P-05-193

Oskarshamn site investigation

Hydraulic characterisation of deformation zone EW007

Subarea Laxemar

Mansueto Morosini, Svensk Kärnbränslehantering AB

Jan-Erik Ludvigson, Geosigma AB

Ellen Walger, Geosigma AB

June 2009

Svensk Kärnbränslehantering AB
Swedish Nuclear Fuel
and Waste Management Co

Box 250, SE-101 24 Stockholm
Phone +46 8 459 84 00

ISSN 1651-4416
SKB P-05-193

Oskarshamn site investigation

Hydraulic characterisation of deformation zone EW007

Subarea Laxemar

Mansueto Morosini, Svensk Kärnbränslehantering AB

Jan-Erik Ludvigson, Geosigma AB

Ellen Walger, Geosigma AB

June 2009

Keywords: Hydraulic characterization, Deformation zone, Lineament, EW007, Pumping tests, Interference test, Hydraulic tests, Transmissivity, Storativity, Storage coefficient, Specific storage coefficient, Hydraulic conductivity, Connectivity, Fractured rock, Flow regime, Ävrö granite, Granite, Quartzmonzo diorite, Fractured rock, Bedrock, Scale dependency, HLX10, HLX21, HLX22, HLX23, HLX24, HLX25, HLX30, HLX33.

Abstract

The objective of the undertaken hydraulic testing campaign was to provide support for the interpretation of whether deformation zone EW007 can be regarded as a hydraulically coherent unit. This is done by assessing the hydraulic connectivity, mainly in its east-west extension and obtaining its hydraulic properties in terms of transmissivity and storage coefficient.

The purpose with this report is to document on how the activity was executed and its basic results. This is done by compiling, analysing and reporting the results from different hydraulic tests for the hydraulic characterisation of EW007. Results are presented in terms of hydraulic parameters, hydraulic connectivity, flow regimes or flow dimension and of scale dependency of the derived parameters.

Through a series of seven interference tests it has been shown that deformation zone EW007 is a continously hydraulically connected feature over a distance of 2 km, from borehole HLX22 in the east to HLX13 in the west. At least in the upper 200 m of rock where the tests are conducted. The tests show this zone to be of consistently high transmissivity in a relatively narrow range.

Transmissivities derived from observations sections are generally consistent and high, in the range 10^{-4}–10^{-3} m^2/s. Storativities exhibit larger variations most often ranging 10^{-5}–10^{-3}.

Several different flow regimes were encountered: radial flow, fracture flow, permeable and impermeable boundaries and a radial composite system. However, when considering only the pumped boreholes the drawdown phase consistently show radial flow for the aquifer. Observation sections are also dominated by the radial flow regime though sometime a double porosity type of regime was interpreted.

Sammanfattning

Föreliggande testkampanj syftar till att stödja tolkningen av huruvida deformationszon EW007 kan betraktas som en hydrauliskt sammanhängande zon. Detta har utförts genom att värdera dess hydrauliska konnektivityet, främst i dess öst-västliga sträckning samt bestämma dess hydrauliska egenskaper transmissivitet och magasinskoefficient.

Denna rapport syftar till att dokumentera utfört arbete och dess grundläggande resultat genom att sammanställa , utvärdera och rapportera utförda hydrauliska tester som ämnade för karakterisering av EW007. Resultaten rapporteras i som hydrauliska parametrar, flödes regim eller flödesdimension, hydraulisk konnektivitet, och skalberoenden hos härledda hydrauliska parametrar.

Deformationszonen EW007 har undersökt genom sju hydrauliska interferenstester och kunnat konstateras att den är hydrauliskt konnekterad längs 2 km, mellan HLX22 i öster till HLX13 i väster. Åtminstone i bergmassans översta 200 m där testerna utfördes. Undersökningarna har även visat att zonen har en hög transmissivitet inom ett relativt snävt intervall.

Transmissiviteter beräknade från observationssektioner är generellt konsistenta och höga, i intervallet 10^{-4}–10^{-3} m^2/s. Magasinskoefficienter visar på en större spridning , generellt inom 10^{-5}–10^{-3}.

Olika flödesregimer observerades: radiellt flöde, sprickflöde, täta och läckande gränser och sammansatta (komposit) system. I det pumpade hålet är det dock det radiella flödet som observerades för formationen. Observationssektioner dominerades likaledes av de radiella flödet men här kunde även dubbelporösa systemtyper tolkas.

Contents

Appendices 1 through 9 presents the evaluation of each tests. The compilation comprise for each test the following:

Drawdown phase

- History plot with matched model
- Log-log plot with matched model
- Semi-log plot with matched model
- Table with test summary with input data and output parameters

Recovery phase

- History plot with matched model
- Log-log plot with matched model
- Semi-log plot with matched model
- Table with test summary with input data and output parameters

1 Introduction

The Swedish Nuclear Fuel and Waste Management Company, hereinafter refered to as SKB, has a general programme for site investigations /SKB 2001/ and a site specific program for the Oskarshamn area /SKB 2006/.

Field work for the present activites was carried out as separate activites over the period September 2004 to August 2006 by SKB. Evaluation, analysis and reporting was performed by SKB except for the HLX33 June 2006 test which was an done by Geosigma.

This document reports the results obtained through the hydraulic testing of boreholes in deformation zone EW007, which is one of the activities performed within the site investigation at Oskarshamn. The bulk of the work was carried out in accordance with activity plan AP PS 400-04-105.

A spin off from the activity in AP PS 400-06-36 was obtained. This was a tracer test performed between HLX33 and two soil wells with the objective to investigate the hydraulic contact between rock and soil aquifer which generated responses in borehole along EW007. In Table 1-1 controlling documents for performing this activity are listed. Both activity plan and method descriptions are SKB's internal controlling documents.

The boreholes were percussion drilled with a nominal diameter of 140 mm, they are approximately 150–200 m long and inclined approximately 60°.

Information about the boreholes are found in Table 2-1 and their location shown in Figure 1-1. Original results are stored in the primary data bases (SICADA) and are traceable through the activity plan number.

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

Activity plan	Number	Version
Hydrauliska tester i HLX10, HLX21–HLX33	AP PS 400-04-105	1.0
Interferens och spårämnestest mellan HLX33 och SSM228 och SSM229	AP PS 400-06-36	1.0
Utvärdering av pumptester och borr-responser, September 2006	AP PS 400-06-115	1.0
Utvärdering och rappportering av interferenstester och borr-responser, December 2007	AP PS 400-07-71	1.0
Method descriptions	**Number**	**Version**
Metodbeskrivning för interferenstester	SKB MD 330.003	1.0
Metodbeskrivning för hydrauliska Enhålspumptester	SKB MD 321.003	1.0
Instruktion för analys av injektions- och enhålspumptester	SKB MD 320.004	1.0

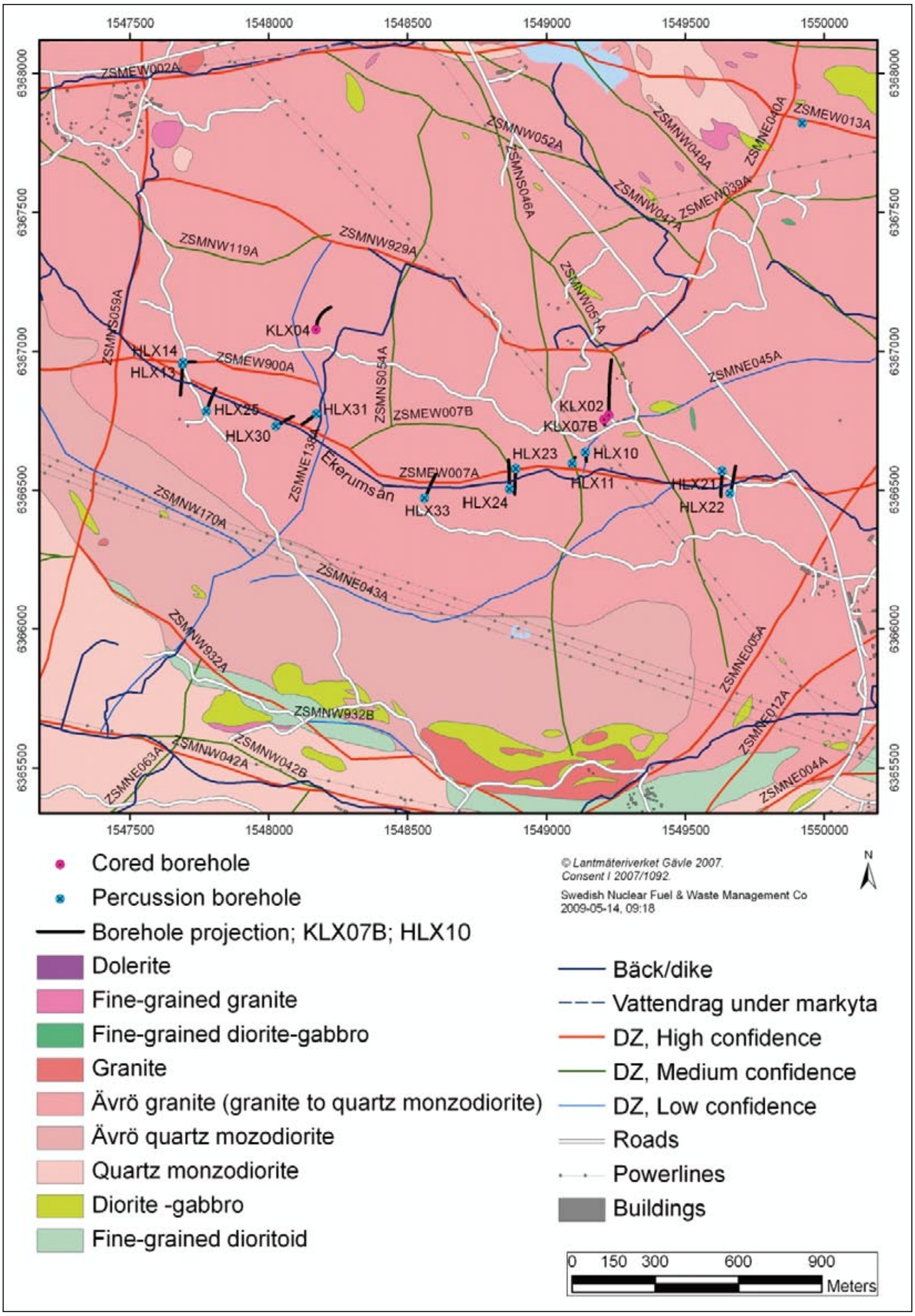


Figure 1-1. Borehole location map including deformation zones and lithology of the investigation area.

2 Objectives and scope

2.1 Objective

The objective of the undertaken hydraulic testing campaign was to provide support for the interpretation of whether deformation zone EW007 can be regarded as a hydraulically coherent unit by:

a) assessing the hydraulically connectivity, mainly in its east-west extension, and

b) obtaining its hydraulic properties in terms of transmissivity (T) and storage coefficient (S).

The hydraulic testing is done through pumping percussion drilled boreholes. These boreholes have a maximum length of 200 m. Hence, the characterisation of EW007 in this report is mostly restricted to the upper most 200 m of the rock aquifer. Although observation boreholes KLX04 and KLX02 are of about 993 m and 1,700 m length respectively, these are situated north of EW007 (300–400 m) and were not aimed at EW007 when drilled, as was the case for the other boreholes. Their main objective was to investigate the hydrogeological conditions at greater depth.

The purpose with this report is to document on how the activity was executed and its basic results. This is done by compiling, analysing and reporting the results from different hydraulic tests for the hydraulic characterisation of EW007.

2.2 Scope

The hydraulic characterisation comprised single-hole pumping tests and multiple borehole interference testing. In the single-hole pumping tests only the groundwater level in the pumping well was observed. In the interference tests, at least one more borehole was monitored to observe groundwater level and /or pressure responses due to the pumping.

The hydraulic tests were all done as constant rate pumping tests followed by recovery according to SKB MD 321.003 (SKB internal controlling document). The duration of pumping is typically half a day for single hole pumping test and 2–5 days for interference testing, except for the longterm test of HLX10 and HLX33 which were pumped for more than a month. A compilation of all pumping- and interference tests presented in this report as well on other interfering activities is listed in Table 2-1.

Geographical location of tested boreholes is shown in Figure 1-1. Percussion drilled borehole have a nominal diameter of 140 mm while core drilled boreholes are of 76 mm. Some information pertaining to borehole construction is compiled in Table 2-2.

Table 2-1. Performed pumping- and interference tests and number of observation section per borehole.

	Pumping date		Monitored boreholes and number of observation sections in each hole													
Pumped borehole	Start	Stop	HLX11	HLX13	HLX14	HLX21	HLX22	HLX23	HLX24	HLX25	HLX30	HLX31	HLX33	KLX02	KLX04	KLX07B
HLX10	2004-12-29 14:58	2005-02-10 18:50	2	1	1	2	2	2	2	2	2	2	2	8	1	
HLX21	2005-08-15 12:16	2005-05-19 11:26	2	1	1		2	2	2	2	2	2	2	8		3
HLX22	2004-09-16 08:33	2004-09-17 10:58	2			1								3		
HLX23	2005-06-28 10:32	2005-07-01 11:45	2	1	1	2	2		2	2	2	2	2	8	8	
HLX24 Single hole test	2004-09-09 13:12	2004-09-10 14:12														
HLX25 Single hole tes	2004-09-02 09:25	2004-09-03 10:54														
HLX30	2005-09-05 12:26	2005-09-09 08:31	2	1	1	2	2	2	2	2		2	2	8	8	3
HLX33	2005-03-31 09:14	2005-03-31 14:45	2	1	1	2	2	2	2	2	2	2		8	8	
HLX33	2006-06-28 14:59	2006-08-07 15:18	2	1	1	2	2	2	2	2	2	2		8	8	

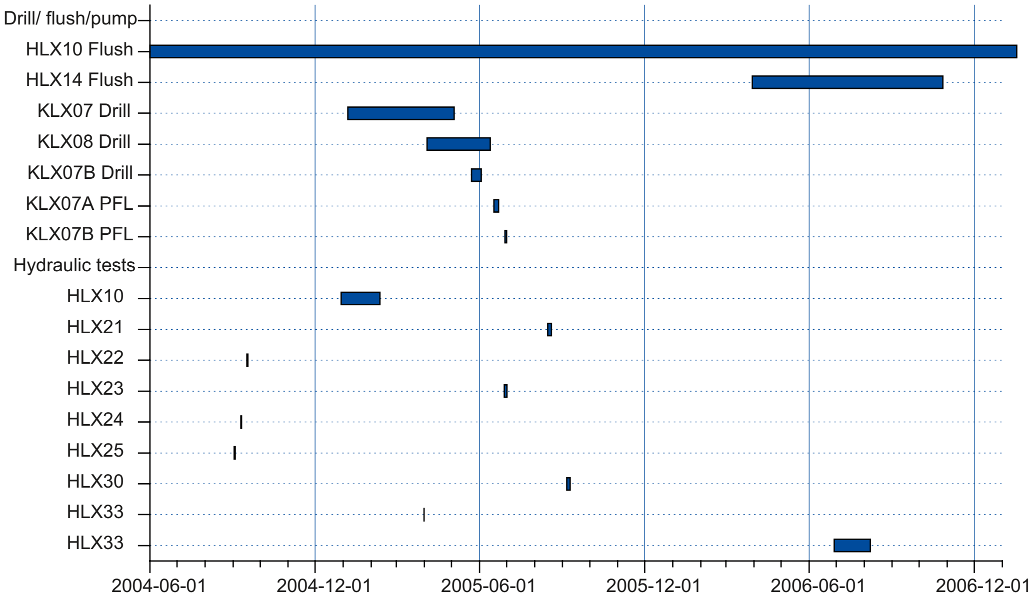


Figure 2-1. *Sequence of tests performed over time and potentially disturbing activities of drilling and pumping.*

Table 2-2. Borehole and pumping data.

Borehole	Pumping Start	Stop	Q_p (L/min)	dh_p (m)	Elevation of ToC[2] (m.a.s.l.)	Inclination (°)	Bearing (°)	Bh diameter (mm)	Bh length (m)	Length to pump (m)
HLX10 (svb)[1]	2004-12-29 14:58	2005-02-10 18:50	93.3	5.3	11,737	–68,688	176,674	137	85	
HLX11	Not pumped				13,154	–68,493	23,156	139	70	n/a
HLX13	Not pumped				17,391	–58,074	184,181	140	200,2	n/a
HLX14 (svb)	Not pumped				17,113	–68,647	89,874	139	115,9	n/a
HLX21	2005-08-15 13:15	2005-08-19 12:25	105.3	6.45	10,312	–56,991	185,541	138	150,3	80
HLX22	2004-09-16 09:32	2004-09-17 11:03	98	6.85	10,057	–59,437	13,451	138	163,2	65
HLX23	2005-06-28 09:33	2005-07-01 10:46	102	14.7	14,690	–58,184	182,893	139	160,2	80
HLX24	2004-09-09 13:12	2004-09-10 14:15	113	3.5	12,769	–58,394	358,692	139	175,2	65
HLX25	2004-09-02 11:43	2004-09-03 10:54	100	10.5	20,656	–58,585	17,935	135	202,5	50
HLX30	2005-09-05 13:25	2005-09-09 09:31	106	7.2	12,184	–60,763	55,816	139	163,4	80
HLX31	Not pumped				12,162	–58,758	231,772	139	133.2	n/a
HLX33	2005-03-31 08:13	2005-03-31 15:46	39.3	3.93	12,201	–58,763	21,769	139	202,1	90
HLX33	2006-06-28 14:59	2006-08-07 15:18	96.6	12.7	12.13	–58.80	21.77	139	202.1	74
KLX02	Not pumped				18.40	–85.00	357.30	76	202.95–1,700.5	n/a
KLX04	Not pumped				24,089	–84,683	0,109	76	101.47–993,49	n/a
KLX07B	Not pumped				18,380	–85,002	174,329	76	9.64–200,13	n/a

1) svb: Borehole utilised as flush water well för core drilling.

2) ToC: Top of casing, being the reference level.

3 Equipment

3.1 Description of equipment/interpretation tools

Somewhat different equipment was utilised in different boreholes as described below.

Pumping boreholes, HLX22, HLX23, HLX24 and HLX25

- Submersible pump, Grundfors MS 402 SP2A-23
- Integrated logger/absolute transducer MiniTroll Advance (In-Situ Inc.), Measurement range 0–300 PSIA
- Light- and sound water level indicator (dipper)
- 35 L measuring vessel
- Stopwatch
- Portable PC
- Packers in observation holes

Pumping boreholes HLX21, HLX30 and HLX33

- Submersible pump, Grundfors MS 402 SP2A-23
- Logger Mitec SatelLite 60-P2
- Flow meter Krohne 0–150 L/min
- Absolute pressure transducer Drück PTX1830

Measurement range 0–10 bar abs

- Light- and sound water level indicator (dipper)
- 35 L measuring vessel
- Stop watch
- Portable PC
- Packers in observation holes

Photos of this equipment is shown in Figure 3-1.

Pumping borehole HLX10 and HLX14

These boreholes were been utilised as watersupply for the core drilling during periods shown in Figure 2-1. As such the borehole has had permanent installations being part of the drilling monitoring system, DMS. This equipment comprise measurement of the following parameters in HLX10, HLX14 and the drilled borehole.

- Oxygen level of flushing water (mg/L) from HLX10 and HLX14
- Flow of flushing water (going into the drilled borehole) and return water (pumped out of the drilled borehole) (L/min)
- Electrical conductivity of flushing and return water (mS/m)
- Water level (kPa) in HLX10 and HLX14

Data from on-line monitoring of flushing water parameters were stored on two different logging units (CR10 and CR23). The data from the loggers was downloaded either continuously (CR10 and CR23) or by disk to the DMS database. A detailed account of the flushwater system is presented in e.g. P-06-14 Drilling of cored boreholes KLX07A and KLX07B.

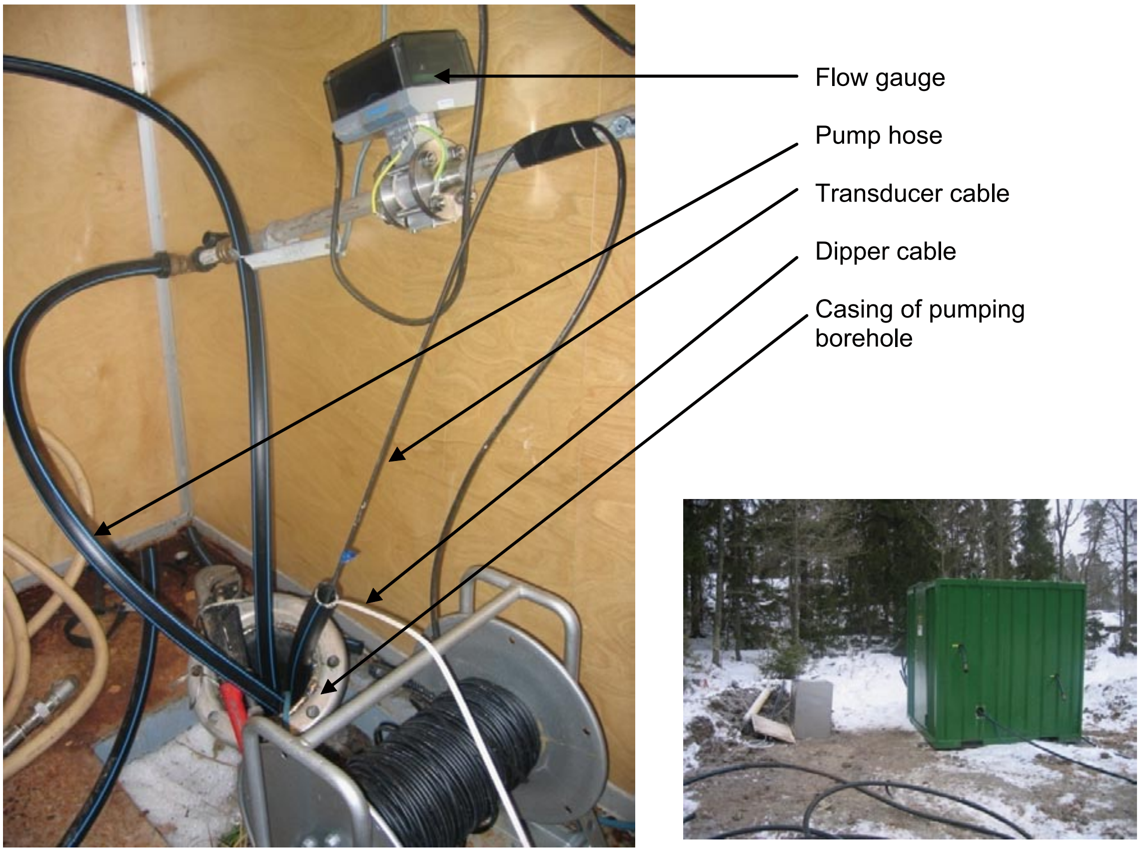


Figure 3-1. *Equipment utilised when testing HLX30 and HLX33. Container housing the testing equipment (right) and instrumentation inside (left) in borehole.*

4 Execution

4.1 General

All pumping tests were conducted in accordance with the Activity Plan AP PS 400-04-105 except for the interference tests in HLX33 in June 2006 which was governed by and AP PS 400-06-36. Furthermore, the methodology for the tests is given in the method descriptions "Metodbeskrivning för interferenstester" (SKB MD 330.003) and "Metodbeskrivning för hydrauliska enhålspumptester" (SKB MD 321.003). These are all SKB internal controlling documents.

Tests were performed as constant rate pumping tests with a drawdown phase followed by a recovery phase. For some tests observation boreholes were in place and interference testing was performed, see Table 2-1.

4.2 Preparations

Prerequisites for the tests were to obtain permitt from landowner, establish the water discharge point, installation of borehole equipment, flowmeter and pressure transducer which were factory calibrated. and readouts are compared to bucket/clock value and dipped water levels respectively.

Generally the equipment was installed down the hole at least one day ahead of pumpstart and logging of groundwater head was initiated. The locations of the water discharge point for respective test was to the creek Ekerumsån at the point with shortest distance from the hole. Figure 1-1 show the borehole location in relation to the Ekerumsån, the creek where the water from the pumping was discharged. A general account of the hydraulic disturbances during the site investigations is presented in /Ask et al. (in prep)/.

	Pumping date		Discharge point
Pumped borehole	**Start**	**Stop**	
HLX10	2004-12-29 14:58	2005-02-10 18:50	Ekerumsån
HLX21	2005-08-15 12:16	2005-05-19 11:26	Ekerumsån
HLX22	2004-09-16 08:33	2004-09-17 10:58	Ekerumsån
HLX23	2005-06-28 10:32	2005-07-01 11:45	Ekerumsån
HLX24 Single hole test	2004-09-09 13:12	2004-09-10 14:12	Ekerumsån
HLX25 Single hole tes	2004-09-02 09:25	2004-09-03 10:54	Ekerumsån
HLX30	2005-09-05 12:26	2005-09-09 08:31	Ekerumsån
HLX33	2005-03-31 09:14	2005-03-31 14:45	Ekerumsån
HLX33	2006-06-28 14:59	2006-08-07 15:18	Ekerumsån

4.3 Execution of field work

Test performed are compiled in Table 2-1. Manual measurements of waterlevel and flow in the pumped borehole were done as quality control of the gauge values.

The single-hole pumping tests consisted of a pumping phase of 6–10 hours, and a recovery phase of at least 10 hours. The pumping was conducted with constant flow in open boreholes.

The pump and pressure gauge were installed at about 80 m and 85 m respectively below top of casing. A PEM-hose with ID/OD = 27.5 mm/32 mm was lowered in the borehole in order to facilitate and safeguard the dipper and pressure transducer. All installations were noted in the daily logs. An account of the locations the pumped water was discharged is given in /Ask et al. (in prep)/.

Measurements of hydraulic responses during drilling and pumping tests were conducted by placing pressure loggers in nearby holes. The logger installations in observation boreholes during monitoring prior to testing were:

Scan time: 1 min
Log time: 10 min
Event trigger 0.1 kPa

During the test period the loggers in both observation boreholes and the tested boreholes were set with a log time of 10 s without event logging.

The scan time is the interval for the pressure readings. With an event function of 0.1 kPa, the logger saves any data that has changed more than 0.1 kPa since the previous scanning. The log time is the interval between data savings regardless of pressure changes. Manual measurements of the groundwater level were conducted to check the logger data.

4.4 Data handling and post processing

Data from all pressure gauges was corrected with respect to atmospheric pressure and converted to groundwater head expressed in metre above sea level. All data and filed protocols of flow and water level are stored in the site characterisation database (SICADA) traceable through the activityplan number.

Test related nomenclature and abbreviations follows the Instruction for analysis of injection- and single hole pumping tests, SKB MD 320.004 (SKB internal controlling document) of which relevant part are attached in Appendix 11.

Pumping and interference tests

Data is either collected "on-line" from boreholes connected to the HMS (SKB's Hydro Monitoring System) the files are then transferred to the HMS database where they are transformed into metre above sea level units (m.a.s.l.) and stored in ascii format (.mio) accessible for exporting to other software.

Or the data is collected from the standalone field loggers as binary files (.bin) which are then converted into kPa (.xls) through a program provided by the logger manufacturer. This data is corrected for barometric pressure before analysis since absolute pressure gauges are used.

The flow during the pumping tests was measured with a flow meter except for the tests in HLX22, HLX24 and HLX25 where it was measured manually. Once the pressure data has been corrected for air pressure into either kPa or m.a.s.l. it is imported along with the flow rate to the software for test analysis, Saphir v.4.02.03. (Kappa Engineering, Paris, France) and Aqtesolv v4.0 (Hydrosolve Inc. Reston, VA, USA).

4.5 Analyses and interpretations

Hydraulic pumping- and interference test

Level data from boreholes and the precipitation were plotted as linear timeseries to assess cofluctuations, if any, and deduce cause/effects processes on pressure responses.

Analysis of pumping and interference test was then done according to method descriptions SKB MD 321.003 v.1 (Metodbeskrivning för hydrauliska enhålstester), SKB MD 330.003 v.1 (Metodbeskrivning för interferenstester) and instruction SKB MD 320.004e v.1 (Instruction for analysis of injection and single hole pumping tests). These are SKB internal controlling documents.

The analysis is based on diagnostic log-log plot of the drawdown and recovery phases for which the derivative is plotted in order to understand the different evolving flow regimes during the test. This is utilized to chose an appropriate analytical model from which the aquifers parameters, transmissivity and storage coefficient, are calculated. Observation wells were mostly modeled with the line source solution while for the pumping well the borehole volume was included.

The evaluation comprised the following steps:

- Extraction of data from the measurement database
- Barometric correction of groundwater pressure gauge data
- Produce history plot of groundwater pressure or head
- Identification and quantification of pressure responses in observation wells by ocular inspection of history plots
- Ambient pressure trend correction if required, only done for HLX33 (2007) test here
- Produce diagnostic log-log plots of drawdown and recovery phase
- Identification of flow regimes
- Parameter estimation
- Simulation of drawdown history based on estimated parameters

Fluctuations in groundwater levels are affected by recharge/recession events, tidal effects and barometric effects. These effects are superimposed on each other and not always easily separated. Semi-diurnal tides are evident in the groundwater levels, Figure 4-1. They are clearly seen, usually with an amplitude of about 0.05 m. and usually dominate over the barometric effects. For the interpretation of responses consideration is given to the tidal effect by calculating the drawdown consistenly from either the high or the low part of the tidaly induced fluctuation of the water level. Barometric effect are neglected since they are subordinate to the tidal. Recharge events followed by recession are also clearly seen. These are handled by evaluating the test on data prior to the recharge event. Should the recession phase from such event be persistent throughout the test then a trend correction is made, as is the case for the HLX23 test Figure 5-7.2 and the HLX33 June 2006 test, Figure 5-11.

For the pumping borehole both steady state and transient evaluations of transmissivity are always done while for the observation hole only a transient evaluation is performed.

Interference tests were interpreted for responses, response indexes, flow regime and aquifer parameter. For calculation of distances between the pumped hole and the observations hole the point of application was set at the most transmissive part of the section based on drilling and flow logging information, except for the HLX33 June test where the middle of the observation section length was chosen. A shortest distance calculation was then made between pumped and observation section.

Response index follow SKB MD 330.003 (Metodbeskrivning för interferenstester) SKB internal controlling document.

Index 1:
r_s^2/dt_L = normalised distance r_s with respect to the response time [m²/s],

Index 2:
s_p/Q_p = normalised drawdown with respect to the pumping rate [s/m^2]. Sp is drawdown which sometime is expressed as dh_p for unconfined conditions and dp_p for confined conditions.

Additionally, a third index was calculated including drawdown and distance. This index is calculated as follows:

Index 2 new:
$(s_p/Q_p)\cdot\ln(r_s/r_0)$ $r_0 = 1$ and for the pumped borehole $r_s = e^1$ (fictive borehole radius of 2.718).

This information is visualised in Chapter 6.3 and Appendix 13 through response matrix and response.

The classification based on the indices is given as follows:

Index 1 (r_s^2/dt_L)		Index 2 (s_p/Q_p)		Colour code
$r_s^2/dt_L > 100$ m²/s	Excellent	$s_p/Q_p > 1\cdot10^5$ s/m²	Excellent	
$10 < r_s^2/dt_L \leq 100$ m²/s	High	$3\cdot10^4 < s_p/Q_p \leq 1\cdot10^5$ s/m²	High	
$1 < r_s^2/dt_L \leq 10$ m²/s	Medium	$1\cdot10^4 < s_p/Q_p \leq 3\cdot10^4$ s/m²	Medium	
$0.1 < r_s^2/dt_L \leq 1$ m²/s	Low	$s_p/Q_p \leq 1\cdot10^4$ s/m²	Low	
		$s_p < 0.1$ m	No response	

Index 2 new $(s_p/Q_p)\cdot\ln(r_s/r_0)$		Colour code
$(s_p/Q_p)\cdot\ln(r_s/r_0) > 5\cdot10^5$ s/m²	Excellent	
$5\cdot10^4 < (s_p/Q_p)\cdot\ln(r_s/r_0) \leq 5\cdot10^5$ s/m²	High	
$5\cdot10^3 < (s_p/Q_p)\cdot\ln(r_s/r_0) \leq 5\cdot10^4$ s/m²	Medium	
$5\cdot10^2 < (s_p/Q_p)\cdot\ln(r_s/r_0) \leq 5\cdot10^3$ s/m²	Low	
sp < 0.1 m	No response	

Identification of pressure responses

The identification of a pressure response can be quite tricky. It is done by comparing the perturbation from the pumping borehole to the perturbation on the observation borehole.

The typical perturbation pattern is one drawdown-recovery cycle. For an unambiguous identification both the start and stop of pumping must be clearly identified in the response curve, then a diffusive connectivity is inferred. There are, however, sometimes difficulties in recognising the responses for two reasons,

- The response is masked by other fluctuations. Since the signal in the observation hole is smoothed and delayed (as a function of distance from the perturbation borehole and as a function of hydraulic diffusivity between the wells) it might be difficult to distinguish it from fluctuations, natural (rain, barometric and tidal effects) and man-made (historical pumping/drilling activities).
- Limit in measurement resolution. When the response is so small that it fall below the limit of the pressure gauge and logger resolution.

Tidal fluctuation become dominant in some responses of low magnitude. No filtration of these tidal effect have been done since normally there is sufficient signal from the pumped perturbation to allow evaluation of the test through an ocular best fit through the data. Amplitude due to tidal forces is usually ranging 2–10 cm. An example is shown in Figure 4-1.

Responses have also been checked relative to precipitation or recharge events when this was suspected.

Interpretation of responses can in some instances be ambiguous and even difficult since we are dealing with the inverse problem in a heterogeneous system and the solutions are not unique. The case in hand is whether an observed small response is due to high or low connectivity, both may yield similar responses. Through other supporting information the non-uniqueness problem can be alleviated.

Tests in this report were conducted in the framework of an overall investigation programme including a multitude of tests over a relatively compressed time schedule. As such transient effects might carry forward to other periods of time influencing other tests. During the analys efforts were put into identifying and explain any response qualitatively. However, when interpreting small responses, at the limit of the methodology, e g at observation well far from the pumping borehole, this task is delicate and difficult and as such there might be influence from other pumping although if so these effect ought to be quite small.

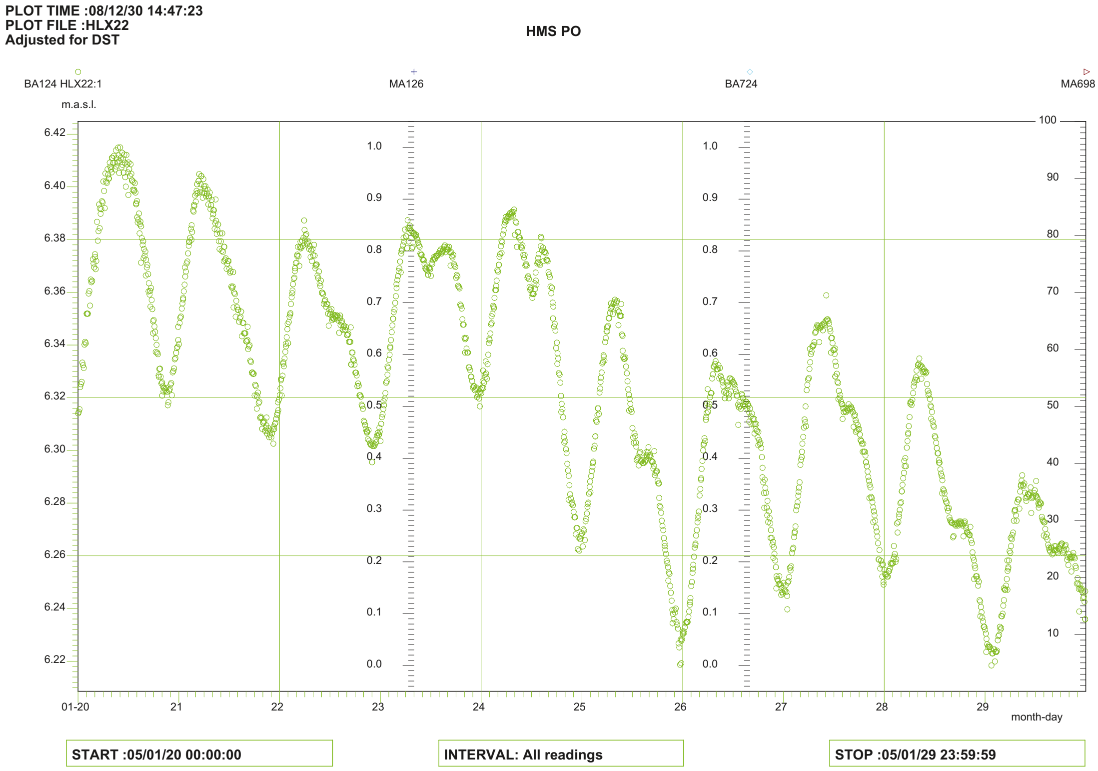


Figure 4-1. *Fluctuations due to tidal effects in HLX22. The left vertical shows the head from 6.21 to 6.42 meter above sea level.*

Identification of flow regimes

Both drawdown and recovery are plotted in log-log plot to identify flowregimes, from which the middletime region is utilised to derive formation parameters T and S, Figure 4-2. For the observation

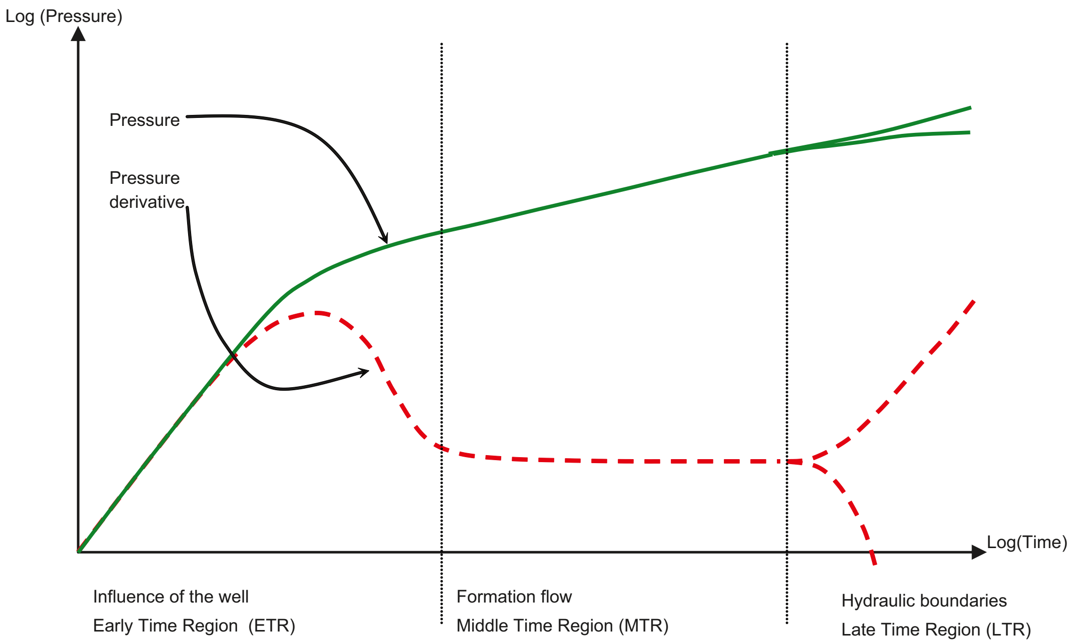


Figure 4-2. *Principle for identification of flow regimes. Three basic flow regimes may be identified through the type curve diagnostic plot. At early time upon pumpstart or pumpstop the flow is largely influenced by the borehole, later the flow is governed by the formation (= aquifer) and later a hydraulic boundary may be encountered. These are the flow regimes given in the tables of the hydraulic parameters i.e. Tables 5-2, 5-4, 5-6, 5-8, 5-12, 5-14 and 5-16.*

borehole most often the response follow the Theis line source solution model for radial flow, without seeing any boundaries. Relativelly small drawdowns in the observation hole along with tidal effects render this interpretation tricky in identifying hydraulic boundaries.

From some tests we have interpreted double porosity behaviour. This shall be regarded in a qualitative sense in that there are two (fracturing) systems with different hydraulic properties. It could also be classified as a multi layer system or double permeability system. These are regarded as equivalent systems.

Steady state parameter estimation

For the pumped borehole the tests were evaluated with steady-state assumption in accordance with /Moye 1967/. The flow rate, Q, in L/min, and the drawdown, Δh, in metres, at the end of the drawdown phase were used for calculating the specific capacity, $Q/\Delta h$, and the transmissivity, T_M according to Moye. L is section length and r_w is the nominal wellbore radius.

$$T_M = \frac{Q}{2 \cdot \pi \cdot \Delta h}\left(1 + \ln \frac{L}{2 \cdot r_w}\right)$$

Results are compiled in Table 6-3.

Transient state parameter estimation

Both drawdown and recovery phases are analysed. The procedure for single hole tests is to produce log-log diagnostic plots of pressure disturbance and its derivative as a means of identifying flow regimes, see Figure 4-2. Then apply the appropriate flow regime while assuming a storage coefficient of 10^{-6} and calculate the skin and transmissivity.

For an interference test, the analysis is first done on the observation section in order to derive both an interwell transmissivity and a storage coefficient. The analysis of the pumping borehole is done utilising the calculated storage coefficient as input parameter to calculate the skin and transmissivity of the pumped borehole. In most cases the observation section is modelled as a line source without skin. This simplification can be done if the source and observation section are not to close and the wellbore storage effect not to large /Raghavan 1993/.

A critical variable in the analysis of interference tests is the distance between source and observation section, r_s. This is particularly difficult to assign in a fractured medium. In this report the shortest distance (Euclidian) is set between the most transmissive point in the sections (called point of application). If no such transmissive point is present then the middle of the section is assigned as point of application for the distance calculation.

The analysis has been performed with the aim to obtain a consistent set of parameter between drawdown phase and recovery phase. As an additional control, the performed test (except for HLX33 June 2006) was simulated with the derived parameters and compared with the measured data in an iteritative process. The objective was to match both the perturbed phase in log-log plot and the entire test history in a linear plot.

For interpretation of hydraulic responses in observation holes the HMS (database and plotting software have been utilised. This is a program package tailored for SKBs needs that handles all kind of monitoring, timeseries data.

The main tool for all evaluation of the hydraulic tests are the software package Saphir 4.02.03 (Kappa Engineering, Paris, France) except for the HLX33 (June 2006) test where Aqtesolv v4.0 (Hydrosolve Inc. Reston, VA, USA) was used.

The analysis of each test are compiled in Appendix 1 through 9 while main results are presented in Chapter 5.

4.6 Nonconformities

There were no nonconformities.

5 Results

Original data from the reported activity are stored in the primary database SICADA. Data are traceable in SICADA through the Activity Plan number, see Table 1-1. Only data in databases are accepted for further interpretation and modelling. The data presented in this report are regarded as copies of the original data. Data in the databases may be revised, if needed. Such revisions will not necessarily result in a revision of the P-report, although the normal procedure is that major revisions entail a revision of the P-report. Minor revisions are normally presented as supplements, available at www.skb.se.

Results of the analysis of each test are compiled in Appendixes 1 through 9. The compilation consist for the drawdown phase and recovery phase respectively of:

a) linear history plot along with simulated curve,

b) log-log plots showing data and simulated curve,

c) semi-log plot showing data and simulated curves,

d) table of input variables and evaluated parameters.

Also, Appendix 10 presents the barometric pressure and precipitation for each test.

In the following the main considerations and conclusions of each test are presented along with the basic calculated aquifer parameters, T and S.

5.1 Interference test HLX10 – December 2004

Pumping was conducted during 29th December 2004 and 20th February 2005 with a pumping rate of 93 L/min which generated a total drawdown in the pumped borehole, HLX10, of c 5.3 m. Analysis of each test which responded to the pumping are compiled in Appendix 1. In the following summaries of responses and derived aquifer parameters are given along with a short description of flow regimes and choice of most representative T and S.

Results are compiled in Table 5-1 showing the response variables, and in Table 5-2 with the evaluated parameters for each test phase. Figure 5-1 shows the borehole response map.

Comments to tests

Pumping for the interference test was carried out for 42 days and the recovery for 4 days afterwhich pumping in HLX10 commenced to supply for the drilling of cored borehole. An unintentional pumpstop took place 8–10 January due to a power shortage caused by the storm "Gudrun". This caused two drawdown and two recovery events instead of one see Figure 5-2.

On 7th January the drilling of KLX07 was resumed after the Christmas break and its pumping is influencing head in the boreholes as well from that date onward, throughout the testing period. Because of this the history matching derived from the initial pumping period is considered more reliable than the later period and the recovery.

Data is missing in HLX23:1 (the lower section) after 3rd January due to a leaky packer. Data in HLX23:2 (the upper section) is OK.

Due to the large number of flow rates in the original data set, a simplification of the flow rate history was invoked in order to facilitate the calculation. The number of rates were reduced from 80595 to 6. This is justified as long as the essential changes in flow rate are maintained. The rate history simplification is shown in the top graph of Figure 5-1.

Table 5-1 Observations in monitored boreholes during interference test pumping HLX10.

Borehole	From Hydraulic point of application	To Hydraulic point of application	Tested section (m)	Distance r_s (m)	Q_p [L/min]	h_i [m.a.s.l.]	h_p [m.a.sl..]	dh_p [m]	dt_L (dp = 0.1 m) [s]	dt_L/r_s^2 [min/m^2]	r_s^2/dt_L (m2/s) Index1	dh_p/Q_p [m/m3/s] Index2	$dh_p/Q_p \cdot \ln(rs/r0)$ [m/m3/s] Index2new
Pumped borehole													
HLX10			3–85	0	93,25	25,4	20,1	5,30	2			3410	3410
Observation boreholes													
HLX11	HLX10 84 m	HLX11 15 m	6–16	81		9,41	5,75	3,66	2,220	0,008757	2,95	2,355	10,348
HLX11	HLX10 84 m	HLX11 35 m	17–70	65,1		9,25	4,89	4,36	1,590	0,006253	2,67	2,805	11,715
HLX13	HLX10 84 m	HLX13 111 m	11,87–200,02	1,463				0			0	0	0
HLX14	HLX10 84 m	HLX14 25 m	11–115,9	1,484,7				0			0	0	0
HLX21	HLX10 84 m	HLX21 67 m	9,1–80	492,7		7,63	6,15	1,48	18,000	0,001236	13	952	5,904
HLX21	HLX10 84 m	HLX21 88 m	81–150	493,1		7,8	6,2	1,60	18,000	0,001234	14	1,029	6,384
HLX22	HLX10 84 m	HLX22 58 m	9,19–85	537,7		6,38	5,26	1,12	18,000	0,001038	16	721	4,531
HLX22	HLX10 84 m	HLX22 163 m	86–163,2	544		7,69	6,14	1,55	18,000	0,001014	16	997	6,282
HLX23	HLX10 84 m	HLX23 49 m	6,10–60	263		10,775	9,85	0,93	21,600	0,005205	3	595	3,316
HLX23	HLX10 84 m	HLX23 67 m	61–160,2	263,7		10,93	leaky packer	0,93	28,800	0,006903	2	595	3,318
HLX24	HLX10 84 m	HLX24 10 m	9,10–40	300,9		11,35	11,15	0,20	18,000	0,003313	5	129	734
HLX24	HLX10 84 m	HLX24 121 m	41–175,20	281,1		10,908	10,254	0,65	18,000	0,003797	4	421	2,373

Borehole	From Hydraulic point of application	To Hydraulic point of application	Tested section (m)	Distance r_s (m)	Q_p [L/min]	h_i [m.a.s.l.]	h_p [m.a.sl..]	dh_p [m]	dt_L (dp = 0.1 m) [s]	dt_L/r_s^2 [min/m²]	r_s^2/dt_L (m2/s) Index1	dh_p/Q_p [m/m3/s] Index2	$dh_p/Q_p \cdot \ln(rs/r0)$ [m/m3/s] Index2new
HLX25	HLX10 84 m	HLX25 52 m	6,12–60	1,373,2				0			0	0	0
HLX25	HLX10 84 m	HLX25 121 m	61–202,5	1,367,2				0			0	0	0
HLX30	HLX10 84 m	HLX30 88 m	9,10–100	1,089,9				0			0	0	0
HLX30	HLX10 84 m	HLX30 138 m	101–163,4	1,072,4				0			0	0	0
HLX31	HLX10 84 m	HLX31 10 m	9,10–100	940,3				0			0	0	0
HLX31	HLX10 84 m	HLX31 118 m	101–133,2	1,026,4				0			0	0	0
HLX33	HLX10 84 m	HLX33 22 m	9,10–30	593,2		11,26	10,95	0,31	594,000	0,028134	1	199	1,274
HLX33	HLX10 84 m	HLX33 181 m	31–202,1	563,9		11,26	10,95	0,31	594,000	0,031134	1	199	1,264
KLX02	HLX10 84 m	KLX02 205.5 m	202,95–208 m	230,8		11,1	7,39	3,71	9,720	0,003041	5	2,387	12,990
KLX02	HLX10 84 m	KLX02 278 m	209–347	281,1		9,25	6,01	3,24	5,520	0,001164	14	2,085	11,755
KLX02	HLX10 84 m	KLX02 399,5 m	348–451	380,2		7,48	5,96	1,52	14,520	0,001674	10	978	5,810
KLX02	HLX10 84 m	KLX02 473 m	452–494	445,9		6,85	5,75	1,10	251,100	0,021048	1	708	4,317
KLX02	HLX10 84 m	KLX02 606 m	495–717	569,9				0			0	0	0
KLX02	HLX10 84 m	KLX02 931 m	718–1,144	884,3				0			0	0	0
KLX02	HLX10 84 m	KLX02 1,154.5 m	1,145–1,164	1,104,3				0			0	0	0
KLX02	HLX10 84 m	KLX02 1,432.5 m	1,165–1,700	1,379,6				0			0	0	0
KLX04	HLX10 84 m	KLX04 250 m	12,24–1,000	1,098,9				0			0	0	0
SSM00011	HLX10 84 m	SSM11 1 m	1–3	1,091,6				0			0	0	0
SSM00021	HLX10 84 m	SSM21 3 m	3–4	1,462,3				0			0	0	0

Table 5-2 Evaluated hydraulic parameters for interferencetest in HLX10. Those boldfaced parameters are considered as most representative.

Bh		Drawdown 1					Recovery 1				Drawdown 2				Recovery 2			
	Tested section (m)	Flow regime –well –aquifer –boundary	Omega Lambda	T [m²/s]	S [–]	skin	Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin	Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin	Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin
Pumped borehole																		
HLX10		**WBS Radial Infinite**		**3E-4**	**3,5E-4 assumed**	**–2,8**	radial	2,E-04		–5,8								
Observation sections																		
HLX11:2	6–16	**Line source radial Infinite**		**2,E-04**	**9E-04**										Line source radial	6,E-05	2,E-03	
HLX11:1	17–70	**Line source radial linfinite**		**2,E-04**	**6E-04**		radial	4,E-04	2,E-06		Line source Homog. Iinfinite	3,E-04	6,E-05					
HLX21:2	9,1–80	**Line source Radial linfinite**		**4,E-04**	**9,E-05**		WBS radial infinite	4,E-04	1,E-04	–0,3	WBS radial infinite	4,E-04	1,E-04	–0,5	Bad fit! Line source radial linfinite	(1E-4)	(1E-4)	
HLX21:1	81–150	**Line source Radial linfinite**		**4,E-04**	**8,E-05**		Line source radial infinite	4,E-04	1,E-04		WBS radial infinite	4E-4	7E-5	–0.3				
HLX22:2	9,19–85	**Line source 2 porosity linfinite**	**O = 4E-3 L = 4E-6**	**5,E-04**	**1,E-04**										Bad fit! Line source radial linfinite	(1E-4)	(2E–4)	
HLX22:1	86–163,2	**WBS Homog Inifite**		**4,E-04**	**4,E-05**	0	WBS Homog Inifite	3,E-04	9,E-05	0	WBS Homog Inifite	4,E-04	5,E-05	0	WBS radial Inifite	6,E-05	9,E-05	0
HLX23:2	6,10–60	WBS 2 poros Infinite		1,E-03	1,E-04	-0,4	WBS Radial radial	1,E-03	2,E-04	-1,2	WBS Radial IInfinite	1,E-03	3,E-04	0	**WBS Radial Infinite**	**7,E-04**	**2,E-04**	**–1,5**

Bh	Tested section (m)	Drawdown 1 Flow regime –well –aquifer –boundary	Omega Lambda	T [m²/s]	S [–]	skin	Recovery 1 Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin	Drawdown 2 Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin	Recovery 2 Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin
HLX23:1	61–160,2	**WBS 2 poros Infinite**	**O = 0.01 L = 9.37E-8**	**3,E-03**	**2,E-04**	**–1,3**	Most draw-down data and start of recovery is missing due to a leaky packer											
HLX24:2	9,10–40	**Line source Radial Infinite**		1,24E-03	3,37E-03		No match				**2-por O = 1E-3 L = 9,18E-7**	**1,18E-03**	**8,85E-05**	**0**	No match			
HLX24:1	41–175,20	**Line source 2-poros Infinite**	O = 1E-3 L = 5E-7	2,E-03	5,E-04		Line source Radial Infinite	2,E-03	3,E-04		Line source 2-por O = 1E-3 L = 1E-6	1,E-03	4,E-04		**Line source 2-por O = 1E-2 L = 1E-6**	**6,E-04**	**7,E-04**	
HLX33:2	9,10–30	**Line source 2 poros infinite**	**(O = 3.37E-4) (L = 6.58E-7)**	**1E-4**	**2E-3**													
HLX33:1	31–202,1	**Line source 2 poros infinite**	**(O = 0.00276) (L = 1.65E-7)**	**1E-3**	**2E-3**													
KLX02:8	202,95–208	**Line source 2poros Infinite**	**O = 1E-2 L = 3E-7**	**2,E-04**	**1,E-04**										Line source Radial Infinite	4,E-04	1,E-06	
KLX02:7	209–347	**Line source 2poros Infinite**	**O = 1E-3 L = 2E-7**	**3,E-04**	**2,E-05**													
KLX02:6	348–451	**Line source 2poros Infinite**	**O = 1E-1 L = 9E-8**	**2,E-04**	**1,E-05**													
KLX02:5	452–494	**Line source Radial Infinite**		**3,E-04**	**2,E-03**										Line source Radial Infinite	4,E-04	6,E-04	

When boundary is given as ”infinite” means that no actual boundary is seen but that infinite acting radial flow is persist at the end of the test phase.

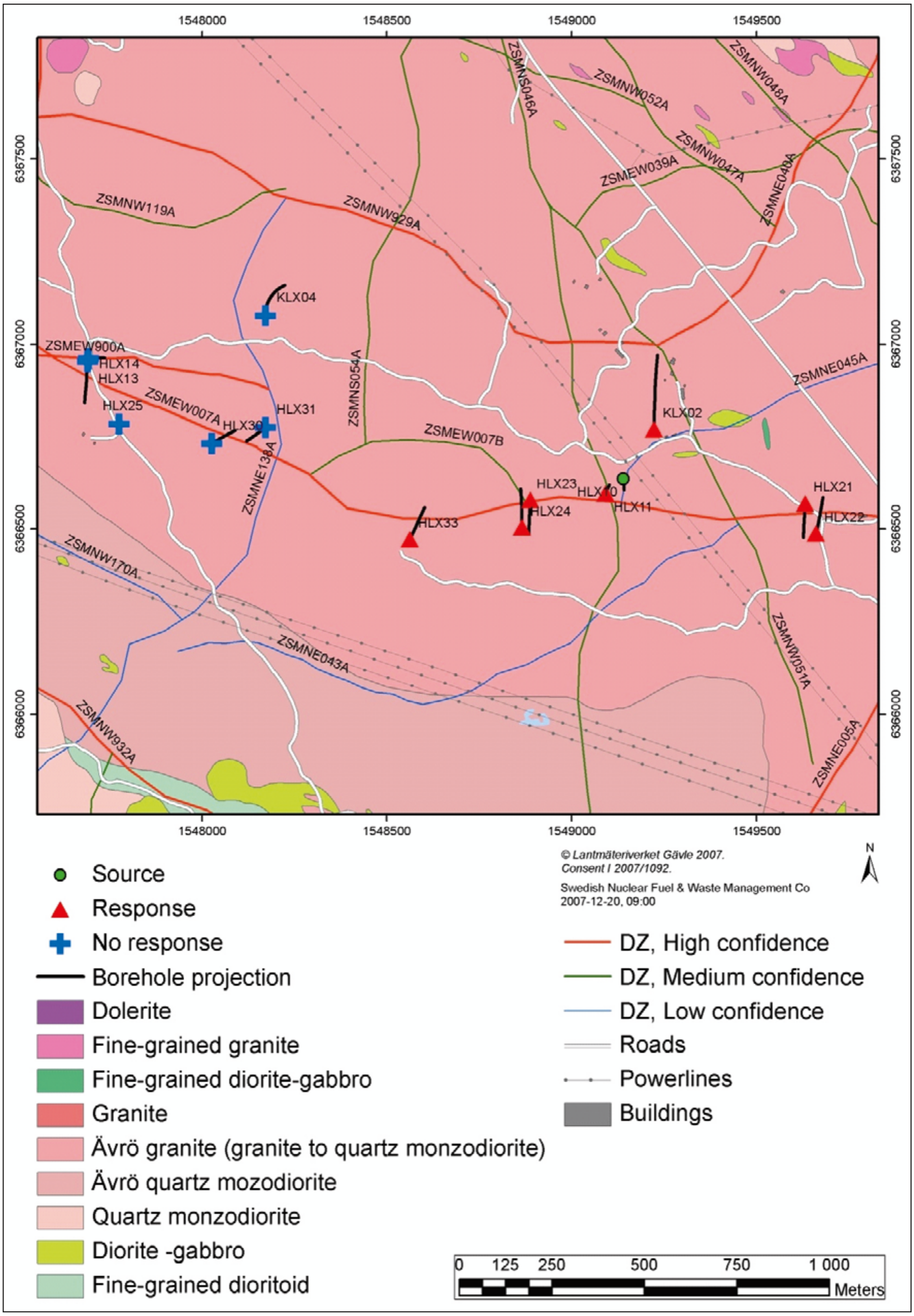


Figure 5-1. *Borehole response map of interference test when pumping HLX10.*

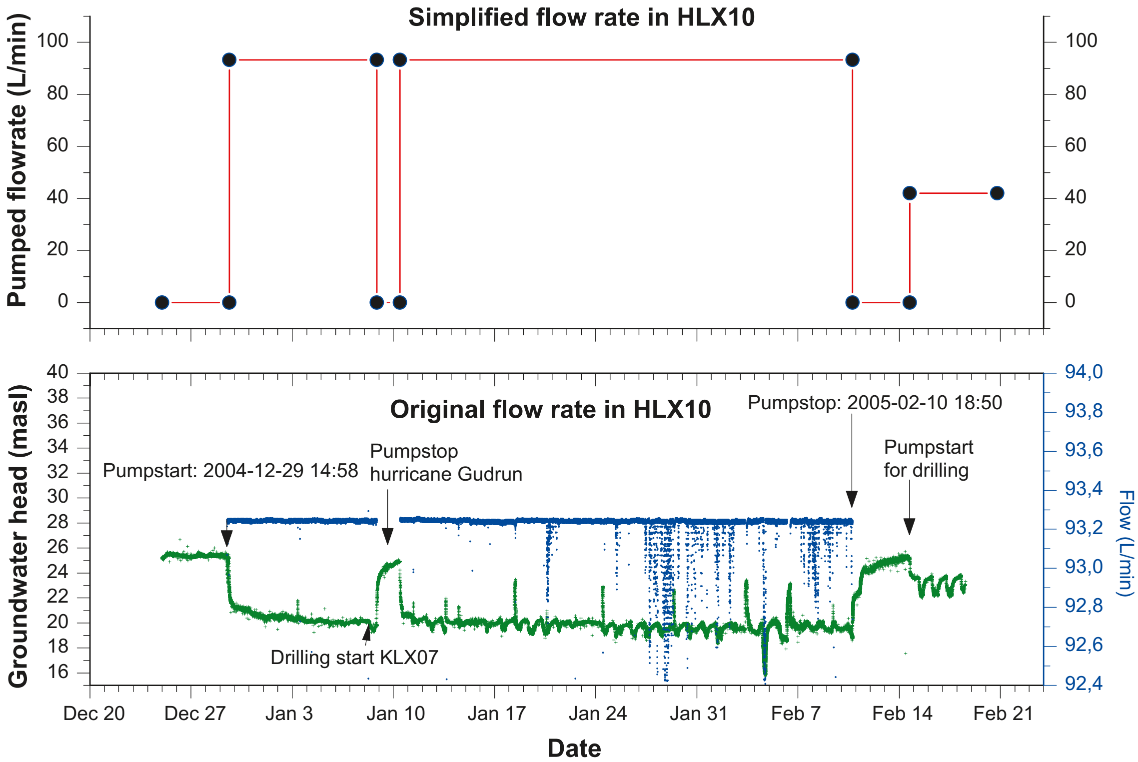


Figure 5-2. *Hydraulic head (in green), original (in blue) and simplified flow rate history (top graph) from HLX10.*

A disturbing activity to this tests was the core drilling of KLX07A which greatly affected the head in the neigborhood. Drilling commenced on 6th January and continued throughout the testing period. An example of its influence is given in Figure 5-3. Here the water level and borehole length of KLX07A are plotted together with the groundwater head in KLX02:8 (202.95–208 m). Water level in KLX07A is lowered during drilling and recover at drillstop. A direct correlation is evident between drilling of KLX07A and head in KLX02:8. This just an example, generally the influence of the drilling diminishes further away from KLX07A. The net outflow during drilling of KLX07A fluctuated heavily, usually between 0 and 100 L/min but on average the net longterm outflow is estimated to about 50 L/min.

The influence of KLX07A drilling on the HLX10 interference tests is different for different observation sections.

a) For section in the relative proximity of KLX07A, i.e. HLX11, KLX02:6-8, we see immediate response following the drilling. The head responds quickly and also recover relative quickly. Here we were able to match the complete flow history rather well. This indicates that the HLX10 pumping still is the dominant influence on the responses.

b) For sections further away HLX23, HLX24, HLX33 and KLX02:5 we do not see a similar large and the quick response to the drilling operations but here we are largely unable to simulate the history response after the onset of the KLX07A drilling. Hence, it is believed that for these sections the influence of the drilling is on par or larger than the HLX10 pumping during the later stages of the test and not including the KLX07A pumping explicitly in the simulations is causing us the difficulty to match simulations with measured data.

In the following sub-chapters all sections where a response has occurred are analysed and evaluated for flow regime and aquifer- and well parameters.

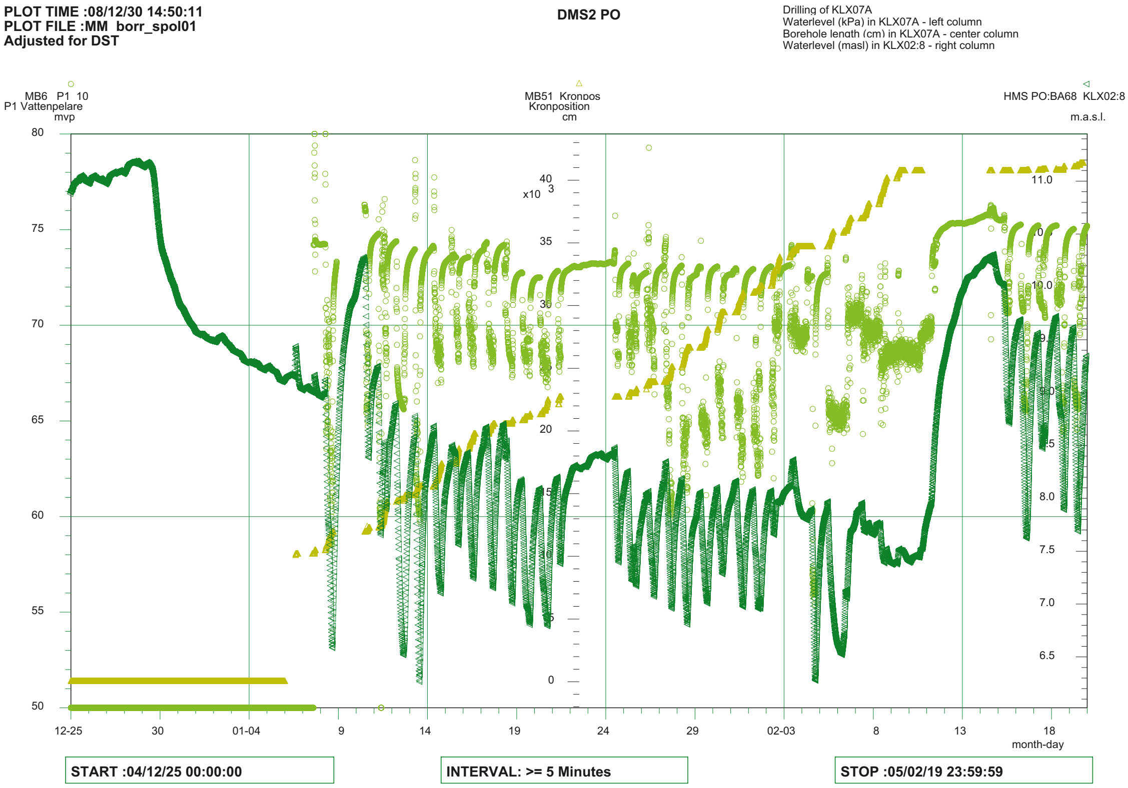


Figure 5-3. *An example of the influence of drilling KLX07A on the water levels in the neighbourhood. Here the water level and borehole length of KLX07A are plotted together with the groundwater head in KLX02:8 (202.95–208 m). Water level in KLX07A is lowered during drilling and recover at drillstop. A direct correlation is evident ! The left scale is waterlevel in the drilled borehole KLX07A in meter of water (bright green circles), the center scale is the lengt of the borehole being drilled KLX07A in cm (yellow vertical triangles) and the right most scale is the hydraulic head in meter above sea level of the observation borehole KLX02 (dark green horizontal triangles).*

Observation section HLX11:1, 17–70 m

Flow regime and calculated parameters

In particular, the recovery exhibited noisy diagnostic plot where the influence of other pumping in the area is probably present. Drawdown and recovery were analysed with the line source and WBS/skin model. Recovery is quite difficult to match. the diagnostics appear to indicate a change in WBS but reasons for this are hardfound.

Both the early and the late recovery were modelled with WBS model. It is also possible. and indeed likely that the prior history of pumping in the area thus affecting the head in HLX11 is a contributing factor in the difficulties to obtain a consistent match for all phases : drawdown. recovery and overall history, see Figure 5-4.

Resulting parameters are shown in Table 5-2.

Selected representative parameters

Best match is obtained from the drawdown phase with the line source model, both for the log-log and the history plot. For the recovery it was not possible to obtain a good match, although parametres have been calculated. Hence most representative parameters are $T = 2{\cdot}10^{-4}$ m^2/s and $S = 9{\cdot}10^{-4}$ most appropriate values. Connectivity between the boreholes is low given by the parameter $dh_p/Q_p = 2{,}805$ ($m/m^2/s$).

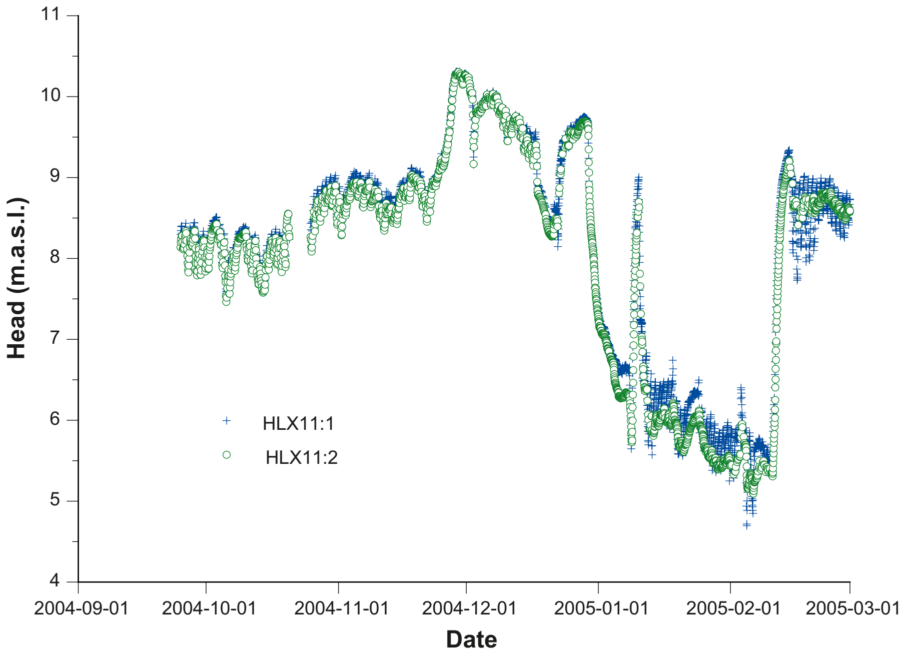


Figure 5-4. *Hydraulic head fluctuations in HLX11 prior and during the interference tests. This show the relatively large longterm and shorterm fluctuations in the order of 2 m. being 50% of the total final drawdown during the interference test.*

Observation section HLX11:2, 6–16 m

Flow regime and calculated parameters

Drawdown and recovery were analysed with the line source and WBS/skin model. The drawdown diagnostic indicate fractured system behaviour with a nearly unit slope representing the matrix pressure response. This part of the curve is however quite noisy. The recovery diagnostic plot display a line source radial characteristic with an emerging flattening towards (infinite acting radial flow (radial) behaviour. The inflection in the diagnostic log-log plot of the recovery, seen in HLX11:1 above, is also evident here.

Selected representative parameters

Best match is obtained from the drawdown phase. with longer duration to match than the recovery and which also show more consistency between drawdown and recovery parameters. Both the line source and the WBS/skin model could be matched equally well and very similar T and S values were obtained. Hence, most appropriate values for this section are $T = 2 \cdot 10^{-4}$ m^2/s and $S = 9 \cdot 10^{-4}$.

Connectivity between the boreholes is low given by the parameter dh_p/Q_p = 2,355 ($m/m^2/s$).

Observation section HLX21:1, 81–150.3 m

Flow regime and calculated parameters

Drawdown and recovery were analysed with the line source and WBS/skin model. The drawdown diagnostic indicate a fracture system at early time with almost a unit slope indicating matrix pressure response. The recovery diagnostic plot display a line source radial characteristic without any sign of the flattening towards radial behaviour. The matching is thus not possible for the pressure on a log-log plot. An attempt is made to utilise the log-log and the history matching conjunctively.

Selected representative parameters

Best match is obtained from the drawdown phase with longer duration to match than the recovery and which also show consistency between drawdown and recovery parameters.

Both the line source and the WBS/skin model could be matched equally well and very similar T and S values were obtained.

Hence, most appropriate values for this section are T = $4 \cdot 10^{-4}$ m^2/s and S = $8 \cdot 10^{-5}$.

Connectivity between the boreholes is low given by the parameter dh_p/Q_p = 1,029 ($m/m^2/s$).

Observation section HLX21:2, 9.1–80 m

Flow regime and calculated parameters

A good match was obtained for the first drawdown and recovery phase with the radial model and also for the second drawdown phase. These showed all consitent parameters and equally fit between data and model. This was not the case for the second recovery phase which was not possible to match adequately.

Selected representative parameters

The first drawdown phase is selected as providing the most representative parametras of T = $4 \cdot 10^{-4}$ and S = $9 \cdot 10^{-5}$. This is due to its relatively long duration, good match between data and model and also consistency between parameters derived from drawdown and recovery.

Observation section HLX22:1, 86–163.2 m

Flow regime and calculated parameters

A good match was obtained for all perturbed phases with the radial model. These showed all consistent parameters and equally good fit between data and model.

Selected representative parameters

The first drawdown phase is selected as providing the most representative parameters of T = $4 \cdot 10^{-4}$ and S = $8 \cdot 10^{-5}$. This is due to its relatively long duration, good match between data and model and also consistency between parameters derived from drawdown and recovery.

Observation section HLX22:2, 9.19–85 m

Flow regime and calculated parameters

A good match could only be obtained for the first drawdown phase with a double porosity model.

Selected representative parameters

The first drawdown phase is selected as providing the most representative parameters of T = $5 \cdot 10^{-4}$ m^2/s and S = $1 \cdot 10^{-4}$.

Observation section HLX23:1, 61–160 m

Flow regime and calculated parameters

Due to a leaking packer most of the data from this test is missing. It was possible match the initial drawdown quite well with a double porosity model[1]. Both log-log and history plot show excellent agreement between data and model.

[1] The double porosity concept was chosen because it fitted best to the data. Double permeability or multi layer concepts show similar diagnostic behaviour of the delayed yield type.

Selected representative parameters

The most representative parameters are T = $3 \cdot 10^{-3}$ m^2/s and S = $2 \cdot 10^{-4}$ derived from the initial drawdown phase.

Observation section HLX23:2, 6.1–60 m

Flow regime and calculated parameters

Modelling was possible with the radial and the double porosity model and all phases could were fitted very well on the log-log plot. These also provided consistent parameters between drawdown and recovery. However, they did not equally well match the history plot, this was only achieved for the last recovery phase.

Selected representative parameters

The most representative parameters are T = $7 \cdot 10^{-4}$ m^2/s and S = $2 \cdot 10^{-4}$ derived from the second recovery phase because these show best overall match of log-log plot and entire history plot.

Observation section HLX24:1, 41–175.2 m

Flow regime and calculated parameters

Modelling was possible with the radial and the double porosity model and all phases could were fitted very well on the log-log plot. These also provided consistent parameters between drawdown and recovery. However, they did not equally well match the history plot.

Selected representative parameters

The most representative parameters are T = $6 \cdot 10^{-4}$ m^2/s and S = $7 \cdot 10^{-4}$ derived from the second recovery phase because these show a good overall match of log-log plot.

Observation section HLX24:2, 9.1–40 m

Flow regime and calculated parameters

The total drawdown is small, c 0.3 m, and smooth, less accentuated partly also due to the coincidence of pumpstart with a general decreasing trend of the waterlevel. Attempts were made to match the data with the radial model but abandoned due diffuclties in finding characteristic features to base the modelling on. The hydraulic connectivity is, however, unambiguous due to the clearcut response generated by the inadvertent pumpstop in early January 2005.

Selected representative parameters

The smooth response, lacking clearcut break at pumping start and pumpstop makes it difficult to interpret and no aquifer parameters are derived.

Observation section HLX33:1, 31–202.1 m

Flow regime and calculated parameters

The total drawdown is small, c 0.3 m, with prominent tidal fluctuation c 0.05 m amplitude. A rather clear response at pumpstart made is possible to model and fit the first drawdown phase. This is a very noisy log.log plot curve but still possible to model with a double porosity model given the general 1:1 slope of this noisy data.

Selected representative parameters

The most representative parameters are T = $1 \cdot 10^{-3}$ m^2/s and S = $1 \cdot 10^{-3}$ derived from the second recovery phase because these show a good overall match of log-log plot. These must however be regarded as very uncertain due to the noisy data.

Observation section HLX33:2, 9.1–30 m

Flow regime and calculated parameters

The total drawdown is small, c 0.3 m, with prominent tidal fluctuation c 0.05 m amplitude. A rather clear response at pumpstart made is possible to model and fit the first drawdown phase. This is a very noisy log.log plot curve but still possible to model with a double porosity model given the general 1:1 slope of this noisy data.

Selected representative parameters

The most representative parameters are $T = 1 \cdot 10^{-4}$ m^2/s and $S = 2 \cdot 10^{-3}$ derived from the second recovery phase because these show a good overall match of log-log plot. These must however be regarded as very uncertain due to the noisy data.

Observation section KLX02:5, 452–494 m

Flow regime and calculated parameters

A total drawdown of 1.8 m is observed with clear responses to the pumping in HLX10. The first drawdown phase was modelled quite well, both on log-log and history plot, with the radial model. Parameters were also derived from the second recovery phase.

Selected representative parameters

The most representative parameters are $T = 3 \cdot 10^{-4}$ m^2/s and $S = 2 \cdot 10^{-3}$ derived from the first drawdown phase because these show a decent match of log-log and a very good match on the semi-log, better that for the recovery phase.

Observation section KLX02:6, 348–451 m

Flow regime and calculated parameters

This section show a clear response and unambiguous response with a total drawdown of c 2.6 m. First drawdown and second recovery phases were amenable for further analysis to derive aquifer parameters. A good match between data and model was however only obtained for the drawdown phase with a double porosity model with $T = 2 \cdot 10^{-4}$ m^2/s and $S = 1 \cdot 10^{-5}$.

Selected representative parameters

The most representative parameters are $T = 2 \cdot 10^{-4}$ m^2/s and $S = 1 \cdot 10^{-5}$ derived from the first drawdown phase because these show a very good match of log-log, semi-log and history plot.

Observation section KLX02:7, 209–347 m

Flow regime and calculated parameters

This section show a clear and unambiguous response to the pumping with a total drawdown of c 2.6 m. First drawdown and second recovery phases were amenable for further analysis to derive aquifer parameters. A good match between data and model was however only obtained for the drawdown phase with a double porosity model with $T = 3 \cdot 10^{-4}$ m^2/s and $S = 2 \cdot 10^{-5}$.

Selected representative parameters

The most representative parameters are $T = 3 \cdot 10^{-4}$ m^2/s and $S = 2 \cdot 10^{-5}$ derived from the first drawdown phase because these show a very good match of log-log, semi-log and history plot.

Observation section KLX02:8, 202.95–208 m

Flow regime and calculated parameters

This section show a clear and unambiguous response to the pumping with a total drawdown of c 3.5 m. First drawdown and second recovery phases were amenable for further analysis to derive aquifer parameters. A good match between data and model was however only obtained for the drawdown phase with a double porosity model with $T = 2 \cdot 10^{-4}$ m^2/s and $S = 1 \cdot 10^{-4}$.

Selected representative parameters

The most representative parameters are $T = 2 \cdot 10^{-4}$ m^2/s and $S = 1 \cdot 10^{-4}$ derived from the first drawdown phase because these show a very good match of log-log, semi-log and history plot.

5.2 Interference test HLX21 – August 2005

Pumping was conducted during 15th and 19th August 2005 with a pumping rate of 105 L/min which generated a total drawdown in the pumped borehole, HLX21, of c 6.5 m. Analysis of each test which responded to the pumping are compiled in Appendix 2.

In the following summaries of responses (Table 5-3) and derived aquifer parameters (Table 5-4) are given along with a short description of flow regimes and choice of most representative T and S. Figure 5-5 shows the borehole response map.

Pumped borehole HLX21, 9–150.3 m

Comments to test

Pumping was conducted during 15th and 19th August 2005 with a pumping rate of 105 L/min which generated a total drawdown in the pumped borehole, HLX21, of c 6.5 m. Analysis of each test which responded to the pumping are compiled in Appendix 2. The test is strongly affected by external cyclical fluctuation of the waterlevel.

Flow regime and calculated parameters

Drawdown phase show initial linear flow, which not so clear during recovery. At later times the cyclic fluctuations are manifested but these are not interpreted as representing any features of the aquifer flow regimes. A stabilisation of the derivative was interpreted as radial flow regime. The same transmissivity was obtained for both drawdown and recovery of $2 \cdot 10^{-4}$ m^2/s for a storativity of $6 \cdot 10^{-5}$.

Selected representative parameters

Representative transmissivity is $2 \cdot 10^{-4}$ m^2/s for reasons discussed above.

Observation section HLX11:1, 17–70 m

Flow regime and calculated parameters

Line source with radial flow was interpreted for drawdown and recovery, however a better fit with the data was obtained for the drawdown phase. Consitent T and S were obtained.

Selected representative parameters

Most representive parameters are $T = 2 \cdot 10^{-4}$ m^2/s and $S = 2 \cdot 10^{-3}$. These are derived from the drawdown phase because of its better fit with the data.

Table 5-3. Observations in monitored boreholes during interference test pumping HLX21.

	From Hydraulic point of application	To Hydraulic point of application	Tested section	Distance r_s	Q_p	h_i	h_p	dh_p	dt_L (dp = 0.1 m)	r_s^2/dt_L	dh_p/Q_p	$dh_p/Q_p \cdot \ln(rs/r0)$
	(m)	(m)	(m)	(m)	[L/min]	[m.a.s.l.	[m.a.s.l.]	[m]	[s]	(m2/s)	[m/m3/s]	[m/(m3/s]
										Index1	Index2	Index2new
Pumped borehole												
HLX21			9–150.3	0	106	638.10 kPa	572.50 kPa	6,56	1,998		3,713	3,713
Observation sections												
HLX11:2	HLX21 88 m	HLX11 15 m	6–16	544,8		6,255	5,2	1,055	31,500	9	597	3,762
HLX11:1	HLX21 88 m	HLX11 35 m	17–70	541,3		6,39	5,4	0,99	27,900	11	560	3,527
HLX13	HLX21 88 m	HLX13 111 m	11.9–200	1,978				0		0	0	0
HLX14	HLX21 88 m	HLX14 25 m	11–115.4	1,978				0		0	0	0
HLX22:2	HLX21 88 m	HLX22 121 m	9,19–85	67,2		4,65	0,85	3,8	2,460	2	2,151	9,050
HLX22:1	HLX21 88 m	HLX22 163 m	86–163,2	103		5,8	–0,01	5,81	420	25	3,289	15,242
HLX23:2	HLX21 88 m	HLX23 49 m	6,10–60	743,8		9,94	9,8	0,14 uncertain	148,500	4	79	524
HLX23:1	HLX21 88 m	HLX23 67 m	61–160,2	743,4		10,21	10,08	0,13 uncertain	239,700	2	74	486
HLX24:2	HLX21 88 m	HLX24 10 m	9,10–40	766,2				0		0	0	0
HLX24:1	HLX21 88 m	HLX24 121 m	41–175,20	767,3		10,18	10,04	0,14 uncertain	239,700	2	79	526
HLX25:2	HLX21 88 m	HLX25 52 m	6–60	1,868				0		0	0	0
HLX25:1	HLX21 88 m	HLX25 121 m	61–202,5	1,861				0		0	0	0
HLX30:2	HLX21 88 m	HLX30 88 m	9–100	1,585				0		0	0	0
HLX30:1	HLX21 88 m	HLX30 138 m	101–163,4	1,568				0		0	0	0
HLX31:2	HLX21 88 m	HLX31 10 m	9–100	1,484				0		0	0	0
HLX31:1	HLX21 88 m	HLX31 118 m	101–133,2	1,520				0		0	0	0
HLX33:2	HLX21 88 m	HLX33 22 m	9–30	1,063				0		0	0	0
HLX33:1	HLX21 88 m	HLX33 181 m	31–202,1	1,035				0		0	0	0
KLX02:8	HLX21 88 m	KLX02 205.5 m	202,95–208	503,3		8,52	7,37	1,15	39,900	6	651	4,050
KLX02:7	HLX21 88 m	KLX02 278 m	209–347	529,5		6,84	4,4	2,44	11,100	25	1,381	8,662
KLX02:6	HLX21 88 m	KLX02 399,5 m	348–451	591,3		6,19	5,12	1,07	24,600	14	606	3,866
KLX02:5	HLX21 88 m	KLX02 473 m	452–494	637,3				0		0	0	0
KLX02:4	HLX21 88 m	KLX02 606 m	495–717	732,3				0		0	0	0
KLX02:3	HLX21 88 m	KLX02 931 m	718–1,144	1,001,9				0		0	0	0
KLX02:2	HLX21 88 m	KLX02 1,154.5 m	1,145–1,164	1,203,4				0		0	0	0
KLX02:1	HLX21 88 m	KLX02 1,432.5 m	1,165–1,700	1,463,4				0		0	0	0
KLX07B:3	HLX21 88 m	KLX07B 29 m	9.64–48	485		7,099	5,93	1,169	19,200	12	662	4,092
KLX07B:2	HLX21 88 m	KLX07B 80 m	49–111	480		6,873	5,7	1,173	18,960	12	664	4,099
KLX07B:1	HLX21 88 m	KLX07B 156 m	112–200.13	482		6,873	5,62	1,253	18,000	13	709	4,382

Table 5-4. Evaluated hydraulic parameters for interference test in HLX21. Those boldfaced parameters are considered as most representative.

Borehole	Tested section (m)	Drawdown Flow regime –well –aquifer –boundary	Omega Lambda	T [m²/s]	S [–]	skin	Recovery Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin
Pumped borehole										
HLX21	9–150.3	Fracture Radial Infinite		2E-4	6E-5 assumed	–5	Fracture Radial Infinite	2E-4	6E-5 input	–5
Observation section										
HLX11:2	6–16 m	**Line source Radial Infinite**		**2,E-04**	**2,E-03**		Line source Radial Infinite	2,E-04	3,E-03	
HLX11:1	17–70 m	**Line source Radial Infinite**		**2,E-04**	**1,E-04**		Line source Radial Infinite	2,E-04	2,E-04	
HLX22:2	9,19–85	**WBS double por Infinite**	**O = 1 L = 2E-8**	**3,E-04**	**5,E-05**	**–2,3**	Not analysed due to missing data.			
HLX22:1	86–163,2	**WBS double por Infinite**	**O = 4E-1 L = 5E-8**	**2,E-04**	**2,E-05**	**–0,6**	Not analysed due to missing data.			
HLX23:2	6,10–60	**Line source Radial Infinite**		**1,E-03**	**4,E-04**		A very small recovery, did not produce acceptable match between data and model			
HLX23:1	61–160,2	**Line source Radial Infinite**		**8,E-04**	**6,E-04**		A very small recovery, did not produce acceptable match between data and model			
HLX24	41–175,20	**Line source Radial Infinite** Correction for decreasing prior head was applied		**7E-04**	**6E-04**		A very small recovery, did not produce acceptable match between data and model			

Borehole	Tested section (m)	Drawdown Flow regime –well –aquifer –boundary	Omega Lambda	T [m²/s]	S [–]	skin	Recovery Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin
KLX02:8	202,95–208	**Line source** **Radial** **Infinite**		**2E-04**	**2E-04**		Line source Radial Infinite	2E-04	2E-04	
KLX02:7	209–347	Line source Radial Infinite		2E-04	3E-05		**Line source** **Radial** **Infinite**	**2E-04**	**2E-05**	
KLX02:6	348–451	**Line source** **Radial** **Infinite**		**3E-04**	**7E-05**		Bad match			
KLX07B:3	9,64–48	**Line source** **Radial** **Infinite**		**3E-04**	**1E-04**		Line source Radial Infinite	3E-04	1E-04	
KLX07B:2	49–111	Line source Radial Infinite		3E-04	1E-04		**Line source** **Radial** **Infinite**	**3E-04**	**9E-05**	
KLX07B:1	112–200,13	**Line source** **Radial** **Infinite**		**3E-04**	**9E-05**		Line source Radial Infinite	3E-04	6E-05	

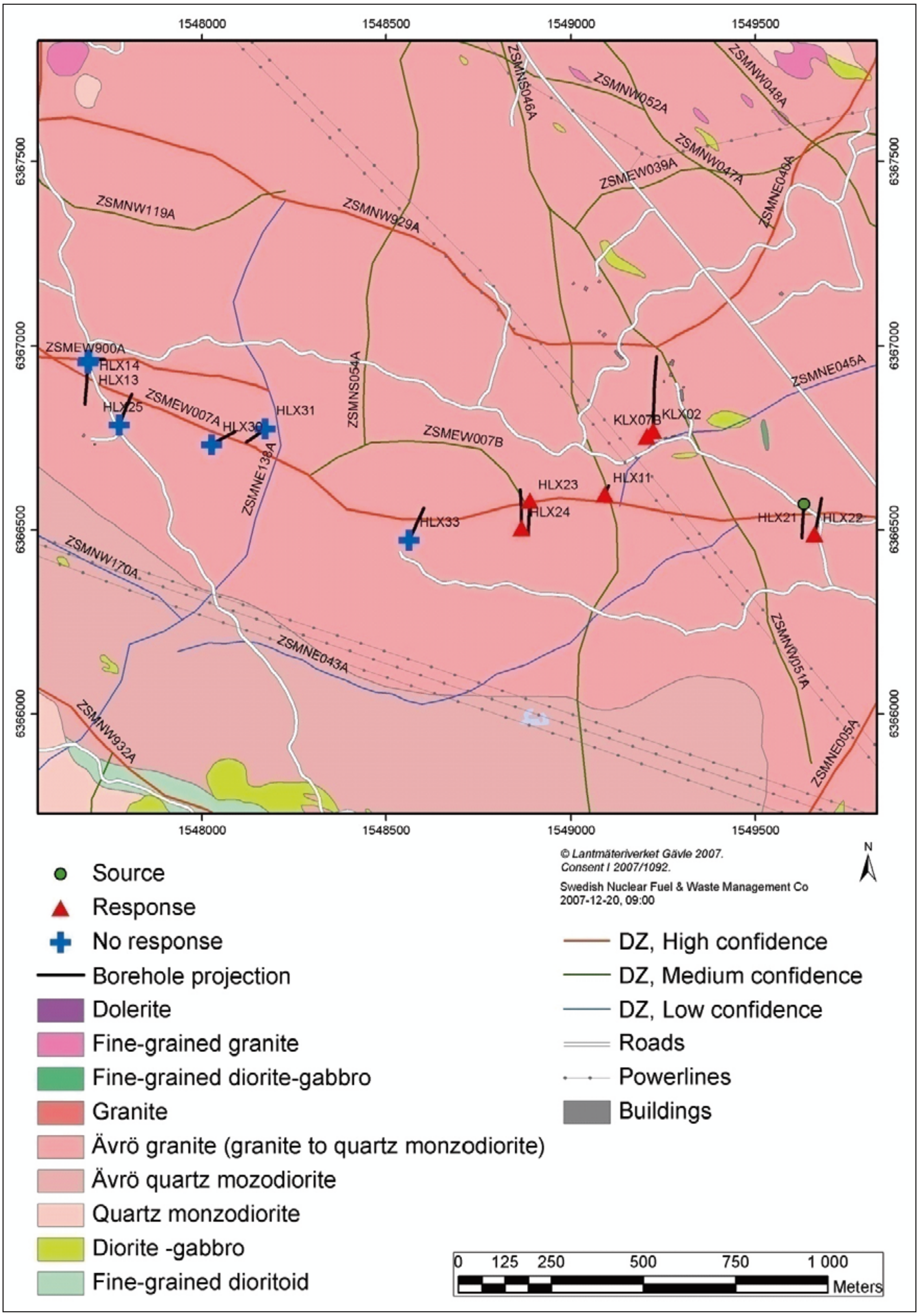


Figure 5-5. *Borehole response map of interference test when pumping HLX21.*

Observation section HLX11:2, 6–16 m

Flow regime and calculated parameters

Line source with radial flow was interpreted for drawdown and recovery, however a better fit with the data was obtained for the drawdown phase. Consitent T and S were obtained.

Selected representative parameters

Most representive parameters are $T = 2 \cdot 10^{-4}$ and $S = 1 \cdot 10^{-4}$. These are derived from the drawdown phase because of its better fit with the data.

Observation section HLX22:1, 86–163.2 m

Comments to test

Due to technical problems there is no data for the second half of the dradown phase. Hence hp is missing which makes the analysis of the recovery difficult and it is chosen not to evaluate it at all.

Flow regime and calculated parameters

The log-log plot of the drawdown phase exhibit more than the typical line source response. Here a hump is evident on the derivative followed by a trough wiout reaching the horizontal stabilisation of the radial flow regime. Such behaviour on the derivative can appear in double porosity systems under certain conditions. A double porosity model was indeed fitted very well to the data.

The recovery phase was not analysed due to missing initial data.

Selected representative parameters

Most representive parameters are $T = 2 \cdot 10^{-4}$ m^2/s and $S = 2 \cdot 10^{-5}$ derived from the drawdown phase.

Observation section HLX22:2, 9.19–85 m

Comments to test

Due to technical problems there is no data for the second half of the dradown phase. Hence hp is missing which makes the analysis of the recovery difficult and it is chosen not to evaluate it at all.

Flow regime and calculated parameters

The log-log plot of the drawdown phase exhibit more than the typical line source response. Here a hump is evident on the derivative followed by a horizontal stabilisation. The hump is due to influence of wellbore storage of the observation borehole and skin effects in the pumped borehole which appear when the two boreholes are in close to each other. At late time a fluctuating derivative is observed whose cause is unclear whether external influence, double porosity or radial composite.

The recovery phase was not analysed due to missing initial data.

Selected representative parameters

Most representative parameters are $T = 3 \cdot 10^{-4}$ m^2/s and $S = 5 \cdot 10^{-5}$ derived from the drawdown phase.

Observation section HLX23:1, 61–160.2 m

Comments to test

A subdued small drawdown of 0.12 m was obtained which is superimposed on the cyclic externally caused fluctuations.

Flow regime and calculated parameters

A radial flow regime could be fitted fairly well to the drawdown data. The recovery is so small that it could not be analysed.

Selected representative parameters

Most representive parameters are $T = 8 \cdot 10^{-4}$ m^2/s and $S = 6 \cdot 10^{-4}$ derived from the drawdown phase.

Observation section HLX23:2, 6.10–60 m

Comments to test

A subdued small drawdown of 0.12 m was obtained which is superimposed on the cyclic externally caused fluctuations.

Flow regime and calculated parameters

A radial flow regime could be fitted fairly well to the drawdown data. The recovery is so small that it could not be analysed.

Selected representative parameters

Most representive parameters are $T = 1 \cdot 10^{-3}$ m^2/s and $S = 4 \cdot 10^{-4}$ derived from the drawdown phase.

Observation section HLX24:1, 41–175.2 m

Comments to test

A subdued small drawdown of 0.1 m was obtained which is superimposed on the cyclic externally caused fluctuations.

Flow regime and calculated parameters

A radial flow regime could be fitted fairly well to the drawdown data. The recovery is so small that it could not be analysed.

Selected representative parameters

Most representive parameters are $T = 7 \cdot 10^{-4}$ m^2/s and $S = 6 \cdot 10^{-4}$ derived from the drawdown phase.

Observation section KLX02:6, 348–451 m

Comments to test

A total drawdown of 1 m was obtained which is superimposed on the cyclic externally caused fluctuations.

Flow regime and calculated parameters

A radial flow regime could be fitted fairly well to the drawdown data. The recovery is so small that it could not be analysed. Recovery data shows complex response which could be fitted well to any model available.

Selected representative parameters

Most representive parameters are $T = 3 \cdot 10^{-4}$ m^2/s and $S = 7 \cdot 10^{-5}$ derived from the drawdown phase.

Observation section KLX02:7, 209–347 m

Comments to test

A total drawdown of 2.5 m was obtained which is superimposed on the cyclic externally caused fluctuations.

Flow regime and calculated parameters

A radial flow regime could be fitted very well to the drawdown and recovery data giving similar values for tranmsissivity and storativity.

Selected representative parameters

Most representive parameters are $T = 3 \cdot 10^{-4}$ m^2/s and $S = 2 \cdot 10^{-5}$ derived from the recovery phase because it produced slightly better match with the total flow history.

Observation section KLX02:8, 202.95–208 m

Comments to test

A total drawdown of 1 m was obtained which is superimposed on the cyclic externally caused fluctuations.

Flow regime and calculated parameters

A radial flow regime could be fitted fairly well to the drawdown data. The recovery is noisier and could not be fitted equally well as the drawdown data.

Selected representative parameters

Most representive parameters are $T = 2 \cdot 10^{-4}$ m^2/s and $S = 2 \cdot 10^{-4}$ derived from the drawdown phase because it produced slightly better match on log-log plot.

Observation section KLX07B:1, 112–200.13 m

Comments to test

A total drawdown of 1.1 m was obtained which is superimposed on the cyclic externally caused fluctuations.

Flow regime and calculated parameters

A radial flow regime could be fitted well to the drawdown and the recovery data.

Selected representative parameters

Most representive parameters are $T = 3 \cdot 10^{-4}$ m^2/s and $S = 9 \cdot 10^{-5}$ derived from the drawdown phase.

Observation section KLX07B, 2.49–111 m

Comments to test

A total drawdown of 1.1 m was obtained which is superimposed on the cyclic externally caused fluctuations.

Flow regime and calculated parameters

A radial flow regime could be fitted well to the drawdown and the recovery data.

Selected representative parameters

Most representive parameters are $T = 3 \cdot 10^{-4}$ m^2/s and $S = 9 \cdot 10^{-5}$ derived from the recovery phase since this produce slightly better fit with the total flow history.

Observation section KLX07B:3, 9.64–48 m

Comments to test

A total drawdown of 1.1 m was obtained which is superimposed on the cyclic externally caused fluctuations.

Flow regime and calculated parameters

A radial flow regime could be fitted well to the drawdown and the recovery data.

Selected representative parameters

Most representive parameters are $T = 3 \cdot 10^{-4}$ m^2/s and $S = 9 \cdot 10^{-5}$ derived from the recovery phase since this produce better fit with data on the log-log plot.

5.3 Interference test HLX22 – September 2004

Pumping was conducted during 16th and 17th September 2004 with a pumping rate of 106 L/min which generated a total drawdown in the pumped borehole, HLX22, of c 6.5 m. Analysis of each test which responded to the pumping are compiled in Appendix 3. The flow was measured manually with a chronometer and 35 L vessel.

In the following summaries of responses (Table 5-5) and derived aquifer parameters (Table 5-6) are given along with a short description of flow regimes and choice of most representative T and S. Figure 5-6 shows the borehole response map.

Responses in HLX11 and KLX02 are uncertain due to sparse data.

Pumped borehole HLX22, 9–163.2 m

Comments to test

Pumping was conducted during 16th and 17th September 2004 for a period of 26.5 hours with at a rate of 106 L/min which caused a pressure change of 67.1 kPa. The pressure was monitored with a MiniTroll logger and the flow was measured manually with a chronometer and a measurement vessel of 35 litres.

During the pumping test in HLX22. the borehole HLX21 was monitored with a MiniTroll logger in an open borehole. The pumping test caused a drawdown in HLX21 of approximately 4.0 m. Pressure data from HLX11 and KLX02 were too sparsely collected, the former to the extent that no evaluation of aquifer parameters is possible.

The plots from these tests are found in Appendix 3.

Flow regime and calculated parameters

Drawdown phase show a radial flow regimes which could be fitted quite well with the data. Whereas the recovery exhibits a behaviour reminiscent of a radial composite system. It was however better matched when the decrease in T-value was invoked by introducing no flow faults particulary the upward bend at the end of the recovery. However, very similar T-values are obtained for both phases.

Table 5-5. Observations in monitored boreholes during interference test pumping HLX22.

	From Hydraulic point of application	To Hydraulic point of application	Tested section	Distance r_s	Q_p	h_i	h_p	dh_p	dt_L (dh = 0.1 m)	r_s^2/dt_L	dh_p/Q_p	$dh_p/Q_p \cdot \ln(rs/r0)$
	(m)	(m)	(m)	(m)	[L/min]	[m.a.s.l.]	[m.a.s.l.]	[m]	[s]	(m^2/s)	[m/ m3/s]	[m/m3/s]
										Index1	Index2	Index2new
Pumped borehole												
HLX22	HLX22	HLX22	9,0–163,2	0	106	465.03 kPa	396.5 kPa	6,85	1		3,877	3,877
Observation holes												
HLX11:2	HLX22 121 m	HLX11 15	6.0–16.0	589,44		8,58	8,13	0,45	15,420	23	255	1,625
HLX11:1	HLX22 121 m	HLX11 35	17.0–70.0	584,7		8,64	8,11	0,53	9,300	37	300	1,911
HLX21	HLX22 121 m	HLX21 88	9.1–150.3	67,2		72.05 kPa	33.05 kPa	3,9	60	75	2,208	9,289
KLX02:3	HLX22 121 m	KLX02 205	202.95–206.9	516,5		10,37	10,04	0,33	27,000	10	187	1,167
KLX02:2	HLX22 121 m	KLX02 232	207.9–255.4	523,3		8,35	6,63	1,72	5,280	52	974	6,095
KLX02:1	HLX22 121 m	KLX02 304	256.4–1,700	548		8,29	6,66	1,63	7,020	43	923	5,818

Table 5-6 Evaluated hydraulic parameters for interference test in HLX22. Those boldfaced parameters are considered as most representative.

Borehole	**Tested section (m)**	**Drawdown** **Flow regime** **–well** **–aquifer** **–boundary**	**T** **[m²/s]**	**S** **[–]**	**skin**	**Recoovery** **Flow regime** **–well** **–aquifer** **–boundary**	**T** **[m²/s]**	**S** **[–]**	**skin**
Pumped borehole									
HLX22	9,0–163,2	WBS Homog infinite	2,E-04	4E-5 input	–3,4	**WBS** **Homogoneous** **Intersecting fault**	**4,E-04**	**4E-5** **input**	**–1**
Observation holes									
HLX11:2	6.0–16.0	Not evaluated due to super-position of tidal effects				Not evaluated due to superposition of external disturbance			
HLX11:1	17.0–70.0	Not evaluated due to super-position of tidal effects				Not evaluated due to superposition of external disturbance			
HLX21	9.1–150.3	line source Radial Infinite	2,E-04	3,E-05		**Line source** **Radial** **sealing Fault**	**2,E-04**	**4,E-05**	
KLX02:3	202.95–206.9	**line source** **Radial** **Infinite**	**4,E-04**	**1,E-04**		not analysable due to external distur-bance			
KLX02:2	207.9–255.4	**line source** **Radial** **Infinite**	**2,E-04**	**2,E-05**		line source Radial Infinite	1,E-04	2,E-05	
KLX02:1	256.4–1,700	**line source** **Radial** **Infinite**	**2,E-04**	**2,E-05**		line source Radial Infinite	1,E-04	2,E-05	

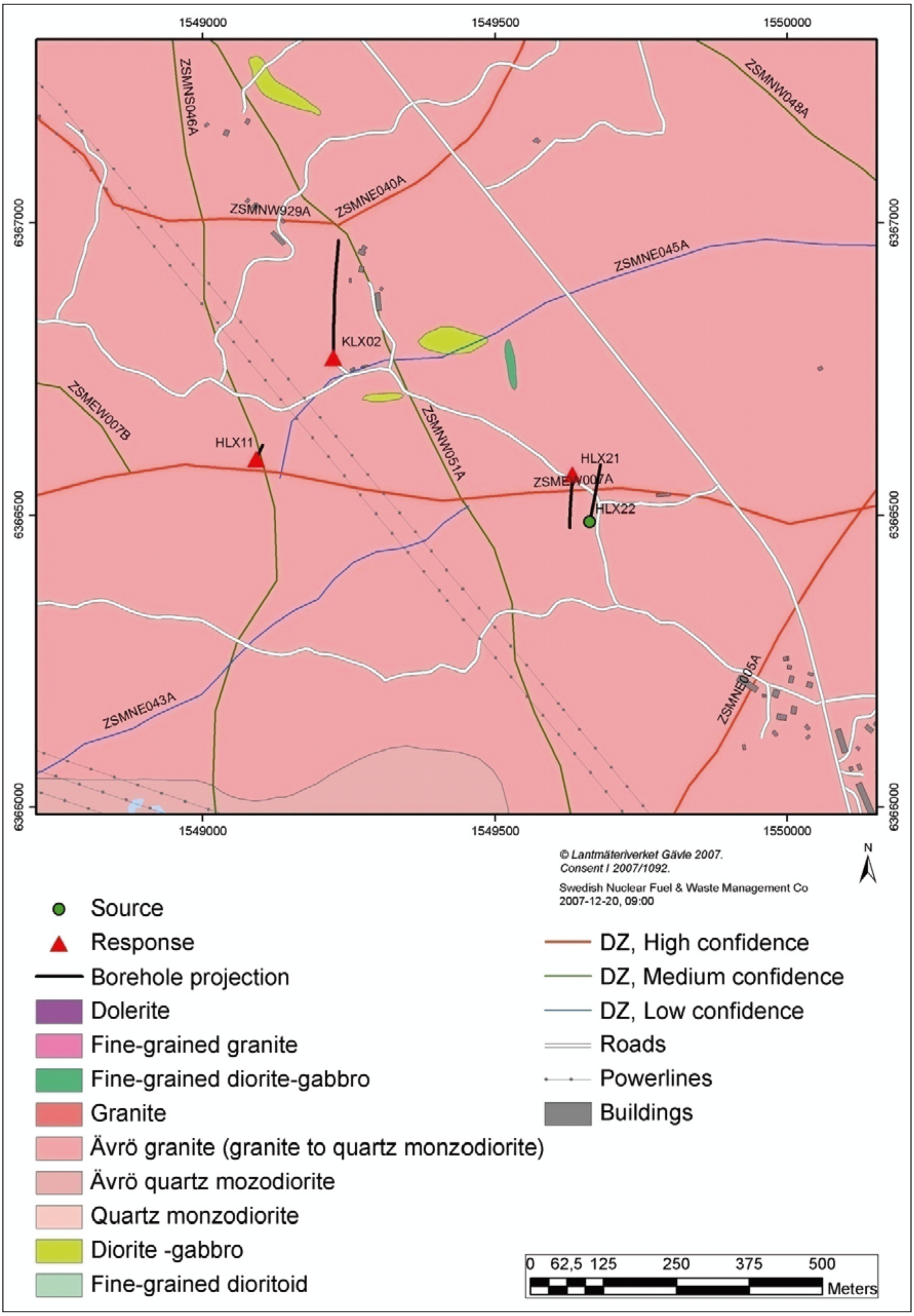


Figure 5-6. *Borehole response map of interference test when pumping HLX22.*

Selected representative parameters

Representative transmissivity is $4 \cdot 10^{-4}$ m^2/s derived from the recovery phase.

Observation section HLX21, 9.1–150.3 m

Flow regime and calculated parameters

Drawdown phase show a typical line source radial flow regime while during the recovery a sealing fault is shown after the radial flow regime. Both could be fitted well with the data.

Selected representative parameters

Representative transmissivity is $2 \cdot 10^{-4}$ m^2/s and storativity of $4 \cdot 10^{-5}$ derived from the recovery phase.

Observation section KLX02:1, 256.4–1,700 m

Flow regime and calculated parameters

Line source radial flow regime is seen on the log-log plot for both drawdown and recovery phase. Data was fitted equally well for both phases with the data.

Selected representative parameters

Representative transmissivity is $2 \cdot 10^{-4}$ m^2/s and storativity of $2 \cdot 10^{-5}$ derived from the drawdown phase.

Observation section KLX02:2, 207.9–255.4 m

Flow regime and calculated parameters

Line source radial flow regime is seen on the log-log plot for both drawdown and recovery phase. Data was fitted equally well for both phases with the data.

Selected representative parameters

Representative transmissivity is $2 \cdot 10^{-4}$ m^2/s and storativity of $2 \cdot 10^{-5}$ derived from the drawdown phase.

Observation section KLX02:3, 202.95–206.9 m

Flow regime and calculated parameters

Line source radial flow regime is seen on the log-log plot for both drawdown. The recovery was almost non existent and could not be evaluated.

Selected representative parameters

Representative transmissivity is $4 \cdot 10^{-4}$ m^2/s and storativity of $1 \cdot 10^{-4}$ derived from the drawdown phase.

5.4 Interference test HLX23 – June 2005

In the following summaries of responses (Table 5-7) and derived aquifer parameters (Table 5-8) are given along with a short description of flow regimes and choice of most representative T and S. Figure 5-7 shows the borehole response map. Analysis of each test which responded to the pumping are compiled in Appendix 4.

One day after pump start in HLX23 pumping for the difference flow logging (PFL) of KLX07B started with a flowrate of 25 L/min i.e. on 29th June. A pumping was also undertaken in flushwater well HLX10 to provide water for the KLX10 drilling. This HLX10 pumping was kept approximately at a constant rate of 40 L/min do not seem to interfere with the test. The configuration of pumping and observation holes is conceptualised in Figure 5-6.1.

The KLX07B pumping do interfered with the HLX23 pumping. This rendered the later part of responses due to the HLX23 test un-interpretable by the standard evaluation techniques utilised in this report. The interference is exemplified for observations hole HLX11 but it's conceptual reasoning also applies to KLX02, HLX21, HLX22 where responses are observed. For this reason it is not possible to estimate a representative h_p in KLX02, HLX11, HLX21 and HLX22 and it was only possible to calculate Index1 but not Index2 or Index2new.

HLX33 responses might to some minor extent also be influenced by the KLX07B pumping.

Pumped borehole HLX23, 6–160.2 m

Comments to test

Pumping was conducted during 28th June and 1st July 2005 with a pumping rate of 102 L/min which generated a total drawdown in the pumped borehole, HLX23, of c 12 m. Figure 5-7 shows the borehole response map.

Flow regime and calculated parameters

The storage coefficient was set to $1.4 \cdot 10^{-5}$. which was derived from the drawdown phase of HLX24:1. Both drawdown and recovery could separately be fitted well to the radial model. It. was however not possible to obtain an equally god match for the complete test, including drawdown and recovery. When utilising parameters from the drawdown the modelled recovery could not reach the measured level while when utilising parameters from the recovery the modelled drawdown could not entirely conform to the shape of the measured data. Although the general shape is matched and a fairly good consistency between drawdown and recovery is obtained for the calculated parameters.

Selected representative parameters

Representative transmissivity is $1 \cdot 10^{-4}$ m²/s derived from the drawdown phase.

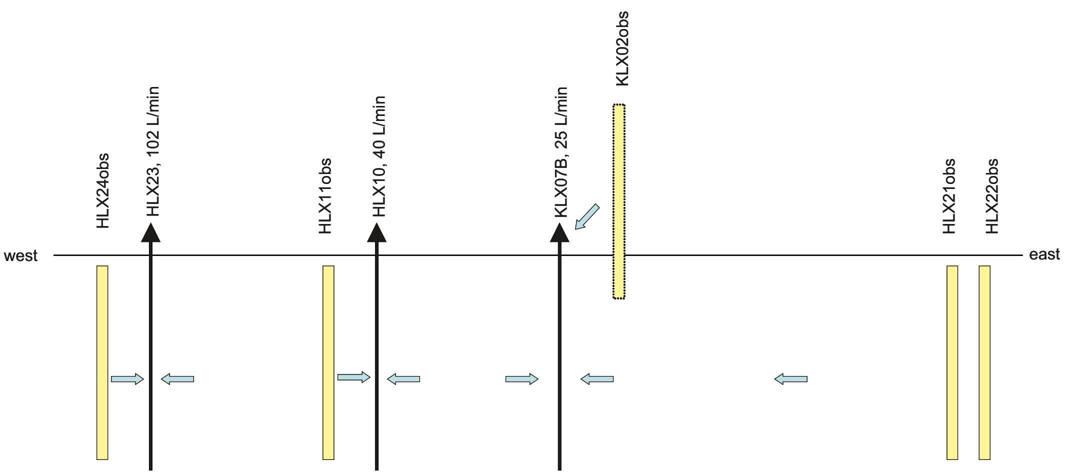


Figure 5-6.1. *Conceptualization of pumping- and observation hole configuration during the HLX23 interference test. Responses in some observation holes might be more influenced by the simultaneous pumping from KLX07B. Pumping of HLX10 was performed to keep a constant drawdown and does not interfere with the HLX23 induced drawdown. The distance between HLX24 and HLX22 is approximately 800 m.*

Table 5-7 Observations in monitored boreholes during interference test pumping HLX23.

