Type curve matching on recovery data with a model that assumes pseudo-radial flow results in strongly positive skin factor (≥ 15) and an overestimate of T that do not agree with the estimates from flow period or according to Moye.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 7.0E–09 m^2/s with the range 6.0E–09 – 1.2E–08 m^2/s.

6.3.39 Section 661.5–681.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 60 s to c 200 s. After 200 s, the pressure derivative decreases which indicates transition to a pseudo-spherical flow regime. For the recovery period, the initial sloe of the line in a log-log plot is approximately 1:2 and thus indicates a pseudo-linear flow regime (fracture response). A pseudo-radial flow regime is indicated from c 40 s to c 200 s. By the end of recovery, a pseudo-spherical flow regime is indicated.

Type curve matching on recovery data was performed with both a model assuming a vertical fracture of uniform flux and a model assuming pseudo-linear flow. A reasonable match with the fracture model was obtained and a possible interpretation is that the transmissivity of the formation adjacent to the test section is dominated by a fracture. This interpretation is further confirmed by the fact that type curve matching with a model assuming pseudo-radial flow resulted relatively strong negative skin factors (–3 and –2 for flow and recovery period respectively).

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 4.7E–08 m^2/s with the range 4.0E–08 – 8.0E–08 m^2/s.

6.3.40 Section 681.5–701.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 100 s and persists throughout the flow period. For the recovery period, a pseudo-spherical flow regime is indicated from c 60 s and persists throughout the entire recovery period. Type curve matching on the recovery period based on the pseudo-radial flow model resulted in apparent positive skin factor (≥ 15) together with overestimated T-values.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 7.4E–08 m^2/s with the range 6.0E–08 – 1.0E–07 m^2/s.

6.3.41 Section 701.5–721.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 10 s and persists until 100 s. After this time, no-flow hydraulic boundary effects are seen. For the recovery period, a pseudo- spherical flow regime is indicated from c 80 s and persists throughout the recovery period. Type curve matching on recovery data resulted in a strongly positive skin (≥ 4) and much higher T-values compared with those from the flow period.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.1E–07 m^2/s with the range 8.0E–08 – 2.0E–07 m^2/s.

6.3.42 Section 721.5–741.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 100 s and persists until the end of the flow period. The recovery period shows initial effects of wellbore storage, followed by a pseudo-radial flow regime.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.0E–07 m^2/s with the range 9.0E–08 – 1.1E–07 m^2/s.

6.3.43 Section 741.5–761.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to water level decrease in the pressure vessel used for injecting water and a manual adjustments of gas pressure on pressure vessel to compensate for decreasing water level, the pressure in the test section was varying during the flow period. Still, after c 300 s, the pressure in the test section was stable.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 200 s and persists until the end of the flow period. The recovery period shows initial wellbore storage effects. No well-defined pseudo-radial regime is developed. After c 300 s, no-flow hydraulic boundary effects are seen .

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.2E–09 m^2/s with the range 2.5E–09 – 4.5E–09 m^2/s.

6.3.44 Section 761.5–781.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to water level decrease in the pressure vessel used for injecting water and a manual adjustments of gas pressure on pressure vessel to compensate for decreasing water level, the pressure in the test section was varying during the flow period. In total, the pressure in test the section varied c +/–5 kPa.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 20 s and persists probably until the end of the flow period although there are some fluctuations in the derivative. The recovery period shows initial wellbore storage effects. From c 200 until c 400 s, a pseudo-radial flow regime is indicated. Some vague indications of no-flow hydraulic boundary effects are seen after c 400 s.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.2E–09 m^2/s with the range 1.8E–09 – 3.2E–09 m^2/s.

6.3.45 Section 781.5–801.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 30 s and persists to c 300 2. After this time a pseudo-spherical flow regime is indicated. The recovery period shows initial wellbore storage effects. No pseudo-radial flow regime is indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.5E–09 m^2/s with the range 1.2E–09 – 2.5E–09 m^2/s.

6.3.46 Section 801.5–821.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The test section is of very low conductivity and the flow rate by end of the flow period (3.1E–08 m^3/s) is just slightly above the measurement limit (1.7E–08 m^3/s).

Flow regime and calculated parameters

The low flow rate in conjunction with the limited resolution in flow rate causes the data set to be quite scattered and identification of flow regimes is hard. Still, for the flow period, the derivative pattern from c 20 s is interpreted as a pseudo-radial flow regime that persists until c 300s. By the end of the flow period, a pseudo-spherical flow regime is indicated. The recovery period only shows wellbore storage effects.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.5E–10 m^2/s with the range 2.4E–10 – 9.0E–10 m^2/s. The relatively large range for T_R is a result of the limited resolution in flow rate and thus the data set used for type curve matching is rather scattered.

6.3.47 Section 821.5–841.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. The test section is of very low conductivity and the flow rate by end of the flow period (2.0E–08 m^3/s) is just slightly above the measurement limit (1.7E–08 m^3/s). During the ongoing injection test, the section was judged as below measurement limit and the injection was stopped after c 7 min and recovery was measured c 9 min.

Flow regime and calculated parameters

The low flow rate in conjunction with the limited resolution in flow rate causes the data set to be quite scattered and identification of flow regimes is hard. Still, for the flow period, the derivative pattern from c 10 s is interpreted as a pseudo-radial flow regime that persists until the end of the flow period although the derivative is very scattered by the end. The recovery period only shows wellbore storage effects.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.9E–10 m^2/s with the range 1.0E–10 – 7.0E–10 m^2/s.

6.3.48 Section 841.5–861.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to water level decrease in the pressure vessel used for injecting water and manual adjustments of gas pressure on pressure vessel to compensate for decreasing water level, the pressure in the test section was varying during the flow period. In total, pressure in test section varied +/–5 kPa during the flow period.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 5 s and persists until the end of the flow period. For the recovery period, WBS effects are seen followed by a pseudo-radial flow regime that develops by the end of recovery.

Range of parameters and recommended parameters

As a result of the varying pressure in the pressure vessel and hereby varying flow rate and varying pressure in test section, type curve matching for flow period was not as good as for recovery. Hereby, the transient evaluation of T from the pseudo-radial flow regime during the recovery period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.7E–08 m^2/s with the range 1.5E–08 – 2.0E–08 m^2/s.

6.3.49 Section 861.5–881.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 30 s and persists throughout the entire flow period. The recovery period only shows wellbore storage effects and a transition to some other flow regime that might be pseudo-radial.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.7E–09 m^2/s with the range 9.0E–10 – 9.0E–09 m^2/s. The somewhat wide range for T_R depends on the scattered data set that enables a set of possible type curve matches.

6.3.50 Section 881.5–901.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, no pseudo-radial flow regime is developed. The slope is almost 1:2 in a log-log diagram thus indicating pseudo-linear flow (i.e. fracture response). Type curve matching with a model that assumes a vertical fracture of uniform flux gave a good match and a reasonable value of T (3.8E–10). The fracture solution is expressed in terms of hydraulic conductivity K_x and specific storativity, S_s. To obtain the transmissivity and storativity theses values should be multiplied by the section length, i.e. 20 m.

Type curve matching with a model that assumes pseudo-radial flow also gave a good match and a reasonable value of T (1.2E–10). The pseudo-radial flow model gave a strongly negative skin which could indicate that a fracture intersects the test section.

For the recovery period, neither a pseudo-radial flow regime nor a fracture response is indicated. Only WBS effects are seen during the recovery period.

Range of parameters and recommended parameters

Since a reliable match, with a model assuming pseudo-radial flow, was obtained for the flow period data and the fracture response was not consistent between the flow and recovery periods, the conclusion is that the estimate of T based on pseudo-radial flow during the flow period is the most representative for the formation adjacent to the test section.

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.2E–10 m^2/s with the range 8.0E–11 – 3.0E–10 m^2/s.

6.3.51 Section 901.5–921.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, although the derivative is scattered, a pseudo-radial flow regime approaching a pseudo-spherical flow regime is indicated from c 30 s and persists throughout whole the flow period. For the recovery period, WBS effects are indicated followed by a transition to another flow regime which is not fully developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.8E–09 m^2/s with the range 2.0E–09 – 8.0E–09 m^2/s.

6.3.52 Section 921.5–941.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-spherical flow regime is indicated from c 80 s to the end of flow period. Type curve matching with a radial flow model gives apparent high skin and high values of T (see plots in Appendix 3–52). For the recovery period, a pseudo-spherical flow regime is also indicated which successively changes into a pseudo-stationary flow regime.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 5.7E–08 m^2/s with the range 5.3E–08 – 6.1E–08 m^2/s.

6.3.53 Section 941.5–961.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 150 s until c 600 s. After 600 s, there is a disturbance which seems to lead into a pseudo-stationary flow regime by the end of flow period. For the recovery period, a pseudo-stationary flow regime is indicated almost instantly (after c 30 s) and persists throughout the recovery period.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 6.8E–08 m^2/s with the range 4.0E–08 – 1.7E–07 m^2/s.

6.3.54 Section 961.5–981.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, although the derivative is very scattered, a pseudo-radial (or pseudo-spherical) flow regime is indicated from c 20 s until c 500 s. After 500 s a pseudo-spherical flow regime is indicated. The initial phase of the recovery period is dominated by WBS effects. Thereafter follows a transition to a presumptive pseudo-spherical flow regime. Type curve matching on the recovery period with a model that assumes pseudo-radial flow results in an apparently strong positive skin factor (≥ 5) which further indicates pseudo-spherical flow.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.0E–09 m^2/s with the range 1.5E–09 – 7.0E–09 m^2/s.

6.3.55 Section 301.5–306.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is scattered, a pseudo-radial flow regime is indicated during the flow period from c 30 s to the end of the flow period. By the very end of the flow period, are weak indications of a transition to pseudo-spherical flow.

The recovery period is highly affected by WBS and no pseudo-radial flow regime is developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 8.9E–10 m^2/s with the range 4.4E–10 – 1.3E–09 m^2/s.

6.3.56 Section 306.5–311.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The controller valve regulating pressure in the pressure vessel for injecting water was drifting and thus causing decreasing pressure in the test section of c 8 kPa during the injection phase.

Flow regime and calculated parameters

An initial short pseudo-linear flow regime is indicated during the flow period. After that, a pseudo-radial flow regime is indicated from c 100 s to c 800 s. Then a transition to pseudo-spherical flow is indicated.

The recovery period is highly effected by WBS and no pseudo-radial flow regime is indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 8.9E–10 m^2/s with the range 4.0E–10 – 3.0E–9 m^2/s.

6.3.57 Section 311.5–316.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 30 s to the end of the flow period. The section has very low transmissivity.

The recovery period is highly effected by WBS and no pseudo-radial flow regime is developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.8E–10 m^2/s with the range 1.5E–10 – 6.1E–9 m^2/s.

6.3.58 Section 316.5–321.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated during flow period from c 20 s throughout the flow period.

In the start of the recovery period WBS effects are indicated, followed by a transition phase. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.2E–9 m^2/s with the range 9.4E–10 – 1.4E–9 m^2/s.

6.3.59 Section 321.5–326.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated during flow period from c 100 s to the end of the flow period.

In the start of the recovery period WBS effects are indicated, followed by a transition phase. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.2E–8 m^2/s with the range 9.2E–9 – 1.4E–8 m^2/s.

6.3.60 Section 326.5–331.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated during flow period from c 20 s throughout the flow period.

In the start of the recovery period WBS effects are indicated, followed by a transition phase. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 8.1E–10 m^2/s with the range 5.6E–10 – 1.0E–9 m^2/s.

6.3.61 Section 331.5–336.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 30 s throughout the flow period. The section has very low transmissivity.

In the start of the recovery period WBS effects are indicated. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 5.5E–10 m^2/s with the range 3.8E–10 – 7.1E–10 m^2/s.

6.3.62 Section 336.5–341.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 300 s throughout the flow period.

In the start of the recovery period WBS effects are indicated followed by a transition phase. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 5.8E–10 m^2/s with the range 4.6E–10 – 6.9E–10 m^2/s.

6.3.63 Section 341.5–346.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-linear to pseudo-radial flow regime is indicated during the entire flow period. The section has very transmissivity.

In the start of the recovery period WBS effects are indicated followed by a transition phase. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.8E–10 m^2/s with the range 2.8E–10 – 4.7E–10 m^2/s.

6.3.64 Section 346.5–351.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 100 s throughout the flow period.

In the start of the recovery period WBS effects are indicated followed by a transition phase. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 8.6E–10 m^2/s with the range 6.9E–10 – 1.0E–9 m^2/s.

6.3.65 Section 351.5–356.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 20 s throughout the flow period.

In the start of the recovery period WBS effects are indicated followed by a transition phase followed by indications of pseudo-spherical flow. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.2E–9 m^2/s with the range 6.0E–10 – 1.8E–9 m^2/s.

6.3.66 Section 356.5–361.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 50 s throughout the flow period.

In the start of the recovery period WBS effects are indicated followed by a transition phase followed by indications of pseudo-spherical or pseudo-stationary flow. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 9.4E–10 m^2/s with the range 4.7E–10 – 1.4E–9 m^2/s.

6.3.67 Section 361.5–366.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 50 s throughout the flow period.

In the start of the recovery period WBS effects are indicated followed by a transition phase followed by indications of pseudo-spherical flow. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.4E–9 m^2/s with the range 7.2E–10 – 2.1E–9 m^2/s.

6.3.68 Section 366.5–371.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 100 s throughout the flow period.

In the start of the recovery period WBS effects are indicated followed by a transition phase followed by indications of pseudo-spherical or pseudo-stationary flow. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.4E–9 m^2/s with the range 1.7E–9 – 3.1E–9 m^2/s.

6.3.69 Section 371.5–376.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. For this test, stable pressure was not obtained in test section until after c 90 s of the flow period. This is one of the few examples where the automatic control system failed to create a stable injection pressure quick enough.

Flow regime and calculated parameters

The large fluctuations in flow rate in the beginning of the flow period make the derivative extremely noisy. Nevertheless, a pseudo-radial flow regime may be assumed between c 100 and c 400 s. After that, an apparent no-flow hydraulic boundary is indicated.

The recovery period indicates pseudo-stationary flow. No clear WBS effects are seen and no pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 4.1E–8 m^2/s with the range 2.9E–8 – 5.3E–8 m^2/s.

6.3.70 Section 376.5–381.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is scattered during the flow period, a pseudo-radial flow regime is indicated from c 100 s throughout the flow period.

In the beginning of the recovery period, WBS effects are weakly indicated followed by possible pseudo-spherical flow. No pseudo-radial flow regime was developed during the recovery period.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.3E–7 m^2/s with the range 1.2E–7 – 1.4E–7 m^2/s.

6.3.71 Section 381.5–386.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 200 s throughout the flow period.

In the start of the recovery period WBS effects are indicated followed by a transition to indications of pseudo/stationary flow regime. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 8.6E–10 m^2/s with the range 5.0E–10 – 2.0E–09 m^2/s.

6.3.72 Section 386.5–391.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c 200 s to c 700 s. By the end of the flow period, there are some indications of a no flow outer boundary.

In the start of the recovery period WBS effects are indicated. Thereafter a pseudo-stationary flow regime is indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 9.0E–9 m^2/s with the range 7.2E–9 – 1.1E–8 m^2/s.

6.3.73 Section 391.5–396.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

During the flow period , a pseudo-radial flow regime can be identified from c 10 s to c 100 s. This regime can be assumed to be representative for the hydraulic properties of the rock close to the test section. After c 100 s, effects of a no-flow boundary can be seen. This boundary may possibly represent limited extent or decreasing aperture of fracture intersecting the test section.

In the start of the recovery period WBS effects are indicated followed by a transition phase. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.8E–9 m^2/s with the range 2.0E–9 – 4.0E–9 m^2/s.

6.3.74 Section 396.5–401.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c 50 s throughout the flow period. The section has very low transmissivity.

The recovery period is affected from WBS. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 5.1E–10 m^2/s with the range 3.0E–10 – 9.0E–10 m^2/s.

6.3.75 Section 401.5–406.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c 100 s throughout the flow period. The section has very low transmissivity.

The recovery period is affected from WBS. No pseudo-radial flow regime was developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.2E–10 m^2/s with the range 1.0E–10 – 6.0E–10 m^2/s.

6.3.76 Section 406.5–411.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

After a short period with a pseudo-radial flow regime a transition to a pseudo-spherical flow regime is indicated during the flow period.

In the beginning of the recovery period, WBS effects are indicated followed by a possible pseudo-spherical flow regime. No pseudo-radial flow regime was indicated during the recovery period.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye from the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.5E–09 m^2/s with the range 9.0E–10 – 2.1E–9 m^2/s.

6.3.77 Section 411.5–416.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The controller valve regulating pressure in the pressure vessel for injecting water was drifting and thus causing decreasing pressure in the test section of c 8 kPa during the injection phase.

Flow regime and calculated parameters

A pseudo-radial flow regime is indicated during the flow period between c 10 and c 100 s. After that, effects of an apparent no-flow boundary are seen. By the end of the flow period, a pseudo-spherical flow regime is indicated.

The recovery is dominated by WBS effects followed by a transition to pseudo-stationary flow. No pseudo-radial flow regime is indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.1E–9 m^2/s with the range 2.1E–9 – 4.0E–9 m^2/s.

6.3.78 Section 416.5–421.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

A pseudo-spherical flow regime is indicated during the entire flow period. An approximate transient evaluation was made on the flow period.

The recovery is dominated by WBS effects followed by a transition to pseudo-stationary flow. No pseudo-radial flow regime was indicated during the recovery period.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye from the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 5.1E–8 m^2/s with the range 5.0E–8 – 5.2E–8 m^2/s.

6.3.79 Section 421.5–426.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

A pseudo-spherical flow regime is indicated during the first c 500 s of the flow period. After that time, effects of a flow restriction or an apparent no-flow hydraulic boundary are indicated.

A very rapid pressure recovery occurred, approaching pseudo-stationary flow. No transient evaluation was made on neither of the flow- or recovery period.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye from the flow period is judged to be the best representative transmissivity of the formation adjacent to the test section. Thus, T_R is 2.4E–7 m^2/s with the range 2.2E–7 – 2.5E–7 m^2/s.

6.3.80 Section 426.5–431.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

A pseudo-radial flow regime is indicated during flow period from c 50 s to c 200 s. Then a transition to pseudo-spherical flow occurs.

In the beginning of the recovery period a pseudo-linear flow regime is indicated followed by a transition to a possible pseudo-radial flow regime. The T-value for the recovery period, c 1.2E–08 m^2/s corresponds very good with the T_M-value for the flow period.

Range of parameters and recommended parameters

The transient evaluation of T from the assumed pseudo-radial flow regime during the recovery period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.2E–8 m^2/s with the range 1.0E–8 – 1.5E–8 m^2/s.

6.3.81 Section 431.5–436.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

A pseudo-radial flow regime is indicated during flow period from c 200 s throughout the flow period.

A possible pseudo-radial flow regime occurs during the last part of the recovery period. The T-value for the recovery period, c 1.0E–8 m^2/s corresponds very good with the T-value from the flow period.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.0E–8 m^2/s with the range 8.2E–8 – 1.2E–8 m^2/s.

6.3.82 Section 436.5–441.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated during the entire flow period.

For the recovery period, WBS effects dominate. No pseudo-radial flow regime is developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.0E–10 m^2/s with the range 1.0E–10 – 3.0E–10 m^2/s.

6.3.83 Section 441.5–446.5 m, injection

Comment on test

The test section has a transmissivity below the standard measurement limit for the Pipe String System. No relevant test data was obtained and thus no quantitative evaluation.

6.3.84 Section 446.5–451.5 m, injection

Comment on test

The test section has a transmissivity below the standard measurement limit for the Pipe String System. No relevant test data was obtained and thus no quantitative evaluation.

6.3.85 Section 451.5–456.5 m, injection

Comment on test

The test section has a transmissivity below the standard measurement limit for the Pipe String System. No relevant test data was obtained and thus no quantitative evaluation.

6.3.86 Section 456.5–461.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

A pseudo-spherical flow regime is indicated during the entire flow period.

For the recovery, WBS effects are indicated followed by a transition to a pseudo-stationary flow regime. No transient evaluation of the test was made.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye from the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 4.0E–9 m^2/s with the range 3.2E–9 – 4.4E–9 m^2/s.

6.3.87 Section 461.5–466.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is scattered during the flow period, a pseudo-radial flow regime is indicated from c 80 s throughout the flow period.

In the beginning of the recovery period WBS effects are indicated. Thereafter a transition occurs into a possible pseudo-spherical flow regime.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.1E–8 m^2/s with the range 1.1E–8 – 3.2E–8 m^2/s.

6.3.88 Section 466.5–471.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated between c 50 and c 500 s. By the end of the flow period, effects of an apparent no-flow boundary are indicated.

In the beginning of the recovery period WBS effects are indicated. Thereafter a transition to pseudo-spherical flow occurs.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.9E–8 m^2/s with the range 9.5E–9 – 2.8E–8 m^2/s.

6.3.89 Section 471.5–476.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 70 s throughout the flow period.

The recovery period is dominated of WBS effects. No pseudo-radial flow regime is developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 5.2E–10 m^2/s with the range 3.1E–10 – 7.3E–10 m^2/s.

6.3.90 Section 476.5–481.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a possible pseudo-spherical- or pseudo-radial flow regime is indicated.

The recovery period was dominated by WBS effects followed by a transition phase but no pseudo-radial flow regime is developed. An approximate transient evaluation was made on the flow period.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye from the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 8.1E–10 m^2/s with the range 3.0E–10 – 1.5E–9 m^2/s.

6.3.91 Section 481.5–486.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 300 s throughout the flow period.

In the beginning of the recovery period, WBS effects are indicated, possibly approaching a pseudo-radial flow regime. By the end of the recovery period, effects of an apparent no-flow boundary are indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.3E–9 m^2/s with the range 2.6E–9 – 3.9E–9 m^2/s.

6.3.92 Section 486.5–491.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 70 s throughout the flow period.

In the beginning of the recovery period WBS effects are indicated, possibly followed by a transition to a pseudo-spherical flow regime.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 9.9E–10 m^2/s with the range 6.9E–10 – 1.3E–10 m^2/s.

6.3.93 Section 491.5–496.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c 50 throughout the flow period.

In the beginning of the recovery period WBS effects are indicated transiting to a pseudo-spherical flow regime.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.7E–9 m^2/s with the range 1.3E–9 – 2.2E–9 m^2/s.

6.3.94 Section 496.5–501.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

A pseudo-spherical- to pseudo-radial flow regime is indicated during the flow period from c 60 s to the end of the period.

In the beginning of the recovery period WBS effects are indicated transiting to a pseudo-spherical flow regime. An approximate transient evaluation was made on the flow period.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye from the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.2E–7 m^2/s with the range 1.1E–7 – 1.3E–7 m^2/s.

6.3.95 Section 501.5–506.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c 100 s throughout the flow period.

In the beginning of the recovery period WBS effects are indicated. No pseudo-radial flow regime is developed.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.4E–9 m^2/s with the range 8.2E–10 – 1.9E–9 m^2/s.

6.3.96 Section 506.5–511.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c 10 throughout the flow period.

In the beginning of the recovery period WBS effects are indicated. Thereafter a possible short pseudo-radial flow regime is indicated. By the end of the recovery, effects of apparent no-flow boundary are indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.6E–9 m^2/s with the range 1.8E–9 – 3.3E–9 m^2/s.

6.3.97 Section 511.5–516.5 m, injection

Comment on test

The test section has a transmissivity below the standard measurement limit for the Pipe String System. No relevant test data was obtained and thus no quantitative evaluation.

6.3.98 Section 516.5–521.5 m, injection

Comment on test

The test section has a transmissivity below the standard measurement limit for the Pipe String System. No relevant test data was obtained and thus no quantitative evaluation.

6.3.99 Section 521.5–526.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

A pseudo-spherical flow regime dominates during the flow period, possibly transiting to a pseudo-radial flow regime by the end of the flow period between 900 and 1,200 s.

In the beginning of the recovery period WBS effects are indicated. Thereafter a transition to a possible pseudo-radial or pseudo-spherical flow regime occurs.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 6.4E–8 m^2/s with the range 5.1E–8 – 7.7E–8 m^2/s.

6.3.100 Section 526.5–531.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated during flow period from c 100 s throughout the flow period.

The recovery period is initially dominated by WBS effects followed by a transition phase to a pseudo-spherical or possibly pseudo-stationary flow regime.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 4.1E–10 m^2/s with the range 2.0E–10 – 6.1E–10 m^2/s.

6.3.101 Section 531.5–536.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c 60 throughout the flow period.

In the beginning of the recovery period, WBS effects are indicated. Thereafter a possible short pseudo-radial flow regime is indicated. By the end of the recovery, effects of apparent no-flow boundary are indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.4E–9 m^2/s with the range 1.5E–9 – 3.4E–9 m^2/s.

6.3.102 Section 536.5–541.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 100 throughout the flow period.

In the beginning of the recovery period WBS effects are indicated. Thereafter a transition to a possible pseudo-radial or pseudo-spherical flow regime occurs.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 5.6E–10 m^2/s with the range 3.4E–10 – 7.8E–10 m^2/s.

6.3.103 Section 541.5–546.5 m, injection

Comment on test

The test section has a transmissivity below the standard measurement limit for the Pipe String System. No relevant test data was obtained and thus no quantitative evaluation.

6.3.104 Section 546.5–551.5 m, injection

Comment on test

The test section has a transmissivity below the standard measurement limit for the Pipe String System. No relevant test data was obtained and thus no quantitative evaluation.

6.3.105 Section 551.5–556.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. The injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

A pseudo-radial flow regime is indicated during the flow period from c 100 throughout the flow period.

In the beginning of the recovery period WBS effects are indicated. A possible pseudo-radial flow regime is indicated by end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 9.7E–9 m^2/s with the range 7.8E–9 – 1.2E–8 m^2/s.

6.3.106 Section 556.5–561.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 20 s throughout the flow period.

In the beginning of the recovery period WBS effects are indicated followed by a transition phase. By the end of the recovery period indications of a pseudo-spherical or possibly pseudo-stationary flow regime is indicated.

Range of parameters and recommended parameters

The transient evaluation of T from the pseudo-radial flow regime during flow period is judged to be the best representative of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.2E–9m^2/s with the range 8.0E–10 – 2.5E–9 m^2/s.

6.3.107 Section 561.5–566.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-spherical flow regime approaching a pseudo-stationary flow regime by end of the flow period.

For the recovery period, a pseudo-spherical flow regime develops after c 500 s. No transient evaluation was made.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.8E–08 m^2/s with the range 3.6E–08 – 3.9E–08 m^2/s.

6.3.108 Section 566.5–571.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. The test section is of very low conductivity and the flow rate by end of flow period (Q_p = 7.9e–09 m^3/s) is below the standard measurement limit (1.7E–08 m^3/s). Thus, the resolution in flow rate causes a very scattered plot for evaluation of the flow period and the actual flow rate during the flow period is uncertain. Since the flow rate was below the standard lower measurement limit the injection period was shortened to c 12 min whereas recovery was measured for c 20 min. No quantitative evaluation was made for this test.

6.3.109 Section 571.5–576.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 50 s until the end of the flow period.

For the recovery period, a pseudo-stationary flow regime is indicated from c 30 s and until the end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation of the second pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.2E–08 m^2/s with the range 1.2E–08 – 6.5E–08 m^2/s.

6.3.110 Section 576.5–581.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, two separate pseudo-radial flow regimes are indicated, the first from c 20 s until c 150 s and the second from c 500 s and until the end of the flow period.

For the recovery period, a pseudo-spherical flow regime is indicated from c 20 s approaching pseudo-stationary flow by the end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation of the first pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.3E–07 m^2/s with the range 9.0E–08 – 2.3E–07 m^2/s.

6.3.111 Section 581.5–586.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 70 s until c 1,000 s followed by weak indications of a no-flow hydraulic boundary found.

For the recovery period, pseudo-spherical (or -stationary) flow is indicated.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.3E–08 m^2/s with the range 2.0E–08 – 6.0E–08 m^2/s.

6.3.112 Section 586.5–591.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, two pseudo-radial flow regimes are indicated, the first from c 20 s until c 500 s and the second from c 500 s to the end of the flow period.

For the recovery period, pseudo-stationary flow is indicated.

Range of parameters and recommended parameters

The transient evaluation of the first pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.0E–08 m^2/s with the range 5.0E–09 – 3.0E–08 m^2/s.

6.3.113 Section 591.5–596.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

Due to the large change in flow rate at c 20 s, the derivative is extremely scattered with only weak indications of a pseudo-radial flow regime. After c 300 s, strong effects of apparent no-flow hydraulic boundaries or other flow restrictions are indicated.

For the recovery period, pseudo-spherical- to pseudo-stationary flow is indicated. No transient evaluation was made.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye from the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.1E–08 m^2/s with the range 2.8E–08 – 4.0E–08 m^2/s.

6.3.114 Section 596.5–601.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, two pseudo-radial flow regimes are indicated, the first from c 50 s until c 400 s. After that is the second pseudo-radial flow regime indicated.

For the recovery period, pseudo-stationary flow is indicated.

Range of parameters and recommended parameters

The transient evaluation of the first pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.4E–08 m^2/s with the range 1.5E–08 – 3.0E–08 m^2/s.

6.3.115 Section 601.5–606.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a well-defined pseudo-radial flow regime is indicated from c 100 s until c 800 s. After that time, the derivative is somewhat uncertain.

For the recovery period, a pseudo-radial flow regime is indicated by the end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.8E–08 m^2/s with the range 3.0E–08 – 7.0E–08 m^2/s.

6.3.116 Section 606.5–611.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a possible pseudo-radial flow regime is indicated from c 20 s and throughout the flow period.

For the recovery period, WBS effects dominate transiting to a possible pseudo-radial or pseudo-spherical flow regime by the end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 9.1E–10 m^2/s with the range 3.0E–10 – 3.0E–09 m^2/s.

6.3.117 Section 611.5–616.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. The test section is of very low conductivity and the pressure in the test section increased during the shut-in period before start of flow period. An attempt to perform an injection test was done but stopped after c 3 min since the flow rate was not detectable. During the shut-in period after the flow period (i.e. what normally would be referred to as recovery), the pressure in the test section continued to increase. No evaluation of hydraulic parameters was made.

6.3.118 Section 616.5–621.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. The test section is of very low conductivity and the flow rate by end of the flow period (Q_p = 2.4e–09 m^3/s) is below the standard measurement limit (1.7E–08 m^3/s). Thus, the resolution in flow rate causes a very scattered plot for evaluation of flow period and the actual flow rate during the flow period is uncertain. Since the flow rate was below the standard measurement limit, the injection period was shortened to c 10 min and recovery was measured for c 10 min.

Since the pressure in the test section increased during the prescribed shut-in period, the pressure before the start of the flow period (p_i) is not judged as representative for the undisturbed pressure in the test section. During the recovery period, only WBS effects were seen. No hydraulic evaluation of the test was made.

6.3.119 Section 621.5–626.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. The test section is of very low conductivity and the flow rate by end of flow period (Q_p = 4.8e–09 m^3/s) is below the measurement limit (1.7E–08 m^3/s). Thus, resolution in flow rate causes a very scattered plot for evaluation of flow period and the actual flow rate during flow period is somewhat uncertain. Since the flow was below measurement limit the injection period was shortened to c 10 min and recovery was measured for c 10 min.

Since the pressure in the test section increased during the prescribed shut-in period, the pressure before the start of the flow period (p_i) is not judged as representative for the undisturbed pressure in the test section. During the recovery period, only WBS effects were seen. No hydraulic evaluation of the test was made.

6.3.120 Section 626.5–631.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo- radial flow regime is indicated from c 300 s throughout the flow period.

For the recovery period, a pseudo-spherical (almost pseudo-stationary) flow regime develops by the end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation from the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 6.4E–09 m^2/s with the range 4.0E–09 – 1.3E–08 m^2/s.

6.3.121 Section 631.5–636.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to instabilities in a gas regulator the pressure in test section was not perfectly stable during the injection period. Pressure in test section decreased almost linearly with c 13 kPa during the flow period.

Flow regime and calculated parameters

For the flow period, two separate pseudo-radial flow regimes are indicated, the first from c 30 until 200 s and the second from c 300 s until end of the flow period.

Also for the recovery period, two separate pseudo-radial flow regimes are indicated. These pseudo-radial flow regimes appear from c 10 to c 150 s and from c 500 until 600 s respectively.

Range of parameters and recommended parameters

The transient evaluation of the first pseudo-radial flow regime during the recovery period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 9.5E–09 m^2/s with the range 8.5E–09 – 1.0E–08 m^2/s.

6.3.122 Section 636.5–641.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. Due to water level decrease in the pressure vessel used for injecting water and manual adjustments of gas pressure on pressure vessel to compensate for decreasing water level, the pressure in the test section was varying during the flow period. In total, pressure in test section varied +/–3 kPa during the flow period.

Flow regime and calculated parameters

For the flow period, indications of a 1:2 slope of 1/Q in the log-log plot, indicating a fracture response is found. A pseudo-radial flow regime is indicated from c 100 s to c 300 s, transiting to a pseudo-spherical flow regime by end of the flow period.

For the recovery period, a pseudo-linear flow regime (i.e. fracture reponse) is indicated by a slope 1:2 in the log-log plot at the beginning of the recovery period.

Type curve matching with a model assuming radial flow was performed both for flow and recovery period. For both periods, skin factor was strongly negative (–4). The indications of pseudo-linear flow regimes for both flow and recovery period in conjunction with the strong negative skin supports the interpretation of a fracture intersecting the test section.

The qualitative interpretation is that the test first responds to a fracture and thereafter to the formation adjacent to the test section.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 5.3E–08 m^2/s with the range 3.0E–09 – 1.0E–08 m^2/s.

6.3.123 Section 641.5–646.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The test section is of very low conductivity and the flow rate by end of flow period (Q_p = 1.8E–08 m^3/s) is almost exactly at the measurement limit (1.7E–08 m^3/s). Thus, resolution in flow rate causes a very scattered plot for evaluation of flow period and the actual flow rate during flow period is somewhat uncertain.

Flow regime and calculated parameters

Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c 100 s until the end of the flow period.

For the recovery period, WBS effects are dominating although a transition to another flow regime (possibly pseudo-spherical) is indicated by end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.6E–10 m^2/s with the range 1.0E–10 – 8.0E–10 m^2/s.

6.3.124 Section 646.5–651.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. The test section is of very low conductivity and the flow rate by end of flow period (Q_p = 3.3E–09 m^3/s) is lower than the measurement limit (1.7E–08 m^3/s). Thus, resolution in flow rate causes a very scattered plot for evaluation of flow period and the actual flow rate during flow period is somewhat uncertain. No hydraulic evaluation was made.

6.3.125 Section 651.5–656.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regimes indicated from c 10 s and persists until the end of flow period, possibly transiting to pseudo-spherical regime by the end of the flow period.

For the recovery, an initial period dominated of WBS effects is followed by a transition to a pseudo-spherical flow regime by the end of the recovery period.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 9.7E–10 m^2/s with the range 5.0E–10 – 2.0E–09 m^2/s.

6.3.126 Section 656.5–661.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. This test is one of the few examples of when the automatic control system fails to keep a constant pressure in the test section. The most likely explanation to this behaviour is that the required flow rate (needed to maintain a constant pressure) is close to a change between two control valves. The automatic control system repeatedly switched between the two control valves and did not establish a constant pressure in the test section until after c 200 s, smaller oscillations remained until c 400 s.

Flow regime and calculated parameters

Due to the fluctuations of the flow rate the derivative is extremely scattered during the flow period. However, a pseudo-radial flow regime is indicated from c 300 s until the end of flow period (it might have been developed before c 300 s but is masked due to the oscillations mentioned above).

For the recovery, a pseudo-stationary flow regime develops after c 100 s throughout the recovery period.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 1.0E–08 m^2/s with the range 5.0E–08 – 3.0E–08 m^2/s. The relatively large range for T_R is mainly due to the scattered plot caused by the oscillations which originates from the automatic control system repeatedly switched between two control valves as mentioned above.

6.3.127 Section 661.5–666.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

In the beginning of the flow period, a pseudo-spherical flow regime is indicated. Although not very well defined, a possible pseudo-radial flow regime is indicated from c 200 s until c 700 s during the flow period. After c 900 s indications of no-flow hydraulic boundary effects are seen.

For the recovery, WBS effects are indicated at the beginning followed by a pseudo-stationary flow regime.

Range of parameters and recommended parameters

The transient evaluation of the assumed pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 8.6E–08 m^2/s with the range 5.0E–09 – 1.5E–08 m^2/s.

6.3.128 Section 666.5–671.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-spherical flow regime is indicated.

For the recovery period, a pseudo-linear flow regime (i.e. fracture response) is indicated by the slope 1:2 in the beginning of the log-log plot. By end of the recovery period, a transition to a pseudo-spherical flow regime is indicated.

Type curve matching has been performed with a model assuming radial flow for both the flow period and recovery period. For the recovery period type curve matching has also been performed by a model assuming a vertical fracture of uniform flux. The qualitative interpretation of the recovery period may be that the section is primarily responding to a fracture with limited storage and thus the dominating flow regime is pseudo-linear and the most representative estimate of T is from the transient evaluation by the fracture model even though the fitting is not that good due to the short persistence of the fracture response.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-linear flow regime during recovery is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.3E–08 m^2/s with the range 2.5E–08 – 4.0E–08 m^2/s.

6.3.129 Section 671.5–676.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 500 s and persists until the end of the flow period.

For the recovery period, a pseudo-linear flow regime (i.e. fracture response) is indicated by the slope 1:2 in the beginning of the log-log plot. By the end of the recovery period is a transition to a pseudo-spherical flow.

Type curve matching has been performed with a model assuming radial flow for both the flow period and recovery period. For the recovery period type curve matching has also been performed with a model assuming a vertical fracture of uniform flux. The interpretation of this test is that the section is primarily responding to a fracture with limited storage and thus the dominating flow regime is pseudo-linear.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.1E–08 m^2/s with the range 1.5E–08 – 3.0E–08 m^2/s.

6.3.130 Section 676.5–681.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-spherical- to pseudo-radial flow regime is indicated.

For the recovery period, a pseudo-linear flow regime (i.e. fracture response) is indicated by the slope 1:2 in the beginning of the log-log plot. By the end of the recovery period a transition to a pseudo-spherical- or pseudo-radial flow regime is indicated. Transient evaluation was performed with a model assuming radial flow for both the flow- and recovery period.

For the recovery period, type curve matching was also performed with a model assuming a vertical fracture of uniform flux. According to the interpretation of the recovery period, the section responds primarily to a fracture with limited storage and thus the dominating flow regime is pseudo-linear.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye from the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 7.2E–09 m^2/s with the range 6.2E–09 – 8.0E–09 m^2/s.

6.3.131 Section 681.5–686.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. The injection phase prevailed for c 20 min and recovery was measured c 20 min. The flow rate by end of flow period (Q_p = 5.7E–09 m^3/s) is lower than the standard measurement limit (1.7E–08 m^3/s). Thus, the resolution in flow rate causes a very scattered plot for the flow period and the actual flow rate during flow period is uncertain.

Since the pressure in test section increased during the prescribed shut-in period before start of the flow period, the pressure before start of flow period (p_i) is not judged as representative for the undisturbed pressure for the test section. The recovery period only showed effects from wellbore storage. No hydraulic evaluation was made for this test.

6.3.132 Section 686.5–691.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated.

The recovery period is clearly affected by wellbore storage followed by a short transition phase.

Since the pressure in test section increased during the prescribed shut-in period before start of flow period, the pressure before start of flow period (p_i) is not judged as representative for the undisturbed pressure in the test section. Since the recovery is completely dominated by WBS effects, no Horner pressure extrapolation is relevant and as a result, the natural freshwater head could not be estimated for this section.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.0E–10 m^2/s with the range 1.20E–10 – 9.0E–10 m^2/s. The somewhat wide range for T_R is mainly due to the scattered flow rate plot caused by the limited resolution in the flow rate recording.

6.3.133 Section 691.5–696.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min. During the flow period, between c 450 and c 750 s, the flow rate was significantly lower than before and after the particular period. This was noticed while the test was performed but since pressure in the test section was kept constant during the period no action was taken. The reason for lower flow rate was that the automatic control system used an unfavourable part of a control valve. Still, no explanation is found why the pressure in the test was not influenced from this lower flow rate.

Flow regime and calculated parameters

For the flow period, a pseudo-radial flow regime is indicated from c 80 s until c 300 s. After that time, the period of lower flow rate follows.

For the recovery period, a pseudo-stationary flow regime is indicated throughout the recovery period.

Range of parameters and recommended parameters

The transient evaluation of the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 9.9E–09 m^2/s with the range 6.0E–09 – 2.0E–08 m^2/s.

6.3.134 Section 696.5–701.5 m, injection

Comment on test

The test was carried out as an injection test with constant pressure. Injection phase prevailed for c 20 min and recovery was measured c 20 min.

Flow regime and calculated parameters

For the flow period, a pseudo-spherical flow regime is indicated from c 60 s until c 400 s. After c 400 s, no-flow boundary effects or other flow restrictions are indicated. Type curve matching on the first part of the flow period with a model assuming pseudo-radial flow results in an apparent, rather high positive skin factor which further indicates pseudo-spherical flow.

For the recovery period, a pseudo-spherical, or almost pseudo-stationary, flow regime is indicated throughout the recovery period.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 3.9E–08 m^2/s with the range 3.8E–08 – 5.3E–08 m^2/s.

6.4 Pumping tests

6.4.1 Section 419–424 m, pumping

Comment on test

The pumping test was performed as a constant head (drawdown) test. The test section has lower hydraulic conductivity than the PSS system is designed to pump from. To overcome this problem, another pump than the original PSS-pump had to be used during the pumping test. The pump was equipped with frequency controlled capacity which led to some instabilities in controlling a constant pressure in the test section. Not until after c 5 min pressure was stable in the test section and then kept on a constant drawdown of c 290 kPa. Furthermore, gas pockets developed in the pipe system causing disturbances on the measured flow rate. A possible explanation to the gas pockets is that the naturally dissolved gas in the pumped water releases from the water due to the much lower pressure at the surface.

Pressure in test section was kept constant until c 31 h of pumping, thereafter the flow rate decreased and so the drawdown. Several attempts to increase the flow rate were performed but none was successful. A probable explanation to the decreased pump capacity may be that a gas pocket developed in the pump hosing and as a result the pump intake was not fully covered by water. This was further confirmed when the pump was reinstalled from the hosing and a cover of sediment was found around the pump intake – an indication that there has been a water surface at the pump intake.

Flow regime and calculated parameters

For the flow period, a pseudo-stationary flow regime is indicated from c 100 s and until the pressure disturbances described above occur after c 31 h (i.e. c 100 000 s).

Since flow period is quite long and a steady-state is assumed, recovery is plotted versus dt (elapsed time from start of recovery period). Thus, when plotting recovery, no Agarwal equivalent time is calculated.

For the recovery period, a pseudo-spherical flow regime is indicated from c 40 s to c 5,000 s approaching a pseudo-stationary flow regime after c 5,000 s.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.3E–07 m^2/s with the range 1.1E–07 – 3.3E–07 m^2/s.

6.4.2 Section 575–580 m, pumping

Comment on test

The pumping test was performed as a constant head test. The test section is of lower conductivity than the PSS system is designed to pump from. As a result, another pump than the original had to be used during the pumping test. To avoid the problems with gas pockets in the pipe system, flow meter and pump hosing, a de-aeration pipe was mounted from the pump hosing up to the surface. The intent was to let gas, released from the water, follow the de-aeration pipe and be evacuated from the system. This seemed to have turned out well and no indications of reduced pump capacity were seen. Still, after c 2 days pumping, it seems as if gas has released from the water and accumulated in the pipe string and flow meter which it seen as a noisy flow rate signal.

Directly before start of the pumping test, a short pumping of the entire borehole was performed to fill up the pipe string system with water. The pressure above and below test section was not fully recovered from this short open-hole pumping before the flow period in the actual section started. In spite of this, it is clearly seen that section below the test section responds to the pumping. In total, the pressure in the section below the test section decreased c 10 kPa by the end of the flow period. The pressure in the section above the test section seem to be unaffected by the pumping test.

For some unknown reason, the automatic control system had to increase the flow rate after c 15 000 s (i.e. c 4 hours) to maintain a constant drawdown in the test section.

Flow regime and calculated parameters

For the flow period, a pseudo-spherical flow regime is indicated from c 700 s approaching a pseudo-stationary flow regime after c 9,000 s.

Since the flow period is quite long and a steady-state is assumed, recovery is plotted versus dt (elapsed time from start of recovery period). Thus, when plotting recovery, no Agarwal equivalent time is calculated.

For the recovery period, a pseudo-spherical (or possibly pseudo-stationary) flow regime is indicated from c 100 s approaching a pseudo-stationary flow regime after c 2,000 s.

Transient evaluation of the flow and recovery periods was performed assuming radial flow. However, transient evaluation is not relevant in this case due to pseudo-spherical to pseudo-stationary flow regimes.

Range of parameters and recommended parameters

The steady-state evaluation of T according to Moye is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 2.7E–07 m^2/s with the range 2.2E–07 – 2.8E–07 m^2/s.

7 Synthesis

7.1 Summary of test results

General test data for all injection tests are presented in Table 7-1. The basic results for all injection tests are presented in Table 7-2. General test data and basic results for all pumping tests are presented in Table 7-3 and Table 7-4.

An attempt to assess the degree of analyzability of the flow-and recovery period of the injection tests regarding standard transient evaluation of hydraulic parameters was made by assigning scores 1–4, see Table 7-1. The scores are based on evaluation on either the entire data curve for each test period or for a selected data interval for each period. It should be observed that the scores are rather subjective. The following tentative definitions of the scores were used:

1 = very good analyzability (smooth test data, unique transient evaluation possible).

2 = rather good analyzability (rather unique transient evaluation possible despite some scatter in the test data).

3 = bad analyzability (unique transient evaluation difficult).

4 = transient evaluation not possible (may either depend on instrumental problems or conceptual hydrogeological problems).

It should be observed that bad analyzability of the test data may either be caused by instrumental malfunctions and/or conceptual problems of the rock tested, e.g. very low-conductive sections strongly influenced by wellbore storage effects. As indicated in Table 7-1, the analyzability of data from the flow period of the injection tests is generally considered to be higher in comparison to data from the recovery phase. As discussed above, this mainly depends on wellbore storage effects affecting the latter period.

As can be seen from Table 7-2, Horner pressure extrapolation was performed for only a few tests. Most tests did not develop a pseudo-radial flow regime during the recovery period and thus the Horner pressure extrapolation is not considered as relevant.

Table 7-1. General test data from constant head injection tests in KSH02 (bml = below measurement limit).

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	t_p (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	Analyzibility Injection (1–4)	Recovery (1–4)
101.50	201.50	2003-09-24 08:01	20030924 11:01	7.04E–05	7.63E–05	1,816	1,802	1,037.62	1,037.34	1,236.89	1,050.33	10.10	2	2
201.50	301.50	2003-09-24 11:12	20030924 14:42	1.98E–06	2.27E–06	1,822	1,910	2,038.73	2,015.10	2,212.31	2,016.62	11.50	1	3
301.50	401.50	2003-09-24 14:44	20030924 17:01	3.46E–06	3.91E–06	1,821	1,807	3,031.01	3,017.33	3,216.19	3,019.39	12.81	1	3
401.50	501.50	2003-09-24 17:47	20030924 19:49	1.76E–05	1.90E–05	1,819	1,799	4,025.48	4,010.15	4,210.81	4014.98	14.21	1	2
501.50	601.50	2003-09-25 08:02	20030925 11:03	8.48E–06	1.12E–05	1,822	1,824	5,016.10	5,007.81	5,230.86	5016.65	15.67	1	2
601.50	701.50	2003-09-26 08:05	20030926 09:48	7.55E–06	8.70E–06	1,793	1,823	6,006.71	6,003.95	6,226.72	6,011.13	17.19	1	3
701.50	801.50	2003-10-01 07:22	20031001 09:13	9.38E–06	1.54E–05	1,813	1,803	6,991.80	6,994.84	7,191.90	7,011.15	18.73	3	2
801.50	901.50	2003-09-30 10:48	20030930 12:37	4.32E–07	5.18E–07	1,822	1,800	7,994.57	7,990.71	8,190.26	8,001.20	20.31	2	2
897.00	997.00	2003-09-30 13:35	20030930 15:25	1.36E–05	1.53E-05	1,825	1,802	8,963.08	8,946.08	9,146.05	8,948.70	21.89	2	2
81.50	101.50	2003-10-02 09:07	20031002 10:27	4.47E–05	4.78E-05	1,218	1,200	848.40	835.13	1,034.28	837.89	8.76	1	2
101.50	121.50	2003-10-02 10:47	20031002 12:08	6.94E–05	7.60E-05	1,217	1,800	1,039.67	1,039.39	1,238.40	1,047.96	9.08	2	2
121.50	141.50	2003-10-02 12:34	20031002 13:44	4.44E–08	1.29E-07	1,225	1,221	1,244.76	1,246.55	1,486.19	1,382.40	9.33	3	4
141.50	161.50	2003-10-02 14:05	20031002 15:14	8.59E–08	5.46E-06	1,224	1,197	1,437.68	1,430.08	1,679.12	1,466.42	9.56	2	3
161.50	181.50	2003-10-02 15:31	20031002 16:40	5.25E–06	5.55E-06	1,223	1,197	1,632.82	1,593.16	1,818.43	1,593.02	9.85	2	3
181.50	201.50	2003-10-02 16:59	20031002 18:10	9.04E–08	1.58E-07	1,227	1,221	1,829.06	1,820.50	2,048.66	1,833.48	10.08	2	3
201.50	221.50	2003-10-03 07:26	20031003 08:39	5.20E–07	5.91E-07	1,224	1,221	2,018.67	1,988.27	2,243.11	1,987.71	10.37	2	3
221.50	241.50	2003-10-06 13:53	20031006 15:25	1.61E–07	1.78E-07	1,213	1,221	2,212.15	2,191.01	2,418.07	2,183.41	10.68	3	3
241.50	261.50	2003-10-06 16:13	20031006 17:39	1.07E–07	1.55E-07	1,203	1,220	2,412.82	2,381.45	2,595.79	2,384.07	10.92	2	4
261.50	281.50	2003-10-07 07:52	20031007 09:20		2.48E-08	1,249	1,221	2,579.21	2,589.71	2,764.95	2,710.22	11.12	3	4
281.50	301.50	2003-10-07 10:36	20031007 12:07	1.18E–06	1.48E-06	1,226	1,194	2,778.22	2,770.48	2,969.62	2,782.09	11.39	1	1
301.50	321.50	2003-10-07 14:11	20031007 15:48	9.86E–08	1.32E-07	1,468	1,221	3,003.76	3,006.52	3,194.47	3,037.48	11.71	2	4
321.50	341.50	2003-10-07 16:11	20031007 18:00	2.50E–07	3.77E-07	1,231	1,221	3,206.08	3,202.20	3,395.41	3,203.31	11.98	3	3
341.50	361.50	2003-10-08 08:03	20031008 09:36	9.44E–08	1.22E-07	1,231	1,221	3,404.53	3,408.26	3,614.32	3,405.64	12.26	2	4
361.50	381.50	2003-10-08 10:04	20031008 11:40	4.18E–06	4.54E-06	1,228	1,194	3,603.54	3,597.46	3,823.97	3,599.67	12.54	2	2
381.50	401.50	2003-10-08 12:06	20031008 14:11	3.11E–07	3.99E-07	1,260	1,221	3,802.55	3,797.30	3,992.71	3,798.13	12.80	2	4

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	t_p (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	Analyzibility Injection (1–4)	Recovery (1–4)
401.50	421.50	2003-10-08 14:44	20031008 16:11	1.51E–06	1.61E-06	1,227	1,193	4,001.55	3,996.59	4,195.87	3,997.13	13.08	3	4
421.50	441.50	2003-10-08 16:26	20031008 17:59	6.84E–06	7.32E-06	1,224	1,196	4,201.67	4,195.31	4,394.46	4,197.80	13.37	1	3
441.50	461.50	2003-10-09 07:54	20031009 09:26	8.75E–08	9.34E-08	1,231	1,221	4,400.13	4,401.92	4,582.27	4,398.46	13.66	3	4
461.50	481.50	2003-10-09 09:51	20031009 11:50	6.34E–07	6.97E-07	1,229	1,221	4,600.24	4,595.95	4,797.72	4,600.24	13.93	2	3
481.50	501.50	2003-10-09 12:42	20031009 14:13	3.03E–06	3.28E-06	1,227	1,194	4,799.24	4,792.61	5,000.33	4,793.72	14.19	2	3
501.50	521.50	2003-10-09 15:30	20031009 16:28	1.51E–07	1.96E-07	1,230	1,221	5,012.07	5,001.15	5,192.28	5,020.92	14.49	2	2
521.50	541.50	2003-10-09 17:31	20031009 19:46	1.48E–06	1.82E-06	1,228	1,191	5,191.73	5,196.29	5,406.35	5,207.77	14.79	2	4
541.50	561.50	2003-10-10 08:06	20031010 09:38	2.70E–07	4.46E-07	1,231	1,221	5,393.50	5,391.57	5,583.66	5,404.01	15.07	2	2
561.50	581.50	2003-10-10 10:01	20031010 11:48	3.31E–06	3.68E-06	1,229	1,194	5,593.61	5,590.43	5,789.44	5,594.17	15.37	2	3
581.50	601.50	2003-10-14 07:24	20031014 08:49	4.75E–06	5.92E-06	1,229	1,193	5,788.75	5,790.41	5,988.86	5,797.60	15.69	2	2
601.50	621.50	2003-10-14 09:16	20031014 10:38	1.29E–06	1.53E-06	1,230	1,191	5,992.73	5,991.63	6,190.63	5,997.71	15.95	2	2
621.50	641.50	2003-10-14 11:00	20031014 12:20	7.74E–07	1.05E-06	1,230	1,221	6,192.30	6,190.63	6,399.60	6,219.38	16.26	2	2
641.50	661.50	2003-10-14 13:00	20031014 14:20	3.00E–07	3.58E-07	1,230	1,221	6,391.85	6,387.43	6,586.44	6,388.54	16.56	3	4
661.50	681.50	2003-10-14 14:44	20031014 16:00	2.06E–06	2.39E-06	1,230	1,189	6,590.86	6,587.54	6,786.14	6,593.07	16.85	2	3
681.50	701.50	2003-10-14 16:24	20031014 17:48	1.25E–06	1.38E-06	1,230	1,189	6,790.42	6,785.03	6,983.21	6,788.21	17.16	1	3
701.50	721.50	2003-10-14 18:11	20031014 19:27	6.11E–06	8.48E-06	1,227	1,193	6,987.77	6,984.45	7,187.88	6,994.96	17.46	2	3
721.50	741.50	2003-10-15 07:45	20031015 09:02	4.15E–06	5.12E-06	1,230	1,189	7,184.02	7,180.98	7,385.92	7,202.82	17.79	1	1
741.50	761.50	2003-10-15 09:22	20031015 10:41	1.61E–07	2.05E-07	1,232	1,221	7,384.67	7,383.85	7,588.11	7,410.66	18.11	2	2
761.50	781.50	2003-10-15 11:07	20031015 12:24	1.18E–07	1.58E-07	1,224	1,221	7,584.79	7,585.21	7,787.67	7,628.46	18.39	2	2
781.50	801.50	2003-10-15 13:15	20031015 14:40	8.71E–08	1.05E-07	1,224	1,221	7,783.25	7,780.07	8,002.15	7,797.06	18.70	2	4
801.50	821.50	2003-10-15 14:57	20031015 17:25	3.07E–08	6.08E-08	706	622	7,983.90	7,973.54	8,198.95	8,112.72	19.06	3	4
821.50	841.50	2003-10-15 17:50	20031015 18:41	2.01E–08	4.89E-08	435	621	8,180.71	8,187.20	8,391.33	8,355.95	19.35	3	4
841.50	861.50	2003-10-15 19:29	20031015 20:43	4.15E–07	4.63E-07	1,224	1,221	8,381.38	8,374.46	8,590.33	8,379.17	19.65	2	1
861.50	881.50	2003-10-16 07:29	20031016 08:45	5.66E–08	7.91E-08	1,227	1,221	8,577.06	8,581.35	8,792.79	8,611.34	19.97	2	3
881.50	901.50	2003-10-16 09:07	20031016 10:22	4.11E–08	8.33E-08	1,227	1,221	8,778.83	8,790.86	8,983.36	8,902.66	20.27	3	4
901.50	921.50	2003-10-16 10:40	20031016 11:54	8.34E–08	9.91E-08	1,226	1,221	8,980.61	8,980.33	9,190.12	8,976.74	20.64	2	4

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	t_p (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	Analyzibility Injection (1–4)	Recovery (1–4)
921.50	941.50	2003-10-16 12:29	20031016 13:50	1.21E–06	1.31E-06	1,224	1,199	9,182.93	9,174.09	9,396.86	9,175.20	20.97	3	3
941.50	961.50	2003-10-16 14:15	20031016 15:22	2.64E–06	3.19E-06	1,225	603	9,384.70	9,375.99	9,575.28	9,376.40	21.30	3	3
961.50	981.50	2003-10-16 15:52	20031016 17:09	8.10E–08	1.00E-07	1,227	1,221	9,587.58	9,594.90	9,812.56	9,578.17	21.62	2	4
301.50	306.50	2003-10-22 11:53	20031022 13:25	2.43E–08	2.96E-08	1,218	1,196	3,032.10	3,036.66	3,277.40	3,075.22	11.47	3	4
306.50	311.50	2003-10-22 13:38	20031022 14:51	7.70E–08	9.57E-08	1,219	1,197	3,068.03	3,068.03	3,293.02	3,103.41	11.54	2	4
311.50	316.50	2003-10-22 15:06	20031022 16:20	2.28E–08	3.01E-08	1,220	1,196	3,112.81	3,121.10	3,336.13	3,209.54	11.61	3	4
316.50	321.50	2003-10-22 16:37	20031022 17:45	5.05E–08	6.24E-08	1,221	1,199	3,165.88	3,164.35	3,379.12	3,171.41	11.68	2	3
321.50	326.50	2003-10-22 17:57	20031022 19:05	2.52E–07	2.83E-07	1,222	1,203	3,208.44	3,206.65	3,406.90	3,205.68	11.75	2	3
326.50	331.50	2003-10-23 07:18	20031023 08:33	4.48E–08	3.99E-08	1,223	1,200	3,254.87	3,274.64	3,486.91	3,269.24	11.81	3	3
331.50	336.50	2003-10-23 08:42	20031023 09:59	2.74E–08	2.29E-08	1,224	1,199	3,304.62	3,326.87	3,525.06	3,374.84	11.90	3	4
336.50	341.50	2003-10-23 10:12	20031023 11:27	5.17E–08	5.80E-08	1,225	1,200	3,354.37	3,354.10	3,595.40	3,355.48	11.96	2	4
341.50	346.50	2003-10-23 11:38	20031023 13:06	3.01E–08	4.18E-08	1,232	1,199	3,404.13	3,463.42	3,642.25	3,427.91	12.02	2	4
346.50	351.50	2003-10-23 13:16	20031023 14:31	4.01E–08	4.78E-08	1,227	1,200	3,453.88	3,451.26	3,688.13	3,453.34	12.09	2	4
351.50	356.50	2003-10-23 14:43	20031023 15:59	4.81E–08	5.84E-08	1,228	1,200	3,504.19	3,501.42	3,739.13	3,501.42	12.17	2	3
356.50	361.50	2003-10-23 16:12	20031023 17:26	4.65E–08	5.33E-08	1,229	1,200	3,553.94	3,568.86	3,785.84	3,560.57	12.24	2	3
361.50	366.50	2003-10-23 17:33	20031023 18:47	5.42E–08	6.49E-08	1,230	1,200	3,604.24	3,601.06	3,835.86	3,600.92	12.31	2	3
366.50	371.50	2003-10-24 07:08	20031024 08:34	1.14E–07	1.41E-07	1,231	1,200	3,650.68	3,648.06	3,879.53	3,647.92	12.38	2	4
371.50	376.50	2003-10-28 08:10	20031028 09:53	7.97E–07	1.26E-06	1,242	1,206	3,701.54	3,700.99	3,900.40	3,700.43	12.47	3	4
376.50	381.50	2003-10-28 10:45	20031028 12:07	3.24E–06	3.39E-06	1,233	1,200	3,751.29	3,748.94	3,947.54	3,750.18	12.51	2	3
381.50	386.50	2003-10-28 13:25	20031028 15:03	4.05E–08	1.41E-06	1,234	1,313	3,801.04	3,803.81	4,024.10	3,804.35	12.58	2	3
386.50	391.50	2003-10-28 15:09	20031028 16:52	2.19E–07	2.65E-07	1,235	1,200	3,850.24	3,847.20	4,052.70	3,846.92	12.66	2	4
391.50	396.50	2003-10-29 07:01	20031029 08:22	5.05E–08	9.16E-08	1,236	1,197	3,895.57	3,896.81	4,142.12	3,898.33	12.73	2	3
396.50	401.50	2003-10-29 08:47	20031029 10:13	2.34E–08	3.65E-06	1,237	1,196	3,946.98	3,956.93	4,192.42	4,008.34	12.79	3	4
401.50	406.50	2003-10-29 10:53	20031029 12:14		2.24E-06	1,238	1,219	3,997.29	4,011.10	4,240.38	4,150.40	12.86	3	4
406.50	411.50	2003-10-29 13:04	20031029 14:28	4.23E–08	3.74E-08	1,239	1,197	4,047.58	4,062.51	4,297.32	4,047.04	12.94	2	3
411.50	416.50	2003-10-29 14:40	20031029 16:03	6.85E–08	1.16E-07	1,240	1,197	4,097.90	4,097.89	4,338.91	4,097.90	13.00	2	4

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	t_p (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	Analyzibility Injection (1–4)	Recovery (1–4)
416.50	421.50	2003-10-29 16:28	20031029 17:52	1.80E–06	1.89E-06	1,241	1,203	4,145.98	4,144.19	4,439.38	4,143.77	13.07	3	4
421.50	426.50	2003-10-29 18:14	20031029 19:48	7.07E–06	7.46E-06	1,242	1,206	4,196.29	4,193.53	4,440.07	4,195.19	13.15	4	4
426.50	431.50	2003-10-30 07:02	20031030 08:21	3.24E–07	3.73E-06	1,243	1,198	4,244.39	4,247.70	4,496.18	4,256.00	13.21	2	2
431.50	436.50	2003-10-30 08:36	20031030 09:57	6.19E–07	7.96E-07	1,244	1,199	4,295.24	4,296.63	4,497.02	4,316.80	13.27	2	2
436.50	441.50	2003-10-30 10:10	20031030 11:28	2.13E–08	2.15E-08	1,245	1,208	4,345.55	4,370.56	4,592.10	4,440.07	13.35	3	4
441.50	446.50	2003-10-30 11:42	20031030 14:12		1.41E-08	1,246	1,213	4,395.85	4,507.24	4,629.13	4,539.58	13.42	4	4
446.50	451.50	2003-10-30 14:29	20031030 15:37		7.65E-09	1,247	625	4,443.39	4,563.90	4,689.39	4,733.61	13.49	4	4
451.50	456.50	2003-10-30 15:56	20031030 17:19		8.88E-09	1,248	1,017	4,493.69	4,584.49	4,745.77	4,811.55	13.56	4	4
456.50	461.50	2003-10-30 17:46	20031030 19:07	1.19E–07	5.53E-06	1,249	1,197	4,544.00	4,544.56	4,792.07	4,544.56	13.63	4	4
461.50	466.50	2003-10-30 19:23	20031030 20:42	6.19E–07	6.83E-07	1,250	1,202	4,594.31	4,592.51	4,807.14	4,594.31	13.70	2	3
466.50	471.50	2003-11-03 13:47	20031103 15:03	2.64E–07	4.98E-07	1,251	1,196	4,642.96	4,642.40	4,855.09	4,646.27	13.76	2	3
471.50	476.50	2003-11-03 15:23	20031103 16:51	2.46E–08	1.78E-08	1,252	1,204	4,694.92	4,721.86	4,925.43	4,771.74	13.83	3	4
476.50	481.50	2003-11-03 17:05	20031103 18:30	2.16E–08	2.09E-08	1,253	1,194	4,745.21	4,757.65	4,974.49	4,778.38	13.91	3	4
481.50	486.50	2003-11-04 07:07	20031104 08:29	1.85E–07	2.53E-07	1,254	1,197	4,792.21	4,797.32	4,992.87	4,835.88	13.99	2	3
486.50	491.50	2003-11-04 08:44	20031104 10:10	4.35E–08	5.51E-08	1,255	1,194	4,843.62	4,844.17	5,065.29	4,845.83	14.05	2	3
491.50	496.50	2003-11-04 10:25	20031104 11:50	6.06E–08	6.90E-08	1,256	1,194	4,892.82	4,889.91	5,089.48	4,893.37	14.10	2	3
496.50	501.50	2003-11-04 12:01	20031104 13:57	2.95E–06	3.03E-06	1,257	1,197	4,946.44	4,940.49	5,139.91	4,941.46	14.20	2	4
501.50	506.50	2003-11-04 14:13	20031104 15:39	8.83E–08	1.09E-07	1,258	1,196	4,993.98	4,994.81	5,192.98	5,021.61	14.27	2	3
506.50	511.50	2003-11-04 15:52	20031104 17:13	8.98E–08	1.03E-07	1,259	1,194	5,044.83	5,050.49	5,240.94	5,069.71	14.35	2	3
511.50	516.50	2003-11-04 17:27	20031104 18:30		2.64E-09	1,260	1,221	5,094.58	5,189.12	5,289.73	5,196.86	14.41	4	4
516.50	521.50	2003-11-05 07:18	20031105 08:16		2.08E-09	1,261	622	5,142.68	5,174.88	5,328.96	5,312.94	14.48	4	4
521.50	526.50	2003-11-05 08:35	20031105 10:26	1.36E–06	1.60E-06	1,262	1,197	5,193.54	5,195.06	5,395.45	5,205.14	14.58	2	2
526.50	531.50	2003-11-05 10:35	20031105 11:57		1.63E-08	1,263	1,215	5,246.05	5,258.07	5,435.11	5,269.82	14.64	3	3
531.50	536.50	2003-11-05 12:12	20031105 13:42	7.49E–08	8.81E-08	1,264	1,194	5,292.48	5,297.60	5,492.74	5,321.23	14.69	2	3
536.50	541.50	2003-11-05 13:53	20031105 15:12	2.40E–08	3.32E-08	1,265	1,196	5,343.34	5,363.66	5,542.49	5,387.57	14.76	2	2
541.50	546.50	2003-11-05 15:19	20031105 16:15		3.60E-09	1,266	626	5,395.31	5,440.50	5,603.15	5,577.73	14.85	4	4

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	t_p (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	Analyzibility Injection (1–4)	Recovery (1–4)
546.50	551.50	2003-11-05 17:17	20031105 18:08		1.86E-09	1,267	621	5,442.85	5,480.44	5,655.96	5,675.58	14.93	4	4
551.50	556.50	2003-11-06 07:03	20031106 08:25	4.35E–07	5.57E-07	1,268	1,196	5,490.94	5,494.54	5,704.60	5,508.07	14.98	2	2
556.50	561.50	2003-11-06 08:35	20031106 10:17	4.53E–08	4.95E-08	1,269	1,194	5,544.56	5,543.73	5,734.72	5,544.56	15.07	2	3
561.50	566.50	2003-11-06 10:30	20031106 11:50	9.10E–07	9.76E-07	1,227	1,196	5,592.10	5,593.07	5,791.11	5,594.87	15.14	3	4
566.50	571.50	2003-11-06 12:09	20031106 13:28		9.07E-09	870	1,221	5,642.41	5,675.03	5,848.60	5,714.27	15.22	3	4
571.50	576.50	2003-11-06 13:40	20031106 15:06	5.47E–07	6.24E-07	1,228	1,203	5,694.38	5,692.58	5,897.24	5,692.17	15.30	2	3
576.50	581.50	2003-11-06 15:19	20031106 16:42	2.21E–06	2.64E-06	1,228	1,197	5,741.36	5,742.19	5,942.03	5,744.13	15.38	3	4
581.50	586.50	2003-11-06 16:51	20031106 18:21	7.44E–07	8.46E-07	1,227	1,196	5,791.67	5,791.80	6,001.18	5,791.67	15.45	2	3
586.50	591.50	2003-11-07 07:06	20031107 08:34	2.11E–07	2.16E-07	1,232	1,194	5,838.65	5,838.10	6,042.22	5,837.54	15.52	2	3
591.50	596.50	2003-11-10 13:39	20031110 14:58	7.66E–07	2.67E-06	1,216	1,194	5,887.85	5,889.50	6,088.79	5,892.28	15.56	2	3
596.50	601.50	2003-11-10 15:09	20031110 16:19	5.95E–07	8.71E-07	1,232	996	5,939.26	5,939.95	6,139.65	5,938.71	15.65	2	4
601.50	606.50	2003-11-10 16:25	20031110 17:39	1.55E–06	1.87E-06	1,223	1,196	5,988.46	5,989.84	6,188.71	5,997.31	15.74	3	4
606.50	611.50	2003-11-11 07:07	20031111 08:24	3.71E–08	4.56E-08	1,231	1,194	6,034.90	6,041.81	6,278.96	6,049.82	15.81	2	3
611.50	616.50	2003-11-11 08:31	20031111 09:14		7.01E-09	482	270	6,085.75	6,153.61	6,354.96	6,382.60	15.89	3	4
616.50	621.50	2003-11-11 09:23	20031111 10:19		8.03E-09	516	814	6,137.16	6,183.87	6,407.48	6,398.08	15.96	3	3
621.50	626.50	2003-11-11 10:29	20031111 11:23		1.06E-08	555	707	6,187.47	6,224.92	6,455.16	6,382.60	16.04	3	3
626.50	631.50	2003-11-11 11:29	20031111 12:53	2.16E–07	2.34E-07	1,232	940	6,236.66	6,238.60	6,492.34	6,238.33	16.10	2	2
631.50	636.50	2003-11-11 13:01	20031111 14:15	3.94E–07	5.22E-07	1,231	1,221	6,287.52	6,290.15	6,528.54	6,326.22	16.19	2	3
636.50	641.50	2003-11-11 14:33	20031111 15:54	6.91E–07	9.57E-07	1,223	1,221	6,338.38	6,339.76	6,555.63	6,372.10	16.27	3	4
641.50	646.50	2003-11-11 16:03	20031111 17:16	1.79E–08	2.18E-08	1,223	1,221	6,386.48	6,393.10	6,619.62	6,397.54	16.33	4	4
646.50	651.50	2003-11-11 17:22	20031111 18:26		9.39E-09	673	1,221	6,436.23	6,485.43	6,664.81	6,591.01	16.41	4	4
651.50	656.50	2003-11-12 07:07	20031112 08:21	3.89E–08	4.40E-08	1,224	1,221	6,482.67	6,488.47	6,711.52	6,492.06	16.48	2	3
656.50	661.50	2003-11-12 08:30	20031112 09:34	2.71E–07	3.35E-07	1,225	655	6,533.52	6,533.80	6,738.88	6,533.52	16.56	2	2
661.50	666.50	2003-11-12 09:40	20031112 10:49	2.86E–07	3.31E-07	1,222	879	6,583.82	6,583.69	6,815.58	6,583.82	16.64	2	3
666.50	671.50	2003-11-12 11:02	20031112 12:15	1.89E–06	2.06E-06	1,222	1,203	6,634.13	6,633.71	6,838.11	6,635.78	16.71	2	3
671.50	676.50	2003-11-12 12:35	20031112 13:50	4.93E–07	5.92E-07	1,223	1,221	6,684.43	6,684.43	6,885.65	6,691.62	16.79	2	4

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	t_p (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	Analyzibility Injection (1–4)	Recovery (1–4)
676.50	681.50	2003-11-12 13:56	20031112 15:13	2.02E–07	2.32E-07	1,223	1,221	6,734.18	6,735.84	6,972.98	6,738.60	16.86	2	3
681.50	686.50	2003-11-12 15:23	20031112 16:15		1.48E-08	533	603	6,783.93	6,798.72	7,025.92	6,953.09	16.92	3	3
686.50	691.50	2003-11-12 16:23	20031112 19:17	1.82E–08	2.59E-08	1,223	7,222	6,834.79	6,850.96	7,074.43	6,830.93	17.02	2	3
691.50	696.50	2003-11-13 07:04	20031113 08:18	2.92E–07	3.83E-07	1,223	1,221	6,880.68	6,880.40	7,079.27	6,881.78	17.08	3	4
696.50	701.50	2003-11-13 08:26	20031113 09:42	9.38E–07	1.06E-06	1,224	1,221	6,932.08	6,931.39	7,128.34	6,934.29	17.16	3	3

The column “Analyzibility” is an attempt to assess the degre
are assigned. The following tentative definitions of the scores were used:

1 = very good analyzability (smooth test data, unique transient evaluation possible)

2 = rather good analyzability (rather unique transient evaluation possible despite some scatter in the test data)

3 = bad analyzability (unique transient evaluation di

Table 7-2. Basic results from the hydraulic evaluation of the constant head injection tests in KSH02.

Bh seclow (m)	Q/s (m^2/s)	K_M (m/s)	T_M (m^2/s)	T_{f1} (m^2/s)	T_{f2} (m^2/s)	T_{s1} (m^2/s)	T_{s2} (m^2/s)	Flow regime Injection	Flow regime Recovery	T_T (2D) (m^2/s)	T_R (2D) (m^2/s)	T_{RMIN} (2D) (m^2/s)	T_{RMAX} (2D) (m^2/s)	C (m^3/Pa)	ξ (2D) (–)	dt_1 (s)	dt_2 (s)	h_{wif} (masl)	p* (kPa)
201.5	3.46E–06	4.84E–08	4.84E–06	2.33E–06	4.88E–06	2.28E–06	–	PRF1 –> PRF2	PSF (PRF)	2.33E–06	2.33E–06	2.21E–06	2.45E–06	–	–3.43	100	800	–0.32	
301.5	9.83E–08	1.30E–09	1.30E–07	7.05E–08	–	7.84E–08	–	PRF	WBS –> PSF (PRF)	7.05E–08	7.05E–08	6.35E–08	7.76E–08	6.71E–10	1.63	100	1,700	–0.37	
401.5	1.71E–07	2.27E–09	2.27E–07	1.39E–07	–	–	–	PRF	PSF?	1.39E–07	1.39E–07	1.25E–07	1.53E–07	7.06E–10	–1.35	100	1,821	2.10	
501.5	8.62E–07	1.15E–08	1.15E–06	9.70E–07	–	1.73E–06	–	PRF	PRF/ PSF?	9.70E–07	9.70E–07	7.76E–07	1.16E–06	–	–0.39	100	1,819	3.56	4,009.6
601.5	3.73E–07	5.23E–09	5.23E–07	1.49E–07	–	3.98E–07	–	PRF	PRF/PSF	1.49E–07	1.49E–07	1.19E–07	1.79E–07	–	–4.22	400	1,822	5.62	
701.5	3.33E–07	4.67E–09	4.67E–07	2.28E–07	–	1.87E–07	–	PRF	PLF (–> PRF –> PSF)	2.28E–07	2.28E–07	2.06E–07	2.51E–07	–	–2.38	100	700	7.50	
801.5	4.67E–07	6.31E–09	6.31E–07	4.35E–07	–	3.78E–07	–	PRF –> NFB	PRF	3.78E–07	3.78E–07	3.21E–07	4.35E–07	1.91E–09	–1.92	200	700	9.03	6,996.2
901.5	2.12E–08	2.83E–10	2.83E–08	1.00E–08	–	1.07E–08	–	PRF	WBS –> PRF	1.00E–08	1.00E–08	9.00E–09	1.10E–08	3.08E–10	–2.00	200	1,822	8.95	7,973.1
997.0	6.65E–07	8.85E–09	8.85E–07	1.68E–07	1.20E–07	1.20E–07	1.82E–07	PLF –> PSF	PLF –> PSF	1.68E–07	1.68E–07	1.35E–07	2.02E–07	–	–	70	100	12.93	
101.5	2.20E–06	1.17E–07	2.34E–06	2.89E–06	–	2.55E–06	–	PRF	PRF –> PSF	2.89E–06	2.89E–06	2.20E–06	4.00E–06	–	0.40	80	1,200	–0.94	834.6
121.5	3.42E–06	1.84E–07	3.68E–06	3.08E–06	–	1.40E–06	–	PRF –> PSF	PRF –> PSF	3.08E–06	3.08E–06	2.90E–06	3.40E–06	–	–2.13	300	500	0.70	1,046.2
141.5	1.82E–09	9.77E–11	1.95E–09	7.10E–10	–	–	–	PRF	WBS	7.10E–10	7.10E–10	3.00E–10	9.00E–09	2.71E–10	–1.54	600	1,200	1.19	
161.5	3.38E–09	1.82E–10	3.64E–09	1.24E–09	–	–	–	PRF	WBS	1.24E–09	1.24E–09	8.80E–10	2.00E–09	1.25E–10	–2.00	500	1,200	–0.04	
181.5	2.29E–07	1.21E–08	2.42E–07	3.84E–7	–	–	–	PRF –> PSF	PSF	3.84E–7	2.42E–07	2.30E–07	2.50E–07	–	–	–	–	–3.36	
201.5	3.89E–09	2.02E–10	4.04E–09	2.29E–09	–	–	–	PRF	WBS	2.29E–09	2.29E–09	1.40E–09	5.00E–09	1.32E–10	–0.81	40	1,200	–0.12	
221.5	2.00E–08	1.06E–09	2.12E–08	1.53E–08	–	2.87E–08	–	PSF (PRF)	WBS –> PSF (PRF)	1.53E–08	1.53E–08	1.20E–08	1.80E–08	2.12E–10	–0.28	100	1,200	–2.96	

Bh seclow (m)	Q/s (m^2/s)	K_M (m/s)	T_M (m^2/s)	T_{f1} (m^2/s)	T_{f2} (m^2/s)	T_{s1} (m^2/s)	T_{s2} (m^2/s)	Flow regime Injection	Recovery	T_T (2D) (m^2/s)	T_R (2D) (m^2/s)	T_{RMIN} (2D) (m^2/s)	T_{RMAX} (2D) (m^2/s)	C (m^3/Pa)	ξ (2D) (–)	dt_1 (s)	dt_2 (s)	h_{wif} (masl)	p* (kPa)
241.5	6.96E–09	3.64E–10	7.28E–09	–	–	–	–	PSF –> PSS	WBS –> PSS	–	7.28E–09	7.10E–09	8.10E–09	1.31E–10	–	–	–	–2.13	
261.5	4.89E–09	2.47E–10	4.94E–09	1.90E–09	–	–	–	PRF	WBS	1.90E–09	1.90E–09	1.60E–09	3.00E–09	1.09E–10	–1.89	100	500	–2.64	
281.5	–	–	–	–	–	–	–	–	WBS	–	–	–	–	–	–	–	–	–1.26	
301.5	5.79E–08	2.88E–09	5.76E–08	3.10E–08	–	2.50E–08	–	PRF	PRF	3.10E–08	3.10E–08	2.60E–08	4.40E–08	–	–2.25	100	1,200	–4.46	2,753.8
321.5	5.15E–09	2.65E–10	5.30E–09	1.63E–09	–	–	–	(PLF –>) PRF (–> PSF)	WBS	1.63E–09	1.63E–09	1.00E–09	4.00E–09	1.00E–10	–2.24	400	800	1.36	
341.5	1.27E–08	6.78E–10	1.36E–08	–	–	–	–	PSF	PSF (PRF)	–	1.36E–08	1.03E–08	2.18E–08	8.49E–11	–	–	–	1.37	
361.5	4.49E–09	2.36E–10	4.72E–09	2.19E–09	–	–	–	PRF	WBS	2.19E–09	2.19E–09	1.50E–09	3.60E–09	7.69E–11	–1.41	40	1,200	2.36	
381.5	1.81E–07	9.56E–09	1.91E–07	2.30E–07	–	2.19E–07	–	PRF	PSF (PRF)	2.30E–07	2.30E–07	1.60E–07	4.00E–07	4.25E–10	1.40	200	1,200	1.71	
401.5	1.56E–08	8.17E–10	1.63E–08	1.45E–08	–	–	–	PRF	WBS –> PSS	1.45E–08	1.45E–08	1.20E–08	2.00E–08	9.49E–11	–0.40	30	200	2.15	
421.5	7.45E–08	3.95E–09	7.90E–08	–	–	–	–	PSF –> PSS	WBS –> PSS	–	7.90E–08	7.30E–08	8.60E–08	3.85E–10	–	–	–	2.54	
441.5	3.37E–07	1.74E–08	3.48E–07	4.62E–07	–	6.25E–07	–	PRF/PSF	PRF/PSF	4.62E–07	4.62E–07	3.60E–07	6.10E–07	–	1.71	20	1,200	2.87	
461.5	4.76E–09	2.31E–10	4.62E–09	–	–	–	–	PSS	WBS –> PSF	–	4.62E–09	4.12E–09	5.13E–09	8.91E–11	–	–	–	3.98	
481.5	3.08E–08	1.63E–09	3.26E–08	3.50E–08	–	3.68E–08	–	PRF/PSF	WBS –> PSF (PRF)	3.50E–08	3.50E–08	2.50E–08	8.30E–08	6.46E–11	1.40	70	1,200	3.80	
501.5	1.43E–07	7.60E–09	1.52E–07	1.90E–07	–	–	–	PRF/PSF	WBS –> PSF	1.90E–07	1.90E–07	1.60E–07	3.30E–07	–	1.95	–	–	3.89	
521.5	7.77E–09	4.04E–10	8.08E–09	2.90E–09	–	2.11E–09	–	PRF	WBS –> PRF	2.90E–09	2.90E–09	1.70E–09	7.00E–09	7.71E–11	–2.05	100	1,200	2.92	4,978.8
541.5	6.90E–08	3.66E–09	7.32E–08	4.71E–08	–	–	–	PRF	WBS	4.71E–08	4.71E–08	3.90E–08	8.00E–08	4.52E–10	–1.53	500	1,000	5.13	
561.5	1.38E–08	7.31E–10	1.46E–08	1.25E–08	–	1.27E–08	–	PRF	PRF	1.25E–08	1.25E–08	7.00E–09	1.50E–08	9.15E–11	–1.59	30	100	5.14	
581.5	1.63E–07	8.20E–09	1.64E–07	2.00E–07	–	–	–	PRF	PSF	2.00E–07	2.00E–07	1.40E–07	5.00E–07	–	1.20	70	1,200	5.49	

Bh seclow (m)	Q/s (m^2/s)	K_M (m/s)	T_M (m^2/s)	T_{f1} (m^2/s)	T_{f2} (m^2/s)	T_{s1} (m^2/s)	T_{s2} (m^2/s)	Flow regime		T_T (2D) (m^2/s)	T_R (2D) (m^2/s)	T_{RMIN} (2D) (m^2/s)	T_{RMAX} (2D) (m^2/s)	C (m^3/Pa)	ξ (2D) (–)	dt_1 (s)	dt_2 (s)	h_{wif} (masl)	p* (kPa)
								Injection	Recovery										
601.5	2.35E–07	1.25E–08	2.50E–07	2.08E–07	–	1.94E–07	–	PRF –> NFB	PRF1 –> PRF2 –> NFB	2.08E–07	2.08E–07	1.70E–07	3.00E–07	–	–1.64	100	400	5.60	
621.5	6.34E–08	3.32E–09	6.64E–08	3.87E–08	–	6.93E–08	–	PRF	PRF	3.87E–08	3.87E–08	2.70E–08	9.00E–08	–	–1.99	300	1,200	5.64	5,986.5
641.5	3.63E–08	1.93E–09	3.86E–08	1.21E–08	–	7.42E–09	–	PRF	PRF	1.21E–08	1.21E–08	7.50E–09	1.80E–08	–	–3.18	200	1,200	6.51	
661.5	1.48E–08	7.78E–10	1.56E–08	6.97E–09	–	–	–	PRF	WBS –> PSF/PSS	6.97E–09	6.97E–09	6.00E–09	1.20E–08	6.12E–11	–1.98	800	1,200	6.63	
681.5	1.02E–07	5.40E–09	1.08E–07	4.69E–08	–	3.30E–08	5.81E–08	PRF –> PSF	PLF –> PRF –> PSF	4.69E–08	4.69E–08	4.00E–08	8.00E–08	–	–2.65	60	200	7.10	
701.5	6.21E–08	3.24E–09	6.48E–08	7.35E–08	–	–	–	PRF	PSF	7.35E–08	7.35E–08	6.00E–08	1.00E–07	–	1.45	100	1,200	7.29	
721.5	2.95E–07	1.55E–08	3.10E–07	1.10E–07	–	–	–	PRF –> NFB	PSF	1.10E–07	1.10E–07	8.00E–08	2.00E–07	–	–3.52	10	200	7.68	
741.5	1.98E–07	1.07E–08	2.14E–07	9.95E–08	–	1.10E–07	–	PRF	WBS –> PRF	9.95E–08	9.95E–08	9.00E–08	1.05E–07	6.33E–10	–3.08	100	1,200	7.35	7,176.9
761.5	7.74E–09	4.11E–10	8.22E–09	3.20E–09	–	5.91E–09	–	PRF	WBS –> PRF? –> NFB	3.20E–09	3.20E–09	2.50E–09	4.50E–09	5.47E–11	–1.99	200	1,200	8.77	7,386.5
781.5	5.70E–09	3.03E–10	6.06E–09	2.21E–09	–	3.57E–09	–	PRF	WBS –> PRF	2.21E–09	2.21E–09	1.80E–09	3.20E–09	5.98E–11	–1.99	20	1,200	10.60	7,600.0
801.5	3.85E–09	2.02E–10	4.04E–09	1.49E–09	–	–	–	PRF –> PSF	WBS	1.49E–09	1.49E–09	1.20E–09	2.50E–09	7.98E–11	–1.45	30	300	9.02	
821.5	1.34E–09	7.07E–11	1.41E–09	3.47E–10	–	–	–	PRF –> PSF	WBS	3.47E–10	3.47E–10	2.40E–10	9.00E–10	1.25E–10	–1.58	20	300	8.82	
841.5	9.64E–10	5.04E–11	1.01E–09	1.92E–10	–	–	–	PRF	WBS	1.92E–10	1.92E–10	1.00E–10	7.00E–10	2.04E–10	–1.27	10	400	10.66	
861.5	1.88E–08	9.97E–10	1.99E–08	1.53E–08	–	1.67E–08	–	PRF	WBS –> PRF	1.67E–08	1.67E–08	1.50E–08	2.00E–08	8.44E–11	0.64	500	700	8.49	8,361.5
881.5	2.63E–09	1.35E–10	2.70E–09	1.72E–09	–	2.17E–09	–	PRF	WBS (PRF)	1.72E–09	1.72E–09	9.00E–10	9.00E–09	8.23E–11	–0.06	30	1,200	10.96	
901.5	2.09E–09	1.09E–10	2.18E–09	1.21E–10	3.78E–10	–	–	PLF	WBS	1.21E–10	1.21E–10	8.00E–11	3.00E–10	1.05E–10	–3.75	100	1,200	12.37	

Bh seclow (m)	Q/s (m^2/s)	K_M (m/s)	T_M (m^2/s)	T_{f1} (m^2/s)	T_{f2} (m^2/s)	T_{s1} (m^2/s)	T_{s2} (m^2/s)	Flow regime Injection	Flow regime Recovery	T_T (2D) (m^2/s)	T_R (2D) (m^2/s)	T_{RMIN} (2D) (m^2/s)	T_{RMAX} (2D) (m^2/s)	C (m^3/Pa)	ξ (2D) (–)	dt_1 (s)	dt_2 (s)	h_{wif} (masl)	p* (kPa)
921.5	3.90E–09	2.01E–10	4.02E–09	3.78E–09	–	–	–	PRF –> PSF	WBS	3.78E–09	3.78E–09	2.00E–09	8.00E–09	5.95E–11	1.73	30	700	11.75	
941.5	5.34E–08	2.84E–09	5.68E–08	9.41E–8	–	–	–	PSF	PSF –> PSS	9.41E–8	5.68E–08	5.30E–08	6.10E–08	–	–	–	–	11.56	
961.5	1.30E–07	6.75E–09	1.35E–07	6.82E–08	–	–	–	PRF –> PSF	PSS	6.82E–08	6.82E–08	4.00E–08	1.70E–07	–	–2.91	200	700	12.22	
981.5	3.65E–09	1.90E–10	3.80E–09	2.95E–09	–	–	–	PRF –> PSF	WBS –> PSF	2.95E–09	2.95E–09	1.50E–09	7.00E–09	5.77E–11	0.82	20	400	14.60	
306.5	9.91E–10	1.63E–10	8.15E–10	8.86E–10	–	–	–	PRF –> PSF	WBS	8.86E–10	8.86E–10	4.4E–10	1.3E–09	6.19E–11	1.88	30	1,200	4.07	
311.5	3.36E–09	5.45E–10	2.73E–09	8.87E–10	–	–	–	PLF –> PRF –> PSF	WBS/ PLF?	8.87E–10	8.87E–10	4.0E–10	3.0E–09	–	–2.23	100	800	2.29	
316.5	1.04E–09	1.72E–10	8.60E–10	3.78E–10	–	–	–	PRF	WBS	3.78E–10	3.78E–10	1.5E–10	6.1E–10	9.29E–11	–0.91	30	1,200	2.71	
321.5	2.31E–09	3.75E–10	1.88E–09	1.17E–09	–	1.32E–09	–	PRF	WBS –> PRF?	1.17E–09	1.17E–09	9.4E–10	1.4E–09	3.60E–11	–0.68	20	1,200	2.14	
326.5	1.23E–08	2.04E–09	1.02E–08	1.15E–08	–	1.44E–08	–	PRF	WBS –> PSF (PRF)	1.15E–08	1.15E–08	9.2E–09	1.4E–08	3.21E–11	0.90	100	1,200	1.47	
331.5	2.07E–09	3.42E–10	1.71E–09	8.05E–10	–	–	–	PRF	WBS	8.05E–10	8.05E–10	5.6E–10	1.0E–09	4.56E–11	–0.31	20	1,200	3.46	
336.5	1.36E–09	2.26E–10	1.13E–09	5.47E–10	–	–	–	PRF	WBS	5.47E–10	5.47E–10	3.8E–10	7.1E–10	6.99E–11	0.35	30	1,200	3.80	
341.5	2.10E–09	3.48E–10	1.74E–09	5.79E–10	–	–	–	PRF	WBS	5.79E–10	5.79E–10	4.6E–10	6.9E–10	1.05E–11	–1.62	300	1,200	1.59	
346.5	1.65E–09	2.76E–10	1.38E–09	3.78E–10	–	1.06E–09	–	(PLF/) PRF	WBS (PRF)	3.78E–10	3.78E–10	2.8E–10	4.7E–10	5.11E–11	–2.05	70	1,200	7.75	
351.5	1.66E–09	2.72E–10	1.36E–09	8.61E–10	–	–	–	PRF	WBS	8.61E–10	8.61E–10	6.9E–10	1.0E–09	4.09E–11	–0.28	100	1,200	1.53	
356.5	1.98E–09	3.28E–10	1.64E–09	1.20E–09	–	–	–	PRF	WBS –> PSF	1.20E–09	1.20E–09	6.0E–10	1.8E–09	2.45E–11	–0.05	20	1,200	1.67	
361.5	2.10E–09	3.45E–10	1.73E–09	9.35E–10	–	–	–	PRF	WBS –> PSF/PSS	9.35E–10	9.35E–10	4.7E–10	1.4E–09	2.37E–11	–0.70	50	1,200	3.56	
366.5	2.26E–09	3.71E–10	1.86E–09	1.43E–09	–	–	–	PRF	WBS –> PSF	1.43E–09	1.43E–09	7.2E–10	2.1E–09	2.76E–11	0.08	50	1,200	1.86	

Bh seclow (m)	Q/s (m^2/s)	K_M (m/s)	T_M (m^2/s)	T_{f1} (m^2/s)	T_{f2} (m^2/s)	T_{s1} (m^2/s)	T_{s2} (m^2/s)	Flow regime Injection	Flow regime Recovery	T_T (2D) (m^2/s)	T_R (2D) (m^2/s)	T_{RMIN} (2D) (m^2/s)	T_{RMAX} (2D) (m^2/s)	C (m^3/Pa)	ξ (2D) (–)	dt_1 (s)	dt_2 (s)	h_{wif} (masl)	p* (kPa)
371.5	4.82E–09	7.91E–10	3.96E–09	2.36E–09	–	–	–	PRF	WBS –> PSS	2.36E–09	2.36E–09	1.7E–09	3.1E–09	2.31E–11	–1.28	100	1,200	1.72	
376.5	3.92E–08	6.23E–09	3.12E–08	5.41E–08	–	–	–	PRF? –> NFB	PSS	5.41E–08	5.41E–08	3.0E–08	7.0E–08	–	–0.53	100	400	2.20	
381.5	1.60E–07	2.62E–08	1.31E–07	2.91E–07	–	–	–	PRF/PSF	WBS –> PSF?	2.91E–07	1.31E–07	1.2E–07	1.4E–07	4.13E–10	–	–	–	2.11	
386.5	1.80E–09	3.09E–10	1.55E–09	8.61E–10	–	–	–	PRF	WBS –> PSF	8.61E–10	8.61E–10	5.0E–10	2.0E–09	4.58E–11	0.03	100	1,200	2.72	
391.5	1.05E–08	1.73E–09	8.65E–09	8.96E–09	–	–	–	PRF –> NFB	WBS –> PSS	8.96E–09	8.96E–09	7.2E–09	1.1E–08	2.48E–11	0.25	200	700	2.16	
396.5	2.02E–09	3.34E–10	1.67E–09	2.84E–09	–	–	–	PRF –> NFB	WBS –> PSF	2.84E–09	2.84E–09	2.0E–09	4.0E–09	1.71E–11	0.03	10	100	2.25	
401.5	9.75E–10	1.68E–10	8.40E–10	5.05E–10	–	–	–	PRF –> PSF	WBS	5.05E–10	5.05E–10	3.0E–10	9.0E–10	7.94E–11	–0.05	50	1,200	3.39	
406.5	–	–	–	–	–	–	–	–	WBS	–	–	–	–	–	–	–	–	3.94	
411.5	1.77E–09	2.90E–10	1.45E–09	7.73E–10	–	–	–	PRF –> PSF	WBS –> PSF	7.73E–10	1.45E–09	9.0E–10	2.1E–09	2.15E–11	–	–	–	4.21	
416.5	2.79E–09	4.53E–10	2.27E–09	3.07E–09	–	–	–	PRF –> NFB –> PSF	WBS –> PSS	3.07E–09	3.07E–09	2.1E–09	4.0E–09	2.32E–11	–1.12	10	100	2.84	
421.5	5.99E–08	1.01E–08	5.05E–08	7.13E–8	–	–	–	PSF	WBS –> PSS	7.13E–8	5.05E–08	5.0E–08	5.2E–09	3.06E–10	–	–	–	2.59	
426.5	2.81E–07	4.69E–08	2.35E–07	–	–	–	–	PSF –> NFB	PSS	–	2.35E–07	2.2E–07	2.5E–07	–	–	–	–	2.64	
431.5	1.28E–08	2.20E–09	1.10E–08	6.50E–09	–	1.23E–08	–	PRF –> PSF	(PLF –>) PRF	1.23E–08	1.23E–08	1.0E–08	1.5E–08	–	1.22	500	1,000	3.20	
436.5	3.03E–08	5.06E–09	2.53E–08	1.03E–08	–	1.04E–08	–	PRF	PRF	1.03E–08	1.03E–08	8.2E–09	1.2E–08	9.46E–11	–3.05	100	1,200	3.21	
441.5	9.42E–10	1.57E–10	7.85E–10	2.02E–10	–	–	–	PRF	WBS	2.02E–10	2.02E–10	1.0E–10	3.0E–10	7.22E–11	–1.00	100	1,200	5.76	
446.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
451.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
456.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	

Bh seclow (m)	Q/s (m^2/s)	K_M (m/s)	T_M (m^2/s)	T_{f1} (m^2/s)	T_{f2} (m^2/s)	T_{s1} (m^2/s)	T_{s2} (m^2/s)	Flow regime Injection	Recovery	T_T (2D) (m^2/s)	T_R (2D) (m^2/s)	T_{RMIN} (2D) (m^2/s)	T_{RMAX} (2D) (m^2/s)	C (m^3/Pa)	ξ (2D) (–)	dt_1 (s)	dt_2 (s)	h_{wif} (masl)	p* (kPa)
461.5	4.73E–09	8.08E–10	4.04E–09	–	–	–	–	PSF	WBS –> PSS	–	4.04E–09	3.2E–09	4.4E–09	3.04E–11	–	–	–	3.58	
466.5	2.83E–08	4.71E–09	2.36E–08	2.10E–08	–	–	–	PRF –> PSF	WBS –> PSF	2.10E–08	2.10E–08	1.1E–08	3.2E–08	–	–0.65	80	1,200	3.49	
471.5	1.22E–08	2.03E–09	1.02E–08	1.89E–08	–	1.64E–08	–	PRF –> NFB	PSF	1.89E–08	1.89E–08	9.5E–09	2.8E–08	–	0.08	50	700	3.50	
476.5	1.19E–09	1.96E–10	9.80E–10	5.20E–10	–	–	–	PRF	WBS	5.20E–10	5.20E–10	3.1E–10	7.3E–10	8.36E–11	1.14	70	1,200	6.61	
481.5	9.76E–10	1.61E–10	8.05E–10	9.90E–10	–	–	–	PSF (PSF)	WBS	9.90E–10	8.05E–10	3.0E–10	1.5E–09	4.39E–11	–	–	–	5.27	
486.5	9.27E–09	1.54E–09	7.70E–09	3.28E–09	–	4.79E–09	–	PRF	WBS –> PRF?	3.28E–09	3.28E–09	2.6E–09	3.9E–09	5.65E–11	–2.41	300	1,200	4.27	
491.5	1.93E–09	3.21E–10	1.61E–09	9.90E–10	–	–	–	PRF	WBS –> PSF	9.90E–10	9.90E–10	6.9E–10	1.3E–09	2.22E–11	–0.86	70	1,200	4.05	
496.5	2.98E–09	4.91E–10	2.46E–09	1.72E–09	–	–	–	PRF	WBS –> PSF	1.72E–09	1.72E–09	1.3E–09	2.2E–09	2.06E–11	–0.56	50	1,200	3.71	
501.5	1.45E–07	2.37E–08	1.19E–07	2.32E–07	–	–	–	PSF/PRF	WBS –> PSF	2.32E–07	1.19E–07	1.1E–07	1.3E–07	3.01E–10	–	–	–	3.86	
506.5	4.37E–09	7.18E–10	3.59E–09	1.37E–09	–	–	–	PRF	WBS	1.37E–09	1.37E–09	8.2E–10	1.9E–09	–	–2.06	100	1,200	4.40	
511.5	4.63E–09	7.60E–10	3.80E–09	2.56E–09	–	3.93E–09	–	PRF	WBS –> PRF –> NFB	2.56E–09	2.56E–09	1.8E–09	3.3E–09	–	–0.82	10	1,200	5.07	
516.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
521.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
526.5	6.66E–08	1.11E–08	5.55E–08	6.43E–08	–	4.60E–08	–	PSF –> PRF	WBS –> PRF/PSF	6.43E–08	6.43E–08	5.1E–08	7.7E–08	–	0.07	900	1,200	4.71	
531.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6.14	
536.5	3.77E–09	6.22E–10	3.11E–09	2.44E–09	–	3.24E–09	–	PRF	WBS –> PRF –> NFB	2.44E–09	2.44E–09	1.5E–09	3.4E–09	2.35E–11	–0.37	60	1,200	5.18	
541.5	1.32E–09	2.17E–10	1.09E–09	5.59E–10	–	1.04E–09	–	PRF	WBS –> PRF/PSF	5.59E–10	5.59E–10	3.4E–10	7.8E–10	1.96E–11	–1.27	100	1,200	6.94	

Bh seclow (m)	Q/s (m^2/s)	K_M (m/s)	T_M (m^2/s)	T_{f1} (m^2/s)	T_{f2} (m^2/s)	T_{s1} (m^2/s)	T_{s2} (m^2/s)	Flow regime		T_T (2D) (m^2/s)	T_R (2D) (m^2/s)	T_{RMIN} (2D) (m^2/s)	T_{RMAX} (2D) (m^2/s)	C (m^3/Pa)	ξ (2D) (–)	dt_1 (s)	dt_2 (s)	h_{wif} (masl)	p* (kPa)
								Injection	Recovery										
546.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
551.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
556.5	2.03E–08	3.39E–09	1.70E–08	9.71E–09	–	9.61E–09	–	PRF	WBS –> PRF	9.71E–09	9.71E–09	7.8E–09	1.2E–08	–	–2.22	100	1,200	5.27	
561.5	2.33E–09	3.88E–10	1.94E–09	1.17E–09	–	–	–	PRF	WBS –> PSF/PRF	1.17E–09	1.17E–09	8.0E–10	2.5E–09	3.23E–11	–	100	1,200	5.30	
566.5	4.51E–08	7.55E–09	3.78E–08	–	–	–	–	PSF –> PSS	PSF	–	3.78E–08	3.60E–08	3.90E–08	–	–	–	–	5.34	
571.5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8.70	
576.5	2.62E–08	4.36E–09	2.18E–08	2.16E–08	–	–	–	PRF	PSS	2.16E–08	2.16E–08	1.20E–08	6.50E–08	–	–0.35	50	1,200	5.50	
581.5	1.08E–07	1.80E–08	9.00E–08	1.30E–07	4.75E–08	–	–	PRF1 –> PRF2	PSF/PSS	1.30E–07	1.30E–07	9.00E–08	2.30E–07	–	0.15	20	200	5.57	
586.5	3.49E–08	5.83E–09	2.92E–08	3.25E–08	–	–	–	PRF –> NFB?	PSF/PSS	3.25E–08	3.25E–08	2.00E–08	6.00E–08	–	0.21	70	1,000	5.64	
591.5	1.01E–08	1.67E–09	8.35E–09	1.03E–08	5.58E–09	–	–	PRF1 –> PRF2	PSF/PSS	1.03E–08	1.03E–08	5.00E–09	3.00E–08	–	1.65	20	500	5.33	
596.5	3.77E–08	6.12E–09	3.06E–08	–	–	–	–	PRF? –> NFB	PSF/PSS	–	3.06E–08	2.80E–08	4.00E–08	–	–	–	–	5.67	
601.5	2.92E–08	4.86E–09	2.43E–08	2.35E–08	1.85E–09	–	–	PRF1 –> PRF2	PSS	2.35E–08	2.35E–08	1.50E–08	3.00E–08	–	–1.70	70	300	5.83	
606.5	7.64E–08	1.28E–08	6.40E–08	3.80E–08	–	7.20E–08	–	PRF	PRF	3.80E–08	3.80E–08	3.00E–08	7.00E–08	–	–2.64	100	800	5.93	
611.5	1.54E–09	2.56E–10	1.28E–09	9.05E–10	–	2.07E–09	–	PRF	WBS –> PRF/PSF	9.05E–10	9.05E–10	3.00E–10	3.00E–09	3.78E–11	–0.20	20	1,200	–	
616.5	–	–	–	–	–	–	–	–	WBS	–	–	–	–	–	–	–	–	6.38	
621.5	–	–	–	–	–	–	–	–	WBS	–	–	–	–	–	–	–	–	–	
626.5	–	–	–	–	–	–	–	–	WBS	–	–	–	–	–	–	–	–	–	
631.5	8.35E–09	1.39E–09	6.95E–09	6.41E–09	–	7.23E–08	–	PRF	PSF/PSS	6.41E–09	6.41E–09	4.00E–09	1.30E–08	–	0.05	300	1,200	6.38	
636.5	1.62E–08	2.59E–09	1.30E–08	6.32E–09	4.68E–09	9.50E–09	4.15E–09	PRF1 –> PRF2	PRF1 –> PRF2	9.50E–09	9.50E–09	8.50E–09	1.00E–08	–	–1.81	30	200	6.66	

Bh seclow (m)	Q/s (m²/s)	K_M (m/s)	T_M (m²/s)	T_{f1} (m²/s)	T_{f2} (m²/s)	T_{s1} (m²/s)	T_{s2} (m²/s)	Flow regime Injection	Recovery	T_T (2D) (m²/s)	T_R (2D) (m²/s)	T_{RMIN} (2D) (m²/s)	T_{RMAX} (2D) (m²/s)	C (m³/Pa)	ξ (2D) (–)	dt_1 (s)	dt_2 (s)	h_{wif} (masl)	p* (kPa)
641.5	3.14E–08	5.16E–09	2.58E–08	5.33E–09	–	5.90E–09	4.29E–09	(PLF –>)PRF (–> PSF)	PLF –> PRF	5.33E–09	5.33E–09	3.00E–09	1.00E–08	2.35E–10	–3.90	100	300	6.74	
646.5	7.76E–10	1.28E–10	6.40E–10	3.60E–10	–	8.52E–10	–	PRF	WBS –> PRF/PSF	3.60E–10	3.6E–10	1.00E–10	8.00E–10	1.82E–11	–0.06	20	600	7.19	
651.5	–	–	–	–	–	–	–	–	WBS	–	–	–	–	–	–	–	–	–	
656.5	1.71E–09	2.86E–10	1.43E–09	9.65E–10	–	–	–	PRF –> PSF?	WBS –> PSF	9.65E–10	9.65E–10	5.00E–10	2.00E–09	2.64E–11	–0.08	300	800	6.96	
661.5	1.30E–08	2.19E–09	1.10E–08	1.03E–08	–	–	–	PRF	PSS	1.03E–08	1.03E–08	5.00E–09	3.00E–08	–	–0.65	200	700	6.60	
666.5	1.21E–08	1.96E–09	9.80E–09	8.61E–09	–	–	–	PSF –> PRF –> NFB	WBS –> PSS	8.61E–09	8.61E–09	5.00E–09	1.50E–08	2.91E–11	4.25	40	200	6.70	
671.5	9.06E–08	1.53E–08	7.65E–08	1.25E–07	–	3.25E–08	–	PSF	PLF (–> PSF)	3.25E–08	3.25E–08	2.50E–08	4.00E–08	–	–	0	50	6.82	
676.5	2.40E–08	3.87E–09	1.94E–08	2.05E–08	–	6.19E–09	1.80E–08	PRF	PLF –> PRF/PSF	2.05E–08	2.05E–08	1.50E–08	3.00E–08	–	–	500	1,200	7.01	
681.5	8.36E–09	1.43E–09	7.15E–09	8.00E–9	–	–	–	PSF/PRF	PLF –> PRF/PSF	8.00E–9	7.15E–09	6.21E–09	7.99E–09	–	–	–	–	7.27	
686.5	–	–	–	–	–	–	–	–	WBS	–	–	–	–	–	–	–	–	–	
691.5	8.00e–10	1.32e–10	6.60e–10	1.95e–10	–	3.10e–10	–	PRF	WBS	1.95e–10	1.95e–10	1.20e–10	9.00e–10	1.85e–11	–1.39	70	800	–	
696.5	1.44E–08	2.39E–09	1.20E–08	9.88E–09	–	–	–	PRF	PSS	9.88E–09	9.88E–09	6.00E–09	2.00E–08	–	–1.84	80	300	7.10	
701.5	4.67E–08	7.75E–09	3.88E–08	8.14E–08	–	–	–	PSF –> NFB	PSF/PSS	8.14E–08	3.88E–08	3.80E–08	5.30E–08	–	–	–	–	7.31	

Note: The acronyms in the column “Flow regime” are as follow: pseud
boundary or other flow restriction (NFB).

Transmissivity values T_f and T_s represent estimated transmissivity from
second radial flow regime, respectively.

In the column “Dominating flow regime” a transition from one flow
radial flow regime.

T_{RMIN} = Lowest possible value for T_R

T_{RMAX} = Highest possible value for T_R

Table 7-3. General test data from constant drawdown pumping tests in KSH02.

Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Q_p (m^3/s)	Q_m (m^3/s)	tp (s)	t_F (s)	p_0 (kPa)	p_i (kPa)	p_p (kPa)	p_F (kPa)	p* (kPa)	Te_w (°C)	Test quality	
														Injection (1–4)	Recovery (1–4)
419.00	424.00	2003-09-02 08:00	20030908 13:15	6.07E–06	4.15E–04	276,194	256,422	4,141.46	4,142.01	4,021.35	4,147.53		13.13	3	3
575.00	580.00	2003-09-09 18:55	20030917 14:16	9.64E–06	1.66E–02	492,447	177,725	5,675.46	5,700.45	5,409.30	5,701.41		15.45	3	3

Table 7-4. Basic results from analysis from constant drawdown pumping tests in KSH02.

Borehole secup (m)	Borehole seclow (m)	Q/s (m^2/s)	K_M (m/s)	T_M (m^2/s)	T_{f1} (m^2/s)	T_{f2} (m^2/s)	T_{s1} (m^2/s)	T_{s2} (m^2/s)	Flow regime		T_T (2D) (m^2/s)	T_R (2D) (m^2/s)	T_{RMIN} (2D) (m^2/s)	T_{RMAX} (2D) (m^2/s)	C (m^3/Pa)	ξ (2D) (–)	dt_1 (s)	dt_2 (s)	h_{wif} (masl)	p* (kPa)
									Injection	Recovery										
419.00	424.00	4.94E–07	4.68E–08	2.34E–07	–	–	–	–	PSS	PSF –> PSS		2.34E–07	1.10E–07	3.30E–07	–	–	–	–	–	
575.00	580.00	3.25E–07	5.40E–08	2.70E–07	–	–	–	–	PSF –> PSS	PSF/PSS		2.70E–07	2.20E–07	2.80E–07	–	–	–	–	–	

Same notes as for Table 7-2.

7.2 Transmissivity and head versus borehole length

The distribution of the interpreted most representative transmissivity from the injection tests in different scales (100, 20 and 5 m) along the borehole is presented in Figure 7-1 together with the distribution of freshwater head.

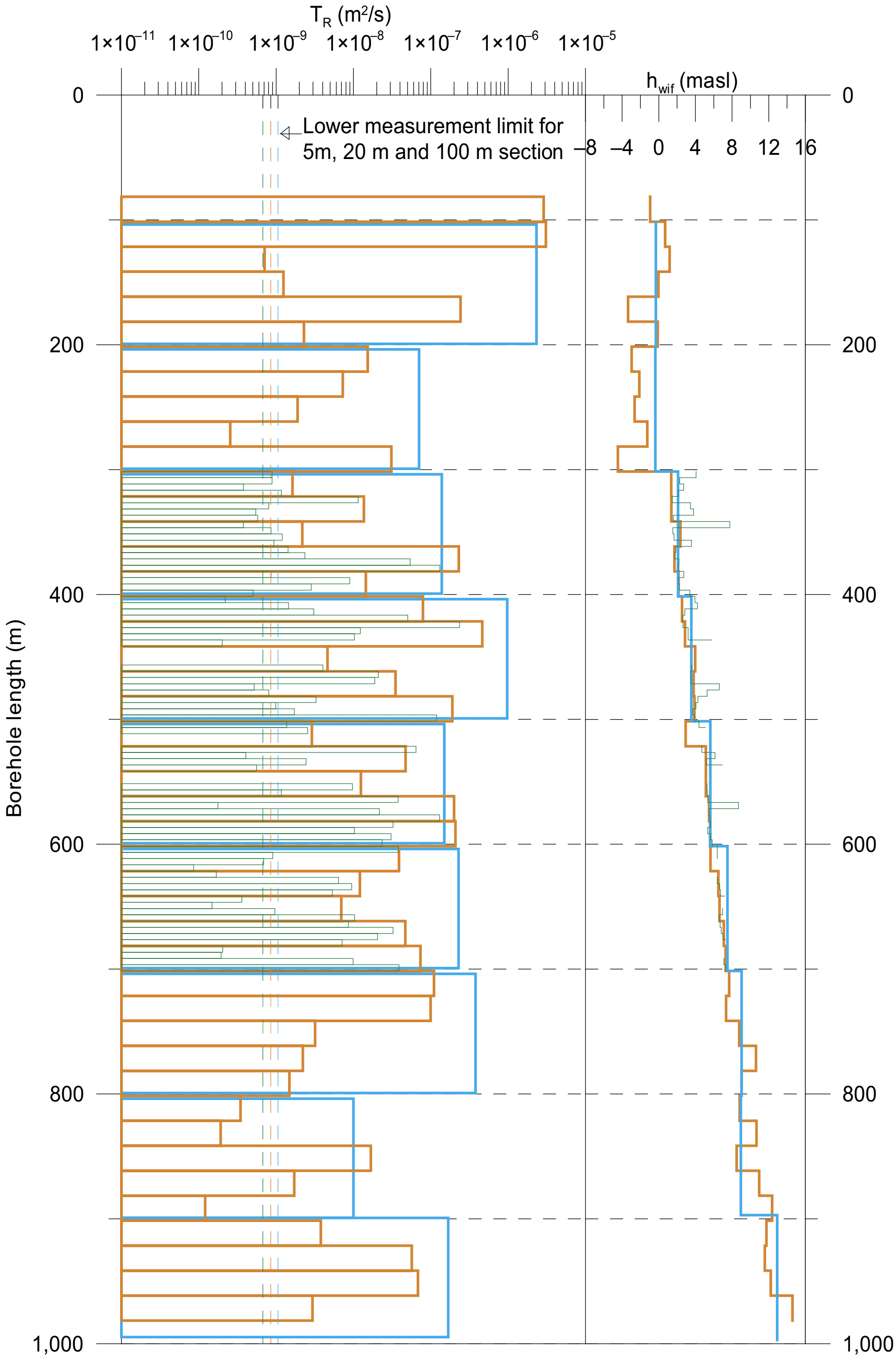

Figure 7-1. Distribution of T_R and freshwater head along borehole KSH02 (from injection tests in different scales – 100, 20 and 5 m).

7.3 Correlations of transmissivity and head distributions

A few simple studies of the correlation of transmissivity- and head distributions are performed. Of all the injection tests performed (in total 134 injection tests), the steady-state evaluation of T_M was considered to be the best estimate of transmissivity for 22 tests. For the remainder of the tests, above the measurement limit, the calculated transmissivity from the transient evaluation was considered as the most representative.

Table 7-5 shows the correlation coefficients for a few pairs of the hydraulic parameters estimated from the injection tests in KSH02. The steady-state transmissivity, T_M, is highly correlated to T_R, i.e. the most representative transmissivity for the formation adjacent to the test section (which for some tests is T_M). The high correlation is also seen in Figure 7-2.

T_M is also highly correlated to the transient evaluation of transmissivity T_T, generally estimated from the first pseudo-radial flow regime during the flow period. In addition, the natural freshwater head is highly correlated to the upper section limit, probably because of a density gradient along the borehole due to more saline water at the bottom. No significant correlations between transmissivity and freshwater head or transmissivity and the upper limit of the test section were found.

Table 7-5. Correlation coefficients for a few pairs of calculated hydraulic parameters from the injection tests in KSH02 for different section lengths together with the number of data.

Parameter	100 m (N = 9)	20 m (N = 45)	5 m (N = 80)
T_M vs T_R	0.9711	0.9790	0.9720
T_M vs T_T	0.9699	0.9782	0.9519
h_{wif} vs Secup	0.9856	0.9533	0.8232
T_R vs h_{wif}	–0.4764	–0.2343	–0.1145
T_R vs Secup	–0.5574	–0.3685	–0.0016

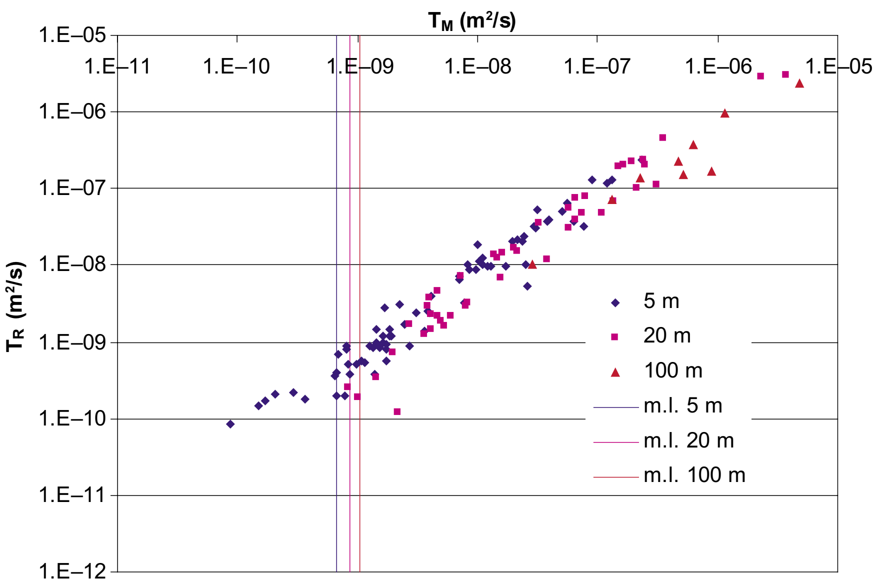

Figure 7-2. Correlation between T_R and T_M for the injection tests in KSH02 (m.l. = measurement limit for T_M).

8 Conclusions

8.1 Transmissivity

In most cases, the transmissivity calculated from the flow period was considered as the most representative transmissivity for the injection tests in KSH02. This is because a rather well-defined time interval with pseudo-radial flow, in most cases could be identified during the flow period. In addition, most tests were affected by wellbore storage effects during the recovery period making a unique evaluation on this period difficult, particularly in low-conductive sections (only wellbore storage and a transition period). When transient evaluation of the flow period was not possible or reliable, e.g. due to pseudo-spherical- or pseudo-stationary flow, T_M was generally chosen as the representative transmissivity of the test section.

A good correlation was found between the selected representative transmissivity T_R and the steady-state transmissivity T_M. Finally, a very good agreement was also found between calculated transmissivities in longer sections (100 m and 20 m) and the cumulative transmissivities summed-up in corresponding 5 m sections.

8.2 Natural freshwater head

Good agreement was found between calculated freshwater head in 100 m, 20 m and 5 m, respectively. The freshwater head increases from c –1 m.a.s.l. at c 80 m to c 12 m.a.s.l. at c 1000 m.

8.3 Flow regimes

Table 8-1 shows the distribution of the interpreted, dominating flow regimes for injection tests above the measurement limit in different scales in KSH02. The results are separated for the flow and recovery period. The flow regimes were mainly interpreted from the corresponding derivatives during the flow- and recovery period. Figures in brackets denote the number of tests where the actual flow regime was the only one present.

It should be observed that the interpretation of flow regime is tentative only and based on visual inspection of the data curves. The number of tests with a pseudo-linear flow regime may be underestimated for the flow period due to a certain pressure stabilization time in beginning of the tests which may mask the presence of early pseudo-linear flow.

Table 8-1. Interpreted flow regimes for the injection tests in borehole KSH02.

Section length (m)	Number of tests above m.l.	Flow period				Recovery period			
		PLF	PRF	PSF	PSS	PLF	PRF	PSF	PSS
5	71	1 (0)	60 (46)	17 (4)	2 (1)	4 (0)	10 (2)	25 (9)	22 (12)
20	45	–	38 (27)	16 (3)	1 (0)	1 (0)	13 (4)	15 (5)	6 (1)
100	9	1 (0)	8 (7)	1 (0)	–	2 (0)	3 (1)	5 (0)	–

m.l. = Measurement limit
PLF = Pseudo-linear flow regime
PRF = Pseudo-radial flow regime
PSF = Pseudo-spherical flow regime
PSS = Pseudo-stationary flow regime

During the flow period an interval of pseudo-radial flow could be interpreted in most of the tests. For some of the tests more than one flow regime could be identified, usually with a transition from pseudo-radial to pseudo-spherical flow. In 8 tests, apparent no-flow boundaries or other flow restrictions were observed.

During the recovery period, pseudo-radial flow was interpreted only in a few tests, mainly depending on a dominating influence of wellbore storage. When the effect of wellbore storage have ceased the flow regime often transits to pseudo-spherical or pseudo-stationary. This result is more typical for the 5 m sections than for the longer sections.

Another observation is that the number of tests with a pseudo-stationary flow regime was significantly higher for the recovery period of the tests. The reason for this is not clear.

9 References

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10 Appendices

Appendix 1 Nomenclature list (only on CD)

Appendix 2 Parameter tables for SICADA (only on CD)

Appendix 3 Test data diagram (only on CD)

Appendix 4 Test summary sheets (only on CD)

Appendix 5 File description table (only on CD)

10 Appendices

Appendix 1 Nomenclature list (only on CD)

Appendix 2 Parameter tables for SICADA (only on CD)

Appendix 3 Test data diagram (only on CD)

Appendix 4 Test summary sheets (only on CD)

Appendix 5 File description table (only on CD)

Appendix 1

Nomenclature list

	Explanation	Dimension	Unit
Variables and constants			
A_w	Horizontal area of water surface in a open bore hole, not including area och signal cables etc.	$[L^2]$	m^2
b	Aquifer thickness (Thickness of 2D formation)	[L]	m
L_w	Test section length.	[L]	m
r	Radius	[L]	m
r_w	Borehole, well or soil pipe radius in test section.	[L]	m
r(w)	Borehole radius in test section (alternative notation used by the software AQTESOLV)	[L]	m
r_D	Dimensless radius, $r_D=r/r_w$	-	-
r(c)	Fictive casing radius (c.f. Dougherty Babu (1984), notation according to the software AQTESOLV).	[L]	m
Q_p	Flow in test section immediately before stop of flow.	$[L^3/T]$	m^3/s
Q_m	Arithmetical mean flow during perturbation phase.	$[L^3/T]$	m^3/s
V	Volume	$[L^3]$	m^3
V_w	Water Volume in test section.	$[L^3]$	m^3
V_p	Total water volume injected/pumped during perturbation phase.	$[L^3]$	m^3
t	Time	[T]	tim,min,s
t_p	Duration of perturbation phase (from flow start as fas as p_p).	[T]	tim,min,s
t_F	Duration of recovery phase (from p_p to p_F).	[T]	tim,min,s
t_1, t_2 etc	Times for various phases during a hydro test.	[T]	tim,min,s
dt	Running time from start of flow phase and recovery phase respectively.	[T]	tim,min,s
dt_e	$dt_e = (dt \cdot tp) / (dt + tp)$ Agarwal equivalent time with dt as running time for recovery phase.	[T]	tim,min,s
t_D	$t_D = T \cdot t / (S \cdot r_w^2)$. Dimensionless time	-	-
p	Static pressure; including non-dynamic pressure which depends on water velocity. Dynamic pressure is normally ignored in estimating the potential in groundwater flow relations.	$[M/(LT)^2]$	kPa
p_a	Atmosperic pressure	$[M/(LT)^2]$	kPa
p_t	Absolute pressure; $p_t=p_a+p_g$	$[M/(LT)^2]$	kPa
p_g	Gauge pressure; Difference between absolute pressure and atmospheric pressure.	$[M/(LT)^2]$	kPa
p_0	Initial pressure before test begins, prior to packer expansion.	$[M/(LT)^2]$	kPa
p_i	Pressure in measuring section before start of flow.	$[M/(LT)^2]$	kPa
p_f	Pressure during perturbation phase.	$[M/(LT)^2]$	kPa
p_s	Pressure during recovery.	$[M/(LT)^2]$	kPa
p_p	Pressure in measuring section before stop of flow.	$[M/(LT)^2]$	kPa
p_F	Pressure in measuring section at end of recovery.	$[M/(LT)^2]$	kPa
p_D	$p_D=2\pi \cdot T \cdot p/(Q \cdot \rho_w g)$, Dimensionless pressure	-	-

	Explanation	Dimension	Unit
	Pressure difference, drawdown of pressure surface between two points of time.	$[M/(LT)^2]$	kPa
dp_f	$dp_f = p_i - p_f$ or $= p_f - p_i$, drawdown/pressure increase of pressure surface between two points of time during perturbation phase. dp_f usually expressed positive.	$[M/(LT)^2]$	kPa
dp_s	$dp_s = p_s - p_p$ or $= p_p - p_s$, pressure increase/drawdown of pressure surface between two points of time during recovery phase. dp_s usually expressed positive.	$[M/(LT)^2]$	kPa
H	Total head; (potential relative a reference level) (indication of h for phase as for p). $H=h_e+h_p+h_v$	[L]	m
h	Groundwater pressure level (hydraulic head (piezometric head; possible to use for level observations in boreholes, static head)); (indication of h for phase as for p). $h=h_e+h_p$	[L]	m
h_e	Height of measuring point (Elevation head); Level above reference point for measuring point.	[L]	m
h_0	Initial above reference level before test begins, prior to packer expansion.	[L]	m
h_i	Level above reference level in measuring section before start of flow.	[L]	m
h_f	Level above reference level during perturbation phase.	[L]	m
h_s	Level above reference level during recovery phase.	[L]	m
h_p	Level above reference level in measuring section before flow stop.	[L]	m
h_F	Level above reference level in measuring section at end of recovery.	[L]	m
dh	Level difference, drawdown of water level between two points of time.	[L]	m
dh_f	$dh_f = h_i - h_f$ or $= h_f - h_i$, drawdown/pressure increase of pressure surface between two points of time during perturbation phase. dh_f usually expressed positive.	[L]	m
dh_s	$dh_s = h_s - h_p$ or $= h_p - h_s$, drawdown/pressure increase of pressure surface between two points of time during recovery phase. dh_s usually expressed positive.	[L]	m
dh_p	$dh_p = h_i - h_p$ or $= h_p - h_i$, maximal pressure increase/drawdown of pressure surface between two points of time during perturbation phase. dh_p usually expressed positive.	[L]	m
s	Drawdown in measuring section.	[L]	m
s_p	Drawdown in measuring section before flow stop.	[L]	m
h_{wif}	Freshwater head in test section before start of flow period.	[L]	masl
Te_w	Temperature in test section (taken from temperature logging).		^oC
g	Constant of gravitation (9.81 $m*s^{-2}$) (Acceleration due to gravity)	$[L/T^2]$	m/s^2
π	Contant (approx 3.1416).	[-]	-
Parameters			
Q/s	Specific capacity $s=dp_p$ or $s = s_p = h_0 - h_p$ (open borehole)	$[L^2/T]$	m^2/s
D	Interpreted flow dimension	[-]	-
dt_1	Time of starting for semi-log or log-log evaluated characteristic counted from start of flow phase and recovery phase respectively.	[T]	s
dt_2	End of time for semi-log or log-log evaluated characteristic counted from start of flow phase and recovery phase respectively.	[T]	s
T	Transmissivity	$[L^2/T]$	m^2/s
T_M	Transmissivity according to /Moye, 1967/.	$[L^2/T]$	m^2/s

	Explanation	Dimension	Unit
T_Q	Transmissivity according to regression between Q/s and T, c.f. /Rhén et al. 1997/ s. 190.	$[L^2/T]$	m^2/s
T_S	Transmissivity evaluated from slug test.	$[L^2/T]$	m^2/s
T_D	Transmissivity evaluated from PFL-Difference Flow Meter.	$[L^2/T]$	m^2/s
T_I	Transmissivity evaluated from Impeller flow logg	$[L^2/T]$	m^2/s
T_f	Transmissivity from transient evaluation of perturbation period for injection or pumping tests.	$[L^2/T]$	m^2/s
T_s	Transmissivity from transient evaluation of recovery period for injection or pumping tests.	$[L^2/T]$	m^2/s
T_T	Transmissivity from transient evaluation. Judged best evaluation of T_f or T_s	$[L^2/T]$	m^2/s
T_M	Transmissivity from steady-state evaluation by Moye´s formula.	$[L^2/T]$	m^2/s
T_R	Best estimate of transmissivity (T_M or T_T)	$[L^2/T]$	m^2/s
T_{ILR}	Transmissivity from evaluation based on non-linear regression.	$[L^2/T]$	m^2/s
K	Hydraulic conductivity	[L/T]	m/s
S	Storage coefficient, (Storativity)	[-]	-
S*	Assumed storage coefficient	[-]	-
S_f	Fracture storage coefficient	[-]	-
S_m	Matrix storage coefficient	[-]	-
S_{ILR}	Storage coefficient, evaluation based on non-linear regression.	[-]	-
S_s	Specific storage coefficient; confined storage.	[1/L]	1/m
S_s^*	Assumed specific storage coefficient, confined storage.	[1/L]	1/m
ξ	Skin factor	[-]	-
S_w	Skin factor (alternative notation used by the software AQTESOLV)	[-]	-
C	Wellbore storage coefficient	$[(LT^2)\cdot M^2]$	m^3/Pa
C_D	$C_D = C\cdot\rho_w g /(2\pi\cdot S\cdot r_w^2)$, Dimensionless wellbore storage coefficient	[-]	-
ω	$\omega = S_f /(S_f + S_m)$, storage ratio (Storativity ratio); the ratio of storage coefficient between that of the fracture and total storage.	[-]	-
λ	$\lambda = \alpha\cdot (K_m / K_f) \cdot r_w^2$ interporosity flow coefficient	[-]	-
T_{GRF}	Transmissivity interpreted using the GRF method	$[L^2/T]$	m^2/s
S_{GRF}	Storage coefficient interpreted using the GRF method	[1/L]	1/m
D_{GRF}	Flw dimension interpreted using the GRF method	[-]	-
c_w	Water compressibility; corresponding to β in hydrogeologic literature.	$[(LT^2)/M]$	1/Pa
c_r	Pore-volume compressibility, (rock compressibility); Correspnding to α/n in hydrogeologic literature.	$[(LT^2)/M]$	1/Pa
c_t	$c_t = c_r + c_w$, total compressibility; compressibility per volumetric unit of rock obtained through multiplying by the total porosity, n. (Presence of gas or other fluids can be included in c_t if the degree of saturation (volume of respective fluid divided by n) of the pore system of respective fluid is also included.)	$[(LT^2)/M]$	1/Pa
n	Total porosity	-	-
n_e	Kinematic porosity, (Effective porosity)	-	-
ρ	Density	$[M/L^3]$	$kg/(m^3)$

	Explanation	Dimension	Unit
ρ_w	Fluid density in measurement section during pumping/injection	[M/L^3]	kg/(m^3)
μ	Dynamic viscosity	[M/LT]	Pa s
μ_w	Dynamic viscosity (Fluid density in measurement section during pumping/injection)	[M/LT]	Pa s
Index på K, T och S			
f	Perturbation period (injection or withdrawal)		
s	Recovery		
ILR	Non-linear regression. Interpreted on the entire test (perturbation and recovery period)		
M	Moye		
GRF	Generalised Radial Flow according to Barker (1988)		
m	Matrix		
f	fracture		
measl	Measurement limit; Estimated measurement limit of the measured hydraulic parameter		
T	Judged best transient evaluation.		
Index på p och Q			
0	initial		
i	”natural”, before start of flow.		
f	withdrawal		
s	recovery		
p	Pressure or flow in measurement section at the end of perturbation phase.		
F	Pressure in measurement section at the end of recovery.		
m	Arithmetic mean		

Appendix 2

Parameter tables for SICADA

Test type = 3 : Injection test
Formation type = 1 :Rock
Value type = -1: Value below measurement limit
Value type = 0: Value within measurement limits
Value type = 1: Value above measurement limit
Other symbols is explained in Appendix 1.

KSH02 General information. Left

Borehole idcode	Borehole secup (m)	Borehole seclow (m)	Test type (1-6)	Formation type (-)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Date and time for flow period, start YYYYMMDD hh:mm:ss	Date and time for flow period, stop YYYYMMDD hh:mm:ss	Q_p (m^3/s)	Value type (-1, 0 or 1)
KSH02	101.50	201.50	3	1	2003-09-24 08:01	20030924 11:01	20030924 08:56:17	20030924 09:26:32	7.04E-05	0
KSH02	201.50	301.50	3	1	2003-09-24 11:12	20030924 14:42	20030924 12:19:36	20030924 12:49:58	1.98E-06	0
KSH02	301.50	401.50	3	1	2003-09-24 14:44	20030924 17:01	20030924 15:40:18	20030924 16:10:39	3.46E-06	0
KSH02	401.50	501.50	3	1	2003-09-24 17:47	20030924 19:49	20030924 18:41:37	20030924 19:11:56	1.76E-05	0
KSH02	501.50	601.50	3	1	2003-09-25 08:02	20030925 11:03	20030925 09:38:30	20030925 10:10:52	8.48E-06	0
KSH02	601.50	701.50	3	1	2003-09-26 08:05	20030926 09:48	20030926 08:25:51	20030926 08:55:44	7.55E-06	0
KSH02	701.50	801.50	3	1	2003-10-01 07:22	20031001 09:13	20031001 08:10:57	20031001 08:41:10	9.38E-06	0
KSH02	801.50	901.50	3	1	2003-09-30 10:48	20030930 12:37	20030930 11:35:00	20030930 12:05:25	4.32E-07	0
KSH02	897.00	997.00	3	1	2003-09-30 13:35	20030930 15:25	20030930 14:22:56	20030930 14:53:21	1.36E-05	0
KSH02	81.50	101.50	3	1	2003-10-02 09:07	20031002 10:27	20031002 09:45:16	20031002 10:05:33	4.47E-05	0
KSH02	101.50	121.50	3	1	2003-10-02 10:47	20031002 12:08	20031002 11:15:59	20031002 11:36:14	6.94E-05	0
KSH02	121.50	141.50	3	1	2003-10-02 12:34	20031002 13:44	20031002 13:01:26	20031002 13:21:53	4.44E-08	0
KSH02	141.50	161.50	3	1	2003-10-02 14:05	20031002 15:14	20031002 14:32:09	20031002 14:52:33	8.59E-08	0
KSH02	161.50	181.50	3	1	2003-10-02 15:31	20031002 16:40	20031002 15:58:20	20031002 16:18:42	5.25E-06	0
KSH02	181.50	201.50	3	1	2003-10-02 16:59	20031002 18:10	20031002 17:27:28	20031002 17:47:54	9.04E-08	0
KSH02	201.50	221.50	3	1	2003-10-03 07:26	20031003 08:39	20031003 07:56:51	20031003 08:17:16	5.20E-07	0
KSH02	221.50	241.50	3	1	2003-10-06 13:53	20031006 15:25	20031006 14:43:03	20031006 15:03:17	1.61E-07	0
KSH02	241.50	261.50	3	1	2003-10-06 16:13	20031006 17:39	20031006 16:57:14	20031006 17:17:41	1.07E-07	0
KSH02	261.50	281.50	3	1	2003-10-07 07:52	20031007 09:20	20031007 08:37:17	20031007 08:58:06		-1
KSH02	281.50	301.50	3	1	2003-10-07 10:36	20031007 12:07	20031007 11:25:26	20031007 11:45:52	1.18E-06	0

Borehole idcode	Borehole secup (m)	Borehole seclow (m)	Test type (1-6)	Formation type (-)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Date and time for flow period, start YYYYMMDD hh:mm:ss	Date and time for flow period, stop YYYYMMDD hh:mm:ss	Q_p (m^3/s)	Value type (-1, 0 or 1)
KSH02	301.50	321.50	3	1	2003-10-07 14:11	20031007 15:48	20031007 15:01:08	20031007 15:26:03	9.86E-08	0
KSH02	321.50	341.50	3	1	2003-10-07 16:11	20031007 18:00	20031007 17:18:13	20031007 17:38:44	2.50E-07	0
KSH02	341.50	361.50	3	1	2003-10-08 08:03	20031008 09:36	20031008 08:54:23	20031008 09:14:54	9.44E-08	0
KSH02	361.50	381.50	3	1	2003-10-08 10:04	20031008 11:40	20031008 10:57:43	20031008 11:18:01	4.18E-06	0
KSH02	381.50	401.50	3	1	2003-10-08 12:06	20031008 14:11	20031008 13:28:36	20031008 13:49:36	3.11E-07	0
KSH02	401.50	421.50	3	1	2003-10-08 14:44	20031008 16:11	20031008 15:28:42	20031008 15:49:09	1.51E-06	0
KSH02	421.50	441.50	3	1	2003-10-08 16:26	20031008 17:59	20031008 17:17:03	20031008 17:37:27	6.84E-06	0
KSH02	441.50	461.50	3	1	2003-10-09 07:54	20031009 09:26	20031009 08:43:52	20031009 09:04:23	8.75E-08	0
KSH02	461.50	481.50	3	1	2003-10-09 09:51	20031009 11:50	20031009 11:08:06	20031009 11:28:35	6.34E-07	0
KSH02	481.50	501.50	3	1	2003-10-09 12:42	20031009 14:13	20031009 13:30:33	20031009 13:51:00	3.03E-06	0
KSH02	501.50	521.50	3	1	2003-10-09 15:30	20031009 16:28	20031009 15:45:28	20031009 16:05:58	1.51E-07	0
KSH02	521.50	541.50	3	1	2003-10-09 17:31	20031009 19:46	20031009 19:04:21	20031009 19:24:49	1.48E-06	0
KSH02	541.50	561.50	3	1	2003-10-10 08:06	20031010 09:38	20031010 08:56:09	20031010 09:16:40	2.70E-07	0
KSH02	561.50	581.50	3	1	2003-10-10 10:01	20031010 11:48	20031010 11:05:49	20031010 11:26:18	3.31E-06	0
KSH02	581.50	601.50	3	1	2003-10-14 07:24	20031014 08:49	20031014 08:06:56	20031014 08:27:25	4.75E-06	0
KSH02	601.50	621.50	3	1	2003-10-14 09:16	20031014 10:38	20031014 09:55:49	20031014 10:16:29	1.29E-06	0
KSH02	621.50	641.50	3	1	2003-10-14 11:00	20031014 12:20	20031014 11:37:51	20031014 11:58:21	7.74E-07	0
KSH02	641.50	661.50	3	1	2003-10-14 13:00	20031014 14:20	20031014 13:37:41	20031014 13:58:11	3.00E-07	0
KSH02	661.50	681.50	3	1	2003-10-14 14:44	20031014 16:00	20031014 15:17:56	20031014 15:38:16	2.06E-06	0
KSH02	681.50	701.50	3	1	2003-10-14 16:24	20031014 17:48	20031014 17:06:20	20031014 17:26:50	1.25E-06	0
KSH02	701.50	721.50	3	1	2003-10-14 18:11	20031014 19:27	20031014 18:45:00	20031014 19:05:27	6.11E-06	0
KSH02	721.50	741.50	3	1	2003-10-15 07:45	20031015 09:02	20031015 08:19:43	20031015 08:40:13	4.15E-06	0
KSH02	741.50	761.50	3	1	2003-10-15 09:22	20031015 10:41	20031015 09:58:48	20031015 10:19:20	1.61E-07	0
KSH02	761.50	781.50	3	1	2003-10-15 11:07	20031015 12:24	20031015 11:41:25	20031015 12:01:59	1.18E-07	0
KSH02	781.50	801.50	3	1	2003-10-15 13:15	20031015 14:40	20031015 13:58:00	20031015 14:18:24	8.71E-08	0
KSH02	801.50	821.50	3	1	2003-10-15 14:57	20031015 17:25	20031015 17:01:33	20031015 17:13:19	3.07E-08	0
KSH02	821.50	841.50	3	1	2003-10-15 17:50	20031015 18:41	20031015 18:22:29	20031015 18:29:44	2.01E-08	0
KSH02	841.50	861.50	3	1	2003-10-15 19:29	20031015 20:43	20031015 20:01:22	20031015 20:21:46	4.15E-07	0
KSH02	861.50	881.50	3	1	2003-10-16 07:29	20031016 08:45	20031016 08:02:32	20031016 08:22:59	5.66E-08	0
KSH02	881.50	901.50	3	1	2003-10-16 09:07	20031016 10:22	20031016 09:39:28	20031016 09:59:55	4.11E-08	0
KSH02	901.50	921.50	3	1	2003-10-16 10:40	20031016 11:54	20031016 11:11:43	20031016 11:32:09	8.34E-08	0
KSH02	921.50	941.50	3	1	2003-10-16 12:29	20031016 13:50	20031016 13:08:16	20031016 13:28:40	1.21E-06	0
KSH02	941.50	961.50	3	1	2003-10-16 14:15	20031016 15:22	20031016 14:49:51	20031016 15:10:16	2.64E-06	0
KSH02	961.50	981.50	3	1	2003-10-16 15:52	20031016 17:09	20031016 16:27:13	20031016 16:47:40	8.10E-08	0
KSH02	301.50	306.50	3	1	2003-10-22 11:53	20031022 13:25	20031022 12:44:14	20031022 13:04:39	2.43E-08	0
KSH02	306.50	311.50	3	1	2003-10-22 13:38	20031022 14:51	20031022 14:09:12	20031022 14:29:37	7.70E-08	0
KSH02	311.50	316.50	3	1	2003-10-22 15:06	20031022 16:20	20031022 15:38:06	20031022 15:58:34	2.28E-08	0
KSH02	316.50	321.50	3	1	2003-10-22 16:37	20031022 17:45	20031022 17:02:42	20031022 17:22:51	5.05E-08	0
KSH02	321.50	326.50	3	1	2003-10-22 17:57	20031022 19:05	20031022 18:23:01	20031022 18:43:16	2.52E-07	0
KSH02	326.50	331.50	3	1	2003-10-23 07:18	20031023 08:33	20031023 07:50.42	20031023 08:10:59	4.48E-08	0

Borehole idcode	Borehole secup (m)	Borehole seclow (m)	Test type (1-6)	Formation type (-)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Date and time for flow period, start YYYYMMDD hh:mm:ss	Date and time for flow period, stop YYYYMMDD hh:mm:ss	Q_p (m^3/s)	Value type (-1, 0 or 1)
KSH02	331.50	336.50	3	1	2003-10-23 08:42	20031023 09:59	20031023 09:18:03	20031023 09:38:16	2.74E-08	0
KSH02	336.50	341.50	3	1	2003-10-23 10:12	20031023 11:27	20031023 10:45:14	20031023 11:05:39	5.17E-08	0
KSH02	341.50	346.50	3	1	2003-10-23 11:38	20031023 13:06	20031023 12:24:10	20031023 12:44:27	3.01E-08	0
KSH02	346.50	351.50	3	1	2003-10-23 13:16	20031023 14:31	20031023 13:49:03	20031023 14:09:16	4.01E-08	0
KSH02	351.50	356.50	3	1	2003-10-23 14:43	20031023 15:59	20031023 15:16:34	20031023 15:36:59	4.81E-08	0
KSH02	356.50	361.50	3	1	2003-10-23 16:12	20031023 17:26	20031023 16:44:09	20031023 17:04:25	4.65E-08	0
KSH02	361.50	366.50	3	1	2003-10-23 17:33	20031023 18:47	20031023 18:05:24	20031023 18:25:49	5.42E-08	0
KSH02	366.50	371.50	3	1	2003-10-24 07:08	20031024 08:34	20031024 07:51:32	20031024 08:11:57	1.14E-07	0
KSH02	371.50	376.50	3	1	2003-10-28 08:10	20031028 09:53	20031028 09:10:45	20031028 09:31:10	7.97E-07	0
KSH02	376.50	381.50	3	1	2003-10-28 10:45	20031028 12:07	20031028 11:25:18	20031028 11:45:42	3.24E-06	0
KSH02	381.50	386.50	3	1	2003-10-28 13:25	20031028 15:03	20031028 14:00:22	20031028 14:20:48	4.05E-08	0
KSH02	386.50	391.50	3	1	2003-10-28 15:09	20031028 16:52	20031028 16:10:18	20031028 16:30:34	2.19E-07	0
KSH02	391.50	396.50	3	1	2003-10-29 07:01	20031029 08:22	20031029 07:40:18	20031029 08:00:43	5.05E-08	0
KSH02	396.50	401.50	3	1	2003-10-29 08:47	20031029 10:13	20031029 09:31:05	20031029 09:51:21	2.34E-08	0
KSH02	401.50	406.50	3	1	2003-10-29 10:53	20031029 12:14	20031029 11:32:18	20031029 11:52:37		-1
KSH02	406.50	411.50	3	1	2003-10-29 13:04	20031029 14:28	20031029 13:45:57	20031029 14:06:07	4.23E-08	0
KSH02	411.50	416.50	3	1	2003-10-29 14:40	20031029 16:03	20031029 15:20:56	20031029 15:41:24	6.85E-08	0
KSH02	416.50	421.50	3	1	2003-10-29 16:28	20031029 17:52	20031029 17:10:18	20031029 17:30:36	1.80E-06	0
KSH02	421.50	426.50	3	1	2003-10-29 18:14	20031029 19:48	20031029 19:05:28	20031029 19:25:53	7.07E-06	0
KSH02	426.50	431.50	3	1	2003-10-30 07:02	20031030 08:21	20031030 07:38:40	20031030 07:59:05	3.24E-07	0
KSH02	431.50	436.50	3	1	2003-10-30 08:36	20031030 09:57	20031030 09:15:18	20031030 09:35:43	6.19E-07	0
KSH02	436.50	441.50	3	1	2003-10-30 10:10	20031030 11:28	20031030 10:45:47	20031030 11:06:14	2.13E-08	0
KSH02	441.50	446.50	3	1	2003-10-30 11:42	20031030 14:12	20031030 13:30:22	20031030 13:50:51		-1
KSH02	446.50	451.50	3	1	2003-10-30 14:29	20031030 15:37	20031030 15:05:14	20031030 15:25:57		-1
KSH02	451.50	456.50	3	1	2003-10-30 15:56	20031030 17:19	20031030 16:40:15	20031030 17:00:51		-1
KSH02	456.50	461.50	3	1	2003-10-30 17:46	20031030 19:07	20031030 18:25:16	20031030 18:45:46	1.19E-07	0
KSH02	461.50	466.50	3	1	2003-10-30 19:23	20031030 20:42	20031030 20:00:19	20031030 20:20:41	6.19E-07	0
KSH02	466.50	471.50	3	1	2003-11-03 13:47	20031103 15:03	20031103 14:20:46	20031103 14:41:07	2.64E-07	0
KSH02	471.50	476.50	3	1	2003-11-03 15:23	20031103 16:51	20031103 16:09:22	20031103 16:29:51	2.46E-08	0
KSH02	476.50	481.50	3	1	2003-11-03 17:05	20031103 18:30	20031103 17:47:34	20031103 18:08:22	2.16E-08	0
KSH02	481.50	486.50	3	1	2003-11-04 07:07	20031104 08:29	20031104 07:46:35	20031104 08:07:02	1.85E-07	0
KSH02	486.50	491.50	3	1	2003-11-04 08:44	20031104 10:10	20031104 09:27:55	20031104 09:48:22	4.35E-08	0
KSH02	491.50	496.50	3	1	2003-11-04 10:25	20031104 11:50	20031104 11:08:16	20031104 11:28:43	6.06E-08	0
KSH02	496.50	501.50	3	1	2003-11-04 12:01	20031104 13:57	20031104 13:14:40	20031104 13:35:06	2.95E-06	0
KSH02	501.50	506.50	3	1	2003-11-04 14:13	20031104 15:39	20031104 14:57:01	20031104 15:17:29	8.83E-08	0
KSH02	506.50	511.50	3	1	2003-11-04 15:52	20031104 17:13	20031104 16:31:12	20031104 16:51:41	8.98E-08	0
KSH02	511.50	516.50	3	1	2003-11-04 17:27	20031104 18:30	20031104 18:03:46	20031104 18:08:29		-1
KSH02	516.50	521.50	3	1	2003-11-05 07:18	20031105 08:16	20031105 07:59:35	20031105 08:04:22		-1
KSH02	521.50	526.50	3	1	2003-11-05 08:35	20031105 10:26	20031105 09:43:42	20031105 10:04:09	1.36E-06	0
KSH02	526.50	531.50	3	1	2003-11-05 10:35	20031105 11:57	20031105 11:15:25	20031105 11:35:39		-1
KSH02	531.50	536.50	3	1	2003-11-05 12:12	20031105 13:42	20031105 13:00:00	20031105 13:20:34	7.49E-08	0

Borehole idcode	Borehole secup (m)	Borehole seclow (m)	Test type (1-6)	Formation type (-)	Date and time for test, start YYYYMMDD hh:mm	Date and time for test, stop YYYYMMDD hh:mm	Date and time for flow period, start YYYYMMDD hh:mm:ss	Date and time for flow period, stop YYYYMMDD hh:mm:ss	Q_p (m^3/s)	Value type (-1, 0 or 1)
KSH02	536.50	541.50	3	1	2003-11-05 13:53	20031105 15:12	20031105 14:30:14	20031105 14:50:42	2.40E-08	0
KSH02	541.50	546.50	3	1	2003-11-05 15:19	20031105 16:15	20031105 15:57:35	20031105 16:02:47		-1
KSH02	546.50	551.50	3	1	2003-11-05 17:17	20031105 18:08	20031105 17:52:46	20031105 17:55:56		-1
KSH02	551.50	556.50	3	1	2003-11-06 07:03	20031106 08:25	20031106 07:42:57	20031106 08:03:21	4.35E-07	0
KSH02	556.50	561.50	3	1	2003-11-06 08:35	20031106 10:17	20031106 09:34:41	20031106 09:55:10	4.53E-08	0
KSH02	561.50	566.50	3	1	2003-11-06 10:30	20031106 11:50	20031106 11:08:19	20031106 11:28:46	9.10E-07	0
KSH02	566.50	571.50	3	1	2003-11-06 12:09	20031106 13:28	20031106 12:51:50	20031106 13:06:20		-1
KSH02	571.50	576.50	3	1	2003-11-06 13:40	20031106 15:06	20031106 14:24:22	20031106 14:44:50	5.47E-07	0
KSH02	576.50	581.50	3	1	2003-11-06 15:19	20031106 16:42	20031106 15:59:57	20031106 16:20:24	2.21E-06	0
KSH02	581.50	586.50	3	1	2003-11-06 16:51	20031106 18:21	20031106 17:38:55	20031106 17:59:22	7.44E-07	0
KSH02	586.50	591.50	3	1	2003-11-07 07:06	20031107 08:34	20031107 07:51:39	20031107 08:12:11	2.11E-07	0
KSH02	591.50	596.50	3	1	2003-11-10 13:39	20031110 14:58	20031110 14:16:10	20031110 14:36:40	7.66E-07	0
KSH02	596.50	601.50	3	1	2003-11-10 15:09	20031110 16:19	20031110 15:40:14	20031110 16:00:46	5.95E-07	0
KSH02	601.50	606.50	3	1	2003-11-10 16:25	20031110 17:39	20031110 16:57:11	20031110 17:17:34	1.55E-06	0
KSH02	606.50	611.50	3	1	2003-11-11 07:07	20031111 08:24	20031111 07:41:33	20031111 08:02:04	3.71E-08	0
KSH02	611.50	616.50	3	1	2003-11-11 08:31	20031111 09:14	-	-		-1
KSH02	616.50	621.50	3	1	2003-11-11 09:23	20031111 10:19	20031111 09:55:25	20031111 10:04:41		-1
KSH02	621.50	626.50	3	1	2003-11-11 10:29	20031111 11:23	20031111 11:01:11	20031111 11:11:06		-1
KSH02	626.50	631.50	3	1	2003-11-11 11:29	20031111 12:53	20031111 12:15:55	20031111 12:36:27	2.16E-07	0
KSH02	631.50	636.50	3	1	2003-11-11 13:01	20031111 14:15	20031111 13:33:23	20031111 13:53:54	3.94E-07	0
KSH02	636.50	641.50	3	1	2003-11-11 14:33	20031111 15:54	20031111 15:11:46	20031111 15:32:09	6.91E-07	0
KSH02	641.50	646.50	3	1	2003-11-11 16:03	20031111 17:16	20031111 16:34:04	20031111 16:54:27	1.79E-08	0
KSH02	646.50	651.50	3	1	2003-11-11 17:22	20031111 18:26	20031111 17:53:10	20031111 18:04:23	1.79E-08	-1
KSH02	651.50	656.50	3	1	2003-11-12 07:07	20031112 08:21	20031112 07:39:02	20031112 07:59:26	3.89E-08	0
KSH02	656.50	661.50	3	1	2003-11-12 08:30	20031112 09:34	20031112 09:01:34	20031112 09:21:59	2.71E-07	0
KSH02	661.50	666.50	3	1	2003-11-12 09:40	20031112 10:49	20031112 10:12:10	20031112 10:32:32	2.86E-07	0
KSH02	666.50	671.50	3	1	2003-11-12 11:02	20031112 12:15	20031112 11:33:15	20031112 11:53:37	1.89E-06	0
KSH02	671.50	676.50	3	1	2003-11-12 12:35	20031112 13:50	20031112 13:07:48	20031112 13:28:11	4.93E-07	0
KSH02	676.50	681.50	3	1	2003-11-12 13:56	20031112 15:13	20031112 14:30:53	20031112 14:51:16	2.02E-07	0
KSH02	681.50	686.50	3	1	2003-11-12 15:23	20031112 16:15	20031112 15:54:52	20031112 16:03:45		-1
KSH02	686.50	691.50	3	1	2003-11-12 16:23	20031112 19:17	20031112 16:55:12	20031112 17:15:35		-1
KSH02	691.50	696.50	3	1	2003-11-13 07:04	20031113 08:18	20031113 07:36:02	20031113 07:56:25	2.92E-07	0
KSH02	696.50	701.50	3	1	2003-11-13 08:26	20031113 09:42	20031113 08:59:26	20031113 09:19:50	9.38E-07	0
KSH02	419.00	424.00	1B	1	2003-09-02 08:00	20030908 13:15	20030902 09:10:08	20030905 13:53:13	6.07E-06	0
KSH02	575.00	580.00	1B	1	2003-09-09 18:55	20030917 14:16	20030909 19:55:17	20030915 12:42:38	9.64E-06	0

KSH02 General information. Right

Borehole idcode	Borehole secup (m)	Borehole seclow (m)	Q-measl-L (m^3/s)	Q- measl-U (m^3/s)	V_p (m^3)	Q_m (m^3/s)	tp (s)	t_F (s)	h_i (masl)	h_p (masl)	h_F (masl)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	EC_w (mS/m)	TDS_w (mg/L)	TDS_{wm} (mg/ L)	Reference	Comments (-)
KSH02	101.50	201.50	1.7E-08	5.0E-04	1.386E-01	7.63E-05	1816	1802				1037.34	1236.89	1050.33	10.10					
KSH02	201.50	301.50	1.7E-08	5.0E-04	4.138E-03	2.27E-06	1822	1910				2015.10	2212.31	2016.62	11.50					
KSH02	301.50	401.50	1.7E-08	5.0E-04	7.115E-03	3.91E-06	1821	1807				3017.33	3216.19	3019.39	12.81					
KSH02	401.50	501.50	1.7E-08	5.0E-04	3.462E-02	1.90E-05	1819	1799				4010.15	4210.81	4014.98	14.21					
KSH02	501.50	601.50	1.7E-08	5.0E-04	2.037E-02	1.12E-05	1822	1824				5007.81	5230.86	5016.65	15.67					
KSH02	601.50	701.50	1.7E-08	5.0E-04	1.560E-02	8.70E-06	1793	1823				6003.95	6226.72	6011.13	17.19					
KSH02	701.50	801.50	1.7E-08	5.0E-04	2.783E-02	1.54E-05	1813	1803				6994.84	7191.90	7011.15	18.73					
KSH02	801.50	901.50	1.7E-08	5.0E-04	9.433E-04	5.18E-07	1822	1800				7990.71	8190.26	8001.20	20.31					
KSH02	897.00	997.00	1.7E-08	5.0E-04	2.787E-02	1.53E-05	1825	1802				8946.08	9146.05	8948.70	21.89					
KSH02	81.50	101.50	1.7E-08	5.0E-04	5.826E-02	4.78E-05	1218	1200				835.13	1034.28	837.89	8.76					
KSH02	101.50	121.50	1.7E-08	5.0E-04	9.255E-02	7.60E-05	1217	1800				1039.39	1238.40	1047.96	9.08					
KSH02	121.50	141.50	1.7E-08	5.0E-04	1.576E-04	1.29E-07	1225	1221				1246.55	1486.19	1382.40	9.33					
KSH02	141.50	161.50	1.7E-08	5.0E-04	6.677E-03	5.46E-06	1224	1197				1430.08	1679.12	1466.42	9.56					
KSH02	161.50	181.50	1.7E-08	5.0E-04	6.788E-03	5.55E-06	1223	1197				1593.16	1818.43	1593.02	9.85					
KSH02	181.50	201.50	1.7E-08	5.0E-04	1.934E-04	1.58E-07	1227	1221				1820.50	2048.66	1833.48	10.08					
KSH02	201.50	221.50	1.7E-08	5.0E-04	7.239E-04	5.91E-07	1224	1221				1988.27	2243.11	1987.71	10.37					
KSH02	221.50	241.50	1.7E-08	5.0E-04	2.157E-04	1.78E-07	1213	1221				2191.01	2418.07	2183.41	10.68					
KSH02	241.50	261.50	1.7E-08	5.0E-04	1.862E-04	1.55E-07	1203	1220				2381.45	2595.79	2384.07	10.92					
KSH02	261.50	281.50	1.7E-08	5.0E-04	3.098E-05	2.48E-08	1249	1221				2589.71	2764.95	2710.22	11.12					
KSH02	281.50	301.50	1.7E-08	5.0E-04	1.813E-03	1.48E-06	1226	1194				2770.48	2969.62	2782.09	11.39					
KSH02	301.50	321.50	1.7E-08	5.0E-04	1.940E-04	1.32E-07	1468	1221				3006.52	3194.47	3037.48	11.71					
KSH02	321.50	341.50	1.7E-08	5.0E-04	4.641E-04	3.77E-07	1231	1221				3202.20	3395.41	3203.31	11.98					
KSH02	341.50	361.50	1.7E-08	5.0E-04	1.502E-04	1.22E-07	1231	1221				3408.26	3614.32	3405.64	12.26					
KSH02	361.50	381.50	1.7E-08	5.0E-04	5.577E-03	4.54E-06	1228	1194				3597.46	3823.97	3599.67	12.54					
KSH02	381.50	401.50	1.7E-08	5.0E-04	5.030E-04	3.99E-07	1260	1221				3797.30	3992.71	3798.13	12.80					
KSH02	401.50	421.50	1.7E-08	5.0E-04	1.970E-03	1.61E-06	1227	1193				3996.59	4195.87	3997.13	13.08					
KSH02	421.50	441.50	1.7E-08	5.0E-04	8.961E-03	7.32E-06	1224	1196				4195.31	4394.46	4197.80	13.37					
KSH02	441.50	461.50	1.7E-08	5.0E-04	1.150E-04	9.34E-08	1231	1221				4401.92	4582.27	4398.46	13.66					
KSH02	461.50	481.50	1.7E-08	5.0E-04	8.564E-04	6.97E-07	1229	1221				4595.95	4797.72	4600.24	13.93					
KSH02	481.50	501.50	1.7E-08	5.0E-04	4.028E-03	3.28E-06	1227	1194				4792.61	5000.33	4793.72	14.19					
KSH02	501.50	521.50	1.7E-08	5.0E-04	2.411E-04	1.96E-07	1230	1221				5001.15	5192.28	5020.92	14.49					
KSH02	521.50	541.50	1.7E-08	5.0E-04	2.236E-03	1.82E-06	1228	1191				5196.29	5406.35	5207.77	14.79					
KSH02	541.50	561.50	1.7E-08	5.0E-04	5.487E-04	4.46E-07	1231	1221				5391.57	5583.66	5404.01	15.07					
KSH02	561.50	581.50	1.7E-08	5.0E-04	4.521E-03	3.68E-06	1229	1194				5590.43	5789.44	5594.17	15.37					
KSH02	581.50	601.50	1.7E-08	5.0E-04	7.277E-03	5.92E-06	1229	1193				5790.41	5988.86	5797.60	15.69					
KSH02	601.50	621.50	1.7E-08	5.0E-04	1.879E-03	1.53E-06	1230	1191				5991.63	6190.63	5997.71	15.95					
KSH02	621.50	641.50	1.7E-08	5.0E-04	1.291E-03	1.05E-06	1230	1221				6190.63	6399.60	6219.38	16.26					
KSH02	641.50	661.50	1.7E-08	5.0E-04	4.404E-04	3.58E-07	1230	1221				6387.43	6586.44	6388.54	16.56					

Borehole idcode	Borehole secup (m)	Borehole seclow (m)	Q-measl-L (m^3/s)	Q-measl-U (m^3/s)	V_p (m^3)	Q_m (m^3/s)	tp (s)	t_F (s)	h_i (masl)	h_p (masl)	h_F (masl)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	EC_w (mS/m)	TDS_w (mg/L)	TDS_{wm} (mg/ L)	Reference	Comments (-)
KSH02	661.50	681.50	1.7E-08	5.0E-04	2.945E-03	2.39E-06	1230	1189				6587.54	6786.14	6593.07	16.85					
KSH02	681.50	701.50	1.7E-08	5.0E-04	1.701E-03	1.38E-06	1230	1189				6785.03	6983.21	6788.21	17.16					
KSH02	701.50	721.50	1.7E-08	5.0E-04	1.041E-02	8.48E-06	1227	1193				6984.45	7187.88	6994.96	17.46					
KSH02	721.50	741.50	1.7E-08	5.0E-04	6.295E-03	5.12E-06	1230	1189				7180.98	7385.92	7202.82	17.79					
KSH02	741.50	761.50	1.7E-08	5.0E-04	2.528E-04	2.05E-07	1232	1221				7383.85	7588.11	7410.66	18.11					
KSH02	761.50	781.50	1.7E-08	5.0E-04	1.929E-04	1.58E-07	1224	1221				7585.21	7787.67	7628.46	18.39					
KSH02	781.50	801.50	1.7E-08	5.0E-04	1.290E-04	1.05E-07	1224	1221				7780.07	8002.15	7797.06	18.70					
KSH02	801.50	821.50	1.7E-08	5.0E-04	4.291E-05	6.08E-08	706	622				7973.54	8198.95	8112.72	19.06					
KSH02	821.50	841.50	1.7E-08	5.0E-04	2.126E-05	4.89E-08	435	621				8187.20	8391.33	8355.95	19.35					
KSH02	841.50	861.50	1.7E-08	5.0E-04	5.663E-04	4.63E-07	1224	1221				8374.46	8590.33	8379.17	19.65					
KSH02	861.50	881.50	1.7E-08	5.0E-04	9.708E-05	7.91E-08	1227	1221				8581.35	8792.79	8611.34	19.97					
KSH02	881.50	901.50	1.7E-08	5.0E-04	1.022E-04	8.33E-08	1227	1221				8790.86	8983.36	8902.66	20.27					
KSH02	901.50	921.50	1.7E-08	5.0E-04	1.215E-04	9.91E-08	1226	1221				8980.33	9190.12	8976.74	20.64					
KSH02	921.50	941.50	1.7E-08	5.0E-04	1.609E-03	1.31E-06	1224	1199				9174.09	9396.86	9175.20	20.97					
KSH02	941.50	961.50	1.7E-08	5.0E-04	3.907E-03	3.19E-06	1225	603				9375.99	9575.28	9376.40	21.30					
KSH02	961.50	981.50	1.7E-08	5.0E-04	1.233E-04	1.00E-07	1227	1221				9594.90	9812.56	9578.17	21.62					
KSH02	301.50	306.50	1.7E-08	5.0E-04	3.609E-05	2.96E-08	1218	1196				3036.66	3277.40	3075.22	11.47					
KSH02	306.50	311.50	1.7E-08	5.0E-04	1.167E-04	9.57E-08	1219	1197				3068.03	3293.02	3103.41	11.54					
KSH02	311.50	316.50	1.7E-08	5.0E-04	3.676E-05	3.01E-08	1220	1196				3121.10	3336.13	3209.54	11.61					
KSH02	316.50	321.50	1.7E-08	5.0E-04	7.620E-05	6.24E-08	1221	1199				3164.35	3379.12	3171.41	11.68					
KSH02	321.50	326.50	1.7E-08	5.0E-04	3.454E-04	2.83E-07	1222	1203				3206.65	3406.90	3205.68	11.75					
KSH02	326.50	331.50	1.7E-08	5.0E-04	4.878E-05	3.99E-08	1223	1200				3274.64	3486.91	3269.24	11.81					
KSH02	331.50	336.50	1.7E-08	5.0E-04	2.804E-05	2.29E-08	1224	1199				3326.87	3525.06	3374.84	11.90					
KSH02	336.50	341.50	1.7E-08	5.0E-04	7.109E-05	5.80E-08	1225	1200				3354.10	3595.40	3355.48	11.96					
KSH02	341.50	346.50	1.7E-08	5.0E-04	5.155E-05	4.18E-08	1232	1199				3463.42	3642.25	3427.91	12.02					
KSH02	346.50	351.50	1.7E-08	5.0E-04	5.861E-05	4.78E-08	1227	1200				3451.26	3688.13	3453.34	12.09					
KSH02	351.50	356.50	1.7E-08	5.0E-04	7.173E-05	5.84E-08	1228	1200				3501.42	3739.13	3501.42	12.17					
KSH02	356.50	361.50	1.7E-08	5.0E-04	6.551E-05	5.33E-08	1229	1200				3568.86	3785.84	3560.57	12.24					
KSH02	361.50	366.50	1.7E-08	5.0E-04	7.987E-05	6.49E-08	1230	1200				3601.06	3835.86	3600.92	12.31					
KSH02	366.50	371.50	1.7E-08	5.0E-04	1.740E-04	1.41E-07	1231	1200				3648.06	3879.53	3647.92	12.38					
KSH02	371.50	376.50	1.7E-08	5.0E-04	1.559E-03	1.26E-06	1242	1206				3700.99	3900.40	3700.43	12.47					
KSH02	376.50	381.50	1.7E-08	5.0E-04	4.180E-03	3.39E-06	1233	1200				3748.94	3947.54	3750.18	12.51					
KSH02	381.50	386.50	1.7E-08	5.0E-04	1.740E-03	1.41E-06	1234	1313				3803.81	4024.10	3804.35	12.58					
KSH02	386.50	391.50	1.7E-08	5.0E-04	3.268E-04	2.65E-07	1235	1200				3847.20	4052.70	3846.92	12.66					
KSH02	391.50	396.50	1.7E-08	5.0E-04	1.132E-04	9.16E-08	1236	1197				3896.81	4142.12	3898.33	12.73					
KSH02	396.50	401.50	1.7E-08	5.0E-04	4.509E-03	3.65E-06	1237	1196				3956.93	4192.42	4008.34	12.79					
KSH02	401.50	406.50	1.7E-08	5.0E-04	2.773E-03	2.24E-06	1238	1219				4011.10	4240.38	4150.40	12.86					
KSH02	406.50	411.50	1.7E-08	5.0E-04	4.638E-05	3.74E-08	1239	1197				4062.51	4297.32	4047.04	12.94					
KSH02	411.50	416.50	1.7E-08	5.0E-04	1.434E-04	1.16E-07	1240	1197				4097.89	4338.91	4097.90	13.00					
KSH02	416.50	421.50	1.7E-08	5.0E-04	2.344E-03	1.89E-06	1241	1203				4144.19	4439.38	4143.77	13.07					

Borehole idcode	Borehole secup (m)	Borehole seclow (m)	Q-measl-L (m^3/s)	Q- measl-U (m^3/s)	V_p (m^3)	Q_m (m^3/s)	tp (s)	t_F (s)	h_i (masl)	h_p (masl)	h_F (masl)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	EC_w (mS/m)	TDS_w (mg/L)	TDS_{wm} (mg/ L)	Reference	Comments (-)
KSH02	421.50	426.50	1.7E-08	5.0E-04	9.261E-03	7.46E-06	1242	1206				4193.53	4440.07	4195.19	13.15					
KSH02	426.50	431.50	1.7E-08	5.0E-04	4.633E-03	3.73E-06	1243	1198				4247.70	4496.18	4256.00	13.21					
KSH02	431.50	436.50	1.7E-08	5.0E-04	9.907E-04	7.96E-07	1244	1199				4296.63	4497.02	4316.80	13.27					
KSH02	436.50	441.50	1.7E-08	5.0E-04	2.674E-05	2.15E-08	1245	1208				4370.56	4592.10	4440.07	13.35					
KSH02	441.50	446.50	1.7E-08	5.0E-04	1.758E-05	1.41E-08	1246	1213				4507.24	4629.13	4539.58	13.42					
KSH02	446.50	451.50	1.7E-08	5.0E-04	9.537E-06	7.65E-09	1247	625				4563.90	4689.39	4733.61	13.49					
KSH02	451.50	456.50	1.7E-08	5.0E-04	1.108E-05	8.88E-09	1248	1017				4584.49	4745.77	4811.55	13.56					
KSH02	456.50	461.50	1.7E-08	5.0E-04	6.906E-03	5.53E-06	1249	1197				4544.56	4792.07	4544.56	13.63					
KSH02	461.50	466.50	1.7E-08	5.0E-04	8.537E-04	6.83E-07	1250	1202				4592.51	4807.14	4594.31	13.70					
KSH02	466.50	471.50	1.7E-08	5.0E-04	6.233E-04	4.98E-07	1251	1196				4642.40	4855.09	4646.27	13.76					
KSH02	471.50	476.50	1.7E-08	5.0E-04	2.231E-05	1.78E-08	1252	1204				4721.86	4925.43	4771.74	13.83					
KSH02	476.50	481.50	1.7E-08	5.0E-04	2.617E-05	2.09E-08	1253	1194				4757.65	4974.49	4778.38	13.91					
KSH02	481.50	486.50	1.7E-08	5.0E-04	3.167E-04	2.53E-07	1254	1197				4797.32	4992.87	4835.88	13.99					
KSH02	486.50	491.50	1.7E-08	5.0E-04	6.916E-05	5.51E-08	1255	1194				4844.17	5065.29	4845.83	14.05					
KSH02	491.50	496.50	1.7E-08	5.0E-04	8.664E-05	6.90E-08	1256	1194				4889.91	5089.48	4893.37	14.10					
KSH02	496.50	501.50	1.7E-08	5.0E-04	3.814E-03	3.03E-06	1257	1197				4940.49	5139.91	4941.46	14.20					
KSH02	501.50	506.50	1.7E-08	5.0E-04	1.369E-04	1.09E-07	1258	1196				4994.81	5192.98	5021.61	14.27					
KSH02	506.50	511.50	1.7E-08	5.0E-04	1.299E-04	1.03E-07	1259	1194				5050.49	5240.94	5069.71	14.35					
KSH02	511.50	516.50	1.7E-08	5.0E-04	3.331E-06	2.64E-09	1260	1221				5189.12	5289.73	5196.86	14.41					
KSH02	516.50	521.50	1.7E-08	5.0E-04	2.622E-06	2.08E-09	1261	622				5174.88	5328.96	5312.94	14.48					
KSH02	521.50	526.50	1.7E-08	5.0E-04	2.016E-03	1.60E-06	1262	1197				5195.06	5395.45	5205.14	14.58					
KSH02	526.50	531.50	1.7E-08	5.0E-04	2.065E-05	1.63E-08	1263	1215				5258.07	5435.11	5269.82	14.64					
KSH02	531.50	536.50	1.7E-08	5.0E-04	1.113E-04	8.81E-08	1264	1194				5297.60	5492.74	5321.23	14.69					
KSH02	536.50	541.50	1.7E-08	5.0E-04	4.194E-05	3.32E-08	1265	1196				5363.66	5542.49	5387.57	14.76					
KSH02	541.50	546.50	1.7E-08	5.0E-04	4.557E-06	3.60E-09	1266	626				5440.50	5603.15	5577.73	14.85					
KSH02	546.50	551.50	1.7E-08	5.0E-04	2.361E-06	1.86E-09	1267	621				5480.44	5655.96	5675.58	14.93					
KSH02	551.50	556.50	1.7E-08	5.0E-04	7.061E-04	5.57E-07	1268	1196				5494.54	5704.60	5508.07	14.98					
KSH02	556.50	561.50	1.7E-08	5.0E-04	6.281E-05	4.95E-08	1269	1194				5543.73	5734.72	5544.56	15.07					
KSH02	561.50	566.50	1.7E-08	5.0E-04	1.198E-03	9.76E-07	1227	1196				5593.07	5791.11	5594.87	15.14					
KSH02	566.50	571.50	1.7E-08	5.0E-04	7.887E-06	9.07E-09	870	1221				5675.03	5848.60	5714.27	15.22					
KSH02	571.50	576.50	1.7E-08	5.0E-04	7.657E-04	6.24E-07	1228	1203				5692.58	5897.24	5692.17	15.30					
KSH02	576.50	581.50	1.7E-08	5.0E-04	3.236E-03	2.64E-06	1228	1197				5742.19	5942.03	5744.13	15.38					
KSH02	581.50	586.50	1.7E-08	5.0E-04	1.038E-03	8.46E-07	1227	1196				5791.80	6001.18	5791.67	15.45					
KSH02	586.50	591.50	1.7E-08	5.0E-04	2.662E-04	2.16E-07	1232	1194				5838.10	6042.22	5837.54	15.52					
KSH02	591.50	596.50	1.7E-08	5.0E-04	3.242E-03	2.67E-06	1216	1194				5889.50	6088.79	5892.28	15.56					
KSH02	596.50	601.50	1.7E-08	5.0E-04	1.073E-03	8.71E-07	1232	996				5939.95	6139.65	5938.71	15.65					
KSH02	601.50	606.50	1.7E-08	5.0E-04	2.288E-03	1.87E-06	1223	1196				5989.84	6188.71	5997.31	15.74					
KSH02	606.50	611.50	1.7E-08	5.0E-04	5.612E-05	4.56E-08	1231	1194				6041.81	6278.96	6049.82	15.81					
KSH02	611.50	616.50	1.7E-08	5.0E-04	3.377E-06	7.01E-09	482	270				6153.61	6354.96	6382.60	15.89					
KSH02	616.50	621.50	1.7E-08	5.0E-04	4.143E-06	8.03E-09	516	814				6183.87	6407.48	6398.08	15.96					
KSH02	621.50	626.50	1.7E-08	5.0E-04	5.889E-06	1.06E-08	555	707				6224.92	6455.16	6382.60	16.04					

Borehole idcode	Borehole secup (m)	Borehole seclow (m)	Q-measl-L (m^3/s)	Q-measl-U (m^3/s)	V_p (m^3)	Q_m (m^3/s)	tp (s)	t_F (s)	h_i (masl)	h_p (masl)	h_F (masl)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	EC_w (mS/m)	TDS_w (mg/L)	TDS_{wm} (mg/ L)	Reference	Comments (-)
KSH02	626.50	631.50	1.7E-08	5.0E-04	2.881E-04	2.34E-07	1232	940				6238.60	6492.34	6238.33	16.10					
KSH02	631.50	636.50	1.7E-08	5.0E-04	6.431E-04	5.22E-07	1231	1221				6290.15	6528.54	6326.22	16.19					
KSH02	636.50	641.50	1.7E-08	5.0E-04	1.170E-03	9.57E-07	1223	1221				6339.76	6555.63	6372.10	16.27					
KSH02	641.50	646.50	1.7E-08	5.0E-04	2.671E-05	2.18E-08	1223	1221				6393.10	6619.62	6397.54	16.33					
KSH02	646.50	651.50	1.7E-08	5.0E-04	6.322E-06	9.39E-09	673	1221				6485.43	6664.81	6591.01	16.41					
KSH02	651.50	656.50	1.7E-08	5.0E-04	5.387E-05	4.40E-08	1224	1221				6488.47	6711.52	6492.06	16.48					
KSH02	656.50	661.50	1.7E-08	5.0E-04	4.101E-04	3.35E-07	1225	655				6533.80	6738.88	6533.52	16.56					
KSH02	661.50	666.50	1.7E-08	5.0E-04	4.048E-04	3.31E-07	1222	879				6583.69	6815.58	6583.82	16.64					
KSH02	666.50	671.50	1.7E-08	5.0E-04	2.516E-03	2.06E-06	1222	1203				6633.71	6838.11	6635.78	16.71					
KSH02	671.50	676.50	1.7E-08	5.0E-04	7.235E-04	5.92E-07	1223	1221				6684.43	6885.65	6691.62	16.79					
KSH02	676.50	681.50	1.7E-08	5.0E-04	2.832E-04	2.32E-07	1223	1221				6735.84	6972.98	6738.60	16.86					
KSH02	681.50	686.50	1.7E-08	5.0E-04	7.907E-06	1.48E-08	533	603				6798.72	7025.92	6953.09	16.92					
KSH02	686.50	691.50	1.7E-08	5.0E-04	3.166E-05	2.59E-08	1223	7222				6850.96	7074.43	6830.93	17.02					
KSH02	691.50	696.50	1.7E-08	5.0E-04	4.690E-04	3.83E-07	1223	1221				6880.40	7079.27	6881.78	17.08					
KSH02	696.50	701.50	1.7E-08	5.0E-04	1.292E-03	1.06E-06	1224	1221				6931.39	7128.34	6934.29	17.16					
KSH02	419.00	424.00	1.7E-08	5.0E-04	1.146E+02	4.15E-04	276194	256422				4142.01	4021.35	4147.53	13.13					
KSH02	575.00	580.00	1.7E-08	5.0E-04	8.191E+03	1.66E-02	492447	177725				5700.45	5409.30	5701.41	15.45					

KSH02 Observation sections

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Section Above		Section below		pai (kPa)	pap (kPa)	paF (kPa)	pbi (kPa)	pbp (kPa)	pbF (kPa)
				secup	seclow	secup	seclow						
KSH02	101.50	201.50	2003-09-24 08:01	80.00	100.50	202.50	1001.11	-	-	-	2015.16	2015.57	2015.57
KSH02	201.50	301.50	2003-09-24 11:12	80.00	200.50	302.50	1001.11	-	-	-	3004.12	3004.12	3004.12
KSH02	301.50	401.50	2003-09-24 14:44	80.00	300.50	402.50	1001.11	-	-	-	3998.31	3998.17	3998.73
KSH02	401.50	501.50	2003-09-24 17:47	80.00	400.50	502.50	1001.11	-	-	-	4994.14	4994.14	4993.86
KSH02	501.50	601.50	2003-09-25 08:02	80.00	500.50	602.50	1001.11	-	-	-	5986.81	5987.36	5986.81
KSH02	601.50	701.50	2003-09-26 08:05	80.00	600.50	702.50	1001.11	-	-	-	6982.92	6984.97	6984.15
KSH02	701.50	801.50	2003-10-01 07:22	80.00	700.50	802.50	1001.11	-	-	-	7974.49	7974.91	7974.91
KSH02	801.50	901.50	2003-09-30 10:48	80.00	800.50	902.50	1001.11	-	-	-	8974.98	8974.98	8974.98
KSH02	897.00	997.00	2003-09-30 13:35	80.00	896.00	998.00	1001.11	-	-	-	11162.80	11131.10	11044.30
KSH02	81.50	101.50	2003-10-02 09:07	80.00	80.50	102.50	1001.11	796.96	797.23	796.96	1033.85	1074.99	1036.59

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Section Above secup	Section Above seclow	Section below secup	Section below seclow	pai (kPa)	pap (kPa)	paF (kPa)	pbi (kPa)	pbp (kPa)	pbF (kPa)
KSH02	101.50	121.50	2003-10-02 10:47	80.00	100.50	122.50	1001.11	997.07	1008.67	1008.67	1230.25	1230.25	1229.69
KSH02	121.50	141.50	2003-10-02 12:34	80.00	120.50	142.50	1001.11	1201.75	1201.05	1199.95	1427.19	1426.78	1426.64
KSH02	141.50	161.50	2003-10-02 14:05	80.00	140.50	162.50	1001.11	1396.74	1396.18	1395.63	1624.40	1624.13	1623.58
KSH02	161.50	181.50	2003-10-02 15:31	80.00	160.50	182.50	1001.11	1594.09	1593.26	1592.99	1822.17	1822.17	1822.17
KSH02	181.50	201.50	2003-10-02 16:59	80.00	180.50	202.50	1001.11	1790.89	1790.33	1789.22	2019.39	2019.12	2019.12
KSH02	201.50	221.50	2003-10-03 07:26	80.00	200.50	222.50	1001.11	1982.84	1982.29	1982.16	2214.55	2214.41	2214.41
KSH02	221.50	241.50	2003-10-06 13:53	80.00	220.50	242.50	1001.11	31.27	31.27	31.27	2412.31	2412.45	2412.45
KSH02	241.50	261.50	2003-10-06 16:13	80.00	240.50	262.50	1001.11	231.39	231.39	231.39	2609.95	2609.95	2609.95
KSH02	261.50	281.50	2003-10-07 07:52	80.00	260.50	282.50	1001.11	399.43	399.43	399.43	2777.13	2776.71	2777.27
KSH02	281.50	301.50	2003-10-07 10:36	80.00	280.50	302.50	1001.11	2746.67	2746.26	2746.12	2975.30	2975.30	2975.30
KSH02	301.50	321.50	2003-10-07 14:11	80.00	300.50	322.50	1001.11	2975.81	2975.81	2975.53	3204.07	3204.07	3204.07
KSH02	321.50	341.50	2003-10-07 16:11	80.00	320.50	342.50	1001.11	3177.44	3177.30	3176.75	3402.80	3402.94	3403.21
KSH02	341.50	361.50	2003-10-08 08:03	80.00	340.50	362.50	1001.11	3377.97	3377.97	3377.97	3601.79	3601.93	3601.79
KSH02	361.50	381.50	2003-10-08 10:04	80.00	360.50	382.50	1001.11	3578.07	3577.80	3577.53	3799.29	3799.70	3799.29
KSH02	381.50	401.50	2003-10-08 12:06	80.00	380.50	402.50	1001.11	3778.19	3777.78	3777.64	3998.29	3998.57	3998.43
KSH02	401.50	421.50	2003-10-08 14:44	80.00	400.50	422.50	1001.11	3979.97	3979.41	3979.41	4198.12	4199.07	4198.12
KSH02	421.50	441.50	2003-10-08 16:26	80.00	420.50	442.50	1001.11	4180.91	4180.35	4180.08	4397.53	4397.80	4397.80
KSH02	441.50	461.50	2003-10-09 07:54	80.00	440.50	462.50	1001.11	4380.19	4379.50	4379.08	4596.94	4596.94	4596.94
KSH02	461.50	481.50	2003-10-09 09:51	80.00	460.50	482.50	1001.11	4580.85	4580.31	4580.31	4796.49	4796.49	4796.63
KSH02	481.50	501.50	2003-10-09 12:42	80.00	480.50	502.50	1001.11	4782.90	4782.07	4780.96	4995.76	4995.76	4995.76
KSH02	501.50	521.50	2003-10-09 15:30	80.00	500.50	522.50	1001.11	4981.63	4980.80	4980.53	5194.36	5194.36	5194.36
KSH02	521.50	541.50	2003-10-09 17:31	80.00	520.50	542.50	1001.11	5181.19	5181.19	5181.19	5393.77	5394.04	5394.04
KSH02	541.50	561.50	2003-10-10 08:06	80.00	540.50	562.50	1001.11	5382.27	5381.30	5380.76	5592.08	5592.08	5592.08
KSH02	561.50	581.50	2003-10-10 10:01	80.00	560.50	582.50	1001.11	5582.52	5581.97	5581.42	5790.67	5791.09	5790.67
KSH02	581.50	601.50	2003-10-14 07:24	80.00	580.50	602.50	1001.11	5783.74	5784.16	5784.30	5992.01	5993.10	5992.56
KSH02	601.50	621.50	2003-10-14 09:16	80.00	600.50	622.50	1001.11	5987.45	5986.62	5986.62	6191.70	6191.70	6191.70
KSH02	621.50	641.50	2003-10-14 11:00	80.00	620.50	642.50	1001.11	6188.38	6187.28	6187.28	6390.29	6390.29	6390.29
KSH02	641.50	661.50	2003-10-14 13:00	80.00	640.50	662.50	1001.11	6388.92	6388.09	6387.96	6589.01	6589.01	6589.42
KSH02	661.50	681.50	2003-10-14 14:44	80.00	660.50	682.50	1001.11	6589.17	6588.48	6587.51	6787.87	6787.60	6788.01
KSH02	681.50	701.50	2003-10-14 16:24	80.00	680.50	702.50	1001.11	6788.58	6787.61	6787.07	6986.05	6986.60	6986.60
KSH02	701.50	721.50	2003-10-14 18:11	80.00	700.50	722.50	1001.11	6988.29	6987.73	6987.19	7183.54	7184.09	7184.09
KSH02	721.50	741.50	2003-10-15 07:45	80.00	720.50	742.50	1001.11	7186.75	7186.19	7185.64	7381.58	7381.58	7382.14
KSH02	741.50	761.50	2003-10-15 09:22	80.00	740.50	762.50	1001.11	7388.52	7387.96	7387.42	7580.72	7580.72	7580.72
KSH02	761.50	781.50	2003-10-15 11:07	80.00	760.50	782.50	1001.11	7590.56	7589.73	7589.18	7780.41	7780.68	7780.41
KSH02	781.50	801.50	2003-10-15 13:15	80.00	780.50	802.50	1001.11	7790.81	7790.39	7789.30	7979.69	7979.69	7979.55
KSH02	801.50	821.50	2003-10-15 14:57	80.00	800.50	822.50	1001.11	7989.55	7989.40	7988.86	8178.69	8178.69	8178.69
KSH02	821.50	841.50	2003-10-15 17:50	80.00	820.50	842.50	1001.11	8191.73	8191.17	8191.17	8377.28	8377.41	8377.82
KSH02	841.50	861.50	2003-10-15 19:29	80.00	840.50	862.50	1001.11	8393.36	8392.81	8392.40	8576.96	8577.10	8577.51
KSH02	861.50	881.50	2003-10-16 07:29	80.00	860.50	882.50	1001.11	8591.82	8590.99	8590.85	8775.01	8775.01	8775.56

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Section Above		Section below		pai (kPa)	pap (kPa)	paF (kPa)	pbi (kPa)	pbp (kPa)	pbF (kPa)
				secup	seclow	secup	seclow						
KSH02	881.50	901.50	2003-10-16 09:07	80.00	880.50	902.50	1001.11	8794.97	8794.01	8793.73	8975.38	8975.78	8975.78
KSH02	901.50	921.50	2003-10-16 10:40	80.00	900.50	922.50	1001.11	8998.26	8997.16	8997.16	9176.43	9176.57	9176.57
KSH02	921.50	941.50	2003-10-16 12:29	80.00	920.50	942.50	1001.11	9200.31	9199.62	9199.48	9377.35	9377.91	9377.91
KSH02	941.50	961.50	2003-10-16 14:15	80.00	940.50	962.50	1001.11	9403.19	9402.22	9402.35	9578.69	9578.96	9579.24
KSH02	961.50	981.50	2003-10-16 15:52	80.00	960.50	982.50	1001.11	9606.33	9605.24	9604.67	9779.61	9779.75	9779.47
KSH02	301.50	306.50	2003-10-22 11:53	80.00	300.50	307.50	1001.11	3000.96	2998.19	2995.98	3063.90	3063.36	3063.08
KSH02	306.50	311.50	2003-10-22 13:38	80.00	305.50	312.50	1001.11	3042.42	3041.32	3040.21	3113.01	3113.42	3113.01
KSH02	311.50	316.50	2003-10-22 15:06	80.00	310.50	317.50	1001.11	3088.86	3087.75	3086.65	3163.34	3163.20	3162.93
KSH02	316.50	321.50	2003-10-22 16:37	80.00	315.50	322.50	1001.11	3137.23	3136.54	3135.85	3212.85	3212.85	3212.30
KSH02	321.50	326.50	2003-10-22 17:57	80.00	320.50	327.50	1001.11	3186.15	3185.60	3184.49	3261.95	3261.81	3261.67
KSH02	326.50	331.50	2003-10-23 07:18	80.00	325.50	332.50	1001.11	3233.14	3232.72	3232.03	3309.54	3309.40	3309.40
KSH02	331.50	336.50	2003-10-23 08:42	80.00	330.50	337.50	1001.11	3283.44	3283.44	3282.89	3359.32	3359.32	3358.77
KSH02	336.50	341.50	2003-10-23 10:12	80.00	335.50	342.50	1001.11	3333.19	3333.19	3332.64	3408.69	3408.69	3408.69
KSH02	341.50	346.50	2003-10-23 11:38	80.00	340.50	347.50	1001.11	3383.36	3383.36	3382.94	3458.48	3458.62	3458.62
KSH02	346.50	351.50	2003-10-23 13:16	80.00	345.50	352.50	1001.11	3433.94	3433.67	3433.25	3507.99	3508.53	3508.53
KSH02	351.50	356.50	2003-10-23 14:43	80.00	350.50	357.50	1001.11	3484.38	3483.83	3483.56	3558.18	3558.32	3558.46
KSH02	356.50	361.50	2003-10-23 16:12	80.00	355.50	362.50	1001.11	3534.41	3534.13	3533.31	3607.84	3607.97	3608.38
KSH02	361.50	366.50	2003-10-23 17:33	80.00	360.50	367.50	1001.11	3584.71	3584.03	3584.17	3657.48	3657.34	3657.75
KSH02	366.50	371.50	2003-10-24 07:08	80.00	365.50	372.50	1001.11	3632.11	3632.11	3631.70	3705.48	3705.48	3706.03
KSH02	371.50	376.50	2003-10-28 08:10	80.00	370.50	377.50	1001.11	3682.83	3682.56	3682.00	3755.95	3756.64	3755.95
KSH02	376.50	381.50	2003-10-28 10:45	80.00	375.50	382.50	1001.11	3733.00	3732.87	3732.87	3804.78	3805.19	3804.78
KSH02	381.50	386.50	2003-10-28 13:25	80.00	380.50	387.50	1001.11	3783.17	3782.75	3782.62	3854.15	3854.15	3854.15
KSH02	386.50	391.50	2003-10-28 15:09	80.00	385.50	392.50	1001.11	3832.51	3832.51	3831.81	3903.52	3903.52	3903.52
KSH02	391.50	396.50	2003-10-29 07:01	80.00	390.50	397.50	1001.11	3880.74	3880.74	3880.46	3951.94	3952.07	3952.35
KSH02	396.50	401.50	2003-10-29 08:47	80.00	395.50	402.50	1001.11	3931.46	3931.32	3931.32	4002.13	4002.13	4002.27
KSH02	401.50	406.50	2003-10-29 10:53	80.00	400.50	407.50	1001.11	3981.62	3981.08	3981.62	4051.92	4051.92	4052.19
KSH02	406.50	411.50	2003-10-29 13:04	80.00	405.50	412.50	1001.11	4032.07	4031.65	4031.37	4101.57	4101.57	4101.57
KSH02	411.50	416.50	2003-10-29 14:40	80.00	410.50	417.50	1001.11	4082.79	4082.23	4082.23	4151.34	4151.34	4151.48
KSH02	416.50	421.50	2003-10-29 16:28	80.00	415.50	422.50	1001.11	4132.12	4131.71	4131.43	4200.85	4201.95	4200.85
KSH02	421.50	426.50	2003-10-29 18:14	80.00	420.50	427.50	1001.11	4182.84	4182.29	4182.29	4251.33	4251.60	4251.88
KSH02	426.50	431.50	2003-10-30 07:02	80.00	425.50	432.50	1001.11	4230.94	4230.66	4230.38	4301.25	4301.11	4301.25
KSH02	431.50	436.50	2003-10-30 08:36	80.00	430.50	437.50	1001.11	4281.93	4281.79	4281.79	4351.03	4351.17	4351.17
KSH02	436.50	441.50	2003-10-30 10:10	80.00	435.50	442.50	1001.11	4332.51	4332.10	4332.10	4400.54	4400.96	4401.09
KSH02	441.50	446.50	2003-10-30 11:42	80.00	440.50	447.50	1001.11	4381.57	4381.30	4381.30	4450.47	4450.47	4450.47
KSH02	446.50	451.50	2003-10-30 14:29	80.00	445.50	452.50	1001.11	4431.74	4431.05	4431.05	4499.43	4499.29	4499.29
KSH02	451.50	456.50	2003-10-30 15:56	80.00	450.50	457.50	1001.11	4482.46	4482.04	4481.90	4549.62	4549.76	4549.76
KSH02	456.50	461.50	2003-10-30 17:46	80.00	455.50	462.50	1001.11	4532.76	4532.21	4532.21	4599.69	4599.41	4599.69
KSH02	461.50	466.50	2003-10-30 19:23	80.00	460.50	467.50	1001.11	4583.34	4582.52	4582.52	4649.61	4649.60	4649.06

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Section Above secup	Section Above seclow	Section below secup	Section below seclow	pai (kPa)	pap (kPa)	paF (kPa)	pbi (kPa)	pbp (kPa)	pbF (kPa)
KSH02	466.50	471.50	2003-11-03 13:47	80.00	465.50	472.50	1001.11	4633.65	4633.51	4633.38	4700.07	4700.07	4700.07
KSH02	471.50	476.50	2003-11-03 15:23	80.00	470.50	477.50	1001.11	4684.92	4684.51	4684.23	4750.27	4750.54	4750.54
KSH02	476.50	481.50	2003-11-03 17:05	80.00	475.50	482.50	1001.11	4735.50	4735.09	4734.53	4799.92	4799.92	4799.92
KSH02	481.50	486.50	2003-11-04 07:07	80.00	480.50	487.50	1001.11	4784.28	4783.87	4783.74	4849.29	4849.29	4849.29
KSH02	486.50	491.50	2003-11-04 08:44	80.00	485.50	492.50	1001.11	4835.15	4834.87	4834.59	4899.22	4899.22	4899.22
KSH02	491.50	496.50	2003-11-04 10:25	80.00	490.50	497.50	1001.11	4884.48	4884.34	4884.34	4948.04	4948.04	4948.04
KSH02	496.50	501.50	2003-11-04 12:01	80.00	495.50	502.50	1001.11	4936.03	4935.75	4935.75	4999.61	4999.61	4999.61
KSH02	501.50	506.50	2003-11-04 14:13	80.00	500.50	507.50	1001.11	4987.02	4986.61	4986.61	5050.07	5050.07	5050.07
KSH02	506.50	511.50	2003-11-04 15:52	80.00	505.50	512.50	1001.11	5037.47	5036.91	5036.91	5099.59	5099.45	5099.45
KSH02	511.50	516.50	2003-11-04 17:27	80.00	510.50	517.50	1001.11	5087.77	5087.35	5086.66	5149.38	5149.38	5148.82
KSH02	516.50	521.50	2003-11-05 07:18	80.00	515.50	522.50	1001.11	5137.53	5137.25	5136.97	5198.75	5198.75	5198.75
KSH02	521.50	526.50	2003-11-05 08:35	80.00	520.50	527.50	1001.11	5187.42	5187.14	5186.72	5248.66	5248.39	5248.66
KSH02	526.50	531.50	2003-11-05 10:35	80.00	525.50	532.50	1001.11	5238.82	5238.00	5237.58	5298.58	5298.72	5298.58
KSH02	531.50	536.50	2003-11-05 12:12	80.00	530.50	537.50	1001.11	5287.61	5286.92	5286.78	5347.41	5347.41	5347.41
KSH02	536.50	541.50	2003-11-05 13:53	80.00	535.50	542.50	1001.11	5338.88	5338.18	5338.18	5398.30	5398.43	5398.43
KSH02	541.50	546.50	2003-11-05 15:19	80.00	540.50	547.50	1001.11	5389.19	5389.05	5388.50	5448.35	5448.22	5448.35
KSH02	546.50	551.50	2003-11-05 17:17	80.00	545.50	552.50	1001.11	5439.49	5439.35	5438.80	5497.73	5498.14	5497.73
KSH02	551.50	556.50	2003-11-06 07:03	80.00	550.50	557.50	1001.11	5488.83	5488.27	5488.00	5547.78	5548.20	5548.20
KSH02	556.50	561.50	2003-11-06 08:35	81.00	555.50	562.50	1002.11	5539.55	5538.85	5538.30	5597.70	5597.56	5597.56
KSH02	561.50	566.50	2003-11-06 10:30	80.00	560.50	567.50	1001.11	5589.98	5589.57	5589.16	5647.50	5647.50	5647.50
KSH02	566.50	571.50	2003-11-06 12:09	80.00	565.50	572.50	1001.11	5640.29	5640.01	5640.01	5697.41	5697.41	5697.41
KSH02	571.50	576.50	2003-11-06 13:40	80.00	570.50	577.50	1001.11	5690.88	5690.33	5689.77	5747.20	5747.48	5747.34
KSH02	576.50	581.50	2003-11-06 15:19	80.00	575.50	582.50	1001.11	5740.76	5740.21	5740.08	5796.71	5797.25	5796.71
KSH02	581.50	586.50	2003-11-06 16:51	80.00	580.50	587.50	1001.11	5791.07	5790.37	5790.37	5846.08	5846.08	5846.08
KSH02	586.50	591.50	2003-11-07 07:06	80.00	585.50	592.50	1001.11	5838.48	5838.48	5837.91	5894.90	5894.90	5894.35
KSH02	591.50	596.50	2003-11-10 13:39	80.00	590.50	597.50	1001.11	5889.88	5890.02	5889.88	5945.38	5946.34	5945.93
KSH02	596.50	601.50	2003-11-10 15:09	80.00	595.50	602.50	1001.11	5941.01	5940.32	5940.18	5995.03	5995.16	5994.75
KSH02	601.50	606.50	2003-11-10 16:25	80.00	600.50	607.50	1001.11	5991.05	5990.49	5990.49	6044.67	6044.67	6044.67
KSH02	606.50	611.50	2003-11-11 07:07	80.00	605.50	612.50	1001.11	6038.72	6038.59	6038.59	6093.22	6093.08	6093.50
KSH02	611.50	616.50	2003-11-11 08:31	80.00	610.50	617.50	1001.11	6090.13	6089.44	6089.44	6143.42	6143.28	6142.86
KSH02	616.50	621.50	2003-11-11 09:23	80.00	615.50	622.50	1001.11	6141.40	6140.84	6140.84	6193.89	6193.89	6194.43
KSH02	621.50	626.50	2003-11-11 10:29	80.00	620.50	627.50	1001.11	6191.70	6191.70	6191.16	6243.81	6243.81	6243.81
KSH02	626.50	631.50	2003-11-11 11:29	80.00	625.50	632.50	1001.11	6241.60	6240.91	6240.91	6293.18	6293.32	6293.18
KSH02	631.50	636.50	2003-11-11 13:01	80.00	630.50	637.50	1001.11	6291.91	6291.35	6291.77	6343.24	6343.24	6343.11
KSH02	636.50	641.50	2003-11-11 14:33	80.00	635.50	642.50	1001.11	6342.07	6340.96	6340.96	6393.02	6392.47	6392.47
KSH02	641.50	646.50	2003-11-11 16:03	80.00	640.50	647.50	1001.11	6392.37	6391.40	6391.27	6442.39	6442.39	6442.39
KSH02	646.50	651.50	2003-11-11 17:22	80.00	645.50	652.50	1001.11	6442.40	6441.57	6441.02	6492.05	6491.91	6491.78
KSH02	651.50	656.50	2003-11-12 07:07	80.00	650.50	657.50	1001.11	6490.21	6489.66	6489.66	6540.60	6540.60	6540.60
KSH02	656.50	661.50	2003-11-12 08:30	80.00	655.50	662.50	1001.11	6540.94	6540.25	6539.97	6590.52	6590.66	6590.52

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Section Above secup	Section Above seclow	Section below secup	Section below seclow	pai (kPa)	pap (kPa)	paF (kPa)	pbi (kPa)	pbp (kPa)	pbF (kPa)
KSH02	661.50	666.50	2003-11-12 09:40	80.00	660.50	667.50	1001.11	6591.66	6590.69	6590.28	6640.30	6640.30	6640.44
KSH02	666.50	671.50	2003-11-12 11:02	80.00	665.50	672.50	1001.11	6641.82	6641.13	6640.58	6690.22	6690.91	6690.35
KSH02	671.50	676.50	2003-11-12 12:35	80.00	670.50	677.50	1001.11	6691.99	6691.29	6690.89	6739.73	6739.73	6739.73
KSH02	676.50	681.50	2003-11-12 13:56	80.00	675.50	682.50	1001.11	6742.29	6741.18	6741.18	6789.52	6789.66	6789.66
KSH02	681.50	686.50	2003-11-12 15:23	80.00	680.50	687.50	1001.11	6792.46	6791.77	6791.49	6839.44	6839.17	6839.04
KSH02	686.50	691.50	2003-11-12 16:23	80.00	685.50	692.50	1001.11	6842.91	6842.36	6840.15	6888.95	6888.95	6888.41
KSH02	691.50	696.50	2003-11-13 07:04	80.00	690.50	697.50	1001.11	6891.00	6890.44	6889.90	6937.77	6938.32	6938.32
KSH02	696.50	701.50	2003-11-13 08:26	80.00	695.50	702.50	1001.11	6942.41	6941.85	6941.30	6988.24	6989.34	6988.79
KSH02	419	424	37866.33336	80.00	418.00	425.00	1001.11	715.32	721.53	720.57	4218.57	4222.54	4222.54
KSH02	575	580	37873.78883	80.00	574.00	581.00	1001.11	730.41	741.19	741.75	5771.22	5760.79	5768.47

KSH02 Basic evaluation. Left

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Q/s (m^2/s)	Value Type-Q/s (-1, 0, 1)	T_Q (m^2/s)	T_M (m^2/s)	Best Choise-T_M (1,0)	b (m)	B (1D) (m)	TB (1D) (m^3/s)	TB-measl-L (1D) (m^3/s)	TB-measl-U (1D) (m^3/s)	SB (1D) (m)	SB* (1D) (m)	L_f (1D) (m)	T_T (2D) (m^2/s)	Value Type-T_T (-1, 0 or 1)	Best Choise-T_T (1,0)
KSH02	101.50	201.50	2003-09-24 08:01	3.46E-06	0		4.84E-06	0	100.00								2.33E-06	0	1
KSH02	201.50	301.50	2003-09-24 11:12	9.83E-08	0		1.30E-07	0	100.00								7.05E-08	0	1
KSH02	301.50	401.50	2003-09-24 14:44	1.71E-07	0		2.27E-07	0	100.00								1.39E-07	0	1
KSH02	401.50	501.50	2003-09-24 17:47	8.62E-07	0		1.15E-06	0	100.00								9.70E-07	0	1
KSH02	501.50	601.50	2003-09-25 08:02	3.73E-07	0		5.23E-07	0	100.00								1.49E-07	0	1
KSH02	601.50	701.50	2003-09-26 08:05	3.33E-07	0		4.67E-07	0	100.00								2.28E-07	0	1
KSH02	701.50	801.50	2003-10-01 07:22	4.67E-07	0		6.31E-07	0	100.00								3.78E-07	0	1
KSH02	801.50	901.50	2003-09-30 10:48	2.12E-08	0		2.83E-08	0	100.00								1.00E-08	0	1
KSH02	897.00	997.00	2003-09-30 13:35	6.65E-07	0		8.85E-07	0	100.00								1.68E-07	0	1
KSH02	81.50	101.50	2003-10-02 09:07	2.20E-06	0		2.34E-06	0	20.00								2.89E-06	0	1
KSH02	101.50	121.50	2003-10-02 10:47	3.42E-06	0		3.68E-06	0	20.00								3.08E-06	0	1
KSH02	121.50	141.50	2003-10-02 12:34	1.82E-09	0		1.95E-09	0	20.00								7.10E-10	0	1
KSH02	141.50	161.50	2003-10-02 14:05	3.38E-09	0		3.64E-09	0	20.00								1.24E-09	0	1
KSH02	161.50	181.50	2003-10-02 15:31	2.29E-07	0		2.42E-07	1	20.00								3.84E-07	0	0
KSH02	181.50	201.50	2003-10-02 16:59	3.89E-09	0		4.04E-09	0	20.00								2.29E-09	0	1
KSH02	201.50	221.50	2003-10-03 07:26	2.00E-08	0		2.12E-08	0	20.00								1.53E-08	0	1

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Q/s (m^2/s)	Value Type-Q/s (-1, 0, 1)	T_Q (m^2/s)	T_M (m^2/s)	Best Choise-T_M (1,0)	b (m)	B (1D) (m)	TB (1D) (m^3/s)	TB-measl-L (1D) (m^3/s)	TB-measl-U (1D) (m^3/s)	SB (1D) (m)	SB* (1D) (m)	L_f (1D) (m)	T_T (2D) (m^2/s)	Value Type-T_T (-1, 0 or 1)	Best Choise-T_T (1,0)
KSH02	221.50	241.50	2003-10-06 13:53	6.96E-09	0		7.28E-09	1	20.00									0	0
KSH02	241.50	261.50	2003-10-06 16:13	4.89E-09	0		4.94E-09	0	20.00								1.90E-09	0	1
KSH02	261.50	281.50	2003-10-07 07:52		-1				20.00									-1	
KSH02	281.50	301.50	2003-10-07 10:36	5.79E-08	0		5.76E-08	0	20.00								3.10E-08	0	1
KSH02	301.50	321.50	2003-10-07 14:11	5.15E-09	0		5.30E-09	0	20.00								1.63E-09	0	1
KSH02	321.50	341.50	2003-10-07 16:11	1.27E-08	0		1.36E-08	1	20.00								1.99E-08	0	0
KSH02	341.50	361.50	2003-10-08 08:03	4.49E-09	0		4.72E-09	0	20.00								2.19E-09	0	1
KSH02	361.50	381.50	2003-10-08 10:04	1.81E-07	0		1.91E-07	0	20.00								2.30E-07	0	1
KSH02	381.50	401.50	2003-10-08 12:06	1.56E-08	0		1.63E-08	0	20.00								1.45E-08	0	1
KSH02	401.50	421.50	2003-10-08 14:44	7.45E-08	0		7.90E-08	1	20.00									0	0
KSH02	421.50	441.50	2003-10-08 16:26	3.37E-07	0		3.48E-07	0	20.00								4.62E-07	0	1
KSH02	441.50	461.50	2003-10-09 07:54	4.76E-09	0		4.62E-09	1	20.00									0	0
KSH02	461.50	481.50	2003-10-09 09:51	3.08E-08	0		3.26E-08	0	20.00								3.50E-08	0	1
KSH02	481.50	501.50	2003-10-09 12:42	1.43E-07	0		1.52E-07	0	20.00								1.90E-07	0	1
KSH02	501.50	521.50	2003-10-09 15:30	7.77E-09	0		8.08E-09	0	20.00								2.90E-09	0	1
KSH02	521.50	541.50	2003-10-09 17:31	6.90E-08	0		7.32E-08	0	20.00								4.71E-08	0	1
KSH02	541.50	561.50	2003-10-10 08:06	1.38E-08	0		1.46E-08	0	20.00								1.25E-08	0	1
KSH02	561.50	581.50	2003-10-10 10:01	1.63E-07	0		1.64E-07	0	20.00								2.00E-07	0	1
KSH02	581.50	601.50	2003-10-14 07:24	2.35E-07	0		2.50E-07	0	20.00								2.08E-07	0	1
KSH02	601.50	621.50	2003-10-14 09:16	6.34E-08	0		6.64E-08	0	20.00								3.87E-08	0	1
KSH02	621.50	641.50	2003-10-14 11:00	3.63E-08	0		3.86E-08	0	20.00								1.21E-08	0	1
KSH02	641.50	661.50	2003-10-14 13:00	1.48E-08	0		1.56E-08	0	20.00								6.97E-09	0	1
KSH02	661.50	681.50	2003-10-14 14:44	1.02E-07	0		1.08E-07	0	20.00								4.69E-08	0	1
KSH02	681.50	701.50	2003-10-14 16:24	6.21E-08	0		6.48E-08	0	20.00								7.35E-08	0	1
KSH02	701.50	721.50	2003-10-14 18:11	2.95E-07	0		3.10E-07	0	20.00								1.10E-07	0	1
KSH02	721.50	741.50	2003-10-15 07:45	1.98E-07	0		2.14E-07	0	20.00								9.95E-08	0	1
KSH02	741.50	761.50	2003-10-15 09:22	7.74E-09	0		8.22E-09	0	20.00								3.20E-09	0	1
KSH02	761.50	781.50	2003-10-15 11:07	5.70E-09	0		6.06E-09	0	20.00								2.21E-09	0	1
KSH02	781.50	801.50	2003-10-15 13:15	3.85E-09	0		4.04E-09	0	20.00								1.49E-09	0	1
KSH02	801.50	821.50	2003-10-15 14:57	1.34E-09	0		1.41E-09	0	20.00								3.47E-10	0	1
KSH02	821.50	841.50	2003-10-15 17:50	9.64E-10	0		1.01E-09	0	20.00								1.92E-10	0	1
KSH02	841.50	861.50	2003-10-15 19:29	1.88E-08	0		1.99E-08	0	20.00								1.67E-08	0	1
KSH02	861.50	881.50	2003-10-16 07:29	2.63E-09	0		2.70E-09	0	20.00								1.72E-09	0	1
KSH02	881.50	901.50	2003-10-16 09:07	2.09E-09	0		2.18E-09	0	20.00								1.21E-10	0	1
KSH02	901.50	921.50	2003-10-16 10:40	3.90E-09	0		4.02E-09	0	20.00								3.78E-09	0	1
KSH02	921.50	941.50	2003-10-16 12:29	5.34E-08	0		5.68E-08	1	20.00								9.41E-08	0	0
KSH02	941.50	961.50	2003-10-16 14:15	1.30E-07	0		1.35E-07	0	20.00								6.82E-08	0	1
KSH02	961.50	981.50	2003-10-16 15:52	3.65E-09	0		3.80E-09	0	20.00								2.95E-09	0	1

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Q/s (m^2/s)	Value Type-Q/s (-1, 0, 1)	T_Q (m^2/s)	T_M (m^2/s)	Best Choise-T_M (1,0)	b (m)	B (1D) (m)	TB (1D) (m^3/s)	TB-measl-L (1D) (m^3/s)	TB-measl-U (1D) (m^3/s)	SB (1D) (m)	SB* (1D) (m)	L_f (1D) (m)	T_T (2D) (m^2/s)	Value Type-T_T (-1, 0 or 1)	Best Choise-T_T (1,0)
KSH02	301.50	306.50	2003-10-22 11:53	9.91E-10	0		8.15E-10	0	5.00								8.86E-10	0	1
KSH02	306.50	311.50	2003-10-22 13:38	3.36E-09	0		2.73E-09	0	5.00								8.87E-10	0	1
KSH02	311.50	316.50	2003-10-22 15:06	1.04E-09	0		8.60E-10	0	5.00								3.78E-10	0	1
KSH02	316.50	321.50	2003-10-22 16:37	2.31E-09	0		1.88E-09	0	5.00								1.17E-09	0	1
KSH02	321.50	326.50	2003-10-22 17:57	1.23E-08	0		1.02E-08	0	5.00								1.15E-08	0	1
KSH02	326.50	331.50	2003-10-23 07:18	2.07E-09	0		1.71E-09	0	5.00								8.05E-10	0	1
KSH02	331.50	336.50	2003-10-23 08:42	1.36E-09	0		1.13E-09	0	5.00								5.47E-10	0	1
KSH02	336.50	341.50	2003-10-23 10:12	2.10E-09	0		1.74E-09	0	5.00								5.79E-10	0	1
KSH02	341.50	346.50	2003-10-23 11:38	1.65E-09	0		1.38E-09	0	5.00								3.78E-10	0	1
KSH02	346.50	351.50	2003-10-23 13:16	1.66E-09	0		1.36E-09	0	5.00								8.61E-10	0	1
KSH02	351.50	356.50	2003-10-23 14:43	1.98E-09	0		1.64E-09	0	5.00								1.20E-09	0	1
KSH02	356.50	361.50	2003-10-23 16:12	2.10E-09	0		1.73E-09	0	5.00								9.35E-10	0	1
KSH02	361.50	366.50	2003-10-23 17:33	2.26E-09	0		1.86E-09	0	5.00								1.43E-09	0	1
KSH02	366.50	371.50	2003-10-24 07:08	4.82E-09	0		3.96E-09	0	5.00								2.36E-09	0	1
KSH02	371.50	376.50	2003-10-28 08:10	3.92E-08	0		3.12E-08	0	5.00								5.41E-08	0	1
KSH02	376.50	381.50	2003-10-28 10:45	1.60E-07	0		1.31E-07	1	5.00								2.91E-07	0	0
KSH02	381.50	386.50	2003-10-28 13:25	1.80E-09	0		1.55E-09	0	5.00								8.61E-10	0	1
KSH02	386.50	391.50	2003-10-28 15:09	1.05E-08	0		8.65E-09	0	5.00								8.96E-09	0	1
KSH02	391.50	396.50	2003-10-29 07:01	2.02E-09	0		1.67E-09	0	5.00								2.84E-09	0	1
KSH02	396.50	401.50	2003-10-29 08:47	9.75E-10	0		8.40E-10	0	5.00								5.05E-10	0	1
KSH02	401.50	406.50	2003-10-29 10:53		-1				5.00									-1	
KSH02	406.50	411.50	2003-10-29 13:04	1.77E-09	0		1.45E-09	1	5.00								7.73E-10	0	0
KSH02	411.50	416.50	2003-10-29 14:40	2.79E-09	0		2.27E-09	0	5.00								3.07E-09	0	1
KSH02	416.50	421.50	2003-10-29 16:28	5.99E-08	0		5.05E-08	1	5.00								7.13E-08	0	0
KSH02	421.50	426.50	2003-10-29 18:14	2.81E-07	0		2.35E-07	1	5.00									0	0
KSH02	426.50	431.50	2003-10-30 07:02	1.28E-08	0		1.10E-08	0	5.00								1.23E-08	0	1
KSH02	431.50	436.50	2003-10-30 08:36	3.03E-08	0		2.53E-08	0	5.00								1.03E-08	0	1
KSH02	436.50	441.50	2003-10-30 10:10	9.42E-10	0		7.85E-10	0	5.00								2.02E-10	0	1
KSH02	441.50	446.50	2003-10-30 11:42		-1				5.00									-1	
KSH02	446.50	451.50	2003-10-30 14:29		-1				5.00									-1	
KSH02	451.50	456.50	2003-10-30 15:56		-1				5.00									-1	
KSH02	456.50	461.50	2003-10-30 17:46	4.73E-09	0		4.04E-09	1	5.00									0	0
KSH02	461.50	466.50	2003-10-30 19:23	2.83E-08	0		2.36E-08	0	5.00								2.10E-08	0	1
KSH02	466.50	471.50	2003-11-03 13:47	1.22E-08	0		1.02E-08	0	5.00								1.89E-08	0	1
KSH02	471.50	476.50	2003-11-03 15:23	1.19E-09	0		9.80E-10	0	5.00								5.20E-10	0	1
KSH02	476.50	481.50	2003-11-03 17:05	9.76E-10	0		8.05E-10	1	5.00								9.90E-10	0	0
KSH02	481.50	486.50	2003-11-04 07:07	9.27E-09	0		7.70E-09	0	5.00								3.28E-09	0	1

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Q/s (m^2/s)	Value Type-Q/s (-1, 0, 1)	T_Q (m^2/s)	T_M (m^2/s)	Best Choise-T_M (1,0)	b (m)	B (1D) (m)	TB (1D) (m^3/s)	TB-measl-L (1D) (m^3/s)	TB-measl-U (1D) (m^3/s)	SB (1D) (m)	SB* (1D) (m)	L_f (1D) (m)	T_T (2D) (m^2/s)	Value Type-T_T (-1, 0 or 1)	Best Choise-T_T (1,0)
KSH02	486.50	491.50	2003-11-04 08:44	1.93E-09	0		1.61E-09	0	5.00								9.90E-10	0	1
KSH02	491.50	496.50	2003-11-04 10:25	2.98E-09	0		2.46E-09	0	5.00								1.72E-09	0	1
KSH02	496.50	501.50	2003-11-04 12:01	1.45E-07	0		1.19E-07	1	5.00								2.72E-07	0	0
KSH02	501.50	506.50	2003-11-04 14:13	4.37E-09	0		3.59E-09	0	5.00								1.37E-09	0	1
KSH02	506.50	511.50	2003-11-04 15:52	4.63E-09	0		3.80E-09	0	5.00								2.56E-09	0	1
KSH02	511.50	516.50	2003-11-04 17:27		-1				5.00									-1	
KSH02	516.50	521.50	2003-11-05 07:18		-1				5.00									-1	
KSH02	521.50	526.50	2003-11-05 08:35	6.66E-08	0		5.55E-08	0	5.00								6.43E-08	0	1
KSH02	526.50	531.50	2003-11-05 10:35		-1				5.00									-1	
KSH02	531.50	536.50	2003-11-05 12:12	3.77E-09	0		3.11E-09	0	5.00								2.44E-09	0	1
KSH02	536.50	541.50	2003-11-05 13:53	1.32E-09	0		1.09E-09	0	5.00								5.59E-10	0	1
KSH02	541.50	546.50	2003-11-05 15:19		-1				5.00									-1	
KSH02	546.50	551.50	2003-11-05 17:17		-1				5.00									-1	
KSH02	551.50	556.50	2003-11-06 07:03	2.03E-08	0		1.70E-08	0	5.00								9.71E-09	0	1
KSH02	556.50	561.50	2003-11-06 08:35	2.33E-09	0		1.94E-09	0	5.00								1.17E-09	0	1
KSH02	561.50	566.50	2003-11-06 10:30	4.51E-08	0		3.78E-08	1	5.00								3.50E-08	0	0
KSH02	566.50	571.50	2003-11-06 12:09		-1				5.00									-1	
KSH02	571.50	576.50	2003-11-06 13:40	2.62E-08	0		2.18E-08	0	5.00								2.16E-08	0	1
KSH02	576.50	581.50	2003-11-06 15:19	1.08E-07	0		9.00E-08	0	5.00								1.30E-07	0	1
KSH02	581.50	586.50	2003-11-06 16:51	3.49E-08	0		2.92E-08	0	5.00								3.25E-08	0	1
KSH02	586.50	591.50	2003-11-07 07:06	1.01E-08	0		8.35E-09	0	5.00								1.03E-08	0	1
KSH02	591.50	596.50	2003-11-10 13:39	3.77E-08	0		3.06E-08	1	5.00									0	0
KSH02	596.50	601.50	2003-11-10 15:09	2.92E-08	0		2.43E-08	0	5.00								2.35E-08	0	1
KSH02	601.50	606.50	2003-11-10 16:25	7.64E-08	0		6.40E-08	0	5.00								3.80E-08	0	1
KSH02	606.50	611.50	2003-11-11 07:07	1.54E-09	0		1.28E-09	0	5.00								9.05E-10	0	1
KSH02	611.50	616.50	2003-11-11 08:31		-1				5.00									-1	
KSH02	616.50	621.50	2003-11-11 09:23		-1				5.00									-1	
KSH02	621.50	626.50	2003-11-11 10:29		-1				5.00									-1	
KSH02	626.50	631.50	2003-11-11 11:29	8.35E-09	0		6.95E-09	0	5.00								6.41E-09	0	1
KSH02	631.50	636.50	2003-11-11 13:01	1.62E-08	0		1.30E-08	0	5.00								9.50E-09	0	1
KSH02	636.50	641.50	2003-11-11 14:33	3.14E-08	0		2.58E-08	0	5.00								5.33E-09	0	1
KSH02	641.50	646.50	2003-11-11 16:03	7.76E-10	0		6.40E-10	0	5.00								3.60E-10	0	1
KSH02	646.50	651.50	2003-11-11 17:22		-1				5.00									-1	
KSH02	651.50	656.50	2003-11-12 07:07	1.71E-09	0		1.43E-09	0	5.00								9.65E-10	0	1
KSH02	656.50	661.50	2003-11-12 08:30	1.30E-08	0		1.10E-08	0	5.00								1.03E-08	0	1
KSH02	661.50	666.50	2003-11-12 09:40	1.21E-08	0		9.80E-09	0	5.00								8.61E-09	0	1
KSH02	666.50	671.50	2003-11-12 11:02	9.06E-08	0		7.65E-08	0	5.00								3.25E-08	0	1
KSH02	671.50	676.50	2003-11-12 12:35	2.40E-08	0		1.94E-08	0	5.00								2.05E-08	0	1

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Q/s (m^2/s)	Value Type-Q/s (-1, 0, 1)	T_Q (m^2/s)	T_M (m^2/s)	Best Choise-T_M (1,0)	b (m)	B (1D) (m)	TB (1D) (m^3/s)	TB-measl-L (1D) (m^3/s)	TB-measl-U (1D) (m^3/s)	SB (1D) (m)	SB* (1D) (m)	L_f (1D) (m)	T_T (2D) (m^2/s)	Value Type-T_T (-1, 0 or 1)	Best Choise-T_T (1,0)
KSH02	676.50	681.50	2003-11-12 13:56	8.36E-09	0		7.15E-09	1	5.00								8.00E-09	0	0
KSH02	681.50	686.50	2003-11-12 15:23		-1				5.00									-1	
KSH02	686.50	691.50	2003-11-12 16:23	8.00E-10	0		6.60E-10	0	5.00								1.95E-10	0	1
KSH02	691.50	696.50	2003-11-13 07:04	1.44E-08	0		1.20E-08	0	5.00								9.88E-09	0	1
KSH02	696.50	701.50	2003-11-13 08:26	4.67E-08	0		3.88E-08	0	5.00									0	0
KSH02	419.00	424.00	2003-09-02 08:00	4.94E-07	0		2.34E-07	1	5.00										
KSH02	575.00	580.00	2003-09-09 18:55	3.25E-07	0		2.70E-07	1	5.00										

KSH02 Basic evaluation. Right

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Q/s measl-L (m^2/s)	Q/s measl-U (m^2/s)	S (2D) (-)	S* (2D) (-)	K′/b′ (2D) (1/s)	K_S (3D) (m/s)	K_S-measl-L (3D) (m/s)	K_S-measl-U (3D) (m/s)	S_S (3D) (1/m)	S_S* (3D) (1/m)	L_p (m)	C (m^3/Pa)	C_D (-)	ξ (2D) (-)	ω (-)	λ (-)	dt_1 (s)	dt_2 (s)	Comments (-)
KSH02	101.50	201.50	2003-09-24 08:01	8.5E-10	5.0E-04		1.00E-06								-		-3.43			100	800	
KSH02	201.50	301.50	2003-09-24 11:12	8.5E-10	5.0E-04		1.00E-06								6.71E-10		1.63			100	1700	
KSH02	301.50	401.50	2003-09-24 14:44	8.5E-10	5.0E-04		1.00E-06								7.06E-10		-1.35			100	1821	
KSH02	401.50	501.50	2003-09-24 17:47	8.5E-10	5.0E-04		1.00E-06								-		-0.39			100	1819	
KSH02	501.50	601.50	2003-09-25 08:02	8.5E-10	5.0E-04		1.00E-06								-		-4.22			400	1822	
KSH02	601.50	701.50	2003-09-26 08:05	8.5E-10	5.0E-04		1.00E-06								-		-2.38			100	700	
KSH02	701.50	801.50	2003-10-01 07:22	8.5E-10	5.0E-04		1.00E-06								1.91E-09		-1.92			200	700	
KSH02	801.50	901.50	2003-09-30 10:48	8.5E-10	5.0E-04		1.00E-06								3.08E-10		-2.00			200	1822	
KSH02	897.00	997.00	2003-09-30 13:35	8.5E-10	5.0E-04		1.00E-06								-		-			70	100	
KSH02	81.50	101.50	2003-10-02 09:07	8.5E-10	5.0E-04		1.00E-06								-		0.40			80	1200	
KSH02	101.50	121.50	2003-10-02 10:47	8.5E-10	5.0E-04		1.00E-06								-		-2.13			300	500	
KSH02	121.50	141.50	2003-10-02 12:34	8.5E-10	5.0E-04		1.00E-06								2.71E-10		-1.54			600	1200	
KSH02	141.50	161.50	2003-10-02 14:05	8.5E-10	5.0E-04		1.00E-06								1.25E-10		-2.00			500	1200	
KSH02	161.50	181.50	2003-10-02 15:31	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	181.50	201.50	2003-10-02 16:59	8.5E-10	5.0E-04		1.00E-06								1.32E-10		-0.81			40	1200	
KSH02	201.50	221.50	2003-10-03 07:26	8.5E-10	5.0E-04		1.00E-06								2.12E-10		-0.28			100	1200	
KSH02	221.50	241.50	2003-10-06 13:53	8.5E-10	5.0E-04		1.00E-06								1.31E-10		-			-	-	
KSH02	241.50	261.50	2003-10-06 16:13	8.5E-10	5.0E-04		1.00E-06								1.09E-10		-1.89			100	500	

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Q/s measl-L (m^2/ s)	Q/s measl-U (m^2/ s)	S (2D) (-)	S* (2D) (-)	K´/b´ (2D) (1/s)	K_S (3D) (m/s)	K_S-measl-L (3D) (m/s)	K_S-measl-U (3D) (m/s)	S_S (3D) (1/m)	S_S* (3D) (1/m)	L_p (m)	C (m^3/Pa)	C_D (-)	ξ (2D) (-)	ω (-)	λ (-)	dt_1 (s)	dt_2 (s)	Comments (-)
KSH02	261.50	281.50	2003-10-07 07:52	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	281.50	301.50	2003-10-07 10:36	8.5E-10	5.0E-04		1.00E-06								-		-2.25			100	1200	
KSH02	301.50	321.50	2003-10-07 14:11	8.5E-10	5.0E-04		1.00E-06								1.00E-10		-2.24			400	800	
KSH02	321.50	341.50	2003-10-07 16:11	8.5E-10	5.0E-04		1.00E-06								8.49E-11		-			-	-	
KSH02	341.50	361.50	2003-10-08 08:03	8.5E-10	5.0E-04		1.00E-06								7.69E-11		-1.41			40	1200	
KSH02	361.50	381.50	2003-10-08 10:04	8.5E-10	5.0E-04		1.00E-06								4.25E-10		1.40			200	1200	
KSH02	381.50	401.50	2003-10-08 12:06	8.5E-10	5.0E-04		1.00E-06								9.49E-11		-0.40			30	200	
KSH02	401.50	421.50	2003-10-08 14:44	8.5E-10	5.0E-04		1.00E-06								3.85E-10		-			-	-	
KSH02	421.50	441.50	2003-10-08 16:26	8.5E-10	5.0E-04		1.00E-06								-		1.71			20	1200	
KSH02	441.50	461.50	2003-10-09 07:54	8.5E-10	5.0E-04		1.00E-06								8.91E-11		-			-	-	
KSH02	461.50	481.50	2003-10-09 09:51	8.5E-10	5.0E-04		1.00E-06								6.46E-11		1.40			70	1200	
KSH02	481.50	501.50	2003-10-09 12:42	8.5E-10	5.0E-04		1.00E-06								-		1.95			-	-	
KSH02	501.50	521.50	2003-10-09 15:30	8.5E-10	5.0E-04		1.00E-06								7.71E-11		-2.05			100	1200	
KSH02	521.50	541.50	2003-10-09 17:31	8.5E-10	5.0E-04		1.00E-06								4.52E-10		-1.53			500	1000	
KSH02	541.50	561.50	2003-10-10 08:06	8.5E-10	5.0E-04		1.00E-06								9.15E-11		-1.59			30	100	
KSH02	561.50	581.50	2003-10-10 10:01	8.5E-10	5.0E-04		1.00E-06								-		1.20			70	1200	
KSH02	581.50	601.50	2003-10-14 07:24	8.5E-10	5.0E-04		1.00E-06								-		-1.64			100	400	
KSH02	601.50	621.50	2003-10-14 09:16	8.5E-10	5.0E-04		1.00E-06								-		-1.99			300	1200	
KSH02	621.50	641.50	2003-10-14 11:00	8.5E-10	5.0E-04		1.00E-06								-		-3.18			200	1200	
KSH02	641.50	661.50	2003-10-14 13:00	8.5E-10	5.0E-04		1.00E-06								6.12E-11		-1.98			800	1200	
KSH02	661.50	681.50	2003-10-14 14:44	8.5E-10	5.0E-04		1.00E-06								-		-2.65			60	200	
KSH02	681.50	701.50	2003-10-14 16:24	8.5E-10	5.0E-04		1.00E-06								-		1.45			100	1200	
KSH02	701.50	721.50	2003-10-14 18:11	8.5E-10	5.0E-04		1.00E-06								-		-3.52			10	200	
KSH02	721.50	741.50	2003-10-15 07:45	8.5E-10	5.0E-04		1.00E-06								6.33E-10		-3.08			100	1200	
KSH02	741.50	761.50	2003-10-15 09:22	8.5E-10	5.0E-04		1.00E-06								5.47E-11		-1.99			200	1200	
KSH02	761.50	781.50	2003-10-15 11:07	8.5E-10	5.0E-04		1.00E-06								5.98E-11		-1.99			20	1200	
KSH02	781.50	801.50	2003-10-15 13:15	8.5E-10	5.0E-04		1.00E-06								7.98E-11		-1.45			30	300	
KSH02	801.50	821.50	2003-10-15 14:57	8.5E-10	5.0E-04		1.00E-06								1.25E-10		-1.58			20	300	
KSH02	821.50	841.50	2003-10-15 17:50	8.5E-10	5.0E-04		1.00E-06								2.04E-10		-1.27			10	400	
KSH02	841.50	861.50	2003-10-15 19:29	8.5E-10	5.0E-04		1.00E-06								8.44E-11		0.64			500	700	
KSH02	861.50	881.50	2003-10-16 07:29	8.5E-10	5.0E-04		1.00E-06								8.23E-11		-0.06			30	1200	
KSH02	881.50	901.50	2003-10-16 09:07	8.5E-10	5.0E-04		1.00E-06								1.05E-10		-3.75			100	1200	
KSH02	901.50	921.50	2003-10-16 10:40	8.5E-10	5.0E-04		1.00E-06								5.95E-11		1.73			30	700	
KSH02	921.50	941.50	2003-10-16 12:29	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	941.50	961.50	2003-10-16 14:15	8.5E-10	5.0E-04		1.00E-06								-		-2.91			200	700	
KSH02	961.50	981.50	2003-10-16 15:52	8.5E-10	5.0E-04		1.00E-06								5.77E-11		0.82			20	400	
KSH02	301.50	306.50	2003-10-22 11:53	8.5E-10	5.0E-04		1.00E-06								6.19E-11		1.88			30	1200	

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Q/s measl-L (m^2/ s)	Q/s measl-U (m^2/ s)	S (2D) (-)	S* (2D) (-)	K´/b´ (2D) (1/s)	K_S (3D) (m/s)	K_S-measl-L (3D) (m/s)	K_S-measl-U (3D) (m/s)	S_S (3D) (1/m)	S_S* (3D) (1/m)	L_p (m)	C (m^3/Pa)	C_D (-)	ξ (2D) (-)	ω (-)	λ (-)	dt_1 (s)	dt_2 (s)	Comments (-)
KSH02	306.50	311.50	2003-10-22 13:38	8.5E-10	5.0E-04		1.00E-06								-		-2.23			100	800	
KSH02	311.50	316.50	2003-10-22 15:06	8.5E-10	5.0E-04		1.00E-06								9.29E-11		-0.91			30	1200	
KSH02	316.50	321.50	2003-10-22 16:37	8.5E-10	5.0E-04		1.00E-06								3.60E-11		-0.68			20	1200	
KSH02	321.50	326.50	2003-10-22 17:57	8.5E-10	5.0E-04		1.00E-06								3.21E-11		0.90			100	1200	
KSH02	326.50	331.50	2003-10-23 07:18	8.5E-10	5.0E-04		1.00E-06								4.56E-11		-0.31			20	1200	
KSH02	331.50	336.50	2003-10-23 08:42	8.5E-10	5.0E-04		1.00E-06								6.99E-11		0.35			30	1200	
KSH02	336.50	341.50	2003-10-23 10:12	8.5E-10	5.0E-04		1.00E-06								1.05E-11		-1.62			300	1200	
KSH02	341.50	346.50	2003-10-23 11:38	8.5E-10	5.0E-04		1.00E-06								5.11E-11		-2.05			70	1200	
KSH02	346.50	351.50	2003-10-23 13:16	8.5E-10	5.0E-04		1.00E-06								4.09E-11		-0.28			100	1200	
KSH02	351.50	356.50	2003-10-23 14:43	8.5E-10	5.0E-04		1.00E-06								2.45E-11		-0.05			20	1200	
KSH02	356.50	361.50	2003-10-23 16:12	8.5E-10	5.0E-04		1.00E-06								2.37E-11		-0.70			50	1200	
KSH02	361.50	366.50	2003-10-23 17:33	8.5E-10	5.0E-04		1.00E-06								2.76E-11		0.08			50	1200	
KSH02	366.50	371.50	2003-10-24 07:08	8.5E-10	5.0E-04		1.00E-06								2.31E-11		-1.28			100	1200	
KSH02	371.50	376.50	2003-10-28 08:10	8.5E-10	5.0E-04		1.00E-06								-		-0.53			100	400	
KSH02	376.50	381.50	2003-10-28 10:45	8.5E-10	5.0E-04		1.00E-06								4.13E-10		-			-	-	
KSH02	381.50	386.50	2003-10-28 13:25	8.5E-10	5.0E-04		1.00E-06								4.58E-11		0.03			100	1200	
KSH02	386.50	391.50	2003-10-28 15:09	8.5E-10	5.0E-04		1.00E-06								2.48E-11		0.25			200	700	
KSH02	391.50	396.50	2003-10-29 07:01	8.5E-10	5.0E-04		1.00E-06								1.71E-11		0.03			10	100	
KSH02	396.50	401.50	2003-10-29 08:47	8.5E-10	5.0E-04		1.00E-06								7.94E-11		-0.05			50	1200	
KSH02	401.50	406.50	2003-10-29 10:53	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	406.50	411.50	2003-10-29 13:04	8.5E-10	5.0E-04		1.00E-06								2.15E-11		-			-	-	
KSH02	411.50	416.50	2003-10-29 14:40	8.5E-10	5.0E-04		1.00E-06								2.32E-11		-1.12			10	100	
KSH02	416.50	421.50	2003-10-29 16:28	8.5E-10	5.0E-04		1.00E-06								3.06E-10		-			-	-	
KSH02	421.50	426.50	2003-10-29 18:14	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	426.50	431.50	2003-10-30 07:02	8.5E-10	5.0E-04		1.00E-06								-		1.22			500	1000	
KSH02	431.50	436.50	2003-10-30 08:36	8.5E-10	5.0E-04		1.00E-06								9.46E-11		-3.05			100	1200	
KSH02	436.50	441.50	2003-10-30 10:10	8.5E-10	5.0E-04		1.00E-06								7.22E-11		-1.00			100	1200	
KSH02	441.50	446.50	2003-10-30 11:42	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	446.50	451.50	2003-10-30 14:29	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	451.50	456.50	2003-10-30 15:56	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	456.50	461.50	2003-10-30 17:46	8.5E-10	5.0E-04		1.00E-06								3.04E-11		-			-	-	
KSH02	461.50	466.50	2003-10-30 19:23	8.5E-10	5.0E-04		1.00E-06								-		-0.65			80	1200	
KSH02	466.50	471.50	2003-11-03 13:47	8.5E-10	5.0E-04		1.00E-06								-		0.08			50	700	
KSH02	471.50	476.50	2003-11-03 15:23	8.5E-10	5.0E-04		1.00E-06								8.36E-11		1.14			70	1200	
KSH02	476.50	481.50	2003-11-03 17:05	8.5E-10	5.0E-04		1.00E-06								4.39E-11		-			-	-	
KSH02	481.50	486.50	2003-11-04 07:07	8.5E-10	5.0E-04		1.00E-06								5.65E-11		-2.41			300	1200	
KSH02	486.50	491.50	2003-11-04 08:44	8.5E-10	5.0E-04		1.00E-06								2.22E-11		-0.86			70	1200	
KSH02	491.50	496.50	2003-11-04 10:25	8.5E-10	5.0E-04		1.00E-06								2.06E-11		-0.56			50	1200	

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Q/s measl-L (m^2/ s)	Q/s measl-U (m^2/ s)	S (2D) (-)	S* (2D) (-)	K´/b´ (2D) (1/s)	K_S (3D) (m/s)	K_S-measl-L (3D) (m/s)	K_S-measl-U (3D) (m/s)	S_S (3D) (1/m)	S_S* (3D) (1/m)	L_p (m)	C (m^3/Pa)	C_D (-)	ξ (2D) (-)	ω (-)	λ (-)	dt_1 (s)	dt_2 (s)	Comments (-)
KSH02	496.50	501.50	2003-11-04 12:01	8.5E-10	5.0E-04		1.00E-06								3.01E-10		-			-	-	
KSH02	501.50	506.50	2003-11-04 14:13	8.5E-10	5.0E-04		1.00E-06								-		-2.06			100	1200	
KSH02	506.50	511.50	2003-11-04 15:52	8.5E-10	5.0E-04		1.00E-06								-		-0.82			10	1200	
KSH02	511.50	516.50	2003-11-04 17:27	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	516.50	521.50	2003-11-05 07:18	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	521.50	526.50	2003-11-05 08:35	8.5E-10	5.0E-04		1.00E-06								-		0.07			900	1200	
KSH02	526.50	531.50	2003-11-05 10:35	8.5E-10	5.0E-04		1.00E-06								-		-0.03			100	1200	
KSH02	531.50	536.50	2003-11-05 12:12	8.5E-10	5.0E-04		1.00E-06								2.35E-11		-0.37			60	1200	
KSH02	536.50	541.50	2003-11-05 13:53	8.5E-10	5.0E-04		1.00E-06								1.96E-11		-1.27			100	1200	
KSH02	541.50	546.50	2003-11-05 15:19	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	546.50	551.50	2003-11-05 17:17	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	551.50	556.50	2003-11-06 07:03	8.5E-10	5.0E-04		1.00E-06								-		-2.22			100	1200	
KSH02	556.50	561.50	2003-11-06 08:35	8.5E-10	5.0E-04		1.00E-06								3.23E-11		-			100	1200	
KSH02	561.50	566.50	2003-11-06 10:30	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	566.50	571.50	2003-11-06 12:09	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	571.50	576.50	2003-11-06 13:40	8.5E-10	5.0E-04		1.00E-06								-		-0.35			50	1200	
KSH02	576.50	581.50	2003-11-06 15:19	8.5E-10	5.0E-04		1.00E-06								-		0.15			20	200	
KSH02	581.50	586.50	2003-11-06 16:51	8.5E-10	5.0E-04		1.00E-06								-		0.21			70	1000	
KSH02	586.50	591.50	2003-11-07 07:06	8.5E-10	5.0E-04		1.00E-06								-		1.65			20	500	
KSH02	591.50	596.50	2003-11-10 13:39	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	596.50	601.50	2003-11-10 15:09	8.5E-10	5.0E-04		1.00E-06								-		-1.70			70	300	
KSH02	601.50	606.50	2003-11-10 16:25	8.5E-10	5.0E-04		1.00E-06								-		-2.64			100	800	
KSH02	606.50	611.50	2003-11-11 07:07	8.5E-10	5.0E-04		1.00E-06								3.78E-11		-0.20			20	1200	
KSH02	611.50	616.50	2003-11-11 08:31	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	616.50	621.50	2003-11-11 09:23	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	621.50	626.50	2003-11-11 10:29	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	626.50	631.50	2003-11-11 11:29	8.5E-10	5.0E-04		1.00E-06								-		0.05			300	1200	
KSH02	631.50	636.50	2003-11-11 13:01	8.5E-10	5.0E-04		1.00E-06								-		-1.81			30	200	
KSH02	636.50	641.50	2003-11-11 14:33	8.5E-10	5.0E-04		1.00E-06								2.35E-10		-3.90			100	300	
KSH02	641.50	646.50	2003-11-11 16:03	8.5E-10	5.0E-04		1.00E-06								1.82E-11		-0.06			20	600	
KSH02	646.50	651.50	2003-11-11 17:22	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	651.50	656.50	2003-11-12 07:07	8.5E-10	5.0E-04		1.00E-06								2.64E-11		-0.08			300	800	
KSH02	656.50	661.50	2003-11-12 08:30	8.5E-10	5.0E-04		1.00E-06								-		-0.65			200	700	
KSH02	661.50	666.50	2003-11-12 09:40	8.5E-10	5.0E-04		1.00E-06								2.91E-11		4.25			40	200	
KSH02	666.50	671.50	2003-11-12 11:02	8.5E-10	5.0E-04		1.00E-06								-		-			0	50	
KSH02	671.50	676.50	2003-11-12 12:35	8.5E-10	5.0E-04		1.00E-06								-		-			500	1200	
KSH02	676.50	681.50	2003-11-12 13:56	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	
KSH02	681.50	686.50	2003-11-12 15:23	8.5E-10	5.0E-04		1.00E-06								-		-			-	-	

Borehole idcode	Borehole secup (m)	Borehole seclow (m)	Q-measl-L (m^3/s)	Q-measl-U (m^3/s)	V_p (m^3)	Q_m (m^3/s)	tp (s)	t_F (s)	h_i (masl)	h_p (masl)	h_F (masl)	p_i (kPa)	p_p (kPa)	p_F (kPa)	Te_w (°C)	EC_w (mS/m)	TDS_w (mg/L)	TDS_{wm} (mg/ L)	Reference	Comments (-)
KSH02	626.50	631.50	1.7E-08	5.0E-04	2.881E-04	2.34E-07	1232	940				6238.60	6492.34	6238.33	16.10					
KSH02	631.50	636.50	1.7E-08	5.0E-04	6.431E-04	5.22E-07	1231	1221				6290.15	6528.54	6326.22	16.19					
KSH02	636.50	641.50	1.7E-08	5.0E-04	1.170E-03	9.57E-07	1223	1221				6339.76	6555.63	6372.10	16.27					
KSH02	641.50	646.50	1.7E-08	5.0E-04	2.671E-05	2.18E-08	1223	1221				6393.10	6619.62	6397.54	16.33					
KSH02	646.50	651.50	1.7E-08	5.0E-04	6.322E-06	9.39E-09	673	1221				6485.43	6664.81	6591.01	16.41					
KSH02	651.50	656.50	1.7E-08	5.0E-04	5.387E-05	4.40E-08	1224	1221				6488.47	6711.52	6492.06	16.48					
KSH02	656.50	661.50	1.7E-08	5.0E-04	4.101E-04	3.35E-07	1225	655				6533.80	6738.88	6533.52	16.56					
KSH02	661.50	666.50	1.7E-08	5.0E-04	4.048E-04	3.31E-07	1222	879				6583.69	6815.58	6583.82	16.64					
KSH02	666.50	671.50	1.7E-08	5.0E-04	2.516E-03	2.06E-06	1222	1203				6633.71	6838.11	6635.78	16.71					
KSH02	671.50	676.50	1.7E-08	5.0E-04	7.235E-04	5.92E-07	1223	1221				6684.43	6885.65	6691.62	16.79					
KSH02	676.50	681.50	1.7E-08	5.0E-04	2.832E-04	2.32E-07	1223	1221				6735.84	6972.98	6738.60	16.86					
KSH02	681.50	686.50	1.7E-08	5.0E-04	7.907E-06	1.48E-08	533	603				6798.72	7025.92	6953.09	16.92					
KSH02	686.50	691.50	1.7E-08	5.0E-04	3.166E-05	2.59E-08	1223	7222				6850.96	7074.43	6830.93	17.02					
KSH02	691.50	696.50	1.7E-08	5.0E-04	4.690E-04	3.83E-07	1223	1221				6880.40	7079.27	6881.78	17.08					
KSH02	696.50	701.50	1.7E-08	5.0E-04	1.292E-03	1.06E-06	1224	1221				6931.39	7128.34	6934.29	17.16					
KSH02	419.00	424.00	1.7E-08	5.0E-04	1.146E+02	4.15E-04	276194	256422				4142.01	4021.35	4147.53	13.13					
KSH02	575.00	580.00	1.7E-08	5.0E-04	8.191E+03	1.66E-02	492447	177725				5700.45	5409.30	5701.41	15.45					

KSH02 Observation sections

Borehole	Borehole secup (m)	Borehole seclow (m)	Date and time for test, start YYYYMMDD hh:mm	Section Above		Section below		pai (kPa)	pap (kPa)	paF (kPa)	pbi (kPa)	pbp (kPa)	pbF (kPa)
				secup	seclow	secup	seclow						
KSH02	101.50	201.50	2003-09-24 08:01	80.00	100.50	202.50	1001.11	-	-	-	2015.16	2015.57	2015.57
KSH02	201.50	301.50	2003-09-24 11:12	80.00	200.50	302.50	1001.11	-	-	-	3004.12	3004.12	3004.12
KSH02	301.50	401.50	2003-09-24 14:44	80.00	300.50	402.50	1001.11	-	-	-	3998.31	3998.17	3998.73
KSH02	401.50	501.50	2003-09-24 17:47	80.00	400.50	502.50	1001.11	-	-	-	4994.14	4994.14	4993.86
KSH02	501.50	601.50	2003-09-25 08:02	80.00	500.50	602.50	1001.11	-	-	-	5986.81	5987.36	5986.81
KSH02	601.50	701.50	2003-09-26 08:05	80.00	600.50	702.50	1001.11	-	-	-	6982.92	6984.97	6984.15
KSH02	701.50	801.50	2003-10-01 07:22	80.00	700.50	802.50	1001.11	-	-	-	7974.49	7974.91	7974.91
KSH02	801.50	901.50	2003-09-30 10:48	80.00	800.50	902.50	1001.11	-	-	-	8974.98	8974.98	8974.98
KSH02	897.00	997.00	2003-09-30 13:35	80.00	896.00	998.00	1001.11	-	-	-	11162.80	11131.10	11044.30
KSH02	81.50	101.50	2003-10-02 09:07	80.00	80.50	102.50	1001.11	796.96	797.23	796.96	1033.85	1074.99	1036.59

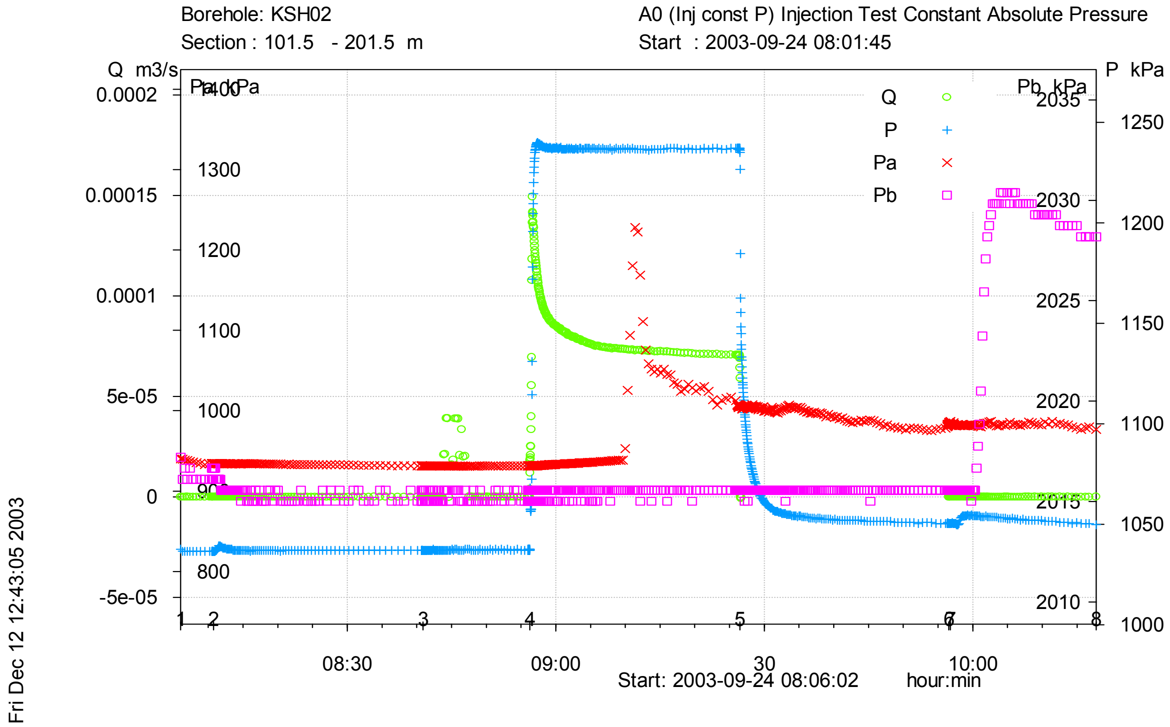
Appendix 3

Test analysis diagram

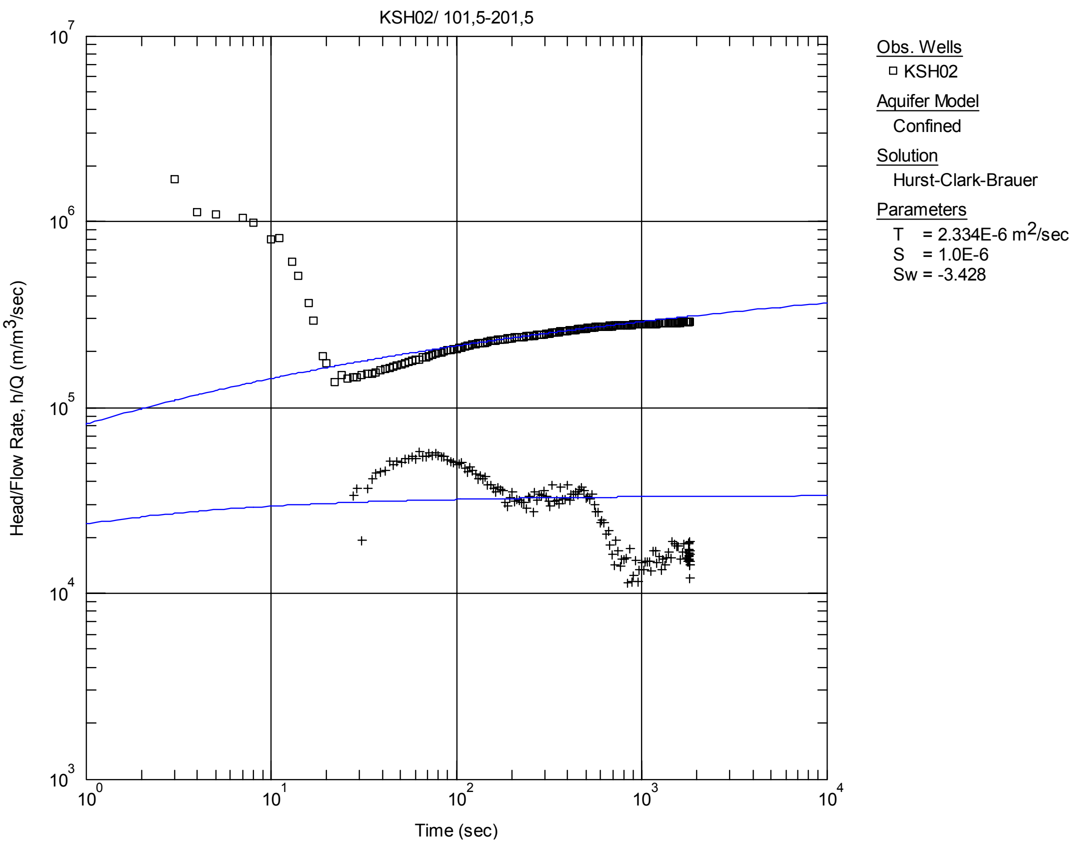
Appendix 3-1

Test 101.5–201.5 m

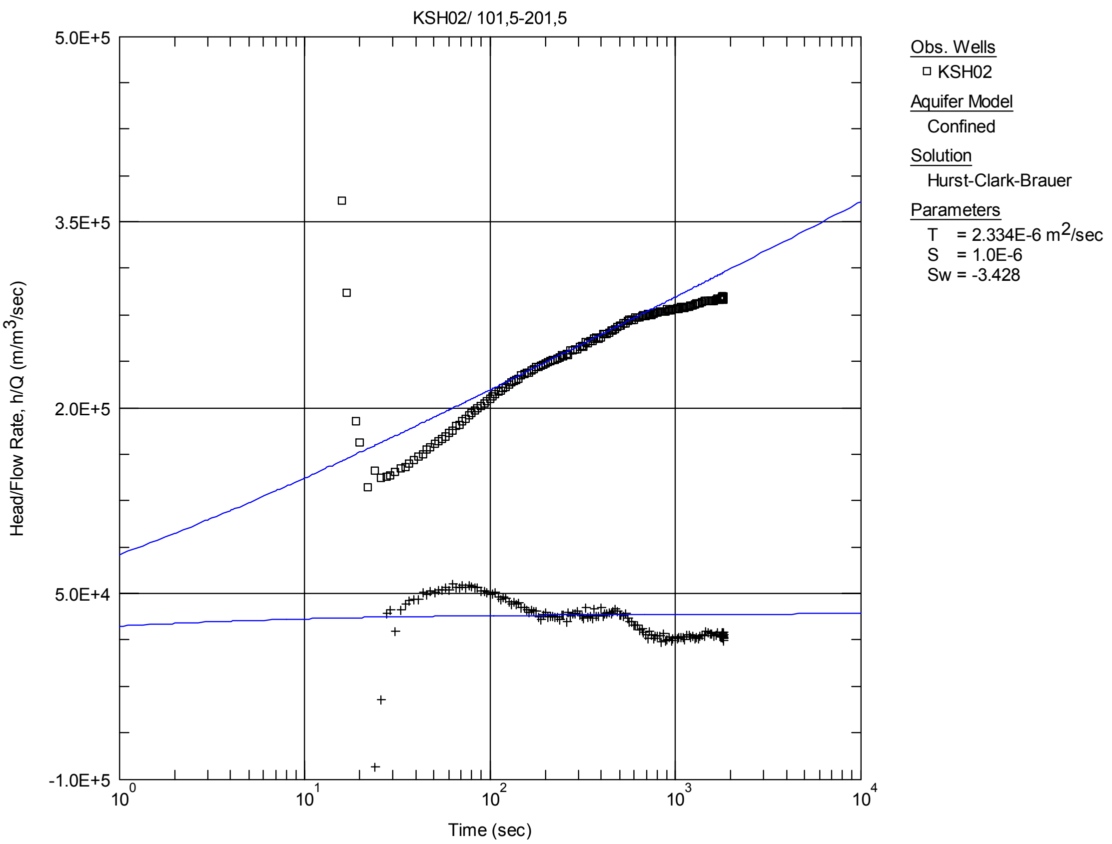
Analysis Diagram



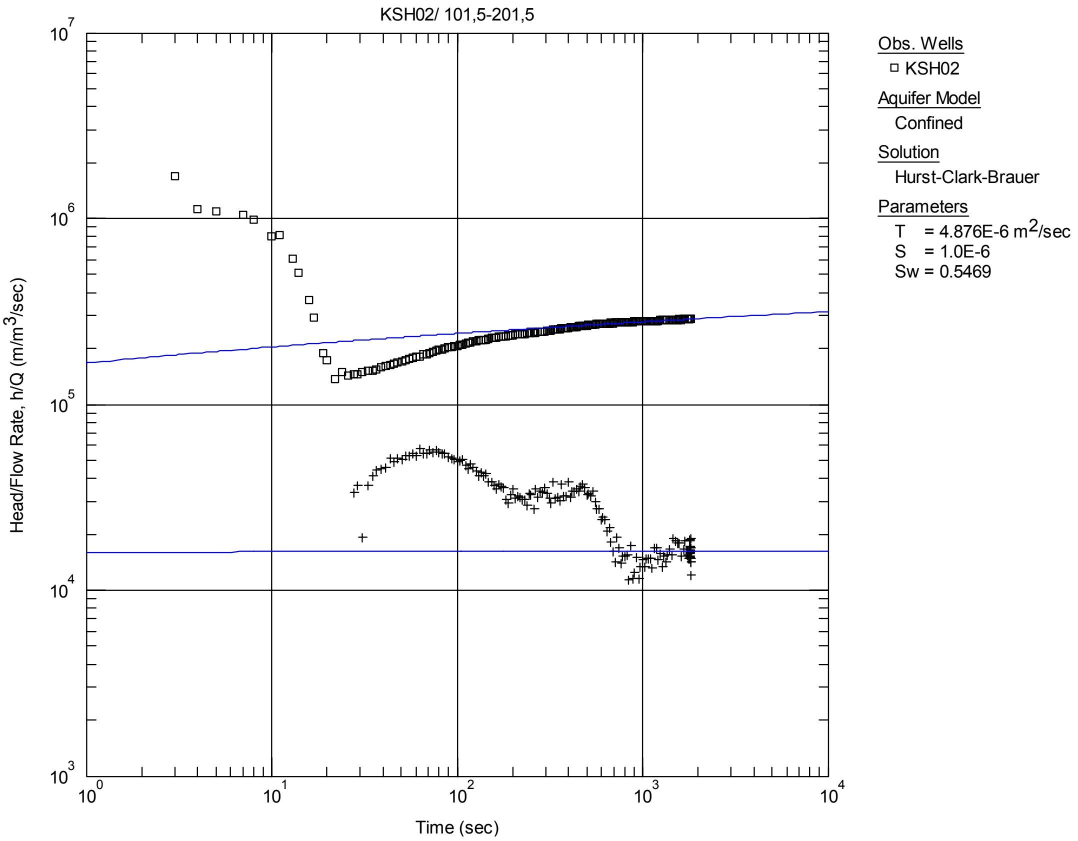
Pressure and flow rate vs. time.



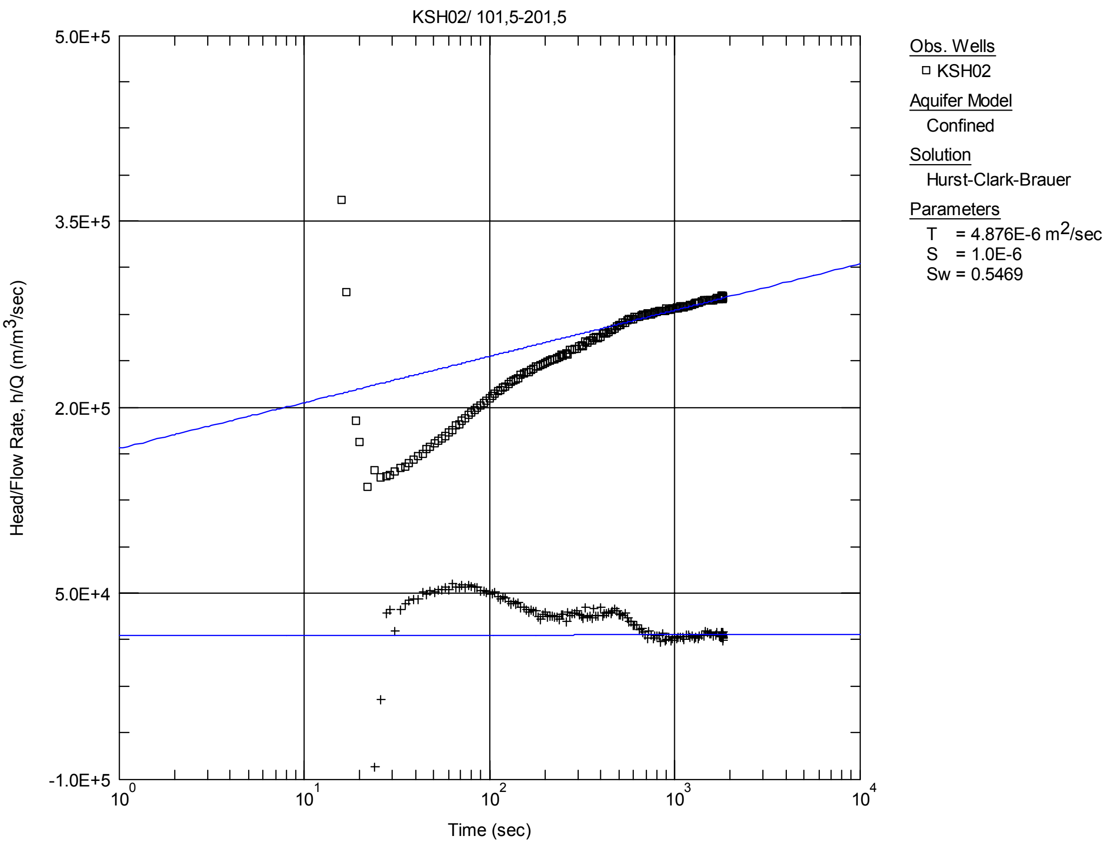
Perturbation phase. log-log match.



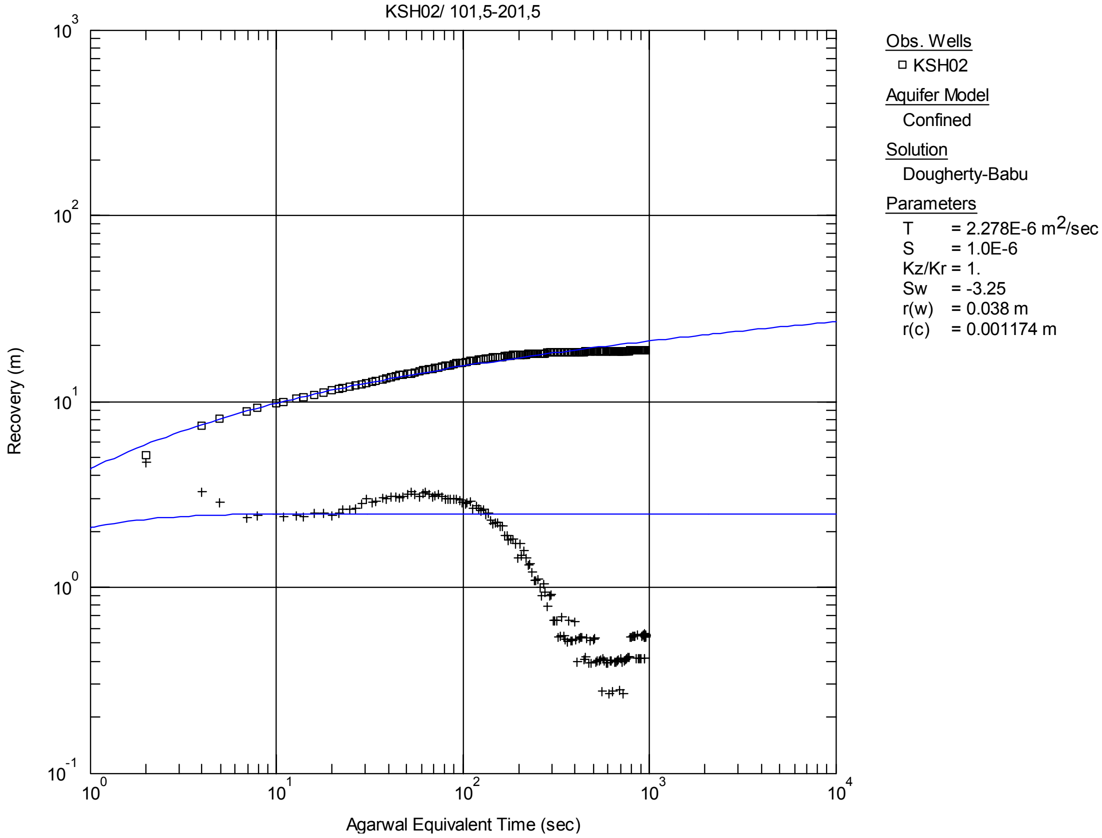
Perturbation phase. lin-log match.



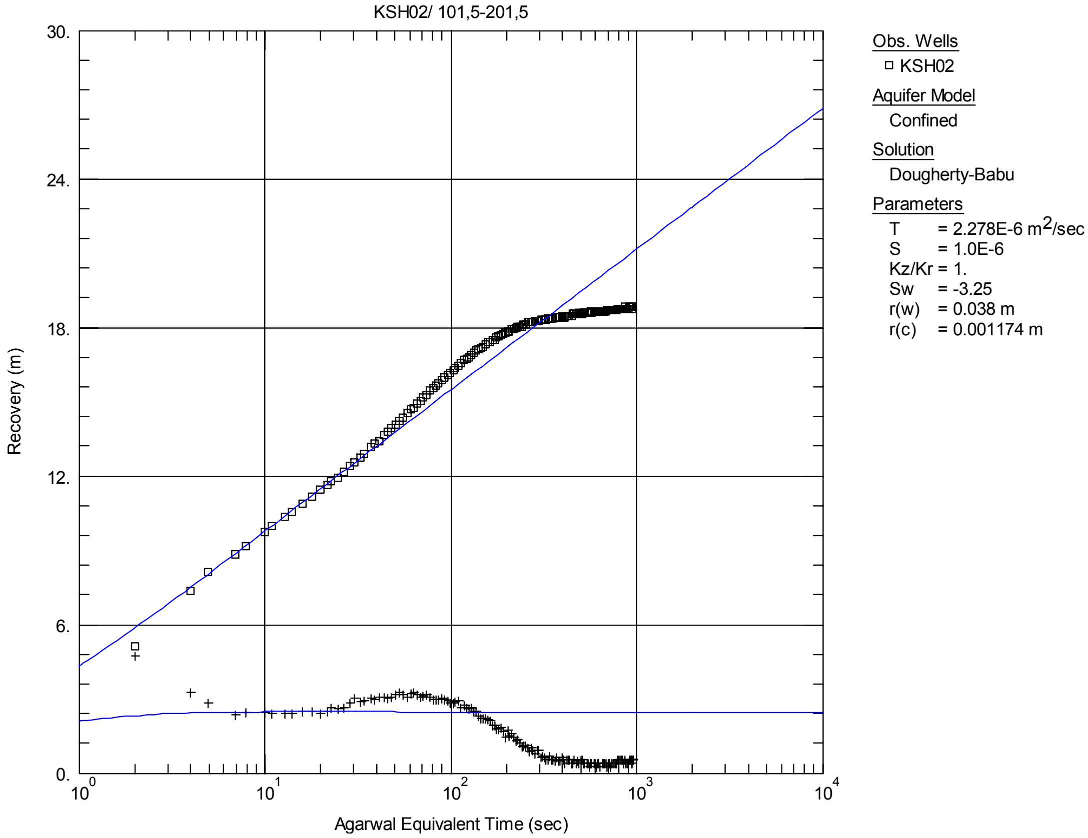
Perturbation phase. log-log match.



Perturbation phase. lin-log match.



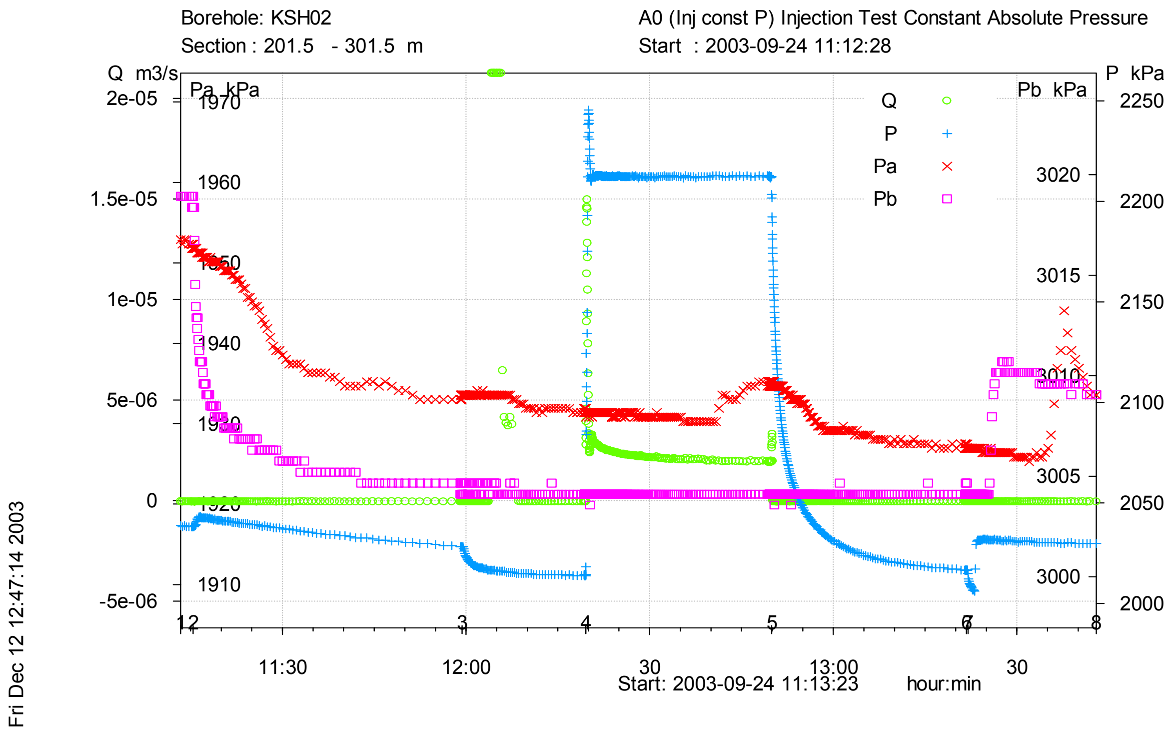
Recovery phase. log-log match



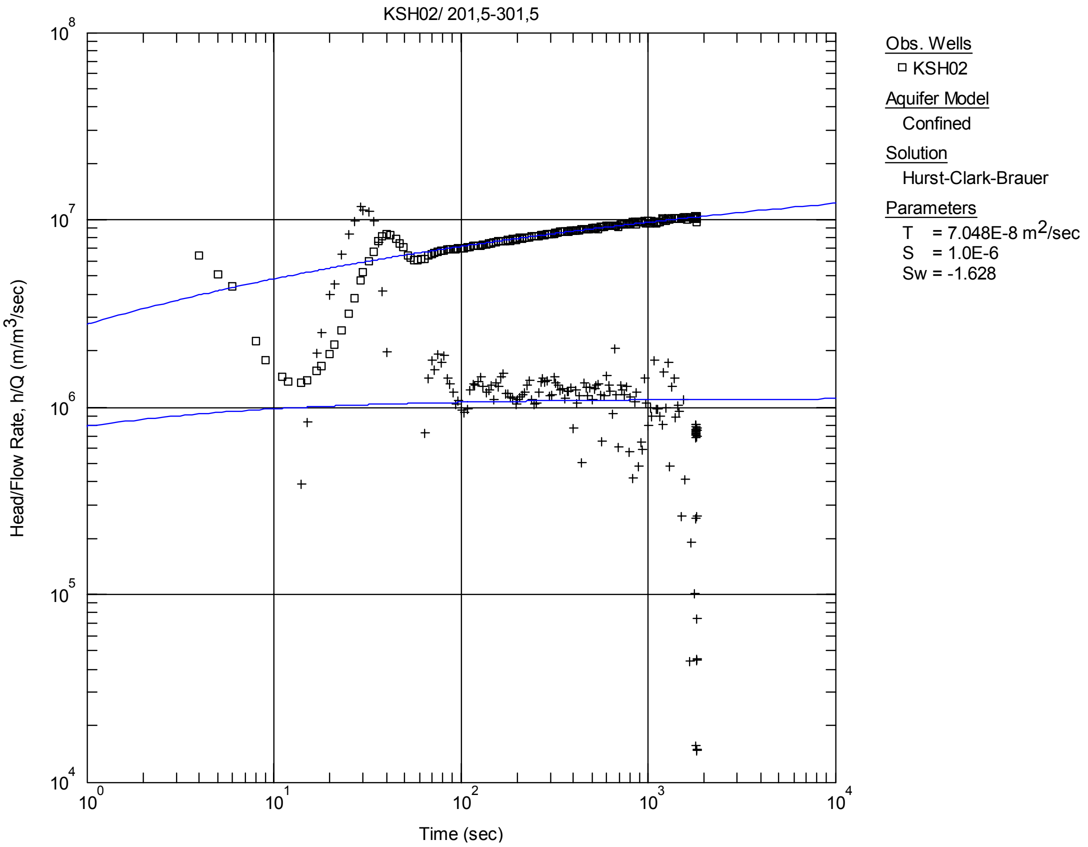
Recovery phase. lin-log match

Test 201.5–301.5 m

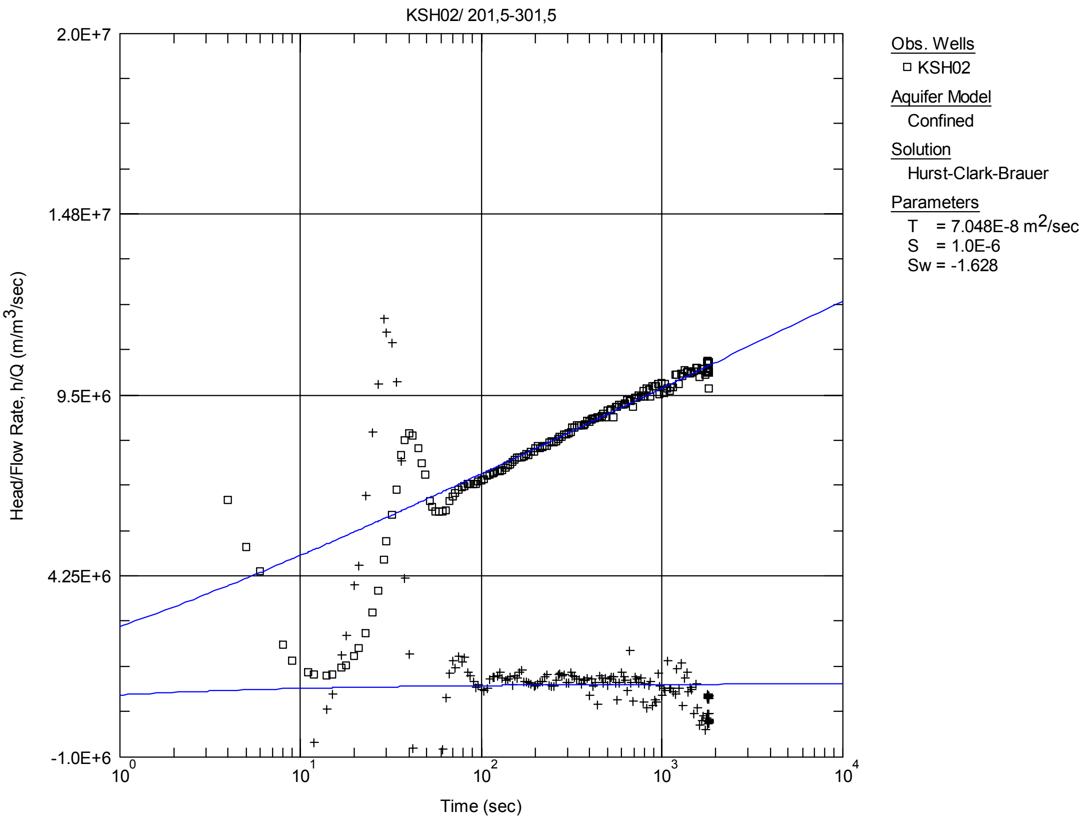
Analysis Diagram



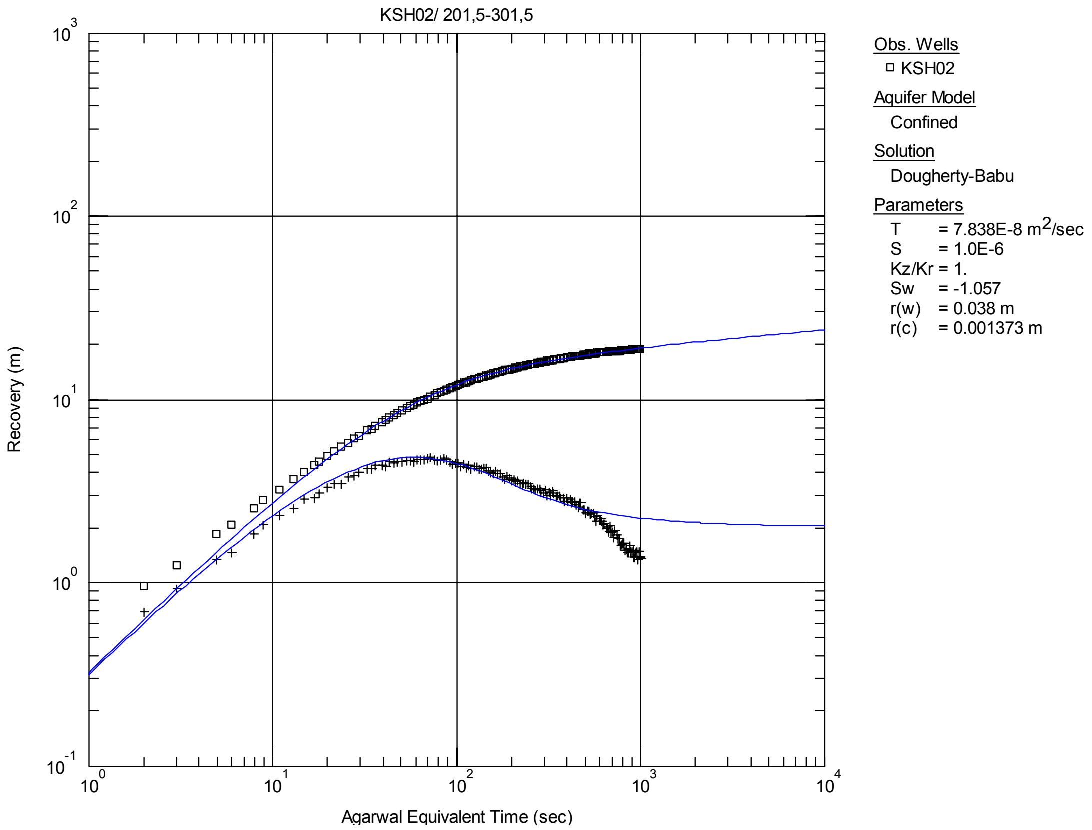
Pressure and flow rate vs. time. (Due to a failure in the pressure sensor, the pressure above test section (Pa) is in the Figure not correct.)



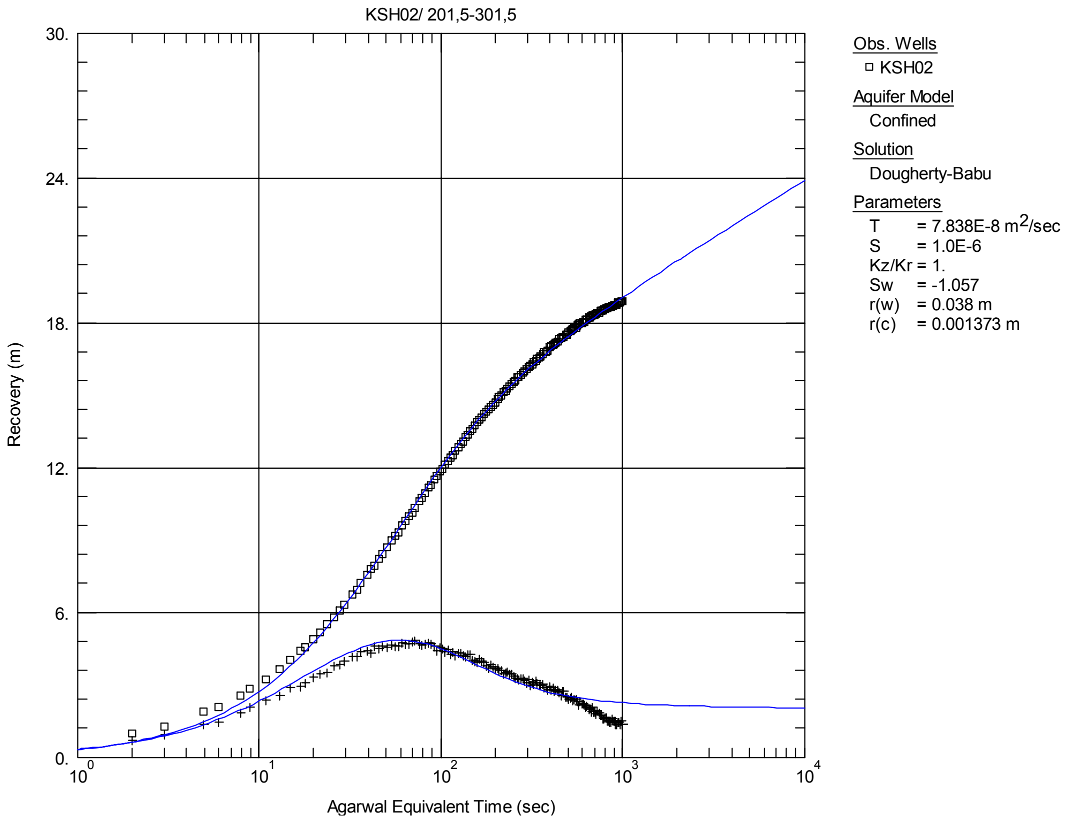
Perturbation phase. log-log match.



Perturbation phase. lin-log match.



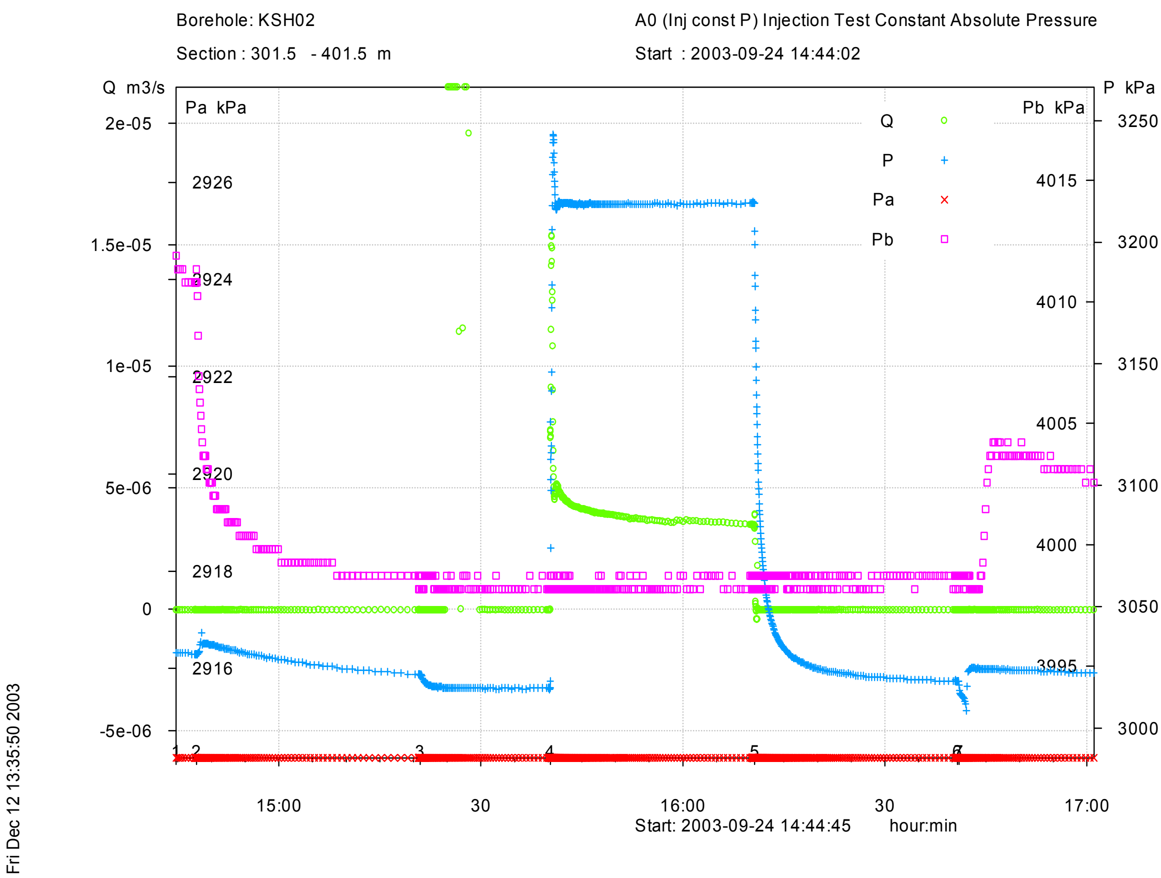
Recovery phase. log-log match.



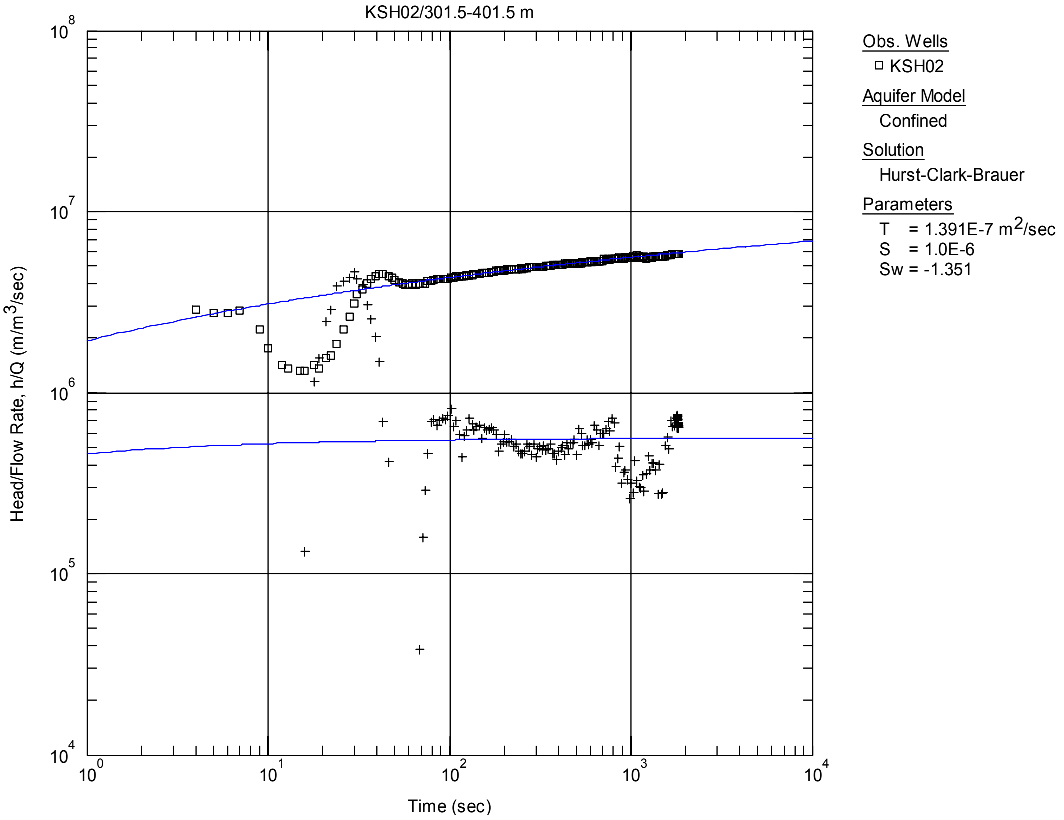
Recovery phase. lin-log match.

Test 301.5–401.5 m

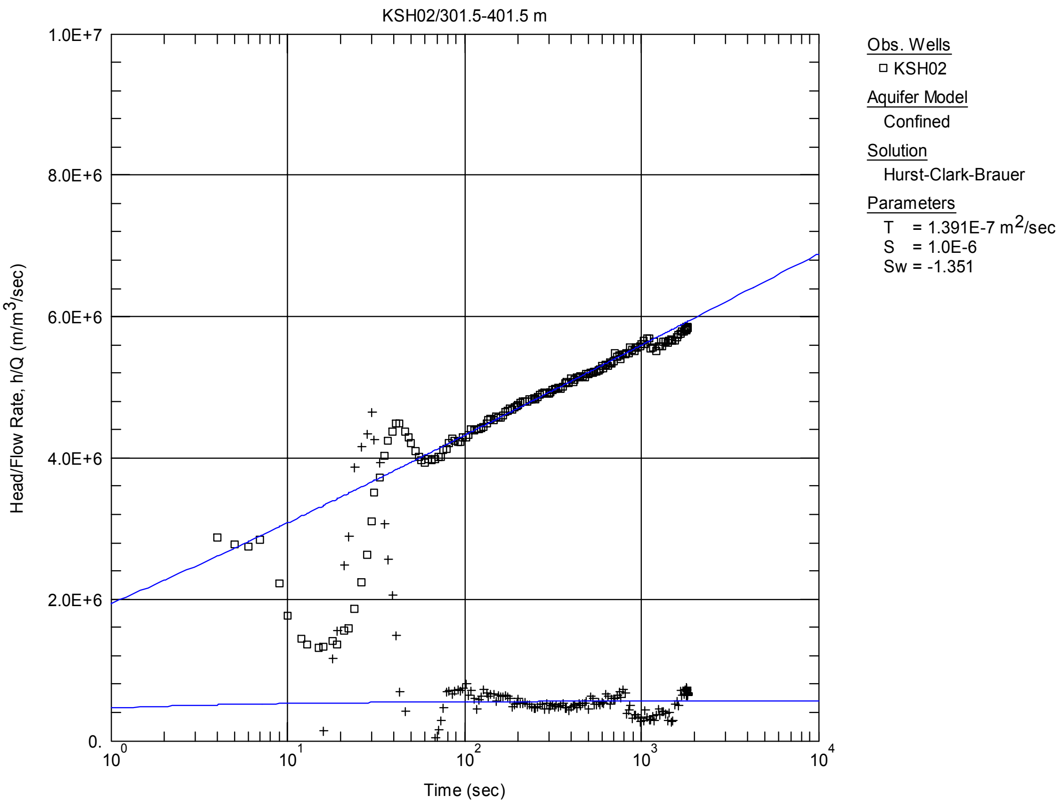
Analysis Diagram



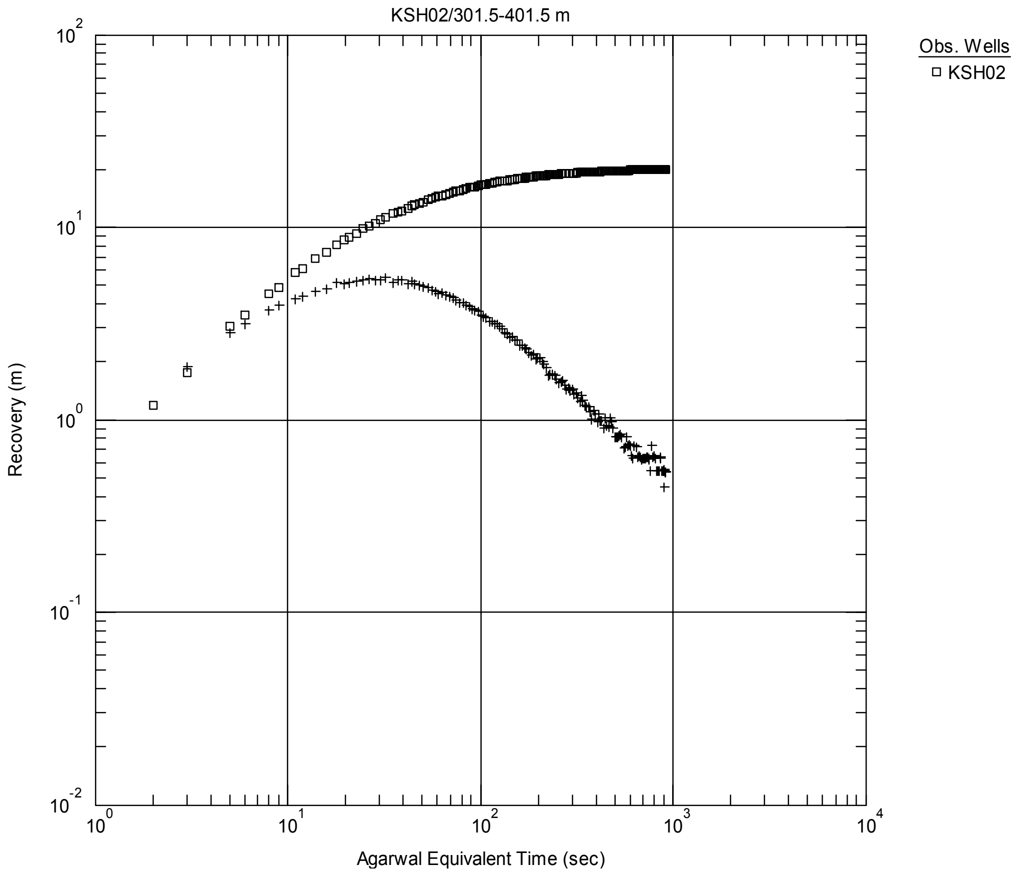
Pressure and flow rate vs. time. (Due to a failure in the pressure sensor, the pressure above test section (Pa) is in the Figure not correct.)



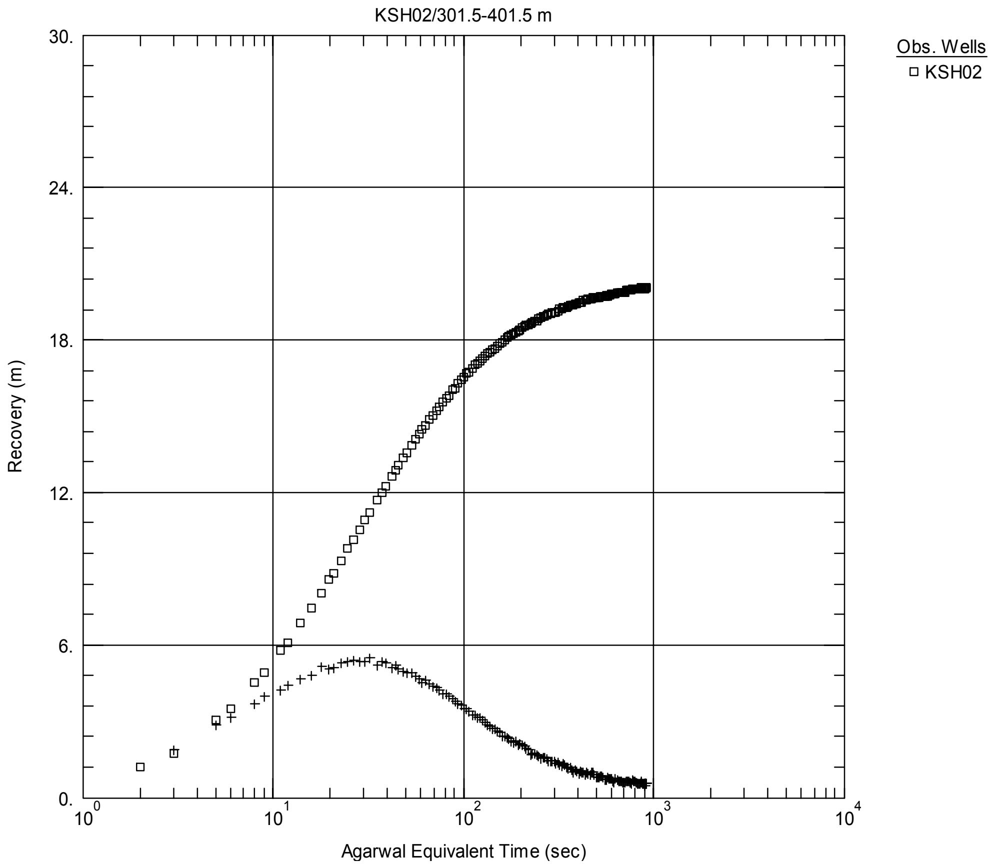
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



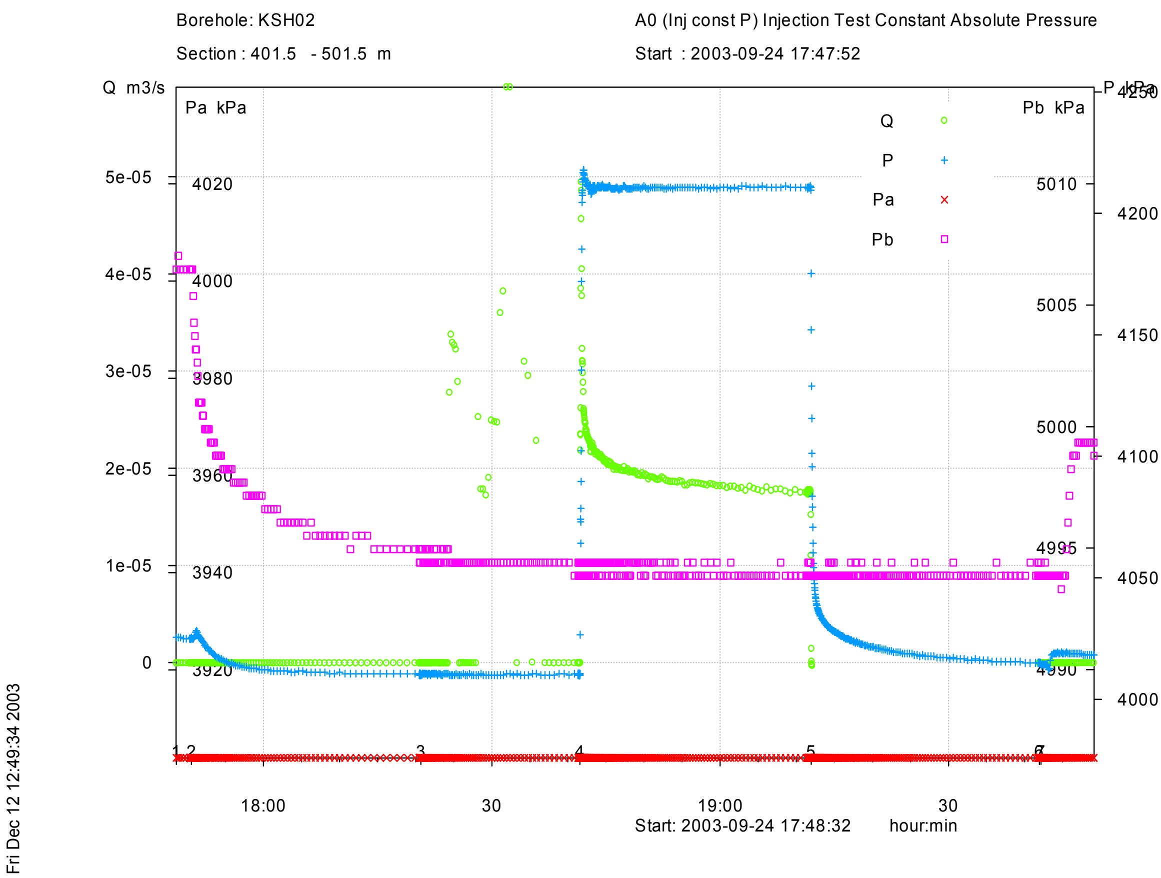
Recovery phase, log-log match.



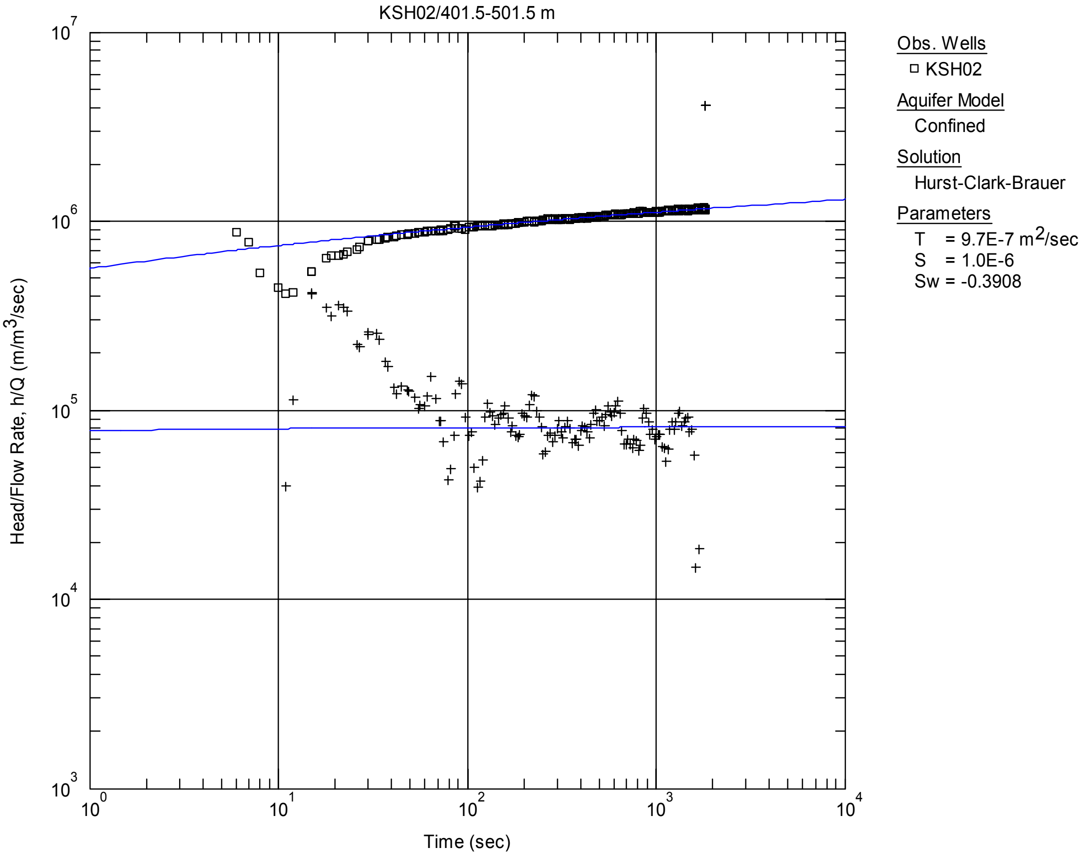
Recovery phase, lin-log match.

Test 401.5–501.5 m

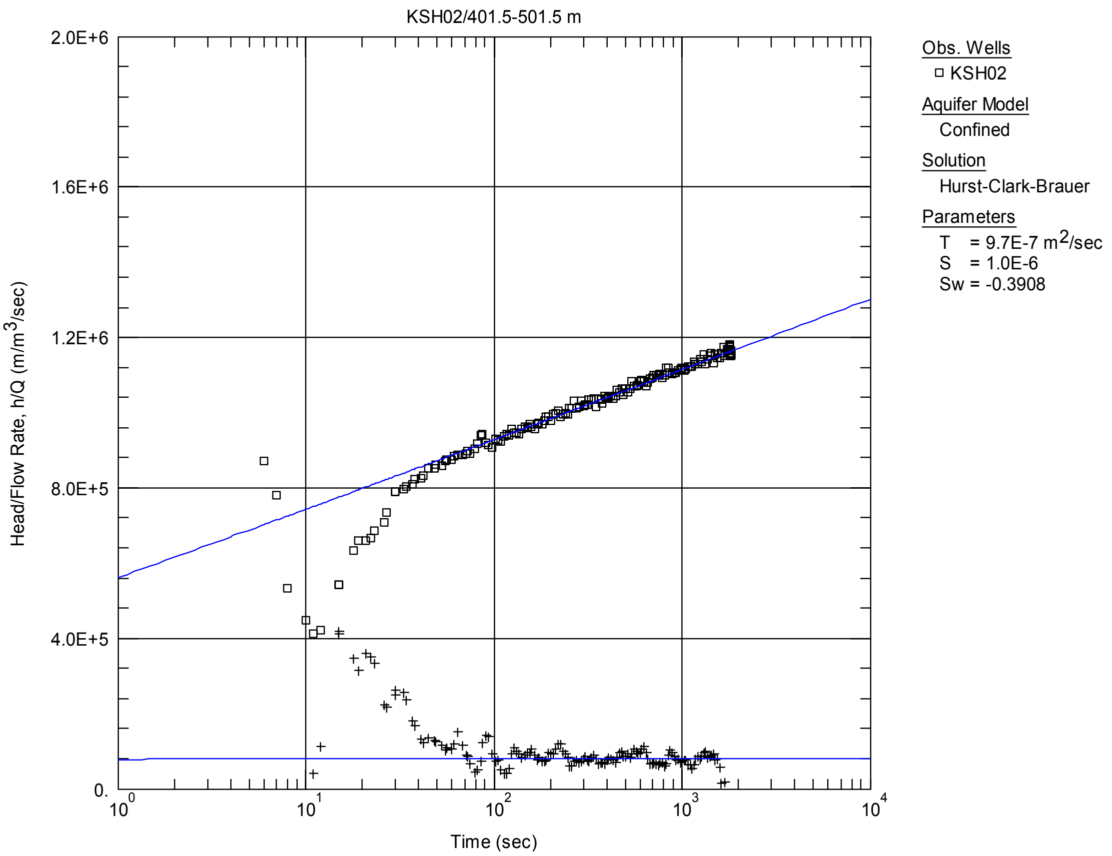
Analysis Diagram



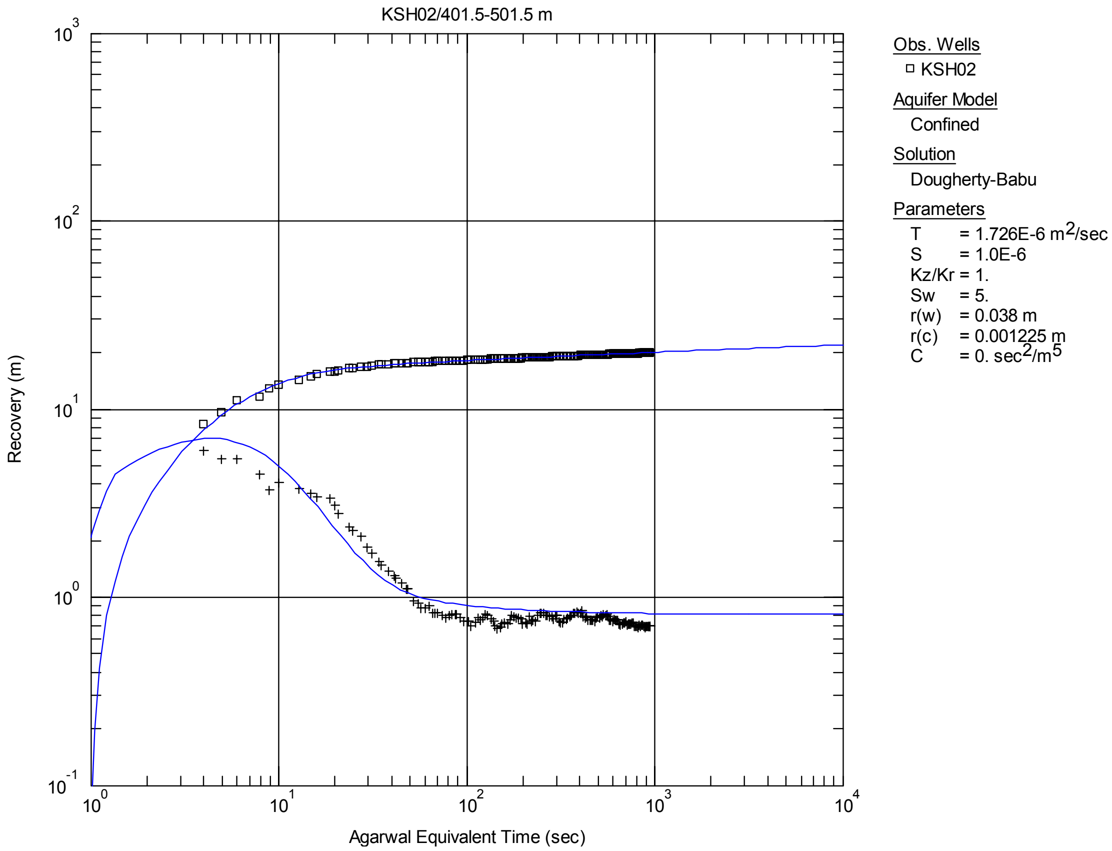
Pressure and flow rate vs. time. (Due to a failure in the pressure sensor, the pressure above test section (Pa) is in the Figure not correct.)



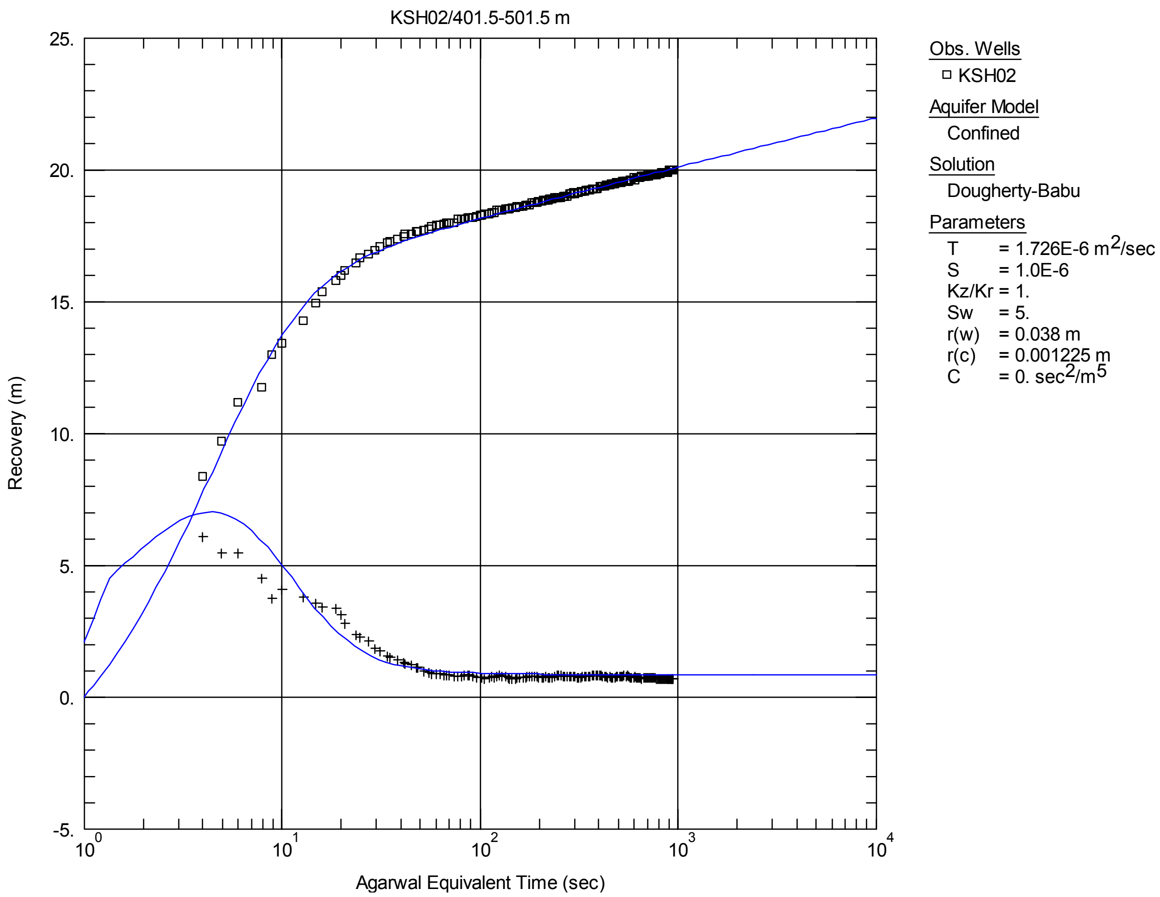
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

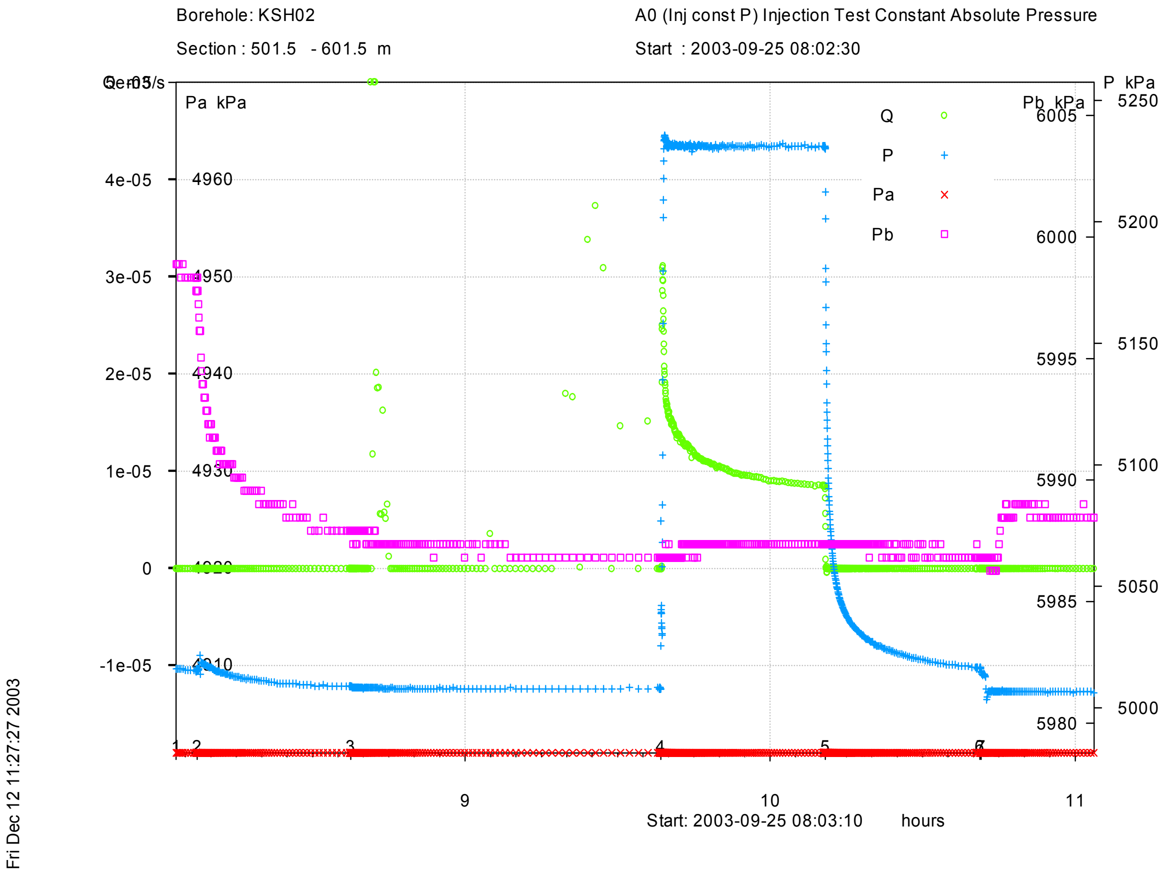


Recovery phase, lin-log match.

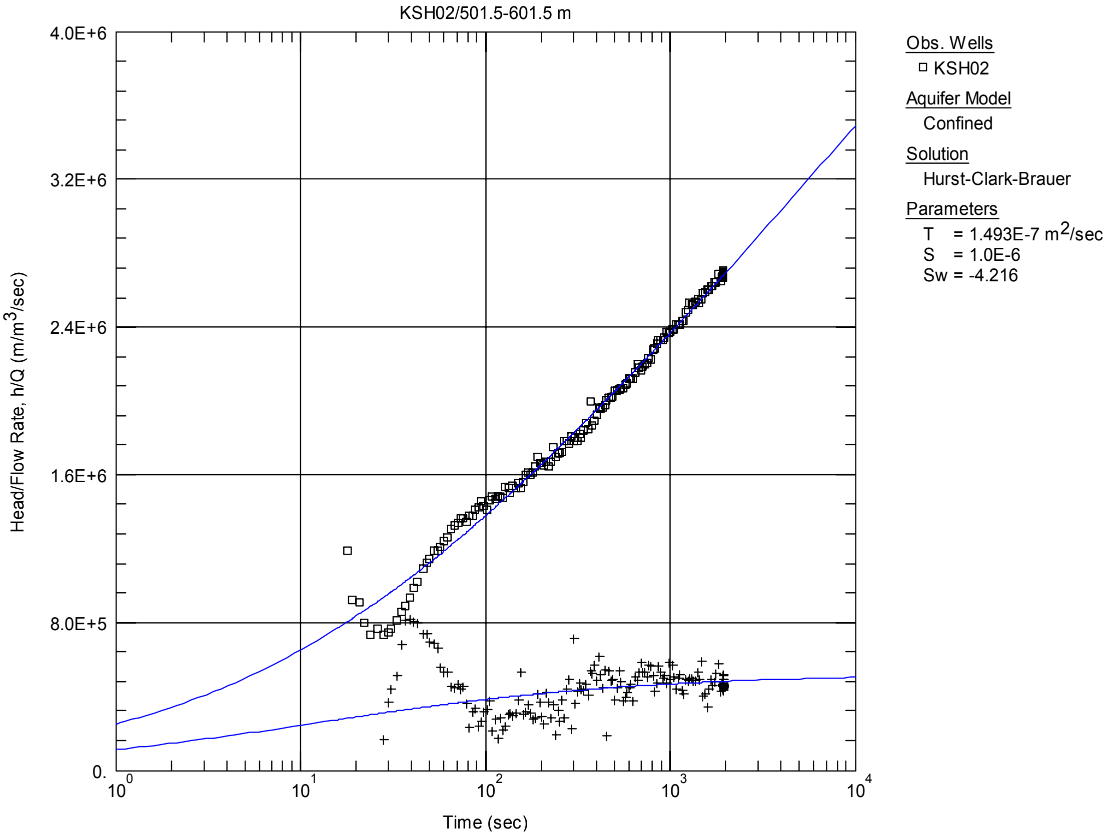
Appendix 3-5

Test 501.5–601.5 m

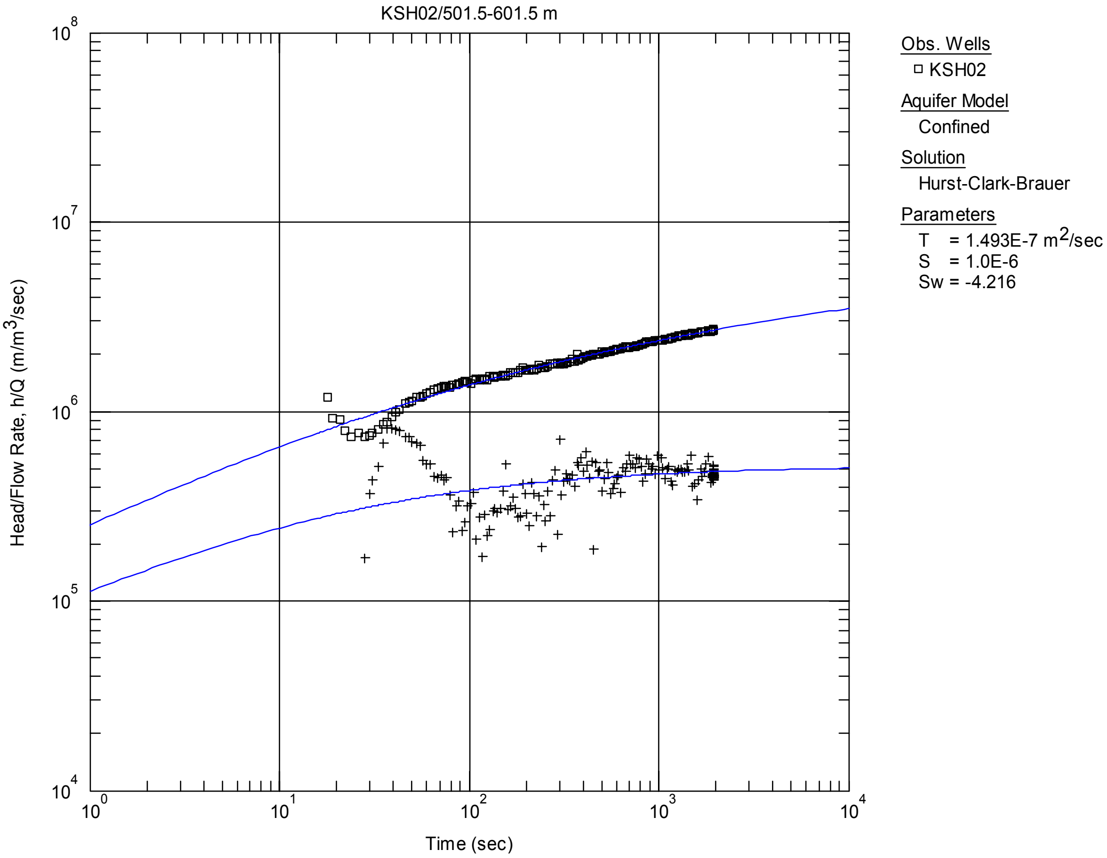
Analysis Diagram



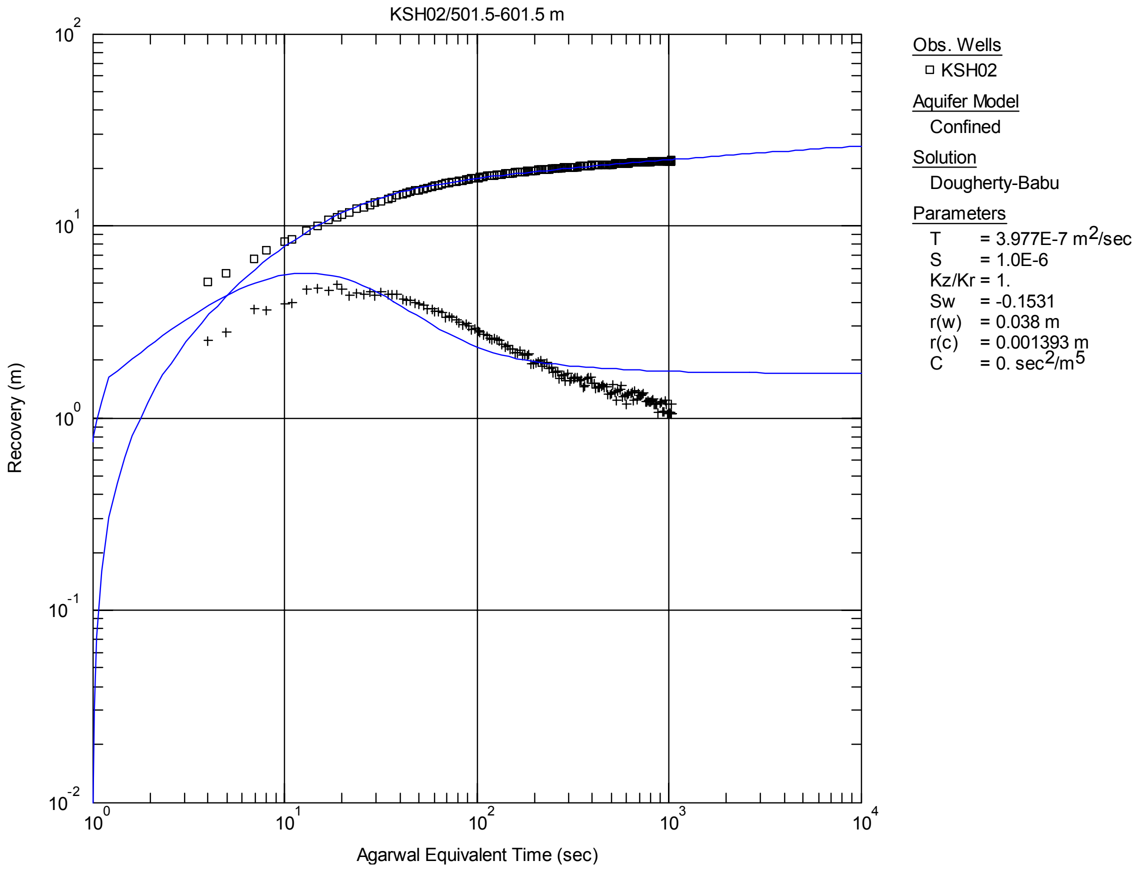
Pressure and flow rate vs. time. (Due to a failure in the pressure sensor, the pressure above test section (Pa) is in the Figure not correct.)



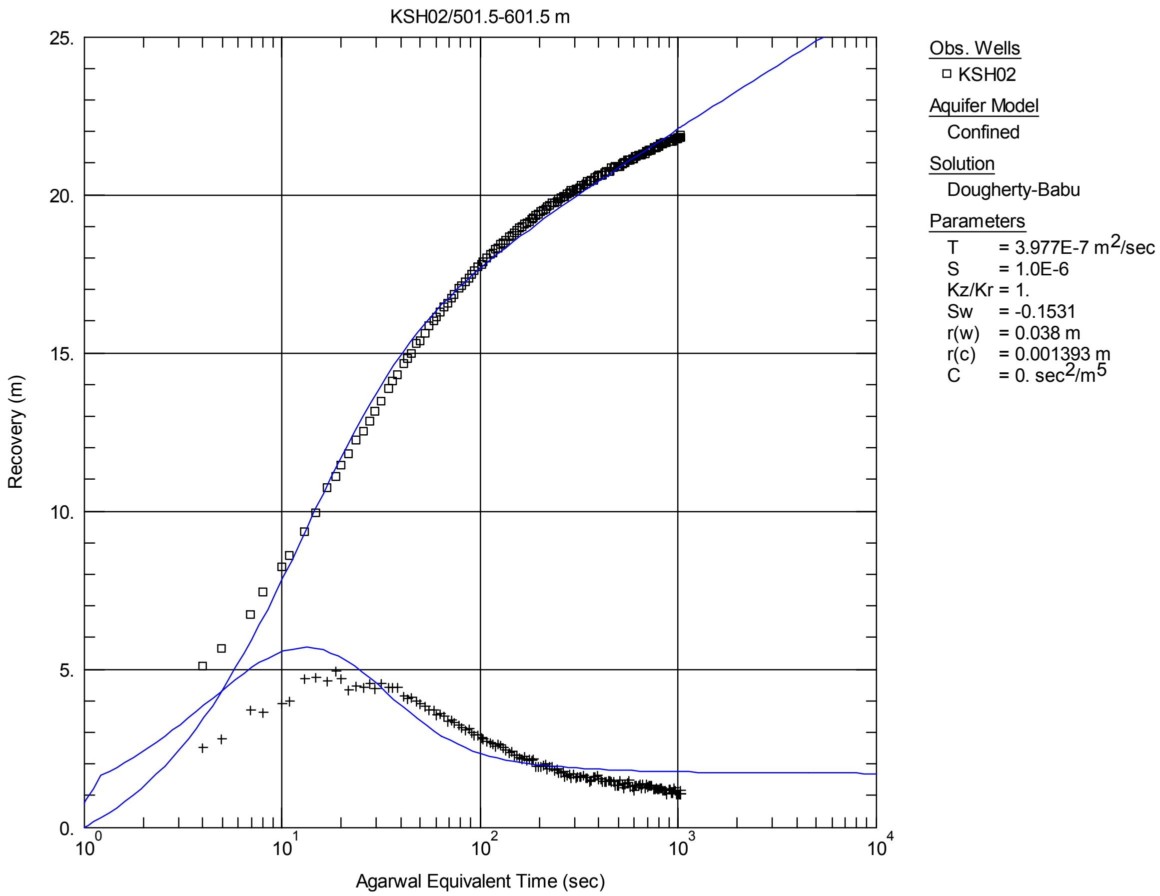
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



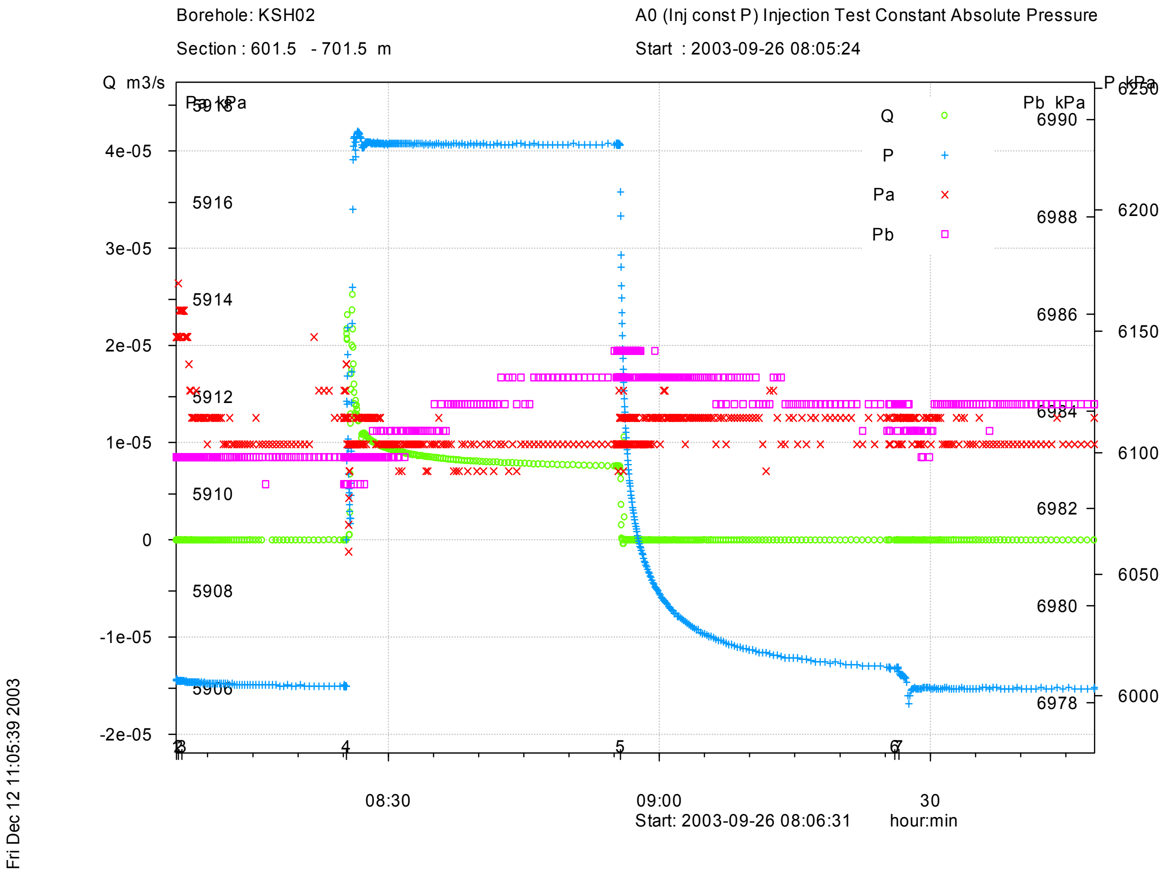
Recovery phase, log-log match.



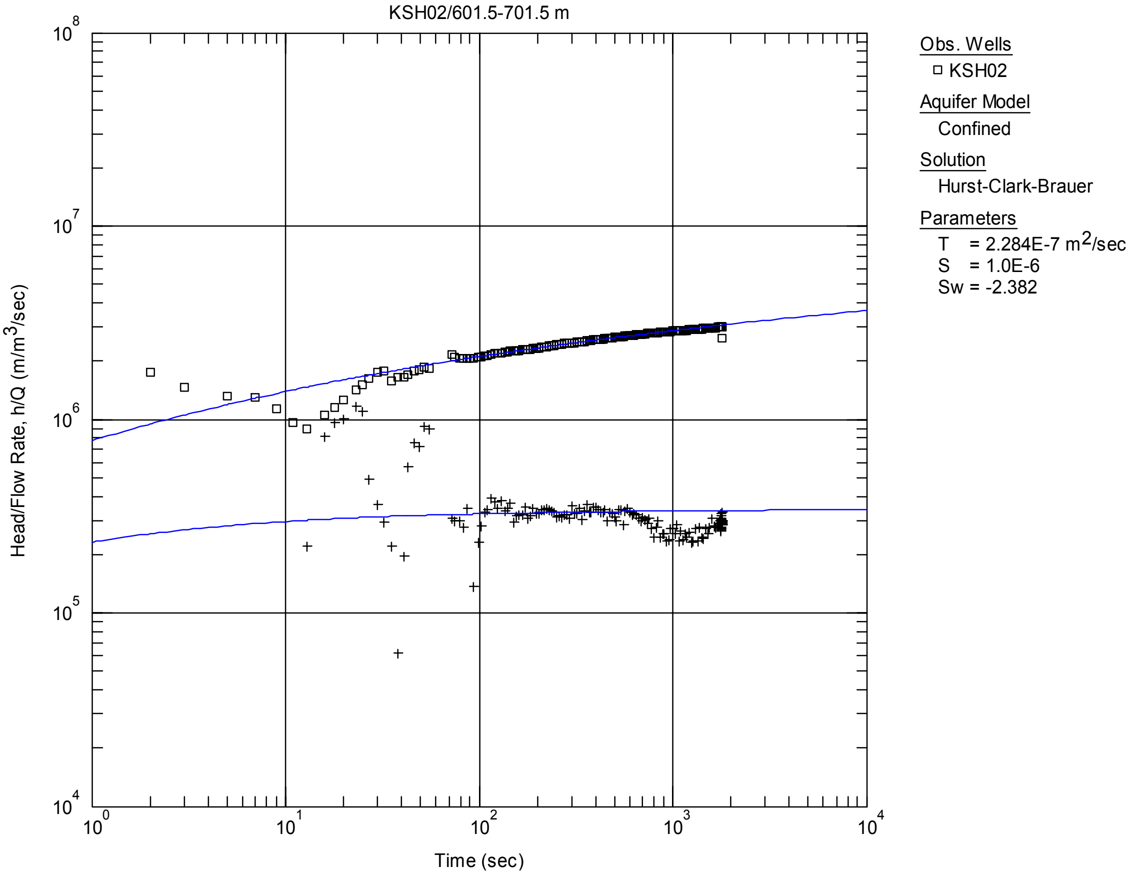
Recovery phase, lin-log match.

Test 601.5–701.5 m

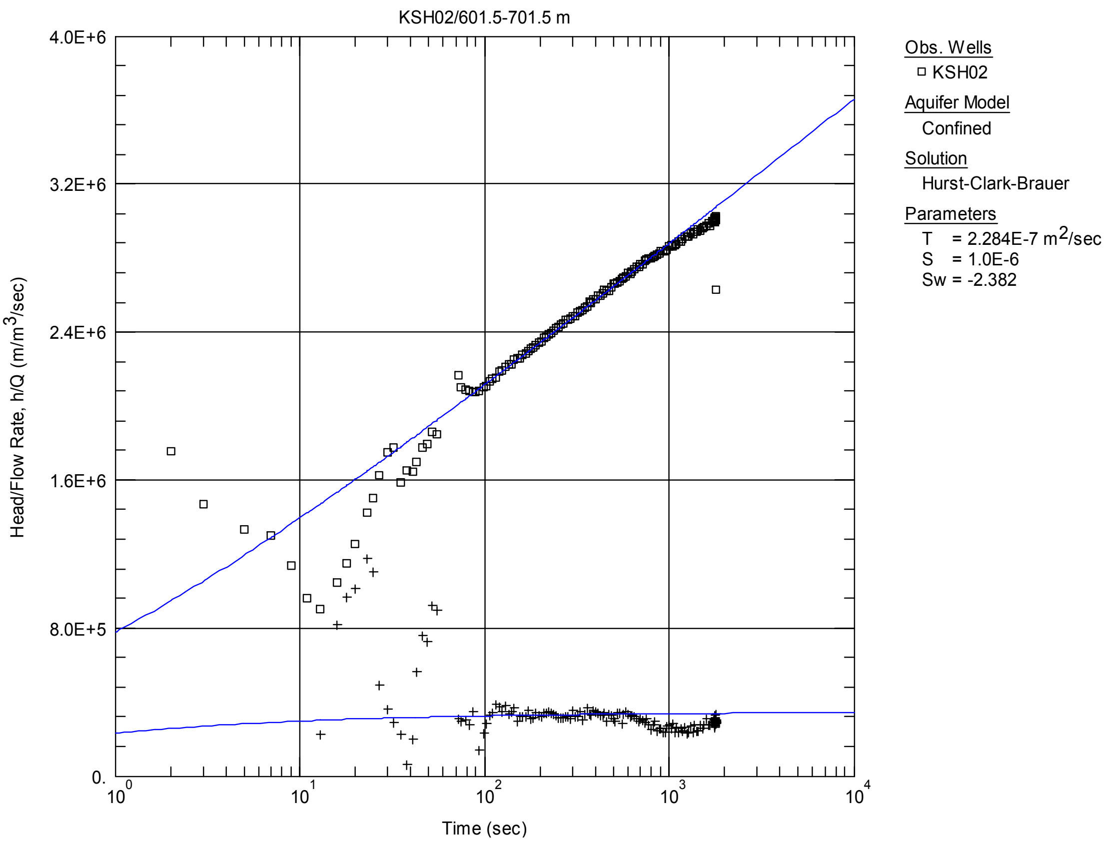
Analysis Diagram



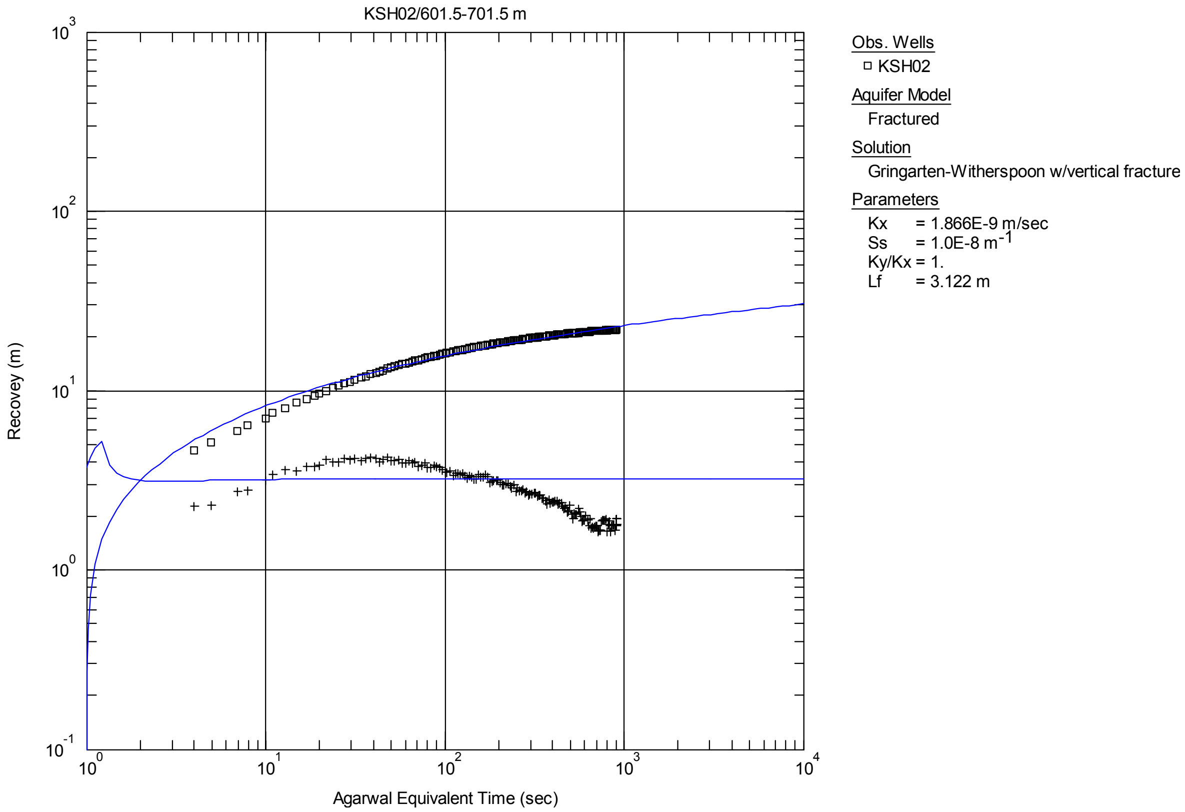
Pressure and flow rate vs. time. (Due to a failure in the pressure sensor, the pressure above test section (Pa) is in the Figure not correct.)



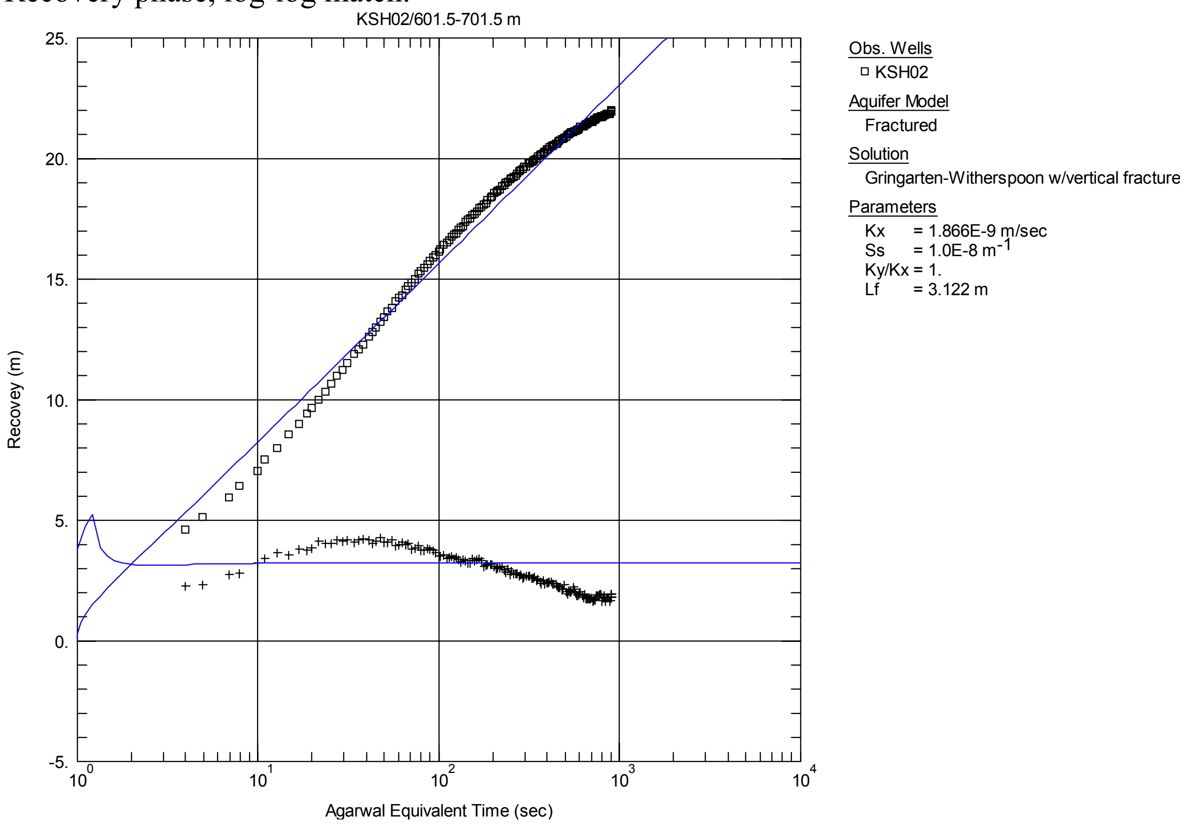
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

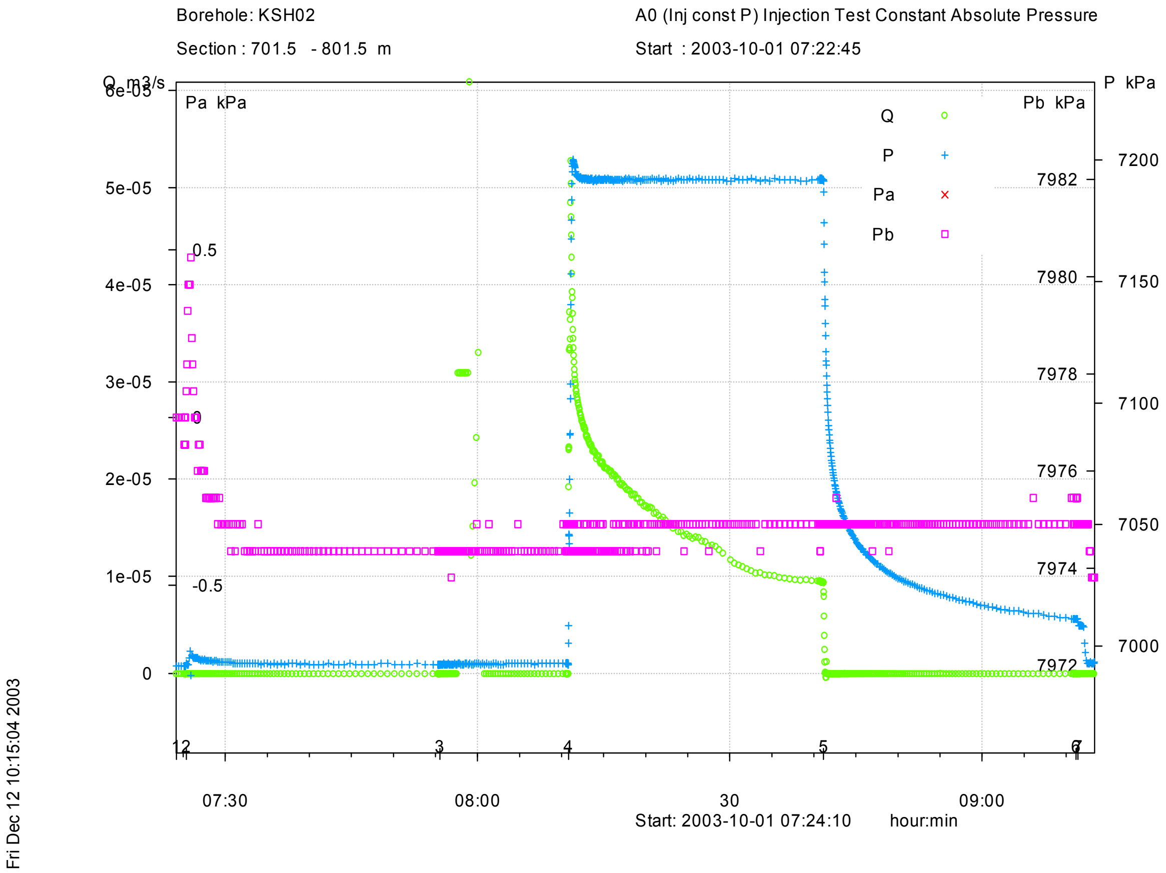


Recovery phase, lin-log match.