	From Hydraulic point of application [m]	To Hydraulic point of application [m]	Tested section (m)	Distance r_s (m)	Q_p [L/min]	h_i [m.a.s.l.]	h_p[2] [m.a.s.l.]	dh_p [m]	dt_L (dp = 0.1 m) [s]	r_s^2/dt_L [m^2/s] Index1	dh_p/Q_p [$m/m^3/s$] Index2	$dh_p/Q_p \cdot \ln(rs/r0)$ [$m/m^3/s$] Index2new
Pumping borehole												
HLX23	HLX23	HLX23	6–160.2	0	102	569.6 kPa	422.6 kPa	14,69	3		8,641	8,640
Observation holes												
HLX11:2	HLX23 67 m	HLX11 15 m	6–16	220		7,03	?	?	41,100	1,2	?	?
HLX11:1	HLX23 67 m	HLX11 35 m	17–70	222		7,15	?	?	27,600	1,8	?	?
HLX13	HLX23 67 m	HLX13 111 m	12–200.2	1,250				0		0	0	0
HLX14	HLX23 67 m	HLX14 114 m	12–115.9	1,227				0		0	0	0
HLX21:2	HLX23 67 m	HLX21 67 m	9.1–80	744		6,37	?	?	67,860	8,2	?	?
HLX21:1	HLX23 67 m	HLX21 88 m	9.1–150	743		6,39	?	?	68,760	8,0	?	?
HLX22:2	HLX23 67 m	HLX22 55 m	9,19–85	782		6,29	?	?	68,760	8,9	?	?
HLX22:1	HLX23 67 m	HLX22 121 m	86–163,2	791		5,17	?	?	108,240	5,8	?	?
HLX24:2	HLX23 67 m	HLX24 10 m	9,10–40	61,2		10,78	10,18	0,60	21,889	0,2	353	1,452
HLX24:1	HLX23 67 m	HLX24 121 m	41–175,20	58,4		10,40	3,063	7,34[3]	53	64	4,318	17,561
HLX25:2	HLX23 67 m	HLX25 52 m	6,12–60	1,134				0		0	0	0
HLX25:1	HLX23 67 m	HLX25 121 m	61–202,5	1,131				0		0	0	0
HLX30:2	HLX23 67 m	HLX30 88 m	9,10–100	851		11,29	11,18	0,11	243,480	3,0	65	436
HLX30:1	HLX23 67 m	HLX30 138 m	101–163,4	838		11,45	11,19	0,13	241,260	2,9	79	534
HLX31:2	HLX23 67 m	HLX31 10 m	9,10–100	755		11,322	11,193	0,13	233,340	2,4	76	503
HLX31:1	HLX23 67 m	HLX31 118 m	101–133,2	788		11,446	11,311	0,13	234,780	2,6	79	530
HLX33:2	HLX23 67 m	HLX33 22 m	9,10–30	327,5		10,81	10,10	0,70	4,380	24	415	2,402
HLX33:1	HLX23 67 m	HLX33 181 m	31–202,1	306,7		10,93	9,73	1,20	10,920	9	705	4,035
KLX02:8	HLX23 67 m	KLX02 205.5 m	0–208	442		8,987	?	**0**[2]	31,680	6,2	0	0
KLX02:7	HLX23 67 m	KLX02 278 m	209–347	473,9		7,538	?	**0**[2]	31,680	7,1	0	0
KLX02:6	HLX23 67 m	KLX02 399,5 m	348–451	545,4		6,41	?	**0**[4]	57,900	5,1	0	0
KLX02:5	HLX23 67 m	KLX02 473 m	452–494	598		5,95	5,61	0	115,560	3,1	200	1,279
KLX02:4	HLX23 67 m	KLX02 606 m	495–717	702		5,25	5,07	0	208,020	2,4	106	694
KLX02:3	HLX23 67 m	KLX02 931 m	718–1,144	986				0		0	0	0
KLX02:2	HLX23 67 m	KLX02 1,154.5 m	1,145–1,164	1,193				0		0	0	0

	From Hydraulic point of application [m]	To Hydraulic point of application [m]	Tested section (m)	Distance r_s (m)	Q_p [L/min]	h_i [m.a.s.l.]	h_p[2] [m.a.s.l.]	dh_p [m]	dt_L (dp = 0.1 m) [s]	r_s^2/dt_L [m^2/s] Index1	dh_p/Q_p [$m/m^3/s$] Index2	$dh_p/Q_p \cdot \ln(rs/r0)$ [$m/m^3/s$] Index2new
KLX02:1	HLX23 67 m	KLX02 1,432.5 m	1,165–1,700	1,459				0		0	0	0
KLX04:8	HLX23 67 m	KLX04 87	12.24–162	898				0		0	0	0
KLX04:7	HLX23 67 m	KLX04 210	163–230	916				0		0	0	0
KLX04:6	HLX23 67 m	KLX04 368	231–506	959				0		0	0	0
KLX04:5	HLX23 67 m	KLX04 518	507–530	1,018				0		0	0	0
KLX04:4	HLX23 67 m	KLX04 608	531–685	1,061				0		0	0	0
KLX04:3	HLX23 67 m	KLX04 777	686–869	1,155				0		0	0	0
KLX04:2	HLX23 67 m	KLX04 884	870–897	1,221				0		0	0	0
KLX04:1	HLX23 67 m	KLX04 949	898–1,000	1,263				0		0	0	0

1 In some boreholes, where a ? is given, there was an interference from pumping KLX07B (as discussed in the text) thereby giving a misrepresentation of the nominal hp. Hence no dhp nor Index 2 and Index2new were calculated.

2 This dhp was not measured since the water level went below the transducer during the test. It was derived from the simulation of drawdown phase based on initial drawdown data.

3 Uncertain! There is possibly a response that is superimposed on other stronger disturbances. Could not be resolved.

Table 5-8. Evaluated hydraulic parameters for interference test in HLX23. Those boldfaced parameters are considered as most representative.

Borehole	From Hydraulic point of application (m)	To Hydraulic point of application (m)	Tested section (m)	Drawdown Flow regime –well –aquifer –boundary	Omega Lambda	T [m²/s]	S [–]	skin	Recovery Flow regime –well –aquifer –boundary	Omega Lambda	T [m²/s]	S [–]	skin
Pumping borehole													
HLX23				**WBS Radial infinite**		**1E-04**	**1E-5 assumed**	**–3,1**	**WBS Double por radial**	O = 0,0191 L = 3,05E-9	8E-05	1E-5 assumed	–5,5
Observation holes													
HLX11:2	HLX23 67 m	HLX11 15 m	3–16	Line source Radial infinite		**2,54E-05**	**2,19E-04**						
HLX11:1	HLX23 67 m	**HLX11 35 m**	17–70	Line source Radial infinite		**4,95E-05**	**2,33E-04**						
HLX21:2	HLX23 67 m	HLX21 67 m	9.1–80	Line source Radial infinite		**6.85E-5**	**6.84E-5**						
HLX21:1	HLX23 67 m	**HLX21 88 m**	81–150	Line source Radial infinite		**4.35E-5**	**5.42E-5**						
HLX22:2	HLX23 67 m	**HLX22 55 m**	9,19–85	Line source Radial infinite		**3,98E-05**	**5,57E-05**						
HLX22.1	HLX23 67 m	HLX22 121 m	86–163,2	Line source Radial radial		**5.55E-5**	**5.86E-5**						
HLX24:2	HLX23 67 m	HLX24 10 m	9,10–40	**Line source radial No flow**		**7.1E-04**	**9.7E-03**		Line source Double poros Infinite	O = 1E-4 L = 6,79E-6	4E-04	9E-03	
HLX24:1	HLX23 67 m	HLX24 121 m	41–175,20	**Line source Radial Infinite**		**1,41E-04**	**9,73E-06**		Waterlevel below trans-ducer, dhp could not be determined				
HLX30:2	HLX23 67 m	HLX30 88 m	9,10–100	Line source Radial infinite		**1.44E-3**	**4.16E-4**						

Borehole	From Hydraulic point of application (m)	To Hydraulic point of application (m)	Tested section (m)	Drawdown Flow regime –well –aquifer –boundary	Omega Lambda	T [m²/s]	S [–]	skin	Recovery Flow regime –well –aquifer –boundary	Omega Lambda	T [m²/s]	S [–]	skin
HLX30:1	HLX23 67 m	HLX30 138 m	101–163,4	Line source Radial infinite		**1.57E-3**	**3.05E-4**						
HLX31:2	HLX23 67 m	HLX31 10 m	9,10–100	Line source Radial infinite		**2,20E-03**	**3,13E-04**						
HLX31:1	HLX23 67 m	HLX31 118 m	101–133,2	Line source Radial infinite		**2,07E-03**	**2,92E-04**						
HLX33:2	HLX23 67 m	HLX33 22 m	9,10–30	**WBS Radial Infinite**		**4.6E-04**	**1.8E-04**	**–0,3**	WBS Radial Infinite		1E-03	2E-06	4,1
HLX33:1	HLX23 67 m	HLX33 181 m	31–202,1	**Line source Radial Infinite**		**2.9E-4**	**1.2E-04**		Line source Radial Infinite		4E-04	8E-05	
KLX02:8	HLX23 67 m	KLX02 205.5 m	202,95–208	**Line source Radial Infinite**		**1,18E-04**	**9,11E-05**						
KLX02:7	HLX23 67 m	KLX02 278 m	209–347	**Line source Radial Infinite**		**9,01E-05**	**8,37E-05**						
KLX02:6	HLX23 67 m	KLX02 399,5 m	348–451	**Line source Radial Infinite**		**7,43E-05**	**1,07E-04**						
KLX02:5	HLX23 67 m	KLX02 473 m	452–494	**Line source Radial Infinite**		**1,69E-04**	**2,98E-04**						
KLX02:4	HLX23 67 m	KLX02 606 m	495–717	**Line source Radial Infinite**		**8,04E-04**	**4,64E-04**						

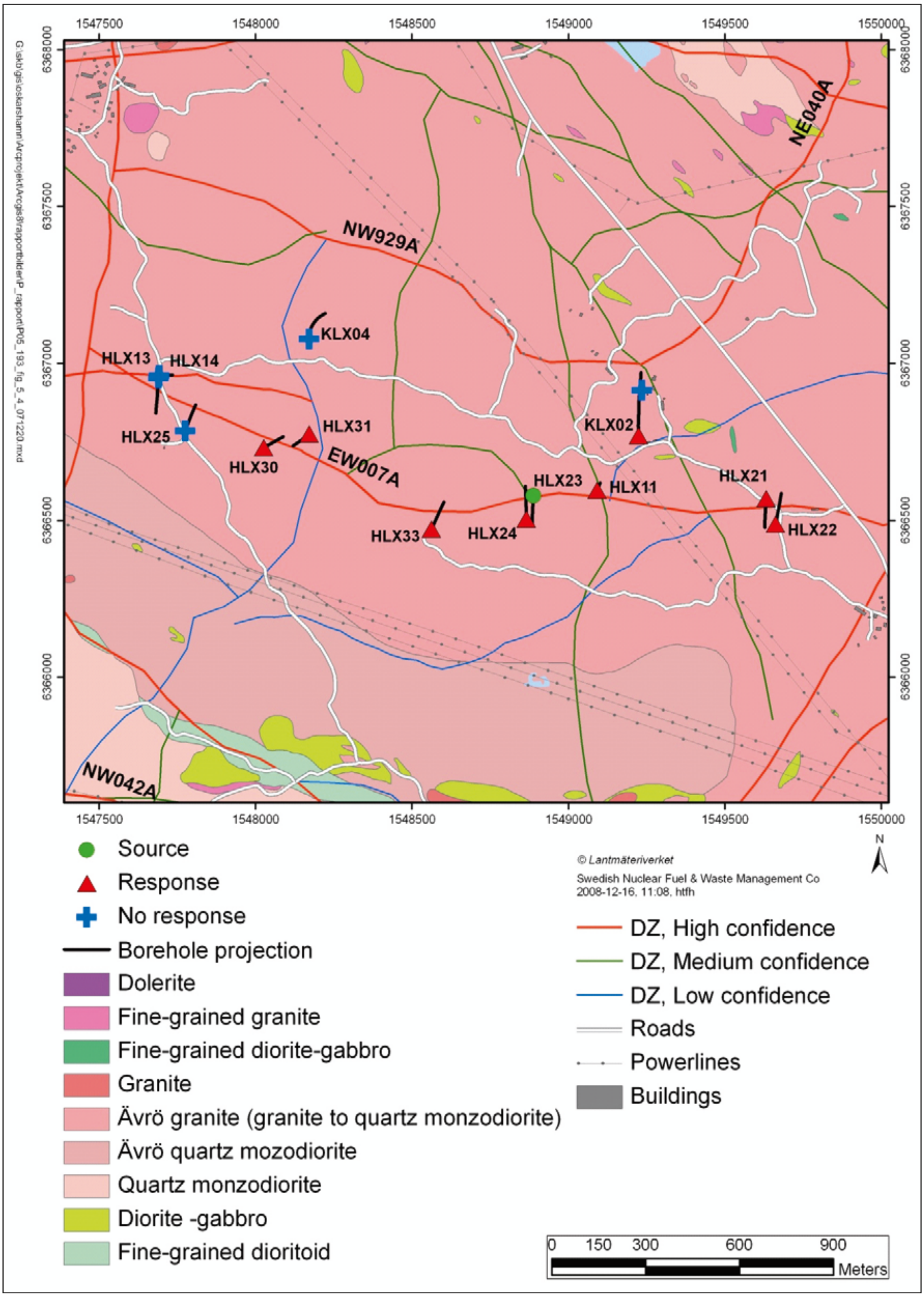


Figure 5-7. Borehole response map of interference test when pumping HLX23.

Observation sections HLX11:1, 17–70 m and HLX11:2, 6–16 m

Comments to test

These two sections show a similar behaviour with clear drawdown of 1.5 m. However, although the start of drawdown seem correlated to the pumping start there is not such correlation when the pumping is stopped. It is also clear that other disturbances than the HLX23 pumping are affecting head, Figure 5-7.1. A strong correlation is found with the KLX07B PFL pumping. It is believed that both the HLX23 and the KLX07B pumping do influence the hydraulic head during the period when both boreholes are pumped. However during the first day the responses are only affected by the HLX23 pumping. Hence, only Index 1 is possible to calculate but not index2 or Index2new. Nor is it possible to analyses the recovery phase.

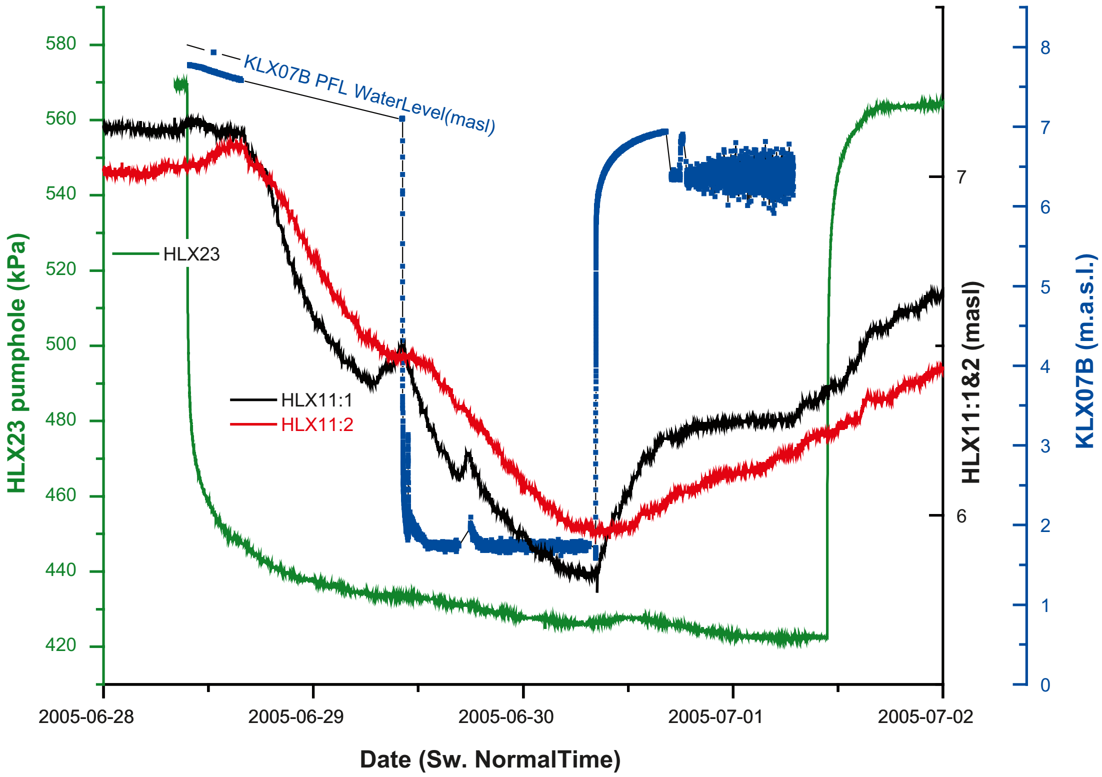


Figure 5-7.1. *Perturbations from HLX23 pumping and KLX07B during difference flow logging and responses in HLX11:1 and HLX11:2.*

Flow regime and calculated parameters

The initial part of the drawdown phase, prior to the KLX07B pumping interference, was analysed and could be fitted reasonably well with the radial flow model.

The recovery was not analysed for above mentioned reasons.

Selected representative parameters

Representative parameters were derived from the drawdown phase:

	Section (m)	T (m^2/s)	S (–)
HLX11:2	6–16	2,54E-5	2,19E-4
HLX11:1	17–70	4,95E-5	2,33E-4

Observation sections HLX21:1 and HLX21:2

Comments to test

These sections show a similar behaviour with clear drawdown of c 0.25 m. However, though the start of drawdown seem correlated to the pumping start there is not such correlation when the pumping is stopped. For reasons discussed above for HLX11 it is believed that this drawdown is largely an effect of the KLX07B PFL-pumping and any potential effect by the HLX23 pumping are masked.

Flow regime and calculated parameters

The initial part of the drawdown phase, prior to the KLX07B pumping interference, was analysed and could be fitted reasonably well with the radial flow model.

The recovery was not analysed for above mentioned reasons.

Selected representative parameters

Representative parameters were derived from the drawdown phase:

	Section (m)	T (m^2/s)	S (–)
HLX21:2	9–80	$6.8 \cdot 10^{-5}$	$6.8 \cdot 10^{-5}$
HLX21:1	81–150	$4.3 \cdot 10^{-5}$	$5.4 \cdot 10^{-5}$

The derived storativity might be somewhat underestimated due to interference with tidal effects.

Observation sections HLX22:1 and HLX22:2

Comments to test

These sections show a similar behaviour with clear drawdown of about 0.30 m. However, though the start of drawdown seem correlated to the pumping start there is not such correlation when the pumping is stopped. For reasons discussed above for HLX11 it is believed that this drawdown is largely an effect of the KLX07B PFL-pumping and any potential effect by the HLX23 pumping are masked.

Flow regime and calculated parameters

The initial part of the drawdown phase, prior to the KLX07B pumping interference, was analysed and could be fitted reasonably well with the radial flow model.

The recovery was not analysed for above mentioned reasons.

Selected representative parameters

Representative parameters were derived from the drawdown phase:

	Section (m)	T (m²/s)	S (–)
HLX21:2	9–85	$4 \cdot 10^{-5}$	$5.6 \cdot 10^{-5}$
HLX21:1	86–163	$5.6 \cdot 10^{-5}$	$5.9 \cdot 10^{-5}$

The derived storativity might be somewhat underestimated due to interference with tidal effects.

Observation section HLX24:1, 41–175.2 m

Comments to test

The water level went below the transducer at an early stage which reduces the analysable data to the initial 2.5 hour out of a total pumping period of 3 days.

Flow regime and calculated parameters

The drawdown phase show an initial unit slope followed by an almost horizontal derivative. A double porosity model was best matching this data.

Selected representative parameters

Representative parameters are $T = 1 \cdot 10^{-5}$ m²/s and $S = 1 \cdot 10^{-5}$.

Observation section HLX24:2, 9.1–40 m

Comments to test

A general decreasing linear trend of the hydraulic head preceeded the start of pumping and as a consequence of this a linear trend correction was applied to the whole data set, Figure 5-7.2.

Flow regime and calculated parameters

Drawdown and recovery show an almost unit slope throughout the test period which could not be fitted with the Theis line source solution. An upward deflecting trend indicate the presence of a no-flow boundary. A reasonably good fit was found between data and model with a sealing fault invoked. Consistent parameters and fit were obtained between the two phases and also good overall fit on the history plot.

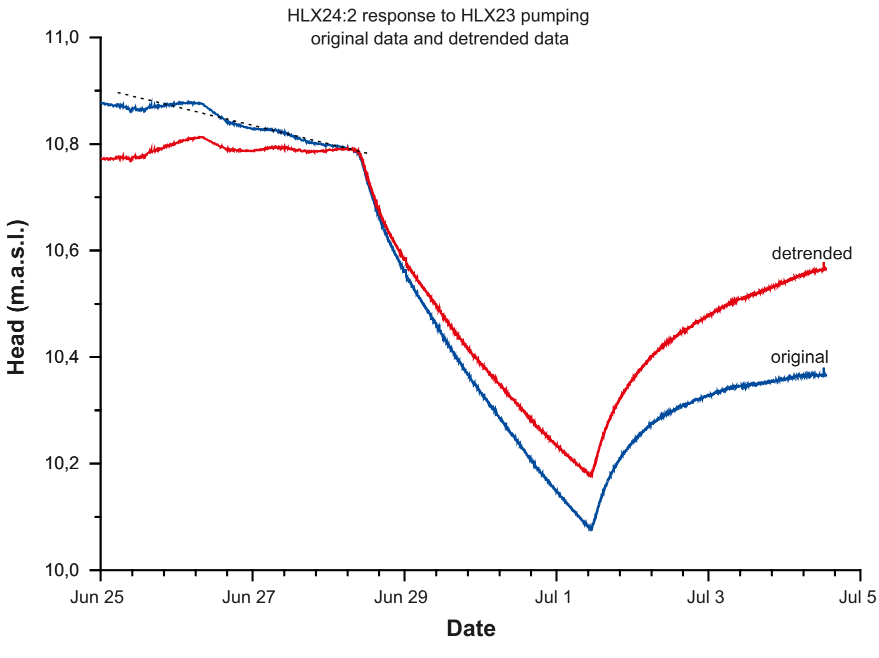


Figure 5.7-2. *Measured (red) and detrended (green) history plot of HLX24:2.*

Selected representative parameters

Representative parameters are T = $7.1 \cdot 10^{-4}$ m^2/s and S = $9.7 \cdot 10^{-3}$ evaluated from the drawdown phase. The storativity seem extraordinarily high and should be viewed with caution. Most likely this high storativity is because of a too late time match in the log-log plot. This diagnostic plot show an almost unit slope line quite uncharacteristic for radial flow. It was not possible to obtain a match with the early time data and it is estimated that the time match might be overestimated by 1–3 orders of magnitude which translates to the same overestimation for the storativity.

Possibly the small drawdown is caused because this section is less connected and not because it is highly tranmissive. These two different situation may give rise to equivalent responses.

Observation section HLX33:1, 31–202.1 m

Flow regime and calculated parameters

Drawdown and recovery both show radial flow regime, the drawdown phase is however giving better match between model and data.

Selected representative parameters

Representative parameter is T = $3 \cdot 10^{-4}$ m^2/s and S = $1 \cdot 10^{-4}$ obtained from the drawdown phase.

Observation section HLX33:2, 9.1–30 m

Flow regime and calculated parameters

Drawdown and recovery both show radial flow regime and could be similarly well fitted in the log-log plot.

Selected representative parameters

Representative parameter is T = $5 \cdot 10^{-4}$ m^2/s and S = $2 \cdot 10^{-4}$ obtained from the drawdown.

5.5 Pumping test HLX24 – September 2004

Analysis graph and results are presented in Appendix 8.

Comments to test

The pumping phase in HLX24 lasted for 25 hours and caused a pressure change of 35.1 kPa. The flow at the end of the pumping phase was 113.2 L/min. and relatively stable throughout pumping period. The pressure was monitored with a MiniTroll logger and the flow was measured manually with a chronometer and a measurement vessel of 35 litres.

Flow regime and calculated parameters

Both drawdown and recovery were possible to fit well with a radial composite model, where both a consistent T-value was obtained, Table 5-9. However, the phases showed very different and apparently incompatible skin values: the drawdown phase resulted in a negative skin indicating fracture flow while the recovery a high positive skin, contradicting the fracture flow theory. For the calculations a storativity of $1.6 \cdot 10^{-6}$ was utilised.

Table 5-9. Calculated aquifer parameters for HLX24.

	T (m^2/s)	Skin (–)	C (m^3/Pa)	Flow regimes
Drawdown	$1.0 \cdot 10^{-3}$	–1.15	$3.0 \cdot 10^{-6}$	WBS and radial composite
Recovery	$3.5 \cdot 10^{-3}$	7.8	$2.1 \cdot 10^{-6}$	WBS and radial composite

Selected representative parameters

The flow regimes and parameters interpreted from the drawdown phase gives a conceptualization of the geological regime which is consistent with the independent geological interpretation, i.e. a negative skin indicative for fracture flow. Hence, parameters derived from the drawdown phase are taken as representative for the tested aquifers volume.

5.6 Pumping test HLX25 – September 2004

Analysis plos and results are presented in Appendix 9.

Comments to test

The pumping in HLX25 was stopped after only 1 hour for technical reasons. After approximately 75 minutes the pumping was started again and the pumping period then lasted approximately 23 hours. The flow at the end of the pumping phase was 100 L/min. and the pumping caused a pressure drop of 104.9 kPa. The pressure was monitored with a MiniTroll logger and the flow was only measured manually with a chronometer and measurement vessels of 3 and 35 litres respectively.

Flow regime and calculated parameters

Drawdown phase is much shorter duration than recovery, it does however reach steady state conditions with an radial regime.The longer duration revcovery indicate a volume of slightly lower transmissivity further away from the borehole. Both phases show equally good fit between data and model. Parameters derived from the drawdown are selected as most representative, Table 5-10.

Selected representative parameters

Most representative parameters for the tested rock volume are those derived from the drawdown phase, see Table 5-10 below. The reason being that these give slightly better fit on log-log, semi-log and history matching.

5.7 Interference test HLX30 – September 2005

In the following summaries of responses (Table 5-11) and derived aquifer parameters (Table 5-12) are given along with a short description of flow regimes and choice of most representative T and S. Figure 5-8 shows the borehole response map.

Evaluations of all tests that responded to the pumping are compiled in Appendix 5.

Pumped borehole HLX30, 9.1–163.4 m

Comments to test

The initial pressure data is missing due to a malfunctioning pressure transducer. A replacement gauge was installed after after almost one day of pumping. Data is missing during 2005-09-05 12:26 to 2005-09-06 10:45. Hence it is not possible to evaluate the drawdown phase.

Pumping was conducted during 5th and 6th September 2005 with a pumping rate of 106 L/min which generated a total drawdown in the pumped borehole, HLX22, of c 7 m.

Table 5-10. Calculated aquifer parameters for HLX25

	T (m^2/s)	Skin (–)	C (m^3/Pa)	Flow regimes
Drawdown	$7.9 \cdot 10^{-5}$	0	$2.6 \cdot 10^{-7}$	Fracture, radial, steady state
Recovery	$2.3 \cdot 10^{-4}$	0	$2.5 \cdot 10^{-6}$	WBS and radial composite

Table 5-11 Observations in monitored boreholes during interference test pumping HLX30.

Borehole	From Hydraulic point of application (m)	To Hydraulic point of application (m)	Tested section (m)	Distance r_s (m)	Q_p [L/min]	h_i [m.a.s.l.]	h_p [m.a.s.l.]	dh_p [m]	dt_L (dp = 0.1 m) [s]	r_s^2/dt_L (m^2/s) Index 1	dh_p/Q_p [m/m3/s] Index2	$dh_p/Q_p \cdot \ln(rs/r0)$ [m/m3/s] Index2new
Pumped borehole												
HLX30			9,10–163,4	0	106	591.9 kPa	521.2 kPa	7,17			4,058	4,058
Observation holes												
HLX10	HLX30 138 m	HLX10 85 m	3–85	1,072,8				0		0	0	0
HLX11:2	HLX30 138 m	HLX11 15 m	6–16					0		0	0	0
HLX11:1	HLX30 138 m	HLX11 35 m	17–70	1,031,1				0		0	0	0
HLX13	HLX30 138 m	HLX13 111 m	11,87–200,02	417		13,03	11,84	1,19	11,700	15	673	4,063
HLX14	HLX30 138 m	HLX14 114 m	11–115,9	398,4		12,135	10,49	1,645	11,100	14	931	5,574
HLX23:2	HLX30 138 m	HLX23 49 m	6,10–60	837,3				0	0		0	0
HLX23:1	HLX30 138 m	HLX23 67 m	61–160,2	838,1				0	0		0	0
HLX24:2	HLX30 138 m	HLX24 10 m	9,10–40	832,9				0	0		0	0
HLX24:1	HLX30 138 m	HLX24 121 m	41–175,20	806,1				0	0		0	0
HLX25:2	HLX30 138 m	HLX25 52 m	6,12–60	311,9		11,47	9,39	2,08	3,900	25	1,177	6,760
HLX25:1	HLX30 138 m	HLX25 121 m	61–202,5	295,4		11,45	9,375	2,075	4,020	22	1,174	6,680
HLX31:2	HLX30 138 m	HLX31 10 m	9,10–100	140,9		10,92	6,06	4,86	240	83	2,750	13,609
HLX31:1	HLX30 138 m	HLX31 118 m	101–133,2	56		11,025	4,9	6,125	180	17	3,466	13,953
HLX33:2	HLX30 138 m	HLX33 22 m	9,10–30	571,8		10,42	10,17	0,25	84,900	4	141	898
HLX33:1	HLX30 138 m	HLX33 181 m	31–202,1	557,1		10,5	10,18	0,32	74,700	4	181	1,145
KLX02:8	HLX30 138 m	KLX02 205.5 m	0–208	442				0		0	0	0
KLX02:7	HLX30 138 m	KLX02 278 m	209–347	473,9				0		0	0	0
KLX02:6	HLX30 138 m	KLX02 399,5 m	348–451	545,4				0		0	0	0
KLX02:5	HLX30 138 m	KLX02 473 m	452–494	1,194				0		0	0	0
KLX02:4	HLX30 138 m	KLX02 606 m	495–717	1,240				0		0	0	0
KLX02:3	HLX30 138 m	KLX02 931 m	718–1,144	1,399				0		0	0	0
KLX02:2	HLX30 138 m	KLX02 1,154.5 m	1,145–1,164	1,539				0		0	0	0
KLX02:1	HLX30 138 m	KLX02 1,432.5 m	1,165–1,700	1,738				0		0	0	0
KLX07B:3	HLX30 138 m	KLX07B 29 m	9.64–48	485				0		0	0	0
KLX07B:2	HLX30 138 m	KLX07B 80 m	49–111	480				0		0	0	0
KLX07B:1	HLX30 138 m	KLX07B 156 m	112–200.13	482				0		0	0	0
KLX04:1	HLX30 138 m	KLX04 949	898–1,000	911				0		0	0	0
KLX04:2	HLX30 138 m	KLX04 884	870–897	851				0		0	0	0
KLX04:3	HLX30 138 m	KLX04 777 m	686–869	753		11,85	11,14	0,71	84,360	7	402	2,662
KLX04:4	HLX30 138 m	KLX04 608 m	531–685	606		11,68	10,73	0,95	71,160	5	538	3,445
KLX04:5	HLX30 138 m	KLX04 518 m	507–530	533		12,02	10,1	1,92	20,640	14	1,087	6,822
KLX04:6	HLX30 138 m	KLX04 368 m	231–506	427		11,61	10,63	0,98	74,340	2	555	3,359
KLX04:7	HLX30 138 m	KLX04 210 m	163–230	357		12,08	9,91	2,17	10,620	13	1,228	7,266
KLX04:8	HLX30 138 m	KLX04 87 m	12.2–162	333		12,29	10,6	1,69	14,640	8	956	5,555

Table 5-12 Evaluated hydraulic parameters for interference test in HLX30. Those boldfaced parameters are considered as most representative.

Borehole	Tested section (m)	Drawdown Flow regime –well –aquifer –boundary	Omega Lambda	T [m²/s]	S [–]	skin	Recovery Flow regime –well –aquifer –boundary	Omega Lambda	T [m²/s]	S [–]	skin
Pumped borehole											
HLX30	9,10–163,4	Data missing during drawdowen phase due to malfunctioning pressure gauge.					**WBS Radial composite infinite**	**M = 1.31 D = 0.205**	**3,E-04**	**7E-5 input**	**–3,8**
Observation holes											
HLX13	11,87–200,02	Line source Radial infinite		3,E-04	9,E-05		**Line source Radial infinite**		**3,E-04**	**1,E-04**	
HLX14	11–115,9	Line source Radial infinite		2,E-04	7,E-05		**Line source Radial infinite**		**2,E-04**	**8,E-05**	
HLX25:2	6,12–60	Line source Radial infinite		3,E-04	4,E-05		**Line source Radial infinite**		**3,E-04**	**4,E-05**	
HLX25:1	61–202,5	Line source Radial infinite		3,E-04	5,E-05		**Line source Radial radial**		**3,E-04**	**4,E-05**	
HLX31:2	9,10–100	Line source Double por Leaky fault	O = 1E-5 L = 5E-6	2,E-04	7,E-06		**Line source Double por Leaky fault**	**O = 9,95E-6 L = 0,0859**	**2,E-04**	**7,E-06**	
HLX31:1	101–133,2	**Line source Radial Leaky fault**		**1,E-04**	**2,E-05**		Line source Radial Leaky fault		2,E-04	2,E-05	
HLX33:2	9,10–30	Line source Radial infinite		8,E-04	5,E-04		**Line source Radial infinite**		**7,E-04**	**6,E-04**	
HLX33:1	31–202,1	Line source Radial infinite		5,E-04	4,E-04		**Line source Radial infinite**		**6,E-04**	**6,E-04**	

Borehole	Tested section (m)	Drawdown Flow regime **–well** **–aquifer** **–boundary**	Omega Lambda	T [m²/s]	S [–]	skin	Recovery Flow regime **–well** **–aquifer** **–boundary**	Omega Lambda	T [m²/s]	S [–]	skin
KLX04:3	686–869	Line source Radial infinite		2,E-04	1,E-04		**Line source** **Radial** **infinite**		**1,E-04**	**1,E-04**	
KLX04:4	531–685	**Line source** **Radial** **infinite**		**9,E-05**	**1,E-04**		Bad match				
KLX04:5	507–530	Line source Radial infinite		1,E-04	5,E-05		**Line source** **Radial** **infinite**		**2,E-04**	**5,E-05**	
KLX04::6	231–506	**Line source** **Radial** **infinite**		**1,E-04**	**3,E-05**		Line source Radial infinite		1,E-04	4,E-05	
KLX04:7	163–230	Line source Radial radial		2,E-04	6,E-05		**Line source** **Radial** **radial**		**1,E-04**	**8,E-05**	
KLX04:8	12.2–162	**Line source** **Radial** **radial**		**2,E-04**	**1,E-04**		Line source Radial radial		2,E-04	1,E-04	

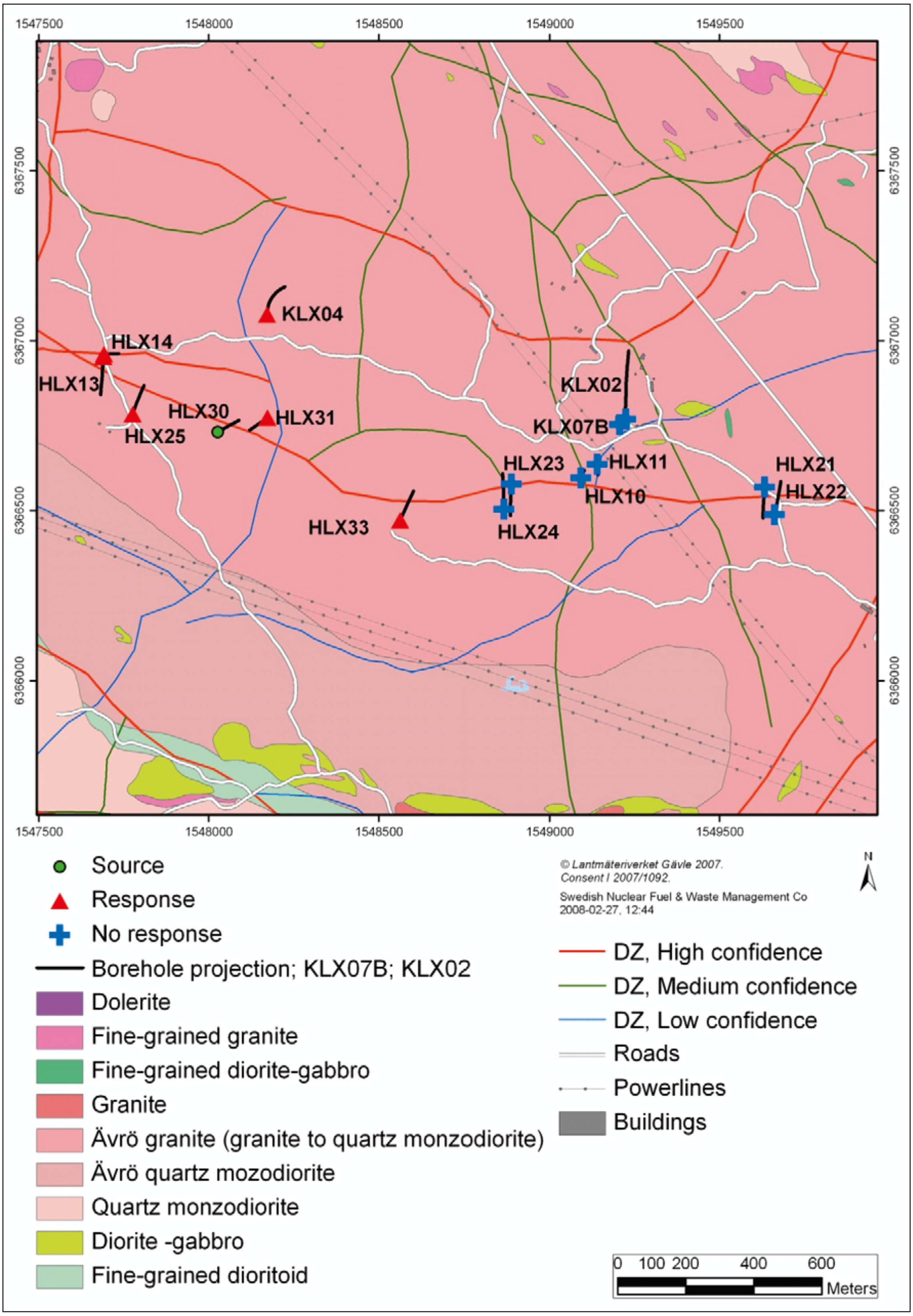


Figure 5-8. *Borehole response map of interference test when pumping HLX30.*

Flow regime and calculated parameters

The diagnostic log-log plot of the recovery phase show a radial composite flow regime with a slightly higher T for the inner zone relative the outer zone of 30%. The radial composite model could be fitted fairly well to the recovery.

Selected representative parameters

Representative transmissivity is $3 \cdot 10^{-4}$ m²/s which was derived by assuming $S = 7 \cdot 10^{-5}$.

Observation section HLX13, 11.87–200.02 m

Flow regime and calculated parameters

Both drawdown and recovery phase display radial flow regime and both were fitted well with such model. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are $T = 3 \cdot 10^{-4}$ m²/s and $S = 1 \cdot 10^{-4}$ derived from the recovery phase.

Observation section HLX14, 11–115.9 m

Flow regime and calculated parameters

Both drawdown and recovery phase display radial flow regime and both were fitted well with such model. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are $T = 2 \cdot 10^{-4}$ m²/s and $S = 8 \cdot 10^{-5}$ derived from the recovery phase.

Observation section HLX25:1, 61–202.5 m

Flow regime and calculated parameters

Both drawdown and recovery phase display radial flow regime and both were fitted well with such model. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are $T = 3 \cdot 10^{-4}$ m²/s and $S = 4 \cdot 10^{-5}$ derived from the recovery phase.

Observation section HLX25:2, 6.12–60 m

Flow regime and calculated parameters

Both drawdown and recovery phase display radial flow regime and both were fitted well with such model. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are $T = 3 \cdot 10^{-4}$ m²/s and $S = 4 \cdot 10^{-5}$ derived from the recovery phase.

Observation section HLX31:1, 101–133.2 m

Flow regime and calculated parameters

Both drawdown and recovery phase display a double porosity flow regime encountering a leaky fault at late stage and both were fitted well with such model. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are $T = 1 \cdot 10^{-4}$ m^2/s and $S = 2 \cdot 10^{-5}$ derived from the drawdown phase.

Observation section HLX31:2, 9.1–30 m

Flow regime and calculated parameters

The drawdown display an initial radial flow regime followed by a leaky fault while the recovery phase display a subtle double porosity flow regime encountering a leaky fault at late stage. Both phases were fitted well with their respective models. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are $T = 2 \cdot 10^{-4}$ m^2/s and $S = 7 \cdot 10^{-6}$ derived from the recovery phase.

Observation section HLX33:1, 31–202.1 m

Flow regime and calculated parameters

The drawdown and recovery display radial flow regime, though the log-log derivative is very noisy due to superimposed external cyclical fluctuations. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are $T = 6 \cdot 10^{-4}$ m^2/s and $S = 6 \cdot 10^{-4}$ derived from the recovery phase.

Observation section HLX33:2, 9.1–30 m

Flow regime and calculated parameters

The drawdown and recovery display radial flow regime, though the log-log derivative is very noisy due to superimposed external cyclical fluctuations. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are $T = 7 \cdot 10^{-4}$ m^2/s and $S = 6 \cdot 10^{-4}$ derived from the recovery phase.

Observation section KLX04:3, 686–869 m

Flow regime and calculated parameters

The drawdown and recovery display radial flow regime, though the log-log derivative is very noisy due to superimposed external cyclical fluctuations. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are $T = 1 \cdot 10^{-4}$ m^2/s and $S = 1 \cdot 10^{-4}$ derived from the recovery phase.

Observation section KLX04:4, 531–685 m

Flow regime and calculated parameters

The drawdown display radial flow regime, though the log-log derivative is very noisy due to super-imposed external cyclical fluctuations. The log-log of the recovery was too noisy to yield any usable match between data and model, no parameters were therefore evaluated.

Selected representative parameters

Most representative parameters are T = $9 \cdot 10^{-5}$ m^2/s and S = $1 \cdot 10^{-4}$ derived from the drawdown phase.

Observation section KLX04:5, 507–530 m

Flow regime and calculated parameters

The drawdown and recovery display radial flow regime and both could be fit quite well with such model. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are T = $2 \cdot 10^{-4}$ m^2/s and S = $5 \cdot 10^{-5}$ derived from the recovery phase.

Observation section KLX04:6, 231–506 m

Flow regime and calculated parameters

The drawdown and recovery display radial flow regime and both could be fit quite well with such model, though the log-log is very noisy. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are T = $1 \cdot 10^{-4}$ m^2/s and S = $3 \cdot 10^{-5}$ derived from the drawdown phase.

Observation section KLX04:7, 163–230 m

Comments to test

Flow regime and calculated parameters

The drawdown and recovery display radial flow regime and both could be fitted with such model, though the recovery phase have a better match between data and model. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are T = $1 \cdot 10^{-4}$ m^2/s and S = $8 \cdot 10^{-5}$ derived from the recovery phase.

Observation section KLX04:8, 12.2–162 m

Flow regime and calculated parameters

The drawdown and recovery display radial flow regime and both could be fitted quite well with such model. Almost identical T and S were derived for the drawdown and recovery phase respectively.

Selected representative parameters

Most representative parameters are T = $2 \cdot 10^{-4}$ m^2/s and S = $1 \cdot 10^{-4}$ derived from the drawdown phase.

5.8 Interference test HLX33 – March 2005

In the following summaries of responses (Table 5-13) and derived aquifer parameters (Table 5-14) are given along with a short description of flow regimes and choice of most representative T and S. Figure 5-9 shows the borehole response map.

Evaluations of all tests that responded to the pumping are compiled in Appendix 6.

Table 5-13 Observations in monitored boreholes during interference test pumping HLX33, March 2005.

	From Hydraulic point of application (m)	To Hydraulic point of application (m)	Tested section (m)	Distance r_s (m)	Q_p [L/min]	h_i [m.a.s.l.]	h_p [m.a.s.l.]	dh_p [m]	dt_L (dp = 0.1 m) [s]	r_s^2/dt_L (m2/s) Index1	dh_p/Q_p (m/m3/s) Index2	dh_p/Q_p* ln(rs/r0) (m/m3/s) Index2new
Pumped borehole												
HLX33	HLX33 181 m	HLX33 181 m	9.1–202 m	0	39,2	819.9 kPa	780.6 kPa	3,93	60		6,015	6,015
Observation holes												
HLX11	HLX33 181 m	HLX11 70 m	6–70	517				0	0	0	0	0
HLX13	HLX33 181 m	HLX13 111 m	12–200	976				0	0	0	0	0
HLX14	HLX33 181 m	HLX14 25 m	11–116	996				0	0	0	0	0
HLX21	HLX33 181 m	HLX21 88 m	9–150	1,035				0	0	0	0	0
HLX22	HLX33 181 m	HLX22 163	9–163	1,083				0	0	0	0	0
HLX23:2	HLX33 181 m	HLX23 49 m	6,10–60	313				0	0	0	0	0
HLX23:1	HLX33 181 m	HLX23 67 m	61–160,2	307				0	0	0	0	0
HLX24:2	HLX33 181 m	HLX24 10 m	9,10–40	309,9				0,072	> 19,920	< 4,82	110	632
HLX24:1	HLX33 181 m	HLX24 121 m	41–175,20	273,1		11,623	11,549	0,074	> 19,920	< 3,74	113	635
HLX25:2	HLX33 181 m	HLX25 52 m	6,12–60	862				0	0	0	0	0
HLX25:1	HLX33 181 m	HLX25 121 m	61–202,5	854				0	0	0	0	0
HLX30:2	HLX33 181 m	HLX30 88 m	9,10–100	579				0	0	0	0	0
HLX30:1	HLX33 181 m	HLX30 138 m	101–163,4	560				0	0	0	0	0
HLX31:2	HLX33 181 m	HLX31 10 m	9,10–100	507				0	0	0	0	0
HLX31:1	HLX33 181 m	HLX31 118 m	101–133,2	513				0	0	0	0	0
KLX02:8	HLX33 181 m	KLX02 205.5 m	0–208	670				0	0	0	0	0
KLX02:7	HLX33 181 m	KLX02 278 m	209–347	681				0	0	0	0	0
KLX02:6	HLX33 181 m	KLX02 399,5 m	348–451	715				0	0	0	0	0
KLX02:5	HLX33 181 m	KLX02 473 m	452–494	745				0	0	0	0	0
KLX02:4	HLX33 181 m	KLX02 606 m	495–717	813				0	0	0	0	0
KLX02:3	HLX33 181 m	KLX02 931 m	718–1,144	1,035				0	0	0	0	0
KLX02:2	HLX33 181 m	KLX02 1,154.5 m	1,145–1,164	1,216				0	0	0	0	0
KLX02:1	HLX33 181 m	KLX02 1,432.5 m	1,165–1,700	1,458				0	0	0	0	0
KLX04:8	HLX33 181 m	KLX04 949	898–1,000	1,053				0	0	0	0	0
KLX04:7	HLX33 181 m	KLX04 884	870–897	1,007				0	0	0	0	0
KLX04:6	HLX33 181 m	KLX04 777 m	686–869	935				0	0	0	0	0
KLX04:5	HLX33 181 m	KLX04 608 m	531–685	833				0	0	0	0	0
KLX04:4	HLX33 181 m	KLX04 518 m	507–530	788				0	0	0	0	0
KLX04:3	HLX33 181 m	KLX04 368 m	231–506	729				0	0	0	0	0
KLX04:2	HLX33 181 m	KLX04 210 m	163–230	694				0	0	0	0	0
KLX04:1	HLX33 181 m	KLX04 87 m	12.2–162	689				0	0	0	0	0

Table 5-14 Evaluated hydraulic parameters for interference test HLX33, March 2005. Those boldfaced parameters are considered as most representative.

Borehole	Section (m)	**Drawdown Flow regime –well –aquifer –boundary**	**T [m²/s]**	**S [–]**	**skin**	**Recovery Flow regime –well –aquifer –boundary**	**T [m²/s]**	**S [–]**	**skin**
Pumped borehole									
HLX33	9.1–202 m	Line source Radial Infinite	1,E-4	8E-5 ansatt	–4,1	**WBS Radial comp infinite**	1,E-4	8E-5 ansatt	**–3,5**
Observation holes									
HLX24:2	9,10–40	**Line source Radial infinite** **very uncertain interpretation and parameters due to the small drawdown induced**	**7,E-04**	**2,E-04**					
HLX24:1	41 - 175,20	**Line source Radial infinite** **very uncertain interpretation and parameters due to the small drawdown induced**	**8,E-04**	**2,E-04**					

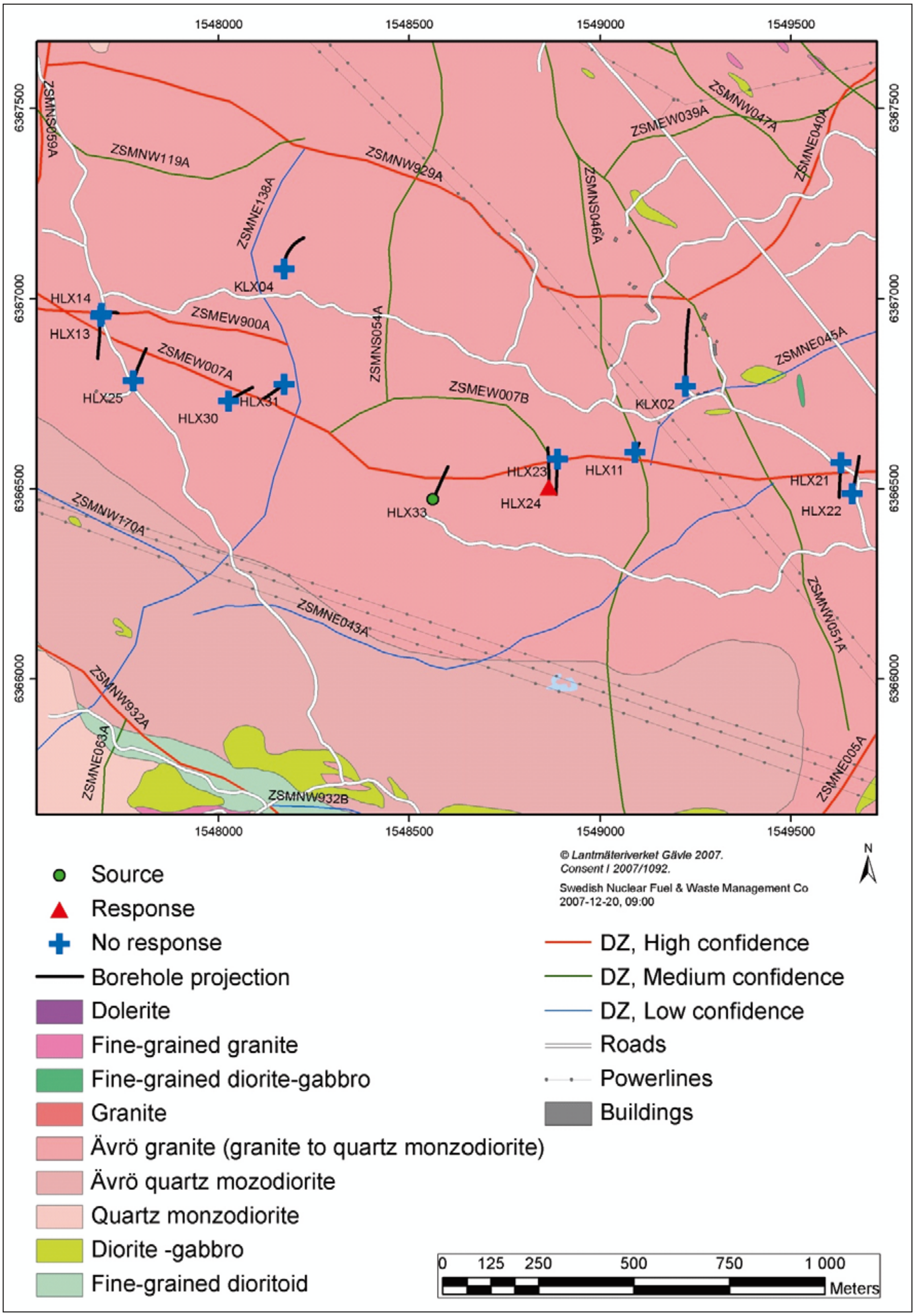


Figure 5-9. *Borehole response map of interference test when pumping HLX33, March 2005*

Pumped borehole HLX33, 9.1–202 m

Comments to test

This was a short test of only a couple of hours duration. Pumping was conducted on 31st March 2005 with a pumping rate of 39 L/min which generated a total drawdown in the pumped borehole of c 4 m.

Flow regime and calculated parameters

After the initial wellbore storage effects the drawdown show a radial flow regime throughout the pumping period, while during the recovery a radial composite behaviour is displayed after initial WBS. Both phases could be fitted very well in the log-log plot but only the recovery a parfect match was also obtained for the entire flow history.

Selected representative parameters

Representative T is $1 \cdot 10^{-4}$ m²/s which was obtained for the recovery phase assuming $S = 8 \cdot 10^{-5}$.

Observation section HLX24:1, 41–175.2 m

Flow regime and calculated parameters

This section responded to the pumping with only 7.2 cm. It appears theresponse concide with a the tidal fluctuation but its amplitude is larger than normal, 4.5 cm instead of 2 cm. The data as shown in the log-log plot exhibit a radial flow regime and could be fitted for drawdown phase but not for the recovery where the semi-log and linear plot are off completely.

Selected representative parameters

Due to the small drawdown generated and the superimposed external fluctuations the parameters derived here of $T = 8 \cdot 10^{-4}$ m²/s and $S = 2 \cdot 10^{-4}$ must be considered quite uncertain.

Observation section HLX24:2, 9.1–40 m

Flow regime and calculated parameters

This section responded to the pumping with only about 7 cm. It appears theresponse concide with a with the tidal fluctuation but its amplitude is larger than normal, 4.5 cm instead of 2 cm. The data as shown in the log-log plot exhibit a radial flow regime and could be fitted for drawdown phase but not for the recovery where the semi-log and linera lot are off completely.

Selected representative parameters

Due to the small drawdown generated and the superimposed external fluctuations the parameters derived here of $T = 7 \cdot 10^{-4}$ m²/s and $S = 2 \cdot 10^{-4}$ must be considered quite uncertain.

5.9 Interference test HLX33 – June 2006

This test was executed as part of AP PS 400-06-36 whose main objective was to assess the hydraulic connection between the rock aquifer and the aquifer in the overlying soils utilising tracers. The evaluation however was done as part of AP PS 400-07-71 for the observation boreholes and AP PS 400-06-115 for the pumped hole.

Results pertaining to responses to the tracer and in the soil wells are reported in /Svensson et al. 2008/.

In the following, summaries of responses (Table 5-15) and derived aquifer parameters (Table 5-16) are given along with a short description of flow regimes and choice of most representative T and S. Figure 5-10 shows the borehole response map.

Evaluations of all tests that responded to the pumping are compiled in Appendix 7.

Table 5-15 Observations in monitored boreholes during interference test pumping HLX33, June 2006.

Borehole	Secup (m)	Seclow (m)	Point of appl. (m)	Qp (L/min)	Duration of pumping (h)	Distance, r_s (m)	dh_{p_corr}* (m) (trendcorr)	dt_{L_corr}** (s) (trendcorr)	dh_{p_corr}/Q_p (m/(m³/s)) Index2_corr	$dh_{p\_corr}/Q_p)*\ln(r_s/r_0)$ (m/(m³/s)) Index2_new_corr	r_s^2/dt_{L_corr} (m²/s) Index1_corr
Pumped borehole											
HLX33	9,00	202,10	105,6	97	960,70	0	13,46		8,326	8,325	
Observation holes											
HLX11:1	14,00	70,00	42,0	97	960,70	525,1	0,27	120,000	167,36	1,048,24	2,30
HLX11:2	6,00	13,00	9,5	97	960,70	522,7	0,24	180,000	148,76	931,09	1,52
HLX23:1	61,00	160,20	110,6	97	960,70	301,5	0,66	10,800	409,09	2,335,46	8,42
HLX23:2	6,03	60,00	33,0	97	960,70	313,8	0,41	15,600	254,13	14,610,91	6,31
HLX24:1	41,00	175,20	108,1	97	960,70	284,8	0,86	6,900	533,06	30,132,66	11,75
HLX24:2	9,03	40	24,5	97	960,70	291	0		0	0	0
HLX25:1	61,00	202,50	131,8	97	960,70	849,9	0,14	528,000	86,878	585,33	1,37
HLX25:2	6,03	60,00	33,0	97	960,70	853,0	0,12	525,000	74,438	5,021,97	1,39
HLX30:1	101,00	163,40	132,2	97	960,70	560,7	0,28	90,000	1,743,55	1,098,44	3,49
HLX30:2	9,03	100,00	54,5	97	960,70	582,3	0,23	102,000	1,432,56	9,087,68	3,32
HLX31	9	133.2	71,1	97	960,70	498	0,325	90,000	199	1,233	1,802.76
KLX02:1	1,165	1,700	1,432,5	97	960,70	1,530,5	0		0	0	0
KLX02:2	1,145	1,164	1,154,5	97	960,70	1,286,7	0		0	0	0
KLX02:3	718	1,144	931,0	97	960,70	1,103,7	0		0	0	0
KLX02:4	495	717	606,0	97	960,70	872,5	0		0	0	0
KLX02:5	452	494	473	97	960,70	797,3	0,30	168,000	1,865,95	1,242,37	3,78
KLX02:6	348	451	399,5	97	960,70	762,7	0,26	192,000	161,16	107,069,57	3,03
KLX02:7	208	347	277,5	97	960,70	719,2	0,28	120,000	1,743,55	11,421,65	4,31
KLX02:8	202,95	207	205,0	97	960,70	702,4	0,42	84,000	260,33	1,706,32	5,87
KLX04:1	898	993,49	945,7	97	960,70	1,113,6	0		0	0	0
KLX04:2	870	897	883,5	97	960,70	1,067,9	0		0	0	0
KLX04:3	686	869	777,5	97	960,70	993,4	0		0	0	0
KLX04:4	531,00	685,00	608,0	97	960,70	884,8	0,25	276,000	1,554,96	1,051,45	2,84
KLX04:5	507,00	530,00	518,5	97	960,70	835,0	0,25	258,000	1,554,96	1,042,47	2,70

Borehole	Secup (m)	Seclow (m)	Point of appl. (m)	Qp (L/min)	Duration of pumping (h)	Distance, r_s (m)	dh_{p_corr}* (m) (trendcorr)	dt_{L_corr}** (s) (trendcorr)	dh_{p_corr}/Q_p (m/(m^3/s) Index2_corr	$dh_{p\_corr}/Q_p)*ln(r_s/r_0)$ (m/(m^3/s) Index2_new_corr	r_s^2/dt_{L_corr} (m^2/s) Index1_corr
KLX04:6	231,00	506,00	368,5	97	960,70	766,1	0,37	198,000	229,34	1,523,10	2,96
KLX04:7	163,00	230,00	196,5	97	960,70	714,6	0,35	222,000	2,176,94	14,265,68	2,30
KLX04:8	11,90	162,00	86,9	97	960,70	700,5	0,20	96,000	1,243,97	812,21	5,11
KLX07A:1	781	844,73	812,9	97	960,70	899,6	0		0	0	0
KLX07A:2	753	780	766,5	97	960,70	867,8	0		0	0	0
KLX07A:3	612	752	682,0	97	960,70	813,5	0		0	0	0
KLX07A:4	457	611	534,0	97	960,70	732,5	0		0	0	0
KLX07A:5	333	456	394,5	97	960,70	684,7	0,10	468,000	621,98	4,054,69	1,00
KLX07A:6	204	332	268,0	97	960,70	661,0	0,14	360,000	876,78	5,643,51	1,21
KLX07A:7	104	203	153,5	97	960,70	654,0	0,30	48,000	1,865,95	12,065,54	8,91
KLX07A:8	11,8	103	57,4	97	960,70	660,6	0,49	38,400	3,043,72	1,972,11	11,37
KLX07B:1	95,00	200,00	147,5	97	960,70	664,0	0,54	31,200	3,354,71	2,175,03	14,13
KLX07B:2	9,64	94,00	51,8	97	960,70	666,1	0,47	43,200	291,32	1,894,01	10,27

* dh_{p_corr} and dt_{L_corr} were derived from the recovery period for all sections.

**dt_L estimated at dh_{-corr} = 0.1 m.

Table 5-16 Evaluated hydraulic parameters for interference test HLX33, June 2006. Those boldfaced parameters are considered as most representative.

Borehole	Secup [m]	Seclow [m]	Drawdown Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin	Recovery Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin
Pumped borehole										
HLX33	9	202,1	**WBS** **Radial** **Pseudo-spherical (leaky) flow**	**1,5E-4**	**4,7E-4 assumed**	–0,1	WBS Radial Pseudo-spherical (leaky) flow	1,5E-4	4,7E-4 assumed	–0,3
Observation holes										
HLX11:1	14	70	Line source Radial Pseudo-spherical	1,7E-3	6,6E-4		**Line source** **Radial** **Pseudo-spherical**	**6,5E-4**	**5,6E-4**	
HLX11:2	6	13	Line source Radial Pseudo-spherical	1,4E-3	1,1E-3		**Line source** **Radial** **Pseudo-spherical**	**4,1E-04**	**7,2E-4**	
HLX23:1	61	160,2	Line source Radial Pseudo-spherical	6,5E-4	1,3E-4		**Line source** **Radial** **Pseudo-spherical**	**4,6E-4**	**1,5E-4**	
HLX23:2	6,03	60	Line source Radial Pseudo-spherical	6,6E-4	2,7E-4		**Line source** **Radial** **Pseudo-spherical**	**4,9E-4**	**2,0E-4**	
HLX24:1	41	175,2	**Line source** **Radial** **Pseudo-spherical**	**3,5E-4**	**1,2E-4**		Line source Radial Pseudo-spherical	**3,1E-4**	**1,1E-4**	
HLX25:1	61	202,5	Line source Radial Pseudo-spherical	3,2E-4	4,7E-4		**Line source** **Radial** **Pseudo-spherical**	**1,2E-3**	**1,4E-3**	
HLX25:2	6,03	60	Line source Radial Pseudo-spherical	3,0E-4	4,6E-4		**Line source** **Radial** **Pseudo-spherical**	**1,2E-3**	**1,3E-3**	
HLX30:1	101	163,4	Line source Radial infinite	9,4E-4	6,5E-4		**Line source** **Radial** **infinite**	**1,3E-3**	**4,8E-4**	
HLX30:2	9,03	100	Line source Radial infinite	9,2E-4	7,8E-4		**Line source** **Radial** **infinite**	**1,4E-3**	**6,9E-4**	
HLX31	9	133,2	Line source Radial Pseudo-spherical	7,5E-4	9,4E-4		**Line source** **Radial** **infinite**	**9.6E-4**	**7.0E-4**	
KLX02:5	452	494	Line source Radial (radial)	4,2E-4	1,5E-3		**Line source** **Radial** **Pseudo-spherical**	**3,5E-04**	**3,7E-4**	
KLX02:6	348	451	Line source Radial infinite	5,0E-4	1,3E-3		**Line source** **Radial** **Pseudo-spherical**	**3,5E-4**	**3,4E-4**	
KLX02:7	208	347	Line source Radial Pseudo-spherical	1,6E-3	9,4E-4		**Line source** **Radial** **infinite**	**1,5E-3**	**3,0E-4**	
KLX02:8	202,95	207	Line source Radial Pseudo-spherical	6,6E-4	3,2E-4		**Line source** **Radial** **infinite**	**7,9E-4**	**1,9E-4**	
KLX04:4	531	685	Line source Radial Pseudo-spherical	1,8E-4	3,5E-4		**Line source** **Radial** **Pseudo-spherical**	**2,7E-4**	**3,2E-4**	

Borehole	Secup [m]	Seclow [m]	Drawdown Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin	Recovery Flow regime –well –aquifer –boundary	T [m²/s]	S [–]	skin
KLX04:5	507	530	Line source Radial Pseudo-spherical	2,8E-4	4,1E-4		**Line source** **Radial** **Pseudo-spherical**	**4,7E-4**	**4,8E-4**	
KLX04:6	231	506	Line source Radial Pseudo-spherical	3,8E-4	3,5E-4		**Line source** **Radial** **Pseudo-spherical**	**2,5E-4**	**3,2E-4**	
KLX04:7	163	230	Line source Radial Pseudo-spherical	3,0E-4	3,9E-4		**Line source** **Radial** **Pseudo-spherical**	**1,1E-4**	**2,5E-4**	
KLX04:8	11,9	162	**Line source** **Radial** **Radial**	**4,6E-4**	**5,3E-4**		Not analysable			
KLX07A:5	333	456	**Line source** **Radial** **Pseudo-spherical**	5,0E-4	1,6E-3		**Line source** **Radial** **Pseudo-spherical**	**5,8E-4**	**7,8E-4**	
KLX07A:6	204	332	Line source Radial infinite	9,0E-4	1,10E-3		**Line source** **Radial** **Pseudo-spherical**	**3,0E-4**	**3,6E-4**	
KLX07A:7	104	203	Line source infinite No flow boundary?	8,3E-4	2,7E-3		**Line source** **Radial** **infinite**	**1,6E-3**	**1,5E-4**	
KLX07A:8	11,8	103	**Line source** **Radial** **Pseudo-spherical**	**7,9E-4**	**1,7E-4**		**Line source** **Radial** **Pseudo-spherical**	**6,5E-4**	**1,2E-4**	
KLX07B:1	95	200	**Line source** **Radial** **Pseudo-spherical**	**4,6E-4**	**1,5E-4**		**Line source** **Radial** **Pseudo-spherical**	**4,1E-4**	**8,8E-5**	
KLX07B:2	9,64	94	**Line source** **Radial** **Pseudo-spherical**	**3,2E-4**	**1,8E-4**		Line source Radial Pseudo-spherical	7,5E-4	1,1E-4	

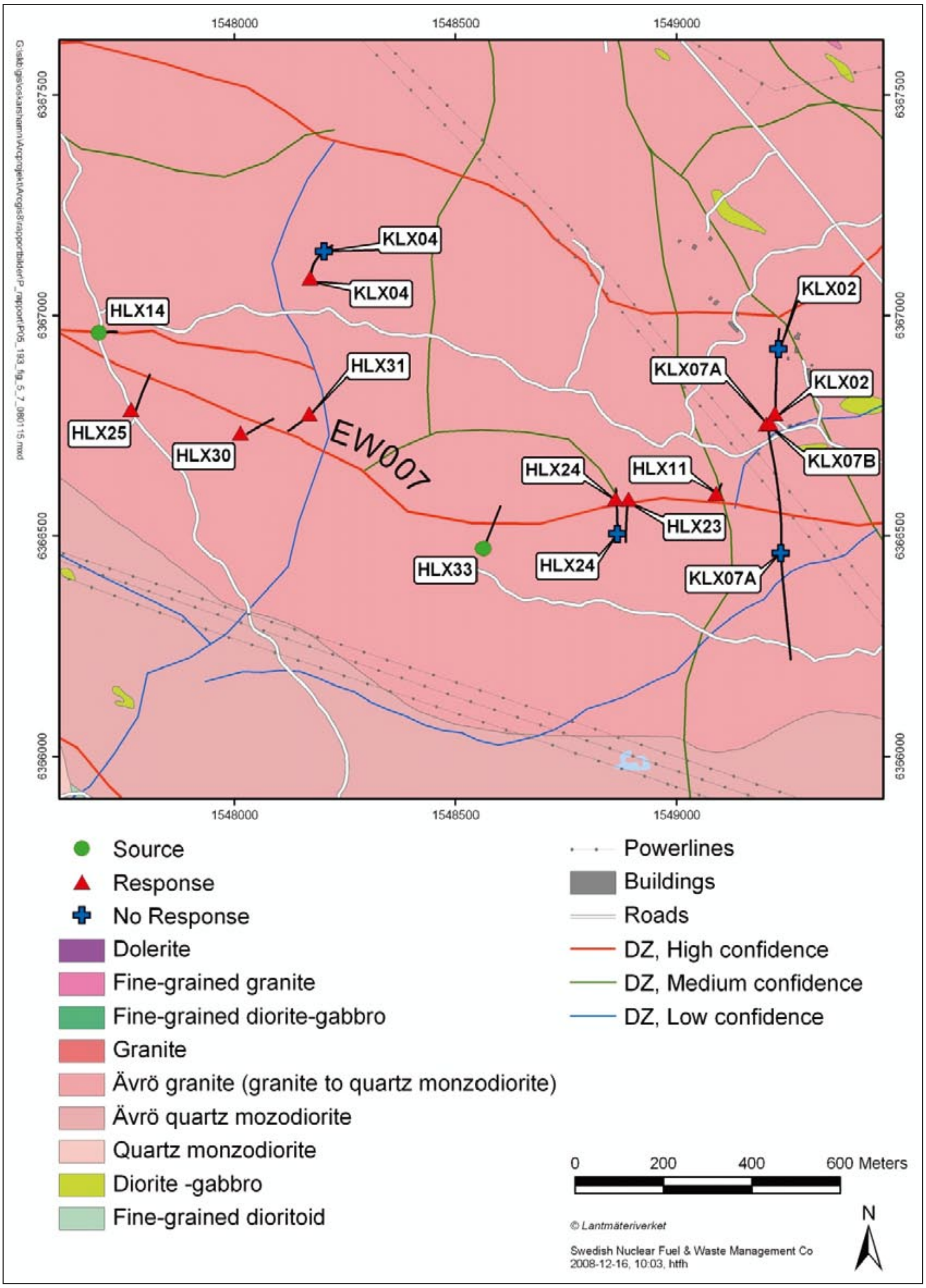


Figure 5-10. *Borehole response map of interference test when pumping HLX33 in June 2006. For boreholes KLX02, KLX04 and KLX07A the upper part of the boreholes responded to the pumping while not so for the lower part. In HLX24 only the lower part responded to the pumping. This is indicated in the figure with two signs for these holes, a plus sign (+) indicating no response and a triangle (▲) indicating the responding part of the hole. HLX14 was pumped to provide flushing water for the core drilling operations and did interfere with the HLX33 test.*

The measured hydraulic head data of all observation holes have been corrected for a decreasing, natural head trend during the test period before the test analysis as specified below. No other corrections of the measured head data, e.g for other external activities or other pumping activities during the test period have been made. However, during the interference test in HLX33, continuous pumping was ongoing in HLX14. The latter pumping influenced the responses in several of the observation sections as discussed below. For the analysis of the recovery phase the test was truncated at August 21 (or slightly earlier) due to heavy precipitation causing an artificial increase of the groundwater head during recovery, not related to the pumping in HLX33, cf Figure 5-11.

The corrected head responses during both the flow and recovery period are considered as uncertain in several observation sections due to the correction applied for the natural head trend, precipitation, earth tidal effects together with influences from the pumping in HLX14 during the entire test period. An example of a time series from sections 1 and 2 in borehole HLX24, including the interference test period, is shown in Figure 5-11. The natural decline of heads can be clearly seen in the diagram together with the sharp head increase after 2006-08-21 due to precipitation. Section HLX24:1 is clearly influenced by the pumping in HLX33 whereas section HLX24:2 seems to be unaffected by the pumping.

Due to these facts, both the magnitude of the responses and thus the transient evaluations of both the flow period and the recovery period, are considered as uncertain for this interference test.

The above mentioned uncertainties also transfer to the interpretation of flow regimes. The diagnostic log-log plots may in some instances reveal an apparent inflection in the curve. Such inflection could also suggest some kind of equivalent "multiporosity" behaviour (e.g. double porosity, double permeability or multi layer system), e.g. HLX11 and HLX24. We have chosen to keep the interpretation model as simple as possible and usually not invoked this additional complexity in the interpretation**.**

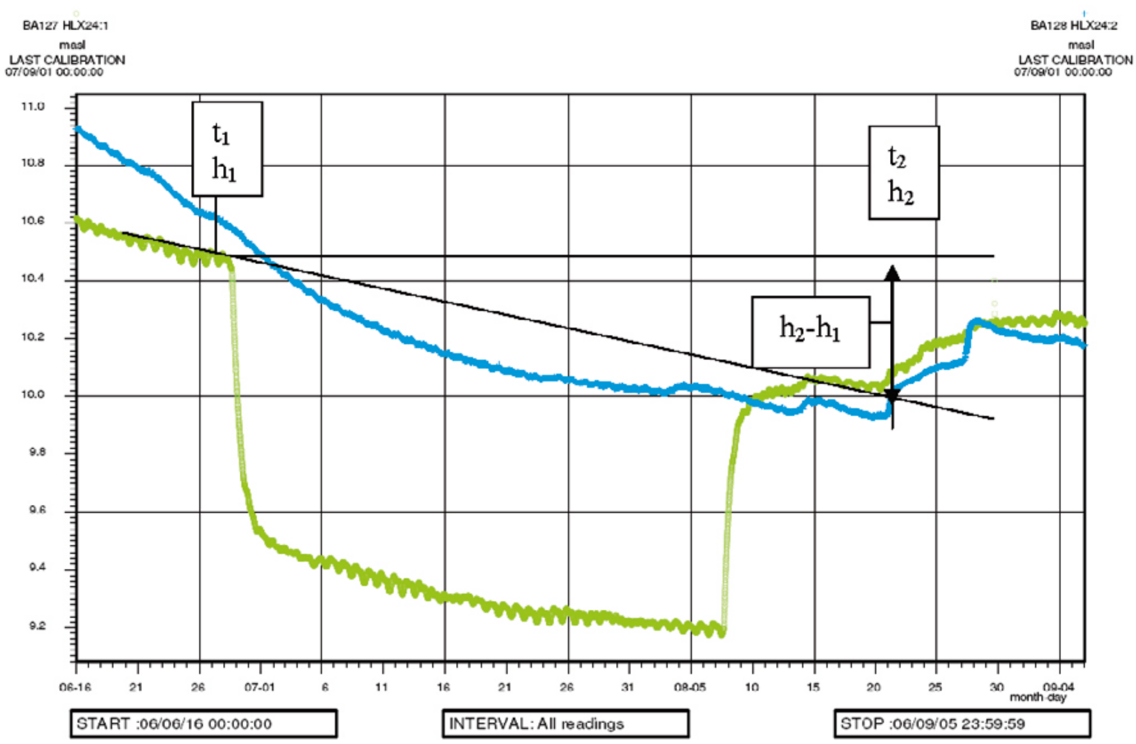


Figure 5-11. *Linear plot of head versus time in observation borehole sections HLX24:1 (green) and HLX24:2 (blue) during the interference test in HLX33 in June 2006. The figure shows the procedure for correction of the natural head trend.*

Trend correction

A natural, decreasing head trend was ongoing during the entire period of the interference test in HLX33, Figure 5-11. The head data from the test period were corrected for the natural trend using the graphical technique described in Figure 5-11 according to Eqn. (5-1). The assumed trend line may be calculated between two arbitrary points on the measured head curve. In this case, t_1 is chosen at start of pumping (t_1=0) and t_2 immediately before the head increase due to precipitation. The trend line coincides with the observed head trend before start of pumping. The slope of the assumed trend line (which is negative in this case) is calculated according to Eqn. (5-2).

The linear trend is assumed to represent the existing natural head trend between the two points. However, as indicated in Figure 5-11, the natural trend may not be entirely linear during the whole time period between t_1 and t_2 which may cause a slight over-compensation of the head during time periods with a lower natural trend (and vice versa). To eliminate or reduce overcompensation, the applied trend correction was not allowed to cause increasing heads at the end of the flow period in any section. In such cases a lower trend correction was applied. A linear trend correction with time was determined individually for all responding observation sections according to Eqn. (5-1) and applied to both the drawdown and recovery period.

$$h(t)_{corr} = h(t) – (dh/dt) \cdot t_T \qquad (5\text{-}1)$$

$$dh/dt = (h_2–h_1)/(t_2–t_1) \qquad (5\text{-}2)$$

t = time after start of pumping (s)

t_T = total elapsed time since start of pumping (s)

h_1 and h_2 = measured head (m) at time t_1 and t_2 (s) after start of pumping, respectively

h(t) = measured head at time t (m)

$h(t)_{corr}$ = corrected head at time t (m)

dh/dt = slope of assumed trend line = $(h_2–h_1)/(t_2–t_1)$

The table below shows the total drawdown at stop of pumping without trend correction (dh_p) and with trend correction (dh_pcorr), respectively. It is noted that the amount of correction was between 0.09 m and 0.69 m while the ratio between uncorrected and corrected drawdown varies between a factor 1.1 and 2.7, see Table 5-14.1.

Influence of the long-term pumping in HLX14

Pumping started in HLX14 on 2006-05-22, aimed at providing flushing water during drilling of core boreholes, and ended on 2006-10-27, see Figure 5-12. The figure shows the observed head in HLX14 (red) on the right hand Y-axis together with the head in HLX30:1 and :2 (green and blue) on the left hand Y-axis during the entire flow period. The flow rate in HLX14 (pink) was increased on 2006-06-27 (49 to 55 L/min) which can be seen as a slight decrease of head in HLX14.

Figure 5-12 also shows that the pumping in HLX14 caused a significant drawdown in both sections in HLX30 (located c 400 m from HLX14). In fact, the pumping in HLX14 resulted in decreasing heads in most observation boreholes used during the interference test in HLX33 in June, 2006. In addition, the naturally decreasing head trend affected the heads in the observation borehole sections during the interference test in HLX33.

The start and stop times of the interference test in HLX33 are shown as arrows in Figure 5-12. The flow period in HLX33 started on 2006-06-28, i.e. shortly after the increase of flow rate in HLX14, and ended on 2006-08-07. The recovery period analysed ended on 2006-08-20. The flow period in HLX33 started on 2006-06-28, i.e. shortly after the increase of flow rate in HLX14, and ended on 2006-08-07. The recovery period analysed ended on 2006-08-20. The rapid decrease of heads in HLX30, caused by the increase of flow rate in HLX14, was followed by a superimposed drawdown at longer times due to start of pumping in HLX33. The distance between HLX33 and HLX30 is slightly less than c 600 m, see Figure 5-9. The same pattern occurred in most observation boreholes, particularly those located to the west of HLX33 and more close to HLX14.

Table 5-14.1 Effects of the detrending correction on the final drawdown, dh_p.

Borehole section idcode	dh_p (m) measured drawdown	dh_pcorr (m) drawdown after trend correction	dh_p–$h_p$corr (m) difference	dh_p/dh_pcorr (–) quotient
HLX33 pumped	13,9	13,21	0,69	1,1
HLX11:1	0,54	0,25	0,29	2,2
HLX11:2	0,54	0,22	0,32	2,4
HLX23:1	1,02	0,85	0,17	1,2
HLX23:2	0,77	0,64	0,13	1,2
HLX30:1	0,91	0,51	0,4	1,8
HLX30:2	0,86	0,48	0,38	1,8
HLX25:1	0,82	0,35	0,47	2,3
HLX25:2	0,82	0,34	0,48	2,4
KLX04:4	1,08	0,54	0,54	2
KLX04:5	1,08	0,42	0,66	2,6
KLX04:6	1,16	0,53	0,63	2,2
KLX04:7	1,19	0,52	0,67	2,3
KLX04:8	1,11	0,75	0,36	1,5
HLX24:1	1,25	1,09	0,16	1,1
KLX07B:1	0,83	0,48	0,35	1,7
KLX07B:2	0,83	0,45	0,38	1,8
KLX02:5	0,78	0,54	0,24	1,4
KLX02:6	0,69	0,5	0,19	1,4
KLX02:7	0,56	0,21	0,35	2,7
KLX02:8	0,83	0,34	0,49	2,5
KLX07A:5	0,49	0,34	0,15	1,4
KLX07A:6	0,48	0,39	0,09	1,2
KLX07A:7	0,66	0,29	0,37	2,3
KLX07A:8	0,85	0,48	0,37	1,8
HLX31	0,94	0,34	0,6	2,7

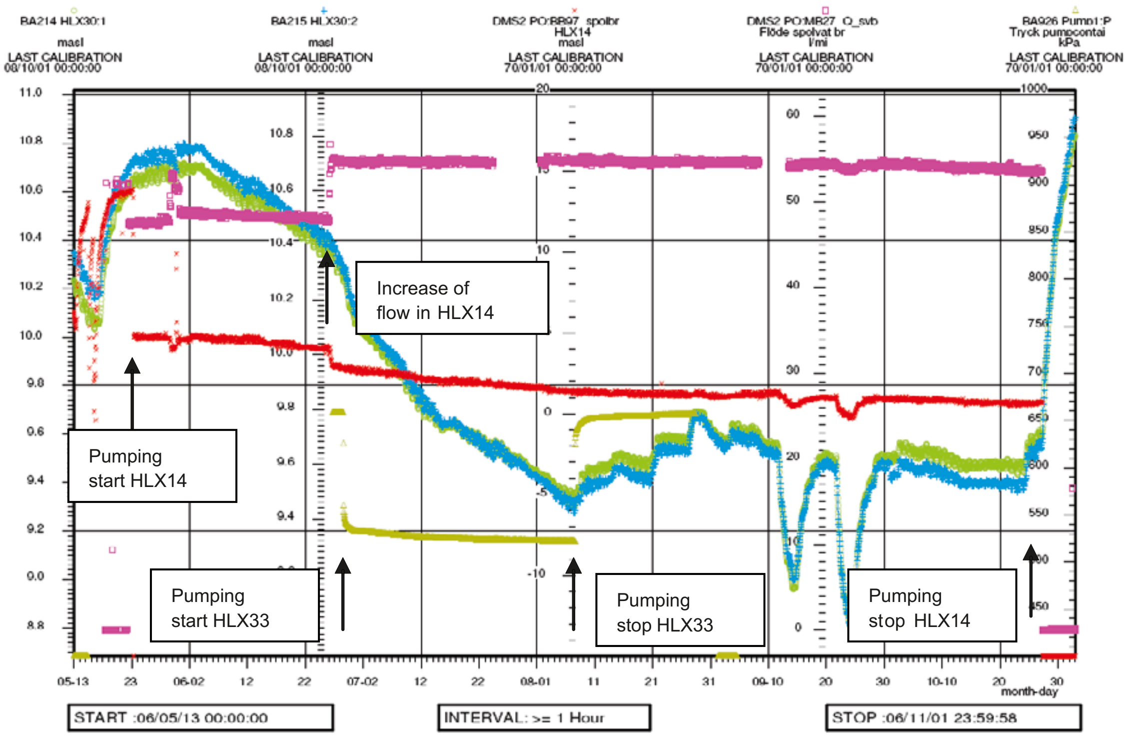


Figure 5-12. Linear plot of observed head (red) and flow rate (pink) versus time in borehole HLX14 together with head in borehole sections HLX30:1 (green) and HLX30:2 (blue) during pumping in HLX14 which includes the interference test period in HLX33 in June 2006. The head in the pumping borehole HLX33 is also shown (brown).

Figure 5-12 shows that the head was decreasing in both HLX14 and HLX30:1-2 during the entire flow period of the interference test in HLX33. In HLX30:1-2, the observed drawdown is thus most likely a combined effect of pumping in both HLX14 and HLX33. After stop of pumping in HLX33, the heads in HLX30:1-2 start to recover quite rapidly, indicating good hydraulic connection between HLX30:1-2 and HLX33.

During the recovery period of the interference test in HLX33, the head in HLX14 is only slightly changing (cf. Figure 5.12) which implies that the background pressure conditions (i.e. interference from the pumping in HLX14) are more stable during the recovery period than during the flow period of the interference test in HLX33. This effect can be seen in several observation sections as a slightly larger total drawdown than subsequent total (extrapolated) recovery at long times, e.g in HLX30:1-2 in Appendix 7. Due to this reason, the transient evaluations as well as the data for the response analysis are selected from the recovery period which is regarded as the most representative period from the interference test in HLX33 in June 2006. Only in a few cases, when the transient analyses of the recovery period were regarded as uncertain, the hydraulic parameters were selected from the flow period, cf Table 5-16.

Pumped borehole HLX33, 9.1–202 m

Comments to test

Pumping was conducted on 28th June to 7th August 2006 with a pumping rate of 97 L/min which generated a total (corrected) drawdown in the pumped borehole of c 13.5 m. Due to a malfunctioning pump the pumping was stopped for about two minutes and restarted at a higher flow rate as shown in Figure 5-13.

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation by the end. After initial WBS, both the flow and recovery period are dominated by slightly pseudo-spherical (leaky) flow. A short period of approximate pseudo-radial flow may be identified during the flow period. The test was analysed as a variable flow rate test.

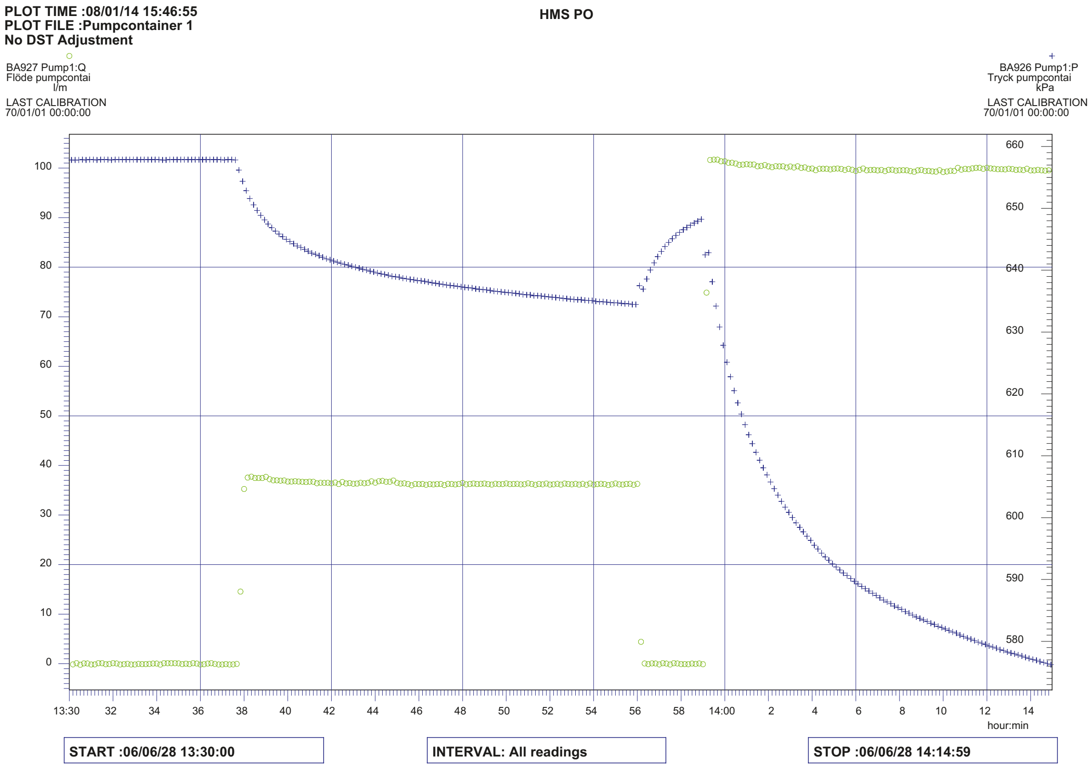


Figure 5-13. Initial phase of pumping in HLX33 when the pump was shortly stopped. Green line is flow (L/min) and blue line is water level (kPa).

Selected representative parameters

Consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the flow period are selected as the most representative for the test.

Representative parameters are $T = 1.5 \cdot 10^{-4}$ m^2/s for assumed $S = .4.7 \cdot 10^{-4}$.

Observation section HLX11:1, 14–70 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation. A rather distinct response is indicated in this section from pumping in HLX33. The flow period is dominated by pseudo-radial flow transitioning to pseudo-spherical (leaky) flow. The recovery period is dominated by pseudo-spherical (leaky) flow.

Selected representative parameters

The evaluated hydraulic parameter values from the flow period are considered as uncertain due to the pressure fluctuations and possible pressure interference from the pumping in HLX14. The parameter values estimated from the recovery period are selected as the most representative for the test. Most representative parameters are $T = 6.5 \cdot 10^{-4}$ m^2/s and $S = 5.6 \cdot 10^{-4}$ derived from the recovery phase.

Observation section HLX11:2, 6–13 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation. A rather distinct response is indicated in this section from pumping in HLX33. Both the flow and recovery period are dominated by pseudo-spherical (leaky) flow.

Selected representative parameters

The evaluated hydraulic parameter values from the flow period are considered as uncertain due to the pressure fluctuations and possible pressure interference from the pumping in HLX14. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 4.1 \cdot 10^{-4}$ m^2/s and $S = 7.2 \cdot 10^{-4}$ derived from the recovery phase.

Observation section HLX23:1, 61–160.2 m

See also discussion in Chapter 6.2 regarding comparison of responses between the March 2005 and June 2006 tests.

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to precipitation. A distinct response was obtained in the section from pumping in HLX33. Both the flow and recovery period are dominated by pseudo-spherical (leaky) flow preceded by a short period of approximate pseudo-radial flow. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

Consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 4.6 \cdot 10^{-4}$ m^2/s and $S = 1.5 \cdot 10^{-4}$ derived from the recovery phase.

Observation section HLX23:2, 6.03–60 m

See also discussion in Chapter 6.2 regarding comparison of responses between the March 2005 and June 2006 tests.

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to precipitation. A distinct response was obtained in the section from pumping in HLX33. Both the flow and recovery period are dominated by pseudo-spherical (leaky) flow preceded by a short period of approximate pseudo-radial flow. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

Consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 4.9 \cdot 10^{-4}$ m²/s and $S = 2.0 \cdot 10^{-4}$ derived from the recovery phase.

Observation section HLX24:1, 41–175.2 m

See also discussion in Chapter 6.2 regarding comparison of responses between the March 2005 and June 2006 tests.

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation by the end.

A distinct response was obtained in the section from pumping in HLX33. Both the flow and recovery period are dominated by pseudo-spherical (leaky) flow preceded by a short period of approximate pseudo-radial flow.

Selected representative parameters

Consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the flow period are selected as the most representative for the test.

Most representative parameters are $T = 3.5 \cdot 10^{-4}$ m²/s and $S = 1.2 \cdot 10^{-4}$ derived from the drawdown phase.

Observation section HLX25:1, 61–202.5 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation. The flow period is affected by the pumping in HLX14.

A weak response is indicated in the section from pumping in HLX33. The flow period is dominated by pseudo-spherical (leaky) flow. The recovery is dominated by a transition period. The early response during the recovery period is strongly affected by earth tidal effects.

Selected representative parameters

The evaluated hydraulic parameter values from both the flow period and recovery period are considered as uncertain. Yet, the parameter values estimated from the flow recovery period are selected as the most representative for the test due to theinterference from the pumping in HLX14 during the flow period.

Most representative parameters are $T = 1.2 \cdot 10^{-3}$ m²/s and $S = 1.4 \cdot 10^{-3}$ derived from the drawdown recovery phase.

Observation section HLX25:2, 6.03–60 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation. The flow period is affected by the pumping in HLX14.

A weak response is indicated in the section from pumping in HLX33. The flow period is dominated by pseudo-spherical (leaky) flow. The recovery is dominated by a transition period. The early response during the recovery period is strongly affected by earth tidal effects.

Selected representative parameters

The evaluated hydraulic parameter values from both the flow period and recovery period are considered as uncertain. Yet, the parameter values estimated from the flow recovery period are selected as the most representative for the test due to the interference from the pumping in HLX14 during the flow period.

Most representative parameters are $T = 1.2 \cdot 10^{-3}$ m^2/s and $S = 1.3 \cdot 10^{-3}$ derived from the drawdown recovery phase.

Observation section HLX30:1, 101–163.4 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation by the end.

A rather distinct response was obtained in this section from pumping in HLX33. Both the flow and recovery period are dominated by pseudo-radial flow. Both periods are influenced by earth tidal effects in the beginning. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

Consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 1.3 \cdot 10^{-3}$ m^2/s and $S = 4.8 \cdot 10^{-4}$ derived from the recovery phase.

Observation section HLX30:2, 9.03–100 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation by the end.

A rather distinct response was obtained in this section from pumping in HLX33. Both the flow and recovery period are dominated by pseudo-radial flow. Both periods are influenced by earth tidal effects in the beginning. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

Consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 1.4 \cdot 10^{-3}$ m^2/s and $S = 6.9 \cdot 10^{-4}$ derived from the recovery period.

Observation section HLX31, 9–133.2 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation by the end. A rather distinct response was obtained in this section from pumping in HLX33. The flow period is dominated by pseudo-spherical (leaky) flow whereas the recovery period is dominated by pseudo-radial flow. Both periods are influenced by earth tidal effects in the beginning. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

Consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the flow period are selected as the most representative for the test.

Most representative parameters are $T = 9.6 \cdot 10^{-4}$ m^2/s and $S = 7.0 \cdot 10^{-4}$ derived from the recovery period.

Observation section KLX02:5, 452–494 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis.

A rather distinct response is indicated in this section from pumping in HLX33. The flow period is dominated by a transition towards pseudo-radial flow. The recovery period is dominated by pseudo-spherical (leaky) flow. The beginning of the pressure recovery is strongly affected by earth tidal effects. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

The evaluated hydraulic parameter values from the flow period are considered as uncertain. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 3.5 \cdot 10^{-4}$ m^2/s and $S = 3.7 \cdot 10^{-4}$ derived from the recovery phase.

Observation section KLX02:6, 348–451 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis.

A rather distinct response is indicated in this section from pumping in HLX33. The flow period is dominated by a transition towards pseudo-radial flow. The recovery period is dominated by pseudo-spherical (leaky) flow. The beginning of the pressure recovery is strongly affected by earth tidal effects. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

The evaluated hydraulic parameter values from the flow period are considered as uncertain. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 3.5 \cdot 10^{-4}$ m^2/s and $S = 3.4 \cdot 10^{-4}$ derived from the recovery phase.

Observation section KLX02:7, 208–347 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis.

A weak response is indicated in this section from pumping in HLX33. The flow period is dominated by pseudo-spherical (leaky) flow. The recovery period is dominated by approximate pseudo-radial flow by the end. The beginning of the pressure recovery is strongly affected by earth tidal effects. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

The evaluated hydraulic parameter values from the flow period are considered as uncertain. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 1.5 \cdot 10^{-3}$ m^2/s and $S = 3.0 \cdot 10^{-4}$ derived from the recovery phase.

Observation section KLX02:8, 202.95–207 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis.

A rather distinct response is indicated in this section from pumping in HLX33. The flow period is dominated by pseudo-spherical (leaky) flow. The recovery period is dominated by approximate pseudo-radial flow by the end. The beginning of the pressure recovery is strongly affected by earth tidal effects. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

Rather consistent results of evaluated parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 7.9 \cdot 10^{-4}$ m^2/s and $S = 1.9 \cdot 10^{-4}$ derived from the recovery phase.

Observation section KLX04:4, 531–685 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation. A weak response is indicated in this section from pumping in HLX33. Both the flow and recovery period is dominated by pseudo-spherical (leaky) flow. The response during the recovery period is strongly affected by earth tidal effects. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

Consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the recovery period are selected as the most representative for the test. Most representative parameters are $T = 2.7 \cdot 10^{-4}$ m^2/s and $S = 3.2 \cdot 10^{-4}$ derived from the recovery period.

Observation section KLX04:5, 507–530 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation. A weak response is indicated in this section from pumping in HLX33. Both the flow and recovery period is dominated by pseudo-spherical (leaky) flow. The response during the recovery period is strongly affected by earth tidal effects. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

Rather consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 4.7 \cdot 10^{-4}$ m^2/s and $S = 4.8 \cdot 10^{-4}$ derived from the recovery period.

Observation section KLX04:6, 231–506 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation. A weak response is indicated in this section from pumping in HLX33. Both the flow and recovery period is dominated by pseudo-spherical (leaky) flow. The response during the recovery period is strongly affected by earth tidal effects. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

Rather consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 2.5 \cdot 10^{-4}$ m^2/s and $S = 3.2 \cdot 10^{-4}$ derived from the recovery period.

Observation section KLX04:7,163–230 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation. A weak response is indicated in this section from pumping in HLX33. Both the flow and recovery period is dominated by pseudo-spherical (leaky) flow. The response during the recovery period is strongly affected by earth tidal effects. The flow period may possibly be affected by the pumping in HLX14.

Selected representative parameters

Rather consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 1.1 \cdot 10^{-4}$ m^2/s and $S = 2.5 \cdot 10^{-4}$ derived from the recovery period.

Observation section KLX04:8, 11.9–162 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation. A rather distinct response is indicated in this section from pumping in HLX33. The flow period is dominated by pseudo-radial flow. The response during the recovery period is strongly affected by earth tidal effects. The flow period is probably affected by the pumping in HLX14.

No unambiguous transient evaluation could be made on the recovery period. Although uncertain, the parameter values estimated from the flow period are selected as the most representative for the test.

Selected representative parameters

Most representative parameters are $T = 4.6 \cdot 10^{-4}$ m^2/s and $S = 5.3 \cdot 10^{-4}$ derived from the drawdown phase.

Observation section KLX07A:5, 333–456 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis. The recovery period was truncated due to influence of precipitation. A rather distinct response is indicated in this section from pumping in HLX33. Both the flow and recovery period is dominated by pseudo-spherical (leaky) flow. The pressure recovery is weak and strongly affected by earth tidal effects.

Selected representative parameters

Rather consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the flow period are selected as the most representative for the test.

Most representative parameters are $T = 5.0 \cdot 10^{-4}$ m^2/s and $S = 1.6 \cdot 10^{-3}$ derived from the drawdown phase.

Observation section KLX07A:6, 204–332 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis.

A rather distinct response is indicated in this section from pumping in HLX33. The flow period is dominated by late pseudo-radial flow and the recovery period by pseudo-spherical (leaky) flow. The pressure recovery is weak and strongly affected by earth tidal effects.

Selected representative parameters

Rather consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the flow period are selected as the most representative for the test.

Most representative parameters are $T = 9.0 \cdot 10^{-4}$ m^2/s and $S = 1.1 \cdot 10^{-3}$ derived from the drawdown phase.

Observation section KLX07A:7, 104–203 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis.

A weak response is indicated in this section from pumping in HLX33. Both the flow and recovery period is dominated by late pseudo-radial flow. Possibly, an apparent no-flow boundary appears by the end of the flow period. The pressure recovery is strongly affected by earth tidal effects in the beginning.

Selected representative parameters

The evaluated hydraulic parameter values from the flow period are considered as very uncertain. The parameter values estimated from the recovery period are selected as the most representative for the test.

Most representative parameters are $T = 1.6 \cdot 10^{-3}$ m^2/s and $S = 1.5 \cdot 10^{-4}$ derived from the recovery phase.

Observation section KLX07A:8, 11.8–103 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis.

A rather distinct response is indicated in this section from pumping in HLX33. Both the flow and recovery period is dominated by intermediate pseudo-radial flow transitioning to pseudo-spherical (leaky) flow.

Selected representative parameters

Consistent results of evaluated hydraulic parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the flow period are selected as the most representative for the test.

Most representative parameters are $T = 7.9 \cdot 10^{-4}$ m^2/s and $S = 1.7 \cdot 10^{-4}$ derived from the drawdown phase.

Observation section KLX07B:1, 95–200 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis.

A rather distinct response is indicated in this section from pumping in HLX33. Both the flow and recovery period is dominated by pseudo-spherical (leaky) flow. The beginning of the pressure recovery is strongly affected by earth tidal effects.

Selected representative parameters

Consistent results of evaluated parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the flow period are selected as the most representative for the test.

Most representative parameters are $T = 4.6 \cdot 10^{-4}$ m^2/s and $S = 1.5 \cdot 10^{-4}$ derived from the drawdown phase.

Observation section KLX07B:2, 9.64–94 m

Flow regime and calculated parameters

The measured data are corrected for the naturally decreasing pressure trend during the test period before the analysis.

A rather distinct response is indicated in this section from pumping in HLX33. The flow is dominated by pseudo-spherical (leaky) flow. During the recovery period pseudo-radial flow was transiting to pseudo-spherical (leaky) flow by the end. The beginning of the pressure recovery is strongly affected by earth tidal effects or other external effects.

Selected representative parameters

Rather consistent results of evaluated parameter values are obtained from the flow and recovery period respectively. The parameter values estimated from the flow period are selected as the most representative for the test.

Most representative parameters are $T = 3.2 \cdot 10^{-4}$ m^2/s and $S = 1.8 \cdot 10^{-4}$ derived from the drawdown phase.

6 Discussion and conclusions

In the following we discuss on some peculiar responses of the HLX33 test, on derived hydraulic parameters, on scale dependency and on flow regimes and finalise with some general conclusion related to the original objective of this investigation.

6.1 Related investigations and supporting information

In the process of constructing a structural geological model a lineament map was compiled based on airborne geophysics, aerial photography, ground geophysics and field reconnaissance. From all this, among other things, it was identified an east-west trending lineament which extend throughout the central part of the Laxemar sub-area named EW007. /Triumf 2003, Triumf et al. 2003, Triumf 2004, Triumf and Thunehed 2007/.

Subsequently, in order to substantiate the character of the lineament, an extensive borehole investigation programme was undertaken comprising drilling, geophysics, mapping and hydraulic testing. Based on the results of these efforts the lineament was characterised and upgraded to a deformation zone /Viola and Venvik Ganerod 2007, Sohlenius et al. 2006/.

The siting of most boreholes covered in this report were aimed at investigating lineament EW007. Notable exceptions are KLX02 and KLX04 whose main purpose was to investigate to rockmass north of EW007. Boreholes HLX10 and HLX11 are older, drilled prior to the site investigations /AR 94-16 and AR 94-36 SKB internal working reports/. They are conveniently close to EW007 and have been shown to be in hydraulic contact with HLX21-HLX24. The purpose of drilling HLX13 was to provide flushing water for the core drilling, its drilling direction was eastwards, not towards EW007 in the south. It yielded too little water for the intended purpose. A new borehole, HLX14, was therefore drilled nearby HLX13 but with a southern direction aiming at EW007 which provided plenty of water. Table 6-1 show some basic data from the drilling and logging of the percussion drilled boreholes while composite logs are in Appendix 12.

As mentioned above the indication of whether the lineament may be upgraded to a deformation zone is based on different types of characterisation

1. indirect data from geophysics and remote sensing,
2. drilling information such as water inflow, crush zone or fracture/fracture zone,
3. one dug trench at one location uncovering the rock surface and,
4. by means of the hydraulic testing presented in this report.

Item 4 is addressed below with a discussion on hydraulic connectivity between the tested boreholes and also on their hydraulic properties.

6.2 Response between HLX33 and HLX23/HLX24

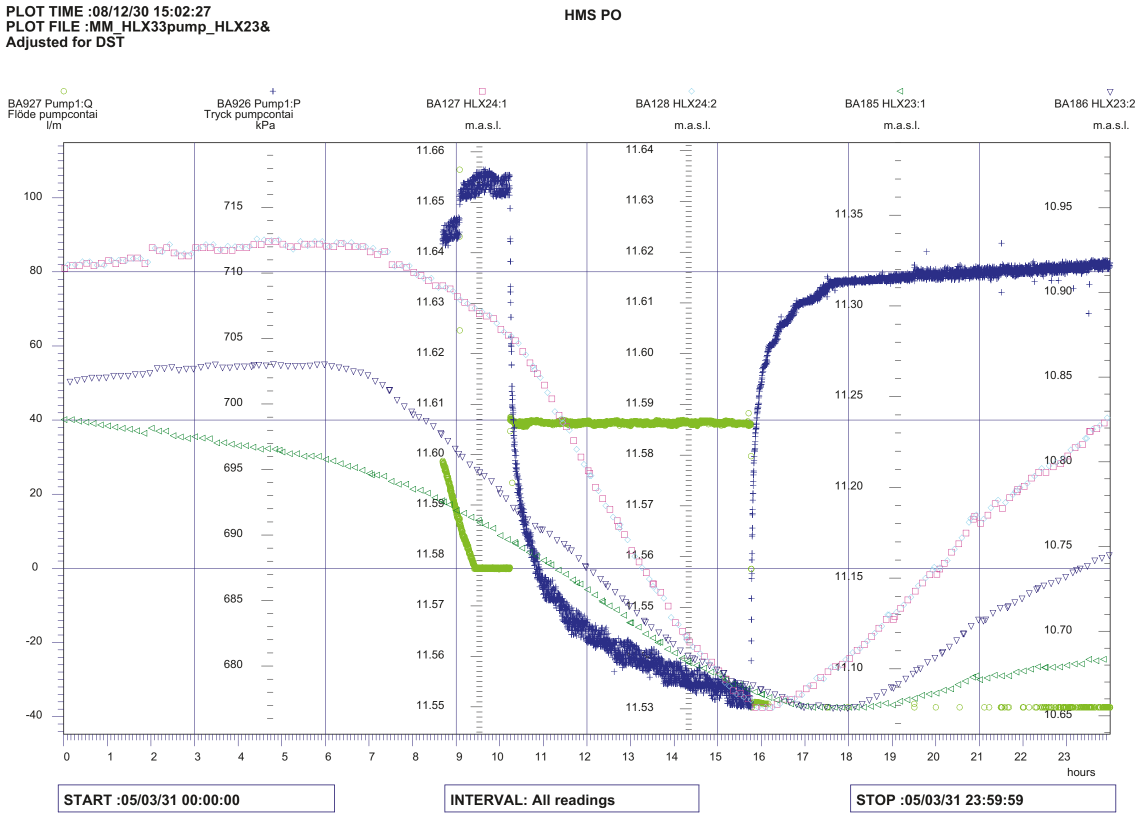
Borehole HLX33 was pumped on two occasion in March 2005 and June 2006 as described above in Chapter 5.8 and 5.9 respectivelly. These tests have shown different result for the same observation boreholes HLX23 and HLX24 which need to be commented. Whereas no response is seen in HLX23 in the March 2005 test, it is clearly responding in the June 2006 test.

Relevant observations are :

a) Pumping HLX33 in March05 show weak response in HLX24 but not in HLX23, Figure 6-1.
b) Pumping HLX33 in June06 show very strong response in HLX23:1&2 and HLX24:1 but no response in HLX24:2, Figure 6-1a.
c) Pumping HLX23 show strong response in HLX24:1 and weaker in HLX24:2.

Table 6-1. Water strike encountered during drilling and drilling objective of percussion drilled boreholes. (m b toc : meter below top of casing).

Borehole	Total length (m b toc)	Cumulative water strike yield/ borehole length (L/min) / (m b toc)	Flow logging T/ borehole length (m^2/s)/(m b toc)	Geologicaly interpreted deformation zones (m b toc)	Drilling objective
HLX10	85	30/25 60/31 83/48 167–250/85		Zone with predominant open fractures at 74 and 84–85 m. Coarse cuttings.	Drilled with the purpose to find a flush water supply for the drilling of KLX02 in 1992.
HLX11		3/70			Drilled with the purpose to find a flush water supply for the drilling of KLX02 in 1992.
HLX13		3/113		76–108	Water supply well for core drilling
HLX14		?/25 ?/107 60/200	1.3E-5/100 4.4E-5/110		Water supply well for core drilling
HLX21	150.3	11.5/67 172/87 225/121	5.3E-5/65 3E-4/86 2.4E-5/87 2.5E-5/121 3E-5/134	18–24 84–110	Investigation of lineament EW007
HLX22	163.2	5/57 125/163		116–119	Investigation of lineament EW007
HLX23	160.2	2/22 26/49 29/51 71/66 95/121		46–53 63–67 77–82	Investigation of lineament EW007
HLX24	175.2	120/121 175/175		27–40 58–64 136–145	Investigation of lineament EW007
HLX25	202.5	23/60 26/121 59/121 112/202		48–52 66–73 111–116 176–183	Investigation of lineament EW007
HLX30	163.4	6.8/61 60/88 >>144/128 400/135		10–42 60–67 85–87 127–137 148–153	Investigation of lineament EW007
HLX31	133.2	8.5/9 88/118 >>160/127 600/133		60–67 96–98 127	Investigation of lineament EW007
HLX33	202.1	17/6 7/22 168/181 168/202	1.3E-5/34 7.7E-6/102 4.7E-5/ $\geq$ 111	12–28	Investigation of lineament EW007



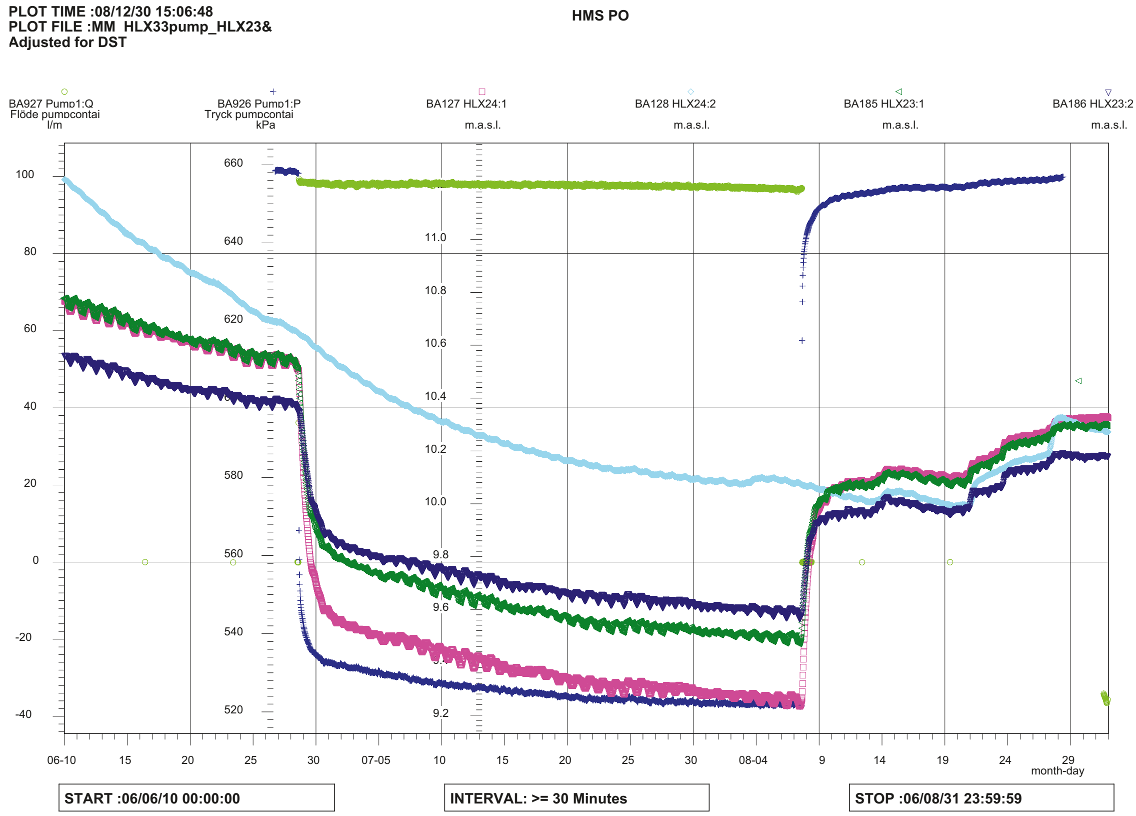


Figure 6-1a. *Responses in boreholes HLX23 and HLX24 when pumping HLX33 in March 2005 (above) and in June 2006 (below). The June 2006 test data in this plot have not been de-trended but does not impact on the discussion or conclussions.*

Based on the above it is believed that the no response in HLX23 during the March 2006 test is due to the smaller perturbation induced by pumping with lower rate and much shorter duration than during the June 2006 test. For example, in nearby HLX24 a drawdown of 0.07 m was induced from the March 2005 pumping while the HLX33 June 2006 test with more than 0.6 m in HLX24. The induced disturbance in the pumped borehole HLX33 was much smaller in the March 2005 test with 6 hour pumping at 40 L/min than in June 2006 test with 5 week pumping at 97 L/min. The distance between pumping and observation holes is 300 m, otherwise the setup was the same, Figure 6-1b. The theoretical radius of investigation for the conditions of the HLX33 March 2005 test is about 250 m.

Pumping duration is the single most important variable for generating responses under given aquifer conditions. Scoping calculations show that the six hour test conducted in March 2005 is barely sufficient to induce sufficient drawdown to be detected, Figure 6-1c. Particularly when we also have tidal effects of about 0.02 m superpimposed on the drawdown.

Therefore the results from the March 2005 test are considered more uncertain than those from the June 2006 test.

The distinctly larger response seen in the deeper part of the observation holes indicate that we have two different fracturing systems around these holes that are not so well-connected. This observation is further supported in HLX23 by the relatively large difference in hydraulic head between the lower and upper section of about 0.5 m, while the head difference along HLX24 is about 0.02 m.

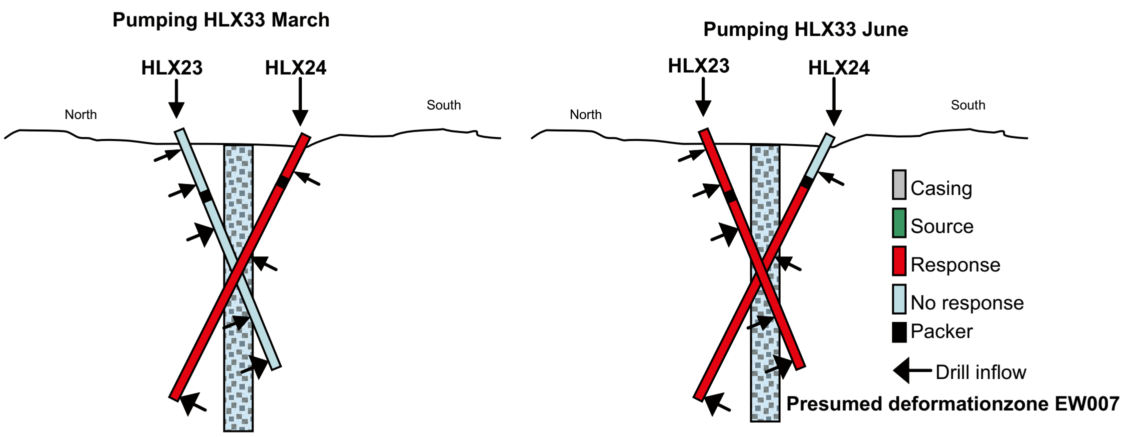


Figure 6-1b. Geometric configuration of observation boreholes HLX23 and HLX24 and responses obtained during pumping of HLX33 in March 2005 and June 2006 respectivelly. HLX33 is situated about 300 m due west of HLX23 and HLX24.

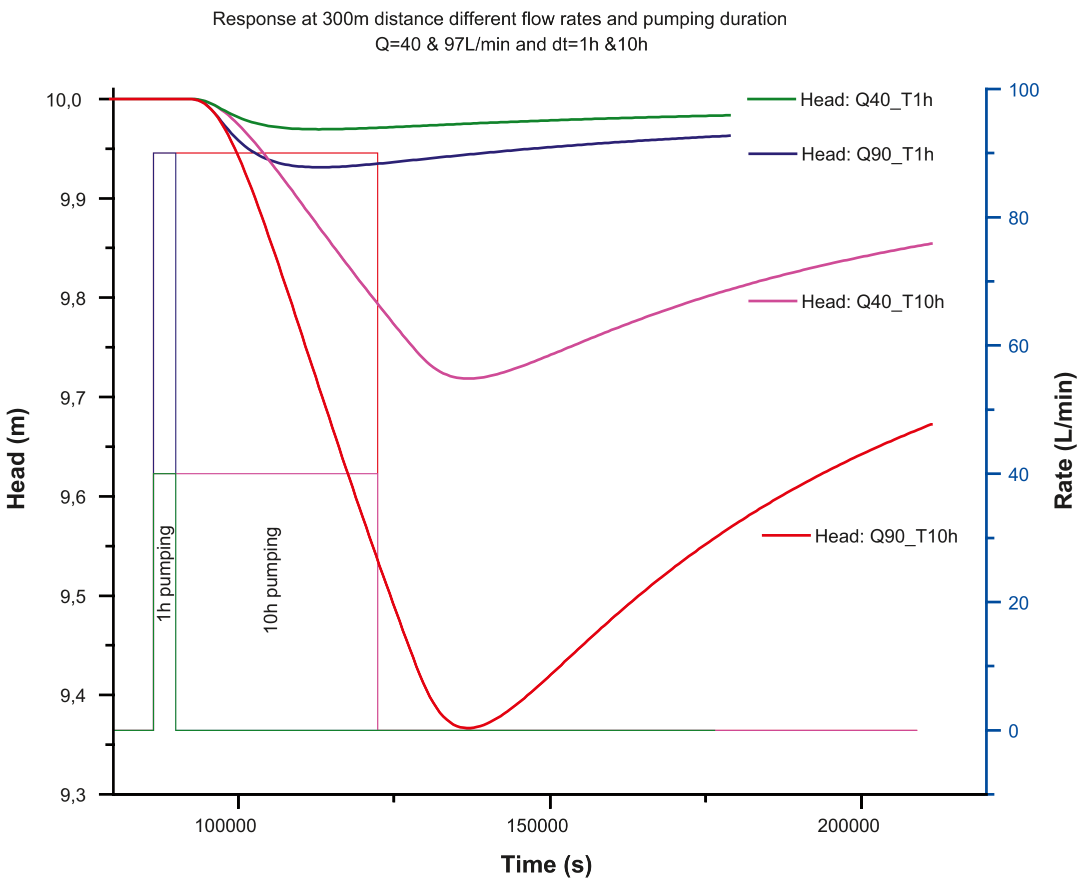


Figure 6-1c. *Response at 300 m distance for different flow rates and pumping durations. Flowrates of 40 and 97 L/min were used for simulation of responses after 1 h and 10 h of pumping. Utilised T and S are those derived from the June 2006 test.*

6.3 Hydraulic connectivity

With hydraulic connectivity is meant an observed pressure between two points of advective or diffusive character. Obviously its establishment depends not only on the aquifer geometries and properties but also on the resolution and accuracy of the testing equipment as well as on the duration of the test.

The connectivity, expressed in terms of response dh_p/Q_p (index 2), is summarised in Appendix 13 with a response-distance plot for for each of all seven interference tests. Corresponding response matrixes are in Tables 5-1 (HLX10), 5-3 (HLX21), 5-5 (HLX22), 5-7 (HLX23), 5-11 (HLX30), 5-13 (HLX33, March05) and 5-16 (HLX33, June06). See Chapter 4-5 for further explanations relating to the response indexes.

A compilation of response index 2, i.e. dh_p/Q_p, for all interference tests is shown as a response matrix in Table 6-2.

Responses for a single tests could at the most be observed up to a distance of about 900 m, Figure 6-2. Separate distance response plots are presented in Appendix 13 with one plot for each test also including the zero drawdown data.

Table 6-2 Response matrix of the flow normalised response (index 2) for all interference tests. Colour code given to each response follow SKB MD 330.003 presented in Chapter 4.5, blue = low response and grey = no response. Boldfaced values represent the response index of the pumped borehole.

Index 2 : dhp/Qp (s/m²)		Pumpholes and point of application						
Obshole and		HLX10 85 m	HLX21 88 m	HLX22 163 m	HLX23 67 m	HLX30 138 m	HLX33 181 m March05	HLX33 181 m June06
point of application	Section:	3–85 m	9–150 m	9–163 m	6–160 m	9–163 m	9–202 m	9–202 m
	Qp (L/min):	93	105	98	102	106	40	97
	tp (d):	43	4	1	3	4	0,3	40
HLX10_85 m	3–85	**3,410**				0		
HLX11:2 _15 m	6–16	2,355	597	255	?	0	0	149
HLX11:1 _70 m	17–70	2,805	560	300	?	0	0	167
HLX13_111 m	12–200	0	0		0	673	0	
HLX14_25 m	11–116	0	0		0	931	0	
HLX21:2_ 67 m	9–80	952			0		0	
HLX21:1_88 m	81–150	1,029	**3,713**	2,208	?		0	
HLX22:2_58 m	9–85	721	2,151		?		0	
HLX22:1_163	86–163	997	3,289	**3,877**	?		0	
HLX23:2 _49 m	6,10–60	595	79			0	0	254
HLX23:1 _67 m	61–160,2	595	74		**8,641**	0	0	409
HLX24:2 _10 m	9,10–40	129	0		353	0	110	0
HLX24:1 _121 m	41–175,20	421	79		4,318	0	113	533
HLX25:2 _52 m	6,12–60	0	0		0	1,177	0	74
HLX25:1 _121 m	61–202,5	0	0		0	1,174	0	87
HLX30:2 _88 m	9,10–100	0	0		0		0	143
HLX30:1 _138 m	101–163,4	0	0		0	**4,058**	0	174
HLX31:2_10 m	9,10–100	0	0		0	2,750	0	
HLX31:1_118 m	101–133,2	0	0		0	3,466	0	
HLX31_118 m	9–133							199
HLX33:2_22 m	9–30	199	0		415	141		
HLX33:1_181 m	31–202	199	0		705	181		
HLX33_181 m	9–202	199	0		705	181	**6,015**	**8,343**
KLX02:3 205	203–207			187				
KLX02:2 232 m	208–255			974				
KLX02:1_304 m	256–1,700			923				
KLX02:8_205.5 m	203–208	2,387	651		?	0	0	260
KLX02:7_278 m	209–347	2,085	1,381		?	0	0	174
KLX02:6_399.5 m	348–451	975	606		?	0	0	161
KLX02:5_473 m	452–494	708	0		200	0	0	186
KLX02:4_606 m	495–717	0	0		106	0	0	0
KLX02:3_931 m	718–1,144	0	0		0	0	0	0
KLX02:2_1,154.5 m	1,145–1,164	0	0		0	0	0	0
KLX02:1_1,432.5 m	1,165–1,700	0	0		0	0	0	0
KLX04:8_ 87 m	12.2–162	0			0	956	0	124
KLX04:7_ 210 m	163–230	0			0	1,228	0	217
KLX04:6_ 368 m	231–506	0			0	555	0	229
KLX04:5_ 518 m	507–530	0			0	1,087	0	155
KLX04:4_ 608 m	531–685	0			0	538	0	155
KLX04:3_ 777 m	686–869	0			0	402	0	0
KLX04:2_ 884	870–897	0			0	0	0	0
KLX04:1_ 949	898–993	0			0	0	0	0
KLX07B:3_29 m	10–48		662			0		
KLX07B:2_80 m	49–111		664			0		
KLX07B:1_156 m	112–200		709			0		
KLX07B:2_ 80 m	10–94							291
KLX07B:1_ 156 m	95–200							335
KLX07A:8_102 m	12–103							304
KLX07A:7_160 m	104–203							186
KLX07A:6_250 m	204–332							87
KLX07A:5_380 m	333–456							62
KLX07A:4_490 m	457–611							0
KLX07A:3_640 m	612–752							0
KLX07A:2_765 m	753–780							0
KLX07A:1_820 m	781–845							0

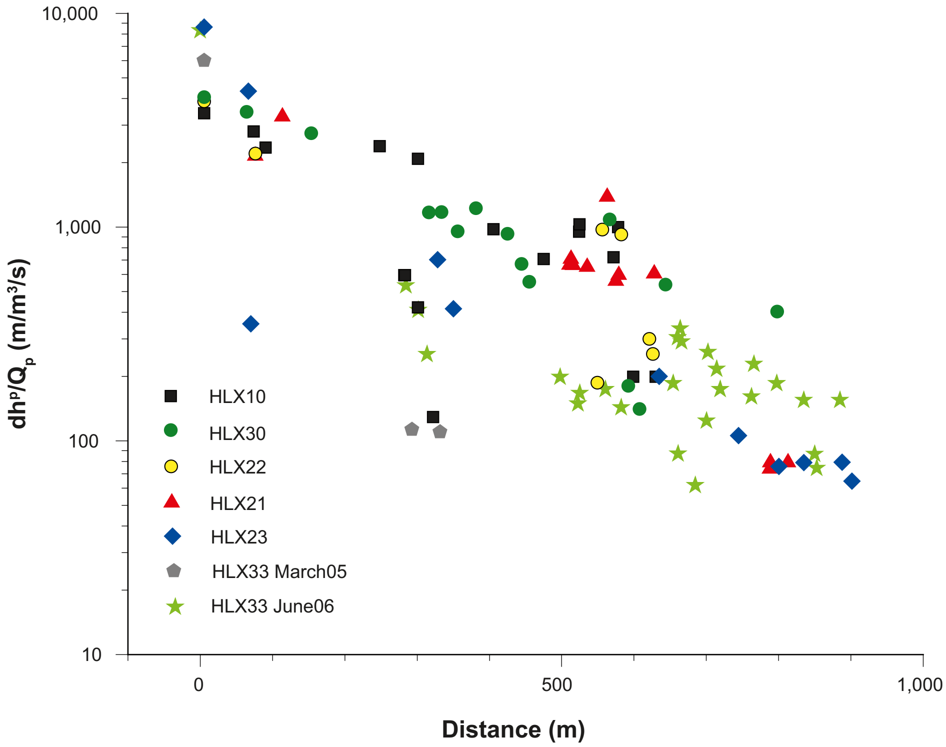


Figure 6-2. *Flow-normalised drawdown as a function of distance show that these interference tests had a maximum radius of investigation of approximately 900 m. The pumped borehole is shown in the legend. Test specific distance-response plots are compiled in Appendix 13.*

6.4 Hydraulic parameters

Hydraulic properties derived from observations sections are shown in Figure 6-3. A generally high and rather consistent values of transmissivities are encountered, mostly in the range 10^{-4}–10^{-3}. The storativities exhibit larger variations most often ranging 10^{-5}–10^{-3}.

Geometric mean were derived by means of normal probability plots based on calculated T and S resulted in $T_G = 3.2 \cdot 10^{-4}$ m²/s (n=99) and $S_G = 1.6 \cdot 10^{-4}$ (n=91). Parameters derived from the HLX33 March 2005 test were not included in these statistic since these are considered quite uncertain. The parameters derived for the HLX33 June 2006 test are utilised instead.

A certain linear correlation is present between Log S and Log T as shown in the cross plot of Figure 6-4 show a cross plot of T vs S indicating a certain correlation between these parameters. The established relationship is

$$\log(S) = 0.6059 \cdot \log(T) - 1.6744$$

with a correlation coefficient of R = 0.45 for n=93. This is to hold for the fracture zone and at scales measured here i.e. 100–200 m. S is dimensionless and T is in m²/s.

Steady state evaluation for the pumped boreholes was done according to /Moye 1967/ showed transmissivities (T_M) that are similar to those derived from the transient evaluation (T_T) presented above, See Table 6-3.

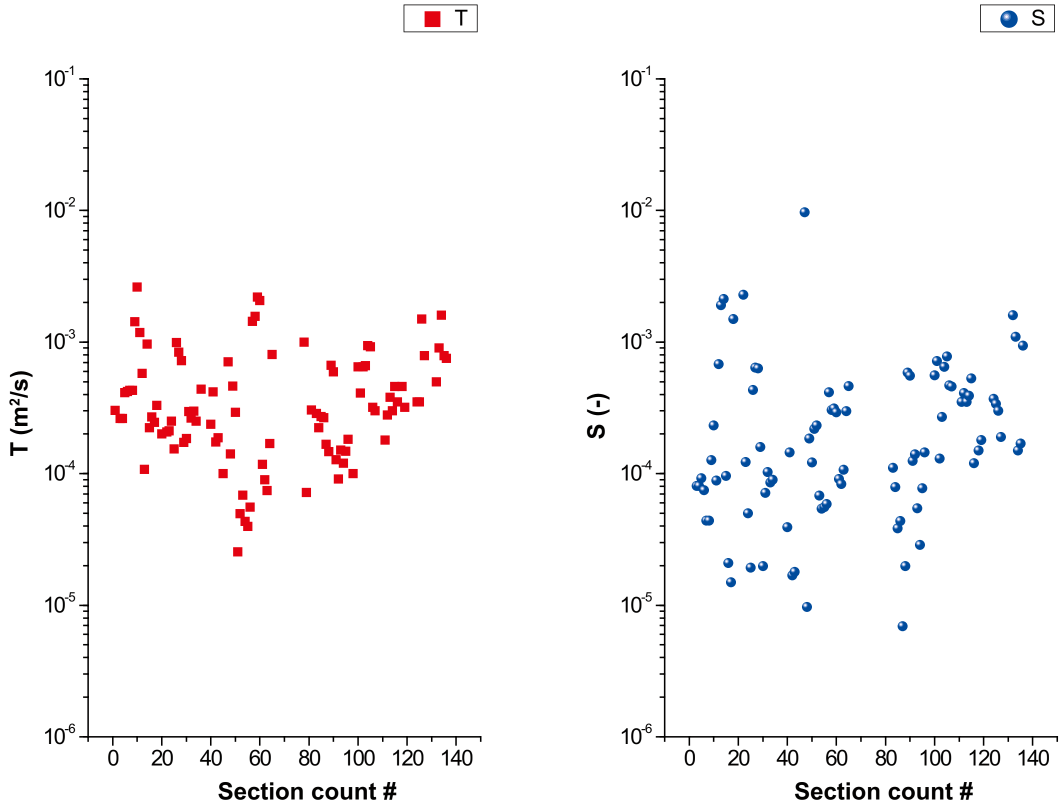


***Figure 6-3.** Transmissivites (left) and storativies (right) derived from all single hole tests and interference tests. Detailed presentations of these values are in Table 5-2 (HLX10), 5-4 (HLX21), 5-6 (HLX22), 5-8 (HLX23), 5-9 (HLX24), 5-10 (HLX25), 5-12 (HLX30), 5-14 (HLX33, March05), 5-16 (HLX33, June06).*

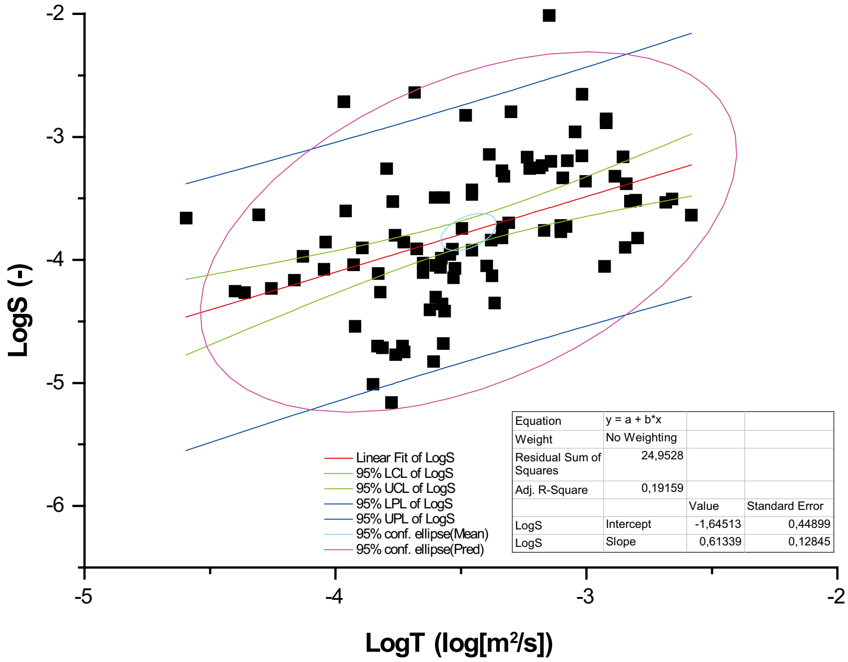


***Figure 6-4.** Crossplot of calculated LogT and LogS showing fitted line and 95% confidence limits.*

Table 6-3. Transmissivities derived from steady state (T_M) and transient (T_T) single hole evaluations and calculated radius of investigation $R_i = 1.5 \cdot \sqrt{\frac{T \cdot t_p}{S}}$ when units are in meter and seconds) /de Marsily 1986/.

Borehole	Secup [m]	Seclow [m]	Qp [L/min]	dh [kPa]	Seclen [m]	Qp/dh [m²/s]	T_M [m²/s]	T_T [m²/s]	S [–]	tp [d]	Ri [m]
HLX10	85	3	93	53	82	3E-4	3E-4	3E-4	3.5E-4	43	2,677
HLX21	150	9	106	65,6	141	3E-4	3E-4	2E-4	6E-5	4	1,610
HLX22	163,2	9	106	68,53	154,2	3E-4	3E-4	4E-4	4E-5	1	1,394
HLX23	160,2	6	102	147	154,2	1E-4	1E-4	1E-4	1E-5	3	2,415
HLX24	175,2	9	113,2	35,1	166,2	5E-4	7E-4	1E-3		1	
HLX25	202,5	6	100	104,9	196,5	2E-4	2E-4	7E-5		1	
HLX30	163,4	9,1	106	70,7	154,3	2E-4	3E-4	3E-4	7E-5	4	1,826
HLX33 March05	202	9,1	39,2	39,3	192,9	2E-4	2E-4	1E-4	8E-5	0.3	270
HLX33 June06	202	9,1	96,6	132,1	192,9	1E-4	2E-4	2E-4	4.7E-4	40	1,819

6.5 Scale dependency of aquifer parameters

The derived aquifer parameters T and S are a reflection of the volume which is being tested, essentially covering the radius of influence. For a homogeneous medium one would expect an invariance of the parameter with the tested scale while for a heterogeneous medium the parameter value is a function of the testscale, up to a certain point, afterwhich one might expect the variation to be homogenised.

Cross plotts of K and Ss versus distance between pumphole and observation show hardly any scale correlation for neither S_s nor K. A linear correlation coefficients was calculated of R=0.11 and R=0.06 for S_s and K respectivelly, Figure 6-5.

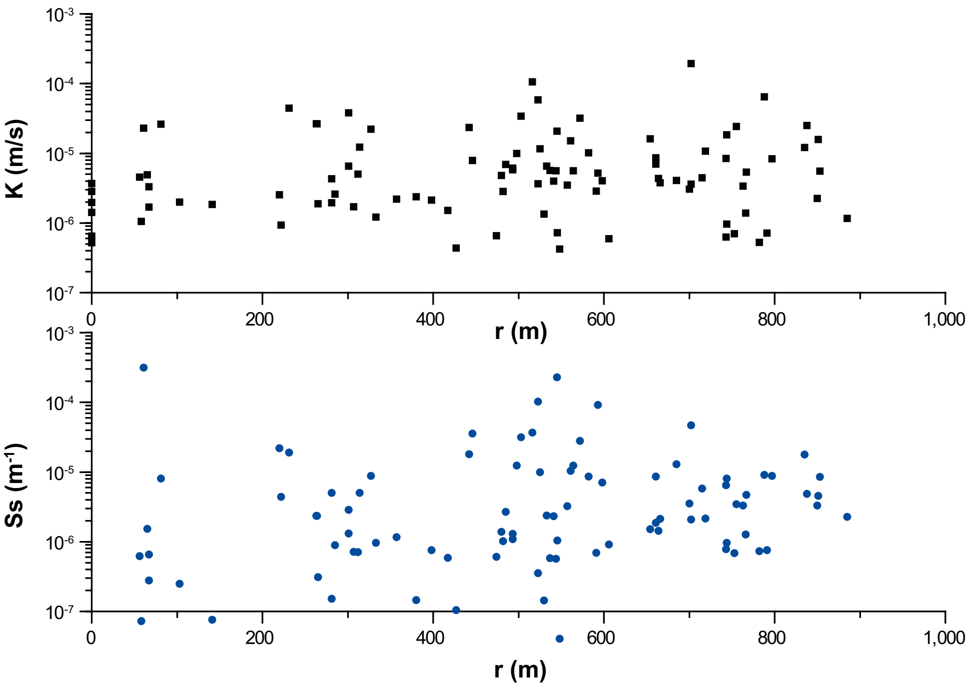


Figure 6-5. Crossplotts of Ss (specific storage) and K (hydraulic conductivity) from all observation section versus the distance between the pumped hole and the observation hole.

In sparsely fractured rock a response in an observation well is largely controlled by the most transmissive flowing anomaly. In these boreholes we have seen from the drilling observations (eg Table 6-1) as well as from flow logging, that usually one finds 1–2 major flow anomalies per borehole which dominate the inflow. Measured responses are therefore largely a reflection of the hydraulic properties of these major anomalies and the network of fractures to which these are connected. It may therefore be argued that the length normalisation from S and T to S_s and K introduces an artificial smoothing of the dataset since the section lengths are so different, differing up to two order of magnitude in length. The variation of section lengths is shown in Figure 6-6. Here it is seen that most section are 10 m–600 m long, hence a considerable reduction of the hydraulic parameter of these longer sections.

In effect the long sections reduce the parameter up to 100 times while the shorter sections much less. Hence, we are reducing the variability between normalised parameters and artificially introduce a scale effect. Were the section lengths approximatelly equal then it would have been appropriate with such normalisation.

It is therefore relevant to also analyse the scale dependence for S and T. Figure 6-7 show cross plot of S and T, respectively, versus distance.

From Figure 6-7 it may be seen a small linear correlation (R) which was calculated to 0.22 and 0.25. The relationships for S and T are as follow,

$$S\left[-\right]=5.2\cdot10^{-7}\cdot \mathrm{r}\left[\mathrm{m}\right]+6.0\cdot10^{-5} \text{ , n=90, R=0.25}$$

$$T\left[m^2/s\right]=4.2\cdot10^{-7}\cdot \mathrm{r}\left[\mathrm{m}\right]+2.8\cdot10^{-4} \text{ , n=99, R=0.22}$$

Hence, from Figure 6-7 it would appear that there is an increase of hydraulic parameter value with distance from the pumped hole, particularly of S.

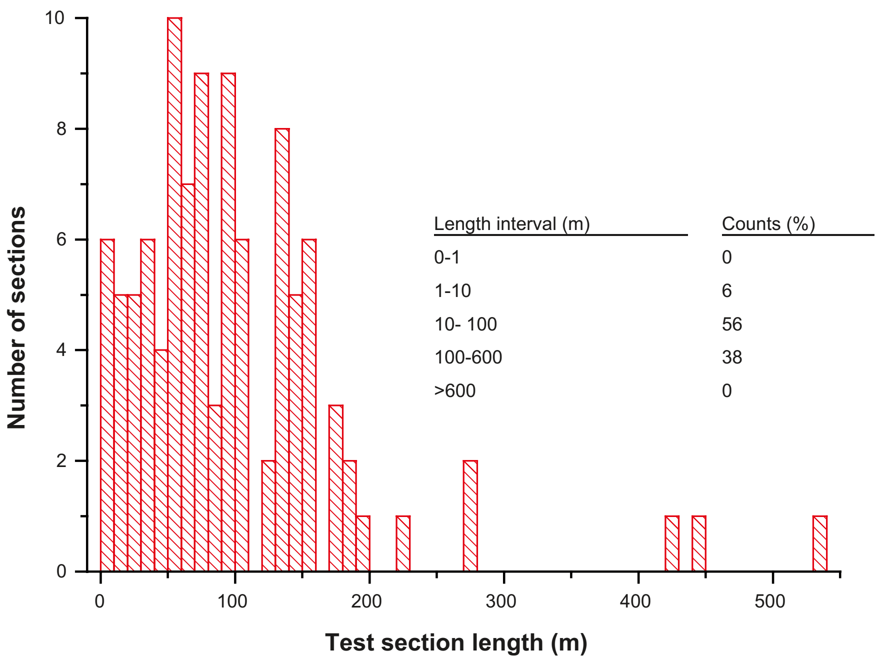


Figure 6-6. *Histogram showing the number of test section lengths in 10 m intervals, n=103.*

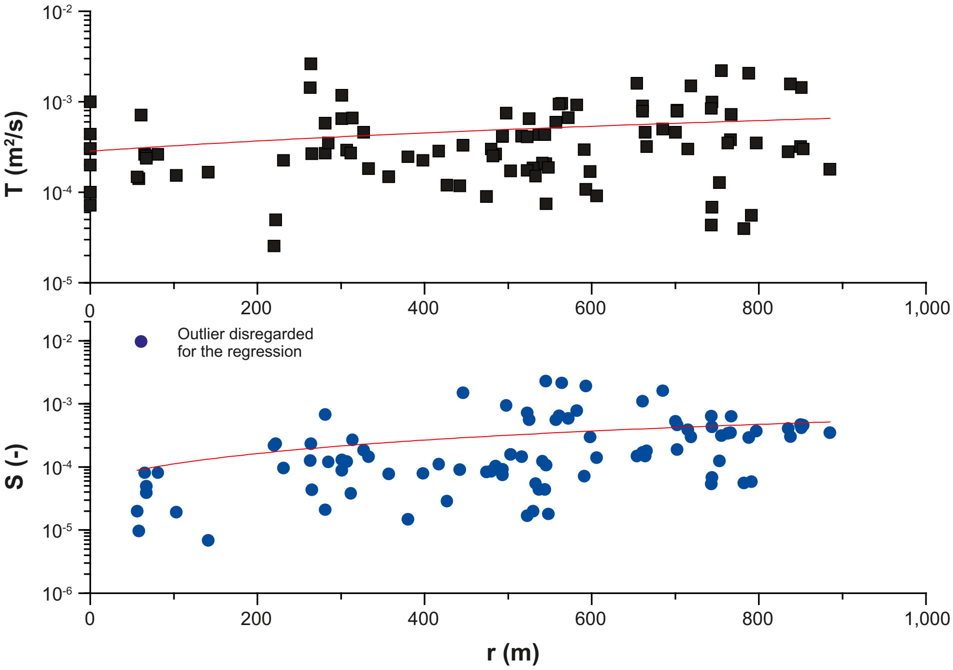


Figure 6-7. *Crossplotts of S (storage coefficient) and T (transmissivity) from all observation section versus the distance between the pumped hole and the observation hole.*

It is not know what underlying processes that might cause this effect are, several possible explanations to scale dependency have been put forward /Neuman and Di Federico 2003/. For these tests a couple of phenomenological processes seem more plausible than other as discussed below: a) discrepancy of flow dimension between theory and reality and b) effect of the heterogeneous nature of the tested aquifer.

A note on nomenclature: Subscript A, G and H stand for arithmetic-, geometric- and harmonic mean respectivelly. Effective- and equivalent properties (e.g. K_{ef} and K_{eq}) in a stochastic random field have different meaning for different authors. Here the definition according to /Rubin 2003/ is adopted where effective properties only depend on the material properties while equivalent properties also depend on space coordinates and boundary conditions.

a) The analysis methodology utilises models based on 2D flow (cylindrical). While 2D flow prevails to the pumped hole, as evidenced by the derived flow regimes, this might not be the case at larger distances where 3D flow (spherical) might have developed. Such increase in flow dimension with distance (from cylindrical to spherical) reduces the flow rate per unit area, since the observation hole flow area is cylindrical, and hence results in lower drawdown than when having a cylindrical flow regime at larger distance. Note however that no clear indication of spherical flow, appearing as a negative half slope, was identified in the measured data. With cylindrical in this context should be understood as equivalent to the radial flow regime discussed elsewhere in this report.

b) A heterogeneous distribution of hydraulically conductive fractures embedded in a much less conductive surrounding rock causes the pumping test derived aquifer properties to be dependent on the location of the pump- and observation hole in the aquifer in relation to the fracturing. Hence, a deviation of the underlying homogeneity assumption of the utilised analysis methodology might result in different values of T and S, depending on the volume affected by the test – the support volume.

Uniform steady flow

It may be assumed that the flow at large distance from the pumped borehole the flow is more uniform than closer to the borehole /Rubin 2003/. Then, from stochastic theory of flow, for uniform steady flow at large distances the equivalent conductivity (K_{eq}) approaches the effective conductivity (K_{ef}) where for 2-D flow $K_{ef} = K_G$ (for 3-D flow $K_{ef} = K_G\ e^{\sigma 2/6}$ /Rubin 2003/. Close to the pumped hole on the other hand K_{eq} approaches K_H /Rubin 2003/. From statistics theory we know that $K_H \leq K_G \leq K_A$, so for uniform 2-D steady flow theory would suggest a increase of K_{ef} with distance, which is consistent with the apparent increase with distance noticed from field observations mentioned above.

Non-uniform transient flow

However, for radial non-uniform flow, e.g. transient flow near a well, like the condition for these tests, the situation is more complicated. Far from the well the flow might well be on the average uniform and steady while in most situation this is not likely to be the case near a pumped borehole. In such situation /Rubin 2003/ argue that the equivalent or effective property concept might not be so useful. Further, that indications are that scale effects are not always observed. Rather they are seen in those cases when an increase in experimental scale is coupled to a multiplicity of heterogeneity scales /Neuman 1994/.

6.6 Flow regimes

The log-log diagnostic methodology for evaluating hydraulic tests is based on a flow geometry to the borehole, a flow regime, which might support the structural geological interpretation. The following discussion aim at providing a general overview on the flow regimes encountered in this investigation. The hydraulic tests responses were classified into effects of the well, the aquifer and boundaries. Interpreted flow regimes give an impression that EW007 is a heterogeneous zone, i.e. we encounter different regimes: homogeneous radial flow, double porosity, linear fracture flow, fault boundaries and a radial composite system.

A compilation of all flow regimes interpreted for the test phase where the best choice parameters were derived (considered most representative) is presented in Appendix 14.

Well flow

When considering both the drawdown and recovery phases, linear well flow was diagnosed in four of eight pumped boreholes, HLX10, HLX21, HLX25 and HLX30, situated quite far apart along the complete stretch of the EW007 deformation zone covering about 2 km.

The linear flow regime and an appreciable negative skin, as was most often encountered in the pumped boreholes, (Table 6-4) are s indicative for fracture flow. is indicative for a fracture/fracture zone.

Aquifer flow

Upon reaching beyond the effects of the borehole, when aquifer flow dominates there is a clear majority of the radial flow regime. For the evaluated best choice parameters in 87 cases the flow was radial (including radial composite) while for the remaining 13 parameters the best choice was for a double porosity flow regime.

One may however observe that the drawdown phase of the pumped hole in all test show a radial flow regime The recovery phase sometime indicate a different flow regimes for the aquifer. Notable exceptions to the consistency between drawdown and recovery flow regimes are HLX23, HLX25 and HLX33 where double porosity and radial composites regimes are encountered during the recovery phase.

Note that a double porosity and multi layer system exhibit similar diagnostic flow regimes. A summary of these flow regimes for the pumped boreholes is shown in Table 6-4.

For the observation sections it is much more difficult to obtain sufficient data for anything but the aquifer flow regime. A frequent encounter for the observations sections is however an initial unit slope on the log-log plot (eg Appendix 1.10 showing response in observation section HLX24_1 when pumping HLX10), this could be indicative for a double porosity system. A summary of the frequency of encountered flow regimes in pumped as well as observation holes is shown in Table 6-5.

Table 6-4. Flow regimes derived from log-log plot of the pumped boreholes.

Borehole	Drawdown				Recovery			
	Well	Aquifer	Boundary	Skin	Well	Aquifer	Boundary	Skin
HLX10	–	radial	–	–2.8	Fracture flow	radial	–	–5.8
HLX21	Fracture flow	radial	–	–5	Fracture flow	radial	–	–5
HLX22	WBS	radial	–	–3.4	WBS	radial	No flow	–1
HLX23	WBS	radial	–	–3.1	WBS	Double porosity	–	–5.5
HLX24	WBS	radial	Radial composite	–1.1	WBS	Radial composite	–	7.8
HLX25	Fracture flow	radial	Steady state flow	0	WBS	Radial composite	–	0
HLX30	No data	No data	No data	No data	Fracture flow	Radial composite	–	–3.8
HLX33, March05	WBS	radial	–	–4	WBS	Radial composite	–	–3.5
HLX33, June06	WBS	radial	Pseudo-spherical	–0.1	WBS	Radial	Pseudo-spherical	–0.3

WBS: wellbore storage, radial: infinite acting radial flow.

Table 6-5. Number of flow regimes encountered for evaluated best choice aquifer parameter T and S in both pump- and observation sections.

Pumped hole:	HLX10	HLX21	HLX22	HLX23	HLX24	HLX25	HLX30	HLX33 March05	HLX33 June06	Sum
Flow regime										
Radial	8	12	5	19	1	1	12	3	26	87
Double porosity	9	2	0	1	0	0	1	0	0	13
All										100

Boundary flow

The detection of hydraulic boundaries depends on the duration of the pumping and hydraulic diffusivity. An estimate of the volume investigated through these tests may be obtained through:

a) distance from the pumped borehole where a response was actualy detected, from Figure 6-2 and Appendix 13 we conclude that this was in the range 600–900 m.

b) calculating the theoretical radius of investigation (Ri) for each pumped hole, from Table 6-3 we conclude varies 1.3–2.6 km depending on pumping duration and hydraulic diffusivity.

The discrepancy between measured a) and calculated b) radius of influence is attributed to either of the following:

a) the of homogeneity assumption of the Ri equation applied to an inhomogeneous formation and to external disturbance of the waterlevel (tidal, other pumping and recharge events) making it difficult to actually detect drawdown smaller than about 0.1 m. These external disturbances also make it difficult to discern hydraulic boundaries in the observation hole response, as these become very noisy.

b) The theoretical radius of investigation (Ri in Table 6-3) is based on 2-D pseudo steady flow field solution which this might not always be the case in reality. Generally, it is expected that closer to the pumped hole the flow is more transient and 2-D while at larger distance the flow is 3-D and on the average uniform. As already mentioned in 6.5 a 3-D flow dimension would cause a lower drawdown than the assumed 2-D flow dimension, thus generating lower drawdown at distances than the 2-D analysis theory would predict.

6.7 Conclusions

Through a series of seven interference tests it has been shown that boreholes drilled in deformation-zone EW007 have a continuous hydraulic connection over a distance of 2 km, from borehole HLX22 in the east to HLX13 in the west. The duration of the intereference tests varied 0.3 d to 43 and the most distant observed response was 900 m. In conjunction with other information from geophysics, remote sensing and drilling it appear to indicate that EW007 is a coherent hydraulic unit. At least in the upper 200 m of rock where the tests were conducted.

There is also the possibility of the rock being generally more transmissive in its upper part, as is evidenced from other boreholes in the area, and the bias in borehole distribution would then give the impression of a linear feature.

A connectivity beyond the linear feature through the responses in KLX02 and KLX04 has also been established, these are situated about 300–400 m north of the EW007 and not drilled towards the feature, see Figures 5-5, 5-6 and 5-8. If this hydraulically connected fracturing forms part of EW007 is an issue for further interpretation on the extent of EW007 at depth and is not contained within the present activity.

The tests show this deformationzone to be of consistently relatively high transmissivity, the bulk being in a rather narrow the intervall of 10^{-4} to 10^{-3} m^2/s while storativities range 10^{-5} to 10^{-3}. Quite often a negative skin was observed in the pumped borehole, thus supporting the fracture zone interpretation. A certain scale dependency of T and S could be noticed, though the variability from the best fit regression relation is quite large.

The radial flow regime is dominating in all test, but in some tests we observed a delayed yield type of effect, most often interpreted as double porosity or leaky flow.

Response in observation section were sometimes quite difficult to interpret due to tidal effects and disturbing interference from other investigations.

References

Ask H, Tiberg L, Morosini M (in prep). Summary of water pumping and release – Hydraulic disturbances from drilling and investigations during the site investigation in Oskarshamn, subareas Simpevarp and Laxemar, 2002–2007. SKB P-07-174, Svensk Kärnbränslehantering AB.

Marsily G de, 1986. Quantitative hydrogeology. Acadamic Press Inc.

Moye D G, April 1967. Diamond Drilling for Foundation Exploration, Civil Engineering Trans, (2150), pp 95–100.

Neuman S P, 1994. Generalized scaling of permeabilities: Validation and effect of support scale. Geophysical Research Letters, 21(5) pp 349–352.

Neuman S P, Di Federico V, 2003. Multifaceted nature of hydrogeologic scaling and its interpretation. Reviews of Geophysics, 41, 3/1014. American Geophysical Union.

Raghavan R, 1993. Well test analysis. Prentice Hall Publisher.

Rubin Y, 2003. Applied stochastic hydrogeology. Oxford University Press Inc.

SKB, 2001. Site investigations : Investigation methods and general execution programme, SKB TR-01-29, Svensk Kärnbränslehantering AB, January 2001.

SKB, 2006. Oskarahamn site investigations : Programme for further investigations of bedrock, soil, water and environment in Laxemar subarea, SKB R-06-29, Svensk Kärnbränslehantering AB, March 2006.

Sohlenius G, Bergman T, Snäll S, Lundin L, Lode E, Stendahl J, Riise A, Nilsson J, Johansson T, Göransson M, 2006. Soils, Quaternary deposits and bedrock in topographic lineaments situated in the Laxemar subarea. Oskarshamn site investigation SKB P-06-121, Svensk Kärnbränslehantering AB.

Svensson T, Ludvigsson L-E, Walger E, Thur P, Gokall-Norman K, Wass E, Morosini M, 2008. Combined hydraulic interference- and tracer test in HLX33, SSM000228 and SSM000229. Oskarshamn site investigation. SKB P-07-187, Svensk Kärnbränslehantering AB.

Triumf C-A, 2003. Identification of lineaments in the Simpevarp area by the interpretation of topographical data. Oskarshamn site investigation. SKB P-03-99, Svensk Kärnbränslehantering AB.

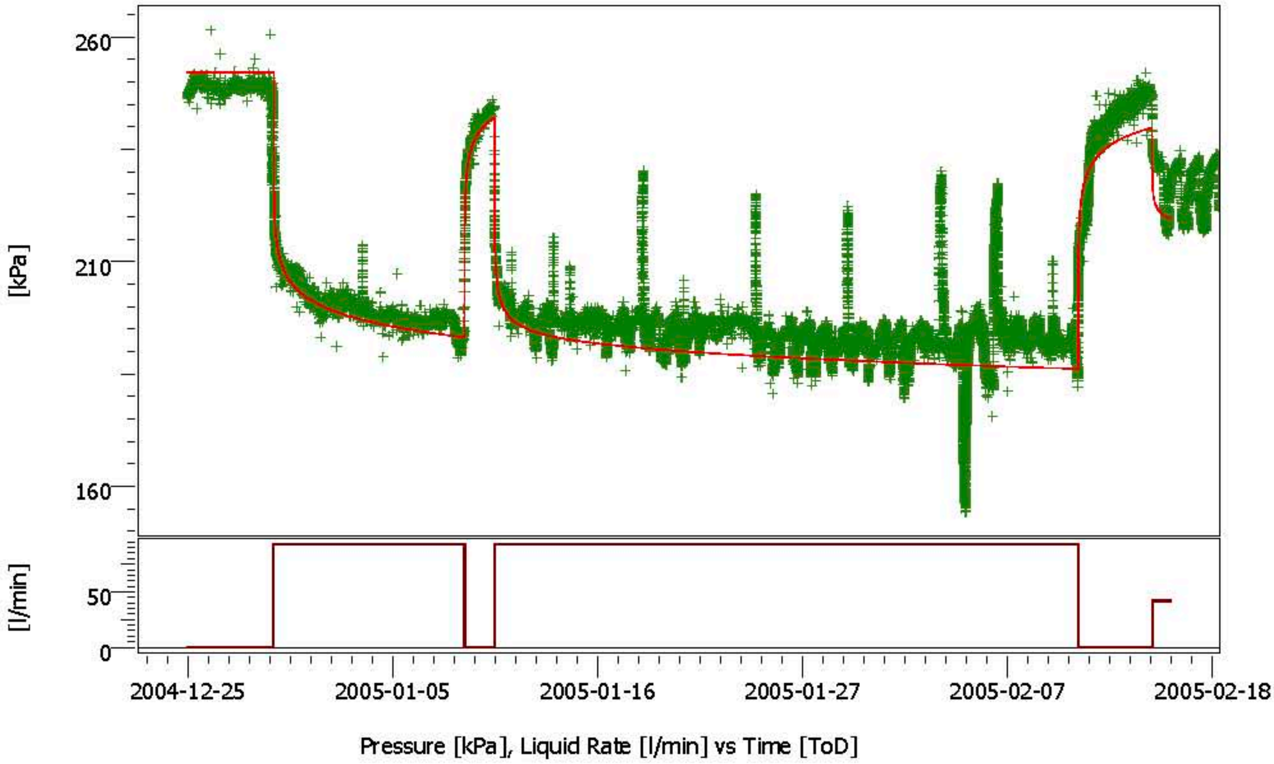
Triumf C-A., Thunehed, H., Kero, L., Persson, L., 2003. Interpretation of airborne geophysical survey data. Helicopter borne survey data of gamma ray spectrometry, magnetics and EM from 2002 and fixed wing airborne survey data of the VLF-field from 1986. Oskarshamn site investigation. SKB P-03-100, Svensk Kärnbränslehantering AB.

Triumf C-A, 2004. Joint interpretation of lineaments. Oskarshamn site investigation SKB P-04-49, Svensk Kärnbränslehantering AB.

Triumf C-A, Thunehed H, 2007. Co-ordinated lineaments longer than 100 m at Laxemar. Identification of lineaments from LIDAR data and co-ordination with lineaments in other topographical and geophysical data. Oskarshamn site investigation. SKB P-06-262, Svensk Kärnbränslehantering AB.

Viola G, Venvik Ganerod G, 2007. Structural analysis of brittle deformation zones in the Simpevarp-Laxemar area, Oskarshamn, southeast Sweden. Oskarshamn site investigation. SKB P-07-41, Svensk Kärnbränslehantering AB.

	History plot	Dd1
SKB	Company Svensk Kärnbränslehantering AB Well HLX10	Field Laxemar Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	247.432 kPa
Pi	252.182 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0469 1/sec
PMatch	0.0989 1/kPa
C	3.28E-6 m3/Pa
Total Skin	-3.88
T	2.35E-4 m2/s
K	2.83E-6 m/s
Pi	252.182 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	3.28E-6 m3/Pa
Skin	-3.88

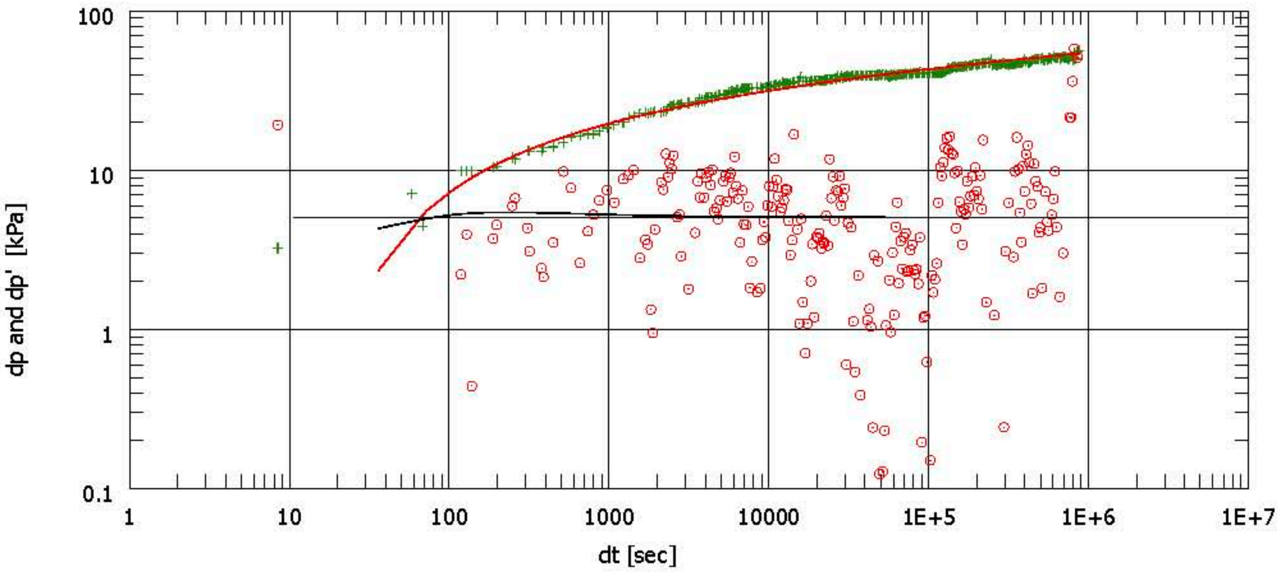
Reservoir & Boundary parameters

Pi	252.182 kPa
T	2.35E-4 m2/s
K	2.83E-6 m/s

Derived & Secondary Parameters

Rinv	1370 m
Test. Vol.	49.1082 MMm3
Delta P (Total Skin)	-39.2876 kPa
Delta P Ratio (Total Skin)	-0.666116 Fraction

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX10	Field Laxemar Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	247.432 kPa
Pi	252.182 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0469 1/sec
PMatch	0.0989 1/kPa
C	3.28E-6 m3/Pa
Total Skin	-3.88
T	2.35E-4 m2/s
K	2.83E-6 m/s
Pi	252.182 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	3.28E-6 m3/Pa
Skin	-3.88

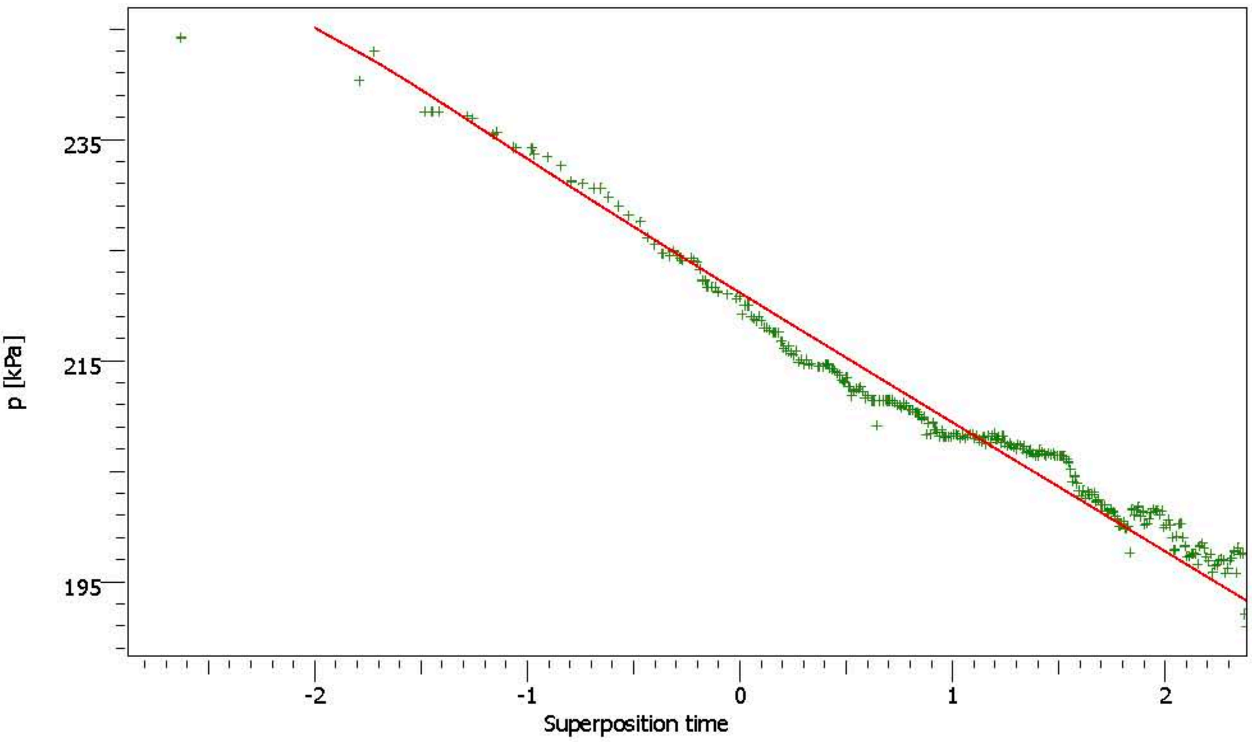
Reservoir & Boundary parameters

Pi	252.182 kPa
T	2.35E-4 m2/s
K	2.83E-6 m/s

Derived & Secondary Parameters

Rinv	1370 m
Test. Vol.	49.1082 MMm3
Delta P (Total Skin)	-39.2876 kPa
Delta P Ratio (Total Skin)	-0.666116 Fraction

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX10	Field Laxemar Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	247.432 kPa
Pi	252.182 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0469 1/sec
PMatch	0.0989 1/kPa
C	3.28E-6 m3/Pa
Total Skin	-3.88
T	2.35E-4 m2/s
K	2.83E-6 m/s
Pi	252.182 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	3.28E-6 m3/Pa
Skin	-3.88

Reservoir & Boundary parameters

Pi	252.182 kPa
T	2.35E-4 m2/s
K	2.83E-6 m/s

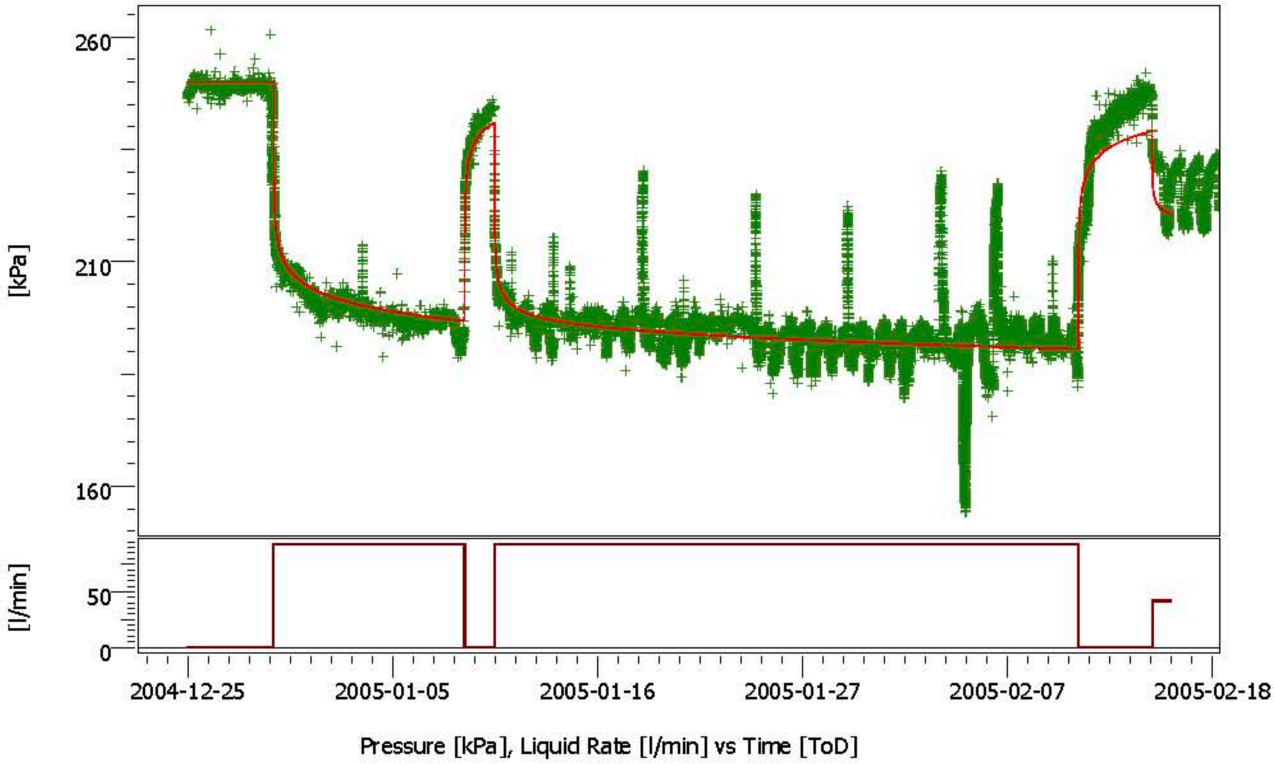
Derived & Secondary Parameters

Rinv	1370 m
Test. Vol.	49.1082 MMm3
Delta P (Total Skin)	-39.2876 kPa
Delta P Ratio (Total Skin)	-0.666116 Fraction

Test date / time	2004-12-29
Formation interval	3-85m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Lars Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.0685 m
Pay Zone h	83 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	9 °C
Reservoir P	1000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-9 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	0.0469 1/sec
PMatch	0.0989 1/kPa
C	3.28E-6 m3/Pa
Total Skin	-3.88
T	2.35E-4 m2/s
K	2.83E-6 m/s
Pi	252.182 kPa
Model Parameters	
Well & Wellbore parameters (HLX10)	
C	3.28E-6 m3/Pa
Skin	-3.88
Reservoir & Boundary parameters	
Pi	252.182 kPa
T	2.35E-4 m2/s
K	2.83E-6 m/s
Derived & Secondary Parameters	
Rinv	1370 m
Test. Vol.	49.1082 MMm3
Delta P (Total Skin)	-39.2876 kPa
Delta P Ratio (Total Skin)	-0.666116 Fraction

History plot	Dd2

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX10 — Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	244.507 kPa
Pi	250 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00574 1/sec
PMatch	0.111 1/kPa
C	3.02E-5 m3/Pa
Total Skin	-3.85
T	2.65E-4 m2/s
K	3.19E-6 m/s
Pi	250 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	3.02E-5 m3/Pa
Skin	-3.85

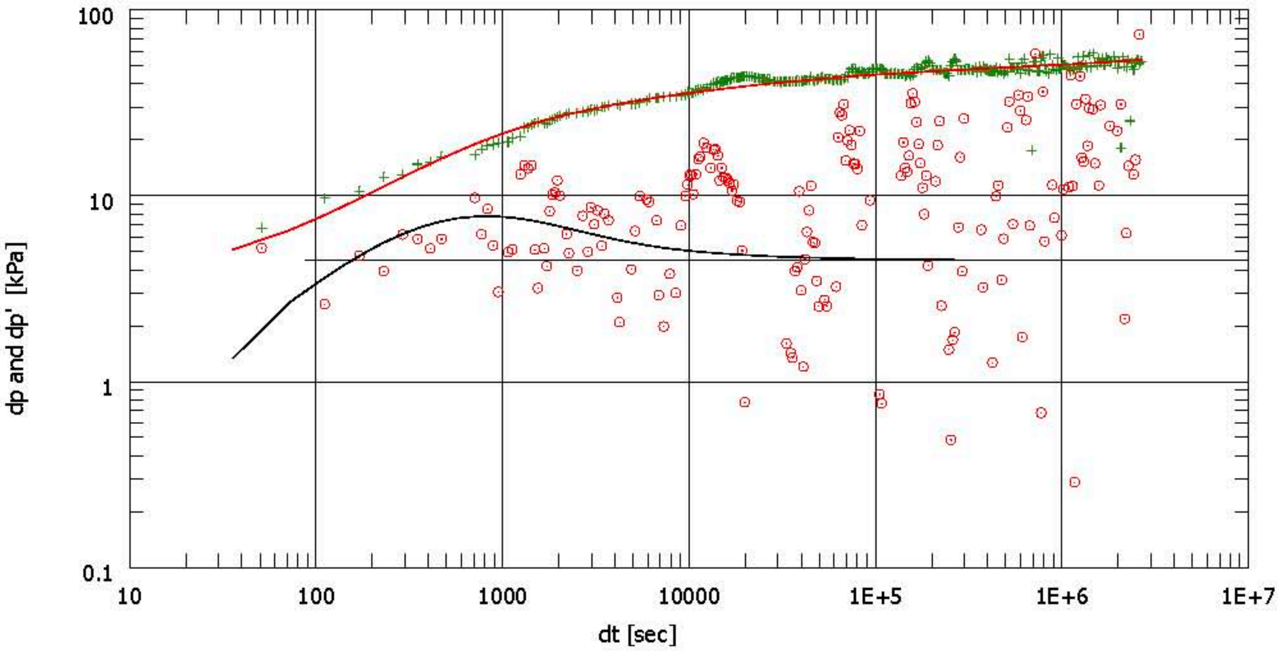
Reservoir & Boundary parameters

Pi	250 kPa
T	2.65E-4 m2/s
K	3.19E-6 m/s

Derived & Secondary Parameters

Rinv	2540 m
Test. Vol.	168.867 MMm3
Delta P (Total Skin)	-34.5675 kPa
Delta P Ratio (Total Skin)	-0.685681 Fraction

Log-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX10	Field Laxemar Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	244.507 kPa
Pi	250 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00574 1/sec
PMatch	0.111 1/kPa
C	3.02E-5 m3/Pa
Total Skin	-3.85
T	2.65E-4 m2/s
K	3.19E-6 m/s
Pi	250 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	3.02E-5 m3/Pa
Skin	-3.85

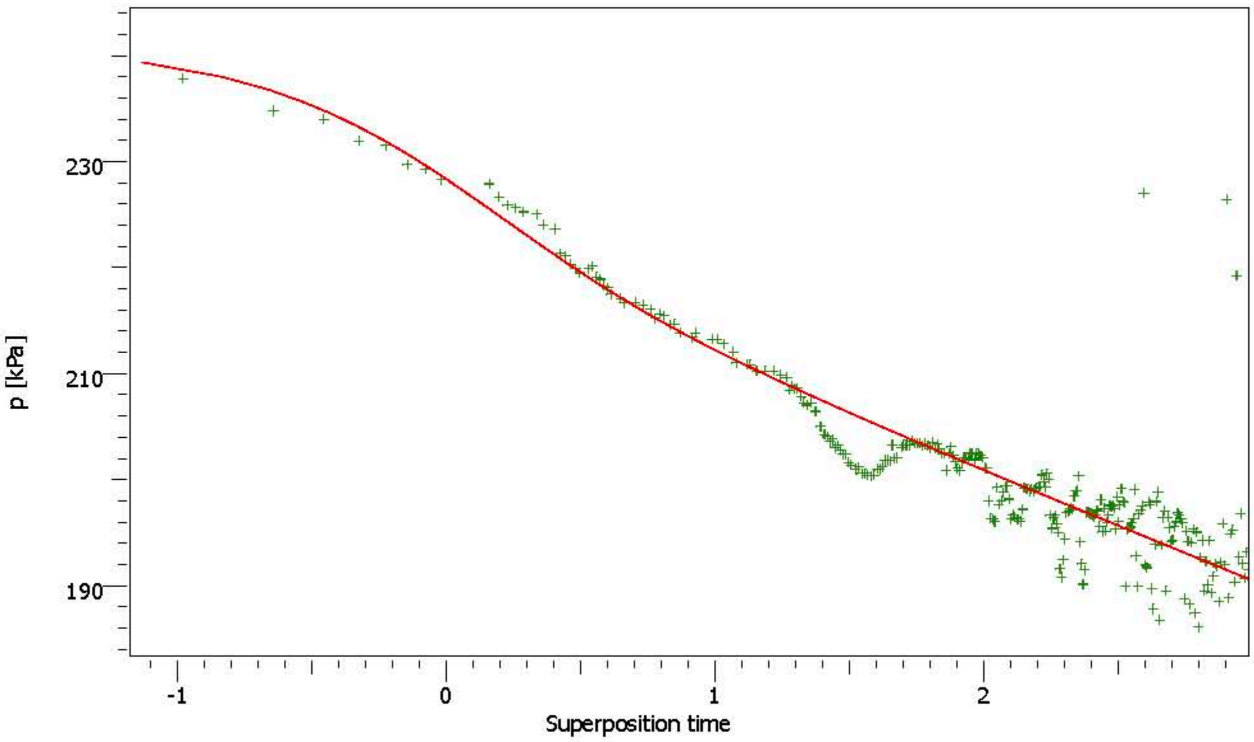
Reservoir & Boundary parameters

Pi	250 kPa
T	2.65E-4 m2/s
K	3.19E-6 m/s

Derived & Secondary Parameters

Rinv	2540 m
Test. Vol.	168.867 MMm3
Delta P (Total Skin)	-34.5675 kPa
Delta P Ratio (Total Skin)	-0.685681 Fraction

Semi-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX10	Field Laxemar Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	244.507 kPa
Pi	250 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00574 1/sec
PMatch	0.111 1/kPa
C	3.02E-5 m3/Pa
Total Skin	-3.85
T	2.65E-4 m2/s
K	3.19E-6 m/s
Pi	250 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	3.02E-5 m3/Pa
Skin	-3.85

Reservoir & Boundary parameters

Pi	250 kPa
T	2.65E-4 m2/s
K	3.19E-6 m/s

Derived & Secondary Parameters

Rinv	2540 m
Test. Vol.	168.867 MMm3
Delta P (Total Skin)	-34.5675 kPa
Delta P Ratio (Total Skin)	-0.685681 Fraction

Test date / time	2004-12-29
Formation interval	3-85m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Lars Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.0685 m
Pay Zone h	83 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	9 °C
Reservoir P	1000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-9 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00574 1/sec
PMatch	0.111 1/kPa
C	3.02E-5 m3/Pa
Total Skin	-3.85
T	2.65E-4 m2/s
K	3.19E-6 m/s
Pi	250 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	3.02E-5 m3/Pa
Skin	-3.85

Reservoir & Boundary parameters

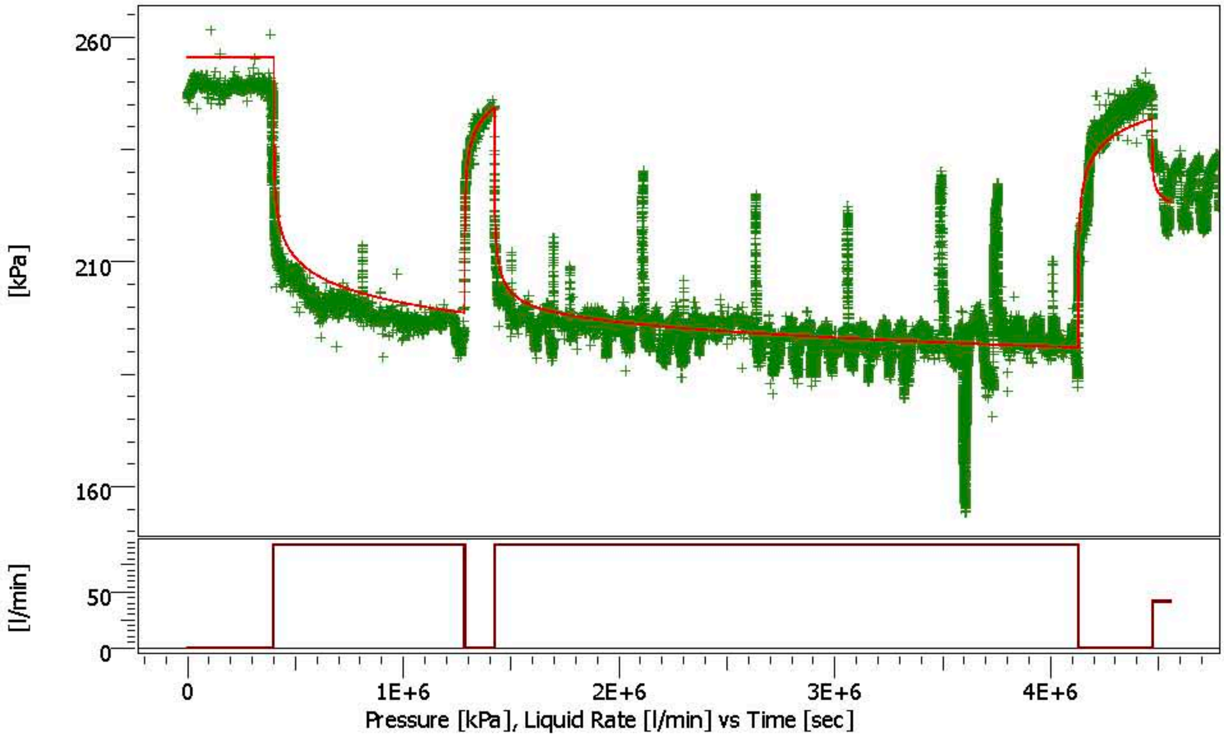
Pi	250 kPa
T	2.65E-4 m2/s
K	3.19E-6 m/s

Derived & Secondary Parameters

Rinv	2540 m
Test. Vol.	168.867 MMm3
Delta P (Total Skin)	-34.5675 kPa
Delta P Ratio (Total Skin)	-0.685681 Fraction

History plot	Bu1

Company Svensk Kärnbränslehantering AB | Field Laxemar
Well HLX10 | Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	197 kPa
Pi	255.484 kPa
Smoothing	0.2

Selected Model

Model Option	Standard Model
Well	Fracture - Uniform flux
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.79E-4 1/sec
PMatch	0.0896 1/kPa
C	2.45E-5 m3/Pa
Total Skin	-4.6
T	2.13E-4 m2/s
K	2.57E-6 m/s
Pi	255.484 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	2.45E-5 m3/Pa
Skin	0.655
Geometrical Skin	-5.26
Xf	35.8 m

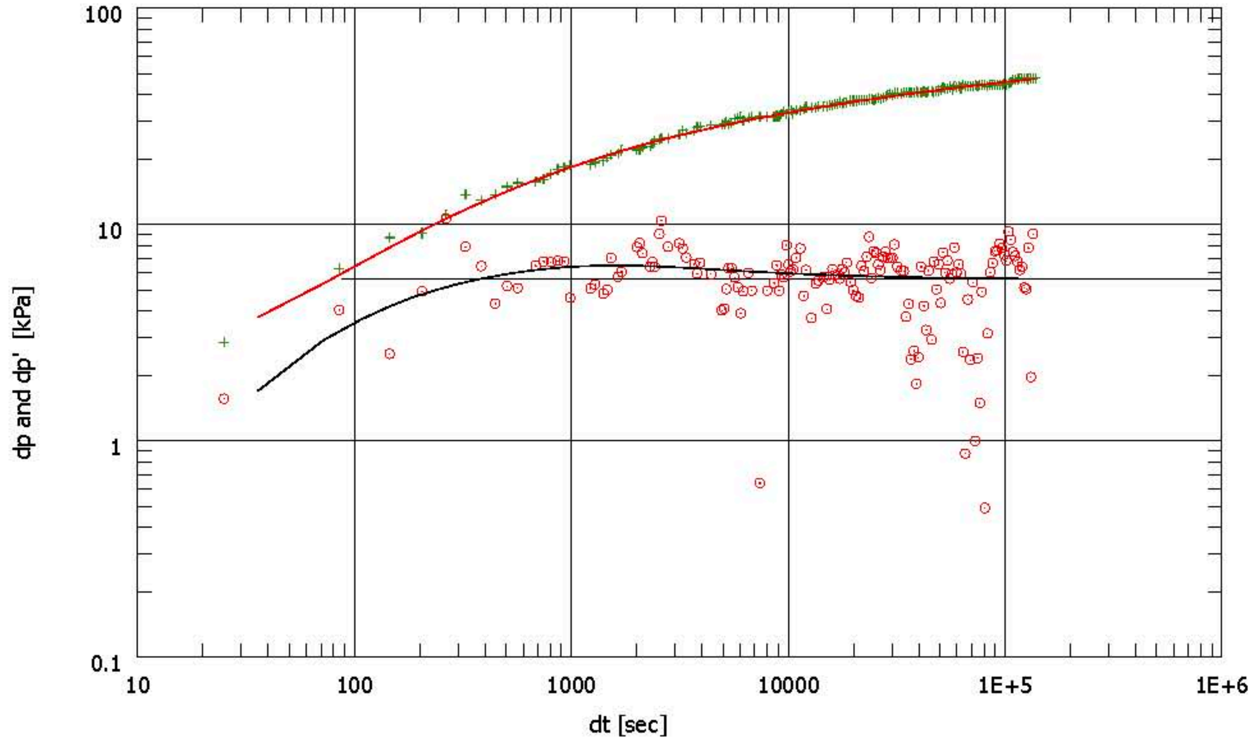
Reservoir & Boundary parameters

Pi	255.484 kPa
T	2.13E-4 m2/s
K	2.57E-6 m/s

Derived & Secondary Parameters

Rinv	520 m
Test. Vol.	7.04844 MMm3
Delta P (Total Skin)	-51.3795 kPa
Delta P Ratio (Total Skin)	-1.12796 Fraction

Company Svensk Kärnbränslehantering AB
Well HLX10
Field Laxemar
Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	197 kPa
Pi	255.484 kPa
Smoothing	0.2

Selected Model

Model Option	Standard Model
Well	Fracture - Uniform flux
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.79E-4 1/sec
PMatch	0.0896 1/kPa
C	2.45E-5 m3/Pa
Total Skin	-4.6
T	2.13E-4 m2/s
K	2.57E-6 m/s
Pi	255.484 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	2.45E-5 m3/Pa
Skin	0.655
Geometrical Skin	-5.26
Xf	35.8 m

Reservoir & Boundary parameters

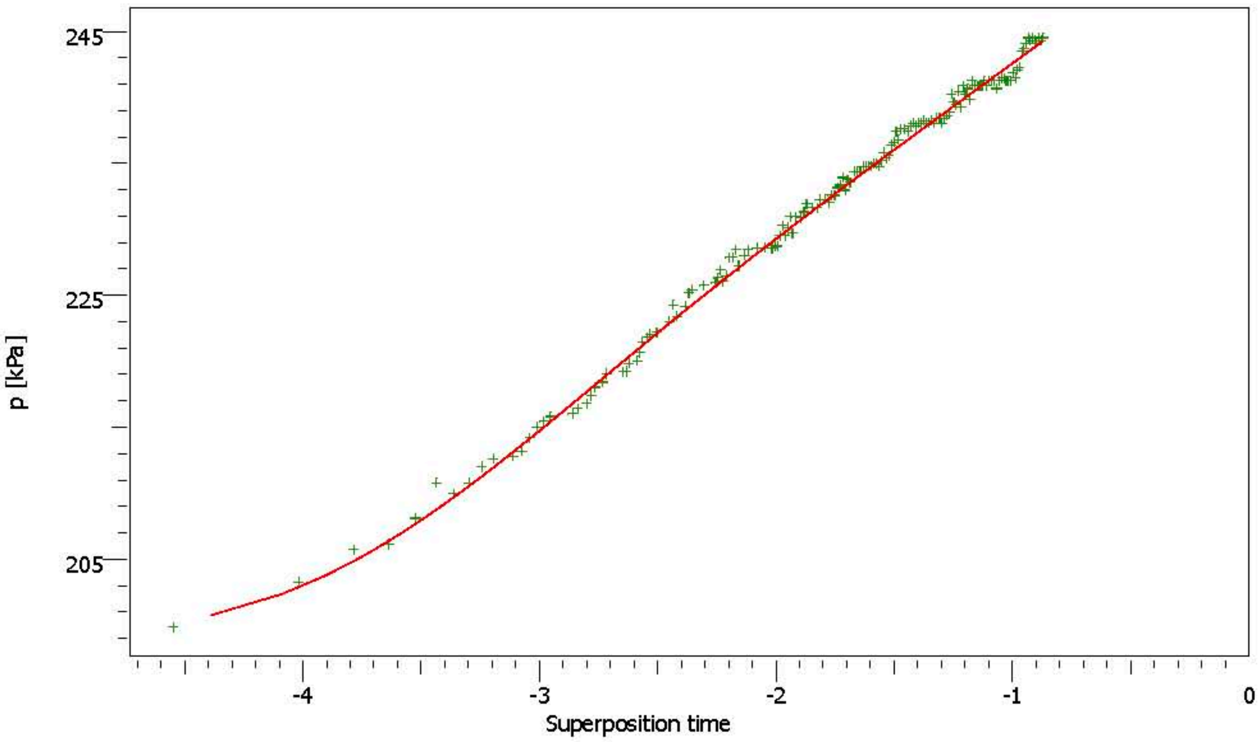
Pi	255.484 kPa
T	2.13E-4 m2/s
K	2.57E-6 m/s

Derived & Secondary Parameters

Rinv	520 m
Test. Vol.	7.04844 MMm3
Delta P (Total Skin)	-51.3795 kPa
Delta P Ratio (Total Skin)	-1.12796 Fraction

Semi-Log plot	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX10 — Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	197 kPa
Pi	255.484 kPa
Smoothing	0.2

Selected Model

Model Option	Standard Model
Well	Fracture - Uniform flux
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.79E-4 1/sec
PMatch	0.0896 1/kPa
C	2.45E-5 m3/Pa
Total Skin	-4.6
T	2.13E-4 m2/s
K	2.57E-6 m/s
Pi	255.484 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	2.45E-5 m3/Pa
Skin	0.655
Geometrical Skin	-5.26
Xf	35.8 m

Reservoir & Boundary parameters

Pi	255.484 kPa
T	2.13E-4 m2/s
K	2.57E-6 m/s

Derived & Secondary Parameters

Rinv	520 m
Test. Vol.	7.04844 MMm3
Delta P (Total Skin)	-51.3795 kPa
Delta P Ratio (Total Skin)	-1.12796 Fraction

Test date / time	2004-12-29
Formation interval	3-85m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Lars Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.0685 m
Pay Zone h	83 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	9 °C
Reservoir P	1000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-9 Pa-1

Selected Model

Model Option	Standard Model
Well	Fracture - Uniform flux
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.79E-4 1/sec
PMatch	0.0896 1/kPa
C	2.45E-5 m3/Pa
Total Skin	-4.6
T	2.13E-4 m2/s
K	2.57E-6 m/s
Pi	255.484 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	2.45E-5 m3/Pa
Skin	0.655
Geometrical Skin	-5.26
Xf	35.8 m

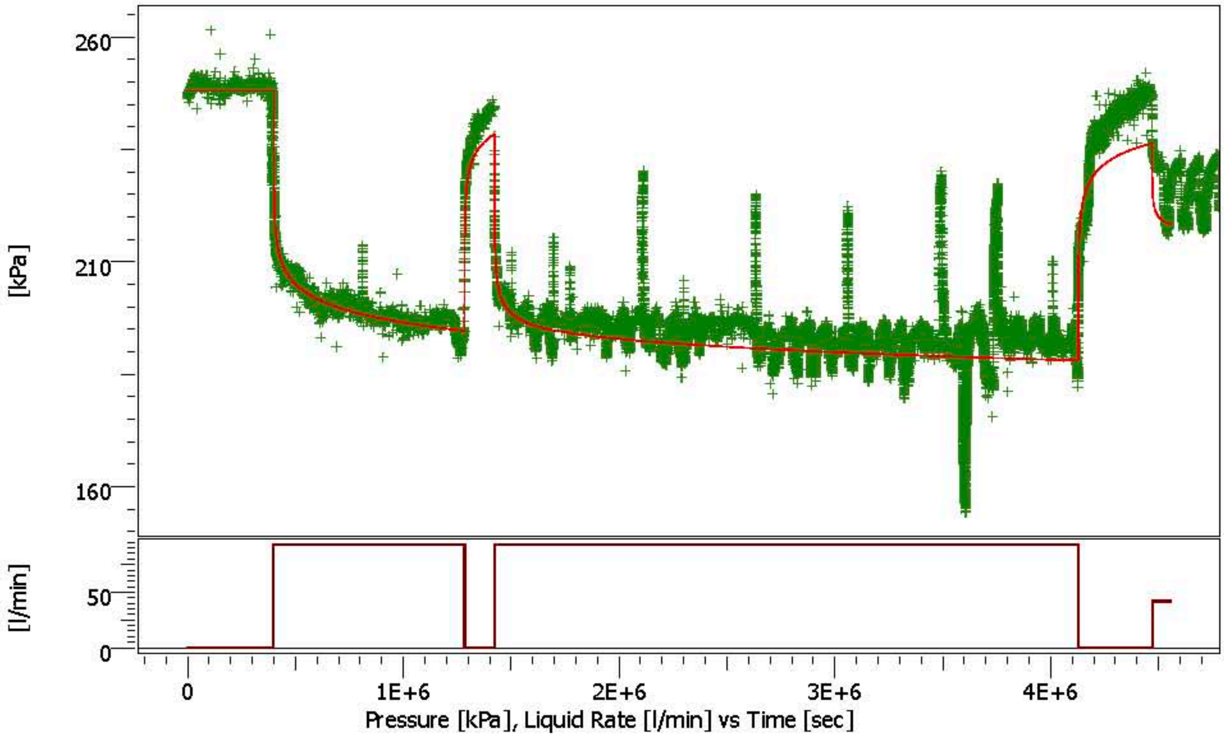
Reservoir & Boundary parameters

Pi	255.484 kPa
T	2.13E-4 m2/s
K	2.57E-6 m/s

Derived & Secondary Parameters

Rinv	520 m
Test. Vol.	7.04844 MMm3
Delta P (Total Skin)	-51.3795 kPa
Delta P Ratio (Total Skin)	-1.12796 Fraction

History plot	Bu2
Company Svensk Kärnbränslehantering AB Well HLX10	Field Laxemar Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	186.241 kPa
Pi	248 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0142 1/sec
PMatch	0.105 1/kPa
C	1.15E-5 m3/Pa
Total Skin	-4.15
T	2.49E-4 m2/s
K	3.01E-6 m/s
Pi	248 kPa

Model Parameters
Well & Wellbore parameters (HLX10)

C	1.15E-5 m3/Pa
Skin	-4.15

Reservoir & Boundary parameters

Pi	248 kPa
T	2.49E-4 m2/s
K	3.01E-6 m/s

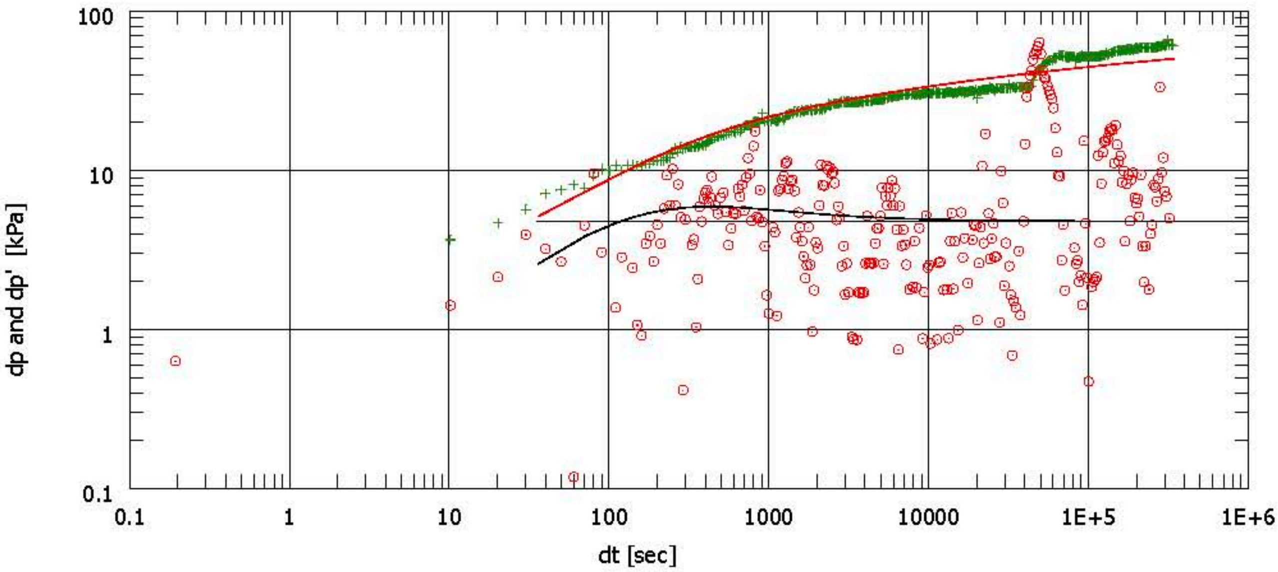
Derived & Secondary Parameters

Rinv	878 m
Test. Vol.	20.0996 MMm3
Delta P (Total Skin)	-39.5846 kPa
Delta P Ratio (Total Skin)	-0.819 Fraction

Log-Log plot	Bu2

Company Svensk Kärnbränslehantering AB
Well HLX10

Field Laxemar
Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	186.241 kPa
Pi	248 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0142 1/sec
PMatch	0.105 1/kPa
C	1.15E-5 m3/Pa
Total Skin	-4.15
T	2.49E-4 m2/s
K	3.01E-6 m/s
Pi	248 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	1.15E-5 m3/Pa
Skin	-4.15

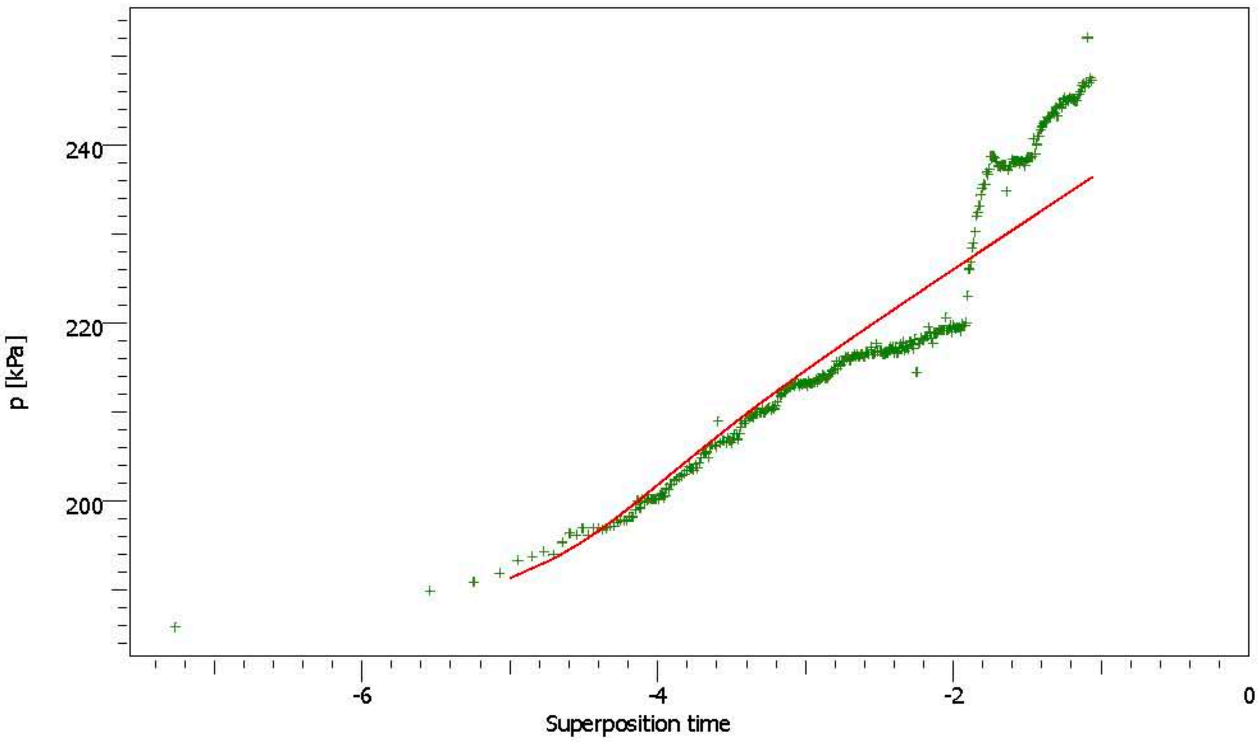
Reservoir & Boundary parameters

Pi	248 kPa
T	2.49E-4 m2/s
K	3.01E-6 m/s

Derived & Secondary Parameters

Rinv	878 m
Test. Vol.	20.0996 MMm3
Delta P (Total Skin)	-39.5846 kPa
Delta P Ratio (Total Skin)	-0.819 Fraction

Semi-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well HLX10	Field Laxemar Test Name / # Interference test HLX10 pumping



HLX10_Spolvattenbrunn_P&Q_041225-050220 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	186.241 kPa
Pi	248 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0142 1/sec
PMatch	0.105 1/kPa
C	1.15E-5 m3/Pa
Total Skin	-4.15
T	2.49E-4 m2/s
K	3.01E-6 m/s
Pi	248 kPa

Model Parameters

Well & Wellbore parameters (HLX10)

C	1.15E-5 m3/Pa
Skin	-4.15

Reservoir & Boundary parameters

Pi	248 kPa
T	2.49E-4 m2/s
K	3.01E-6 m/s

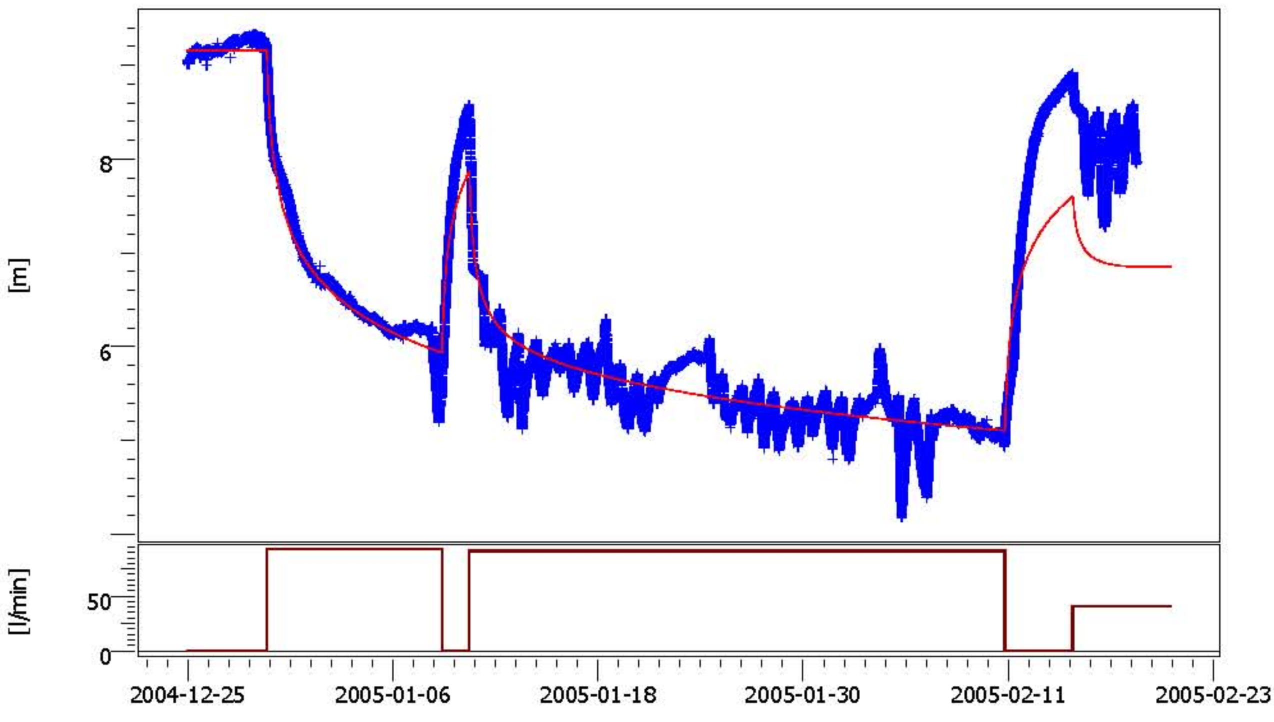
Derived & Secondary Parameters

Rinv	878 m
Test. Vol.	20.0996 MMm3
Delta P (Total Skin)	-39.5846 kPa
Delta P Ratio (Total Skin)	-0.819 Fraction

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX10	Test Name / #	Interference test HLX10 pumping

Test date / time	2004-12-29
Formation interval	3-85m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Lars Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.0685 m
Pay Zone h	83 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	9 °C
Reservoir P	1000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-9 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	0.0142 1/sec
PMatch	0.105 1/kPa
C	1.15E-5 m3/Pa
Total Skin	-4.15
T	2.49E-4 m2/s
K	3.01E-6 m/s
Pi	248 kPa
Model Parameters	
Well & Wellbore parameters (HLX10)	
C	1.15E-5 m3/Pa
Skin	-4.15
Reservoir & Boundary parameters	
Pi	248 kPa
T	2.49E-4 m2/s
K	3.01E-6 m/s
Derived & Secondary Parameters	
Rinv	878 m
Test. Vol.	20.0996 MMm3
Delta P (Total Skin)	-39.5846 kPa
Delta P Ratio (Total Skin)	-0.819 Fraction

History plot	Dd1_Line
Company Svensk Kärnbränslehantering AB Well HLX11:1 Observation	Field Laxemar Test Name / # Interference test HLX10



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX11:1 production #1
Rate 93.1891 l/min
Rate change 93.1891 l/min
P@dt=0 9.16345 m
Pi 9.15705 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 6.84E-5 1/sec
PMatch 0.763 1/m
S 6.4E-4
T 1.85E-4 m2/s
K 3.49E-6 m/s
Pi 9.15705 m
Well distance 65 m

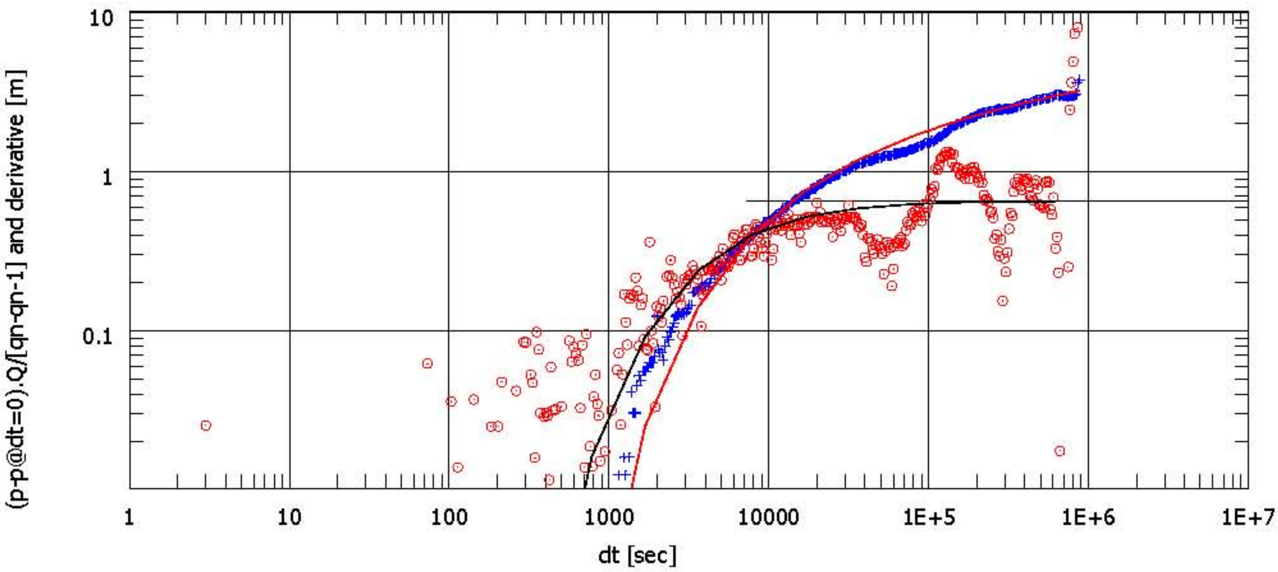
Model Parameters
Reservoir & Boundary parameters
Pi 9.15705 m
T 1.85E-4 m2/s
K 3.49E-6 m/s
S 6.4E-4

Derived & Secondary Parameters
Rinv 900 m
Test. Vol. 388.773 MMm3

Log-Log plot	Dd1_Line

Company Svensk Kärnbränslehantering AB
Well HLX11:1 Observation

Field Laxemar
Test Name / # Interference test HLX10



HLX11:1 production #1
Rate 93.1891 l/min
Rate change 93.1891 l/min
P@dt=0 9.16345 m
Pi 9.15705 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 6.84E-5 1/sec
PMatch 0.763 1/m
S 6.4E-4
T 1.85E-4 m2/s
K 3.49E-6 m/s
Pi 9.15705 m
Well distance 65 m

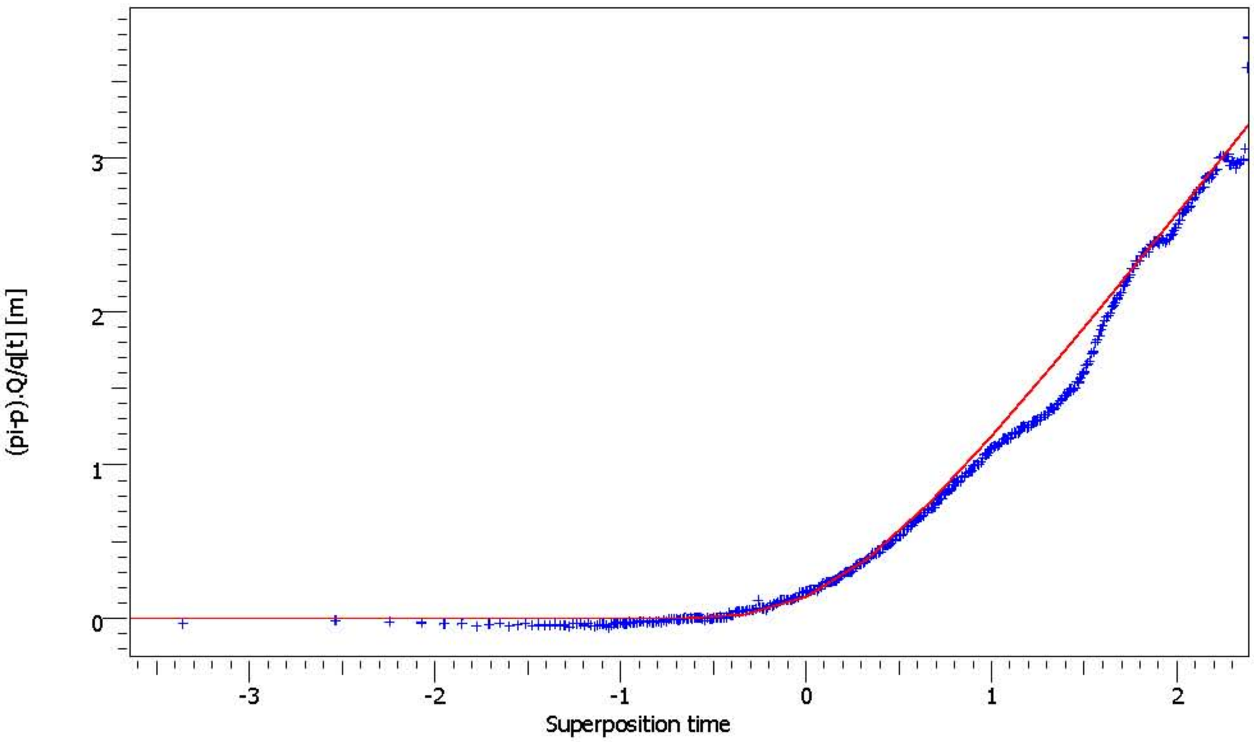
Model Parameters
Reservoir & Boundary parameters
Pi 9.15705 m
T 1.85E-4 m2/s
K 3.49E-6 m/s
S 6.4E-4

Derived & Secondary Parameters
Rinv 900 m
Test. Vol. 388.773 MMm3

Semi-Log plot	Dd1_Line

Company Svensk Kärnbränslehantering AB
Well HLX11:1 Observation

Field Laxemar
Test Name / # Interference test HLX10



HLX11:1 production #1

Rate	93.1891 l/min
Rate change	93.1891 l/min
P@dt=0	9.16345 m
Pi	9.15705 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.84E-5 1/sec
PMatch	0.763 1/m
S	6.4E-4
T	1.85E-4 m2/s
K	3.49E-6 m/s
Pi	9.15705 m
Well distance	65 m

Model Parameters
Reservoir & Boundary parameters

Pi	9.15705 m
T	1.85E-4 m2/s
K	3.49E-6 m/s
S	6.4E-4

Derived & Secondary Parameters

Rinv	900 m
Test. Vol.	388.773 MMm3

Main Results	Dd1_Line
Company Svensk Kärnbränslehantering AB Well HLX11:1 Observation	Field Laxemar Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	17 - 70m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	65 m
Well Radius rw	0.0694 m
Pay Zone h	53 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.84E-5 1/sec
PMatch	0.763 1/m
S	6.4E-4
T	1.85E-4 m2/s
K	3.49E-6 m/s
Pi	9.15705 m
Well distance	65 m

Model Parameters

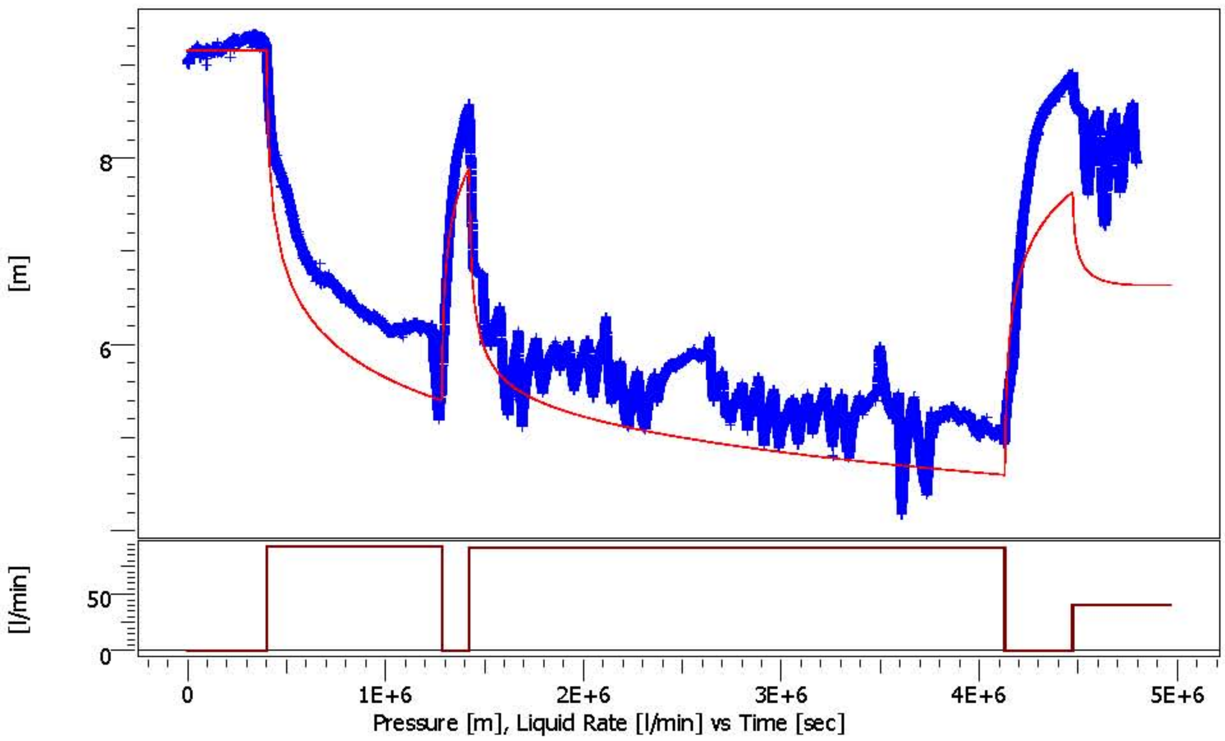
Reservoir & Boundary parameters

Pi	9.15705 m
T	1.85E-4 m2/s
K	3.49E-6 m/s
S	6.4E-4

Derived & Secondary Parameters

Rinv	900 m
Test. Vol.	388.773 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX11:1 Observation	Field Laxemar Test Name / # Interference test HLX10



HLX11:1 build-up #1

Rate	0 l/min
Rate change	93.1891 l/min
P@dt=0	5.49147 m
Pi	9.15705 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.18E-4 1/sec
PMatch	0.783 1/m
C	2.05E-7 m3/Pa
S	2.06E-4
T	1.9E-4 m2/s
K	3.58E-6 m/s
Pi	9.15705 m
Well distance	65 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.05E-7 m3/Pa
Skin	-0.0943

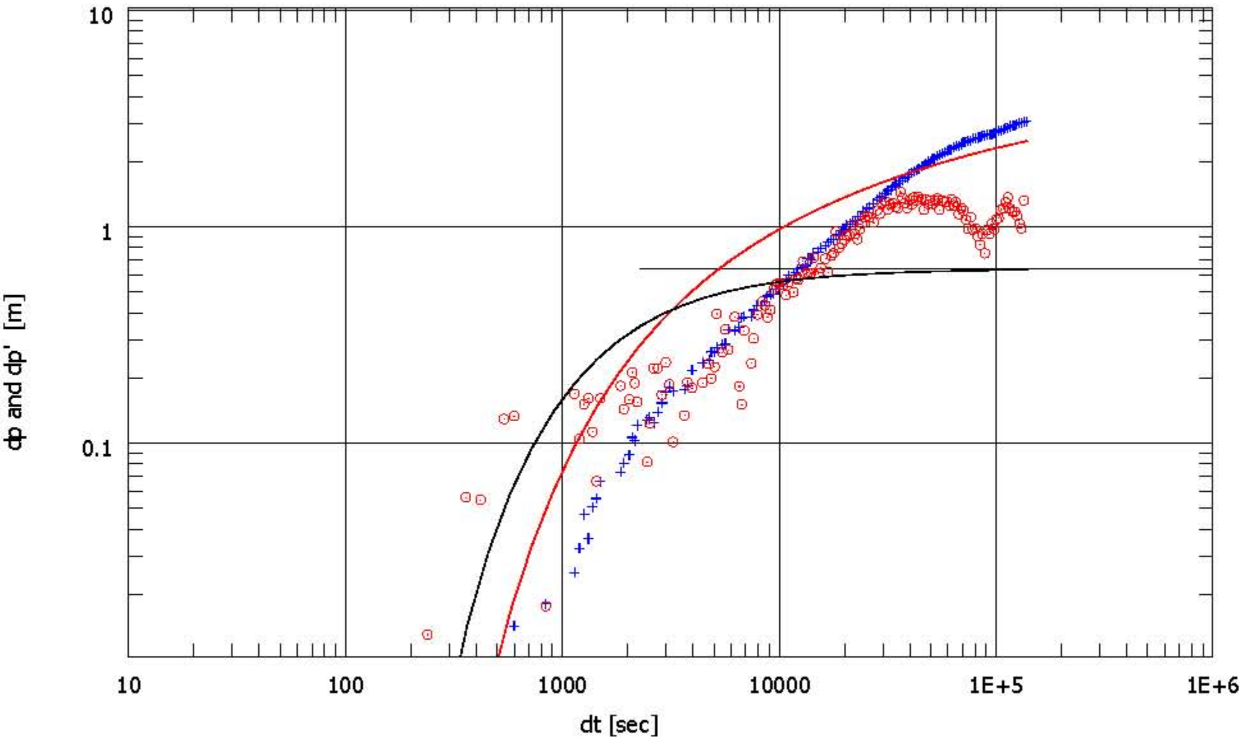
Reservoir & Boundary parameters

Pi	9.15705 m
T	1.9E-4 m2/s
K	3.58E-6 m/s
S	2.06E-4

Derived & Secondary Parameters

Rinv	638 m
Test. Vol.	62.8305 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX11:1 Observation	Field Laxemar Test Name / # Interference test HLX10



HLX11:1 build-up #1

Rate	0 l/min
Rate change	93.1891 l/min
P@dt=0	5.49147 m
Pi	9.15705 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.18E-4 1/sec
PMatch	0.783 1/m
C	2.05E-7 m3/Pa
S	2.06E-4
T	1.9E-4 m2/s
K	3.58E-6 m/s
Pi	9.15705 m
Well distance	65 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.05E-7 m3/Pa
Skin	-0.0943

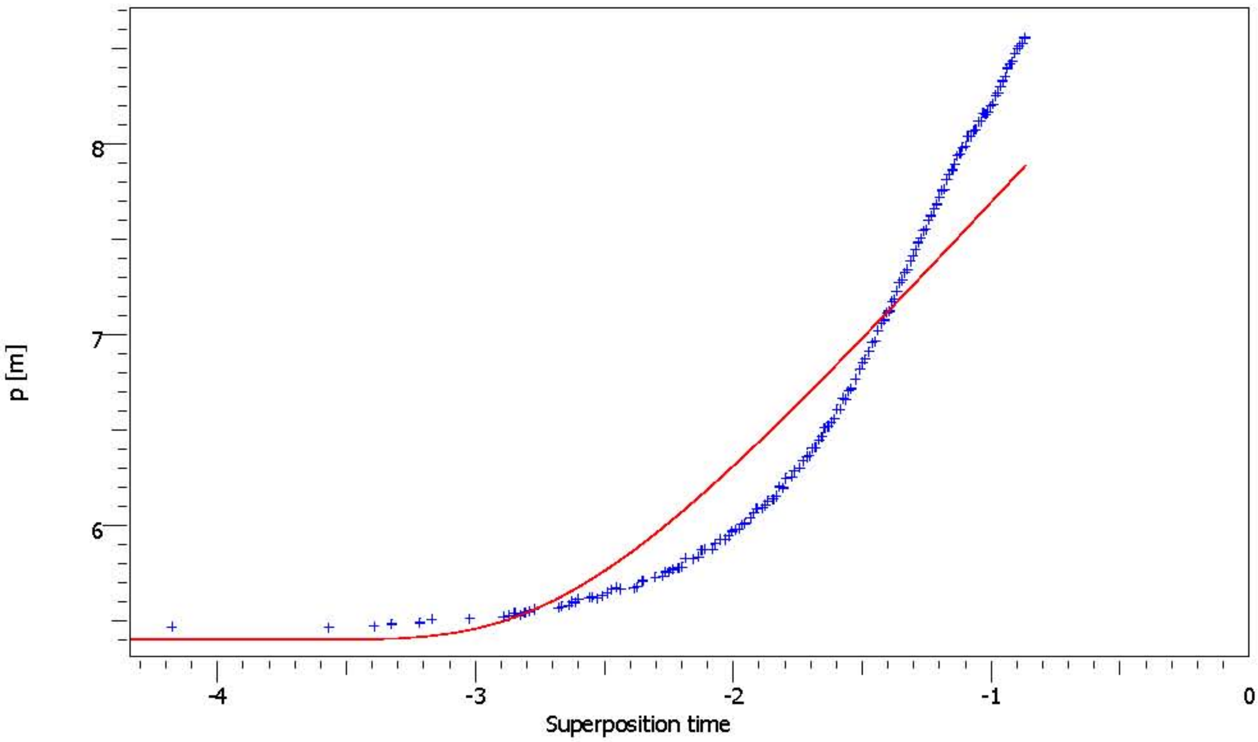
Reservoir & Boundary parameters

Pi	9.15705 m
T	1.9E-4 m2/s
K	3.58E-6 m/s
S	2.06E-4

Derived & Secondary Parameters

Rinv	638 m
Test. Vol.	62.8305 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX11:1 Observation	Field Laxemar Test Name / # Interference test HLX10



HLX11:1 build-up #1

Rate	0 l/min
Rate change	93.1891 l/min
P@dt=0	5.49147 m
Pi	9.15705 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.18E-4 1/sec
PMatch	0.783 1/m
C	2.05E-7 m3/Pa
S	2.06E-4
T	1.9E-4 m2/s
K	3.58E-6 m/s
Pi	9.15705 m
Well distance	65 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.05E-7 m3/Pa
Skin	-0.0943

Reservoir & Boundary parameters

Pi	9.15705 m
T	1.9E-4 m2/s
K	3.58E-6 m/s
S	2.06E-4

Derived & Secondary Parameters

Rinv	638 m
Test. Vol.	62.8305 MMm3

Main Results	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX11:1 Observation
Field Laxemar
Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	17 - 70m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	65 m
Well Radius rw	0.0694 m
Pay Zone h	53 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.18E-4 1/sec
PMatch	0.783 1/m
C	2.05E-7 m3/Pa
S	2.06E-4
T	1.9E-4 m2/s
K	3.58E-6 m/s
Pi	9.15705 m
Well distance	65 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.05E-7 m3/Pa
Skin	-0.0943

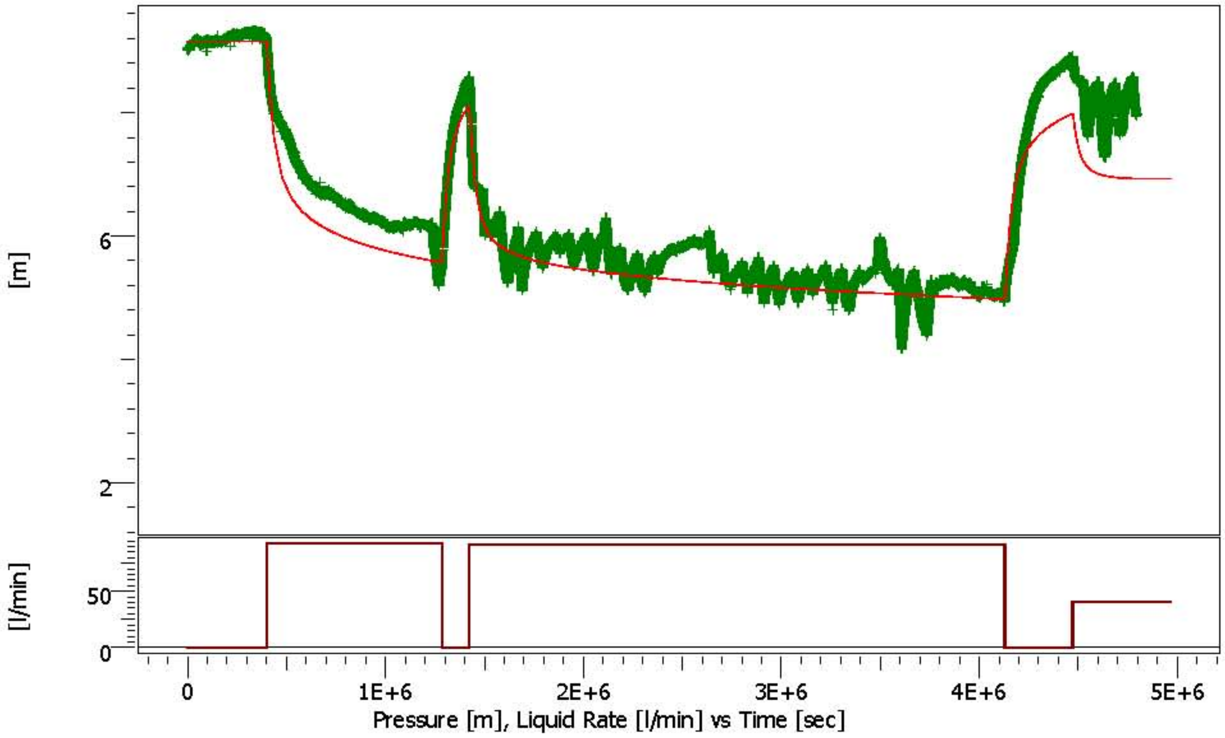
Reservoir & Boundary parameters

Pi	9.15705 m
T	1.9E-4 m2/s
K	3.58E-6 m/s
S	2.06E-4

Derived & Secondary Parameters

Rinv	638 m
Test. Vol.	62.8305 MMm3

	History plot	Dd2
SKB	Company Svensk Kärnbränslehantering AB Well HLX11:1 Observation	Field Laxemar Test Name / # Interference test HLX10