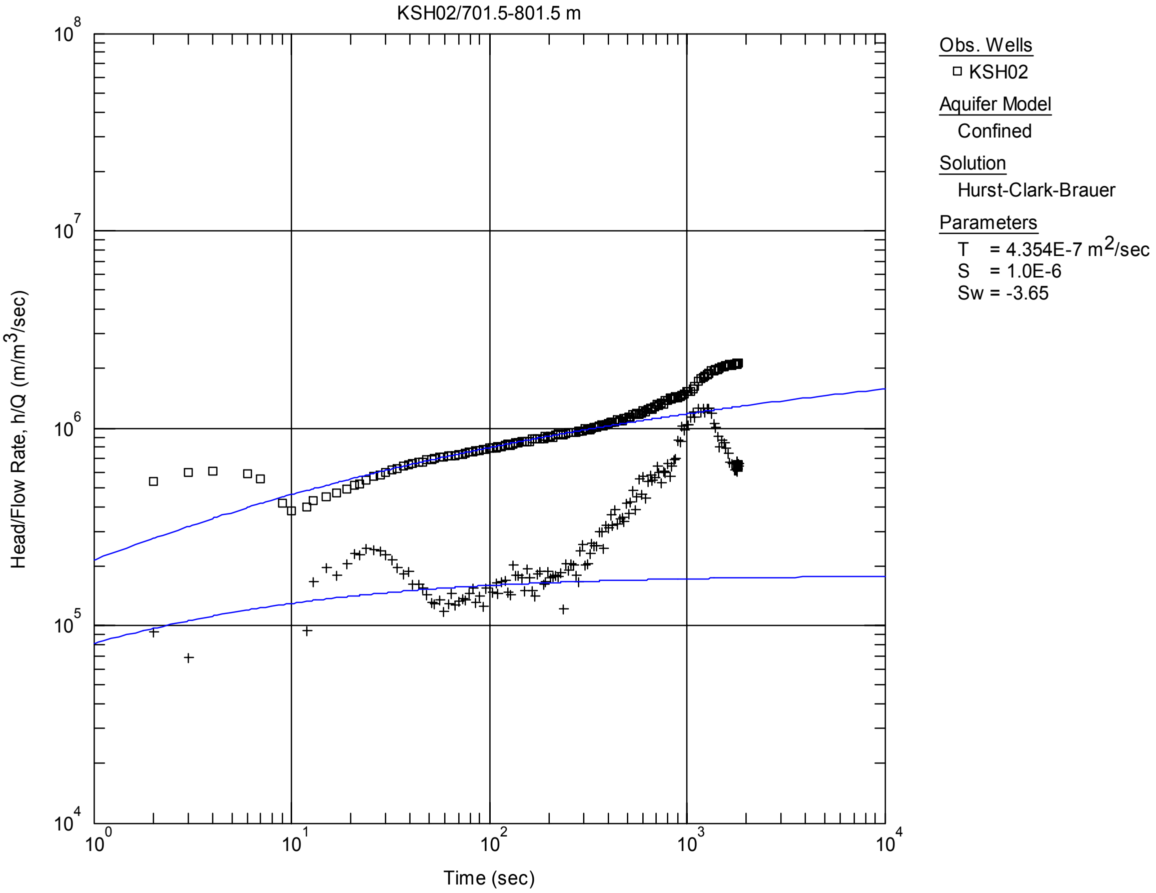
Appendix 3-7

Test 701.5–801.5 m

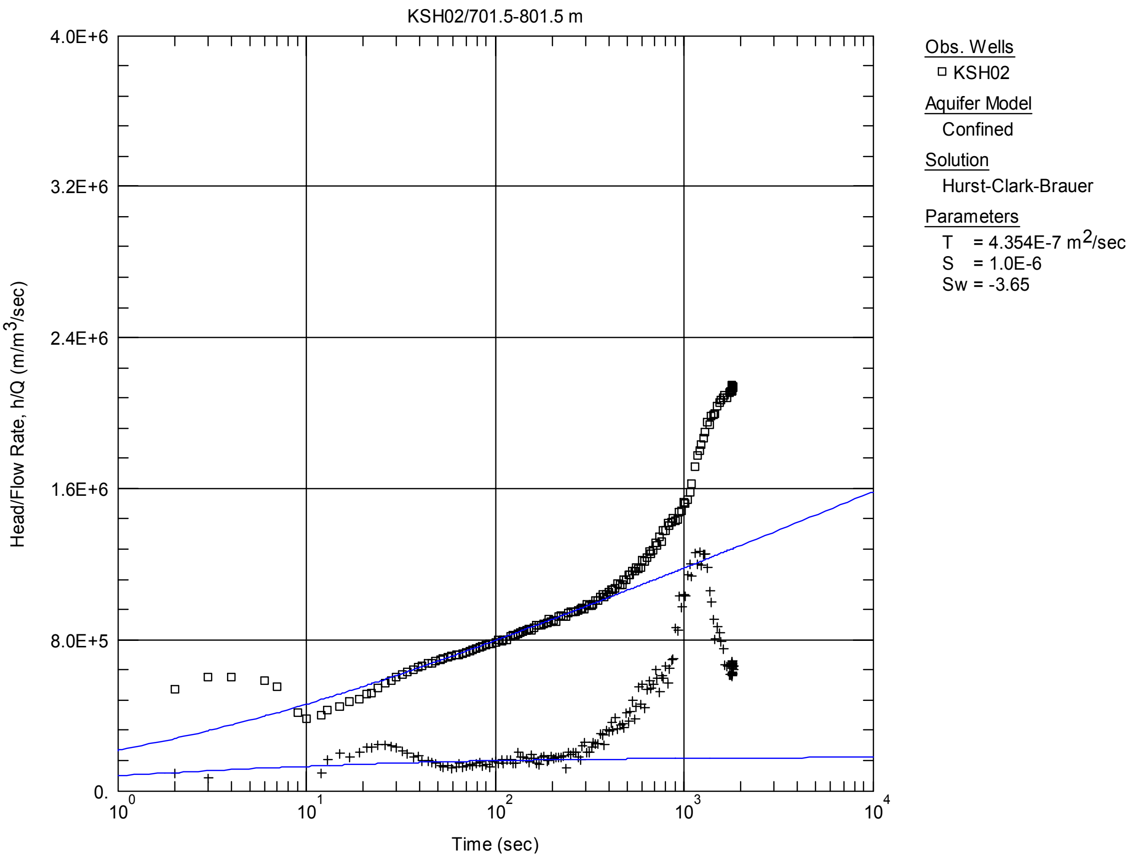
Analysis Diagram



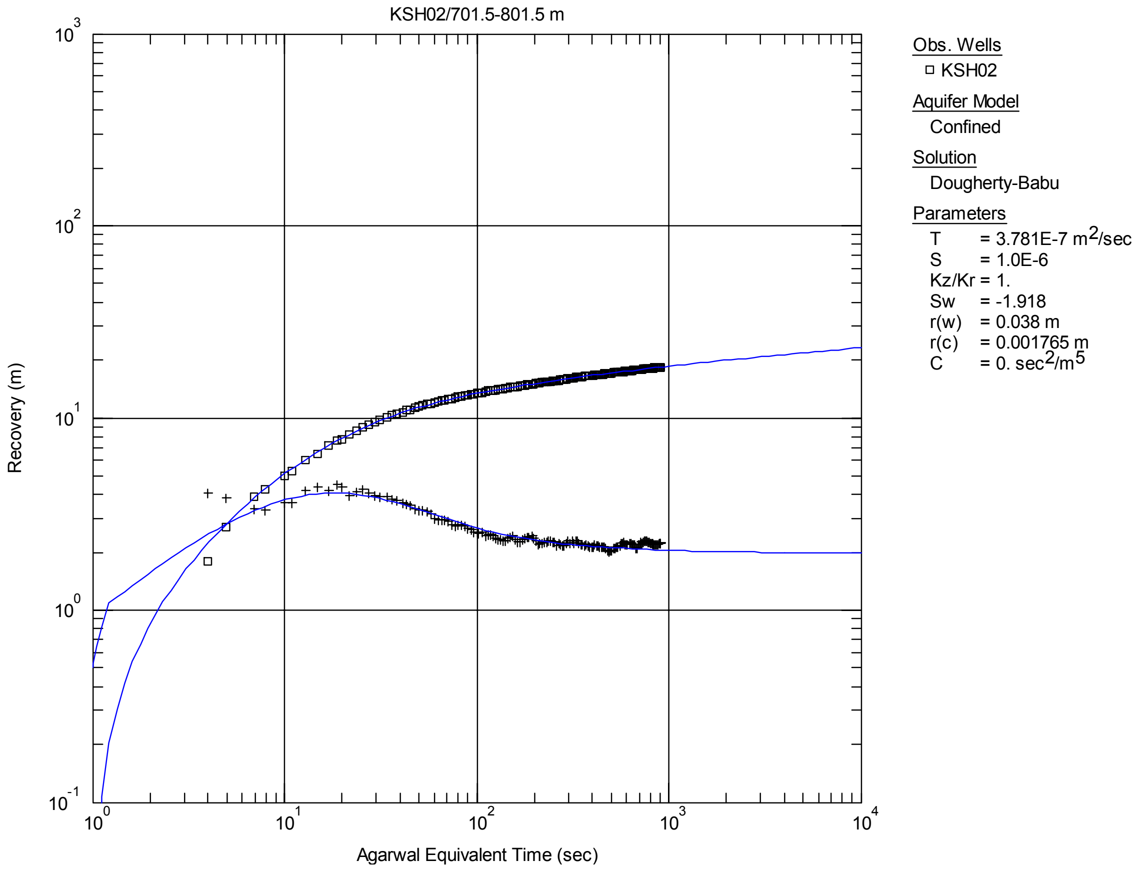
Pressure and flow rate vs. time.



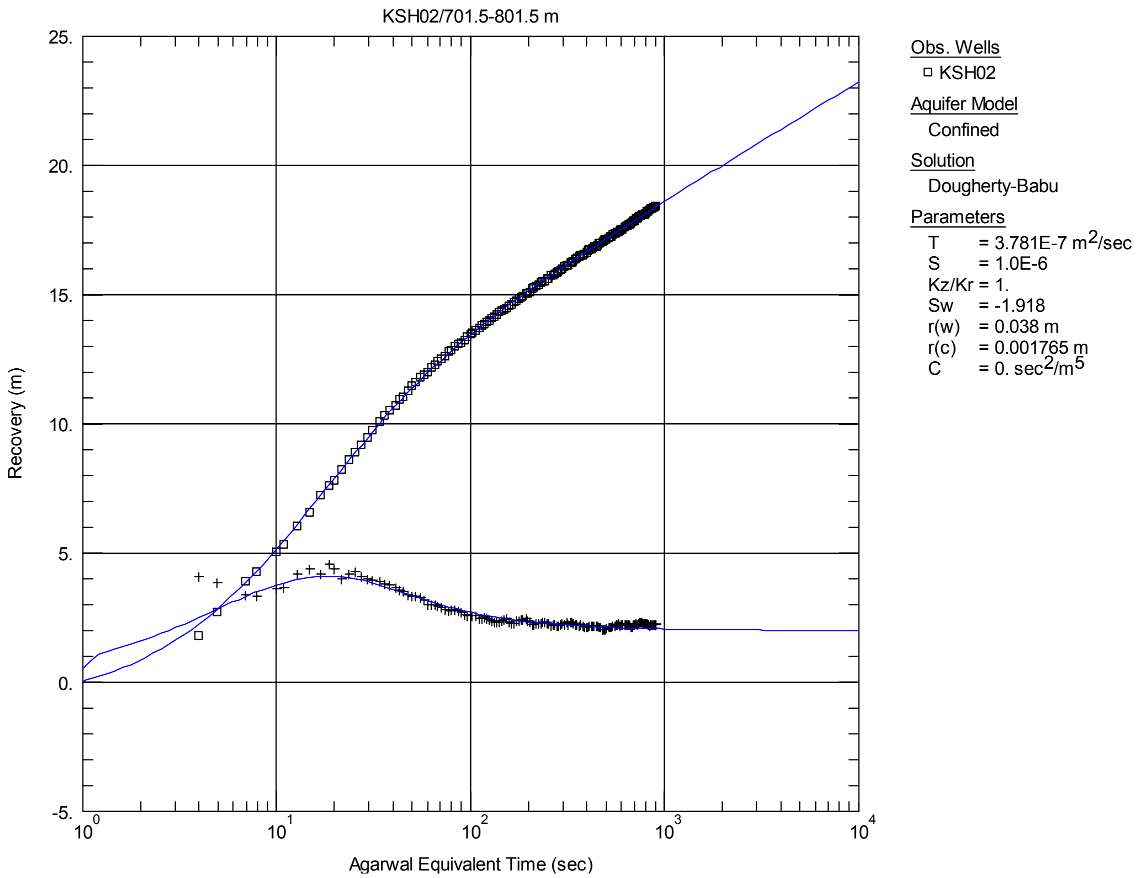
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

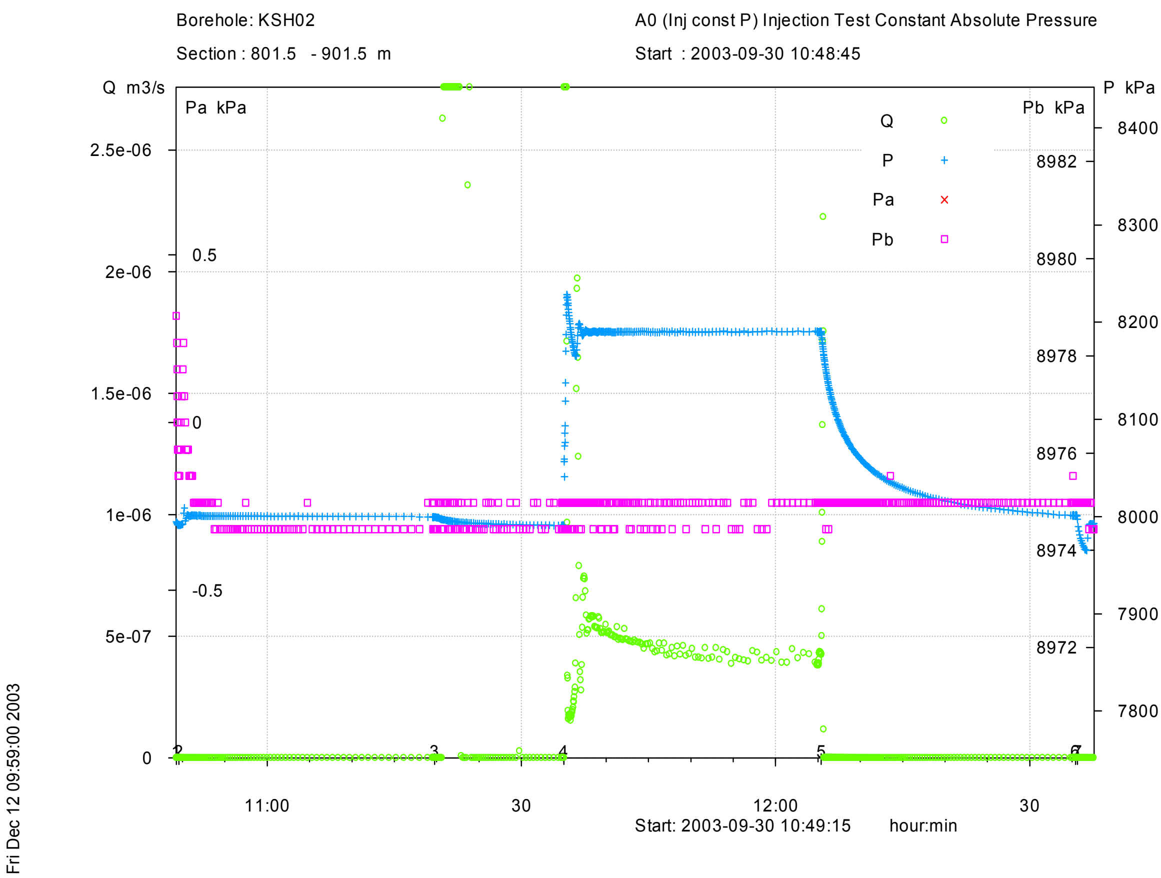


Recovery phase, lin-log match.

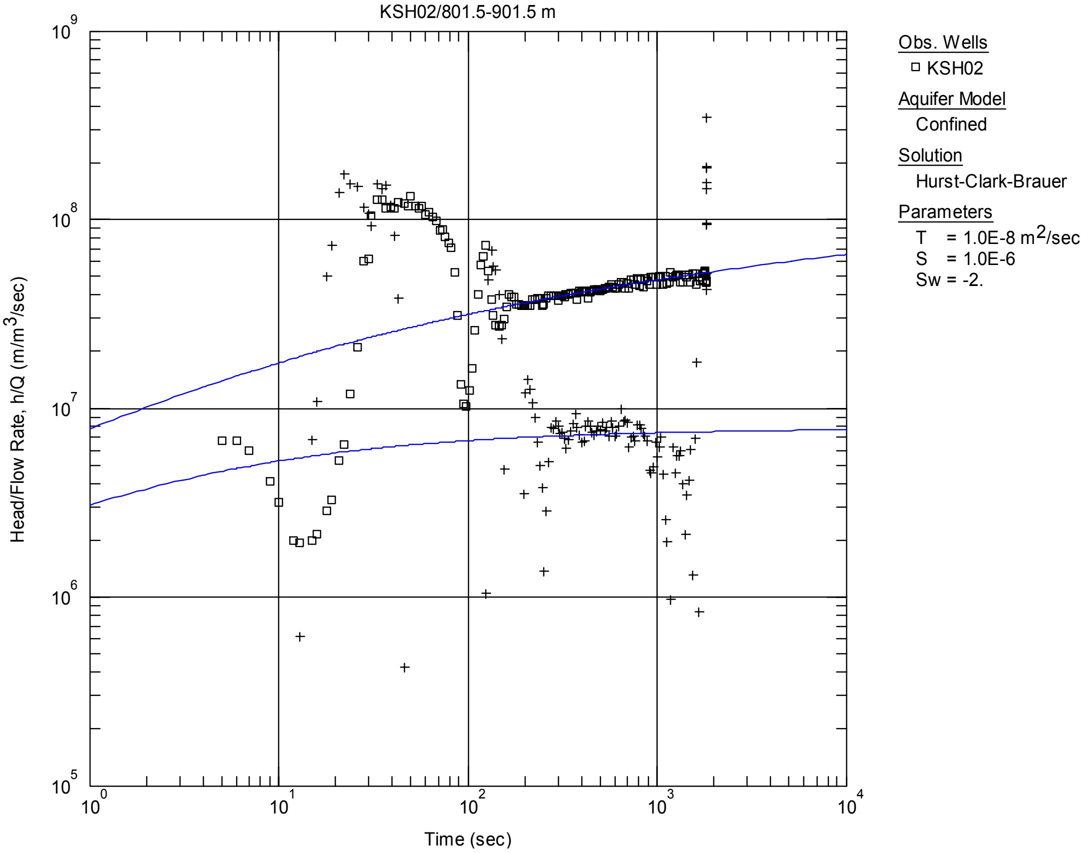
Appendix 3-8

Test 801.5–901.5 m

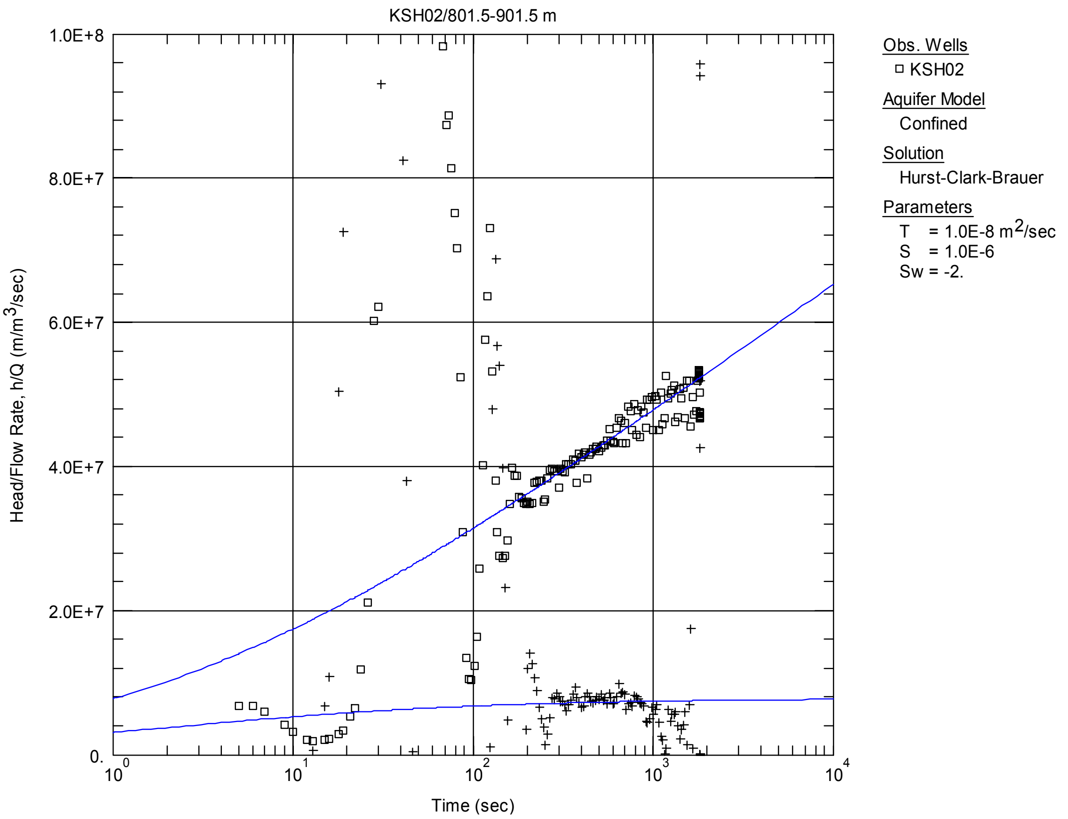
Analysis Diagram



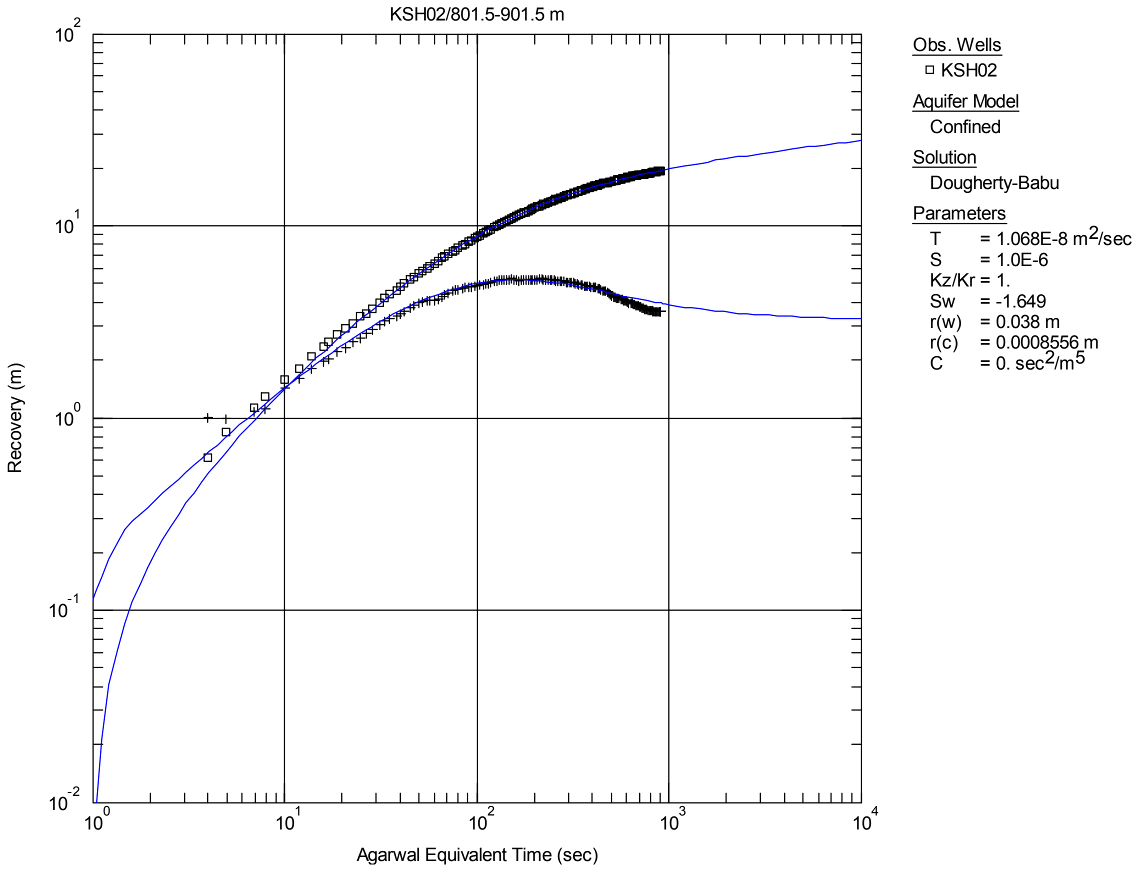
Pressure and flow rate vs. time.



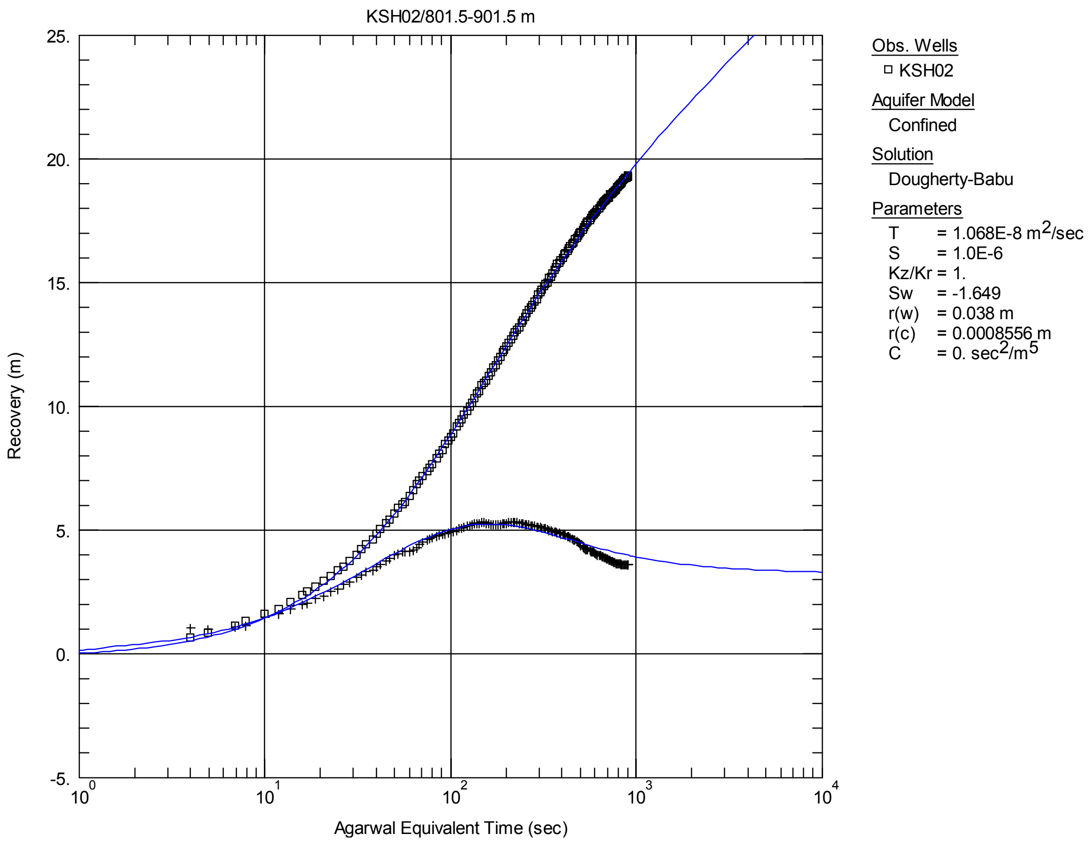
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

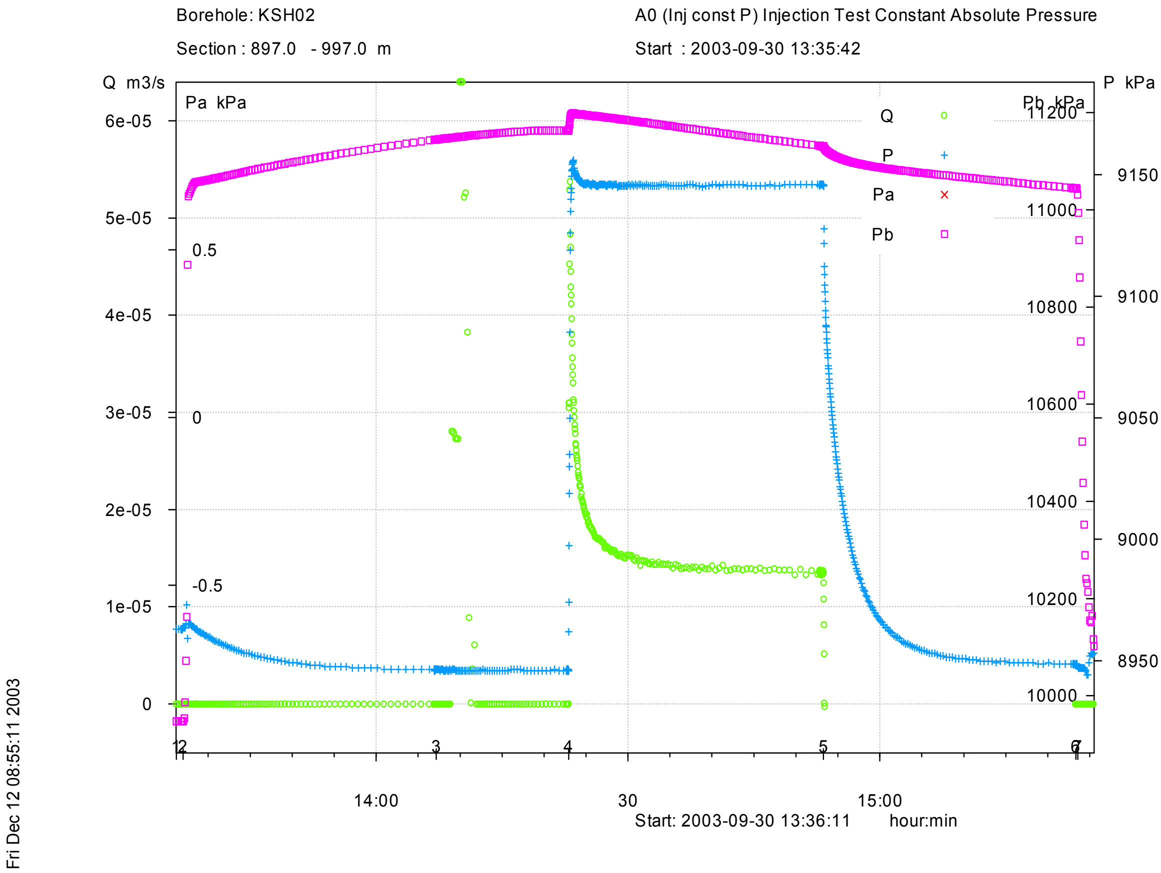


Recovery phase, lin-log match.

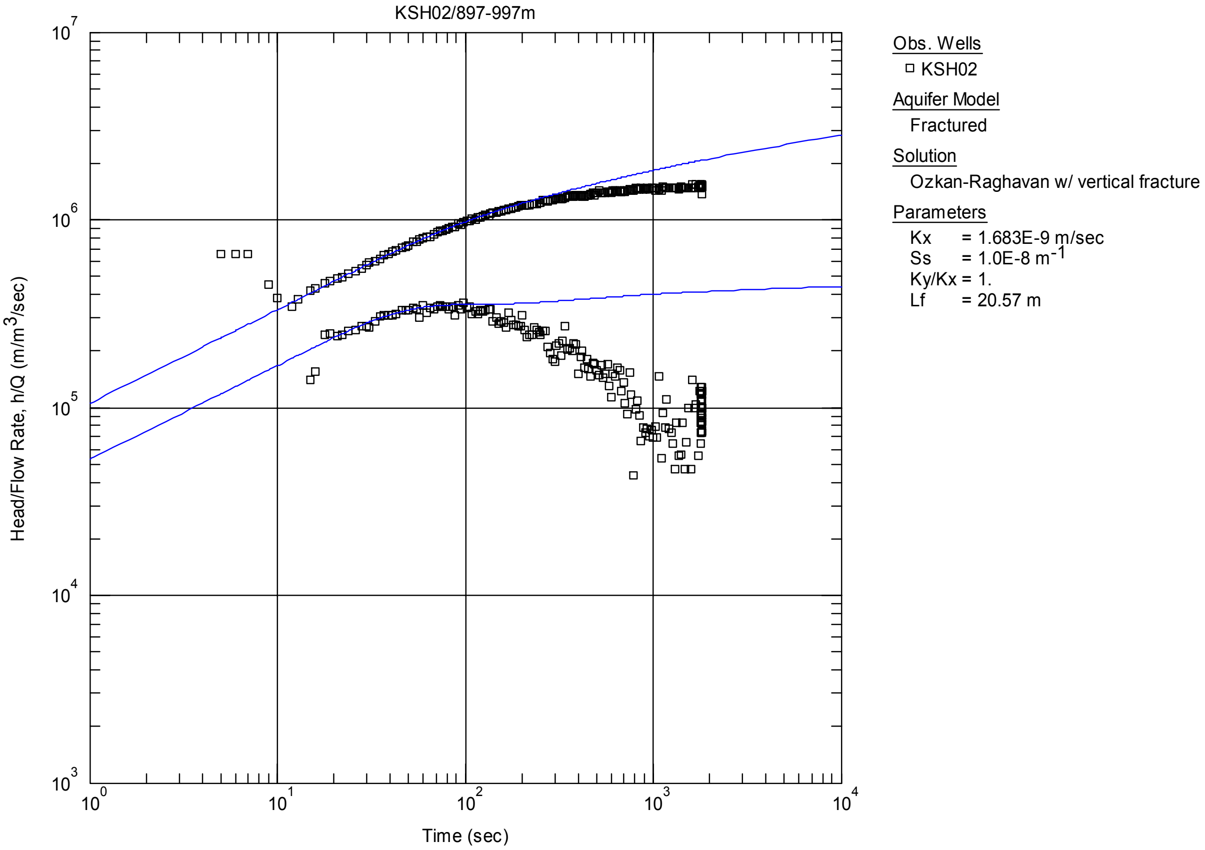
Appendix 3-9

Test 897 –997 m

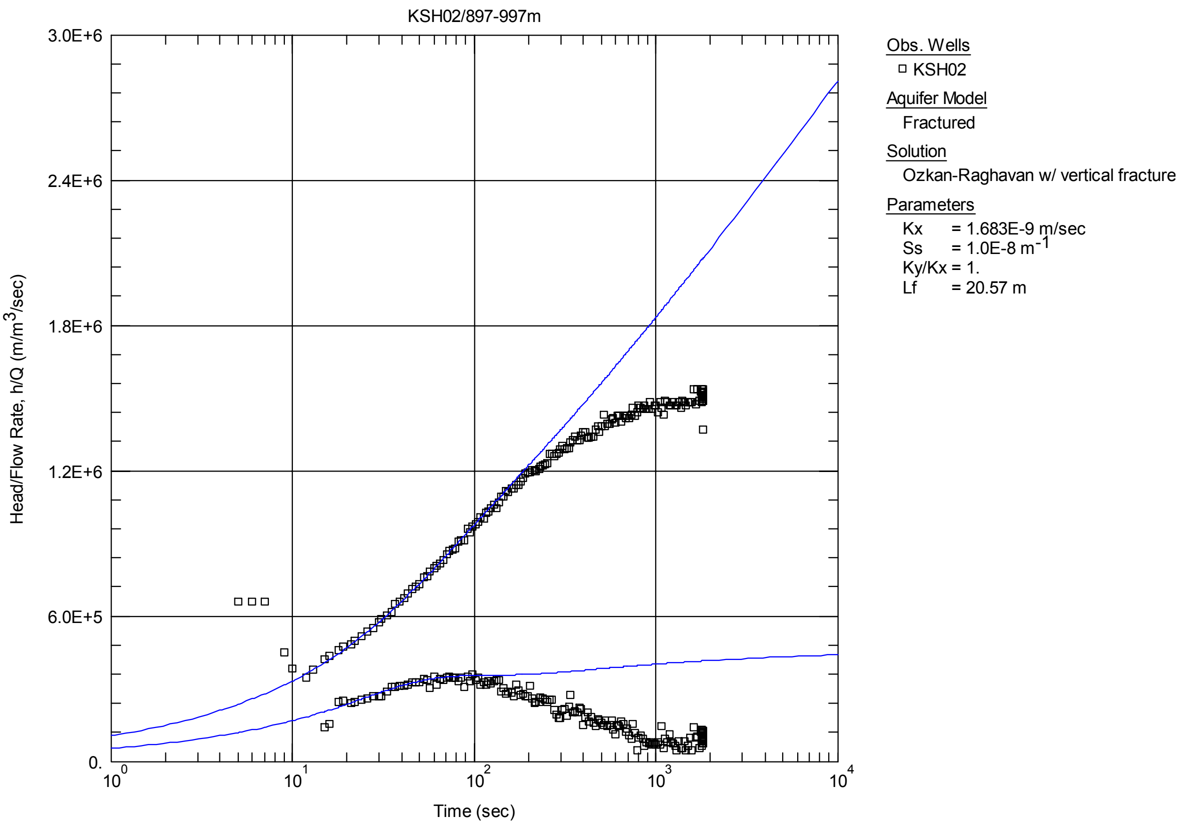
Analysis Diagram



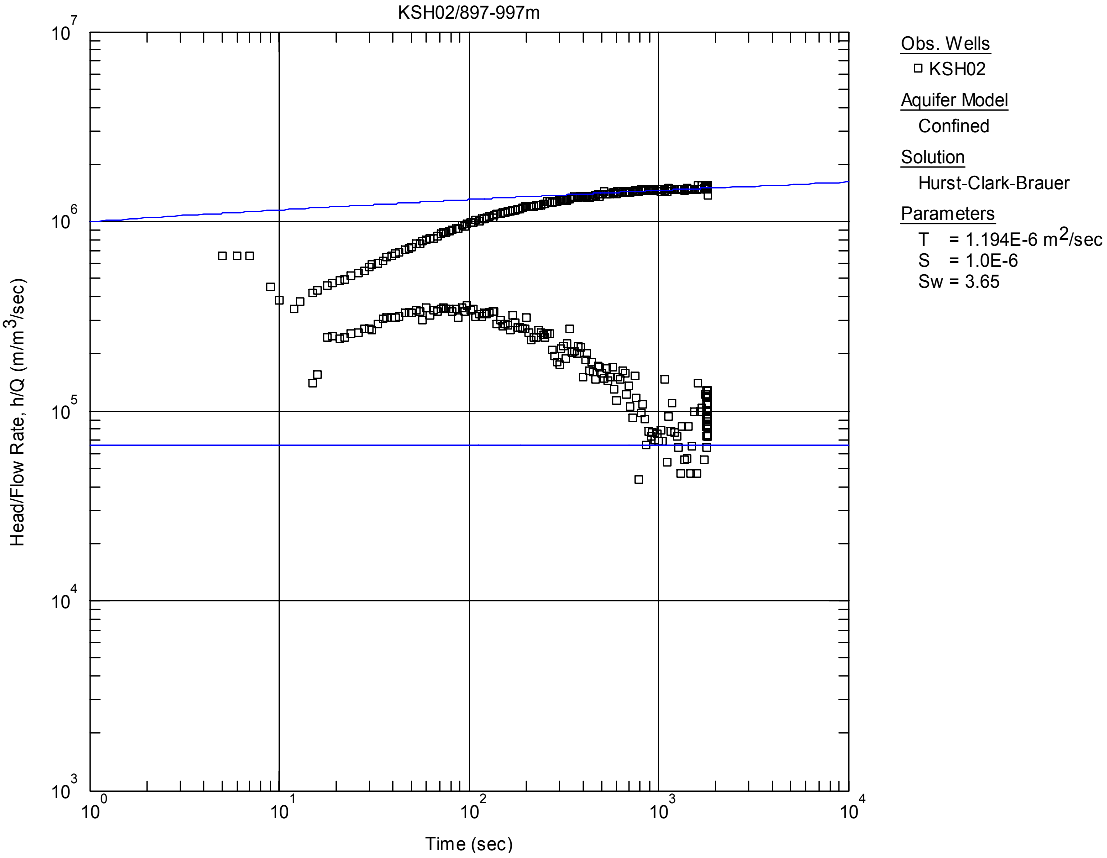
Pressure and flow rate vs. time.



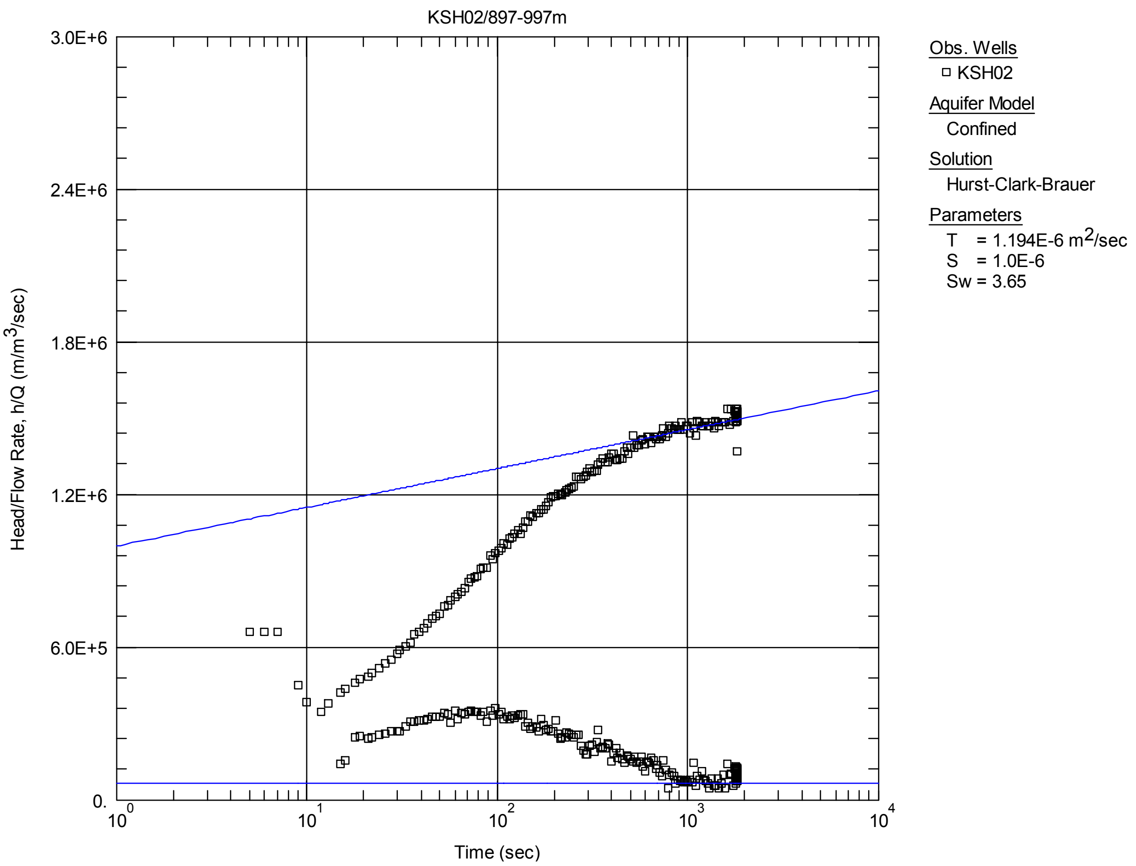
Perturbation phase, log-log match. First match.



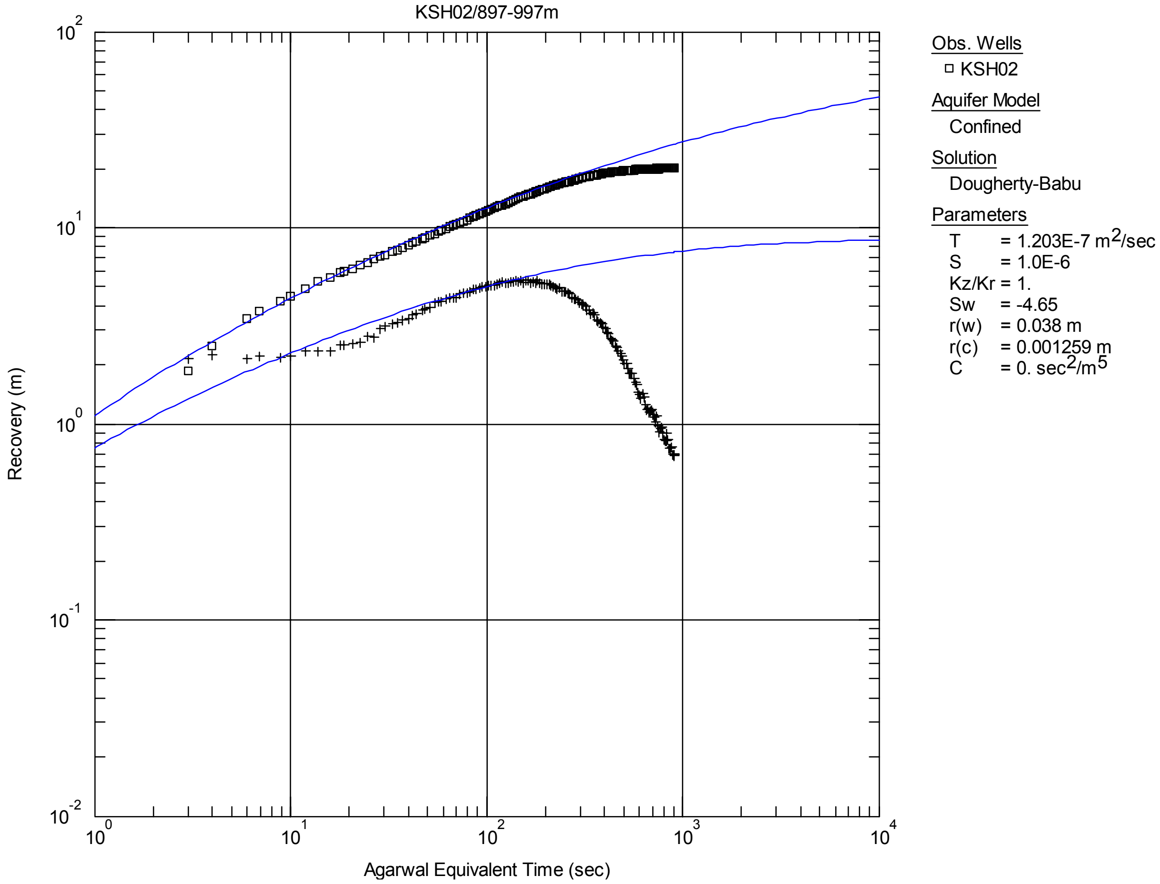
Perturbation phase, lin-log match. First match.



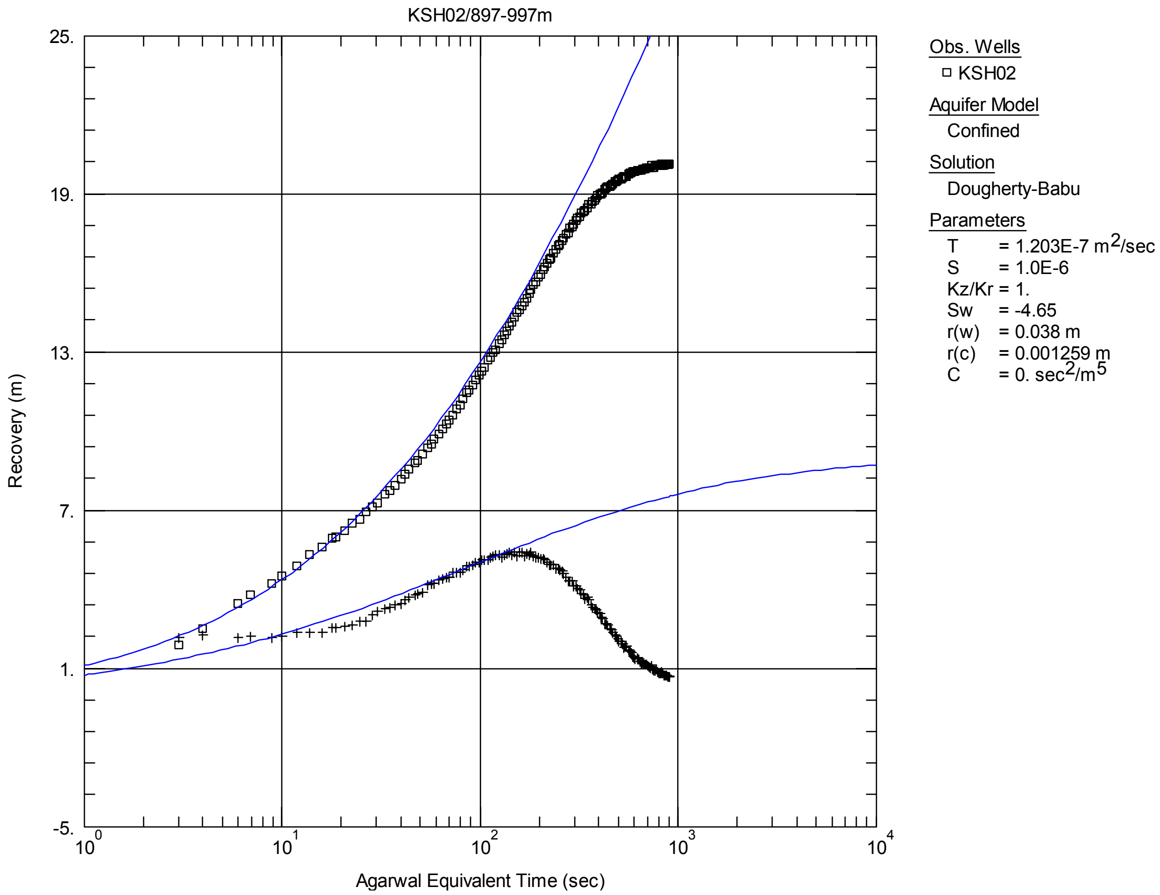
Perturbation phase, log-log match. Second match.



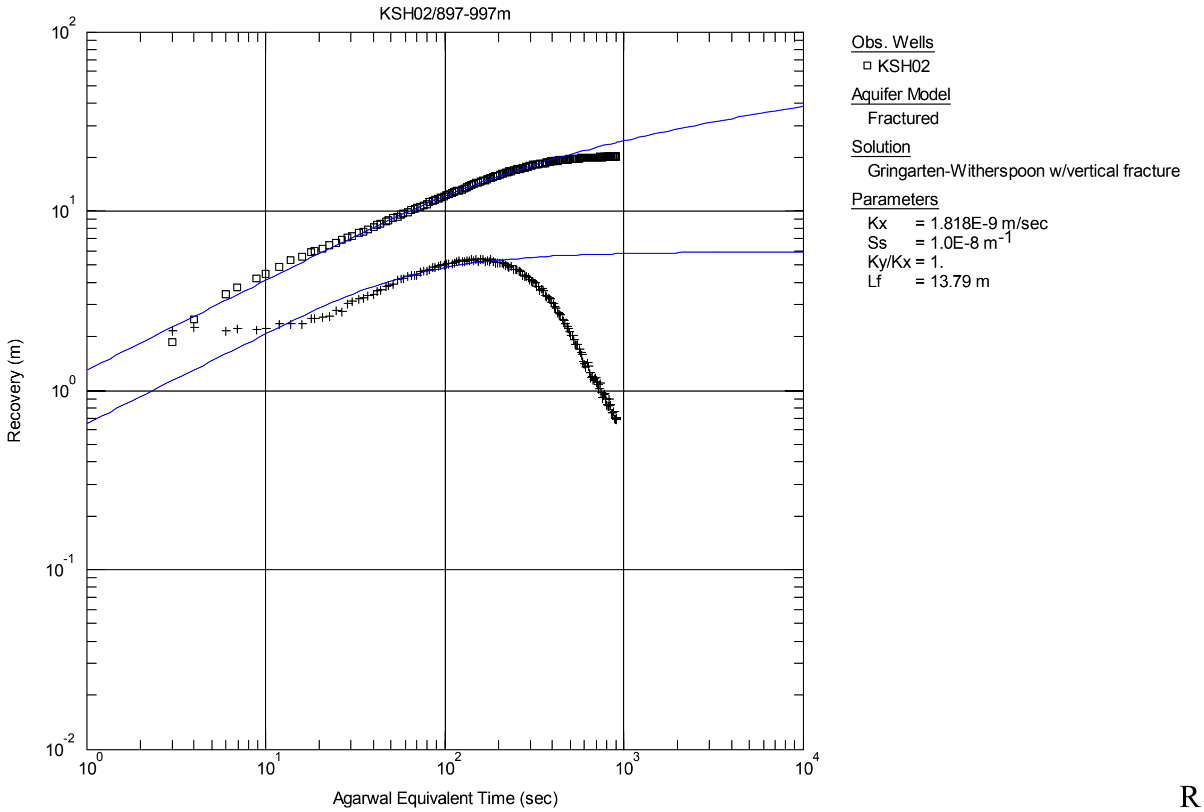
Perturbation phase, lin-log match. Second match.



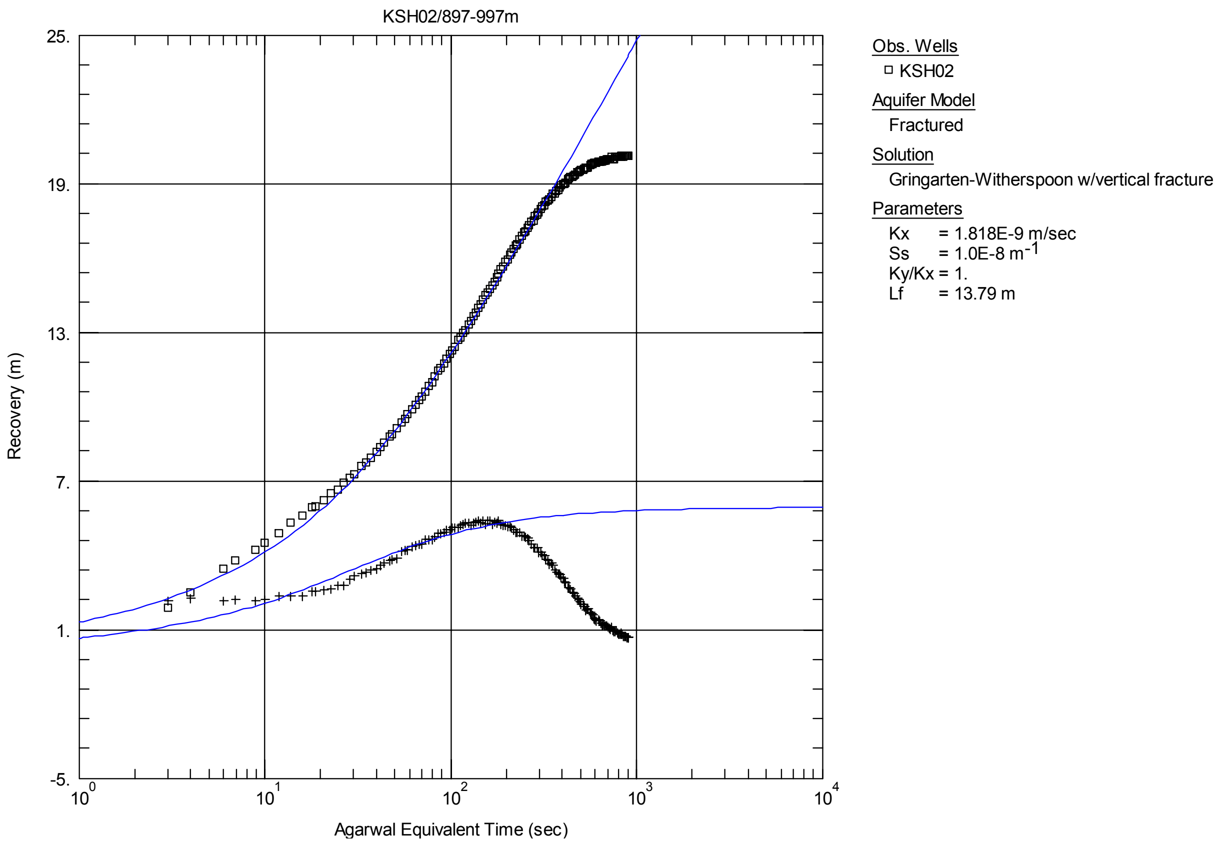
Recovery phase, log-log match. First match.



Recovery phase, lin-log match. First match.



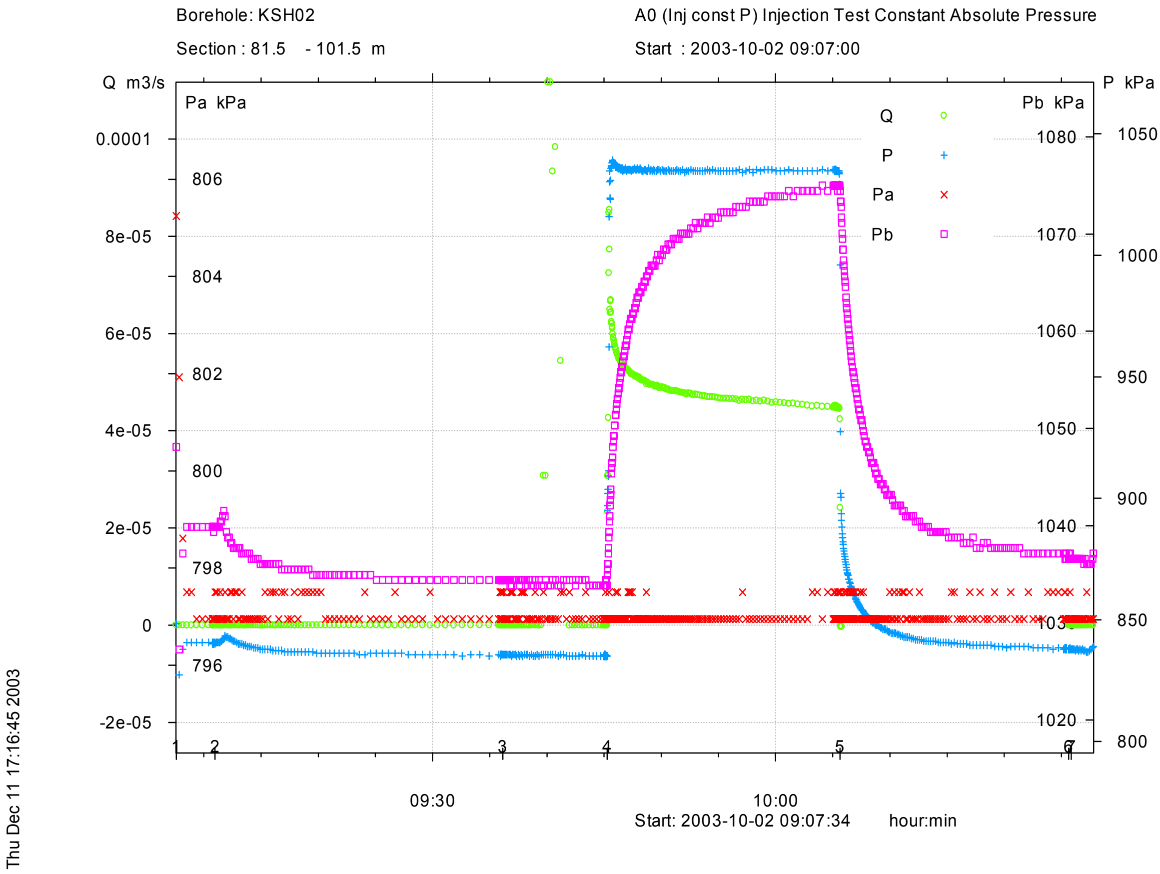
Recovery phase, log-log match. Second match.



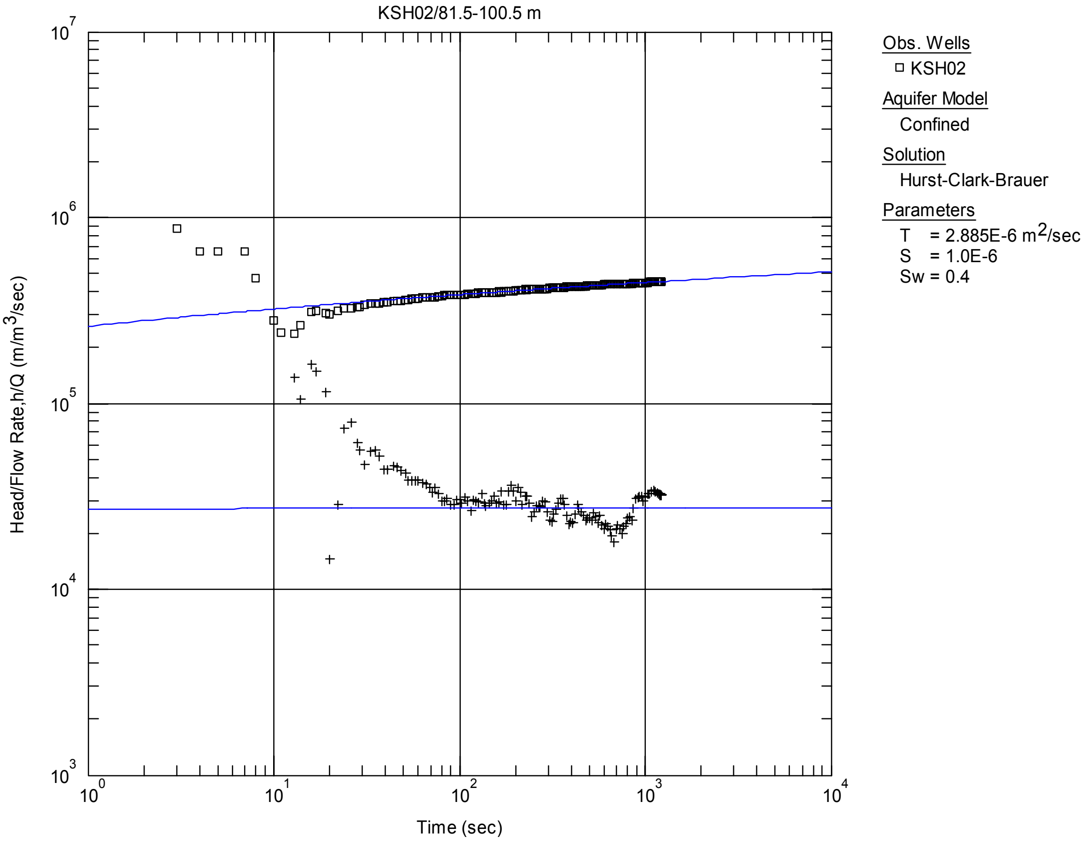
Recovery phase, lin-log match. Second match.

Test 81.5–101.5 m

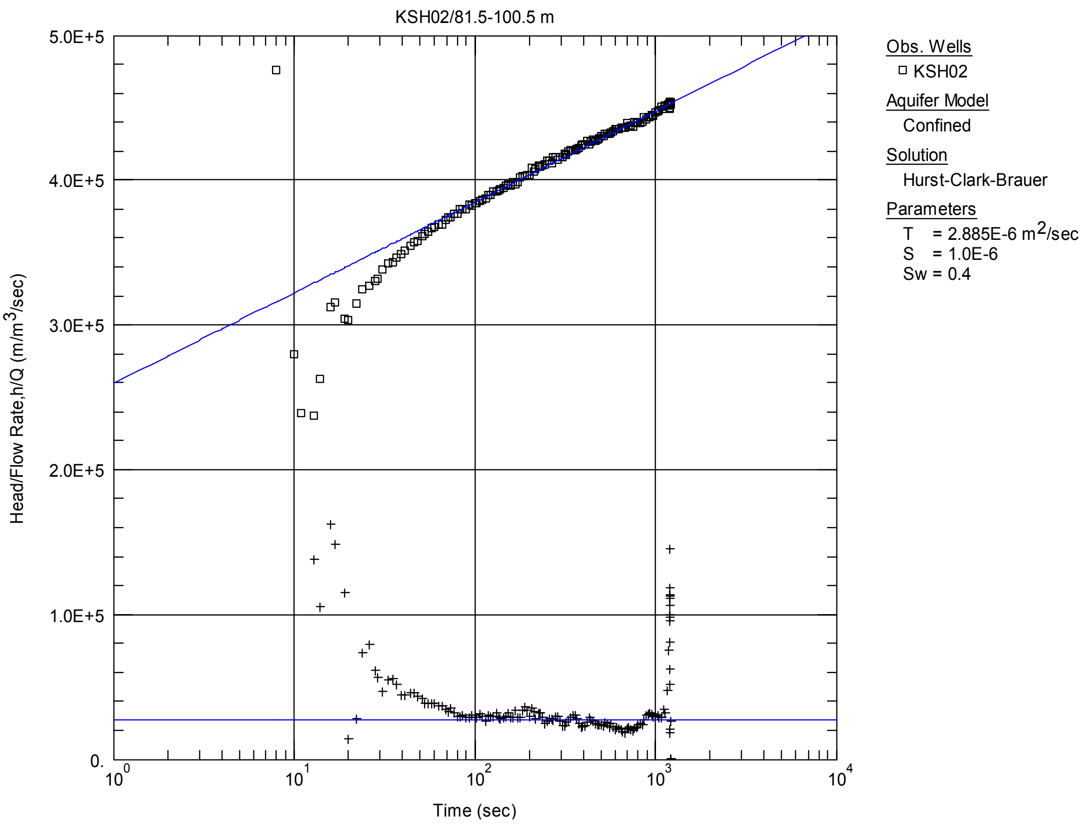
Analysis Diagram



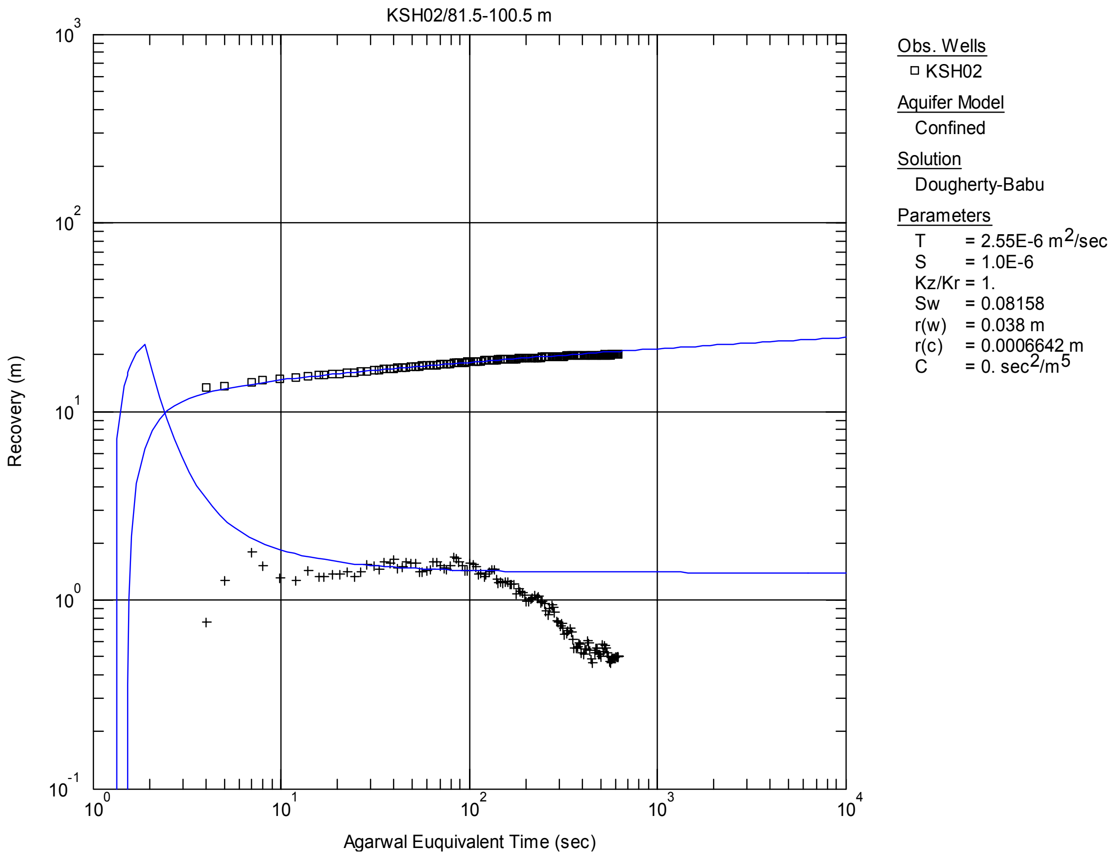
Pressure and flow rate vs. time.



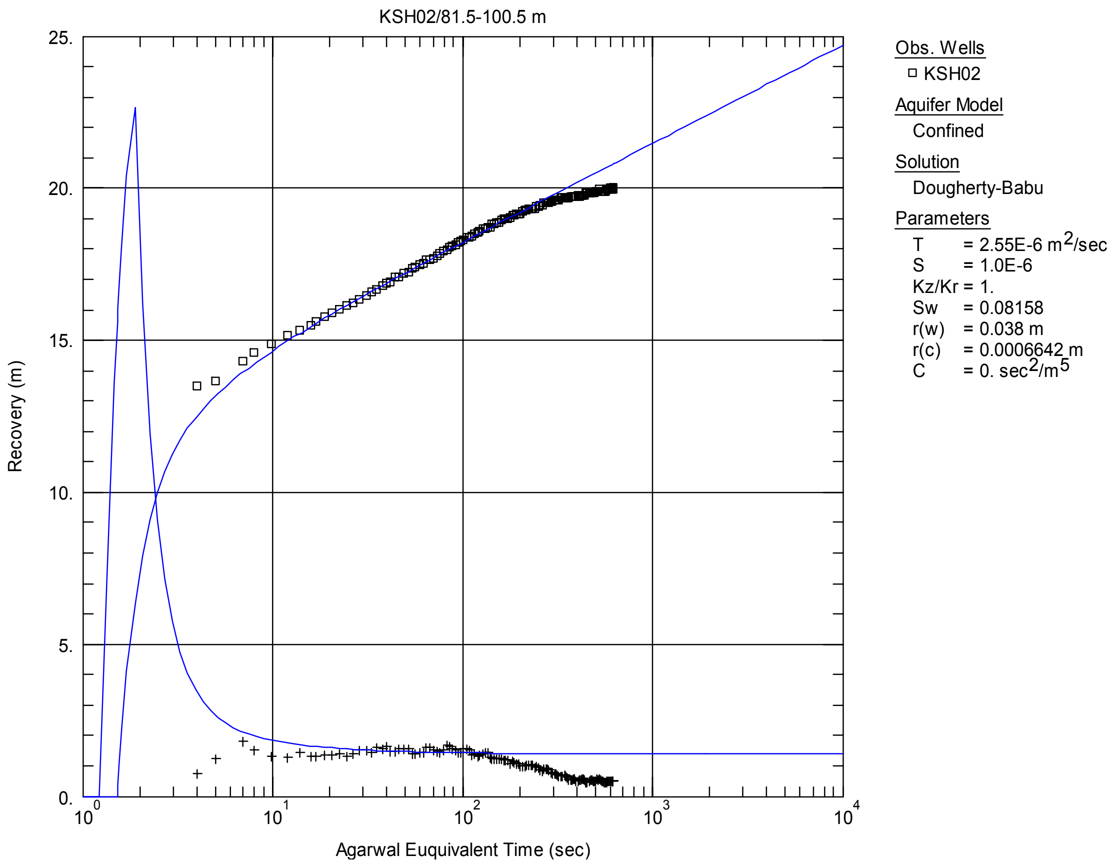
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



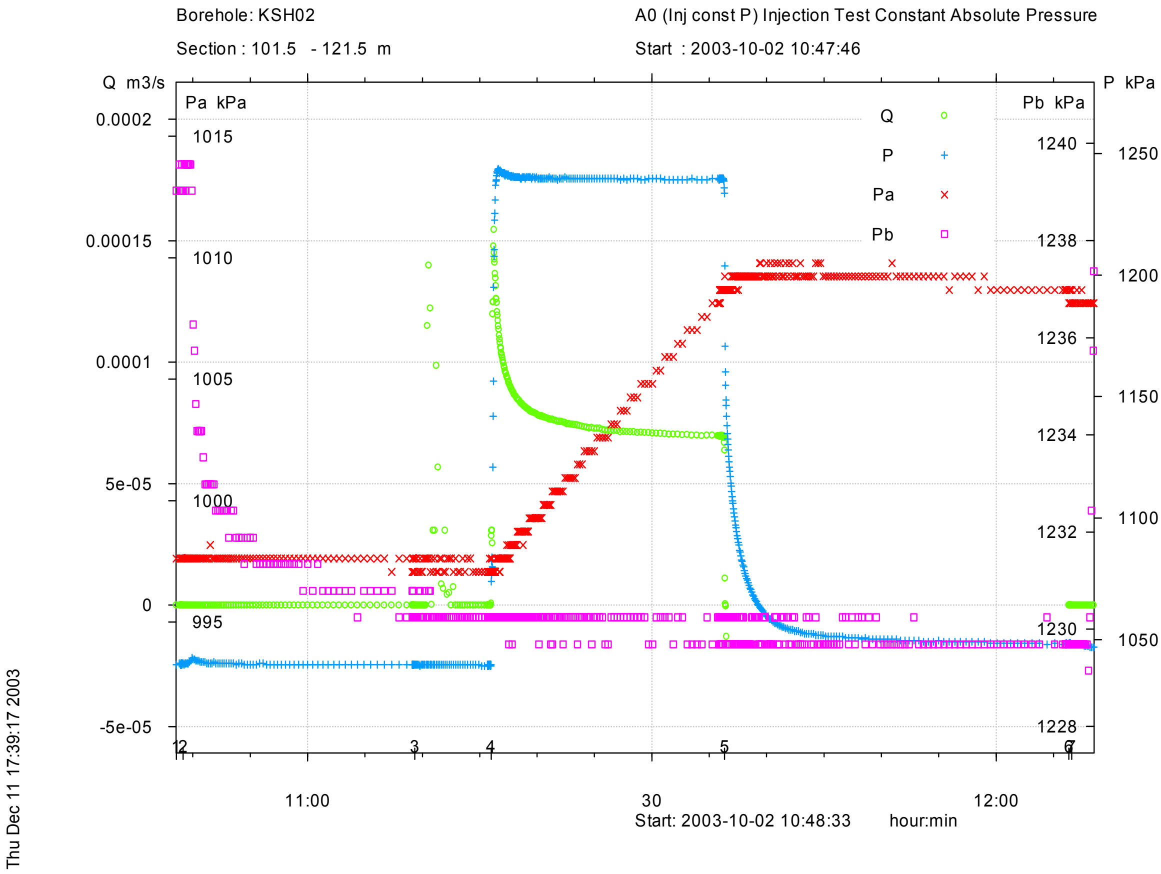
Recovery phase, log-log match.



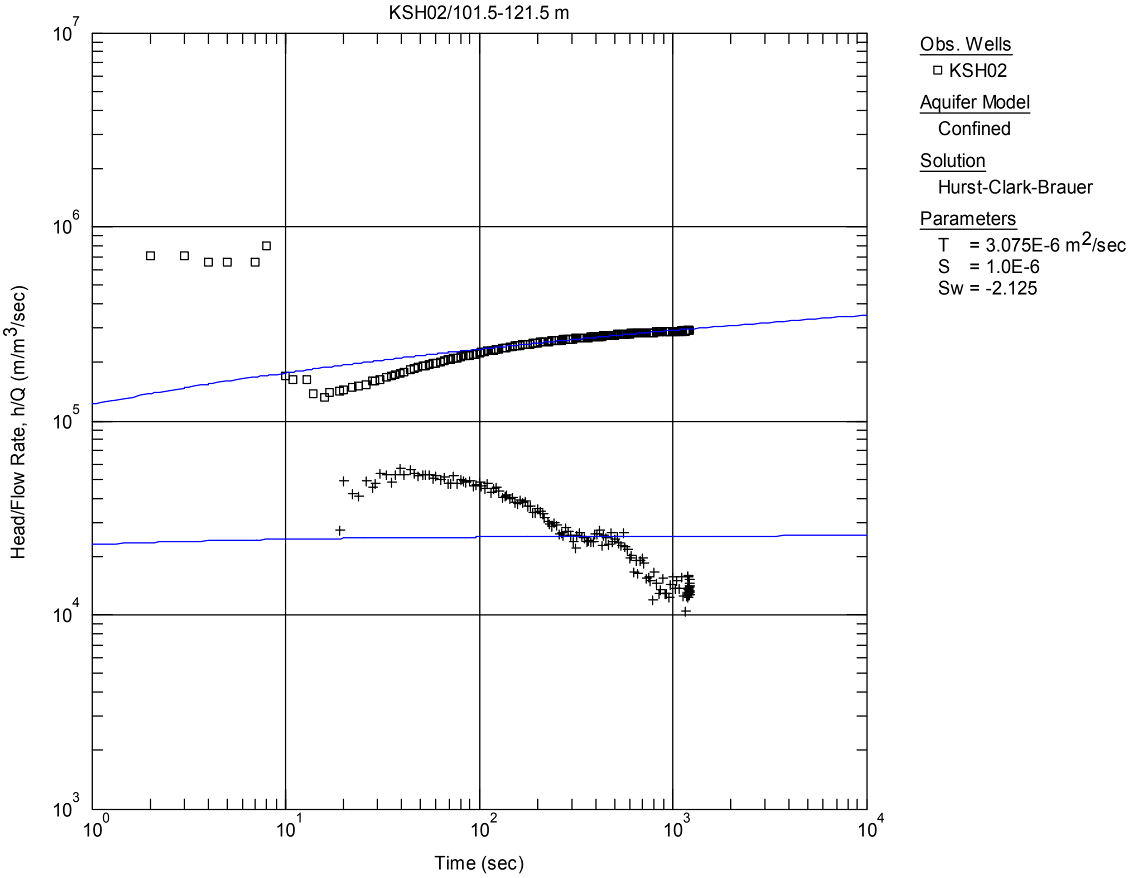
Recovery phase, lin-log match.

Test 101.5–121.5 m

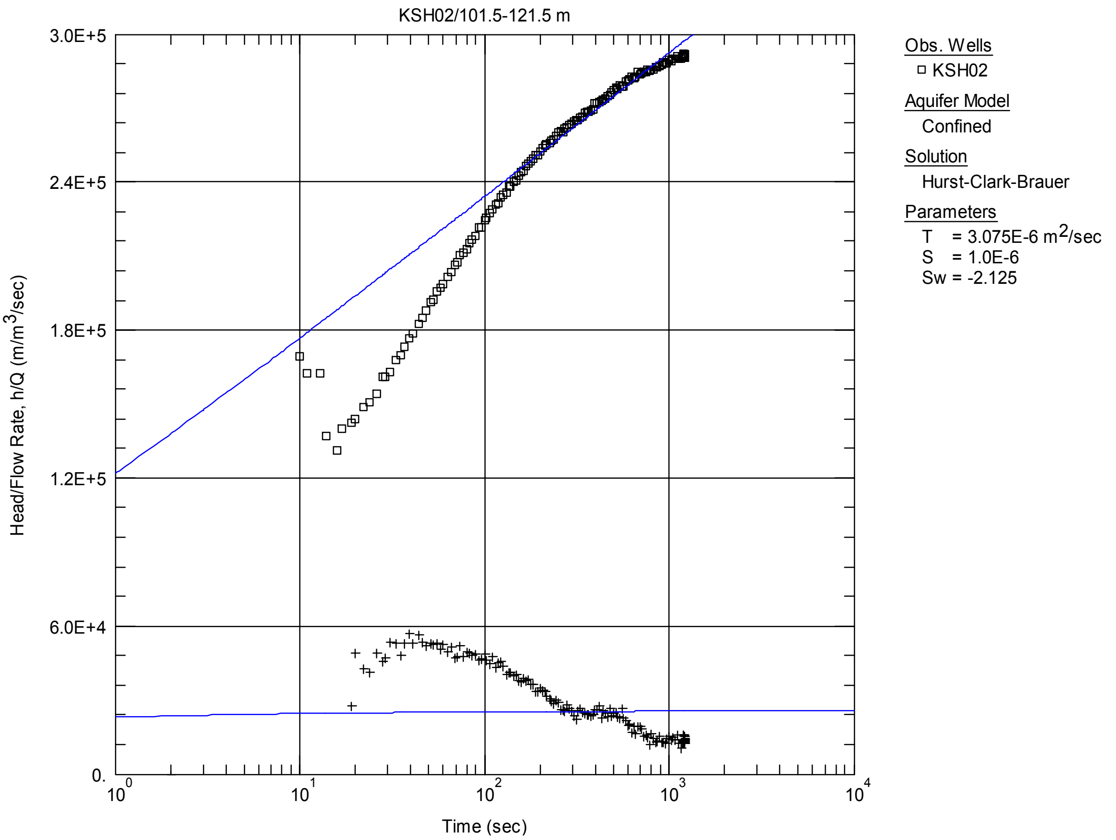
Analysis Diagram



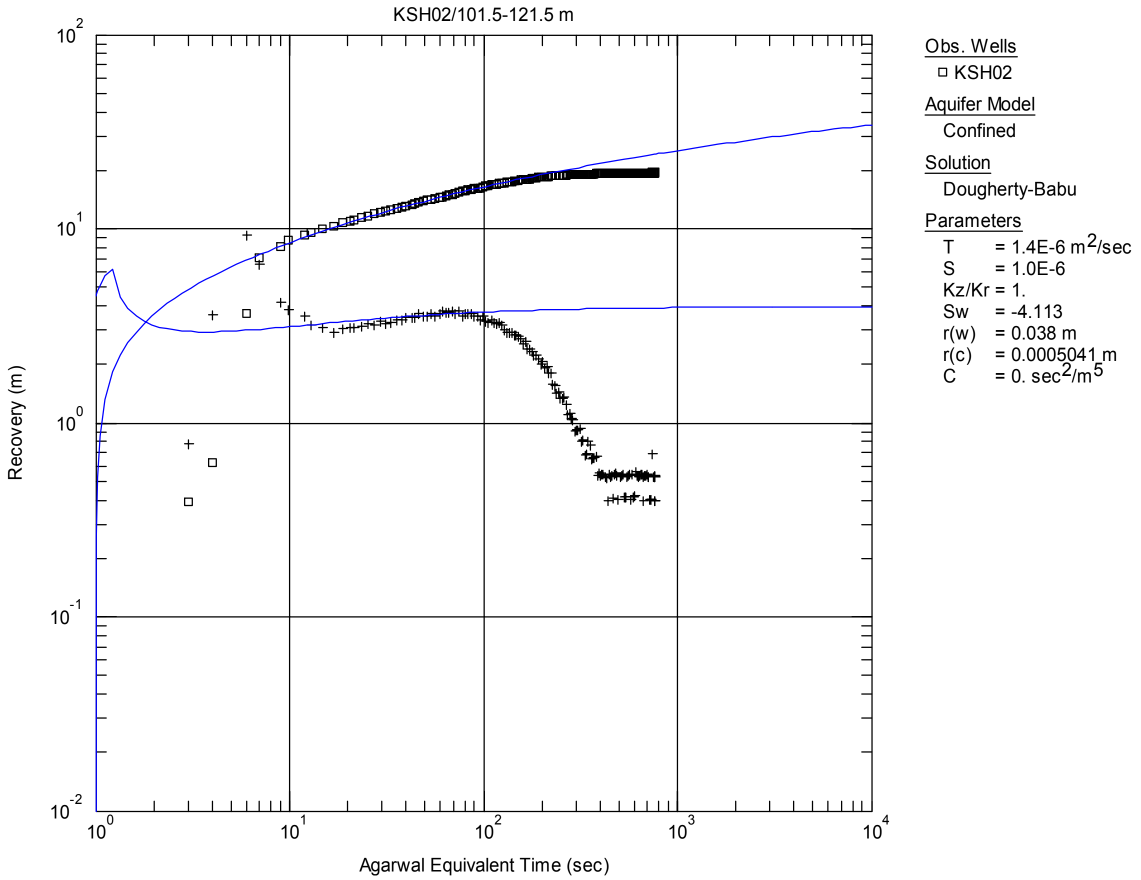
Pressure and flow rate vs. time.



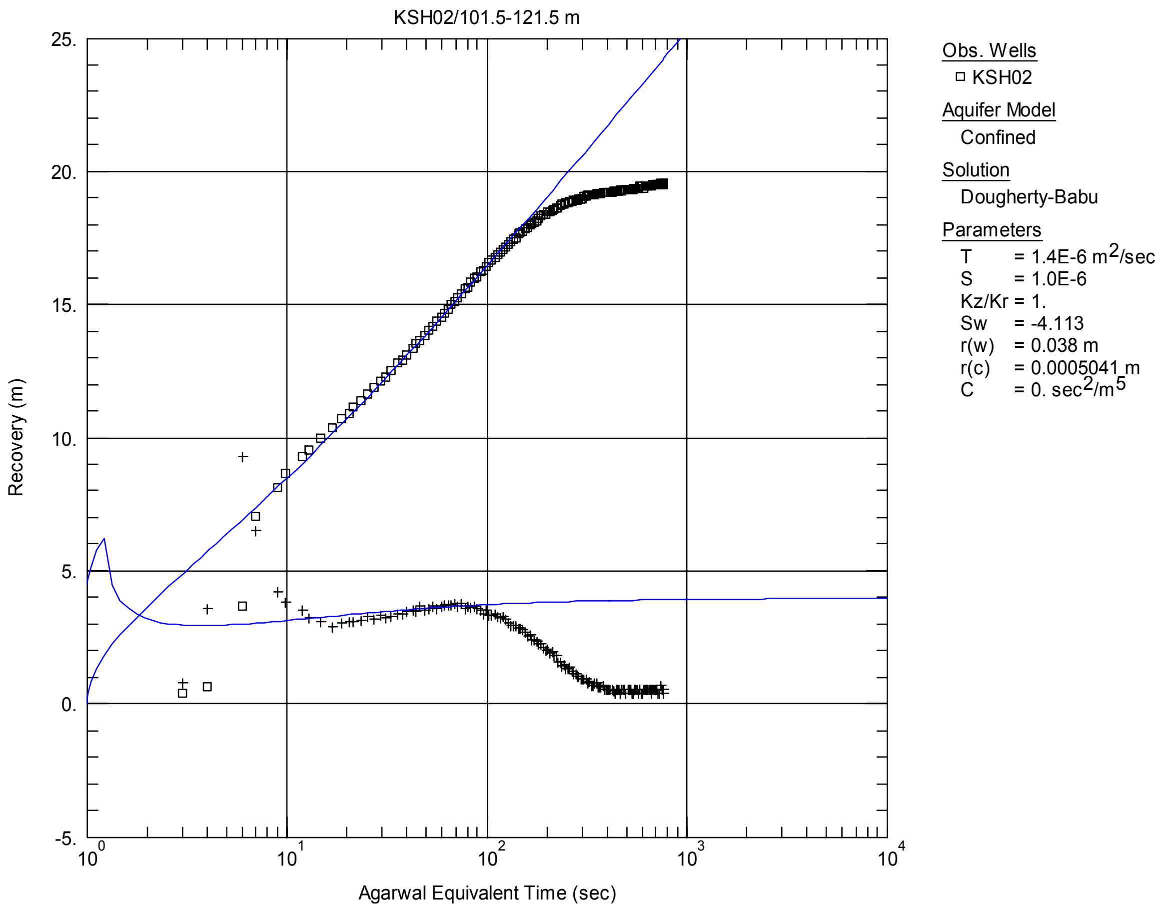
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

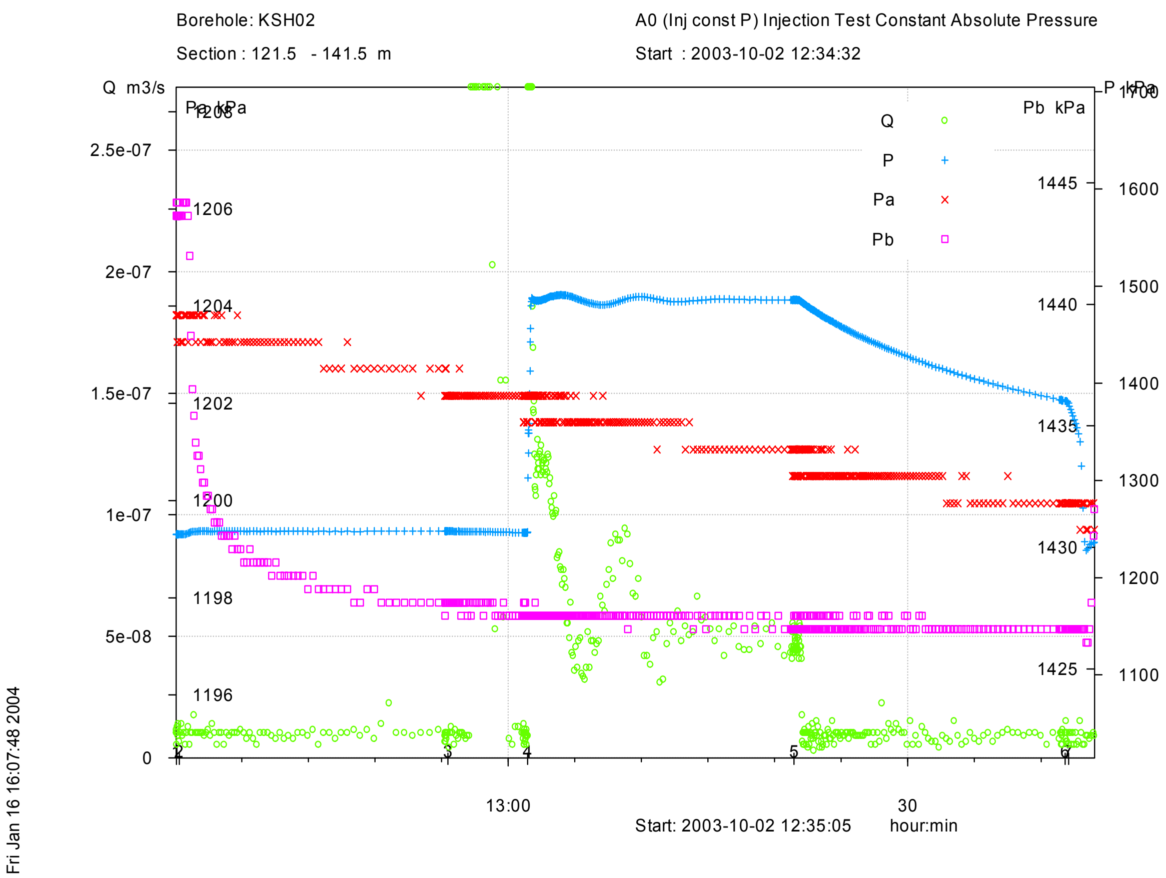


Recovery phase, lin-log match.

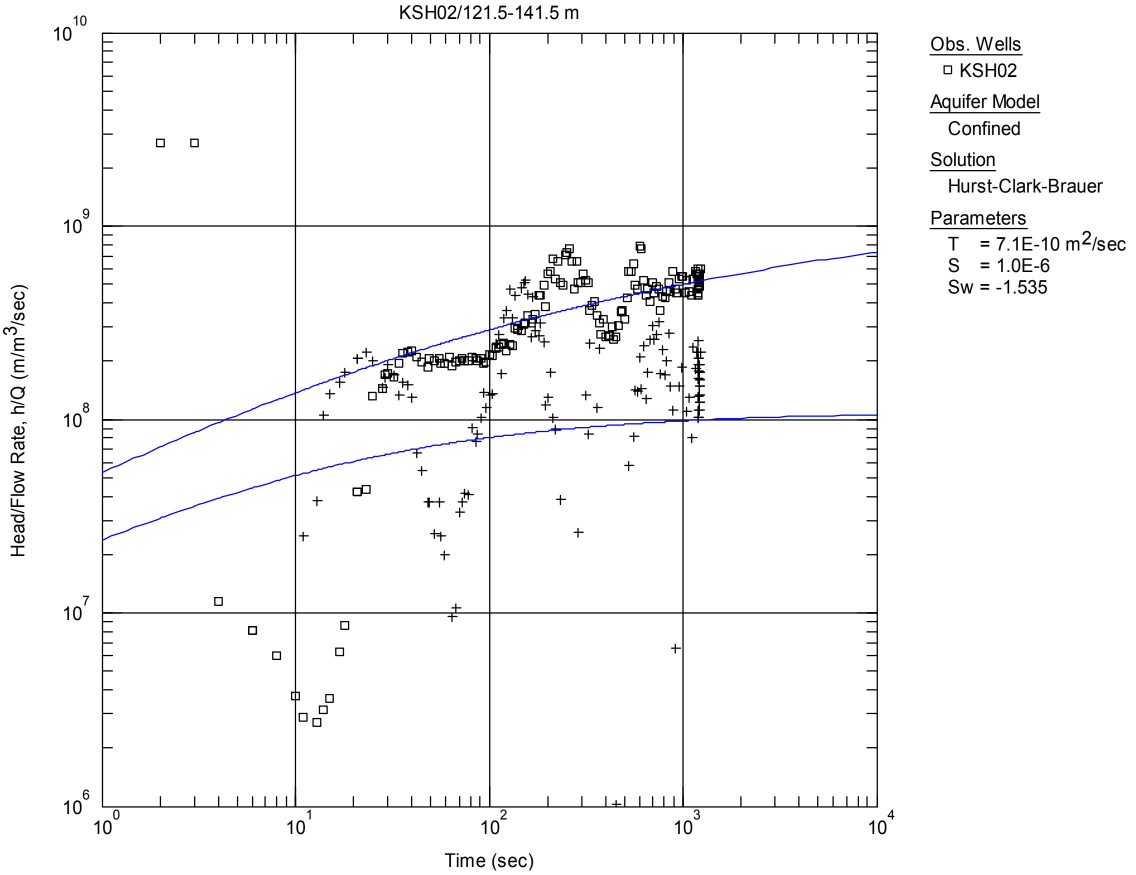
Appendix 3-12

Test 121.5–141.5 m

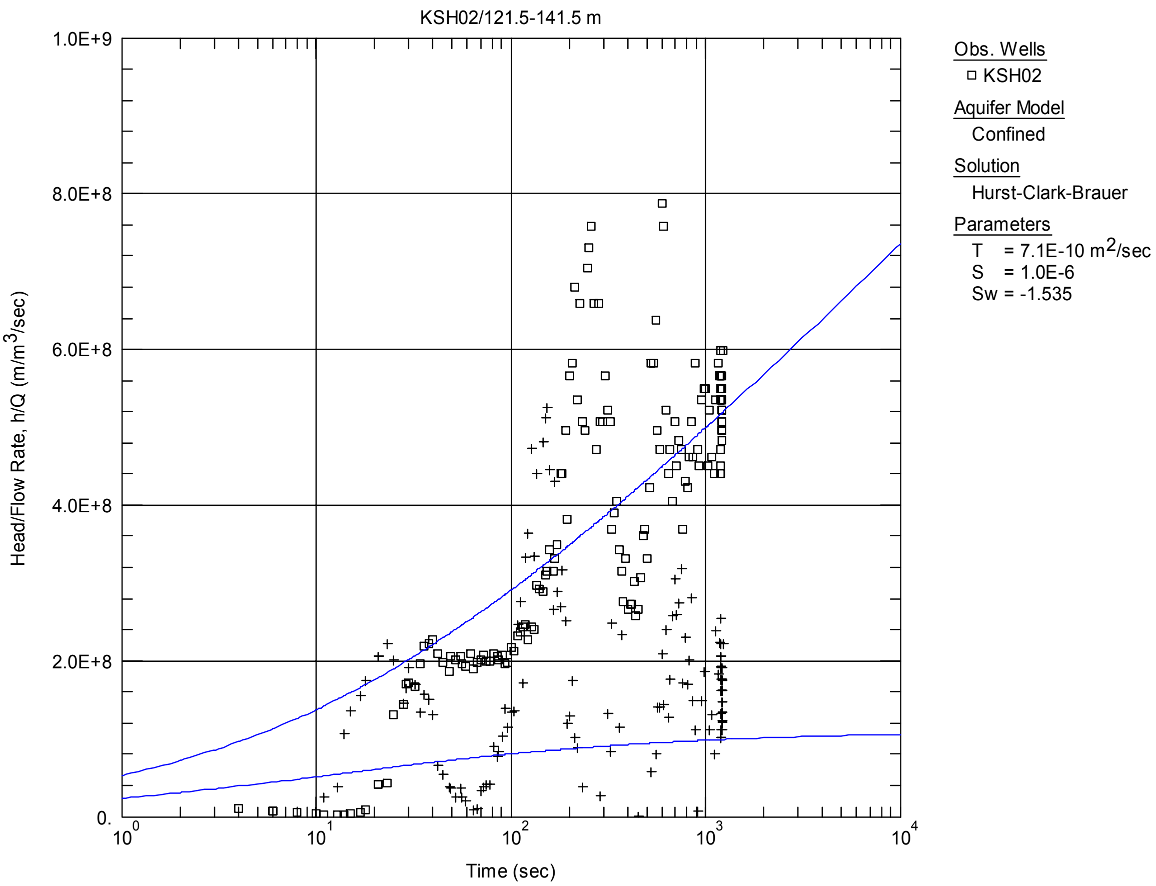
Analysis Diagram



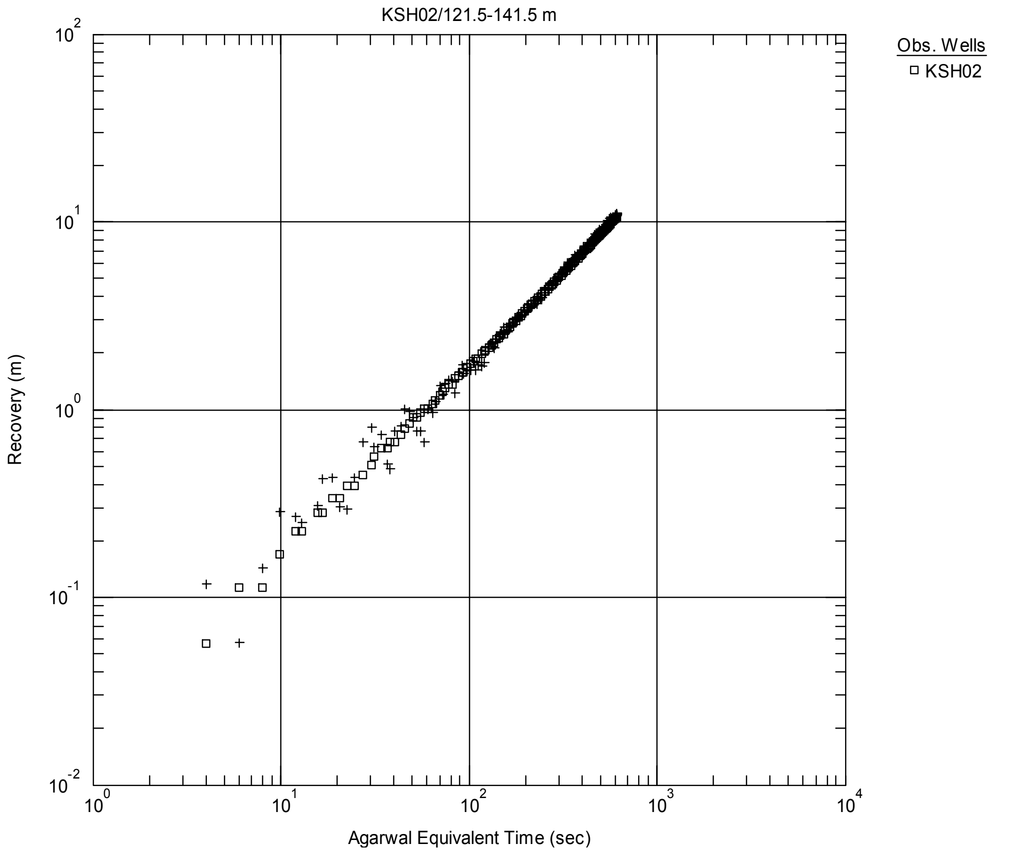
Pressure and flow rate vs. time.



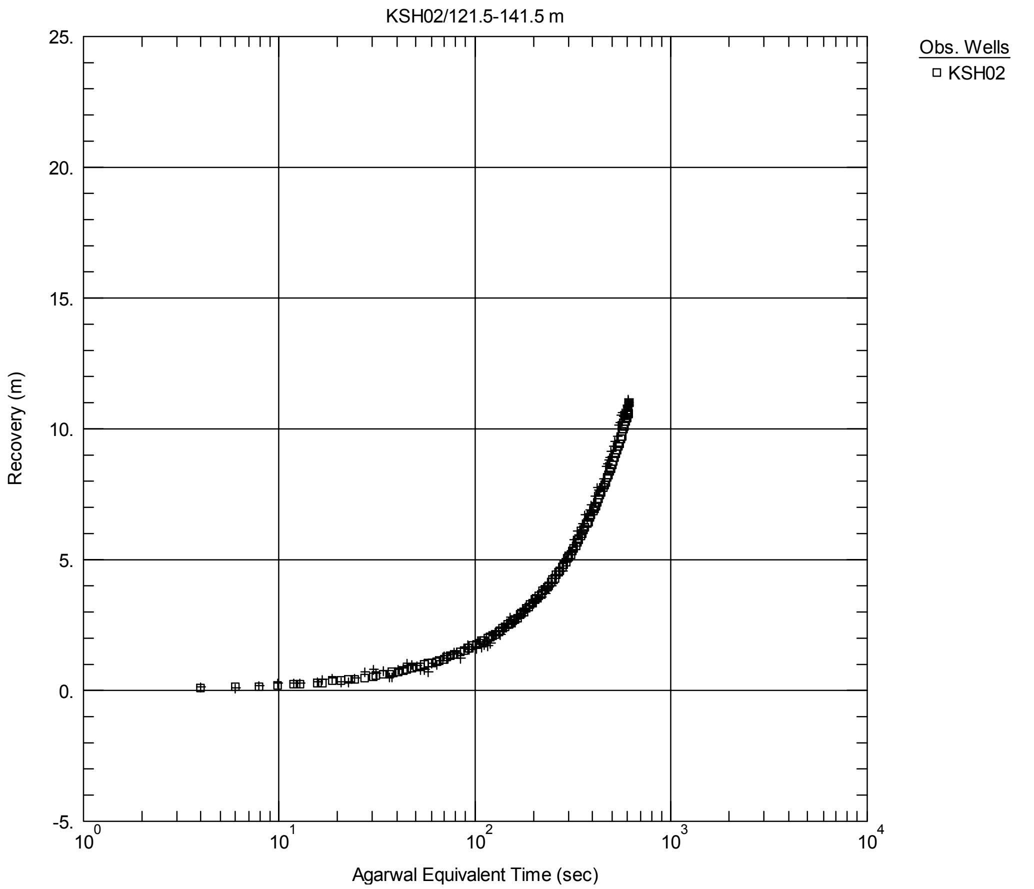
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

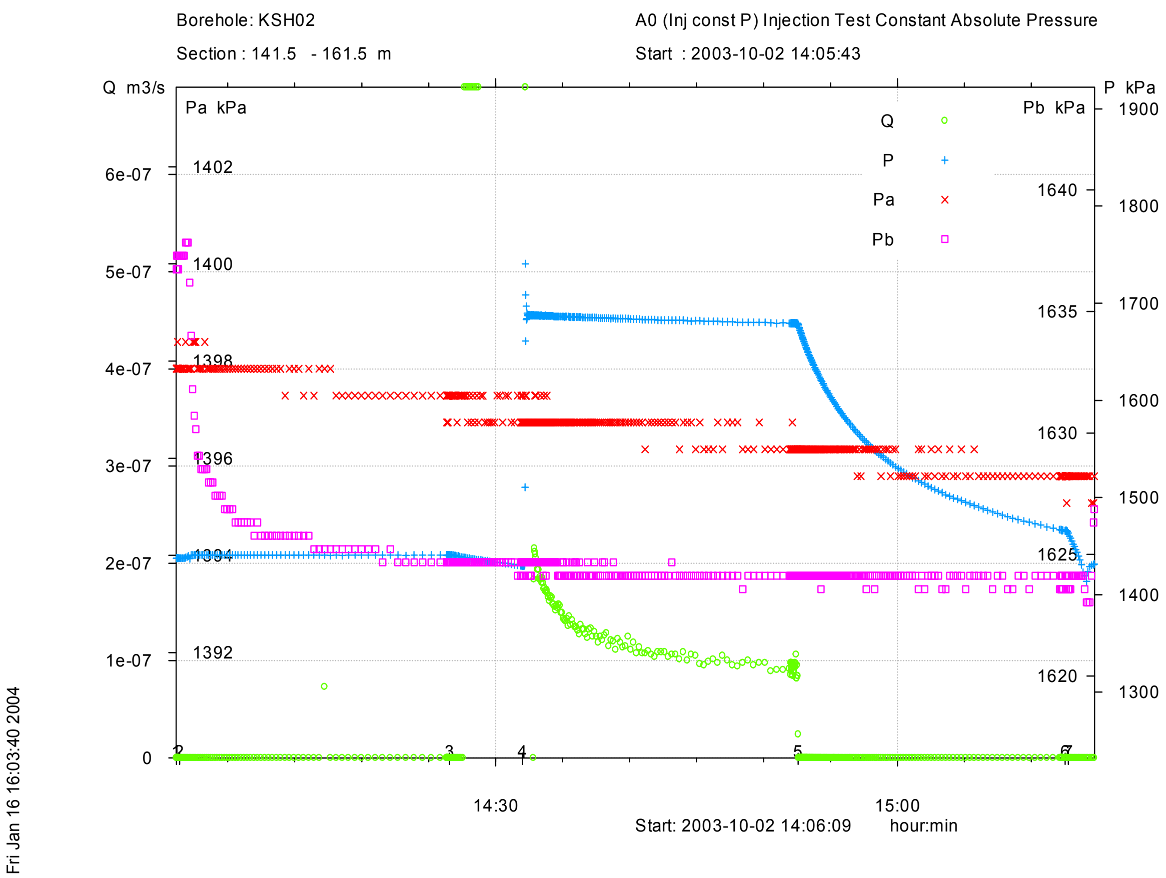


Recovery phase, lin-log match.

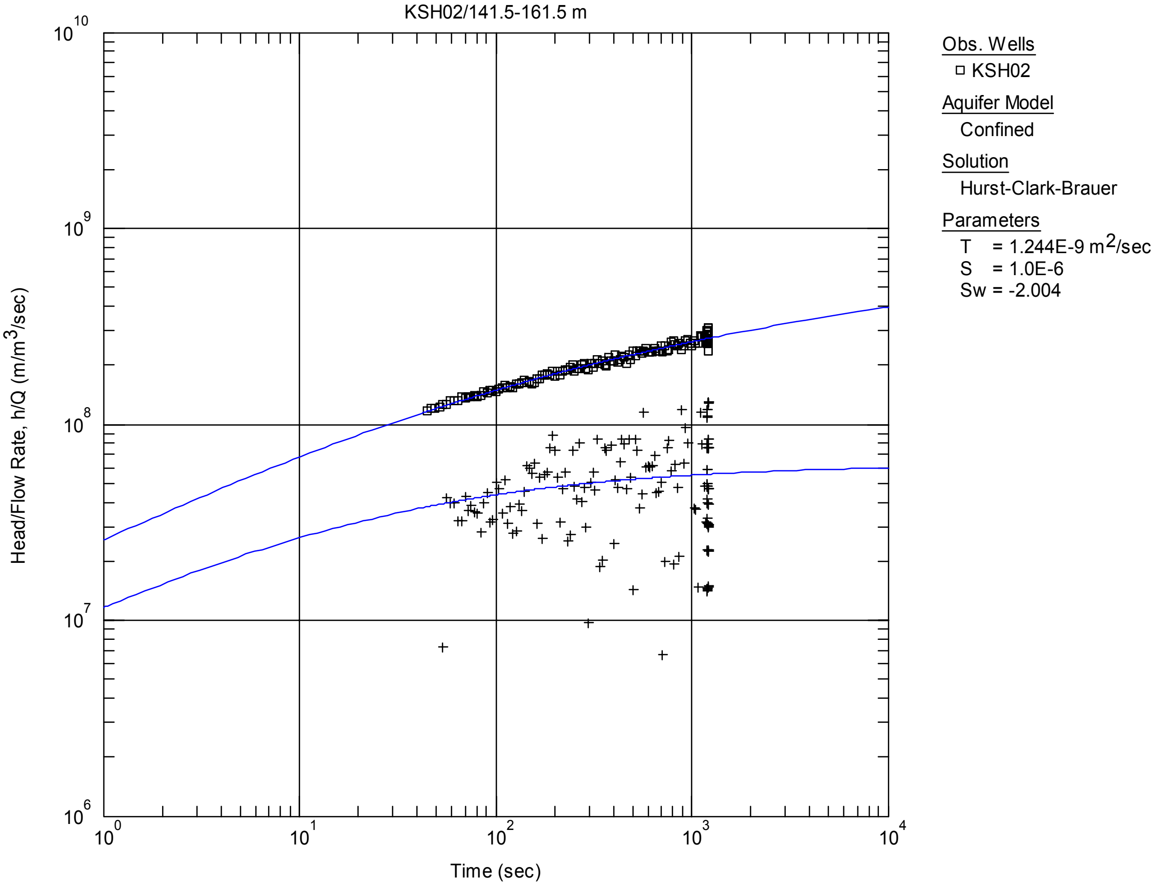
Appendix 3-13

Test 141.5–161.5 m

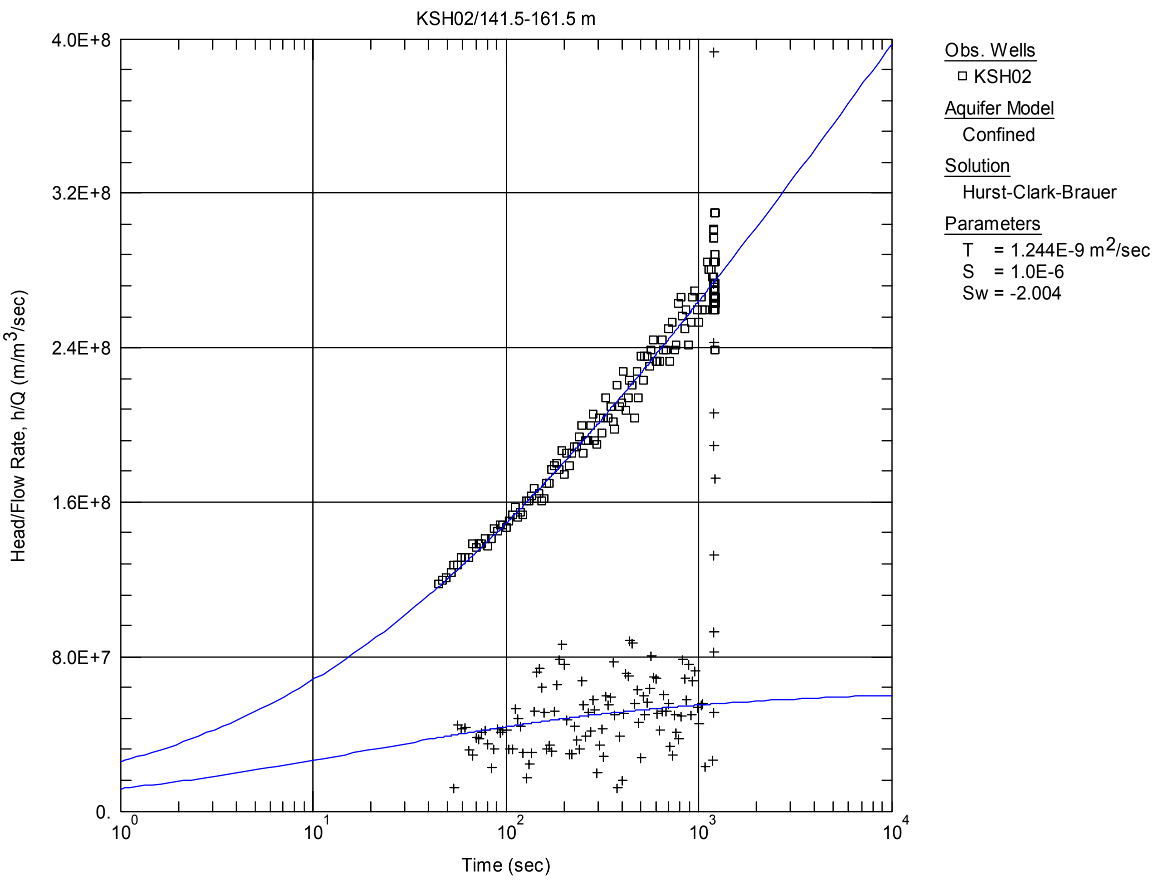
Analysis Diagram



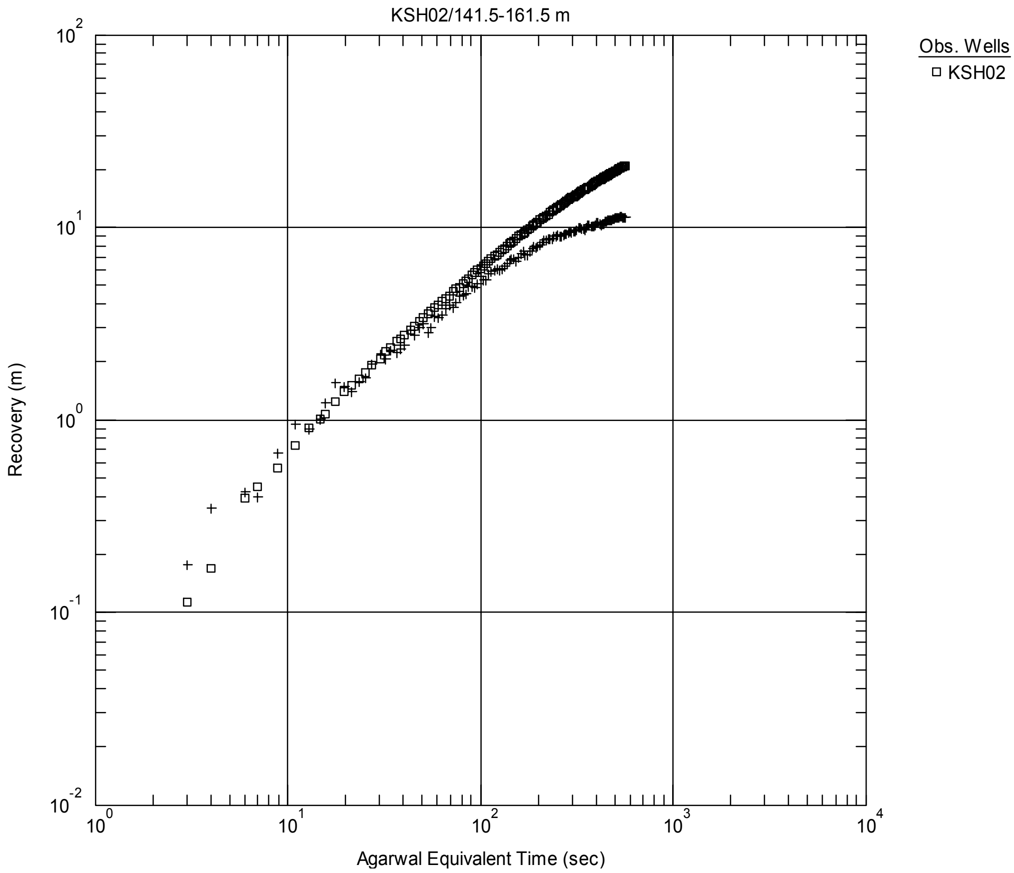
Pressure and flow rate vs. time.



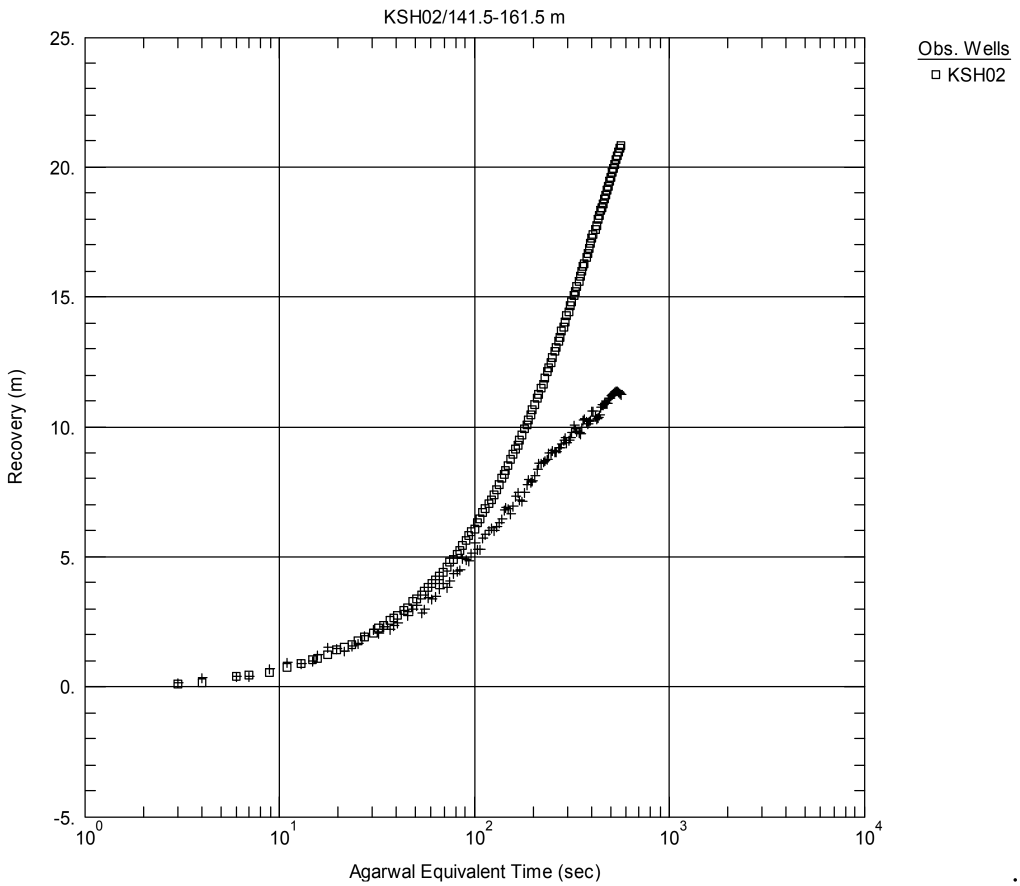
Perturbation phase, log–log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match

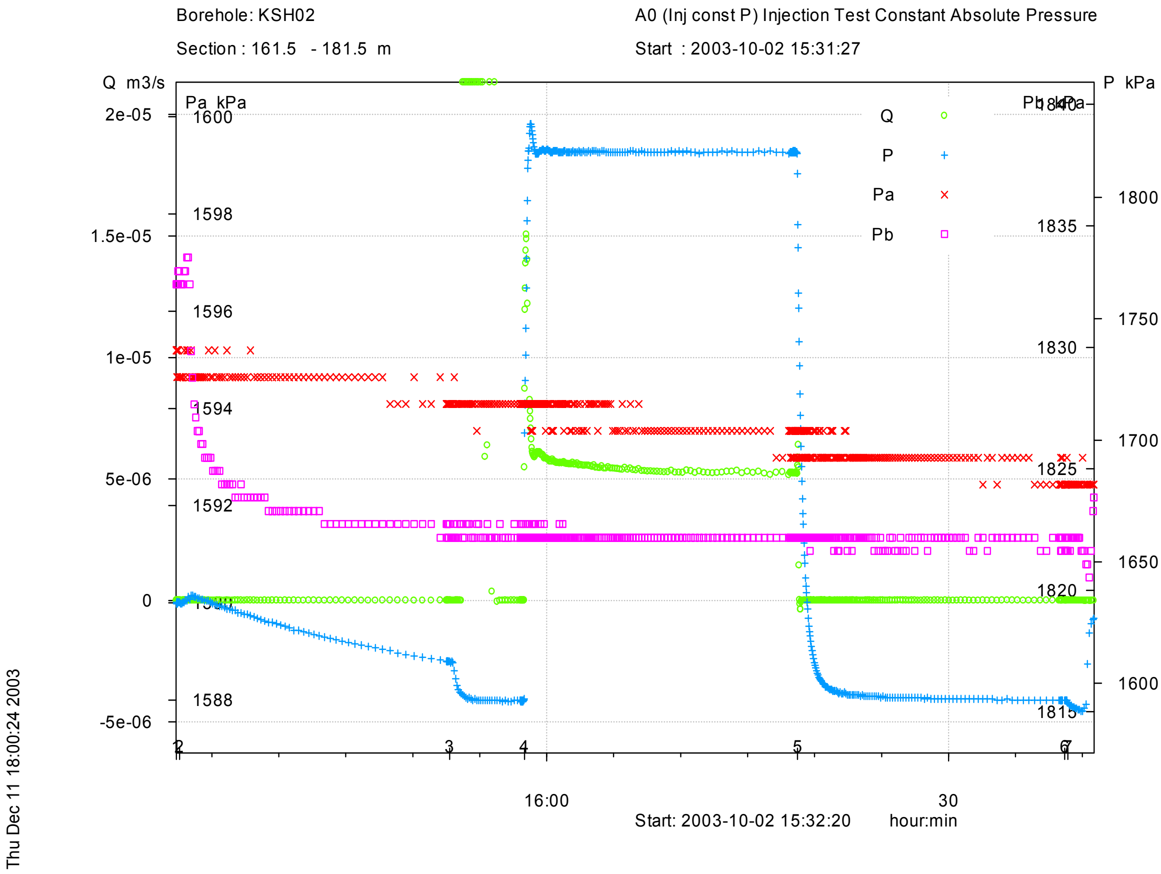


Recovery phase, lin-log match.

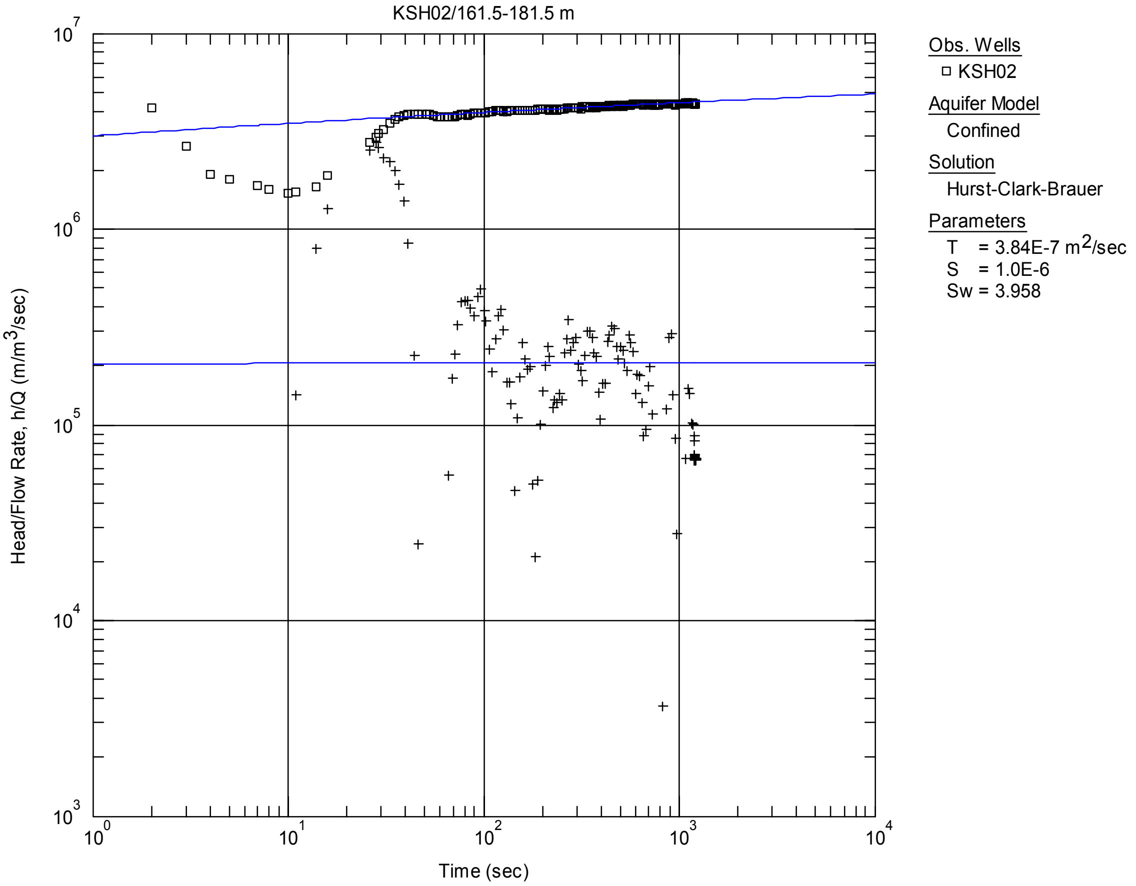
Appendix 3-14

Test 161.5–181.5 m

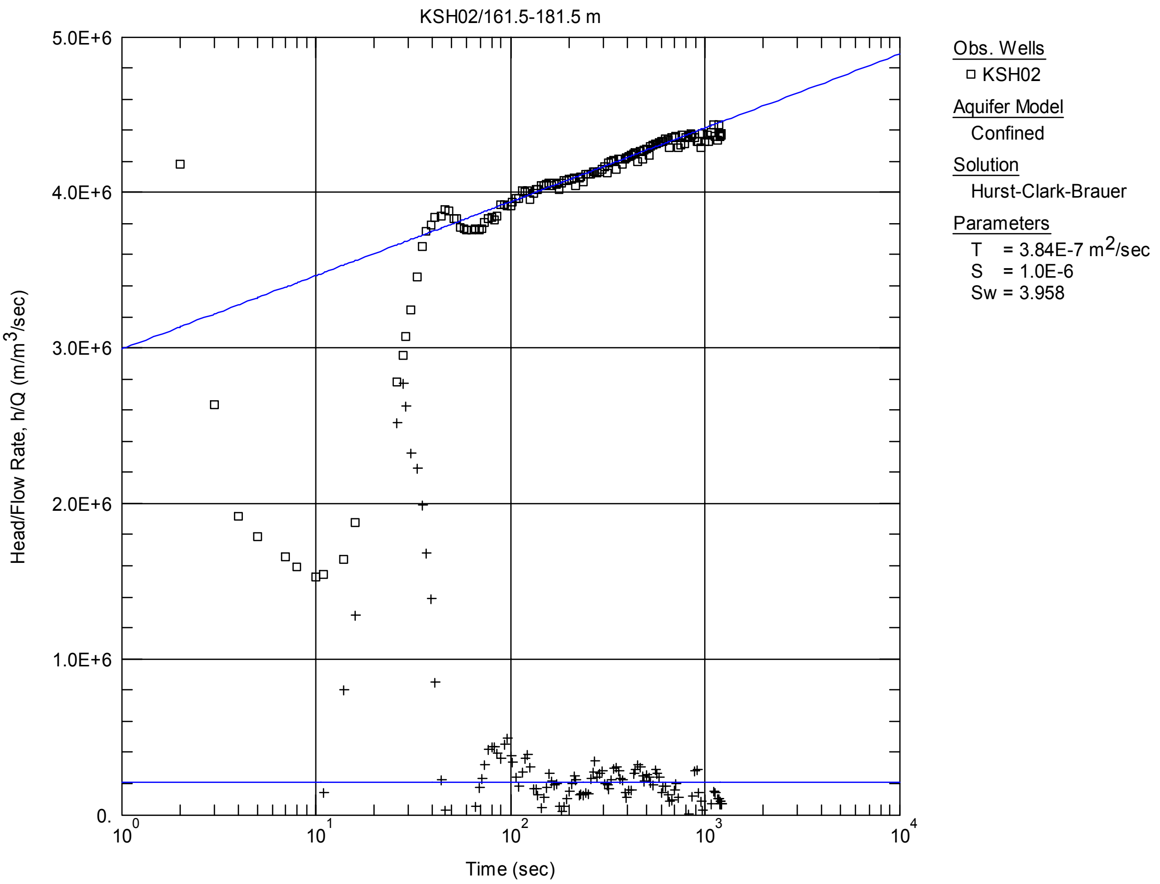
Analysis Diagram



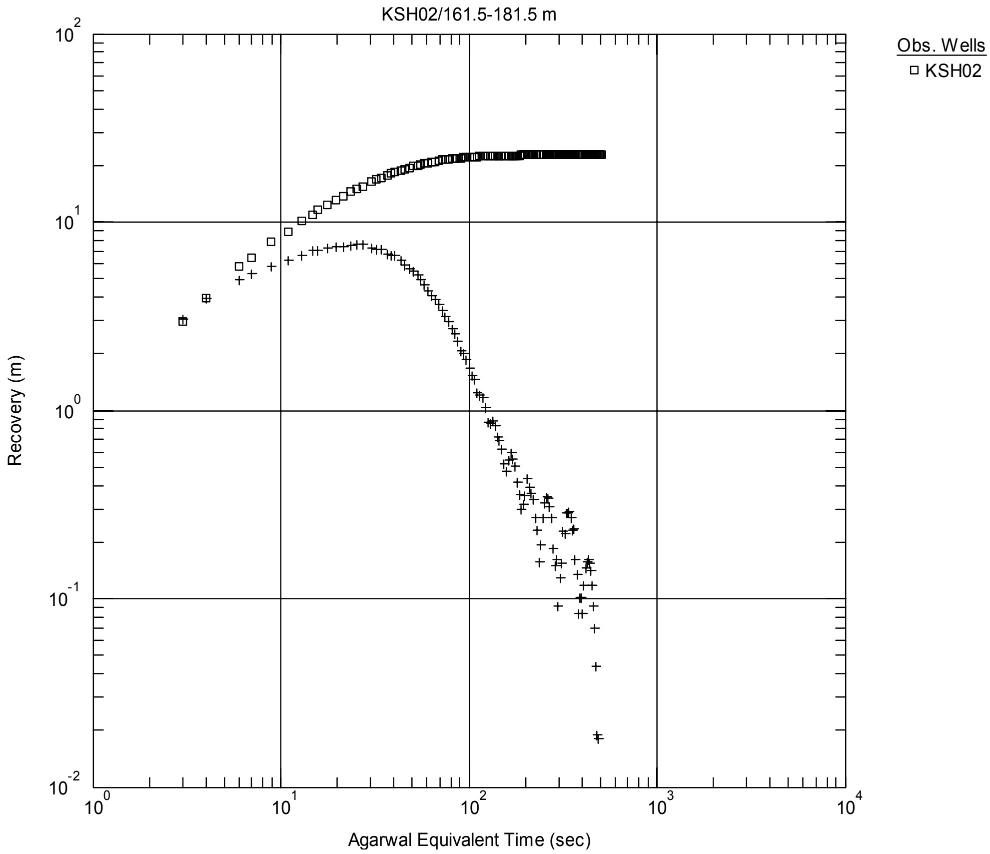
Pressure and flow rate vs. time.



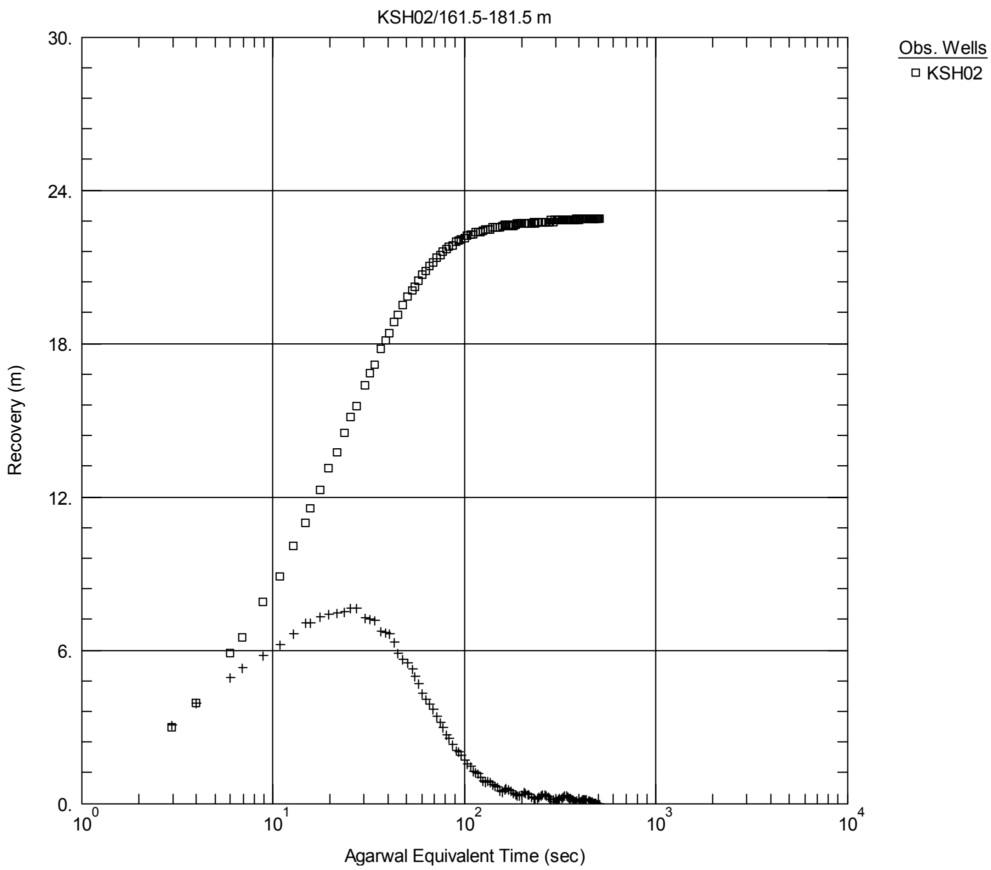
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

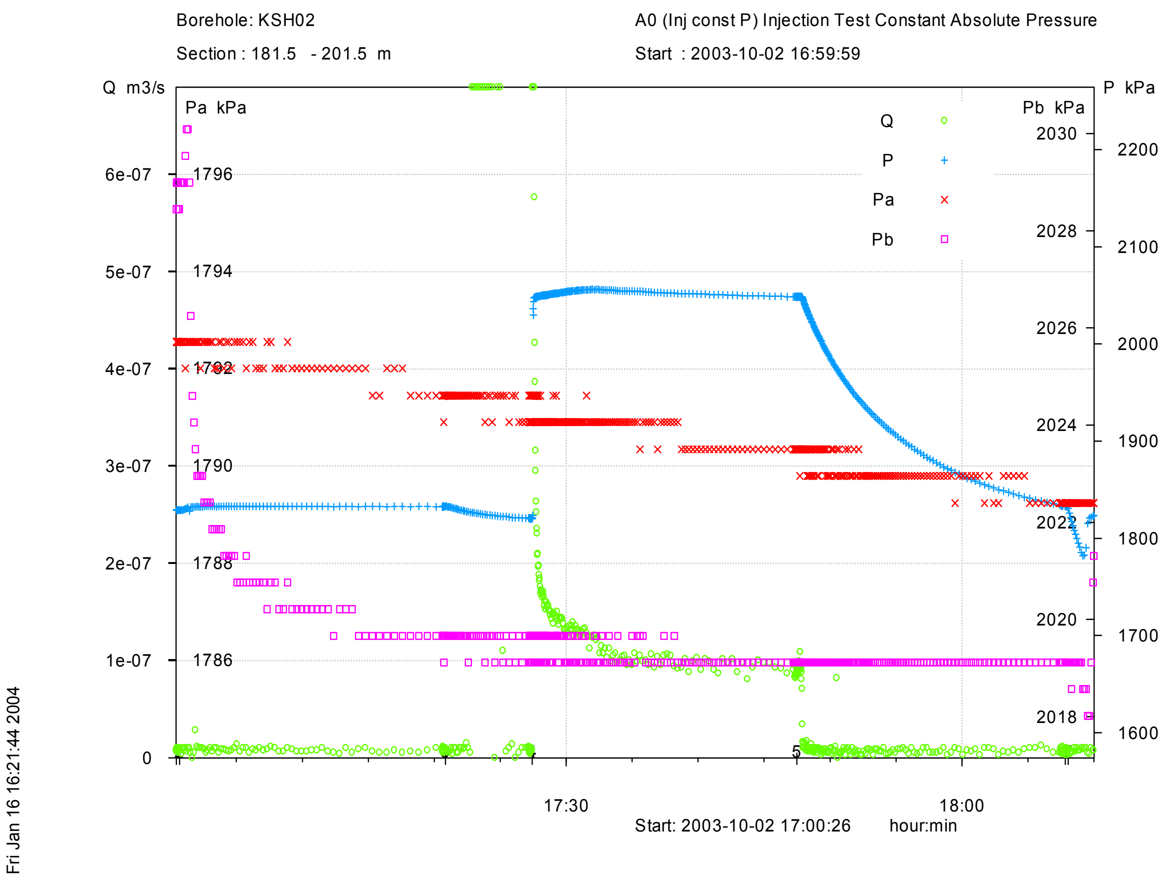


Recovery phase, lin-log match.

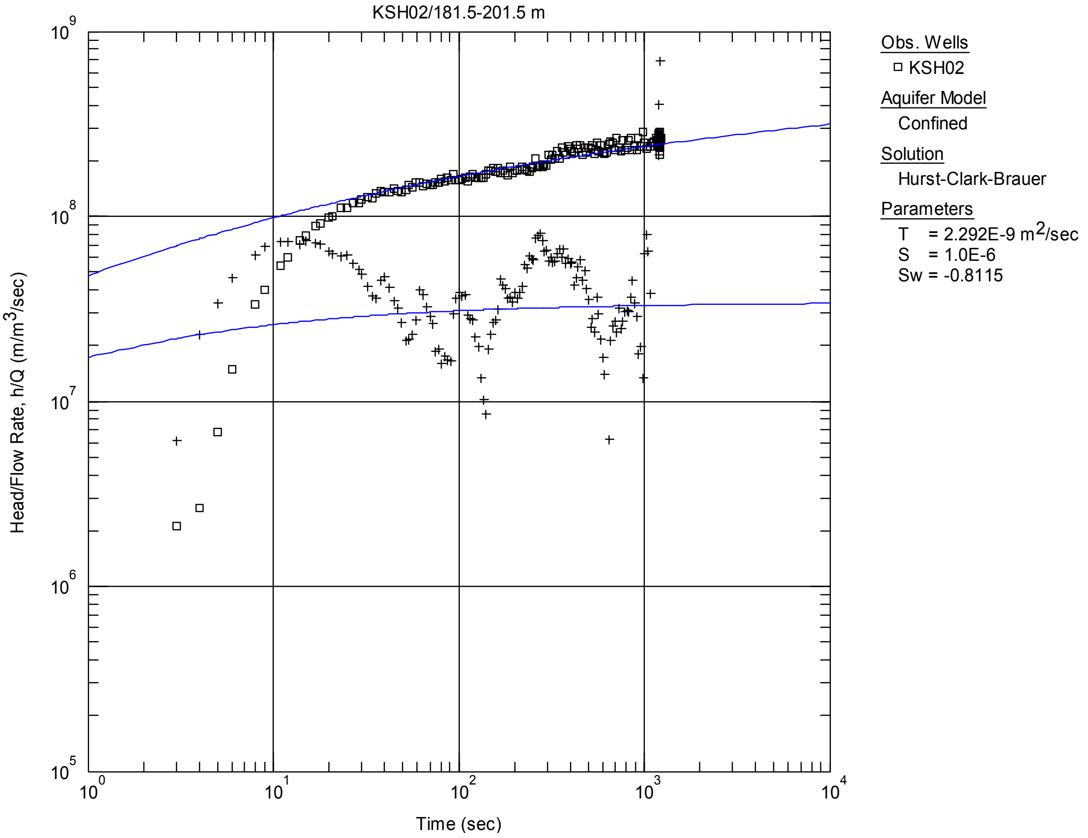
Appendix 3-15

Test 181.5–201.5 m

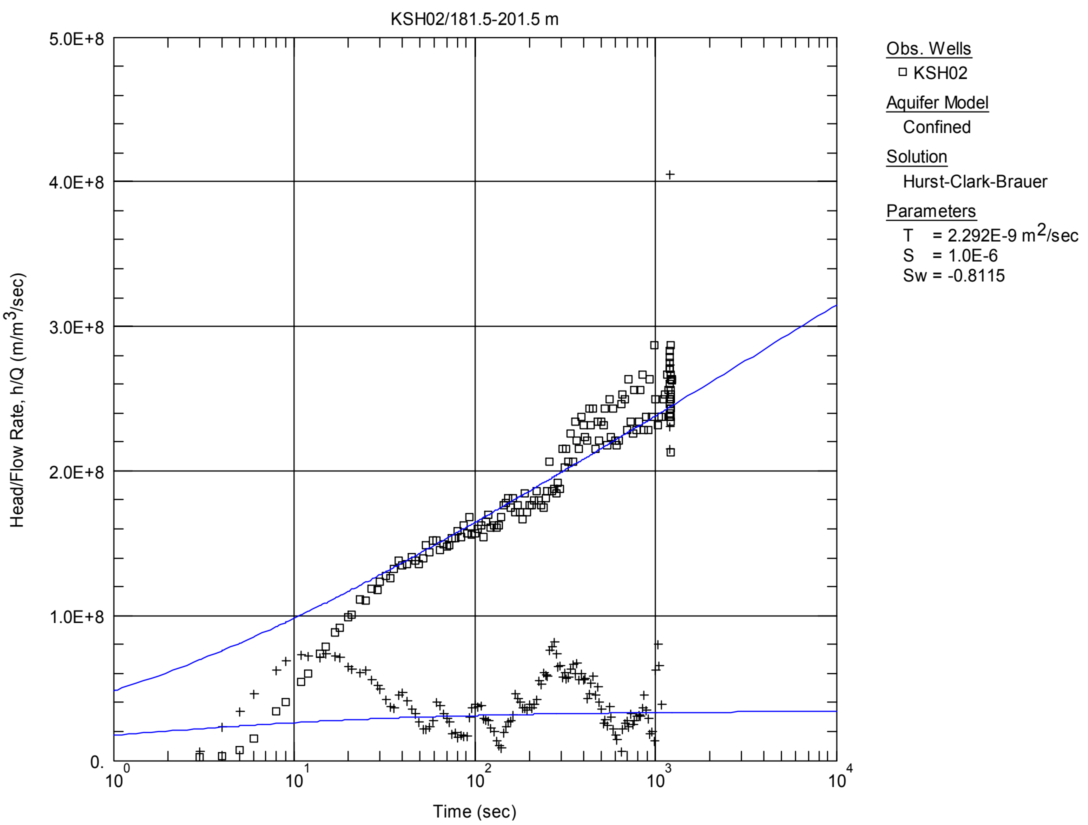
Analysis Diagram



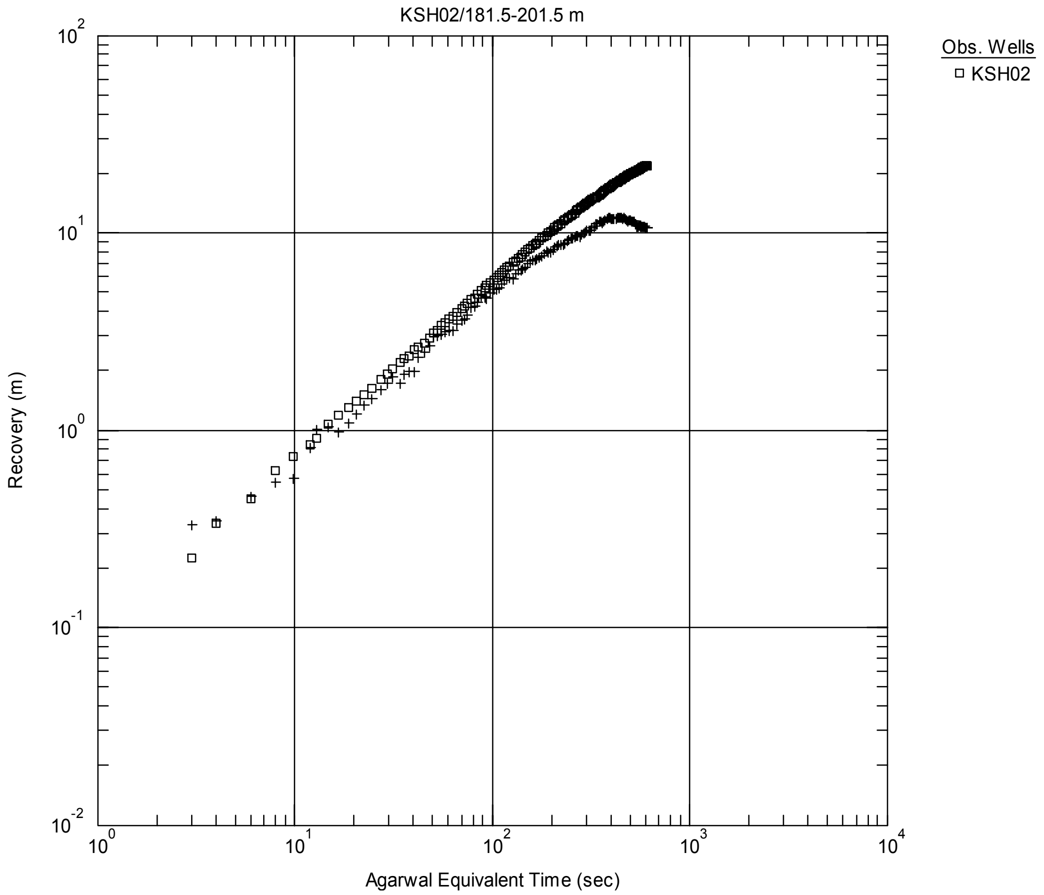
Pressure and flow rate vs. time.



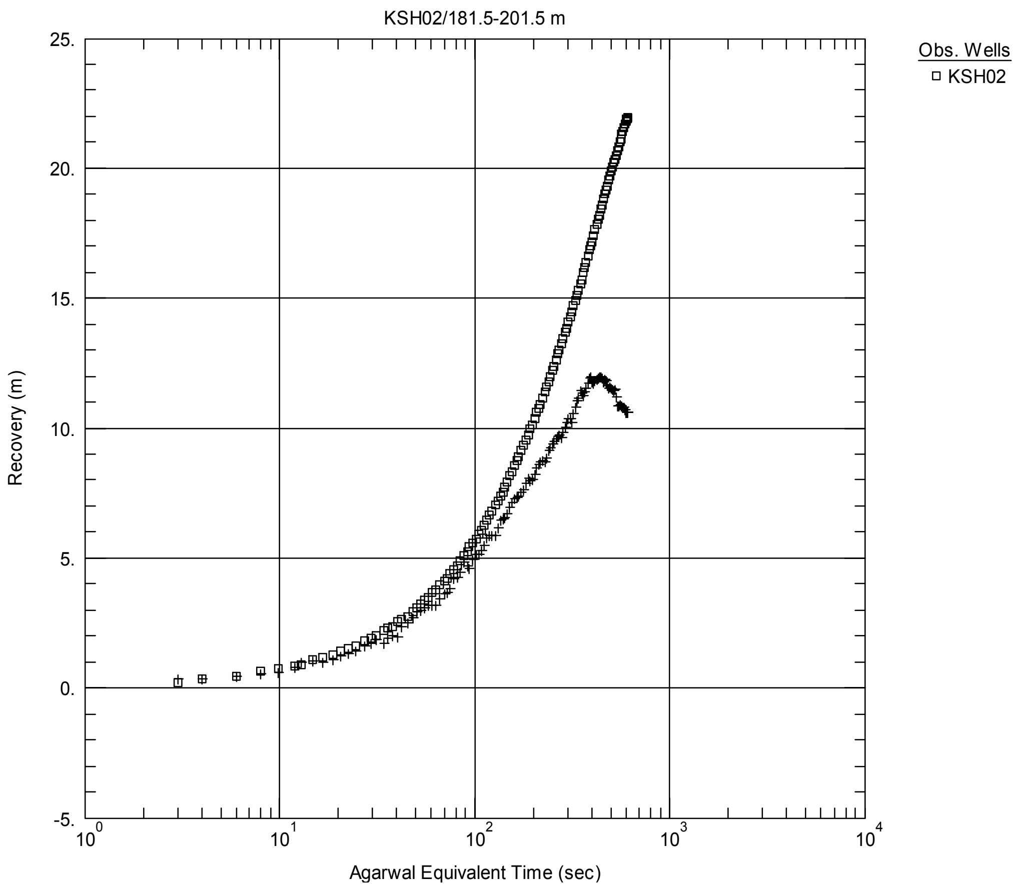
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



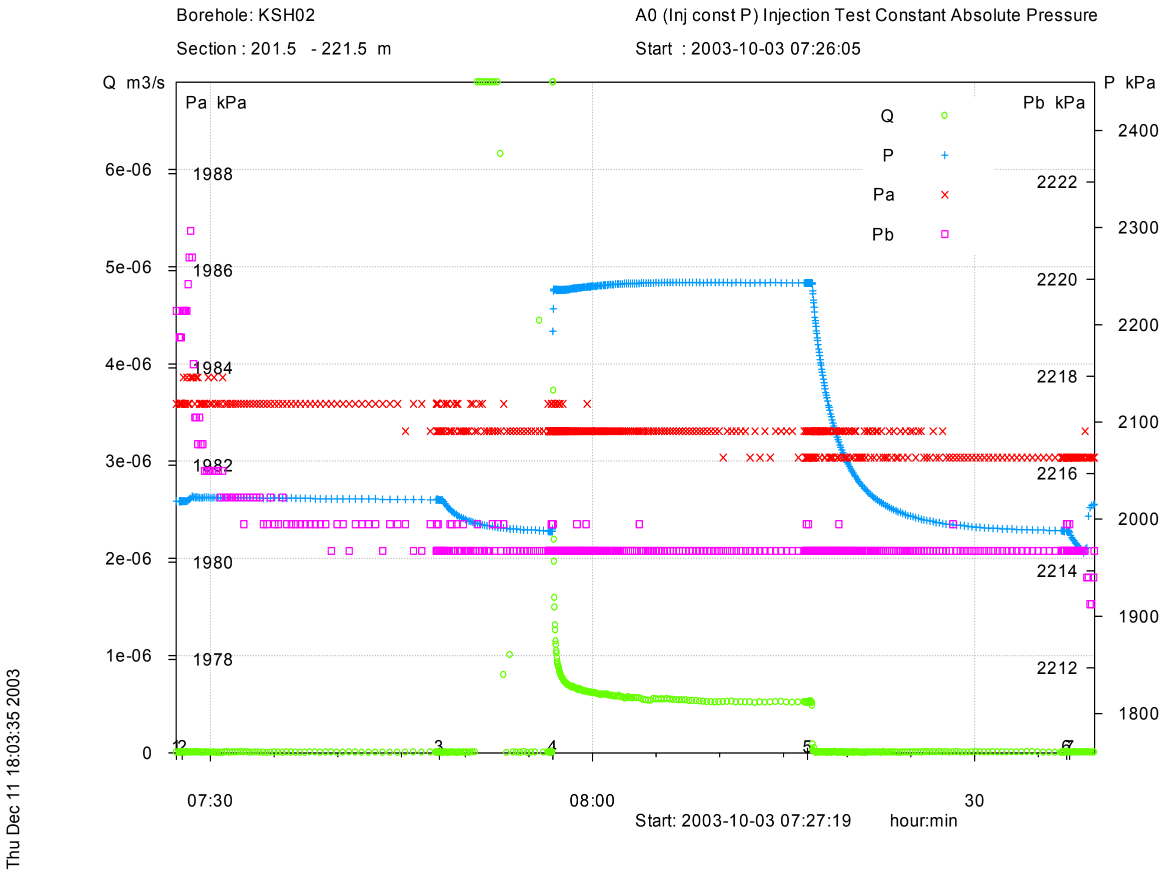
Recovery phase, log-log match.



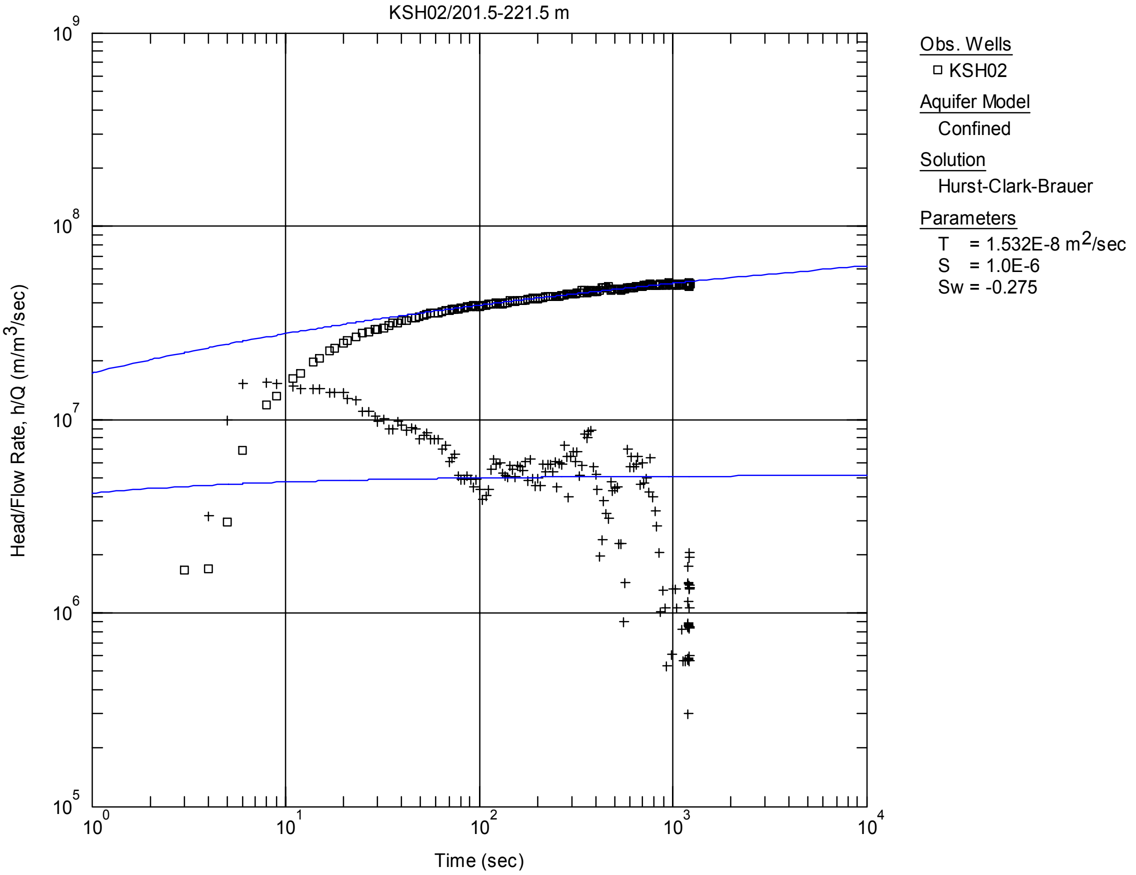
Recovery phase, lin-log match.

Test 201.5–221.5 m

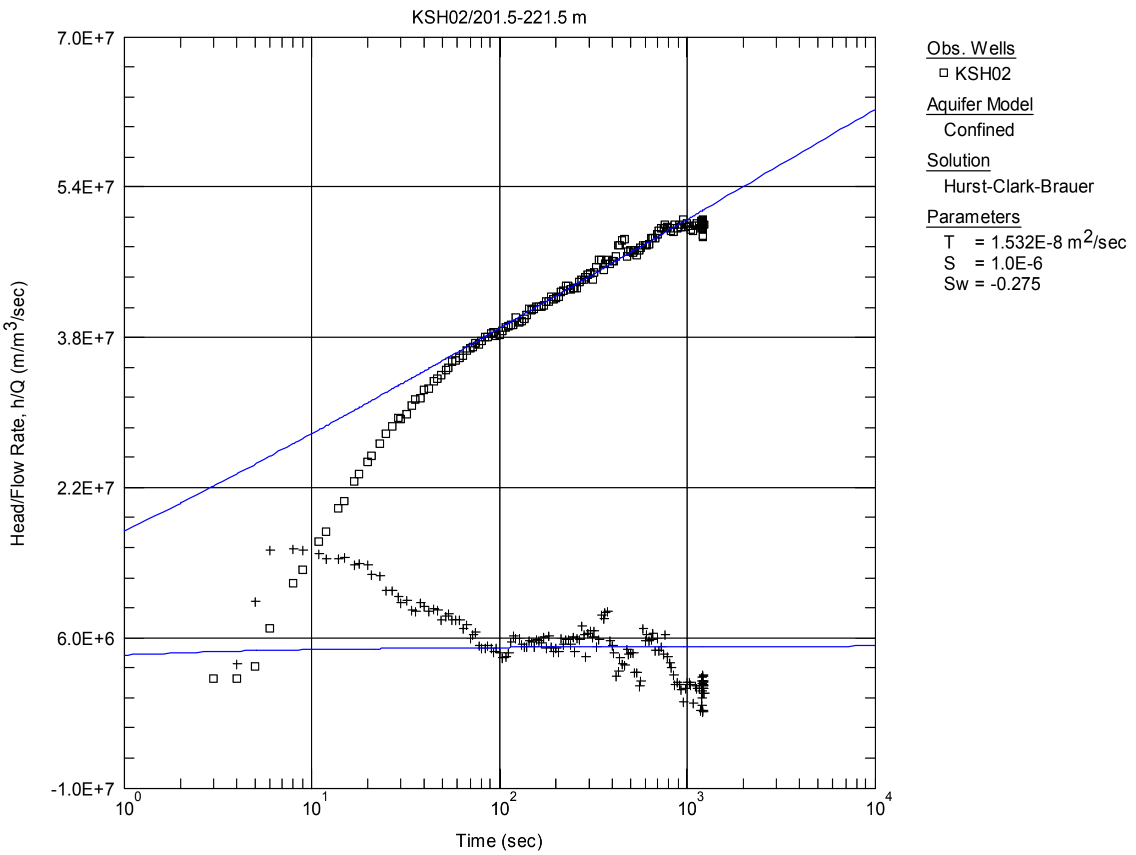
Analysis Diagram



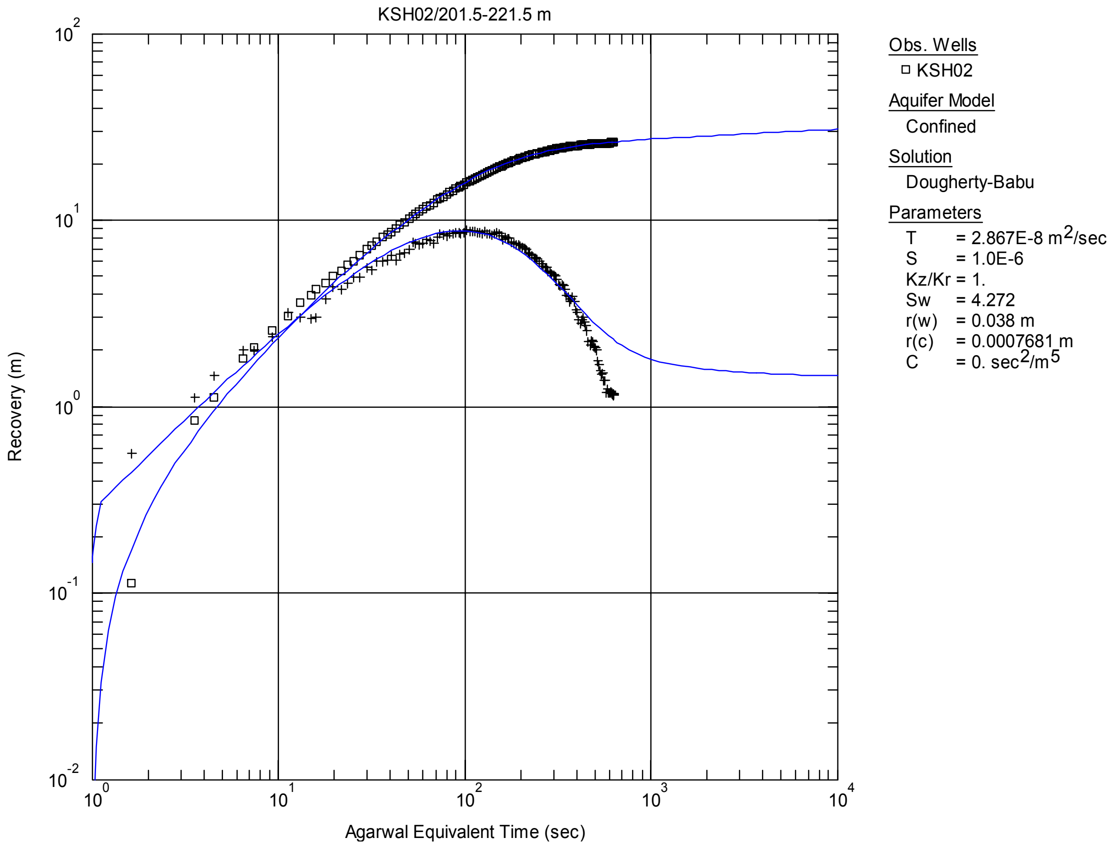
Pressure and flow rate vs. time.



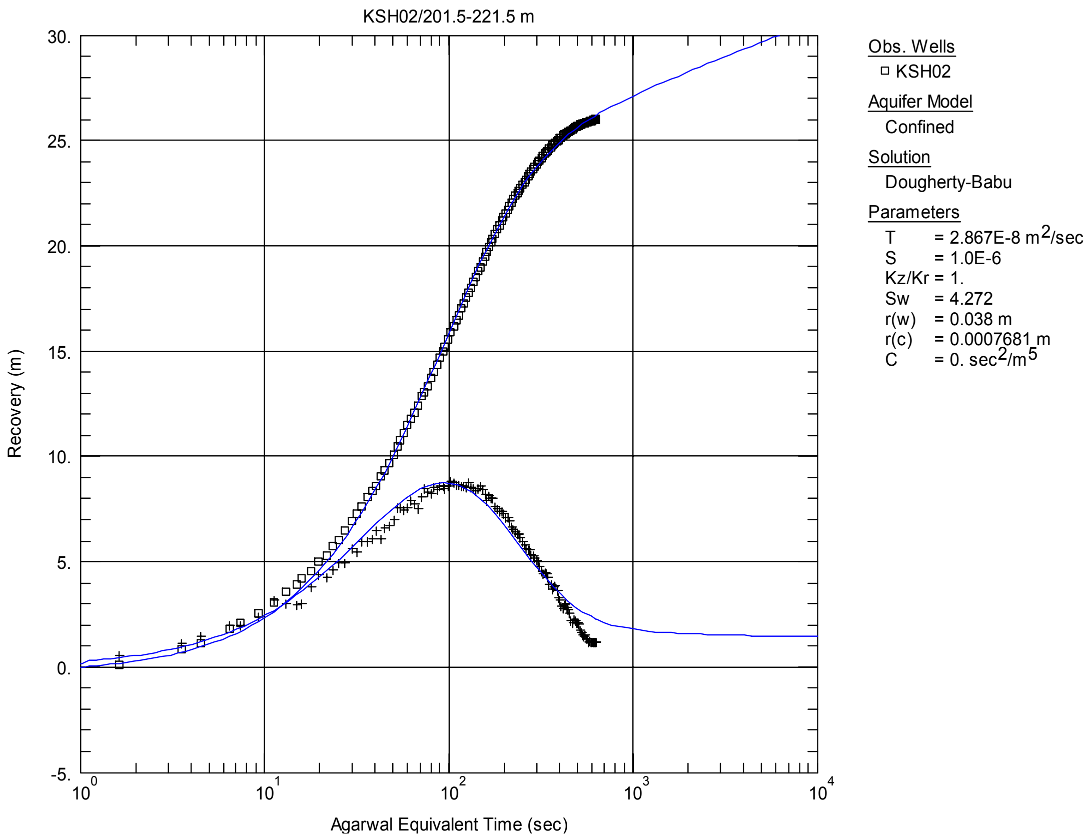
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

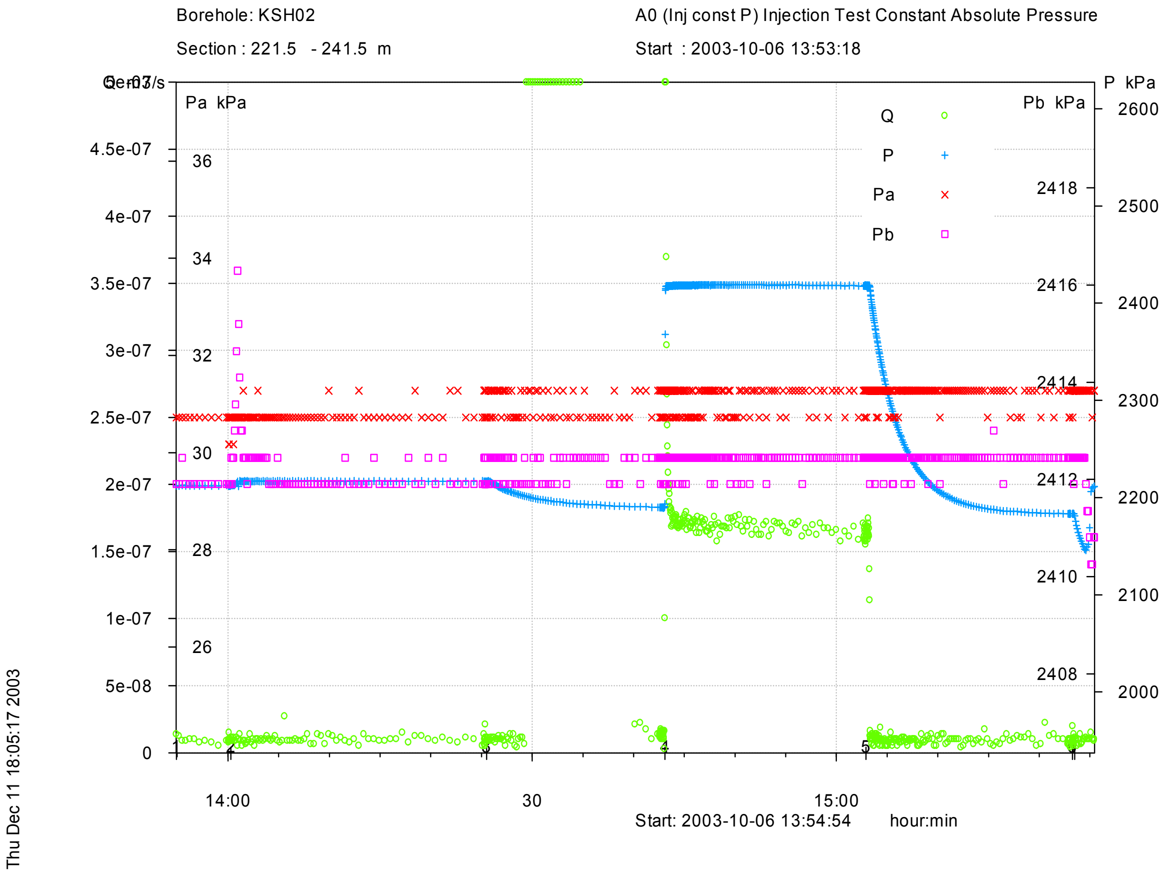


Recovery phase, lin-log match.

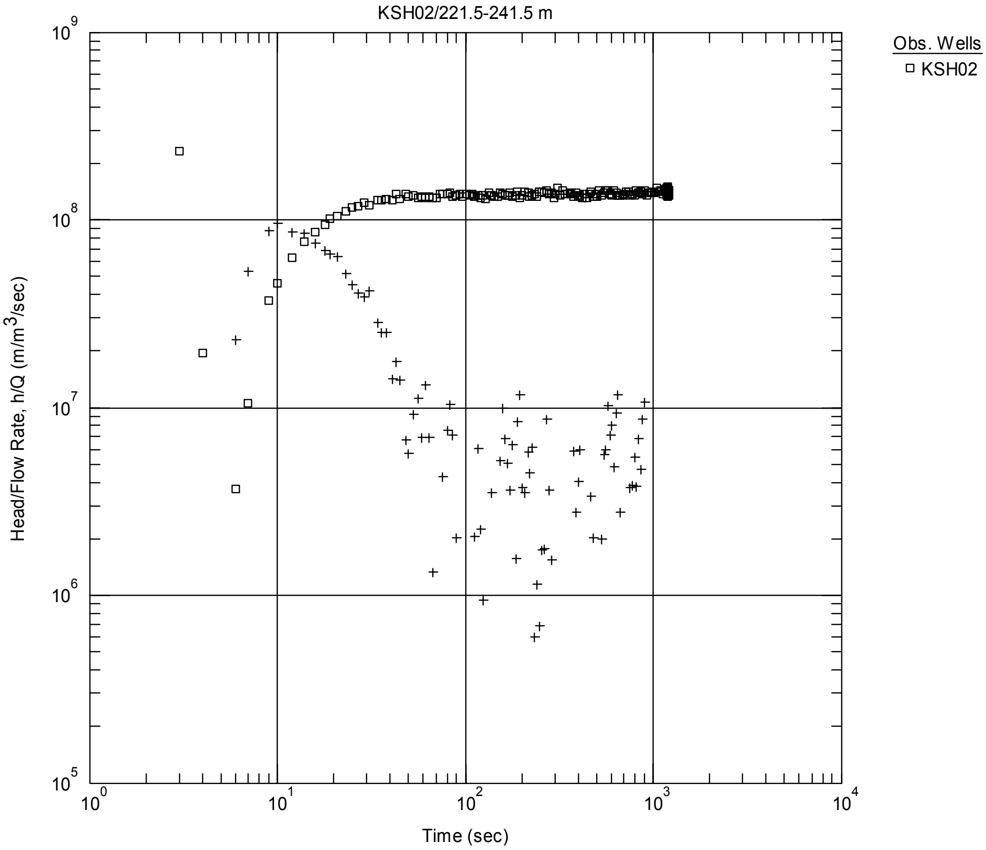
Appendix 3-17

Test 221.5–241.5 m

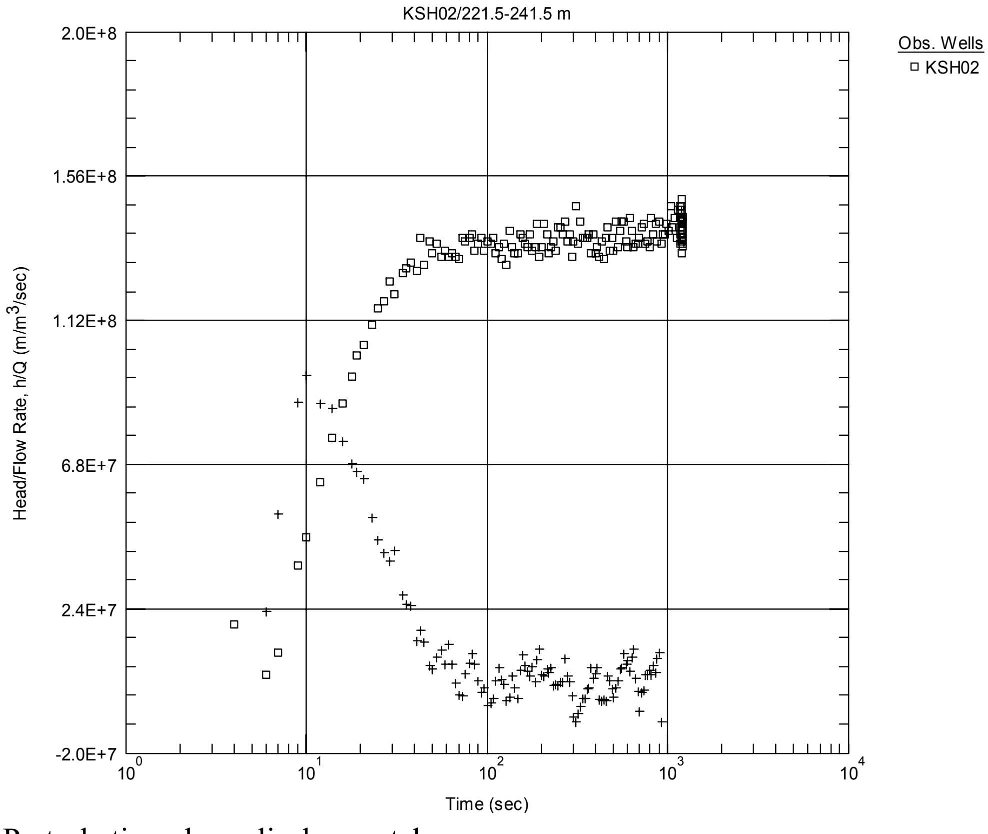
Analysis Diagram



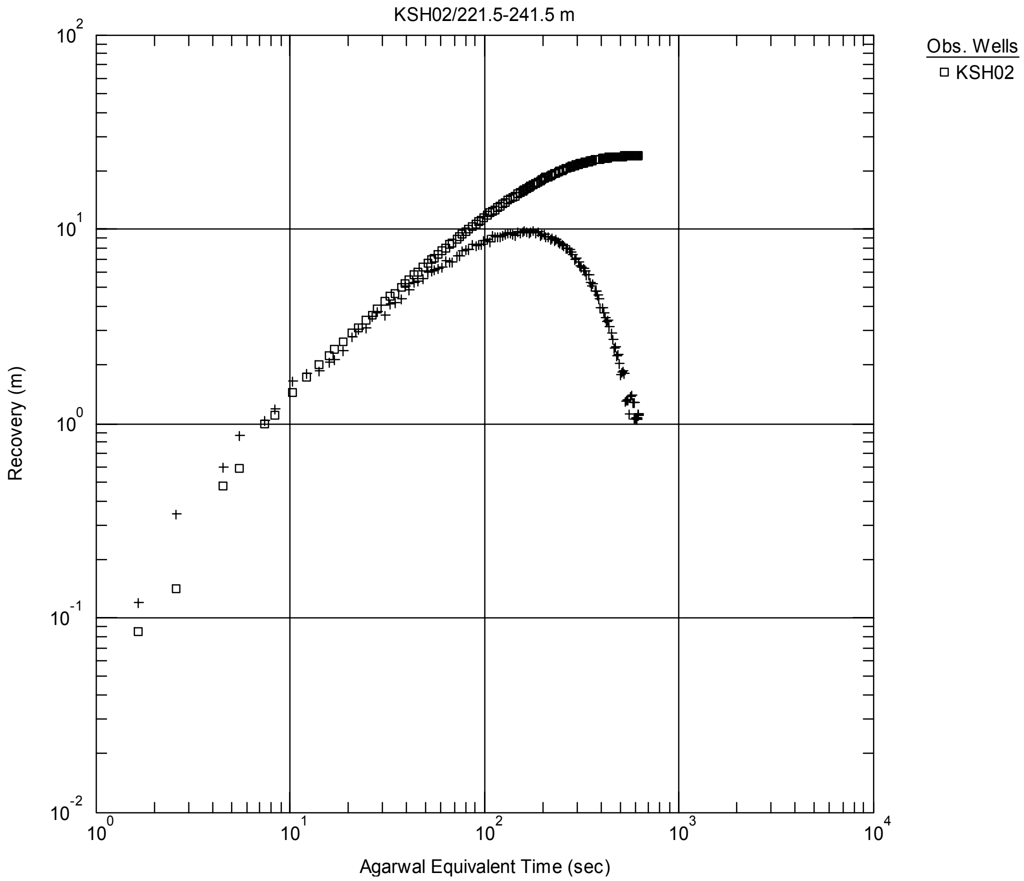
Pressure and flow rate vs. time.



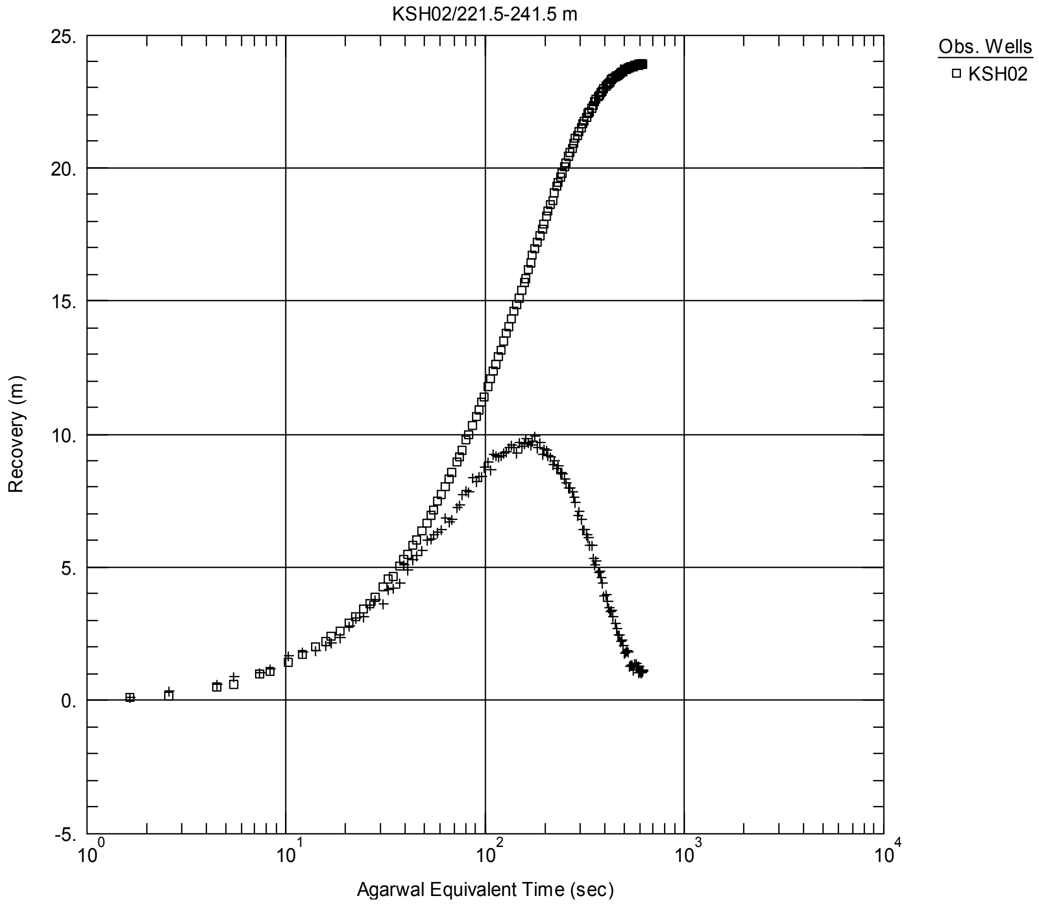
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

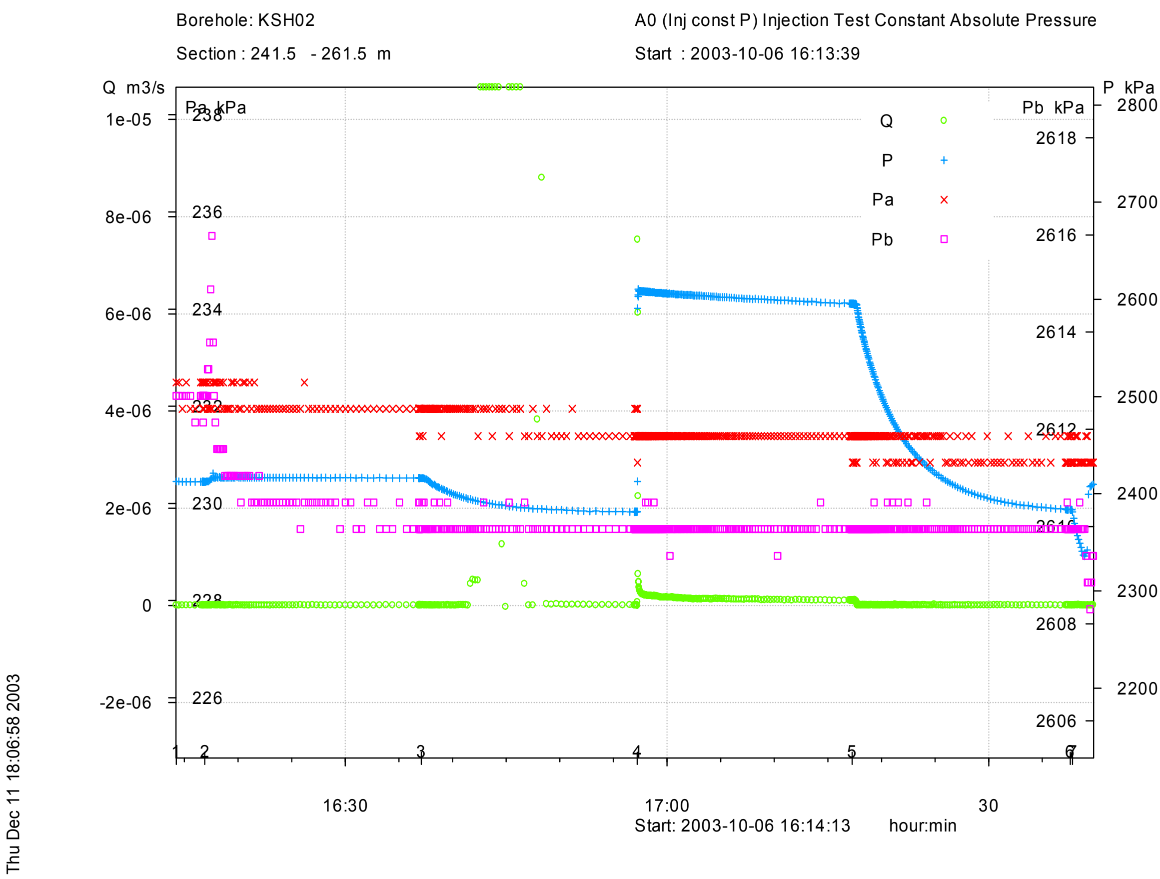


Recovery phase, lin-log match.

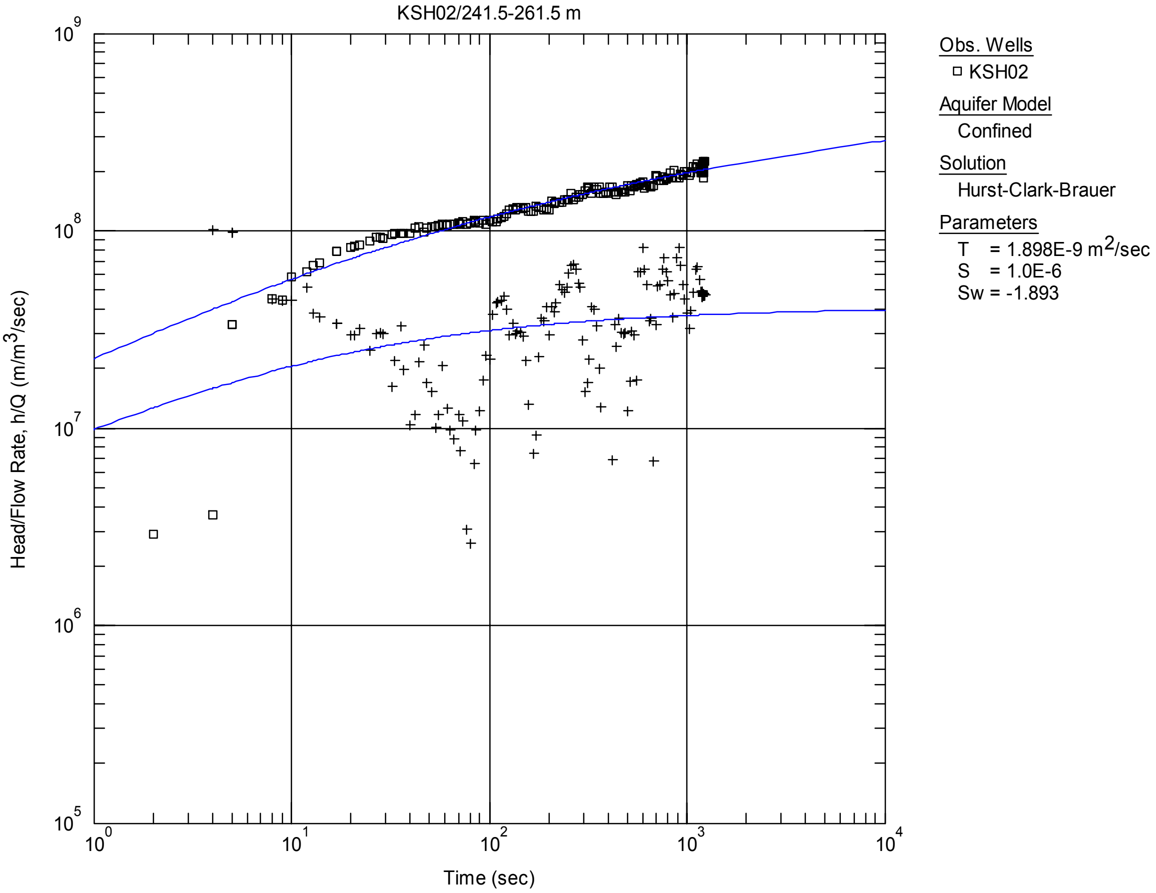
Appendix 3-18

Test 241.5–261.5 m

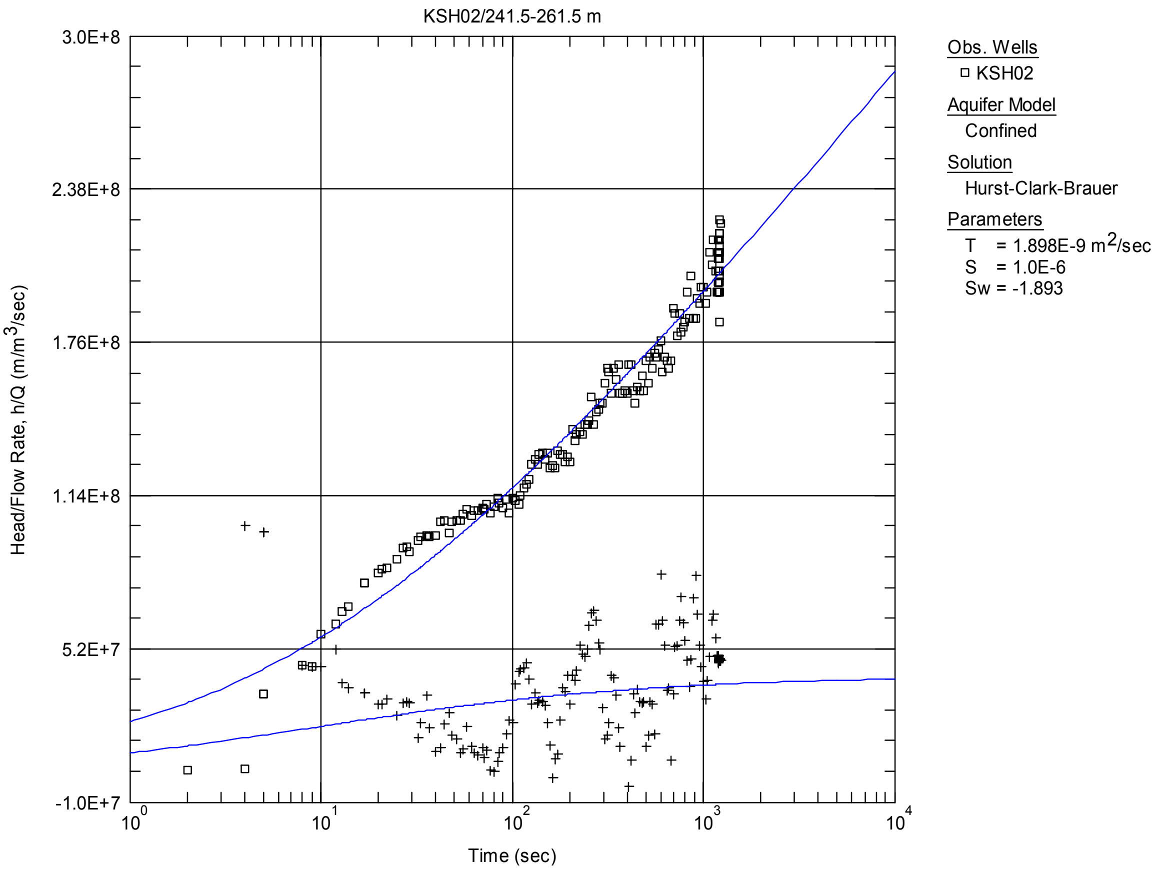
Analysis Diagram



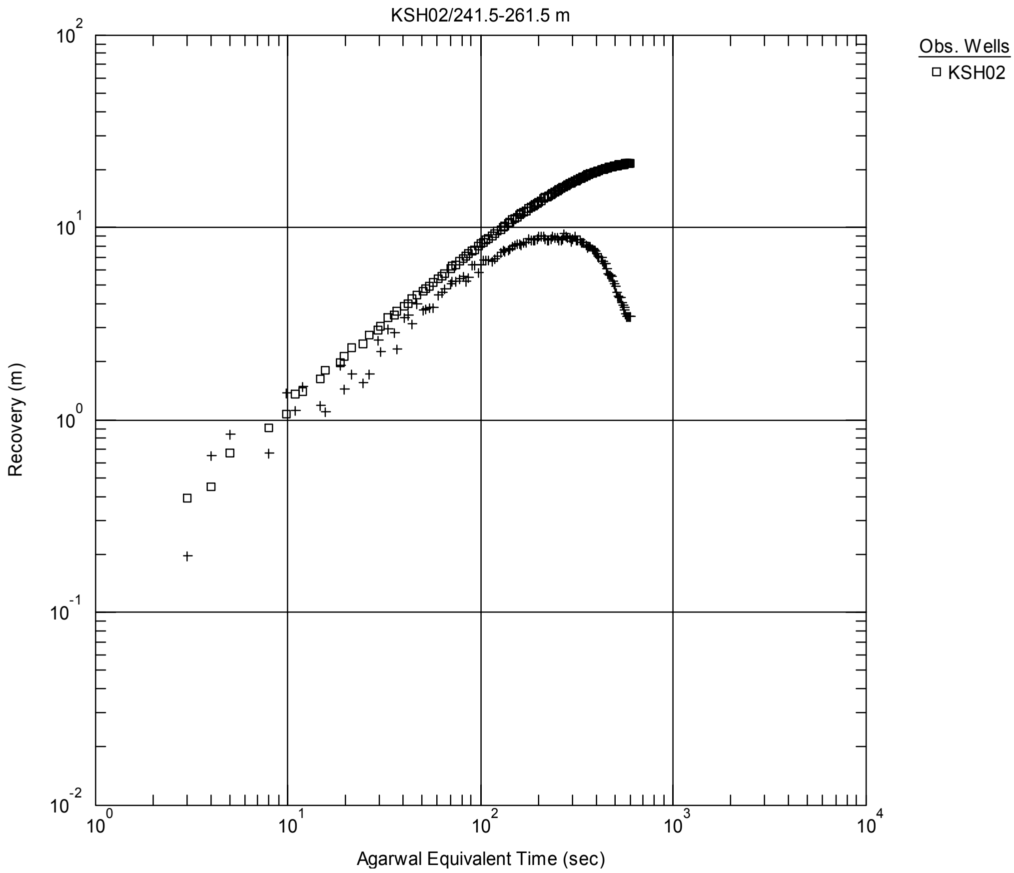
Pressure and flow rate vs. time.



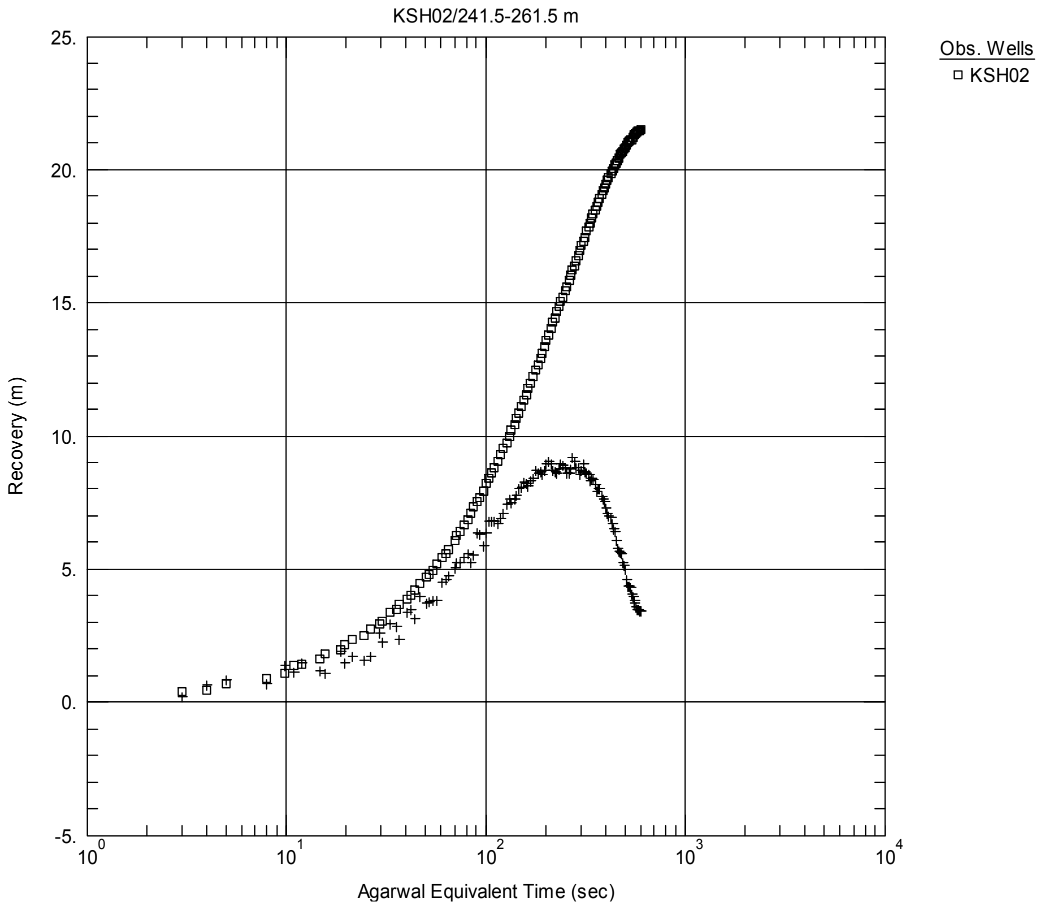
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

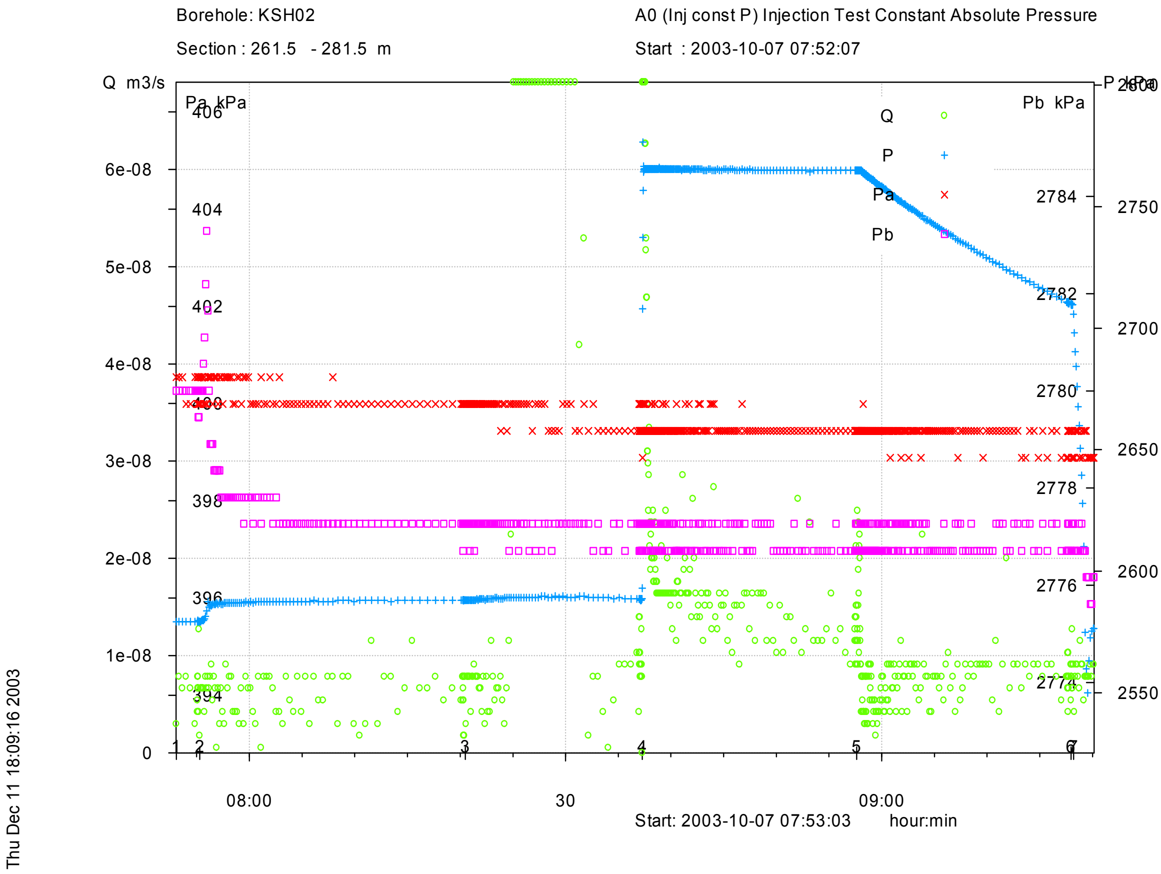


Recovery phase, lin-log match.

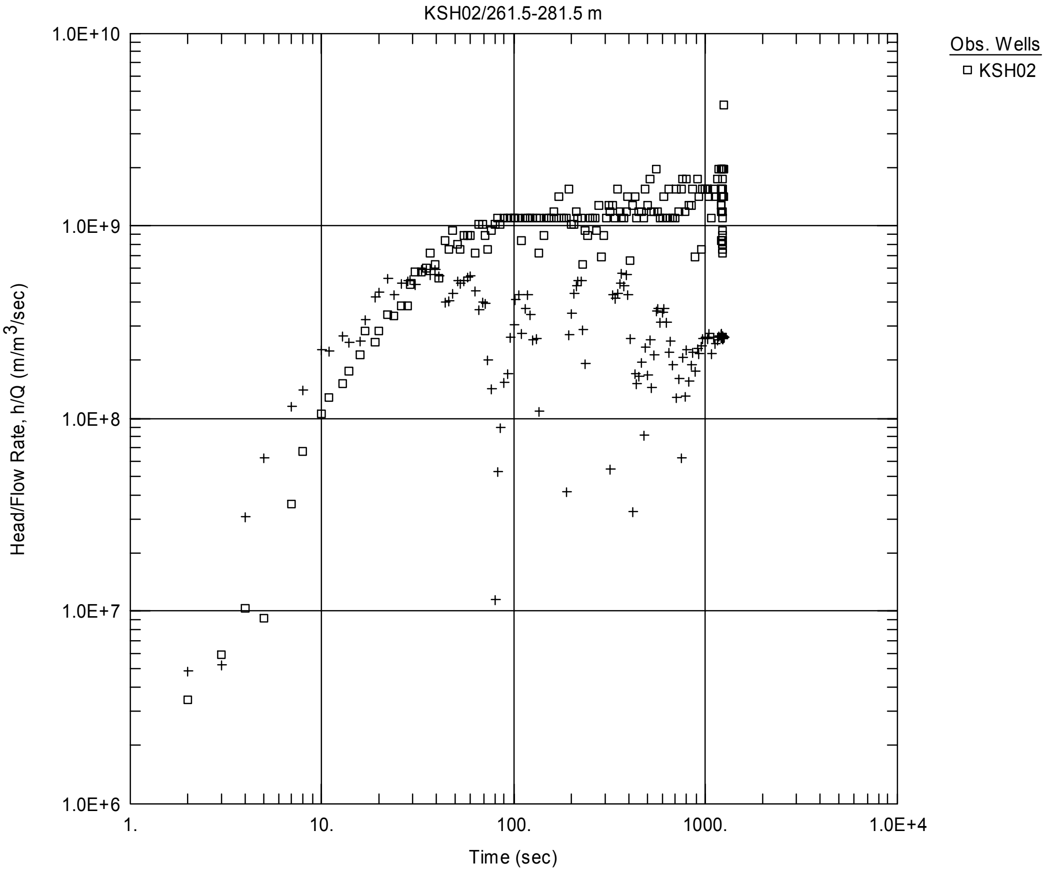
Appendix 3-19

Test 261.5–281.5 m

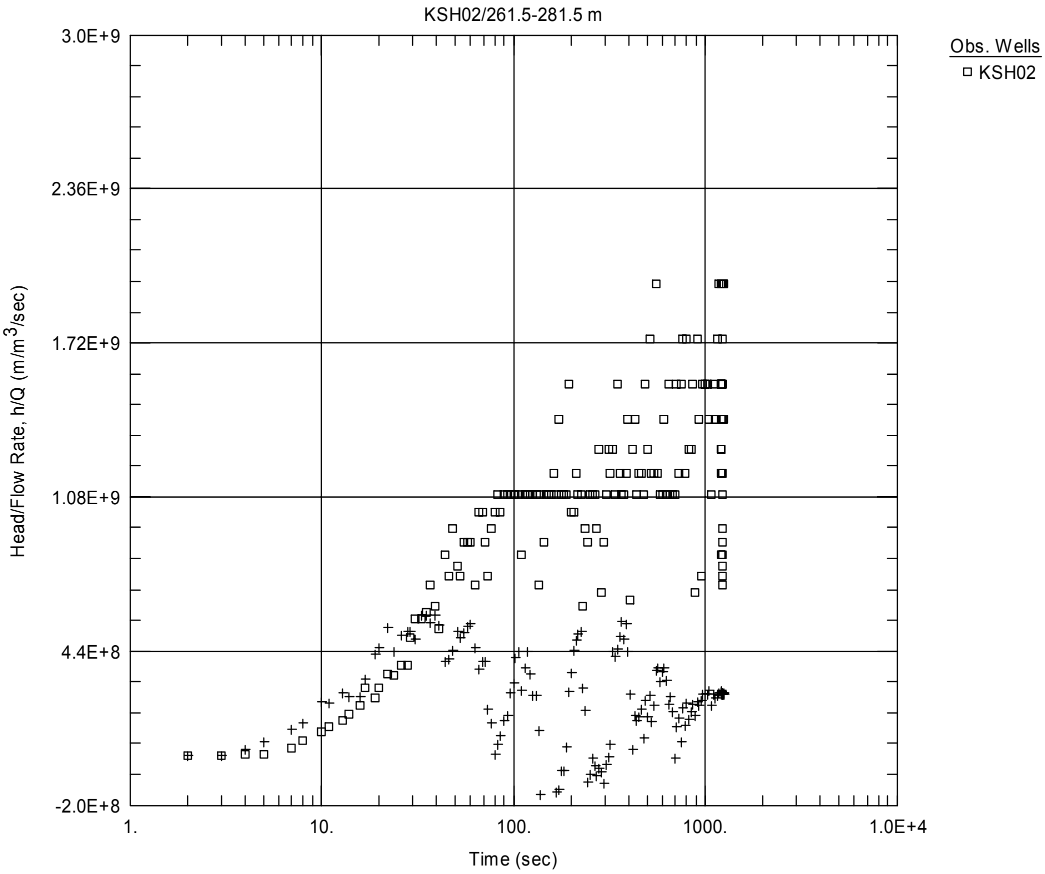
Analysis Diagram



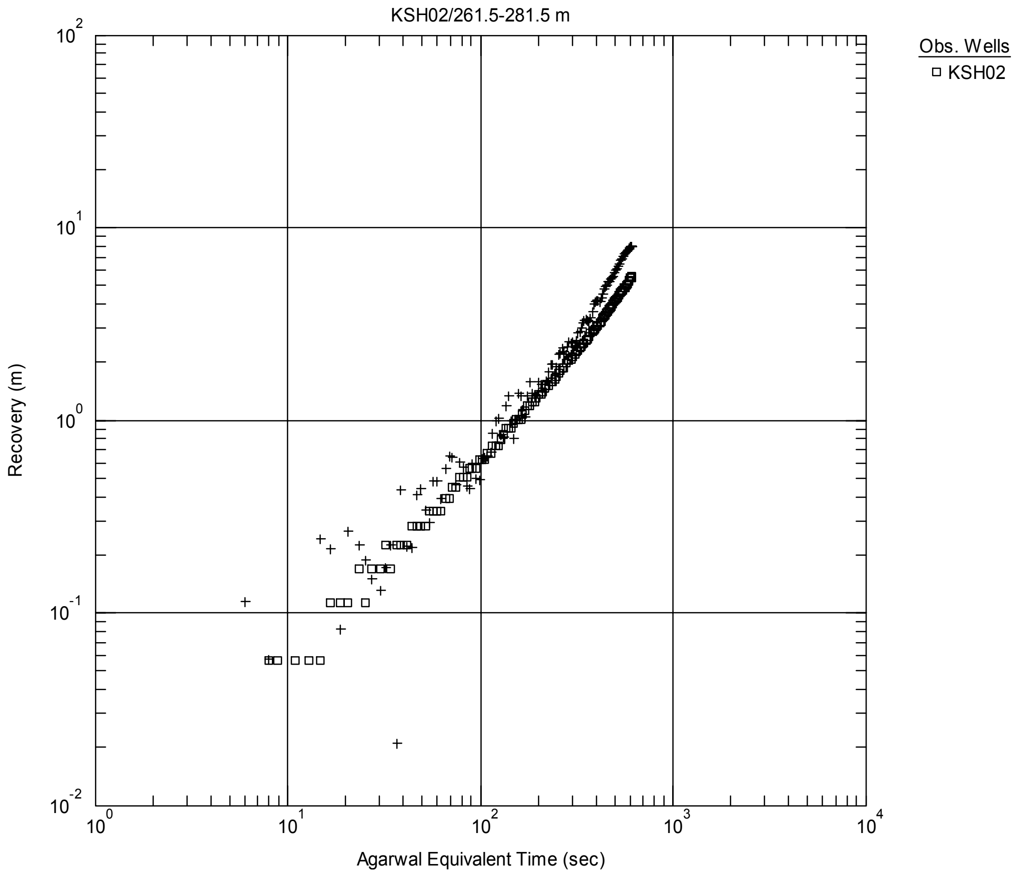
Pressure and flow rate vs. time.



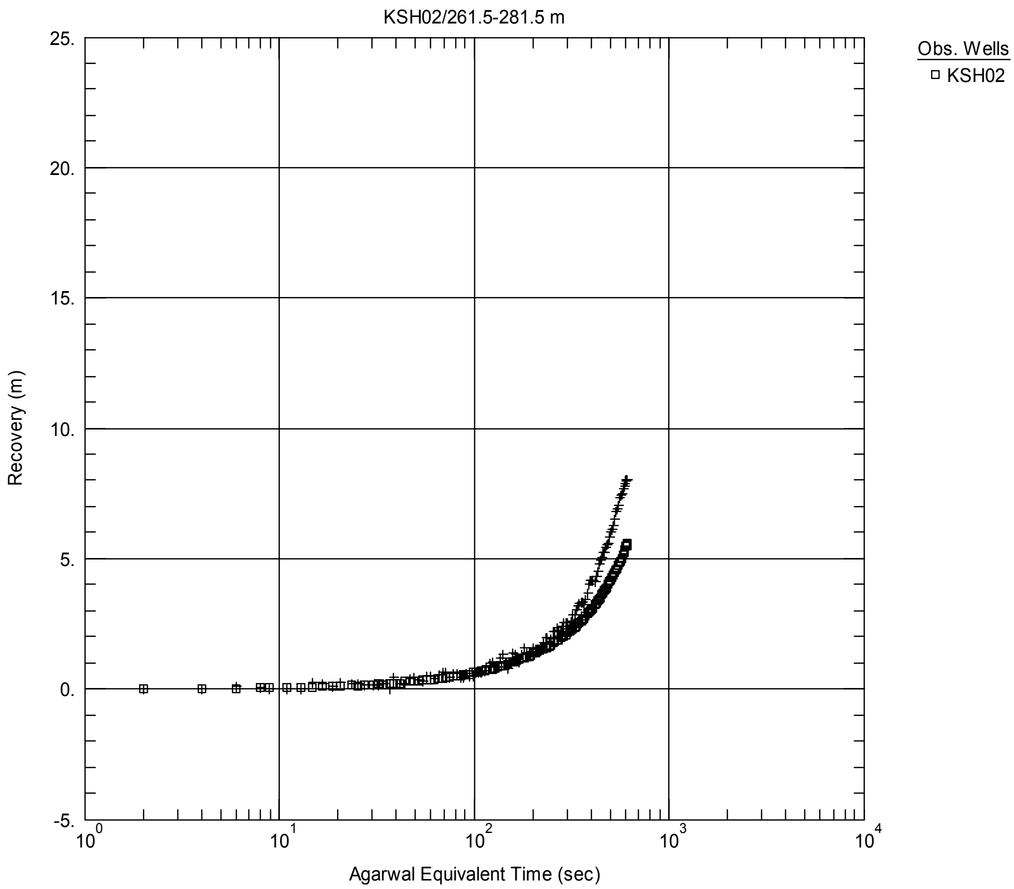
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

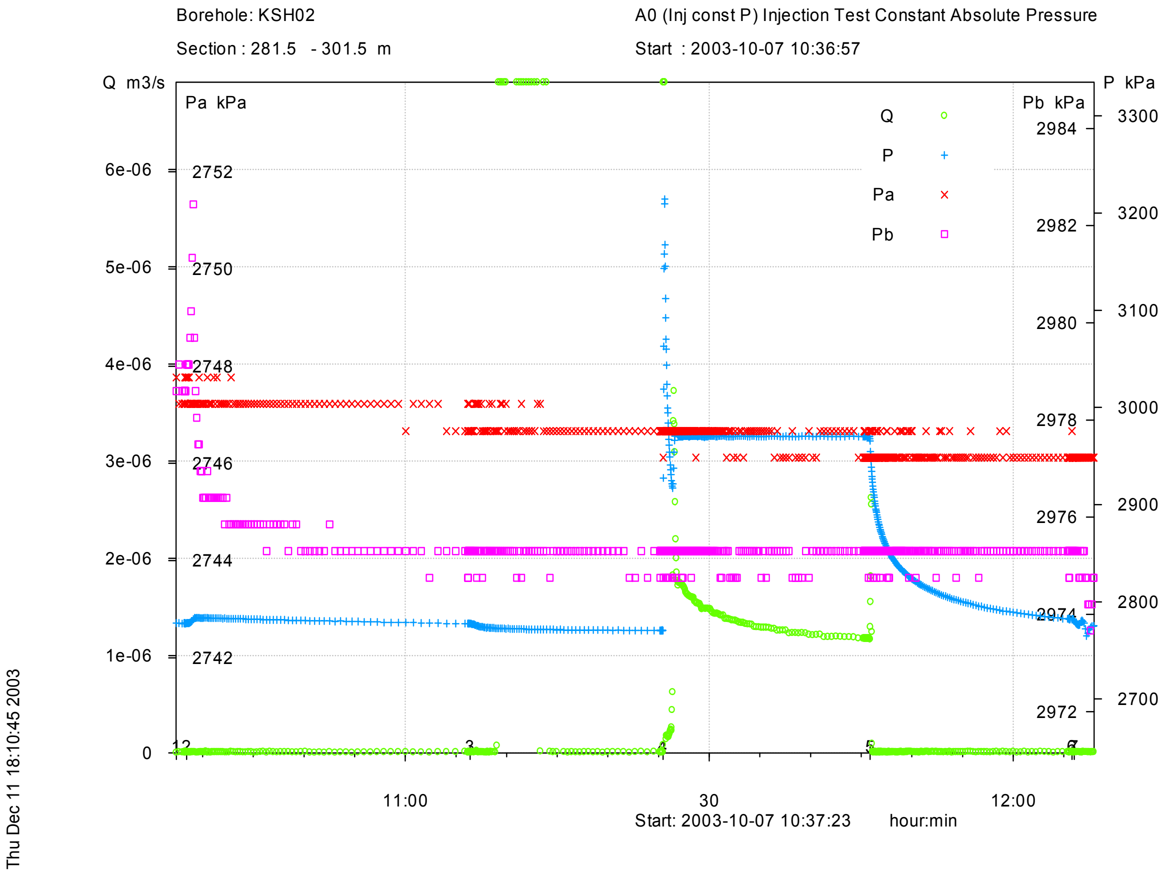


Recovery phase, lin-log match.

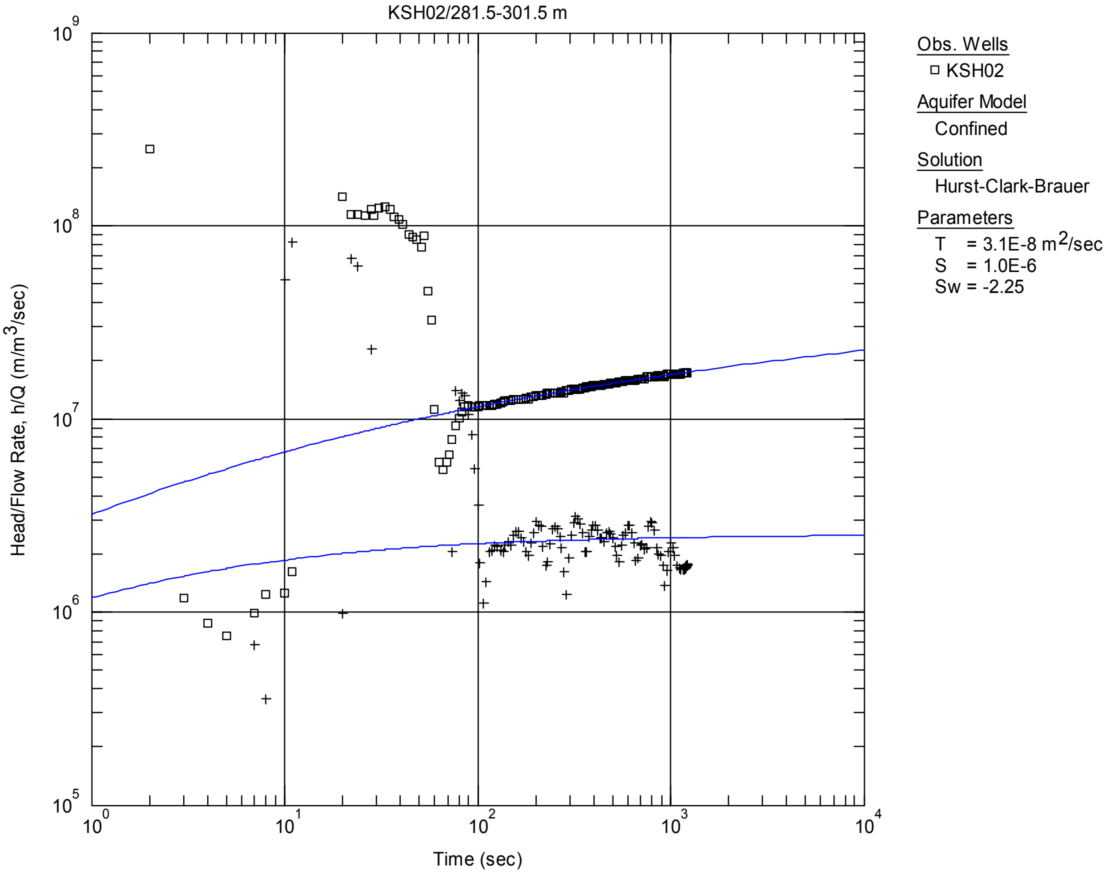
Appendix 3-20

Test 281.5–301.5 m

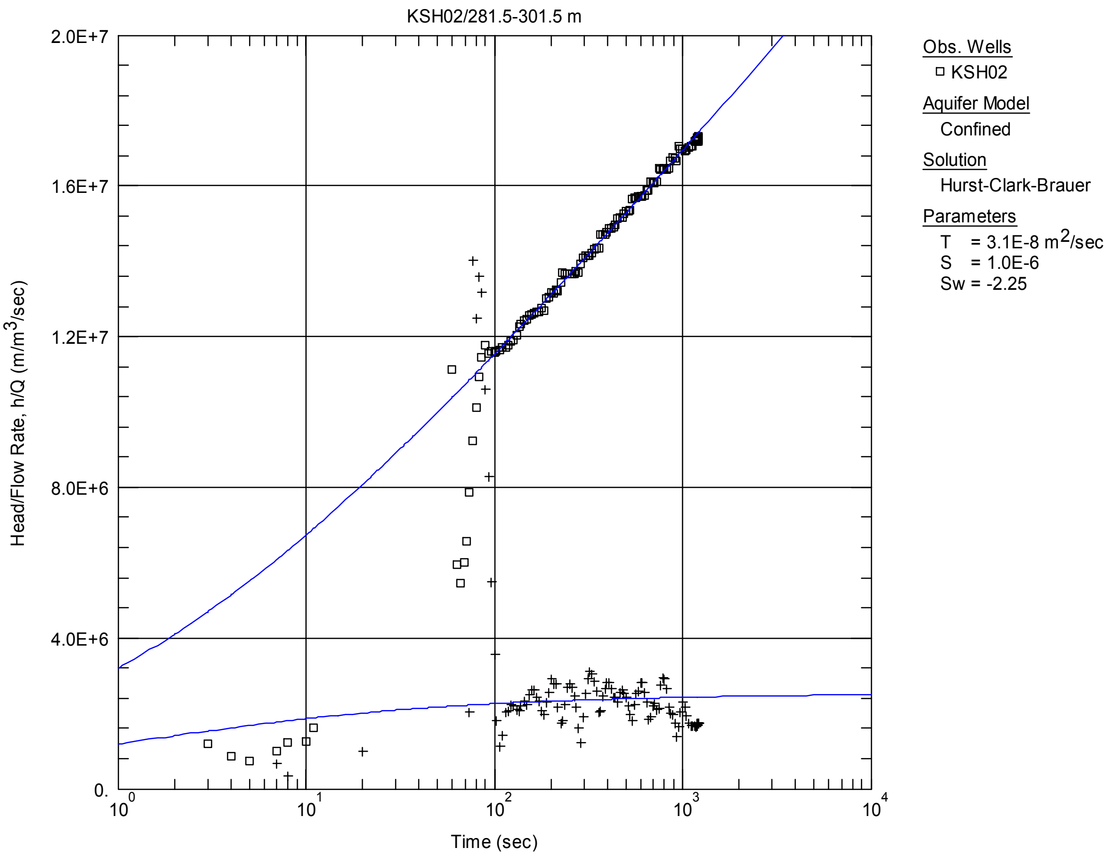
Analysis Diagram



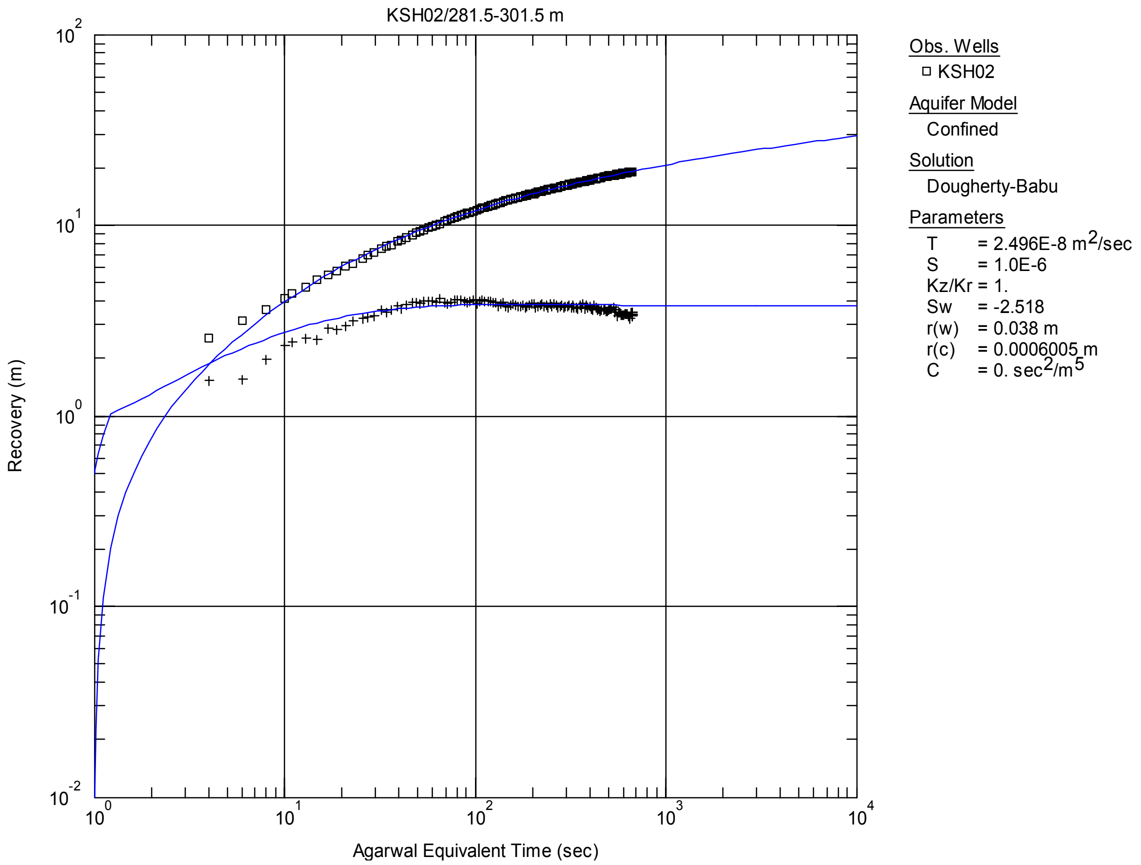
Pressure and flow rate vs. time.



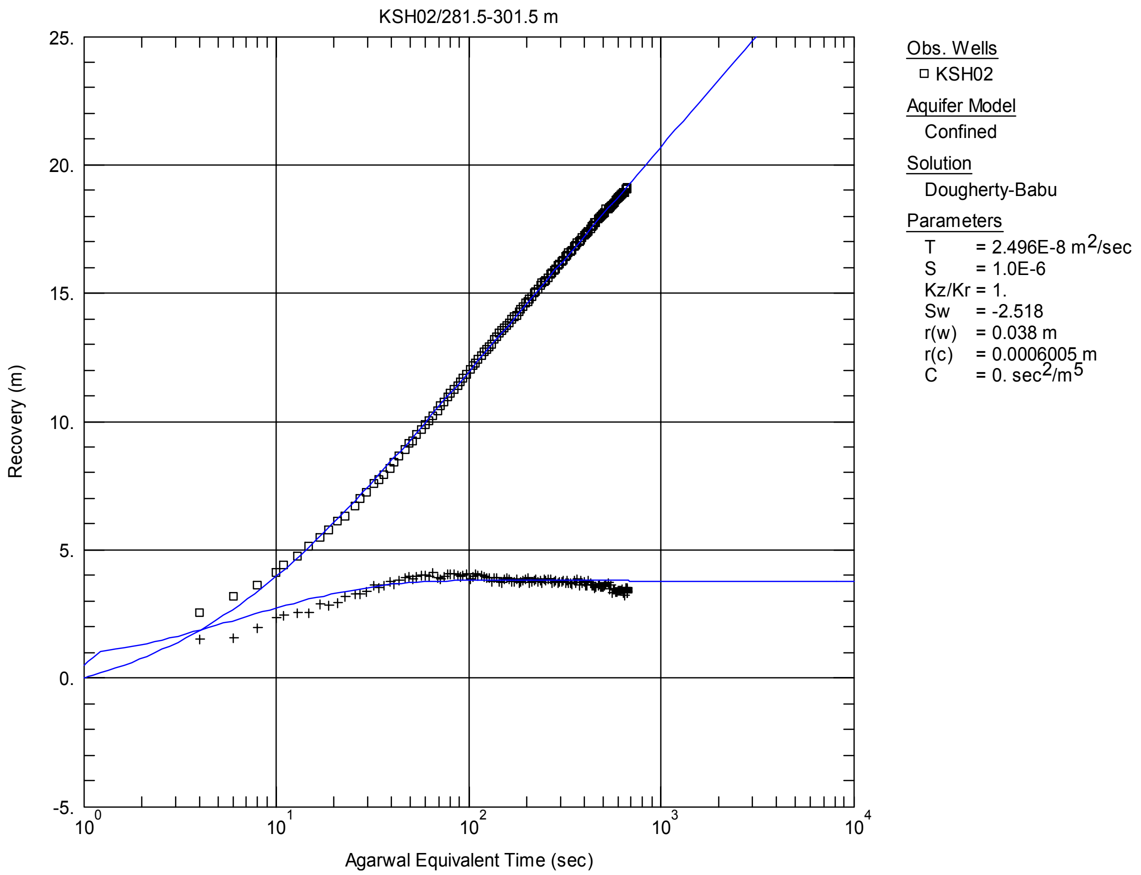
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

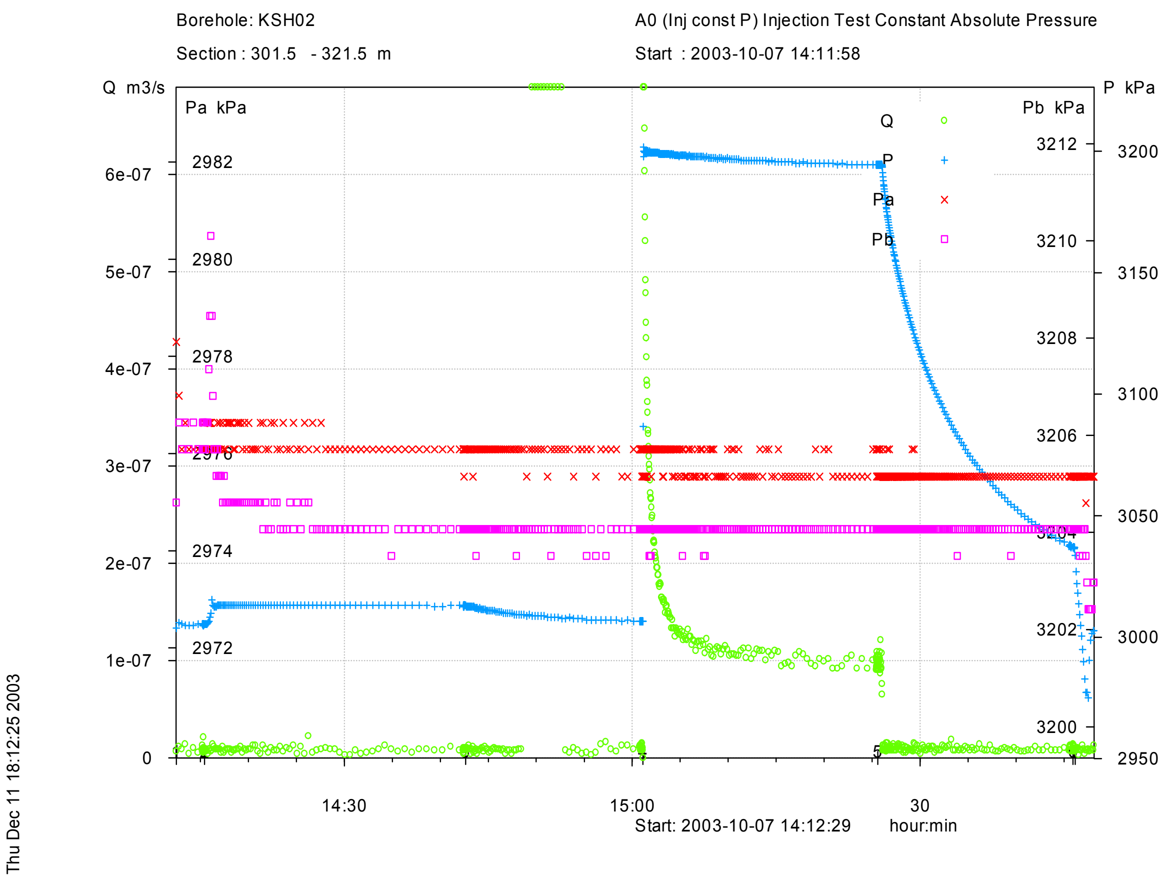


Recovery phase, lin-log match.

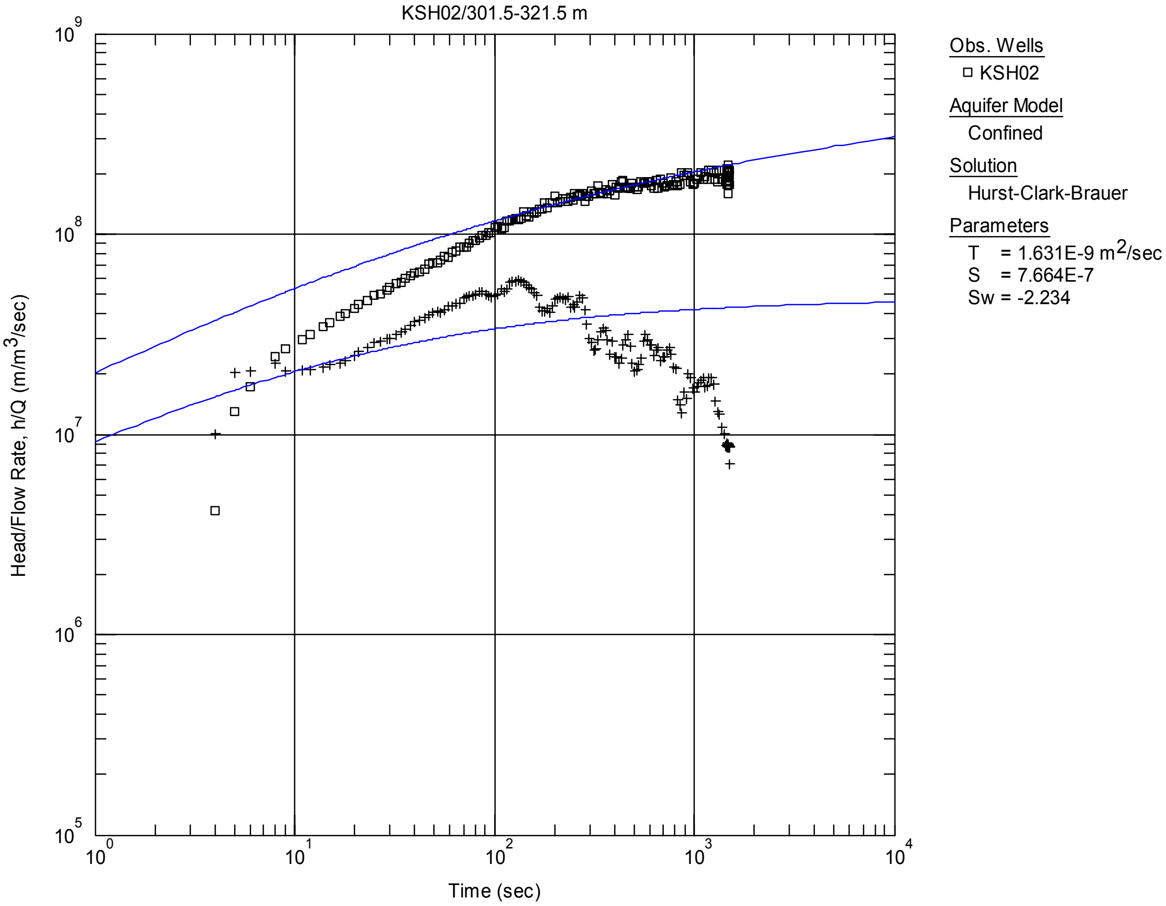
Appendix 3-21

Test 301.5–321.5 m

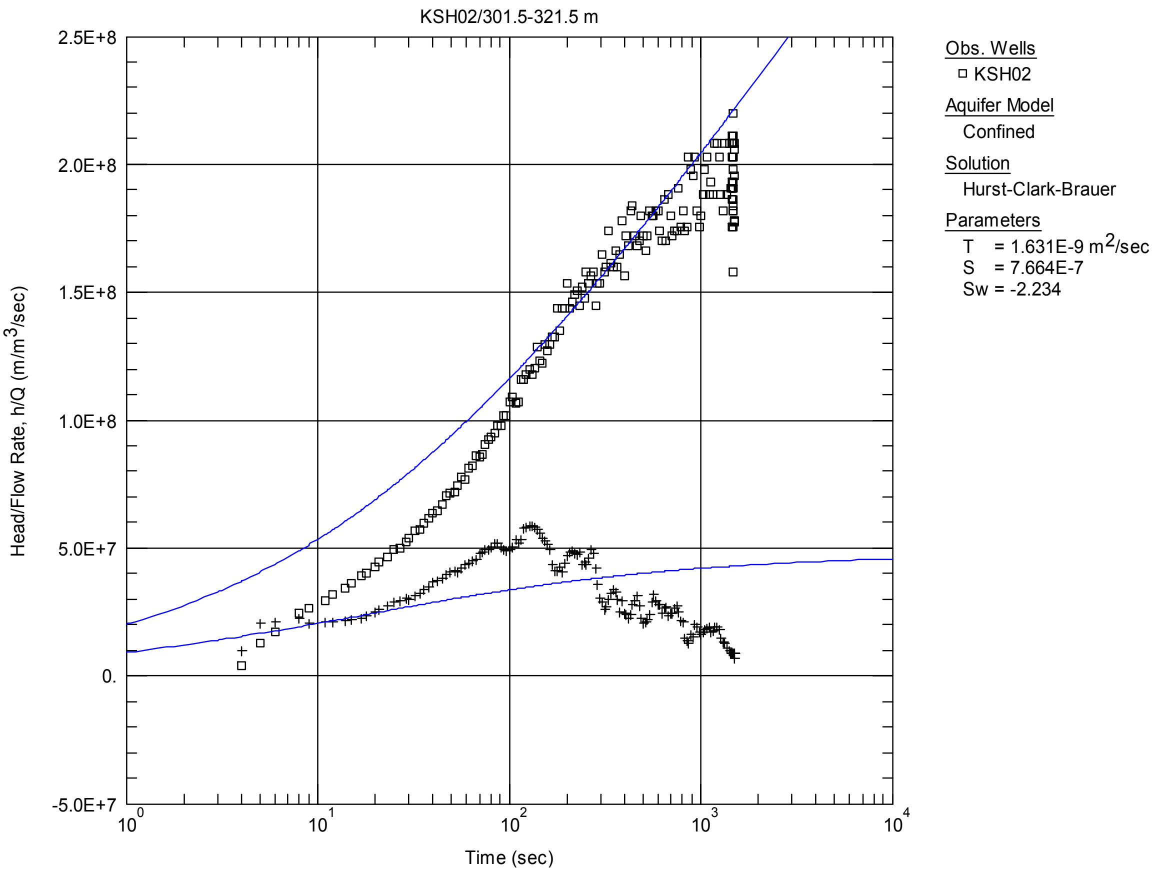
Analysis Diagram



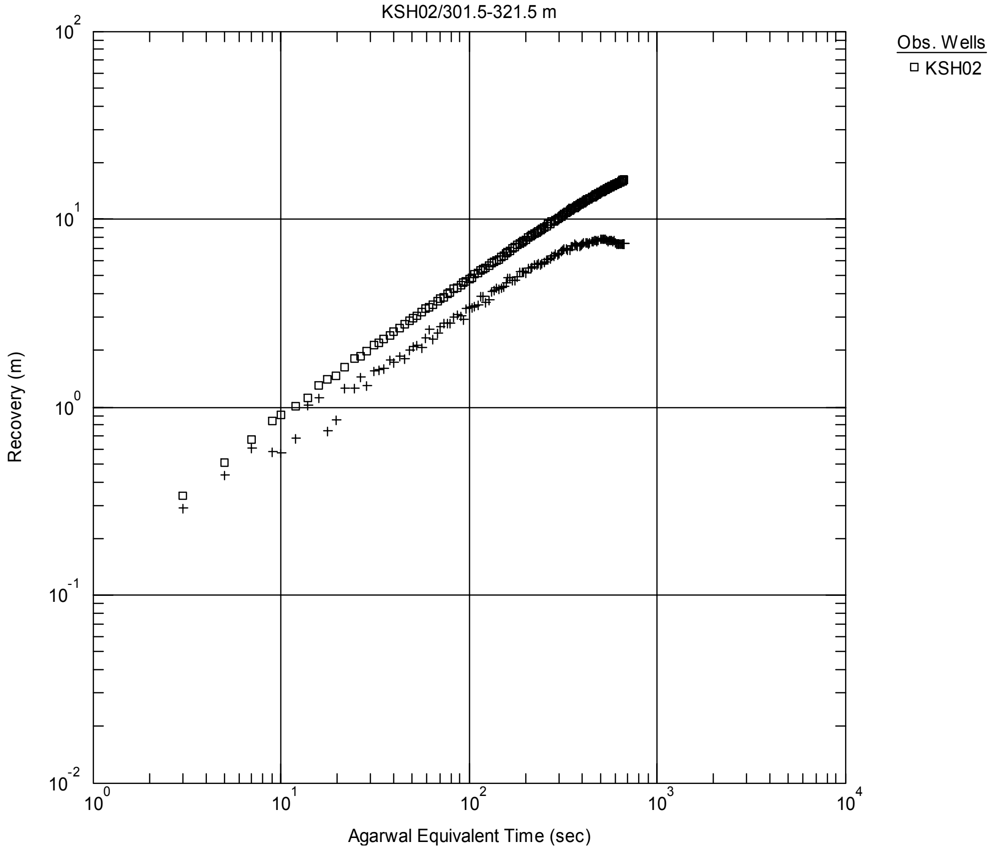
Pressure and flow rate vs. time.



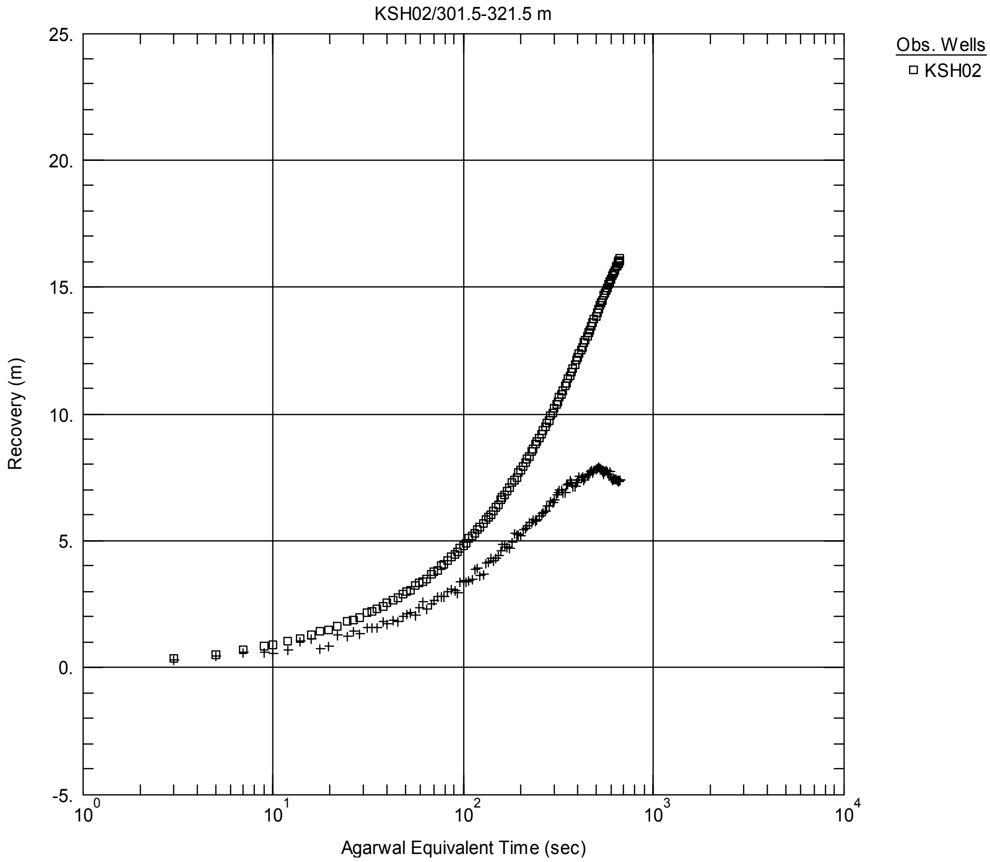
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



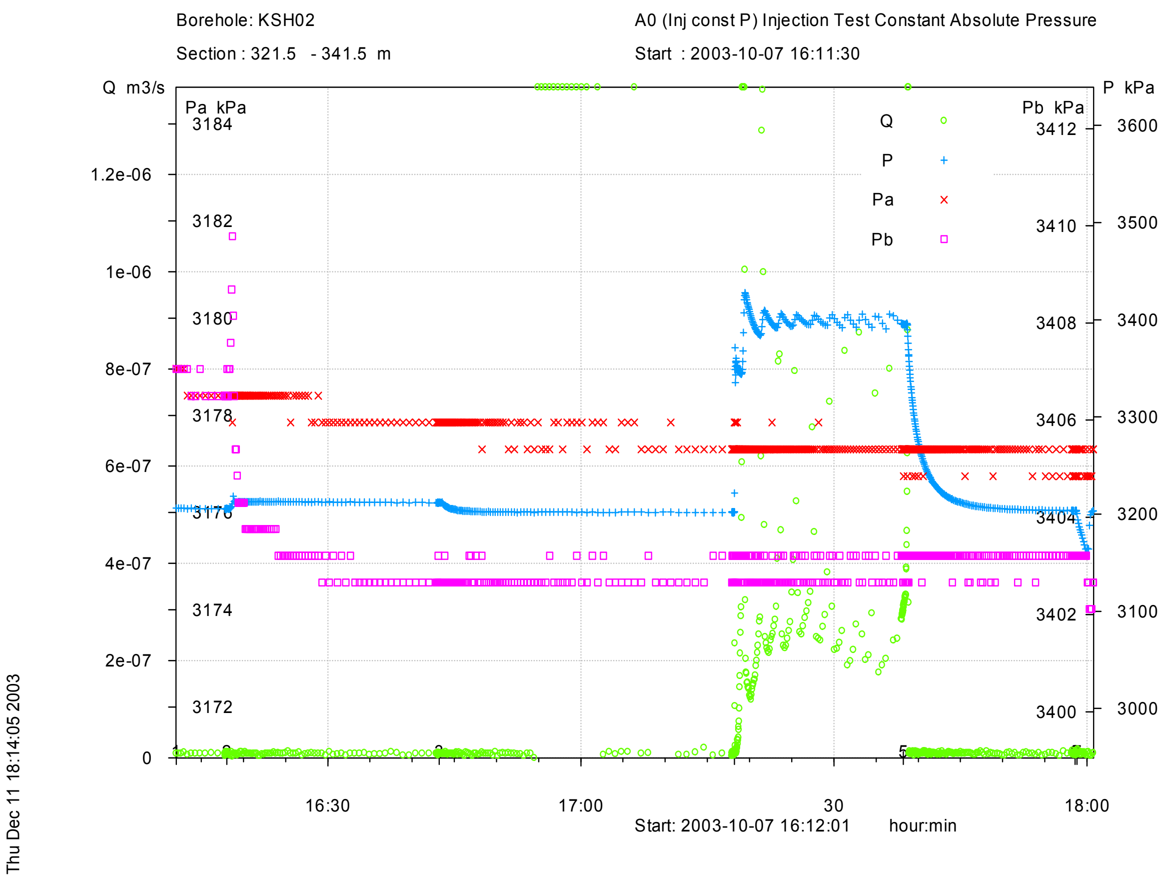
Recovery phase, log-log match.



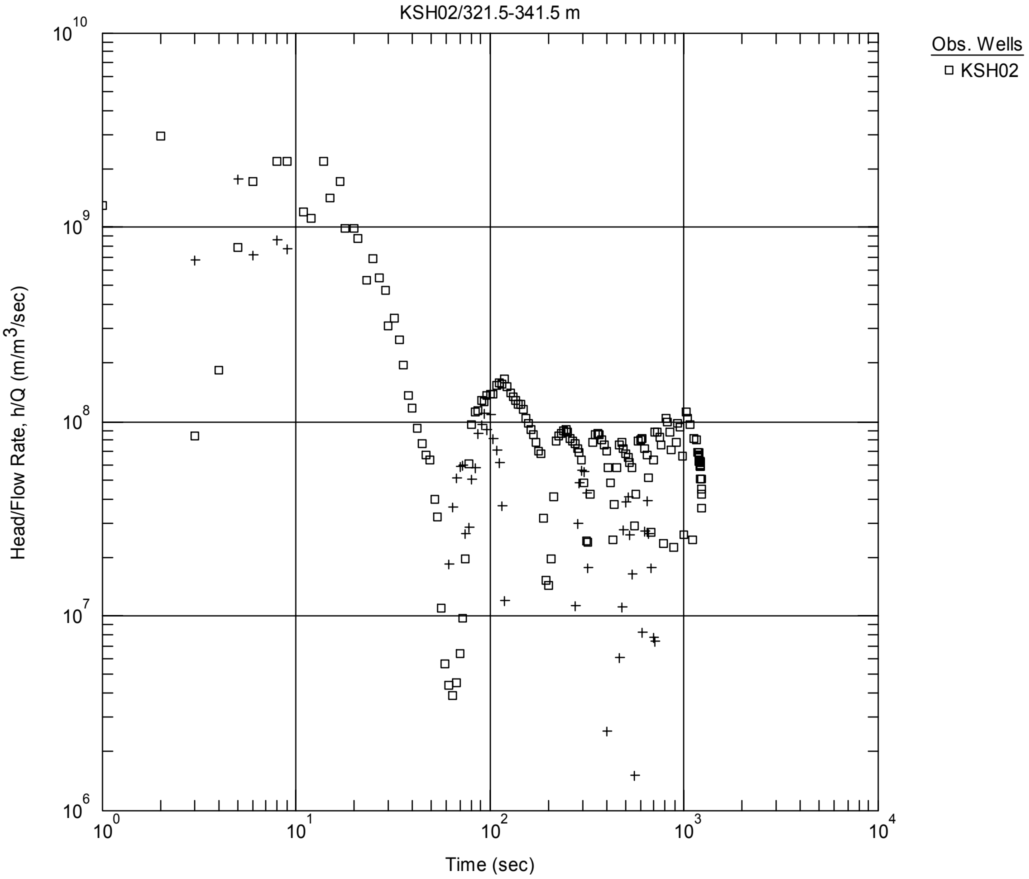
Recovery phase, lin-log match.

Test 321.5–341.5 m

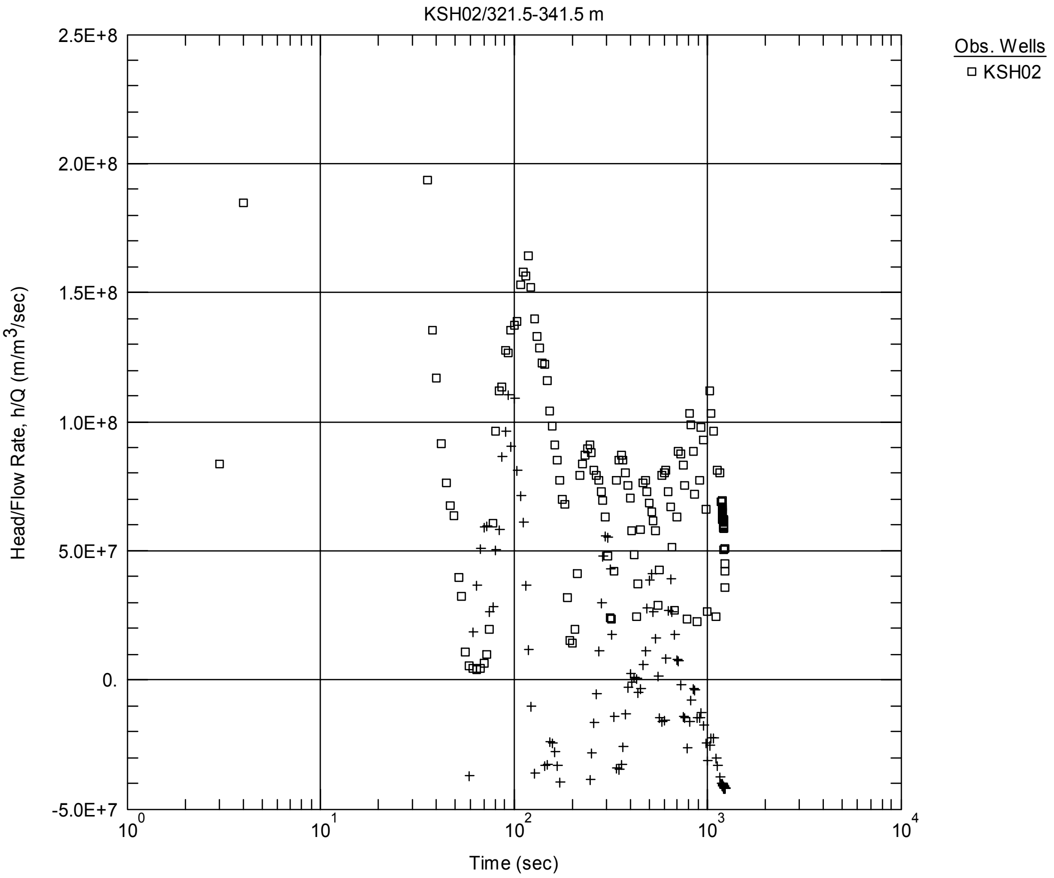
Analysis Diagram



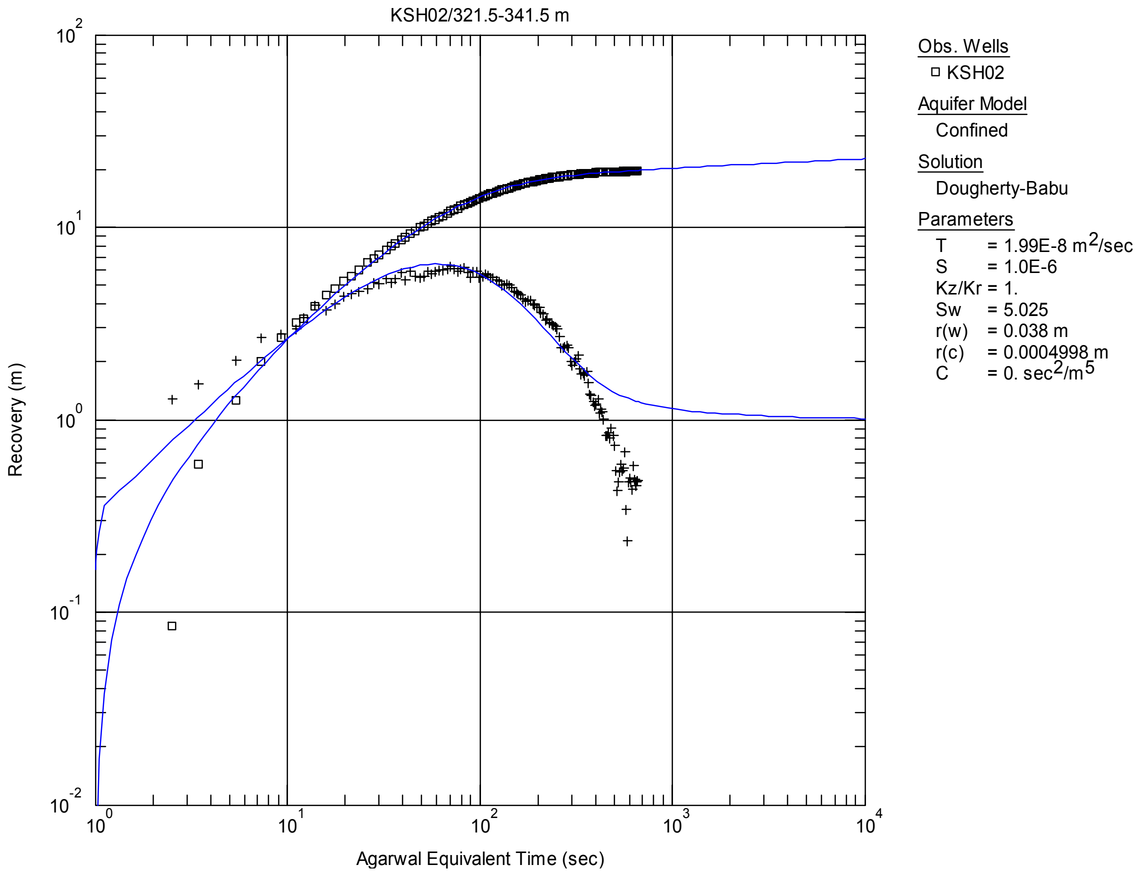
Pressure and flow rate vs. time.



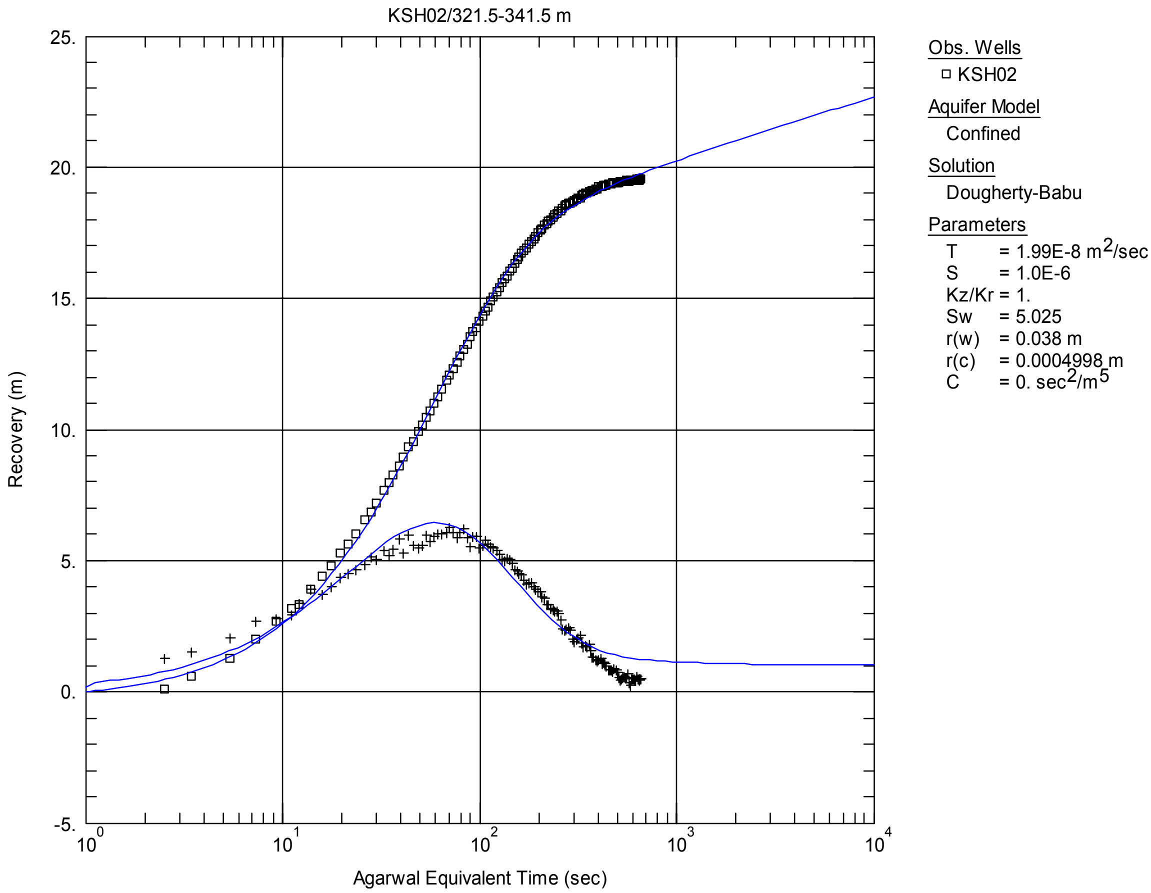
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



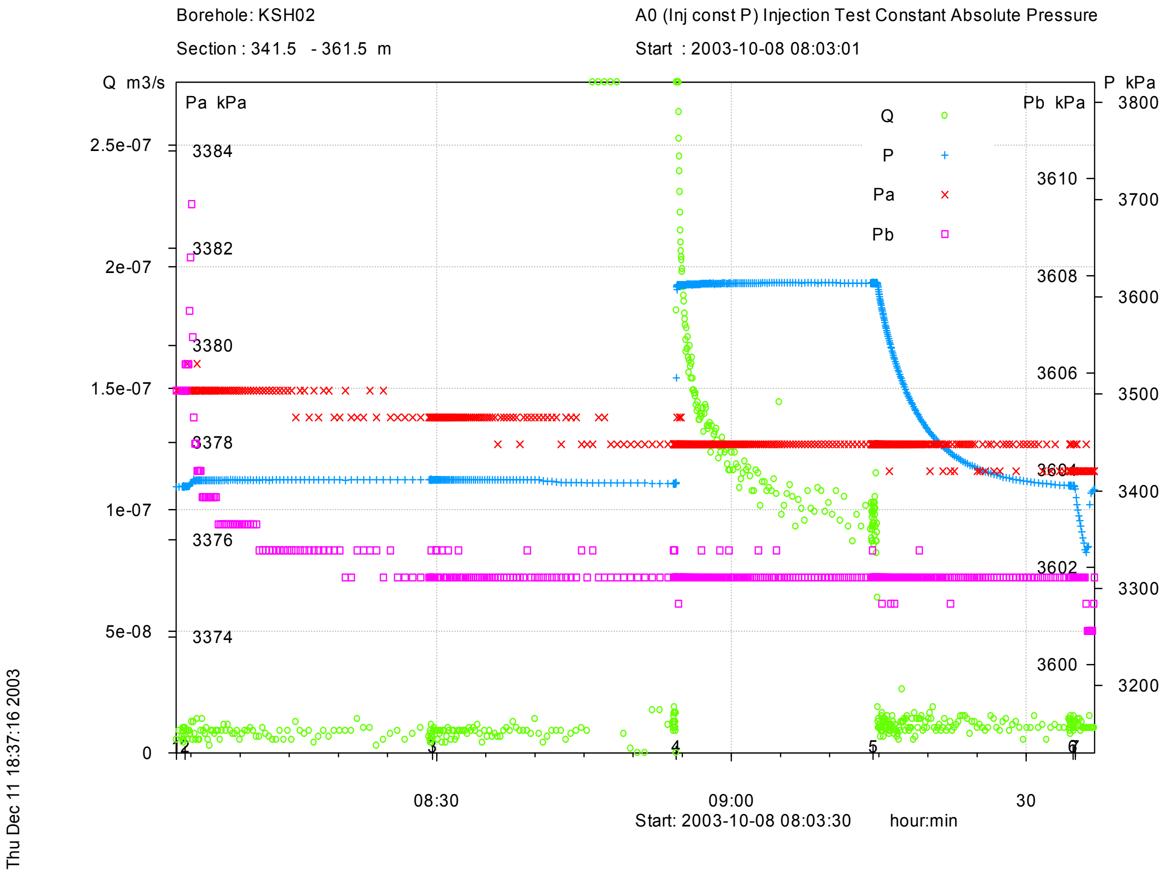
Recovery phase, log-log match.



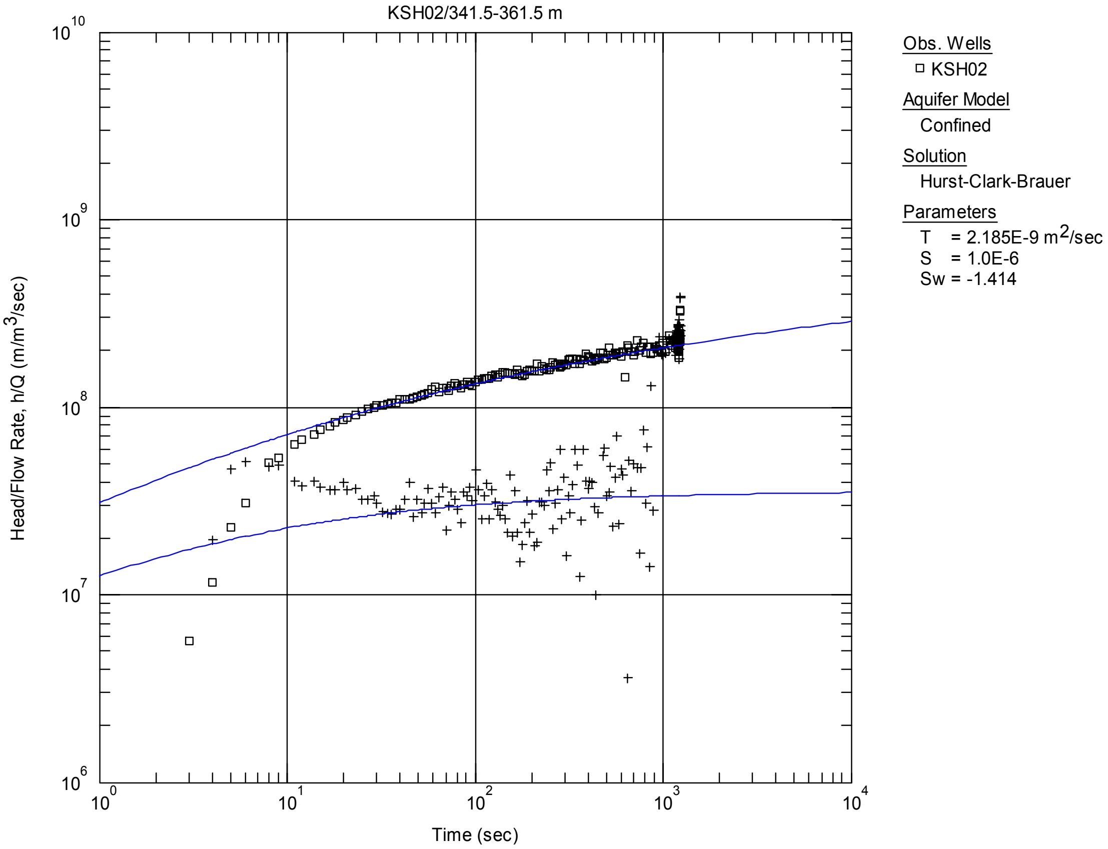
Recovery phase, lin-log match.

Test 341.5–361.5 m

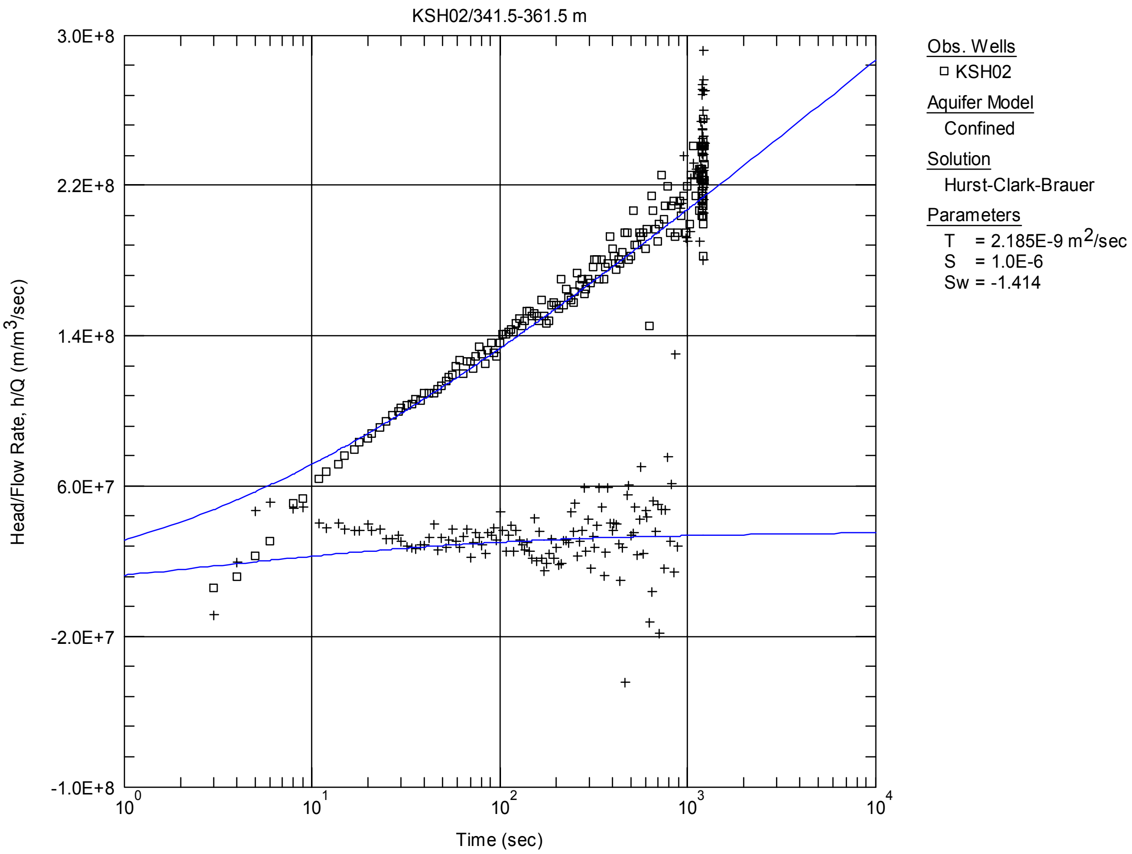
Analysis Diagram



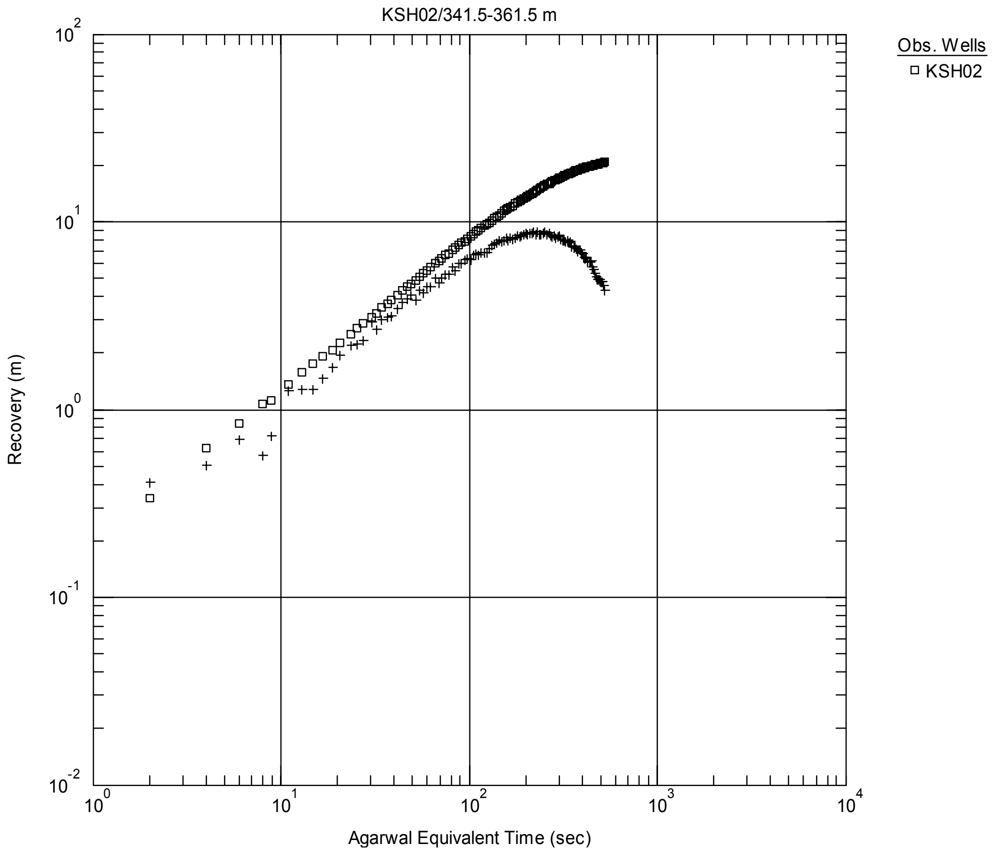
Pressure and flow rate vs. time.



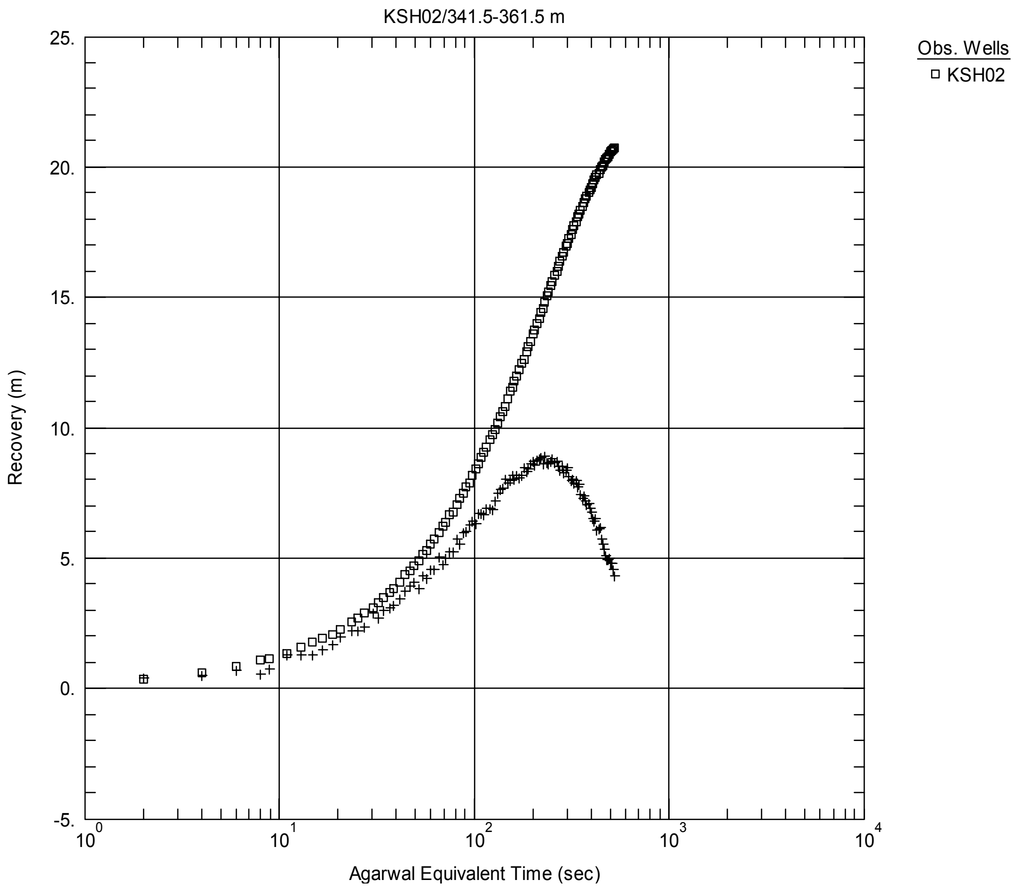
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



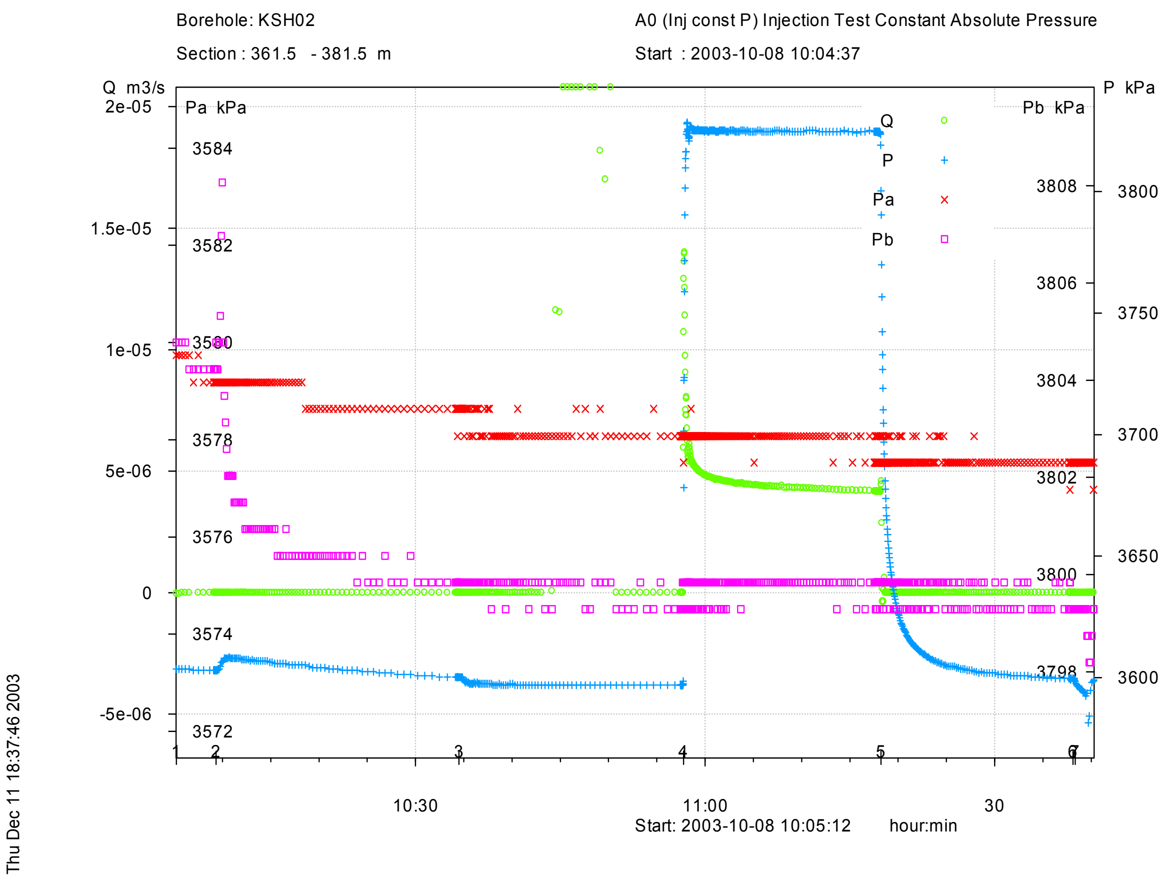
Recovery phase, log-log match.



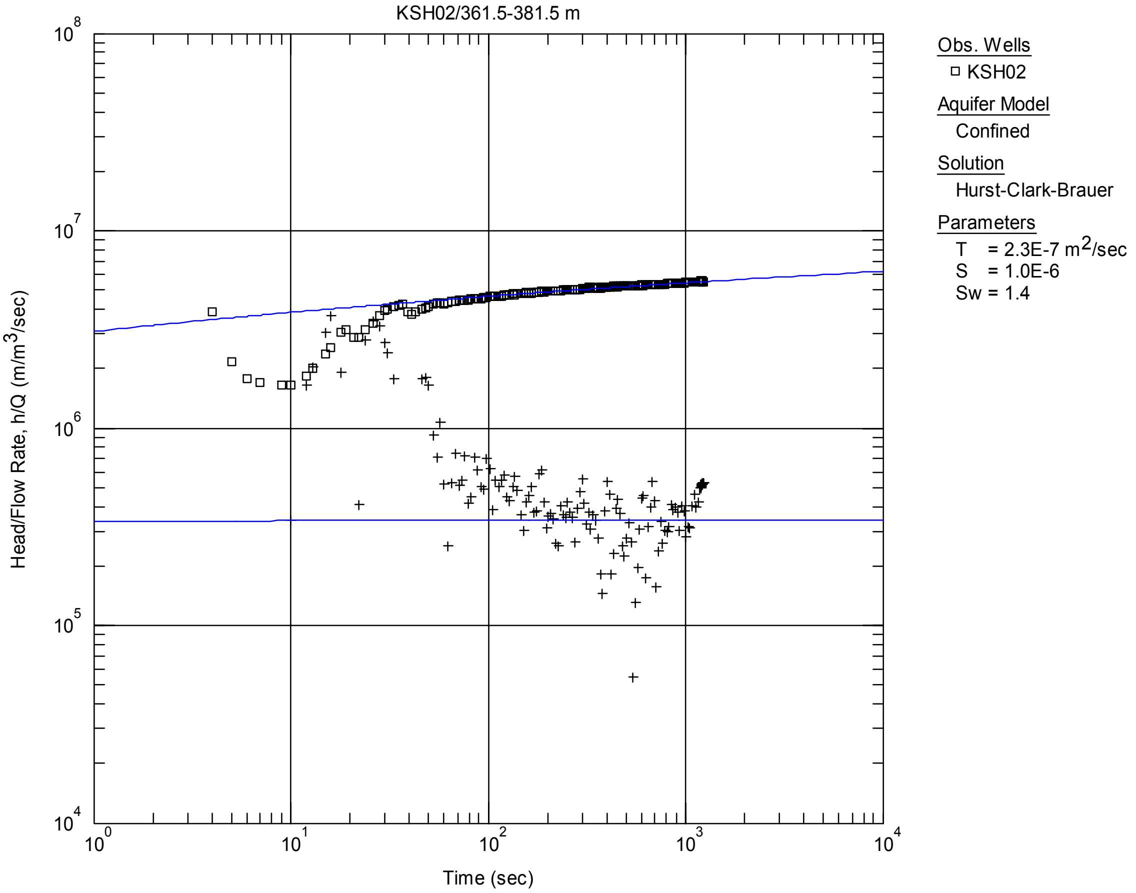
Recovery phase, lin-log match.

Test 361.5–381.5 m

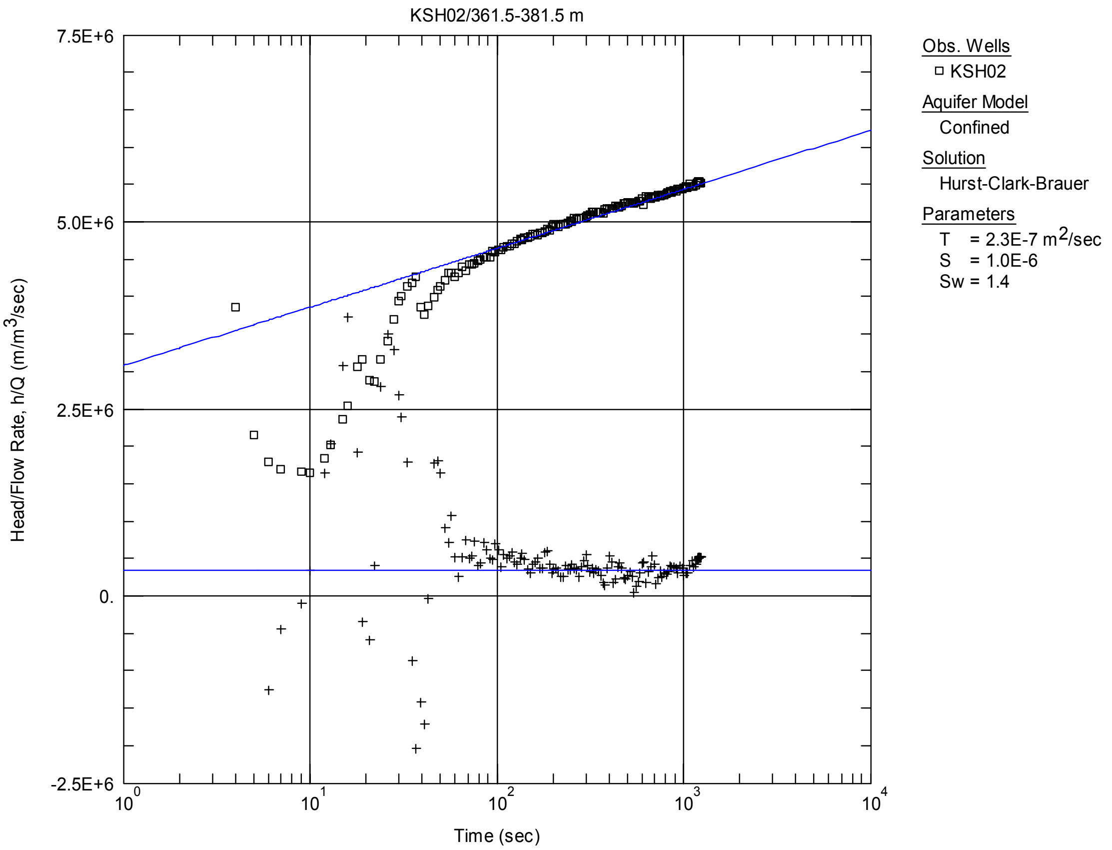
Analysis Diagram



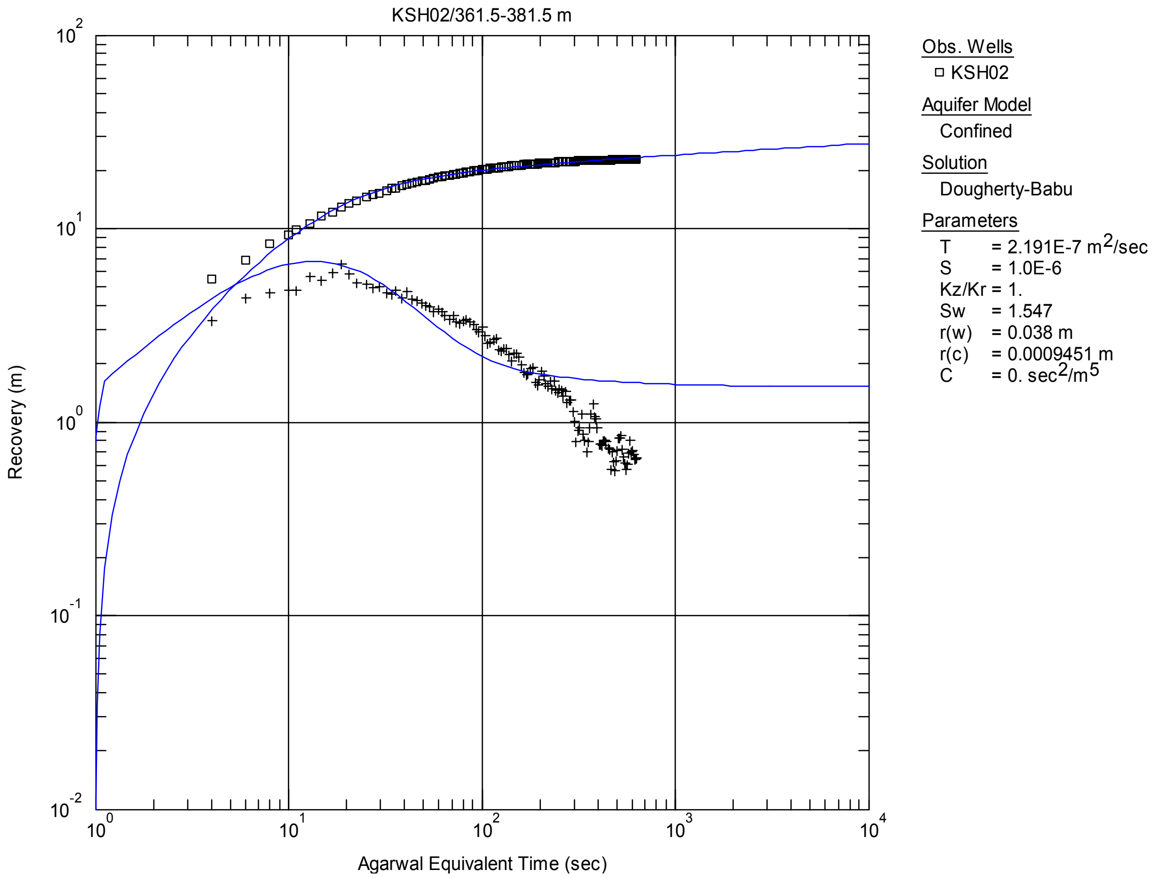
Pressure and flow rate vs. time.



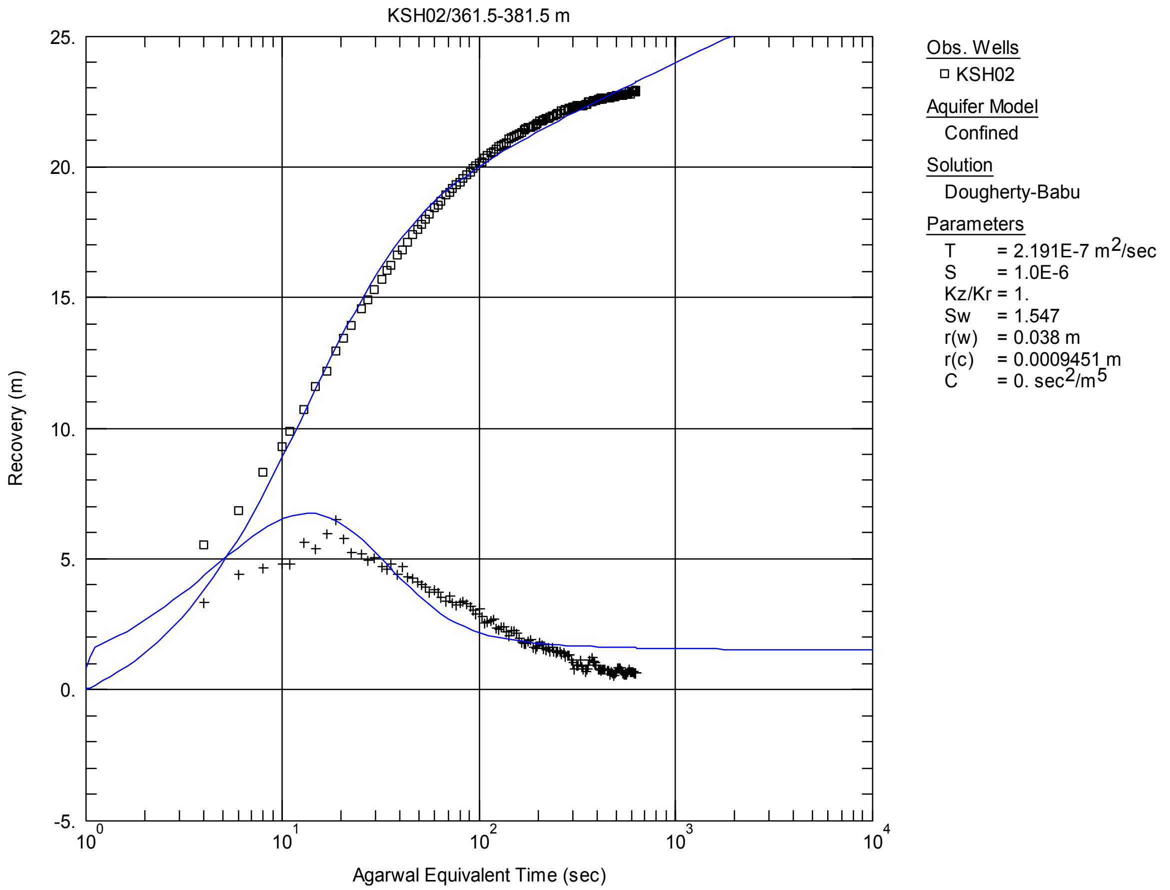
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

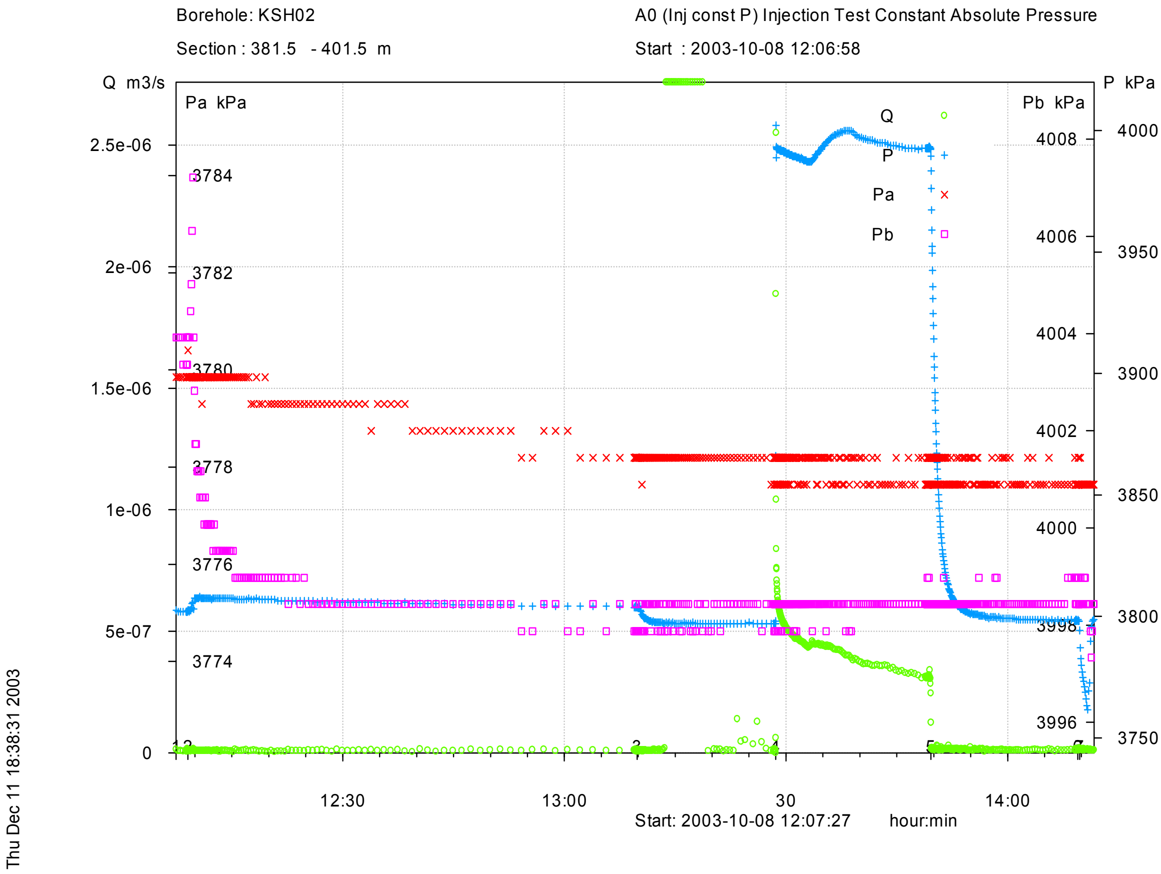


Recovery phase, lin-log match.

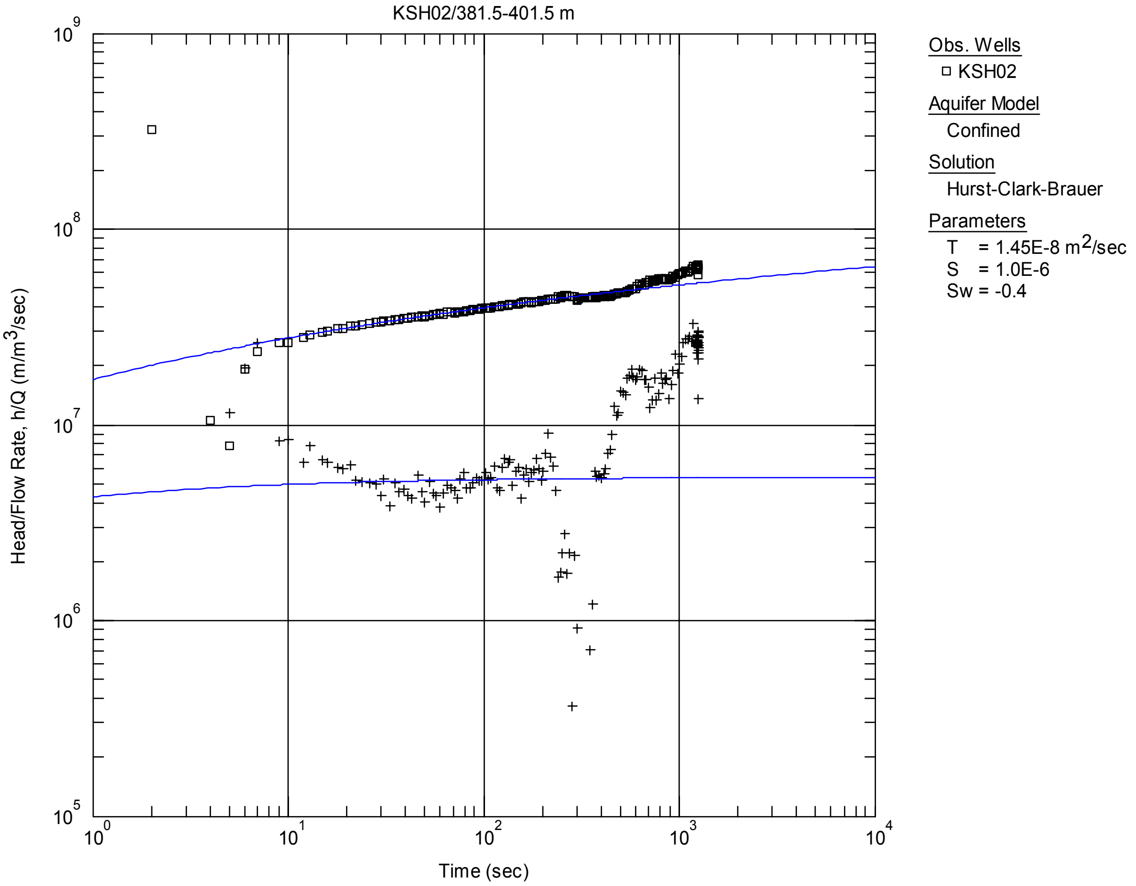
Appendix 3-25

Test 381.5–401.5 m

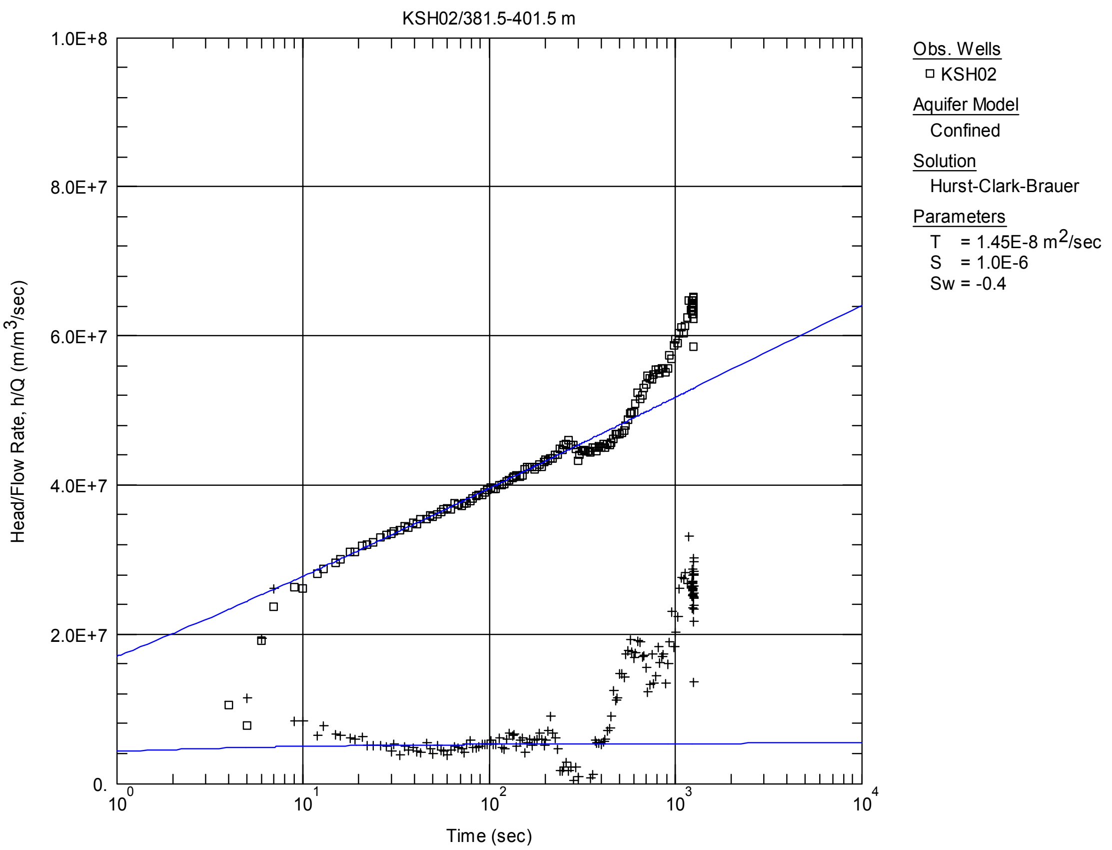
Analysis Diagram



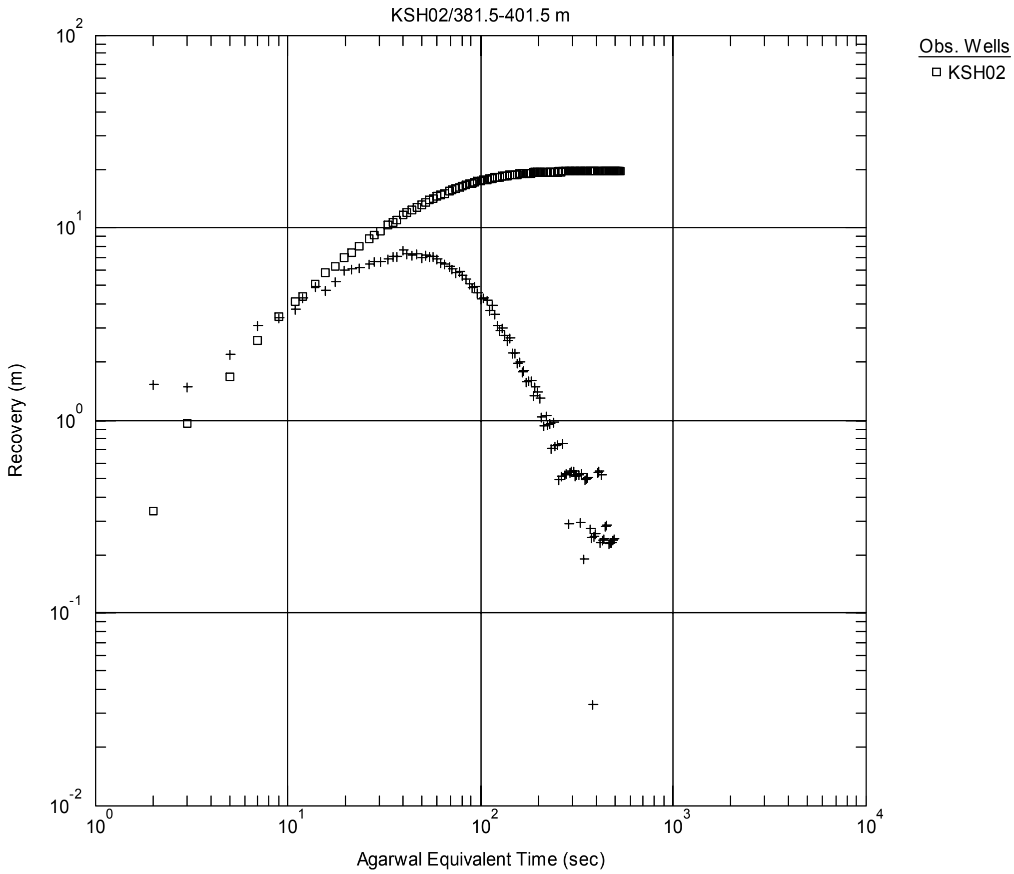
Pressure and flow rate vs. time.



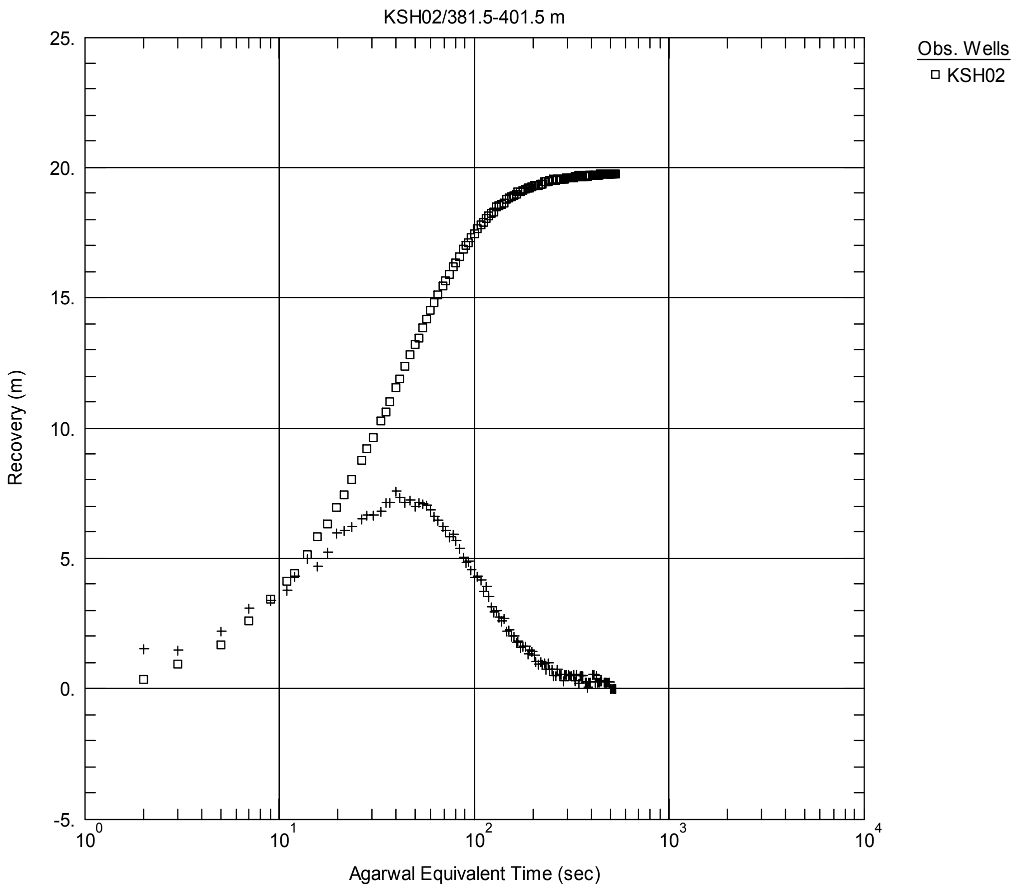
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



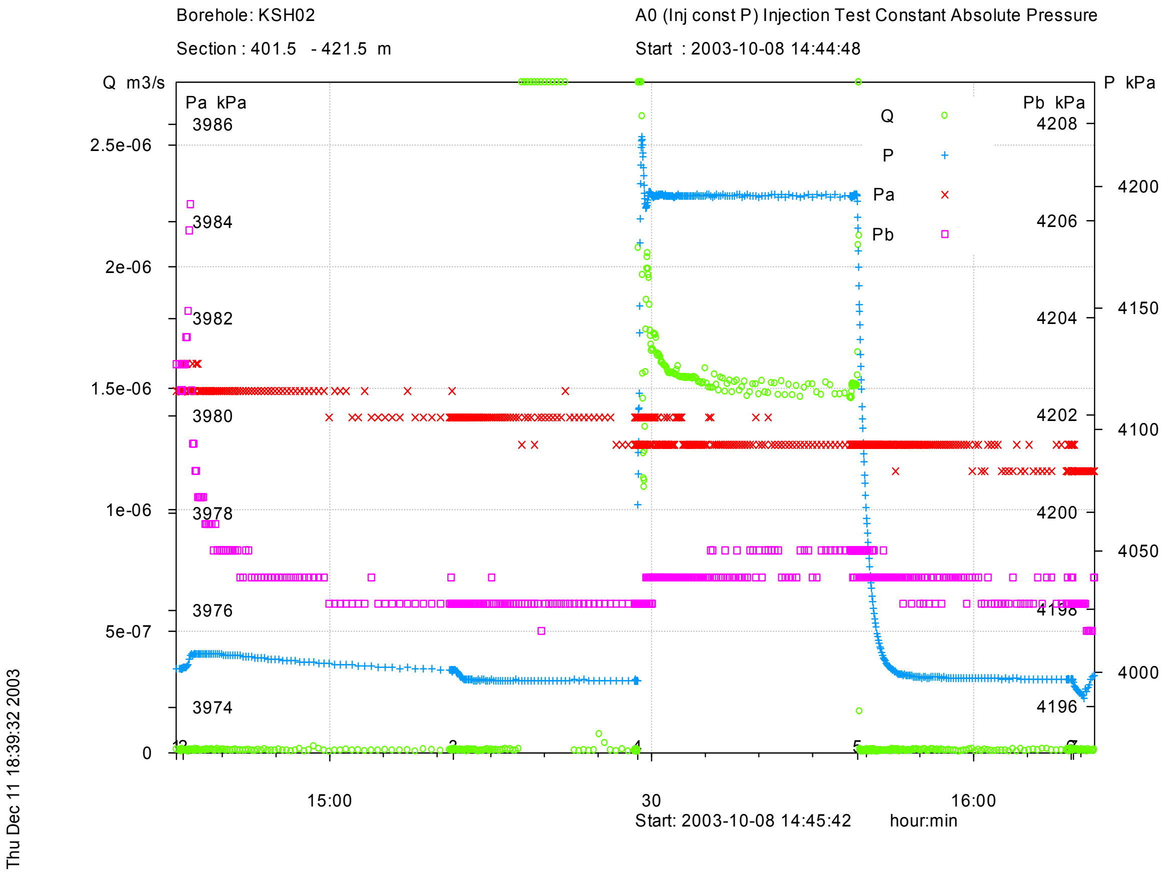
Recovery phase, log-log match.



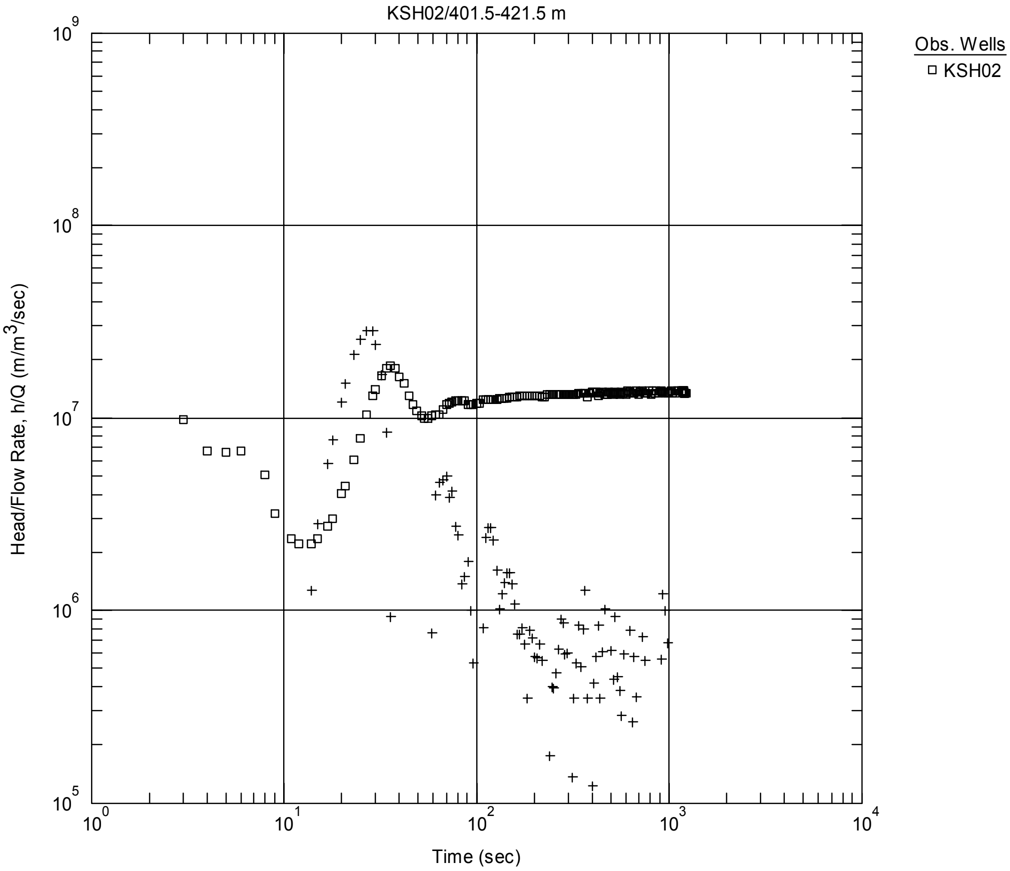
Recovery phase, lin-log match.

Test 401.5–421.5 m

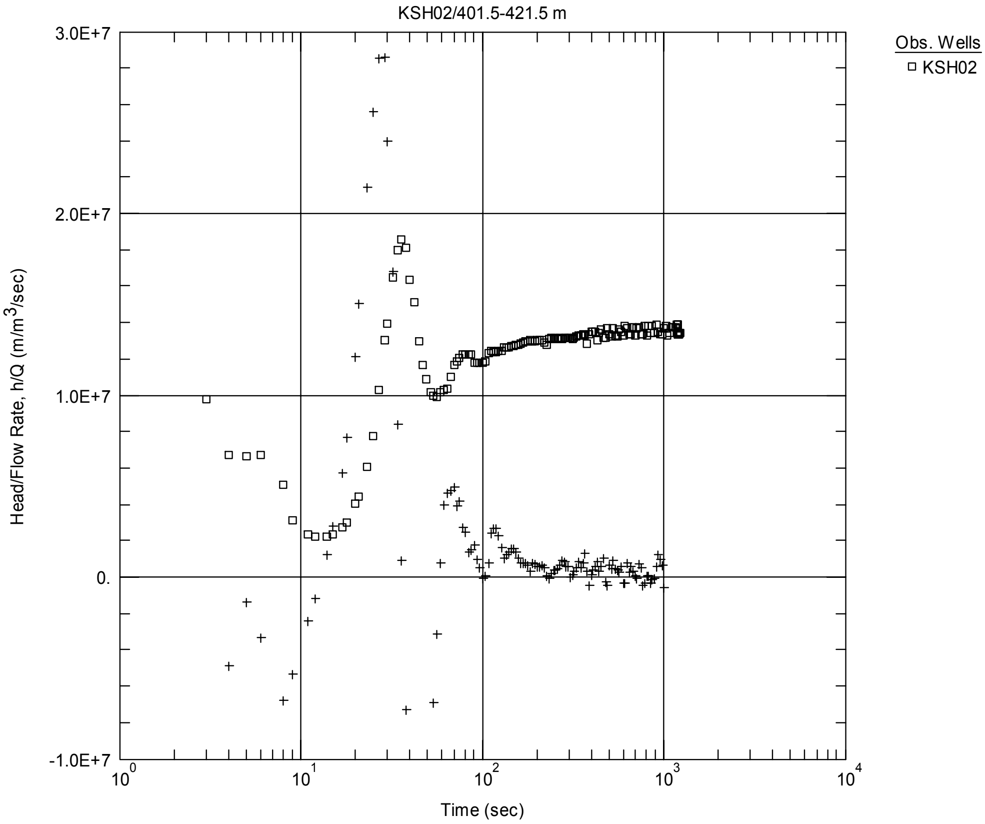
Analysis Diagram



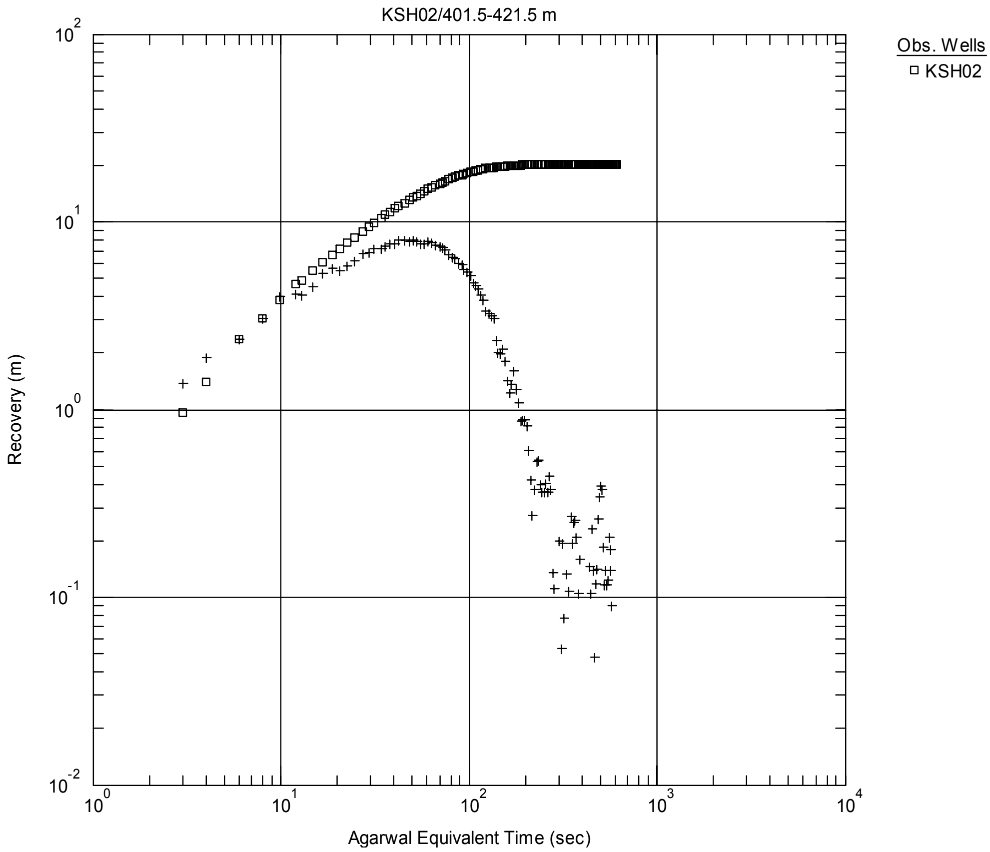
Pressure and flow rate vs. time.



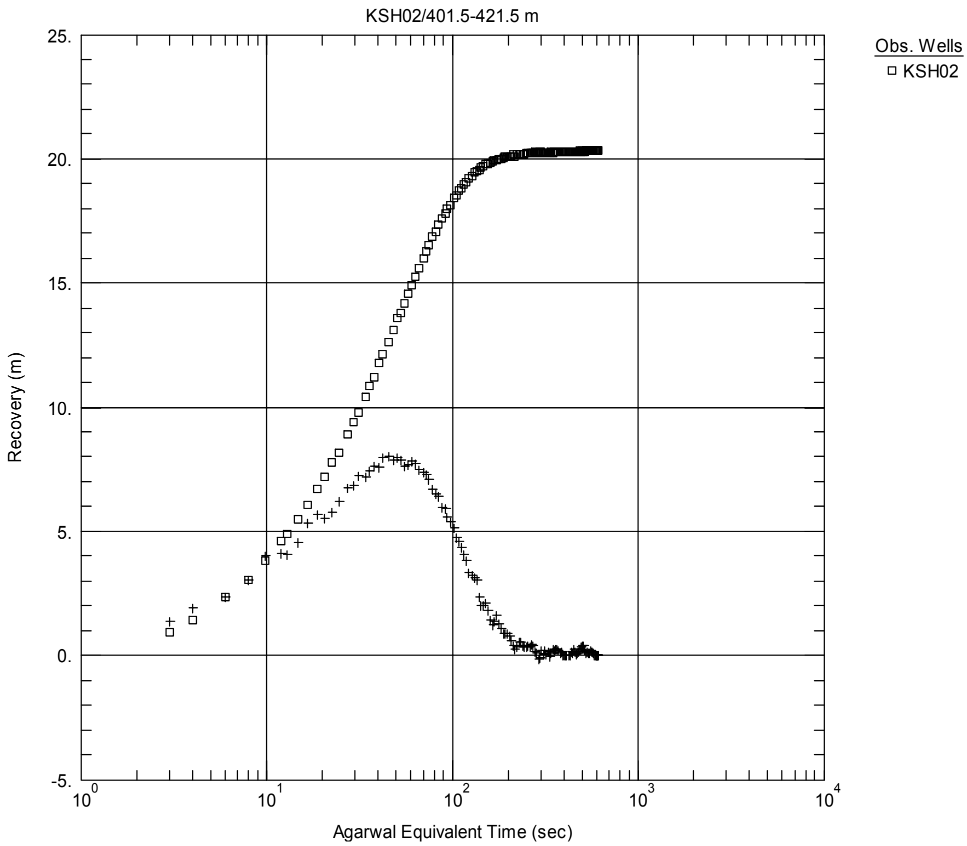
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



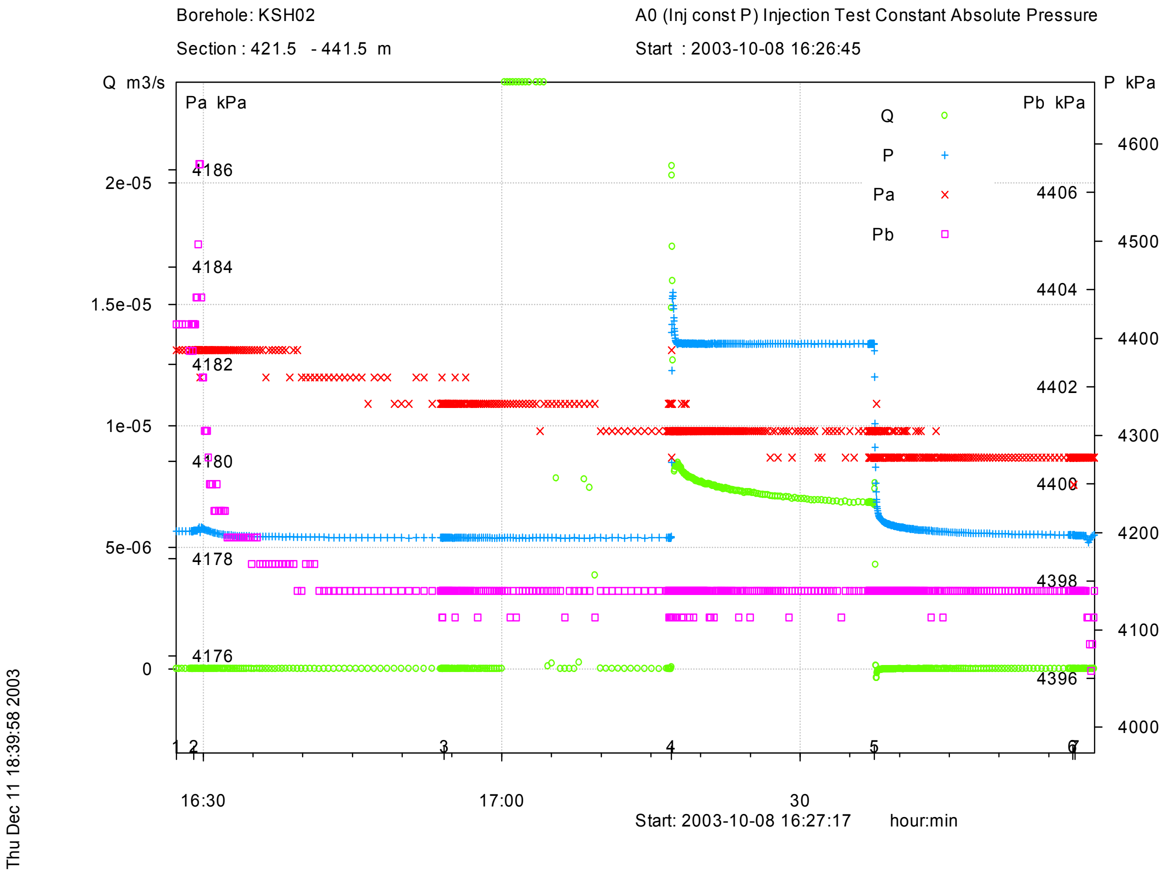
Recovery phase, log-log match.



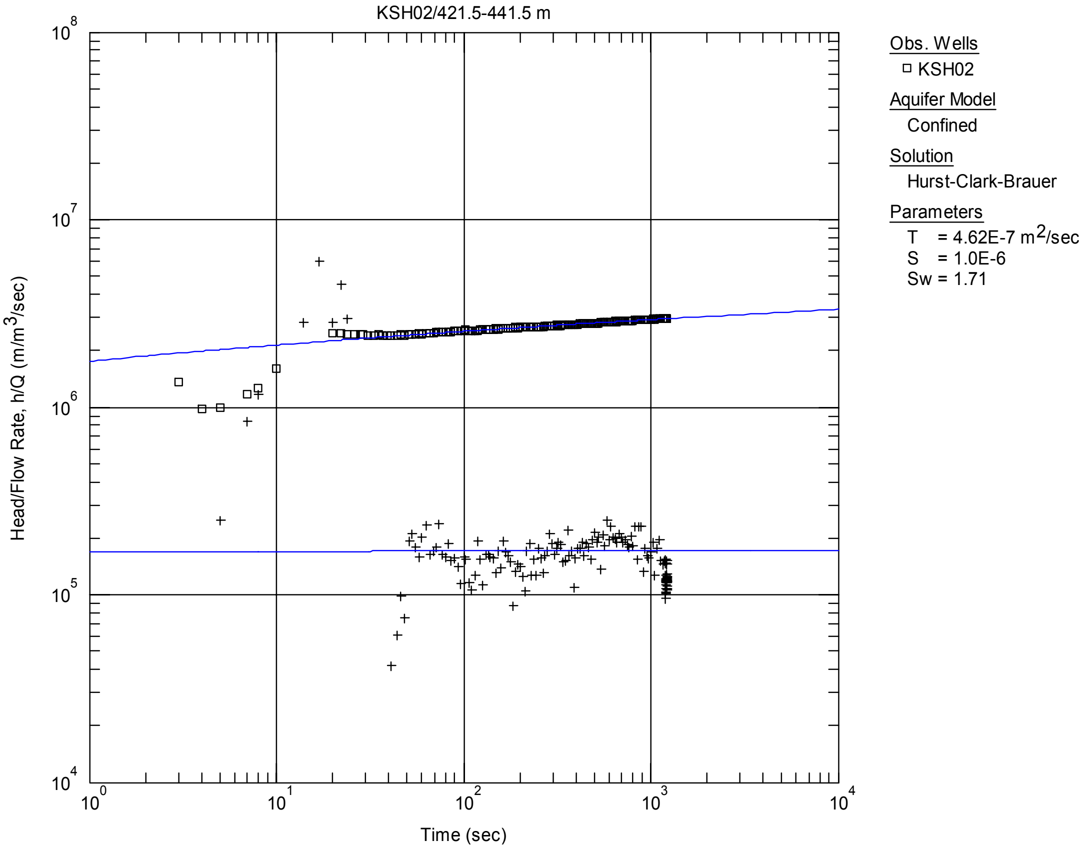
Recovery phase, lin-log match.

Test 421.5–441.5 m

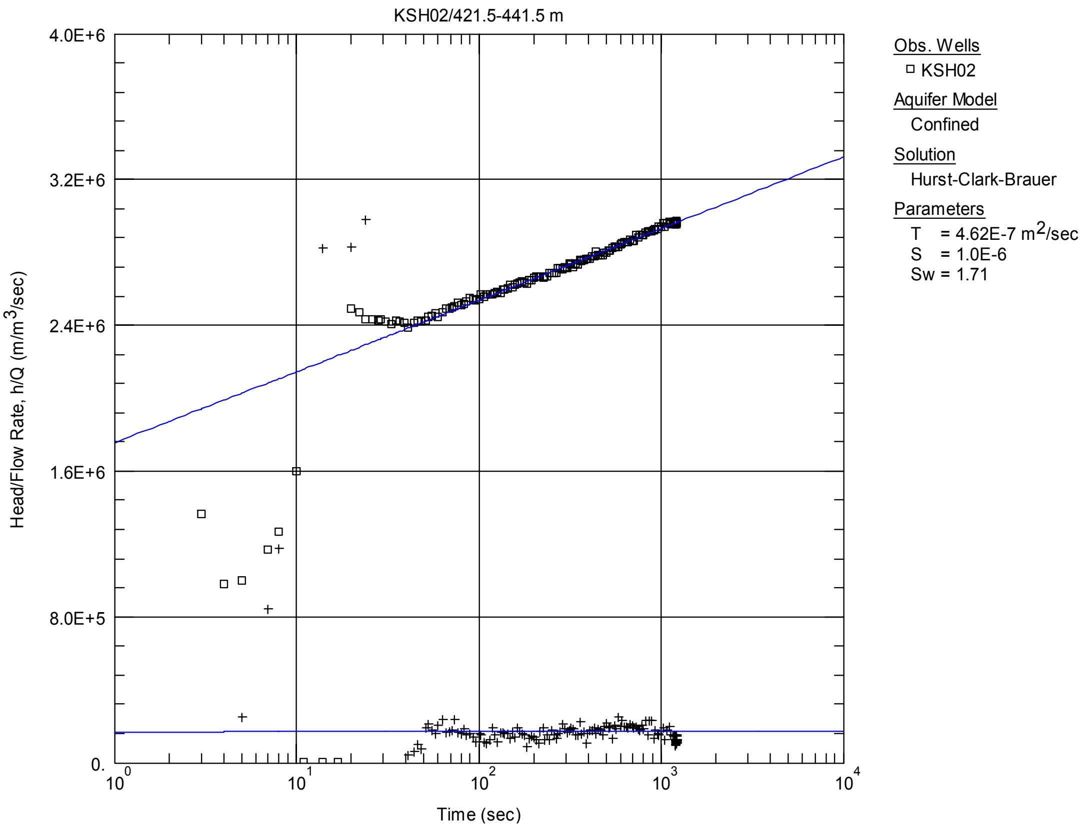
Analysis Diagram



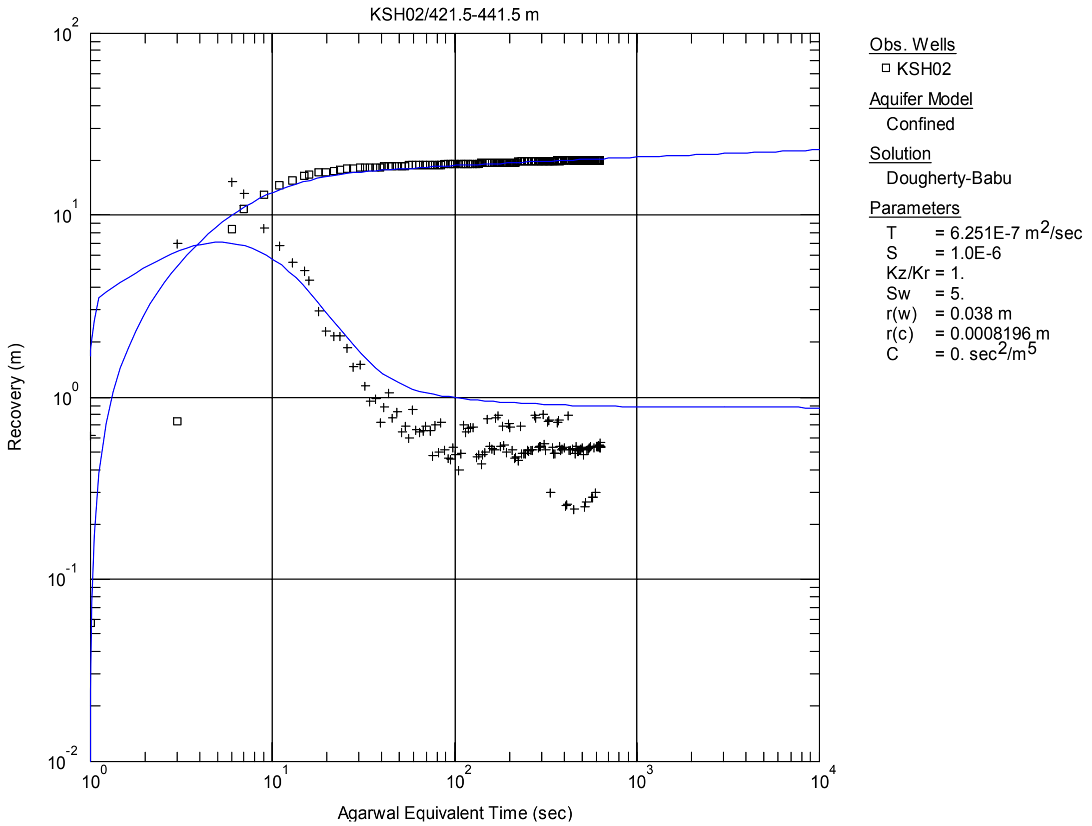
Pressure and flow rate vs. time.



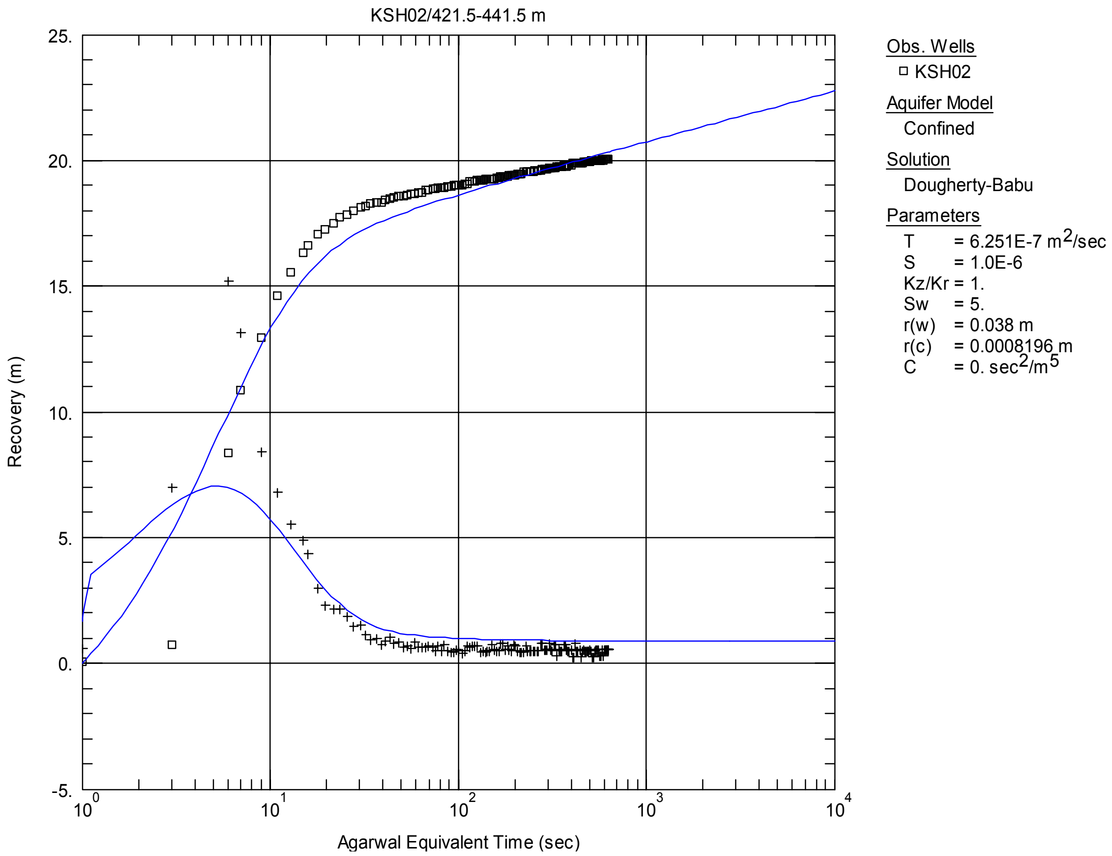
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



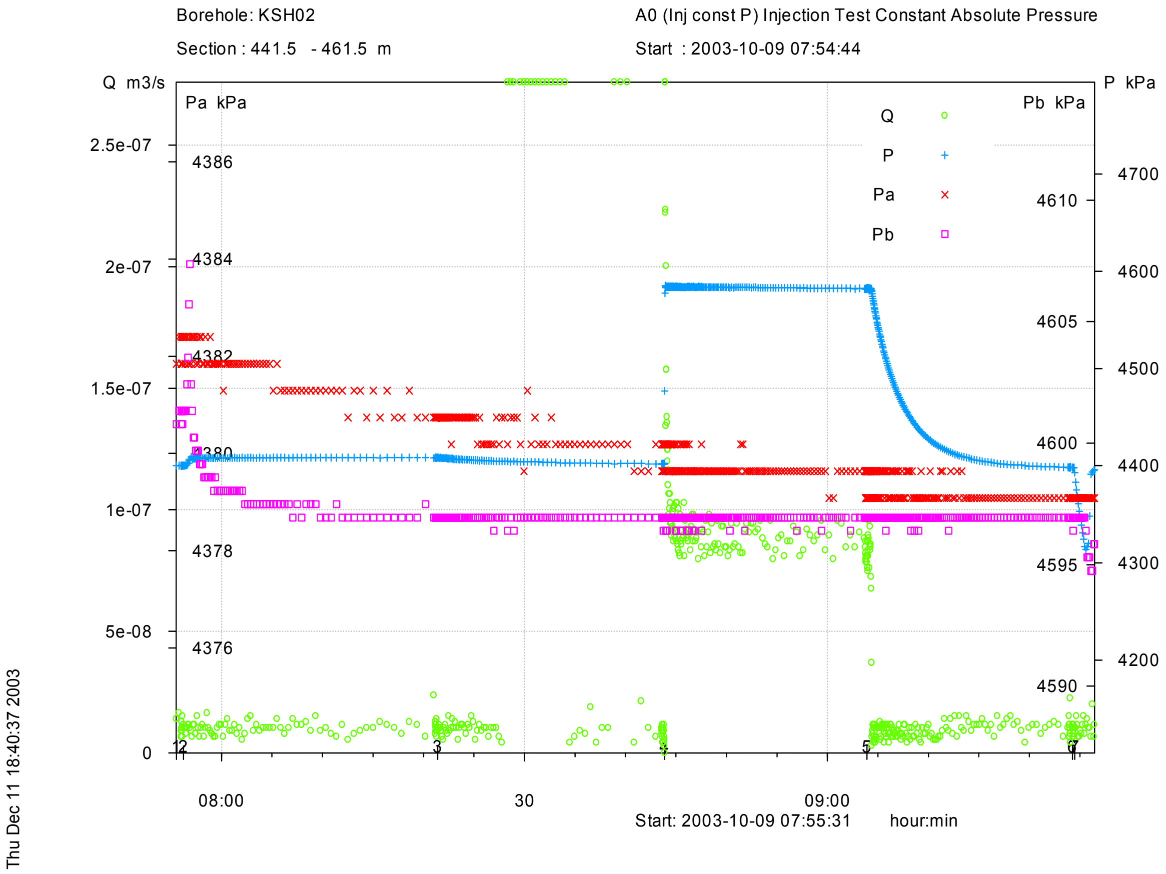
Recovery phase, log-log match.



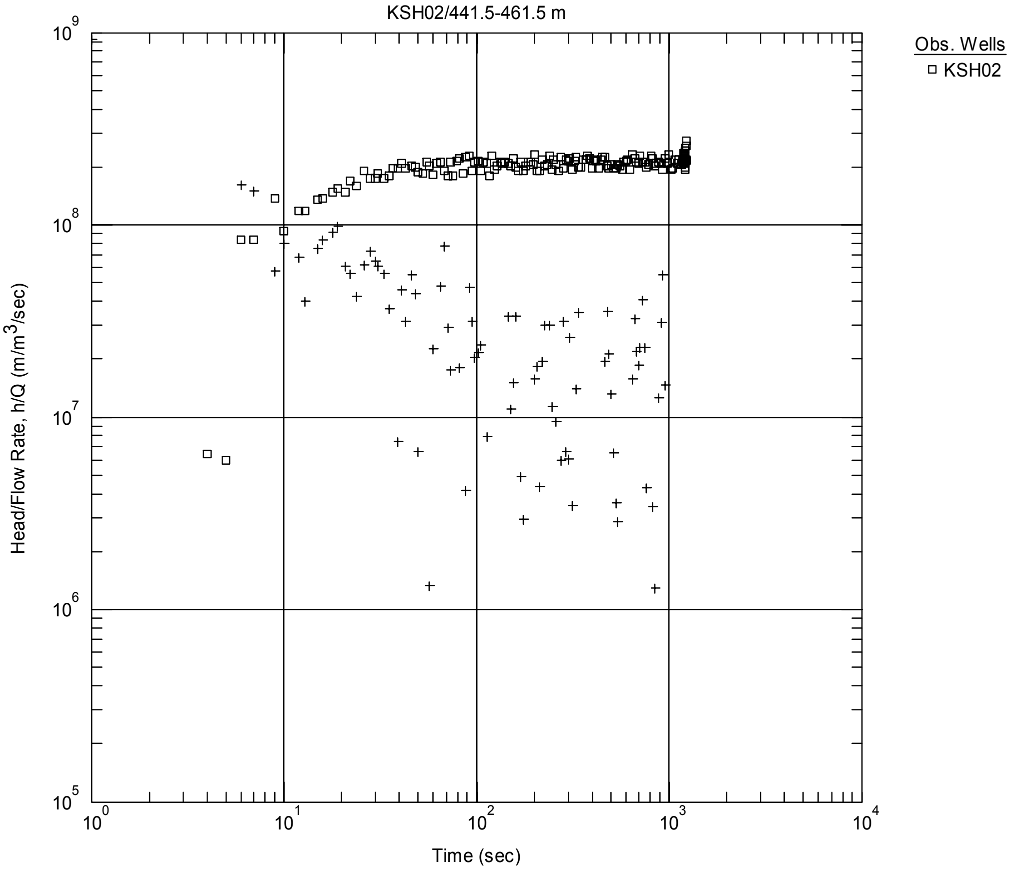
Recovery phase, lin-log match.

Test 441.5–461.5 m

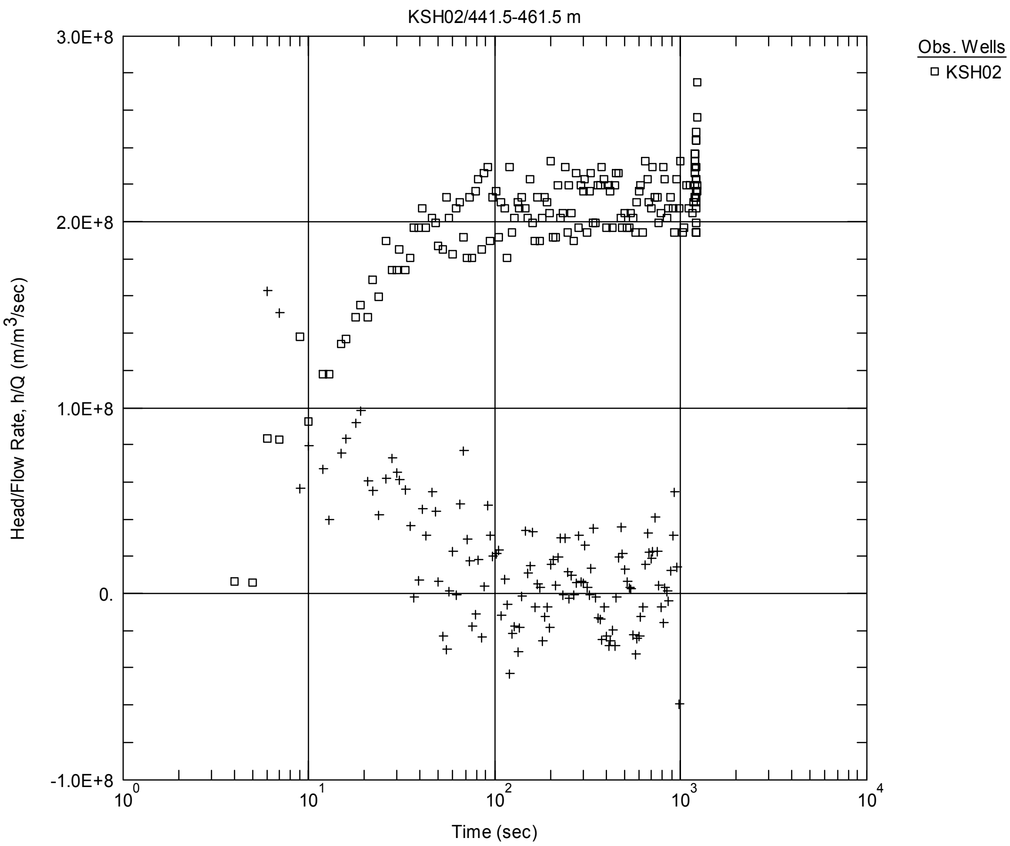
Analysis Diagram



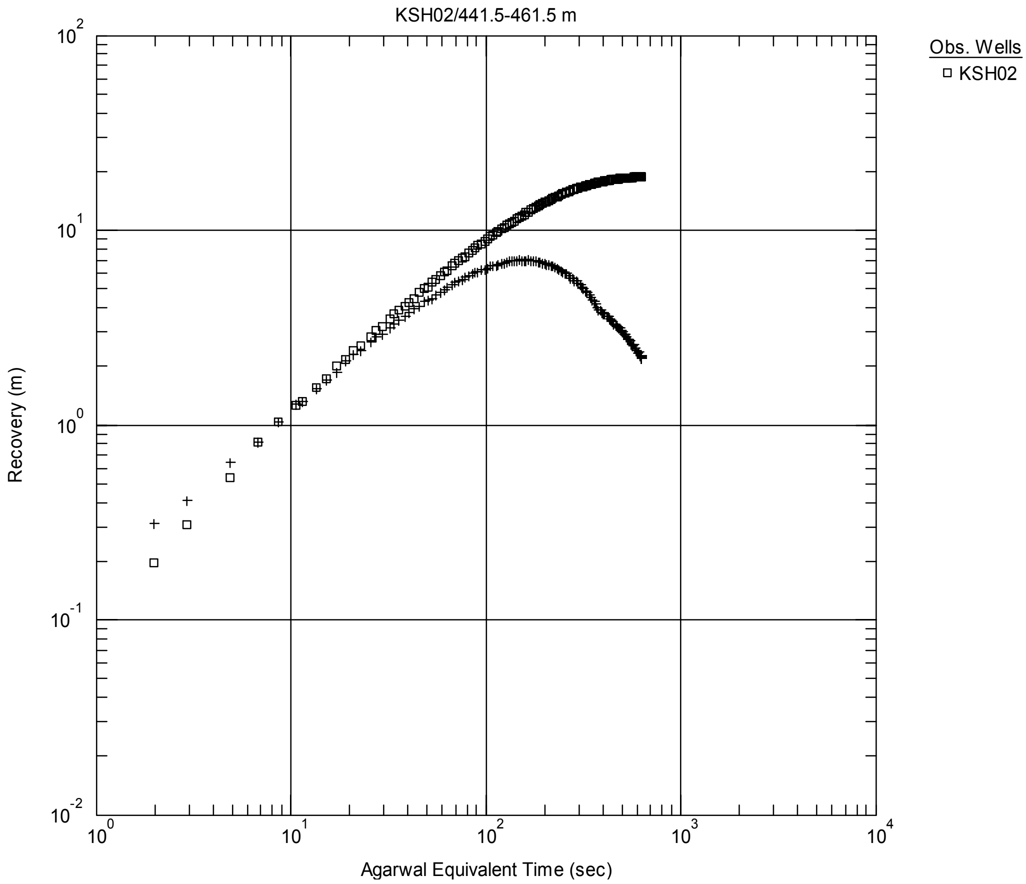
Pressure and flow rate vs. time.



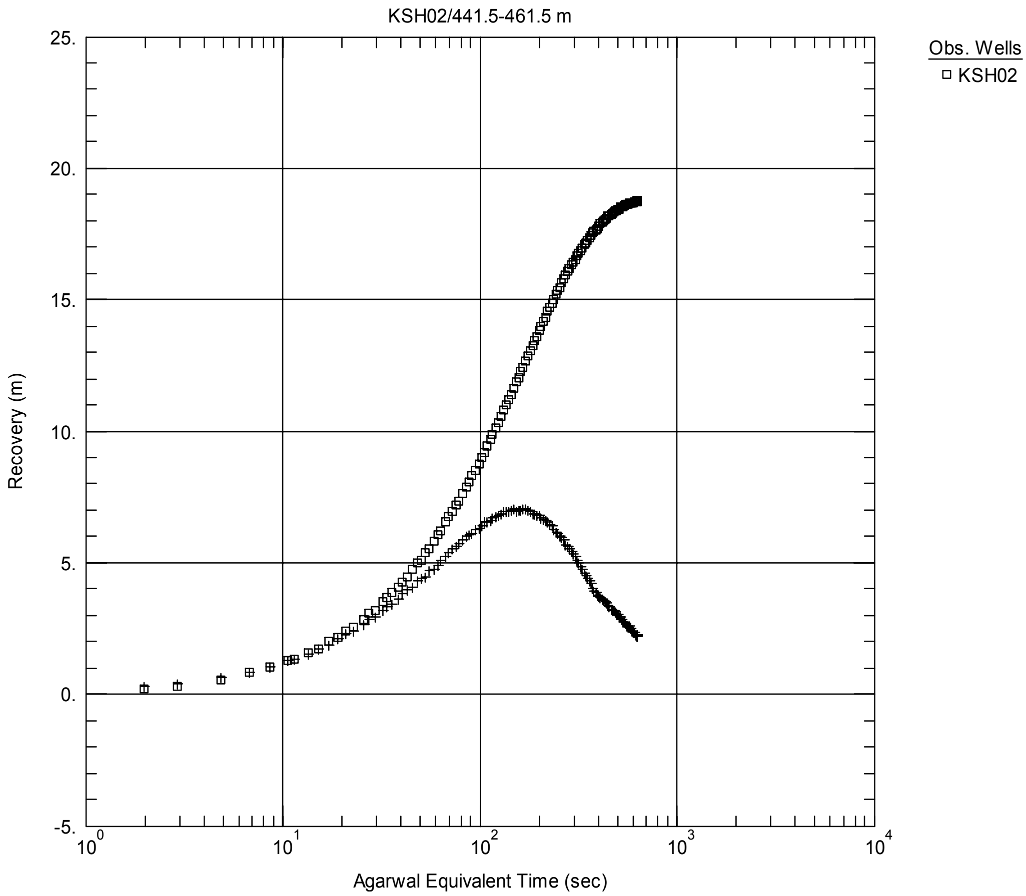
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



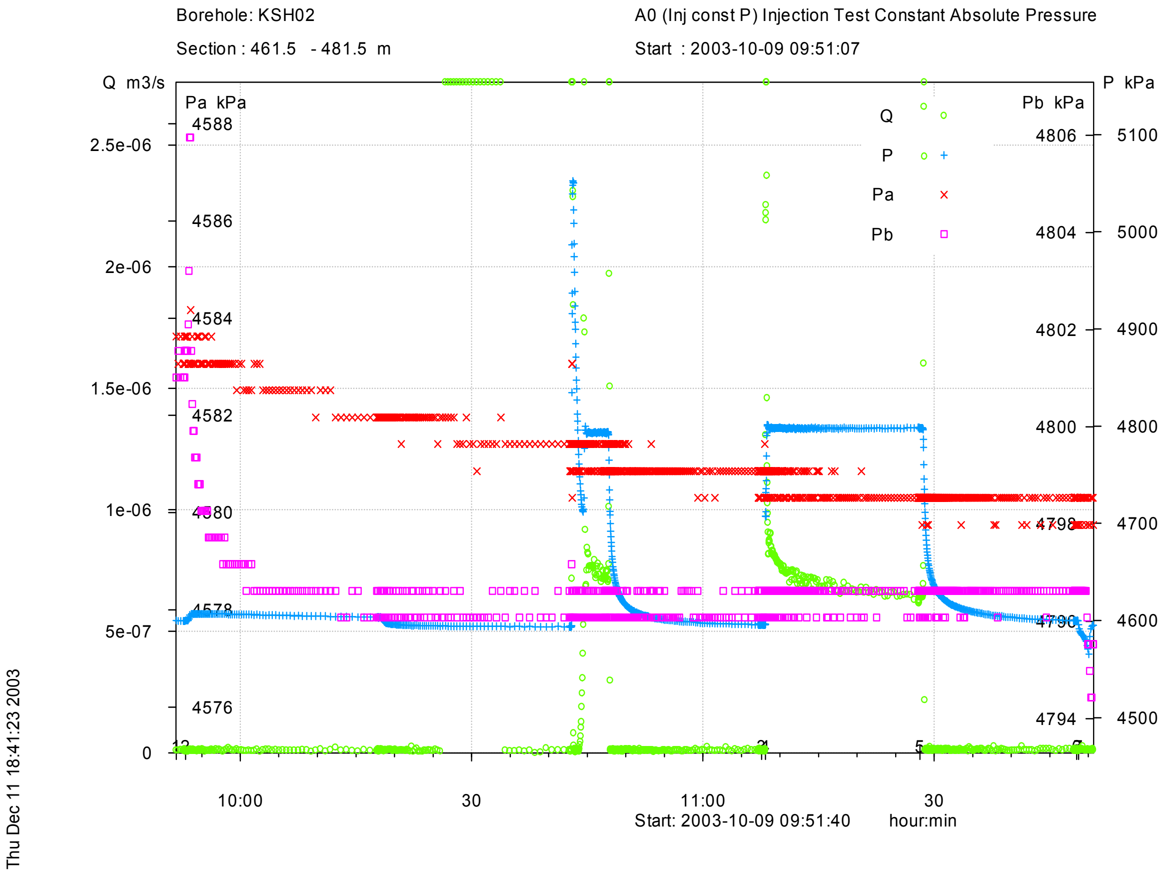
Recovery phase, log-log match.



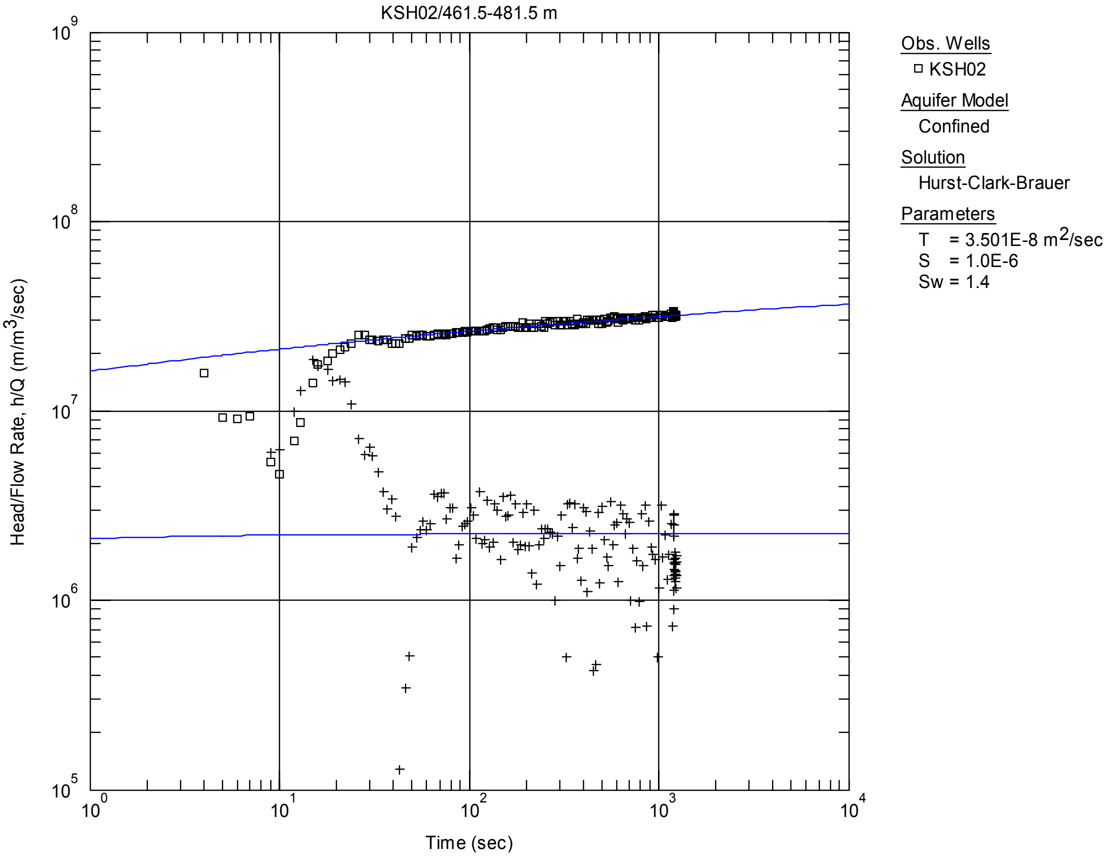
Recovery phase, lin-log match.

Test 461.5–481.5 m

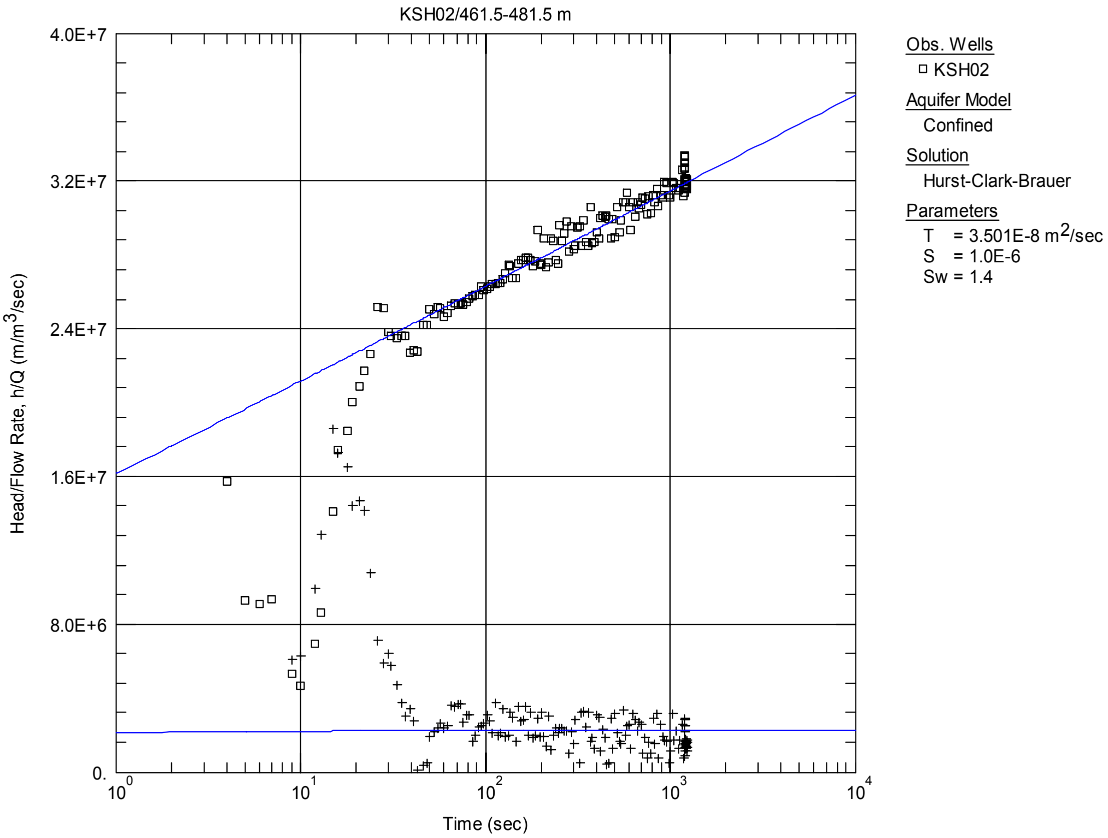
Analysis Diagram



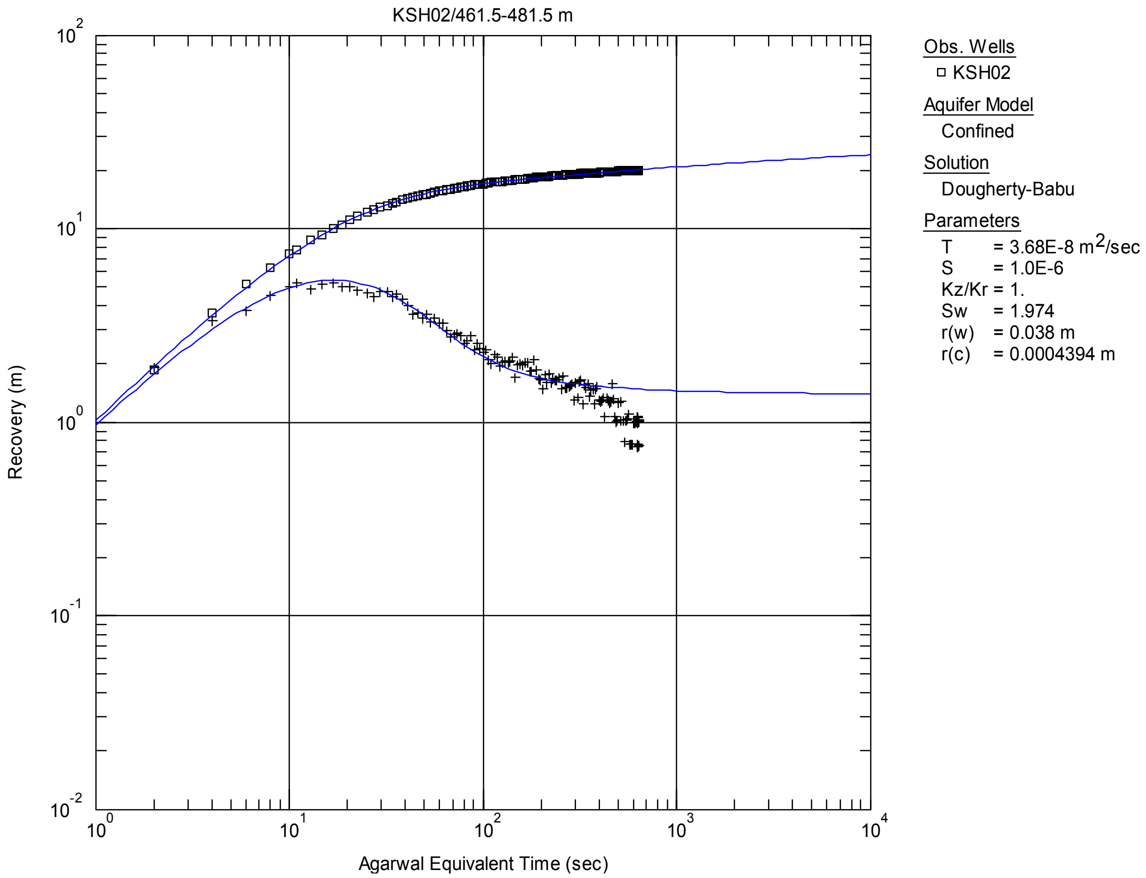
Pressure and flow rate vs. time.



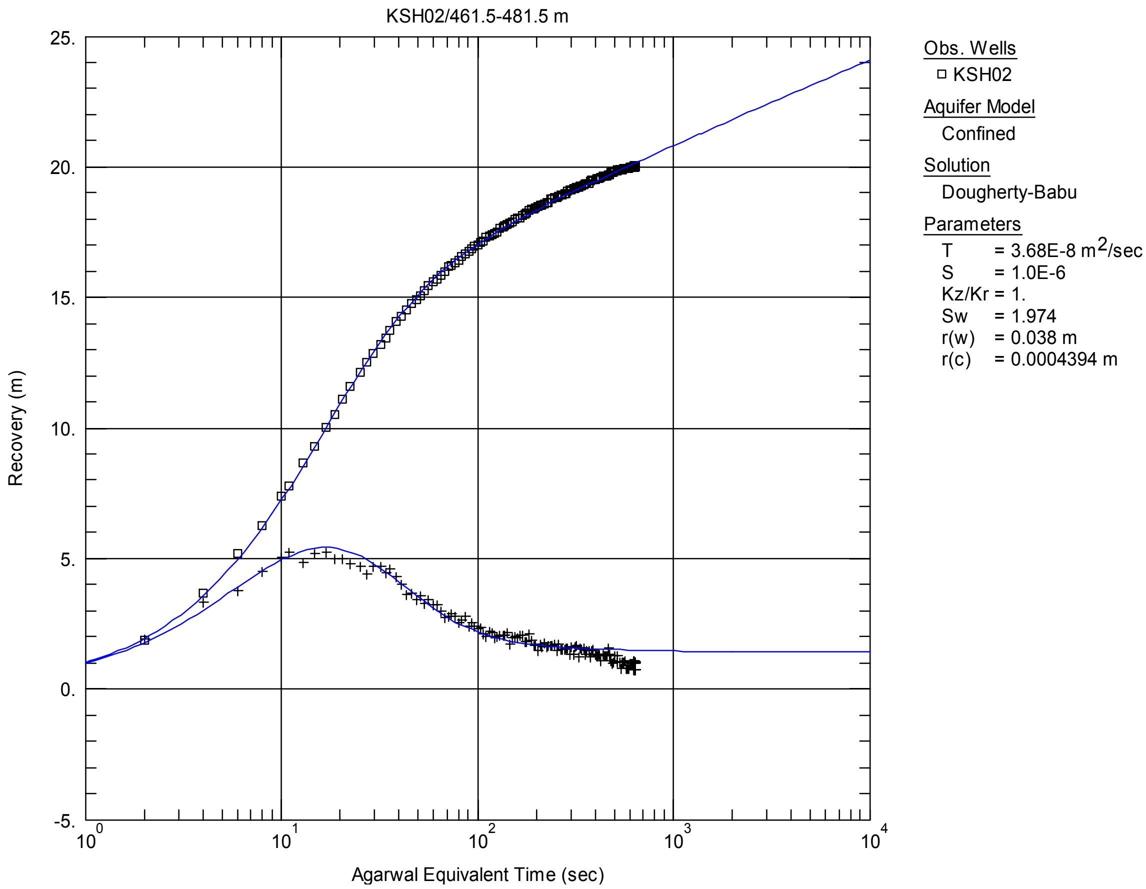
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

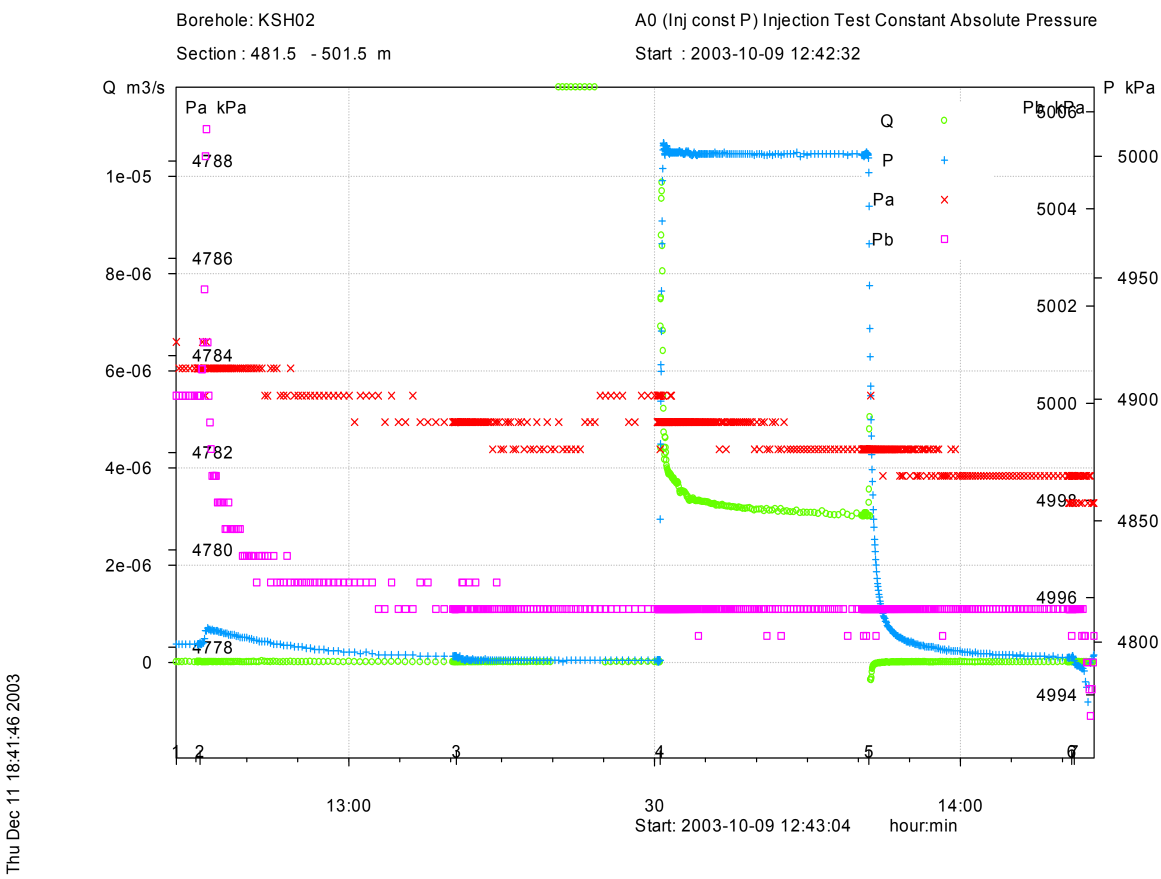


Recovery phase, lin-log match.

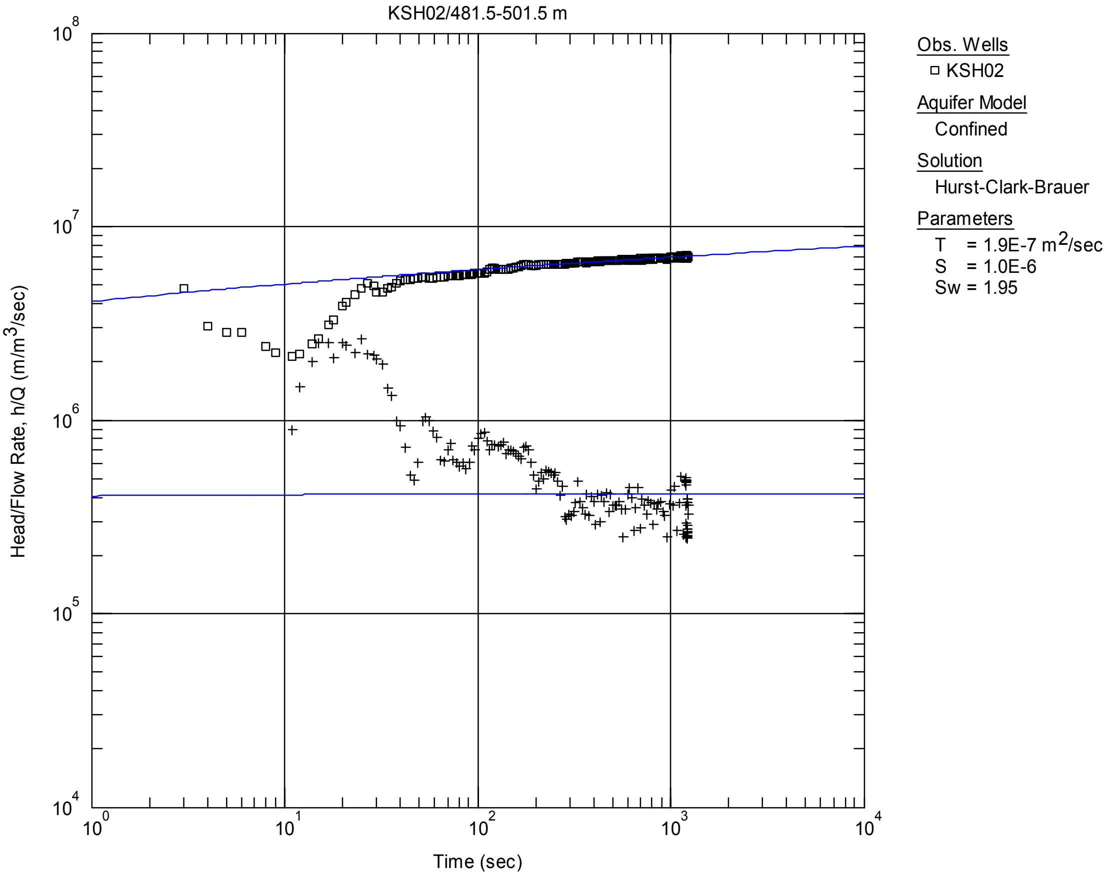
Appendix 3-30

Test 481.5–501.5 m

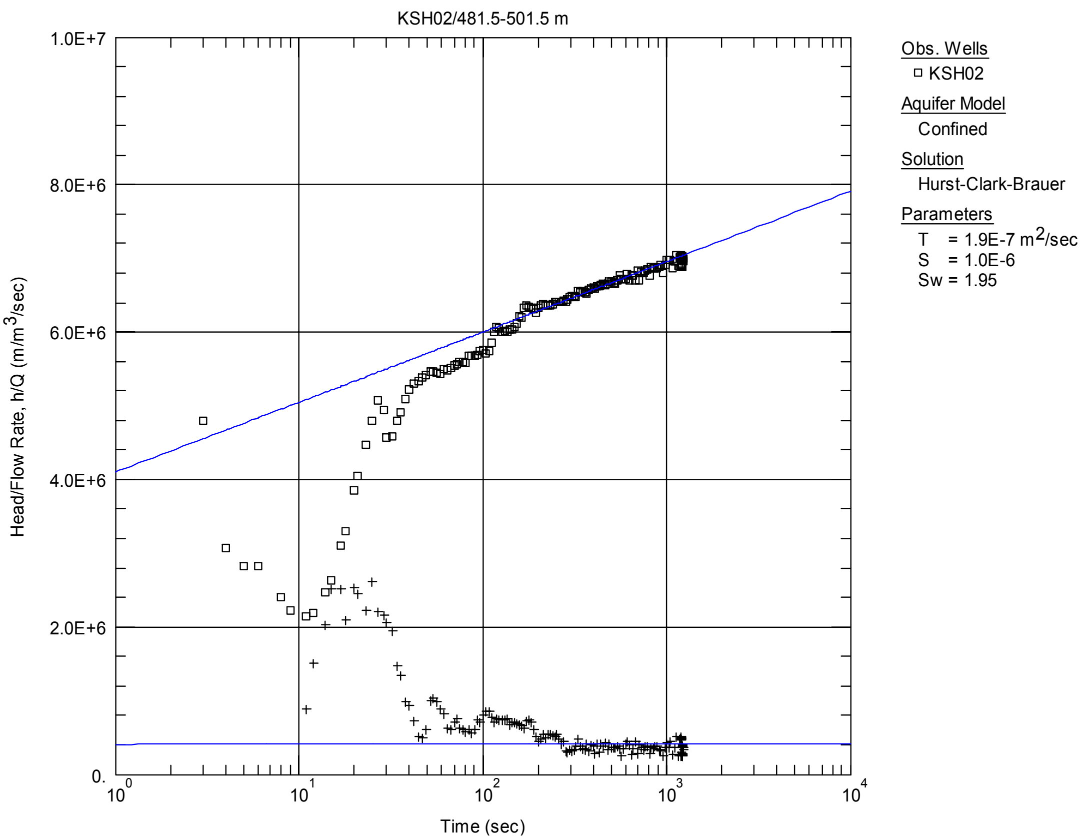
Analysis Diagram



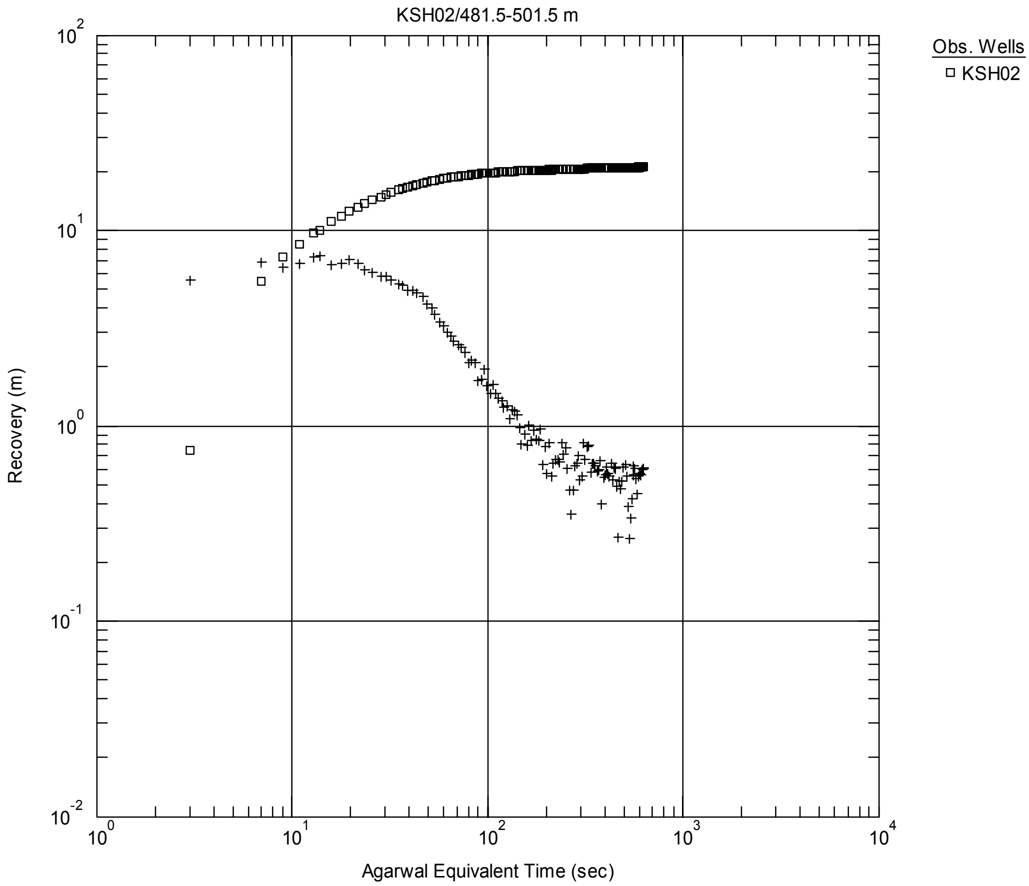
Pressure and flow rate vs. time.



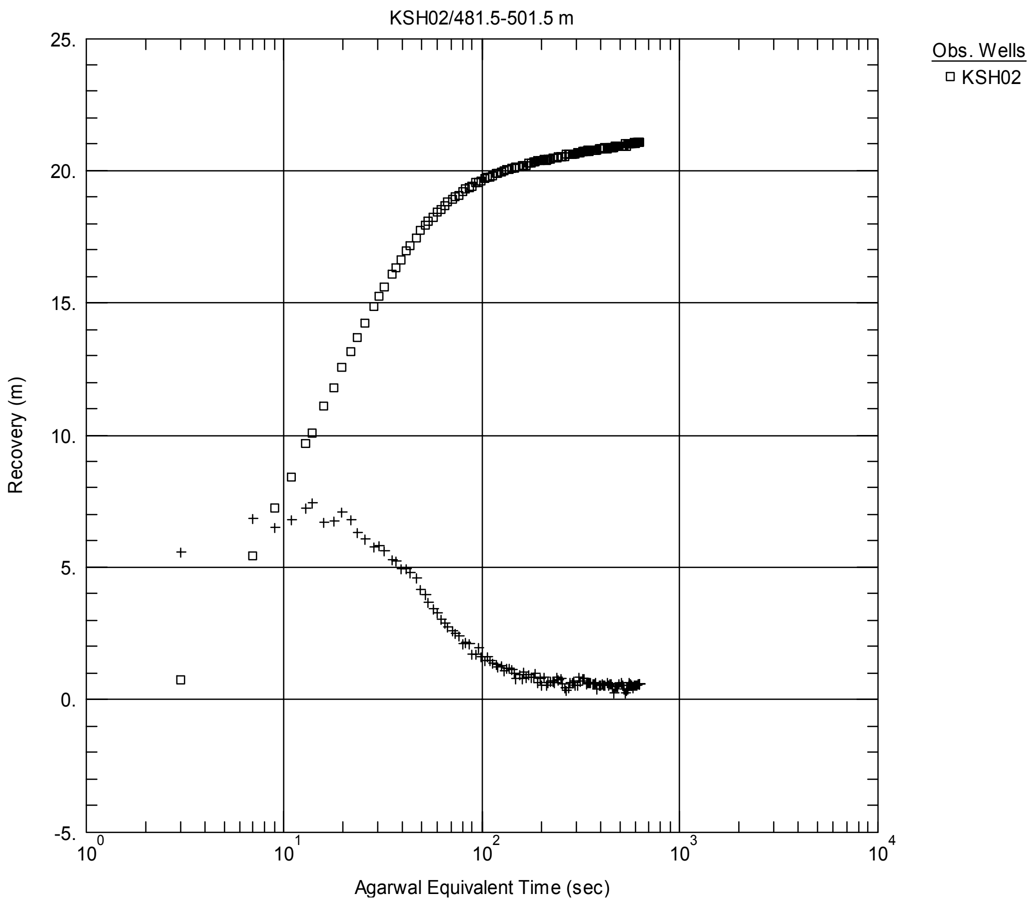
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



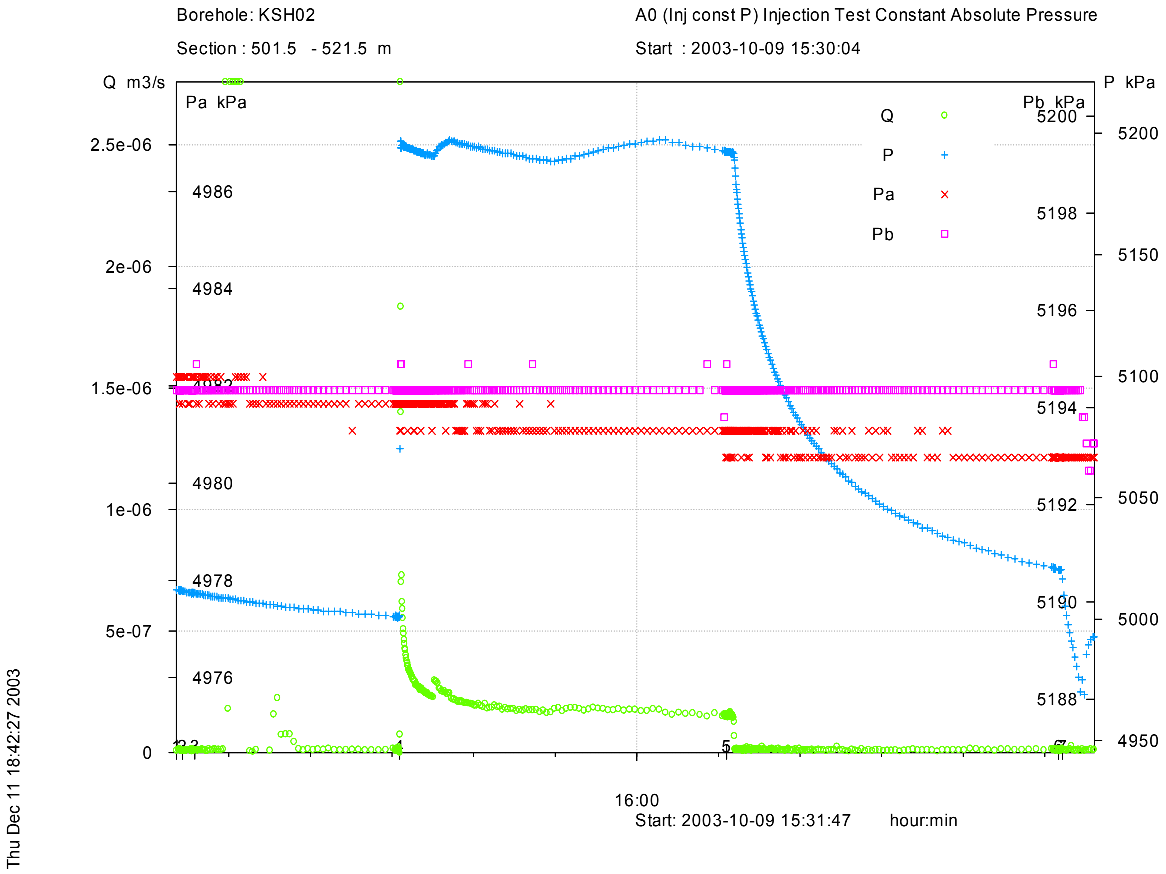
Recovery phase, log-log match.



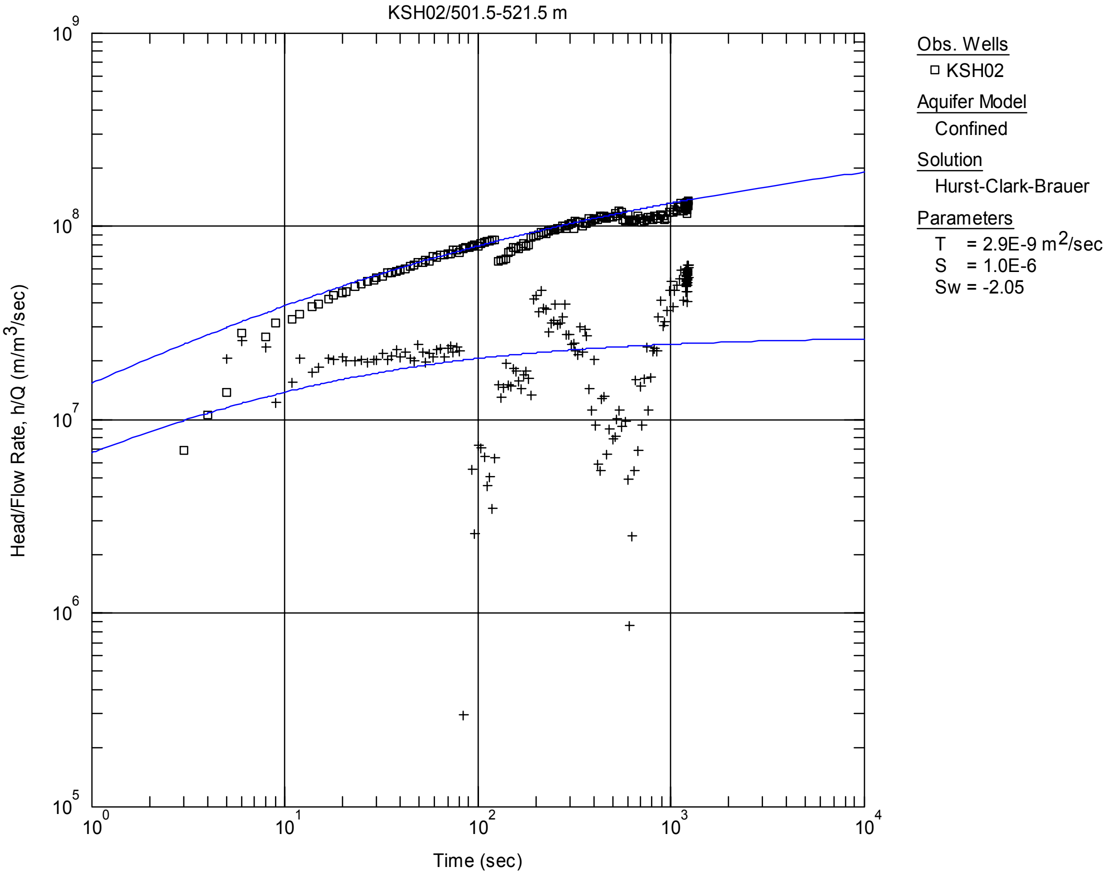
Recovery phase, lin-log match.

Test 501.5–521.5 m

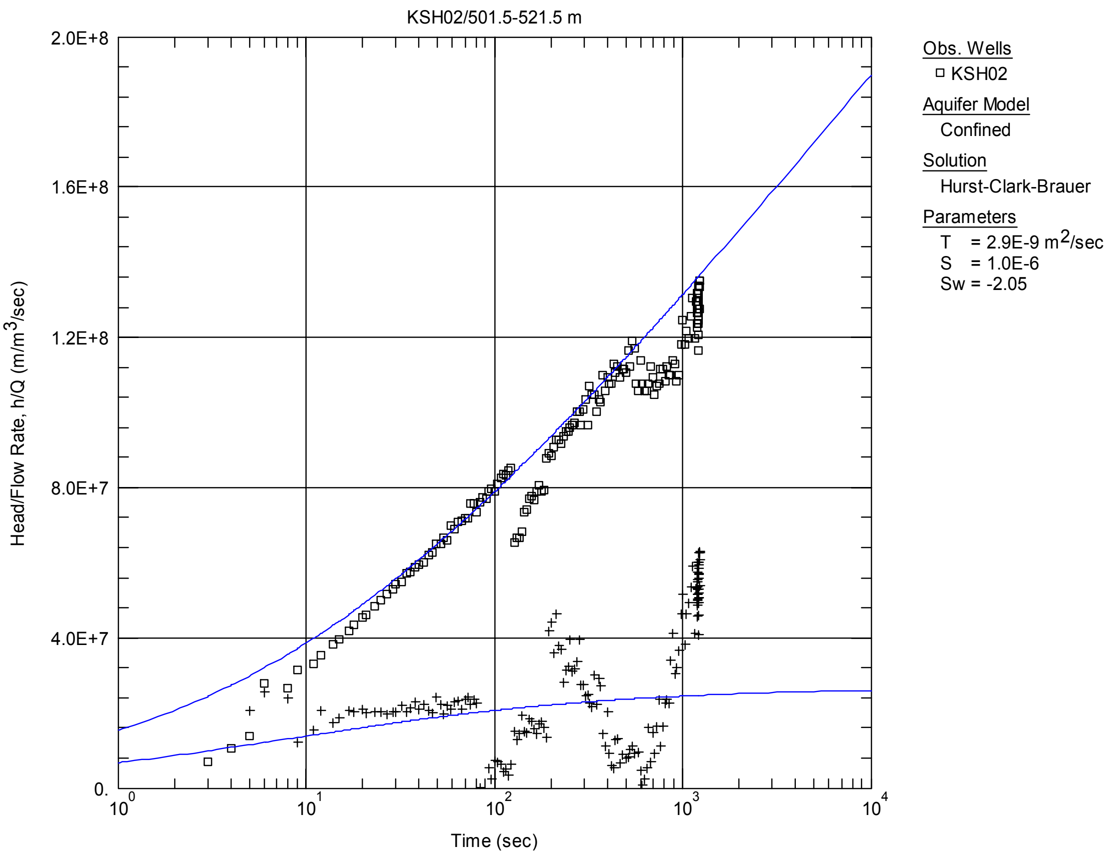
Analysis Diagram



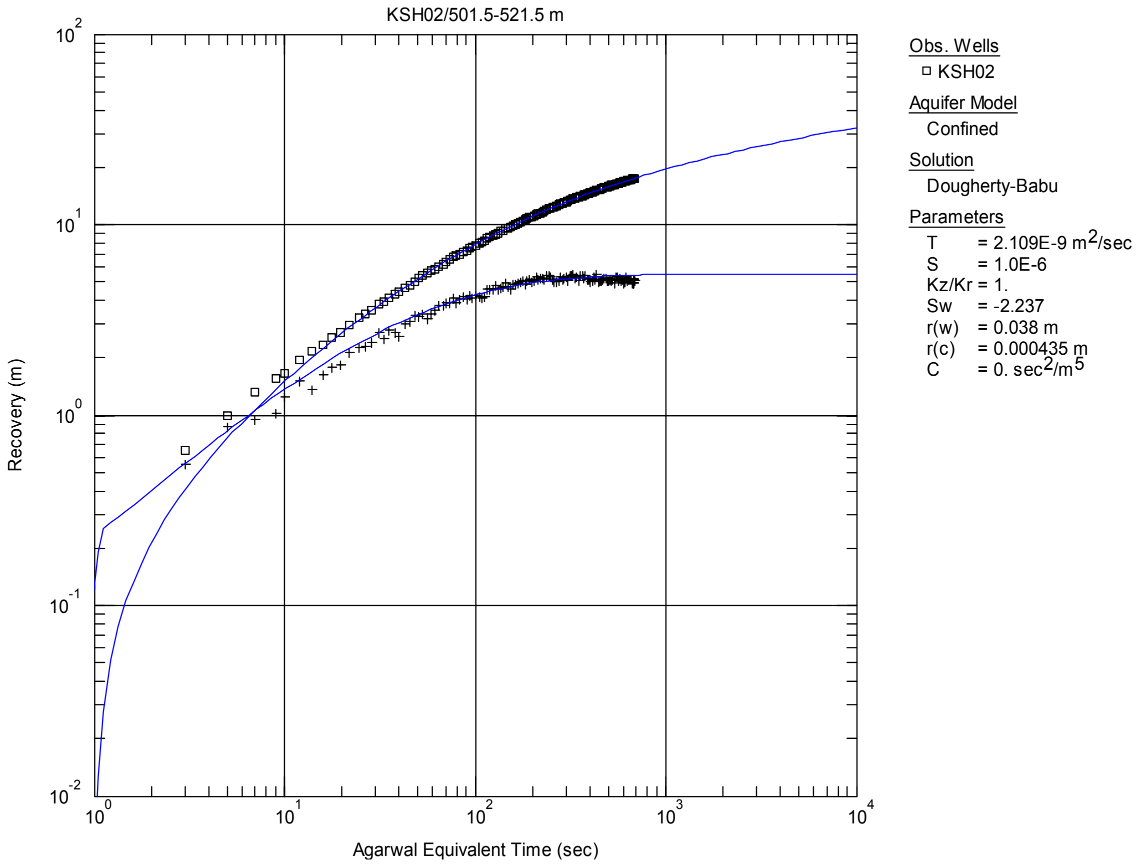
Pressure and flow rate vs. time.



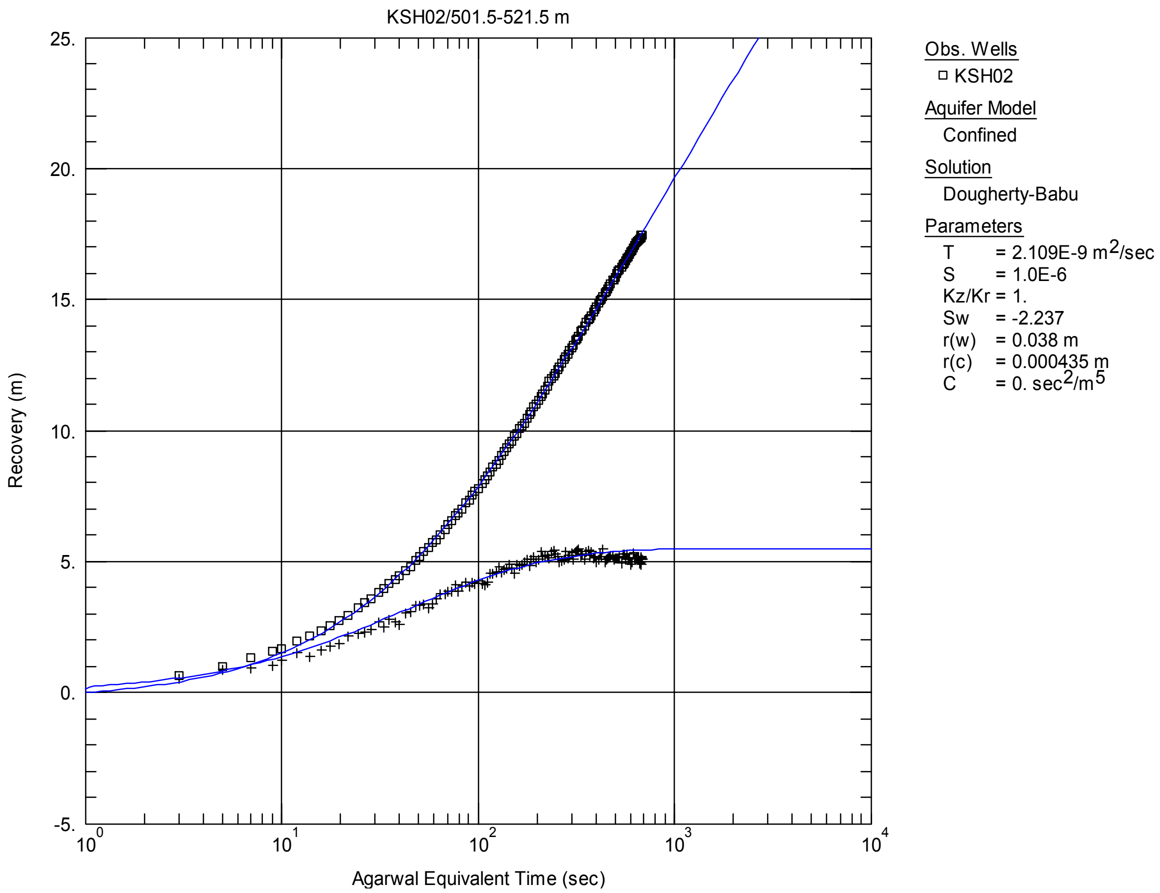
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



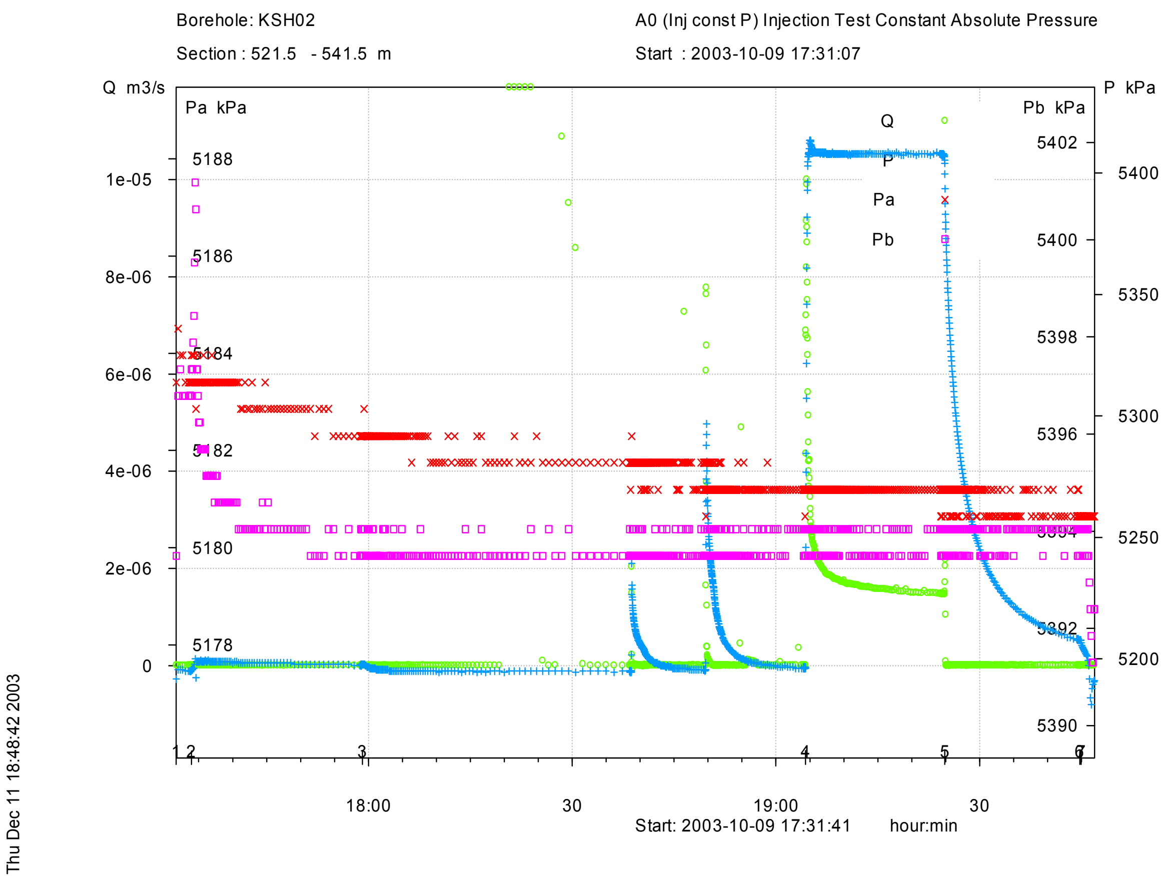
Recovery phase, log-log match.



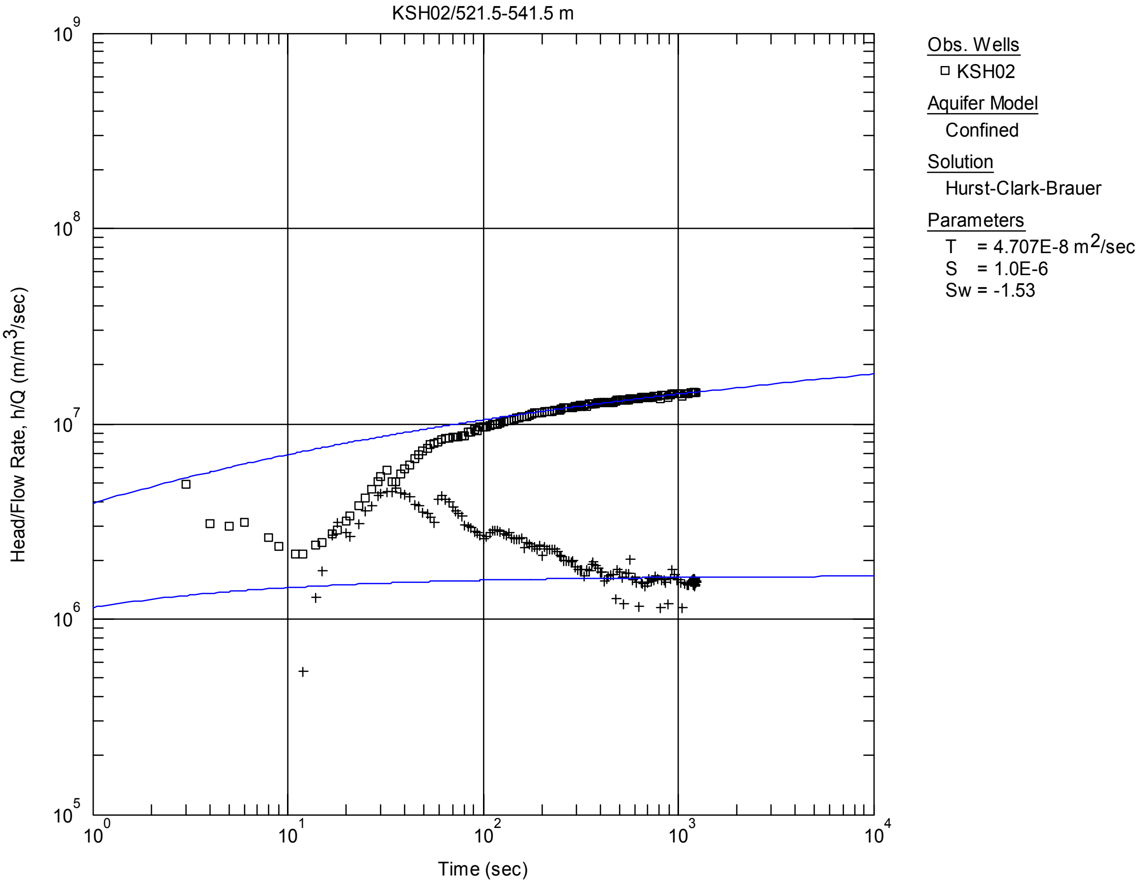
Recovery phase, lin-log match.

Test 521.5–541.5 m

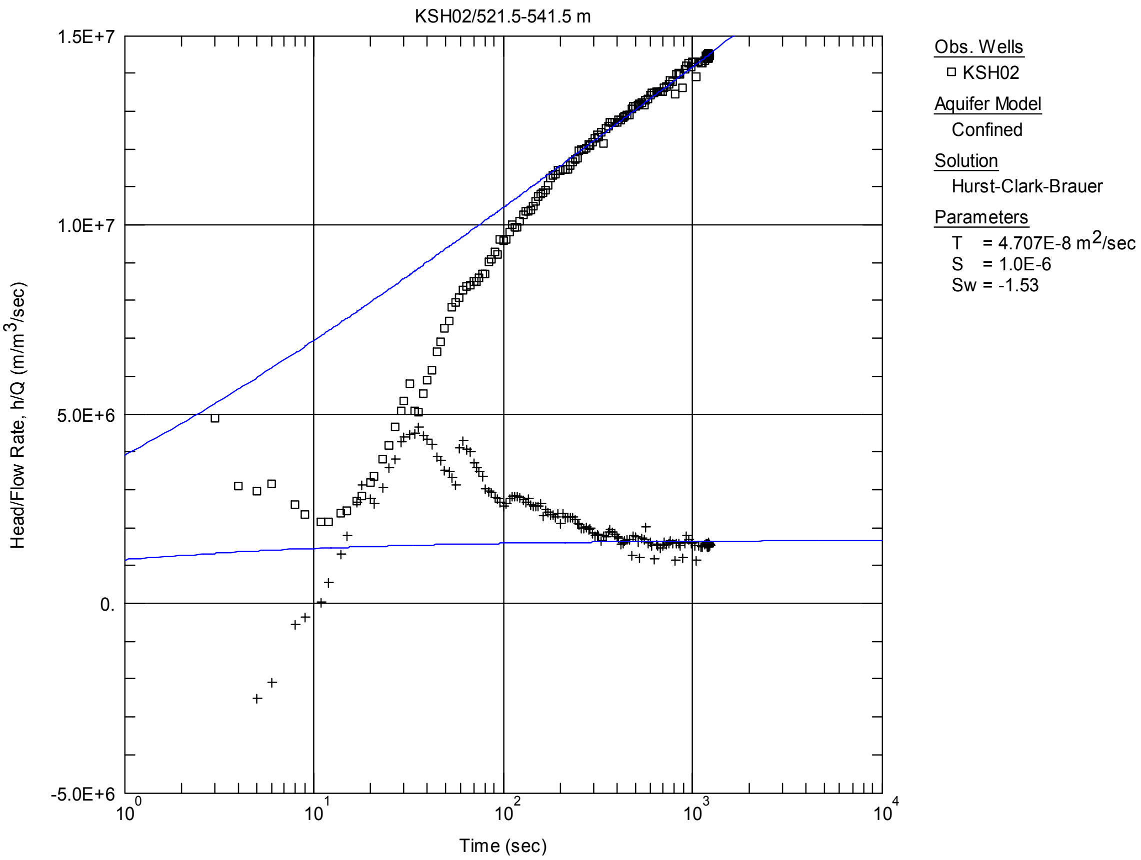
Analysis Diagram



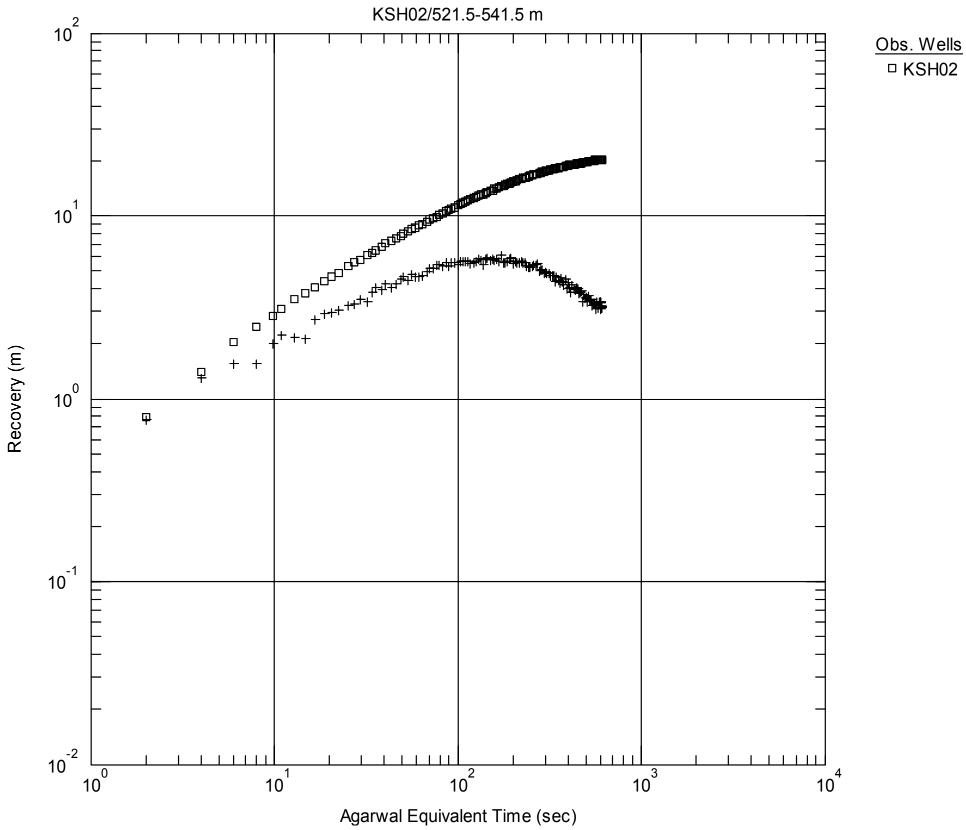
Pressure and flow rate vs. time.



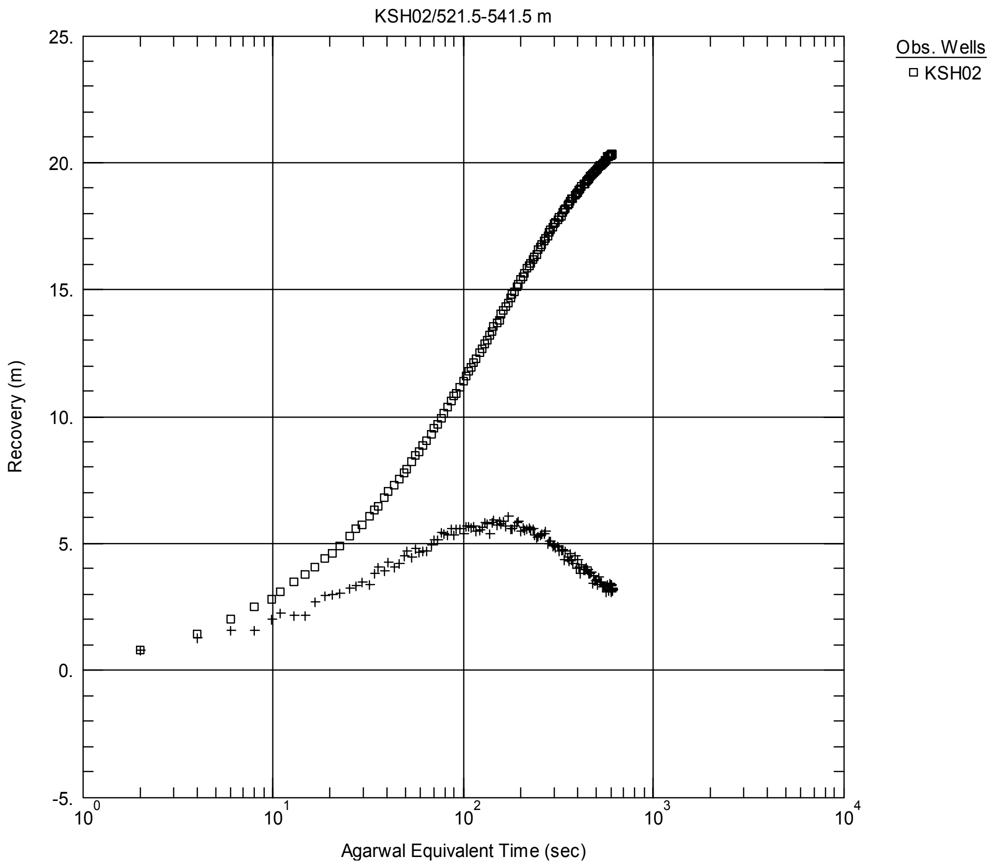
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



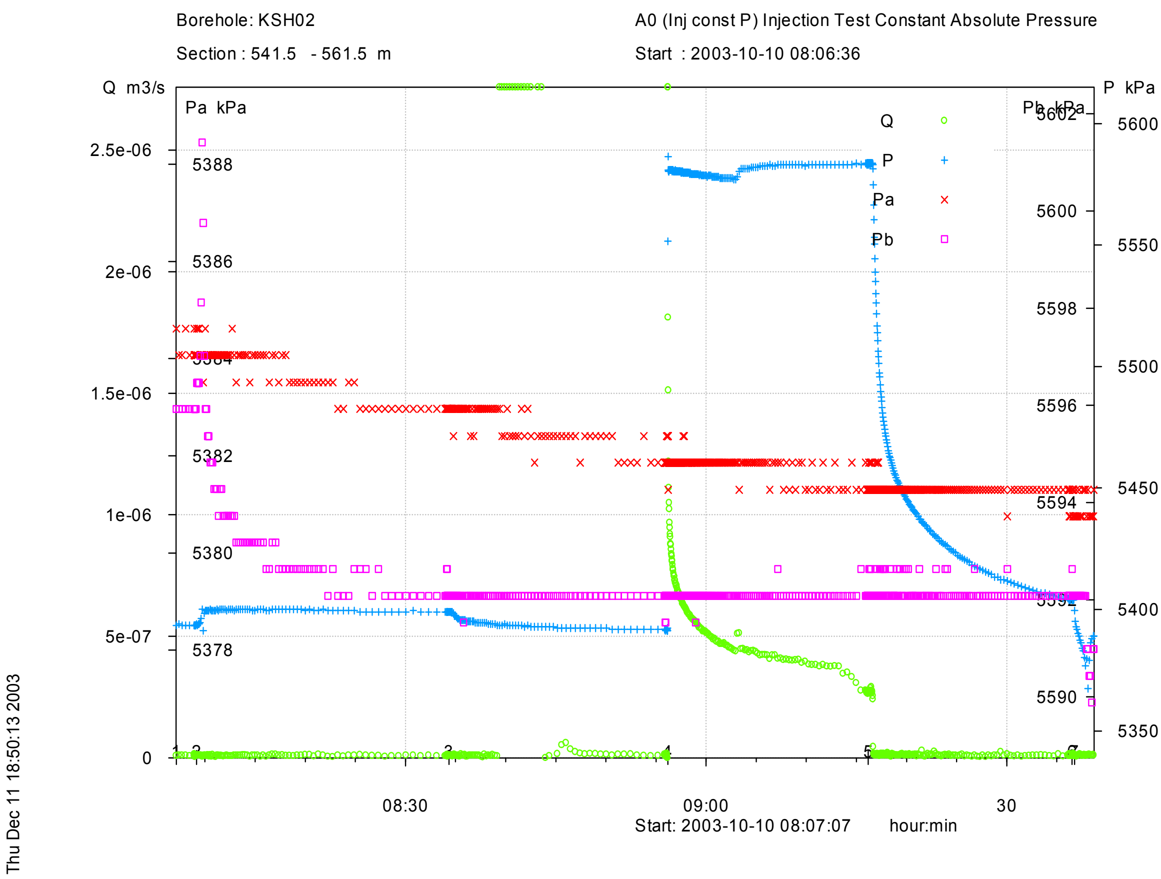
Recovery phase, log-log match.



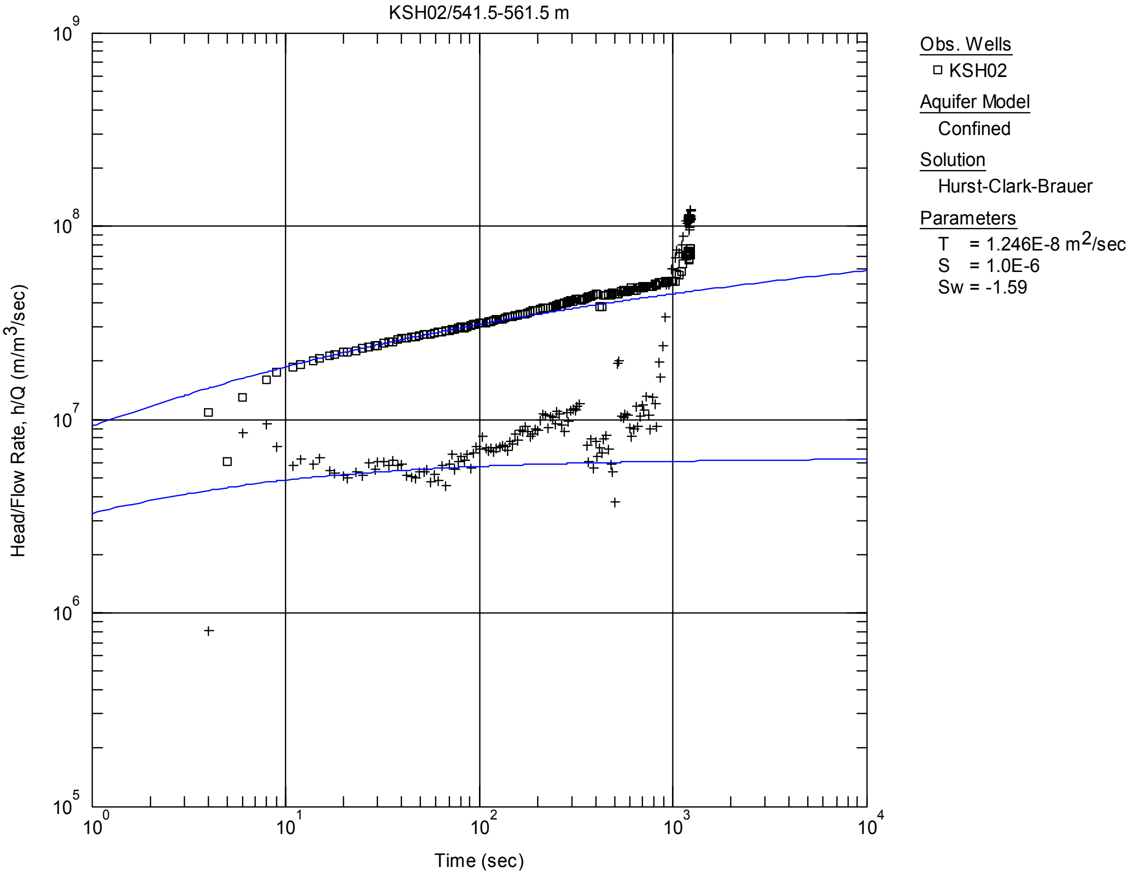
Recovery phase, lin-log match.

Test 541.5–561.5 m

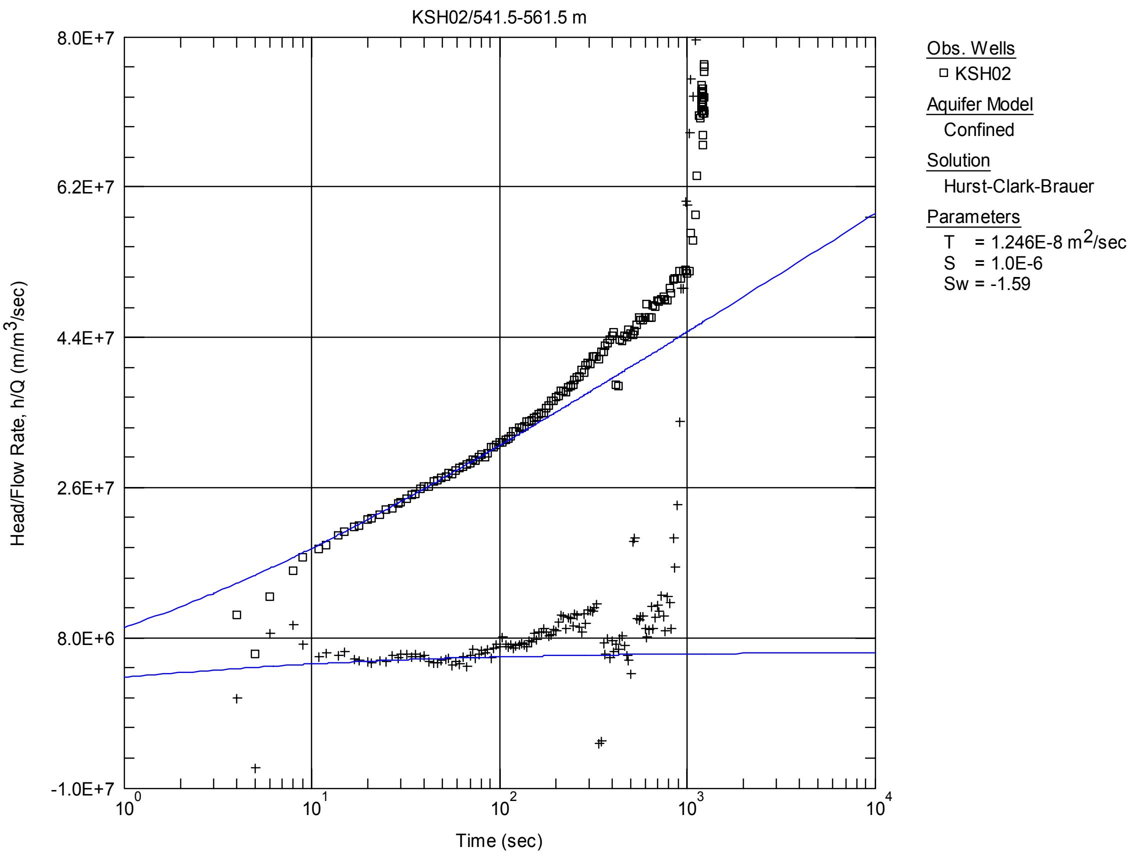
Analysis Diagram



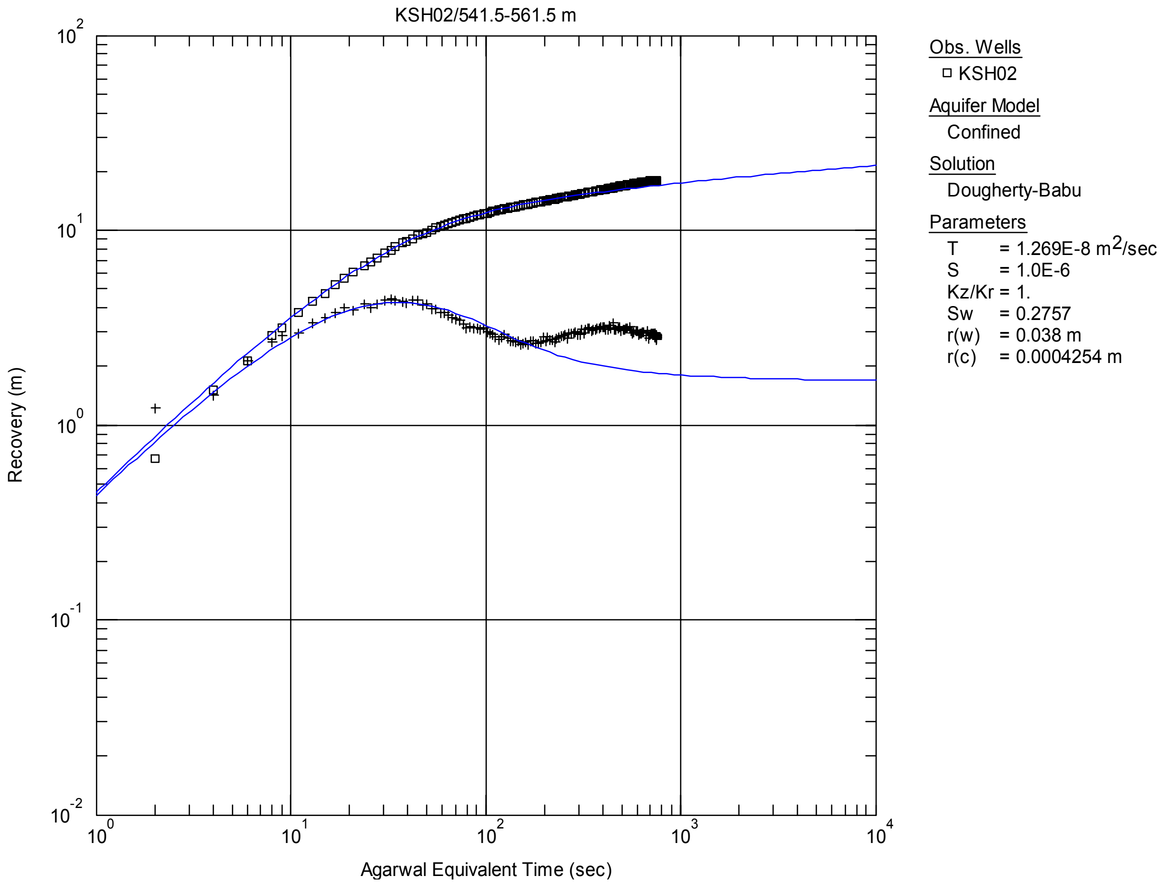
Pressure and flow rate vs. time.



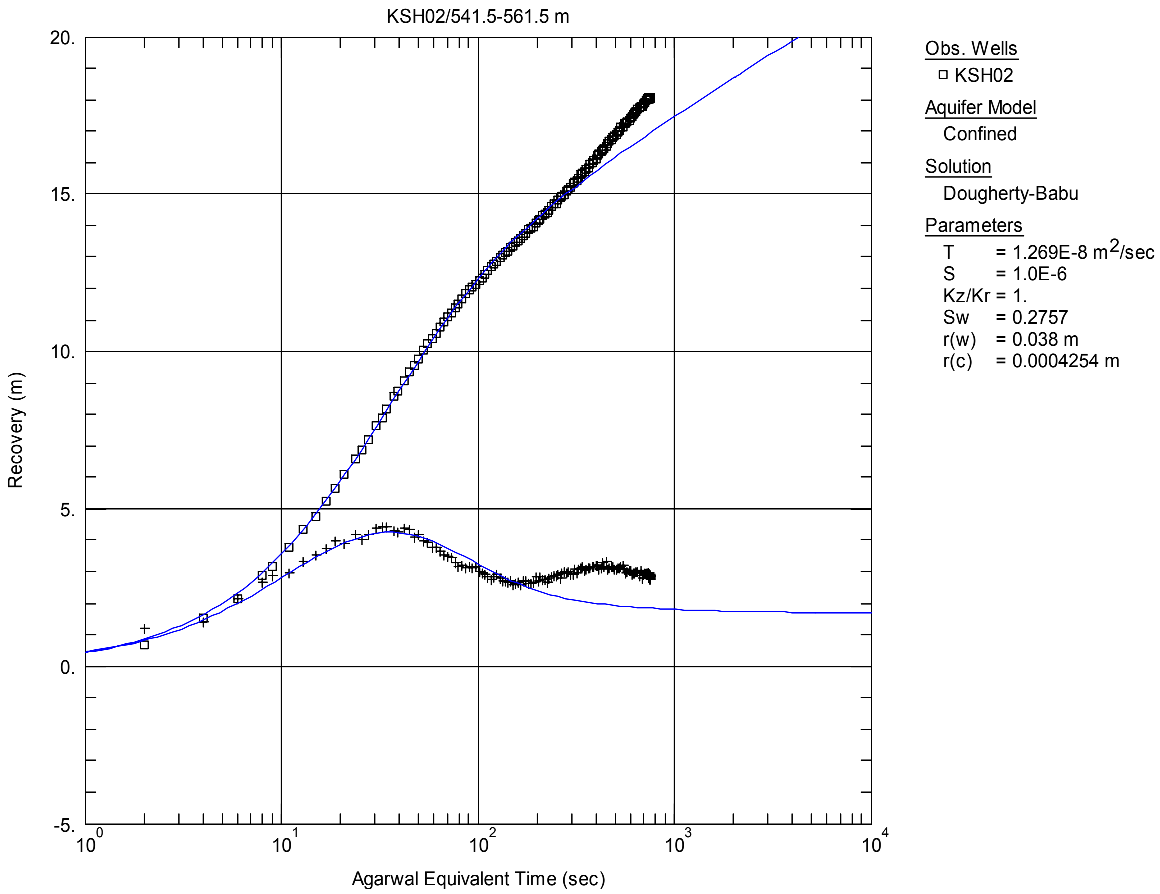
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



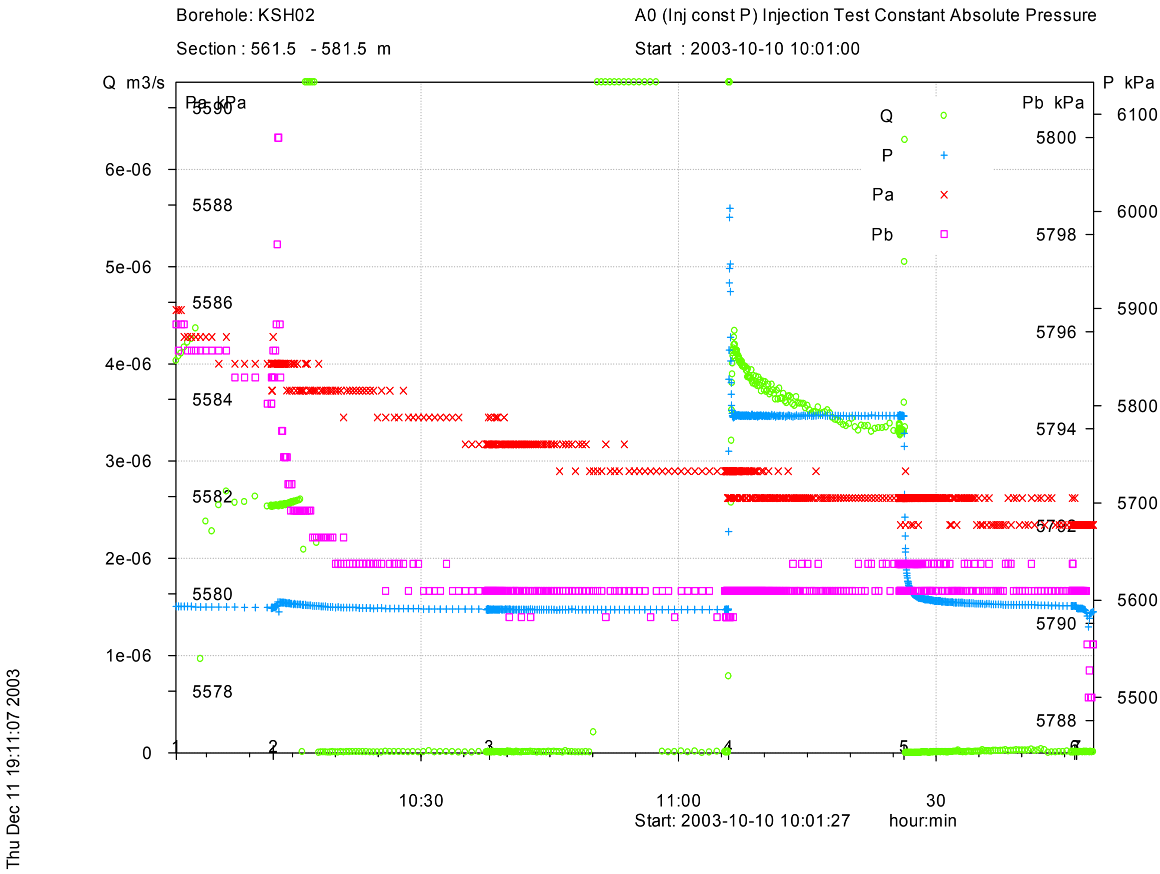
Recovery phase, log-log match.



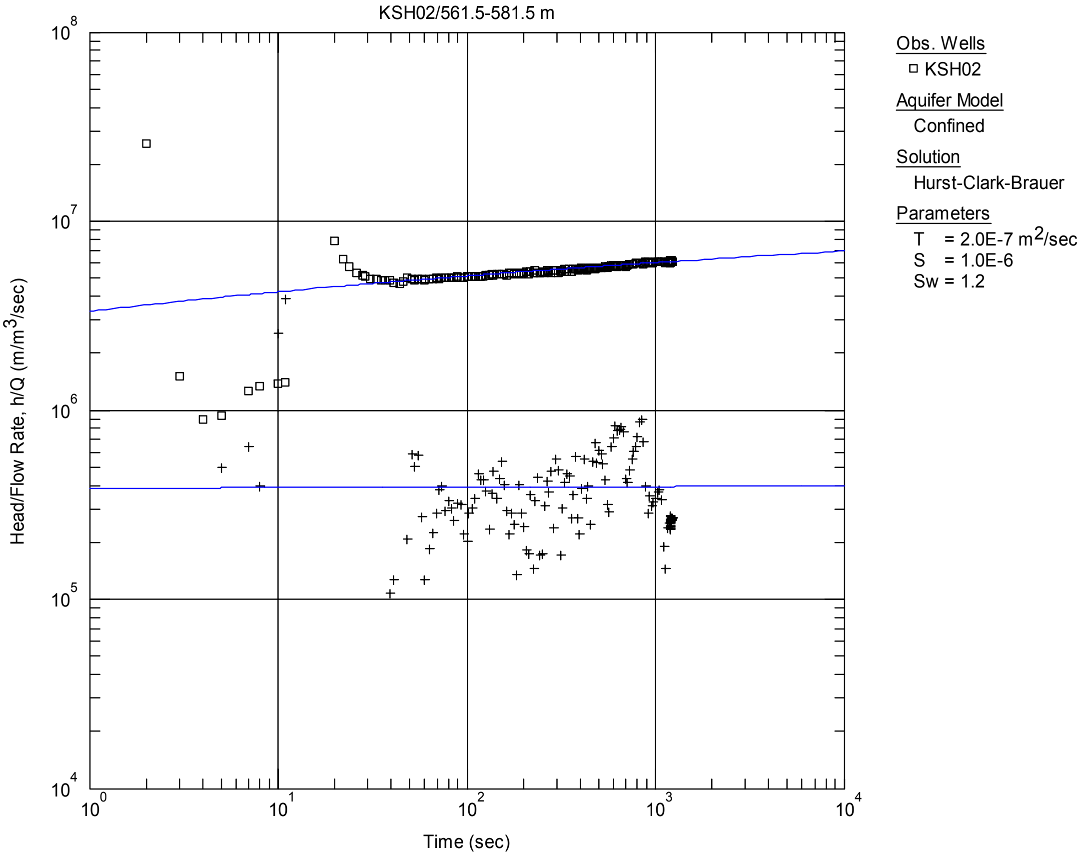
Recovery phase, lin-log match.

Test 561.5–581.5 m

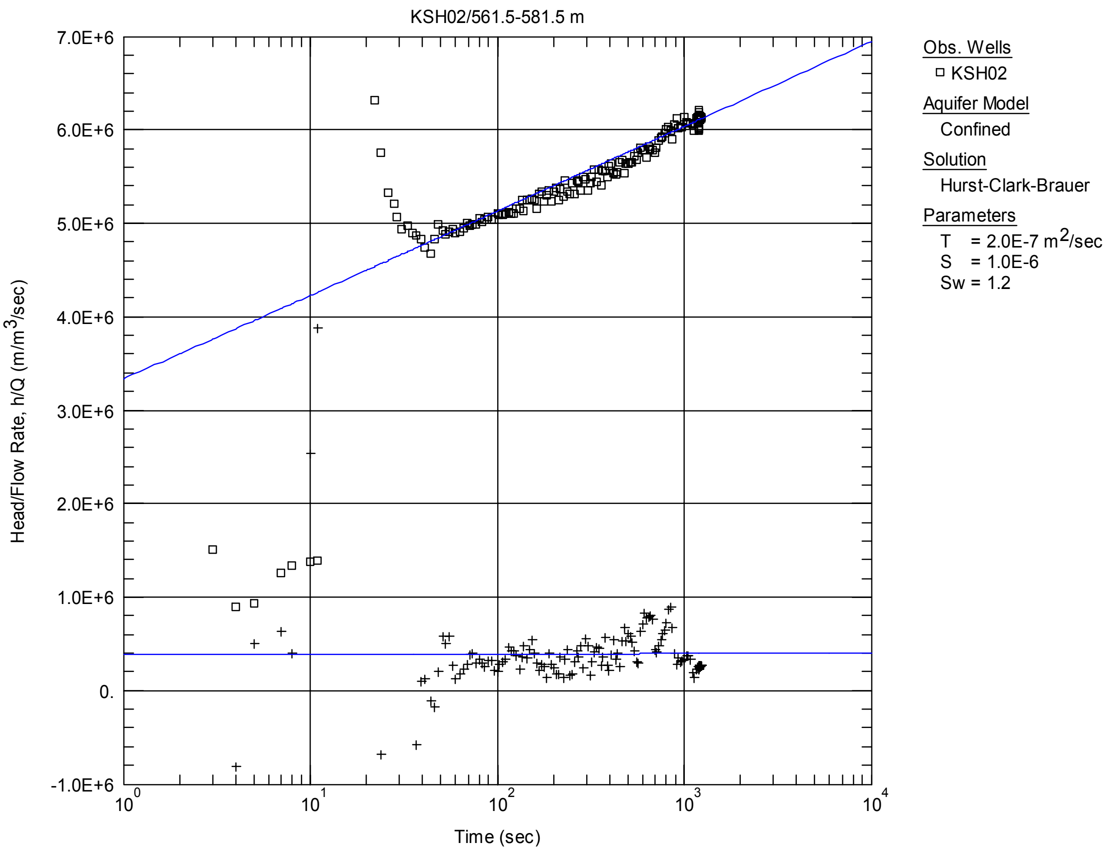
Analysis Diagram



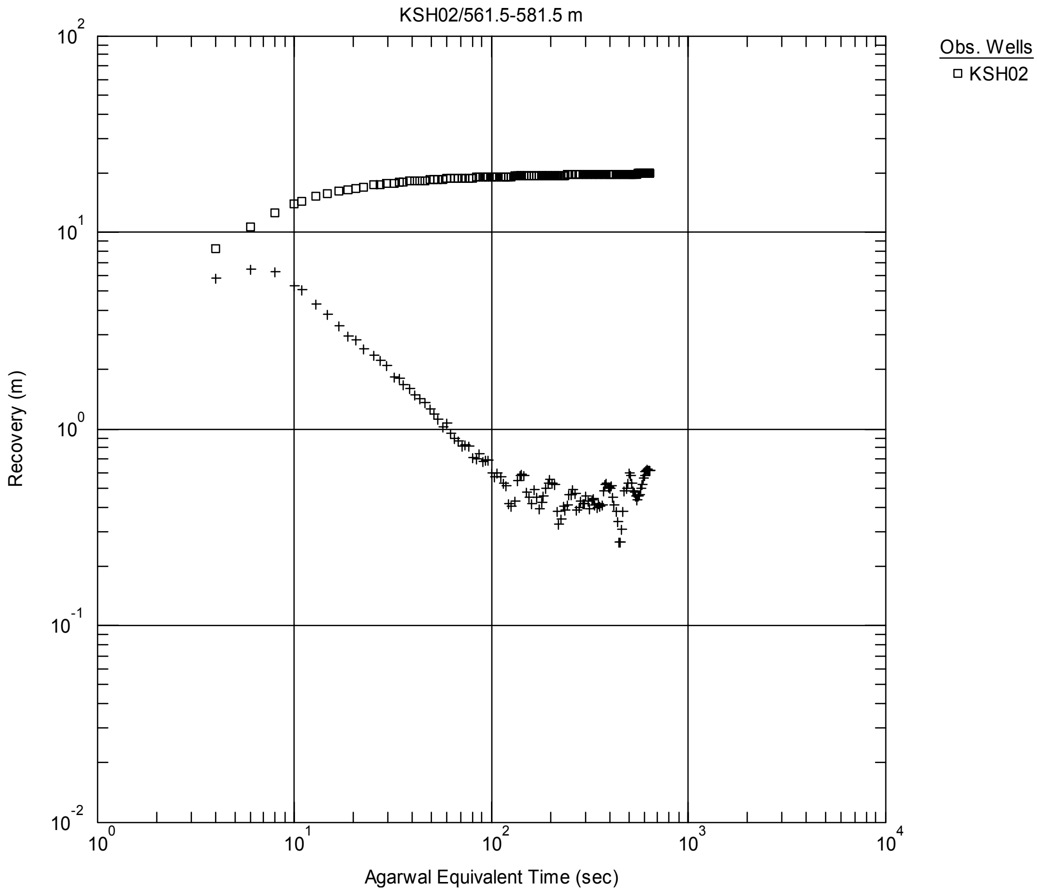
Pressure and flow rate vs. time.



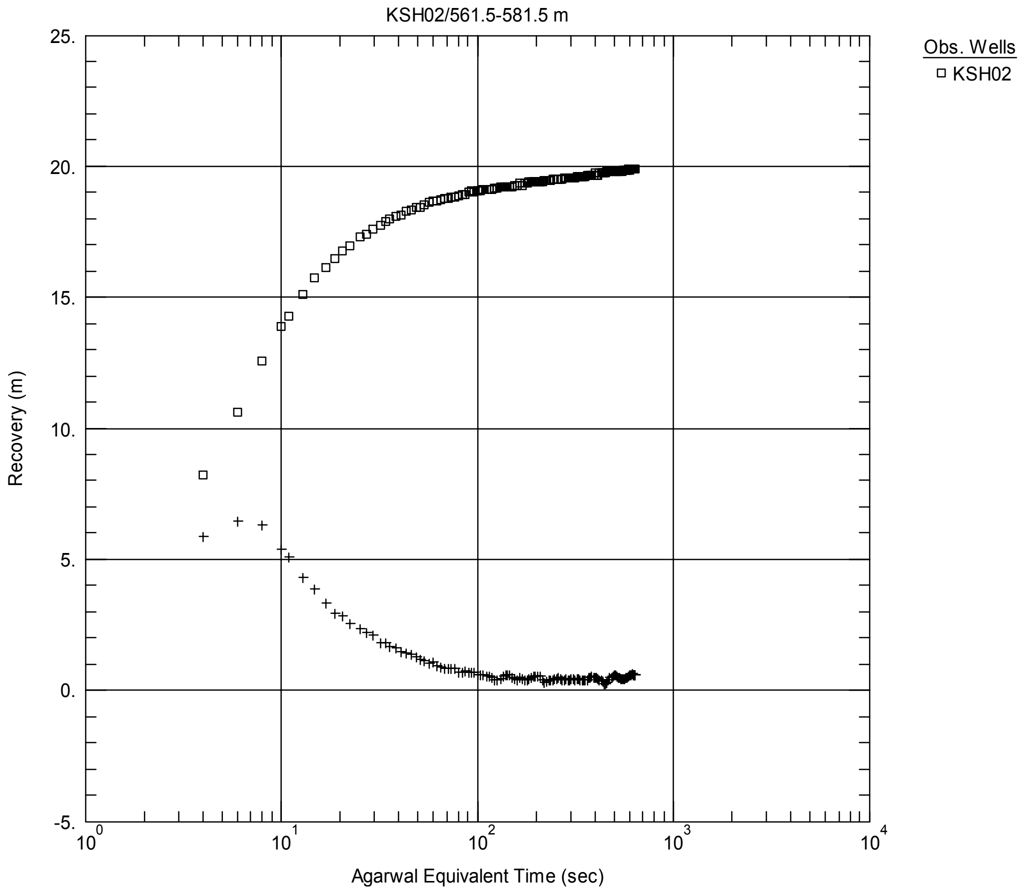
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



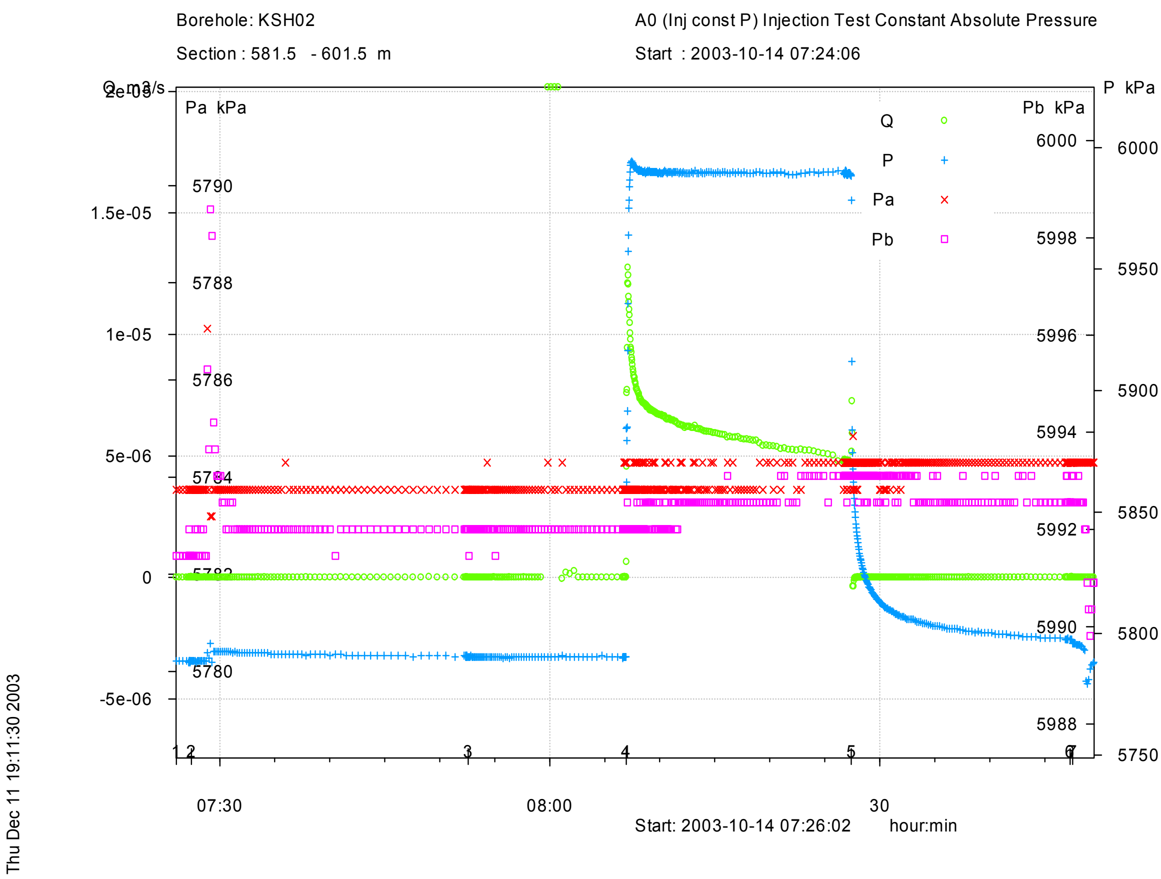
Recovery phase, log-log match.



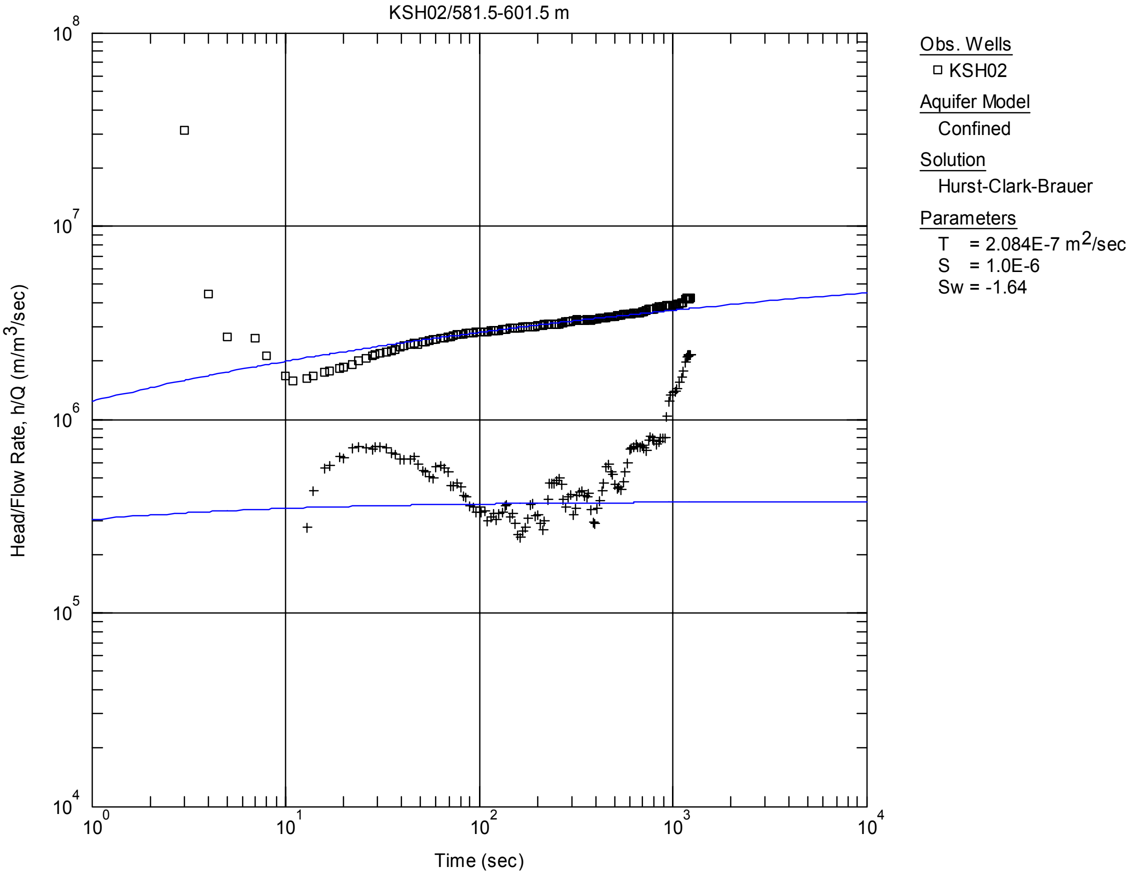
Recovery phase, lin-log match.

Test 581.5–601.5 m

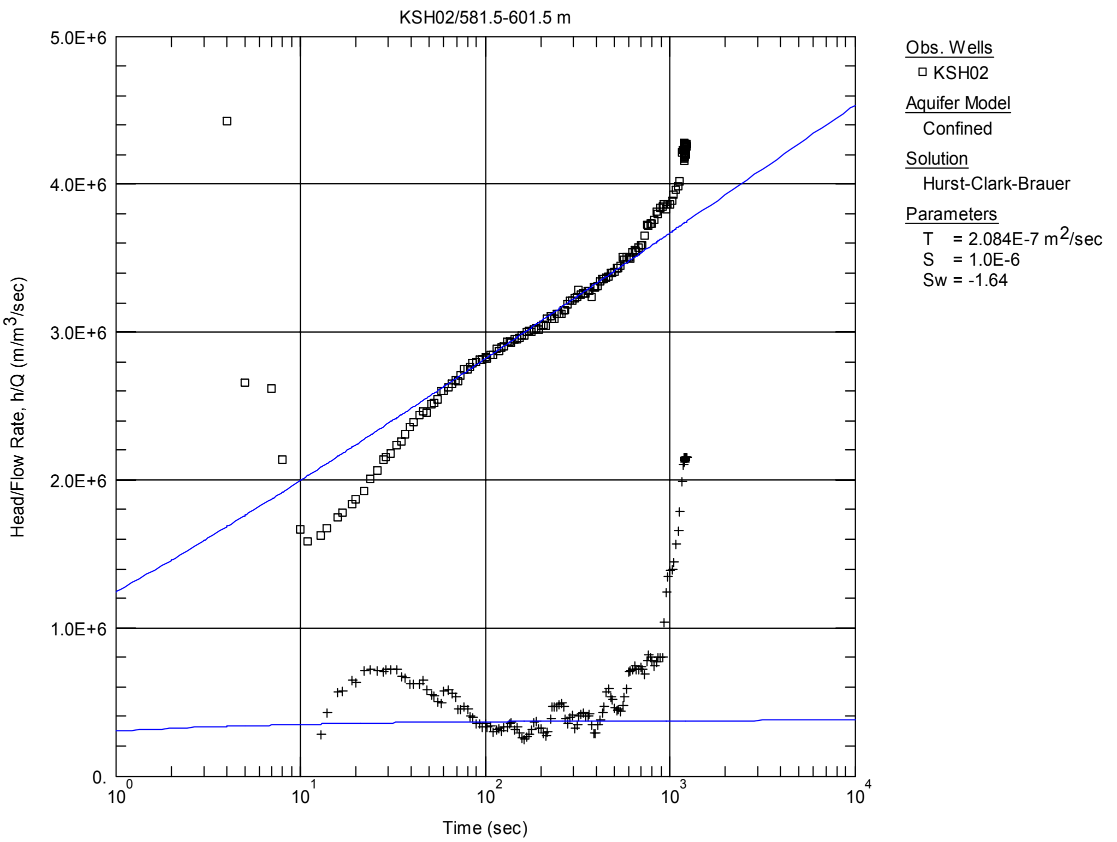
Analysis Diagram



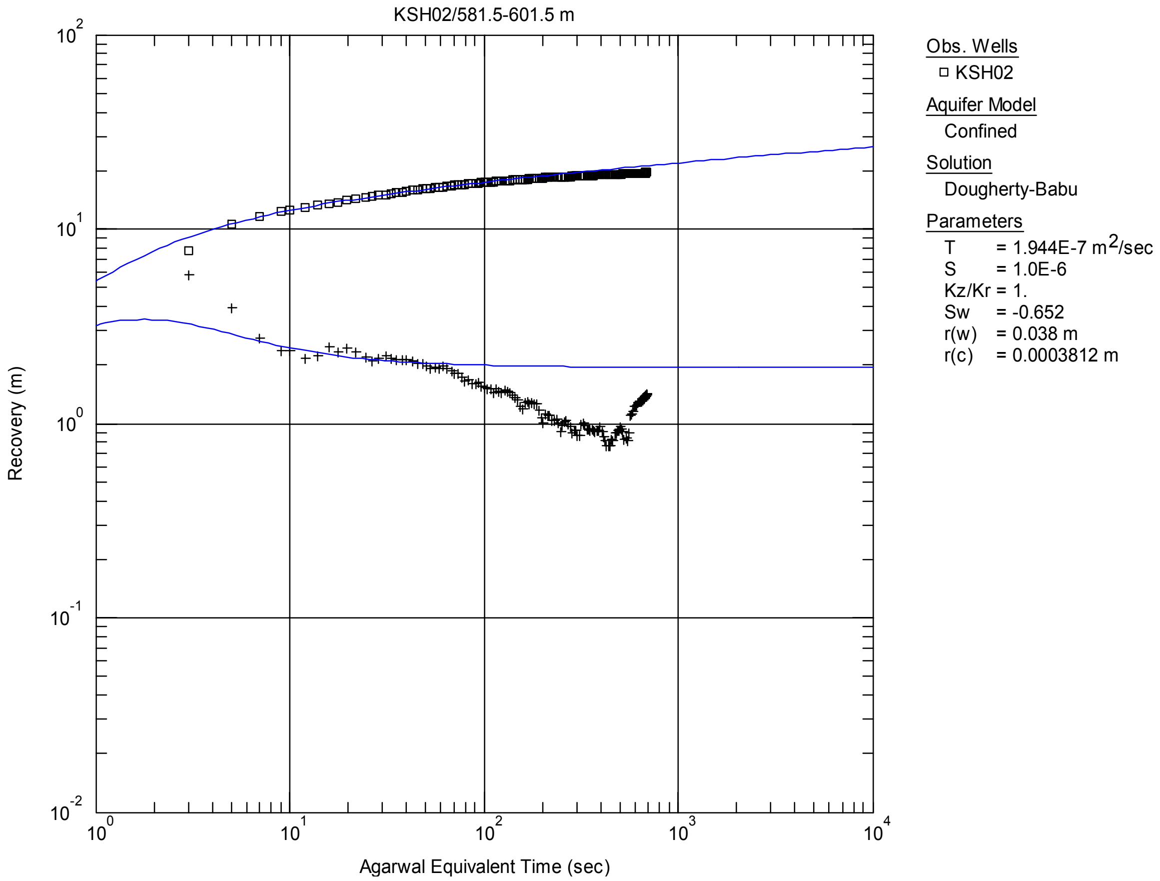
Pressure and flow rate vs. time.



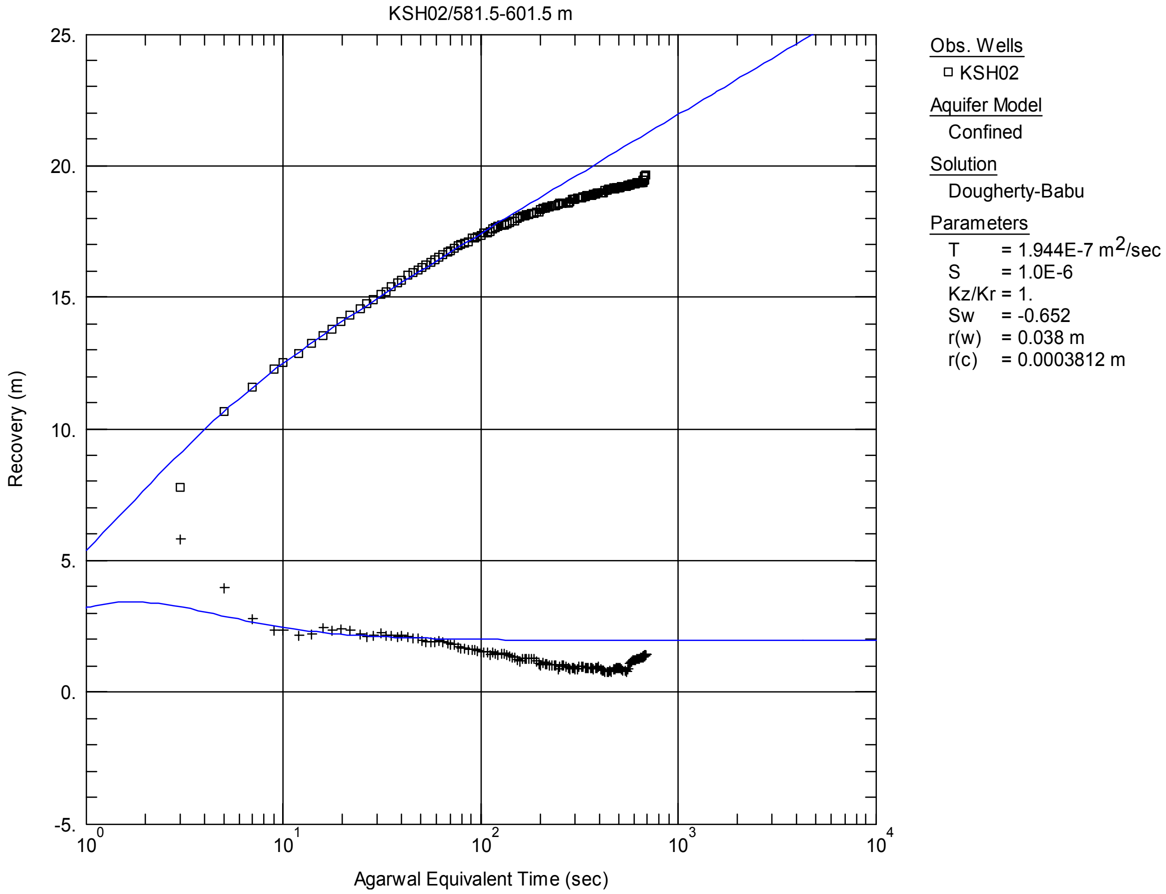
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



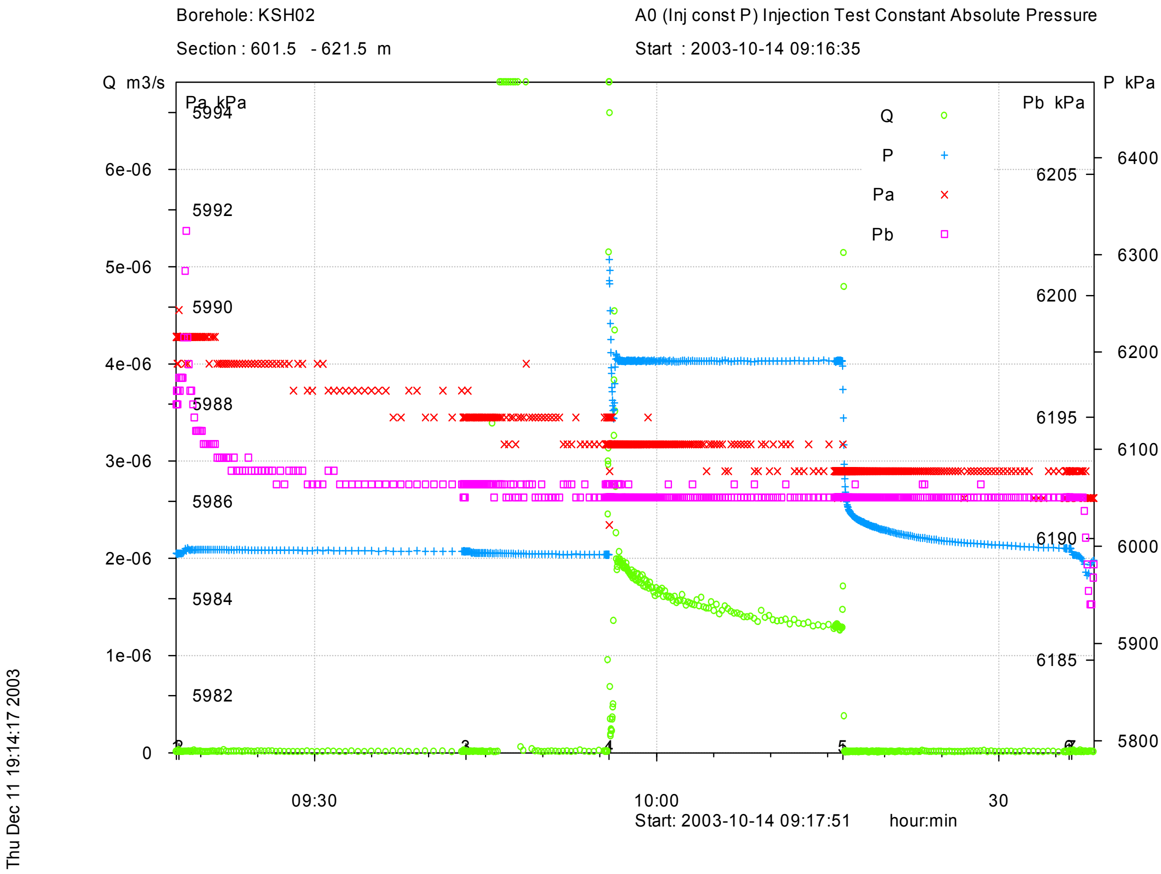
Recovery phase, log-log match.



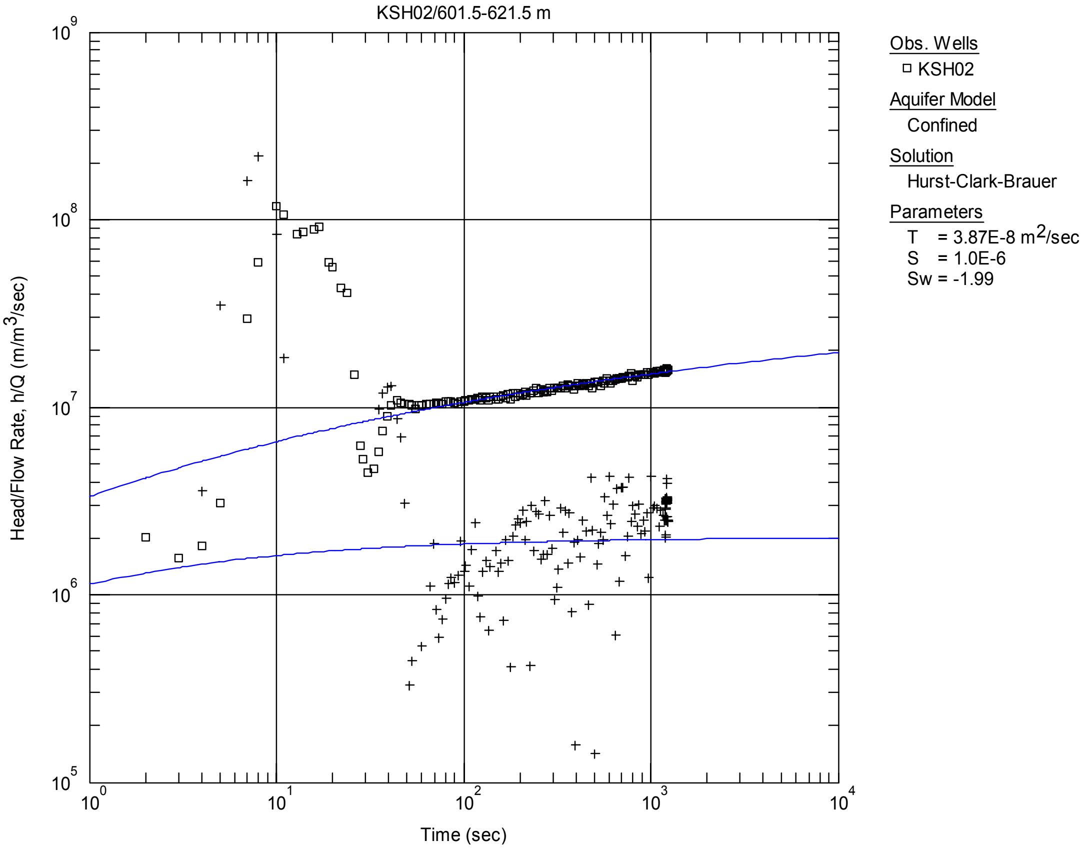
Recovery phase, lin-log match.

Test 601.5–621.5 m

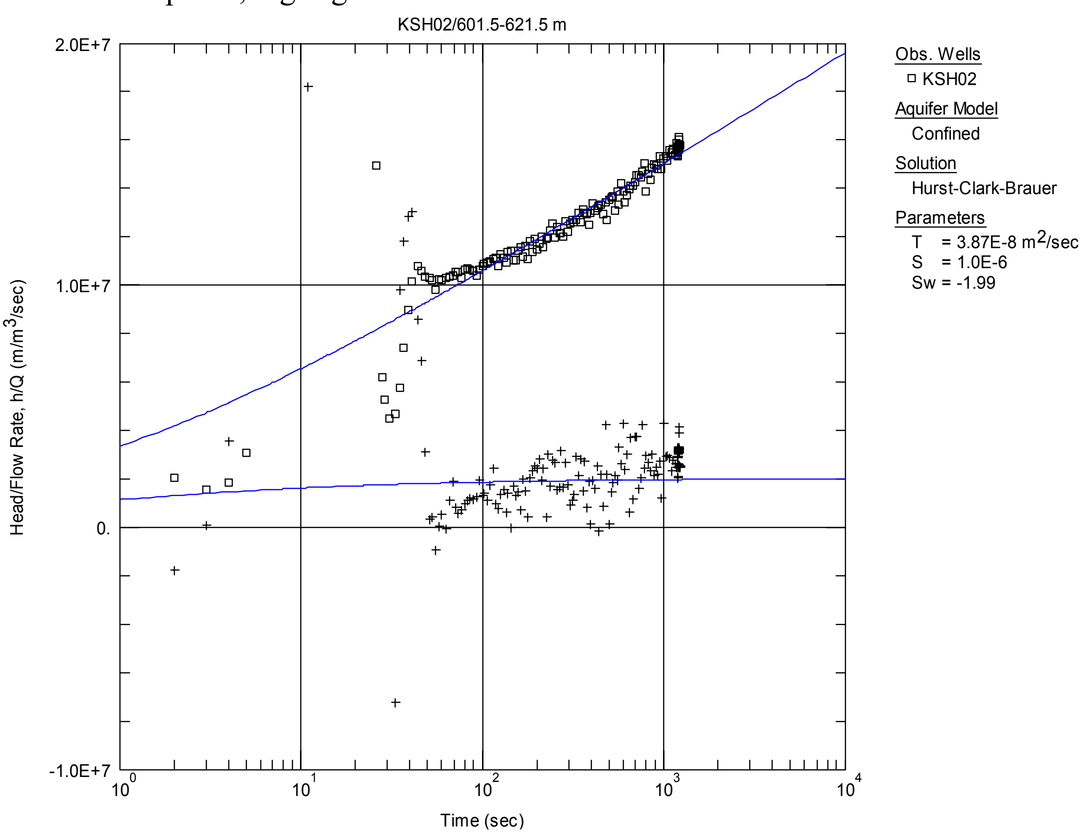
Analysis Diagram



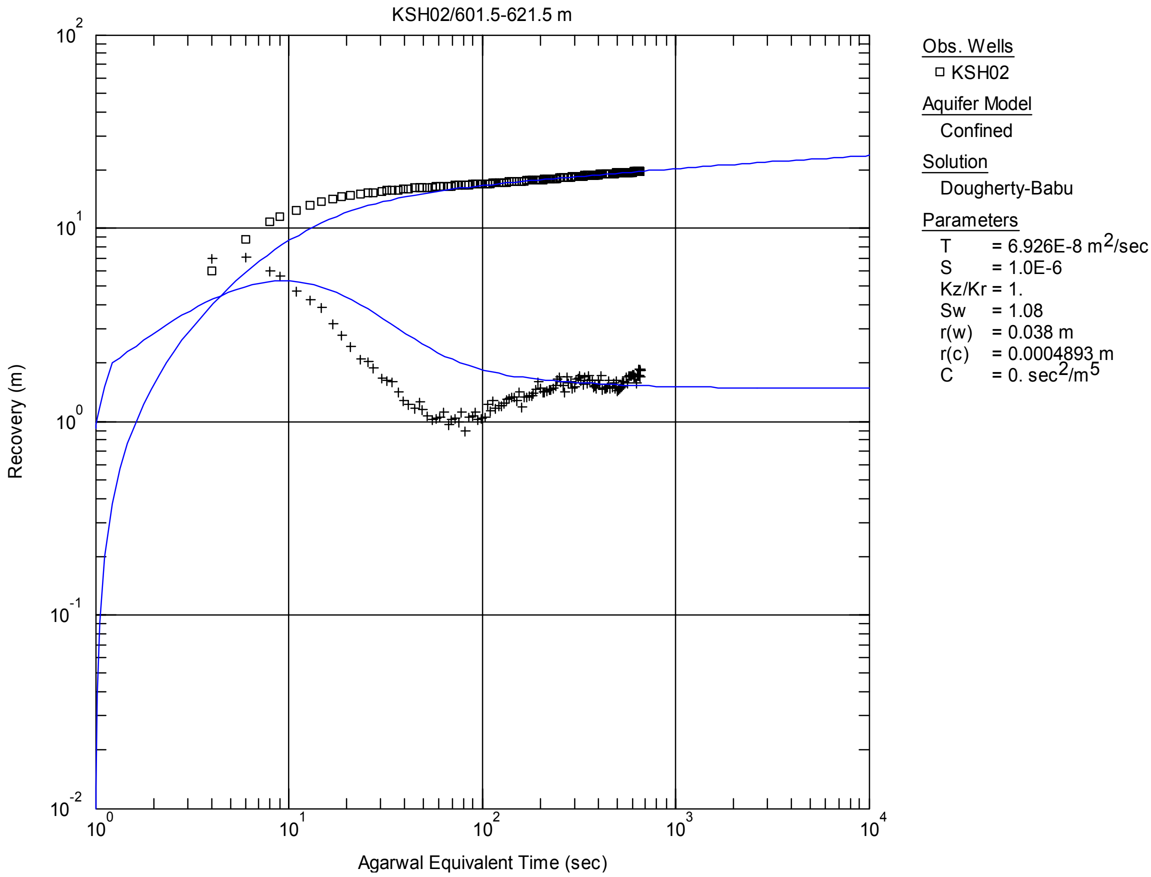
Pressure and flow rate vs. time.



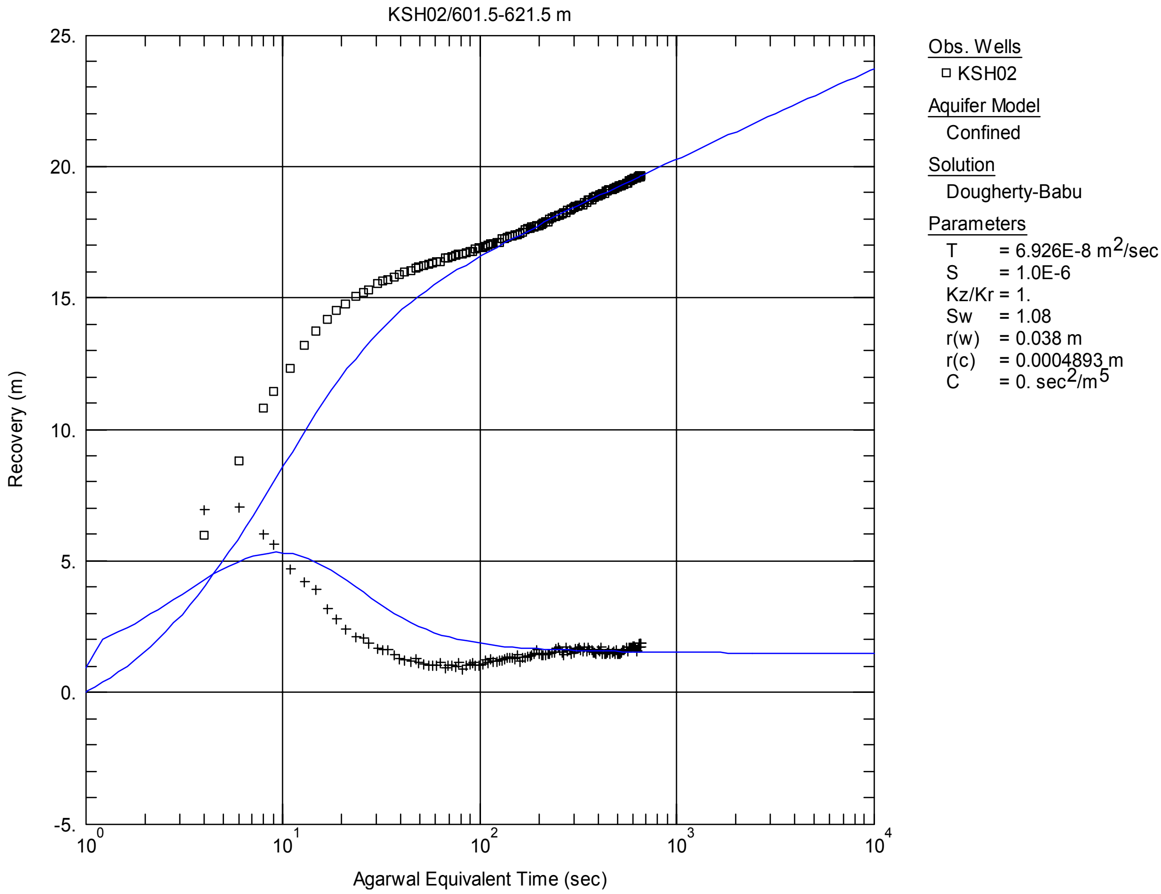
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



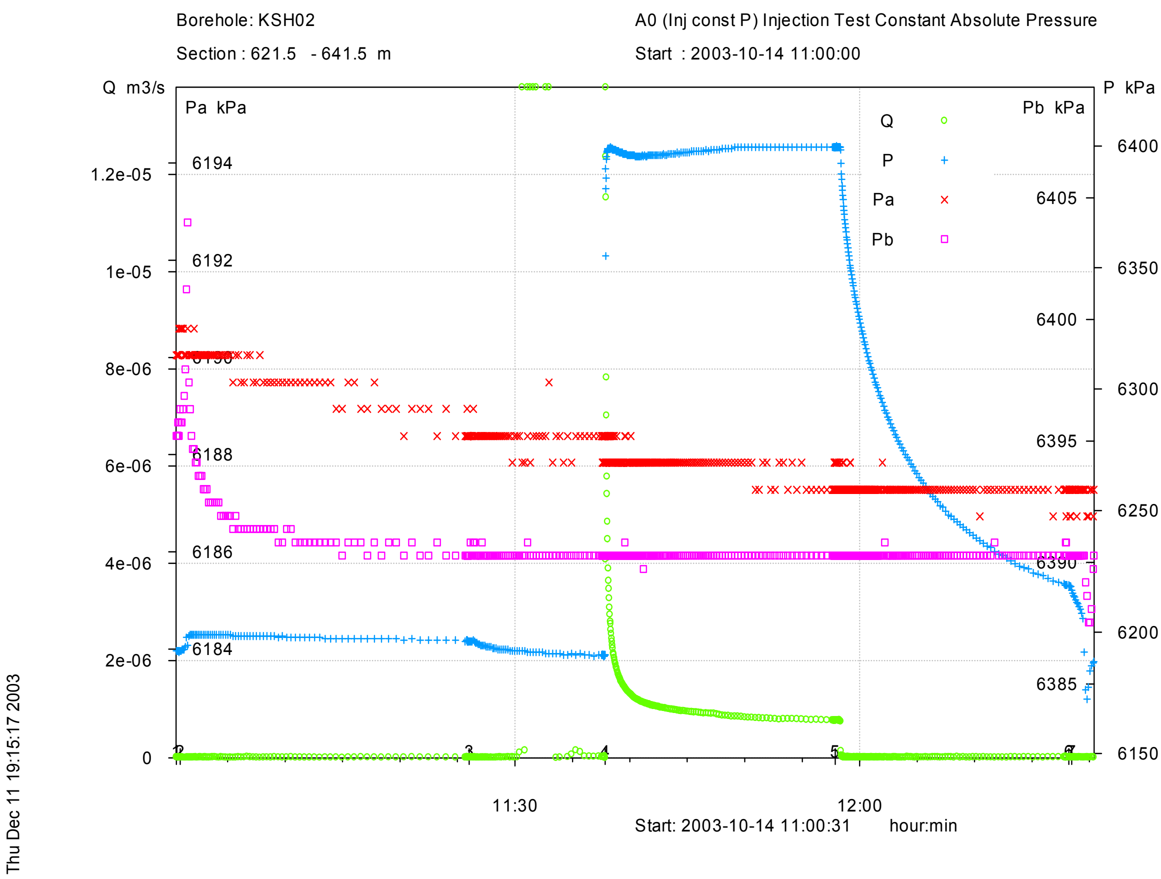
Recovery phase, log-log match.



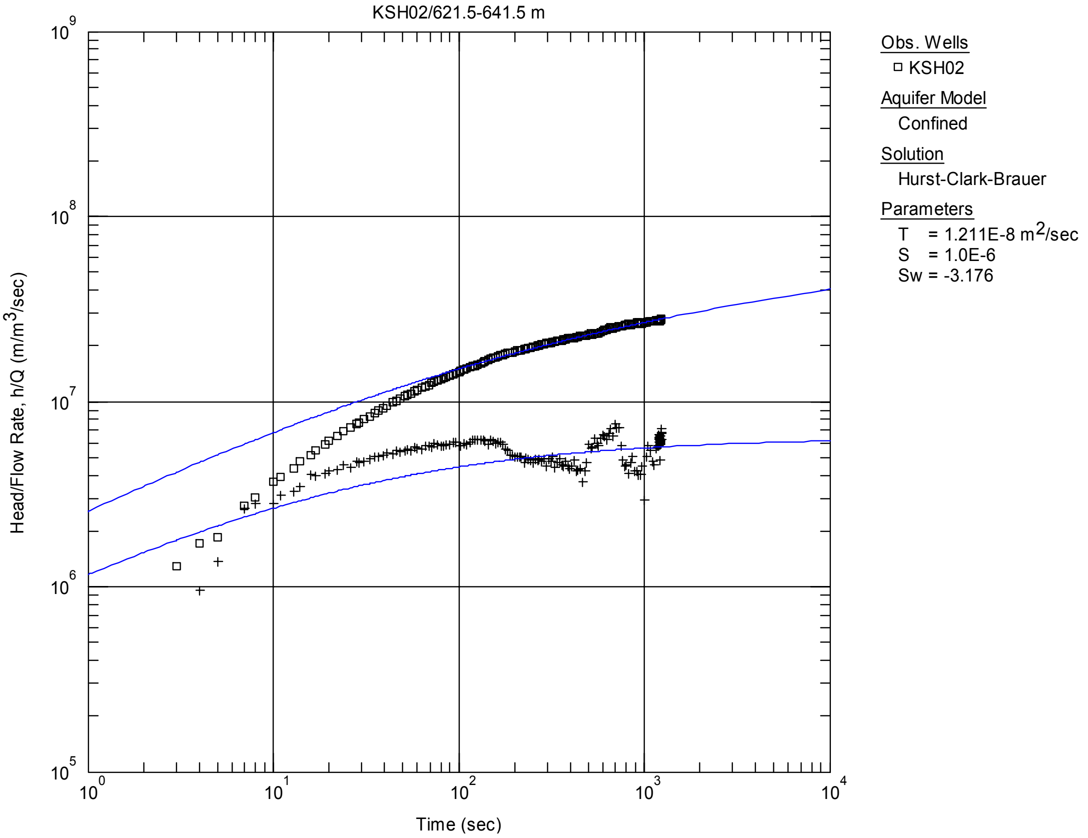
Recovery phase, lin-log match.

Test 621.5–641.5 m

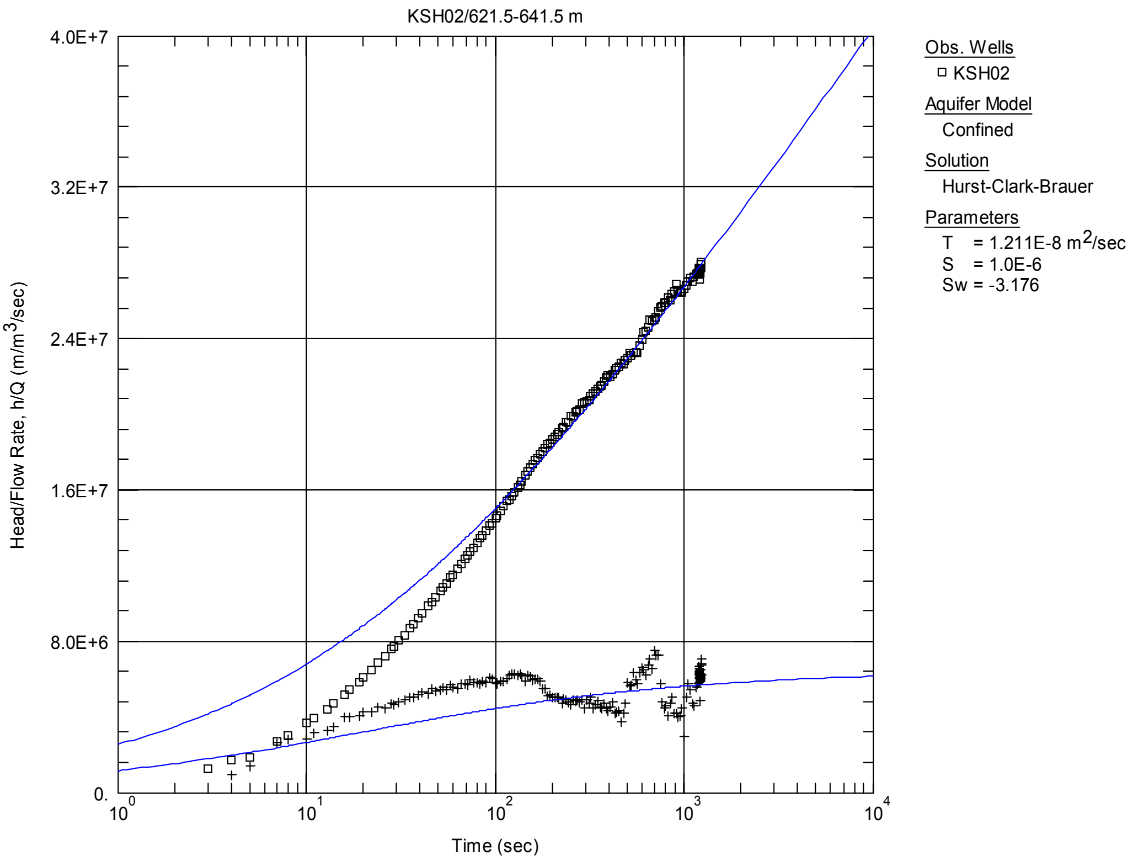
Analysis Diagram



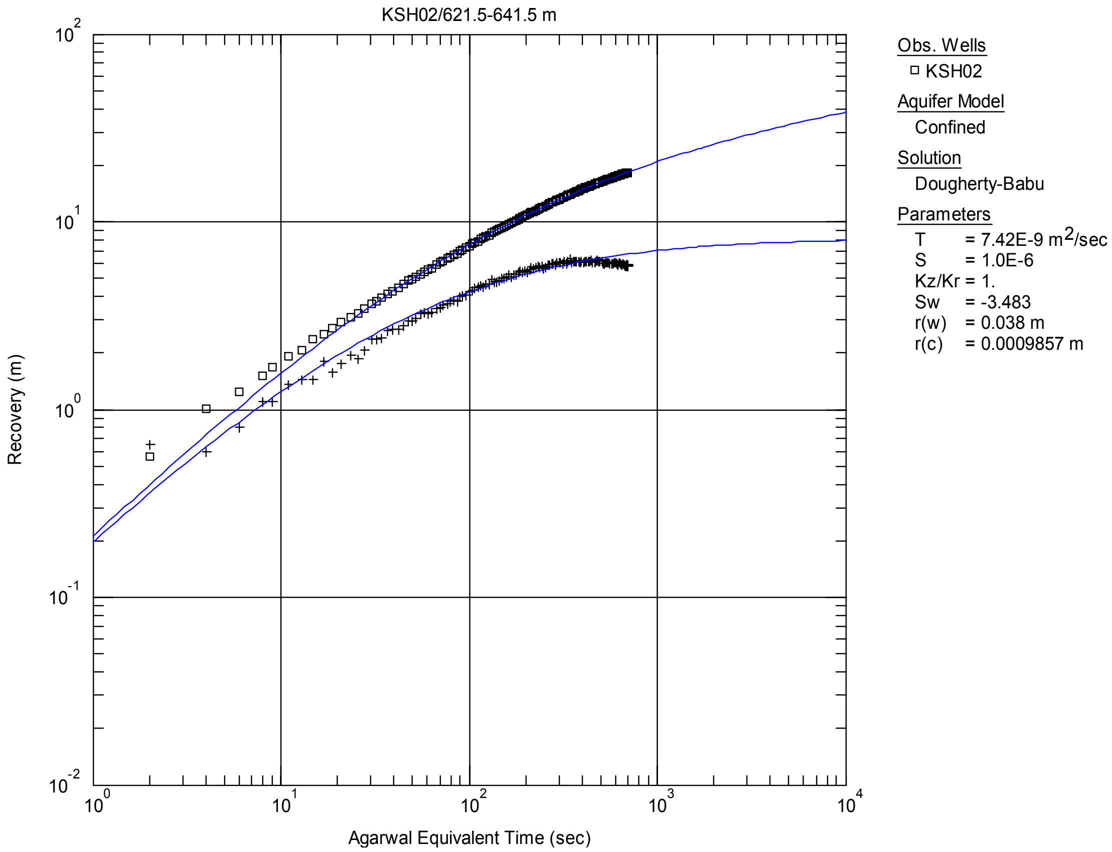
Pressure and flow rate vs. time.



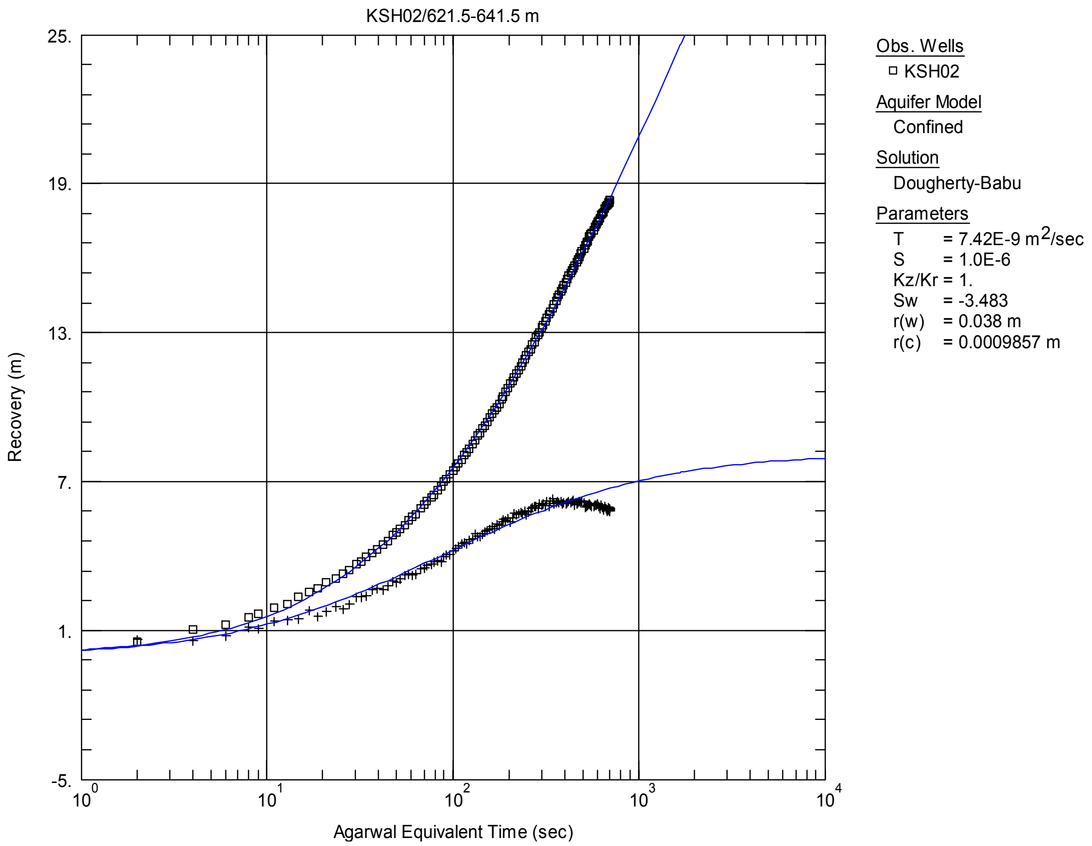
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



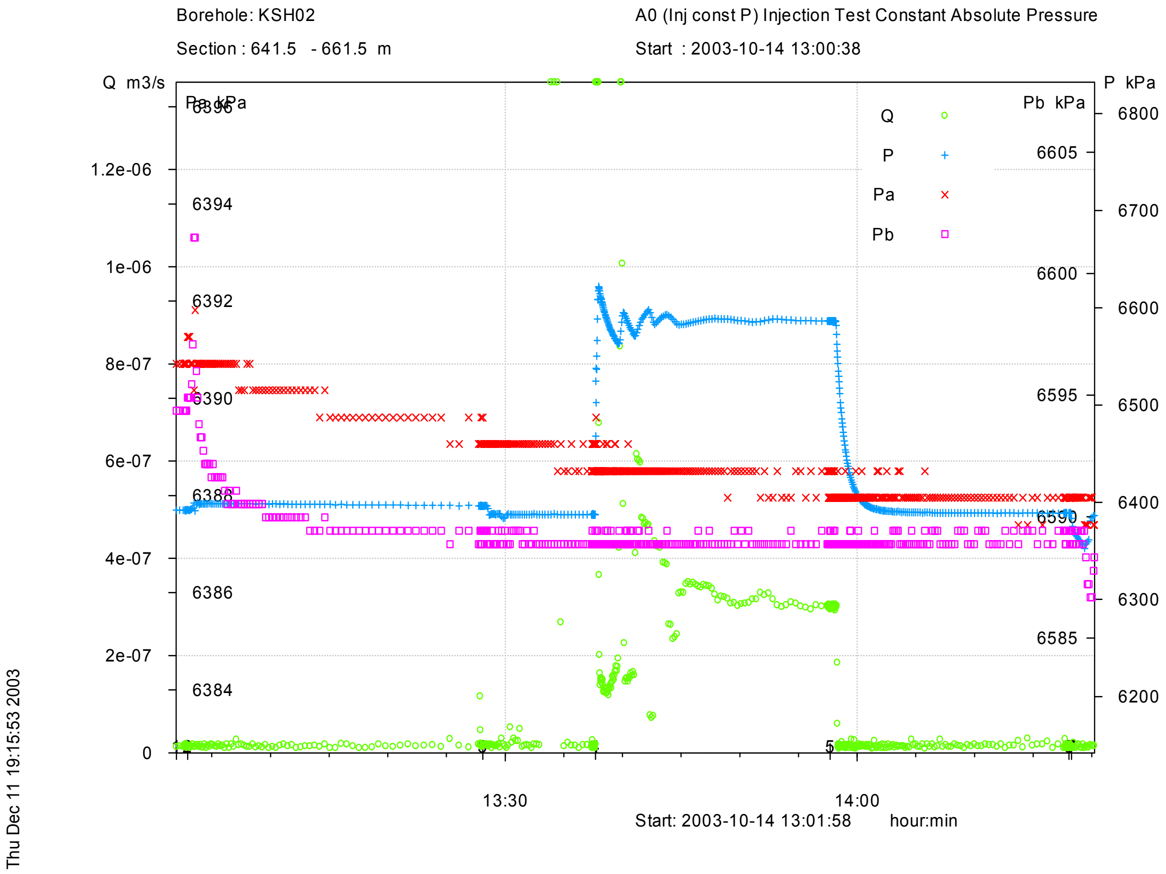
Recovery phase, log-log match.



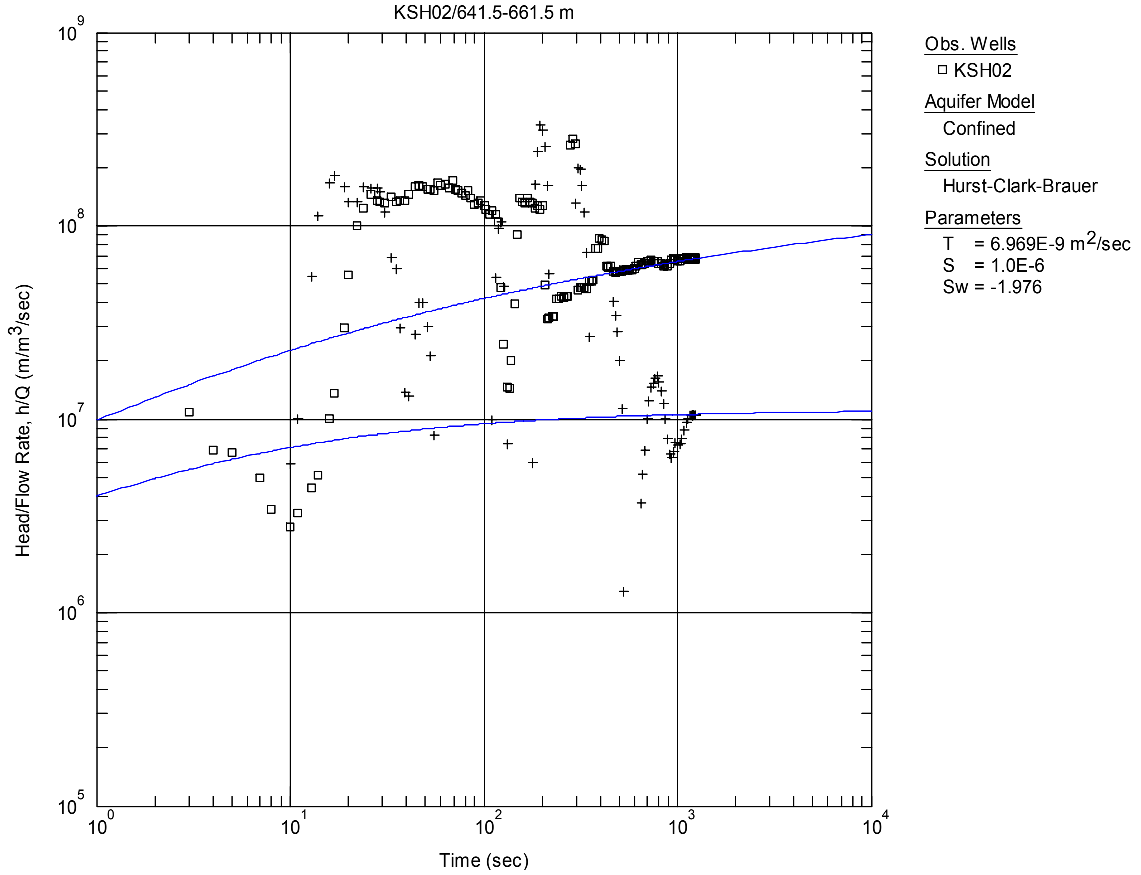
Recovery phase, lin-log match.

Test 641.5–661.5 m

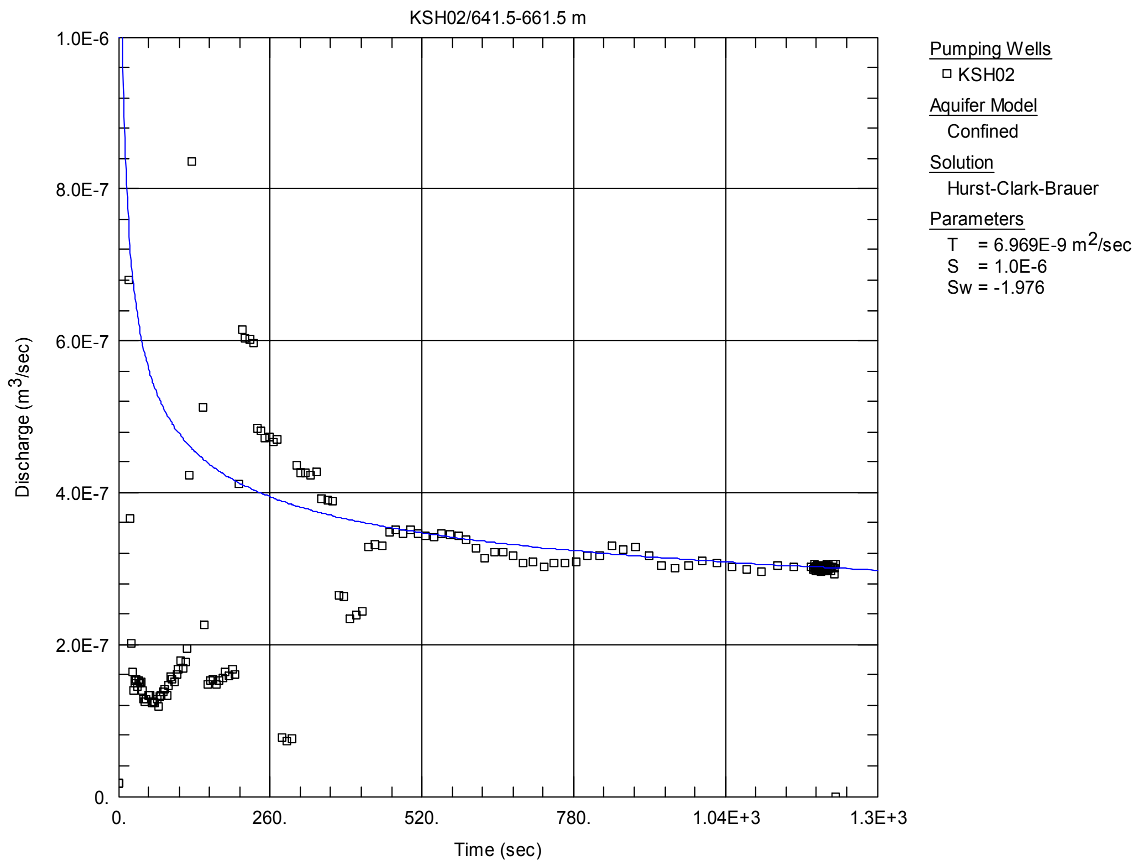
Analysis Diagram



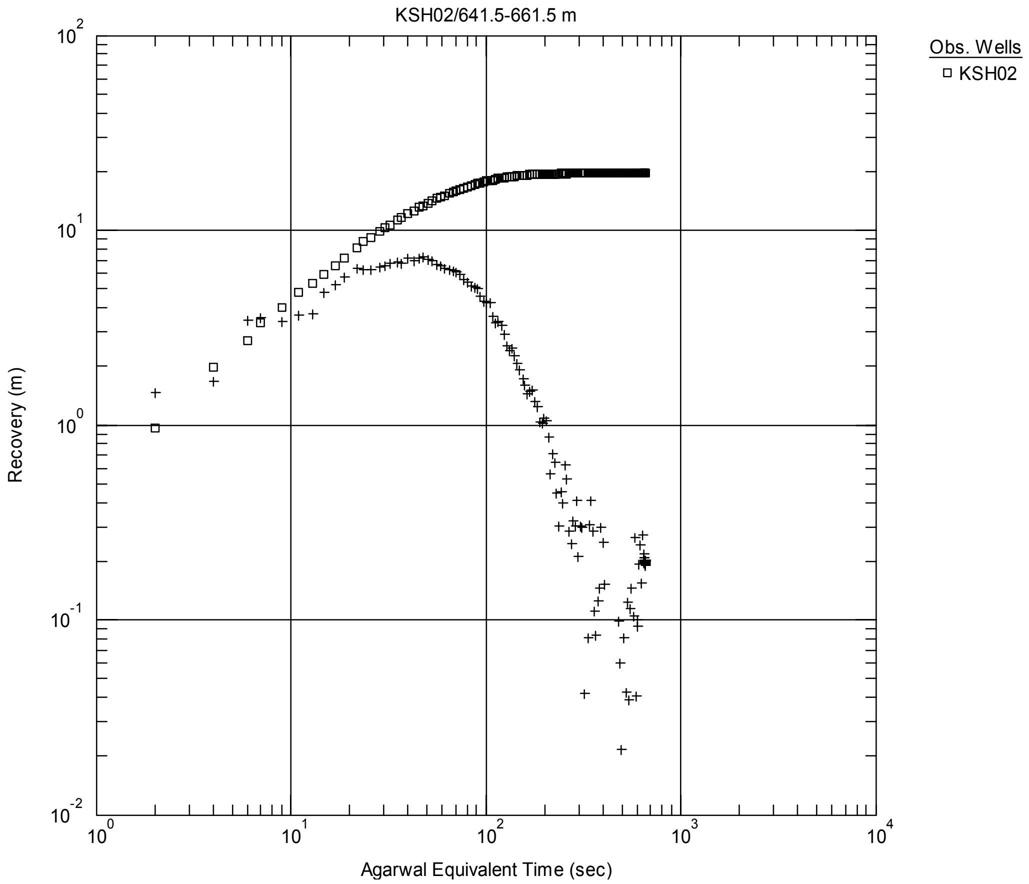
Pressure and flow rate vs. time.



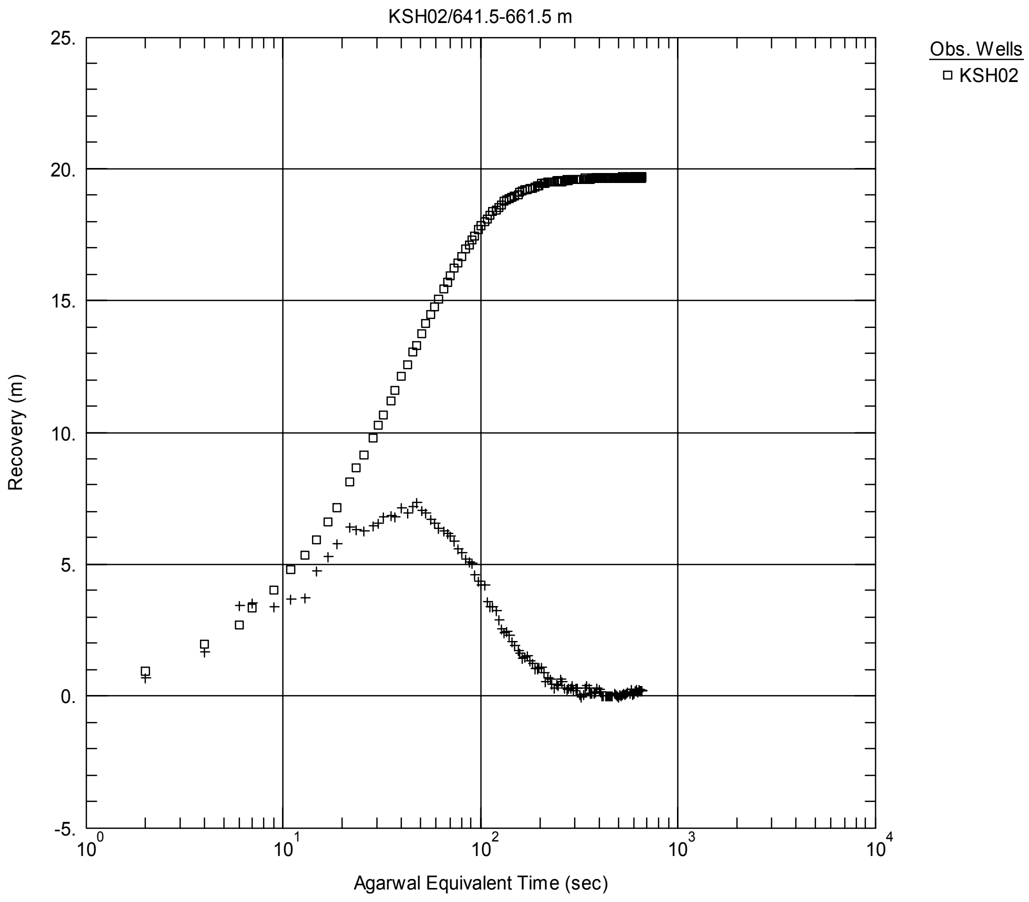
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



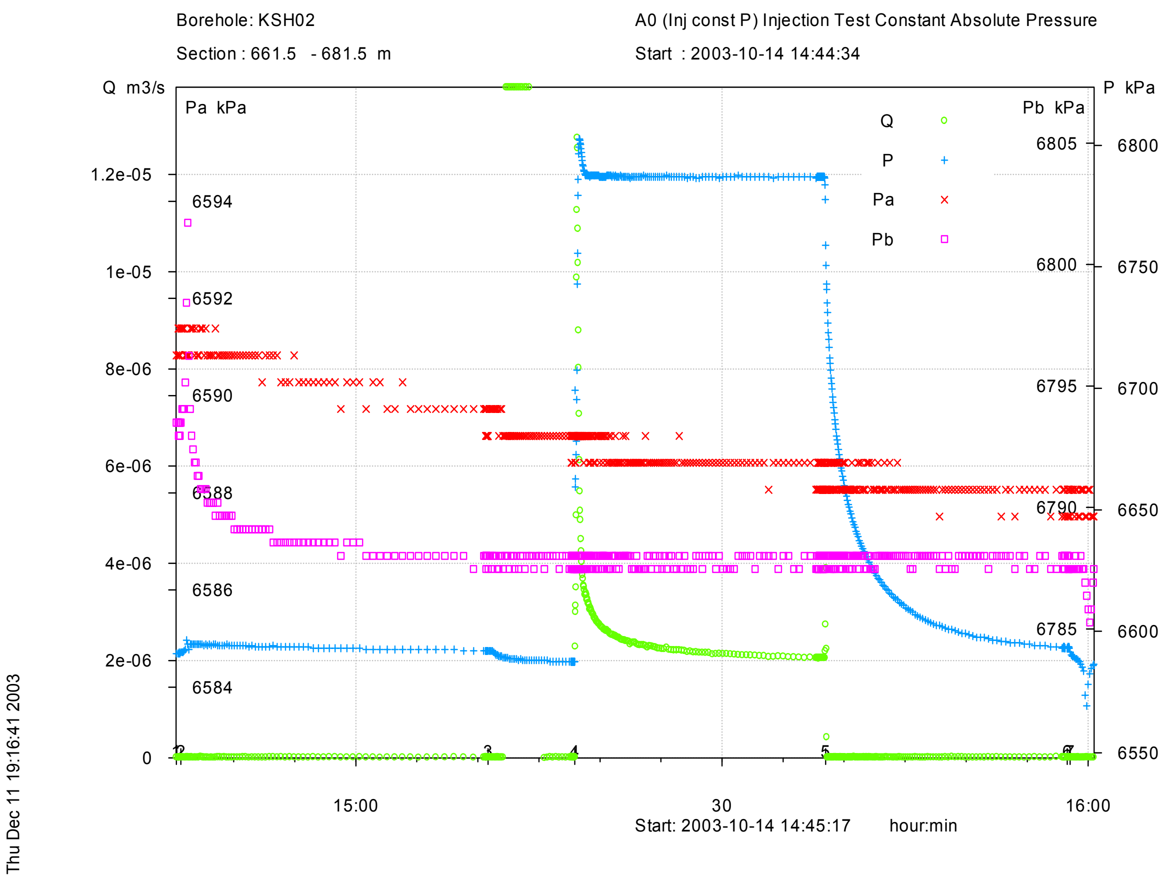
Recovery phase, log-log match.



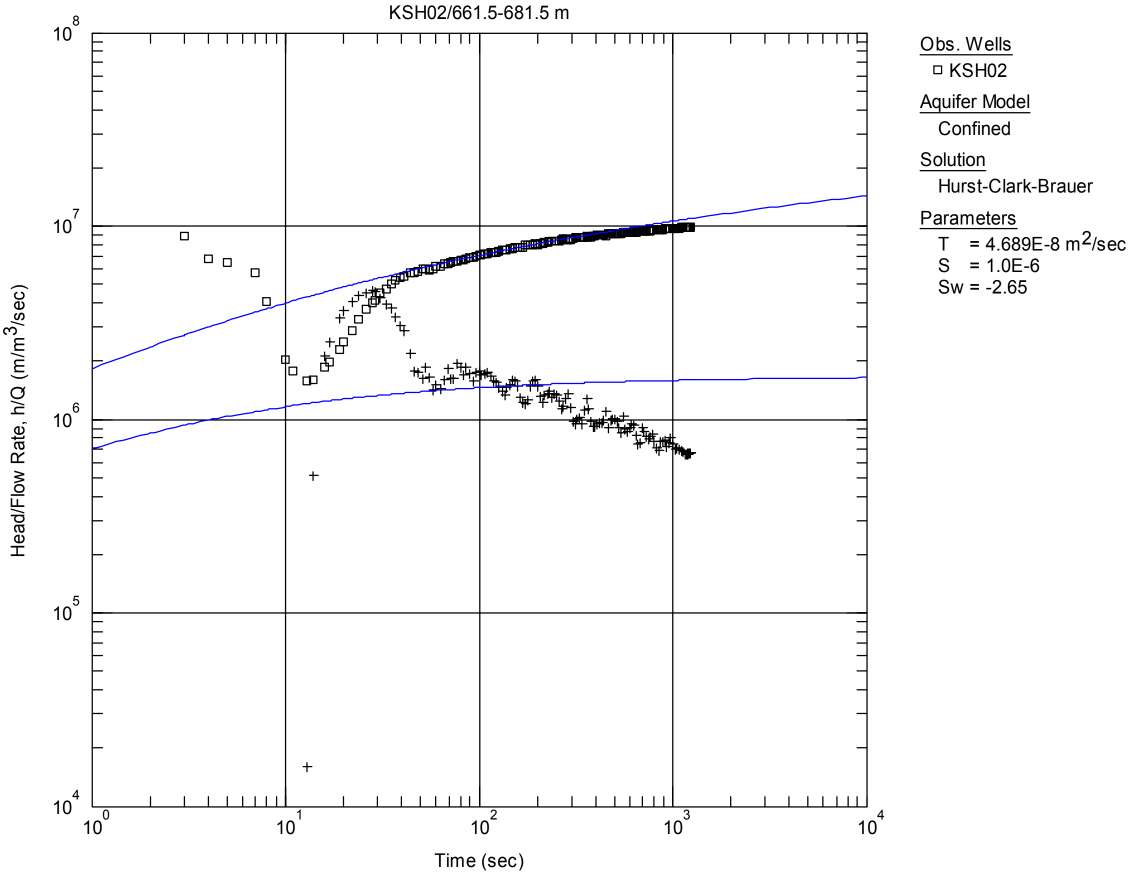
Recovery phase, lin-log match.

Test 661.5–681.5 m

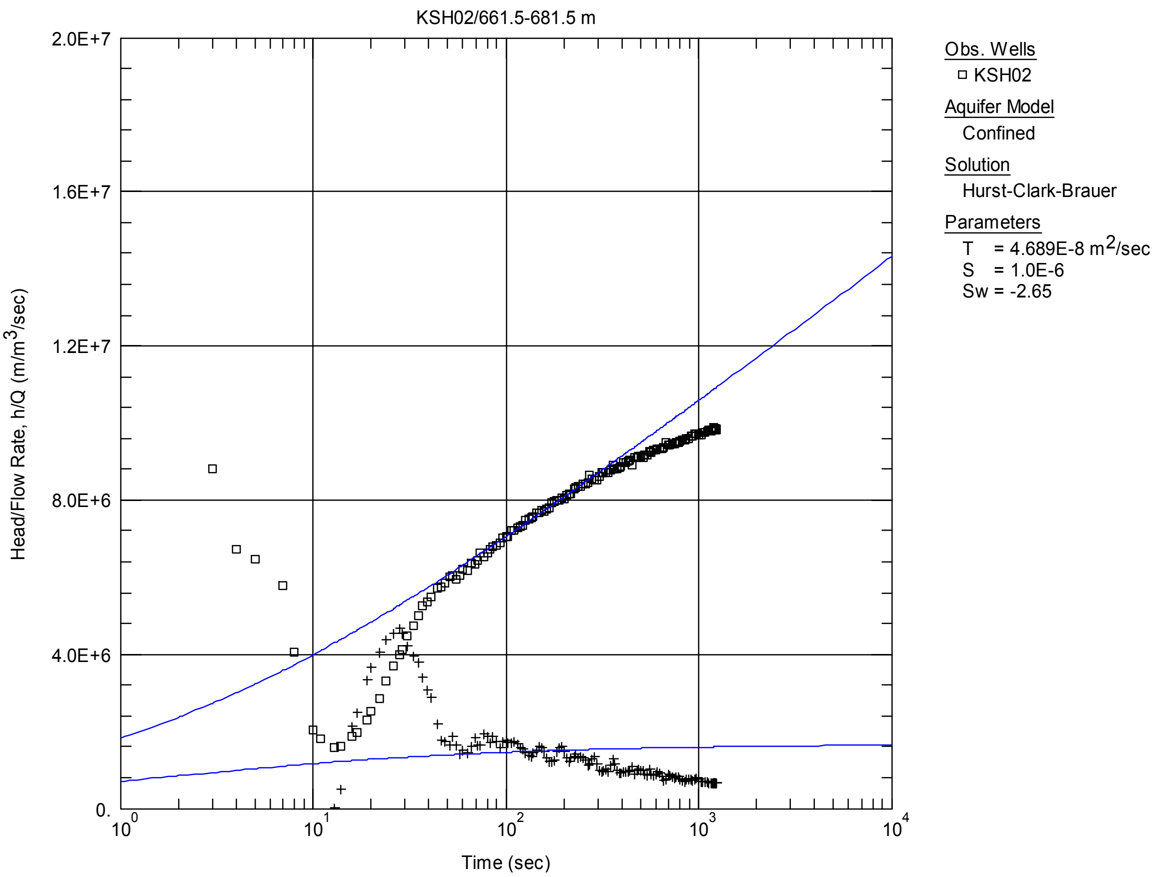
Analysis Diagram



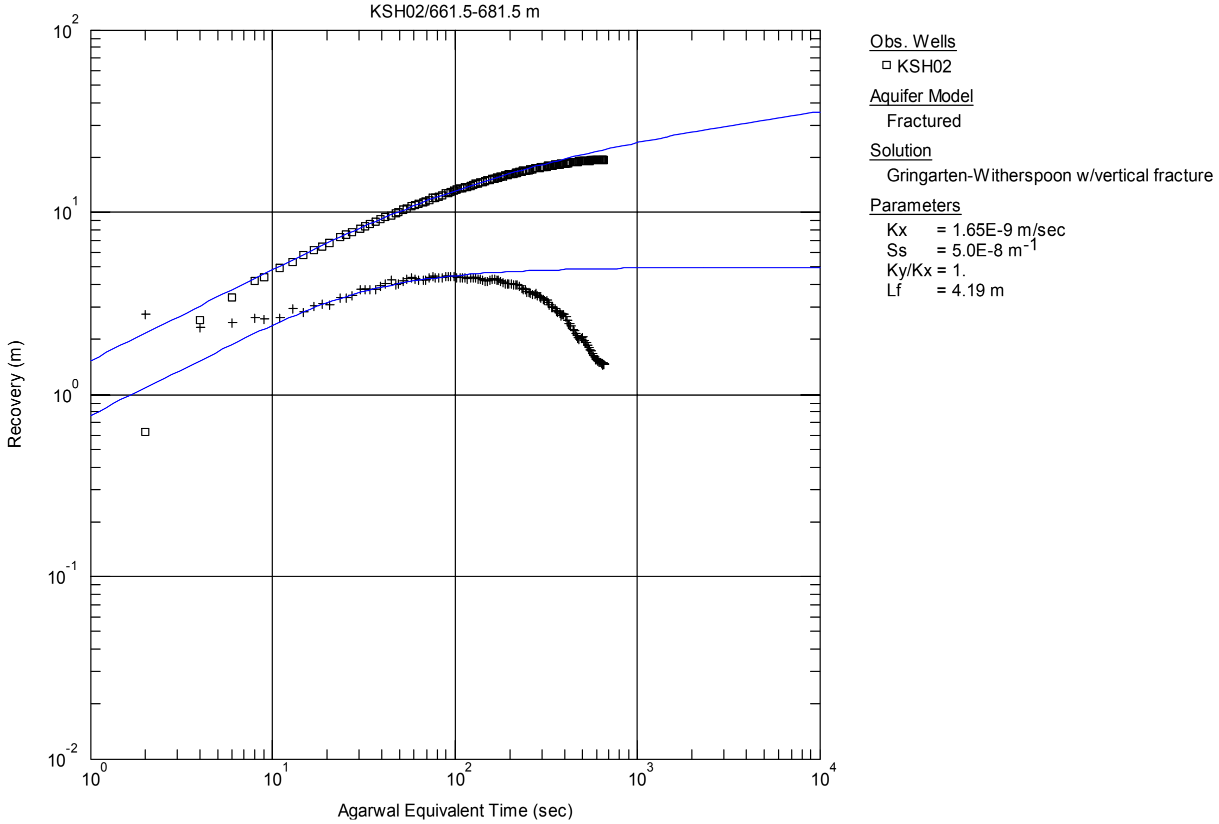
Pressure and flow rate vs. time.



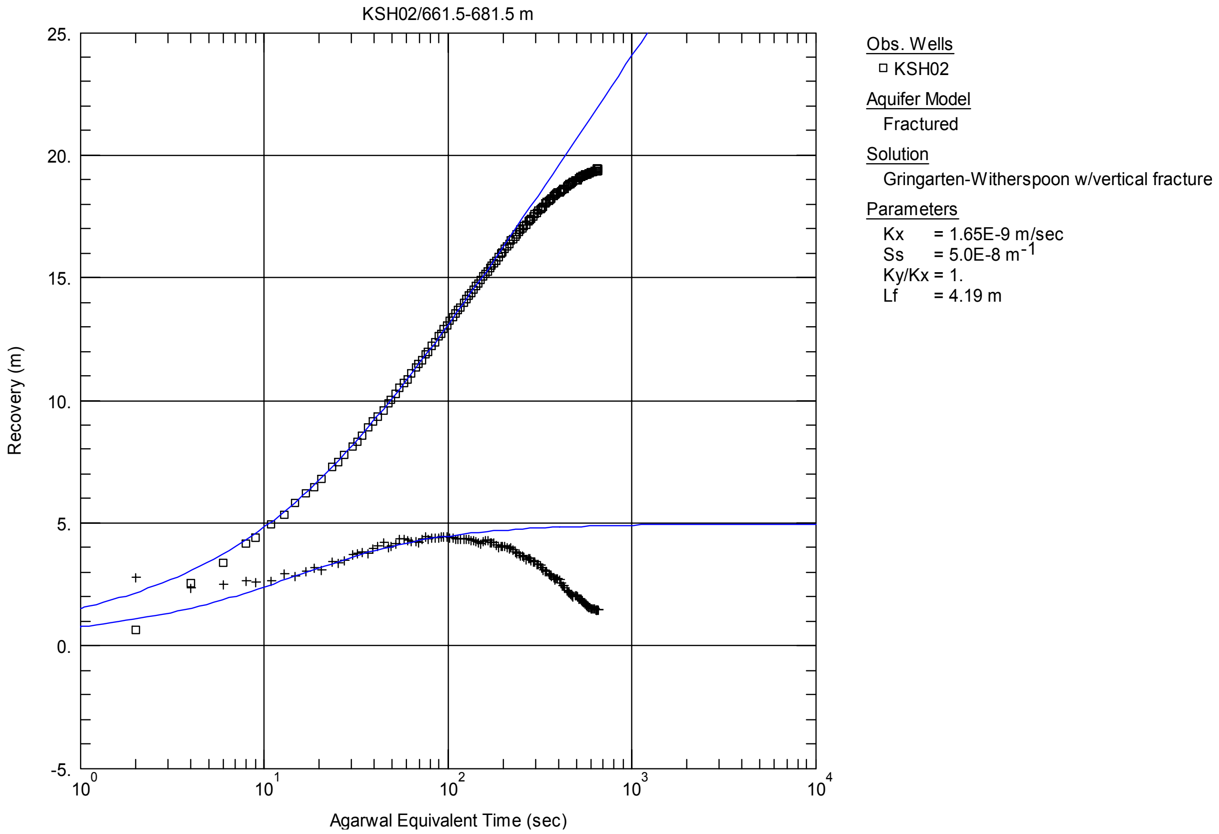
Perturbation phase, log-log match.



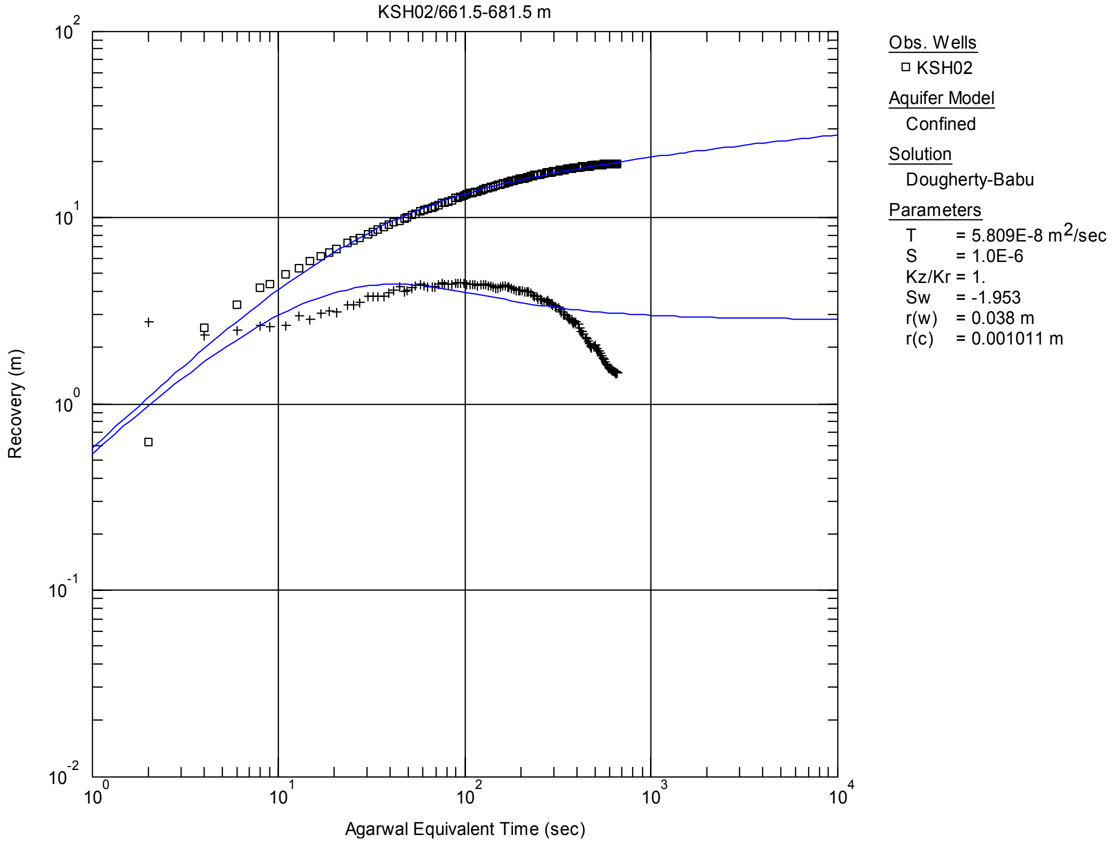
Perturbation phase, lin-log match.



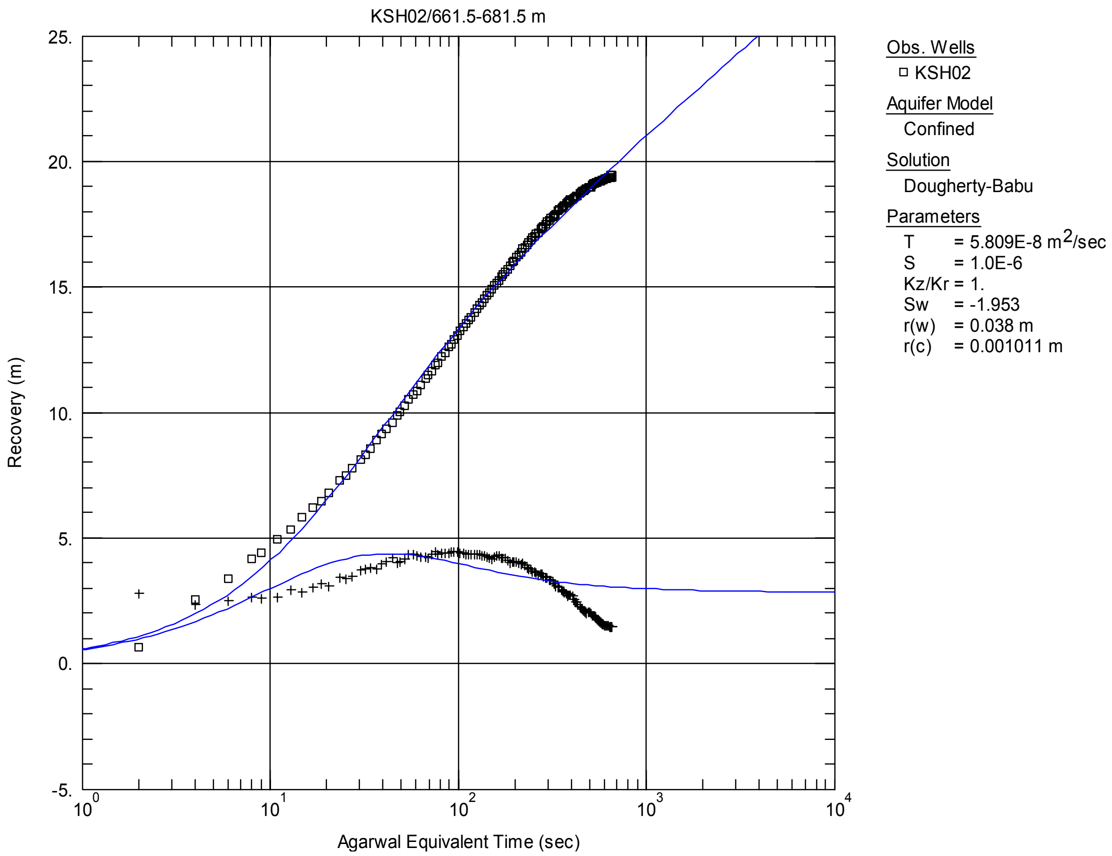
Recovery phase, log-log match. First match.



Recovery phase, lin-log match. First match.



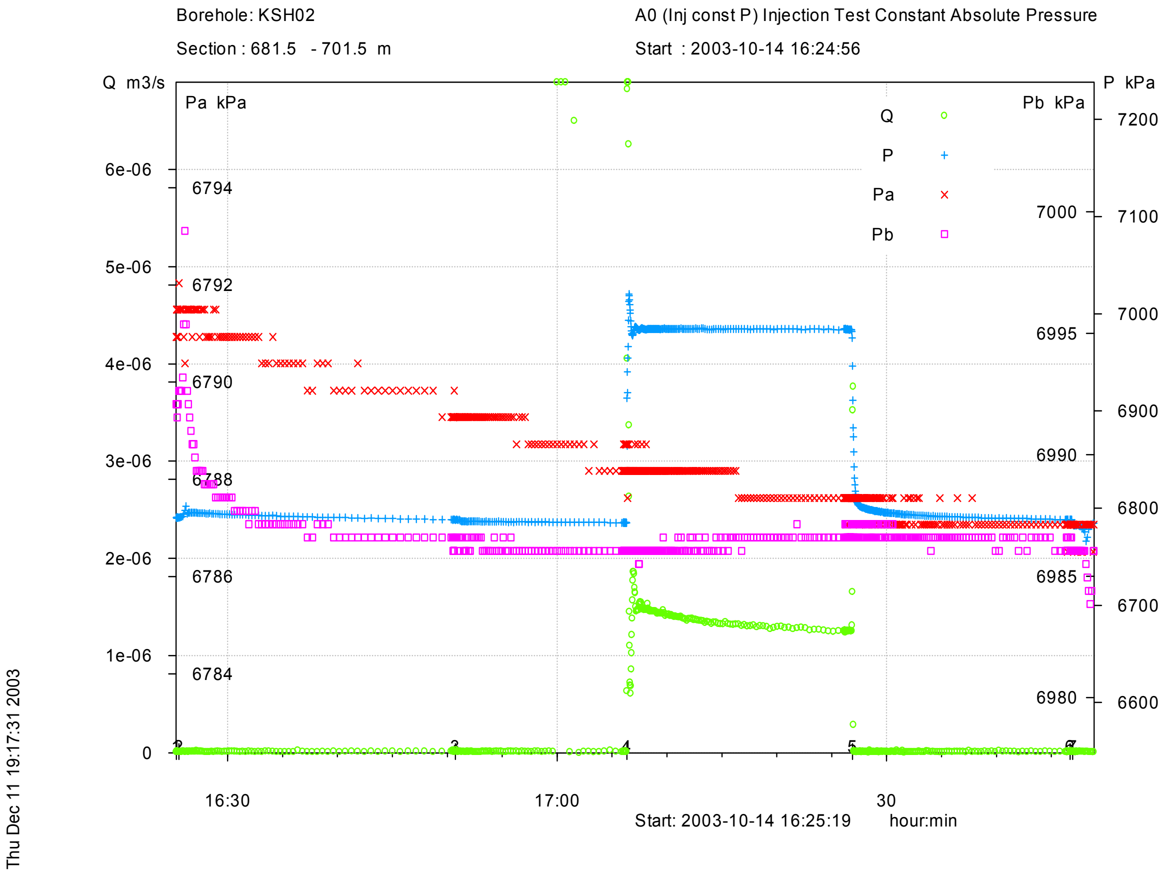
Recovery phase, log-log match. Second match.



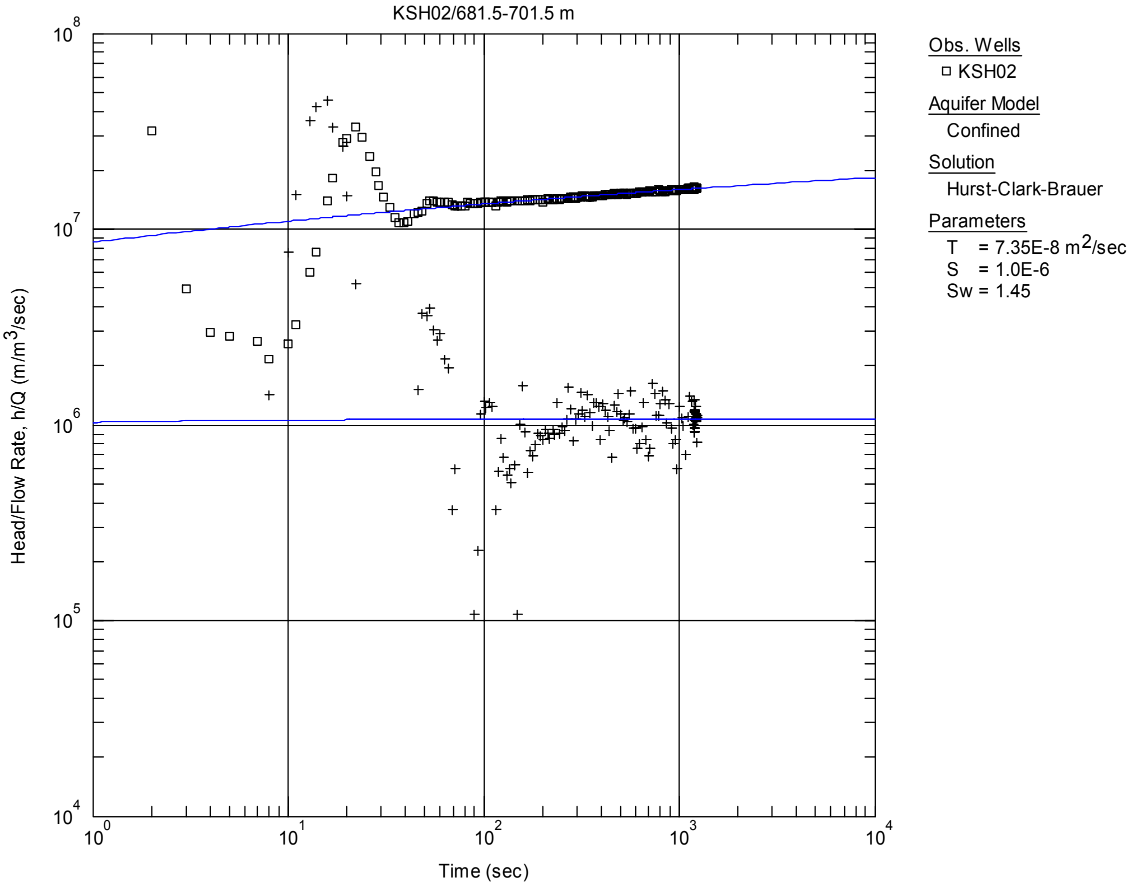
Recovery phase, lin-log match. Second match.

Test 681.5–701.5 m

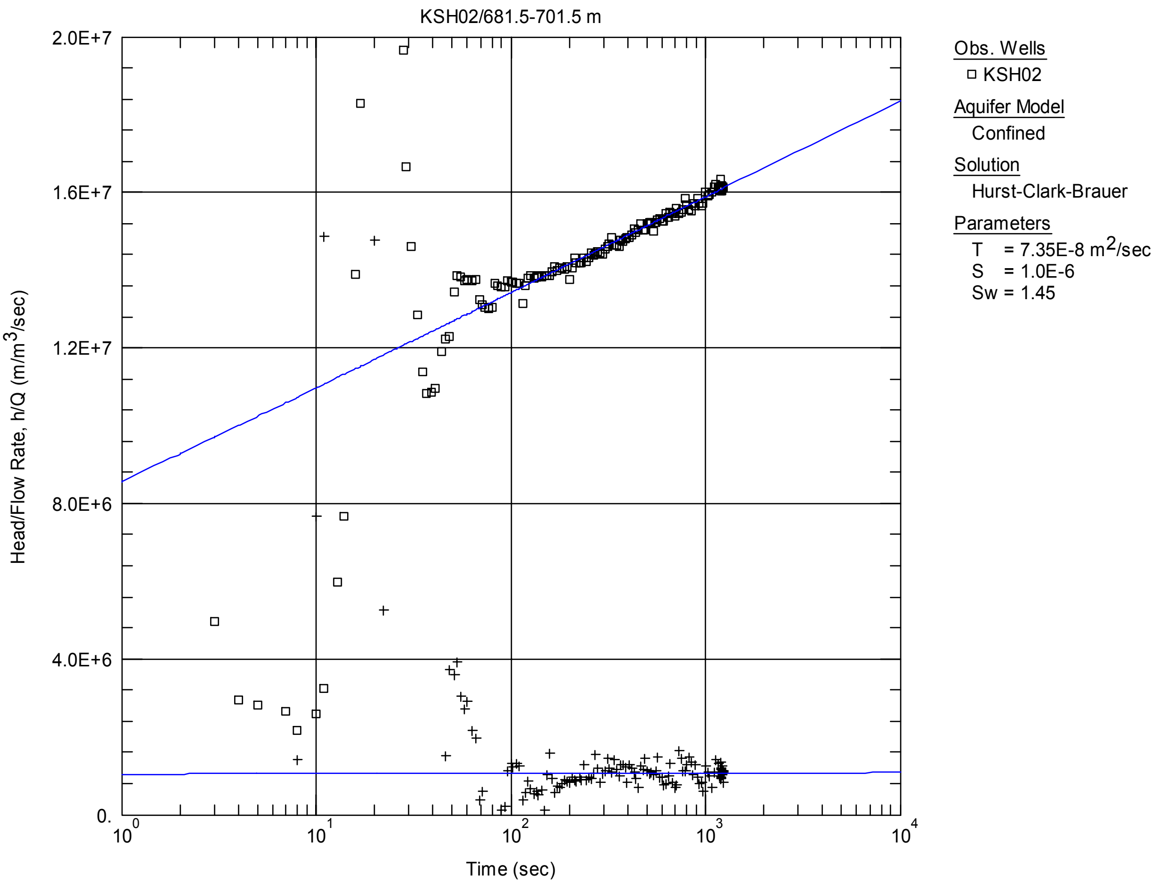
Analysis Diagram



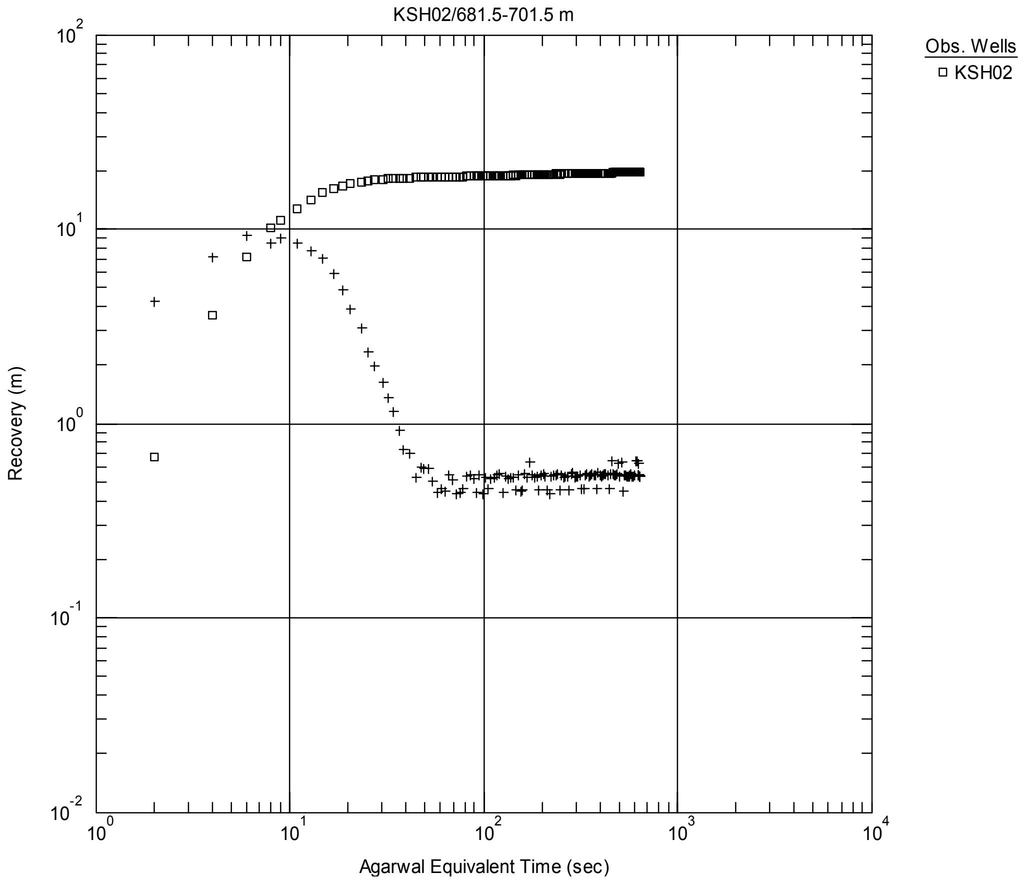
Pressure and flow rate vs. time.



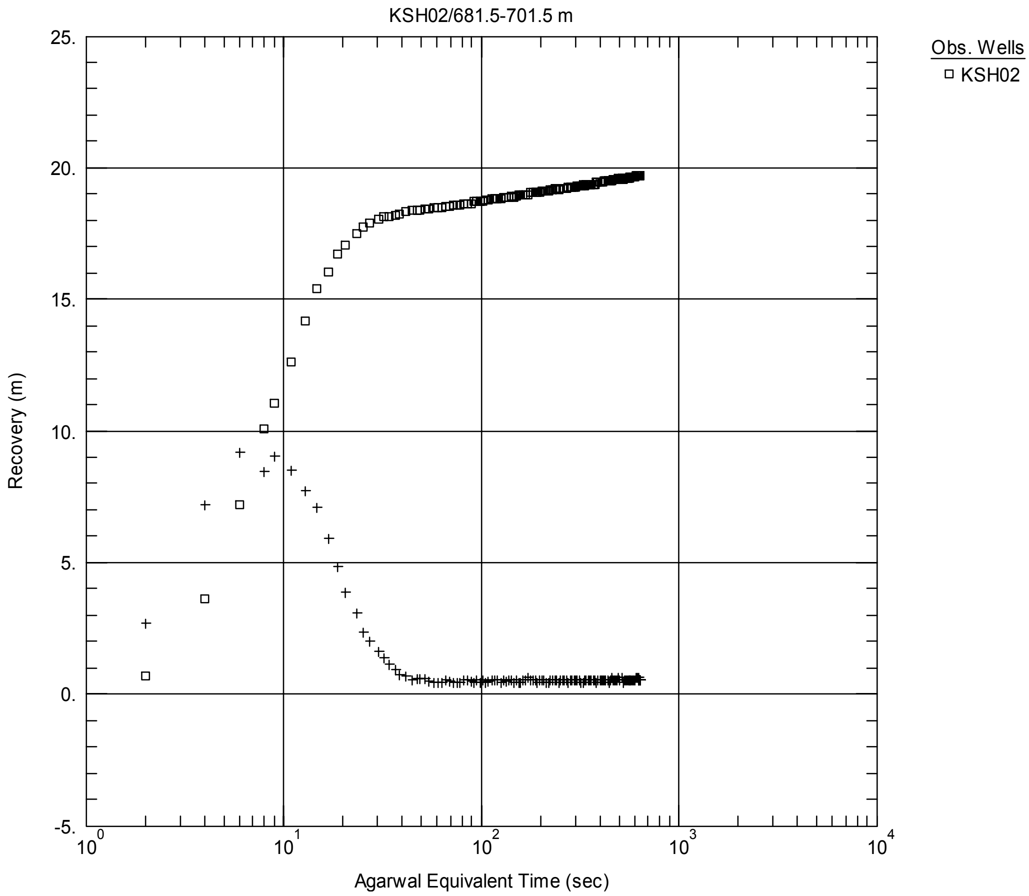
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



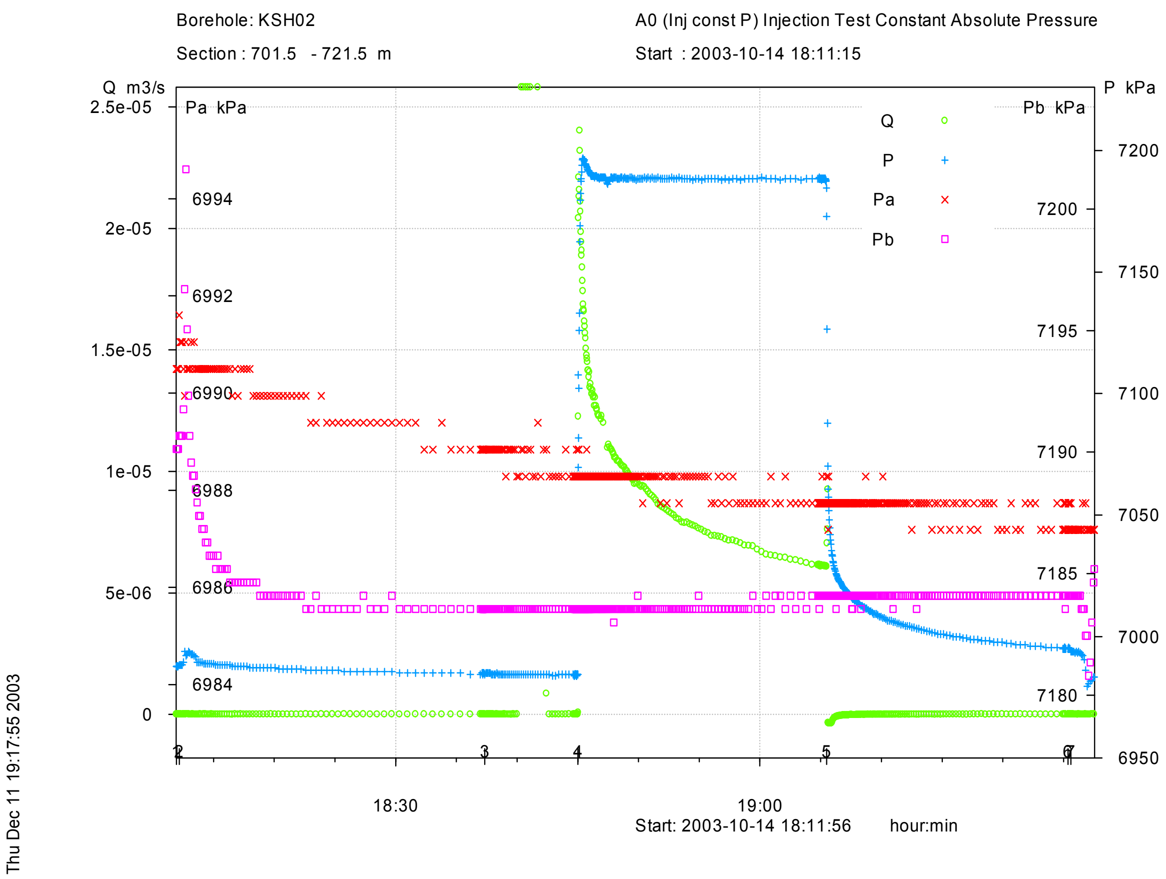
Recovery phase, log-log match.



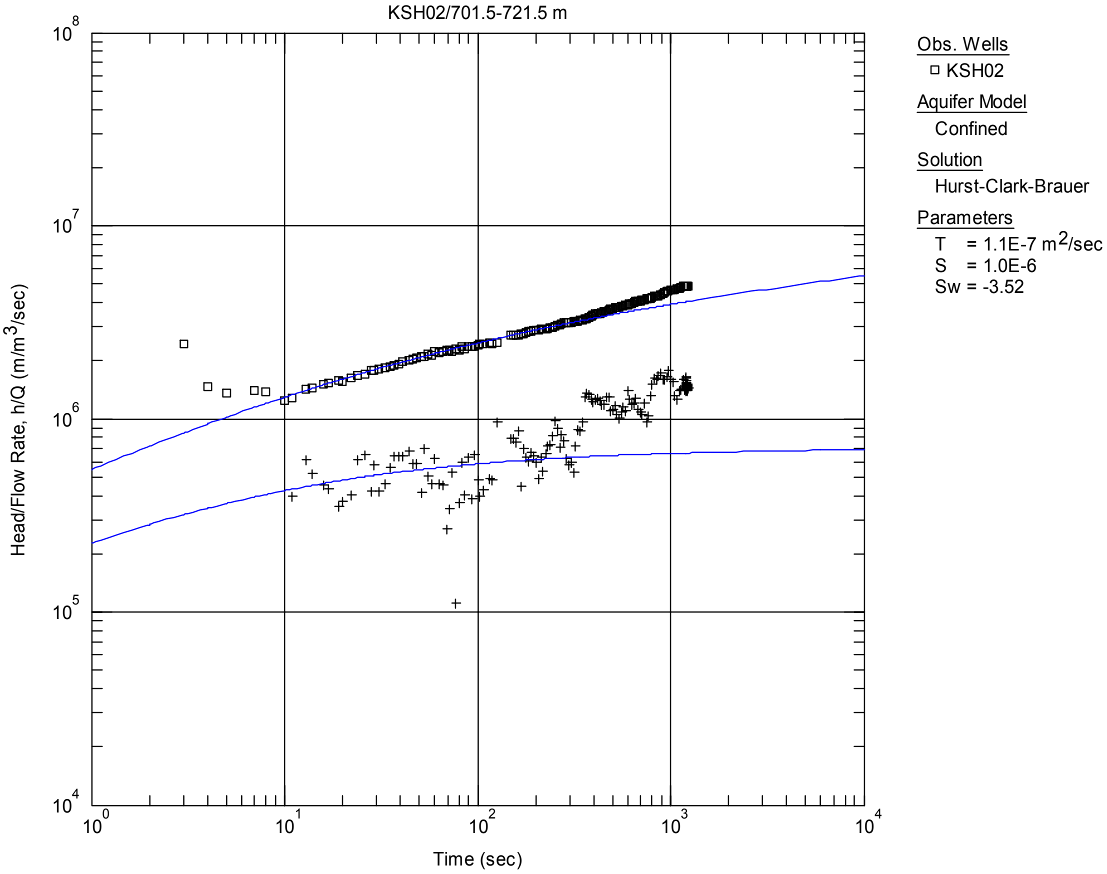
Recovery phase, lin-log match.

Test 701.5–721.5 m

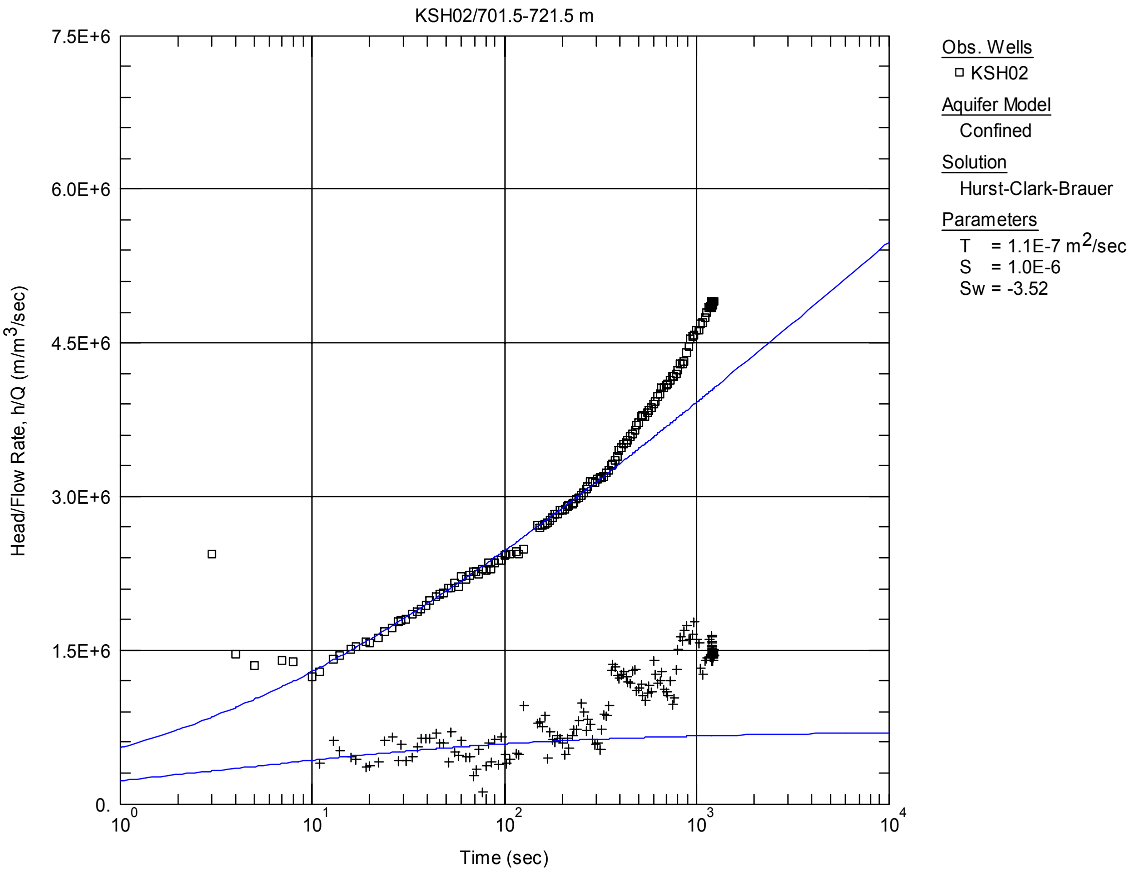
Analysis Diagram



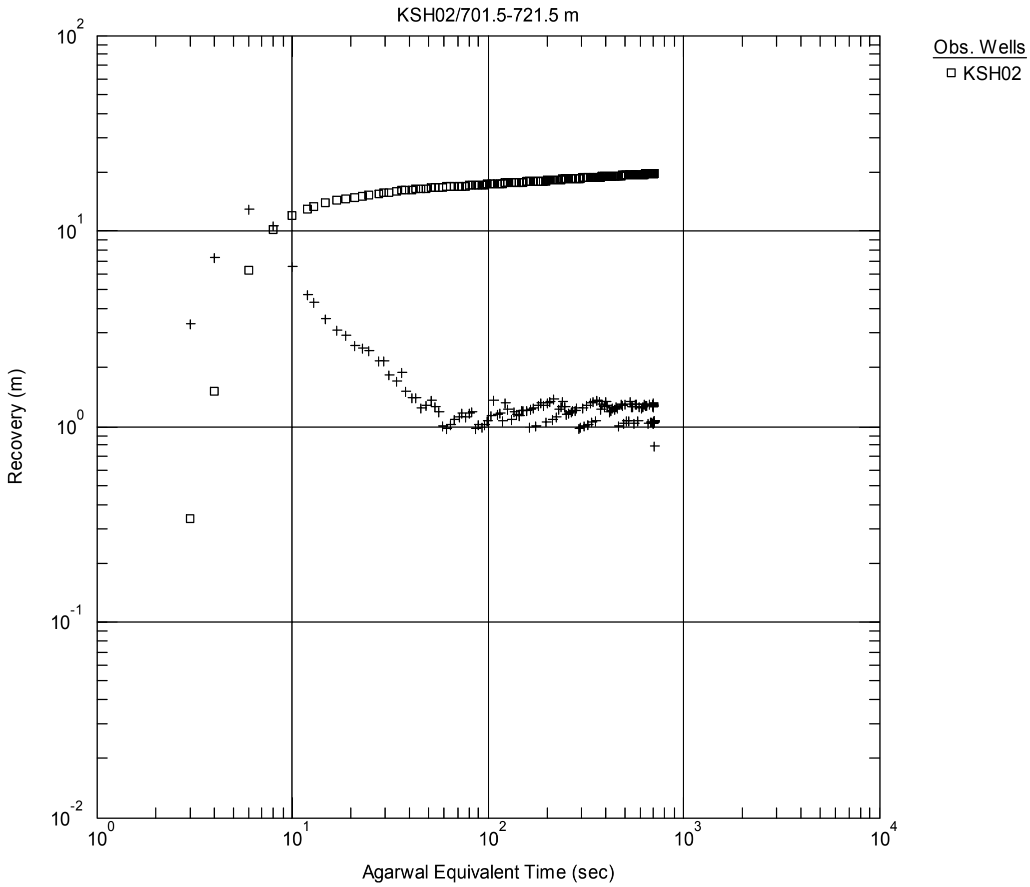
Pressure and flow rate vs. time.



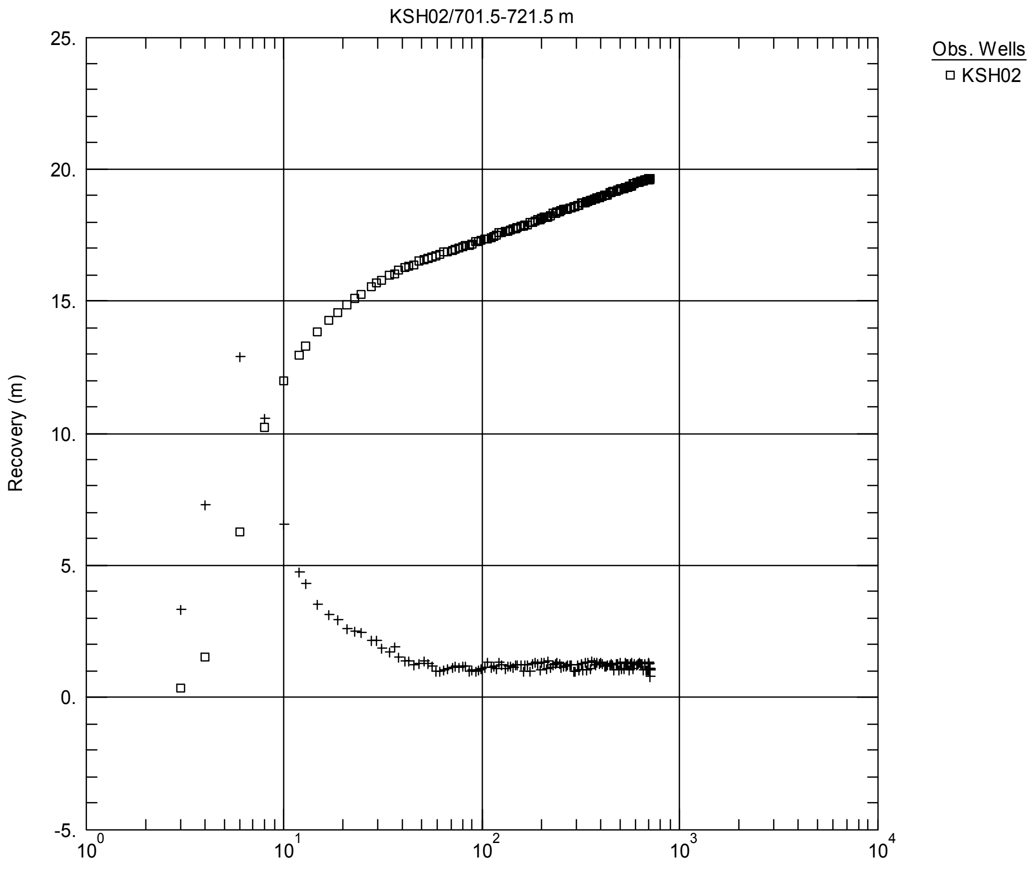
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

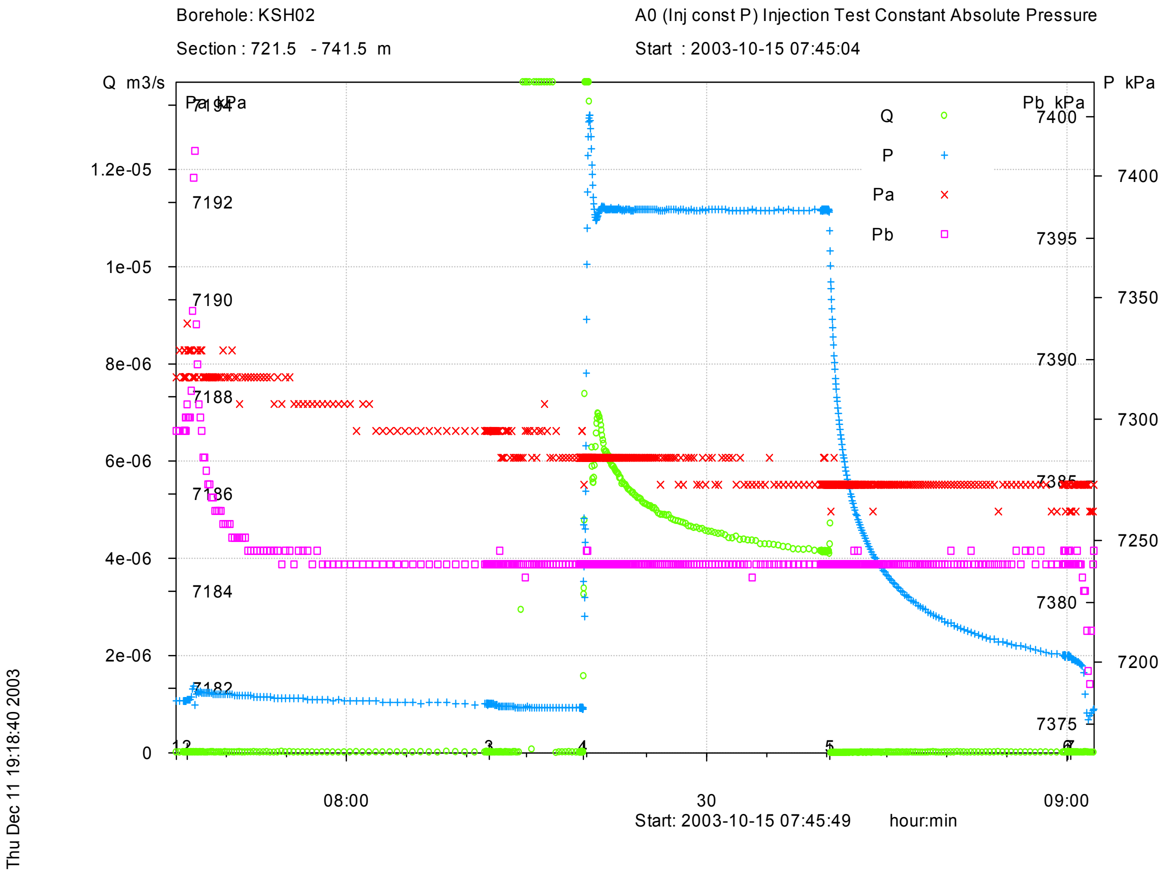


Recovery phase, lin-log match.

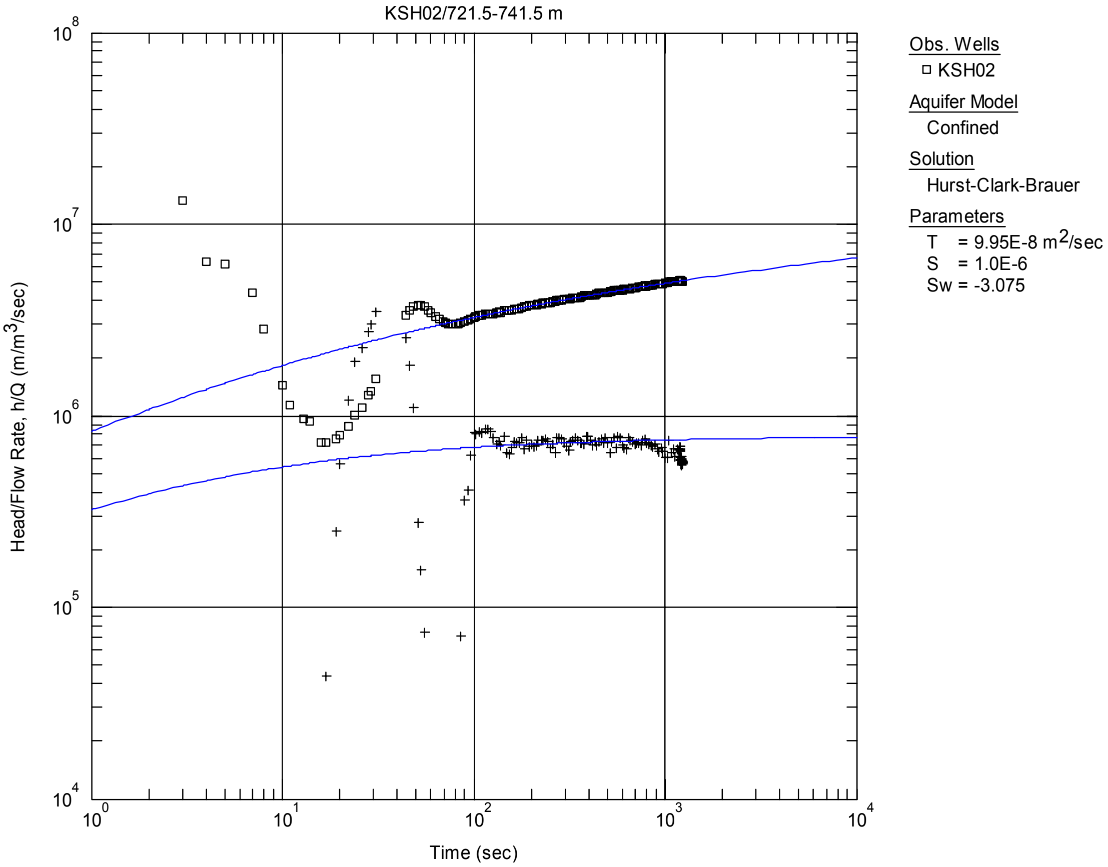
Appendix 3-42

Test 721.5–741.5 m

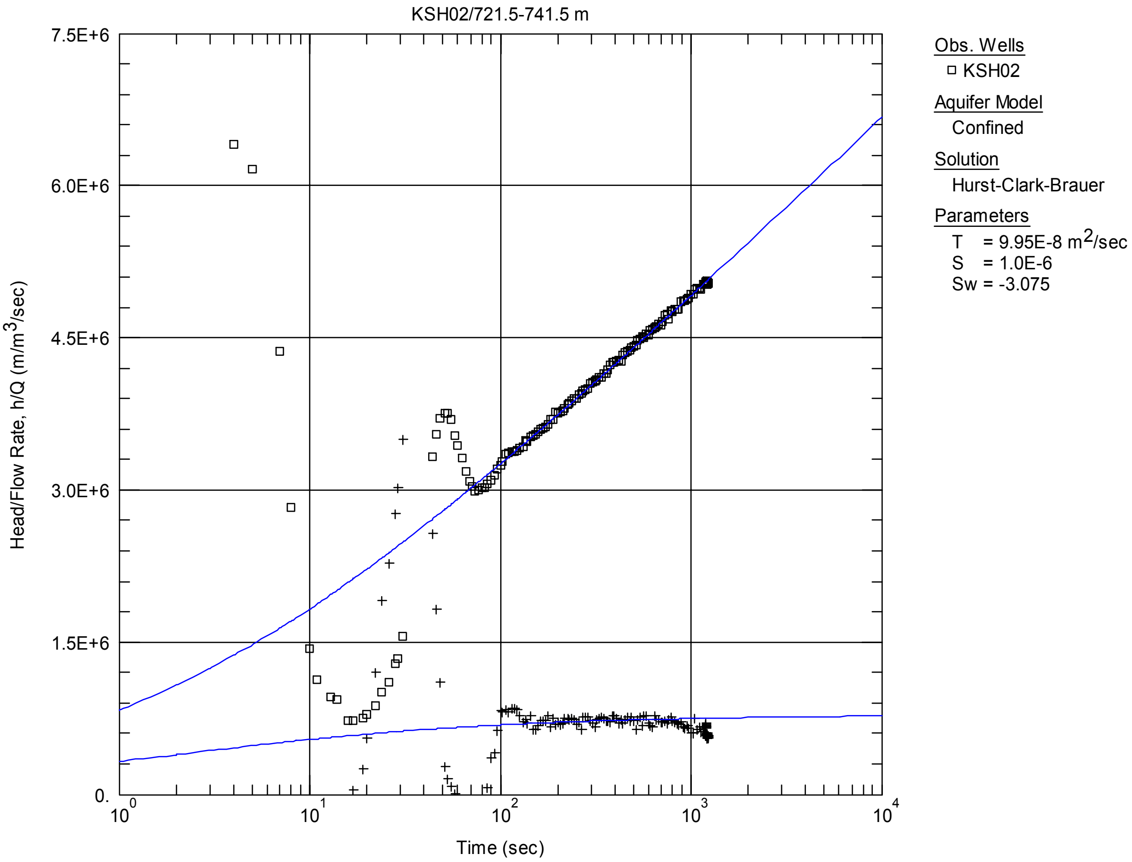
Analysis Diagram



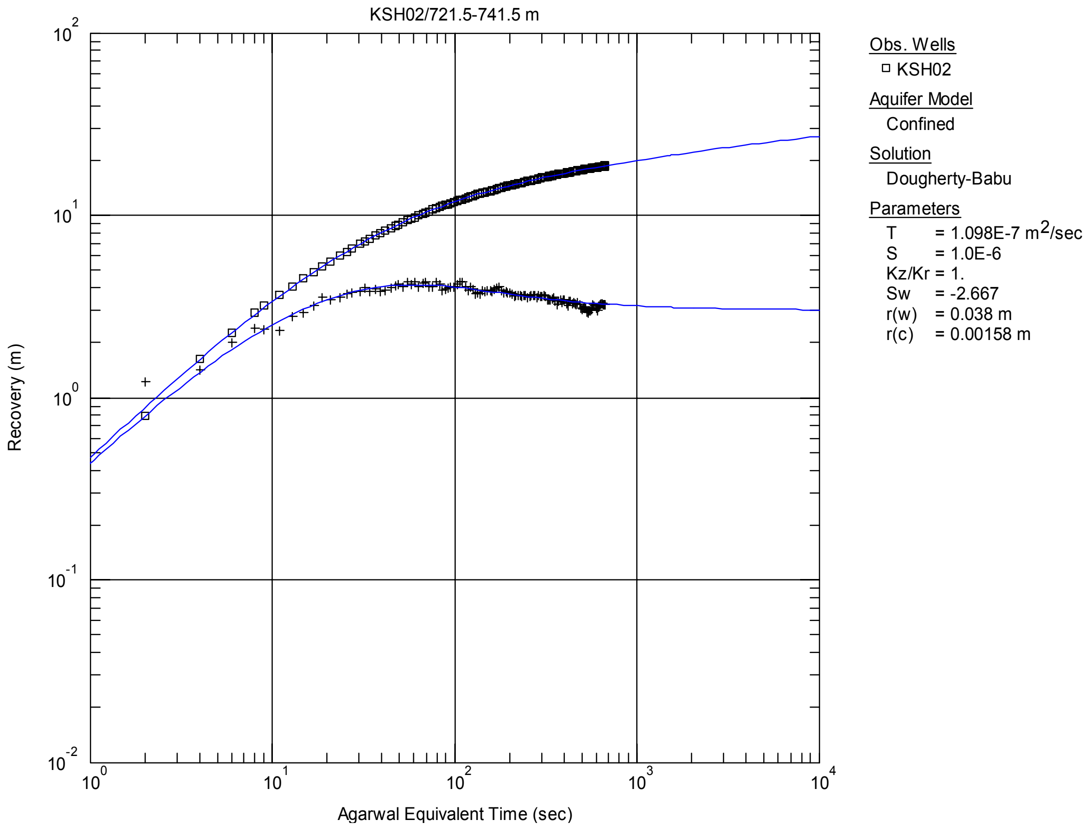
Pressure and flow rate vs. time.



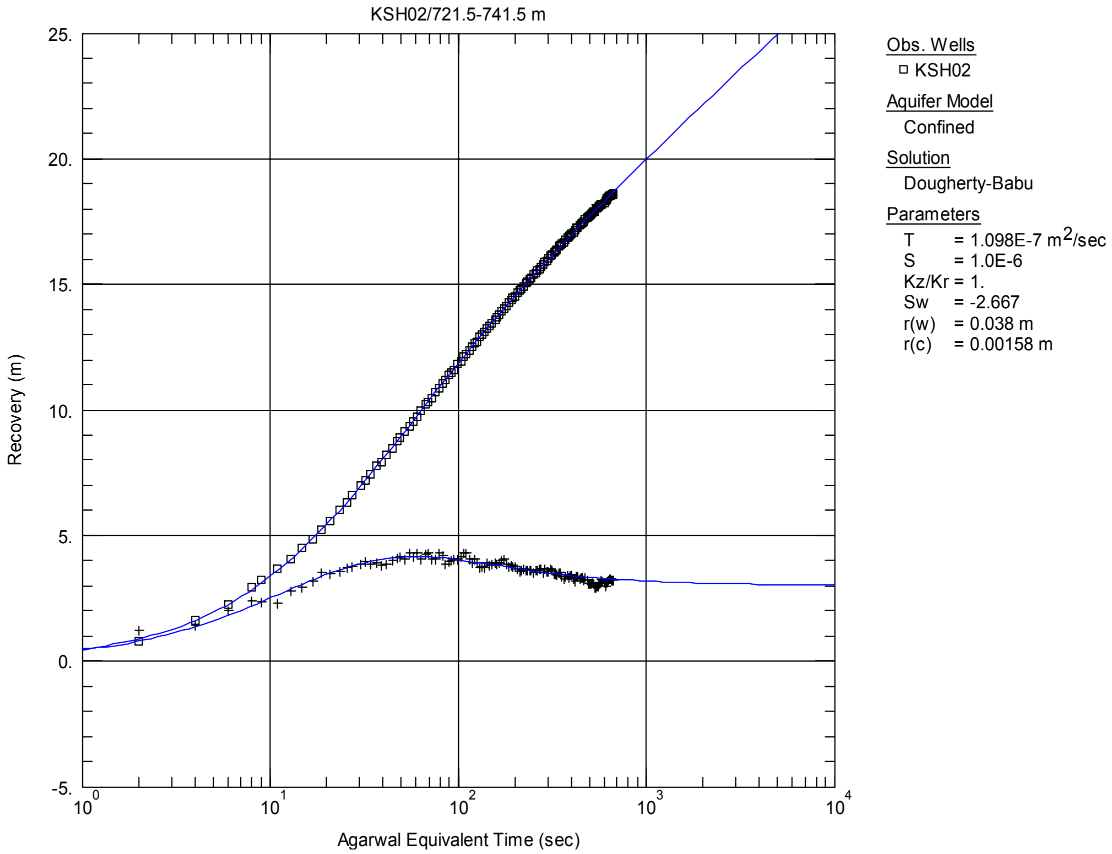
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

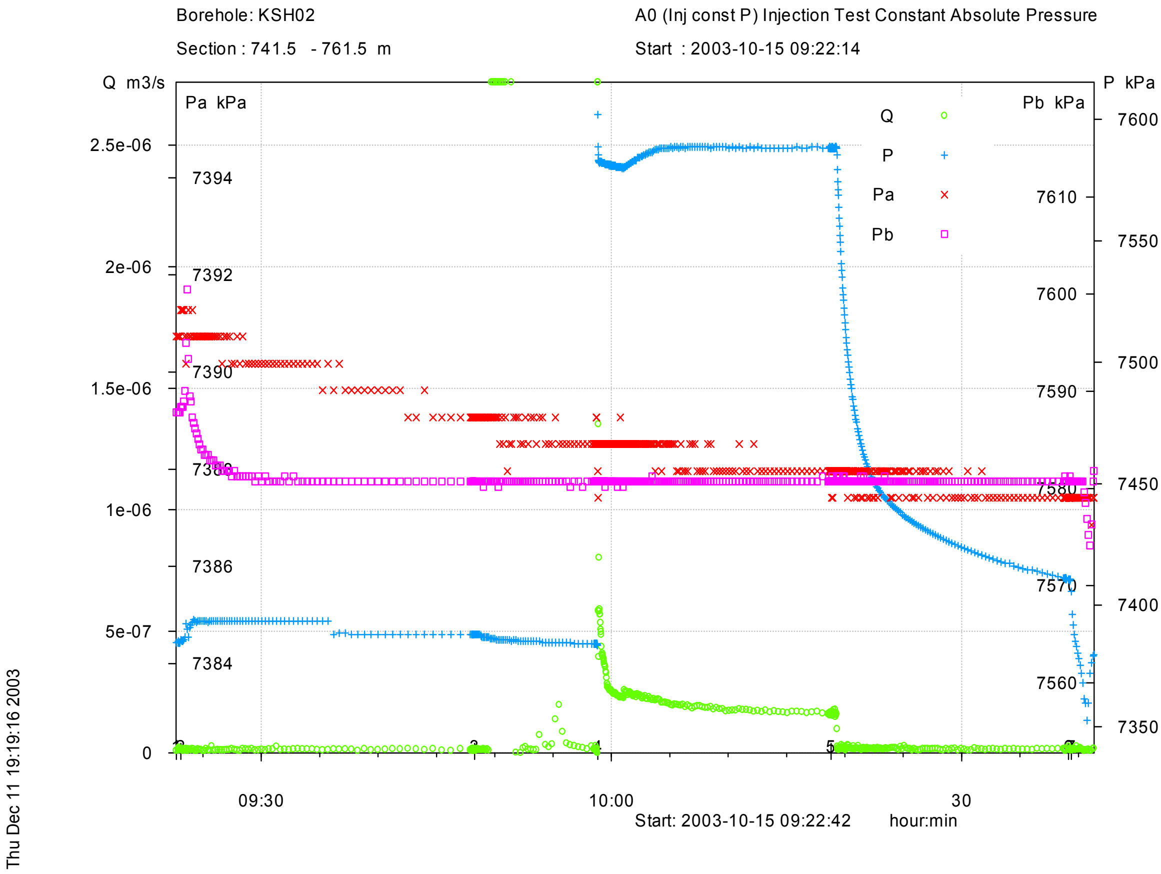


Recovery phase, lin-log match.

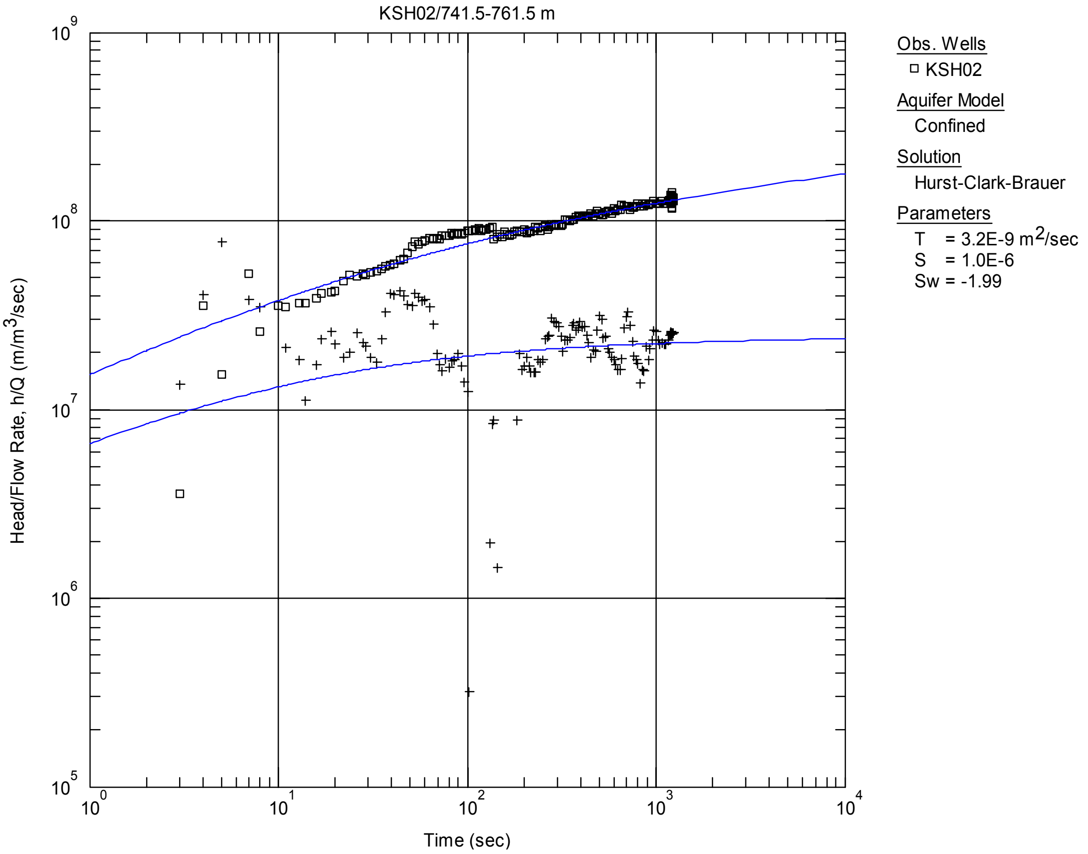
Appendix 3-43

Test 741.5–761.5 m

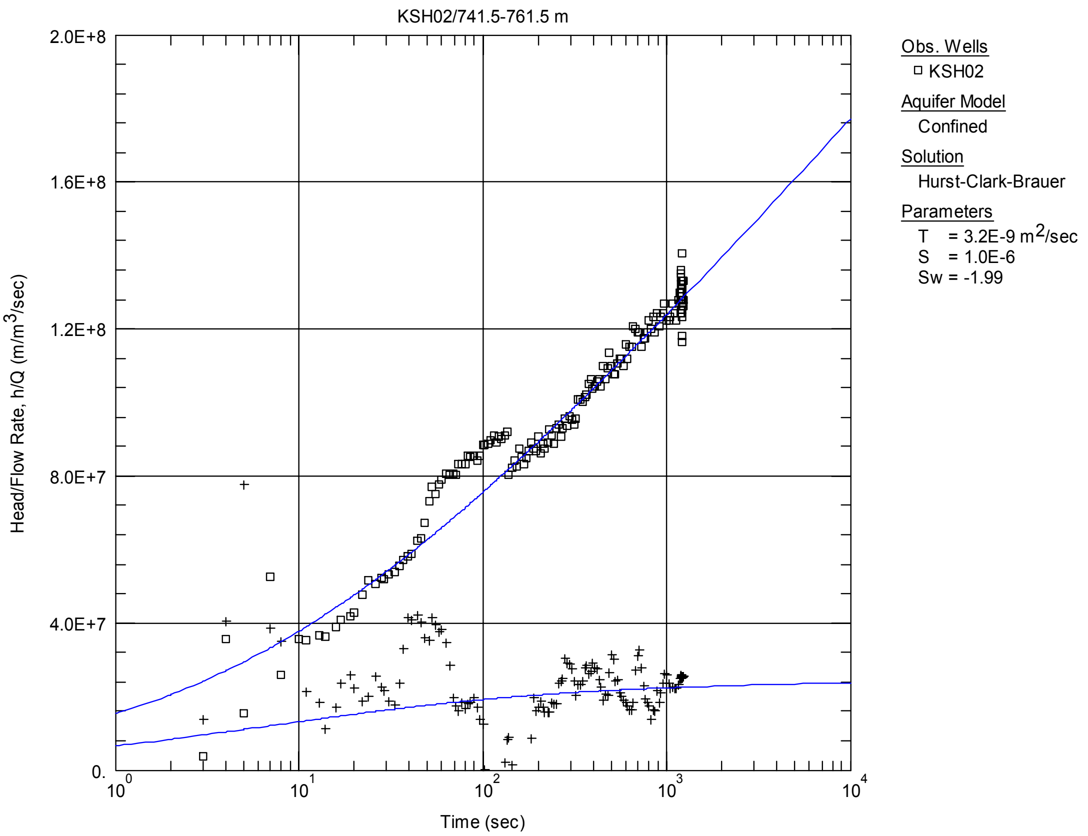
Analysis Diagram



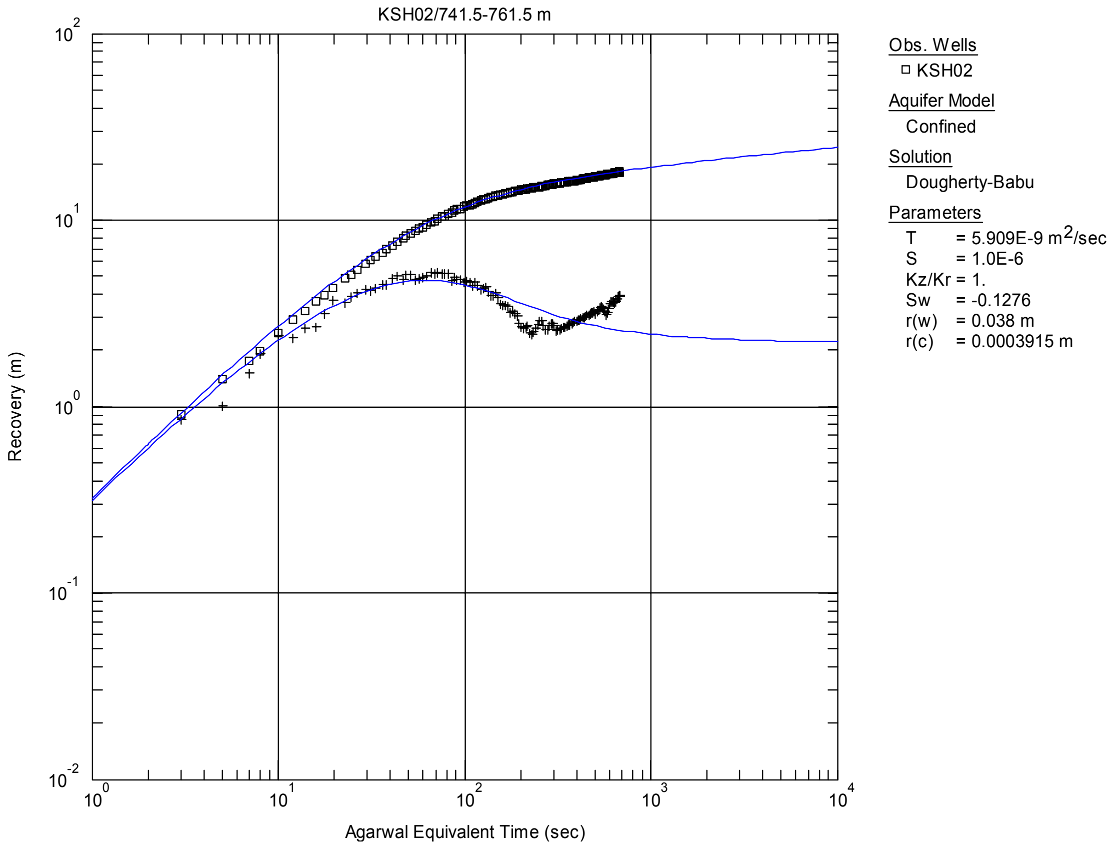
Pressure and flow rate vs. time.



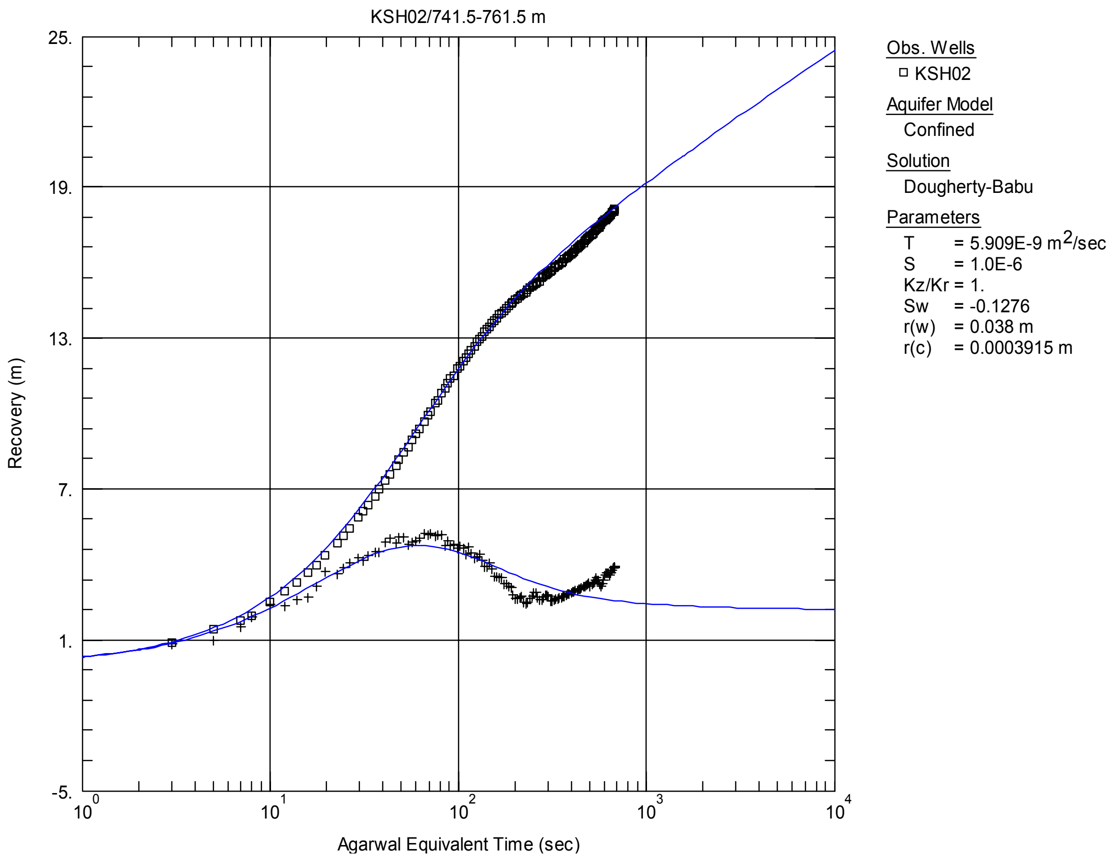
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

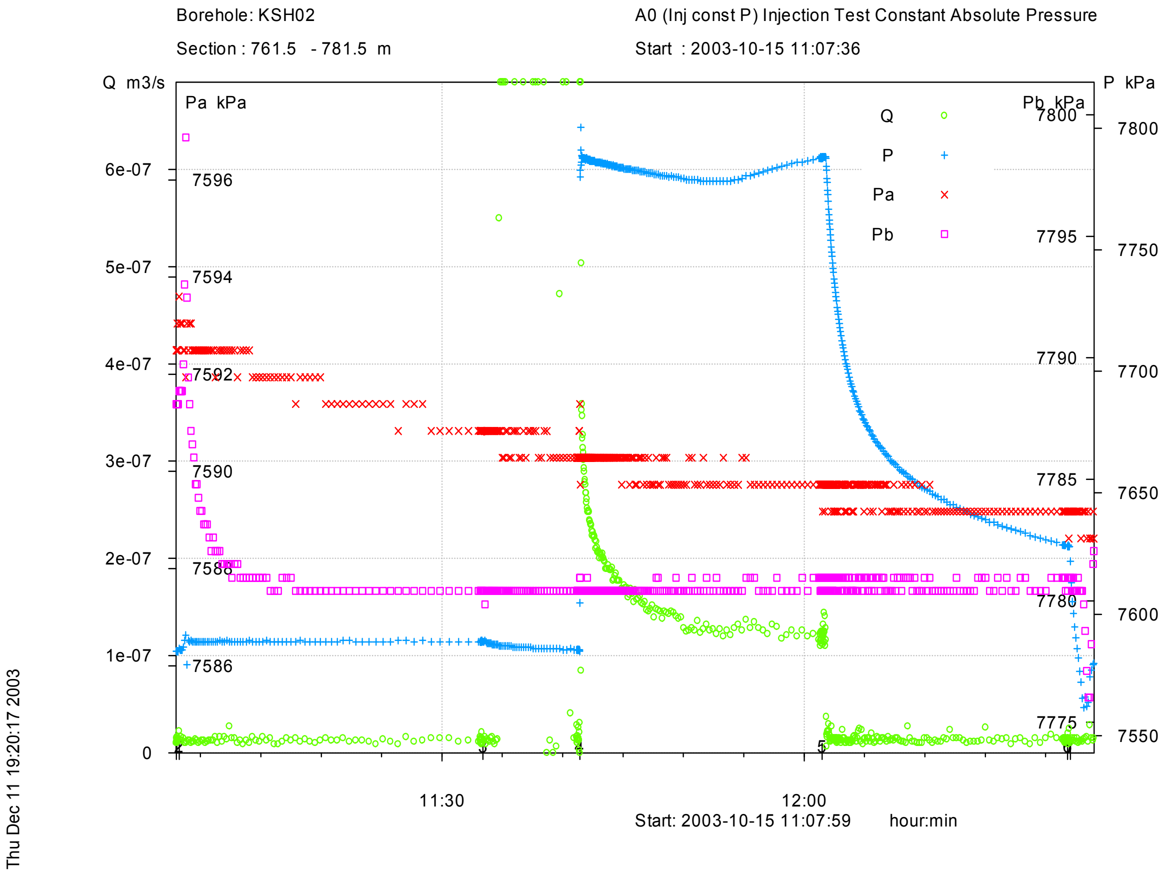


Recovery phase, lin-log match.

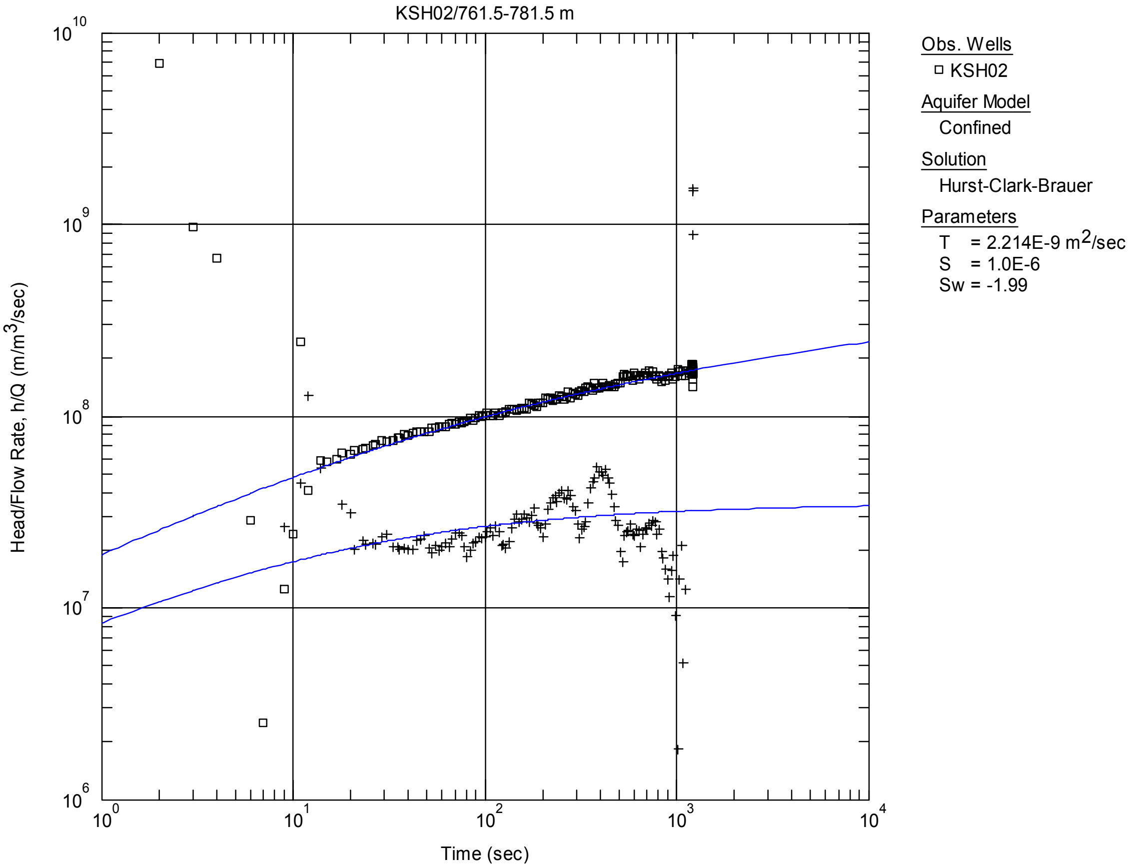
Appendix 3-44

Test 761.5–781.5 m

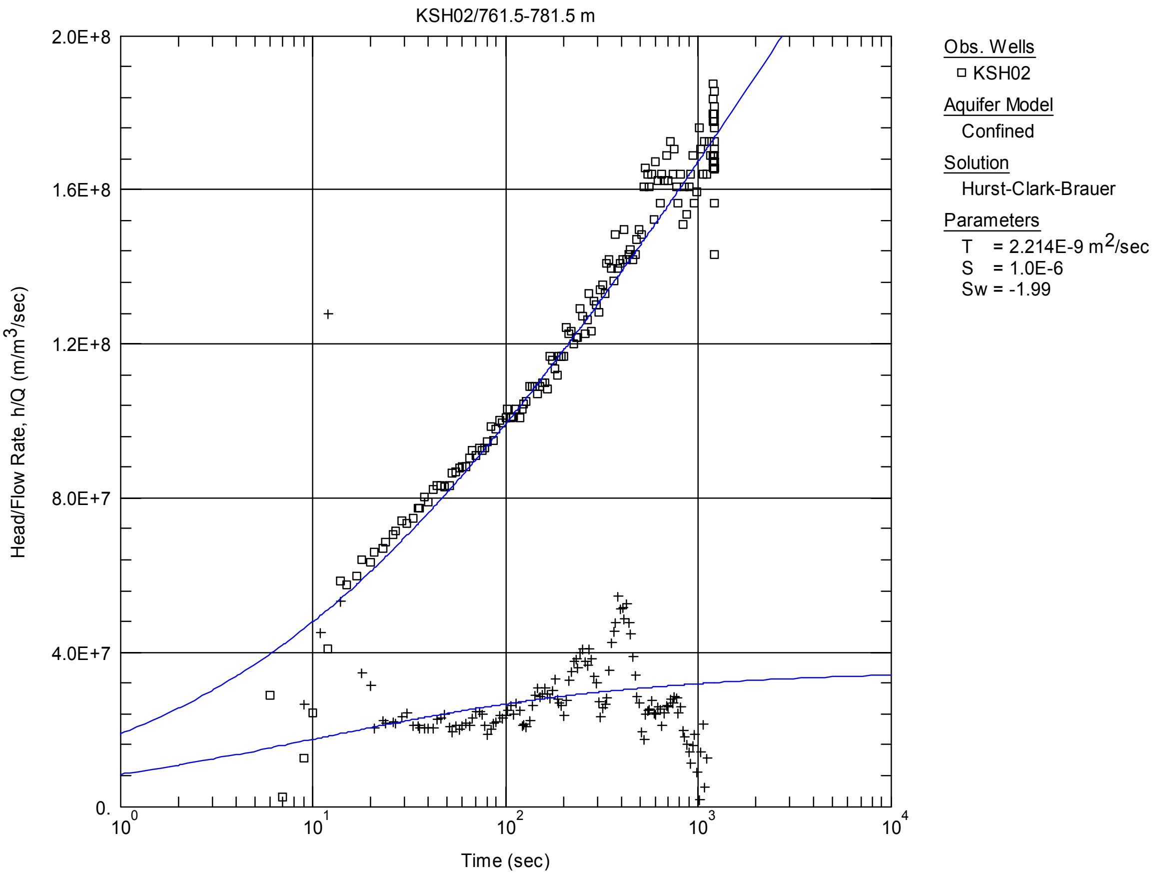
Analysis Diagram



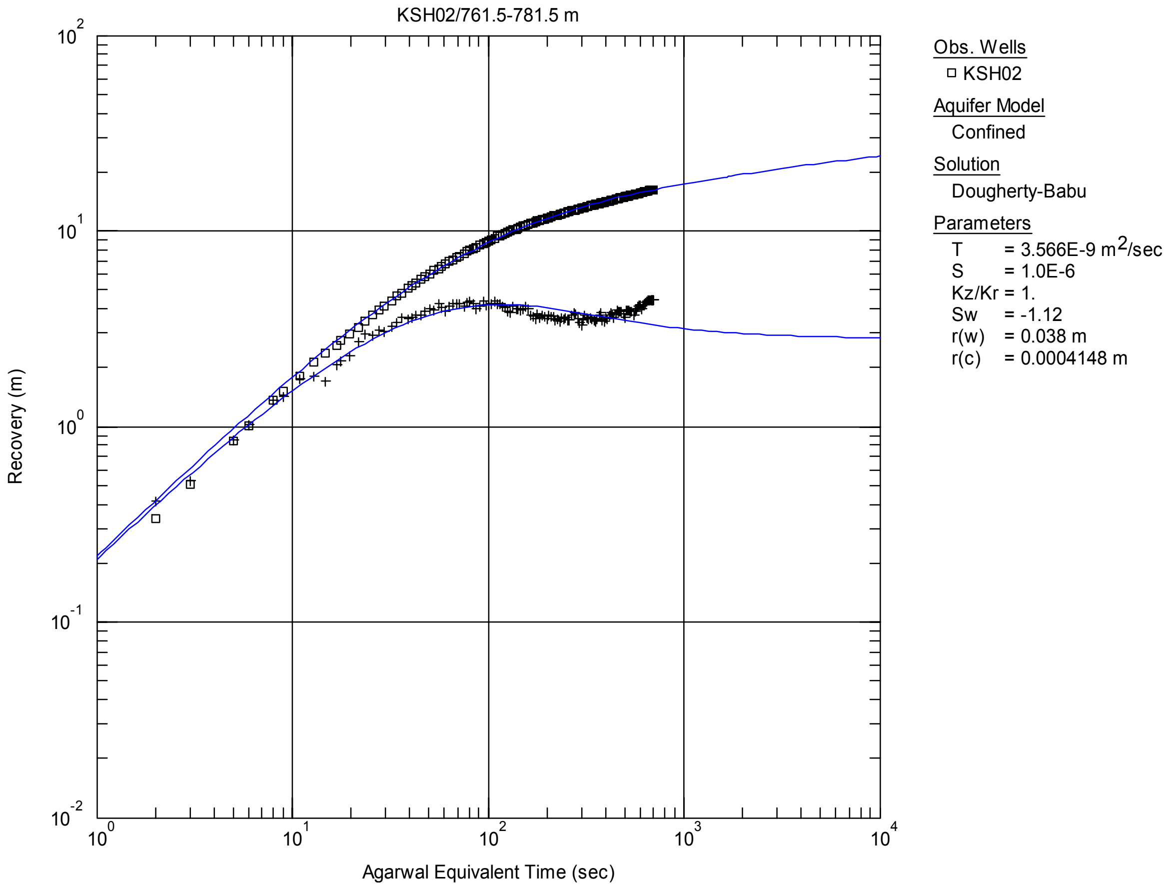
Pressure and flow rate vs. time.



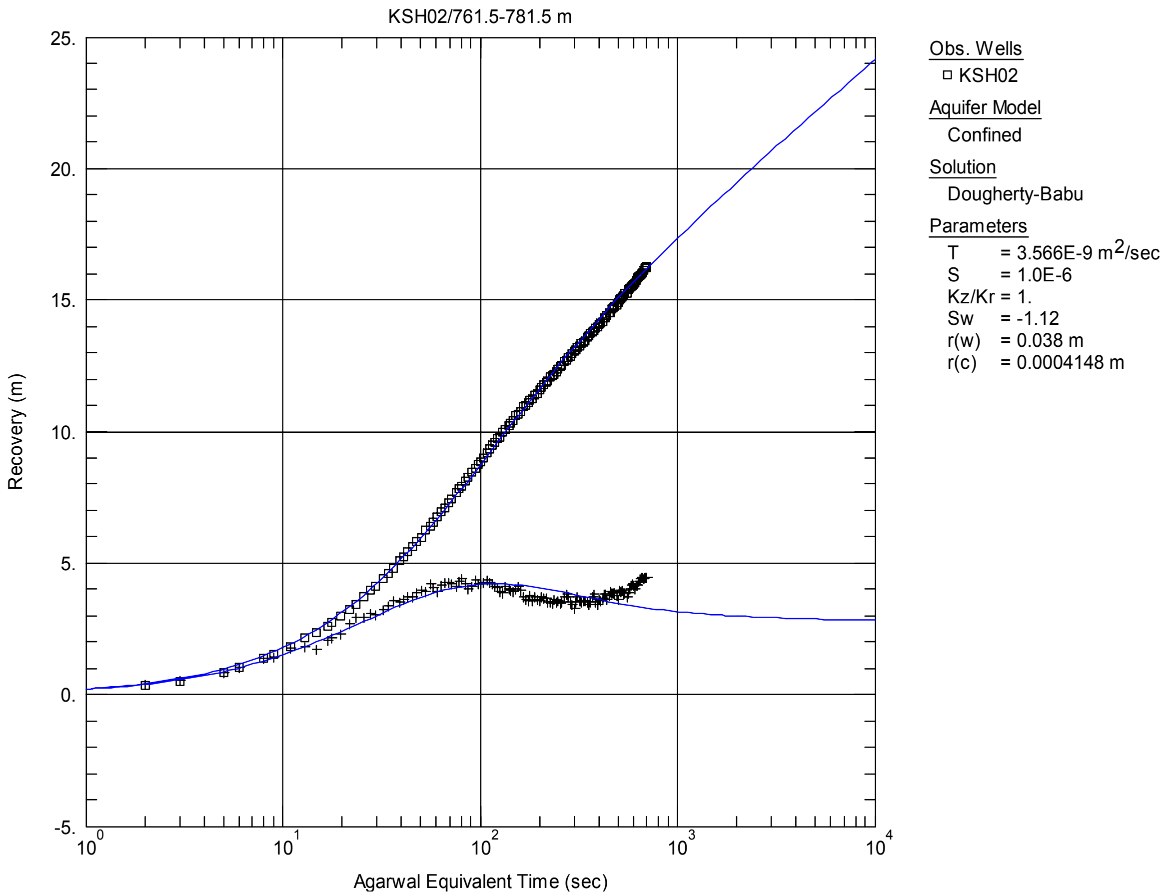
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

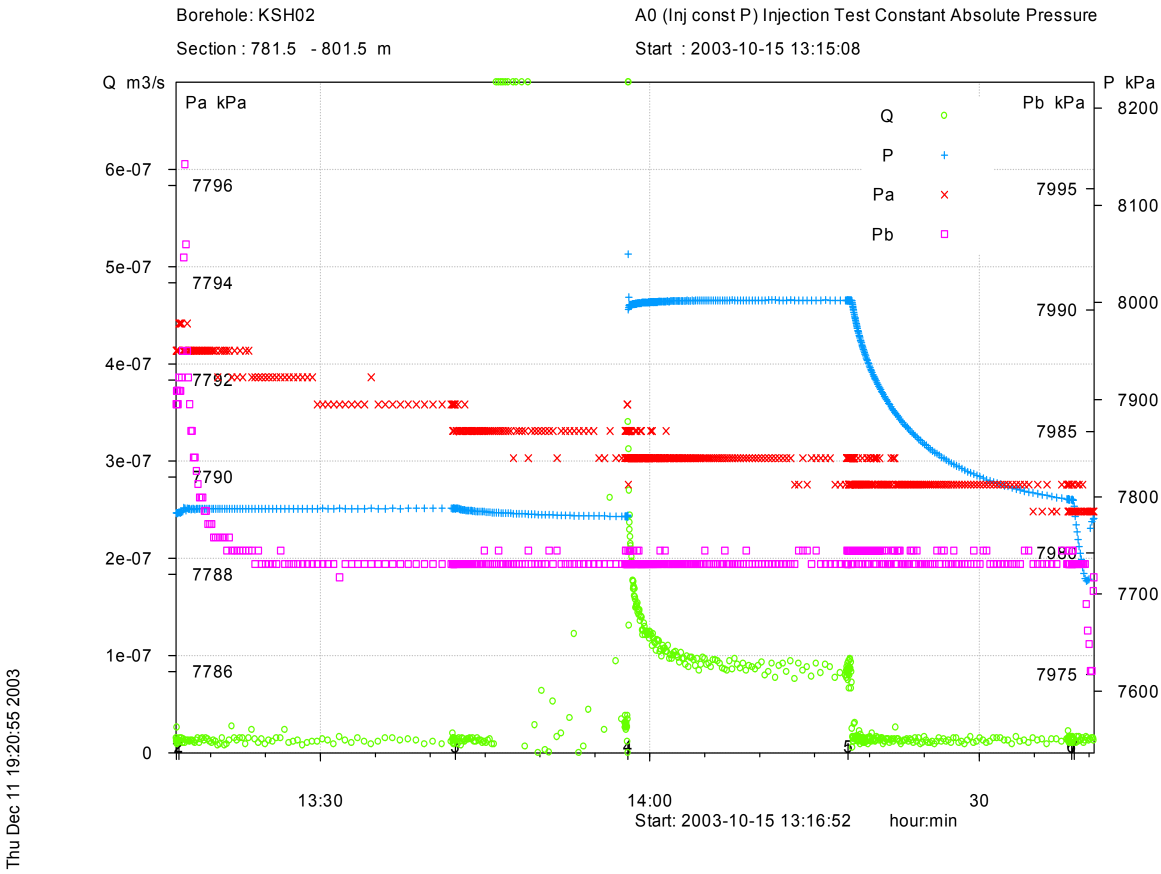


Recovery phase, lin-log match.

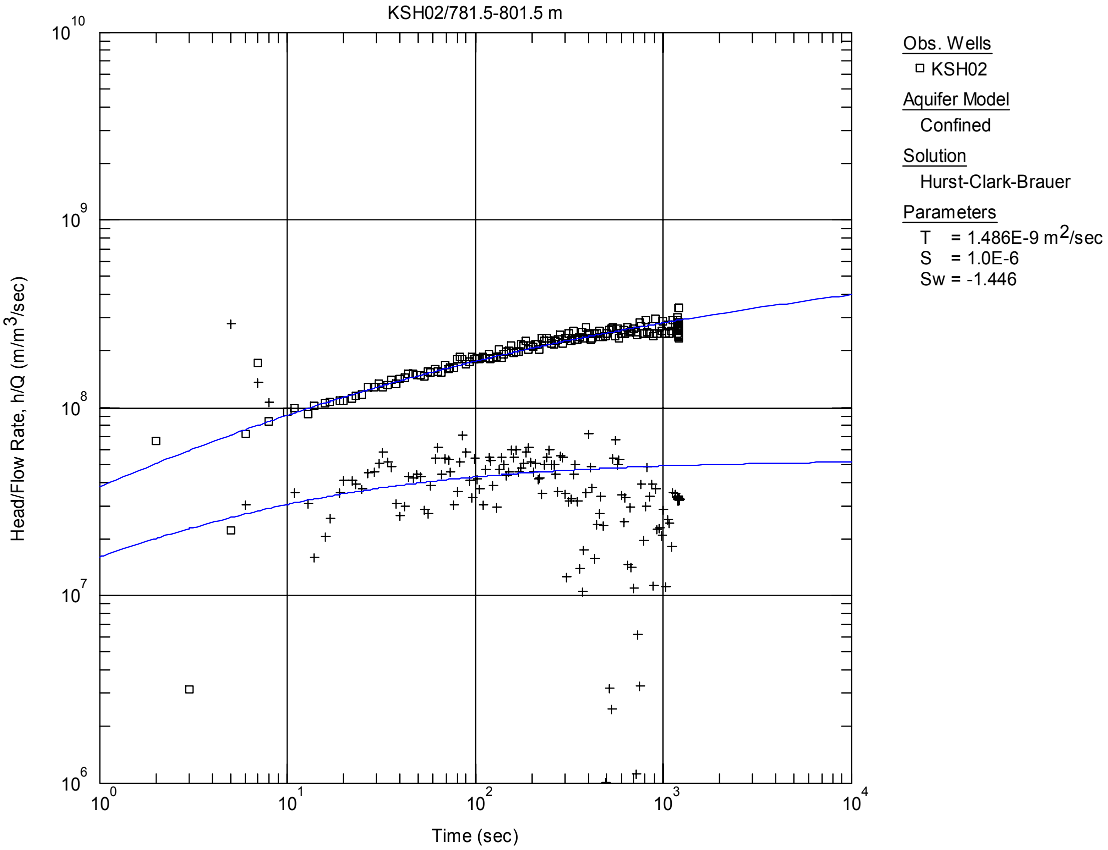
Appendix 3-45

Test 781.5–801.5 m

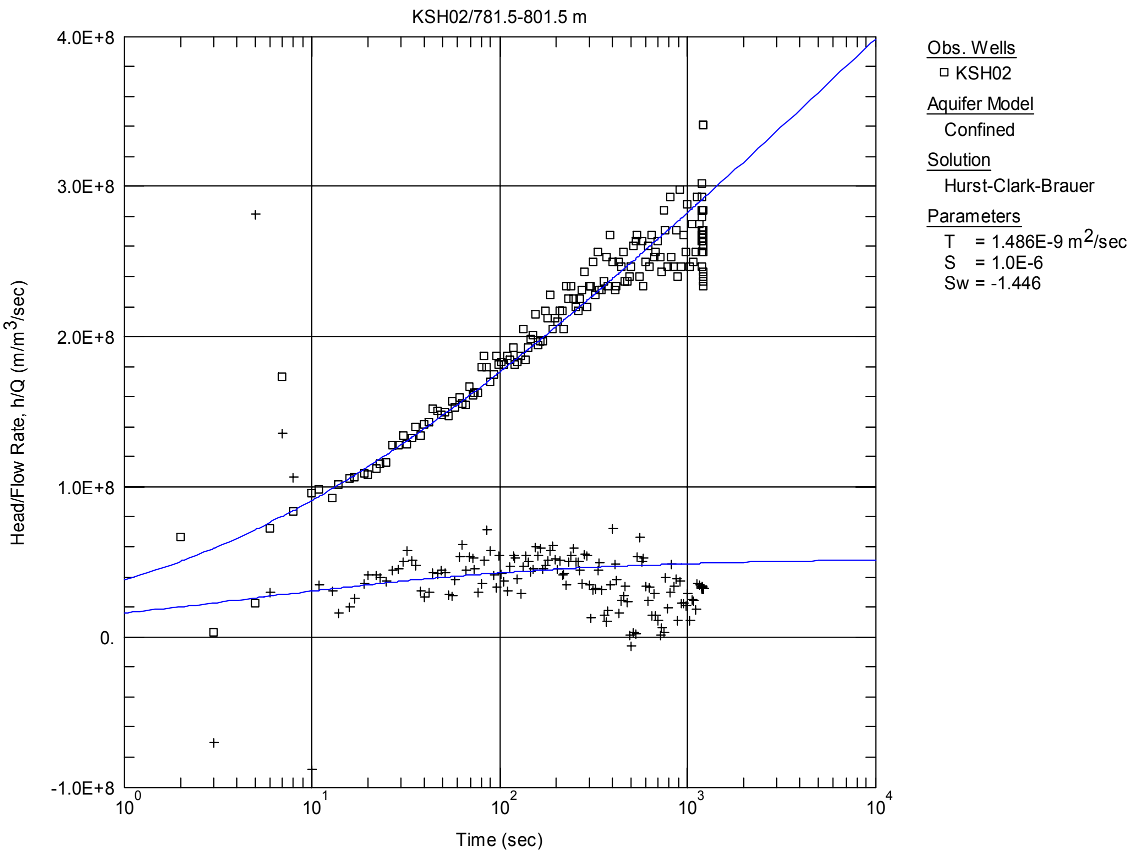
Analysis Diagram



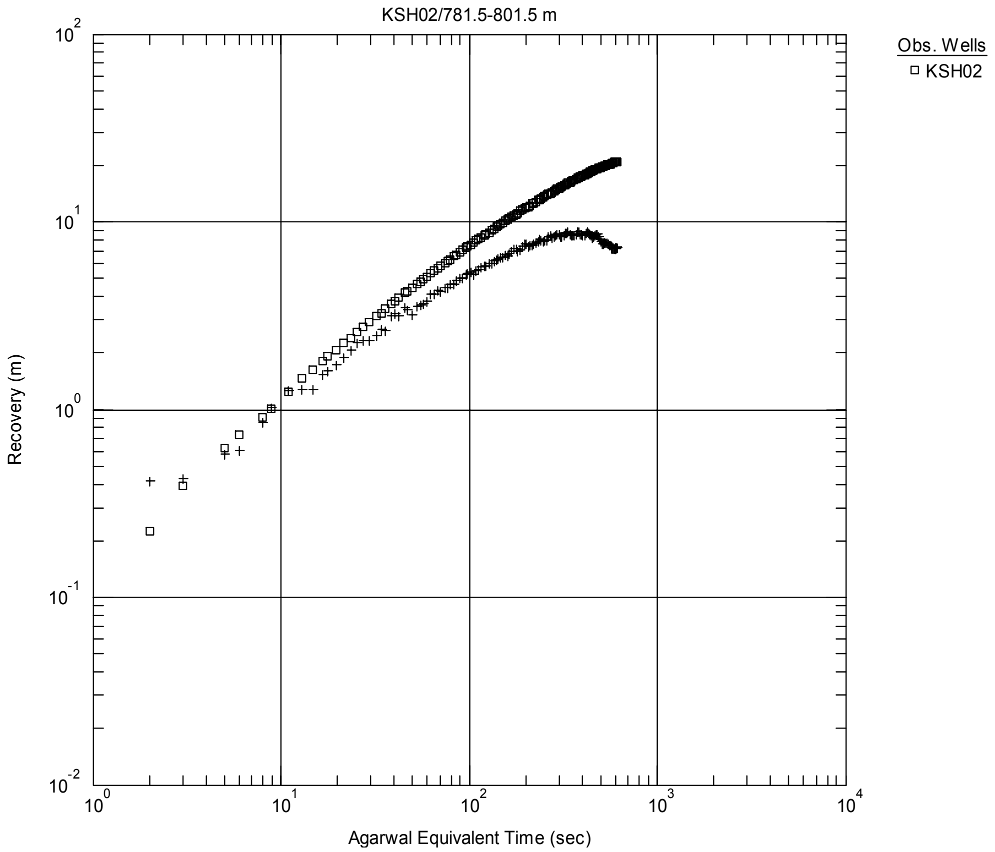
Pressure and flow rate vs. time.



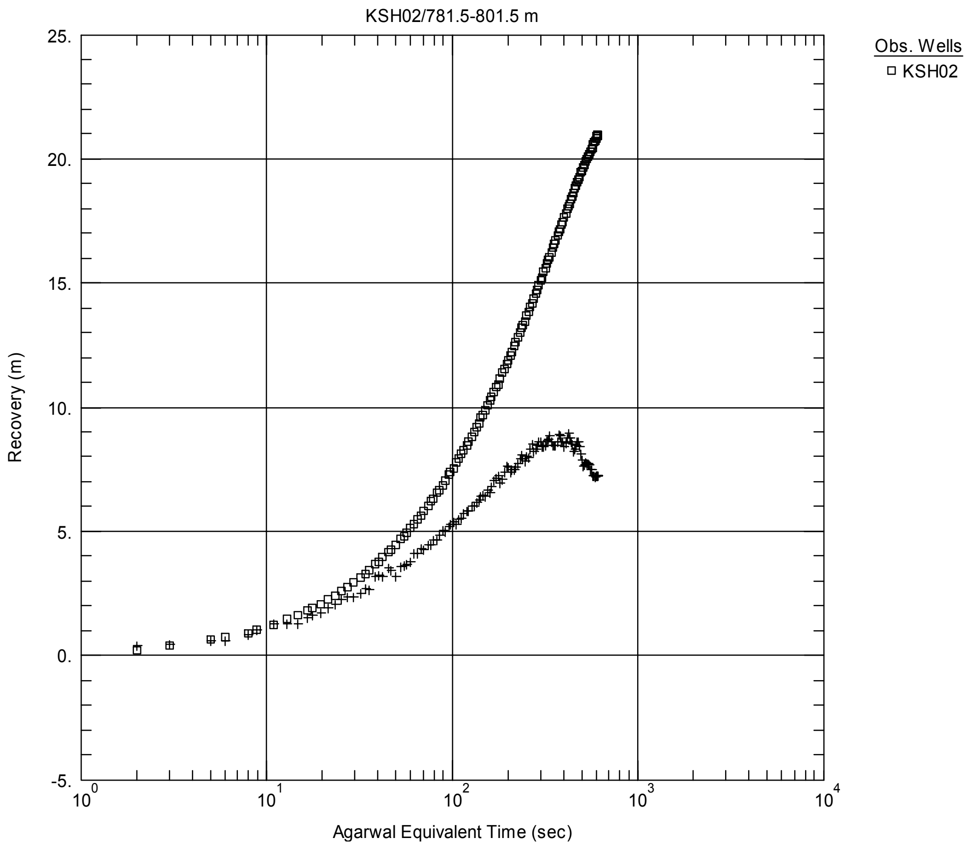
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



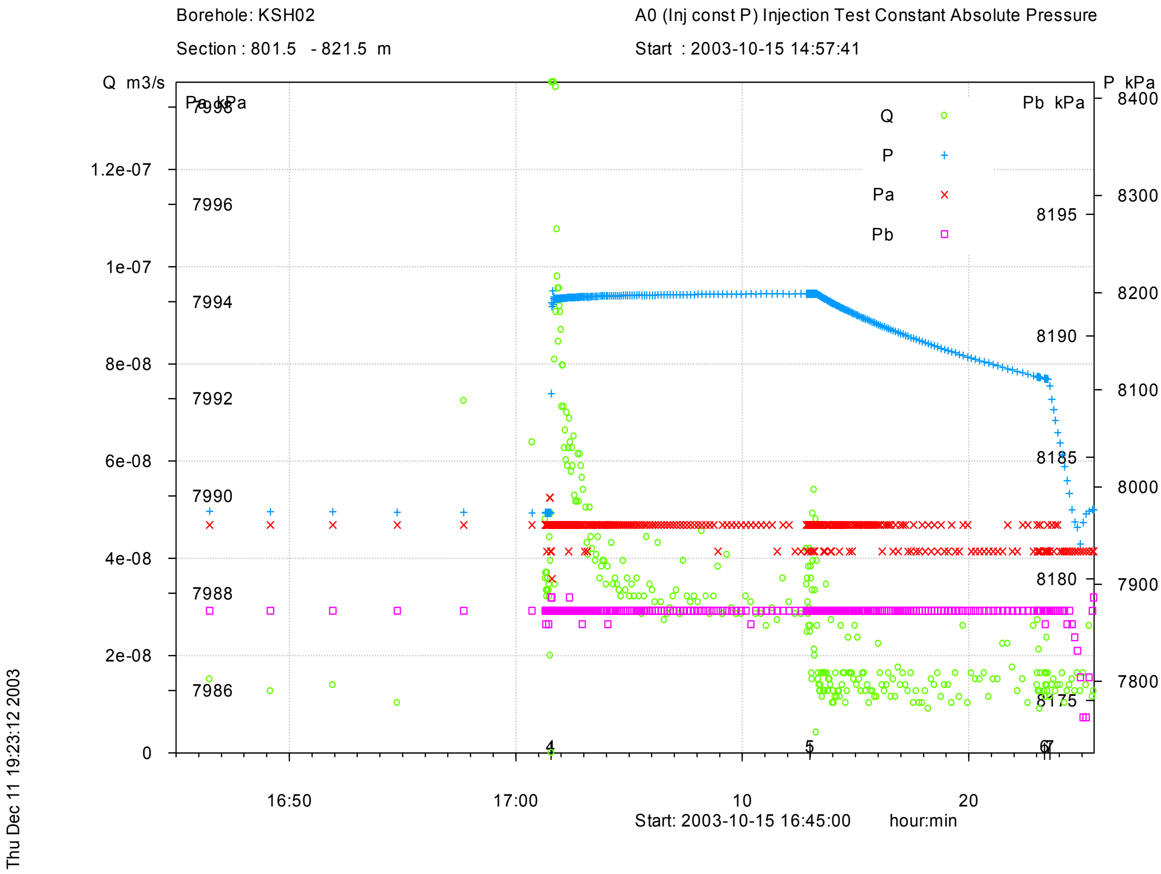
Recovery phase, log-log match.



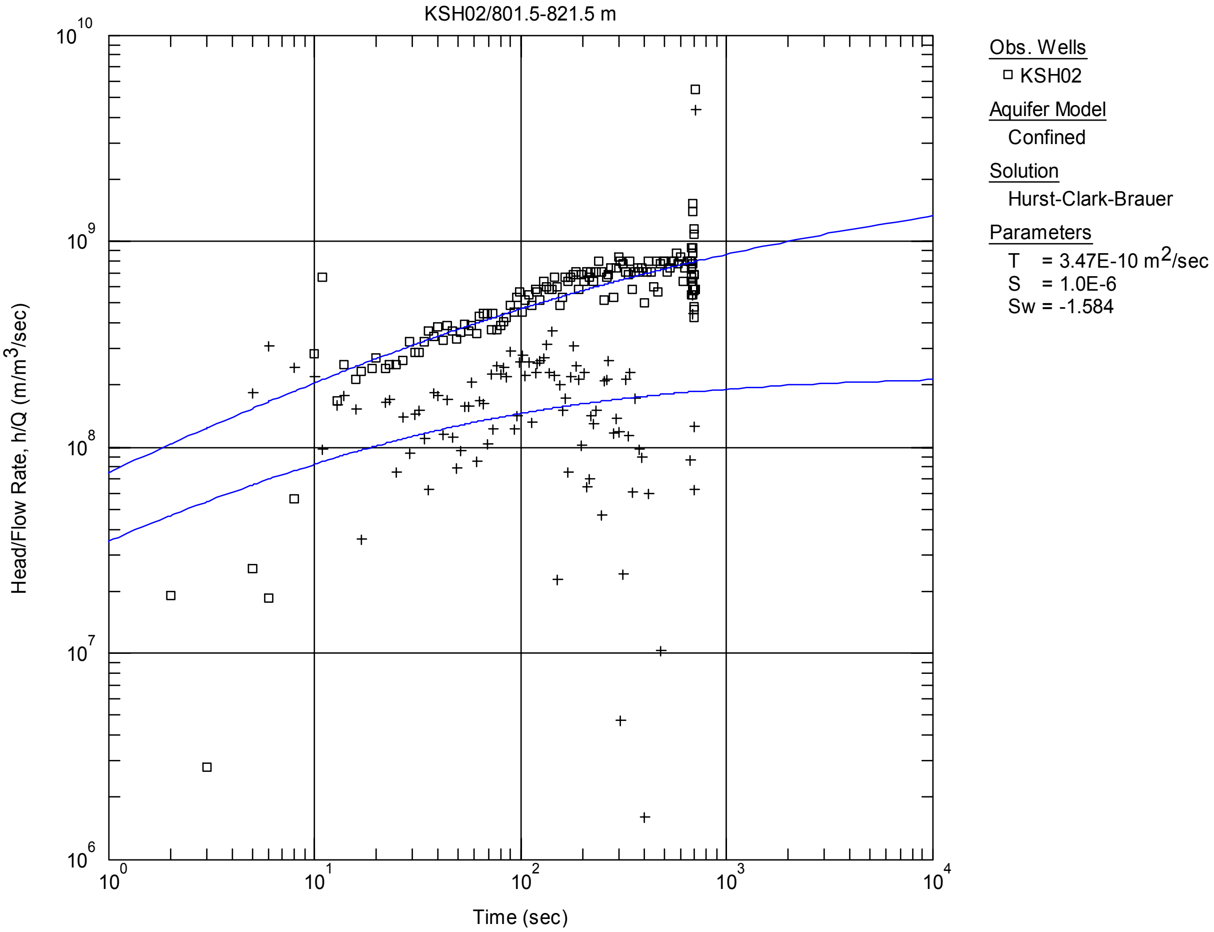
Recovery phase, lin-log match.

Test 801.5–821.5 m

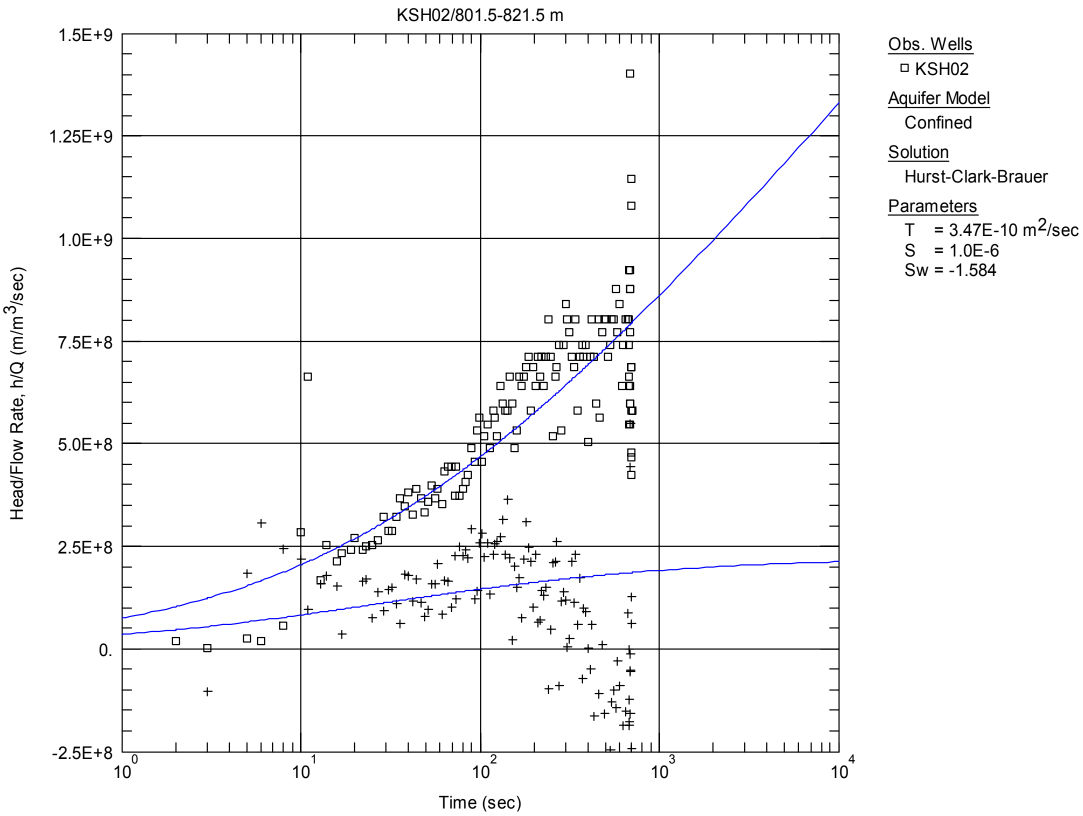
Analysis Diagram



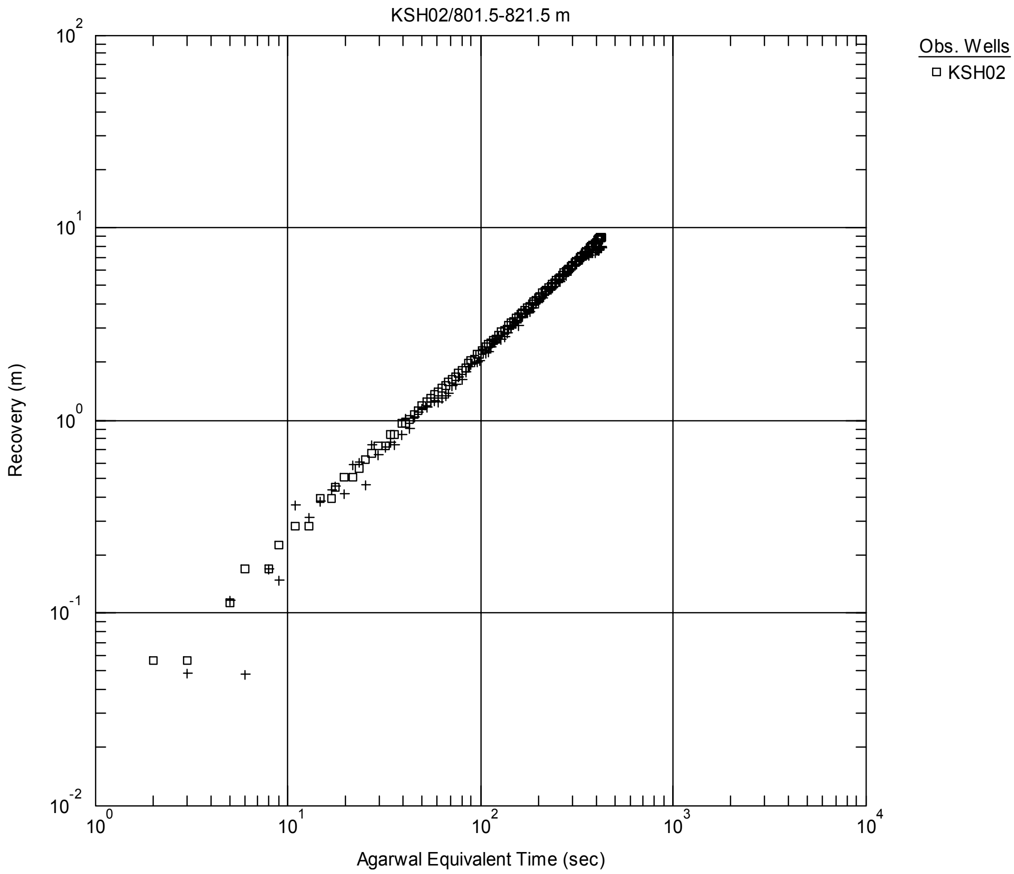
Pressure and flow rate vs. time.



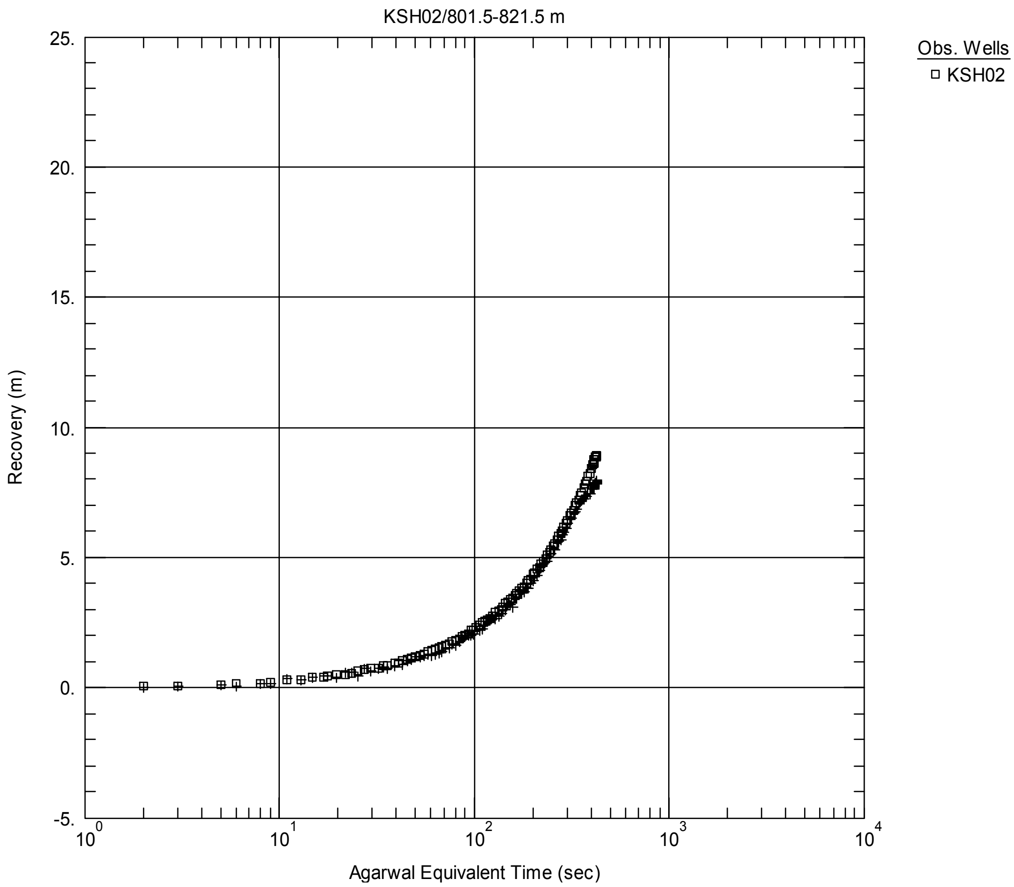
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

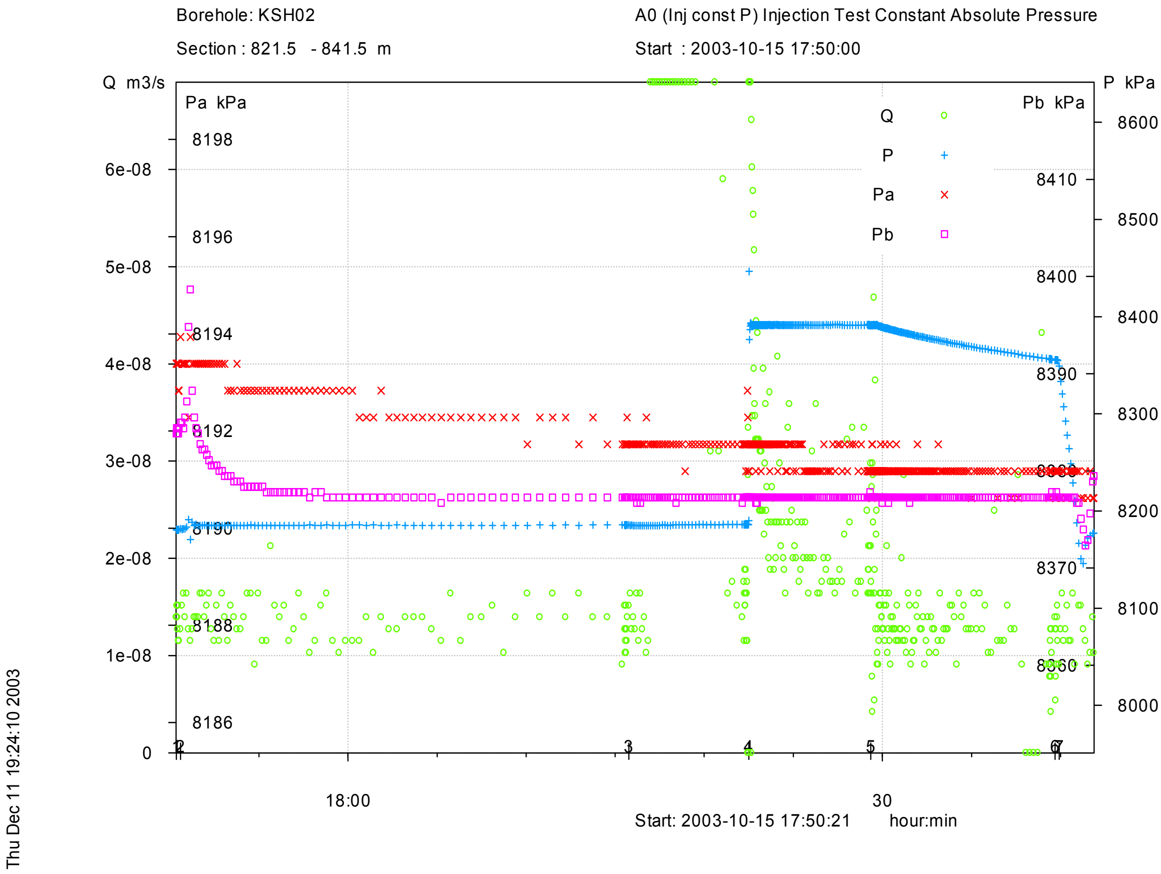


Recovery phase, lin-log match.

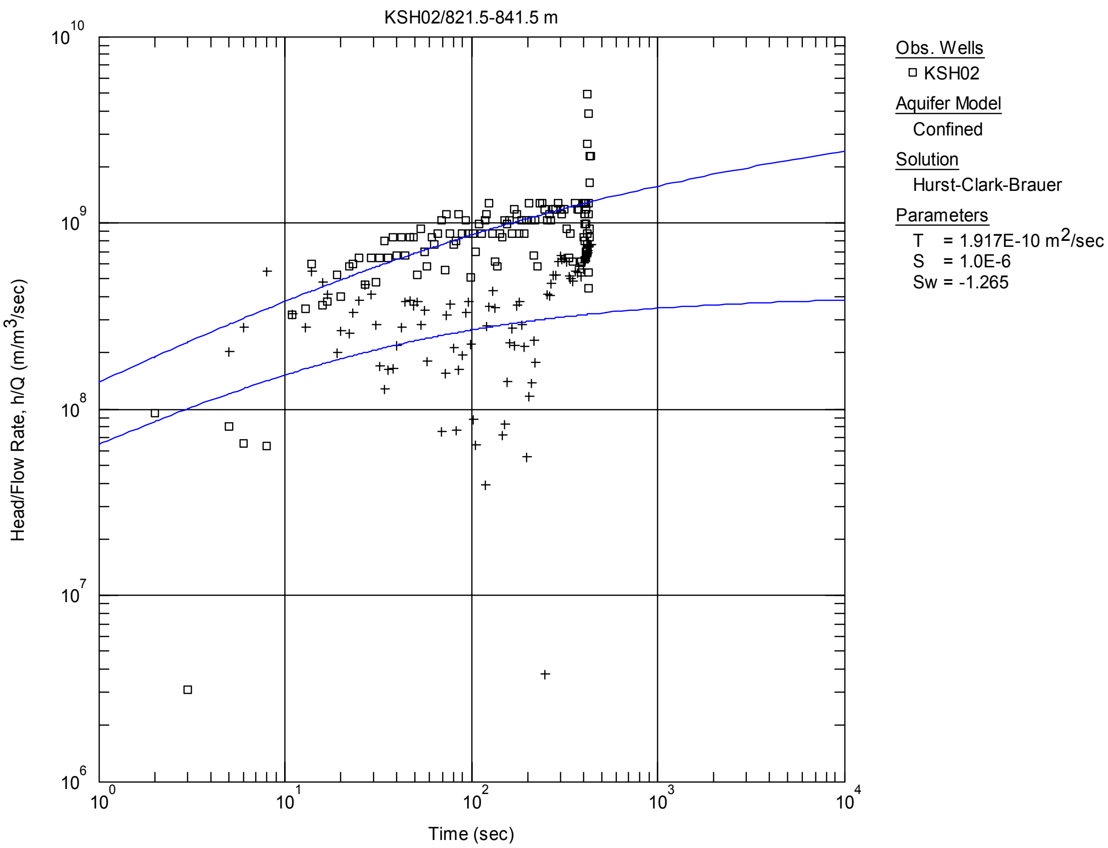
Appendix 3-47

Test 821.5–841.5 m

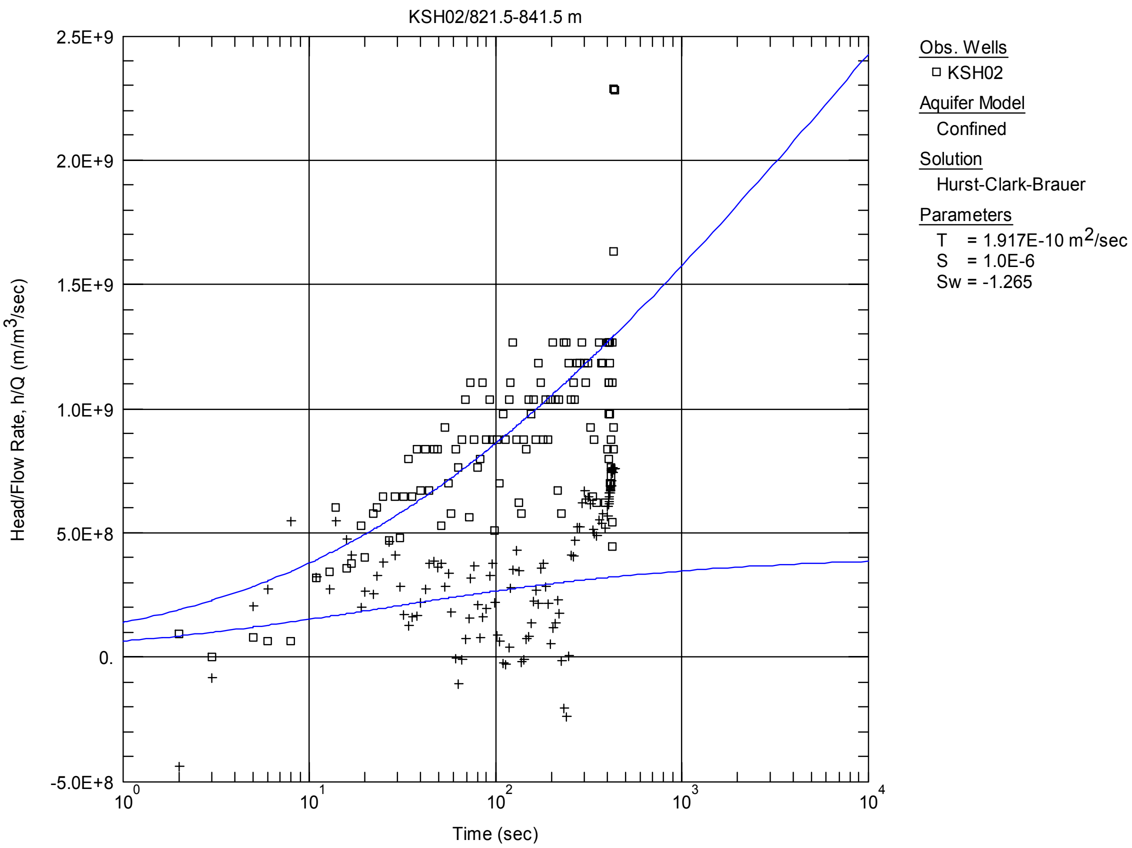
Analysis Diagram



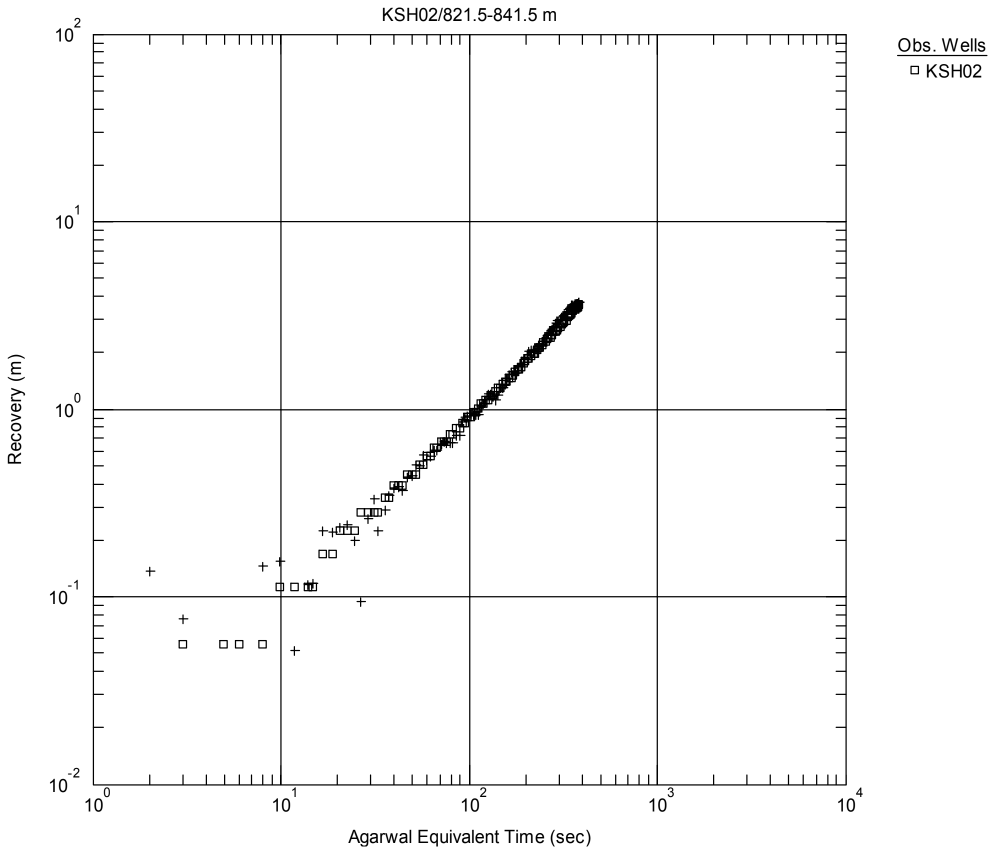
Pressure and flow rate vs. time.



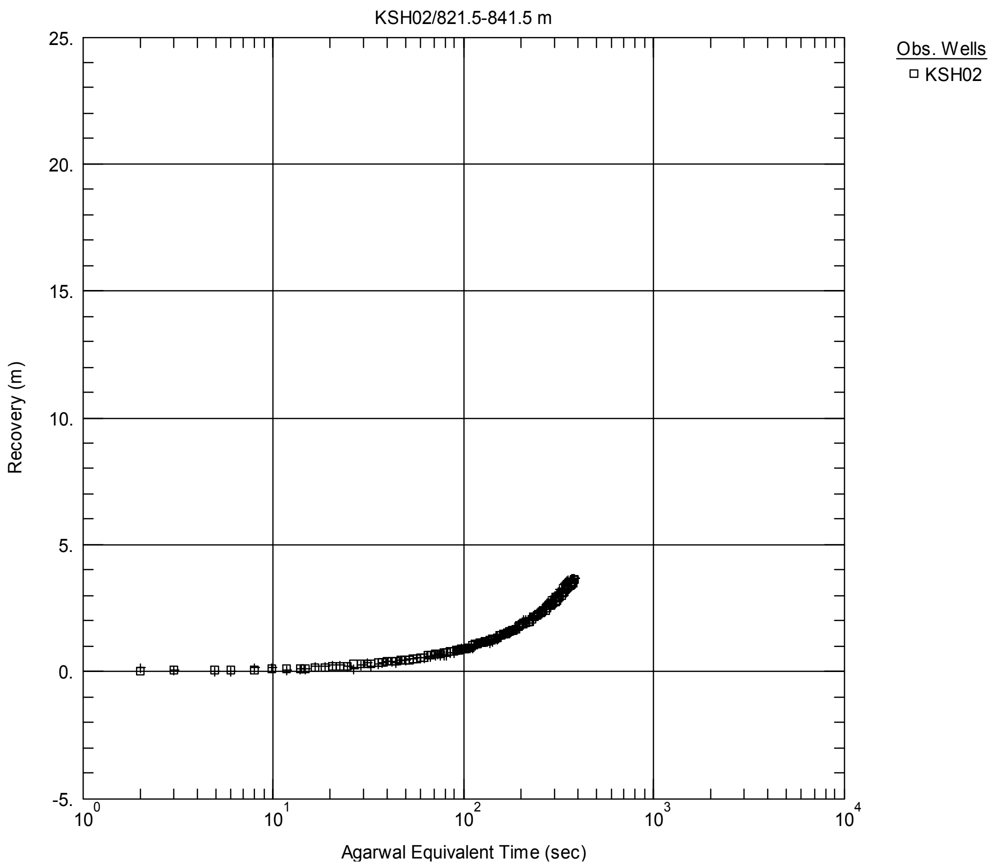
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



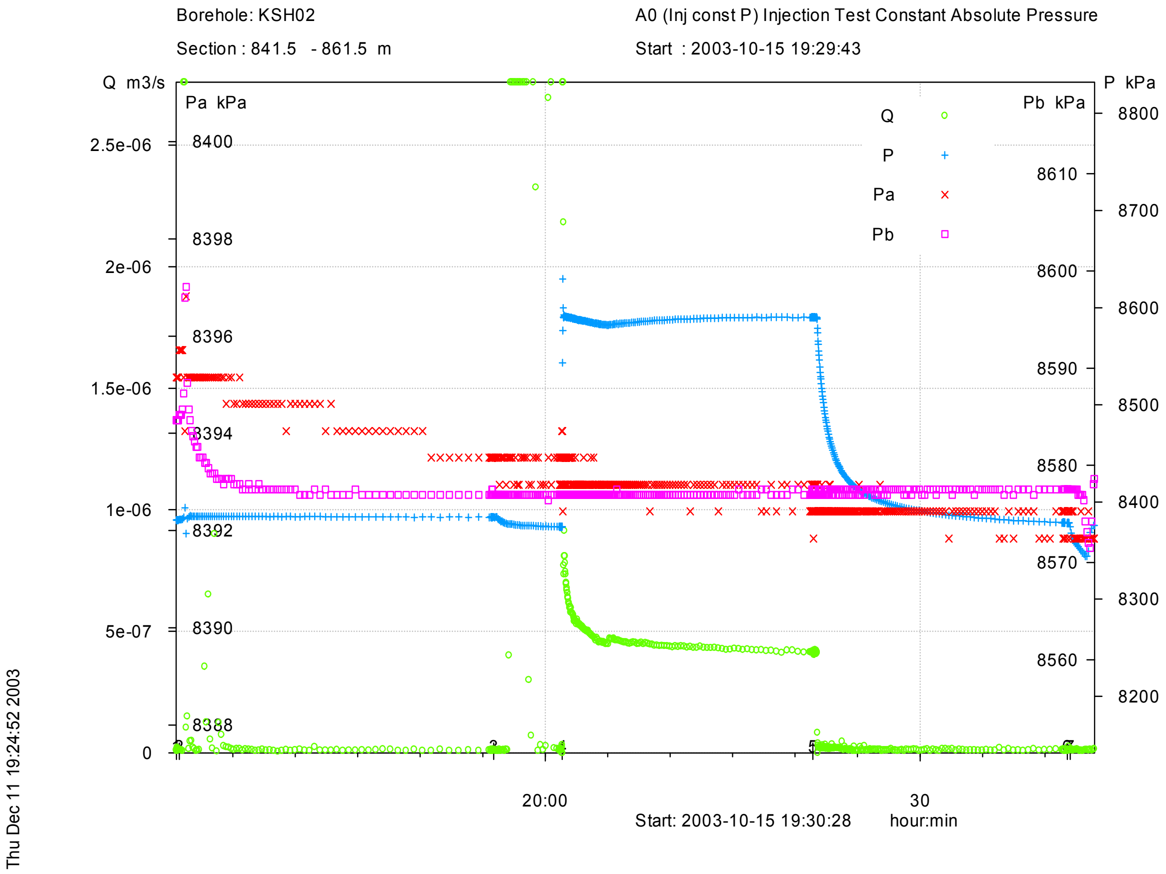
Recovery phase, log-log match.



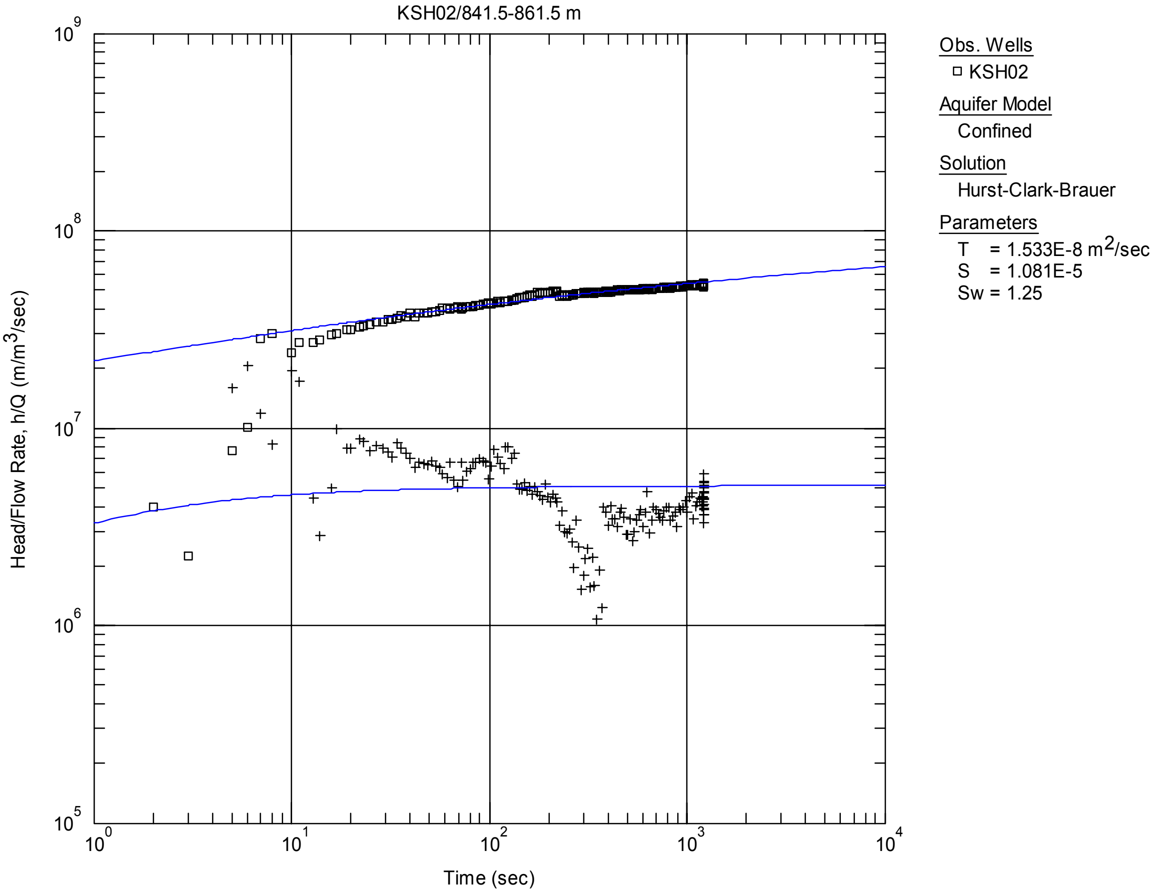
Recovery phase, lin-log match.

Test 841.5–861.5 m

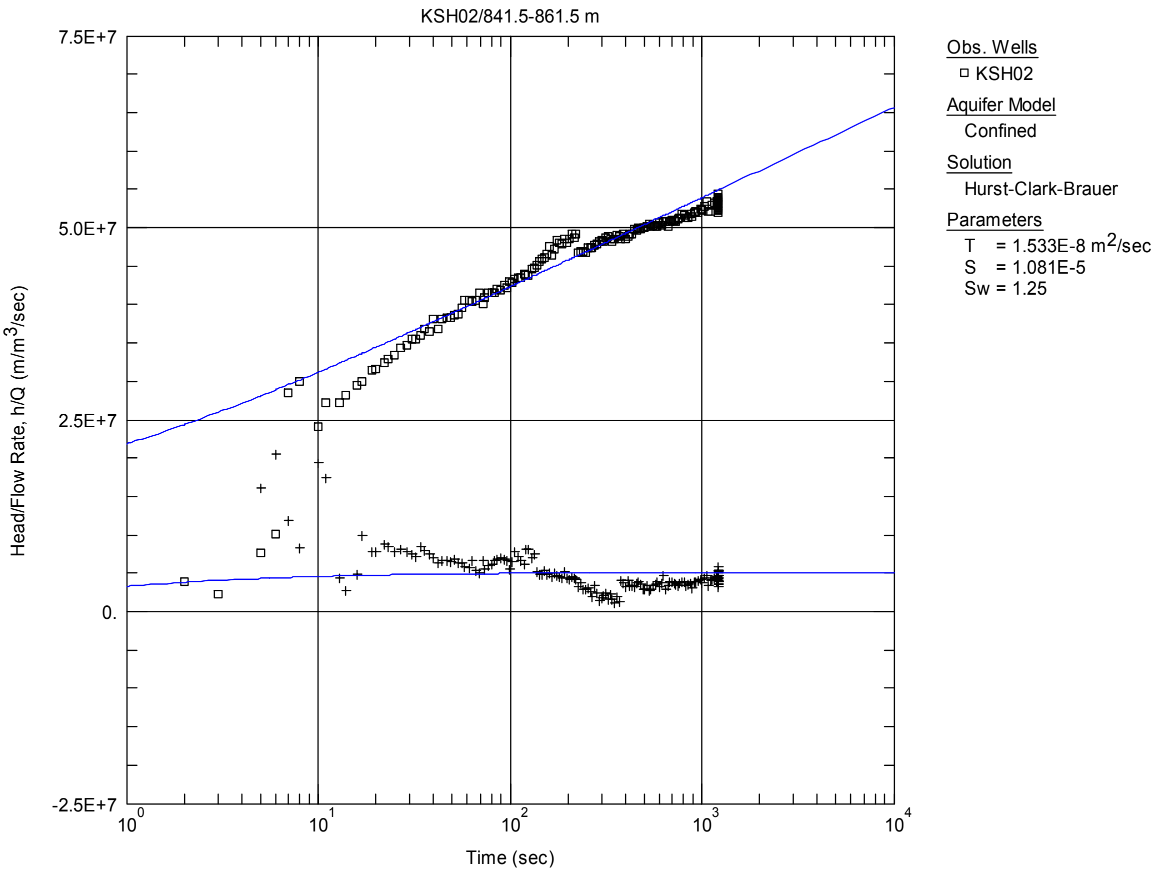
Analysis Diagram



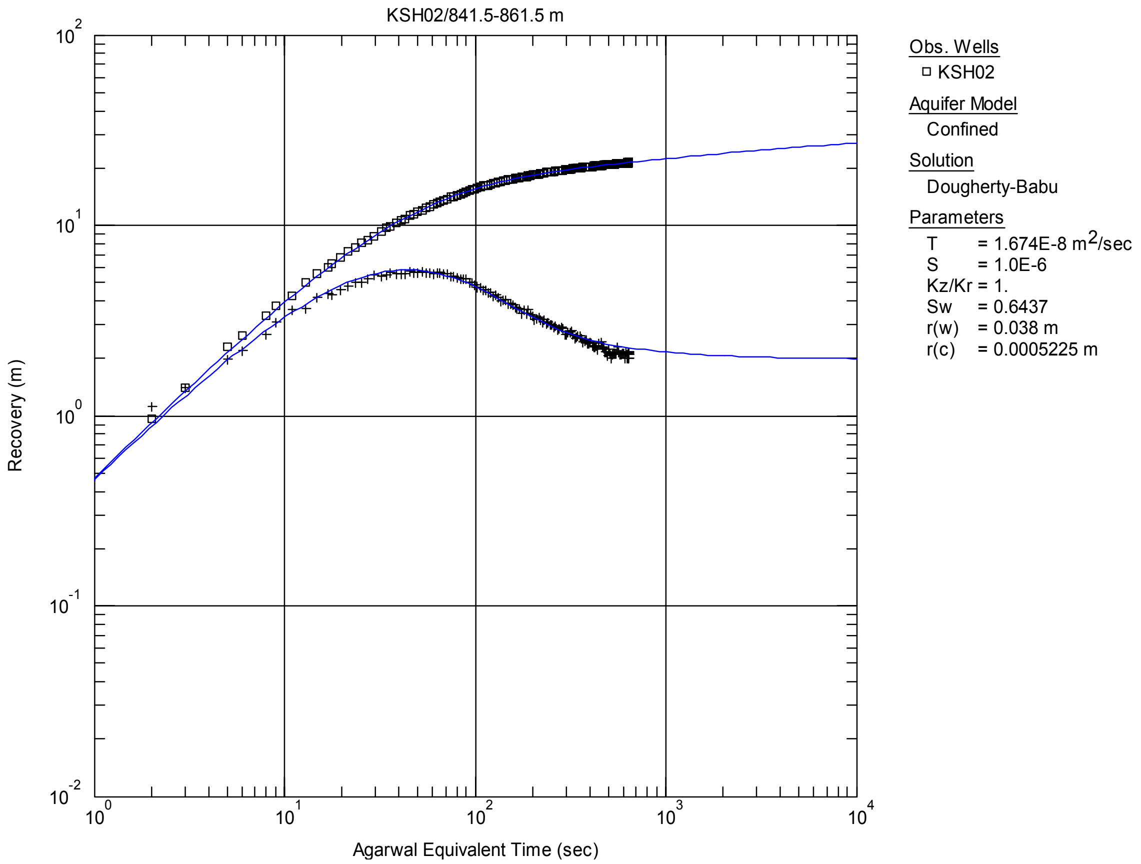
Pressure and flow rate vs. time.



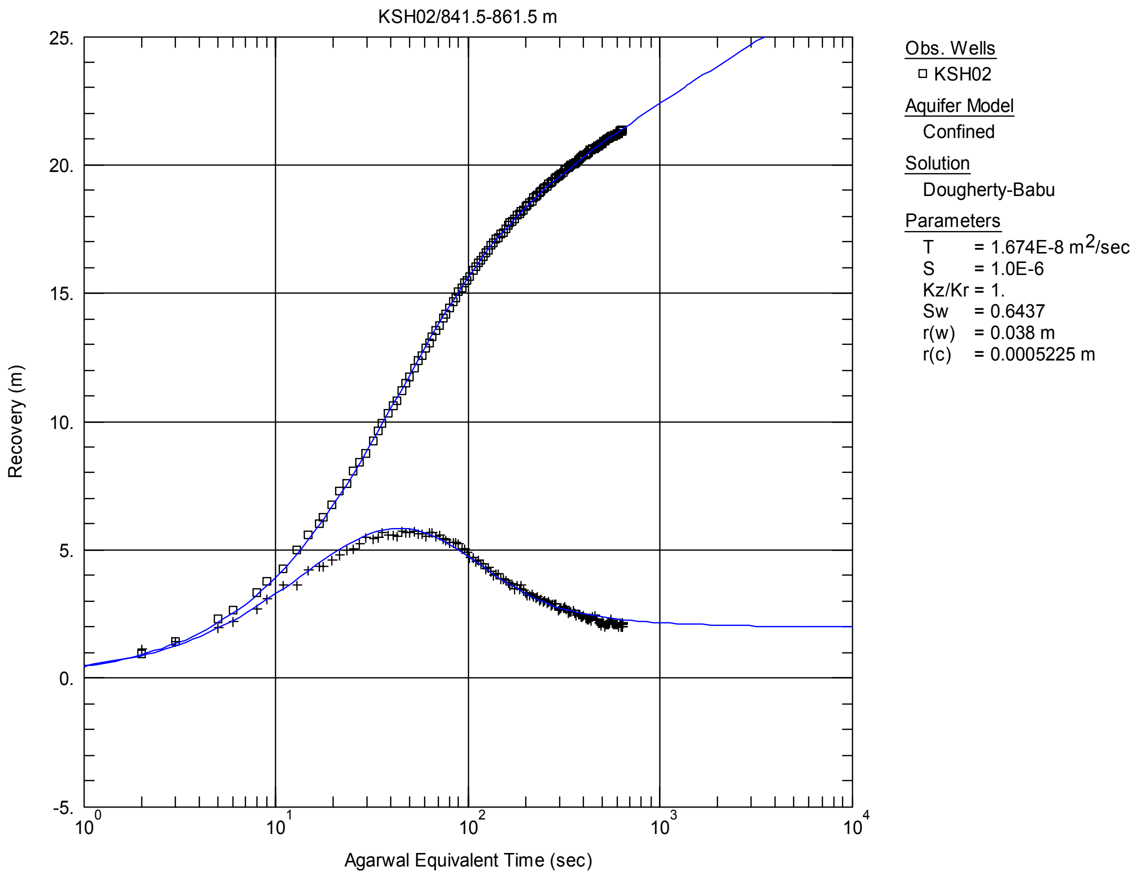
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



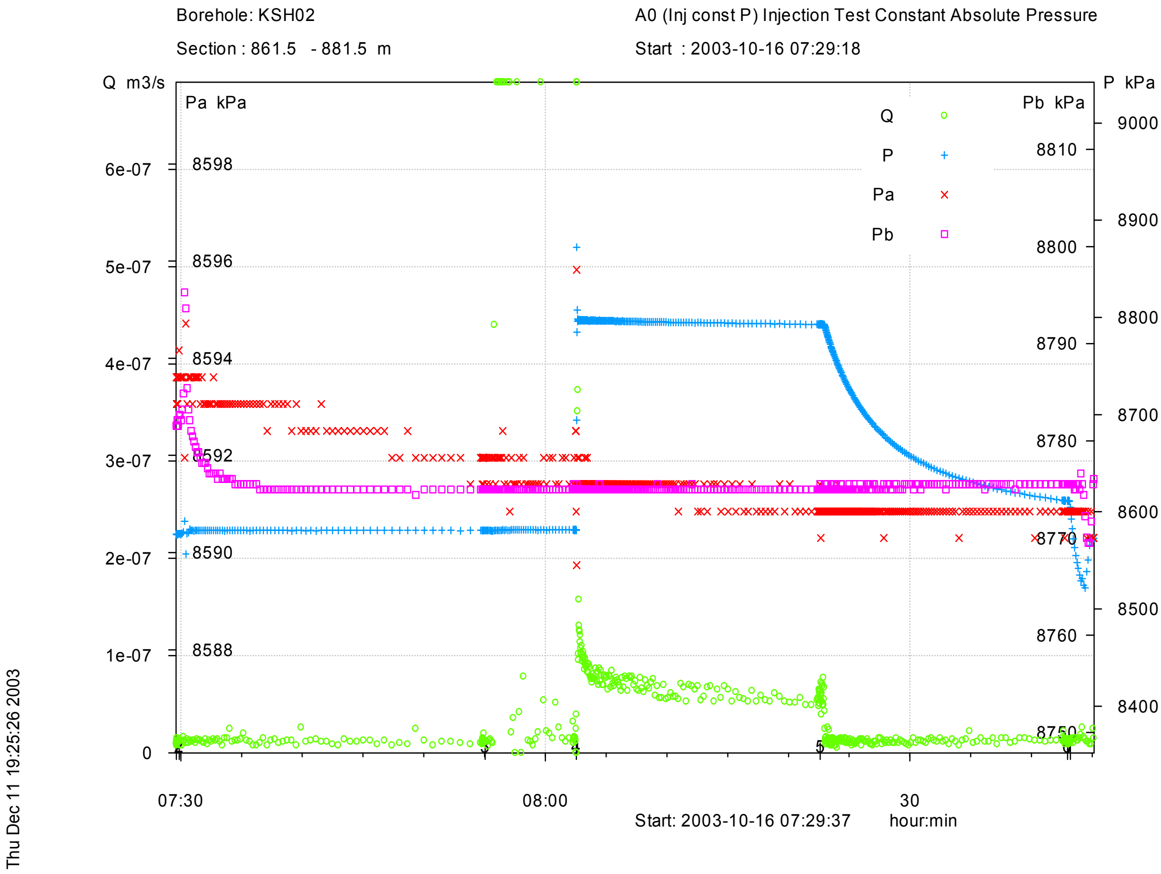
Recovery phase, log-log match.



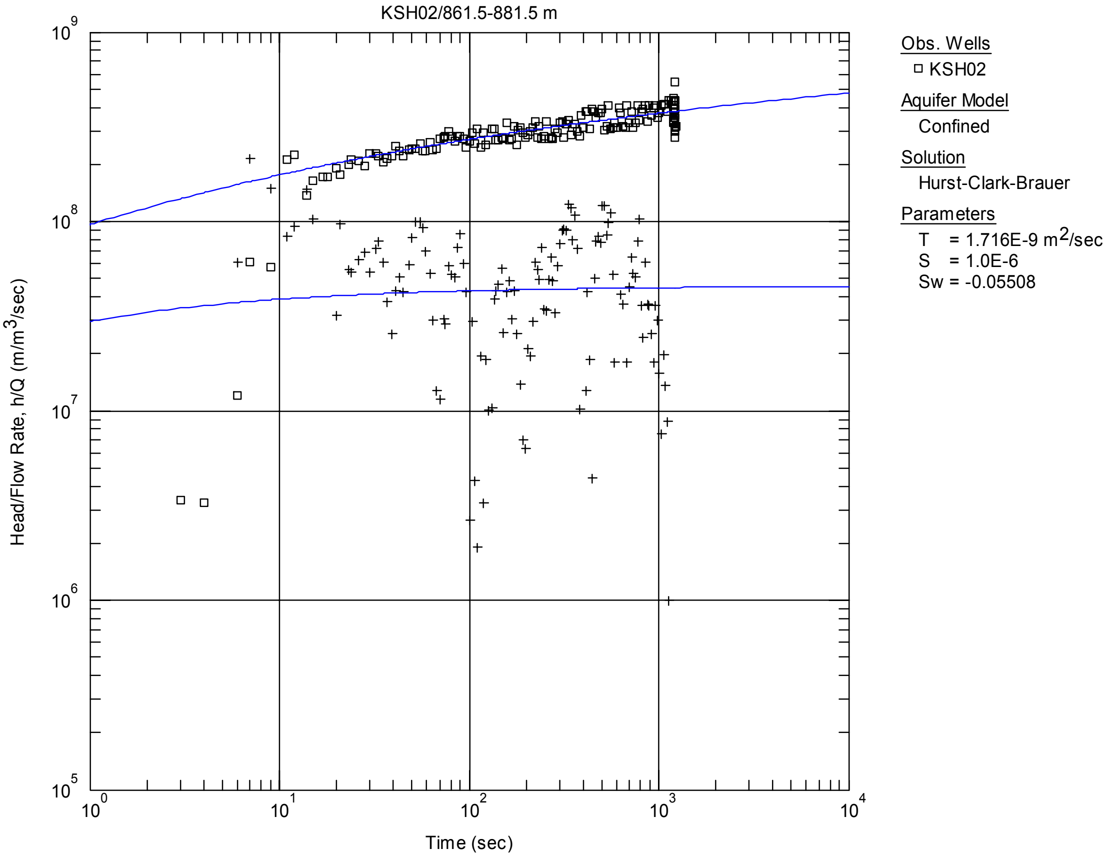
Recovery phase, lin-log match.

Test 861.5–881.5 m

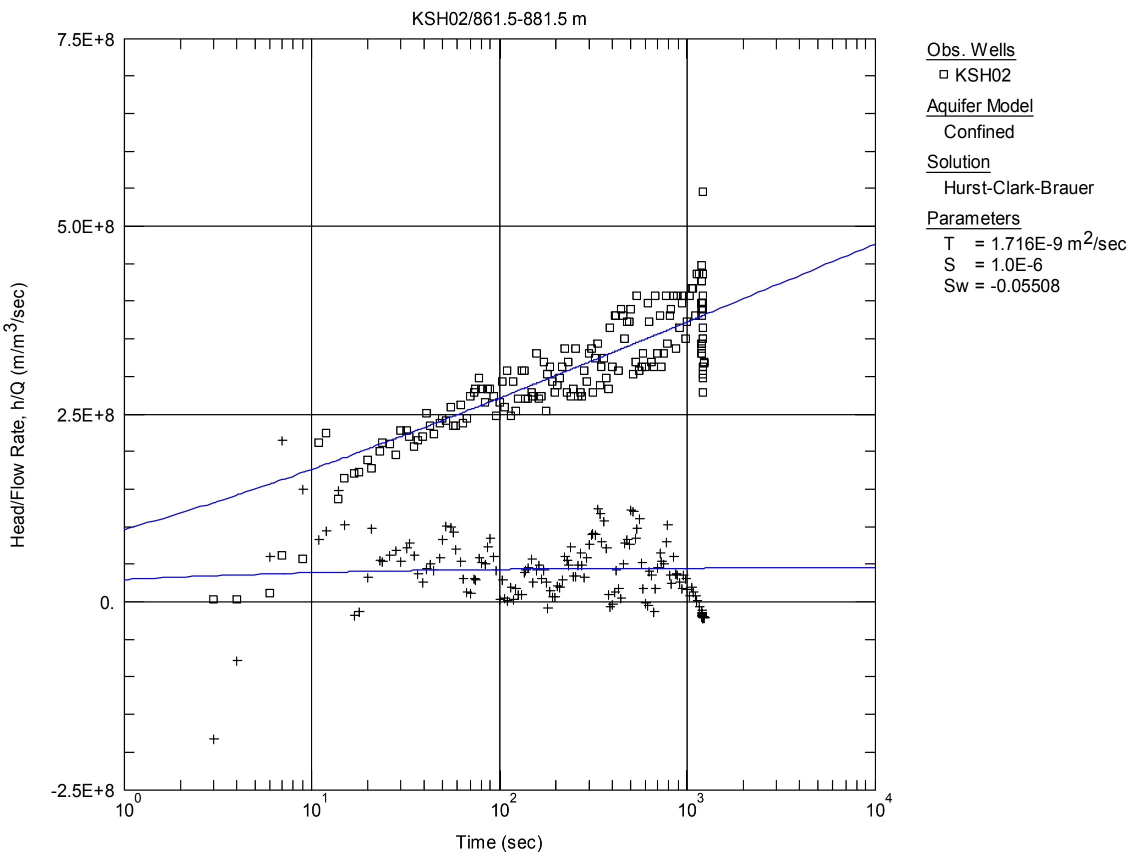
Analysis Diagram



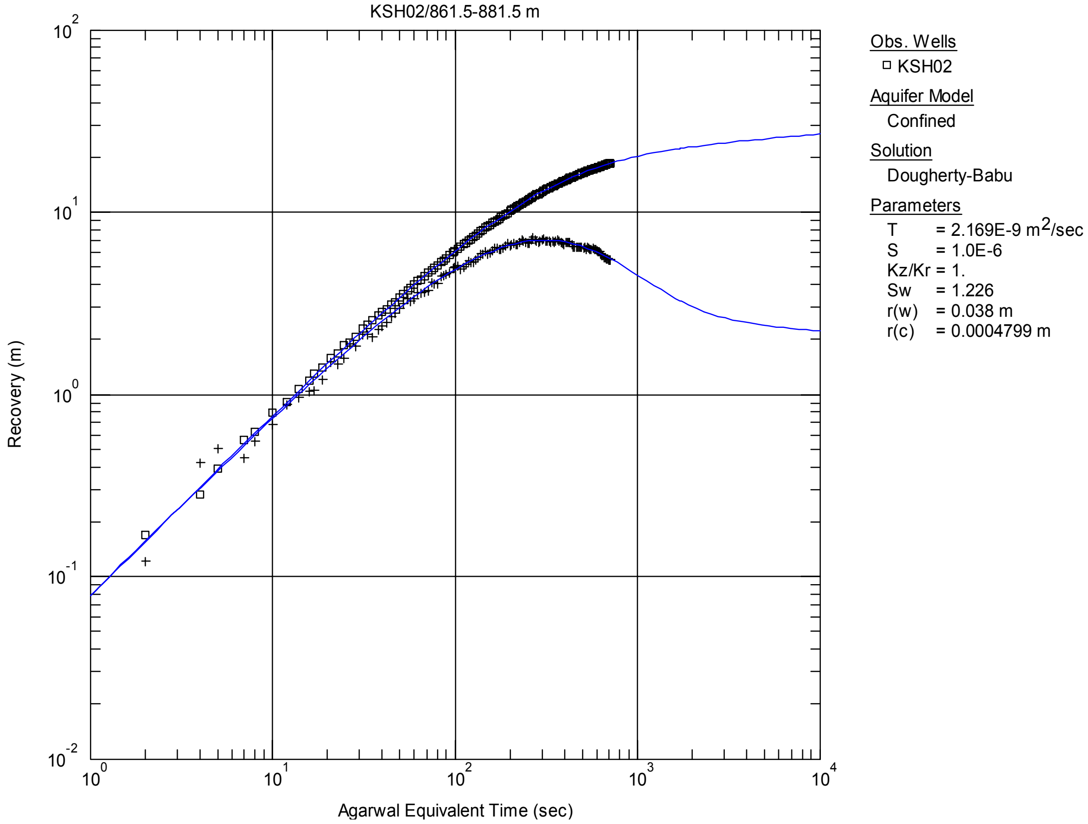
Pressure and flow rate vs. time.



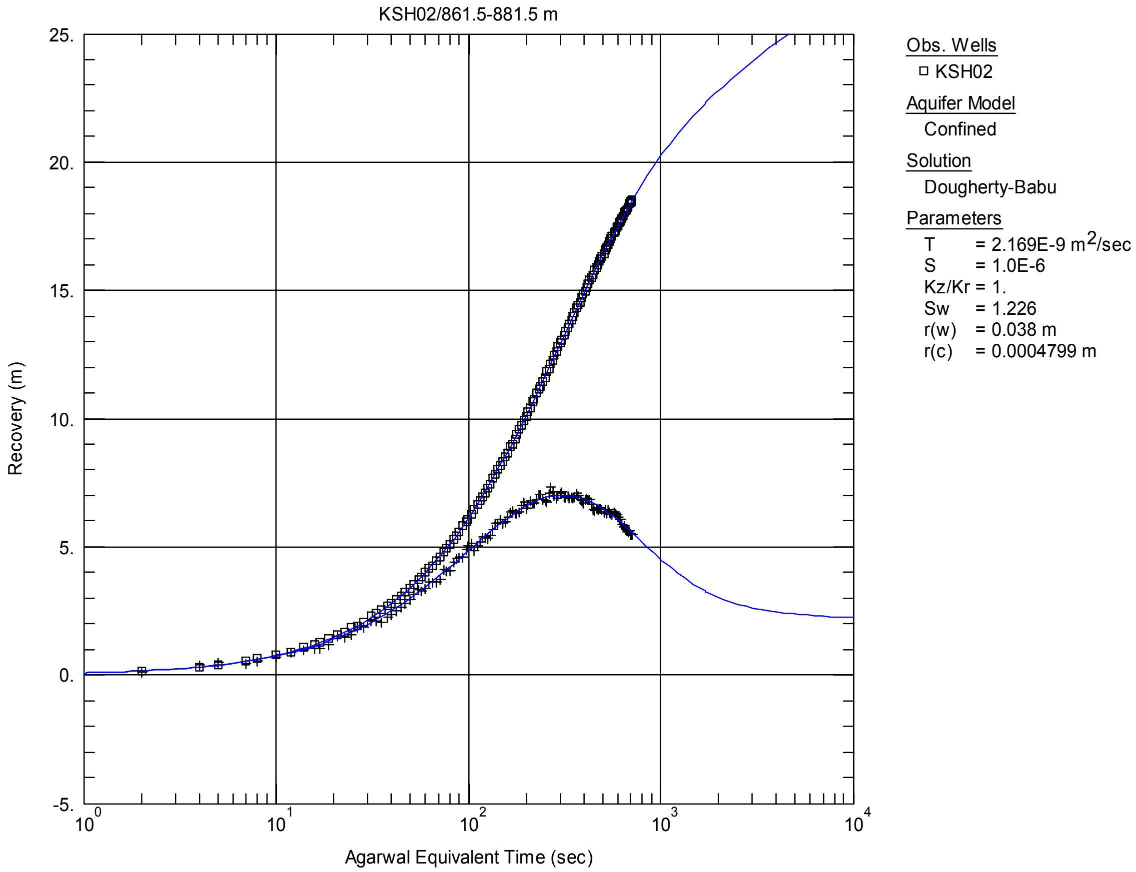
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



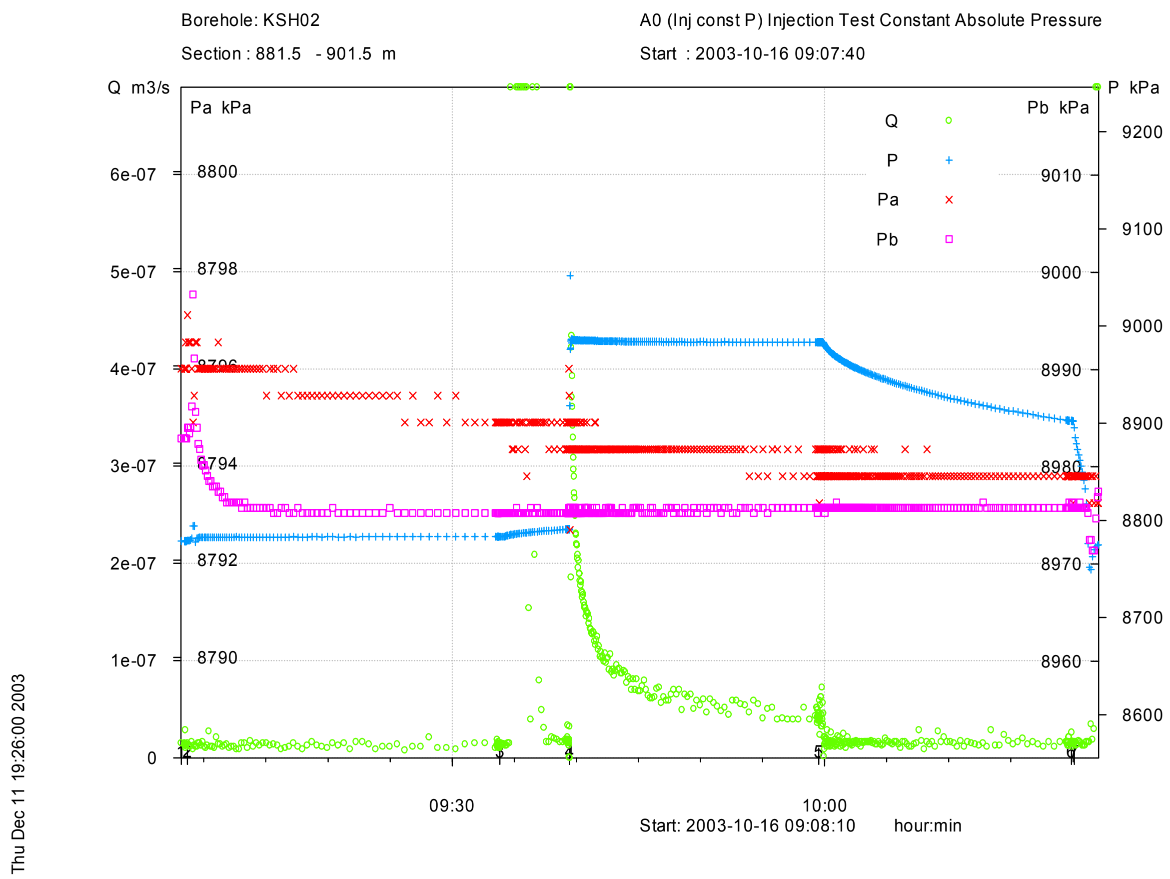
Recovery phase, log-log match.



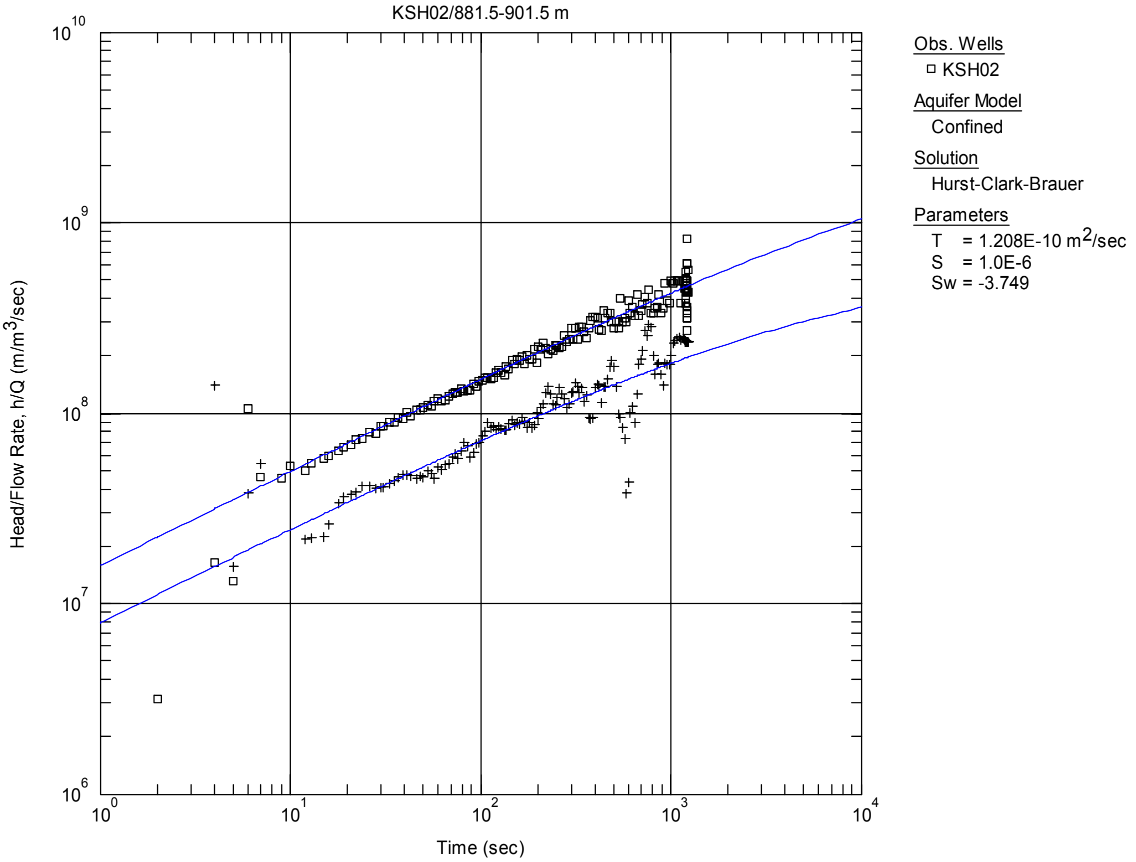
Recovery phase, lin-log match.

Test 881.5–901.5 m

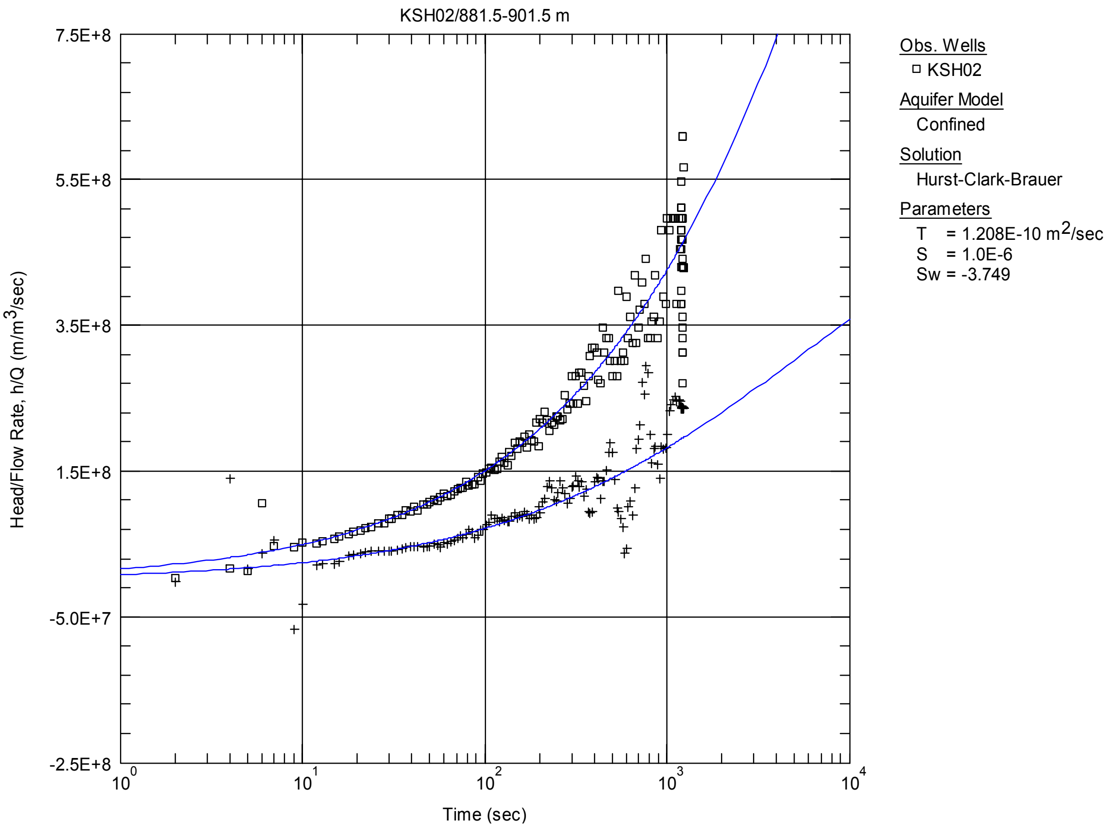
Analysis Diagram



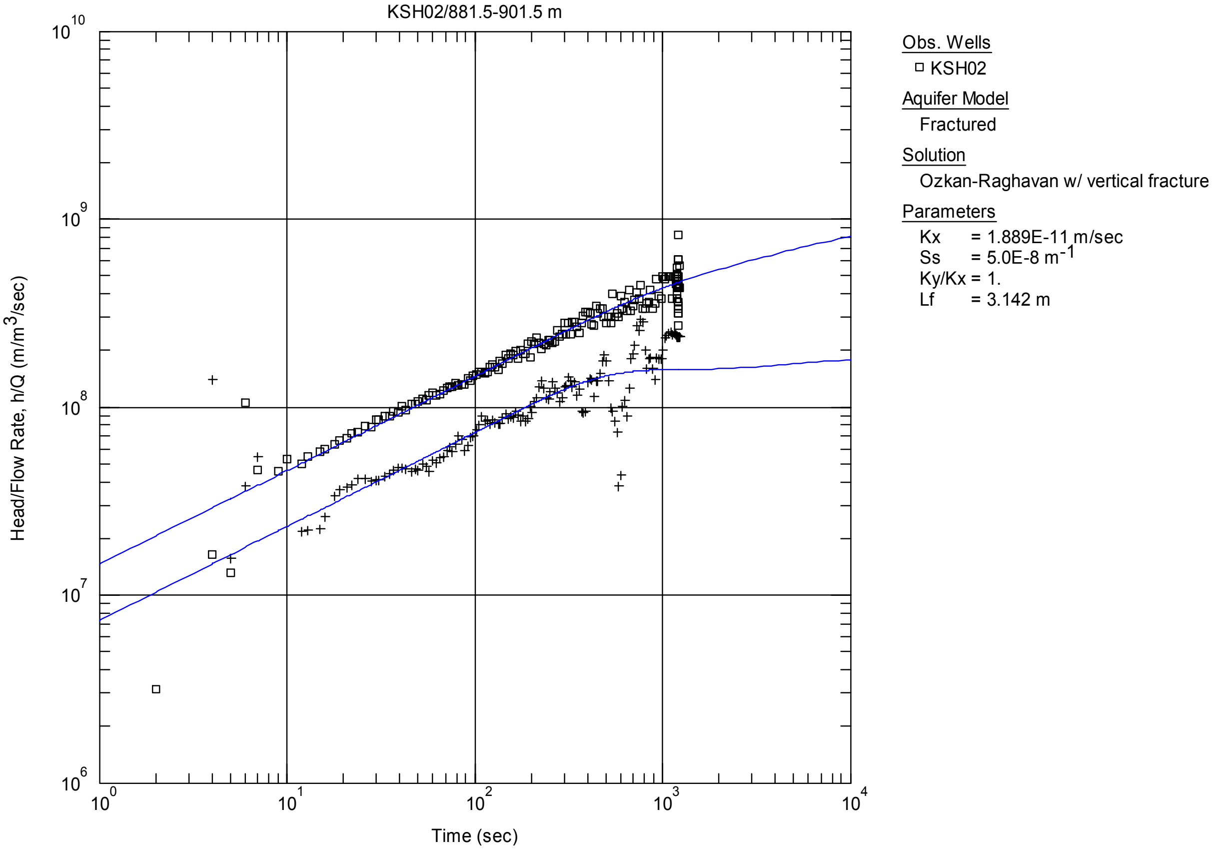
Pressure and flow rate vs. time.



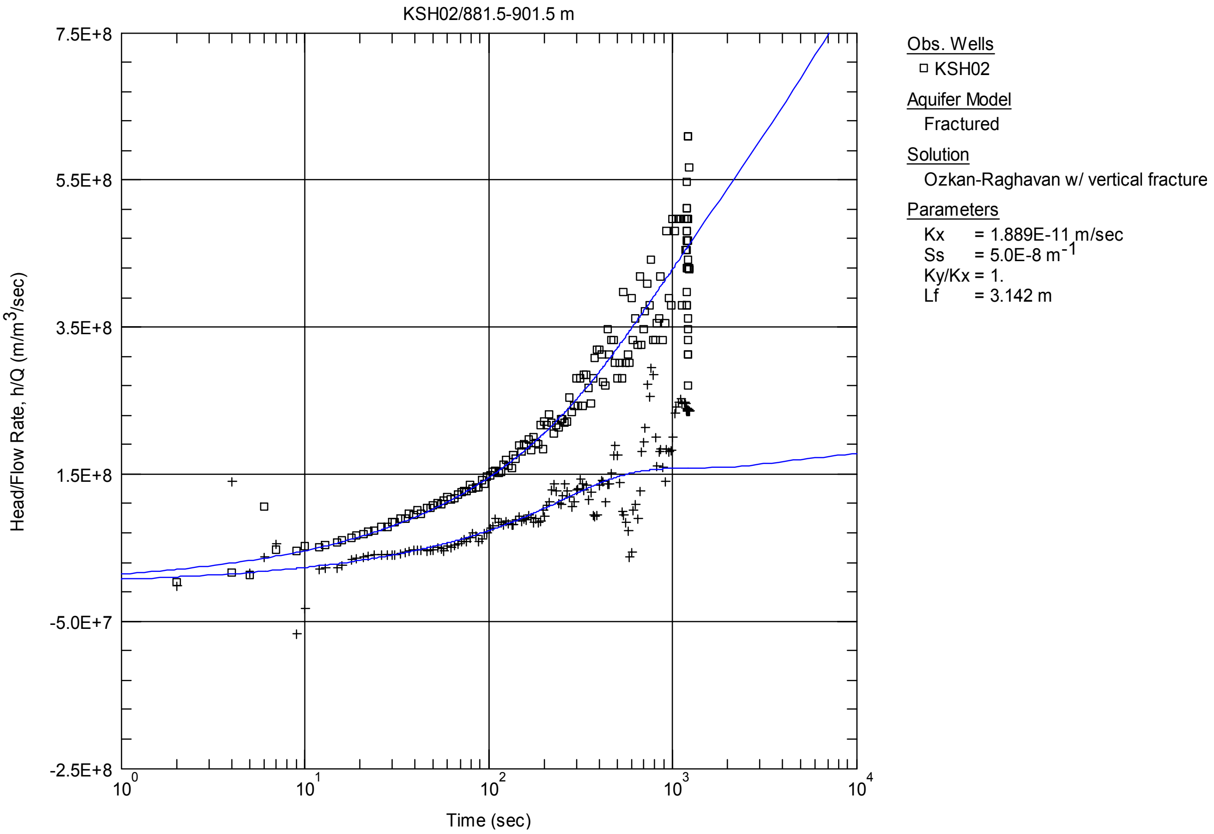
Perturbation phase, log-log match. First match.