HLX11_1 production #2

Rate	91.36 l/min
Rate change	91.36 l/min
P@dt=0	8.57964 m
Pi	9.15705 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.59E-4 1/sec
PMatch	1.07 1/m
C	2.9E-4 m3/Pa
S	6.27E-5
T	2.54E-4 m2/s
K	4.8E-6 m/s
Pi	9.15705 m
Well distance	65 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.9E-4 m3/Pa
Skin	0.0104

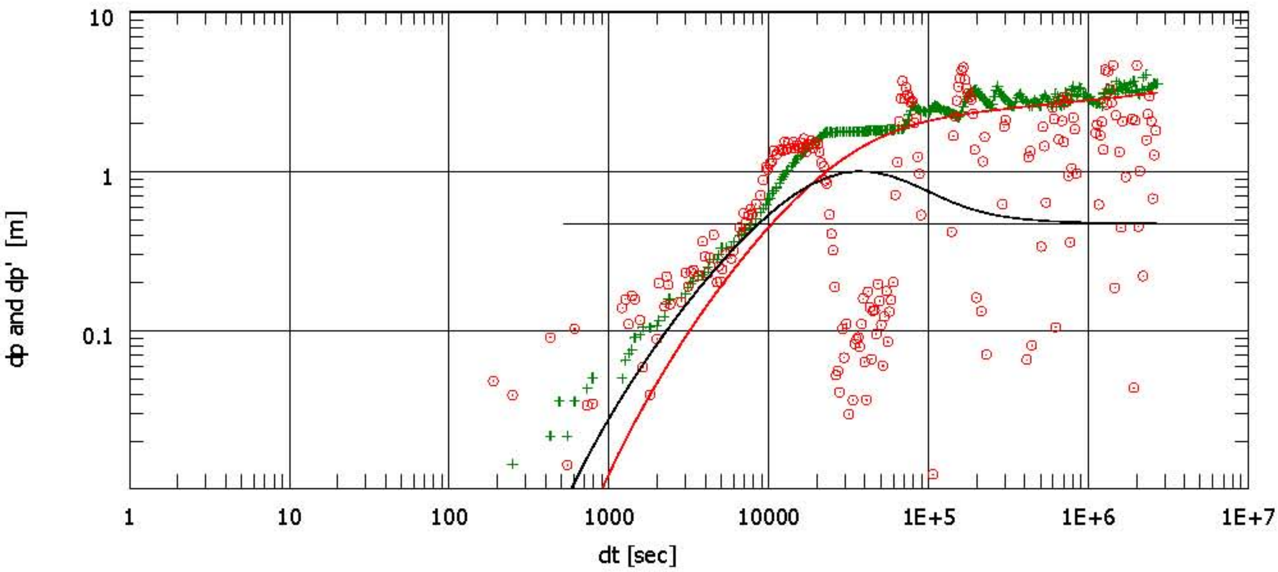
Reservoir & Boundary parameters

Pi	9.15705 m
T	2.54E-4 m2/s
K	4.8E-6 m/s
S	6.27E-5

Derived & Secondary Parameters

Rinv	5910 m
Test. Vol.	1643.18 MMm3

Log-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX11:1 Observation	Field Laxemar Test Name / # Interference test HLX10



HLX11_1 production #2
Rate 91.36 l/min
Rate change 91.36 l/min
P@dt=0 8.57964 m
Pi 9.15705 m
Smoothing 0.1

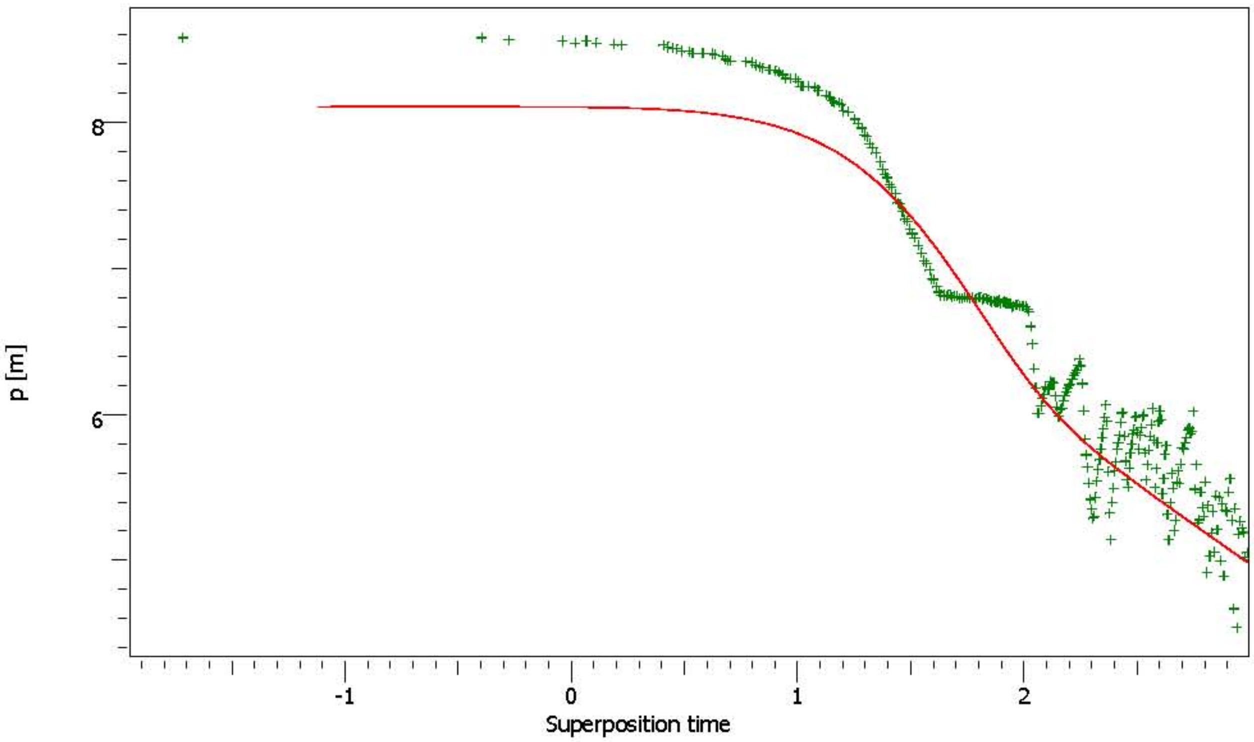
Selected Model
Model Option Standard Model
Well Vertical
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 9.59E-4 1/sec
PMatch 1.07 1/m
C 2.9E-4 m3/Pa
S 6.27E-5
T 2.54E-4 m2/s
K 4.8E-6 m/s
Pi 9.15705 m
Well distance 65 m

Model Parameters
Well & Wellbore parameters (Active well)
C 2.9E-4 m3/Pa
Skin 0.0104
Reservoir & Boundary parameters
Pi 9.15705 m
T 2.54E-4 m2/s
K 4.8E-6 m/s
S 6.27E-5

Derived & Secondary Parameters
Rinv 5910 m
Test. Vol. 1643.18 MMm3

Semi-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX11:1 Observation	Field Laxemar Test Name / # Interference test HLX10



HLX11_1 production #2

Rate	91.36 l/min
Rate change	91.36 l/min
P@dt=0	8.57964 m
Pi	9.15705 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.59E-4 1/sec
PMatch	1.07 1/m
C	2.9E-4 m3/Pa
S	6.27E-5
T	2.54E-4 m2/s
K	4.8E-6 m/s
Pi	9.15705 m
Well distance	65 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.9E-4 m3/Pa
Skin	0.0104

Reservoir & Boundary parameters

Pi	9.15705 m
T	2.54E-4 m2/s
K	4.8E-6 m/s
S	6.27E-5

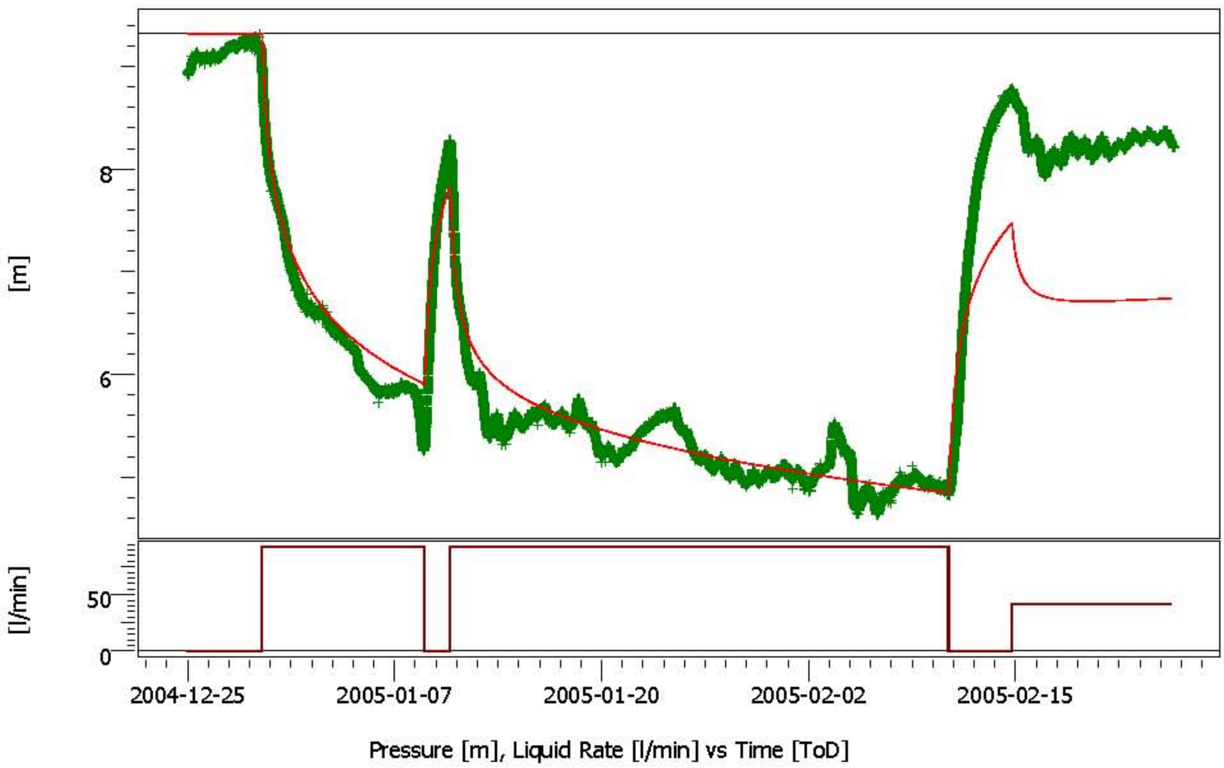
Derived & Secondary Parameters

Rinv	5910 m
Test. Vol.	1643.18 MMm3

Main Results	Dd2
Company Svensk Kärnbränslehantering AB Well HLX11:1 Observation	Field Laxemar Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	17 - 70m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	65 m
Well Radius rw	0.0694 m
Pay Zone h	53 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	9.59E-4 1/sec
PMatch	1.07 1/m
C	2.9E-4 m3/Pa
S	6.27E-5
T	2.54E-4 m2/s
K	4.8E-6 m/s
Pi	9.15705 m
Well distance	65 m
Model Parameters	
Well & Wellbore parameters (Active well)	
C	2.9E-4 m3/Pa
Skin	0.0104
Reservoir & Boundary parameters	
Pi	9.15705 m
T	2.54E-4 m2/s
K	4.8E-6 m/s
S	6.27E-5
Derived & Secondary Parameters	
Rinv	5910 m
Test. Vol.	1643.18 MMm3

History plot	Dd1_line
Company Svensk Kärnbränslehantering AB Well HLX11:2 observation	Field Laxemar Test Name / # Interference test HLX10



Pressure
— Pi

HLX11_2_obs_HLX10pumpning_041225-050220_masl production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	9.07799 m
Pi	9.31848 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.34E-5 1/sec
PMatch	0.654 1/m
S	8.65E-4
T	1.59E-4 m2/s
K	1.59E-5 m/s
Pi	9.31848 m
Well distance	65 m

Model Parameters
Reservoir & Boundary parameters

Pi	9.31848 m
T	1.59E-4 m2/s
K	1.59E-5 m/s
S	8.65E-4

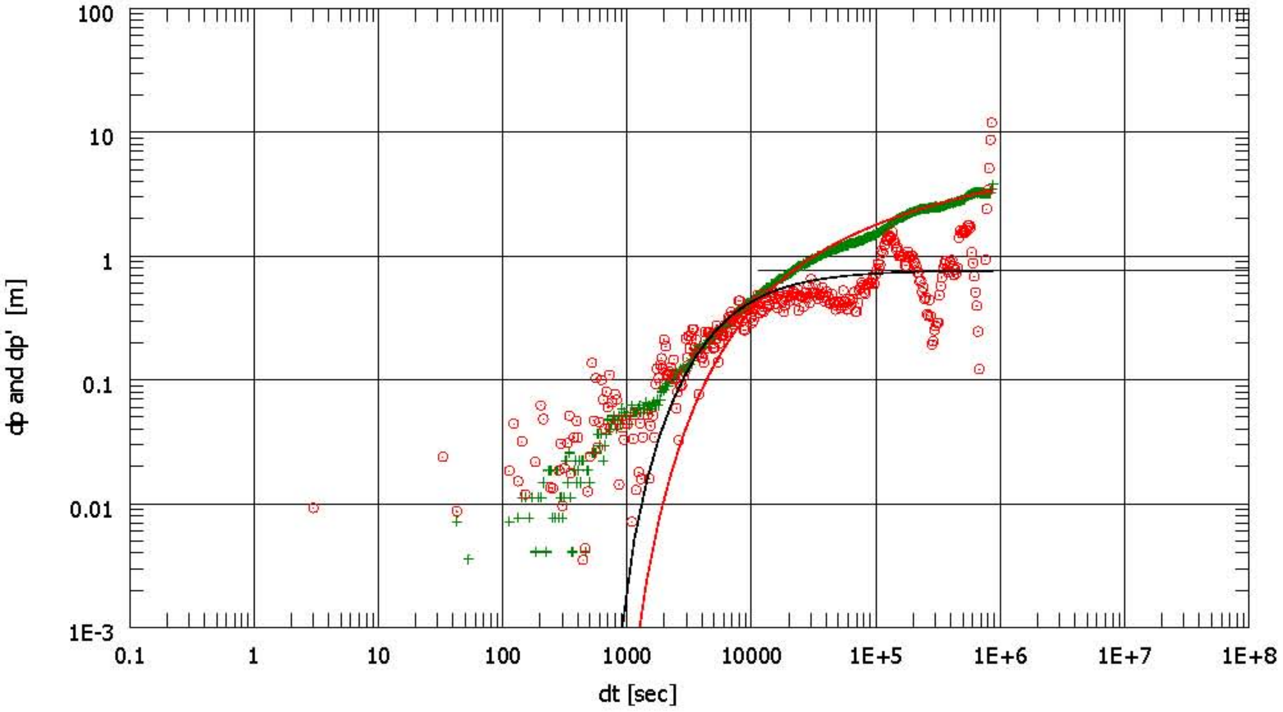
Derived & Secondary Parameters

Rinv	715 m
Test. Vol.	332.017 MMm3

Log-Log plot	Dd1_line

Company Svensk Kärnbränslehantering AB
Well HLX11:2 observation

Field Laxemar
Test Name / # Interference test HLX10



HLX11_2_obs_HLX10pumpning_041225-050220_masl production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	9.07799 m
Pi	9.31848 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.34E-5 1/sec
PMatch	0.654 1/m
S	8.65E-4
T	1.59E-4 m2/s
K	1.59E-5 m/s
Pi	9.31848 m
Well distance	65 m

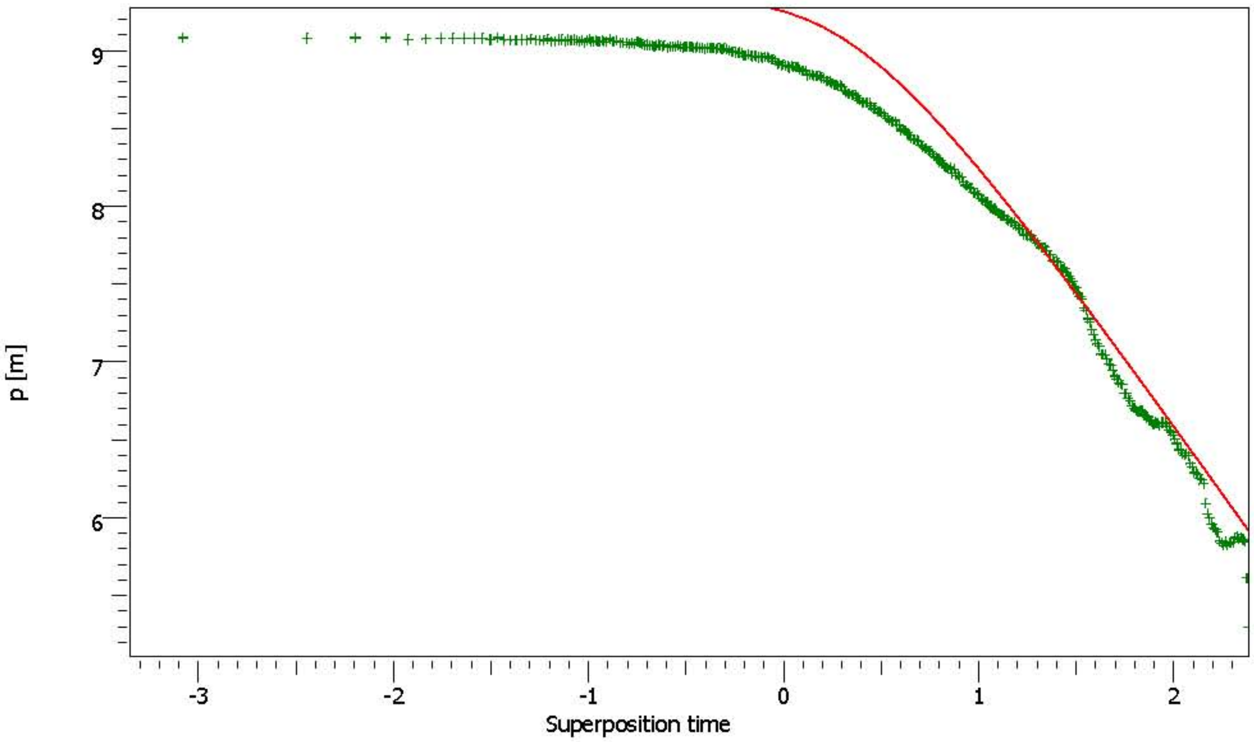
Model Parameters
Reservoir & Boundary parameters

Pi	9.31848 m
T	1.59E-4 m2/s
K	1.59E-5 m/s
S	8.65E-4

Derived & Secondary Parameters

Rinv	715 m
Test. Vol.	332.017 MMm3

Semi-Log plot	Dd1_line
Company Svensk Kärnbränslehantering AB Well HLX11:2 observation	Field Laxemar Test Name / # Interference test HLX10



HLX11_2_obs_HLX10pumpning_041225-050220_masl production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	9.07799 m
Pi	9.31848 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.34E-5 1/sec
PMatch	0.654 1/m
S	8.65E-4
T	1.59E-4 m2/s
K	1.59E-5 m/s
Pi	9.31848 m
Well distance	65 m

Model Parameters

Reservoir & Boundary parameters

Pi	9.31848 m
T	1.59E-4 m2/s
K	1.59E-5 m/s
S	8.65E-4

Derived & Secondary Parameters

Rinv	715 m
Test. Vol.	332.017 MMm3

Main Results	Dd1_line

Company Svensk Kärnbränslehantering AB
Well HLX11:2 observation

Field Laxemar
Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	6 - 16m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	65 m
Well Radius rw	0.0692 m
Pay Zone h	10 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	1000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.34E-5 1/sec
PMatch	0.654 1/m
S	8.65E-4
T	1.59E-4 m2/s
K	1.59E-5 m/s
Pi	9.31848 m
Well distance	65 m

Model Parameters

Reservoir & Boundary parameters

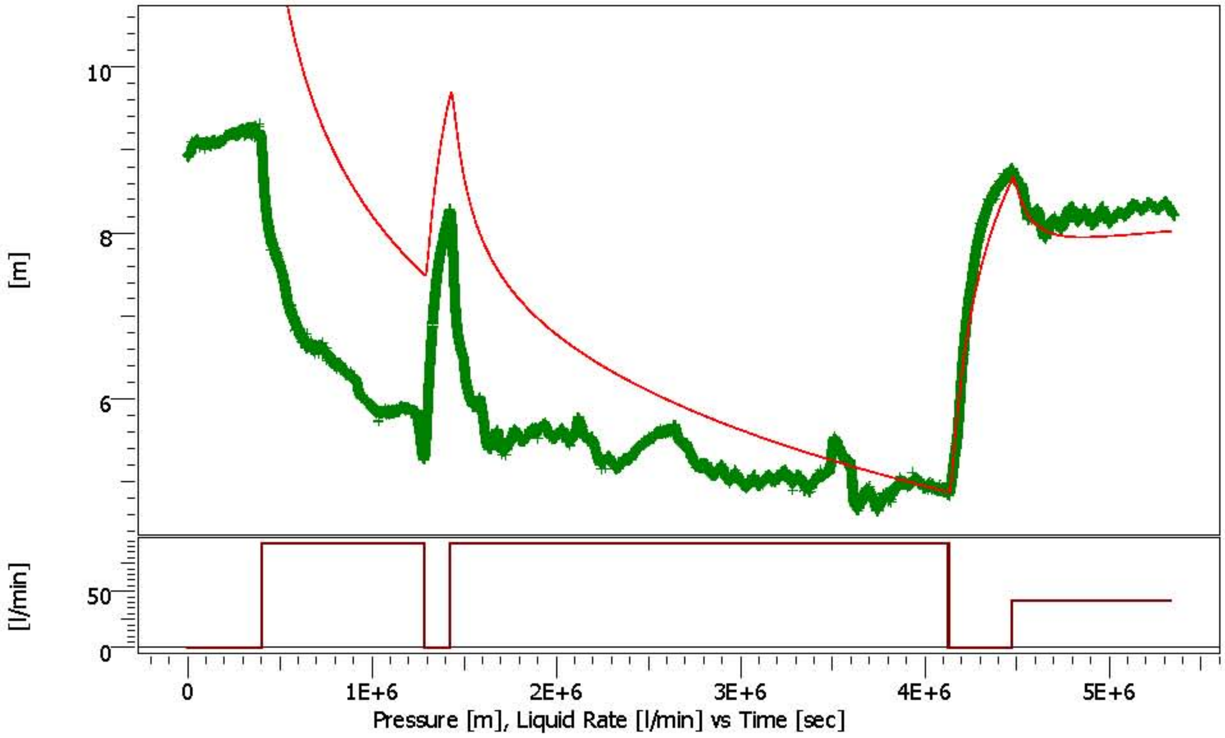
Pi	9.31848 m
T	1.59E-4 m2/s
K	1.59E-5 m/s
S	8.65E-4

Derived & Secondary Parameters

Rinv	715 m
Test. Vol.	332.017 MMm3

History plot	Bu2_line

Company Svensk Kärnbränslehantering AB | Field Laxemar
Well HLX11:2 observation | Test Name / # Interference test HLX10



HLX11_2_obs_HLX10pumpning_041225-050220_masl build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	4.87011 m
Pi	13.1526 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.44E-6 1/sec
PMatch	0.261 1/m
S	0.00159
T	6.33E-5 m2/s
K	6.33E-6 m/s
Pi	13.1526 m
Well distance	65 m

Model Parameters

Reservoir & Boundary parameters

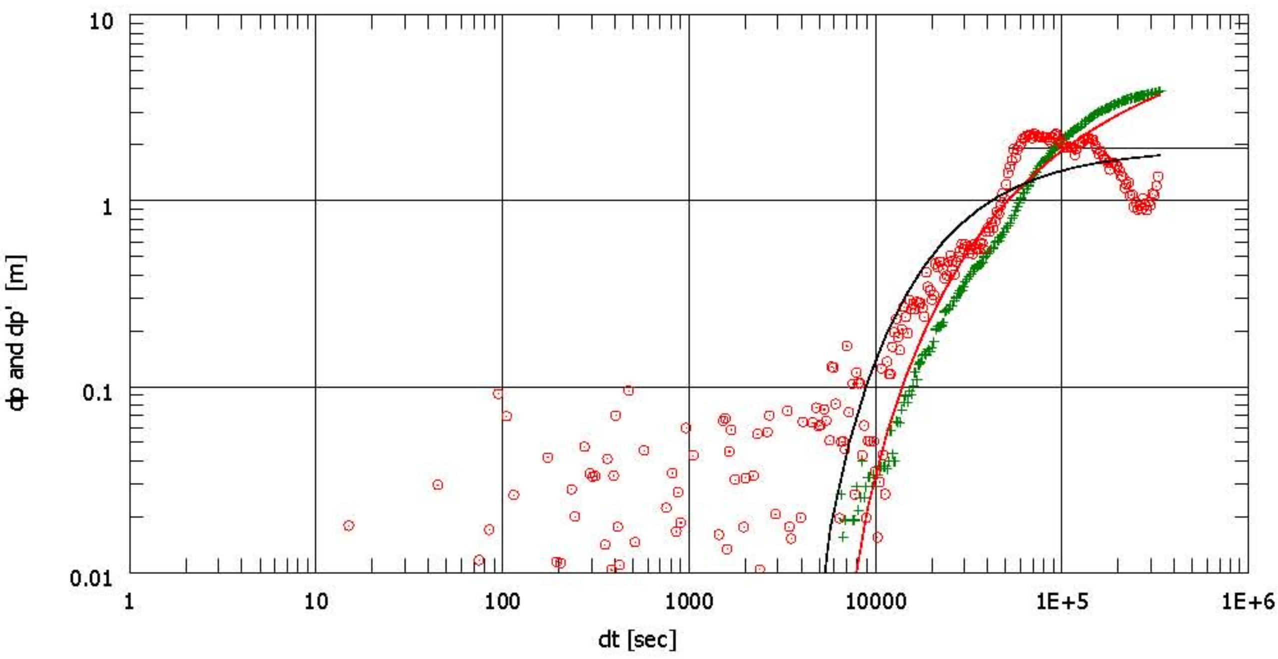
Pi	13.1526 m
T	6.33E-5 m2/s
K	6.33E-6 m/s
S	0.00159

Derived & Secondary Parameters

Rinv	207 m
Test. Vol.	51.0369 MMm3

Log-Log plot	Bu2_line

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX11:2 observation — Test Name / # Interference test HLX10



HLX11_2_obs_HLX10pumpning_041225-050220_masl build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	4.87011 m
Pi	13.1526 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.44E-6 1/sec
PMatch	0.261 1/m
S	0.00159
T	6.33E-5 m2/s
K	6.33E-6 m/s
Pi	13.1526 m
Well distance	65 m

Model Parameters
Reservoir & Boundary parameters

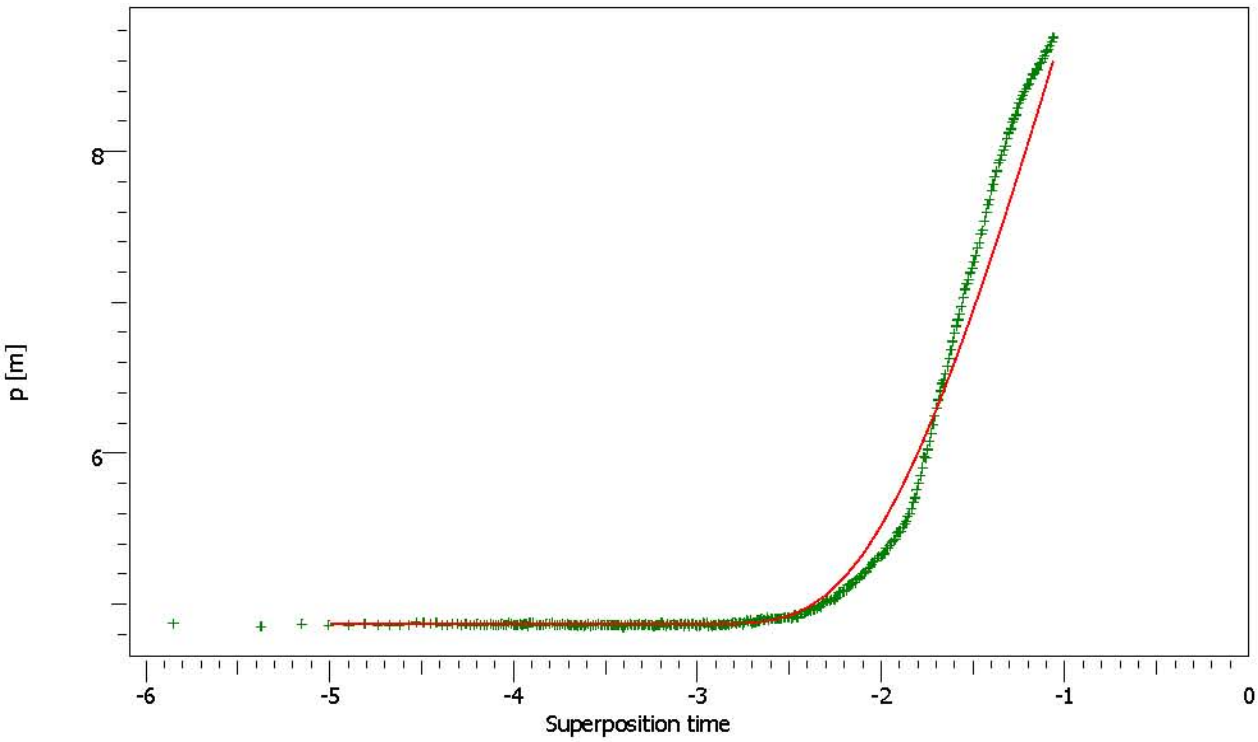
Pi	13.1526 m
T	6.33E-5 m2/s
K	6.33E-6 m/s
S	0.00159

Derived & Secondary Parameters

Rinv	207 m
Test. Vol.	51.0369 MMm3

Semi-Log plot	Bu2_line

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX11:2 observation — Test Name / # Interference test HLX10



HLX11_2_obs_HLX10pumpning_041225-050220_masl build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	4.87011 m
Pi	13.1526 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.44E-6 1/sec
PMatch	0.261 1/m
S	0.00159
T	6.33E-5 m2/s
K	6.33E-6 m/s
Pi	13.1526 m
Well distance	65 m

Model Parameters
Reservoir & Boundary parameters

Pi	13.1526 m
T	6.33E-5 m2/s
K	6.33E-6 m/s
S	0.00159

Derived & Secondary Parameters

Rinv	207 m
Test. Vol.	51.0369 MMm3

Main Results	Bu2_line

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX11:2 observation	Test Name / #	Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	6 - 16m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	65 m
Well Radius rw	0.0692 m
Pay Zone h	10 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	1000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.44E-6 1/sec
PMatch	0.261 1/m
S	0.00159
T	6.33E-5 m2/s
K	6.33E-6 m/s
Pi	13.1526 m
Well distance	65 m

Model Parameters

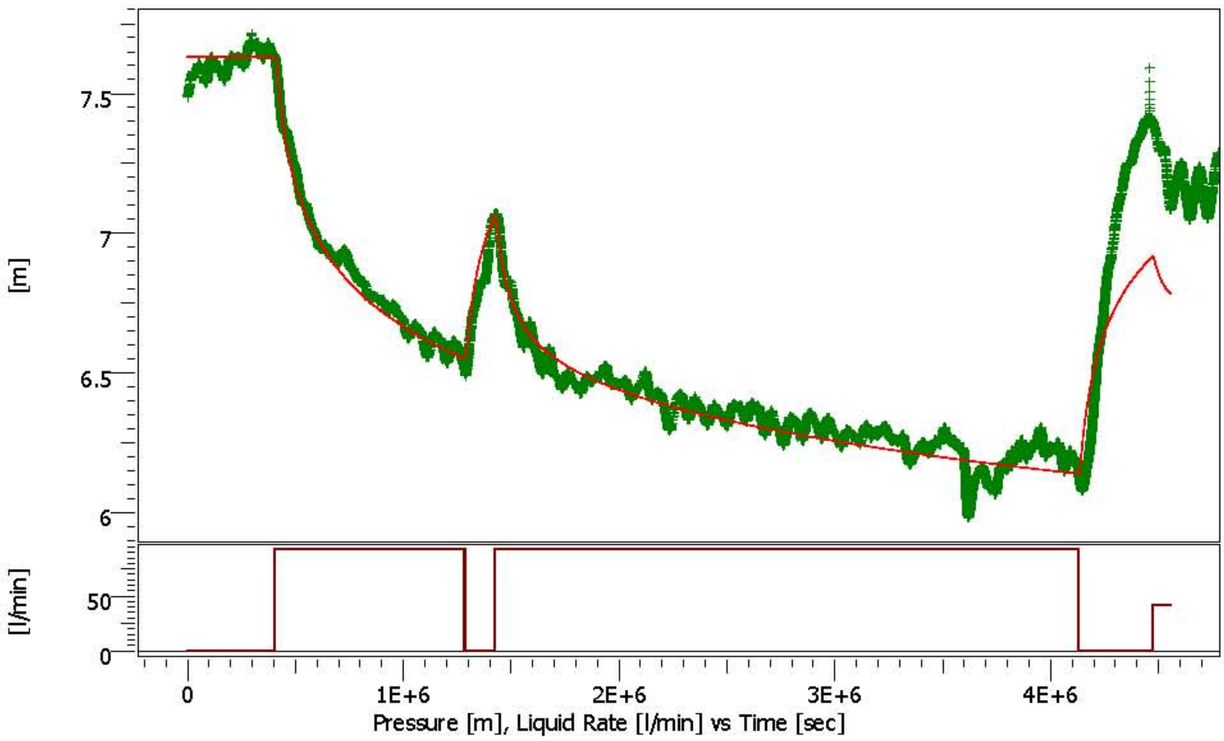
Reservoir & Boundary parameters

Pi	13.1526 m
T	6.33E-5 m2/s
K	6.33E-6 m/s
S	0.00159

Derived & Secondary Parameters

Rinv	207 m
Test. Vol.	51.0369 MMm3

History plot	Dd1_Line
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.63239 m
Pi	7.63239 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.85E-5 1/sec
PMatch	1.67 1/m
S	9.2E-5
T	4.13E-4 m2/s
K	5.96E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

Reservoir & Boundary parameters

Pi	7.63239 m
T	4.13E-4 m2/s
K	5.96E-6 m/s
S	9.2E-5

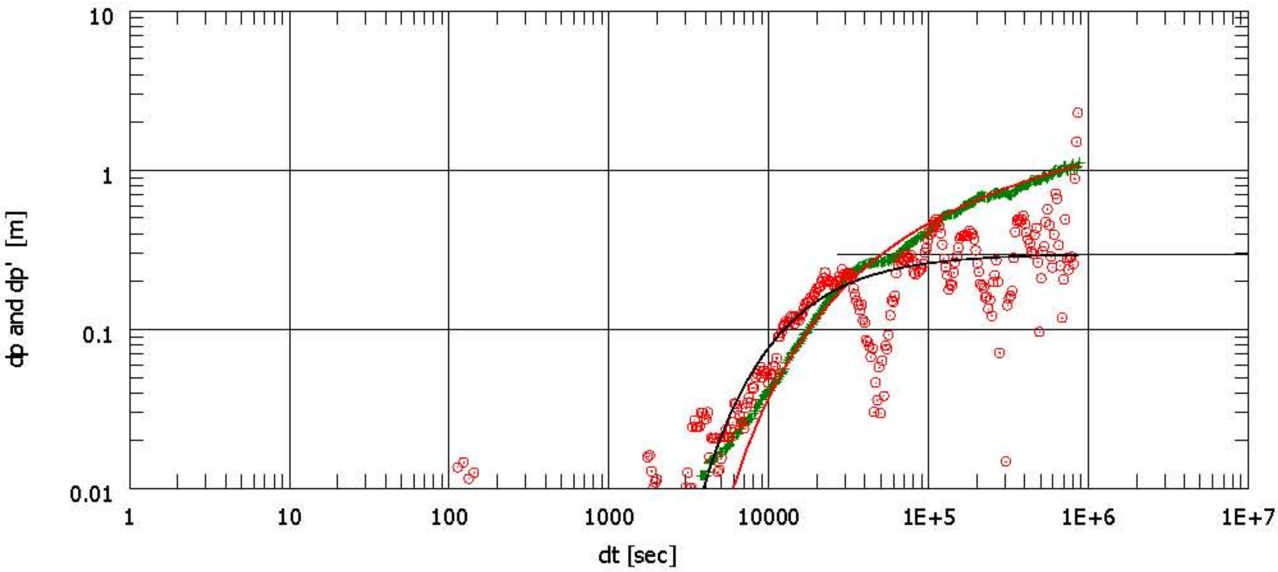
Derived & Secondary Parameters

Rinv	3550 m
Test. Vol.	855.453 MMm3

Log-Log plot	Dd1_Line

Company Svensk Kärnbränslehantering AB
Well HLX21:1 observation

Field Laxemar
Test Name / # Interference test HLX10



HLX21:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.63239 m
Pi	7.63239 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.85E-5 1/sec
PMatch	1.67 1/m
S	9.2E-5
T	4.13E-4 m2/s
K	5.96E-6 m/s
Pi	7.63239 m
Well distance	493 m

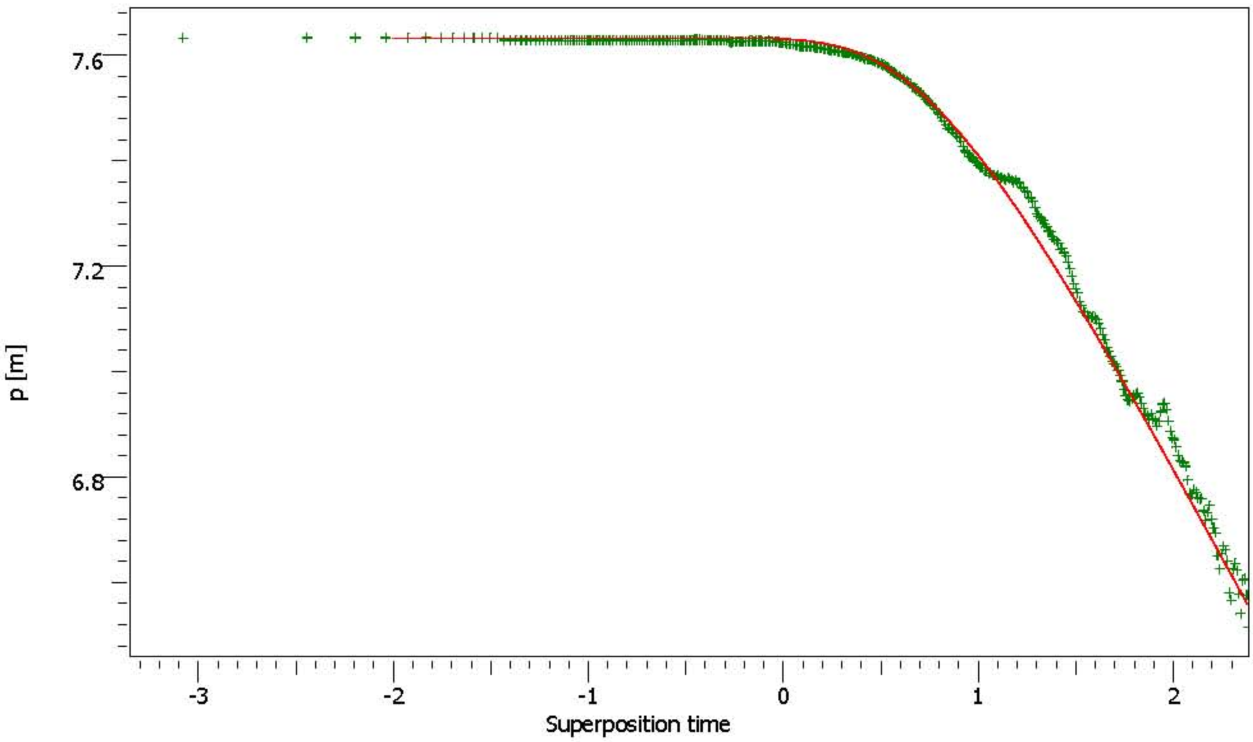
Model Parameters
Reservoir & Boundary parameters

Pi	7.63239 m
T	4.13E-4 m2/s
K	5.96E-6 m/s
S	9.2E-5

Derived & Secondary Parameters

Rinv	3550 m
Test. Vol.	855.453 MMm3

Semi-Log plot	Dd1_Line
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.63239 m
Pi	7.63239 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.85E-5 1/sec
PMatch	1.67 1/m
S	9.2E-5
T	4.13E-4 m2/s
K	5.96E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters
Reservoir & Boundary parameters

Pi	7.63239 m
T	4.13E-4 m2/s
K	5.96E-6 m/s
S	9.2E-5

Derived & Secondary Parameters

Rinv	3550 m
Test. Vol.	855.453 MMm3

Main Results	Dd1_Line
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	81 - 150m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	493 m
Well Radius rw	0.069 m
Pay Zone h	69.3 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	3515.35 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.85E-5 1/sec
PMatch	1.67 1/m
S	9.2E-5
T	4.13E-4 m2/s
K	5.96E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

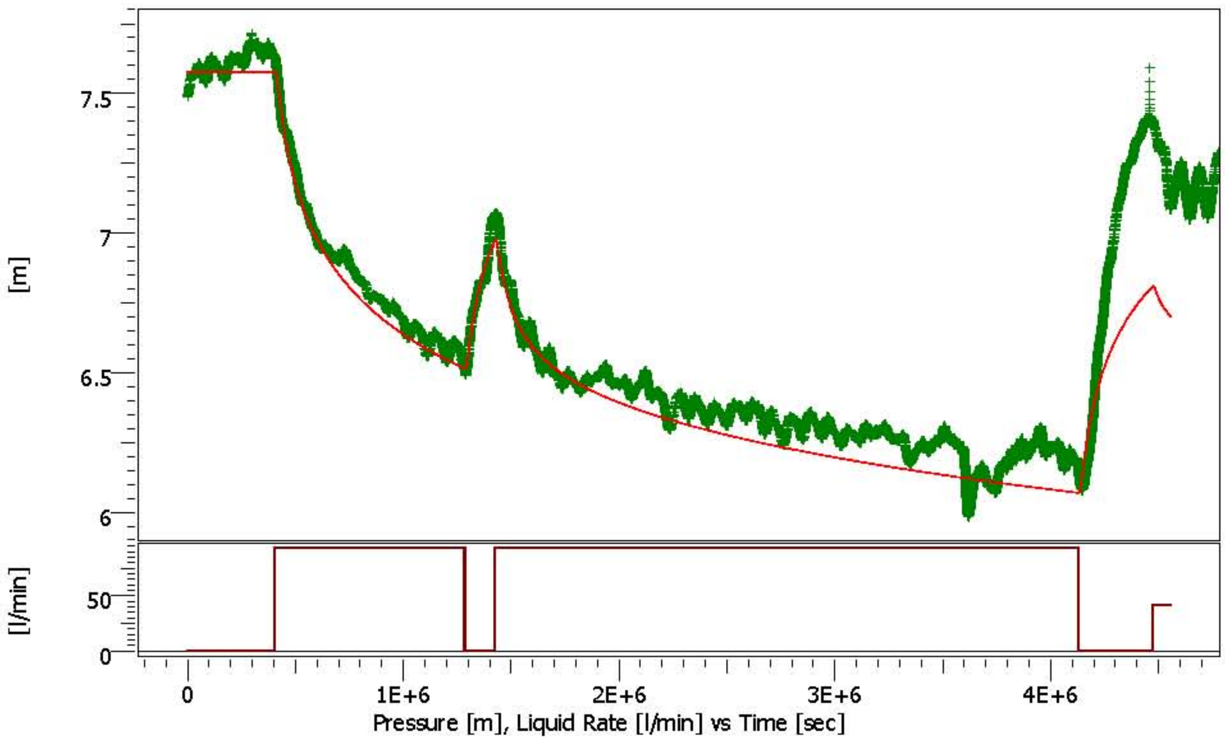
Reservoir & Boundary parameters

Pi	7.63239 m
T	4.13E-4 m2/s
K	5.96E-6 m/s
S	9.2E-5

Derived & Secondary Parameters

Rinv	3550 m
Test. Vol.	855.453 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:1 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.51428 m
Pi	7.57702 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.33E-5 1/sec
PMatch	1.55 1/m
S	1.18E-4
T	3.82E-4 m2/s
K	5.51E-6 m/s
Pi	7.57702 m
Well distance	493 m

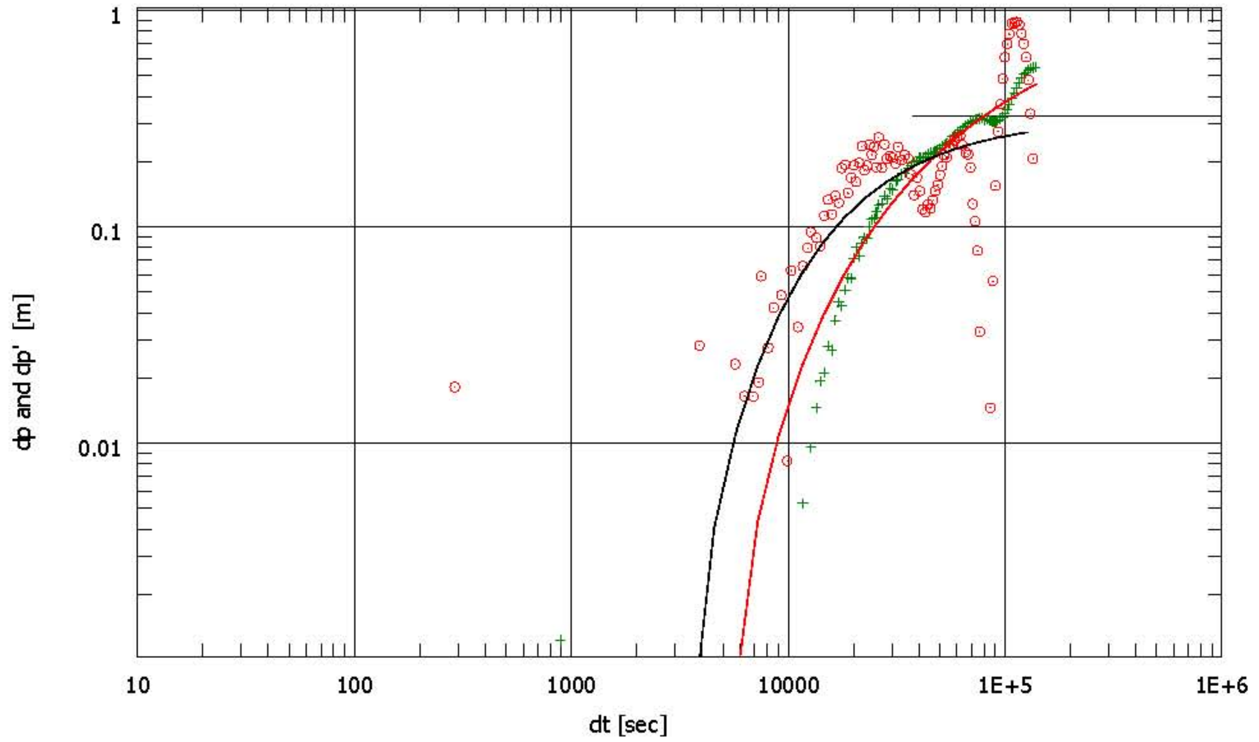
Model Parameters
Reservoir & Boundary parameters

Pi	7.57702 m
T	3.82E-4 m2/s
K	5.51E-6 m/s
S	1.18E-4

Derived & Secondary Parameters

Rinv	1190 m
Test. Vol.	124.184 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:1 build-up #1
Rate 0 l/min
Rate change 93.2 l/min
P@dt=0 6.51428 m
Pi 7.57702 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.33E-5 1/sec
PMatch 1.55 1/m
S 1.18E-4
T 3.82E-4 m2/s
K 5.51E-6 m/s
Pi 7.57702 m
Well distance 493 m

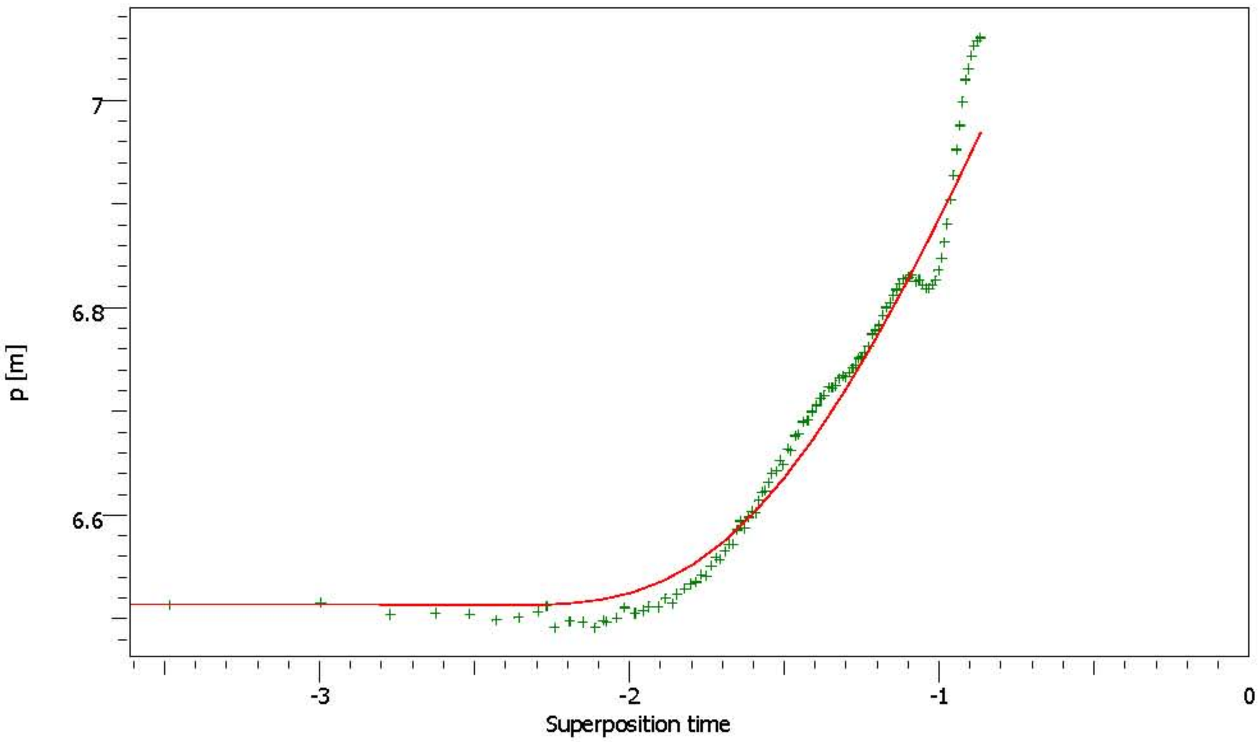
Model Parameters
Reservoir & Boundary parameters
Pi 7.57702 m
T 3.82E-4 m2/s
K 5.51E-6 m/s
S 1.18E-4

Derived & Secondary Parameters
Rinv 1190 m
Test. Vol. 124.184 MMm3

Semi-Log plot	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX21:1 observation

Field Laxemar
Test Name / # Interference test HLX10



HLX21:1 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.51428 m
Pi	7.57702 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.33E-5 1/sec
PMatch	1.55 1/m
S	1.18E-4
T	3.82E-4 m2/s
K	5.51E-6 m/s
Pi	7.57702 m
Well distance	493 m

Model Parameters
Reservoir & Boundary parameters

Pi	7.57702 m
T	3.82E-4 m2/s
K	5.51E-6 m/s
S	1.18E-4

Derived & Secondary Parameters

Rinv	1190 m
Test. Vol.	124.184 MMm3

SKB	Main Results	Bu1
	Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	81 - 150m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	493 m
Well Radius rw	0.069 m
Pay Zone h	69.3 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	3515.35 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.33E-5 1/sec
PMatch	1.55 1/m
S	1.18E-4
T	3.82E-4 m2/s
K	5.51E-6 m/s
Pi	7.57702 m
Well distance	493 m

Model Parameters

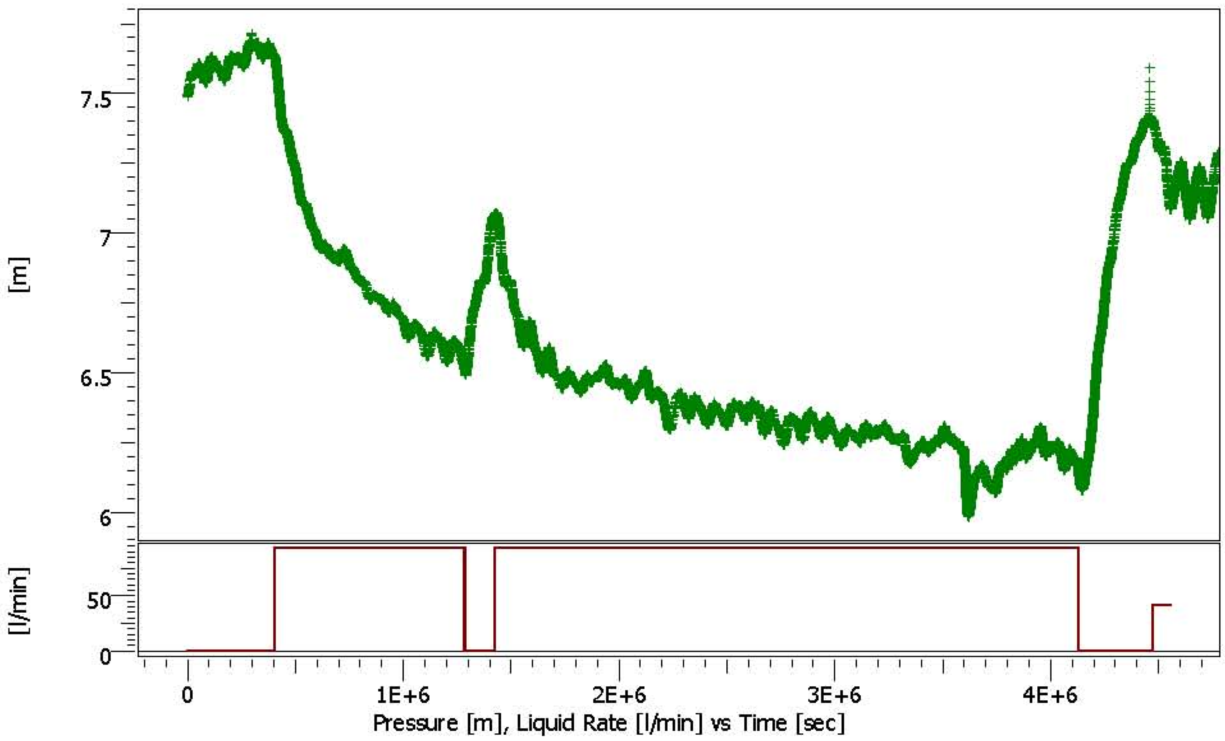
Reservoir & Boundary parameters

Pi	7.57702 m
T	3.82E-4 m2/s
K	5.51E-6 m/s
S	1.18E-4

Derived & Secondary Parameters

Rinv	1190 m
Test. Vol.	124.184 MMm3

History plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:1 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.06014 m
Pi	7.63239 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.49E-5 1/sec
PMatch	1.81 1/m
C	4.25E-5 m3/Pa
S	7.38E-5
T	4.47E-4 m2/s
K	6.45E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

Well & Wellbore parameters (Active well)

C	4.25E-5 m3/Pa
Skin	-0.366

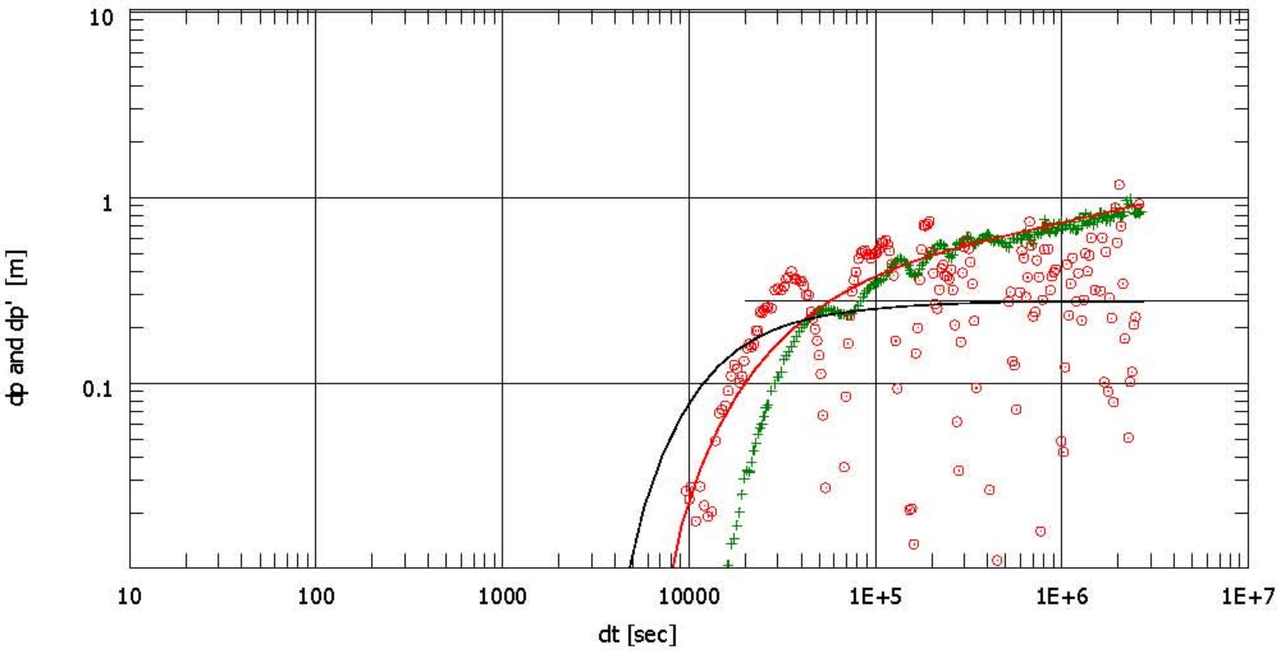
Reservoir & Boundary parameters

Pi	7.63239 m
T	4.47E-4 m2/s
K	6.45E-6 m/s
S	7.38E-5

Derived & Secondary Parameters

Rinv	7170 m
Test. Vol.	2804.68 MMm3

Log-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:1 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.06014 m
Pi	7.63239 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.49E-5 1/sec
PMatch	1.81 1/m
C	4.25E-5 m3/Pa
S	7.38E-5
T	4.47E-4 m2/s
K	6.45E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

Well & Wellbore parameters (Active well)

C	4.25E-5 m3/Pa
Skin	-0.366

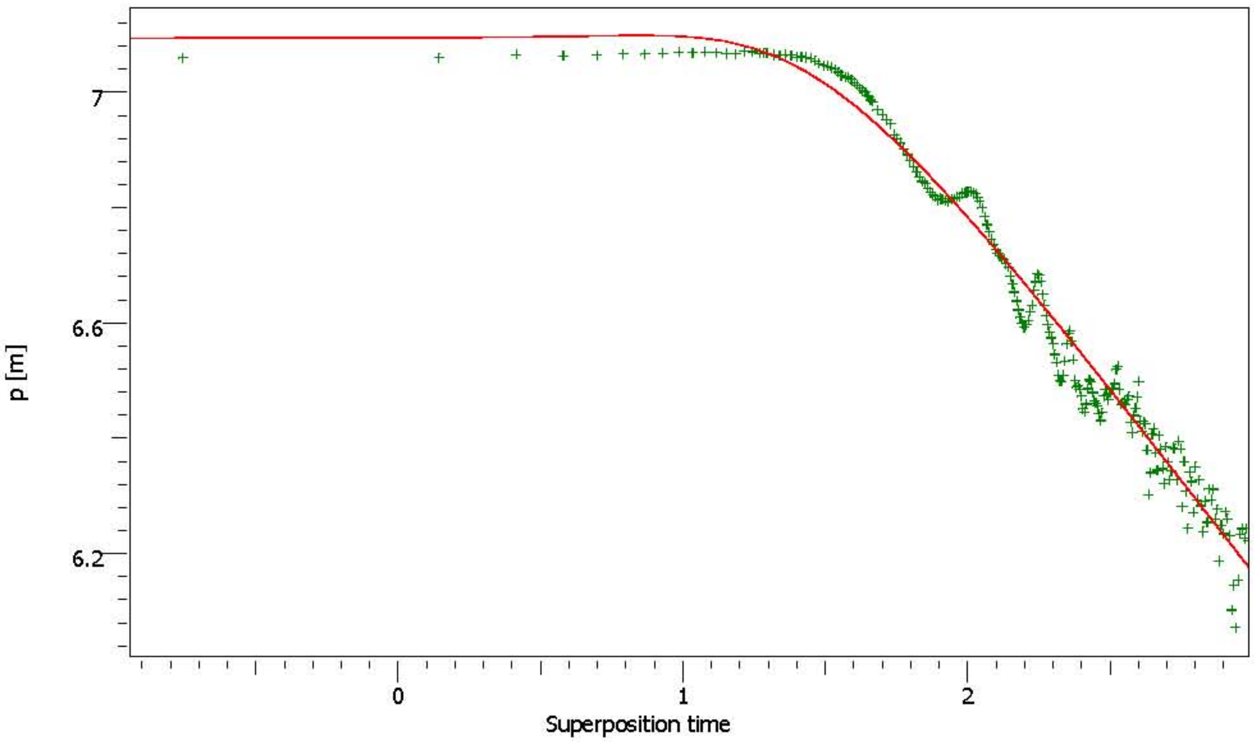
Reservoir & Boundary parameters

Pi	7.63239 m
T	4.47E-4 m2/s
K	6.45E-6 m/s
S	7.38E-5

Derived & Secondary Parameters

Rinv	7170 m
Test. Vol.	2804.68 MMm3

Semi-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:1 production #2
Rate 93.2 l/min
Rate change 93.2 l/min
P@dt=0 7.06014 m
Pi 7.63239 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Vertical
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 2.49E-5 1/sec
PMatch 1.81 1/m
C 4.25E-5 m3/Pa
S 7.38E-5
T 4.47E-4 m2/s
K 6.45E-6 m/s
Pi 7.63239 m
Well distance 493 m

Model Parameters
Well & Wellbore parameters (Active well)
C 4.25E-5 m3/Pa
Skin -0.366
Reservoir & Boundary parameters
Pi 7.63239 m
T 4.47E-4 m2/s
K 6.45E-6 m/s
S 7.38E-5

Derived & Secondary Parameters
Rinv 7170 m
Test. Vol. 2804.68 MMm3

	Main Results	Dd2
SKB	Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	81 - 150m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	493 m
Well Radius rw	0.069 m
Pay Zone h	69.3 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	3515.35 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.49E-5 1/sec
PMatch	1.81 1/m
C	4.25E-5 m3/Pa
S	7.38E-5
T	4.47E-4 m2/s
K	6.45E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

Well & Wellbore parameters (Active well)

C	4.25E-5 m3/Pa
Skin	-0.366

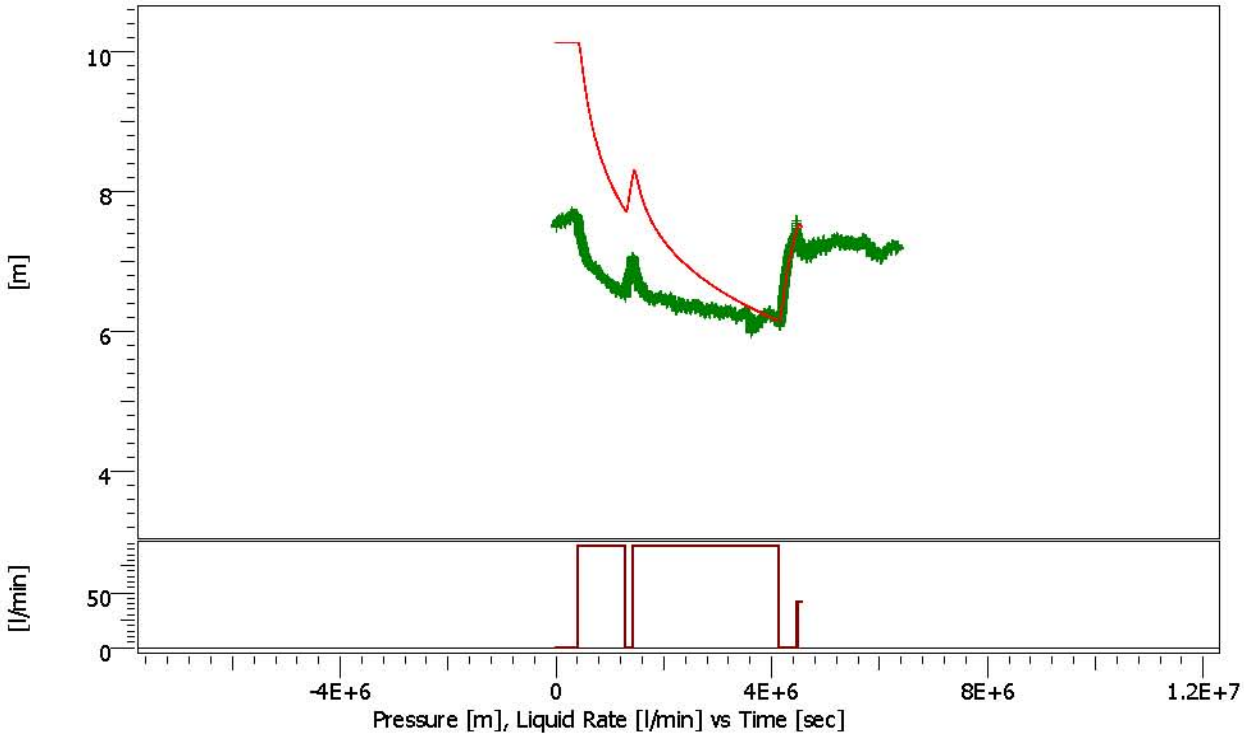
Reservoir & Boundary parameters

Pi	7.63239 m
T	4.47E-4 m2/s
K	6.45E-6 m/s
S	7.38E-5

Derived & Secondary Parameters

Rinv	7170 m
Test. Vol.	2804.68 MMm3

History plot	Bu2_Line
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:1 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.15547 m
Pi	10.1309 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.54E-6 1/sec
PMatch	0.422 1/m
S	1.21E-4
T	1.04E-4 m2/s
K	1.5E-6 m/s
Pi	10.1309 m
Well distance	493 m

Model Parameters

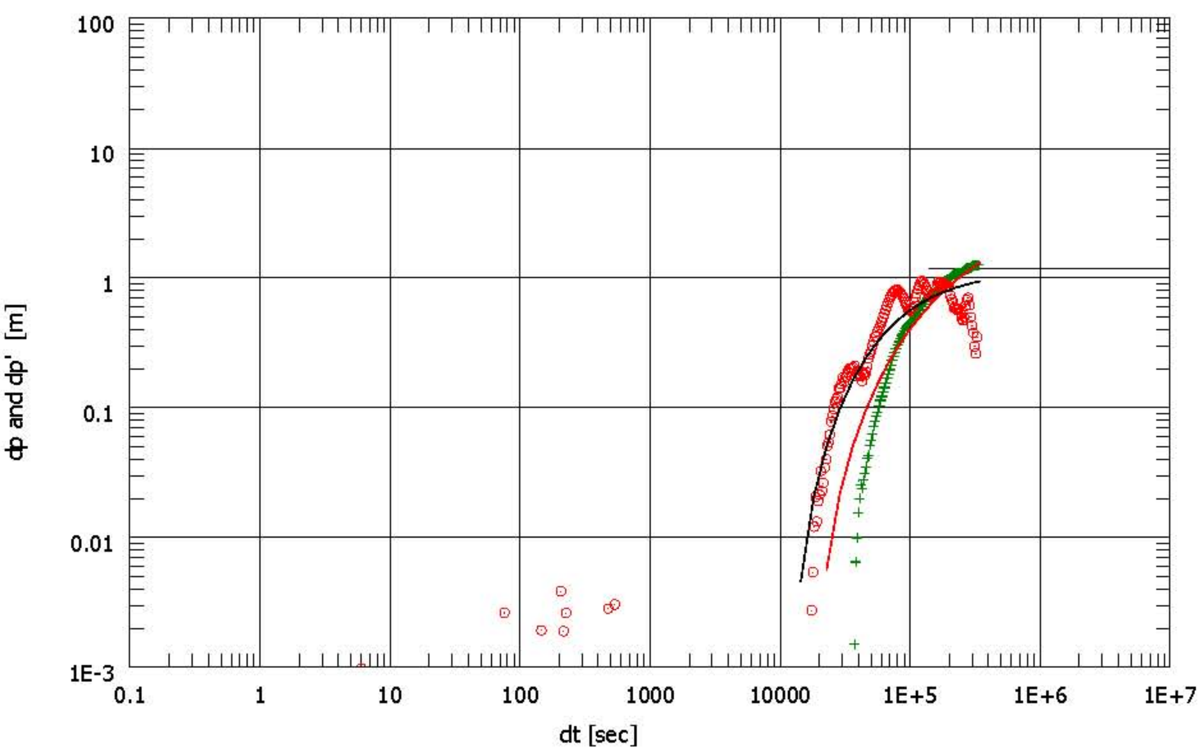
Reservoir & Boundary parameters

Pi	10.1309 m
T	1.04E-4 m2/s
K	1.5E-6 m/s
S	1.21E-4

Derived & Secondary Parameters

Rinv	960 m
Test. Vol.	82.2507 MMm3

Log-Log plot	Bu2_Line
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:1 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.15547 m
Pi	10.1309 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.54E-6 1/sec
PMatch	0.422 1/m
S	1.21E-4
T	1.04E-4 m2/s
K	1.5E-6 m/s
Pi	10.1309 m
Well distance	493 m

Model Parameters

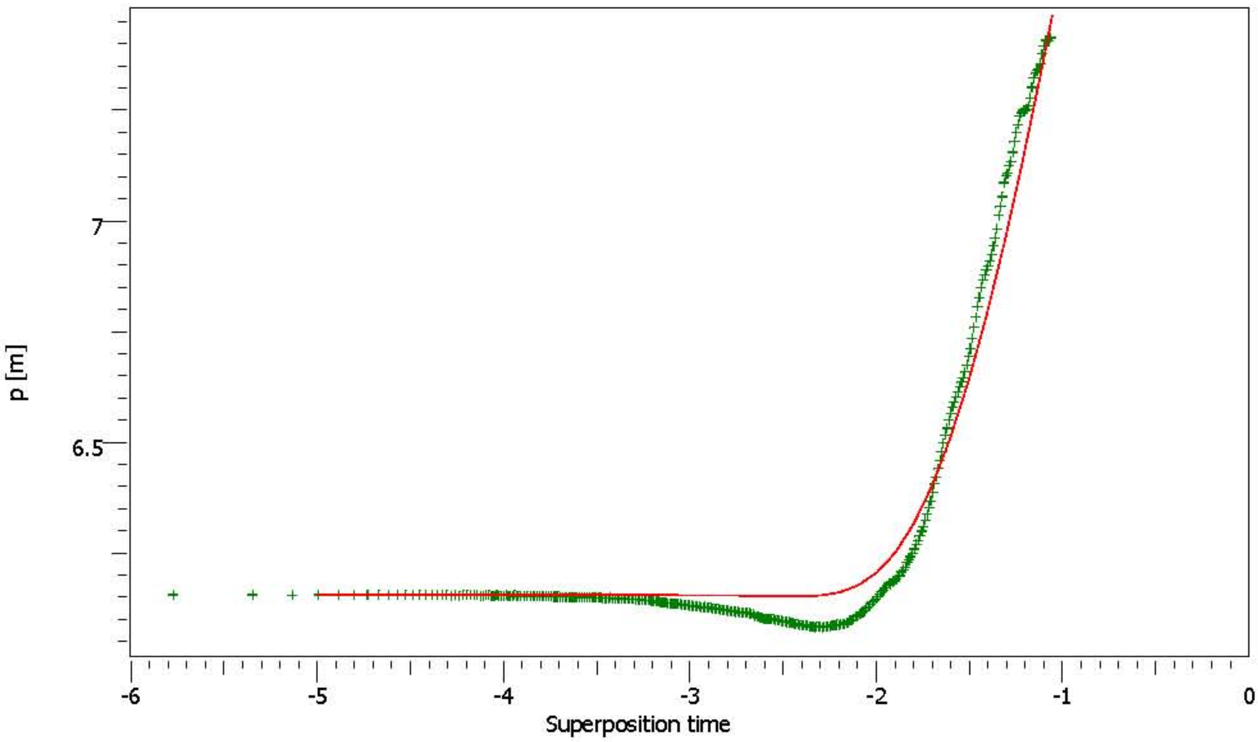
Reservoir & Boundary parameters

Pi	10.1309 m
T	1.04E-4 m2/s
K	1.5E-6 m/s
S	1.21E-4

Derived & Secondary Parameters

Rinv	960 m
Test. Vol.	82.2507 MMm3

Semi-Log plot	Bu2_Line
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10



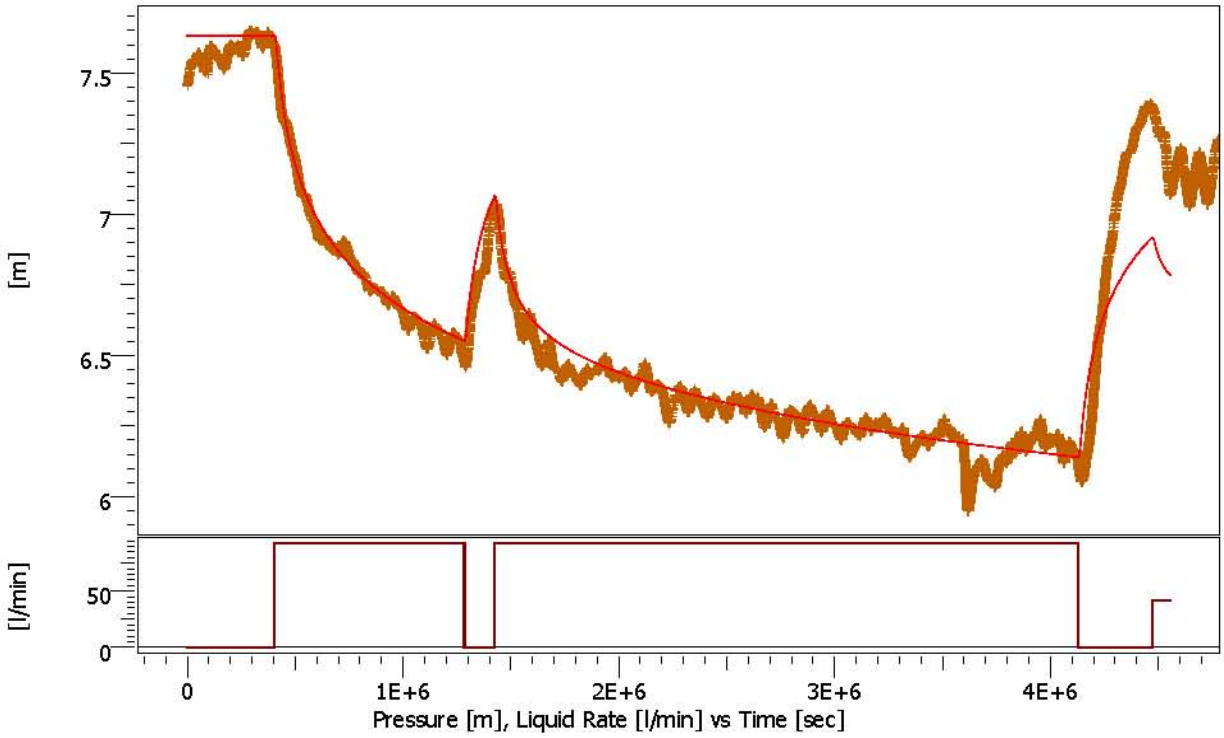
HLX21:1 build-up #2	
Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.15547 m
Pi	10.1309 m
Smoothing	0.1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	3.54E-6 1/sec
PMatch	0.422 1/m
S	1.21E-4
T	1.04E-4 m2/s
K	1.5E-6 m/s
Pi	10.1309 m
Well distance	493 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	10.1309 m
T	1.04E-4 m2/s
K	1.5E-6 m/s
S	1.21E-4

Derived & Secondary Parameters	
Rinv	960 m
Test. Vol.	82.2507 MMm3

Main Results	Bu2_Line
Company Svensk Kärnbränslehantering AB Well HLX21:1 observation	Field Laxemar Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	81 - 150m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	493 m
Well Radius rw	0.069 m
Pay Zone h	69.3 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	3515.35 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	3.54E-6 1/sec
PMatch	0.422 1/m
S	1.21E-4
T	1.04E-4 m2/s
K	1.5E-6 m/s
Pi	10.1309 m
Well distance	493 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	10.1309 m
T	1.04E-4 m2/s
K	1.5E-6 m/s
S	1.21E-4
Derived & Secondary Parameters	
Rinv	960 m
Test. Vol.	82.2507 MMm3

History plot	Dd1_Line
Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:2 production #1
Rate 93.2 l/min
Rate change 93.2 l/min
P@dt=0 7.59748 m
Pi 7.63239 m
Smoothing 0.1

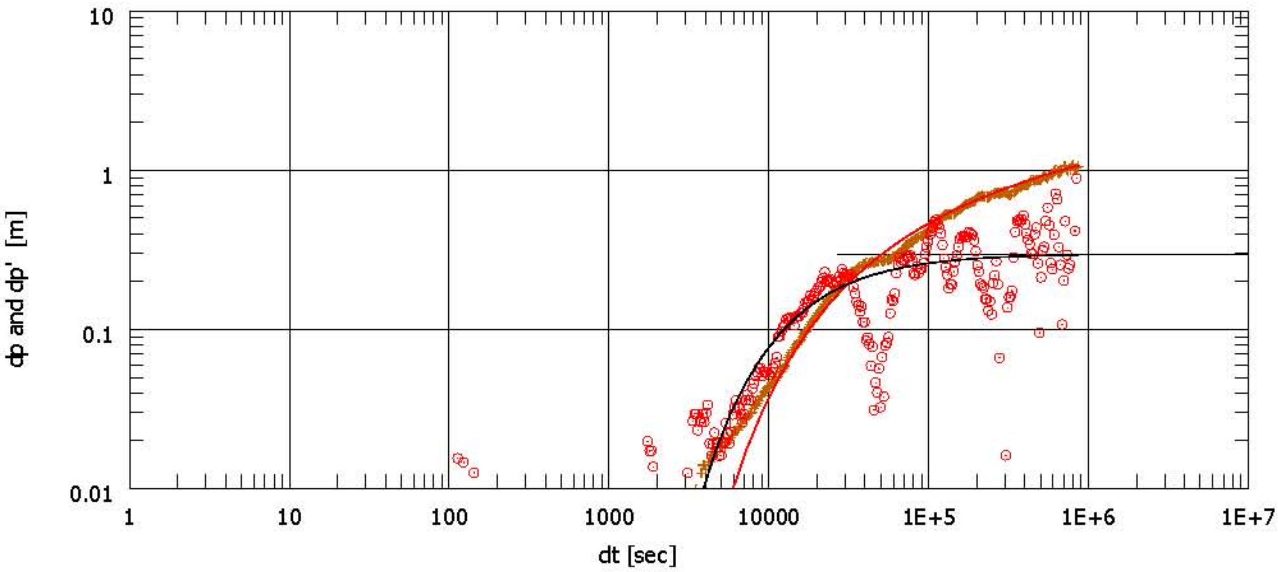
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.85E-5 1/sec
PMatch 1.67 1/m
S 9.21E-5
T 4.13E-4 m2/s
K 5.82E-6 m/s
Pi 7.63239 m
Well distance 493 m

Model Parameters
Reservoir & Boundary parameters
Pi 7.63239 m
T 4.13E-4 m2/s
K 5.82E-6 m/s
S 9.21E-5

Derived & Secondary Parameters
Rinv 3510 m
Test. Vol. 836.882 MMm3

	Log-Log plot	Dd1_Line
	Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:2 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.59748 m
Pi	7.63239 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.85E-5 1/sec
PMatch	1.67 1/m
S	9.21E-5
T	4.13E-4 m2/s
K	5.82E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

Reservoir & Boundary parameters

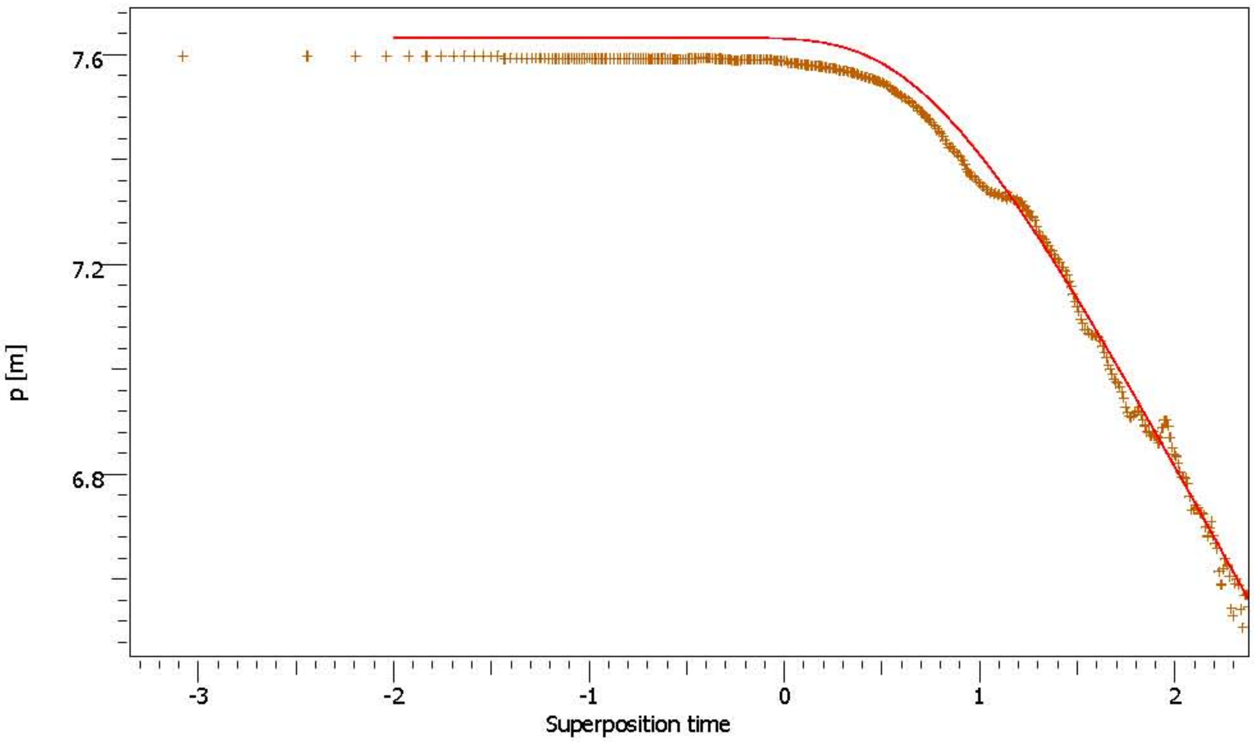
Pi	7.63239 m
T	4.13E-4 m2/s
K	5.82E-6 m/s
S	9.21E-5

Derived & Secondary Parameters

Rinv	3510 m
Test. Vol.	836.882 MMm3

Semi-Log plot	Dd1_Line

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX21:2 observation — Test Name / # Interference test HLX10



HLX21:2 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.59748 m
Pi	7.63239 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.85E-5 1/sec
PMatch	1.67 1/m
S	9.21E-5
T	4.13E-4 m2/s
K	5.82E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

Reservoir & Boundary parameters

Pi	7.63239 m
T	4.13E-4 m2/s
K	5.82E-6 m/s
S	9.21E-5

Derived & Secondary Parameters

Rinv	3510 m
Test. Vol.	836.882 MMm3

Main Results	Dd1_Line
Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	9.1 - 80m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	492.7 m
Well Radius rw	0.069 m
Pay Zone h	70.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	3515.35 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.85E-5 1/sec
PMatch	1.67 1/m
S	9.21E-5
T	4.13E-4 m2/s
K	5.82E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

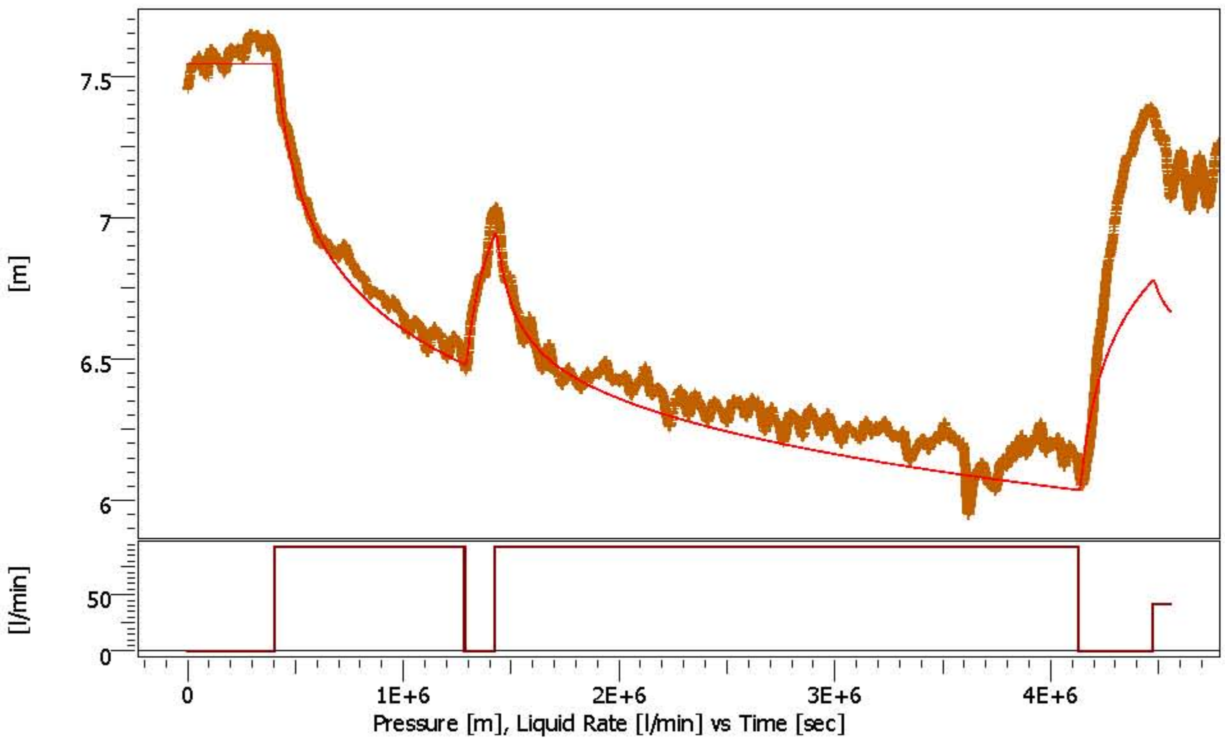
Reservoir & Boundary parameters

Pi	7.63239 m
T	4.13E-4 m2/s
K	5.82E-6 m/s
S	9.21E-5

Derived & Secondary Parameters

Rinv	3510 m
Test. Vol.	836.882 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:2 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.48141 m
Pi	7.54415 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.33E-5 1/sec
PMatch	1.55 1/m
C	2.19E-7 m3/Pa
S	1.19E-4
T	3.82E-4 m2/s
K	5.38E-6 m/s
Pi	7.54415 m
Well distance	493 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.19E-7 m3/Pa
Skin	-0.354

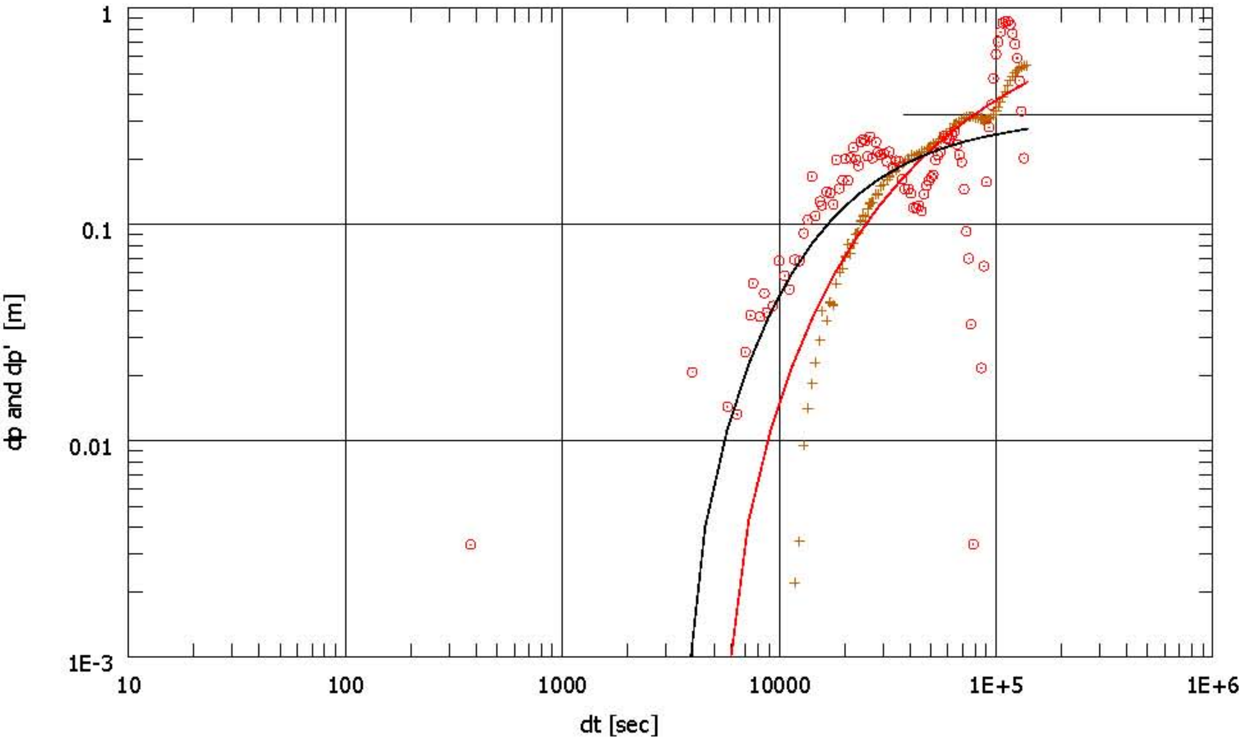
Reservoir & Boundary parameters

Pi	7.54415 m
T	3.82E-4 m2/s
K	5.38E-6 m/s
S	1.19E-4

Derived & Secondary Parameters

Rinv	1190 m
Test. Vol.	124.262 MMm3

	Log-Log plot	Bu1
	Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:2 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.48141 m
Pi	7.54415 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.33E-5 1/sec
PMatch	1.55 1/m
C	2.19E-7 m3/Pa
S	1.19E-4
T	3.82E-4 m2/s
K	5.38E-6 m/s
Pi	7.54415 m
Well distance	493 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.19E-7 m3/Pa
Skin	-0.354

Reservoir & Boundary parameters

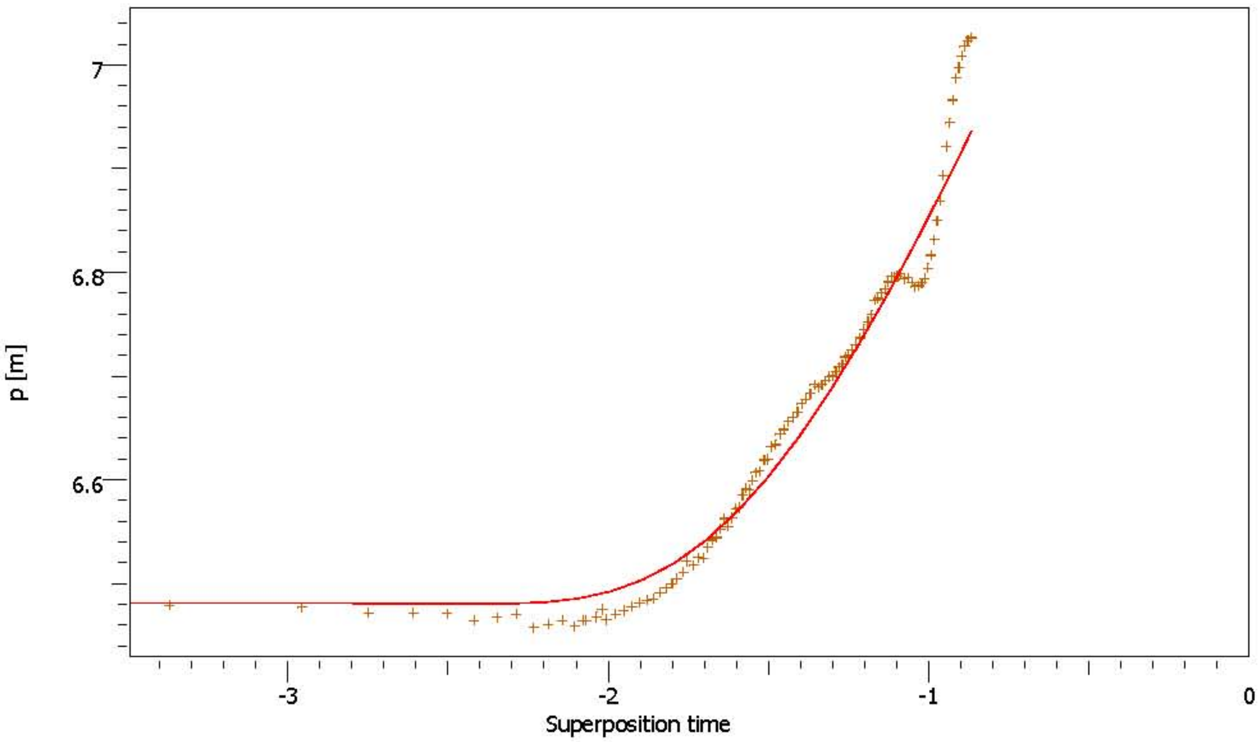
Pi	7.54415 m
T	3.82E-4 m2/s
K	5.38E-6 m/s
S	1.19E-4

Derived & Secondary Parameters

Rinv	1190 m
Test. Vol.	124.262 MMm3

Semi-Log plot	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX21:2 observation — Test Name / # Interference test HLX10



HLX21:2 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.48141 m
Pi	7.54415 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.33E-5 1/sec
PMatch	1.55 1/m
C	2.19E-7 m3/Pa
S	1.19E-4
T	3.82E-4 m2/s
K	5.38E-6 m/s
Pi	7.54415 m
Well distance	493 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.19E-7 m3/Pa
Skin	-0.354

Reservoir & Boundary parameters

Pi	7.54415 m
T	3.82E-4 m2/s
K	5.38E-6 m/s
S	1.19E-4

Derived & Secondary Parameters

Rinv	1190 m
Test. Vol.	124.262 MMm3

Main Results	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX21:2 observation
Field Laxemar
Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	9.1 - 80m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	492.7 m
Well Radius rw	0.069 m
Pay Zone h	70.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	3515.35 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.33E-5 1/sec
PMatch	1.55 1/m
C	2.19E-7 m3/Pa
S	1.19E-4
T	3.82E-4 m2/s
K	5.38E-6 m/s
Pi	7.54415 m
Well distance	493 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.19E-7 m3/Pa
Skin	-0.354

Reservoir & Boundary parameters

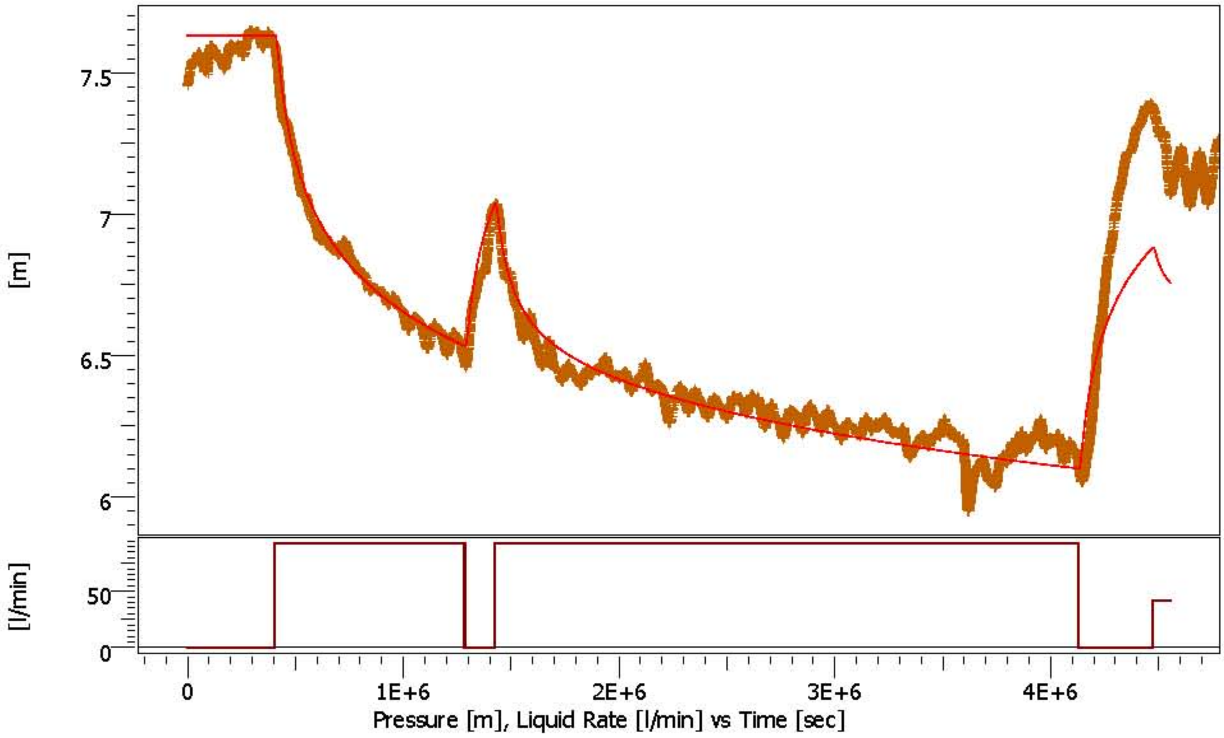
Pi	7.54415 m
T	3.82E-4 m2/s
K	5.38E-6 m/s
S	1.19E-4

Derived & Secondary Parameters

Rinv	1190 m
Test. Vol.	124.262 MMm3

History plot	Dd2

Company Svensk Kärnbränslehantering AB | Field Laxemar
Well HLX21:2 observation | Test Name / # Interference test HLX10



HLX21:2 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.02605 m
Pi	7.63239 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.64E-5 1/sec
PMatch	1.59 1/m
C	5.8E-5 m3/Pa
S	9.86E-5
T	3.92E-4 m2/s
K	5.53E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.8E-5 m3/Pa
Skin	-0.498

Reservoir & Boundary parameters

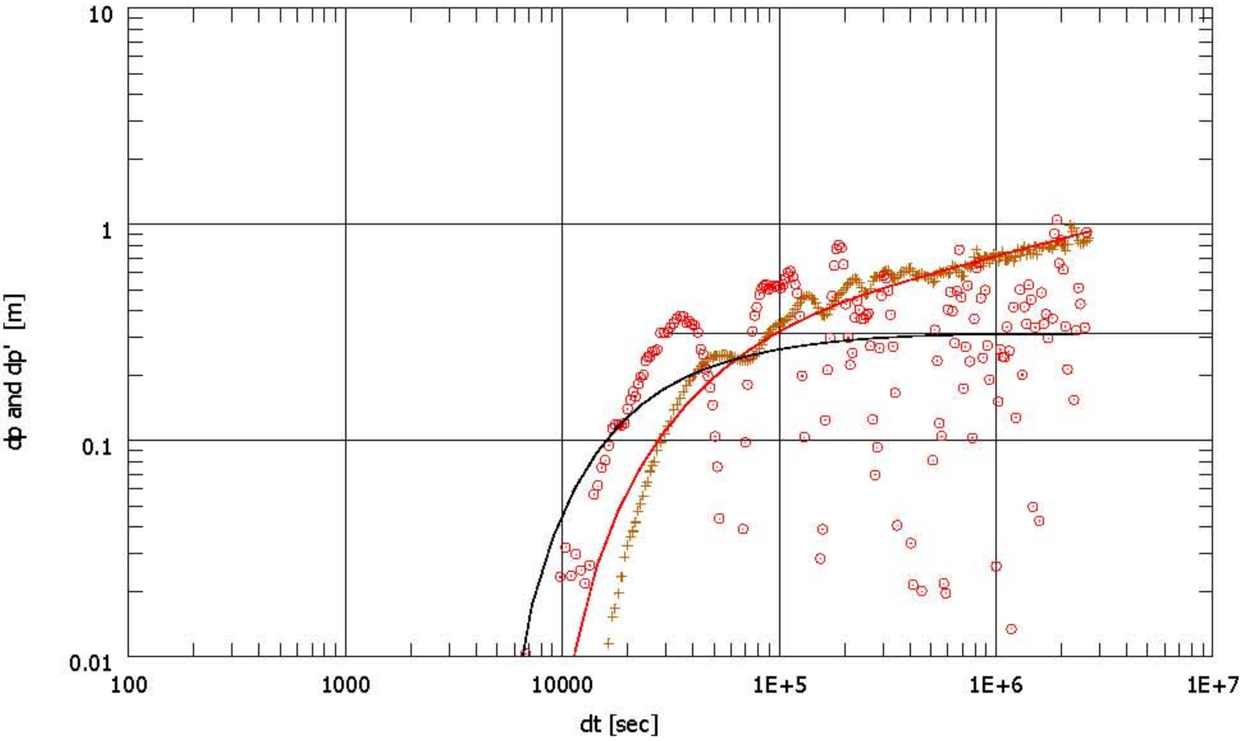
Pi	7.63239 m
T	3.92E-4 m2/s
K	5.53E-6 m/s
S	9.86E-5

Derived & Secondary Parameters

Rinv	5840 m
Test. Vol.	2478.93 MMm3

Log-Log plot	Dd2

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX21:2 observation — Test Name / # Interference test HLX10



HLX21:2 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.02605 m
Pi	7.63239 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.64E-5 1/sec
PMatch	1.59 1/m
C	5.8E-5 m3/Pa
S	9.86E-5
T	3.92E-4 m2/s
K	5.53E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.8E-5 m3/Pa
Skin	-0.498

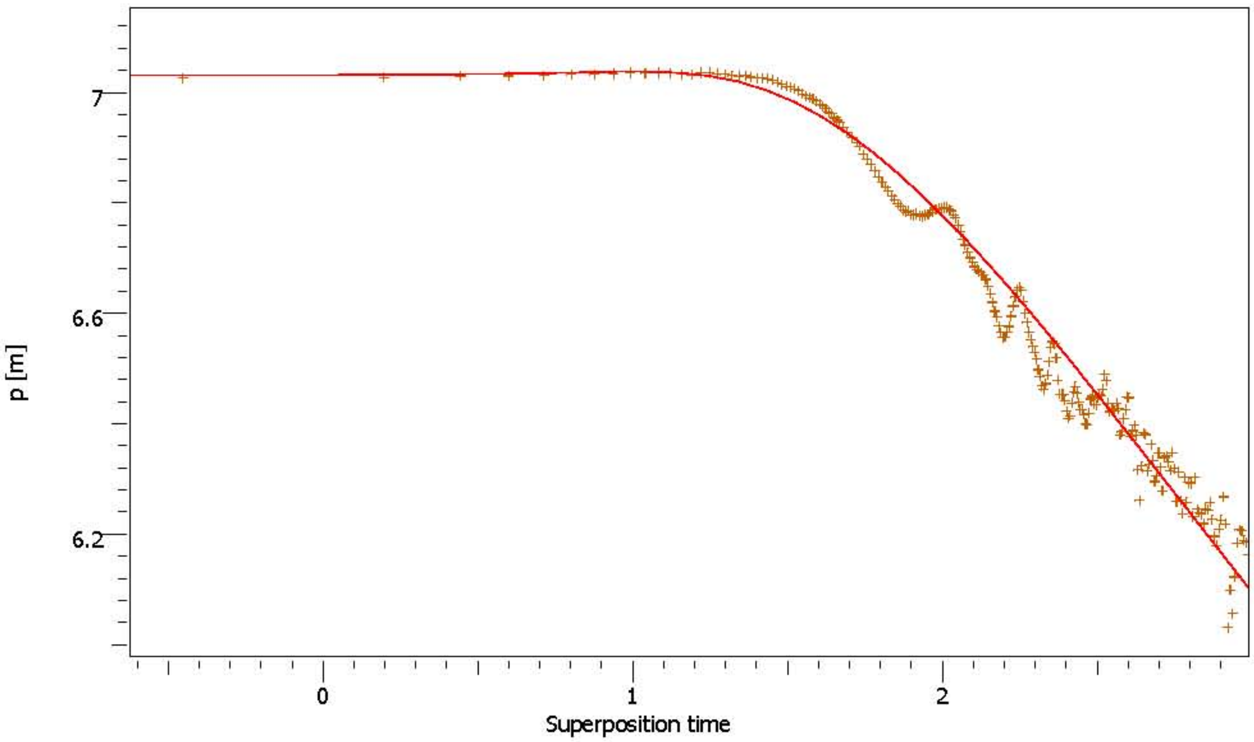
Reservoir & Boundary parameters

Pi	7.63239 m
T	3.92E-4 m2/s
K	5.53E-6 m/s
S	9.86E-5

Derived & Secondary Parameters

Rinv	5840 m
Test. Vol.	2478.93 MMm3

Semi-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:2 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.02605 m
Pi	7.63239 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.64E-5 1/sec
PMatch	1.59 1/m
C	5.8E-5 m3/Pa
S	9.86E-5
T	3.92E-4 m2/s
K	5.53E-6 m/s
Pi	7.63239 m
Well distance	493 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.8E-5 m3/Pa
Skin	-0.498

Reservoir & Boundary parameters

Pi	7.63239 m
T	3.92E-4 m2/s
K	5.53E-6 m/s
S	9.86E-5

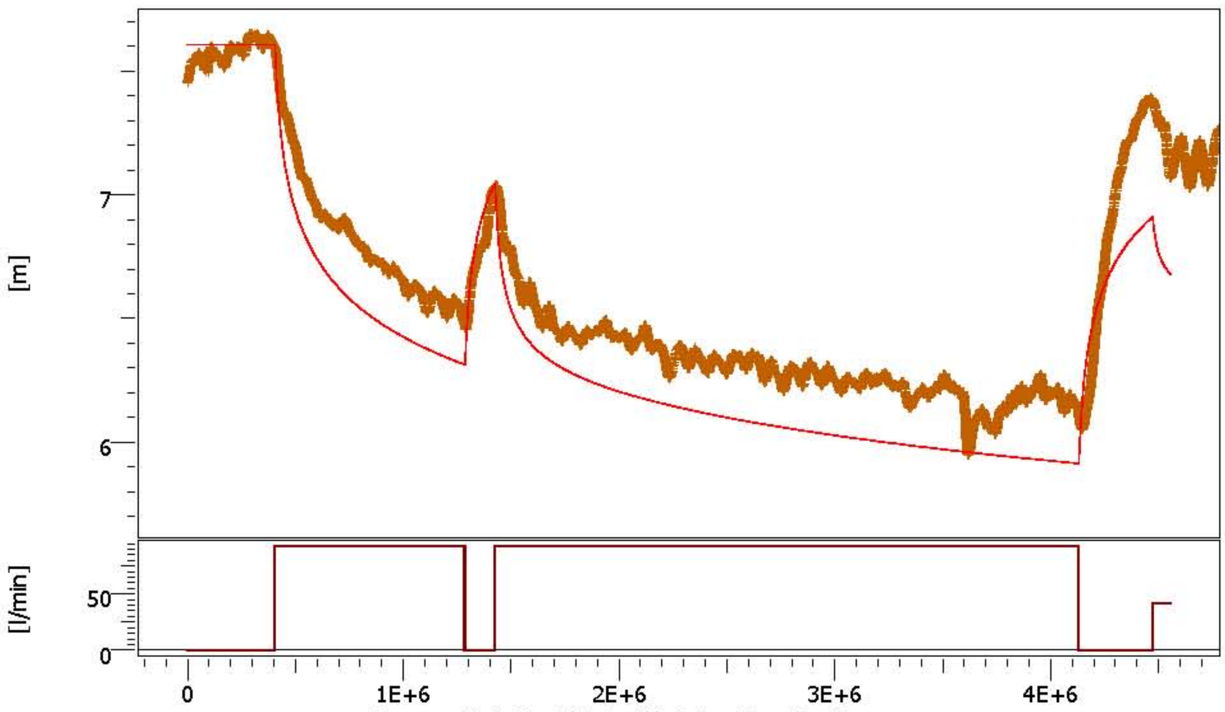
Derived & Secondary Parameters

Rinv	5840 m
Test. Vol.	2478.93 MMm3

Main Results	Dd2
Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	9.1 - 80m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	492.7 m
Well Radius rw	0.069 m
Pay Zone h	70.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	3515.35 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.64E-5 1/sec
PMatch	1.59 1/m
C	5.8E-5 m3/Pa
S	9.86E-5
T	3.92E-4 m2/s
K	5.53E-6 m/s
Pi	7.63239 m
Well distance	493 m
Model Parameters	
Well & Wellbore parameters (Active well)	
C	5.8E-5 m3/Pa
Skin	-0.498
Reservoir & Boundary parameters	
Pi	7.63239 m
T	3.92E-4 m2/s
K	5.53E-6 m/s
S	9.86E-5
Derived & Secondary Parameters	
Rinv	5840 m
Test. Vol.	2478.93 MMm3

History plot	Bu2_Line
Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10



Pressure [m], Liquid Rate [l/min] vs Time [sec]

HLX21:2 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.12565 m
Pi	7.60555 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.44E-5 1/sec
PMatch	1.73 1/m
S	3.97E-5
T	4.28E-4 m2/s
K	6.04E-6 m/s
Pi	7.60555 m
Well distance	493 m

Model Parameters

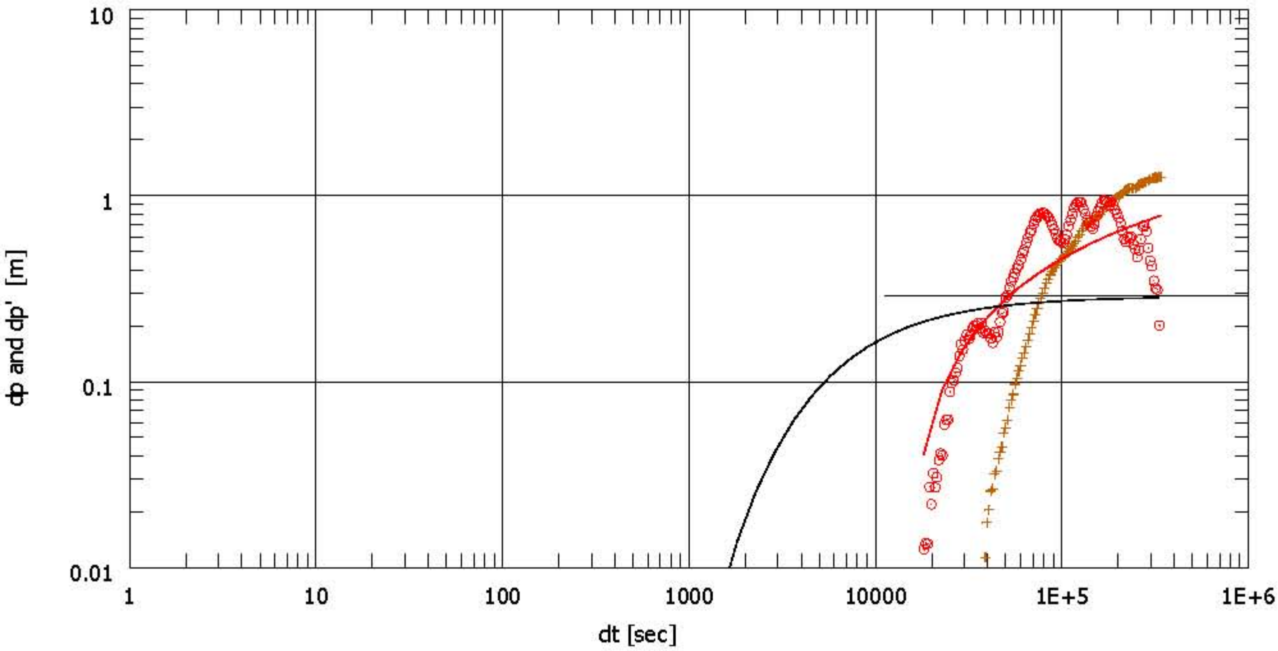
Reservoir & Boundary parameters

Pi	7.60555 m
T	4.28E-4 m2/s
K	6.04E-6 m/s
S	3.97E-5

Derived & Secondary Parameters

Rinv	3420 m
Test. Vol.	343.219 MMm3

Log-Log plot	Bu2_Line
Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:2 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.12565 m
Pi	7.60555 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.44E-5 1/sec
PMatch	1.73 1/m
S	3.97E-5
T	4.28E-4 m2/s
K	6.04E-6 m/s
Pi	7.60555 m
Well distance	493 m