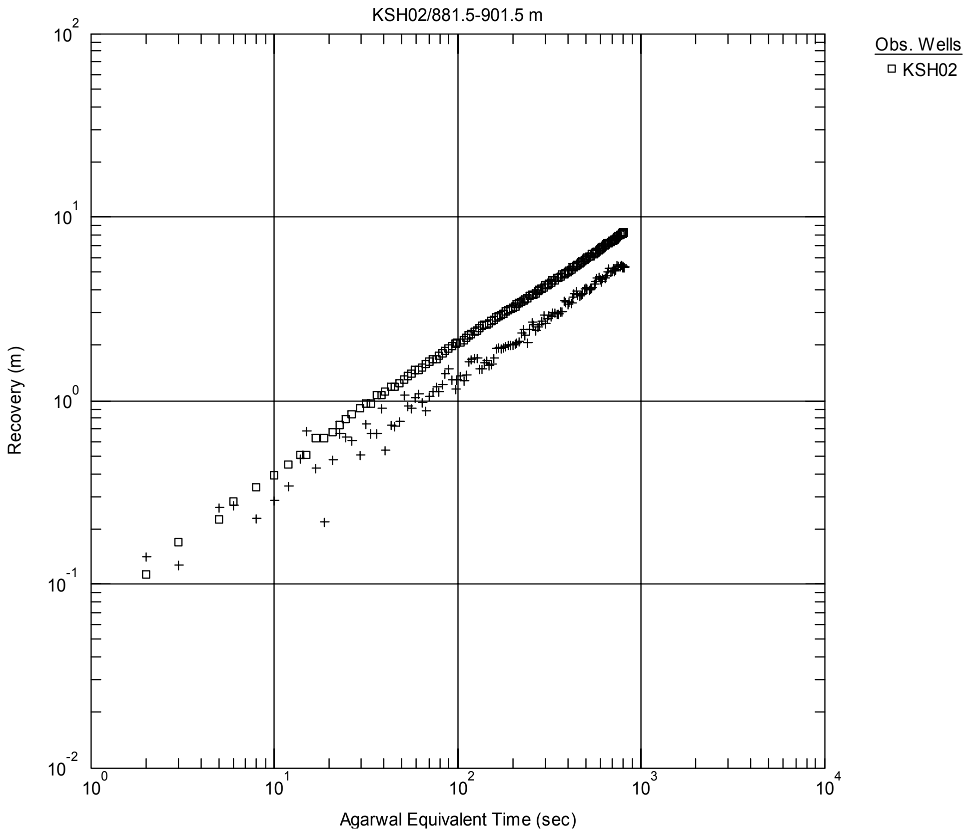
Perturbation phase, lin-log match. First match.



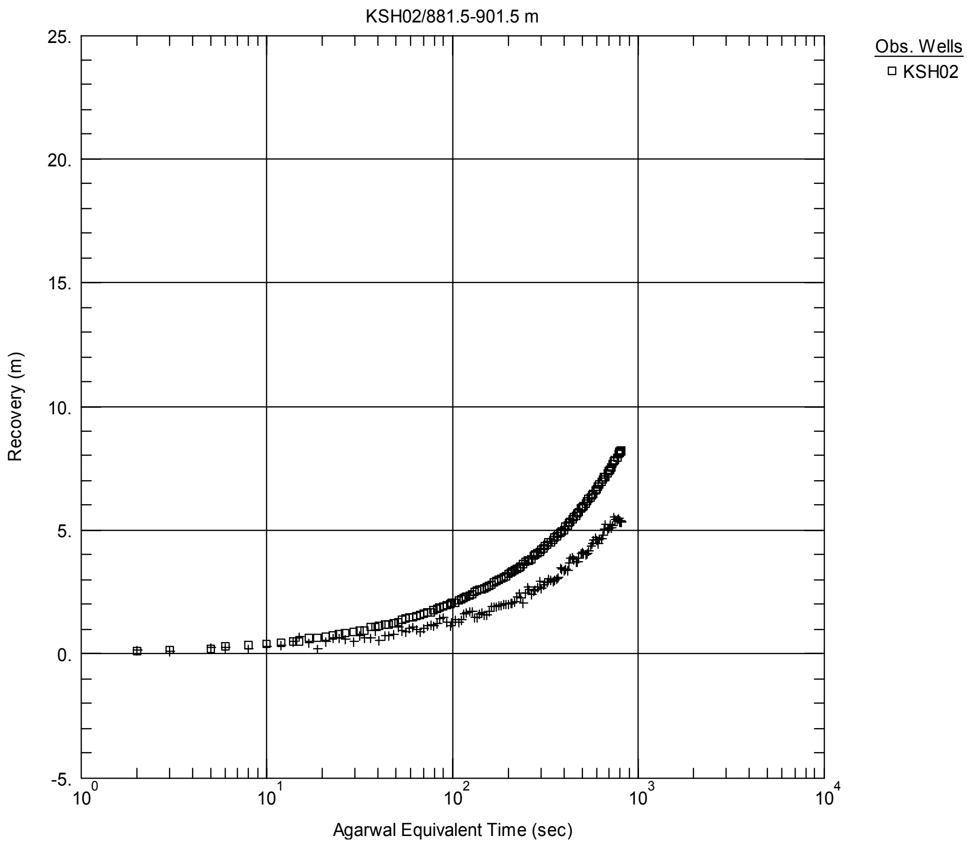
Perturbation phase, log-log match. Second match.



Perturbation phase, lin-log match. Second match.



Recovery phase, log-log match.

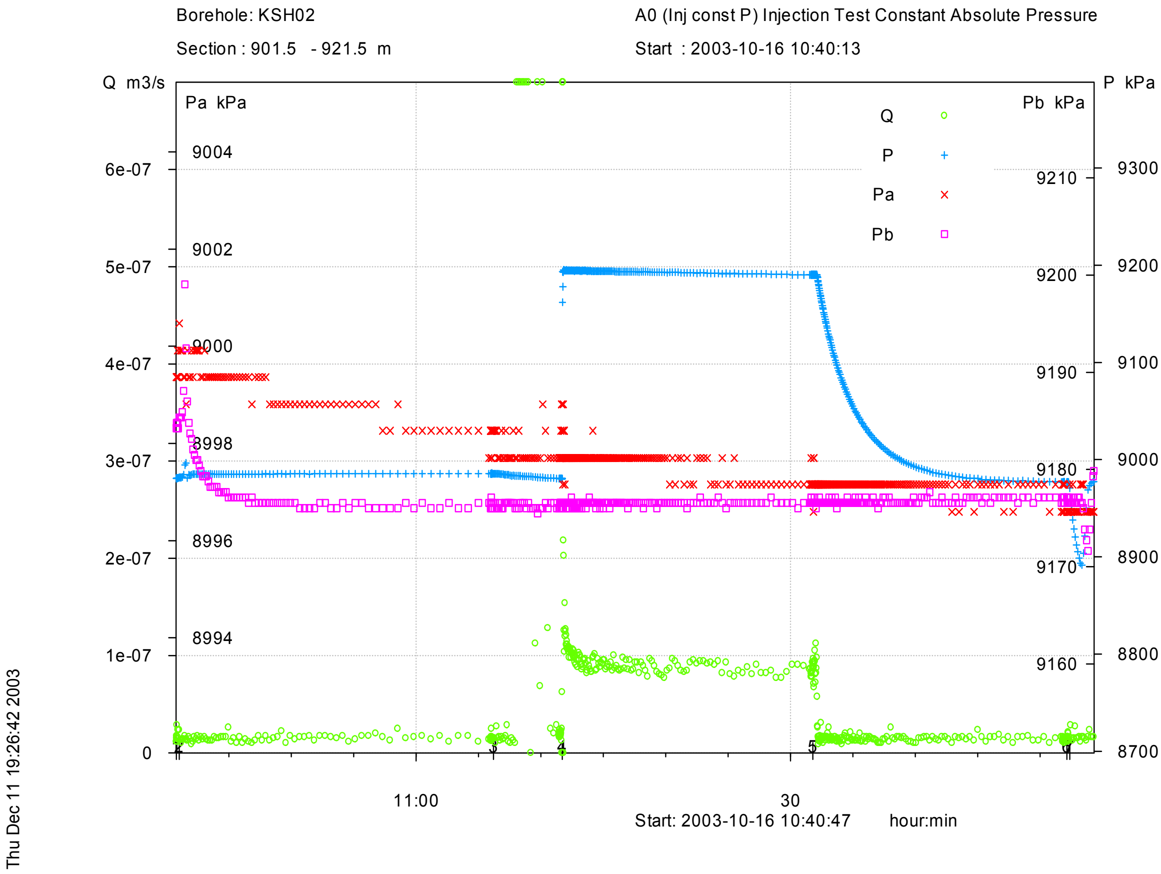


Recovery phase, lin-log match.

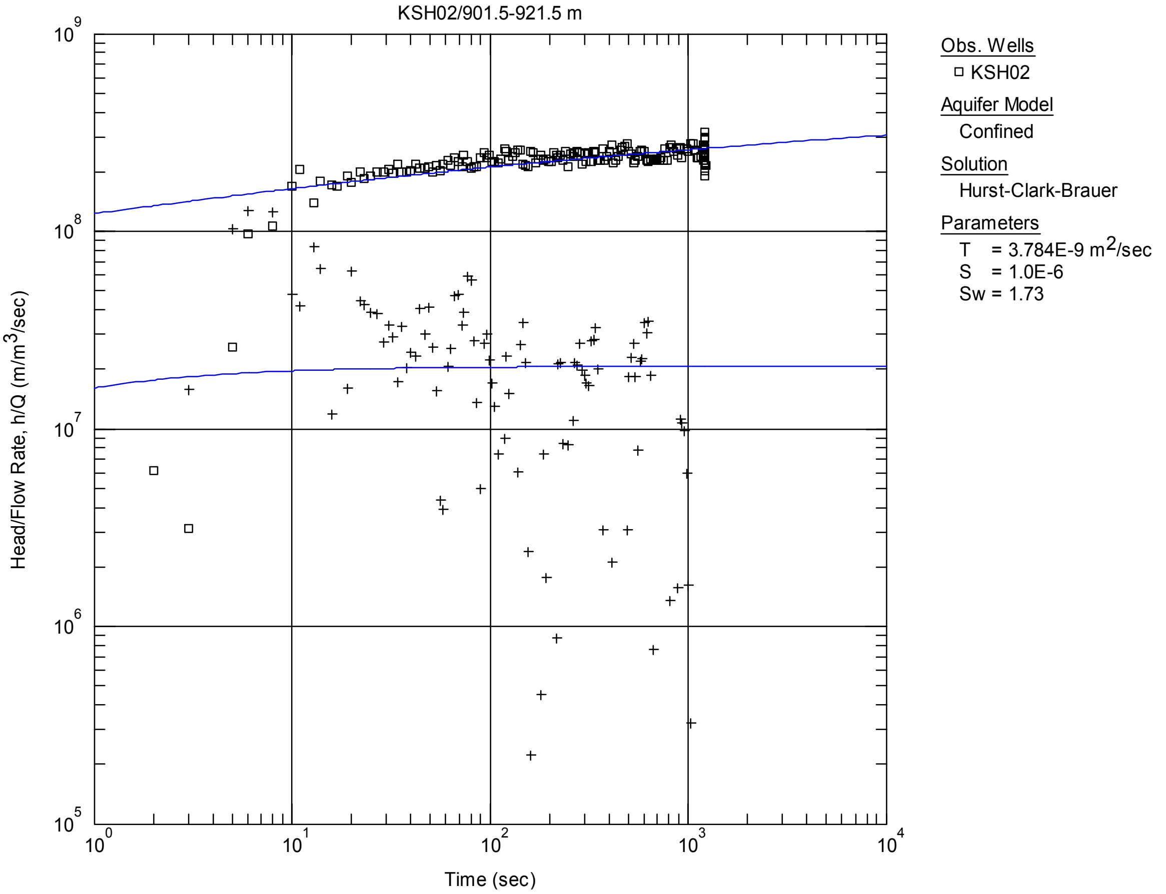
Appendix 3-51

Test 901.5–921.5 m

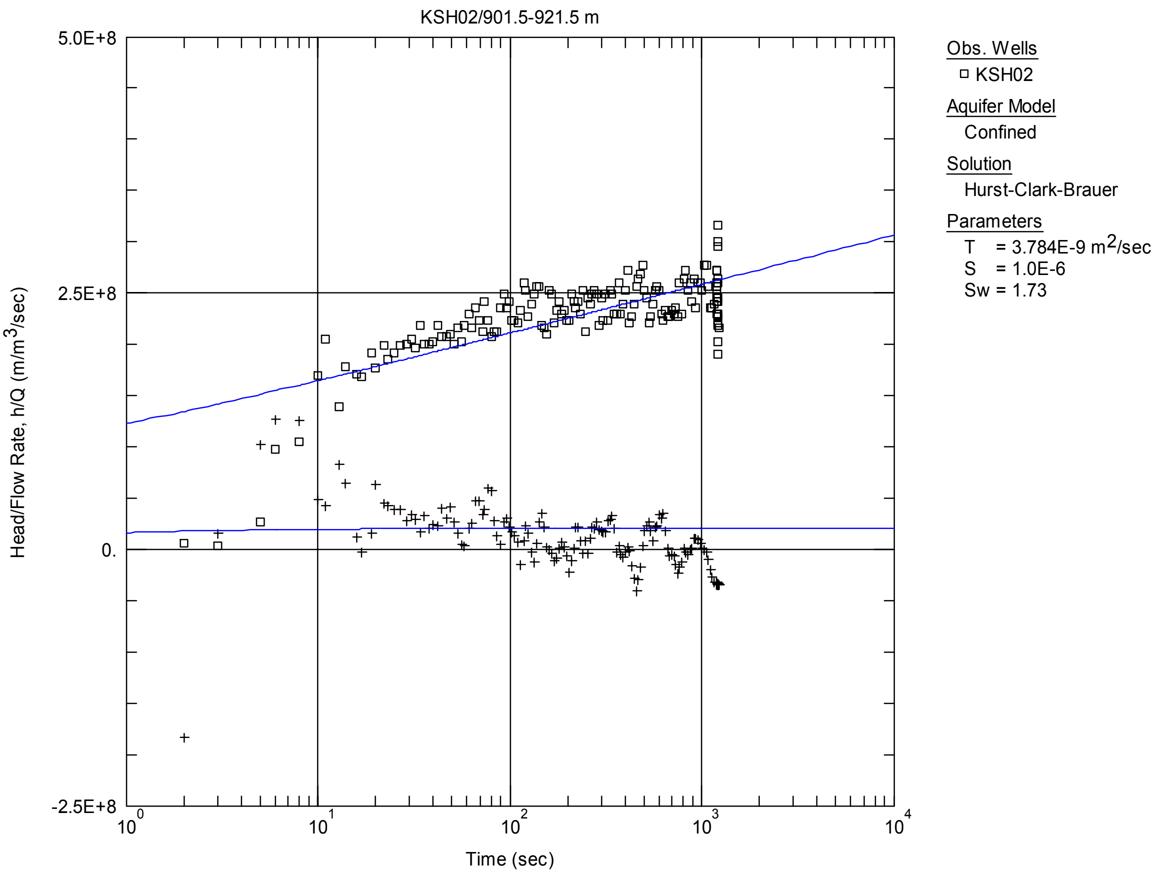
Analysis Diagram



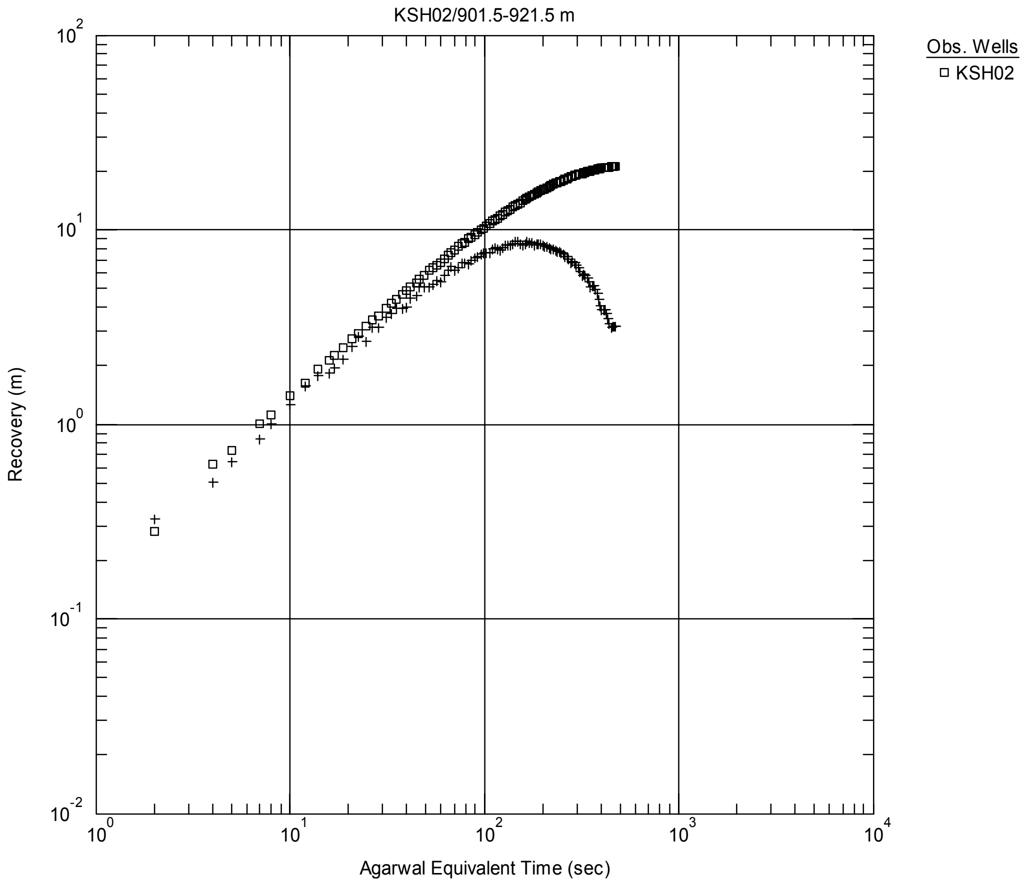
Pressure and flow rate vs. time.



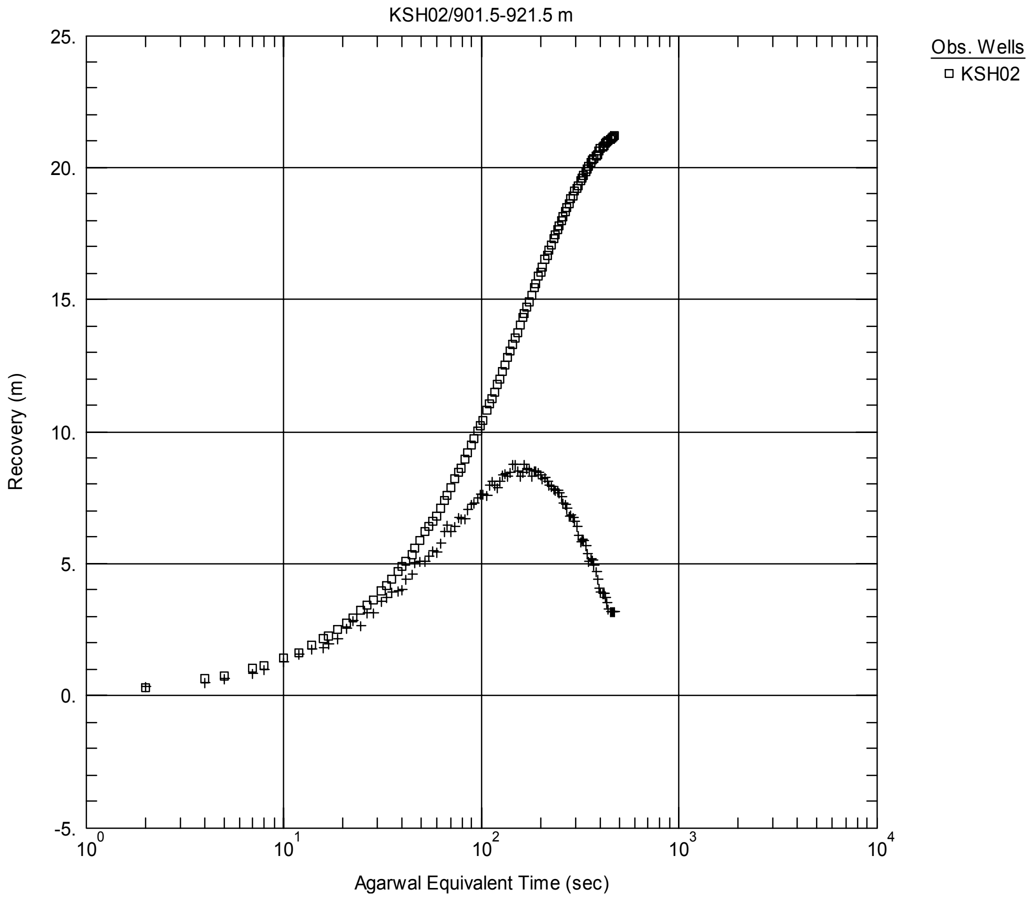
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

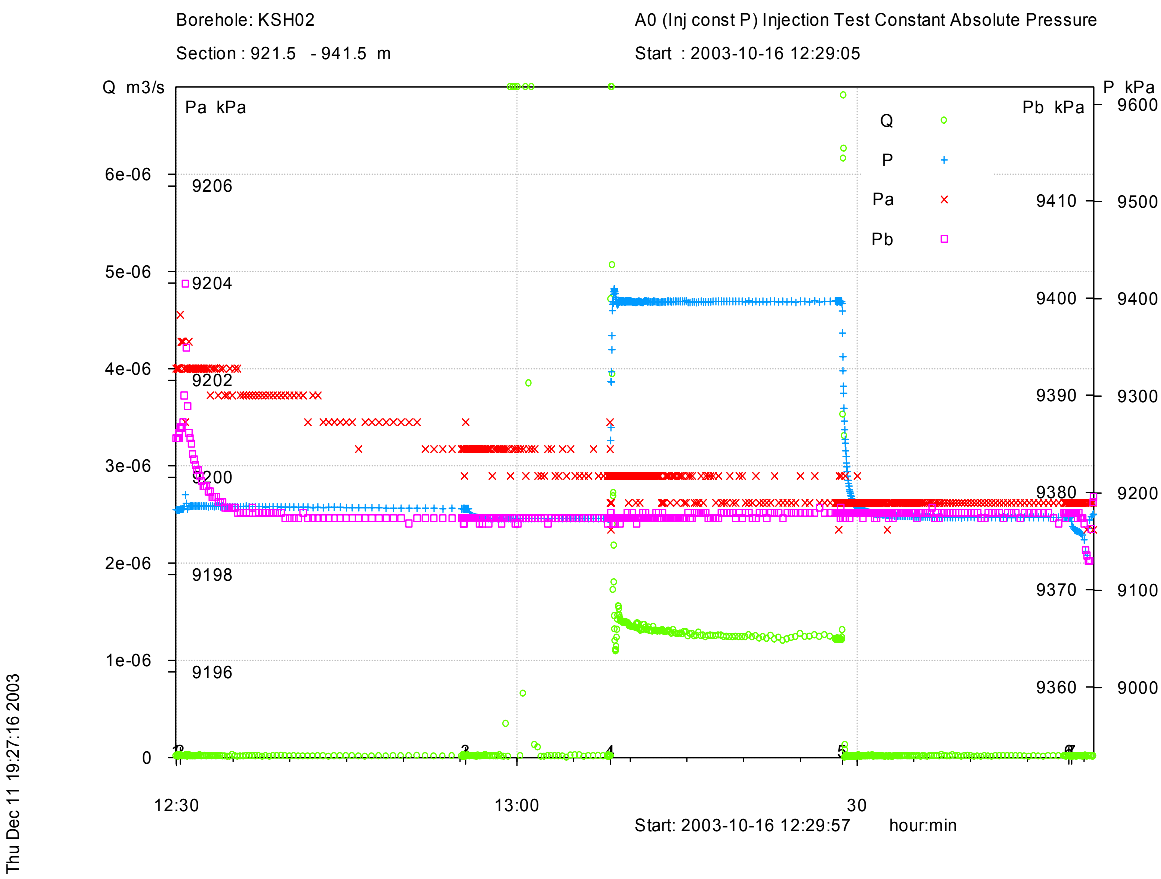


Recovery phase, lin-log match.

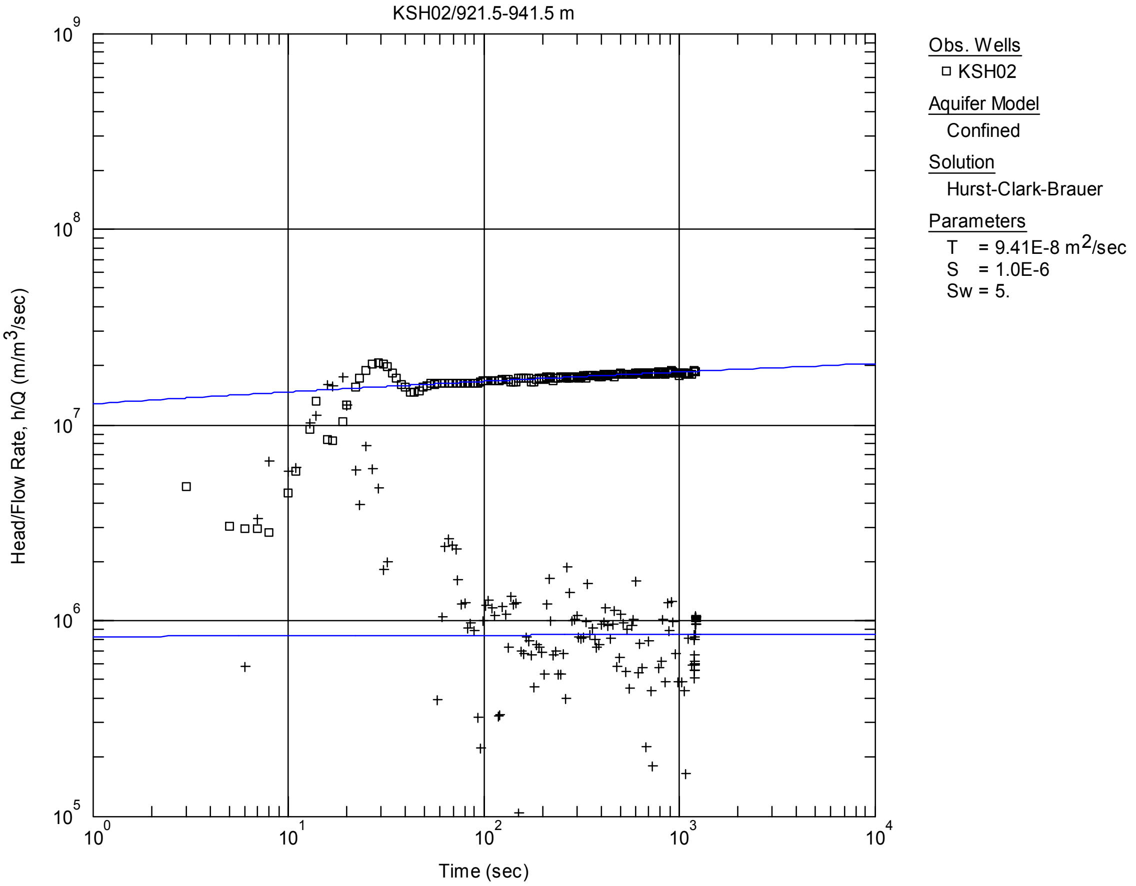
Appendix 3-52

Test 921.5–941.5 m

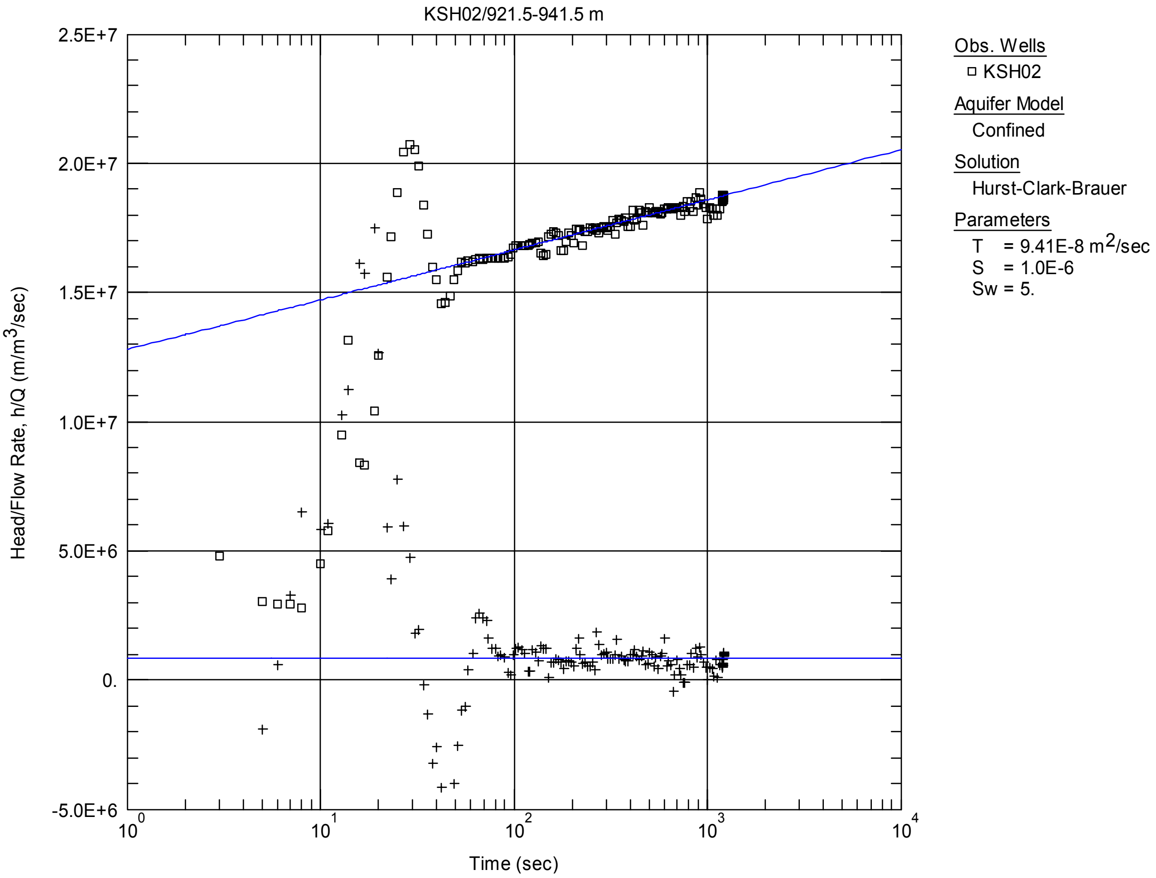
Analysis Diagram



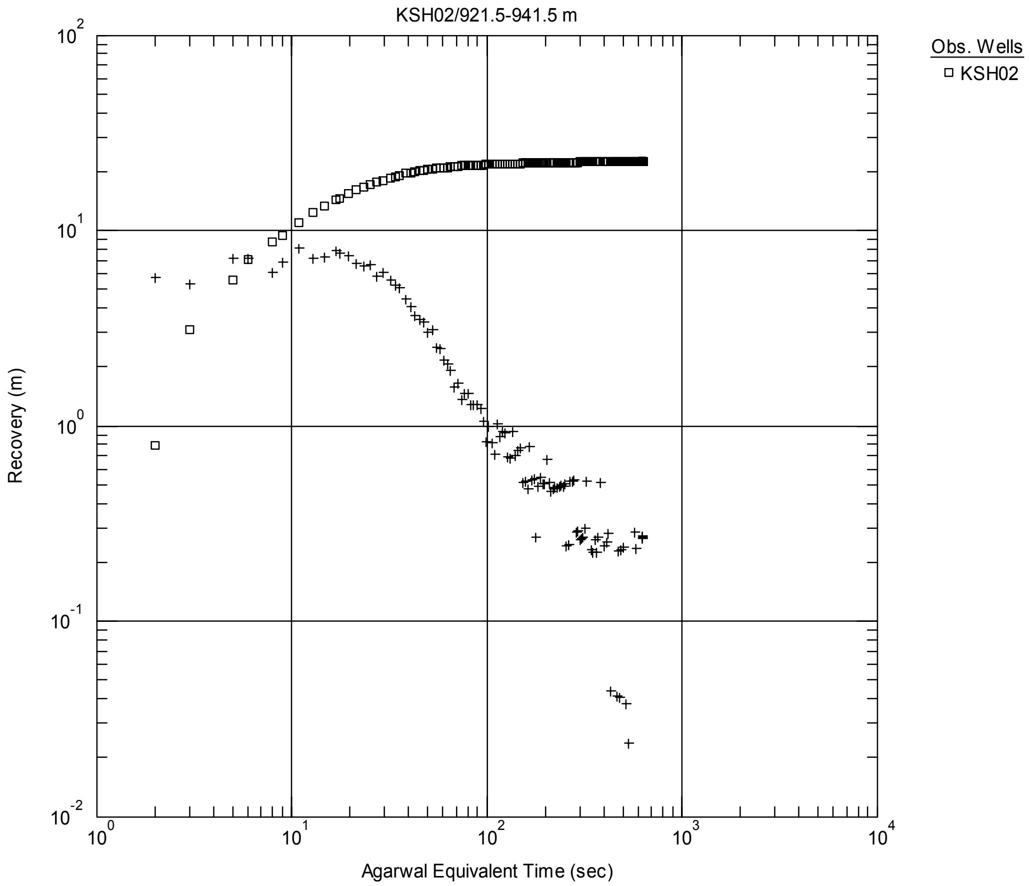
Pressure and flow rate vs. time.



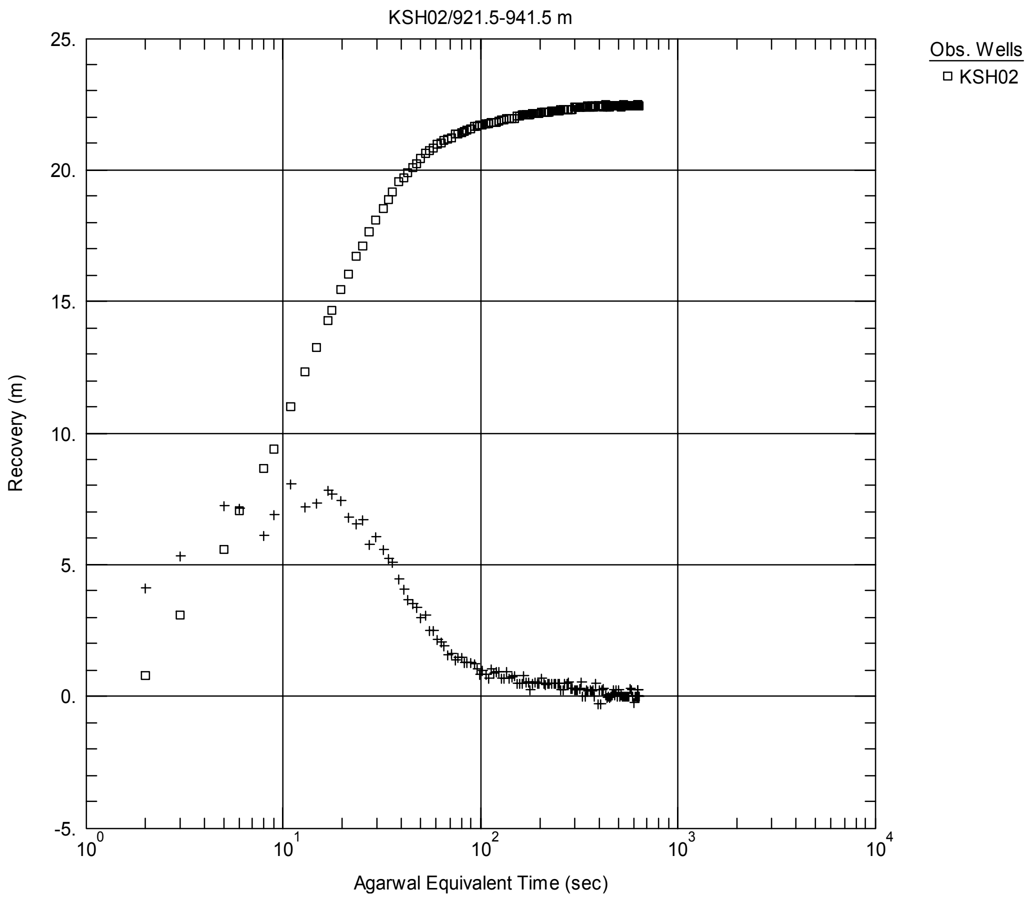
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



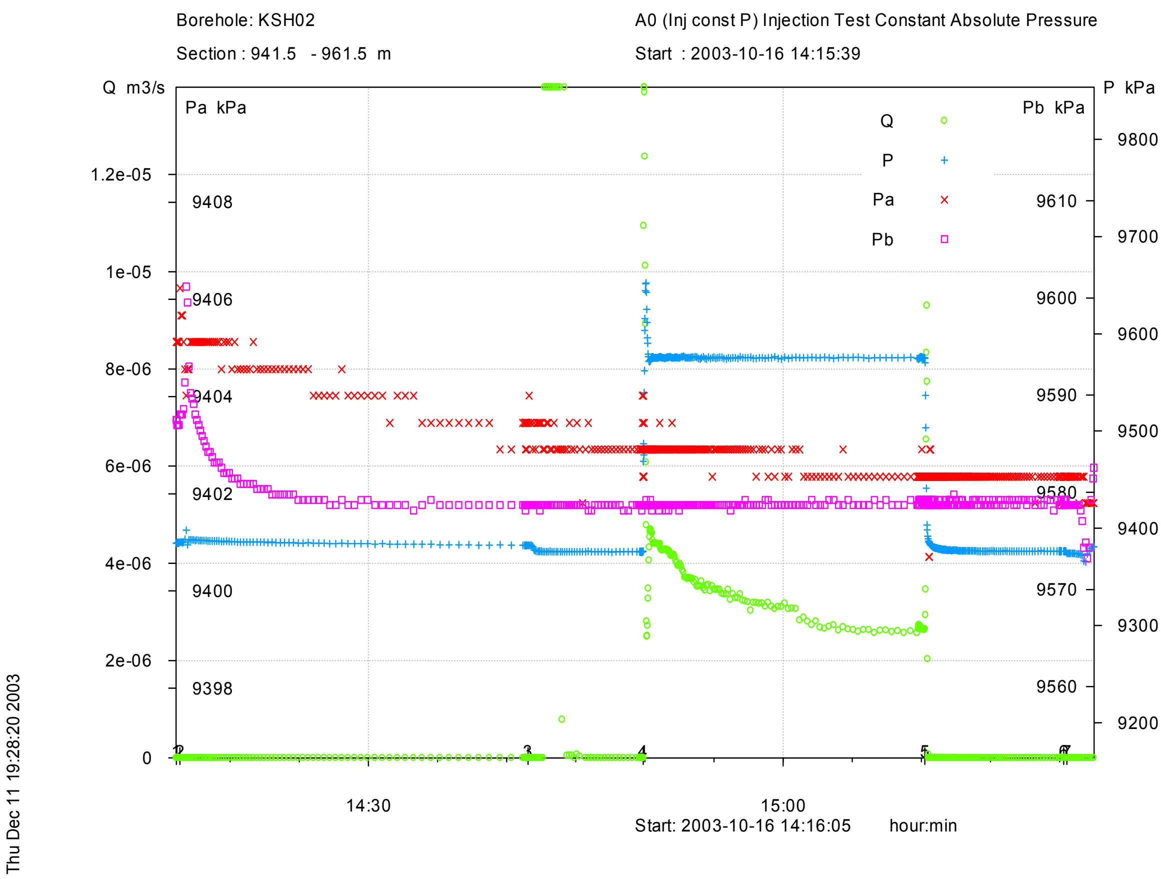
Recovery phase, log-log match.



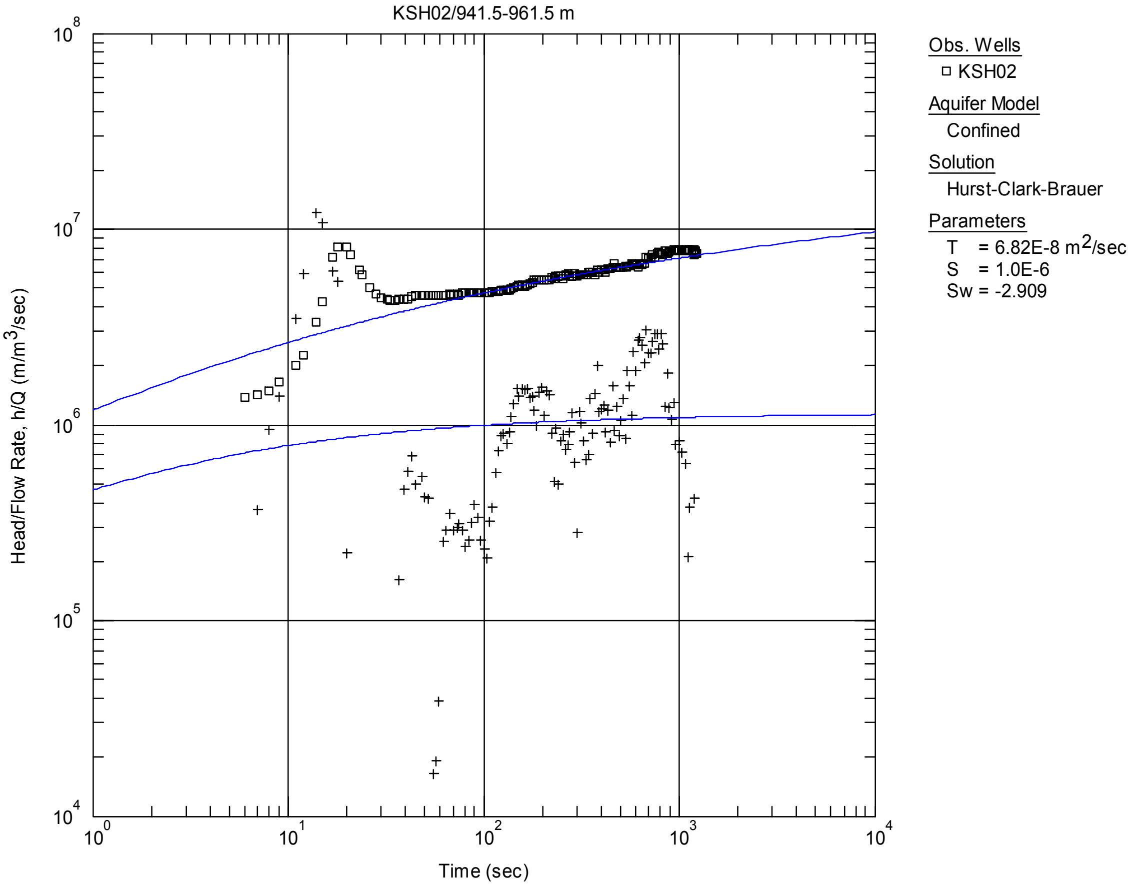
Recovery phase, lin-log match.

Test 941.5–961.5 m

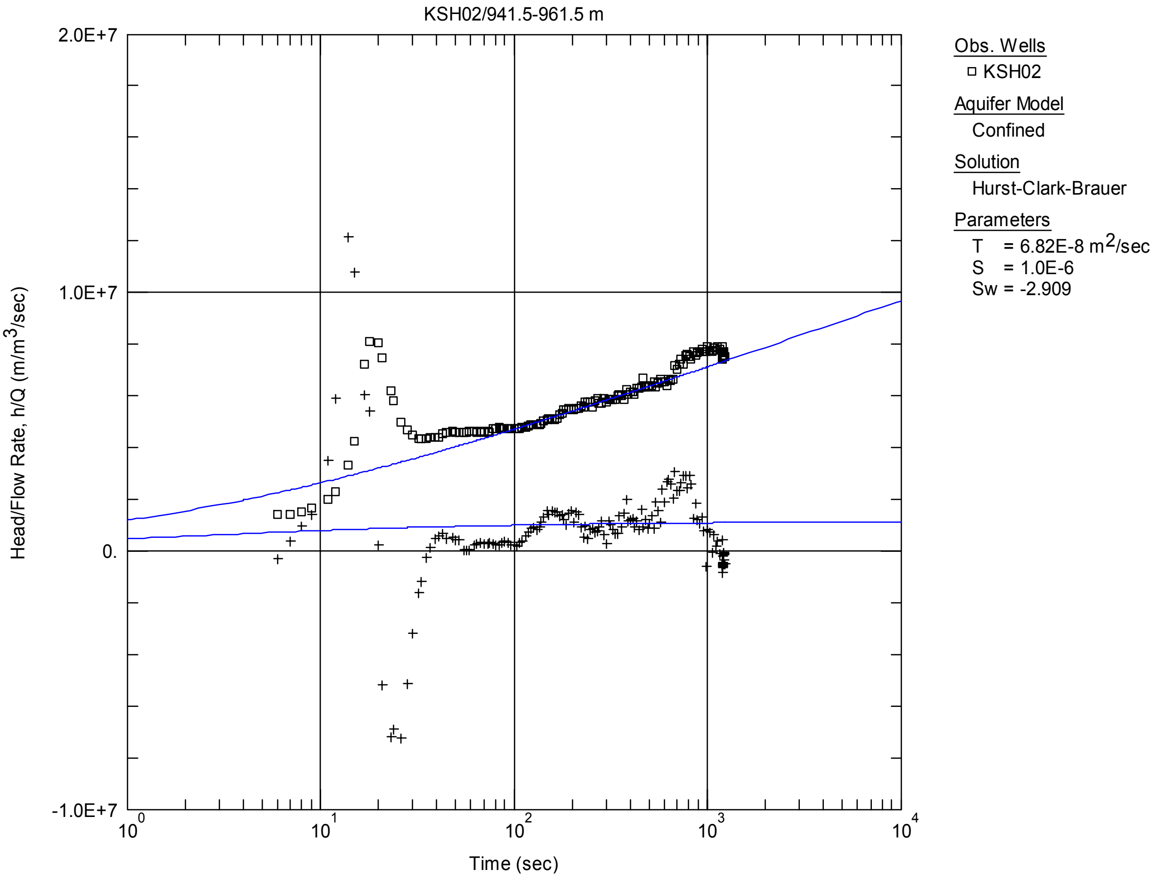
Analysis Diagram



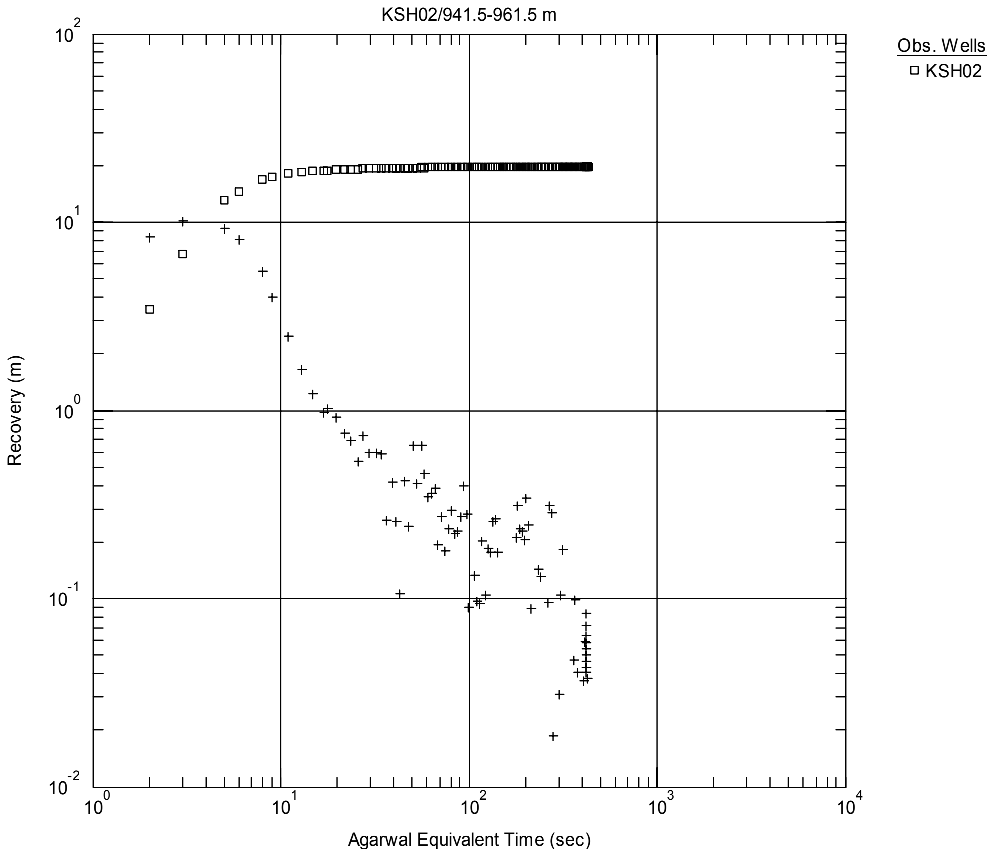
Pressure and flow rate vs. time.



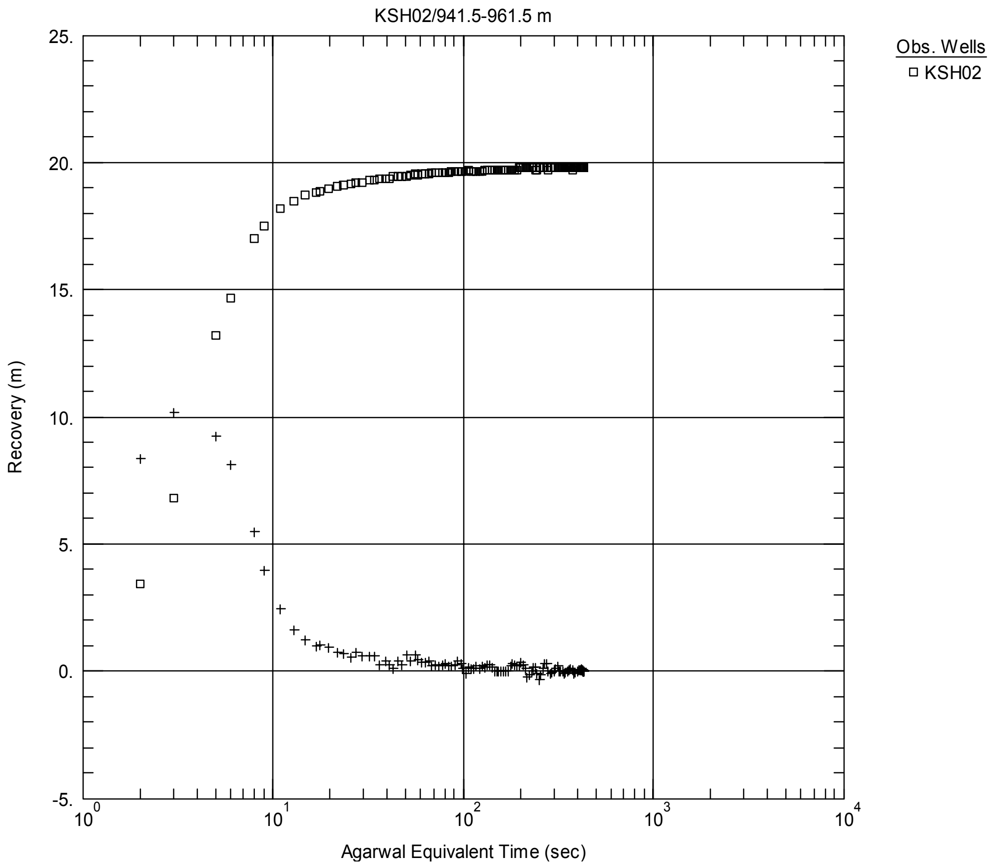
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



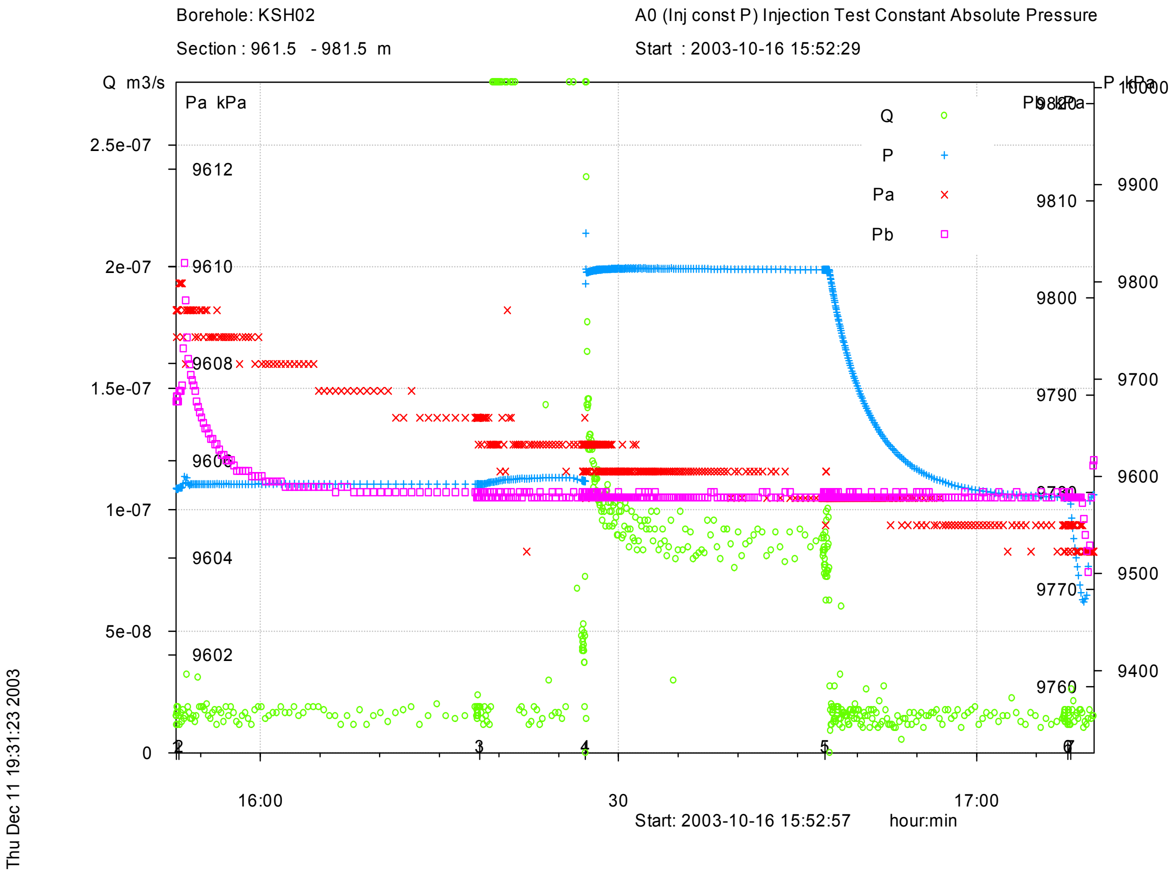
Recovery phase, log-log match.



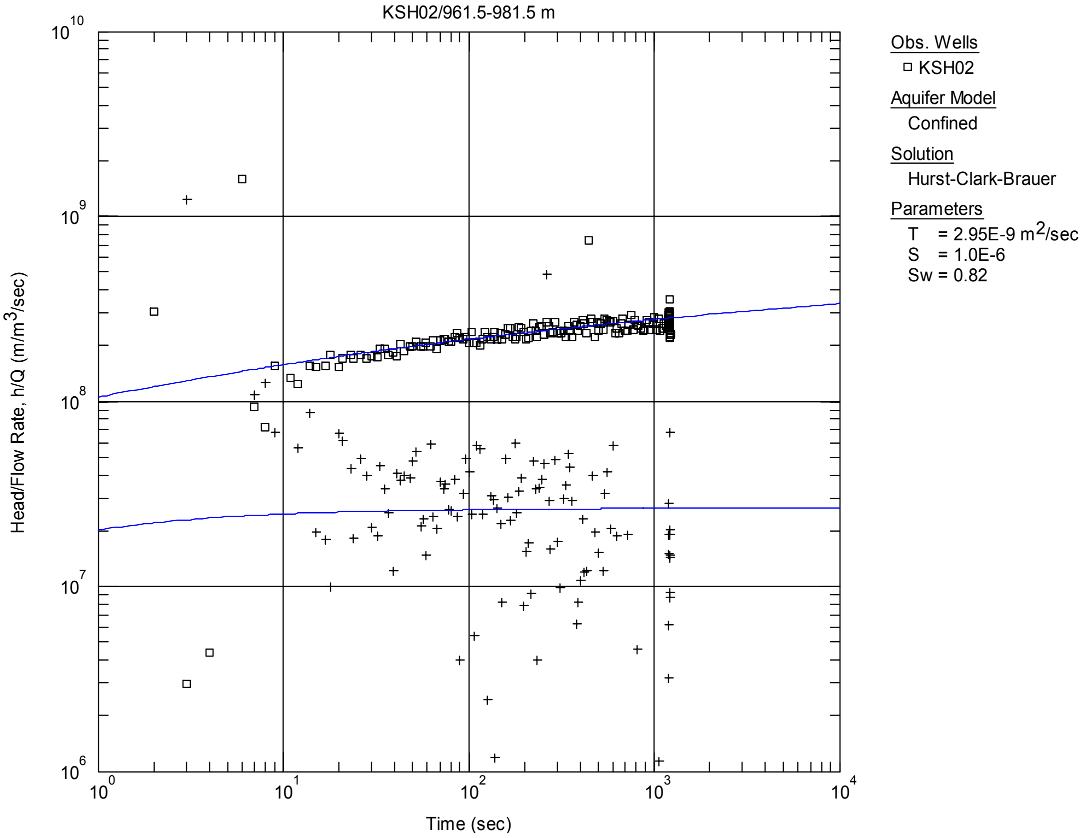
Recovery phase, lin-log match.

Test 961.5–981.5 m

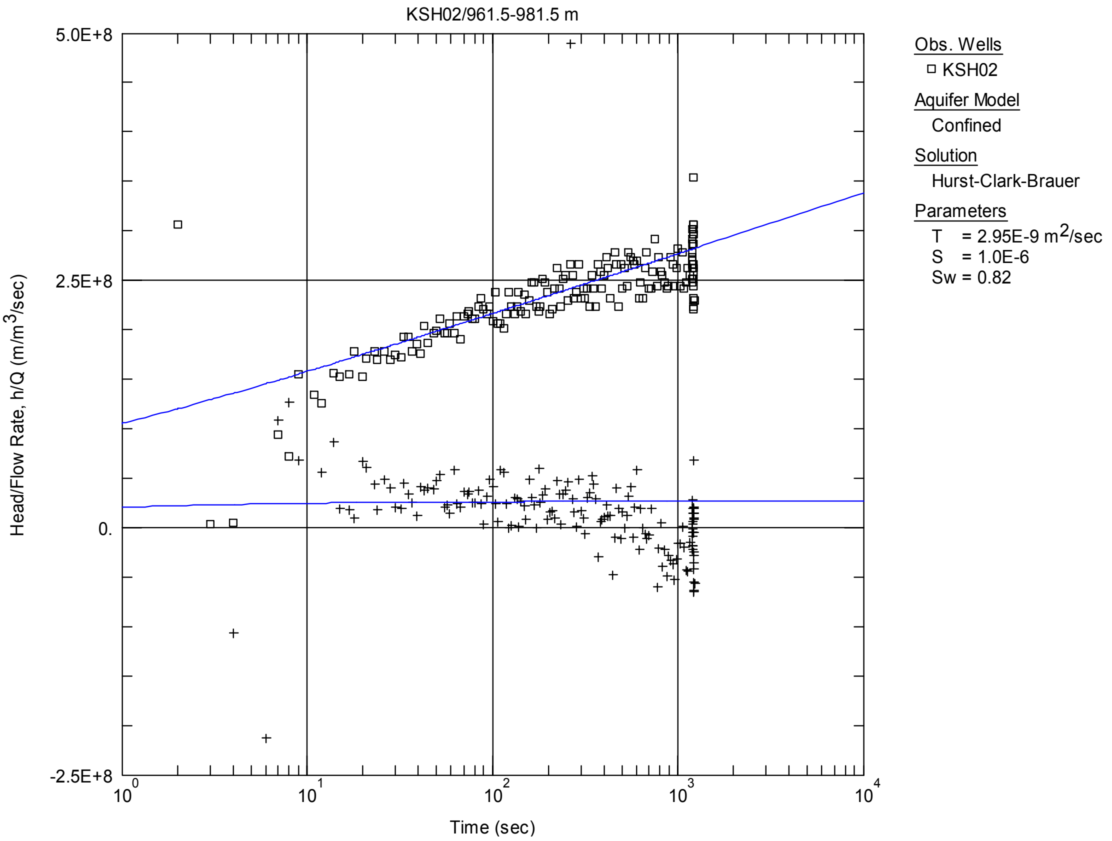
Analysis Diagram



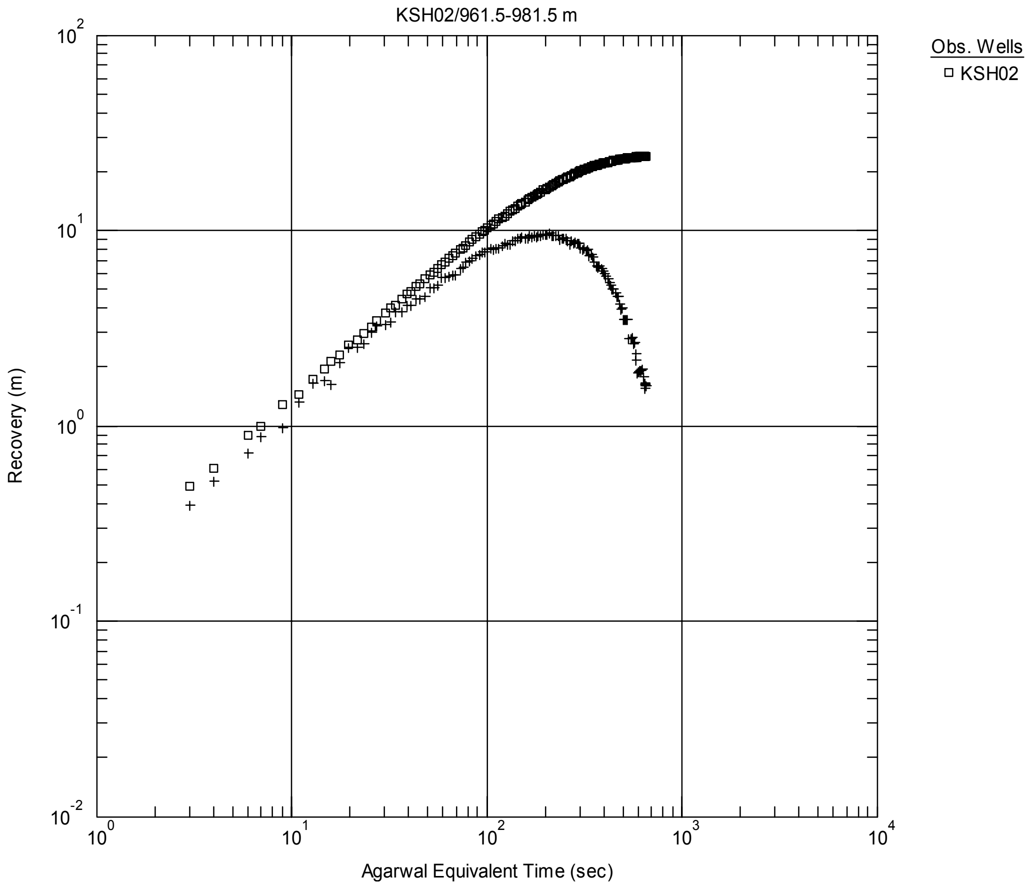
Pressure and flow rate vs. time.



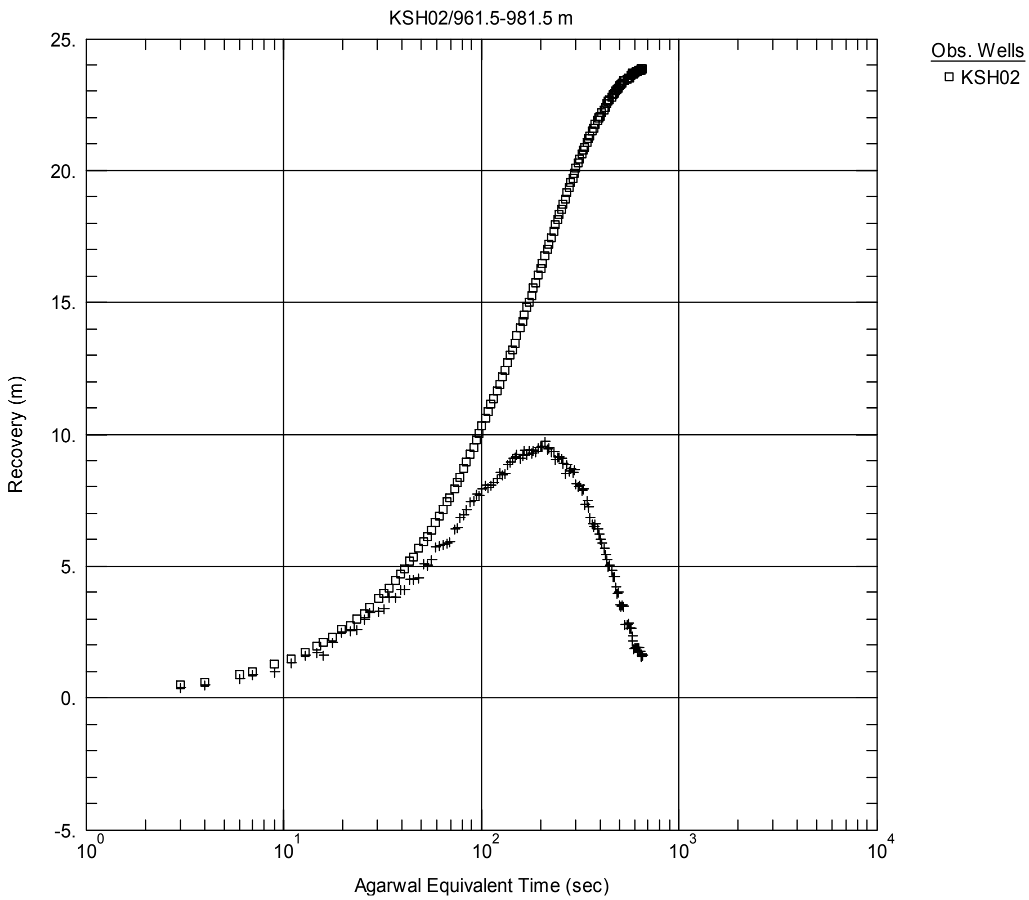
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



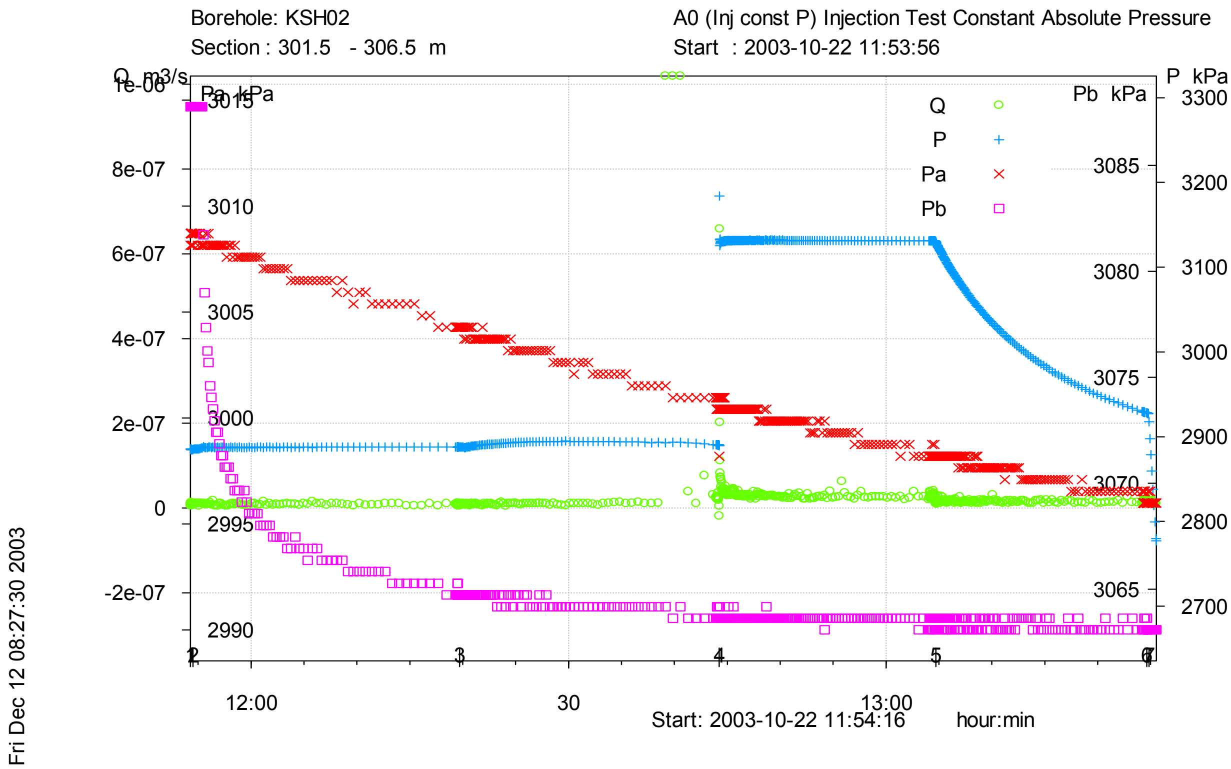
Recovery phase, log-log match.



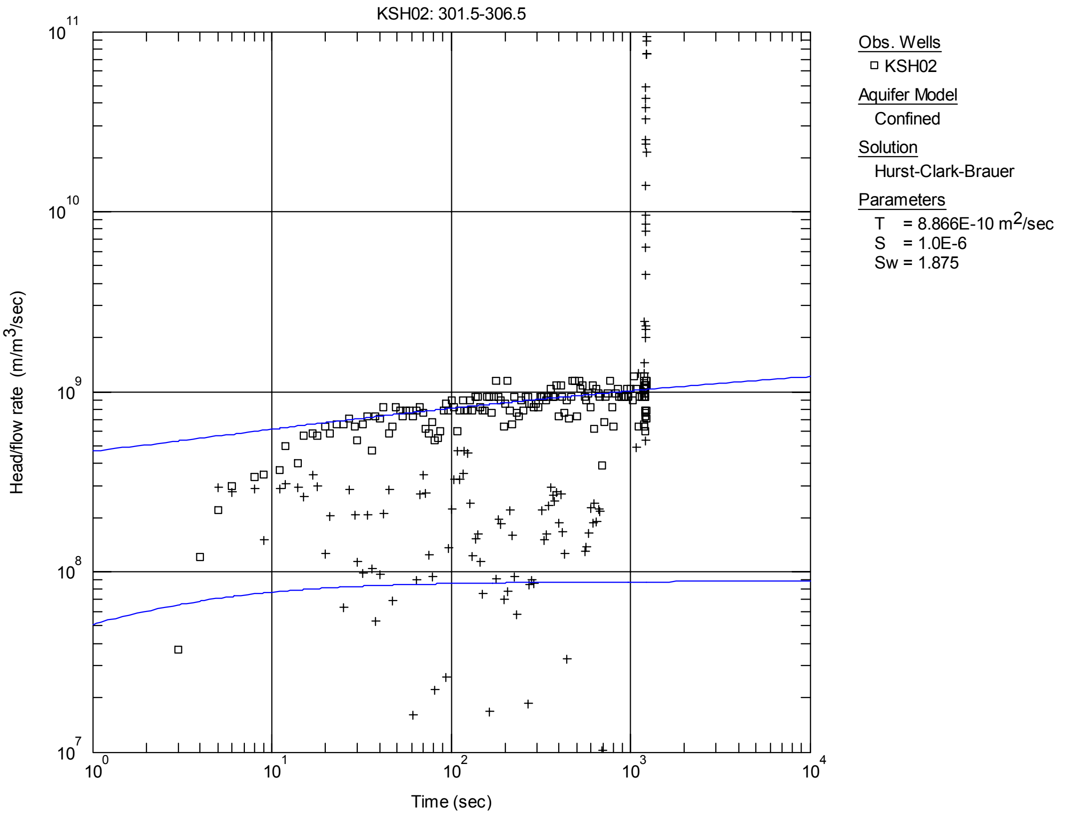
Recovery phase, lin-log match.

Test 301.5–306.5 m

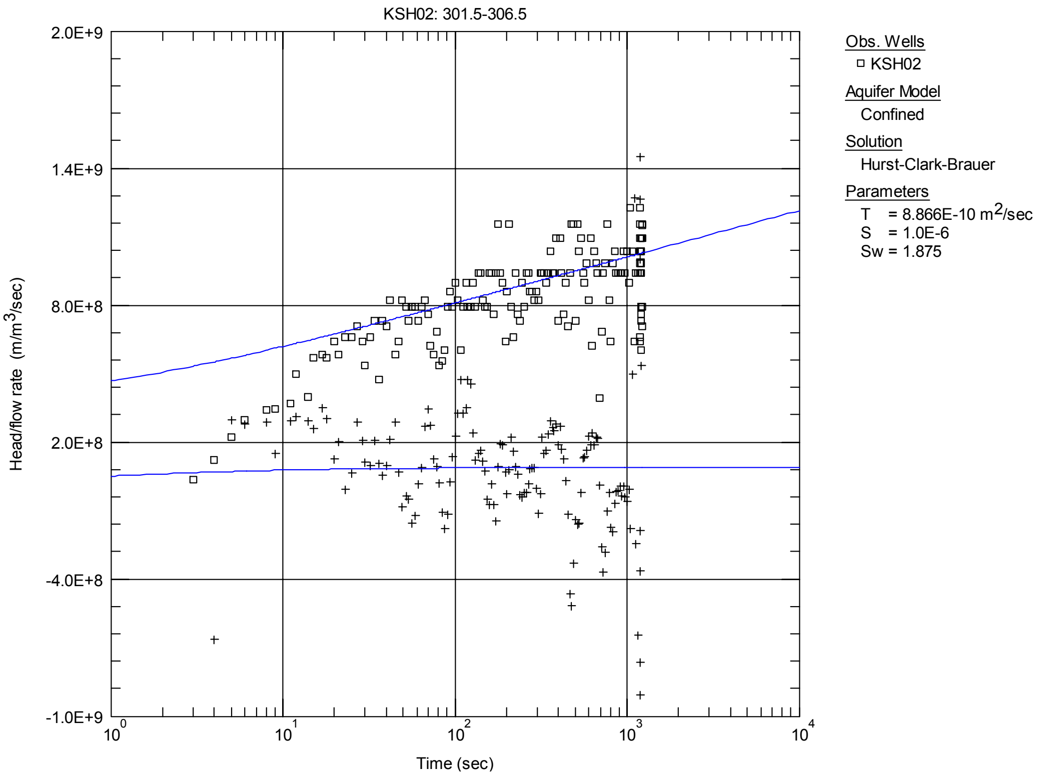
Analysis Diagram



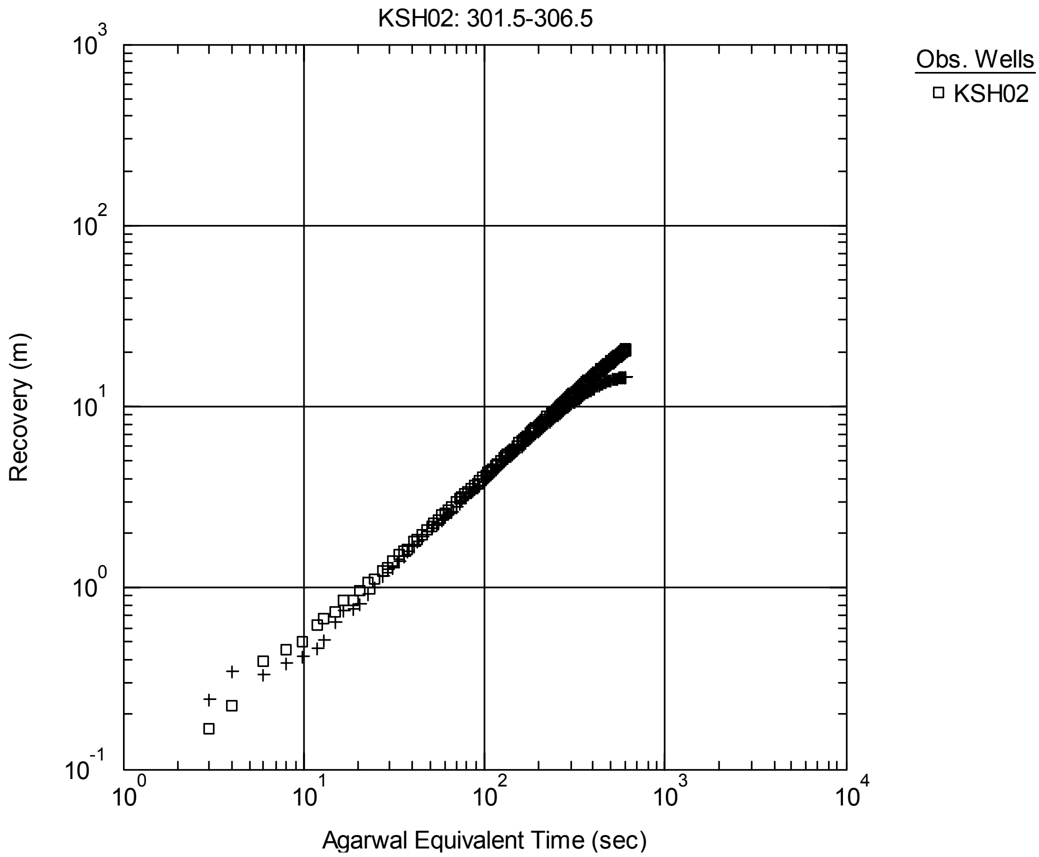
Pressure and flow rate vs. time.



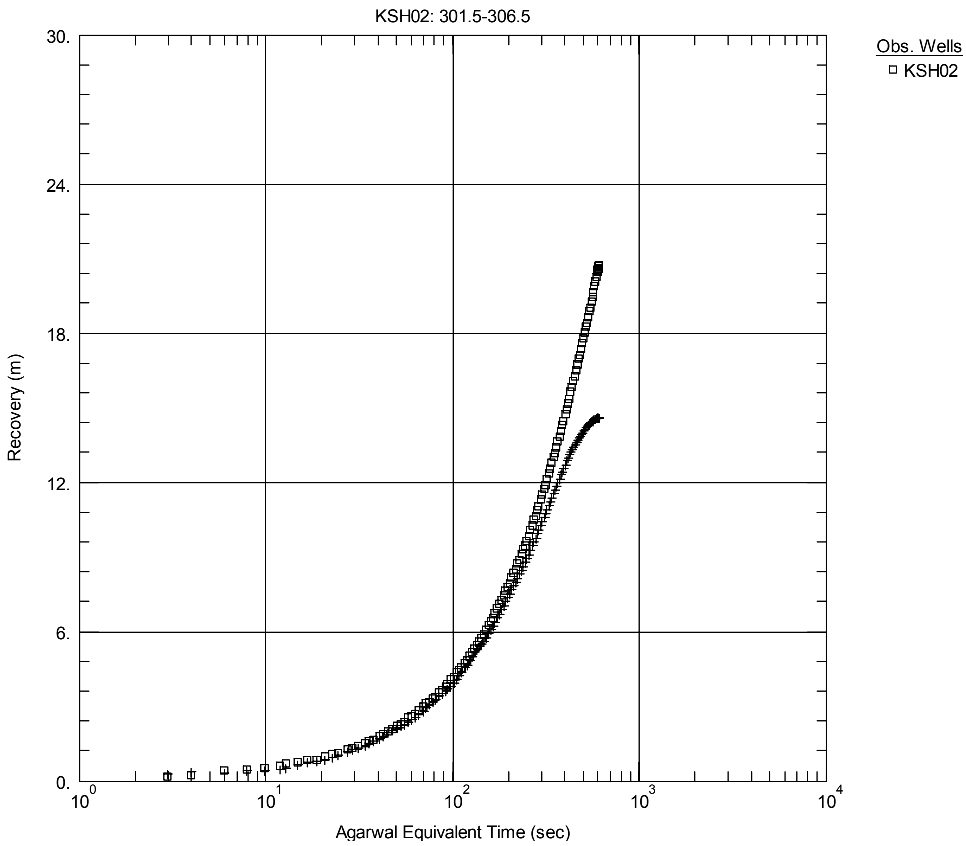
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



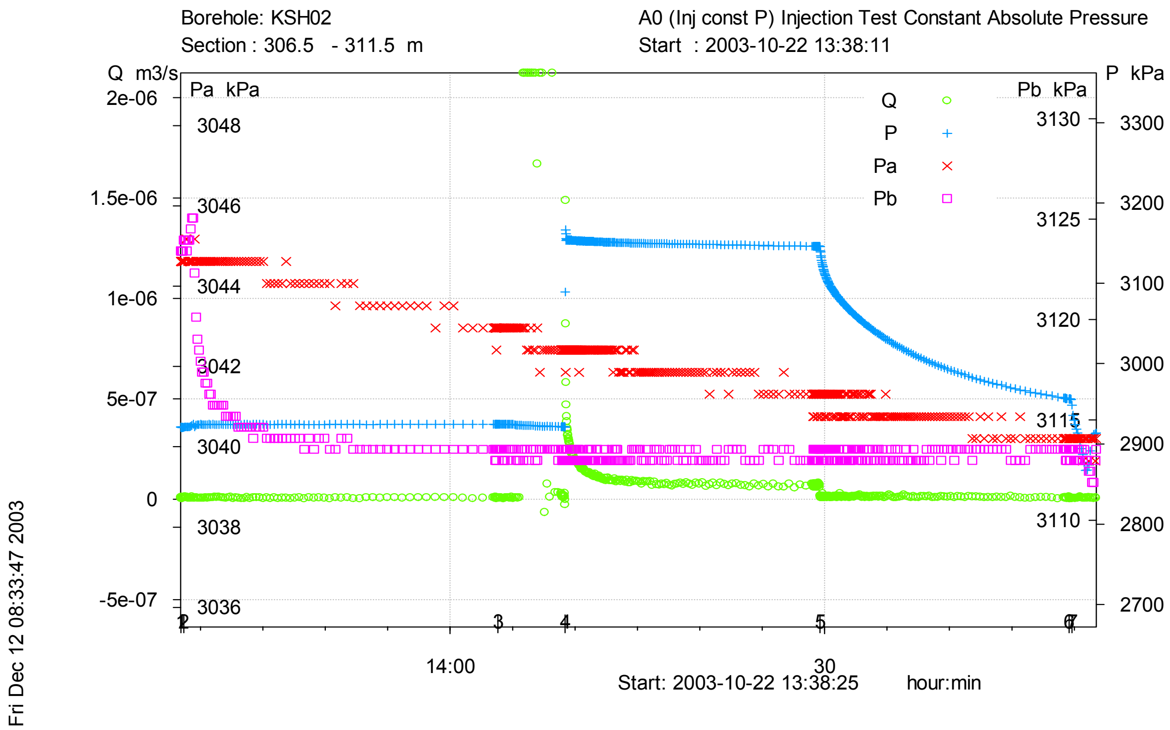
Recovery phase, log-log match.



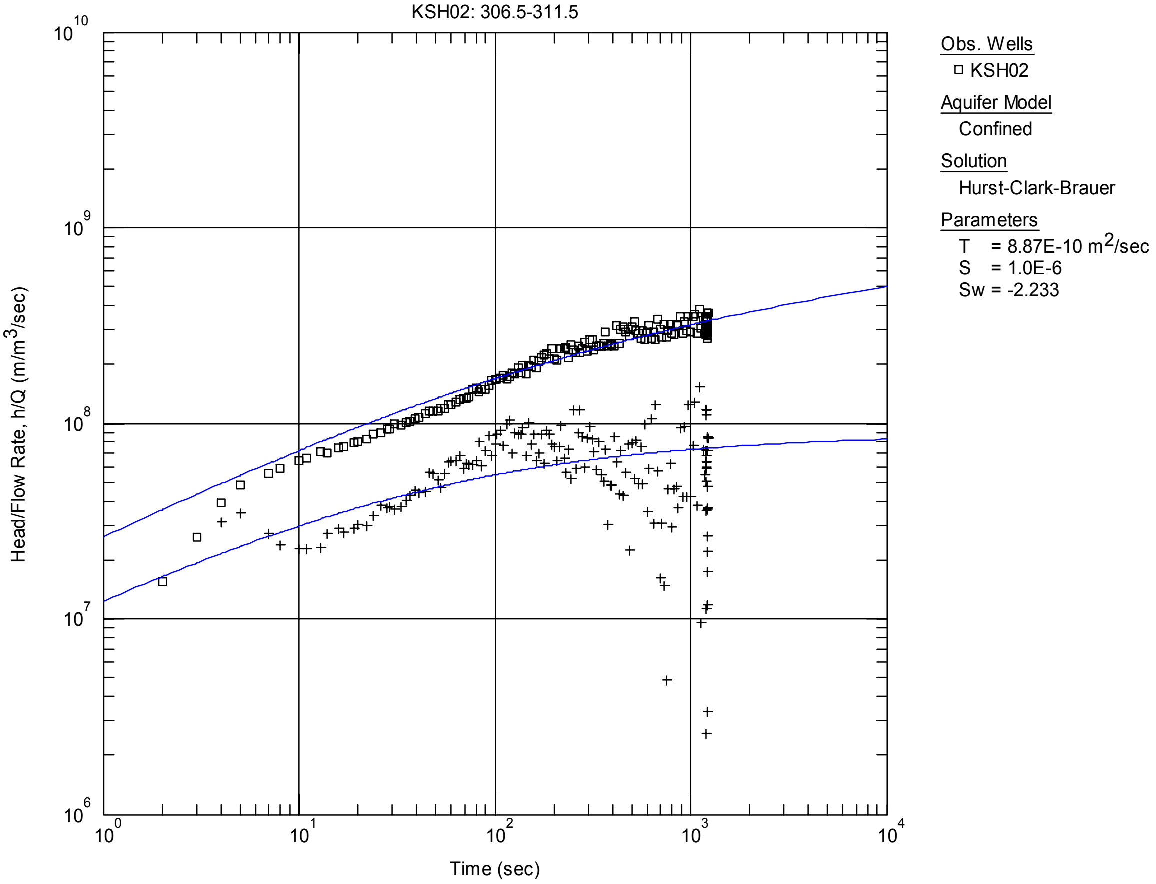
Recovery phase, lin-log match.

Test 306.5–311.5 m

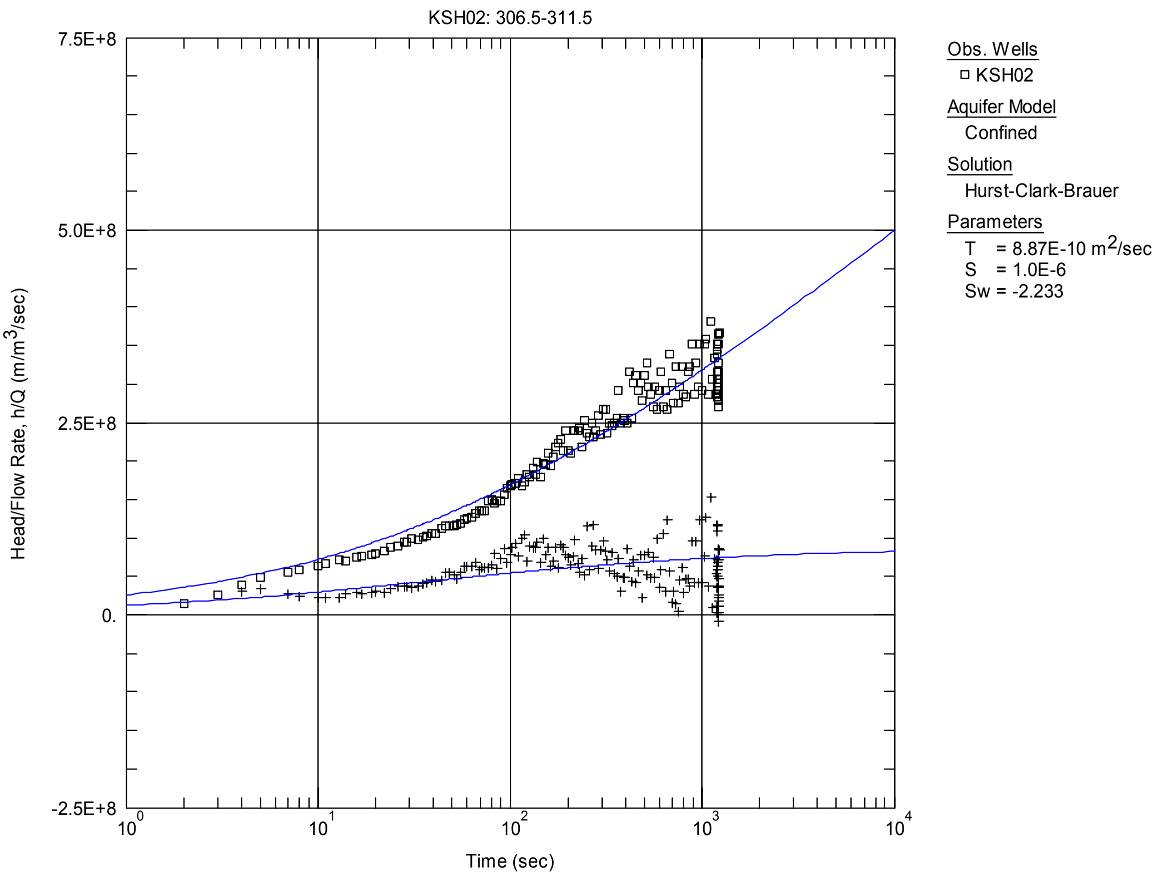
Analysis Diagram



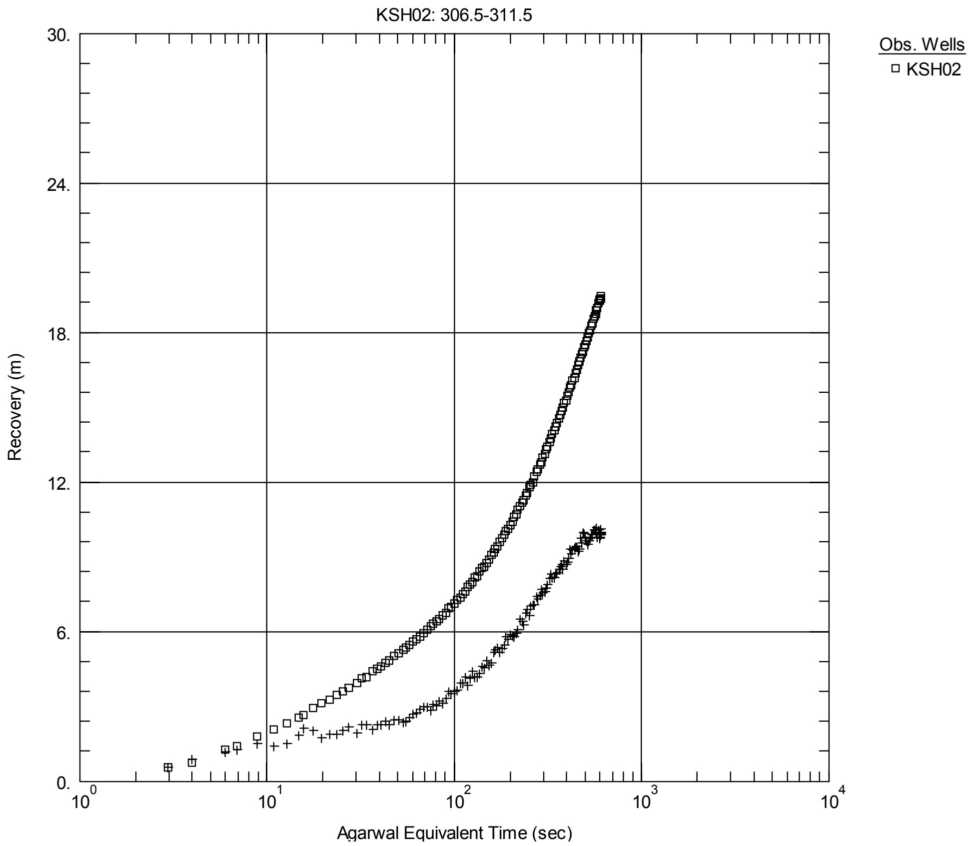
Pressure and flow rate vs. time.



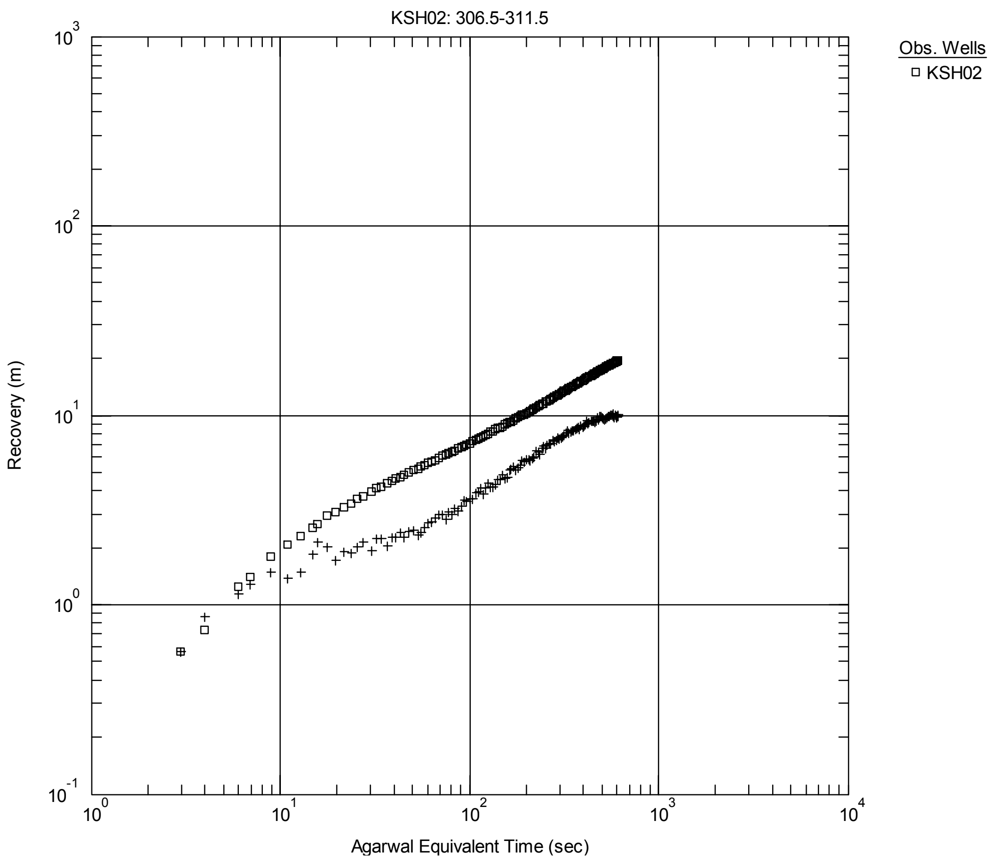
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



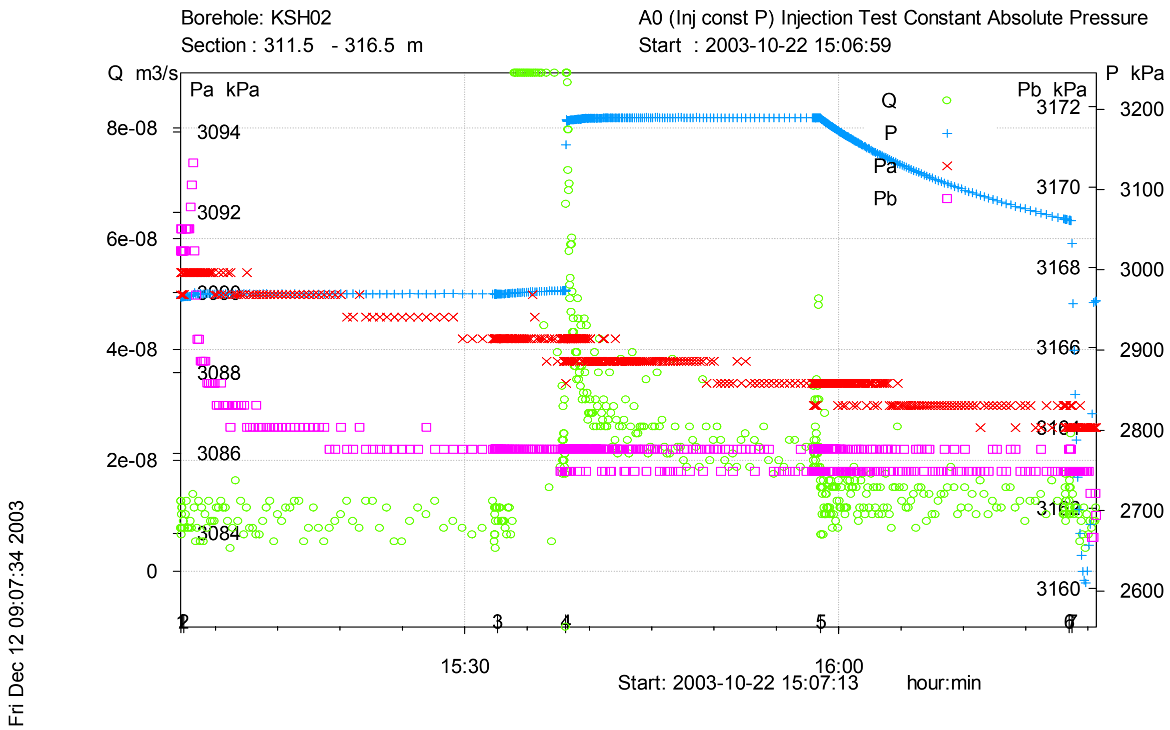
Recovery phase, log-log match.



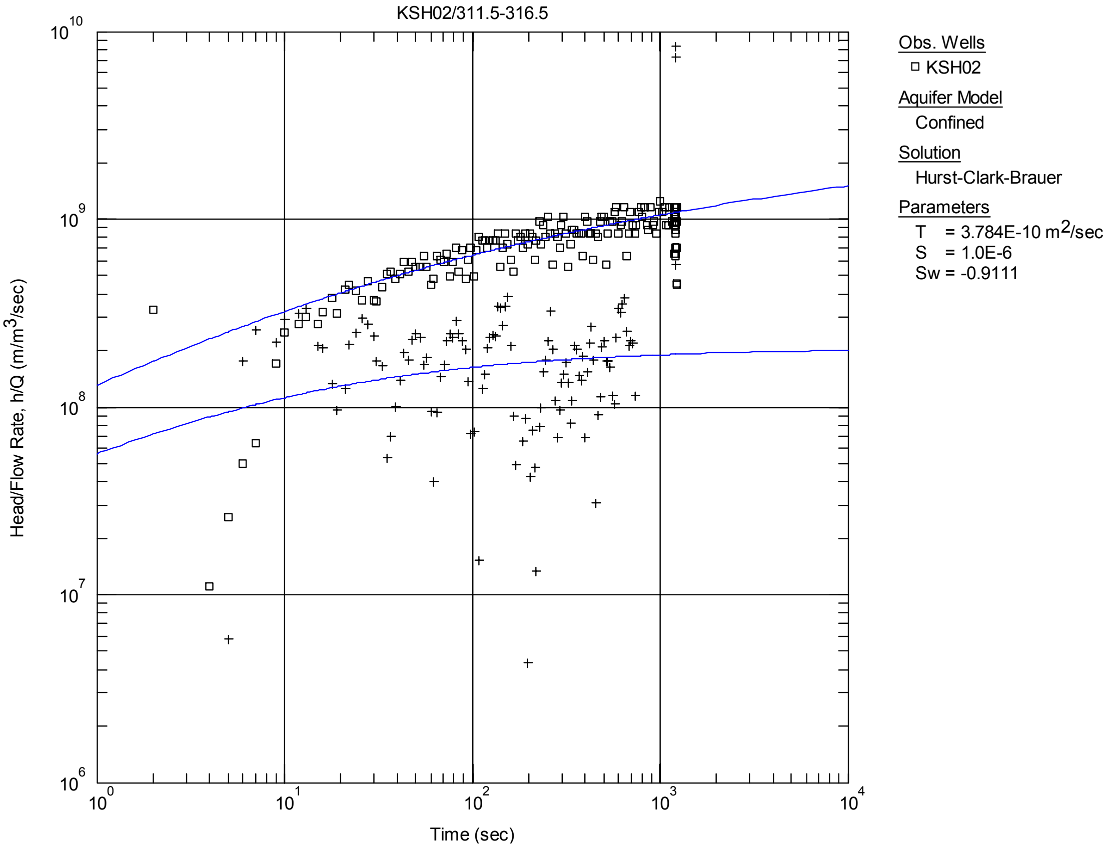
Recovery phase, lin-log match.

Test 311.5–316.5 m

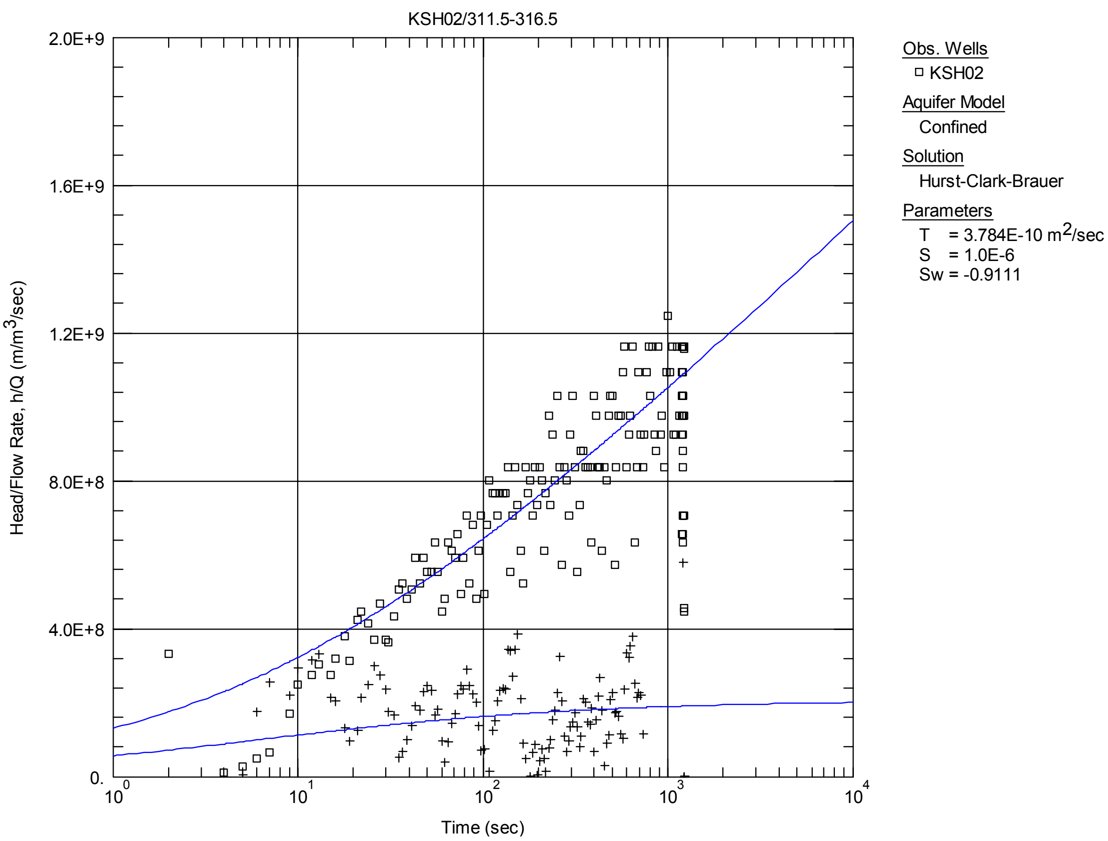
Analysis Diagram



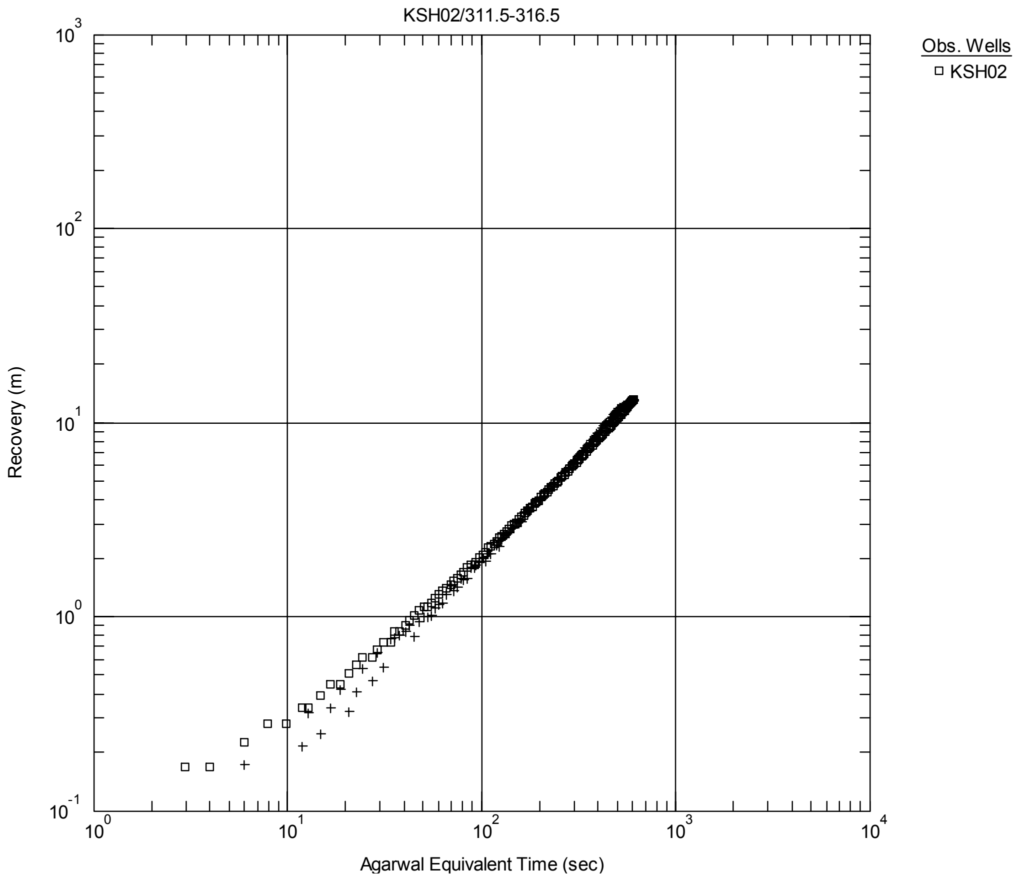
Pressure and flow rate vs. time.



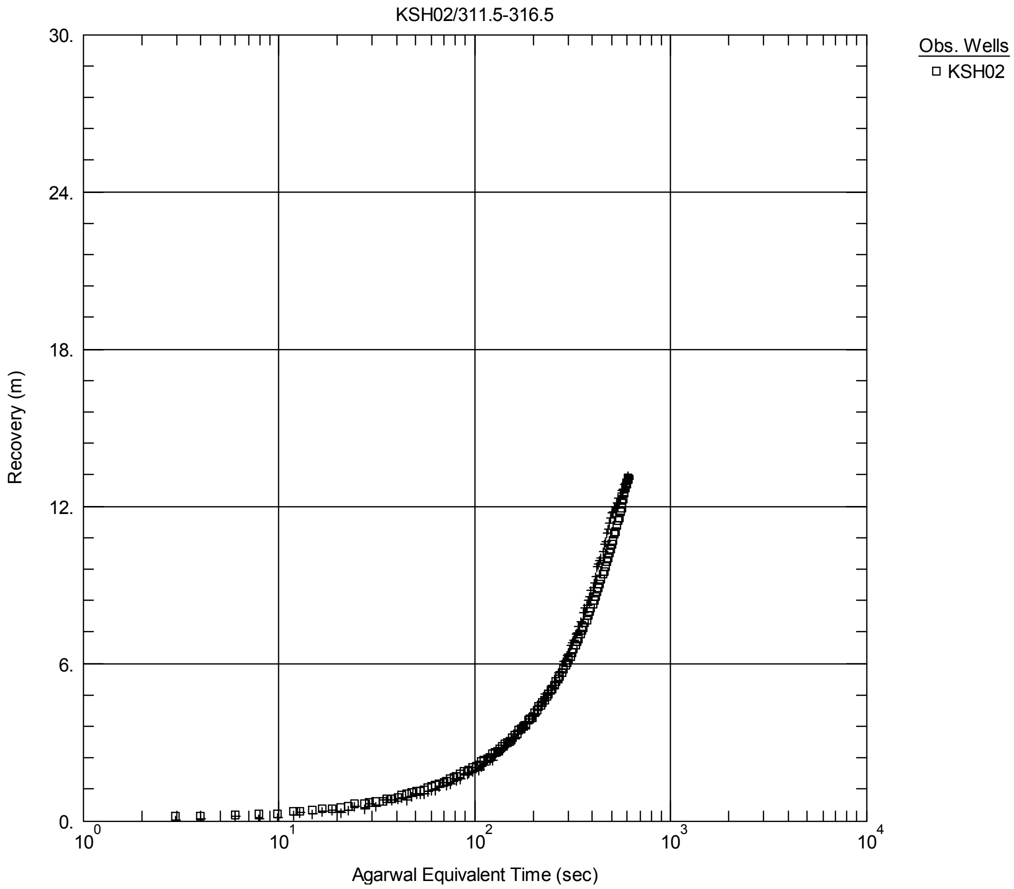
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



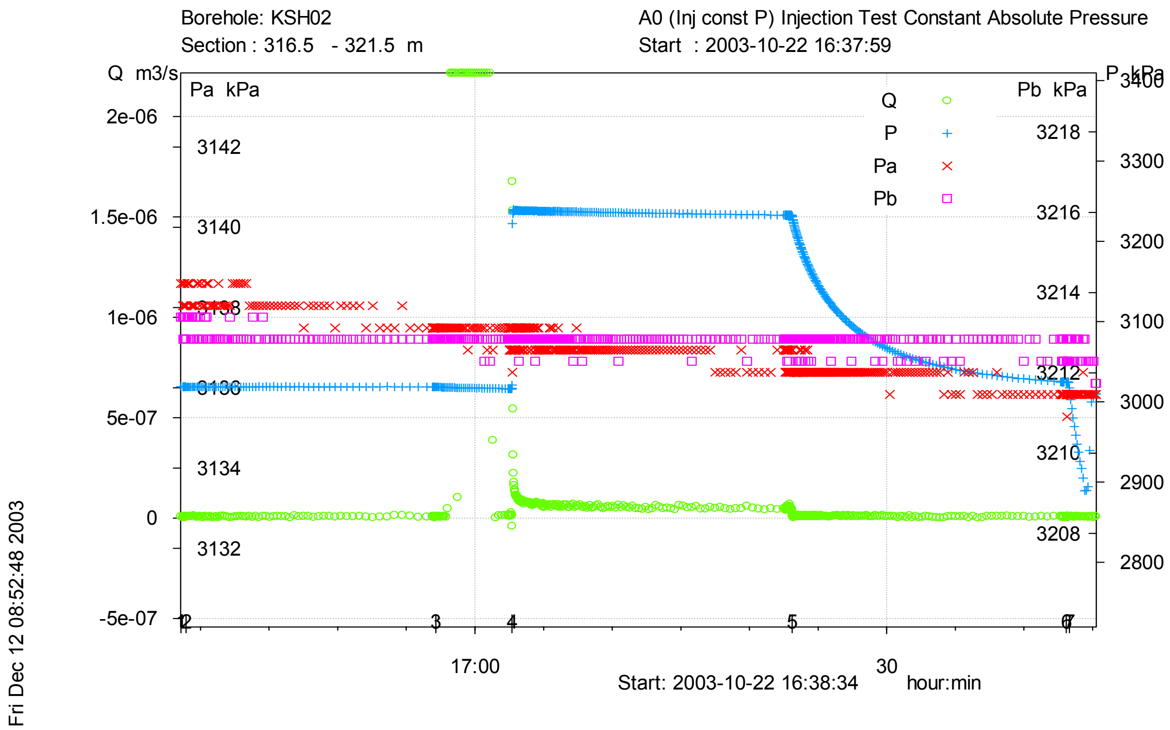
Recovery phase, log-log match.



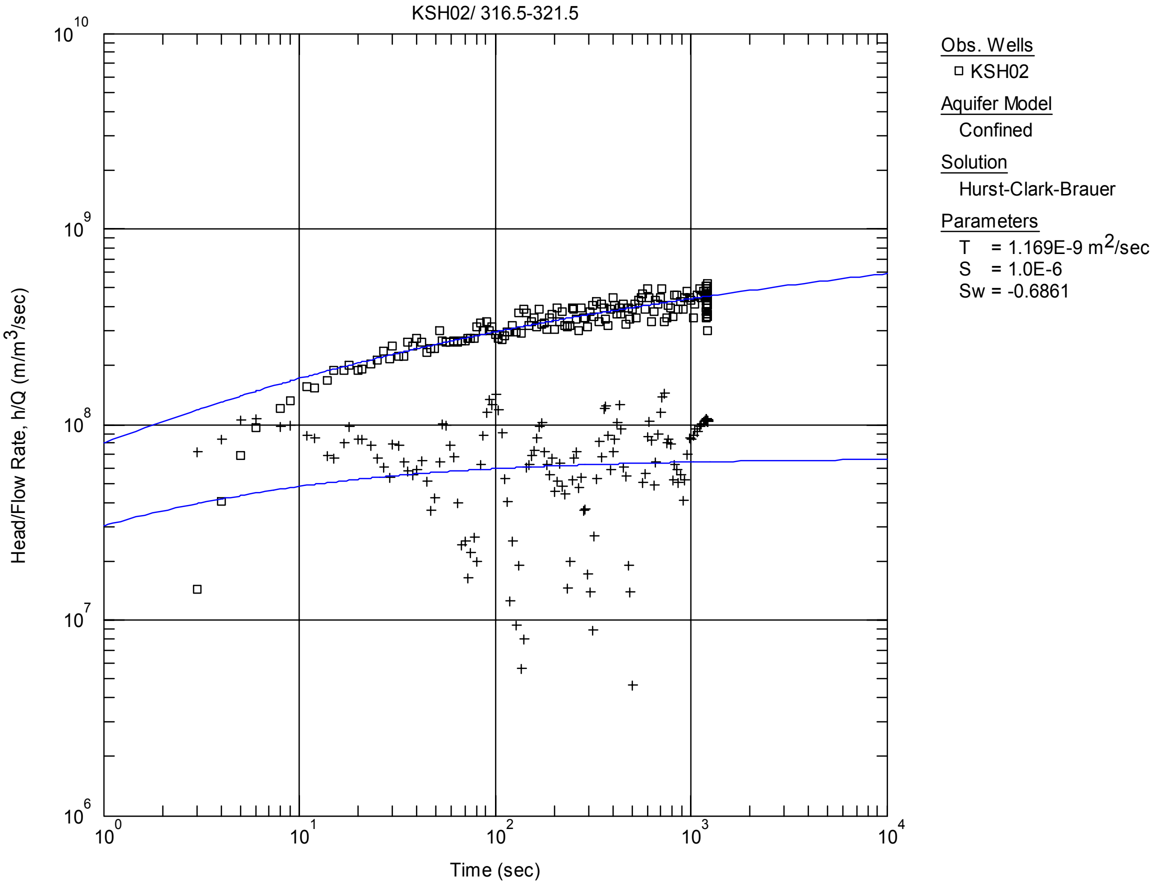
Recovery phase, lin-log match.

Test 316.5–321.5 m

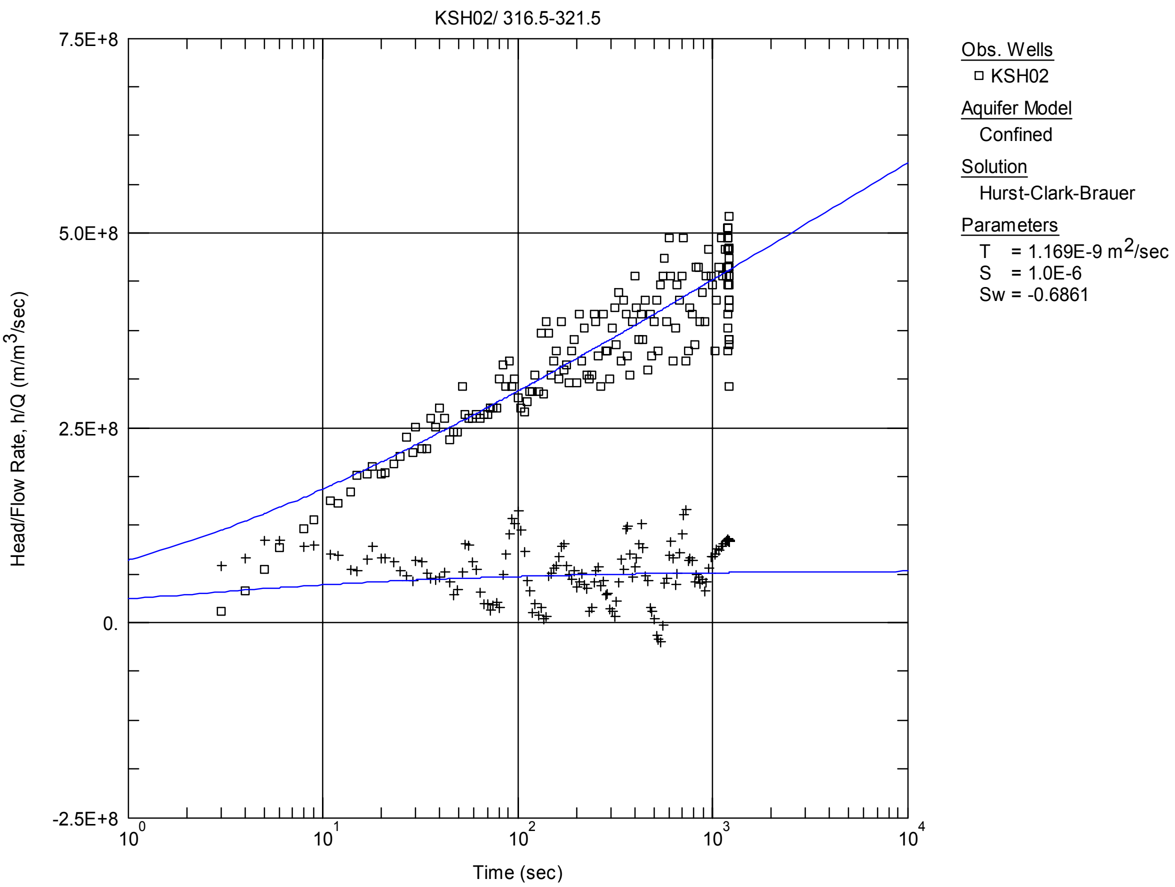
Analysis Diagram



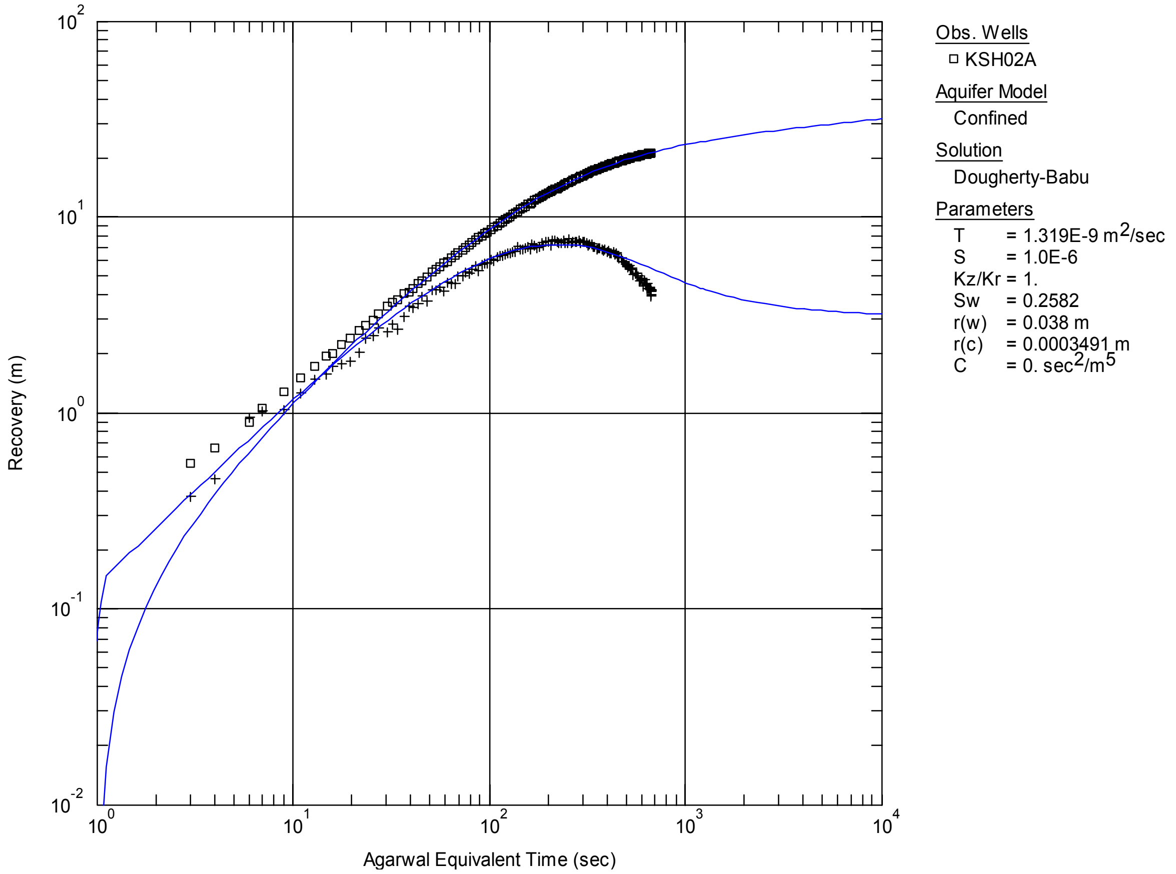
Pressure and flow rate vs. time.



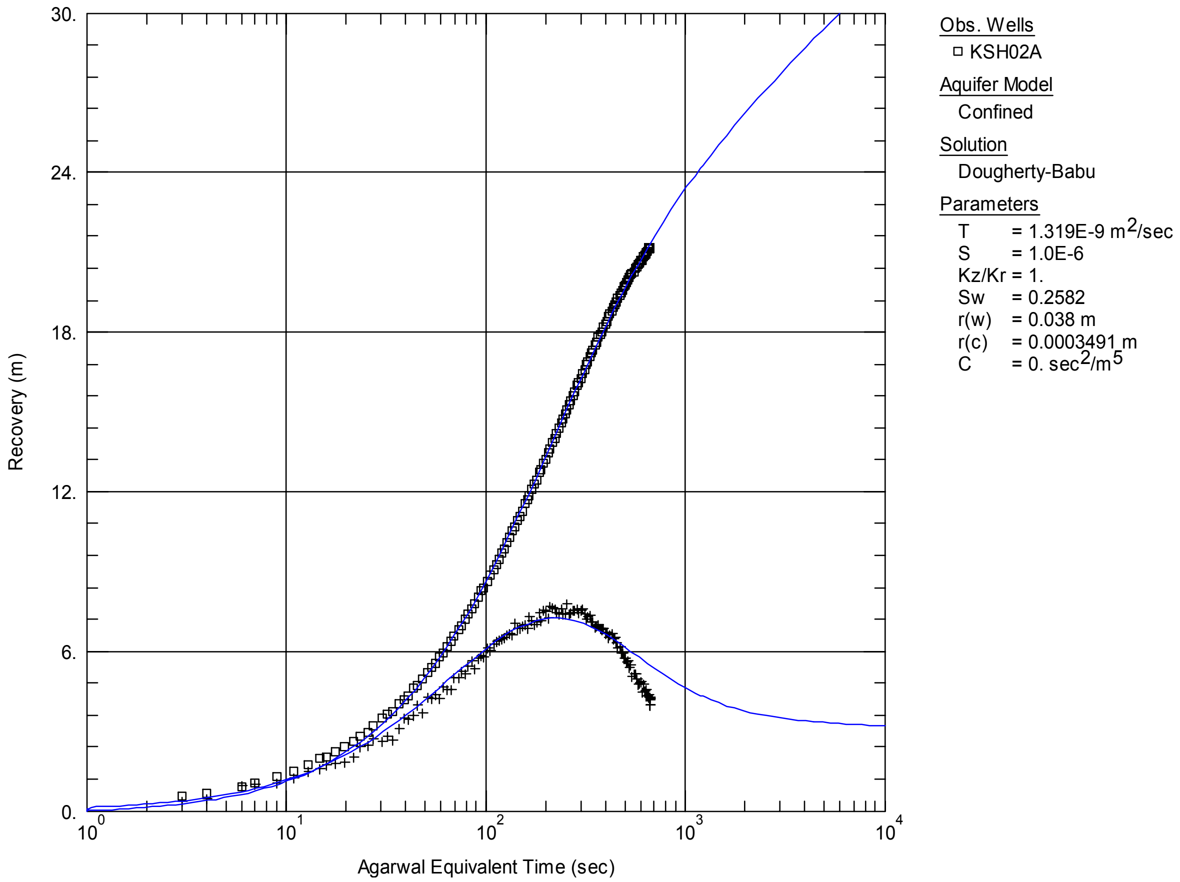
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



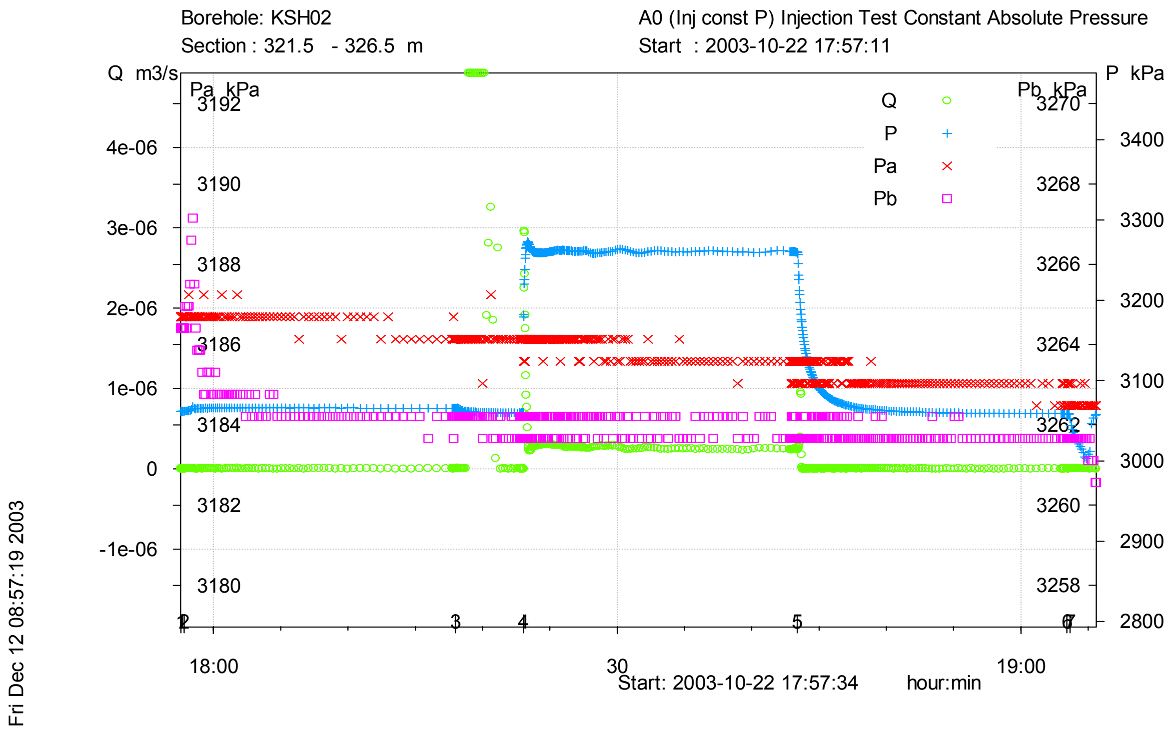
Recovery phase, log-log match.



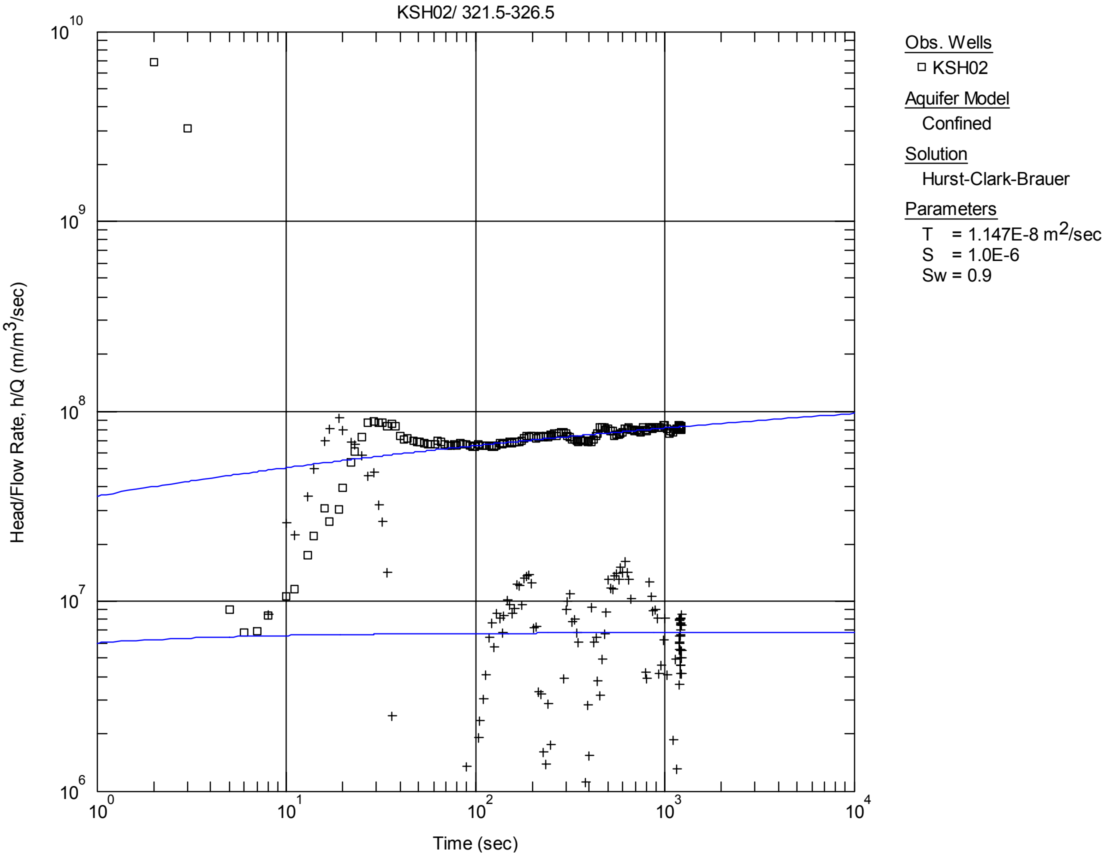
Recovery phase, lin-log match.

Test 321.5–326.5 m

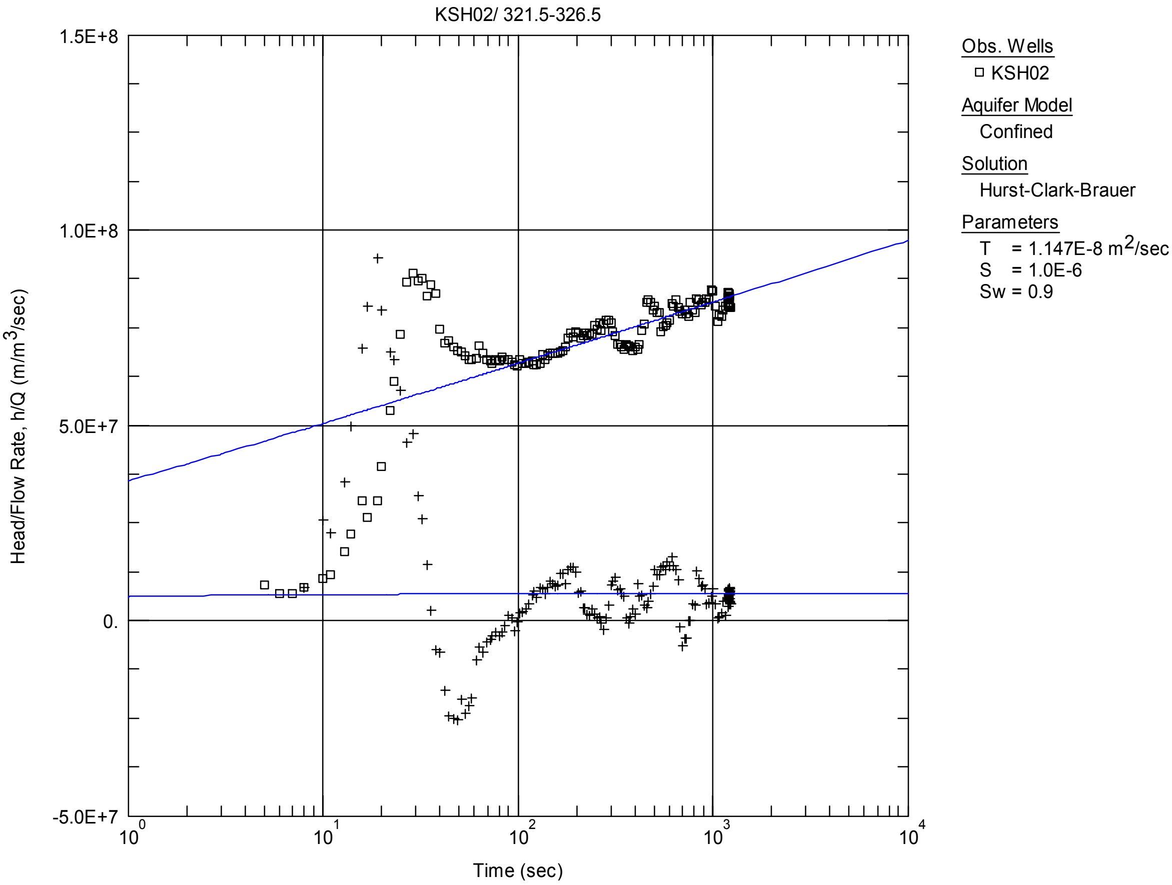
Analysis Diagram



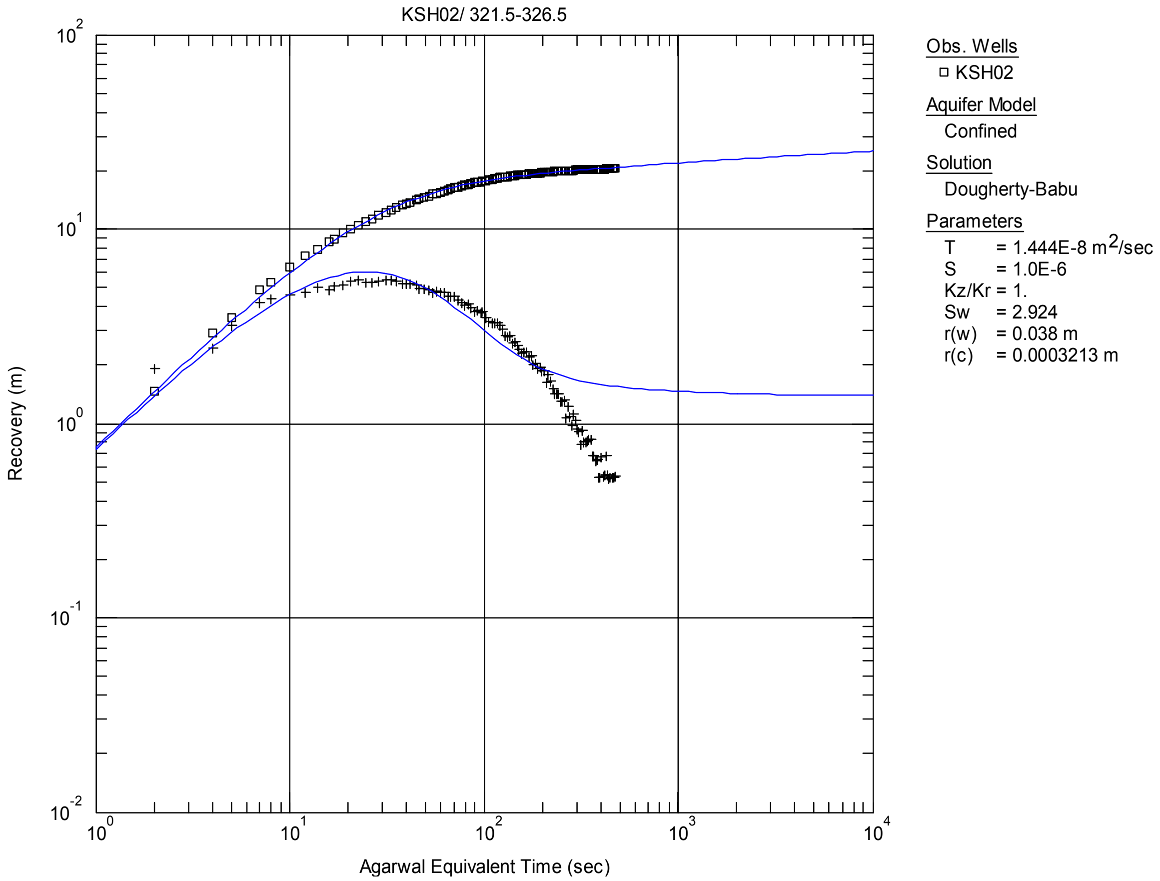
Pressure and flow rate vs. time.



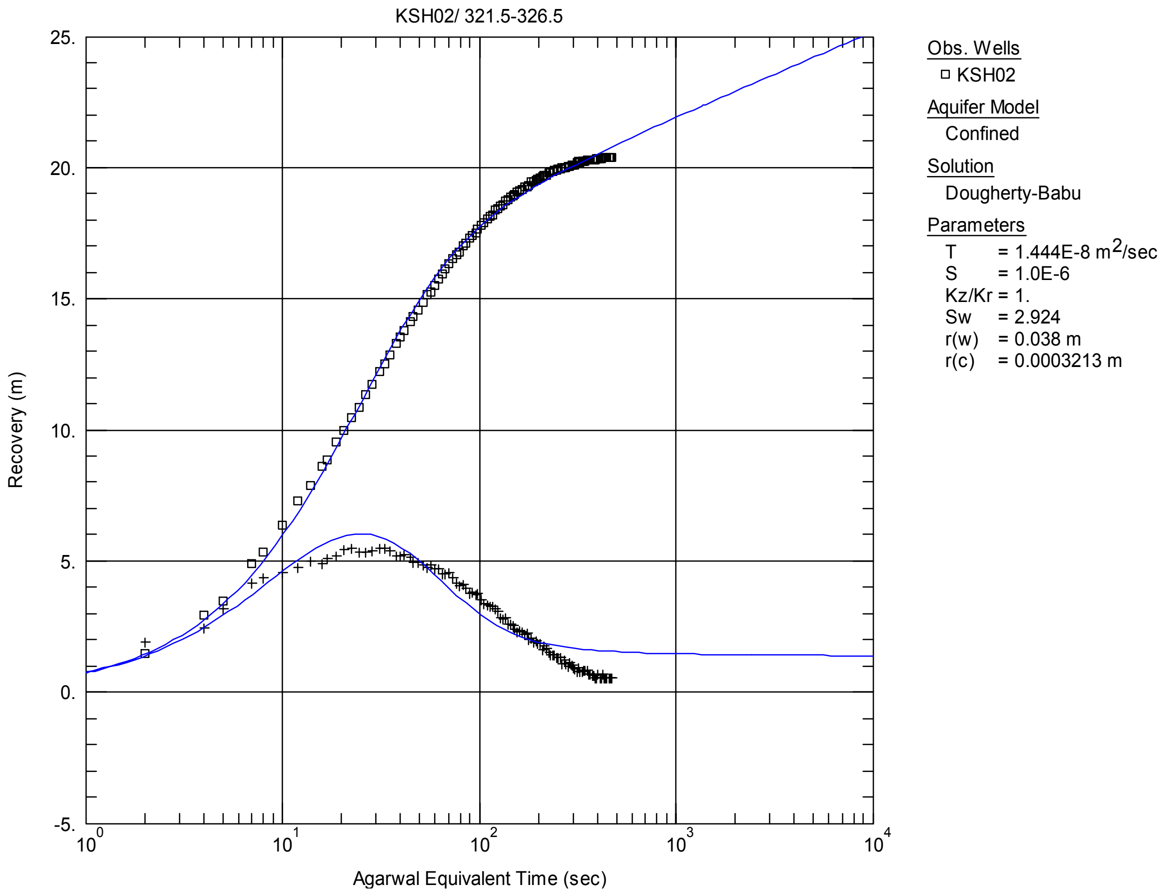
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

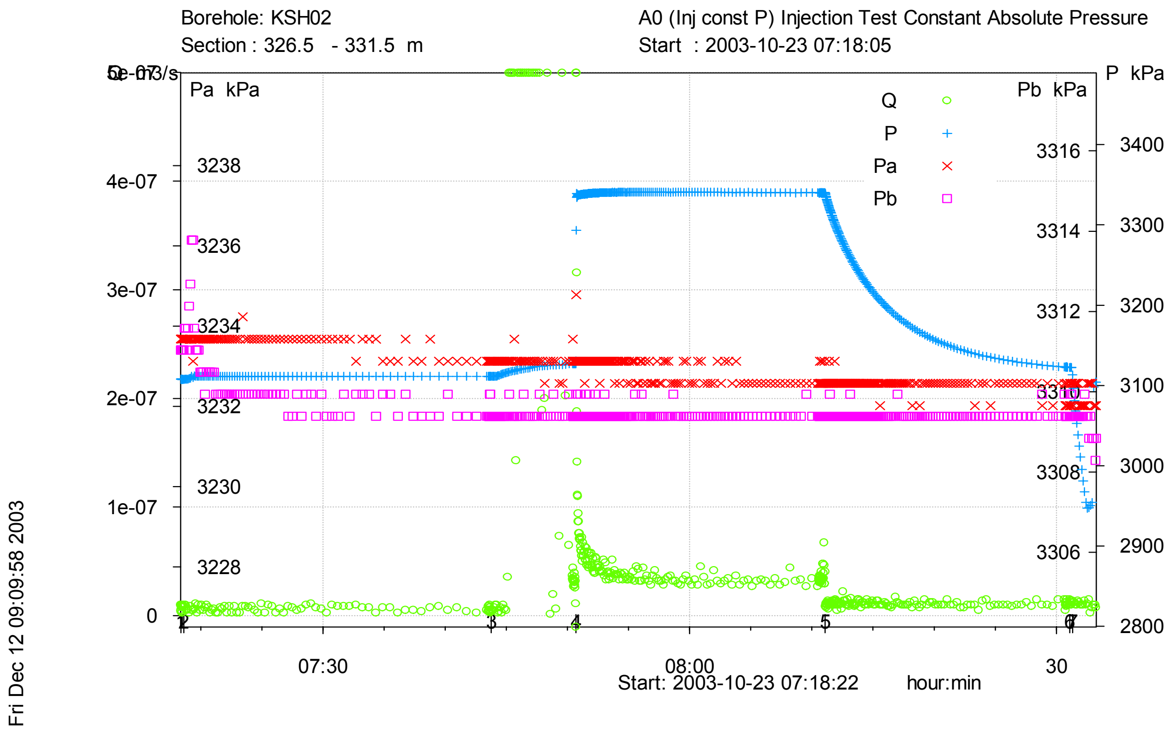


Recovery phase, lin-log match.

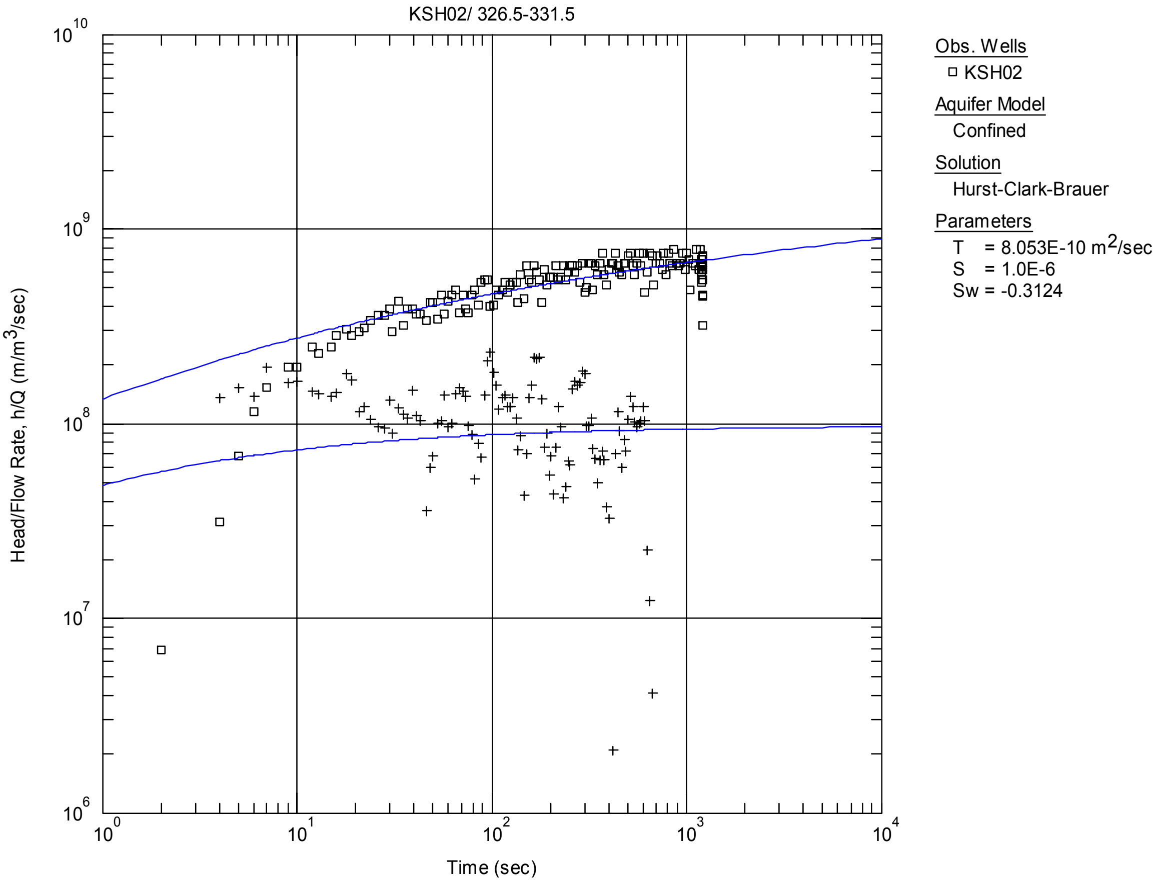
Appendix 3-60

Test 326.5–331.5 m

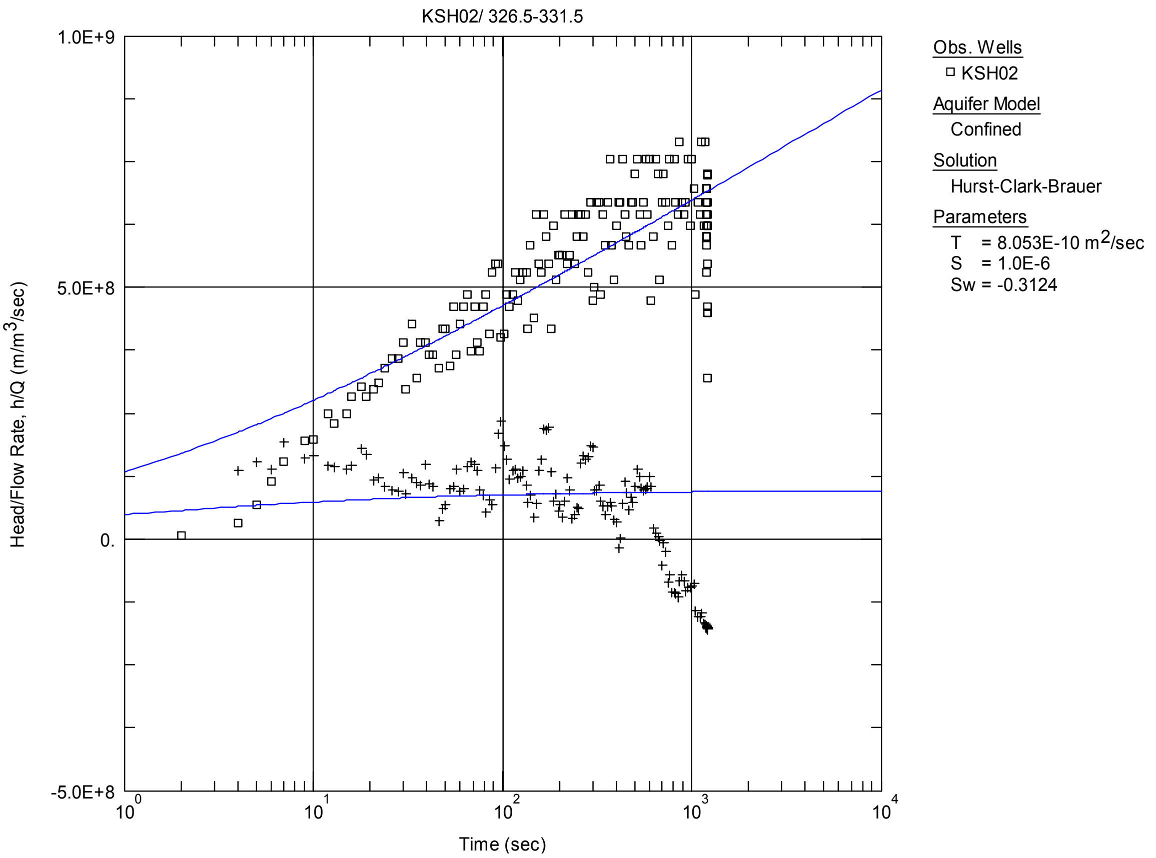
Analysis Diagram



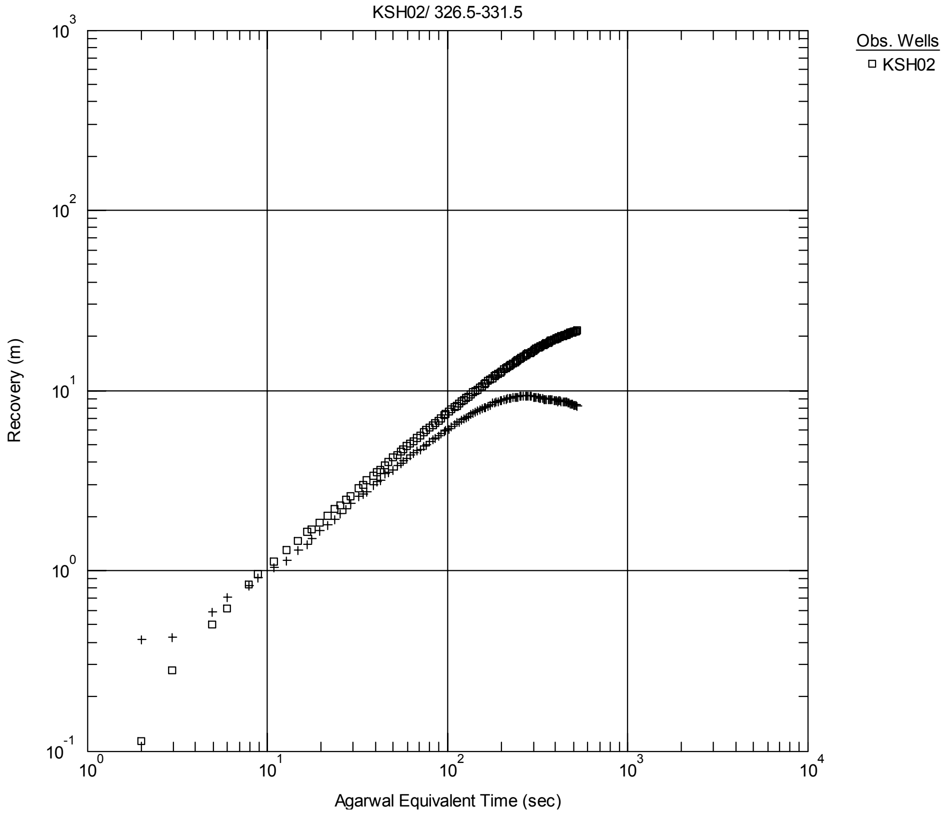
Pressure and flow rate vs. time.



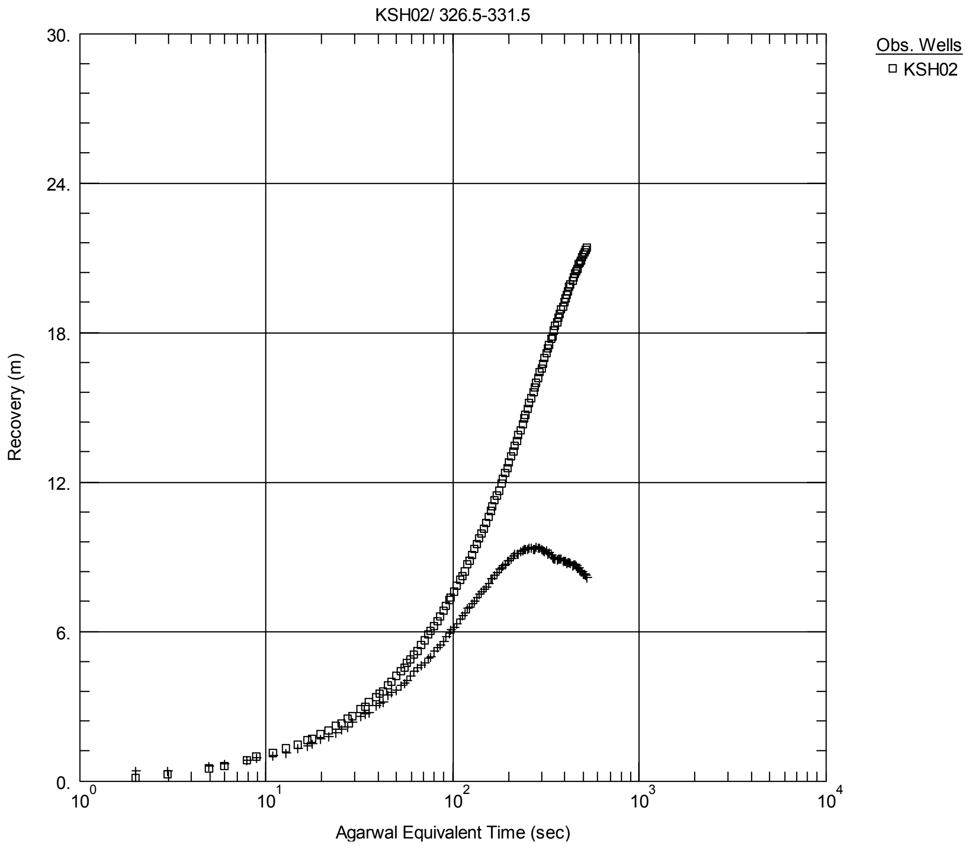
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

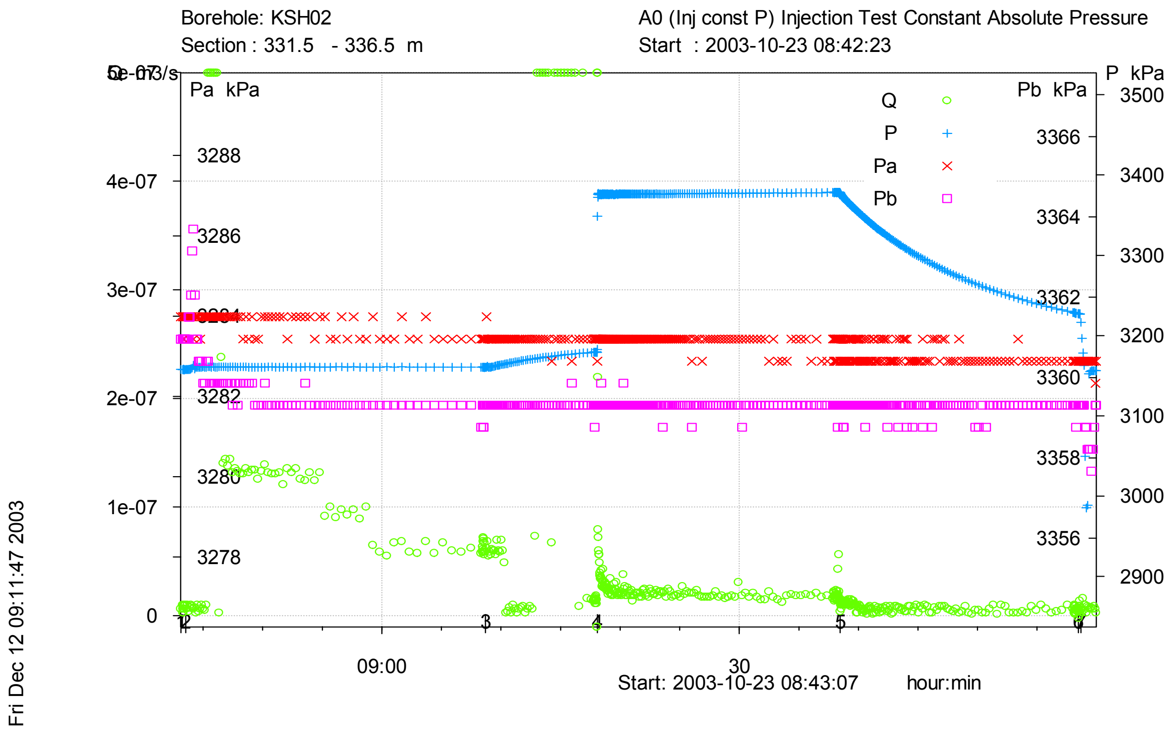


Recovery phase, lin-log match.

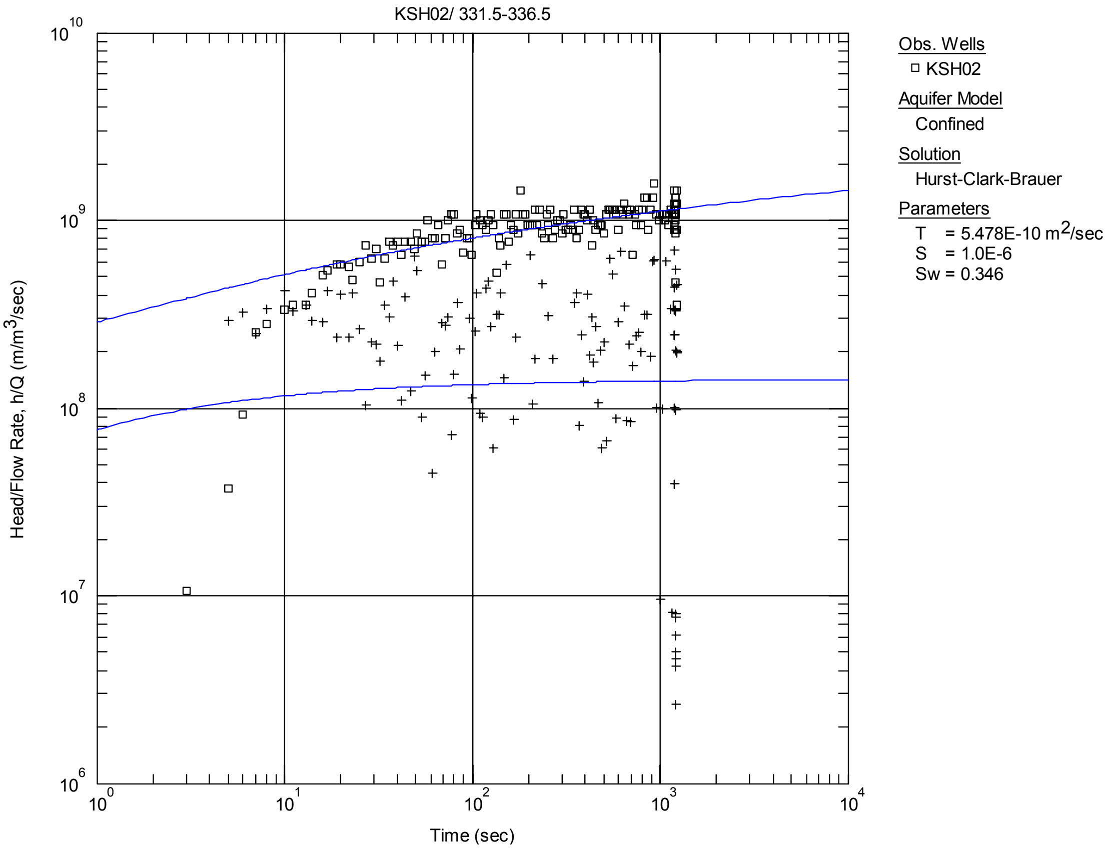
Appendix 3-61

Test 331.5–336.5 m

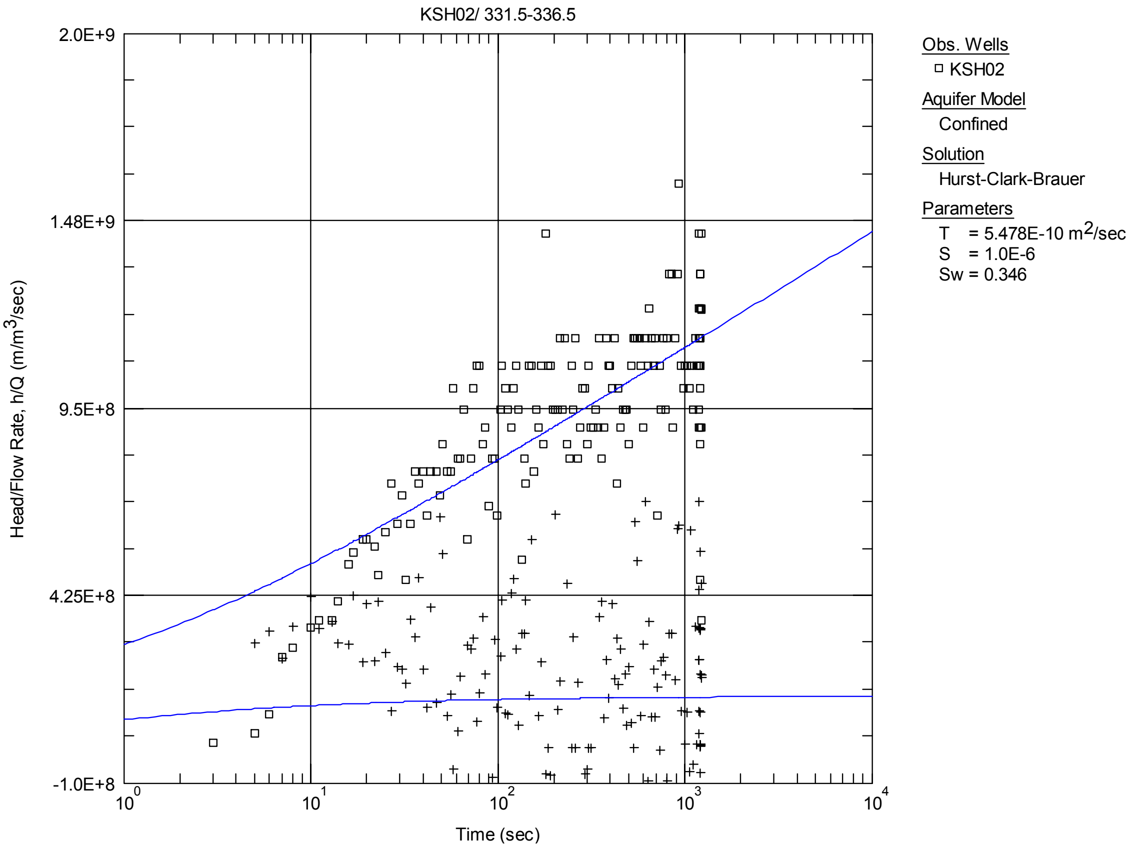
Analysis Diagram



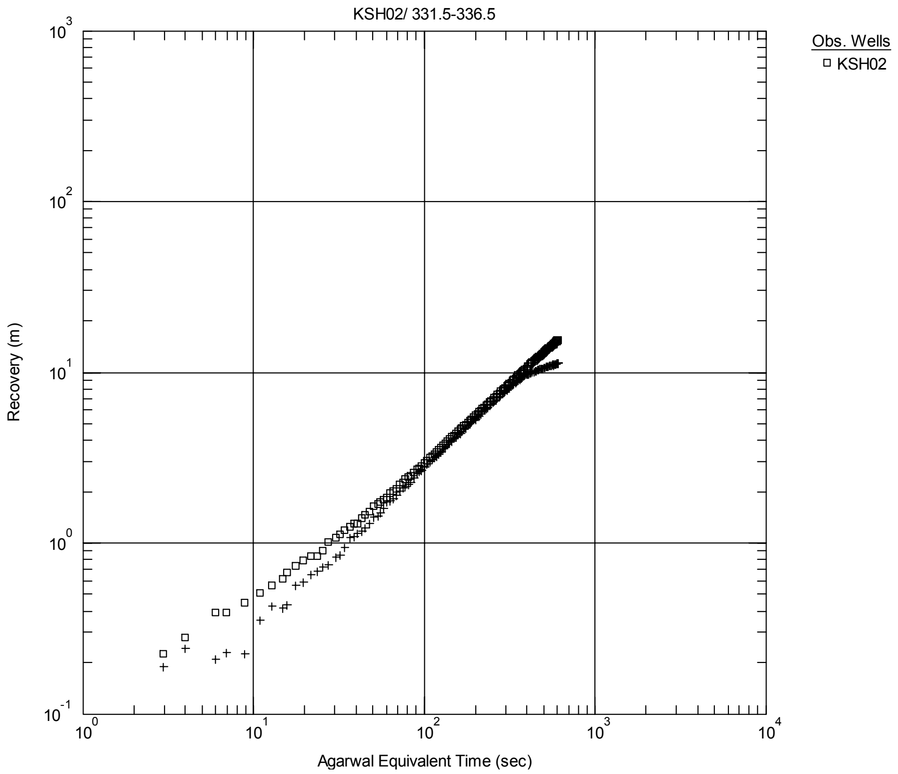
Pressure and flow rate vs. time.



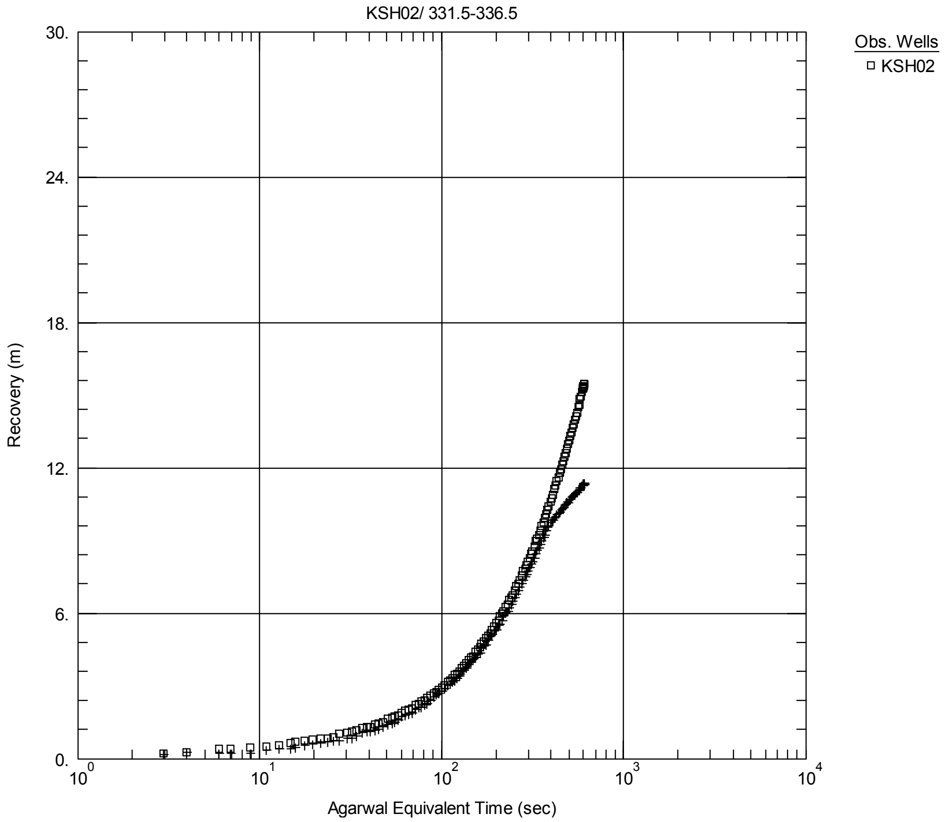
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



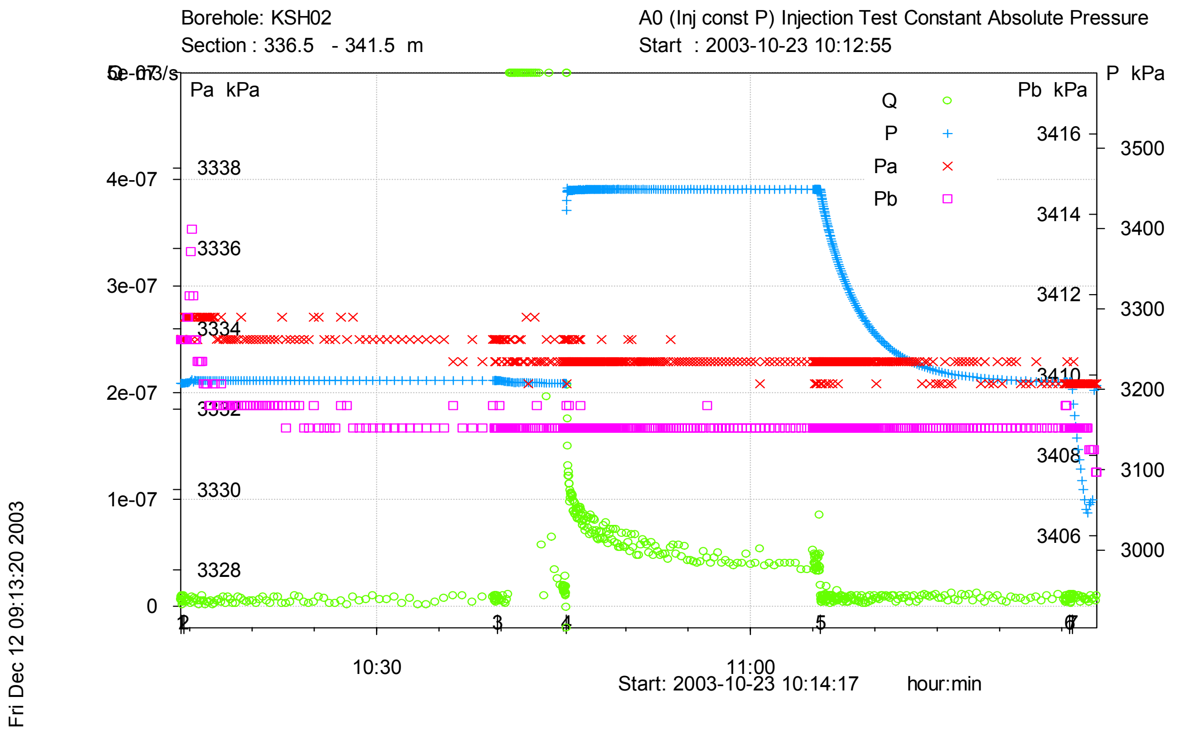
Recovery phase, log-log match.



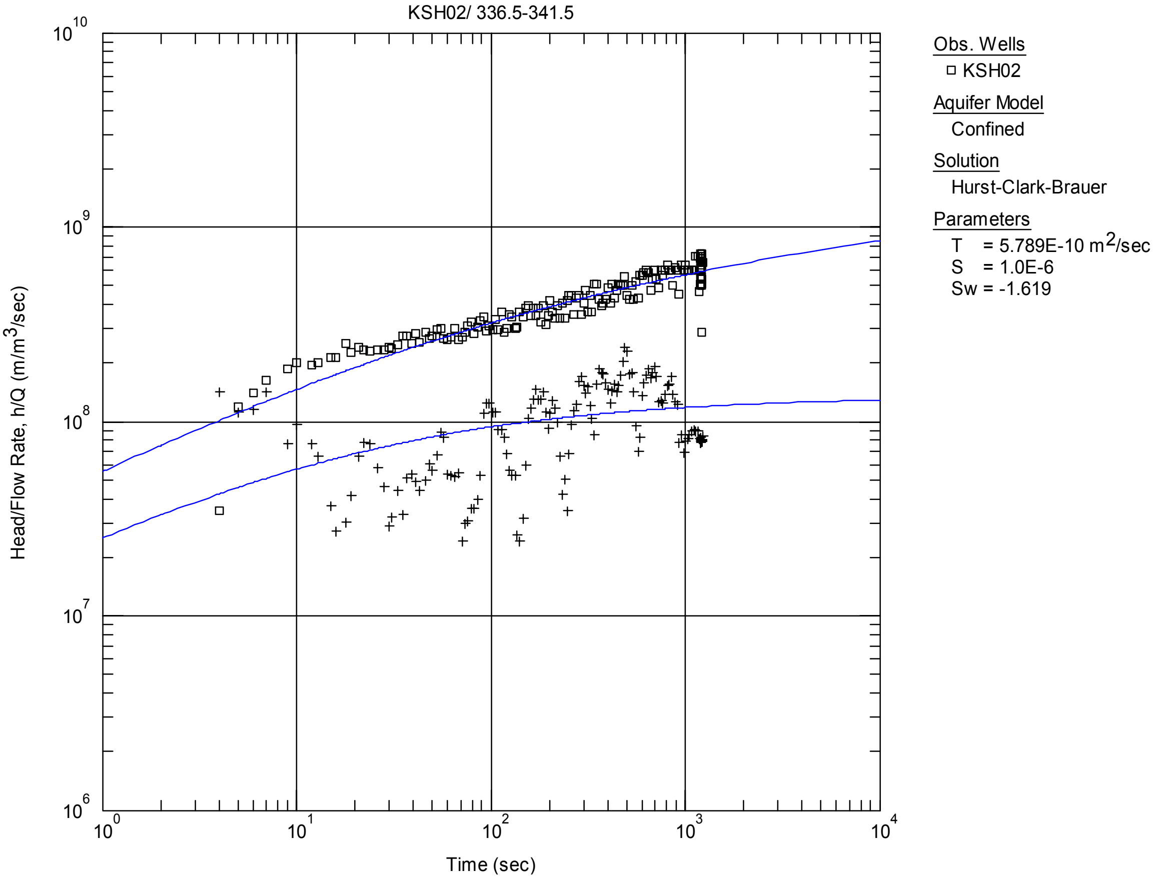
Recovery phase, lin-log match.

Test 336.5–341.5 m

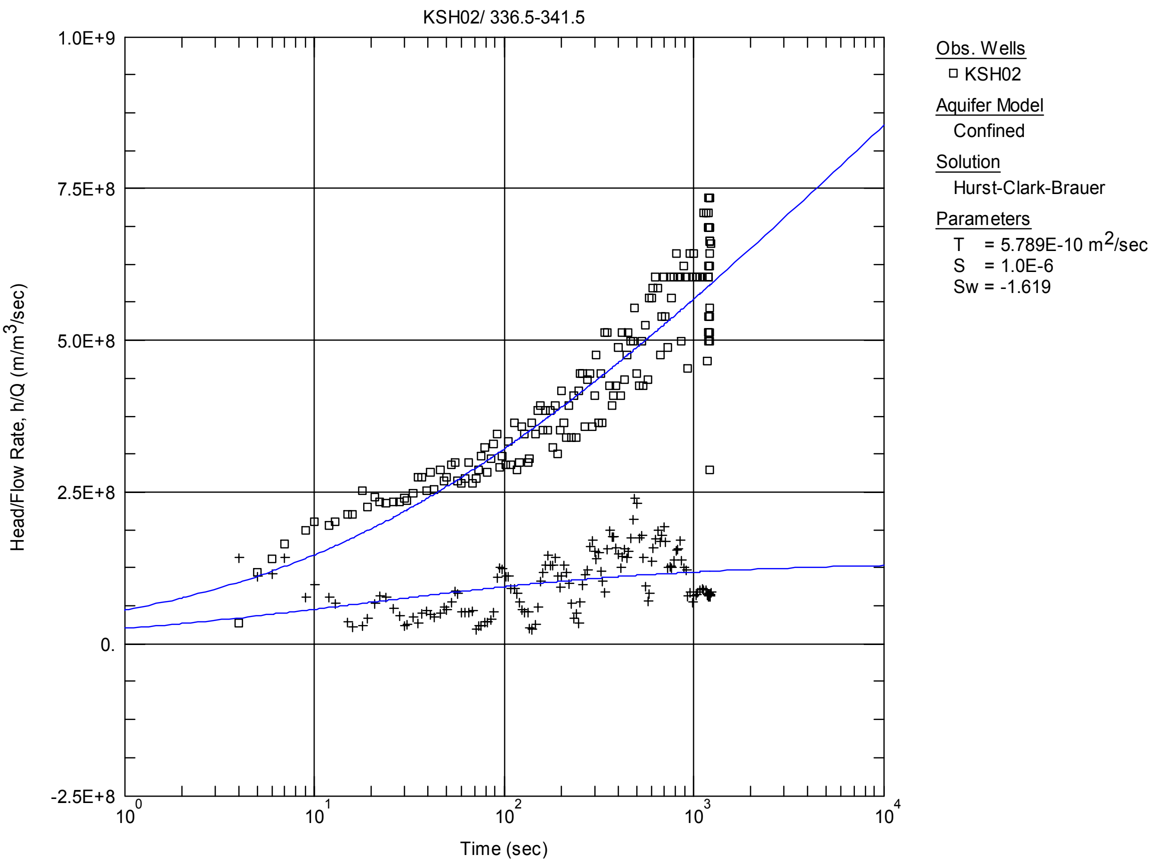
Analysis Diagram



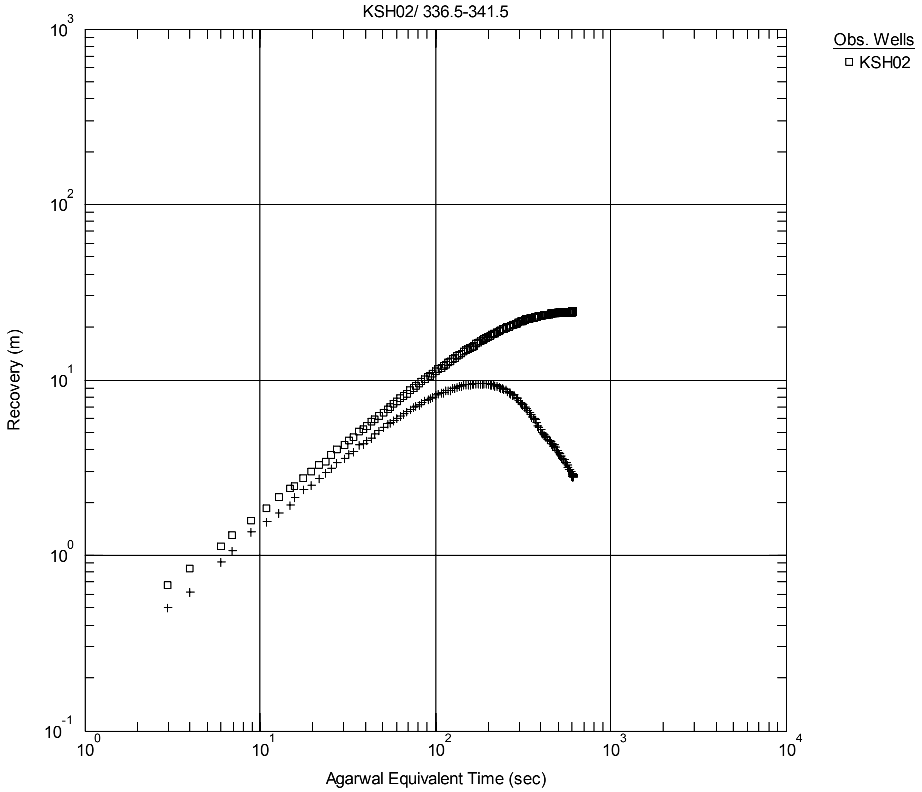
Pressure and flow rate vs. time.



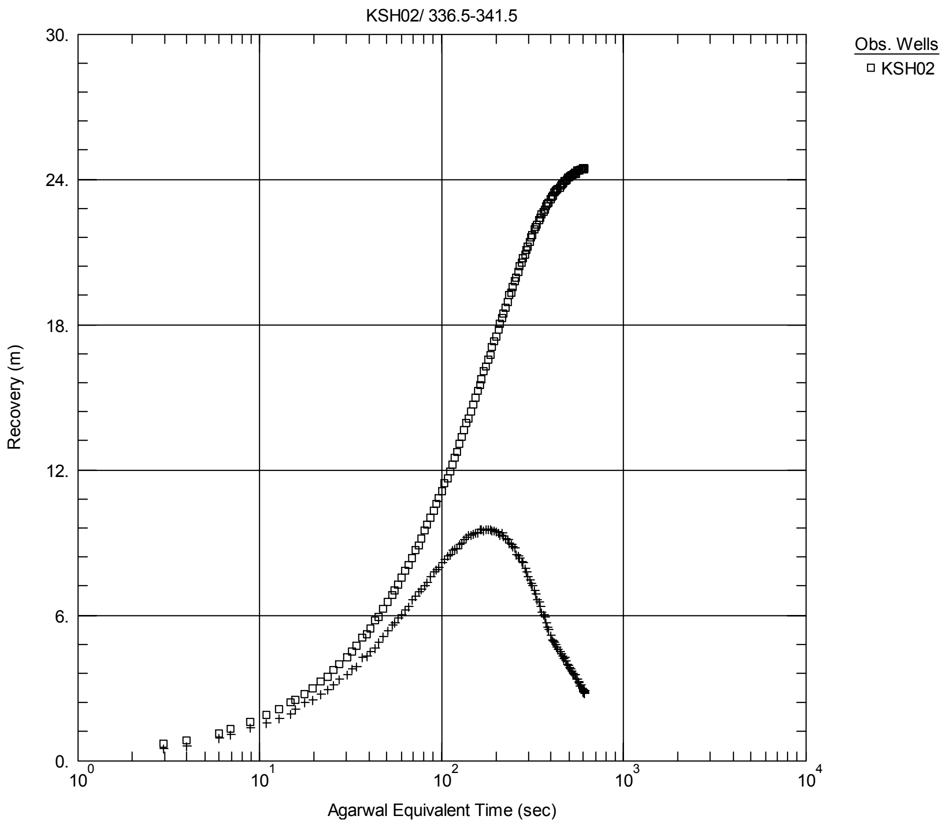
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



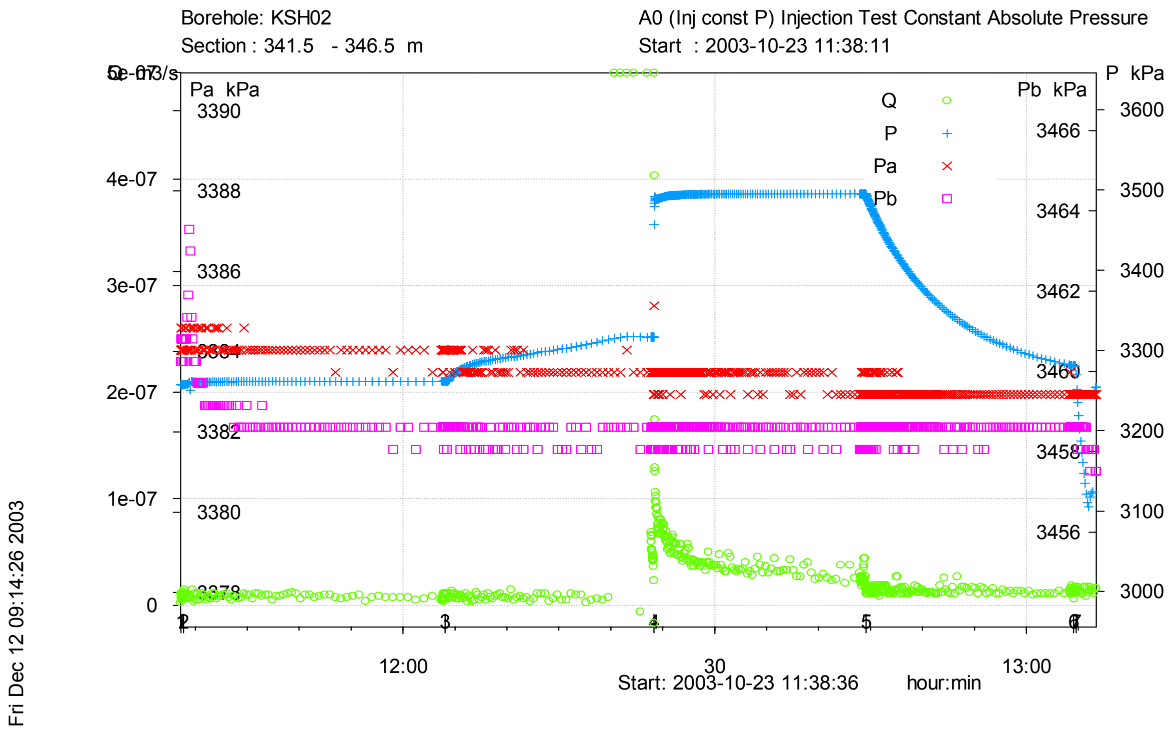
Recovery phase, log-log match.



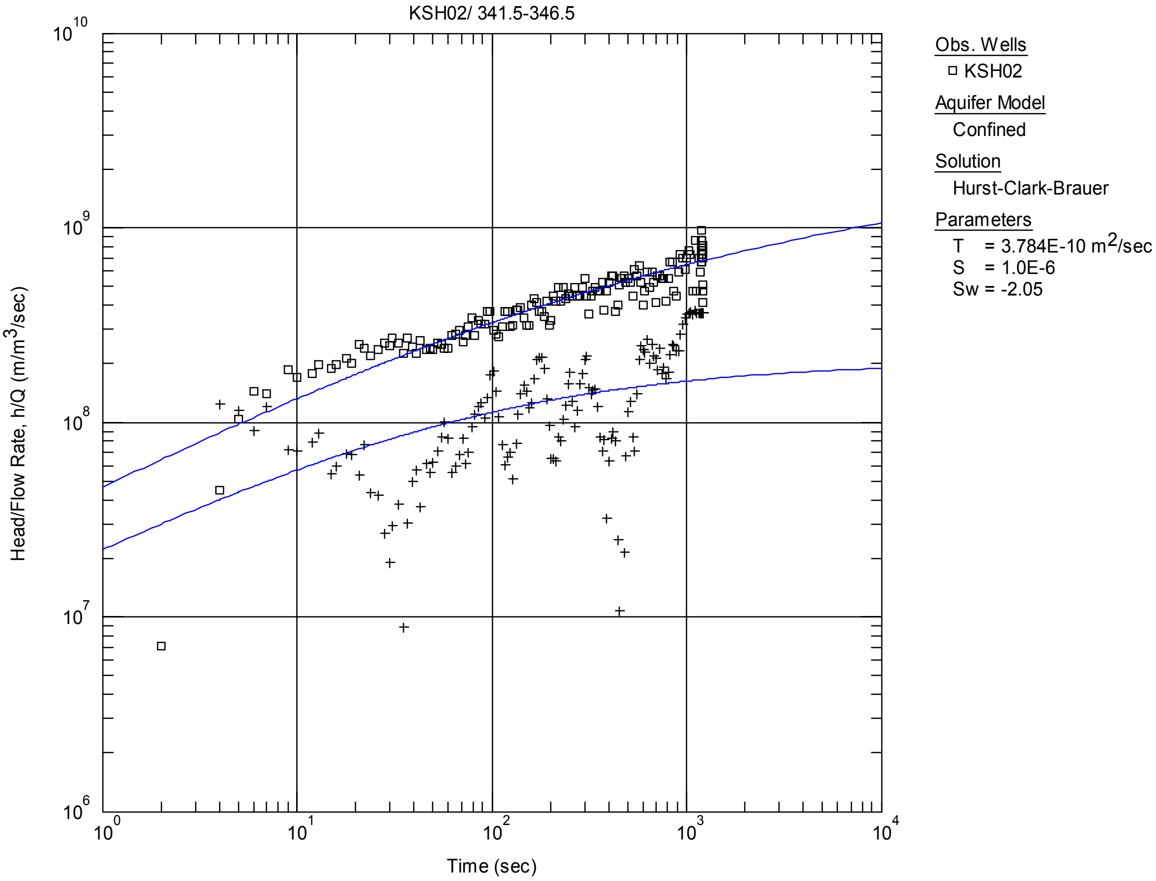
Recovery phase, lin-log match.

Test 341.5–346.5 m

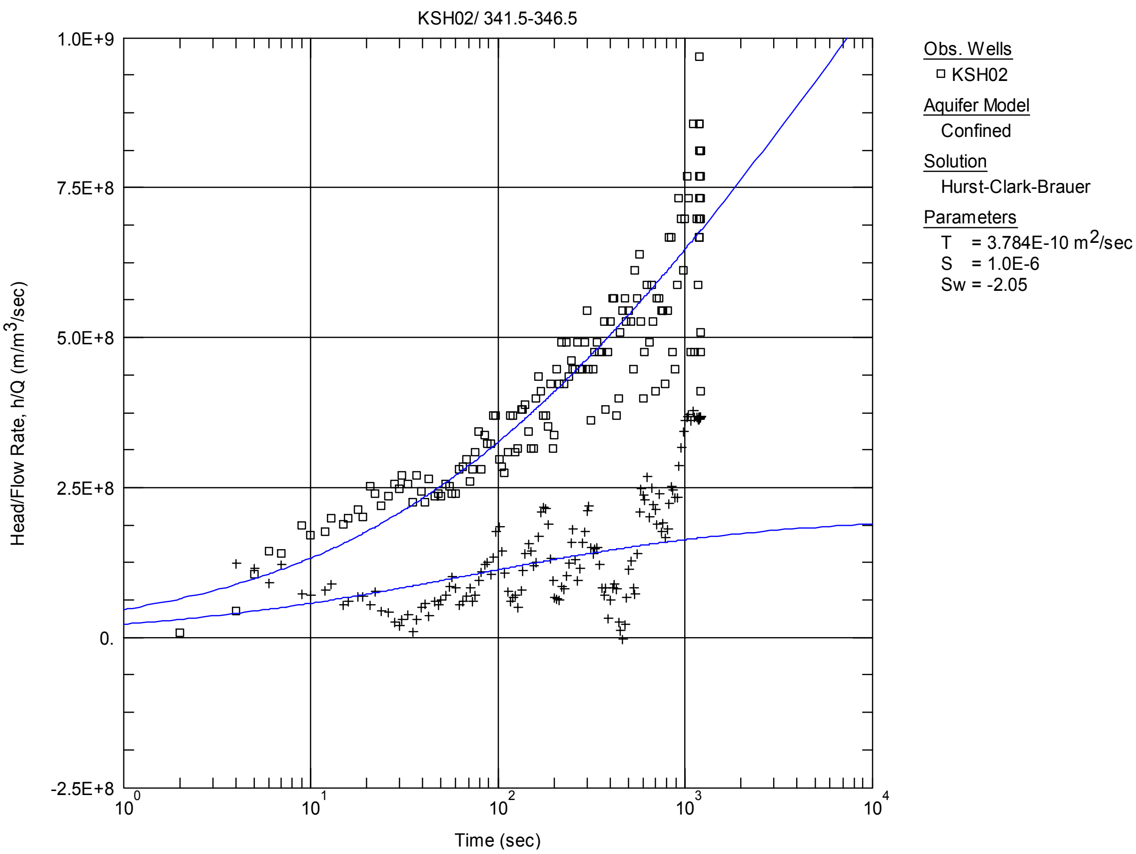
Analysis Diagram



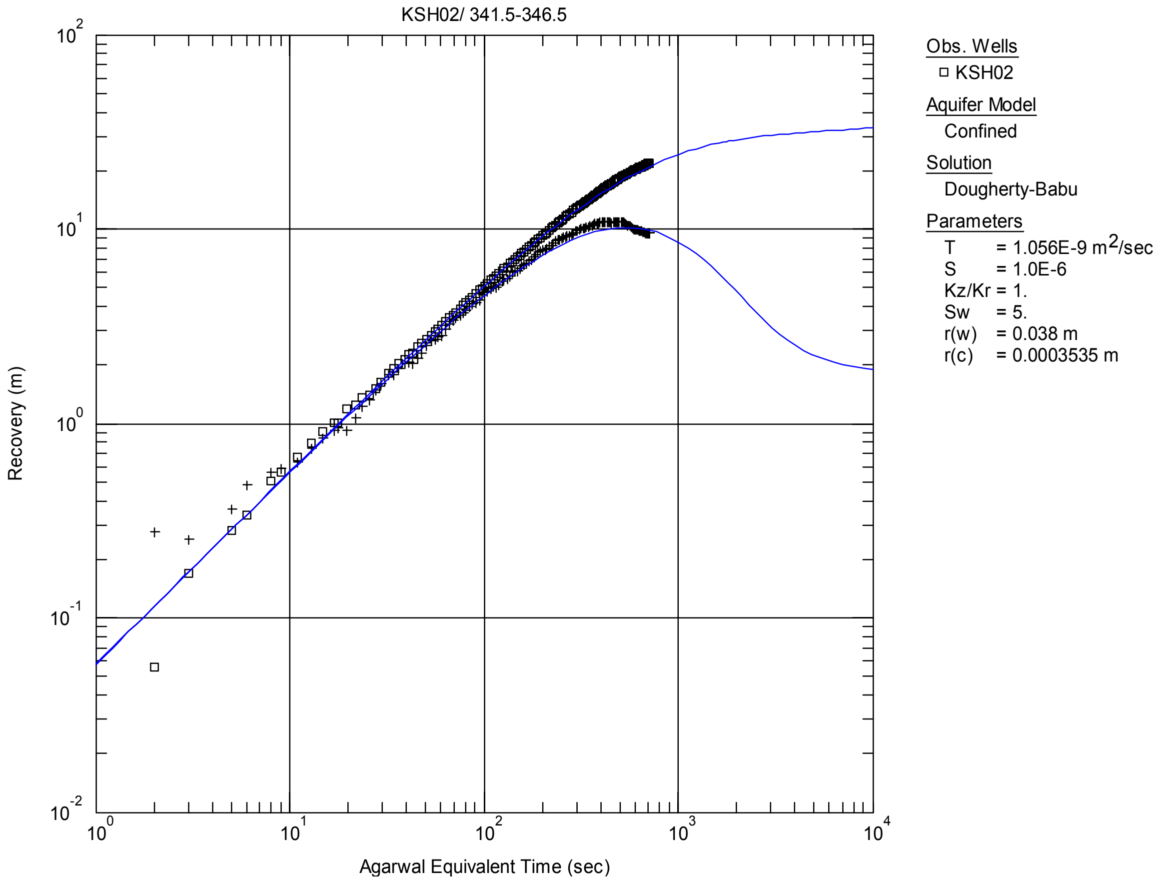
Pressure and flow rate vs. time.



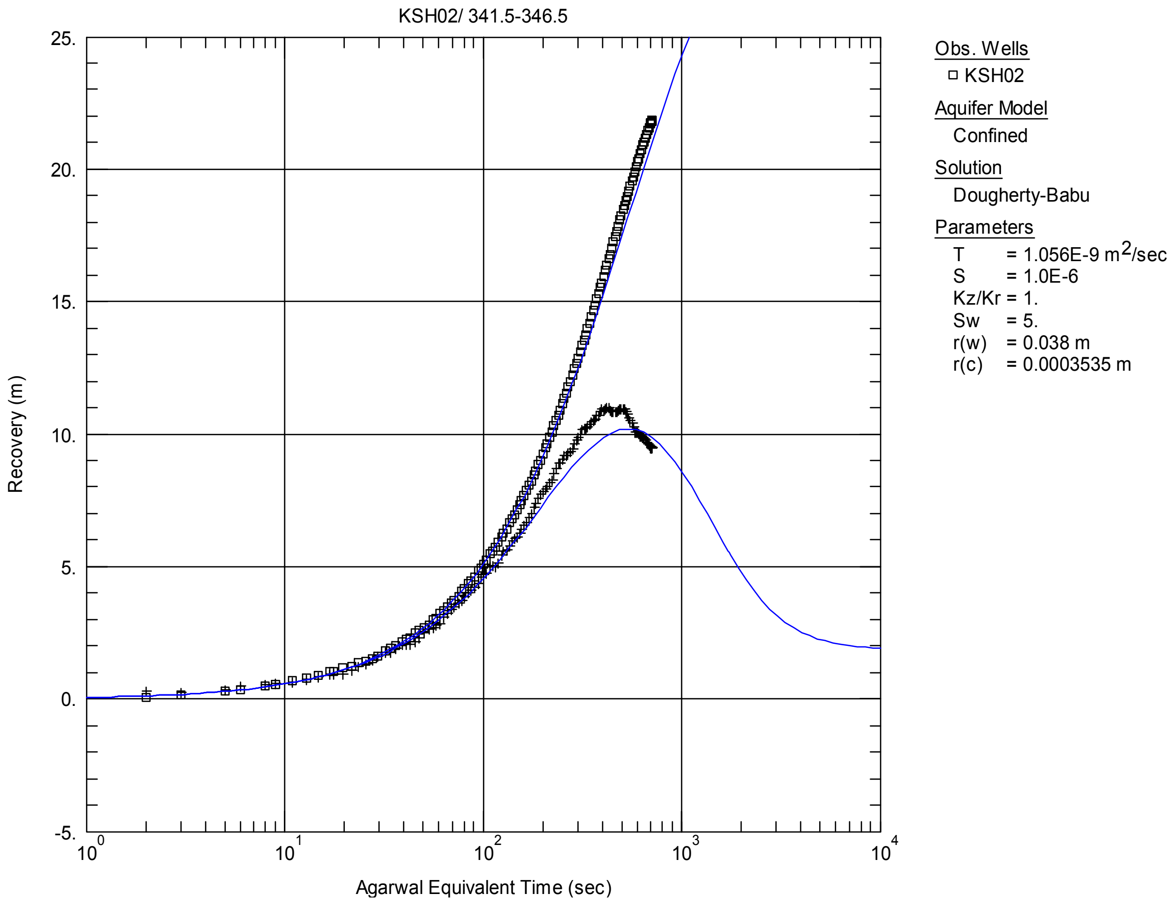
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



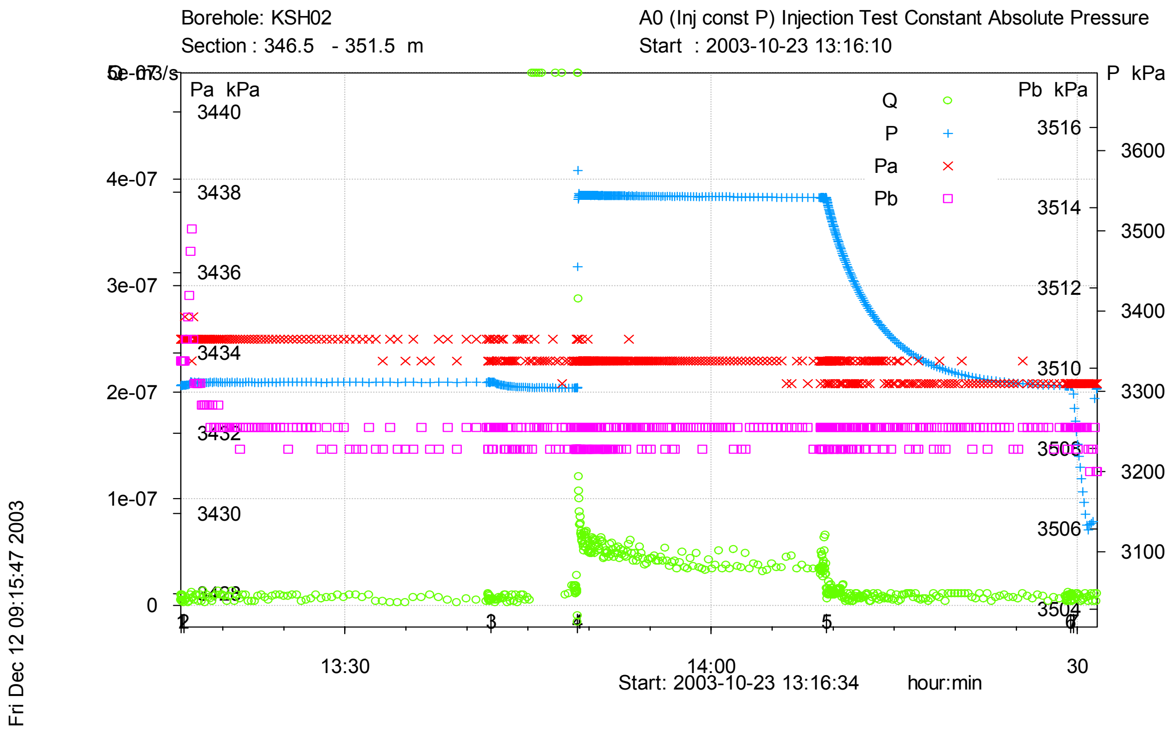
Recovery phase, log-log match.



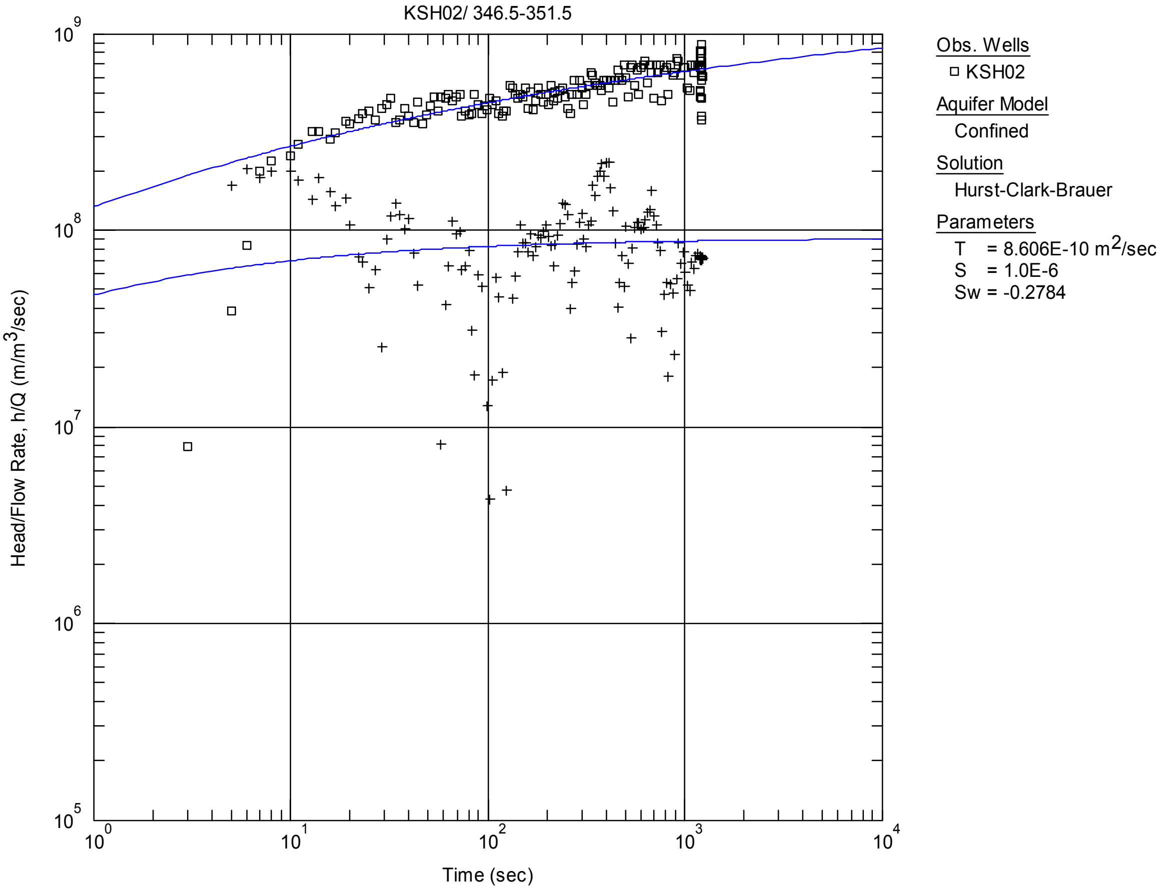
Recovery phase, lin-log match.

Test 346.5–351.5 m

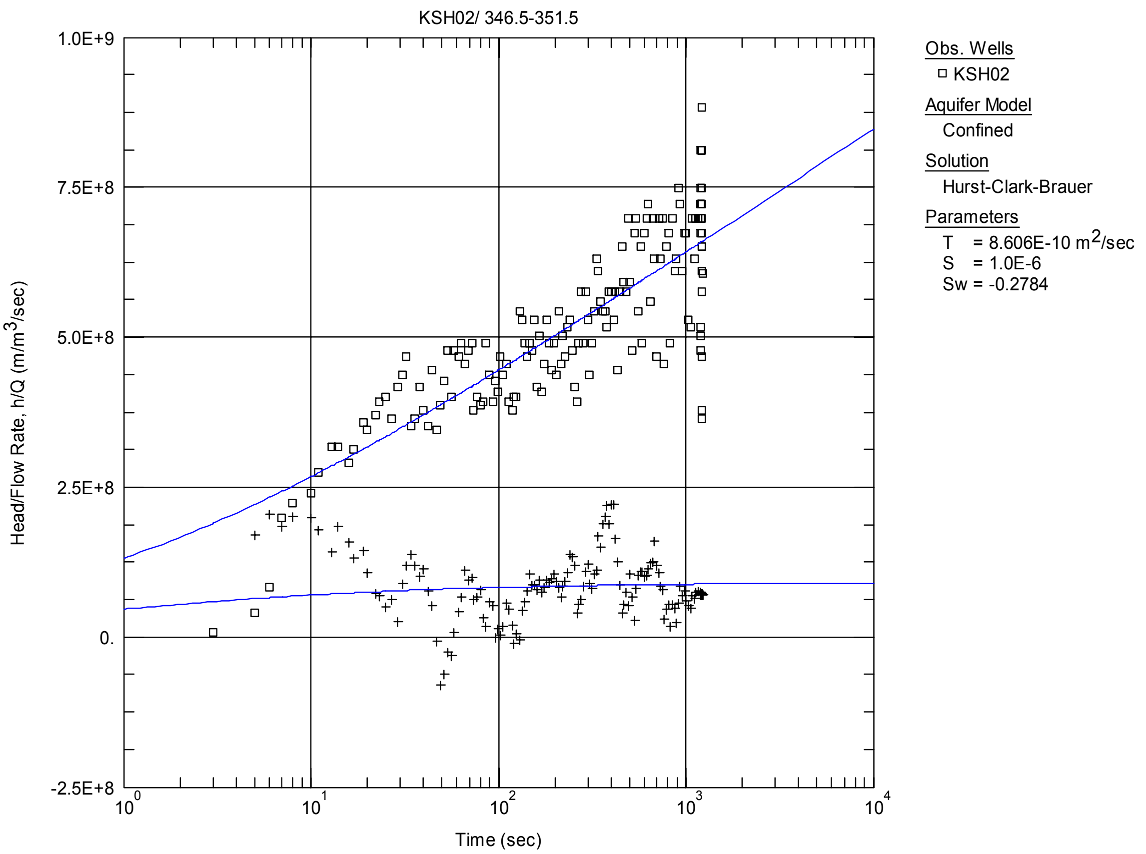
Analysis Diagram



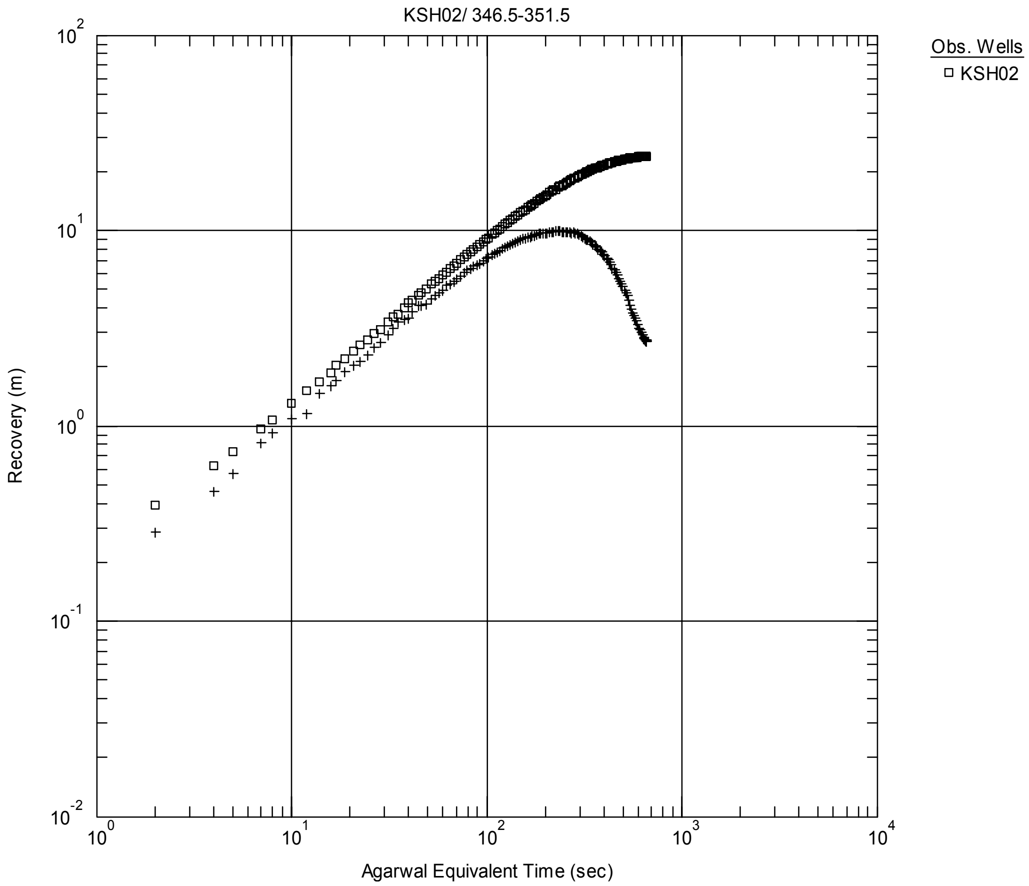
Pressure and flow rate vs. time.



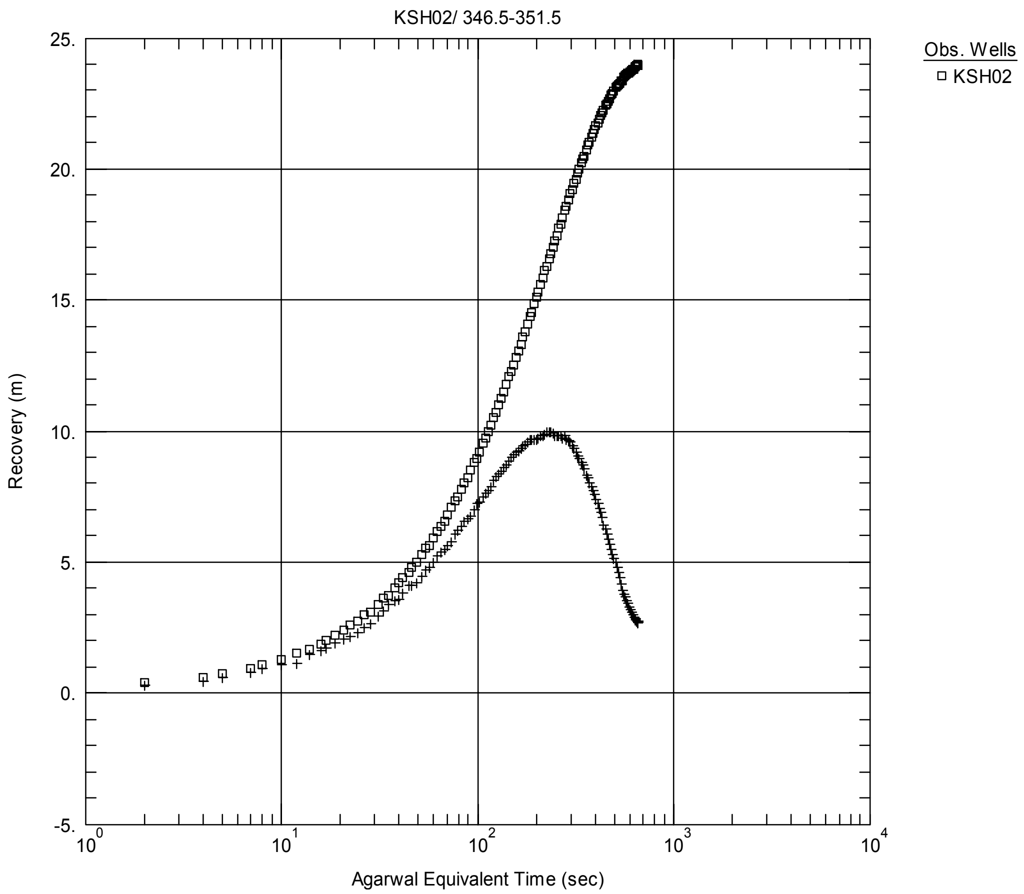
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

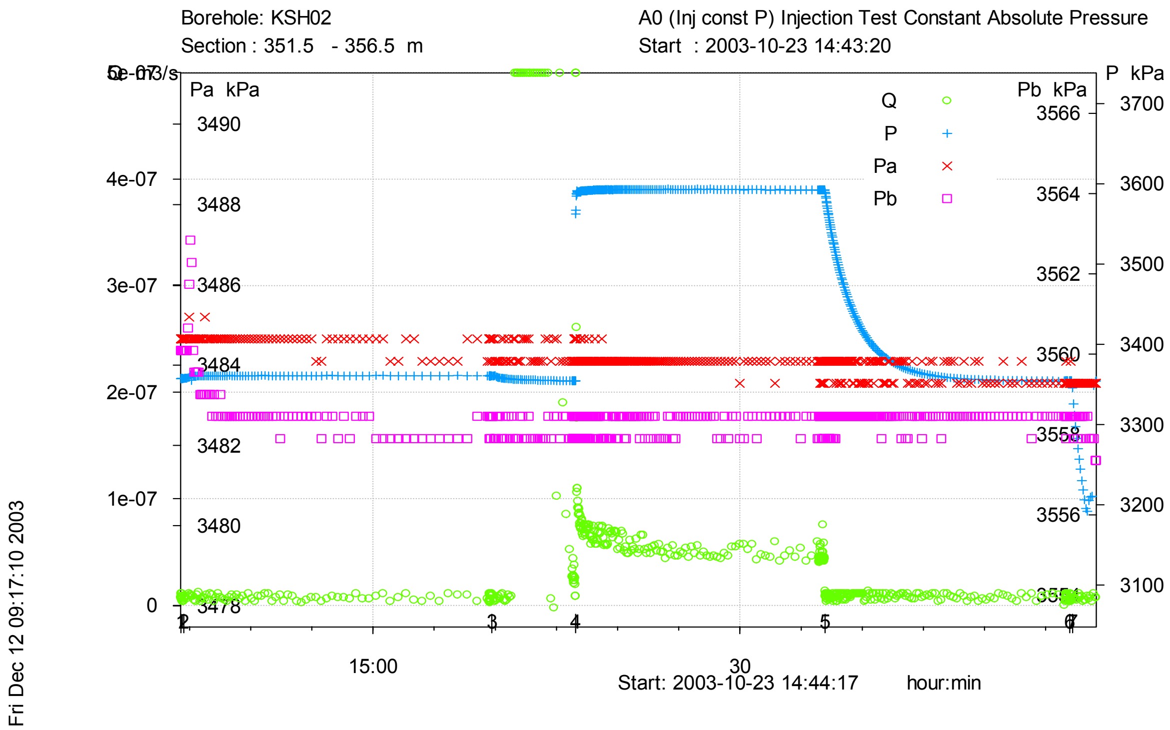


Recovery phase, lin-log match.

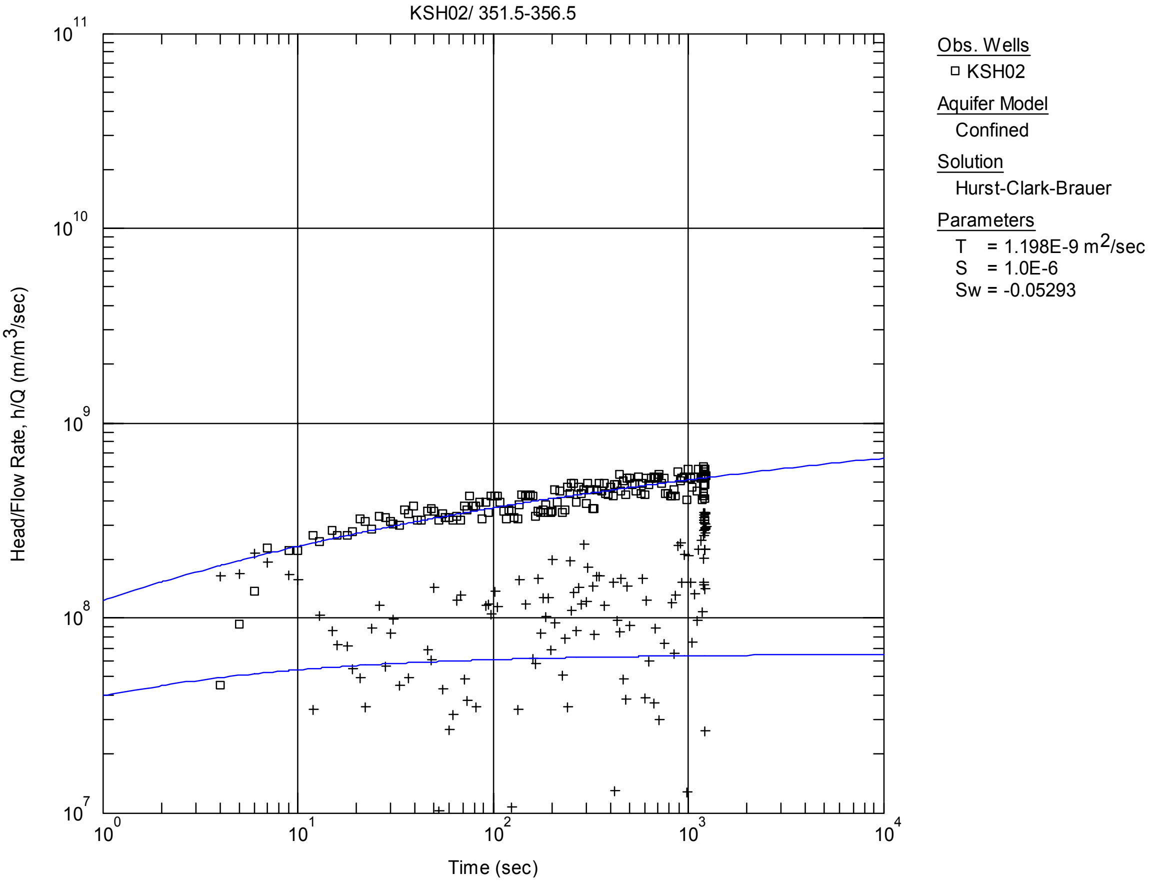
Appendix 3-65

Test 351.5–356.5 m

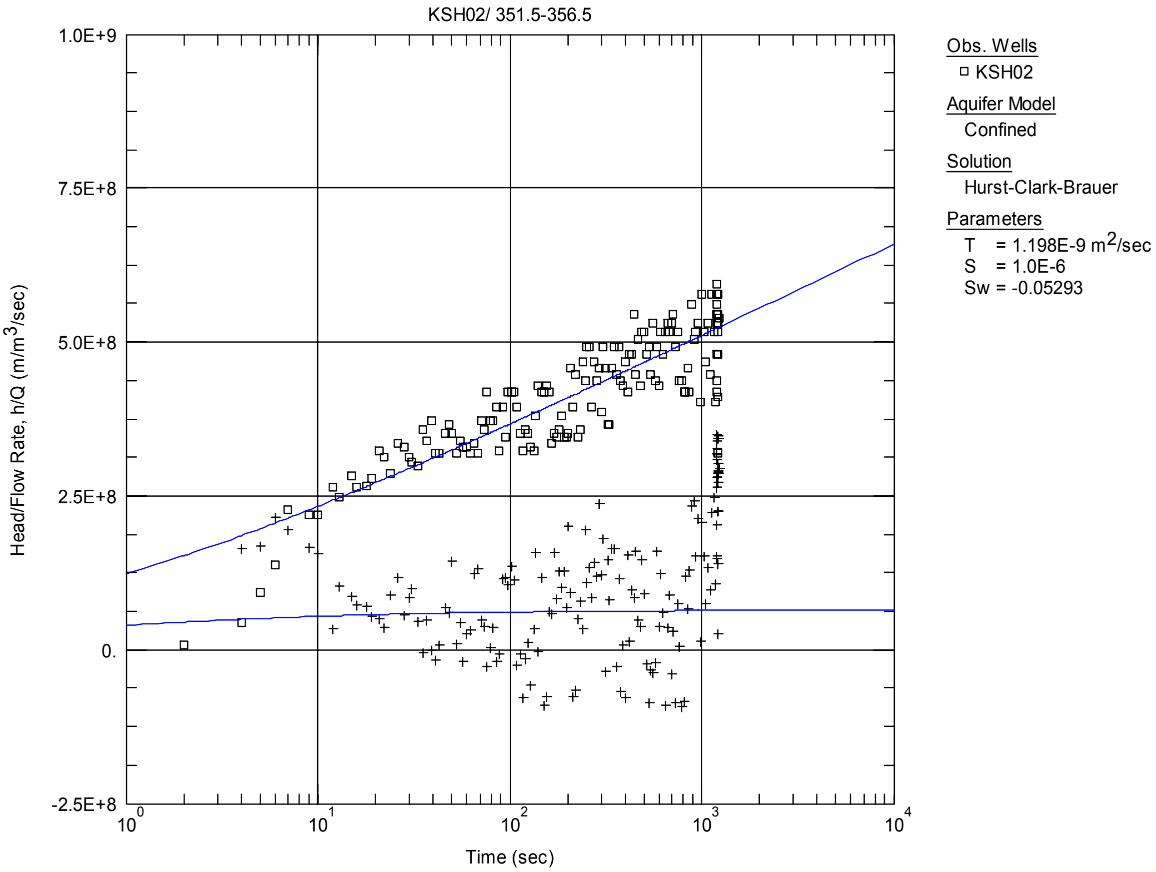
Analysis Diagram



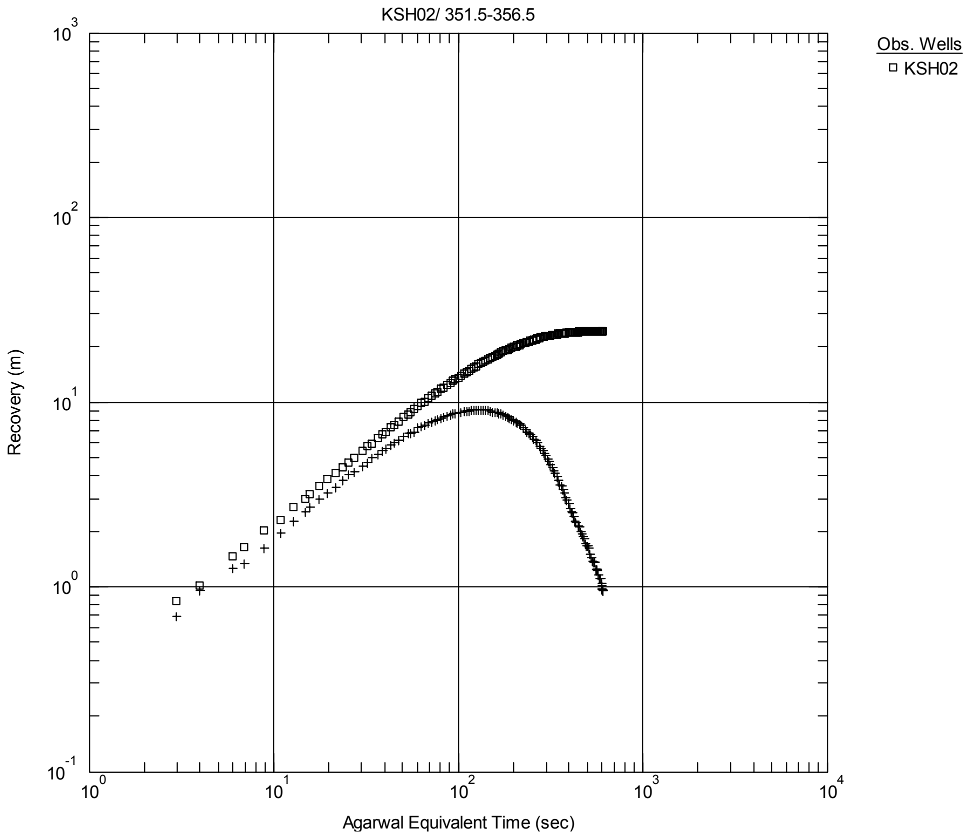
Pressure and flow rate vs. time.



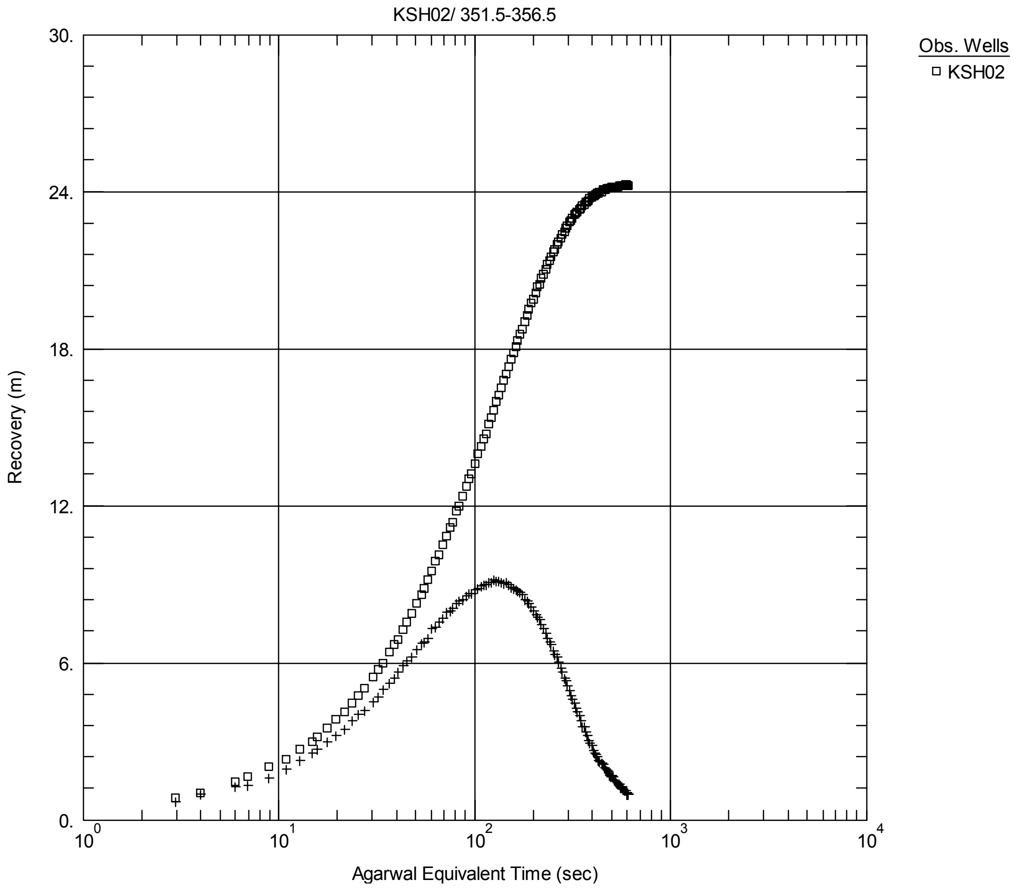
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



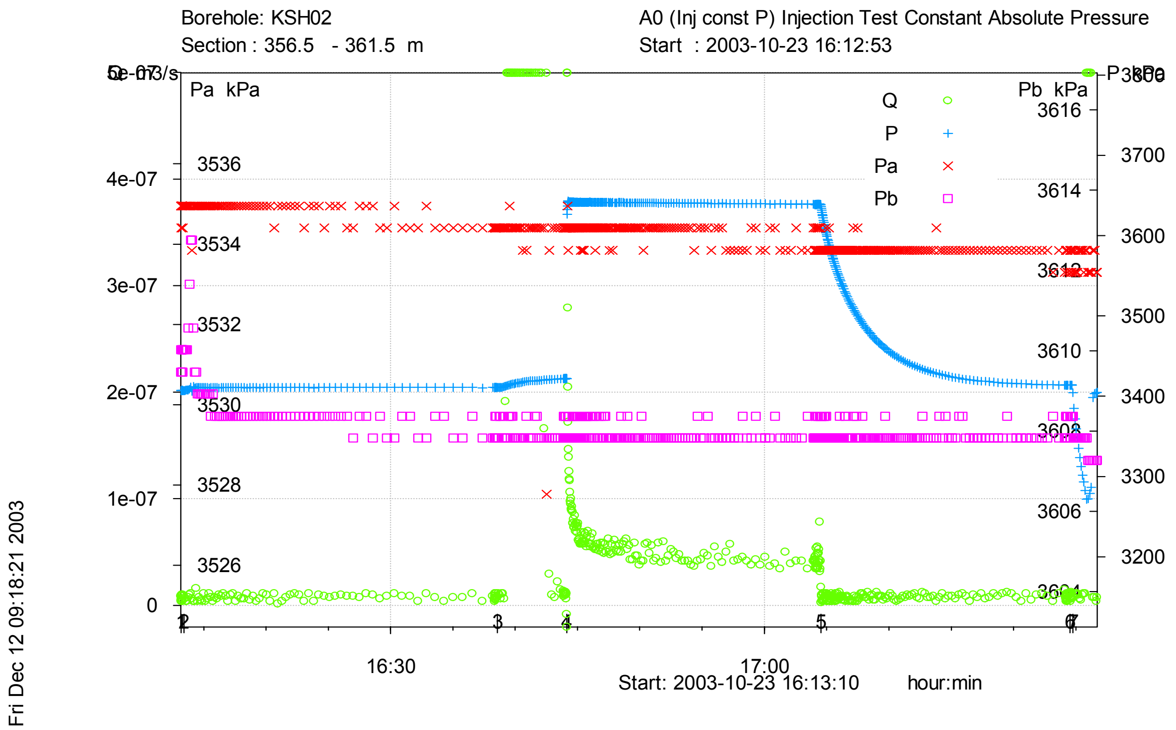
Recovery phase, log-log match.



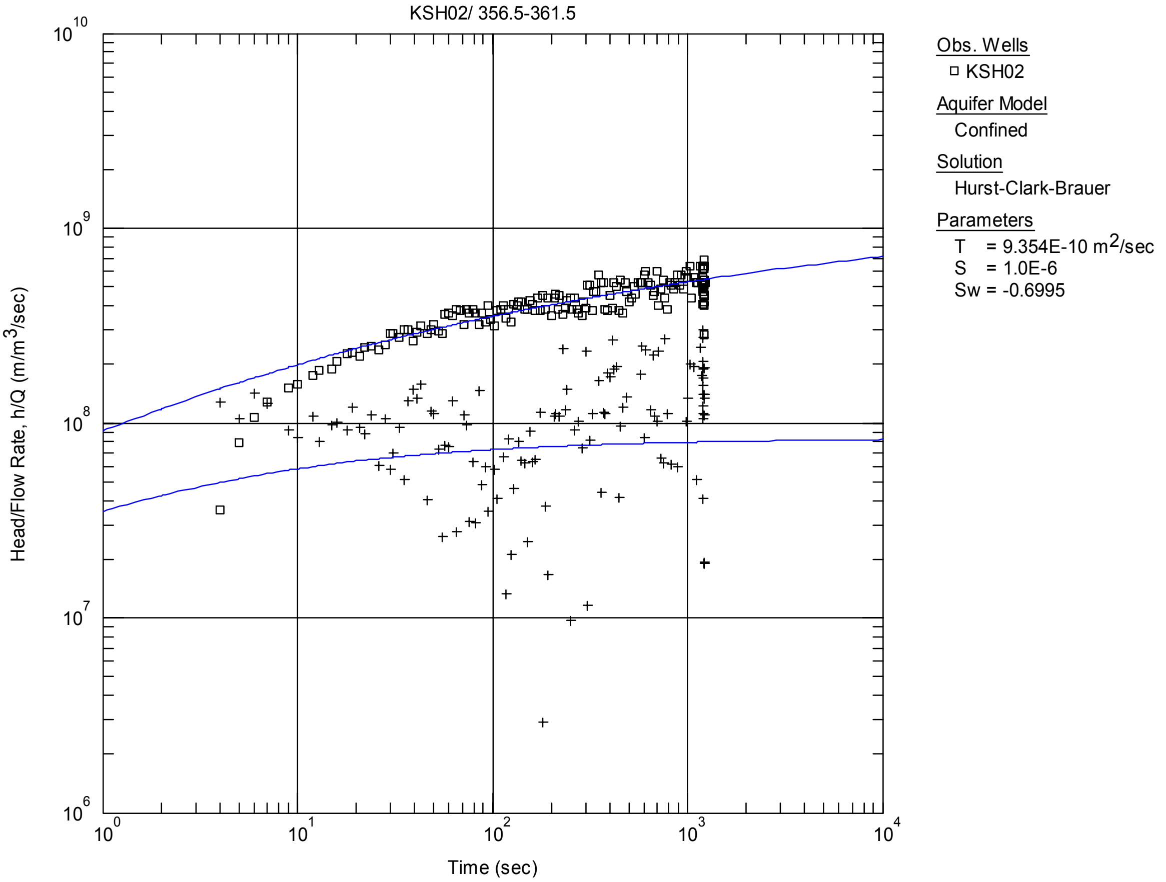
Recovery phase, lin-log match.

Test 356.5–361.5 m

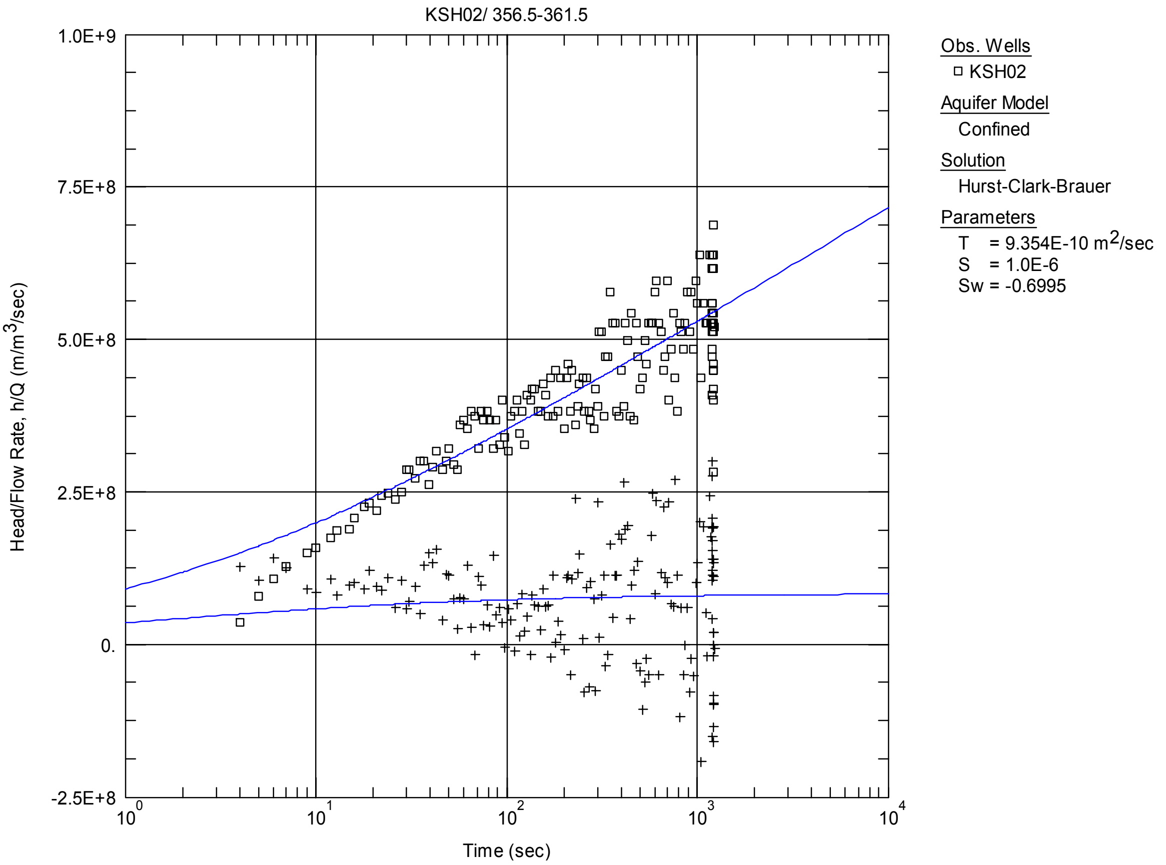
Analysis Diagram



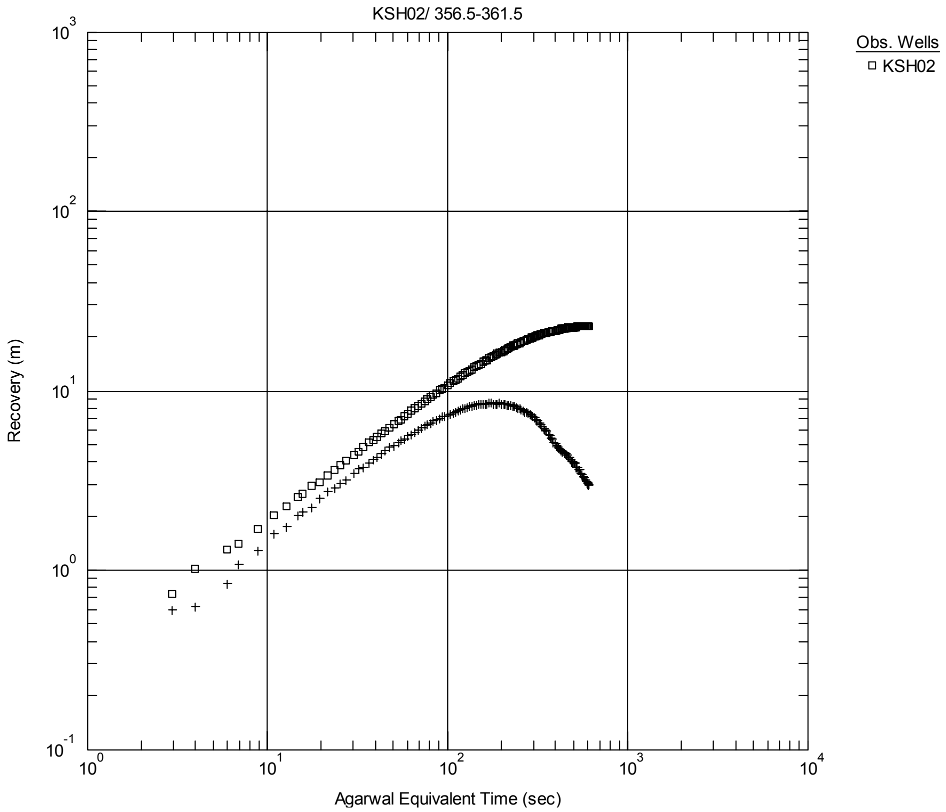
Pressure and flow rate vs. time.



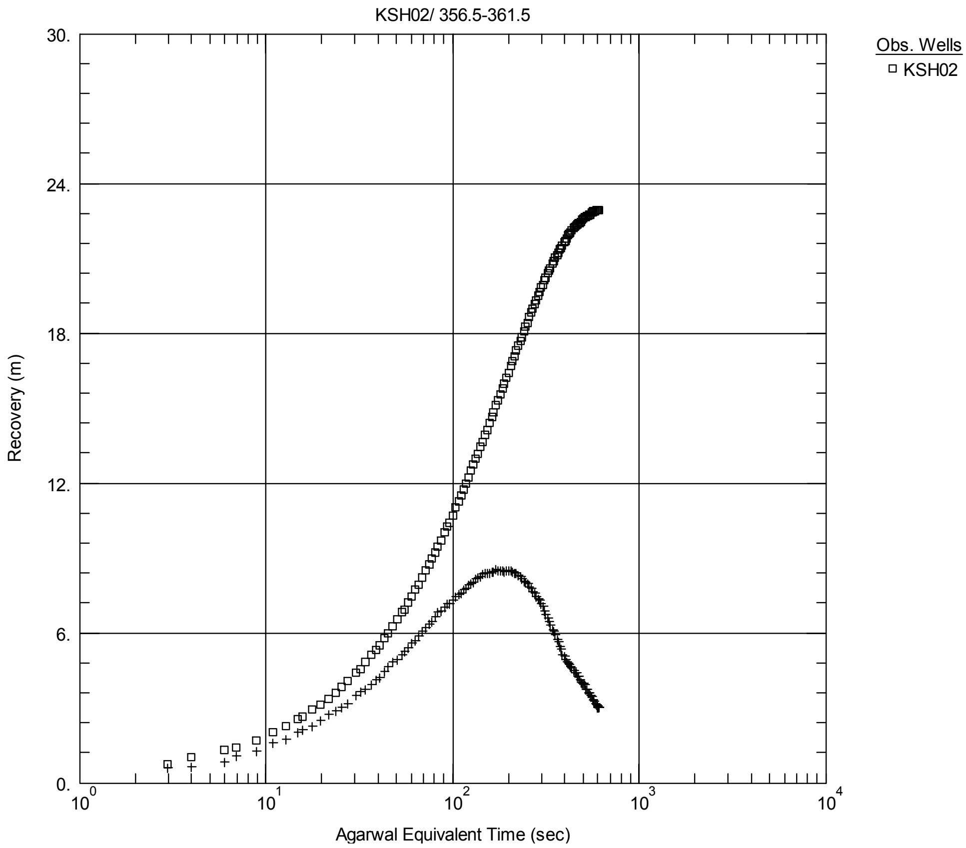
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



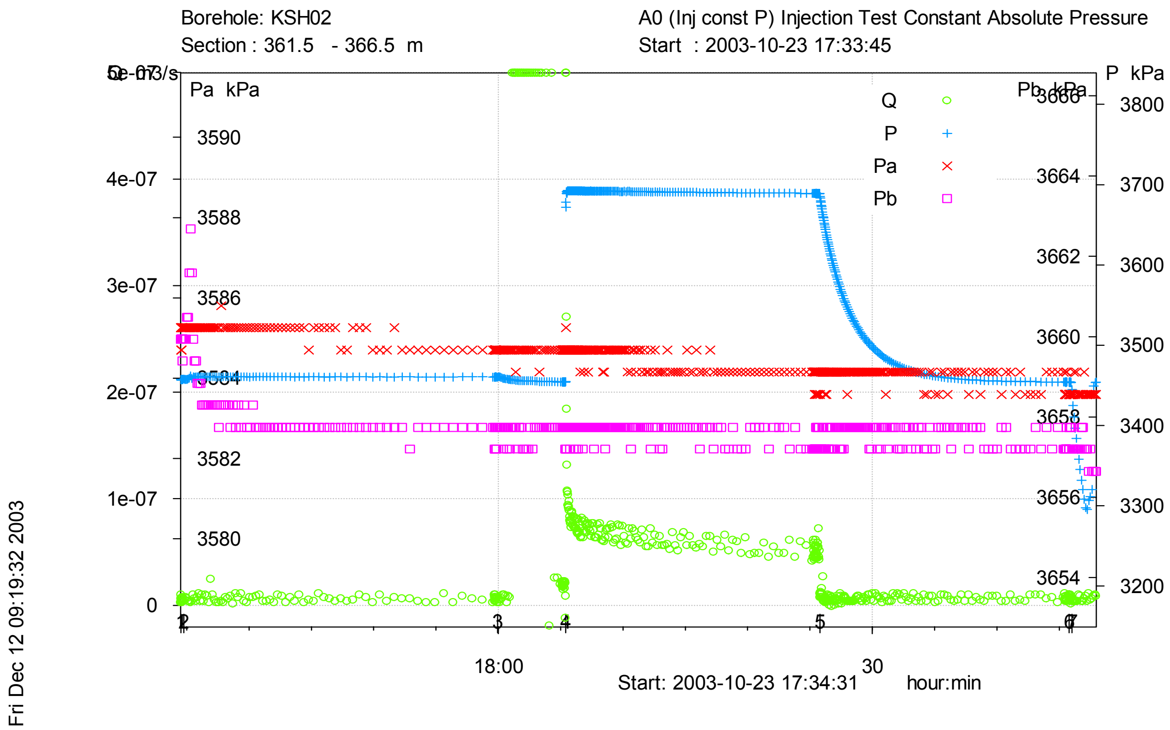
Recovery phase, log-log match.



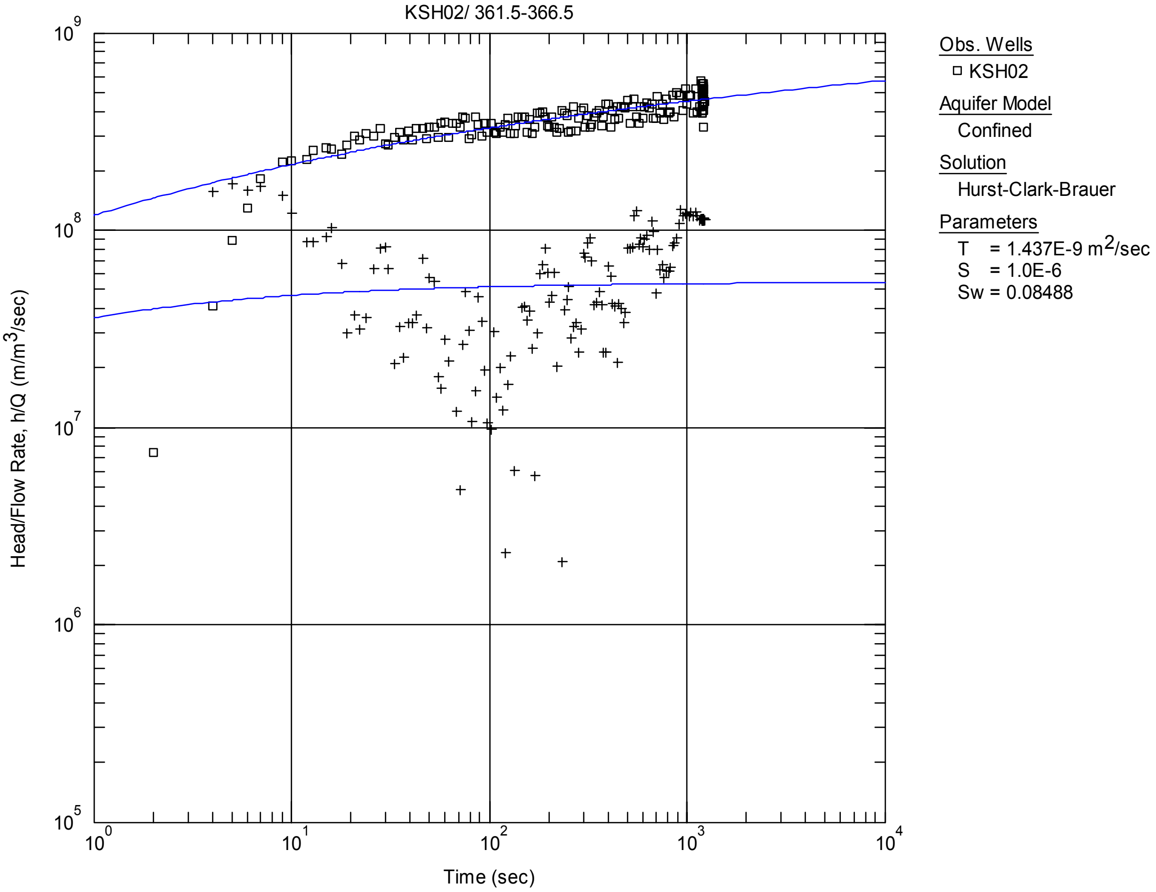
Recovery phase, lin-log match

Test 361.5–366.5 m

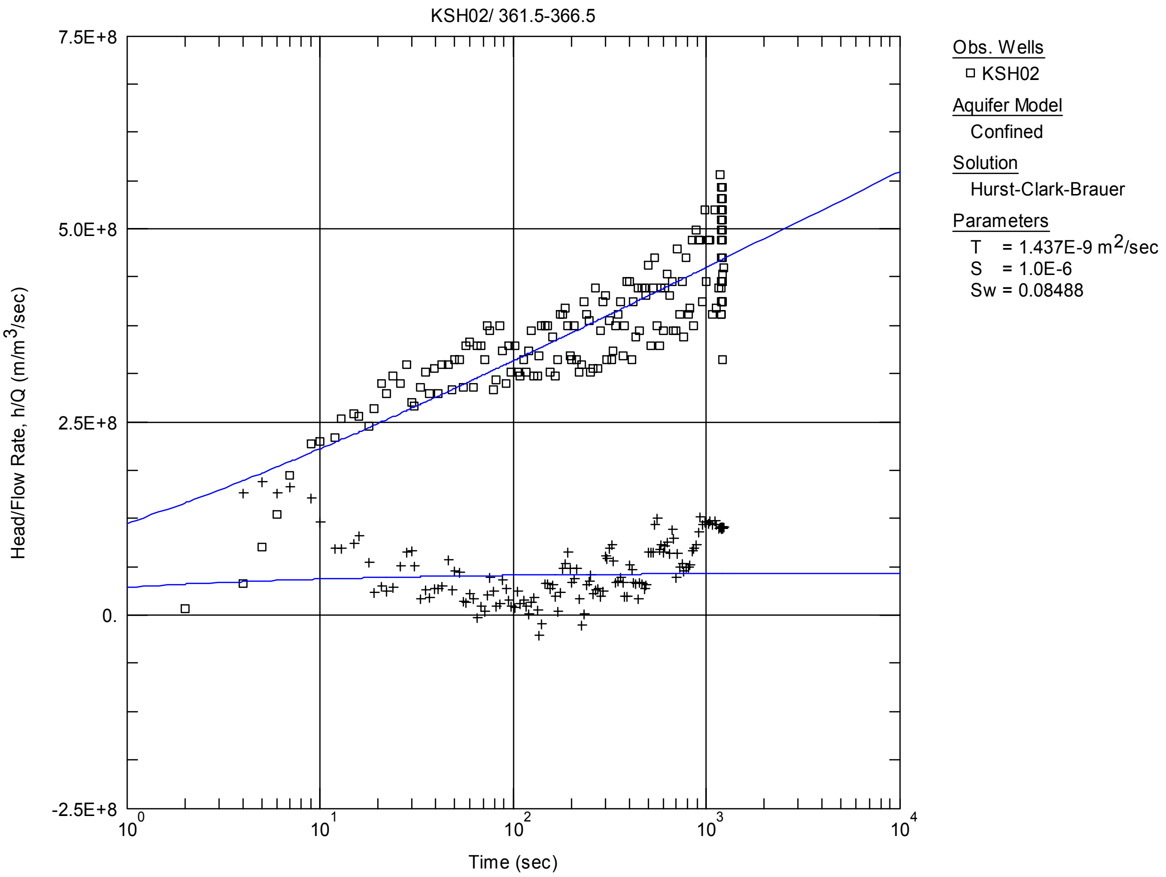
Analysis Diagram



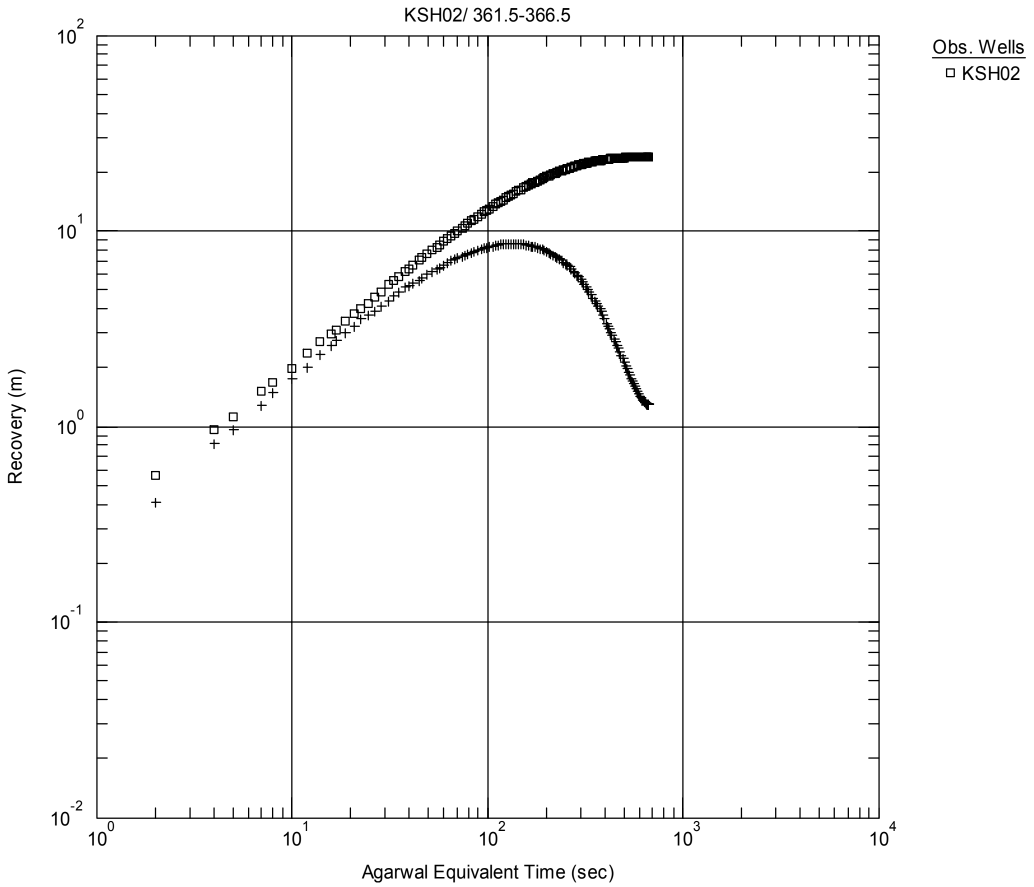
Pressure and flow rate vs. time.



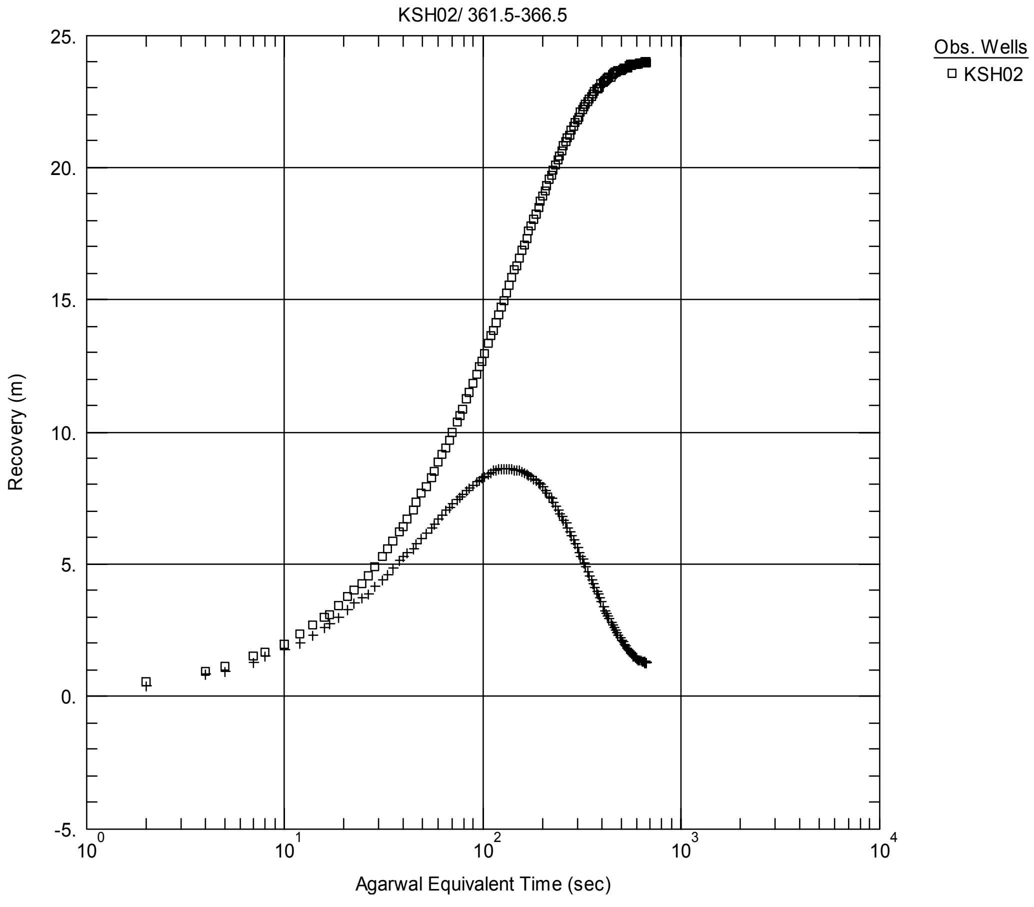
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



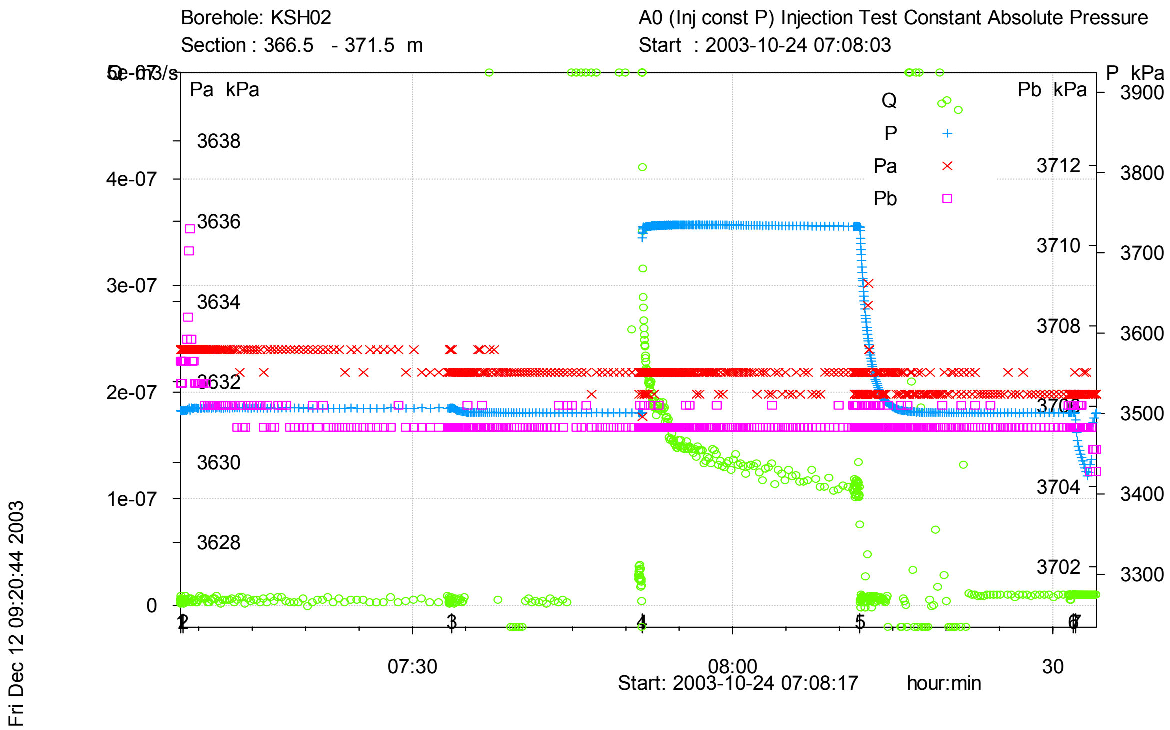
Recovery phase, log-log match.



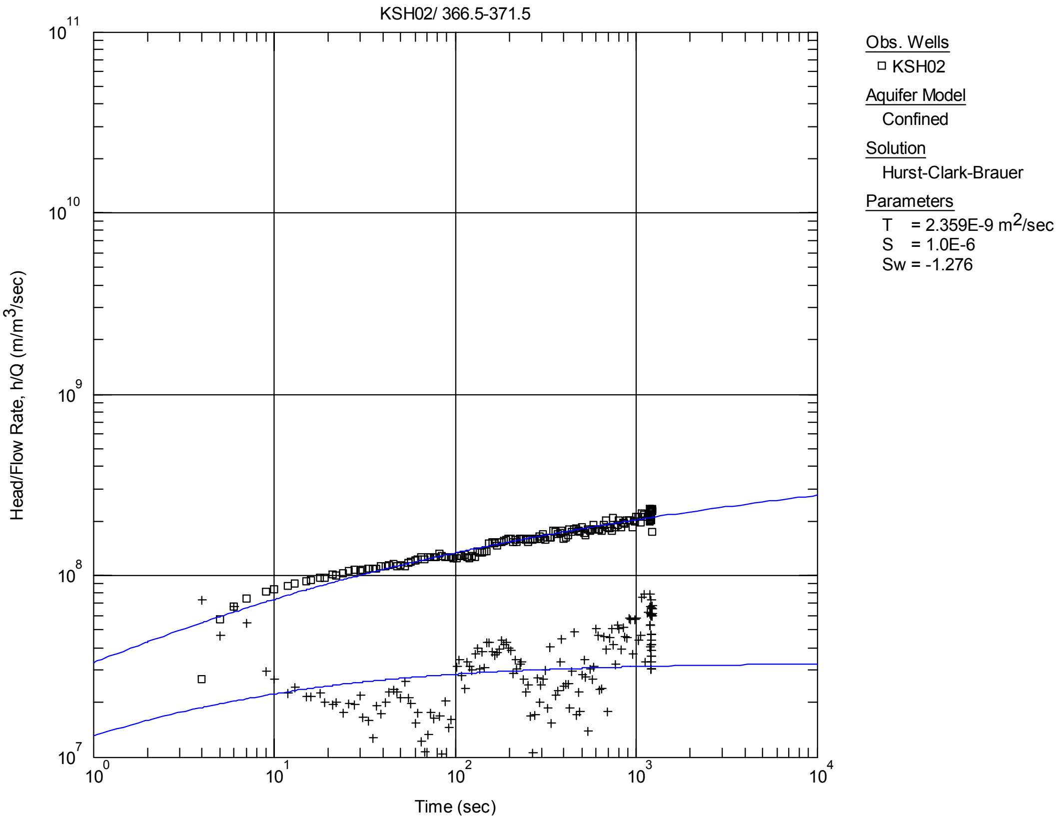
Recovery phase, lin-log match.

Test 366.5–371.5 m

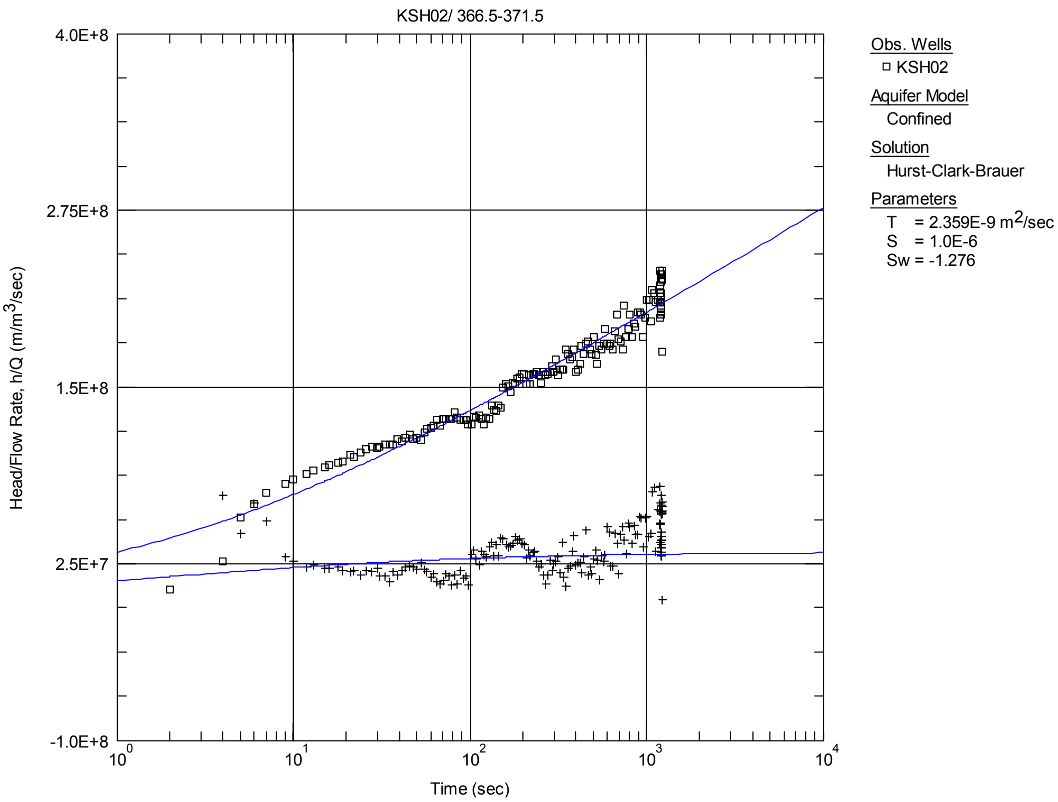
Analysis Diagram



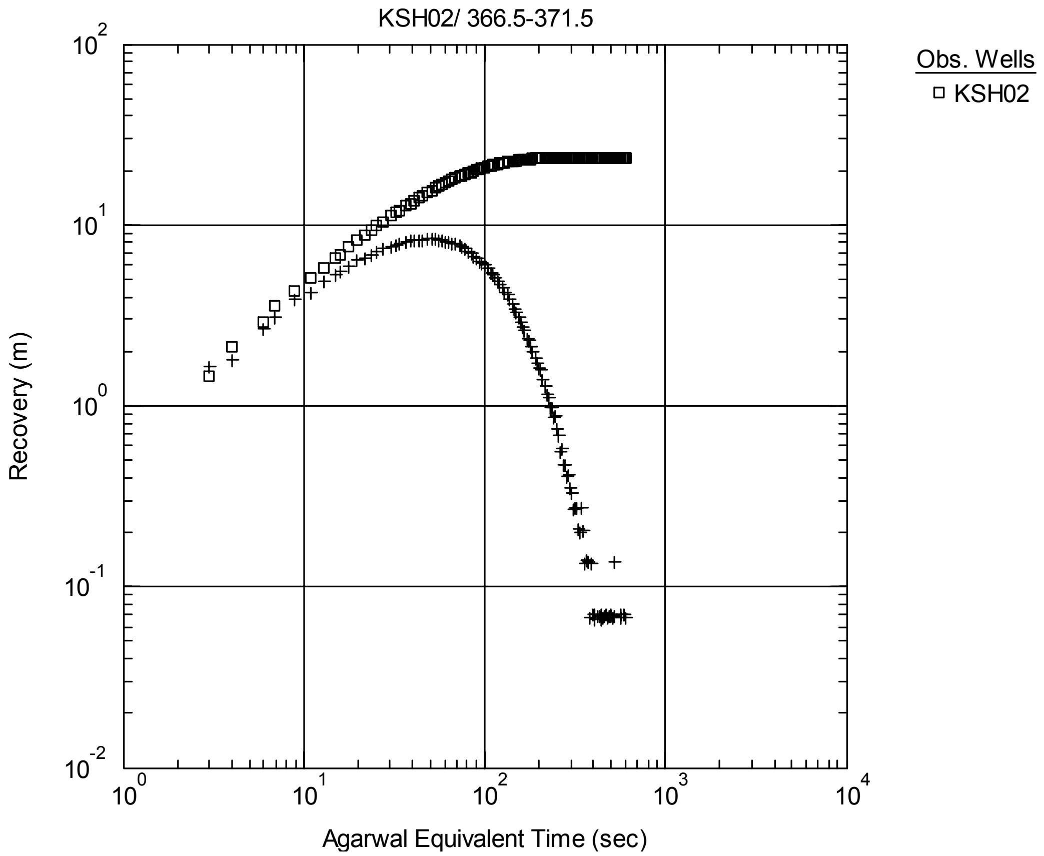
Pressure and flow rate vs. time.



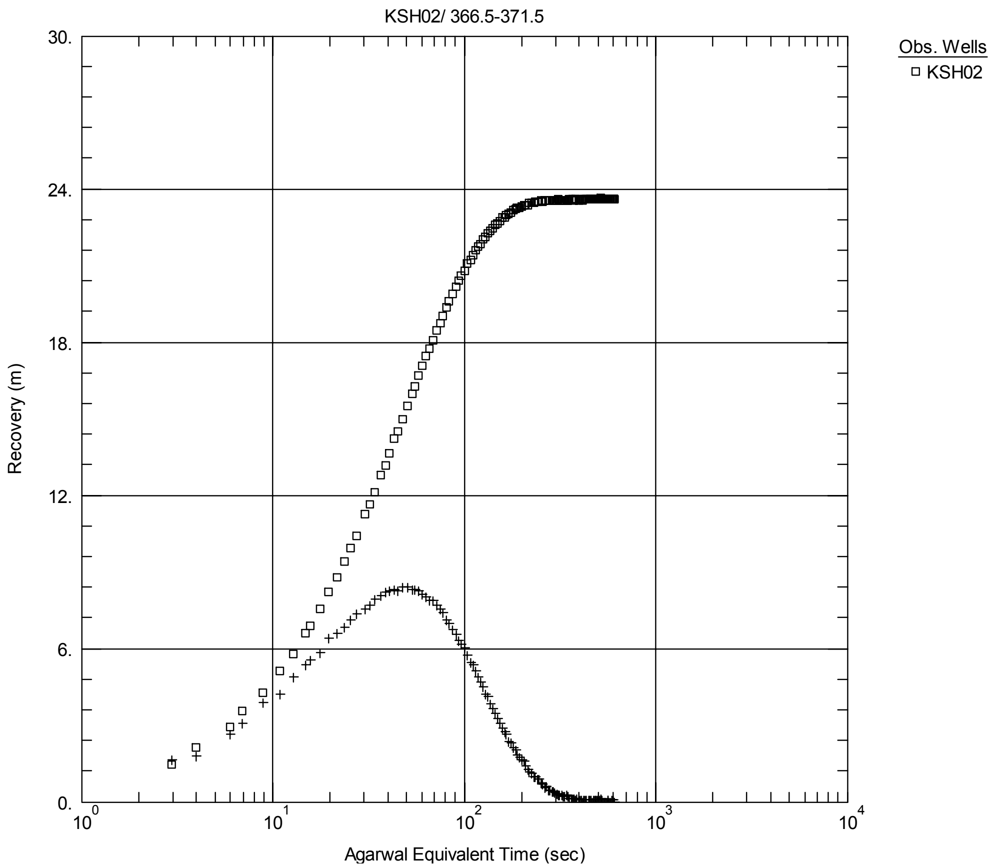
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



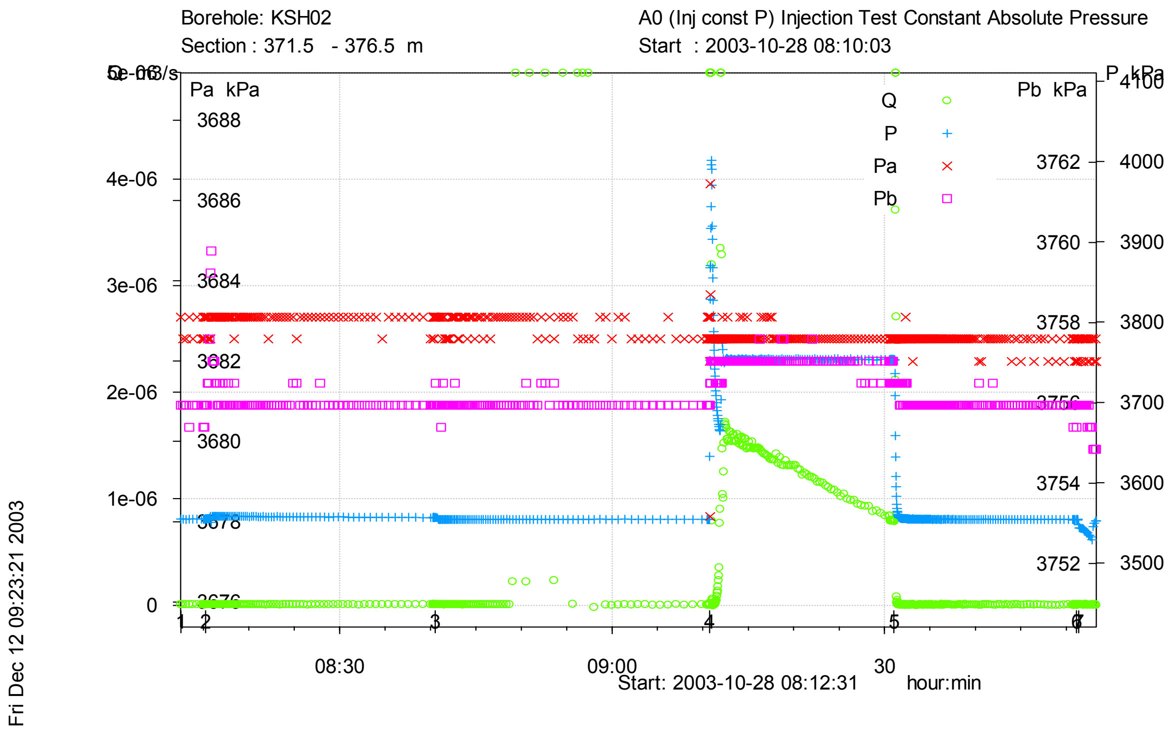
Recovery phase, log-log match.



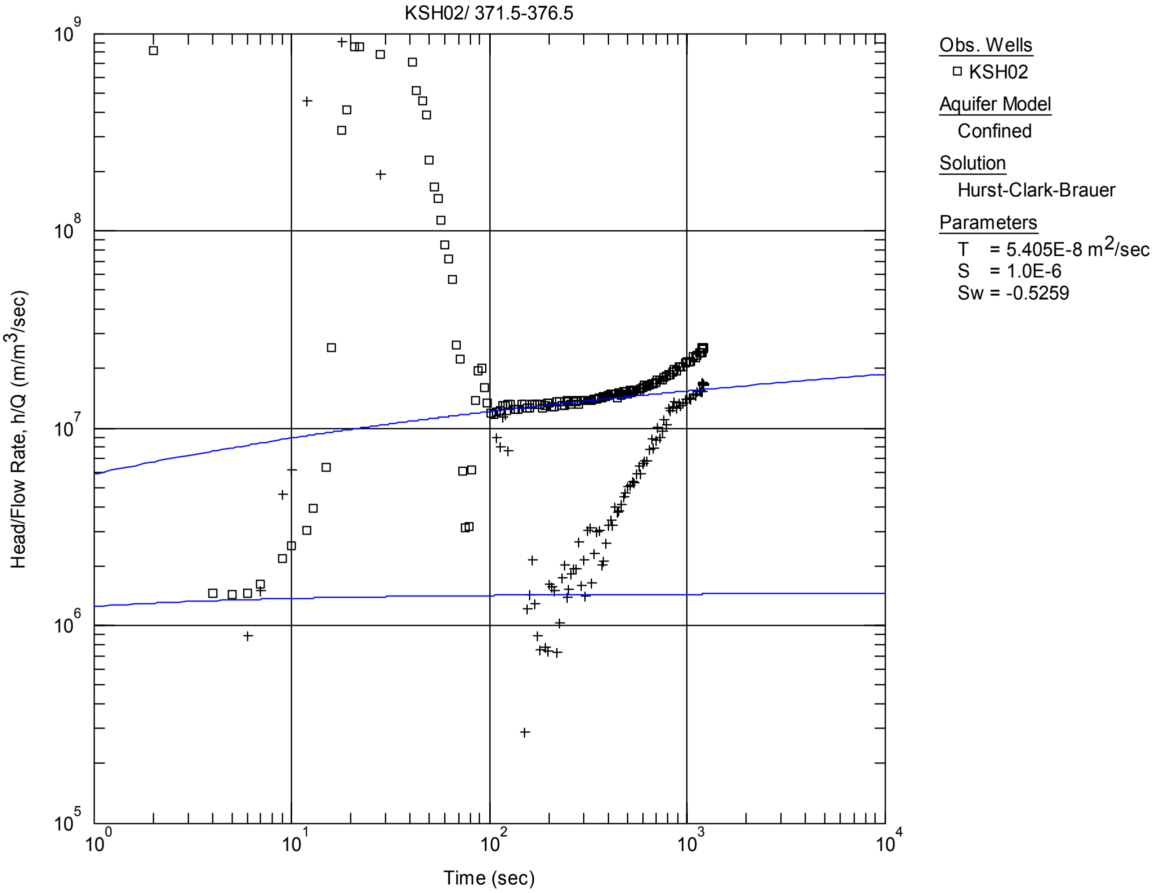
Recovery phase, lin-log match.

Test 371.5–376.5 m

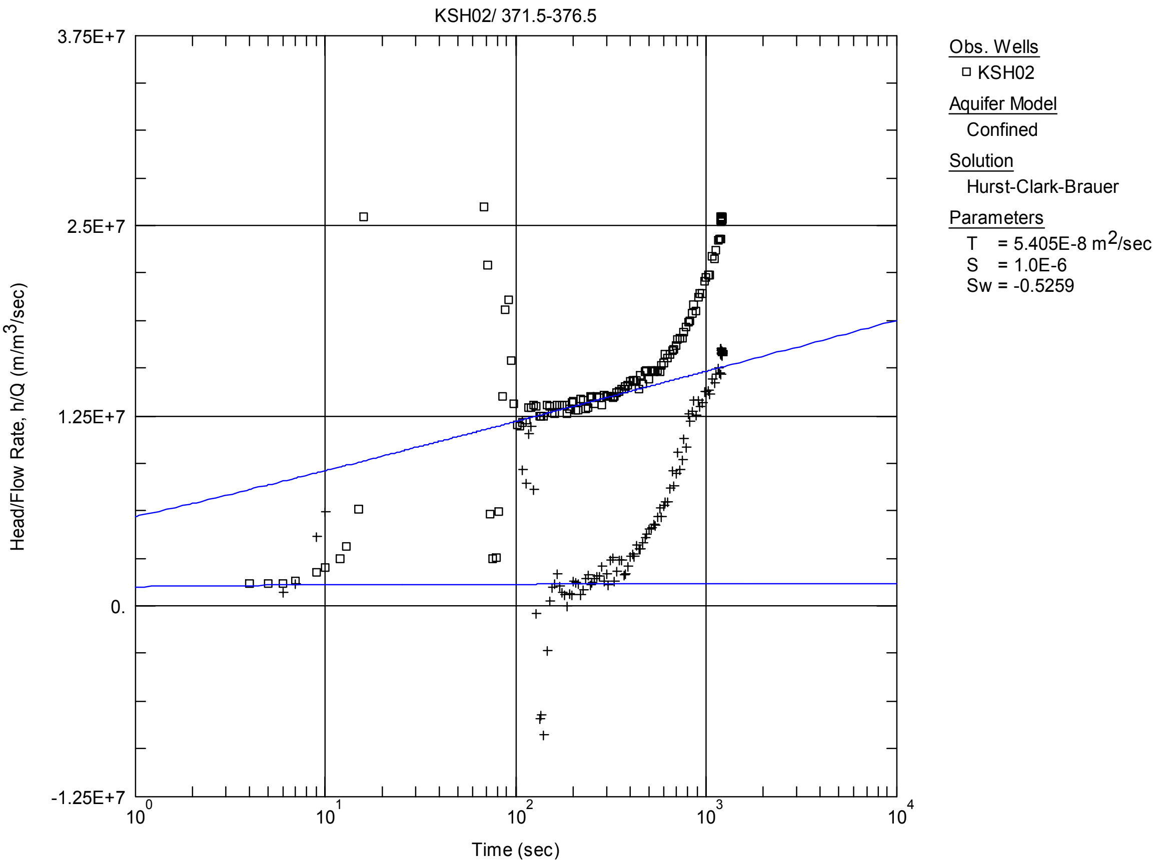
Analysis Diagram



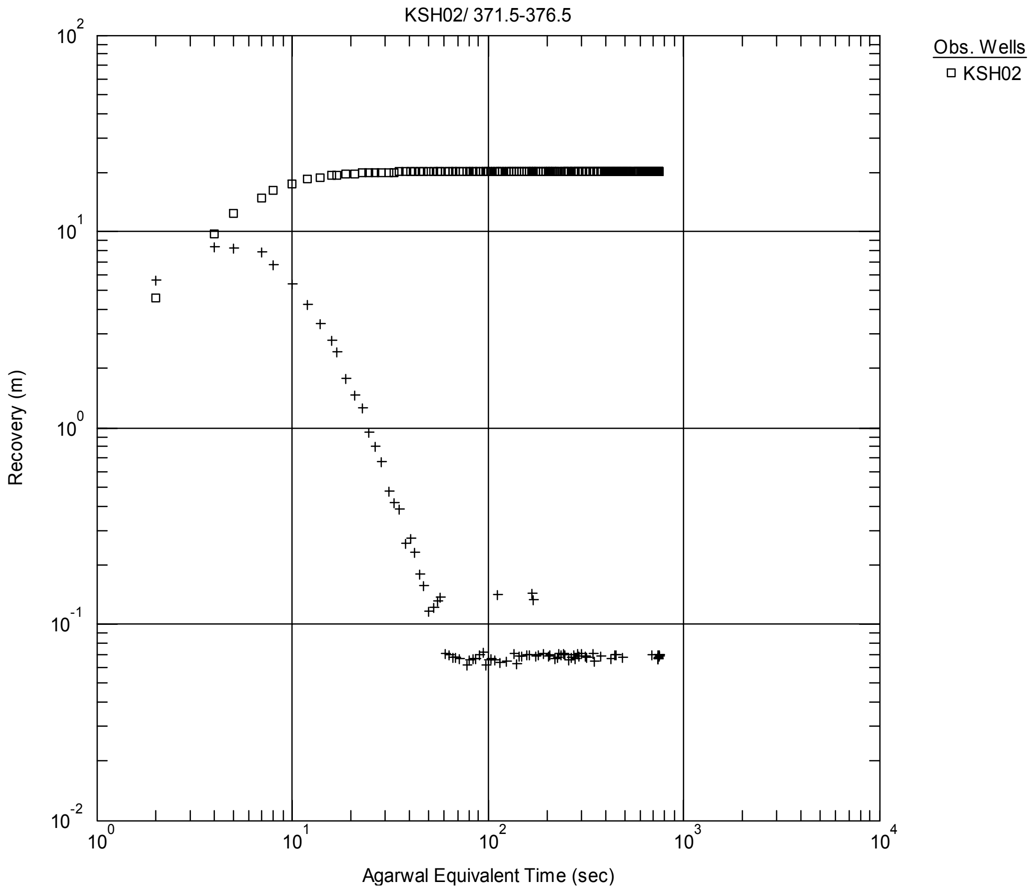
Pressure and flow rate vs. time.



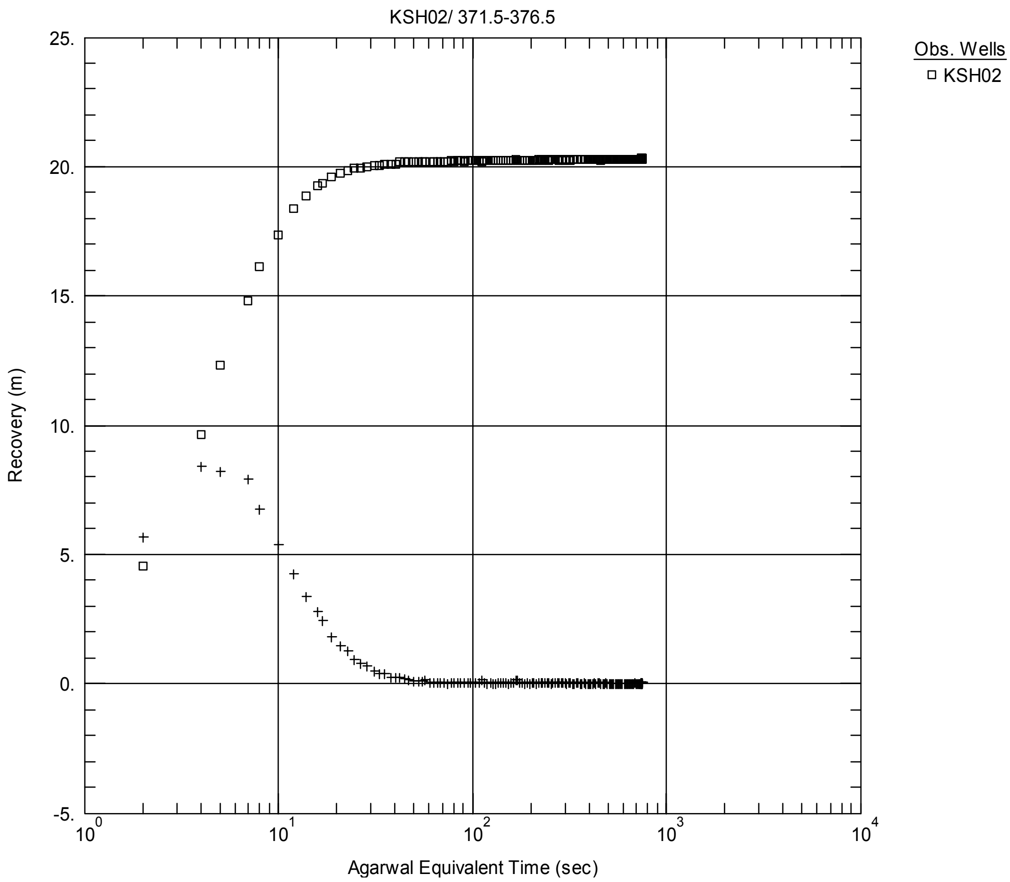
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



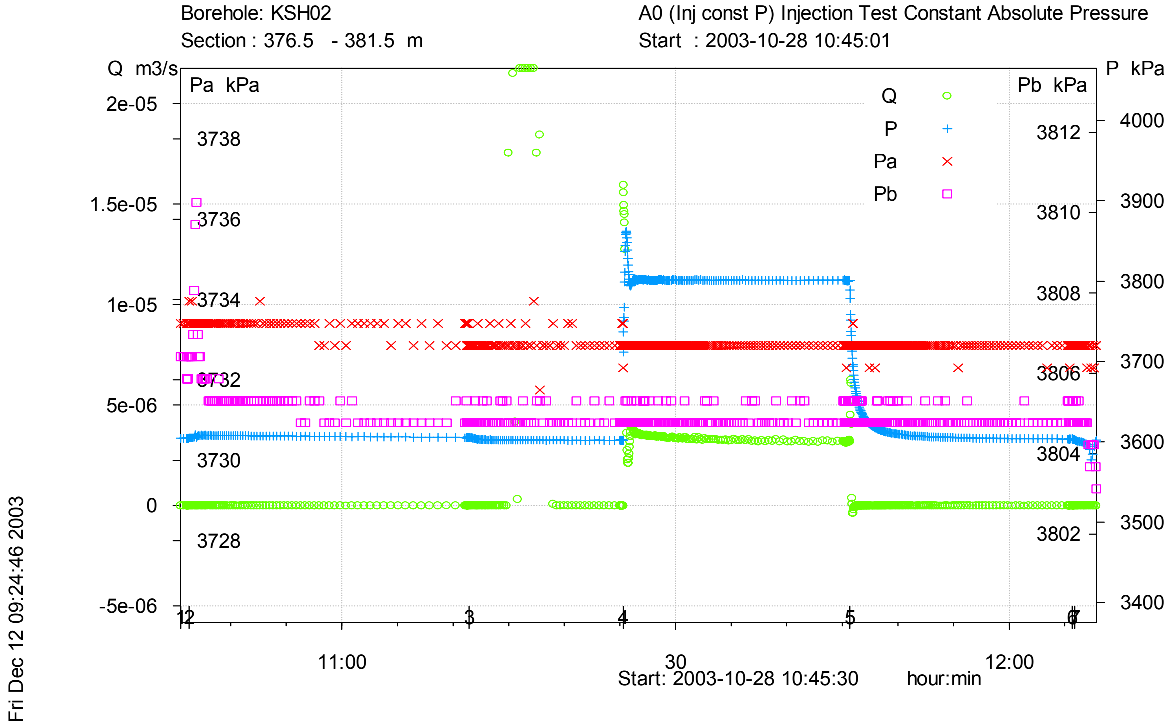
Recovery phase, log-log match.



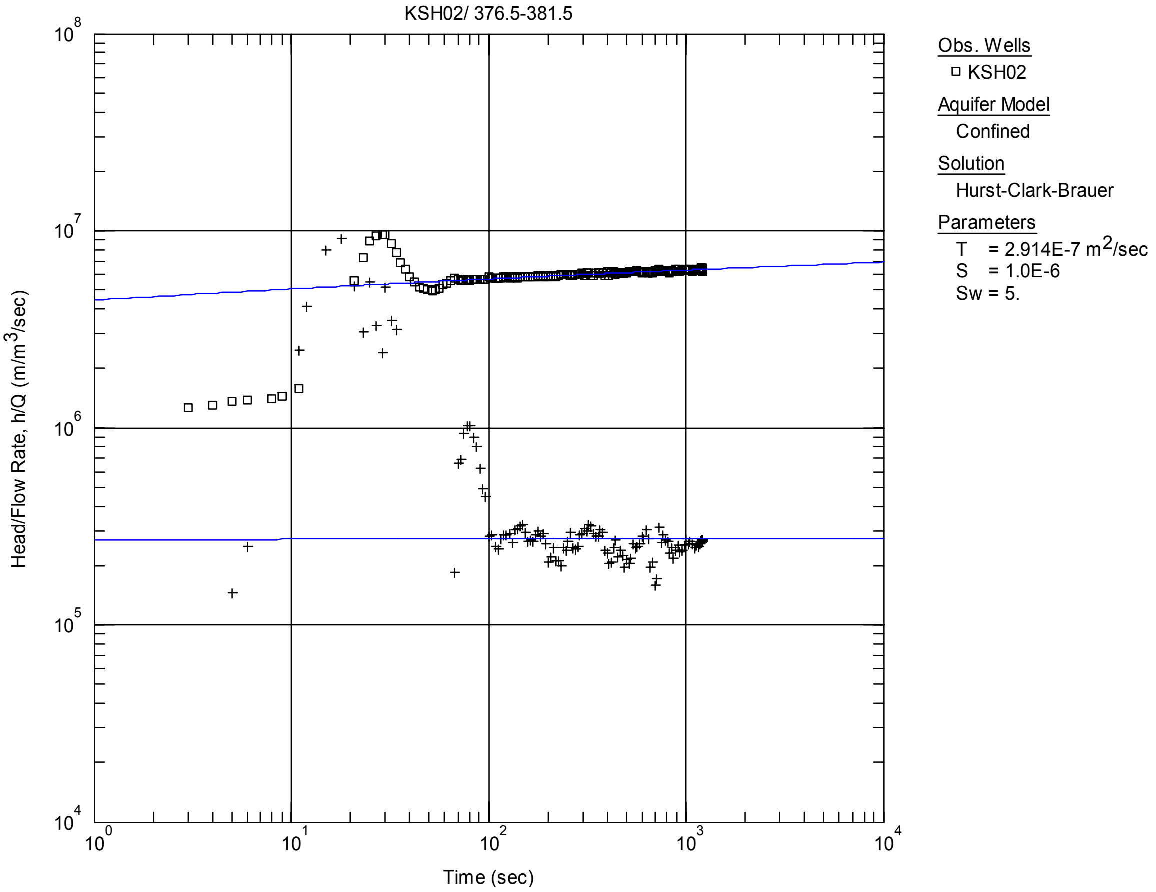
Recovery phase, lin-log match.

Test 376.5–381.5 m

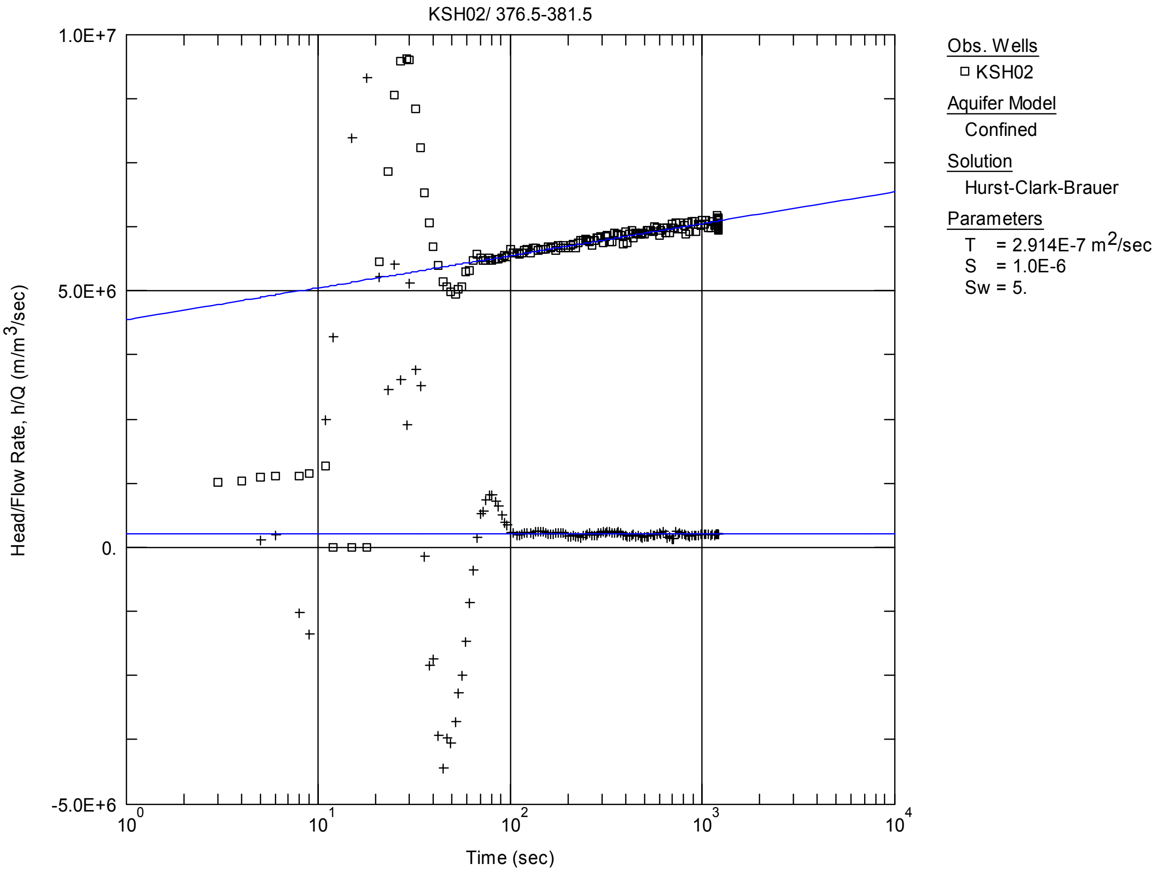
Analysis Diagram



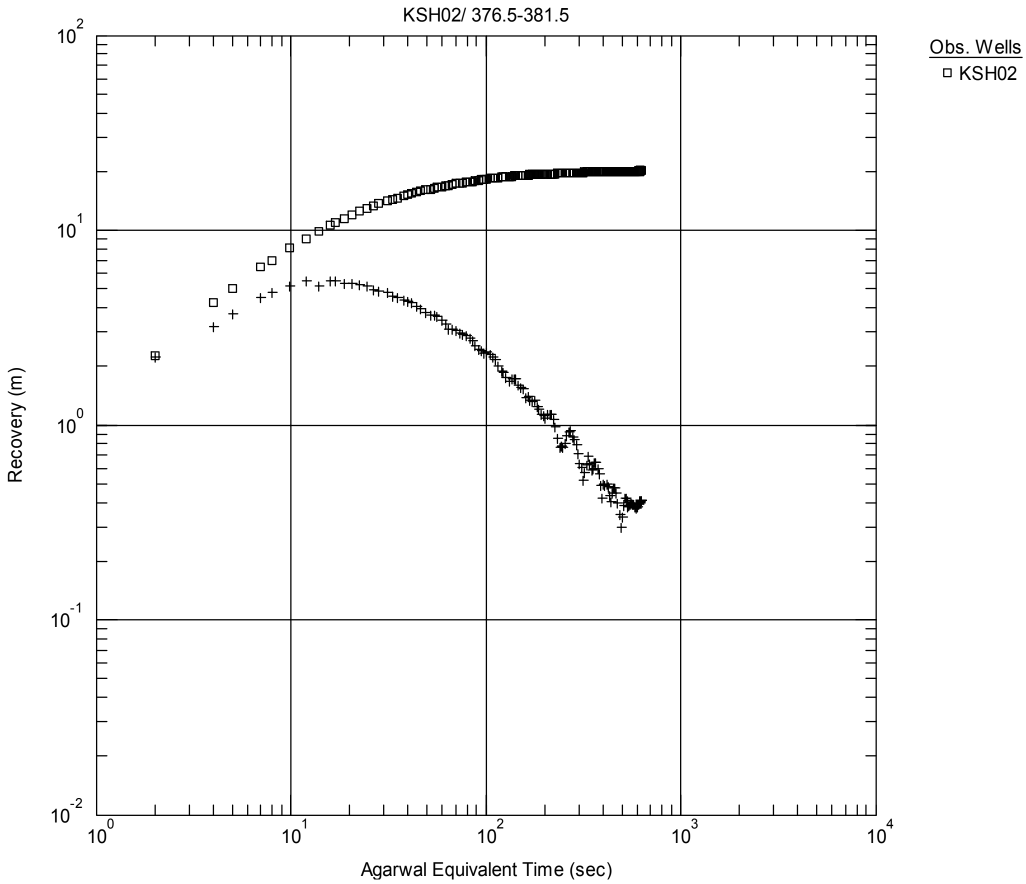
Pressure and flow rate vs. time.



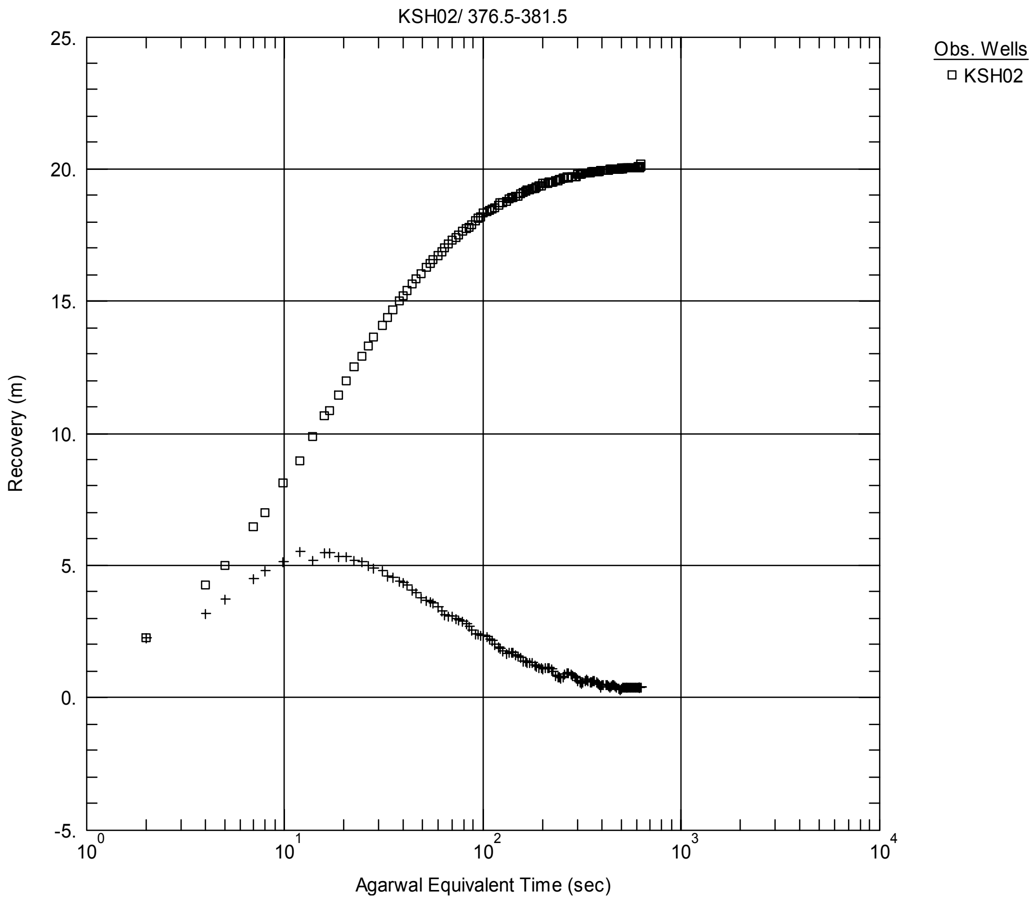
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



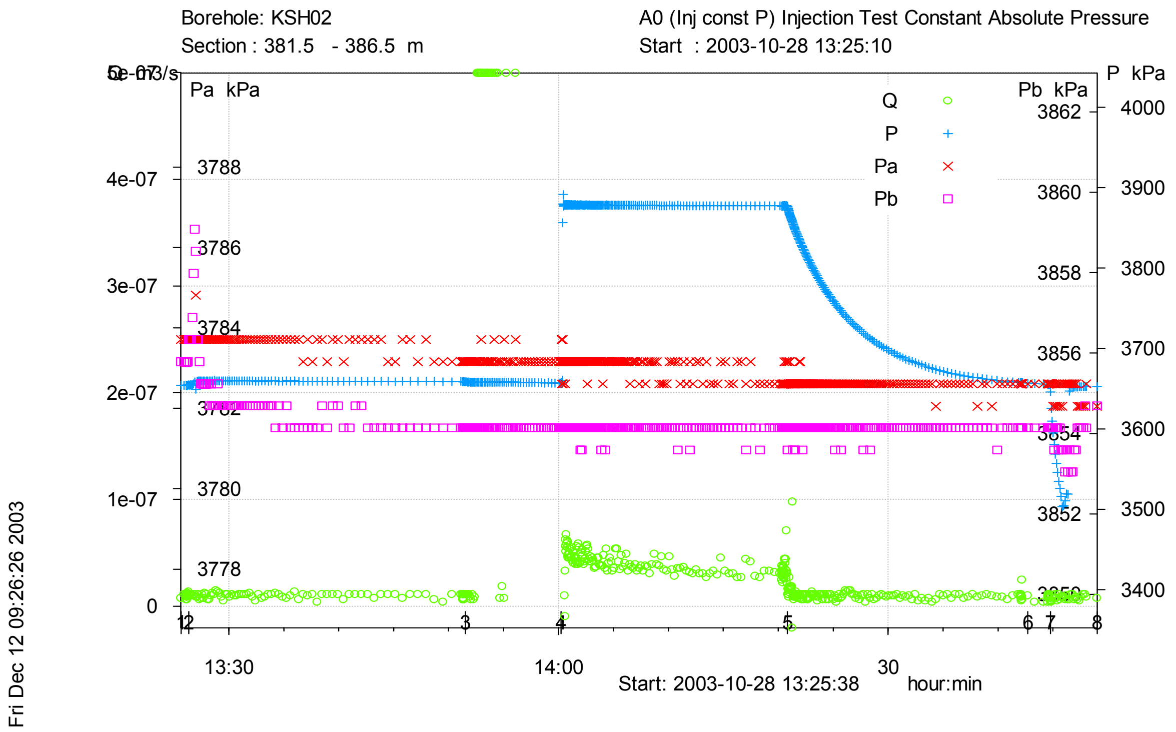
Recovery phase, log-log match.



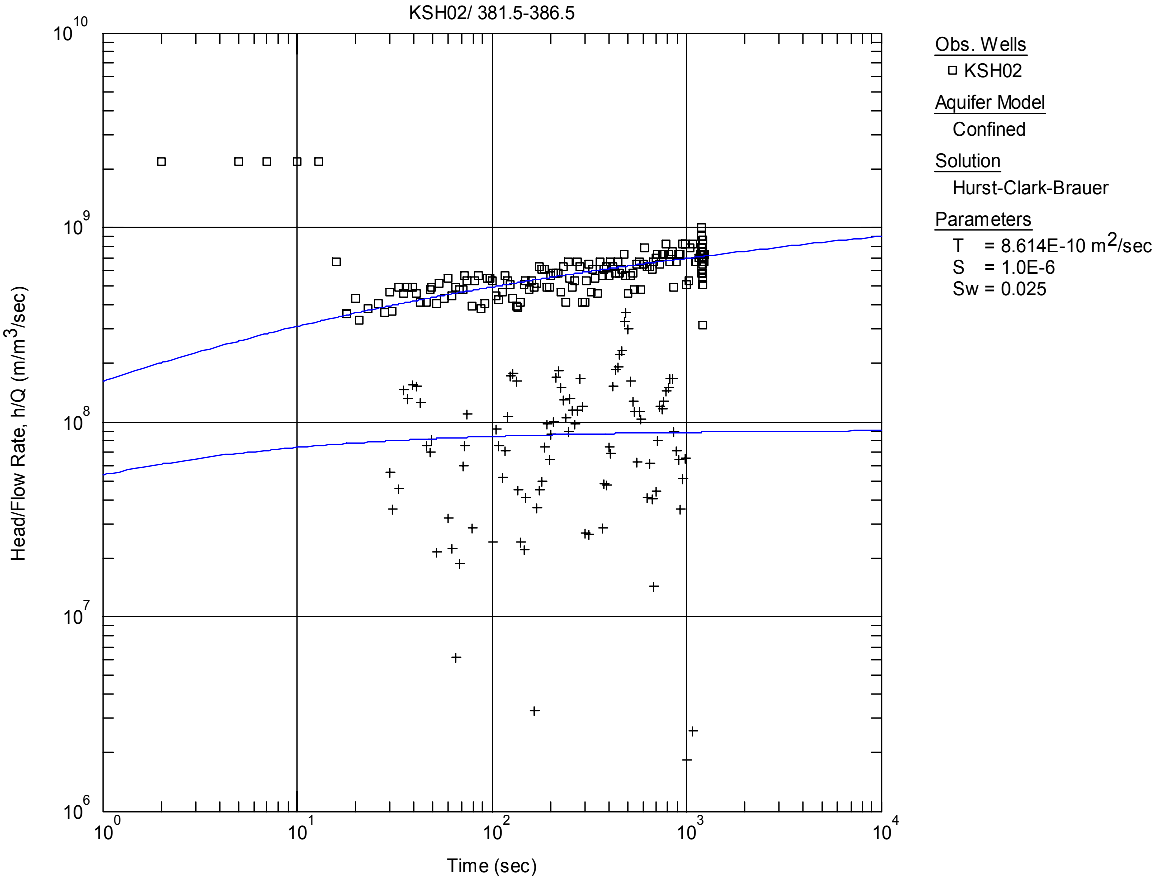
Recovery phase, lin-log match.

Test 381.5–386.5 m

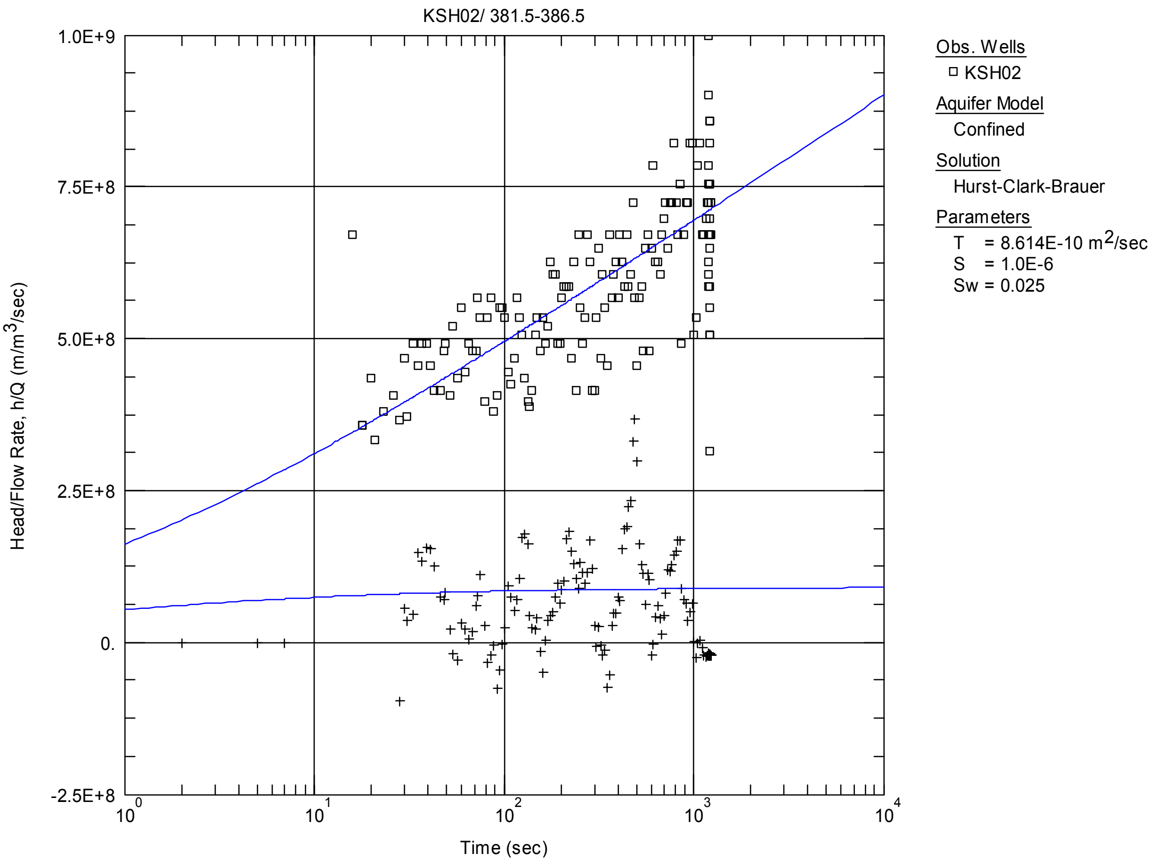
Analysis Diagram



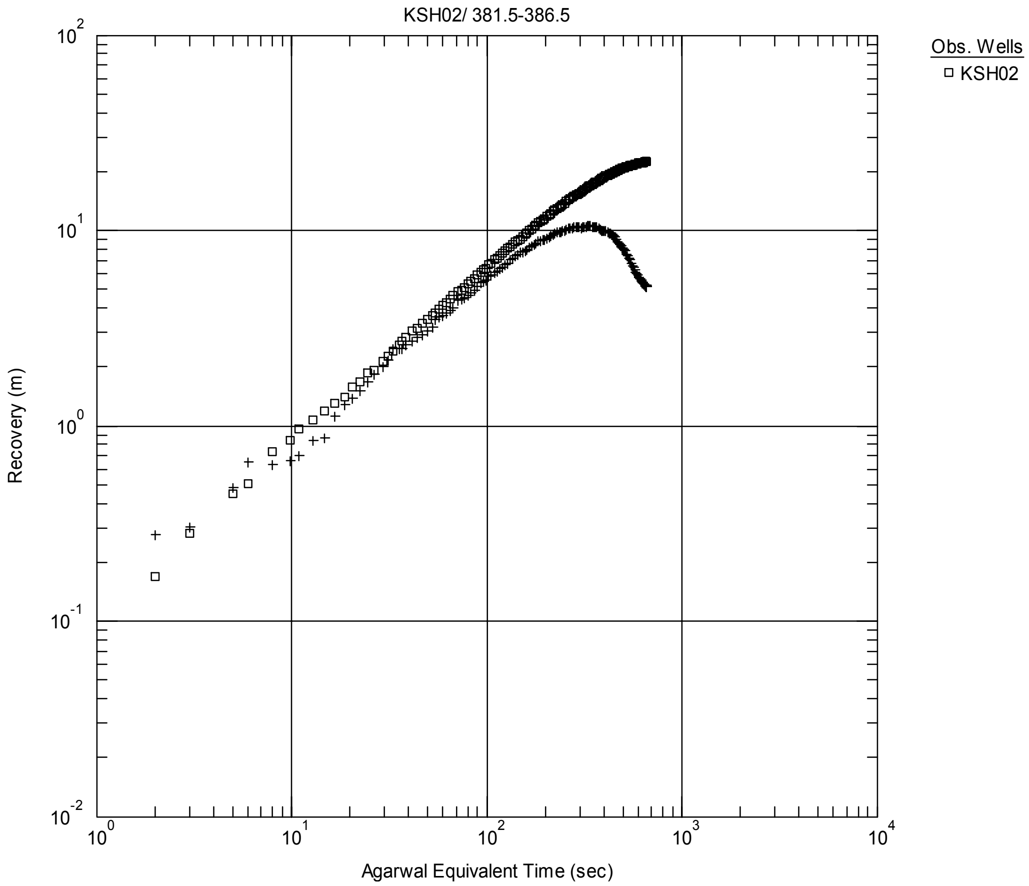
Pressure and flow rate vs. time.



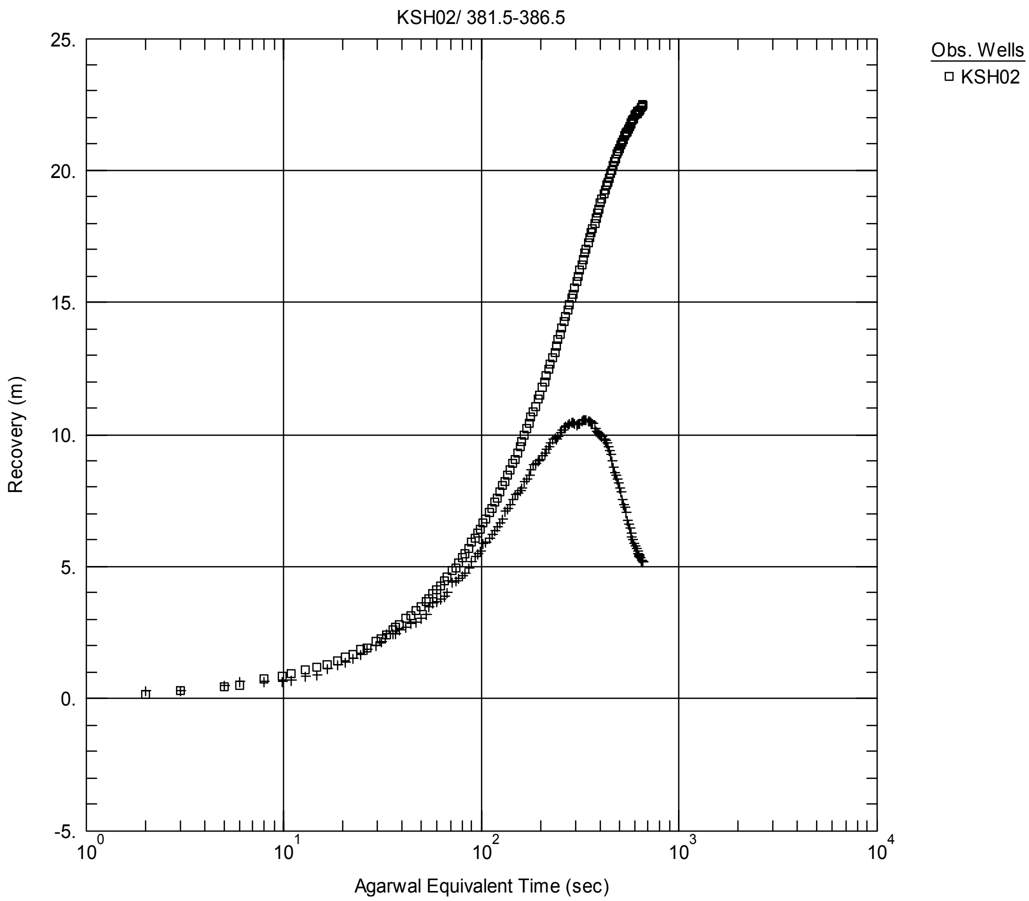
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



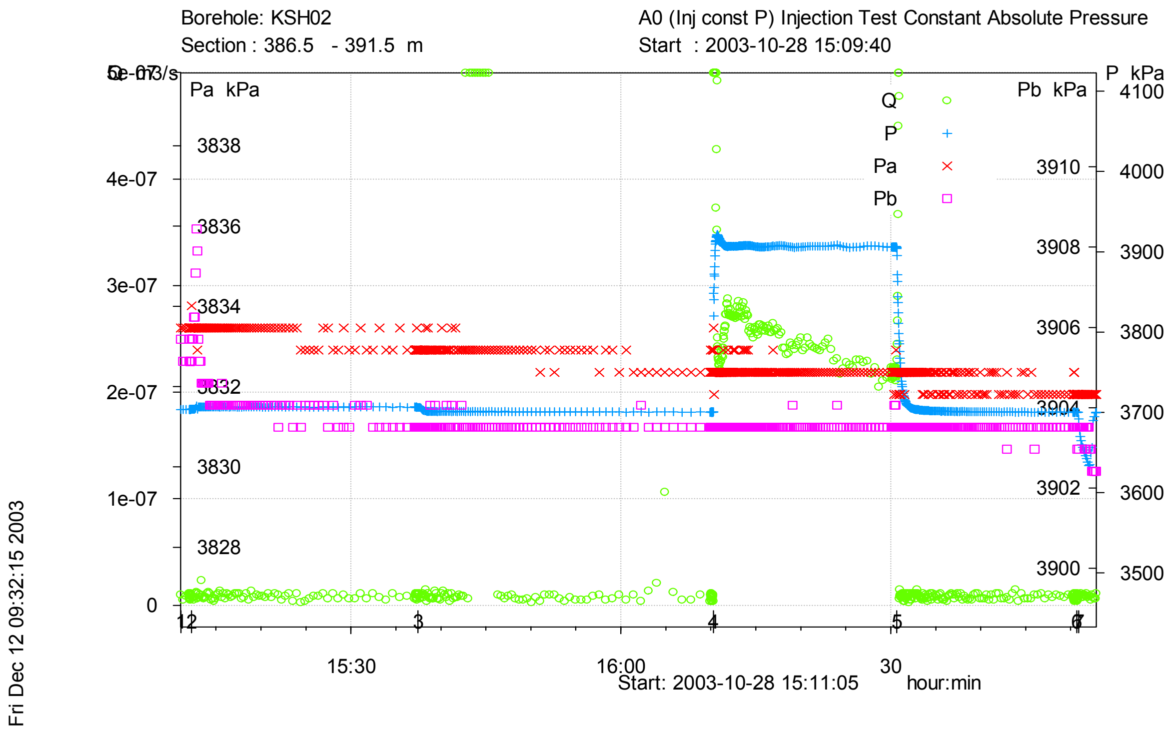
Recovery phase, log-log match.



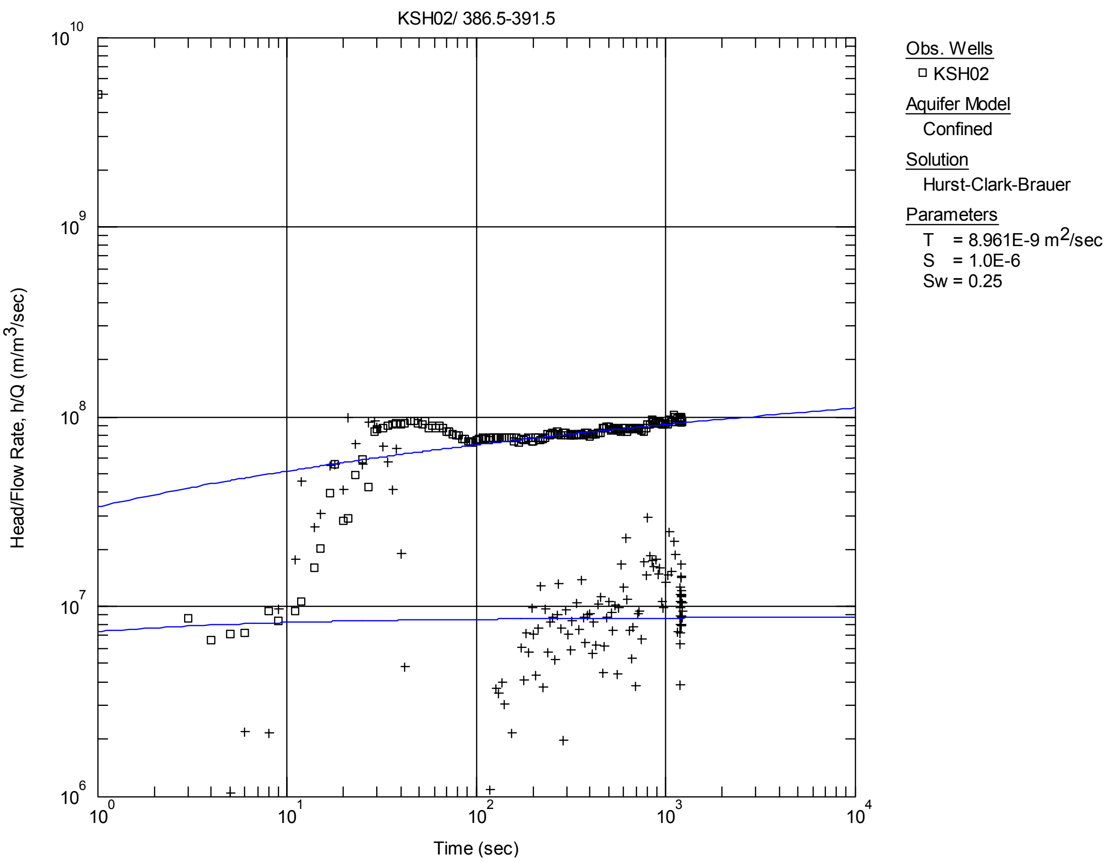
Recovery phase, lin-log match.

Test 386.5–391.5 m

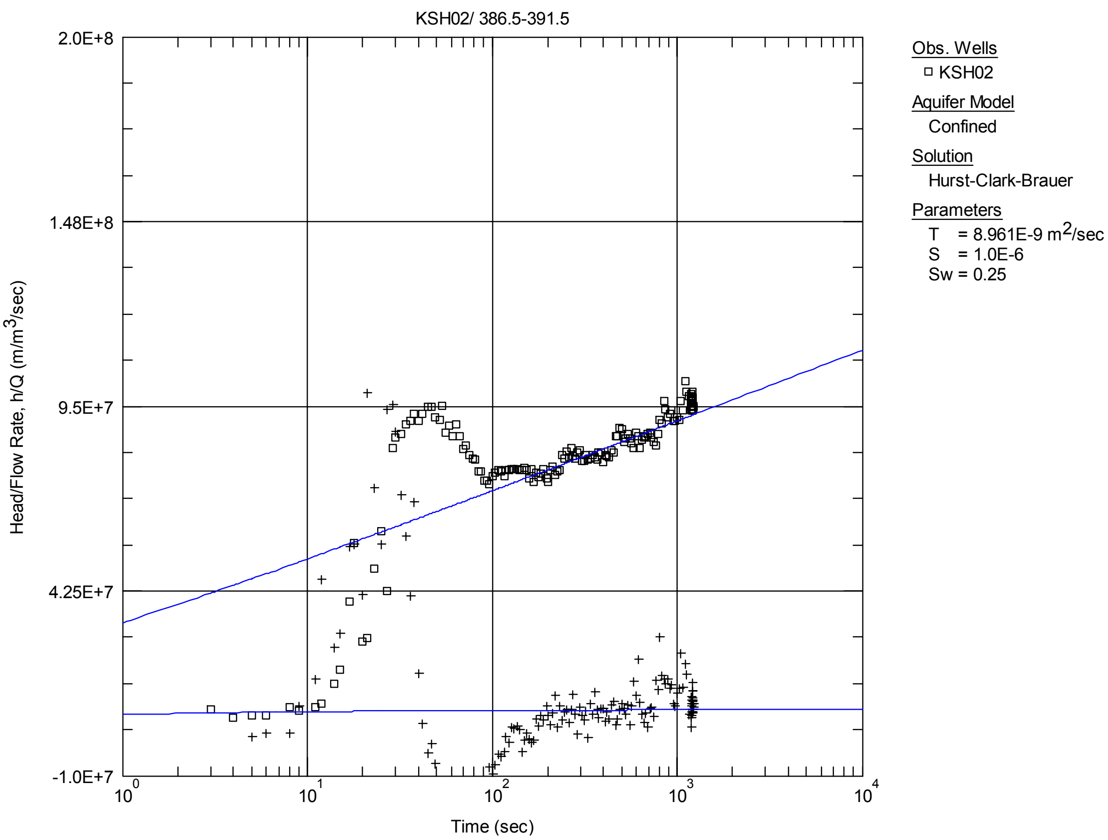
Analysis Diagram



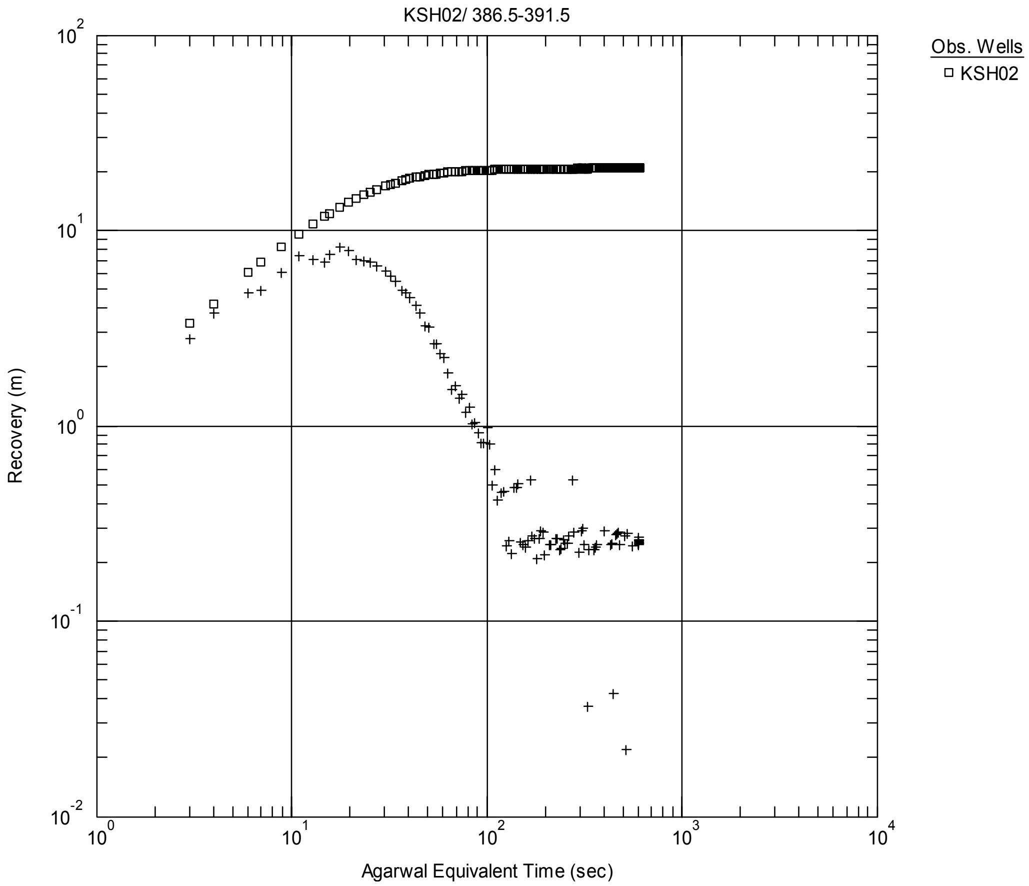
Pressure and flow rate vs. time.



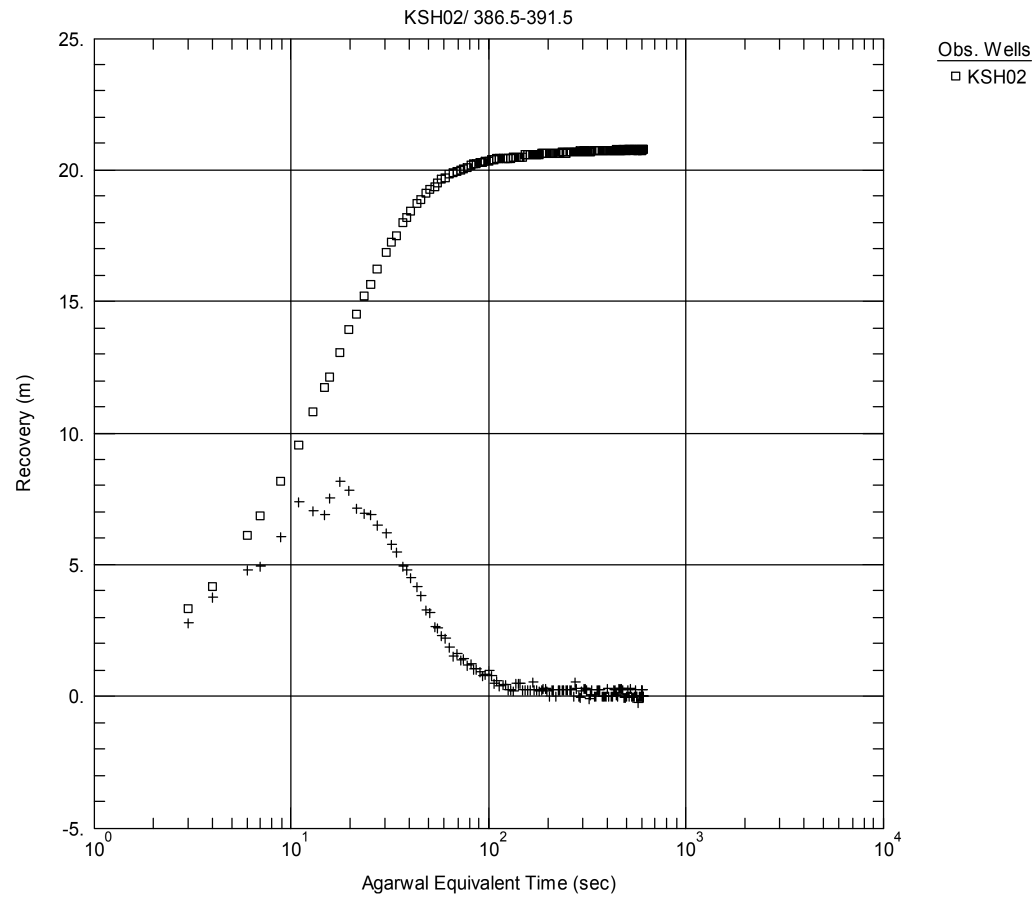
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



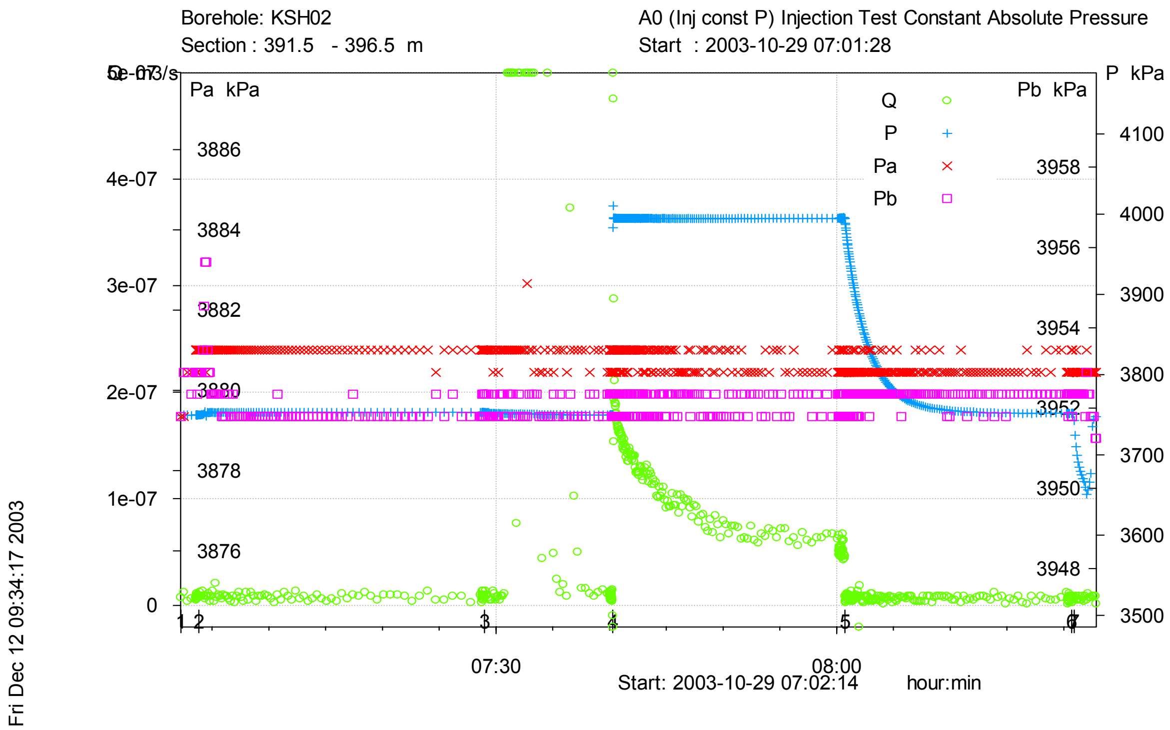
Recovery phase, log-log match.



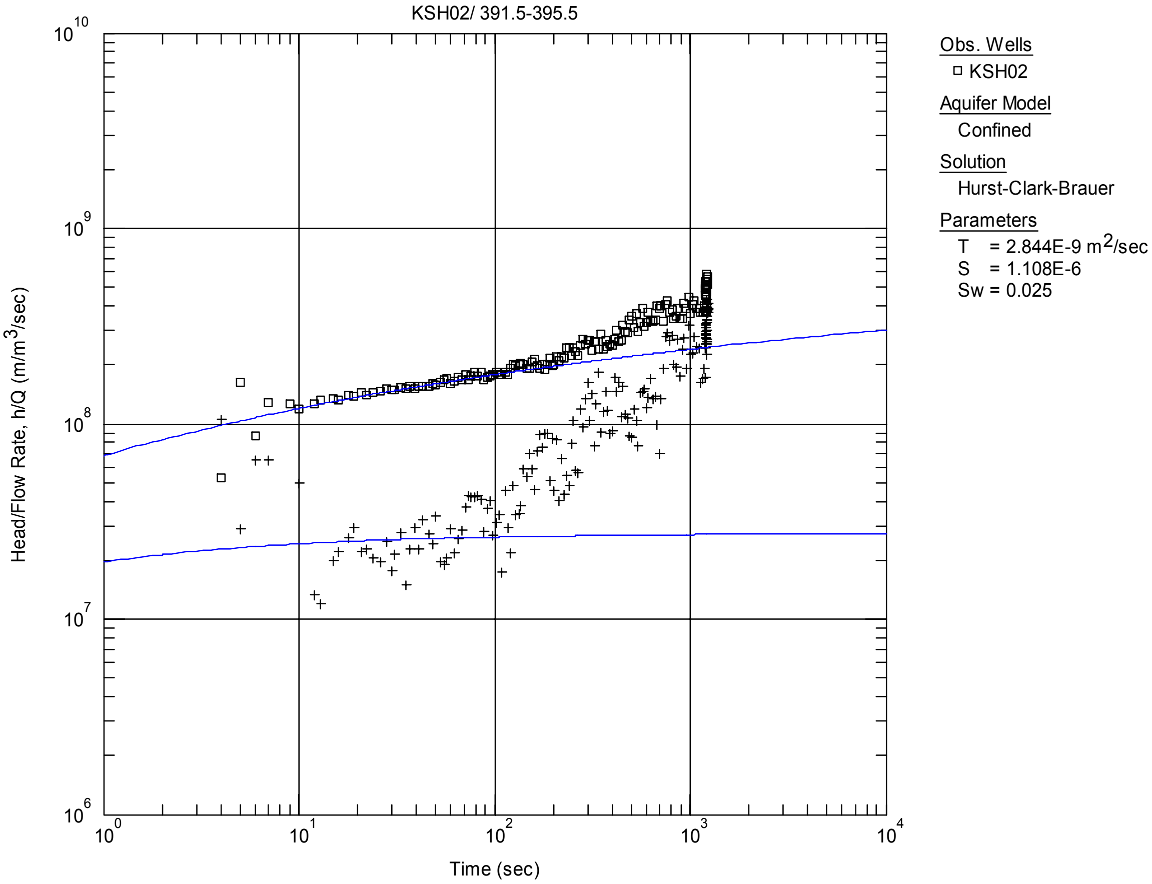
Recovery phase, lin-log match.

Test 391.5–396.5 m

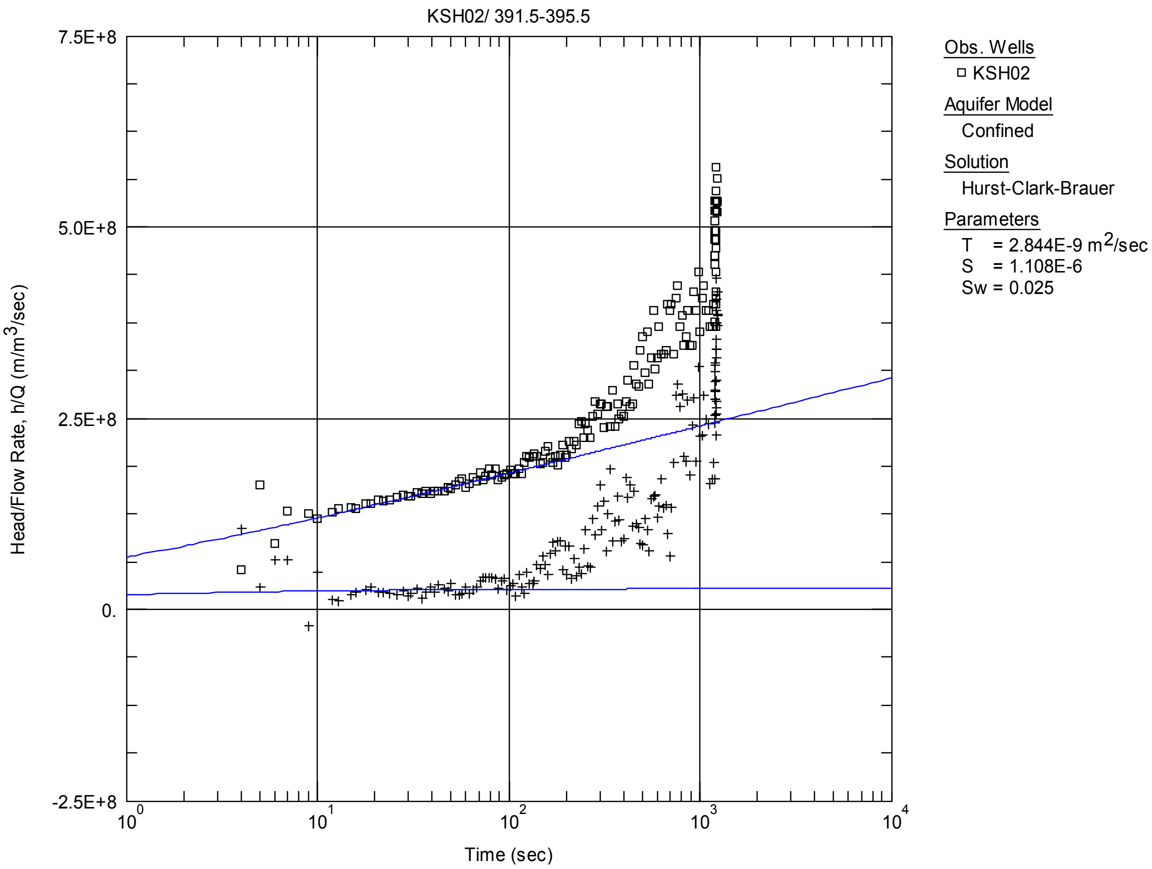
Analysis Diagram



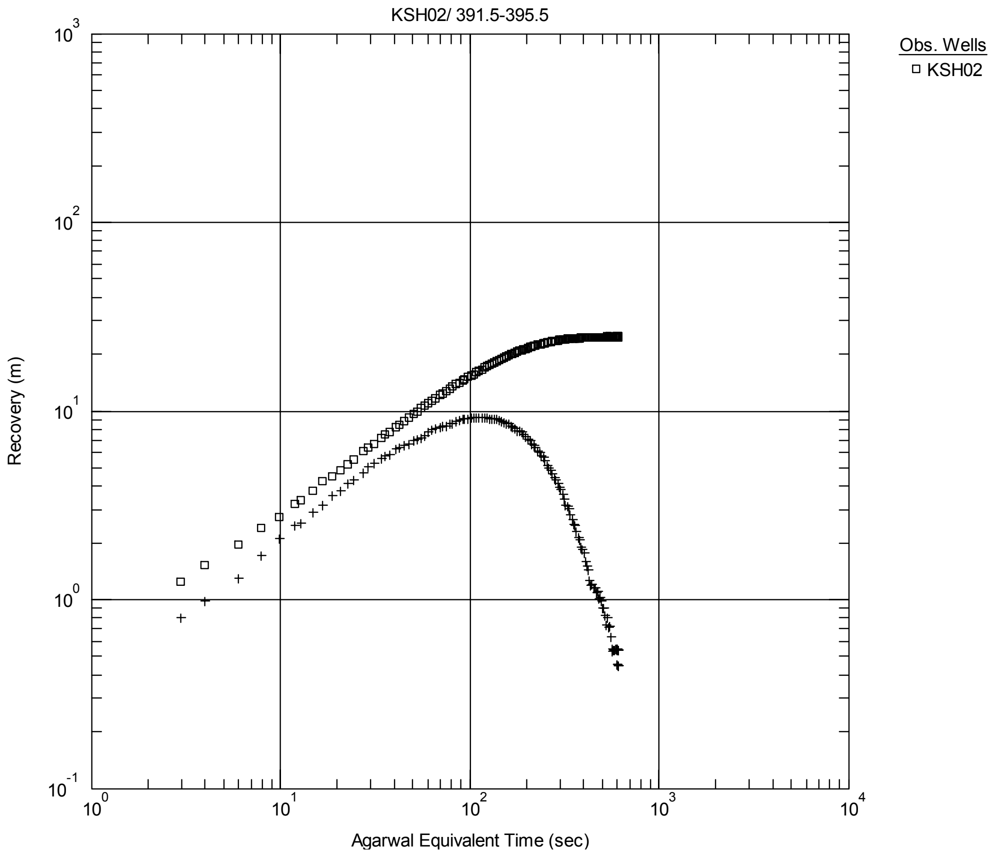
Pressure and flow rate vs. time.



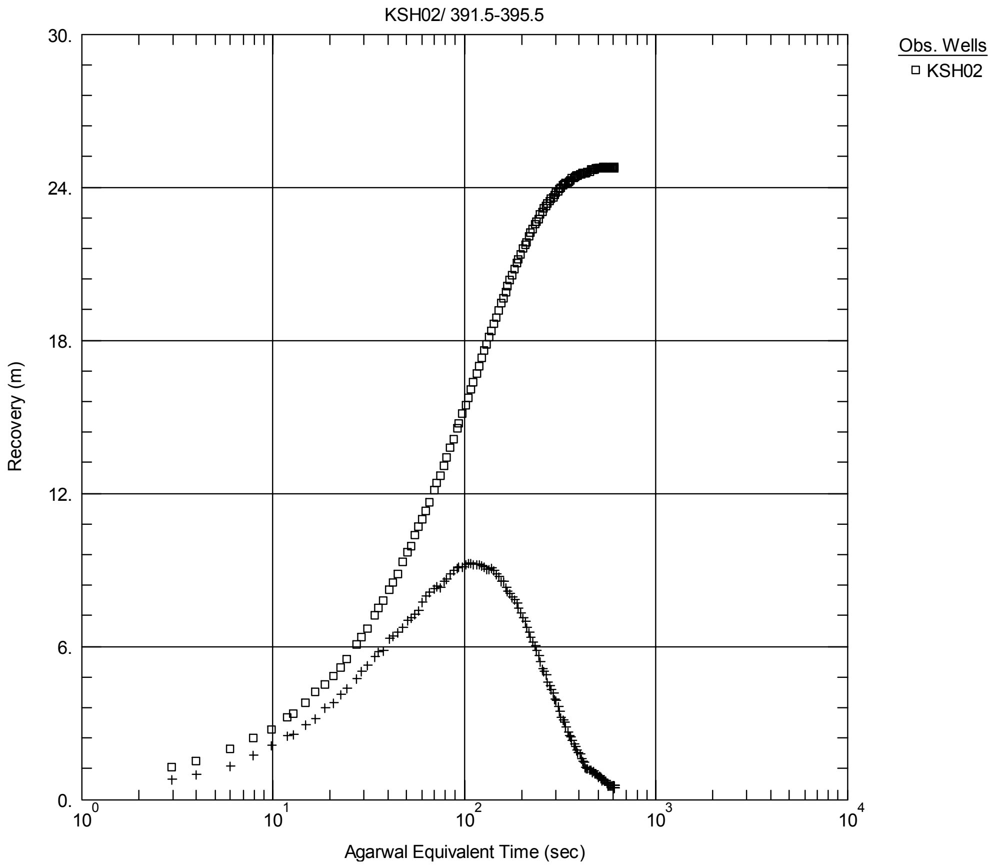
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



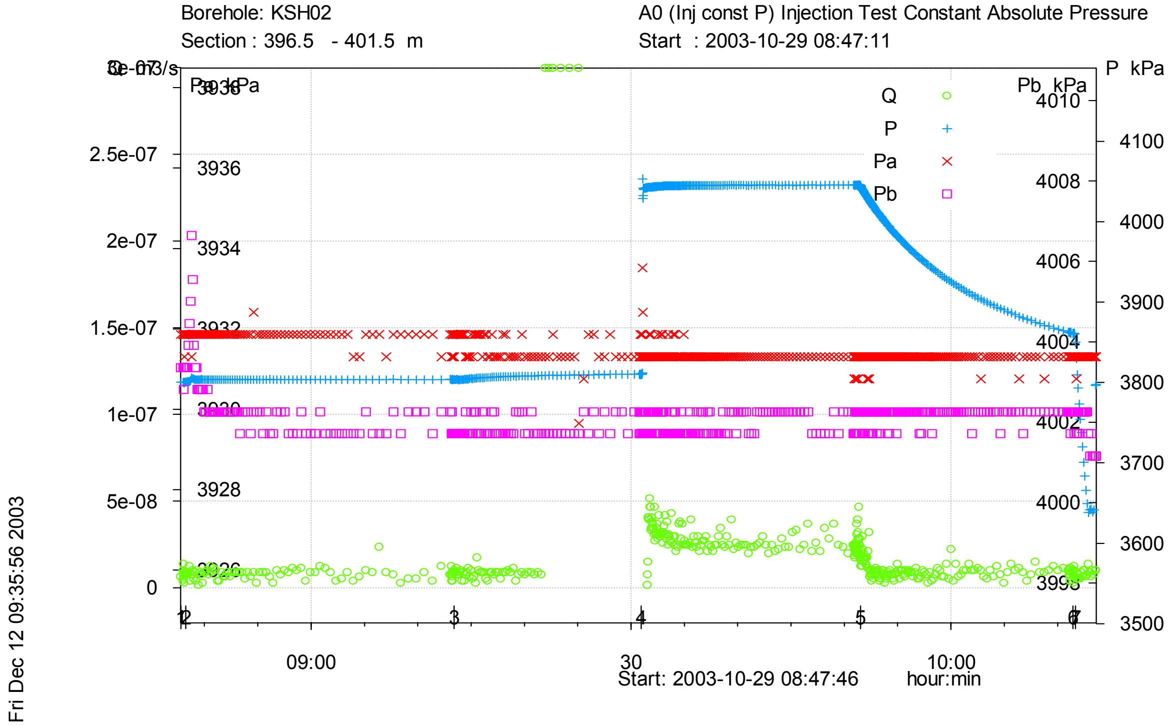
Recovery phase, log-log match.



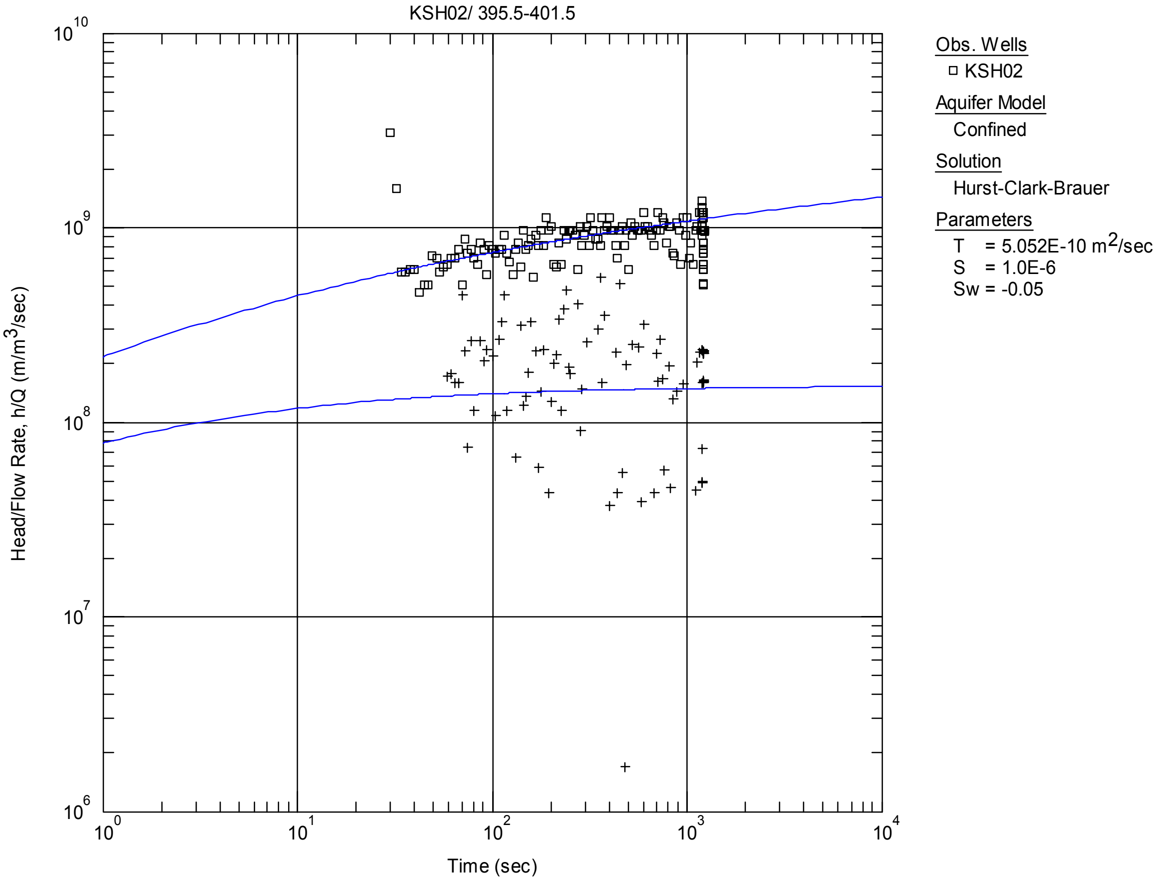
Recovery phase, lin-log match.

Test 396.5–401.5 m

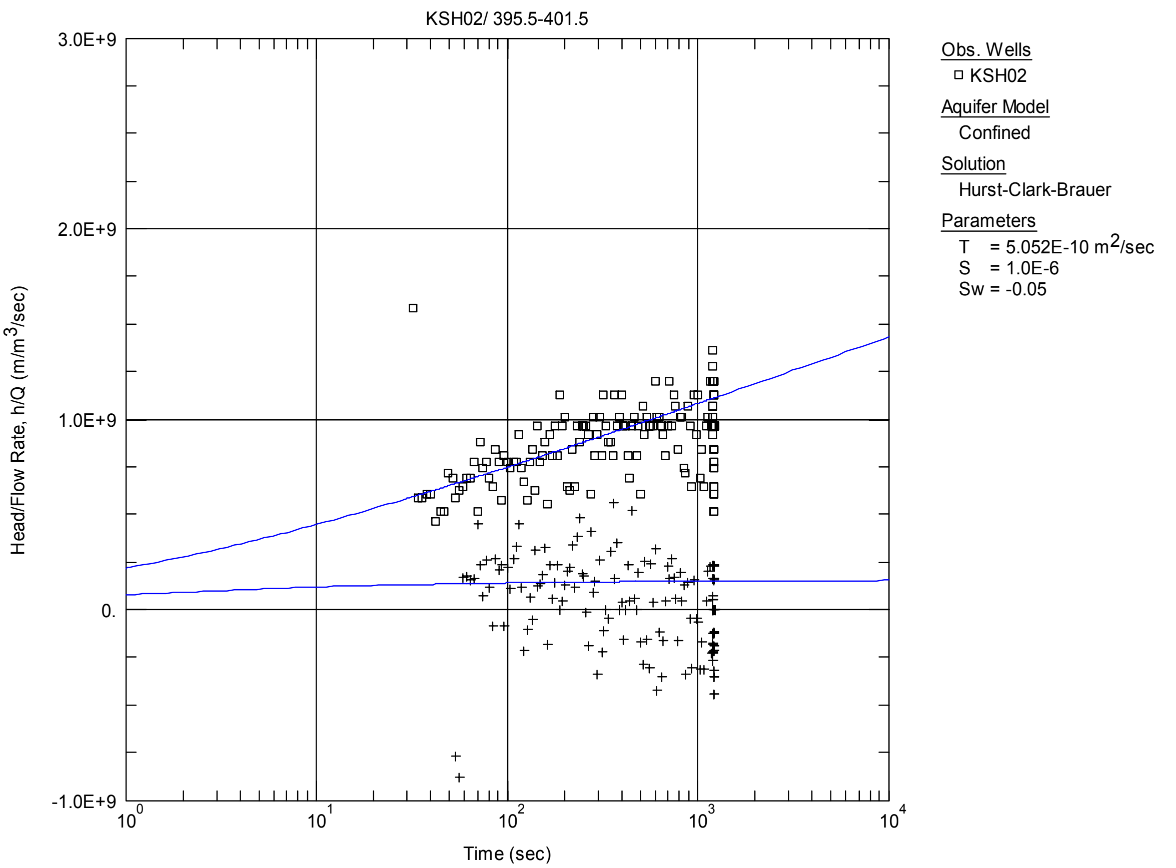
Analysis Diagram



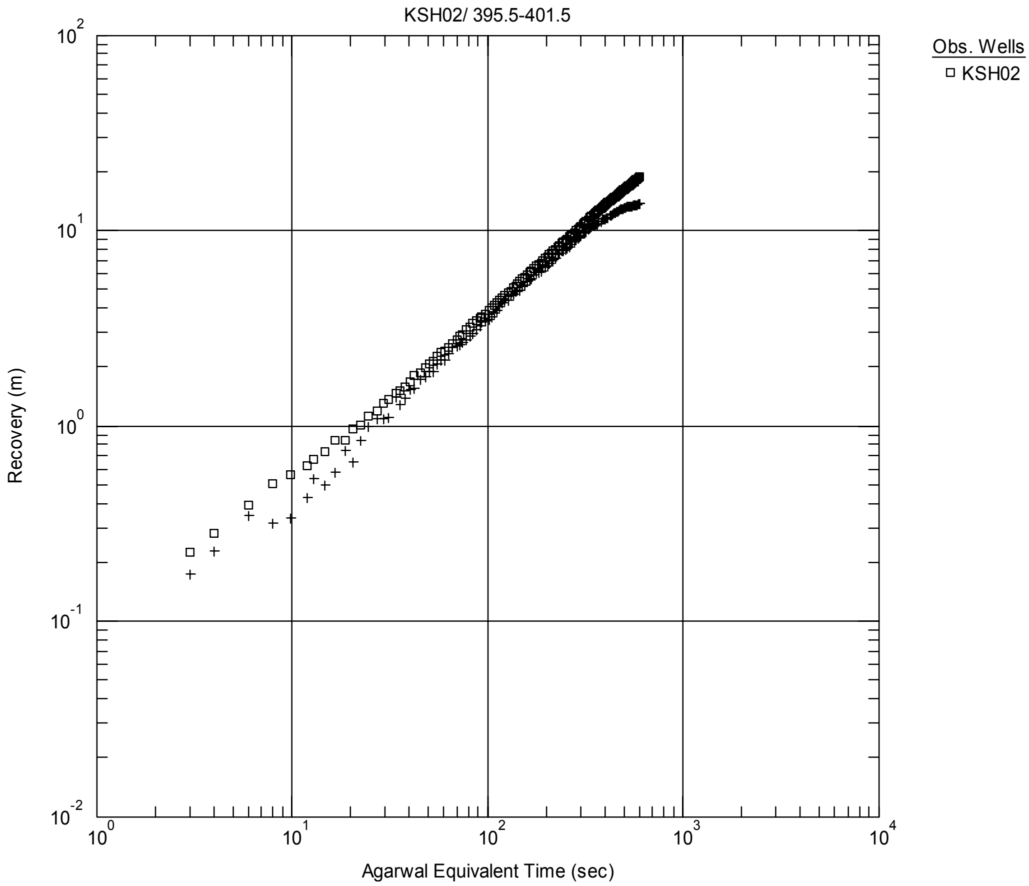
Pressure and flow rate vs. time.



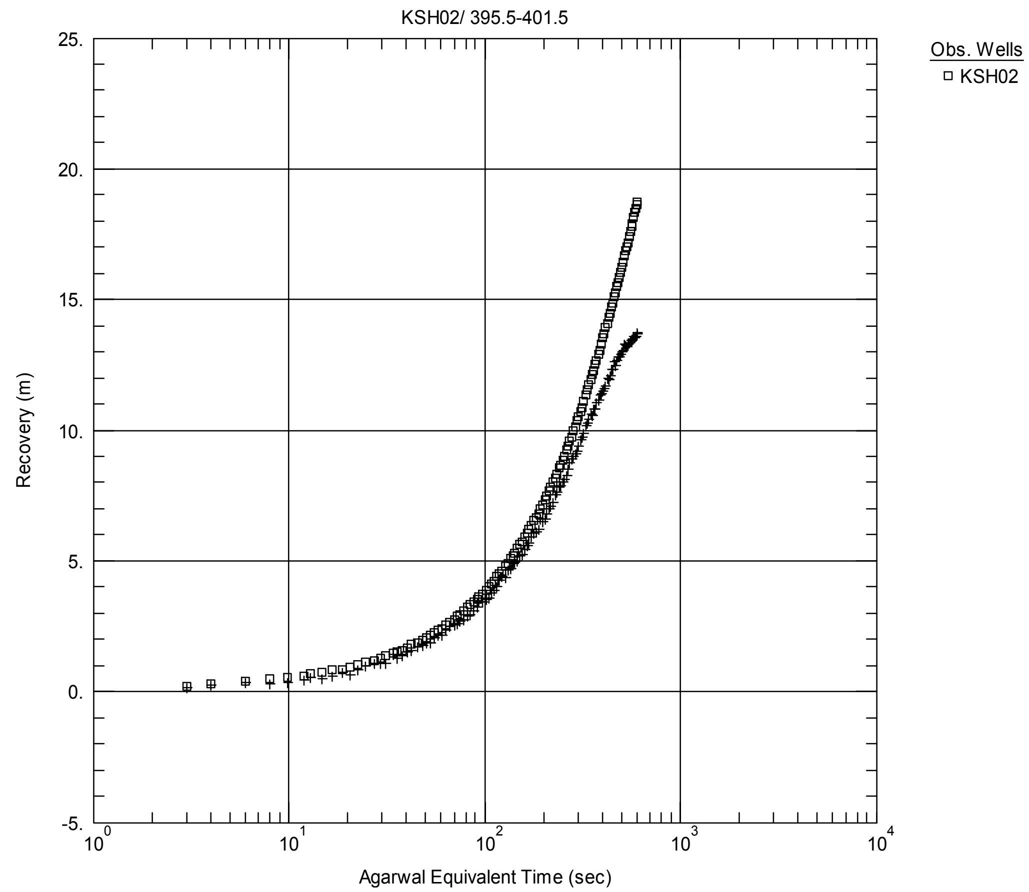
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



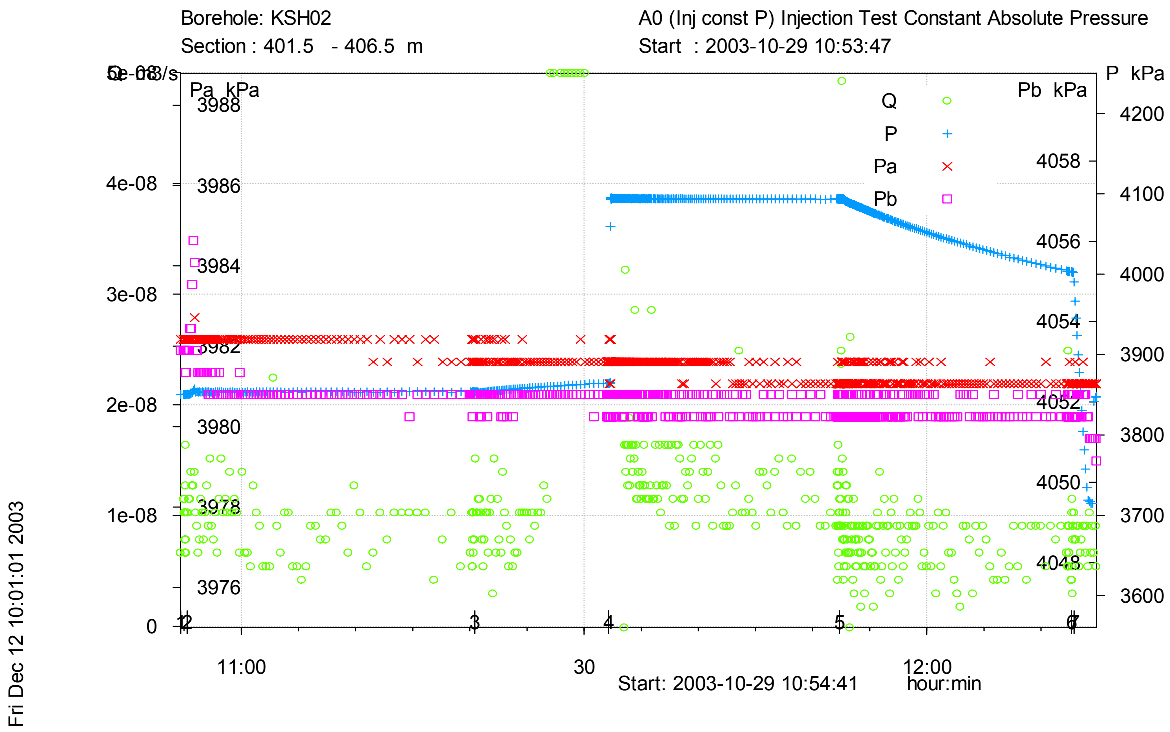
Recovery phase, log-log match.



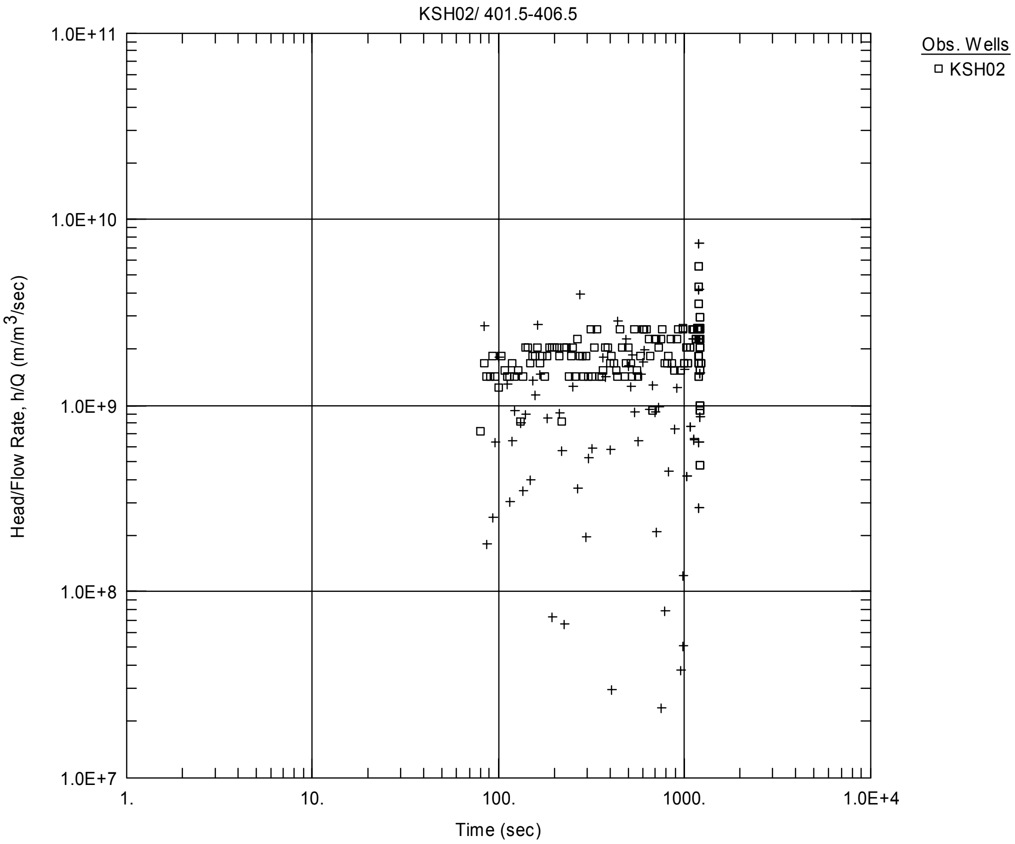
Recovery phase, lin-log match.

Test 401.5–406.5 m

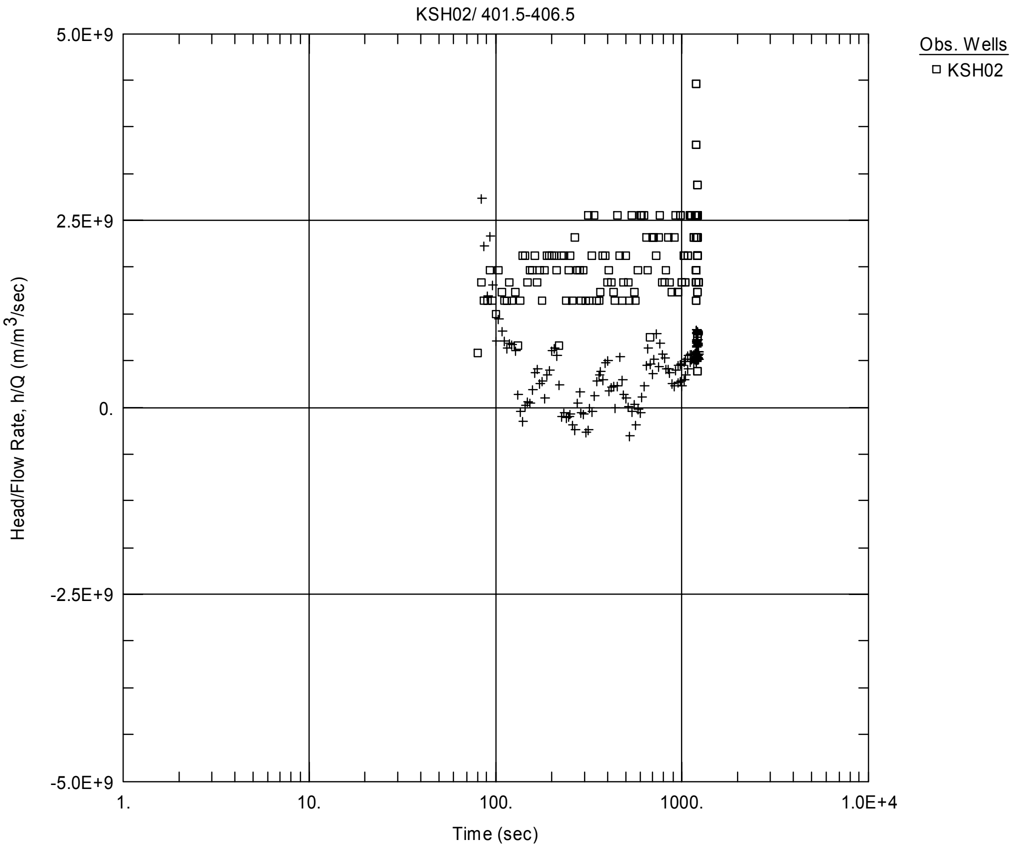
Analysis Diagram



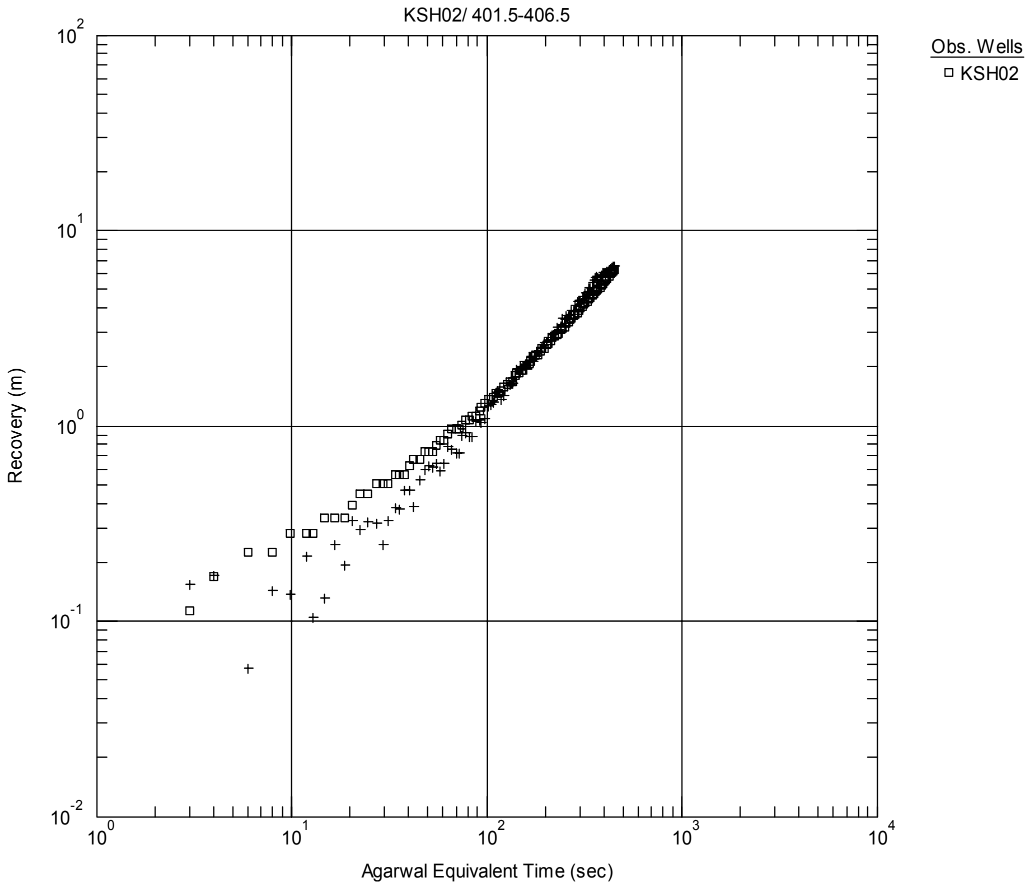
Pressure and flow rate vs. time.



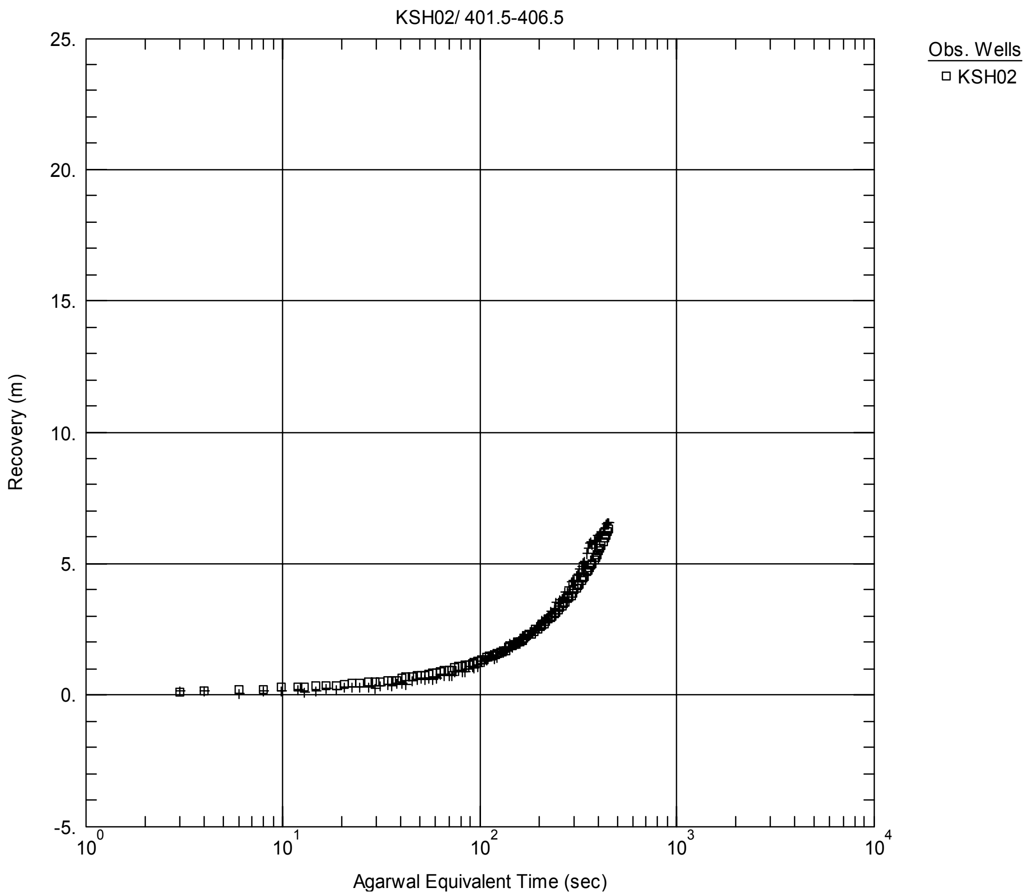
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



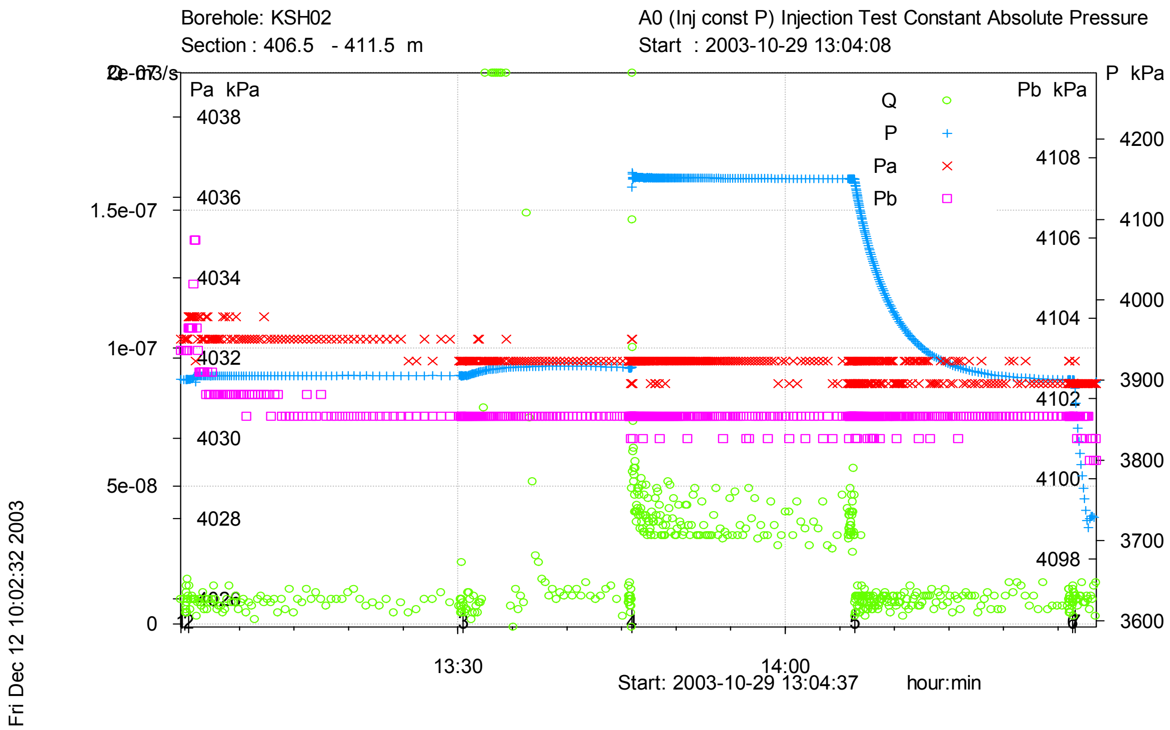
Recovery phase, log-log match.



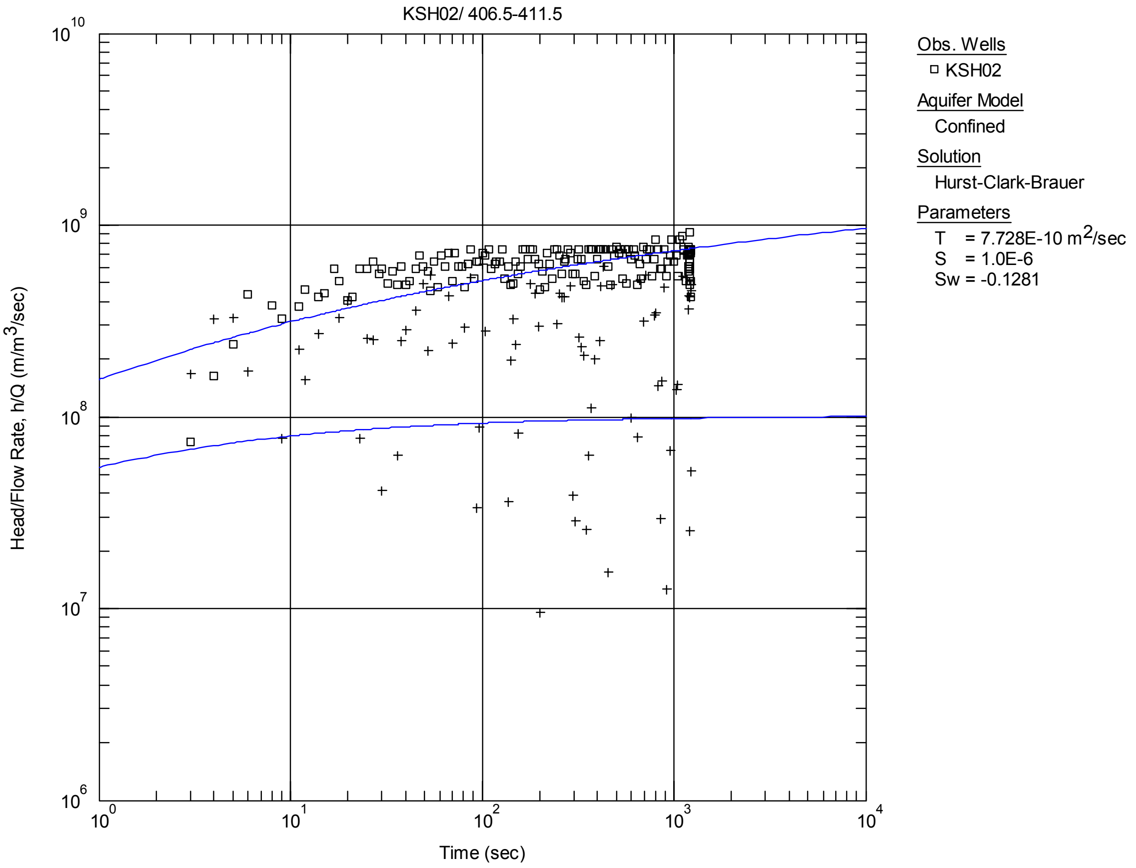
Recovery phase, lin-log match.

Test 406.5–411.5 m

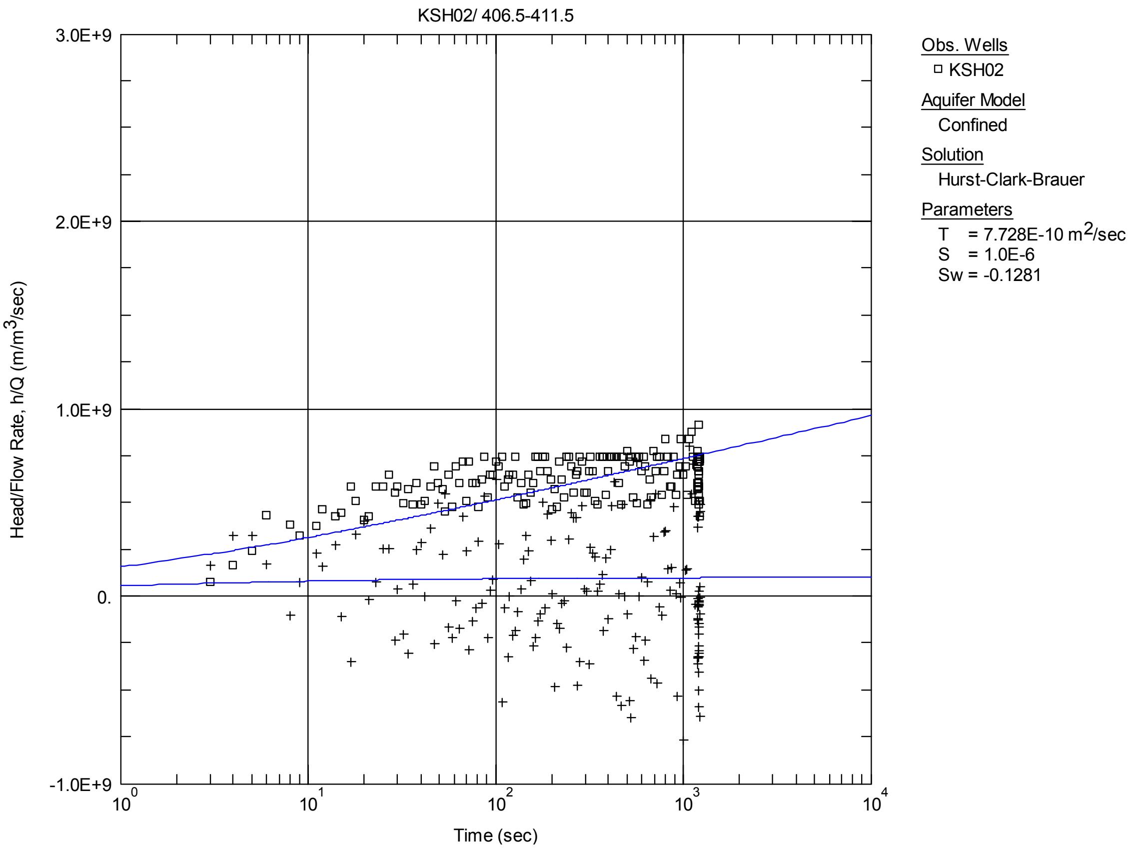
Analysis Diagram



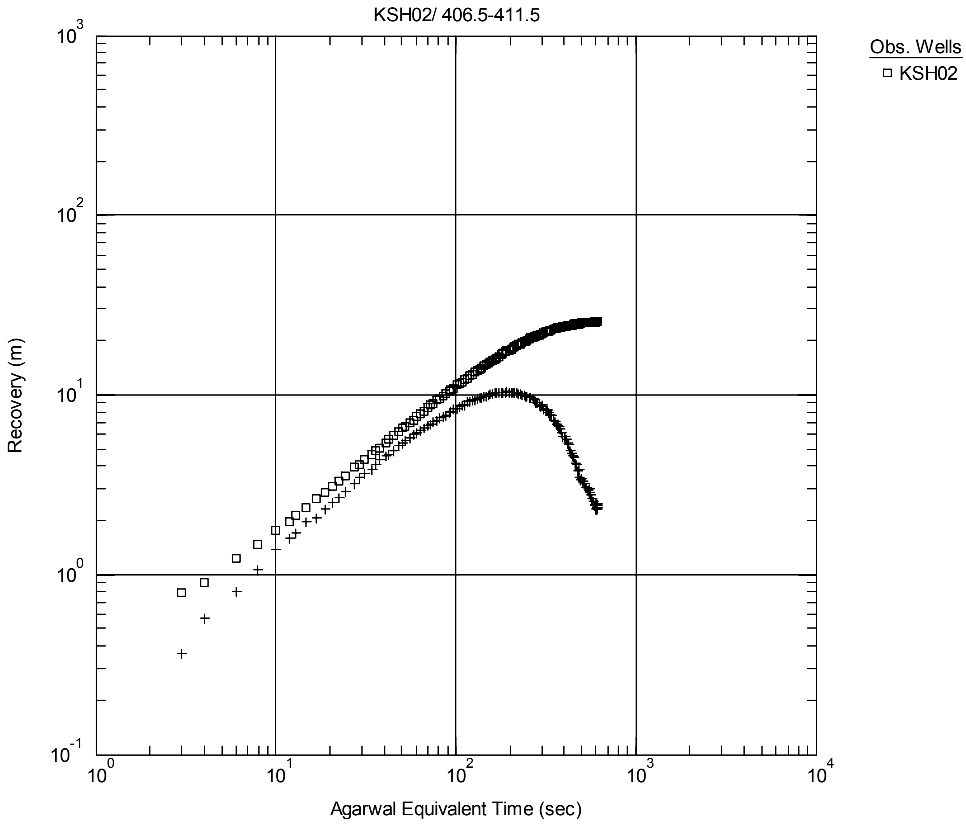
Pressure and flow rate vs. time.



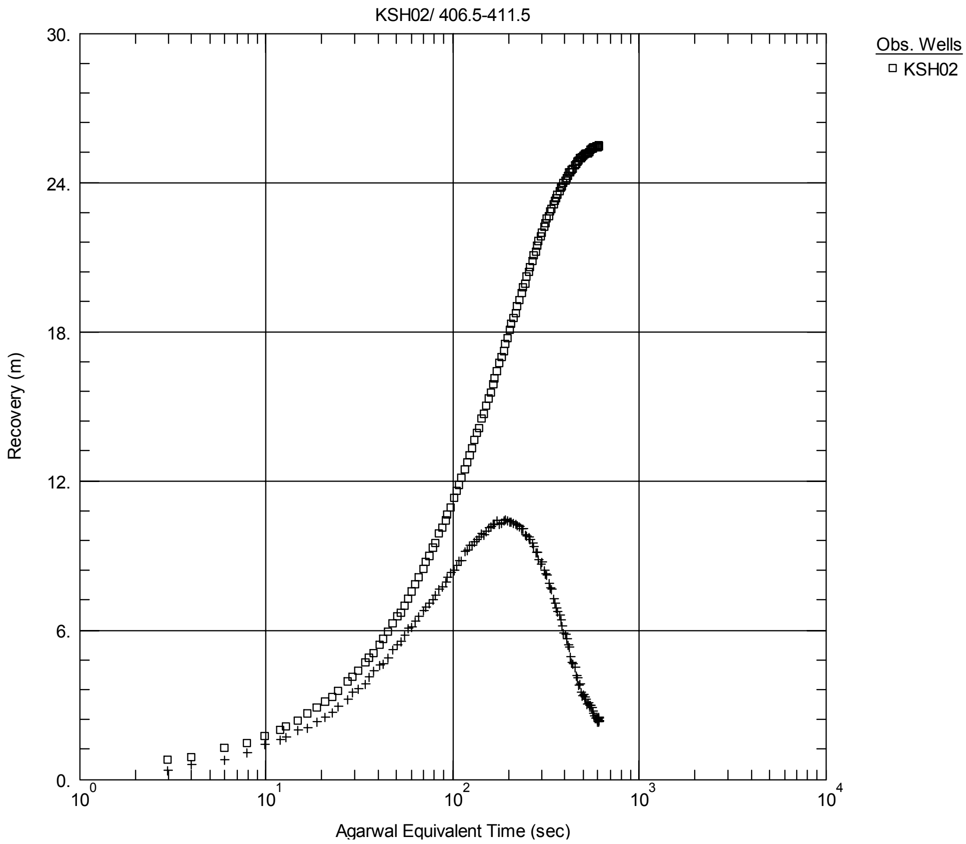
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



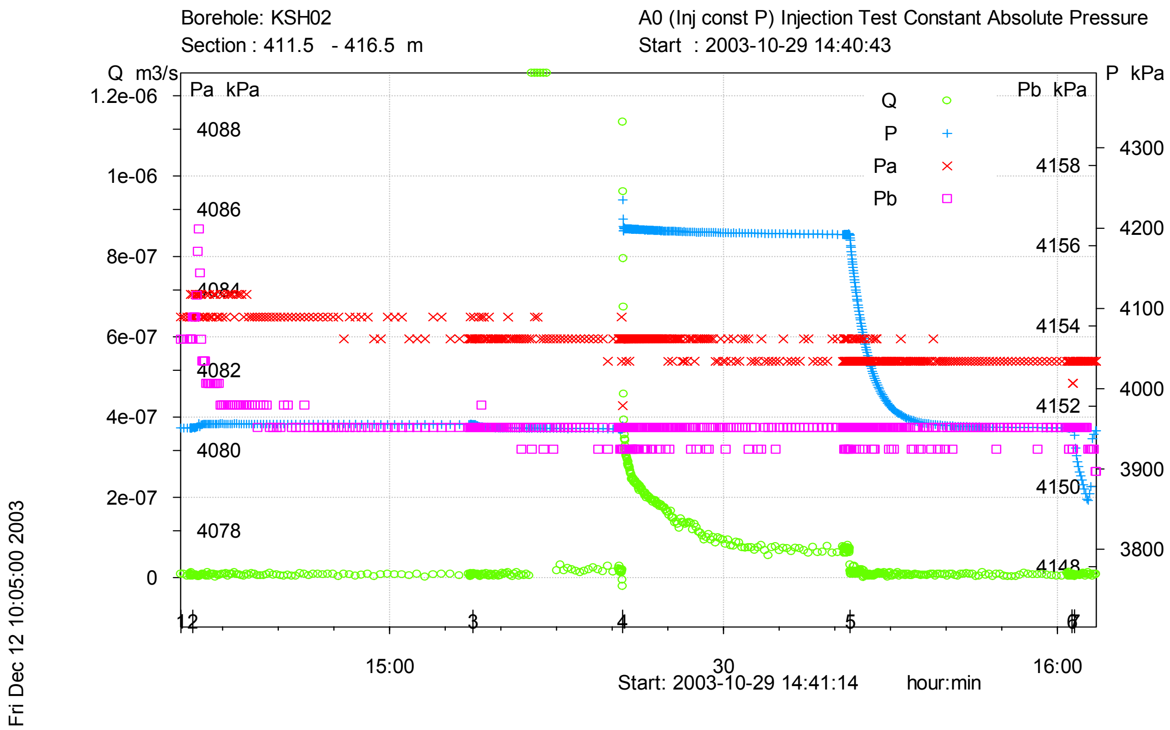
Recovery phase, log-log match.



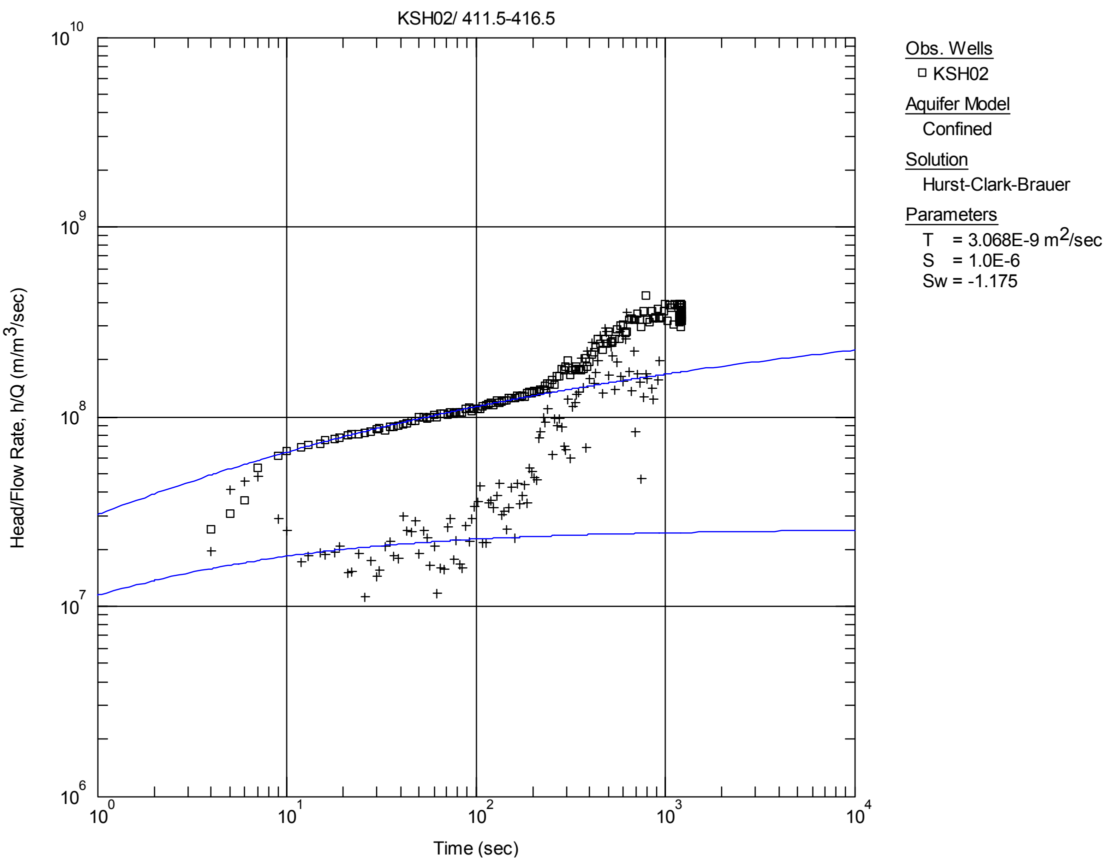
Recovery phase, lin-log match.

Test 411.5–416.5 m

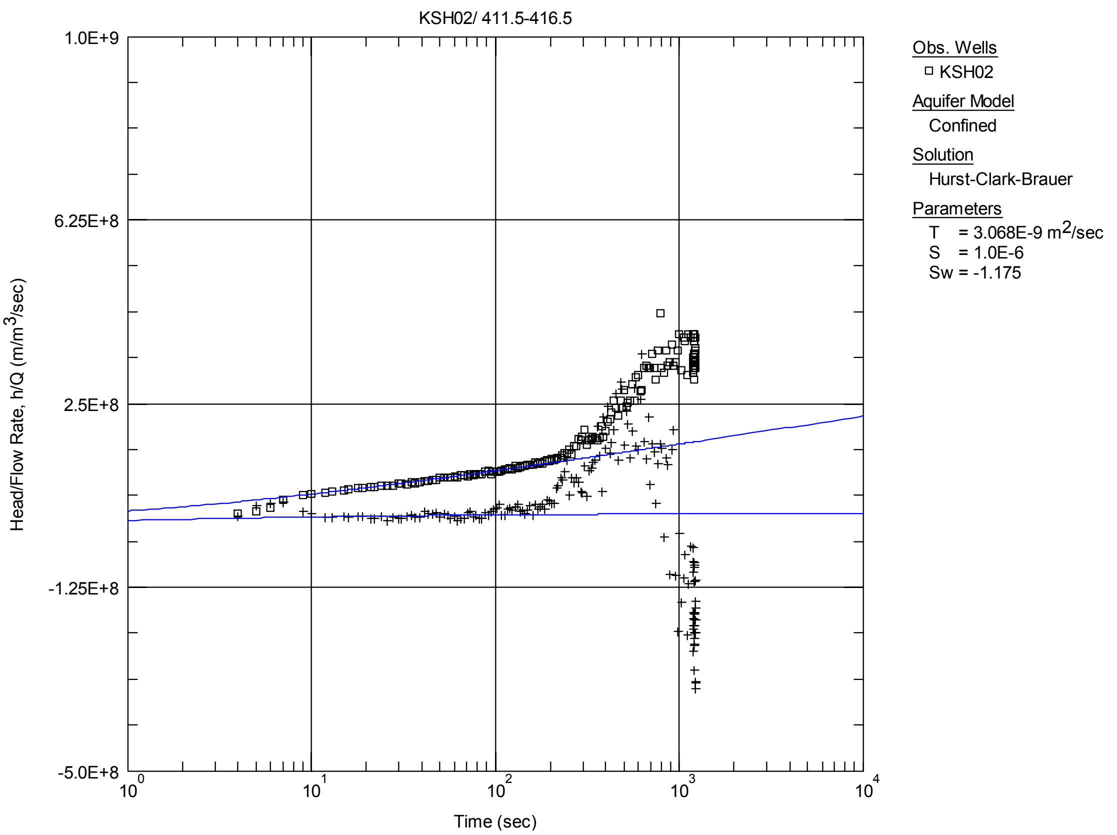
Analysis Diagram



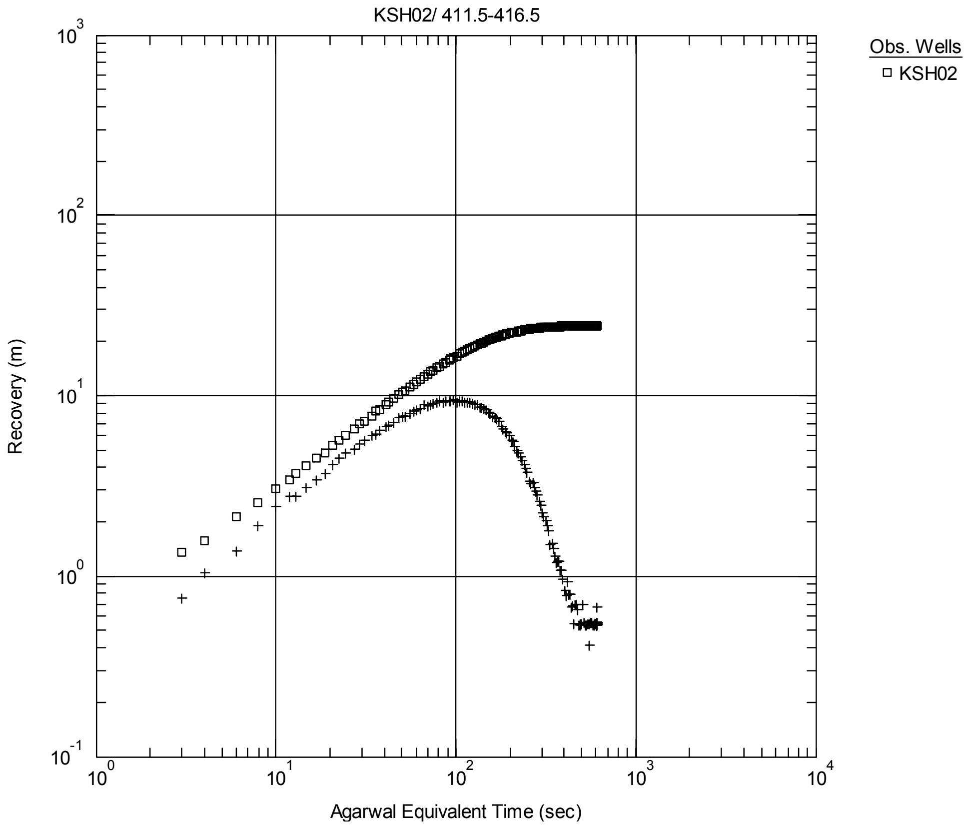
Pressure and flow rate vs. time.



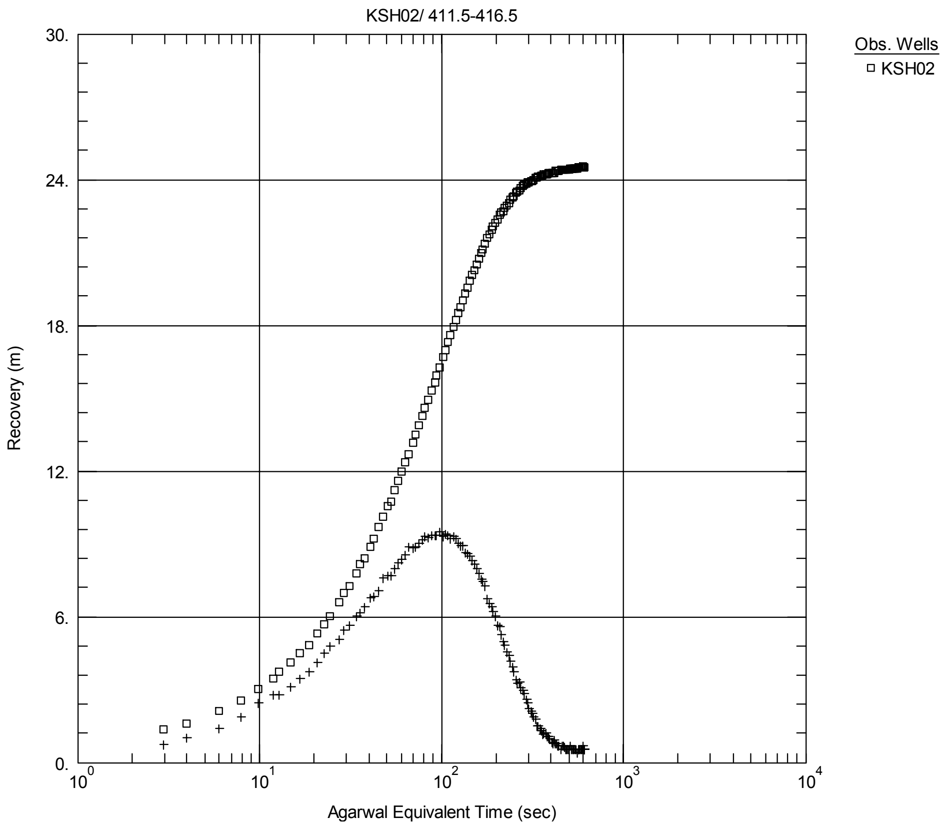
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



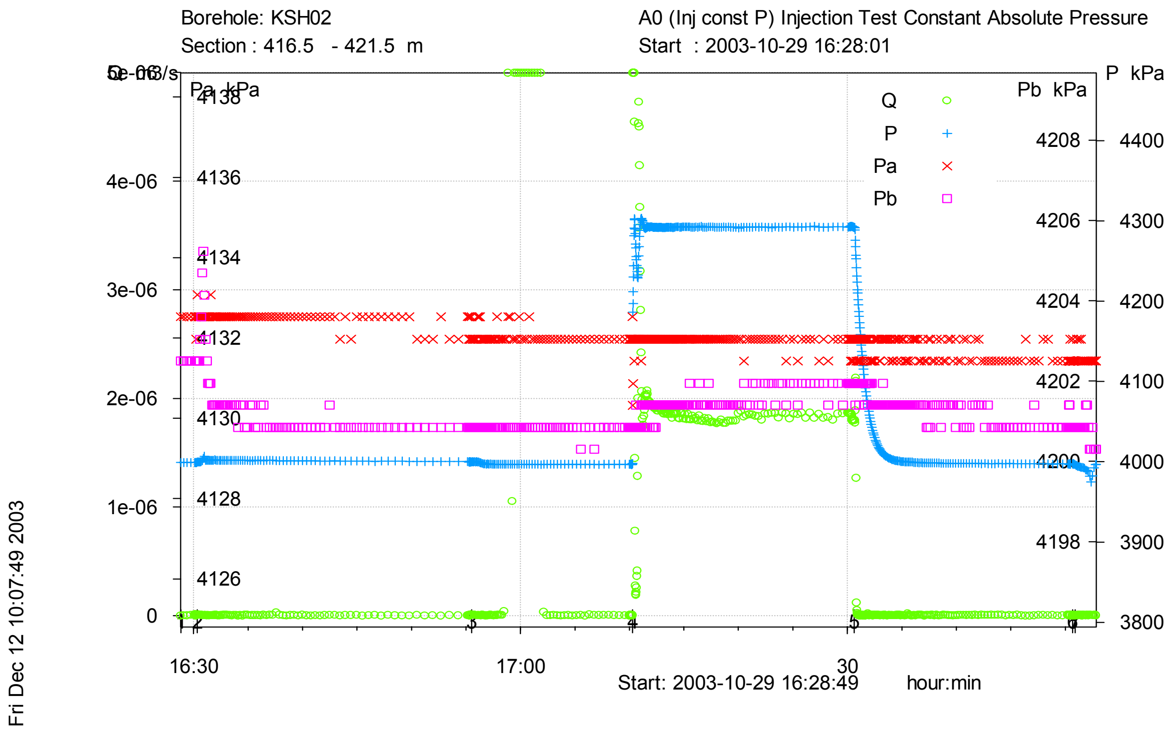
Recovery phase, log-log match.



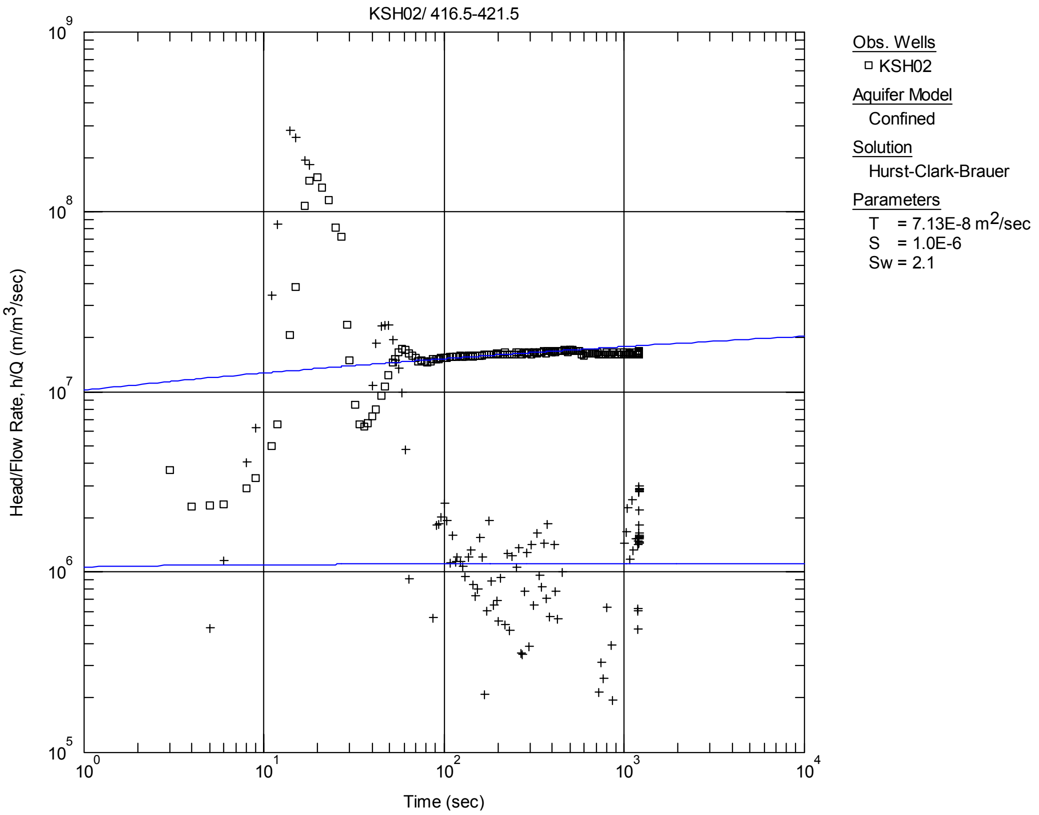
Recovery phase, lin-log match.

Test 416.5–421.5 m

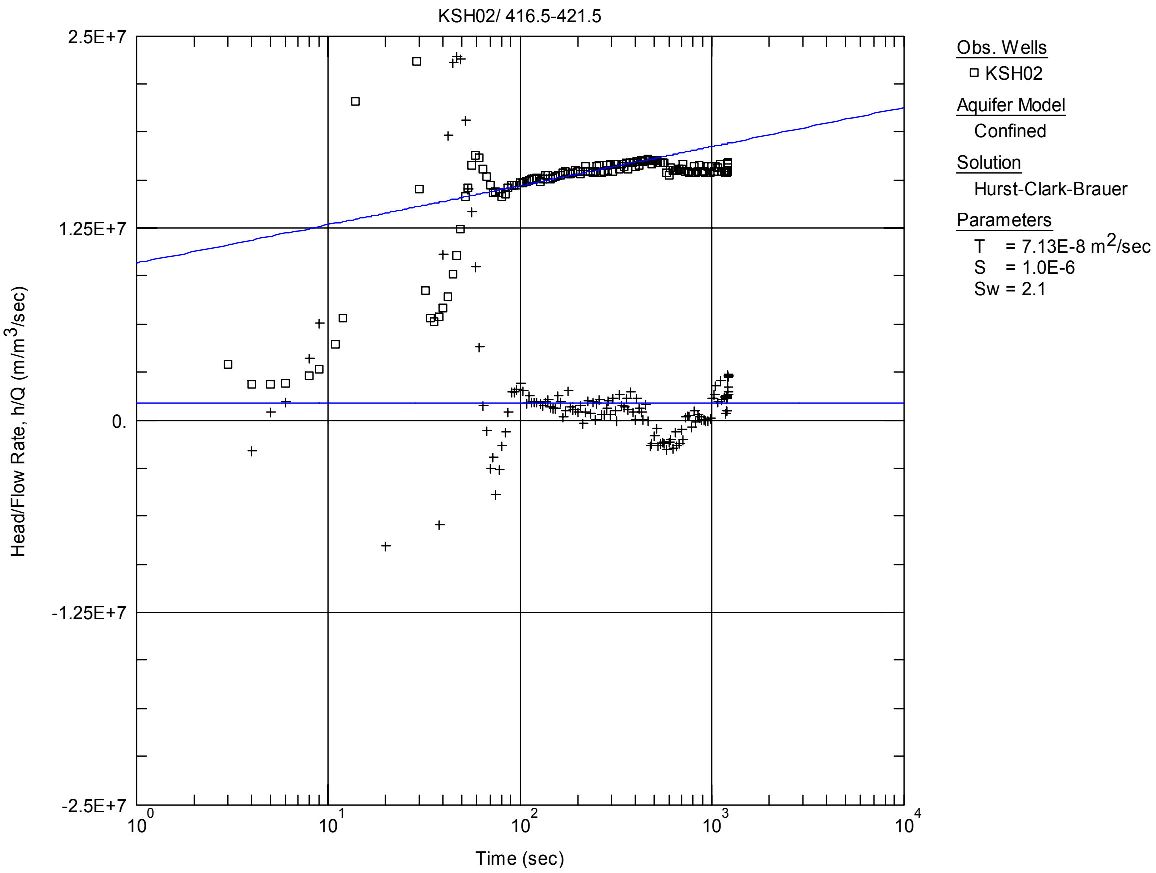
Analysis Diagram



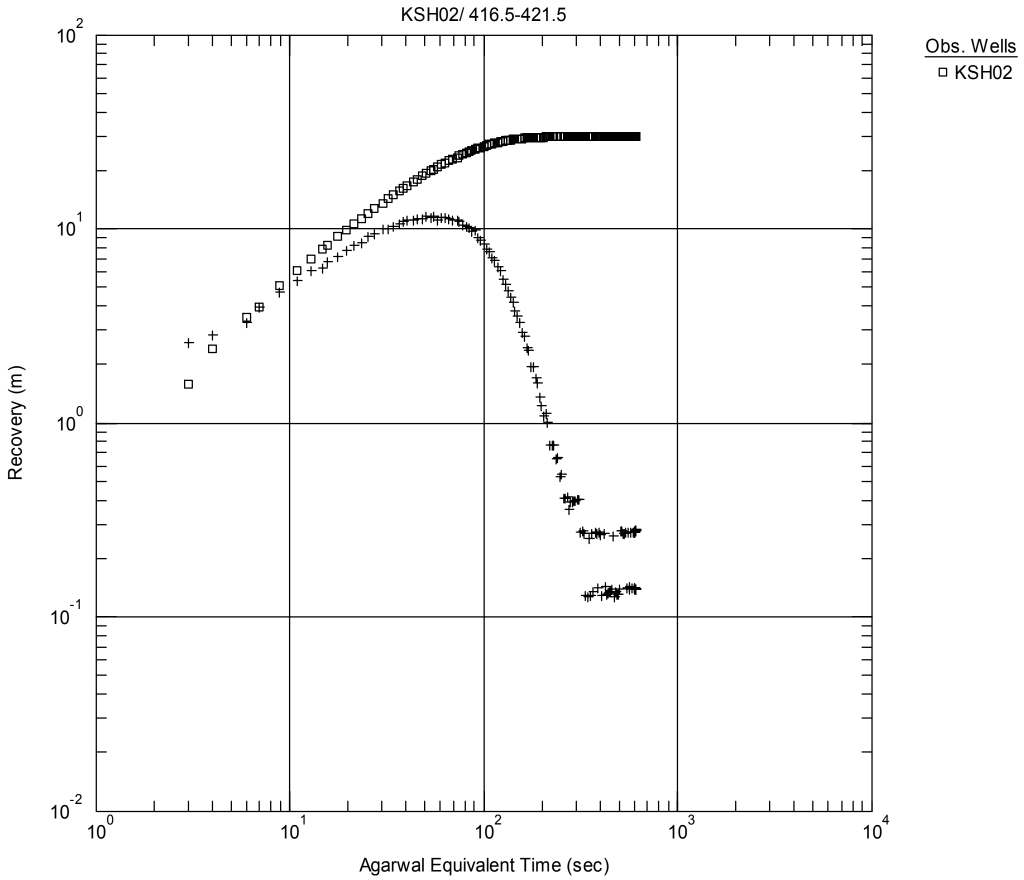
Pressure and flow rate vs. time.



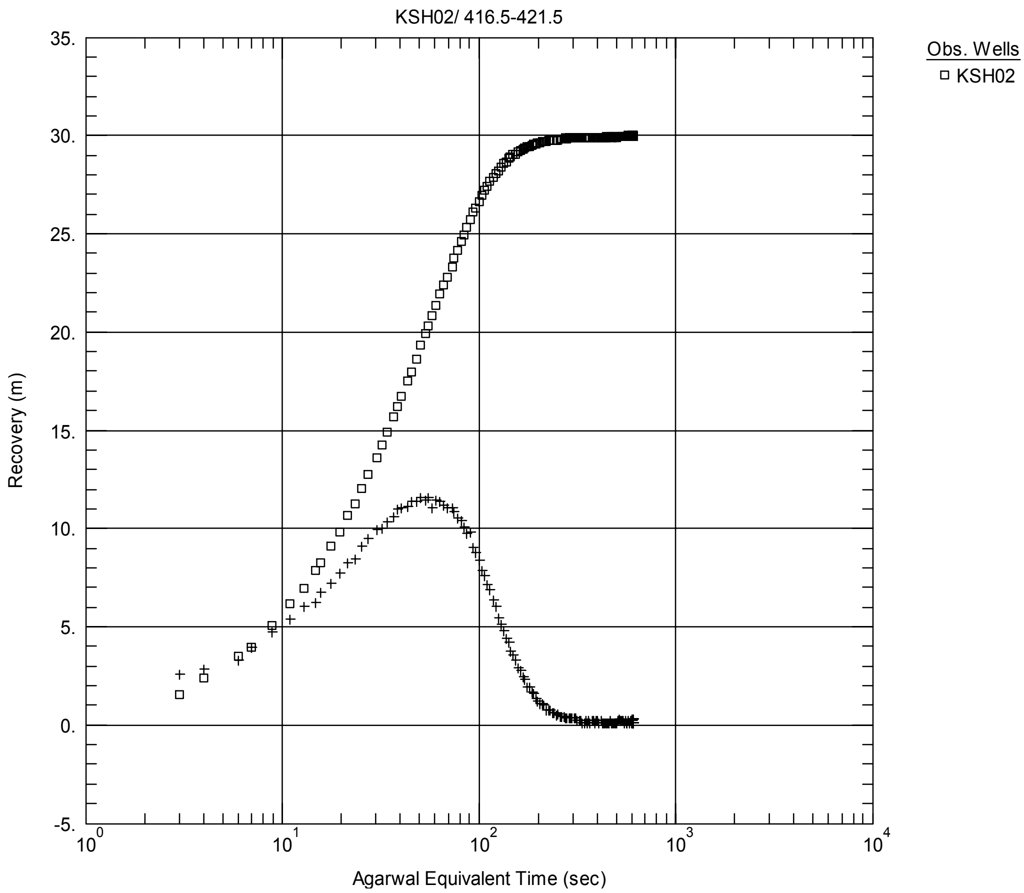
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



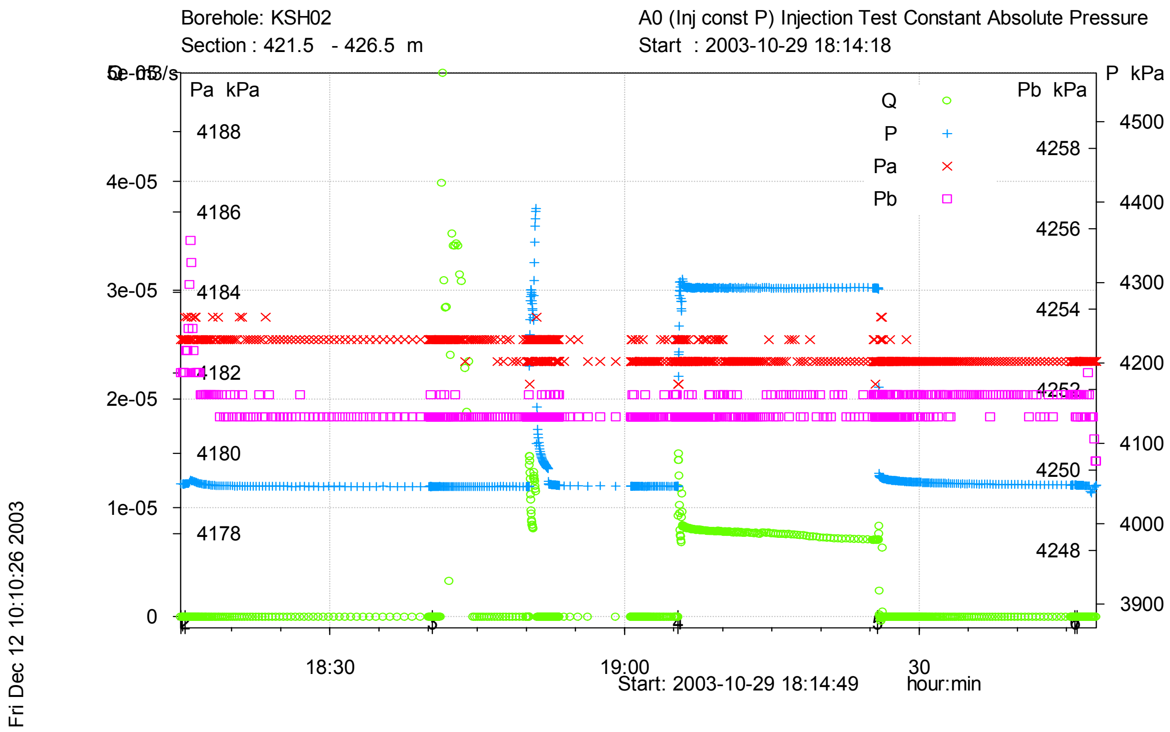
Recovery phase, log-log match.



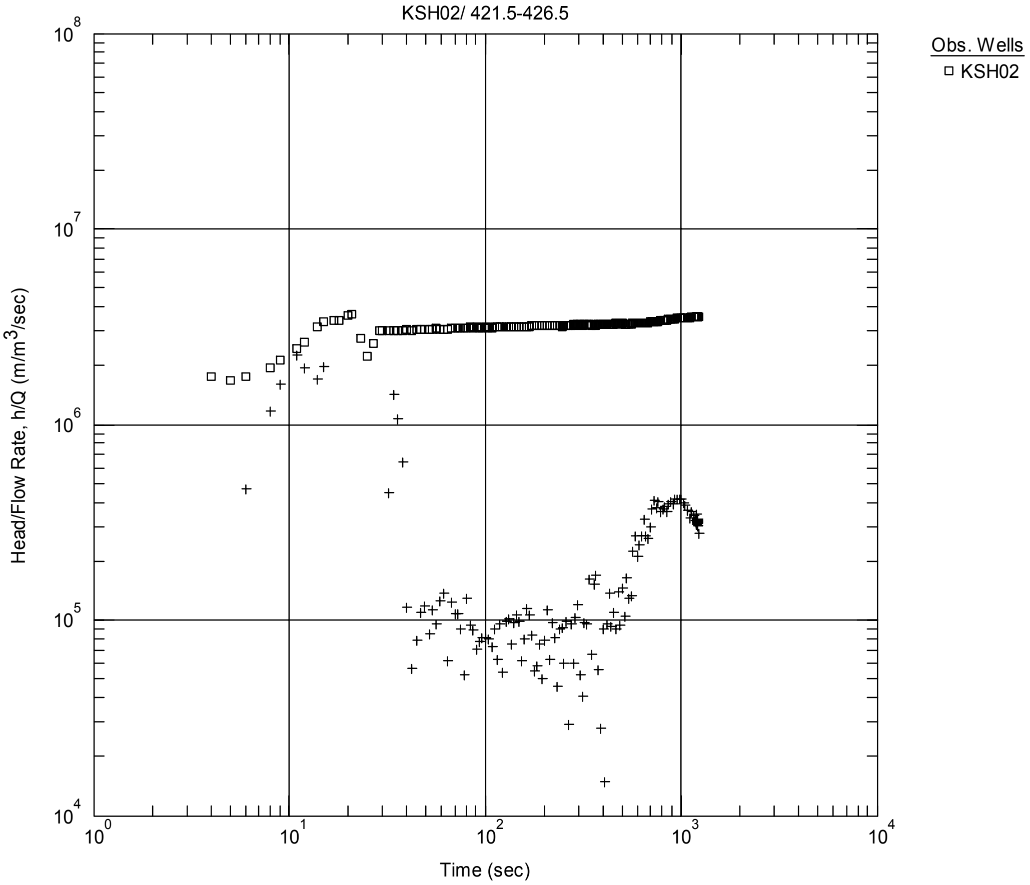
Recovery phase, lin-log match.

Test 421.5–426.5 m

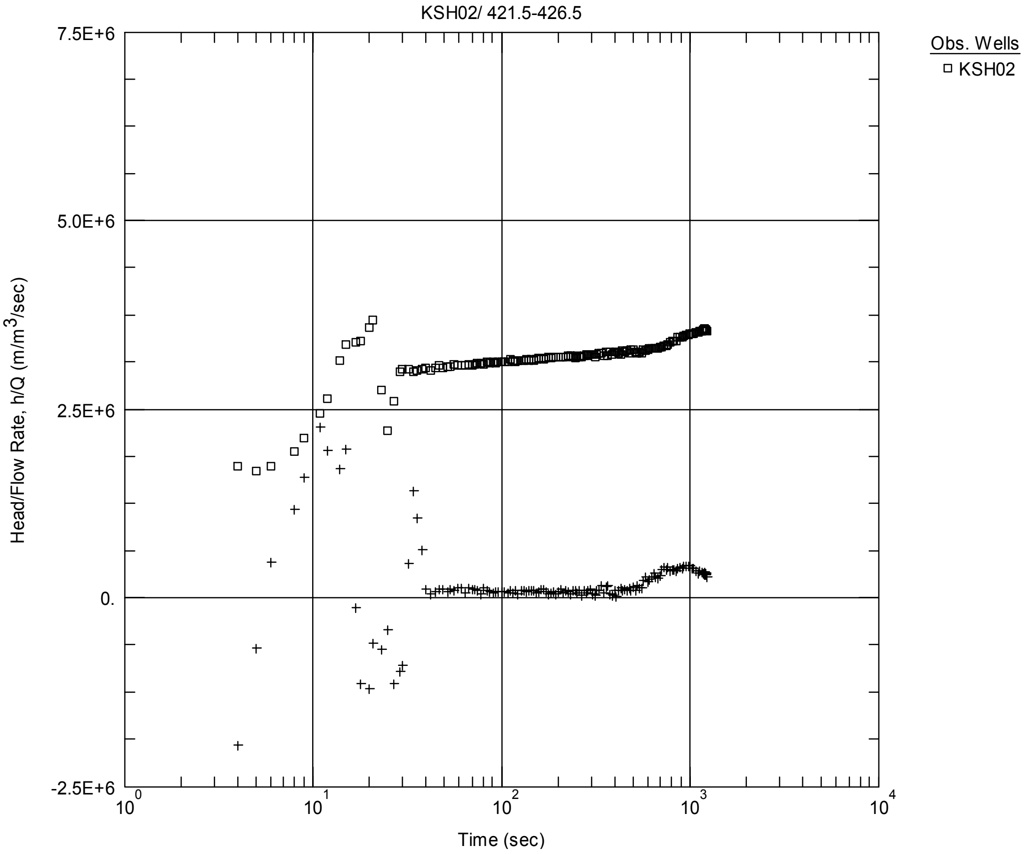
Analysis Diagram



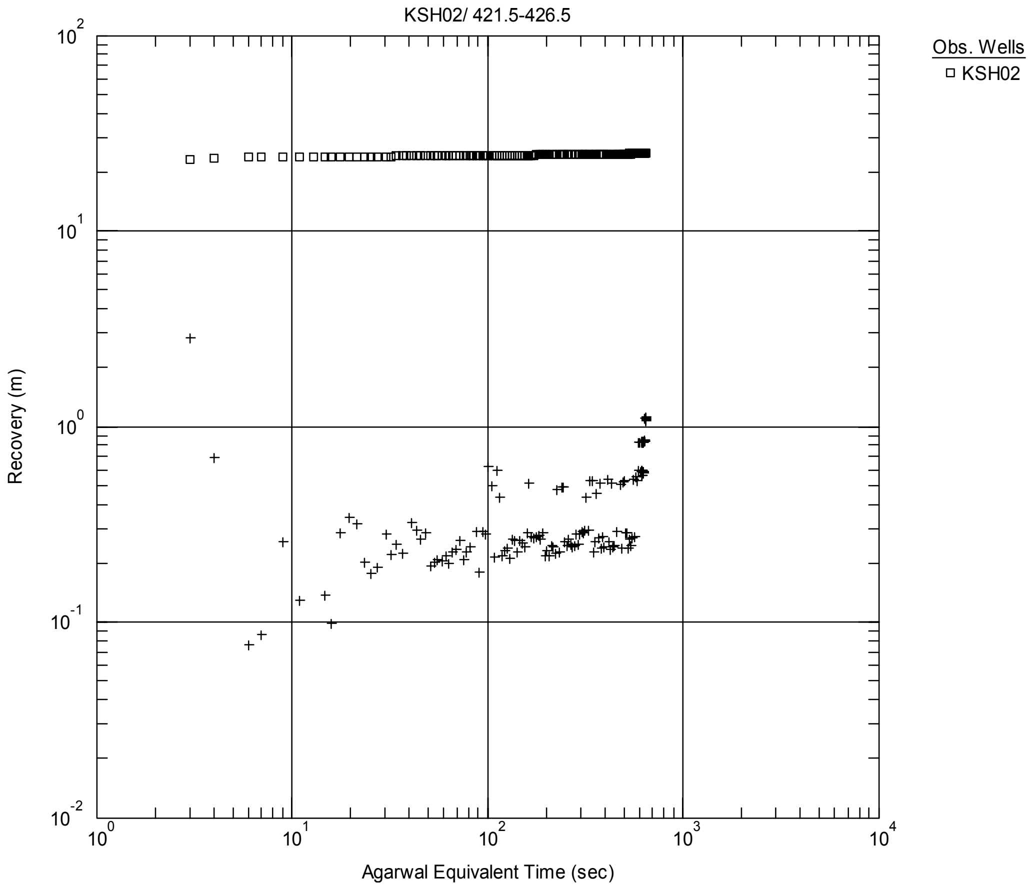
Pressure and flow rate vs. time.



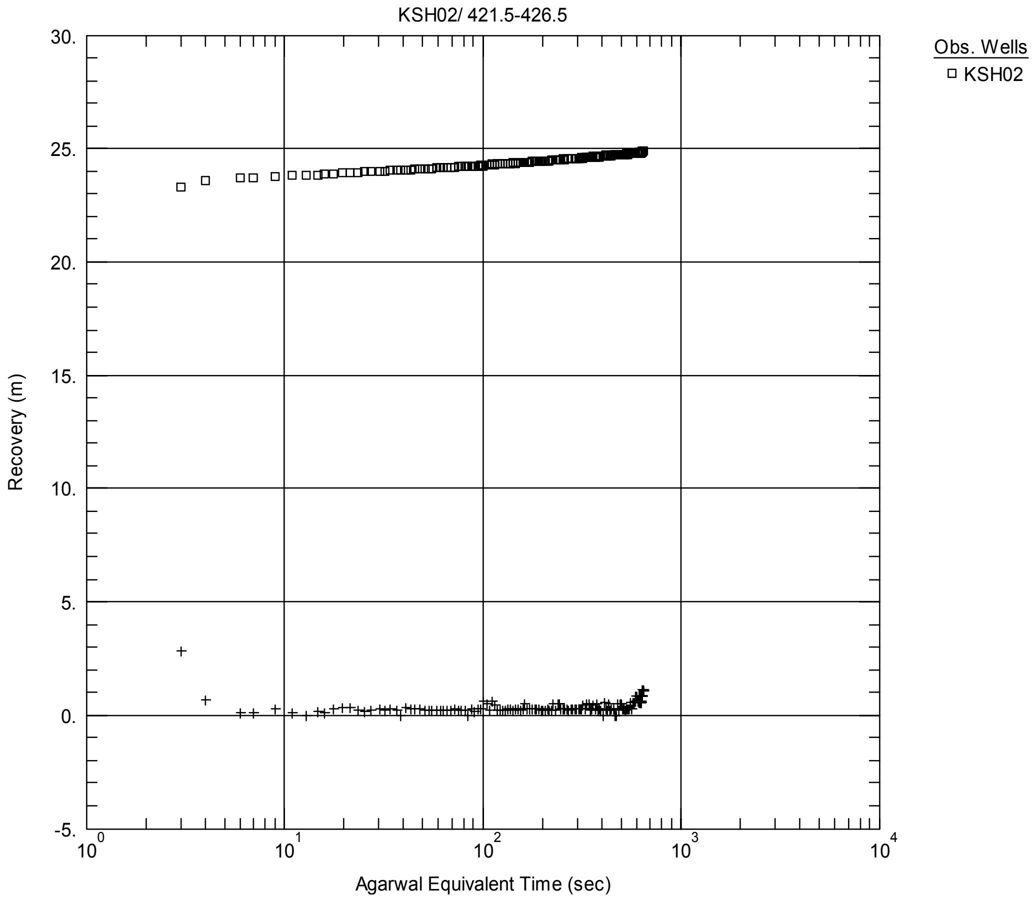
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



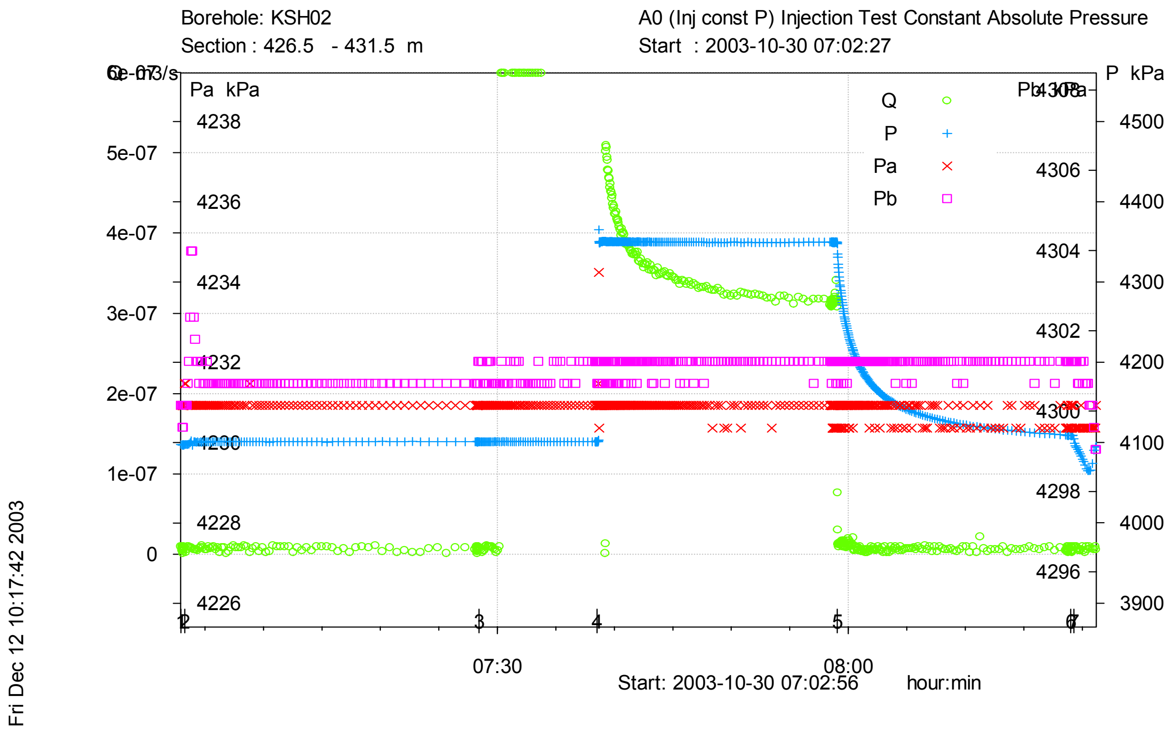
Recovery phase, log-log match.



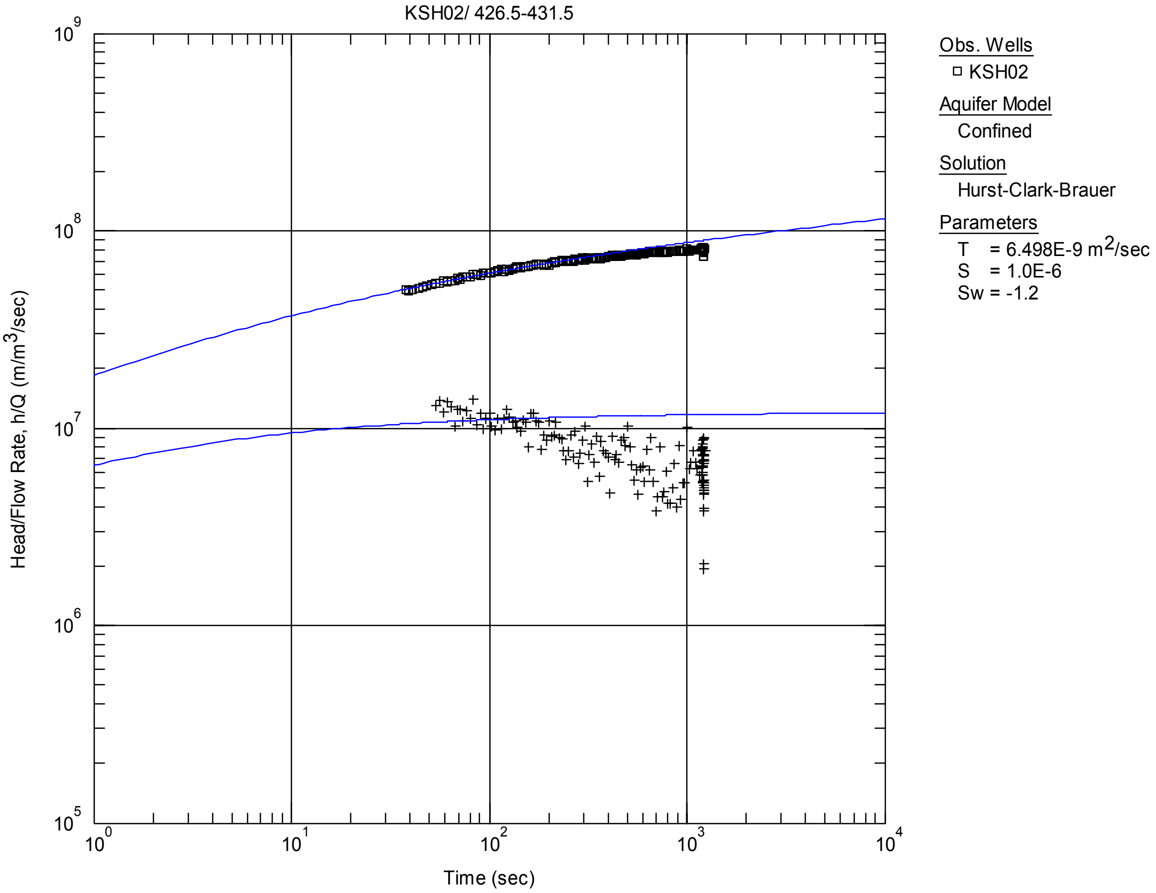
Recovery phase, lin-log match.

Test 426.5–431.5 m

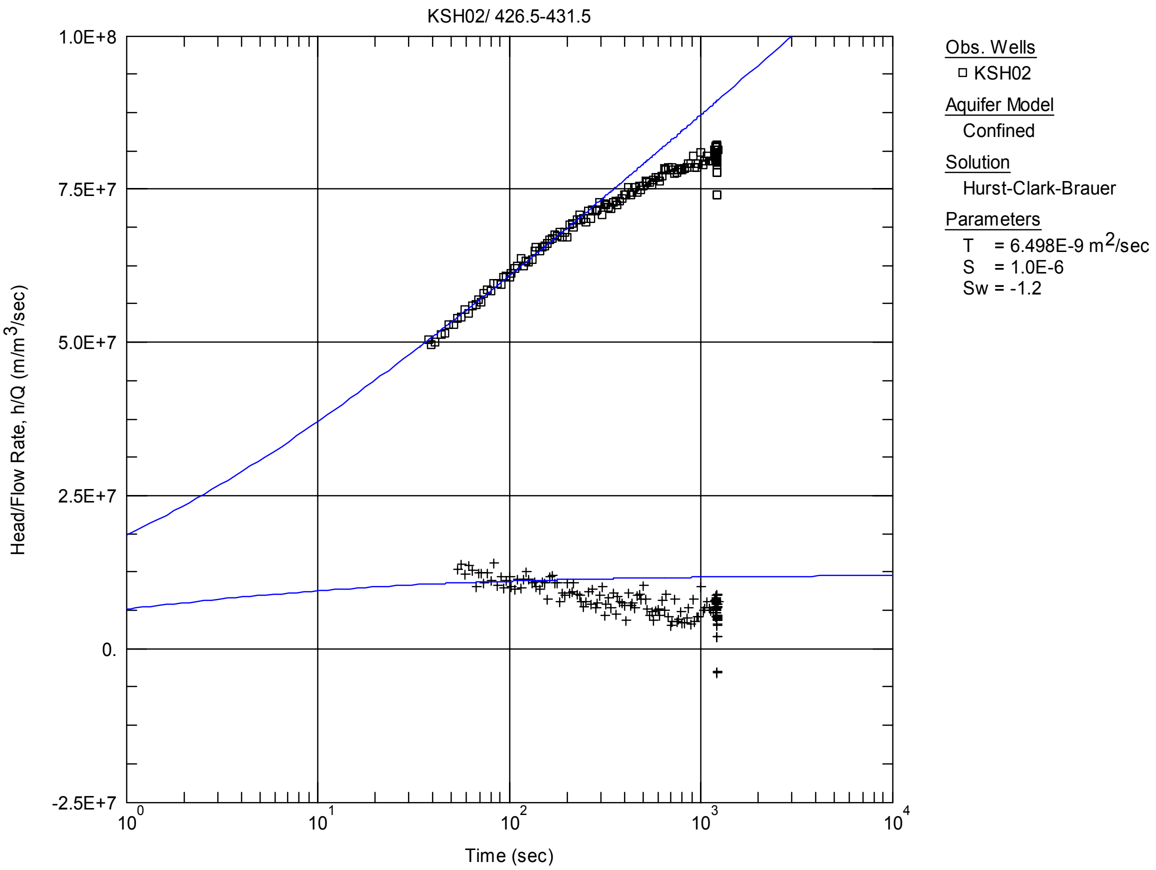
Analysis Diagram



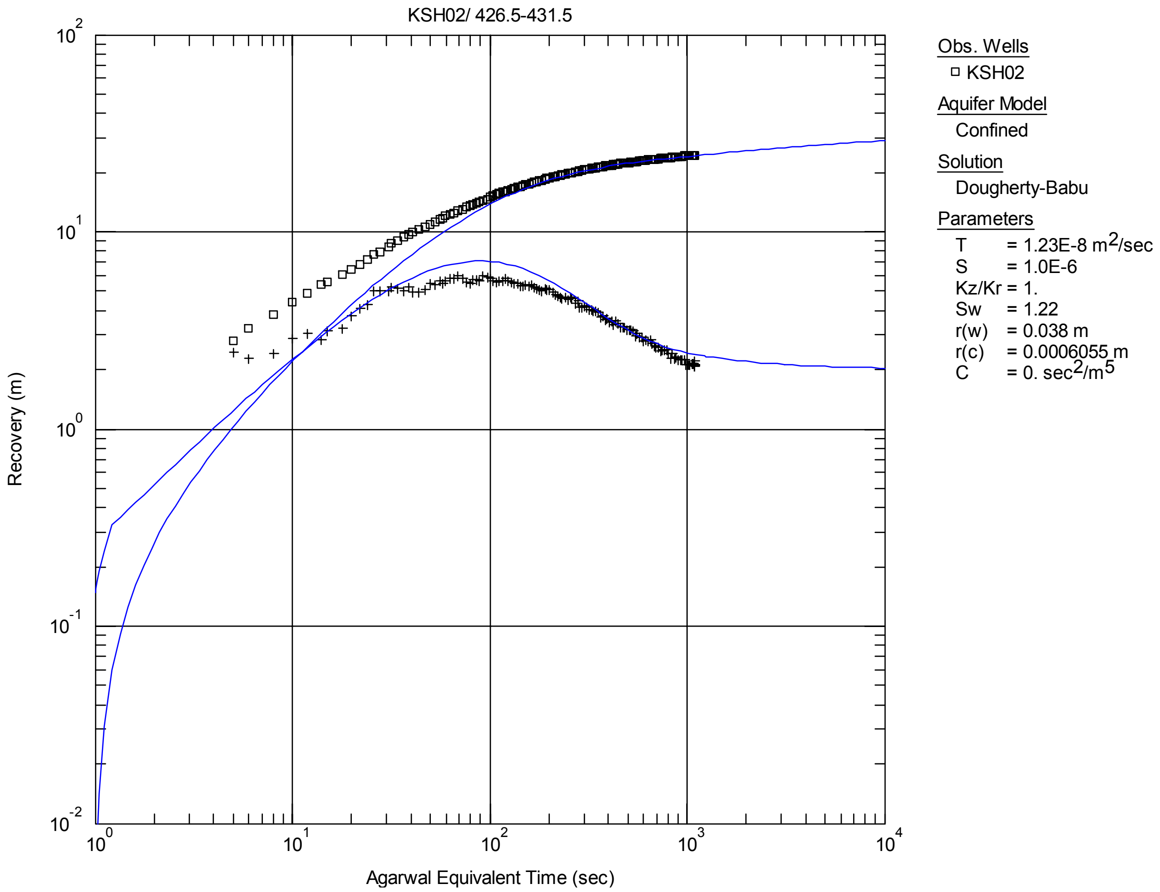
Pressure and flow rate vs. time.



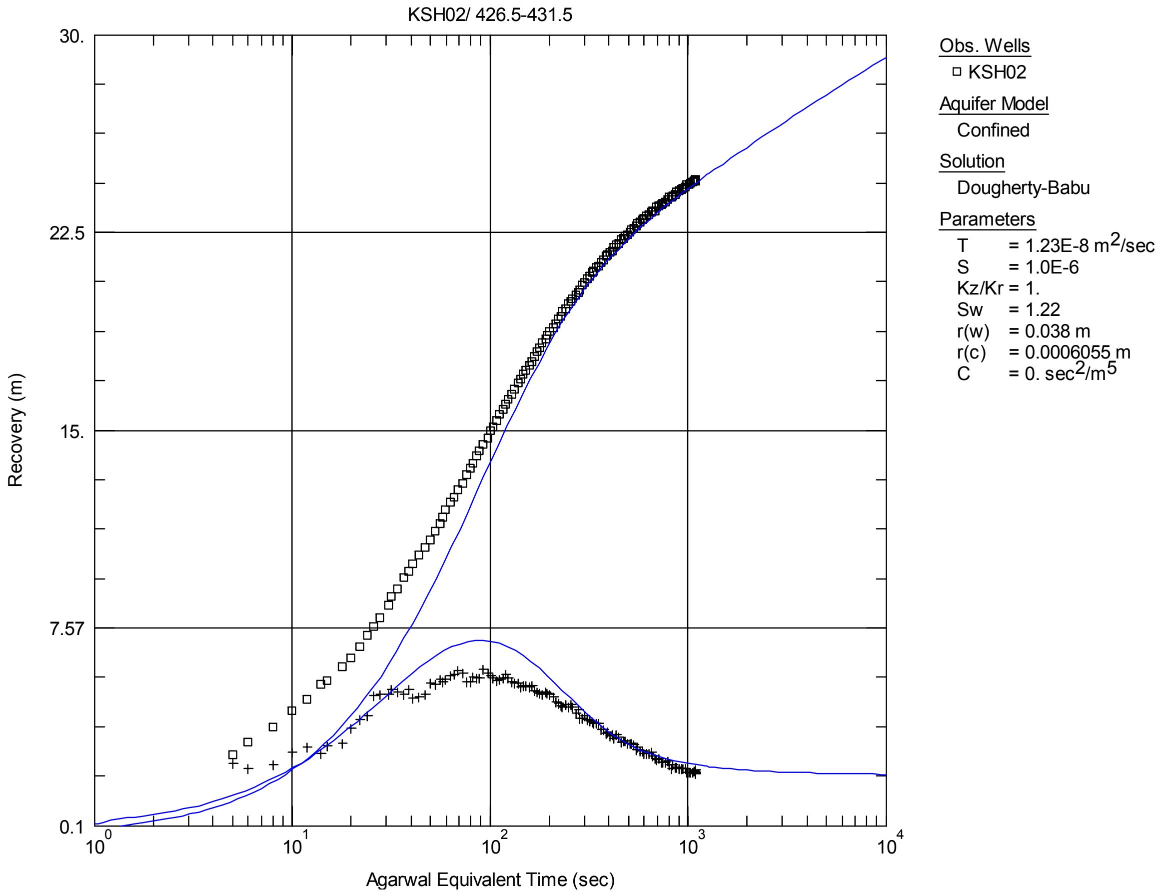
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



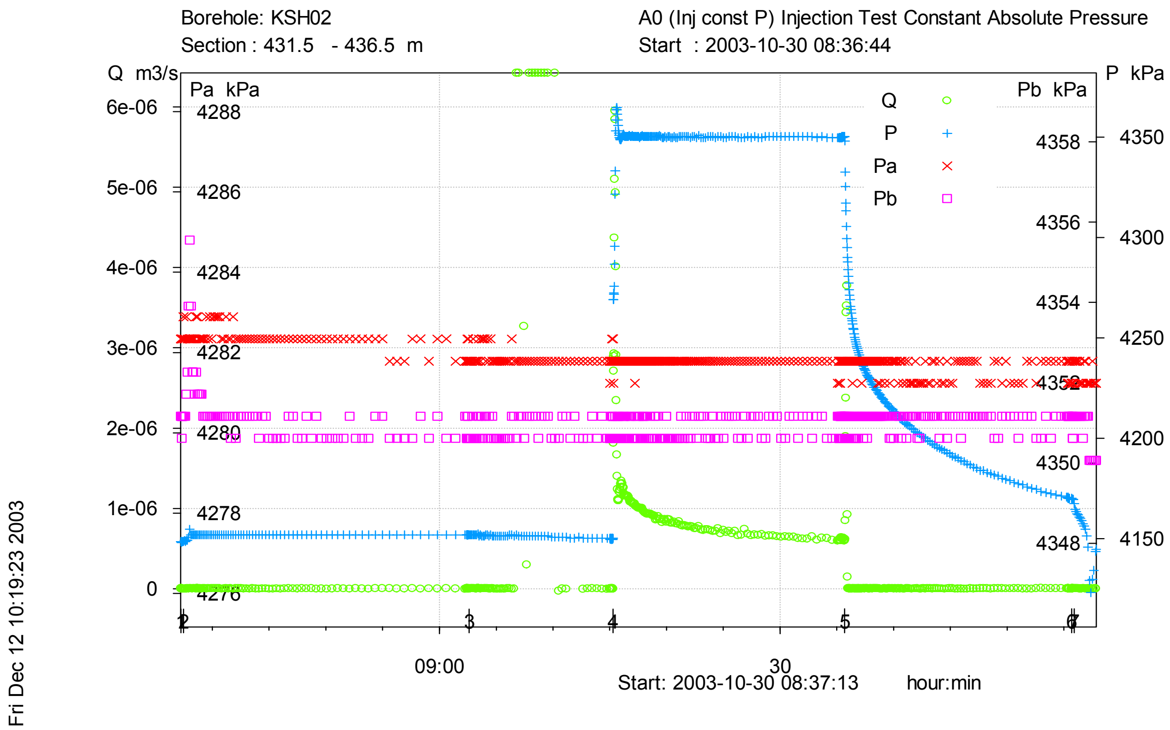
Recovery phase, log-log match.



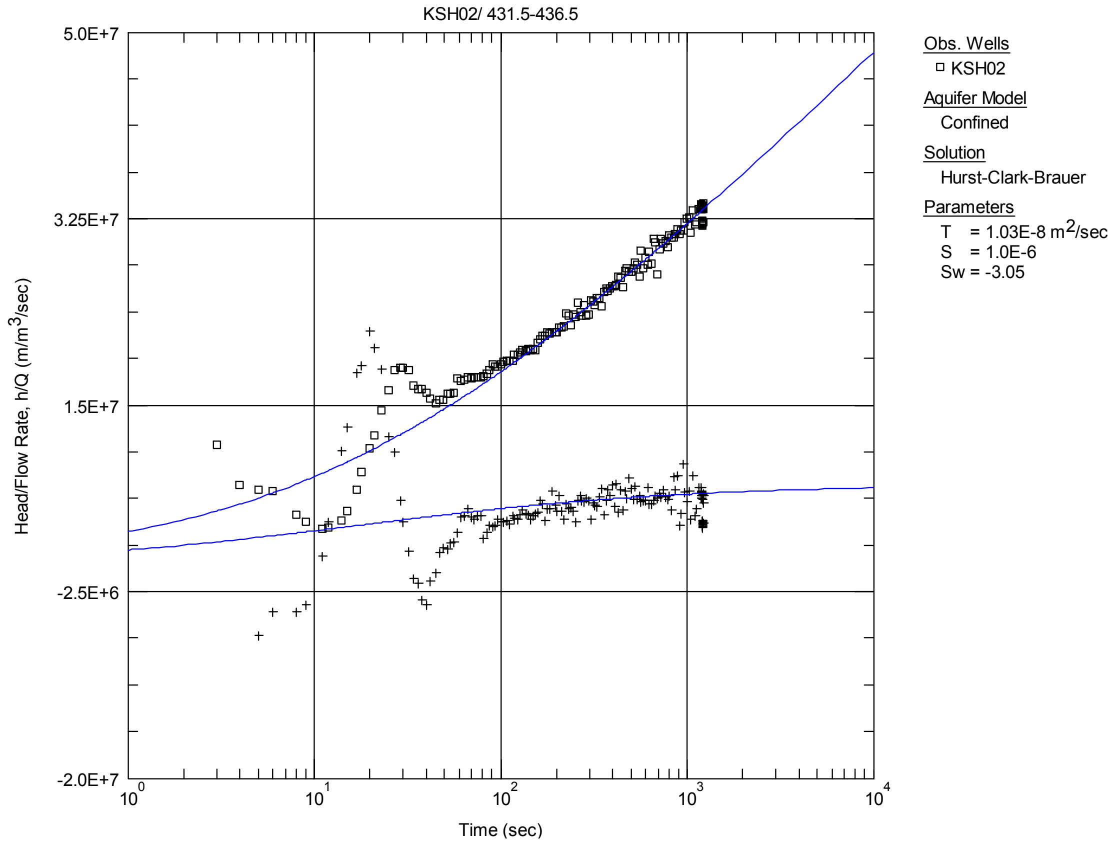
Recovery phase, lin-log match.

Test 431.5–436.5 m

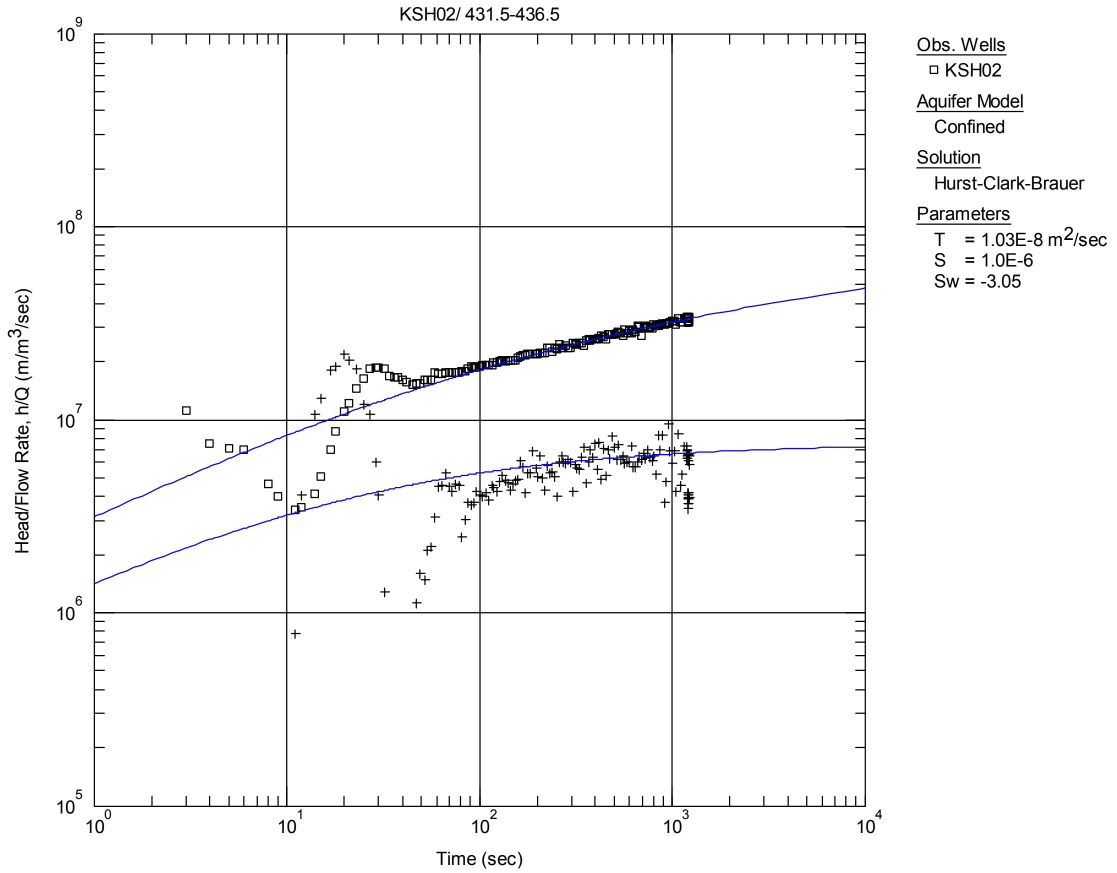
Analysis Diagram



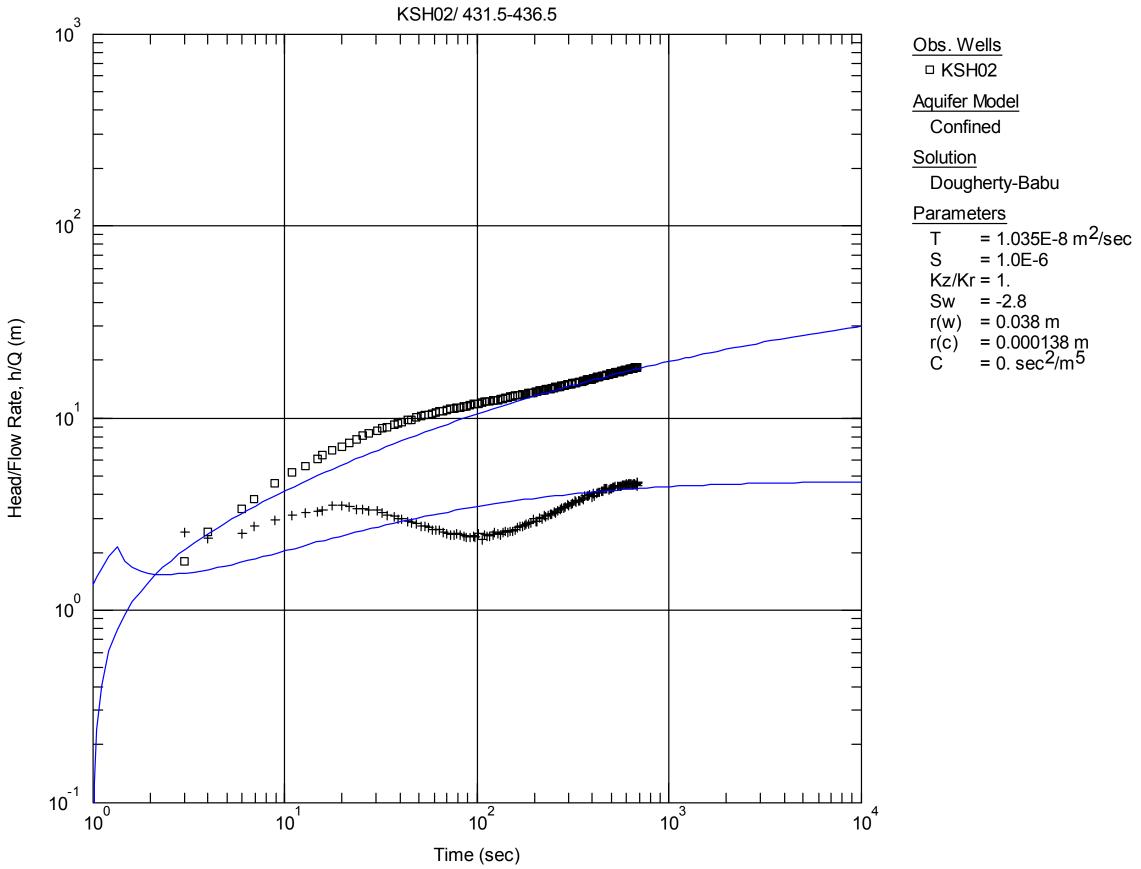
Pressure and flow rate vs. time.



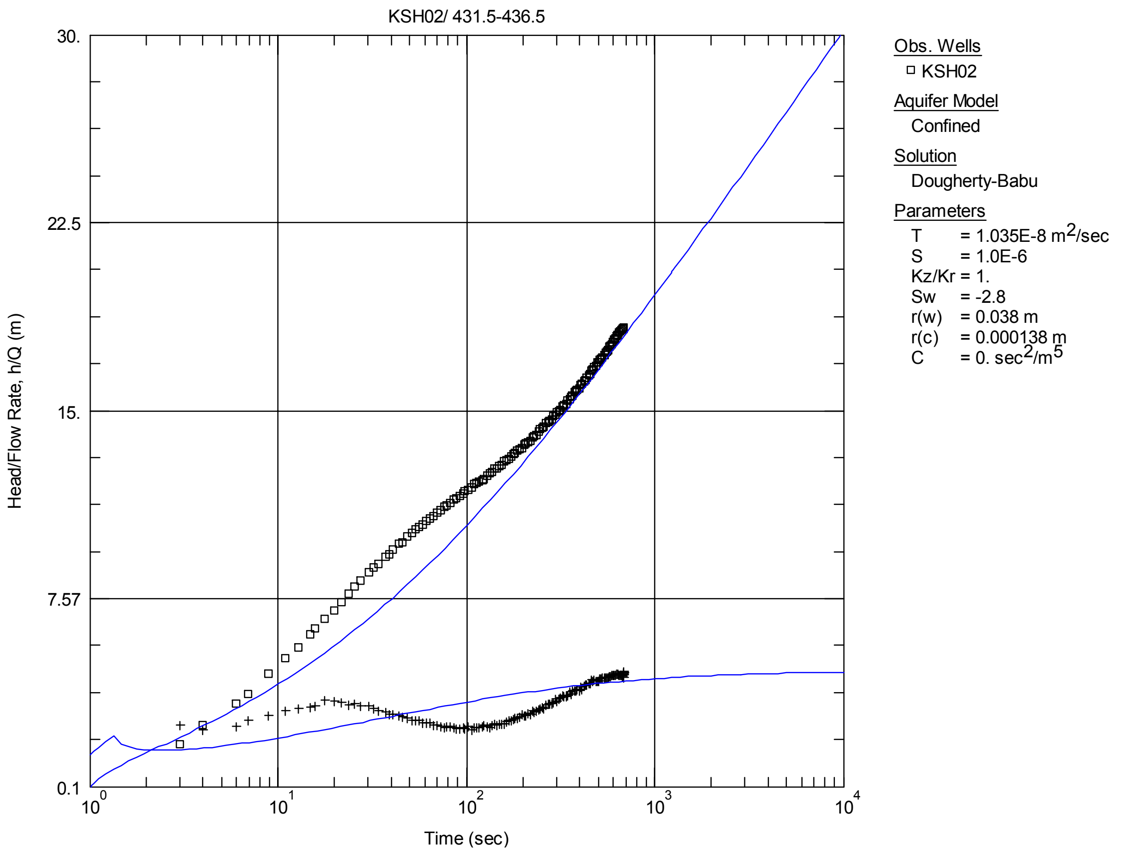
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



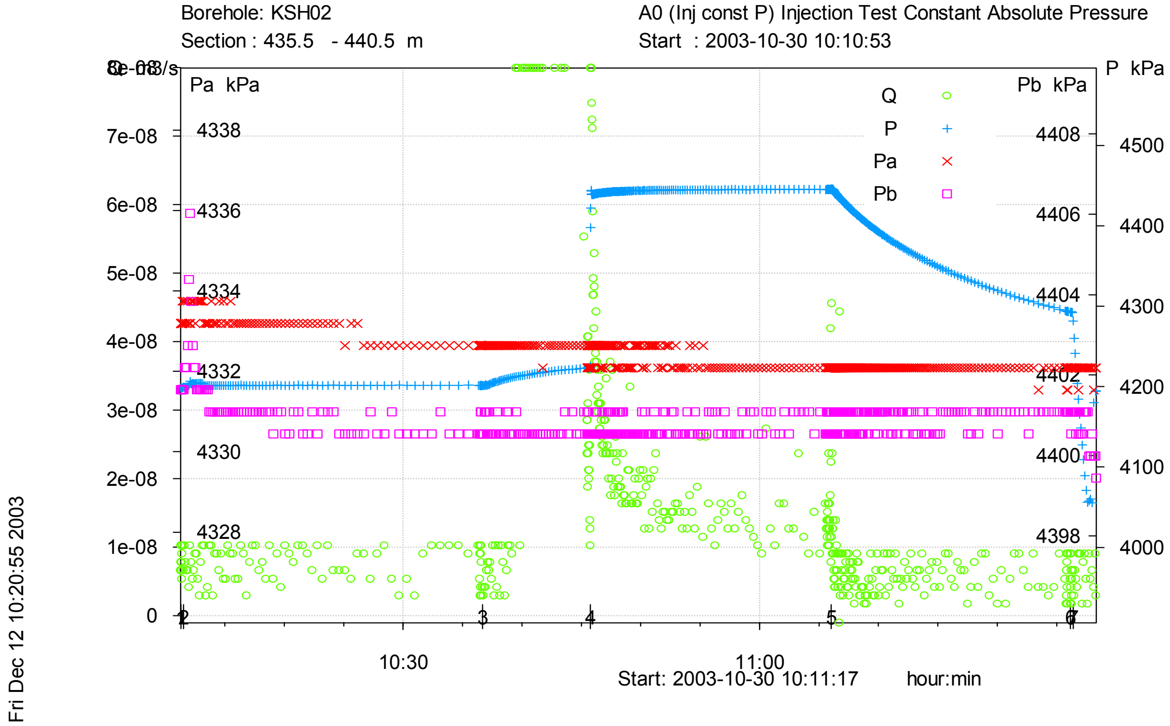
Recovery phase, log-log match.



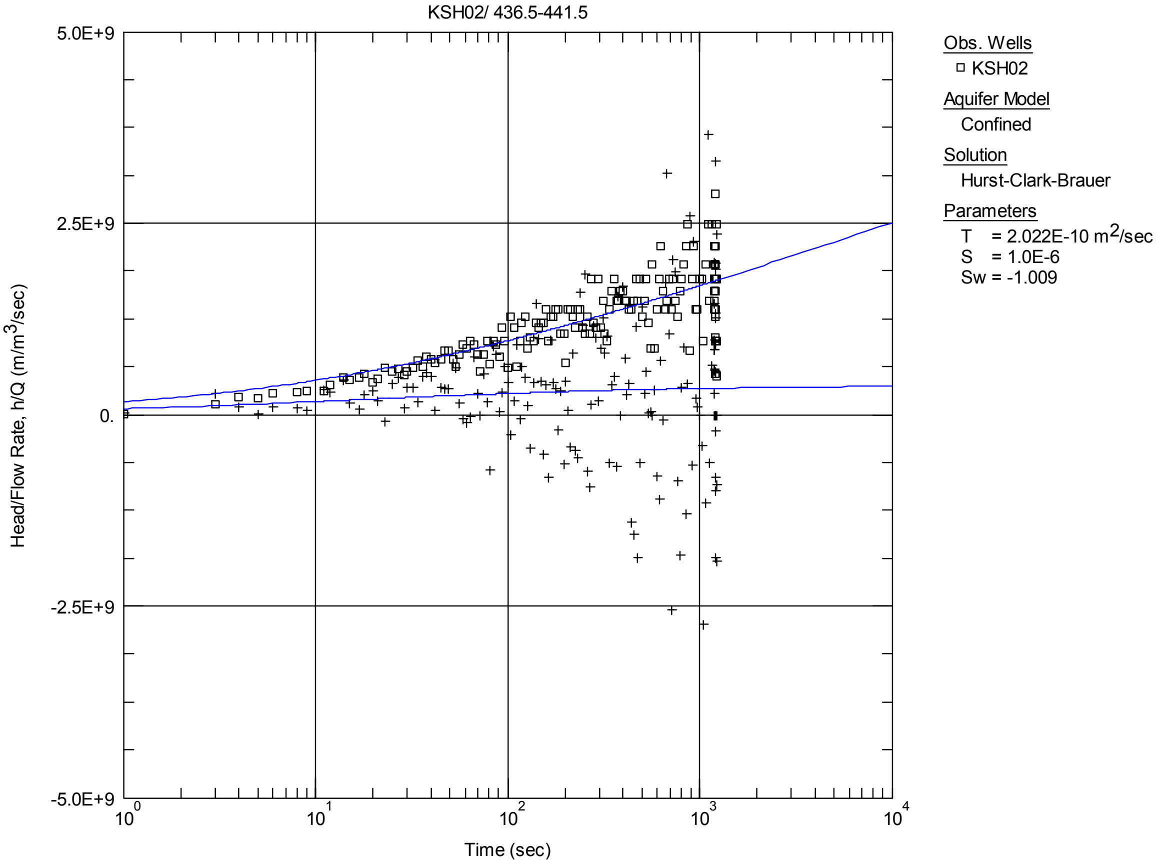
Recovery phase, lin-log match.

Test 436.5–441.5 m

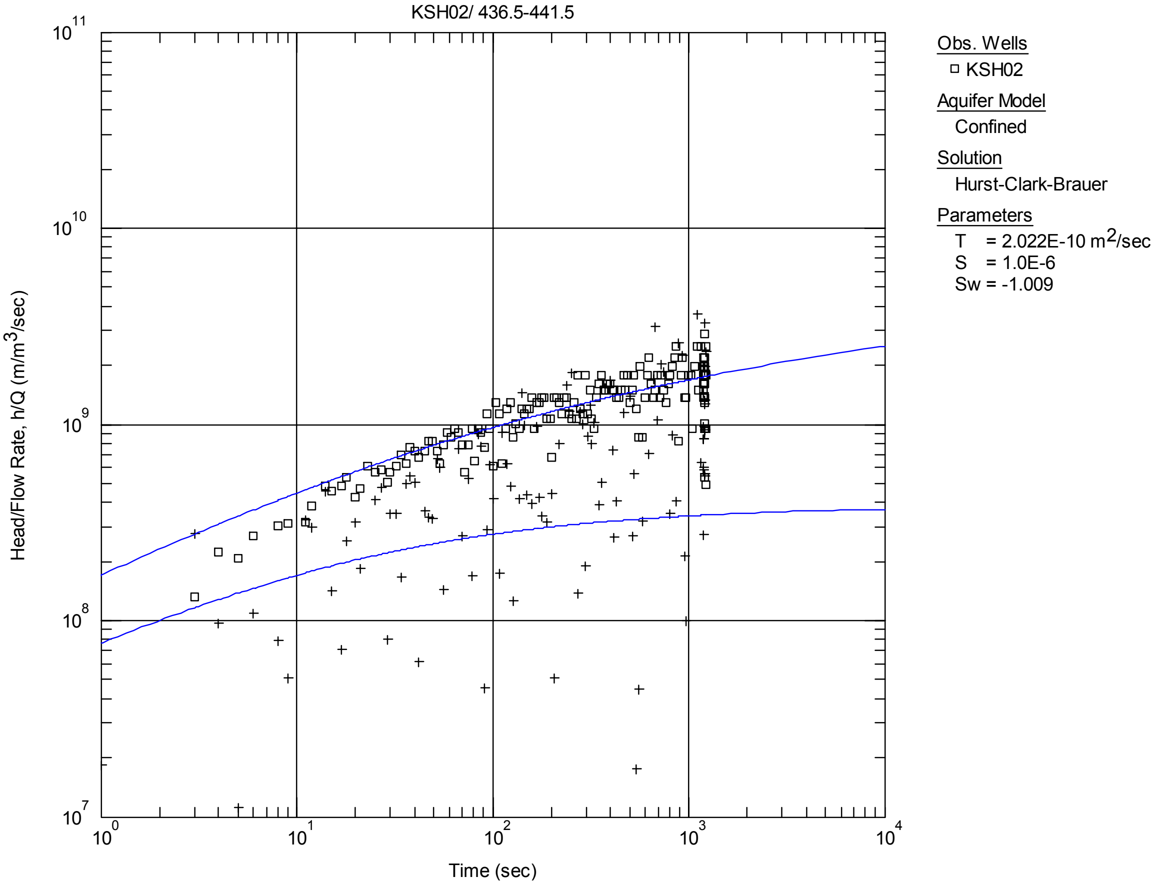
Analysis Diagram



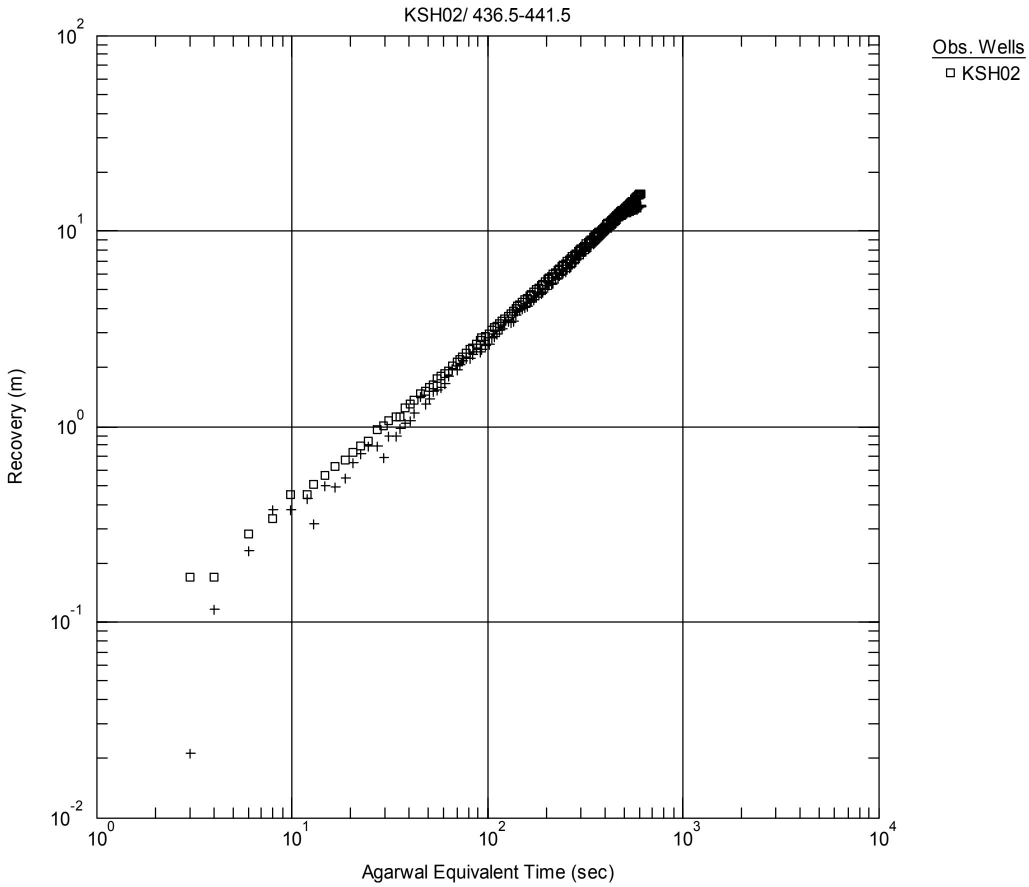
Pressure and flow rate vs. time.



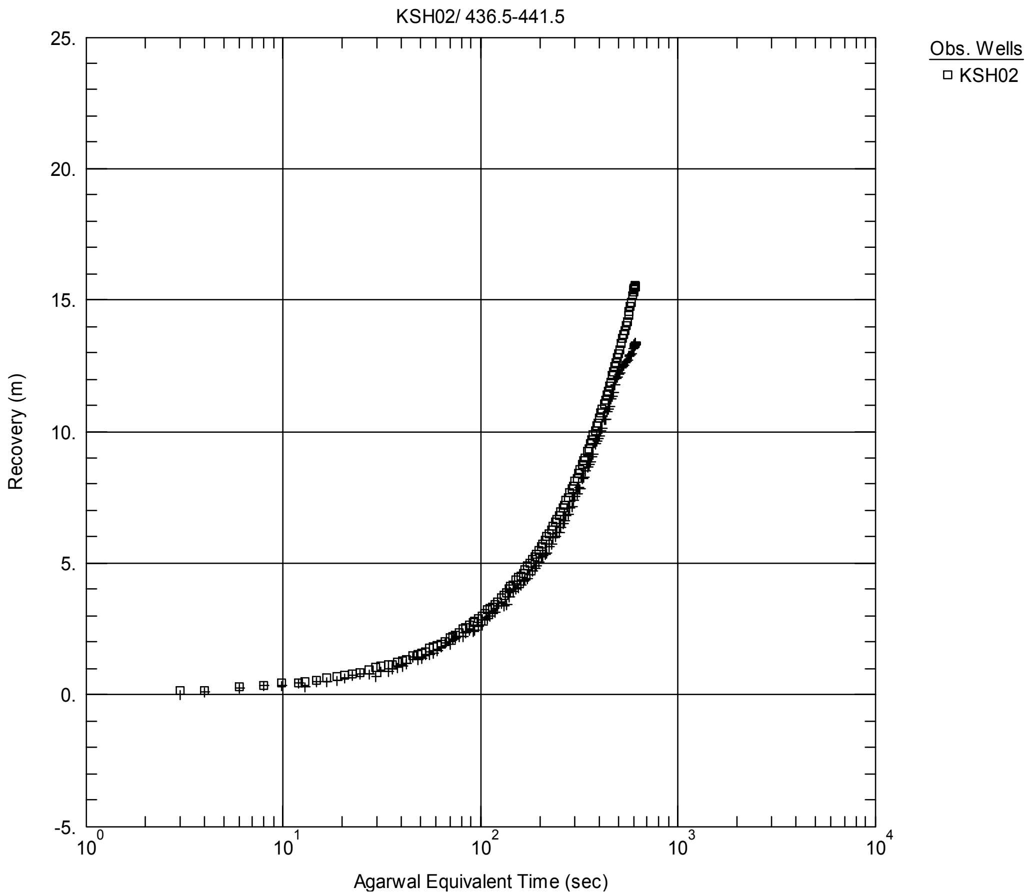
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



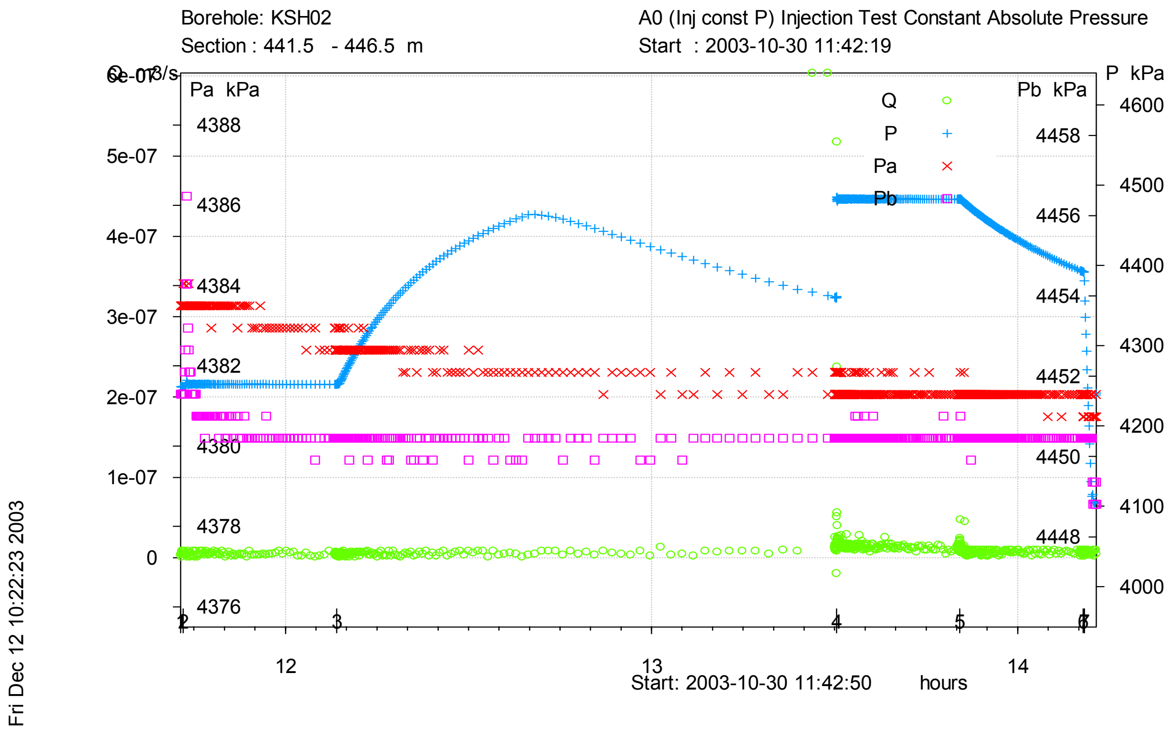
Recovery phase, log-log match.



Recovery phase, lin-log match.

Test 441.5–446.5 m

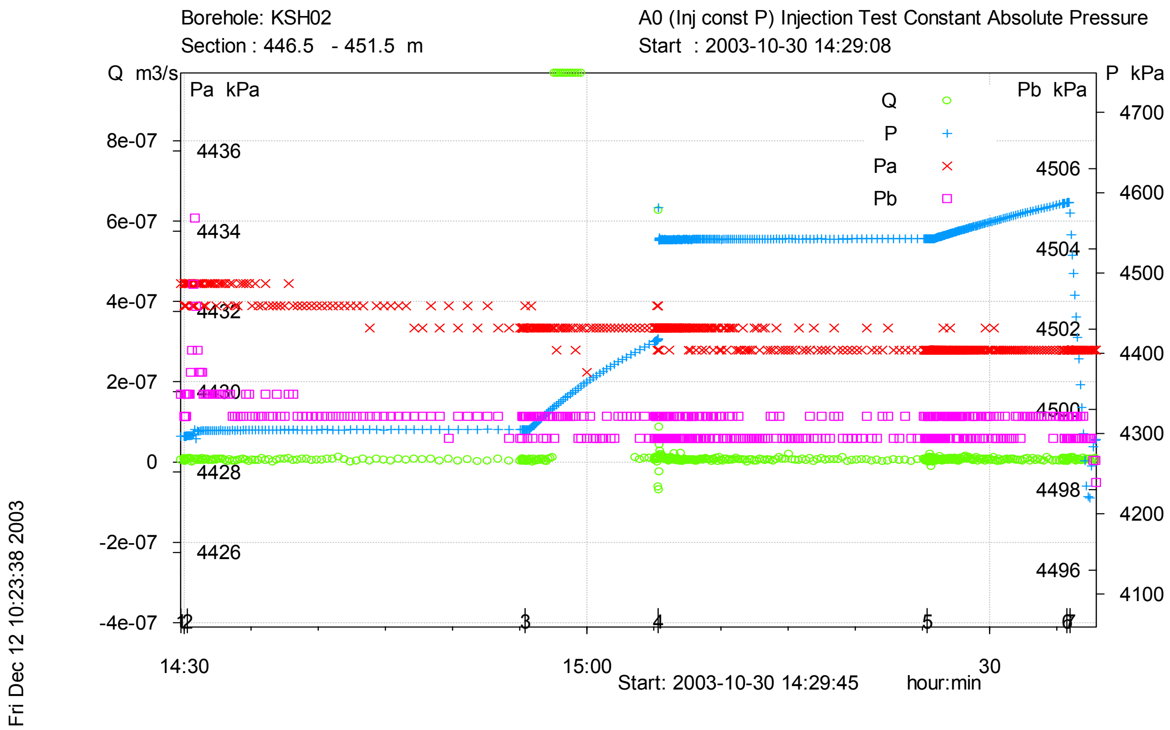
Analysis Diagram



Pressure and flow rate vs. time.

Test 446.5–451.5 m

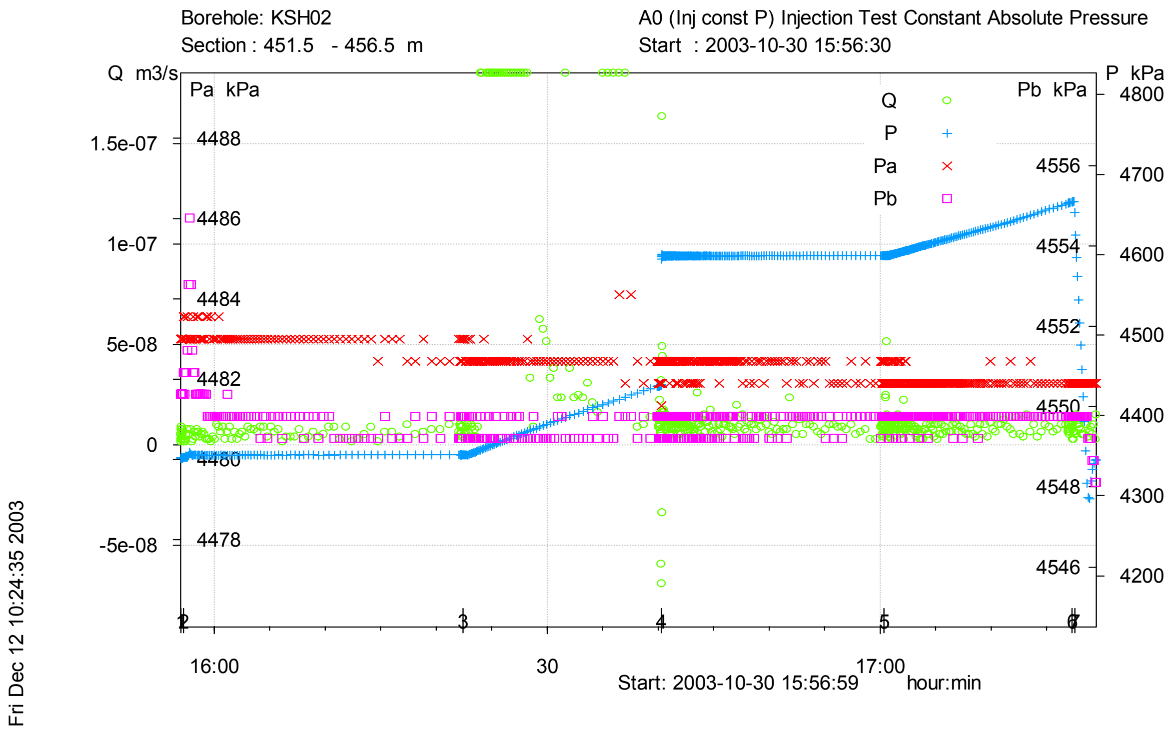
Analysis Diagram



Pressure and flow rate vs. time.

Test 451.5–456.5 m

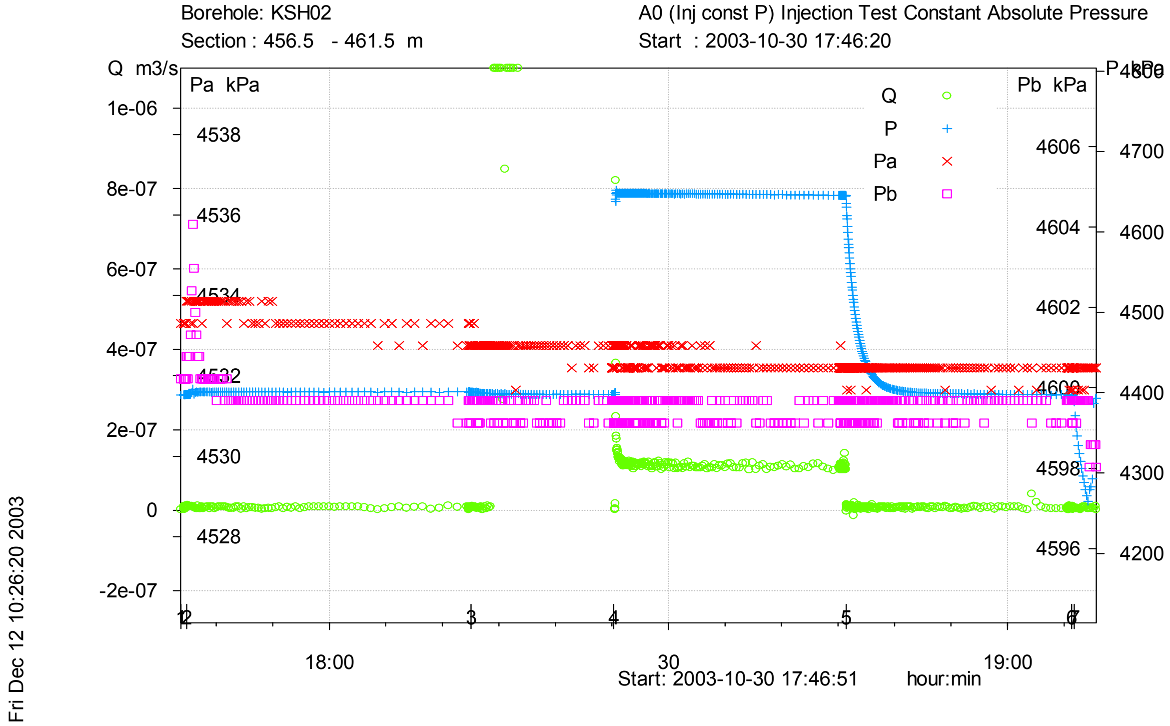
Analysis Diagram



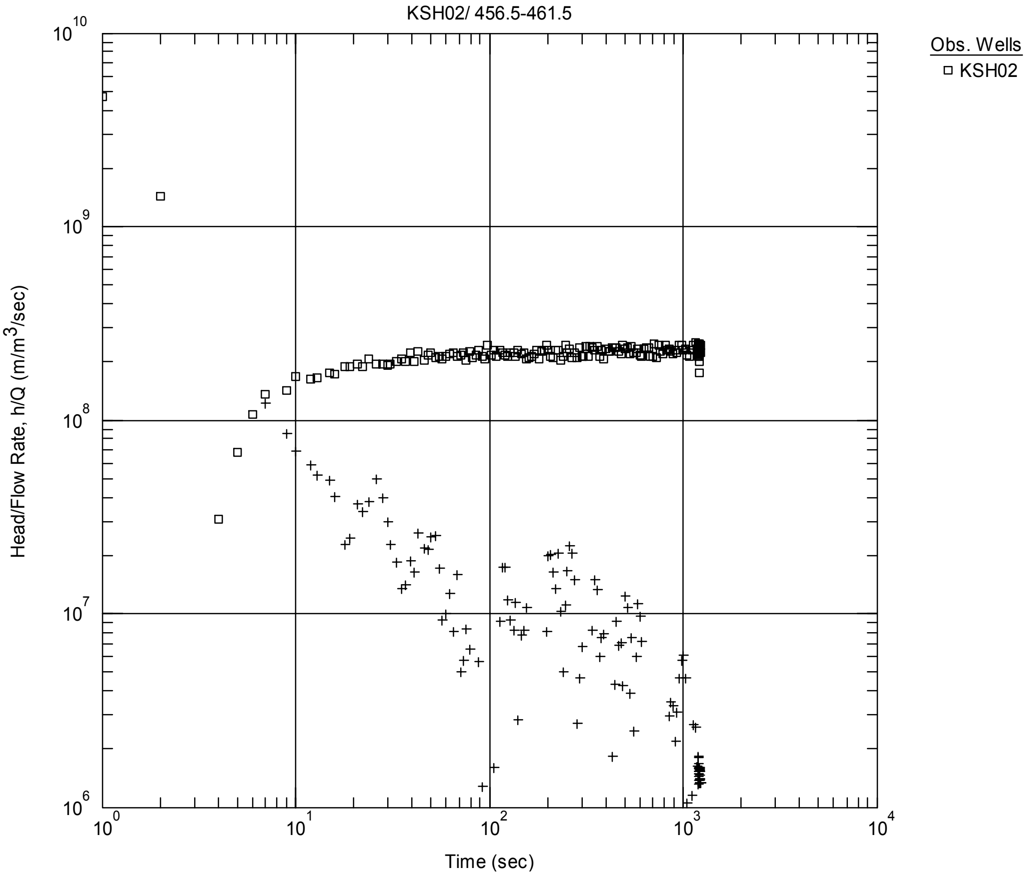
Pressure and flow rate vs. time.

Test 456.5–461.5 m

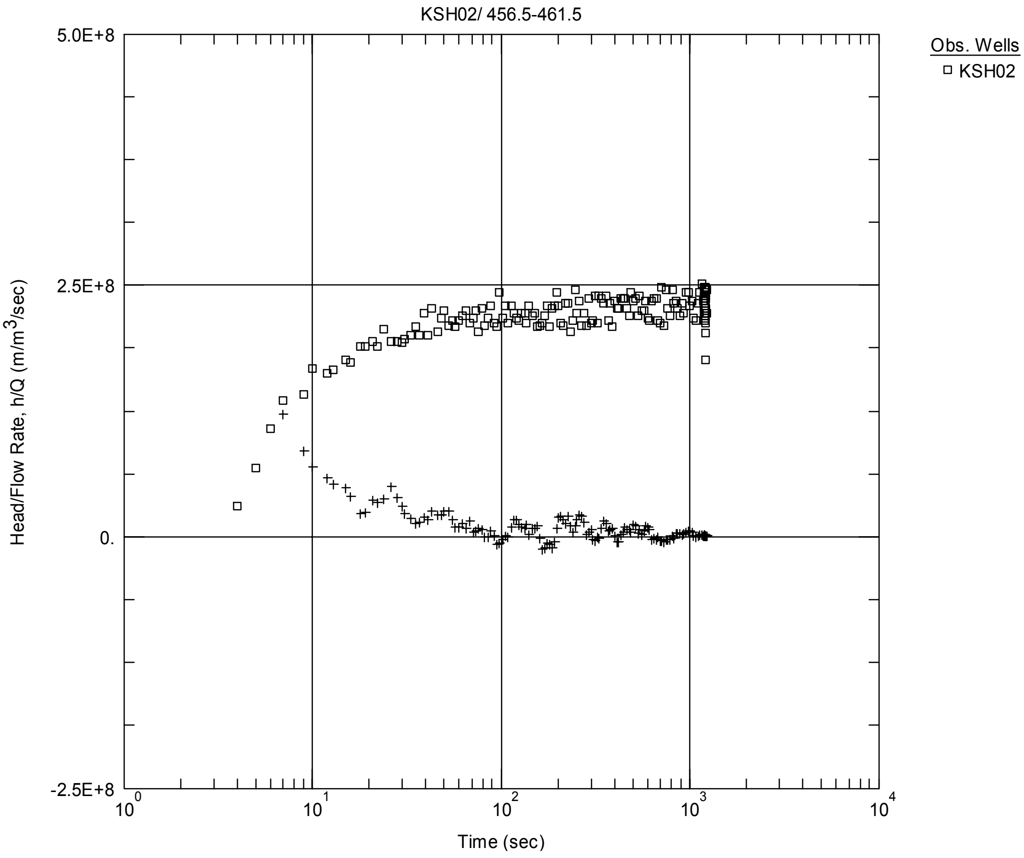
Analysis Diagram



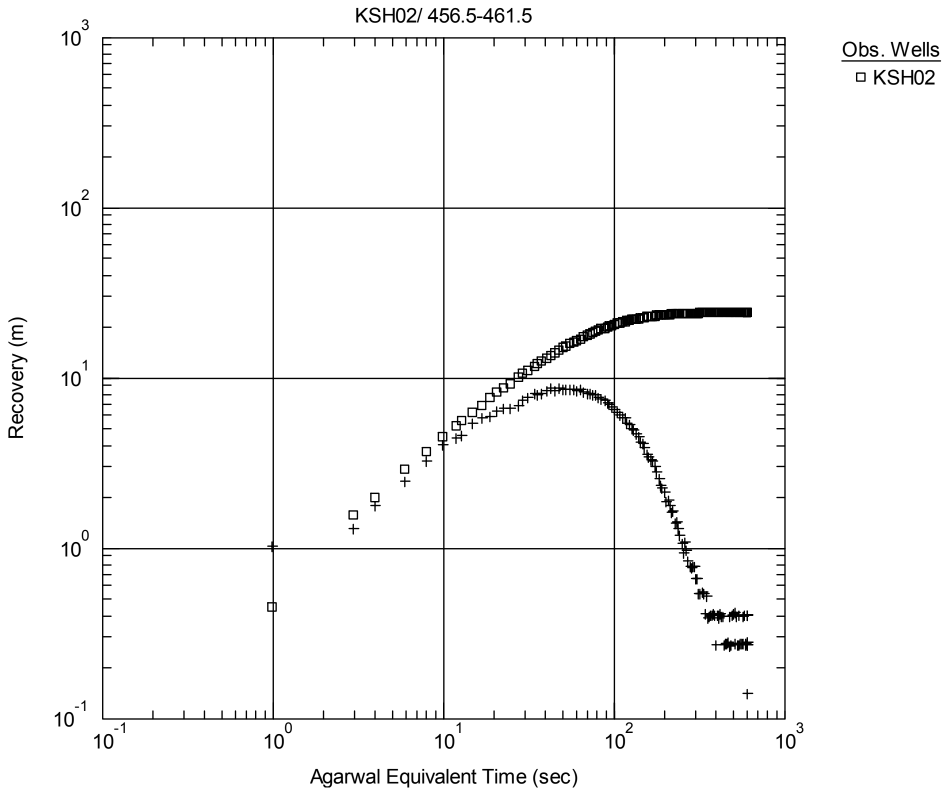
Pressure and flow rate vs. time.



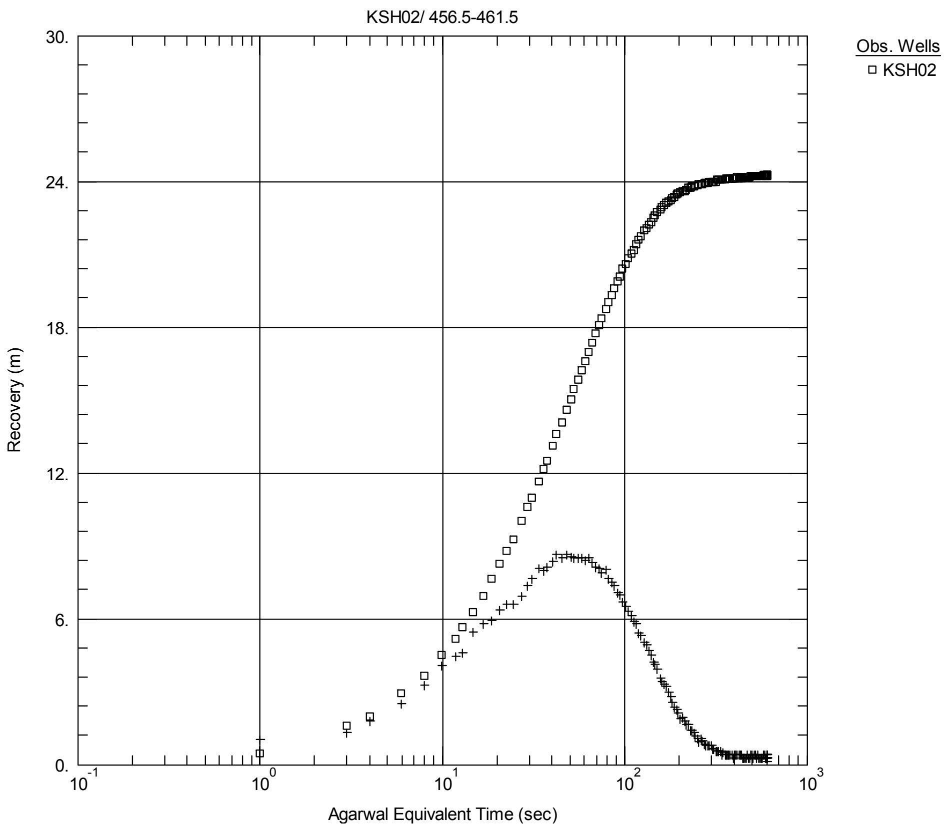
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



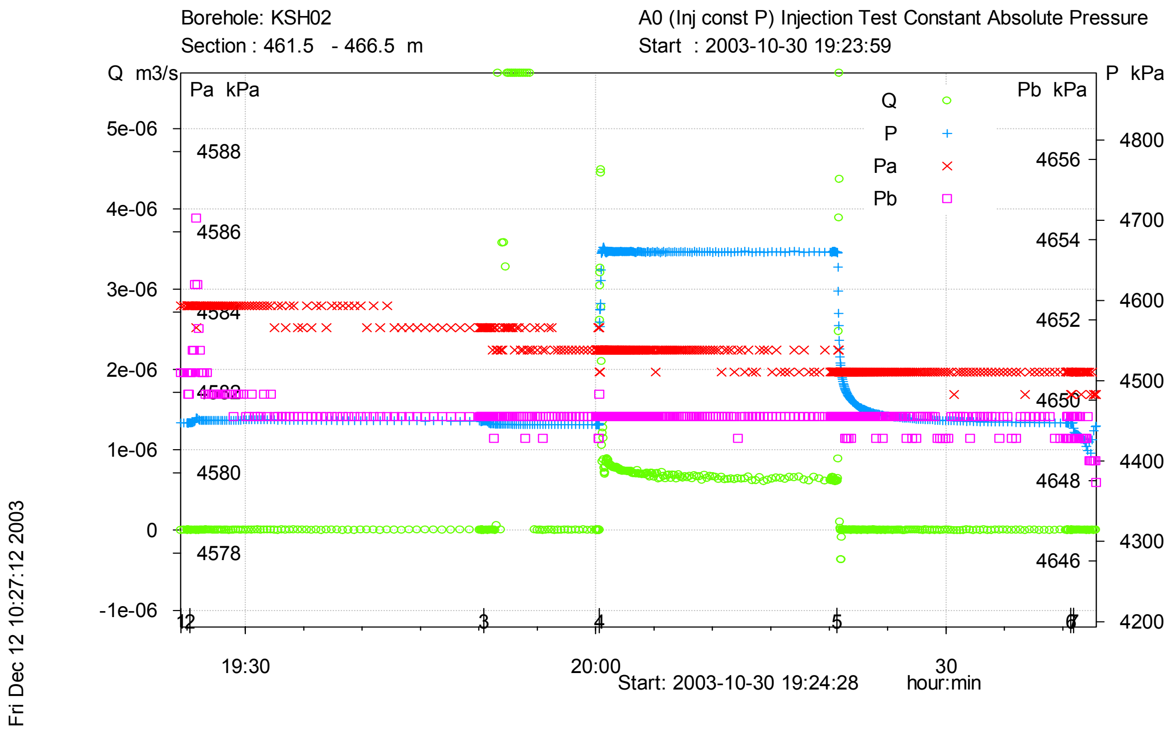
Recovery phase, log-log match.



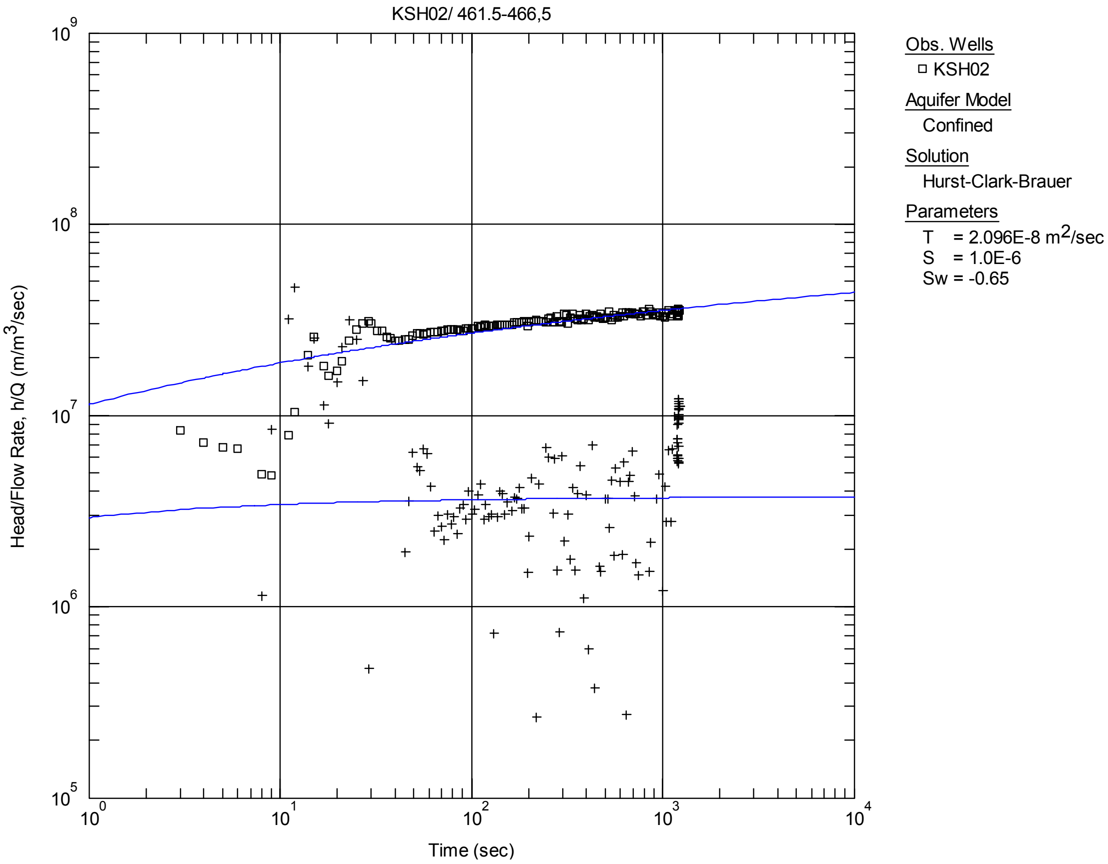
Recovery phase, lin-log match.

Test 461.5-466.5 m

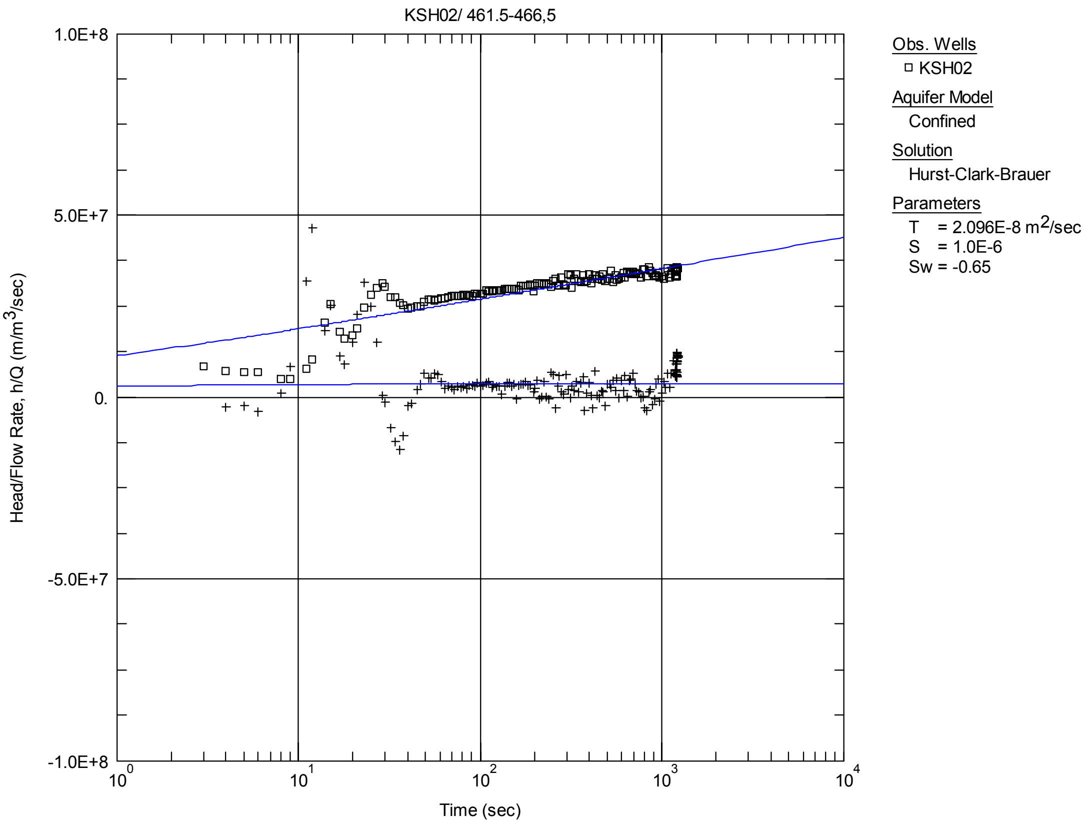
Analysis Diagram



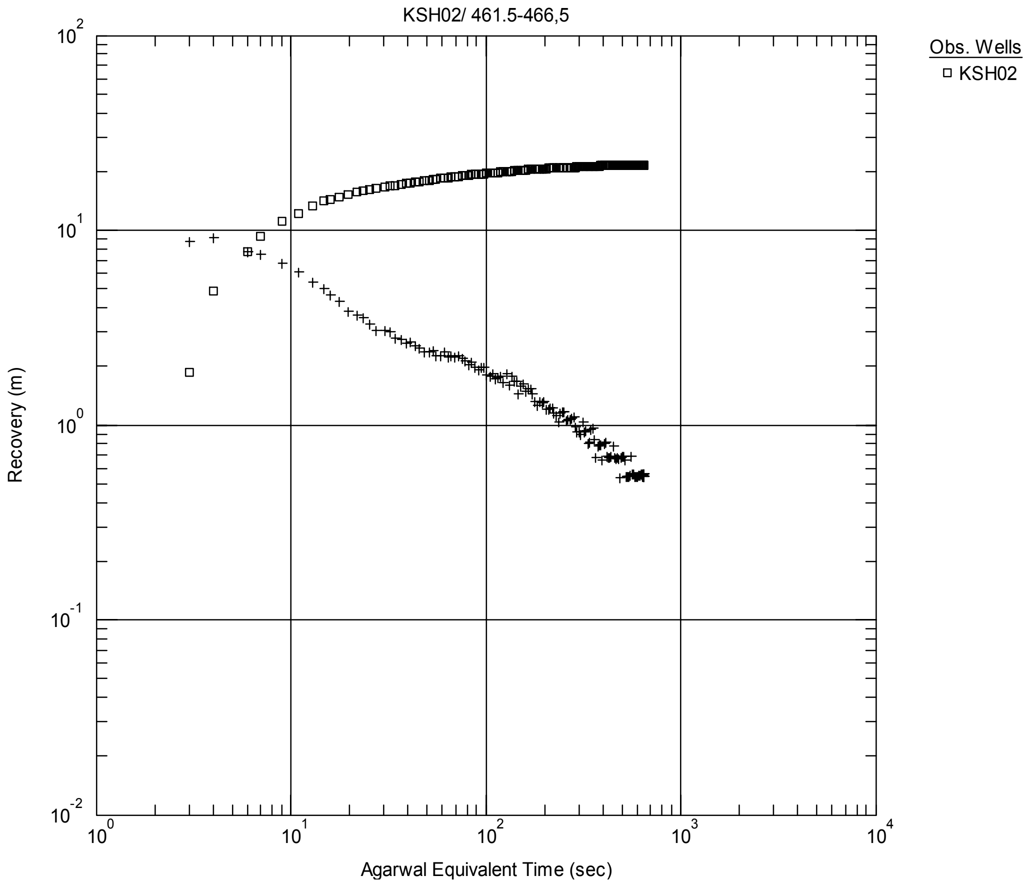
Pressure and flow rate vs. time.



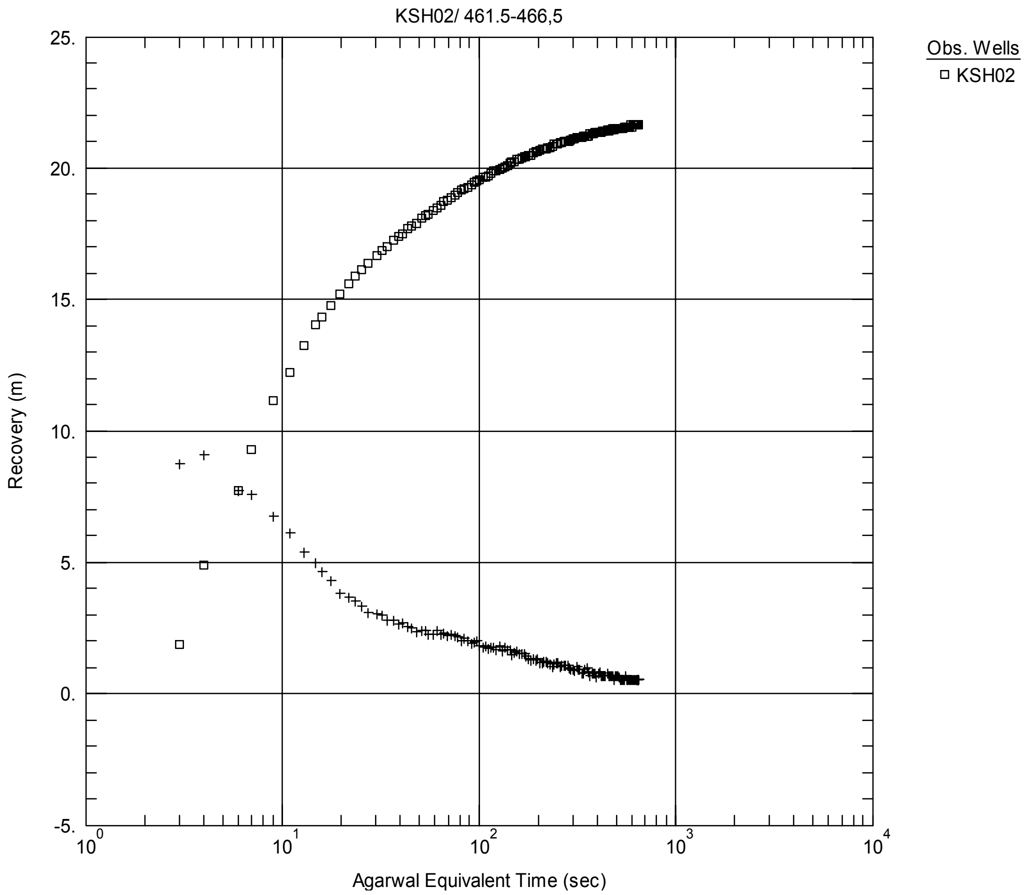
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



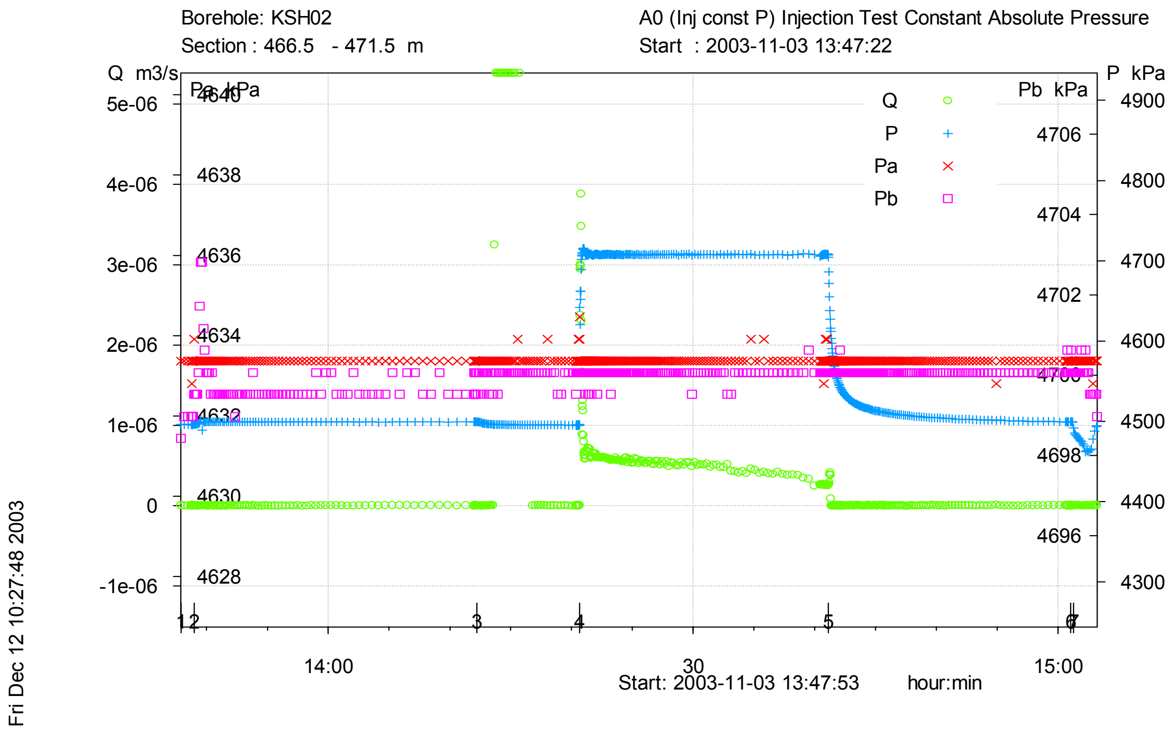
Recovery phase, log-log match.



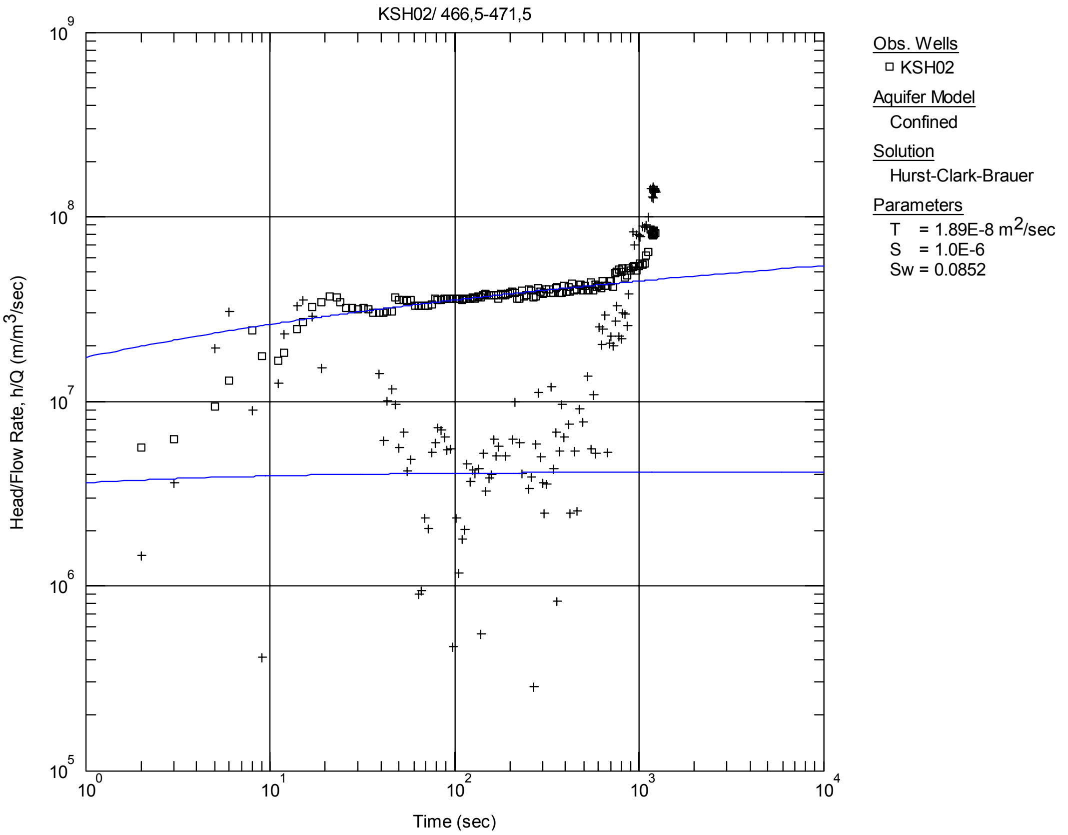
Recovery phase, lin-log match.

Test 466.5–471.5 m

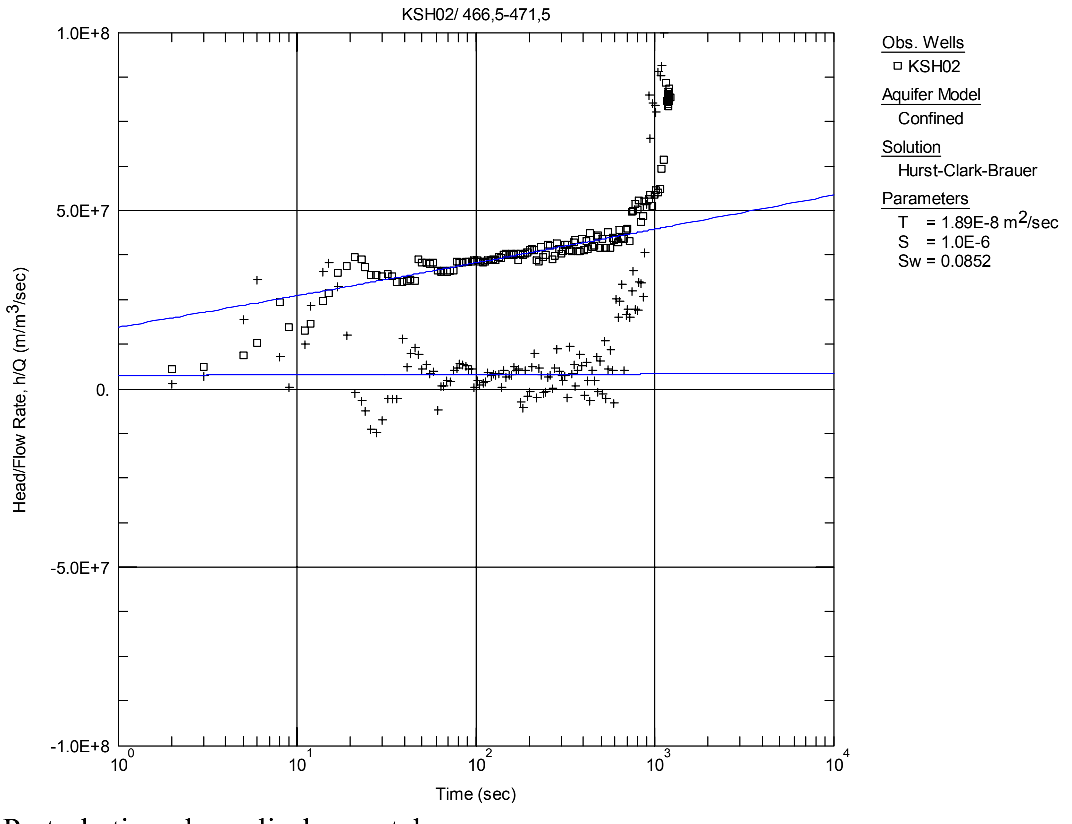
Analysis Diagram



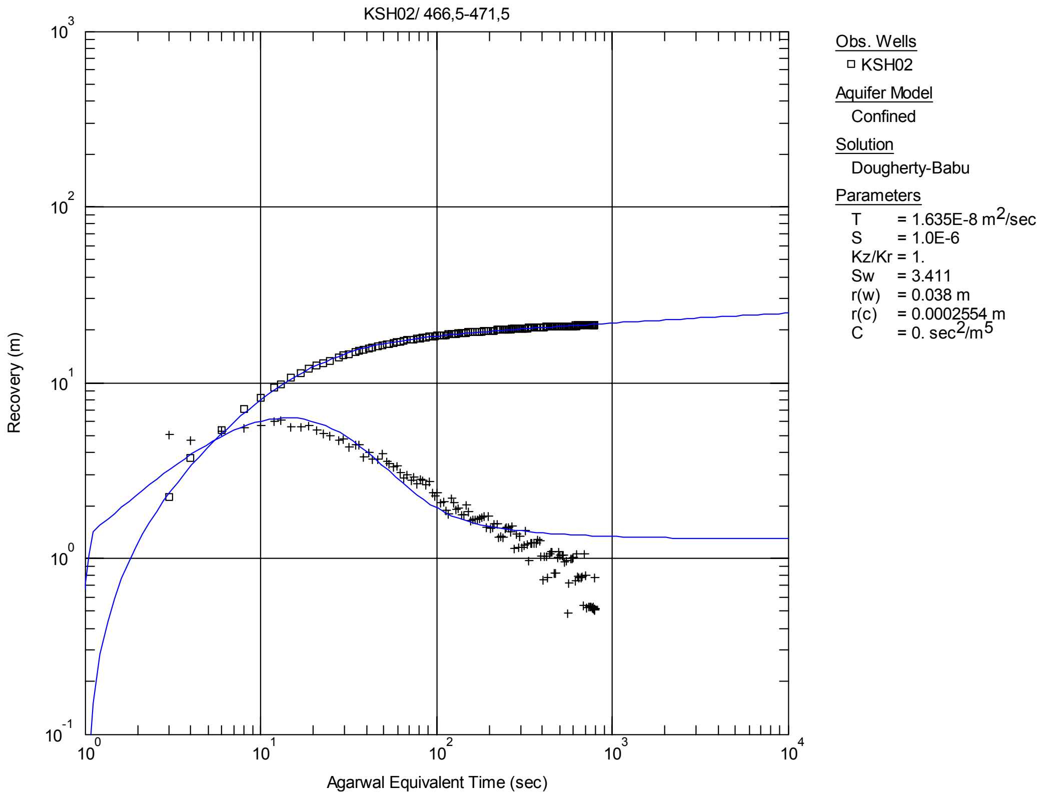
Pressure and flow rate vs. time.



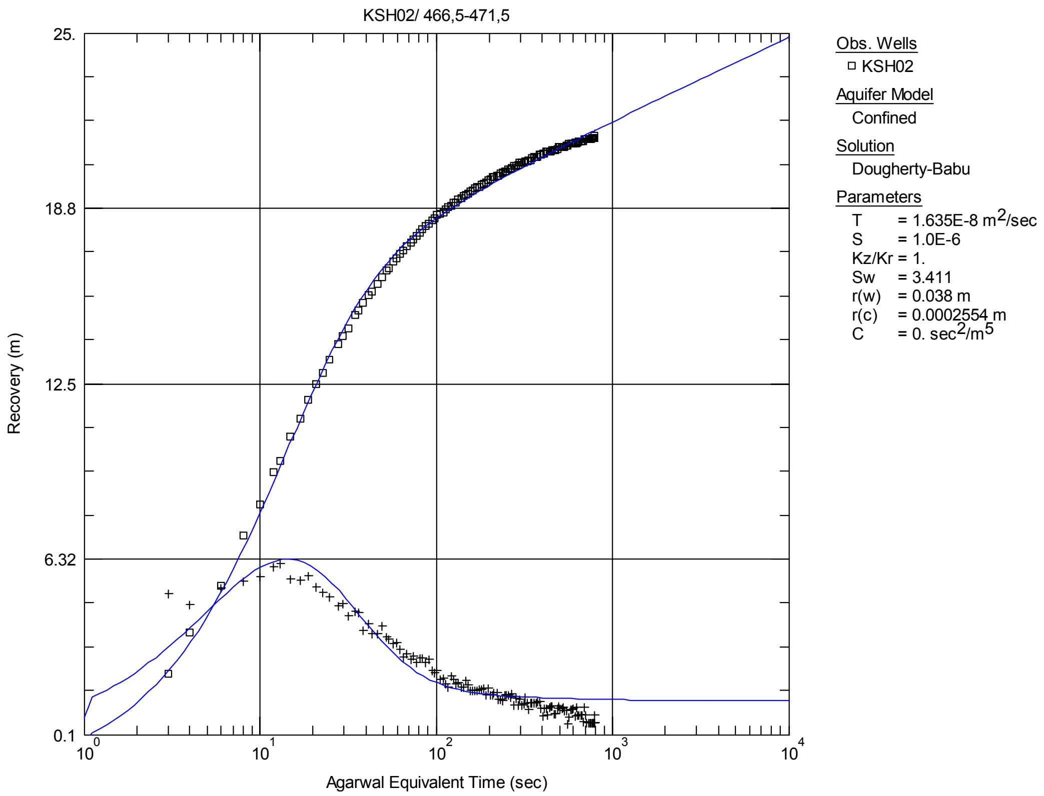
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



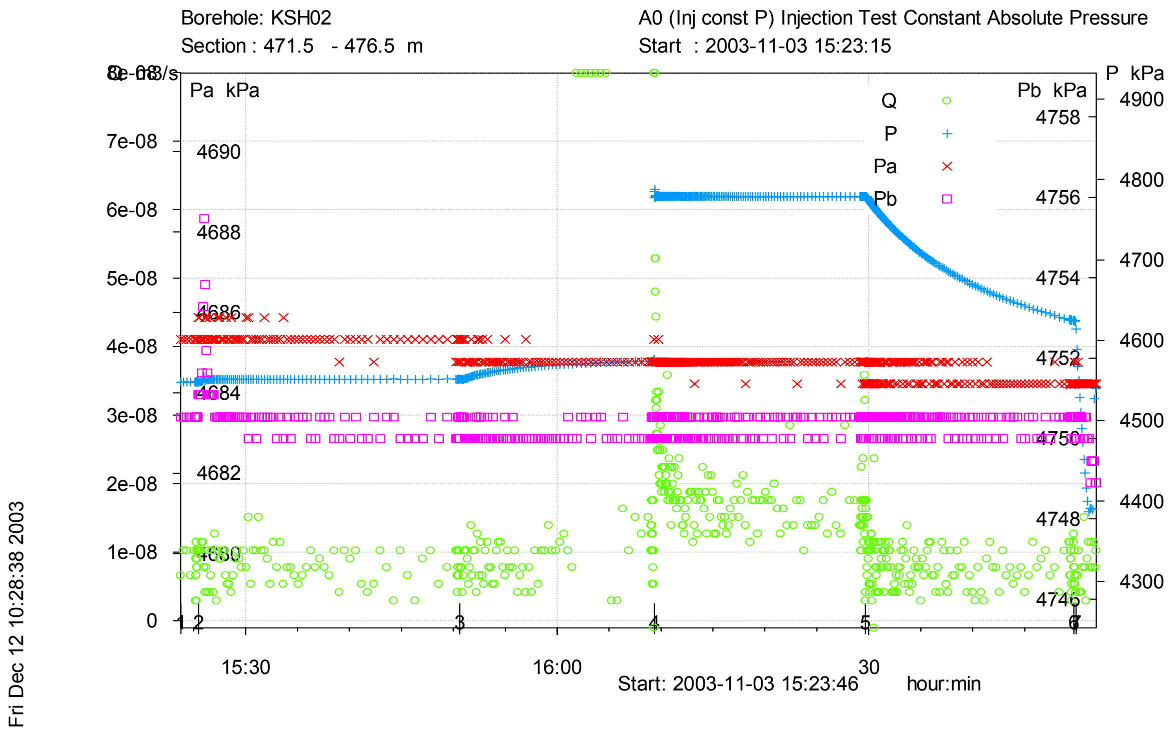
Recovery phase, log-log match.



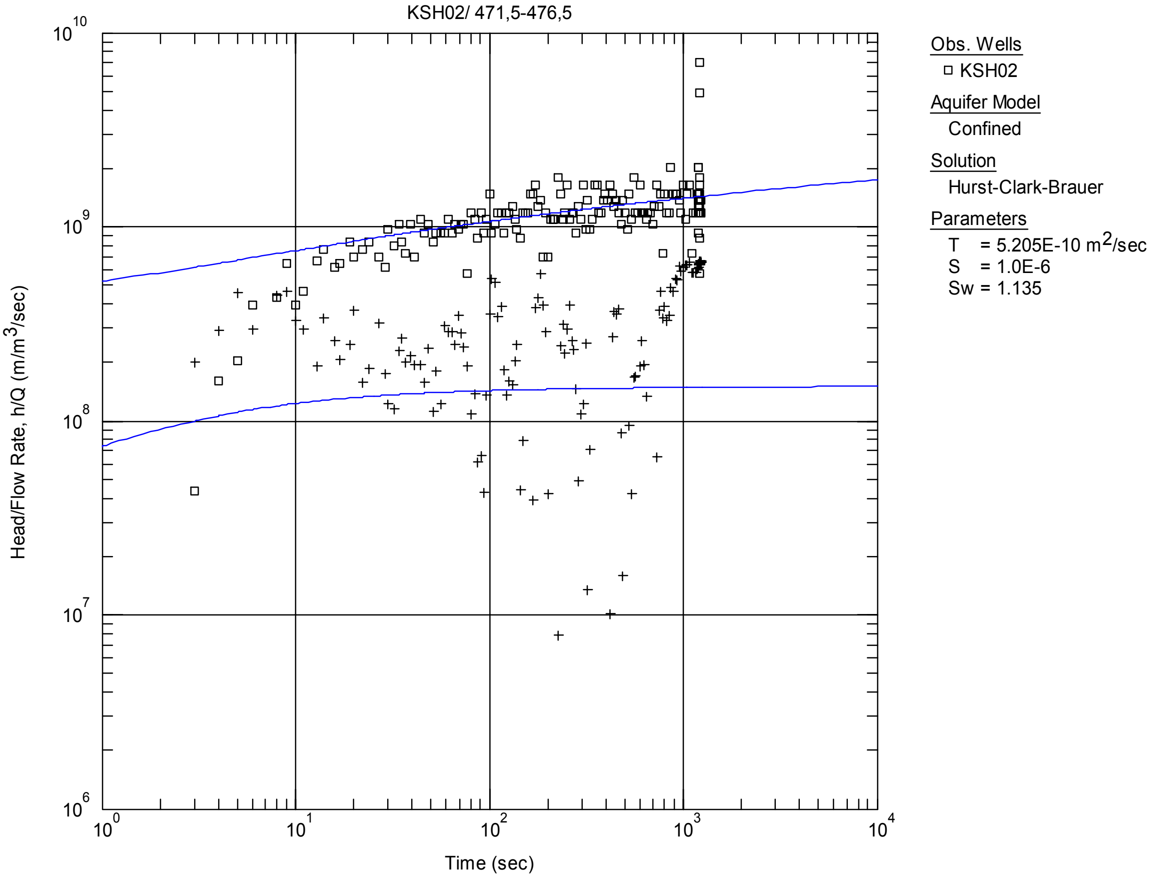
Recovery phase, lin-log match.

Test 471.5–476.5 m

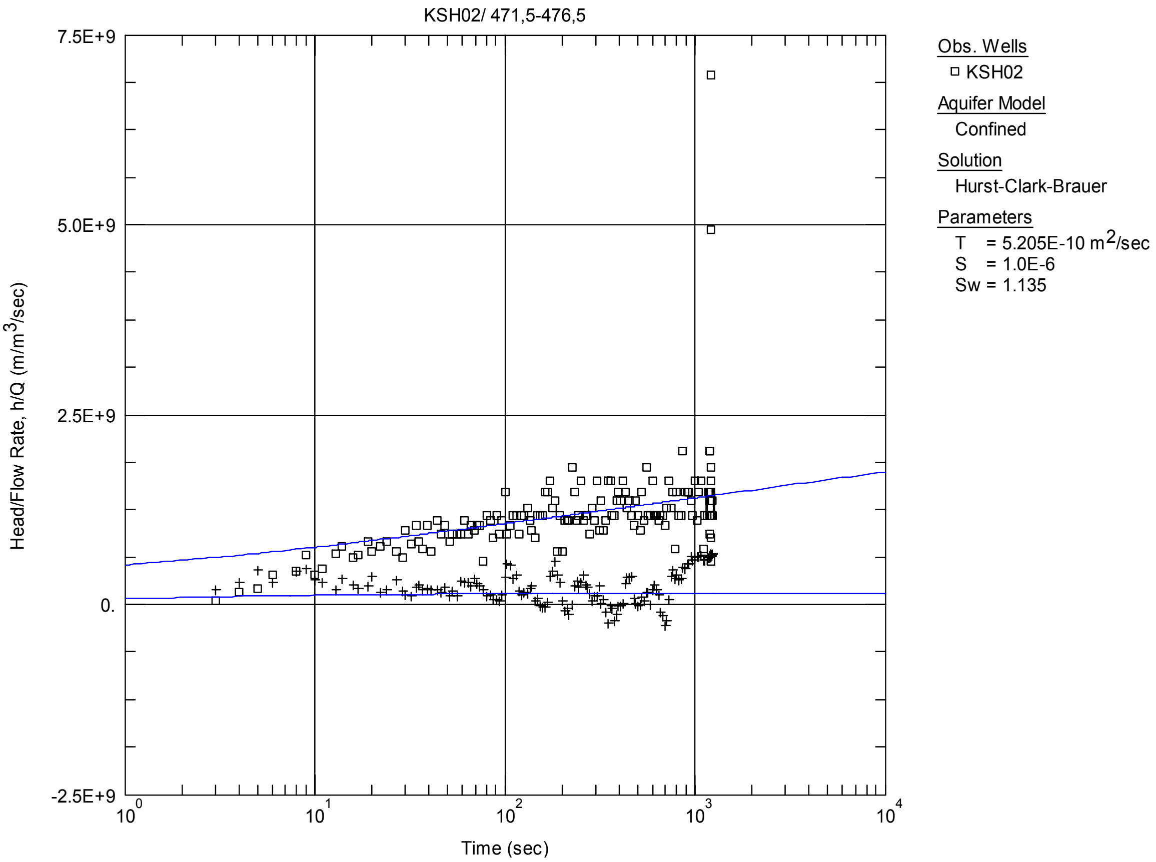
Analysis Diagram



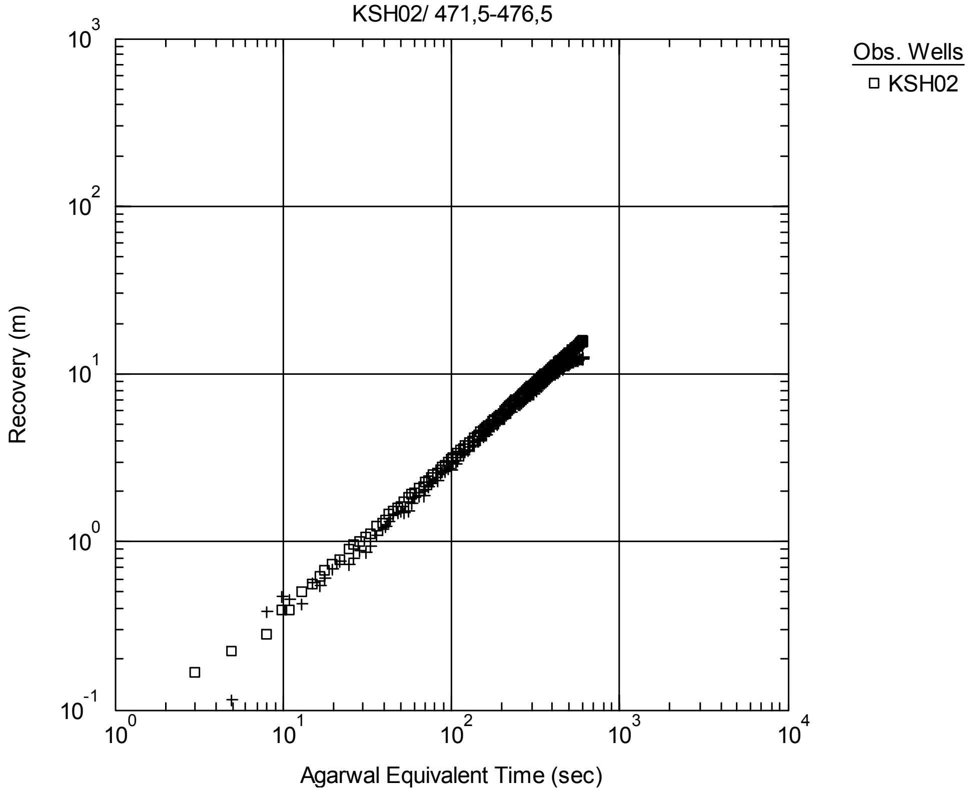
Pressure and flow rate vs. time.



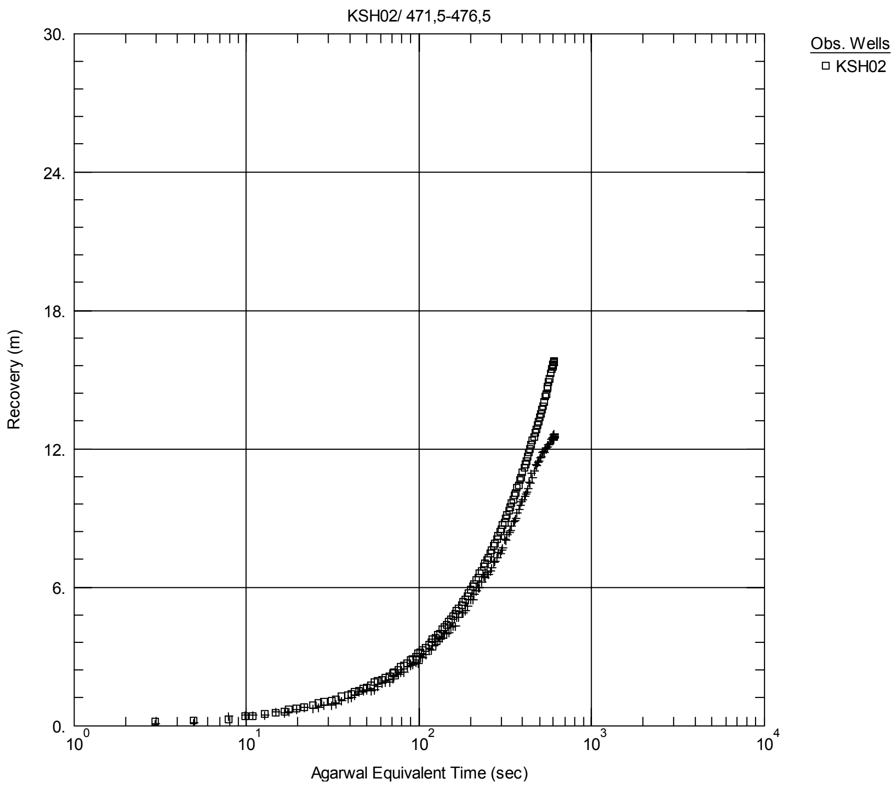
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



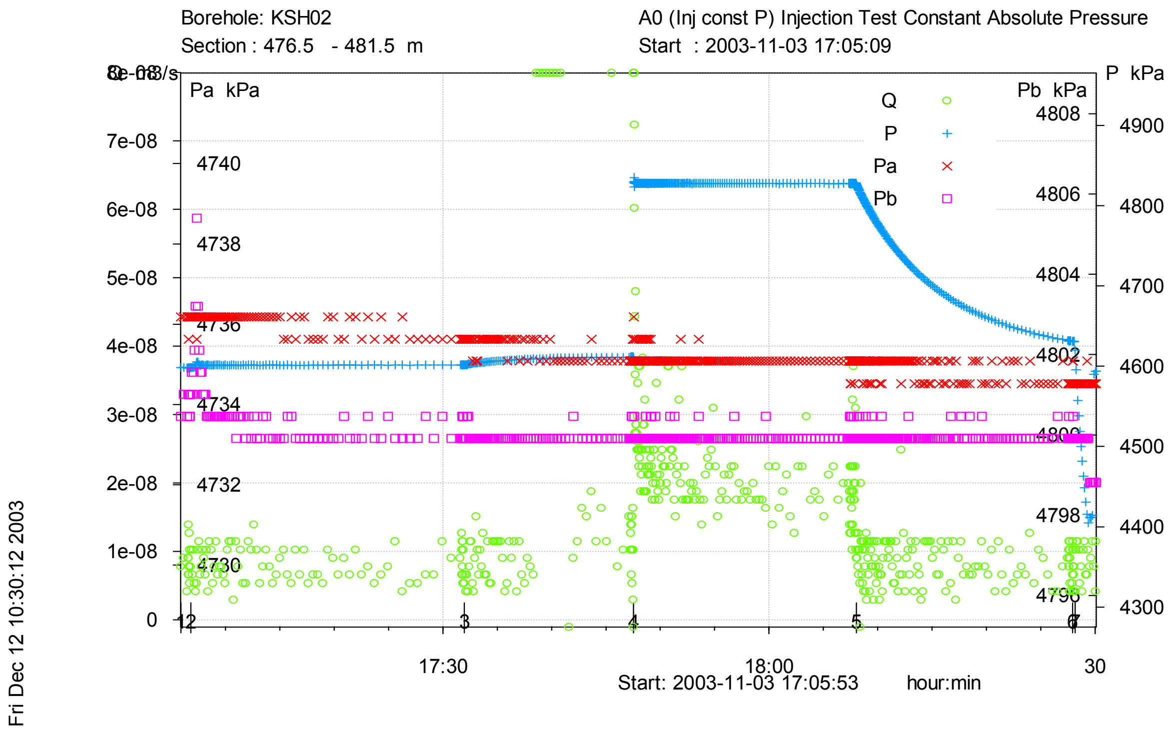
Recovery phase, log-log match.



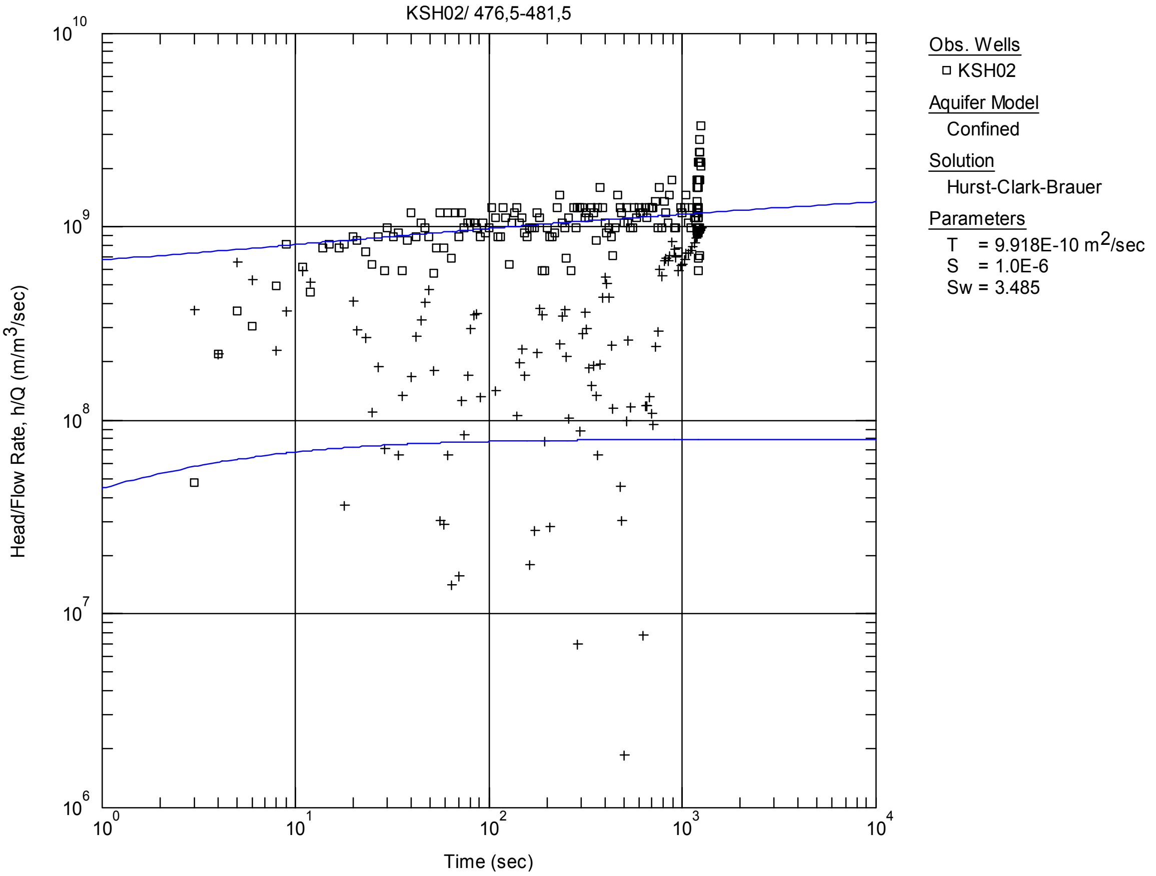
Recovery phase, lin-log match.

Test 476.5–481.5 m

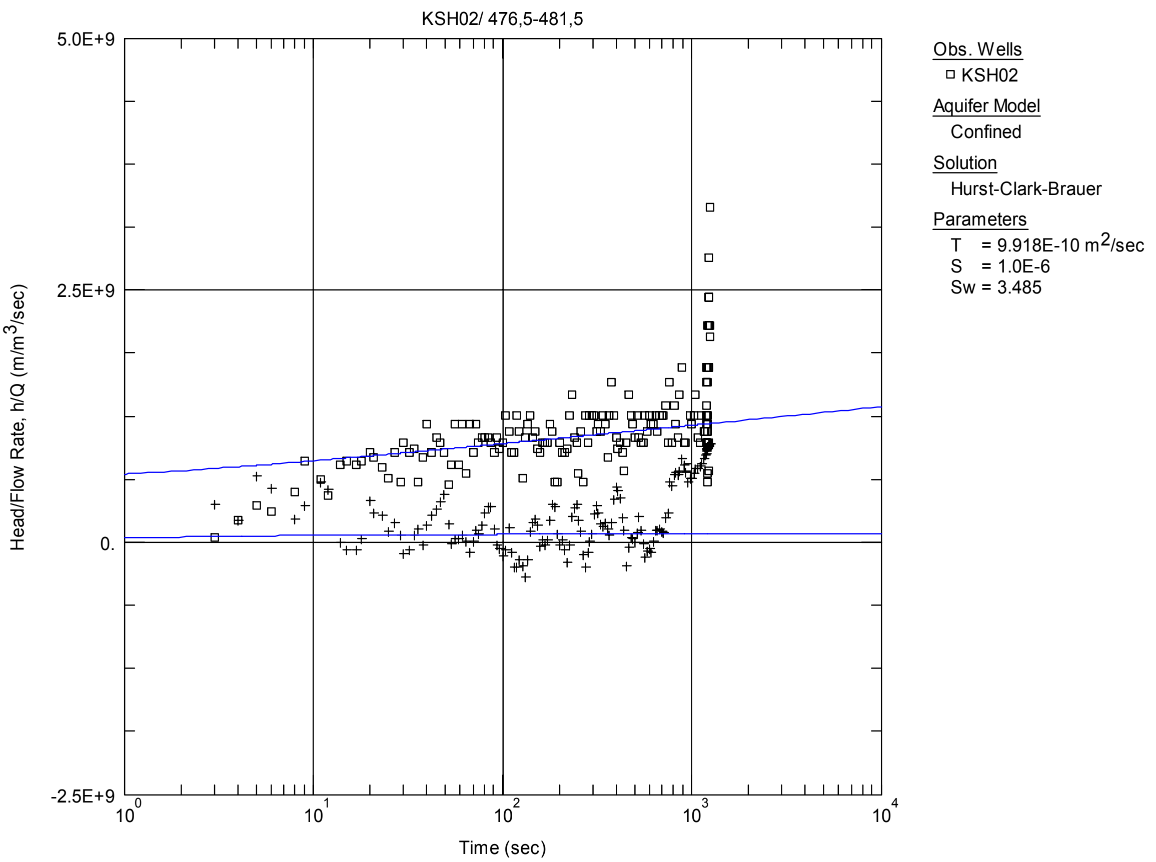
Analysis Diagram



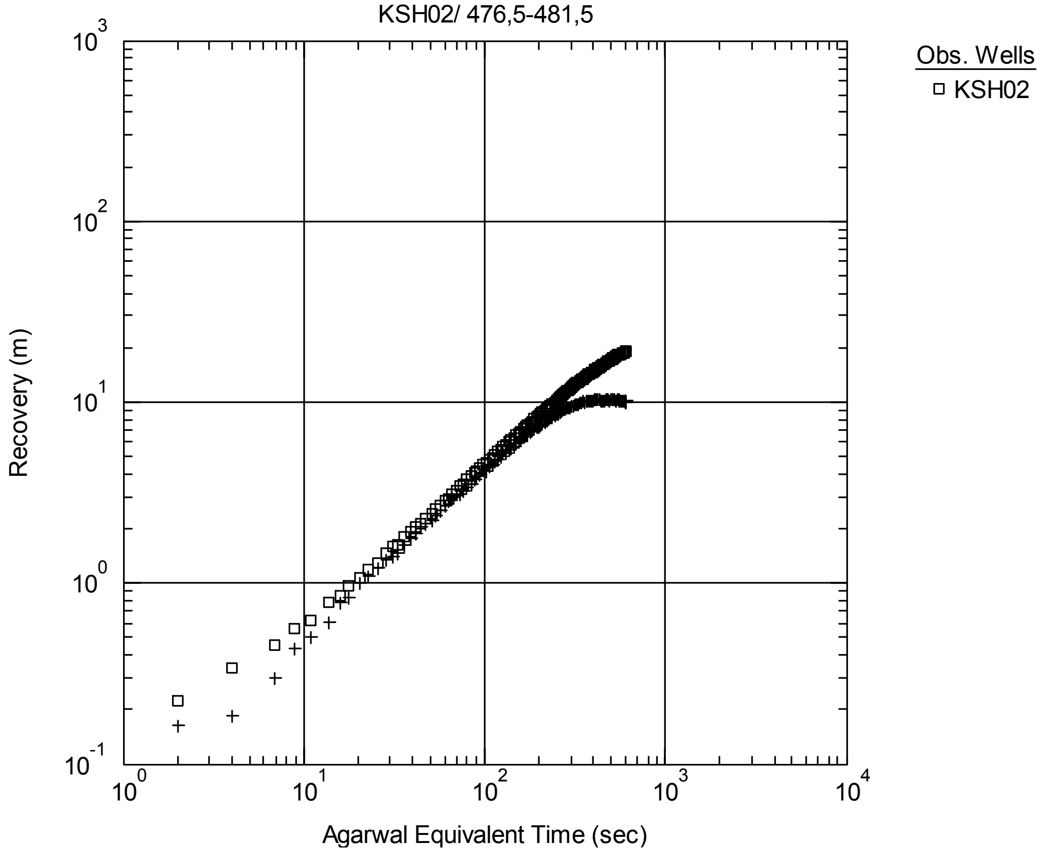
Pressure and flow rate vs. time.



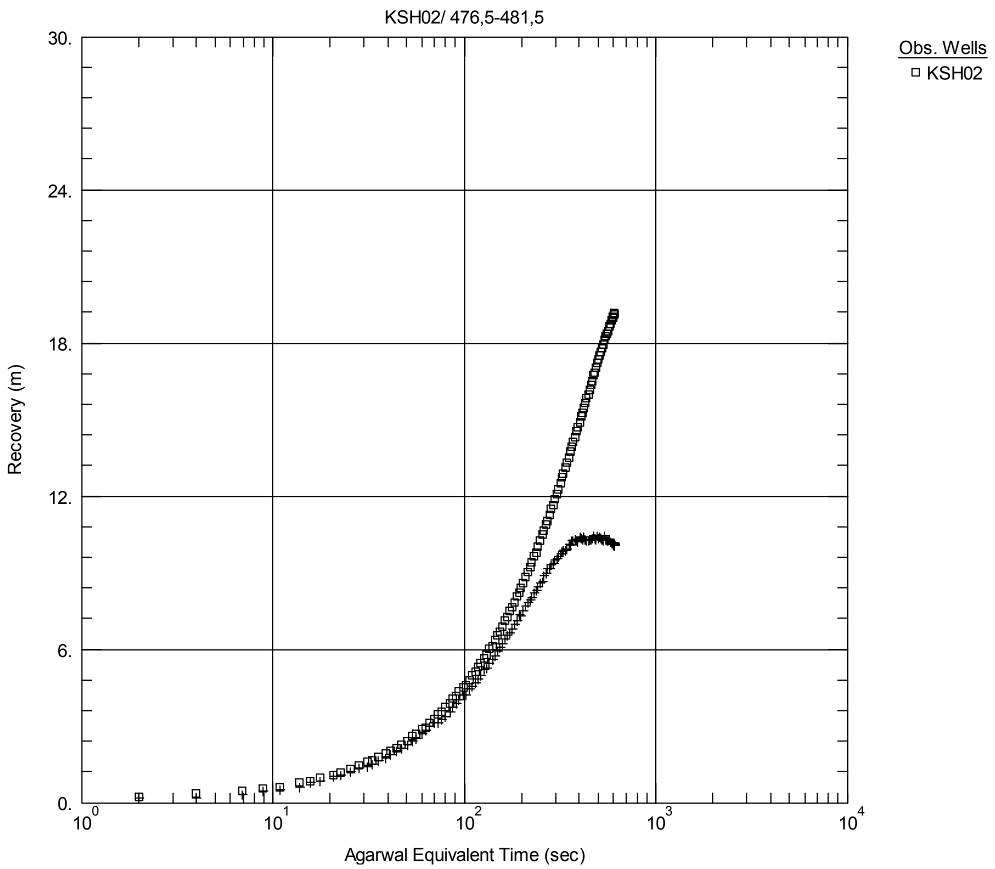
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



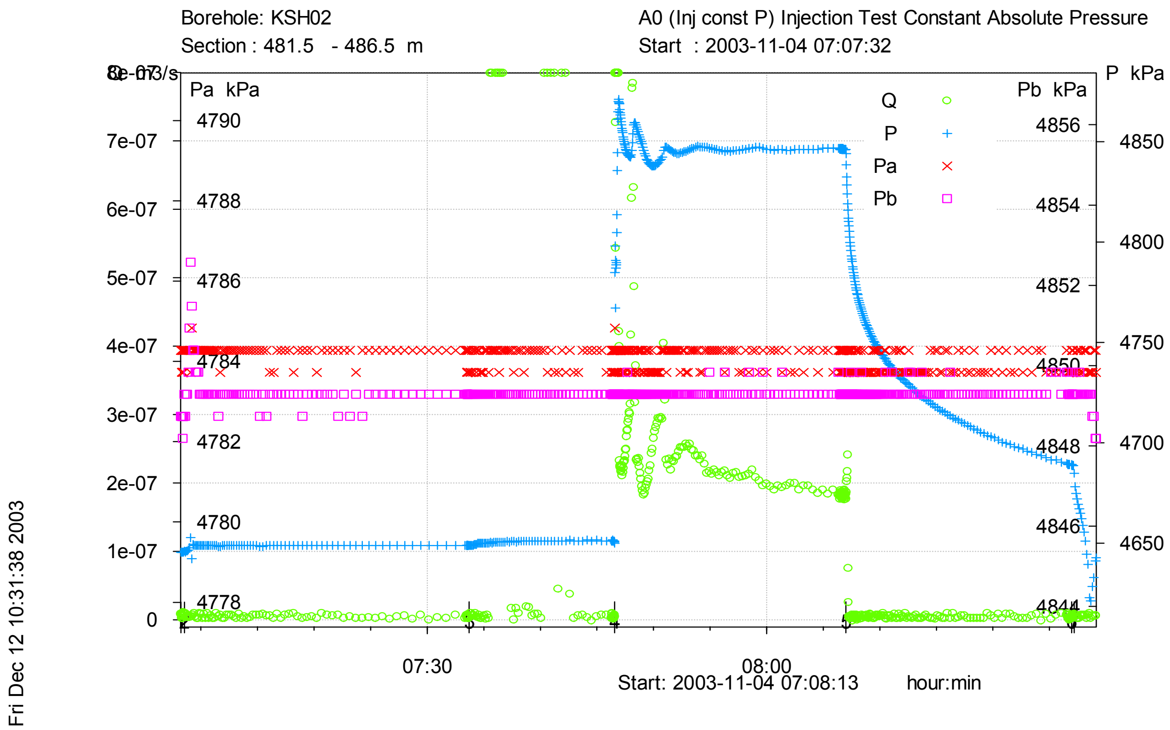
Recovery phase, log-log match.



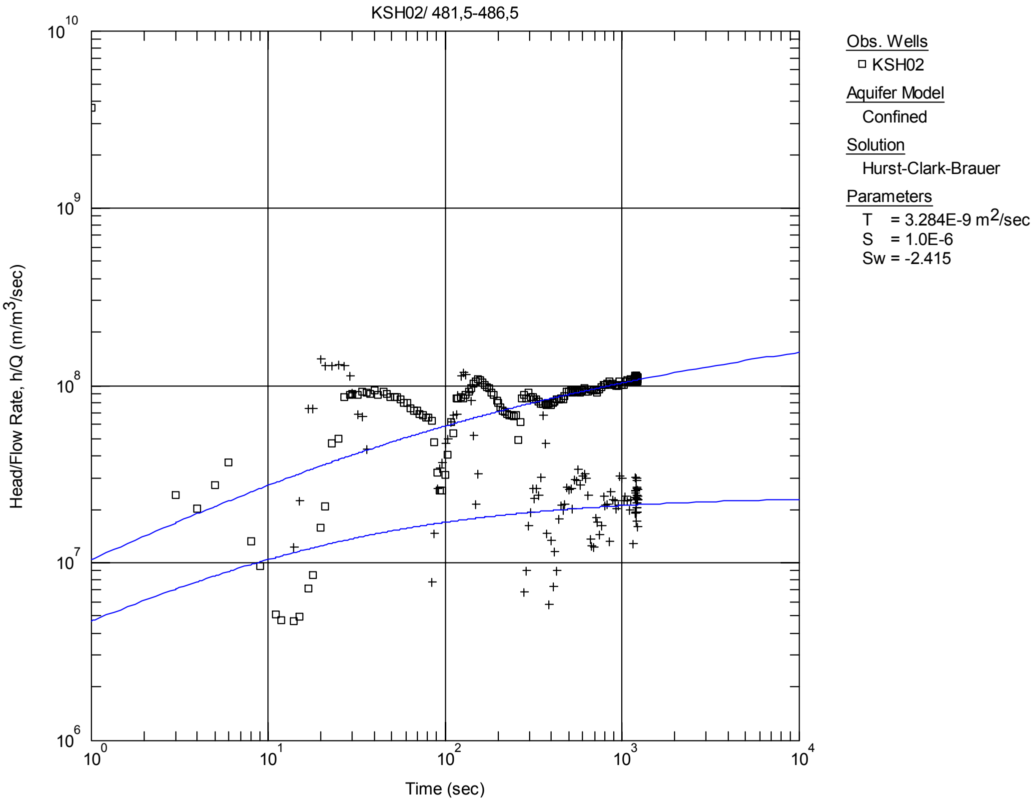
Recovery phase, lin-log match.

Test 481.5–486.5 m

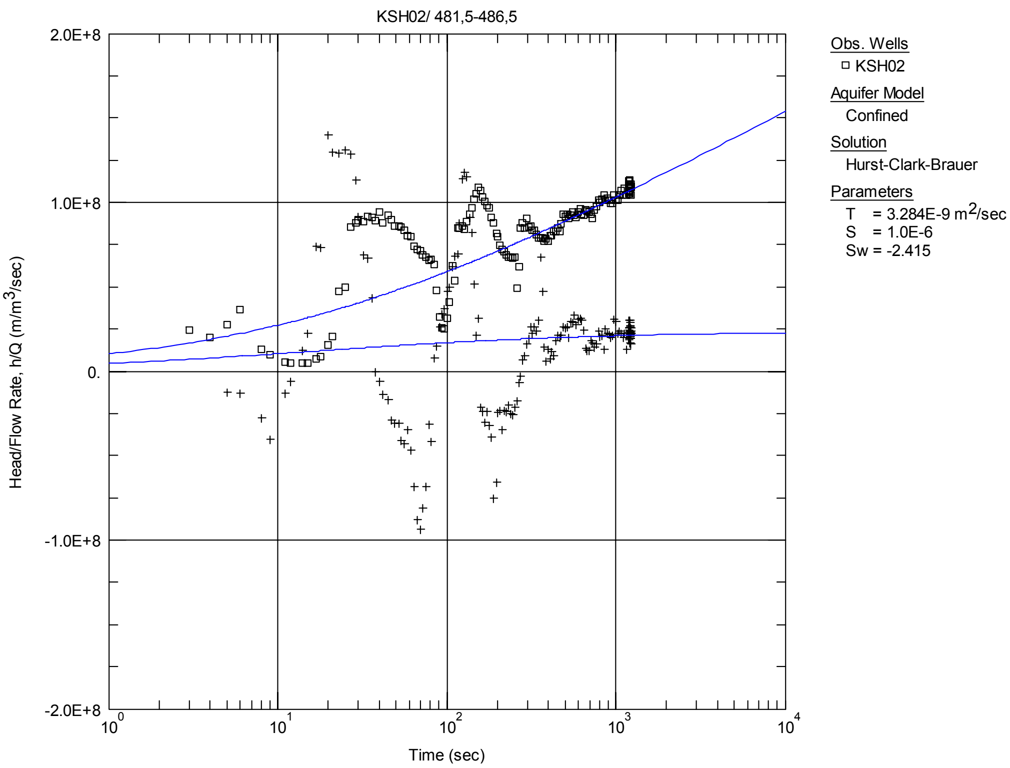
Analysis Diagram



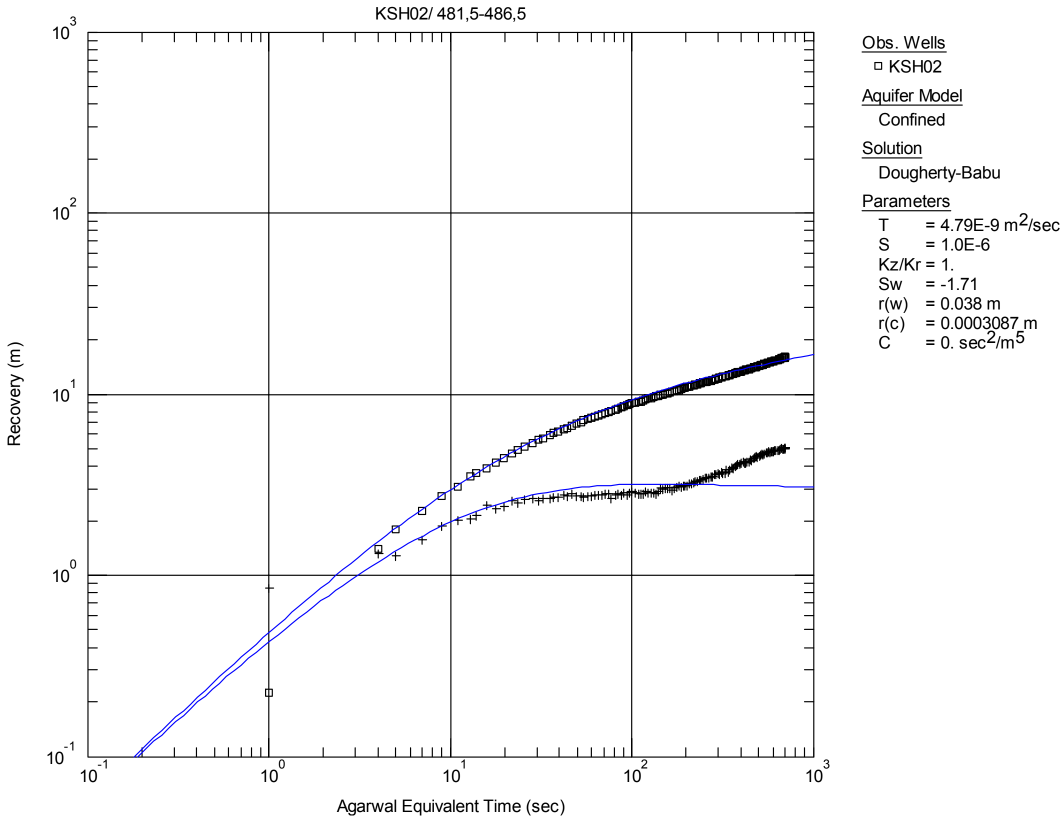
Pressure and flow rate vs. time.



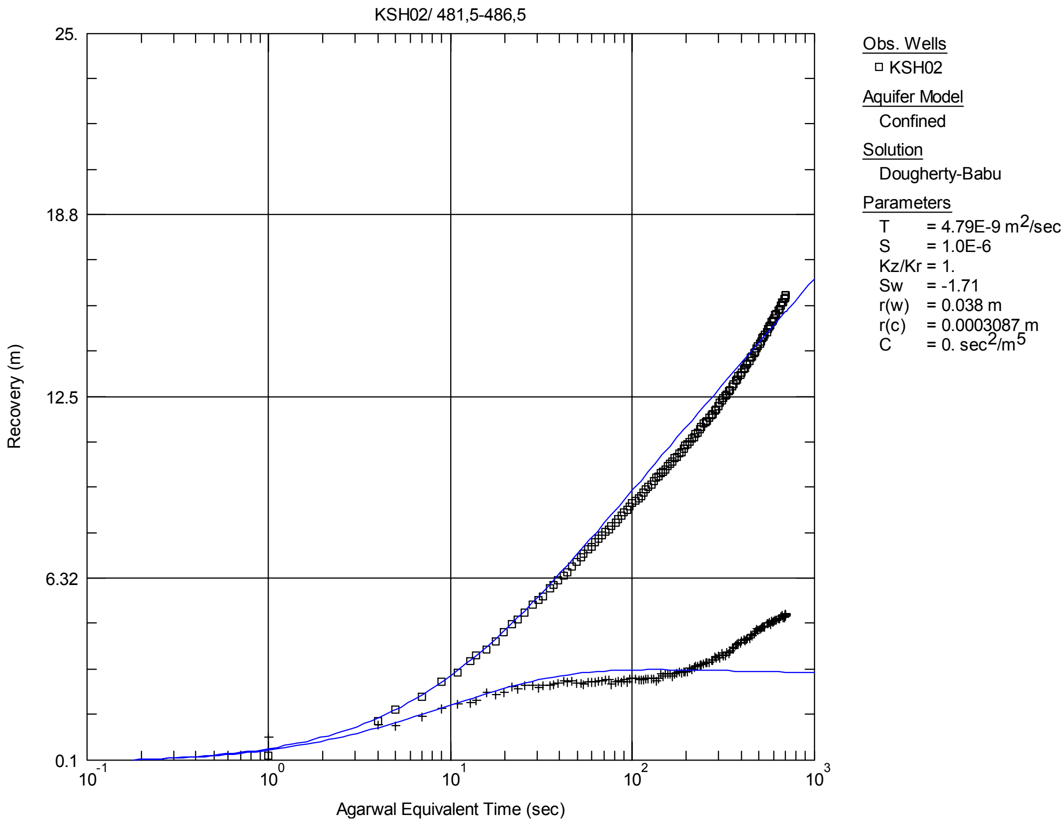
Perturbation phase, log–log match.



Perturbation phase, lin-log match.



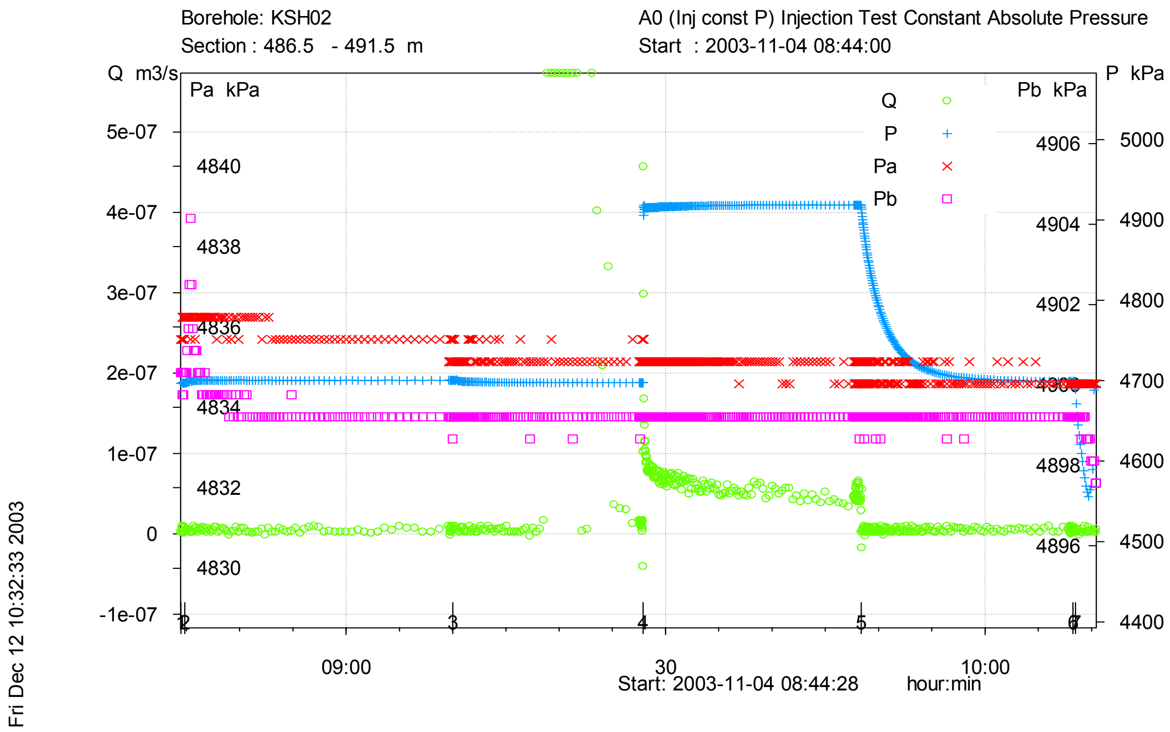
Recovery phase, log-log match.



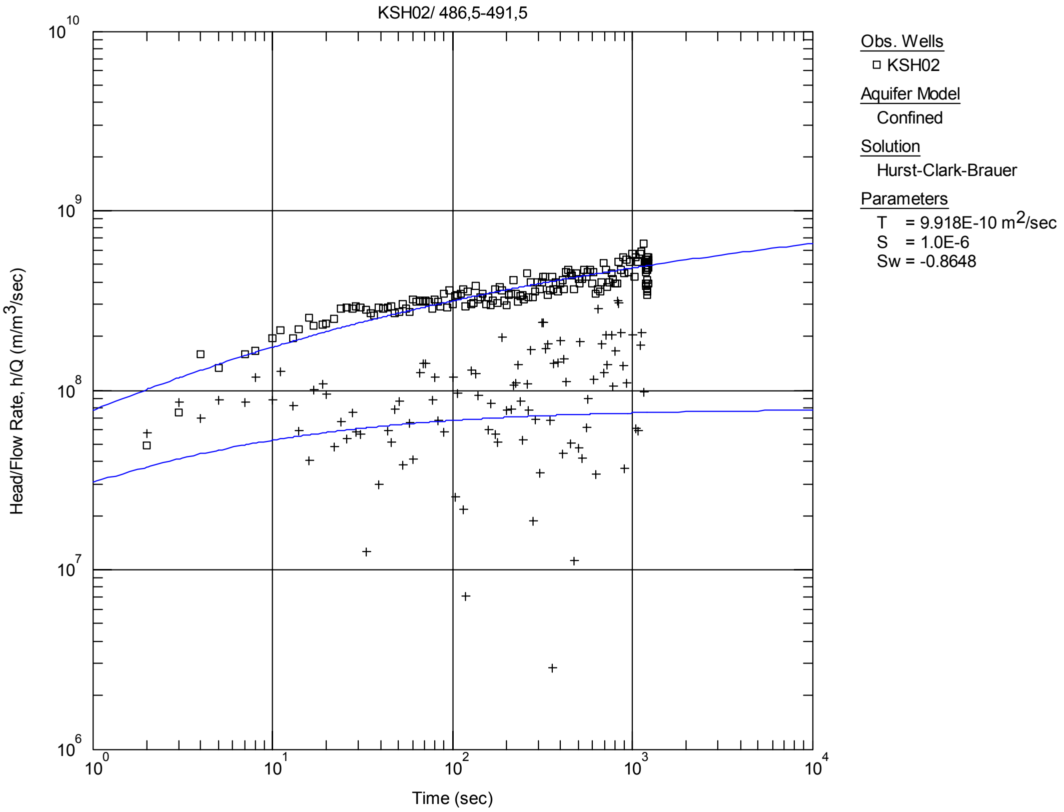
Recovery phase, lin-log match.

Test 486.5–491.5 m

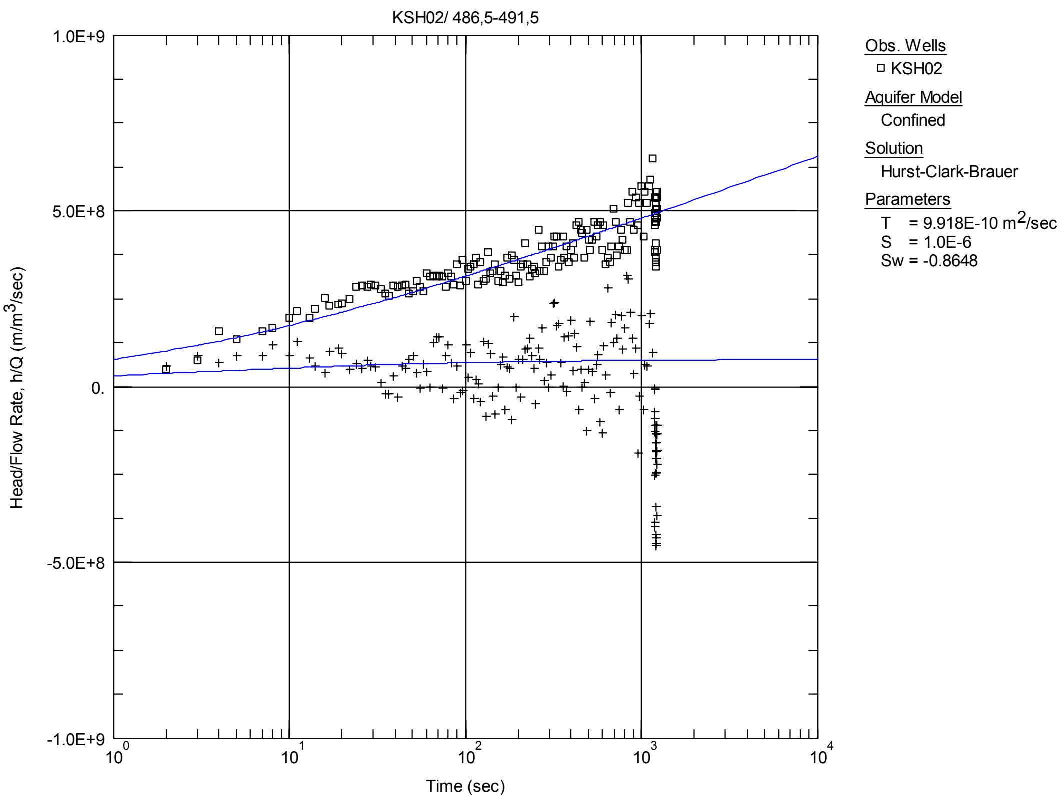
Analysis Diagram



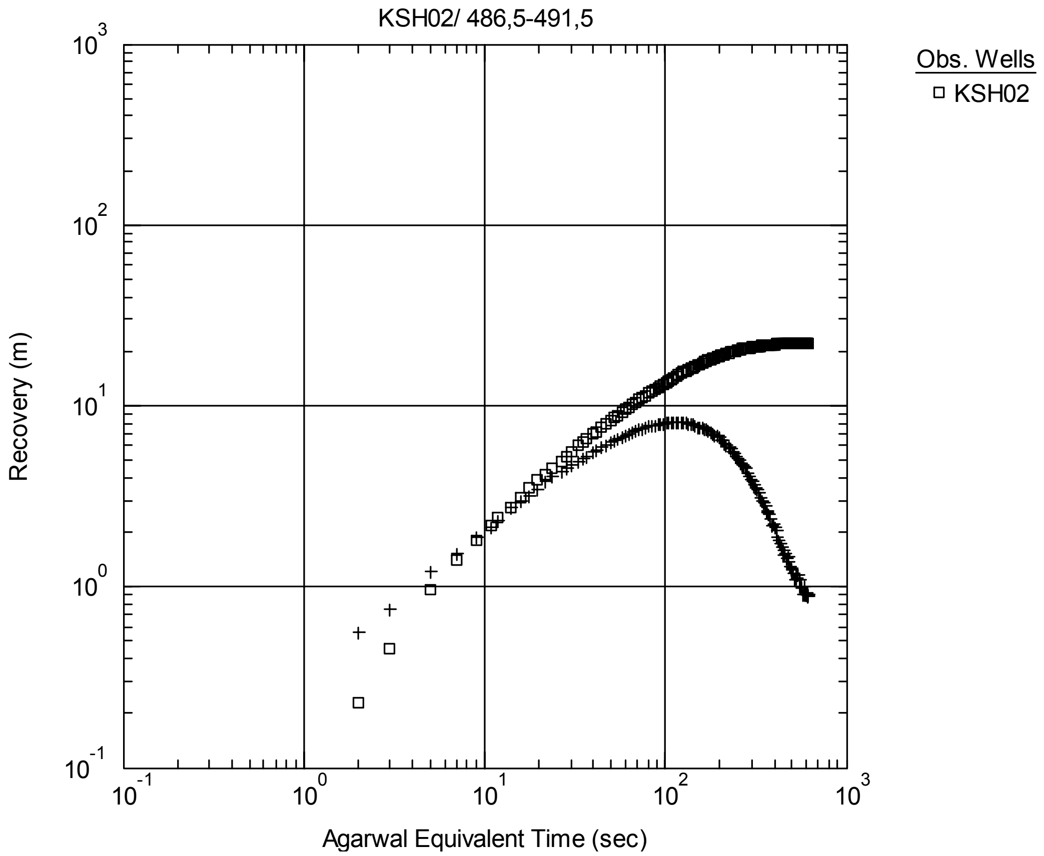
Pressure and flow rate vs. time.



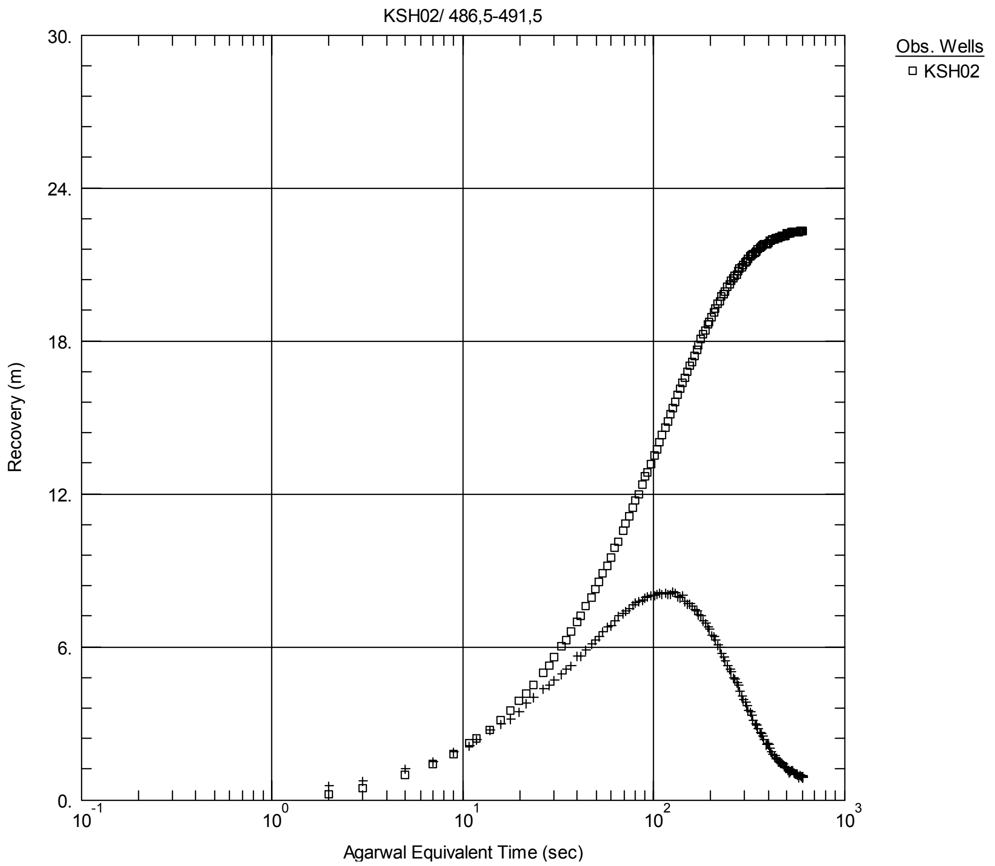
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



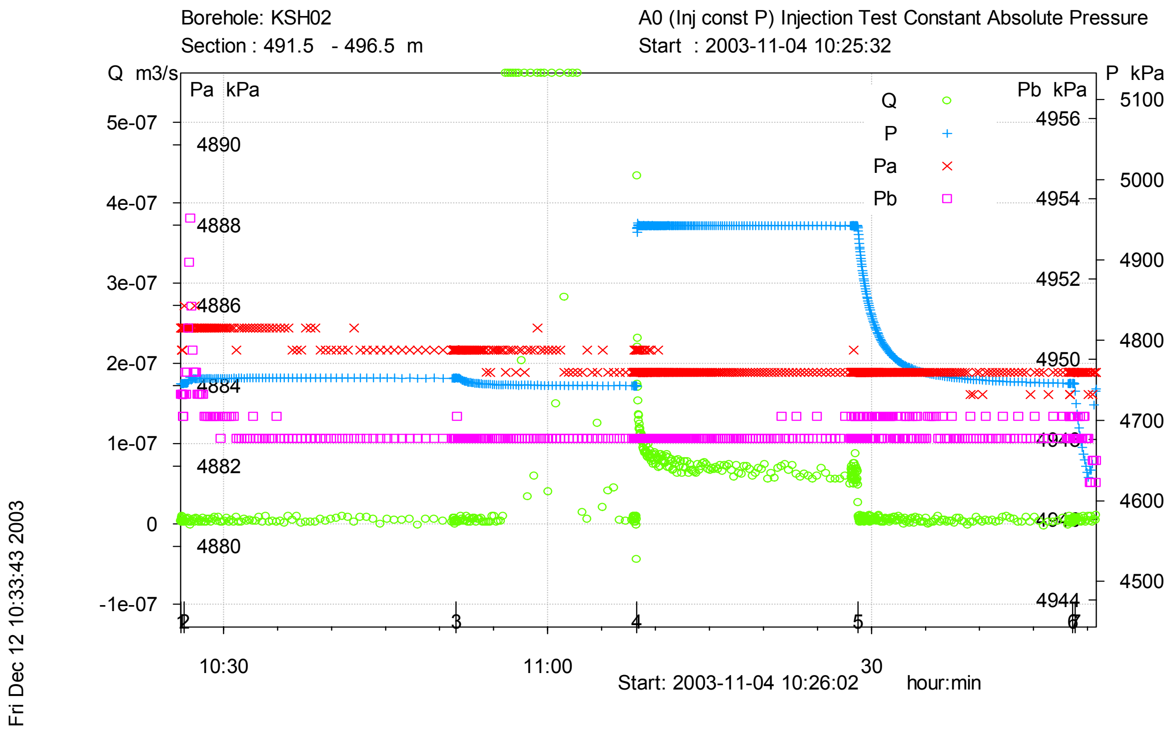
Recovery phase, log-log match.



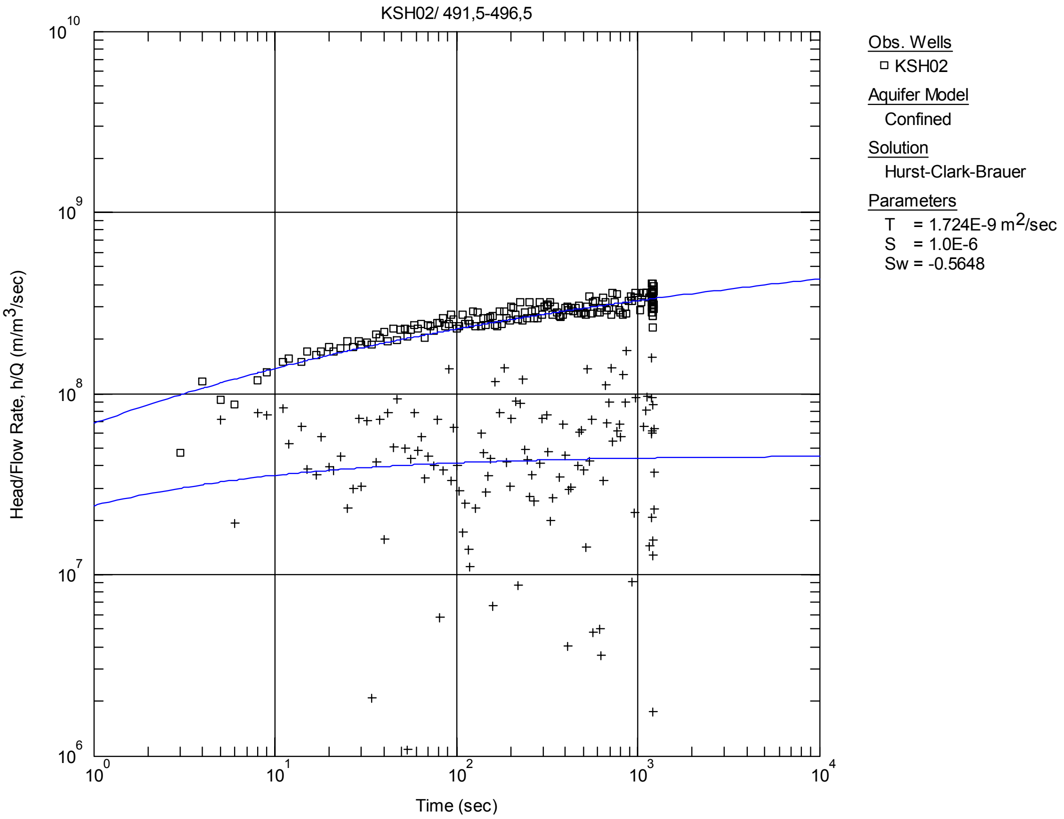
Recovery phase, lin-log match.

Test 491.5–496.5 m

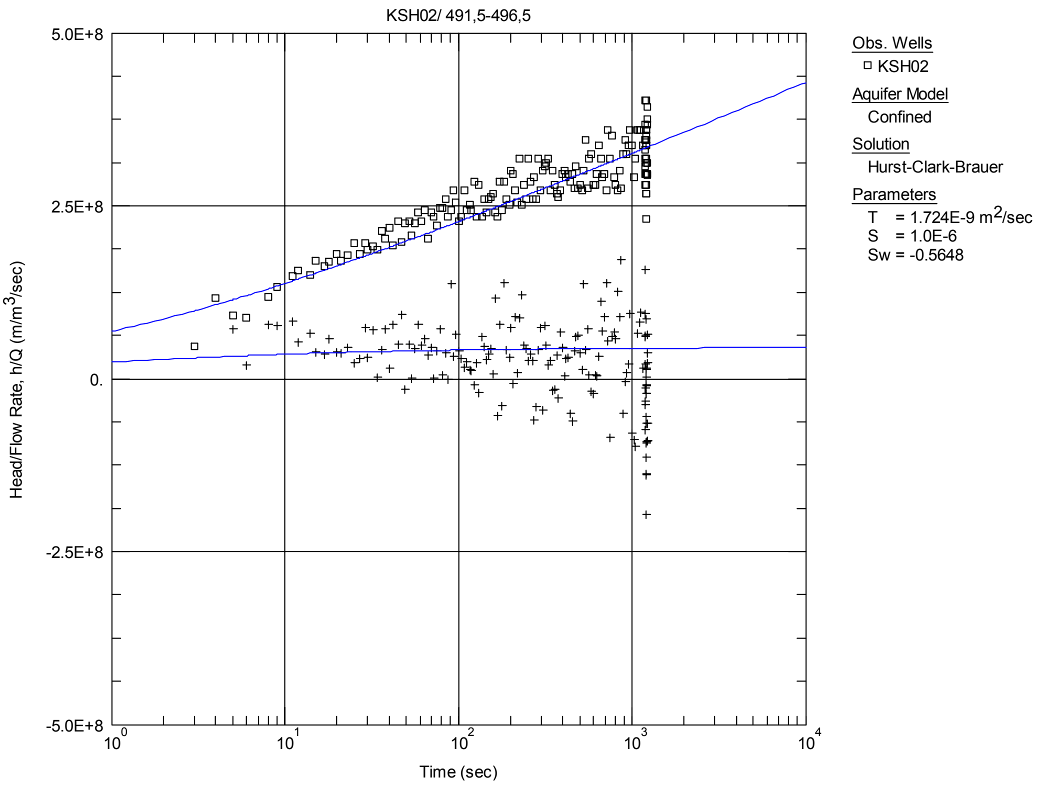
Analysis Diagram



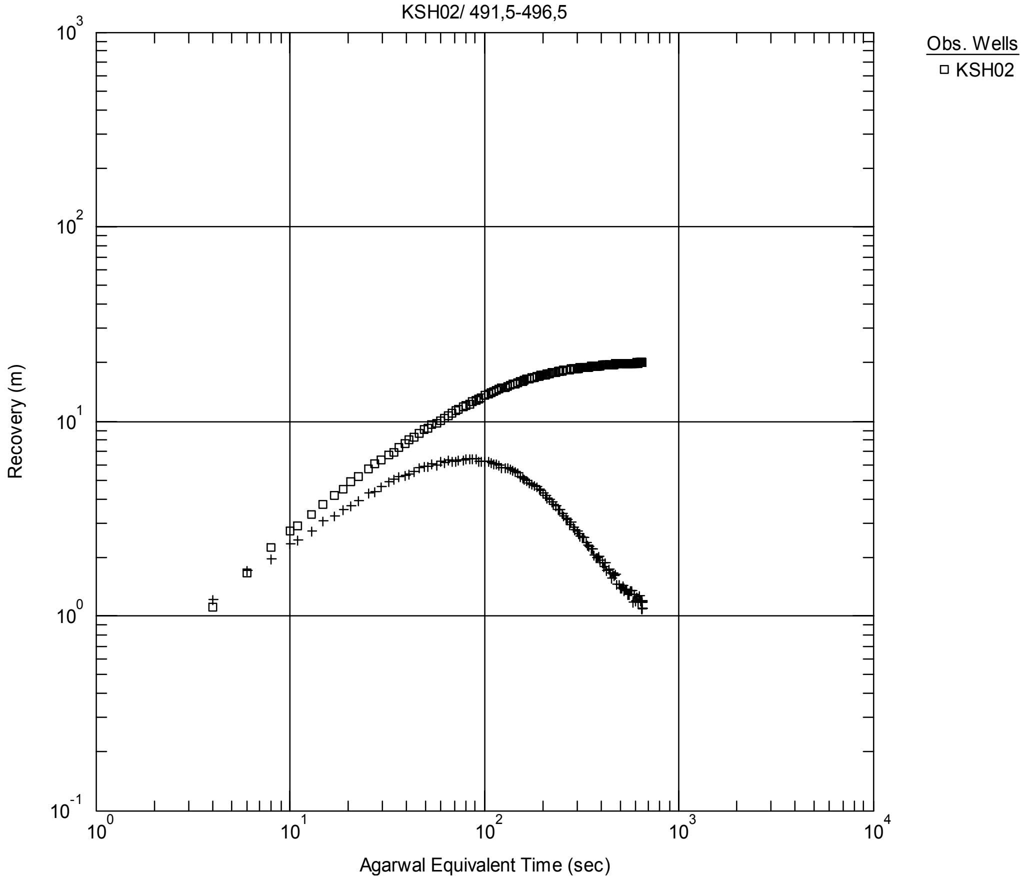
Pressure and flow rate vs. time.



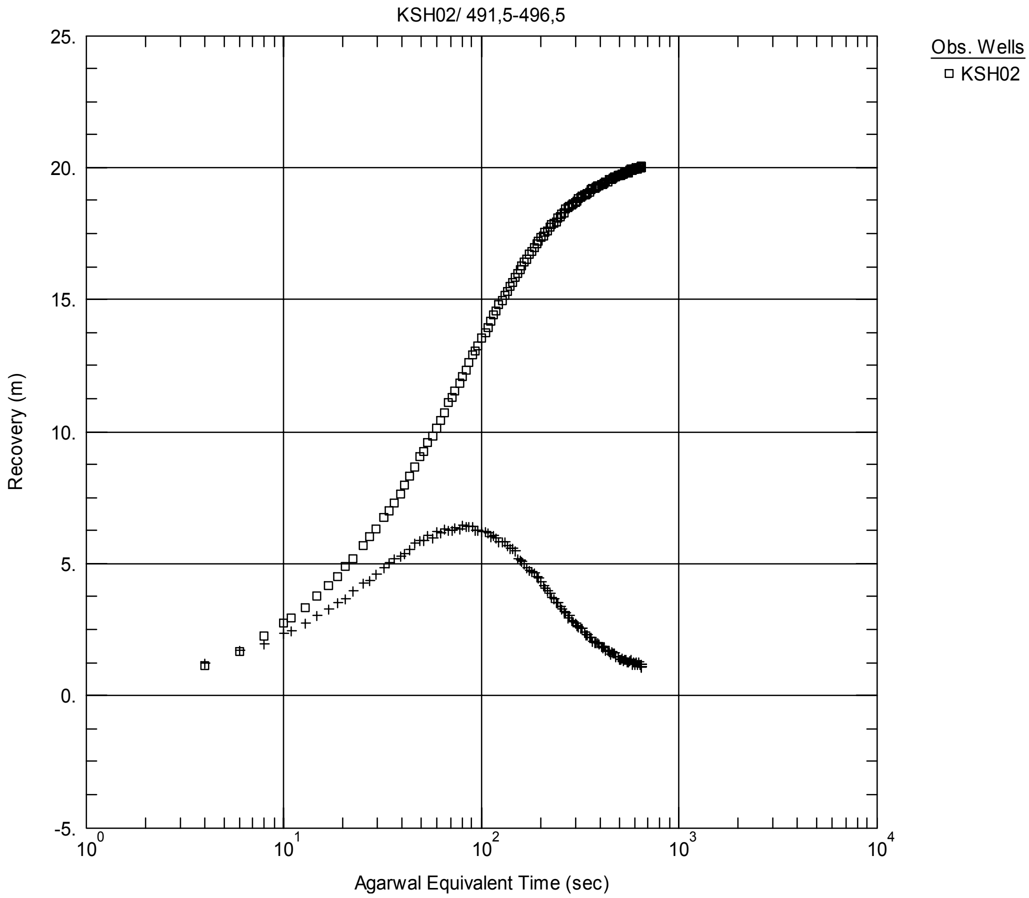
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



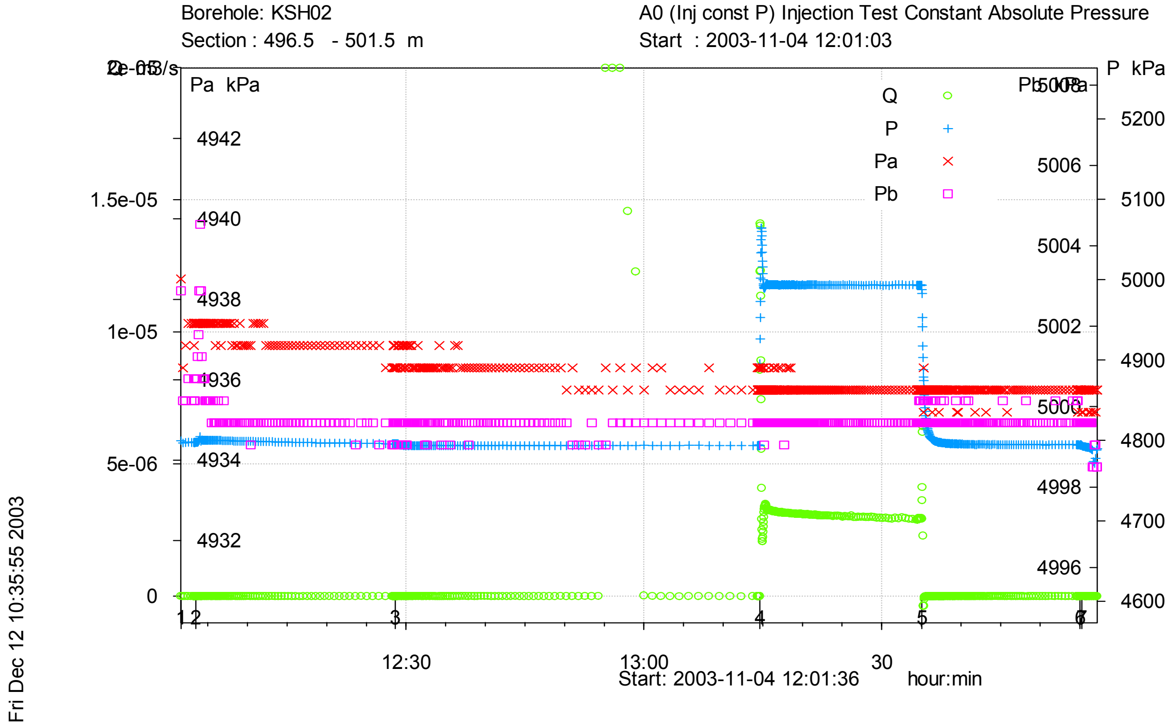
Recovery phase, log-log match.



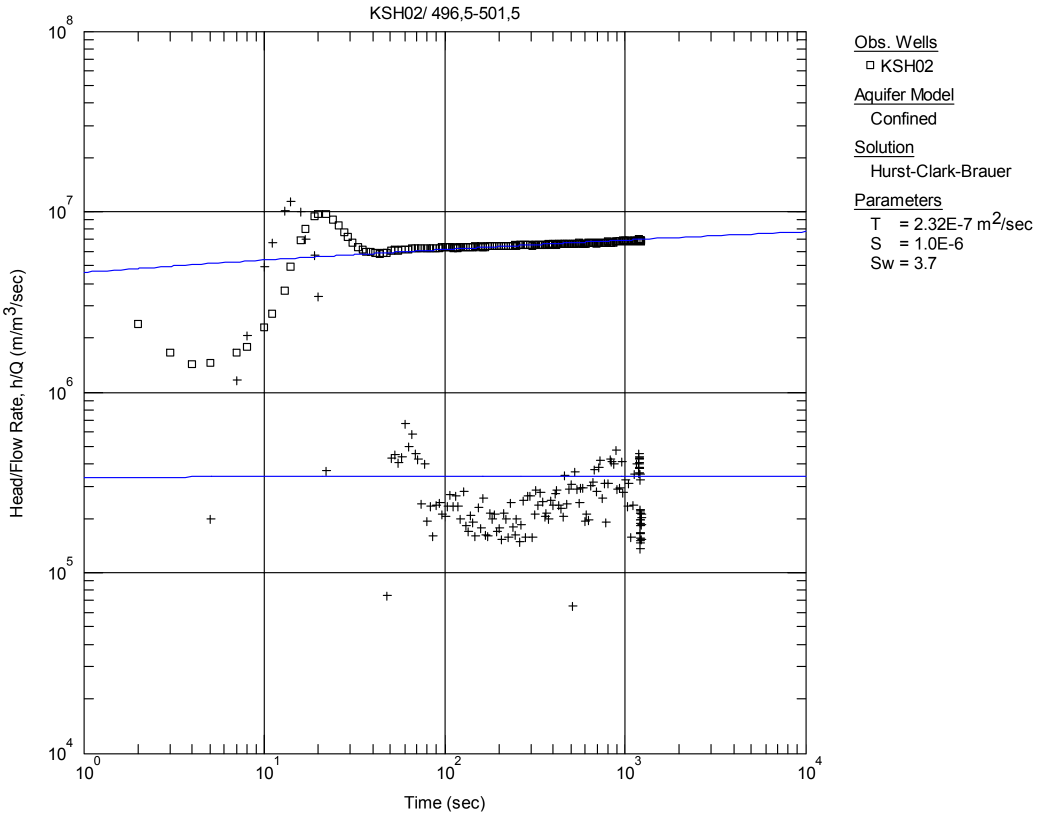
Recovery phase, lin-log match.

Test 496.5–501.5 m

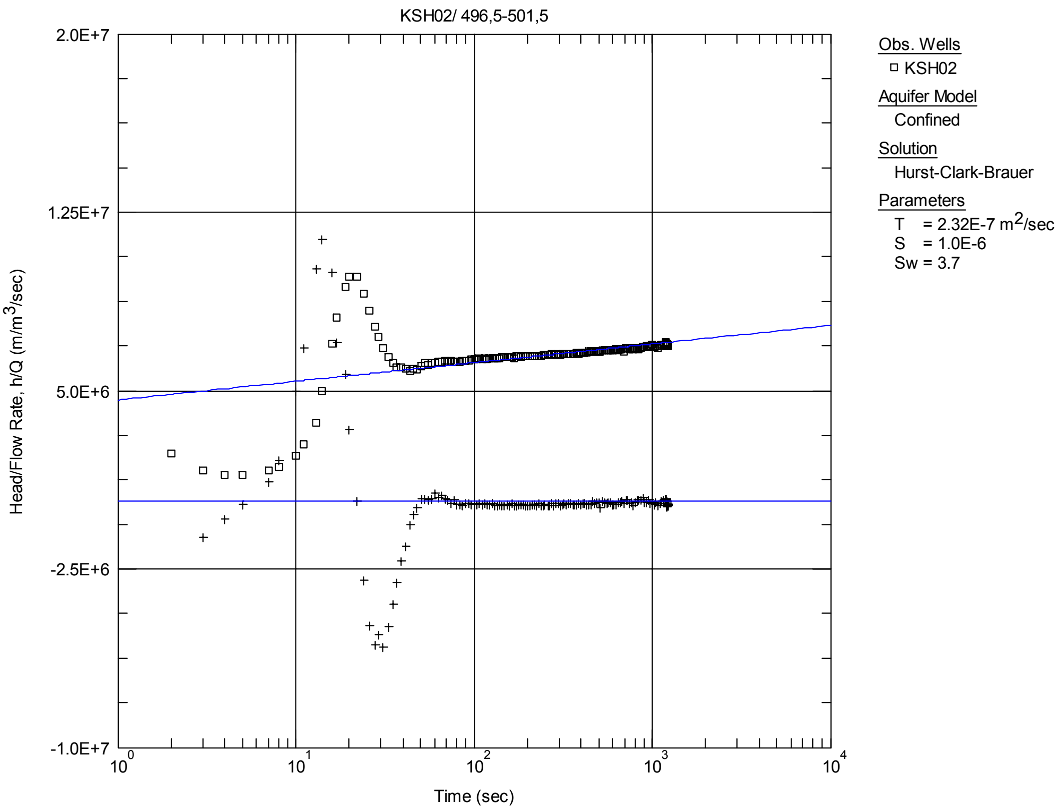
Analysis Diagram



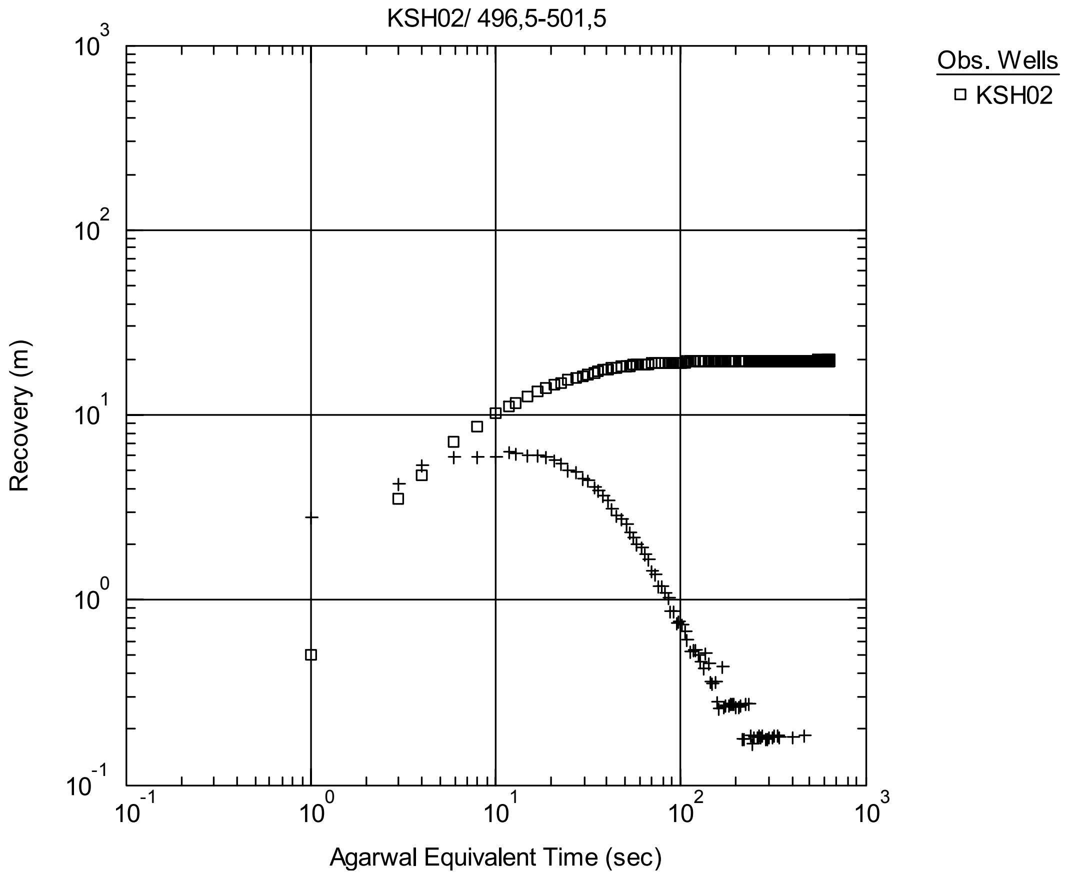
Pressure and flow rate vs. time.



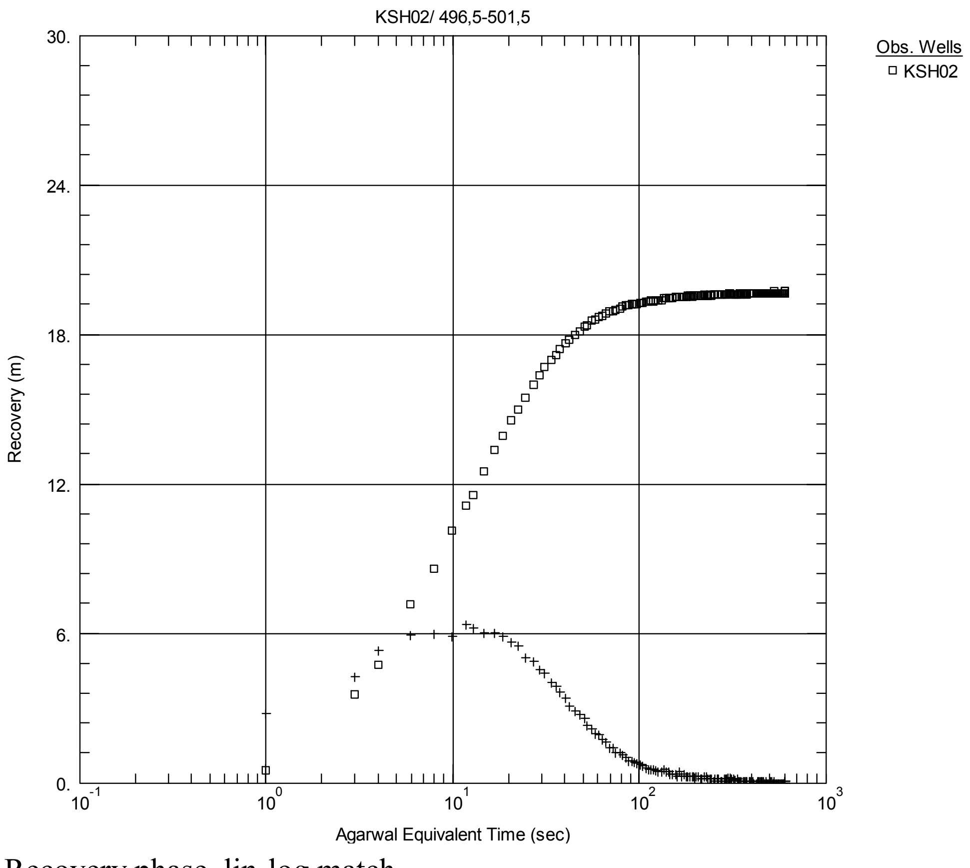
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



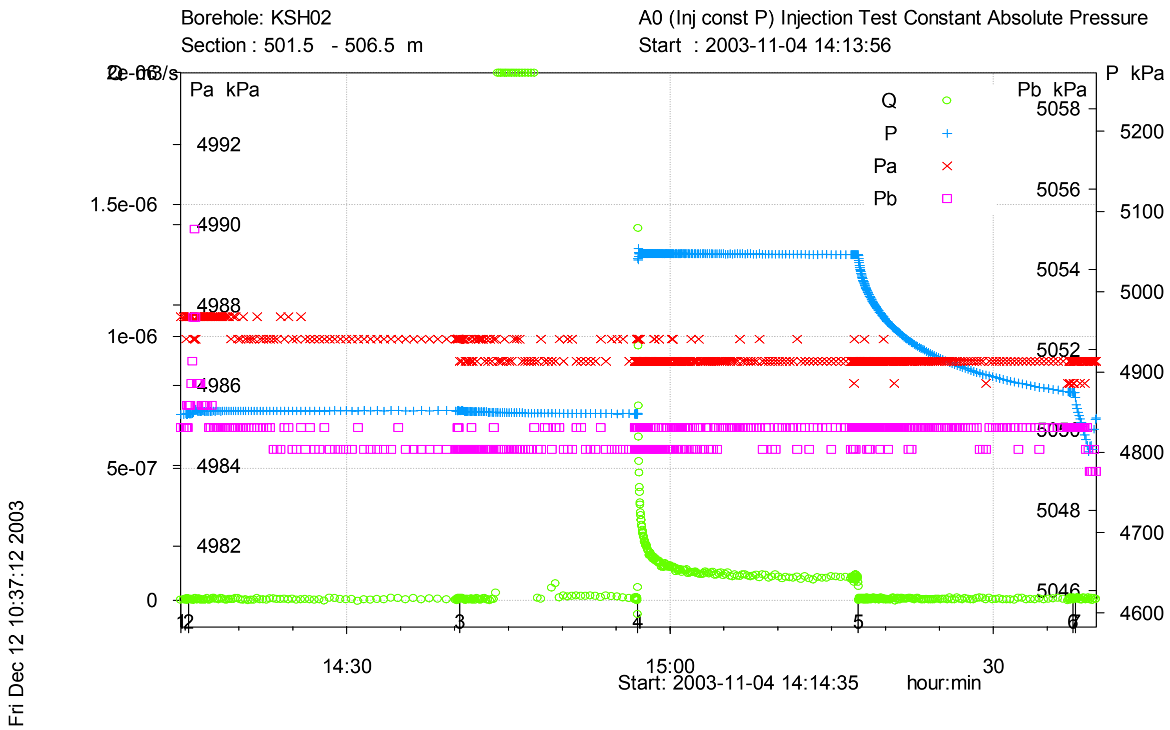
Recovery phase, log-log match.



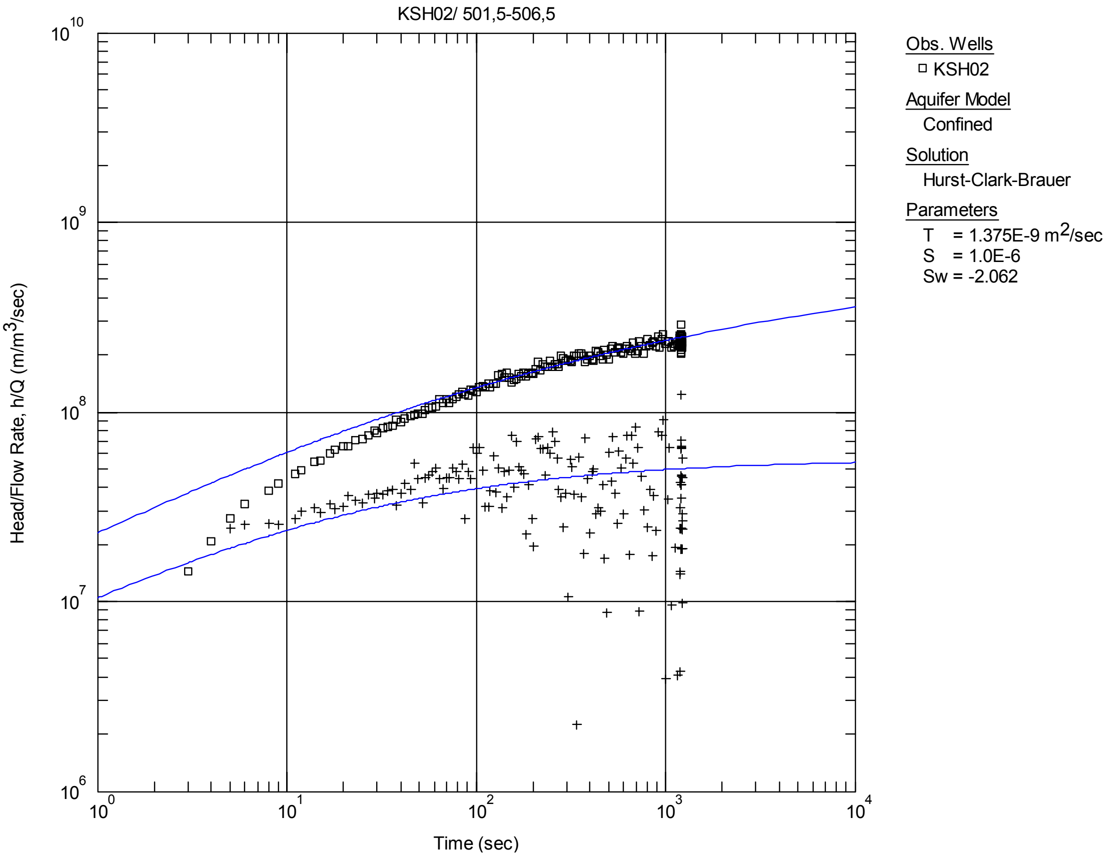
Recovery phase, lin-log match.

Test 501.5–506.5 m

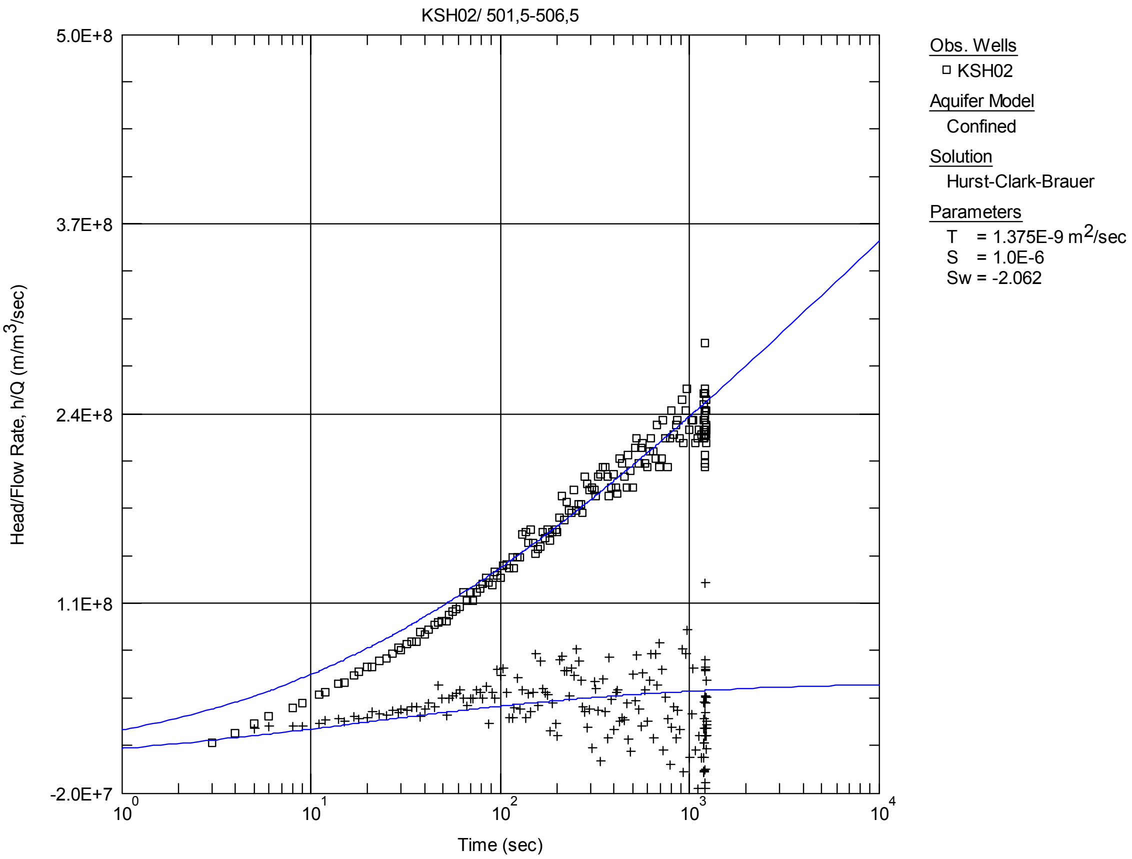
Analysis Diagram



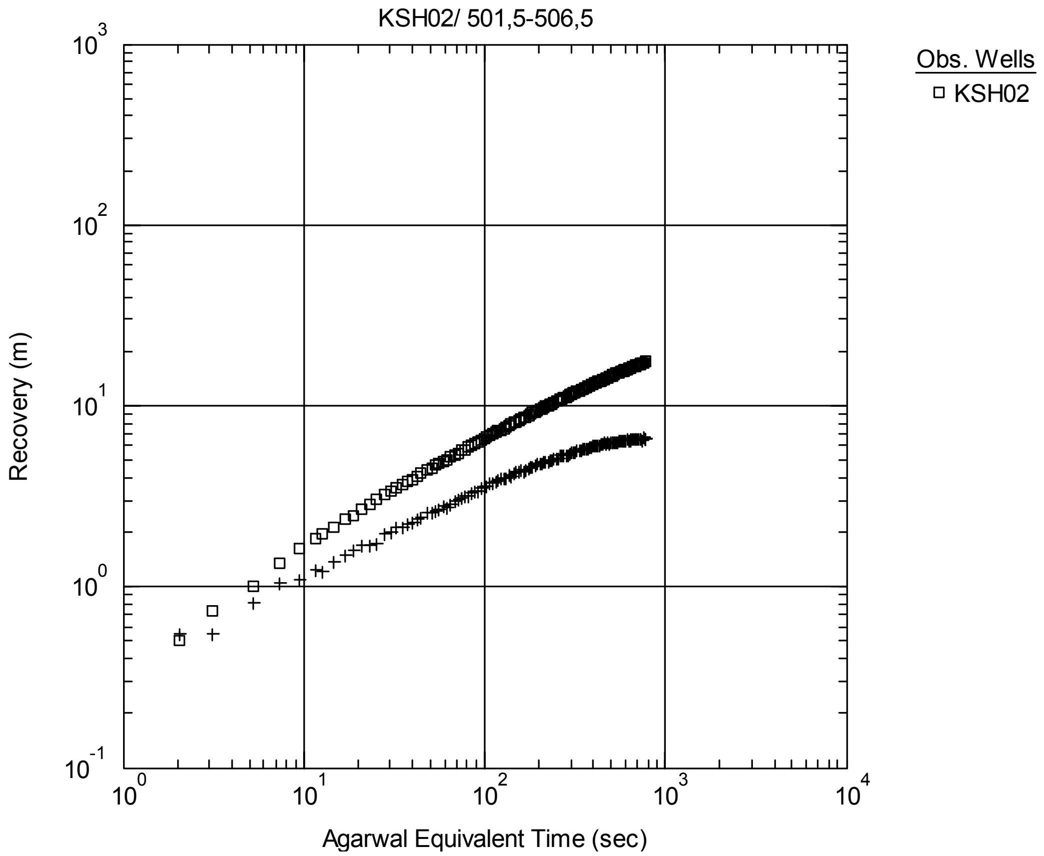
Pressure and flow rate vs. time.



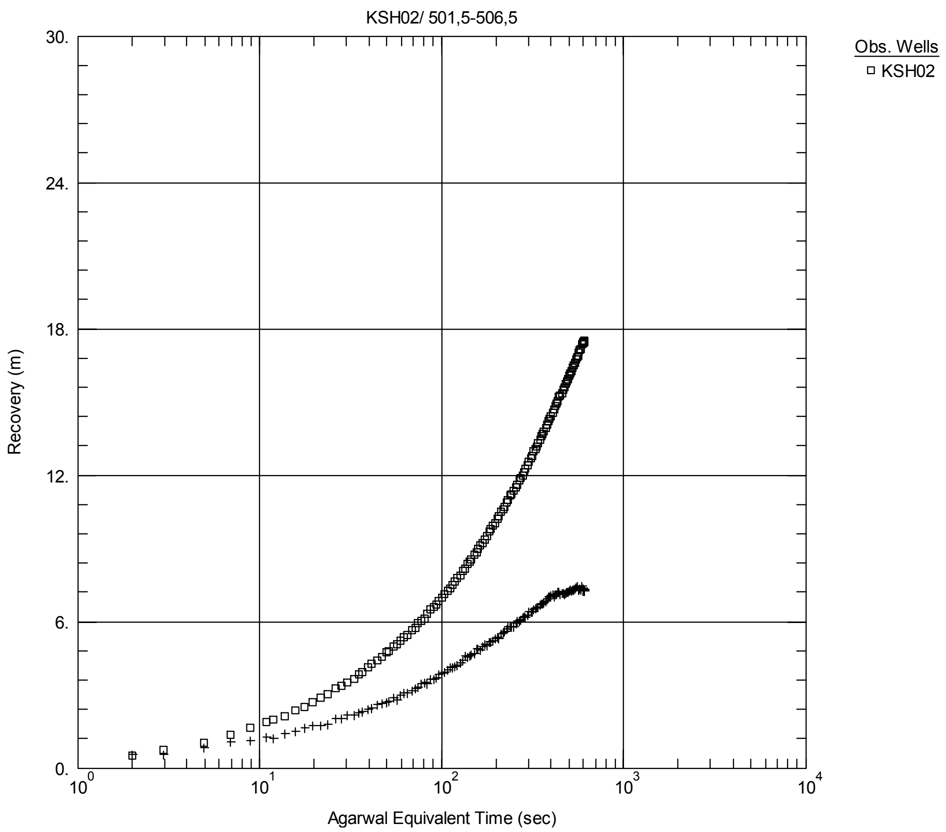
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



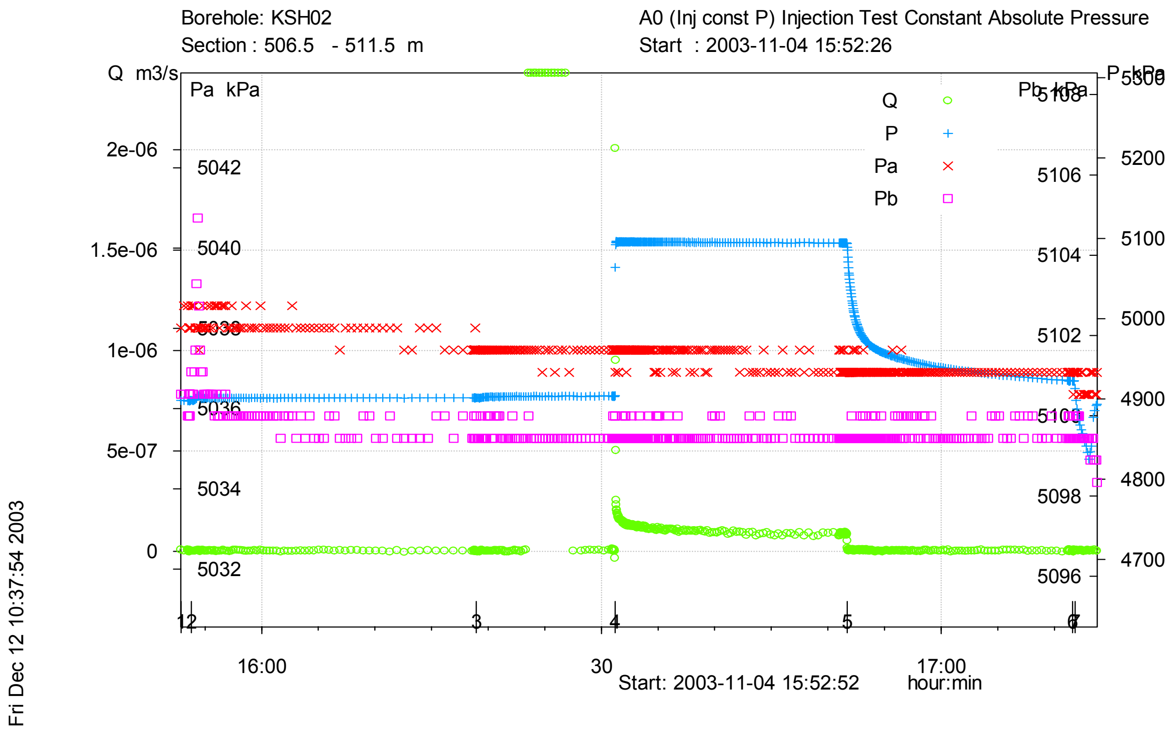
Recovery phase, log-log match.



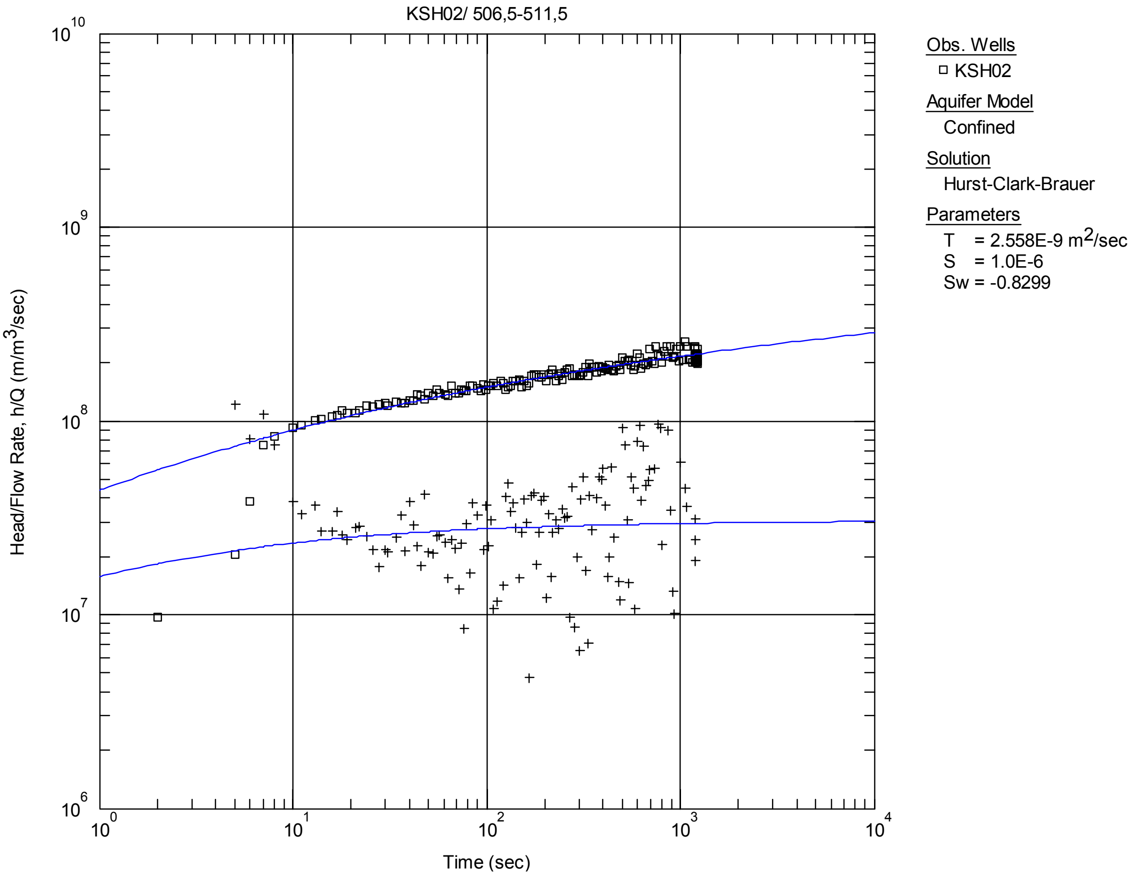
Recovery phase, lin-log match

Test 506.5–511.5 m

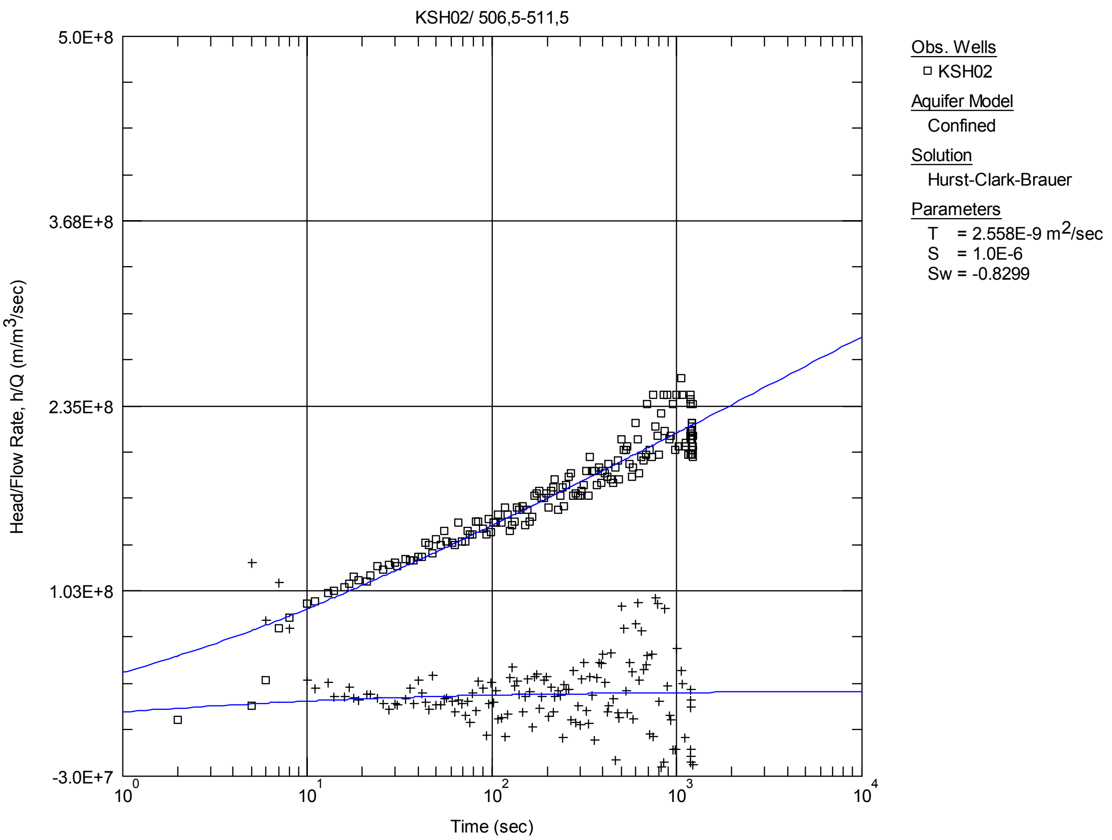
Analysis Diagram



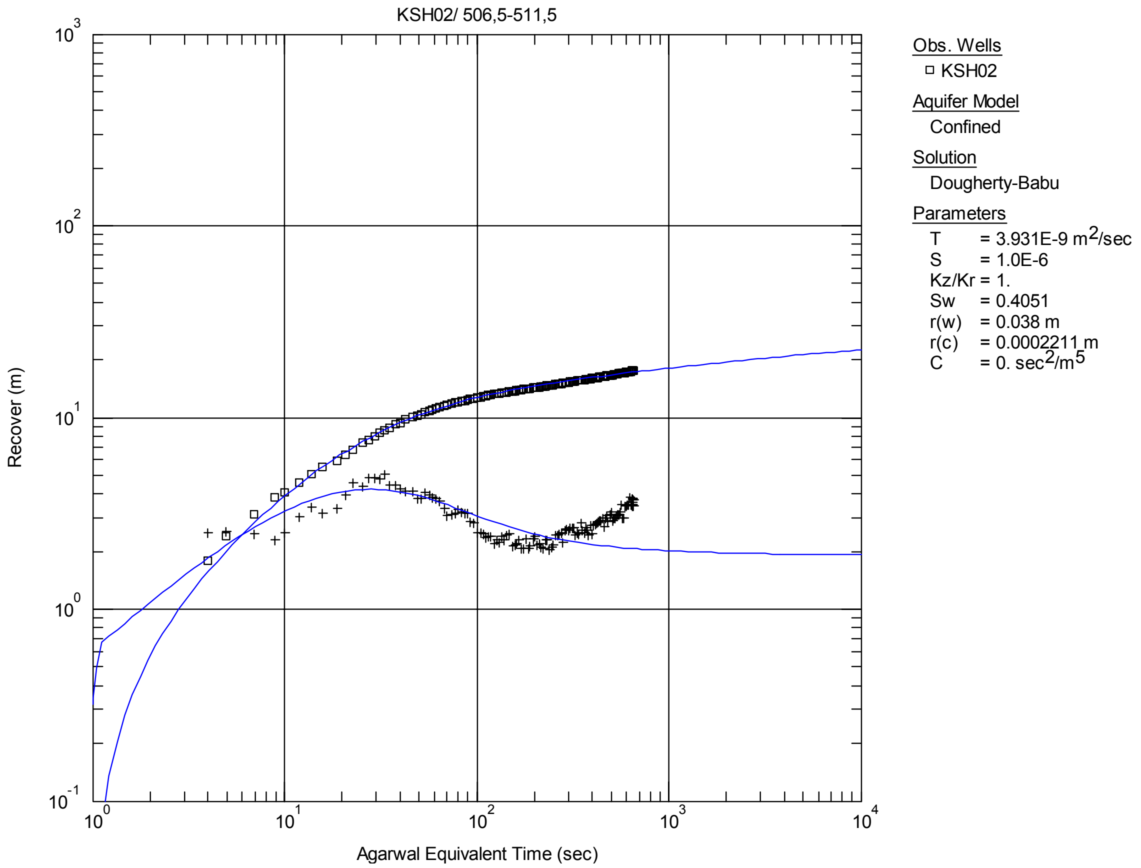
Pressure and flow rate vs. time.



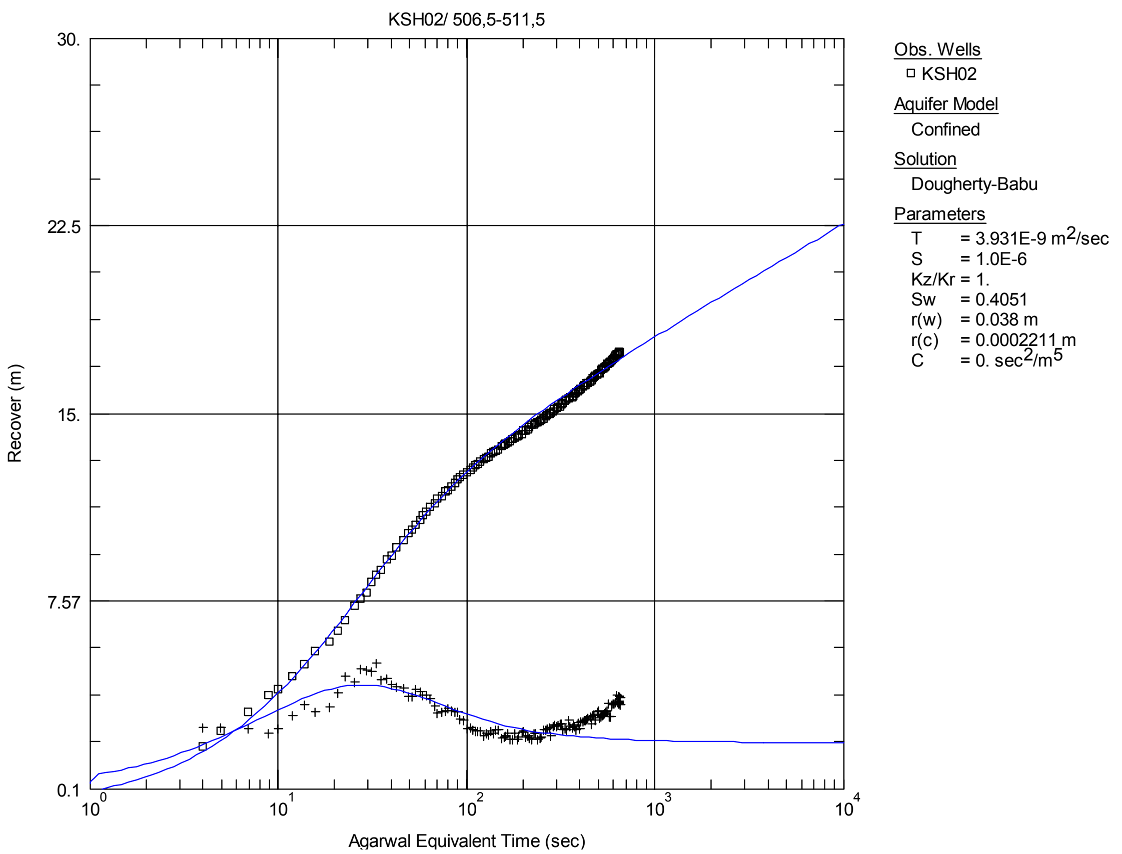
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



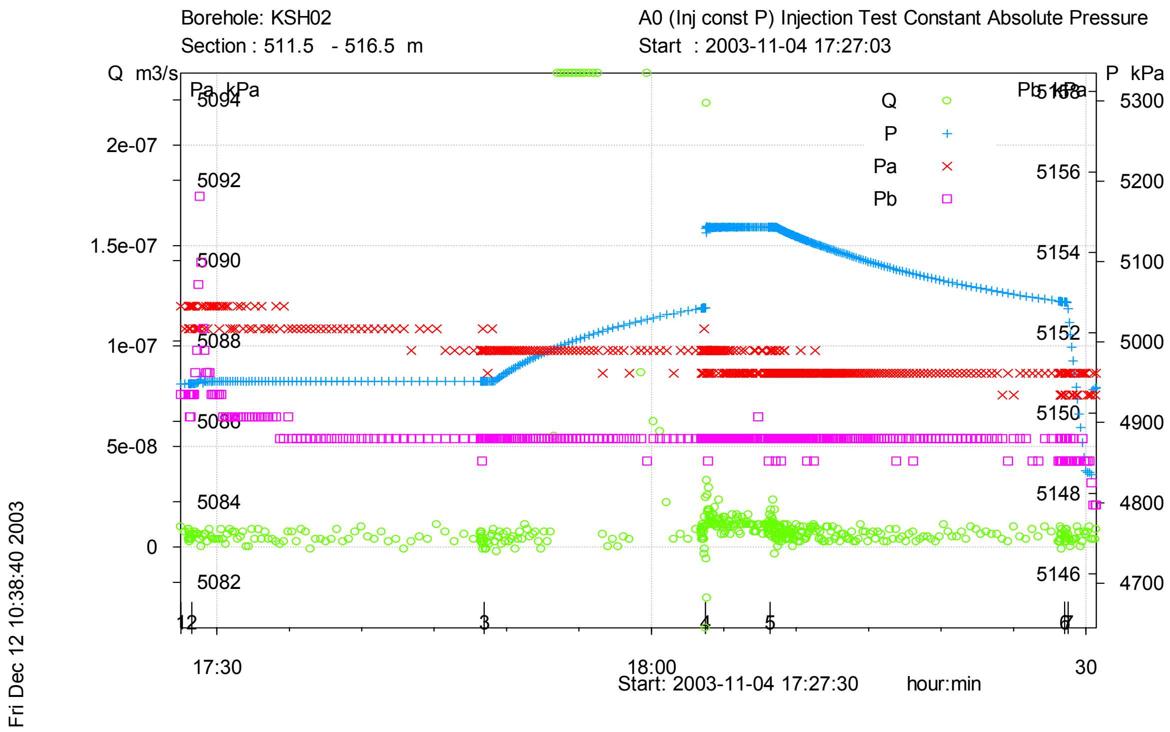
Recovery phase, log-log match.



Recovery phase, lin-log match.

Test 511.5–516.5 m

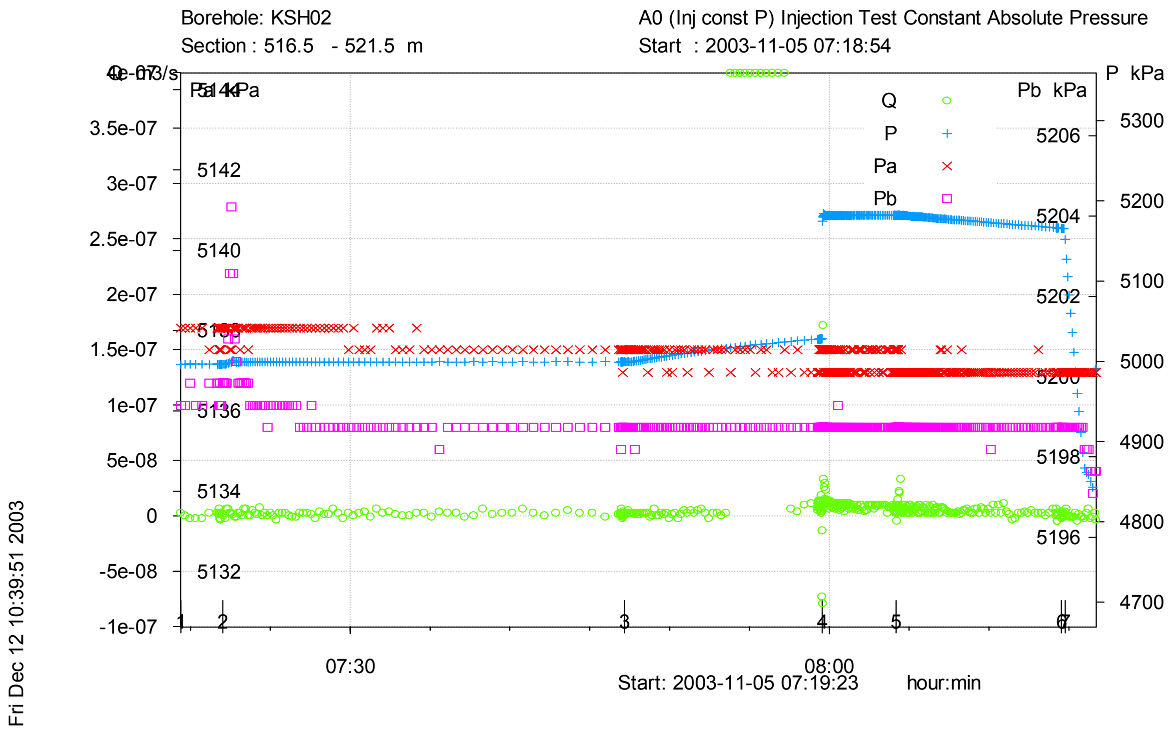
Analysis Diagram



Pressure and flow rate vs. time.

Test 516.5–521.5 m

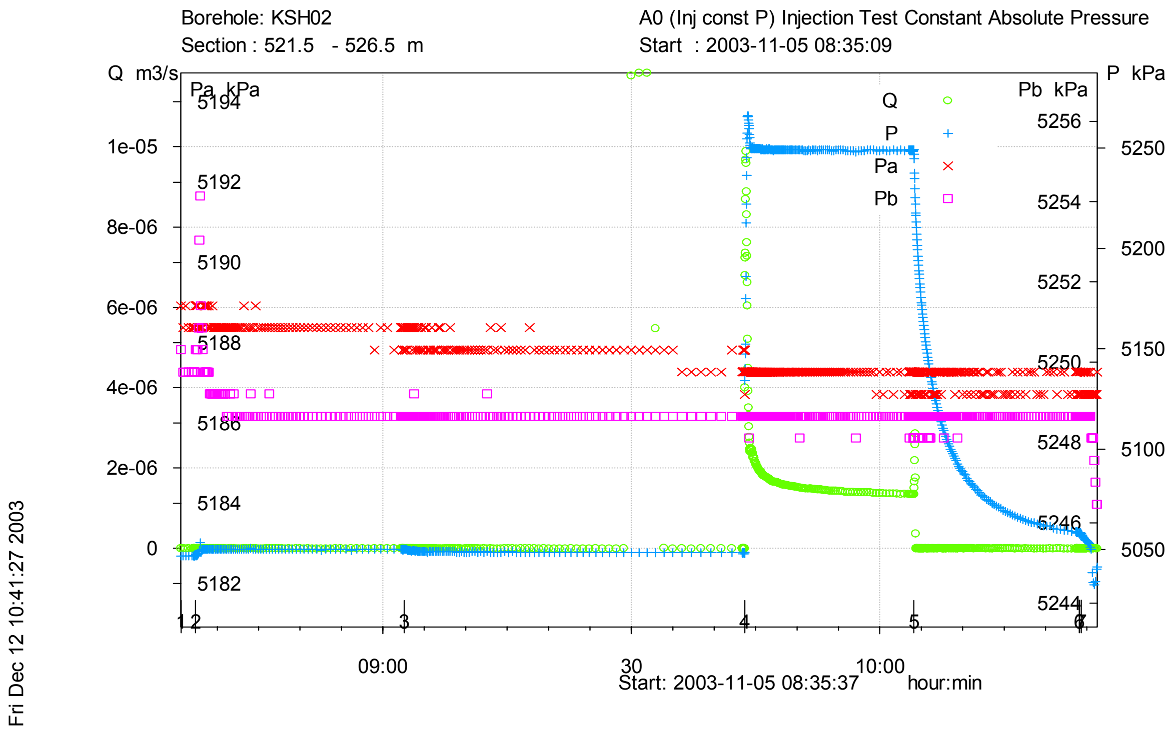
Analysis Diagram



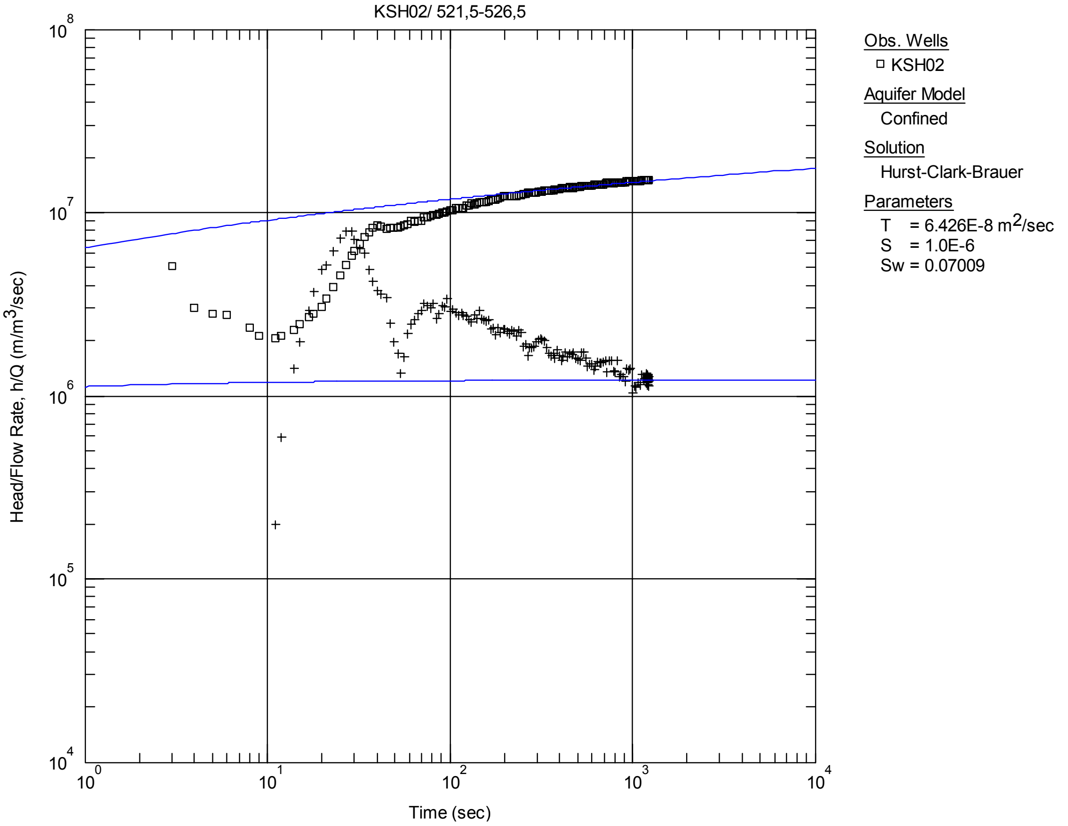
Pressure and flow rate vs. time.

Test 521.5–526.5 m

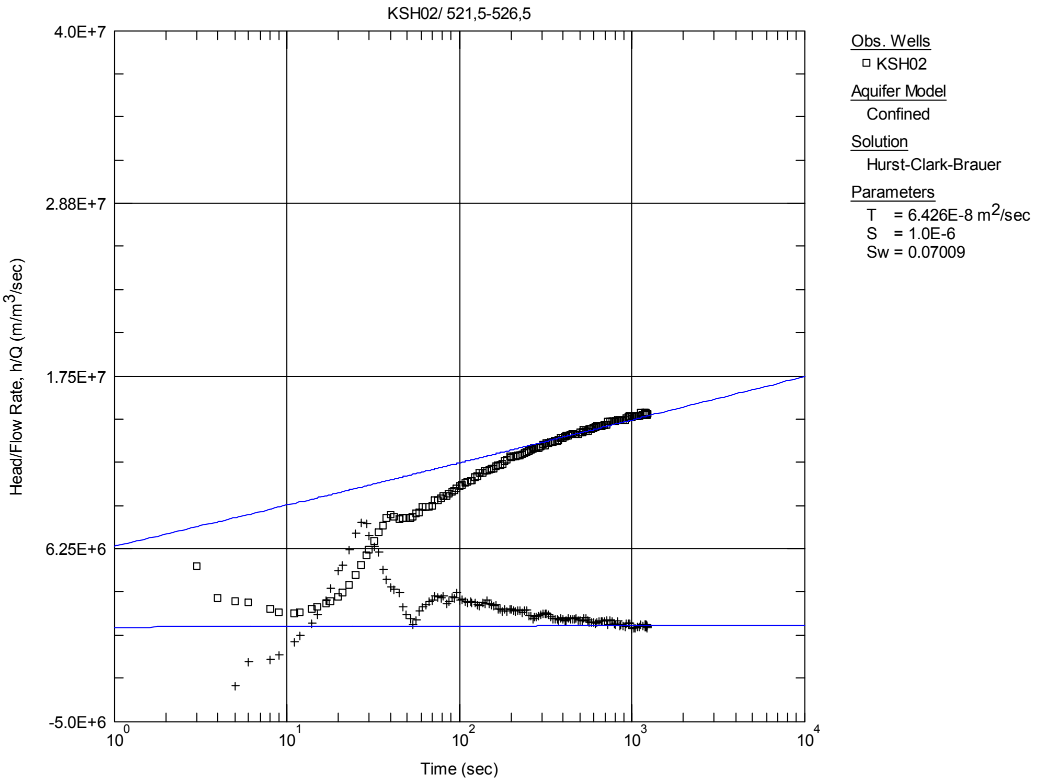
Analysis Diagram



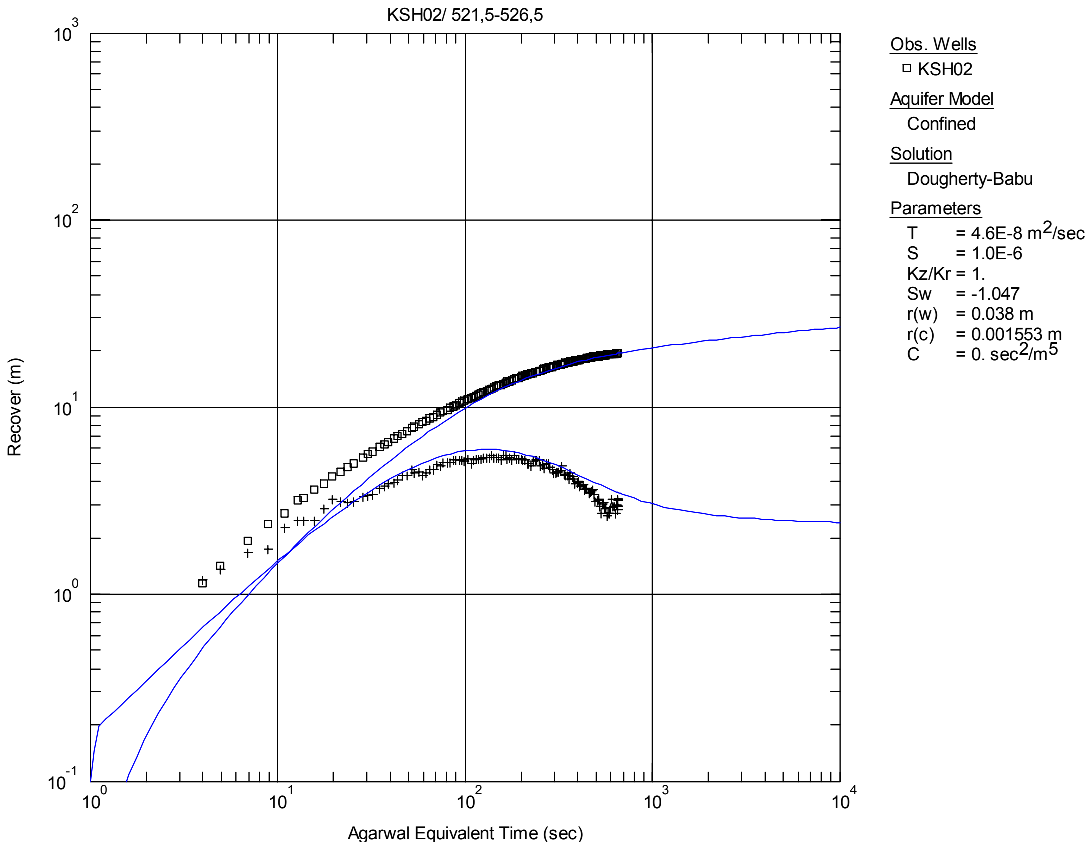
Pressure and flow rate vs. time.



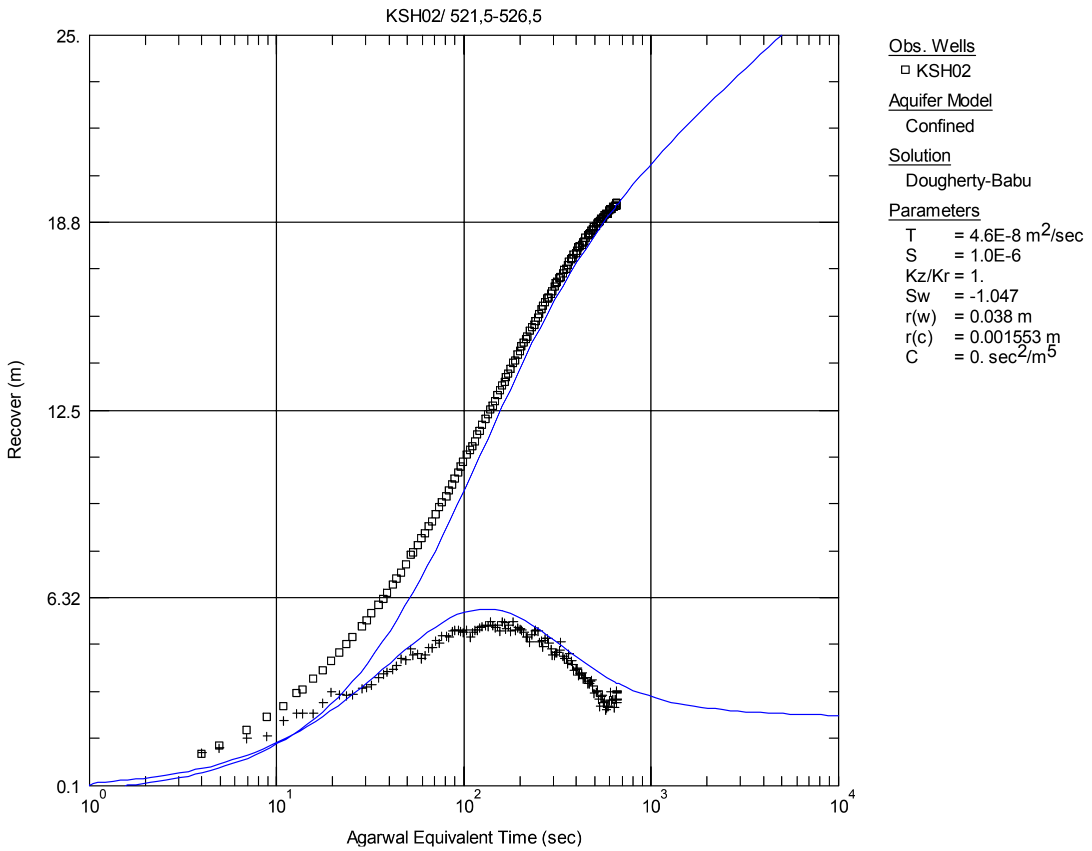
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



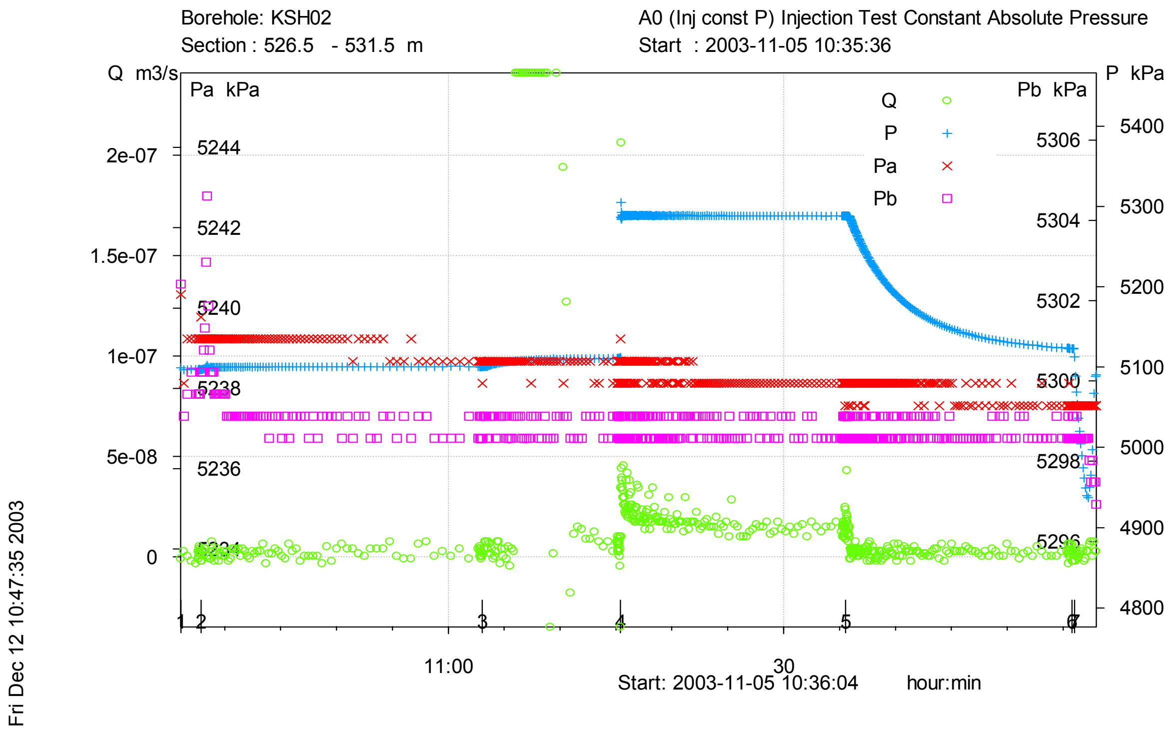
Recovery phase, log-log match.



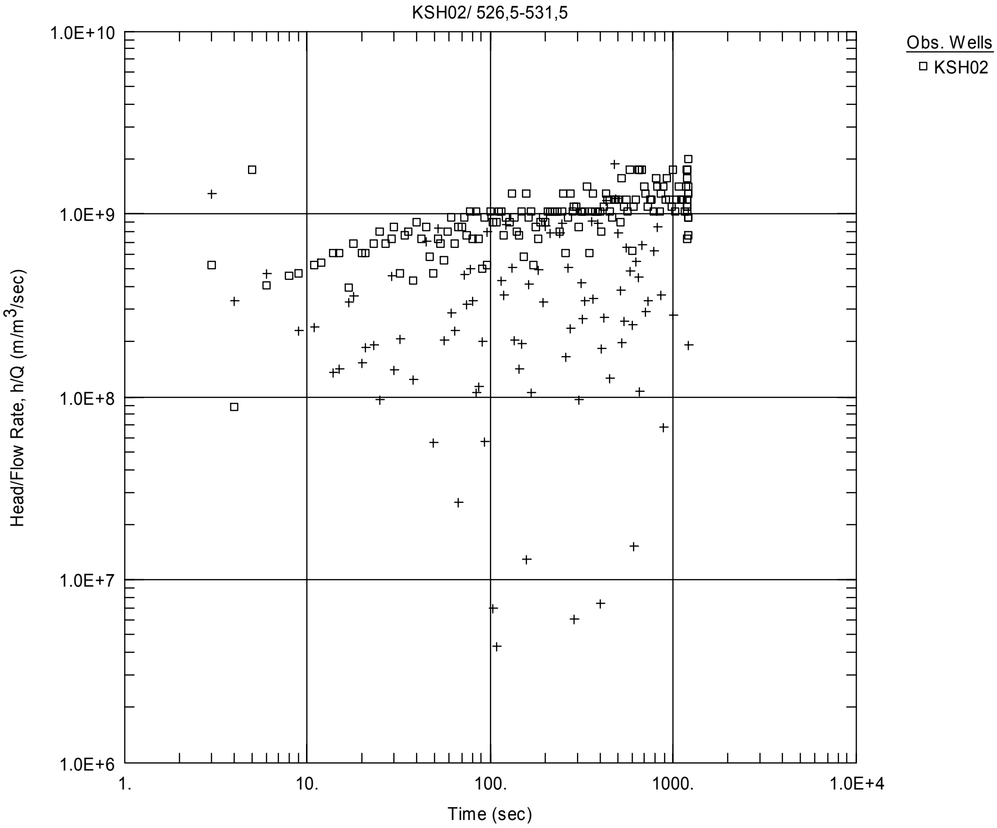
Recovery phase, lin-log match.

Test 526.5–531.5 m

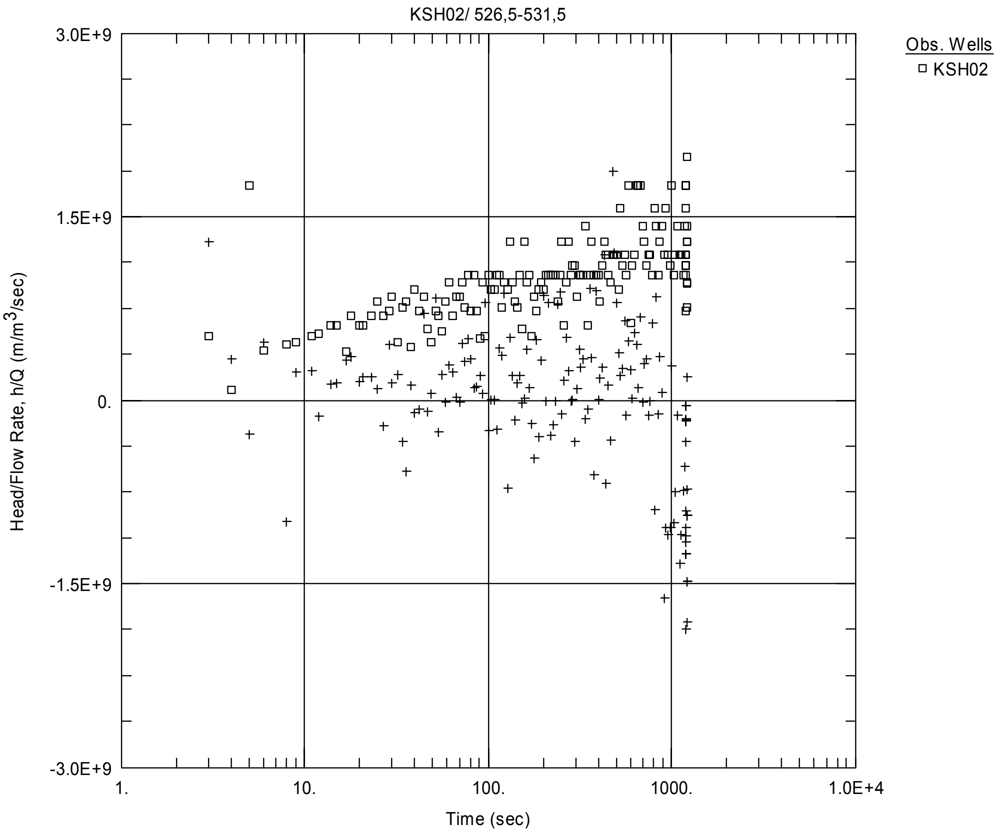
Analysis Diagram



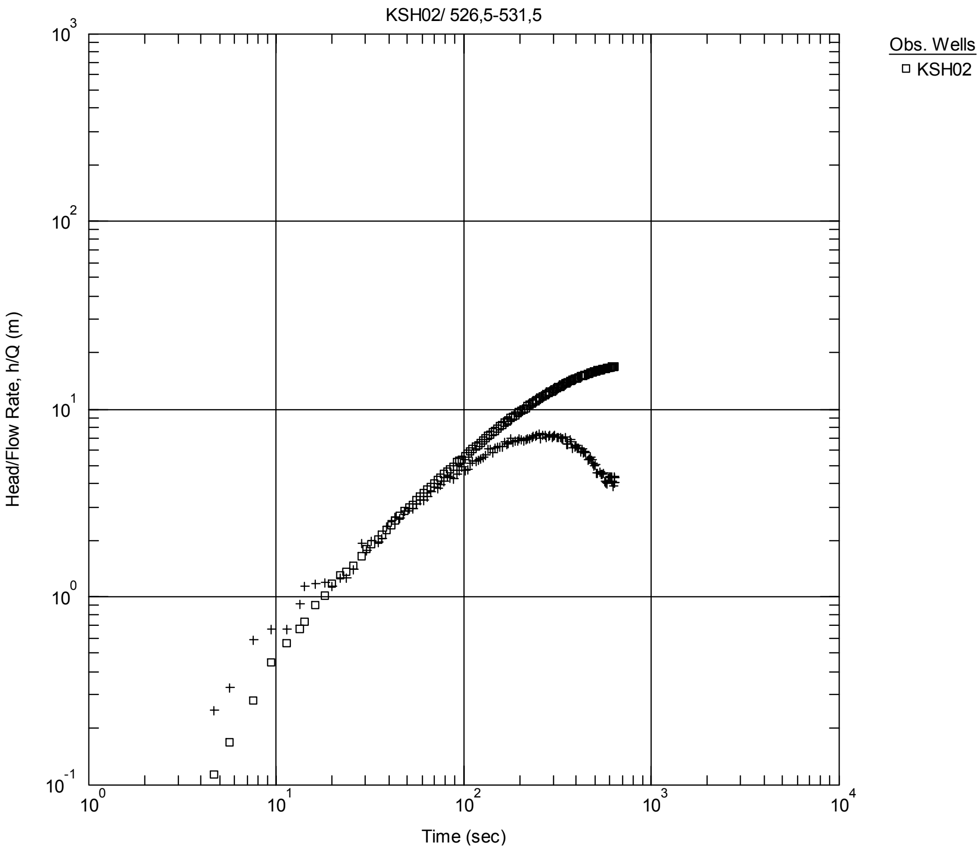
Pressure and flow rate vs. time.



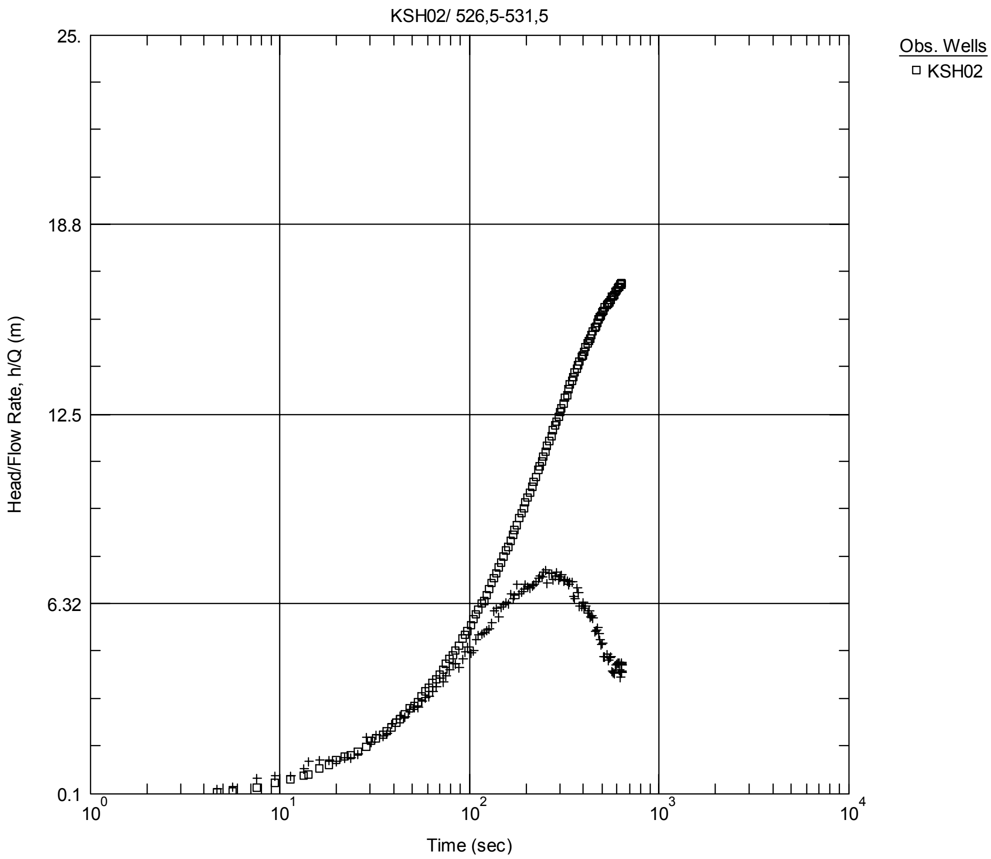
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



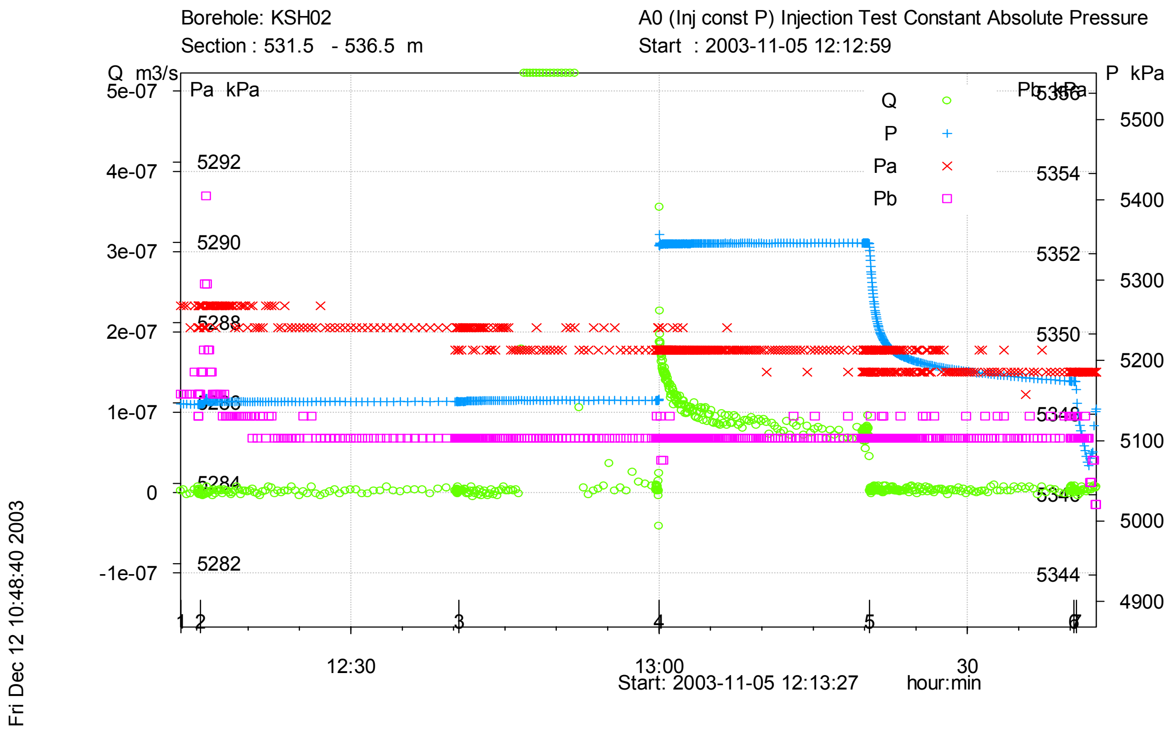
Recovery phase, log-log match.



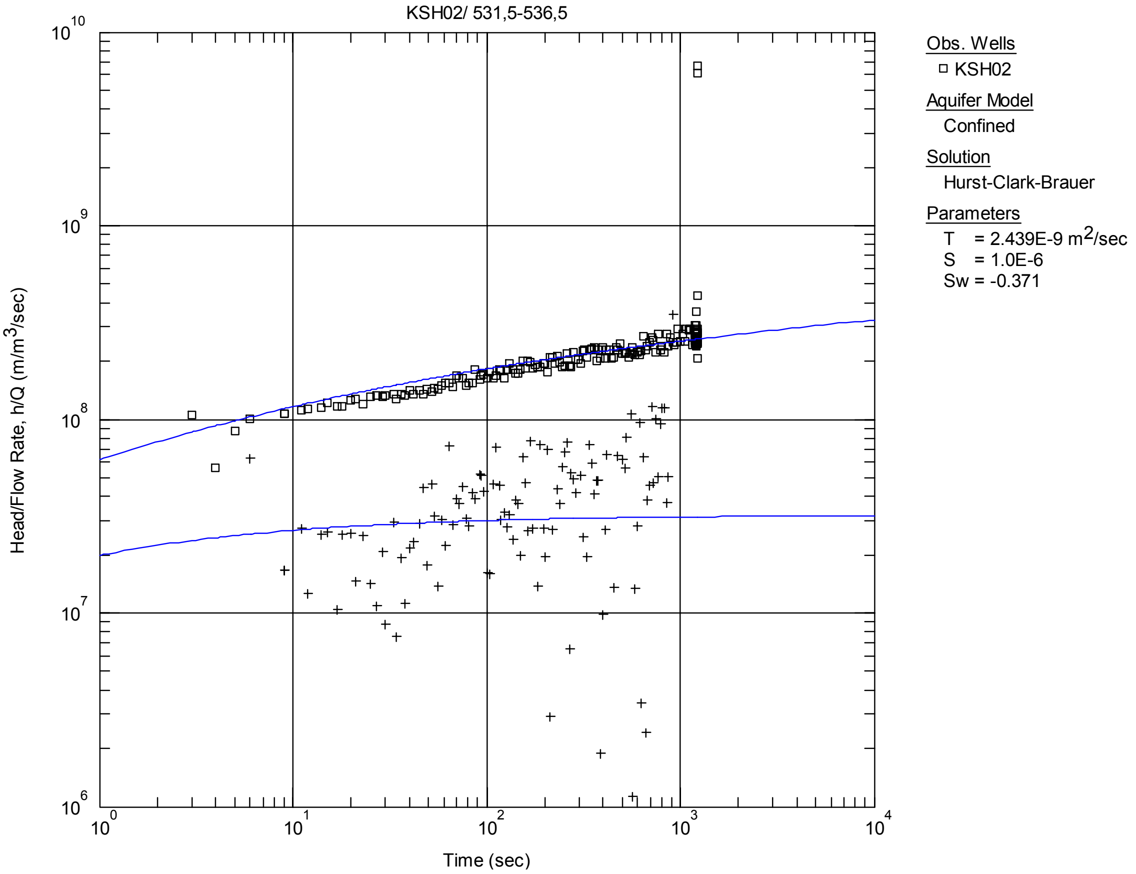
Recovery phase, lin-log match.

Test 531.5–536.5 m

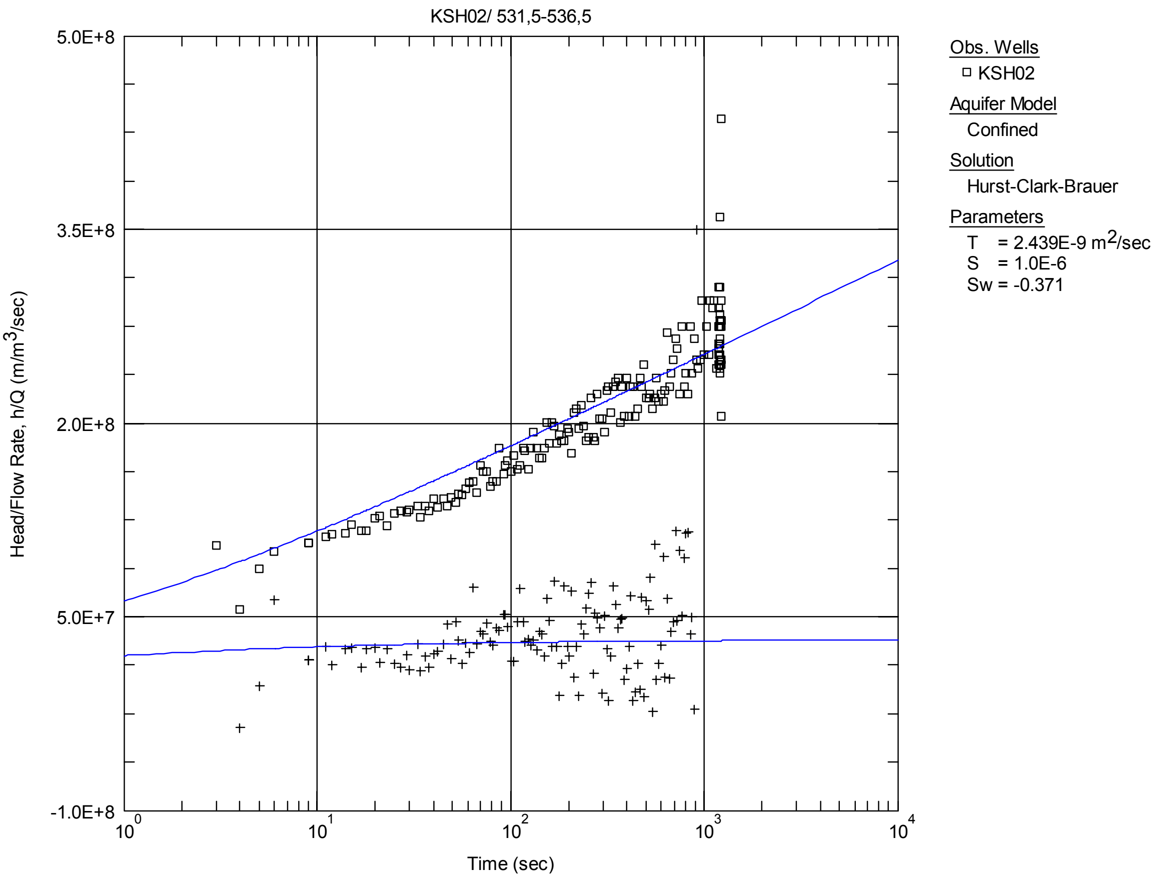
Analysis Diagram



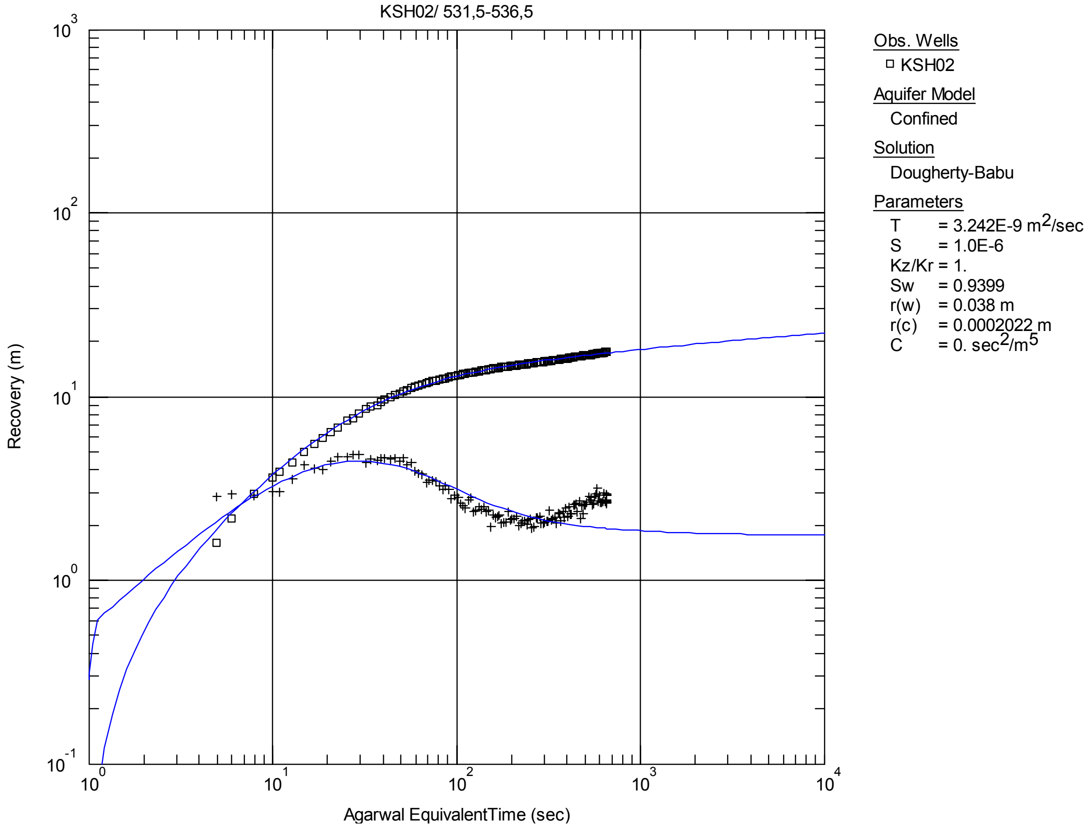
Pressure and flow rate vs. time.



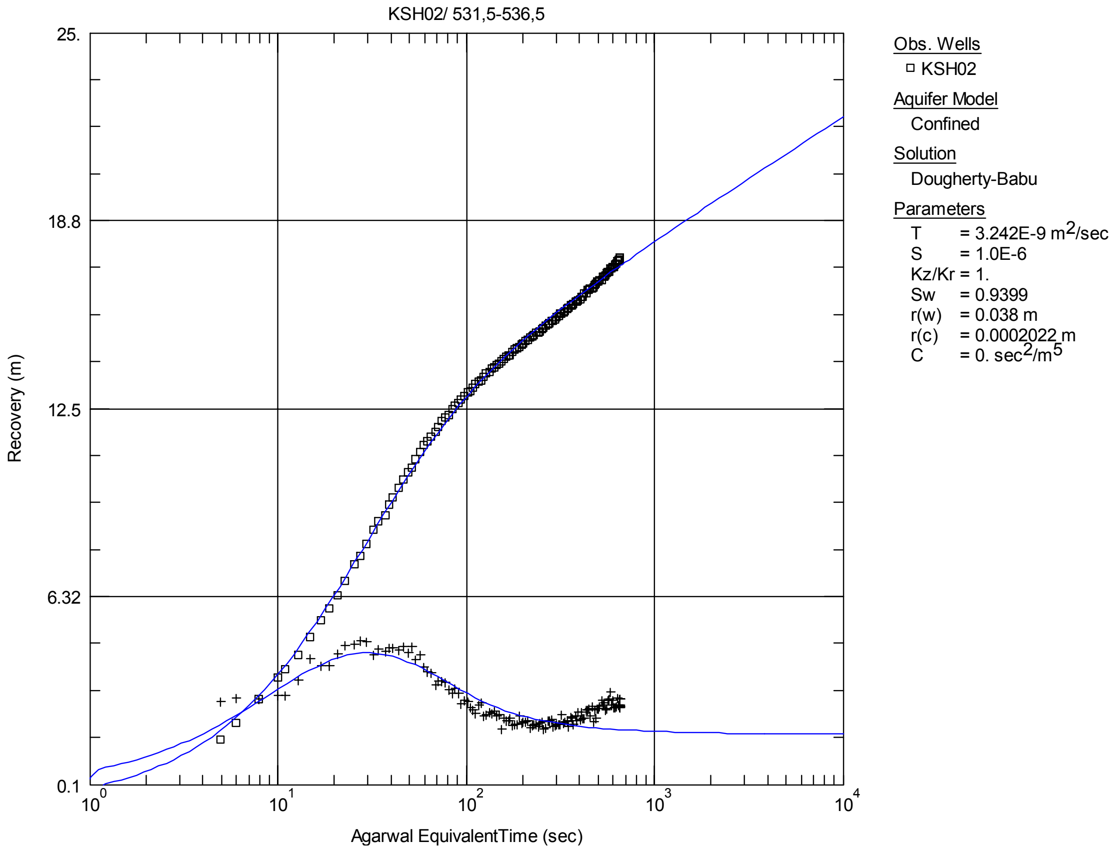
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



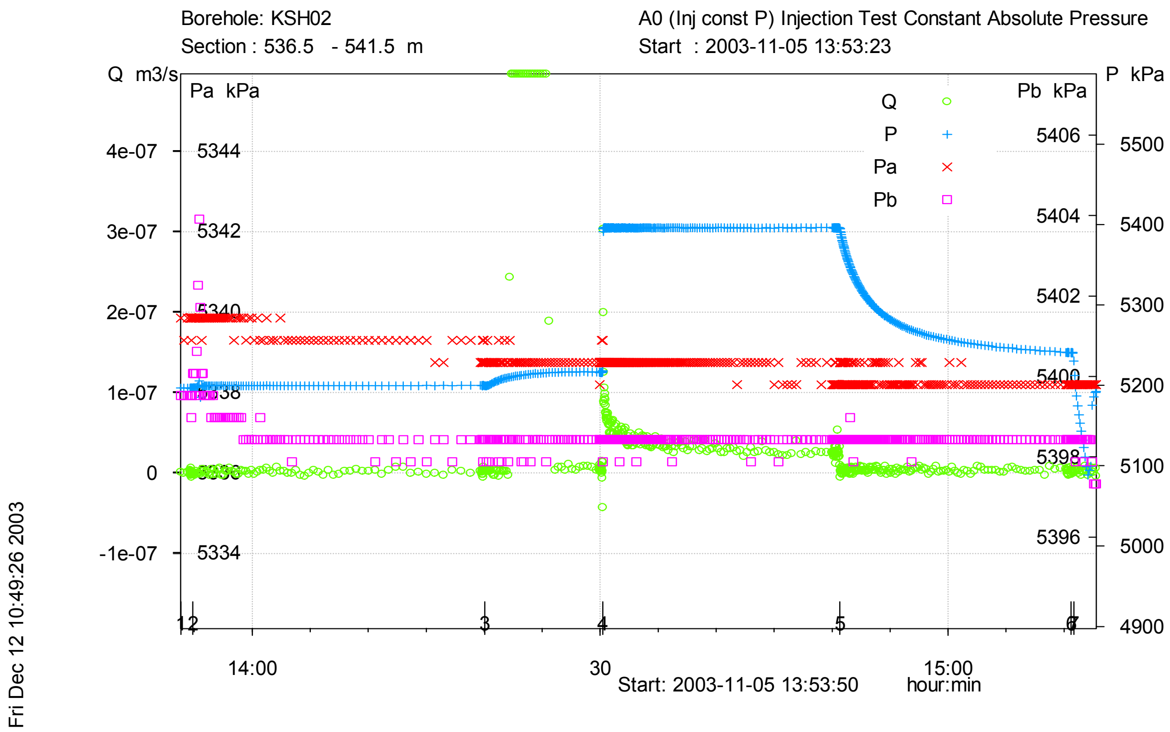
Recovery phase, log-log match.



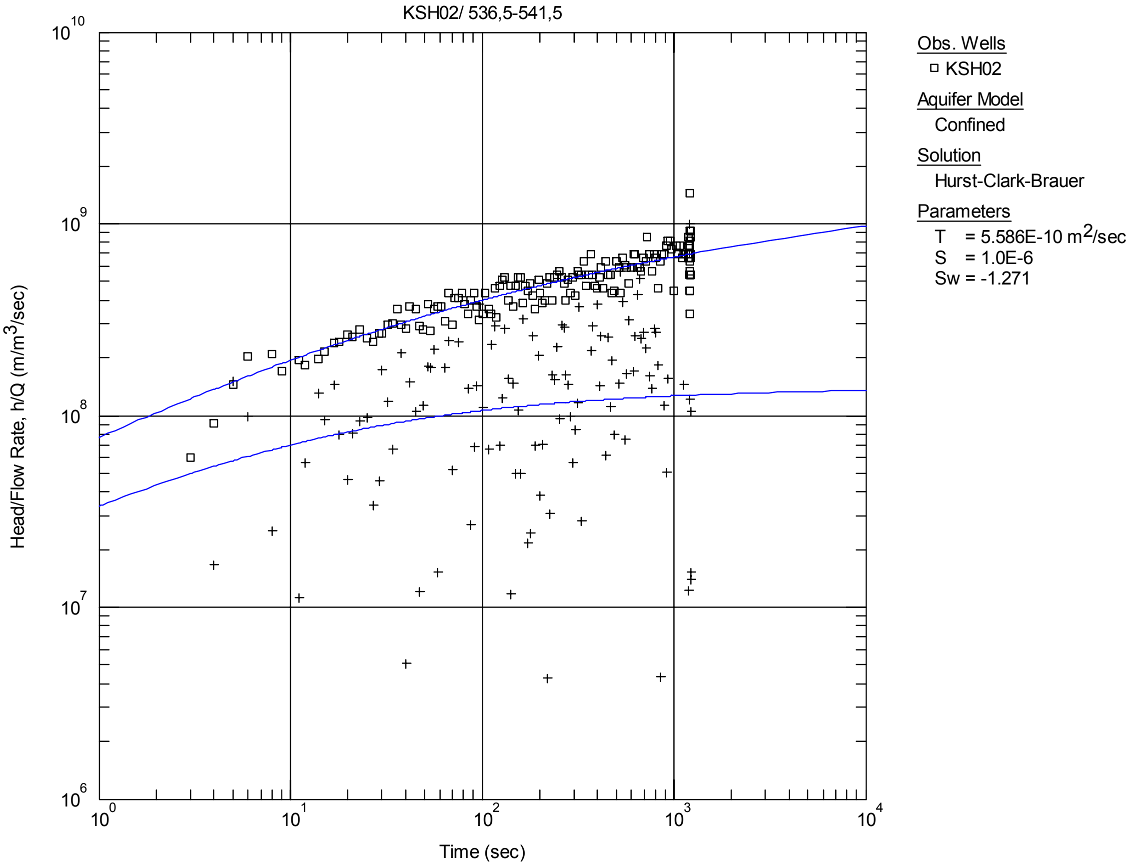
Recovery phase, lin-log match.