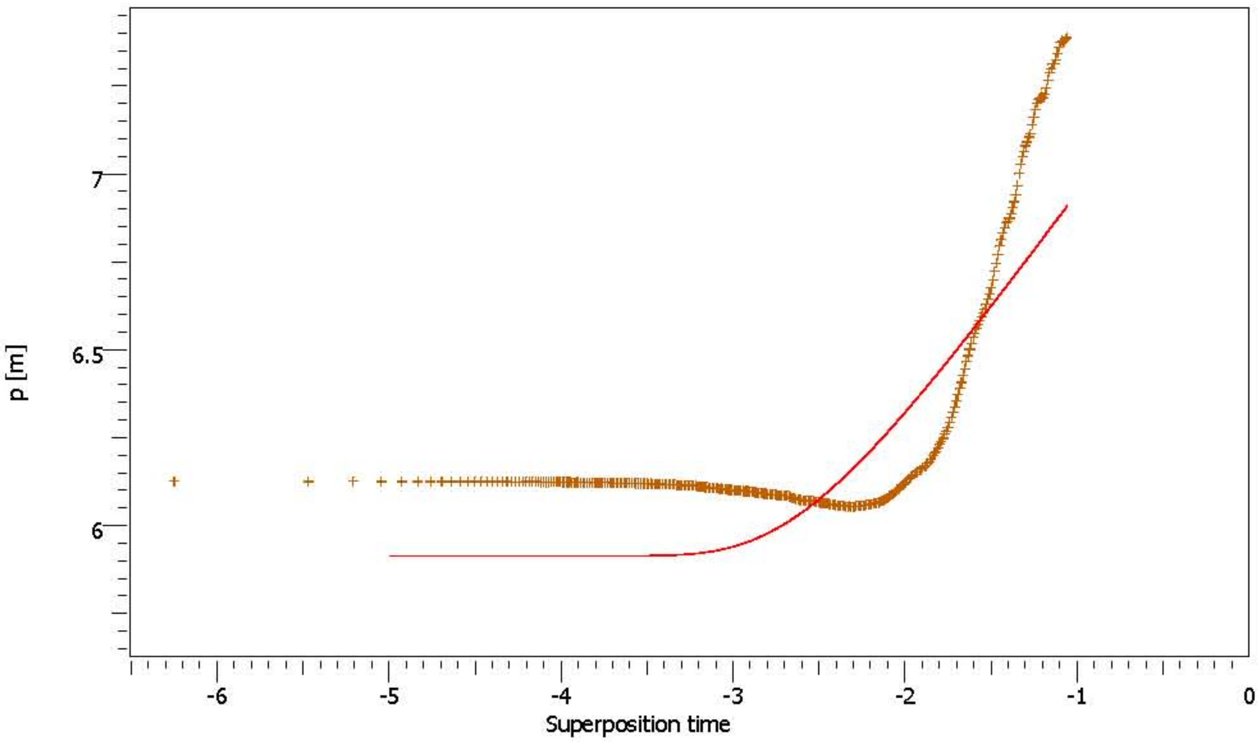
Model Parameters
Reservoir & Boundary parameters

Pi	7.60555 m
T	4.28E-4 m2/s
K	6.04E-6 m/s
S	3.97E-5

Derived & Secondary Parameters

Rinv	3420 m
Test. Vol.	343.219 MMm3

Semi-Log plot	Bu2_Line
Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10



HLX21:2 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.12565 m
Pi	7.60555 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.44E-5 1/sec
PMatch	1.73 1/m
S	3.97E-5
T	4.28E-4 m2/s
K	6.04E-6 m/s
Pi	7.60555 m
Well distance	493 m

Model Parameters

Reservoir & Boundary parameters

Pi	7.60555 m
T	4.28E-4 m2/s
K	6.04E-6 m/s
S	3.97E-5

Derived & Secondary Parameters

Rinv	3420 m
Test. Vol.	343.219 MMm3

Main Results	Bu2_Line
Company Svensk Kärnbränslehantering AB Well HLX21:2 observation	Field Laxemar Test Name / # Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	9.1 - 80m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	492.7 m
Well Radius rw	0.069 m
Pay Zone h	70.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	3515.35 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.44E-5 1/sec
PMatch	1.73 1/m
S	3.97E-5
T	4.28E-4 m2/s
K	6.04E-6 m/s
Pi	7.60555 m
Well distance	493 m

Model Parameters

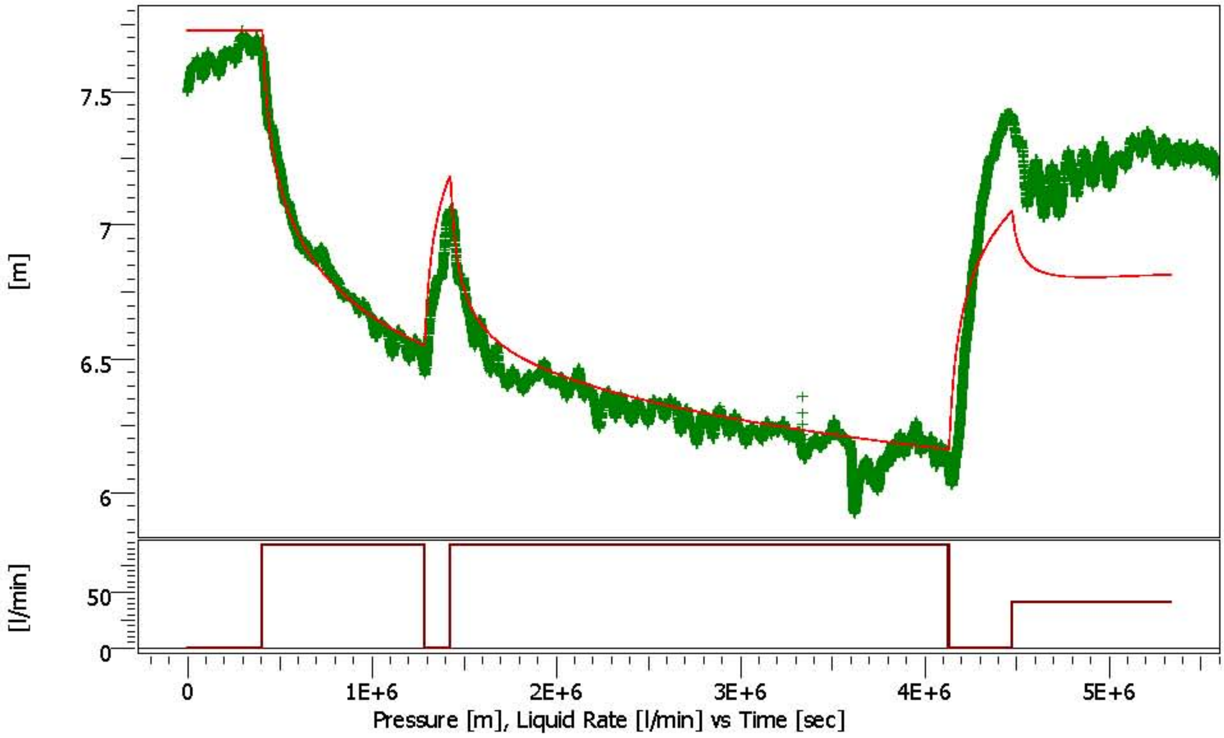
Reservoir & Boundary parameters

Pi	7.60555 m
T	4.28E-4 m2/s
K	6.04E-6 m/s
S	3.97E-5

Derived & Secondary Parameters

Rinv	3420 m
Test. Vol.	343.219 MMm3

	History plot	Dd1
	Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping



HLX22:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.65086 m
Pi	7.72932 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.3E-5 1/sec
PMatch	1.78 1/m
C	1.72E-9 m3/Pa
S	4.41E-5
T	4.31E-4 m2/s
K	5.58E-6 m/s
Pi	7.72932 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.72E-9 m3/Pa
Skin	-1.27

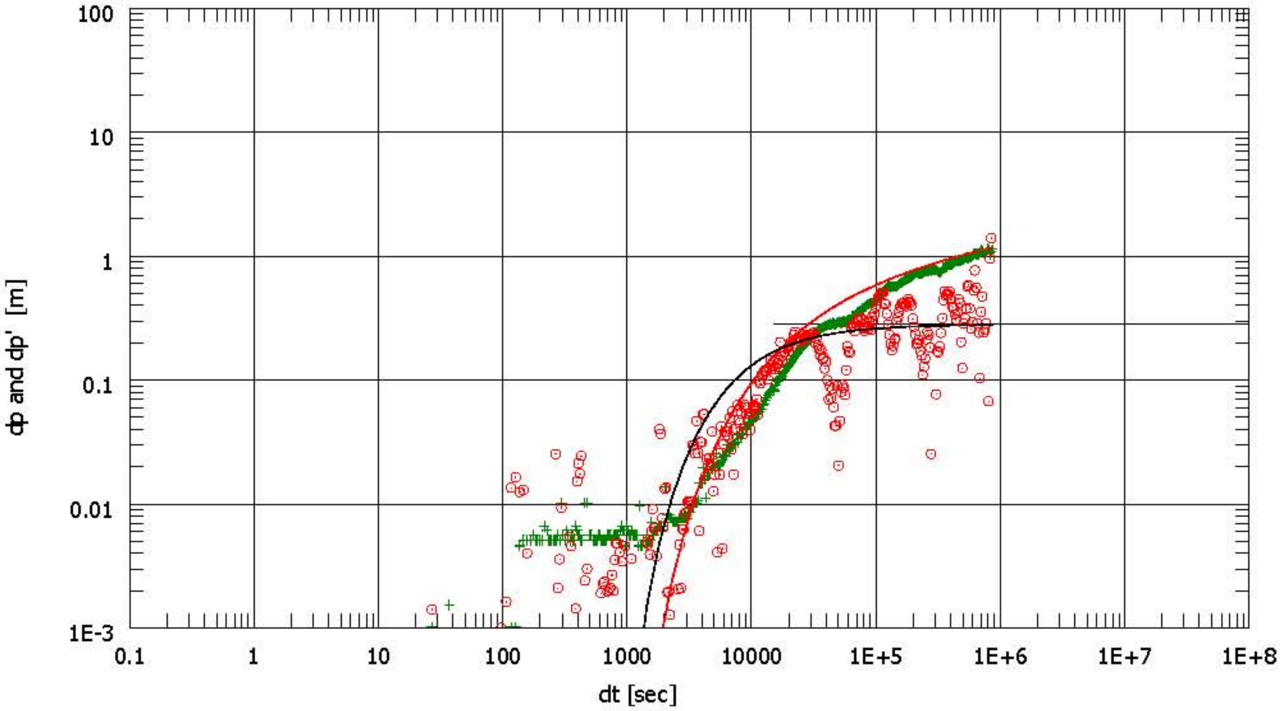
Reservoir & Boundary parameters

Pi	7.72932 m
T	4.31E-4 m2/s
K	5.58E-6 m/s
S	4.41E-5

Derived & Secondary Parameters

Rinv	5200 m
Test. Vol.	895.258 MMm3

Log-Log plot	Dd1
Company	Field
Well HLX221:1 Observation	Test Name / # HLX10 pumping



HLX22:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.65086 m
Pi	7.72932 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.3E-5 1/sec
PMatch	1.78 1/m
C	1.72E-9 m3/Pa
S	4.41E-5
T	4.31E-4 m2/s
K	5.58E-6 m/s
Pi	7.72932 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.72E-9 m3/Pa
Skin	-1.27

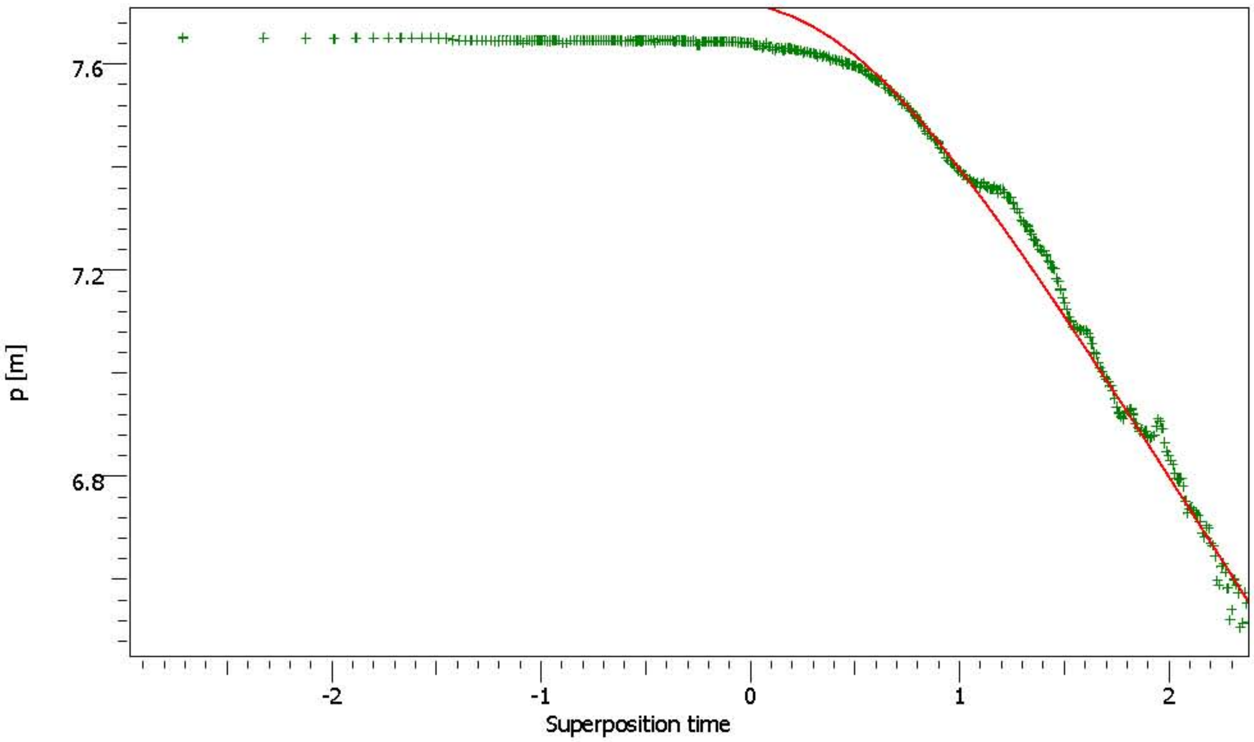
Reservoir & Boundary parameters

Pi	7.72932 m
T	4.31E-4 m2/s
K	5.58E-6 m/s
S	4.41E-5

Derived & Secondary Parameters

Rinv	5200 m
Test. Vol.	895.258 MMm3

Semi-Log plot	Dd1
Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping



HLX22:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.65086 m
Pi	7.72932 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.3E-5 1/sec
PMatch	1.78 1/m
C	1.72E-9 m3/Pa
S	4.41E-5
T	4.31E-4 m2/s
K	5.58E-6 m/s
Pi	7.72932 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.72E-9 m3/Pa
Skin	-1.27

Reservoir & Boundary parameters

Pi	7.72932 m
T	4.31E-4 m2/s
K	5.58E-6 m/s
S	4.41E-5

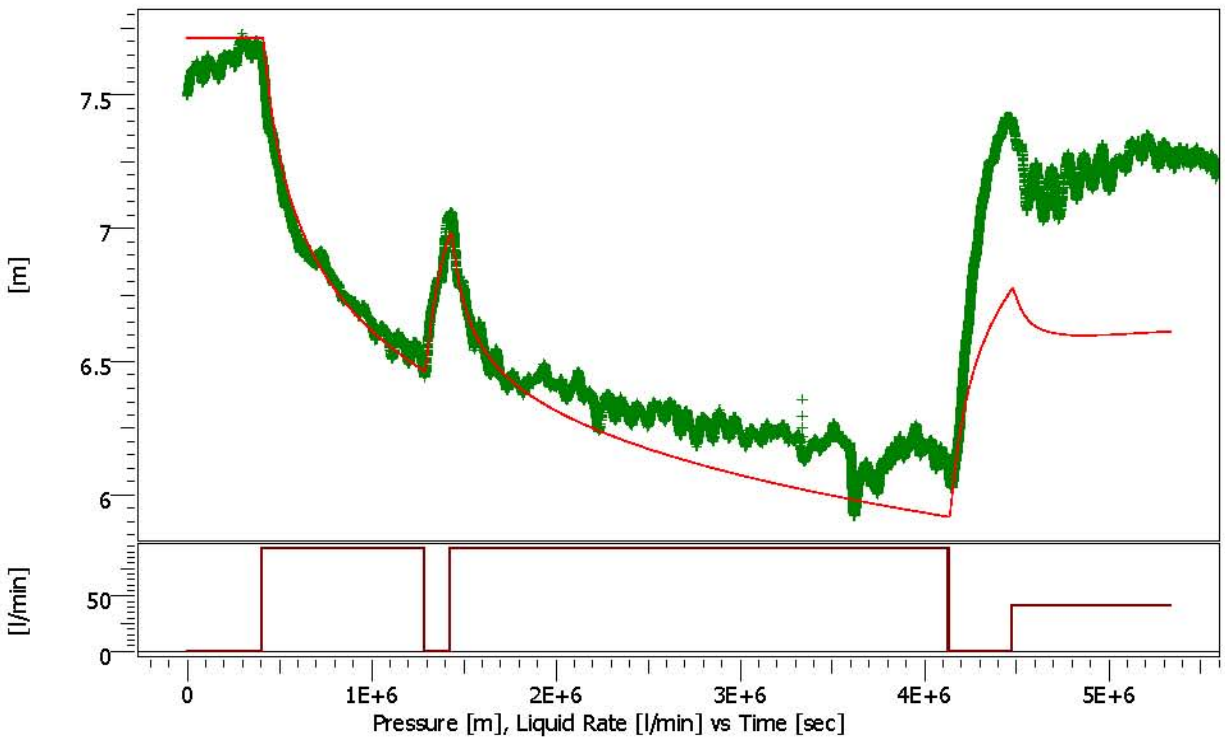
Derived & Secondary Parameters

Rinv	5200 m
Test. Vol.	895.258 MMm3

Main Results	Dd1
Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping

Test date / time	
Formation interval	86 - 163.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	544 m
Well Radius rw	0.069 m
Pay Zone h	77.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	3.3E-5 1/sec
PMatch	1.78 1/m
C	1.72E-9 m3/Pa
S	4.41E-5
T	4.31E-4 m2/s
K	5.58E-6 m/s
Pi	7.72932 m
Well distance	544 m
Model Parameters	
Well & Wellbore parameters (Active well)	
C	1.72E-9 m3/Pa
Skin	-1.27
Reservoir & Boundary parameters	
Pi	7.72932 m
T	4.31E-4 m2/s
K	5.58E-6 m/s
S	4.41E-5
Derived & Secondary Parameters	
Rinv	5200 m
Test. Vol.	895.258 MMm3

History plot	Bu1
Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping



HLX22:1 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.4658 m
Pi	7.71473 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.13E-5 1/sec
PMatch	1.25 1/m
C	1.63E-7 m3/Pa
S	9.08E-5
T	3.04E-4 m2/s
K	3.94E-6 m/s
Pi	7.71473 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.63E-7 m3/Pa
Skin	-0.345

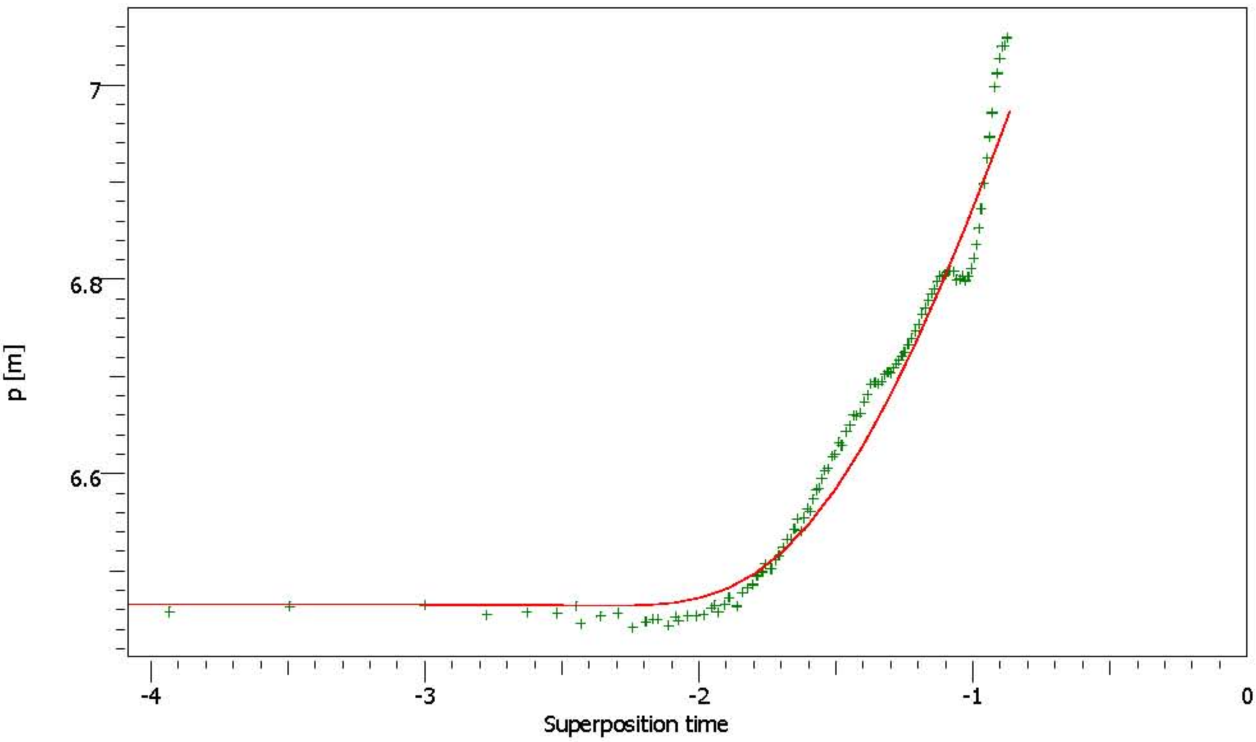
Reservoir & Boundary parameters

Pi	7.71473 m
T	3.04E-4 m2/s
K	3.94E-6 m/s
S	9.08E-5

Derived & Secondary Parameters

Rinv	1210 m
Test. Vol.	98.9805 MMm3

SKB	Semi-Log plot	Bu1
	Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping



HLX22:1 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.4658 m
Pi	7.71473 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.13E-5 1/sec
PMatch	1.25 1/m
C	1.63E-7 m3/Pa
S	9.08E-5
T	3.04E-4 m2/s
K	3.94E-6 m/s
Pi	7.71473 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.63E-7 m3/Pa
Skin	-0.345

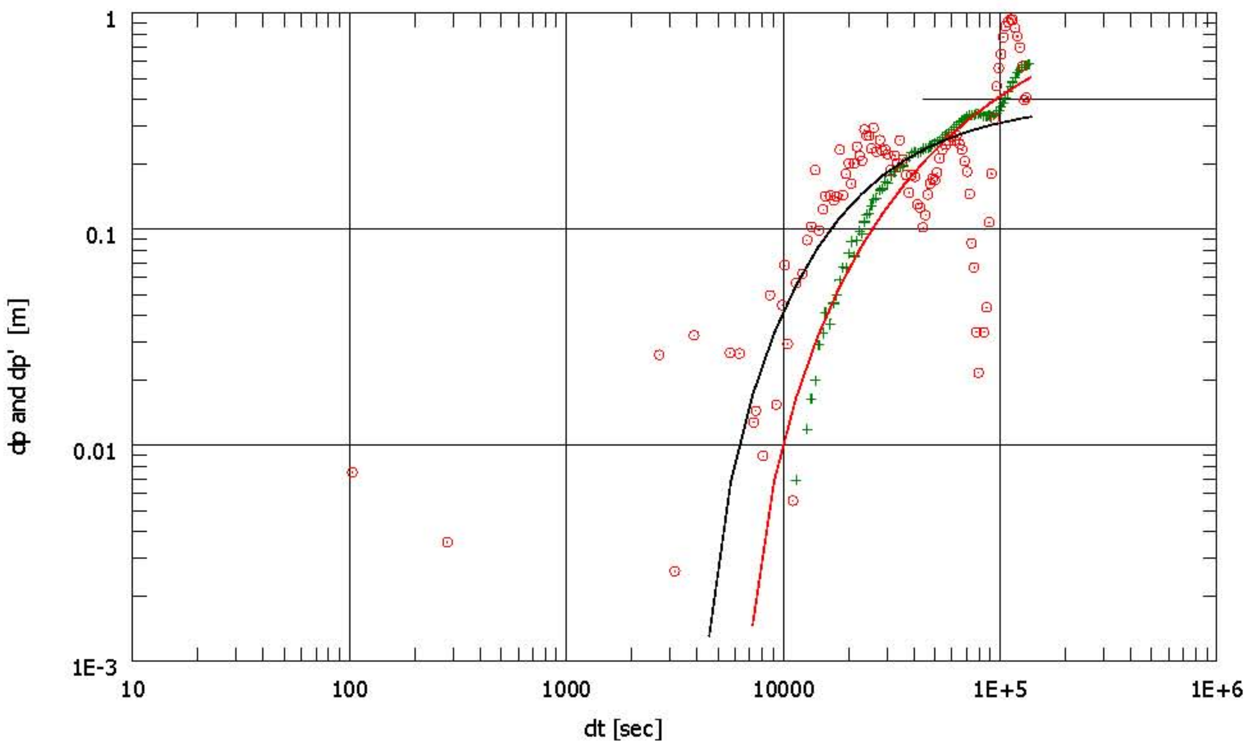
Reservoir & Boundary parameters

Pi	7.71473 m
T	3.04E-4 m2/s
K	3.94E-6 m/s
S	9.08E-5

Derived & Secondary Parameters

Rinv	1210 m
Test. Vol.	98.9805 MMm3

SKB	Log-Log plot	Bu1
	Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping



HLX22:1 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.4658 m
Pi	7.71473 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.13E-5 1/sec
PMatch	1.25 1/m
C	1.63E-7 m3/Pa
S	9.08E-5
T	3.04E-4 m2/s
K	3.94E-6 m/s
Pi	7.71473 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.63E-7 m3/Pa
Skin	-0.345

Reservoir & Boundary parameters

Pi	7.71473 m
T	3.04E-4 m2/s
K	3.94E-6 m/s
S	9.08E-5

Derived & Secondary Parameters

Rinv	1210 m
Test. Vol.	98.9805 MMm3

Main Results	Bu1

Company
Well HLX221:1 Observation

Field
Test Name / # HLX10 pumping

Test date / time	
Formation interval	86 - 163.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	544 m
Well Radius rw	0.069 m
Pay Zone h	77.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.13E-5 1/sec
PMatch	1.25 1/m
C	1.63E-7 m3/Pa
S	9.08E-5
T	3.04E-4 m2/s
K	3.94E-6 m/s
Pi	7.71473 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.63E-7 m3/Pa
Skin	-0.345

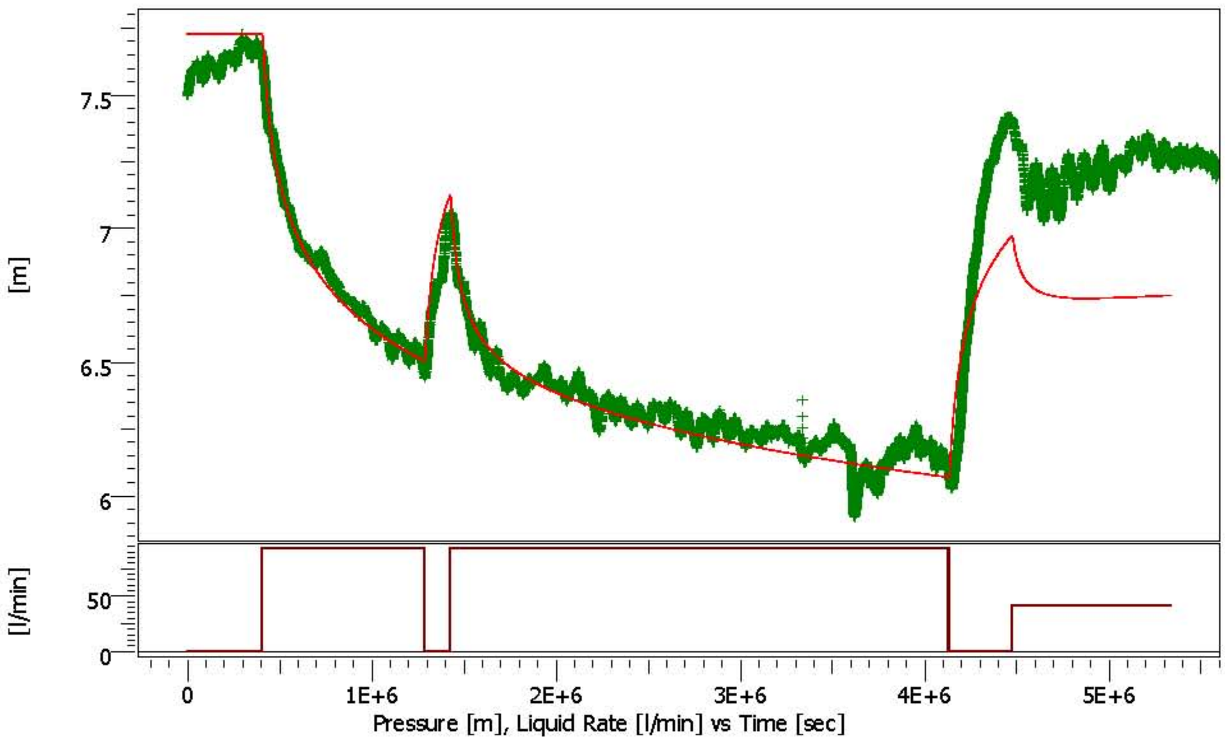
Reservoir & Boundary parameters

Pi	7.71473 m
T	3.04E-4 m2/s
K	3.94E-6 m/s
S	9.08E-5

Derived & Secondary Parameters

Rinv	1210 m
Test. Vol.	98.9805 MMm3

SKB	History plot	Dd2
	Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping



HLX22:1 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.0514 m
Pi	7.72932 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.45E-5 1/sec
PMatch	1.59 1/m
C	1.54E-6 m3/Pa
S	5.32E-5
T	3.85E-4 m2/s
K	4.99E-6 m/s
Pi	7.72932 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.54E-6 m3/Pa
Skin	-0.448

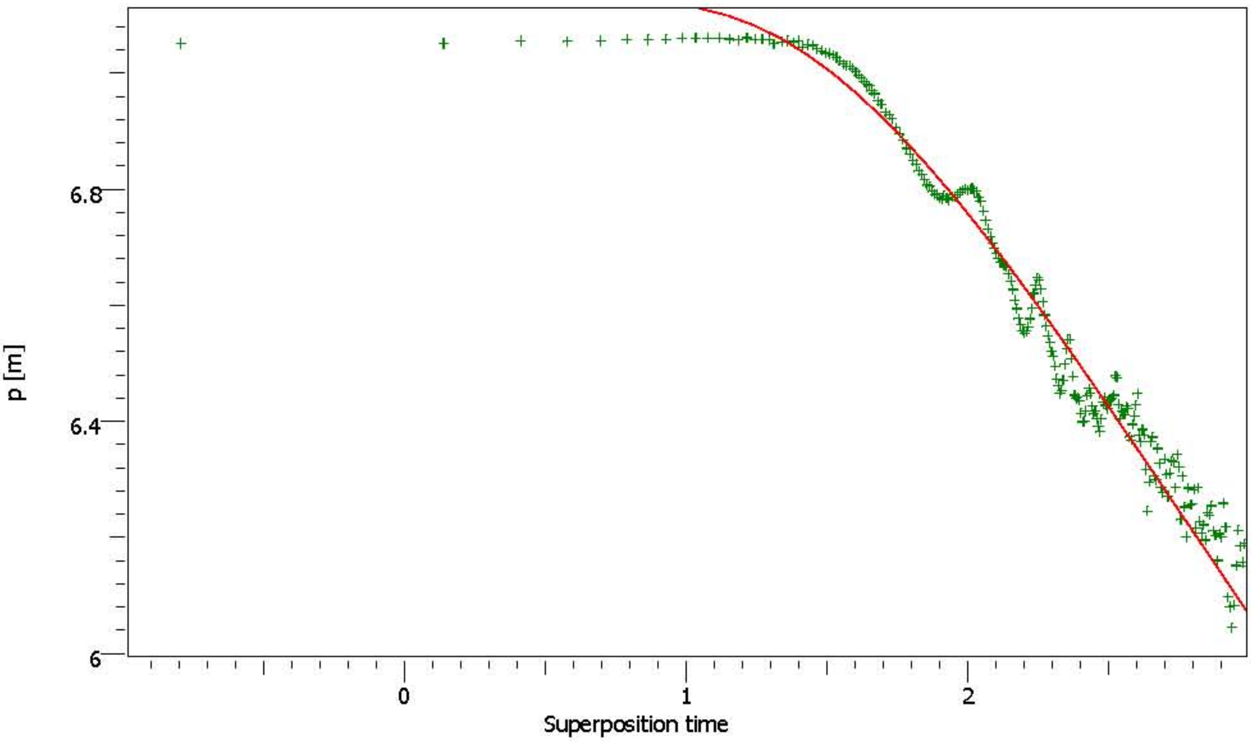
Reservoir & Boundary parameters

Pi	7.72932 m
T	3.85E-4 m2/s
K	4.99E-6 m/s
S	5.32E-5

Derived & Secondary Parameters

Rinv	7870 m
Test. Vol.	2472.6 MMm3

Semi-Log plot	Dd2
Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping



HLX22:1 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.0514 m
Pi	7.72932 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.45E-5 1/sec
PMatch	1.59 1/m
C	1.54E-6 m3/Pa
S	5.32E-5
T	3.85E-4 m2/s
K	4.99E-6 m/s
Pi	7.72932 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.54E-6 m3/Pa
Skin	-0.448

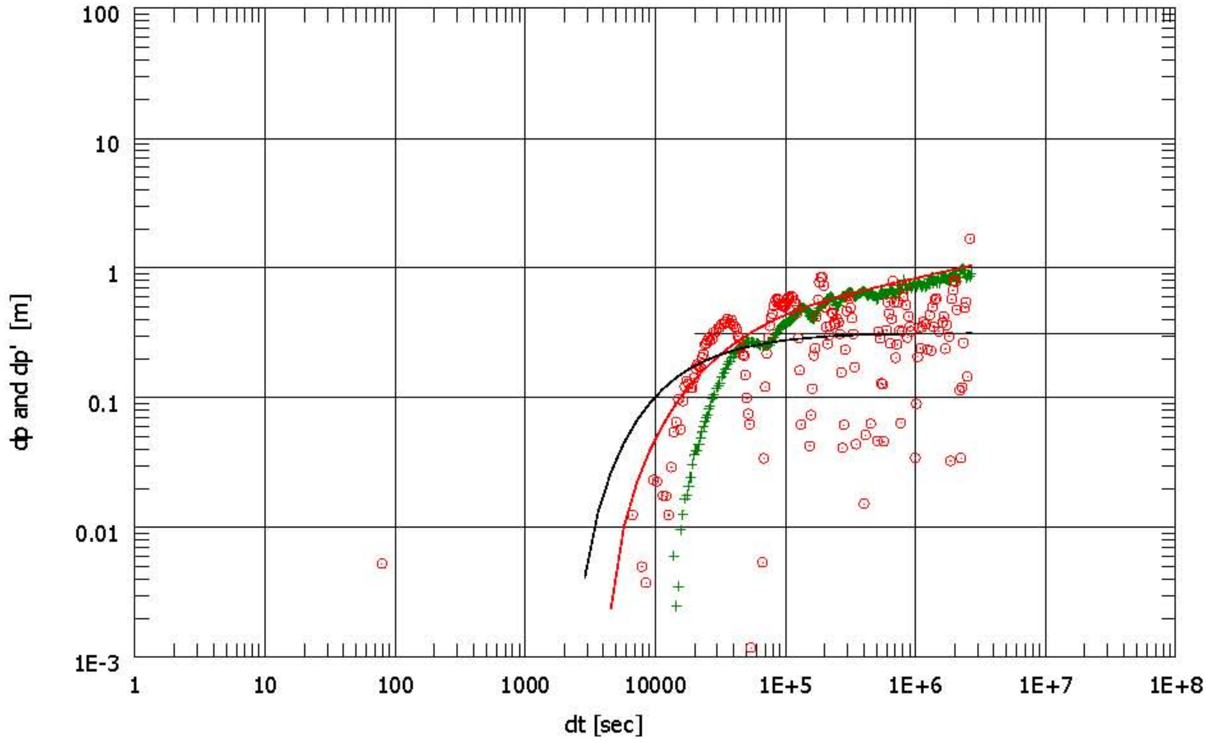
Reservoir & Boundary parameters

Pi	7.72932 m
T	3.85E-4 m2/s
K	4.99E-6 m/s
S	5.32E-5

Derived & Secondary Parameters

Rinv	7870 m
Test. Vol.	2472.6 MMm3

Log-Log plot	Dd2
Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping



HLX22:1 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	7.0514 m
Pi	7.72932 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.45E-5 1/sec
PMatch	1.59 1/m
C	1.54E-6 m3/Pa
S	5.32E-5
T	3.85E-4 m2/s
K	4.99E-6 m/s
Pi	7.72932 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.54E-6 m3/Pa
Skin	-0.448

Reservoir & Boundary parameters

Pi	7.72932 m
T	3.85E-4 m2/s
K	4.99E-6 m/s
S	5.32E-5

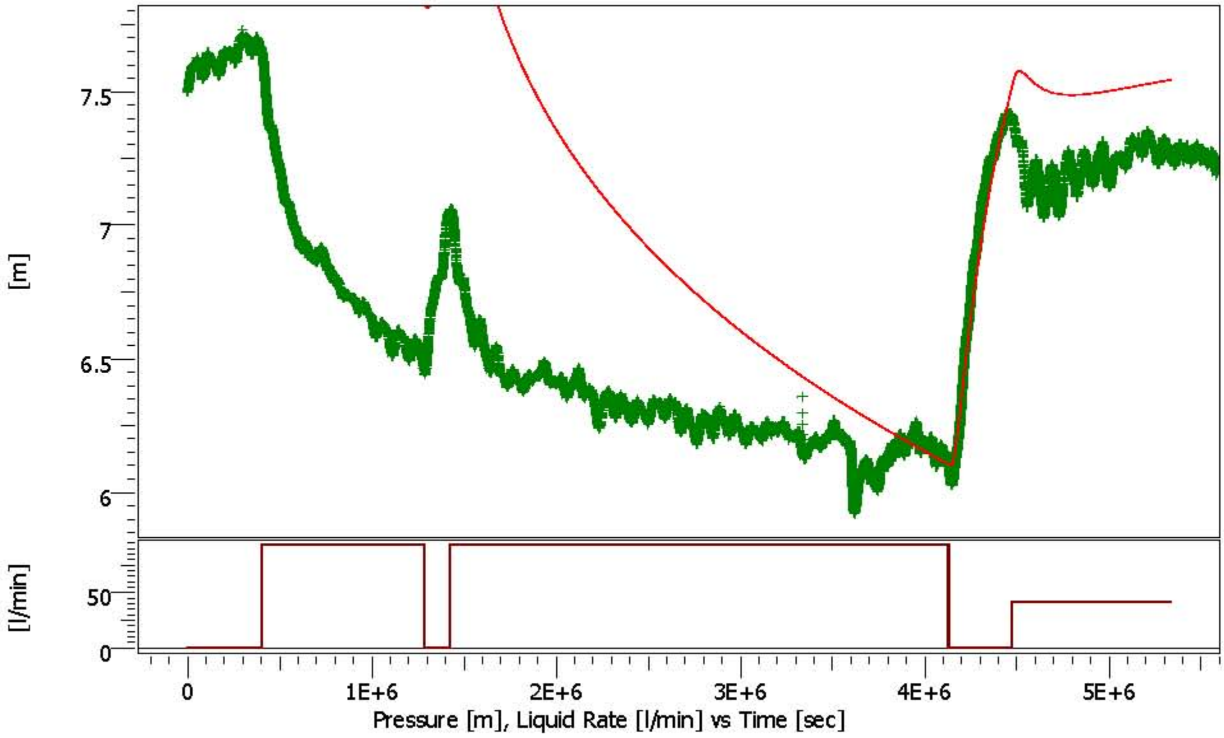
Derived & Secondary Parameters

Rinv	7870 m
Test. Vol.	2472.6 MMm3

	Main Results	Dd2
SKB	Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping

Test date / time	
Formation interval	86 - 163.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	544 m
Well Radius rw	0.069 m
Pay Zone h	77.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	2.45E-5 1/sec
PMatch	1.59 1/m
C	1.54E-6 m3/Pa
S	5.32E-5
T	3.85E-4 m2/s
K	4.99E-6 m/s
Pi	7.72932 m
Well distance	544 m
Model Parameters	
Well & Wellbore parameters (Active well)	
C	1.54E-6 m3/Pa
Skin	-0.448
Reservoir & Boundary parameters	
Pi	7.72932 m
T	3.85E-4 m2/s
K	4.99E-6 m/s
S	5.32E-5
Derived & Secondary Parameters	
Rinv	7870 m
Test. Vol.	2472.6 MMm3

History plot	Bu2
Company	Field
Well HLX221:1 Observation	Test Name / # HLX10 pumping



HLX22:1 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.10607 m
Pi	10.4235 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.45E-6 1/sec
PMatch	0.386 1/m
C	1.67E-7 m3/Pa
S	9.17E-5
T	9.36E-5 m2/s
K	1.21E-6 m/s
Pi	10.4235 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.67E-7 m3/Pa
Skin	-0.345

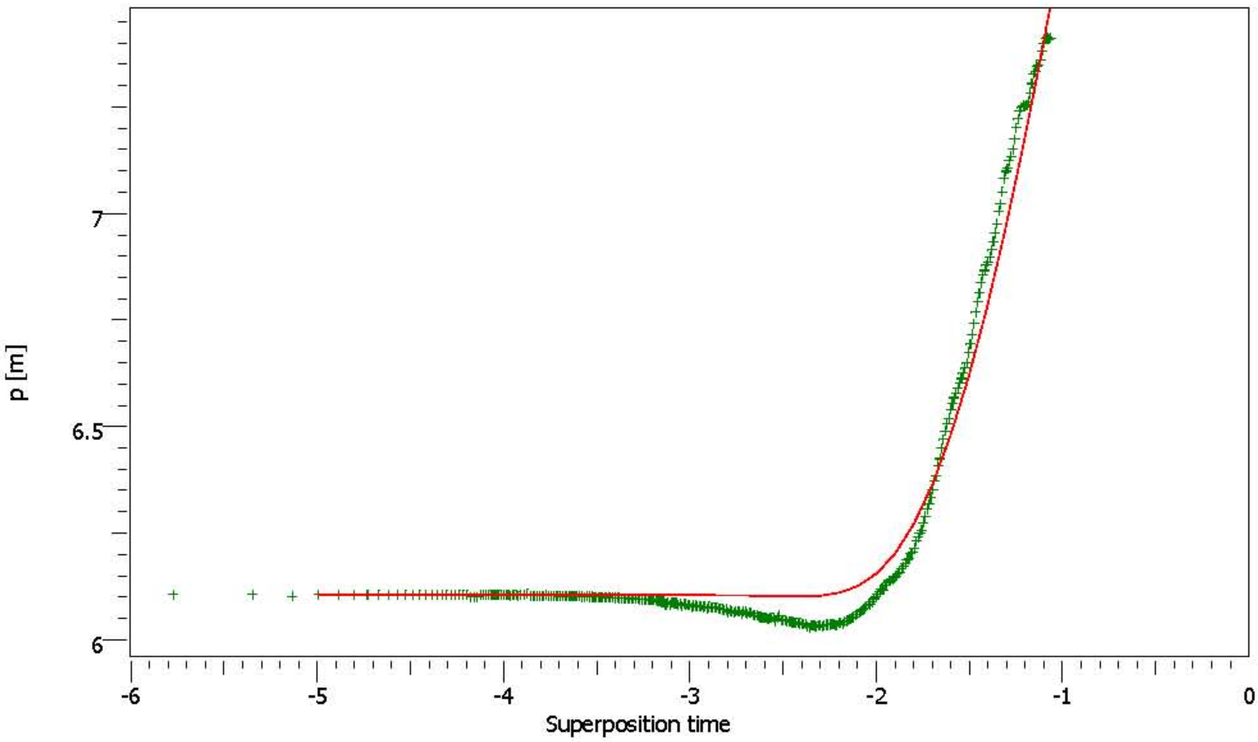
Reservoir & Boundary parameters

Pi	10.4235 m
T	9.36E-5 m2/s
K	1.21E-6 m/s
S	9.17E-5

Derived & Secondary Parameters

Rinv	1050 m
Test. Vol.	75.2163 MMm3

Semi-Log plot	Bu2
Company	Field
Well HLX221:1 Observation	Test Name / # HLX10 pumping



HLX22:1 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.10607 m
Pi	10.4235 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.45E-6 1/sec
PMatch	0.386 1/m
C	1.67E-7 m3/Pa
S	9.17E-5
T	9.36E-5 m2/s
K	1.21E-6 m/s
Pi	10.4235 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.67E-7 m3/Pa
Skin	-0.345

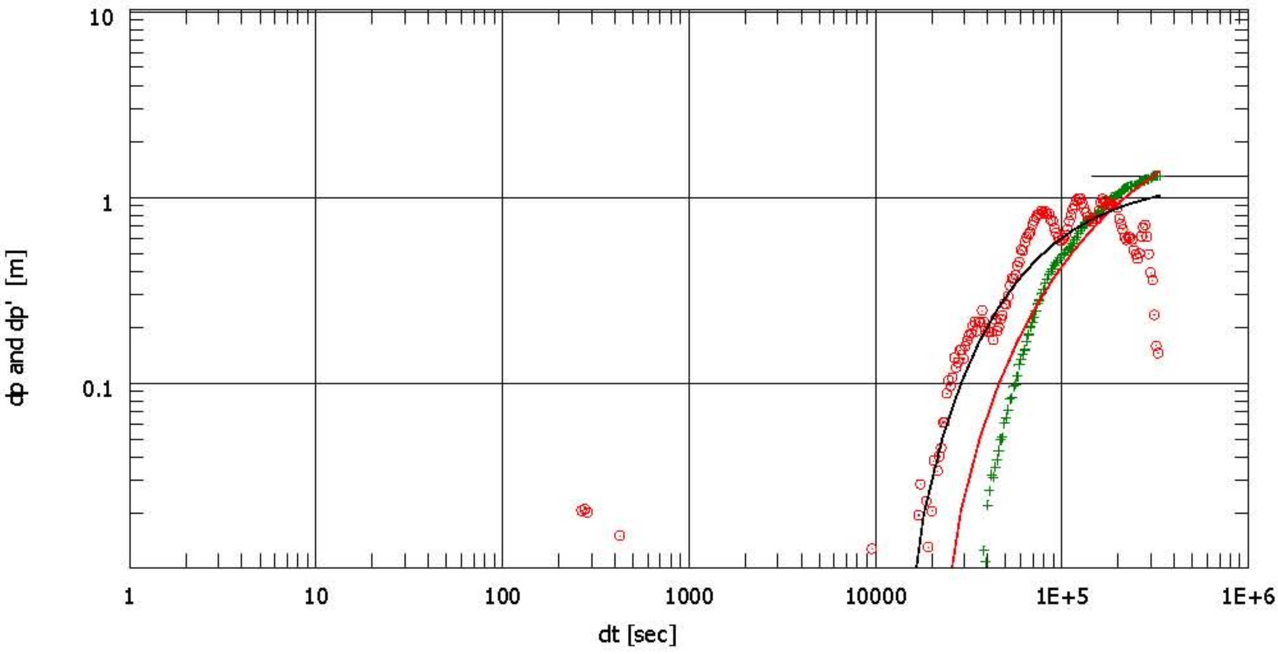
Reservoir & Boundary parameters

Pi	10.4235 m
T	9.36E-5 m2/s
K	1.21E-6 m/s
S	9.17E-5

Derived & Secondary Parameters

Rinv	1050 m
Test. Vol.	75.2163 MMm3

Log-Log plot	Bu2
Company Well HLX221:1 Observation	Field Test Name / # HLX10 pumping



HLX22:1 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	6.10607 m
Pi	10.4235 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.45E-6 1/sec
PMatch	0.386 1/m
C	1.67E-7 m3/Pa
S	9.17E-5
T	9.36E-5 m2/s
K	1.21E-6 m/s
Pi	10.4235 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.67E-7 m3/Pa
Skin	-0.345

Reservoir & Boundary parameters

Pi	10.4235 m
T	9.36E-5 m2/s
K	1.21E-6 m/s
S	9.17E-5

Derived & Secondary Parameters

Rinv	1050 m
Test. Vol.	75.2163 MMm3

Main Results	Bu2
Company	Field
Well HLX221:1 Observation	Test Name / # HLX10 pumping

Test date / time	
Formation interval	86 - 163.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	544 m
Well Radius rw	0.069 m
Pay Zone h	77.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.45E-6 1/sec
PMatch	0.386 1/m
C	1.67E-7 m3/Pa
S	9.17E-5
T	9.36E-5 m2/s
K	1.21E-6 m/s
Pi	10.4235 m
Well distance	544 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.67E-7 m3/Pa
Skin	-0.345

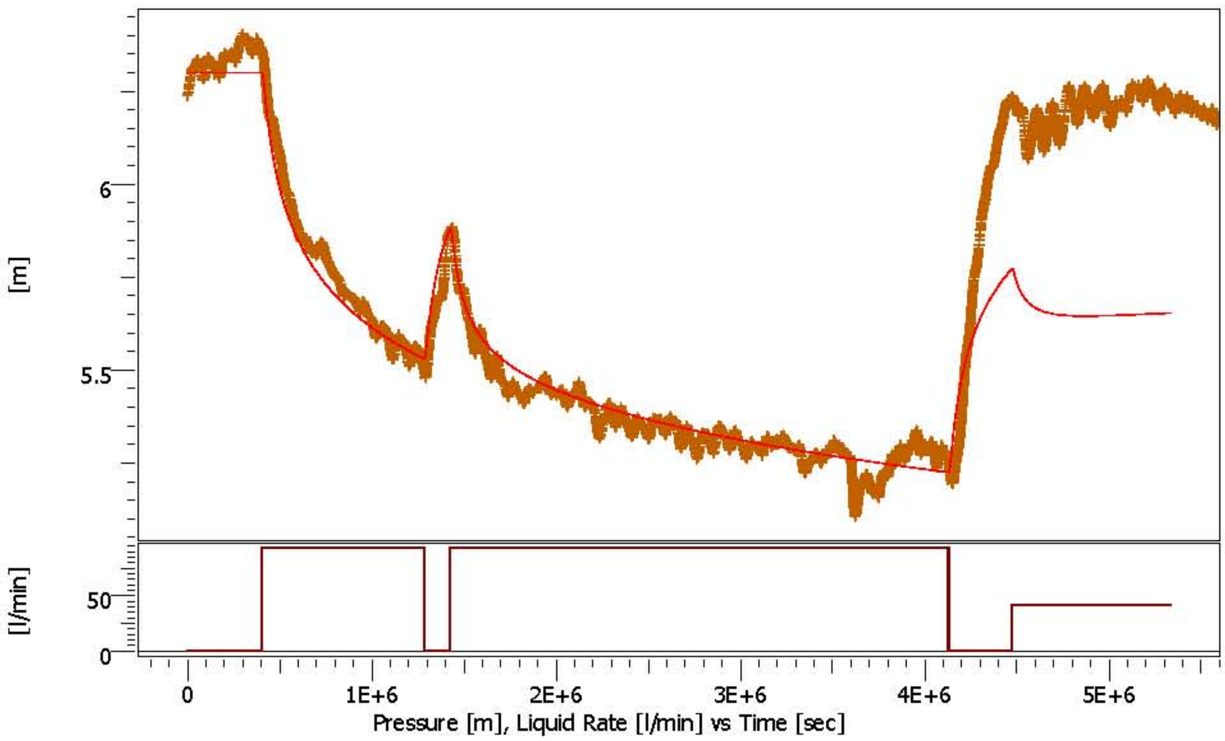
Reservoir & Boundary parameters

Pi	10.4235 m
T	9.36E-5 m2/s
K	1.21E-6 m/s
S	9.17E-5

Derived & Secondary Parameters

Rinv	1050 m
Test. Vol.	75.2163 MMm3

History plot	Dd1Line_2por
Company Svensk Kärnbränslehantering AB Well HLX22:2 observation	Field Laxemar Test Name / # Interference test HLX10



HLX22:2 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	6.36024 m
Pi	6.3 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-5 1/sec
PMatch	2.26 1/m
S	1.18E-4
T	5.49E-4 m2/s
K	7.24E-6 m/s
Pi	6.3 m
Well distance	537 m

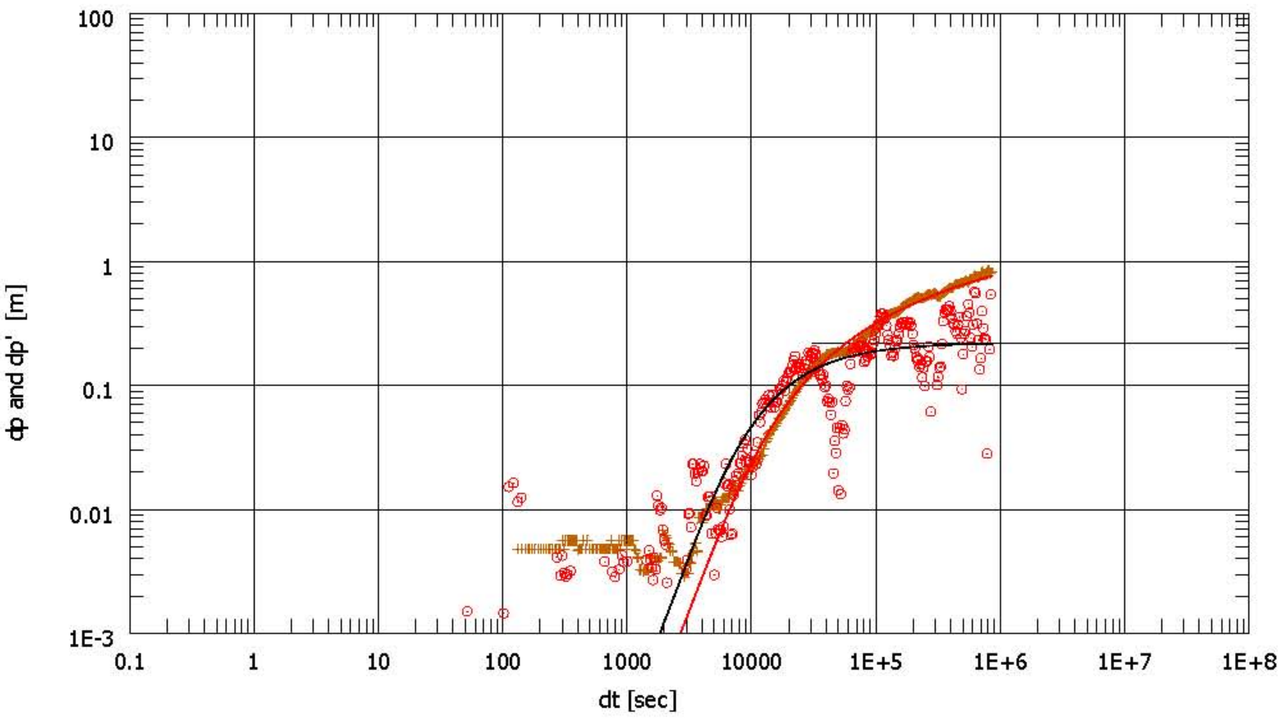
Model Parameters

Reservoir & Boundary parameters

Pi	6.3 m
T	5.49E-4 m2/s
K	7.24E-6 m/s
S	1.18E-4
Omega	0.00377
Lambda	4.2E-6

Derived & Secondary Parameters

Log-Log plot	Dd1Line_2por
Company Svensk Kärnbränslehantering AB Well HLX22:2 observation	Field Laxemar Test Name / # Interference test HLX10



HLX22:2 production #1
Rate 93.2 l/min
Rate change 93.2 l/min
P@dt=0 6.36024 m
Pi 6.3 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Two porosity PSS
Boundary Infinite

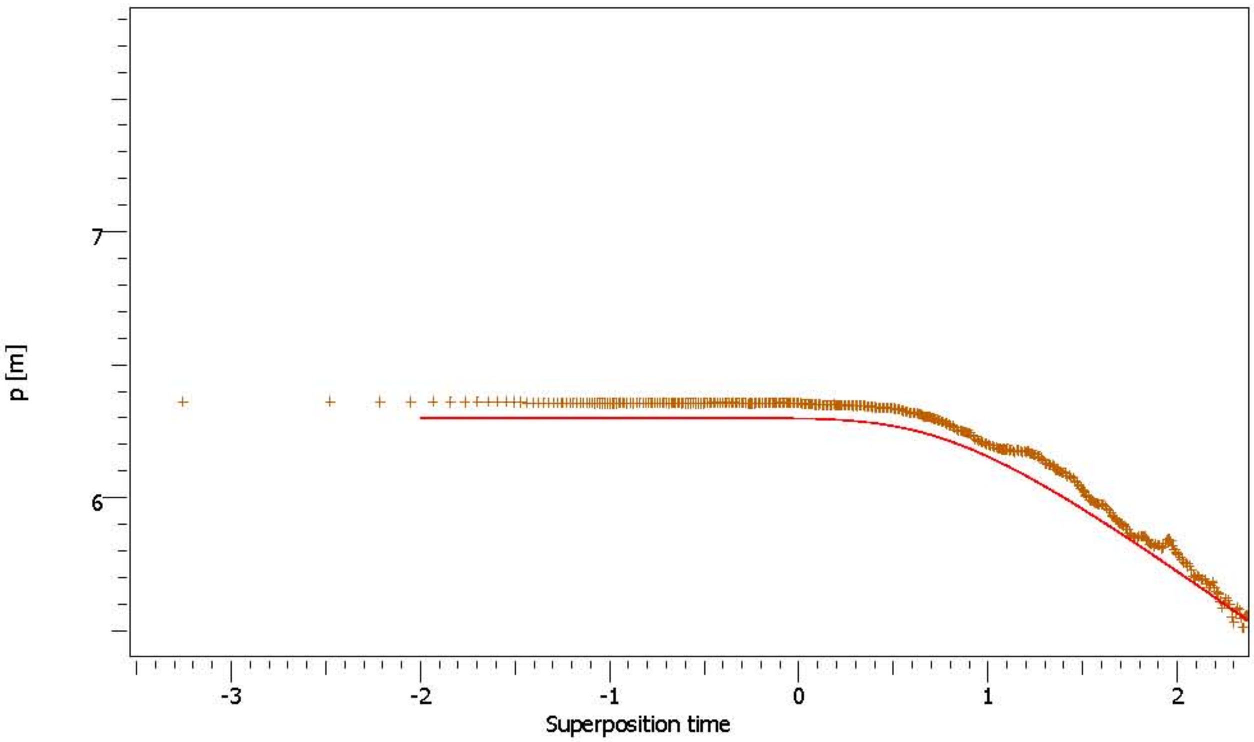
Main Model Parameters
TMatch 1.62E-5 1/sec
PMatch 2.26 1/m
S 1.18E-4
T 5.49E-4 m2/s
K 7.24E-6 m/s
Pi 6.3 m
Well distance 537 m

Model Parameters
Reservoir & Boundary parameters
Pi 6.3 m
T 5.49E-4 m2/s
K 7.24E-6 m/s
S 1.18E-4
Omega 0.00377
Lambda 4.2E-6

Derived & Secondary Parameters

Semi-Log plot	Dd1Line_2por

Company Svensk Kärnbränslehantering AB
Well HLX22:2 observation
Field Laxemar
Test Name / # Interference test HLX10



HLX22:2 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	6.36024 m
Pi	6.3 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-5 1/sec
PMatch	2.26 1/m
S	1.18E-4
T	5.49E-4 m2/s
K	7.24E-6 m/s
Pi	6.3 m
Well distance	537 m

Model Parameters
Reservoir & Boundary parameters

Pi	6.3 m
T	5.49E-4 m2/s
K	7.24E-6 m/s
S	1.18E-4
Omega	0.00377
Lambda	4.2E-6

Derived & Secondary Parameters

Main Results	Dd1Line_2por

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX22:2 observation	Test Name / #	Interference test HLX10

Test date / time	2004-12-29 14:58
Formation interval	9.19 - 85.00m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	P.Hagman/L.Andersson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	537 m
Well Radius rw	0.068 m
Pay Zone h	75.81 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-5 1/sec
PMatch	2.26 1/m
S	1.18E-4
T	5.49E-4 m2/s
K	7.24E-6 m/s
Pi	6.3 m
Well distance	537 m

Model Parameters

Reservoir & Boundary parameters

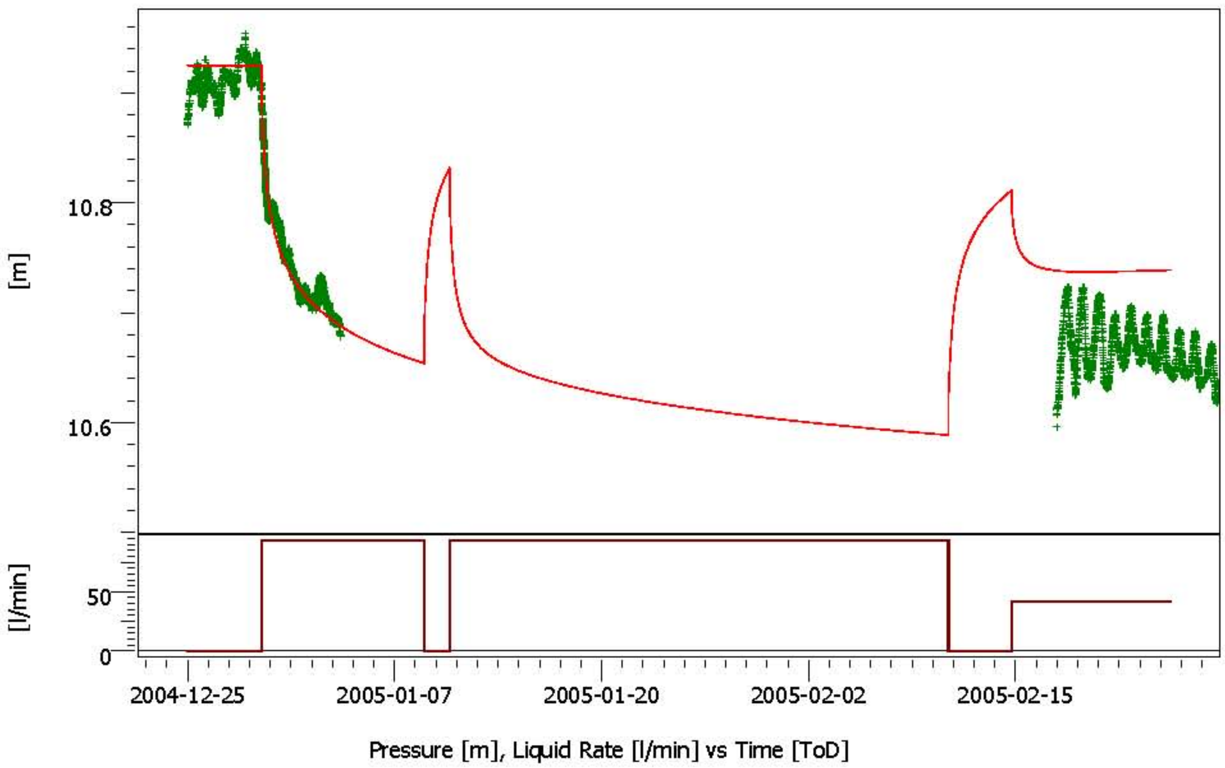
Pi	6.3 m
T	5.49E-4 m2/s
K	7.24E-6 m/s
S	1.18E-4
Omega	0.00377
Lambda	4.2E-6

Derived & Secondary Parameters

History plot	Dd1_2por

Company SKB
Well HLX23:1 Observation well

Field Laxemar
Test Name / # HLX10 pumping



HLX23_041225-050310.mio production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	10.8949 m
Pi	10.925 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-4 [sec]-1
PMatch	10.6 [m]-1
C	1.38E-6 m3/Pa
S	2.33E-4
T	0.00262 m2/s
K	2.65E-5 m/s
Pi	10.925 m
Well distance	264 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.38E-6 m3/Pa
Skin	-1.33

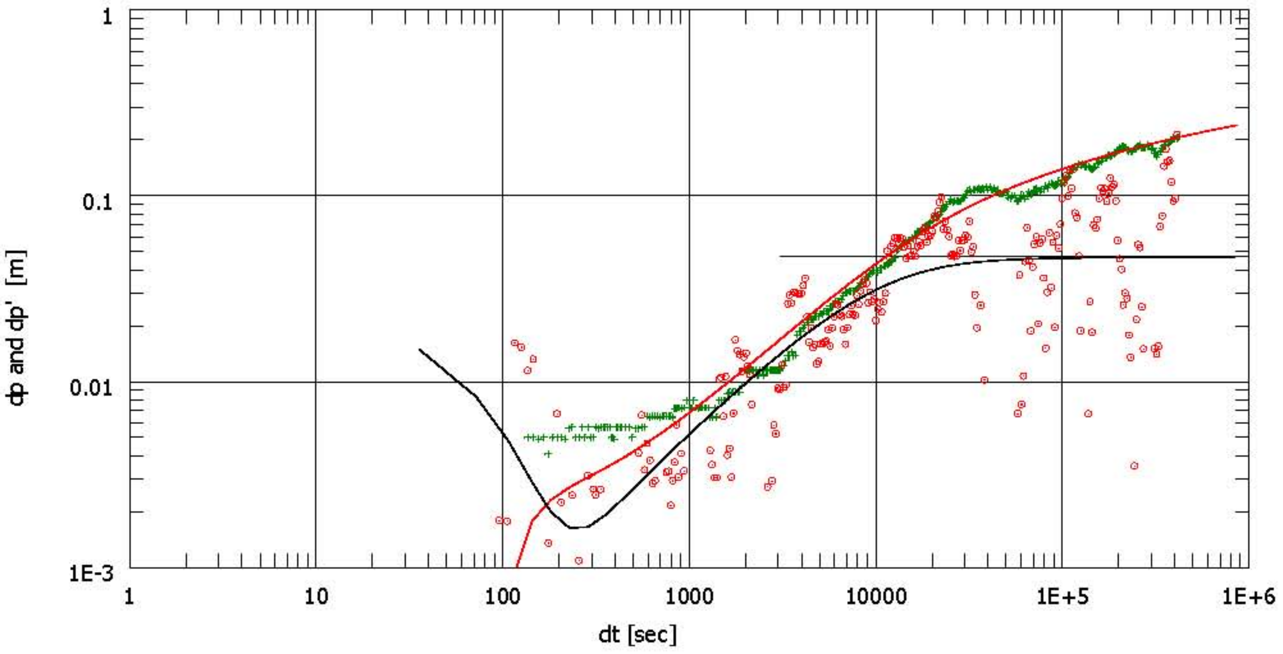
Reservoir & Boundary parameters

Pi	10.925 m
T	0.00262 m2/s
K	2.65E-5 m/s
S	2.33E-4
Omega	0.01
Lambda	9.37E-8

Derived & Secondary Parameters

Log-Log plot	Dd1_2por

Company SKB
Well HLX23:1 Observation well
Field Laxemar
Test Name / # HLX10 pumping



HLX23_041225-050310.mio production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	10.8949 m
Pi	10.925 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-4 [sec]-1
PMatch	10.6 [m]-1
C	1.38E-6 m3/Pa
S	2.33E-4
T	0.00262 m2/s
K	2.65E-5 m/s
Pi	10.925 m
Well distance	264 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.38E-6 m3/Pa
Skin	-1.33

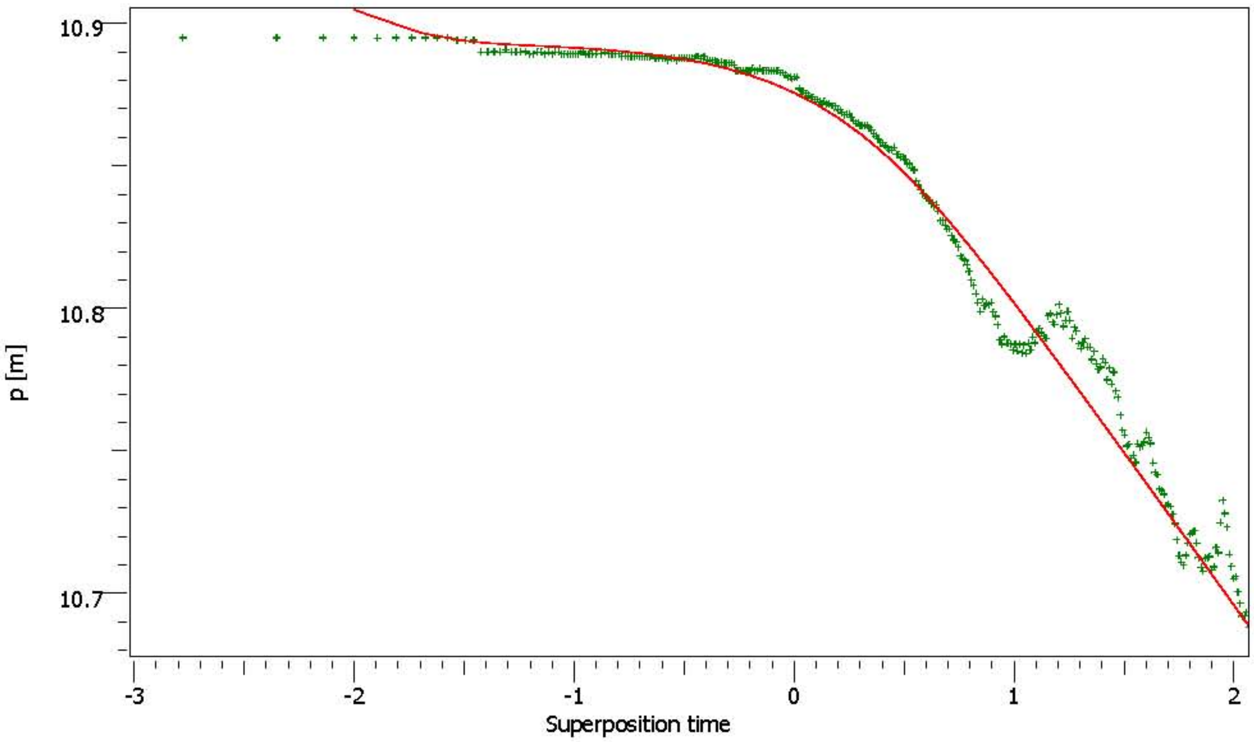
Reservoir & Boundary parameters

Pi	10.925 m
T	0.00262 m2/s
K	2.65E-5 m/s
S	2.33E-4
Omega	0.01
Lambda	9.37E-8

Derived & Secondary Parameters

Semi-Log plot	Dd1_2por

Company SKB
Well HLX23:1 Observation well
Field Laxemar
Test Name / # HLX10 pumping



HLX23_041225-050310.mio production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	10.8949 m
Pi	10.925 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-4 [sec]-1
PMatch	10.6 [m]-1
C	1.38E-6 m3/Pa
S	2.33E-4
T	0.00262 m2/s
K	2.65E-5 m/s
Pi	10.925 m
Well distance	264 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.38E-6 m3/Pa
Skin	-1.33

Reservoir & Boundary parameters

Pi	10.925 m
T	0.00262 m2/s
K	2.65E-5 m/s
S	2.33E-4
Omega	0.01
Lambda	9.37E-8

Derived & Secondary Parameters

Test date / time	
Formation interval	61 - 160.2m
Perforated interval	
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	263.7 m
Well Radius rw	0.068 m
Pay Zone h	99.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	3515.35 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-4 [sec]-1
PMatch	10.6 [m]-1
C	1.38E-6 m3/Pa
S	2.33E-4
T	0.00262 m2/s
K	2.65E-5 m/s
Pi	10.925 m
Well distance	264 m

Model Parameters

Well & Wellbore parameters (Active well)

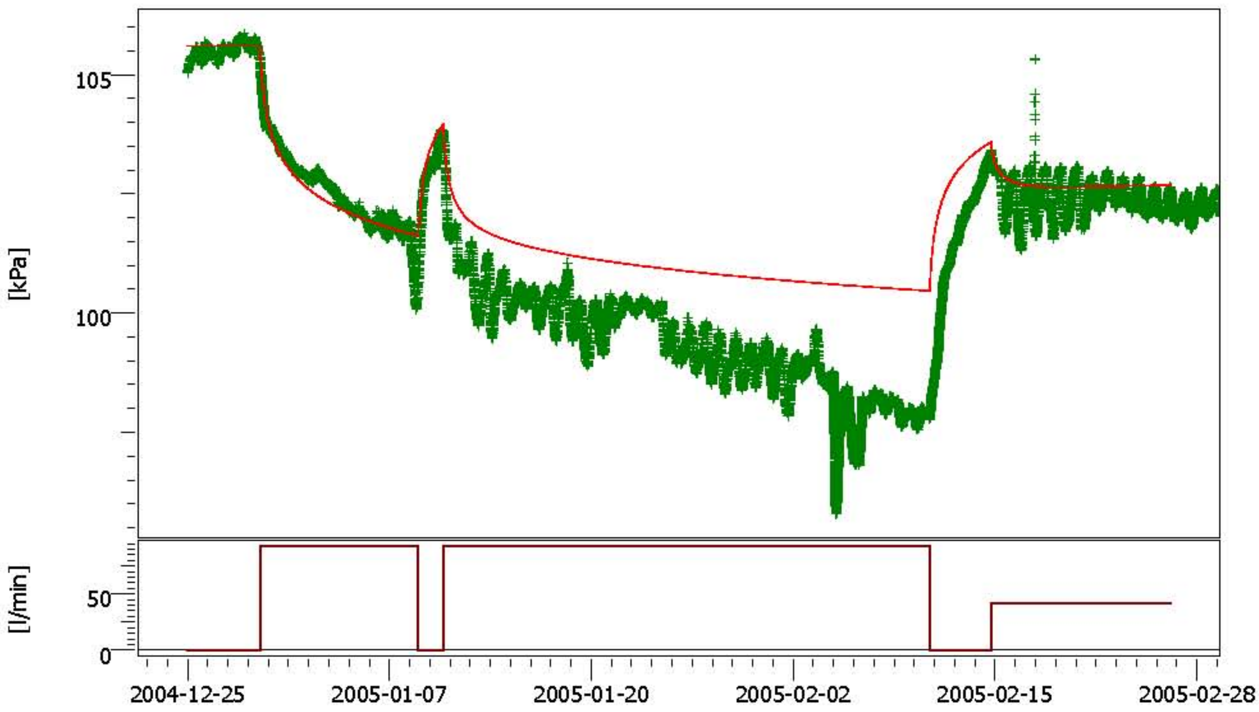
C	1.38E-6 m3/Pa
Skin	-1.33

Reservoir & Boundary parameters

Pi	10.925 m
T	0.00262 m2/s
K	2.65E-5 m/s
S	2.33E-4
Omega	0.01
Lambda	9.37E-8

Derived & Secondary Parameters

	History plot	Dd1
	Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX23:2 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	105.308 kPa
Pi	105.6 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-4 1/sec
PMatch	0.6 1/kPa
C	3.8E-9 m3/Pa
S	1.27E-4
T	0.00143 m2/s
K	2.65E-5 m/s
Pi	105.6 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

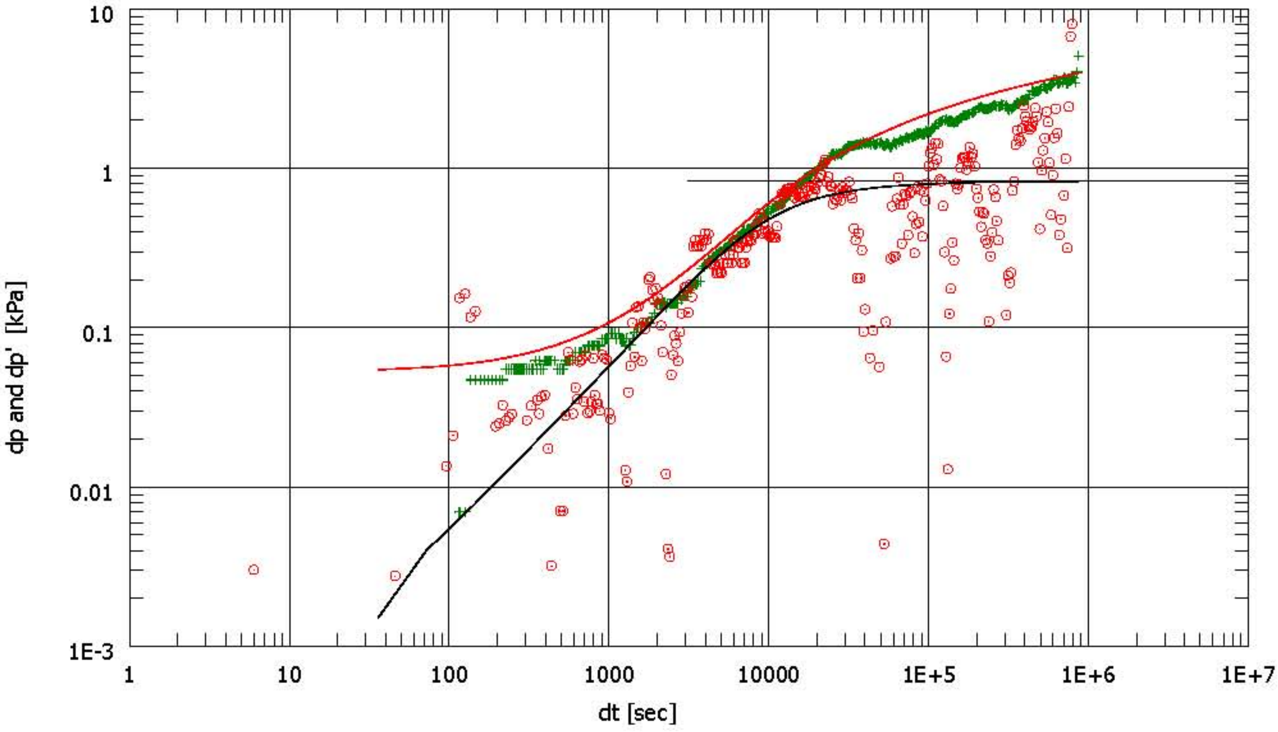
C	3.8E-9 m3/Pa
Skin	-0.449

Reservoir & Boundary parameters

Pi	105.6 kPa
T	0.00143 m2/s
K	2.65E-5 m/s
S	1.27E-4
Omega	1E-4
Lambda	1.15E-6

Derived & Secondary Parameters

	Log-Log plot	Dd1
SKB	Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



HLX23:2 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	105.308 kPa
Pi	105.6 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-4 1/sec
PMatch	0.6 1/kPa
C	3.8E-9 m3/Pa
S	1.27E-4
T	0.00143 m2/s
K	2.65E-5 m/s
Pi	105.6 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

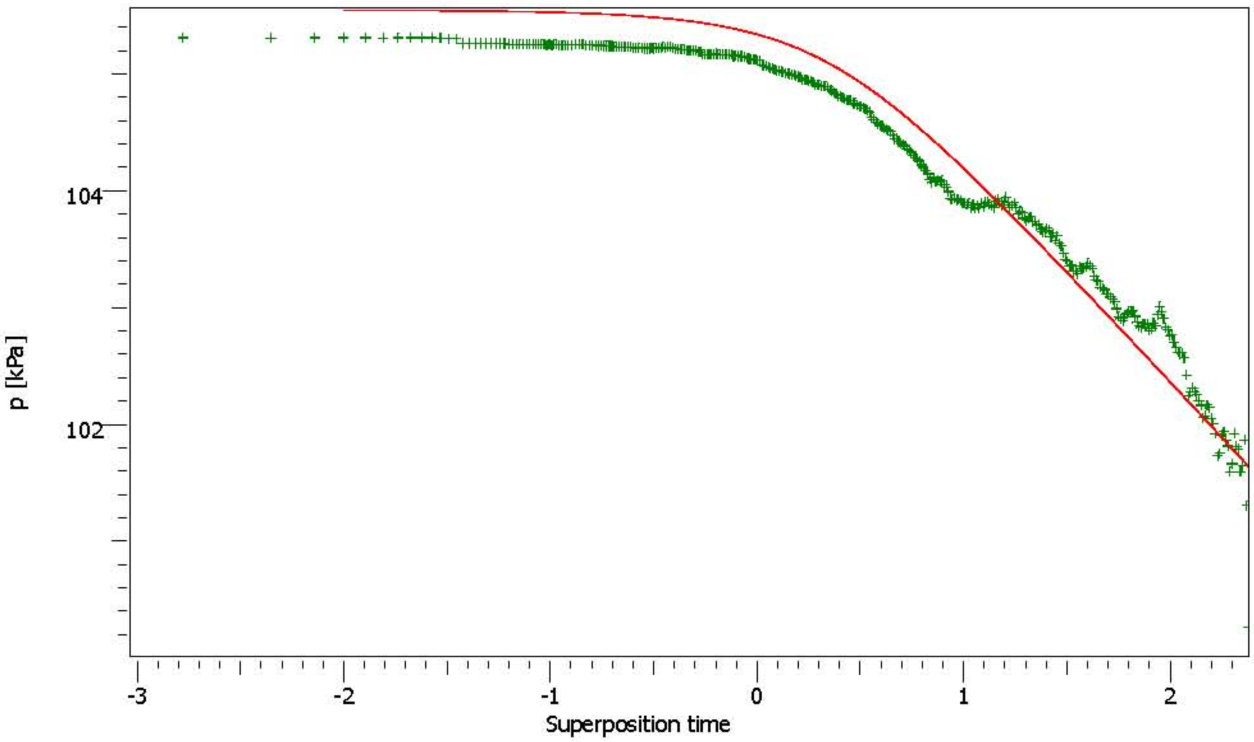
C	3.8E-9 m3/Pa
Skin	-0.449

Reservoir & Boundary parameters

Pi	105.6 kPa
T	0.00143 m2/s
K	2.65E-5 m/s
S	1.27E-4
Omega	1E-4
Lambda	1.15E-6

Derived & Secondary Parameters

Semi-Log plot	Dd1
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



HLX23:2 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	105.308 kPa
Pi	105.6 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-4 1/sec
PMatch	0.6 1/kPa
C	3.8E-9 m3/Pa
S	1.27E-4
T	0.00143 m2/s
K	2.65E-5 m/s
Pi	105.6 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	3.8E-9 m3/Pa
Skin	-0.449

Reservoir & Boundary parameters

Pi	105.6 kPa
T	0.00143 m2/s
K	2.65E-5 m/s
S	1.27E-4
Omega	1E-4
Lambda	1.15E-6

Derived & Secondary Parameters

Main Results	Dd1
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping

Test date / time	
Formation interval	6.10 - 60m
Perforated interval	openhole
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	263 m
Well Radius rw	0.068 m
Pay Zone h	53.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	20000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.62E-4 1/sec
PMatch	0.6 1/kPa
C	3.8E-9 m3/Pa
S	1.27E-4
T	0.00143 m2/s
K	2.65E-5 m/s
Pi	105.6 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

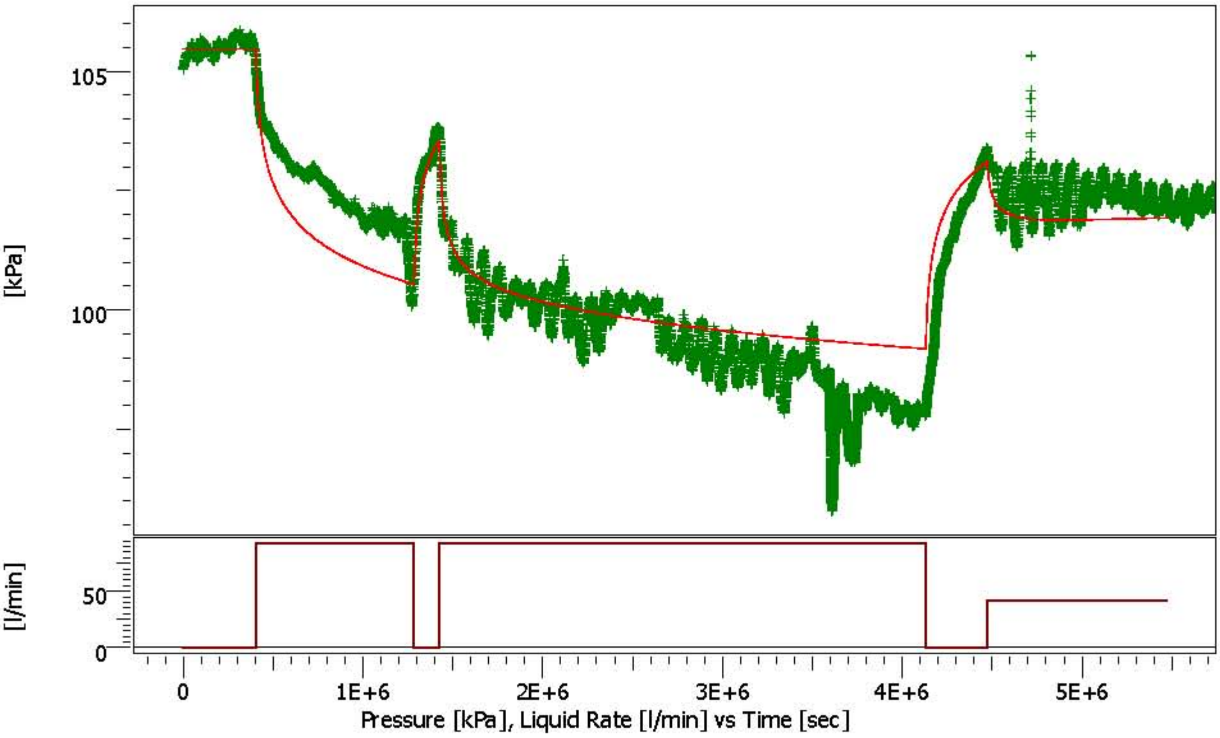
C	3.8E-9 m3/Pa
Skin	-0.449

Reservoir & Boundary parameters

Pi	105.6 kPa
T	0.00143 m2/s
K	2.65E-5 m/s
S	1.27E-4
Omega	1E-4
Lambda	1.15E-6

Derived & Secondary Parameters

	History plot	Bu1
SKB	Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



HLX23:2 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	100.541 kPa
Pi	105.462 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	7.91E-5 1/sec
PMatch	0.514 1/kPa
C	2.87E-7 m3/Pa
S	2.23E-4
T	0.00122 m2/s
K	2.27E-5 m/s
Pi	105.462 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.87E-7 m3/Pa
Skin	-1.15

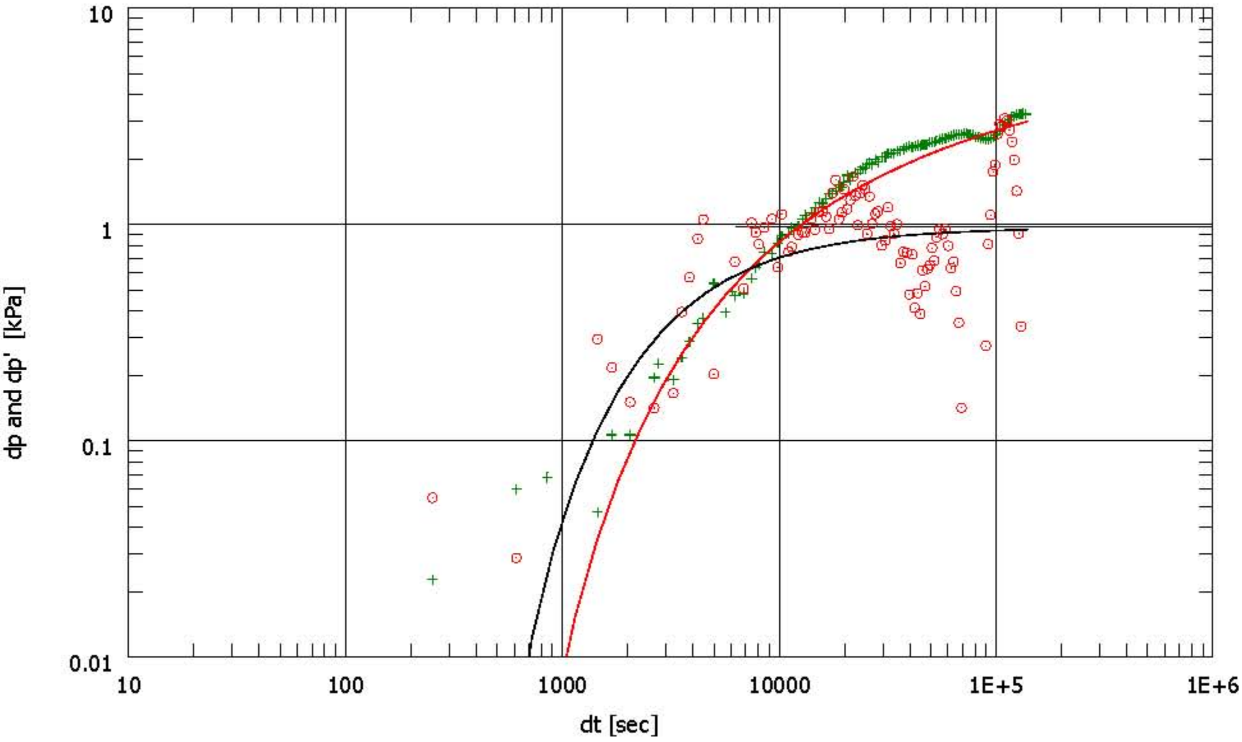
Reservoir & Boundary parameters

Pi	105.462 kPa
T	0.00122 m2/s
K	2.27E-5 m/s
S	2.23E-4

Derived & Secondary Parameters

Rinv	1550 m
Test. Vol.	400.772 MMm3

Log-Log plot	Bu1
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



HLX23:2 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	100.541 kPa
Pi	105.462 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	7.91E-5 1/sec
PMatch	0.514 1/kPa
C	2.87E-7 m3/Pa
S	2.23E-4
T	0.00122 m2/s
K	2.27E-5 m/s
Pi	105.462 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.87E-7 m3/Pa
Skin	-1.15

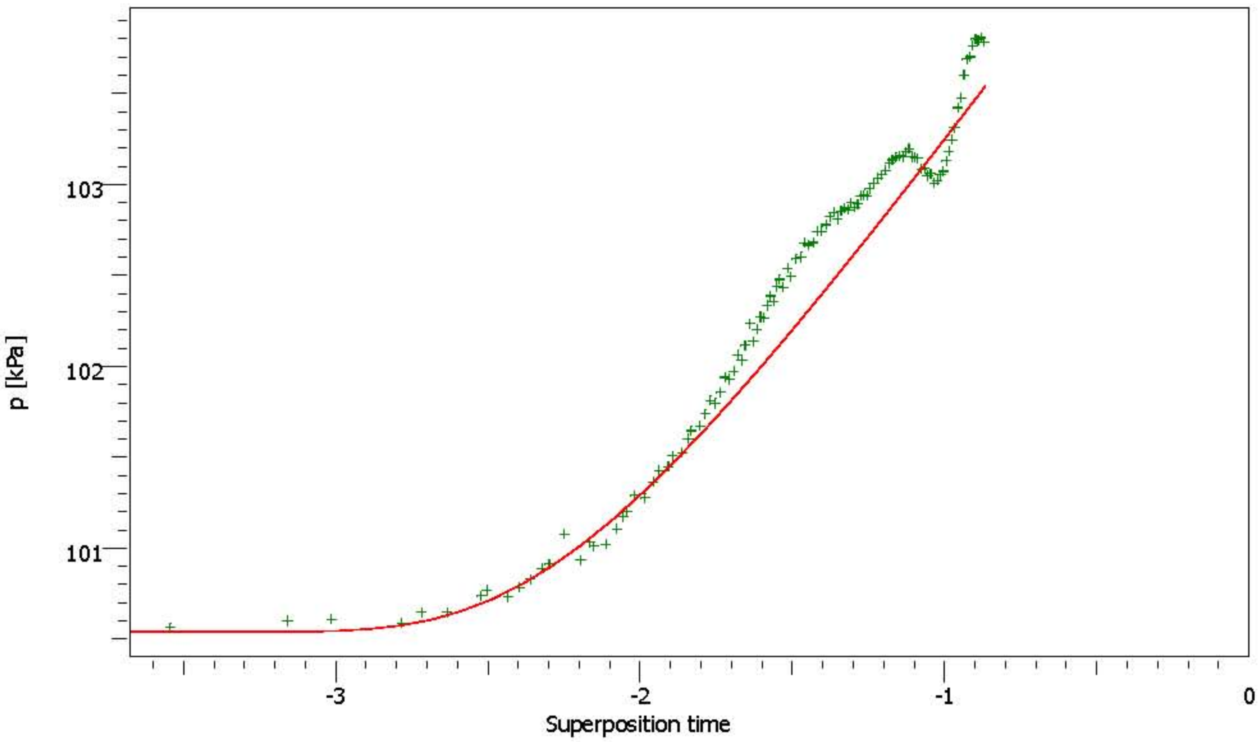
Reservoir & Boundary parameters

Pi	105.462 kPa
T	0.00122 m2/s
K	2.27E-5 m/s
S	2.23E-4

Derived & Secondary Parameters

Rinv	1550 m
Test. Vol.	400.772 MMm3

Semi-Log plot	Bu1
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



HLX23:2 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	100.541 kPa
Pi	105.462 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	7.91E-5 1/sec
PMatch	0.514 1/kPa
C	2.87E-7 m3/Pa
S	2.23E-4
T	0.00122 m2/s
K	2.27E-5 m/s
Pi	105.462 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.87E-7 m3/Pa
Skin	-1.15

Reservoir & Boundary parameters

Pi	105.462 kPa
T	0.00122 m2/s
K	2.27E-5 m/s
S	2.23E-4

Derived & Secondary Parameters

Rinv	1550 m
Test. Vol.	400.772 MMm3

Main Results	Bu1
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping

Test date / time	
Formation interval	6.10 - 60m
Perforated interval	openhole
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	263 m
Well Radius rw	0.068 m
Pay Zone h	53.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	20000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	7.91E-5 1/sec
PMatch	0.514 1/kPa
C	2.87E-7 m3/Pa
S	2.23E-4
T	0.00122 m2/s
K	2.27E-5 m/s
Pi	105.462 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.87E-7 m3/Pa
Skin	-1.15

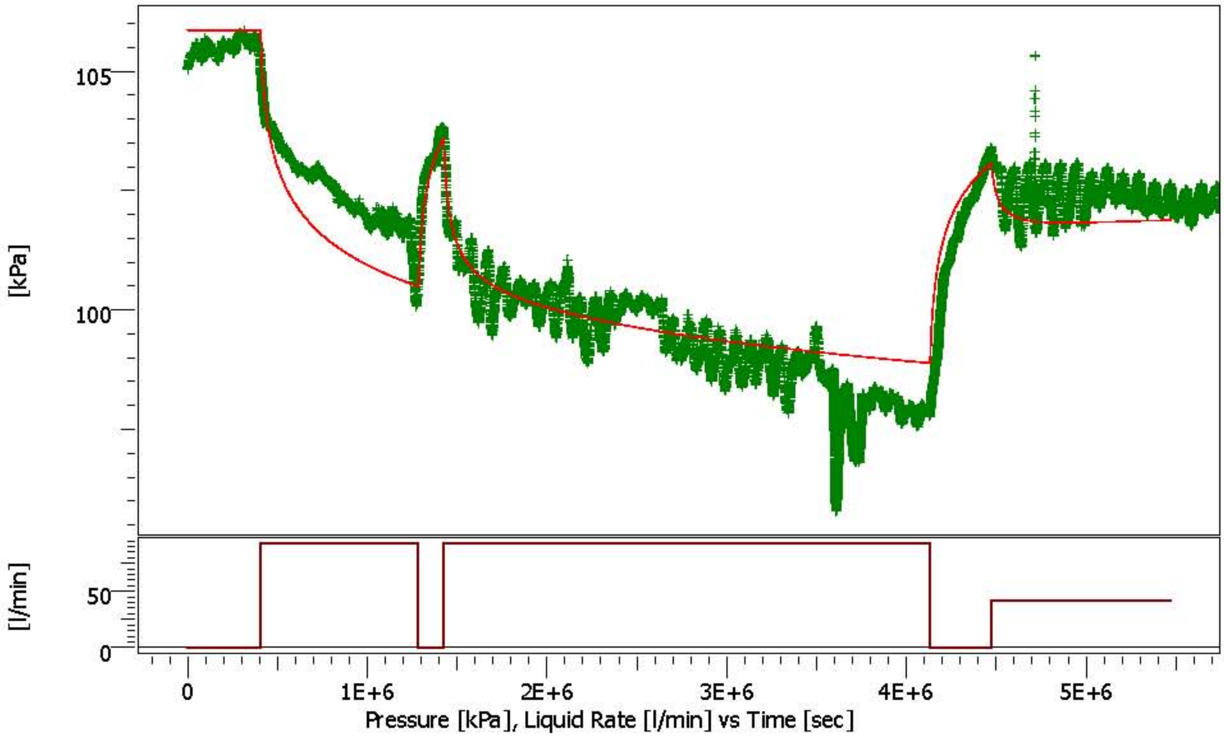
Reservoir & Boundary parameters

Pi	105.462 kPa
T	0.00122 m2/s
K	2.27E-5 m/s
S	2.23E-4

Derived & Secondary Parameters

Rinv	1550 m
Test. Vol.	400.772 MMm3

History plot	Dd2
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



HLX23:2 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	103.8 kPa
Pi	105.862 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.42E-4 1/sec
PMatch	0.432 1/kPa
C	9.63E-6 m3/Pa
S	1.05E-4
T	0.00103 m2/s
K	1.91E-5 m/s
Pi	105.862 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	9.63E-6 m3/Pa
Skin	-0.501

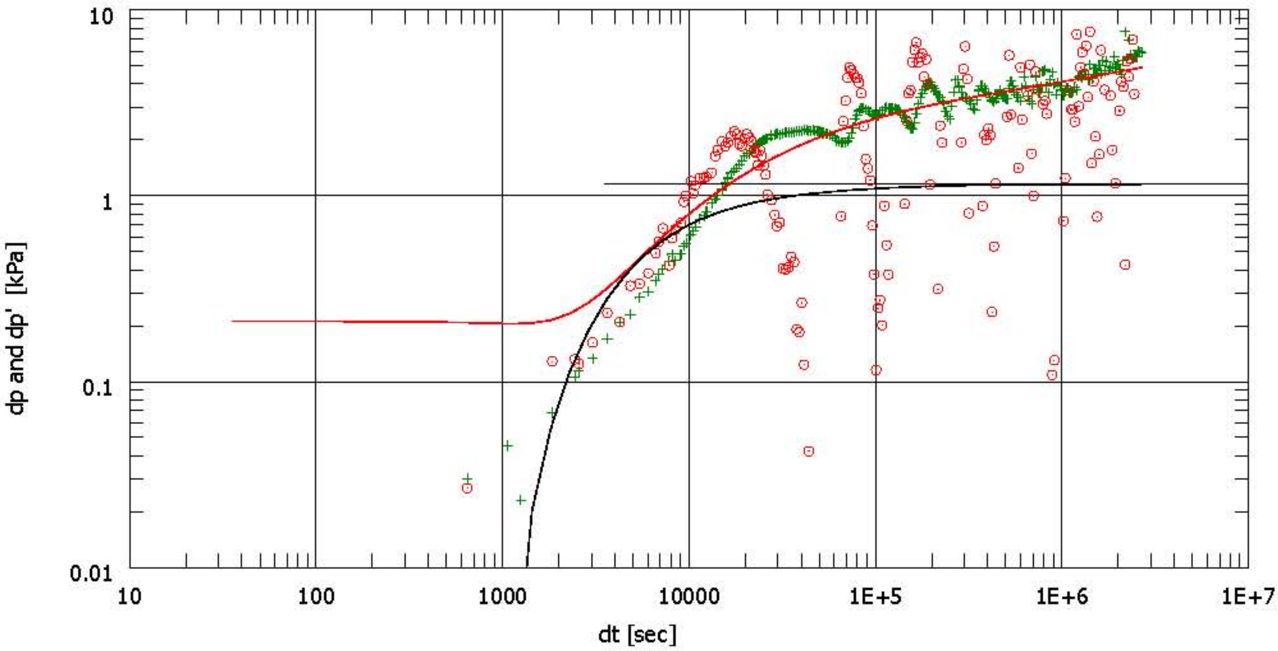
Reservoir & Boundary parameters

Pi	105.862 kPa
T	0.00103 m2/s
K	1.91E-5 m/s
S	1.05E-4

Derived & Secondary Parameters

Rinv	9160 m
Test. Vol.	6603.72 MMm3

Log-Log plot	Dd2
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



HLX23:2 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	103.8 kPa
Pi	105.862 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.42E-4 1/sec
PMatch	0.432 1/kPa
C	9.63E-6 m3/Pa
S	1.05E-4
T	0.00103 m2/s
K	1.91E-5 m/s
Pi	105.862 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	9.63E-6 m3/Pa
Skin	-0.501

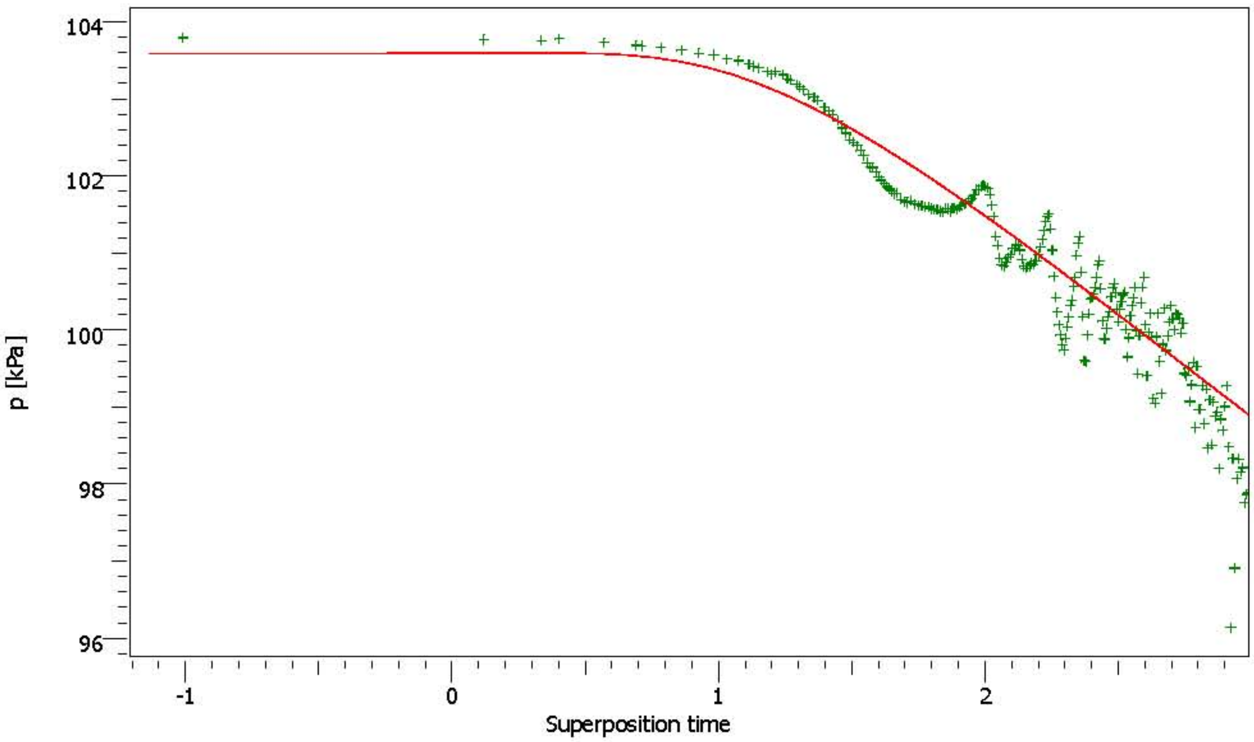
Reservoir & Boundary parameters

Pi	105.862 kPa
T	0.00103 m2/s
K	1.91E-5 m/s
S	1.05E-4

Derived & Secondary Parameters

Rinv	9160 m
Test. Vol.	6603.72 MMm3

	Semi-Log plot	Dd2
	Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



HLX23:2 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	103.8 kPa
Pi	105.862 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.42E-4 1/sec
PMatch	0.432 1/kPa
C	9.63E-6 m3/Pa
S	1.05E-4
T	0.00103 m2/s
K	1.91E-5 m/s
Pi	105.862 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	9.63E-6 m3/Pa
Skin	-0.501

Reservoir & Boundary parameters

Pi	105.862 kPa
T	0.00103 m2/s
K	1.91E-5 m/s
S	1.05E-4

Derived & Secondary Parameters

Rinv	9160 m
Test. Vol.	6603.72 MMm3

Main Results	Dd2
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping

Test date / time	
Formation interval	6.10 - 60m
Perforated interval	openhole
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	263 m
Well Radius rw	0.068 m
Pay Zone h	53.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	20000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.42E-4 1/sec
PMatch	0.432 1/kPa
C	9.63E-6 m3/Pa
S	1.05E-4
T	0.00103 m2/s
K	1.91E-5 m/s
Pi	105.862 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	9.63E-6 m3/Pa
Skin	-0.501

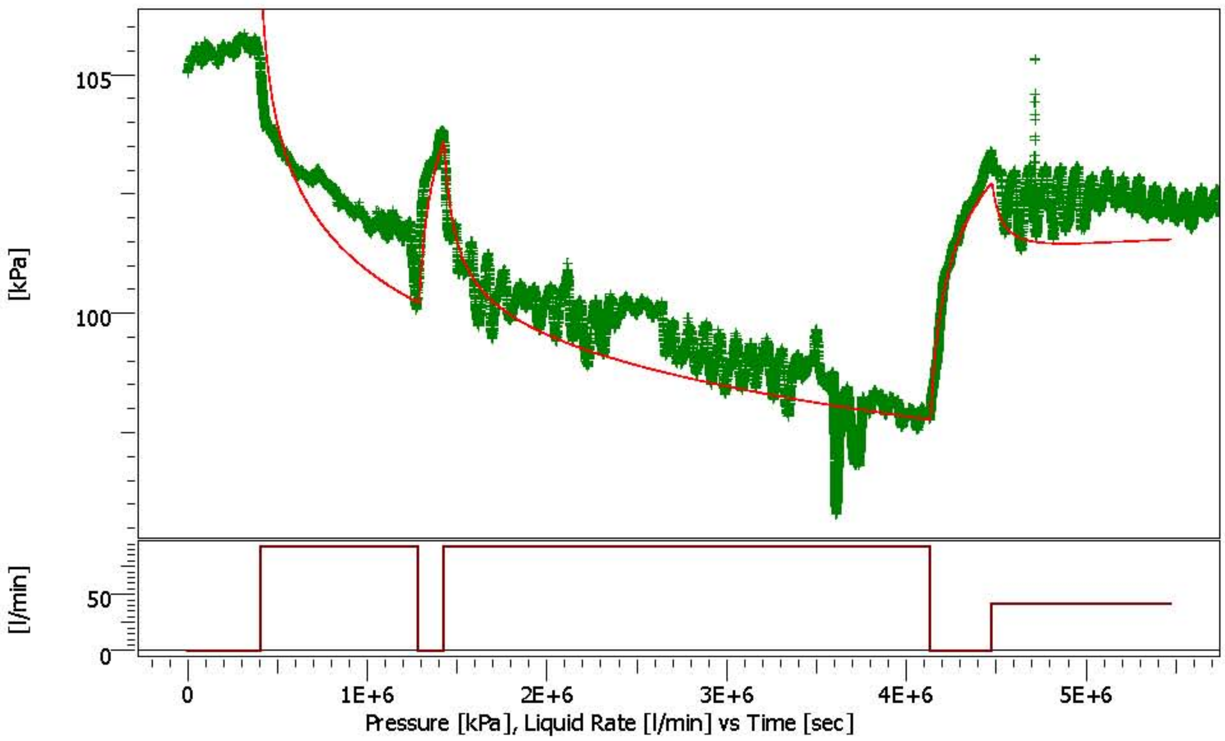
Reservoir & Boundary parameters

Pi	105.862 kPa
T	0.00103 m2/s
K	1.91E-5 m/s
S	1.05E-4

Derived & Secondary Parameters

Rinv	9160 m
Test. Vol.	6603.72 MMm3

History plot	Bu2
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



HLX23:2 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	97.7738 kPa
Pi	106.971 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.13E-5 1/sec
PMatch	0.282 1/kPa
C	5.52E-7 m3/Pa
S	1.58E-4
T	6.72E-4 m2/s
K	1.25E-5 m/s
Pi	106.971 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.52E-7 m3/Pa
Skin	-1.47

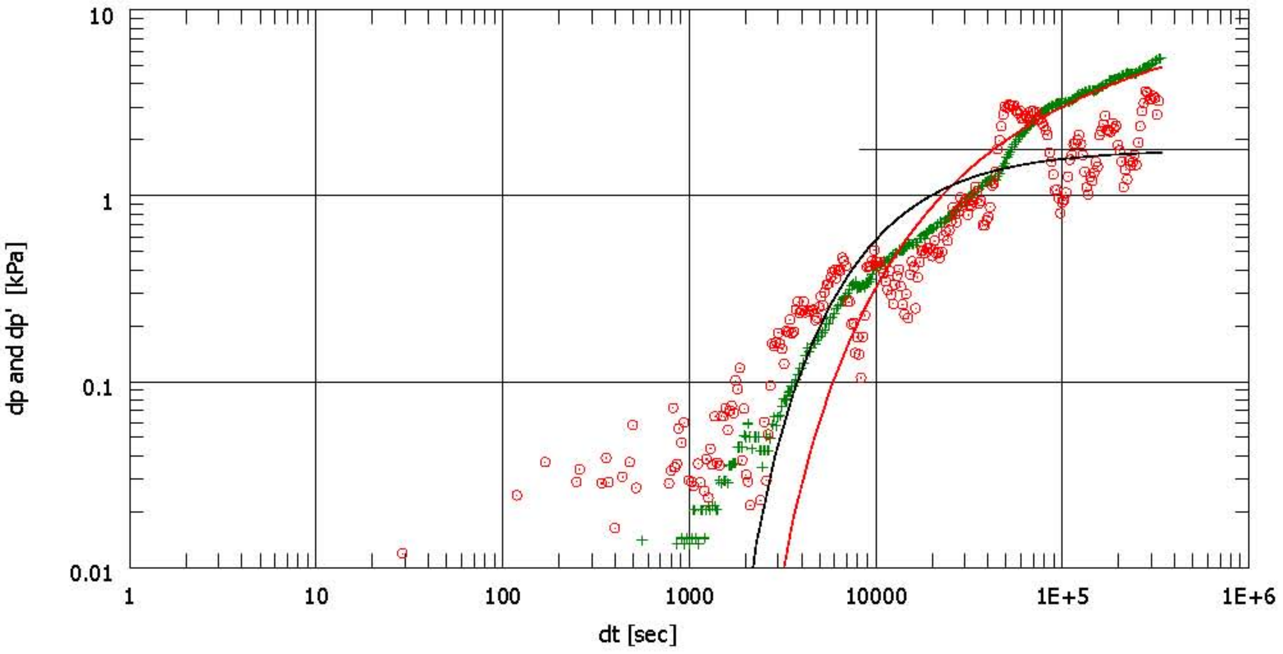
Reservoir & Boundary parameters

Pi	106.971 kPa
T	6.72E-4 m2/s
K	1.25E-5 m/s
S	1.58E-4

Derived & Secondary Parameters

Rinv	2130 m
Test. Vol.	540.409 MMm3

Log-Log plot	Bu2
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping



HLX23:2 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	97.7738 kPa
Pi	106.971 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.13E-5 1/sec
PMatch	0.282 1/kPa
C	5.52E-7 m3/Pa
S	1.58E-4
T	6.72E-4 m2/s
K	1.25E-5 m/s
Pi	106.971 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.52E-7 m3/Pa
Skin	-1.47