Test 536.5–541.5 m

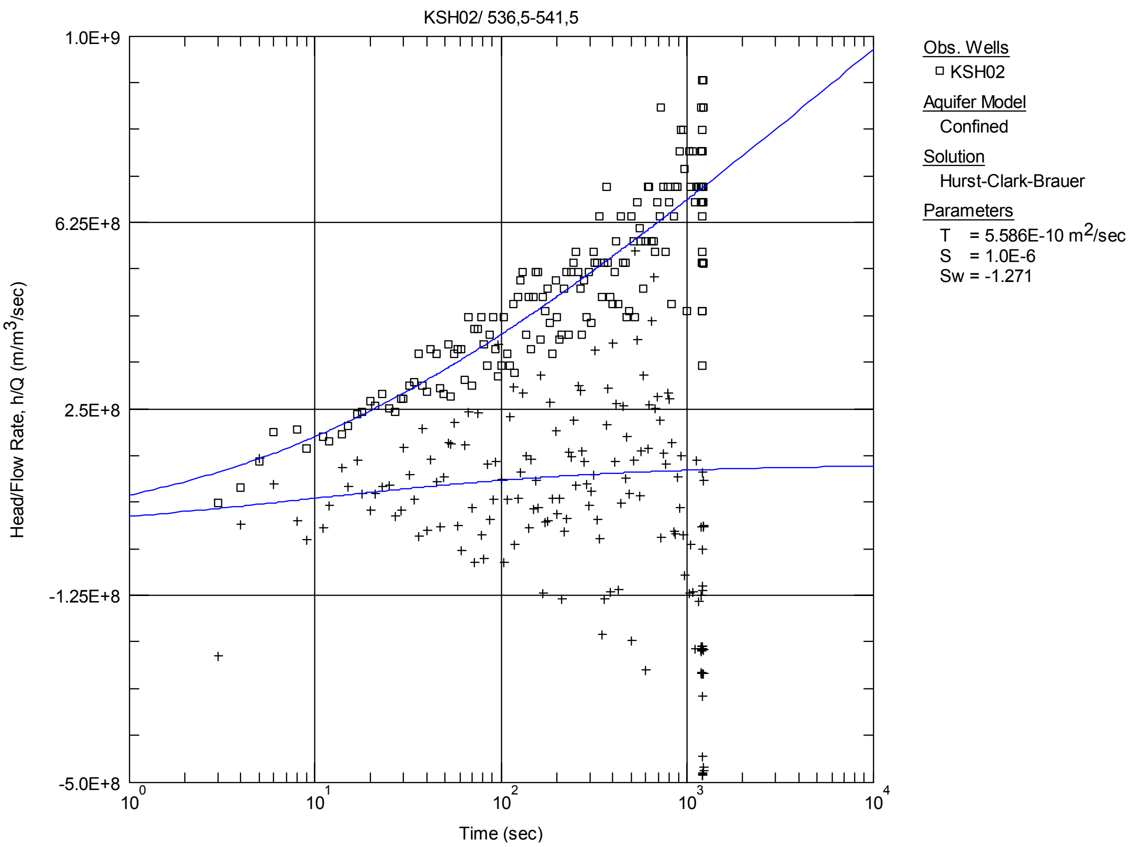
Analysis Diagram



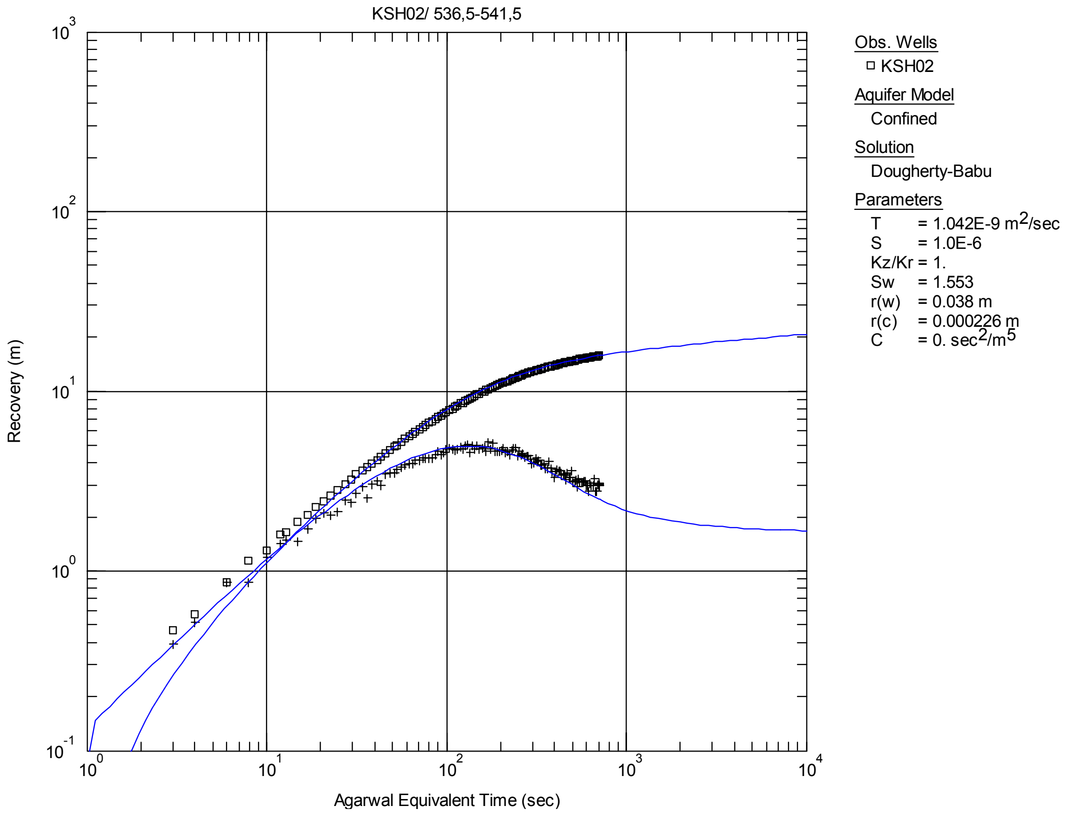
Pressure and flow rate vs. time.



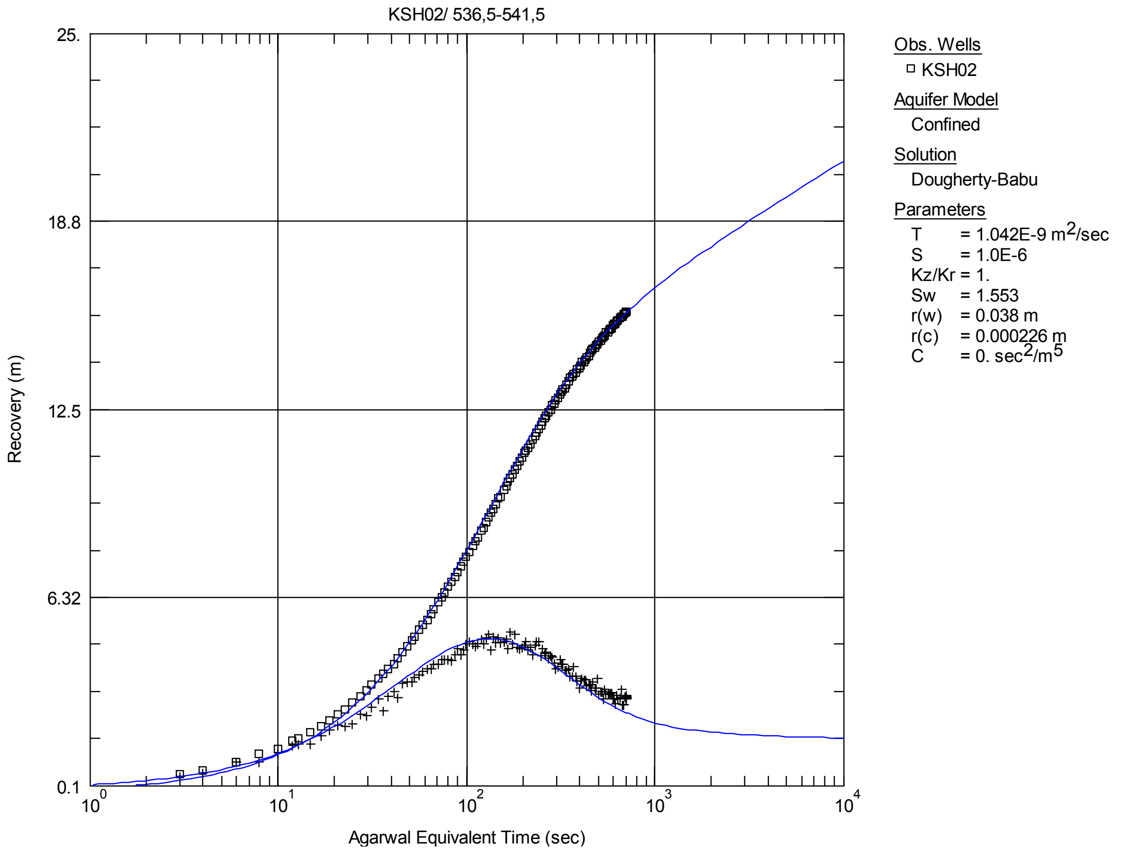
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

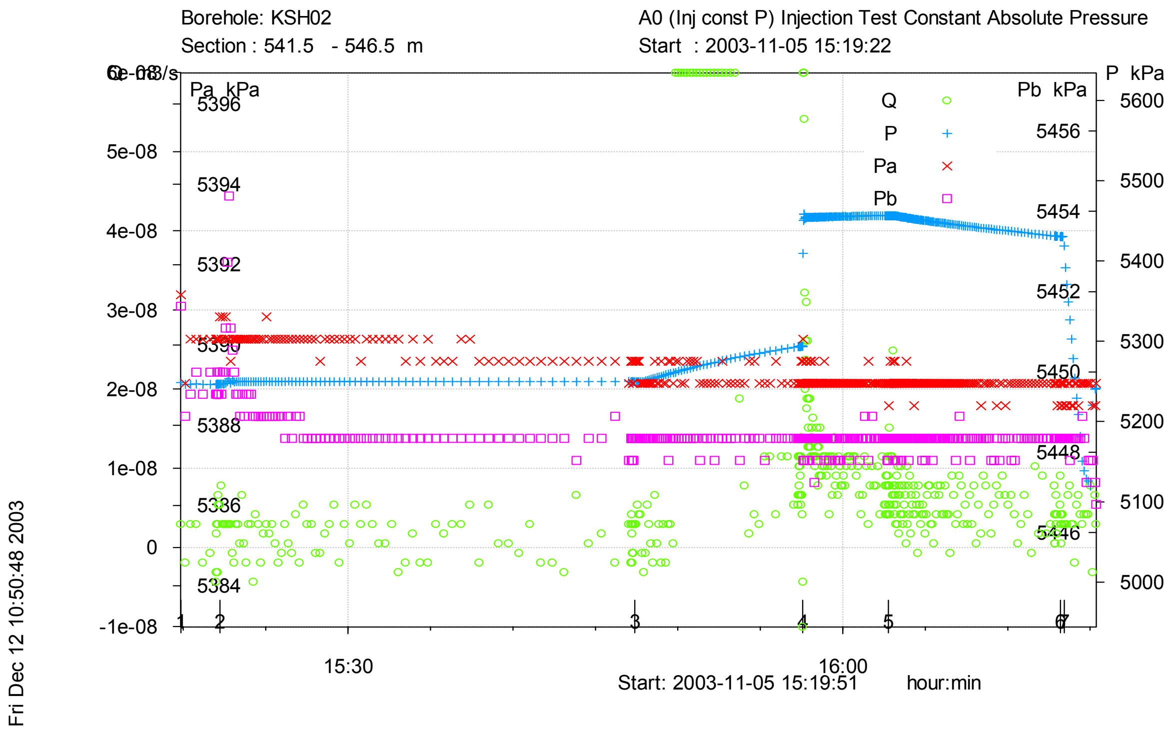


Recovery phase, lin-log match.

Appendix 3-103

Test 541.5–546.5 m

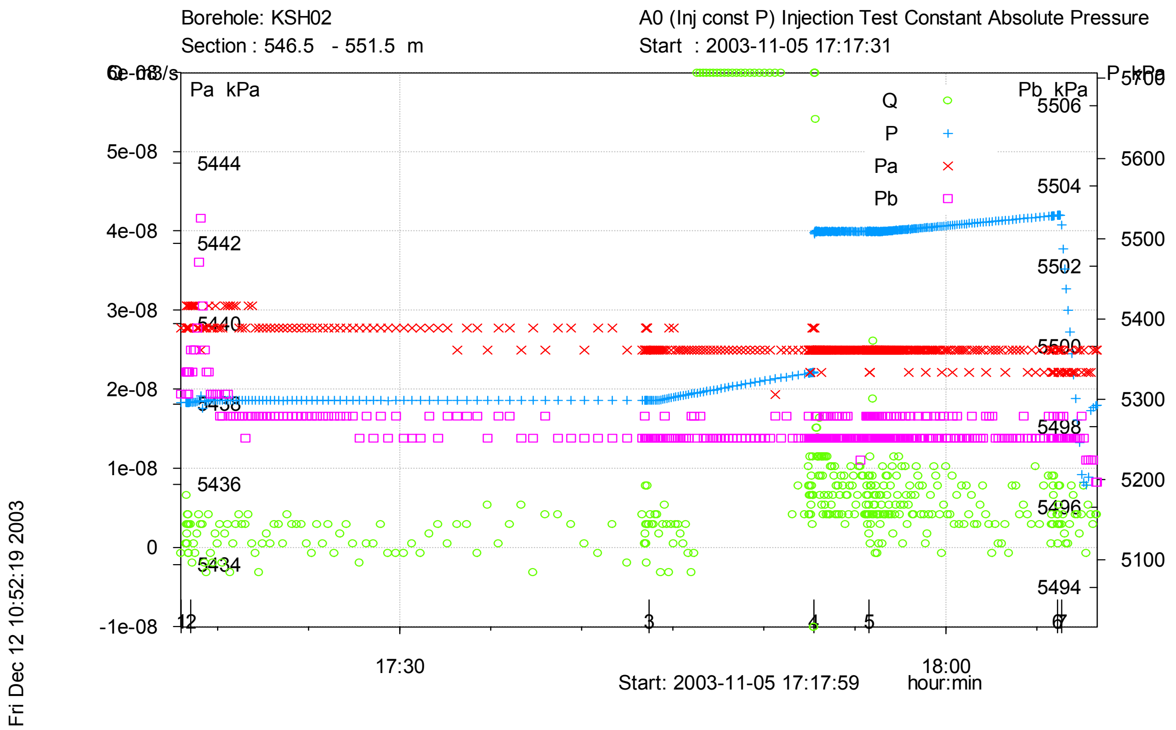
Analysis Diagram



Pressure and flow rate vs. time.

Test 546.5–551.5 m

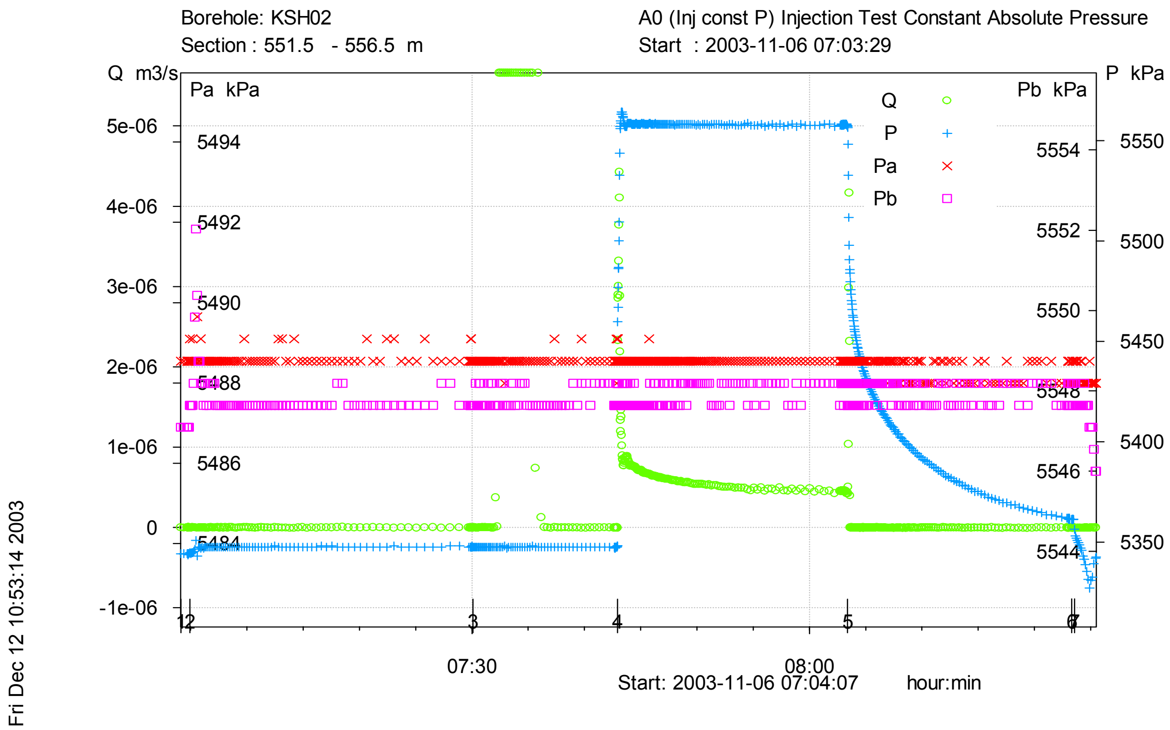
Analysis Diagram



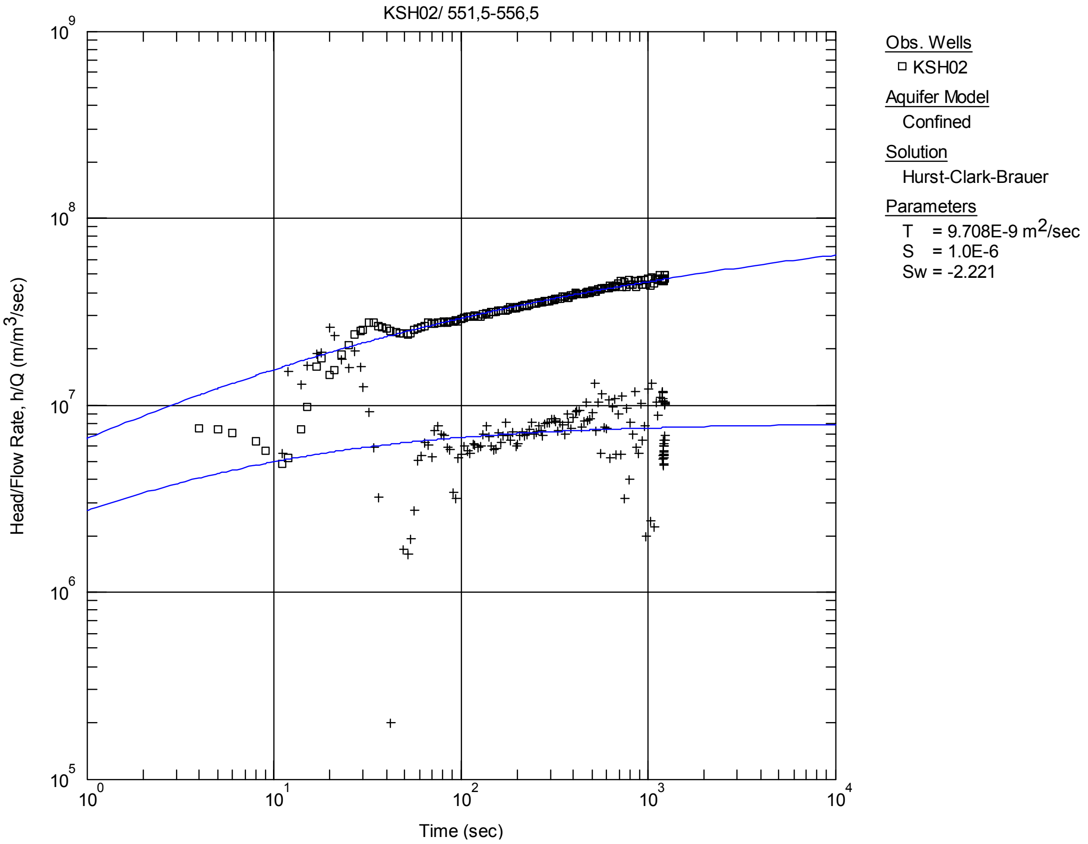
Pressure and flow rate vs. time.

Test 551.5–556.5 m

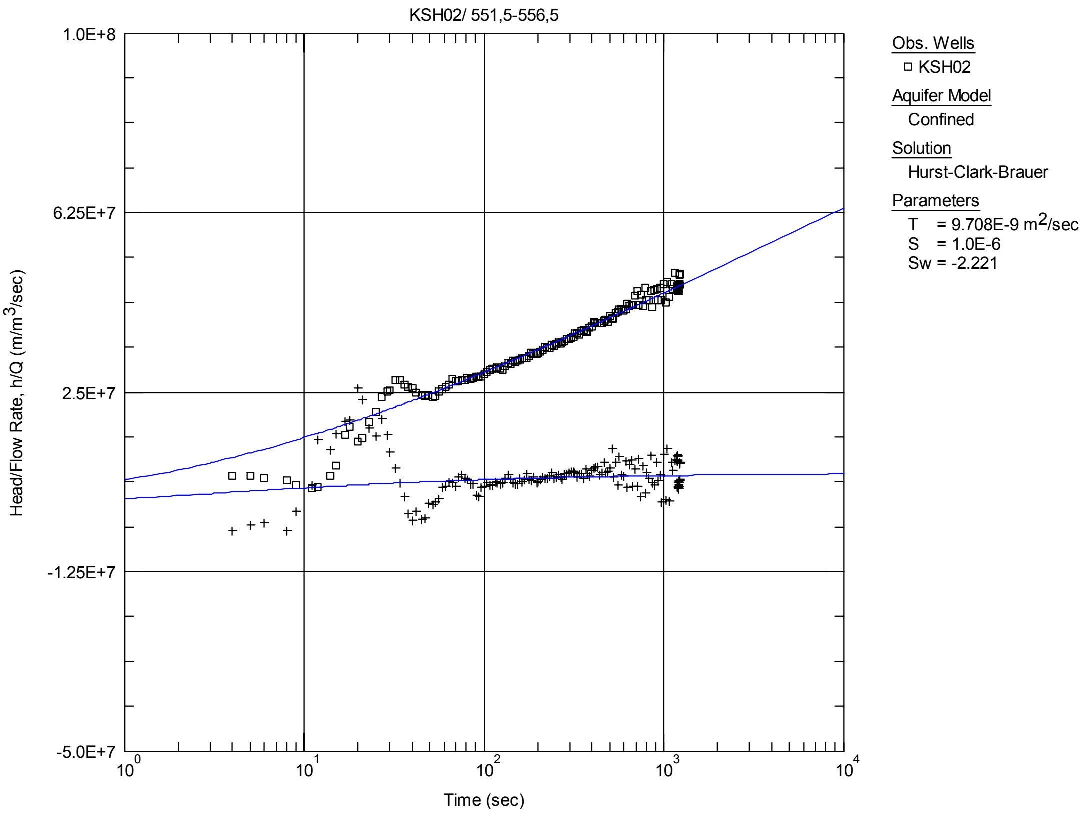
Analysis Diagram



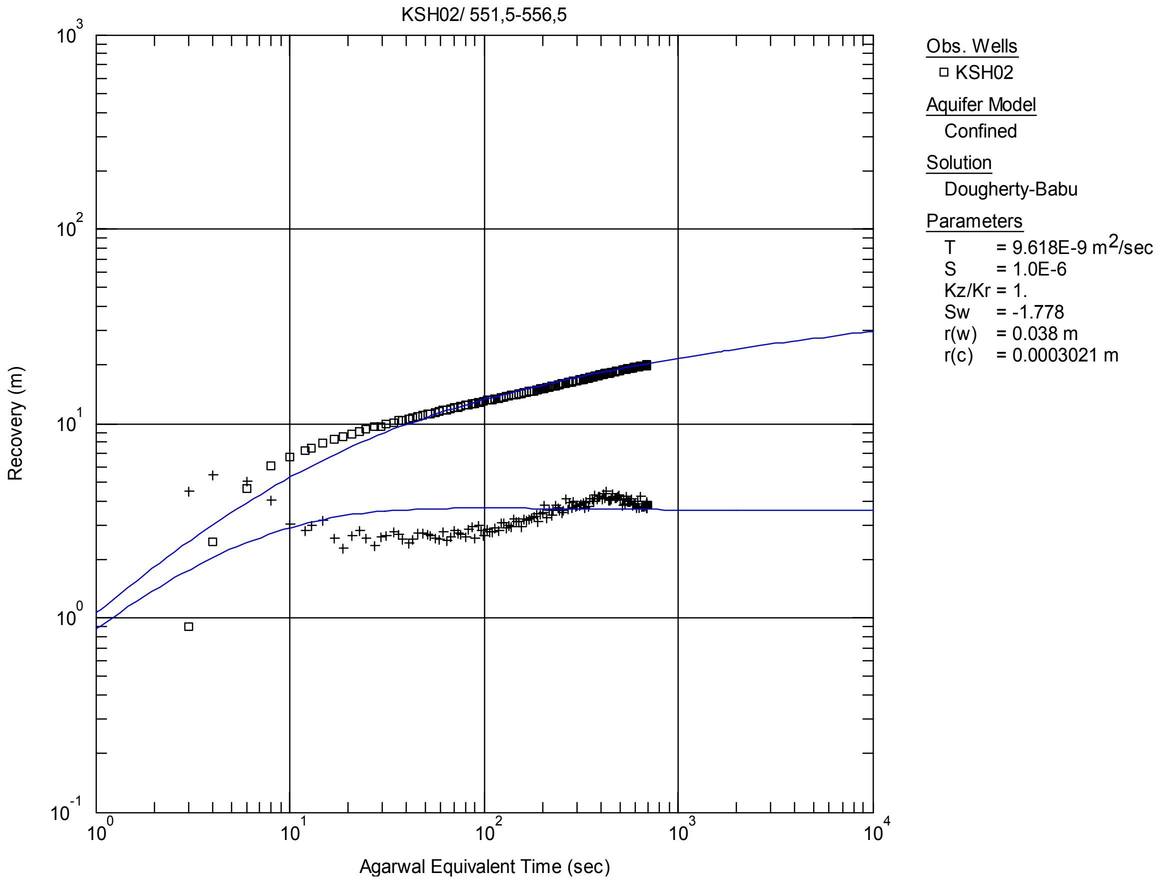
Pressure and flow rate vs. time.



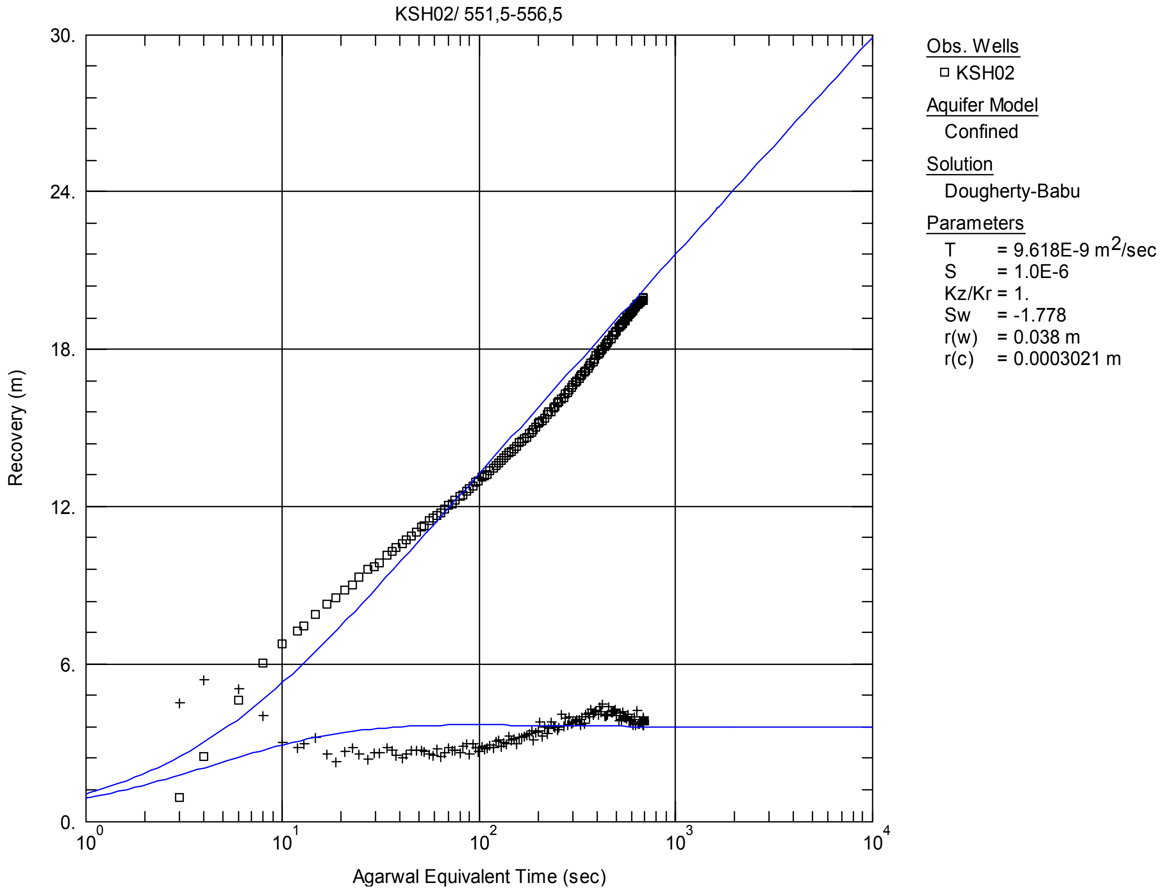
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



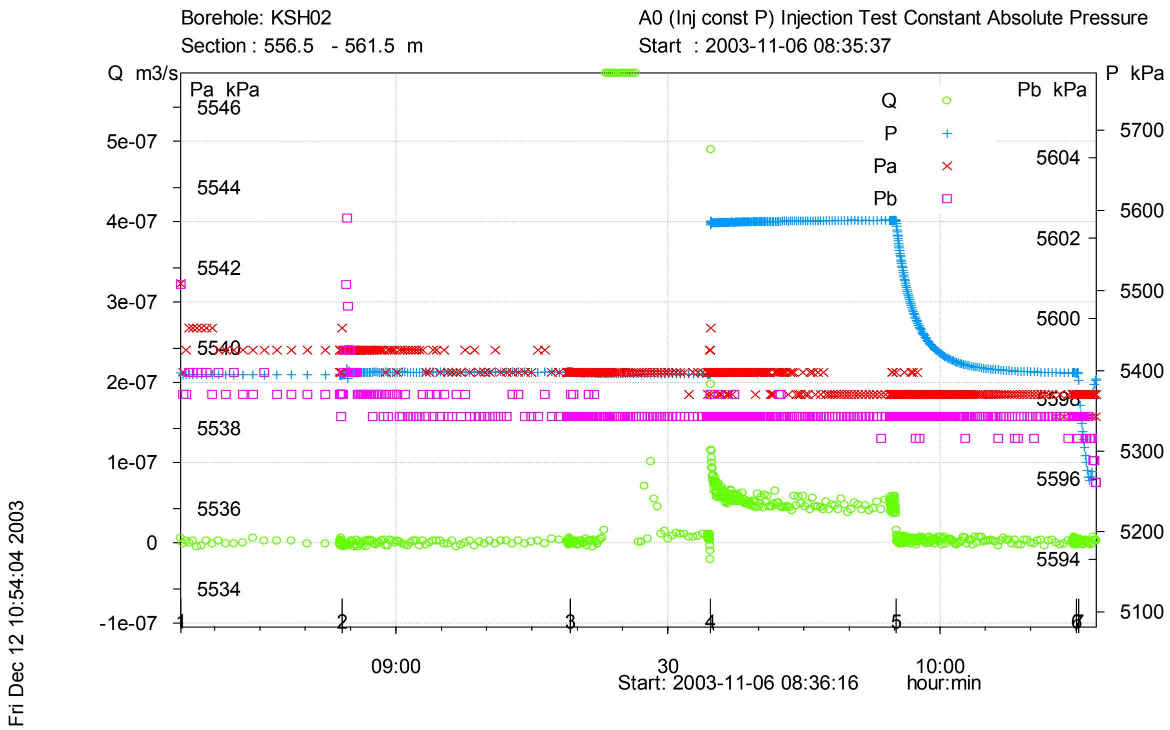
Recovery phase, log-log match.



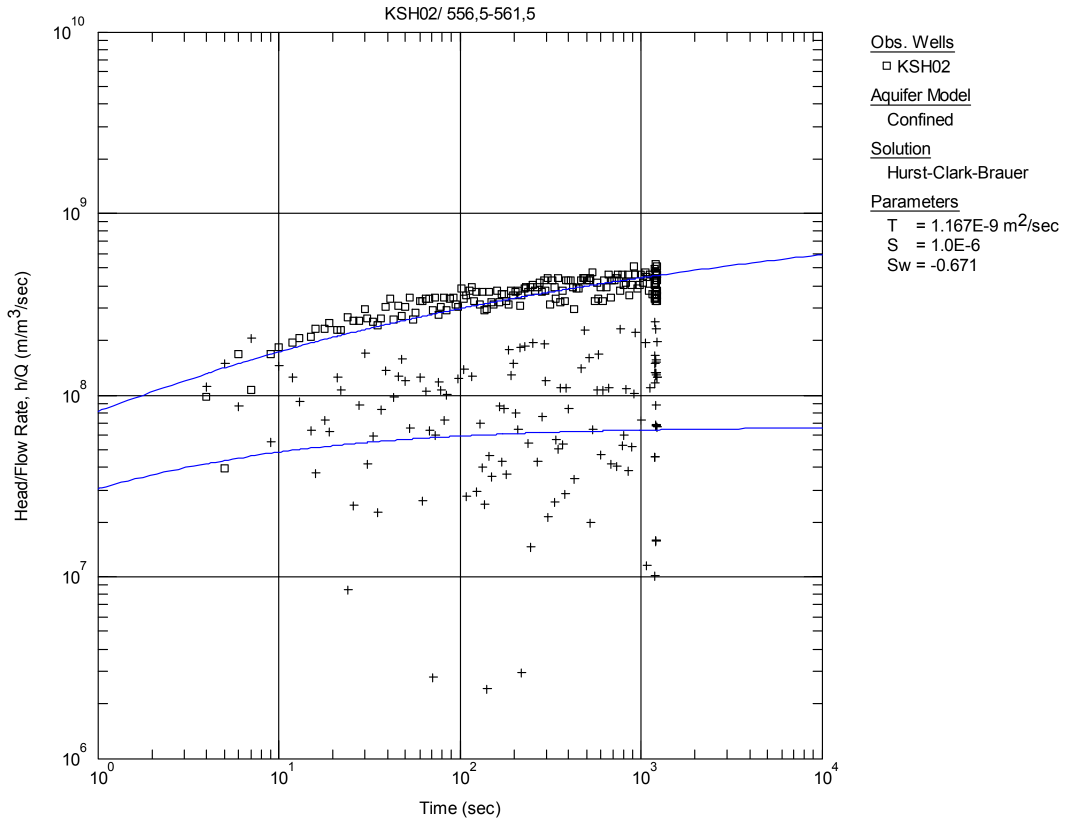
Recovery phase, lin-log match.

Test 556.5–561.5 m

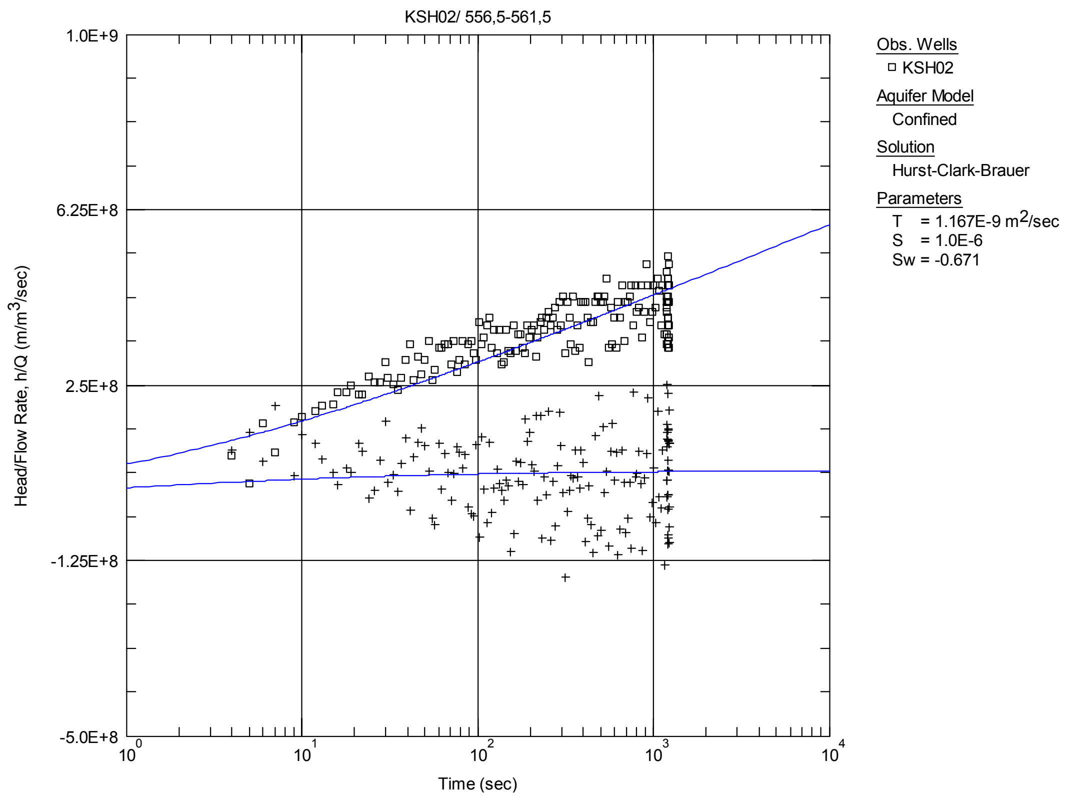
Analysis Diagram



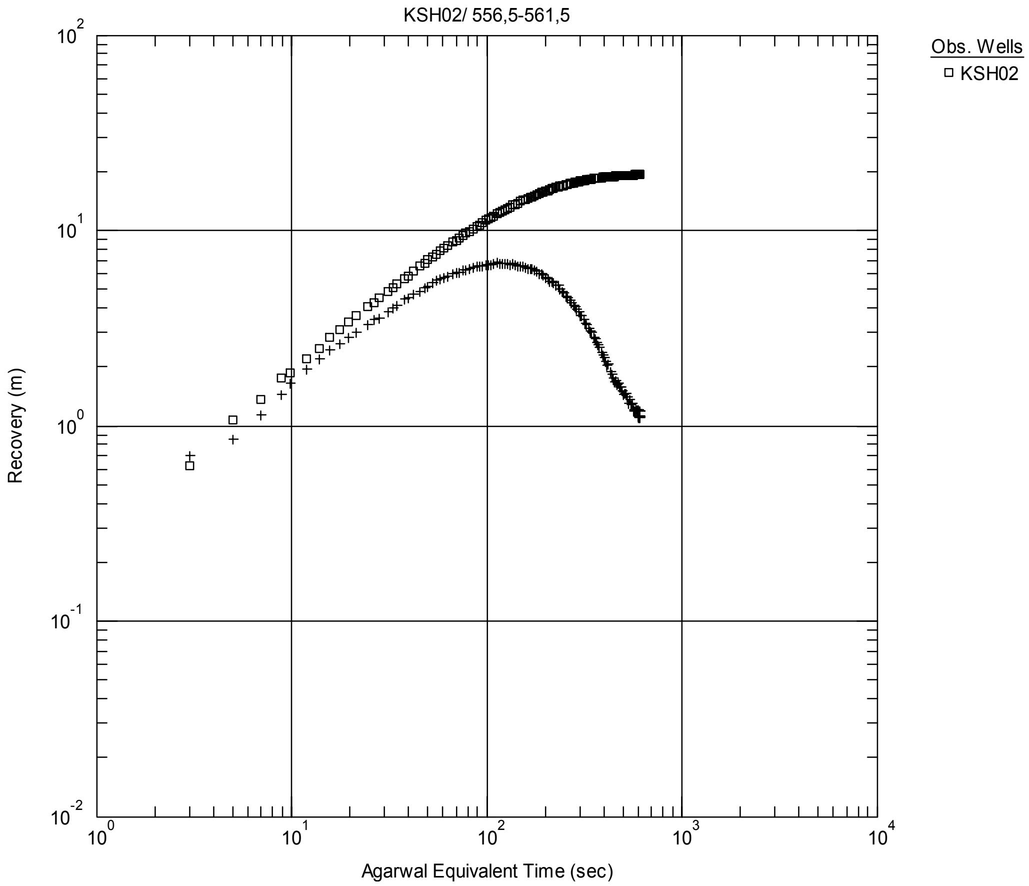
Pressure and flow rate vs. time.



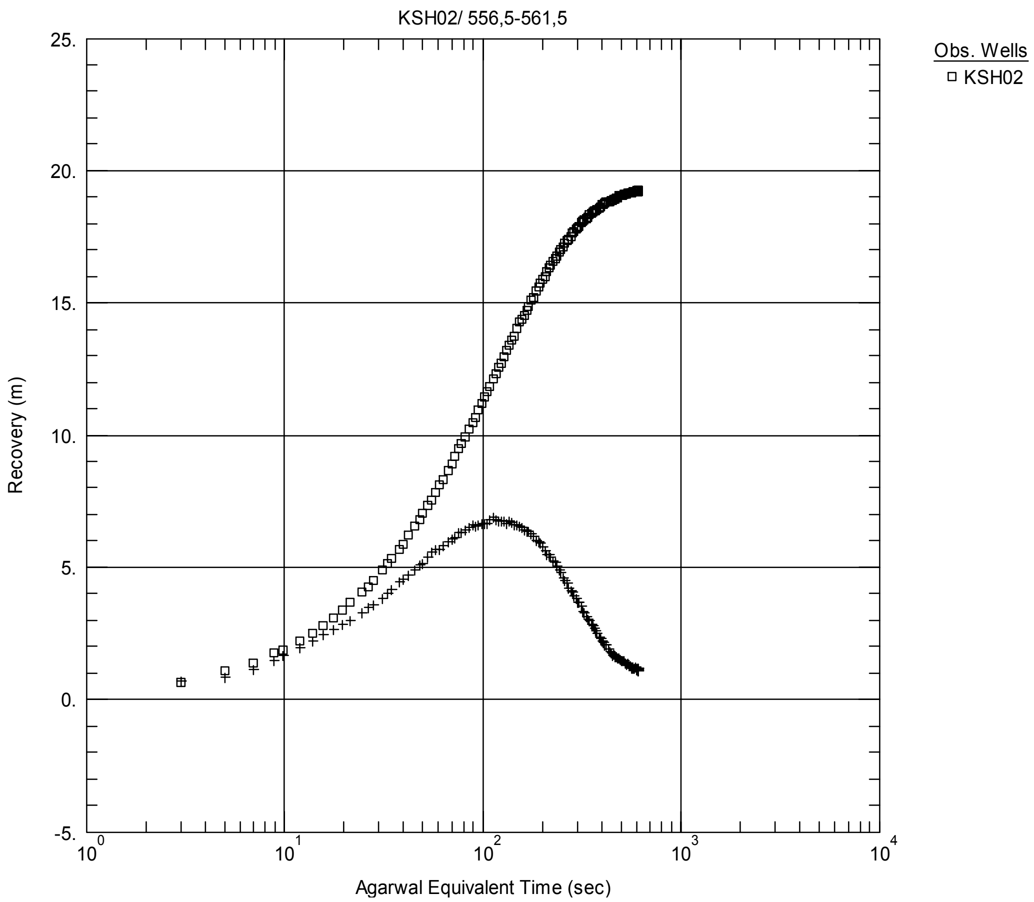
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



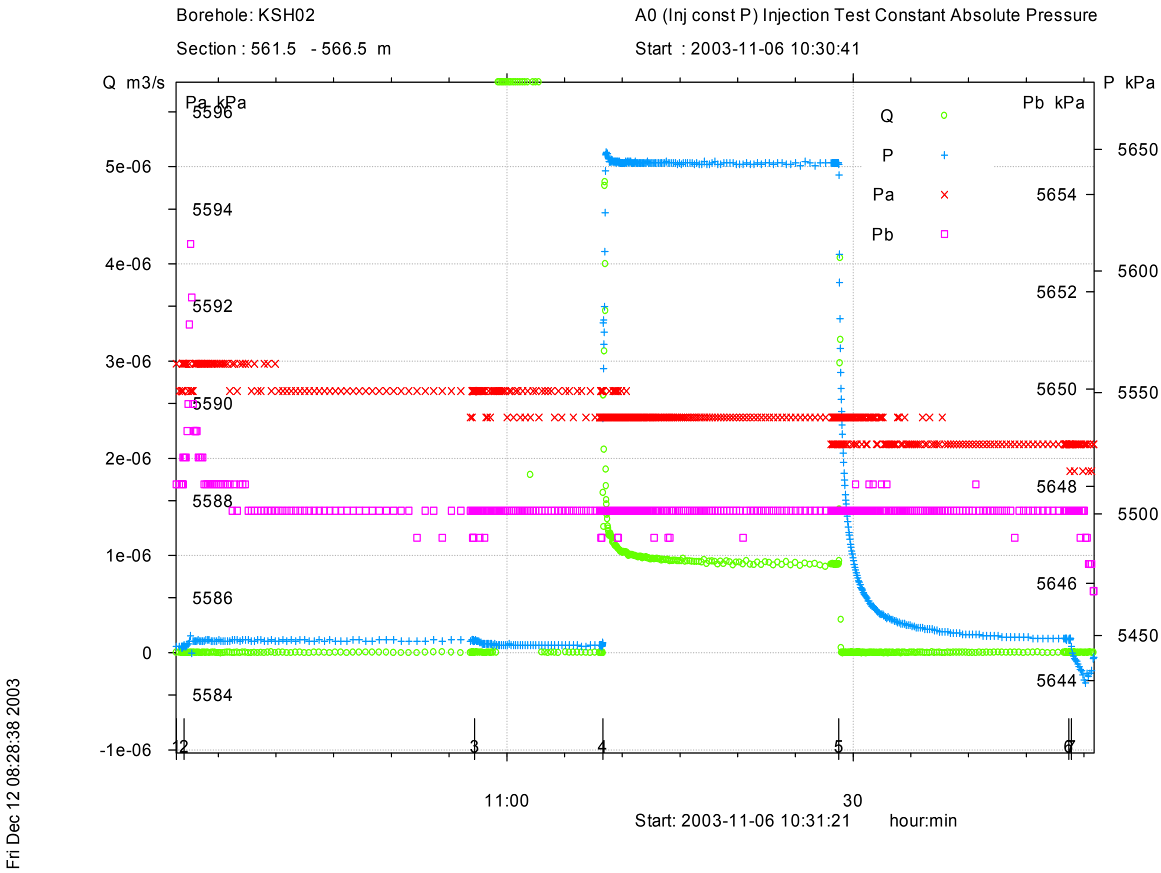
Recovery phase, log-log match.



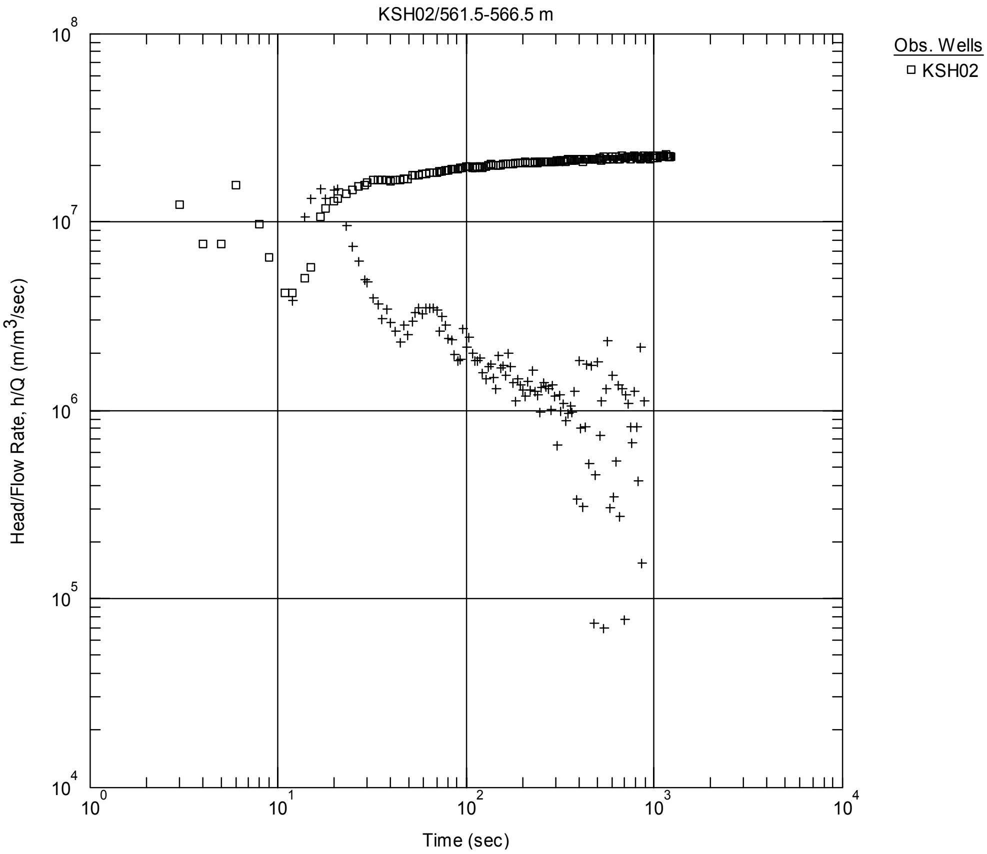
Recovery phase, lin-log match.

Test 561.5–566.5 m

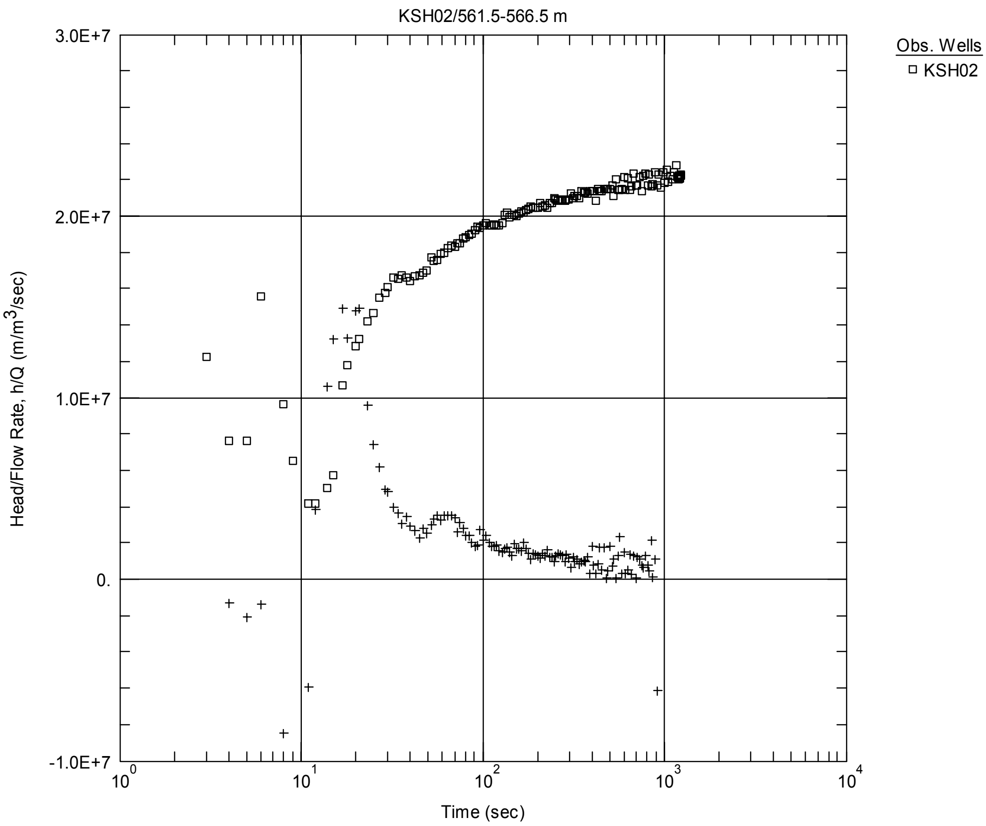
Analysis Diagram



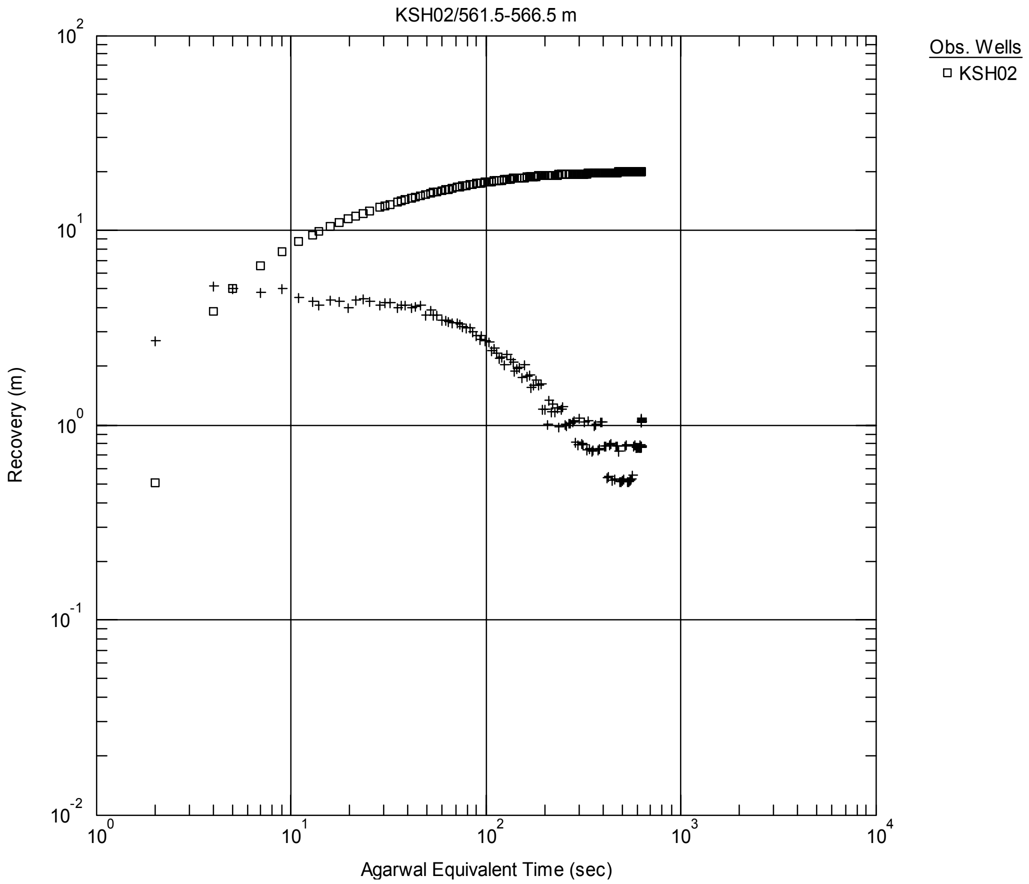
Pressure and flow rate vs. time.



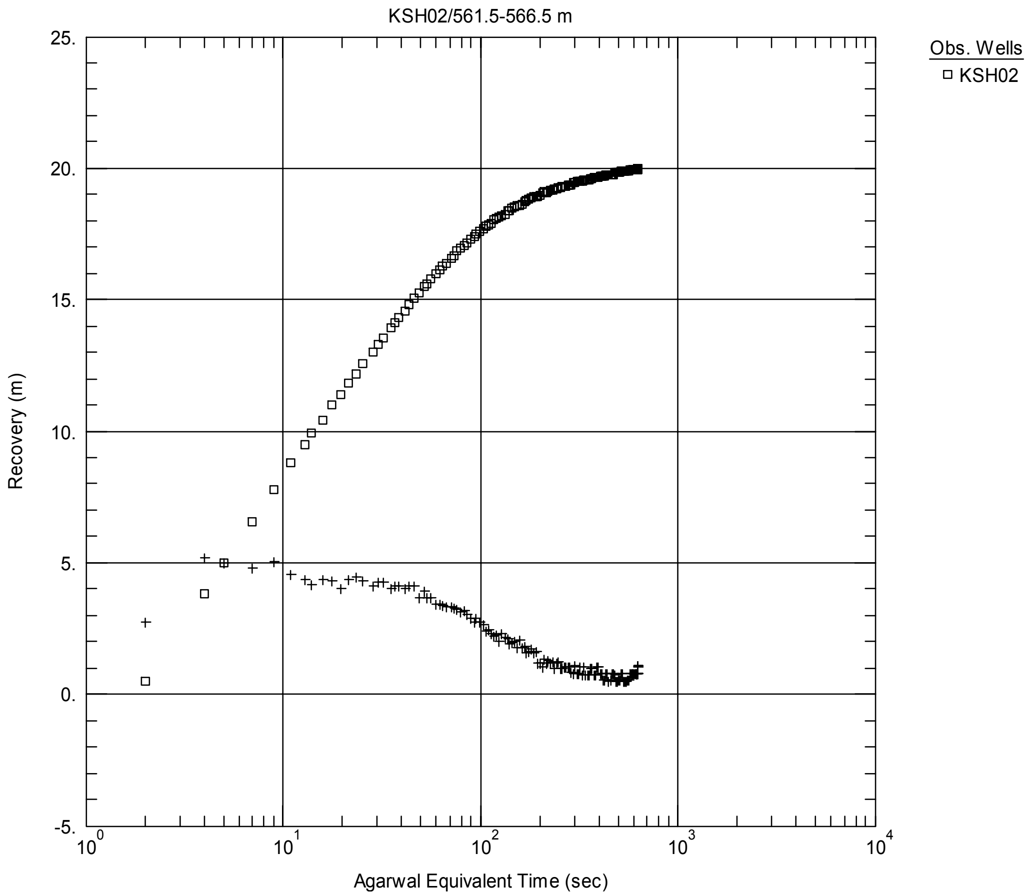
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



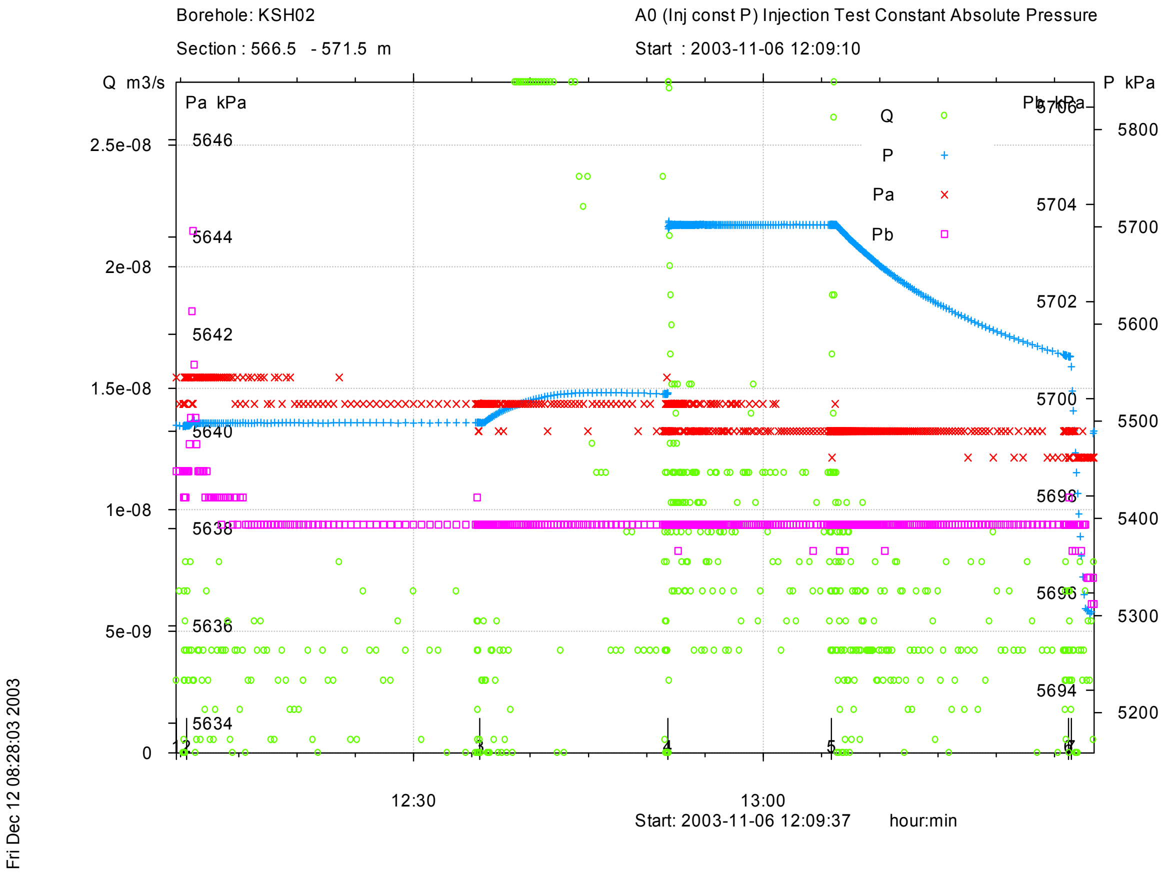
Recovery phase, log-log match.



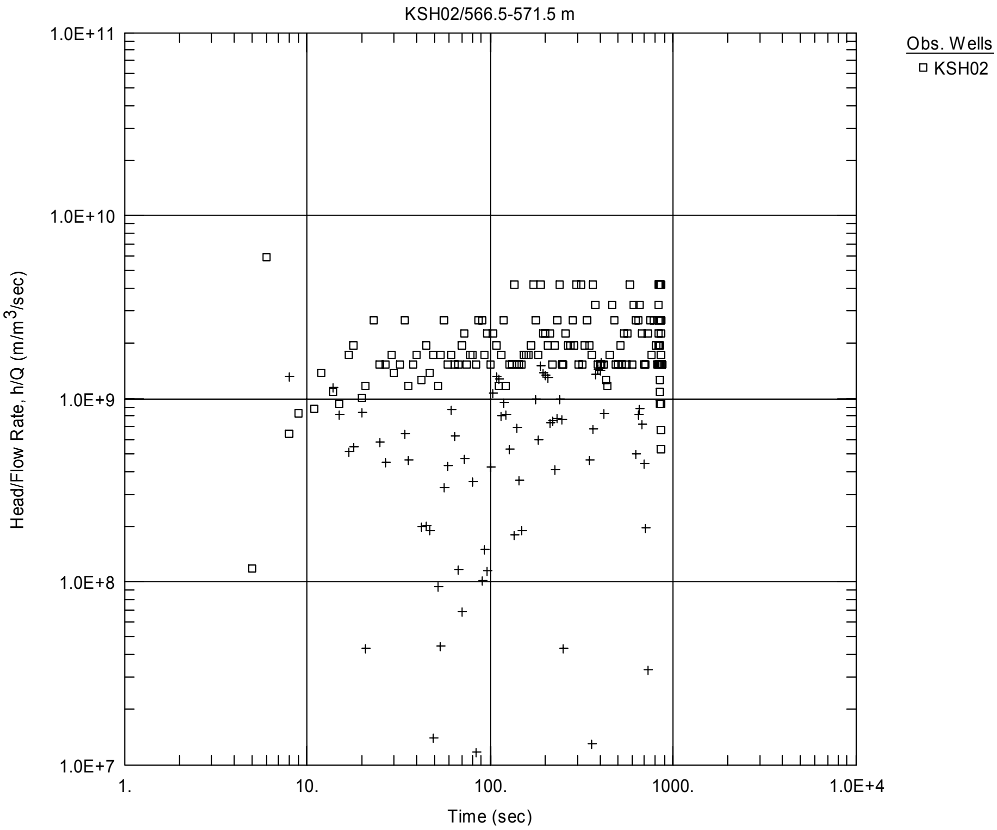
Recovery phase, lin-log match

Test 566.5–571.5 m

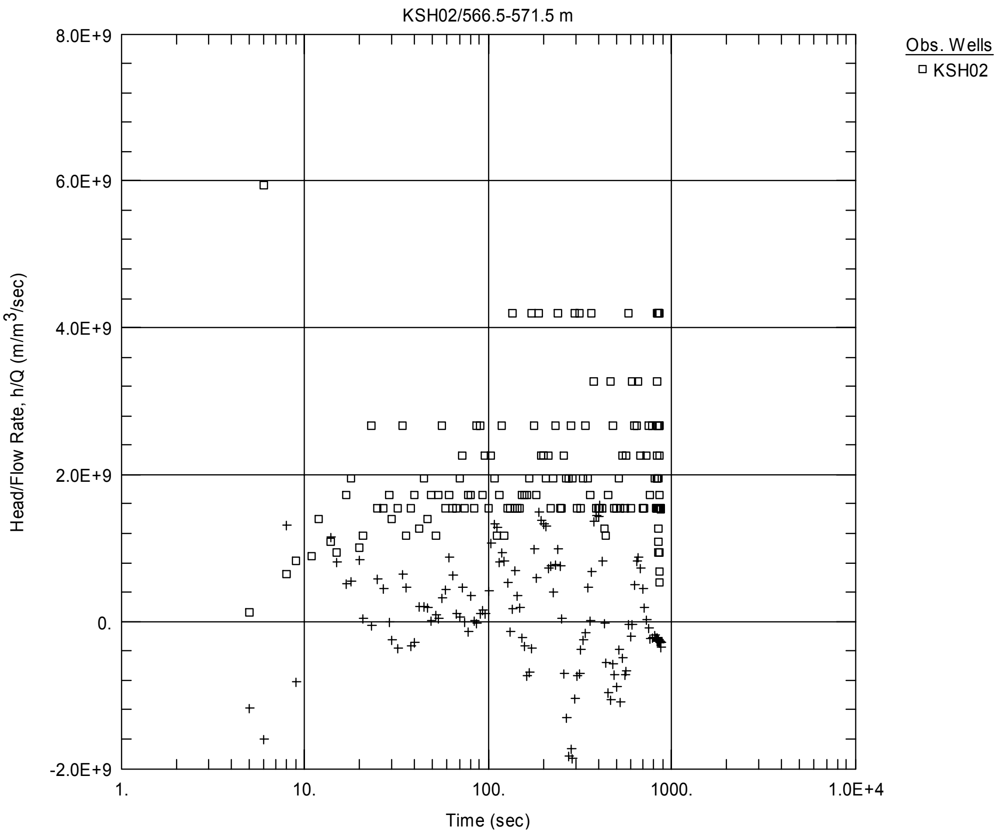
Analysis Diagram



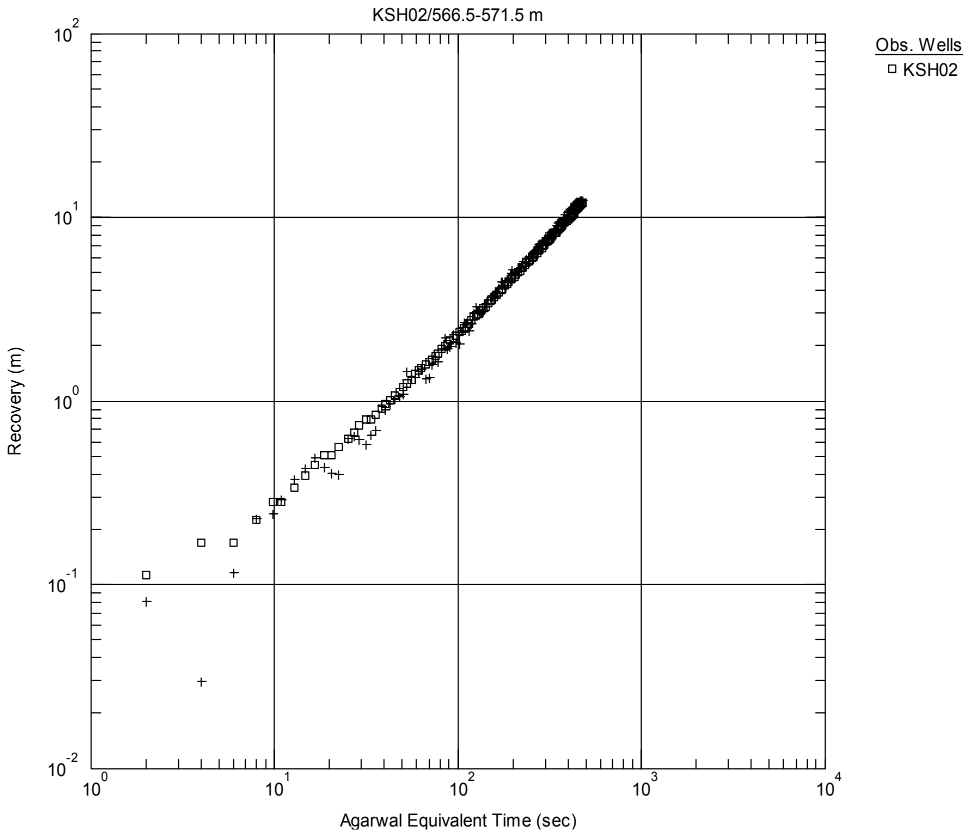
Pressure and flow rate vs. time.



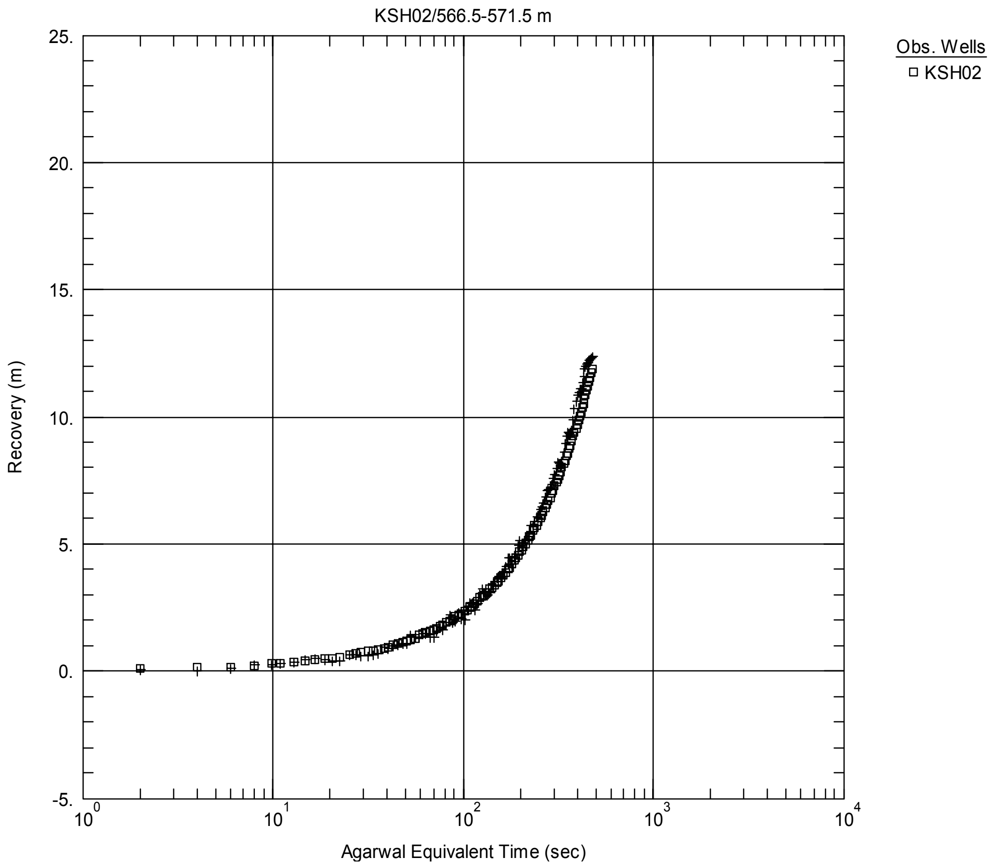
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



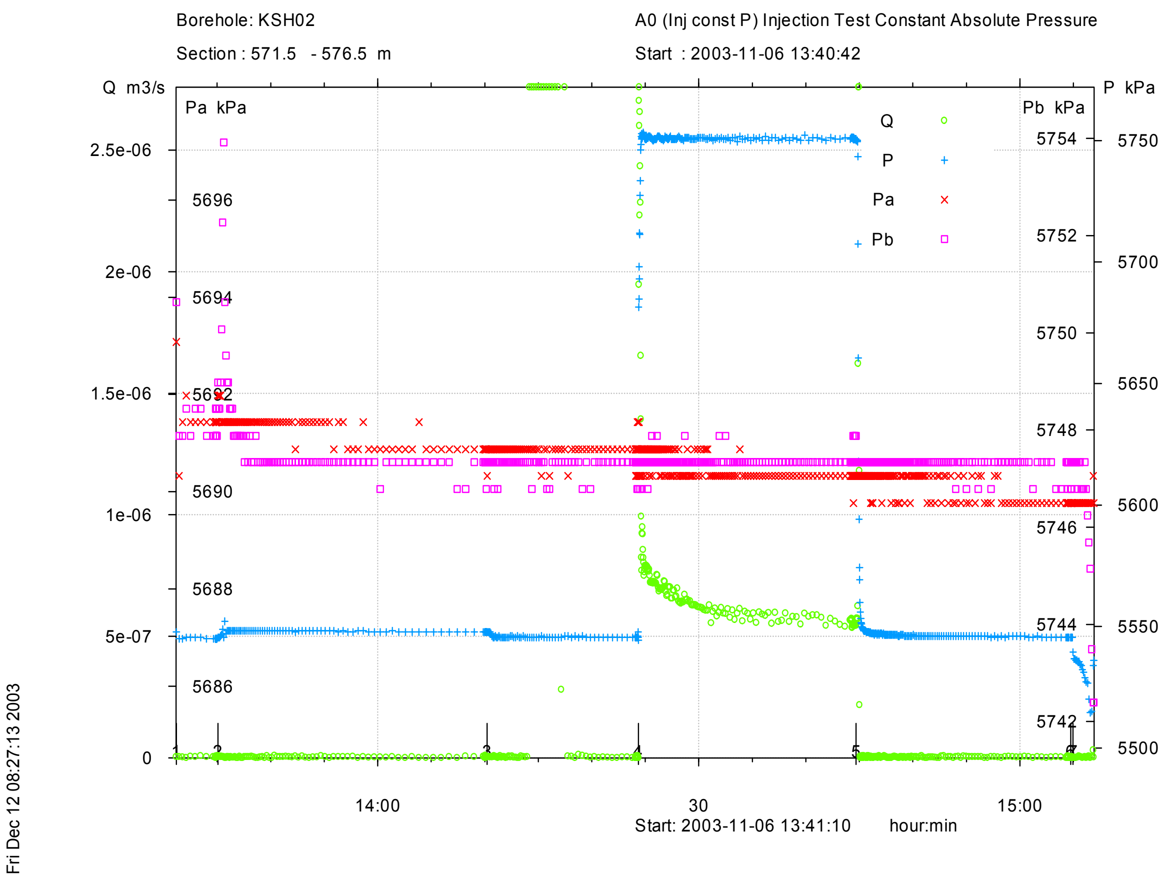
Recovery phase, log-log match.



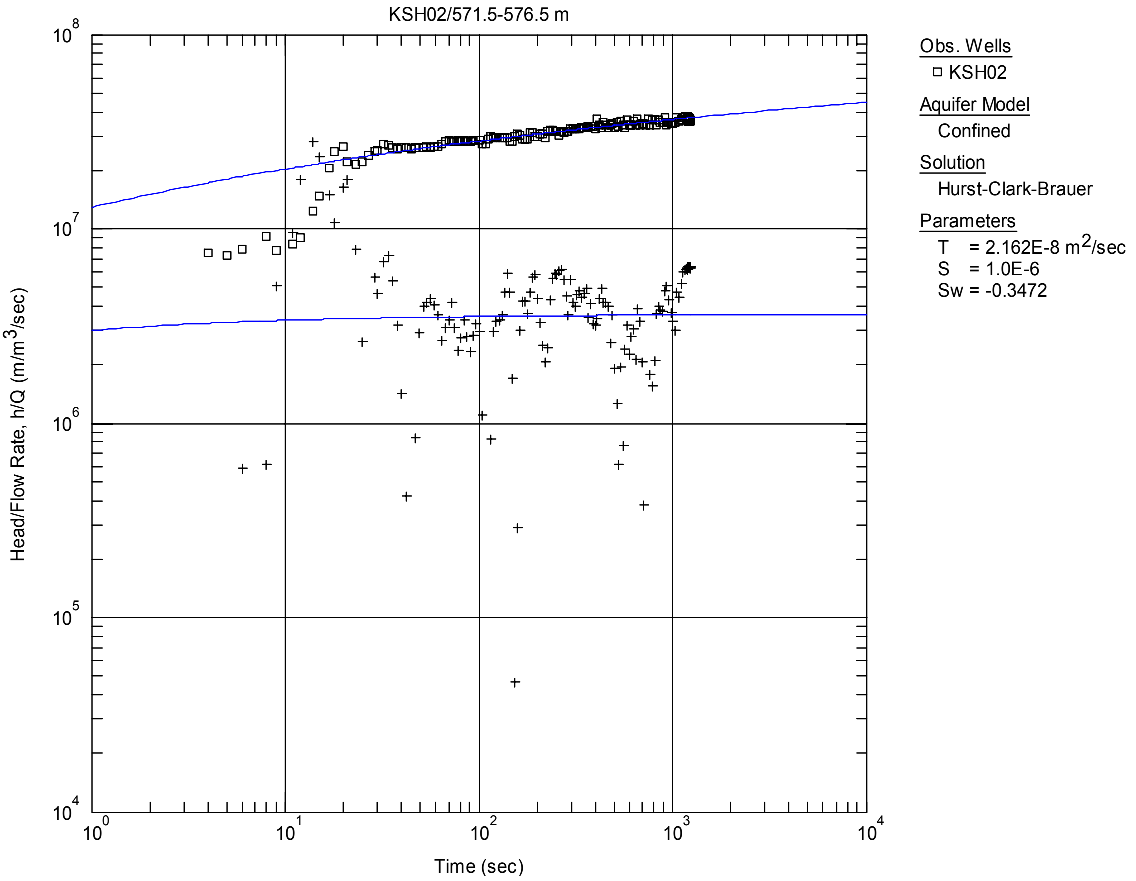
Recovery phase, lin-log match.

Test 571.5–576.5 m

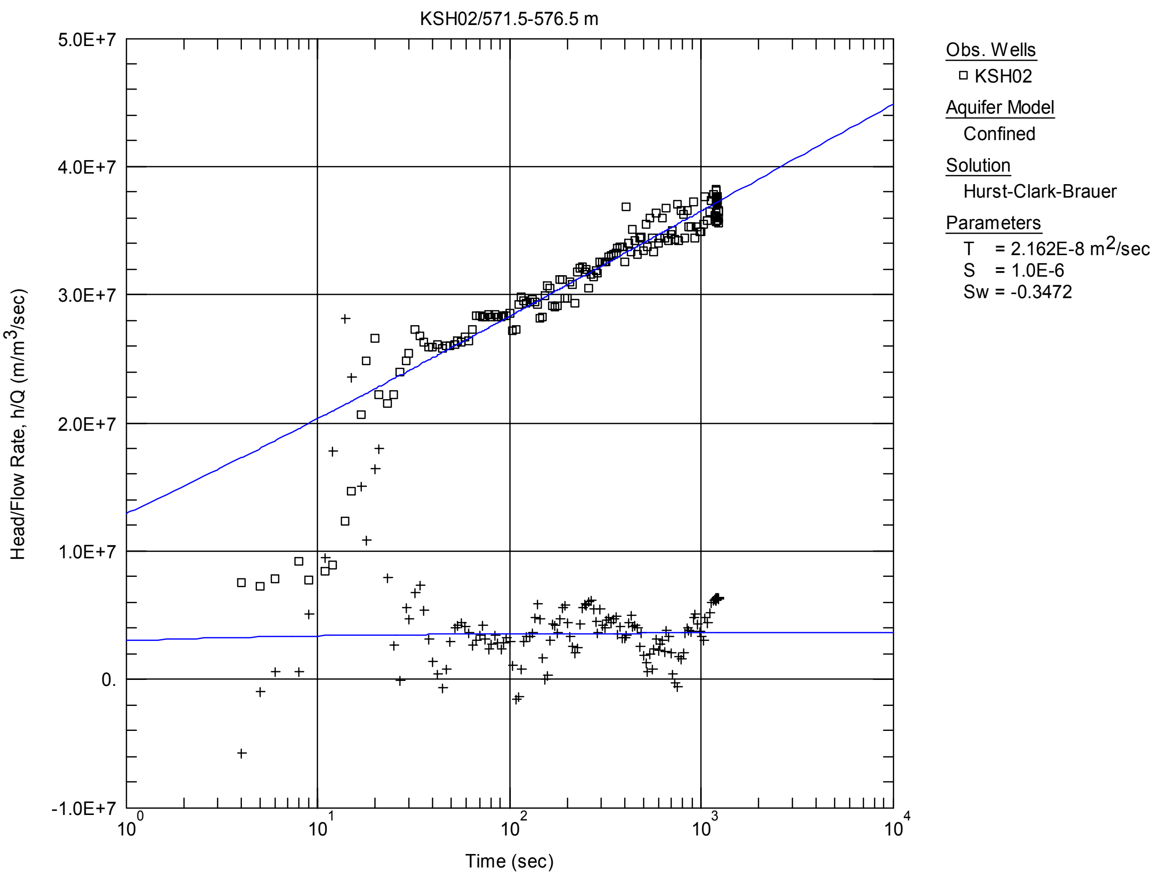
Analysis Diagram



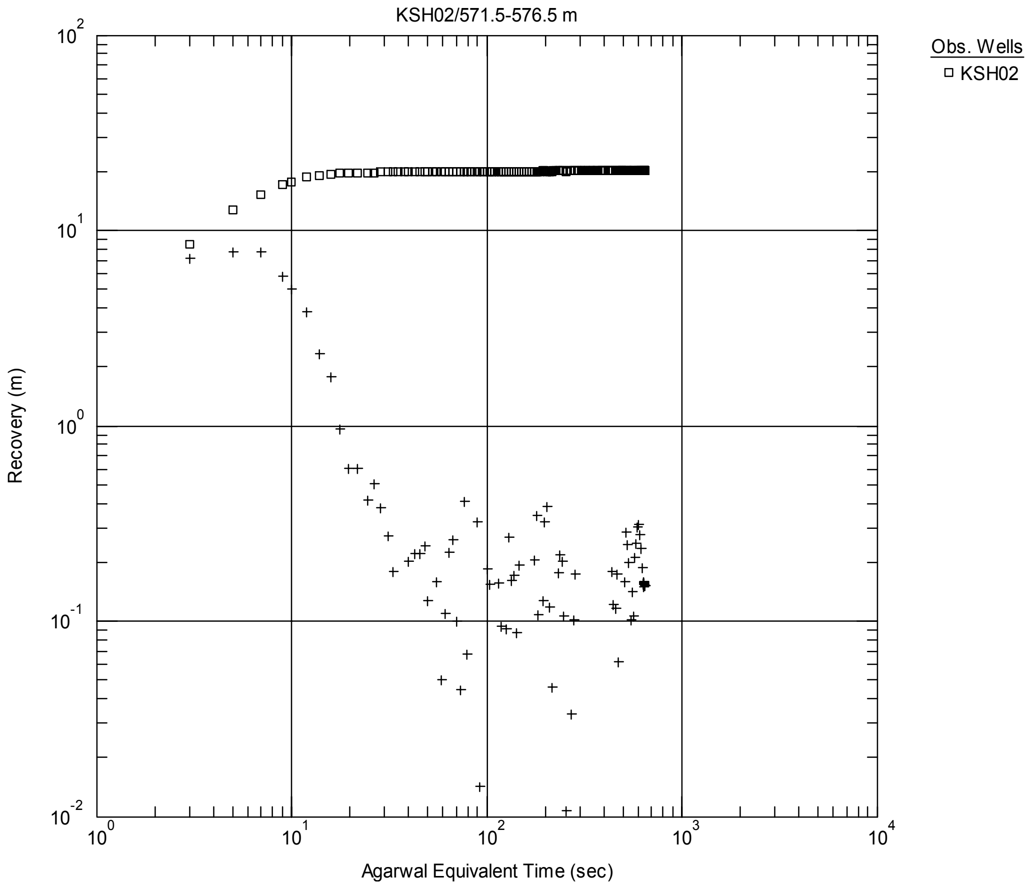
Pressure and flow rate vs. time.



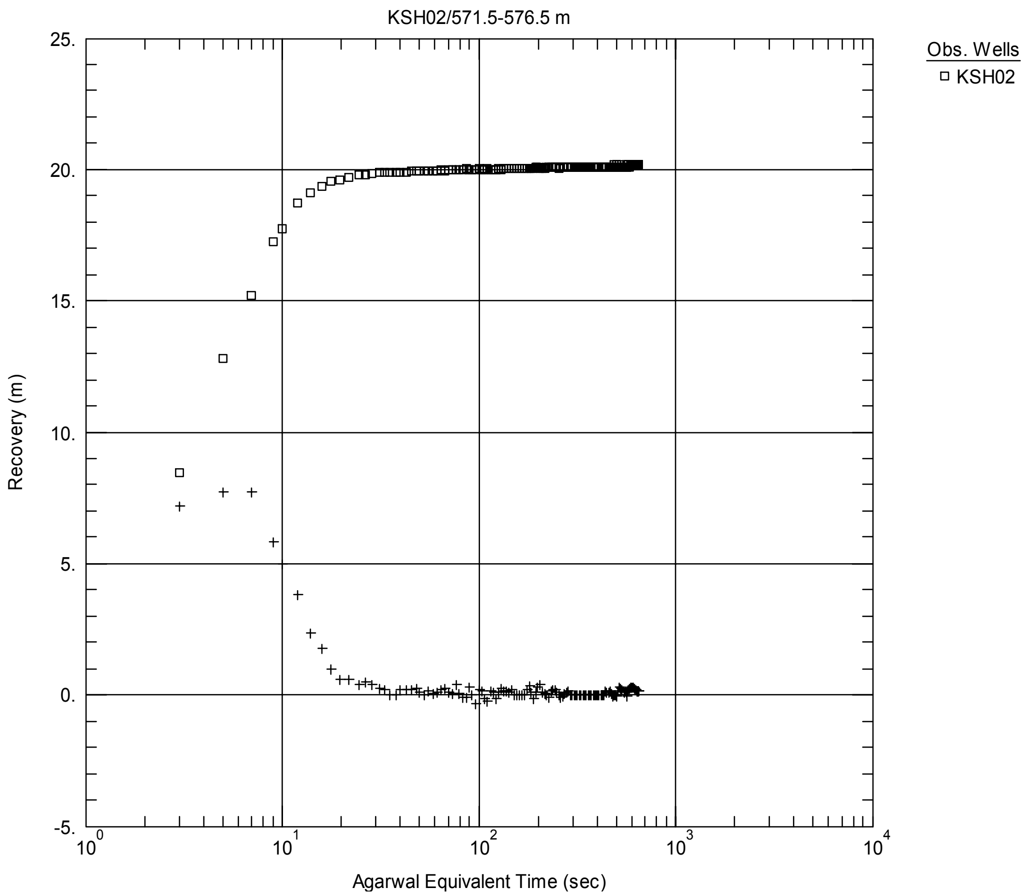
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

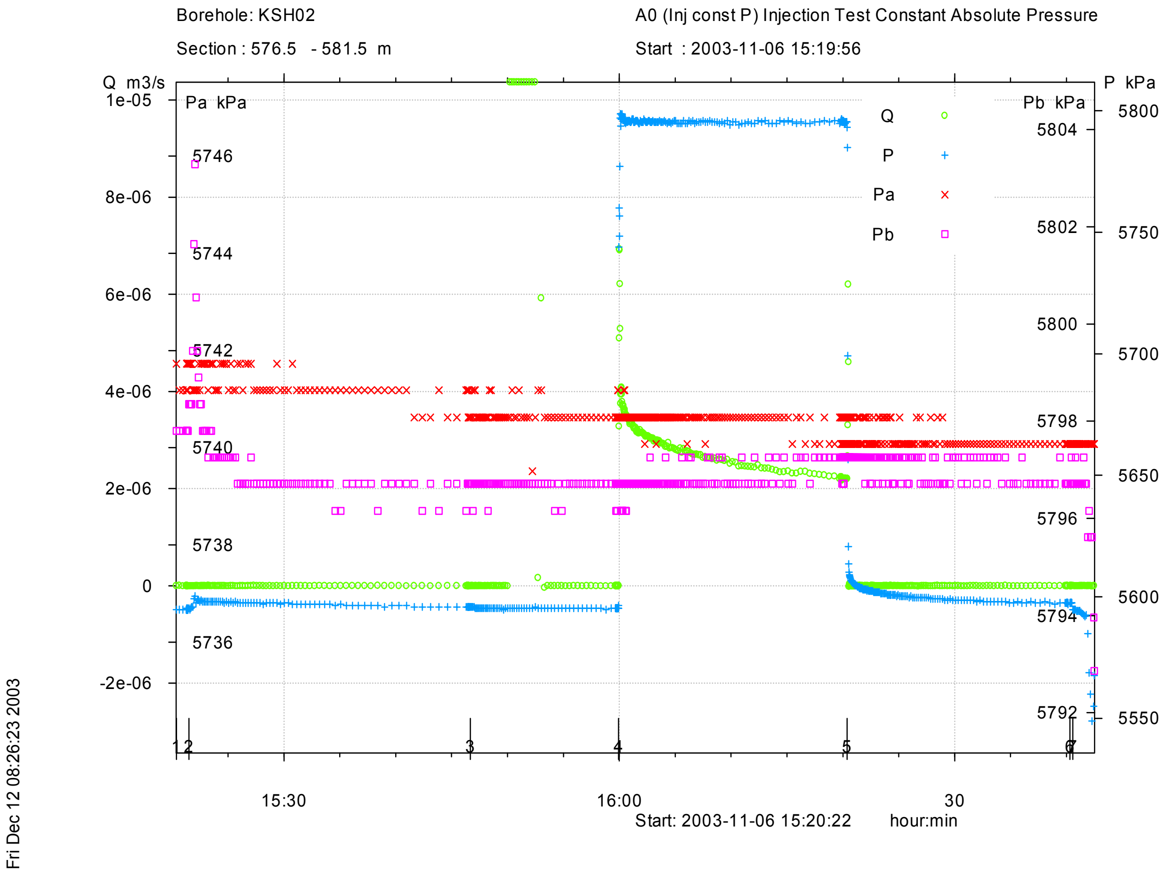


Recovery phase, lin-log match.

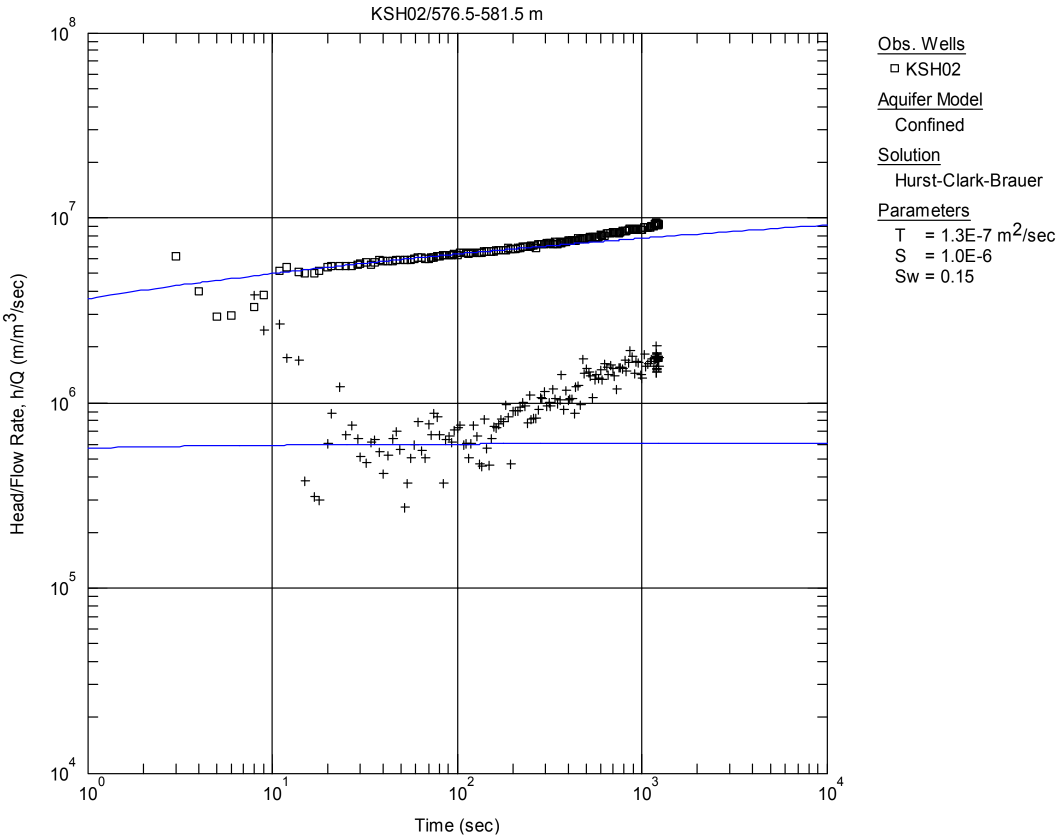
Appendix 3-110

Test 576.5–581.5 m

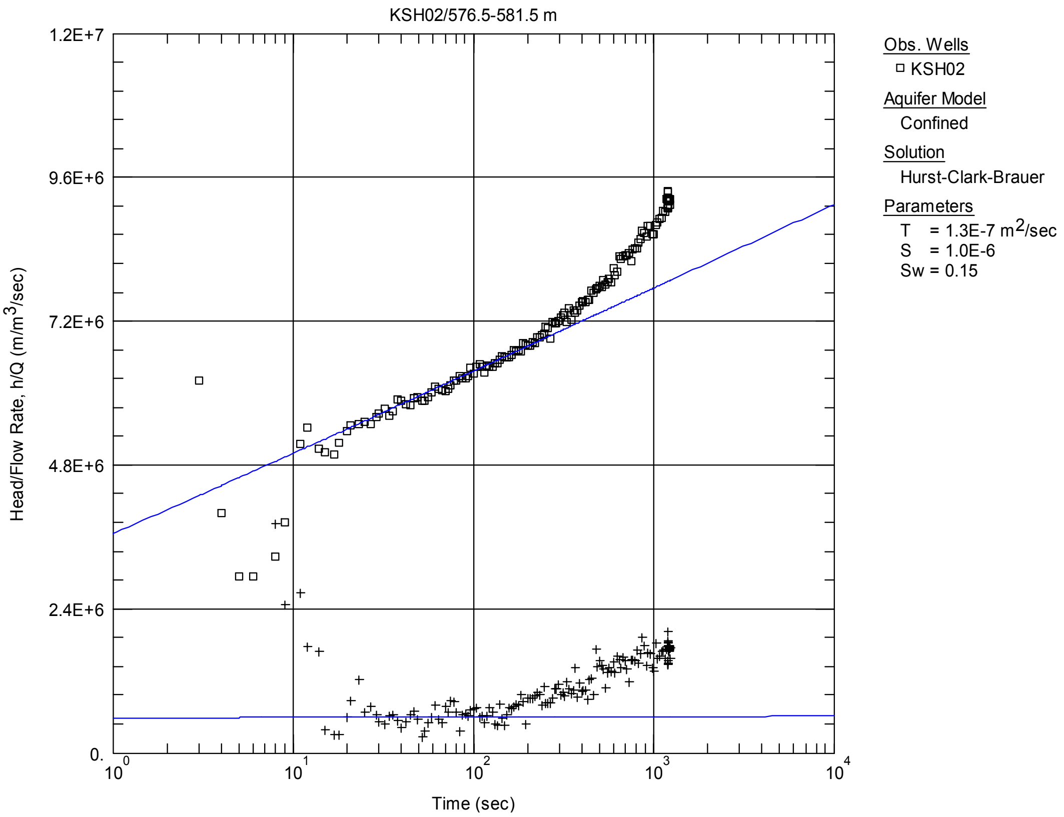
Analysis Diagram



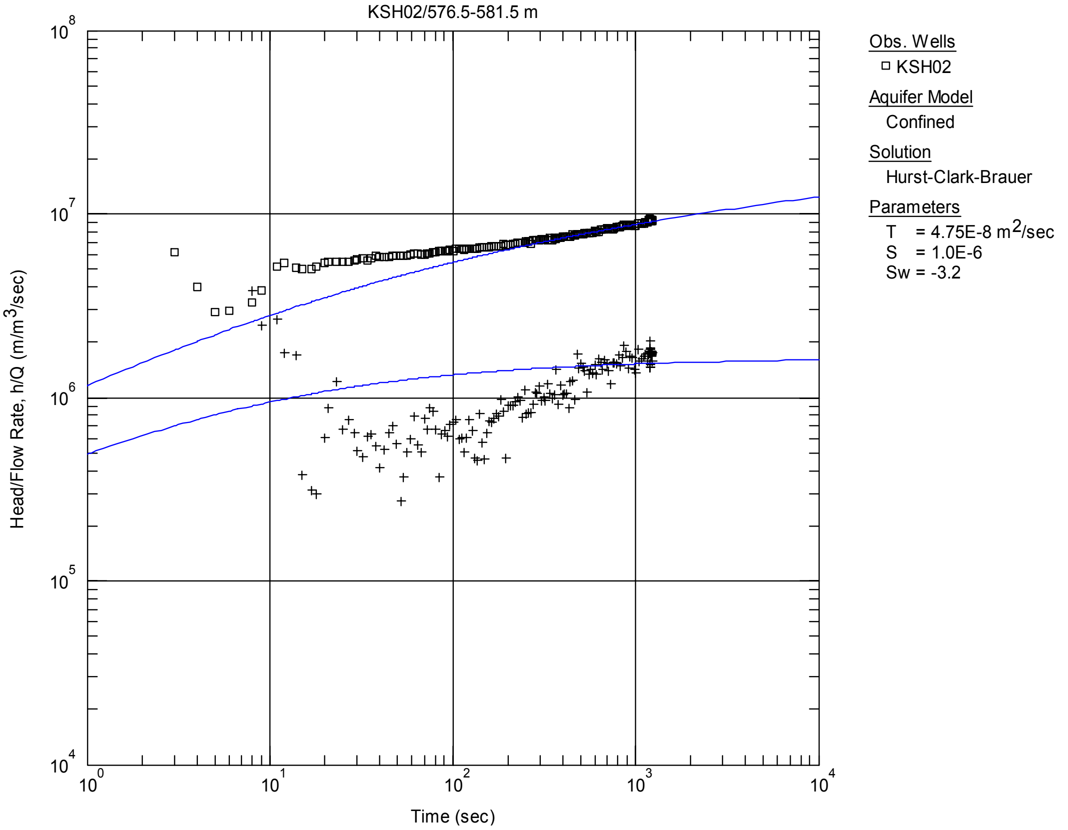
Pressure and flow rate vs. time.



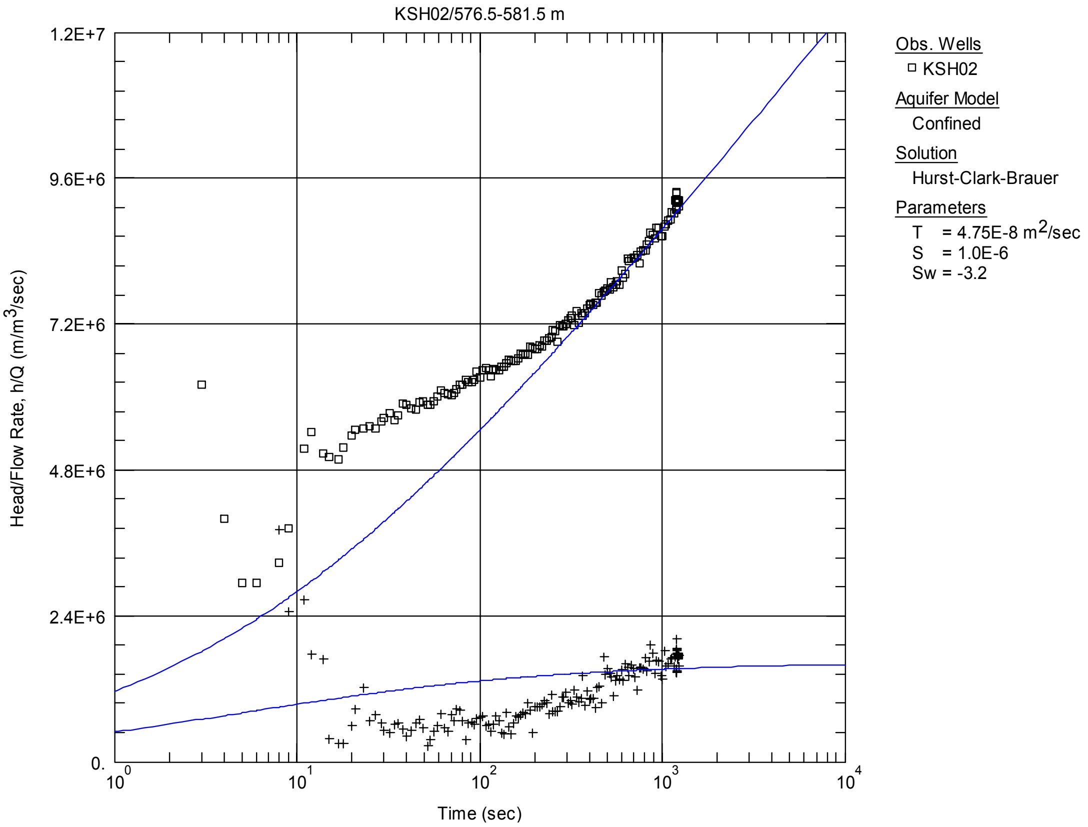
Perturbation phase, log-log match. First match.



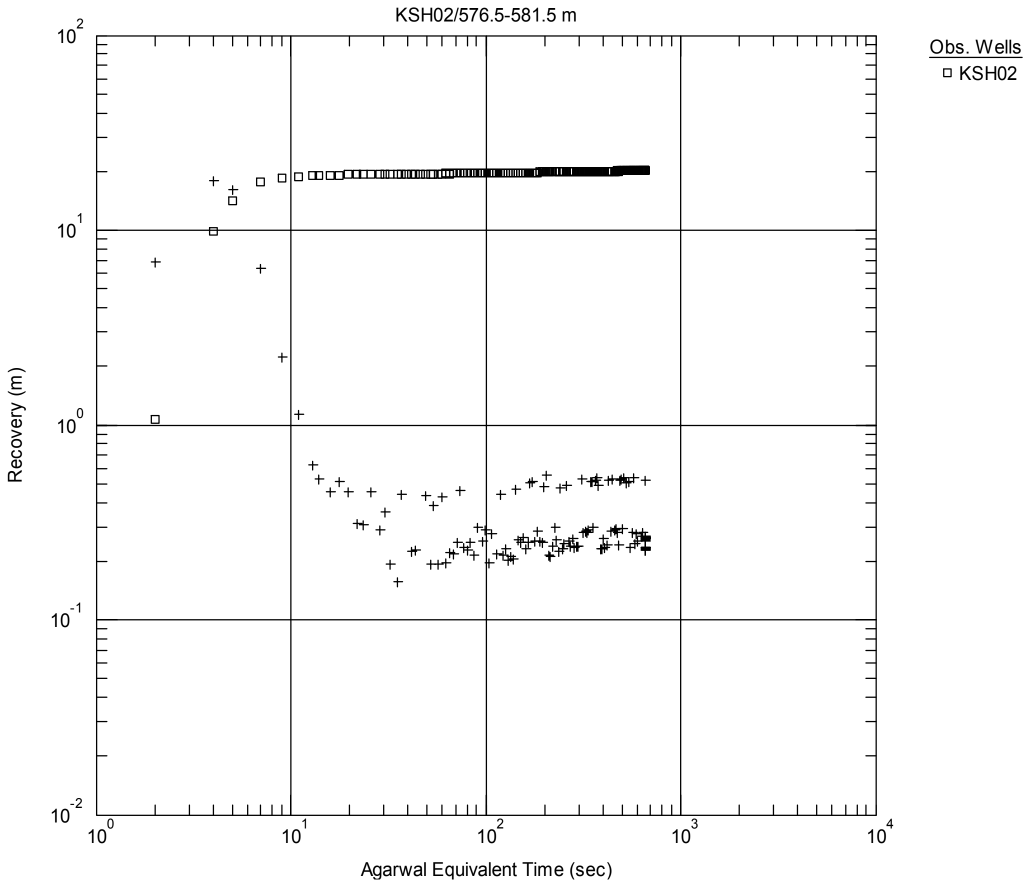
Perturbation phase, lin-log match. First match.



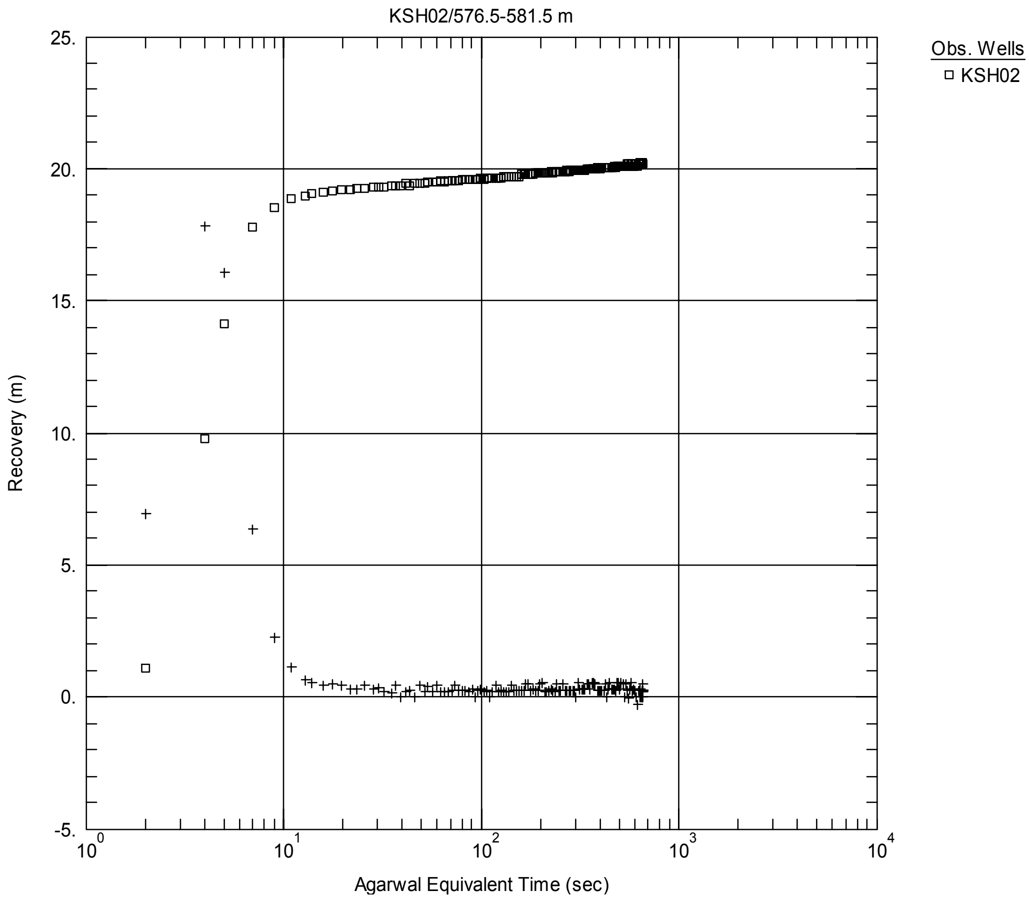
Perturbation phase, log-log match. Second match.



Perturbation phase, lin-log match. Second match.



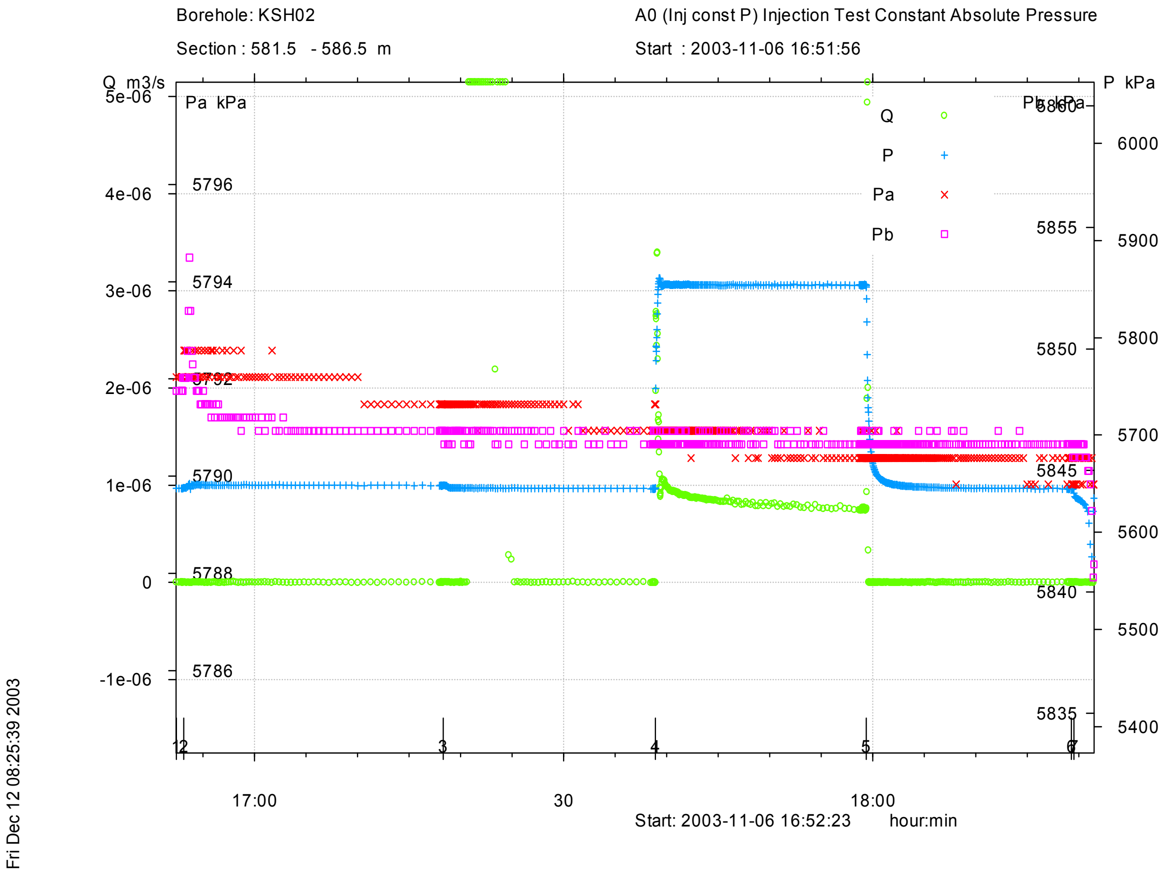
Recovery phase, log-log match.



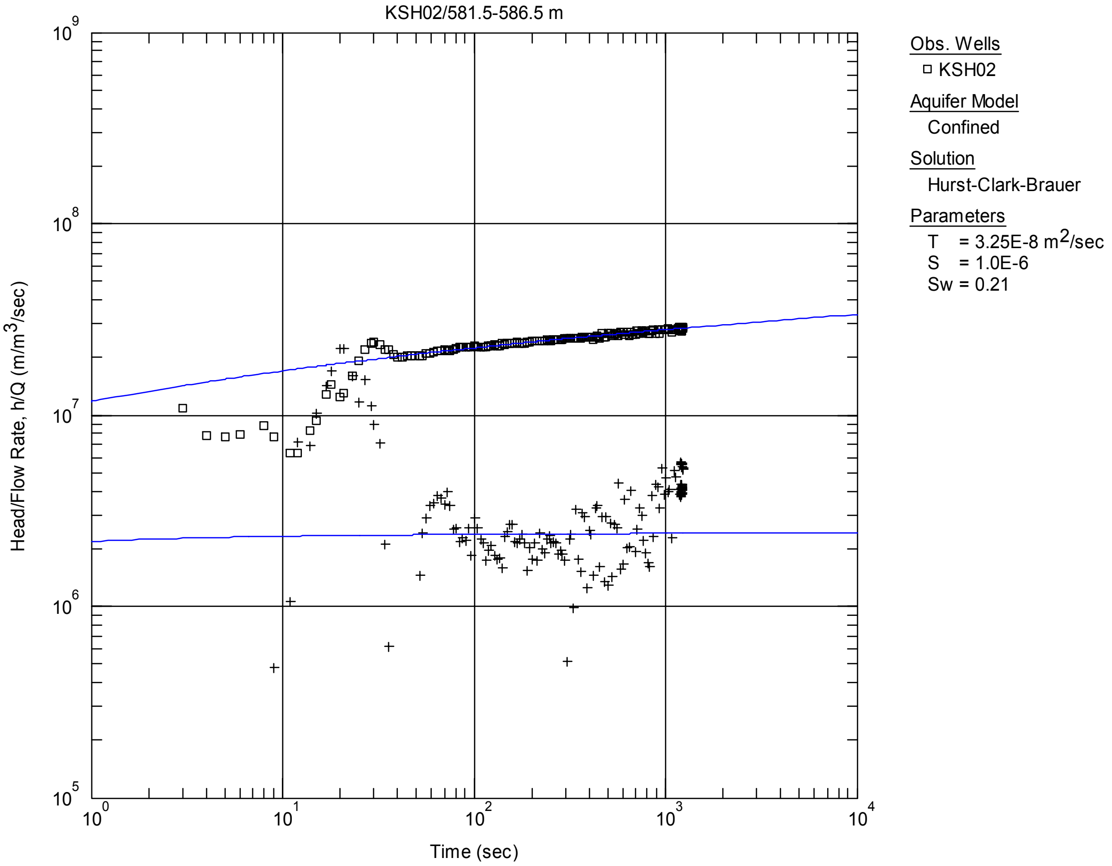
Recovery phase, lin-log match.

Test 581.5–586.5 m

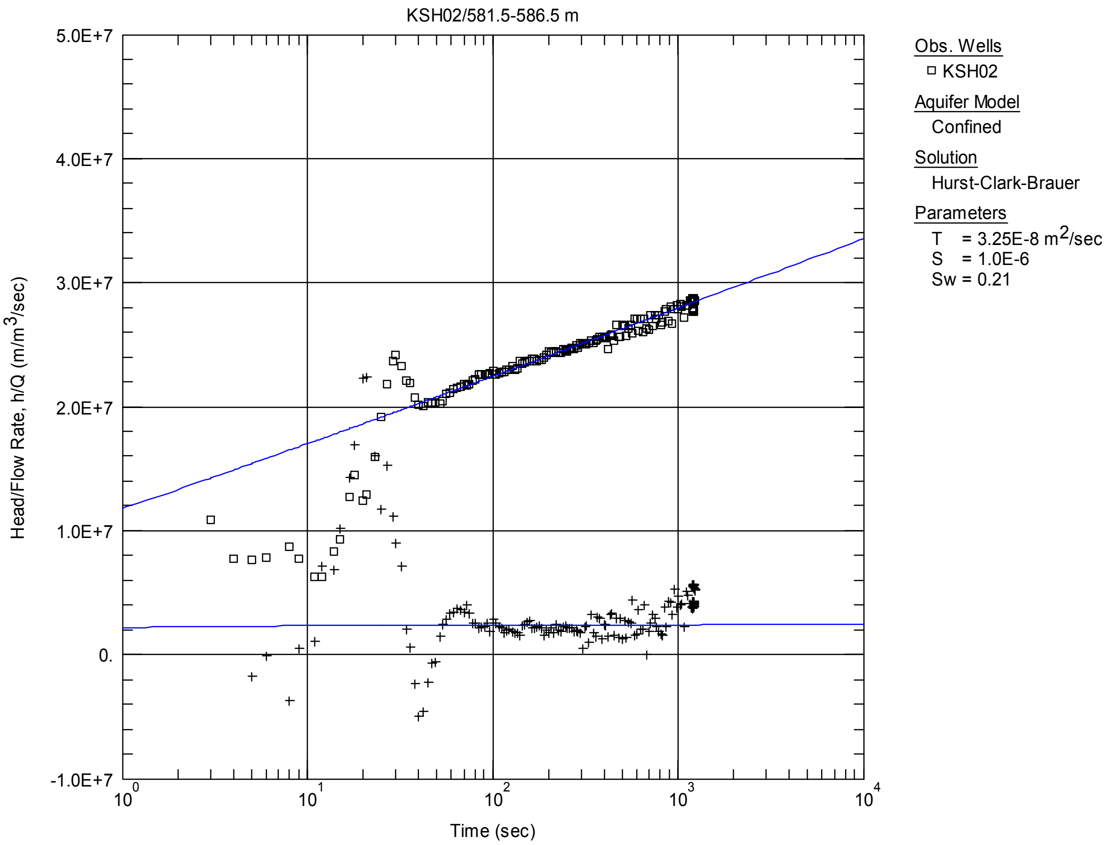
Analysis Diagram



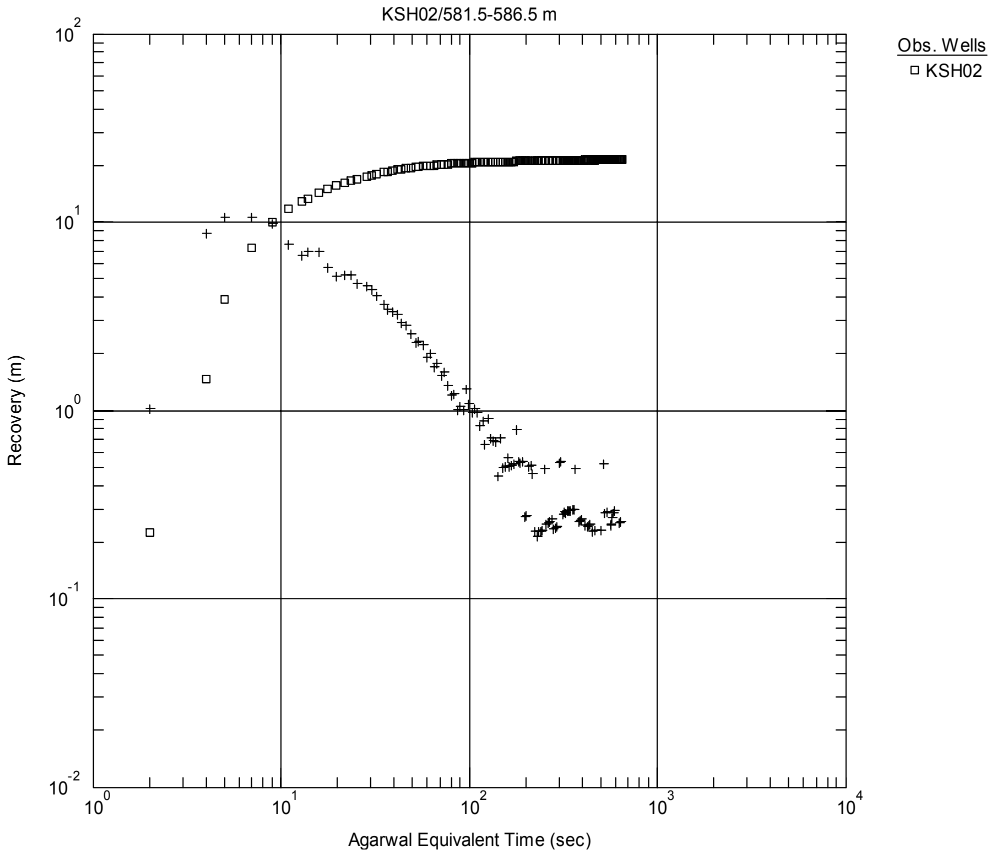
Pressure and flow rate vs. time.



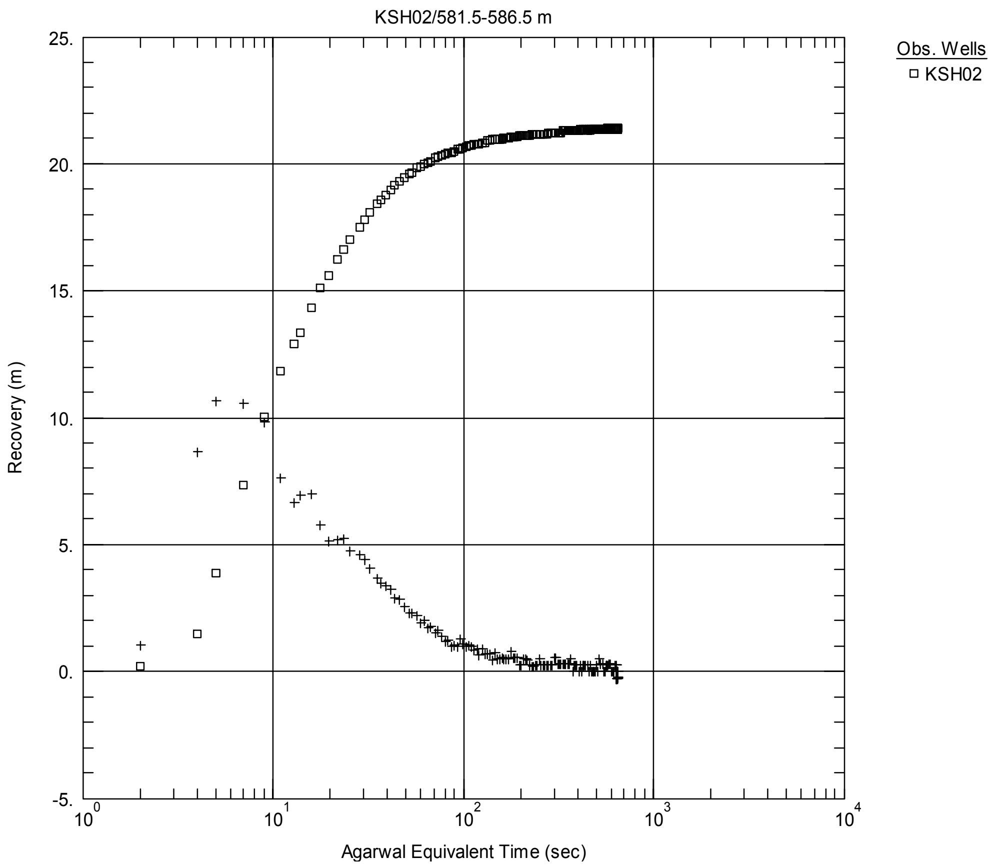
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

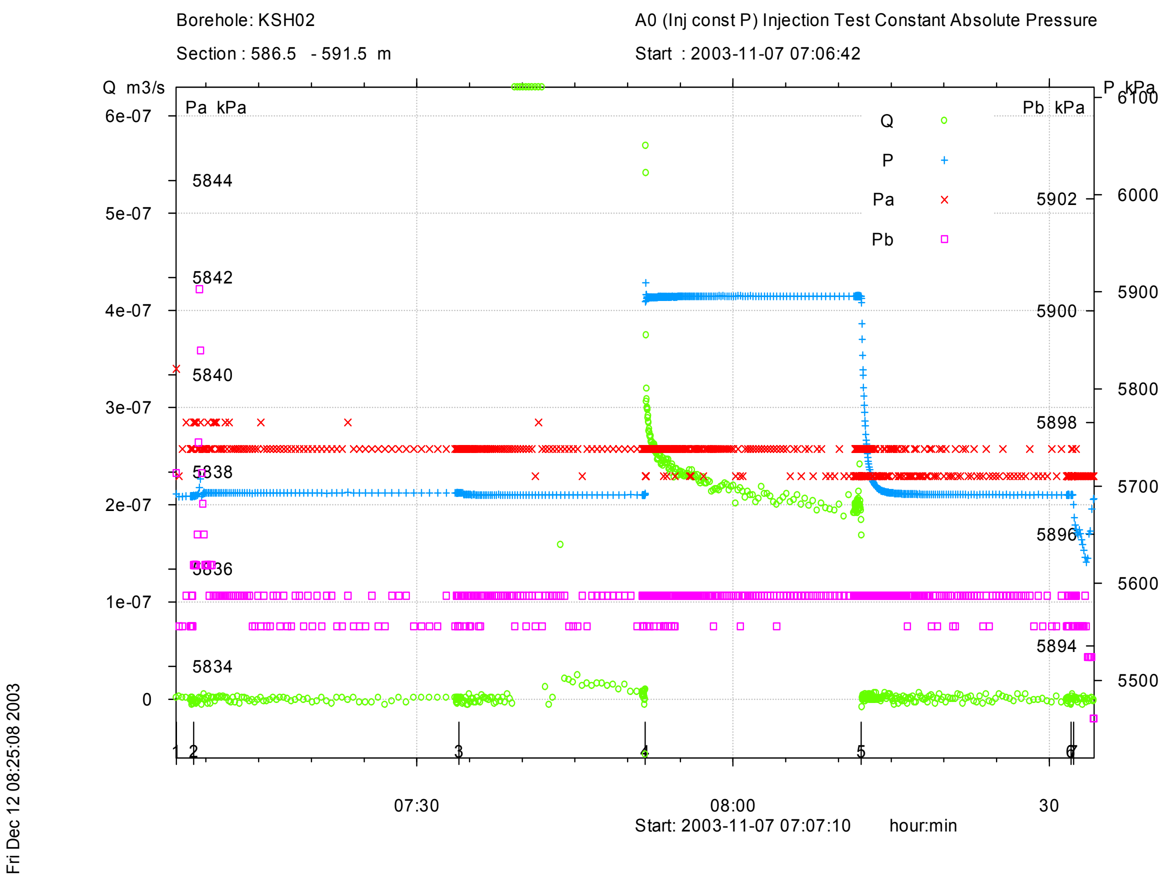


Recovery phase, lin-log match.

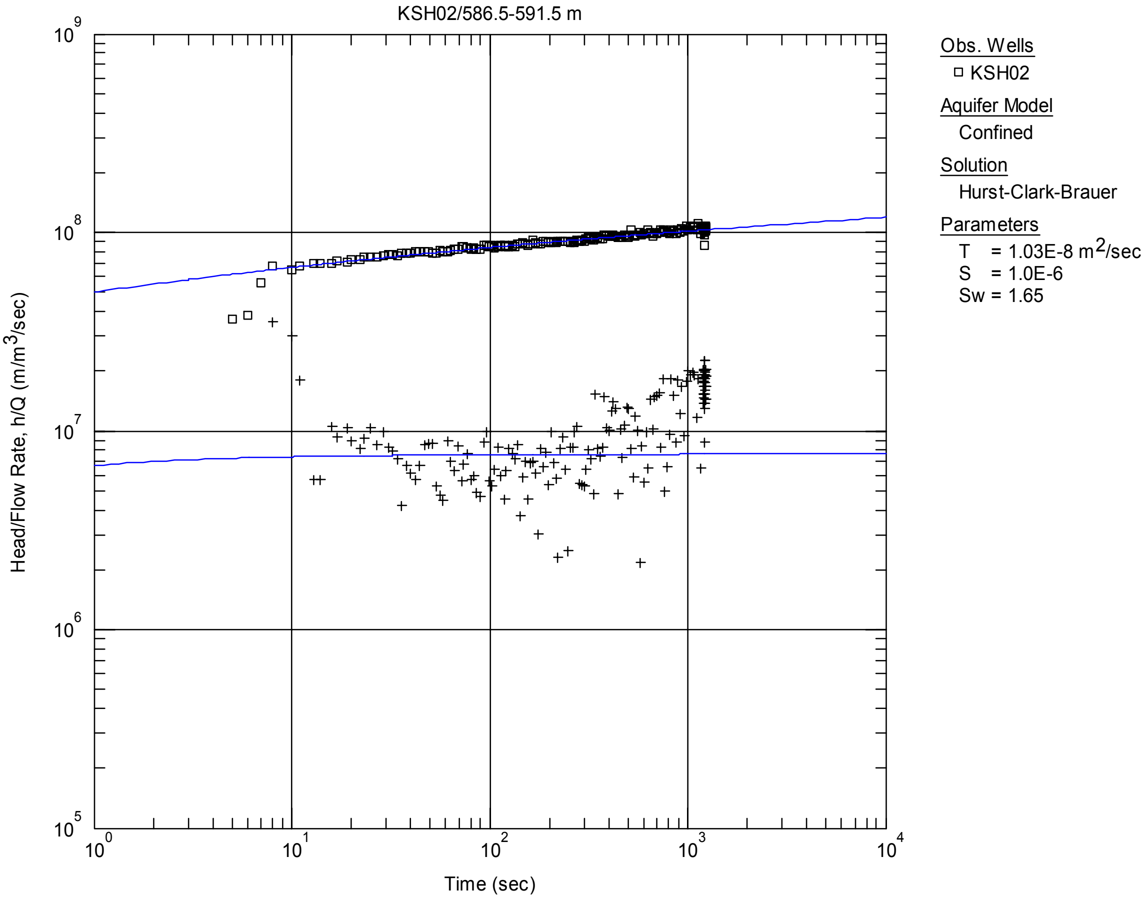
Appendix 3-112

Test 586.5–591.5 m

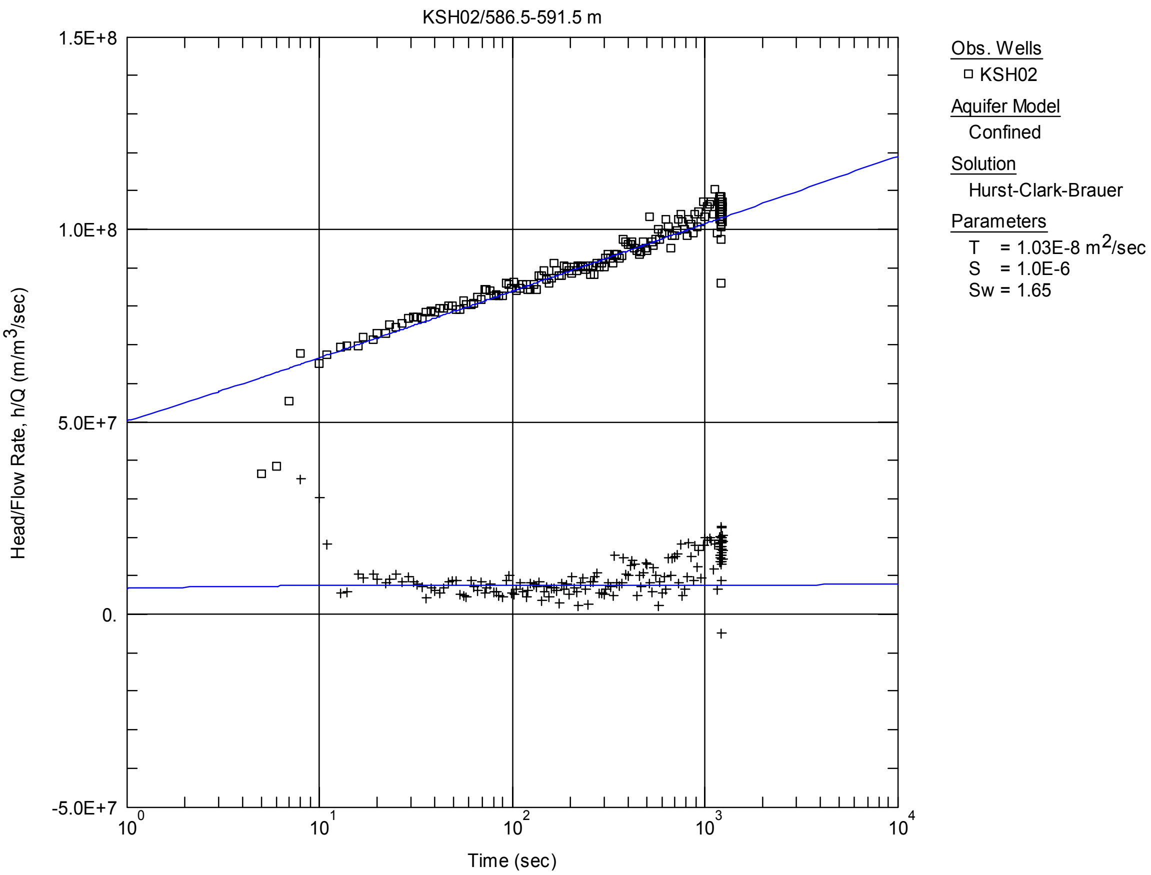
Analysis Diagram



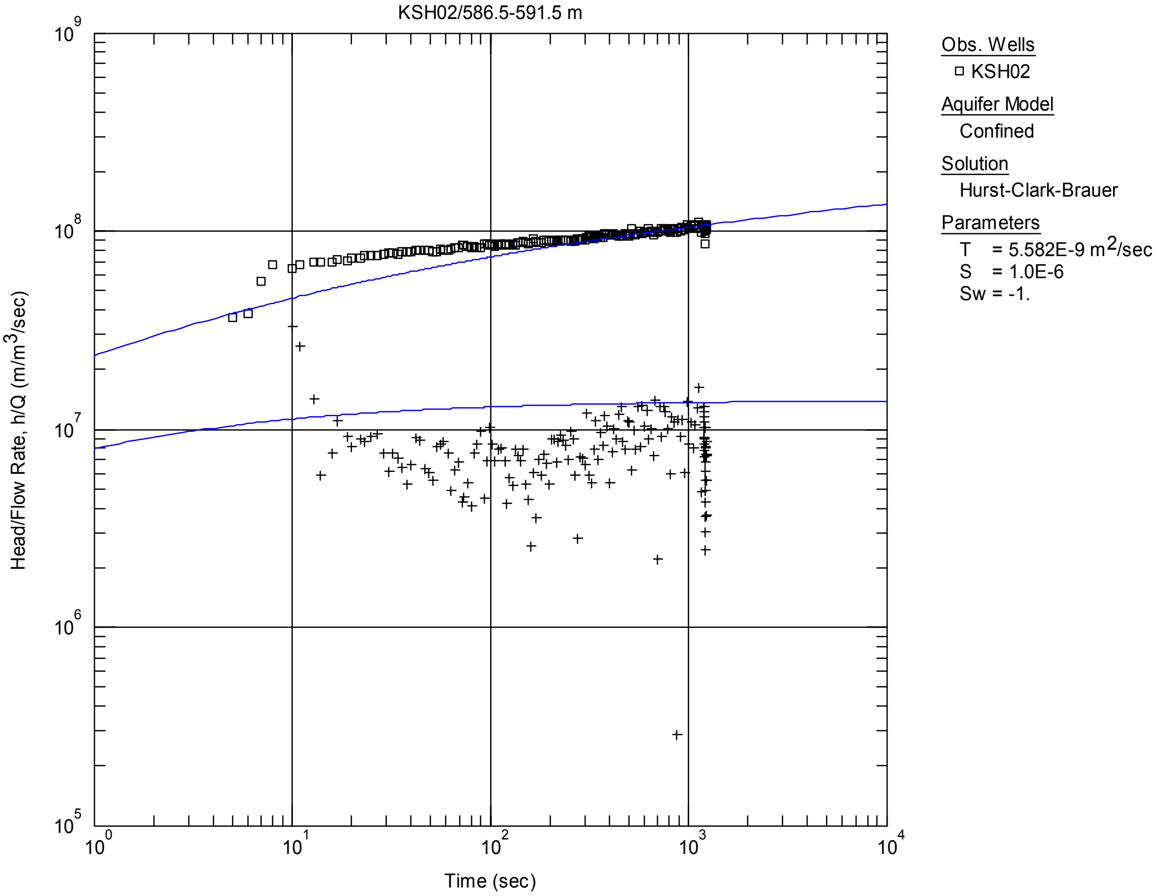
Pressure and flow rate vs. time.



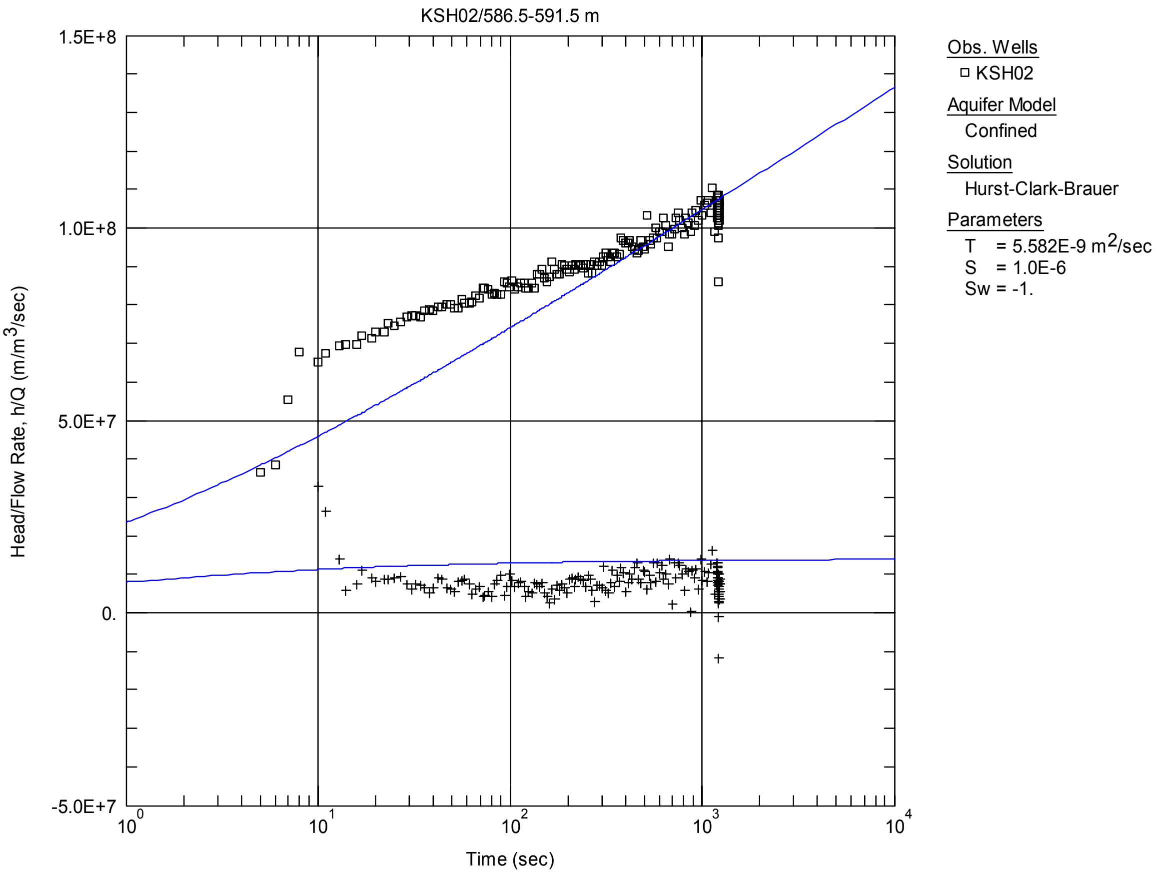
Perturbation phase, log-log match. First Match



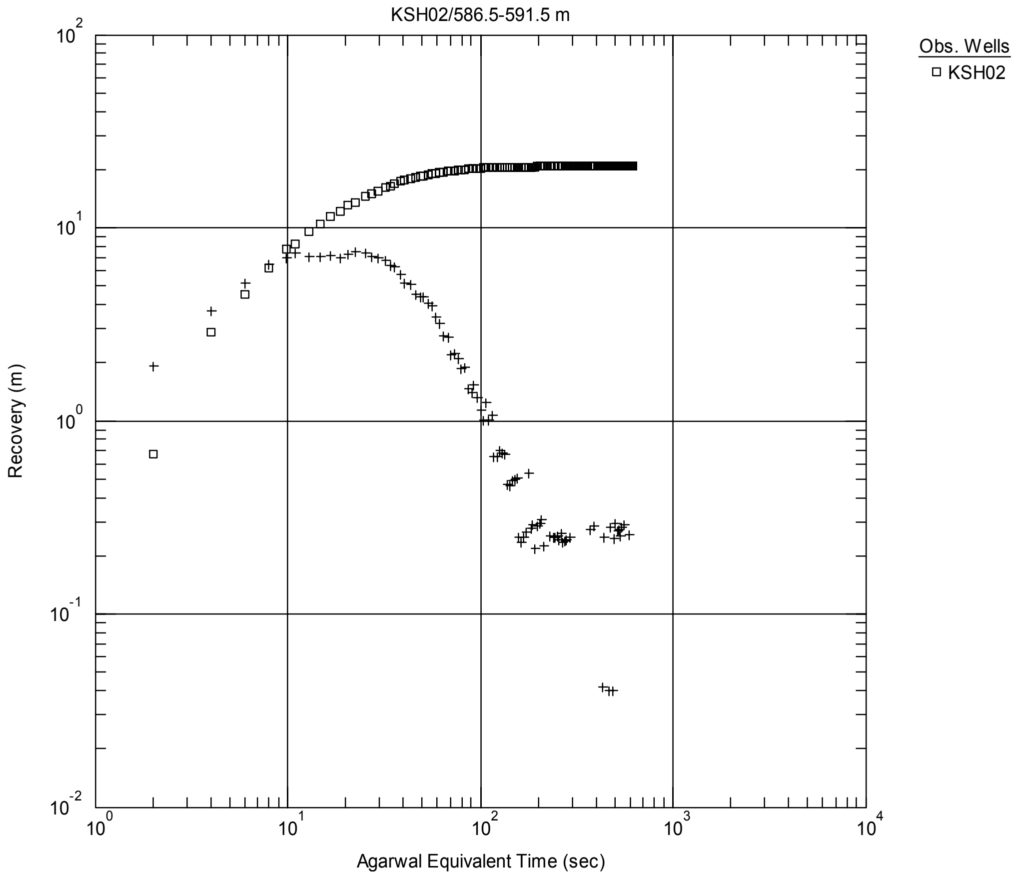
Perturbation phase, lin-log match. First Match.



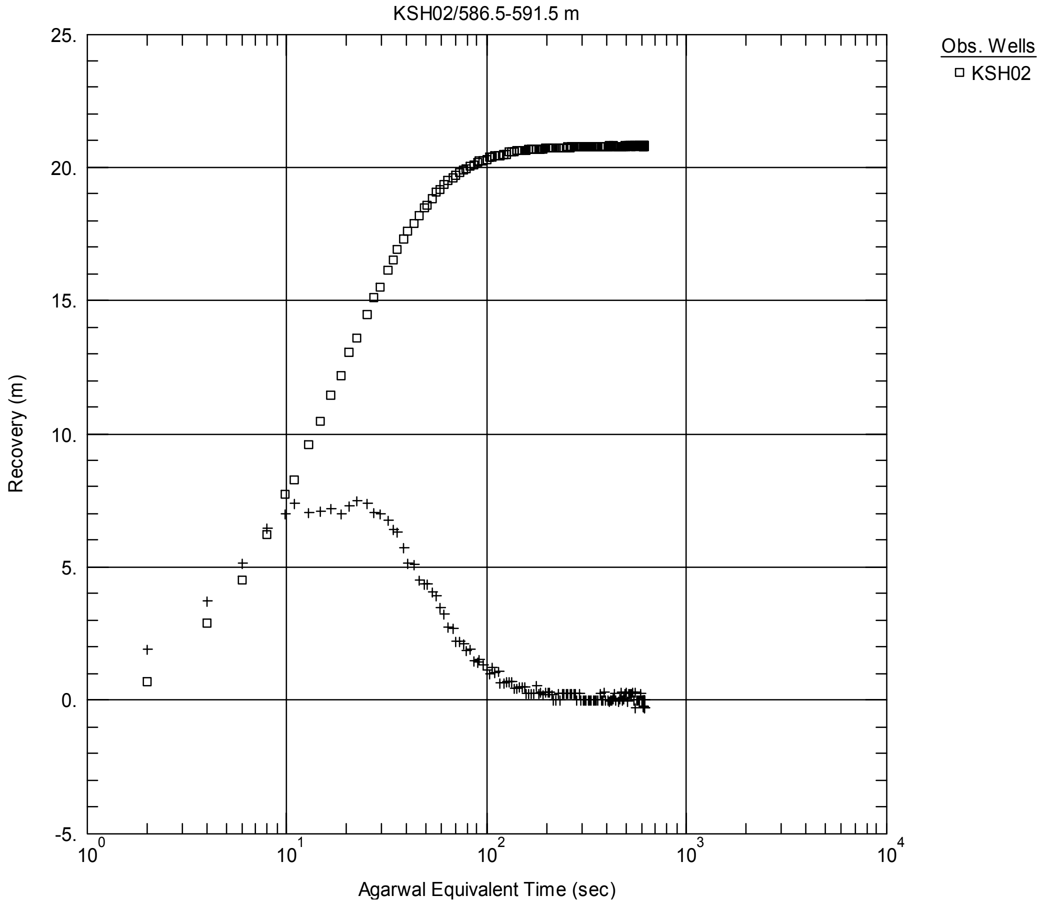
Perturbation phase, log-log match. Second Match.



Perturbation phase, lin-log match. Second Match.



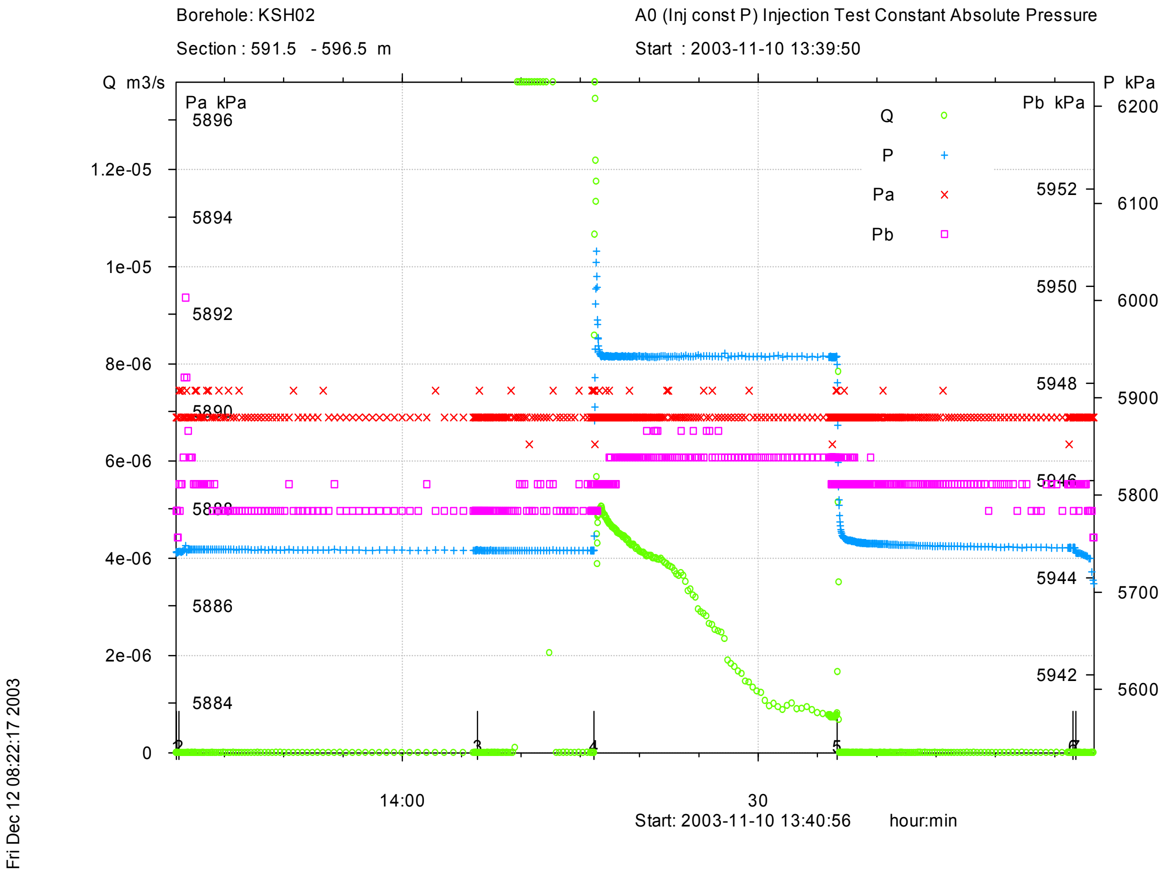
Recovery phase, log-log match.



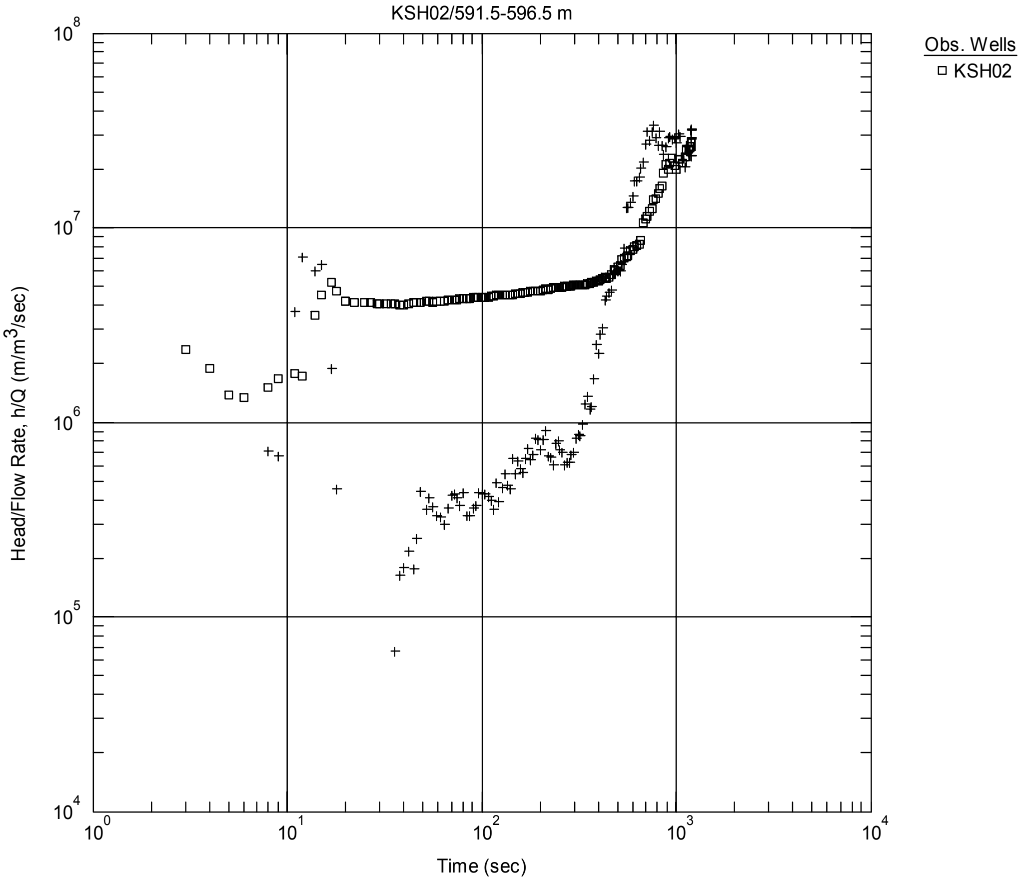
Recovery phase, lin-log match.

Test 591.5–596.5 m

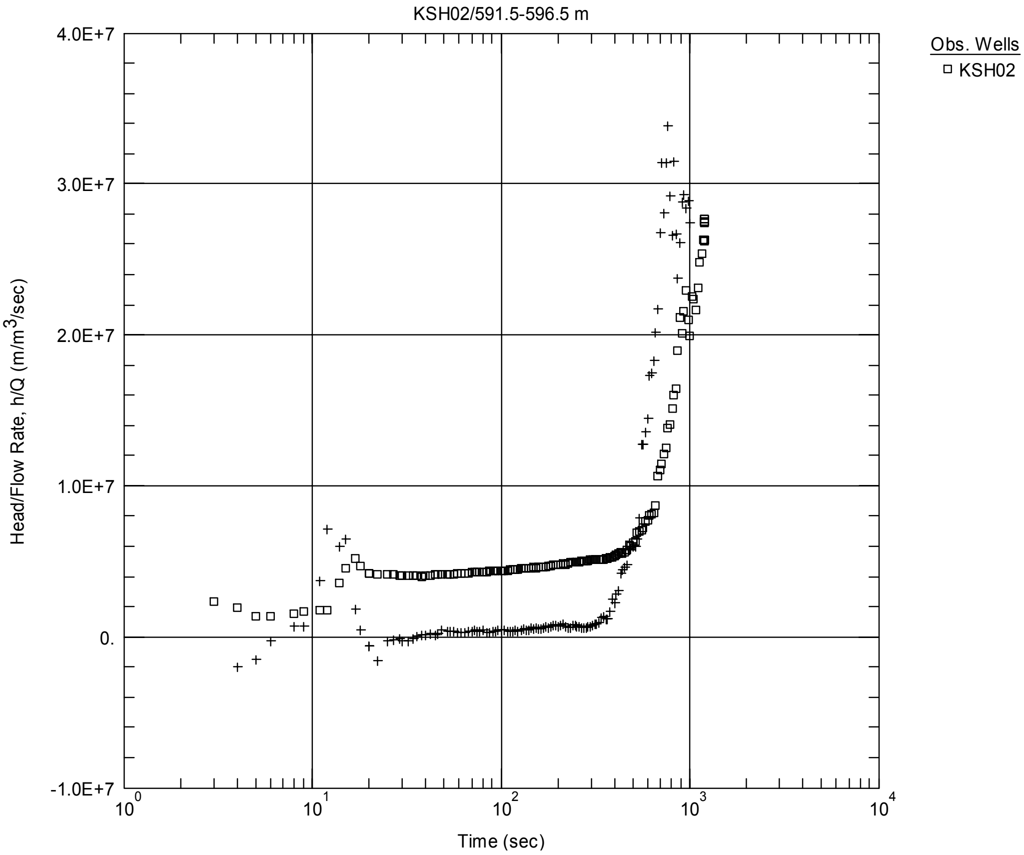
Analysis Diagram



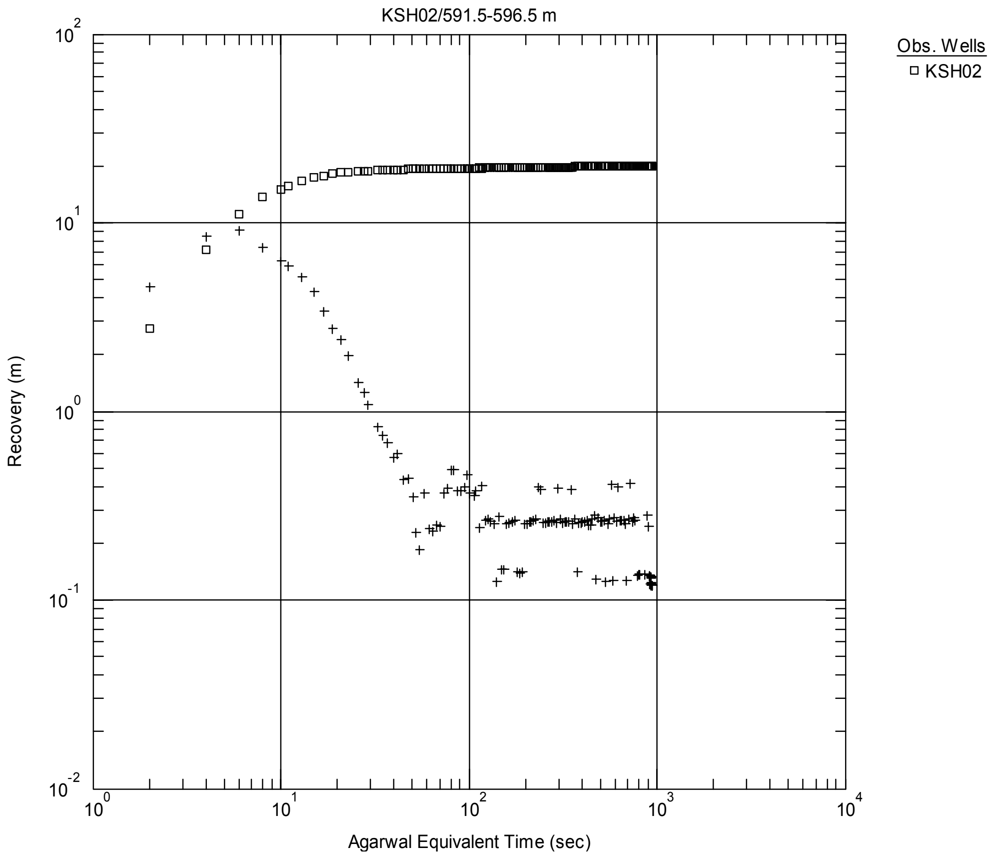
Pressure and flow rate vs. time.



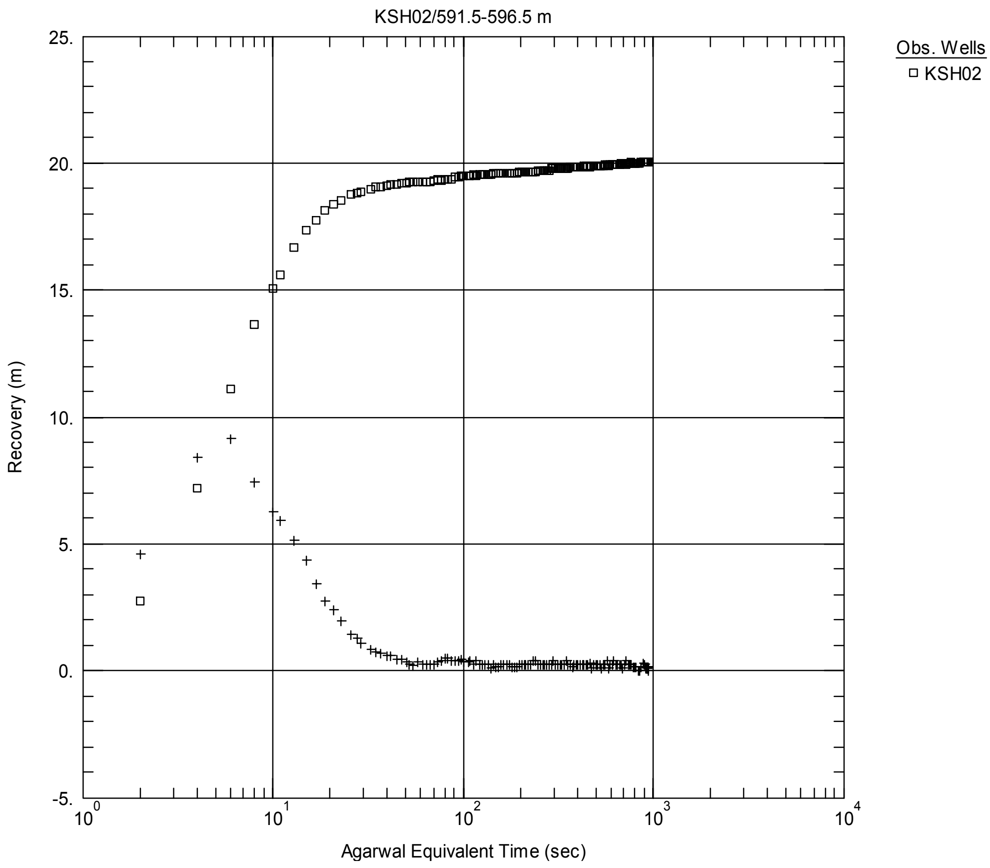
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



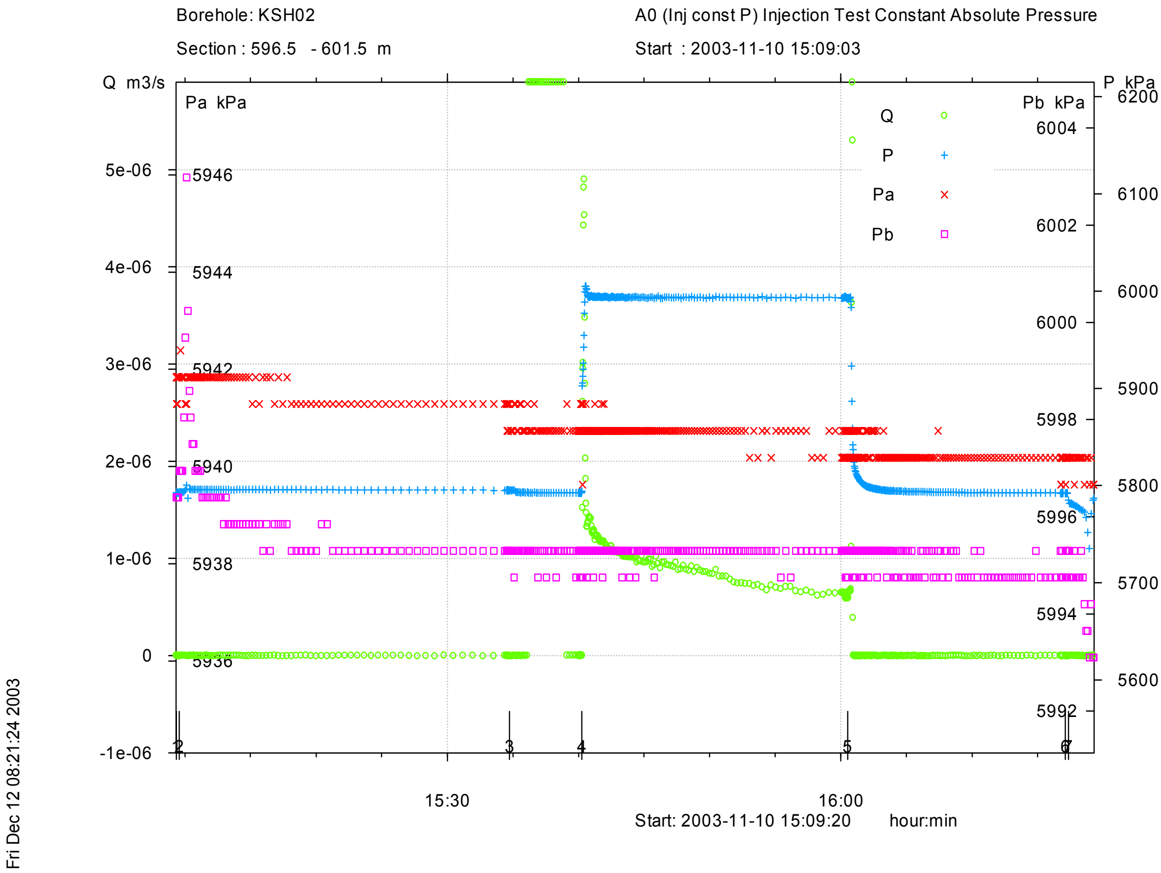
Recovery phase, log-log match.



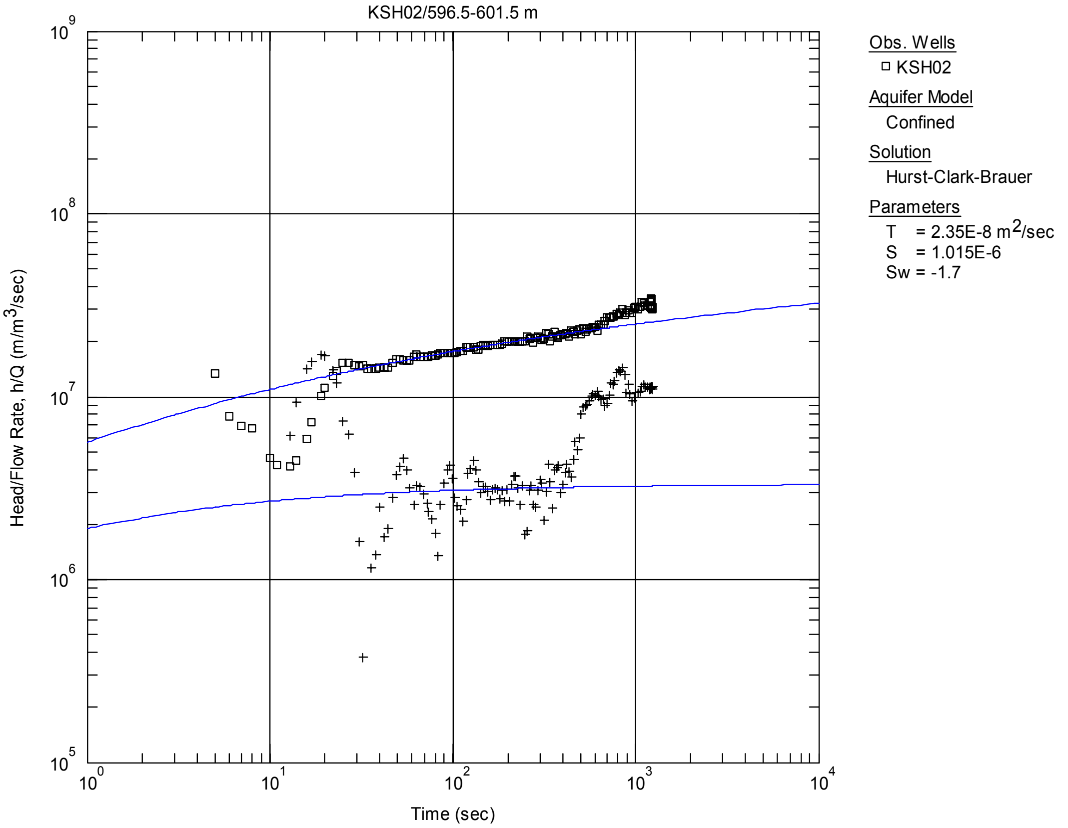
Recovery phase, lin-log match.

Test 596.5–601.5 m

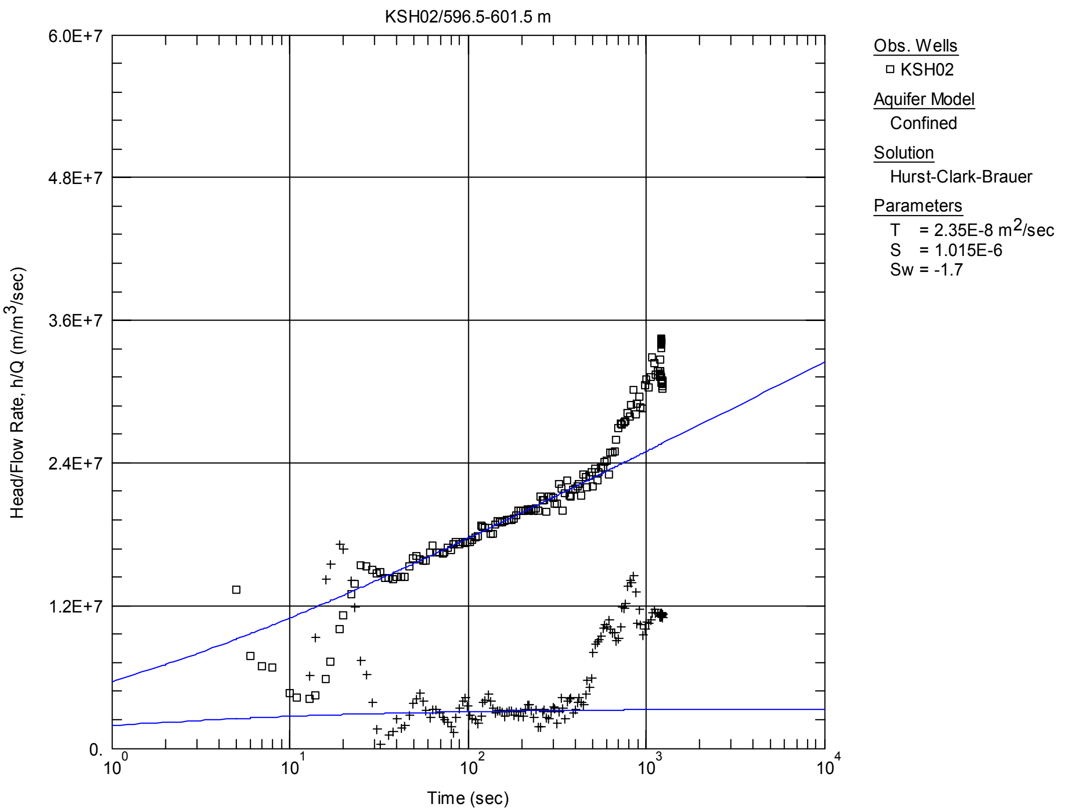
Analysis Diagram



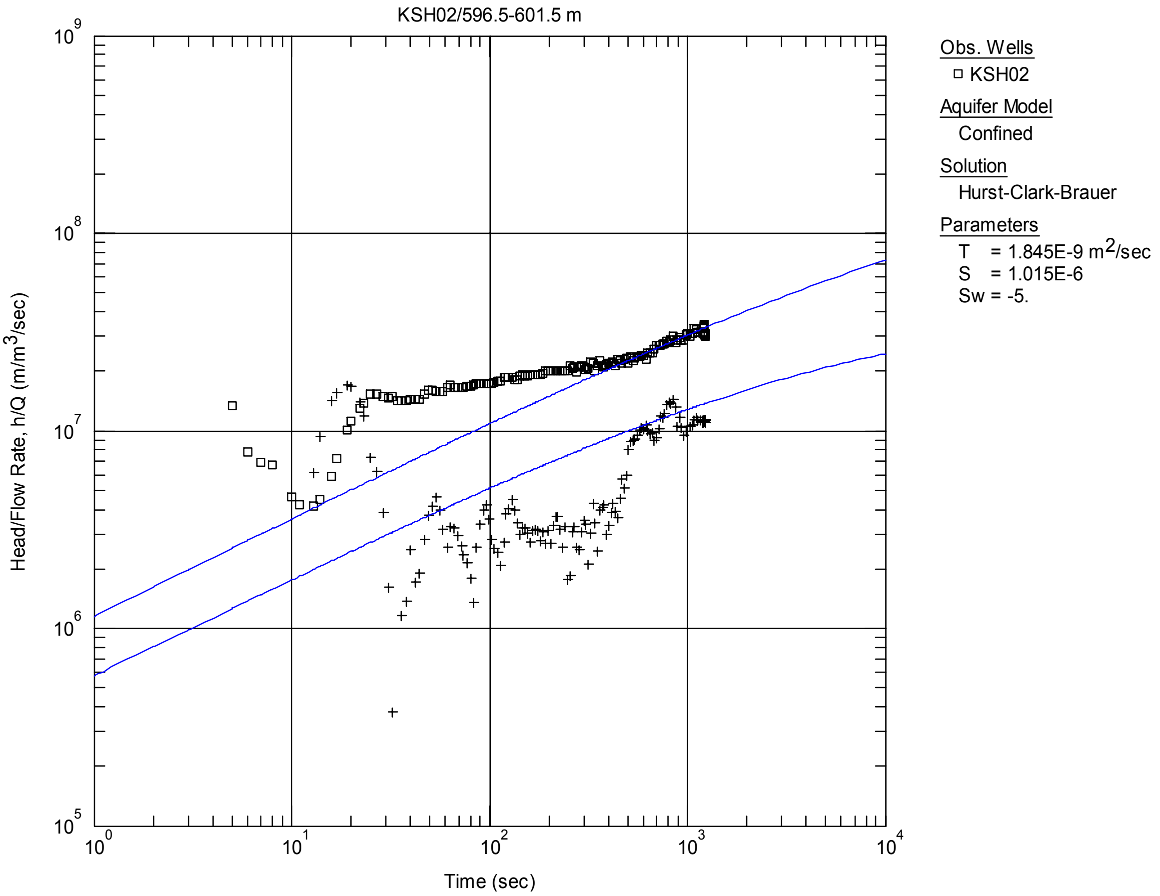
Pressure and flow rate vs. time.



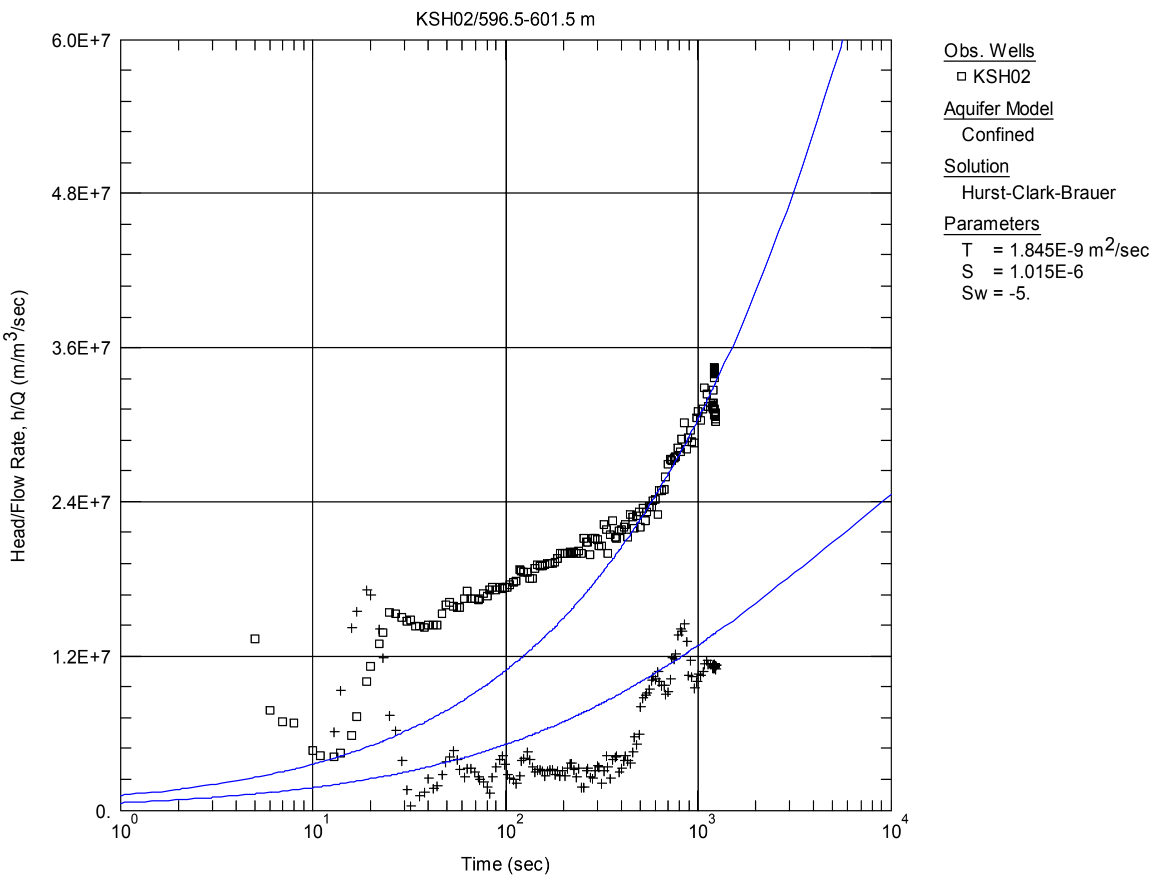
Perturbation phase, log-log match. First match.



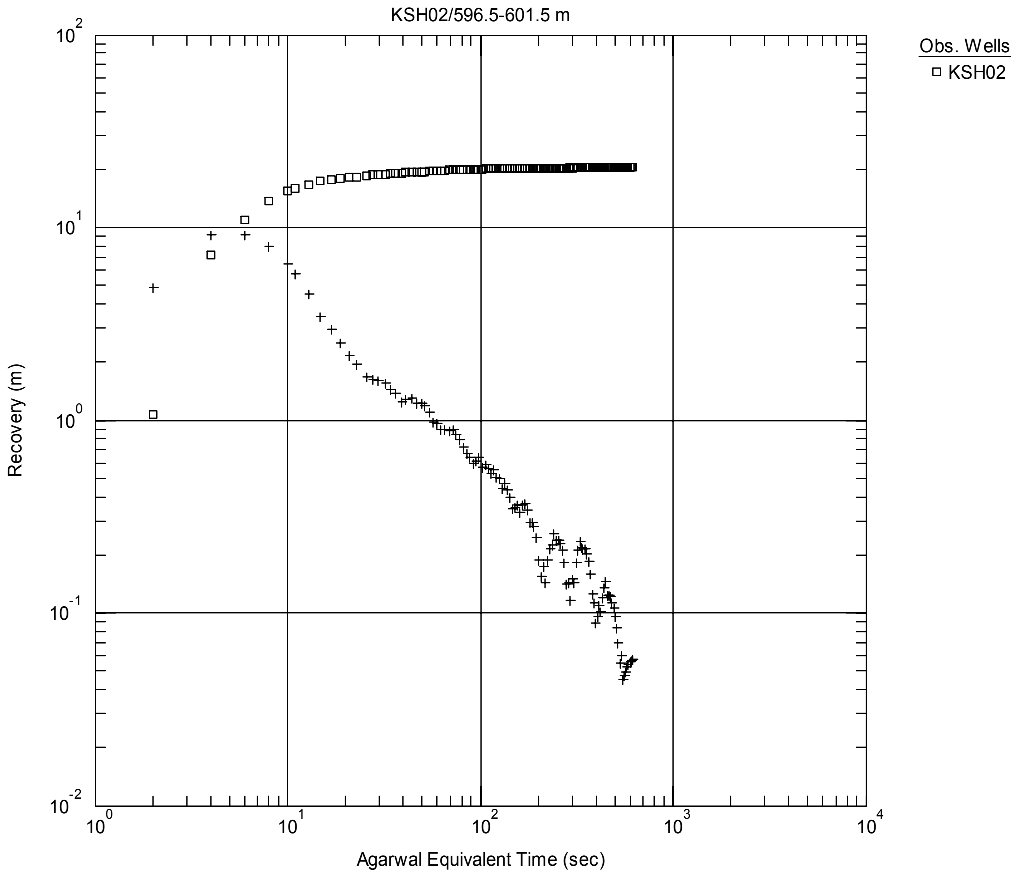
Perturbation phase, lin-log match. First match.



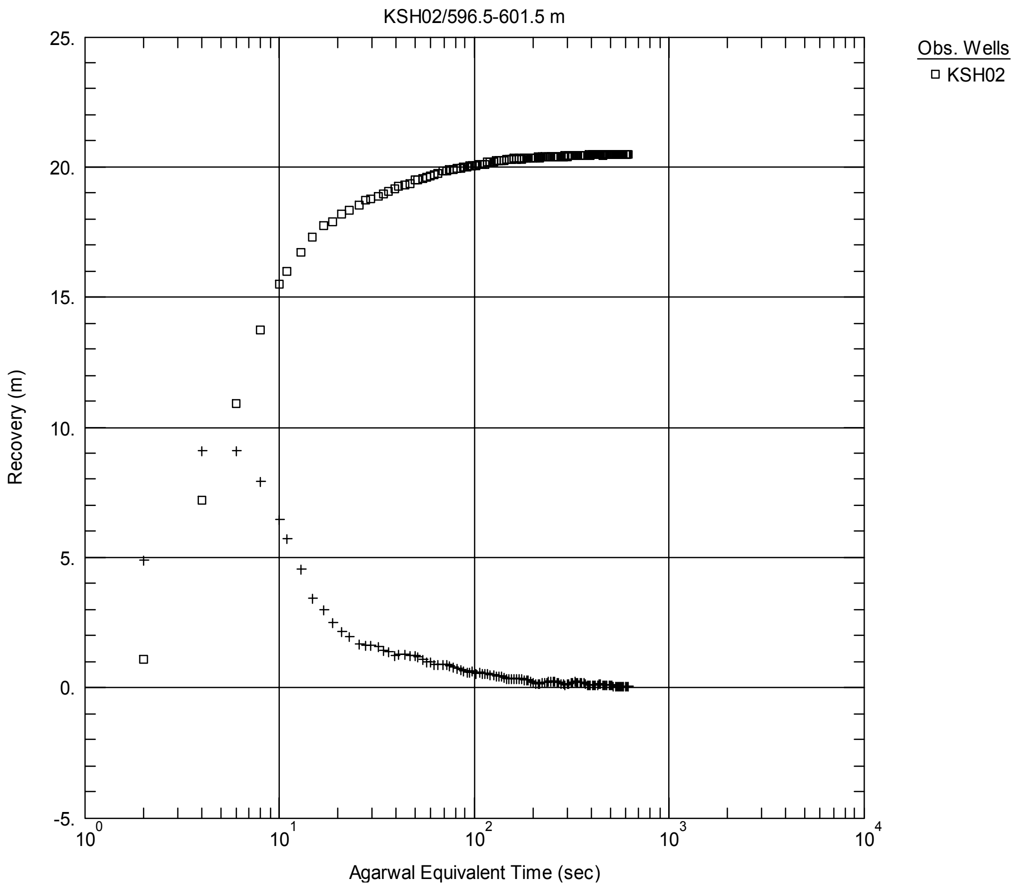
Perturbation phase, log-log match. Second match.



Perturbation phase, lin-log match. Second match.



Recovery phase, log-log match.

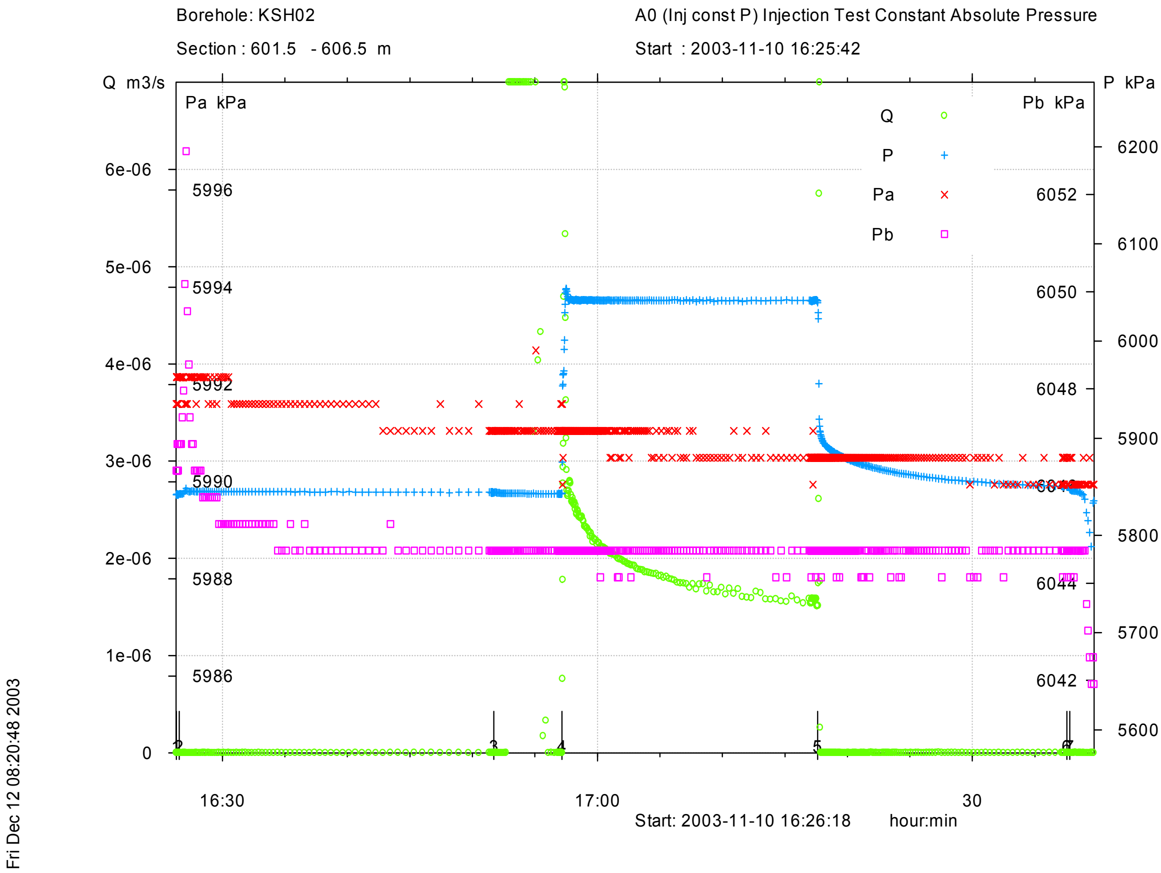


Recovery phase, lin-log match.

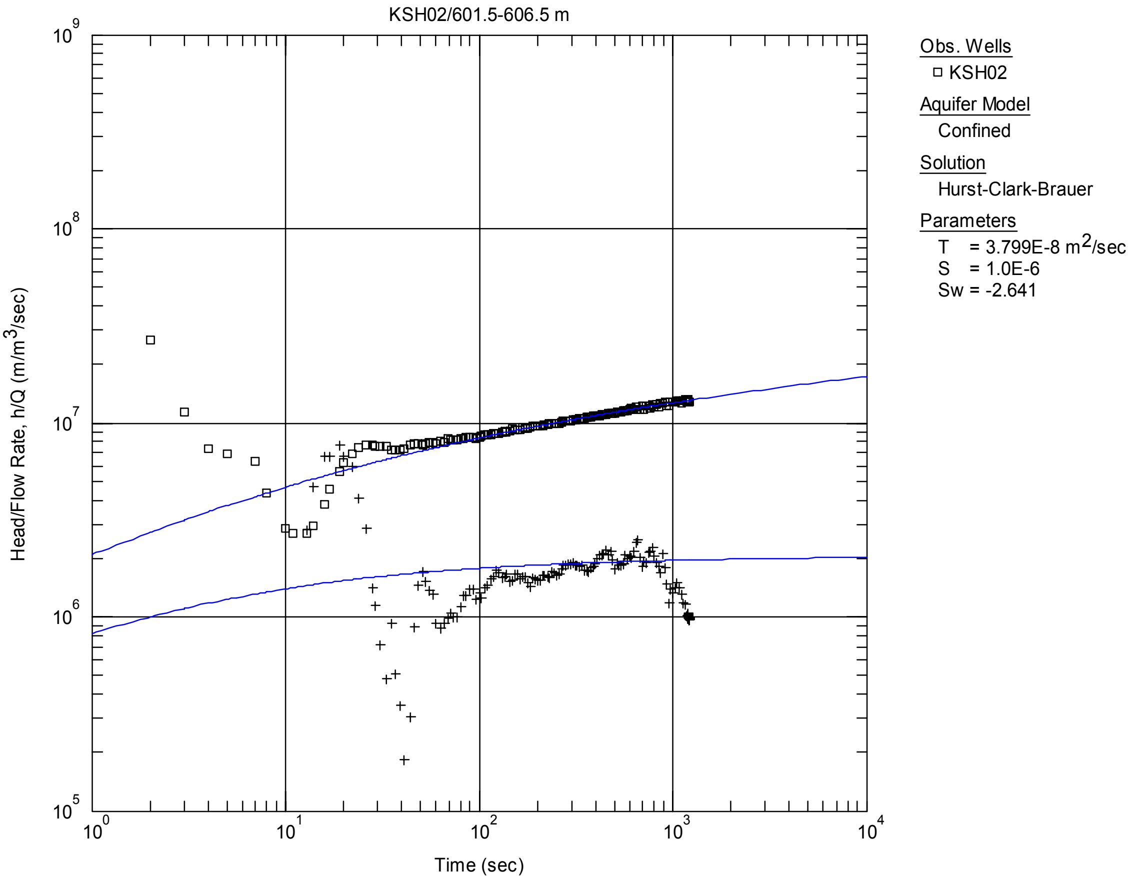
Appendix 3-115

Test 601.5–606.5 m

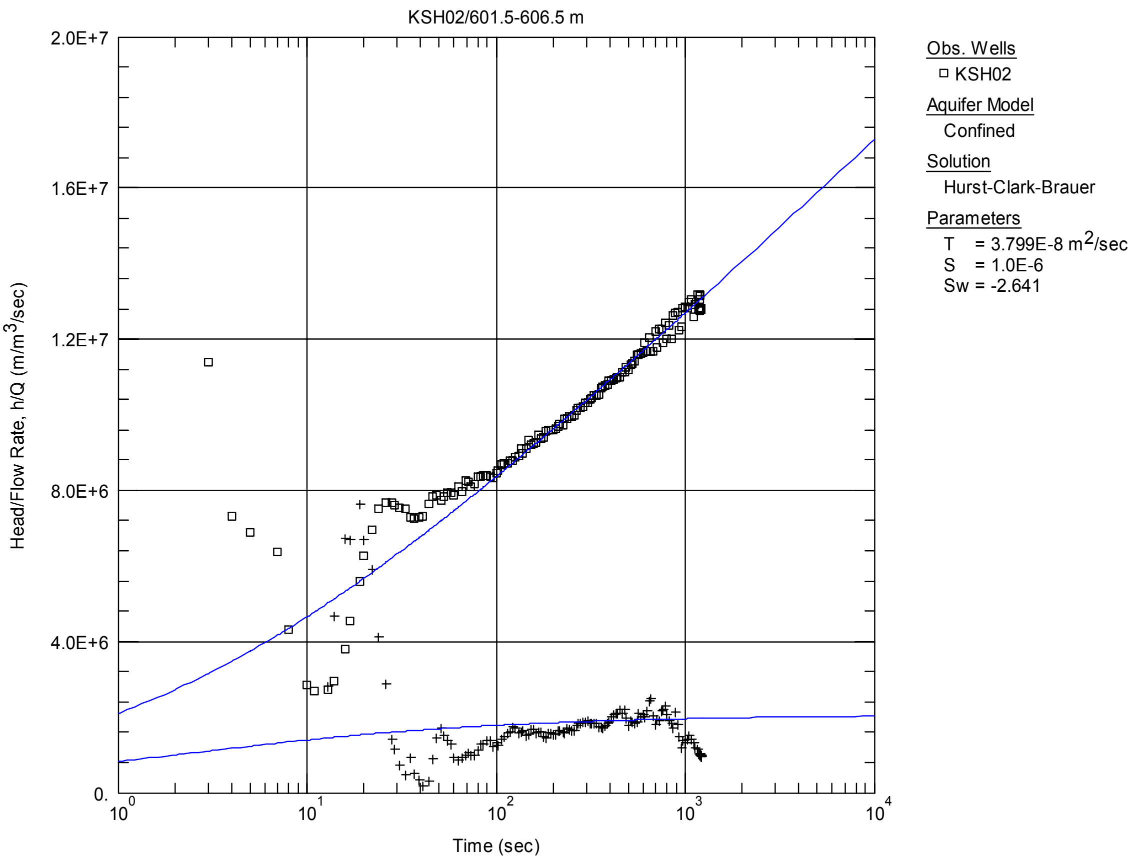
Analysis Diagram



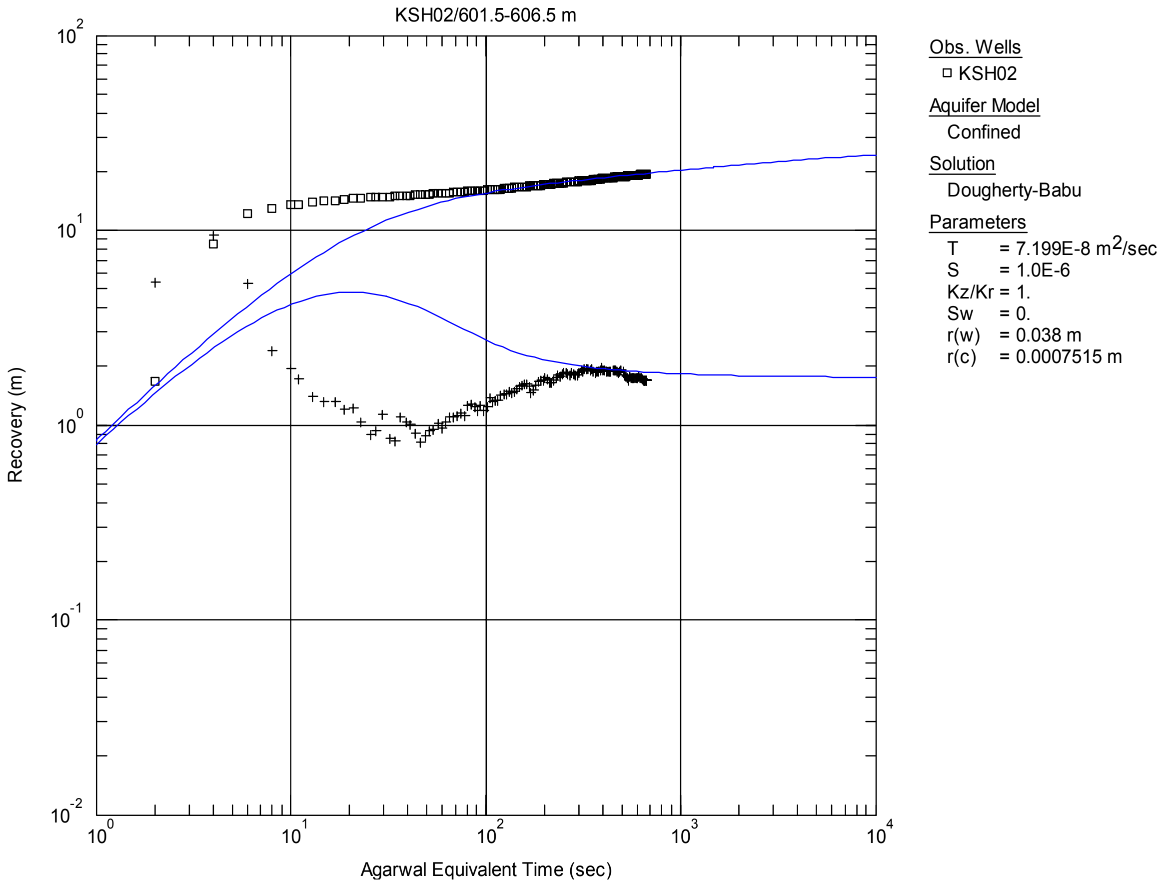
Pressure and flow rate vs. time.



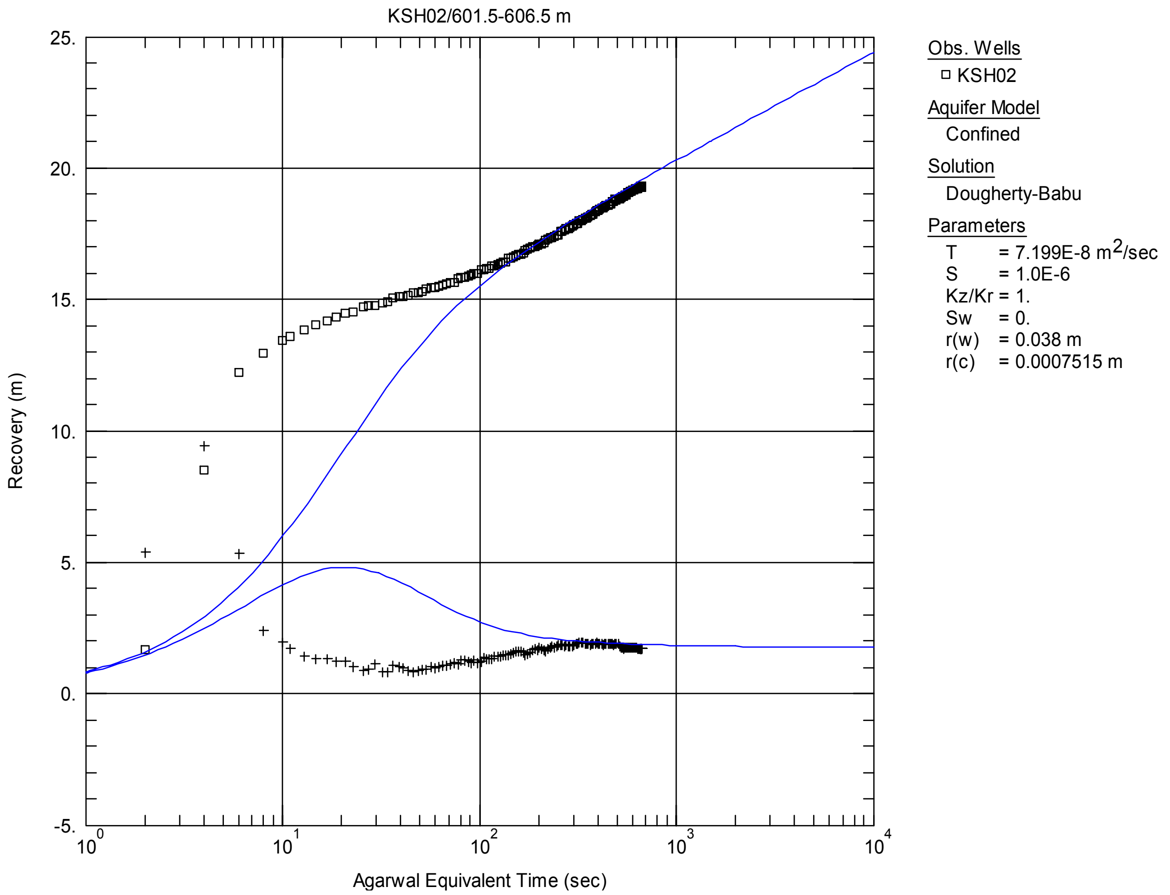
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



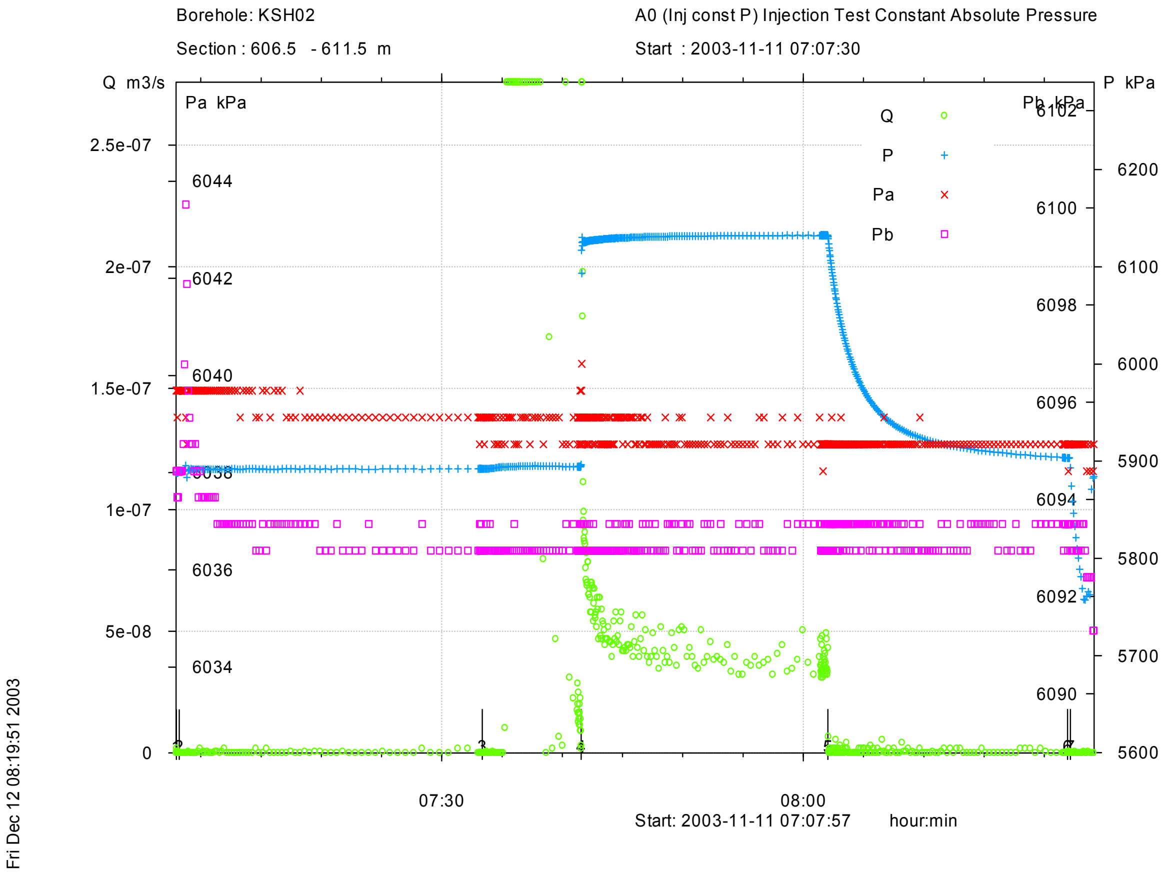
Recovery phase, log-log match.



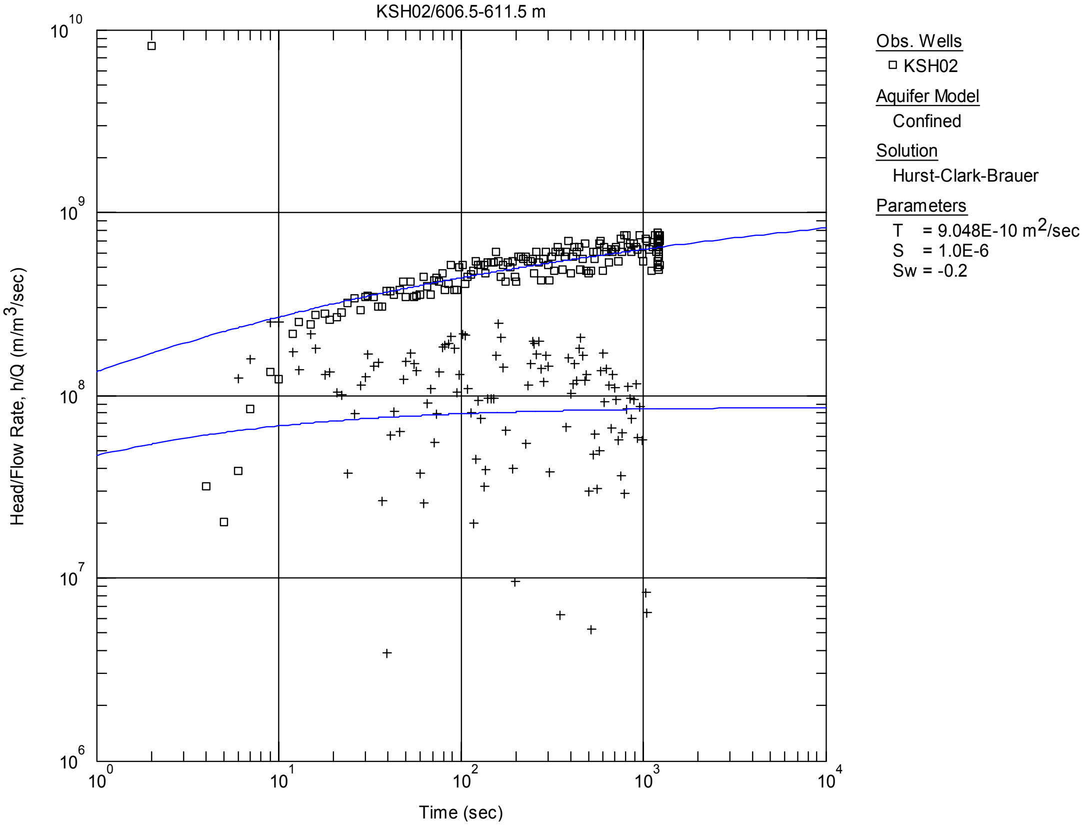
Recovery phase, lin-log match.

Test 606.5–611.5 m

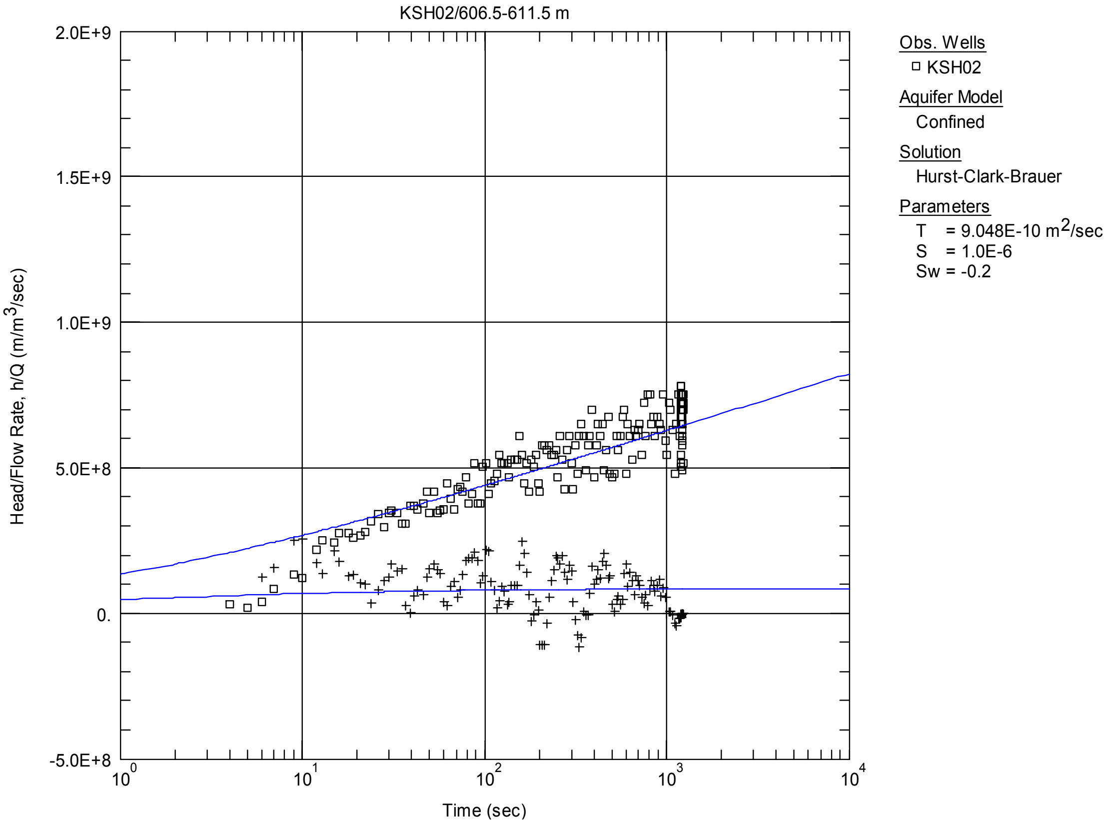
Analysis Diagram



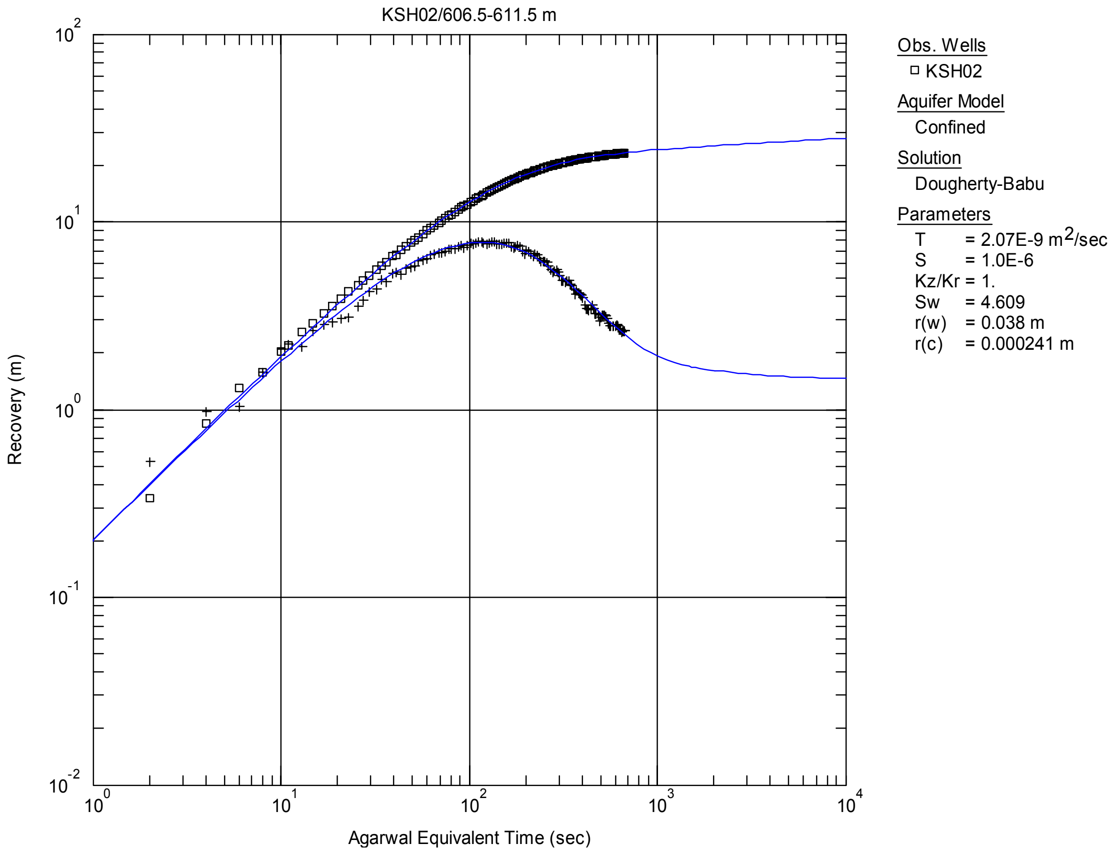
Pressure and flow rate vs. time.



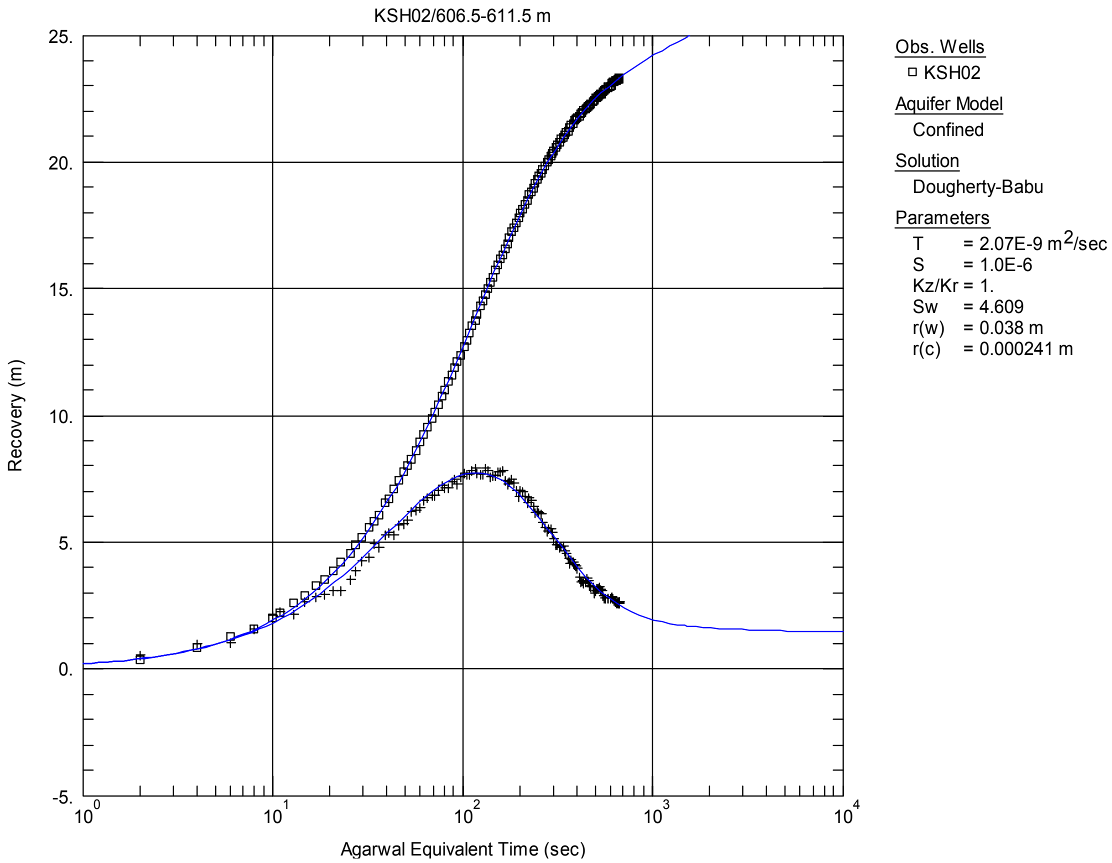
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



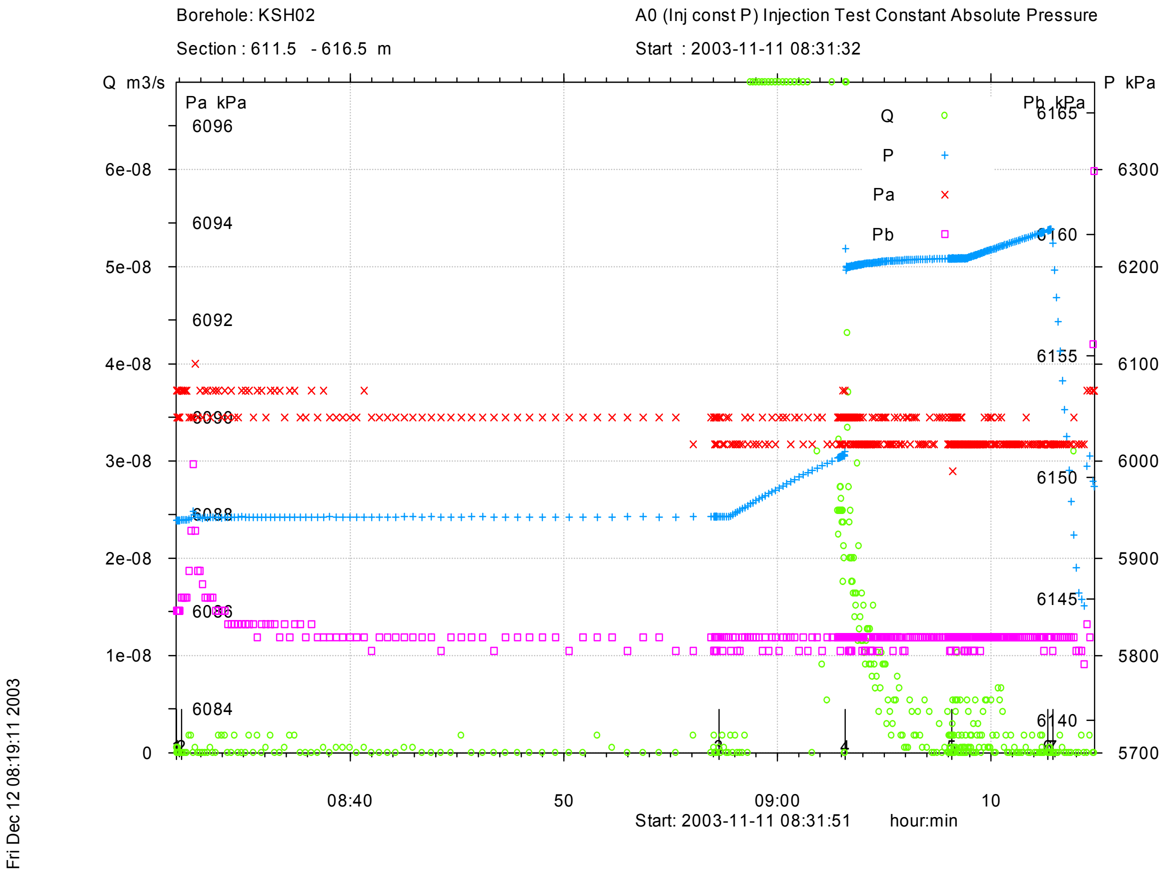
Recovery phase, log-log match.



Recovery phase, lin-log match.

Test 611.5–616.5 m

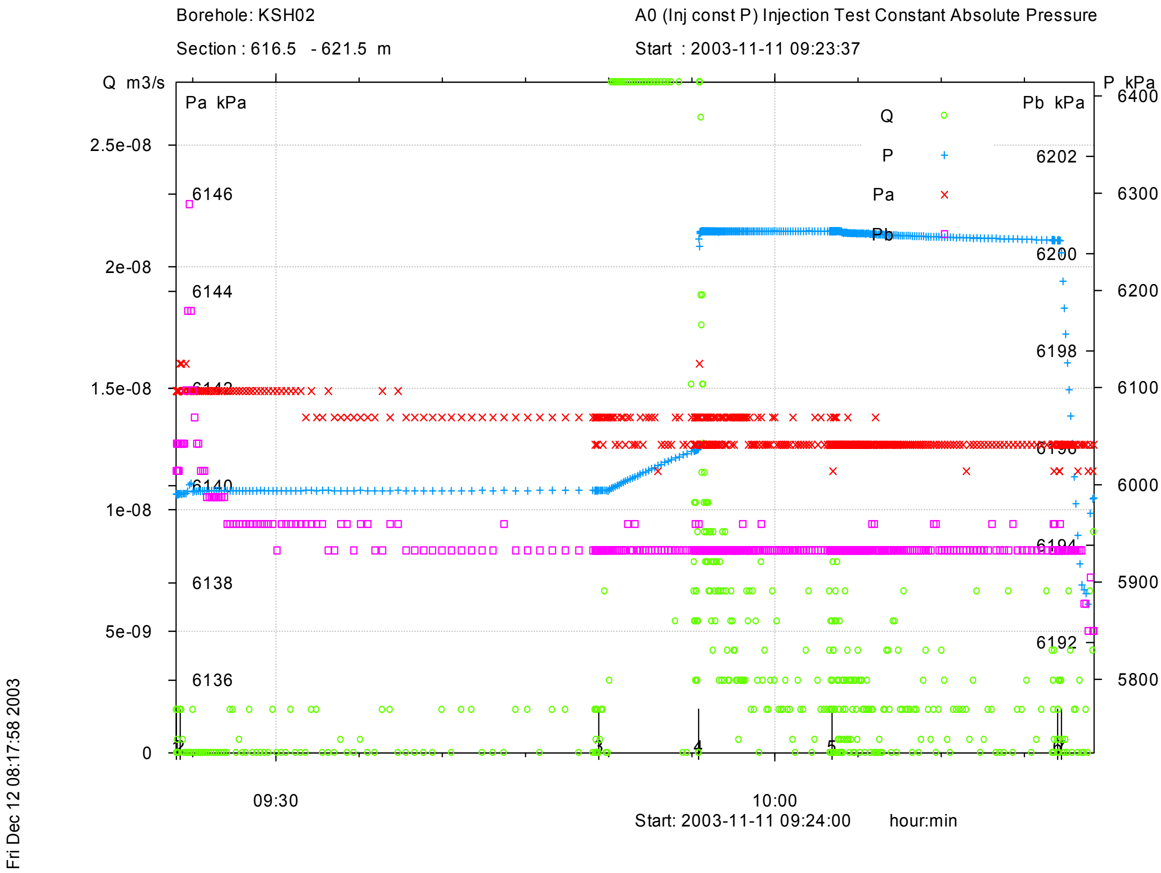
Analysis Diagram



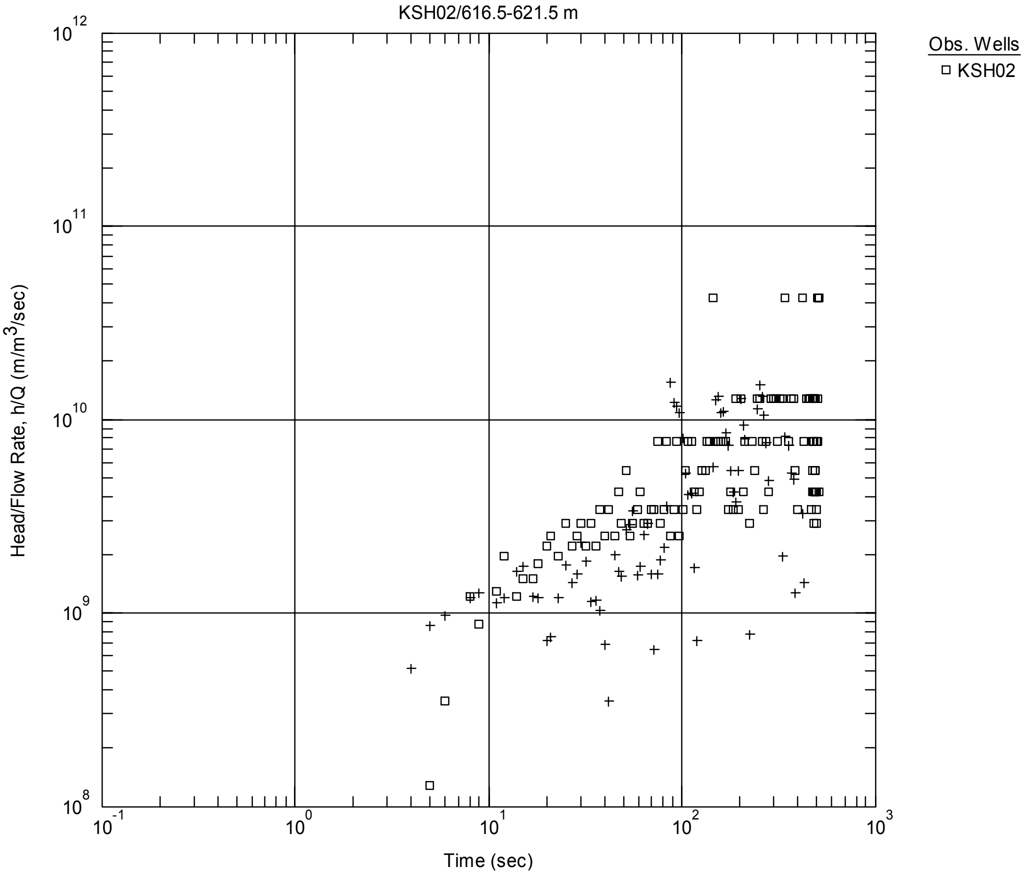
Pressure and flow rate vs. time.

Test 616.5–621.5 m

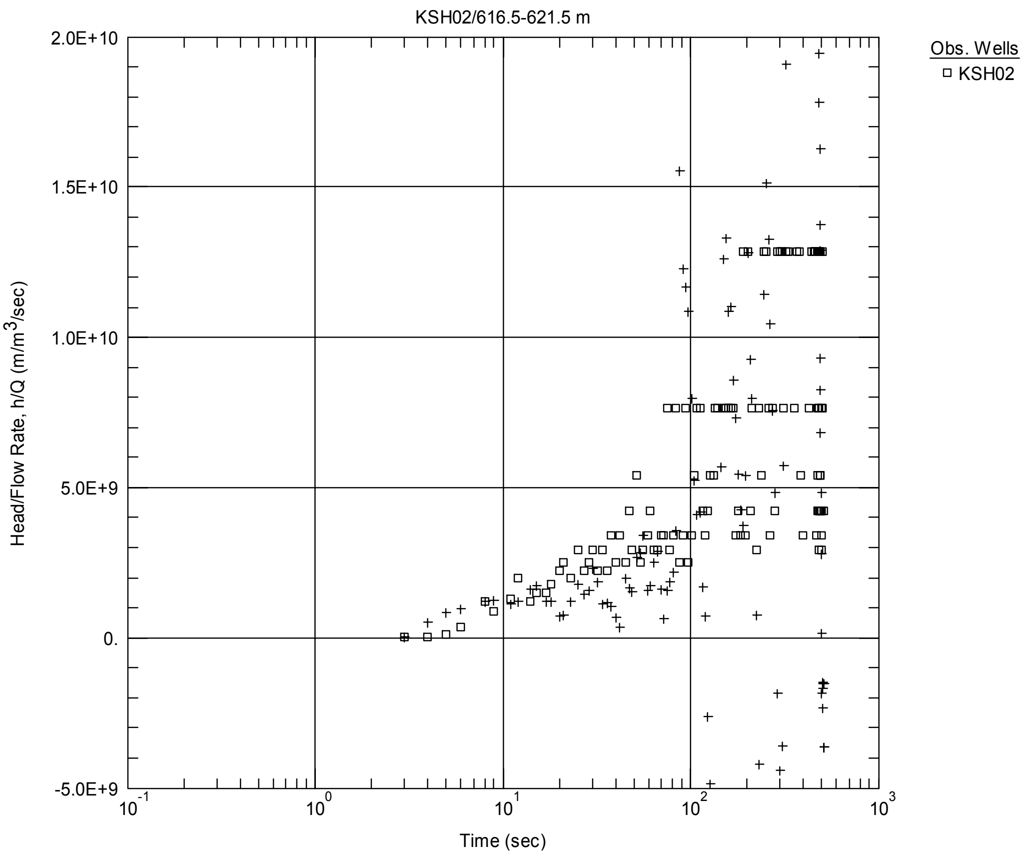
Analysis Diagram



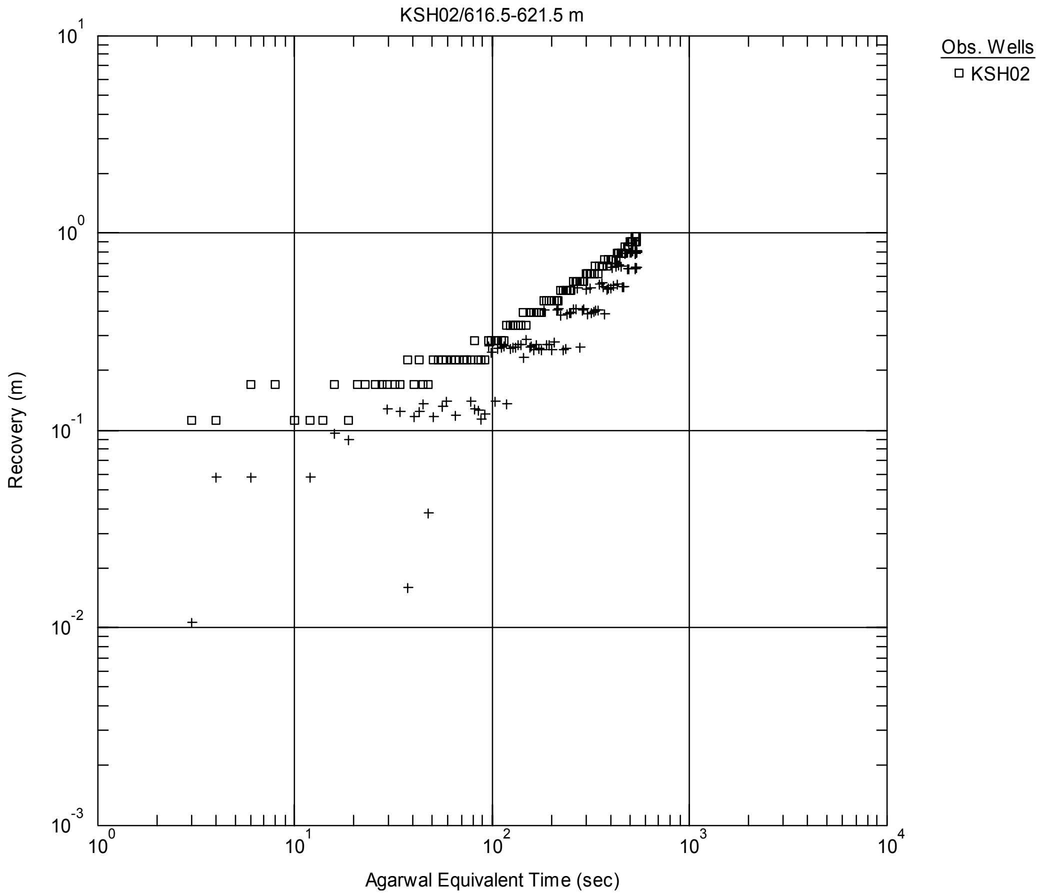
Pressure and flow rate vs. time.



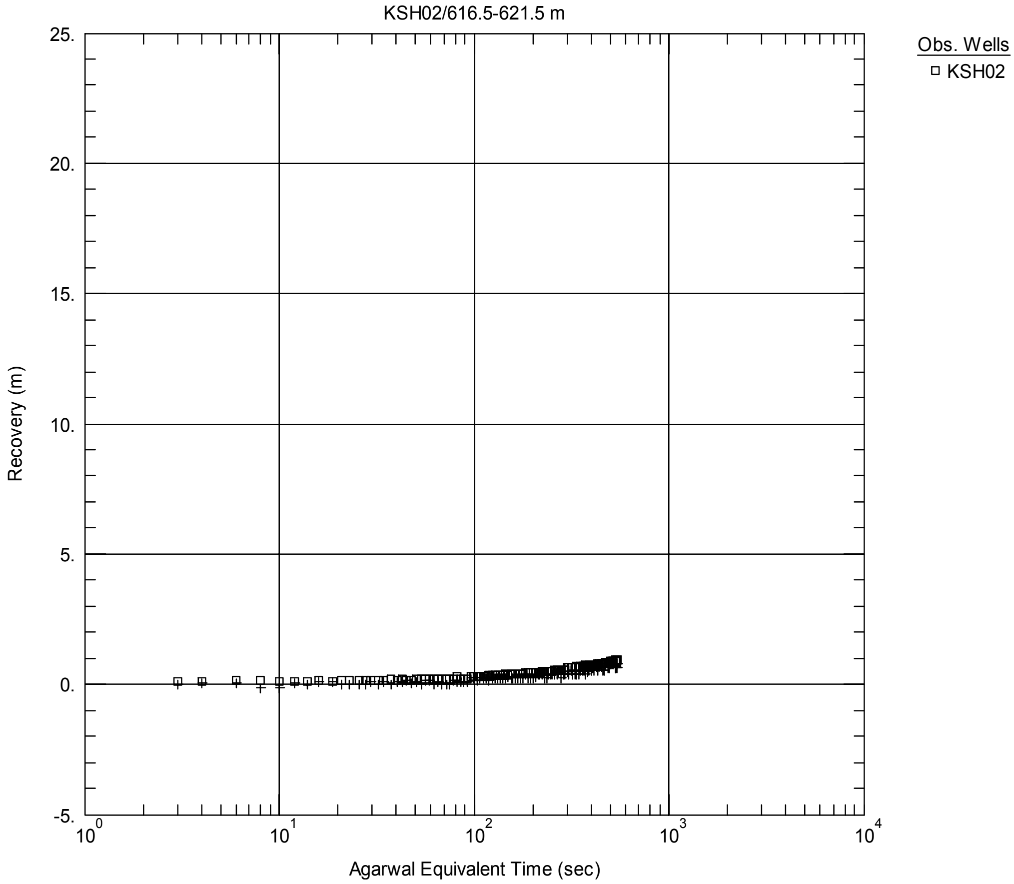
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



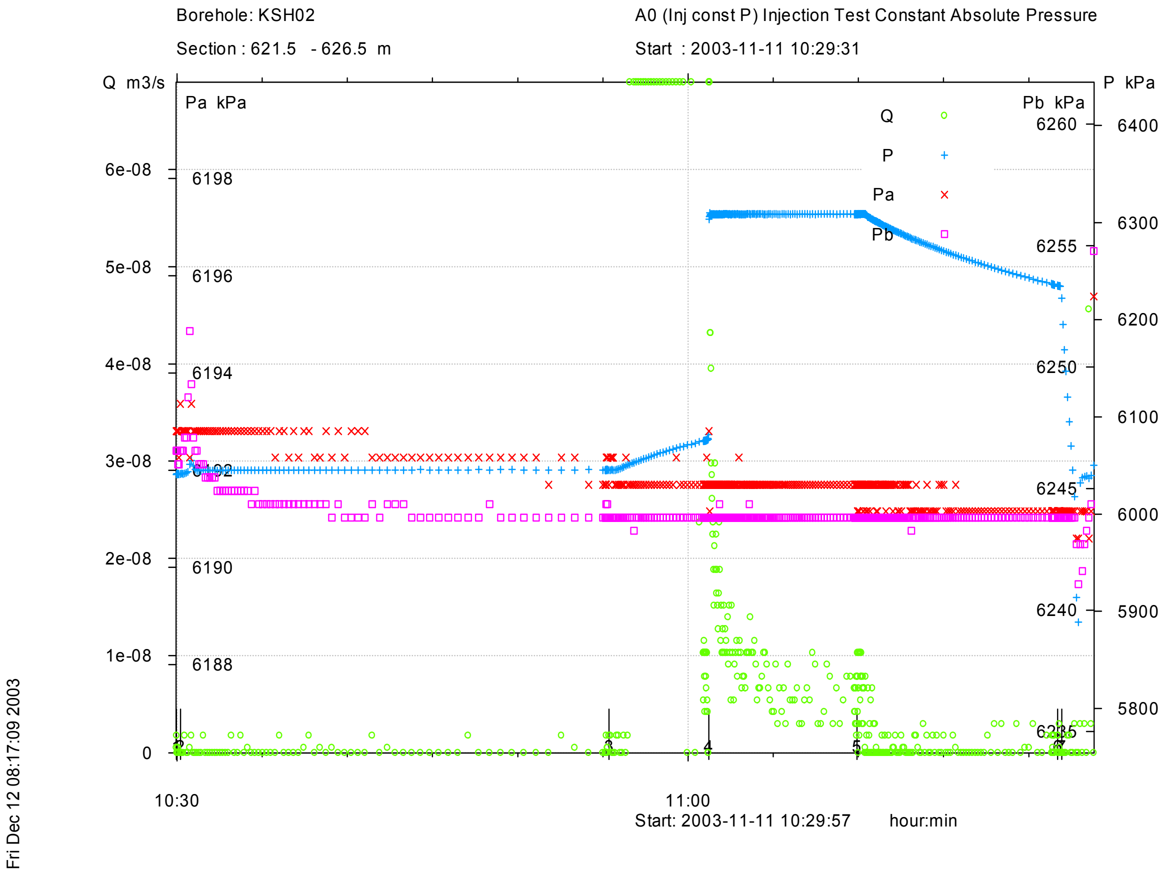
Recovery phase, log-log match.



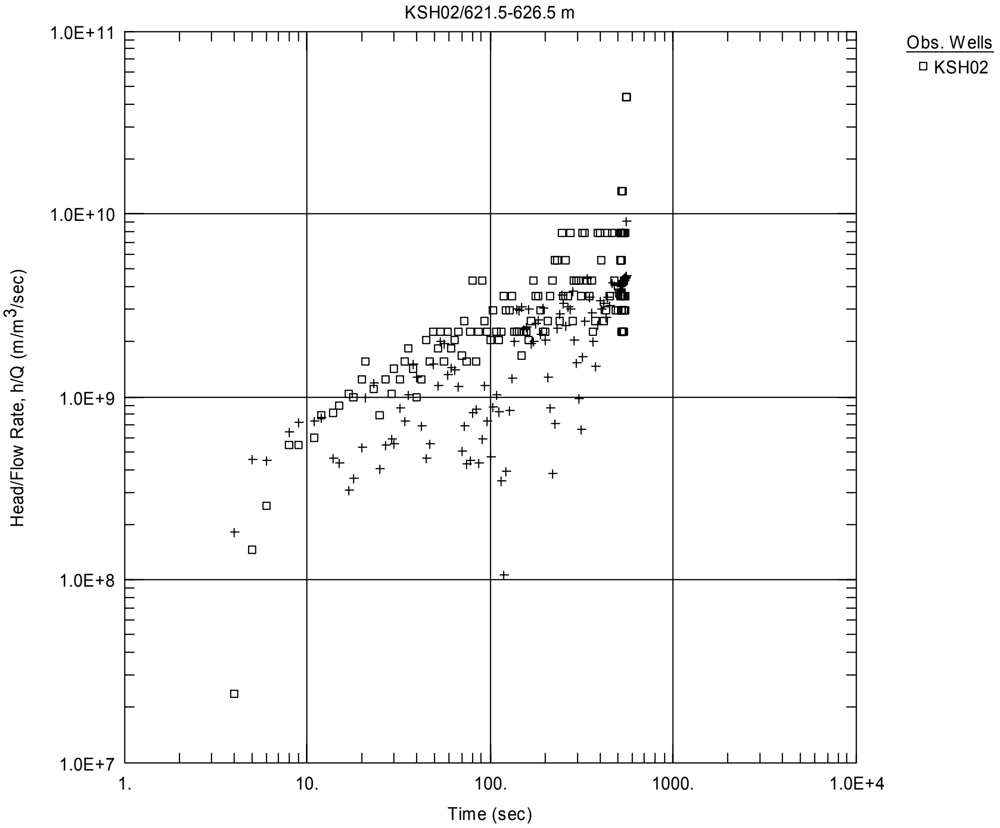
Recovery phase, lin-log match.

Test 621.5–626.5 m

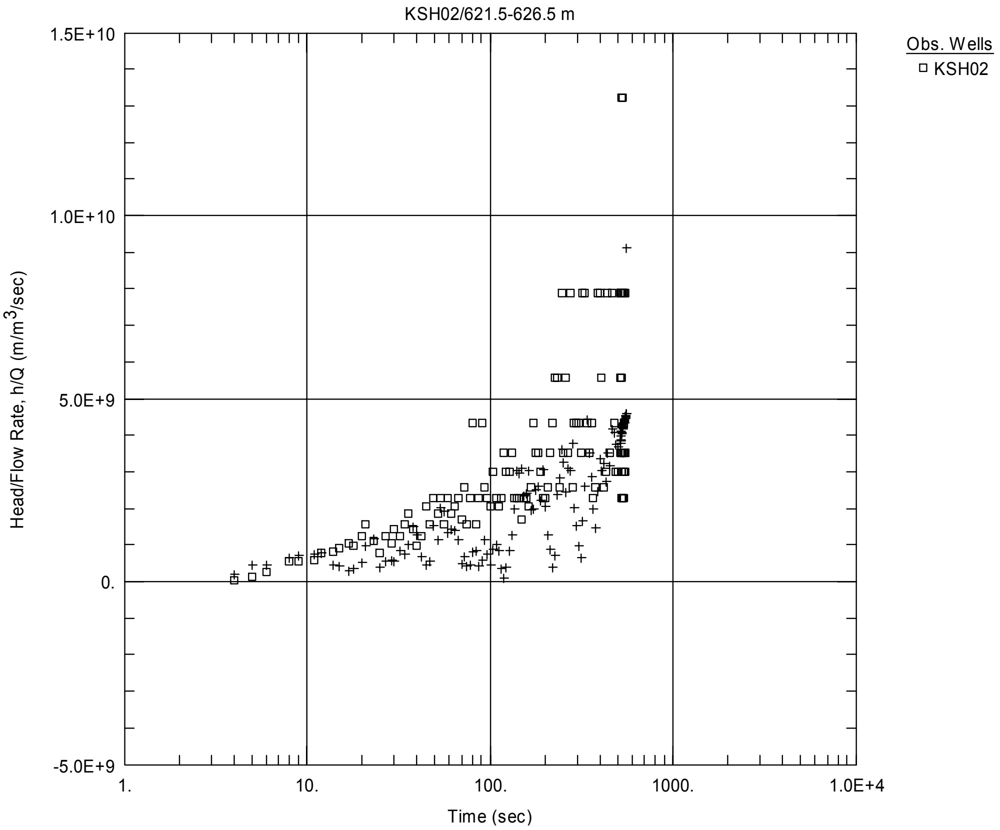
Analysis Diagram



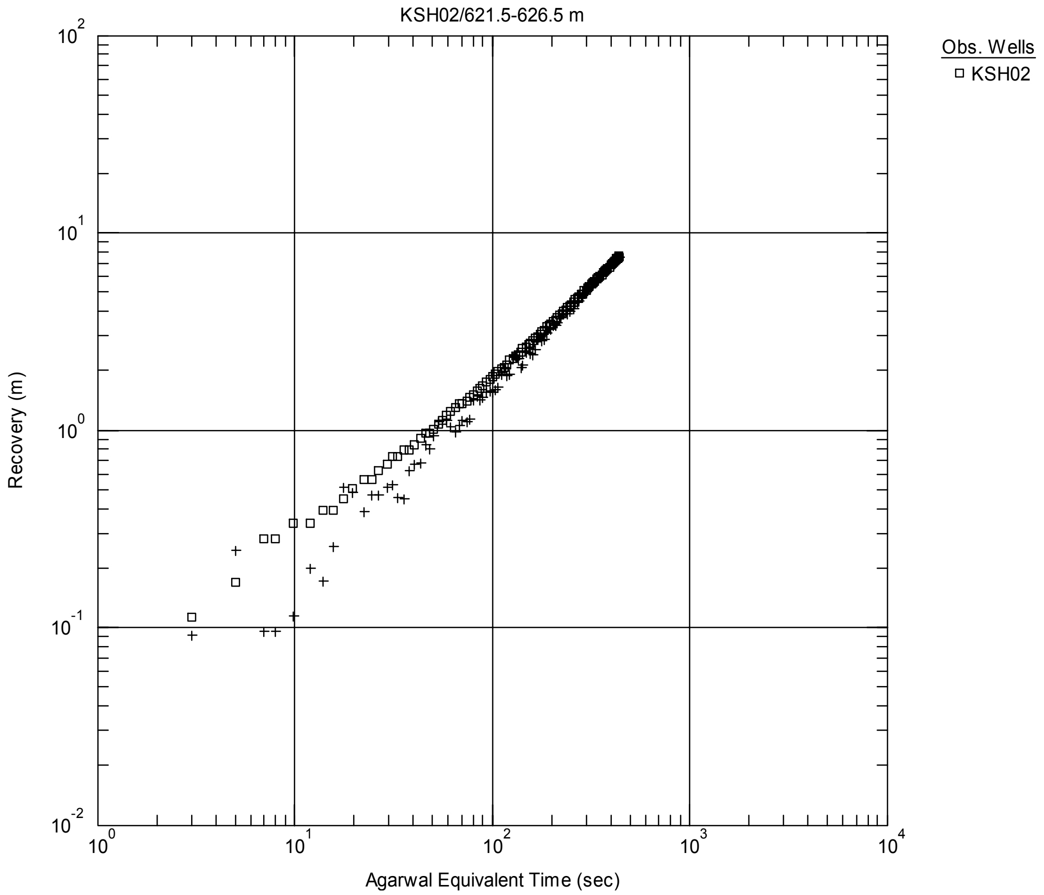
Pressure and flow rate vs. time.



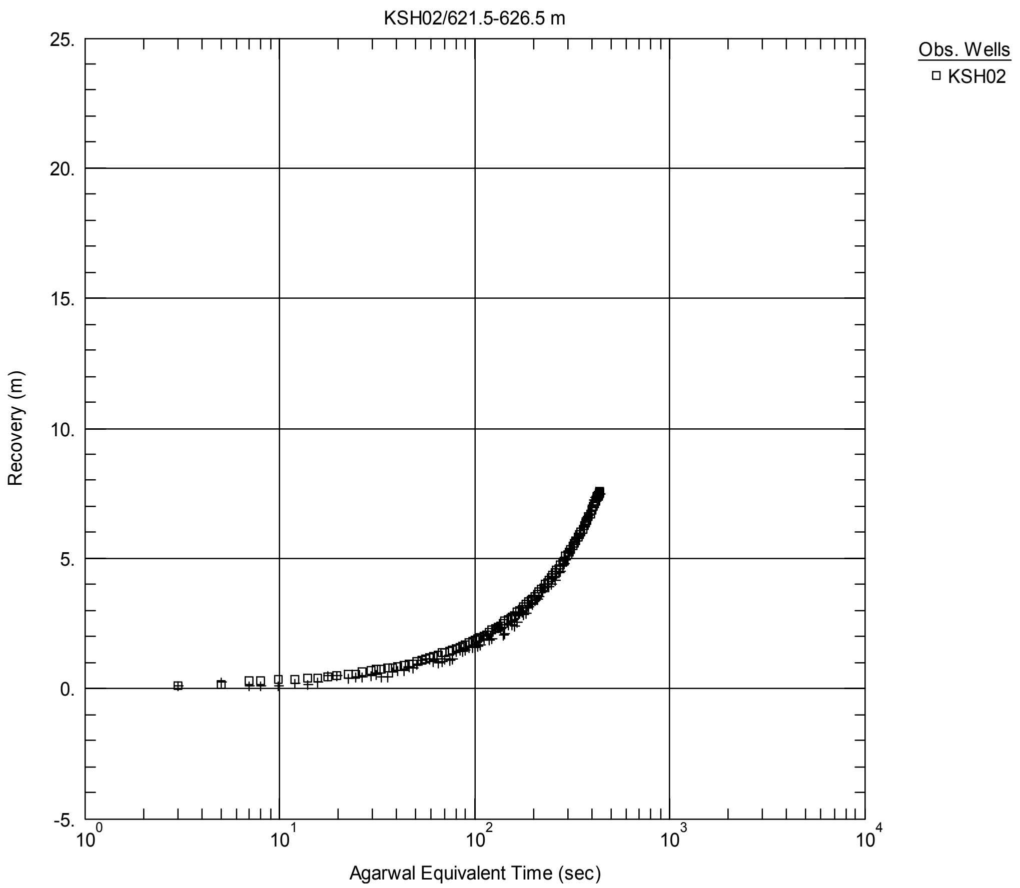
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

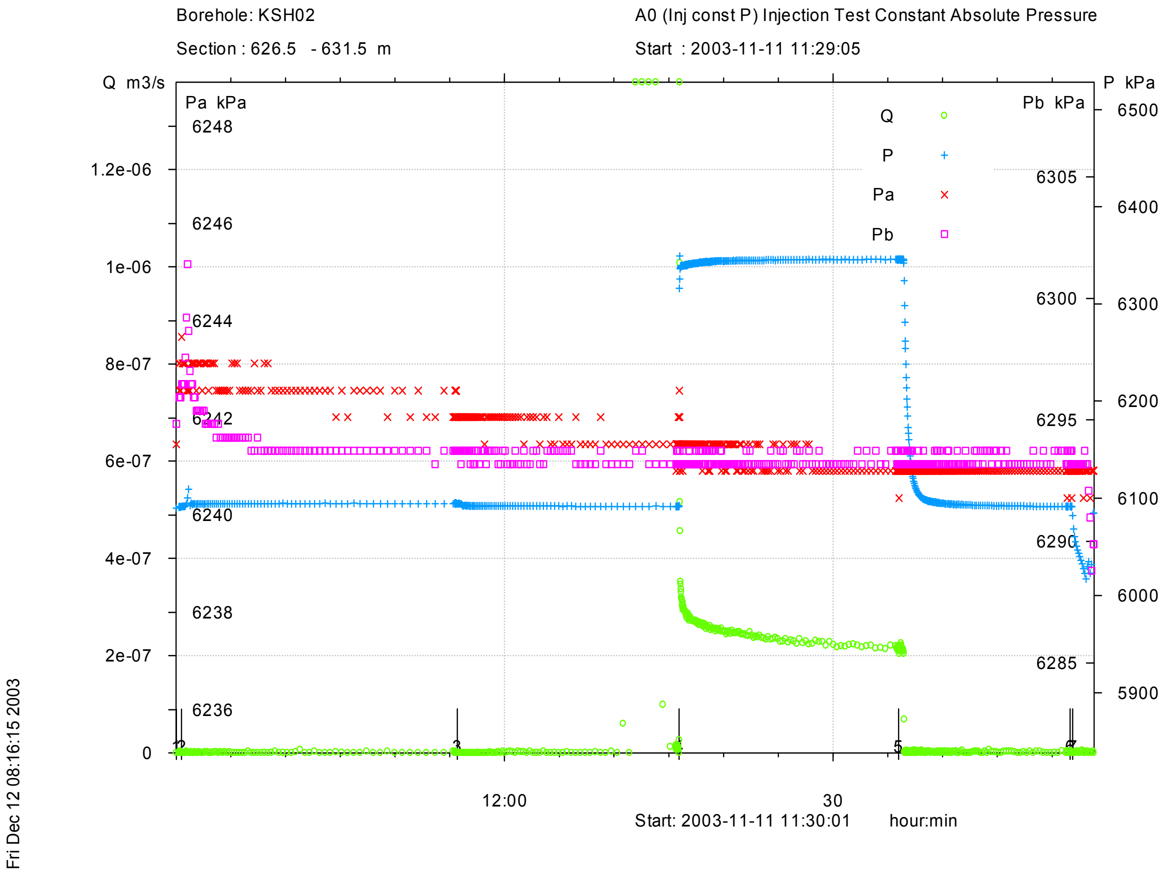


Recovery phase, lin-log match.

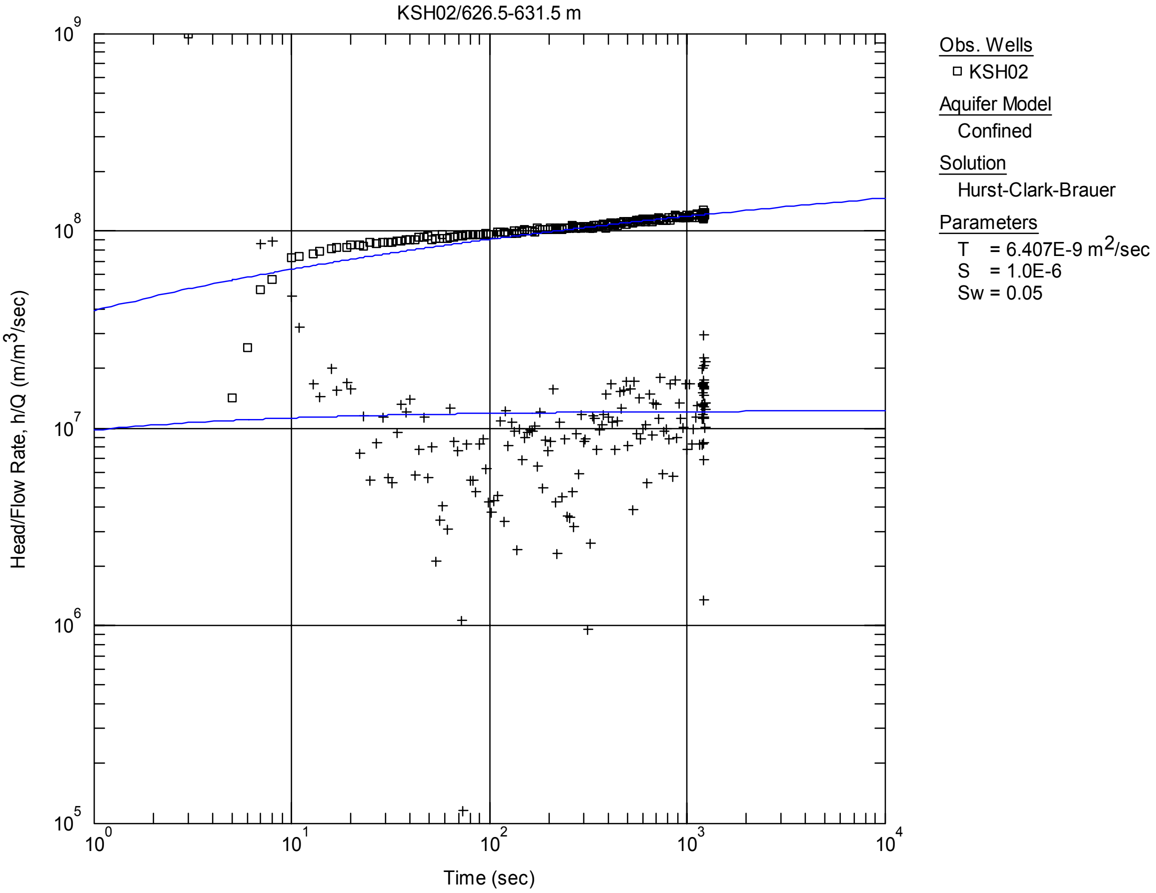
Appendix 3-120

Test 626.5–631.5 m

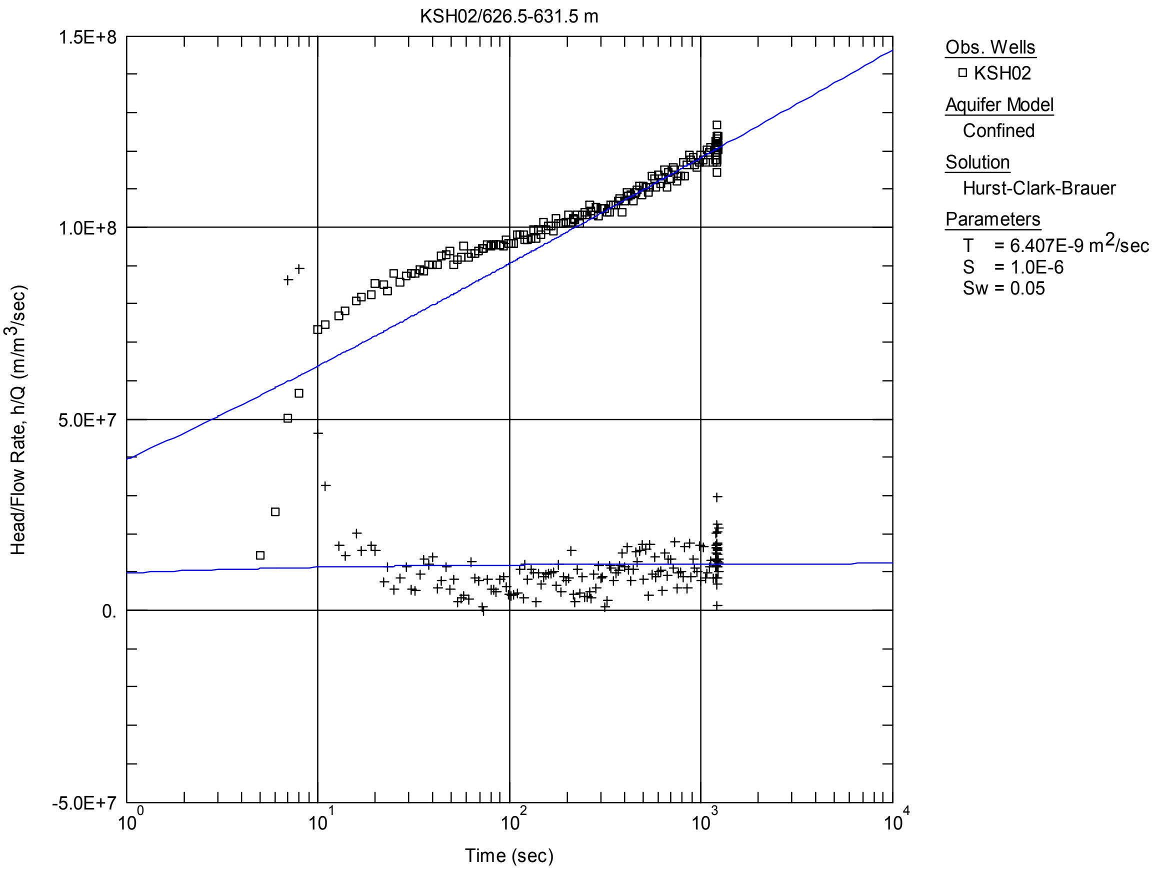
Analysis Diagram



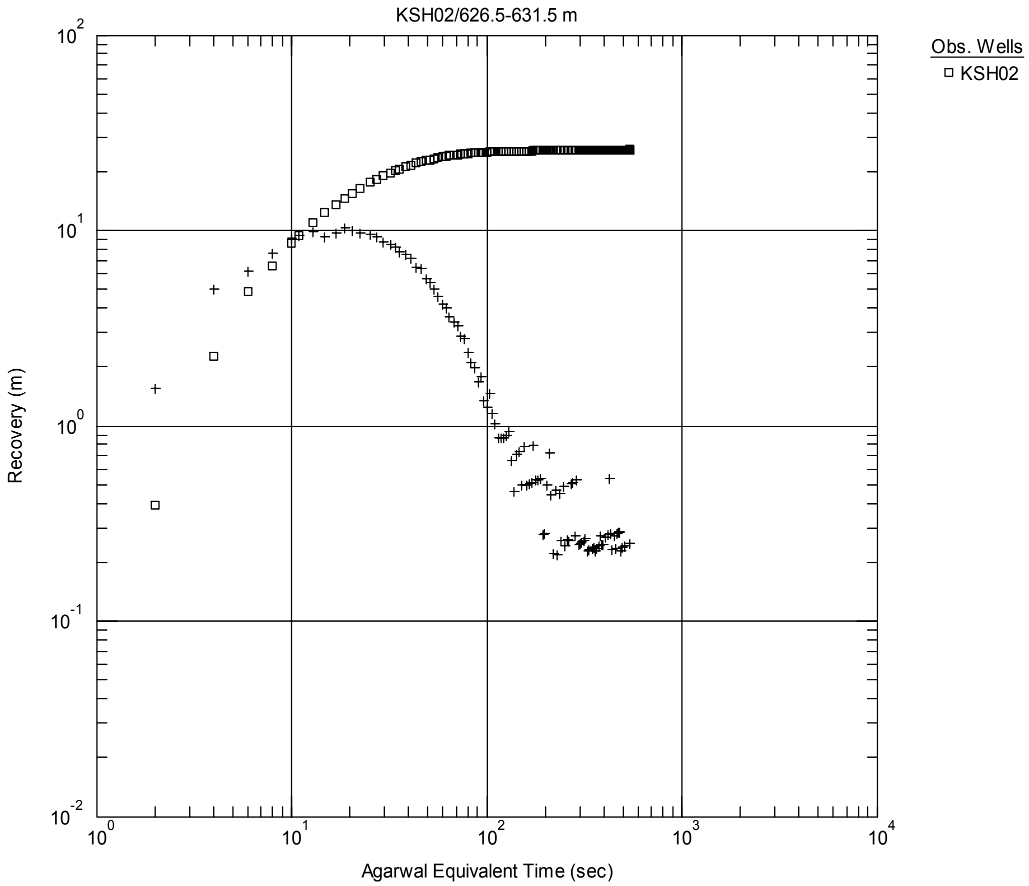
Pressure and flow rate vs. time.



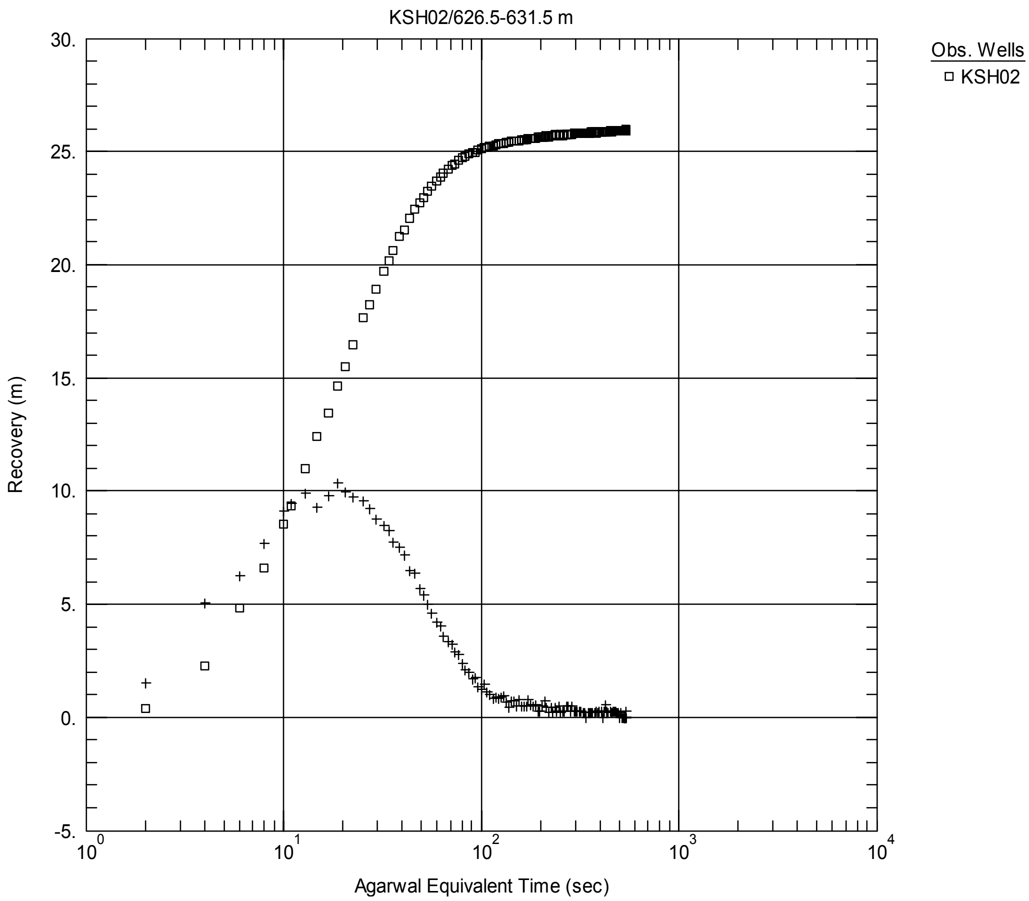
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



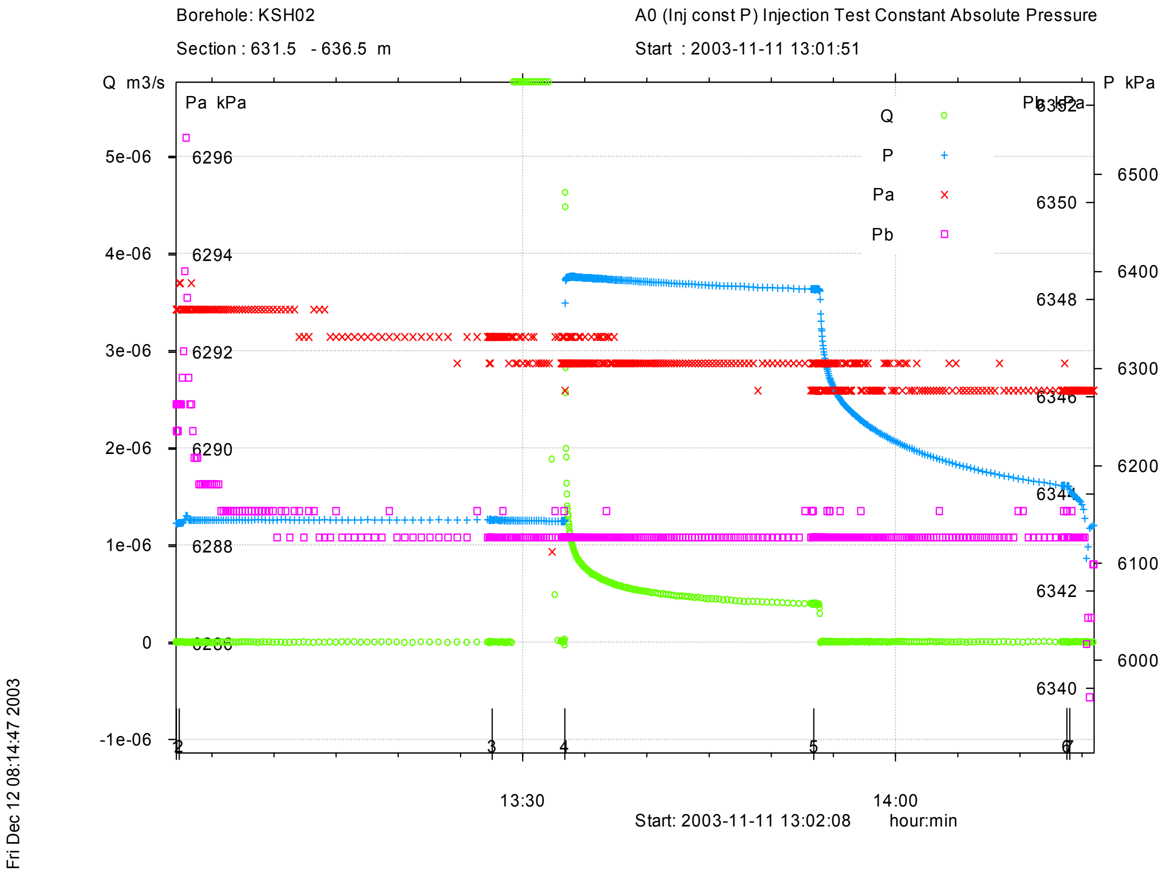
Recovery phase, log-log match.



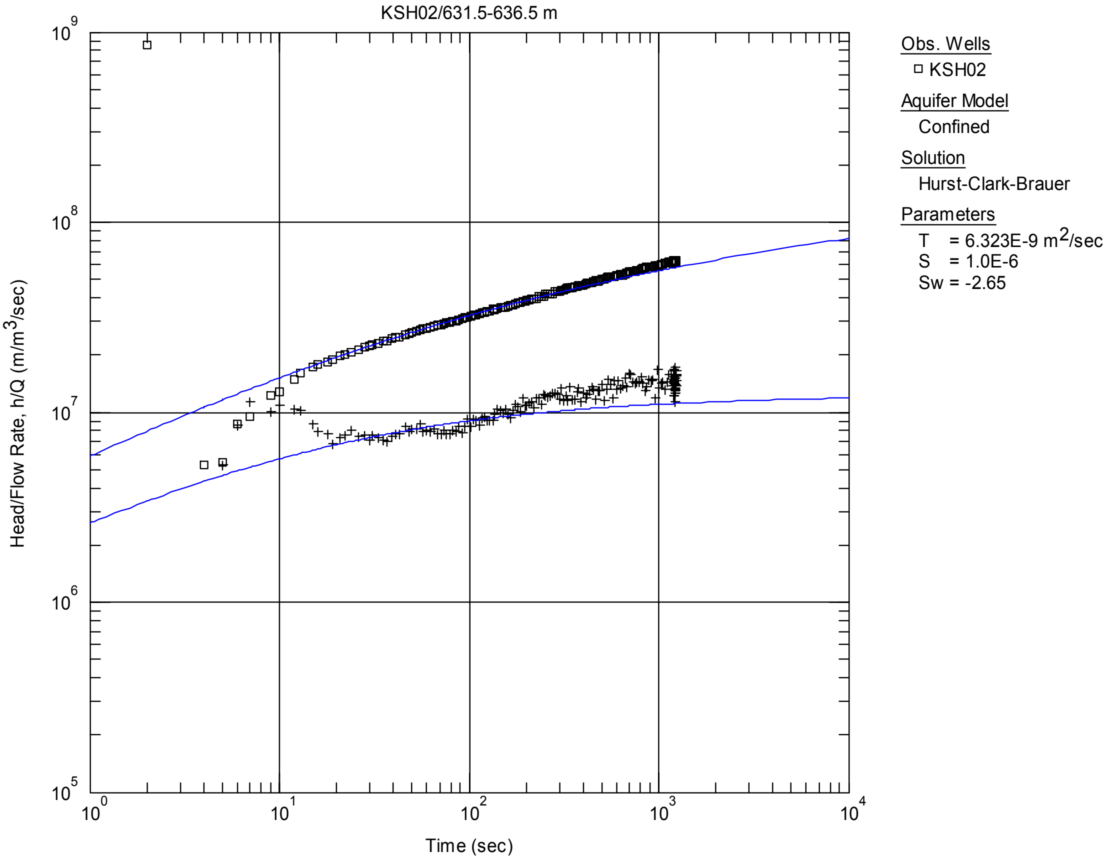
Recovery phase, lin-log match.

Test 631.5–636.5 m

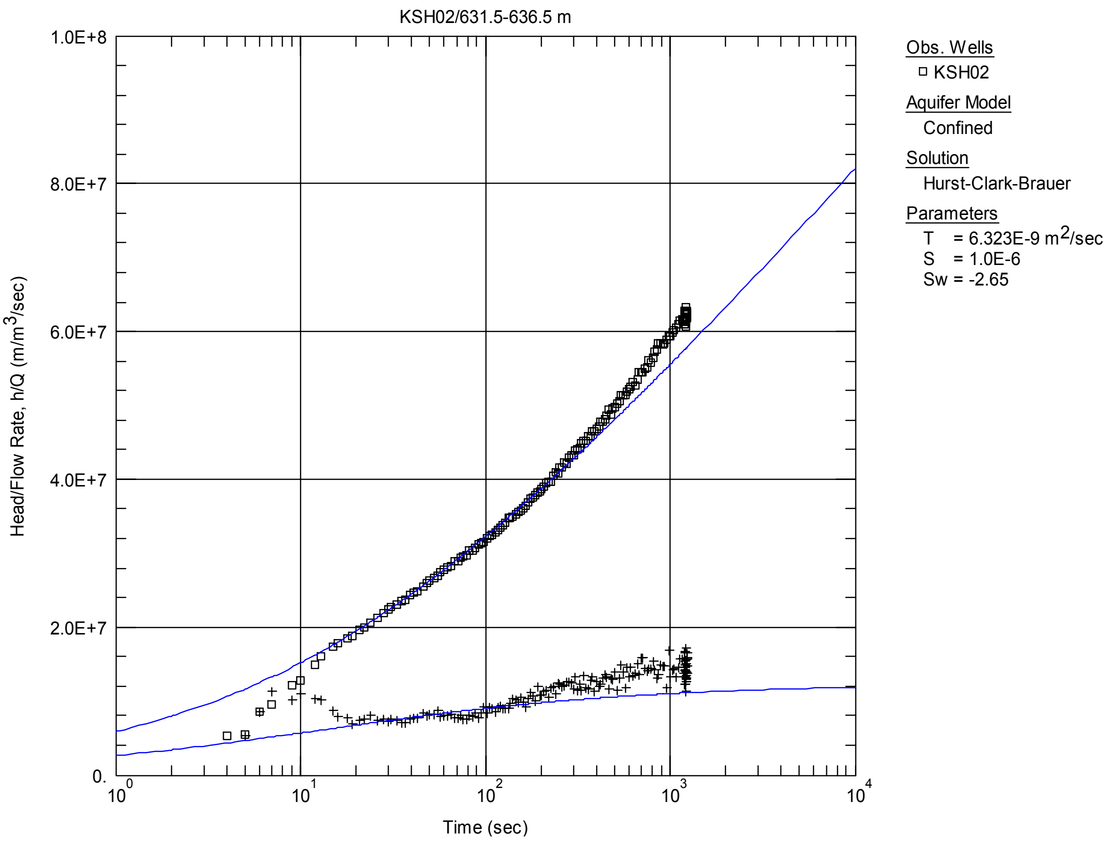
Analysis Diagram



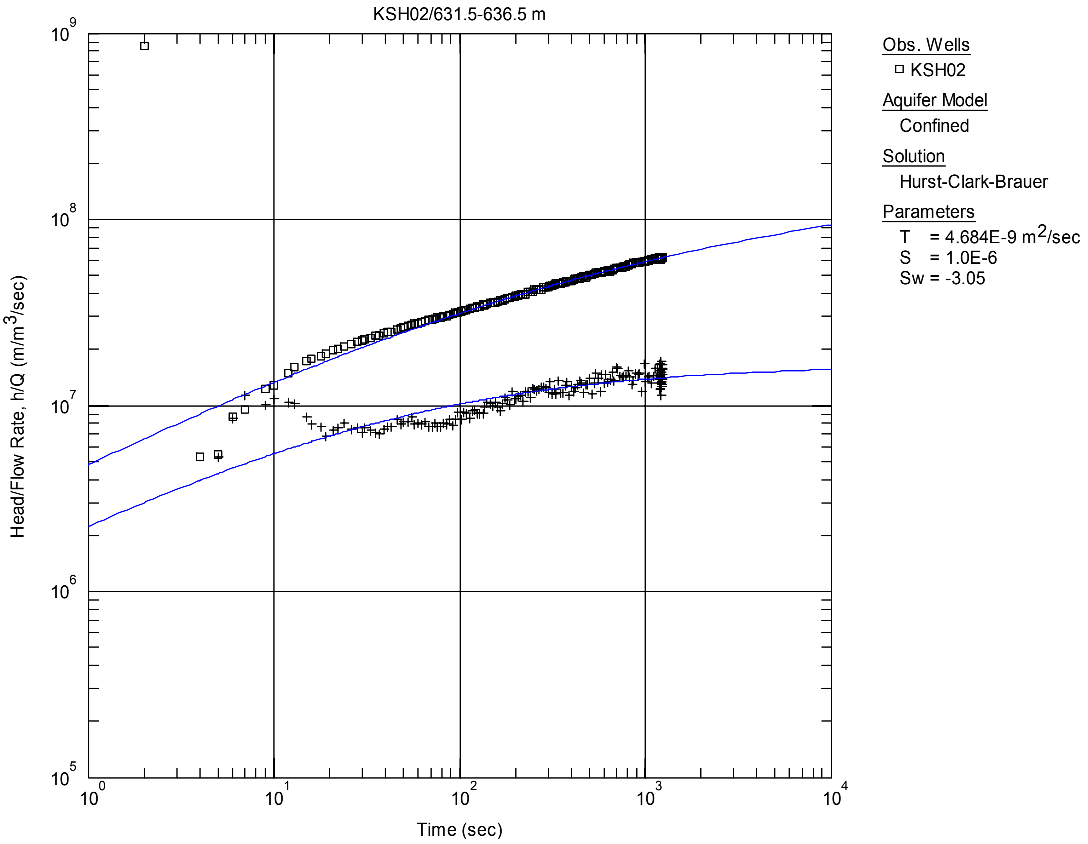
Pressure and flow rate vs. time.



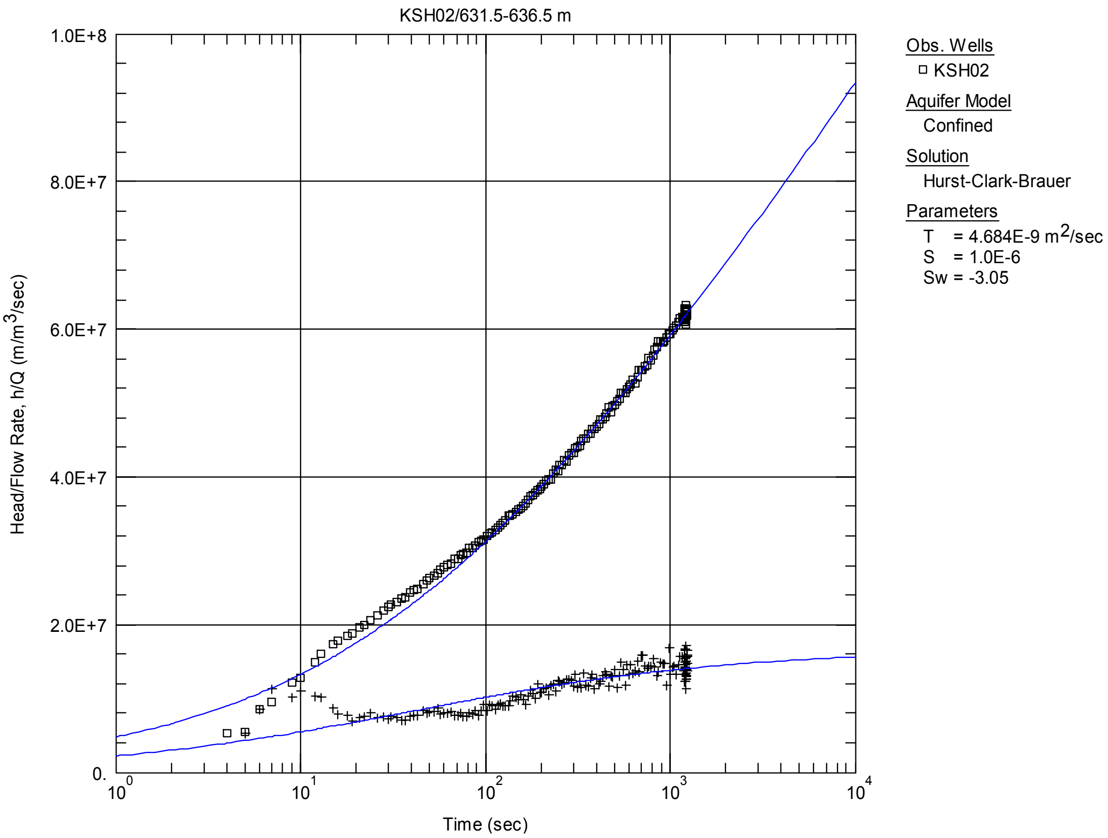
Perturbation phase, log-log match. First match.



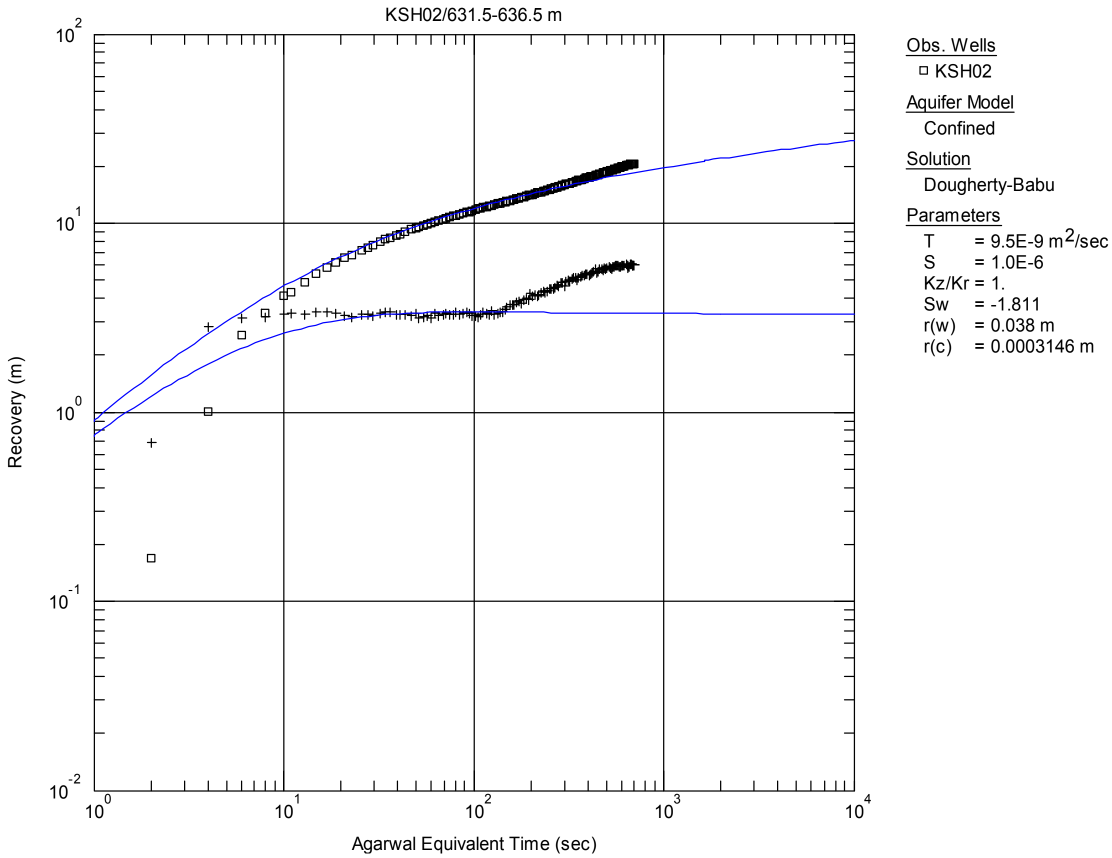
Perturbation phase, lin-log match. First match.



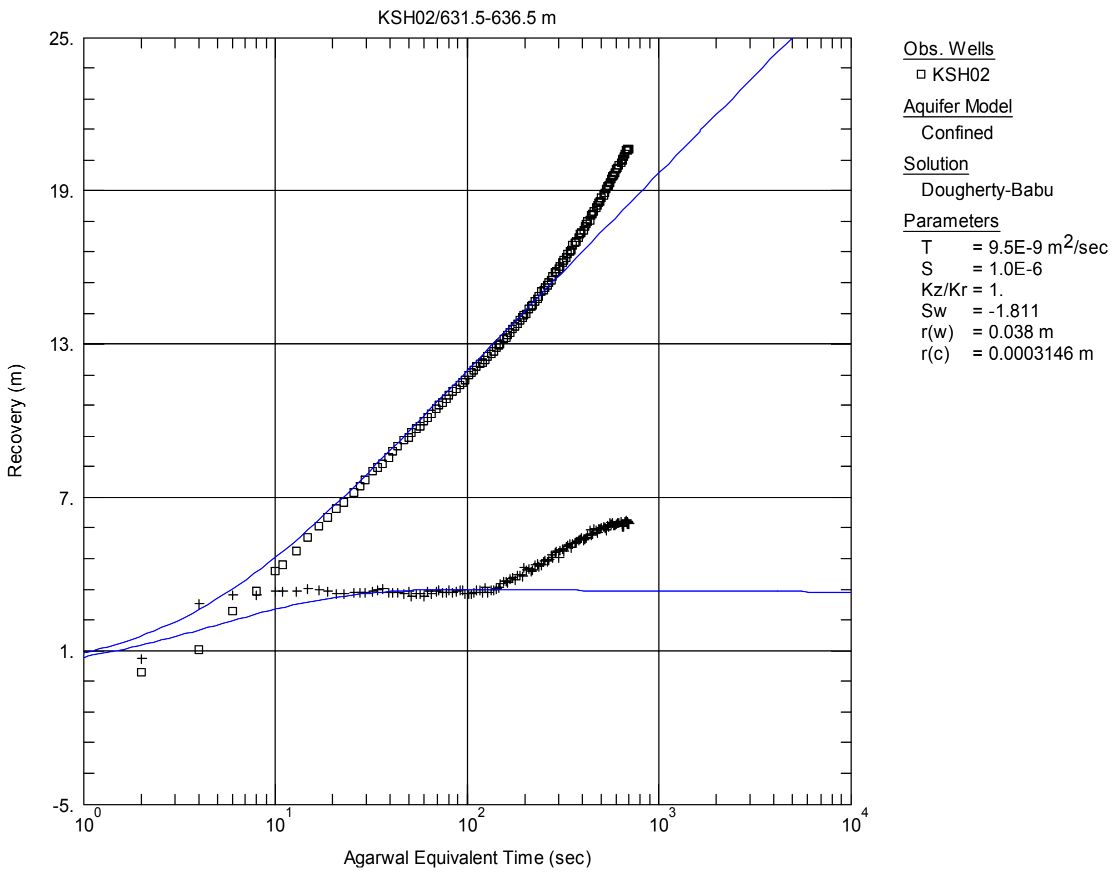
Perturbation phase, log-log match. Second match.



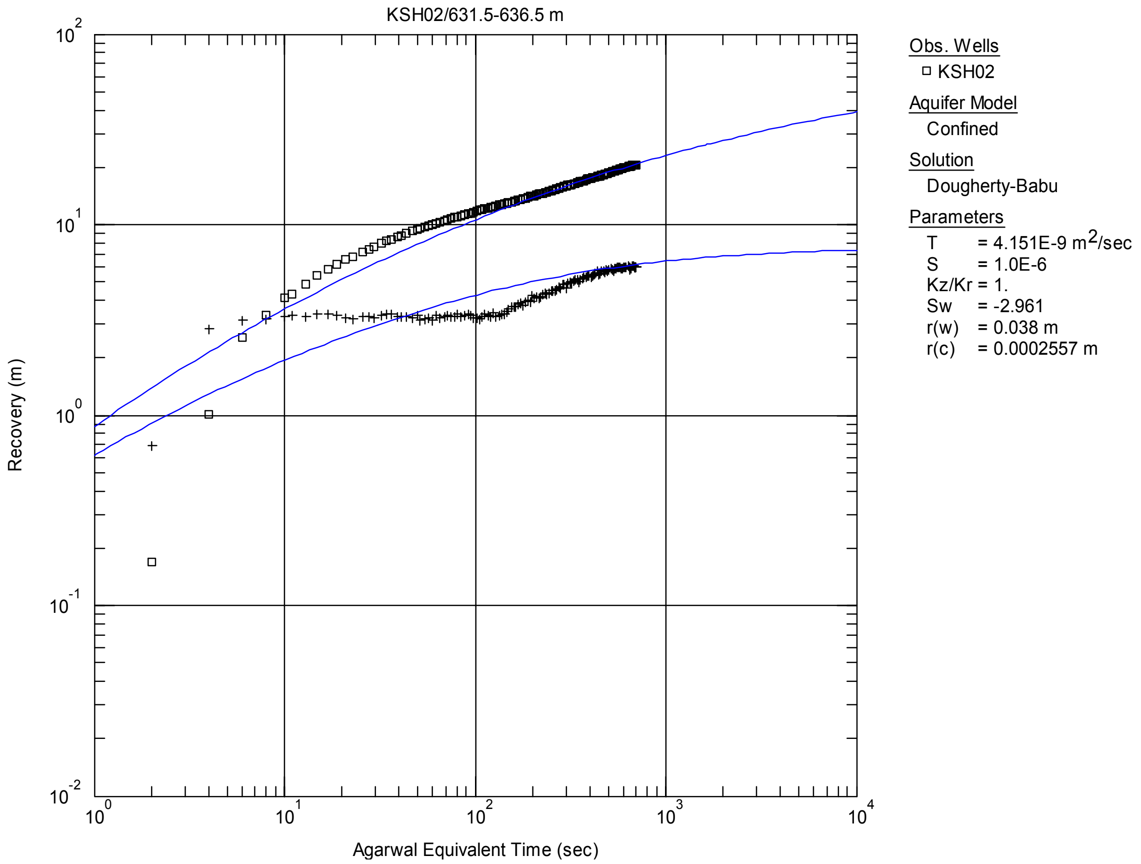
Perturbation phase, lin-log match. Second match.



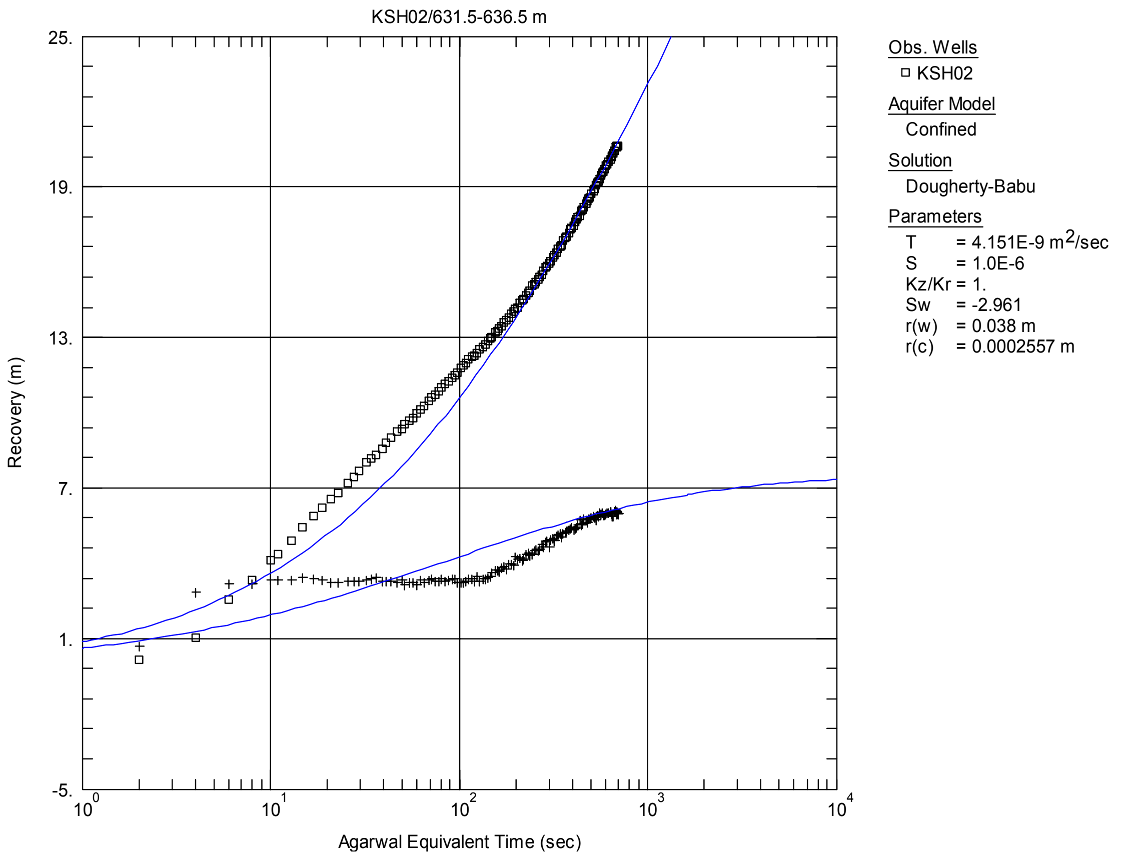
Recovery phase, log-log match. First match.



Recovery phase, lin-log match. First match.



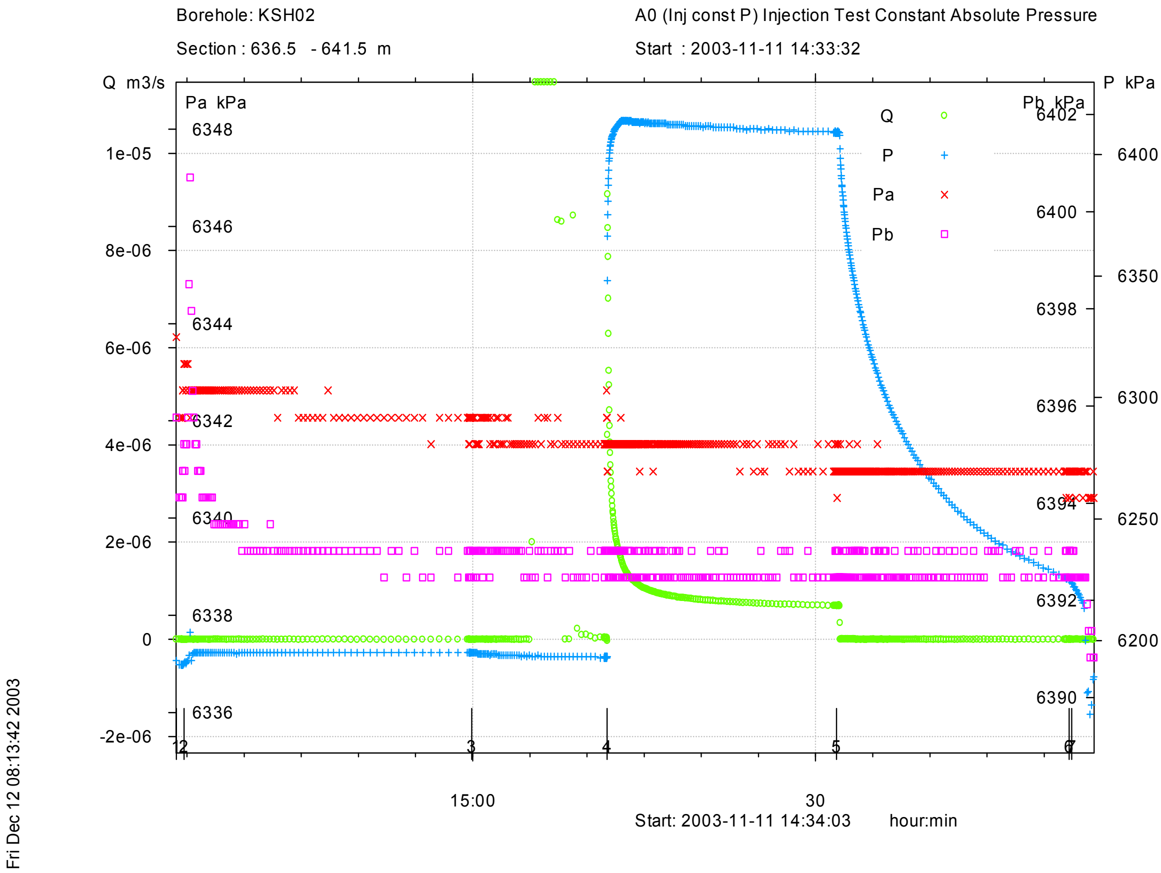
Recovery phase, log-log match. Second match.



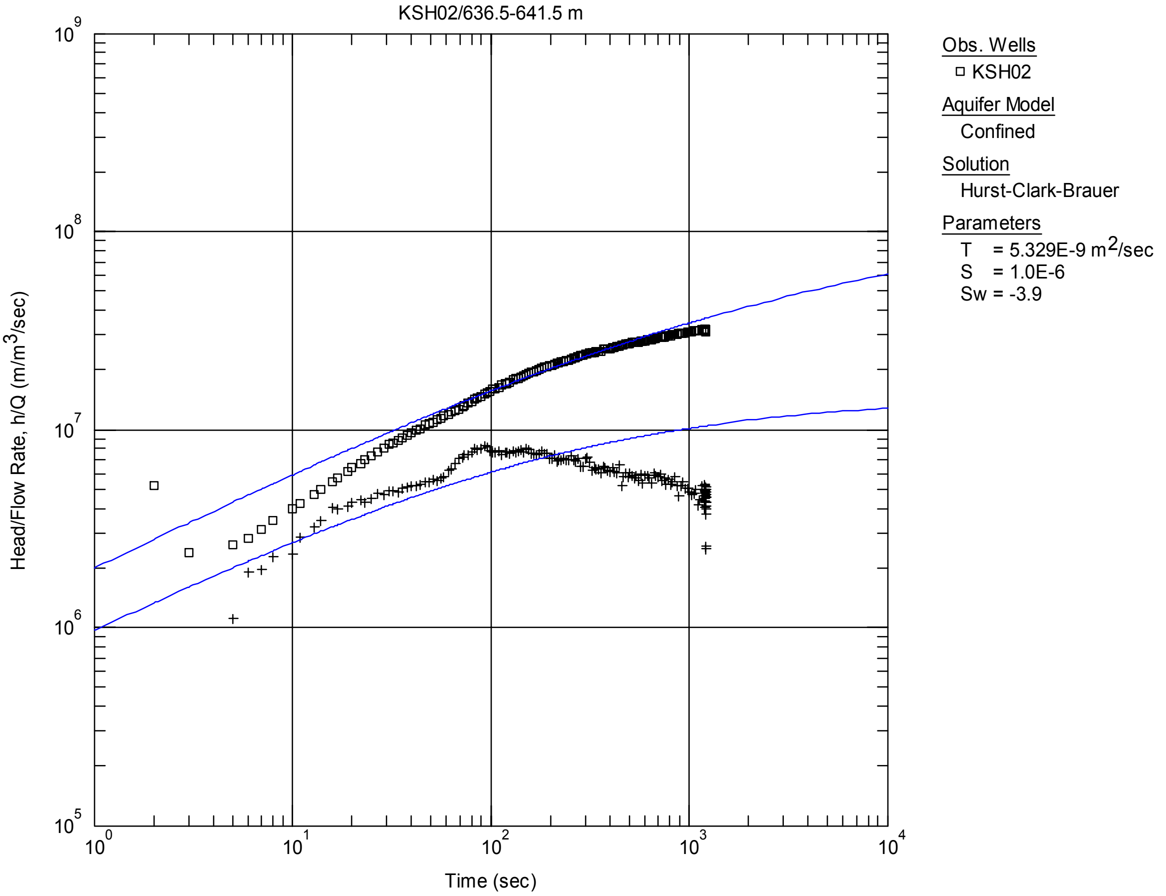
Recovery phase, lin-log match. Second match.

Test 636.5–641.5 m

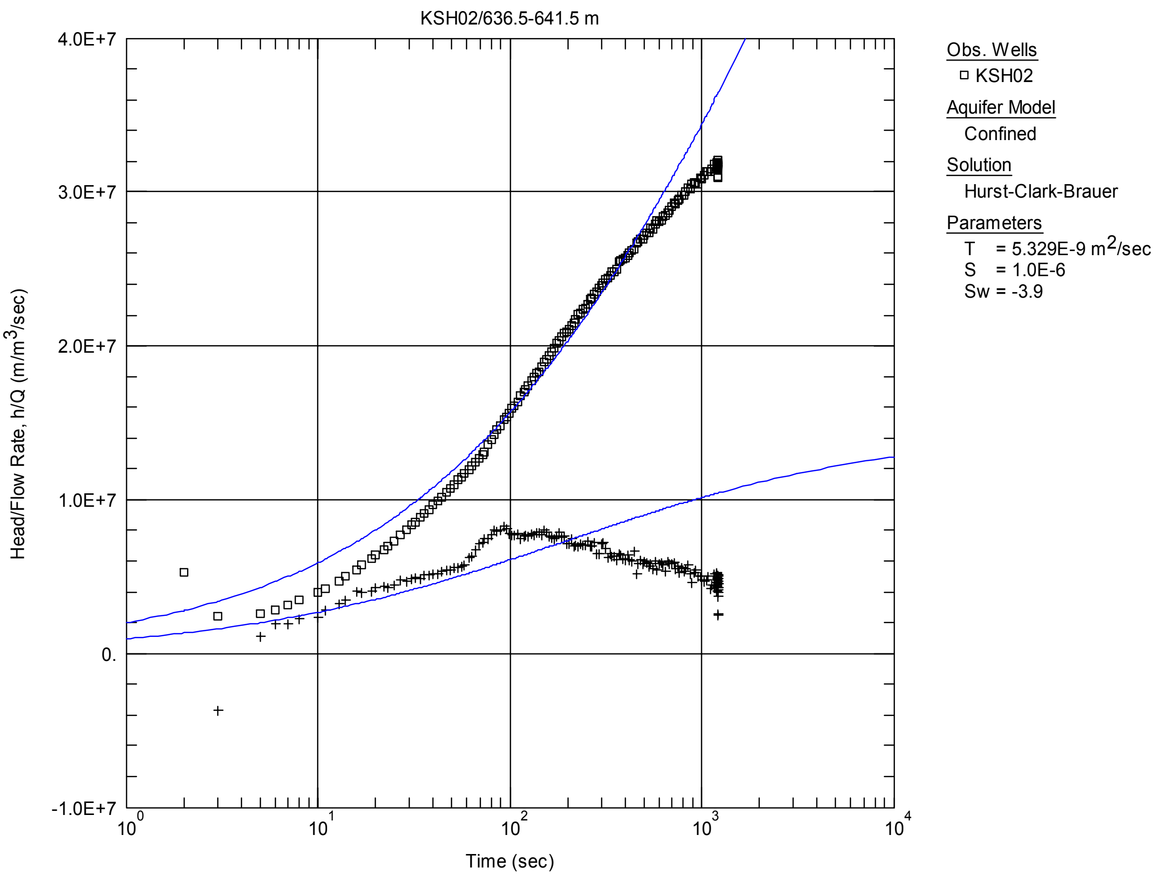
Analysis Diagram



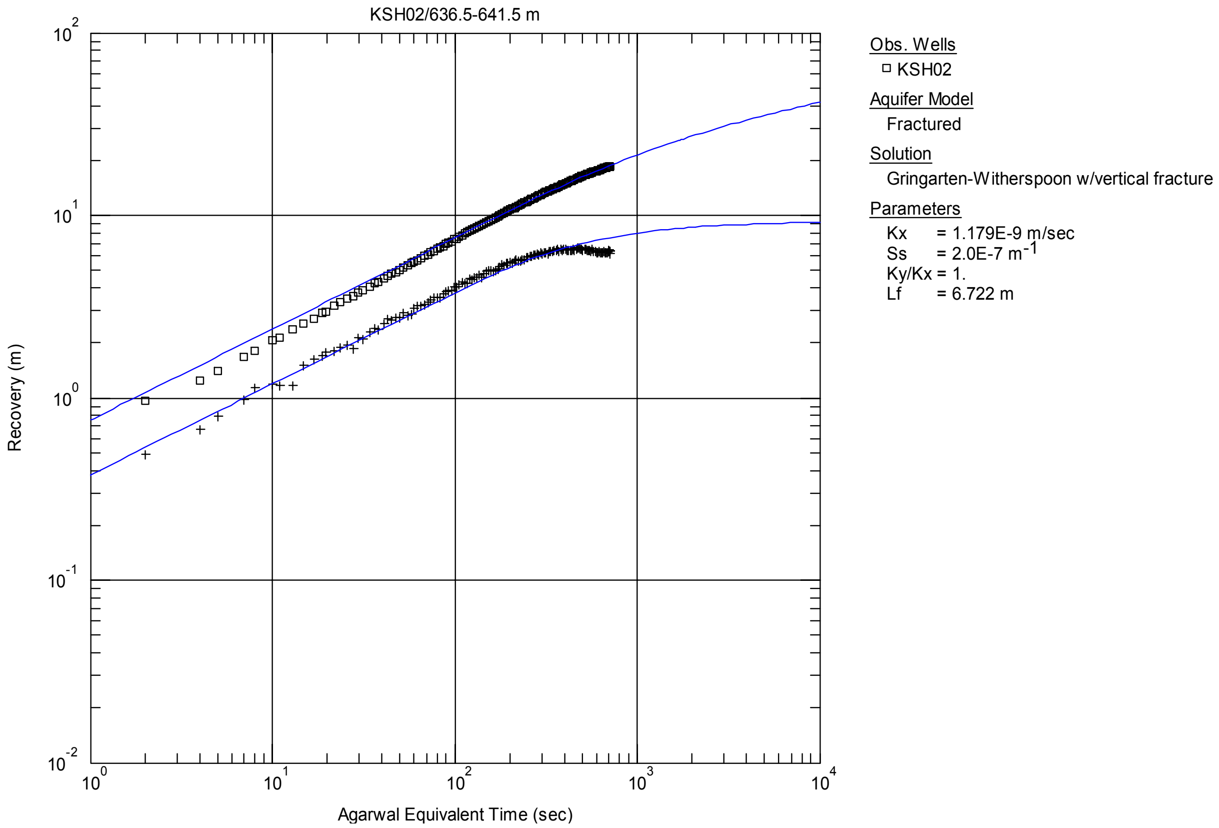
Pressure and flow rate vs. time.



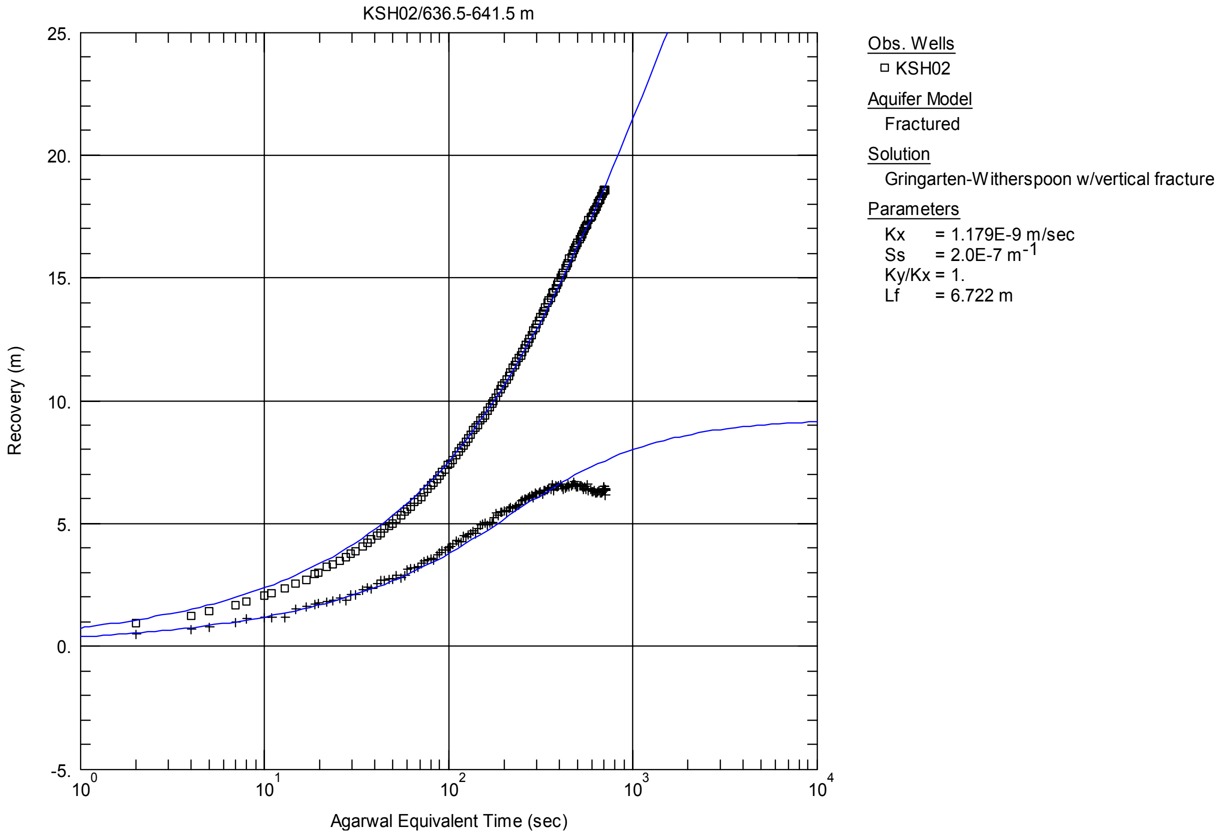
Perturbation phase, log-log match.



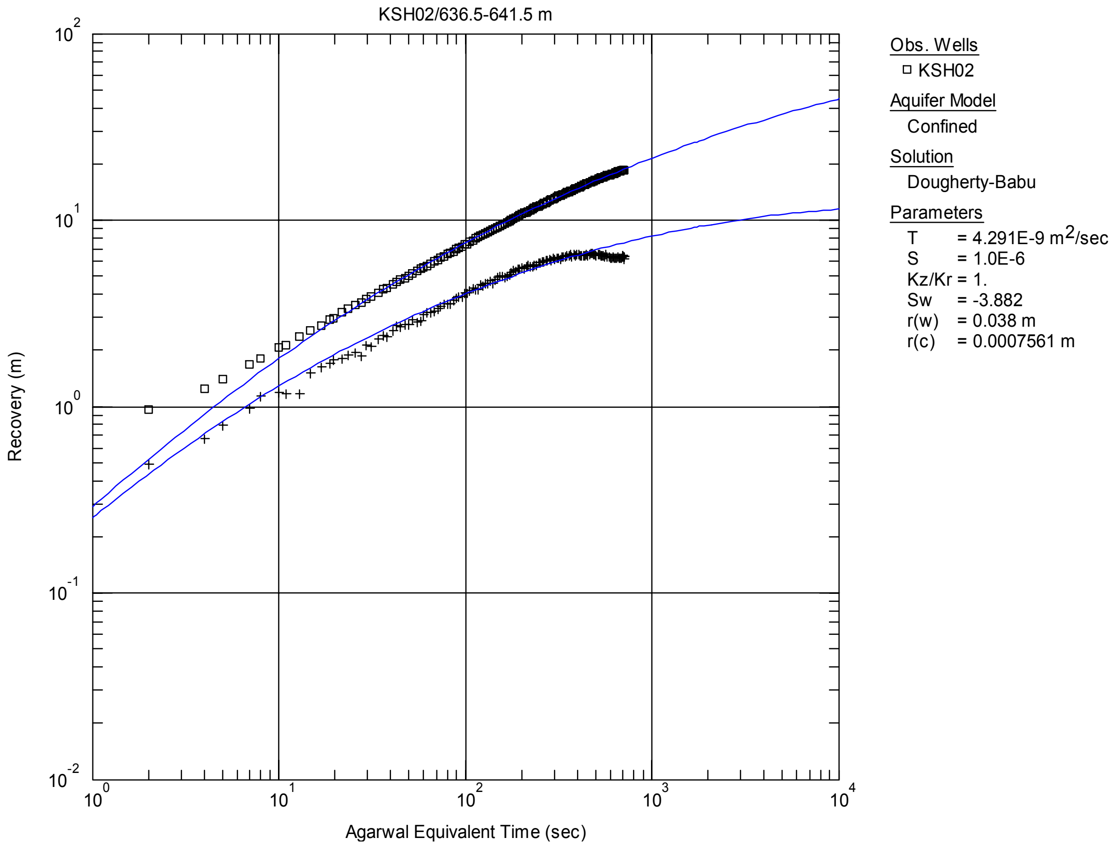
Perturbation phase, lin-log match.



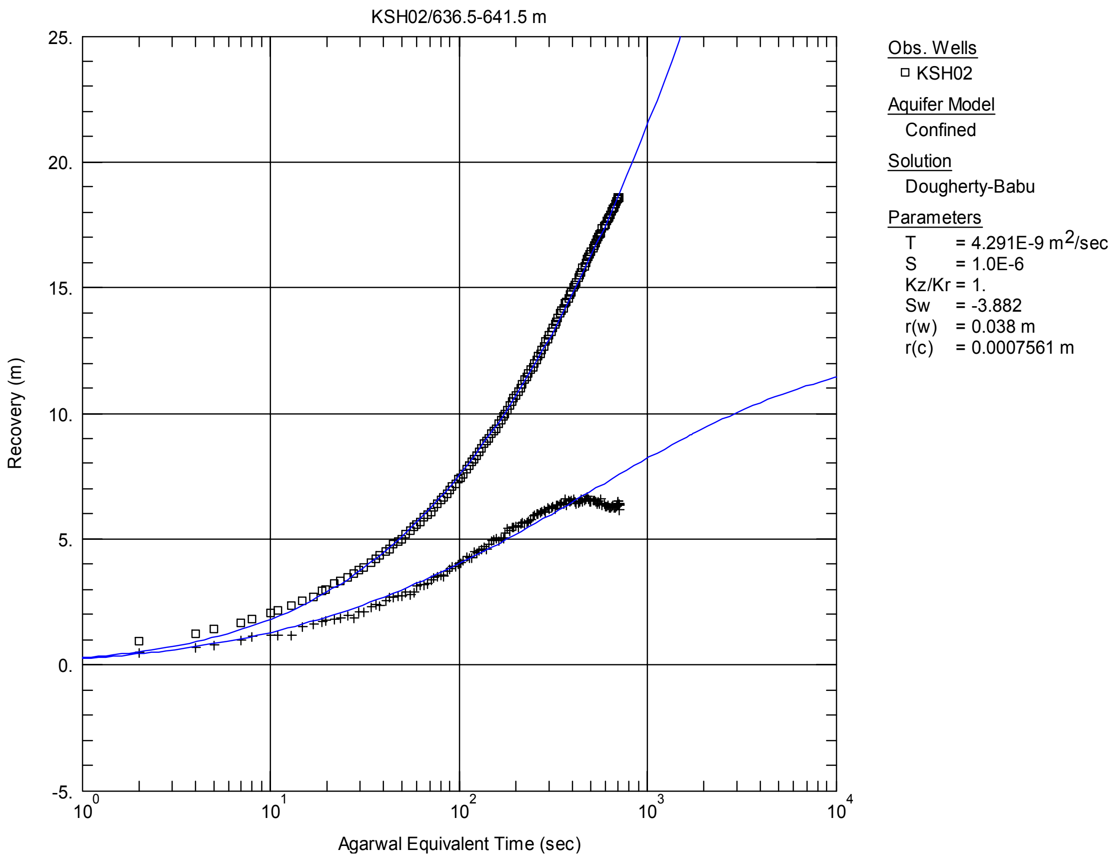
Recovery phase, log-log match. First match.



Recovery phase, lin-log match. First match.



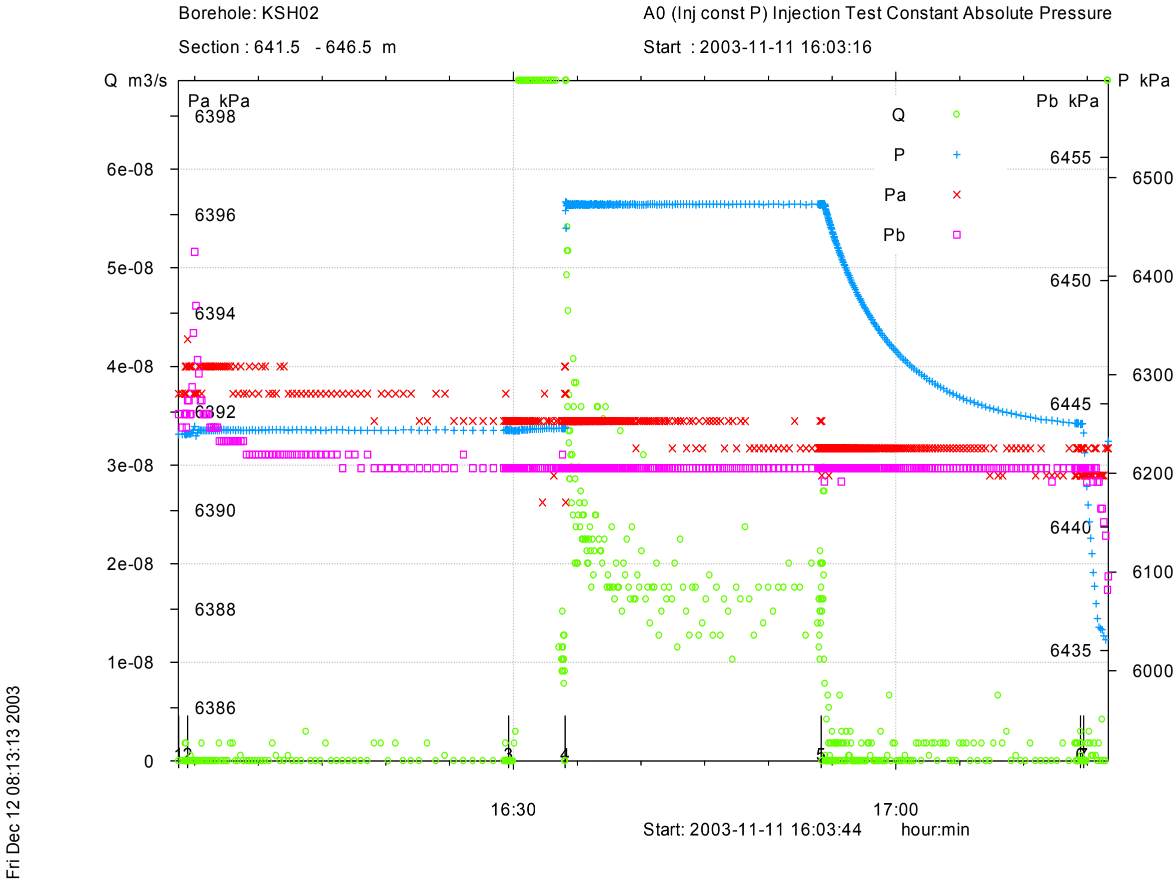
Recovery phase, log-log match. Second match.



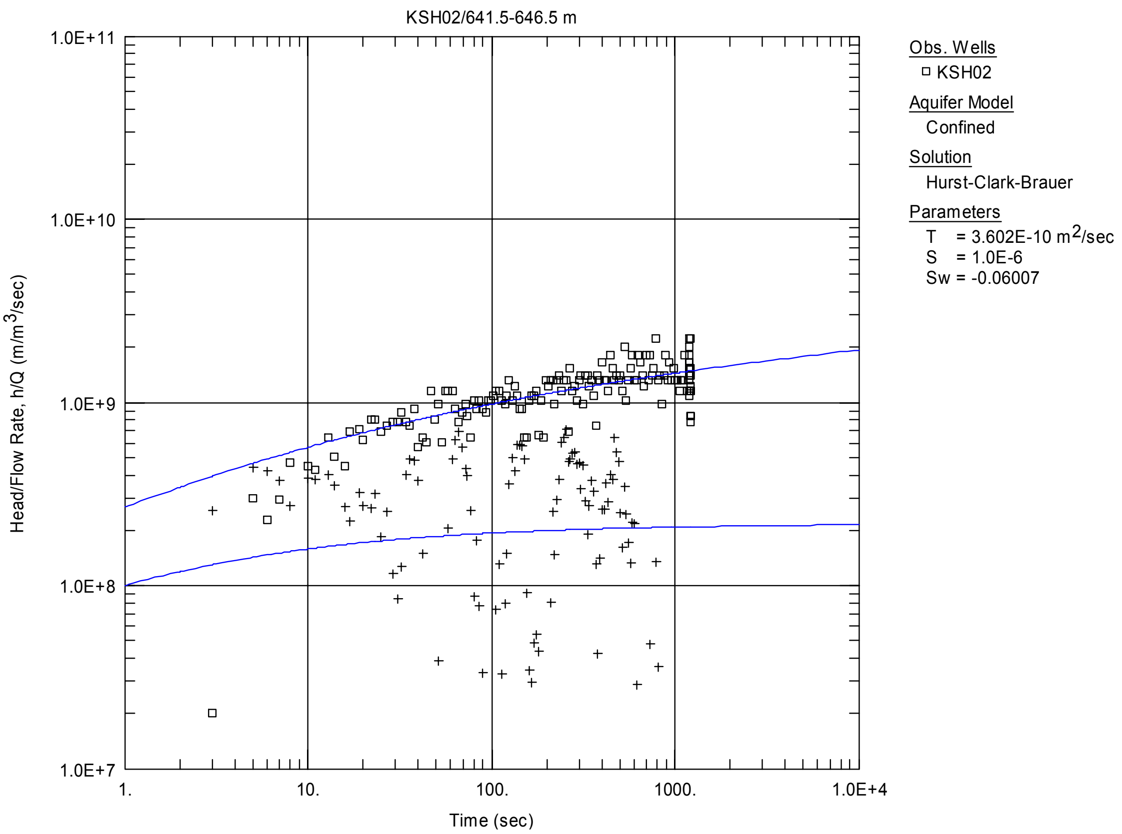
Recovery phase, lin-log match. Second match.

Test 641.5–646.5 m

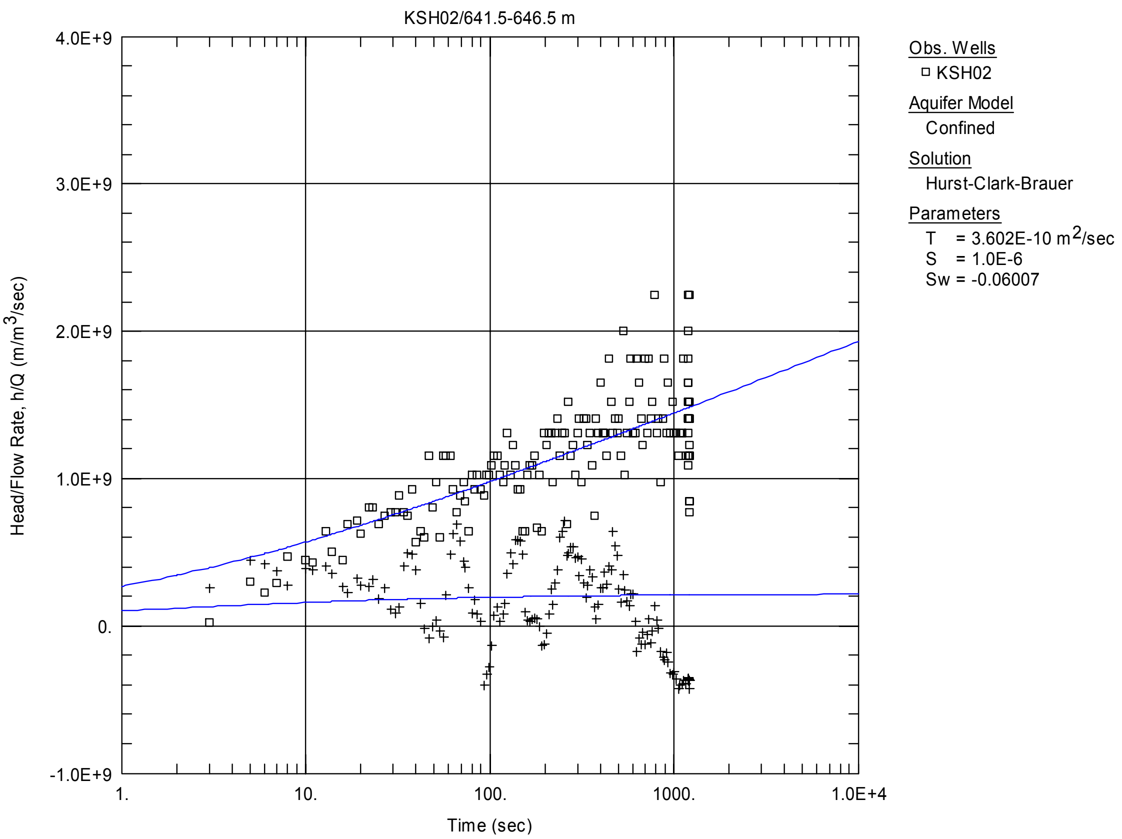
Analysis Diagram



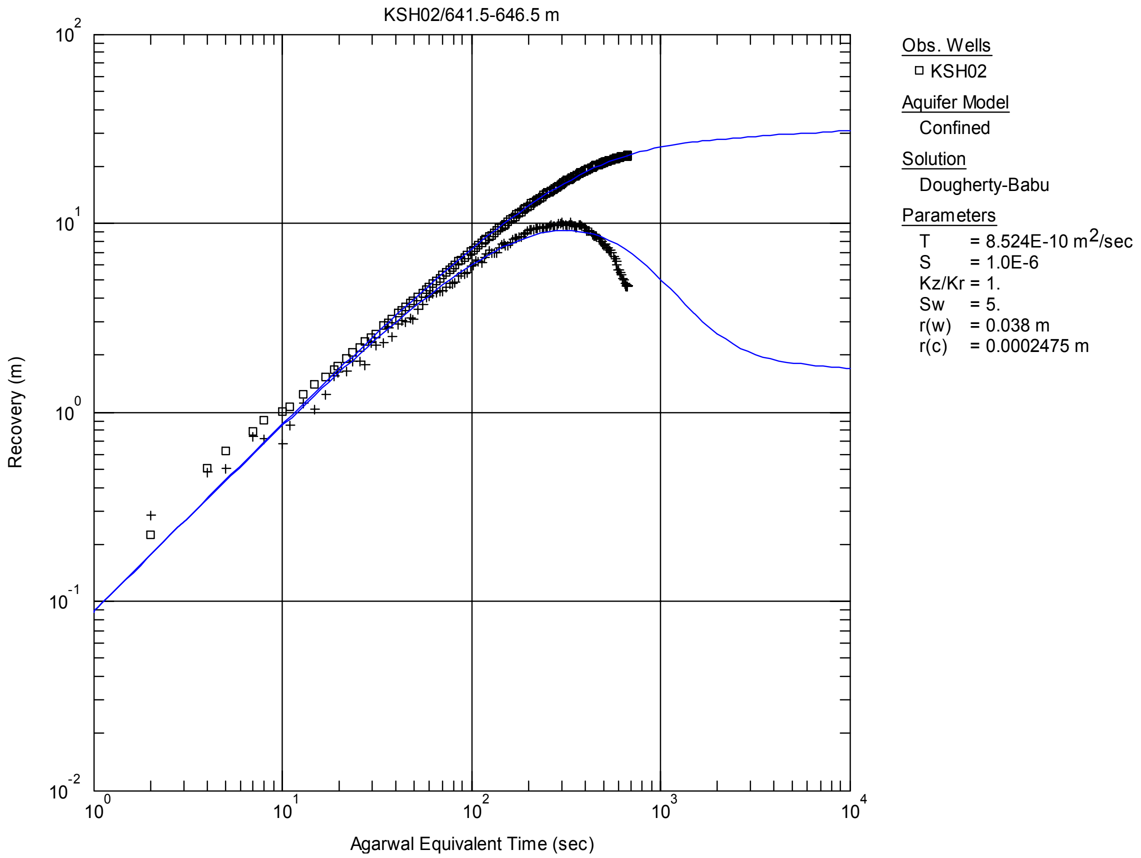
Pressure and flow rate vs. time.



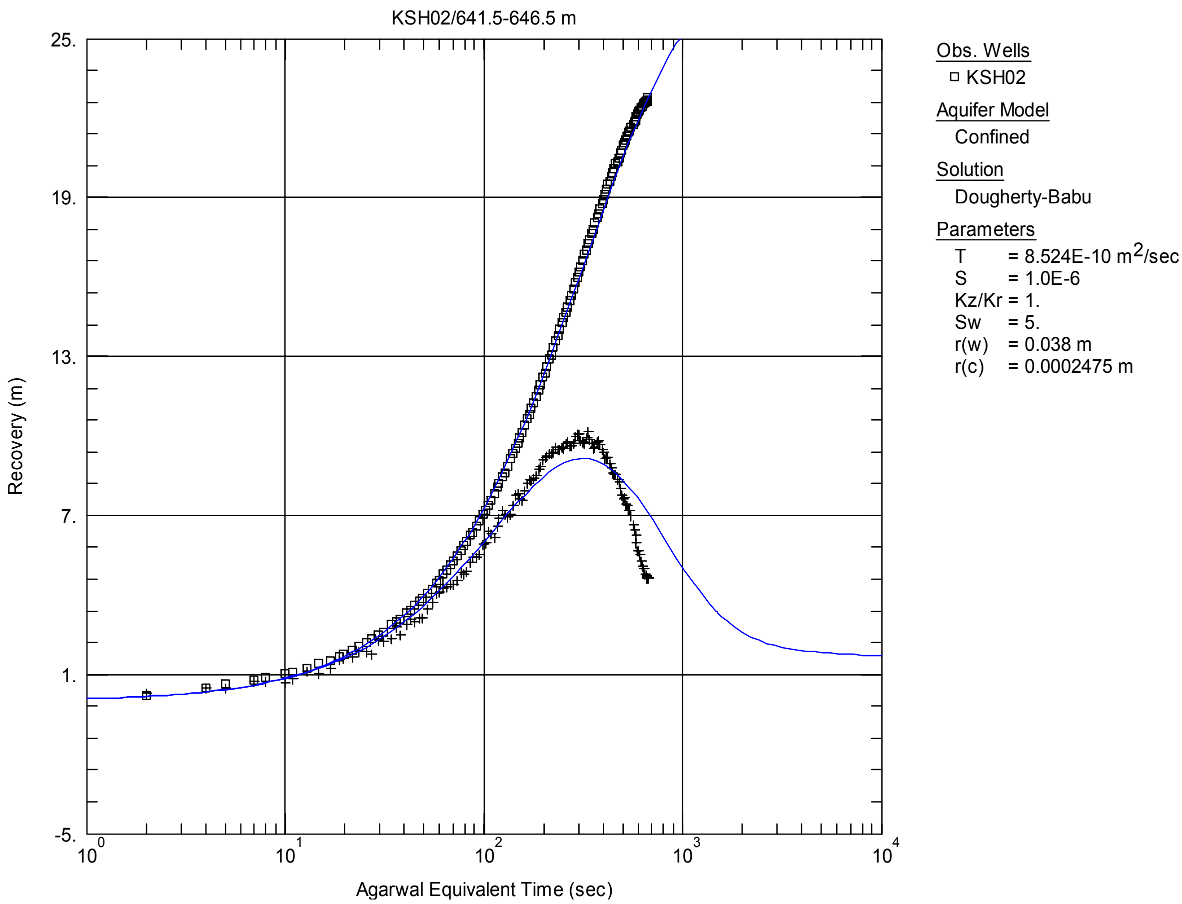
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



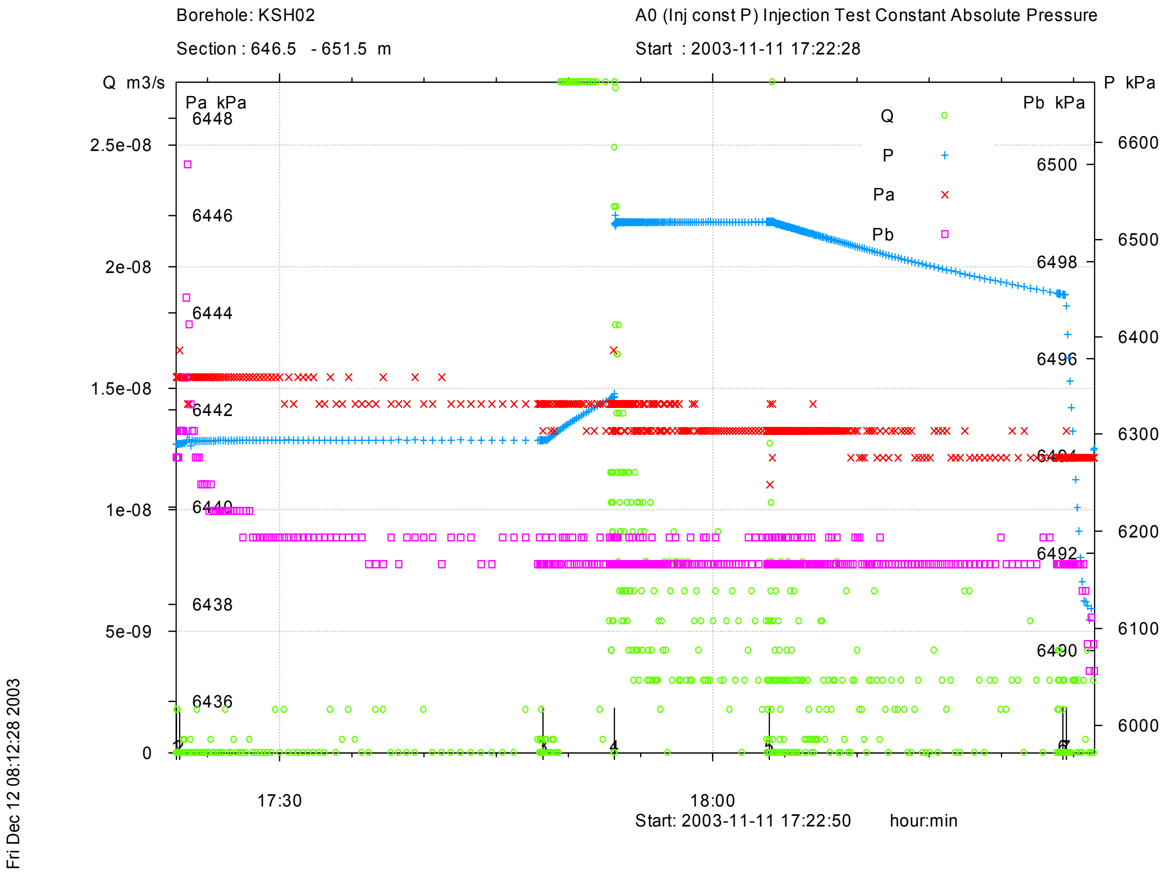
Recovery phase, log-log match.



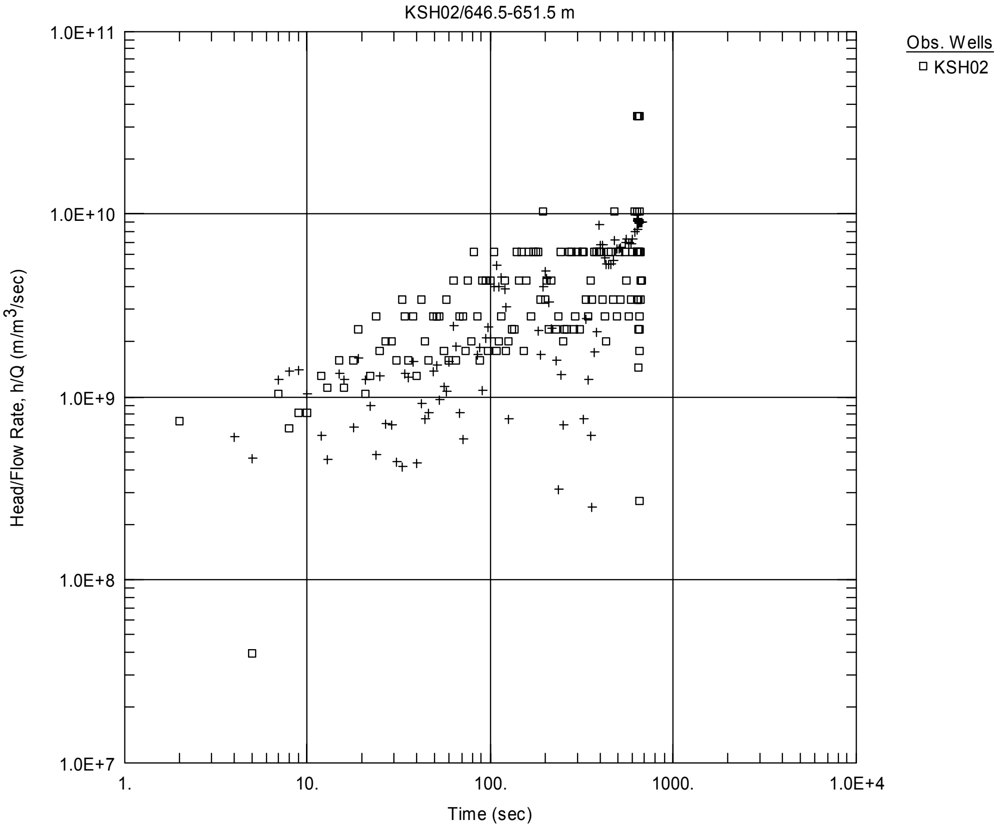
Recovery phase, lin-log match.

Test 646.5–651.5 m

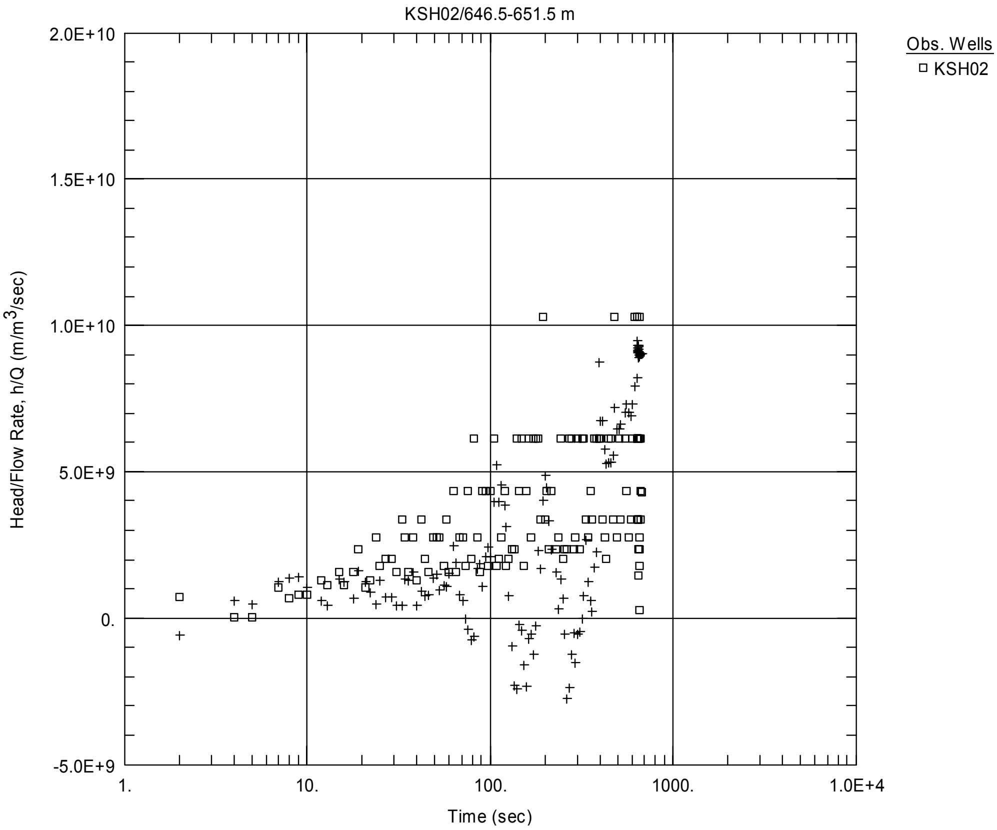
Analysis Diagram



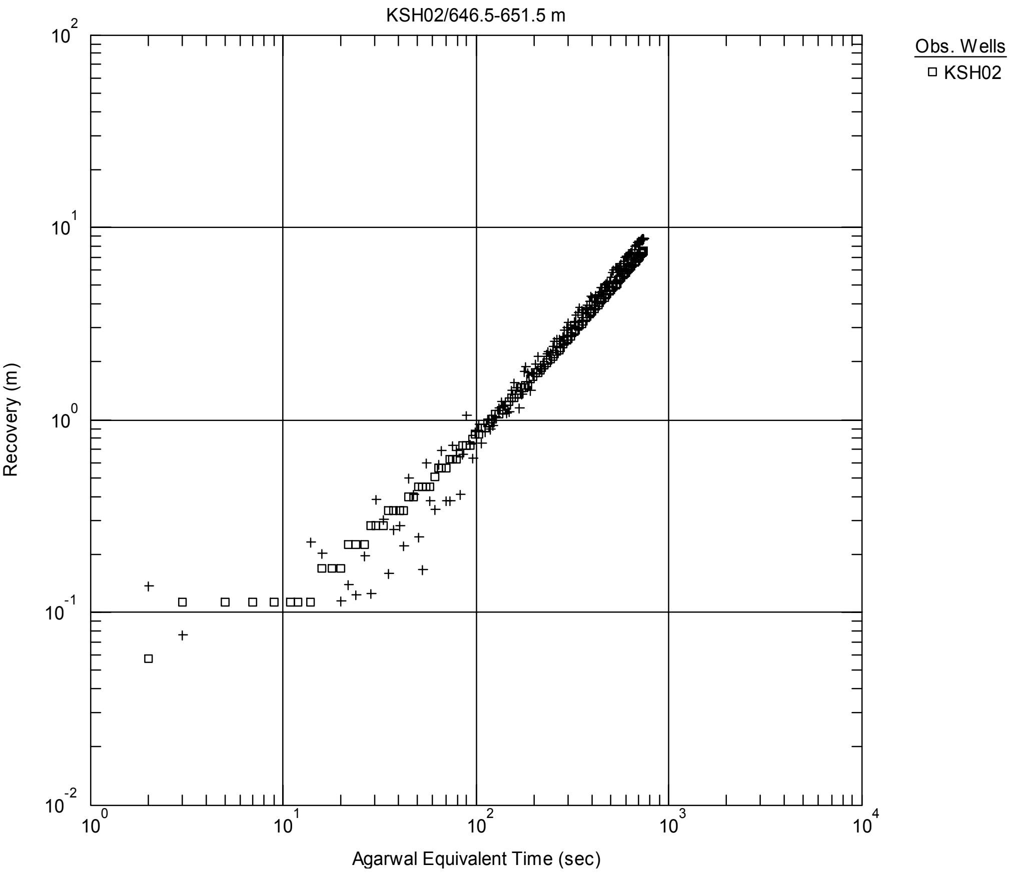
Pressure and flow rate vs. time.



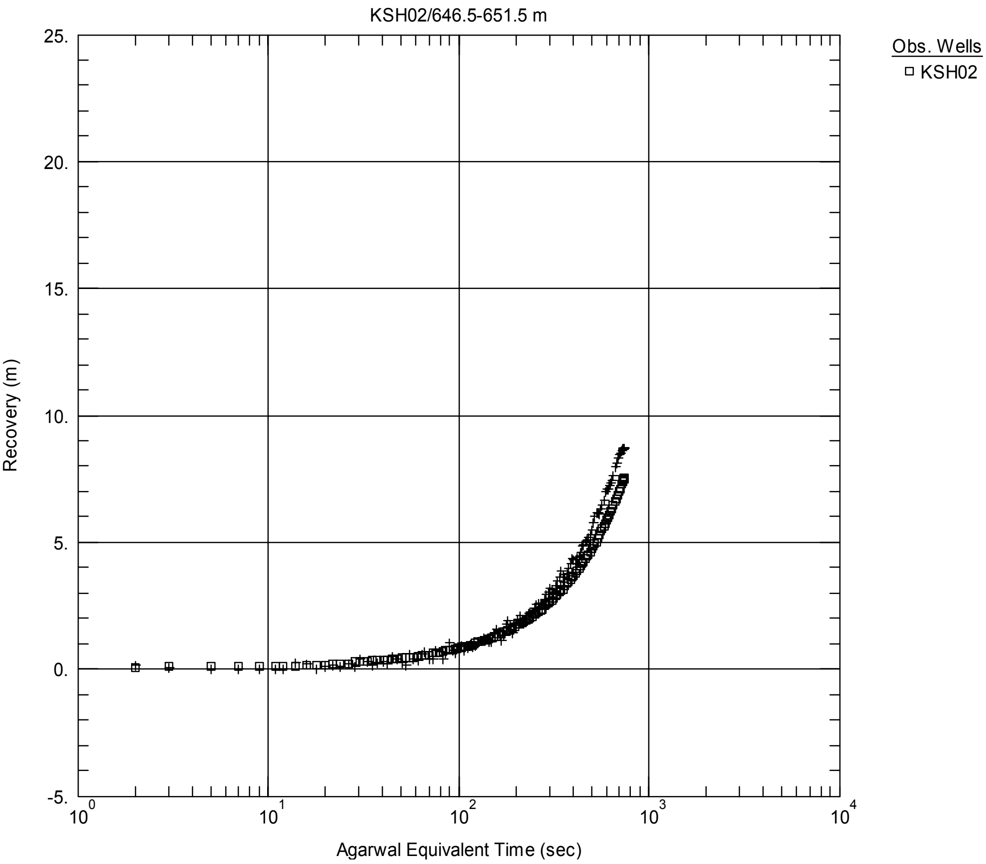
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

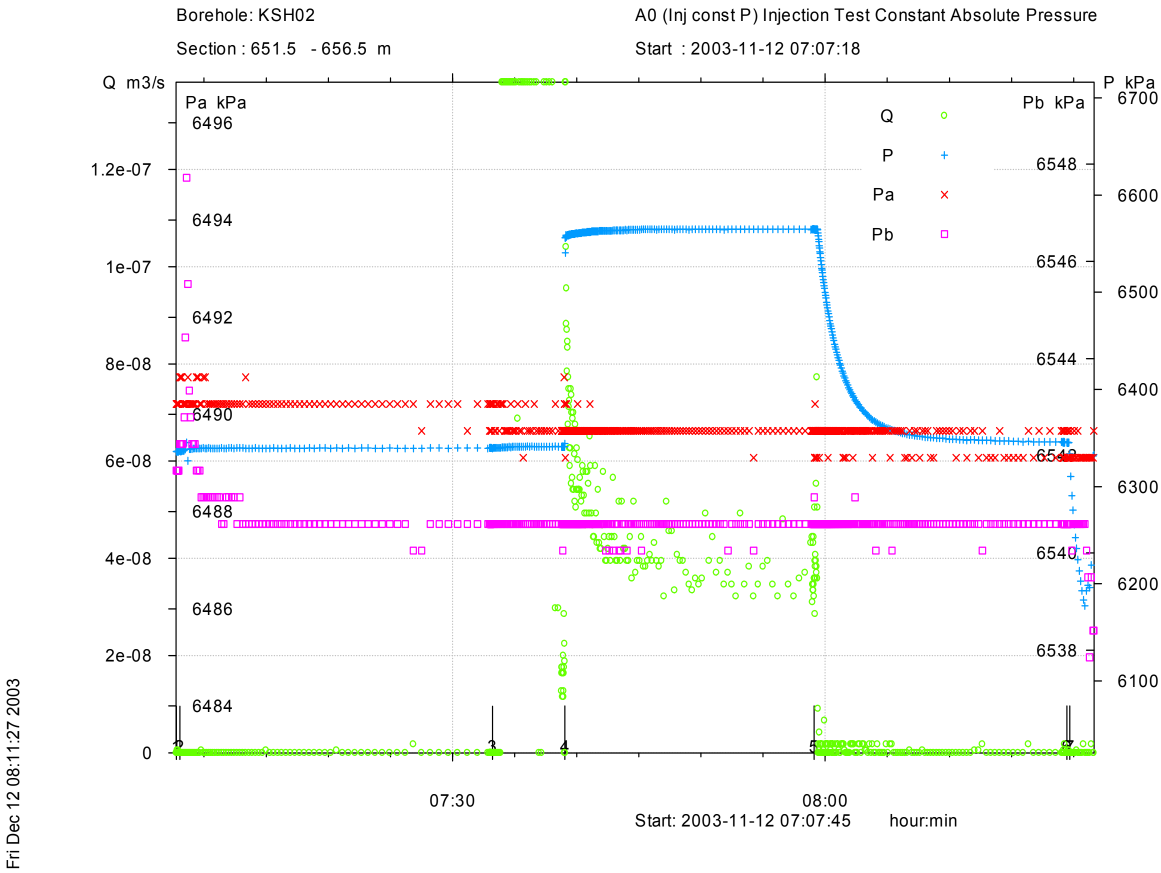


Recovery phase, lin-log match.