Reservoir & Boundary parameters

Pi	106.971 kPa
T	6.72E-4 m2/s
K	1.25E-5 m/s
S	1.58E-4

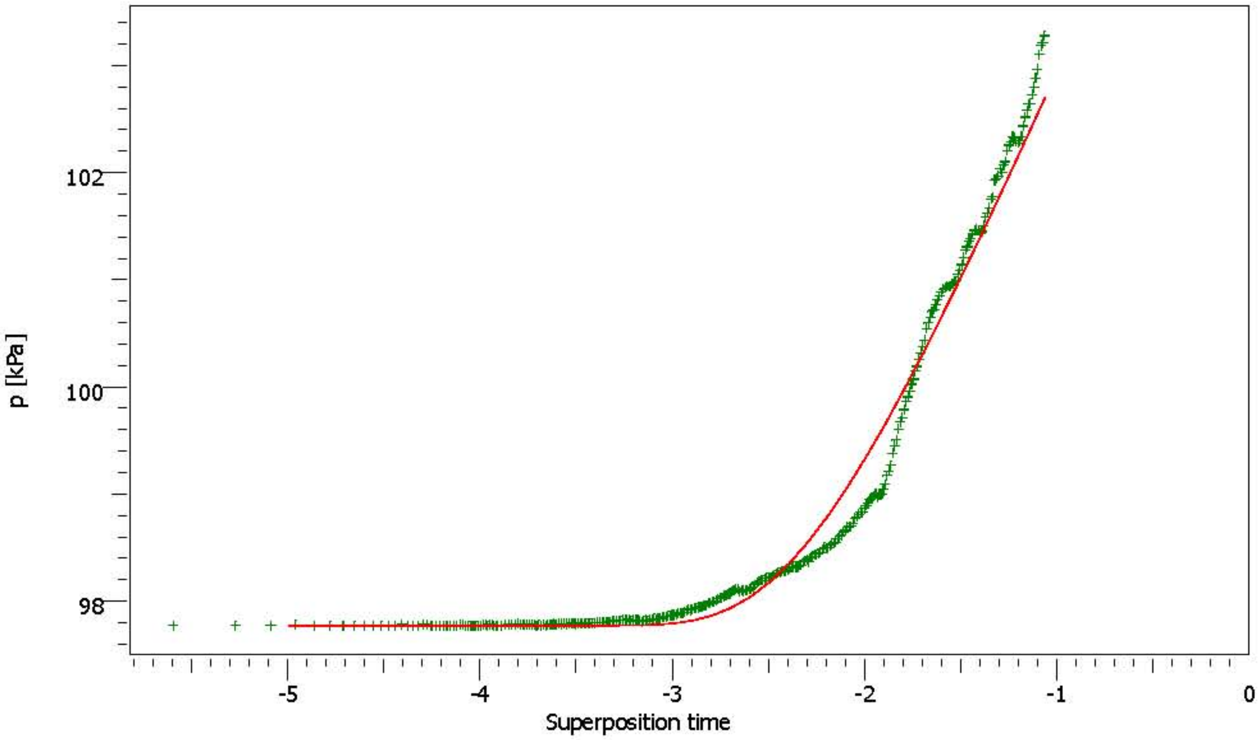
Derived & Secondary Parameters

Rinv	2130 m
Test. Vol.	540.409 MMm3

Semi-Log plot	Bu2

Company
Well HLX23:2 Observation

Field
Test Name / # HLX10 pumping



HLX23:2 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	97.7738 kPa
Pi	106.971 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.13E-5 1/sec
PMatch	0.282 1/kPa
C	5.52E-7 m3/Pa
S	1.58E-4
T	6.72E-4 m2/s
K	1.25E-5 m/s
Pi	106.971 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.52E-7 m3/Pa
Skin	-1.47

Reservoir & Boundary parameters

Pi	106.971 kPa
T	6.72E-4 m2/s
K	1.25E-5 m/s
S	1.58E-4

Derived & Secondary Parameters

Rinv	2130 m
Test. Vol.	540.409 MMm3

Main Results	Bu2
Company Well HLX23:2 Observation	Field Test Name / # HLX10 pumping

Test date / time	
Formation interval	6.10 - 60m
Perforated interval	openhole
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	263 m
Well Radius rw	0.068 m
Pay Zone h	53.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	20000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.13E-5 1/sec
PMatch	0.282 1/kPa
C	5.52E-7 m3/Pa
S	1.58E-4
T	6.72E-4 m2/s
K	1.25E-5 m/s
Pi	106.971 kPa
Well distance	263 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.52E-7 m3/Pa
Skin	-1.47

Reservoir & Boundary parameters

Pi	106.971 kPa
T	6.72E-4 m2/s
K	1.25E-5 m/s
S	1.58E-4

Derived & Secondary Parameters

Rinv	2130 m
Test. Vol.	540.409 MMm3

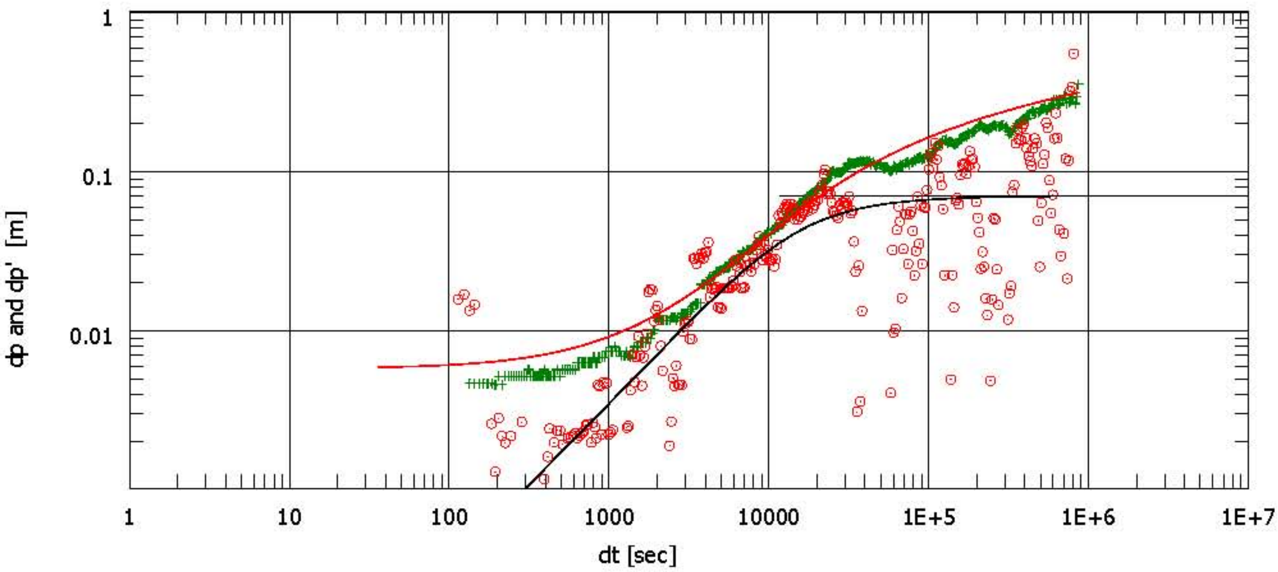
Main Results	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test

Test date / time	2004-12-29
Formation interval	41 - 175.2m open hole
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L. Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	281.1 m
Well Radius rw	0.0695 m
Pay Zone h	134.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite
Main Model Parameters	
TMatch	4.26E-5 1/sec
PMatch	7.05 1/m
C	3.23E-7 m3/Pa
S	5.08E-4
T	0.00171 m2/s
K	1.27E-5 m/s
Pi	10.8906 m
Well distance	281 m
Model Parameters	
Well & Wellbore parameters (Active well)	
C	3.23E-7 m3/Pa
Skin	-0.245
Reservoir & Boundary parameters	
Pi	10.8906 m
T	0.00171 m2/s
K	1.27E-5 m/s
S	5.08E-4
Omega	1E-3
Lambda	5E-7
Derived & Secondary Parameters	

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX24:1 Observation

Field Laxemar
Test Name / # HLX10 pumping interference test



HLX24:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	10.8643 m
Pi	10.8906 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	4.26E-5 1/sec
PMatch	7.05 1/m
C	3.23E-7 m3/Pa
S	5.08E-4
T	0.00171 m2/s
K	1.27E-5 m/s
Pi	10.8906 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

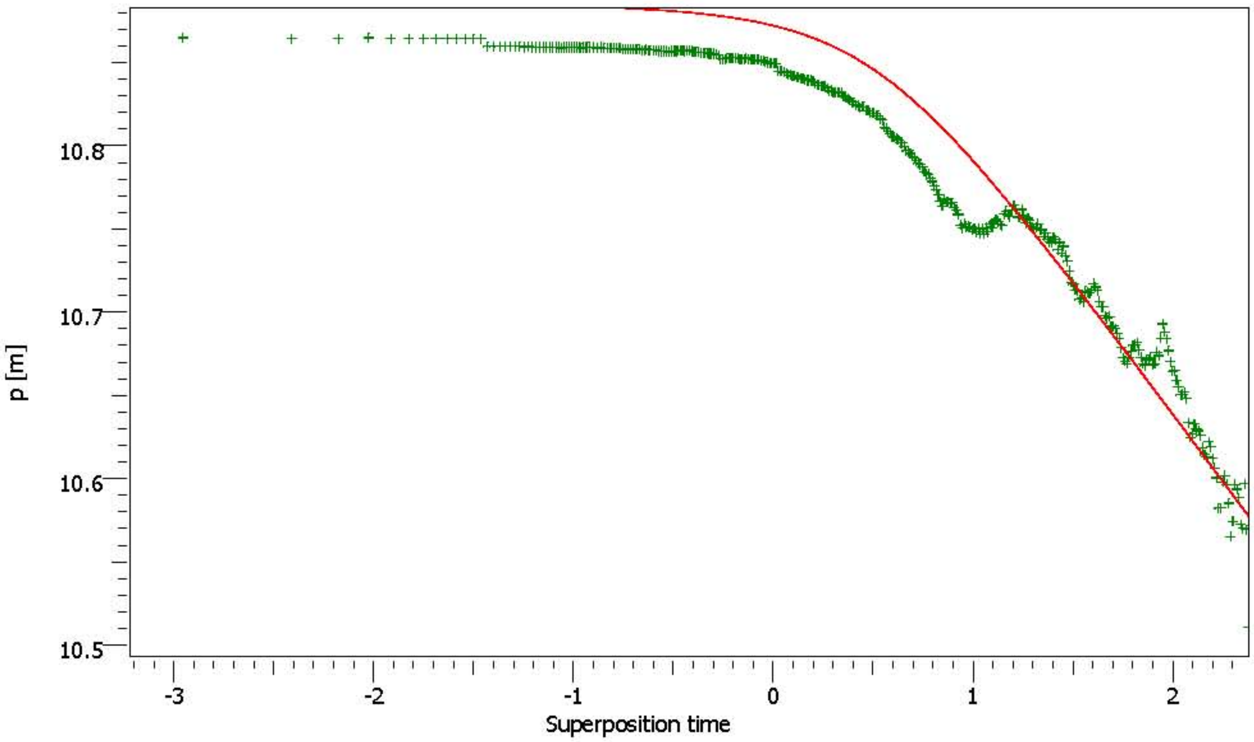
C	3.23E-7 m3/Pa
Skin	-0.245

Reservoir & Boundary parameters

Pi	10.8906 m
T	0.00171 m2/s
K	1.27E-5 m/s
S	5.08E-4
Omega	1E-3
Lambda	5E-7

Derived & Secondary Parameters

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	10.8643 m
Pi	10.8906 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	4.26E-5 1/sec
PMatch	7.05 1/m
C	3.23E-7 m3/Pa
S	5.08E-4
T	0.00171 m2/s
K	1.27E-5 m/s
Pi	10.8906 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

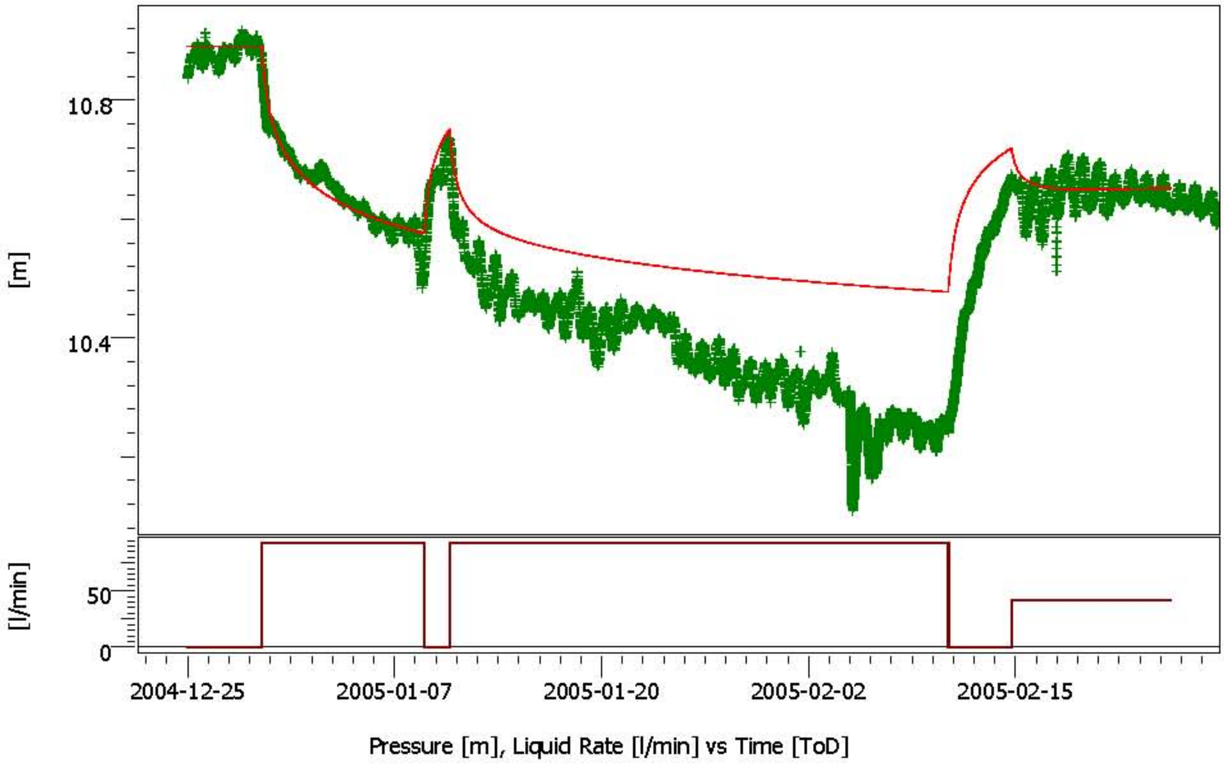
C	3.23E-7 m3/Pa
Skin	-0.245

Reservoir & Boundary parameters

Pi	10.8906 m
T	0.00171 m2/s
K	1.27E-5 m/s
S	5.08E-4
Omega	1E-3
Lambda	5E-7

Derived & Secondary Parameters

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	10.8643 m
Pi	10.8906 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	4.26E-5 1/sec
PMatch	7.05 1/m
C	3.23E-7 m3/Pa
S	5.08E-4
T	0.00171 m2/s
K	1.27E-5 m/s
Pi	10.8906 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

C	3.23E-7 m3/Pa
Skin	-0.245

Reservoir & Boundary parameters

Pi	10.8906 m
T	0.00171 m2/s
K	1.27E-5 m/s
S	5.08E-4
Omega	1E-3
Lambda	5E-7

Derived & Secondary Parameters

Test date / time	2004-12-29
Formation interval	41 - 175.2m open hole
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L. Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	281.1 m
Well Radius rw	0.0695 m
Pay Zone h	134.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.35E-5 1/sec
PMatch	7.09 1/m
C	9.2E-7 m3/Pa
S	3.43E-4
T	0.00172 m2/s
K	1.28E-5 m/s
Pi	10.8491 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

C	9.2E-7 m3/Pa
Skin	-0.904

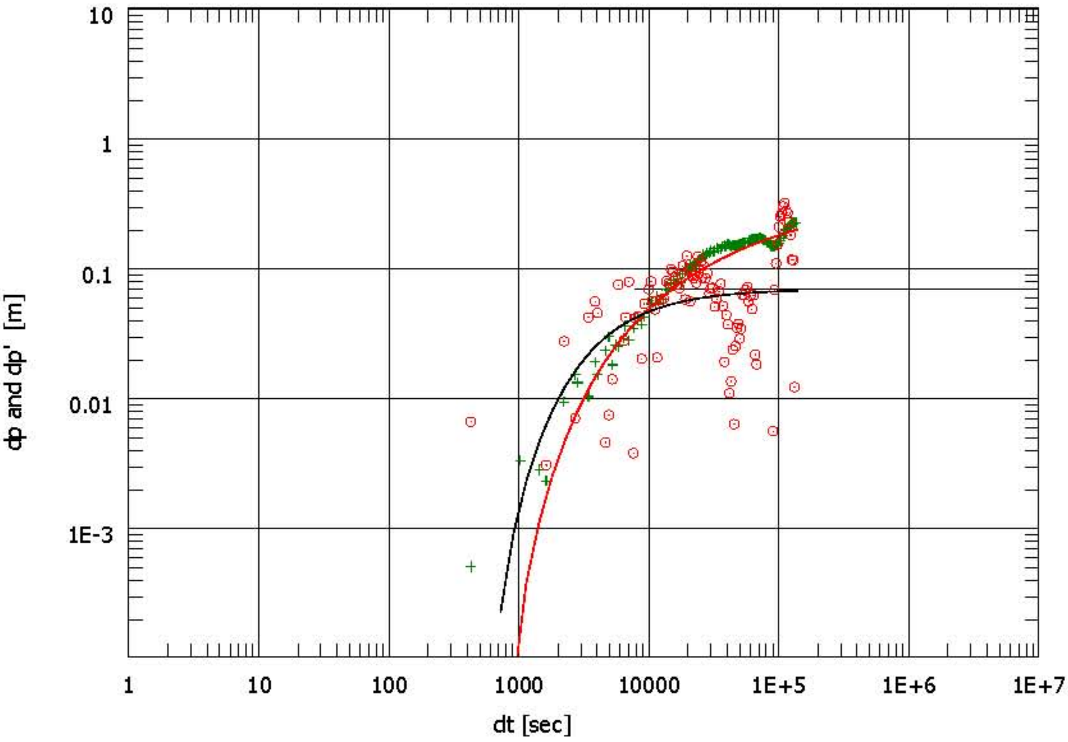
Reservoir & Boundary parameters

Pi	10.8491 m
T	0.00172 m2/s
K	1.28E-5 m/s
S	3.43E-4

Derived & Secondary Parameters

Rinv	1470 m
Test. Vol.	557.551 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24:1 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	10.508 m
Pi	10.8491 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.35E-5 1/sec
PMatch	7.09 1/m
C	9.2E-7 m3/Pa
S	3.43E-4
T	0.00172 m2/s
K	1.28E-5 m/s
Pi	10.8491 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

C	9.2E-7 m3/Pa
Skin	-0.904

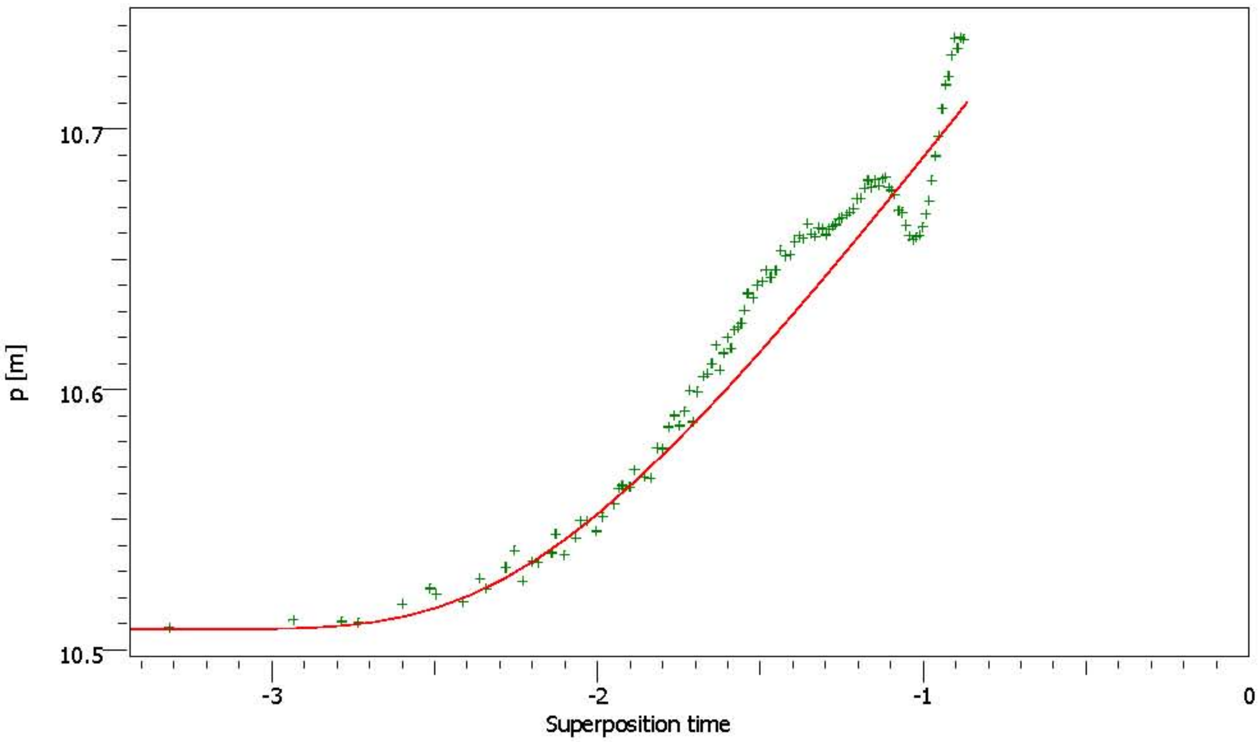
Reservoir & Boundary parameters

Pi	10.8491 m
T	0.00172 m2/s
K	1.28E-5 m/s
S	3.43E-4

Derived & Secondary Parameters

Rinv	1470 m
Test. Vol.	557.551 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24:1 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	10.508 m
Pi	10.8491 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.35E-5 1/sec
PMatch	7.09 1/m
C	9.2E-7 m3/Pa
S	3.43E-4
T	0.00172 m2/s
K	1.28E-5 m/s
Pi	10.8491 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

C	9.2E-7 m3/Pa
Skin	-0.904

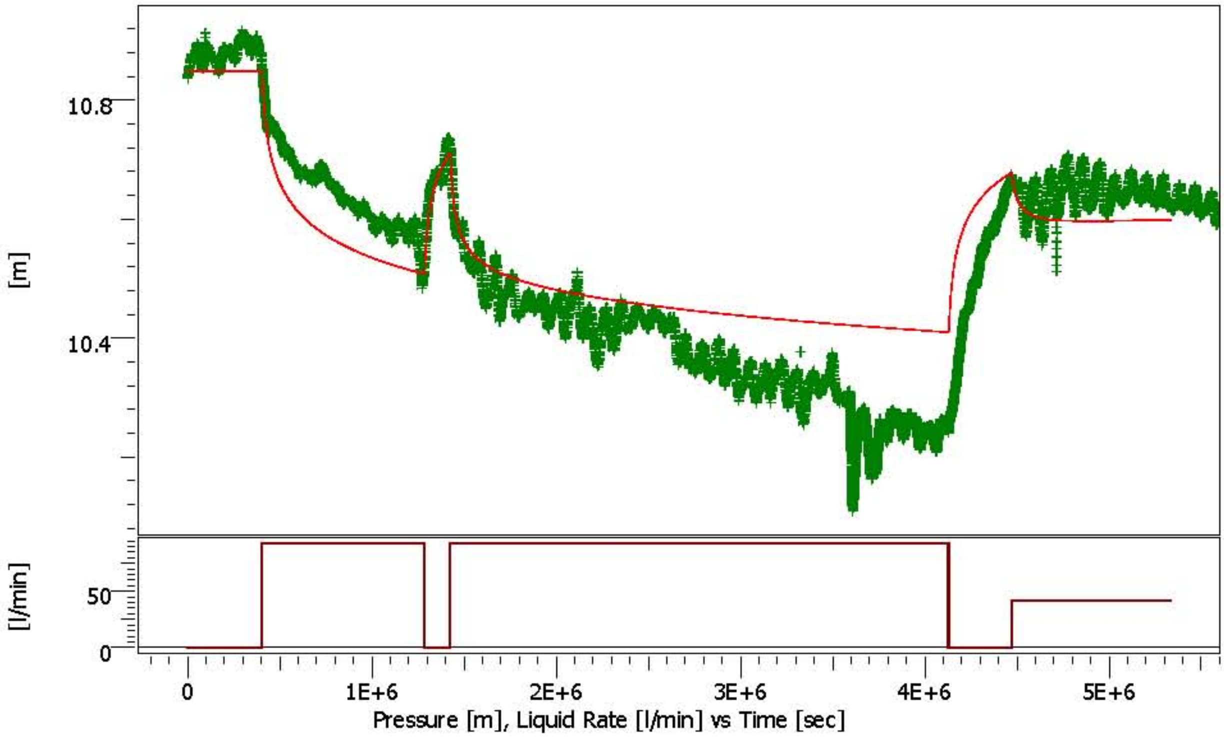
Reservoir & Boundary parameters

Pi	10.8491 m
T	0.00172 m2/s
K	1.28E-5 m/s
S	3.43E-4

Derived & Secondary Parameters

Rinv	1470 m
Test. Vol.	557.551 MMm3

	History plot	Bu1
SKB	Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24:1 build-up #1

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	10.508 m
Pi	10.8491 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.35E-5 1/sec
PMatch	7.09 1/m
C	9.2E-7 m3/Pa
S	3.43E-4
T	0.00172 m2/s
K	1.28E-5 m/s
Pi	10.8491 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

C	9.2E-7 m3/Pa
Skin	-0.904

Reservoir & Boundary parameters

Pi	10.8491 m
T	0.00172 m2/s
K	1.28E-5 m/s
S	3.43E-4

Derived & Secondary Parameters

Rinv	1470 m
Test. Vol.	557.551 MMm3

Main Results	Dd2
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test

Test date / time	2004-12-29
Formation interval	41 - 175.2m open hole
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L. Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	281.1 m
Well Radius rw	0.0695 m
Pay Zone h	134.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	4.17E-5 1/sec
PMatch	4.88 1/m
C	9.63E-6 m3/Pa
S	3.59E-4
T	0.00118 m2/s
K	8.83E-6 m/s
Pi	10.8906 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

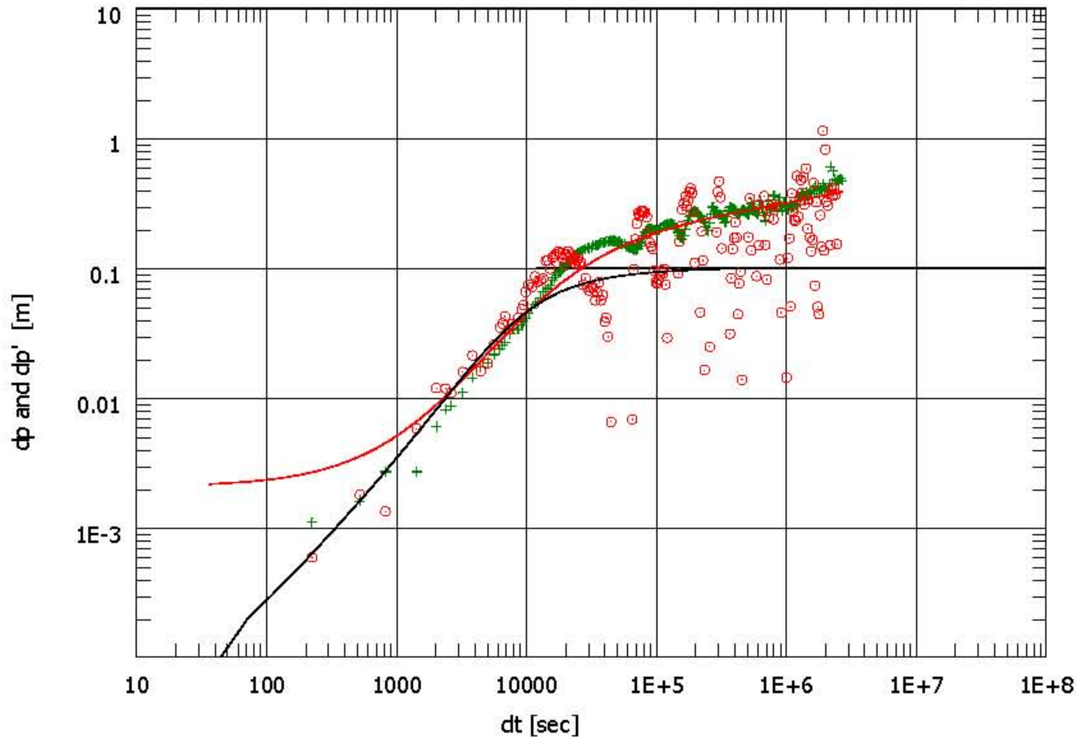
C	9.63E-6 m3/Pa
Skin	-0.106

Reservoir & Boundary parameters

Pi	10.8906 m
T	0.00118 m2/s
K	8.83E-6 m/s
S	3.59E-4
Omega	1E-3
Lambda	9.8E-7

Derived & Secondary Parameters

Log-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24:1 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	10.7343 m
Pi	10.8906 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	4.17E-5 1/sec
PMatch	4.88 1/m
C	9.63E-6 m3/Pa
S	3.59E-4
T	0.00118 m2/s
K	8.83E-6 m/s
Pi	10.8906 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

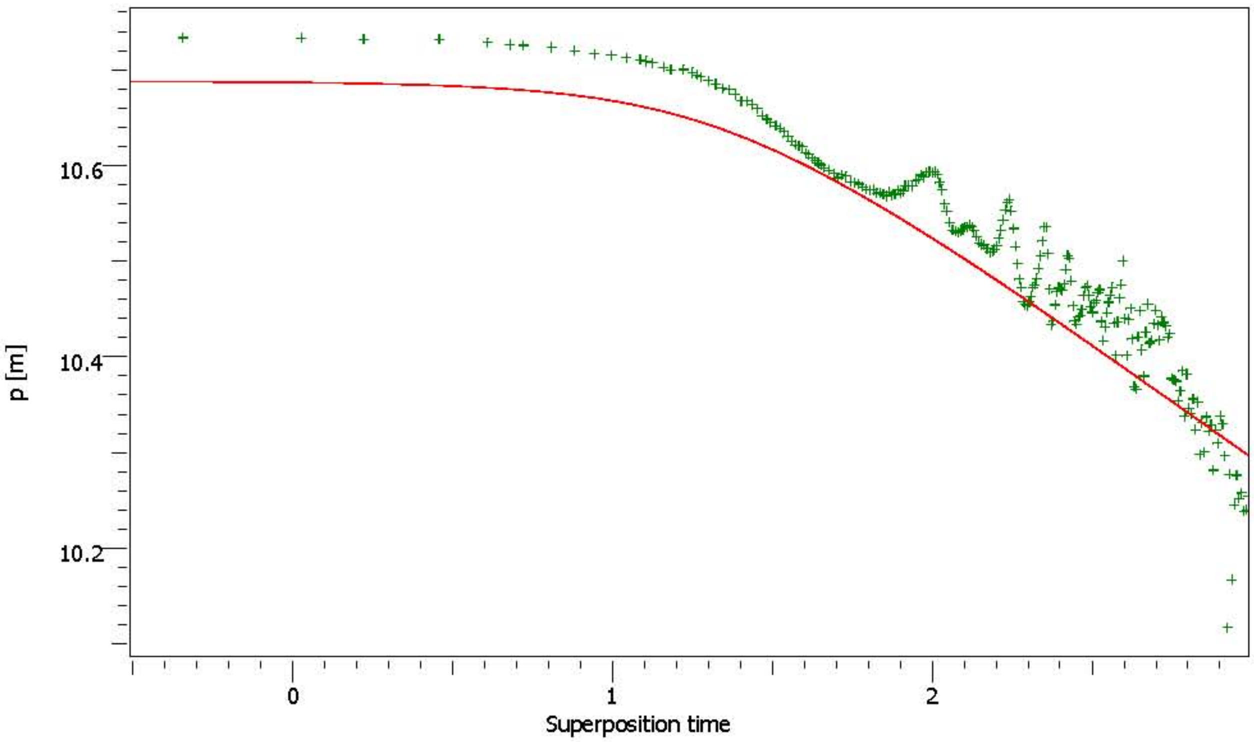
C	9.63E-6 m3/Pa
Skin	-0.106

Reservoir & Boundary parameters

Pi	10.8906 m
T	0.00118 m2/s
K	8.83E-6 m/s
S	3.59E-4
Omega	1E-3
Lambda	9.8E-7

Derived & Secondary Parameters

Semi-Log plot	Dd2
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well HLX24:1 Observation	Test Name / # HLX10 pumping interference test



HLX24:1 production #2

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	10.7343 m
Pi	10.8906 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	4.17E-5 1/sec
PMatch	4.88 1/m
C	9.63E-6 m3/Pa
S	3.59E-4
T	0.00118 m2/s
K	8.83E-6 m/s
Pi	10.8906 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

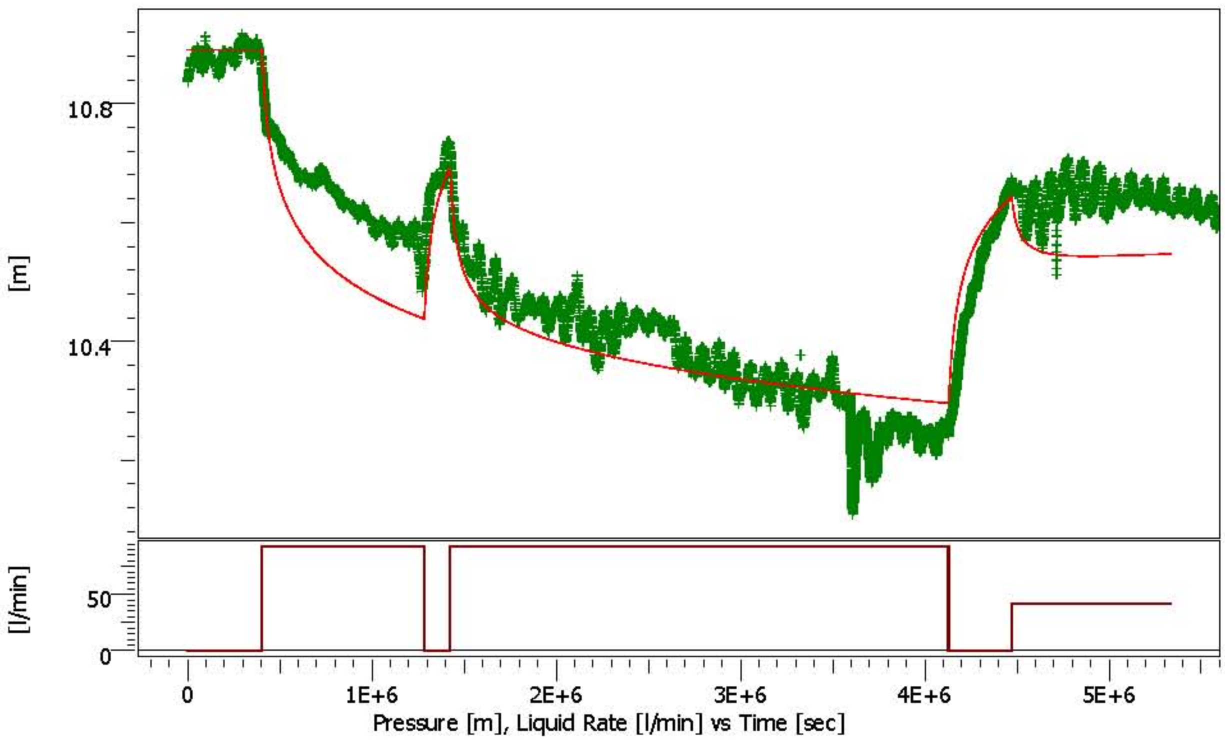
C	9.63E-6 m3/Pa
Skin	-0.106

Reservoir & Boundary parameters

Pi	10.8906 m
T	0.00118 m2/s
K	8.83E-6 m/s
S	3.59E-4
Omega	1E-3
Lambda	9.8E-7

Derived & Secondary Parameters

History plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24:1 production #2
Rate 93.2 l/min
Rate change 93.2 l/min
P@dt=0 10.7343 m
Pi 10.8906 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Vertical
Reservoir Two porosity PSS
Boundary Infinite

Main Model Parameters
TMatch 4.17E-5 1/sec
PMatch 4.88 1/m
C 9.63E-6 m3/Pa
S 3.59E-4
T 0.00118 m2/s
K 8.83E-6 m/s
Pi 10.8906 m
Well distance 281 m

Model Parameters
Well & Wellbore parameters (Active well)
C 9.63E-6 m3/Pa
Skin -0.106
Reservoir & Boundary parameters
Pi 10.8906 m
T 0.00118 m2/s
K 8.83E-6 m/s
S 3.59E-4
Omega 1E-3
Lambda 9.8E-7

Derived & Secondary Parameters

Main Results	Bu2
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test

Test date / time	2004-12-29
Formation interval	41 - 175.2m open hole
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L. Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	281.1 m
Well Radius rw	0.0695 m
Pay Zone h	134.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.08E-5 1/sec
PMatch	2.39 1/m
C	1.67E-5 m3/Pa
S	6.78E-4
T	5.8E-4 m2/s
K	4.32E-6 m/s
Pi	11.149 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.67E-5 m3/Pa
Skin	-0.0802

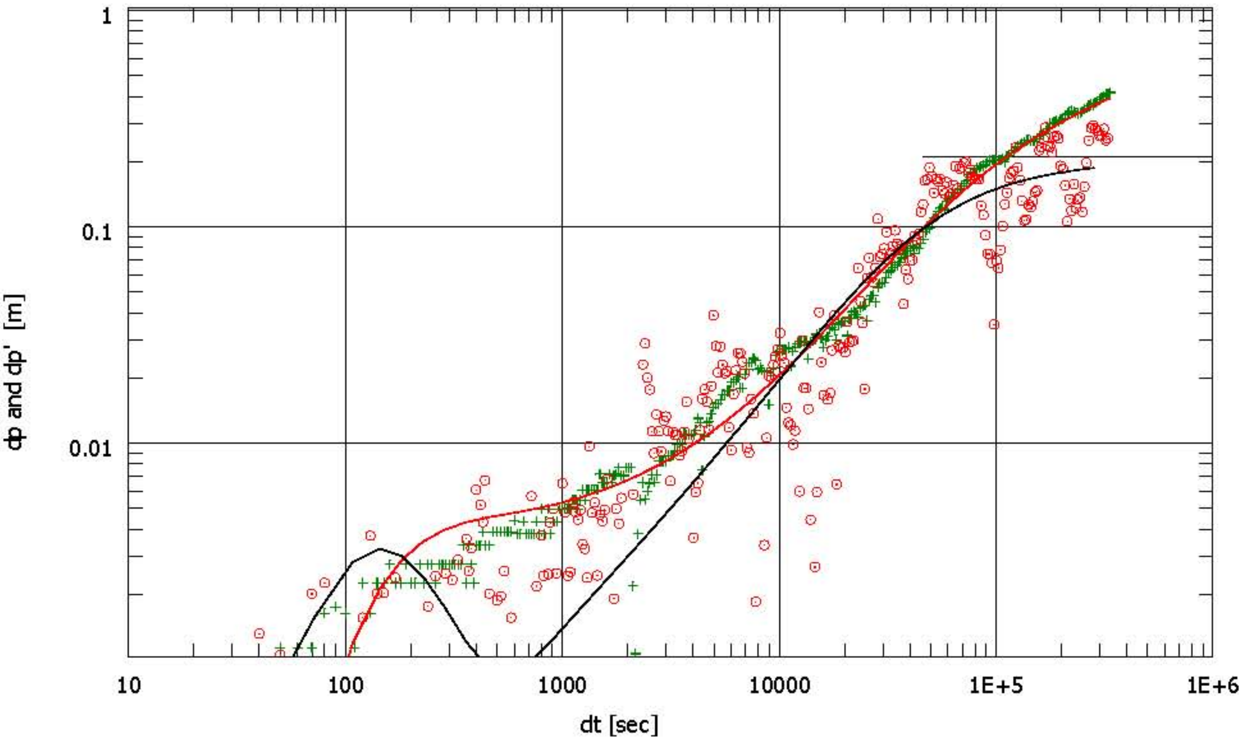
Reservoir & Boundary parameters

Pi	11.149 m
T	5.8E-4 m2/s
K	4.32E-6 m/s
S	6.78E-4
Omega	0.01
Lambda	1E-6

Derived & Secondary Parameters

Log-Log plot	Bu2

Company Svensk Kärnbränslehantering AB — Well HLX24:1 Observation
Field Laxemar — Test Name / # HLX10 pumping interference test



HLX24:1 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	10.2447 m
Pi	11.149 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.08E-5 1/sec
PMatch	2.39 1/m
C	1.67E-5 m3/Pa
S	6.78E-4
T	5.8E-4 m2/s
K	4.32E-6 m/s
Pi	11.149 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

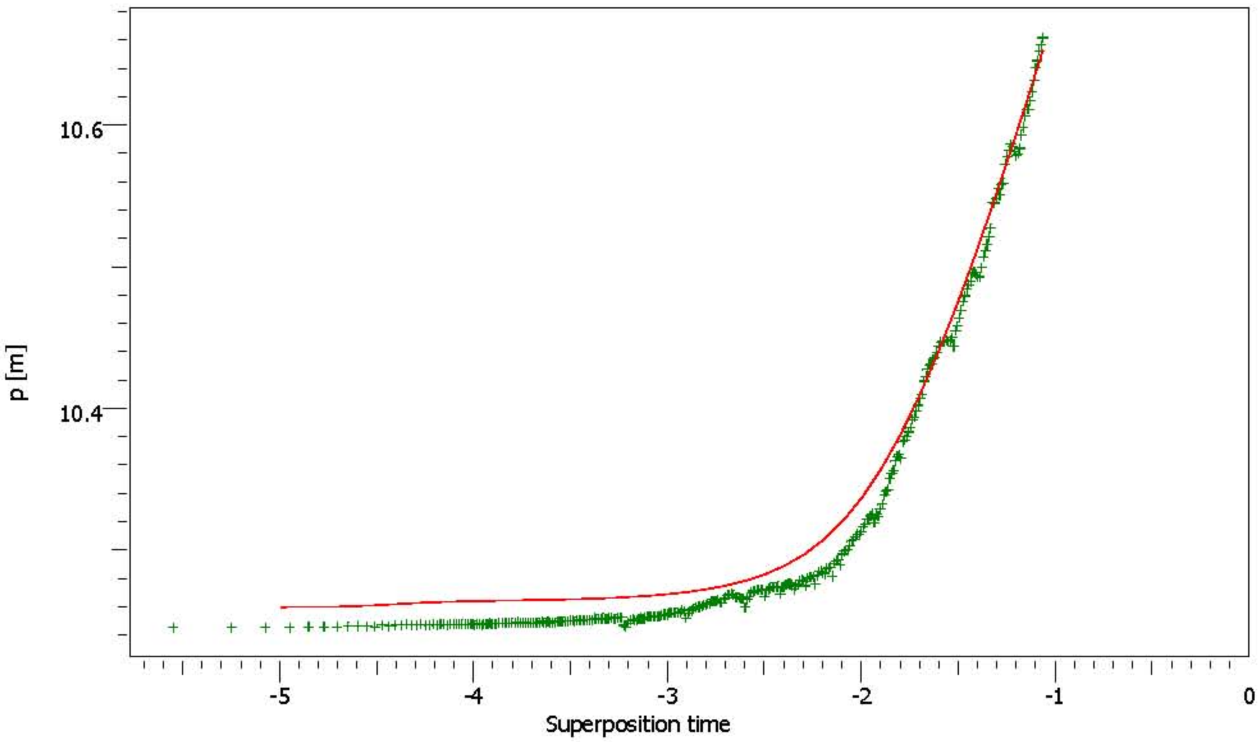
C	1.67E-5 m3/Pa
Skin	-0.0802

Reservoir & Boundary parameters

Pi	11.149 m
T	5.8E-4 m2/s
K	4.32E-6 m/s
S	6.78E-4
Omega	0.01
Lambda	1E-6

Derived & Secondary Parameters

Semi-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24:1 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	10.2447 m
Pi	11.149 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.08E-5 1/sec
PMatch	2.39 1/m
C	1.67E-5 m3/Pa
S	6.78E-4
T	5.8E-4 m2/s
K	4.32E-6 m/s
Pi	11.149 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

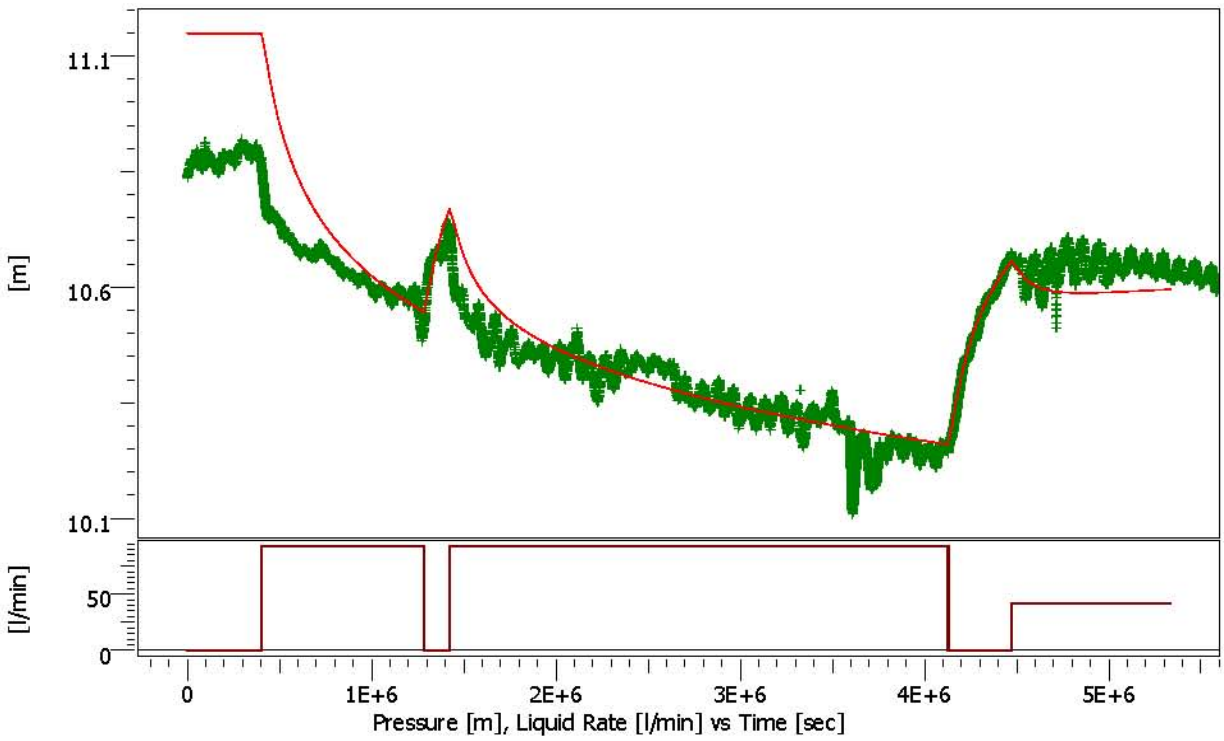
C	1.67E-5 m3/Pa
Skin	-0.0802

Reservoir & Boundary parameters

Pi	11.149 m
T	5.8E-4 m2/s
K	4.32E-6 m/s
S	6.78E-4
Omega	0.01
Lambda	1E-6

Derived & Secondary Parameters

History plot	Bu2
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24:1 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	10.2447 m
Pi	11.149 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.08E-5 1/sec
PMatch	2.39 1/m
C	1.67E-5 m3/Pa
S	6.78E-4
T	5.8E-4 m2/s
K	4.32E-6 m/s
Pi	11.149 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

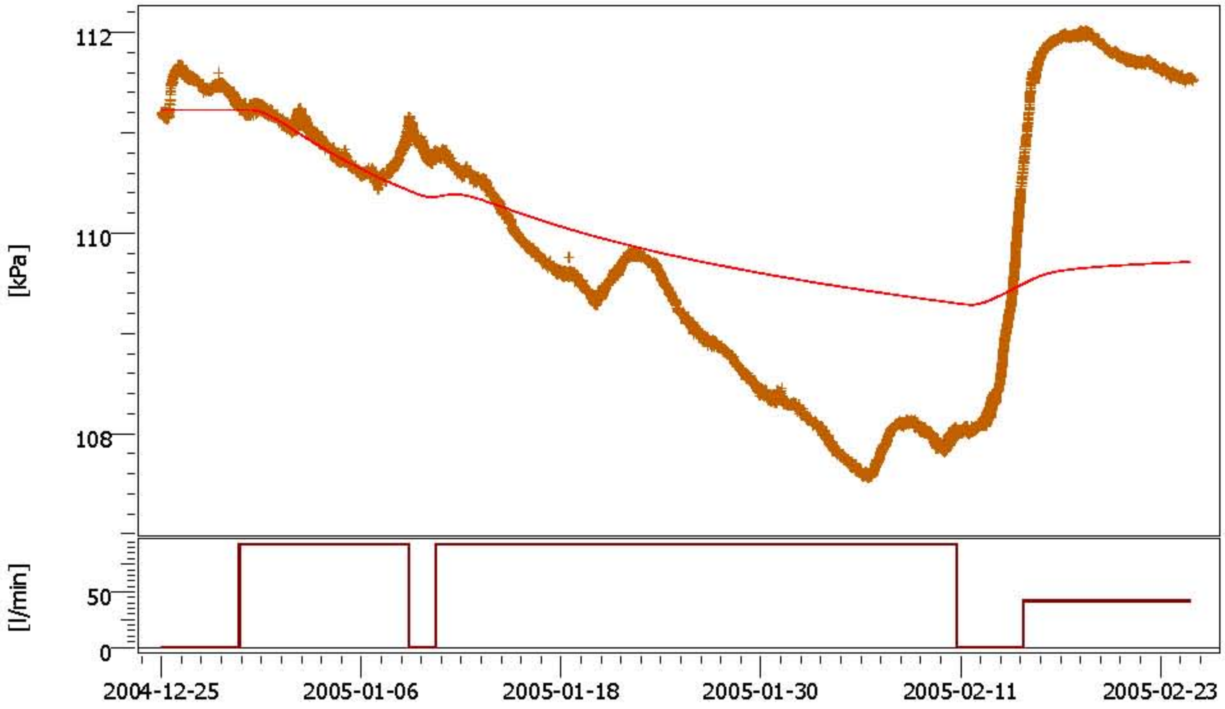
C	1.67E-5 m3/Pa
Skin	-0.0802

Reservoir & Boundary parameters

Pi	11.149 m
T	5.8E-4 m2/s
K	4.32E-6 m/s
S	6.78E-4
Omega	0.01
Lambda	1E-6

Derived & Secondary Parameters

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX24_2 production #1
Rate 93.2 l/min
Rate change 93.2 l/min
P@dt=0 111.29 kPa
Pi 111.23 kPa
Smoothing 0.1

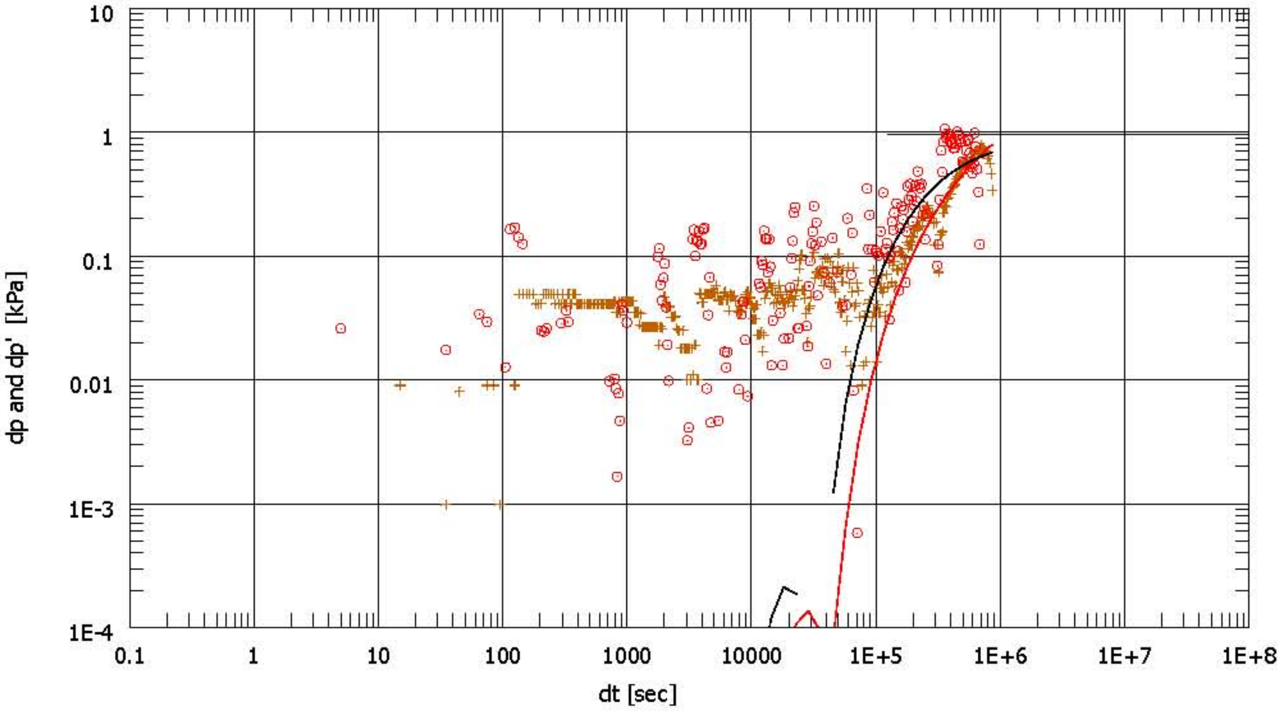
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 4.06E-6 1/sec
PMatch 0.52 1/kPa
S 0.00337
T 0.00124 m2/s
K 4.01E-5 m/s
Pi 111.23 kPa
Well distance 301 m

Model Parameters
Reservoir & Boundary parameters
Pi 111.23 kPa
T 0.00124 m2/s
K 4.01E-5 m/s
S 0.00337

Derived & Secondary Parameters
Rinv 1010 m
Test. Vol. 2563.17 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24_2 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	111.29 kPa
Pi	111.23 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.06E-6 1/sec
PMatch	0.52 1/kPa
S	0.00337
T	0.00124 m2/s
K	4.01E-5 m/s
Pi	111.23 kPa
Well distance	301 m

Model Parameters

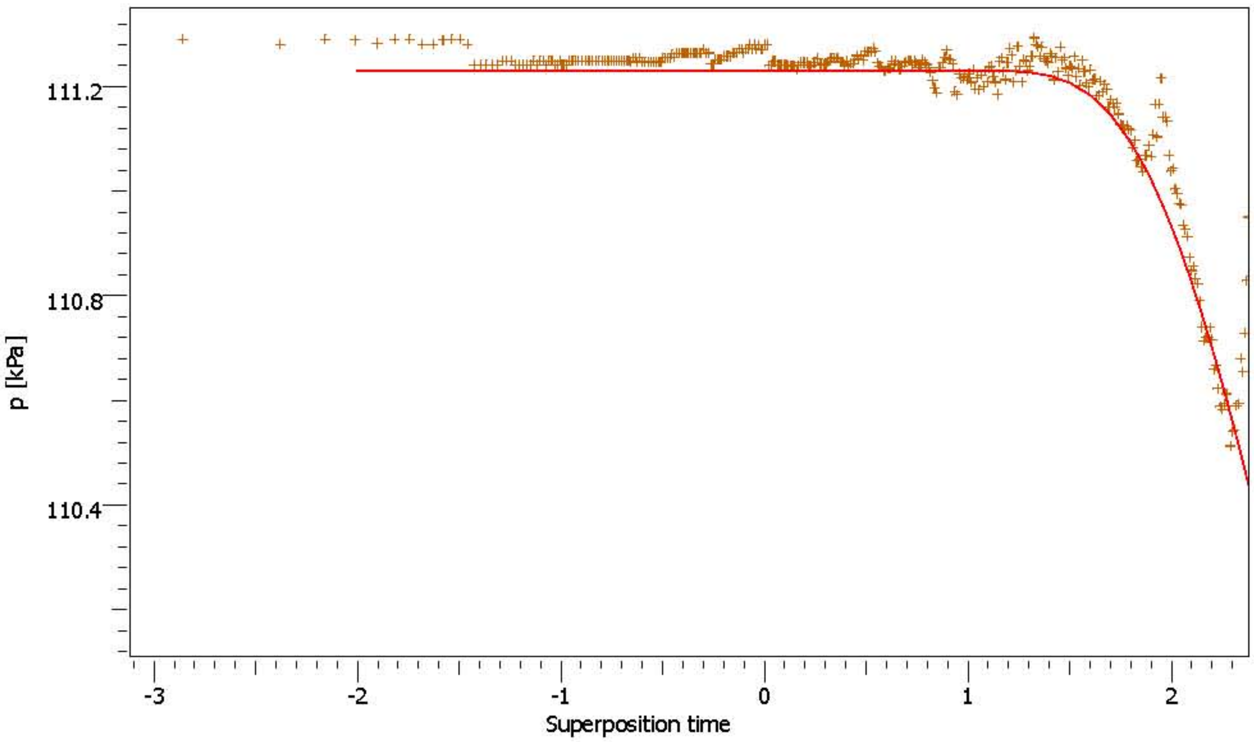
Reservoir & Boundary parameters

Pi	111.23 kPa
T	0.00124 m2/s
K	4.01E-5 m/s
S	0.00337

Derived & Secondary Parameters

Rinv	1010 m
Test. Vol.	2563.17 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX24_2 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	111.29 kPa
Pi	111.23 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.06E-6 1/sec
PMatch	0.52 1/kPa
S	0.00337
T	0.00124 m2/s
K	4.01E-5 m/s
Pi	111.23 kPa
Well distance	301 m

Model Parameters
Reservoir & Boundary parameters

Pi	111.23 kPa
T	0.00124 m2/s
K	4.01E-5 m/s
S	0.00337

Derived & Secondary Parameters

Rinv	1010 m
Test. Vol.	2563.17 MMm3

Main Results	Dd1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX24:2 Observation	Test Name / #	HLX10 pumping interference test

Test date / time	2004-12-29
Formation interval	9.1 - 40m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L. Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	300.9 m
Well Radius rw	0.0695 m
Pay Zone h	30.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.06E-6 1/sec
PMatch	0.52 1/kPa
S	0.00337
T	0.00124 m2/s
K	4.01E-5 m/s
Pi	111.23 kPa
Well distance	301 m

Model Parameters

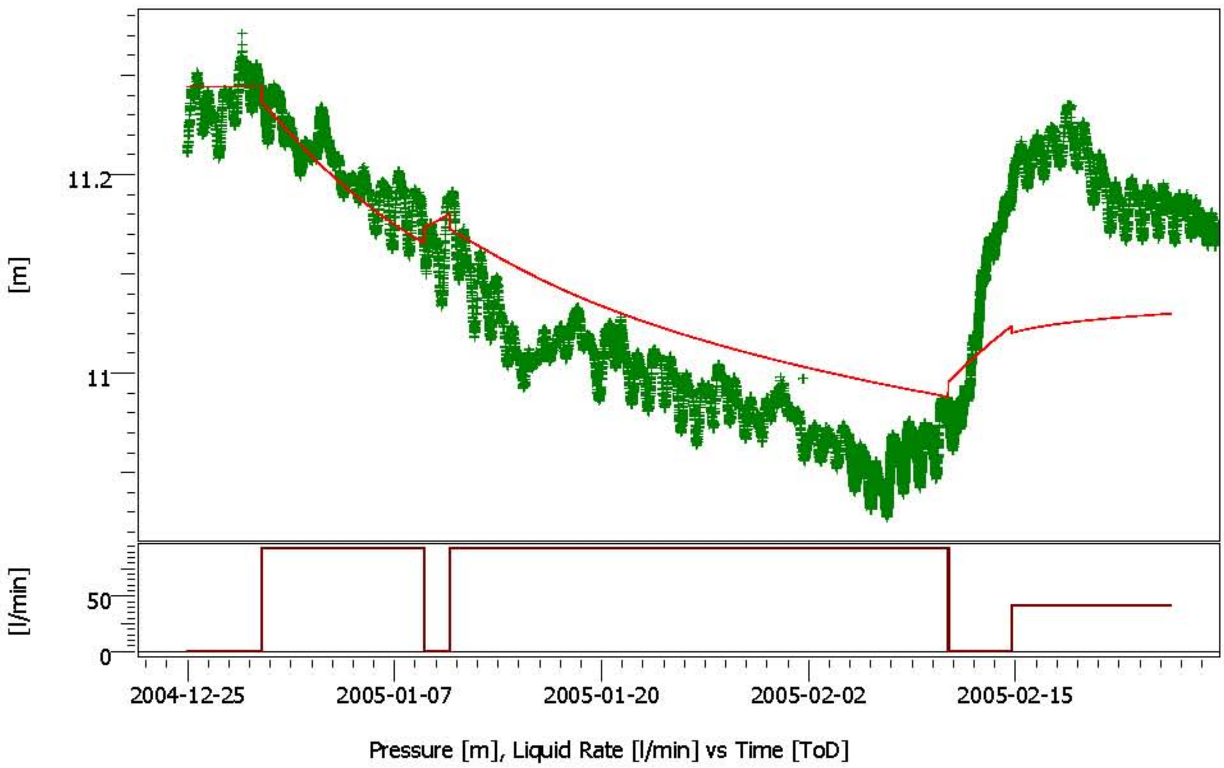
Reservoir & Boundary parameters

Pi	111.23 kPa
T	0.00124 m2/s
K	4.01E-5 m/s
S	0.00337

Derived & Secondary Parameters

Rinv	1010 m
Test. Vol.	2563.17 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX33:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX33:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	11.284 m
Pi	11.2883 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.42E-6 1/sec
PMatch	3.97 1/m
S	0.00213
T	9.63E-4 m2/s
K	5.63E-6 m/s
Pi	11.2883 m
Well distance	564 m

Model Parameters
Reservoir & Boundary parameters

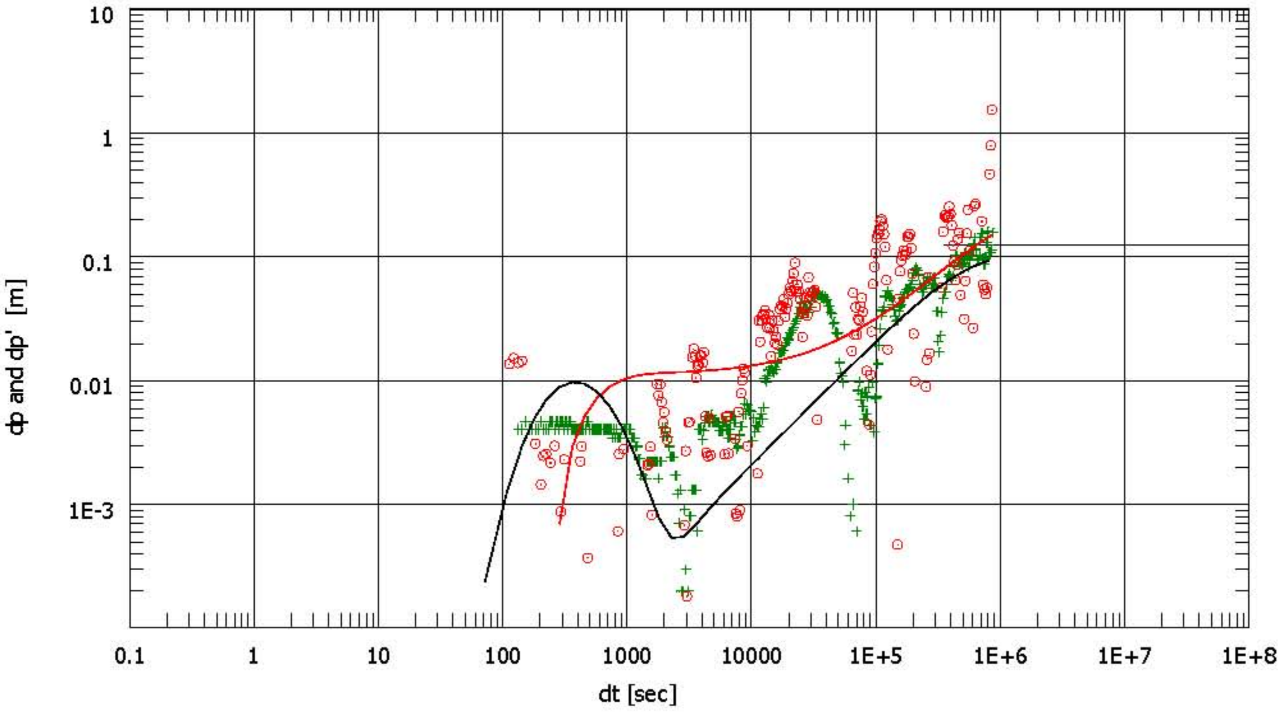
Pi	11.2883 m
T	9.63E-4 m2/s
K	5.63E-6 m/s
S	0.00213
Omega	0.00276
Lambda	1.65E-7

Derived & Secondary Parameters

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX33:1 Observation

Field Laxemar
Test Name / # HLX10 pumping interference test



HLX33:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	11.284 m
Pi	11.2883 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

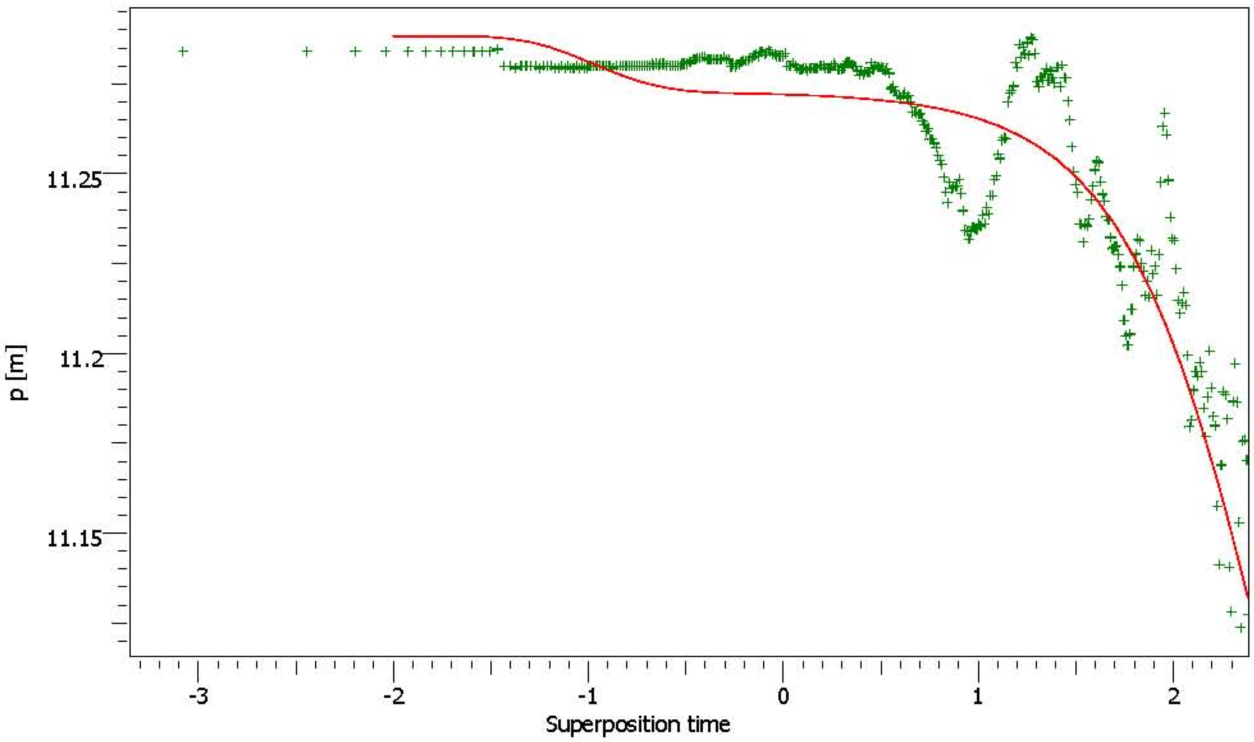
TMatch	1.42E-6 1/sec
PMatch	3.97 1/m
S	0.00213
T	9.63E-4 m2/s
K	5.63E-6 m/s
Pi	11.2883 m
Well distance	564 m

Model Parameters
Reservoir & Boundary parameters

Pi	11.2883 m
T	9.63E-4 m2/s
K	5.63E-6 m/s
S	0.00213
Omega	0.00276
Lambda	1.65E-7

Derived & Secondary Parameters

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX33:1 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX33:1 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	11.284 m
Pi	11.2883 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.42E-6 1/sec
PMatch	3.97 1/m
S	0.00213
T	9.63E-4 m2/s
K	5.63E-6 m/s
Pi	11.2883 m
Well distance	564 m

Model Parameters
Reservoir & Boundary parameters

Pi	11.2883 m
T	9.63E-4 m2/s
K	5.63E-6 m/s
S	0.00213
Omega	0.00276
Lambda	1.65E-7

Derived & Secondary Parameters

Main Results	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX33:1 Observation
Field Laxemar
Test Name / # HLX10 pumping interference test

Test date / time	2004-12-29
Formation interval	31 - 202.1m
Perforated interval	open section
Gauge type / #	
Gauge depth	
Field crew	L. Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	563.9 m
Well Radius rw	0.069 m
Pay Zone h	171 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.42E-6 1/sec
PMatch	3.97 1/m
S	0.00213
T	9.63E-4 m2/s
K	5.63E-6 m/s
Pi	11.2883 m
Well distance	564 m

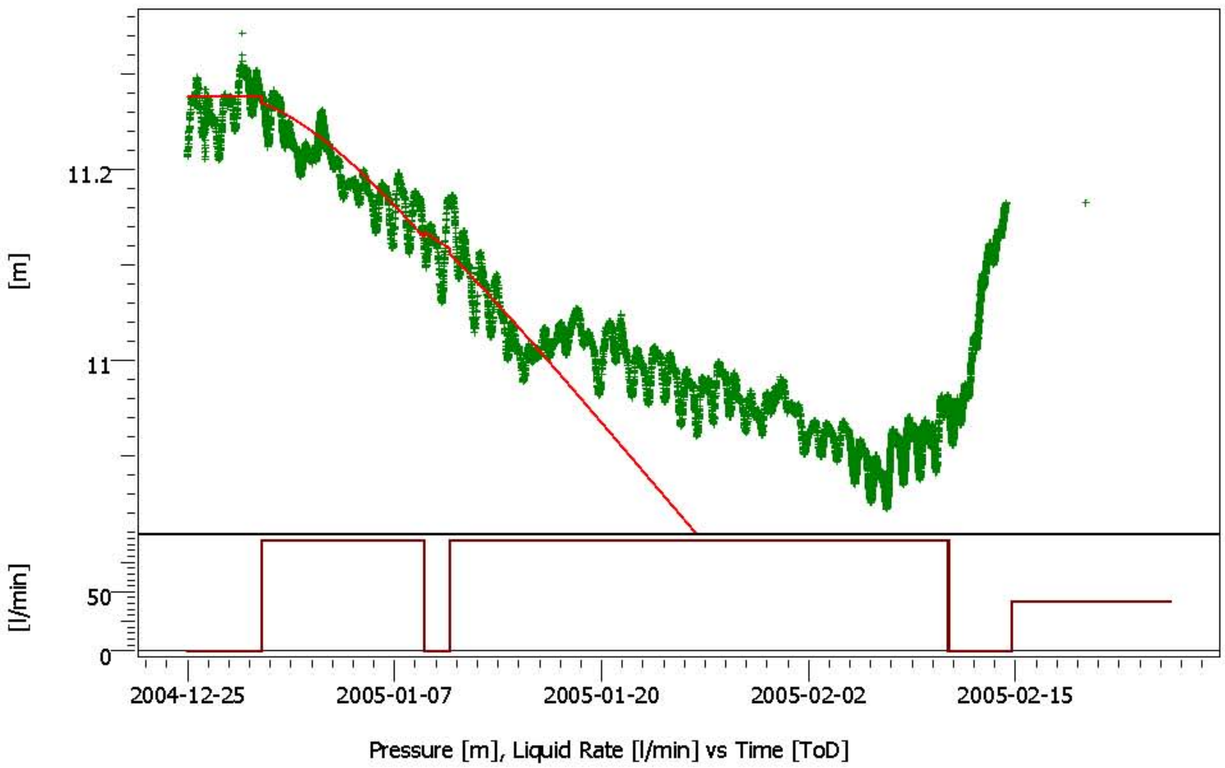
Model Parameters

Reservoir & Boundary parameters

Pi	11.2883 m
T	9.63E-4 m2/s
K	5.63E-6 m/s
S	0.00213
Omega	0.00276
Lambda	1.65E-7

Derived & Secondary Parameters

History plot	Dd1
Company Svesnk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX33_041225-050220 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	11.2767 m
Pi	11.276 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.6E-7 1/sec
PMatch	0.445 1/m
S	0.00191
T	1.08E-4 m2/s
K	5.16E-6 m/s
Pi	11.276 m
Well distance	593 m

Model Parameters

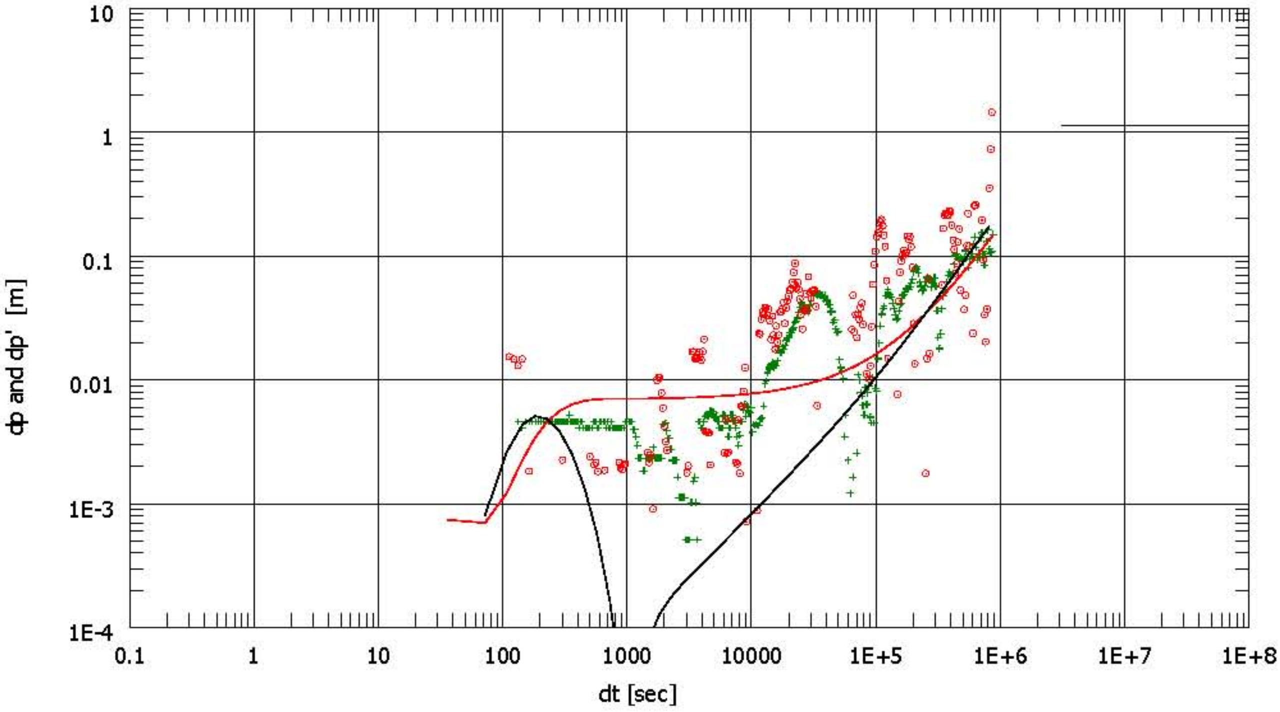
Reservoir & Boundary parameters

Pi	11.276 m
T	1.08E-4 m2/s
K	5.16E-6 m/s
S	0.00191
Omega	3.37E-4
Lambda	6.58E-7

Derived & Secondary Parameters

Log-Log plot	Dd1

Company Svesnk Kärnbränslehantering AB
Well HLX33:2 Observation
Field Laxemar
Test Name / # HLX10 pumping interference test



HLX33_041225-050220 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	11.2767 m
Pi	11.276 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

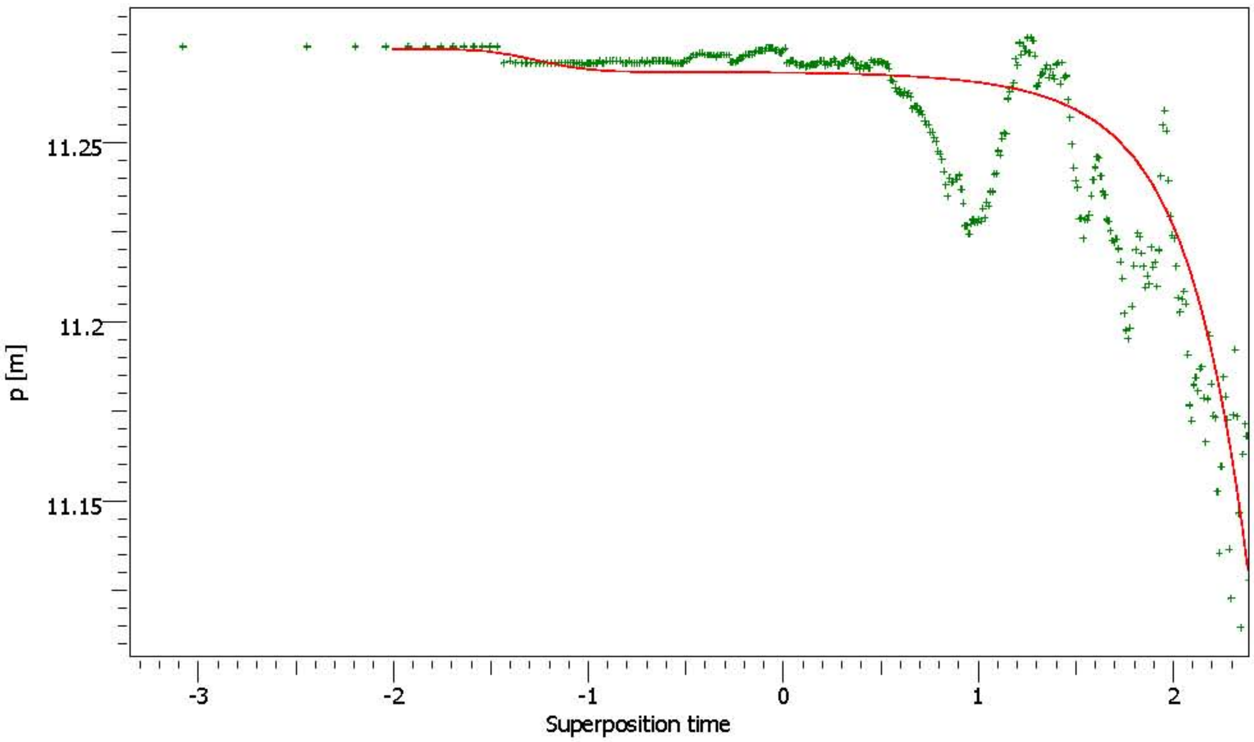
TMatch	1.6E-7 1/sec
PMatch	0.445 1/m
S	0.00191
T	1.08E-4 m2/s
K	5.16E-6 m/s
Pi	11.276 m
Well distance	593 m

Model Parameters
Reservoir & Boundary parameters

Pi	11.276 m
T	1.08E-4 m2/s
K	5.16E-6 m/s
S	0.00191
Omega	3.37E-4
Lambda	6.58E-7

Derived & Secondary Parameters

Semi-Log plot	Dd1
Company Svesnk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



HLX33_041225-050220 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	11.2767 m
Pi	11.276 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.6E-7 1/sec
PMatch	0.445 1/m
S	0.00191
T	1.08E-4 m2/s
K	5.16E-6 m/s
Pi	11.276 m
Well distance	593 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.276 m
T	1.08E-4 m2/s
K	5.16E-6 m/s
S	0.00191
Omega	3.37E-4
Lambda	6.58E-7

Derived & Secondary Parameters

Main Results	Dd1

Company Svesnk Kärnbränslehantering AB | Field Laxemar
Well HLX33:2 Observation | Test Name / # HLX10 pumping interference test

Test date / time	2004-12-29
Formation interval	9.1 - 30m
Perforated interval	open section
Gauge type / #	
Gauge depth	
Field crew	L. Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	593.2 m
Well Radius rw	0.069 m
Pay Zone h	20.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.6E-7 1/sec
PMatch	0.445 1/m
S	0.00191
T	1.08E-4 m2/s
K	5.16E-6 m/s
Pi	11.276 m
Well distance	593 m

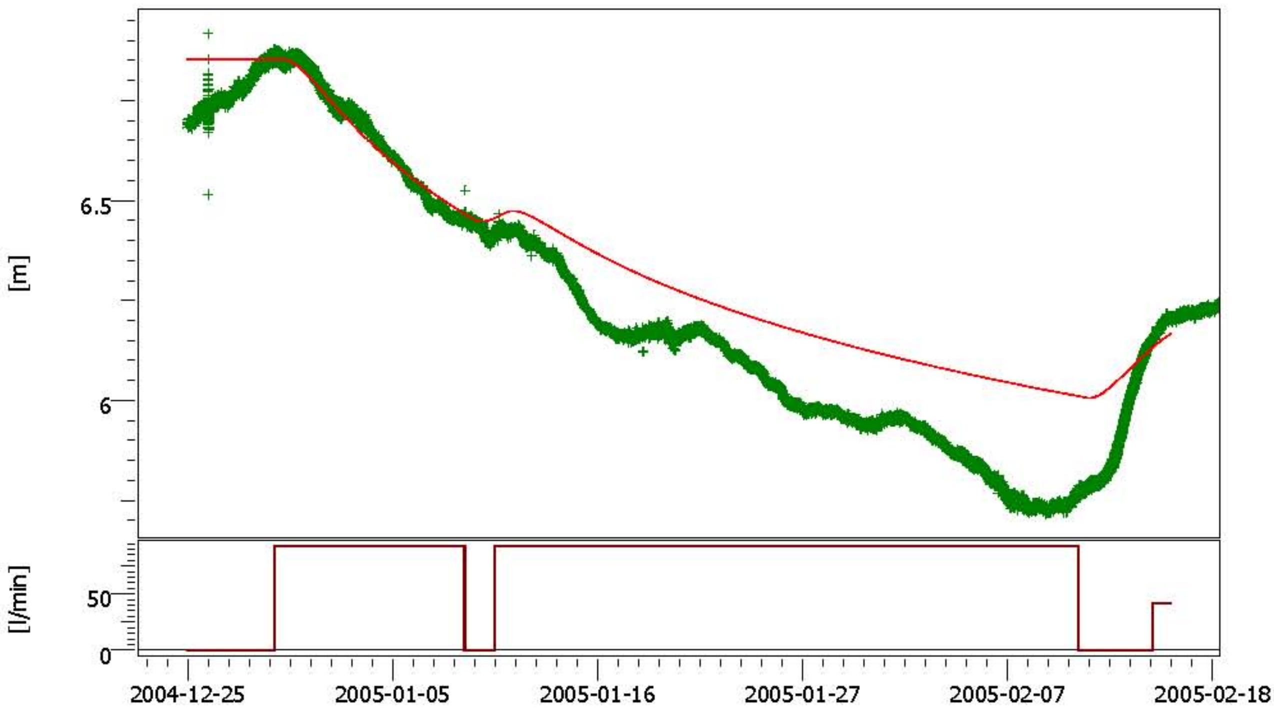
Model Parameters

Reservoir & Boundary parameters

Pi	11.276 m
T	1.08E-4 m2/s
K	5.16E-6 m/s
S	0.00191
Omega	3.37E-4
Lambda	6.58E-7

Derived & Secondary Parameters

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:5 Observation	Field Laxemar Test Name / # HLX10 pumpining interference test



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02_5_041225-050220 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	6.86383 m
Pi	6.853 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.11E-6 1/sec
PMatch	1.33 1/m
S	0.00149
T	3.29E-4 m2/s
K	7.83E-6 m/s
Pi	6.853 m
Well distance	446 m

Model Parameters

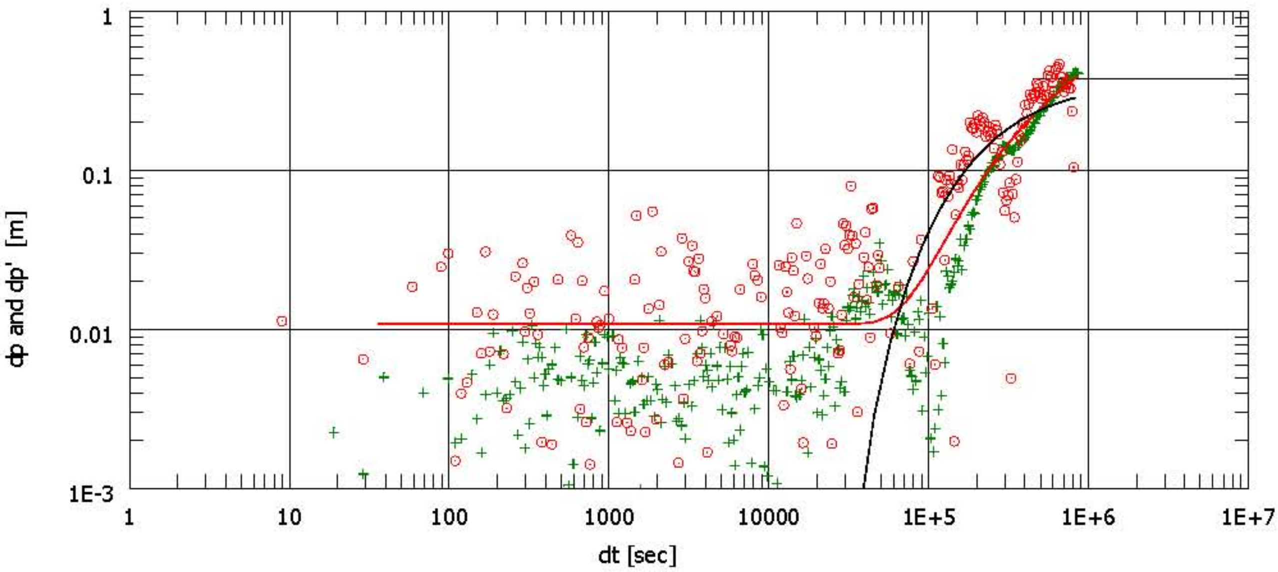
Reservoir & Boundary parameters

Pi	6.853 m
T	3.29E-4 m2/s
K	7.83E-6 m/s
S	0.00149

Derived & Secondary Parameters

Rinv	783 m
Test. Vol.	6704.3 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:5 Observation	Field Laxemar Test Name / # HLX10 pumpining interference test



KLX02_5_041225-050220 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	6.86383 m
Pi	6.853 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.11E-6 1/sec
PMatch	1.33 1/m
S	0.00149
T	3.29E-4 m2/s
K	7.83E-6 m/s
Pi	6.853 m
Well distance	446 m

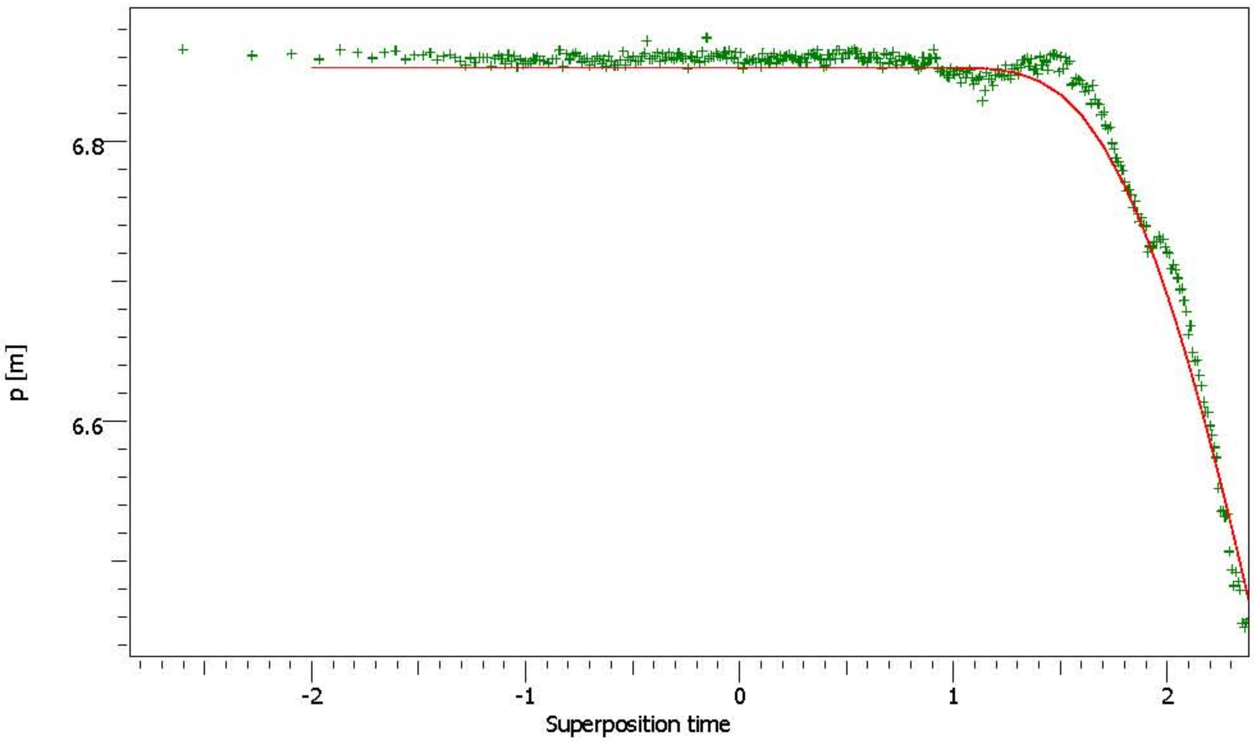
Model Parameters
Reservoir & Boundary parameters

Pi	6.853 m
T	3.29E-4 m2/s
K	7.83E-6 m/s
S	0.00149

Derived & Secondary Parameters

Rinv	783 m
Test. Vol.	6704.3 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:5 Observation	Field Laxemar Test Name / # HLX10 pumpining interference test



KLX02_5_041225-050220 production #1
Rate 93.2 l/min
Rate change 93.2 l/min
P@dt=0 6.86383 m
Pi 6.853 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.11E-6 1/sec
PMatch 1.33 1/m
S 0.00149
T 3.29E-4 m2/s
K 7.83E-6 m/s
Pi 6.853 m
Well distance 446 m

Model Parameters
Reservoir & Boundary parameters
Pi 6.853 m
T 3.29E-4 m2/s
K 7.83E-6 m/s
S 0.00149

Derived & Secondary Parameters
Rinv 783 m
Test. Vol. 6704.3 MMm3

Company Svensk Kärnbränslehantering AB
Well KLX02:5 Observation
Field Laxemar
Test Name / # HLX10 pumpining interference test

Test date / time	2004-12-29 14:58
Formation interval	452 - 494m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field crew	L Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	445.9 m
Well Radius rw	0.038 m
Pay Zone h	42 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	20 °C
Reservoir P	4000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-11 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.11E-6 1/sec
PMatch	1.33 1/m
S	0.00149
T	3.29E-4 m2/s
K	7.83E-6 m/s
Pi	6.853 m
Well distance	446 m

Model Parameters

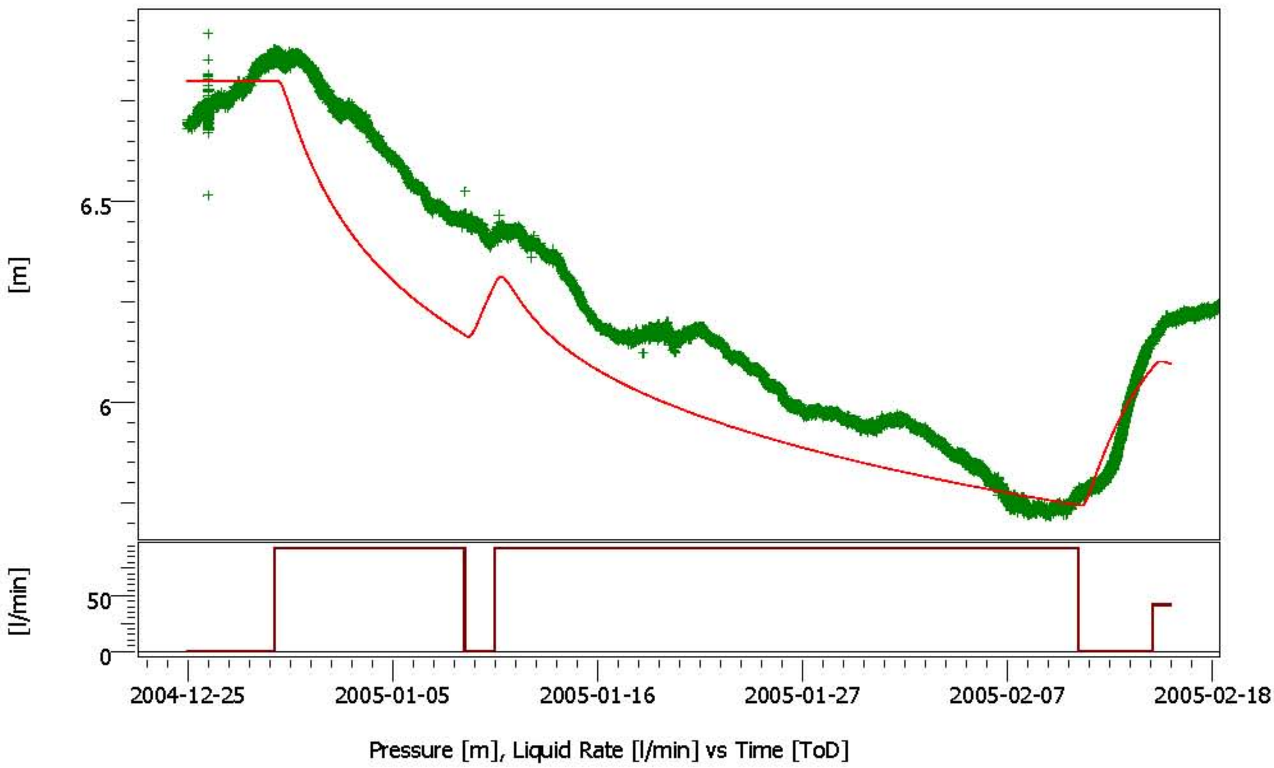
Reservoir & Boundary parameters

Pi	6.853 m
T	3.29E-4 m2/s
K	7.83E-6 m/s
S	0.00149

Derived & Secondary Parameters

Rinv	783 m
Test. Vol.	6704.3 MMm3

History plot	Bu2
Company Svensk Kärnbränslehantering AB Well KLX02:5 Observation	Field Laxemar Test Name / # HLX10 pumpining interference test



KLX02_5_041225-050220 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	5.76784 m
Pi	6.8 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.39E-6 1/sec
PMatch	1.57 1/m
S	5.75E-4
T	3.87E-4 m2/s
K	9.23E-6 m/s
Pi	6.8 m
Well distance	446 m

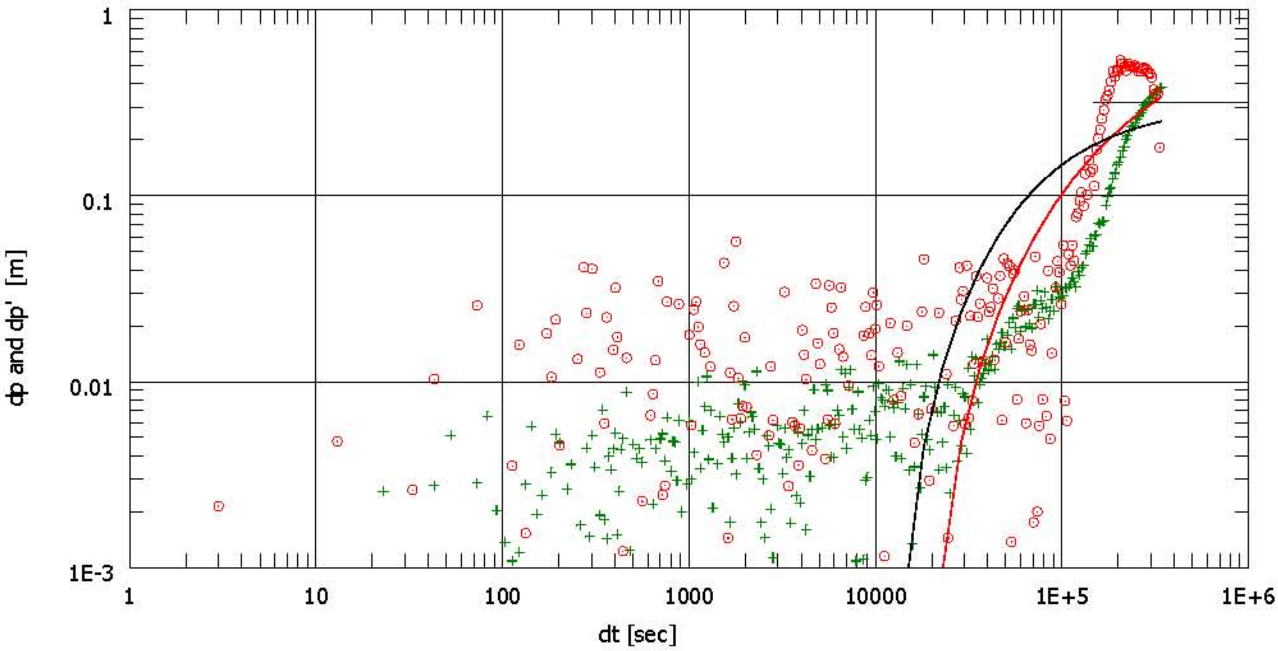
Model Parameters
Reservoir & Boundary parameters

Pi	6.8 m
T	3.87E-4 m2/s
K	9.23E-6 m/s
S	5.75E-4

Derived & Secondary Parameters

Rinv	858 m
Test. Vol.	3115.9 MMm3

Log-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well KLX02:5 Observation	Field Laxemar Test Name / # HLX10 pumpining interference test



KLX02_5_041225-050220 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	5.76784 m
Pi	6.8 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.39E-6 1/sec
PMatch	1.57 1/m
S	5.75E-4
T	3.87E-4 m2/s
K	9.23E-6 m/s
Pi	6.8 m
Well distance	446 m

Model Parameters

Reservoir & Boundary parameters

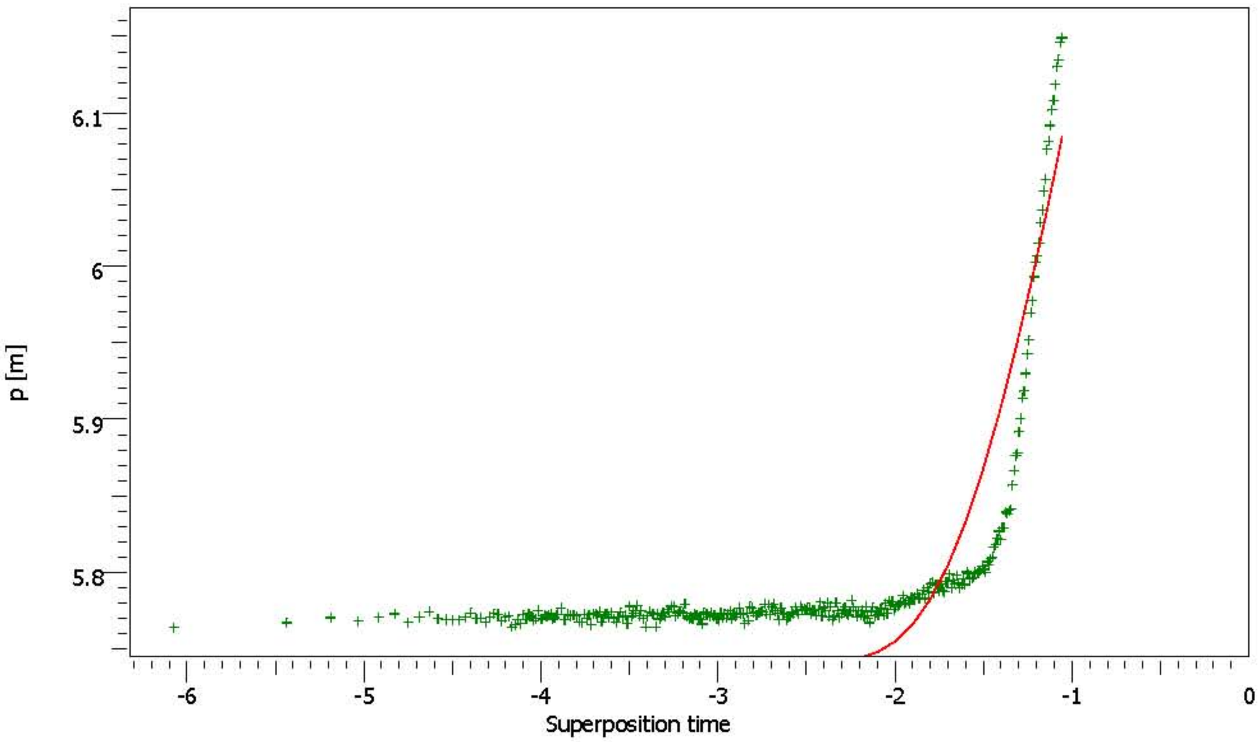
Pi	6.8 m
T	3.87E-4 m2/s
K	9.23E-6 m/s
S	5.75E-4

Derived & Secondary Parameters

Rinv	858 m
Test. Vol.	3115.9 MMm3

Semi-Log plot	Bu2

Company Svensk Kärnbränslehantering AB | Field Laxemar
Well KLX02:5 Observation | Test Name / # HLX10 pumpining interference test



KLX02_5_041225-050220 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	5.76784 m
Pi	6.8 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.39E-6 1/sec
PMatch	1.57 1/m
S	5.75E-4
T	3.87E-4 m2/s
K	9.23E-6 m/s
Pi	6.8 m
Well distance	446 m

Model Parameters
Reservoir & Boundary parameters

Pi	6.8 m
T	3.87E-4 m2/s
K	9.23E-6 m/s
S	5.75E-4

Derived & Secondary Parameters

Rinv	858 m
Test. Vol.	3115.9 MMm3

SKB

Company Svensk Kärnbränslehantering AB
Well KLX02:5 Observation
Field Laxemar
Test Name / # HLX10 pumpining interference test

Test date / time	2004-12-29 14:58
Formation interval	452 - 494m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field crew	L Andersson & Callegård
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	445.9 m
Well Radius rw	0.038 m
Pay Zone h	42 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	20 °C
Reservoir P	4000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-11 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.39E-6 1/sec
PMatch	1.57 1/m
S	5.75E-4
T	3.87E-4 m2/s
K	9.23E-6 m/s
Pi	6.8 m
Well distance	446 m

Model Parameters

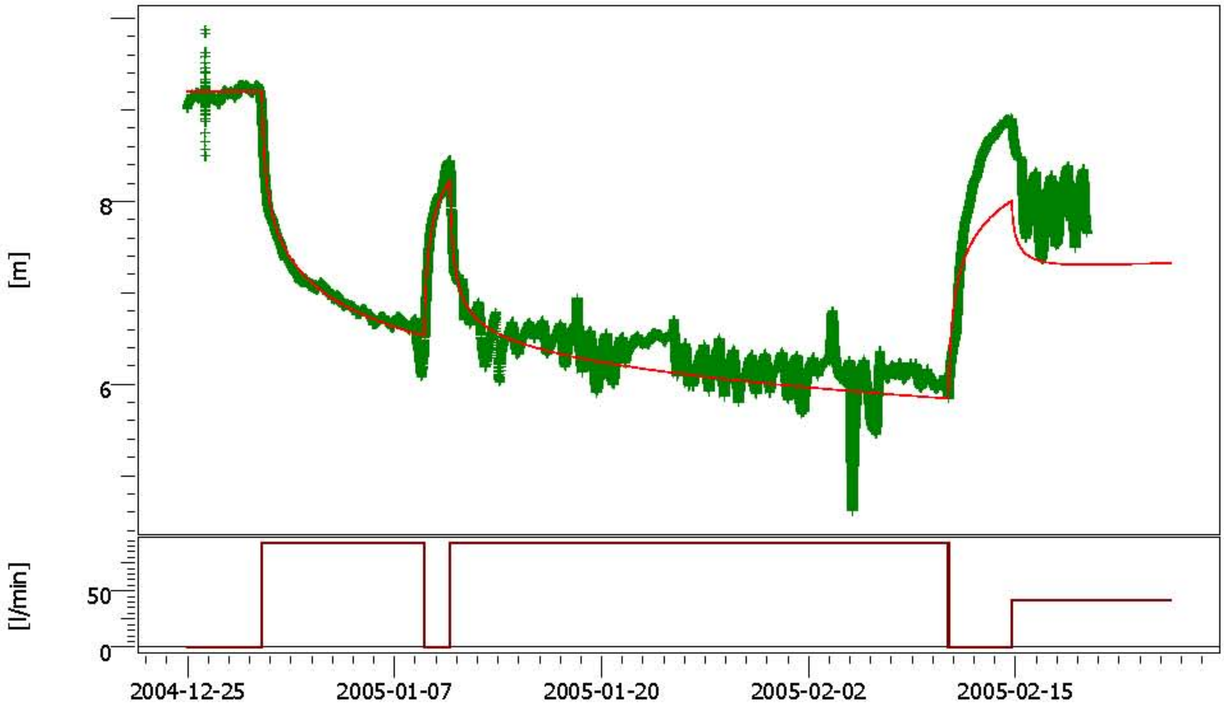
Reservoir & Boundary parameters

Pi	6.8 m
T	3.87E-4 m2/s
K	9.23E-6 m/s
S	5.75E-4

Derived & Secondary Parameters

Rinv	858 m
Test. Vol.	3115.9 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well KLX02:6 Observation	Test Name / # Interferece test HLX10



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02:6 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	9.01683 m
Pi	9.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.15E-4 1/sec
PMatch	1.02 1/m
C	7.94E-9 m3/Pa
S	1.49E-5
T	2.46E-4 m2/s
K	2.39E-6 m/s
Pi	9.2 m
Well distance	380 m

Model Parameters

Well & Wellbore parameters (Active well)

C	7.94E-9 m3/Pa
Skin	0.533

Reservoir & Boundary parameters

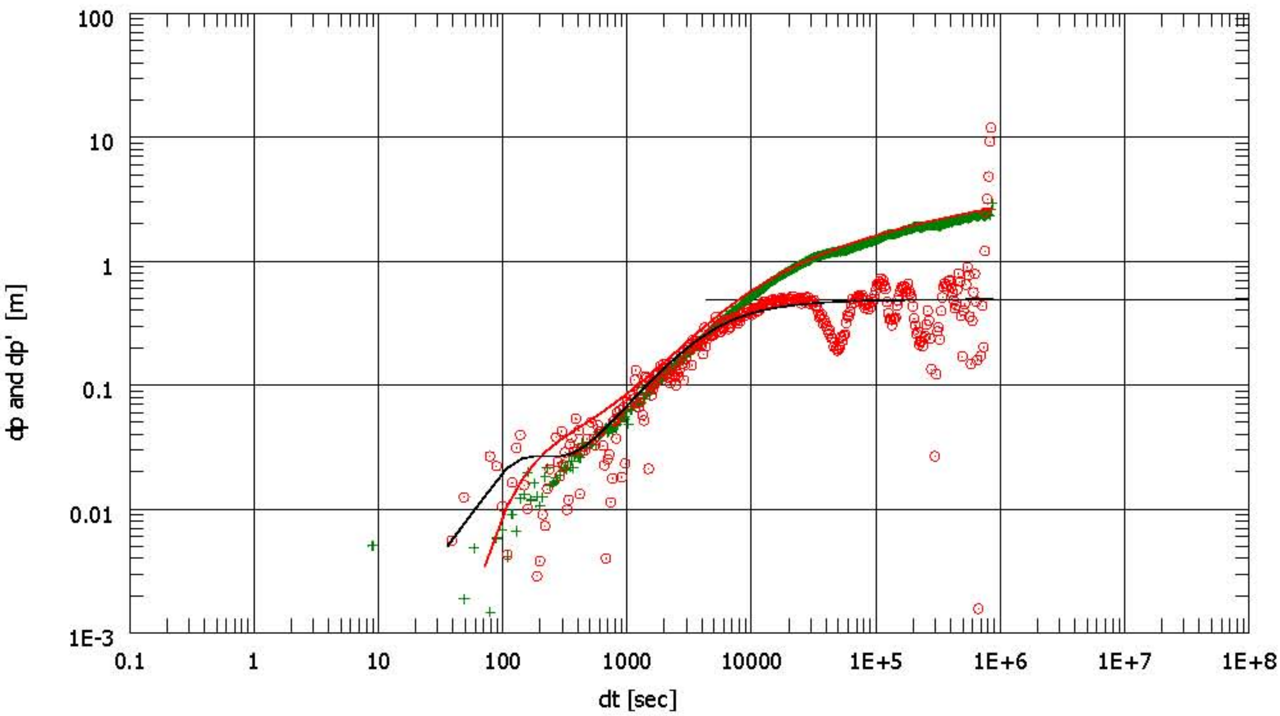
Pi	9.2 m
T	2.46E-4 m2/s
K	2.39E-6 m/s
S	1.49E-5
Omega	0.101
Lambda	9.06E-8

Derived & Secondary Parameters

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well KLX02:6 Observation

Field Laxemar
Test Name / # Interferece test HLX10



KLX02:6 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	9.01683 m
Pi	9.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.15E-4 1/sec
PMatch	1.02 1/m
C	7.94E-9 m3/Pa
S	1.49E-5
T	2.46E-4 m2/s
K	2.39E-6 m/s
Pi	9.2 m
Well distance	380 m

Model Parameters

Well & Wellbore parameters (Active well)