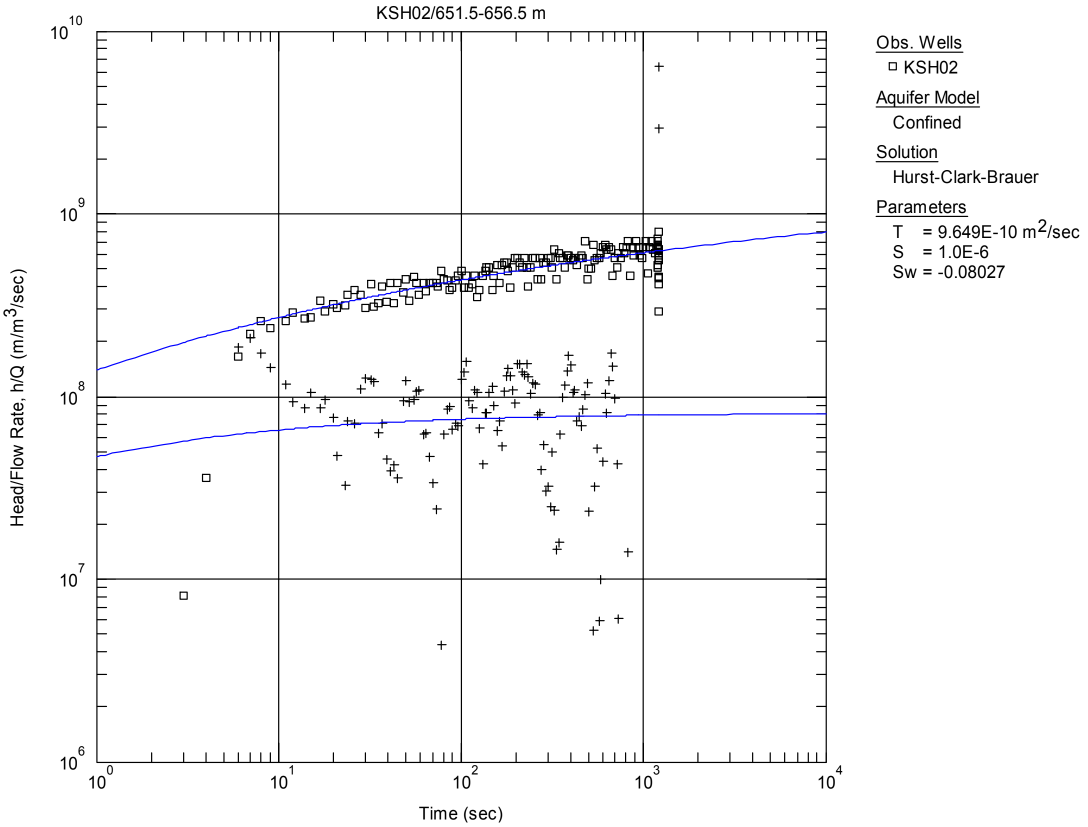
Appendix 3-125

Test 651.5–656.5 m

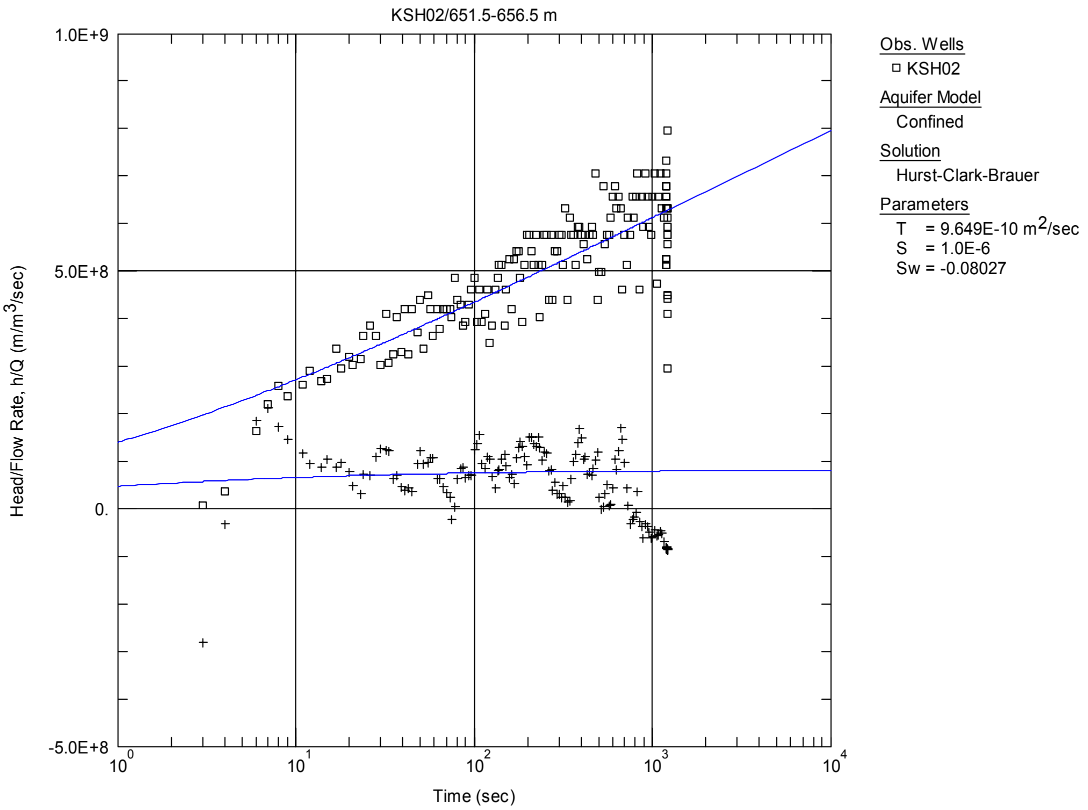
Analysis Diagram



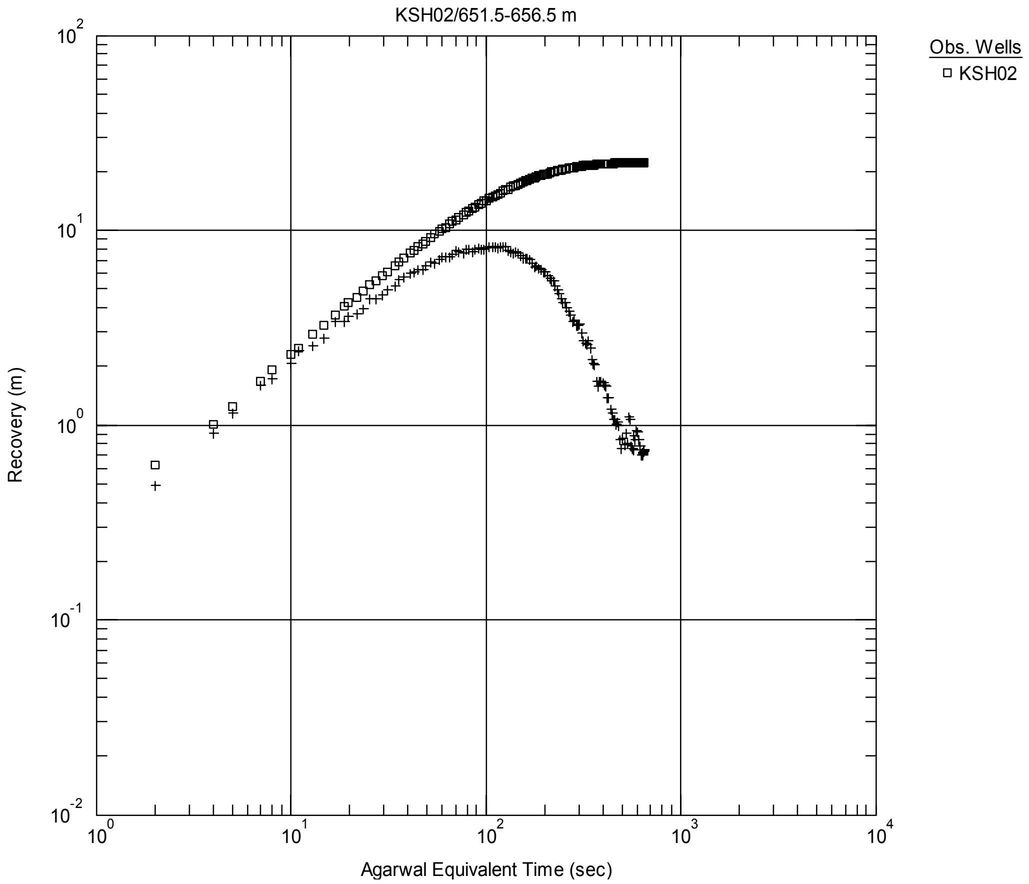
Pressure and flow rate vs. time.



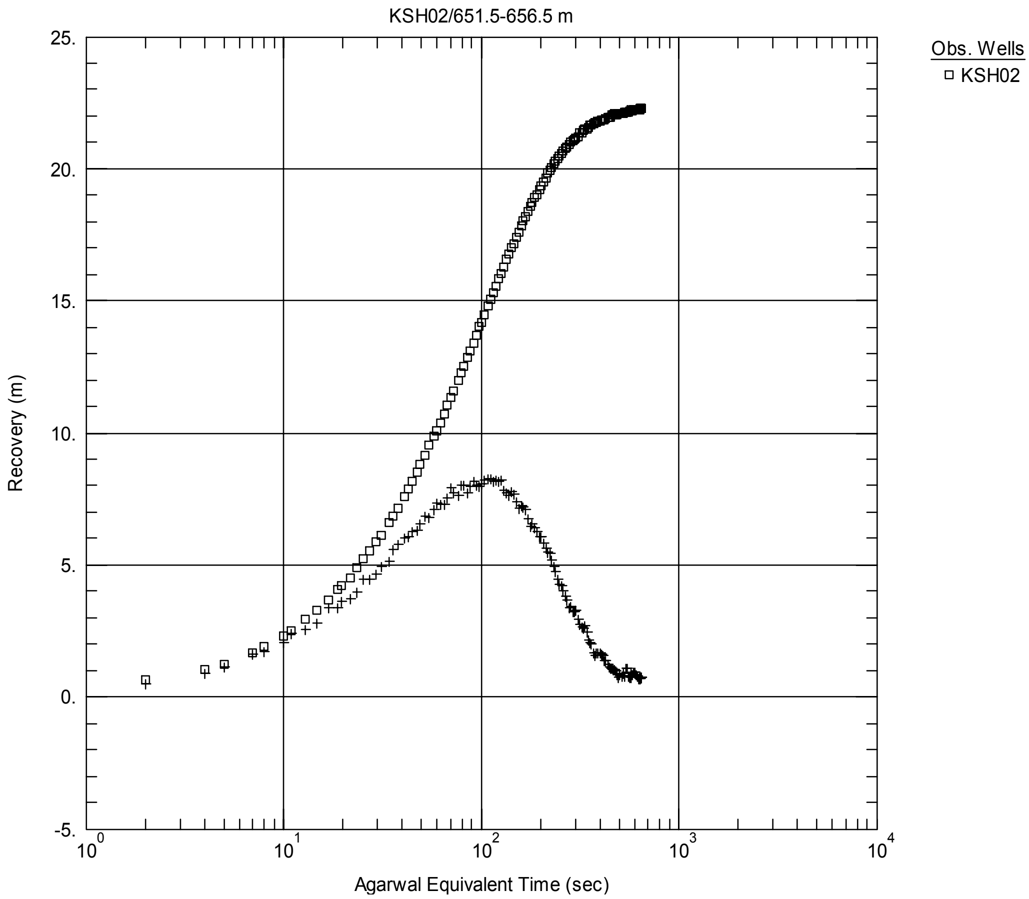
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



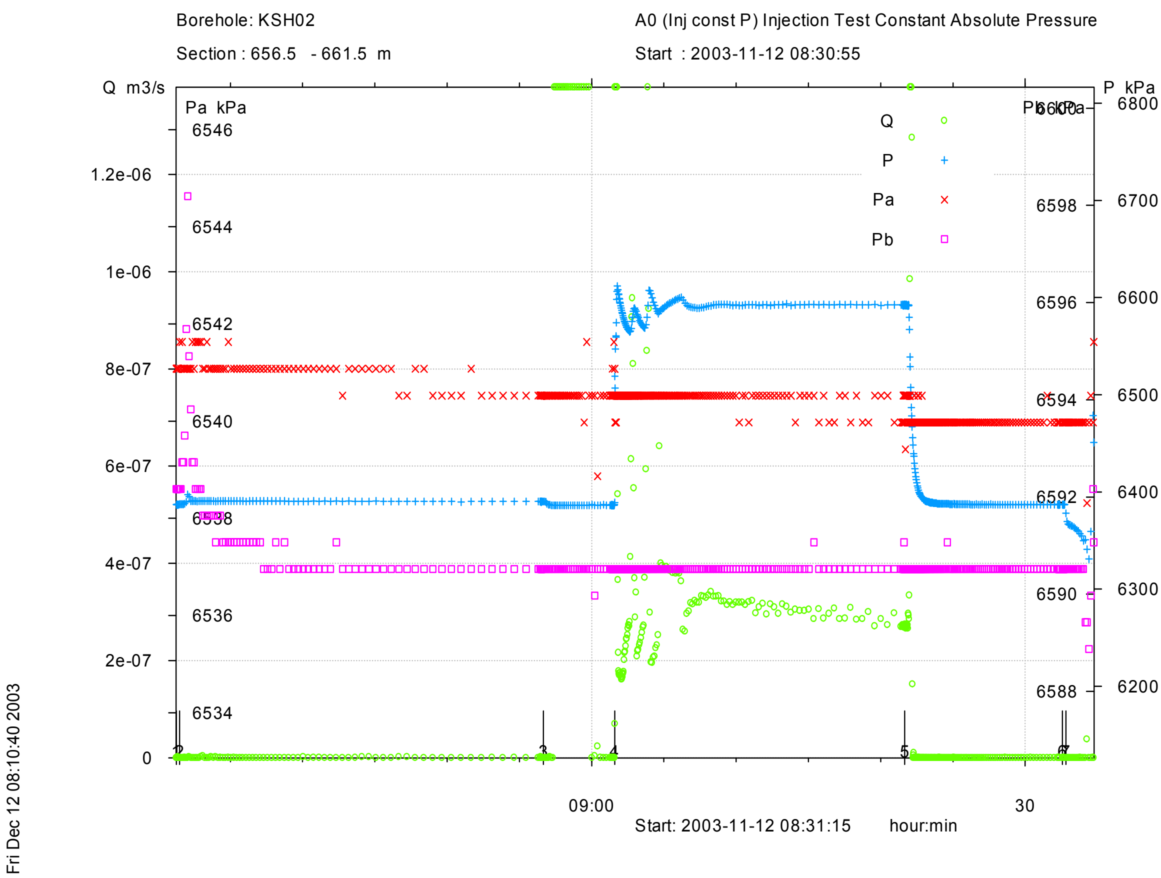
Recovery phase, log-log match.



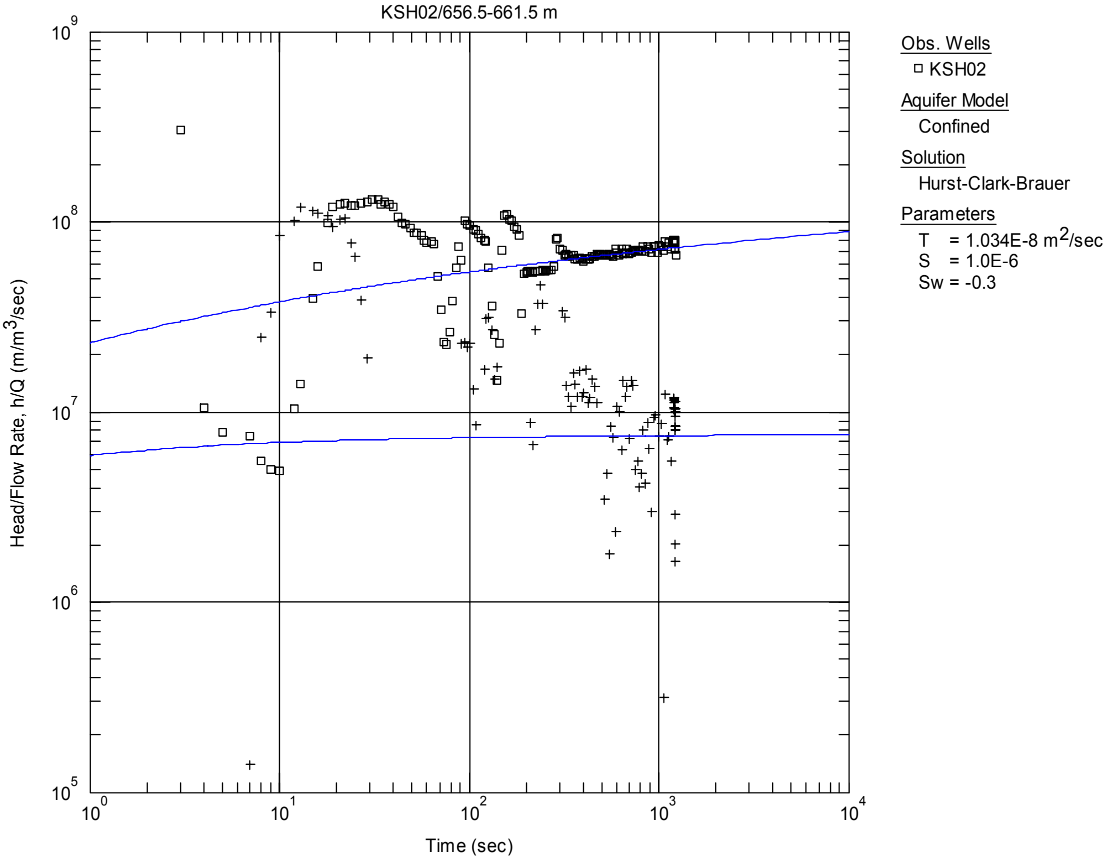
Recovery phase, lin-log match.

Test 656.5–661.5 m

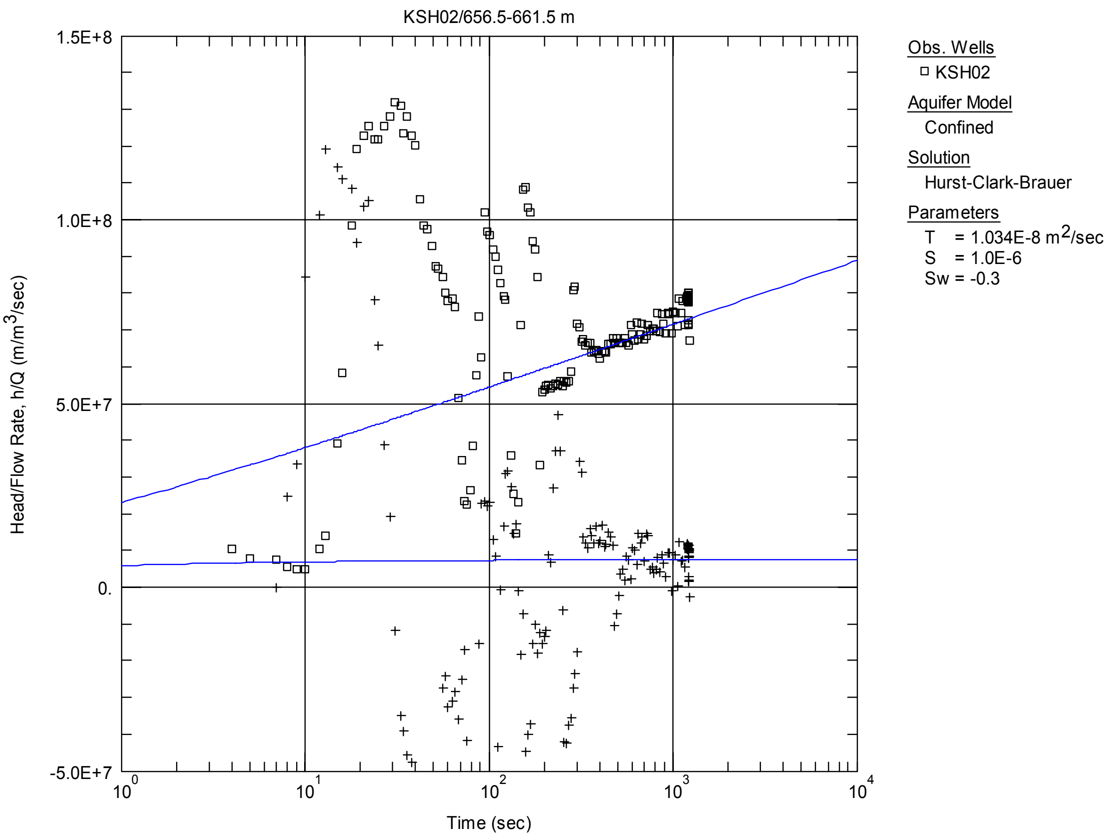
Analysis Diagram



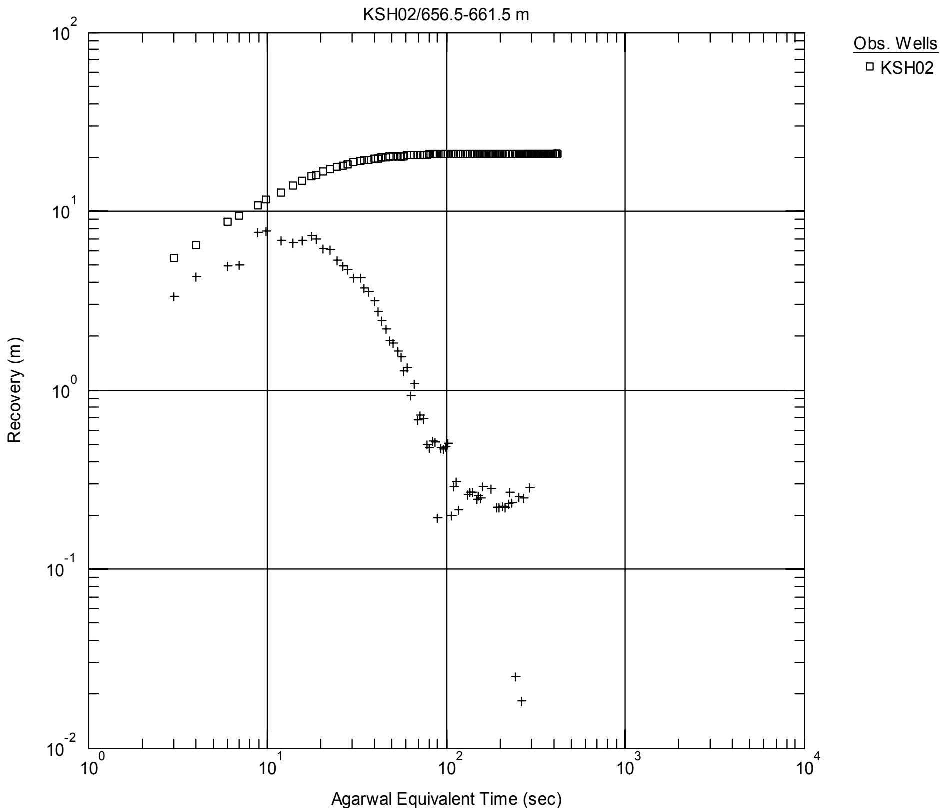
Pressure and flow rate vs. time.



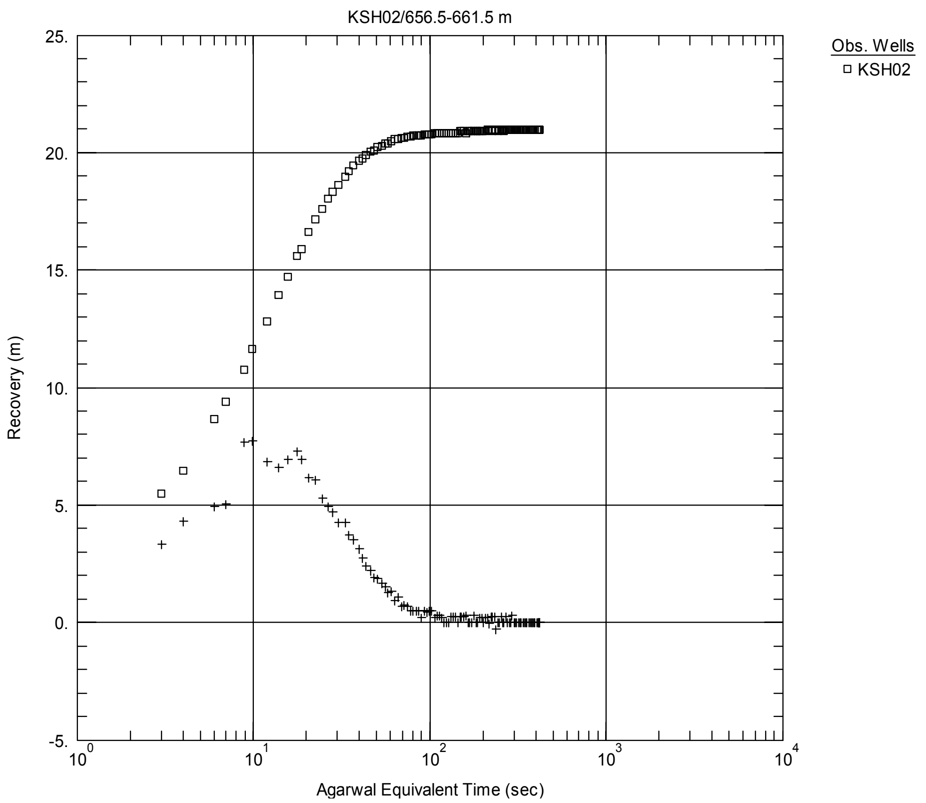
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



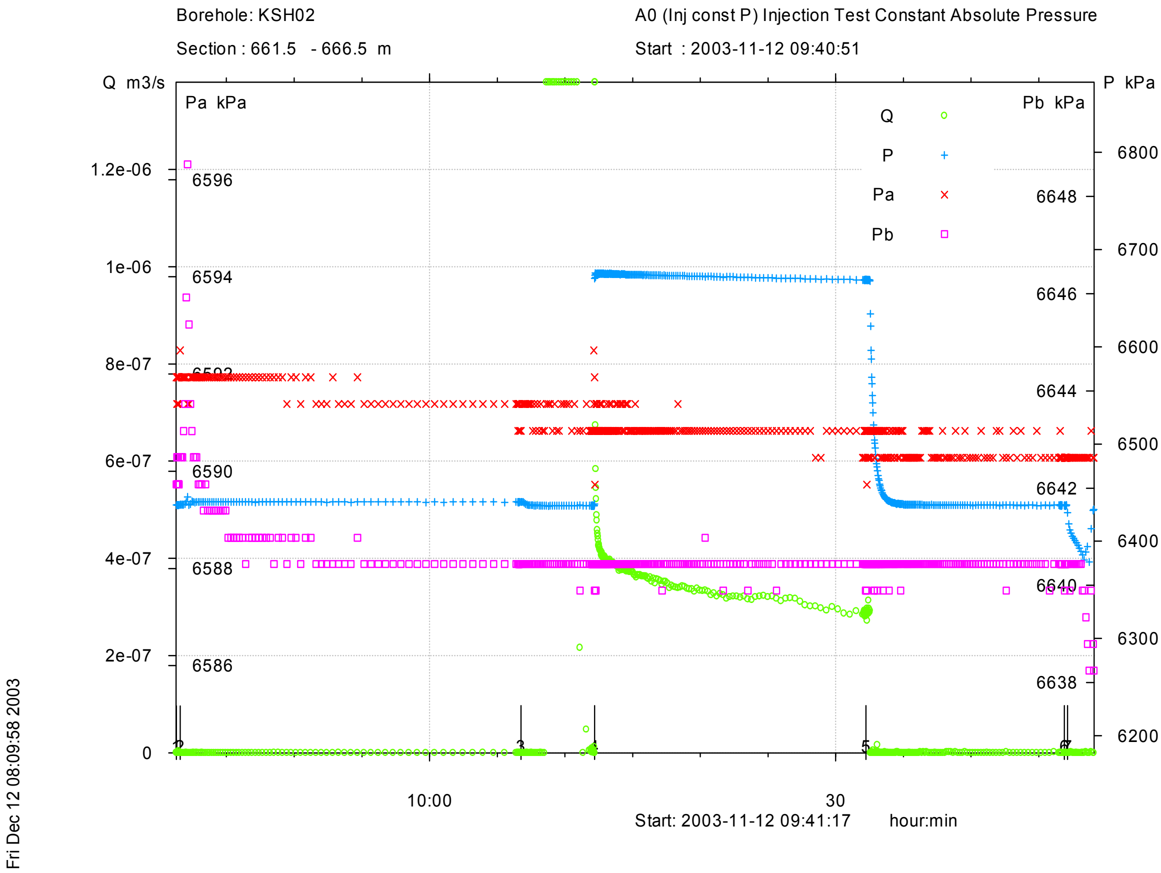
Recovery phase, log-log match.



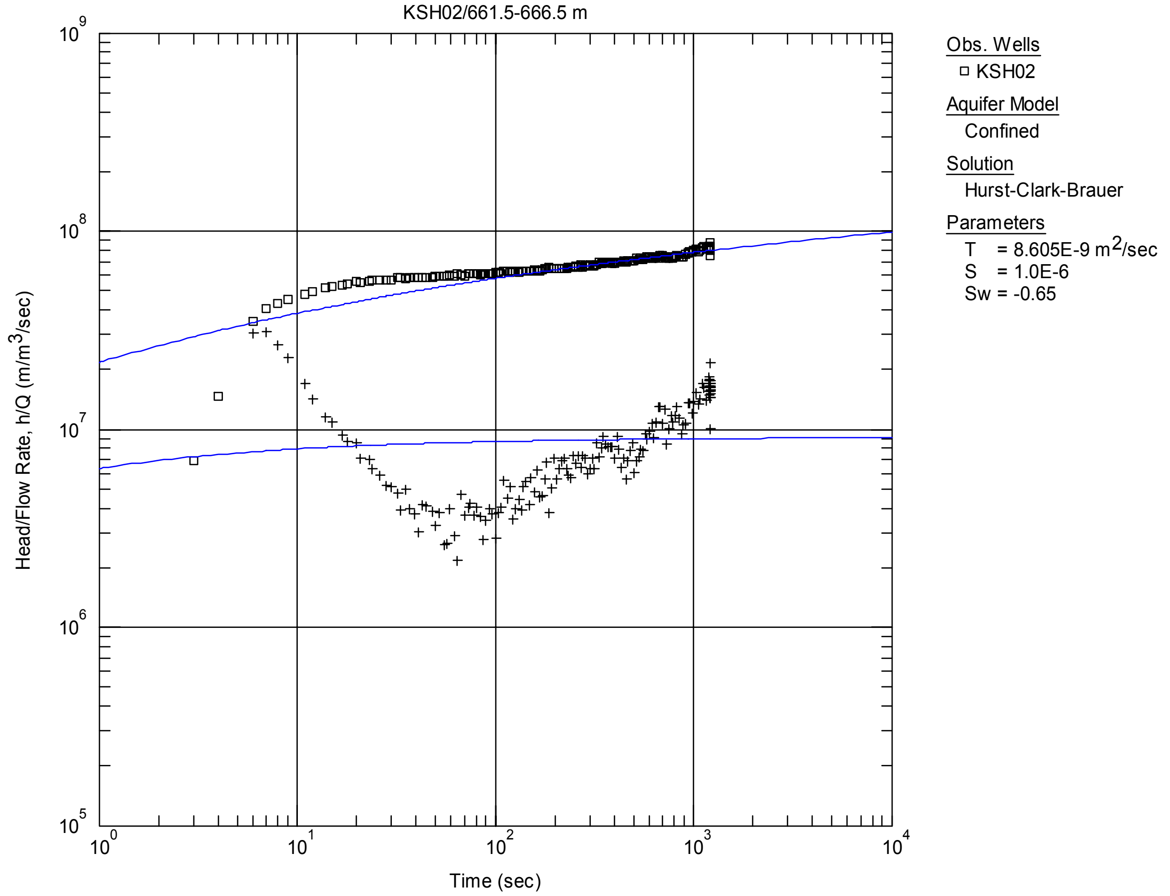
Recovery phase, lin-log match

Test 661.5–666.5 m

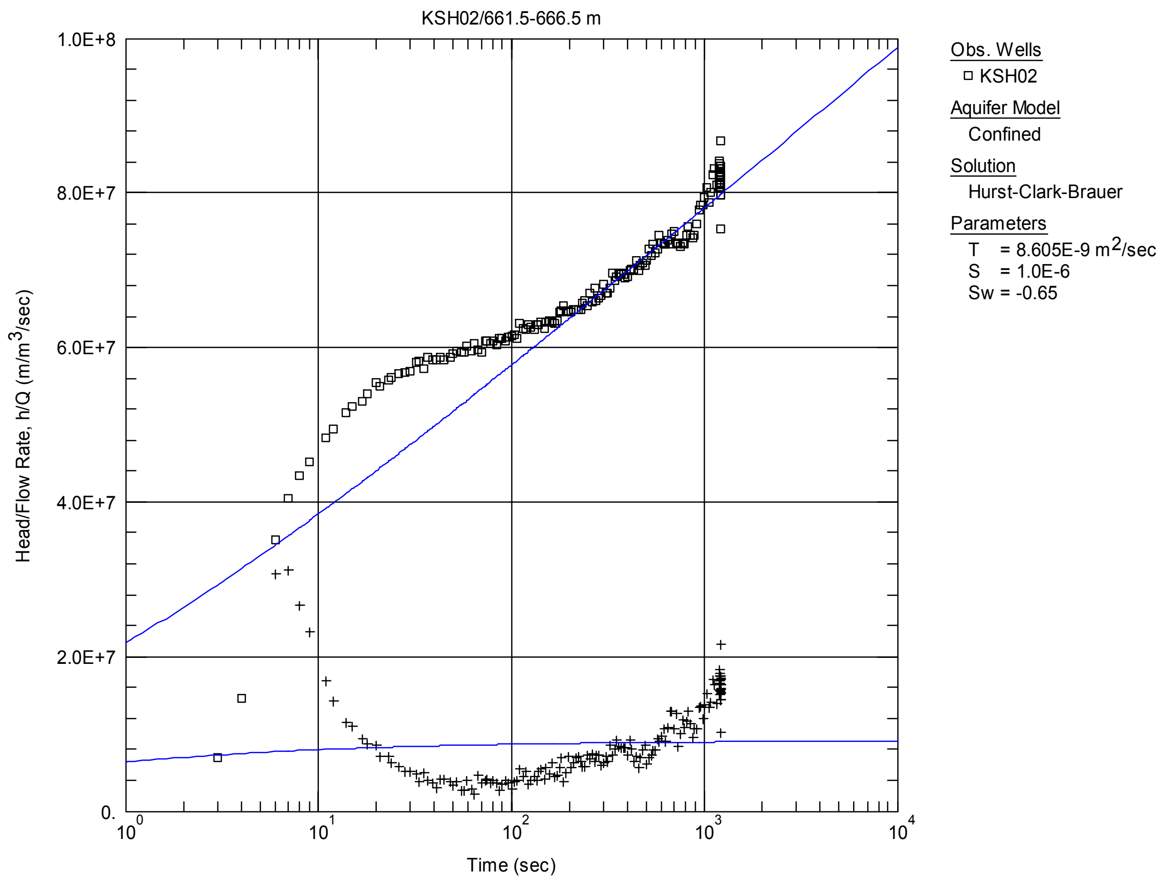
Analysis Diagram



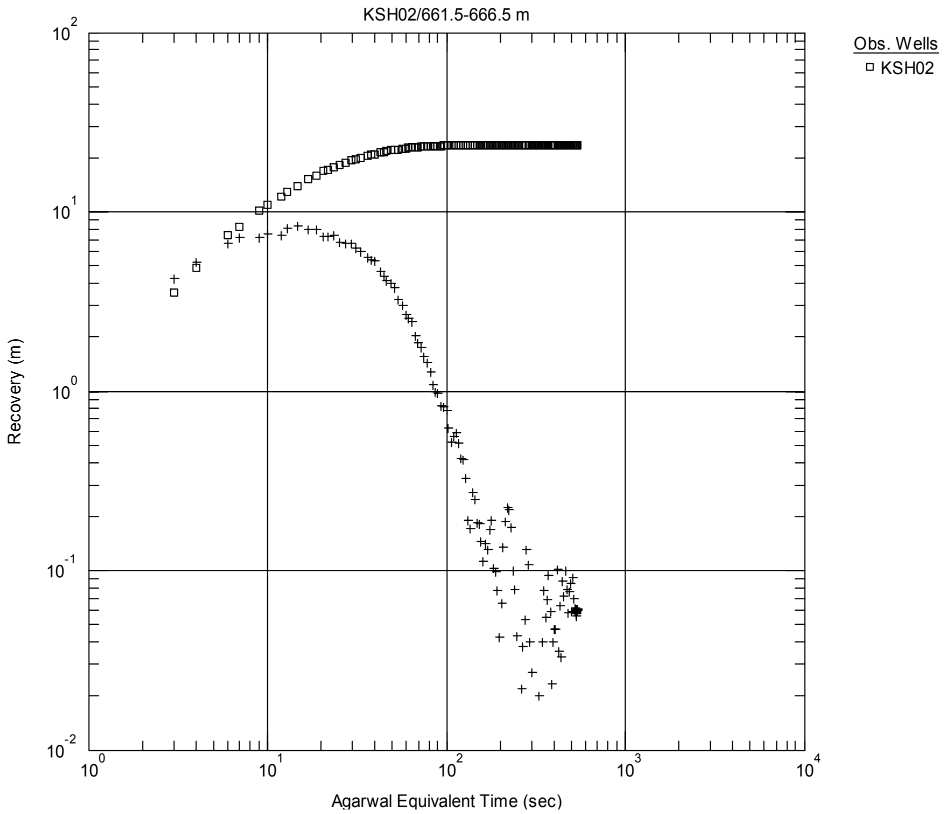
Pressure and flow rate vs. time.



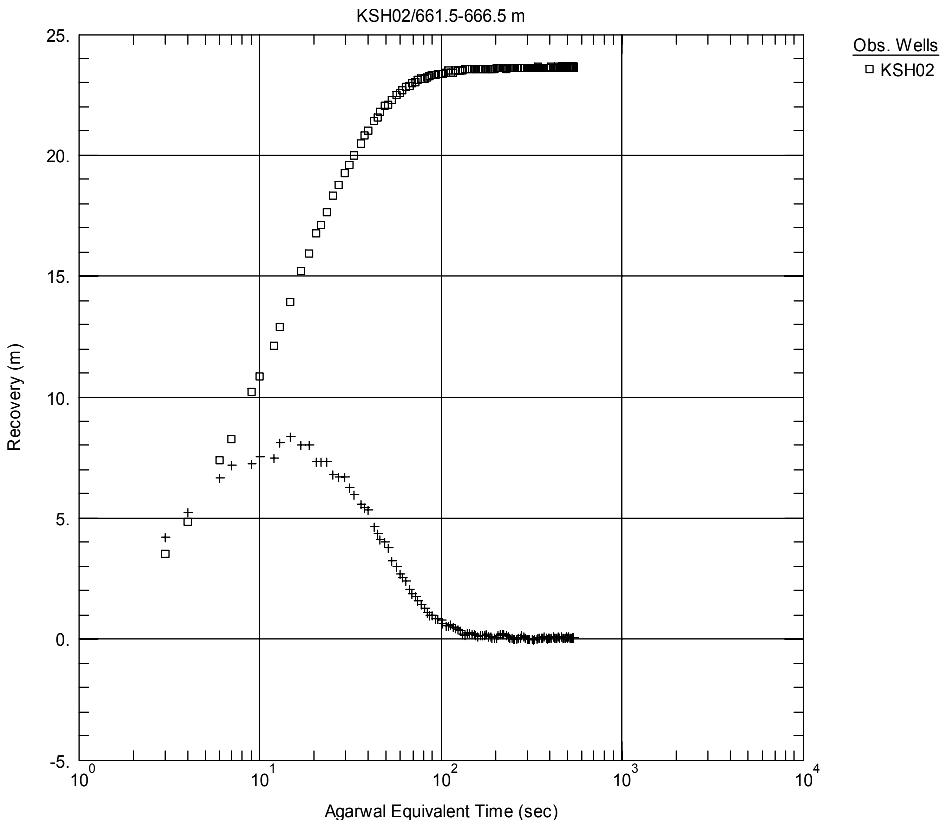
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



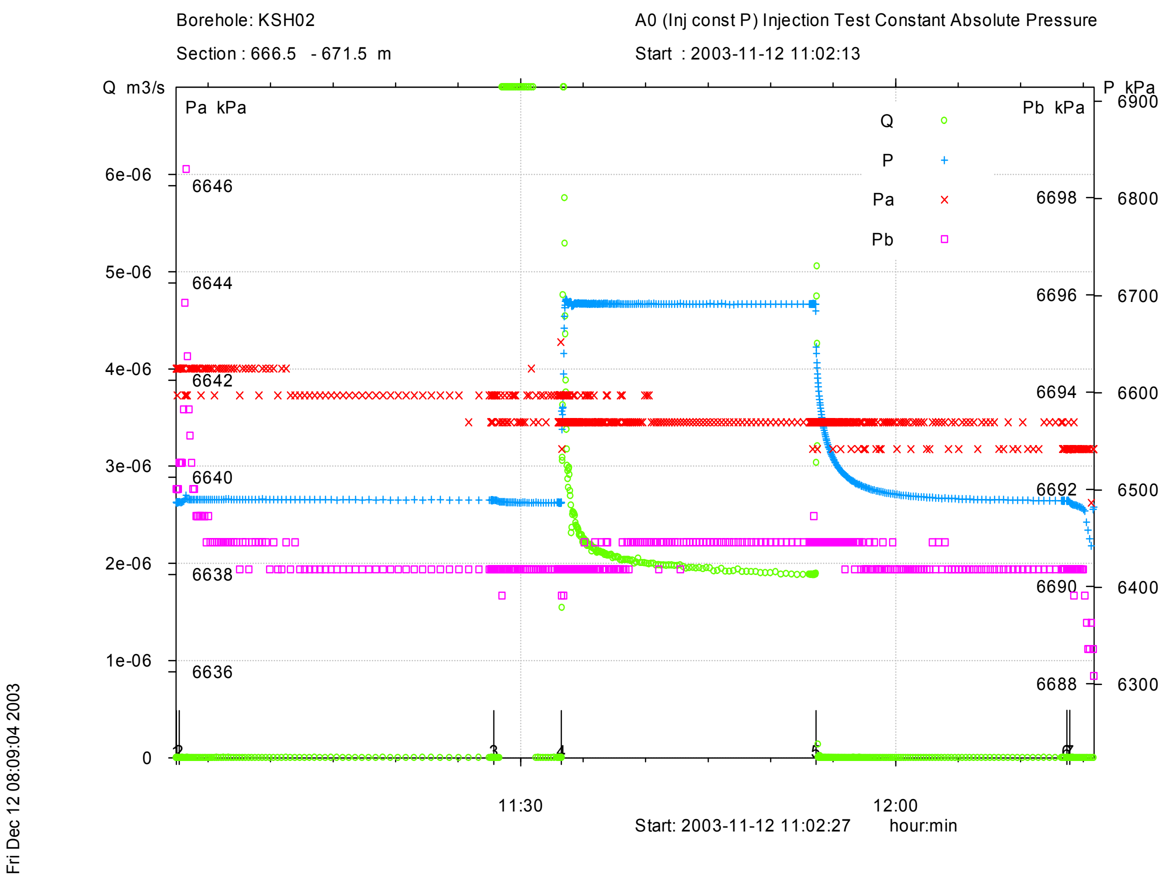
Recovery phase, log-log match.



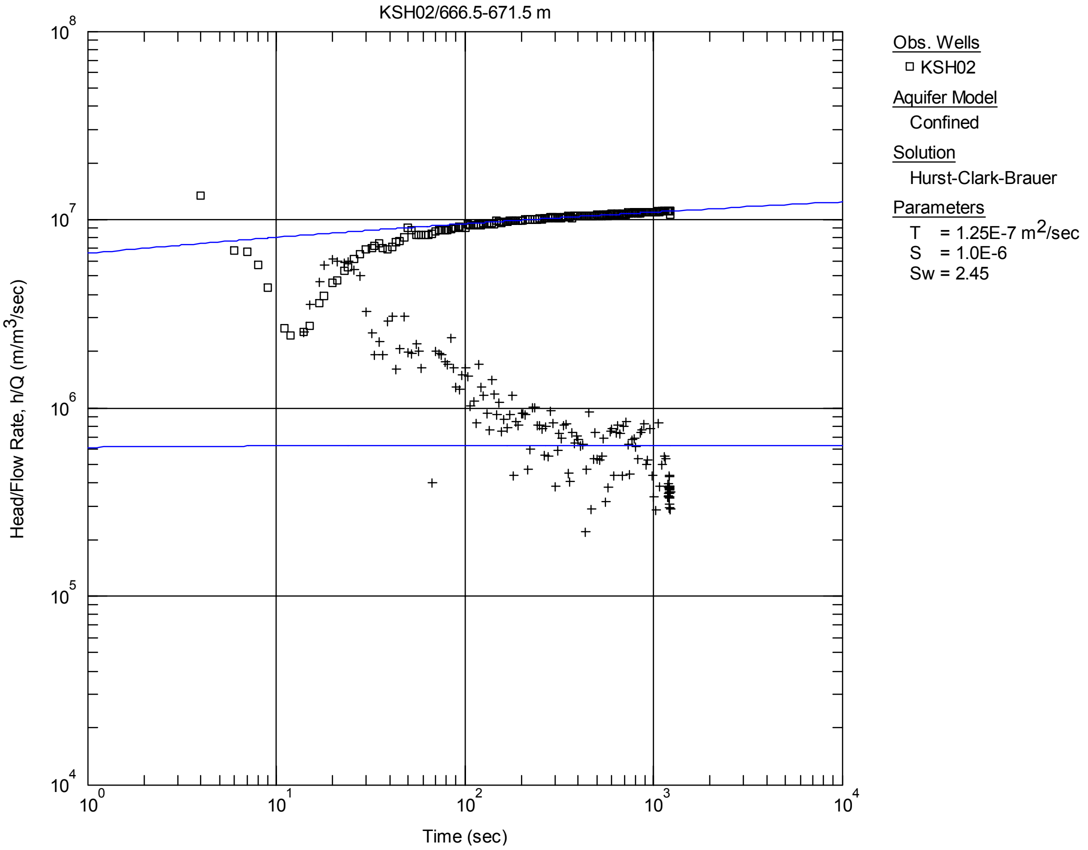
Recovery phase, lin-log match.

Test 666.5–671.5 m

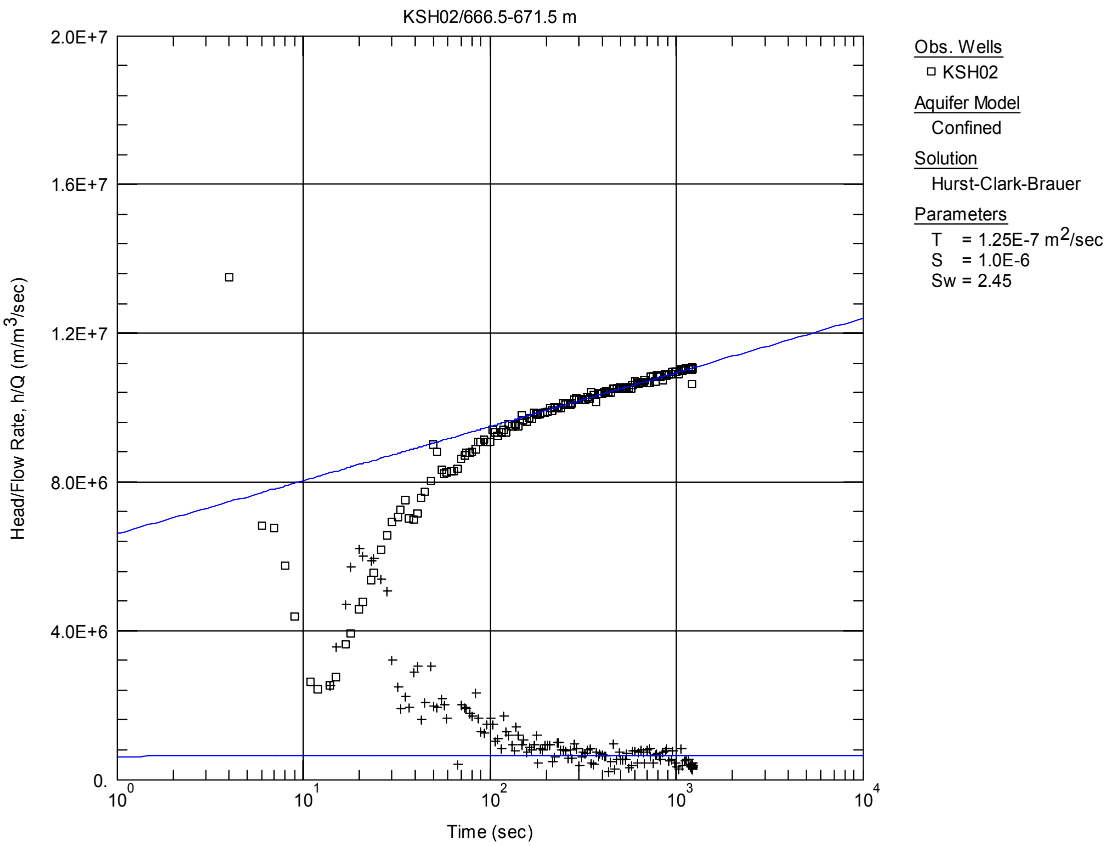
Analysis Diagram



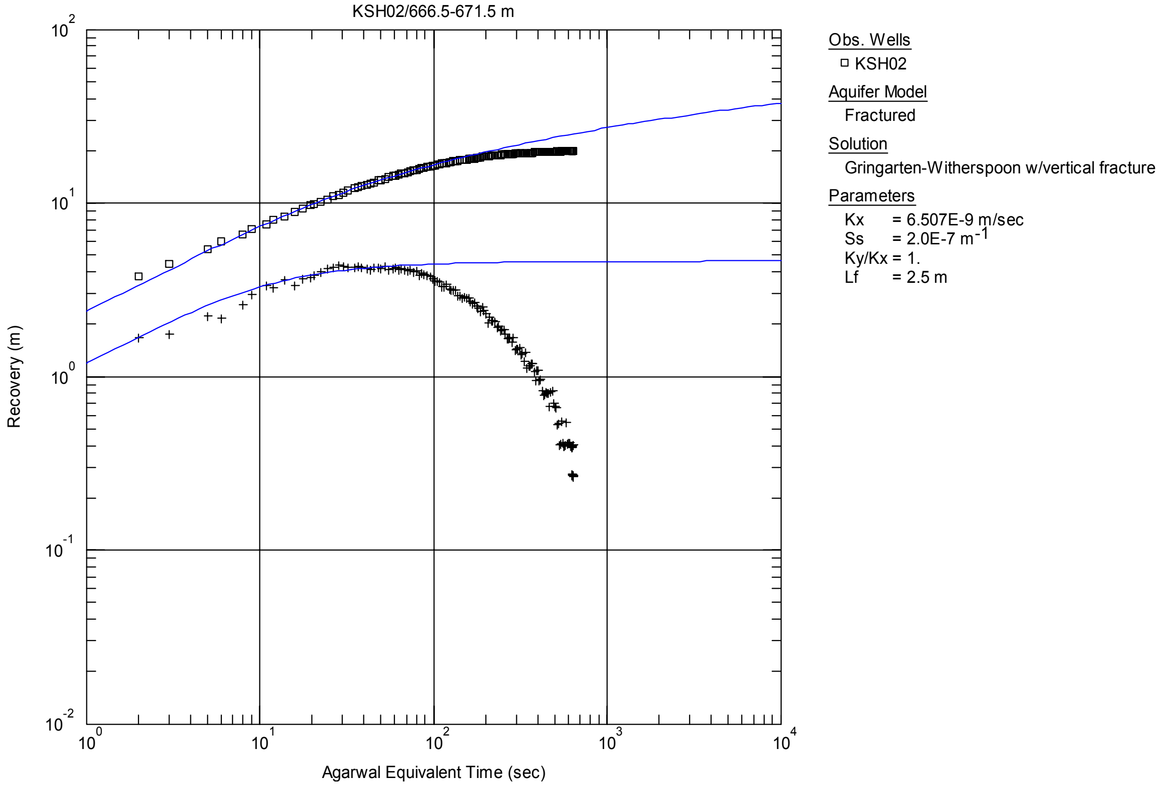
Pressure and flow rate vs. time.



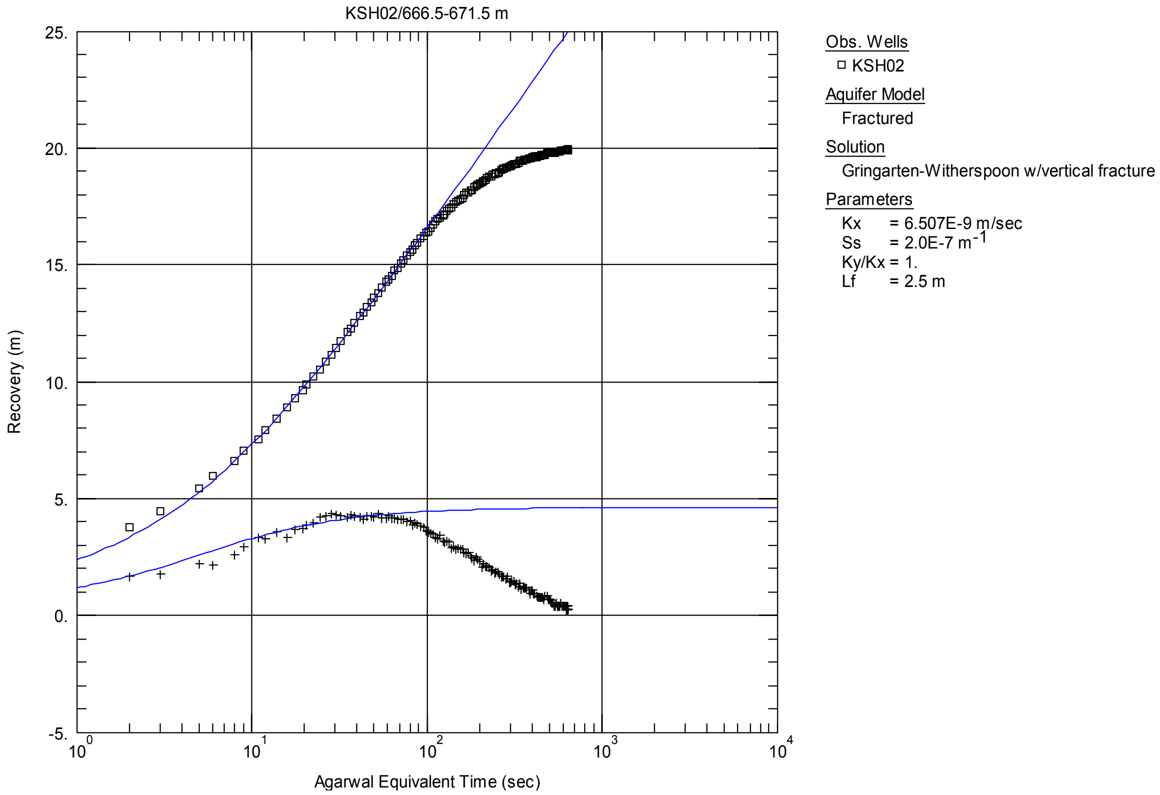
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.

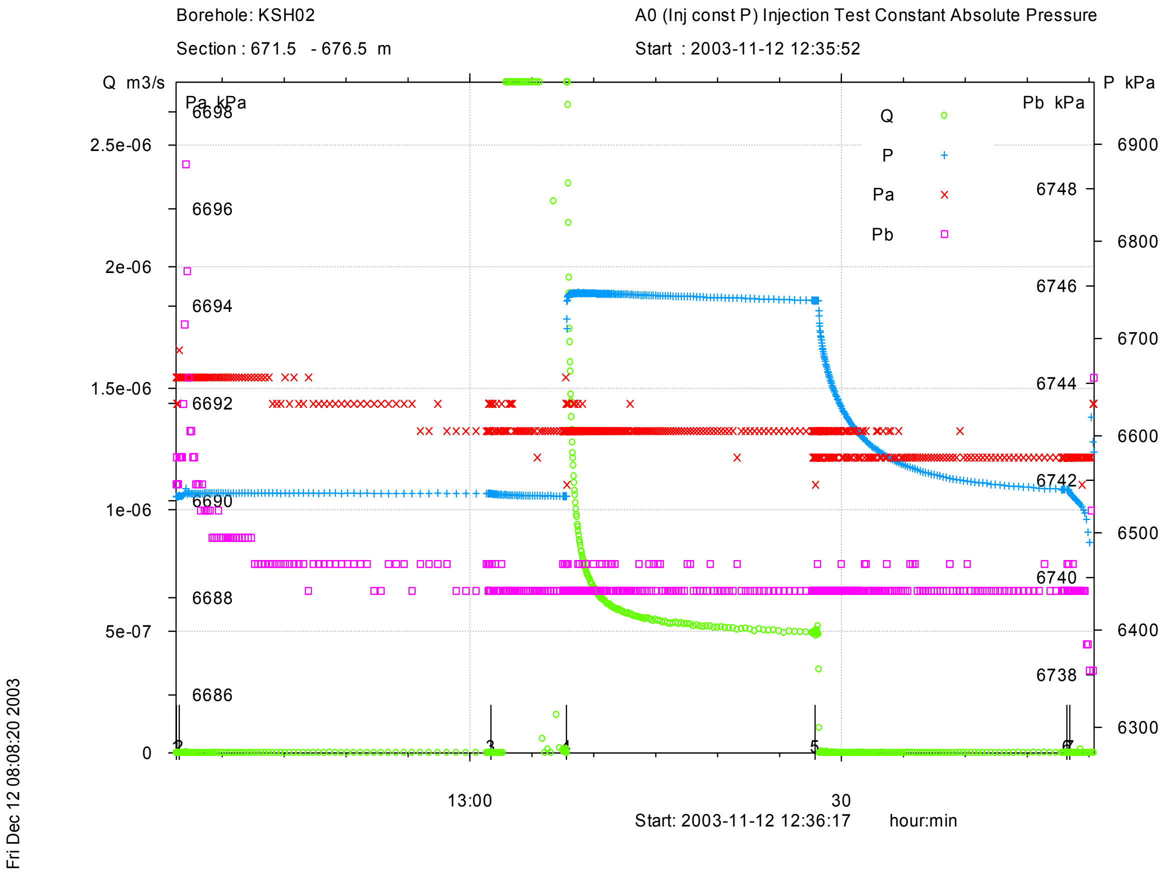


Recovery phase, lin-log match

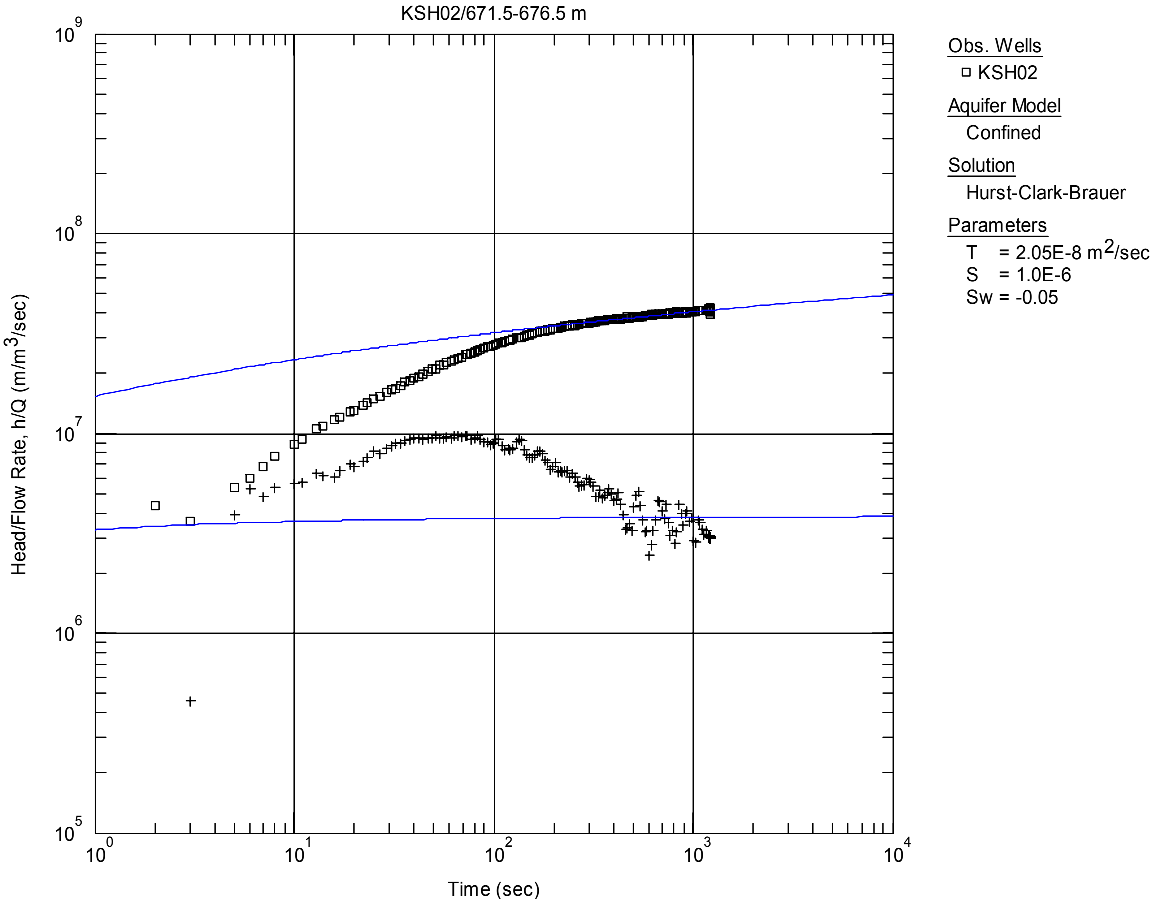
Appendix 3-129

Test 671.5–676.5 m

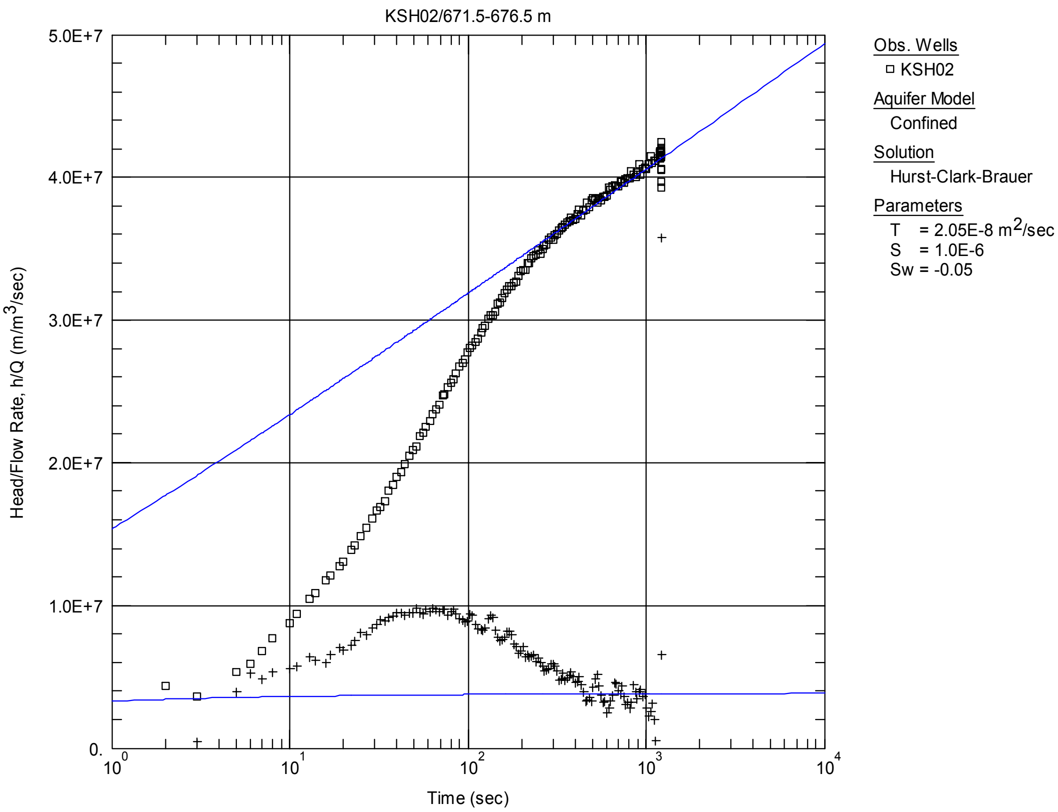
Analysis Diagram



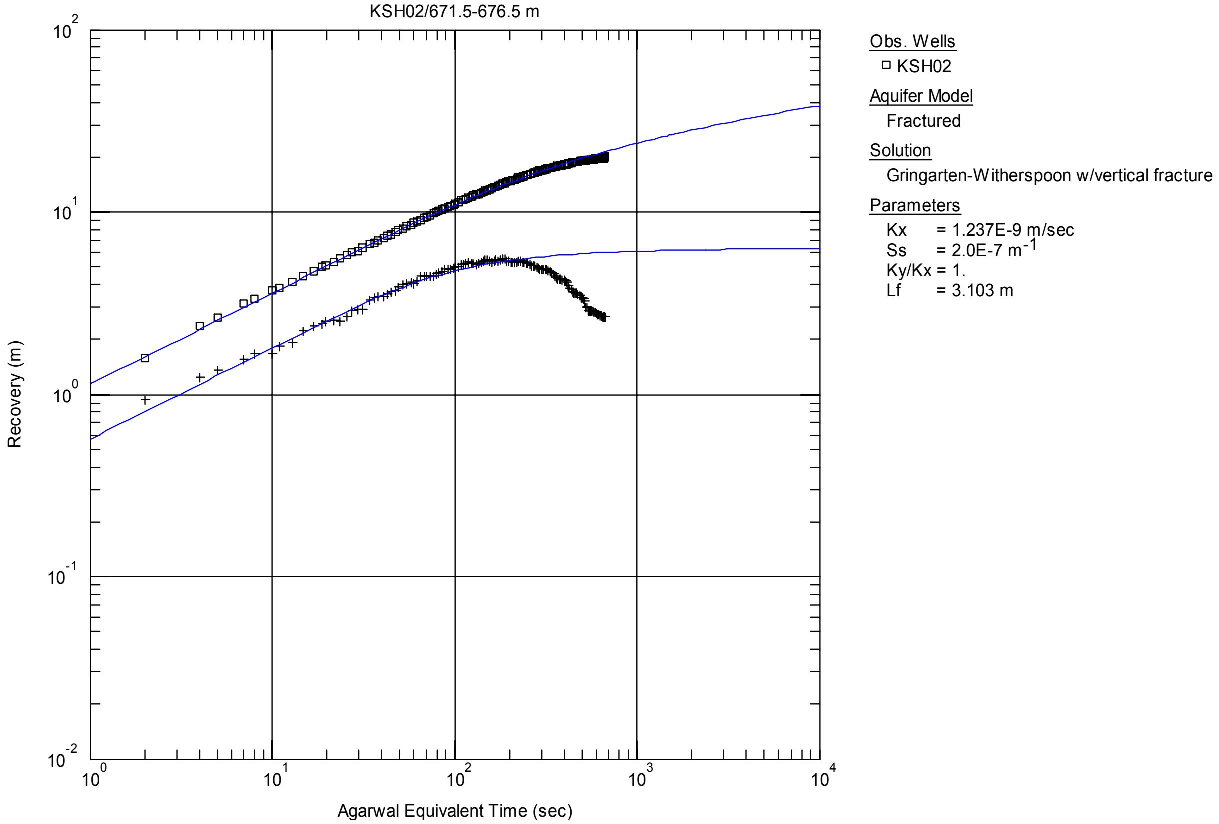
Pressure and flow rate vs. time.



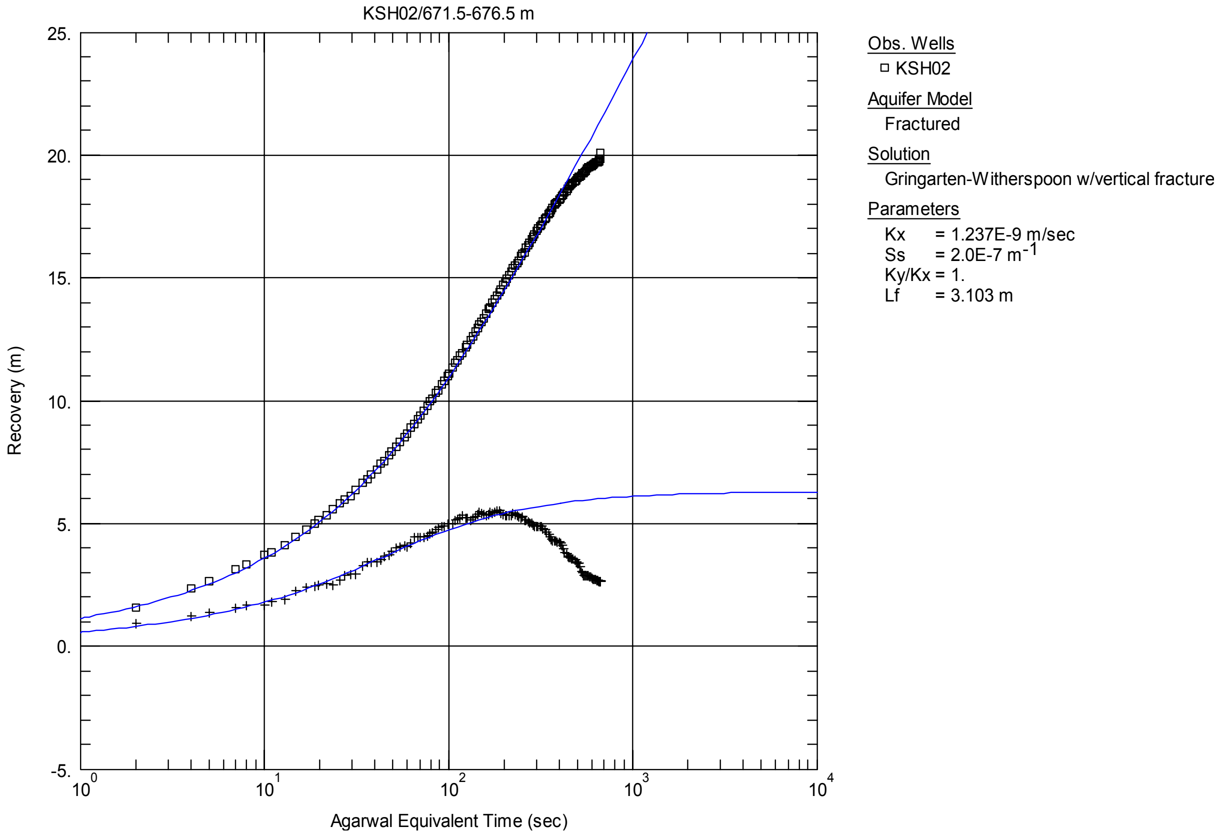
Perturbation phase, log-log match.



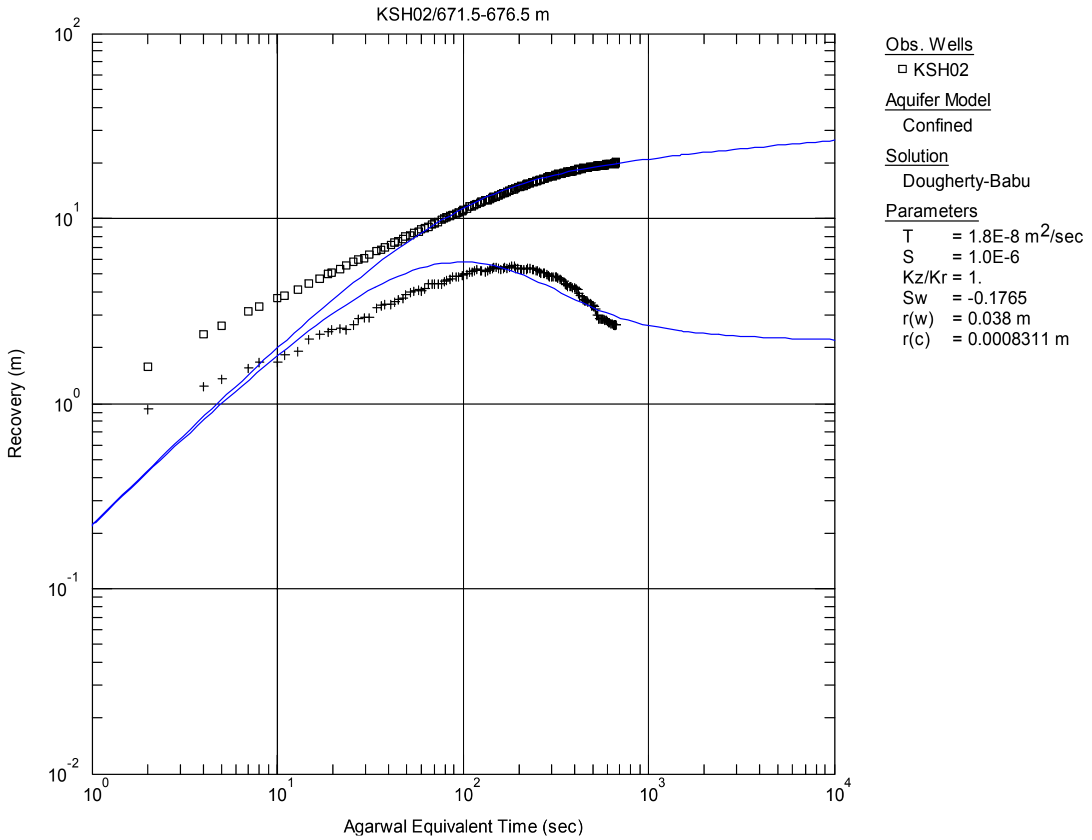
Perturbation phase, lin-log match.



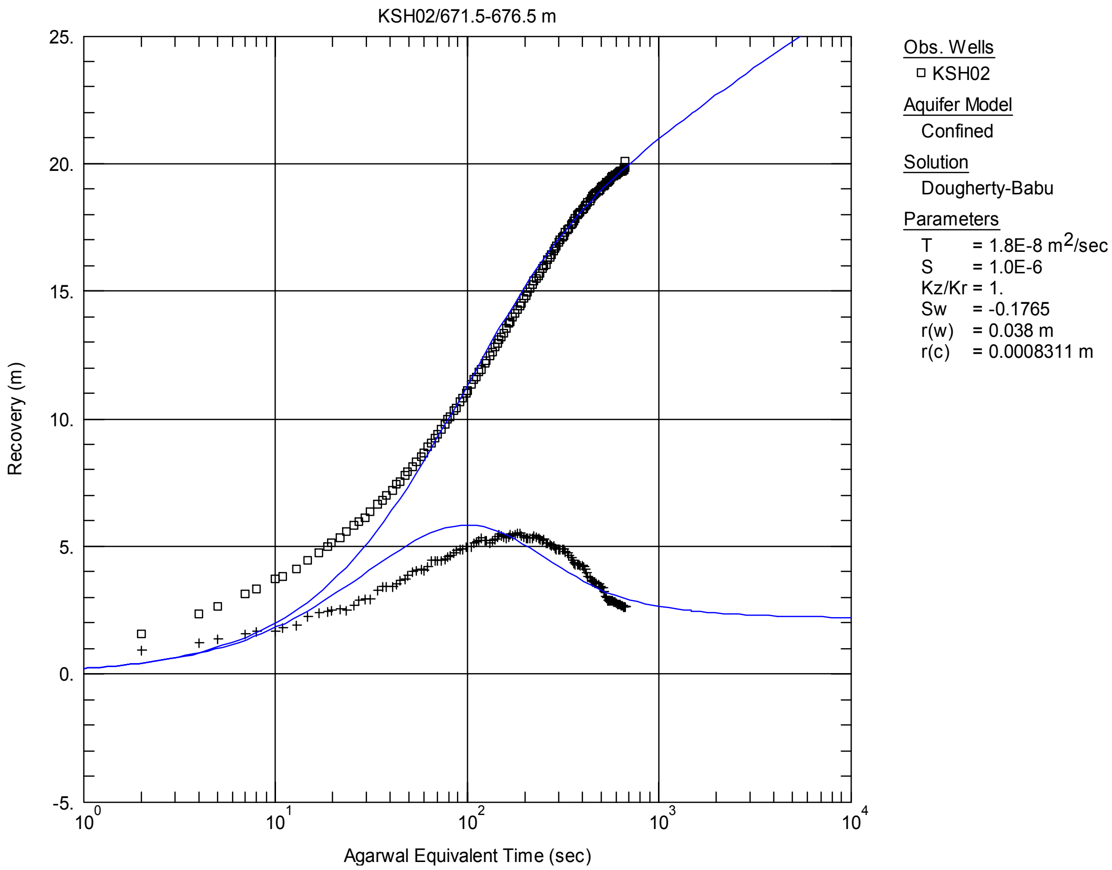
Recovery phase, log-log match. First match.



Recovery phase, lin-log match. First match.



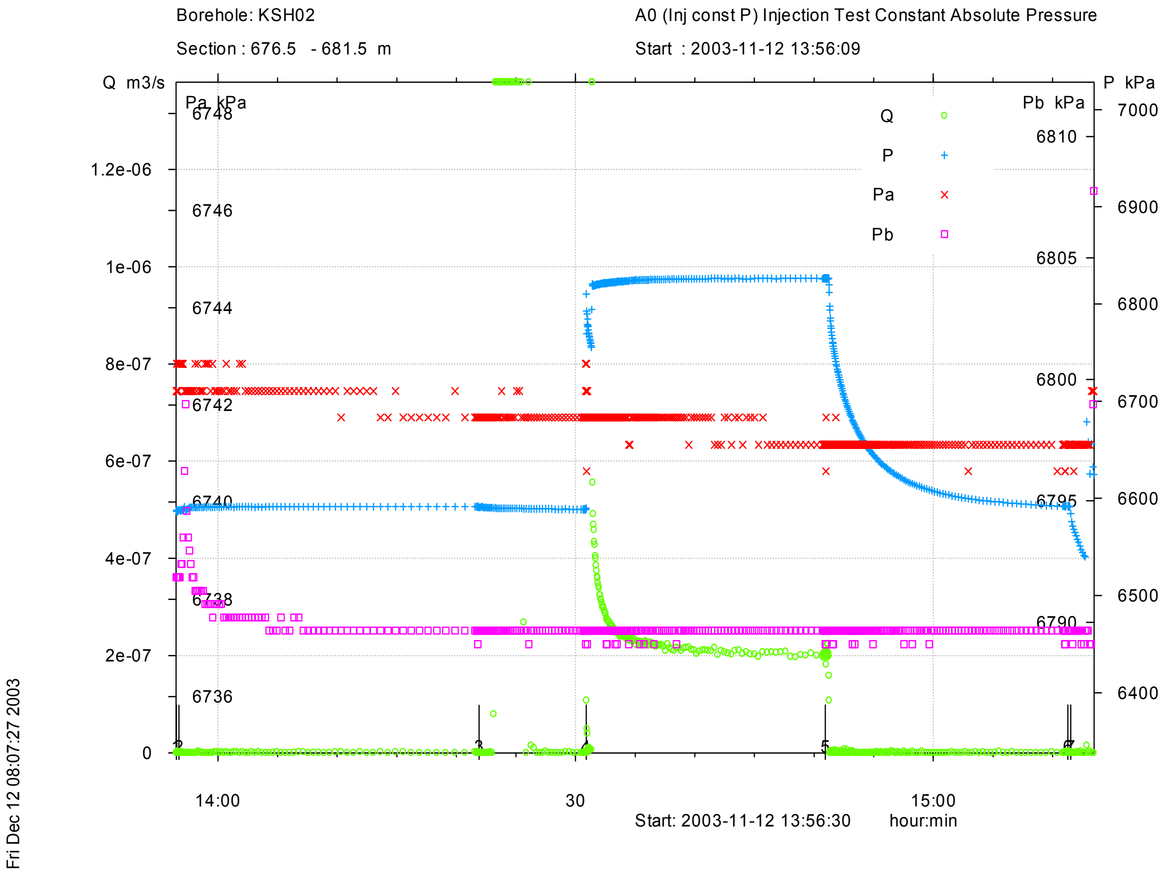
Recovery phase, log-log match. Second match.



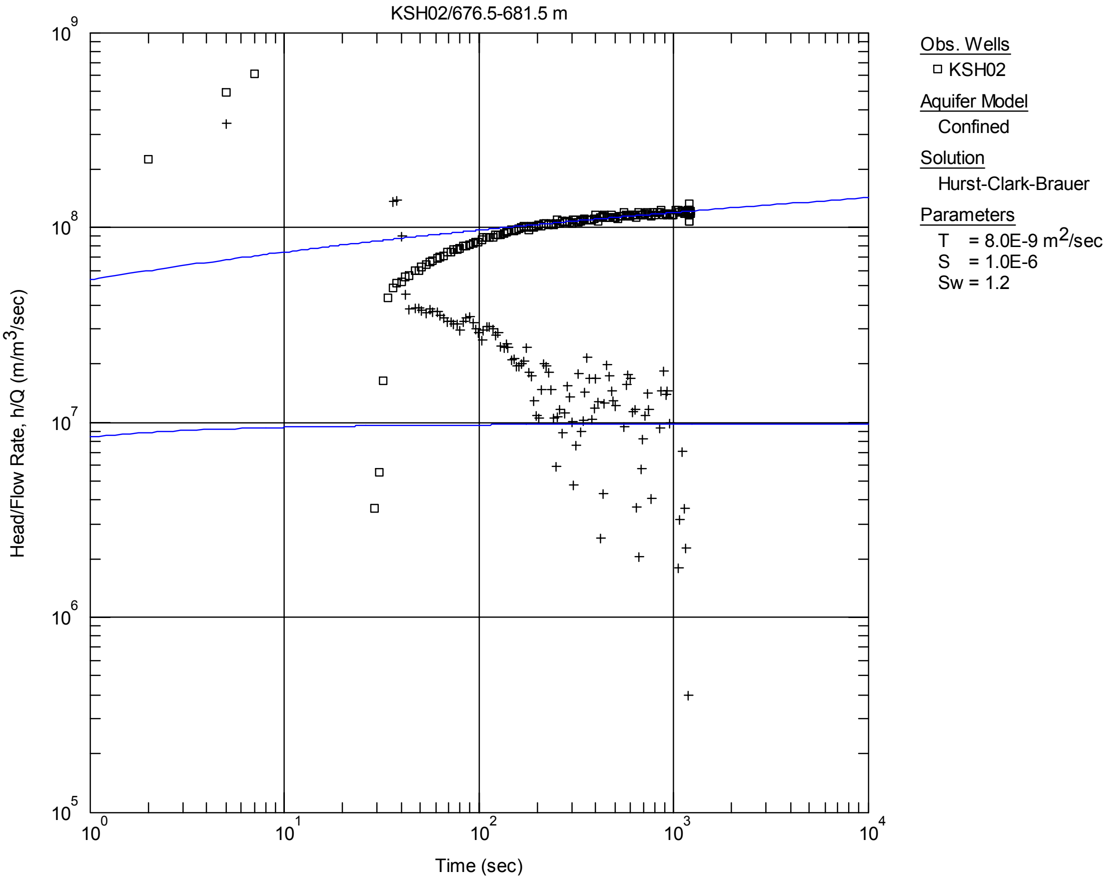
Recovery phase, lin-log match. Second match

Test 676.5–681.5 m

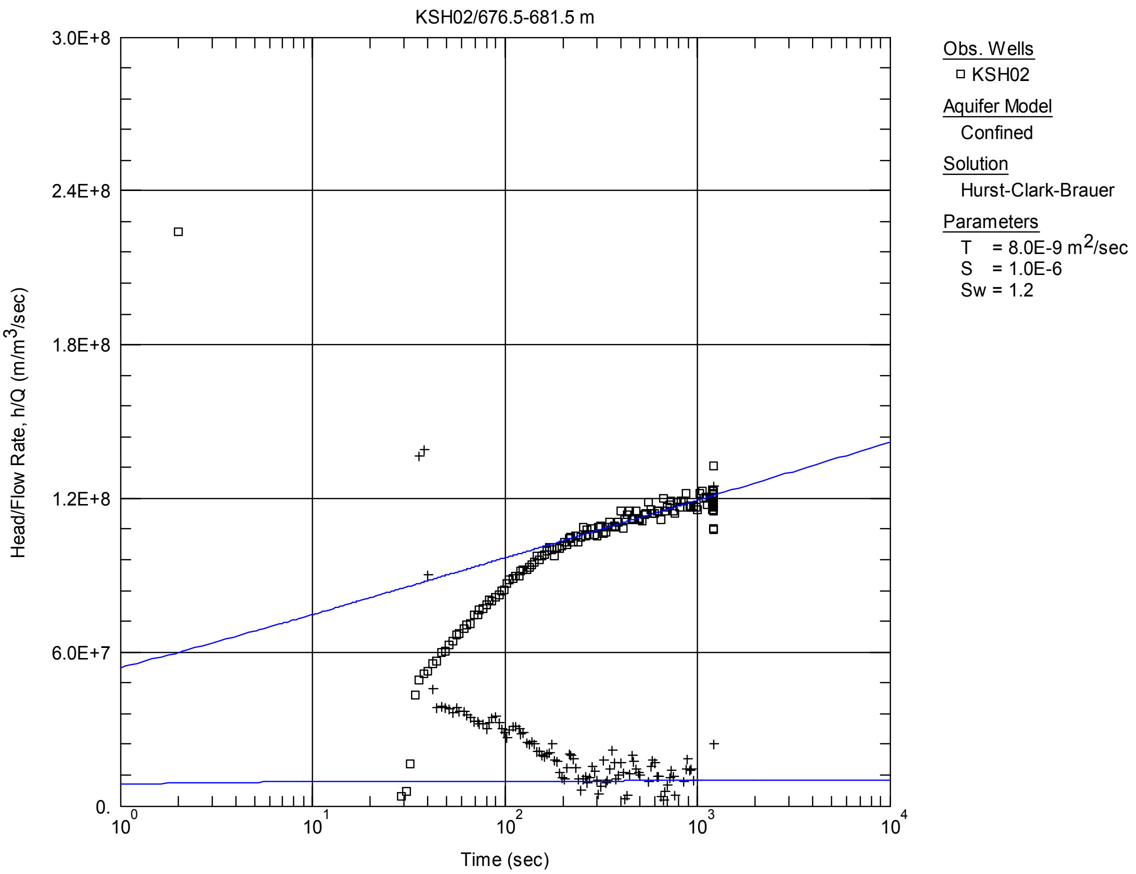
Analysis Diagram



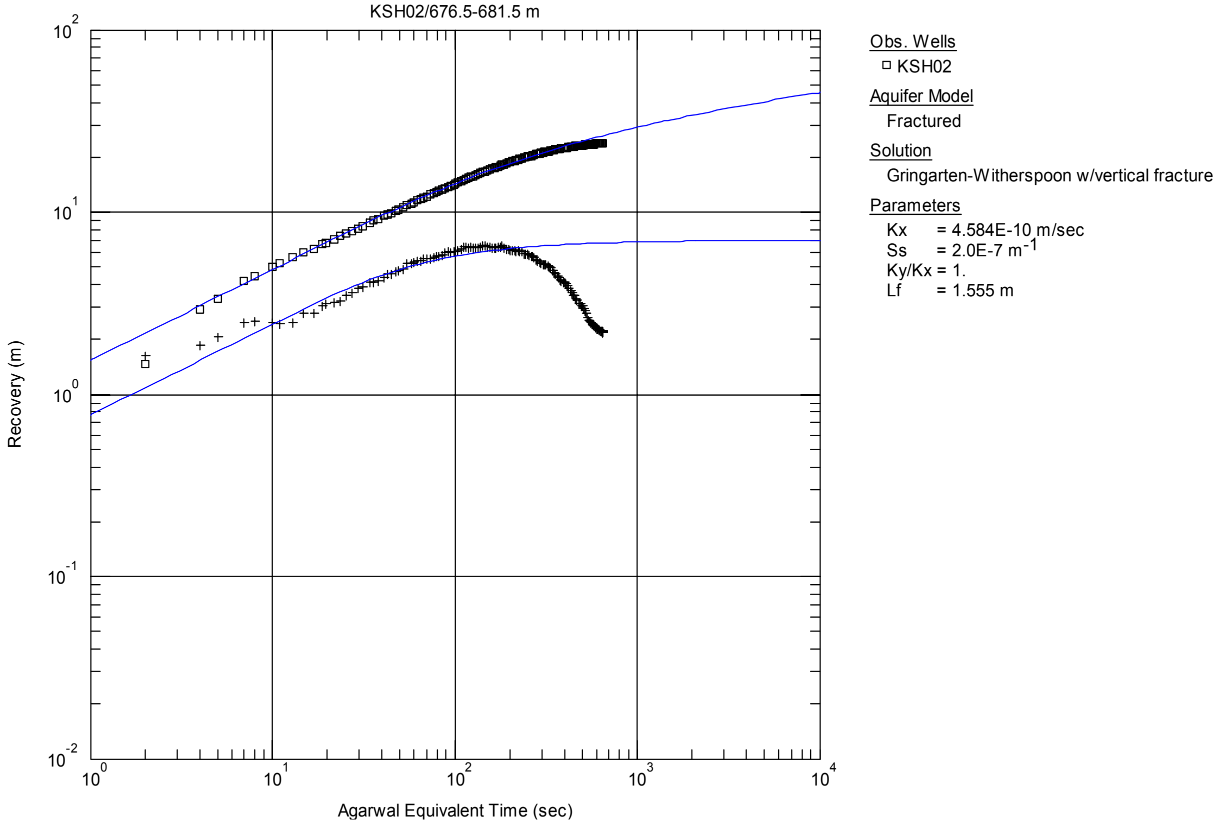
Pressure and flow rate vs. time.



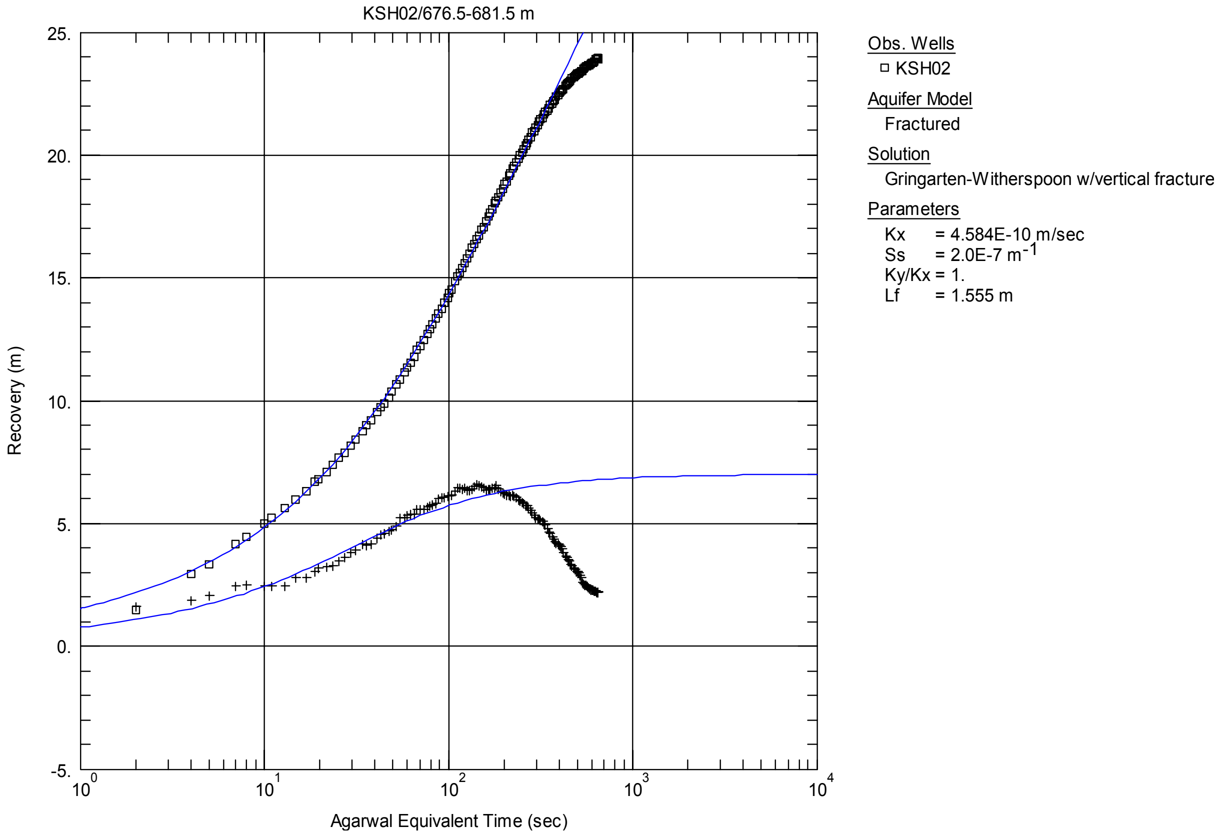
Perturbation phase, log-log match.



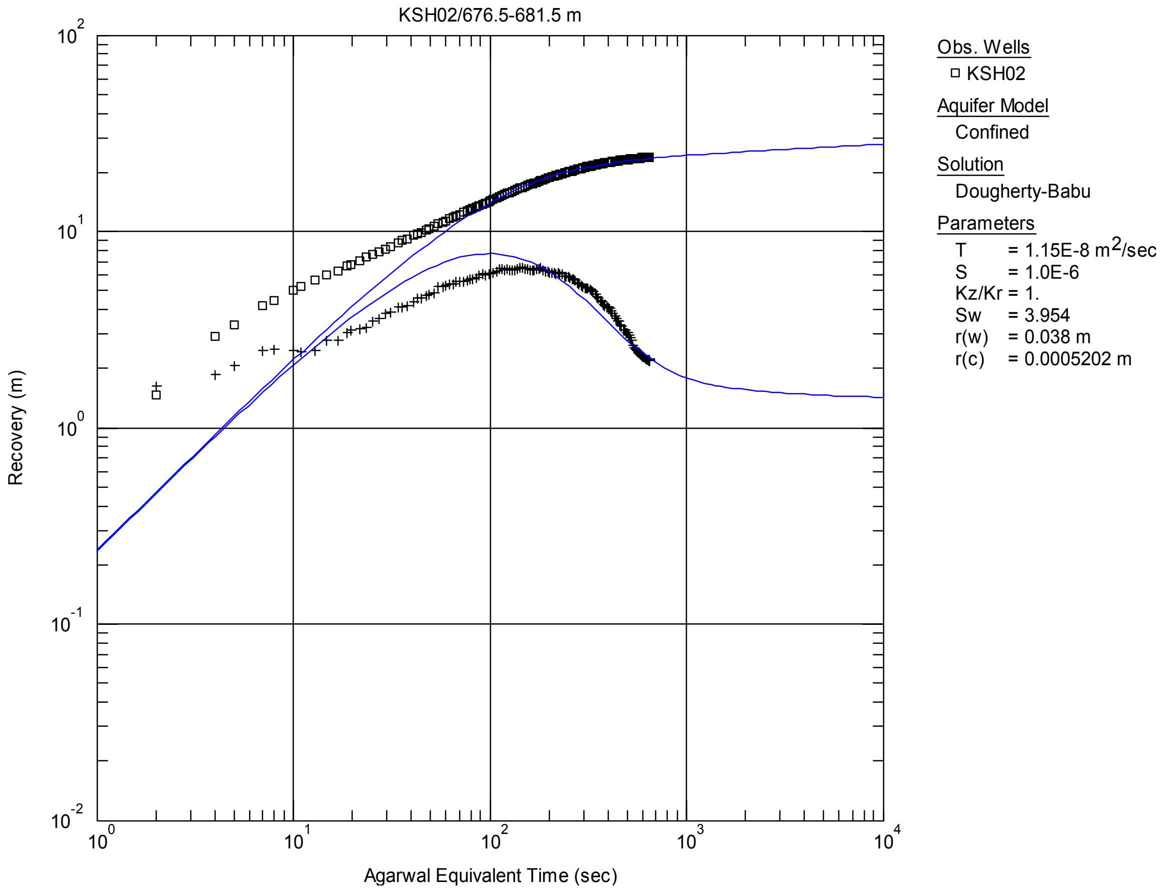
Perturbation phase, lin-log match.



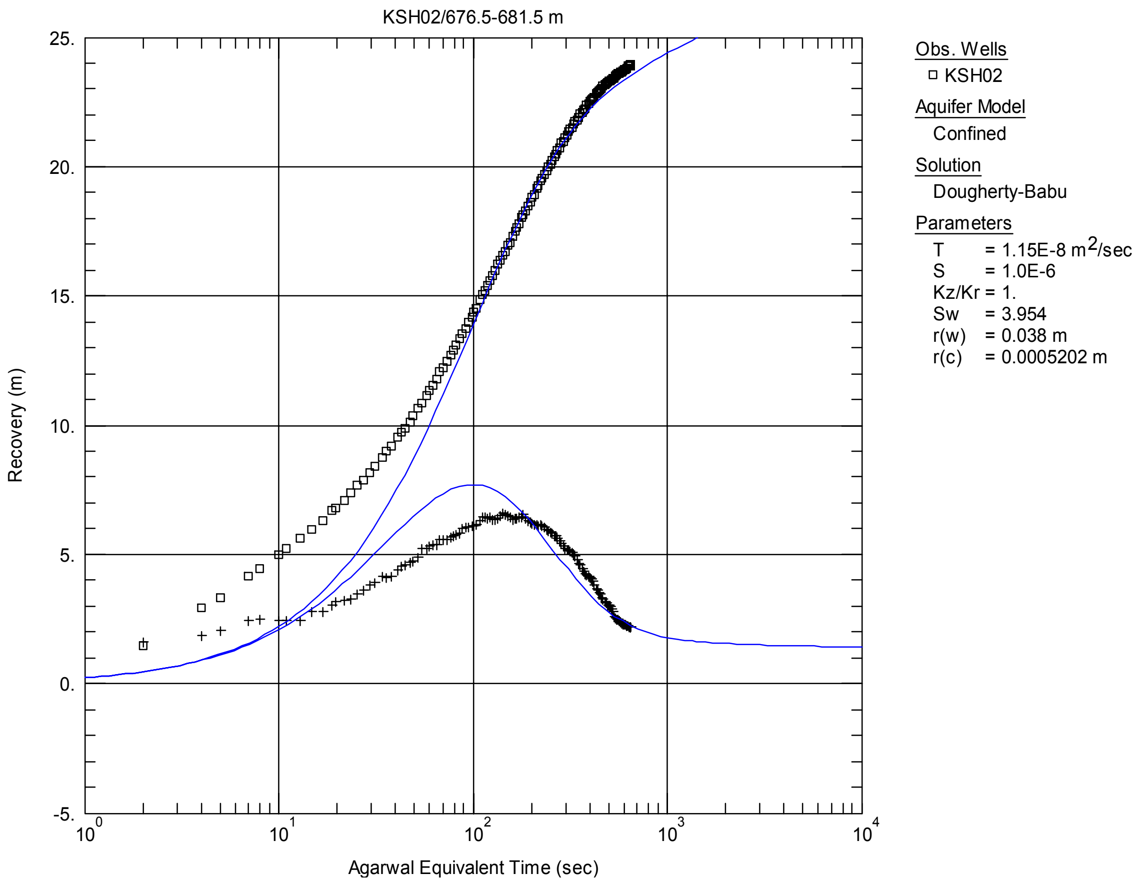
Recovery phase, log-log match. First match.



Recovery phase, lin-log match. First match.



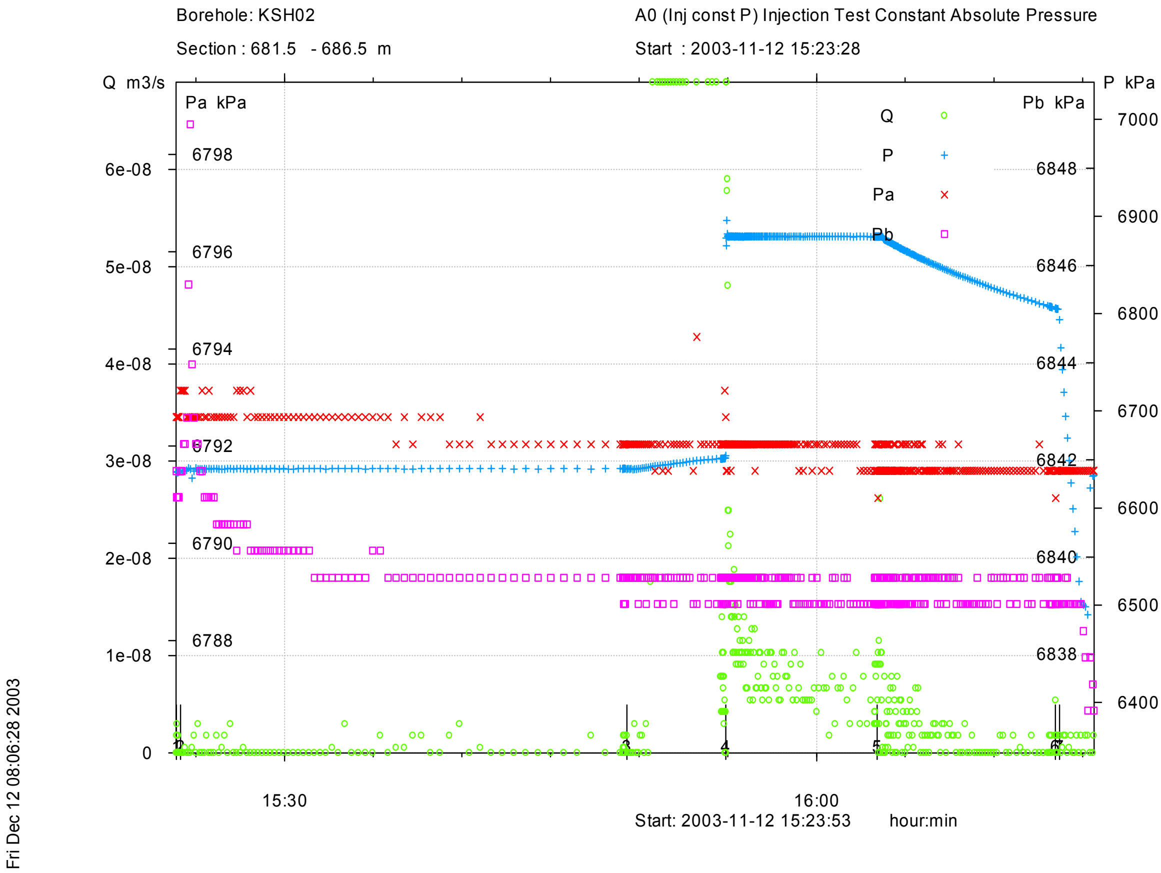
Recovery phase, log-log match. Second match.



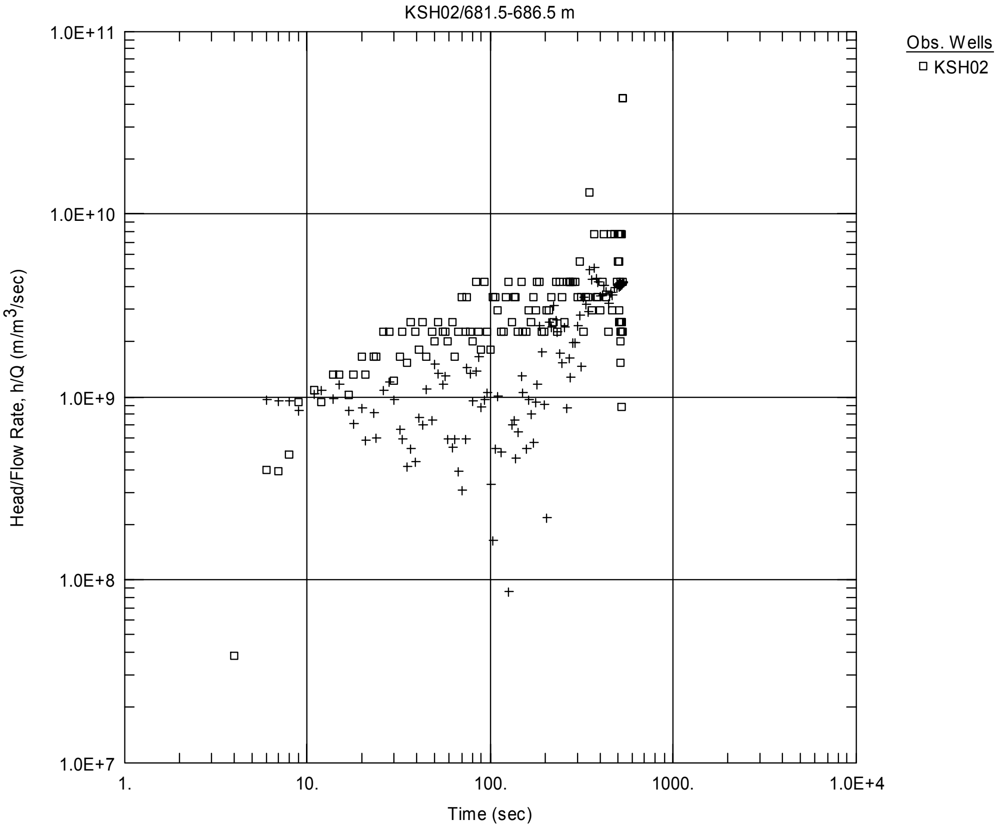
Recovery phase, lin-log match. Second match.

Test 681.5–686.5 m

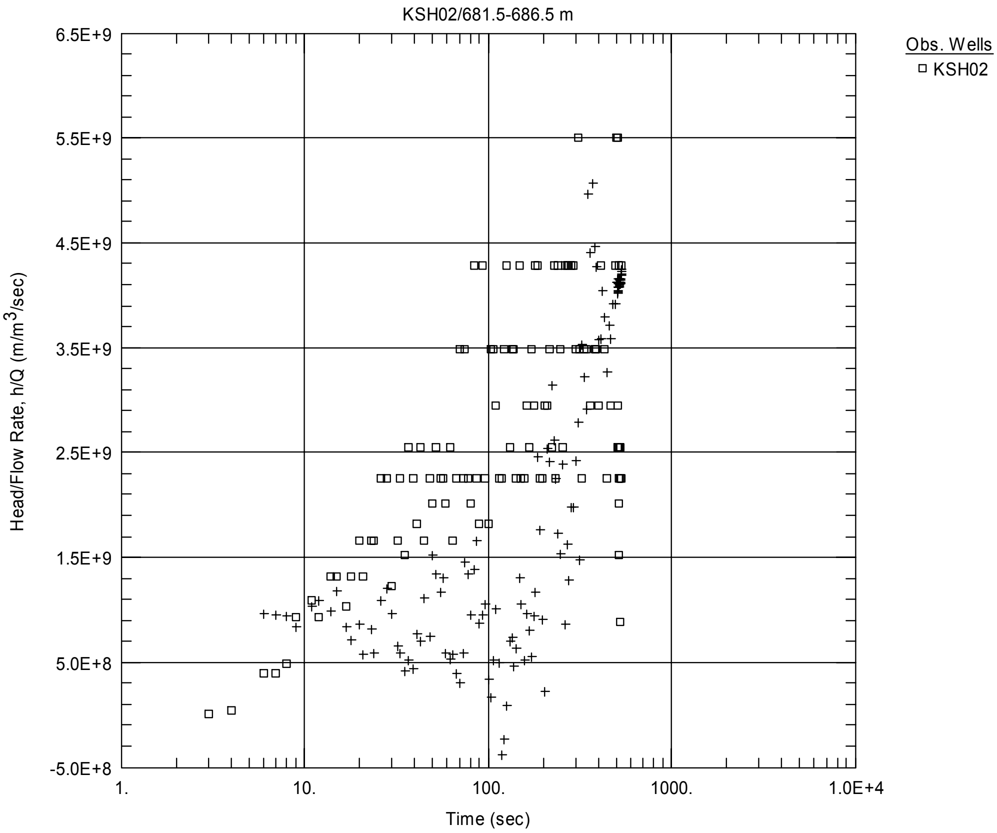
Analysis Diagram



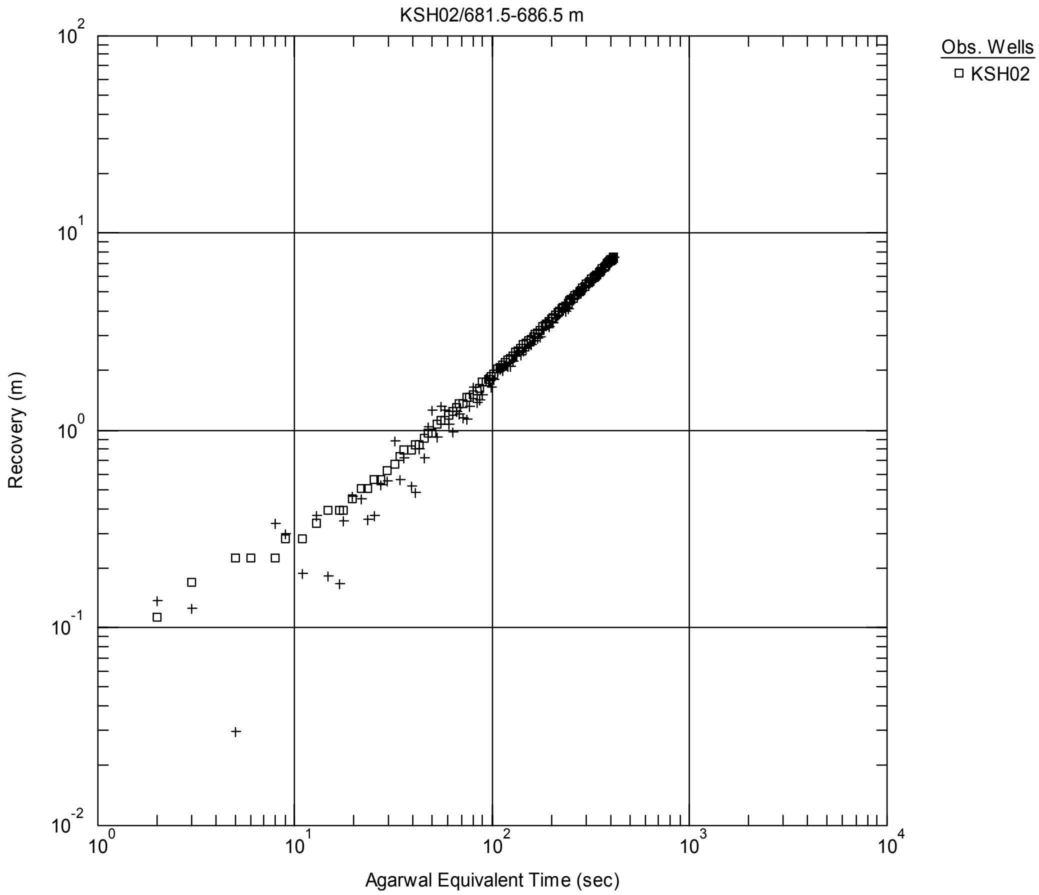
Pressure and flow rate vs. time.



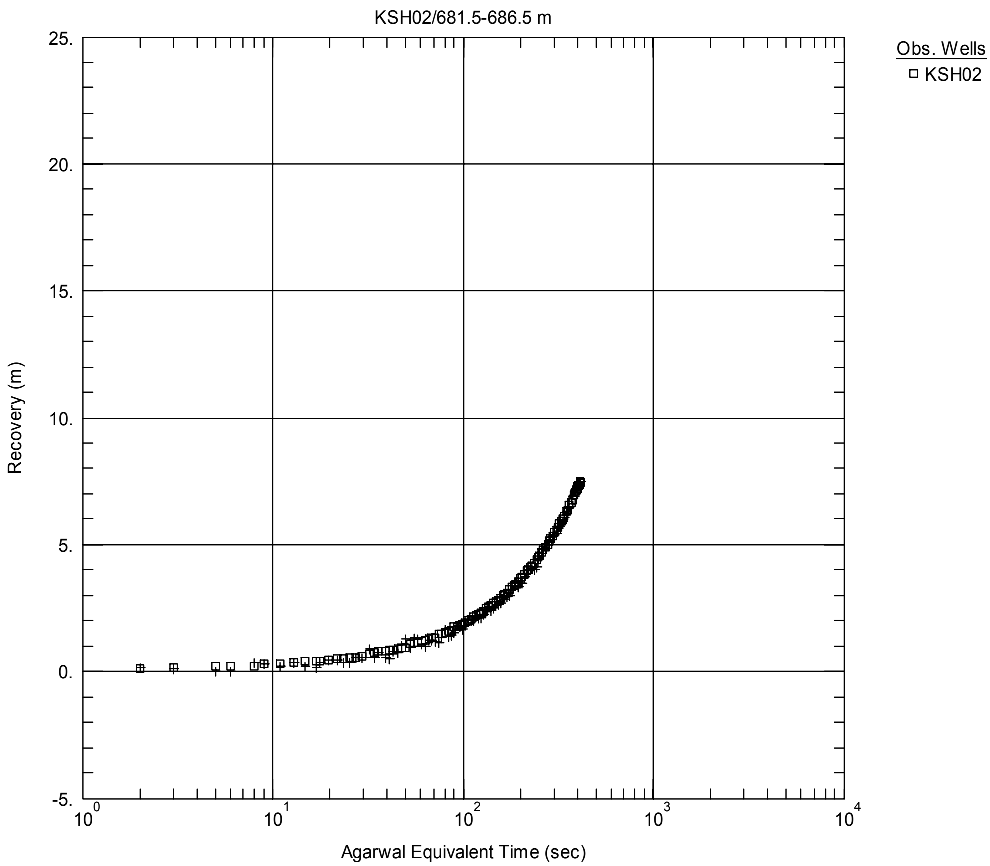
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



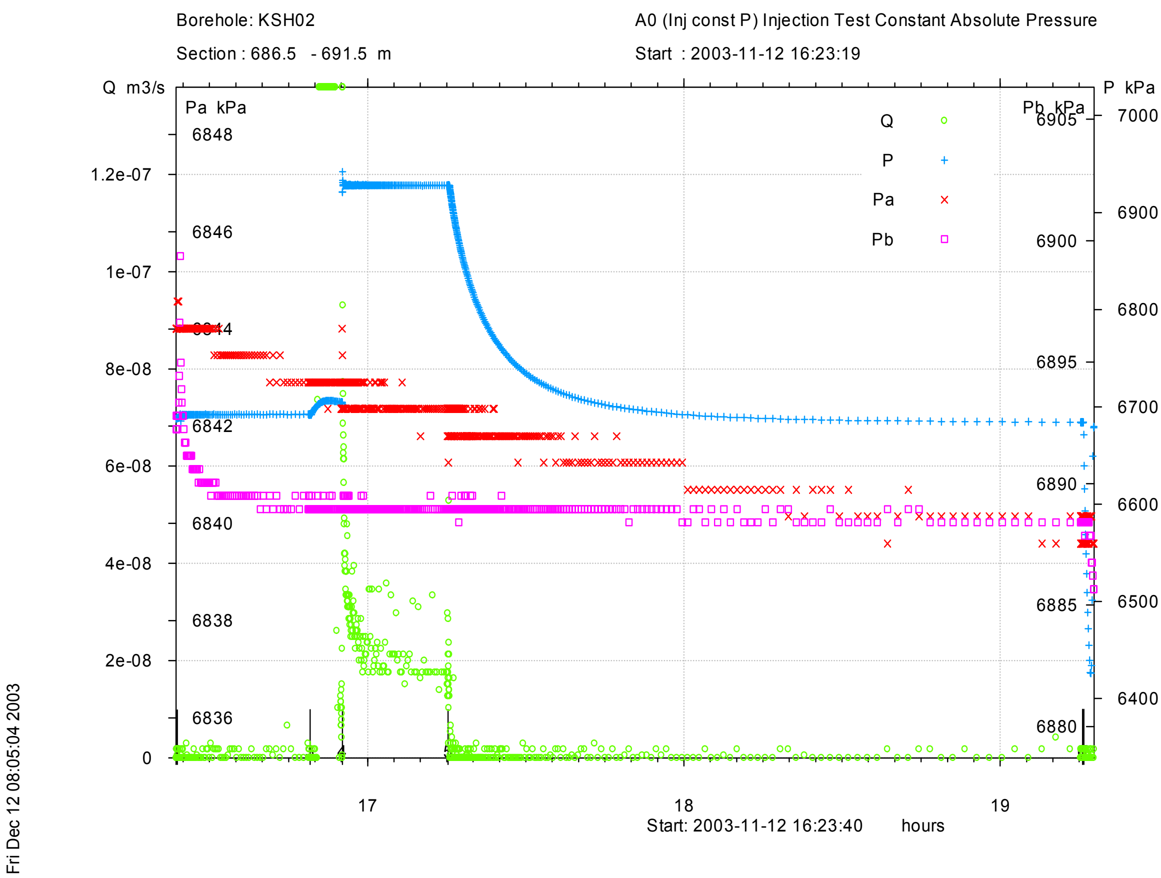
Recovery phase, log-log match.



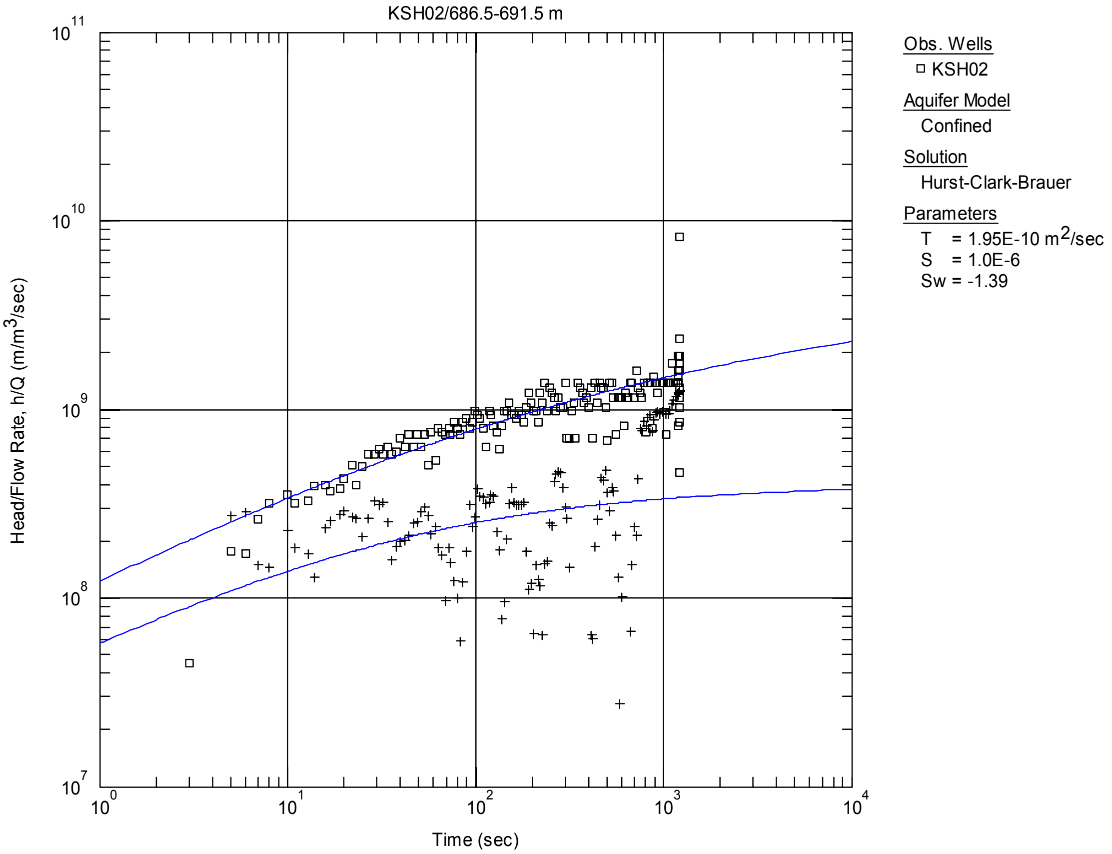
Recovery phase, lin-log match.

Test 686.5–691.5 m

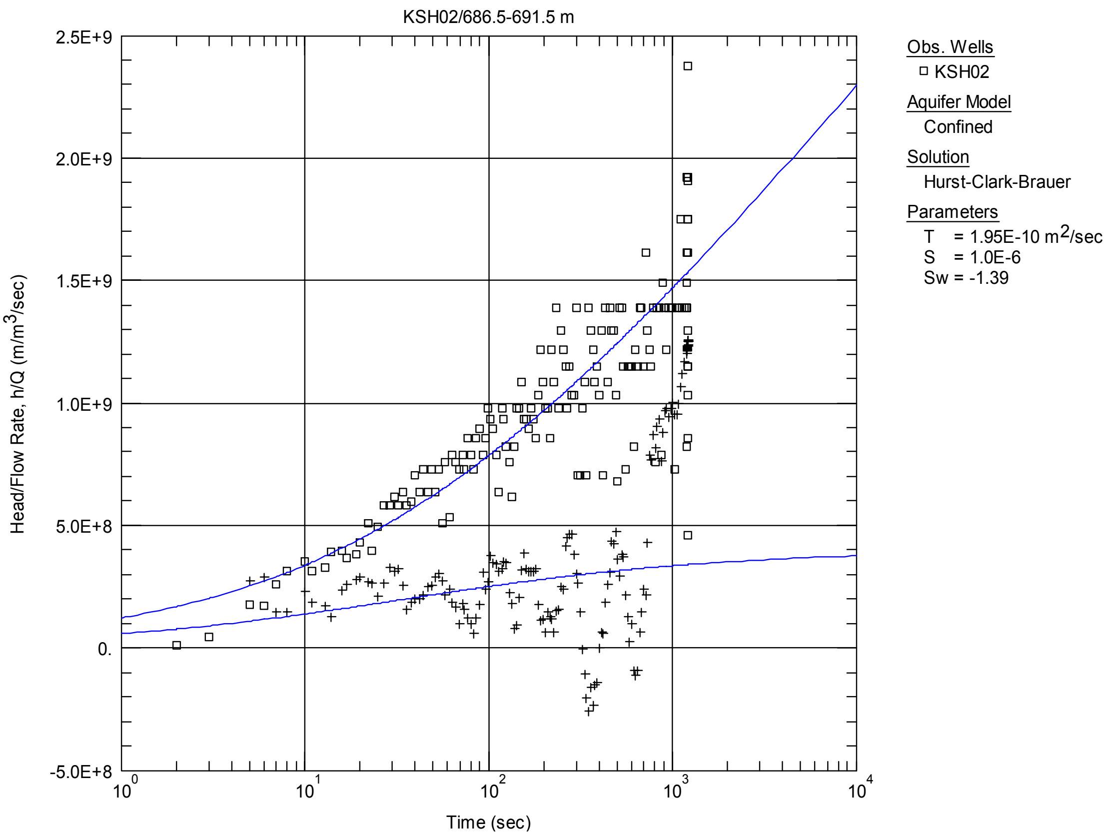
Analysis Diagram



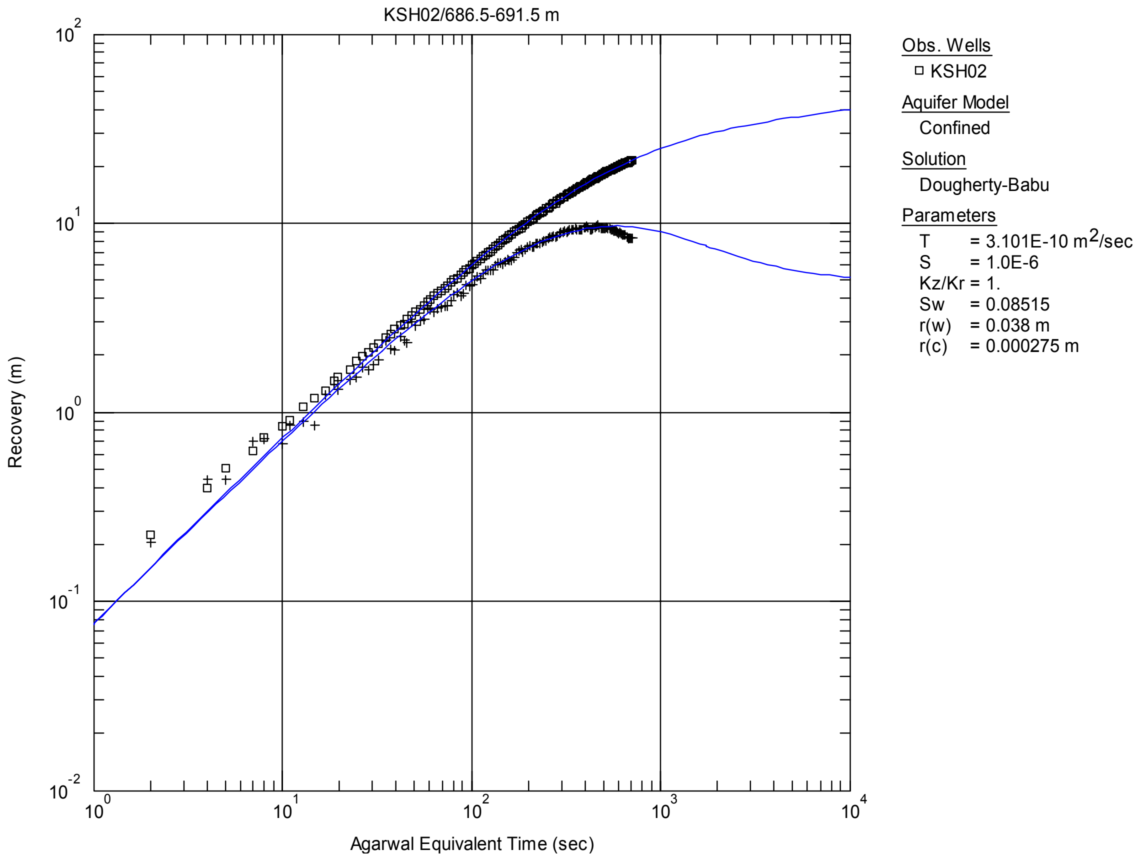
Pressure and flow rate vs. time.



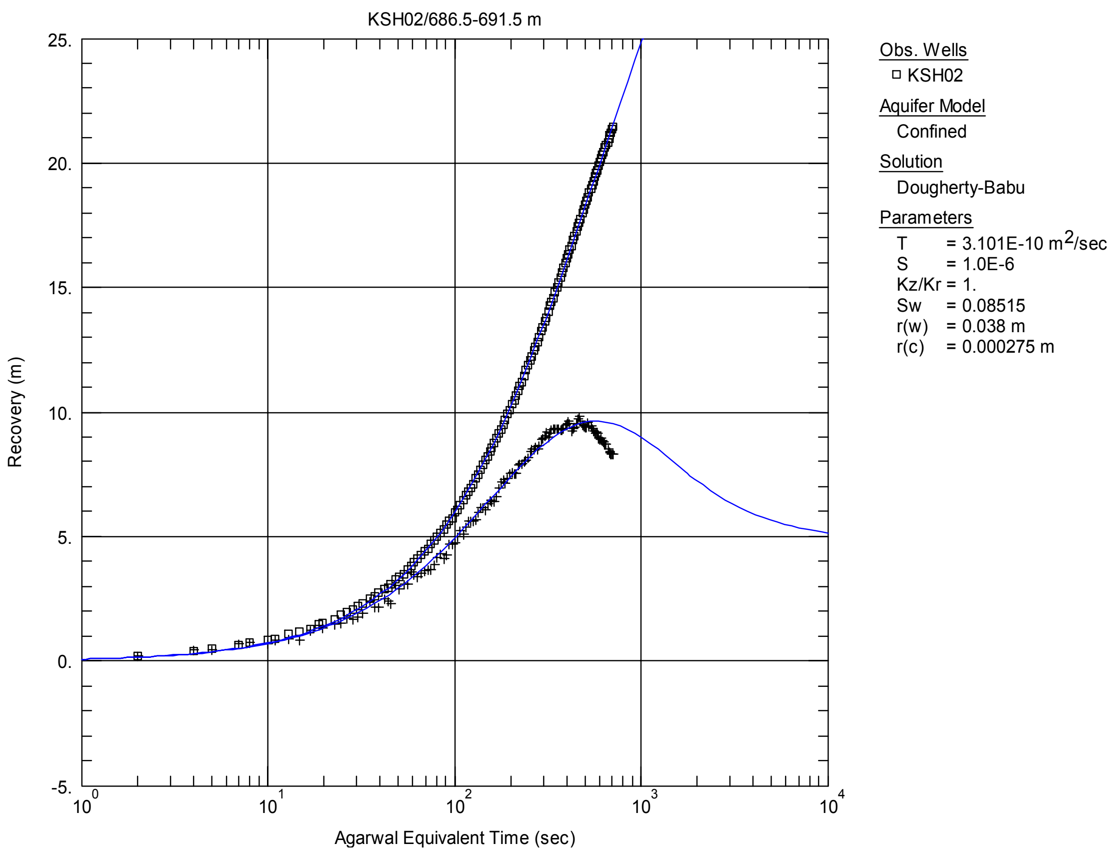
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



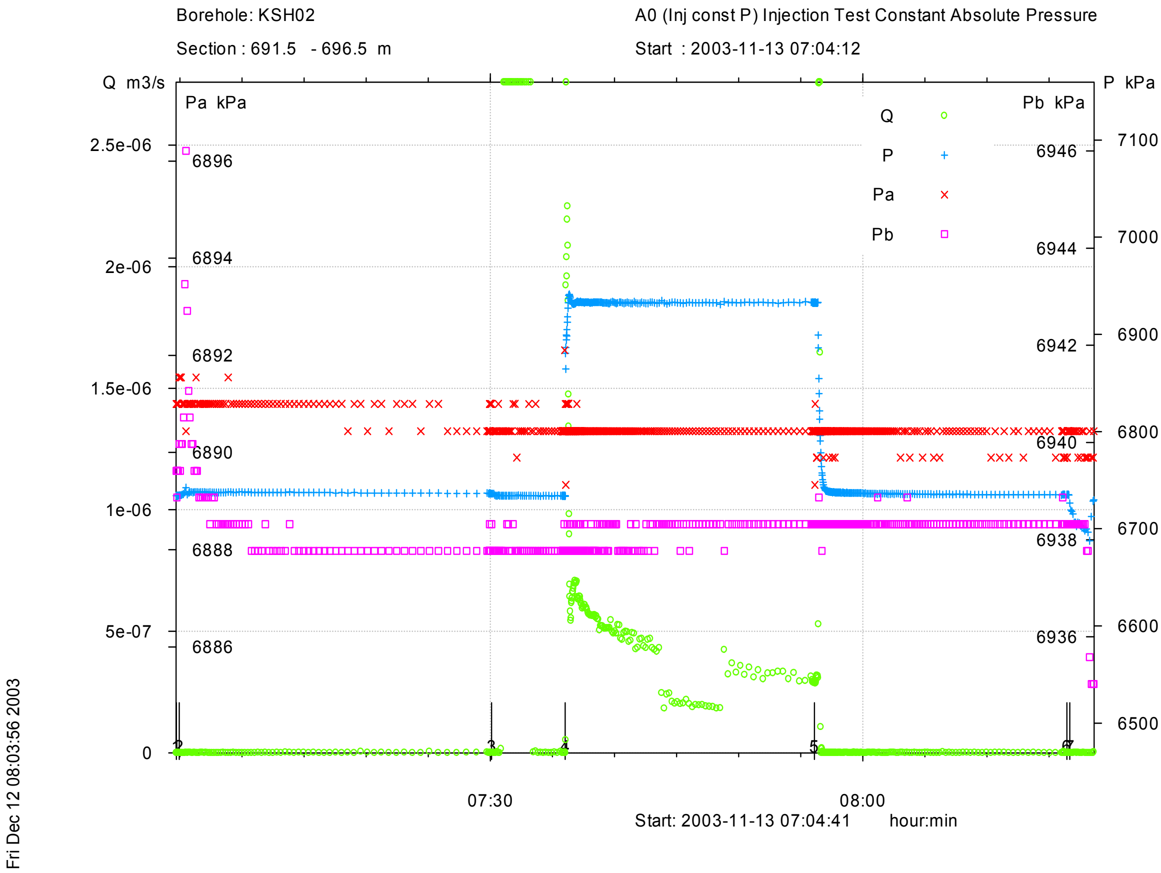
Recovery phase, log-log match.



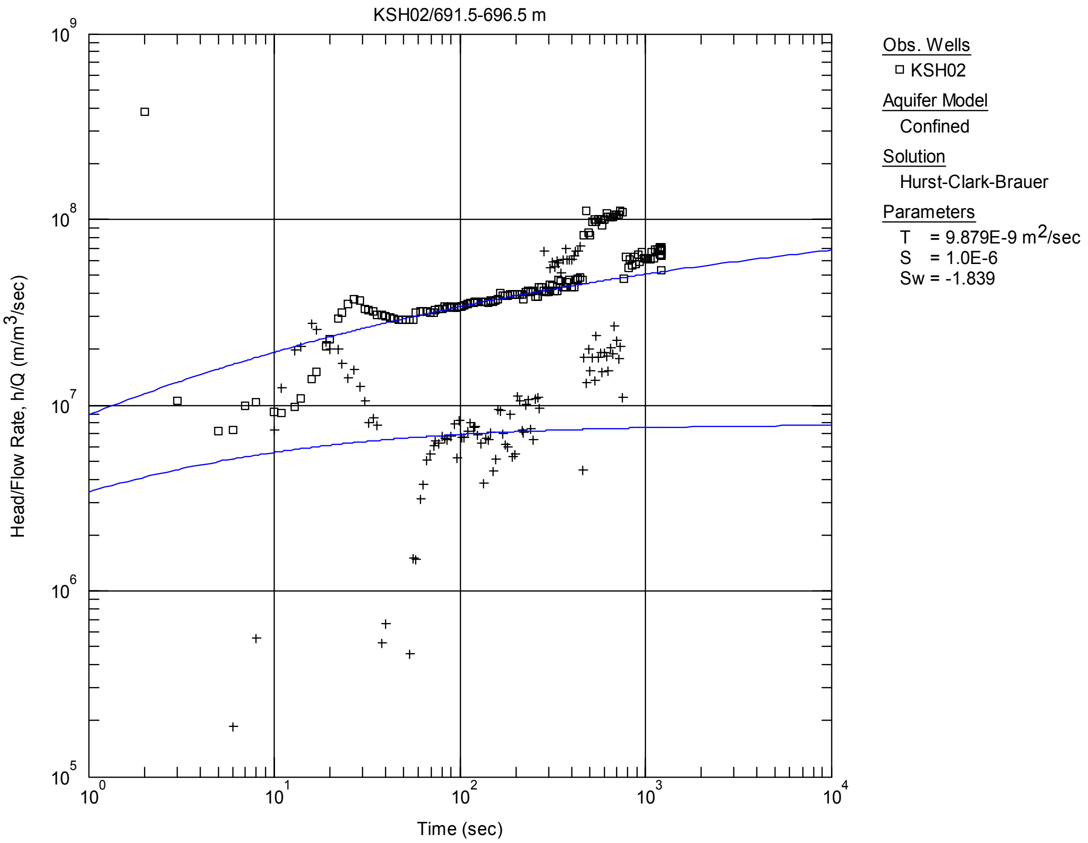
Recovery phase, lin-log match.

Test 691.5–696.5 m

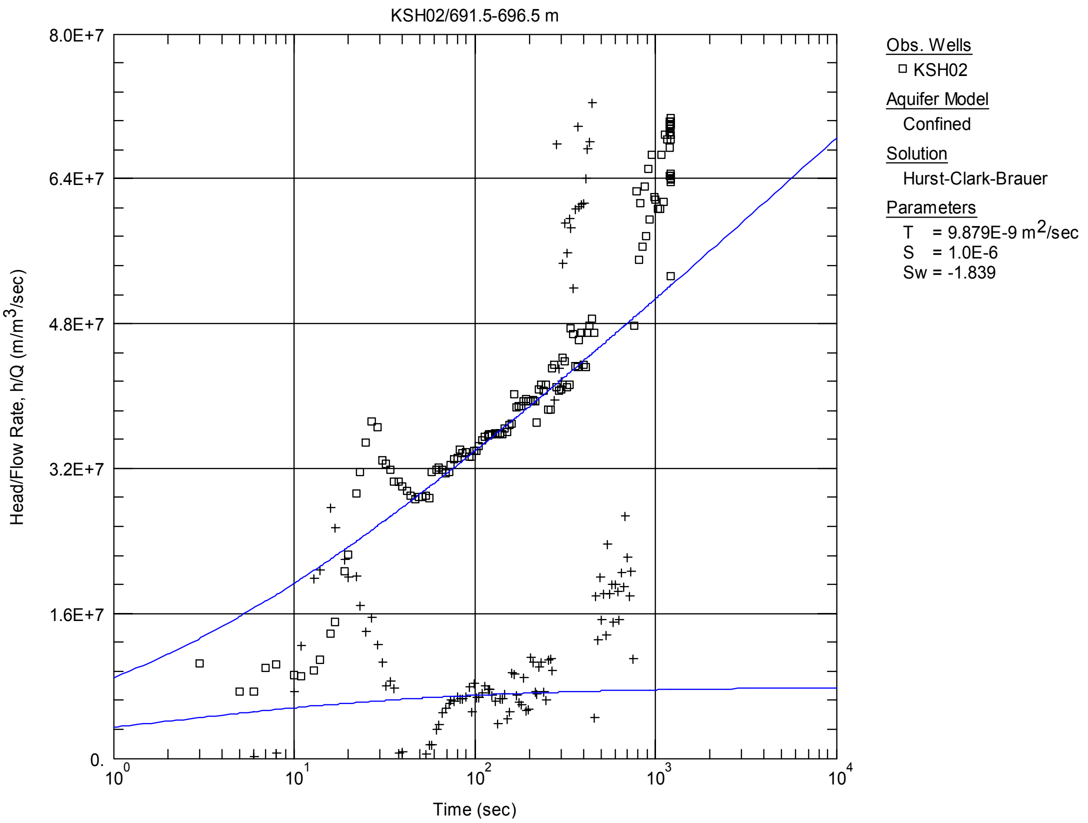
Analysis Diagram



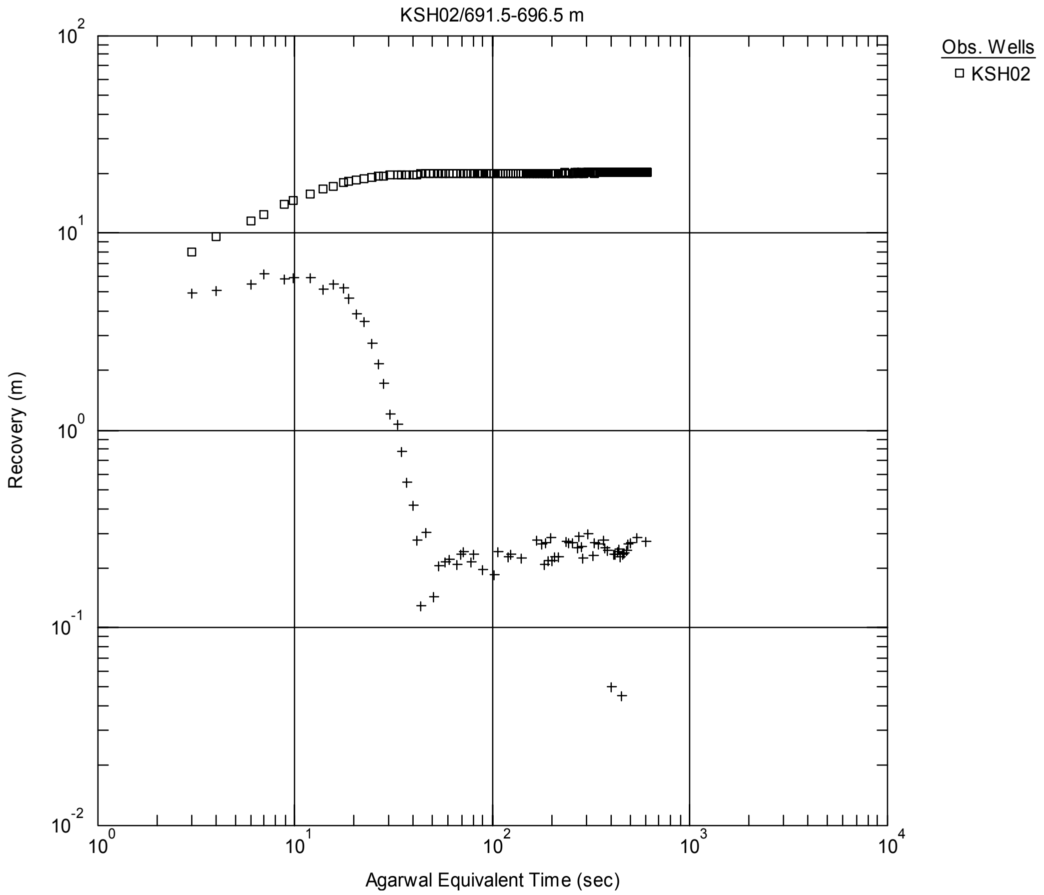
Pressure and flow rate vs. time.



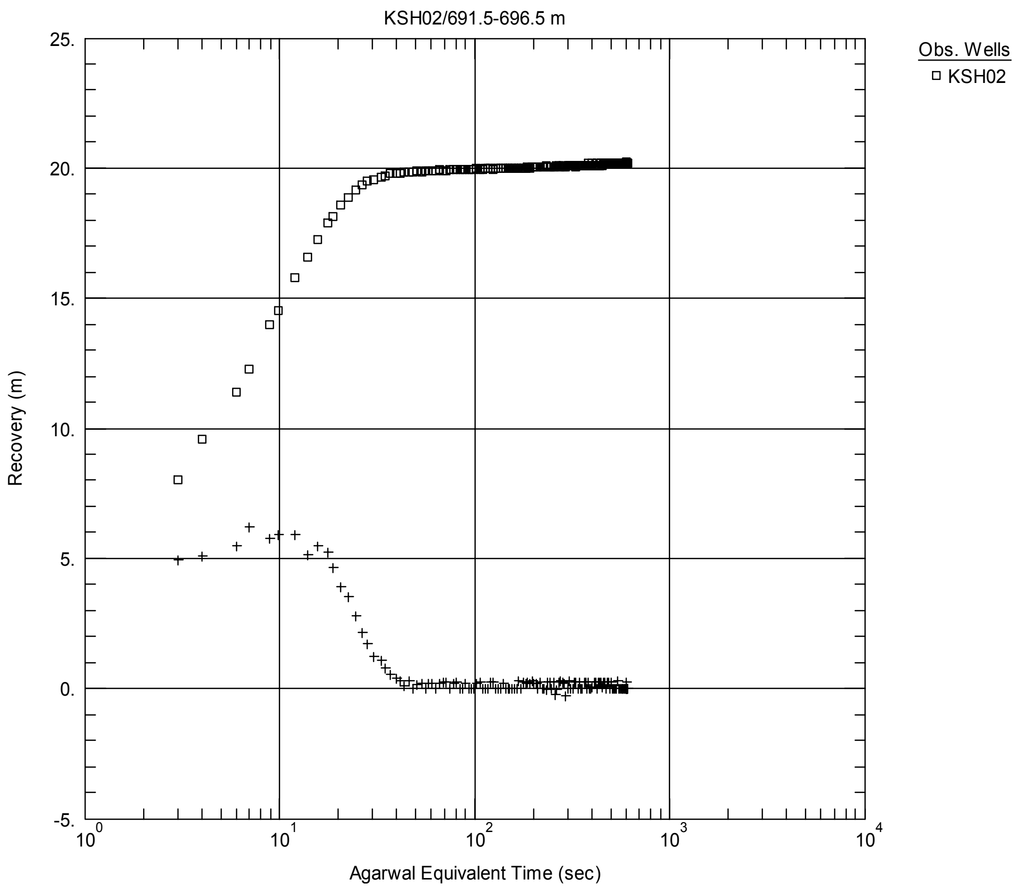
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



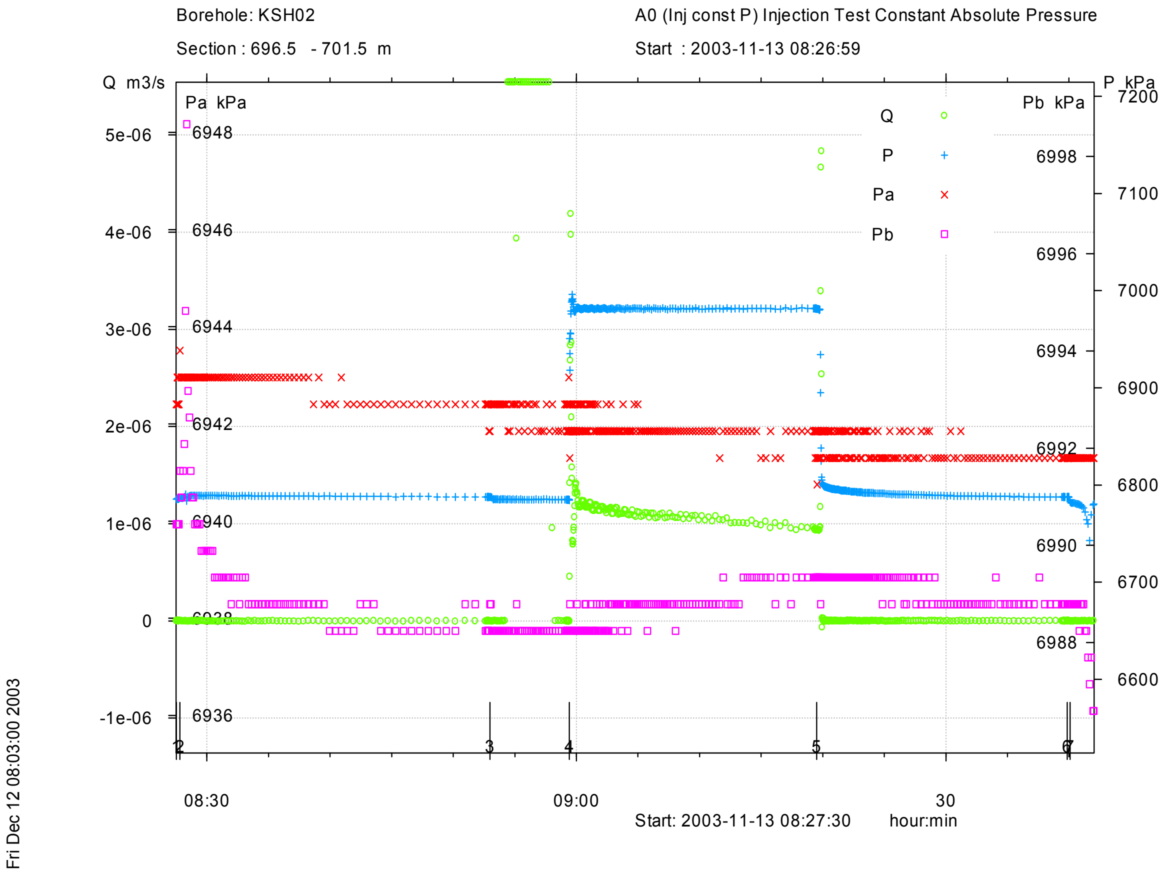
Recovery phase, log-log match.



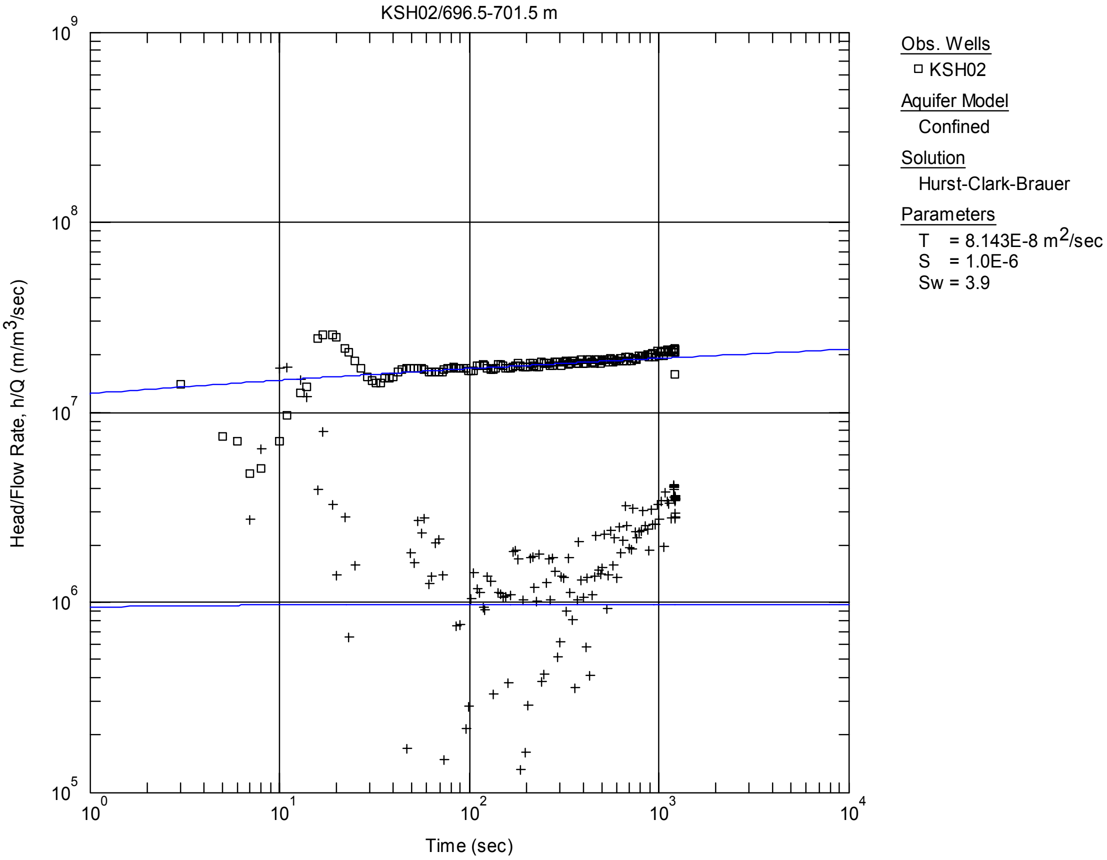
Recovery phase, lin-log match.

Test 696.5–701.5 m

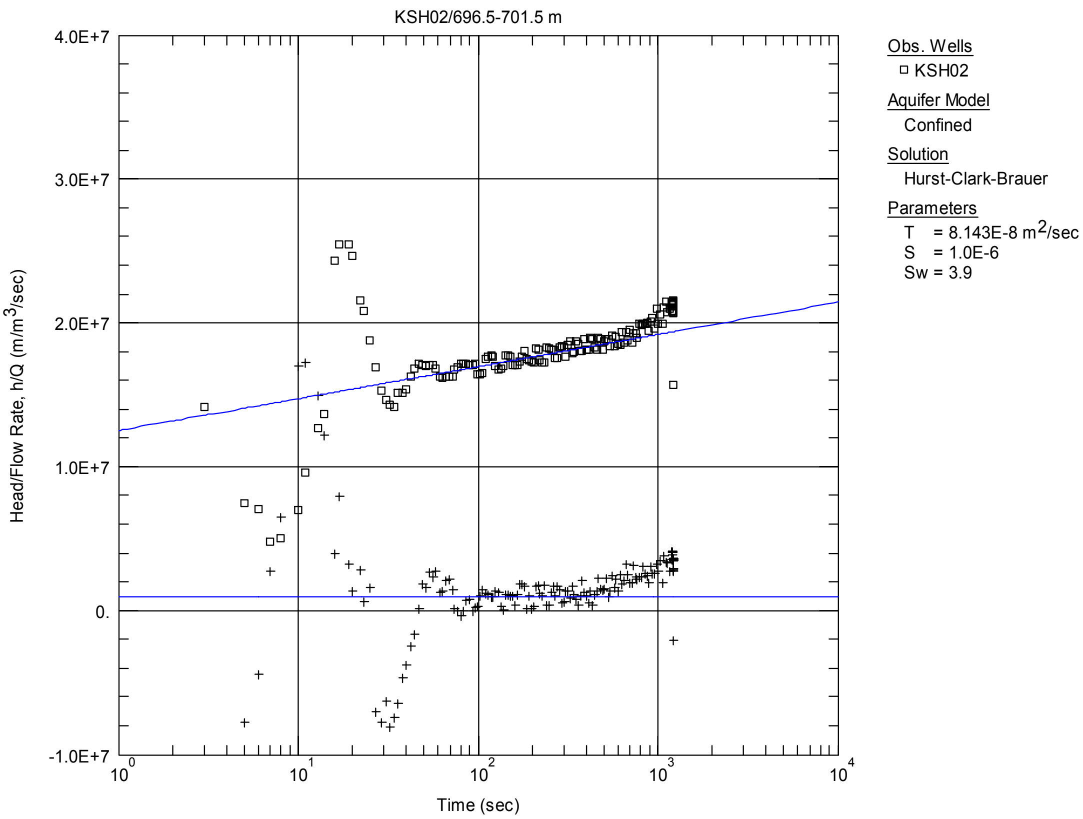
Analysis Diagram



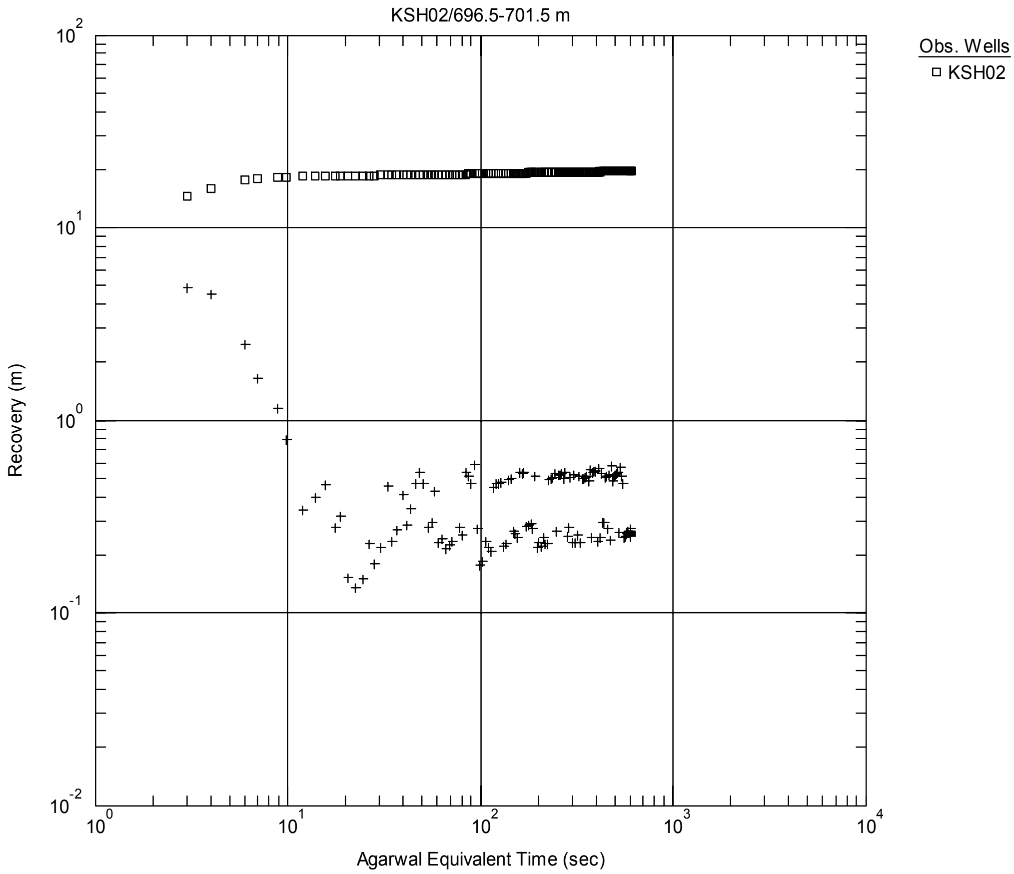
Pressure and flow rate vs. time.



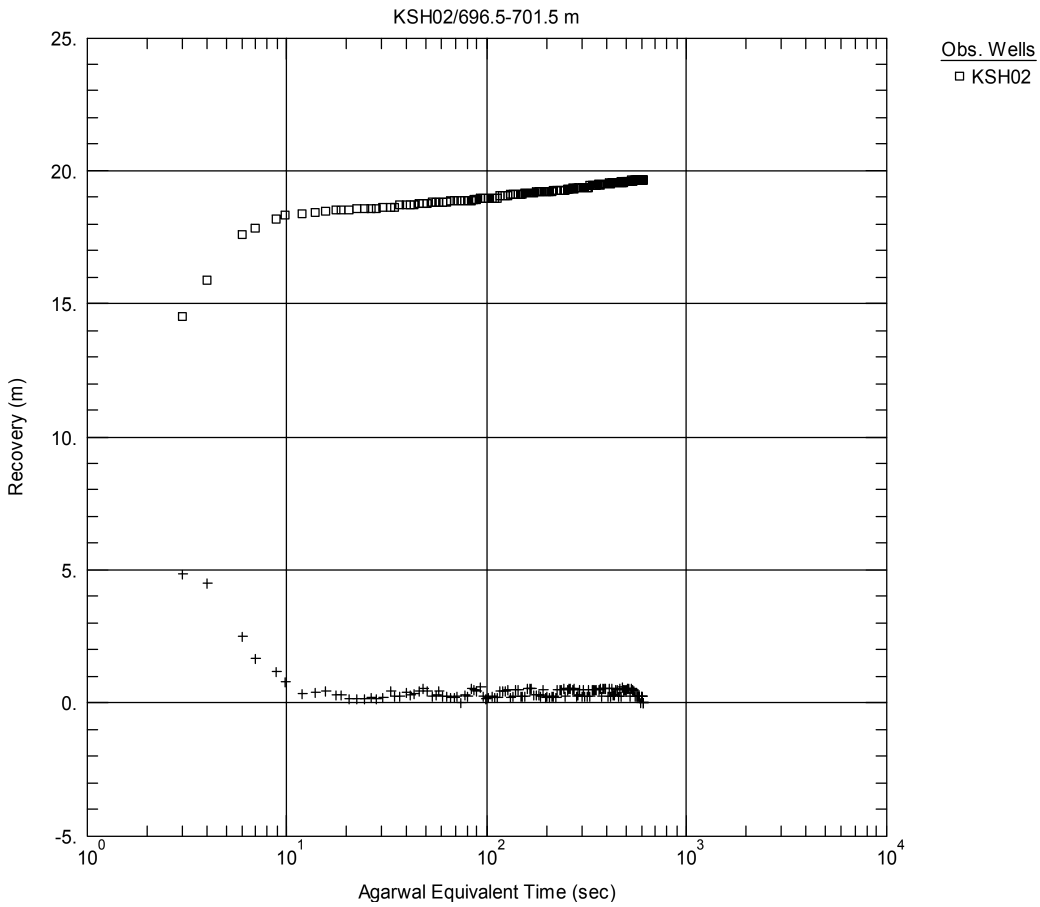
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



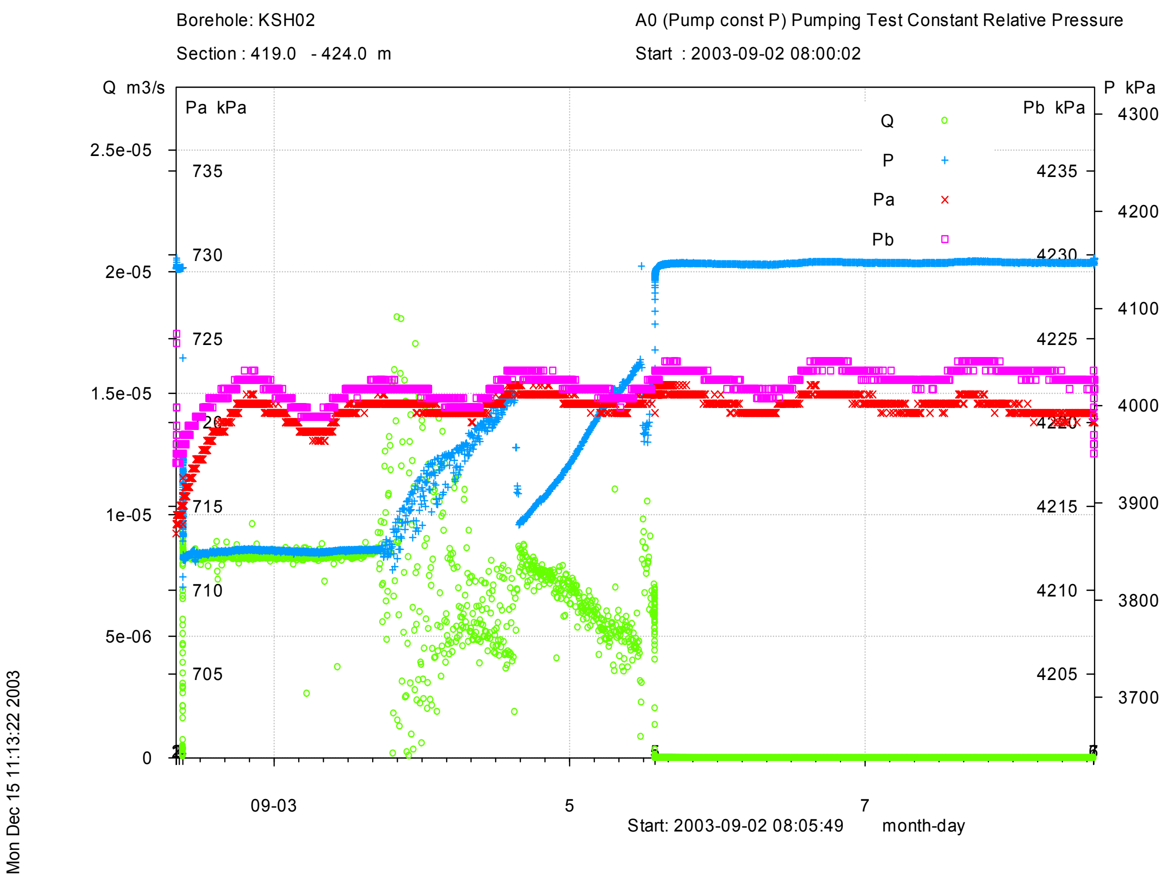
Recovery phase, log-log match.



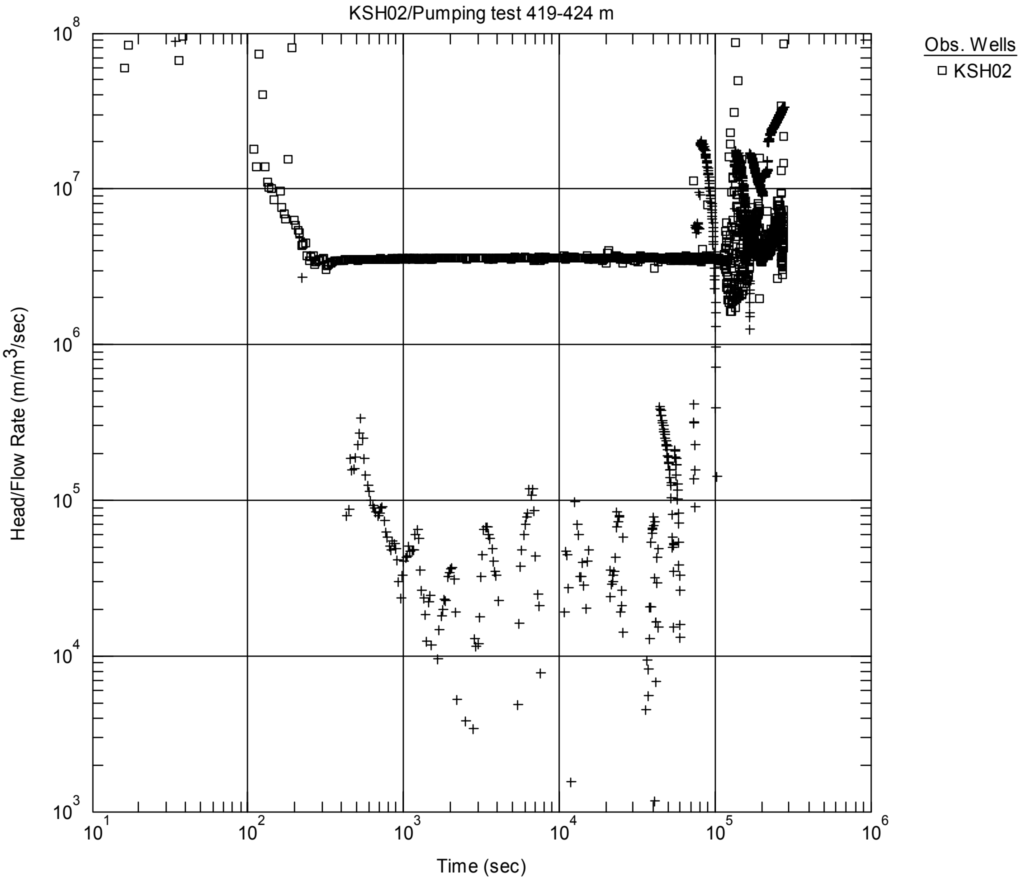
Recovery phase, lin-log match.

Pumping Test 419–424 m

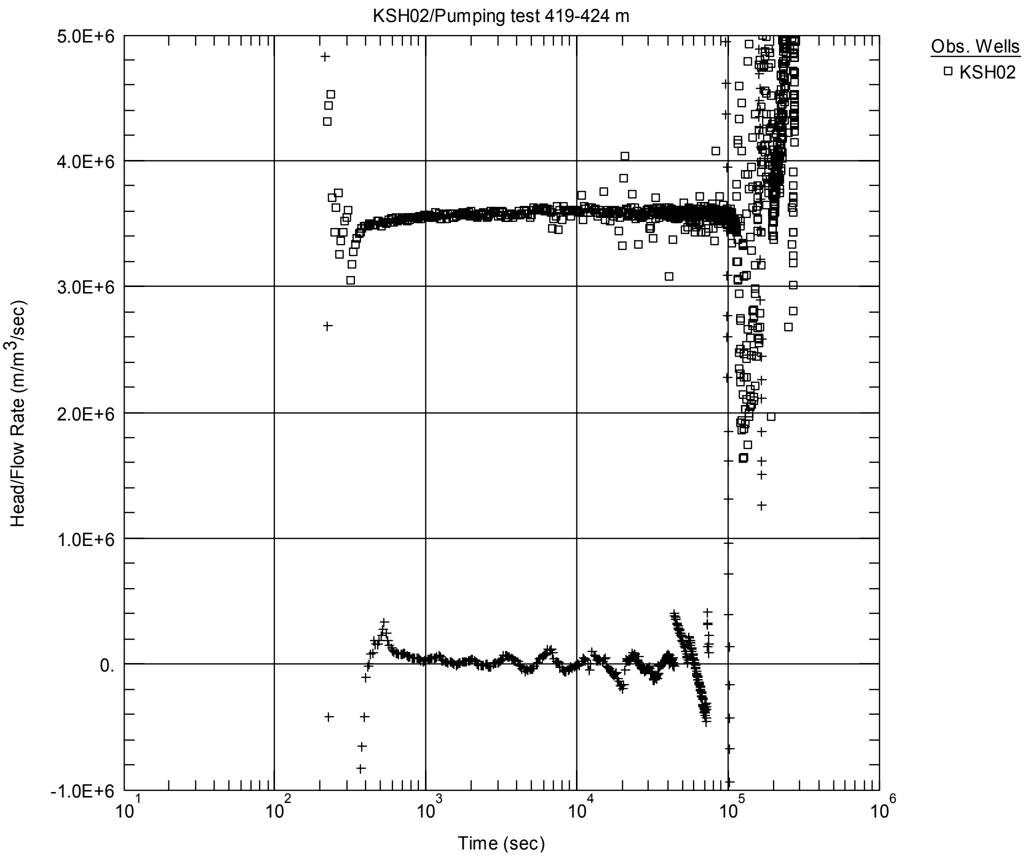
Analysis Diagram



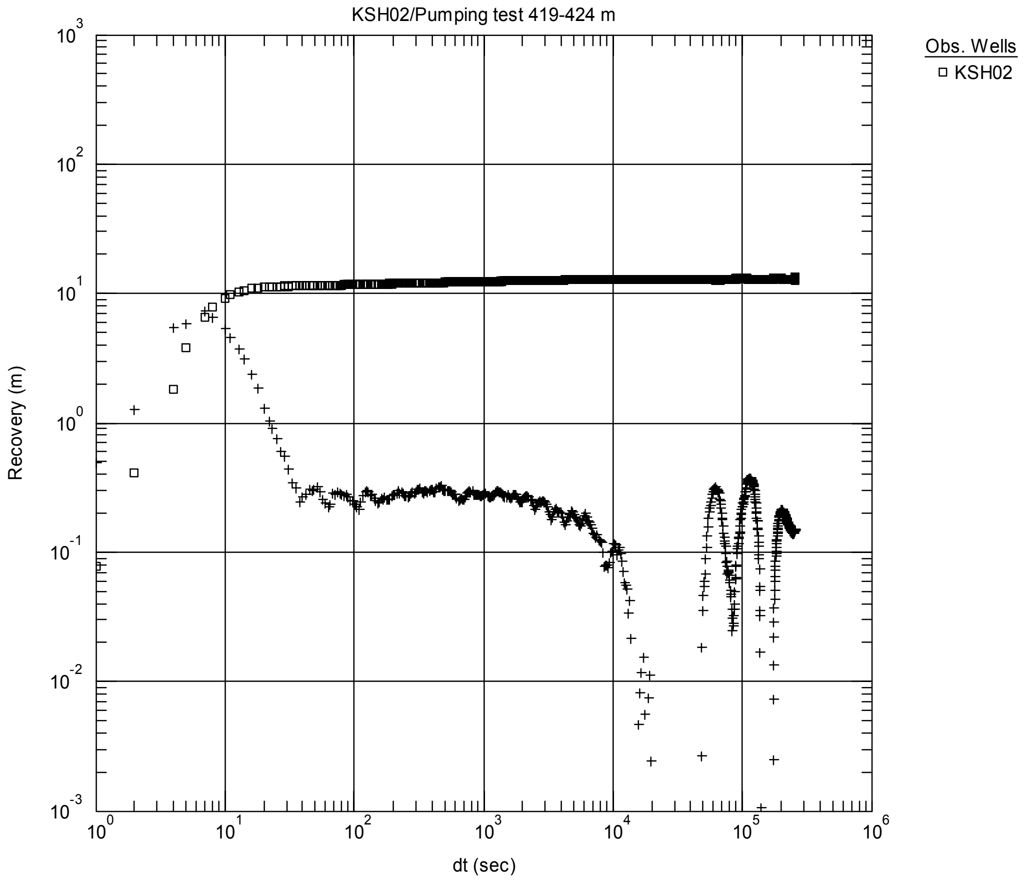
Pressure and flow rate vs. time.



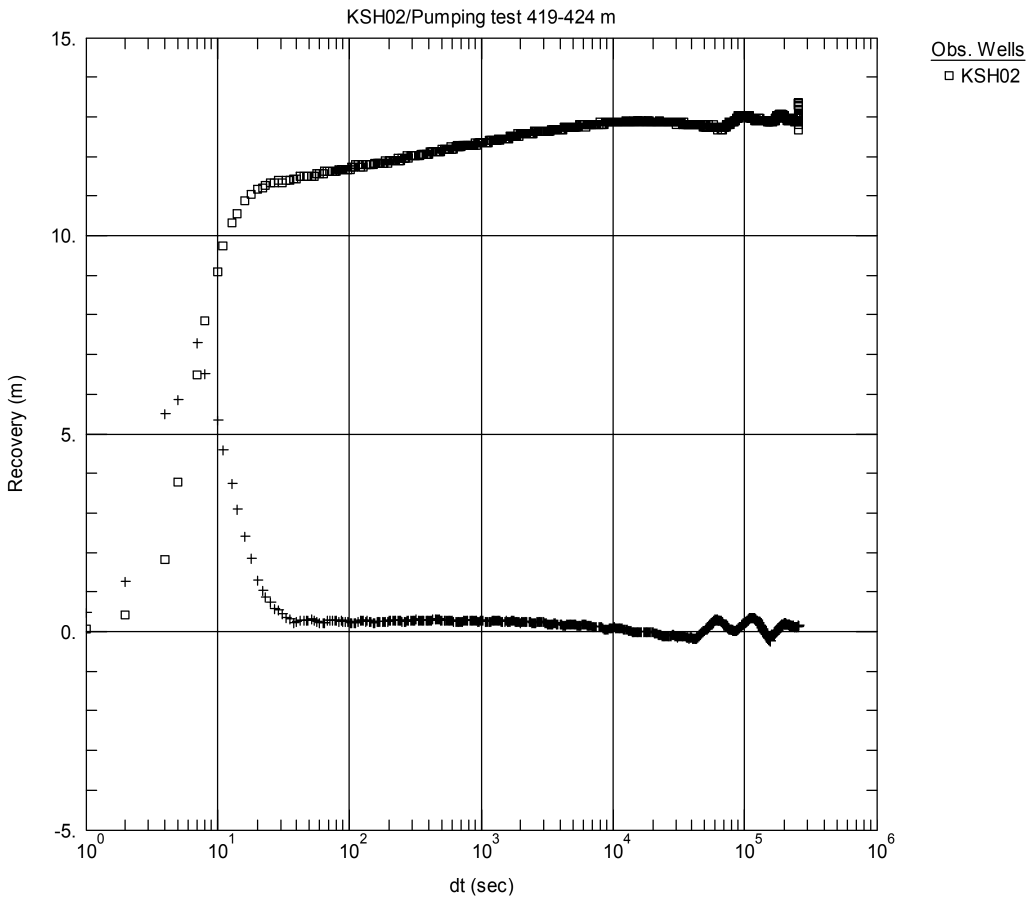
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



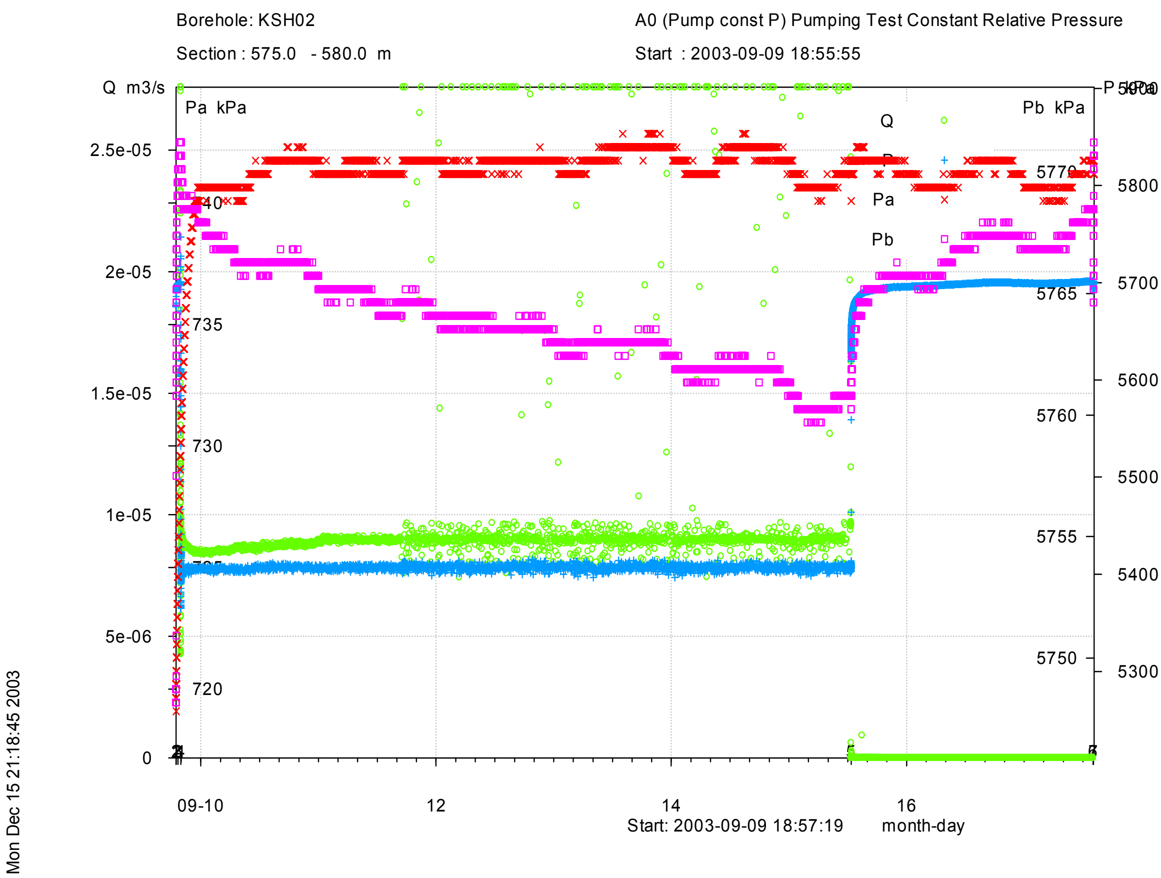
Recovery phase, log-log match.



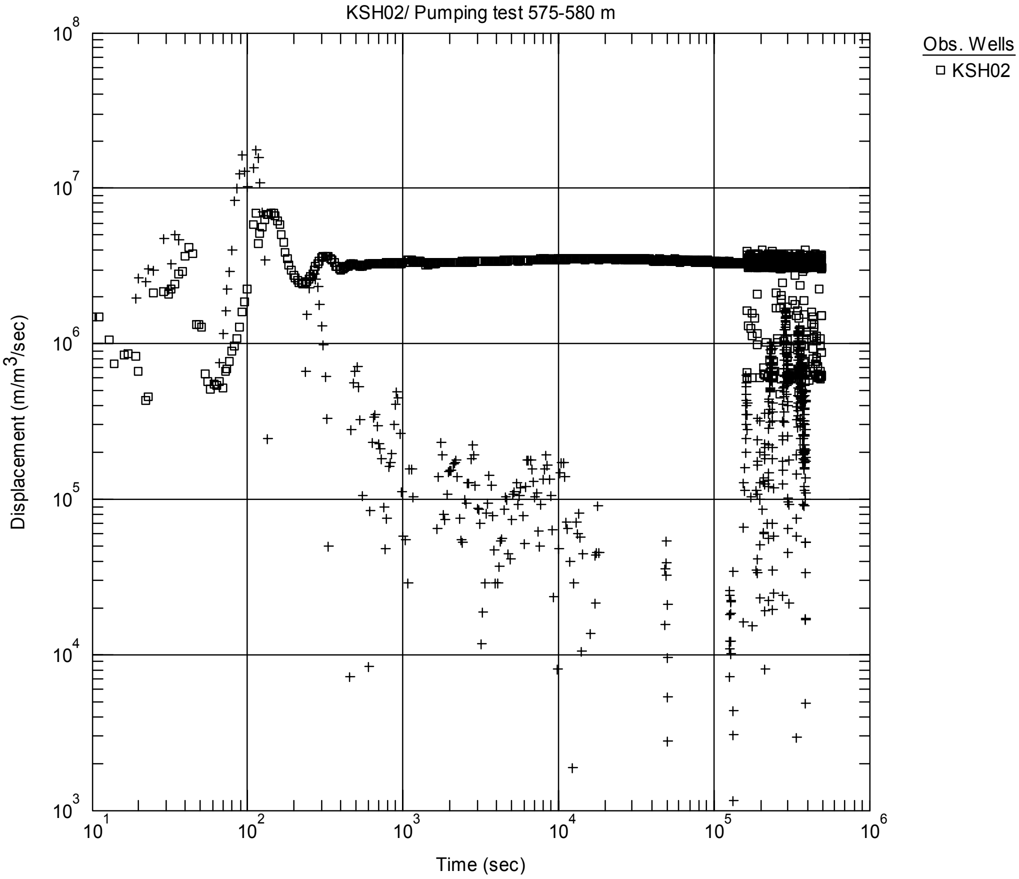
Recovery phase, lin-log match.

Pumping Test 575–580 m

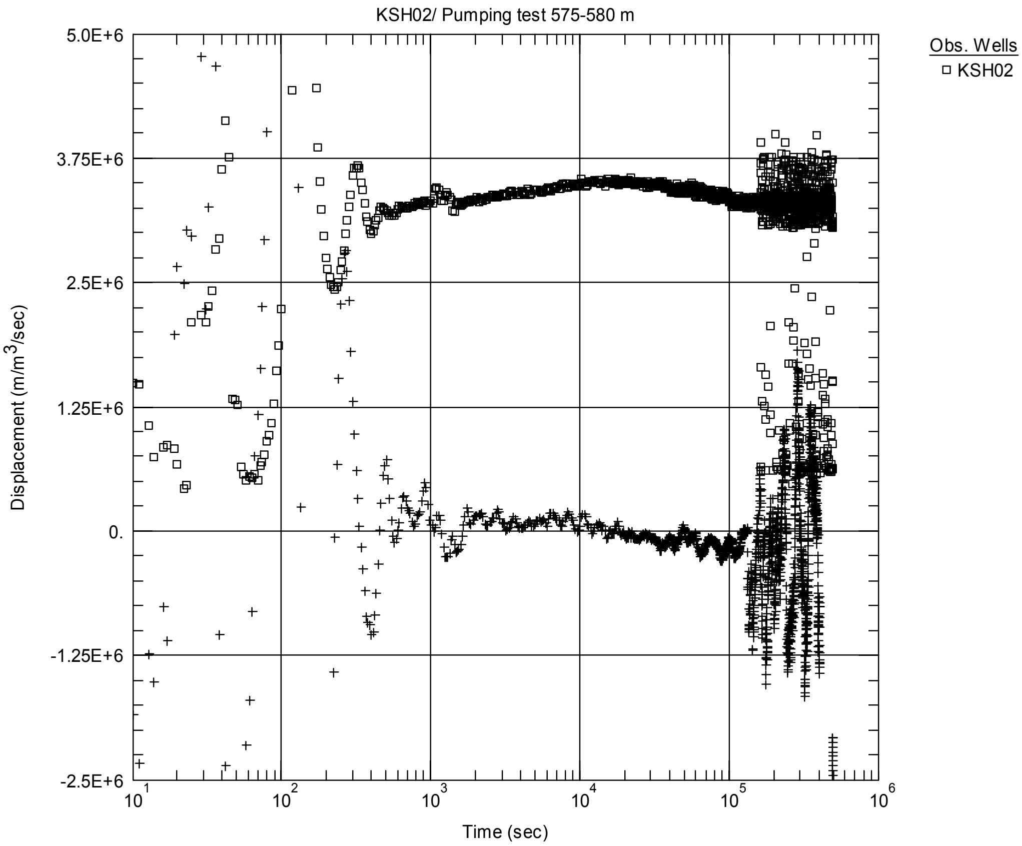
Analysis Diagram



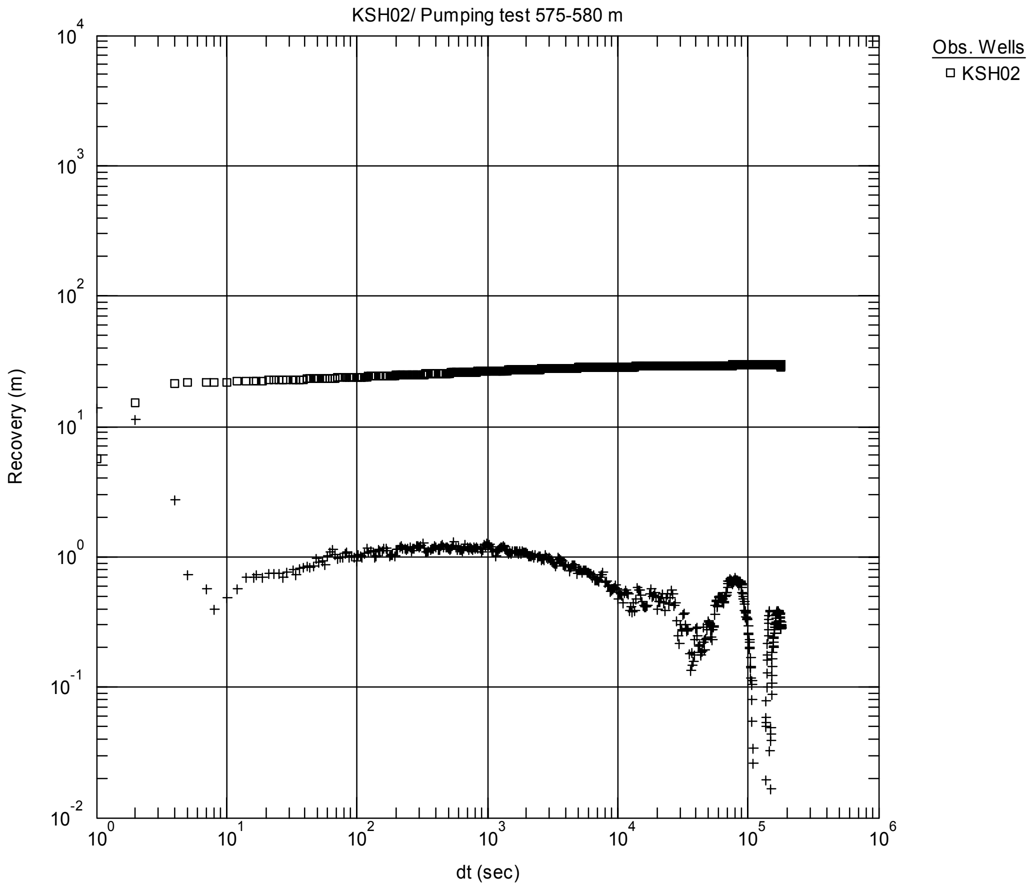
Pressure and flow rate vs. time.



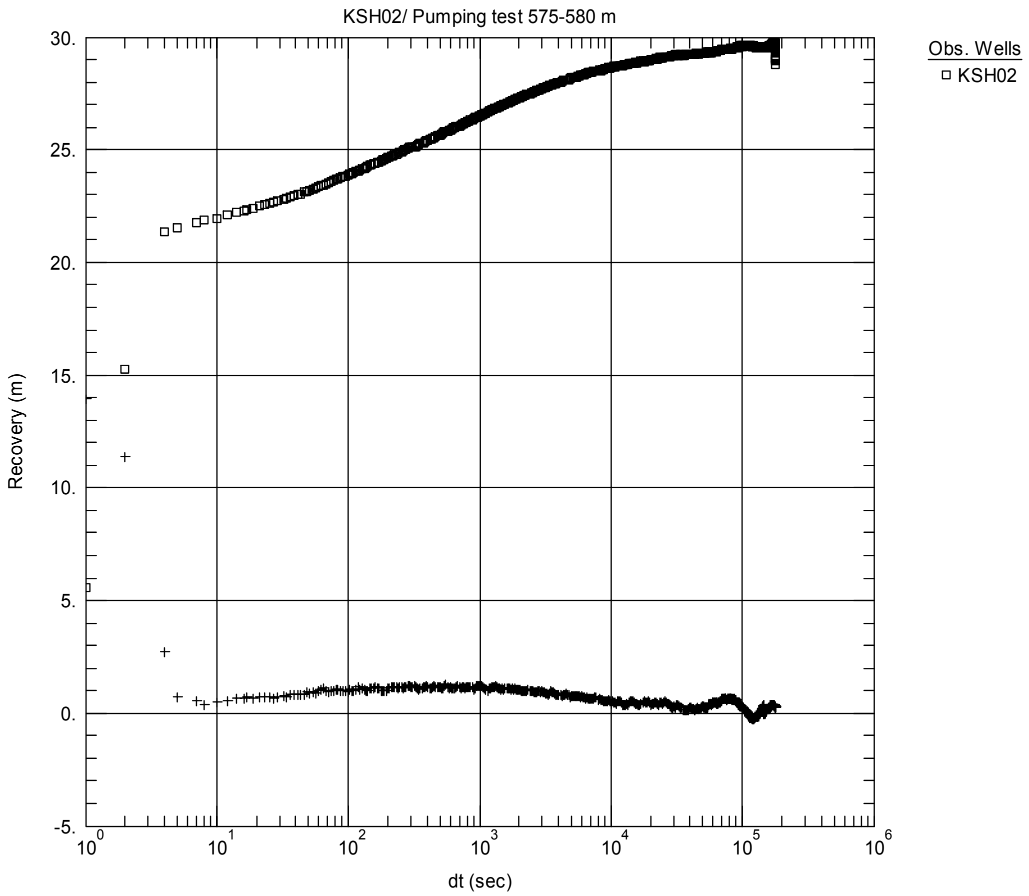
Perturbation phase, log-log match.



Perturbation phase, lin-log match.



Recovery phase, log-log match.



Recovery phase, lin-log match.

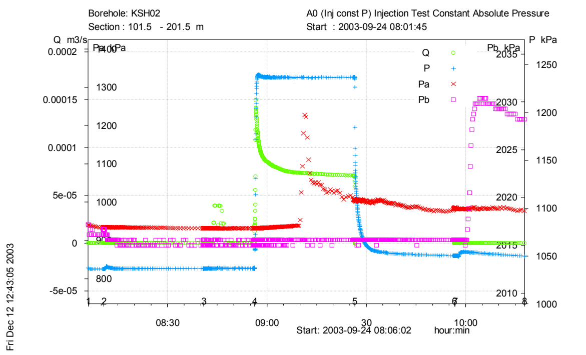
Appendix 4

Test summary sheets

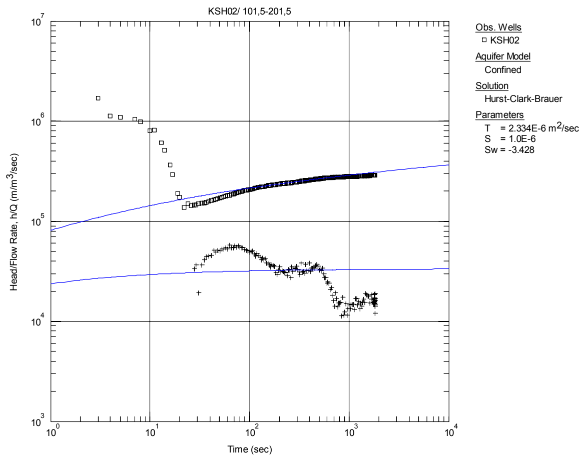
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-09-24 08:01
Test section (m):	101.5-201.5	**Responsible for test**	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E Ludvigsson

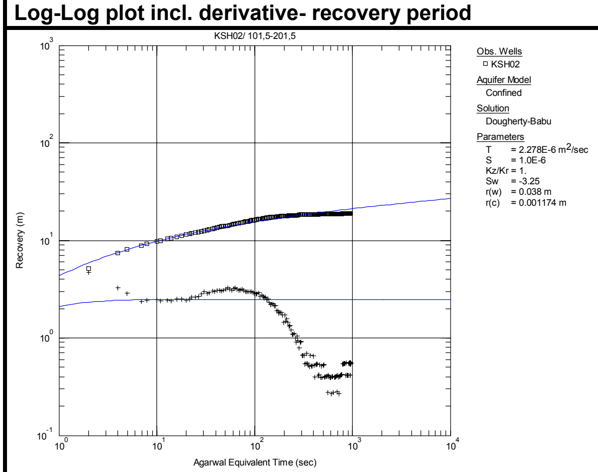
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	1037.62		
p_i (kPa)	1037.34		
p_p(kPa)	1236.89	p_F (kPa)	1050.33
Q_p (m^3/s)	7.04E-05		
tp (min)	1816.00	t_F (s)	1802.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	10.10		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	3.46E-06		
T_{Moye}(m^2/s)	4.84E-06		
Flow regime:	PRF1->PRF2	Flow regime:	PSF(PRF)
t_1 (s)	100	dt_{e1} (s)	7.00
t_2 (s)	1821	dt_{e2} (s)	100.00
T_w (m^2/s)	2.33E-06	T_w (m^2/s)	2.28E-06
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-3.43	ξ (-)	15.88
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

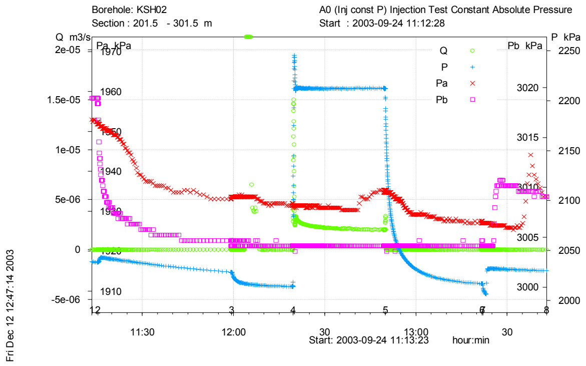
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	100	C_D (-)	-
t_2 (min)	1821	ξ (-)	-3.43
T_R (m^2/s)	2.33E-06		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

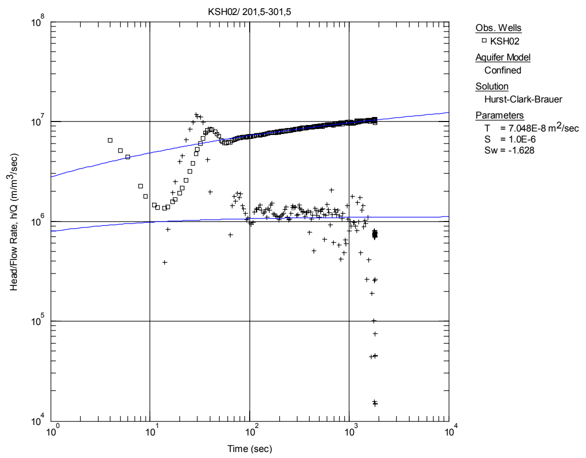
Comments: **For the flow period, two separate pseudo-radial flow regimes are indicated. The first between c. 200 and c. 500 s, the second after c. 800 s. The first of the two pseudo-radial flow regimes is assumed to best represent the formation adjacent to the borehole.**

Test Summary Sheet			
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-09-24 11:12
Test section (m):	201.5-301.5	**Responsible for test**	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E Ludvigsson

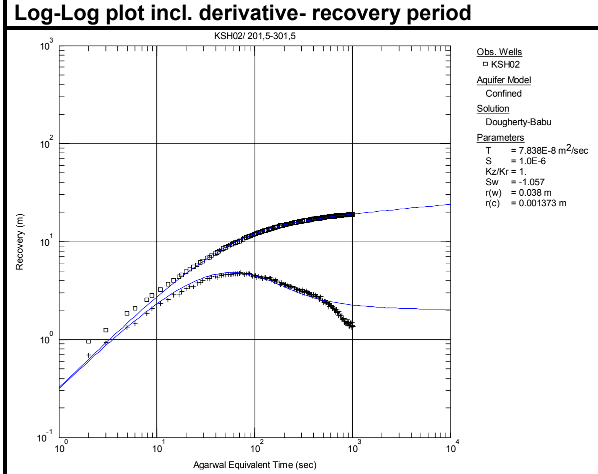
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



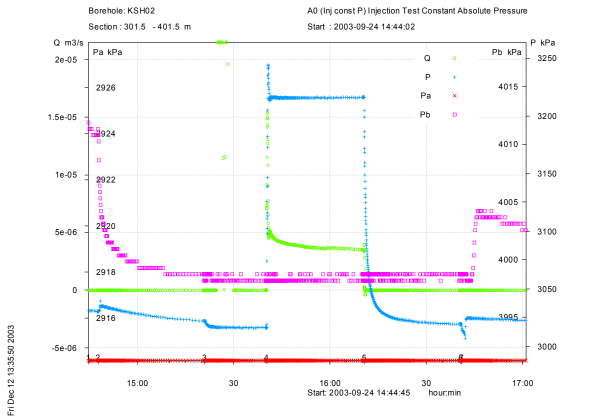
Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	2038.73		
p_i (kPa)	2015.10		
p_p(kPa)	2212.31	p_F (kPa)	2016.62
Q_p (m^3/s)	1.98E-06		
tp (min)	1822.00	t_F (s)	1910.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.50		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	9.83E-08		
T_{Moye}(m^2/s)	1.30E-07		
Flow regime:	PRF	Flow regime:	WBS-
t_1 (s)	100	dt_{e1} (s)	10.00
t_2 (s)	1821	dt_{e2} (s)	400.00
T_w (m^2/s)	7.05E-08	T_w (m^2/s)	7.84E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	6.71E-10
C_D (-)	-	C_D (-)	-
ξ (-)	1.63	ξ (-)	-1.06
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	6.71E-10
t_1 (min)	100	C_D (-)	-
t_2 (min)	1821	ξ (-)	1.63
T_R (m^2/s)	7.05E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

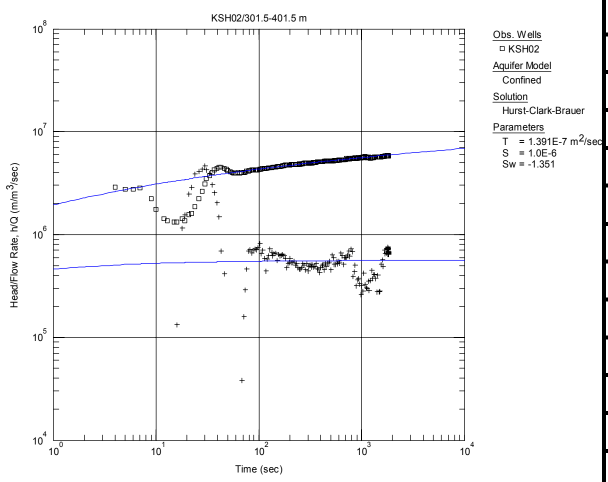
Comments: **For the flow period, a clear pseudo-radial flow regime is indicated from c. 100 s. For the recovery period, no well-defined pseudo-radial flow regime is indicated. A pseudo-spherical flow regime is indicated by the end of the test.**

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-09-24 14:44
Test section (m):	301.5-401.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E Ludvigsson

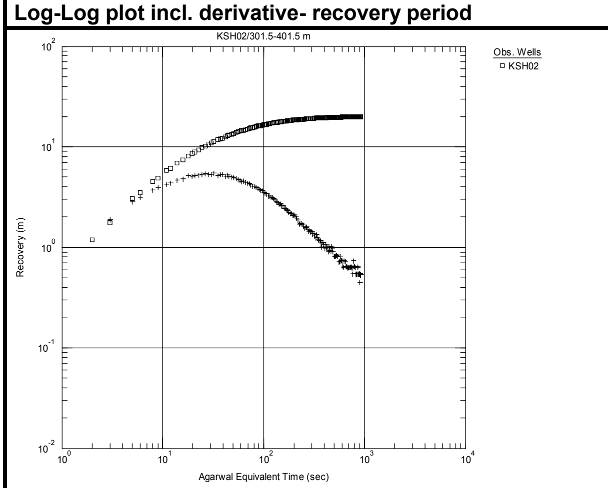
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3031.01		
p_i (kPa)	3017.33		
p_p(kPa)	3216.19	p_F (kPa)	3019.39
Q_p (m^3/s)	3.46E-06		
tp (min)	1822.00	t_F (s)	1807.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.81		
Derivative	Bourdet 0.3	Derivative	-
Results		**Results**	
Q/s (m^2/s)	1.71E-07		
T_{Moye}(m^2/s)	2.27E-07		
Flow regime:	PRF	Flow regime:	PSF?
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	1821	dt_{e2} (s)	-
T_w (m^2/s)	1.39E-07	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	7.06E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-1.35	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

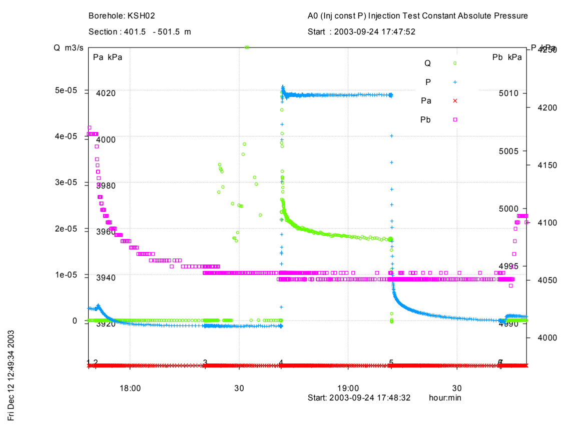
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	7.06E-10
t_1 (min)	100	C_D (-)	-
t_2 (min)	1821	ξ (-)	-1.35
T_R (m^2/s)	1.39E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 100 s. A sudden change in flow rate occurs after c. 1000 s, no reasonable explanation for this change is found. For the recovery period, no pseudo-radial flow regime is indicated, it rather shows tendencies of developing a pseudo-spherical flow regime.**

Test Summary Sheet

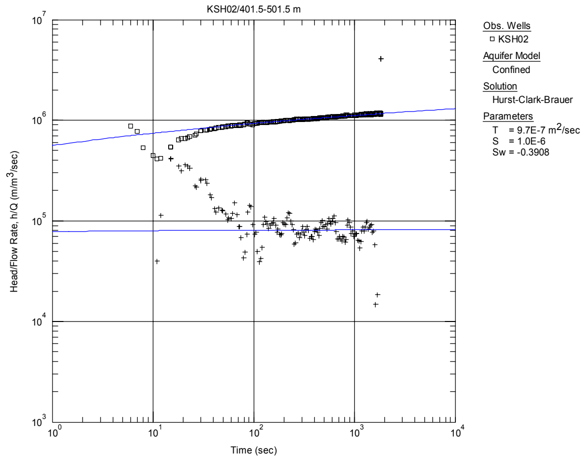
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-09-24 17:47
Test section (m):	401.5-501.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E Ludvigsson

Linear plot Q and p

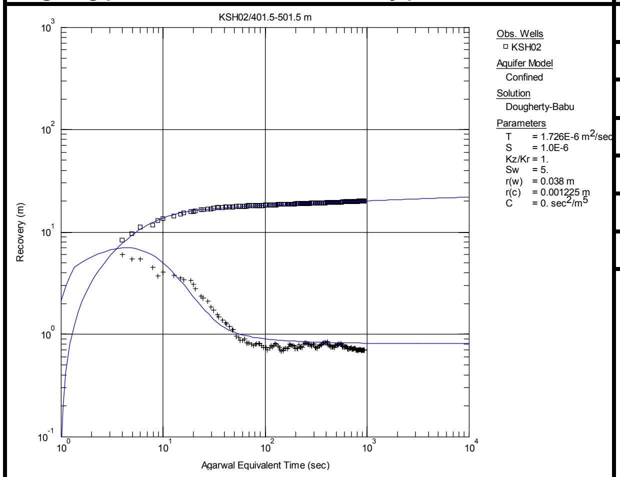


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4025.48		
p_i (kPa)	4010.15		
p_p(kPa)	4210.81	p_F (kPa)	4014.98
Q_p (m^3/s)	1.76E-05		
tp (min)	1823.00	t_F (s)	1799.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.21		
Derivative	Spane 0.3	Derivative	Spane 0.3
Results		**Results**	
Q/s (m^2/s)	8.62E-07		
T_{Moye}(m^2/s)	1.15E-06		
Flow regime:	PRF	Flow regime:	PRF/PSF?
t_1 (s)	100	dt_{e1} (s)	20.00
t_2 (s)	1819	dt_{e2} (s)	600.00
T_w (m^2/s)	9.70E-07	T_w (m^2/s)	1.73E-06
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-0.39	ξ (-)	5
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



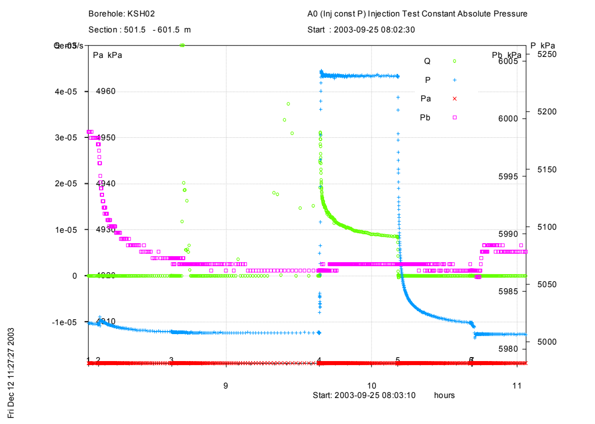
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	100	C_D (-)	-
t_2 (min)	1819	ξ (-)	-0.39
T_R (m^2/s)	9.70E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **During the flow period, a well-defined pseudo-radial flow regime is indicated from c. 100 s. For the recovery period no clear WBS effects are seen. A pseudo-radial or possibly a pseudo-spherical flow regime is indicated for the recovery period from c. 100 s. Type curve matching on the recovery period resulted in a high skin factor (>=5) which further may indicate a pseudo-spherical flow regime.**

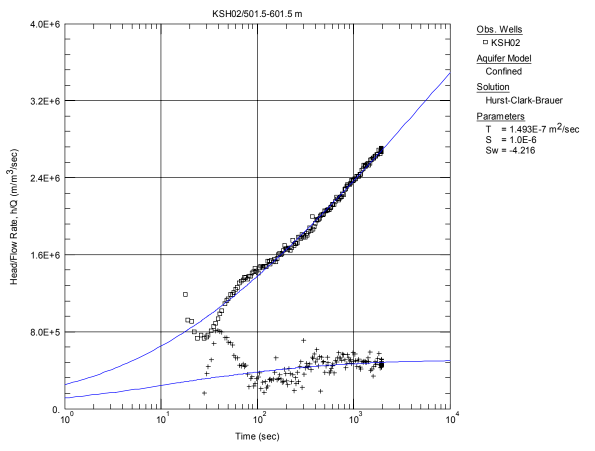
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-09-25 08:02
Test section (m):	501.5-601.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E Ludvigsson

Linear plot Q and p

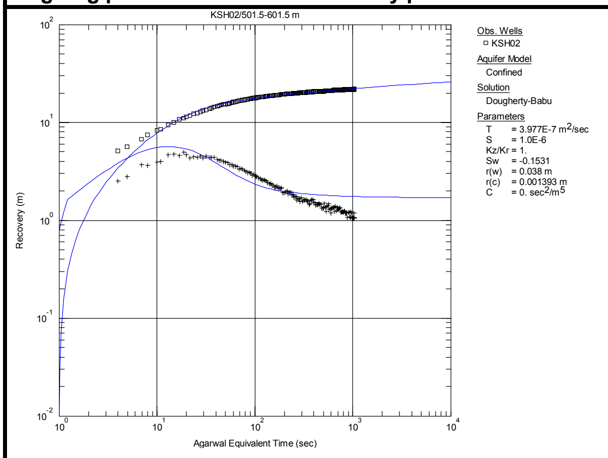


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5016.10		
p_i (kPa)	5007.81		
p_p(kPa)	5230.86	p_F (kPa)	5016.65
Q_p (m^3/s)	8.48E-06		
tp (min)	1942.00	t_F (s)	1824.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.67		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	3.73E-07		
T_{Moye}(m^2/s)	5.23E-07		
Flow regime:	PRF	Flow regime:	PRF/PSF
t_1 (s)	400	dt_{e1} (s)	10.00
t_2 (s)	1822	dt_{e2} (s)	600.00
T_w (m^2/s)	1.49E-07	T_w (m^2/s)	3.98E-07
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-4.22	ξ (-)	-0.15
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



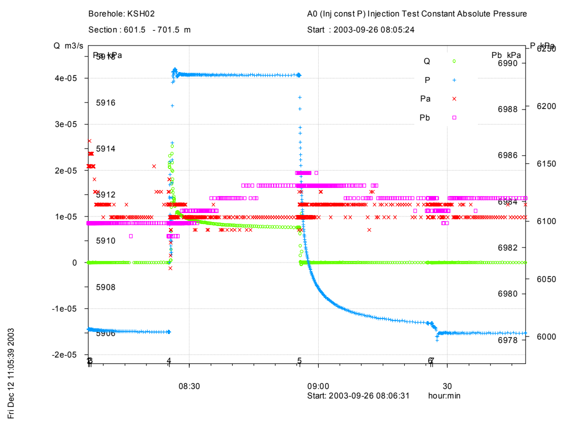
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	400	C_D (-)	-
t_2 (min)	1822	ξ (-)	-4.22
T_R (m^2/s)	1.49E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 400 s. For the recovery period, tendencies of a pseudo-radial flow regime are seen although it approaches pseudo-spherical flow. No WBS effects are seen during recovery.**

Test Summary Sheet

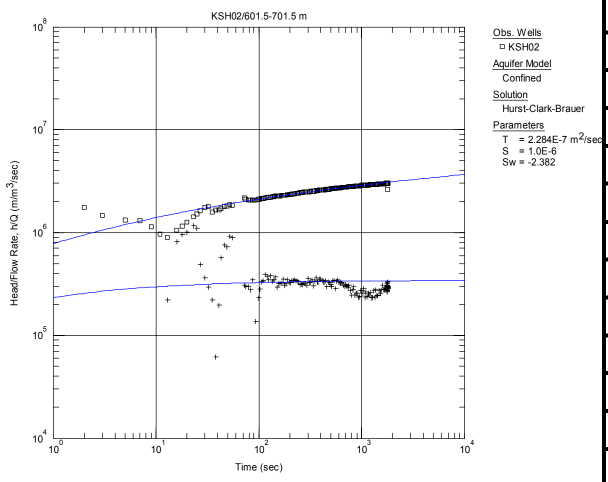
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-09-26 08:05**
Test section (m):	**601.5-701.5**	**Responsible for test**	**M. Holmqvist**
Section diameter, 2·r_w (m):	**0.076**	**Responsible for test evaluation:**	**J-E Ludvigsson**

Linear plot Q and p

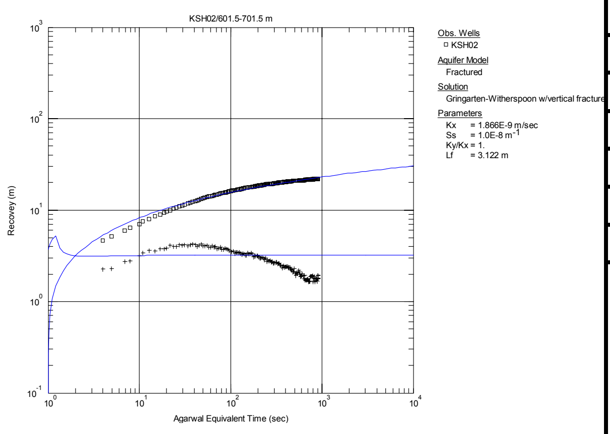


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**6006.71**		
p_i (kPa)	**6003.95**		
p_p(kPa)	**6226.72**	**p_F (kPa)**	**6011.13**
Q_p (m^3/s)	**7.55E-06**		
tp (min)	**1822.00**	**t_F (s)**	**1823.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**17.19**		
Derivative	**Bourdet 0.2**	**Derivative**	**Bourdet 0.2**
Results		**Results**	
Q/s (m^2/s)	**3.33E-07**		
T_{Moye}(m^2/s)	**4.67E-07**		
Flow regime:	**PRF**	**Flow regime:**	**PLF(->PRF-**
t_1 (s)	**100**	**dt_{e1} (s)**	**10.00**
t_2 (s)	**700**	**dt_{e2} (s)**	**300.00**
T_w (m^2/s)	**2.28E-07**	**T_w (m^2/s)**	**1.87E-07**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m^3/Pa)	**-**	**C (m^3/Pa)**	**-**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**-2.38**	**ξ (-)**	**-**
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

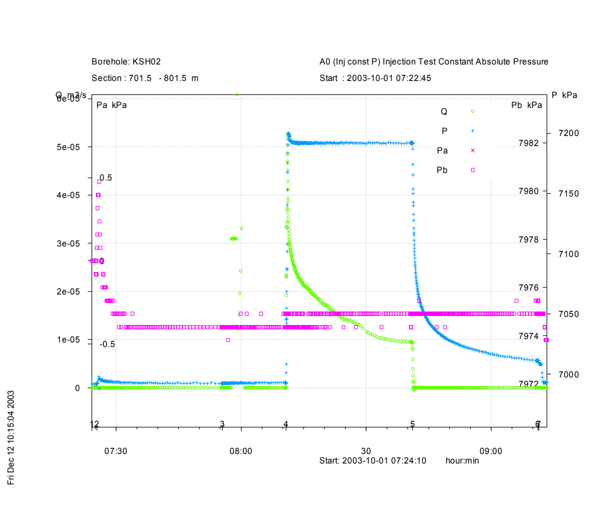
Flow regime:	**PRF**	**C (m^3/Pa)**	**-**
t_1 (min)	**100**	**C_D (-)**	**-**
t_2 (min)	**700**	**ξ (-)**	**-2.38**
T_R (m^2/s)	**2.28E-07**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 100 s and persists until c. 700 s where some disturbances are seen. For the recovery period, a fracture response (slope ~1:2) is indicated from the start of recovery until c. 100 s where a slow transition begins into a pseudo-radial flow regime.**

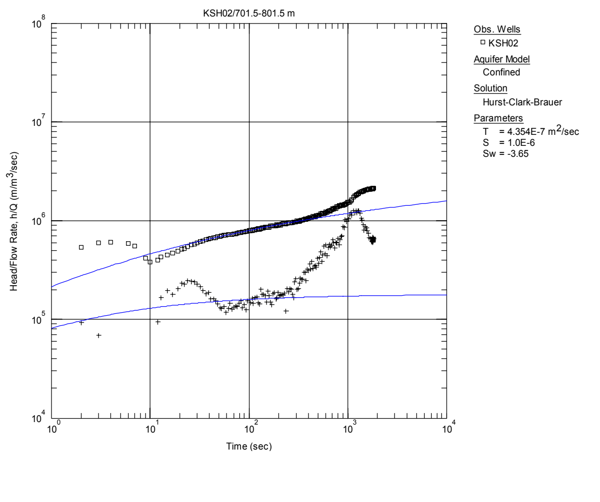
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-01 07:22
Test section (m):	701.5-801.5	**Responsible for test**	J. Levén
Section diameter, $2\cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E Ludvigsson

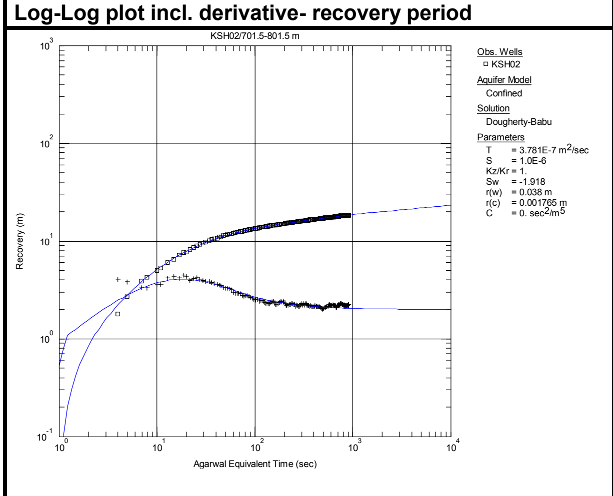
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	6991.80		
p_i (kPa)	6994.84		
p_p (kPa)	7191.90	p_F (kPa)	7011.15
Q_p (m^3/s)	9.38E-06		
tp (min)	1821.00	t_F (s)	1803.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w (gr C)	18.73		
Derivative	Bourdet 0.2	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	4.67E-07		
T_{Moye} (m^2/s)	6.31E-07		
Flow regime:	PRF-	Flow regime:	PRF
t_1 (s)	200	dt_{e1} (s)	10.00
t_2 (s)	700	dt_{e2} (s)	700.00
T_w (m^2/s)	4.35E-07	T_w (m^2/s)	3.78E-07
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.91E-09
C_D (-)	-	C_D (-)	-
ξ (-)	-3.65	ξ (-)	-1.918
T_{GRF} (m^2/s)		T_{GRF} (m^2/s)	
S_{GRF} (-)		S_{GRF} (-)	
D_{GRF} (-)		D_{GRF} (-)	

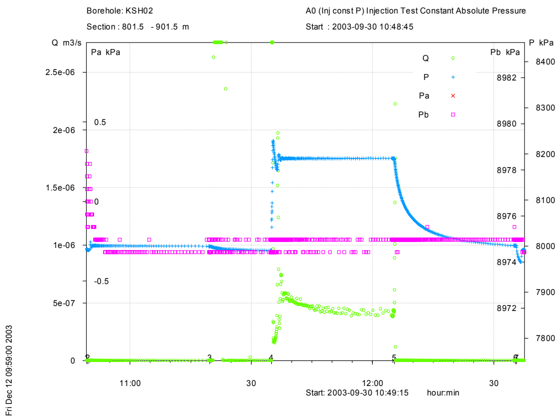
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	1.91E-09
t_1 (min)	200	C_D (-)	-
t_2 (min)	700	ξ (-)	-1.92
T_R (m^2/s)	3.78E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 100 s to 300 s. For the recovery period, a well-defined pseudo-radial flow regime is indicated from c. 200 s to 700 s.**

Test Summary Sheet

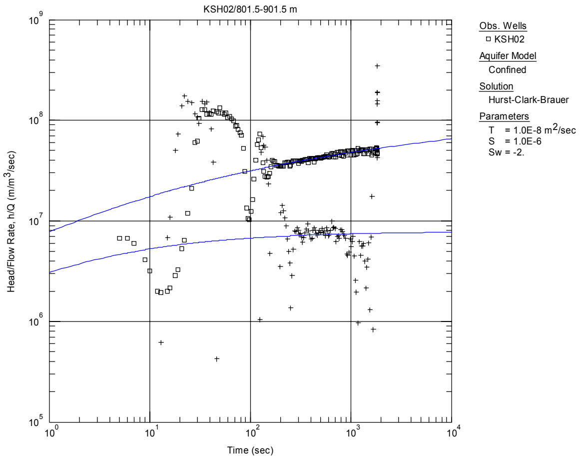
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-09-30 10:48
Test section (m):	801.5-901.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E Ludvigsson

Linear plot Q and p

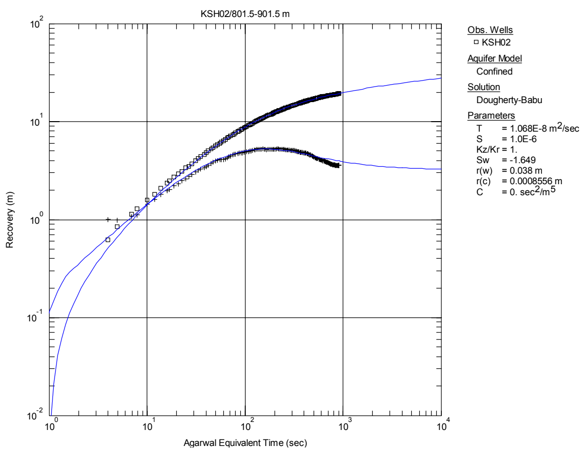


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	7994.57		
p_i (kPa)	7990.71		
p_p(kPa)	8190.26	p_F (kPa)	8001.20
Q_p (m^3/s)	4.32E-07		
tp (min)	1825.00	t_F (s)	1800.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	20.31		
Derivative	Spane 0.4	Derivative	Spane 0.4
Results		**Results**	
Q/s (m^2/s)	2.12E-08		
T_{Moye}(m^2/s)	2.83E-08		
Flow regime:	PRF	Flow regime:	WBS->PRF
t_1 (s)	200	dt_{e1} (s)	40.00
t_2 (s)	1822	dt_{e2} (s)	600.00
T_w (m^2/s)	1.00E-08	T_w (m^2/s)	1.07E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	3.08E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-2.00	ξ (-)	-1.649
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

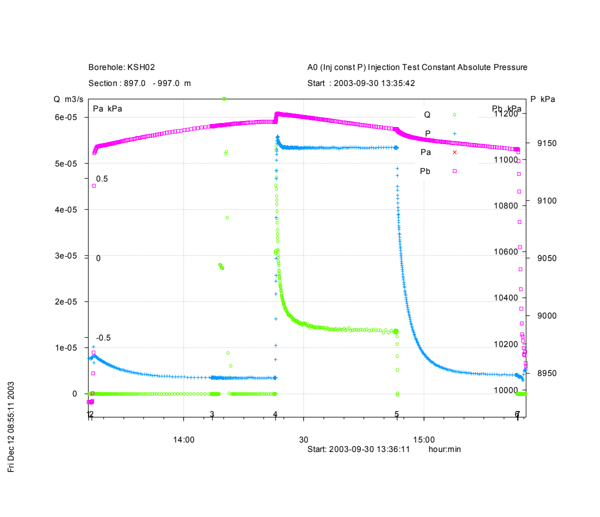
Flow regime:	PRF	C (m^3/Pa)	3.08E-10
t_1 (min)	200	C_D (-)	-
t_2 (min)	1822	ξ (-)	-2.00
T_R (m^2/s)	1.00E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 200 s persisting during whole the flow period. The recovery period shows indications of WBS effects, a transition to a pseudo-radial flow regime is weakly indicated by the end of the recovery period.**

Test Summary Sheet

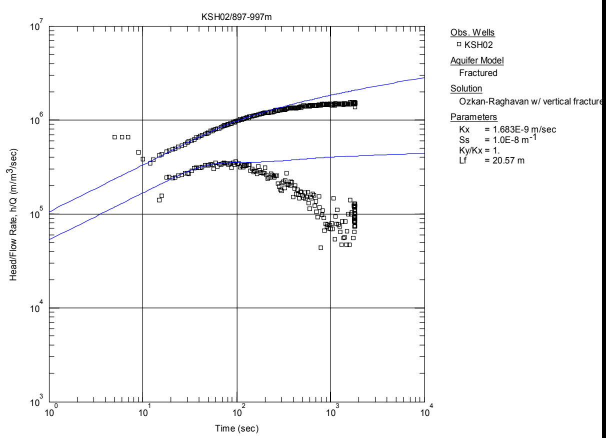
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-09-30 13:35
Test section (m):	897-997	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E Ludvigsson

Linear plot Q and p

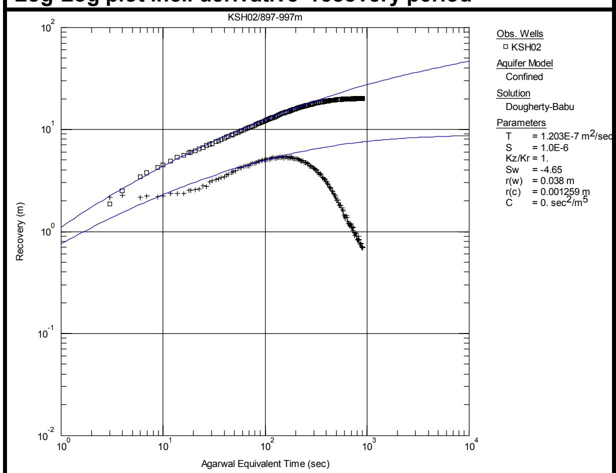


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	8963.08		
p_i (kPa)	8946.08		
p_p(kPa)	9146.05	p_F (kPa)	8948.70
Q_p (m^3/s)	1.36E-05		
tp (min)	1822.00	t_F (s)	1802.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	21.89		
Derivative	Bourdet 0.4	Derivative	Bourdet 0.4
Results		**Results**	
Q/s (m^2/s)	6.65E-07		
T_{Moye}(m^2/s)	8.85E-07		
Flow regime:	PLF->PSF	Flow regime:	PLF->PSF
t_1 (s)	70	dt_{e1} (s)	10.00
t_2 (s)	100	dt_{e2} (s)	200.00
T_w (m^2/s)	1.68E-07	T_w (m^2/s)	1.20E-07
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-5.00	ξ (-)	-4.65
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



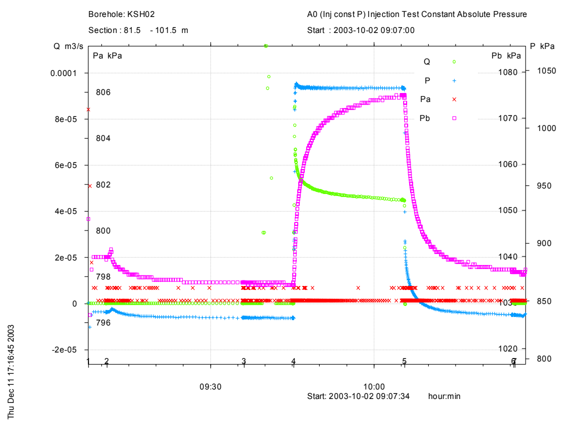
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	70	C_D (-)	-
t_2 (min)	100	ξ (-)	-
T_R (m^2/s)	1.68E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

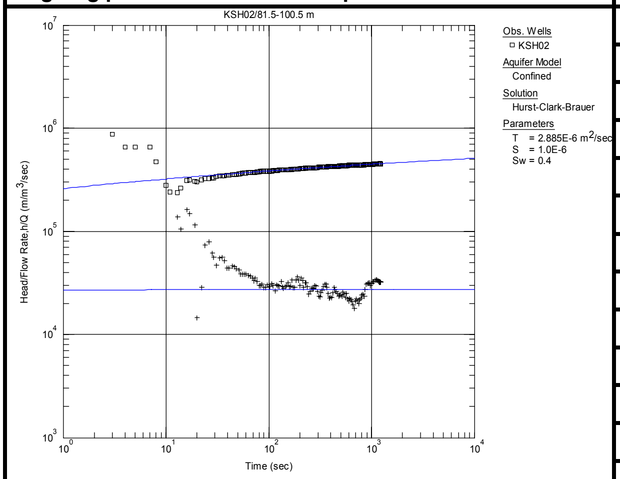
Comments: For both the flow and recovery period, a pseudo-linear flow regime (fracture response, i.e. slope c. 1:2) is indicated during the first c. 70 s and 100 s for the flow period and recovery period, respectively. For both periods, the pseudo-linear flow regime is followed by indications of a short pseudo-spherical flow regime.

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-02 09:07
Test section (m):	81.5-101.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

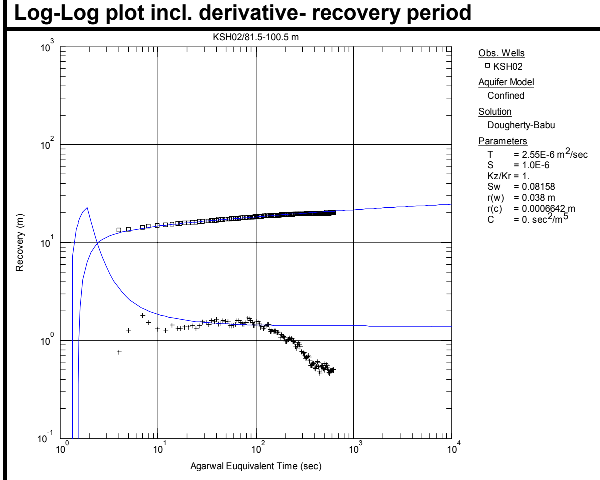
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	848.40		
p_i (kPa)	835.13		
p_p(kPa)	1034.28	p_F (kPa)	837.89
Q_p (m^3/s)	4.47E-05		
tp (min)	1222.00	t_F (s)	1200.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	8.76		
Derivative	Spane 0.2	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	2.20E-06		
T_{Moye}(m^2/s)	2.34E-06		
Flow regime:	PRF	Flow regime:	PRF->PSF
t_1 (s)	80	dt_{e1} (s)	30.00
t_2 (s)	1200	dt_{e2} (s)	100.00
T_w (m^2/s)	2.89E-06	T_w (m^2/s)	2.55E-06
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	0.40	ξ (-)	-0.3605
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

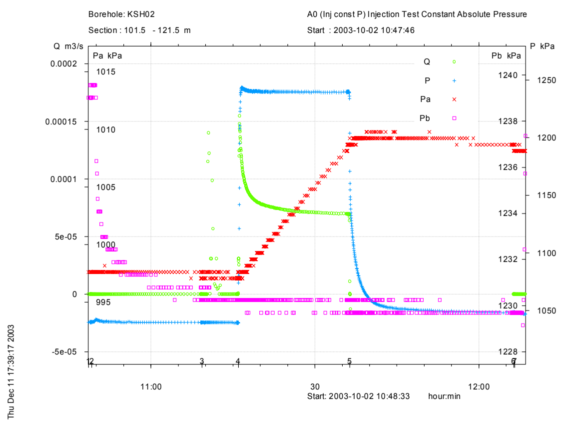
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	80	C_D (-)	-
t_2 (min)	1200	ξ (-)	0.40
T_R (m^2/s)	2.89E-06		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 80 s and persists during the whole flow period. For the recovery period, a pseudo-radial flow regime develops after c. 20 s persisting until c. 100 s, then transiting to pseudo-spherical flow by end of the test.**

Test Summary Sheet

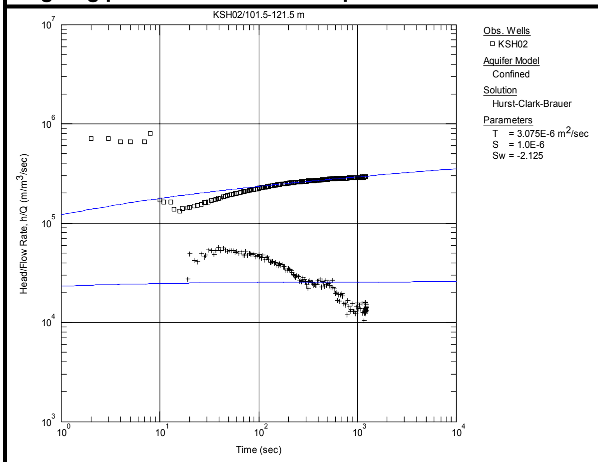
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-02 10:47
Test section (m):	101.5-121.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

Linear plot Q and p

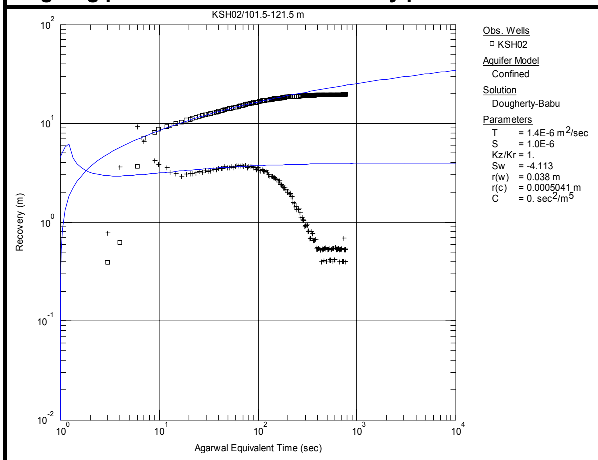


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	1039.67		
p_i (kPa)	1039.39		
p_p(kPa)	1238.40	p_F (kPa)	1047.96
Q_p (m^3/s)	6.94E-05		
tp (min)	1222.00	t_F (s)	1800.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	9.08		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	3.42E-06		
T_{Moye}(m^2/s)	3.68E-06		
Flow regime:	PRF->PSF	Flow regime:	PRF->PSF
t_1 (s)	300	dt_{e1} (s)	30.00
t_2 (s)	500	dt_{e2} (s)	100.00
T_w (m^2/s)	3.08E-06	T_w (m^2/s)	1.40E-06
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-2.13	ξ (-)	-4.113
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



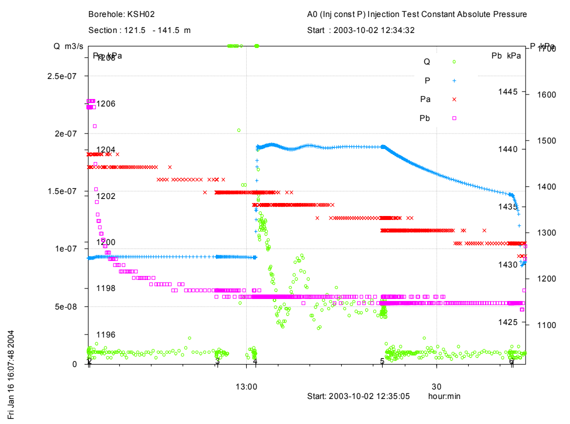
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	300	C_D (-)	-
t_2 (min)	500	ξ (-)	-2.13
T_R (m^2/s)	3.08E-06		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated between c. 300 and c. 500 s, the second from c. 800 s. For the recovery period, a pseudo-radial flow regime is indicated before c. 200 s. By the end of the recovery a pseudo-spherical flow regime is indicated. The latter flow regime be a result of a hydraulic connection between the test section and the section above.**

Test Summary Sheet

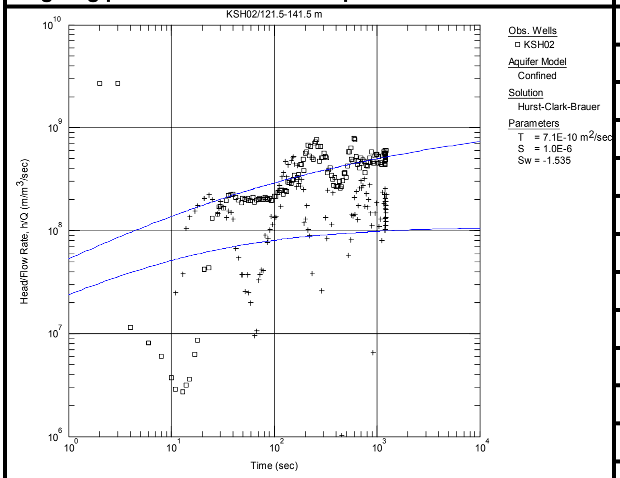
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-02 12:34
Test section (m):	121.5-141.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

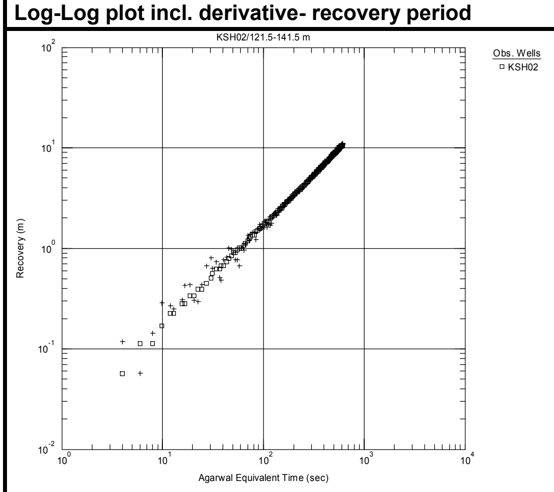


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	1244.76		
p_i (kPa)	1246.55		
p_p(kPa)	1486.19	p_F (kPa)	1382.40
Q_p (m^3/s)	4.44E-08		
tp (min)	1201.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	9.33		
Derivative	Bourdet 0.5	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	1.82E-09		
T_{Moye}(m^2/s)	1.95E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	600	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	7.10E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.71E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-1.54	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

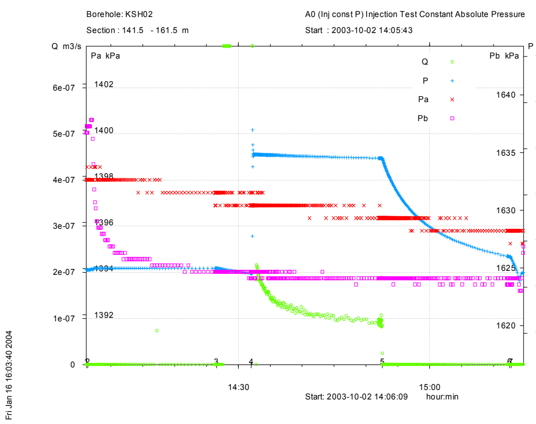
Flow regime:	PRF	C (m^3/Pa)	2.71E-10
t_1 (min)	600	C_D (-)	-
t_2 (min)	1200	ξ (-)	-1.54
T_R (m^2/s)	7.10E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Due to the oscillations in pressure (and flow rate) during the injection period it is hard to identify any flow regimes. Anyhow, there are weak indications of a pseudo-radial flow regime after c. 600 s injection. For the recovery period, no pseudo-radial flow regime is indicated, only WBS effects.**

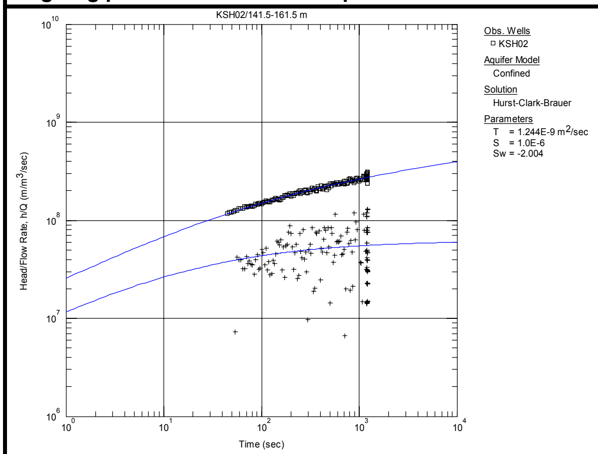
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-02 14:05
Test section (m):	141.5-161.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

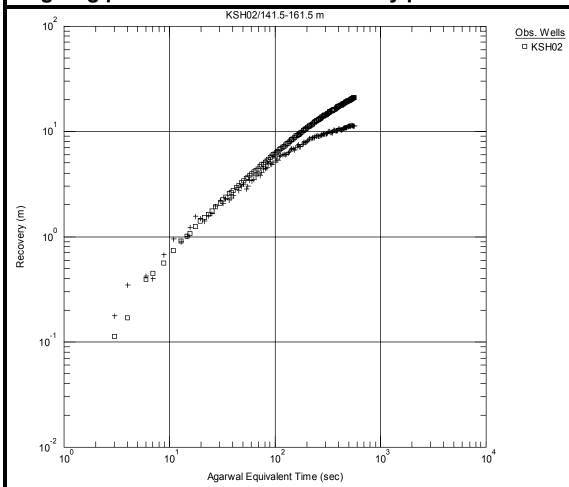
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	1437.68		
p_i (kPa)	1430.08		
p_p(kPa)	1679.12	p_F (kPa)	1466.42
Q_p (m^3/s)	8.59E-08		
tp (min)	1235.00	t_F (s)	1197.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	9.56		
Derivative	Spane 0.2	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	3.38E-09		
T_{Moye}(m^2/s)	3.64E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	500	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	1.24E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.25E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-2.00	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters

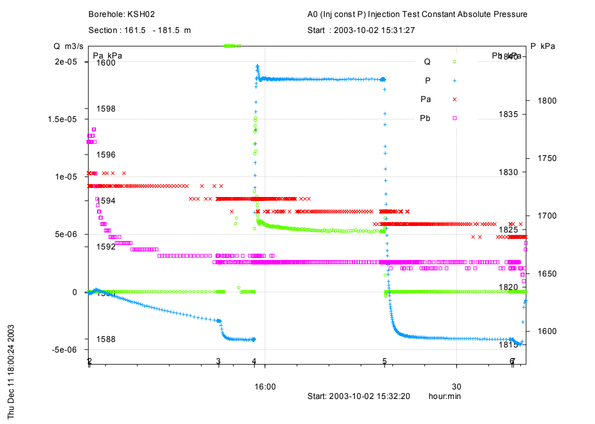
Flow regime:	PRF	C (m^3/Pa)	1.25E-10
t_1 (min)	500	C_D (-)	-
t_2 (min)	1200	ξ (-)	-2.00
T_R (m^2/s)	1.24E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **By the end of the flow period, a well-defined pseudo-radial flow regime is indicated. The recovery only indicates WBS effects but no pseudo-radial flow.**

Test Summary Sheet

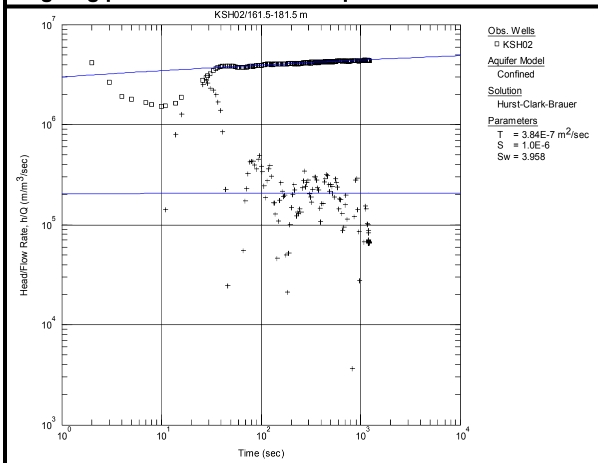
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-10-02 15:31**
Test section (m):	**161.5-181.5**	**Responsible for test**	**J. Levén**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J-E. Ludvigson**

Linear plot Q and p

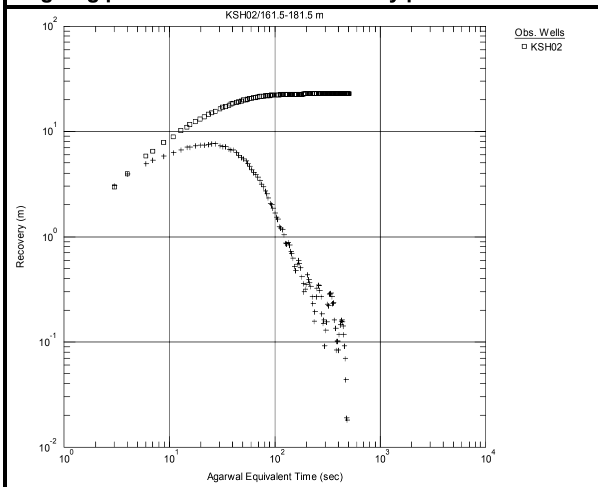


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**1632.82**		
p_i (kPa)	**1593.16**		
p_p(kPa)	**1818.43**	**p_F (kPa)**	**1593.02**
Q_p (m^3/s)	**5.25E-06**		
tp (min)	**1225.00**	**t_F (s)**	**1197.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**9.85**		
Derivative	**Spane 0.2**	**Derivative**	**Spane 0.2**
Results		**Results**	
Q/s (m^2/s)	**2.29E-07**		
T_{Moye}(m^2/s)	**2.42E-07**		
Flow regime:	**PSF**	**Flow regime:**	**PSF**
t_1 (s)	**100**	**dt_{e1} (s)**	**-**
t_2 (s)	**1200**	**dt_{e2} (s)**	**-**
T_w (m^2/s)	**3.84E-07**	**T_w (m^2/s)**	**-**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m^3/Pa)	**-**	**C (m^3/Pa)**	**5.35E-10**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**3.96**	**ξ (-)**	**-**
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

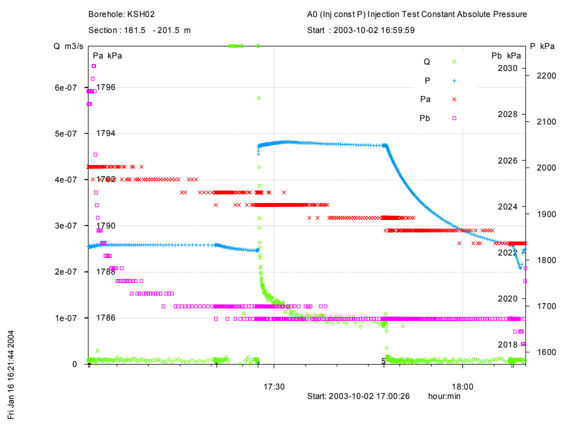
Flow regime:	**PSS**	**C (m^3/Pa)**	**5.35E-10**
t_1 (min)	**-**	**C_D (-)**	**-**
t_2 (min)	**-**	**ξ (-)**	**-**
T_R (m^2/s)	**2.42E-07**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **The flow period indicates a transition from pseudo-radial flow to pseudo-spherical flow. For the flow period, possible pseudo-radial flow is indicated from c. 100 s. The transition to pseudo-spherical flow is more obvious for the recovery period. No transient interpretation is made from the recovery period.**

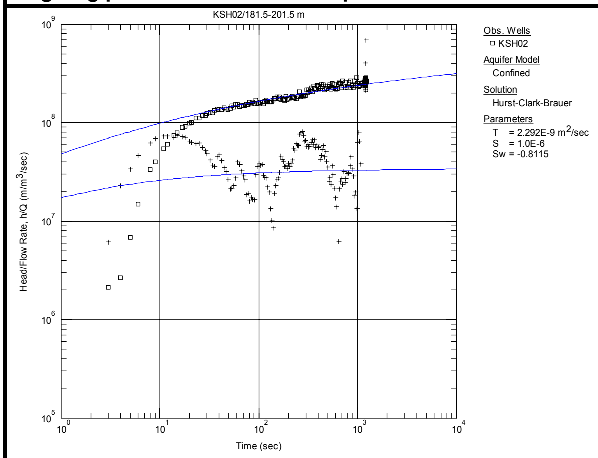
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-02 16:59
Test section (m):	181.5-201.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

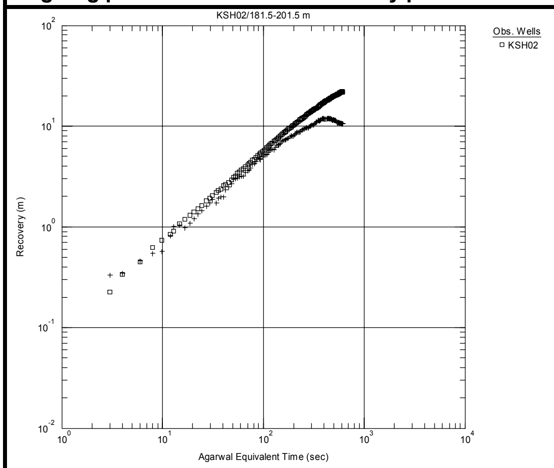
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



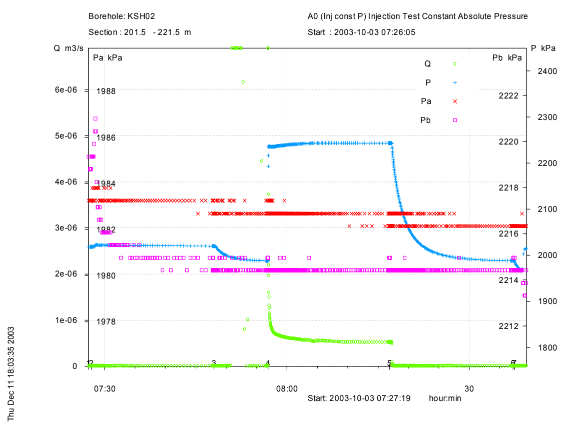
Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	1829.06		
p_i (kPa)	1820.50		
p_p(kPa)	2048.66	p_F (kPa)	1833.48
Q_p (m^3/s)	9.04E-08		
tp (min)	1204.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	10.08		
Derivative	Spane 0.4	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	3.89E-09		
T_{Moye}(m^2/s)	4.04E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	40	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	2.29E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.32E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-0.81	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	1.32E-10
t_1 (min)	40	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.81
T_R (m^2/s)	2.29E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 40 s prevailing to the end of the flow period. The recovery period is highly effected by WBS and no pseudo-radial flow regime is indicated.**

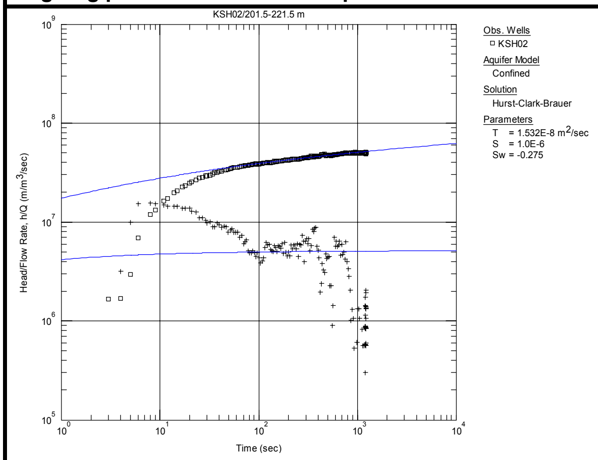
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-03 07:26
Test section (m):	201.5-221.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

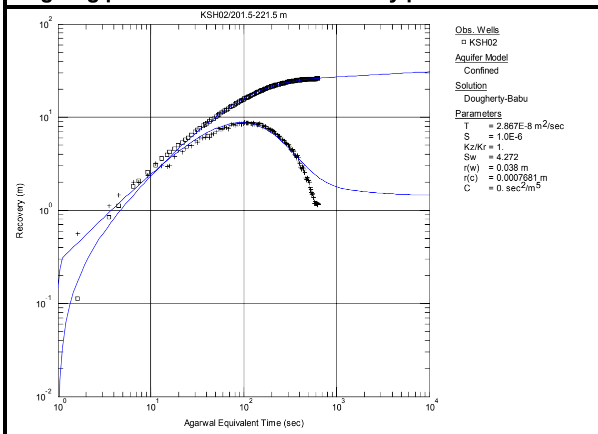


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	2018.67		
p_i (kPa)	1988.27		
p_p(kPa)	2243.11	p_F (kPa)	1987.71
Q_p (m^3/s)	5.20E-07		
tp (min)	1201.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	10.37		
Derivative	Bourdet 0.2	Derivative	Spane 0.1
Results		Results	
Q/s (m^2/s)	2.00E-08		
T_{Moye}(m^2/s)	2.12E-08		
Flow regime:	PSF(PRF)	Flow regime:	WBS-
t_1 (s)	100	dt_{e1} (s)	500.00
t_2 (s)	1200	dt_{e2} (s)	600.00
T_w (m^2/s)	1.53E-08	T_w (m^2/s)	2.87E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.12E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-0.28	ξ (-)	4.272
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



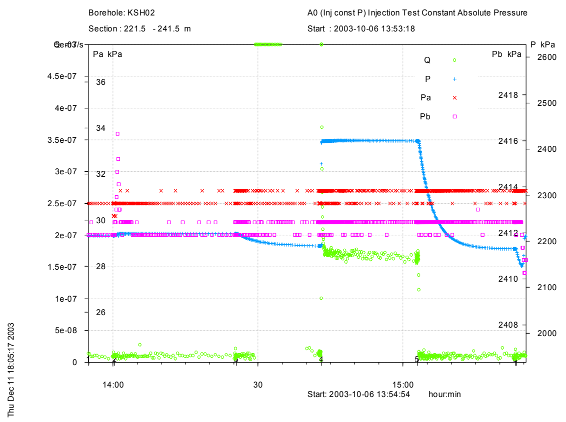
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	2.12E-10
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.28
T_R (m^2/s)	1.53E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: For the flow period, well-defined a pseudo-radial flow regime is indicated from c. 100 s prevailing to the end of the flow period. By the end of the flow period, a transition to pseudo-spherical flow was indicated. The recovery period is highly affected by WBS and no pseudo-radial flow regime is developed

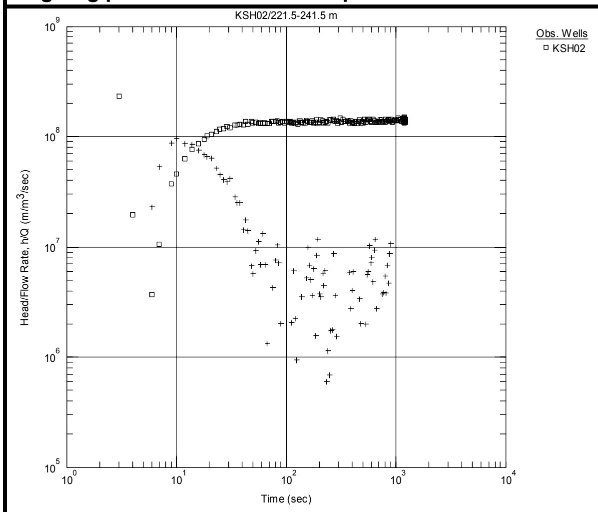
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-06 13:53
Test section (m):	221.5-241.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

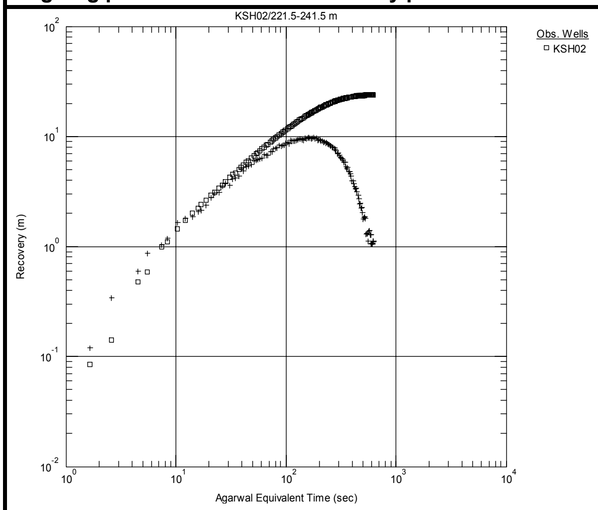
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	2212.15		
p_i (kPa)	2191.01		
p_p(kPa)	2418.07	p_F (kPa)	2183.41
Q_p (m^3/s)	1.61E-07		
tp (min)	1190.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	10.68		
Derivative	Spane 0.3	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	6.96E-09		
T_{Moye}(m^2/s)	7.28E-09		
Flow regime:	PSF->PSS	Flow regime:	WBS->PSS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.31E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

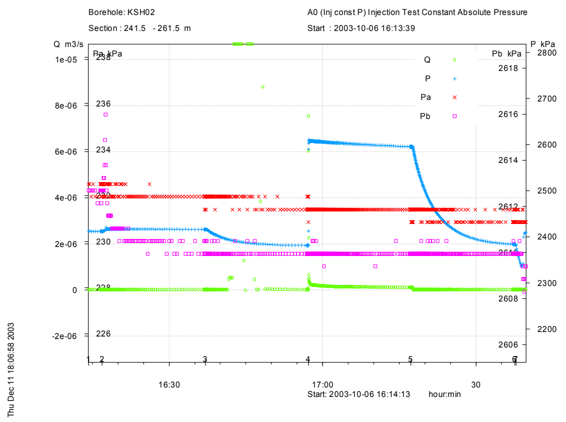
Selected representative parameters

Flow regime:	PSS	C (m^3/Pa)	1.31E-10
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	7.28E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

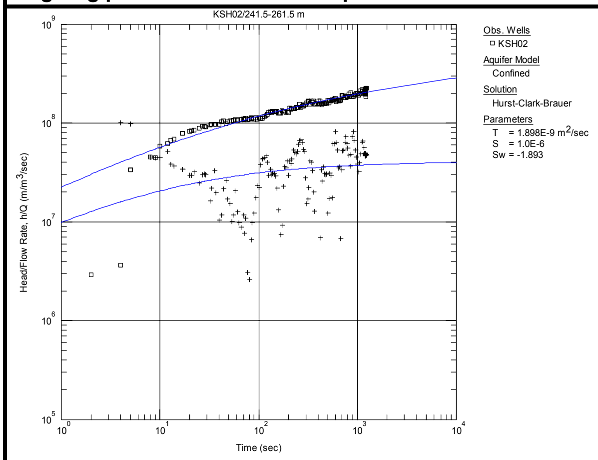
Comments: For the flow period, a pseudo-stationary (or pseudo-spherical) flow regime is indicated from c. 60 s. No reliable, unique transient evaluation of T is possible with on the flow period. During the recovery period, WBS effects are indicated followed by a transition to pseudo-spherical (or pseudo-statonary) flow.

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-06 16:13
Test section (m):	241.5-261.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

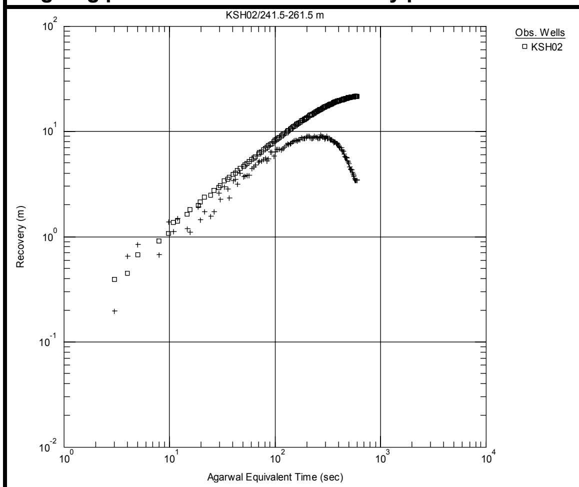
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	2412.82		
p_i (kPa)	2381.45		
p_p(kPa)	2595.79	p_F (kPa)	2384.07
Q_p (m^3/s)	1.07E-07		
tp (min)	1203.00	t_F (s)	1220.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	10.92		
Derivative	Spane 0.2	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	4.89E-09		
T_{Moye}(m^2/s)	4.94E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	500	dt_{e2} (s)	-
T_w (m^2/s)	1.90E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.09E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-1.89	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

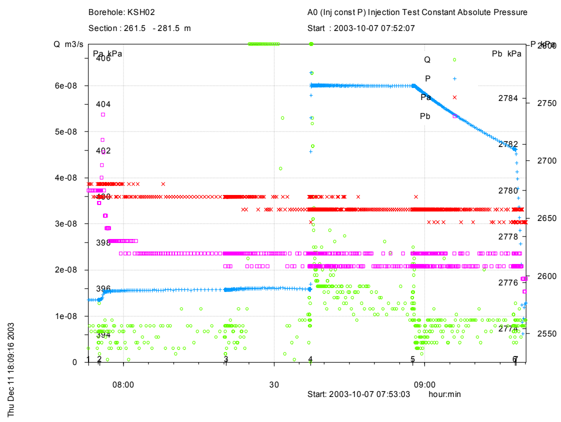
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	1.09E-10
t_1 (min)	100	C_D (-)	-
t_2 (min)	500	ξ (-)	-1.89
T_R (m^2/s)	1.90E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **A pseudo-radial flow regime is indicated from c. 100 s to the end of the flow period. The recovery period is dominated by WBS effects. No clear flow regime is developed after the WBS-dominated period.**

Test Summary Sheet

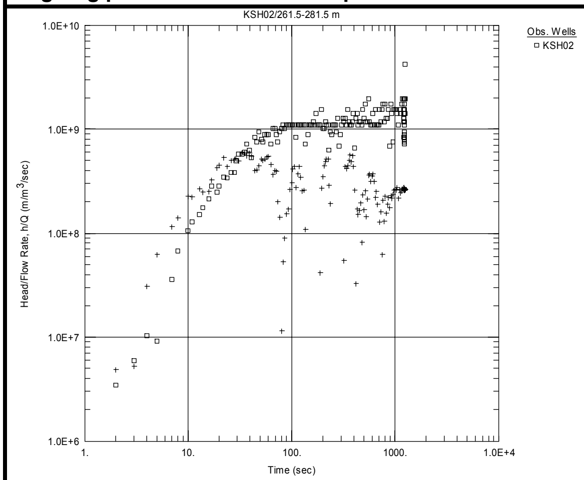
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-07 07:52
Test section (m):	261.5-281.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

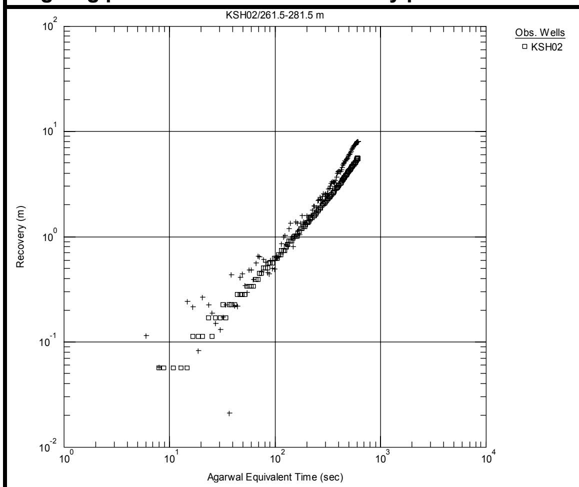


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	2579.21		
p_i (kPa)	2589.71		
p_p(kPa)	2764.95	p_F (kPa)	2710.22
Q_p (m^3/s)	1.43E-08		
tp (min)	1220.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.12		
Derivative	Spane 0.5	Derivative	Spane 0.1
Results	-	Results	
Q/s (m^2/s)	-		
T_{Moye}(m^2/s)			
Flow regime:	-	Flow regime:	WBS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.42E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

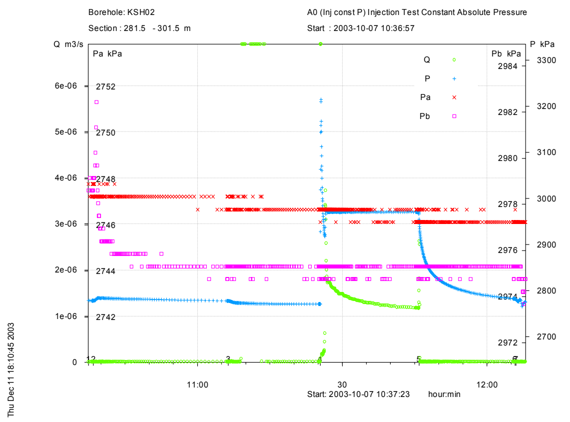
Flow regime:	-	C (m^3/Pa)	2.42E-10
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: Since Q_p is below the measurement limit no transient or steady-state evaluation is performed. For the recovery period WBS effects are indicated.

Test Summary Sheet

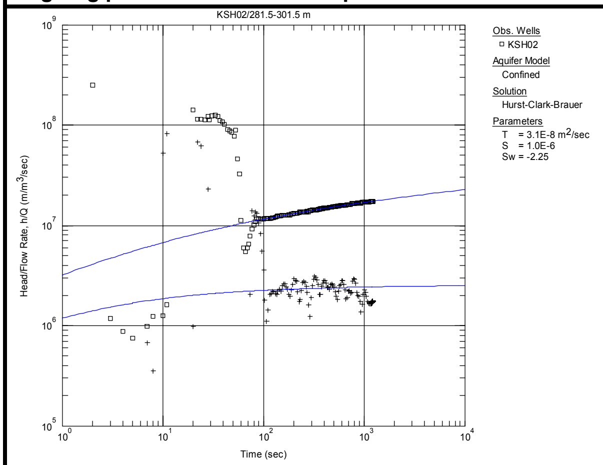
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-07 10:36
Test section (m):	281.5-301.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

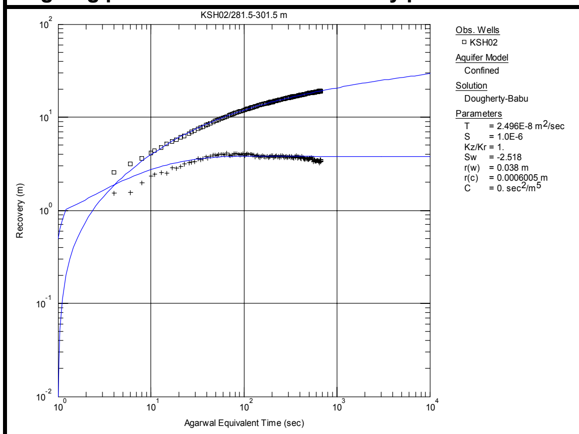


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	2778.22		
p_i (kPa)	2770.48		
p_p(kPa)	2969.62	p_F (kPa)	2782.09
Q_p (m^3/s)	1.18E-06		
tp (min)	1228.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.39		
Derivative	Spane 0.2	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	5.79E-08		
T_{Moye}(m^2/s)	5.76E-08		
Flow regime:	PRF	Flow regime:	PRF
t_1 (s)	100	dt_{e1} (s)	100.00
t_2 (s)	1200	dt_{e2} (s)	600.00
T_w (m^2/s)	3.10E-08	T_w (m^2/s)	2.50E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-2.25	ξ (-)	-2.518
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



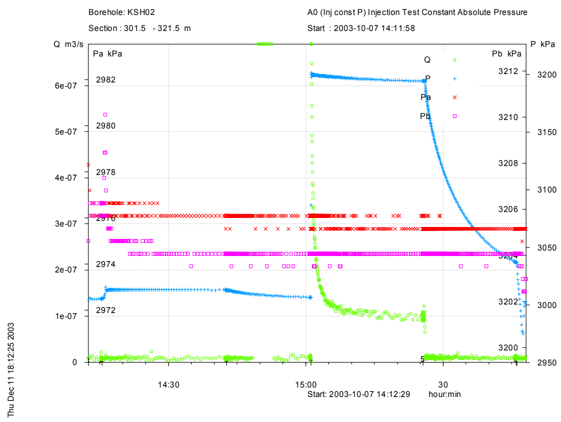
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	-2.25
T_R (m^2/s)	3.10E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 100 s. For the recovery period, a well-defined pseudo-radial flow regime is indicated from c. 100 s.**

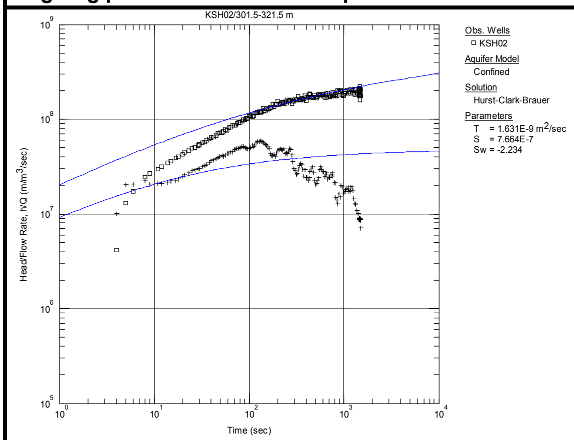
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-07 14:11
Test section (m):	301.5-321.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

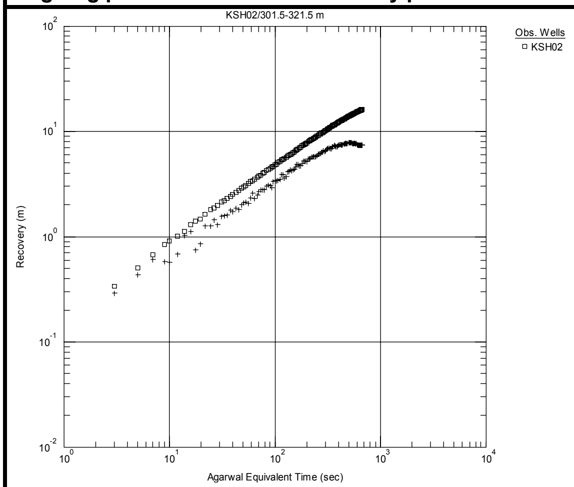


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	3003.76		
p_i (kPa)	3006.52		
p_p(kPa)	3194.47	p_F (kPa)	3037.48
Q_p (m^3/s)	9.86E-08		
tp (min)	1468.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.71		
Derivative	Spane 0.4	Derivative	Spane 0.1
Results		Results	
Q/s (m^2/s)	5.15E-09		
T_{Moye}(m^2/s)	5.30E-09		
Flow regime:	(PLF->)PRF	Flow regime:	WBS
t_1 (s)	400	dt_{e1} (s)	-
t_2 (s)	800	dt_{e2} (s)	-
T_w (m^2/s)	1.63E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.00E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-2.24	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period

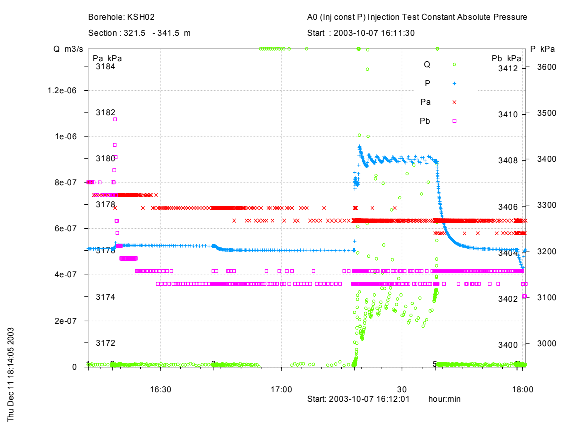


Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	1.00E-10
t_1 (min)	400	C_D (-)	-
t_2 (min)	800	ξ (-)	-2.24
T_R (m^2/s)	1.63E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

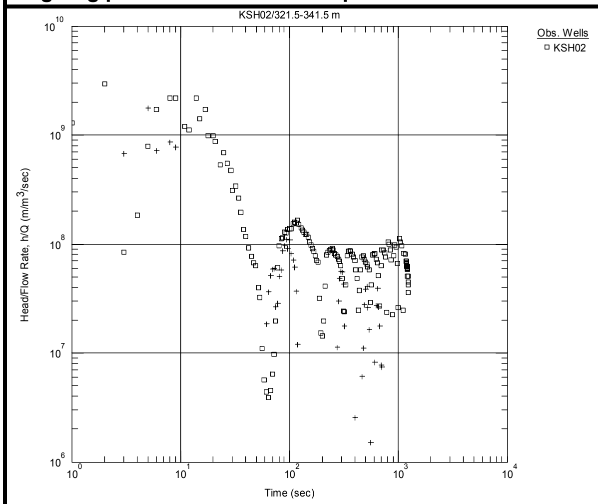
Comments: **During beginning of the flow period, a pseudo-linear flow regime developed, indicating a fracture response. After c. 400 s, a pseudo-radial flow regime is indicated. For the recovery period, WBS effects are indicated but no pseudo-radial flow regime was developed.**

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-07 16:11
Test section (m):	321.5-341.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

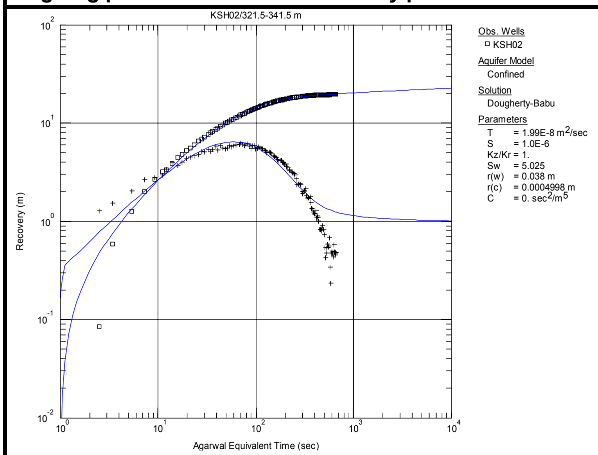
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3206.08		
p_i (kPa)	3202.20		
p_p(kPa)	3395.41	p_F (kPa)	3203.31
Q_p (m^3/s)	3.01E-07		
tp (min)	1203.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.98		
Derivative	Spane 0.5	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	1.27E-08		
T_{Moye}(m^2/s)	1.36E-08		
Flow regime:	PSF	Flow regime:	PSF(PRF)
t_1 (s)	-	dt_{e1} (s)	10.00
t_2 (s)	-	dt_{e2} (s)	600.00
T_w (m^2/s)	-	T_w (m^2/s)	1.99E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	8.49E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	5.03
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

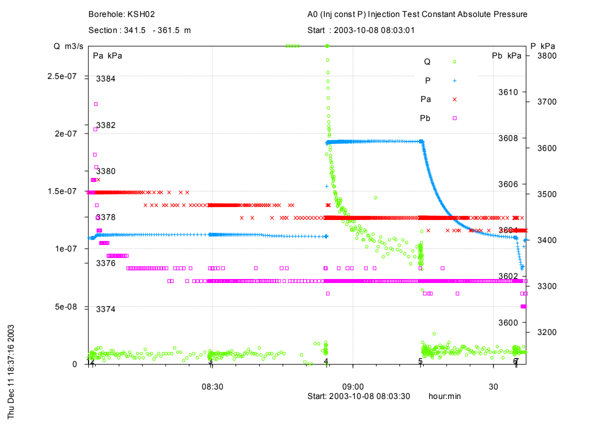
Selected representative parameters			
Flow regime:	PSS	C (m^3/Pa)	8.49E-11
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	1.36E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Due to the oscillationg flow rate and pressure during the flow period, it is difficult to identify any indications of flow regimes. Weak indications of a pseudo-spherical flow regime are seen. For the recovery period, a pseudo-spherical flow regime is indicated from c. 500 s.**

Test Summary Sheet

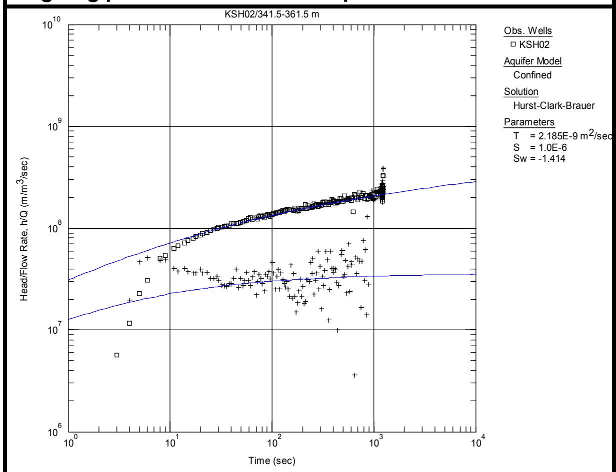
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-08 08:03
Test section (m):	341.5-361.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

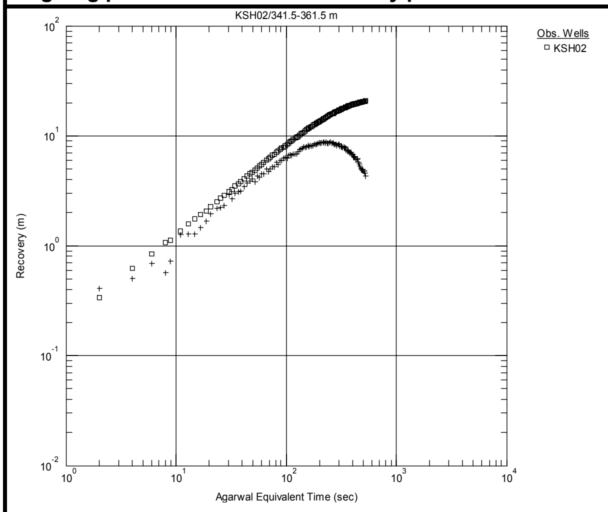


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	3404.53		
p_i (kPa)	3408.26		
p_p(kPa)	3614.32	p_F (kPa)	3405.64
Q_p (m^3/s)	9.44E-08		
tp (min)	1203.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.26		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	4.49E-09		
T_{Moye}(m^2/s)	4.72E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	40	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	2.19E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	7.69E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.41	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

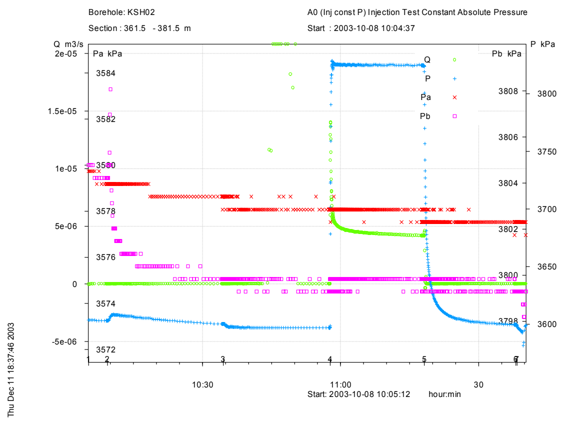
Flow regime:	PRF	C (m^3/Pa)	7.69E-11
t_1 (min)	40	C_D (-)	-
t_2 (min)	1200	ξ (-)	-1.41
T_R (m^2/s)	2.19E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 40 s. The recovery phase is dominated by WBS and no pseudo-radial flow regime is indicated.**

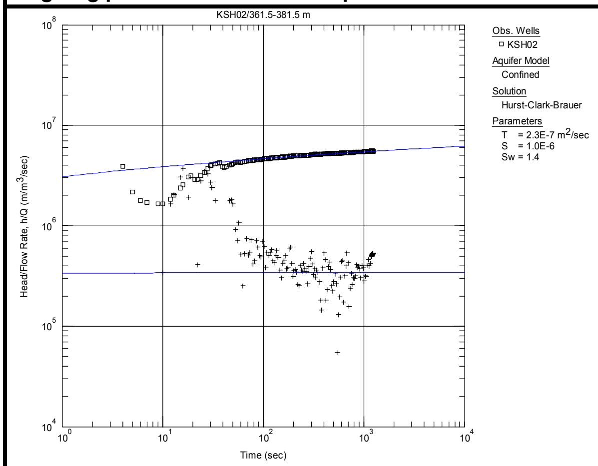
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-08 10:04
Test section (m):	361.5-381.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

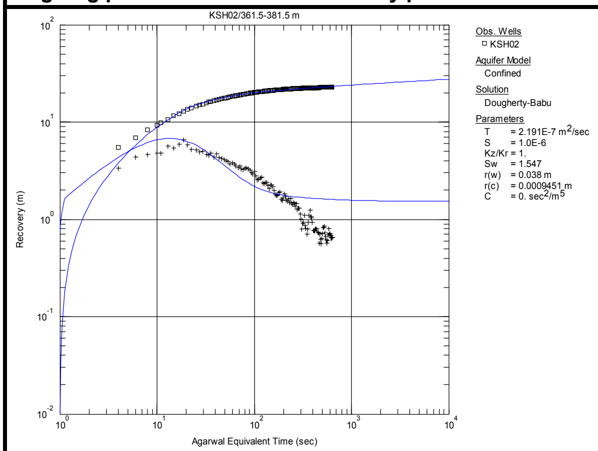
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3603.54		
p_i (kPa)	3597.46		
p_p(kPa)	3823.97	p_F (kPa)	3599.67
Q_p (m^3/s)	4.18E-06		
tp (min)	1228.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.54		
Derivative	Spane 0.1	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	1.81E-07		
T_{Moye}(m^2/s)	1.91E-07		
Flow regime:	PRF	Flow regime:	PSF(PRF)
t_1 (s)	200	dt_{e1} (s)	100.00
t_2 (s)	1200	dt_{e2} (s)	600.00
T_w (m^2/s)	2.30E-07	T_w (m^2/s)	2.19E-07
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	4.25E-10
C_D (-)	-	C_D (-)	-
ξ (-)	1.40	ξ (-)	2.922
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

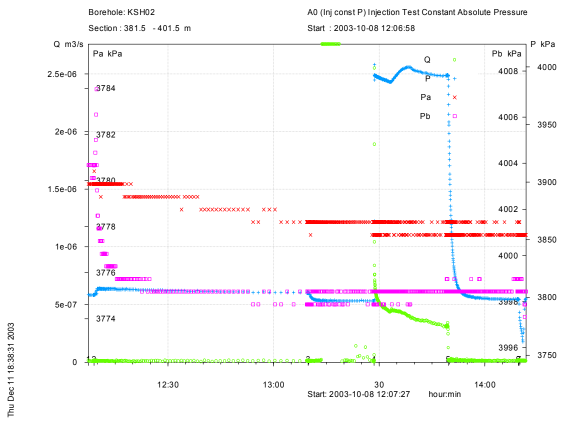
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	4.25E-10
t_1 (min)	200	C_D (-)	-
t_2 (min)	1200	ξ (-)	1.40
T_R (m^2/s)	2.30E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

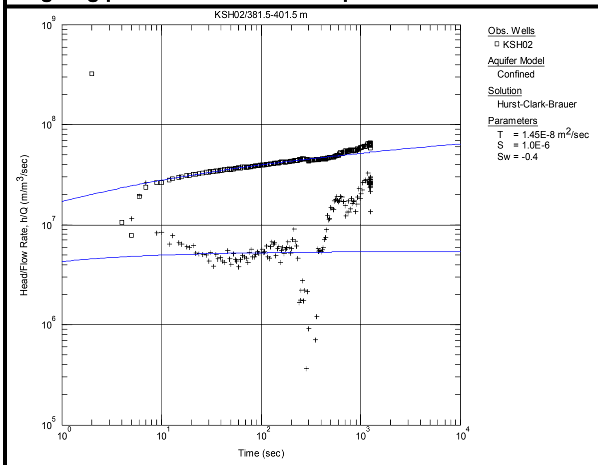
Comments: **For the flow period, a potential pseudo-radial flow regime is indicated from c. 200 s. For the recovery phase, a pseudo-spherical flow regime is indicated.**

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-08 12:06
Test section (m):	381.5-401.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

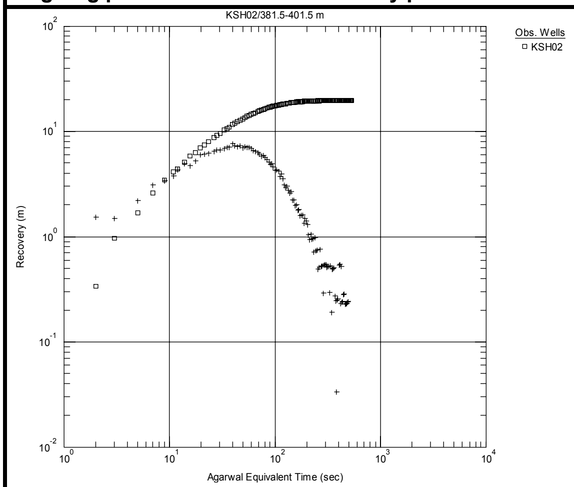
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3802.55		
p_i (kPa)	3797.30		
p_p(kPa)	3992.71	p_F (kPa)	3798.13
Q_p (m^3/s)	3.11E-07		
tp (min)	1234.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.80		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	1.56E-08		
T_{Moye}(m^2/s)	1.63E-08		
Flow regime:	PRF	Flow regime:	WBS->PSS
t_1 (s)	30	dt_{e1} (s)	-
t_2 (s)	200	dt_{e2} (s)	-
T_w (m^2/s)	1.45E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	9.49E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.40	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

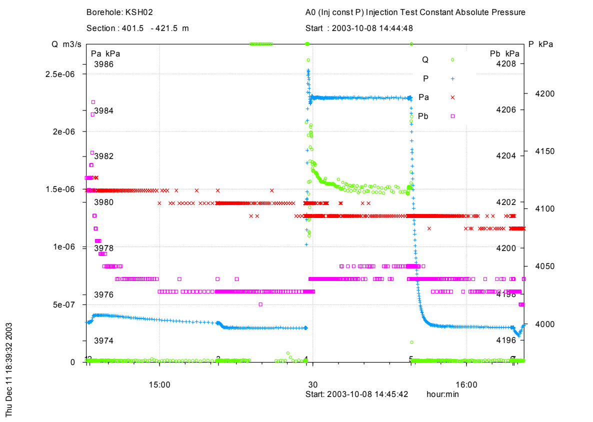
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	9.49E-11
t_1 (min)	30	C_D (-)	-
t_2 (min)	200	ξ (-)	-0.40
T_R (m^2/s)	1.45E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 30 s. After 200 s, effects from the drifting control valve are dominating over possible flow regimes. For the recovery phase, after initial WBS effects, a pseudo-spherical flow regime is indicated from c. 400 s transiting to pseudo-stationary flow regime by end of the recovery period.**

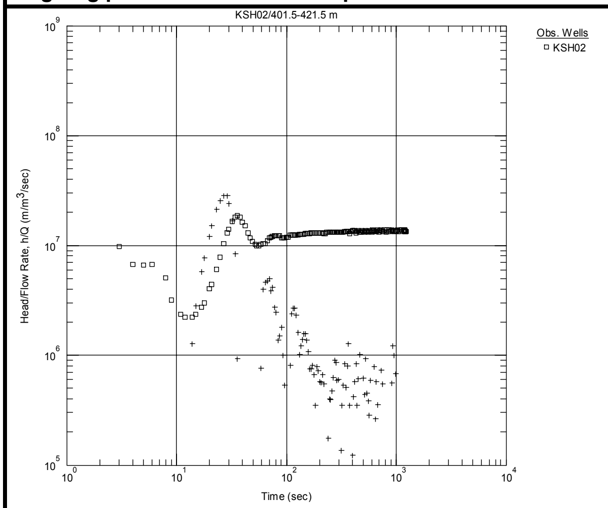
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-08 14:44
Test section (m):	401.5-421.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

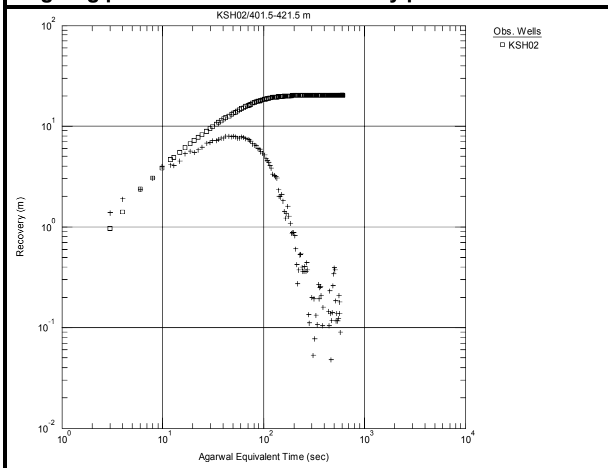
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



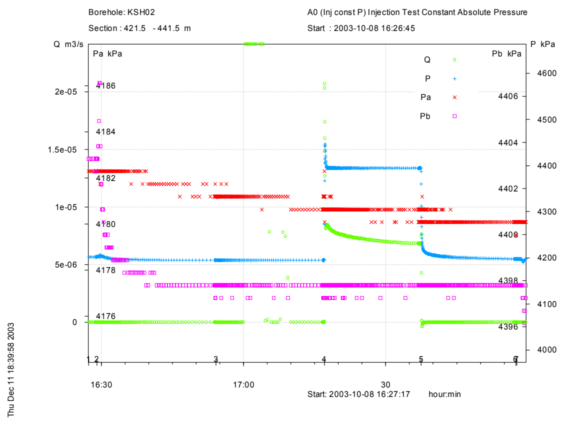
Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4001.55		
p_i (kPa)	3996.59		
p_p(kPa)	4195.87	p_F (kPa)	3997.13
Q_p (m^3/s)	1.51E-06		
tp (min)	1231.00	t_F (s)	1193.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.08		
Derivative	Spane 0.2	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	7.45E-08		
T_{Moye}(m^2/s)	7.90E-08		
Flow regime:	PSF->PSS	Flow regime:	WBS->PSF-
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	3.85E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters			
Flow regime:	PSS	C (m^3/Pa)	3.85E-10
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	7.90E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-spherical flow regime from c. 200 s transiting to pseudo-stationary flow is indicated. For the recovery period, after WBS effects, a pseudo-spherical flow regime is developing followed by a pseudo-stationary flow regime, no transient evaluation of T was possible, neither from the flow nor from the recovery period.**

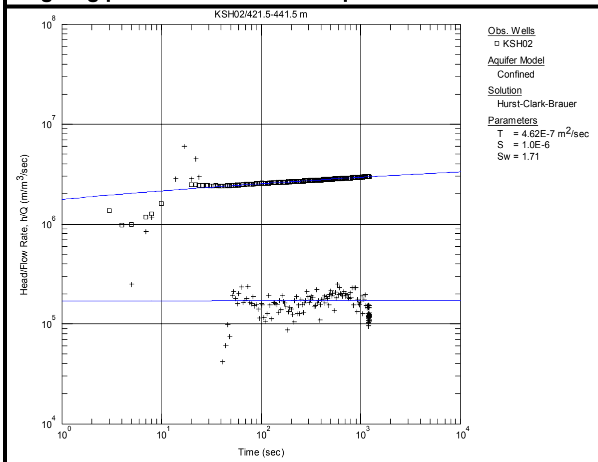
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-08 16:26
Test section (m):	421.5-441.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

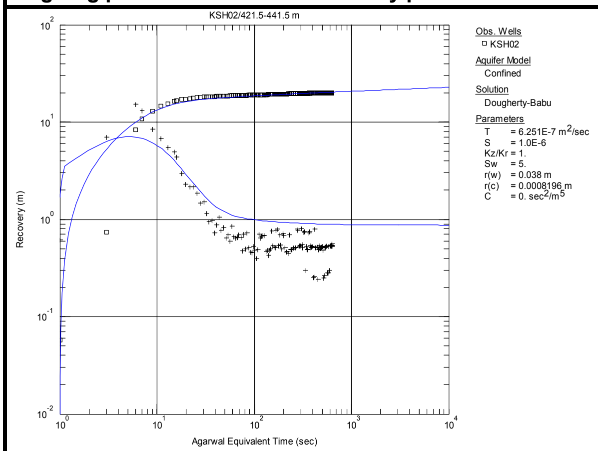


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	4201.67		
p_i (kPa)	4195.31		
p_p(kPa)	4394.46	p_F (kPa)	4197.80
Q_p (m^3/s)	6.84E-06		
tp (min)	1226.00	t_F (s)	1196.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.37		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	3.37E-07		
T_{Moye}(m^2/s)	3.48E-07		
Flow regime:	PRF/PSF	Flow regime:	PRF/PSF
t_1 (s)	20	dt_{e1} (s)	50.00
t_2 (s)	1200	dt_{e2} (s)	600.00
T_w (m^2/s)	4.62E-07	T_w (m^2/s)	6.25E-07
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	1.71	ξ (-)	5
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



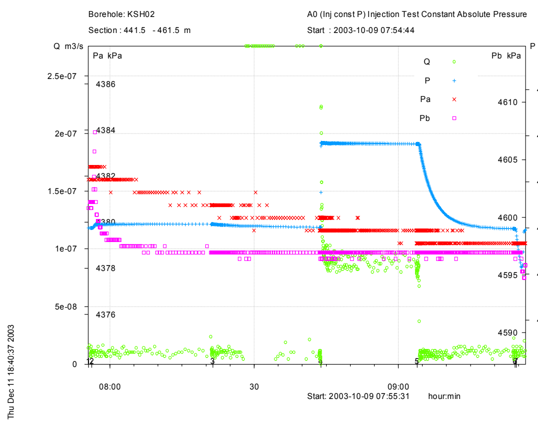
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	20	C_D (-)	-
t_2 (min)	1200	ξ (-)	1.71
T_R (m^2/s)	4.62E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **A pseudo-radial, approaching pseudo-spherical flow regime is indicated during both the flow period and the recovery period. For the flow period, the pseudo-radial/pseudo-spherical flow regime is indicated from c. 50 s and for the recovery period from c. 70 s.**

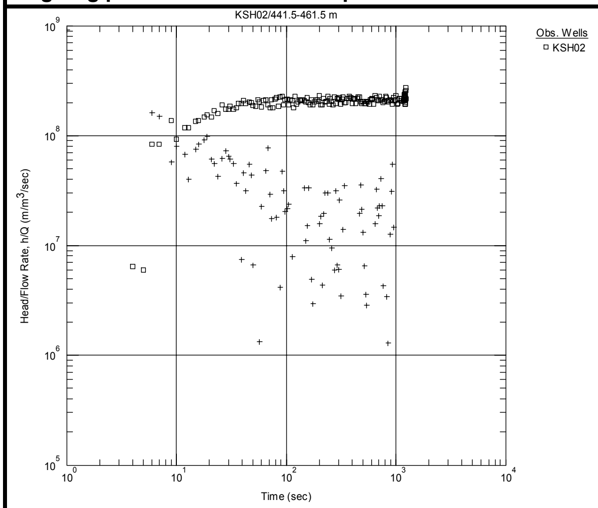
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-09 07:54
Test section (m):	441.5-461.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

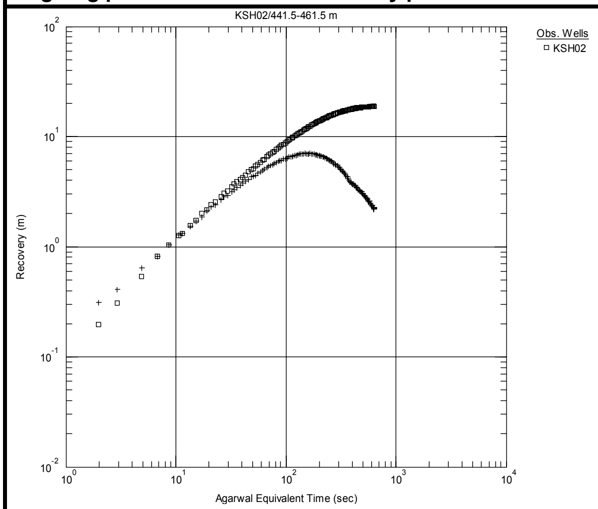
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4400.13		
p_i (kPa)	4401.92		
p_p(kPa)	4582.27	p_F (kPa)	4398.46
Q_p (m^3/s)	8.01E-08		
tp (min)	1203.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.66		
Derivative	Spane 0.3	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	4.76E-09		
T_{Moye}(m^2/s)	4.62E-09		
Flow regime:	PSS	Flow regime:	WBS-
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	8.91E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters

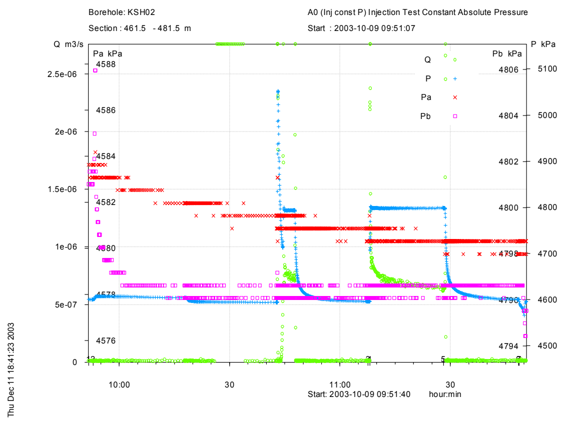
Flow regime:	PSS	C (m^3/Pa)	8.91E-11
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	4.62E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: For the flow period, a pseudo-stationary flow regime is developed almost instantaneously and thus no transient evaluation of T is possible. For the recovery period, WBS effects transitioning to pseudo-spherical flow regime are seen.

Test Summary Sheet

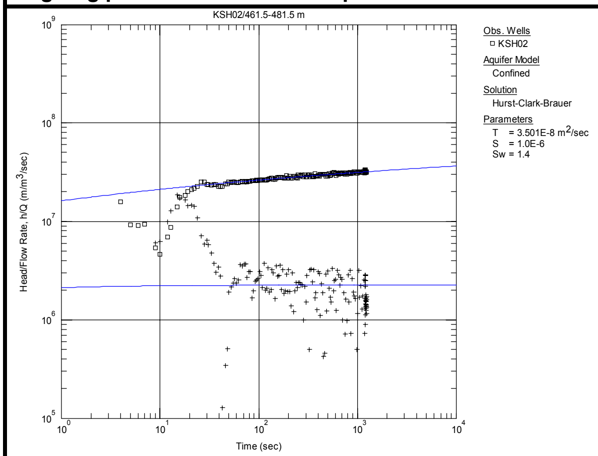
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-09 09:51
Test section (m):	461.5-481.5	**Responsible for test**	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

Linear plot Q and p

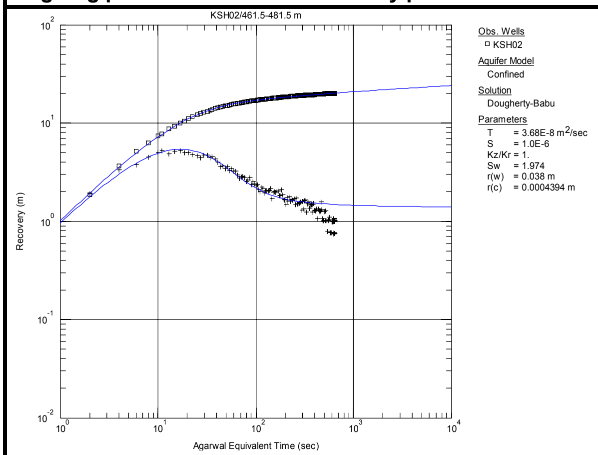


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4600.24		
p_i (kPa)	4595.95		
p_p(kPa)	4797.72	p_F (kPa)	4600.24
Q_p (m^3/s)	6.34E-07		
tp (min)	1203.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.93		
Derivative	Bourdet 0.5	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	3.08E-08		
T_{Moye}(m^2/s)	3.26E-08		
Flow regime:	PRF/PSF	Flow regime:	WBS-
t_1 (s)	70	dt_{e1} (s)	40.00
t_2 (s)	1200	dt_{e2} (s)	600.00
T_w (m^2/s)	3.50E-08	T_w (m^2/s)	3.68E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	6.46E-11
C_D (-)	-	C_D (-)	-
ξ (-)	1.40	ξ (-)	1.974
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

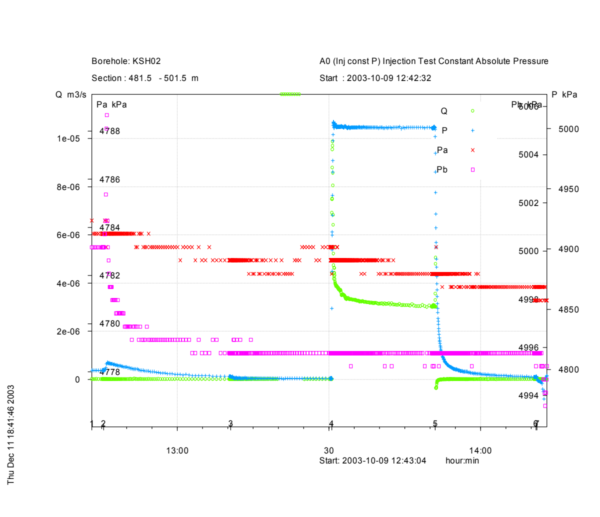
Flow regime:	PRF	C (m^3/Pa)	6.46E-11
t_1 (min)	70	C_D (-)	-
t_2 (min)	1200	ξ (-)	1.40
T_R (m^2/s)	3.50E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial, approaching to pseudo-spherical flow regime is indicated from c. 70 s. For the recovery period, no pseudo-radial flow regime is developed although indications of transition to a pseudo-radial or pseudo-spherical flow regime exist by end of the recovery period.**

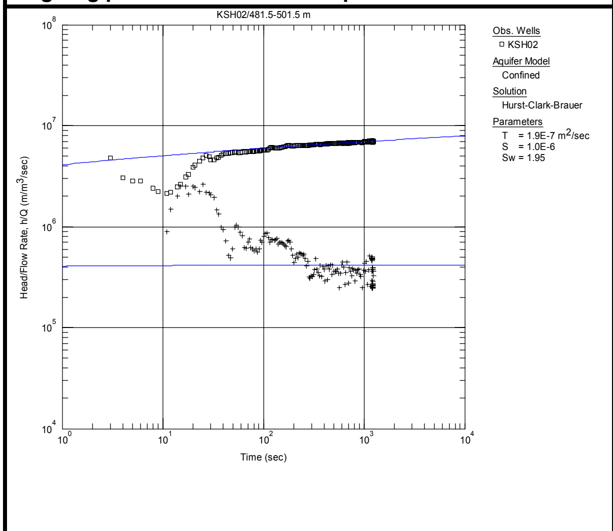
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-09 12:42
Test section (m):	481.5-501.5	**Responsible for test**	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

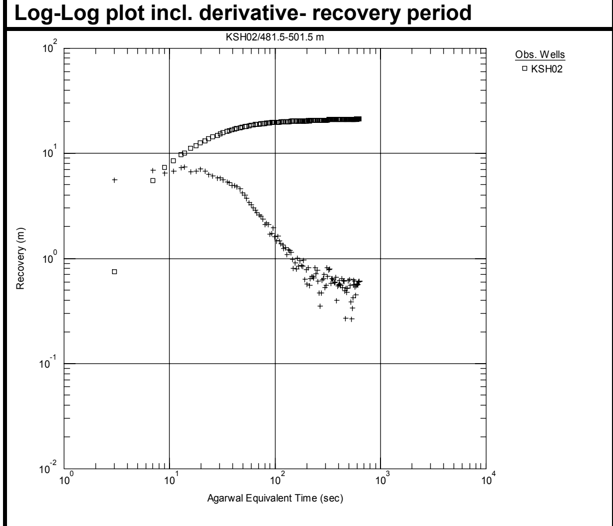
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	4799.24		
p_i (kPa)	4792.61		
p_p(kPa)	5000.33	p_F (kPa)	4793.72
Q_p (m^3/s)	3.02E-06		
tp (min)	1230.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.19		
Derivative	Bourdet 0.5	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	1.43E-07		
T_{Moye}(m^2/s)	1.52E-07		
Flow regime:	PRF/PSF	Flow regime:	WBS->PSF
t_1 (s)	300	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	1.90E-07	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	1.95	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

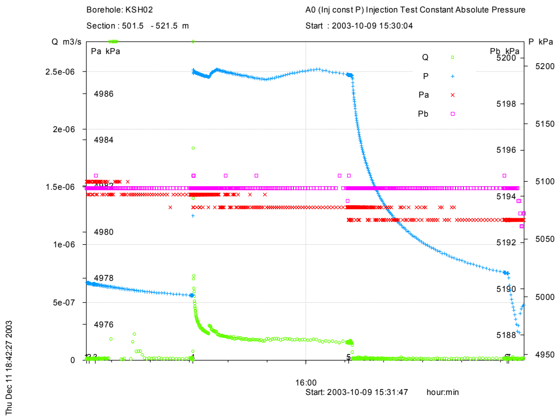
Selected representative parameters			
Flow regime:	PSS	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	1.95
T_R (m^2/s)	1.90E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial (close to pseudo-spherical) flow regime is indicated from c. 300 s. For the recovery period, a pseudo-spherical flow regime is indicated from c. 300 s. No unique transient evaluation could be made from the recovery phase.**

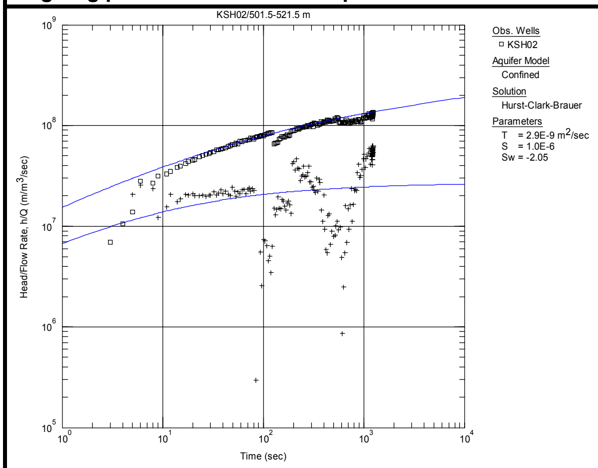
Test Summary Sheet

Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-10-09 15:30**
Test section (m):	**501.5-521.5**	**Responsible for test**	**T. Svensson**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J-E. Ludvigson**

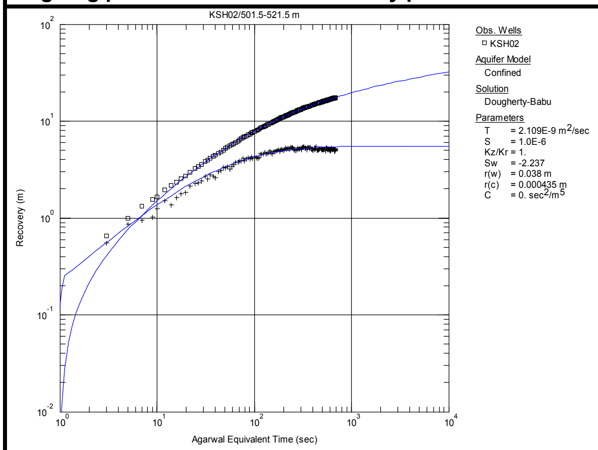
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**5012.07**		
p_i (kPa)	**5001.15**		
p_p(kPa)	**5192.28**	**p_F (kPa)**	**5020.92**
Q_p (m^3/s)	**1.51E-07**		
tp (min)	**1203.00**	**t_F (s)**	**1221.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**14.49**		
Derivative	**Bourdet 0.4**	**Derivative**	**Bourdet 0.1**
Results		**Results**	
Q/s (m^2/s)	**7.77E-09**		
T_{Moye}(m^2/s)	**8.08E-09**		
Flow regime:	**PRF**	**Flow regime:**	**WBS->PRF**
t_1 (s)	**100**	**dt_{e1} (s)**	**0.00**
t_2 (s)	**1200**	**dt_{e2} (s)**	**600.00**
T_w (m^2/s)	**2.90E-09**	**T_w (m^2/s)**	**2.11E-09**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m^3/Pa)	**-**	**C (m^3/Pa)**	**7.71E-11**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**-2.05**	**ξ (-)**	**-2.237**
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

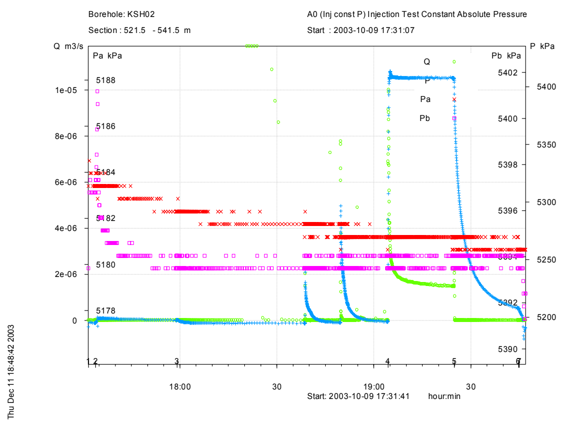
Selected representative parameters

Flow regime:	**PRF**	**C (m^3/Pa)**	**7.71E-11**
t_1 (min)	**100**	**C_D (-)**	**-**
t_2 (min)	**1200**	**ξ (-)**	**-2.05**
T_R (m^2/s)	**2.90E-09**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **Although the flow period is disturbed from oscillating pressure and flow rate, indications of a pseudo-radial flow regime can be identified from c. 100 s. For the recovery period, a well-defined pseudo-radial flow regime is indicated from c. 300 s.**

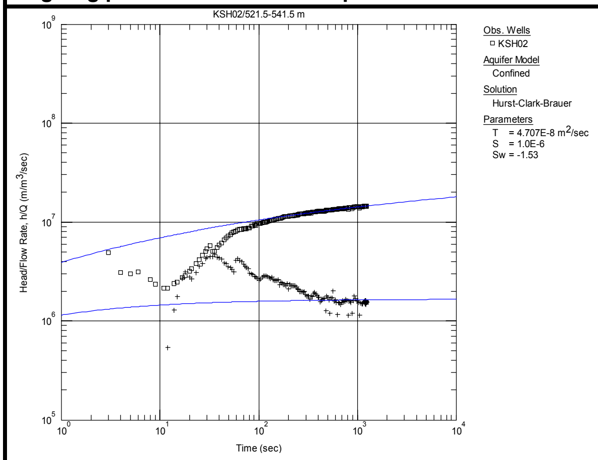
Test Summary Sheet			
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-09 17:31
Test section (m):	521.5-541.5	**Responsible for test**	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

Linear plot Q and p

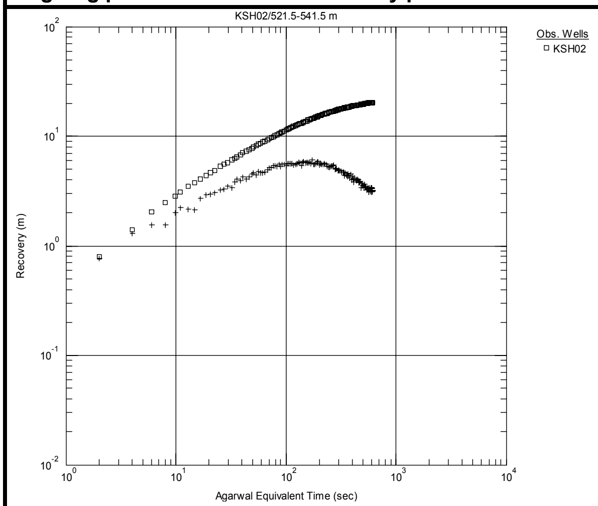


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5191.73		
p_i (kPa)	5196.29		
p_p(kPa)	5406.35	p_F (kPa)	5207.77
Q_p (m^3/s)	1.48E-06		
tp (min)	1231.00	t_F (s)	1191.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.79		
Derivative	Bourdet 0.5	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	6.90E-08		
T_{Moye}(m^2/s)	7.32E-08		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	500	dt_{e1} (s)	-
t_2 (s)	1000	dt_{e2} (s)	-
T_w (m^2/s)	4.71E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	4.52E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-1.53	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period

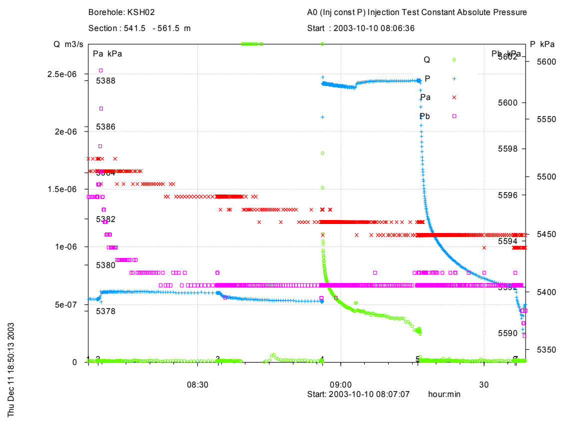


Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	4.52E-10
t_1 (min)	500	C_D (-)	-
t_2 (min)	1000	ξ (-)	-1.53
T_R (m^2/s)	4.71E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 500 s. During the recovery period, WBS effects dominate and no pseudo-radial flow regime is developed.**

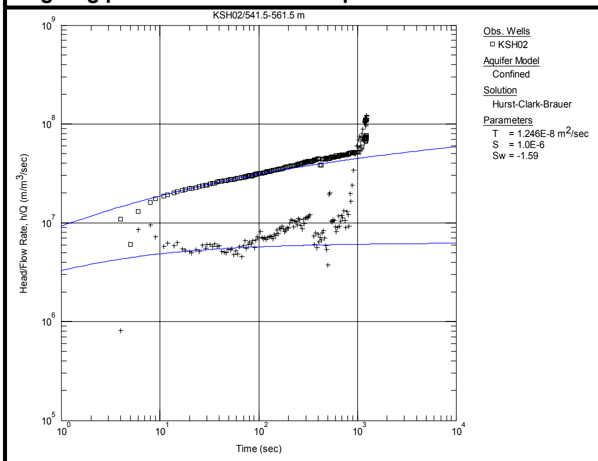
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-10 08:06
Test section (m):	541.5-561.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

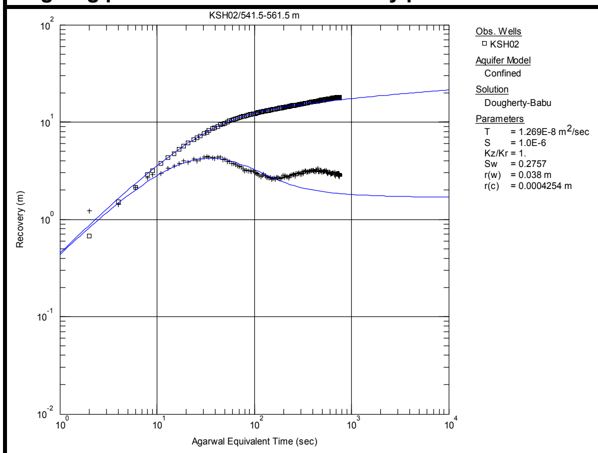


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5393.50		
p_i (kPa)	5391.57		
p_p(kPa)	5583.66	p_F (kPa)	5404.01
Q_p (m^3/s)	2.70E-07		
tp (min)	1201.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.07		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	1.38E-08		
T_{Moye}(m^2/s)	1.46E-08		
Flow regime:	PRF	Flow regime:	PRF
t_1 (s)	30	dt_{e1} (s)	0.00
t_2 (s)	100	dt_{e2} (s)	200.00
T_w (m^2/s)	1.25E-08	T_w (m^2/s)	1.27E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	9.15E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.59	ξ (-)	0.2757
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



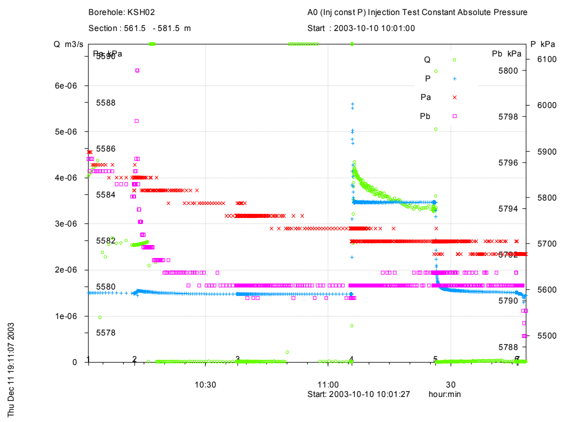
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	9.15E-11
t_1 (min)	30	C_D (-)	-
t_2 (min)	100	ξ (-)	-1.59
T_R (m^2/s)	1.25E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 30 s until at least c. 100 s. After 100 s, the pressure variations makes it difficult to identify any flow regimes. For the recovery period, a pseudo-radial flow regime is indicated from c. 150 s and persists only until c. 200 s. By the end of recovery, a second pseudo-radial flow regime is indicated.**

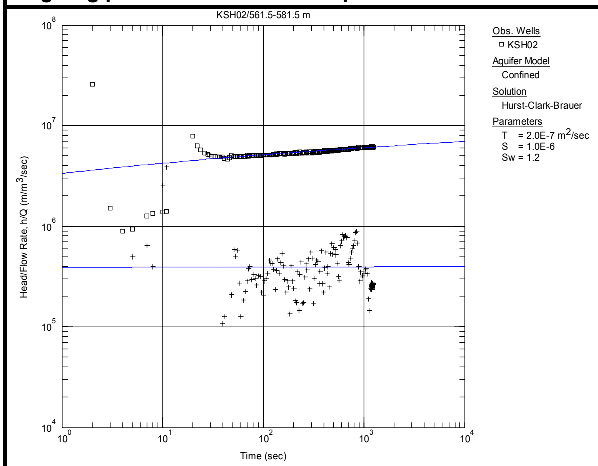
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-10 10:01
Test section (m):	561.5-581.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

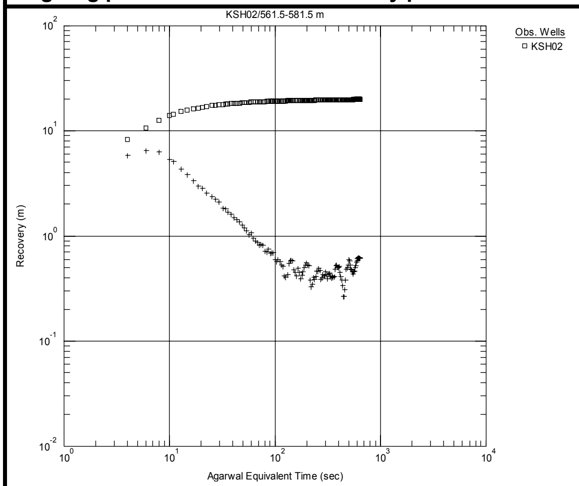
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5593.61		
p_i (kPa)	5590.43		
p_p(kPa)	5789.44	p_F (kPa)	5594.17
Q_p (m^3/s)	3.31E-06		
tp (min)	1228.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.37		
Derivative	Spane 0.2	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	1.63E-07		
T_{Moye}(m^2/s)	1.64E-07		
Flow regime:	PRF	Flow regime:	PSF
t_1 (s)	70	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	2.00E-07	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	1.20	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters

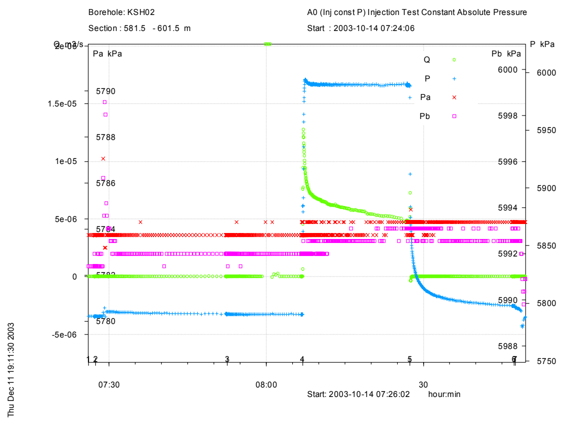
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	70	C_D (-)	-
t_2 (min)	1200	ξ (-)	1.20
T_R (m^2/s)	2.00E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 70 s and remains throughout the entire flow period. For the recovery period, a pseudo-spherical flow regime is indicated from c. 100 s and remains throughout the entire recovery period.**

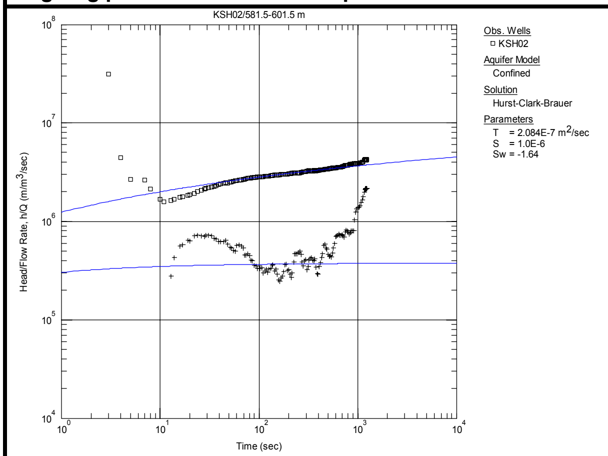
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-14 07:24
Test section (m):	581.5-601.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

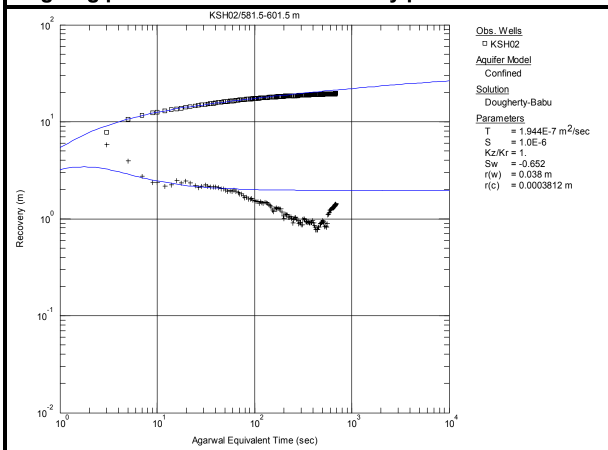
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5788.75		
p_i (kPa)	5790.41		
p_p(kPa)	5988.86	p_F (kPa)	5797.60
Q_p (m^3/s)	4.75E-06		
tp (min)	1229.00	t_F (s)	1193.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.69		
Derivative	Bourdet 0.2	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	2.35E-07		
T_{Moye}(m^2/s)	2.50E-07		
Flow regime:	PRF-	Flow regime:	PRF1->PRF2-
t_1 (s)	100	dt_{e1} (s)	10.00
t_2 (s)	400	dt_{e2} (s)	50.00
T_w (m^2/s)	2.08E-07	T_w (m^2/s)	1.94E-07
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-1.64	ξ (-)	-0.652
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters

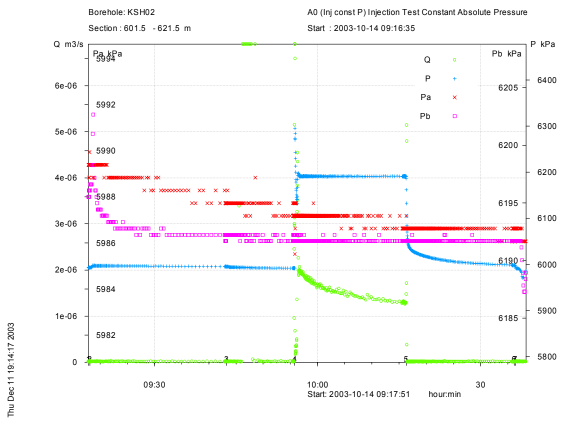
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	100	C_D (-)	-
t_2 (min)	400	ξ (-)	-1.64
T_R (m^2/s)	2.08E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 100 s to c. 400 s. After 400 s, no-flow hydraulic boundary effects are indicated. During the recovery period, a first pseudo-radial flow regime of short persistence is indicated from c. 10 to 50 s. A second pseudo/radial flow regime is indicated between c. 300 and 400 s.**

Test Summary Sheet

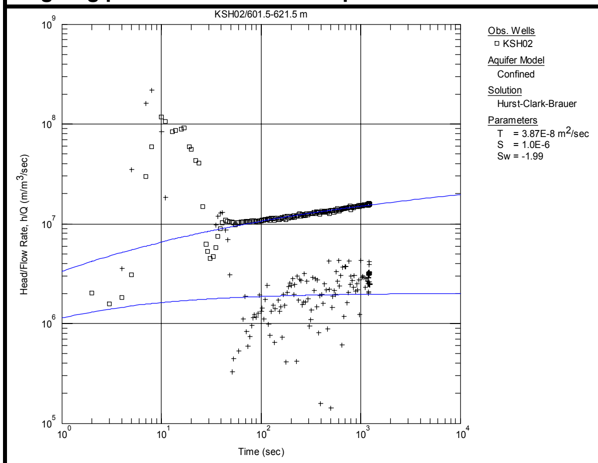
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-14 09:16
Test section (m):	601.5-621.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

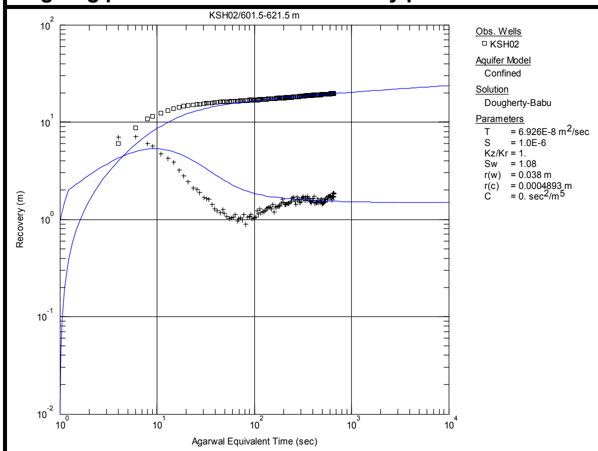


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5992.73		
p_i (kPa)	5991.63		
p_p(kPa)	6190.63	p_F (kPa)	5997.71
Q_p (m^3/s)	1.29E-06		
tp (min)	1231.00	t_F (s)	1191.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.95		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	6.34E-08		
T_{Moye}(m^2/s)	6.64E-08		
Flow regime:	PRF	Flow regime:	PRF
t_1 (s)	300	dt_{e1} (s)	300.00
t_2 (s)	1200	dt_{e2} (s)	600.00
T_w (m^2/s)	3.87E-08	T_w (m^2/s)	6.93E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-1.99	ξ (-)	1.08
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

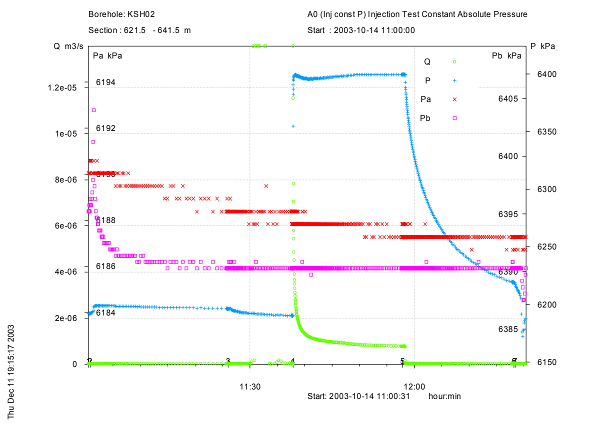
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	300	C_D (-)	-
t_2 (min)	1200	ξ (-)	-1.99
T_R (m^2/s)	3.87E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: For the flow period, an approximate pseudo-radial (slightly increasing derivative) flow regime is indicated from c. 300 s persisting throughout the entire flow period. For the recovery period, a pseudo-radial flow regime is also indicated from c. 300 s persisting throughout the recovery period.

Test Summary Sheet

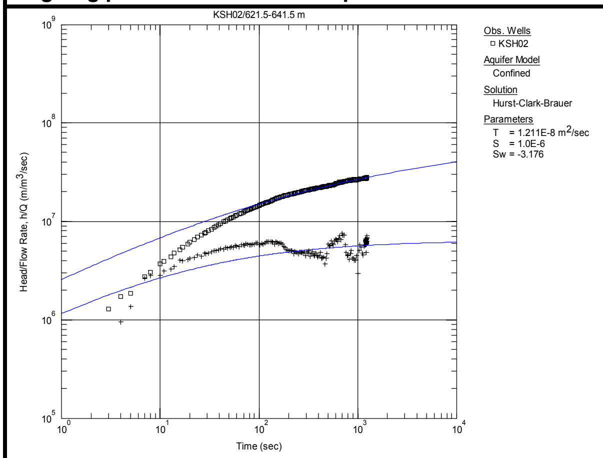
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-14 11:00
Test section (m):	621.5-641.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

Linear plot Q and p

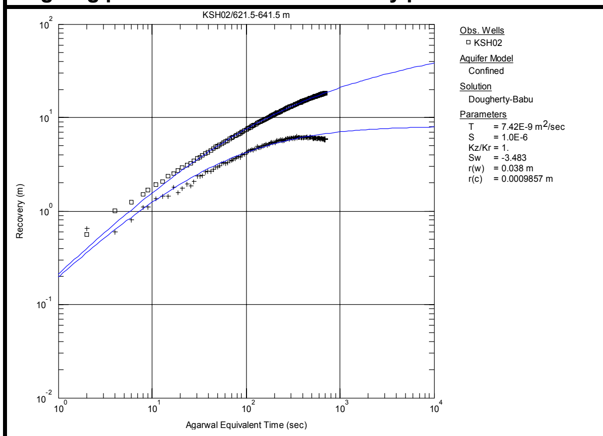


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6192.30		
p_i (kPa)	6190.63		
p_p(kPa)	6399.60	p_F (kPa)	6219.38
Q_p (m^3/s)	7.74E-07		
tp (min)	1201.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.26		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	3.63E-08		
T_{Moye}(m^2/s)	3.86E-08		
Flow regime:	PRF	Flow regime:	PRF
t_1 (s)	200	dt_{e1} (s)	10.00
t_2 (s)	1200	dt_{e2} (s)	400.00
T_w (m^2/s)	1.21E-08	T_w (m^2/s)	7.42E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-3.18	ξ (-)	-3.483
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

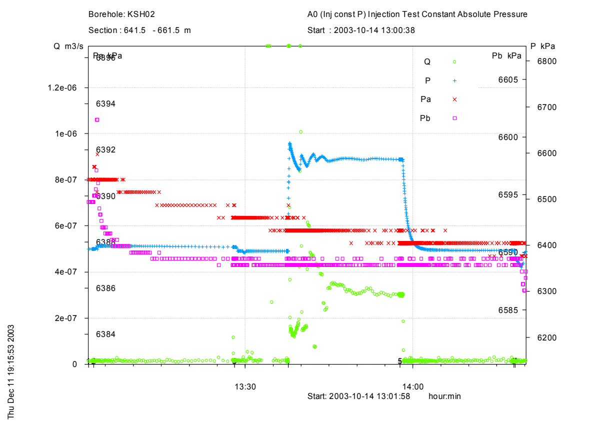
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	200	C_D (-)	-
t_2 (min)	1200	ξ (-)	-3.18
T_R (m^2/s)	1.21E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 200 s to the end of the flow period. For the recovery period, a transition to a pseudo-radial flow regime is indicated by the end of recovery.**

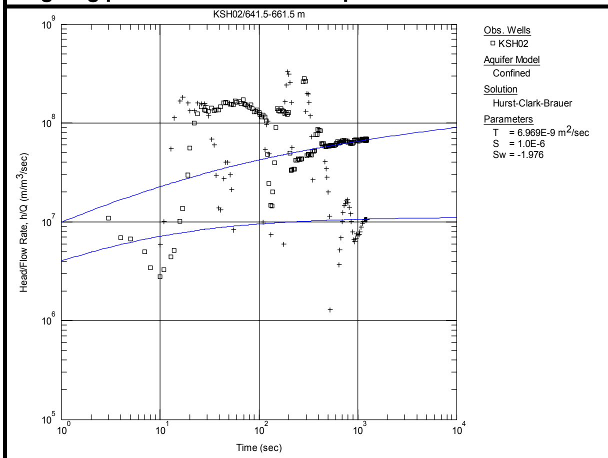
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-14 13:00
Test section (m):	641.5-661.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

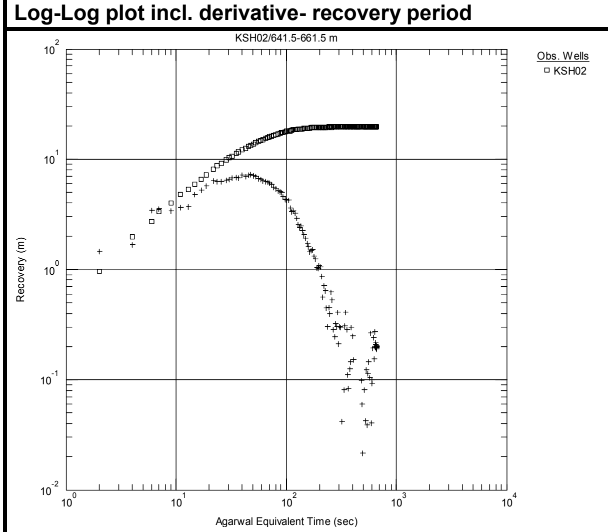
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	6391.85		
p_i (kPa)	6387.43		
p_p(kPa)	6586.44	p_F (kPa)	6388.54
Q_p (m^3/s)	3.00E-07		
tp (min)	1201.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.56		
Derivative	Spane 0.4	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	1.48E-08		
T_{Moye}(m^2/s)	1.56E-08		
Flow regime:	PRF	Flow regime:	WBS-
t_1 (s)	800	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	6.97E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	6.12E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.98	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

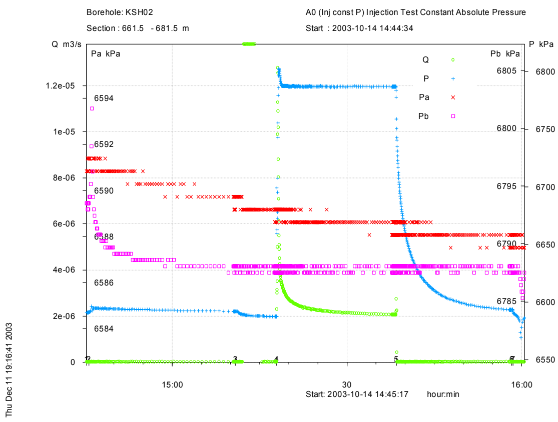
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	6.12E-11
t_1 (min)	800	C_D (-)	-
t_2 (min)	1200	ξ (-)	-1.98
T_R (m^2/s)	6.97E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: For the flow period, a pseudo-radial flow regime is indicated from c. 600 s. It may have developed earlier but due to the oscillations it is not possible to discern. For the recovery period, a pseudo-spherical (or almost pseudo-stationary) flow regime is indicated from c. 300 s and persists throughout the entire recovery period.

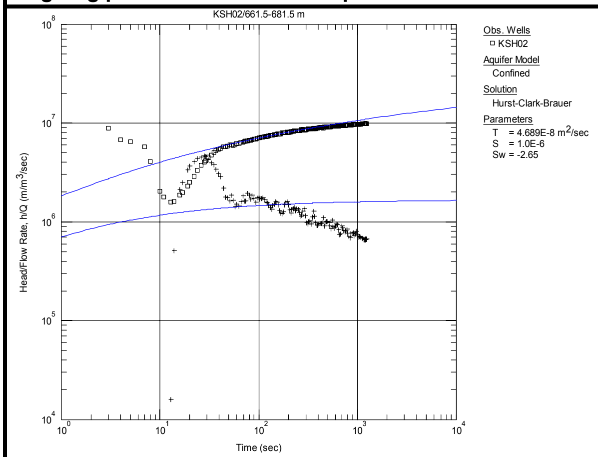
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-14 14:44
Test section (m):	661.5-681.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

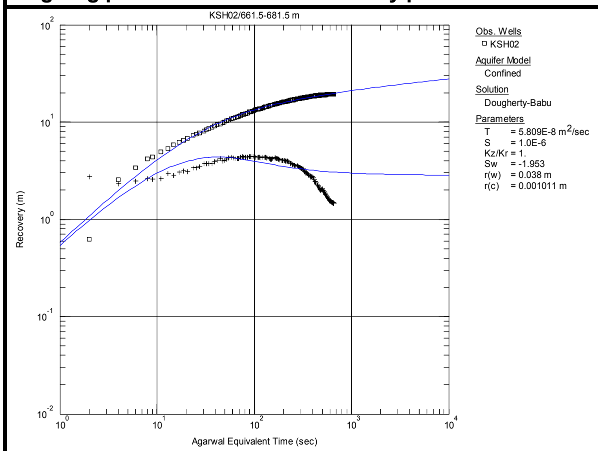
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	6590.86		
p_i (kPa)	6587.54		
p_p(kPa)	6786.14	p_F (kPa)	6593.07
Q_p (m^3/s)	2.06E-06		
tp (min)	1233.00	t_F (s)	1189.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.85		
Derivative	Spane 0.2	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	1.02E-07		
T_{Moye}(m^2/s)	1.08E-07		
Flow regime:	PRF->PSF	Flow regime:	PLF->PRF-
t_1 (s)	60	dt_{e1} (s)	40.00
t_2 (s)	200	dt_{e2} (s)	200.00
T_w (m^2/s)	4.69E-08	T_w (m^2/s)	5.81E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-2.65	ξ (-)	-1.953
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

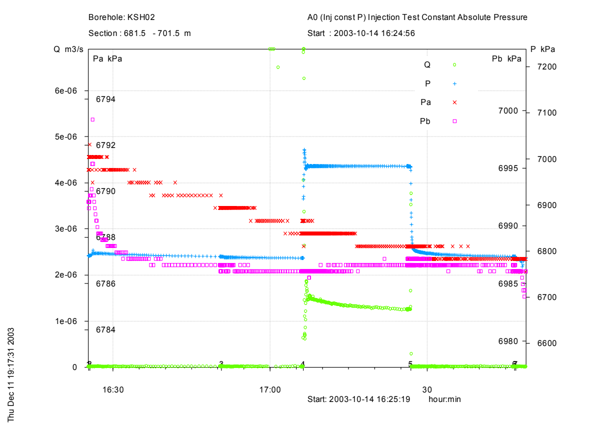
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	60	C_D (-)	-
t_2 (min)	200	ξ (-)	-2.65
T_R (m^2/s)	4.69E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: The transient evaluation of T from the pseudo-radial flow regime during the flow period is judged to be the best estimate of transmissivity of the formation adjacent to the test section. Thus, T_R is 4.7E-08 m^2/s with the range 4.0E-08 – 8.0E-08 m^2/s.

Test Summary Sheet

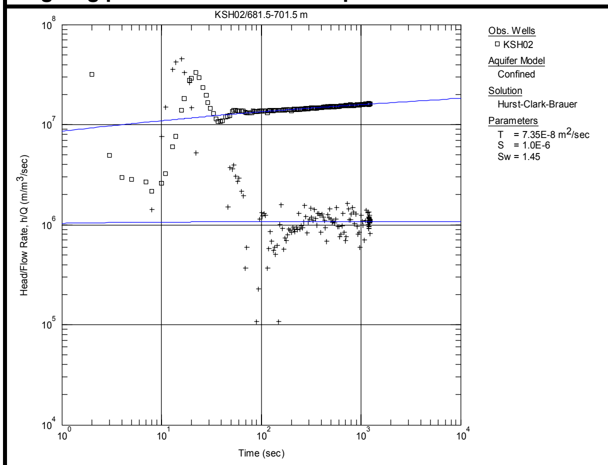
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-14 16:24
Test section (m):	681.5-701.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

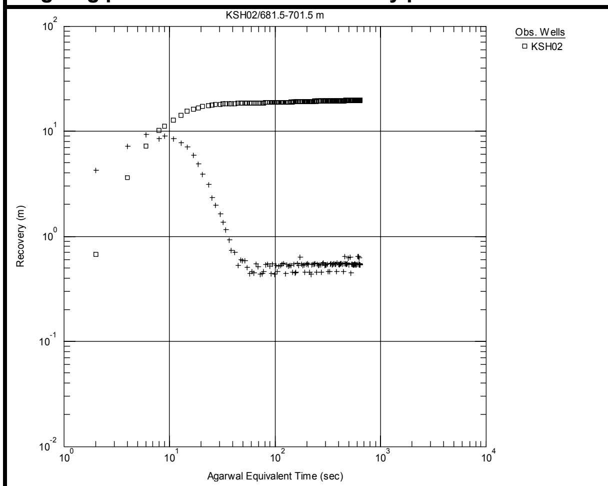


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6790.42		
p_i (kPa)	6785.03		
p_p(kPa)	6983.21	p_F (kPa)	6788.21
Q_p (m^3/s)	1.25E-06		
tp (min)	1233.00	t_F (s)	1189.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	17.16		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.3
Results		**Results**	
Q/s (m^2/s)	6.21E-08		
T_{Moye}(m^2/s)	6.48E-08		
Flow regime:	PRF	Flow regime:	PSF
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	7.35E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	1.45	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



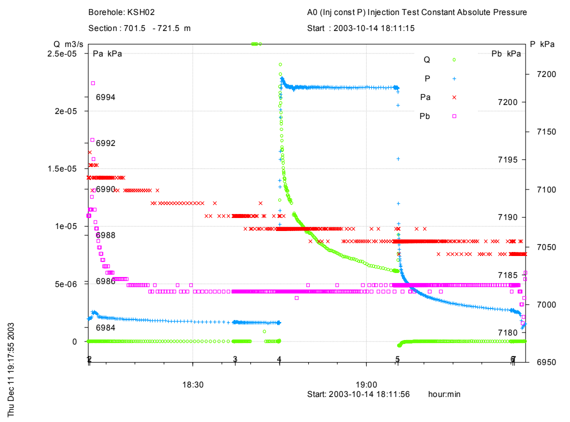
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	1.45
T_R (m^2/s)	7.35E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

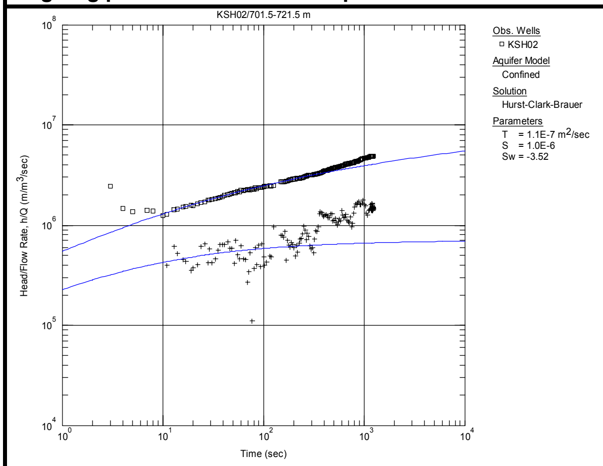
Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 100 s and persists throughout the flow period. For the recovery period, a pseudo-spherical flow regime is indicated from c. 60 s and persists throughout the entire recovery period.**

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-14 18:11
Test section (m):	701.5-721.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

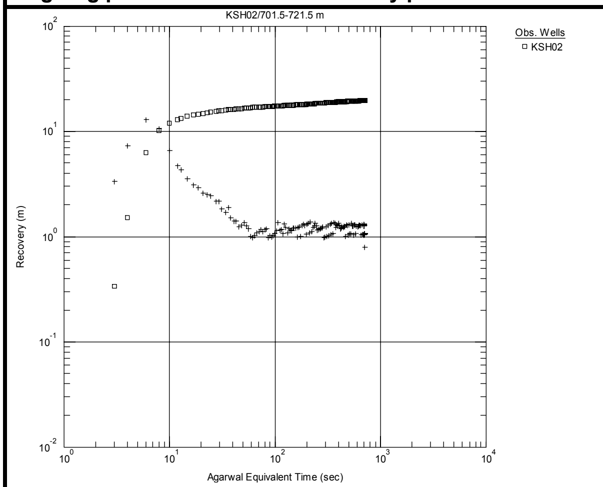
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



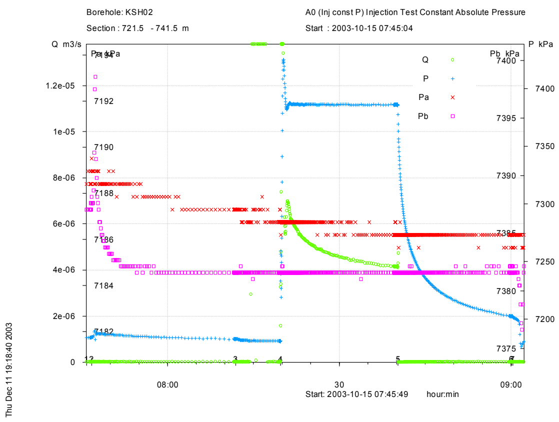
Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6987.77		
p_i (kPa)	6984.45		
p_p(kPa)	7187.88	p_F (kPa)	6994.96
Q_p (m^3/s)	6.11E-06		
tp (min)	1229.00	t_F (s)	1193.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	17.46		
Derivative	Bourdet 0.1	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	2.95E-07		
T_{Moye}(m^2/s)	3.10E-07		
Flow regime:	PRF->No-flow	Flow regime:	PSF
t_1 (s)	10	dt_{e1} (s)	-
t_2 (s)	200	dt_{e2} (s)	-
T_w (m^2/s)	1.10E-07	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-3.52	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	10	C_D (-)	-
t_2 (min)	200	ξ (-)	-3.52
T_R (m^2/s)	1.10E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 10 s and persists until 100 s. After this time, no-flow hydraulic boundary effects are seen. For the recovery period, a pseudo- spherical flow regime is indicated from c. 80 s and persists throughout the recovery period.**

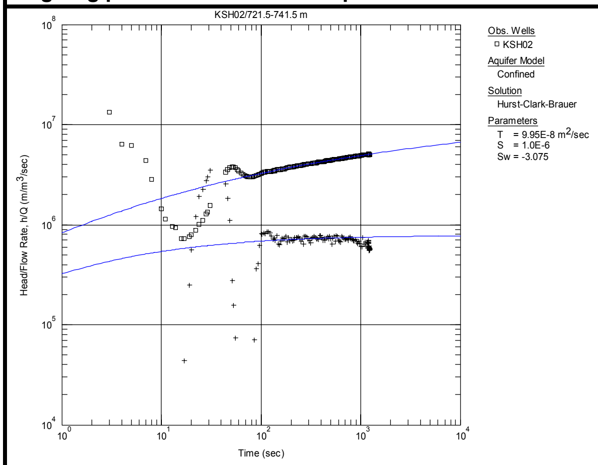
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-15 07:45
Test section (m):	721.5-741.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

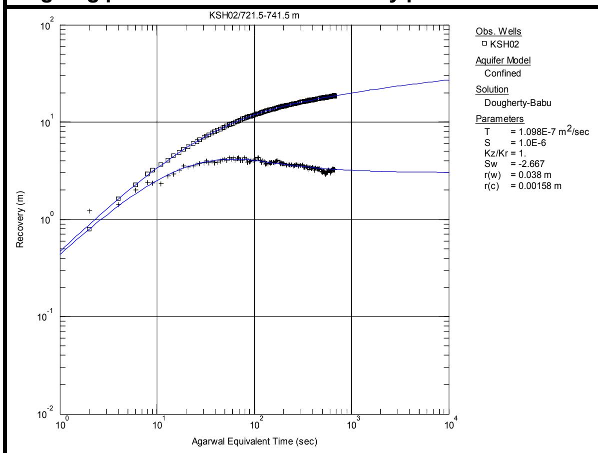


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	7184.02		
p_i (kPa)	7180.98		
p_p(kPa)	7385.92	p_F (kPa)	7202.82
Q_p (m^3/s)	4.15E-06		
tp (min)	1233.00	t_F (s)	1189.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	17.79		
Derivative	Bourdet 0.3	Derivative	Spane 0.1
Results		Results	
Q/s (m^2/s)	1.98E-07		
T_{Moye}(m^2/s)	2.14E-07		
Flow regime:	PRF	Flow regime:	WBS->PRF
t_1 (s)	100	dt_{e1} (s)	0.00
t_2 (s)	1200	dt_{e2} (s)	600.00
T_w (m^2/s)	9.95E-08	T_w (m^2/s)	1.10E-07
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	6.33E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-3.08	ξ (-)	-2.667
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



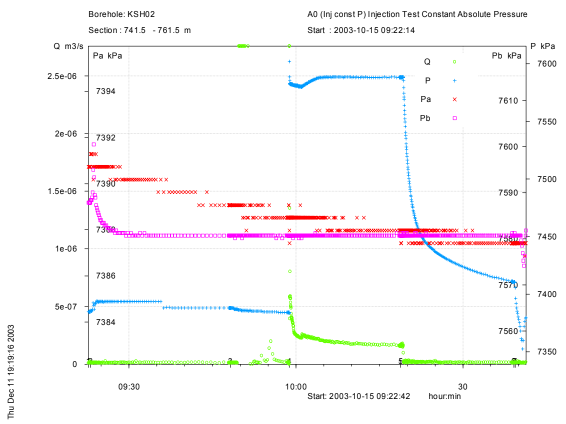
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	6.33E-10
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	-3.08
T_R (m^2/s)	9.95E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 100 s and persists until the end of the flow period. The recovery period shows initial effects of wellbore storage, followed by a pseudo-radial flow regime.**

Test Summary Sheet

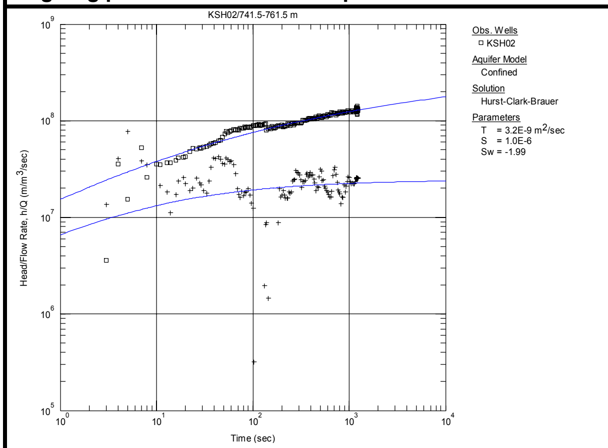
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-15 09:22
Test section (m):	741.5-761.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

Linear plot Q and p

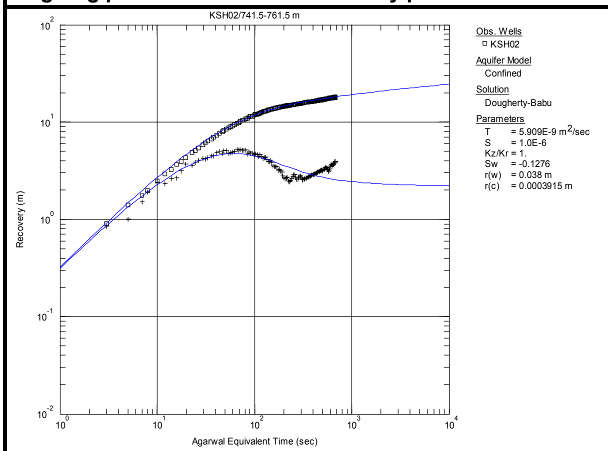


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	7384.67		
p_i (kPa)	7383.85		
p_p(kPa)	7588.11	p_F (kPa)	7410.66
Q_p (m^3/s)	1.61E-07		
tp (min)	1201.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	18.11		
Derivative	Spane 0.3	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	7.74E-09		
T_{Moye}(m^2/s)	8.22E-09		
Flow regime:	PRF	Flow regime:	WBS->PRF?-
t_1 (s)	200	dt_{e1} (s)	0.00
t_2 (s)	1200	dt_{e2} (s)	200.00
T_w (m^2/s)	3.20E-09	T_w (m^2/s)	5.91E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	5.47E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.99	ξ (-)	-0.1276
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



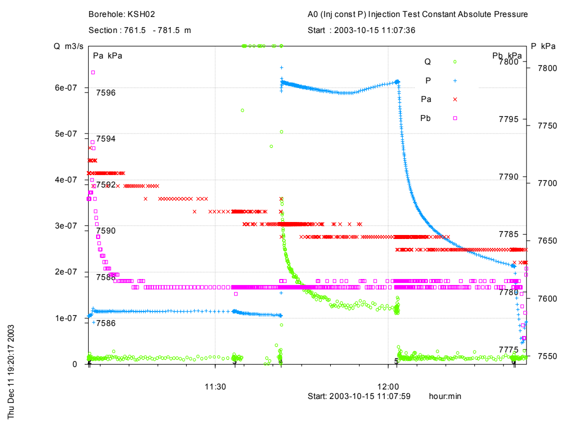
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	5.47E-11
t_1 (min)	200	C_D (-)	-
t_2 (min)	1200	ξ (-)	-1.99
T_R (m^2/s)	3.20E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: For the flow period, a pseudo-radial flow regime is indicated from c. 200 s and persists until the end of the flow period. The recovery period shows initial wellbore storage effects. No well-defined pseudo-radial regime is developed. After c. 300 s, no-flow hydraulic boundary effects are seen

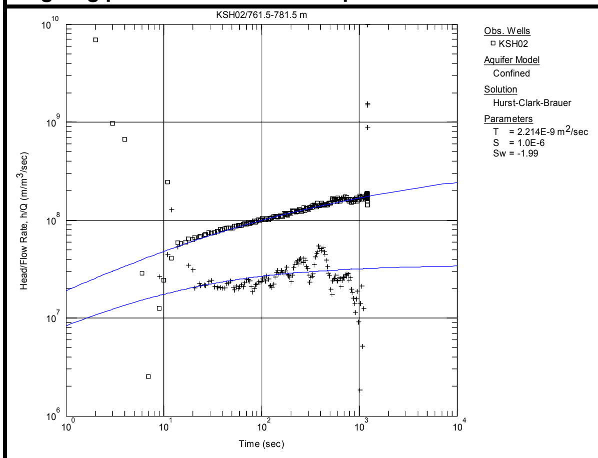
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-15 11:07
Test section (m):	761.5-781.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

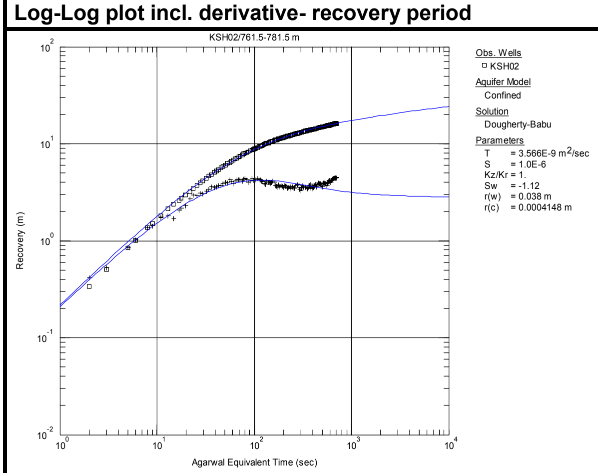
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	7584.79		
p_i (kPa)	7585.21		
p_p(kPa)	7787.67	p_F (kPa)	7628.46
Q_p (m^3/s)	1.18E-07		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	18.39		
Derivative	Spane 0.4	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	5.70E-09		
T_{Moye}(m^2/s)	6.06E-09		
Flow regime:	PRF	Flow regime:	WBS->PRF
t_1 (s)	20	dt_{e1} (s)	0.00
t_2 (s)	1200	dt_{e2} (s)	100.00
T_w (m^2/s)	2.21E-09	T_w (m^2/s)	3.57E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	5.98E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.99	ξ (-)	-1.12
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters

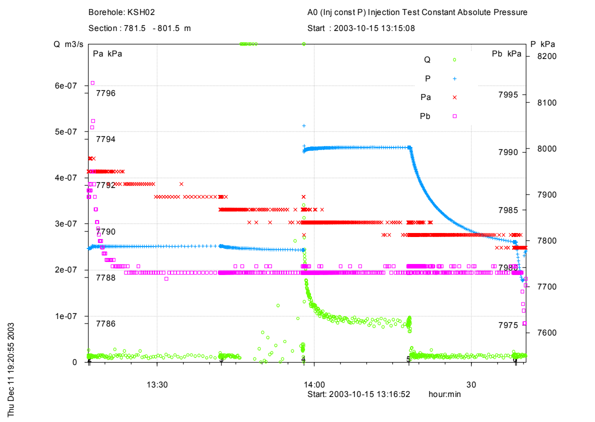
Flow regime:	PRF	C (m^3/Pa)	5.98E-11
t_1 (min)	20	C_D (-)	-
t_2 (min)	1200	ξ (-)	-1.99
T_R (m^2/s)	2.21E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 20 s and persists probably until the end of the flow period although there are some fluctuations in the derivative. The recovery period shows initial wellbore storage effects. From c. 200 until c. 400 s, a pseudo-radial flow regime is indicated. Some vague indications of no-flow hydraulic boundary effects are seen after c. 400 s.**

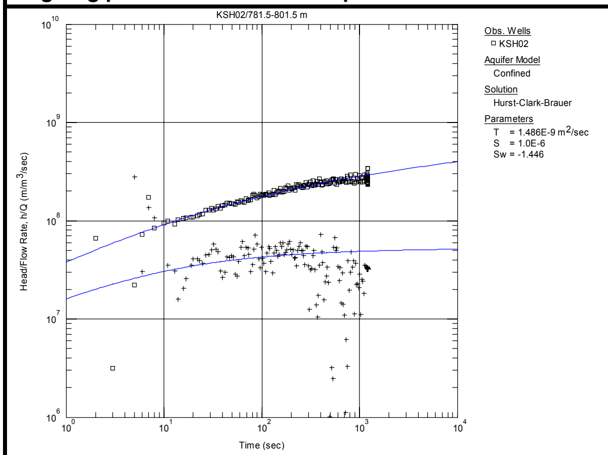
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-15 13:15
Test section (m):	781.5-801.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

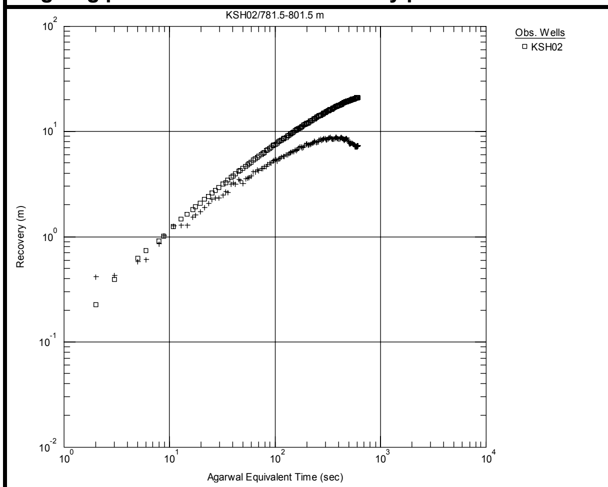
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	7783.25		
p_i (kPa)	7780.07		
p_p(kPa)	8002.15	p_F (kPa)	7797.06
Q_p (m^3/s)	8.71E-08		
tp (min)	1204.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	18.70		
Derivative	Spane 0.3	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	3.85E-09		
T_{Moye}(m^2/s)	4.04E-09		
Flow regime:	PRF->PSF	Flow regime:	WBS
t_1 (s)	30	dt_{e1} (s)	-
t_2 (s)	300	dt_{e2} (s)	-
T_w (m^2/s)	1.49E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	7.98E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.45	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

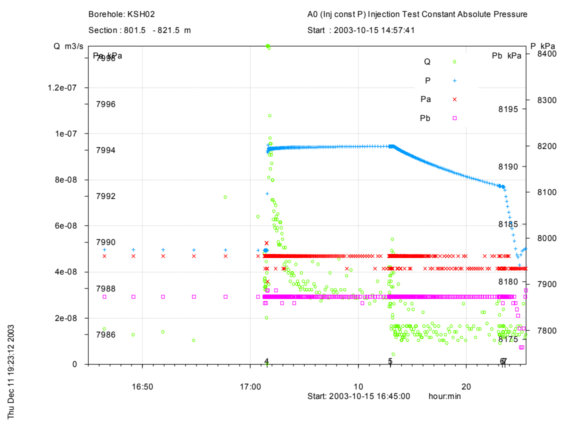
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	7.98E-11
t_1 (min)	30	C_D (-)	-
t_2 (min)	300	ξ (-)	-1.45
T_R (m^2/s)	1.49E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 30 s and persists to c. 300 2. After this time a pseudo-spherical flow regime is indicated. The recovery period shows initial wellbore storage effects. No pseudo-radial flow regime is indicated.**

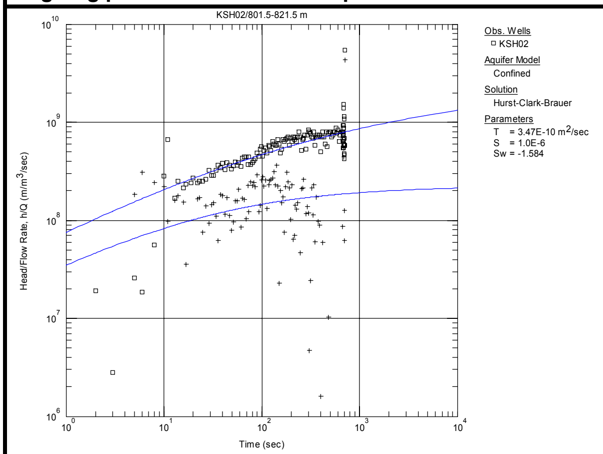
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-15 14:57
Test section (m):	801.5-821.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

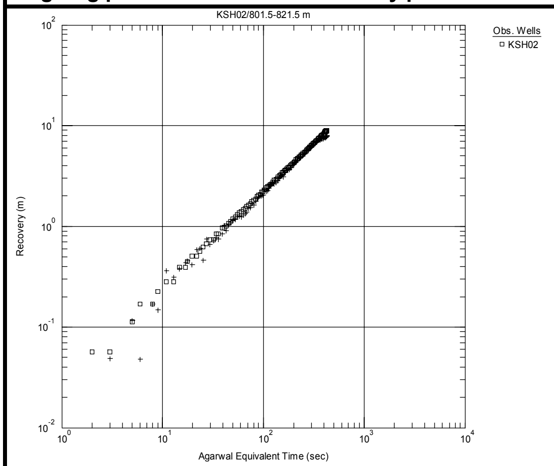


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	7983.90		
p_i (kPa)	7973.54		
p_p(kPa)	8198.95	p_F (kPa)	8112.72
Q_p (m^3/s)	3.07E-08		
tp (min)	687.00	t_F (s)	622.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	19.06		
Derivative	Bourdet 0.5	Derivative	Bourdet 0.2
Results		Results	
Q/s (m^2/s)	1.34E-09		
T_{Moye}(m^2/s)	1.41E-09		
Flow regime:	PRF->PSF	Flow regime:	WBS
t_1 (s)	20	dt_{e1} (s)	-
t_2 (s)	300	dt_{e2} (s)	-
T_w (m^2/s)	3.47E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.25E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-1.58	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period

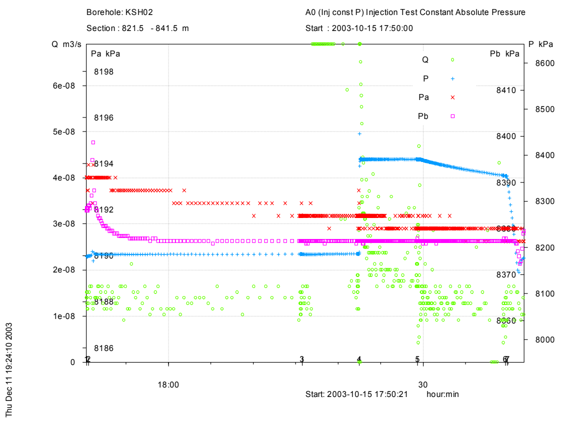


Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	1.25E-10
t_1 (min)	20	C_D (-)	-
t_2 (min)	300	ξ (-)	-1.58
T_R (m^2/s)	3.47E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: The low flow rate in conjunction with the limited resolution in flow rate causes the data set to be quite scattered and identification of flow regimes is hard. Still, for the flow period, the derivative pattern from c. 20 s is interpreted as a pseudo-radial flow regime that persists until c. 300s. By the end of the flow period, a pseudo-spherical flow regime is indicated. The recovery period only shows wellbore storage effects

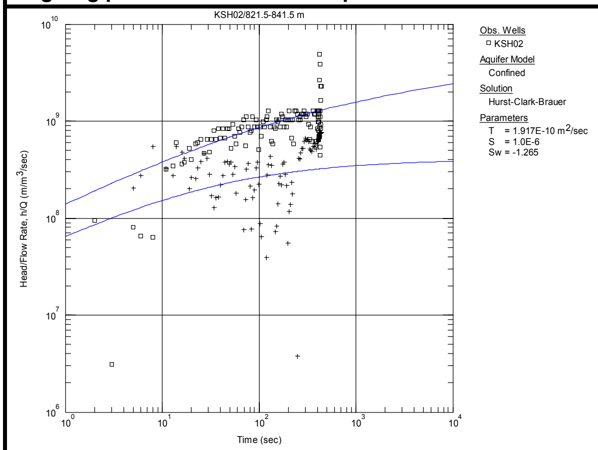
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-15 17:50
Test section (m):	821.5-841.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

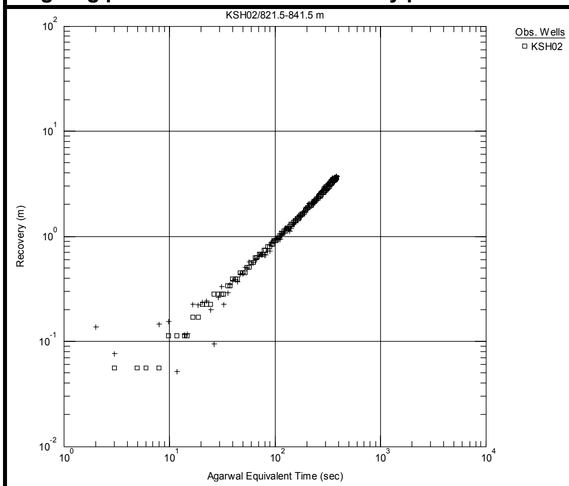


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	8180.71		
p_i (kPa)	8187.20		
p_p(kPa)	8391.33	p_F (kPa)	8355.95
Q_p (m^3/s)	2.01E-08		
tp (min)	412.00	t_F (s)	621.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	19.35		
Derivative	Spane 0.5	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	9.64E-10		
T_{Moye}(m^2/s)	1.01E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	10	dt_{e1} (s)	-
t_2 (s)	400	dt_{e2} (s)	-
T_w (m^2/s)	1.92E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.04E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-1.27	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

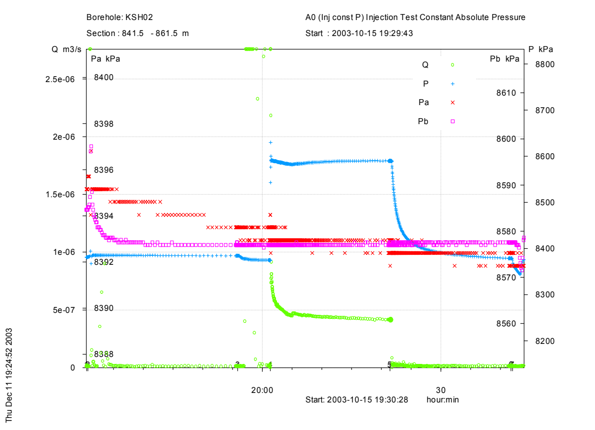
Flow regime:	PRF	C (m^3/Pa)	2.04E-10
t_1 (min)	10	C_D (-)	-
t_2 (min)	400	ξ (-)	-1.27
T_R (m^2/s)	1.92E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **The low flow rate in conjunction with the limited resolution in flow rate causes the data set to be quite scattered and identification of flow regimes is hard. Still, for the flow period, the derivative pattern from c. 10 s is interpreted as a pseudo-radial flow regime that persists until the end of the flow period. The recovery period only shows wellbore storage effects.**

Test Summary Sheet

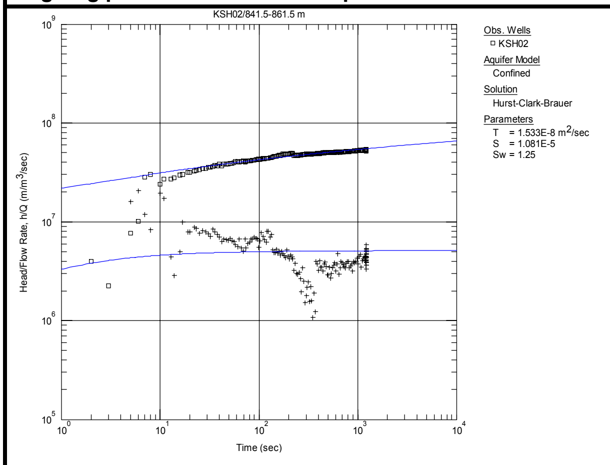
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-15 19:29
Test section (m):	841.5-861.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

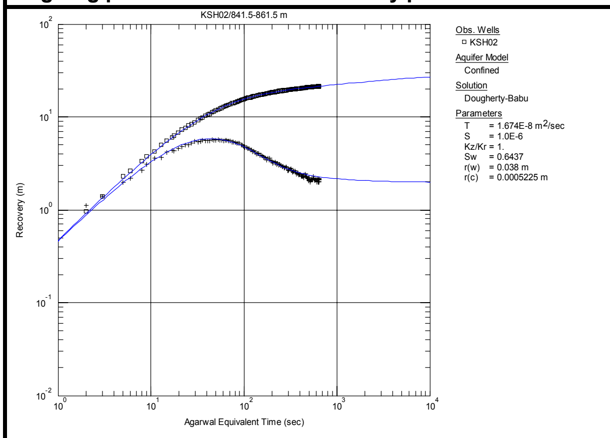


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	8381.38		
p_i (kPa)	8374.46		
p_p(kPa)	8590.33	p_F (kPa)	8379.17
Q_p (m^3/s)	4.15E-07		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	19.65		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		Results	
Q/s (m^2/s)	1.88E-08		
T_{Moye}(m^2/s)	1.99E-08		
Flow regime:	PRF	Flow regime:	WBS->PRF
t_1 (s)	30	dt_{e1} (s)	500.00
t_2 (s)	1200	dt_{e2} (s)	700.00
T_w (m^2/s)	1.53E-08	T_w (m^2/s)	1.67E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	8.44E-11
C_D (-)	-	C_D (-)	-
ξ (-)	1.25	ξ (-)	0.6437
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



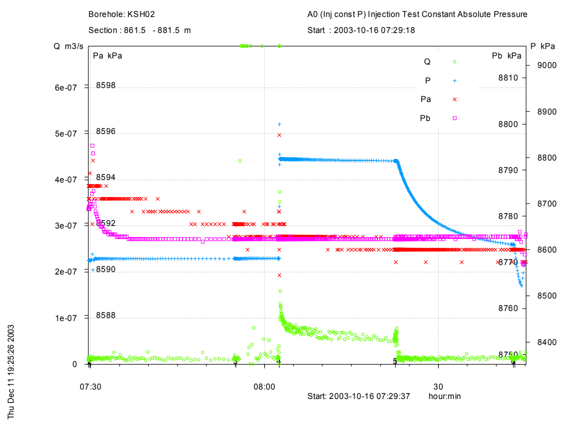
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	8.44E-11
t_1 (min)	500	C_D (-)	-
t_2 (min)	700	ξ (-)	0.64
T_R (m^2/s)	1.67E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 5 s and persists until the end of the flow period. For the recovery period, WBS effects are seen followed by a pseudo-radial flow regime that develops by the end of recovery.**

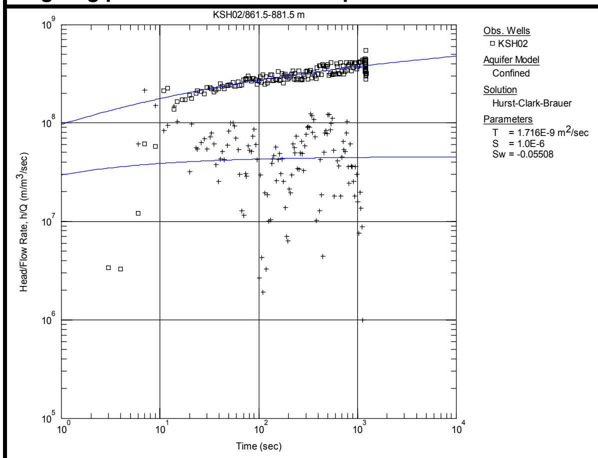
Test Summary Sheet			
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-10-16 07:29**
Test section (m):	**861.5-881.5**	**Responsible for test**	**J. Levén**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J-E. Ludvigson**

Linear plot Q and p

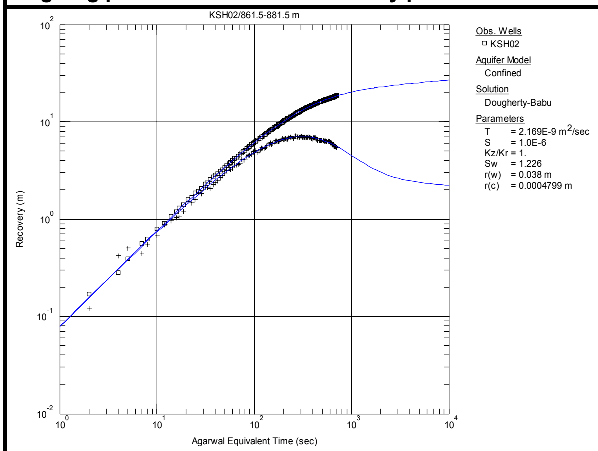


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	8577.06		
p_i (kPa)	8581.35		
p_p(kPa)	8792.79	p_F (kPa)	8611.34
Q_p (m^3/s)	5.66E-08		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	19.97		
Derivative	Spane 0.4	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	2.63E-09		
T_{Moye}(m^2/s)	2.70E-09		
Flow regime:	PRF	Flow regime:	WBS(PRF)
t_1 (s)	30	dt_{e1} (s)	0.00
t_2 (s)	1200	dt_{e2} (s)	700.00
T_w (m^2/s)	1.72E-09	T_w (m^2/s)	2.17E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	8.23E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.06	ξ (-)	1.226
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period

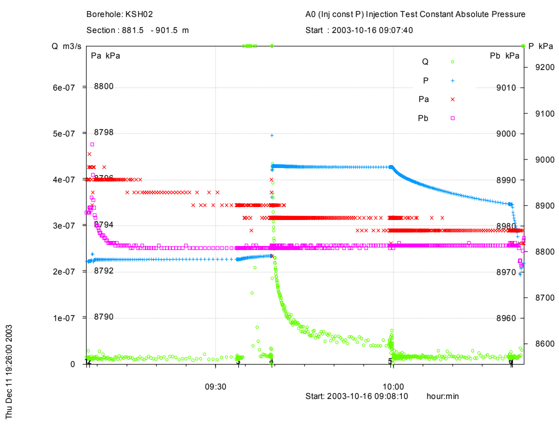


Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	8.23E-11
t_1 (min)	30	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.06
T_R (m^2/s)	1.72E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 30 s and persists throughout the entire flow period. The recovery period only shows wellbore storage effects and a transition to some other flow regime that might be pseudo-radial.**

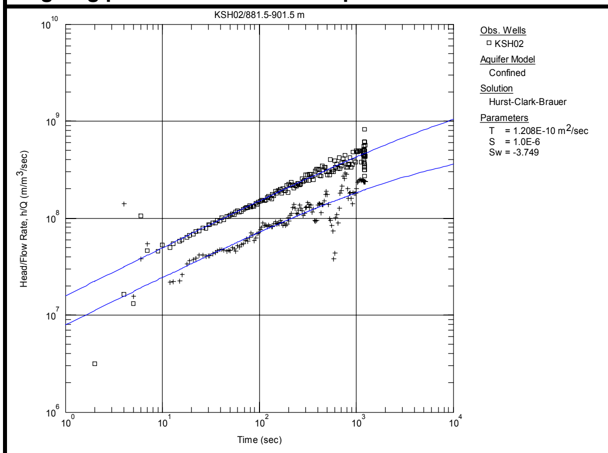
Test Summary Sheet			
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-10-16 09:07**
Test section (m):	**881.5-901.5**	**Responsible for test**	**J. Levén**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J-E. Ludvigson**

Linear plot Q and p

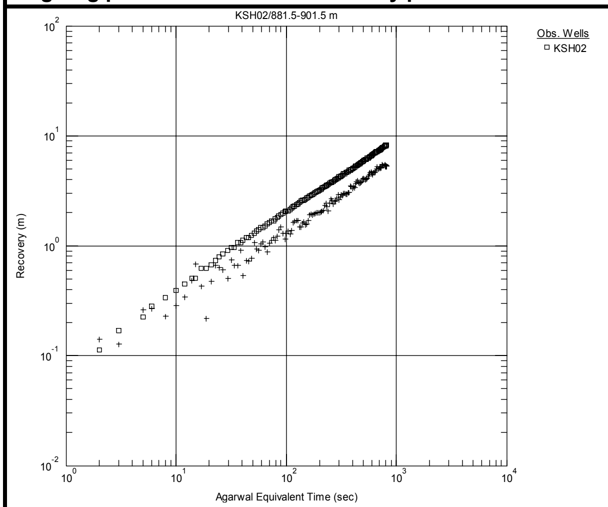


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	8778.83		
p_i (kPa)	8790.86		
p_p(kPa)	8983.36	p_F (kPa)	8902.66
Q_p (m^3/s)	4.11E-08		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	20.27		
Derivative	Spane 0.4	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	2.09E-09		
T_{Moye}(m^2/s)	2.18E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	1.21E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.05E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-3.75	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



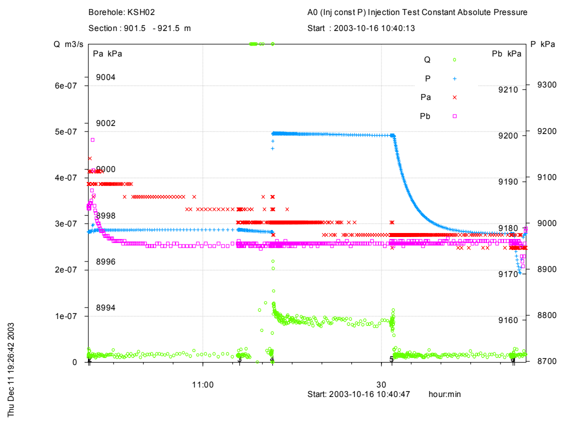
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	1.05E-10
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	-3.75
T_R (m^2/s)	1.21E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: For the flow period, no pseudo-radial flow regime is developed. The slope is almost 1:2 in a log-log diagram thus indicating pseudo-linear flow (i.e. fracture response). Type curve matching with a model that assumes a vertical fracture of uniform flux gave a good match and a reasonable value of T (3.8E-10).

Test Summary Sheet

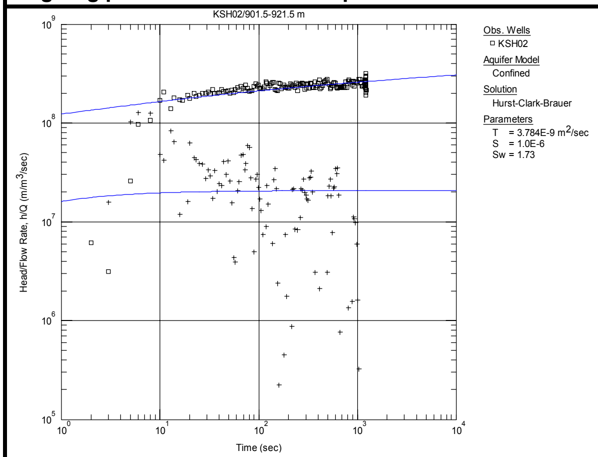
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-16 10:40
Test section (m):	901.5-921.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

Linear plot Q and p

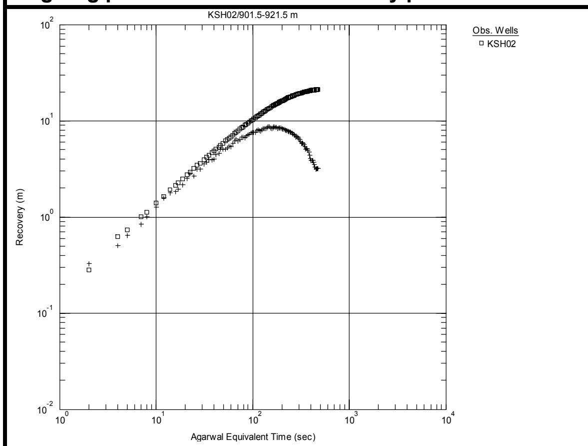


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	8980.61		
p_i (kPa)	8980.33		
p_p(kPa)	9190.12	p_F (kPa)	8976.74
Q_p (m^3/s)	8.34E-08		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	20.64		
Derivative	Spane 0.4	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	3.90E-09		
T_{Moye}(m^2/s)	4.02E-09		
Flow regime:	PRF->PSF	Flow regime:	WBS
t_1 (s)	30	dt_{e1} (s)	-
t_2 (s)	700	dt_{e2} (s)	-
T_w (m^2/s)	3.78E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	5.95E-11
C_D (-)	-	C_D (-)	-
ξ (-)	1.73	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

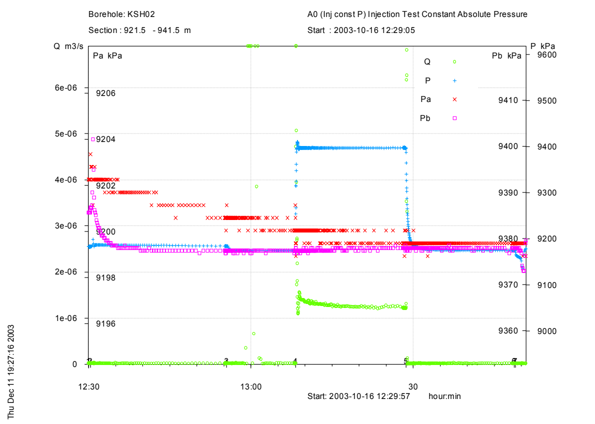
Flow regime:	PRF	C (m^3/Pa)	5.95E-11
t_1 (min)	30	C_D (-)	-
t_2 (min)	700	ξ (-)	1.73
T_R (m^2/s)	3.78E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, although the derivative is scattered, a pseudo-radial flow regime approaching a pseudo-spherical flow regime is indicated from c. 30 s and persists throughout whole the flow period. For the recovery period, WBS effects are indicated followed by a transition to another flow regime which is not fully developed.**

Test Summary Sheet

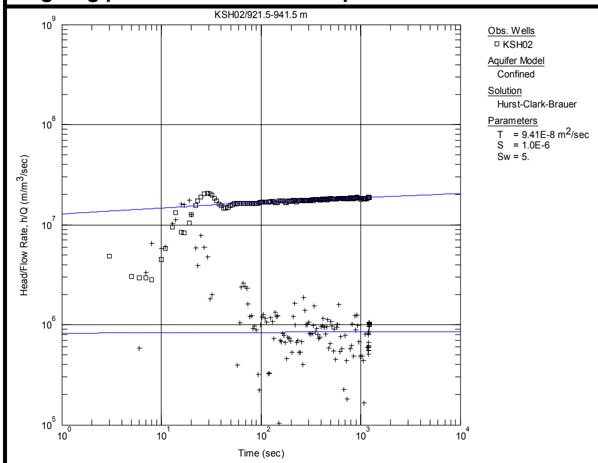
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-16 12:29
Test section (m):	921.5-941.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

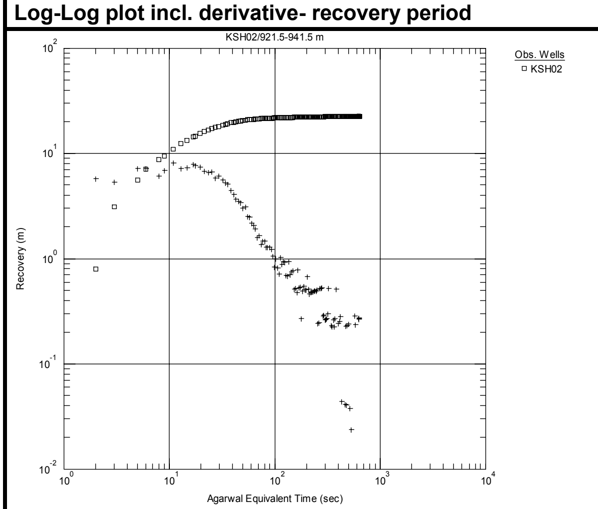


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	9182.93		
p_i (kPa)	9174.09		
p_p(kPa)	9396.86	p_F (kPa)	9175.20
Q_p (m^3/s)	1.21E-06		
tp (min)	1227.00	t_F (s)	1199.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	20.97		
Derivative	Bourdet 0.4	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	5.34E-08		
T_{Moye}(m^2/s)	5.68E-08		
Flow regime:	PSF(PRF)	Flow regime:	PSF->PSS
t_1 (s)	80	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	9.41E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	5.00	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

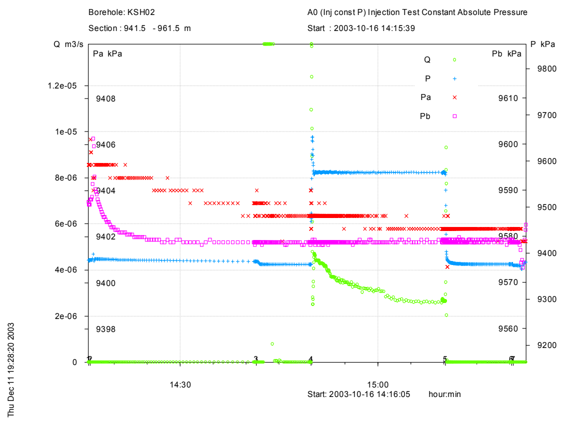
Flow regime:	PSS	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	5.68E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: For the flow period, a pseudo-spherical flow regime is indicated from c. 80 s to the end of flow period. Type curve matching with a radial flow model gives apparent high skin and high values of T (se plot in appendix 3-52). For the recovery period, a pseudo-spherical flow regime is indicated which successively changes into a pseudo-stationary flow regime.

Test Summary Sheet

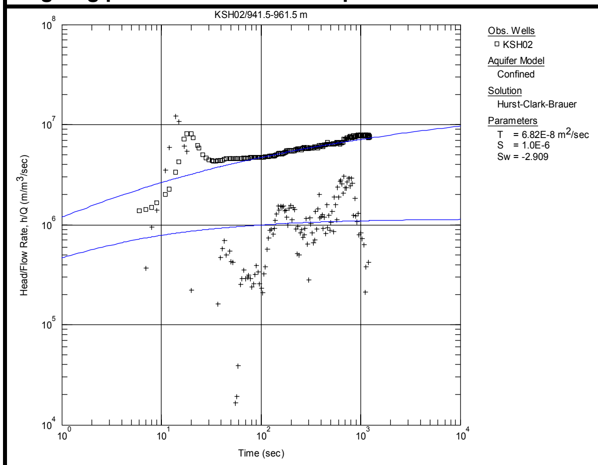
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-16 14:15
Test section (m):	941.5-961.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

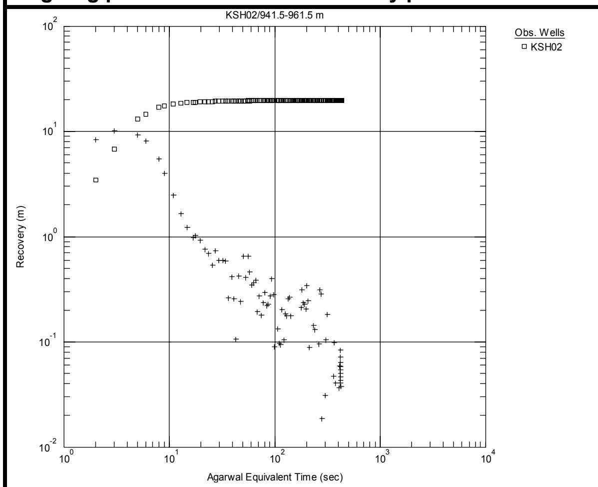


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	9384.70		
p_i (kPa)	9375.99		
p_p(kPa)	9575.28	p_F (kPa)	9376.40
Q_p (m^3/s)	2.64E-06		
tp (min)	1223.00	t_F (s)	603.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	21.30		
Derivative	Bourdet 0.2	Derivative	Spane 0.1
Results		Results	
Q/s (m^2/s)	1.30E-07		
T_{Moye}(m^2/s)	1.35E-07		
Flow regime:	PRF->PSF	Flow regime:	PSS
t_1 (s)	200	dt_{e1} (s)	-
t_2 (s)	700	dt_{e2} (s)	-
T_w (m^2/s)	6.82E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-2.91	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

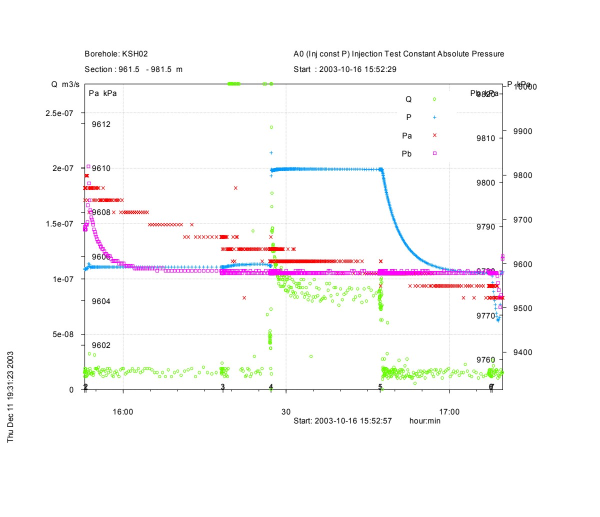
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	200	C_D (-)	-
t_2 (min)	700	ξ (-)	-2.91
T_R (m^2/s)	6.82E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 150 s until c. 600 s. After 600 s, there is a disturbance which seems to lead into a pseudo-stationary flow regime by the end of flow period. For the recovery period, a pseudo-stationary flow regime is indicated almost instantly (after c. 30 s) and persists throughout the recovery period.**

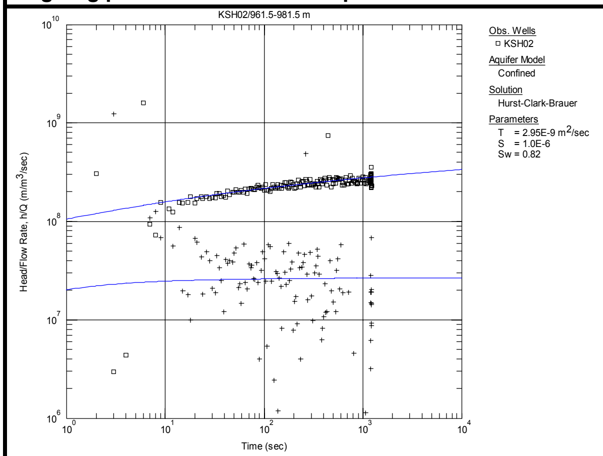
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-16 15:52
Test section (m):	961.5-981.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

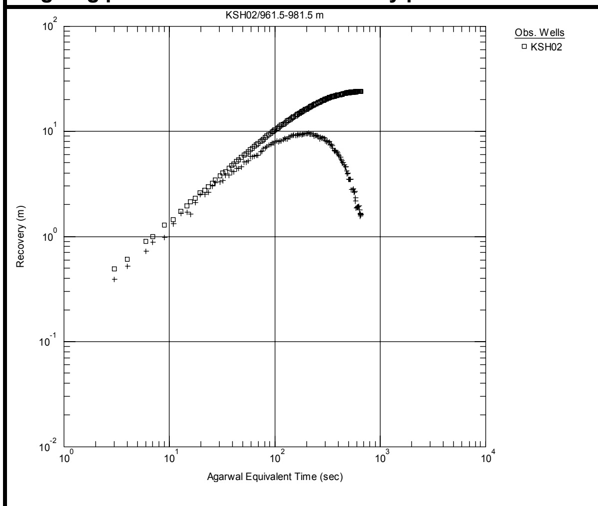
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	9587.58		
p_i (kPa)	9594.90		
p_p(kPa)	9812.56	p_F (kPa)	9578.17
Q_p (m^3/s)	8.10E-08		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	21.62		
Derivative	Bourdet 0.5	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	3.65E-09		
T_{Moye}(m^2/s)	3.80E-09		
Flow regime:	PRF->PSF	Flow regime:	WBS->PSF
t_1 (s)	20	dt_{e1} (s)	-
t_2 (s)	400	dt_{e2} (s)	-
T_w (m^2/s)	2.95E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	5.77E-11
C_D (-)	-	C_D (-)	-
ξ (-)	0.82	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

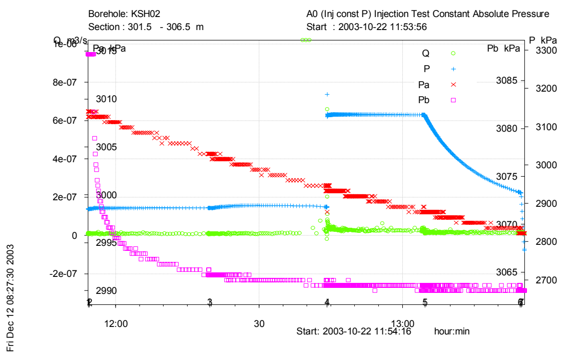
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	5.77E-11
t_1 (min)	20	C_D (-)	-
t_2 (min)	400	ξ (-)	0.82
T_R (m^2/s)	2.95E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: For the flow period, although the derivative is very scattered, a pseudo-radial (or pseudo-spherical) flow regime is indicated from c. 20 s until c. 500 s. After 500 s a pseudo-spherical flow regime is indicated. The initial phase of the recovery period is dominated by WBS effects. Thereafter follows a transition to a presumptive pseudo-spherical flow regime.

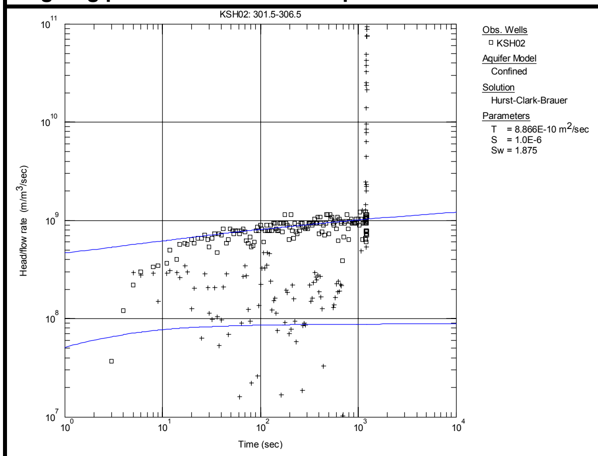
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-22 11:53
Test section (m):	301.5-306.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

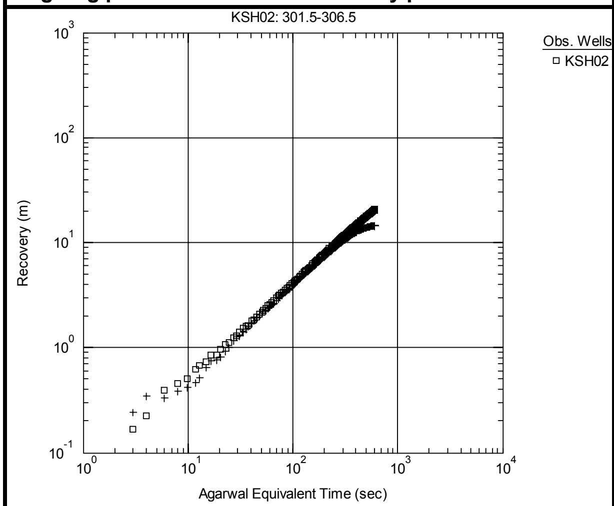


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	2885.46		
p_i (kPa)	2890.02		
p_p(kPa)	3130.76	p_F (kPa)	3075.22
Q_p (m^3/s)	2.43E-08		
tp (min)	1228.00	t_F (s)	1196.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.47		
Derivative	Spane 0.4	Derivative	-
Results		Results	
Q/s (m^2/s)	9.91E-10		
T_{Moye}(m^2/s)	8.15E-10		
Flow regime:	PRF->PSF	Flow regime:	WBS
t_1 (s)	30	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	8.86E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	6.19E-11
C_D (-)	-	C_D (-)	-
ξ (-)	1.88	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	6.19E-11
t_1 (min)	30	C_D (-)	-
t_2 (min)	1200	ξ (-)	1.88
T_R (m^2/s)	8.86E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

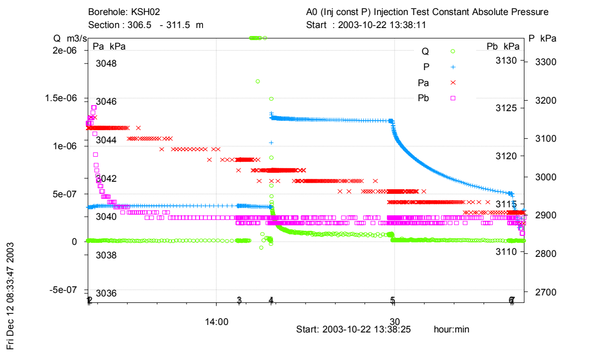
Comments: **Although the derivative is scattered, a pseudo-radial flow regime is indicated during the flow period from c. 30 s to the end of the flow period. By the very end of the flow period, are weak indications of a transition to pseudo-spherical flow.**

The recovery period is highly affected by WBS and no pseudo-radial flow regime is developed.

Test Summary Sheet

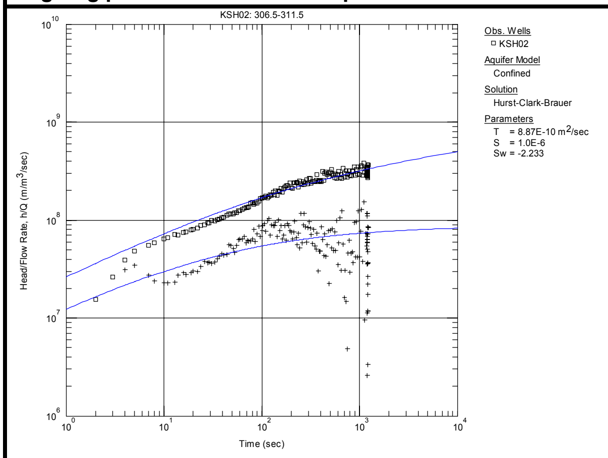
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-10-22 13:38**
Test section (m):	**306.5-311.5**	**Responsible for test**	**J. Levén**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J. E. Ludvigson**

Linear plot Q and p

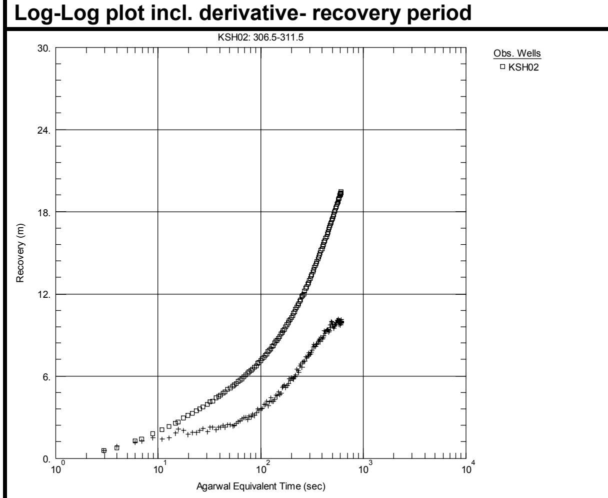


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**2921.39**		
p_i (kPa)	**2921.39**		
p_p(kPa)	**3146.38**	**p_F (kPa)**	**3103.41**
Q_p (m^3/s)	**7.70E-08**		
tp (min)	**1227.00**	**t_F (s)**	**1197.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**11.54**		
Derivative	**Bourdet 0.5**	**Derivative**	**-**
Results		**Results**	
Q/s (m^2/s)	**3.36E-09**		
T_{Moye}(m^2/s)	**2.73E-09**		
Flow regime:	**PLF-**	**Flow regime:**	**WBS/PLF?**
t_1 (s)	**100**	**dt_{e1} (s)**	**-**
t_2 (s)	**800**	**dt_{e2} (s)**	**-**
T_w (m^2/s)	**8.87E-10**	**T_w (m^2/s)**	**-**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m^3/Pa)	**-**	**C (m^3/Pa)**	**-**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**-2.23**	**ξ (-)**	**-**
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

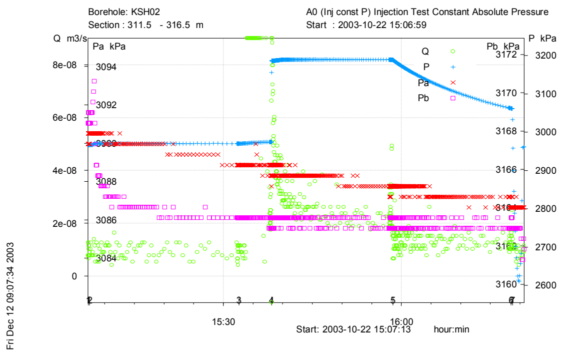
Flow regime:	**PRF**	**C (m^3/Pa)**	**-**
t_1 (min)	**100**	**C_D (-)**	**-**
t_2 (min)	**800**	**ξ (-)**	**-2.23**
T_R (m^2/s)	**8.87E-10**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **An initial short pseudo-linear flow regime is indicated during the flow period. After that, a pseudo-radial flow regime is indicated from c. 100 s to c. 800 s. Then a transition to pseudo-spherical flow is indicated.**

The recovery period is highly effected by WBS and no pseudo-radial flow regime is indicated.

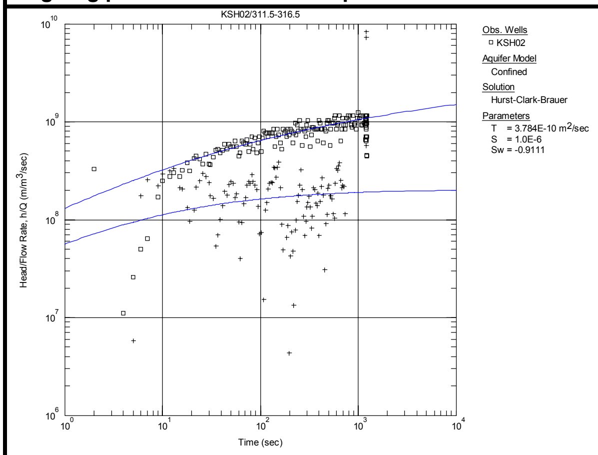
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-22 15:06
Test section (m):	311.5-316.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

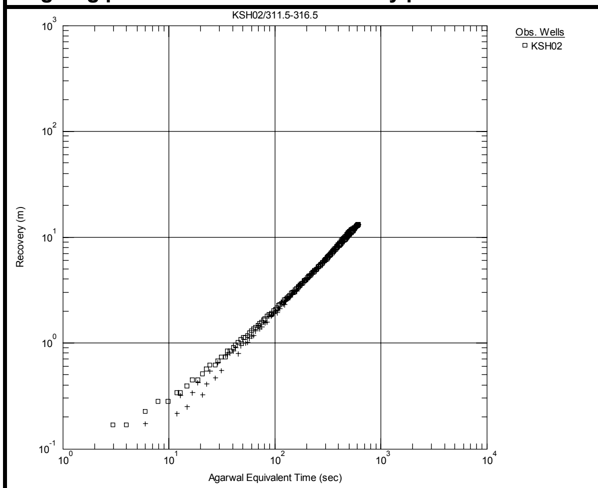


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	2966.17		
p_i (kPa)	2974.46		
p_p(kPa)	3189.49	p_F (kPa)	3209.54
Q_p (m^3/s)	2.28E-08		
tp (min)	1228.00	t_F (s)	1196.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.61		
Derivative	Spane 0.5	Derivative	-
Results		**Results**	
Q/s (m^2/s)	1.04E-09		
T_{Moye}(m^2/s)	8.60E-10		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	30	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	3.78E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	9.29E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.91	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	9.29E-11
t_1 (min)	30	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.91
T_R (m^2/s)	3.78E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

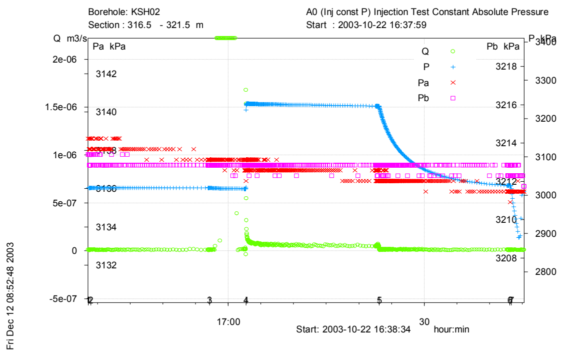
Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 30 s to the end of the flow period. The section has very low transmissivity.**

The recovery period is highly effected by WBS and no pseudo-radial flow regime is developed.

Test Summary Sheet

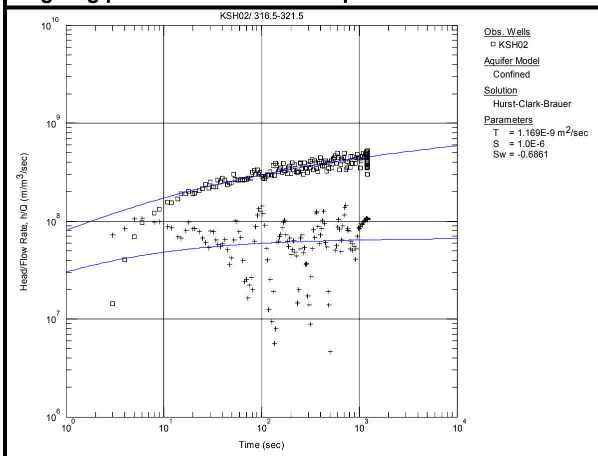
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-22 16:37
Test section (m):	316.5-321.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

Linear plot Q and p

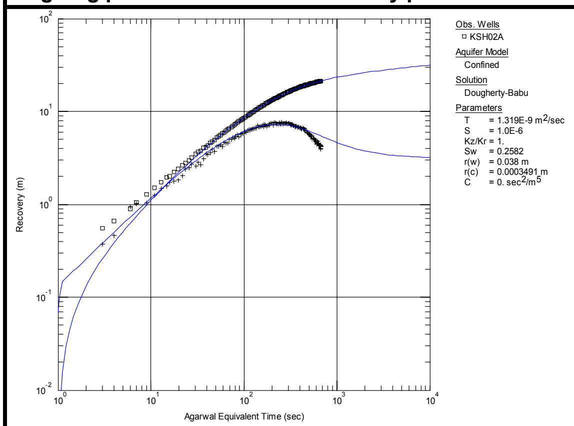


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3019.24		
p_i (kPa)	3017.71		
p_p(kPa)	3232.48	p_F (kPa)	3171.41
Q_p (m^3/s)	5.05E-08		
tp (min)	1225.00	t_F (s)	1199.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.68		
Derivative	Spane 0.5	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	2.31E-09		
T_{Moye}(m^2/s)	1.88E-09		
Flow regime:	PRF	Flow regime:	WBS->PRF?
t_1 (s)	20	dt_{e1} (s)	30.00
t_2 (s)	1200	dt_{e2} (s)	400.00
T_w (m^2/s)	1.17E-09	T_w (m^2/s)	1.32E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	3.60E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.68	ξ (-)	0.2582
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	3.60E-11
t_1 (min)	20	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.68
T_R (m^2/s)	1.17E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

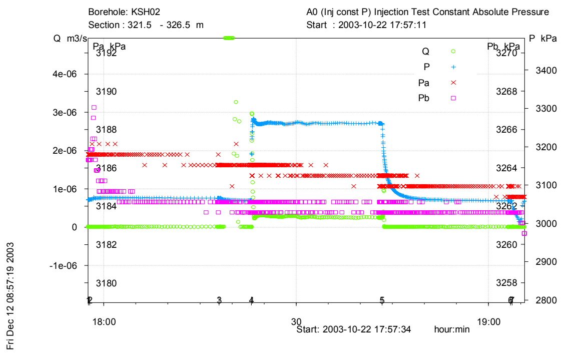
Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated during flow period from c. 20 s throughout the flow period.**

In the start of the recovery period WBS effects are indicated, followed by a transition phase. No pseudo-radial flow regime was developed.

Test Summary Sheet

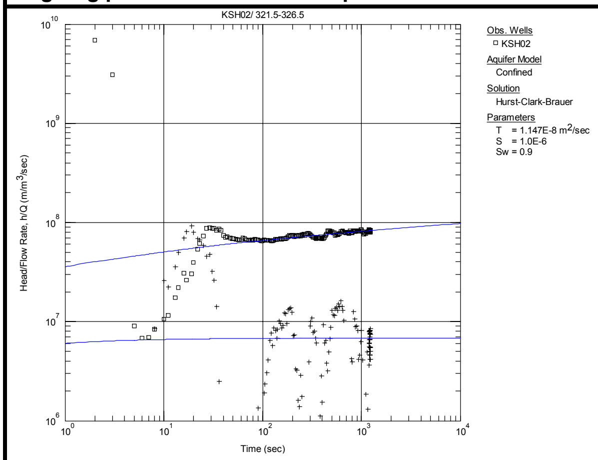
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-22 17:57
Test section (m):	321.5-326.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

Linear plot Q and p

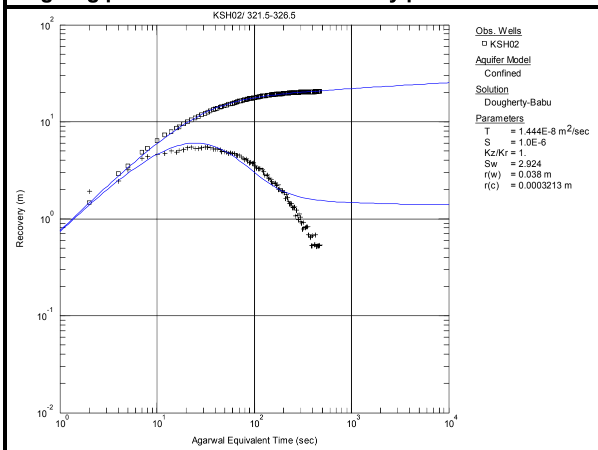


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3061.80		
p_i (kPa)	3060.01		
p_p(kPa)	3260.26	p_F (kPa)	3205.68
Q_p (m^3/s)	2.52E-07		
tp (min)	1222.00	t_F (s)	1203.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.75		
Derivative	Bourdet 0.4	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	1.23E-08		
T_{Moye}(m^2/s)	1.02E-08		
Flow regime:	PRF	Flow regime:	WBS-
t_1 (s)	100	dt_{e1} (s)	0.00
t_2 (s)	1200	dt_{e2} (s)	200.00
T_w (m^2/s)	1.15E-08	T_w (m^2/s)	1.44E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	3.21E-11
C_D (-)	-	C_D (-)	-
ξ (-)	0.90	ξ (-)	2.924
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



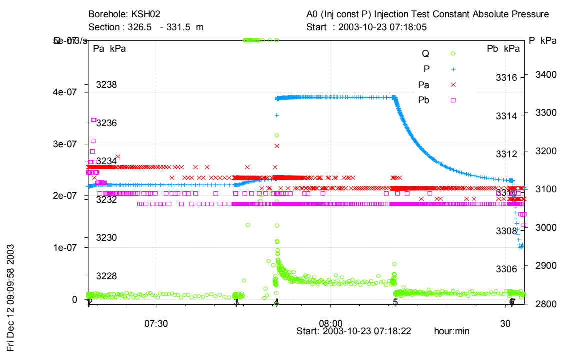
Selected representative parameters

Flow regime:	PRF?	C (m^3/Pa)	3.21E-11
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	0.90
T_R (m^2/s)	1.15E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated during flow period from c. 100 s to the end of the flow period. In the start of the recovery period WBS effects are indicated, followed by a transition phase. No pseudo-radial flow regime was developed.**

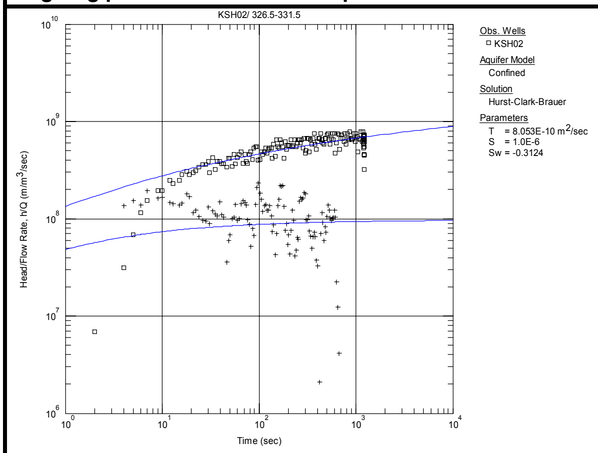
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-23 07:18
Test section (m):	326.5-331.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

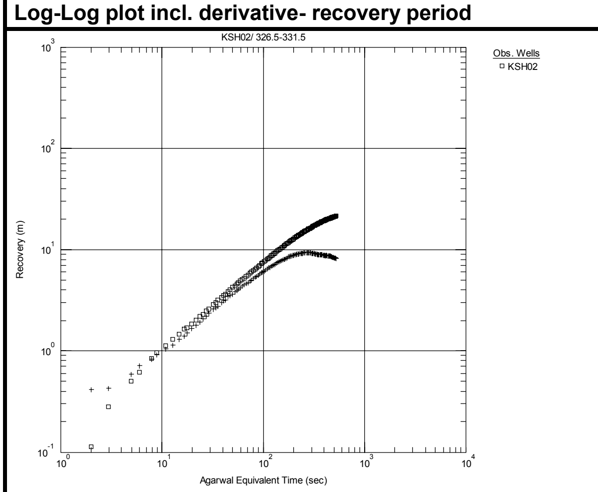


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	3108.23		
p_i (kPa)	3128.00		
p_p(kPa)	3340.27	p_F (kPa)	3269.24
Q_p (m^3/s)	4.48E-08		
tp (min)	1224.00	t_F (s)	1200.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.81		
Derivative	Spane 0.5	Derivative	-
Results		Results	
Q/s (m^2/s)	2.07E-09		
T_{Moye}(m^2/s)	1.71E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	20	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	8.05E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	4.56E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.31	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



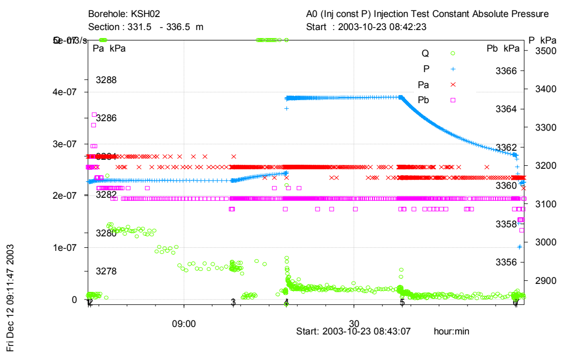
Selected representative parameters			
Flow regime:	PRF?	C (m^3/Pa)	4.56E-11
t_1 (min)	20	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.31
T_R (m^2/s)	8.05E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated during flow period from c. 20 s throughout the flow period. In the start of the recovery period WBS effects are indicated, followed by a transition phase. No pseudo-radial flow regime was developed.**

Test Summary Sheet

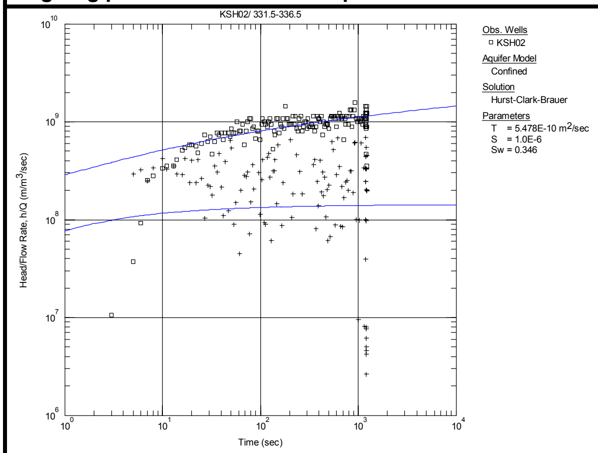
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-23 08:42
Test section (m):	331.5-336.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

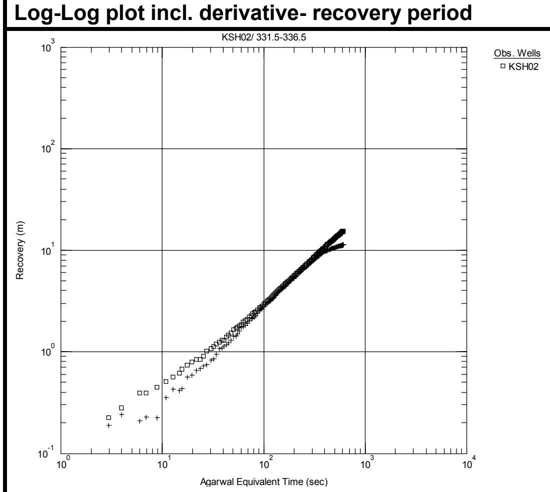


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3157.98		
p_i (kPa)	3180.23		
p_p(kPa)	3378.42	p_F (kPa)	3374.84
Q_p (m^3/s)	2.74E-08		
tp (min)	1225.00	t_F (s)	1199.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.90		
Derivative	Bourdet 0.4	Derivative	-
Results		**Results**	
Q/s (m^2/s)	1.36E-09		
T_{Moye}(m^2/s)	1.13E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	30	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	5.47E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	6.99E-11
C_D (-)	-	C_D (-)	-
ξ (-)	0.35	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

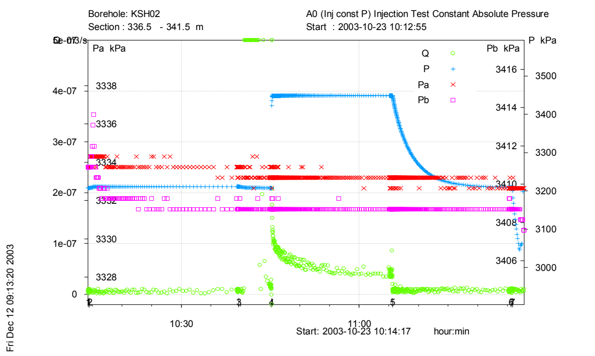
Flow regime:	PRF	C (m^3/Pa)	6.99E-11
t_1 (min)	30	C_D (-)	-
t_2 (min)	1200	ξ (-)	0.35
T_R (m^2/s)	5.47E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 30 s throughout the flow period. The section has very low transmissivity. In the start of the recovery period WBS effects are indicated. No pseudo-radial flow regime was developed.**

Test Summary Sheet

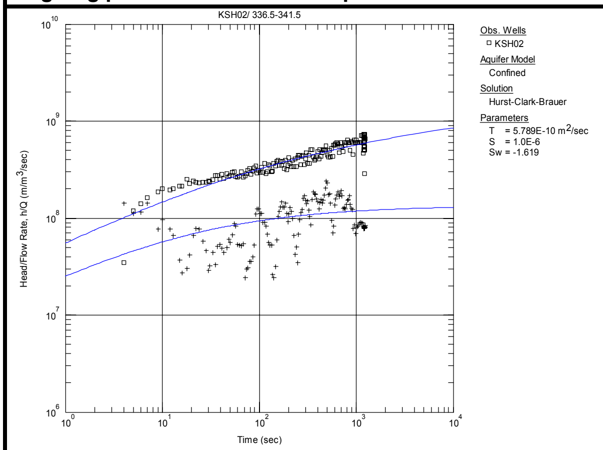
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-23 10:12
Test section (m):	336.5-341.5	**Responsible for test**	J. Levén
Section diameter, $2\cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

Linear plot Q and p

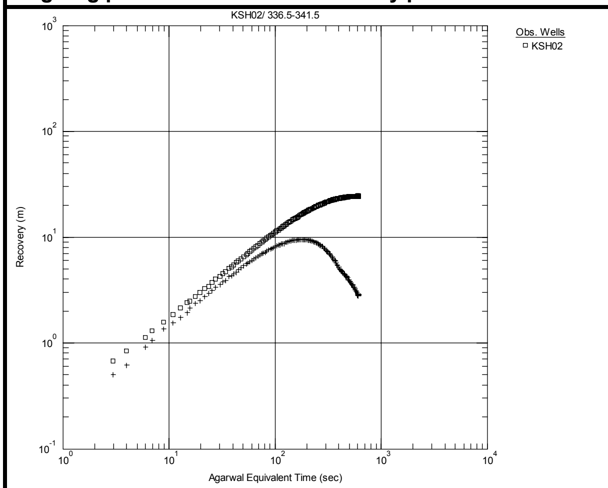


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	3207.73		
p_i (kPa)	3207.46		
p_p(kPa)	3448.76	p_F (kPa)	3355.48
Q_p (m^3/s)	5.17E-08		
tp (min)	1225.00	t_F (s)	1200.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	11.96		
Derivative	Spane 0.5	Derivative	-
Results		**Results**	
Q/s (m^2/s)	2.10E-09		
T_{Moye}(m^2/s)	1.74E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	300	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	5.79E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.05E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.62	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

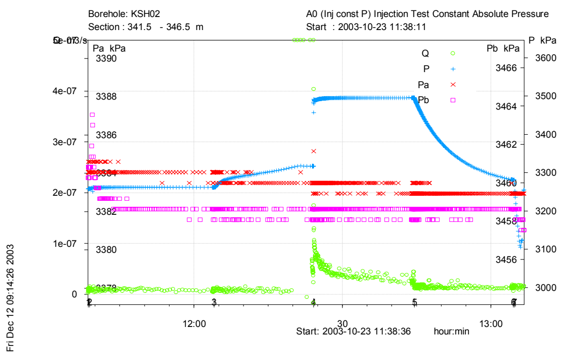
Flow regime:	PRF	C (m^3/Pa)	1.05E-11
t_1 (min)	300	C_D (-)	-
t_2 (min)	1200	ξ (-)	-1.62
T_R (m^2/s)	5.79E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 300 s throughout the flow period. In the start of the recovery period WBS effects are indicated followed by a transition phase. No pseudo-radial flow regime was developed.**

Test Summary Sheet

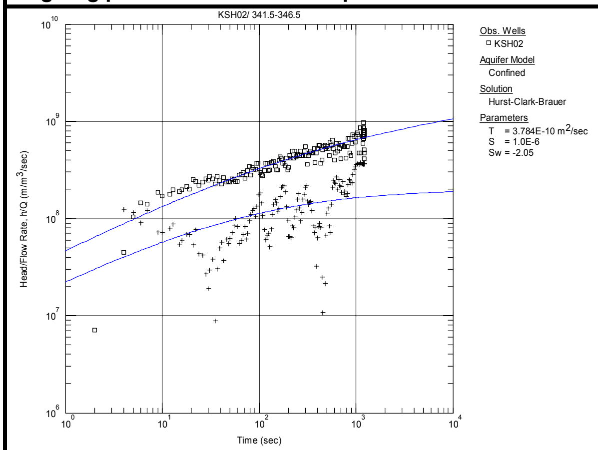
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-23 11:38
Test section (m):	341.5-346.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

Linear plot Q and p

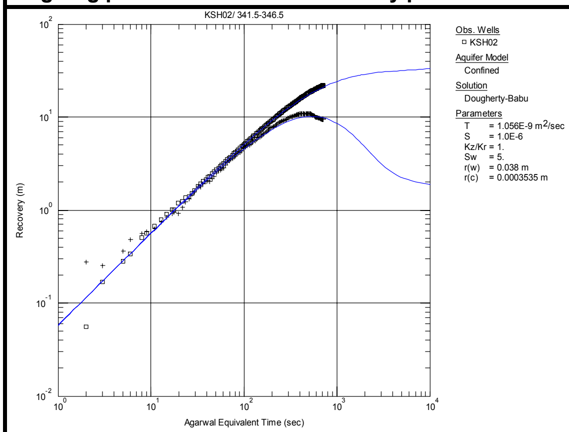


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3257.49		
p_i (kPa)	3316.78		
p_p(kPa)	3495.61	p_F (kPa)	3427.91
Q_p (m^3/s)	3.01E-08		
tp (min)	1226.00	t_F (s)	1199.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.02		
Derivative	Spane 0.5	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	1.65E-09		
T_{Moye}(m^2/s)	1.38E-09		
Flow regime:	(PLF/)PRF	Flow regime:	WBS(PRF)
t_1 (s)	70	dt_{e1} (s)	20.00
t_2 (s)	1200	dt_{e2} (s)	200.00
T_w (m^2/s)	3.78E-10	T_w (m^2/s)	1.06E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	5.11E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-2.05	ξ (-)	5
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

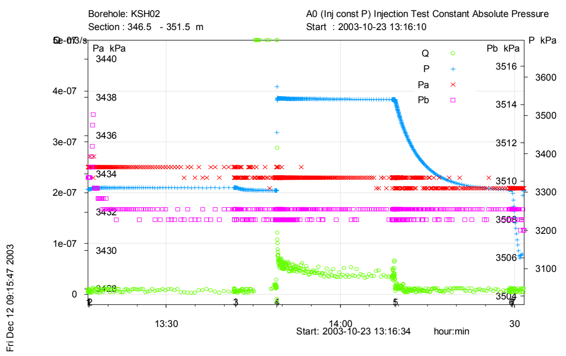
Flow regime:	PRF	C (m^3/Pa)	5.11E-11
t_1 (min)	70	C_D (-)	-
t_2 (min)	1200	ξ (-)	-2.05
T_R (m^2/s)	3.78E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-linear to pseudo-radial flow regime is indicated during the entire flow period. The section has very transmissivity. In the start of the recovery period WBS effects are indicated followed by a transition phase. No pseudo-radial flow regime was developed.**

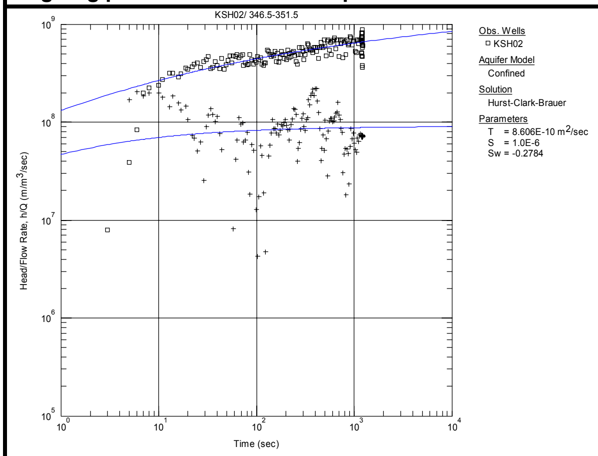
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-23 13:16
Test section (m):	346.5-351.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

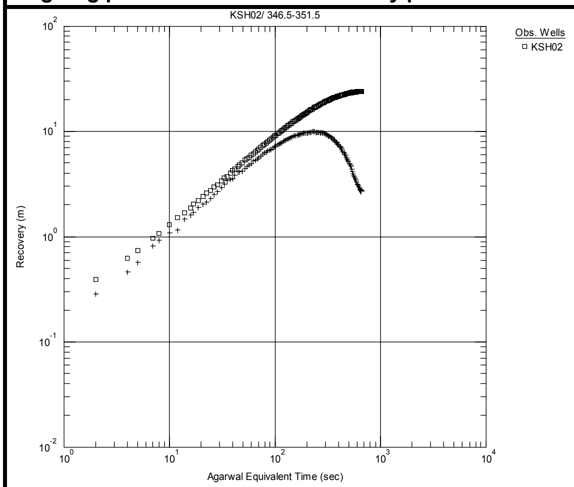
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	3307.24		
p_i (kPa)	3304.62		
p_p(kPa)	3541.49	p_F (kPa)	3453.34
Q_p (m^3/s)	4.01E-08		
tp (min)	1225.00	t_F (s)	1200.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.09		
Derivative	Spane 0.5	Derivative	-
Results		**Results**	
Q/s (m^2/s)	1.66E-09		
T_{Moye}(m^2/s)	1.36E-09		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	8.61E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	4.09E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.28	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

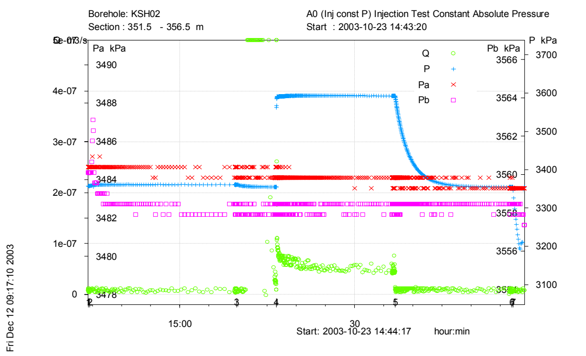
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	4.09E-11
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.28
T_R (m^2/s)	8.61E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

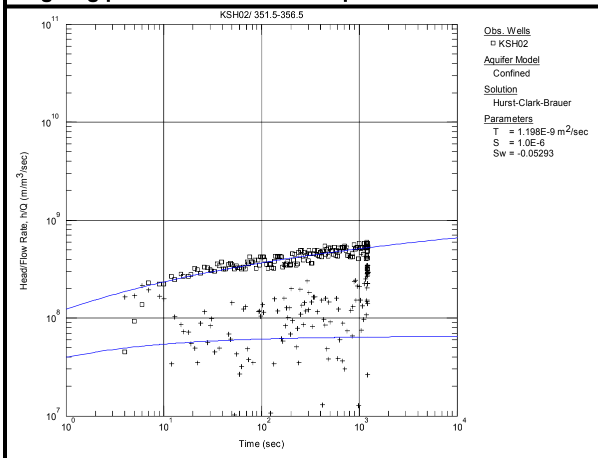
Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 100 s throughout the flow period. In the start of the recovery period WBS effects are indicated followed by a transition phase. No pseudo-radial flow regime was developed.**

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-23 14:43
Test section (m):	351.5-356.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

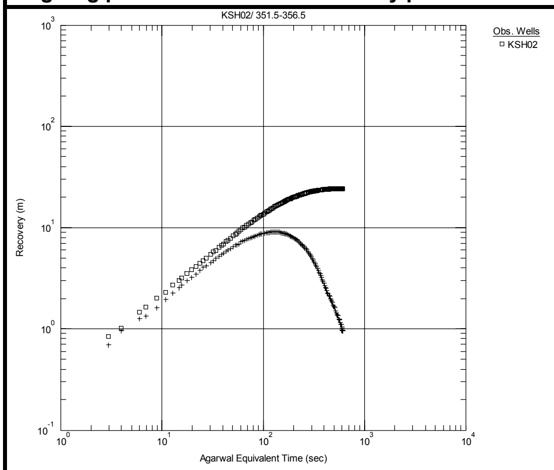
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	3357.55		
p_i (kPa)	3354.78		
p_p(kPa)	3592.49	p_F (kPa)	3501.42
Q_p (m^3/s)	4.81E-08		
tp (min)	1225.00	t_F (s)	1200.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.17		
Derivative	Bourdet 0.4	Derivative	-
Results		Results	
Q/s (m^2/s)	1.98E-09		
T_{Moye}(m^2/s)	1.64E-09		
Flow regime:	PRF	Flow regime:	WBS->PSF
t_1 (s)	20	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	1.20E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.45E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.05	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

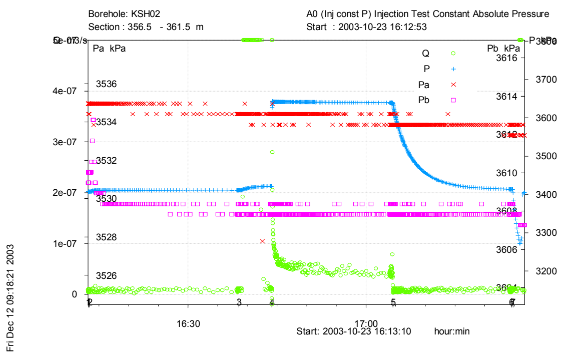
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	2.45E-11
t_1 (min)	20	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.05
T_R (m^2/s)	1.20E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 20 s throughout the flow period. In the start of the recovery period WBS effects are indicated followed by a transition phase followed by indications of pseudo-spherical flow. No pseudo-radial flow regime was developed.**

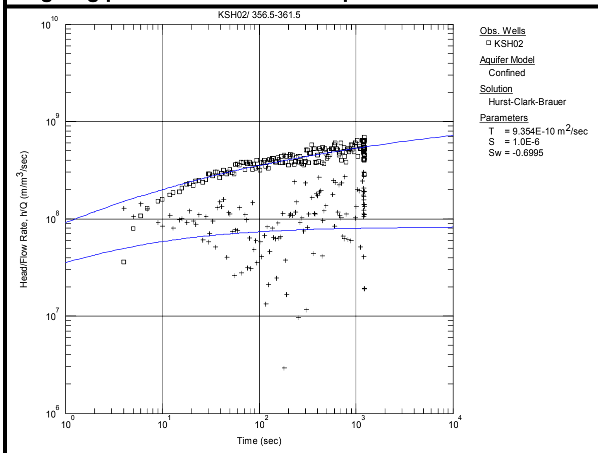
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-23 16:12
Test section (m):	356.5-361.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

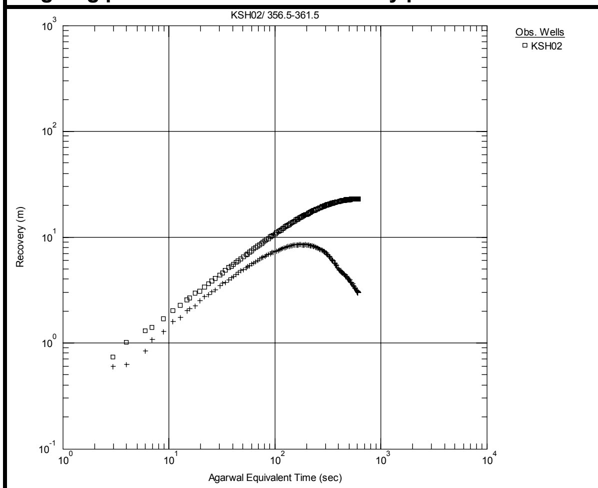
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3407.30		
p_i (kPa)	3422.22		
p_p(kPa)	3639.20	p_F (kPa)	3560.57
Q_p (m^3/s)	4.65E-08		
tp (min)	1225.00	t_F (s)	1200.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.24		
Derivative	Bourdet 0.4	Derivative	-
Results		**Results**	
Q/s (m^2/s)	2.10E-09		
T_{Moye}(m^2/s)	1.73E-09		
Flow regime:	PRF	Flow regime:	WBS-
t_1 (s)	50	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	9.35E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.37E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.70	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

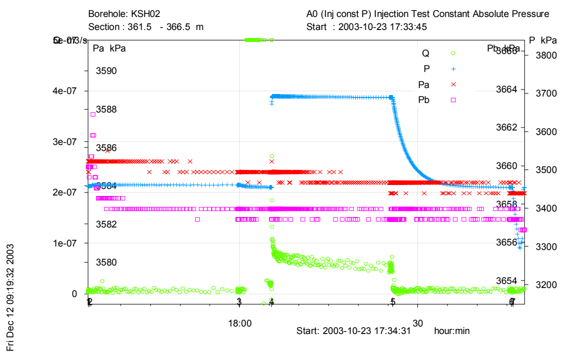
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	2.37E-11
t_1 (min)	50	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.70
T_R (m^2/s)	9.35E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

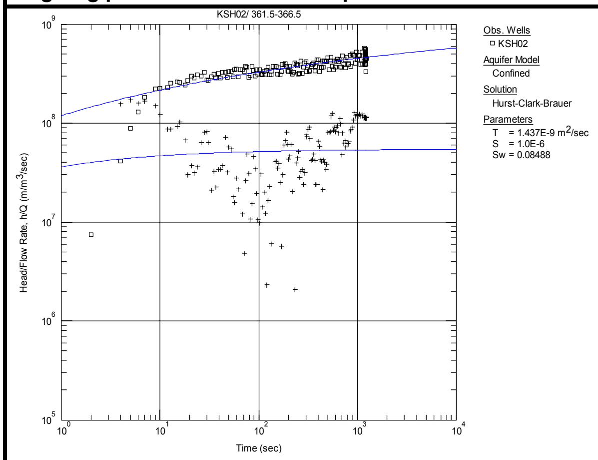
Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 50 s throughout the flow period. In the start of the recovery period WBS effects are indicated followed by a transition phase followed by indications of pseudo-spherical or pseudo-stationary flow. No pseudo-radial flow regime was developed.**

Test Summary Sheet			
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-23 17:33
Test section (m):	361.5-366.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

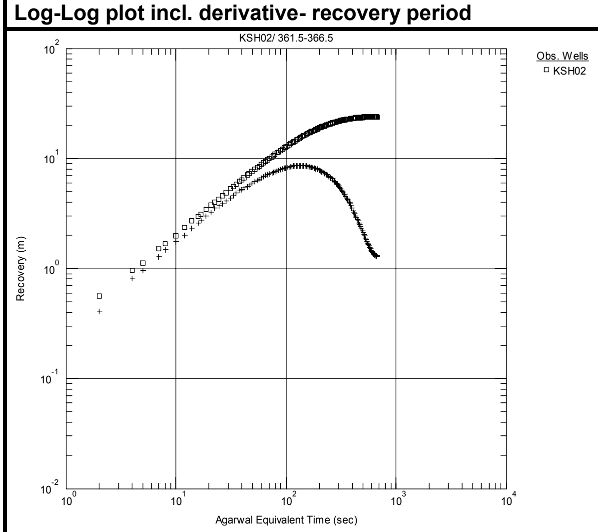
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



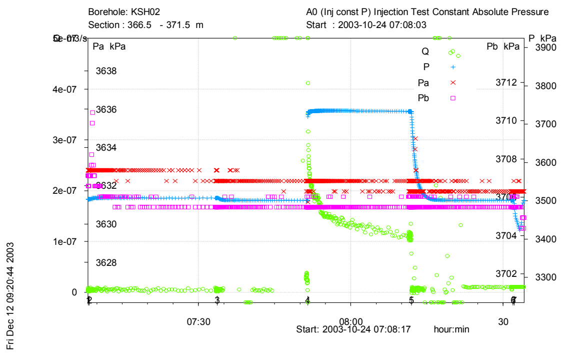
Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3457.60		
p_i (kPa)	3454.42		
p_p(kPa)	3689.22	p_F (kPa)	3600.92
Q_p (m^3/s)	5.42E-08		
tp (min)	1225.00	t_F (s)	1200.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.31		
Derivative	Spane 0.5	Derivative	Spane 0.5
Results		**Results**	
Q/s (m^2/s)	2.26E-09		
T_{Moye}(m^2/s)	1.86E-09		
Flow regime:	PRF	Flow regime:	WBS->PSF
t_1 (s)	50	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	1.43E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.76E-11
C_D (-)	-	C_D (-)	-
ξ (-)	0.08	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	2.76E-11
t_1 (min)	50	C_D (-)	-
t_2 (min)	1200	ξ (-)	0.08
T_R (m^2/s)	1.43E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 50 s throughout the flow period. In the start of the recovery period WBS effects are indicated followed by a transition phase followed by indications of pseudo-spherical flow. No pseudo-radial flow regime was developed.**

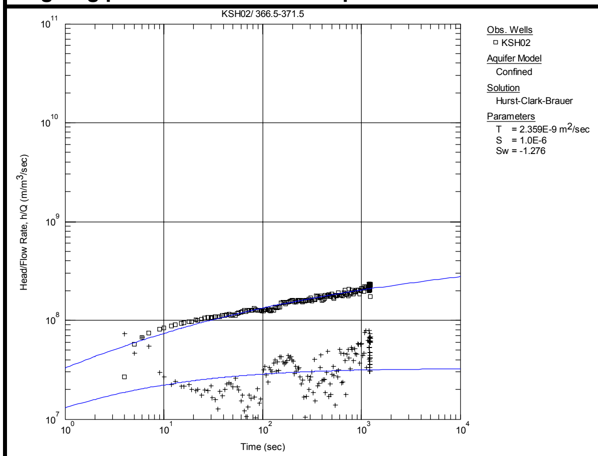
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-24 07:08
Test section (m):	366.5-371.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

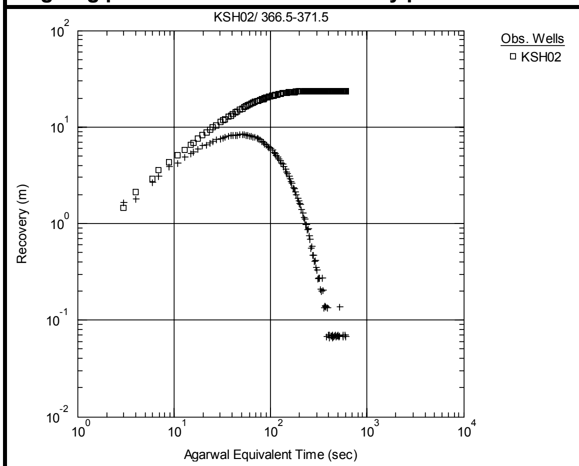


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3504.04		
p_i (kPa)	3501.42		
p_p(kPa)	3732.89	p_F (kPa)	3647.92
Q_p (m^3/s)	1.14E-07		
tp (min)	1225.00	t_F (s)	1200.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.38		
Derivative	Bourdet 0.4	Derivative	-
Results		**Results**	
Q/s (m^2/s)	4.82E-09		
T_{Moye}(m^2/s)	3.96E-09		
Flow regime:	PRF	Flow regime:	WBS->PSS
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	2.36E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.31E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.28	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period

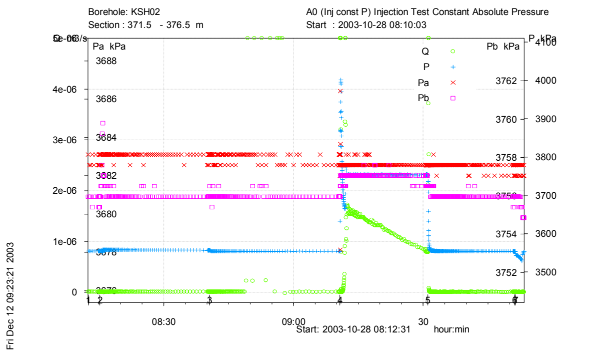


Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	2.31E-11
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	-1.28
T_R (m^2/s)	2.36E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 100 s throughout the flow period. In the start of the recovery period WBS effects are indicated followed by a transition phase followed by indications of pseudo-spherical or pseudo-stationary flow. No pseudo-radial flow regime was developed.**

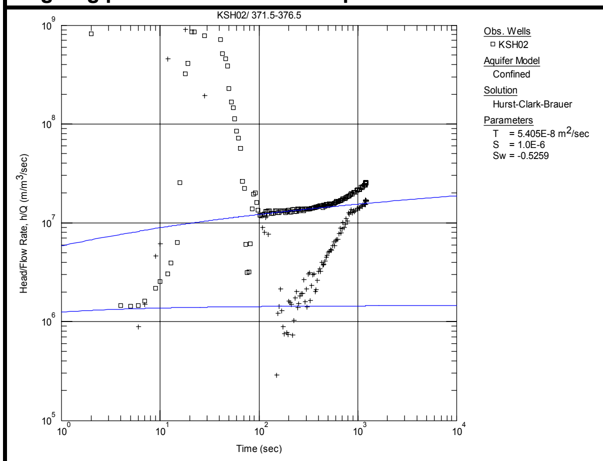
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-28 08:10
Test section (m):	371.5-376.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

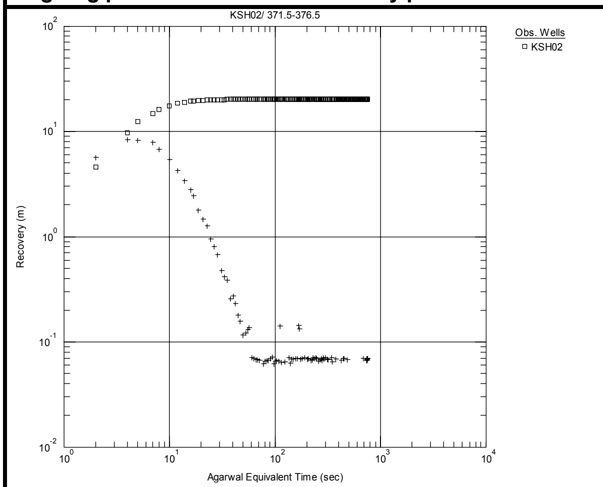


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3554.90		
p_i (kPa)	3554.35		
p_p(kPa)	3753.76	p_F (kPa)	3700.43
Q_p (m^3/s)	7.97E-07		
tp (min)	1219.00	t_F (s)	1206.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.47		
Derivative	Bourdet 0.4	Derivative	-
Results		**Results**	
Q/s (m^2/s)	3.92E-08		
T_{Moye}(m^2/s)	3.12E-08		
Flow regime:	PRF?->NFB	Flow regime:	PSS
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	400	dt_{e2} (s)	-
T_w (m^2/s)	5.41E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-0.53	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period

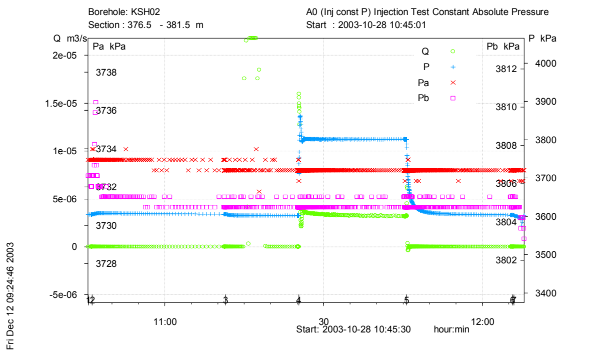


Selected representative parameters			
Flow regime:	PRF->NFB	C (m^3/Pa)	-
t_1 (min)	100	C_D (-)	-
t_2 (min)	400	ξ (-)	-0.53
T_R (m^2/s)	5.41E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

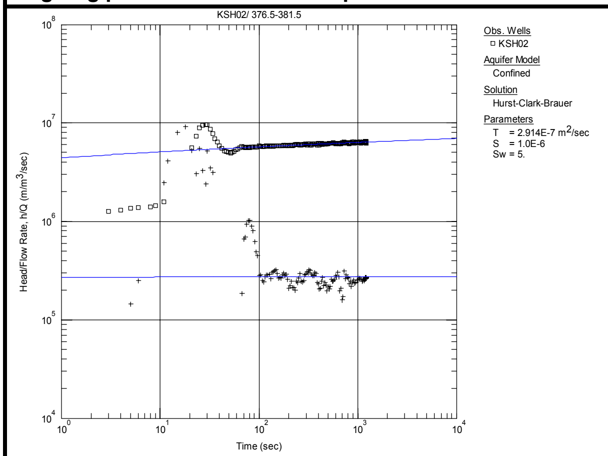
Comments: **The large fluctuations in flow rate in the beginning of the flow period make the derivative extremely noisy. Nevertheless, a pseudo-radial flow regime may be assumed between c. 100 and c. 400 s. After that, an apparent no-flow hydraulic boundary is indicated. The recovery period indicates pseudo-stationary flow**

Test Summary Sheet			
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-28 10:45
Test section (m):	376.5-381.5	**Responsible for test**	M. Holmqvist
Section diameter, 2·r_w (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

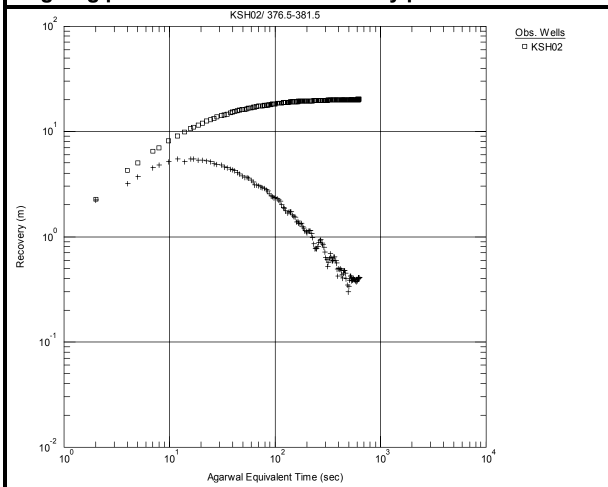
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	3604.65		
p_i (kPa)	3602.30		
p_p(kPa)	3800.90	p_F (kPa)	3750.18
Q_p (m^3/s)	3.24E-06		
tp (min)	1224.00	t_F (s)	1200.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.51		
Derivative	Spane 0.5	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	1.60E-07		
T_{Moye}(m^2/s)	1.31E-07		
Flow regime:	PRF	Flow regime:	WBS->PSF?
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	2.91E-07	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	4.13E-10
C_D (-)	-	C_D (-)	-
ξ (-)	5.00	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

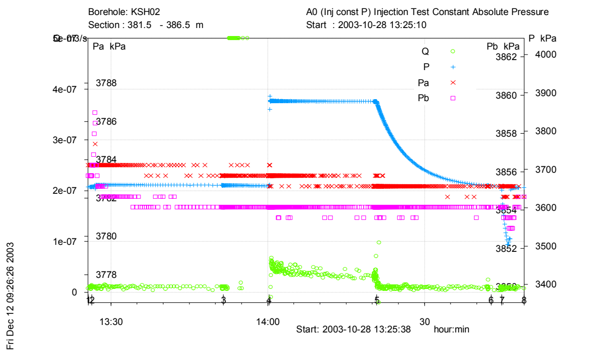
Selected representative parameters			
Flow regime:	PSS	C (m^3/Pa)	4.13E-10
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	1.31E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is scattered during the flow period, a pseudo-radial flow regime is indicated from c. 100 s throughout the flow period. In the start of the recovery period WBS effects are weakly indicated followed by indications of pseudo-spherical flow. No pseudo-radial flow regime was developed.**

Test Summary Sheet

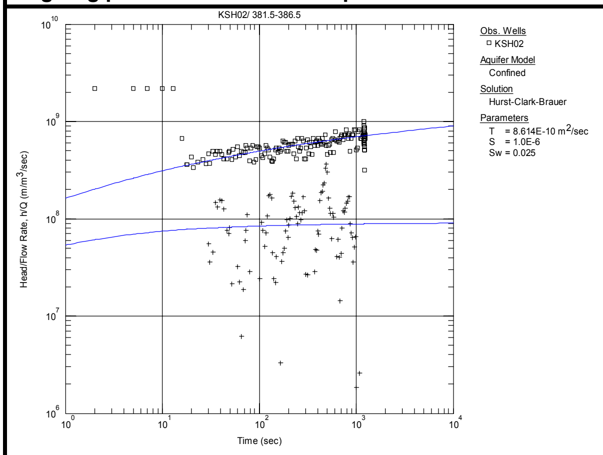
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-28 13:25
Test section (m):	381.5-386.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

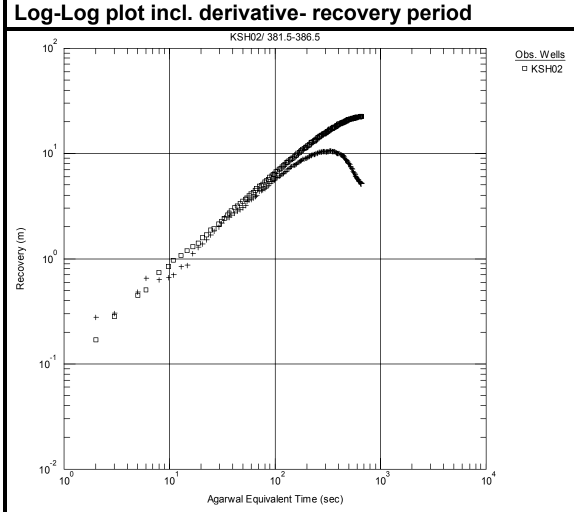


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	3654.40		
p_i (kPa)	3657.17		
p_p(kPa)	3877.46	p_F (kPa)	3804.35
Q_p (m^3/s)	4.05E-08		
tp (min)	1238.00	t_F (s)	1313.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.58		
Derivative	Spane 0.5	Derivative	Spane 0.2
Results		Results	
Q/s (m^2/s)	1.80E-09		
T_{Moye}(m^2/s)	1.55E-09		
Flow regime:	PRF	Flow regime:	WBS->PSF
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	8.61E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	4.58E-11
C_D (-)	-	C_D (-)	-
ξ (-)	0.03	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

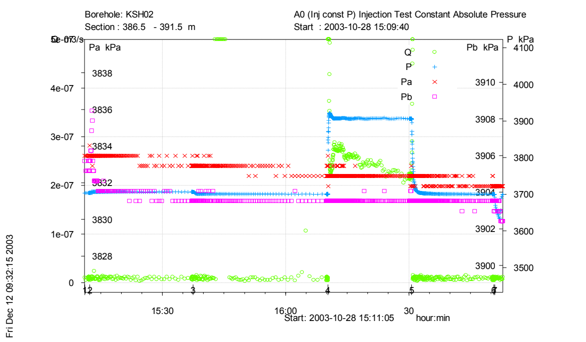
Flow regime:	PRF	C (m^3/Pa)	4.58E-11
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	0.03
T_R (m^2/s)	8.61E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 200 s throughout the flow period. In the start of the recovery period WBS effects are indicated followed by a transition to indications of pseudo/stationary flow regime. No pseudo-radial flow regime was developed.**

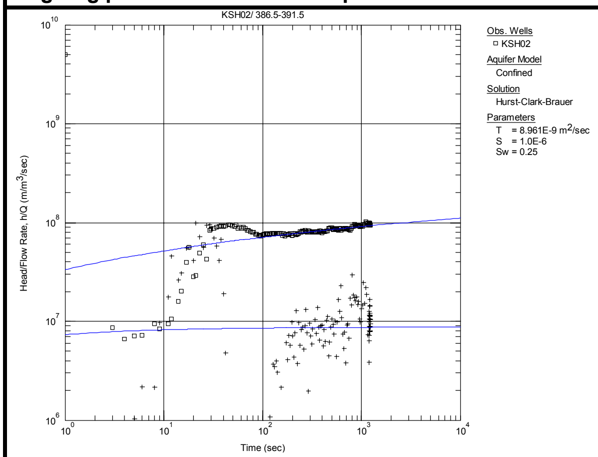
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-28 15:09
Test section (m):	386.5-391.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

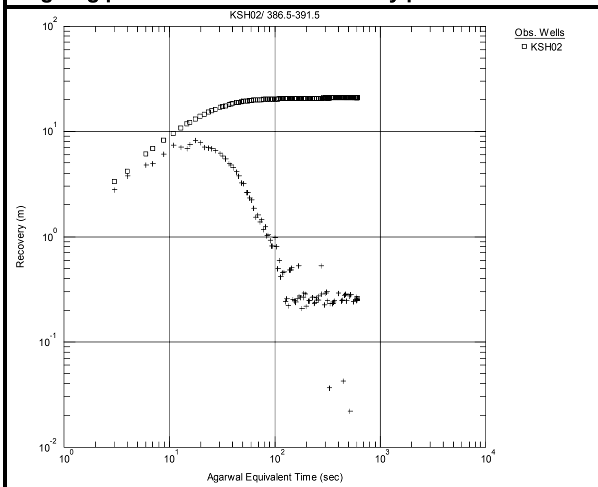
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	3703.60		
p_i (kPa)	3700.56		
p_p(kPa)	3906.06	p_F (kPa)	3846.92
Q_p (m^3/s)	2.19E-07		
tp (min)	1224.00	t_F (s)	1200.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.66		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	1.05E-08		
T_{Moye}(m^2/s)	8.65E-09		
Flow regime:	PRF->No flow	Flow regime:	WBS->PSS
t_1 (s)	200	dt_{e1} (s)	-
t_2 (s)	700	dt_{e2} (s)	-
T_w (m^2/s)	8.96E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.48E-11
C_D (-)	-	C_D (-)	-
ξ (-)	0.25	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

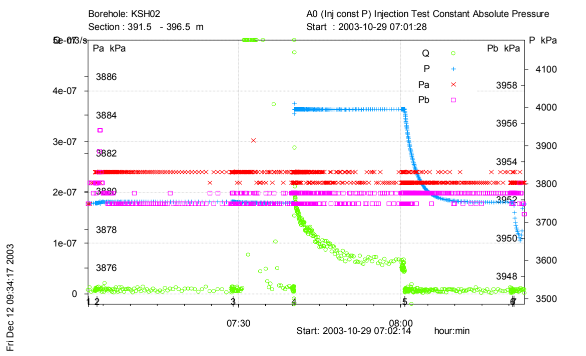
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	2.48E-11
t_1 (min)	200	C_D (-)	-
t_2 (min)	700	ξ (-)	0.25
T_R (m^2/s)	8.96E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c. 200 s to c. 700 s. By the end of the flow period, there are some indications of a no flow outer boundary.In the start of the recovery period WBS effects are indicated. Thereafter a pseudo-stationary flow regime is indicated.**

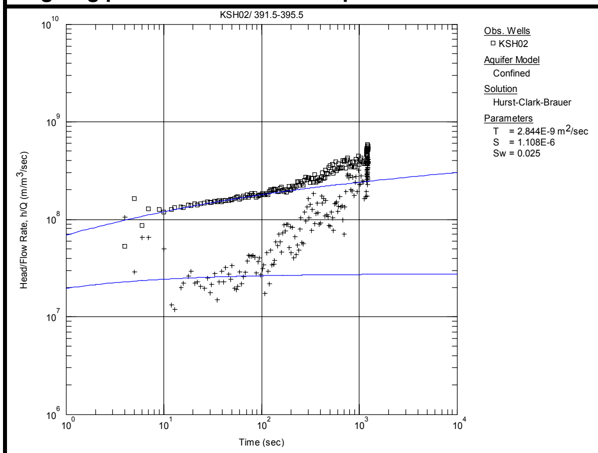
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-29 07:01
Test section (m):	391.5-396.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

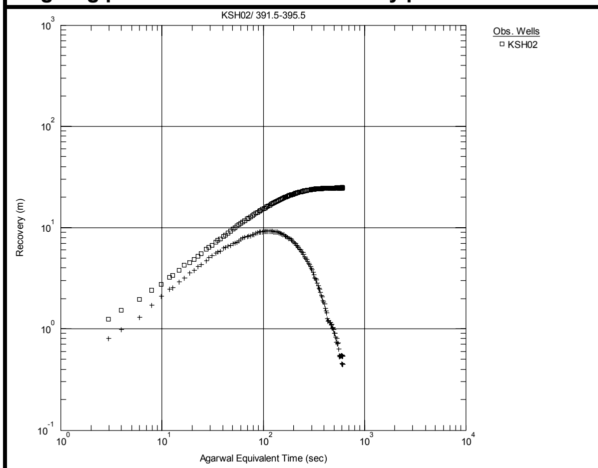


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3748.93		
p_i (kPa)	3750.17		
p_p(kPa)	3995.48	p_F (kPa)	3898.33
Q_p (m^3/s)	5.05E-08		
tp (min)	1228.00	t_F (s)	1197.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.73		
Derivative	Bourdet 0.5	Derivative	-
Results		**Results**	
Q/s (m^2/s)	2.02E-09		
T_{Moye}(m^2/s)	1.67E-09		
Flow regime:	PRF->No flow	Flow regime:	WBS->PSF
t_1 (s)	10	dt_{e1} (s)	-
t_2 (s)	100	dt_{e2} (s)	-
T_w (m^2/s)	2.84E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.71E-11
C_D (-)	-	C_D (-)	-
ξ (-)	0.03	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



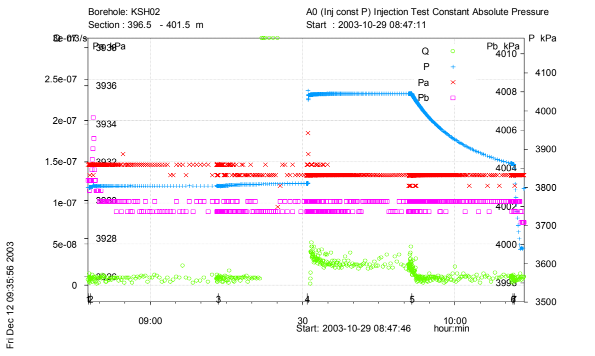
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	1.71E-11
t_1 (min)	10	C_D (-)	-
t_2 (min)	100	ξ (-)	0.03
T_R (m^2/s)	2.84E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: During the flow period , a pseudo-radial flow regime can be identified from c. 10 s to c. 100 s. This regime can be assumed to be representative for the hydraulic properties of the rock close to the test section. After c. 100 s, effects of a no-flow boundary can be seen. This boundary may possibly represent limited extent or decreasing aperture of fracture intersecting the test section. In the start of the recovery period WBS effects are indicated.

Test Summary Sheet

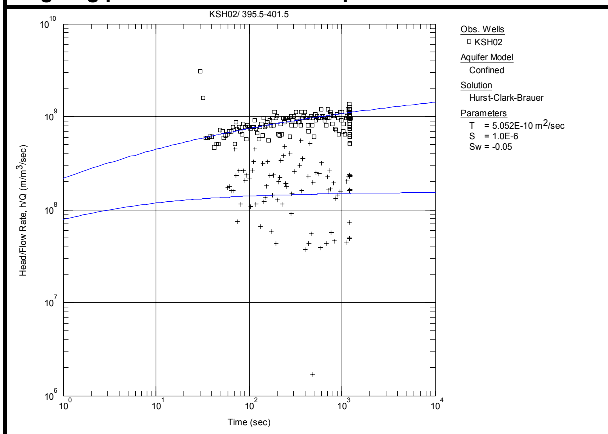
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-29 08:47
Test section (m):	396.5-401.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

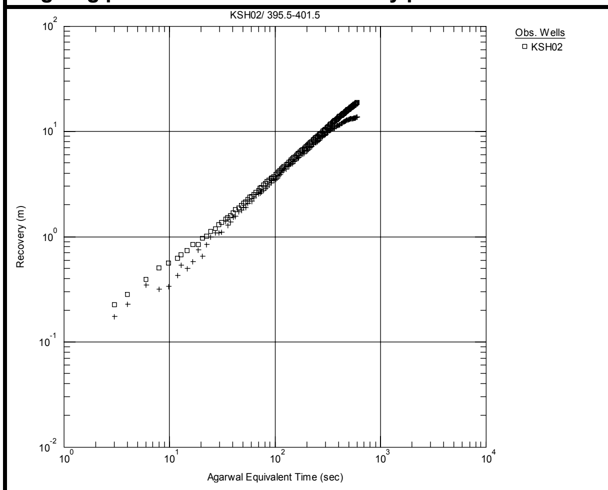


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3800.34		
p_i (kPa)	3810.29		
p_p(kPa)	4045.78	p_F (kPa)	4008.34
Q_p (m^3/s)	2.34E-08		
tp (min)	1236.00	t_F (s)	1196.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.79		
Derivative	Bourdet 0.5	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	9.75E-10		
T_{Moye}(m^2/s)	8.40E-10		
Flow regime:	PRF->PSF	Flow regime:	WBS
t_1 (s)	50	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	5.05E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	7.94E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.05	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

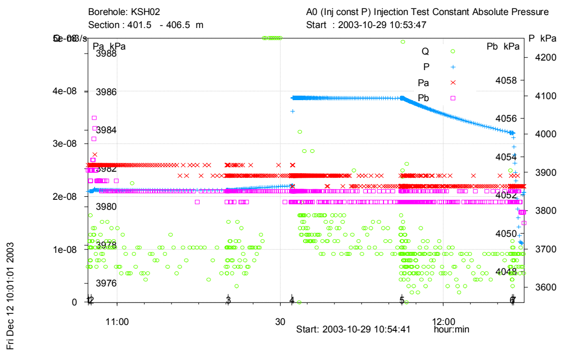
Flow regime:	PRF	C (m^3/Pa)	7.94E-11
t_1 (min)	50	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.05
T_R (m^2/s)	5.05E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c. 50 s throughout the flow period. The section has very low transmissivity. The recovery period is affected from WBS. No pseudo-radial flow regime was developed.**

Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-29 10:53
Test section (m):	401.5-406.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

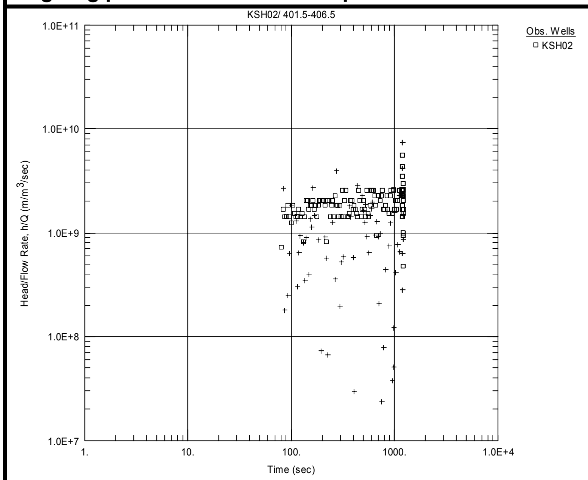
Linear plot Q and p



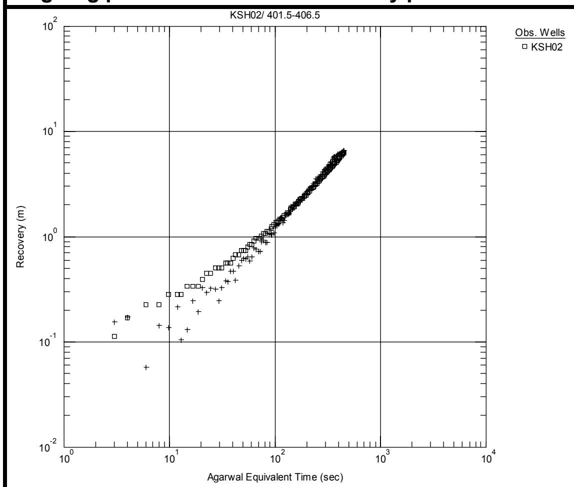
140

Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	3850.65		
p_i (kPa)	3864.46		
p_p(kPa)	4093.74	p_F (kPa)	4150.40
Q_p (m^3/s)	7.86E-09		
tp (min)	1213.00	t_F (s)	1219.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.86		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		Results	
Q/s (m^2/s)	-		
T_{Moye}(m^2/s)	-		
Flow regime:	-	Flow regime:	WBS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



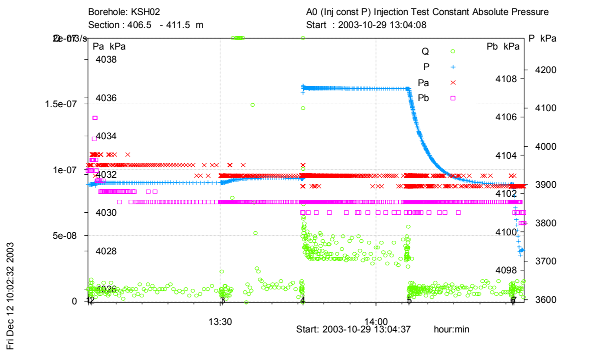
Selected representative parameters			
Flow regime:	-	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Since Q_p is below the measurement limit no transient or steady-state evaluation is performed. For the recovery period WBS effects are indicated.**

Test Summary Sheet

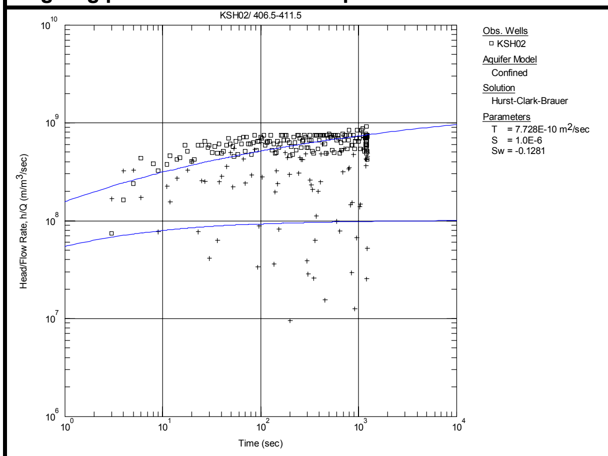
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-29 13:04
Test section (m):	406.5-411.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

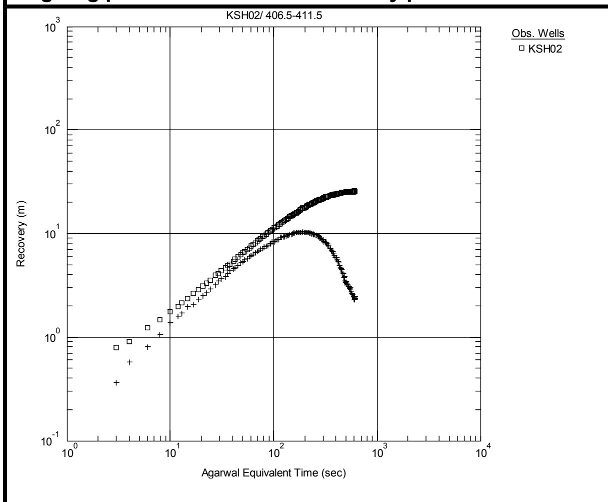


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	3900.94		
p_i (kPa)	3915.87		
p_p(kPa)	4150.68	p_F (kPa)	4047.04
Q_p (m^3/s)	4.23E-08		
tp (min)	1227.00	t_F (s)	1197.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	12.94		
Derivative	Bourdet 0.2	Derivative	-
Results		Results	
Q/s (m^2/s)	1.77E-09		
T_{Moye}(m^2/s)	1.45E-09		
Flow regime:	PRF->PSF	Flow regime:	WBS->PSF
t_1 (s)	200	dt_{e1} (s)	-
t_2 (s)	800	dt_{e2} (s)	-
T_w (m^2/s)	7.73E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.15E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.13	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



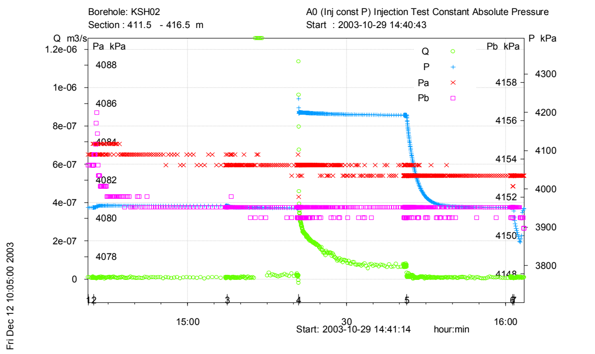
Selected representative parameters

Flow regime:	PSS	C (m^3/Pa)	2.15E-11
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	1.45E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **After a short period with a pseudo-radial flow regime a transition to a pseudo-spherical flow regime is indicated during the flow period. In the start of the recovery period, WBS effects are indicated followed by indications of a pseudo-spherical flow regime. No pseudo-radial flow regime is indicated.**

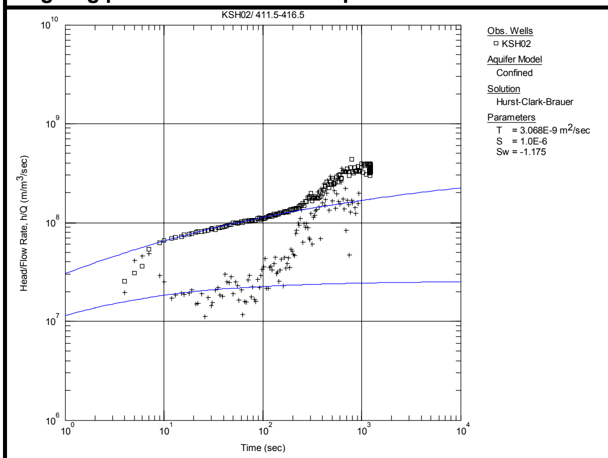
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-29 14:40
Test section (m):	411.5-416.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

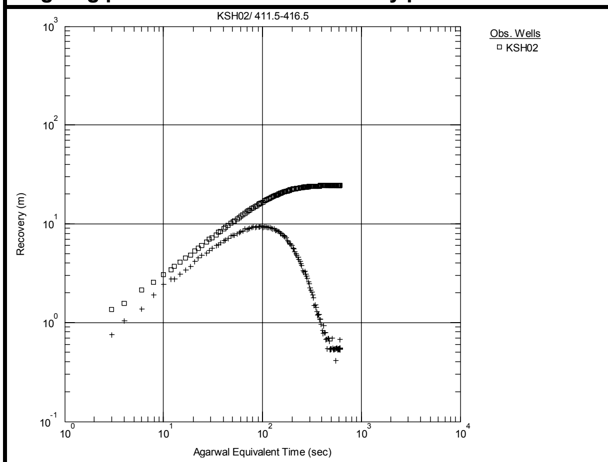


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	3951.26		
p_i (kPa)	3951.25		
p_p(kPa)	4192.27	p_F (kPa)	4097.90
Q_p (m^3/s)	6.85E-08		
tp (min)	1227.00	t_F (s)	1197.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.00		
Derivative	Bourdet 0.2	Derivative	-
Results		**Results**	
Q/s (m^2/s)	2.79E-09		
T_{Moye}(m^2/s)	2.27E-09		
Flow regime:	PRF->NFB-	Flow regime:	WBS->PSS
t_1 (s)	10	dt_{e1} (s)	-
t_2 (s)	100	dt_{e2} (s)	-
T_w (m^2/s)	3.07E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.32E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.12	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



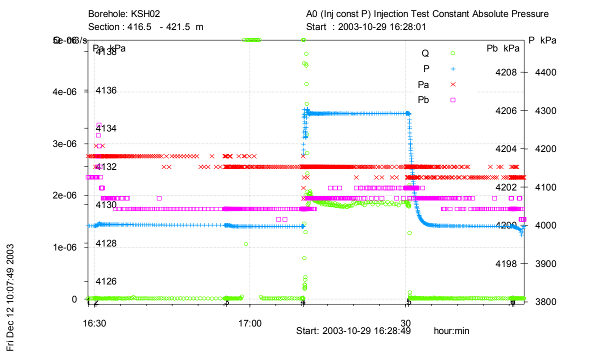
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	2.32E-11
t_1 (min)	10	C_D (-)	-
t_2 (min)	100	ξ (-)	-1.12
T_R (m^2/s)	3.07E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **A pseudo-radial flow regime is indicated during the flow period between c. 10 and c. 100 s. After that, effects of an apparent no-flow boundary are seen. By the end of the flow period, a pseudo-spherical flow regime is indicated. The recovery is dominated by WBS effects followed by a transition to pseudo-stationary flow**

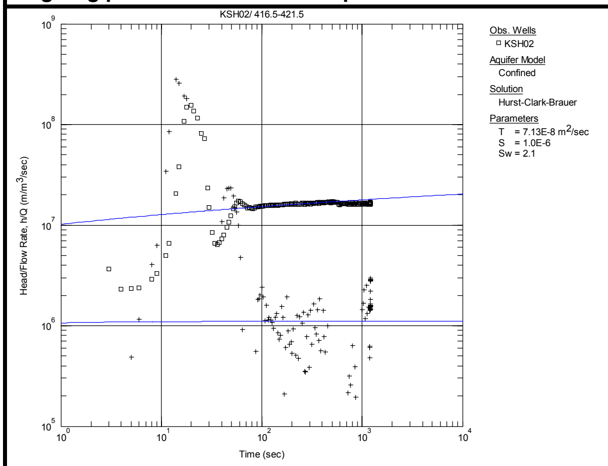
Test Summary Sheet

Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-10-29 16:28**
Test section (m):	**416.5-421.5**	**Responsible for test**	**M. Holmqvist**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J. E. Ludvigson**

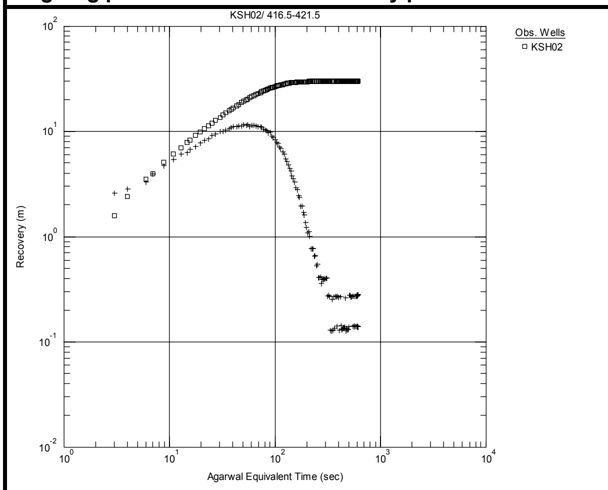
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



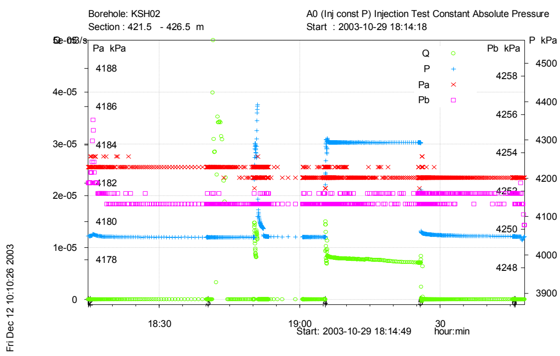
Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**3999.34**		
p_i (kPa)	**3997.55**		
p_p(kPa)	**4292.74**	**p_F (kPa)**	**4143.77**
Q_p (m^3/s)	**1.80E-06**		
tp (min)	**1221.00**	**t_F (s)**	**1203.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**13.07**		
Derivative	**Bourdet 0.2**	**Derivative**	**-**
Results		**Results**	
Q/s (m^2/s)	**5.99E-08**		
T_{Moye}(m^2/s)	**5.05E-08**		
Flow regime:	**PSF**	**Flow regime:**	**WBS->PSS**
t_1 (s)	**100**	**dt_{e1} (s)**	**-**
t_2 (s)	**600**	**dt_{e2} (s)**	**-**
T_w (m^2/s)	**7.13E-08**	**T_w (m^2/s)**	**-**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m^3/Pa)	**-**	**C (m^3/Pa)**	**3.06E-10**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**2.10**	**ξ (-)**	**-**
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

Selected representative parameters			
Flow regime:	**PSS**	**C (m^3/Pa)**	**3.06E-10**
t_1 (min)	**-**	**C_D (-)**	**-**
t_2 (min)	**-**	**ξ (-)**	**-**
T_R (m^2/s)	**5.05E-08**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **A pseudo-spherical flow regime is indicated during the entire flow period. The recovery is dominated by WBS effects followed by a transition to pseudo-stationary flow. No pseudo-radial flow regime is indicated.**

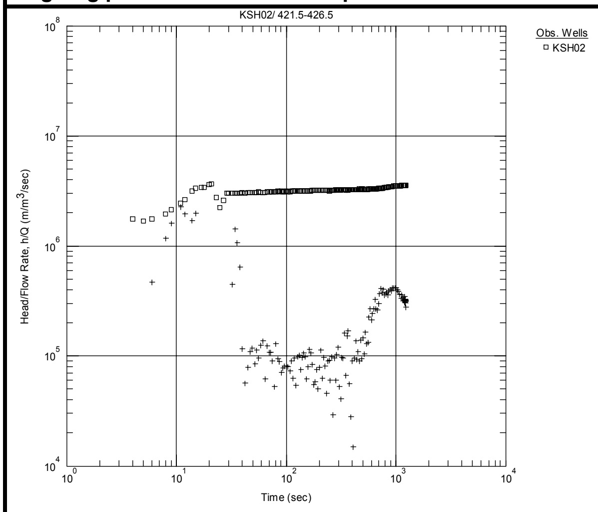
Test Summary Sheet			
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-10-29 18:14**
Test section (m):	**421.5-426.5**	**Responsible for test**	**M. Holmqvist**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J. E. Ludvigson**

Linear plot Q and p

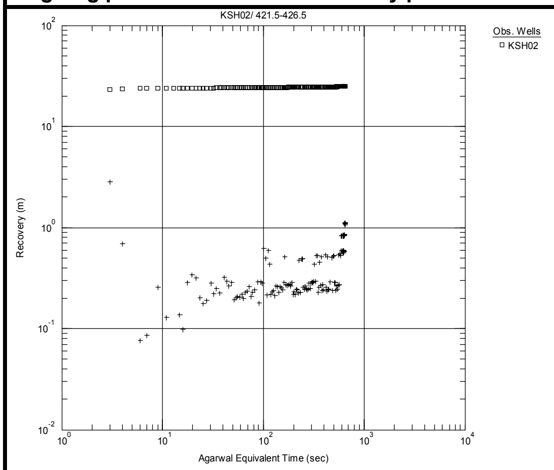


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**4049.65**		
p_i (kPa)	**4046.89**		
p_p(kPa)	**4293.43**	**p_F (kPa)**	**4195.19**
Q_p (m³/s)	**7.07E-06**		
tp (min)	**1219.00**	**t_F (s)**	**1206.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**13.15**		
Derivative	**Bourdet 0.3**	**Derivative**	**Bourdet 0.1**
Results		**Results**	
Q/s (m²/s)	**2.81E-07**		
T_{Moye}(m²/s)	**2.35E-07**		
Flow regime:	**PSF->No flow**	**Flow regime:**	**PSS**
t_1 (s)	**-**	**dt_{e1} (s)**	**-**
t_2 (s)	**-**	**dt_{e2} (s)**	**-**
T_w (m²/s)	**-**	**T_w (m²/s)**	**-**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m³/Pa)	**-**	**C (m³/Pa)**	**-**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**-**	**ξ (-)**	**-**
T_{GRF}(m²/s)		**T_{GRF}(m²/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



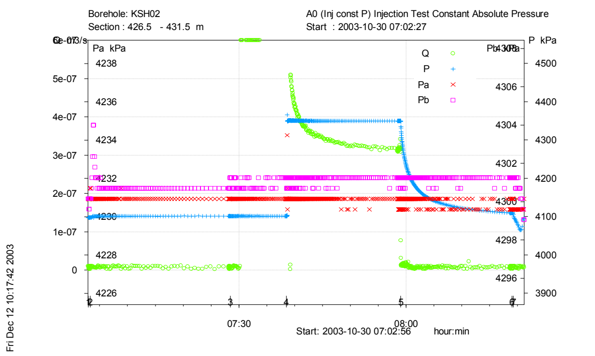
Selected representative parameters			
Flow regime:	**PSS**	**C (m³/Pa)**	**-**
t_1 (min)	**-**	**C_D (-)**	**-**
t_2 (min)	**-**	**ξ (-)**	**-**
T_R (m²/s)	**2.35E-07**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **A pseudo-spherical flow regime is indicated during the first c. 500 s of the flow period. After that time, effects of a flow restriction or an apparent no-flow hydraulic boundary are indicated. A very rapid pressure recovery occurred with a dominating pseudo-spherical (or pseudo-stationary) flow.**

Test Summary Sheet

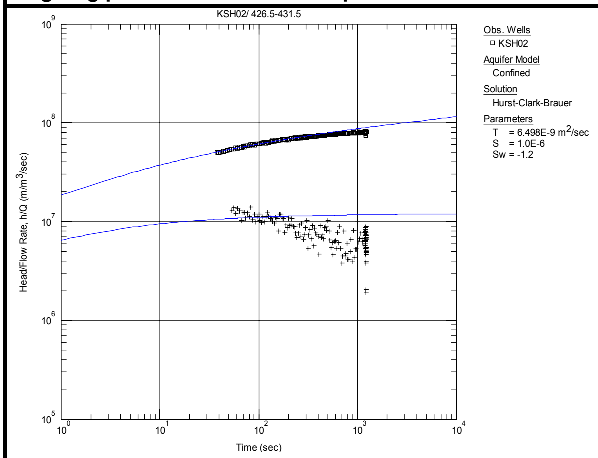
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-30 07:02
Test section (m):	426.5-431.5	**Responsible for test**	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

Linear plot Q and p

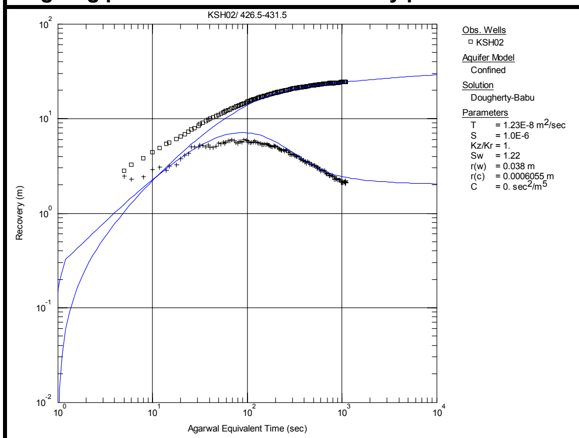


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4097.75		
p_i (kPa)	4101.06		
p_p(kPa)	4349.54	p_F (kPa)	4256.00
Q_p (m^3/s)	3.24E-07		
tp (min)	1234.00	t_F (s)	1198.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.21		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	1.28E-08		
T_{Moye}(m^2/s)	1.10E-08		
Flow regime:	PRF->PSF	Flow regime:	(PLF->)PRF
t_1 (s)	50	dt_{e1} (s)	500.00
t_2 (s)	200	dt_{e2} (s)	1000.00
T_w (m^2/s)	6.50E-09	T_w (m^2/s)	1.23E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-1.20	ξ (-)	1.22
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

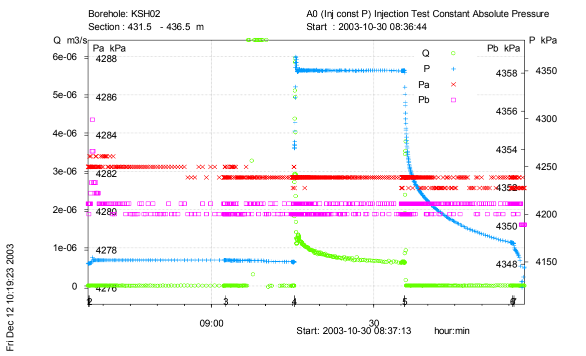
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	500	C_D (-)	-
t_2 (min)	1000	ξ (-)	1.22
T_R (m^2/s)	1.23E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **A pseudo-radial flow regime is indicated during flow period from c. 50 s to c. 200 s. Then a transition to pseudo-spherical flow occurs. In the beginning of the recovery period a pseudo-linear flow regime is indicated followed by a transition to a possible pseudo-radial flow regime.**

Test Summary Sheet

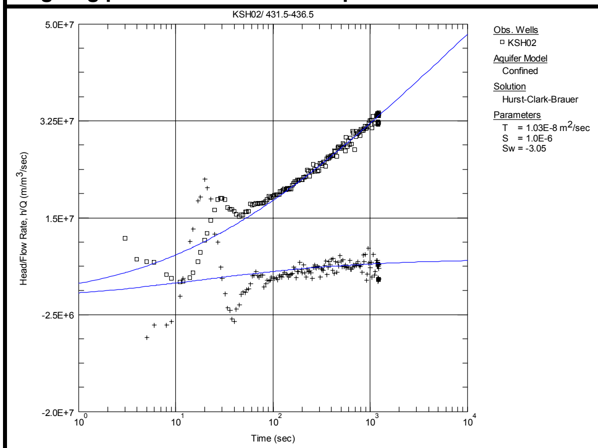
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-10-30 08:36**
Test section (m):	**431.5-436.5**	**Responsible for test**	**M. Holmqvist**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J. E. Ludvigson**

Linear plot Q and p

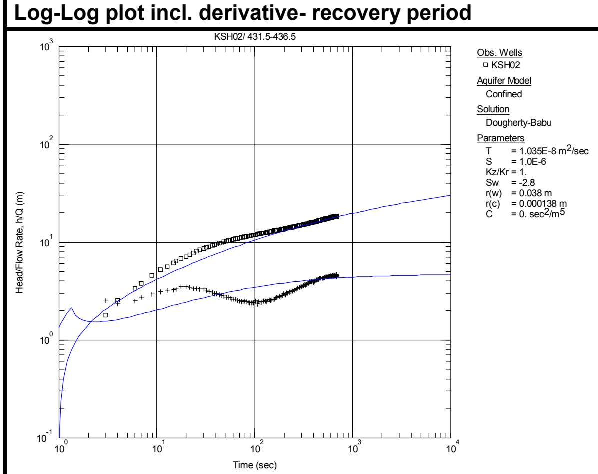


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**4148.60**		
p_i (kPa)	**4149.99**		
p_p(kPa)	**4350.38**	**p_F (kPa)**	**4316.80**
Q_p (m^3/s)	**6.19E-07**		
tp (min)	**1225.00**	**t_F (s)**	**1199.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**13.27**		
Derivative	**Bourdet 0.3**	**Derivative**	**Bourdet 0.3**
Results		**Results**	
Q/s (m^2/s)	**3.03E-08**		
T_{Moye}(m^2/s)	**2.53E-08**		
Flow regime:	**PRF**	**Flow regime:**	**PRF**
t_1 (s)	**100**	**dt_{e1} (s)**	**300.00**
t_2 (s)	**1200**	**dt_{e2} (s)**	**600.00**
T_w (m^2/s)	**1.03E-08**	**T_w (m^2/s)**	**1.04E-08**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m^3/Pa)	**-**	**C (m^3/Pa)**	**9.46E-11**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**-3.05**	**ξ (-)**	**-2.8**
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

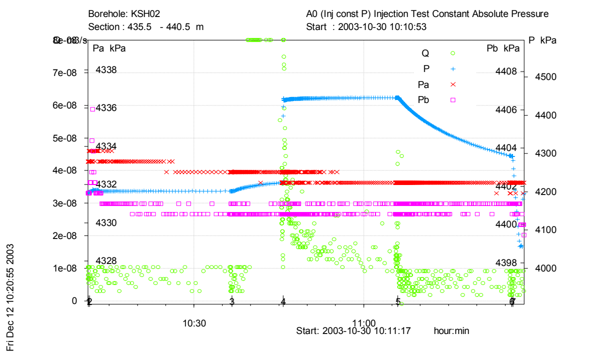
Flow regime:	**PRF**	**C (m^3/Pa)**	**9.46E-11**
t_1 (min)	**100**	**C_D (-)**	**-**
t_2 (min)	**1200**	**ξ (-)**	**-3.05**
T_R (m^2/s)	**1.03E-08**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **A pseudo-radial flow regime is indicated during flow period from c. 200 s throughout the flow period. A possible pseudo-radial flow regime occurs during the last part of the recovery period. The T-value for the recovery period, c. 1.0E-8 m^2/s corresponds very good with the T-value from the flow period.**

Test Summary Sheet

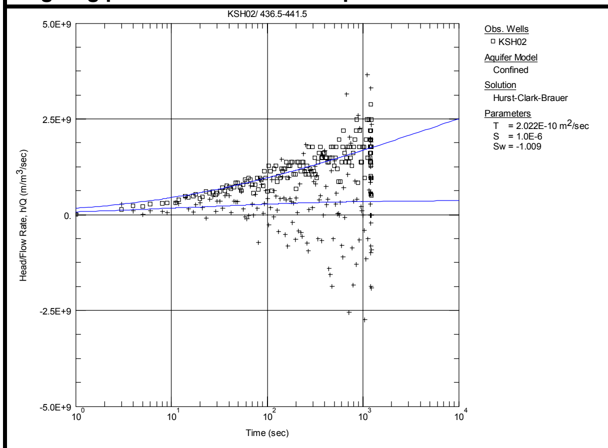
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-10-30 10:10
Test section (m):	436.5-441.5	Responsible for test	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

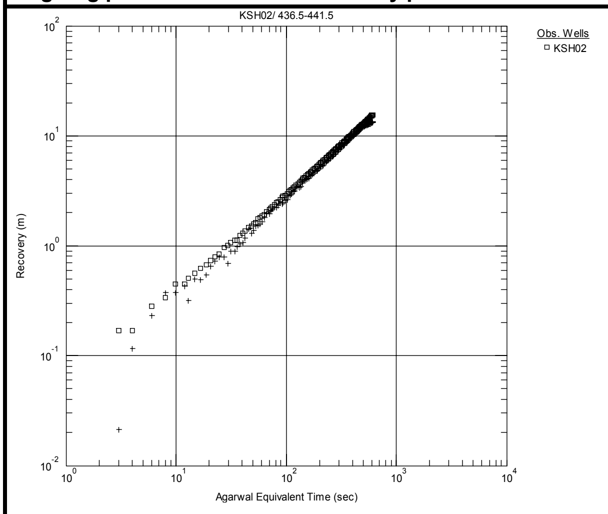


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	4198.91		
p_i (kPa)	4223.92		
p_p(kPa)	4445.46	p_F (kPa)	4440.07
Q_p (m^3/s)	2.13E-08		
tp (min)	1217.00	t_F (s)	1208.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.35		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		Results	
Q/s (m^2/s)	9.42E-10		
T_{Moye}(m^2/s)	7.85E-10		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	2.02E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	7.22E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.00	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period

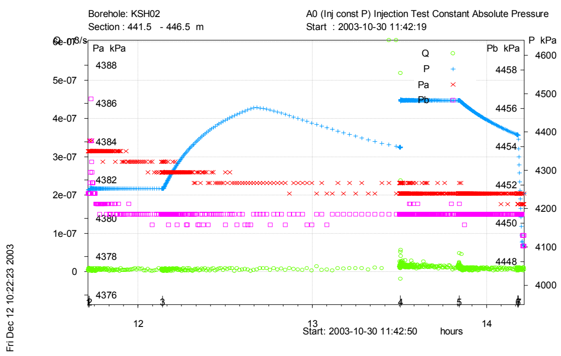


Selected representative parameters			
Flow regime:	PRF/PSS	C (m^3/Pa)	7.22E-11
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	-1.00
T_R (m^2/s)	2.02E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated during the entire flow period.For the recovery period, WBS effects dominate. No pseudo-radial flow regime is developed.**

Test Summary Sheet			
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-30 11:42
Test section (m):	441.5-446.5	**Responsible for test**	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4249.21		
p_i (kPa)	4360.60		
p_p(kPa)	4482.49	p_F (kPa)	4539.58
Q_p (m^3/s)	1.43E-08		
tp (min)	1211.00	t_F (s)	1213.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.42		
Derivative	-	Derivative	-
Results		**Results**	
Q/s (m^2/s)	1.15E-09		
T_{Moye}(m^2/s)	9.45E-10		
Flow regime:	-	Flow regime:	-
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period

Not Analysed

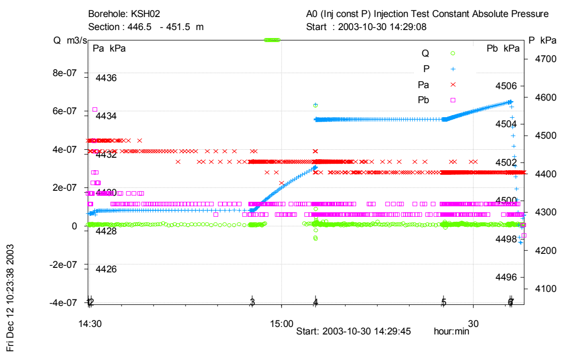
Log-Log plot incl. derivative- recovery period

Not Analysed

Selected representative parameters			
Flow regime:	-	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

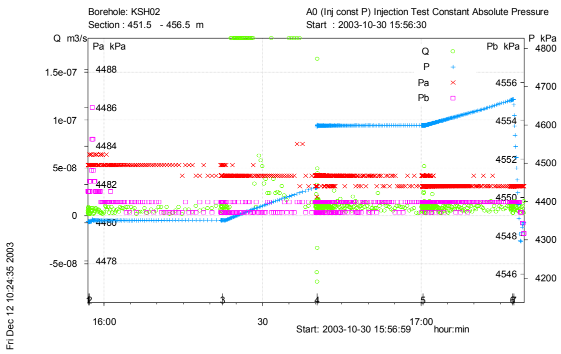
Comments: The test section has a hydraulic conductivity below the limit of measurement with the Pipe String System. No relevant data was obtained.

Test Summary Sheet				
Project:	PLU	**Test type:**	3	
Area:	Simpevarp	**Test no:**	1	
Borehole ID:	KSH02	**Test start:**	2003-10-30 14:29	
Test section (m):	446.5-451.5	**Responsible for test**	M. Holmqvist	
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson	

Linear plot Q and p	**Flow period**		**Recovery period**	
	**Indata**		**Indata**	
	p_0 (kPa)	4296.75		
	p_i (kPa)	4417.26		
	p_p(kPa)	4542.75	p_F (kPa)	4733.61
	Q_p (m^3/s)	6.94E-09		
	tp (min)	1203.00	t_F (s)	625.00
	S*	1.0E-06	S*	1.00E-06
	EC_w (mS/m)	-		
	Te_w(gr C)	13.49		
	Derivative	-	Derivative	-
	Results		**Results**	
	Q/s (m^2/s)	5.43E-10		
Log-Log plot incl. derivate- flow period	T_{Moye}(m^2/s)	4.50E-10		
	Flow regime:	-	Flow regime:	-
	t_1 (s)	-	dt_{e1} (s)	-
	t_2 (s)	-	dt_{e2} (s)	-
	T_w (m^2/s)	-	T_w (m^2/s)	-
	S_w (-)	-	S_w (-)	-
Not Analysed	K_{sw} (m/s)	-	K_{sw} (m/s)	-
	S_{sw} (1/m)	-	S_{sw} (1/m)	-
	C (m^3/Pa)	-	C (m^3/Pa)	-
	C_D (-)	-	C_D (-)	-
	ξ (-)	-	ξ (-)	-
	T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
	S_{GRF}(-)		S_{GRF}(-)	
	D_{GRF} (-)		D_{GRF} (-)	
Log-Log plot incl. derivative- recovery period	**Selected representative parameters**			
	Flow regime:	-	C (m^3/Pa)	-
	t_1 (min)	-	C_D (-)	-
	t_2 (min)	-	ξ (-)	-
	T_R (m^2/s)	-		
	S (-)	-		
	K_s (m/s)	-		
Not Analysed	S_s (1/m)	-		
	Comments: The test section has a hydraulic conductivity below the limit of measurement with the Pipe String System. No relevant data was obtained.			

Test Summary Sheet			
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-10-30 15:56
Test section (m):	451.5-456.5	**Responsible for test**	M. Holmqvist
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4347.05		
p_i (kPa)	4437.85		
p_p(kPa)	4599.13	p_F (kPa)	4811.55
Q_p (m^3/s)	6.94E-09		
tp (min)	1205.00	t_F (s)	1017.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.56		
Derivative	-	Derivative	-
Results		**Results**	
Q/s (m^2/s)	4.22E-10		
T_{Moye}(m^2/s)	3.49E-10		
Flow regime:	-	Flow regime:	-
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period

Not Analysed

Log-Log plot incl. derivative- recovery period

Not Analysed

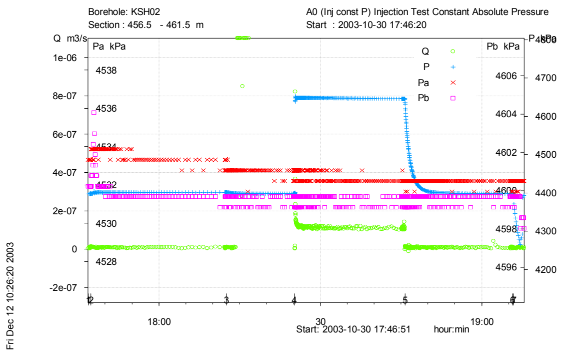
Selected representative parameters			
Flow regime:	-	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: The test section has a hydraulic conductivity below the limit of measurement with the Pipe String System. No relevant data was obtained.

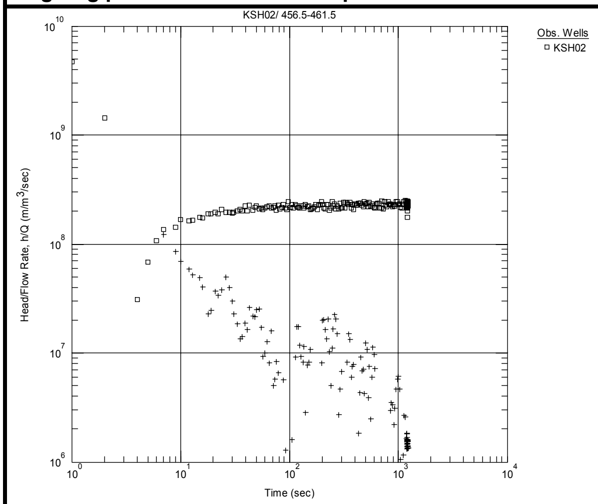
Test Summary Sheet

Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-10-30 17:46**
Test section (m):	**456.5-461.5**	**Responsible for test**	**M. Holmqvist**
Section diameter, 2·r_w (m):	**0.076**	**Responsible for test evaluation:**	**J. E. Ludvigson**

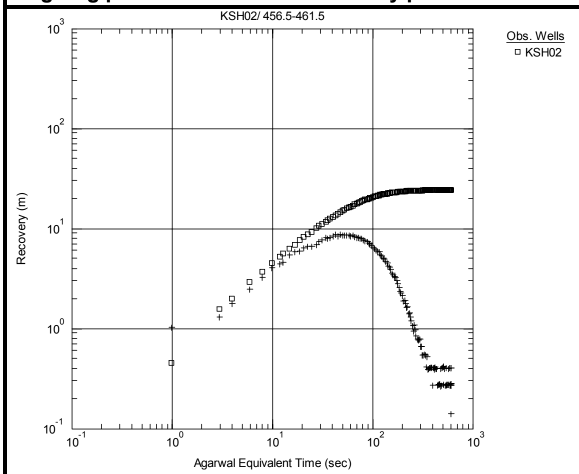
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**4397.36**		
p_i (kPa)	**4397.92**		
p_p(kPa)	**4645.43**	**p_F (kPa)**	**4544.56**
Q_p (m³/s)	**1.19E-07**		
tp (min)	**1235.00**	**t_F (s)**	**1197.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**13.63**		
Derivative	**Spane 0.5**	**Derivative**	**Bourdet 0.2**
Results		**Results**	
Q/s (m²/s)	**4.73E-09**		
T_{Moye}(m²/s)	**4.04E-09**		
Flow regime:	**PSF**	**Flow regime:**	**WBS->PSS**
t_1 (s)	**-**	**dt_{e1} (s)**	**-**
t_2 (s)	**-**	**dt_{e2} (s)**	**-**
T_w (m²/s)	**-**	**T_w (m²/s)**	**-**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m³/Pa)	**-**	**C (m³/Pa)**	**3.04E-11**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**-**	**ξ (-)**	**-**
T_{GRF}(m²/s)		**T_{GRF}(m²/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

Selected representative parameters

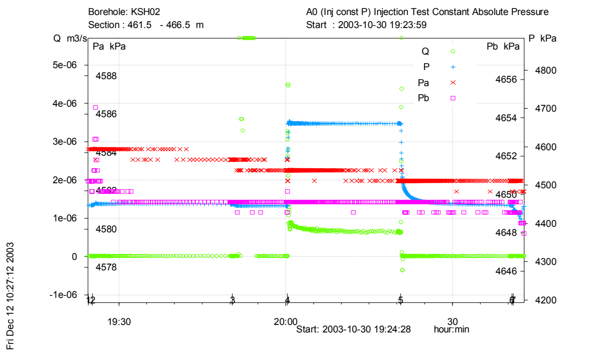
Flow regime:	**PSS**	**C (m³/Pa)**	**3.04E-11**
t_1 (min)	**-**	**C_D (-)**	**-**
t_2 (min)	**-**	**ξ (-)**	**-**
T_R (m²/s)	**4.04E-09**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **A pseudo-spherical flow regime is indicated during the entire flow period. For the recovery, WBS effects are indicated followed by a transition to a pseudo-stationary flow regime.**

Test Summary Sheet

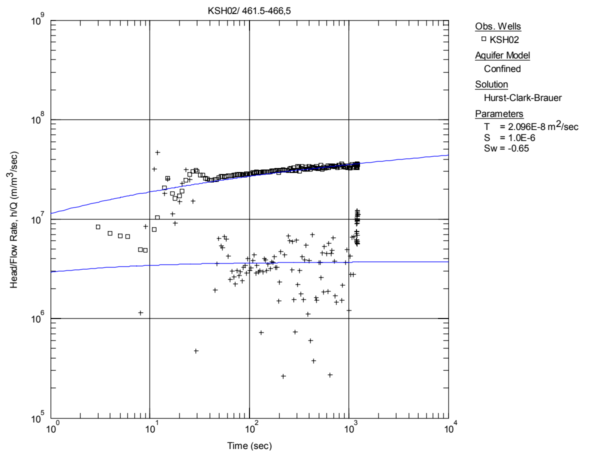
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-10-30 19:23**
Test section (m):	**461.5-466.5**	**Responsible for test**	**M. Holmqvist**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J. E. Ludvigson**

Linear plot Q and p

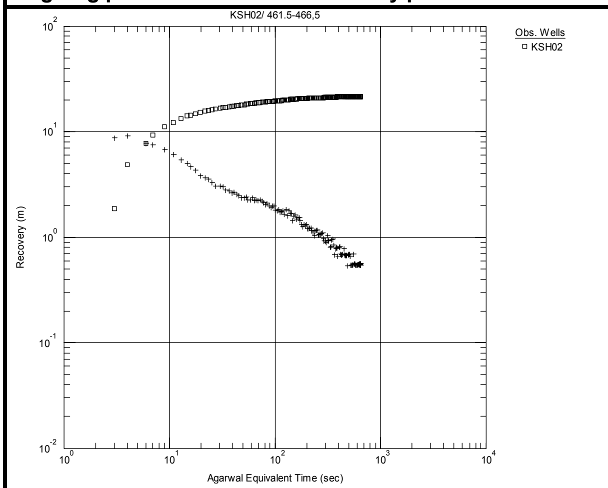


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**4447.67**		
p_i (kPa)	**4445.87**		
p_p(kPa)	**4660.50**	**p_F (kPa)**	**4594.31**
Q_p (m^3/s)	**6.19E-07**		
tp (min)	**1222.00**	**t_F (s)**	**1202.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**13.70**		
Derivative	**Bourdet 0.2**	**Derivative**	**-**
Results		**Results**	
Q/s (m^2/s)	**2.83E-08**		
T_{Moye}(m^2/s)	**2.36E-08**		
Flow regime:	**PRF->PSF**	**Flow regime:**	**WBS->PSF**
t_1 (s)	**80**	**dt_{e1} (s)**	**-**
t_2 (s)	**1200**	**dt_{e2} (s)**	**-**
T_w (m^2/s)	**2.10E-08**	**T_w (m^2/s)**	**-**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m^3/Pa)	**-**	**C (m^3/Pa)**	**-**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**-0.65**	**ξ (-)**	**-**
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

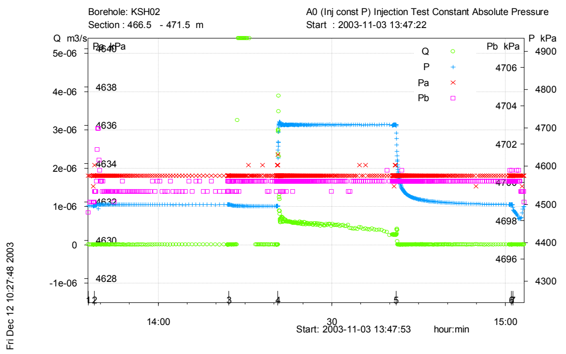
Flow regime:	**PRF**	**C (m^3/Pa)**	**-**
t_1 (min)	**80**	**C_D (-)**	**-**
t_2 (min)	**1200**	**ξ (-)**	**-0.65**
T_R (m^2/s)	**2.10E-08**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **Although the derivative is scattered during the flow period, a pseudo-radial flow regime is indicated from c. 80 s throughout the flow period. In the beginning of the recovery period WBS effects are indicated. Thereafter a transition occurs into a possible pseudo-spherical flow regime.**

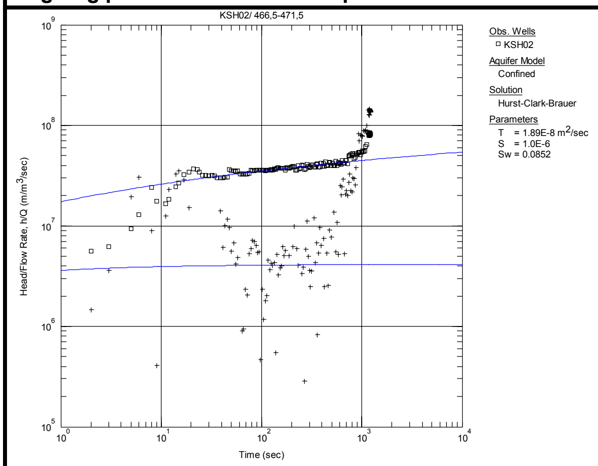
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-03 13:47
Test section (m):	466.5-471.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

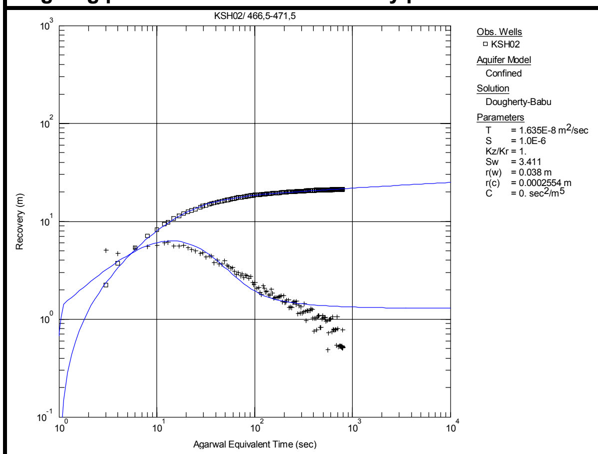
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



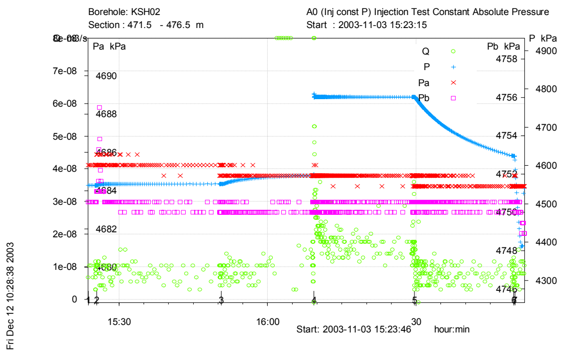
Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4496.32		
p_i (kPa)	4495.76		
p_p(kPa)	4708.45	p_F (kPa)	4646.27
Q_p (m^3/s)	2.64E-07		
tp (min)	1228.00	t_F (s)	1196.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.76		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	1.22E-08		
T_{Moye}(m^2/s)	1.02E-08		
Flow regime:	PRF->No-flow	Flow regime:	PSF
t_1 (s)	50	dt_{e1} (s)	10.00
t_2 (s)	700	dt_{e2} (s)	700.00
T_w (m^2/s)	1.89E-08	T_w (m^2/s)	1.64E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	0.08	ξ (-)	3.411
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	50	C_D (-)	-
t_2 (min)	700	ξ (-)	0.08
T_R (m^2/s)	1.89E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated between c. 50 and c. 500 s. By the end of the flow period, effects of an apparent no-flow boundary are indicated. In the beginning of the recovery period WBS effects are indicated. Thereafter a transition to pseudo-spherical flow occurs.**

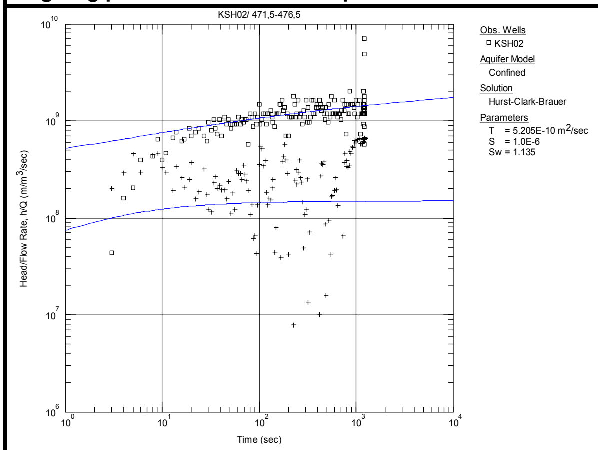
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-03 15:23
Test section (m):	471.5-476.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

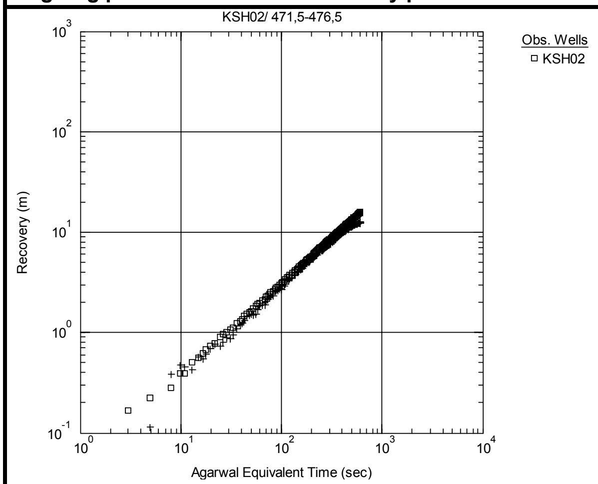


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4548.28		
p_i (kPa)	4575.22		
p_p(kPa)	4778.79	p_F (kPa)	4771.74
Q_p (m^3/s)	2.46E-08		
tp (min)	1220.00	t_F (s)	1204.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.83		
Derivative	Spane 0.5	Derivative	-
Results		**Results**	
Q/s (m^2/s)	1.19E-09		
T_{Moye}(m^2/s)	9.80E-10		
Flow regime:	PRF	Flow regime:	WBS
t_1 (s)	70	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	5.20E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	8.36E-11
C_D (-)	-	C_D (-)	-
ξ (-)	1.14	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



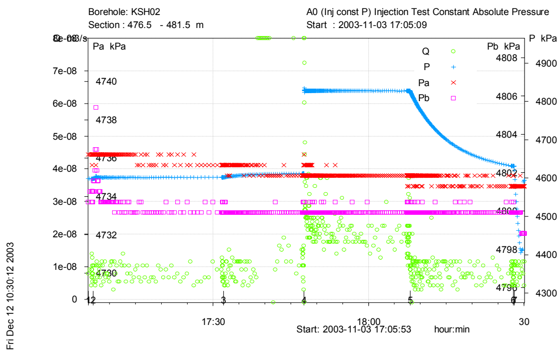
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	8.36E-11
t_1 (min)	70	C_D (-)	-
t_2 (min)	1200	ξ (-)	1.14
T_R (m^2/s)	5.20E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 70 s throughout the flow period. The recovery period is dominated of WBS effects. No pseudo-radial flow regime is developed.**

Test Summary Sheet

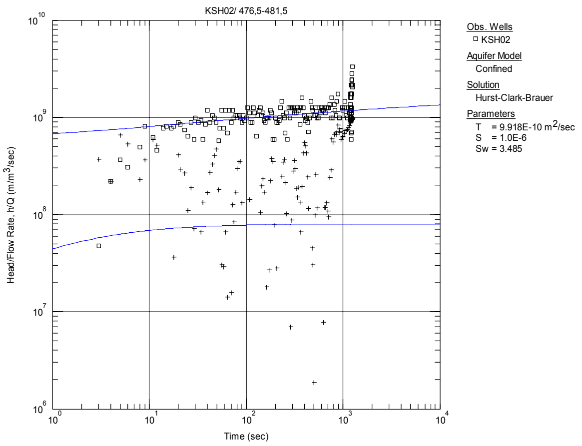
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-03 17:05
Test section (m):	476.5-481.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

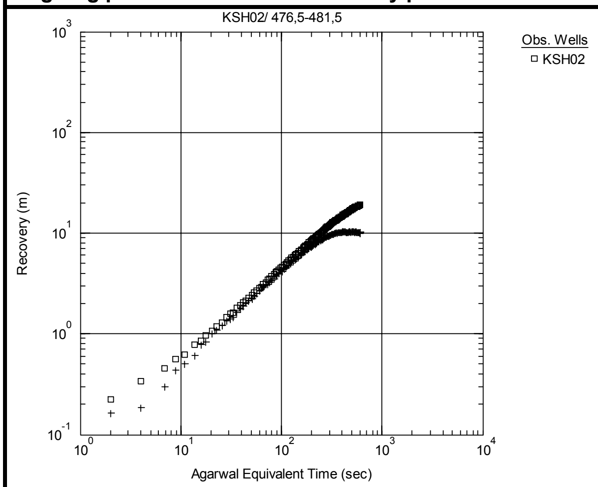


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4598.57		
p_i (kPa)	4611.01		
p_p(kPa)	4827.85	p_F (kPa)	4778.38
Q_p (m^3/s)	2.16E-08		
tp (min)	1230.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.91		
Derivative	Spane 0.5	Derivative	-
Results		**Results**	
Q/s (m^2/s)	9.76E-10		
T_{Moye}(m^2/s)	8.05E-10		
Flow regime:	PSF(PRF)	Flow regime:	WBS
t_1 (s)	70	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	9.90E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	4.39E-11
C_D (-)	-	C_D (-)	-
ξ (-)	3.48	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

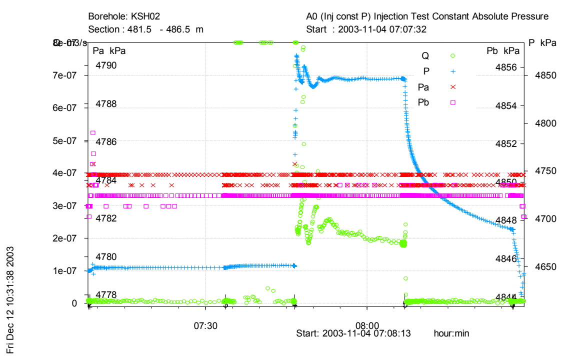
Flow regime:	PSS	C (m^3/Pa)	4.39E-11
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	8.05E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-spherical flow regime is indicated. The recovery period is dominated of WBS effects. By the end of the recovery period is a transition phase indicated although no pseudo-radial flow regime is developed.**

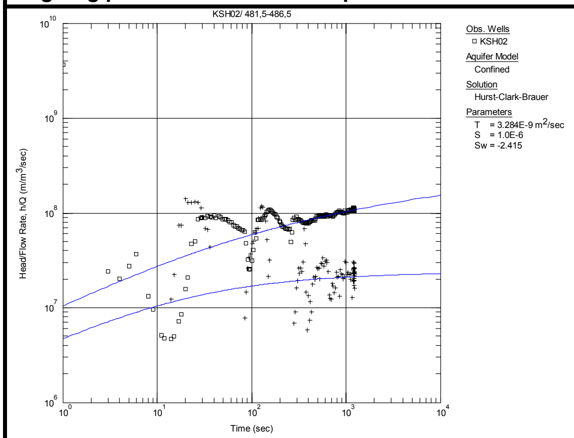
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-04 07:07
Test section (m):	481.5-486.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

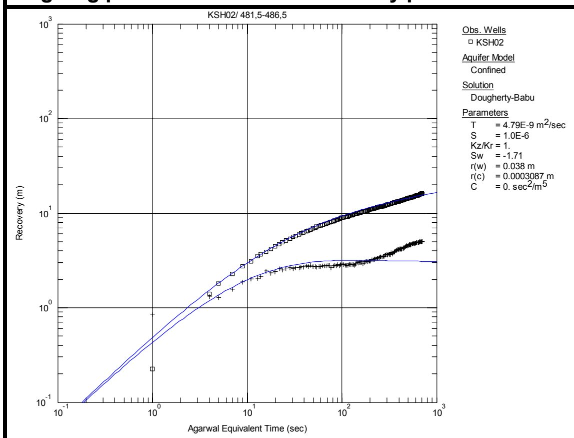
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4645.57		
p_i (kPa)	4650.68		
p_p(kPa)	4846.23	p_F (kPa)	4835.88
Q_p (m^3/s)	1.85E-07		
tp (min)	1227.00	t_F (s)	1197.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.99		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.3
Results		**Results**	
Q/s (m^2/s)	9.27E-09		
T_{Moye}(m^2/s)	7.70E-09		
Flow regime:	PRF	Flow regime:	WBS->PRF?
t_1 (s)	300	dt_{e1} (s)	5.00
t_2 (s)	1200	dt_{e2} (s)	200.00
T_w (m^2/s)	3.28E-09	T_w (m^2/s)	4.79E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	5.65E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-2.41	ξ (-)	-1.71
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

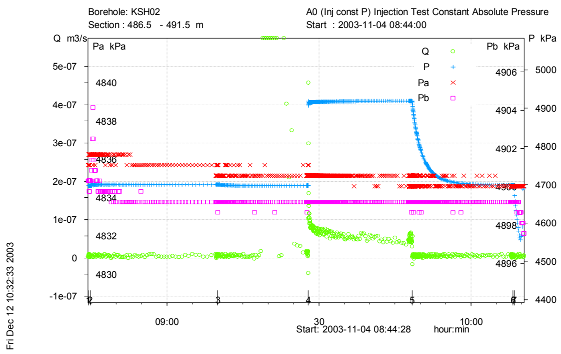
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	5.65E-11
t_1 (min)	300	C_D (-)	-
t_2 (min)	1200	ξ (-)	-2.41
T_R (m^2/s)	3.28E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

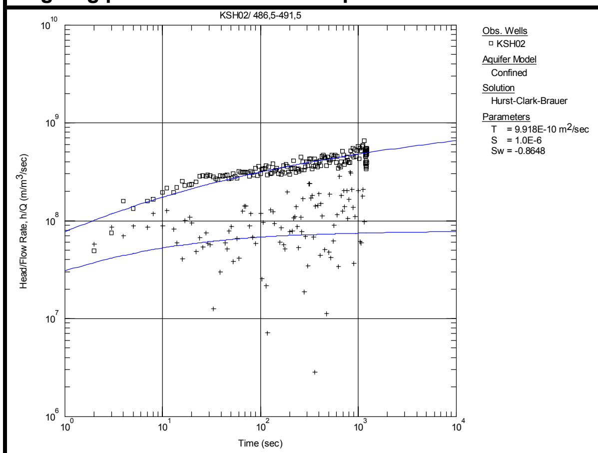
Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 300 s throughout the flow period. In the beginning of the recovery period, WBS effects are indicated, possibly approaching a pseudo-radial flow regime. By the end of the recovery period, effects of an apparent no-flow boundary are indicated.**

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-04 08:44
Test section (m):	486.5-491.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

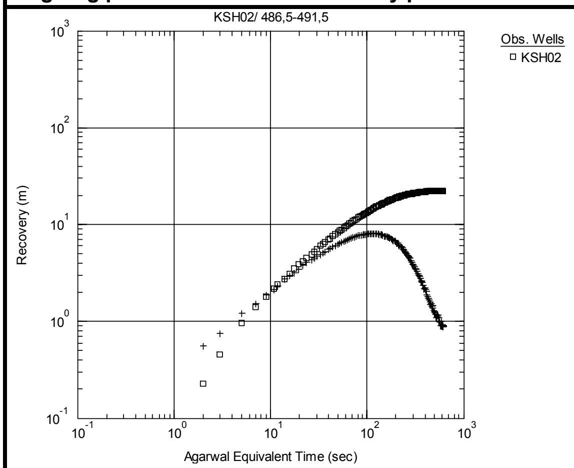
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	4696.98		
p_i (kPa)	4697.53		
p_p(kPa)	4918.65	p_F (kPa)	4845.83
Q_p (m^3/s)	4.35E-08		
tp (min)	1230.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.05		
Derivative	Bourdet 0.3	Derivative	-
Results		Results	
Q/s (m^2/s)	1.93E-09		
T_{Moye}(m^2/s)	1.61E-09		
Flow regime:	PRF	Flow regime:	WBS->PSF
t_1 (s)	70	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	9.90E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.22E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.86	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

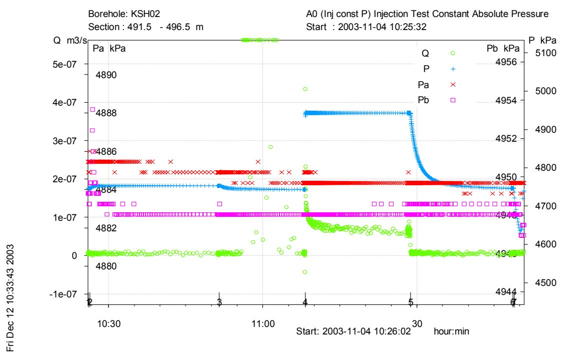
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	2.22E-11
t_1 (min)	70	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.86
T_R (m^2/s)	9.90E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 70 s throughout the flow period. In the beginning of the recovery period WBS effects are indicated, possibly followed by a transition to a pseudo-spherical flow regime.**

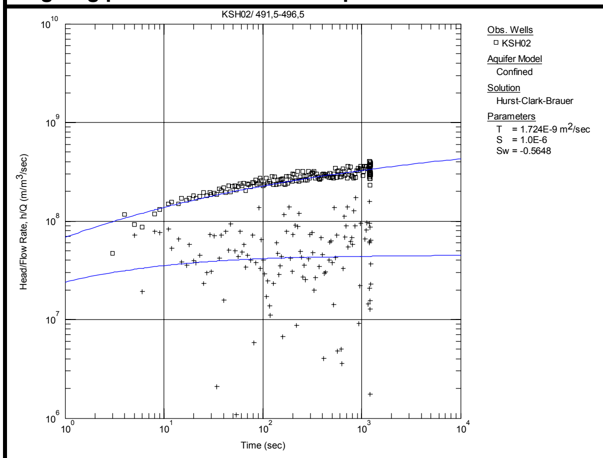
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-11-04 10:25
Test section (m):	491.5-496.5	**Responsible for test**	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

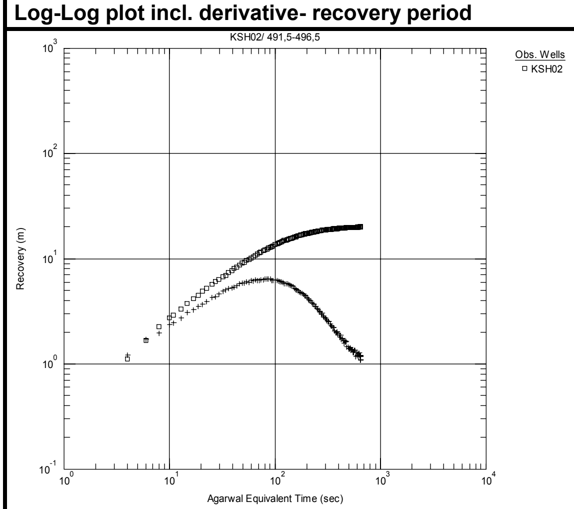
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	4746.18		
p_i (kPa)	4743.27		
p_p(kPa)	4942.84	p_F (kPa)	4893.37
Q_p (m^3/s)	6.06E-08		
tp (min)	1230.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.10		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.3
Results		**Results**	
Q/s (m^2/s)	2.98E-09		
T_{Moye}(m^2/s)	2.46E-09		
Flow regime:	PRF	Flow regime:	WBS->PSF
t_1 (s)	50	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	1.72E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.06E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.56	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

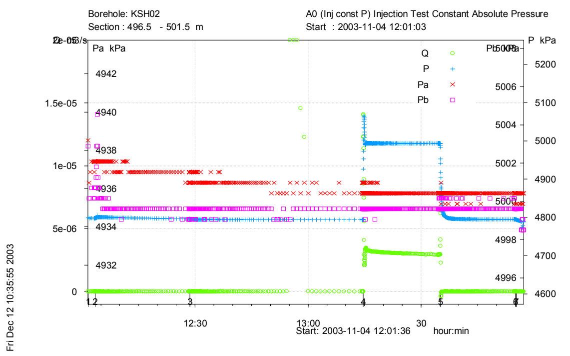
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	2.06E-11
t_1 (min)	50	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.56
T_R (m^2/s)	1.72E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

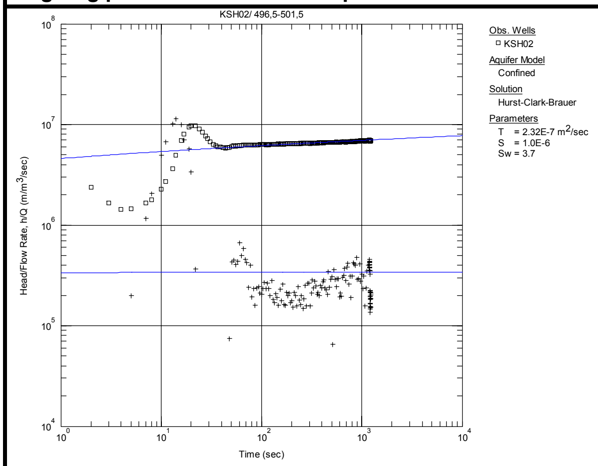
Comments: **Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c. 50 throughout the flow period. In the beginning of the recovery period WBS effects are indicated transiting to a pseudo-spherical flow regime.**

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-04 12:01
Test section (m):	496.5-501.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

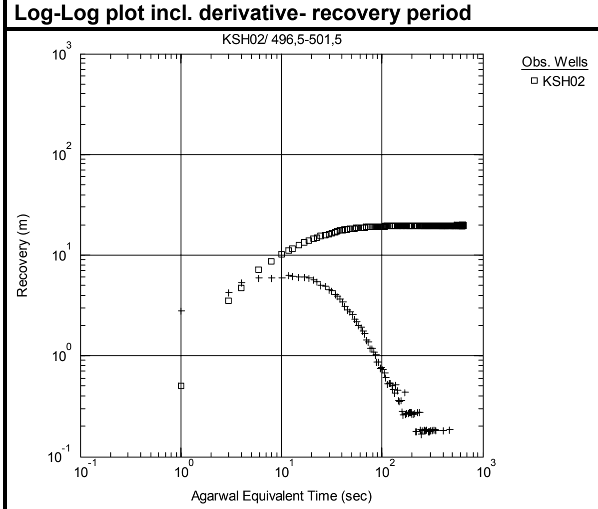
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	4799.80		
p_i (kPa)	4793.85		
p_p(kPa)	4993.27	p_F (kPa)	4941.46
Q_p (m^3/s)	2.95E-06		
tp (min)	1227.00	t_F (s)	1197.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.20		
Derivative	Bourdet 0.3	Derivative	-
Results		Results	
Q/s (m^2/s)	1.45E-07		
T_{Moye}(m^2/s)	1.19E-07		
Flow regime:	PRF->PSF	Flow regime:	WBS->PSF
t_1 (s)	60	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	2.32E-07	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	3.01E-10
C_D (-)	-	C_D (-)	-
ξ (-)	3.70	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

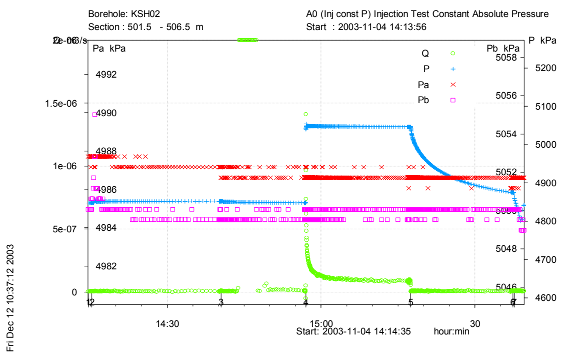
Selected representative parameters			
Flow regime:	PSS	C (m^3/Pa)	3.01E-10
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	1.19E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **A pseudo-spherical flow regime is indicated during the flow period from c. 60 s top the end of the period. In the beginning of the recovery period WBS effects are indicated transiting to a pseudo-spherical flow regime.**

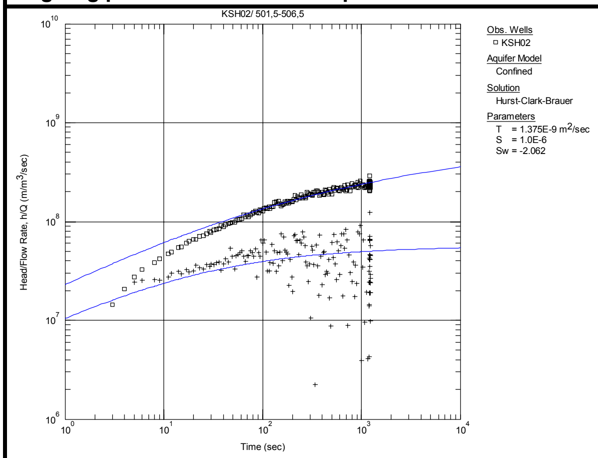
Test Summary Sheet

Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-11-04 14:13**
Test section (m):	**501.5-506.5**	**Responsible for test**	**T. Svensson**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J. E. Ludvigson**

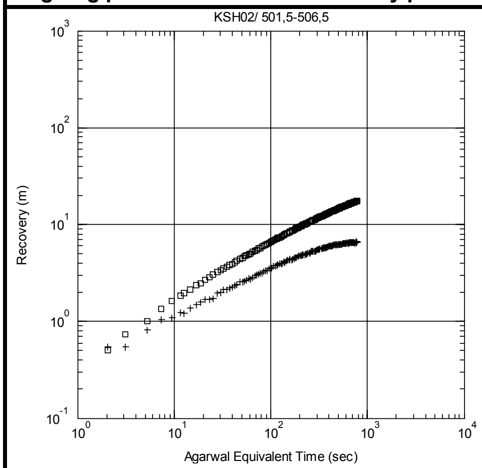
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**4847.34**		
p_i (kPa)	**4848.17**		
p_p(kPa)	**5046.34**	**p_F (kPa)**	**5021.61**
Q_p (m^3/s)	**8.83E-08**		
tp (min)	**1228.00**	**t_F (s)**	**1196.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**14.27**		
Derivative	**Bourdet 0.3**	**Derivative**	**-**
Results		**Results**	
Q/s (m^2/s)	**4.37E-09**		
T_{Moye}(m^2/s)	**3.59E-09**		
Flow regime:	**PRF**	**Flow regime:**	**WBS**
t_1 (s)	**100**	**dt_{e1} (s)**	**-**
t_2 (s)	**1200**	**dt_{e2} (s)**	**-**
T_w (m^2/s)	**1.37E-09**	**T_w (m^2/s)**	**-**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m^3/Pa)	**-**	**C (m^3/Pa)**	**-**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**-2.06**	**ξ (-)**	**-**
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

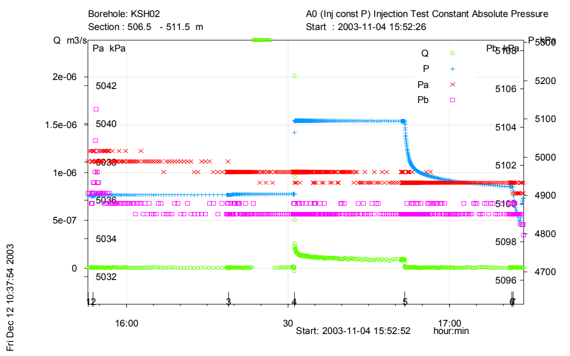
Selected representative parameters			
Flow regime:	**PRF**	**C (m^3/Pa)**	**-**
t_1 (min)	**100**	**C_D (-)**	**-**
t_2 (min)	**1200**	**ξ (-)**	**-2.06**
T_R (m^2/s)	**1.37E-09**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c. 100 s throughout the flow period. In the beginning of the recovery period WBS effects are indicated. No pseudo-radial flow regime is developed.**

Test Summary Sheet

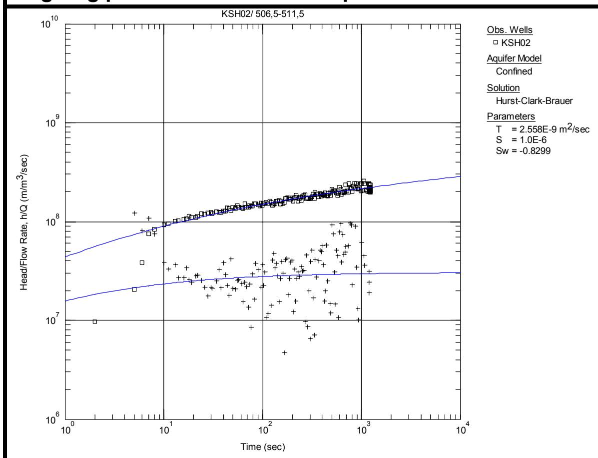
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-11-04 15:52**
Test section (m):	**506.5-511.5**	**Responsible for test**	**T. Svensson**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J. E. Ludvigson**

Linear plot Q and p

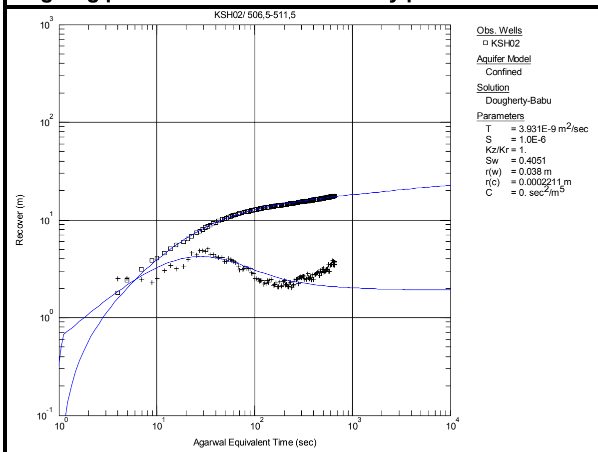


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4898.19		
p_i (kPa)	4903.85		
p_p(kPa)	5094.30	p_F (kPa)	5069.71
Q_p (m^3/s)	8.98E-08		
tp (min)	1231.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.35		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	4.63E-09		
T_{Moye}(m^2/s)	3.80E-09		
Flow regime:	PRF	Flow regime:	WBS->PRF-
t_1 (s)	10	dt_{e1} (s)	30.00
t_2 (s)	1200	dt_{e2} (s)	300.00
T_w (m^2/s)	2.56E-09	T_w (m^2/s)	3.93E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-0.82	ξ (-)	0.41
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

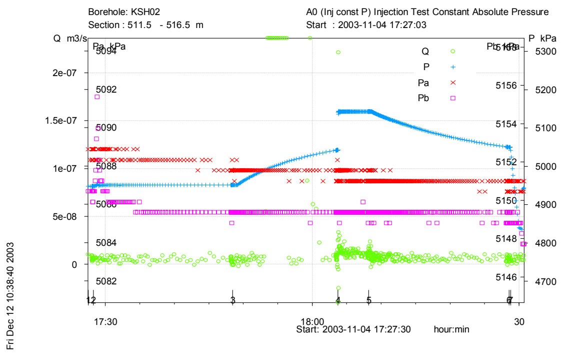
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	10	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.82
T_R (m^2/s)	2.56E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c. 10 throughout the flow period. In the beginning of the recovery period WBS effects are indicated. Thereafter a possible short pseudo-radial flow regime is indicated.**

Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-11-04 17:27
Test section (m):	511.5-516.5	**Responsible for test**	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

Linear plot Q and p



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	4947.94		
p_i (kPa)	5042.48		
p_p(kPa)	5143.09	**p_F (kPa)**	5196.86
Q_p (m^3/s)	1.09E-08		
tp (min)	268.00	**t_F (s)**	1221.00
S*	1.0E-06	**S***	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.41		
Derivative	-	**Derivative**	-
Results		**Results**	
Q/s (m^2/s)	1.06E-09		
T_{Moye}(m^2/s)	8.80E-10		

Log-Log plot incl. derivate- flow period

Not Analysed

Flow regime:	-	**Flow regime:**	-
t_1 (s)	-	**dt_{e1} (s)**	-
t_2 (s)	-	**dt_{e2} (s)**	-
T_w (m^2/s)	-	**T_w (m^2/s)**	-
S_w (-)	-	**S_w (-)**	-
K_{sw} (m/s)	-	**K_{sw} (m/s)**	-
S_{sw} (1/m)	-	**S_{sw} (1/m)**	-
C (m^3/Pa)	-	**C (m^3/Pa)**	-
C_D (-)	-	**C_D (-)**	-
ξ (-)	0.00	**ξ (-)**	-
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

Log-Log plot incl. derivative- recovery period

Not Analysed

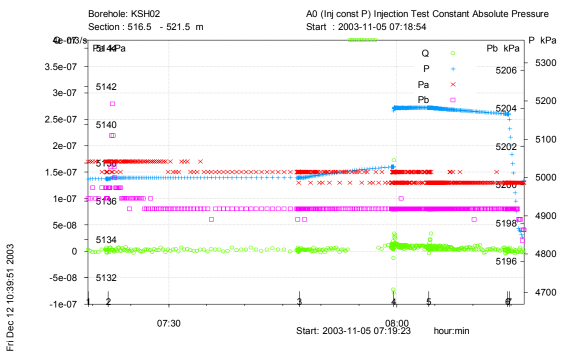
Selected representative parameters			
Flow regime:	-	**C (m^3/Pa)**	-
t_1 (min)	-	**C_D (-)**	-
t_2 (min)	-	**ξ (-)**	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: The test section has a hydraulic conductivity below the limit of measurement with the Pipe String System. No relevant data was obtained.

Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-11-05 07:18
Test section (m):	516.5-521.5	**Responsible for test**	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	4996.04		
p_i (kPa)	5028.24		
p_p(kPa)	5182.32	p_F (kPa)	5312.94
Q_p (m^3/s)	6.03E-09		
tp (min)	278.00	t_F (s)	622.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.48		
Derivative	-	Derivative	-
Results		**Results**	
Q/s (m^2/s)	3.84E-10		
T_{Moye}(m^2/s)	3.18E-10		
Flow regime:	-	Flow regime:	-
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	0.00	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period

Not Analysed

Log-Log plot incl. derivative- recovery period

Not Analysed

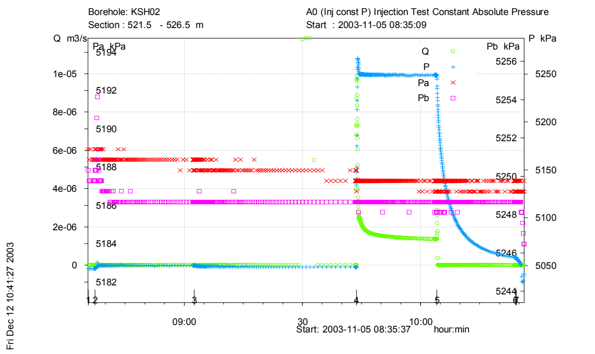
Selected representative parameters

Flow regime:	-	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: The test section has a hydraulic conductivity below the limit of measurement with the Pipe String System. No relevant data was obtained.

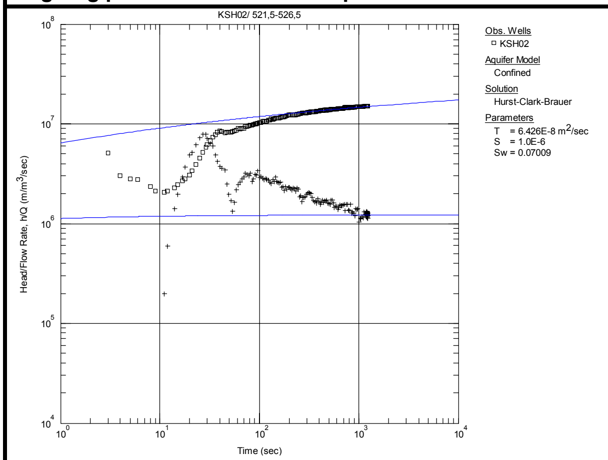
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-05 08:35
Test section (m):	521.5-526.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

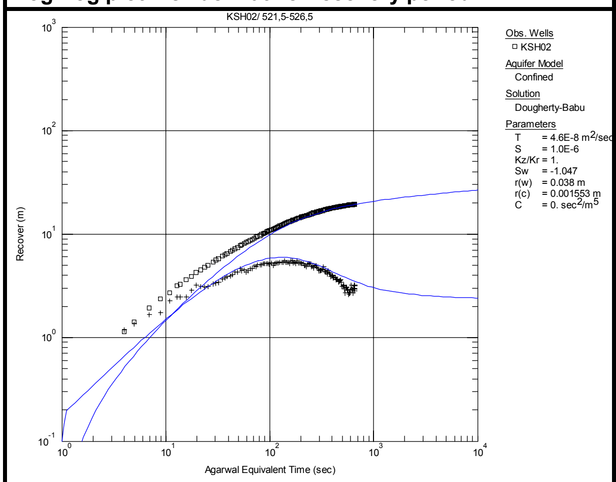


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	5046.90		
p_i (kPa)	5048.42		
p_p(kPa)	5248.81	p_F (kPa)	5205.14
Q_p (m^3/s)	1.36E-06		
tp (min)	1227.00	t_F (s)	1197.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.58		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	6.66E-08		
T_{Moye}(m^2/s)	5.55E-08		
Flow regime:	PSF->PRF	Flow regime:	WBS-
t_1 (s)	900	dt_{e1} (s)	100.00
t_2 (s)	1200	dt_{e2} (s)	600.00
T_w (m^2/s)	6.43E-08	T_w (m^2/s)	4.60E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	0.07	ξ (-)	-1.047
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



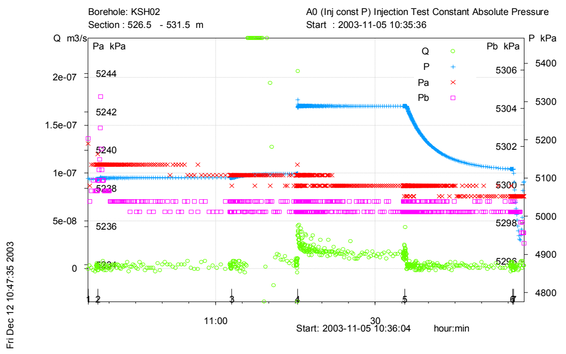
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	900	C_D (-)	-
t_2 (min)	1200	ξ (-)	0.07
T_R (m^2/s)	6.43E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **A pseudo-spherical flow regime dominates during the flow period, possibly transiting to a pseudo-radial flow regime by the end of the flow period between 900 and 1200 s. In the beginning of the recovery period WBS effects are indicated. Thereafter a transition to a possible pseudo-radial or pseudo-spherical flow regime occurs.**

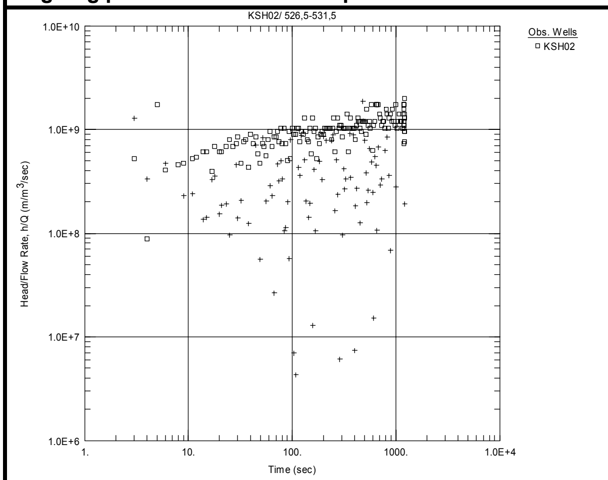
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-11-05 10:35
Test section (m):	526.5-531.5	**Responsible for test**	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J. E. Ludvigson

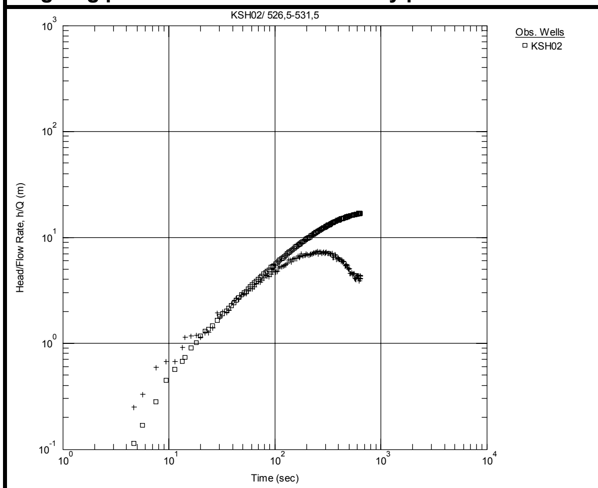
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	5099.41		
p_i (kPa)	5111.43		
p_p(kPa)	5288.47	p_F (kPa)	5269.82
Q_p (m^3/s)	1.46E-08		
tp (min)	1209.00	t_F (s)	1215.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.64		
Derivative	Bourdet 0.3	Derivative	-
Results		**Results**	
Q/s (m^2/s)	-		
T_{Moye}(m^2/s)	-		
Flow regime:	-	Flow regime:	WBS-
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.37E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

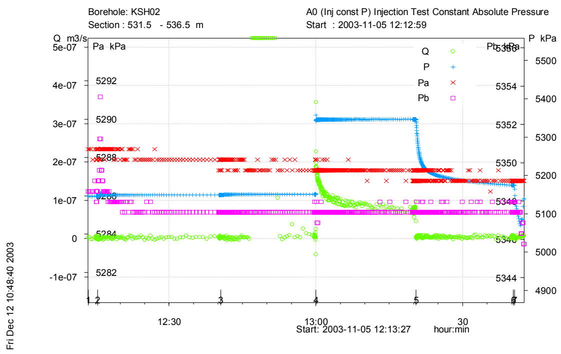
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	2.37E-11
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Since Q_p is below the measurement limit no transient or steady-state evaluation is performed. The recovery period is initially dominated by WBS.**

Test Summary Sheet

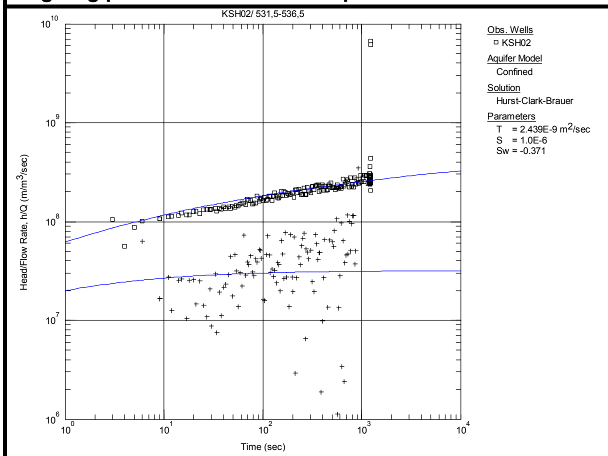
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-05 12:12
Test section (m):	531.5-536.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p

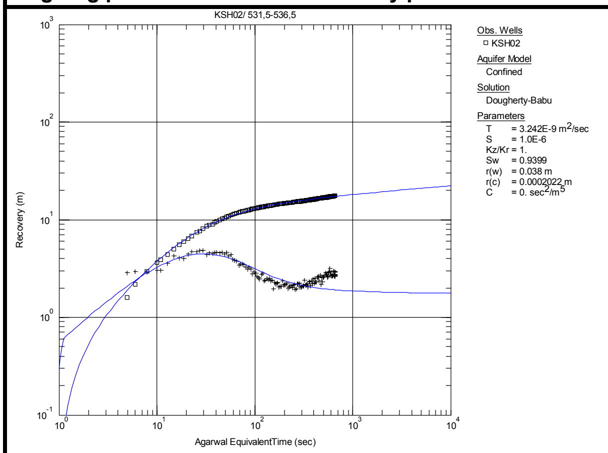


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5145.84		
p_i (kPa)	5150.96		
p_p(kPa)	5346.10	p_F (kPa)	5321.23
Q_p (m^3/s)	7.49E-08		
tp (min)	1230.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.69		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	3.77E-09		
T_{Moye}(m^2/s)	3.11E-09		
Flow regime:	PRF	Flow regime:	WBS->PRF-
t_1 (s)	60	dt_{e1} (s)	10.00
t_2 (s)	1200	dt_{e2} (s)	300.00
T_w (m^2/s)	2.44E-09	T_w (m^2/s)	3.24E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.35E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.37	ξ (-)	0.94
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



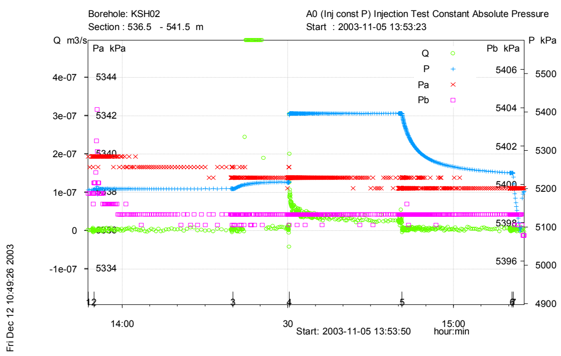
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	2.35E-11
t_1 (min)	60	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.37
T_R (m^2/s)	2.44E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is quite scattered during the flow period, a pseudo-radial flow regime is indicated from c. 60 throughout the flow period. In the beginning of the recovery period, WBS effects are indicated. Thereafter a possible short pseudo-radial flow regime is indicated.**

Test Summary Sheet

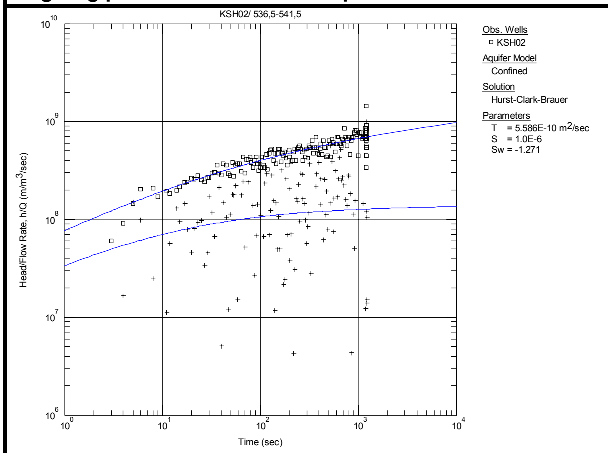
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-11-05 13:53**
Test section (m):	**536.5-541.5**	**Responsible for test**	**T. Svensson**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J. E. Ludvigson**

Linear plot Q and p

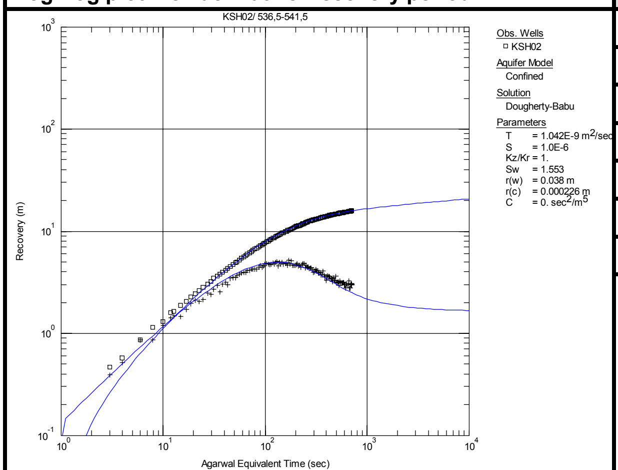


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5196.70		
p_i (kPa)	5217.02		
p_p(kPa)	5395.85	p_F (kPa)	5387.57
Q_p (m^3/s)	2.40E-08		
tp (min)	1228.00	t_F (s)	1196.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.76		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	1.32E-09		
T_{Moye}(m^2/s)	1.09E-09		
Flow regime:	PRF	Flow regime:	WBS-
t_1 (s)	100	dt_{e1} (s)	5.00
t_2 (s)	1200	dt_{e2} (s)	600.00
T_w (m^2/s)	5.59E-10	T_w (m^2/s)	1.04E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.96E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.27	ξ (-)	1.55
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



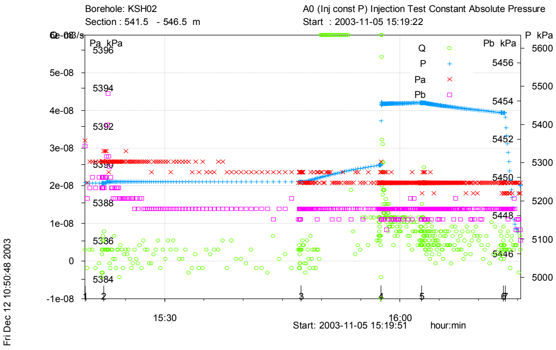
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	1.96E-11
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	-1.27
T_R (m^2/s)	5.59E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 100 throughout the flow period. In the beginning of the recovery period WBS effects are indicated. Thereafter a transition to a possible pseudo-radial or pseudo-spherical flow regime occurs.**

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-05 15:19
Test section (m):	541.5-546.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5248.67		
p_i (kPa)	5293.86		
p_p(kPa)	5456.51	p_F (kPa)	5577.73
Q_p (m^3/s)	5.43E-09		
tp (min)	312.00	t_F (s)	626.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.85		
Derivative	-	Derivative	-
Results		**Results**	
Q/s (m^2/s)	3.28E-10		
T_{Moye}(m^2/s)	2.73E-10		
Flow regime:	-	Flow regime:	-
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	0.00	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period

Not Analysed

Log-Log plot incl. derivative- recovery period

Not Analysed

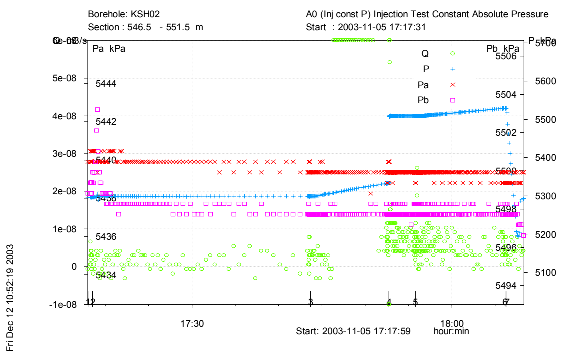
Selected representative parameters			
Flow regime:	-	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: The test section has a hydraulic conductivity below the limit of measurement with the Pipe String System. No relevant data were obtained.

Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-05 17:17
Test section (m):	546.5-551.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

Linear plot Q and p



Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	5296.21		
p_i (kPa)	5333.80		
p_p(kPa)	5509.32	p_F (kPa)	5675.58
Q_p (m^3/s)	5.73E-09		
tp (min)	183.00	t_F (s)	621.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.93		
Derivative	-	Derivative	-
Results		Results	
Q/s (m^2/s)	3.20E-10		
T_{Moye}(m^2/s)	2.65E-10		
Flow regime:	-	Flow regime:	-
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	0.00	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period

Not Analysed

Log-Log plot incl. derivative- recovery period

Not Analysed

Selected representative parameters

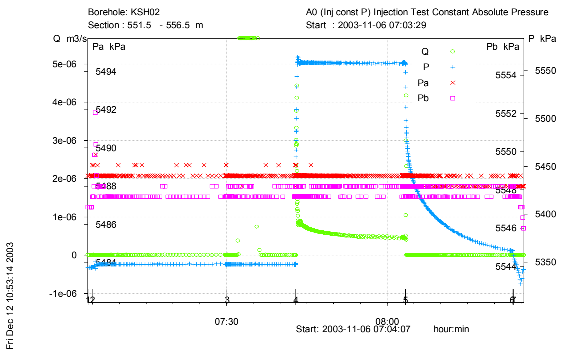
Flow regime:	-	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: The test section has a hydraulic conductivity below the limit of measurement with the Pipe String System. No relevant data were obtained.

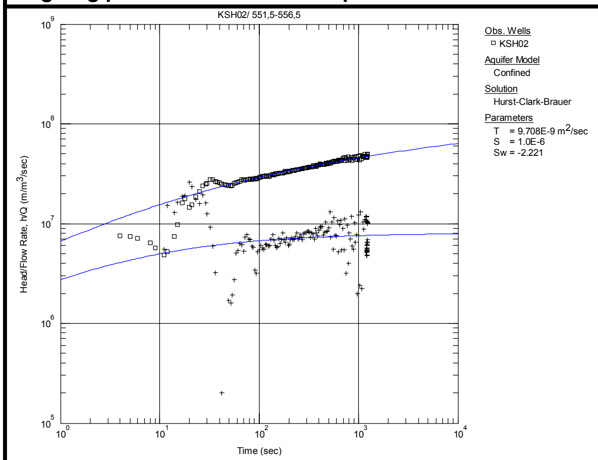
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-06 07:03
Test section (m):	551.5-556.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J. E. Ludvigson

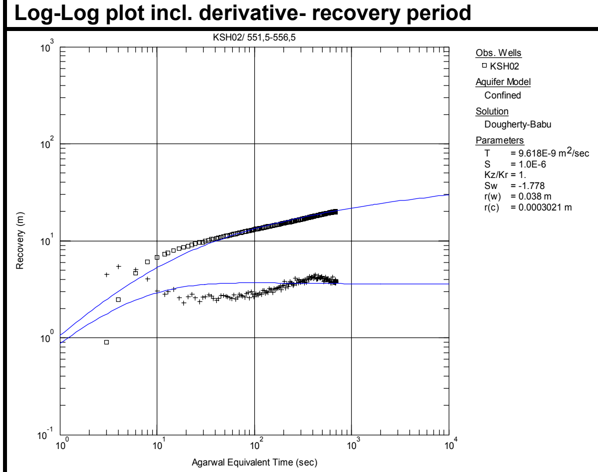
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5344.30		
p_i (kPa)	5347.90		
p_p(kPa)	5557.96	p_F (kPa)	5508.07
Q_p (m^3/s)	4.35E-07		
tp (min)	1228.00	t_F (s)	1196.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	14.98		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	2.03E-08		
T_{Moye}(m^2/s)	1.70E-08		
Flow regime:	PRF	Flow regime:	WBS->PRF
t_1 (s)	100	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	9.71E-09	T_w (m^2/s)	9.61E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-2.22	ξ (-)	-1.79
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters

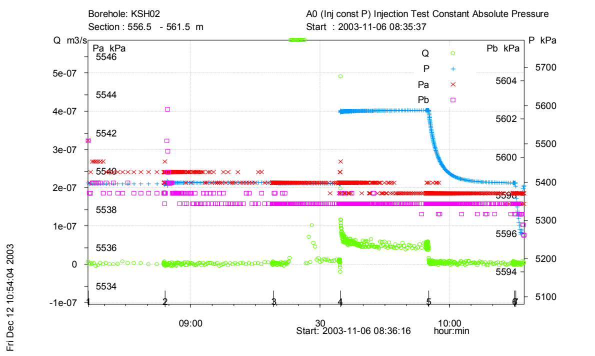
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	100	C_D (-)	-
t_2 (min)	1200	ξ (-)	-2.22
T_R (m^2/s)	9.71E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **A pseudo-radial flow regime is indicated during the flow period from c. 100 throughout the flow period. In the beginning of the recovery period WBS effects are indicated. A possible pseudo-radial flow regime is indicated by end of the recovery period.**

Test Summary Sheet

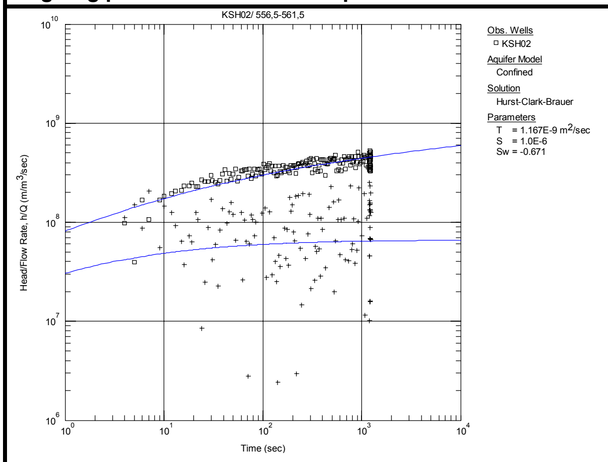
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-11-06 08:35**
Test section (m):	**556.5-561.5**	**Responsible for test**	**T. Svensson**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J. E. Ludvigson**

Linear plot Q and p

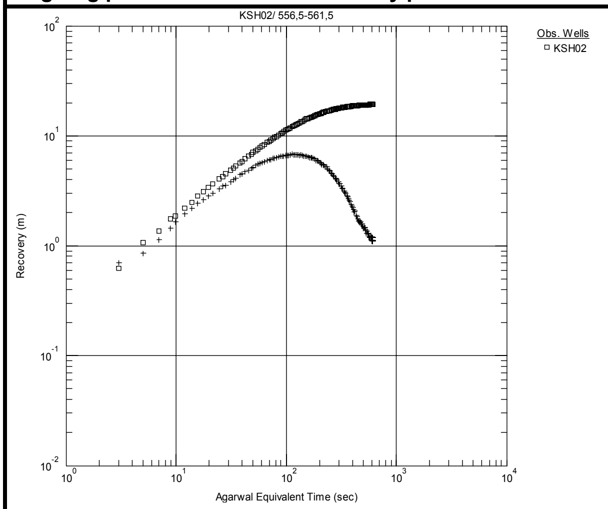


Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**5397.92**		
p_i (kPa)	**5397.09**		
p_p(kPa)	**5588.08**	**p_F (kPa)**	**5544.56**
Q_p (m^3/s)	**4.53E-08**		
tp (min)	**1230.00**	**t_F (s)**	**1194.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**15.07**		
Derivative	**Bourdet 0.3**	**Derivative**	**0**
Results		**Results**	
Q/s (m^2/s)	**2.33E-09**		
T_{Moye}(m^2/s)	**1.94E-09**		
Flow regime:	**PRF**	**Flow regime:**	**WBS-**
t_1 (s)	**100**	**dt_{e1} (s)**	**-**
t_2 (s)	**1200**	**dt_{e2} (s)**	**-**
T_w (m^2/s)	**1.17E-09**	**T_w (m^2/s)**	**-**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m^3/Pa)	**-**	**C (m^3/Pa)**	**3.23E-11**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**-0.67**	**ξ (-)**	**-**
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



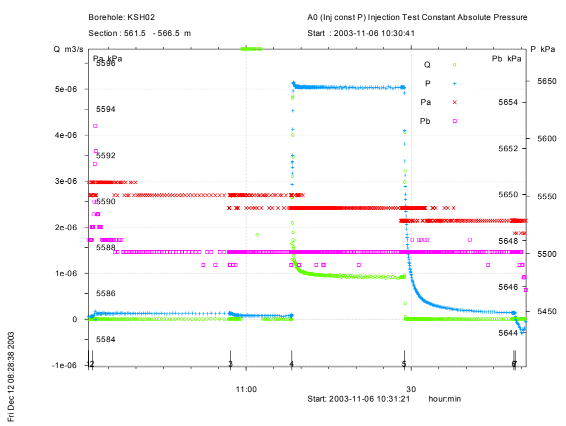
Selected representative parameters			
Flow regime:	**PRF**	**C (m^3/Pa)**	**3.23E-11**
t_1 (min)	**100**	**C_D (-)**	**-**
t_2 (min)	**1200**	**ξ (-)**	**-0.67**
T_R (m^2/s)	**1.17E-09**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 20 s throughout the flow period. In the beginning of the recovery period WBS effects are indicated followed by a transition phase. By the end of the recovery period indications of a pseudo-spherical or possibly pseudo-stationary flow regime is indicated.**

Test Summary Sheet

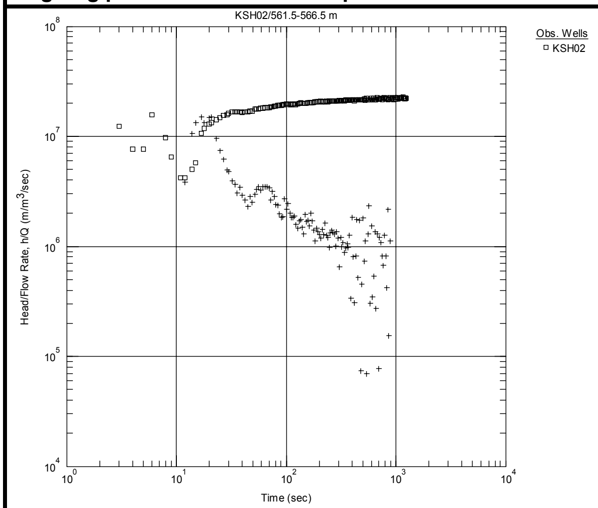
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-06 10:30
Test section (m):	561.5-566.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

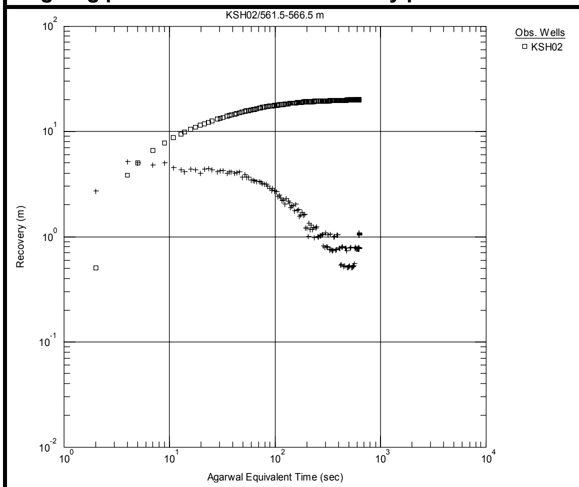


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5445.46		
p_i (kPa)	5446.43		
p_p(kPa)	5644.47	p_F (kPa)	5594.87
Q_p (m^3/s)	9.10E-07		
tp (min)	1228.00	t_F (s)	1196.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.14		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	4.51E-08		
T_{Moye}(m^2/s)	3.78E-08		
Flow regime:	PSF->PSS	Flow regime:	PSF
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



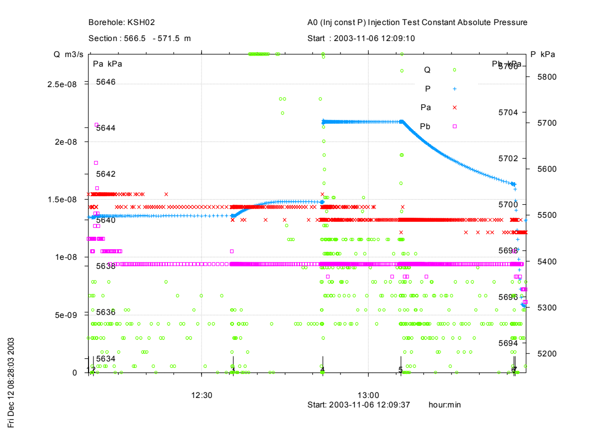
Selected representative parameters

Flow regime:	PSS	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	3.78E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-spherical flow regime approaching a pseudo-stationary flow regime by end of the flow period. For the recovery period, a pseudo-spherical flow regime develops after c. 500 s.**

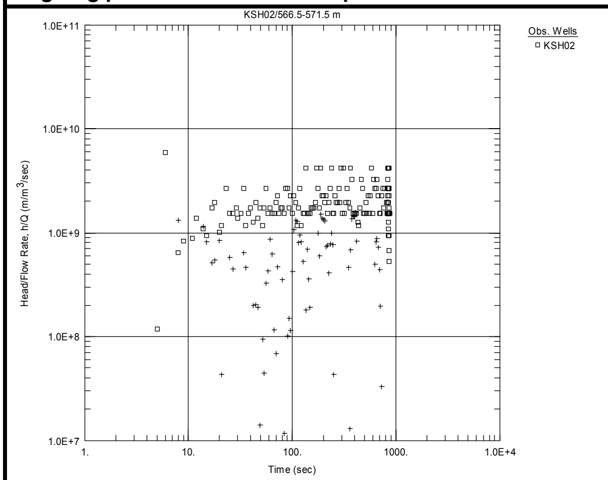
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-06 12:09
Test section (m):	566.5-571.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

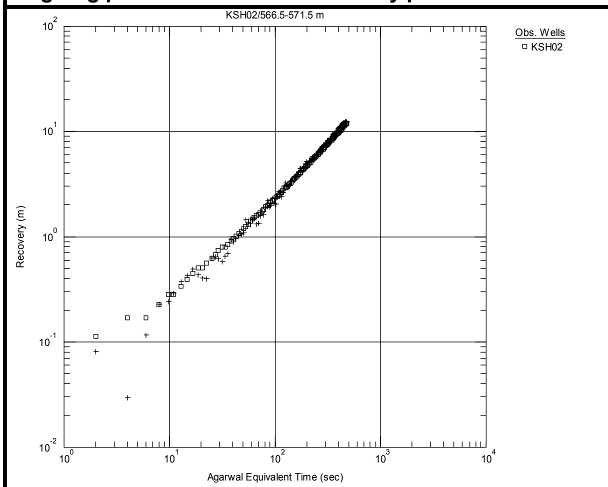


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	5495.77		
p_i (kPa)	5528.39		
p_p(kPa)	5701.96	p_F (kPa)	5714.27
Q_p (m^3/s)	7.87E-09		
tp (min)	843.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.22		
Derivative	Spane 0.5	Derivative	Spane 0.1
Results		Results	
Q/s (m^2/s)	-		
T_{Moye}(m^2/s)	-		
Flow regime:	-	Flow regime:	WBS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	4.01E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



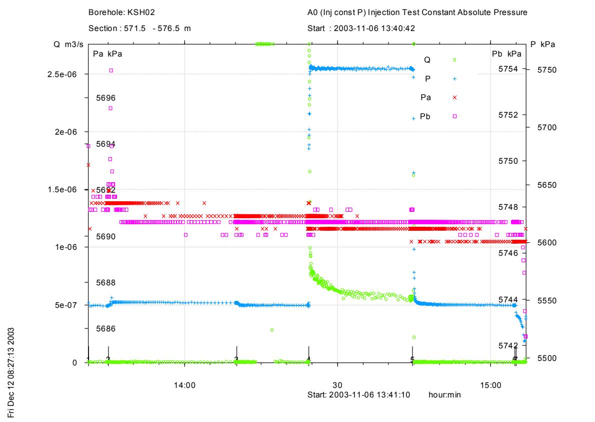
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	4.01E-11
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: Comments: **Since Q_p is below the measurement limit no transient or steady-state evaluation is performed. For the recovery period, only WBS effects are seen.**

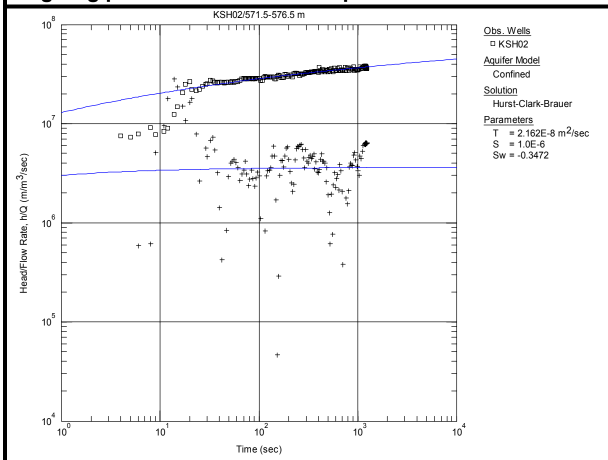
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-06 13:40
Test section (m):	571.5-576.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

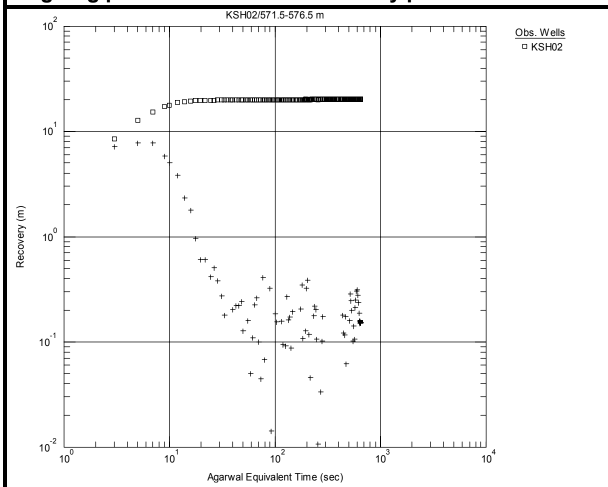
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5547.74		
p_i (kPa)	5545.94		
p_p(kPa)	5750.60	p_F (kPa)	5692.17
Q_p (m^3/s)	5.47E-07		
tp (min)	1221.00	t_F (s)	1203.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.30		
Derivative	Bourdet 0.3	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	2.62E-08		
T_{Moye}(m^2/s)	2.18E-08		
Flow regime:	PRF	Flow regime:	PSS
t_1 (s)	50	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-
T_w (m^2/s)	2.16E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-0.35	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters

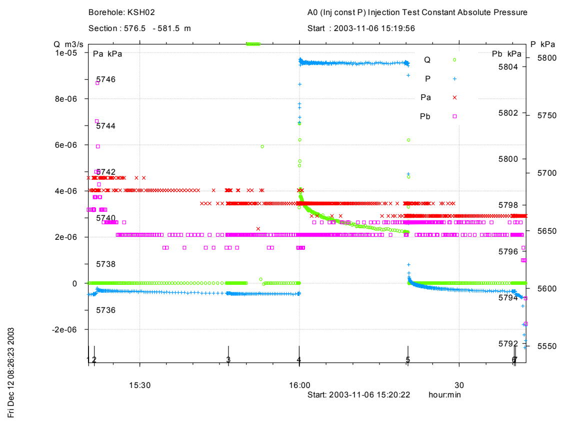
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	50	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.35
T_R (m^2/s)	2.16E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 50 s until the end of the flow period. For the recovery period, a pseudo- stationary flow regime is indicated from c. 30 s and until the end of the recovery period.**

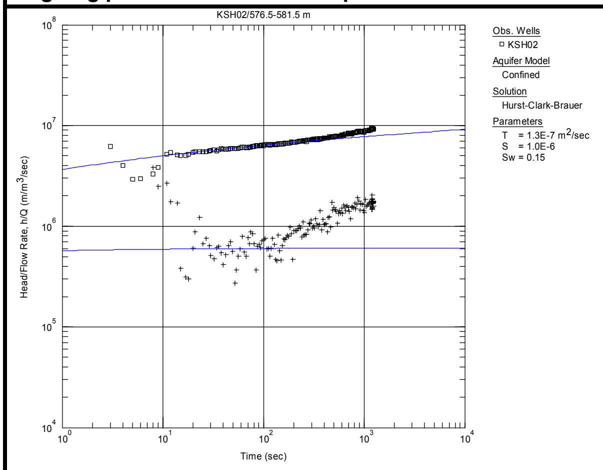
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-06 15:19
Test section (m):	576.5-581.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

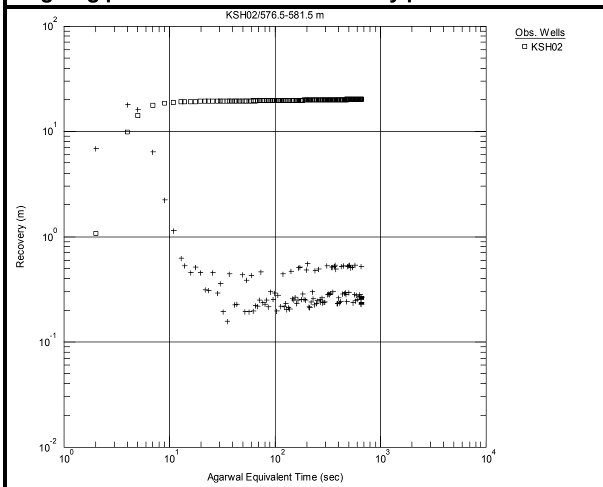
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5594.72		
p_i (kPa)	5595.55		
p_p(kPa)	5795.39	p_F (kPa)	5744.13
Q_p (m^3/s)	2.21E-06		
tp (min)	1227.00	t_F (s)	1197.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.38		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	1.08E-07		
T_{Moye}(m^2/s)	9.00E-08		
Flow regime:	(PRF1->)PRF2	Flow regime:	PSF/PSS
t_1 (s)	20	dt_{e1} (s)	20.00
t_2 (s)	200	dt_{e2} (s)	600.00
T_w (m^2/s)	1.30E-07	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	0.15	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters

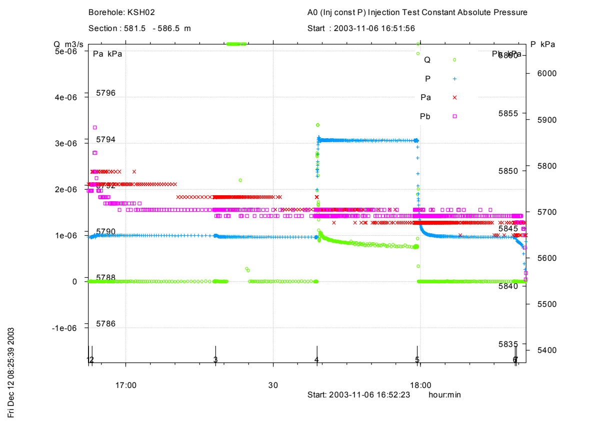
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	20	C_D (-)	-
t_2 (min)	200	ξ (-)	0.15
T_R (m^2/s)	1.30E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, two separate pseudo-radial flow regimes are indicated, the first from c. 20 s until c 150 s and the second from c. 500 s and until the end of the flow period. For the recovery period, a pseudo-spherical flow regime is indicated from c. 20 s approaching pseudo-stationary flow by the end of the recovery period.**

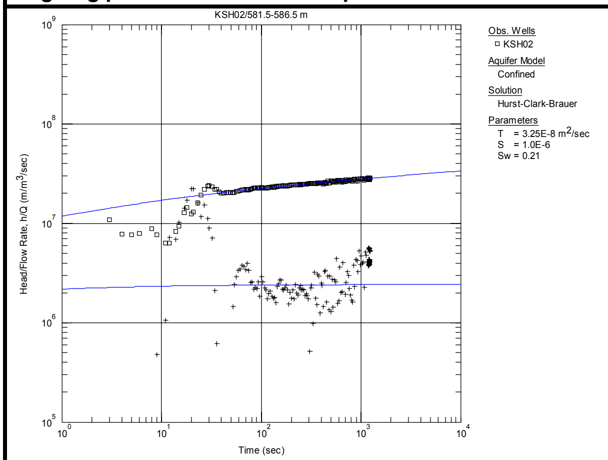
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-06 16:51
Test section (m):	581.5-586.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

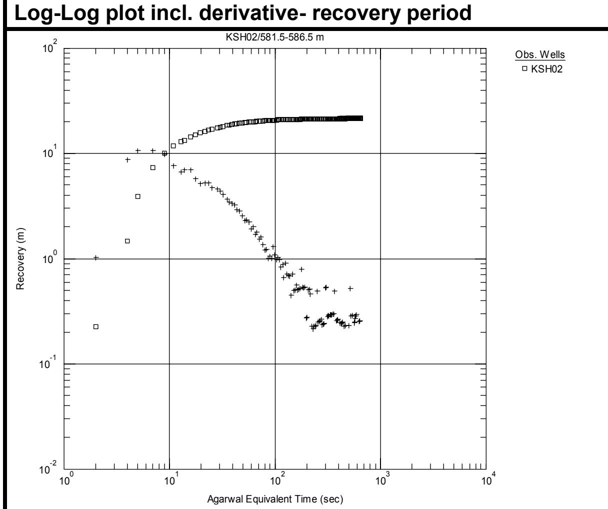
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	5645.03		
p_i (kPa)	5645.16		
p_p(kPa)	5854.54	p_F (kPa)	5791.67
Q_p (m^3/s)	7.44E-07		
tp (min)	1228.00	t_F (s)	1196.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.45		
Derivative	Bourdet 0.3	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	3.49E-08		
T_{Moye}(m^2/s)	2.92E-08		
Flow regime:	PRF->No-flow	Flow regime:	PSF/PSS
t_1 (s)	70	dt_{e1} (s)	-
t_2 (s)	1000	dt_{e2} (s)	-
T_w (m^2/s)	3.25E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	0.21	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

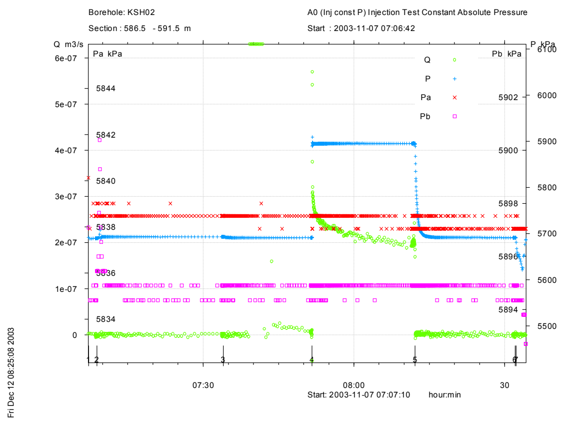
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	70	C_D (-)	-
t_2 (min)	1000	ξ (-)	0.21
T_R (m^2/s)	3.25E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 70 s until c 1000 s followed by weak indications of a no-flow hydraulic boundary found. For the recovery period, pseudo-spherical (or –stationary) flow is indicated.**

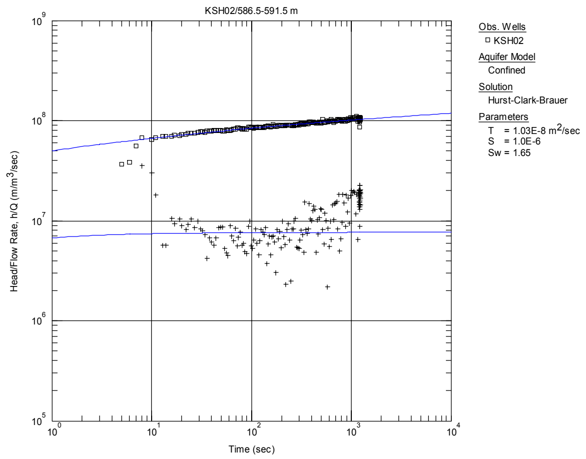
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-07 07:06
Test section (m):	586.5-591.5	Responsible for test	T. Svensson
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

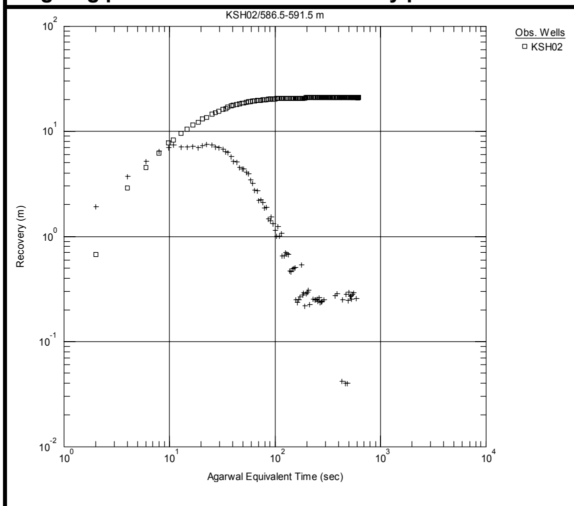
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5692.01		
p_i (kPa)	5691.46		
p_p(kPa)	5895.58	p_F (kPa)	5837.54
Q_p (m^3/s)	2.11E-07		
tp (min)	1230.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.52		
Derivative	Bourdet 0.4	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	1.01E-08		
T_{Moye}(m^2/s)	8.35E-09		
Flow regime:	PRF1->PRF2	Flow regime:	PSF/PSS
t_1 (s)	20	dt_{e1} (s)	-
t_2 (s)	500	dt_{e2} (s)	-
T_w (m^2/s)	1.03E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	1.65	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

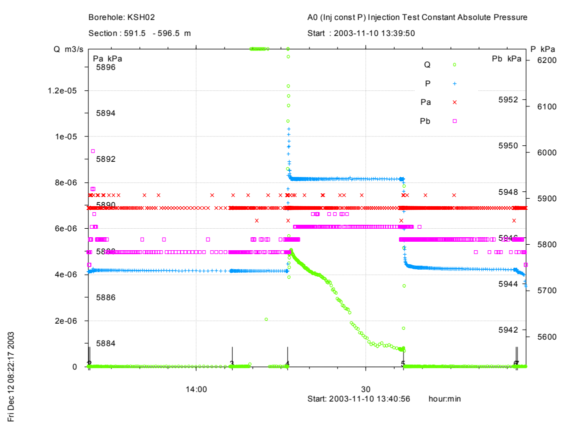
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	20	C_D (-)	-
t_2 (min)	500	ξ (-)	1.65
T_R (m^2/s)	1.03E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, two pseudo-radial flow regimes are indicated, the first from c. 20 s until c 500 s and the second from c. 500 s to the end of the flow period. For the recovery period, pseudo-stationary flow is indicated.**

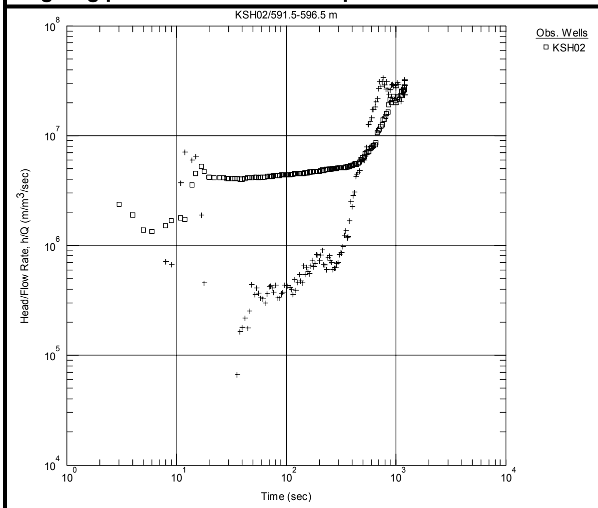
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-10 13:39
Test section (m):	591.5-596.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

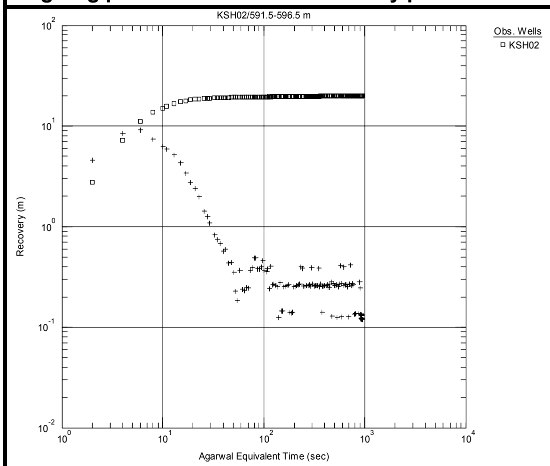


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	5741.21		
p_i (kPa)	5742.86		
p_p(kPa)	5942.15	p_F (kPa)	5892.28
Q_p (m^3/s)	7.66E-07		
tp (min)	1230.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.56		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		Results	
Q/s (m^2/s)	3.77E-08		
T_{Moye}(m^2/s)	3.06E-08		
Flow regime:	PRF->No-flow	Flow regime:	PSF/PSS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



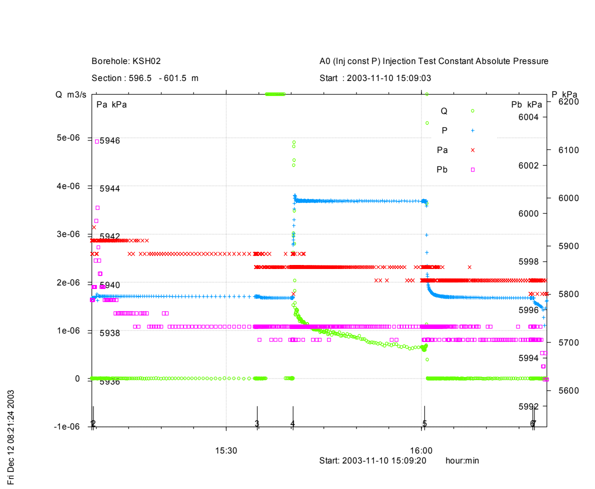
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	3.06E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Due to the large change in flow rate at c. 20 s, the derivative is extremely scattered and no well-defined pseudo-radial flow regime develops. After c. 300 s, strong effects of no-flow hydraulic boundaries are indicated. For the recovery period, pseudo-stationary flow is indicated.**

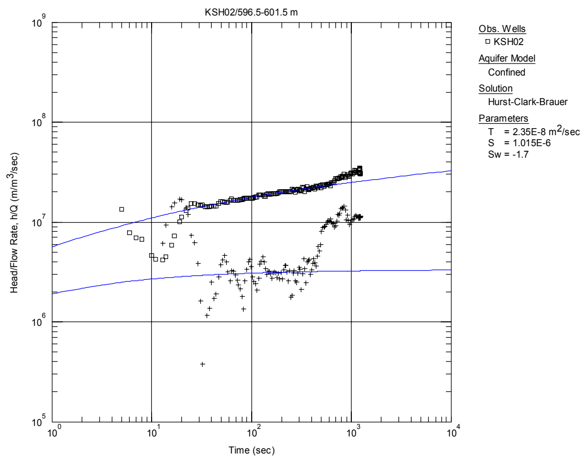
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-10 15:09
Test section (m):	596.5-601.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

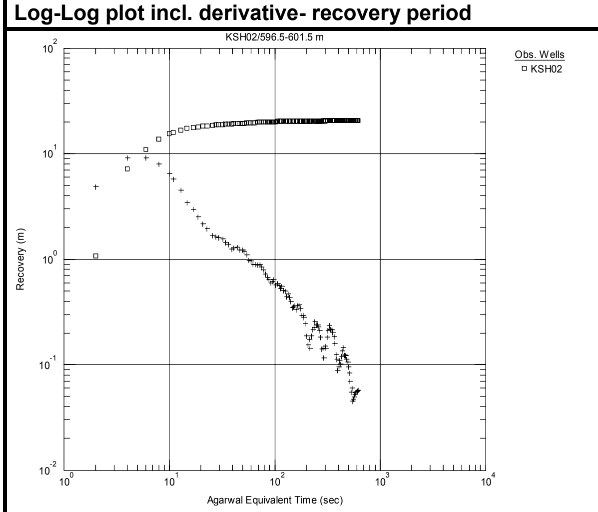
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5792.62		
p_i (kPa)	5793.31		
p_p(kPa)	5993.01	p_F (kPa)	5938.71
Q_p (m^3/s)	5.95E-07		
tp (min)	1216.00	t_F (s)	996.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.65		
Derivative	Spane 0.3	Derivative	Spane 0.3
Results		**Results**	
Q/s (m^2/s)	2.92E-08		
T_{Moye}(m^2/s)	2.43E-08		
Flow regime:	PRF1->PRF2	Flow regime:	PSS
t_1 (s)	70	dt_{e1} (s)	-
t_2 (s)	300	dt_{e2} (s)	-
T_w (m^2/s)	2.35E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-1.70	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

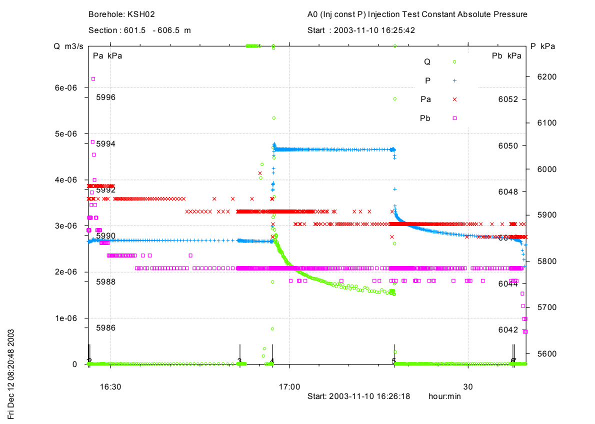
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	70	C_D (-)	-
t_2 (min)	300	ξ (-)	-1.70
T_R (m^2/s)	2.35E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, two pseudo-radial flow regimes are indicated, the first from c. 50 s until c 400 s. After that is the second pseudo-radial flow regime indicated. For the recovery period, pseudo-stationary flow is indicated.**

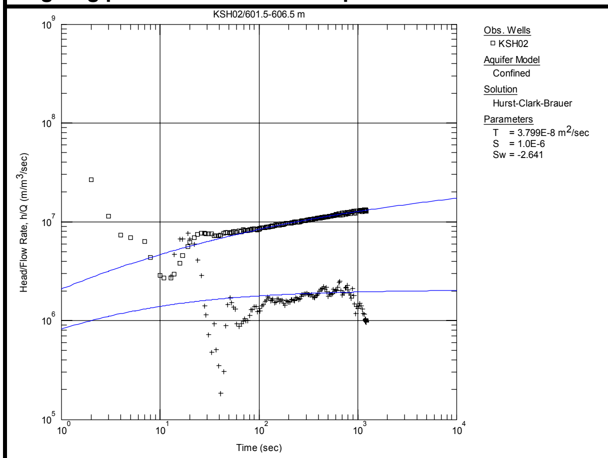
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-10 16:25
Test section (m):	601.5-606.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

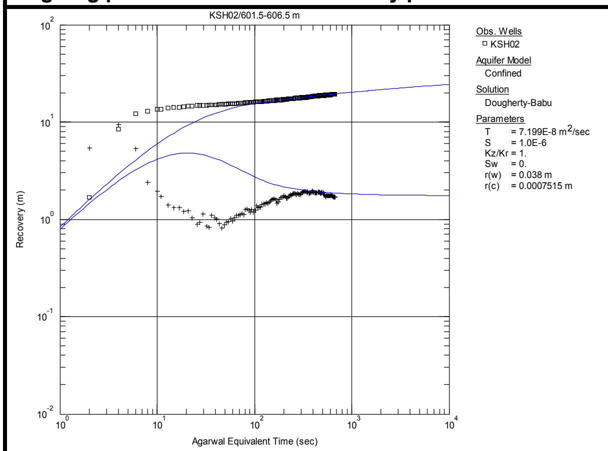


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	5841.82		
p_i (kPa)	5843.20		
p_p(kPa)	6042.07	p_F (kPa)	5997.31
Q_p (m^3/s)	1.55E-06		
tp (min)	1228.00	t_F (s)	1196.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.74		
Derivative	Spane 0.3	Derivative	Spane 0.2
Results		Results	
Q/s (m^2/s)	7.64E-08		
T_{Moye}(m^2/s)	6.40E-08		
Flow regime:	PRF	Flow regime:	PRF1(->PRF2)
t_1 (s)	100	dt_{e1} (s)	300.00
t_2 (s)	800	dt_{e2} (s)	600.00
T_w (m^2/s)	3.80E-08	T_w (m^2/s)	7.20E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-2.64	ξ (-)	0
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period

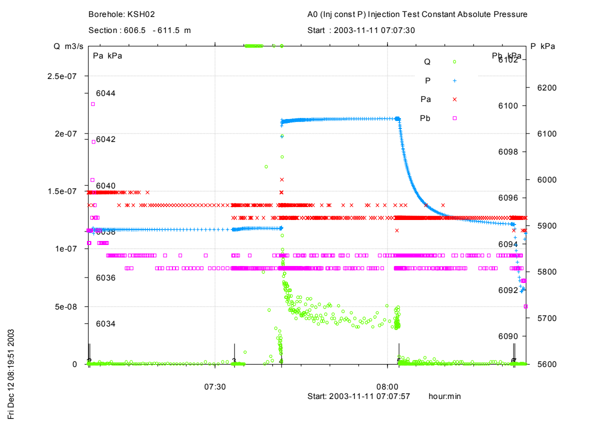


Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	100	C_D (-)	-
t_2 (min)	800	ξ (-)	-2.64
T_R (m^2/s)	3.80E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a well-defined pseudo-radial flow regime is indicated from c. 100 s until c 800 s. After that time, the derivative is somewhat uncertain.For the recovery period, a pseudo-radial flow regime is indicated by the end of the recovery period.**

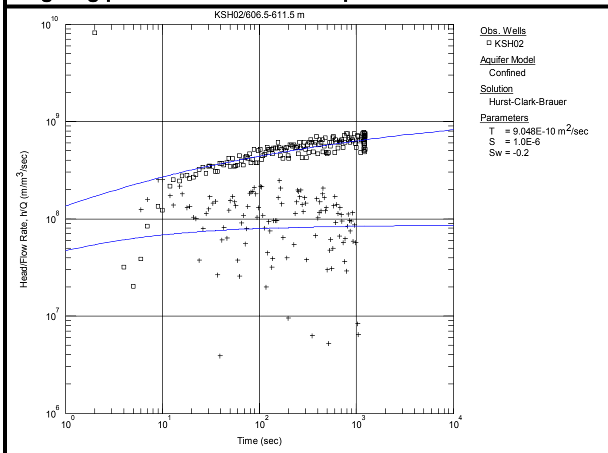
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-11 07:07
Test section (m):	606.5-611.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

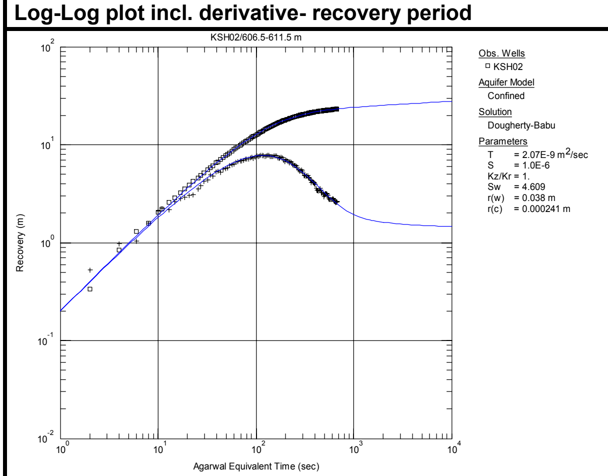


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	5888.26		
p_i (kPa)	5895.17		
p_p(kPa)	6132.32	p_F (kPa)	6049.82
Q_p (m^3/s)	3.71E-08		
tp (min)	1230.00	t_F (s)	1194.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.81		
Derivative	Spane 0.4	Derivative	Spane 0.1
Results		Results	
Q/s (m^2/s)	1.54E-09		
T_{Moye}(m^2/s)	1.28E-09		
Flow regime:	PRF	Flow regime:	WBS-
t_1 (s)	20	dt_{e1} (s)	10.00
t_2 (s)	1200	dt_{e2} (s)	600.00
T_w (m^2/s)	9.05E-10	T_w (m^2/s)	2.07E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	3.78E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.20	ξ (-)	4.609
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



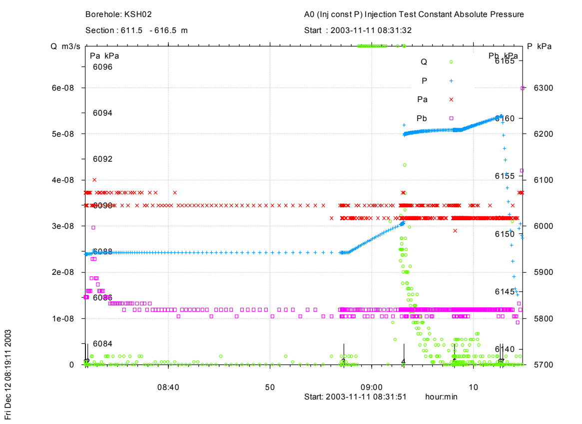
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	3.78E-11
t_1 (min)	20	C_D (-)	-
t_2 (min)	1200	ξ (-)	-0.20
T_R (m^2/s)	9.05E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a possible pseudo-radial flow regime is indicated from c. 20 s and throughout the flow period. For the recovery period, WBS effects dominate transiting to a possible pseudo-radial or pseudo-spherical flow regime by the end of the recovery period.**

Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-11 08:31
Test section (m):	611.5-616.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5939.11		
p_i (kPa)	6006.97		
p_p(kPa)	6208.32	p_F (kPa)	6382.60
Q_p (m^3/s)	8.55E-10		
tp (min)	300.00	t_F (s)	270.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.89		
Derivative	-	Derivative	-
Results		**Results**	
Q/s (m^2/s)	4.17E-11		
T_{Moye}(m^2/s)	< 6.88E-10		
Flow regime:	-	Flow regime:	-
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period

Not Analysed

Log-Log plot incl. derivative- recovery period

Not Analysed

Selected representative parameters

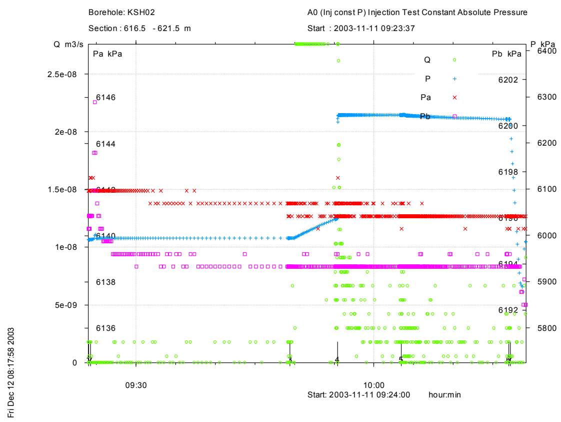
Flow regime:	-	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	< 6.88E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Since pressure in test section increased during the prescribed shut-in period before start of flow period, the pressure before start of flow period (p_i) is not judged as representative, undisturbed pressure for the test section. Since no relevant recovery was measured, no Horner relevant pressure is estimated and as a result the natural freshwater head could not be estimated for this section.**

Test Summary Sheet

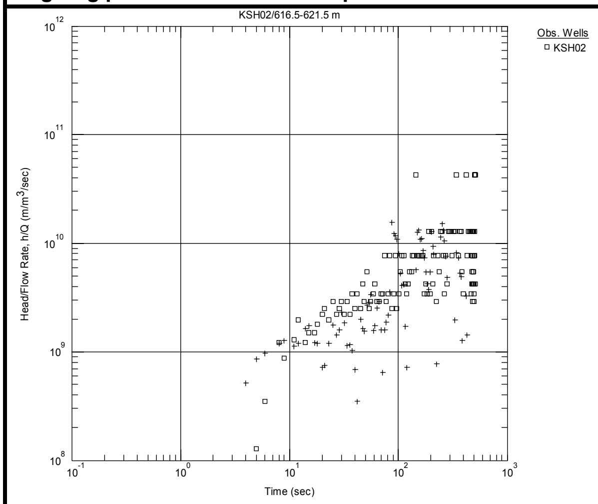
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-11 09:23
Test section (m):	616.5-621.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

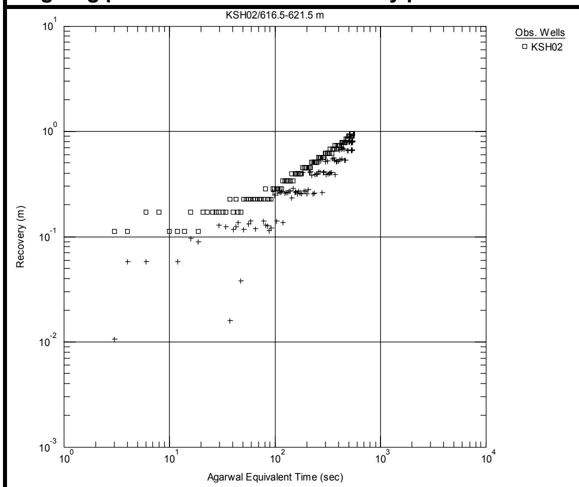


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	5990.52		
p_i (kPa)	6037.23		
p_p(kPa)	6260.84	p_F (kPa)	6398.08
Q_p (m^3/s)	2.37E-09		
tp (min)	482.00	t_F (s)	814.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.96		
Derivative	Bourdet 0.5	Derivative	Bourdet 0.2
Results		Results	
Q/s (m^2/s)	1.04E-10		
T_{Moye}(m^2/s)	8.60E-11		
Flow regime:	-	Flow regime:	WBS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



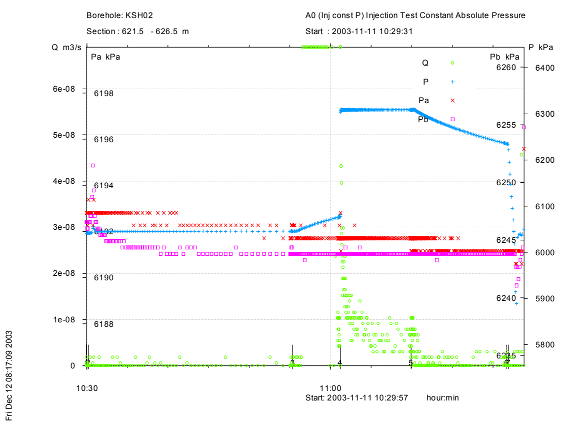
Selected representative parameters

Flow regime:	PSS	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	8.60E-11		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

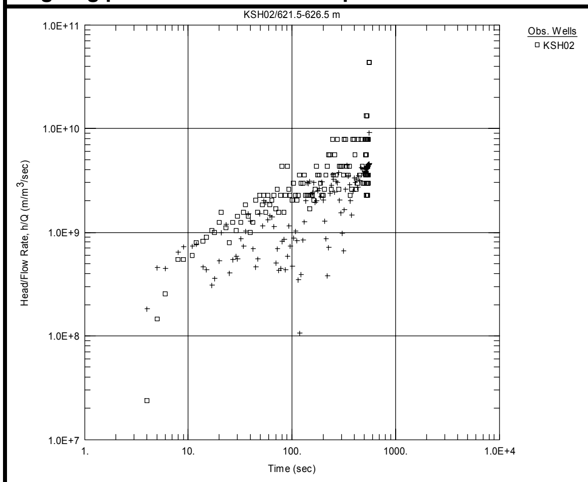
Comments: **For the flow period, no specific flow regime is indicated. For the recovery period, only the initial WBS effects are seen.**

Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-11 10:29
Test section (m):	621.5-626.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

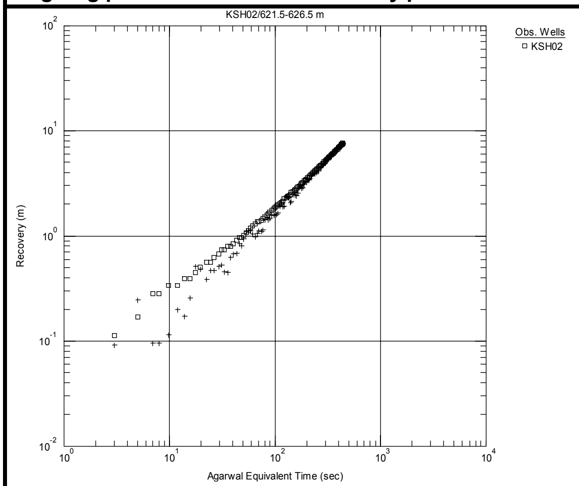
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6040.83		
p_i (kPa)	6078.28		
p_p(kPa)	6308.52	p_F (kPa)	6382.60
Q_p (m^3/s)	4.81E-09		
tp (min)	523.00	t_F (s)	707.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.04		
Derivative	Spane 0.5	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	-		
T_{Moye}(m^2/s)	-		
Flow regime:	-	Flow regime:	WBS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.63E-11
C_D (-)	-	C_D (-)	-
ξ (-)	--	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

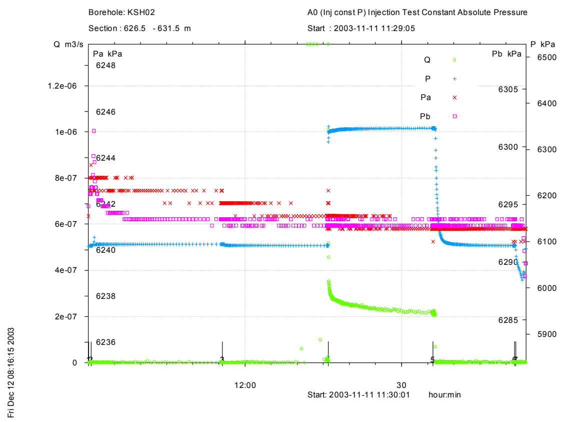
Selected representative parameters			
Flow regime:	-	C (m^3/Pa)	1.63E-11
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: Comments: **Since Q_p is below the measurement limit no transient or steady-state evaluation is performed. For the recovery period WBS effects are indicated. For the recovery period, only WBS effects are seen.**

Test Summary Sheet

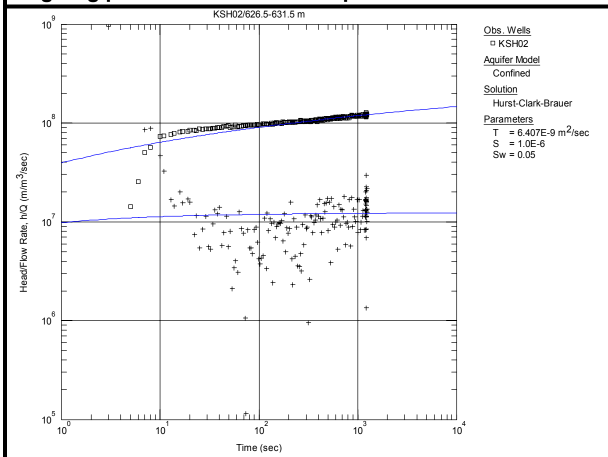
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-11 11:29
Test section (m):	626.5-631.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

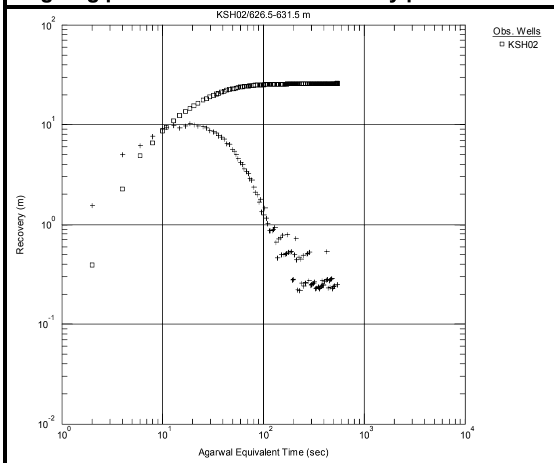


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6090.02		
p_i (kPa)	6091.96		
p_p(kPa)	6345.70	p_F (kPa)	6238.33
Q_p (m^3/s)	2.16E-07		
tp (min)	1203.00	t_F (s)	940.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.10		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.1
Results		**Results**	
Q/s (m^2/s)	8.35E-09		
T_{Moye}(m^2/s)	6.95E-09		
Flow regime:	PRF	Flow regime:	PSF/PSS
t_1 (s)	300	dt_{e1} (s)	-
t_2 (s)	1200	dt_{e2} (s)	-'
T_w (m^2/s)	6.41E-09	T_w (m^2/s)	7.23E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	0.05	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

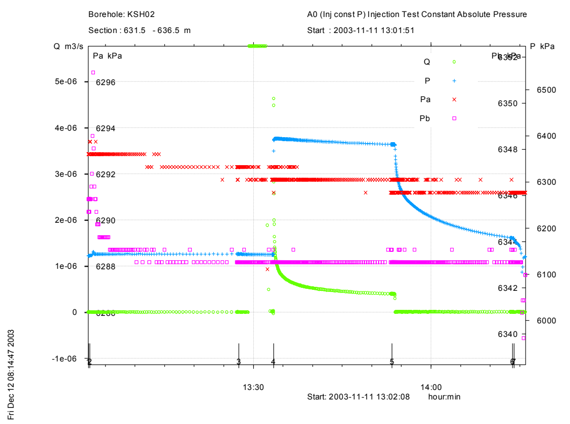
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	300	C_D (-)	-
t_2 (min)	1200	ξ (-)	0.05
T_R (m^2/s)	6.41E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo- radial flow regime is indicated from c. 300 s throughout the flow period. For the recovery period, a pseudo-spherical (almost pseudo-stationary) flow regime develops by the end of the recovery period.**

Test Summary Sheet

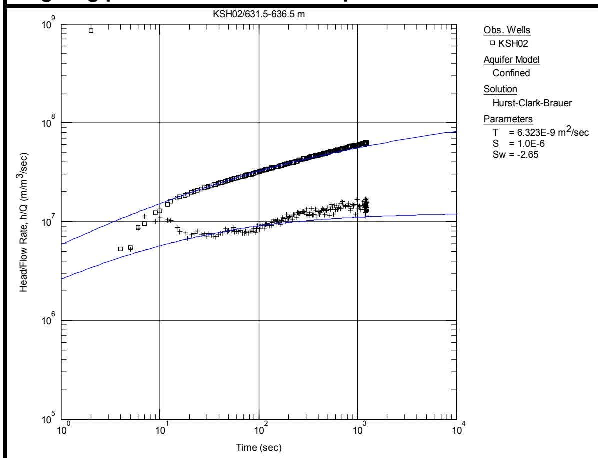
Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-11-11 13:01**
Test section (m):	**631.5-636.5**	**Responsible for test**	**J. Levén**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J-E. Ludvigson**

Linear plot Q and p

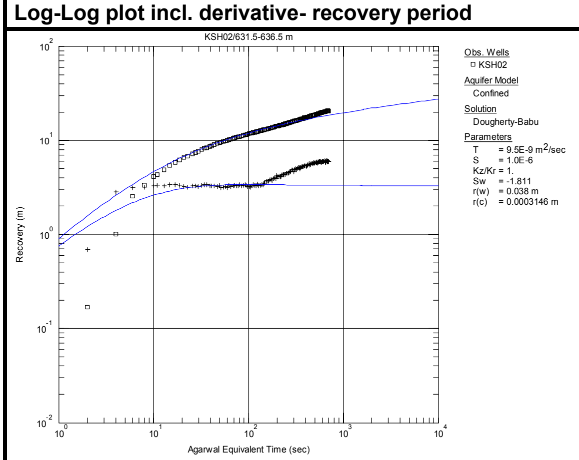


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6140.88		
p_i (kPa)	6143.51		
p_p(kPa)	6381.90	p_F (kPa)	6326.22
Q_p (m^3/s)	3.94E-07		
tp (min)	1203.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.19		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	1.62E-08		
T_{Moye}(m^2/s)	1.30E-08		
Flow regime:	PRF1->PRF2	Flow regime:	PRF1(->PRF2)
t_1 (s)	30	dt_{e1} (s)	30.00
t_2 (s)	100	dt_{e2} (s)	200.00
T_w (m^2/s)	6.32E-09	T_w (m^2/s)	9.50E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-2.65	ξ (-)	-1.811
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

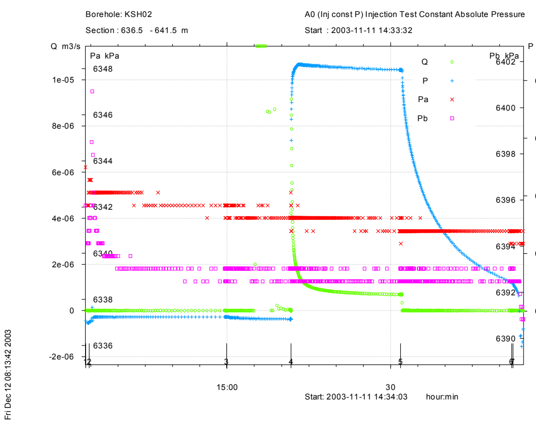
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	30	C_D (-)	-
t_2 (min)	200	ξ (-)	-1.81
T_R (m^2/s)	9.50E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, two separate pseudo-radial flow regimes are indicated, the first from c. 30 until 200 s and the second from c. 300 s until end of the flow period. Also for the recovery period, two separate pseudo-radial flow regimes are indicated. These pseudo-radial flow regimes appear from c. 10 to c. 150 s and from c. 500 until 600 s respectively.**

Test Summary Sheet

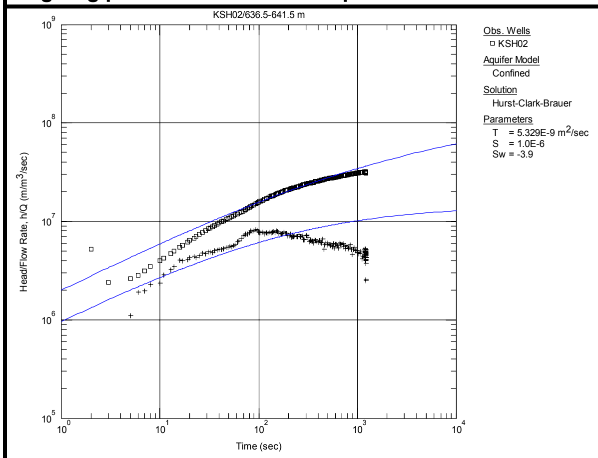
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-11-11 14:33
Test section (m):	636.5-641.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

Linear plot Q and p

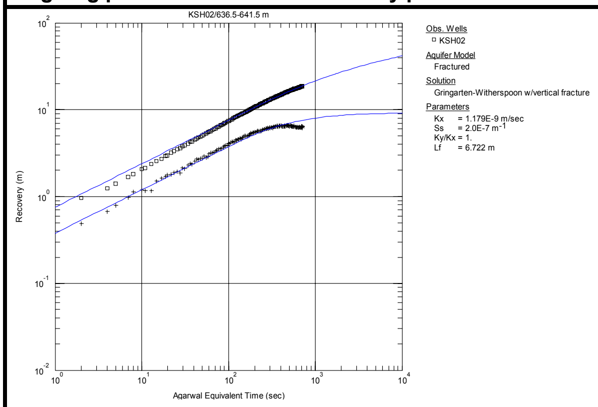


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6191.74		
p_i (kPa)	6193.12		
p_p(kPa)	6408.99	p_F (kPa)	6372.10
Q_p (m^3/s)	6.91E-07		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.27		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	3.14E-08		
T_{Moye}(m^2/s)	2.58E-08		
Flow regime:	(PLF->)PRF(-	Flow regime:	PLF(->PRF)
t_1 (s)	100	dt_{e1} (s)	10.00
t_2 (s)	300	dt_{e2} (s)	400.00
T_w (m^2/s)	5.33E-09	T_w (m^2/s)	5.90E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.35E-10
C_D (-)	-	C_D (-)	-
ξ (-)	-3.90	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

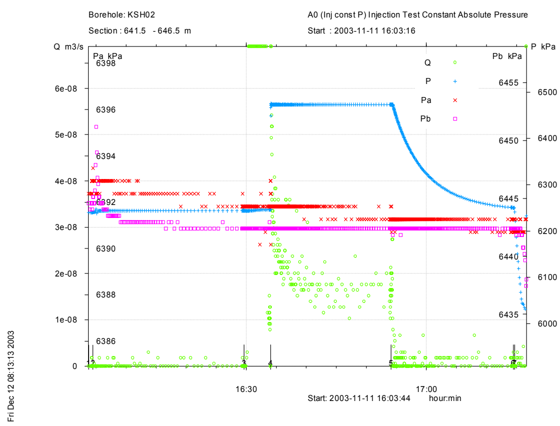
Flow regime:	PRF	C (m^3/Pa)	2.35E-10
t_1 (min)	100	C_D (-)	-
t_2 (min)	300	ξ (-)	-3.90
T_R (m^2/s)	5.33E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, indications of a 1:2 slope of 1/Q in the log-log plot, indicating a fracture response is found. A pseudo-radial flow regime is indicated from c. 100 s to c. 300 s, transiting to a pseudo-spherical flow regime by end of the flow period. For the recovery period, a pseudo-linear flow regime (i.e. fracture response) is indicated.**

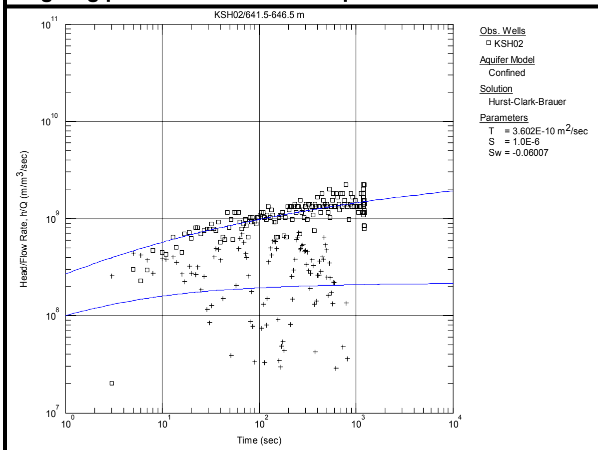
Test Summary Sheet

Project:	**PLU**	**Test type:**	**3**
Area:	**Simpevarp**	**Test no:**	**1**
Borehole ID:	**KSH02**	**Test start:**	**2003-11-11 16:03**
Test section (m):	**641.5-646.5**	**Responsible for test**	**J. Levén**
Section diameter, $2 \cdot r_w$ (m):	**0.076**	**Responsible for test evaluation:**	**J-E. Ludvigson**

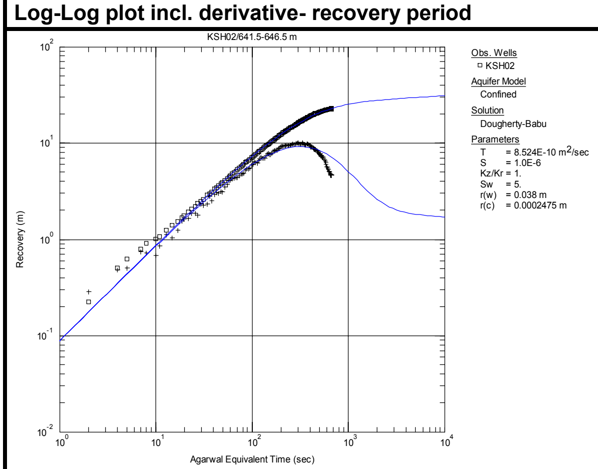
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	**6239.84**		
p_i (kPa)	**6246.46**		
p_p(kPa)	**6472.98**	**p_F (kPa)**	**6397.54**
Q_p (m^3/s)	**1.79E-08**		
tp (min)	**1205.00**	**t_F (s)**	**1221.00**
S*	**1.0E-06**	**S***	**1.00E-06**
EC_w (mS/m)	**-**		
Te_w(gr C)	**16.33**		
Derivative	**Spane 0.5**	**Derivative**	**Spane 0.1**
Results		**Results**	
Q/s (m^2/s)	**7.76E-10**		
T_{Moye}(m^2/s)	**6.40E-10**		
Flow regime:	**PRF**	**Flow regime:**	**WBS-**
t_1 (s)	**20**	**dt_{e1} (s)**	**0.00**
t_2 (s)	**600**	**dt_{e2} (s)**	**200.00**
T_w (m^2/s)	**3.60E-10**	**T_w (m^2/s)**	**8.52E-10**
S_w (-)	**-**	**S_w (-)**	**-**
K_{sw} (m/s)	**-**	**K_{sw} (m/s)**	**-**
S_{sw} (1/m)	**-**	**S_{sw} (1/m)**	**-**
C (m^3/Pa)	**-**	**C (m^3/Pa)**	**1.82E-11**
C_D (-)	**-**	**C_D (-)**	**-**
ξ (-)	**-0.06**	**ξ (-)**	**5**
T_{GRF}(m^2/s)		**T_{GRF}(m^2/s)**	
S_{GRF}(-)		**S_{GRF}(-)**	
D_{GRF} (-)		**D_{GRF} (-)**	

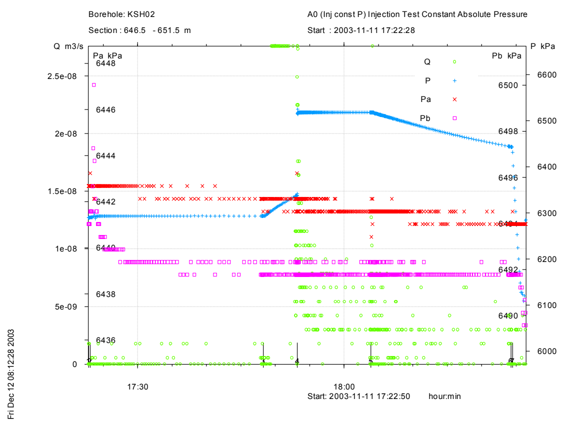
Selected representative parameters			
Flow regime:	**PRF**	**C (m^3/Pa)**	**1.82E-11**
t_1 (min)	**20**	**C_D (-)**	**-**
t_2 (min)	**600**	**ξ (-)**	**-0.06**
T_R (m^2/s)	**3.60E-10**		
S (-)	**-**		
K_s (m/s)	**-**		
S_s (1/m)	**-**		

Comments: **Although the derivative is very scattered during the flow period, a pseudo-radial flow regime is indicated from c. 100 s until the end of the flow period. For the recovery period, WBS effects are dominating although a transition to another flow regime (possibly pseudo-spherical) is indicated by end of the recovery period.**

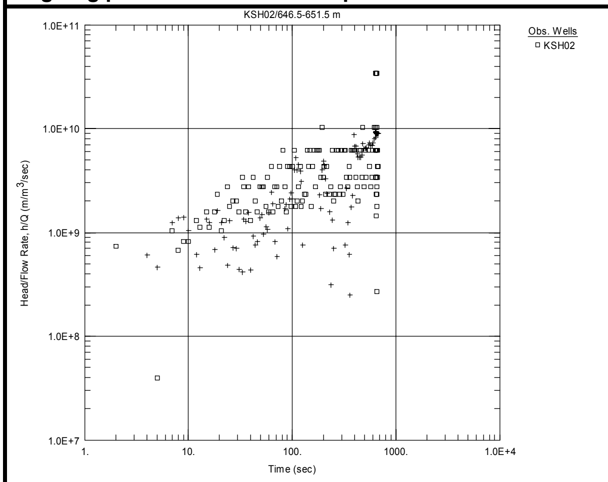
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-11-11 17:22
Test section (m):	646.5-651.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

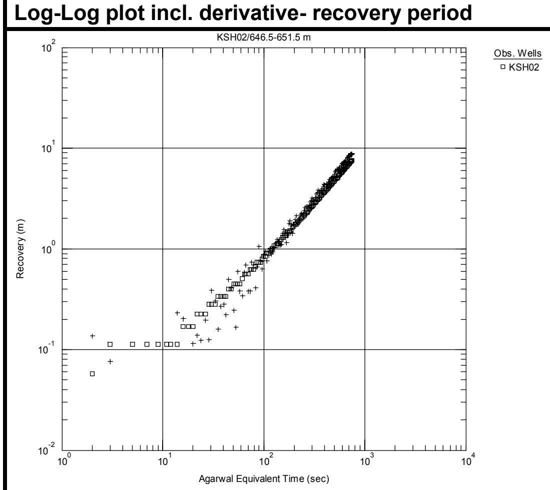
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	6289.59		
p_i (kPa)	6338.79		
p_p(kPa)	6518.17	p_F (kPa)	6591.01
Q_p (m^3/s)	3.28E-09		
tp (min)	644.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.41		
Derivative	Spane 0.5	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	-		
T_{Moye}(m^2/s)	-		
Flow regime:	-	Flow regime:	WBS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	4.18E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters

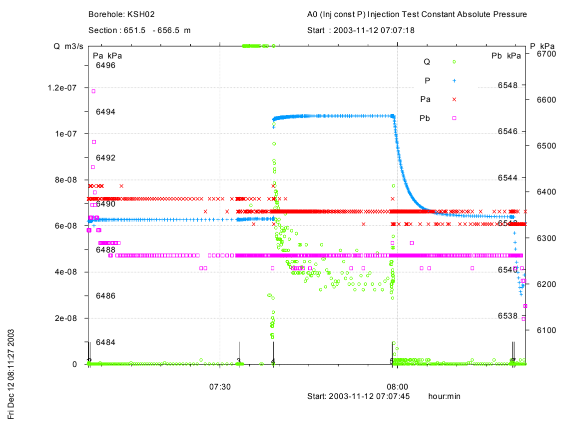
Flow regime:	PSS	C (m^3/Pa)	4.18E-11
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: Comments: **Since Q_p is below the measurement limit no transient or steady-state evaluation is performed. For the recovery period, only WBS effects are seen.**

Test Summary Sheet

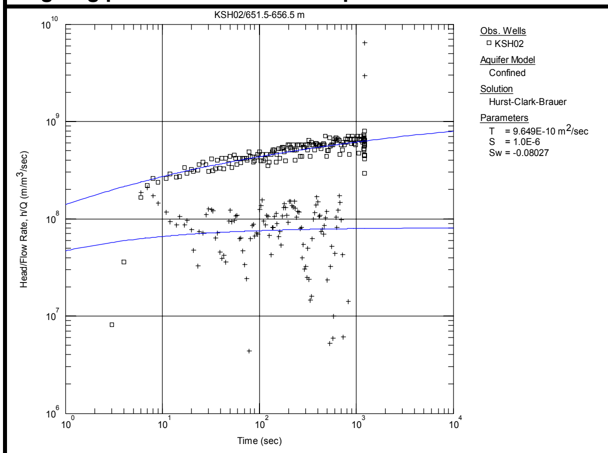
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-12 07:07
Test section (m):	651.5-656.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

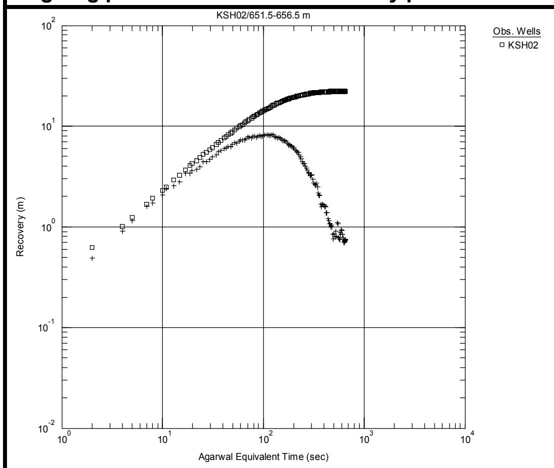


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6336.03		
p_i (kPa)	6341.83		
p_p(kPa)	6564.88	p_F (kPa)	6492.06
Q_p (m^3/s)	3.89E-08		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.48		
Derivative	Spane 0.5	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	1.71E-09		
T_{Moye}(m^2/s)	1.43E-09		
Flow regime:	PRF->PSF?	Flow regime:	WBS->PSF
t_1 (s)	300	dt_{e1} (s)	0.00
t_2 (s)	800	dt_{e2} (s)	600.00
T_w (m^2/s)	9.65E-10	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.64E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-0.08	ξ (-)	15
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



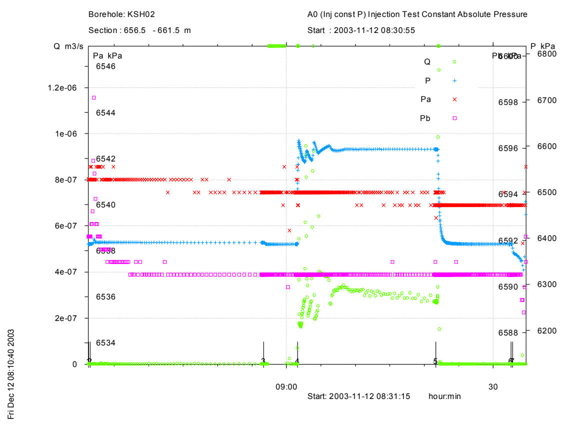
Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	2.64E-11
t_1 (min)	300	C_D (-)	-
t_2 (min)	800	ξ (-)	-0.08
T_R (m^2/s)	9.65E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regimeis indicated from c. 10 s and persists until the end of flow period, possibly transiting to pseudo-spherical regime by the end of the flow period. For the recovery, an initial period dominated of WBS effects is followed by a transition to a pseudo-spherical flow regime by the end of the recovery period.**

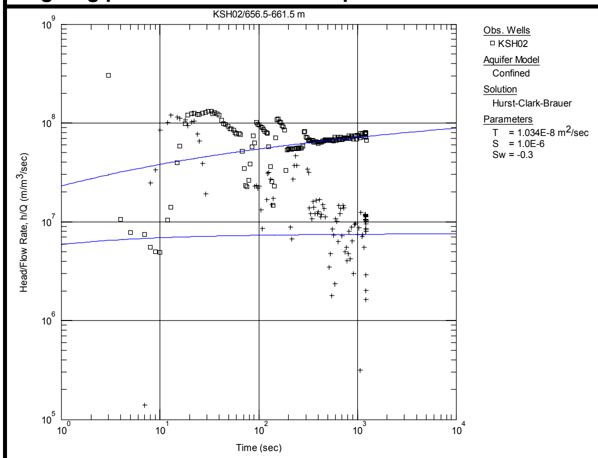
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-12 08:30
Test section (m):	656.5-661.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

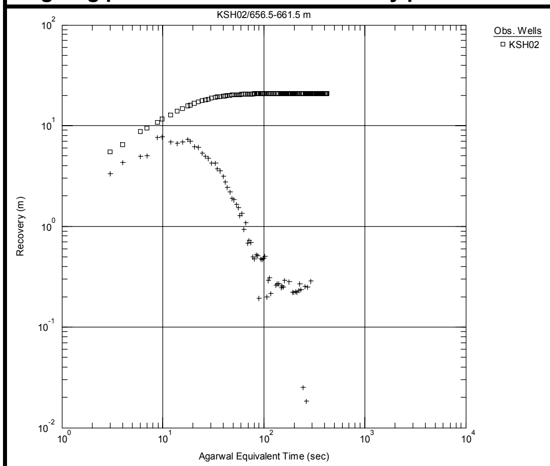


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	6386.88		
p_i (kPa)	6387.16		
p_p(kPa)	6592.24	p_F (kPa)	6533.52
Q_p (m^3/s)	2.71E-07		
tp (min)	1205.00	t_F (s)	655.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.56		
Derivative	Bourdet 0.5	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	1.30E-08		
T_{Moye}(m^2/s)	1.10E-08		
Flow regime:	PRF	Flow regime:	PSS
t_1 (s)	200	dt_{e1} (s)	-
t_2 (s)	700	dt_{e2} (s)	-
T_w (m^2/s)	1.03E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-0.65	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



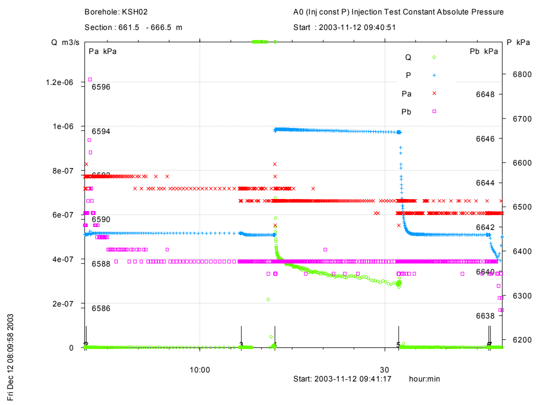
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	200	C_D (-)	-
t_2 (min)	700	ξ (-)	-0.65
T_R (m^2/s)	1.03E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **Due to the fluctuations of the flow rate the derivative is extremely scattered during the flow period. However, a pseudo-radial flow regime is indicated from c. 300 s until the end of flow. For the recovery, a pseudo-stationary flow regime develops after c. 100 s throughout the recovery period.**

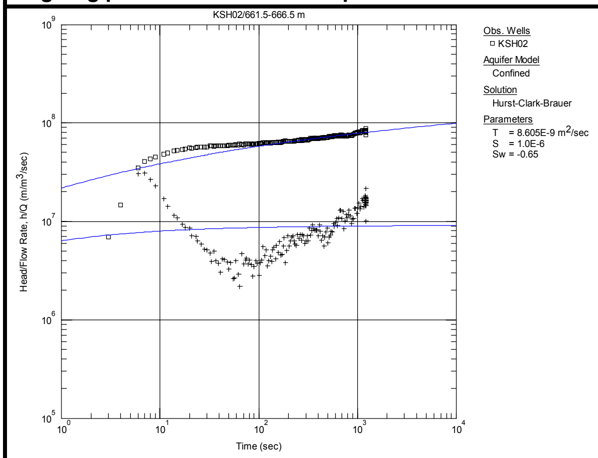
Test Summary Sheet

Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-12 09:40
Test section (m):	661.5-666.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

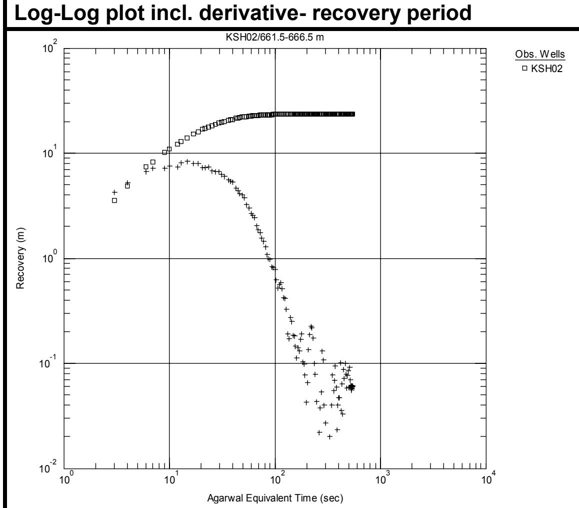
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6437.18		
p_i (kPa)	6437.05		
p_p(kPa)	6668.94	p_F (kPa)	6583.82
Q_p (m^3/s)	2.86E-07		
tp (min)	1205.00	t_F (s)	879.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.64		
Derivative	Spane 0.2	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	1.21E-08		
T_{Moye}(m^2/s)	9.80E-09		
Flow regime:	PSF->PRF-	Flow regime:	WBS->PSS
t_1 (s)	40	dt_{e1} (s)	-
t_2 (s)	200	dt_{e2} (s)	-
T_w (m^2/s)	8.61E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	2.91E-11
C_D (-)	-	C_D (-)	-
ξ (-)	4.25	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

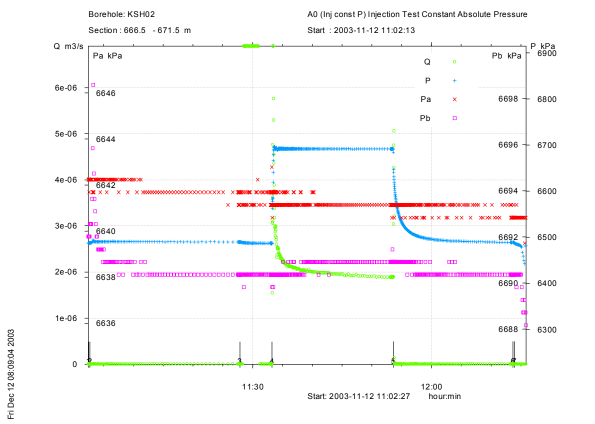
Selected representative parameters			
Flow regime:	PRF	C (m^3/Pa)	2.91E-11
t_1 (min)	40	C_D (-)	-
t_2 (min)	200	ξ (-)	4.25
T_R (m^2/s)	8.61E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **In the beginning of the flow period, a pseudo-spherical flow regime is indicated. Although not very well defined, a possible pseudo-radial flow regime is indicated from c. 200 s until c. 700 s during the flow period. After c. 900 s indications of no-flow hydraulic boundary effects are seen. For the recovery a pseudo-stationary flow regime is indicated**

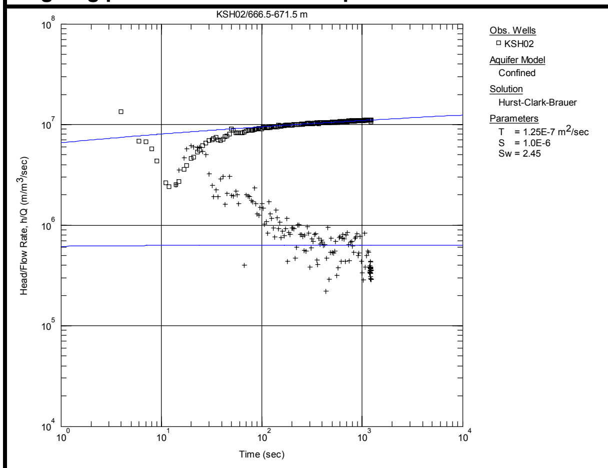
Test Summary Sheet

Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-11-12 11:02
Test section (m):	666.5-671.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

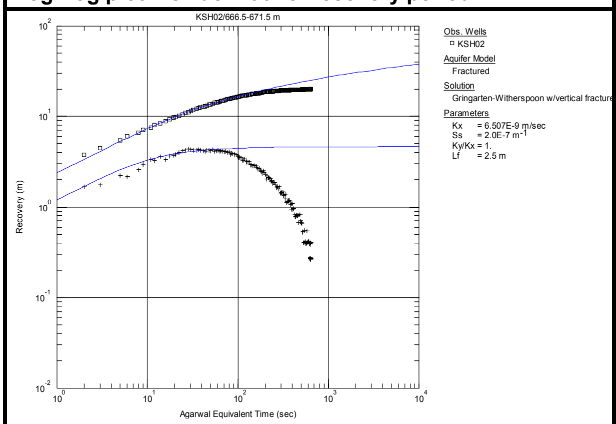
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		**Recovery period**	
Indata		**Indata**	
p_0 (kPa)	6487.49		
p_i (kPa)	6487.07		
p_p(kPa)	6691.47	p_F (kPa)	6635.78
Q_p (m^3/s)	1.89E-06		
tp (min)	1223.00	t_F (s)	1203.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.71		
Derivative	Bourdet 0.2	Derivative	Bourdet 0.2
Results		**Results**	
Q/s (m^2/s)	9.06E-08		
T_{Moye}(m^2/s)	7.65E-08		
Flow regime:	PSF	Flow regime:	PLF(->PSF)
t_1 (s)	200	dt_{e1} (s)	0.00
t_2 (s)	1000	dt_{e2} (s)	50.00
T_w (m^2/s)	1.25E-07	T_w (m^2/s)	3.25E-08
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	2.45	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Selected representative parameters

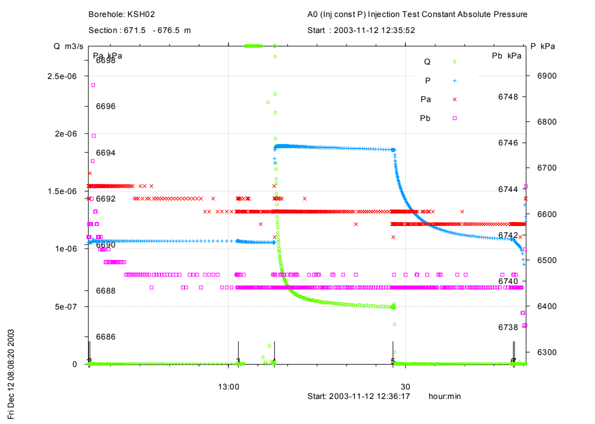
Flow regime:	PLF	C (m^3/Pa)	-
t_1 (min)	0	C_D (-)	-
t_2 (min)	50	ξ (-)	-
T_R (m^2/s)	3.25E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-spherical flow regime is indicated. For the recovery period, a pseudo-linear flow regime (i.e. fracture response) is indicated by the slope 1:2 in the beginning of the log-log plot. By end of the recovery period, a transition to a pseudo-spherical flow regime is indicated.**

Test Summary Sheet

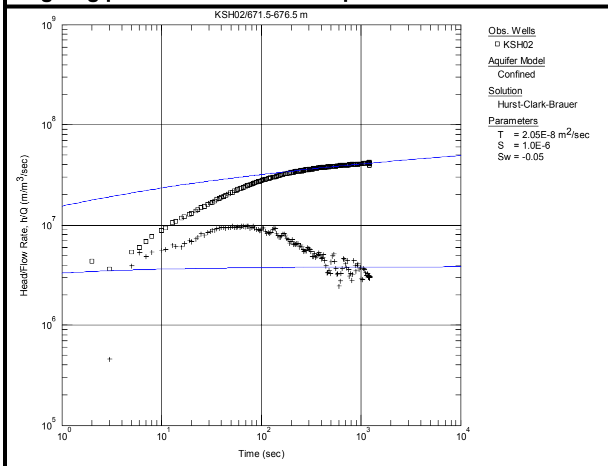
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-11-12 12:35
Test section (m):	671.5-676.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

Linear plot Q and p

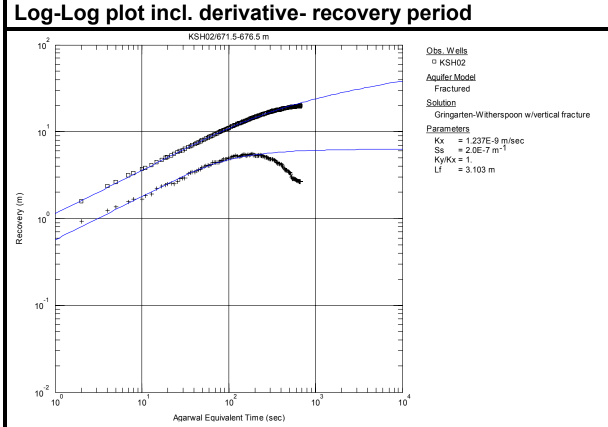


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6537.79		
p_i (kPa)	6537.79		
p_p(kPa)	6739.01	p_F (kPa)	6691.62
Q_p (m^3/s)	4.93E-07		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.79		
Derivative	Spane 0.2	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	2.40E-08		
T_{Moye}(m^2/s)	1.94E-08		
Flow regime:	PRF	Flow regime:	PLF(->PRF)
t_1 (s)	500	dt_{e1} (s)	0.00
t_2 (s)	1200	dt_{e2} (s)	200.00
T_w (m^2/s)	2.05E-08	T_w (m^2/s)	6.19E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-0.05	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



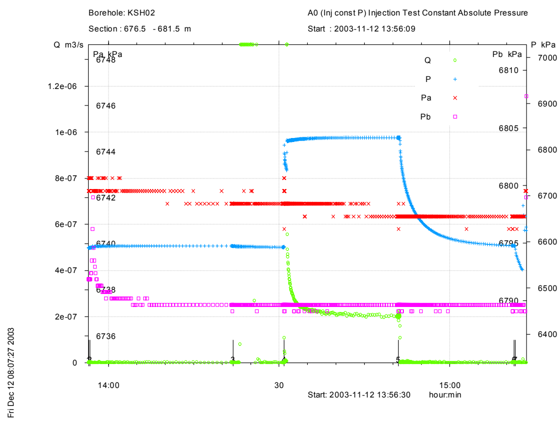
Selected representative parameters

Flow regime:	PLF	C (m^3/Pa)	-
t_1 (min)	500	C_D (-)	-
t_2 (min)	1200	ξ (-)	-
T_R (m^2/s)	2.05E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 500 s and persists until the end of the flow period. For the recovery period, a pseudo-linear flow regime (i.e. fracture response) is indicated by the slope 1:2 in the beginning of the log-log plot. By the end of the recovery period is a transition to a pseudo-spherical flow.**

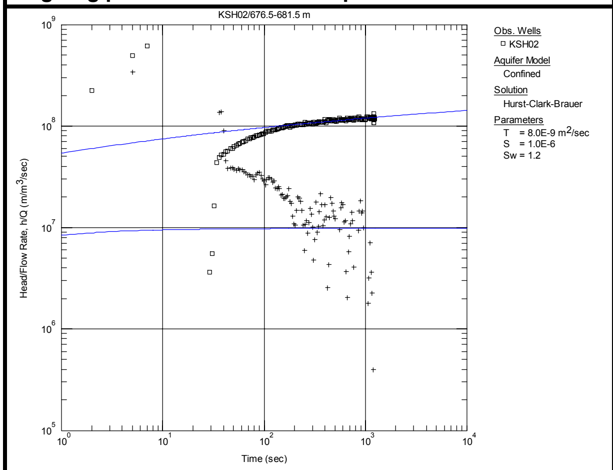
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-12 13:56
Test section (m):	676.5-681.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

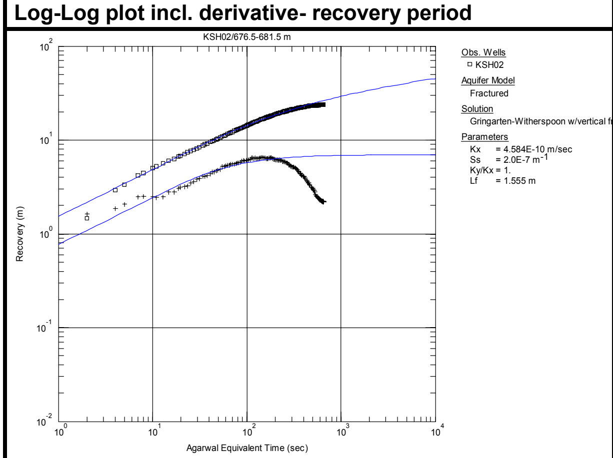


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6587.54		
p_i (kPa)	6589.20		
p_p(kPa)	6826.34	p_F (kPa)	6738.60
Q_p (m^3/s)	2.02E-07		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.86		
Derivative	Spane 0.2	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	8.36E-09		
T_{Moye}(m^2/s)	7.15E-09		
Flow regime:	PSF(PRF)	Flow regime:	PLF(->PRF)
t_1 (s)	200	dt_{e1} (s)	0.00
t_2 (s)	1200	dt_{e2} (s)	100.00
T_w (m^2/s)	8.00E-09	T_w (m^2/s)	2.29E-09
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	1.20	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



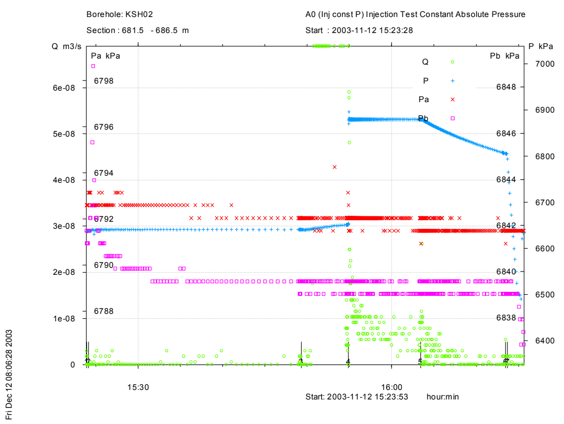
Selected representative parameters			
Flow regime:	PSS	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	7.15E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-spherical flow regime is indicated. For the recovery period, a pseudo-linear flow regime is indicated in the beginning of the log-log plot. By the end of the recovery period a transition to a pseudo-spherical flow regime is indicated.**

Test Summary Sheet

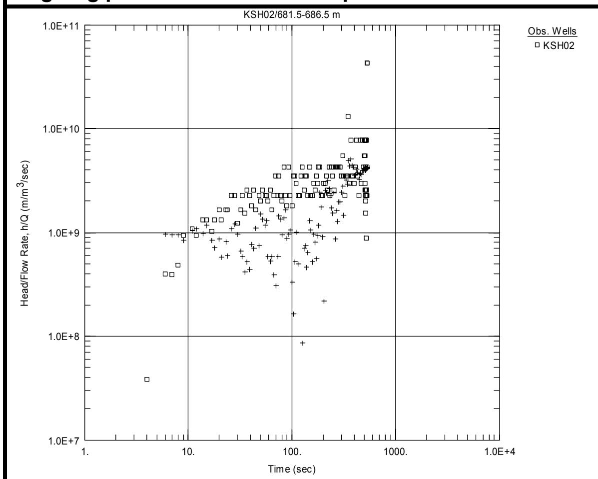
Project:	PLU	**Test type:**	3
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-11-12 15:23
Test section (m):	681.5-686.5	**Responsible for test**	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	**Responsible for test evaluation:**	J-E. Ludvigson

Linear plot Q and p

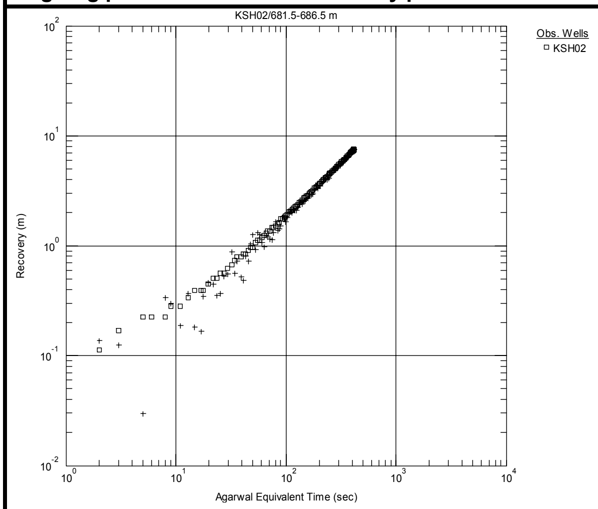


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6637.29		
p_i (kPa)	6652.08		
p_p(kPa)	6879.28	p_F (kPa)	6953.09
Q_p (m^3/s)	5.72E-09		
tp (min)	513.00	t_F (s)	603.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	16.92		
Derivative	Spane 0.5	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	-		
T_{Moye}(m^2/s)	-		
Flow regime:	-	Flow regime:	WBS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	3.20E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



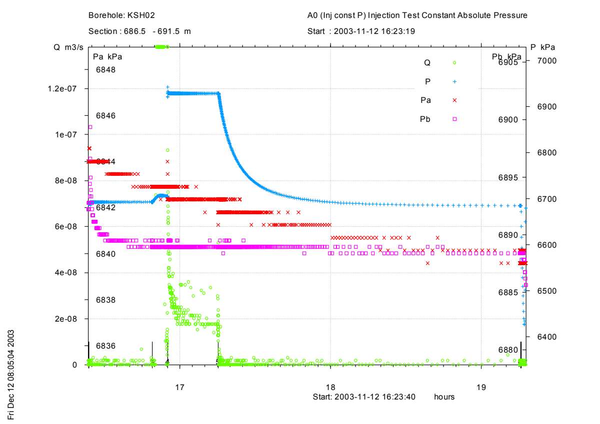
Selected representative parameters			
Flow regime:	-	C (m^3/Pa)	3.20E-11
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	-		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: Comments: **Since Q_p is below the measurement limit no transient or steady-state evaluation is performed. The recovery period only shows effects from wellbore storage.**

Test Summary Sheet

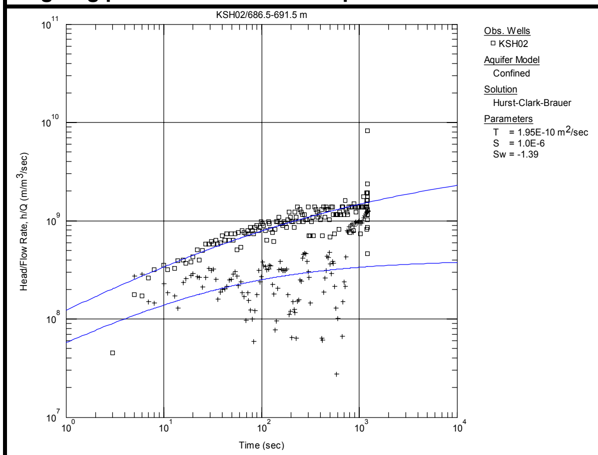
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-12 16:23
Test section (m):	686.5-691.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p



Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	6688.15		
p_i (kPa)	6704.32		
p_p(kPa)	6927.79	p_F (kPa)	6830.93
Q_p (m^3/s)	1.82E-08		
tp (min)	1205.00	t_F (s)	7222.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	17.02		
Derivative	Spane 0.5	Derivative	Spane 0.1
Results		**Results**	
Q/s (m^2/s)	8.00E-10		
T_{Moye}(m^2/s)	6.60E-10		
Flow regime:	PRF	Flow regime:	WBS(PRF)
t_1 (s)	70	dt_{e1} (s)	-
t_2 (s)	800	dt_{e2} (s)	-
T_w (m^2/s)	1.95E-10	T_w (m^2/s)	3.10E-10
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	1.85E-11
C_D (-)	-	C_D (-)	-
ξ (-)	-1.39	ξ (-)	0.08515
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

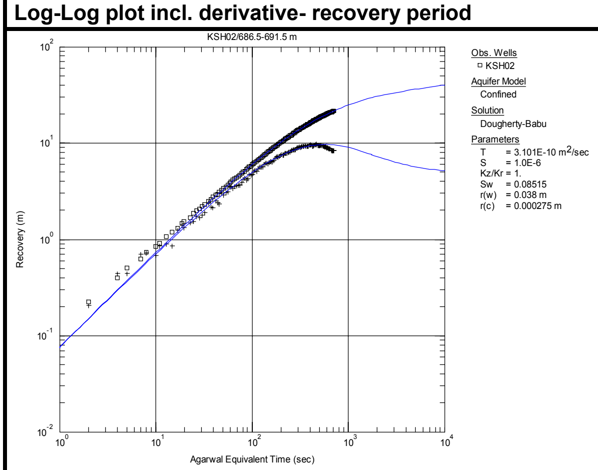
Log-Log plot incl. derivate- flow period



Selected representative parameters

Flow regime:	PRF	C (m^3/Pa)	1.85E-11
t_1 (min)	70	C_D (-)	-
t_2 (min)	800	ξ (-)	-1.39
T_R (m^2/s)	1.95E-10		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

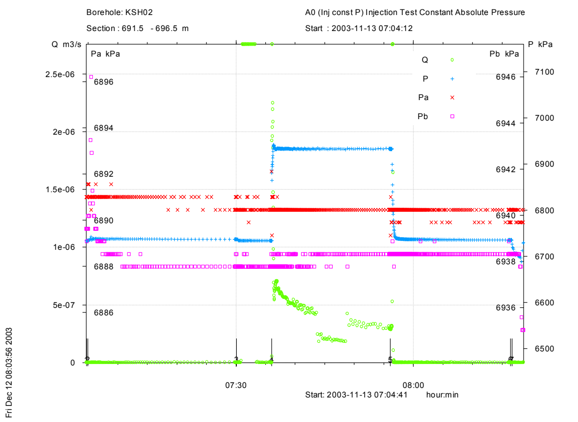
Log-Log plot incl. derivative- recovery period



Comments: **For the flow period, a pseudo-radial flow regime is indicated. The recovery period is clearly affected by wellbore storage followed by a transition phase.**

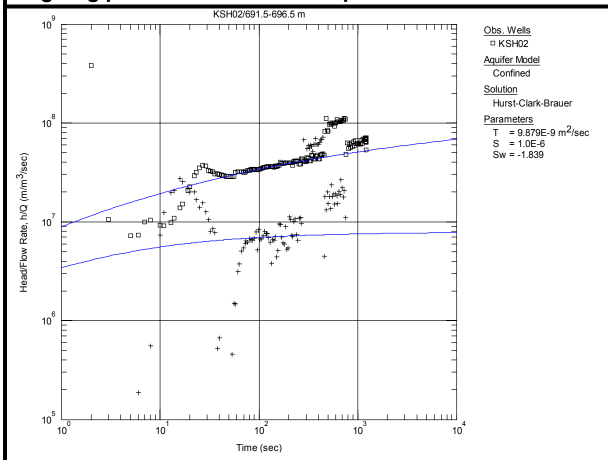
Test Summary Sheet			
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-13 07:04
Test section (m):	691.5-696.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

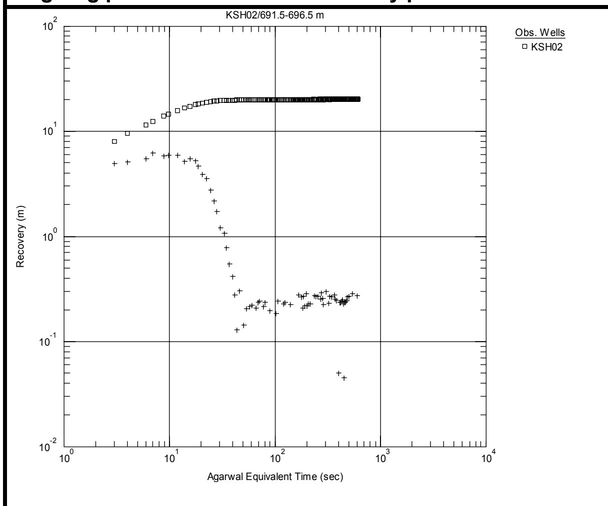


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	6734.04		
p_i (kPa)	6733.76		
p_p(kPa)	6932.63	p_F (kPa)	6881.78
Q_p (m^3/s)	2.92E-07		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	17.08		
Derivative	Bourdet 0.5	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	1.44E-08		
T_{Moye}(m^2/s)	1.20E-08		
Flow regime:	PRF	Flow regime:	PSS
t_1 (s)	80	dt_{e1} (s)	-
t_2 (s)	300	dt_{e2} (s)	-
T_w (m^2/s)	9.88E-09	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-1.84	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

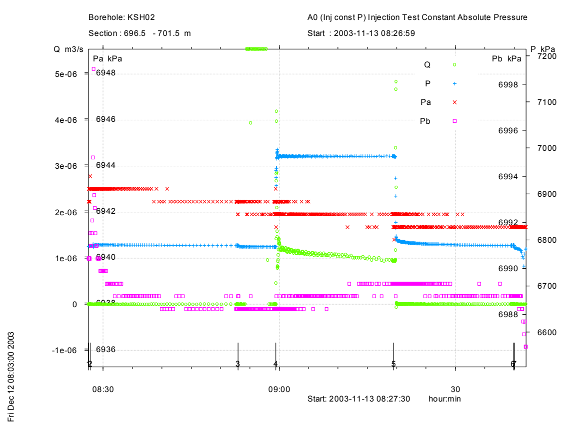
Flow regime:	PRF	C (m^3/Pa)	-
t_1 (min)	80	C_D (-)	-
t_2 (min)	300	ξ (-)	-1.84
T_R (m^2/s)	9.88E-09		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-radial flow regime is indicated from c. 80 s until c. 300 s. After that time, the period of lower flow rate follows. For the recovery period, a pseudo-stationary flow regime is indicated throughout the recovery period.**

Test Summary Sheet

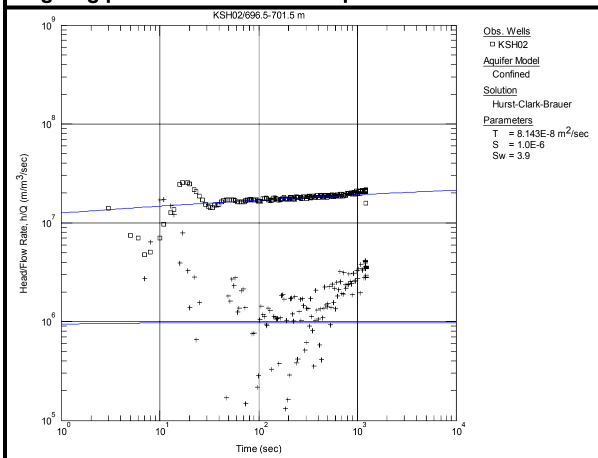
Project:	PLU	Test type:	3
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-11-13 08:26
Test section (m):	696.5-701.5	Responsible for test	J. Levén
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E. Ludvigson

Linear plot Q and p

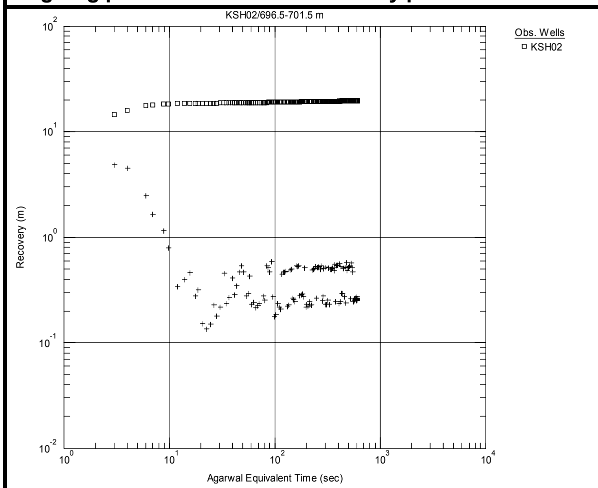


Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	6785.44		
p_i (kPa)	6784.75		
p_p(kPa)	6981.70	p_F (kPa)	6934.29
Q_p (m^3/s)	9.38E-07		
tp (min)	1205.00	t_F (s)	1221.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	17.16		
Derivative	Bourdet 0.5	Derivative	Bourdet 0.1
Results		Results	
Q/s (m^2/s)	4.67E-08		
T_{Moye}(m^2/s)	3.88E-08		
Flow regime:	PRF/PSF	Flow regime:	PSF/PSS
t_1 (s)	80	dt_{e1} (s)	-
t_2 (s)	600	dt_{e2} (s)	-
T_w (m^2/s)	8.14E-08	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	3.90	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period

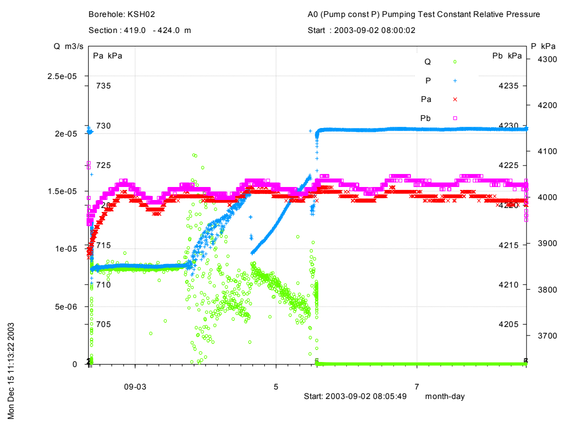


Selected representative parameters			
Flow regime:	PSS	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	3.88E-08		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

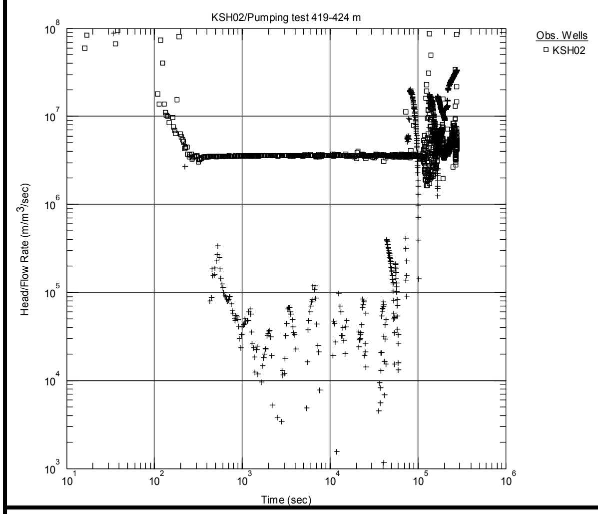
Comments: **For the flow period, a pseudo- flow regime is indicated from c. 60 s until c. 400 s. After c. 400 s no-flow boundary effects are indicated. For the recovery period, a pseudo-spherical, or almost pseudo-stationary, flow regime is indicated throughout the recovery period.**

Test Summary Sheet			
Project:	PLU	Test type:	1B
Area:	Simpevarp	Test no:	1
Borehole ID:	KSH02	Test start:	2003-09-02 08:00
Test section (m):	419-424	Responsible for test	J. Källgården
Section diameter, $2 \cdot r_w$ (m):	0.076	Responsible for test evaluation:	J-E Ludvigsson

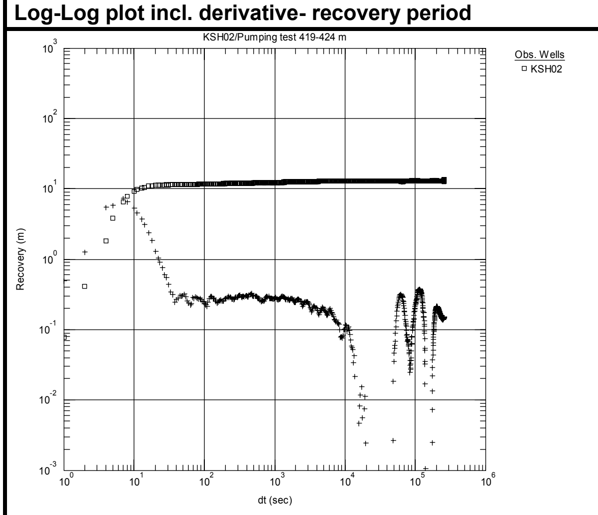
Linear plot Q and p



Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Flow period		Recovery period	
Indata		Indata	
p_0 (kPa)	4141.46		
p_i (kPa)	4142.01		
p_p(kPa)	4021.35	p_F (kPa)	4147.53
Q_p (m^3/s)	6.07E-06		
tp (min)	276194.00	t_F (s)	256422.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	13.13		
Derivative	Spane 0.5	Derivative	Spane 0.5
Results		Results	
Q/s (m^2/s)	4.94E-07		
T_{Moye}(m^2/s)	2.34E-07		
Flow regime:	PSS	Flow regime:	PSF->PSS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

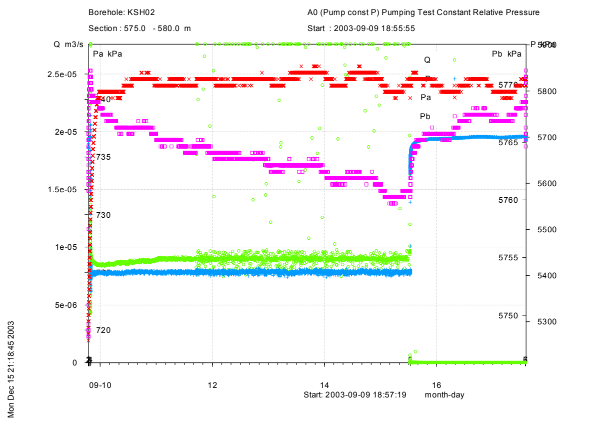
Selected representative parameters			
Flow regime:	PSS	C (m^3/Pa)	-
t_1 (min)	-	C_D (-)	-
t_2 (min)	-	ξ (-)	-
T_R (m^2/s)	2.34E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-stationary flow regime is indicated from c 100 s and until the pressure disturbances described above occur after c 31 h (i.e. c. 100 000 s). For the recovery period, a pseudo-spherical flow regime is indicated from c. 40 s to c 5000 s approaching a pseudo-stationary flow regime after c. 5000 s.**

Test Summary Sheet

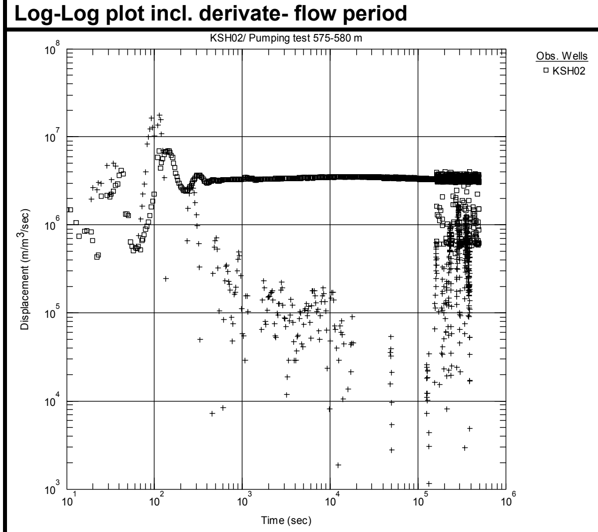
Project:	PLU	**Test type:**	1B
Area:	Simpevarp	**Test no:**	1
Borehole ID:	KSH02	**Test start:**	2003-09-09 18:55
Test section (m):	575-580	**Responsible for test**	J. Källgården
Section diameter, 2·r_w (m):	0.076	**Responsible for test evaluation:**	J-E Ludvigsson

Linear plot Q and p

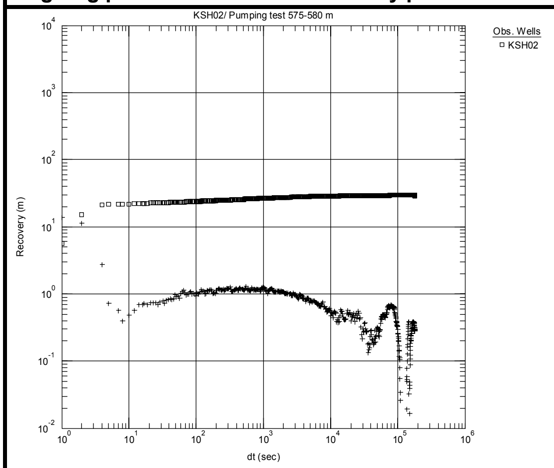


Flow period		Recovery period	
Indata		**Indata**	
p_0 (kPa)	5675.46		
p_i (kPa)	5700.45		
p_p(kPa)	5409.30	p_F (kPa)	5701.41
Q_p (m^3/s)	9.64E-06		
tp (min)	492447.00	t_F (s)	177725.00
S*	1.0E-06	S*	1.00E-06
EC_w (mS/m)	-		
Te_w(gr C)	15.45		
Derivative	Spane 0.2	Derivative	Spane 0.2
Results		**Results**	
Q/s (m^2/s)	3.25E-07		
T_{Moye}(m^2/s)	2.70E-07		
Flow regime:	PSF->PSS	Flow regime:	PSF/PSS
t_1 (s)	-	dt_{e1} (s)	-
t_2 (s)	-	dt_{e2} (s)	-
T_w (m^2/s)	-	T_w (m^2/s)	-
S_w (-)	-	S_w (-)	-
K_{sw} (m/s)	-	K_{sw} (m/s)	-
S_{sw} (1/m)	-	S_{sw} (1/m)	-
C (m^3/Pa)	-	C (m^3/Pa)	-
C_D (-)	-	C_D (-)	-
ξ (-)	-	ξ (-)	-
T_{GRF}(m^2/s)		T_{GRF}(m^2/s)	
S_{GRF}(-)		S_{GRF}(-)	
D_{GRF} (-)		D_{GRF} (-)	

Log-Log plot incl. derivate- flow period



Log-Log plot incl. derivative- recovery period



Selected representative parameters

Flow regime:	PSS	C (m^3/Pa)	-
t_1 (min)	0	C_D (-)	-
t_2 (min)	0	ξ (-)	-
T_R (m^2/s)	2.70E-07		
S (-)	-		
K_s (m/s)	-		
S_s (1/m)	-		

Comments: **For the flow period, a pseudo-spherical flow regime is indicated from c. 700 s approaching a pseudo-stationary flow regime after c. 9000 s. For the recovery period, a pseudo-spherical (or possibly pseudo–stationary) flow regime is indicated from c. 100 s approaching a pseudo-stationary flow regime after c. 2000 s.**

Appendix 5

File description table

Bh id	Testsection		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		
KSH02	101.50	201.50	3	1	2003-09-24 08:01	20030924 11:01	___KSH02_101.5_200309240801.ht2	P, Q, T	
KSH02	201.50	301.50	3	1	2003-09-24 11:12	20030924 14:42	___KSH02_201.5_200309241112.ht2	P, Q, T	
KSH02	301.50	401.50	3	1	2003-09-24 14:44	20030924 17:01	___KSH02_301.5_200309241444.ht2	P, Q, T	
KSH02	401.50	501.50	3	1	2003-09-24 17:47	20030924 19:49	___KSH02_401.5_200309241747.ht2	P, Q, T	
KSH02	501.50	601.50	3	1	2003-09-25 08:02	20030925 11:03	___KSH02_501.5_200309250802.ht2	P, Q, T	
KSH02	601.50	701.50	3	1	2003-09-26 08:05	20030926 09:48	___KSH02_0601.50_200309260805.ht2	P, Q, T	
KSH02	701.50	801.50	3	1	2003-10-01 07:22	20031001 09:13	___KSH02_0701.50_200310010722.ht2	P, Q, T	
KSH02	801.50	901.50	3	1	2003-09-30 10:48	20030930 12:37	___KSH02_0801.50_200309301048.ht2	P, Q, T	
KSH02	897.00	997.00	3	1	2003-09-30 13:35	20030930 15:25	___KSH02_0897.00_200309301335.ht2	P, Q, T	
KSH02	81.50	101.50	3	1	2003-10-02 09:07	20031002 10:27	___KSH02_0081.50_200310020907.ht2	P, Q, T	
KSH02	101.50	121.50	3	1	2003-10-02 10:47	20031002 12:08	___KSH02_0101.50_200310021047.ht2	P, Q, T	
KSH02	121.50	141.50	3	1	2003-10-02 12:34	20031002 13:44	___KSH02_0121.50_200310021234.ht2	P, Q, T	
KSH02	141.50	161.50	3	1	2003-10-02 14:05	20031002 15:14	___KSH02_0141.50_200310021405.ht2	P, Q, T	
KSH02	161.50	181.50	3	1	2003-10-02 15:31	20031002 16:40	___KSH02_0161.50_200310021531.ht2	P, Q, T	
KSH02	181.50	201.50	3	1	2003-10-02 16:59	20031002 18:10	___KSH02_0181.50_200310021659.ht2	P, Q, T	
KSH02	201.50	221.50	3	1	2003-10-03 07:26	20031003 08:39	___KSH02_0201.50_200310030726.ht2	P, Q, T	
KSH02	221.50	241.50	3	1	2003-10-06 13:53	20031006 15:25	___KSH02_0221.50_200310061353.ht2	P, Q, T	
KSH02	241.50	261.50	3	1	2003-10-06 16:13	20031006 17:39	___KSH02_0241.50_200310061613.ht2	P, Q, T	
KSH02	261.50	281.50	3	1	2003-10-07 07:52	20031007 09:20	___KSH02_0261.50_200310070752.ht2	P, Q, T	
KSH02	281.50	301.50	3	1	2003-10-07 10:36	20031007 12:07	___KSH02_0281.50_200310071036.ht2	P, Q, T	

Bh id	Testsection		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		
KSH02	301.50	321.50	3	1	2003-10-07 14:11	20031007 15:48	___KSH02_0301.50_200310071411.ht2	P, Q, T	
KSH02	321.50	341.50	3	1	2003-10-07 16:11	20031007 18:00	___KSH02_0321.50_200310071611.ht2	P, Q, T	
KSH02	341.50	361.50	3	1	2003-10-08 08:03	20031008 09:36	___KSH02_0341.50_200310080803.ht2	P, Q, T	
KSH02	361.50	381.50	3	1	2003-10-08 10:04	20031008 11:40	___KSH02_0361.50_200310081004.ht2	P, Q, T	
KSH02	381.50	401.50	3	1	2003-10-08 12:06	20031008 14:11	___KSH02_0381.50_200310081206.ht2	P, Q, T	
KSH02	401.50	421.50	3	1	2003-10-08 14:44	20031008 16:11	___KSH02_0401.50_200310081444.ht2	P, Q, T	
KSH02	421.50	441.50	3	1	2003-10-08 16:26	20031008 17:59	___KSH02_0421.50_200310081626.ht2	P, Q, T	
KSH02	441.50	461.50	3	1	2003-10-09 07:54	20031009 09:26	___KSH02_0441.50_200310090754.ht2	P, Q, T	
KSH02	461.50	481.50	3	1	2003-10-09 09:51	20031009 11:50	___KSH02_0461.50_200310090951.ht2	P, Q, T	
KSH02	481.50	501.50	3	1	2003-10-09 12:42	20031009 14:13	___KSH02_0481.50_200310091242.ht2	P, Q, T	
KSH02	501.50	521.50	3	1	2003-10-09 15:30	20031009 16:28	___KSH02_0501.50_200310091530.ht2	P, Q, T	
KSH02	521.50	541.50	3	1	2003-10-09 17:31	20031009 19:46	___KSH02_0521.50_200310091731.ht2	P, Q, T	
KSH02	541.50	561.50	3	1	2003-10-10 08:06	20031010 09:38	___KSH02_0541.50_200310100806.ht2	P, Q, T	
KSH02	561.50	581.50	3	1	2003-10-10 10:01	20031010 11:48	___KSH02_0561.50_200310101001.ht2	P, Q, T	
KSH02	581.50	601.50	3	1	2003-10-14 07:24	20031014 08:49	___KSH02_0581.50_200310140724.ht2	P, Q, T	
KSH02	601.50	621.50	3	1	2003-10-14 09:16	20031014 10:38	___KSH02_0601.50_200310140916.ht2	P, Q, T	
KSH02	621.50	641.50	3	1	2003-10-14 11:00	20031014 12:20	___KSH02_0621.50_200310141100.ht2	P, Q, T	
KSH02	641.50	661.50	3	1	2003-10-14 13:00	20031014 14:20	___KSH02_0641.50_200310141300.ht2	P, Q, T	
KSH02	661.50	681.50	3	1	2003-10-14 14:44	20031014 16:00	___KSH02_0661.50_200310141444.ht2	P, Q, T	
KSH02	681.50	701.50	3	1	2003-10-14 16:24	20031014 17:48	___KSH02_0681.50_200310141624.ht2	P, Q, T	
KSH02	701.50	721.50	3	1	2003-10-14 18:11	20031014 19:27	___KSH02_0701.50_200310141811.ht2	P, Q, T	
KSH02	721.50	741.50	3	1	2003-10-15 07:45	20031015 09:02	___KSH02_0721.50_200310150745.ht2	P, Q, T	
KSH02	741.50	761.50	3	1	2003-10-15 09:22	20031015 10:41	___KSH02_0741.50_200310150922.ht2	P, Q, T	

Bh id	Testsection		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		
KSH02	761.50	781.50	3	1	2003-10-15 11:07	20031015 12:24	___KSH02_0761.50_200310151107.ht2	P, Q, T	
KSH02	781.50	801.50	3	1	2003-10-15 13:15	20031015 14:40	___KSH02_0781.50_200310151315.ht2	P, Q, T	
KSH02	801.50	821.50	3	1	2003-10-15 14:57	20031015 17:25	___KSH02_0801.50_200310151457.ht2	P, Q, T	
KSH02	821.50	841.50	3	1	2003-10-15 17:50	20031015 18:41	___KSH02_0821.50_200310151750.ht2	P, Q, T	
KSH02	841.50	861.50	3	1	2003-10-15 19:29	20031015 20:43	___KSH02_0841.50_200310151929.ht2	P, Q, T	
KSH02	861.50	881.50	3	1	2003-10-16 07:29	20031016 08:45	___KSH02_0861.50_200310160729.ht2	P, Q, T	
KSH02	881.50	901.50	3	1	2003-10-16 09:07	20031016 10:22	___KSH02_0881.50_200310160907.ht2	P, Q, T	
KSH02	901.50	921.50	3	1	2003-10-16 10:40	20031016 11:54	___KSH02_0901.50_200310161040.ht2	P, Q, T	
KSH02	921.50	941.50	3	1	2003-10-16 12:29	20031016 13:50	___KSH02_0921.50_200310161229.ht2	P, Q, T	
KSH02	941.50	961.50	3	1	2003-10-16 14:15	20031016 15:22	___KSH02_0941.50_200310161415.ht2	P, Q, T	
KSH02	961.50	981.50	3	1	2003-10-16 15:52	20031016 17:09	___KSH02_0961.50_200310161552.ht2	P, Q, T	
KSH02	301.50	306.50	3	1	2003-10-22 11:53	20031022 13:25	___KSH02_0301.50_200310221153.ht2	P, Q, T	
KSH02	306.50	311.50	3	1	2003-10-22 13:38	20031022 14:51	___KSH02_0306.50_200310221338.ht2	P, Q, T	
KSH02	311.50	316.50	3	1	2003-10-22 15:06	20031022 16:20	___KSH02_0311.50_200310221506.ht2	P, Q, T	
KSH02	316.50	321.50	3	1	2003-10-22 16:37	20031022 17:45	___KSH02_0316.50_200310221637.ht2	P, Q, T	
KSH02	321.50	326.50	3	1	2003-10-22 17:57	20031022 19:05	___KSH02_0321.50_200310221757.ht2	P, Q, T	
KSH02	326.50	331.50	3	1	2003-10-23 07:18	20031023 08:33	___KSH02_0326.50_200310230718.ht2	P, Q, T	
KSH02	331.50	336.50	3	1	2003-10-23 08:42	20031023 09:59	___KSH02_0331.50_200310230842.ht2	P, Q, T	
KSH02	336.50	341.50	3	1	2003-10-23 10:12	20031023 11:27	___KSH02_0336.50_200310231012.ht2	P, Q, T	
KSH02	341.50	346.50	3	1	2003-10-23 11:38	20031023 13:06	___KSH02_0341.50_200310231138.ht2	P, Q, T	
KSH02	346.50	351.50	3	1	2003-10-23 13:16	20031023 14:31	___KSH02_0346.50_200310231316.ht2	P, Q, T	
KSH02	351.50	356.50	3	1	2003-10-23 14:43	20031023 15:59	___KSH02_0351.50_200310231443.ht2	P, Q, T	
KSH02	356.50	361.50	3	1	2003-10-23 16:12	20031023 17:26	___KSH02_0356.50_200310231612.ht2	P, Q, T	

Bh id	Testsection		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		
KSH02	361.50	366.50	3	1	2003-10-23 17:33	20031023 18:47	___KSH02_0361.50_200310231733.ht2	P, Q, T	
KSH02	366.50	371.50	3	1	2003-10-24 07:08	20031024 08:34	___KSH02_0366.50_200310240708.ht2	P, Q, T	
KSH02	371.50	376.50	3	1	2003-10-28 08:10	20031028 09:53	___KSH02_0371.50_200310280810.ht2	P, Q, T	
KSH02	376.50	381.50	3	1	2003-10-28 10:45	20031028 12:07	___KSH02_0376.50_200310281045.ht2	P, Q, T	
KSH02	381.50	386.50	3	1	2003-10-28 13:25	20031028 15:03	___KSH02_0381.50_200310281325.ht2	P, Q, T	
KSH02	386.50	391.50	3	1	2003-10-28 15:09	20031028 16:52	___KSH02_0386.50_200310281509.ht2	P, Q, T	
KSH02	391.50	396.50	3	1	2003-10-29 07:01	20031029 08:22	___KSH02_0391.50_200310290701.ht2	P, Q, T	
KSH02	396.50	401.50	3	1	2003-10-29 08:47	20031029 10:13	___KSH02_0396.50_200310290847.ht2	P, Q, T	
KSH02	401.50	406.50	3	1	2003-10-29 10:53	20031029 12:14	___KSH02_0401.50_200310291053.ht2	P, Q, T	
KSH02	406.50	411.50	3	1	2003-10-29 13:04	20031029 14:28	___KSH02_0406.50_200310291304.ht2	P, Q, T	
KSH02	411.50	416.50	3	1	2003-10-29 14:40	20031029 16:03	___KSH02_0411.50_200310291440.ht2	P, Q, T	
KSH02	416.50	421.50	3	1	2003-10-29 16:28	20031029 17:52	___KSH02_0416.50_200310291628.ht2	P, Q, T	
KSH02	421.50	426.50	3	1	2003-10-29 18:14	20031029 19:48	___KSH02_0421.50_200310291814.ht2	P, Q, T	
KSH02	426.50	431.50	3	1	2003-10-30 07:02	20031030 08:21	___KSH02_0426.50_200310300702.ht2	P, Q, T	
KSH02	431.50	436.50	3	1	2003-10-30 08:36	20031030 09:57	___KSH02_0431.50_200310300836.ht2	P, Q, T	
KSH02	436.50	441.50	3	1	2003-10-30 10:10	20031030 11:28	___KSH02_0435.50_200310301010.ht2	P, Q, T	
KSH02	441.50	446.50	3	1	2003-10-30 11:42	20031030 14:12	___KSH02_0441.50_200310301142.ht2	P, Q, T	
KSH02	446.50	451.50	3	1	2003-10-30 14:29	20031030 15:37	___KSH02_0446.50_200310301429.ht2	P, Q, T	
KSH02	451.50	456.50	3	1	2003-10-30 15:56	20031030 17:19	___KSH02_0451.50_200310301556.ht2	P, Q, T	
KSH02	456.50	461.50	3	1	2003-10-30 17:46	20031030 19:07	___KSH02_0456.50_200310301746.ht2	P, Q, T	
KSH02	461.50	466.50	3	1	2003-10-30 19:23	20031030 20:42	___KSH02_0461.50_200310301923.ht2	P, Q, T	
KSH02	466.50	471.50	3	1	2003-11-03 13:47	20031103 15:03	___KSH02_0466.50_200311031347.ht2	P, Q, T	
KSH02	471.50	476.50	3	1	2003-11-03 15:23	20031103 16:51	___KSH02_0471.50_200311031523.ht2	P, Q, T	

Bh id	Testsection		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		
KSH02	476.50	481.50	3	1	2003-11-03 17:05	20031103 18:30	___KSH02_0476.50_200311031705.ht2	P, Q, T	
KSH02	481.50	486.50	3	1	2003-11-04 07:07	20031104 08:29	___KSH02_0481.50_200311040707.ht2	P, Q, T	
KSH02	486.50	491.50	3	1	2003-11-04 08:44	20031104 10:10	___KSH02_0486.50_200311040844.ht2	P, Q, T	
KSH02	491.50	496.50	3	1	2003-11-04 10:25	20031104 11:50	___KSH02_0491.50_200311041025.ht2	P, Q, T	
KSH02	496.50	501.50	3	1	2003-11-04 12:01	20031104 13:57	___KSH02_0496.50_200311041201.ht2	P, Q, T	
KSH02	501.50	506.50	3	1	2003-11-04 14:13	20031104 15:39	___KSH02_0501.50_200311041413.ht2	P, Q, T	
KSH02	506.50	511.50	3	1	2003-11-04 15:52	20031104 17:13	___KSH02_0506.50_200311041552.ht2	P, Q, T	
KSH02	511.50	516.50	3	1	2003-11-04 17:27	20031104 18:30	___KSH02_0511.50_200311041727.ht2	P, Q, T	
KSH02	516.50	521.50	3	1	2003-11-05 07:18	20031105 08:16	___KSH02_0516.50_200311050718.ht2	P, Q, T	
KSH02	521.50	526.50	3	1	2003-11-05 08:35	20031105 10:26	___KSH02_0521.50_200311050835.ht2	P, Q, T	
KSH02	526.50	531.50	3	1	2003-11-05 10:35	20031105 11:57	___KSH02_0526.50_200311051035.ht2	P, Q, T	
KSH02	531.50	536.50	3	1	2003-11-05 12:12	20031105 13:42	___KSH02_0531.50_200311051212.ht2	P, Q, T	
KSH02	536.50	541.50	3	1	2003-11-05 13:53	20031105 15:12	___KSH02_0536.50_200311051353.ht2	P, Q, T	
KSH02	541.50	546.50	3	1	2003-11-05 15:19	20031105 16:15	___KSH02_0541.50_200311051519.ht2	P, Q, T	
KSH02	546.50	551.50	3	1	2003-11-05 17:17	20031105 18:08	___KSH02_0546.50_200311051717.ht2	P, Q, T	
KSH02	551.50	556.50	3	1	2003-11-06 07:03	20031106 08:25	___KSH02_0551.50_200311060703.ht2	P, Q, T	
KSH02	556.50	561.50	3	1	2003-11-06 08:35	20031106 10:17	___KSH02_0556.50_200311060835.ht2	P, Q, T	
KSH02	561.50	566.50	3	1	2003-11-06 10:30	20031106 11:50	___KSH02_0561.50_200311061030.ht2	P, Q, T	
KSH02	566.50	571.50	3	1	2003-11-06 12:09	20031106 13:28	___KSH02_0566.50_200311061209.ht2	P, Q, T	
KSH02	571.50	576.50	3	1	2003-11-06 13:40	20031106 15:06	___KSH02_0571.50_200311061340.ht2	P, Q, T	
KSH02	576.50	581.50	3	1	2003-11-06 15:19	20031106 16:42	___KSH02_0576.50_200311061519.ht2	P, Q, T	
KSH02	581.50	586.50	3	1	2003-11-06 16:51	20031106 18:21	___KSH02_0581.50_200311061651.ht2	P, Q, T	
KSH02	586.50	591.50	3	1	2003-11-07 07:06	20031107 08:34	___KSH02_0586.50_200311070706.ht2	P, Q, T	

Bh id	Testsection		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		
KSH02	591.50	596.50	3	1	2003-11-10 13:39	20031110 14:58	___KSH02_0591.50_200311101339.ht2	P, Q, T	
KSH02	596.50	601.50	3	1	2003-11-10 15:09	20031110 16:19	___KSH02_0596.50_200311101509.ht2	P, Q, T	
KSH02	601.50	606.50	3	1	2003-11-10 16:25	20031110 17:39	___KSH02_0601.50_200311101625.ht2	P, Q, T	
KSH02	606.50	611.50	3	1	2003-11-11 07:07	20031111 08:24	___KSH02_0606.50_200311110707.ht2	P, Q, T	
KSH02	611.50	616.50	3	1	2003-11-11 08:31	20031111 09:14	___KSH02_0611.50_200311110831.ht2	P, Q, T	
KSH02	616.50	621.50	3	1	2003-11-11 09:23	20031111 10:19	___KSH02_0616.50_200311110923.ht2	P, Q, T	
KSH02	621.50	626.50	3	1	2003-11-11 10:29	20031111 11:23	___KSH02_0621.50_200311111029.ht2	P, Q, T	
KSH02	626.50	631.50	3	1	2003-11-11 11:29	20031111 12:53	___KSH02_0626.50_200311111129.ht2	P, Q, T	
KSH02	631.50	636.50	3	1	2003-11-11 13:01	20031111 14:15	___KSH02_0631.50_200311111301.ht2	P, Q, T	
KSH02	636.50	641.50	3	1	2003-11-11 14:33	20031111 15:54	___KSH02_0636.50_200311111433.ht2	P, Q, T	
KSH02	641.50	646.50	3	1	2003-11-11 16:03	20031111 17:16	___KSH02_0641.50_200311111603.ht2	P, Q, T	
KSH02	646.50	651.50	3	1	2003-11-11 17:22	20031111 18:26	___KSH02_0646.50_200311111722.ht2	P, Q, T	
KSH02	651.50	656.50	3	1	2003-11-12 07:07	20031112 08:21	___KSH02_0651.50_200311120707.ht2	P, Q, T	
KSH02	656.50	661.50	3	1	2003-11-12 08:30	20031112 09:34	___KSH02_0656.50_200311120830.ht2	P, Q, T	
KSH02	661.50	666.50	3	1	2003-11-12 09:40	20031112 10:49	___KSH02_0661.50_200311120940.ht2	P, Q, T	
KSH02	666.50	671.50	3	1	2003-11-12 11:02	20031112 12:15	___KSH02_0666.50_200311121102.ht2	P, Q, T	
KSH02	671.50	676.50	3	1	2003-11-12 12:35	20031112 13:50	___KSH02_0671.50_200311121235.ht2	P, Q, T	
KSH02	676.50	681.50	3	1	2003-11-12 13:56	20031112 15:13	___KSH02_0676.50_200311121356.ht2	P, Q, T	
KSH02	681.50	686.50	3	1	2003-11-12 15:23	20031112 16:15	___KSH02_0681.50_200311121523.ht2	P, Q, T	
KSH02	686.50	691.50	3	1	2003-11-12 16:23	20031112 19:17	___KSH02_0686.50_200311121623.ht2	P, Q, T	
KSH02	691.50	696.50	3	1	2003-11-13 07:04	20031113 08:18	___KSH02_0691.50_200311130704.ht2	P, Q, T	
KSH02	696.50	701.50	3	1	2003-11-13 08:26	20031113 09:42	___KSH02_0696.50_200311130826.ht2	P, Q, T	
KSH02	419.00	424.00	1B	1	2003-09-02 08:00	20030908 13:15	___KSH02_0419.00_200309020800.ht2	P, Q, T	

Bh id	Testsection		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		
KSH02	575.00	580.00	1B	1	2003-09-09 18:55	20030917 14:16	___KSH02_0575.00_200309091855.ht2	P, Q, T	

[)] Test type 3 equals to injection test and 1B equals pumping test