C	7.94E-9 m3/Pa
Skin	0.533

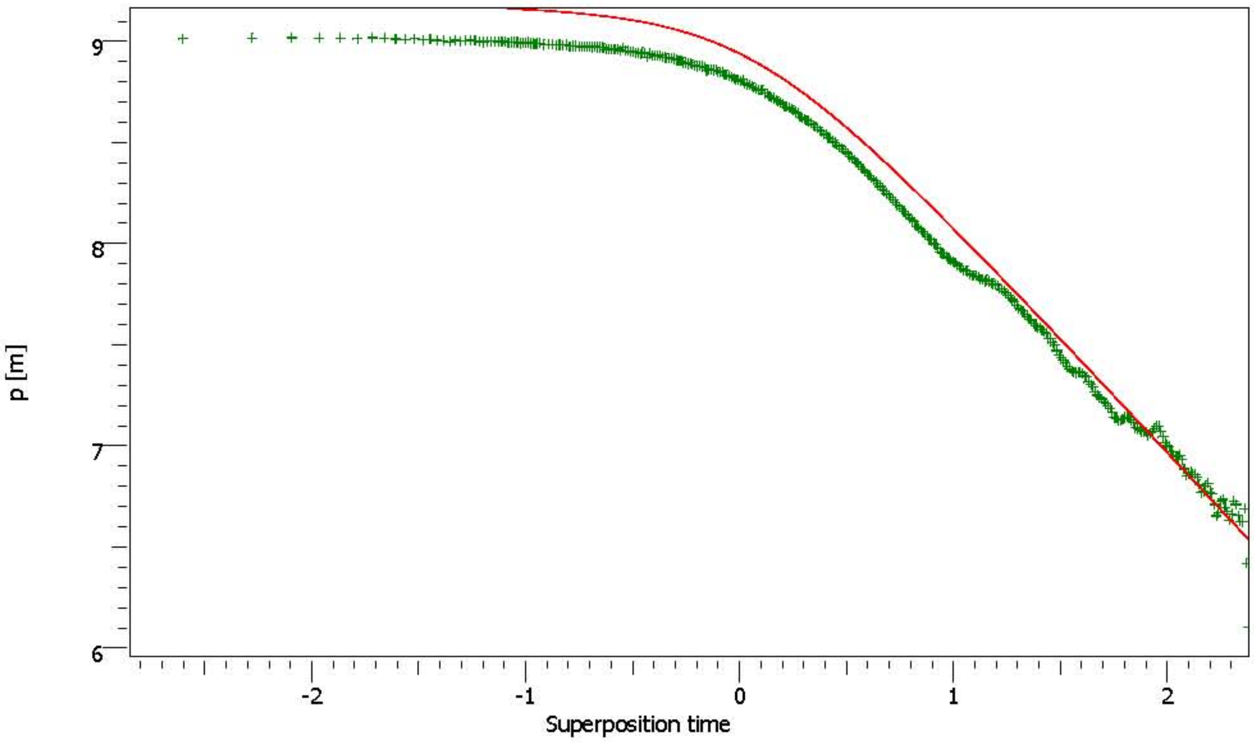
Reservoir & Boundary parameters

Pi	9.2 m
T	2.46E-4 m2/s
K	2.39E-6 m/s
S	1.49E-5
Omega	0.101
Lambda	9.06E-8

Derived & Secondary Parameters

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX02:6 Observation — Test Name / # Interferece test HLX10



KLX02:6 production #1

Rate 93.2 l/min
Rate change 93.2 l/min
P@dt=0 9.01683 m
Pi 9.2 m
Smoothing 0.1

Selected Model

Model Option Standard Model
Well Vertical
Reservoir Two porosity PSS
Boundary Infinite

Main Model Parameters

TMatch 1.15E-4 1/sec
PMatch 1.02 1/m
C 7.94E-9 m3/Pa
S 1.49E-5
T 2.46E-4 m2/s
K 2.39E-6 m/s
Pi 9.2 m
Well distance 380 m

Model Parameters

Well & Wellbore parameters (Active well)

C 7.94E-9 m3/Pa
Skin 0.533

Reservoir & Boundary parameters

Pi 9.2 m
T 2.46E-4 m2/s
K 2.39E-6 m/s
S 1.49E-5
Omega 0.101
Lambda 9.06E-8

Derived & Secondary Parameters

Main Results	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX02:6 Observation — Test Name / # Interferece test HLX10

Test date / time	2004-12-29
Formation interval	348 - 451m
Perforated interval	open section
Gauge type / #	
Gauge depth	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Interference
Well distance	380.2 m
Well Radius rw	0.038 m
Pay Zone h	103 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.15E-4 1/sec
PMatch	1.02 1/m
C	7.94E-9 m3/Pa
S	1.49E-5
T	2.46E-4 m2/s
K	2.39E-6 m/s
Pi	9.2 m
Well distance	380 m

Model Parameters

Well & Wellbore parameters (Active well)

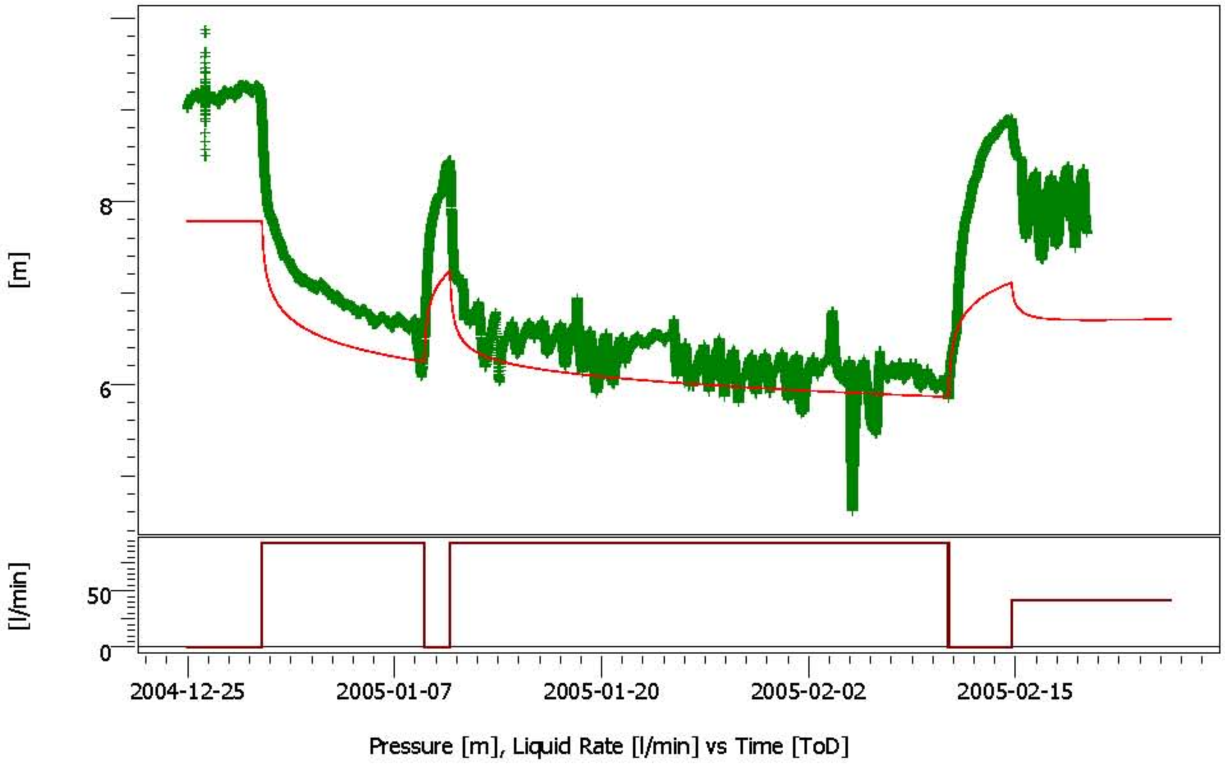
C	7.94E-9 m3/Pa
Skin	0.533

Reservoir & Boundary parameters

Pi	9.2 m
T	2.46E-4 m2/s
K	2.39E-6 m/s
S	1.49E-5
Omega	0.101
Lambda	9.06E-8

Derived & Secondary Parameters

	History plot	Bu2
SKB	Company Svensk Kärnbränslehantering AB Well KLX02:6 Observation	Field Laxemar Test Name / # Interferece test HLX10



KLX02:6 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	5.86066 m
Pi	7.77901 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.32E-4 1/sec
PMatch	1.81 1/m
C	1.23E-7 m3/Pa
S	2.3E-5
T	4.4E-4 m2/s
K	4.27E-6 m/s
Pi	7.77901 m
Well distance	380 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.23E-7 m3/Pa
Skin	0.314

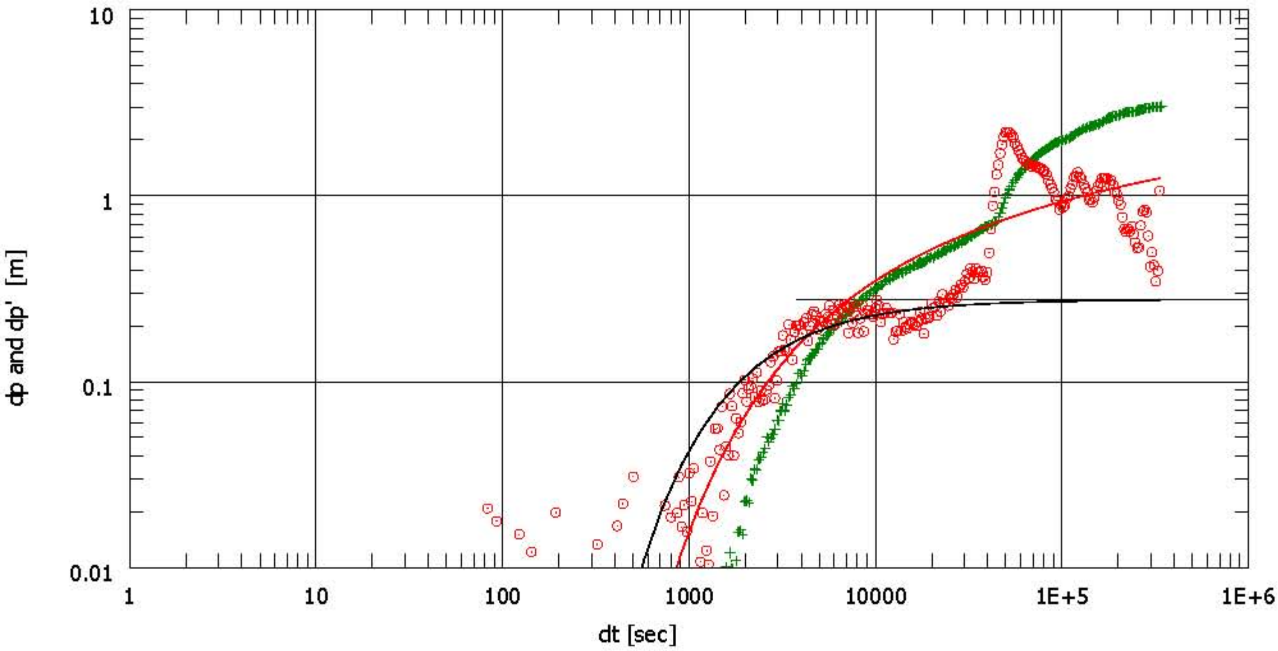
Reservoir & Boundary parameters

Pi	7.77901 m
T	4.4E-4 m2/s
K	4.27E-6 m/s
S	2.3E-5

Derived & Secondary Parameters

Rinv	4570 m
Test. Vol.	360.141 MMm3

Log-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well KLX02:6 Observation	Field Laxemar Test Name / # Interferece test HLX10



KLX02:6 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	5.86066 m
Pi	7.77901 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.32E-4 1/sec
PMatch	1.81 1/m
C	1.23E-7 m3/Pa
S	2.3E-5
T	4.4E-4 m2/s
K	4.27E-6 m/s
Pi	7.77901 m
Well distance	380 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.23E-7 m3/Pa
Skin	0.314

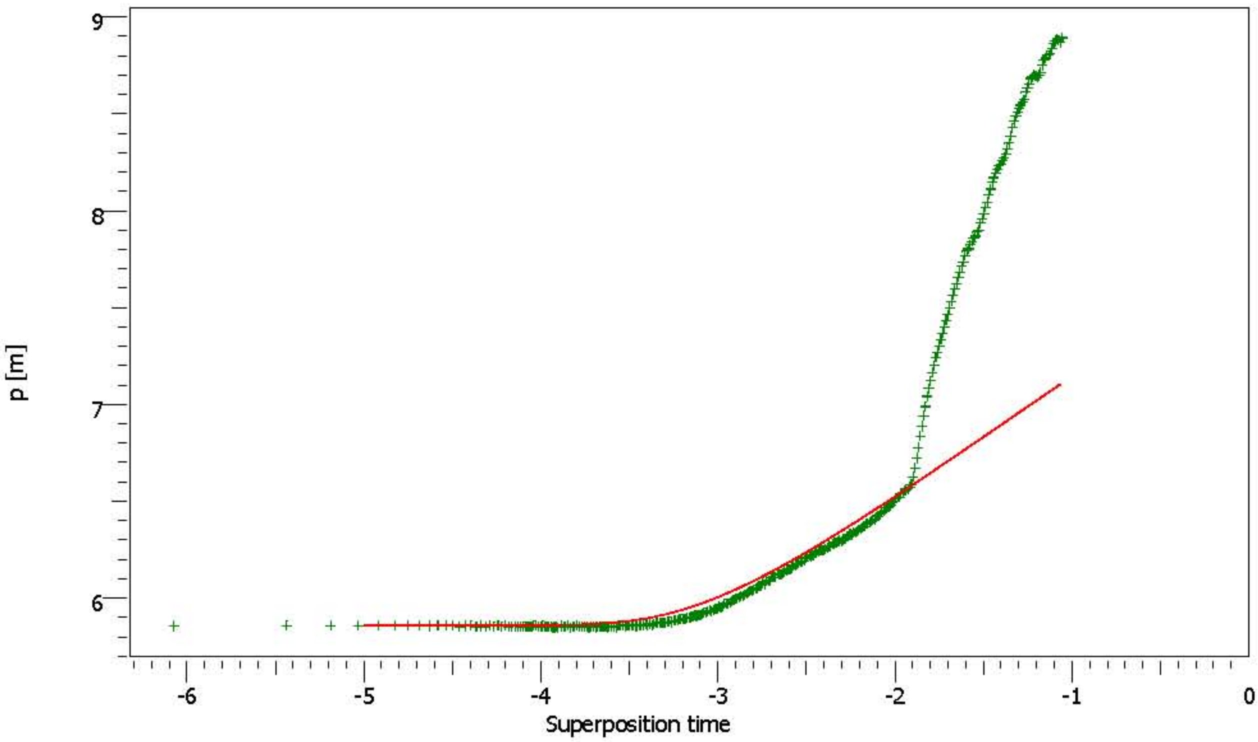
Reservoir & Boundary parameters

Pi	7.77901 m
T	4.4E-4 m2/s
K	4.27E-6 m/s
S	2.3E-5

Derived & Secondary Parameters

Rinv	4570 m
Test. Vol.	360.141 MMm3

Semi-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well KLX02:6 Observation	Field Laxemar Test Name / # Interferece test HLX10



KLX02:6 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	5.86066 m
Pi	7.77901 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.32E-4 1/sec
PMatch	1.81 1/m
C	1.23E-7 m3/Pa
S	2.3E-5
T	4.4E-4 m2/s
K	4.27E-6 m/s
Pi	7.77901 m
Well distance	380 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.23E-7 m3/Pa
Skin	0.314

Reservoir & Boundary parameters

Pi	7.77901 m
T	4.4E-4 m2/s
K	4.27E-6 m/s
S	2.3E-5

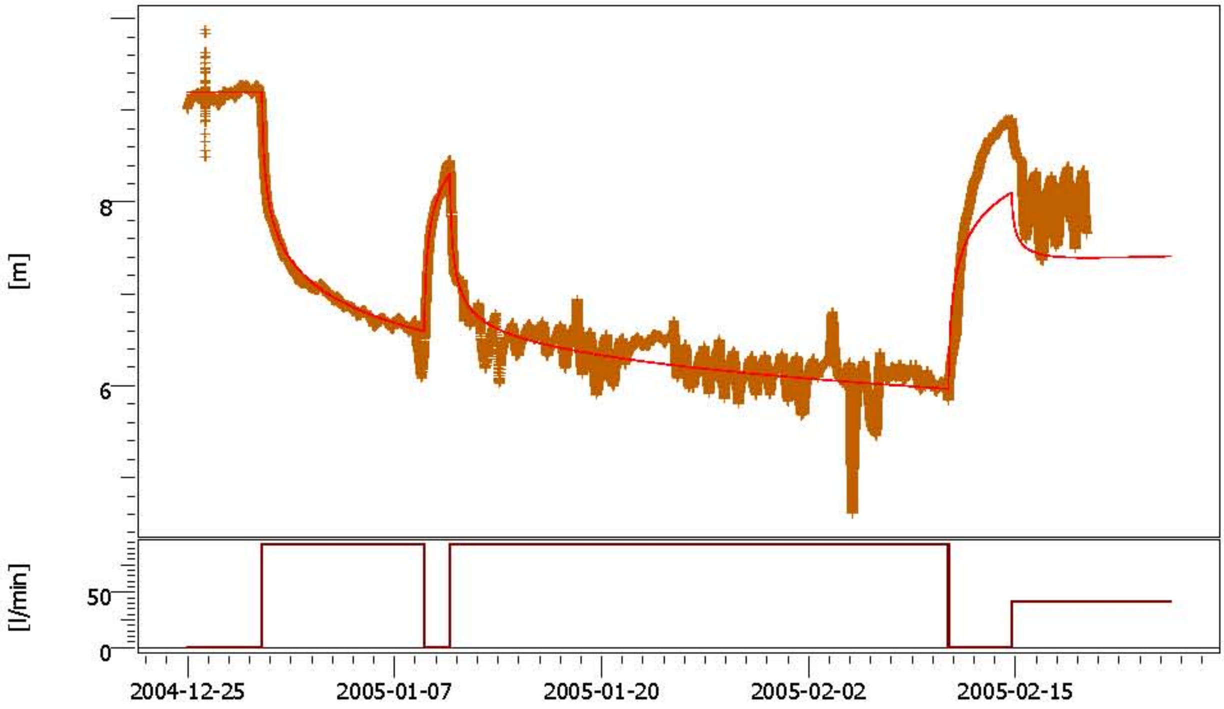
Derived & Secondary Parameters

Rinv	4570 m
Test. Vol.	360.141 MMm3

Main Results	Bu2
Company Svensk Kärnbränslehantering AB Well KLX02:6 Observation	Field Laxemar Test Name / # Interferece test HLX10

Test date / time	2004-12-29
Formation interval	348 - 451m
Perforated interval	open section
Gauge type / #	
Gauge depth	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Interference
Well distance	380.2 m
Well Radius rw	0.038 m
Pay Zone h	103 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.32E-4 1/sec
PMatch	1.81 1/m
C	1.23E-7 m3/Pa
S	2.3E-5
T	4.4E-4 m2/s
K	4.27E-6 m/s
Pi	7.77901 m
Well distance	380 m
Model Parameters	
Well & Wellbore parameters (Active well)	
C	1.23E-7 m3/Pa
Skin	0.314
Reservoir & Boundary parameters	
Pi	7.77901 m
T	4.4E-4 m2/s
K	4.27E-6 m/s
S	2.3E-5
Derived & Secondary Parameters	
Rinv	4570 m
Test. Vol.	360.141 MMm3

	History plot	Dd1
	Company Svensk Kärnbränslehantering AB Well KLX02:7 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02:7 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	9.01683 m
Pi	9.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.63E-4 1/sec
PMatch	1.11 1/m
C	1.12E-8 m3/Pa
S	2.09E-5
T	2.69E-4 m2/s
K	1.95E-6 m/s
Pi	9.2 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.12E-8 m3/Pa
Skin	-2.44

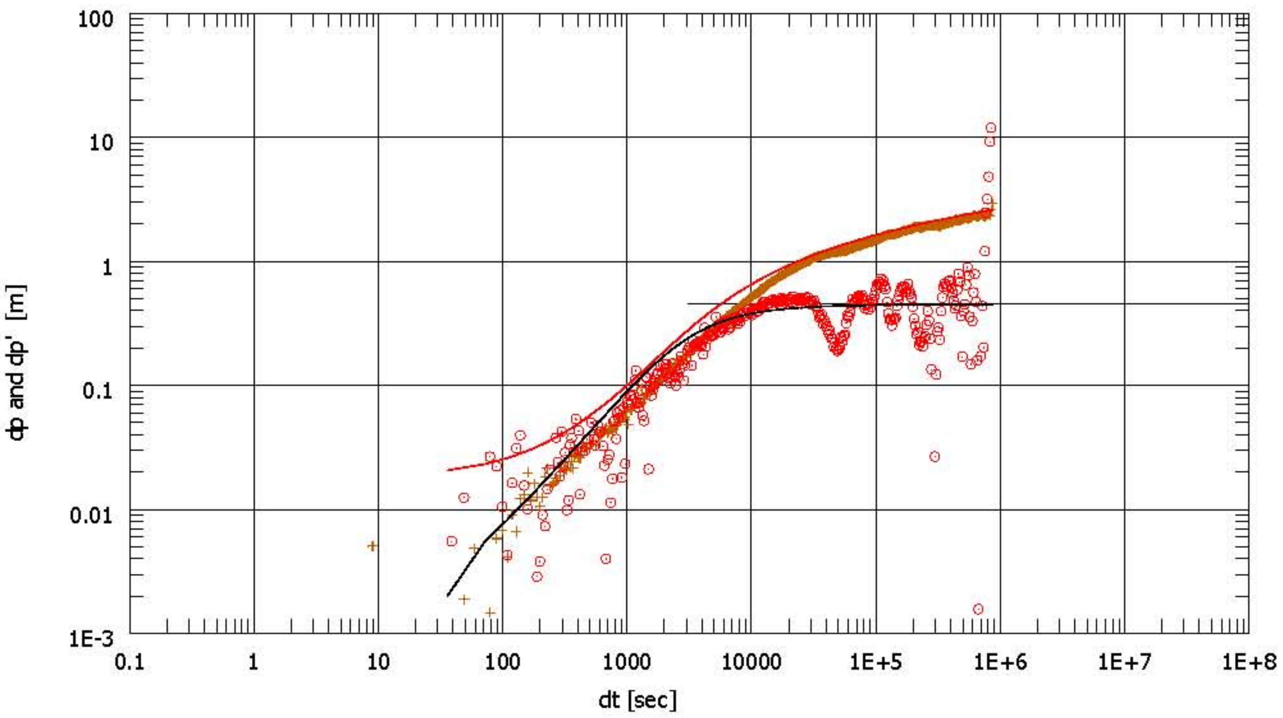
Reservoir & Boundary parameters

Pi	9.2 m
T	2.69E-4 m2/s
K	1.95E-6 m/s
S	2.09E-5
Omega	0.00124
Lambda	2.21E-7

Derived & Secondary Parameters

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well KLX02:7 Observation
Field Laxemar
Test Name / # HLX10 pumping interference test



KLX02:7 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	9.01683 m
Pi	9.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.63E-4 1/sec
PMatch	1.11 1/m
C	1.12E-8 m3/Pa
S	2.09E-5
T	2.69E-4 m2/s
K	1.95E-6 m/s
Pi	9.2 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

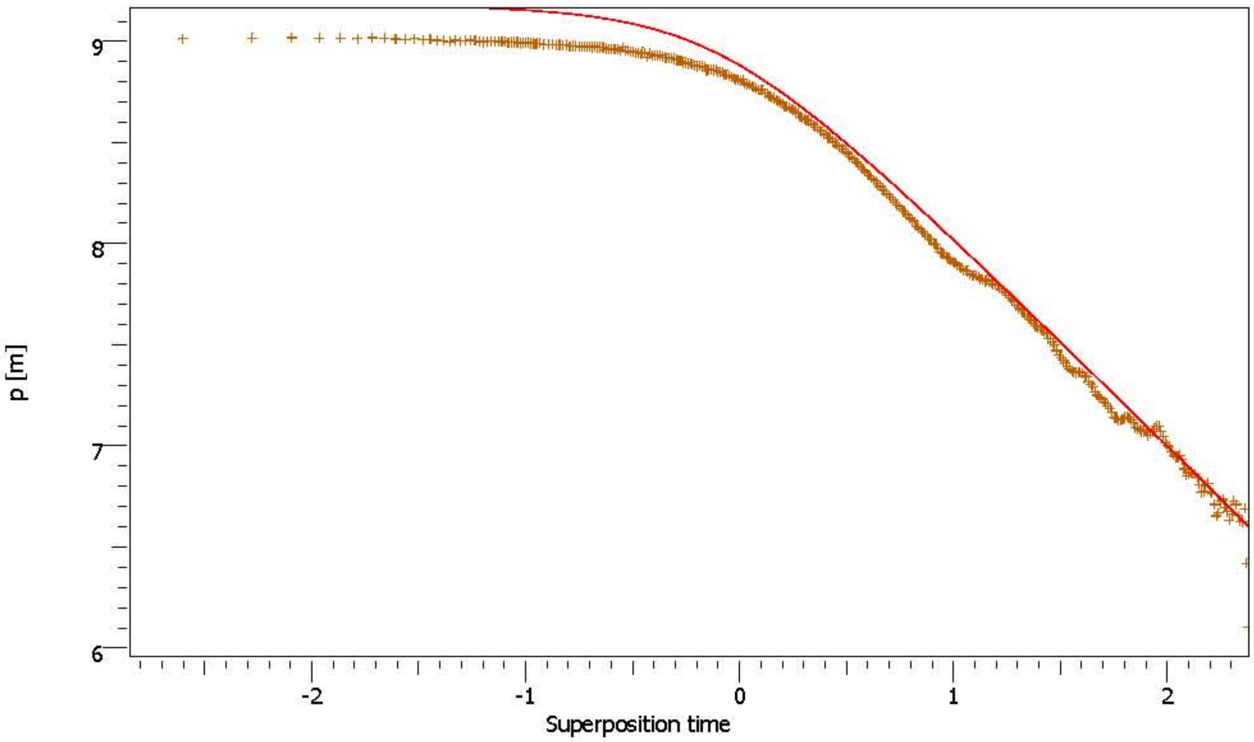
C	1.12E-8 m3/Pa
Skin	-2.44

Reservoir & Boundary parameters

Pi	9.2 m
T	2.69E-4 m2/s
K	1.95E-6 m/s
S	2.09E-5
Omega	0.00124
Lambda	2.21E-7

Derived & Secondary Parameters

	Semi-Log plot	Dd1
	Company Svensk Kärnbränslehantering AB Well KLX02:7 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



KLX02:7 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	9.01683 m
Pi	9.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.63E-4 1/sec
PMatch	1.11 1/m
C	1.12E-8 m3/Pa
S	2.09E-5
T	2.69E-4 m2/s
K	1.95E-6 m/s
Pi	9.2 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.12E-8 m3/Pa
Skin	-2.44

Reservoir & Boundary parameters

Pi	9.2 m
T	2.69E-4 m2/s
K	1.95E-6 m/s
S	2.09E-5
Omega	0.00124
Lambda	2.21E-7

Derived & Secondary Parameters

Main Results	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX02:7 Observation — Test Name / # HLX10 pumping interference test

Test date / time	2004-12-25
Formation interval	209-347m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Interference
Well distance	281.1 m
Well Radius rw	0.038 m
Pay Zone h	138 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	1.63E-4 1/sec
PMatch	1.11 1/m
C	1.12E-8 m3/Pa
S	2.09E-5
T	2.69E-4 m2/s
K	1.95E-6 m/s
Pi	9.2 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

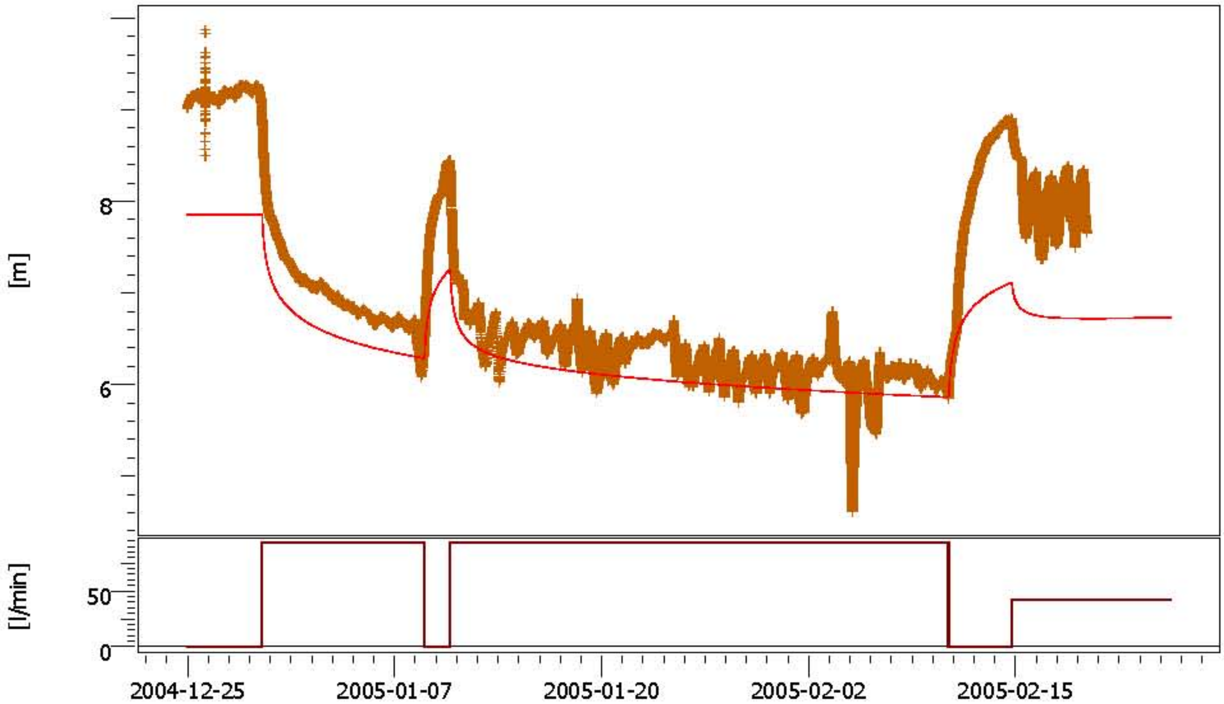
C	1.12E-8 m3/Pa
Skin	-2.44

Reservoir & Boundary parameters

Pi	9.2 m
T	2.69E-4 m2/s
K	1.95E-6 m/s
S	2.09E-5
Omega	0.00124
Lambda	2.21E-7

Derived & Secondary Parameters

	History plot	Bu2
	Company Svensk Kärnbränslehantering AB Well KLX02:7 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02:7 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	5.86066 m
Pi	7.85716 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	8.44E-5 1/sec
PMatch	1.63 1/m
C	2.37E-7 m3/Pa
S	5.93E-5
T	3.95E-4 m2/s
K	2.87E-6 m/s
Pi	7.85716 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.37E-7 m3/Pa
Skin	0

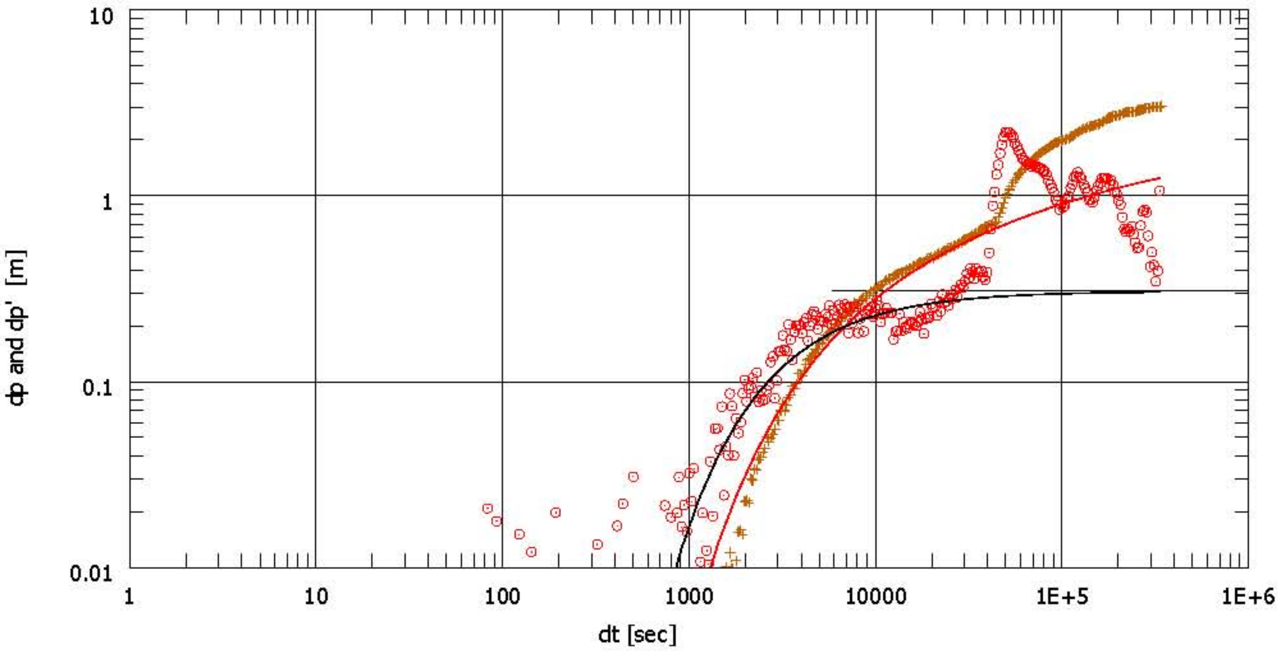
Reservoir & Boundary parameters

Pi	7.85716 m
T	3.95E-4 m2/s
K	2.87E-6 m/s
S	5.93E-5

Derived & Secondary Parameters

Rinv	2700 m
Test. Vol.	323.706 MMm3

Log-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well KLX02:7 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



KLX02:7 build-up #2
Rate 0 l/min
Rate change 93.2 l/min
P@dt=0 5.86066 m
Pi 7.85716 m
Smoothing 0.1

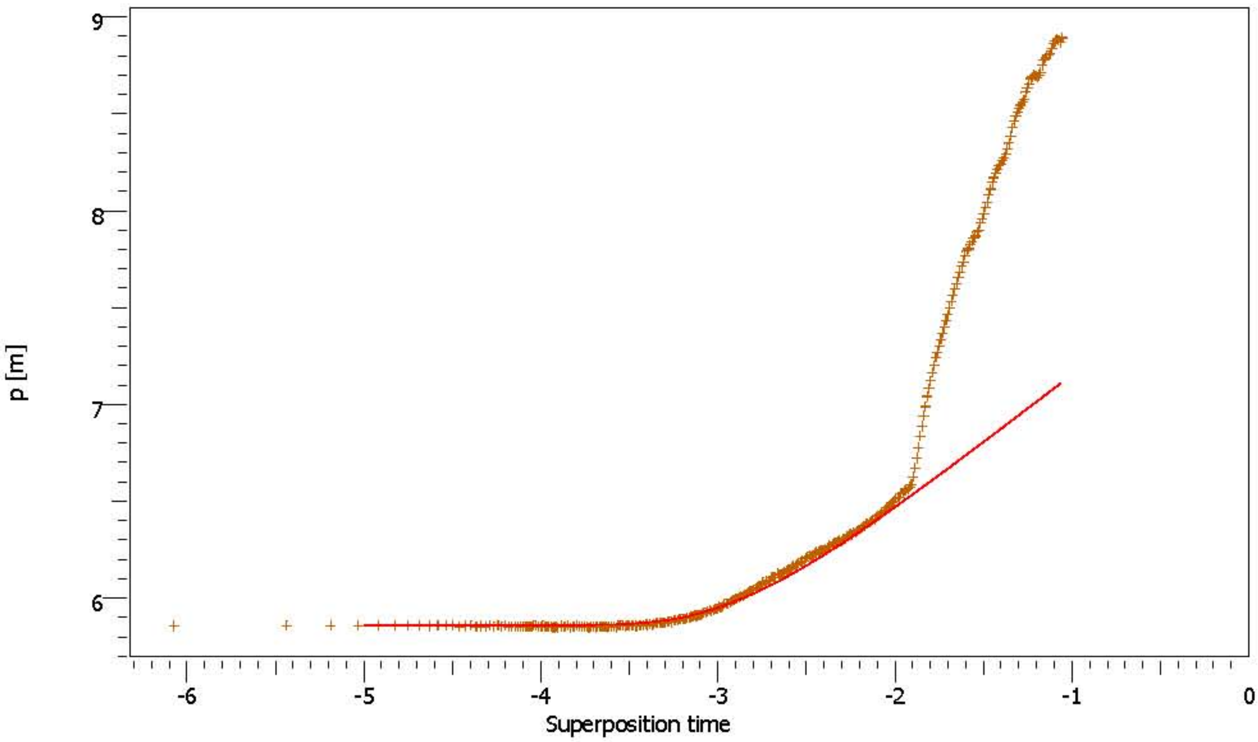
Selected Model
Model Option Standard Model
Well Vertical
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 8.44E-5 1/sec
PMatch 1.63 1/m
C 2.37E-7 m3/Pa
S 5.93E-5
T 3.95E-4 m2/s
K 2.87E-6 m/s
Pi 7.85716 m
Well distance 281 m

Model Parameters
Well & Wellbore parameters (Active well)
C 2.37E-7 m3/Pa
Skin 0
Reservoir & Boundary parameters
Pi 7.85716 m
T 3.95E-4 m2/s
K 2.87E-6 m/s
S 5.93E-5

Derived & Secondary Parameters
Rinv 2700 m
Test. Vol. 323.706 MMm3

	Semi-Log plot	Bu2
	Company Svensk Kärnbränslehantering AB Well KLX02:7 Observation	Field Laxemar Test Name / # HLX10 pumping interference test



KLX02:7 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	5.86066 m
Pi	7.85716 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	8.44E-5 1/sec
PMatch	1.63 1/m
C	2.37E-7 m3/Pa
S	5.93E-5
T	3.95E-4 m2/s
K	2.87E-6 m/s
Pi	7.85716 m
Well distance	281 m

Model Parameters

Well & Wellbore parameters (Active well)

C	2.37E-7 m3/Pa
Skin	0

Reservoir & Boundary parameters

Pi	7.85716 m
T	3.95E-4 m2/s
K	2.87E-6 m/s
S	5.93E-5

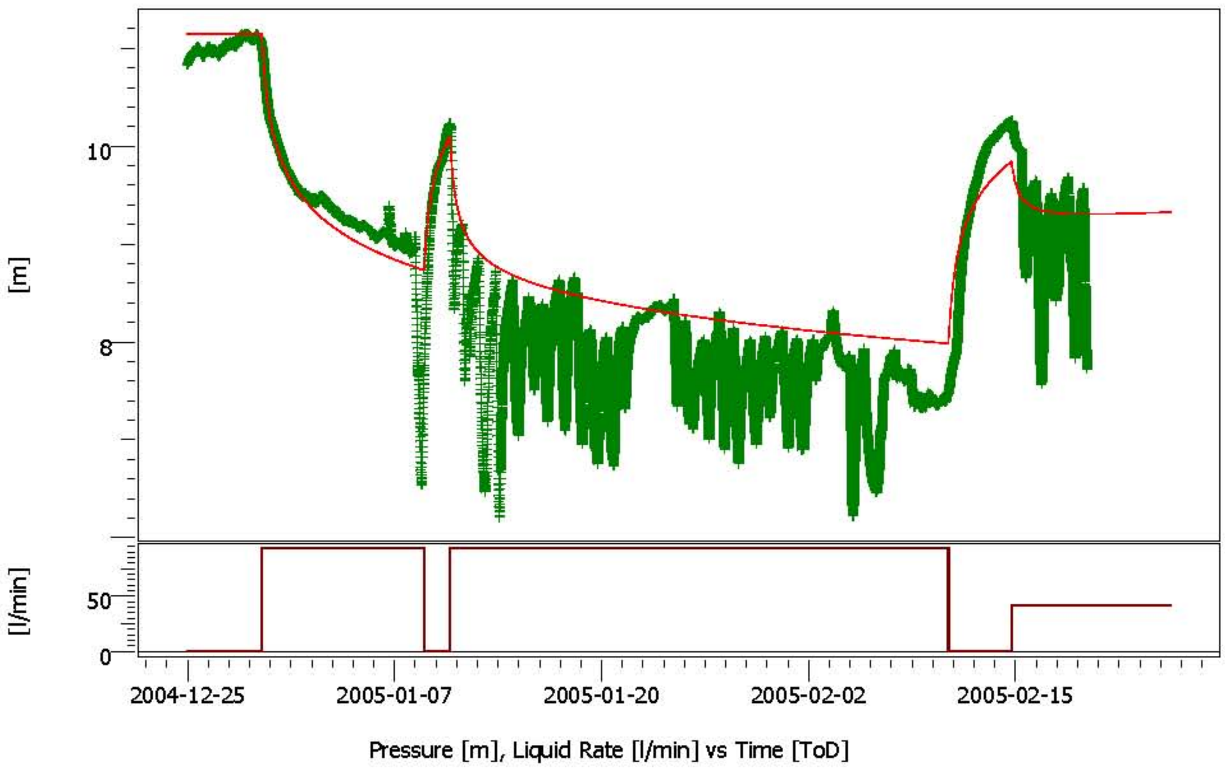
Derived & Secondary Parameters

Rinv	2700 m
Test. Vol.	323.706 MMm3

Main Results	Bu2
Company Svensk Kärnbränslehantering AB Well KLX02:7 Observation	Field Laxemar Test Name / # HLX10 pumping interference test

Test date / time	2004-12-25
Formation interval	209-347m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Interference
Well distance	281.1 m
Well Radius rw	0.038 m
Pay Zone h	138 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	8.44E-5 1/sec
PMatch	1.63 1/m
C	2.37E-7 m3/Pa
S	5.93E-5
T	3.95E-4 m2/s
K	2.87E-6 m/s
Pi	7.85716 m
Well distance	281 m
Model Parameters	
Well & Wellbore parameters (Active well)	
C	2.37E-7 m3/Pa
Skin	0
Reservoir & Boundary parameters	
Pi	7.85716 m
T	3.95E-4 m2/s
K	2.87E-6 m/s
S	5.93E-5
Derived & Secondary Parameters	
Rinv	2700 m
Test. Vol.	323.706 MMm3

History plot	Dd1-2por
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well KLX02:8 Observation	Test Name / # HLX10 pumping interference tests



KLX02:8 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	11.0391 m
Pi	11.1493 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	4.39E-5 1/sec
PMatch	0.925 1/m
C	3.41E-9 m3/Pa
S	9.6E-5
T	2.24E-4 m2/s
K	4.44E-5 m/s
Pi	11.1493 m
Well distance	231 m

Model Parameters

Well & Wellbore parameters (Active well)

C	3.41E-9 m3/Pa
Skin	-0.195

Reservoir & Boundary parameters

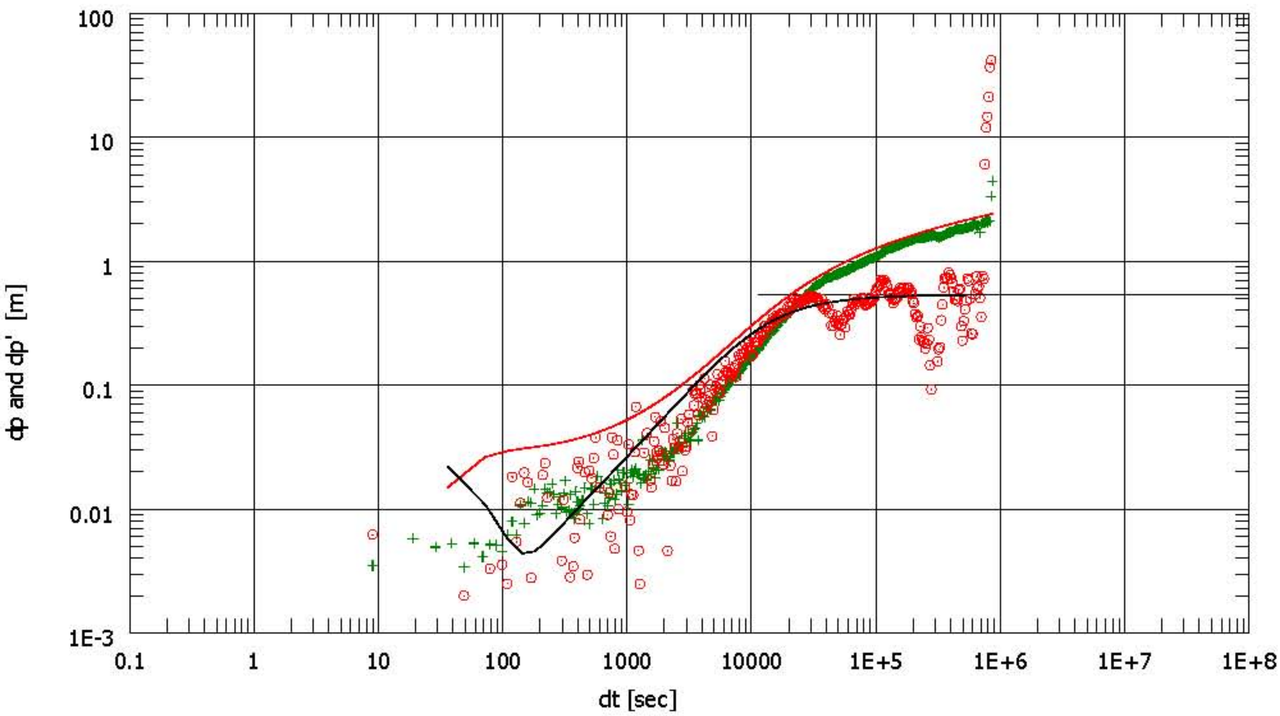
Pi	11.1493 m
T	2.24E-4 m2/s
K	4.44E-5 m/s
S	9.6E-5
Omega	0.01
Lambda	2.85E-7

Derived & Secondary Parameters

Log-Log plot	Dd1-2por

Company Svensk Kärnbränslehantering AB
Well KLX02:8 Observation

Field Laxemar
Test Name / # HLX10 pumping interference tests



KLX02:8 production #1
Rate 93.2 l/min
Rate change 93.2 l/min
P@dt=0 11.0391 m
Pi 11.1493 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Vertical
Reservoir Two porosity PSS
Boundary Infinite

Main Model Parameters
TMatch 4.39E-5 1/sec
PMatch 0.925 1/m
C 3.41E-9 m3/Pa
S 9.6E-5
T 2.24E-4 m2/s
K 4.44E-5 m/s
Pi 11.1493 m
Well distance 231 m

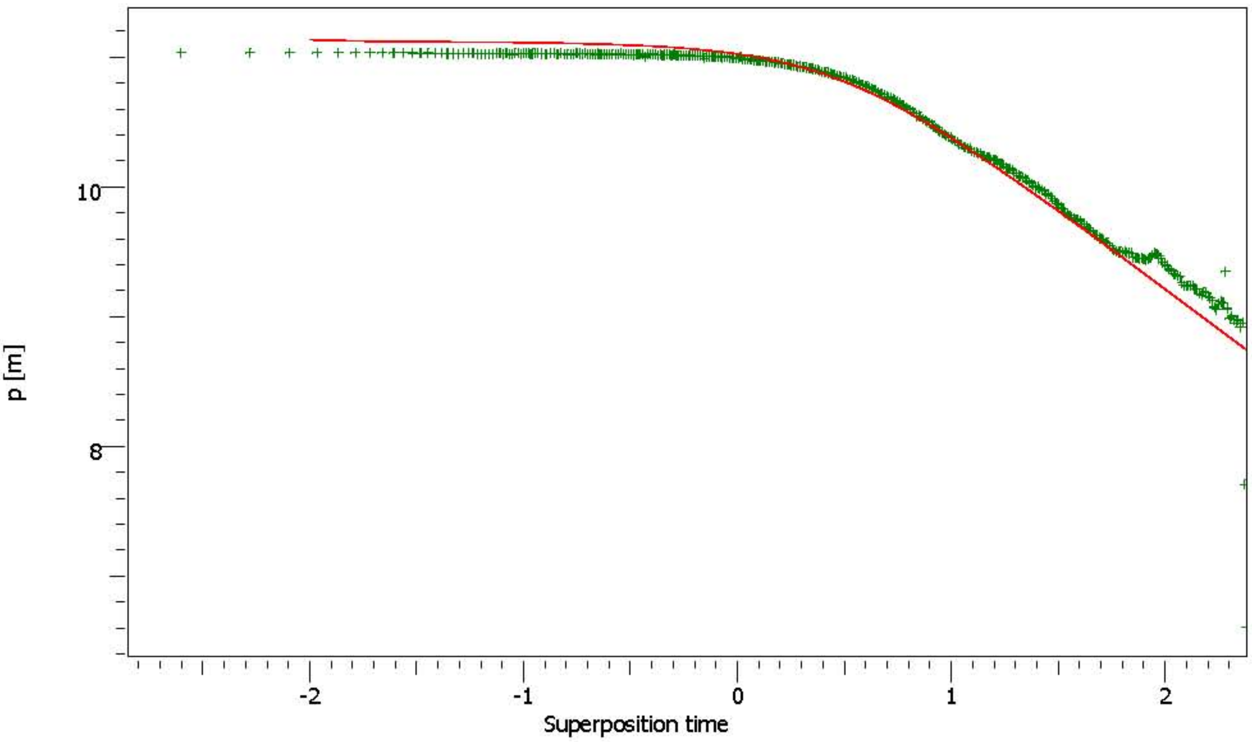
Model Parameters
Well & Wellbore parameters (Active well)
C 3.41E-9 m3/Pa
Skin -0.195
Reservoir & Boundary parameters
Pi 11.1493 m
T 2.24E-4 m2/s
K 4.44E-5 m/s
S 9.6E-5
Omega 0.01
Lambda 2.85E-7

Derived & Secondary Parameters

Semi-Log plot	Dd1-2por

Company Svensk Kärnbränslehantering AB
Well KLX02:8 Observation

Field Laxemar
Test Name / # HLX10 pumping interference tests



KLX02:8 production #1

Rate	93.2 l/min
Rate change	93.2 l/min
P@dt=0	11.0391 m
Pi	11.1493 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	4.39E-5 1/sec
PMatch	0.925 1/m
C	3.41E-9 m3/Pa
S	9.6E-5
T	2.24E-4 m2/s
K	4.44E-5 m/s
Pi	11.1493 m
Well distance	231 m

Model Parameters

Well & Wellbore parameters (Active well)

C	3.41E-9 m3/Pa
Skin	-0.195

Reservoir & Boundary parameters

Pi	11.1493 m
T	2.24E-4 m2/s
K	4.44E-5 m/s
S	9.6E-5
Omega	0.01
Lambda	2.85E-7

Derived & Secondary Parameters

Main Results	Dd1-2por
Company Svensk Kärnbränslehantering AB Well KLX02:8 Observation	Field Laxemar Test Name / # HLX10 pumping interference tests

Test date / time	2004-12-29
Formation interval	202.95-208m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	230.8 m
Well Radius rw	0.038 m
Pay Zone h	5.05 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	4.39E-5 1/sec
PMatch	0.925 1/m
C	3.41E-9 m3/Pa
S	9.6E-5
T	2.24E-4 m2/s
K	4.44E-5 m/s
Pi	11.1493 m
Well distance	231 m

Model Parameters

Well & Wellbore parameters (Active well)

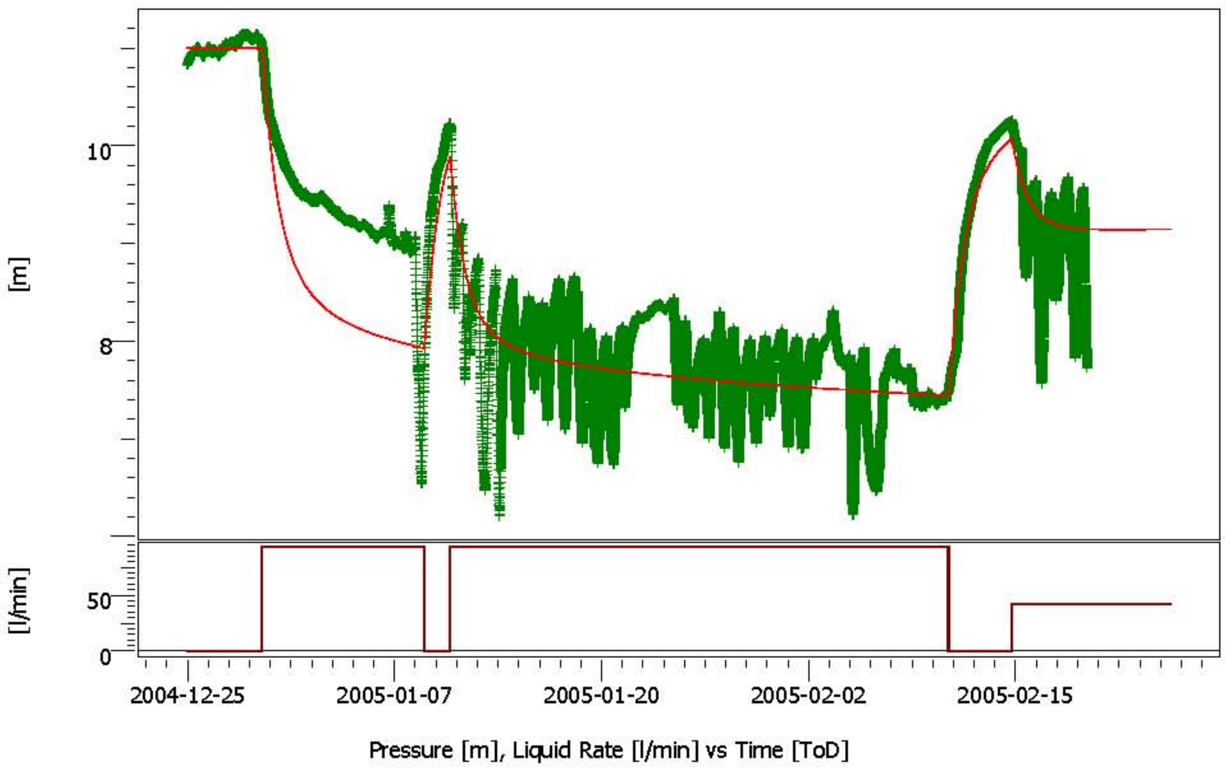
C	3.41E-9 m3/Pa
Skin	-0.195

Reservoir & Boundary parameters

Pi	11.1493 m
T	2.24E-4 m2/s
K	4.44E-5 m/s
S	9.6E-5
Omega	0.01
Lambda	2.85E-7

Derived & Secondary Parameters

	History plot	Bu2
SKB	Company Svensk Kärnbränslehantering AB Well KLX02:8 Observation	Field Laxemar Test Name / # HLX10 pumping interference tests



KLX02:8 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	7.47611 m
Pi	11 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00729 1/sec
PMatch	1.54 1/m
C	0.00174 m3/Pa
S	9.59E-7
T	3.72E-4 m2/s
K	7.38E-5 m/s
Pi	11 m
Well distance	231 m

Model Parameters

Well & Wellbore parameters (Active well)

C	0.00174 m3/Pa
Skin	-2.85

Reservoir & Boundary parameters

Pi	11 m
T	3.72E-4 m2/s
K	7.38E-5 m/s
S	9.59E-7

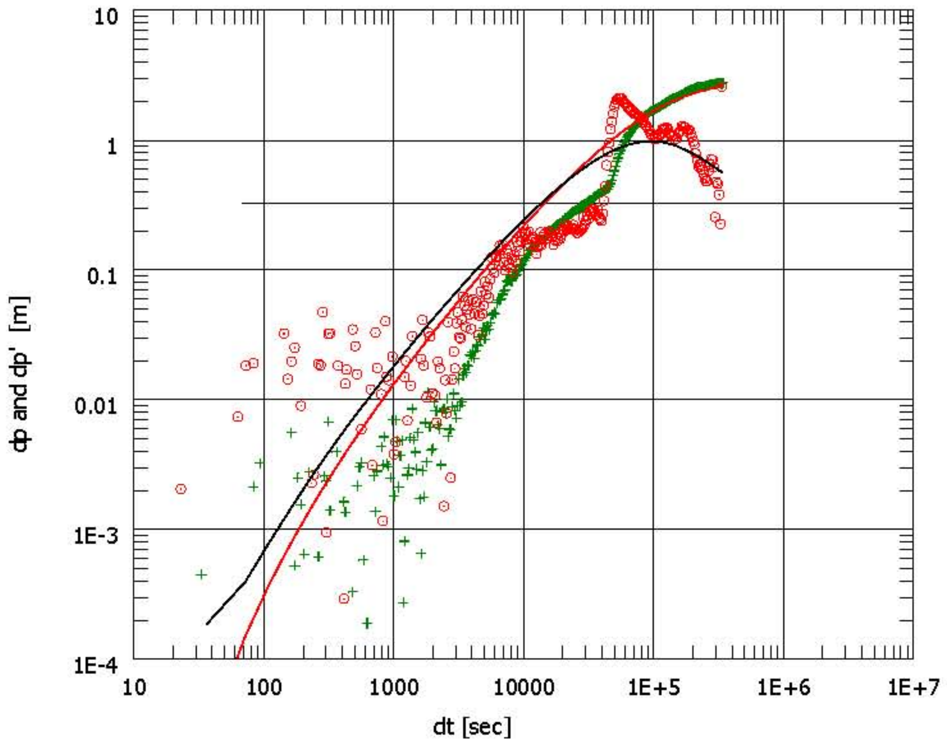
Derived & Secondary Parameters

Rinv	20600 m
Test. Vol.	304.406 MMm3

Log-Log plot	Bu2

Company Svensk Kärnbränslehantering AB
Well KLX02:8 Observation

Field Laxemar
Test Name / # HLX10 pumping interference tests



KLX02:8 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	7.47611 m
Pi	11 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00729 1/sec
PMatch	1.54 1/m
C	0.00174 m3/Pa
S	9.59E-7
T	3.72E-4 m2/s
K	7.38E-5 m/s
Pi	11 m
Well distance	231 m

Model Parameters

Well & Wellbore parameters (Active well)

C	0.00174 m3/Pa
Skin	-2.85

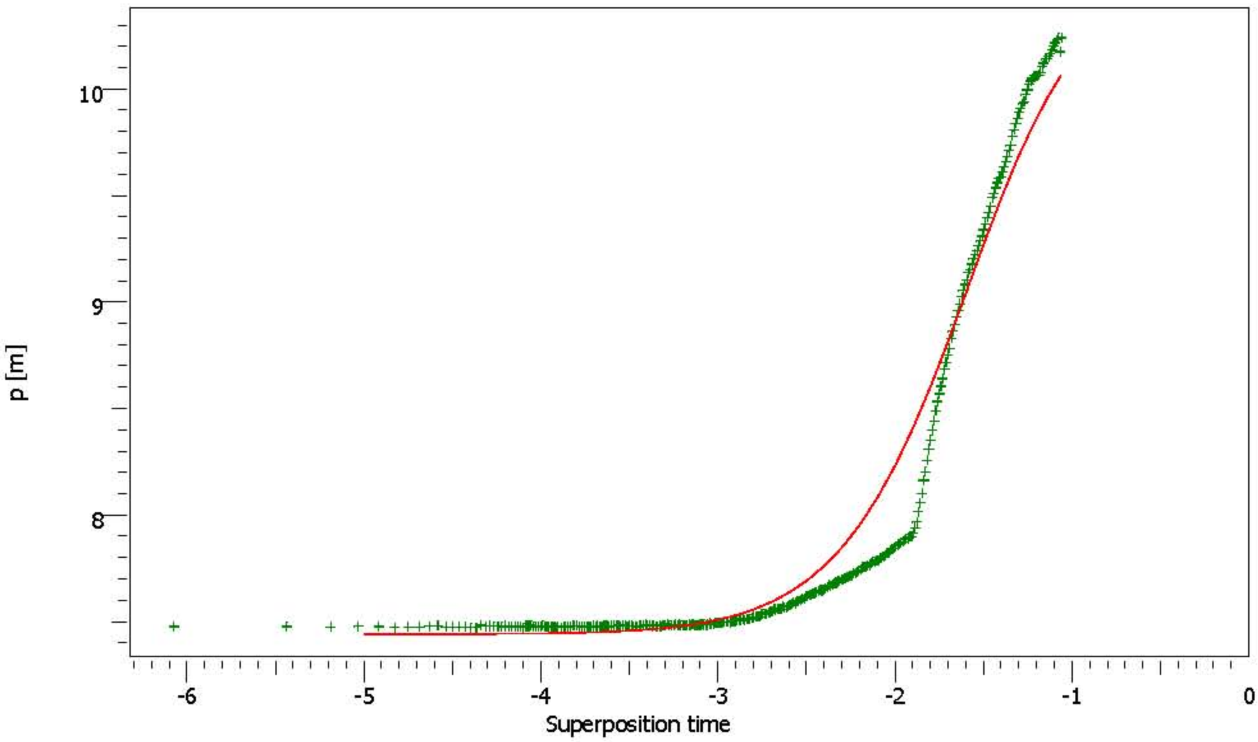
Reservoir & Boundary parameters

Pi	11 m
T	3.72E-4 m2/s
K	7.38E-5 m/s
S	9.59E-7

Derived & Secondary Parameters

Rinv	20600 m
Test. Vol.	304.406 MMm3

Semi-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well KLX02:8 Observation	Field Laxemar Test Name / # HLX10 pumping interference tests



KLX02:8 build-up #2

Rate	0 l/min
Rate change	93.2 l/min
P@dt=0	7.47611 m
Pi	11 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00729 1/sec
PMatch	1.54 1/m
C	0.00174 m3/Pa
S	9.59E-7
T	3.72E-4 m2/s
K	7.38E-5 m/s
Pi	11 m
Well distance	231 m

Model Parameters

Well & Wellbore parameters (Active well)

C	0.00174 m3/Pa
Skin	-2.85

Reservoir & Boundary parameters

Pi	11 m
T	3.72E-4 m2/s
K	7.38E-5 m/s
S	9.59E-7

Derived & Secondary Parameters

Rinv	20600 m
Test. Vol.	304.406 MMm3

Main Results	Bu2
Company Svensk Kärnbränslehantering AB Well KLX02:8 Observation	Field Laxemar Test Name / # HLX10 pumping interference tests

Test date / time	2004-12-29
Formation interval	202.95-208m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	230.8 m
Well Radius rw	0.038 m
Pay Zone h	5.05 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00729 1/sec
PMatch	1.54 1/m
C	0.00174 m3/Pa
S	9.59E-7
T	3.72E-4 m2/s
K	7.38E-5 m/s
Pi	11 m
Well distance	231 m

Model Parameters

Well & Wellbore parameters (Active well)

C	0.00174 m3/Pa
Skin	-2.85

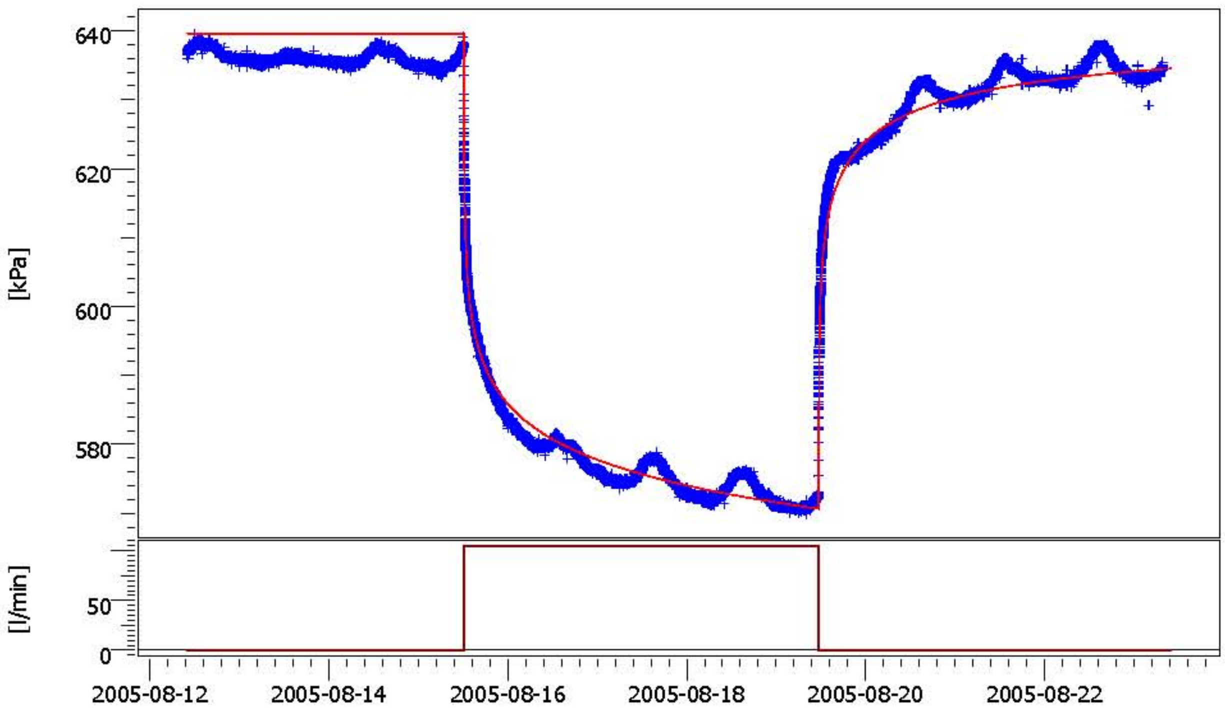
Reservoir & Boundary parameters

Pi	11 m
T	3.72E-4 m2/s
K	7.38E-5 m/s
S	9.59E-7

Derived & Secondary Parameters

Rinv	20600 m
Test. Vol.	304.406 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX21, pumped borehole	Field Laxemar Test Name / # Interference test HLX21



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

Saphir_HLX21pump_P-AirPcorr production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	638.029 kPa
Pi	639.589 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Fracture - Finite conductivity
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00182 1/sec
PMatch	0.0688 1/kPa
C	2.25E-6 m3/Pa
Total Skin	-5.27
T	1.85E-4 m2/s
K	1.31E-6 m/s
Pi	639.589 kPa

Model Parameters

Well & Wellbore parameters (HLX21, pumped borehole)

C	2.25E-6 m3/Pa
Skin	0.33
Geometrical Skin	-5.6
Xf	41.5 m
Fc	9.92E-11 m3

Reservoir & Boundary parameters

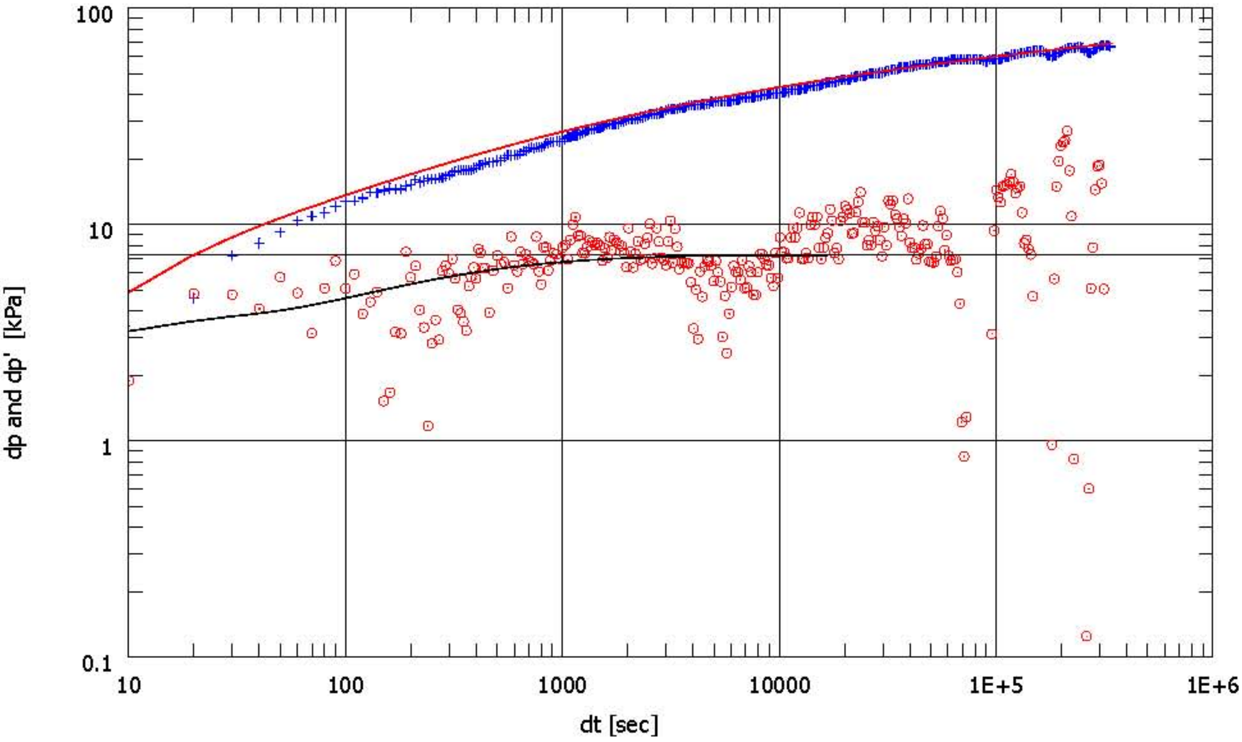
Pi	639.589 kPa
T	1.85E-4 m2/s
K	1.31E-6 m/s

Derived & Secondary Parameters

Rinv	1830 m
Test. Vol.	148.784 MMm3
Delta P (Total Skin)	-76.6003 kPa
Delta P Ratio (Total Skin)	-1.11137 Fraction

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX21, pumped borehole — Test Name / # Interference test HLX21



Saphir_HLX21pump_P-AirPcorr production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	638.029 kPa
Pi	639.589 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Fracture - Finite conductivity
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00182 1/sec
PMatch	0.0688 1/kPa
C	2.25E-6 m3/Pa
Total Skin	-5.27
T	1.85E-4 m2/s
K	1.31E-6 m/s
Pi	639.589 kPa

Model Parameters

Well & Wellbore parameters (HLX21, pumped borehole)

C	2.25E-6 m3/Pa
Skin	0.33
Geometrical Skin	-5.6
Xf	41.5 m
Fc	9.92E-11 m3

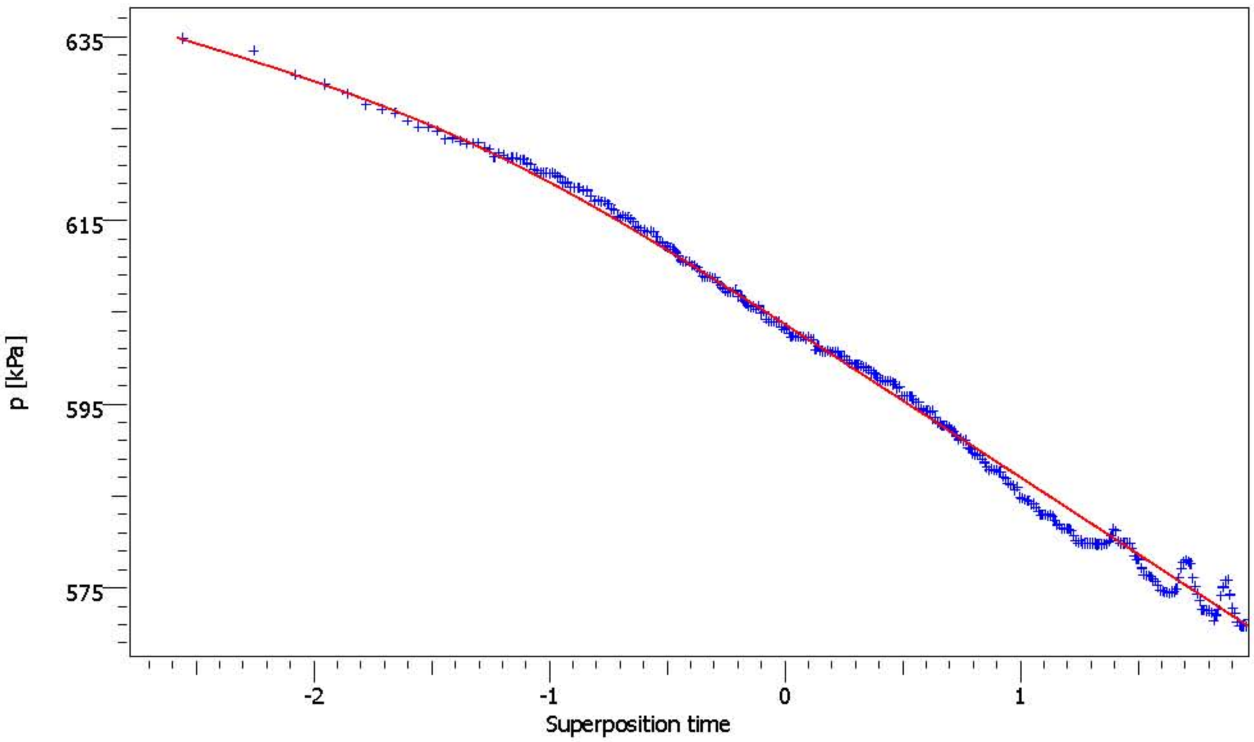
Reservoir & Boundary parameters

Pi	639.589 kPa
T	1.85E-4 m2/s
K	1.31E-6 m/s

Derived & Secondary Parameters

Rinv	1830 m
Test. Vol.	148.784 MMm3
Delta P (Total Skin)	-76.6003 kPa
Delta P Ratio (Total Skin)	-1.11137 Fraction

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX21, pumped borehole	Field Laxemar Test Name / # Interference test HLX21



Saphir_HLX21pump_P-AirPcorr production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	638.029 kPa
Pi	639.589 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Fracture - Finite conductivity
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00182 1/sec
PMatch	0.0688 1/kPa
C	2.25E-6 m3/Pa
Total Skin	-5.27
T	1.85E-4 m2/s
K	1.31E-6 m/s
Pi	639.589 kPa

Model Parameters

Well & Wellbore parameters (HLX21, pumped borehole)

C	2.25E-6 m3/Pa
Skin	0.33
Geometrical Skin	-5.6
Xf	41.5 m
Fc	9.92E-11 m3

Reservoir & Boundary parameters

Pi	639.589 kPa
T	1.85E-4 m2/s
K	1.31E-6 m/s

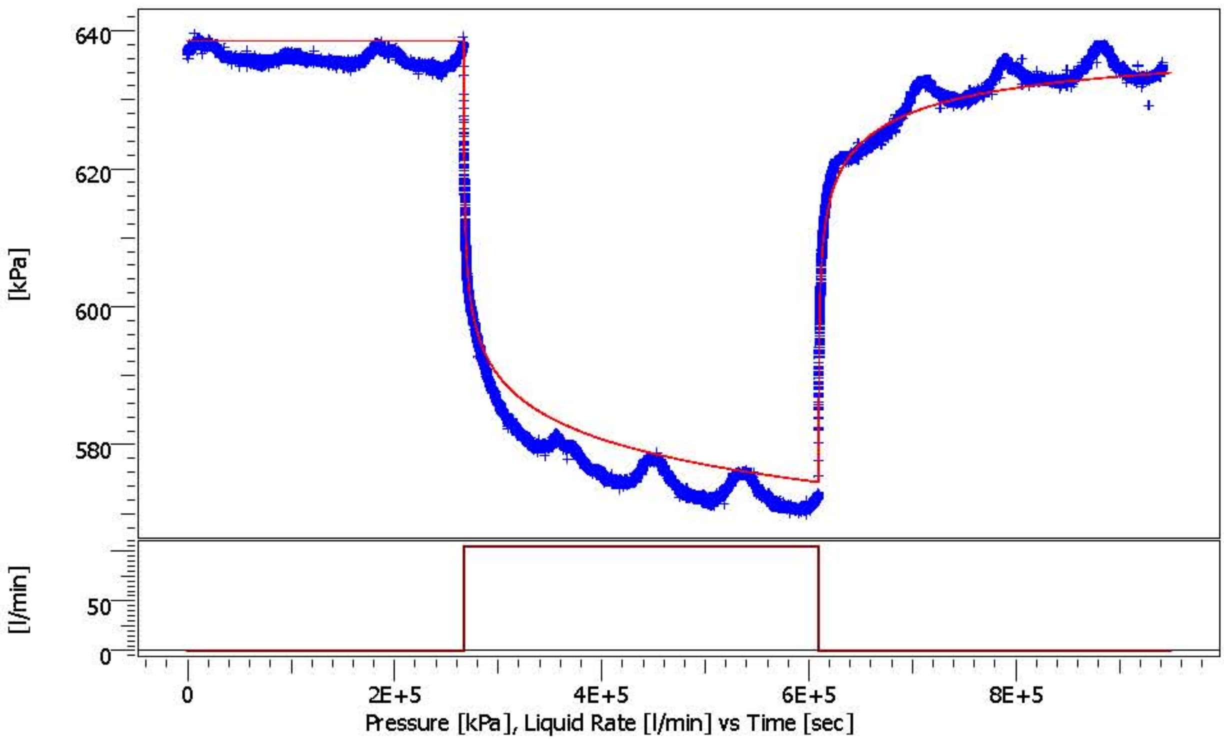
Derived & Secondary Parameters

Rinv	1830 m
Test. Vol.	148.784 MMm3
Delta P (Total Skin)	-76.6003 kPa
Delta P Ratio (Total Skin)	-1.11137 Fraction

Main Results	Dd1
Company Svensk Kärnbränslehantering AB Well HLX21, pumped borehole	Field Laxemar Test Name / # Interference test HLX21

Test date / time	2005-08-15
Formation interval	9.10 - 150.00m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.0695 m
Pay Zone h	140.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Fracture - Finite conductivity
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	0.00182 1/sec
PMatch	0.0688 1/kPa
C	2.25E-6 m3/Pa
Total Skin	-5.27
T	1.85E-4 m2/s
K	1.31E-6 m/s
Pi	639.589 kPa
Model Parameters	
Well & Wellbore parameters (HLX21, pumped borehole)	
C	2.25E-6 m3/Pa
Skin	0.33
Geometrical Skin	-5.6
Xf	41.5 m
Fc	9.92E-11 m3
Reservoir & Boundary parameters	
Pi	639.589 kPa
T	1.85E-4 m2/s
K	1.31E-6 m/s
Derived & Secondary Parameters	
Rinv	1830 m
Test. Vol.	148.784 MMm3
Delta P (Total Skin)	-76.6003 kPa
Delta P Ratio (Total Skin)	-1.11137 Fraction

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX21, pumped borehole	Field Laxemar Test Name / # Interference test HLX21



Saphir_HLX21pump_P-AirPcorr build-up #1

Rate	0 l/min
Rate change	105.307 l/min
P@dt=0	572.477 kPa
Pi	638.5 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Fracture - Finite conductivity
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00232 1/sec
PMatch	0.0758 1/kPa
C	6.62E-6 m3/Pa
Total Skin	-5.21
T	2.04E-4 m2/s
K	1.45E-6 m/s
Pi	638.5 kPa

Model Parameters

Well & Wellbore parameters (HLX21, pumped borehole)

C	6.62E-6 m3/Pa
Skin	0.0801
Geometrical Skin	-5.29
Xf	38.6 m
Fc	2.32E-11 m3

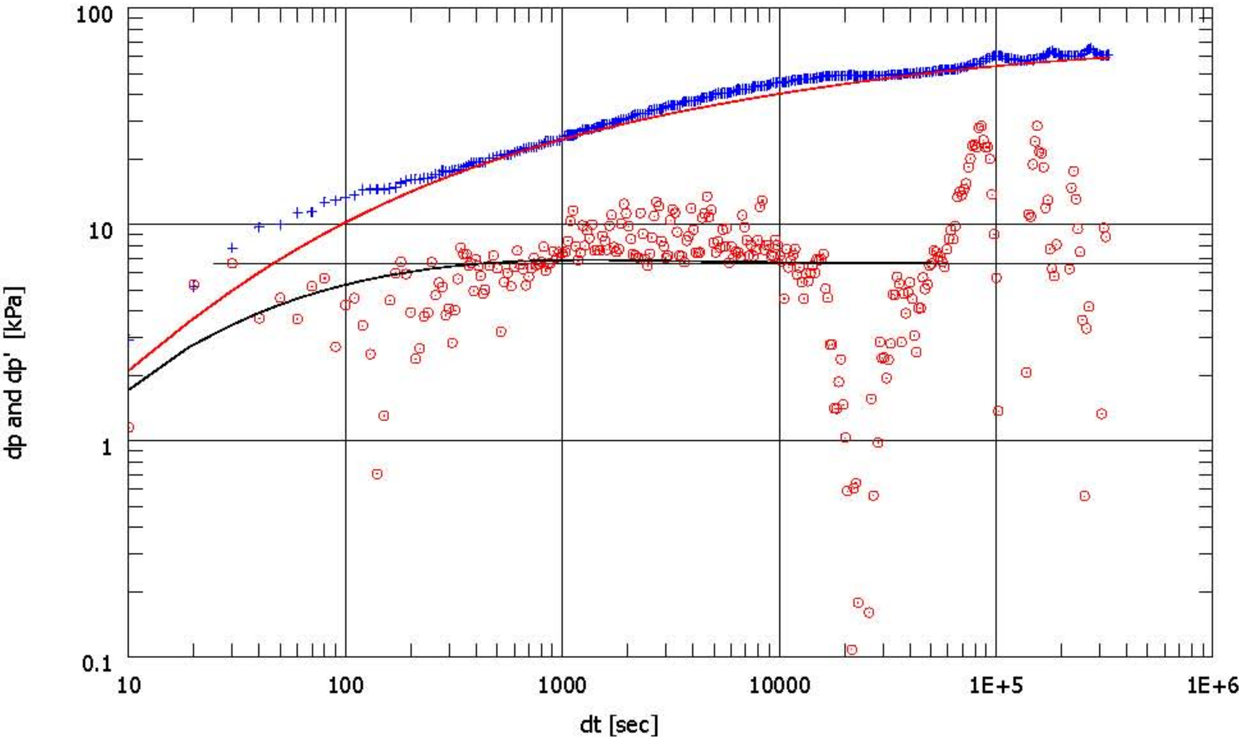
Reservoir & Boundary parameters

Pi	638.5 kPa
T	2.04E-4 m2/s
K	1.45E-6 m/s

Derived & Secondary Parameters

Rinv	1900 m
Test. Vol.	160.291 MMm3
Delta P (Total Skin)	-68.7389 kPa
Delta P Ratio (Total Skin)	-1.1586 Fraction

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX21, pumped borehole	Field Laxemar Test Name / # Interference test HLX21



Saphir_HLX21pump_P-AirPcorr build-up #1

Rate	0 l/min
Rate change	105.307 l/min
P@dt=0	572.477 kPa
Pi	638.5 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Fracture - Finite conductivity
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00232 1/sec
PMatch	0.0758 1/kPa
C	6.62E-6 m3/Pa
Total Skin	-5.21
T	2.04E-4 m2/s
K	1.45E-6 m/s
Pi	638.5 kPa

Model Parameters

Well & Wellbore parameters (HLX21, pumped borehole)

C	6.62E-6 m3/Pa
Skin	0.0801
Geometrical Skin	-5.29
Xf	38.6 m
Fc	2.32E-11 m3

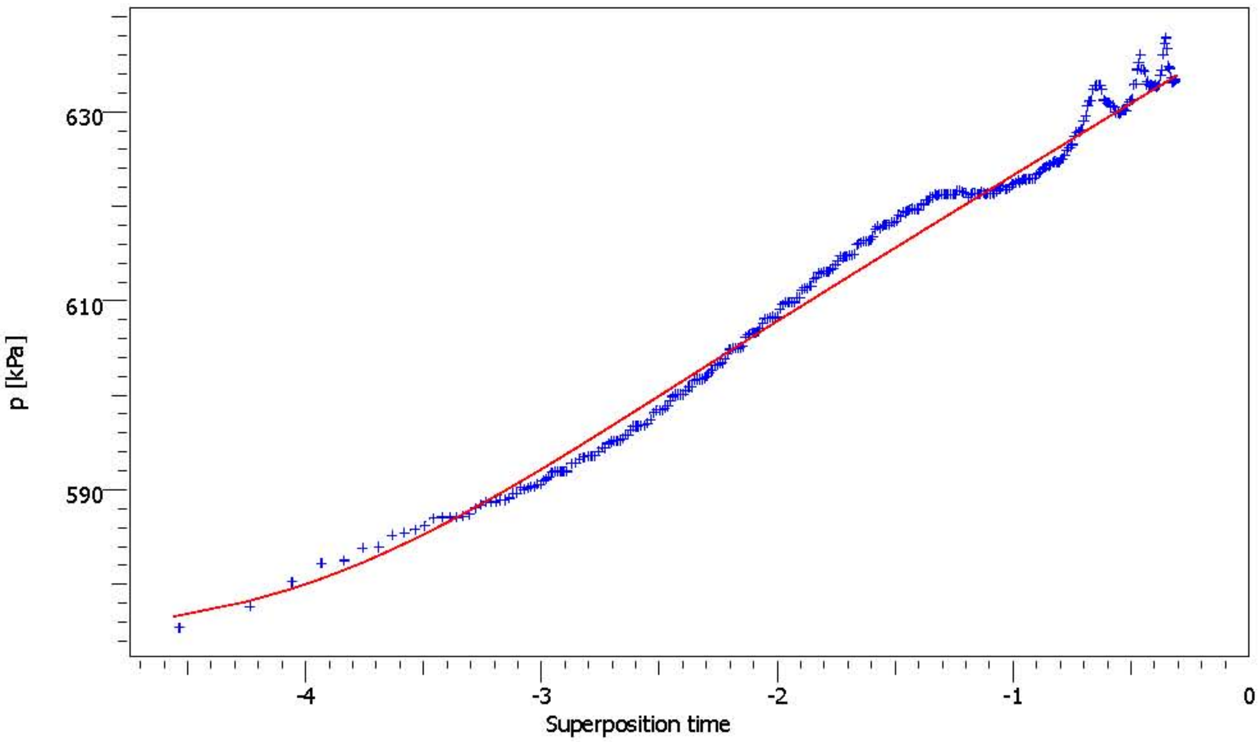
Reservoir & Boundary parameters

Pi	638.5 kPa
T	2.04E-4 m2/s
K	1.45E-6 m/s

Derived & Secondary Parameters

Rinv	1900 m
Test. Vol.	160.291 MMm3
Delta P (Total Skin)	-68.7389 kPa
Delta P Ratio (Total Skin)	-1.1586 Fraction

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX21, pumped borehole	Field Laxemar Test Name / # Interference test HLX21



Saphir_HLX21pump_P-AirPcorr build-up #1

Rate	0 l/min
Rate change	105.307 l/min
P@dt=0	572.477 kPa
Pi	638.5 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Fracture - Finite conductivity
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00232 1/sec
PMatch	0.0758 1/kPa
C	6.62E-6 m3/Pa
Total Skin	-5.21
T	2.04E-4 m2/s
K	1.45E-6 m/s
Pi	638.5 kPa

Model Parameters

Well & Wellbore parameters (HLX21, pumped borehole)

C	6.62E-6 m3/Pa
Skin	0.0801
Geometrical Skin	-5.29
Xf	38.6 m
Fc	2.32E-11 m3

Reservoir & Boundary parameters

Pi	638.5 kPa
T	2.04E-4 m2/s
K	1.45E-6 m/s

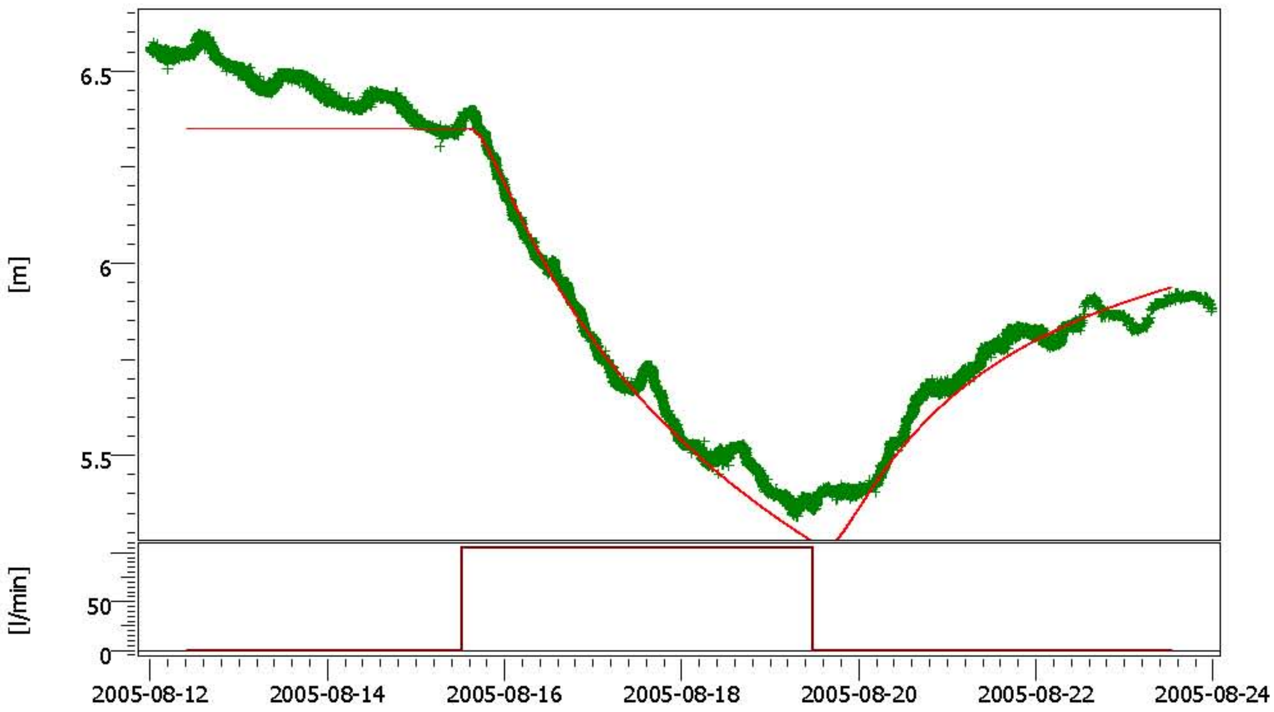
Derived & Secondary Parameters

Rinv	1900 m
Test. Vol.	160.291 MMm3
Delta P (Total Skin)	-68.7389 kPa
Delta P Ratio (Total Skin)	-1.1586 Fraction

Main Results	Bu1
Company Svensk Kärnbränslehantering AB Well HLX21, pumped borehole	Field Laxemar Test Name / # Interference test HLX21

Test date / time	2005-08-15
Formation interval	9.10 - 150.00m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.0695 m
Pay Zone h	140.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Fracture - Finite conductivity
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	0.00232 1/sec
PMatch	0.0758 1/kPa
C	6.62E-6 m3/Pa
Total Skin	-5.21
T	2.04E-4 m2/s
K	1.45E-6 m/s
Pi	638.5 kPa
Model Parameters	
Well & Wellbore parameters (HLX21, pumped borehole)	
C	6.62E-6 m3/Pa
Skin	0.0801
Geometrical Skin	-5.29
Xf	38.6 m
Fc	2.32E-11 m3
Reservoir & Boundary parameters	
Pi	638.5 kPa
T	2.04E-4 m2/s
K	1.45E-6 m/s
Derived & Secondary Parameters	
Rinv	1900 m
Test. Vol.	160.291 MMm3
Delta P (Total Skin)	-68.7389 kPa
Delta P Ratio (Total Skin)	-1.1586 Fraction

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX11: 1 Observation	Field Laxemar Test Name / # Interference HLX21



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX11:1obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	6.36247 m
Pi	6.35 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.85E-6 1/sec
PMatch	0.756 1/m
S	1.23E-4
T	2.11E-4 m2/s
K	3.98E-6 m/s
Pi	6.35 m
Well distance	541 m

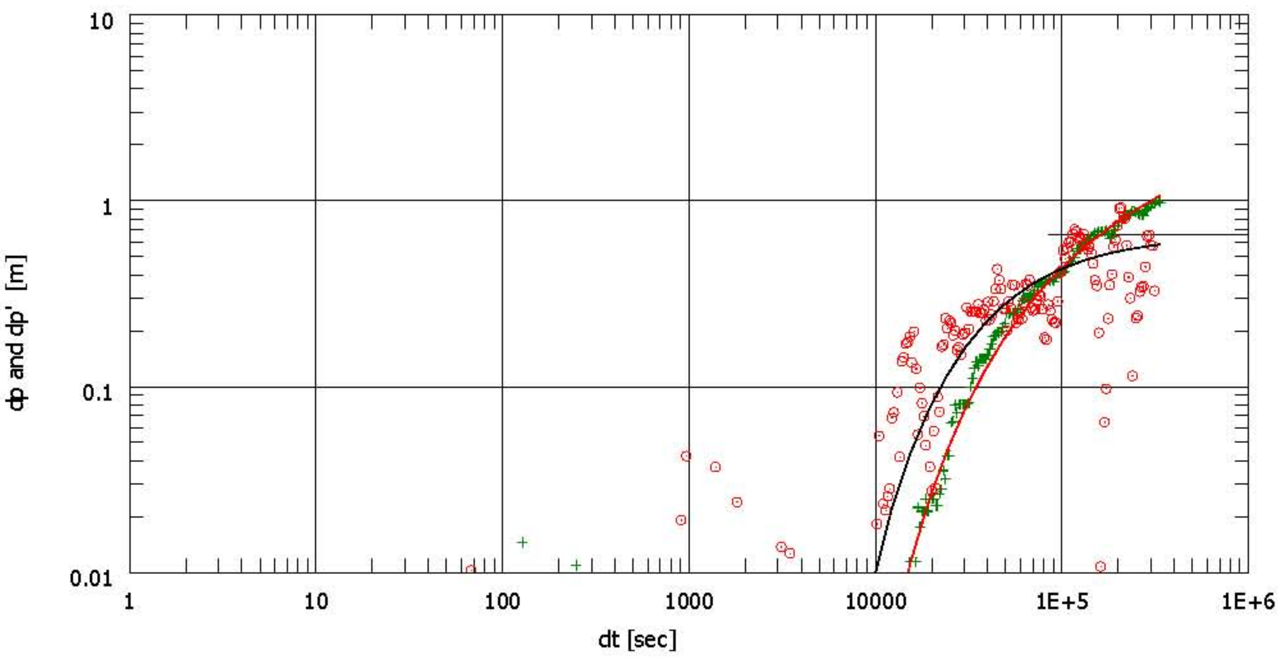
Model Parameters
Reservoir & Boundary parameters

Pi	6.35 m
T	2.11E-4 m2/s
K	3.98E-6 m/s
S	1.23E-4

Derived & Secondary Parameters

Rinv	1350 m
Test. Vol.	166.756 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX11: 1 Observation	Field Laxemar Test Name / # Interference HLX21



HLX11:1obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	6.36247 m
Pi	6.35 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.85E-6 1/sec
PMatch	0.756 1/m
S	1.23E-4
T	2.11E-4 m2/s
K	3.98E-6 m/s
Pi	6.35 m
Well distance	541 m

Model Parameters

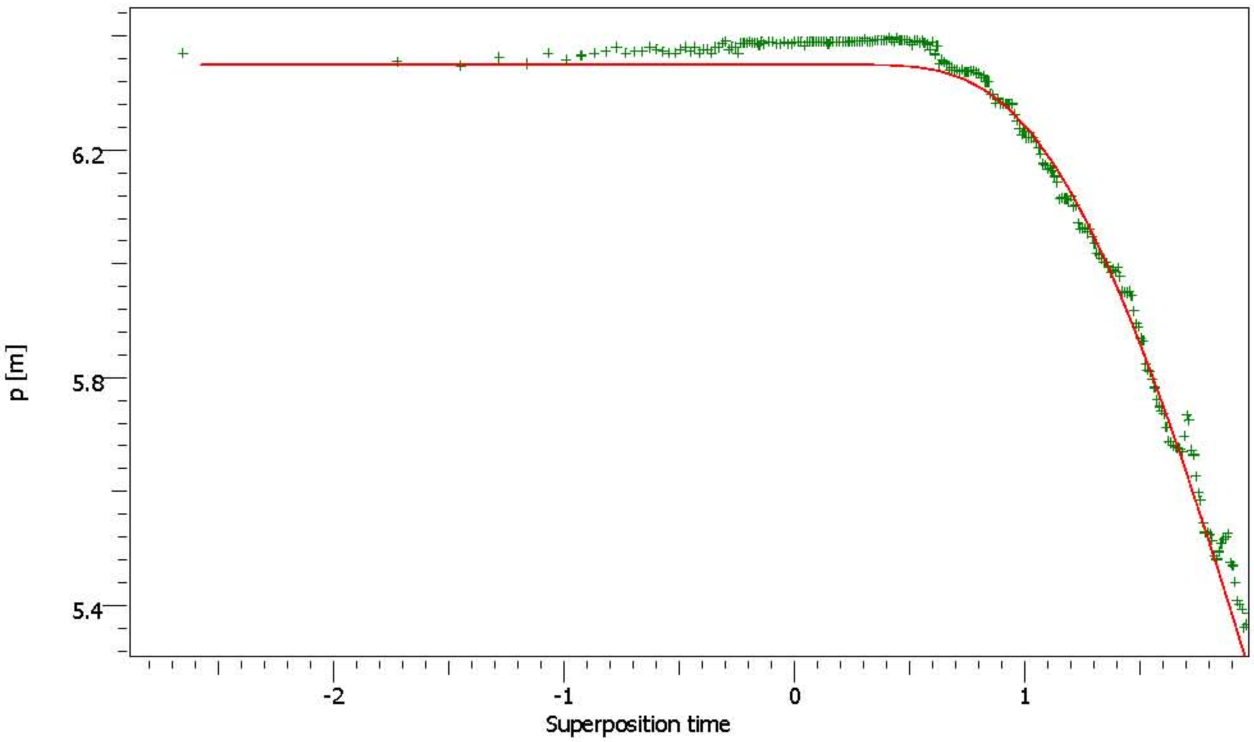
Reservoir & Boundary parameters

Pi	6.35 m
T	2.11E-4 m2/s
K	3.98E-6 m/s
S	1.23E-4

Derived & Secondary Parameters

Rinv	1350 m
Test. Vol.	166.756 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX11: 1 Observation	Field Laxemar Test Name / # Interference HLX21



HLX11:1obs production #1
Rate 105.307 l/min
Rate change 105.307 l/min
P@dt=0 6.36247 m
Pi 6.35 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 5.85E-6 1/sec
PMatch 0.756 1/m
S 1.23E-4
T 2.11E-4 m2/s
K 3.98E-6 m/s
Pi 6.35 m
Well distance 541 m

Model Parameters
Reservoir & Boundary parameters
Pi 6.35 m
T 2.11E-4 m2/s
K 3.98E-6 m/s
S 1.23E-4

Derived & Secondary Parameters
Rinv 1350 m
Test. Vol. 166.756 MMm3

Main Results	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX11: 1 Observation — Test Name / # Interference HLX21

Test date / time	2005-08-15
Formation interval	17 - 70
Perforated interval	open section
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	541 m
Well Radius rw	0.0695 m
Pay Zone h	53 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.85E-6 1/sec
PMatch	0.756 1/m
S	1.23E-4
T	2.11E-4 m2/s
K	3.98E-6 m/s
Pi	6.35 m
Well distance	541 m

Model Parameters

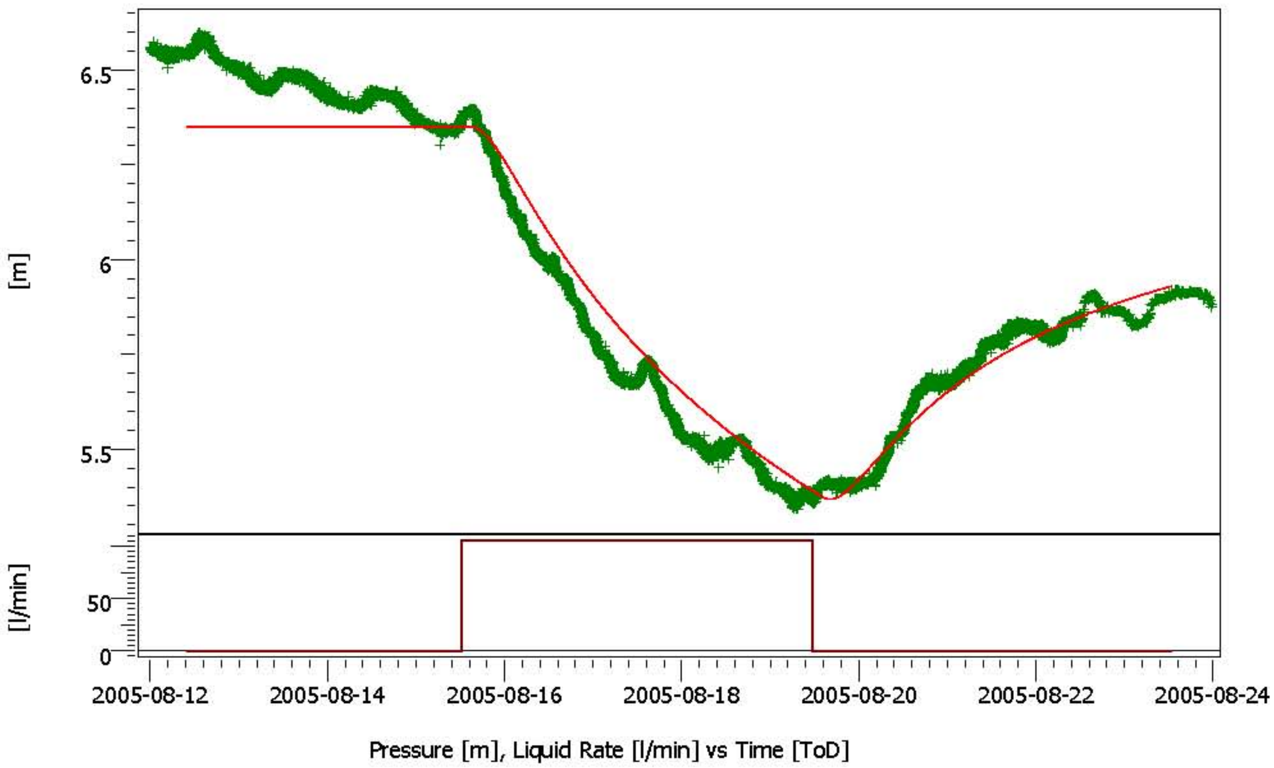
Reservoir & Boundary parameters

Pi	6.35 m
T	2.11E-4 m2/s
K	3.98E-6 m/s
S	1.23E-4

Derived & Secondary Parameters

Rinv	1350 m
Test. Vol.	166.756 MMm3

History plot	bu1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well HLX11: 1 Observation	Test Name / # Interference HLX21



HLX11:1obs build-up #1
Rate 0 l/min
Rate change 105.307 l/min
P@dt=0 5.38158 m
Pi 6.35 m
Smoothing 0.1

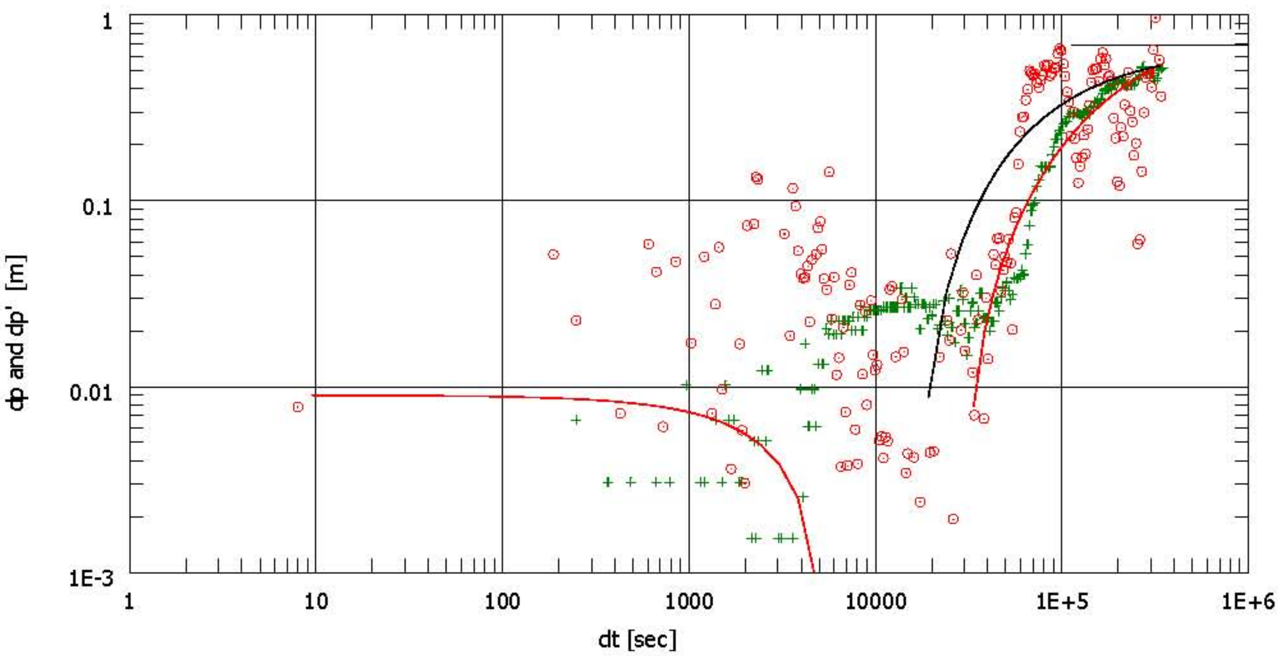
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 4.45E-6 1/sec
PMatch 0.723 1/m
S 1.55E-4
T 2.02E-4 m2/s
K 3.81E-6 m/s
Pi 6.35 m
Well distance 541 m

Model Parameters
Reservoir & Boundary parameters
Pi 6.35 m
T 2.02E-4 m2/s
K 3.81E-6 m/s
S 1.55E-4

Derived & Secondary Parameters
Rinv 1200 m
Test. Vol. 165.444 MMm3

Log-Log plot	bu1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well HLX11: 1 Observation	Test Name / # Interference HLX21



HLX11:1obs build-up #1

Rate	0 l/min
Rate change	105.307 l/min
P@dt=0	5.38158 m
Pi	6.35 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.45E-6 1/sec
PMatch	0.723 1/m
S	1.55E-4
T	2.02E-4 m2/s
K	3.81E-6 m/s
Pi	6.35 m
Well distance	541 m

Model Parameters

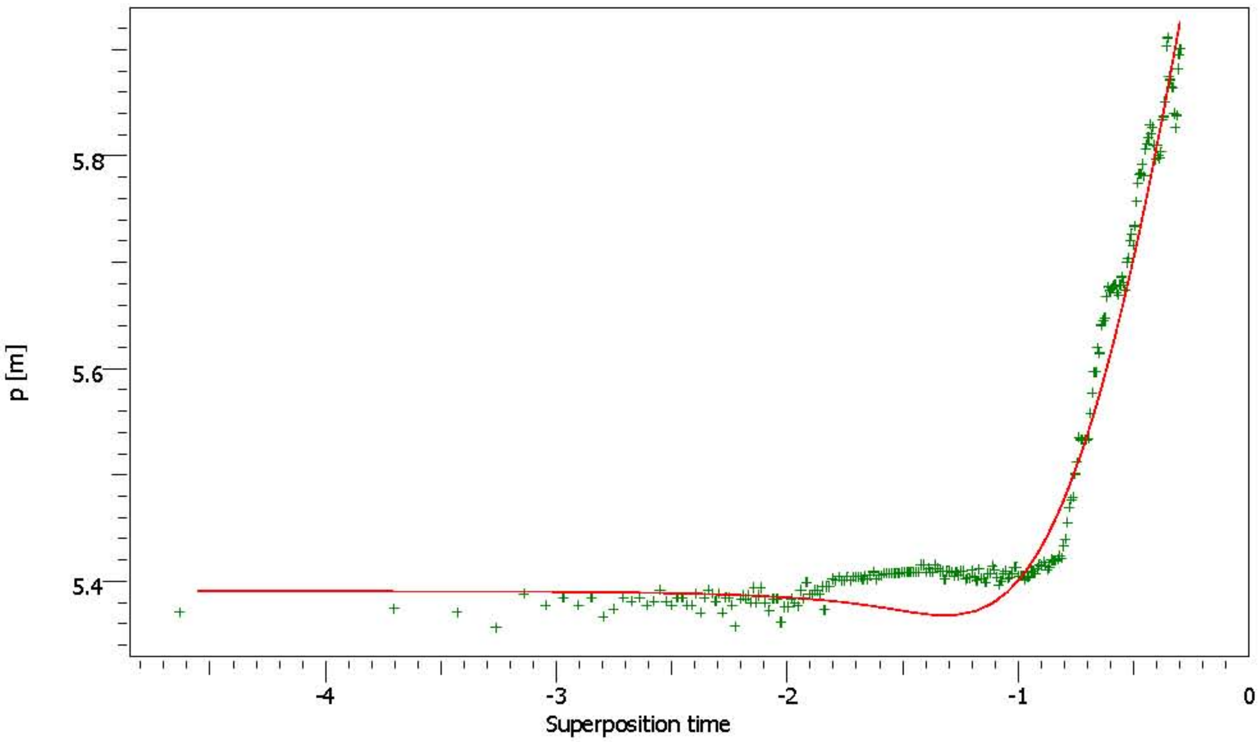
Reservoir & Boundary parameters

Pi	6.35 m
T	2.02E-4 m2/s
K	3.81E-6 m/s
S	1.55E-4

Derived & Secondary Parameters

Rinv	1200 m
Test. Vol.	165.444 MMm3

Semi-Log plot	bu1
Company Svensk Kärnbränslehantering AB Well HLX11: 1 Observation	Field Laxemar Test Name / # Interference HLX21



HLX11:1obs build-up #1

Rate	0 l/min
Rate change	105.307 l/min
P@dt=0	5.38158 m
Pi	6.35 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.45E-6 1/sec
PMatch	0.723 1/m
S	1.55E-4
T	2.02E-4 m2/s
K	3.81E-6 m/s
Pi	6.35 m
Well distance	541 m

Model Parameters
Reservoir & Boundary parameters

Pi	6.35 m
T	2.02E-4 m2/s
K	3.81E-6 m/s
S	1.55E-4

Derived & Secondary Parameters

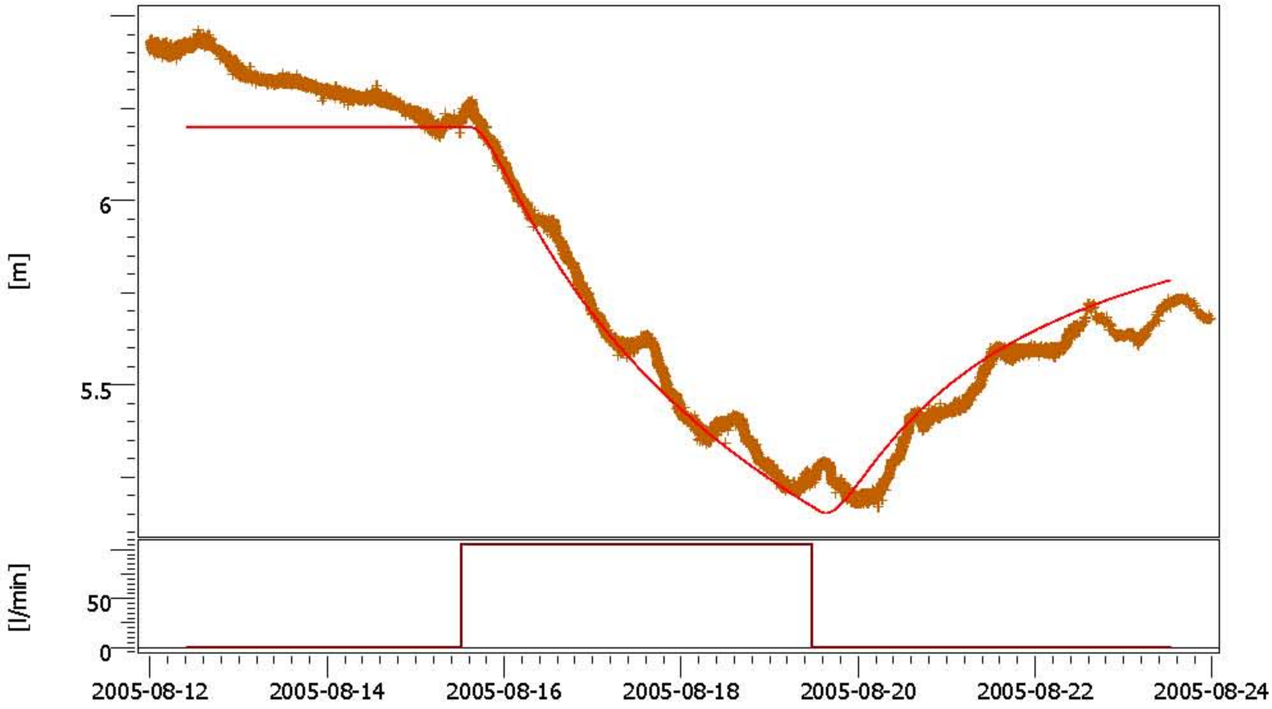
Rinv	1200 m
Test. Vol.	165.444 MMm3

Main Results	bu1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX11: 1 Observation	Test Name / #	Interference HLX21

Test date / time	2005-08-15
Formation interval	17 - 70
Perforated interval	open section
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	541 m
Well Radius rw	0.0695 m
Pay Zone h	53 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	4.45E-6 1/sec
PMatch	0.723 1/m
S	1.55E-4
T	2.02E-4 m2/s
K	3.81E-6 m/s
Pi	6.35 m
Well distance	541 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	6.35 m
T	2.02E-4 m2/s
K	3.81E-6 m/s
S	1.55E-4
Derived & Secondary Parameters	
Rinv	1200 m
Test. Vol.	165.444 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX11:2 Observation	Field Laxemar Test Name / # Interference HLX21



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX11:2obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	6.21992 m
Pi	6.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.05E-7 1/sec
PMatch	0.743 1/m
S	0.00229
T	2.07E-4 m2/s
K	2.07E-5 m/s
Pi	6.2 m
Well distance	545 m

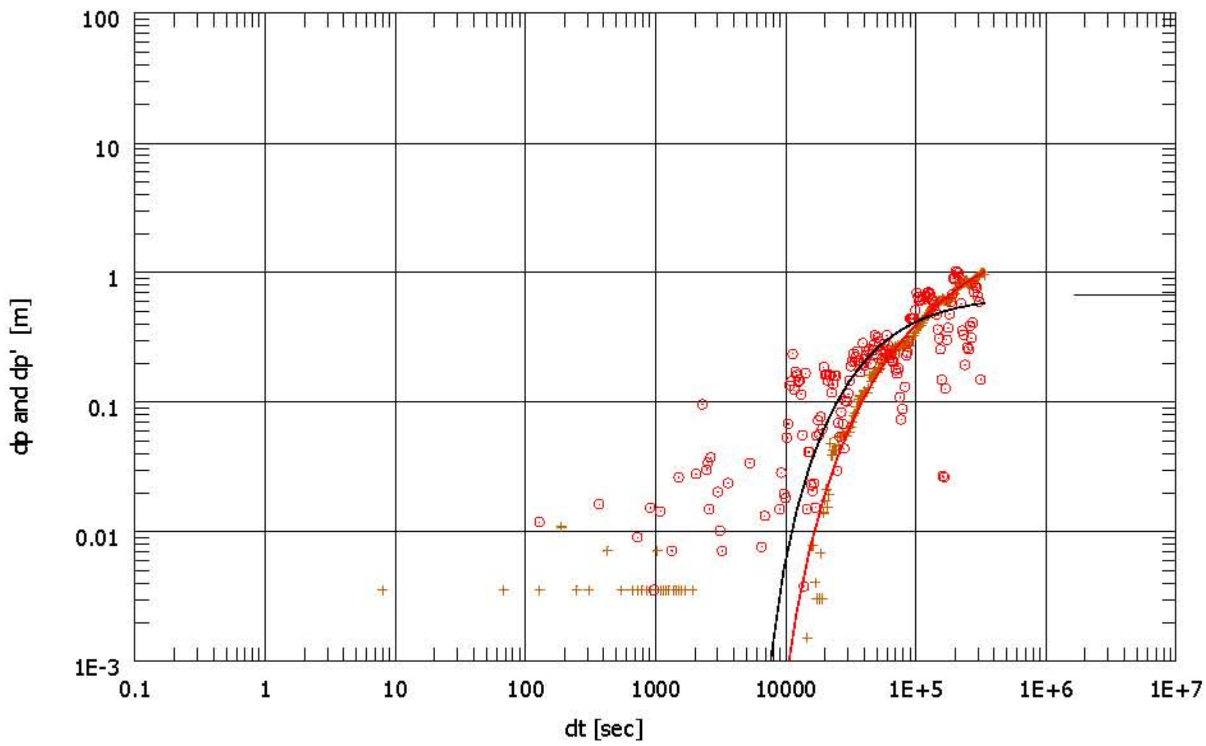
Model Parameters
Reservoir & Boundary parameters

Pi	6.2 m
T	2.07E-4 m2/s
K	2.07E-5 m/s
S	0.00229

Derived & Secondary Parameters

Rinv	312 m
Test. Vol.	163.951 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX11:2 Observation	Field Laxemar Test Name / # Interference HLX21



HLX11:2obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	6.21992 m
Pi	6.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.05E-7 1/sec
PMatch	0.743 1/m
S	0.00229
T	2.07E-4 m2/s
K	2.07E-5 m/s
Pi	6.2 m
Well distance	545 m

Model Parameters

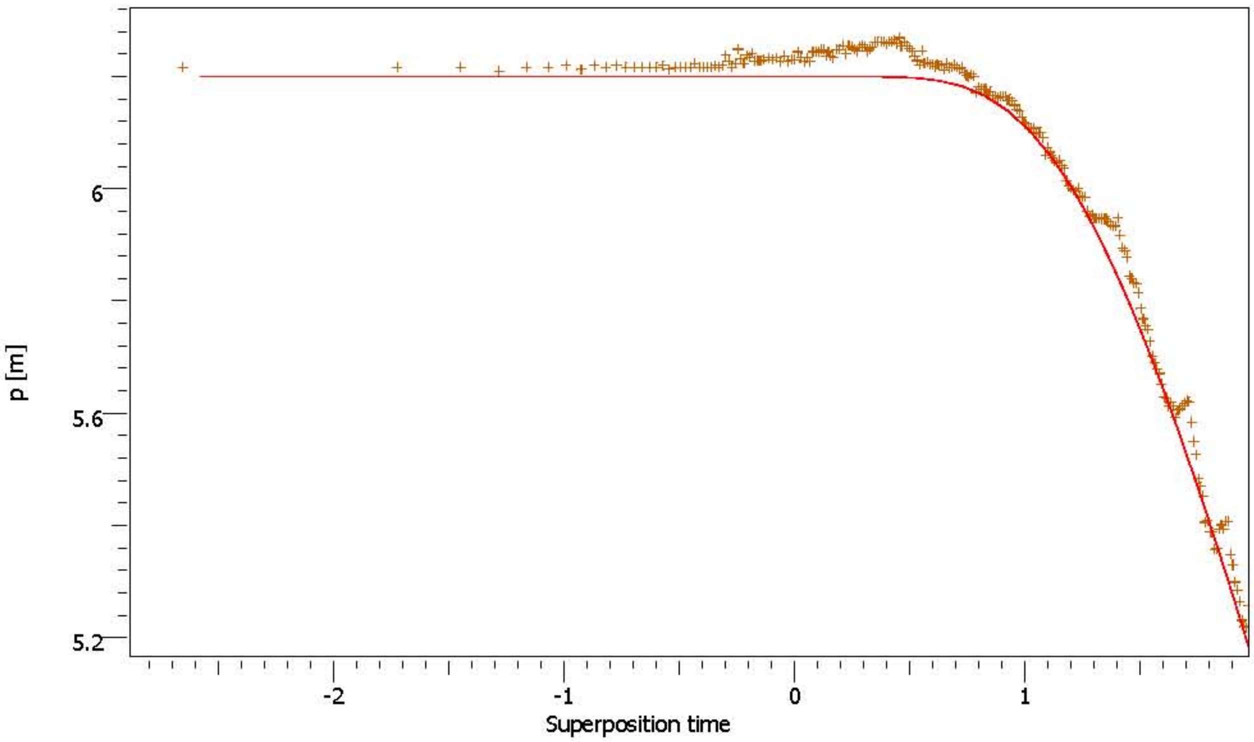
Reservoir & Boundary parameters

Pi	6.2 m
T	2.07E-4 m2/s
K	2.07E-5 m/s
S	0.00229

Derived & Secondary Parameters

Rinv	312 m
Test. Vol.	163.951 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX11:2 Observation	Field Laxemar Test Name / # Interference HLX21



HLX11:2obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	6.21992 m
Pi	6.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.05E-7 1/sec
PMatch	0.743 1/m
S	0.00229
T	2.07E-4 m2/s
K	2.07E-5 m/s
Pi	6.2 m
Well distance	545 m

Model Parameters
Reservoir & Boundary parameters

Pi	6.2 m
T	2.07E-4 m2/s
K	2.07E-5 m/s
S	0.00229

Derived & Secondary Parameters

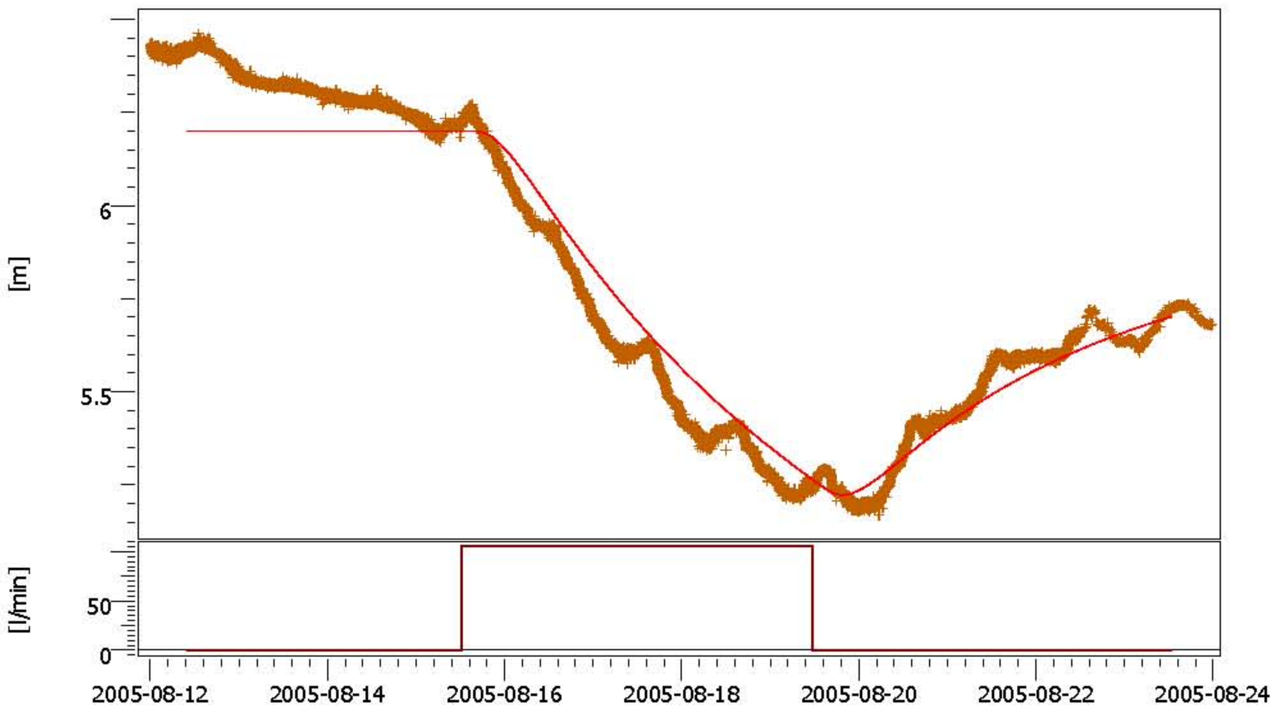
Rinv	312 m
Test. Vol.	163.951 MMm3

Main Results	Dd1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX11:2 Observation	Test Name / #	Interference HLX21

Test date / time	2005-08-15
Formation interval	6 - 16m
Perforated interval	open section
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	544.8 m
Well Radius rw	0.0695 m
Pay Zone h	10 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	3.05E-7 1/sec
PMatch	0.743 1/m
S	0.00229
T	2.07E-4 m2/s
K	2.07E-5 m/s
Pi	6.2 m
Well distance	545 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	6.2 m
T	2.07E-4 m2/s
K	2.07E-5 m/s
S	0.00229
Derived & Secondary Parameters	
Rinv	312 m
Test. Vol.	163.951 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX11:2 Observation	Field Laxemar Test Name / # Interference HLX21



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX11:2obs build-up #1

Rate	0 l/min
Rate change	105.307 l/min
P@dt=0	5.25485 m
Pi	6.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.78E-7 1/sec
PMatch	0.579 1/m
S	0.00305
T	1.61E-4 m2/s
K	1.61E-5 m/s
Pi	6.2 m
Well distance	545 m

Model Parameters
Reservoir & Boundary parameters

Pi	6.2 m
T	1.61E-4 m2/s
K	1.61E-5 m/s
S	0.00305

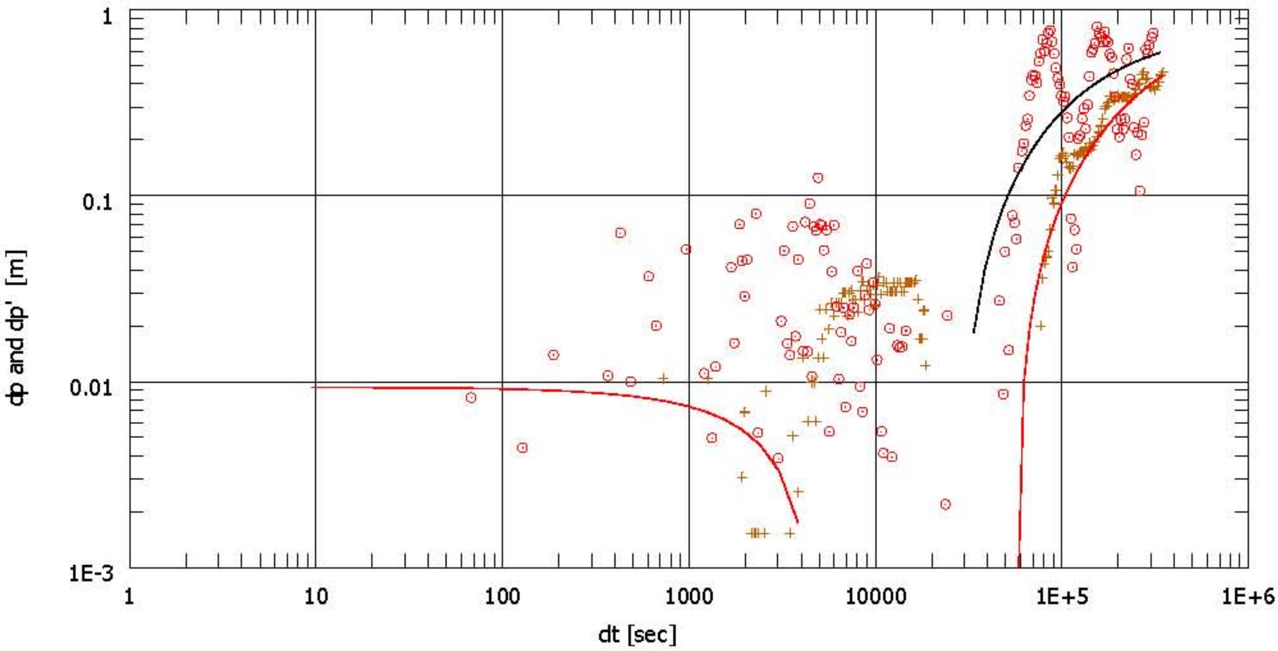
Derived & Secondary Parameters

Rinv	243 m
Test. Vol.	132.42 MMm3

Log-Log plot	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX11:2 Observation

Field Laxemar
Test Name / # Interference HLX21



HLX11:2obs build-up #1

Rate	0 l/min
Rate change	105.307 l/min
P@dt=0	5.25485 m
Pi	6.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.78E-7 1/sec
PMatch	0.579 1/m
S	0.00305
T	1.61E-4 m2/s
K	1.61E-5 m/s
Pi	6.2 m
Well distance	545 m

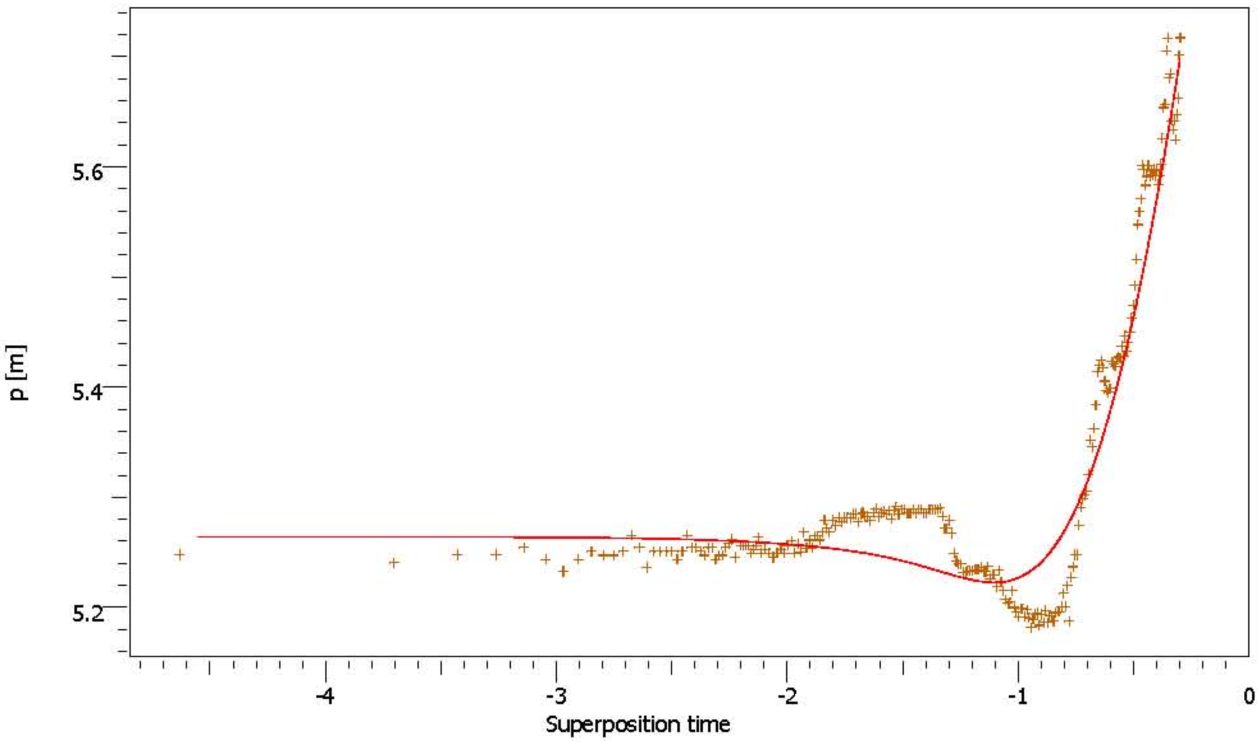
Model Parameters
Reservoir & Boundary parameters

Pi	6.2 m
T	1.61E-4 m2/s
K	1.61E-5 m/s
S	0.00305

Derived & Secondary Parameters

Rinv	243 m
Test. Vol.	132.42 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX11:2 Observation	Field Laxemar Test Name / # Interference HLX21



HLX11:2obs build-up #1

Rate	0 l/min
Rate change	105.307 l/min
P@dt=0	5.25485 m
Pi	6.2 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.78E-7 1/sec
PMatch	0.579 1/m
S	0.00305
T	1.61E-4 m2/s
K	1.61E-5 m/s
Pi	6.2 m
Well distance	545 m

Model Parameters

Reservoir & Boundary parameters

Pi	6.2 m
T	1.61E-4 m2/s
K	1.61E-5 m/s
S	0.00305

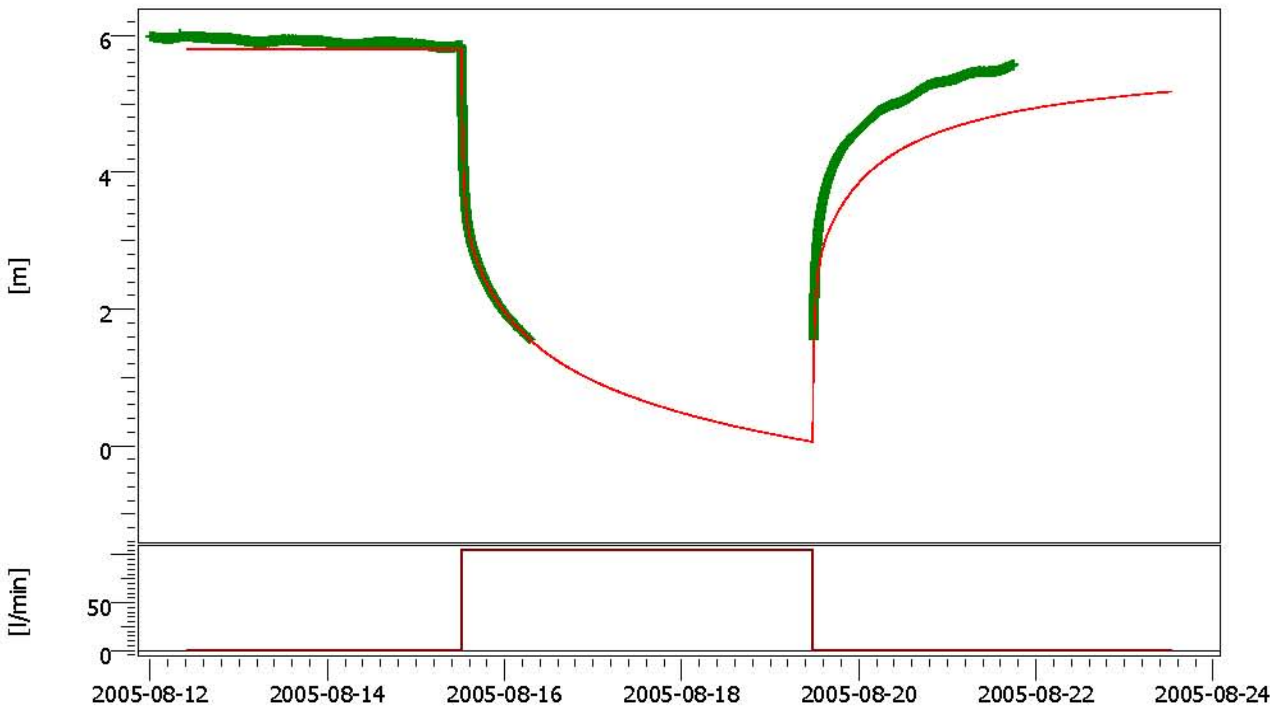
Derived & Secondary Parameters

Rinv	243 m
Test. Vol.	132.42 MMm3

Main Results	Bu1
Company Svensk Kärnbränslehantering AB Well HLX11:2 Observation	Field Laxemar Test Name / # Interference HLX21

Test date / time	2005-08-15
Formation interval	6 - 16m
Perforated interval	open section
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	544.8 m
Well Radius rw	0.0695 m
Pay Zone h	10 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.78E-7 1/sec
PMatch	0.579 1/m
S	0.00305
T	1.61E-4 m2/s
K	1.61E-5 m/s
Pi	6.2 m
Well distance	545 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	6.2 m
T	1.61E-4 m2/s
K	1.61E-5 m/s
S	0.00305
Derived & Secondary Parameters	
Rinv	243 m
Test. Vol.	132.42 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference HLX21



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX22:1obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	5.85313 m
Pi	5.8 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	7.52E-4 [sec]-1
PMatch	0.553 [m]-1
C	1.32E-5 m3/Pa
S	1.93E-5
T	1.54E-4 m2/s
K	2E-6 m/s
Pi	5.8 m
Well distance	103 m

Model Parameters

Well & Wellbore parameters (Active well)

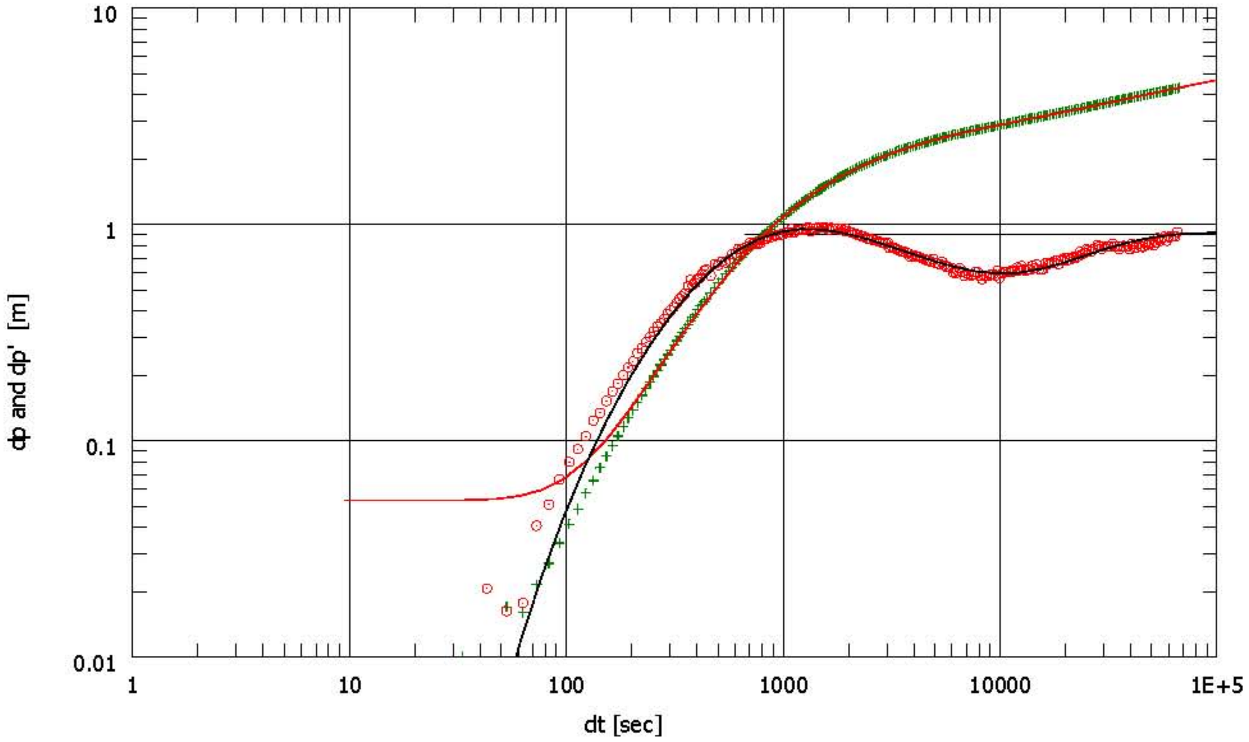
C	1.32E-5 m3/Pa
Skin	-0.549

Reservoir & Boundary parameters

Pi	5.8 m
T	1.54E-4 m2/s
K	2E-6 m/s
S	1.93E-5
Omega	0.339
Lambda	4.5E-8

Derived & Secondary Parameters

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference HLX21



HLX22:1obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	5.85313 m
Pi	5.8 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	7.52E-4 [sec]-1
PMatch	0.553 [m]-1
C	1.32E-5 m3/Pa
S	1.93E-5
T	1.54E-4 m2/s
K	2E-6 m/s
Pi	5.8 m
Well distance	103 m

Model Parameters

Well & Wellbore parameters (Active well)

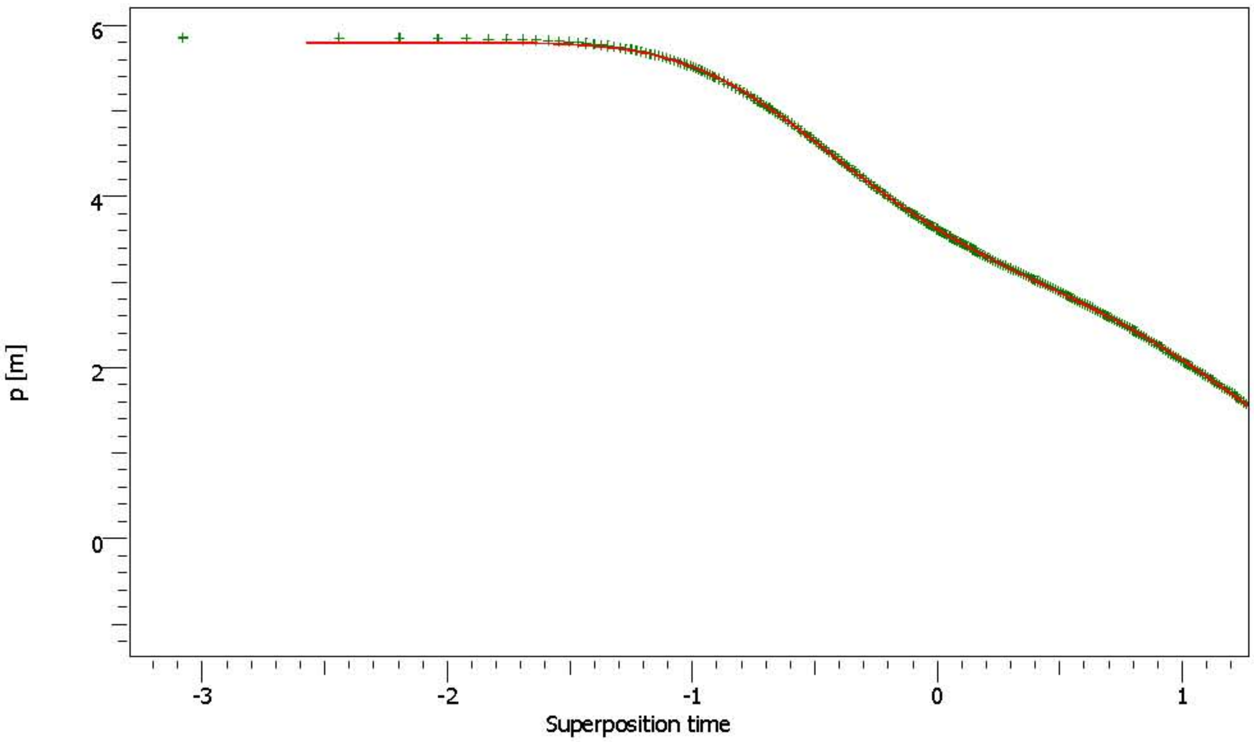
C	1.32E-5 m3/Pa
Skin	-0.549

Reservoir & Boundary parameters

Pi	5.8 m
T	1.54E-4 m2/s
K	2E-6 m/s
S	1.93E-5
Omega	0.339
Lambda	4.5E-8

Derived & Secondary Parameters

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference HLX21



HLX22:1obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	5.85313 m
Pi	5.8 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	7.52E-4 [sec]-1
PMatch	0.553 [m]-1
C	1.32E-5 m3/Pa
S	1.93E-5
T	1.54E-4 m2/s
K	2E-6 m/s
Pi	5.8 m
Well distance	103 m

Model Parameters

Well & Wellbore parameters (Active well)

C	1.32E-5 m3/Pa
Skin	-0.549

Reservoir & Boundary parameters

Pi	5.8 m
T	1.54E-4 m2/s
K	2E-6 m/s
S	1.93E-5
Omega	0.339
Lambda	4.5E-8

Derived & Secondary Parameters

Main Results	Dd1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference HLX21

Test date / time	2005-08-15
Formation interval	86.00 - 163.20m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	103 m
Well Radius rw	0.0695 m
Pay Zone h	77 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	7.52E-4 [sec]-1
PMatch	0.553 [m]-1
C	1.32E-5 m3/Pa
S	1.93E-5
T	1.54E-4 m2/s
K	2E-6 m/s
Pi	5.8 m
Well distance	103 m

Model Parameters

Well & Wellbore parameters (Active well)

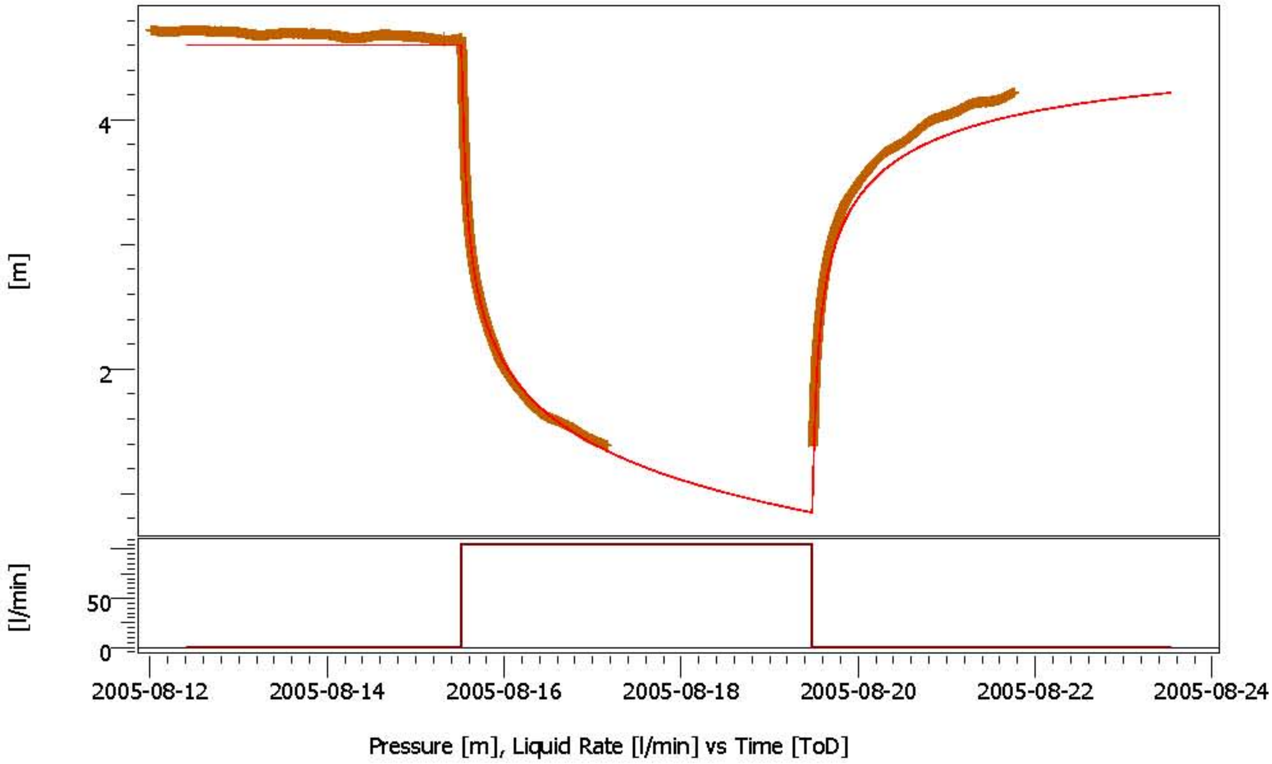
C	1.32E-5 m3/Pa
Skin	-0.549

Reservoir & Boundary parameters

Pi	5.8 m
T	1.54E-4 m2/s
K	2E-6 m/s
S	1.93E-5
Omega	0.339
Lambda	4.5E-8

Derived & Secondary Parameters

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX22:2 Observation	Field Laxemar Test Name / # Interference HLX21



HLX22_2obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	4.65484 m
Pi	4.6 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	0.00112 1/sec
PMatch	0.9 1/m
C	5.88E-5 m3/Pa
S	4.99E-5
T	2.51E-4 m2/s
K	3.35E-6 m/s
Pi	4.6 m
Well distance	67 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.88E-5 m3/Pa
Skin	-2.34

Reservoir & Boundary parameters

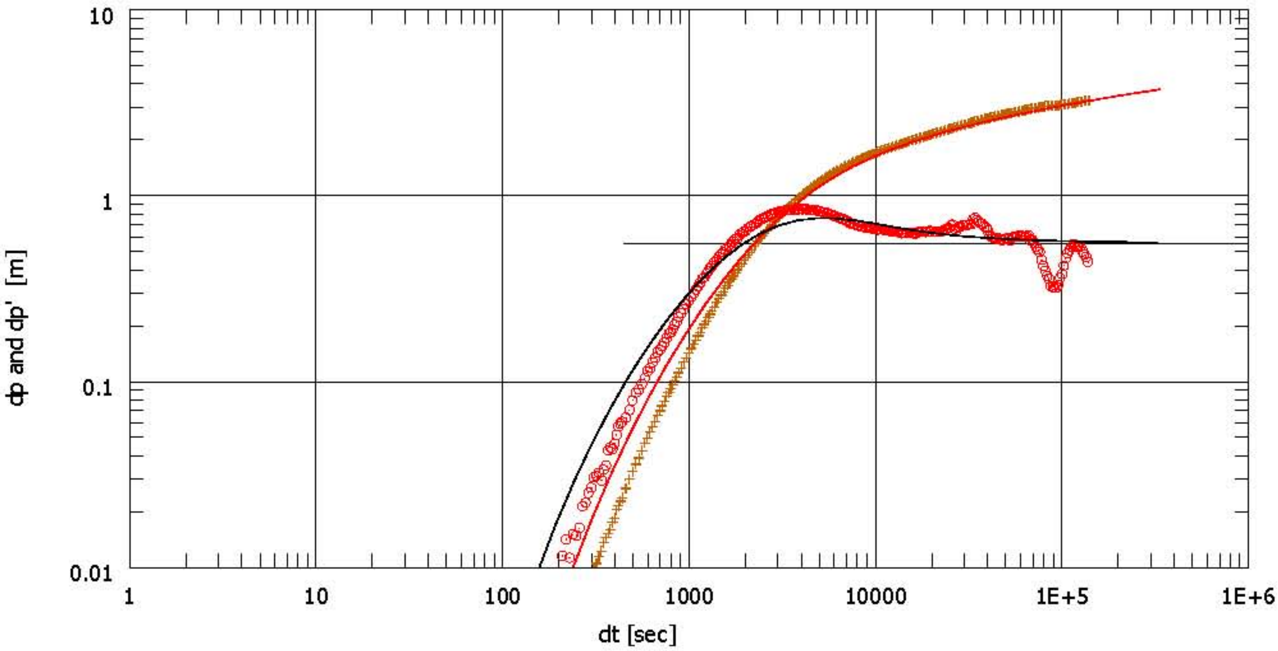
Pi	4.6 m
T	2.51E-4 m2/s
K	3.35E-6 m/s
S	4.99E-5
Omega	0.999
Lambda	1.67E-8

Derived & Secondary Parameters

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX22:2 Observation

Field Laxemar
Test Name / # Interference HLX21



HLX22_2obs production #1
Rate 105.307 l/min
Rate change 105.307 l/min
P@dt=0 4.65484 m
Pi 4.6 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Vertical
Reservoir Two porosity PSS
Boundary Infinite

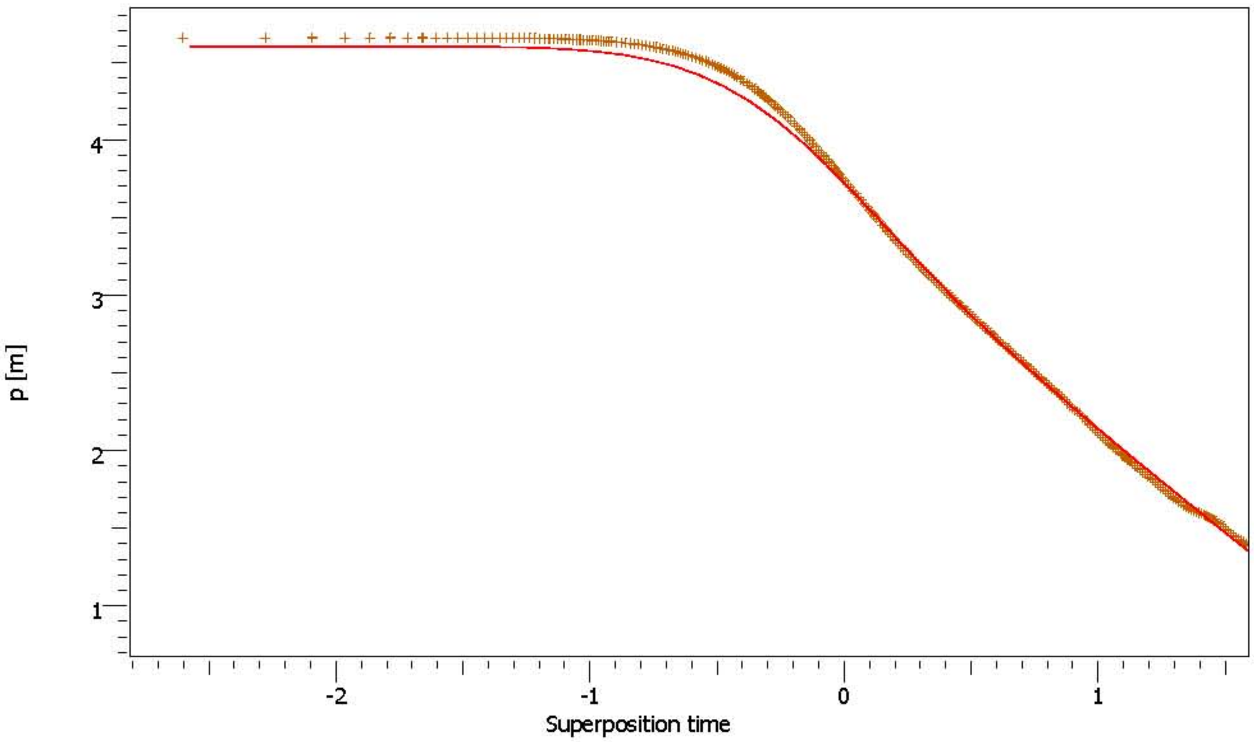
Main Model Parameters
TMatch 0.00112 1/sec
PMatch 0.9 1/m
C 5.88E-5 m3/Pa
S 4.99E-5
T 2.51E-4 m2/s
K 3.35E-6 m/s
Pi 4.6 m
Well distance 67 m

Model Parameters
Well & Wellbore parameters (Active well)
C 5.88E-5 m3/Pa
Skin -2.34
Reservoir & Boundary parameters
Pi 4.6 m
T 2.51E-4 m2/s
K 3.35E-6 m/s
S 4.99E-5
Omega 0.999
Lambda 1.67E-8

Derived & Secondary Parameters

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX22:2 Observation — Test Name / # Interference HLX21



HLX22_2obs production #1
Rate 105.307 l/min
Rate change 105.307 l/min
P@dt=0 4.65484 m
Pi 4.6 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Vertical
Reservoir Two porosity PSS
Boundary Infinite

Main Model Parameters
TMatch 0.00112 1/sec
PMatch 0.9 1/m
C 5.88E-5 m3/Pa
S 4.99E-5
T 2.51E-4 m2/s
K 3.35E-6 m/s
Pi 4.6 m
Well distance 67 m

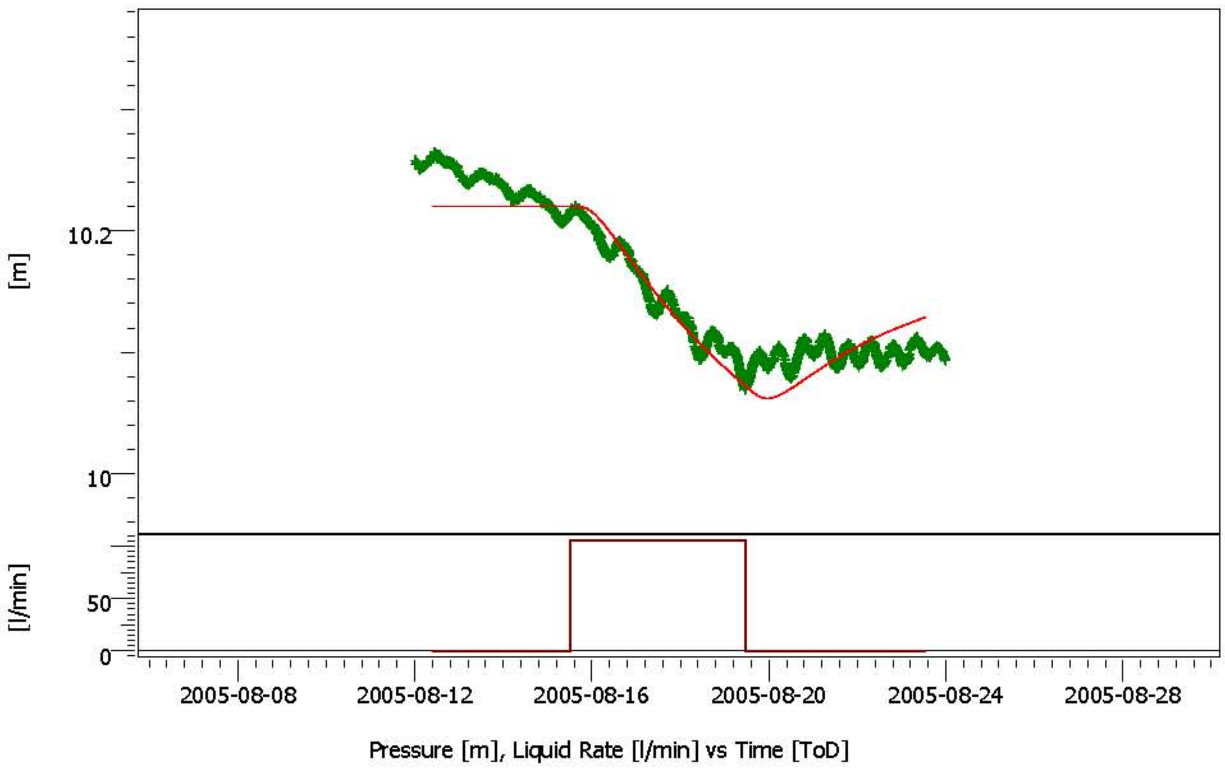
Model Parameters
Well & Wellbore parameters (Active well)
C 5.88E-5 m3/Pa
Skin -2.34
Reservoir & Boundary parameters
Pi 4.6 m
T 2.51E-4 m2/s
K 3.35E-6 m/s
S 4.99E-5
Omega 0.999
Lambda 1.67E-8

Derived & Secondary Parameters

SKB	Main Results	Dd1
	Company Svensk Kärnbränslehantering AB Well HLX22:2 Observation	Field Laxemar Test Name / # Interference HLX21

Test date / time	2005-08-15
Formation interval	9,19 - 85m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	67 m
Well Radius rw	0.0695 m
Pay Zone h	75 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite
Main Model Parameters	
TMatch	0.00112 1/sec
PMatch	0.9 1/m
C	5.88E-5 m3/Pa
S	4.99E-5
T	2.51E-4 m2/s
K	3.35E-6 m/s
Pi	4.6 m
Well distance	67 m
Model Parameters	
Well & Wellbore parameters (Active well)	
C	5.88E-5 m3/Pa
Skin	-2.34
Reservoir & Boundary parameters	
Pi	4.6 m
T	2.51E-4 m2/s
K	3.35E-6 m/s
S	4.99E-5
Omega	0.999
Lambda	1.67E-8
Derived & Secondary Parameters	

	History plot	Dd1
	Company Svensk Kärnbränslehantering AB Well HLX23:1 Observation	Field Laxemar Test Name / # Interference HLX21



HLX23:1obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	10.2143 m
Pi	10.22 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.38E-6 1/sec
PMatch	3.01 1/m
S	6.39E-4
T	8.38E-4 m2/s
K	8.45E-6 m/s
Pi	10.22 m
Well distance	743 m

Model Parameters

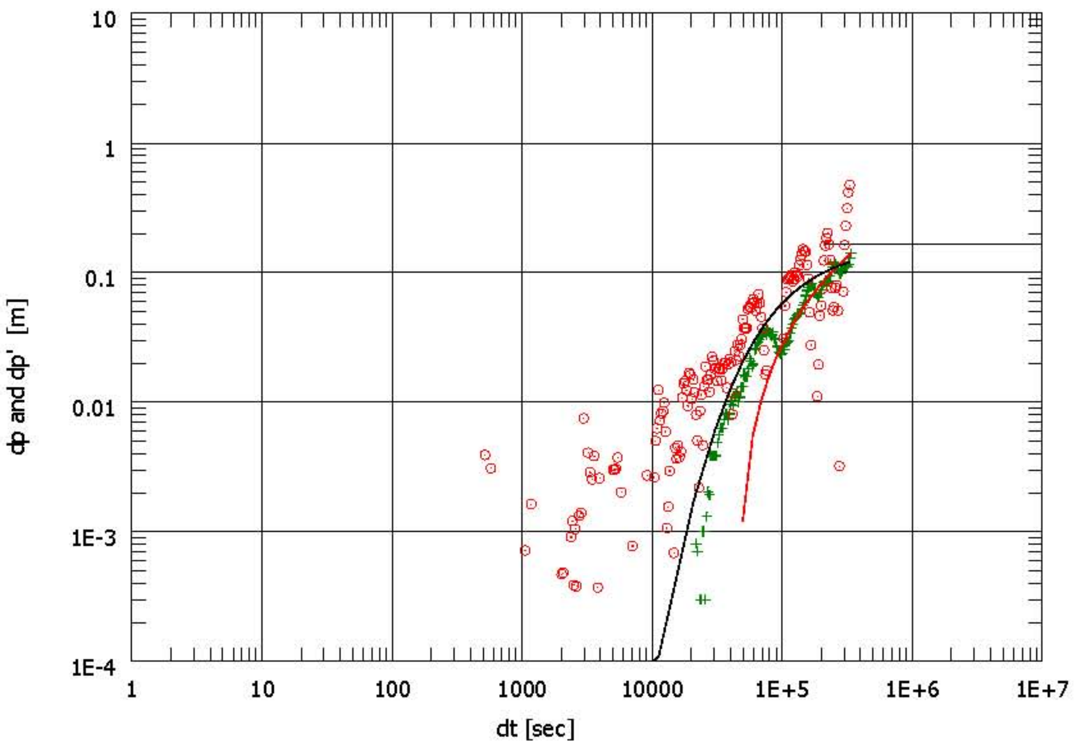
Reservoir & Boundary parameters

Pi	10.22 m
T	8.38E-4 m2/s
K	8.45E-6 m/s
S	6.39E-4

Derived & Secondary Parameters

Rinv	1190 m
Test. Vol.	667.509 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX23:1 Observation	Field Laxemar Test Name / # Interference HLX21



HLX23:1obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	10.2143 m
Pi	10.22 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.38E-6 1/sec
PMatch	3.01 1/m
S	6.39E-4
T	8.38E-4 m2/s
K	8.45E-6 m/s
Pi	10.22 m
Well distance	743 m

Model Parameters
Reservoir & Boundary parameters

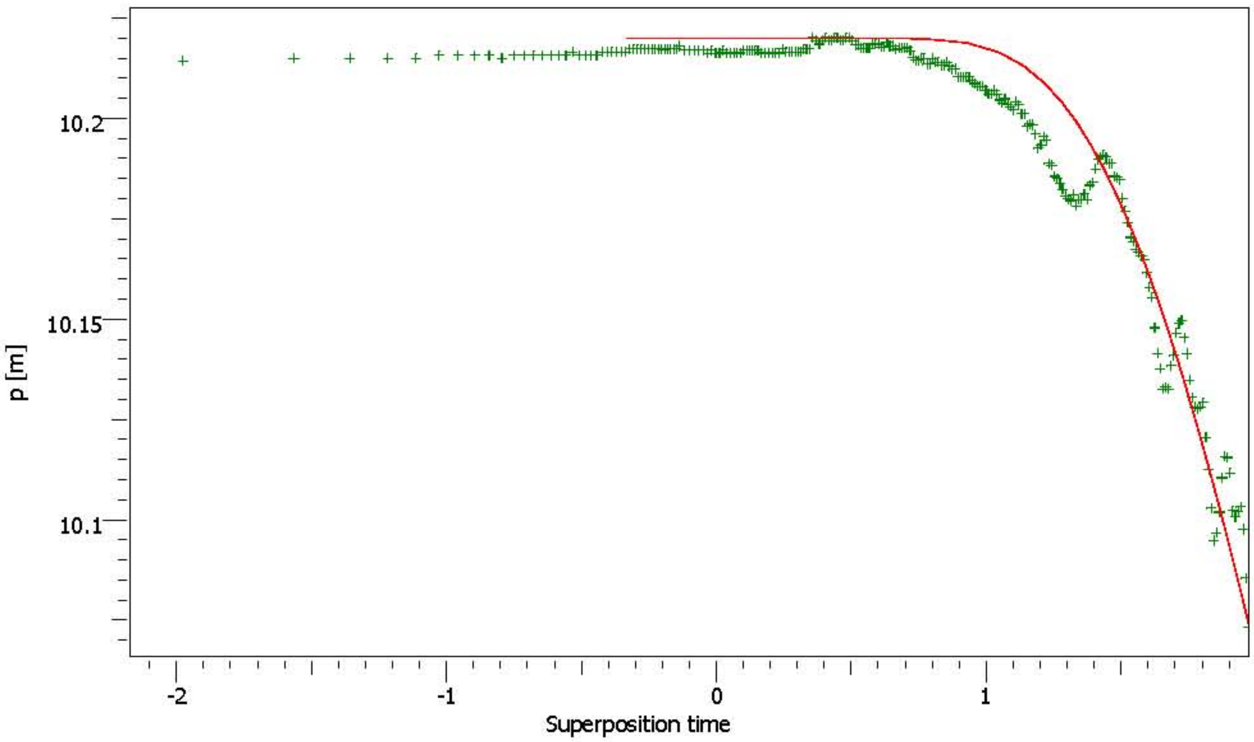
Pi	10.22 m
T	8.38E-4 m2/s
K	8.45E-6 m/s
S	6.39E-4

Derived & Secondary Parameters

Rinv	1190 m
Test. Vol.	667.509 MMm3

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB   Field Laxemar
Well HLX23:1 Observation   Test Name / # Interference HLX21



HLX23:1obs production #1
Rate 105.307 l/min
Rate change 105.307 l/min
P@dt=0 10.2143 m
Pi 10.22 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 2.38E-6 1/sec
PMatch 3.01 1/m
S 6.39E-4
T 8.38E-4 m2/s
K 8.45E-6 m/s
Pi 10.22 m
Well distance 743 m

Model Parameters
Reservoir & Boundary parameters
Pi 10.22 m
T 8.38E-4 m2/s
K 8.45E-6 m/s
S 6.39E-4

Derived & Secondary Parameters
Rinv 1190 m
Test. Vol. 667.509 MMm3

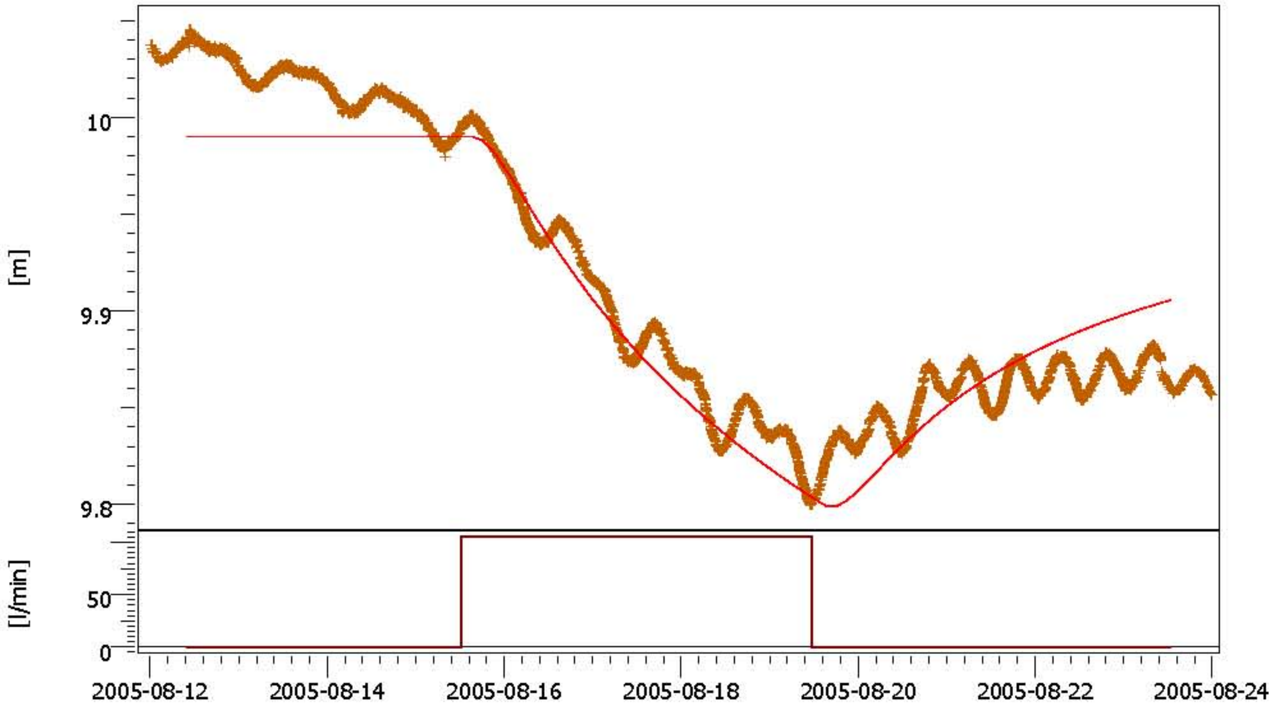
Main Results	Dd1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX23:1 Observation	Test Name / #	Interference HLX21

Test date / time	2005-08-15
Formation interval	61 - 160.2
Perforated interval	open hole
Gauge type / #	MiniTroll
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	743.4 m
Well Radius rw	0.0695 m
Pay Zone h	99.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	2.38E-6 1/sec
PMatch	3.01 1/m
S	6.39E-4
T	8.38E-4 m2/s
K	8.45E-6 m/s
Pi	10.22 m
Well distance	743 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	10.22 m
T	8.38E-4 m2/s
K	8.45E-6 m/s
S	6.39E-4
Derived & Secondary Parameters	
Rinv	1190 m
Test. Vol.	667.509 MMm3

History plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX23:2 Observation — Test Name / # Interference HLX21



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX23:2obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	9.99448 m
Pi	9.99 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.14E-6 1/sec
PMatch	3.56 1/m
S	4.34E-4
T	9.94E-4 m2/s
K	1.84E-5 m/s
Pi	9.99 m
Well distance	743 m

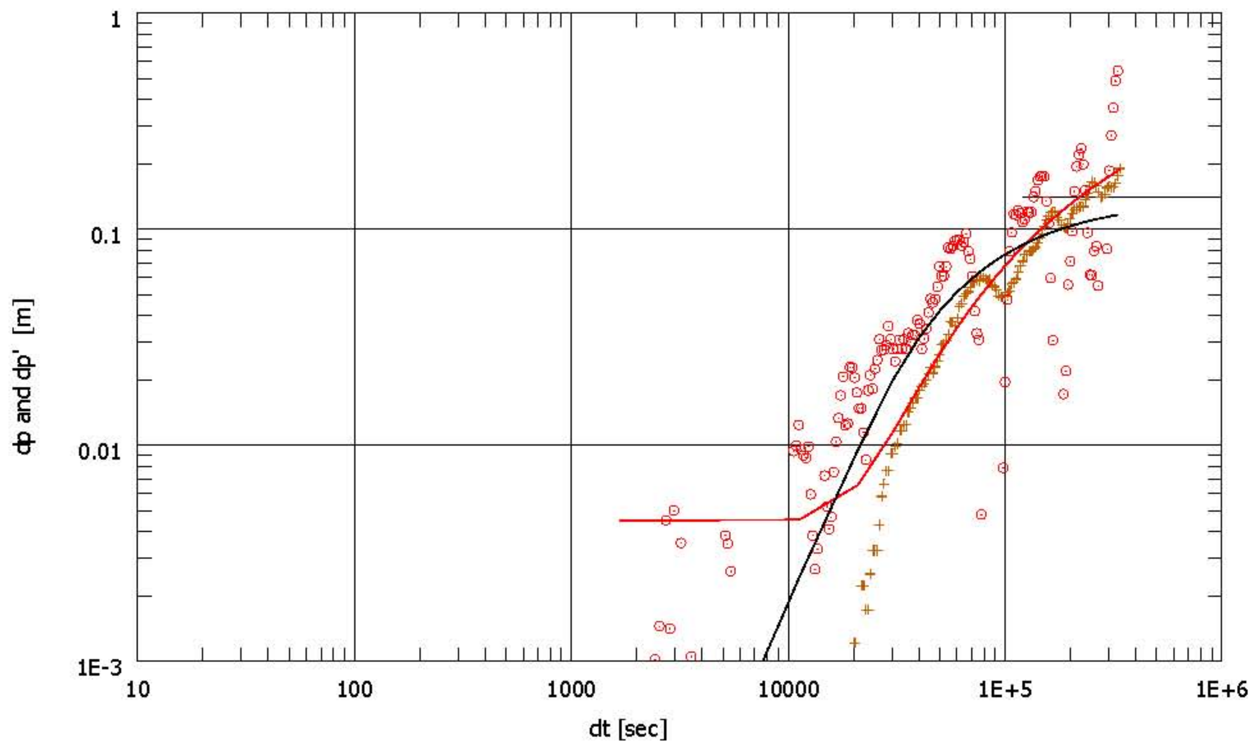
Model Parameters
Reservoir & Boundary parameters

Pi	9.99 m
T	9.94E-4 m2/s
K	1.84E-5 m/s
S	4.34E-4

Derived & Secondary Parameters

Rinv	1570 m
Test. Vol.	791.437 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX23:2 Observation	Field Laxemar Test Name / # Interference HLX21



HLX23:2obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	9.99448 m
Pi	9.99 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.14E-6 1/sec
PMatch	3.56 1/m
S	4.34E-4
T	9.94E-4 m2/s
K	1.84E-5 m/s
Pi	9.99 m
Well distance	743 m

Model Parameters

Reservoir & Boundary parameters

Pi	9.99 m
T	9.94E-4 m2/s
K	1.84E-5 m/s
S	4.34E-4

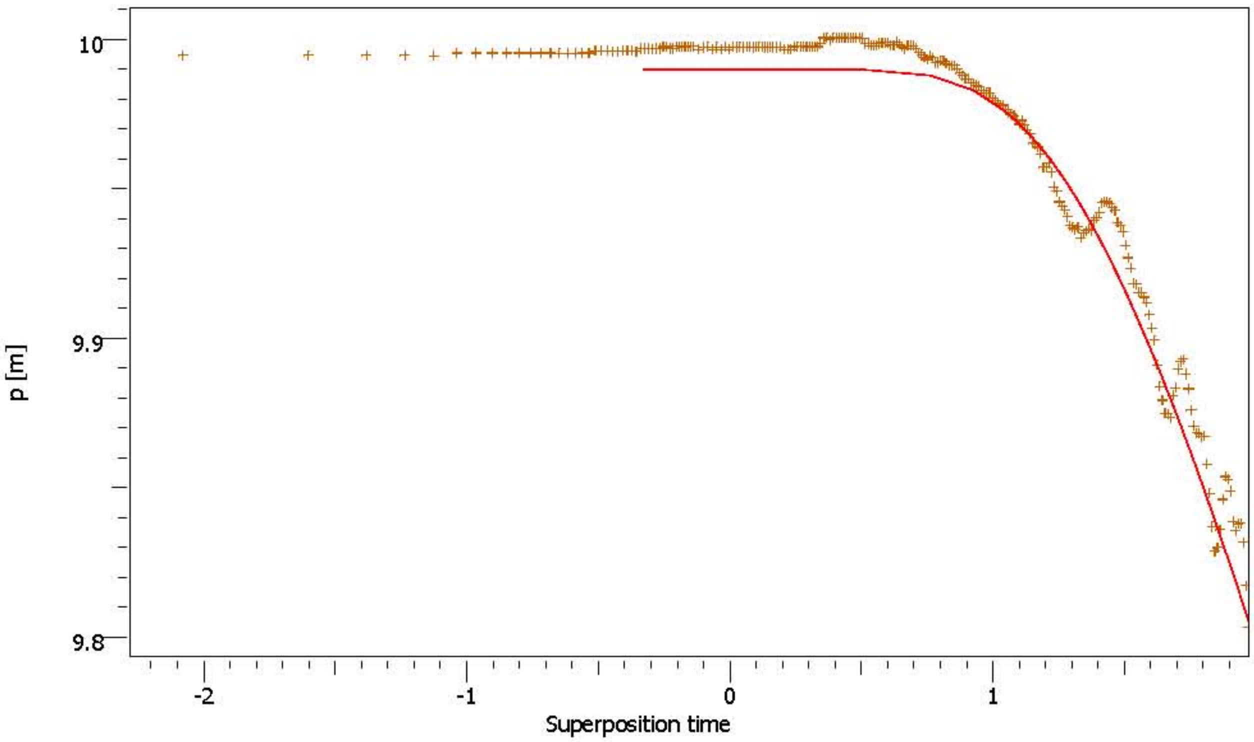
Derived & Secondary Parameters

Rinv	1570 m
Test. Vol.	791.437 MMm3

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX23:2 Observation

Field Laxemar
Test Name / # Interference HLX21



HLX23:2obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	9.99448 m
Pi	9.99 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.14E-6 1/sec
PMatch	3.56 1/m
S	4.34E-4
T	9.94E-4 m2/s
K	1.84E-5 m/s
Pi	9.99 m
Well distance	743 m

Model Parameters
Reservoir & Boundary parameters

Pi	9.99 m
T	9.94E-4 m2/s
K	1.84E-5 m/s
S	4.34E-4

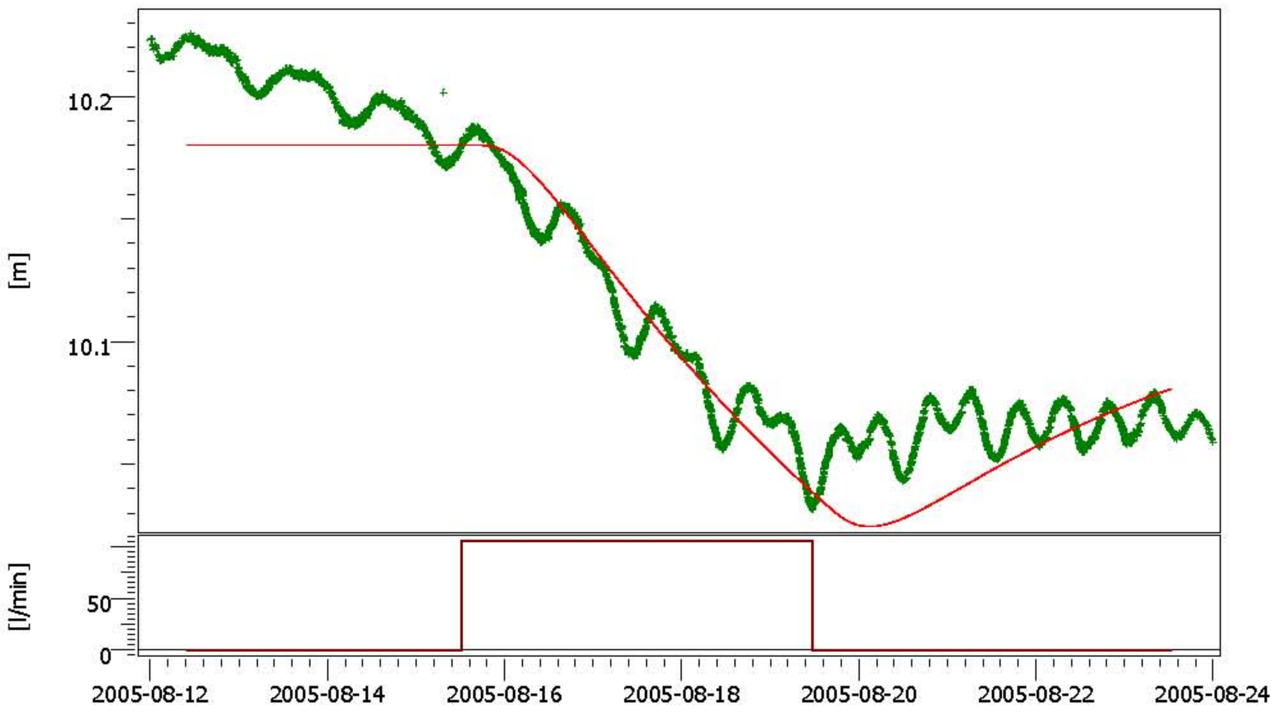
Derived & Secondary Parameters

Rinv	1570 m
Test. Vol.	791.437 MMm3

SKB	Main Results	Dd1
	Company Svensk Kärnbränslehantering AB Well HLX23:2 Observation	Field Laxemar Test Name / # Interference HLX21

Test date / time	2005-08-15
Formation interval	6,1 - 60m
Perforated interval	open hole
Gauge type / #	MiniTroll
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	743 m
Well Radius rw	0.0695 m
Pay Zone h	53.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	4.14E-6 1/sec
PMatch	3.56 1/m
S	4.34E-4
T	9.94E-4 m2/s
K	1.84E-5 m/s
Pi	9.99 m
Well distance	743 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	9.99 m
T	9.94E-4 m2/s
K	1.84E-5 m/s
S	4.34E-4
Derived & Secondary Parameters	
Rinv	1570 m
Test. Vol.	791.437 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # Interference HLX21



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX24obs production #1

Rate	105.307 l/min
Rate change	105.307 l/min
P@dt=0	10.1801 m
Pi	10.18 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.95E-6 1/sec
PMatch	2.64 1/m
S	6.31E-4
T	7.23E-4 m2/s
K	5.39E-6 m/s
Pi	10.18 m
Well distance	767 m

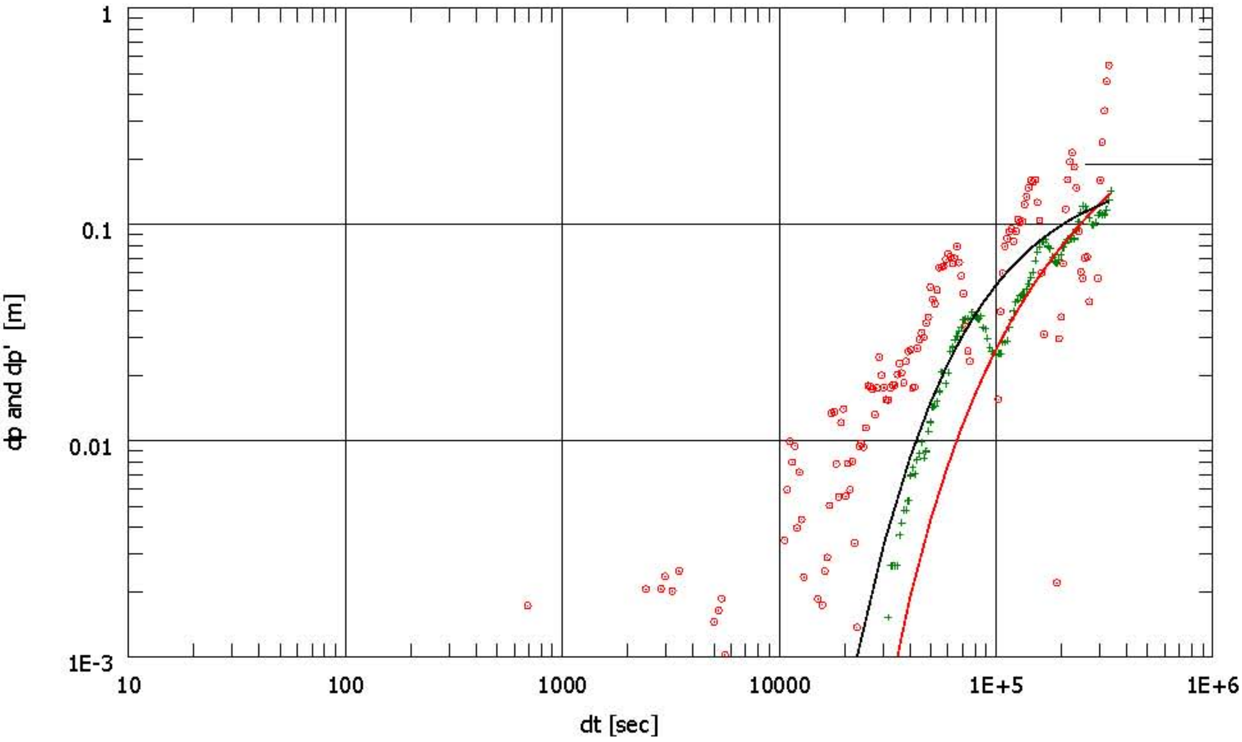
Model Parameters
Reservoir & Boundary parameters

Pi	10.18 m
T	7.23E-4 m2/s
K	5.39E-6 m/s
S	6.31E-4

Derived & Secondary Parameters

Rinv	1110 m
Test. Vol.	585.825 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # Interference HLX21



HLX24obs production #1
Rate 105.307 l/min
Rate change 105.307 l/min
P@dt=0 10.1801 m
Pi 10.18 m
Smoothing 0.1

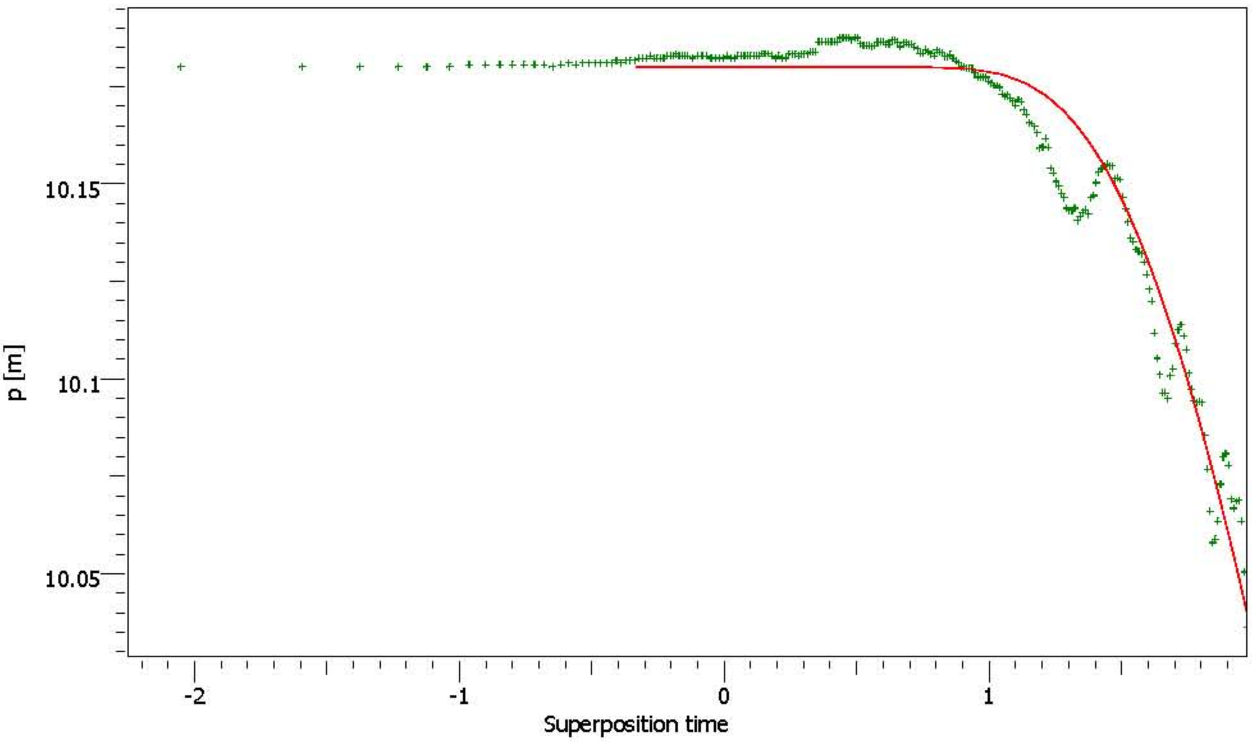
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.95E-6 1/sec
PMatch 2.64 1/m
S 6.31E-4
T 7.23E-4 m2/s
K 5.39E-6 m/s
Pi 10.18 m
Well distance 767 m

Model Parameters
Reservoir & Boundary parameters
Pi 10.18 m
T 7.23E-4 m2/s
K 5.39E-6 m/s
S 6.31E-4

Derived & Secondary Parameters
Rinv 1110 m
Test. Vol. 585.825 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # Interference HLX21



HLX24obs production #1
Rate 105.307 l/min
Rate change 105.307 l/min
P@dt=0 10.1801 m
Pi 10.18 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.95E-6 1/sec
PMatch 2.64 1/m
S 6.31E-4
T 7.23E-4 m2/s
K 5.39E-6 m/s
Pi 10.18 m
Well distance 767 m

Model Parameters
Reservoir & Boundary parameters
Pi 10.18 m
T 7.23E-4 m2/s
K 5.39E-6 m/s
S 6.31E-4

Derived & Secondary Parameters
Rinv 1110 m
Test. Vol. 585.825 MMm3

Main Results	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # Interference HLX21

Test date / time	2005-08-15
Formation interval	41.00 - 175.20m
Perforated interval	
Gauge type / #	MiniTroll
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	767.3 m
Well Radius rw	0.0695 m
Pay Zone h	134.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.95E-6 1/sec
PMatch	2.64 1/m
S	6.31E-4
T	7.23E-4 m2/s
K	5.39E-6 m/s
Pi	10.18 m
Well distance	767 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	10.18 m
T	7.23E-4 m2/s
K	5.39E-6 m/s
S	6.31E-4
Derived & Secondary Parameters	
Rinv	1110 m
Test. Vol.	585.825 MMm3

History plot	Analysis 1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # Interference HLX21

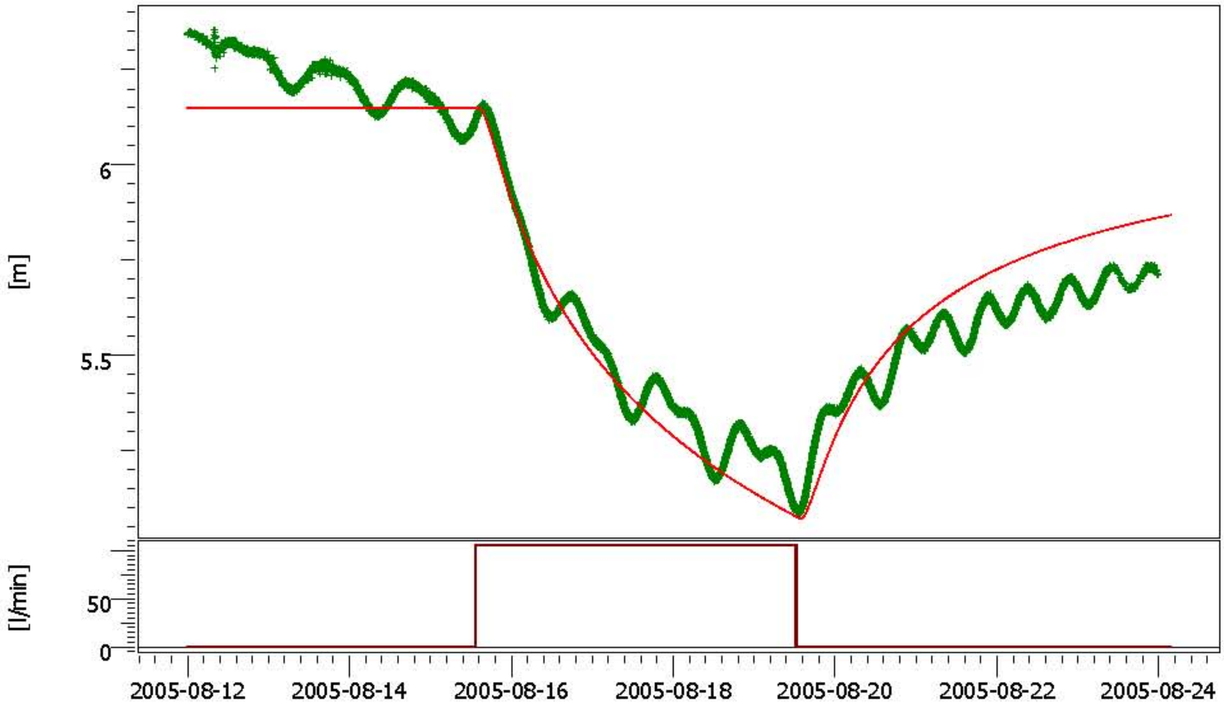
Main Results	Analysis 1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well HLX24:2 Observation	Test Name / # Interference HLX21

Test date / time	2005-08-15
Formation interval	9.10 - 40.00m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	766 m
Well Radius rw	0.0695 m
Pay Zone h	30.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

History plot	Dd1

Company Svensk Kärnbränslehantering AB
Well KLX02:6 observation

Field Laxemar
Test Name / # Interference HLX21 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02obs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	6.11446 m
Pi	6.15 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.18E-5 [sec]-1
PMatch	1.06 [m]-1
S	7.16E-5
T	2.96E-4 m2/s
K	2.87E-6 m/s
Pi	6.15 m
Well distance	591 m

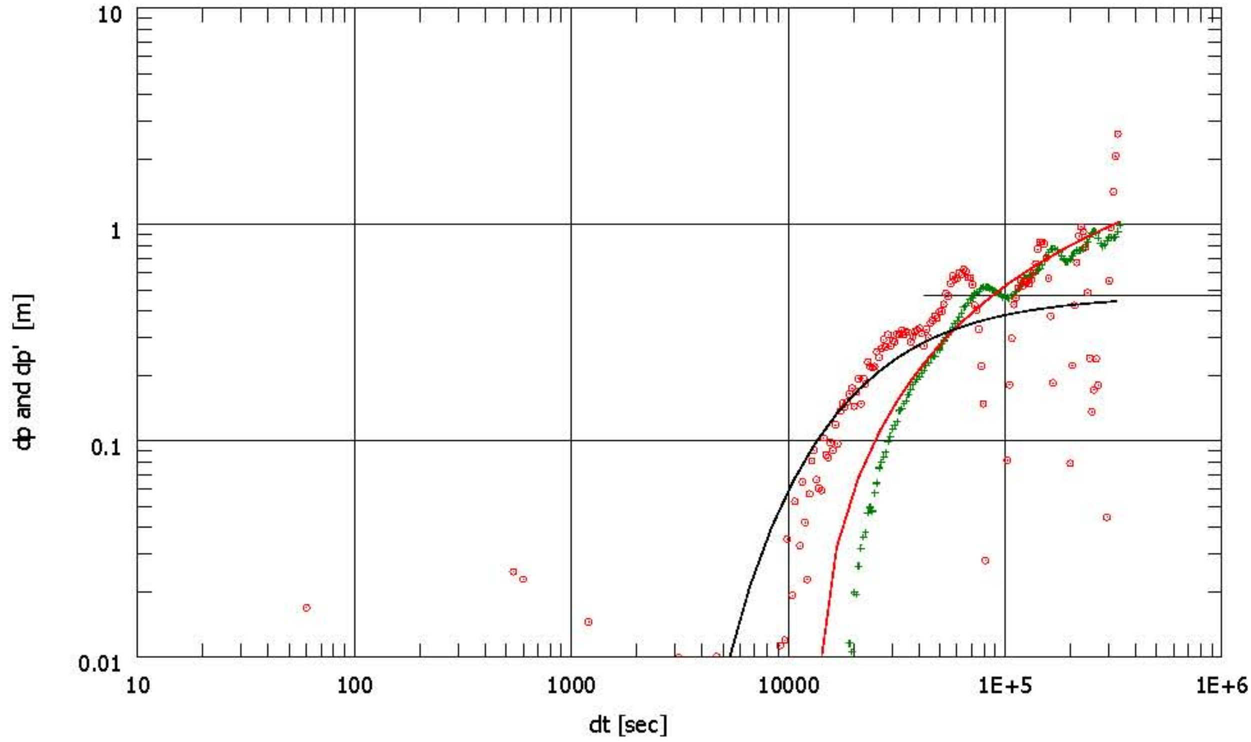
Model Parameters
Reservoir & Boundary parameters

Pi	6.15 m
T	2.96E-4 m2/s
K	2.87E-6 m/s
S	7.16E-5

Derived & Secondary Parameters

Rinv	2110 m
Test. Vol.	235.456 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:6 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 production #1
Rate 105.5 l/min
Rate change 105.5 l/min
P@dt=0 6.11446 m
Pi 6.15 m
Smoothing 0.1

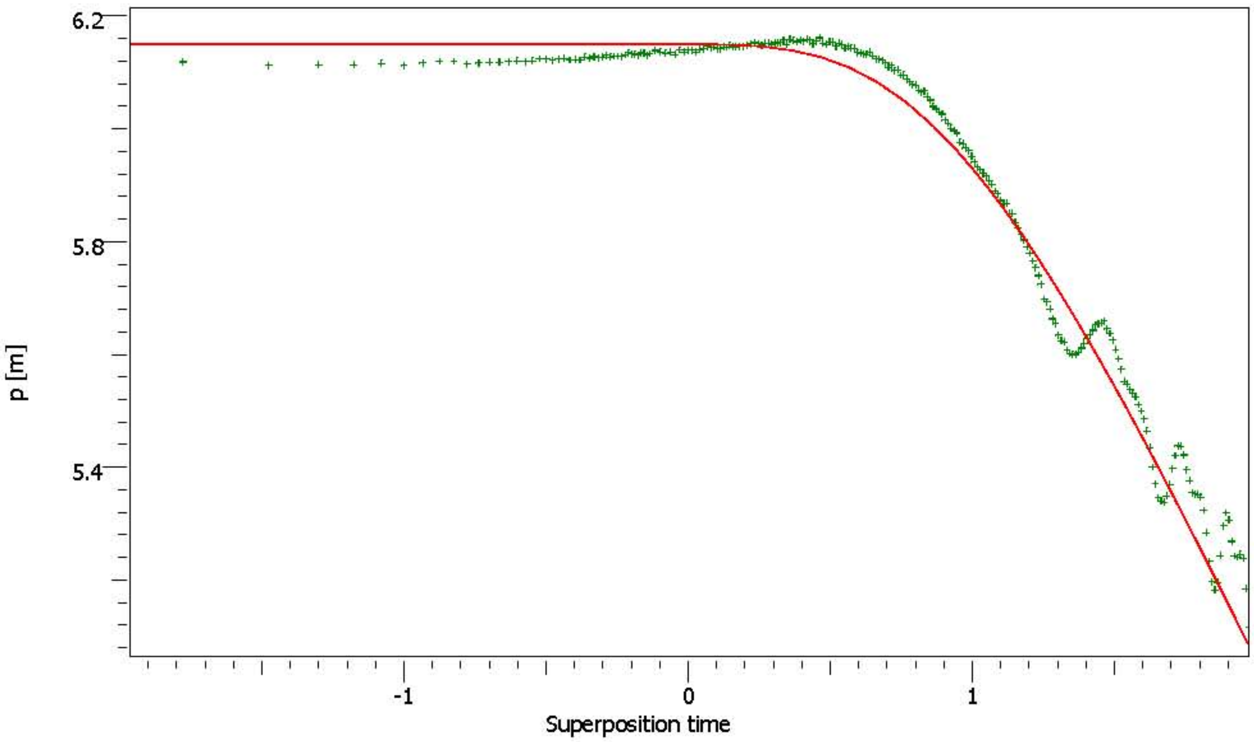
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.18E-5 [sec]-1
PMatch 1.06 [m]-1
S 7.16E-5
T 2.96E-4 m2/s
K 2.87E-6 m/s
Pi 6.15 m
Well distance 591 m

Model Parameters
Reservoir & Boundary parameters
Pi 6.15 m
T 2.96E-4 m2/s
K 2.87E-6 m/s
S 7.16E-5

Derived & Secondary Parameters
Rinv 2110 m
Test. Vol. 235.456 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:6 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 production #1
Rate 105.5 l/min
Rate change 105.5 l/min
P@dt=0 6.11446 m
Pi 6.15 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.18E-5 [sec]-1
PMatch 1.06 [m]-1
S 7.16E-5
T 2.96E-4 m2/s
K 2.87E-6 m/s
Pi 6.15 m
Well distance 591 m

Model Parameters
Reservoir & Boundary parameters
Pi 6.15 m
T 2.96E-4 m2/s
K 2.87E-6 m/s
S 7.16E-5

Derived & Secondary Parameters
Rinv 2110 m
Test. Vol. 235.456 MMm3

Main Results	Dd1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	KLX02:6 observation	Test Name / #	Interference HLX21 pumping

Test date / time	2005-08-15
Formation interval	348.00 -451.00m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	591 m
Well Radius rw	0.038 m
Pay Zone h	103 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.18E-5 [sec]-1
PMatch	1.06 [m]-1
S	7.16E-5
T	2.96E-4 m2/s
K	2.87E-6 m/s
Pi	6.15 m
Well distance	591 m

Model Parameters

Reservoir & Boundary parameters

Pi	6.15 m
T	2.96E-4 m2/s
K	2.87E-6 m/s
S	7.16E-5

Derived & Secondary Parameters

Rinv	2110 m
Test. Vol.	235.456 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well KLX02:6 observation	Test Name / # Interference HLX21 pumping

KLX02obs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	5.07 m
Pi	6.19 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.68E-6 [sec]-1
PMatch	0.858 [m]-1
S	1.03E-4
T	2.4E-4 m2/s
K	2.33E-6 m/s
Pi	6.19 m
Well distance	591 m

Model Parameters

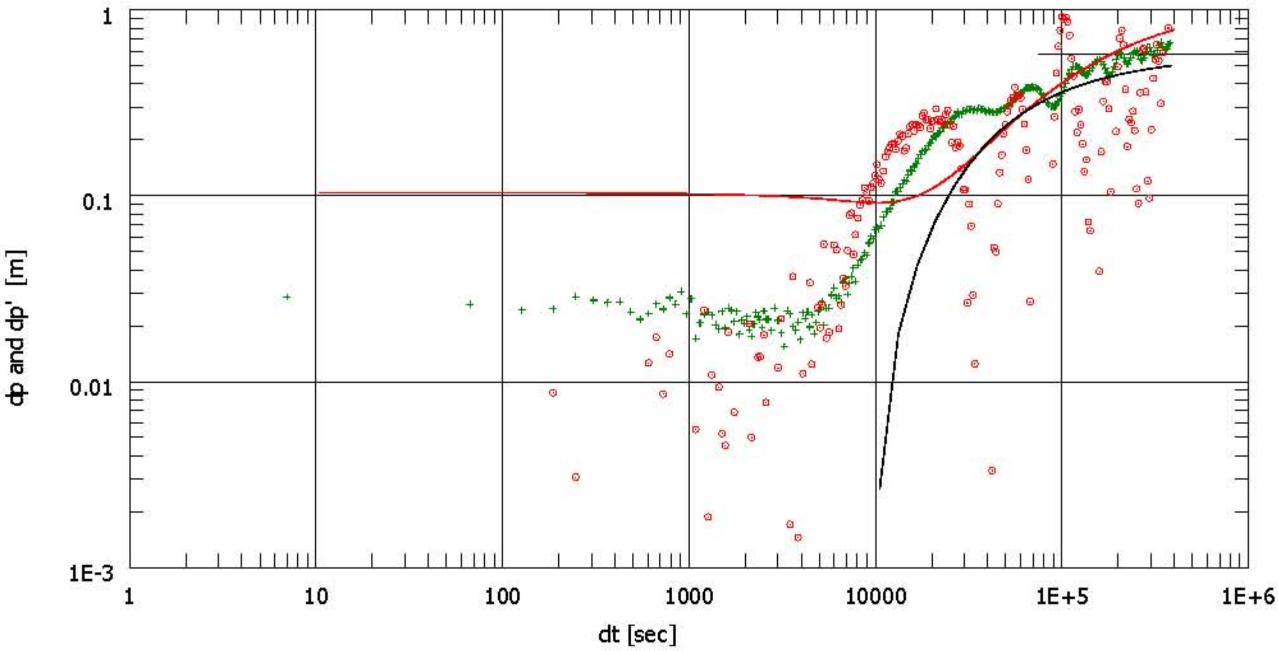
Reservoir & Boundary parameters

Pi	6.19 m
T	2.4E-4 m2/s
K	2.33E-6 m/s
S	1.03E-4

Derived & Secondary Parameters

Rinv	1680 m
Test. Vol.	214.908 MMm3

SKB	Log-Log plot	Bu1
	Company Svensk Kärnbränslehantering AB Well KLX02:6 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	5.07 m
Pi	6.19 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.68E-6 [sec]-1
PMatch	0.858 [m]-1
S	1.03E-4
T	2.4E-4 m2/s
K	2.33E-6 m/s
Pi	6.19 m
Well distance	591 m

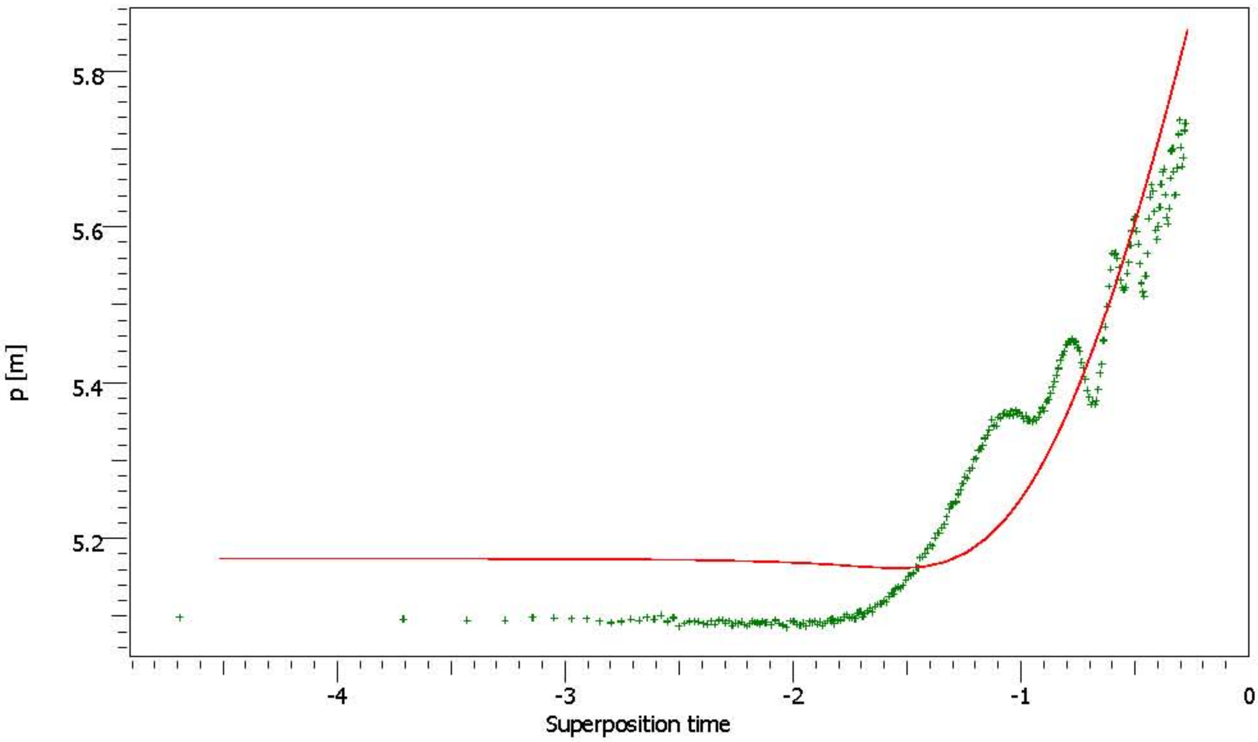
Model Parameters
Reservoir & Boundary parameters

Pi	6.19 m
T	2.4E-4 m2/s
K	2.33E-6 m/s
S	1.03E-4

Derived & Secondary Parameters

Rinv	1680 m
Test. Vol.	214.908 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:6 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	5.07 m
Pi	6.19 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.68E-6 [sec]-1
PMatch	0.858 [m]-1
S	1.03E-4
T	2.4E-4 m2/s
K	2.33E-6 m/s
Pi	6.19 m
Well distance	591 m

Model Parameters
Reservoir & Boundary parameters

Pi	6.19 m
T	2.4E-4 m2/s
K	2.33E-6 m/s
S	1.03E-4

Derived & Secondary Parameters

Rinv	1680 m
Test. Vol.	214.908 MMm3

Main Results	Bu1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	KLX02:6 observation	Test Name / #	Interference HLX21 pumping

Test date / time	2005-08-15
Formation interval	348.00 -451.00m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	591 m
Well Radius rw	0.038 m
Pay Zone h	103 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.68E-6 [sec]-1
PMatch	0.858 [m]-1
S	1.03E-4
T	2.4E-4 m2/s
K	2.33E-6 m/s
Pi	6.19 m
Well distance	591 m

Model Parameters

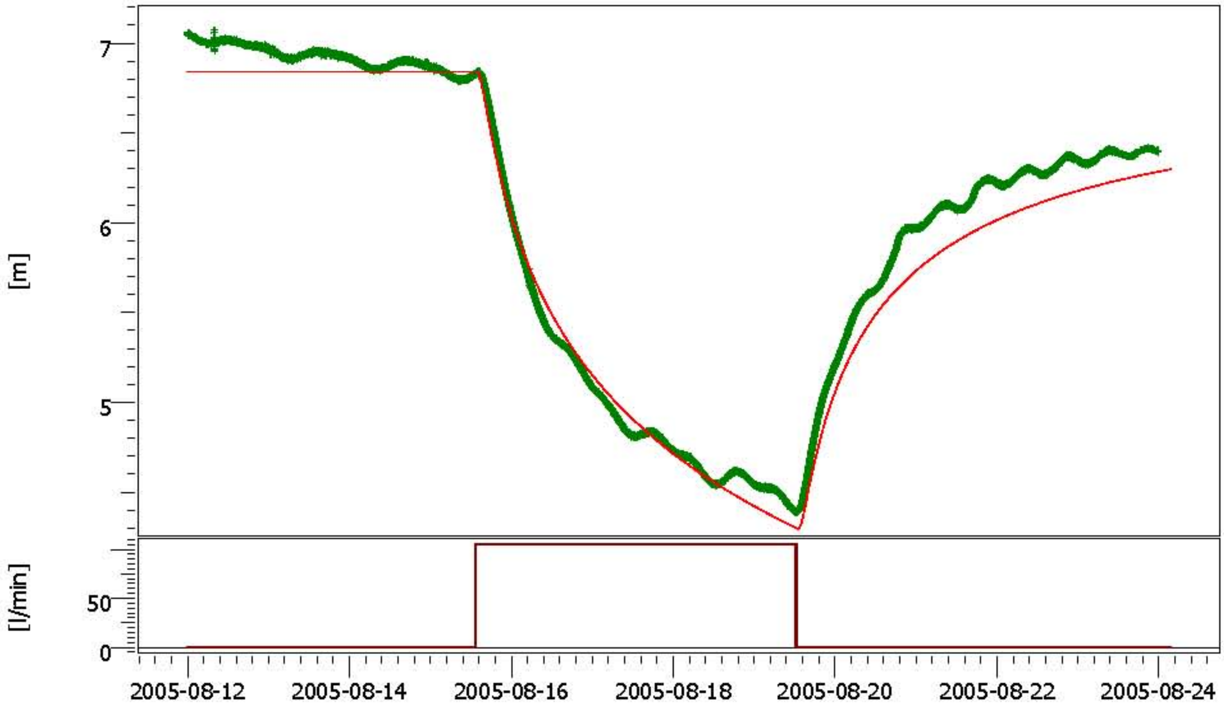
Reservoir & Boundary parameters

Pi	6.19 m
T	2.4E-4 m2/s
K	2.33E-6 m/s
S	1.03E-4

Derived & Secondary Parameters

Rinv	1680 m
Test. Vol.	214.908 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:7 observation	Field Laxemar Test Name / # Interference HLX21 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02obs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	6.84 m
Pi	6.84 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.14E-5 [sec]-1
PMatch	0.559 [m]-1
S	2.6E-5
T	1.56E-4 m2/s
K	1.13E-6 m/s
Pi	6.84 m
Well distance	529 m

Model Parameters
Reservoir & Boundary parameters

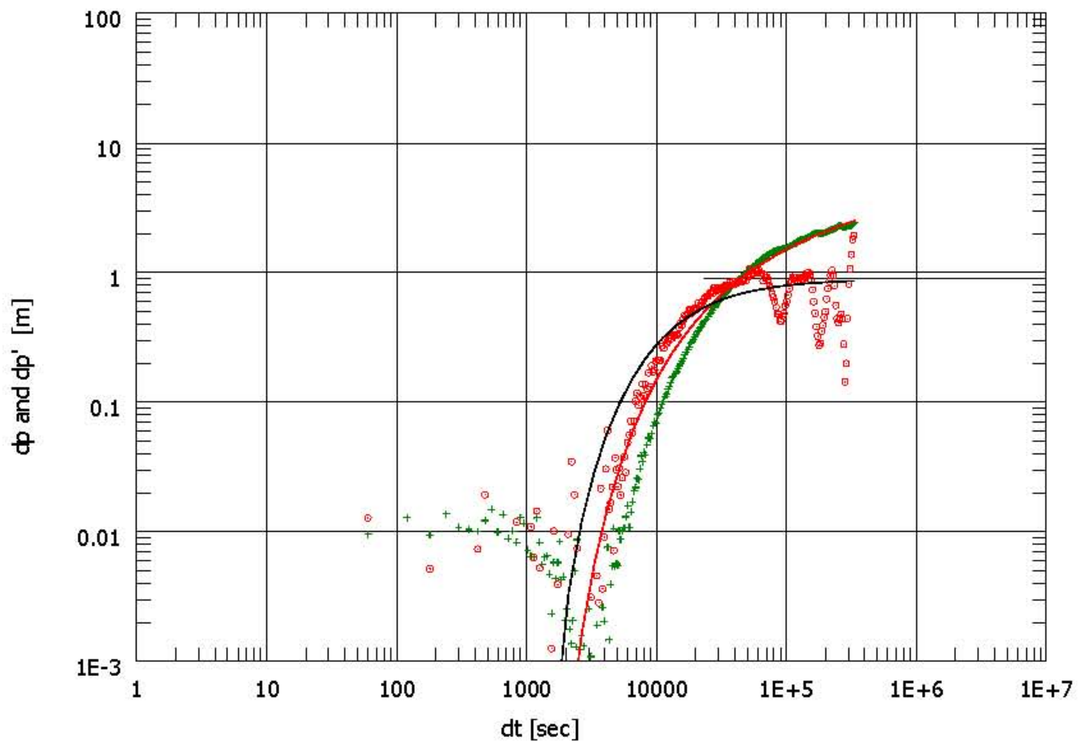
Pi	6.84 m
T	1.56E-4 m2/s
K	1.13E-6 m/s
S	2.6E-5

Derived & Secondary Parameters

Rinv	2550 m
Test. Vol.	124.316 MMm3

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well KLX02:7 observation
Field Laxemar
Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	6.84 m
Pi	6.84 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.14E-5 [sec]-1
PMatch	0.559 [m]-1
S	2.6E-5
T	1.56E-4 m2/s
K	1.13E-6 m/s
Pi	6.84 m
Well distance	529 m

Model Parameters
Reservoir & Boundary parameters

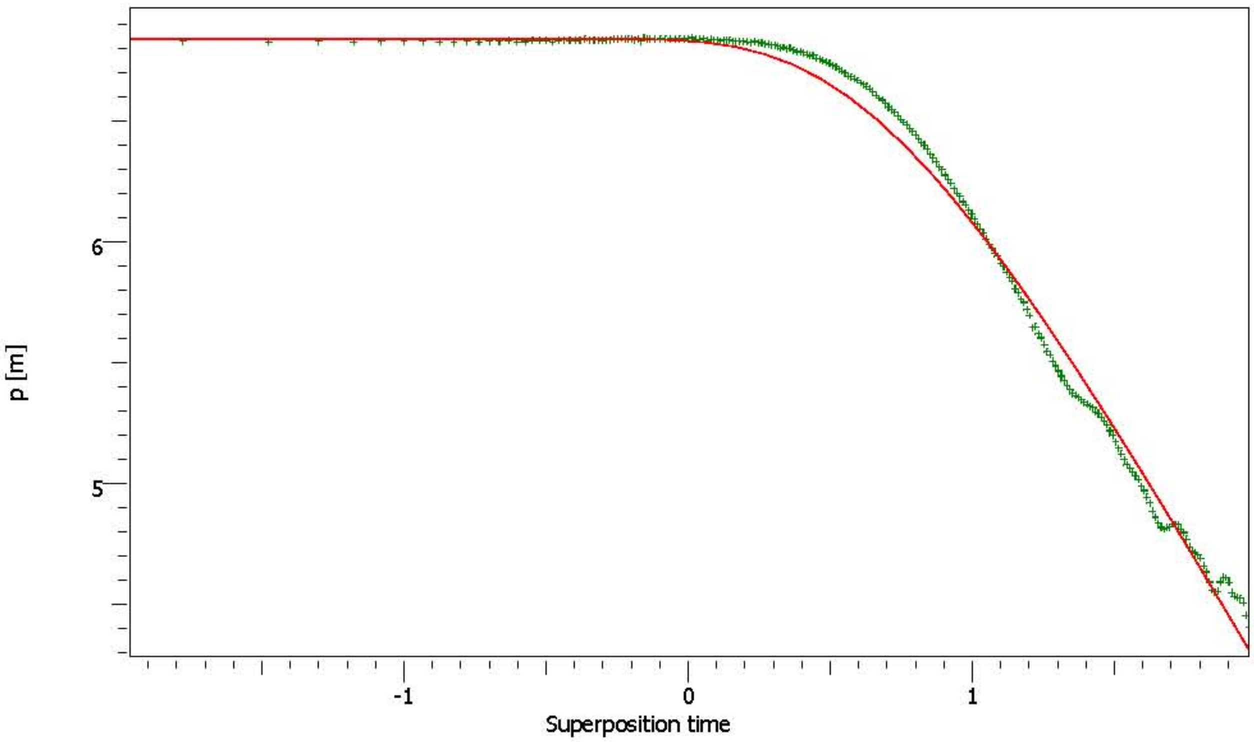
Pi	6.84 m
T	1.56E-4 m2/s
K	1.13E-6 m/s
S	2.6E-5

Derived & Secondary Parameters

Rinv	2550 m
Test. Vol.	124.316 MMm3

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX02:7 observation — Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	6.84 m
Pi	6.84 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.14E-5 [sec]-1
PMatch	0.559 [m]-1
S	2.6E-5
T	1.56E-4 m2/s
K	1.13E-6 m/s
Pi	6.84 m
Well distance	529 m

Model Parameters
Reservoir & Boundary parameters

Pi	6.84 m
T	1.56E-4 m2/s
K	1.13E-6 m/s
S	2.6E-5

Derived & Secondary Parameters

Rinv	2550 m
Test. Vol.	124.316 MMm3

Main Results	Dd1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well KLX02:7 observation	Test Name / # Interference HLX21 pumping

Test date / time	2005-08-15
Formation interval	209.00 -347.00m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	529 m
Well Radius rw	0.038 m
Pay Zone h	138 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.14E-5 [sec]-1
PMatch	0.559 [m]-1
S	2.6E-5
T	1.56E-4 m2/s
K	1.13E-6 m/s
Pi	6.84 m
Well distance	529 m

Model Parameters

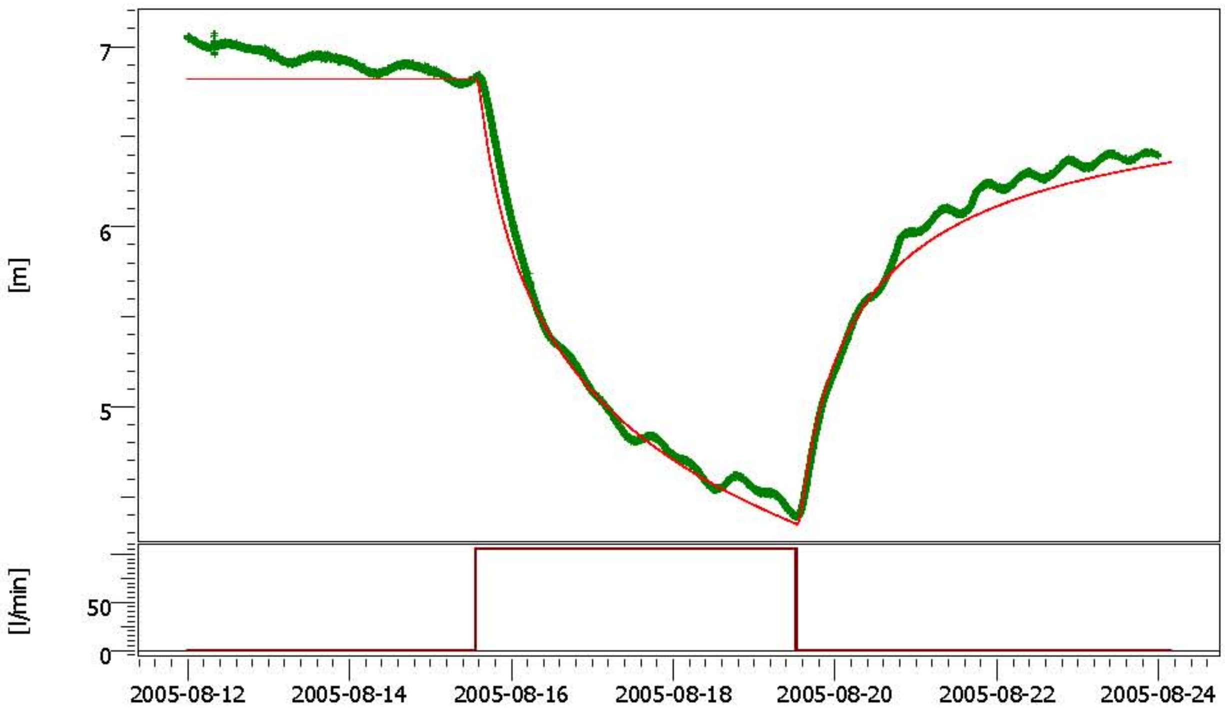
Reservoir & Boundary parameters

Pi	6.84 m
T	1.56E-4 m2/s
K	1.13E-6 m/s
S	2.6E-5

Derived & Secondary Parameters

Rinv	2550 m
Test. Vol.	124.316 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:7 observation	Field Laxemar Test Name / # Interference HLX21 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02obs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	4.39492 m
Pi	6.82 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.32E-5 [sec]-1
PMatch	0.66 [m]-1
S	1.99E-5
T	1.85E-4 m2/s
K	1.34E-6 m/s
Pi	6.82 m
Well distance	529 m

Model Parameters

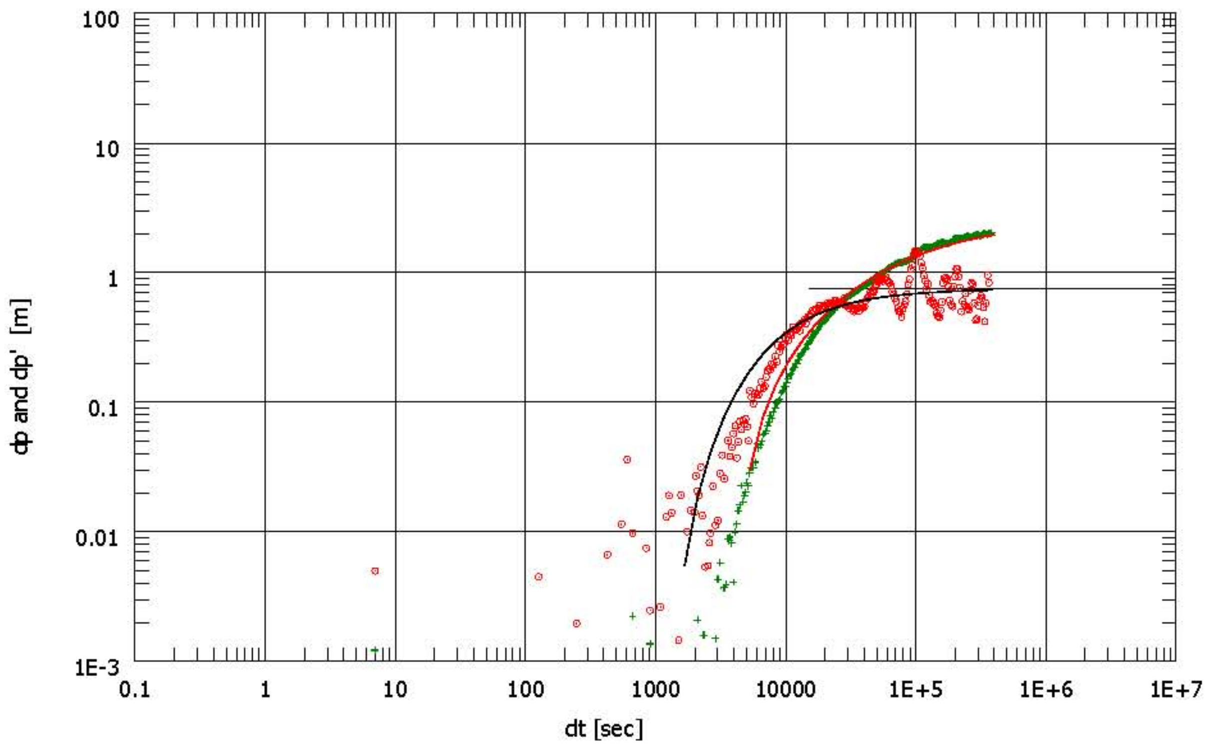
Reservoir & Boundary parameters

Pi	6.82 m
T	1.85E-4 m2/s
K	1.34E-6 m/s
S	1.99E-5

Derived & Secondary Parameters

Rinv	3360 m
Test. Vol.	165.522 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:7 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	4.39492 m
Pi	6.82 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.32E-5 [sec]-1
PMatch	0.66 [m]-1
S	1.99E-5
T	1.85E-4 m2/s
K	1.34E-6 m/s
Pi	6.82 m
Well distance	529 m

Model Parameters

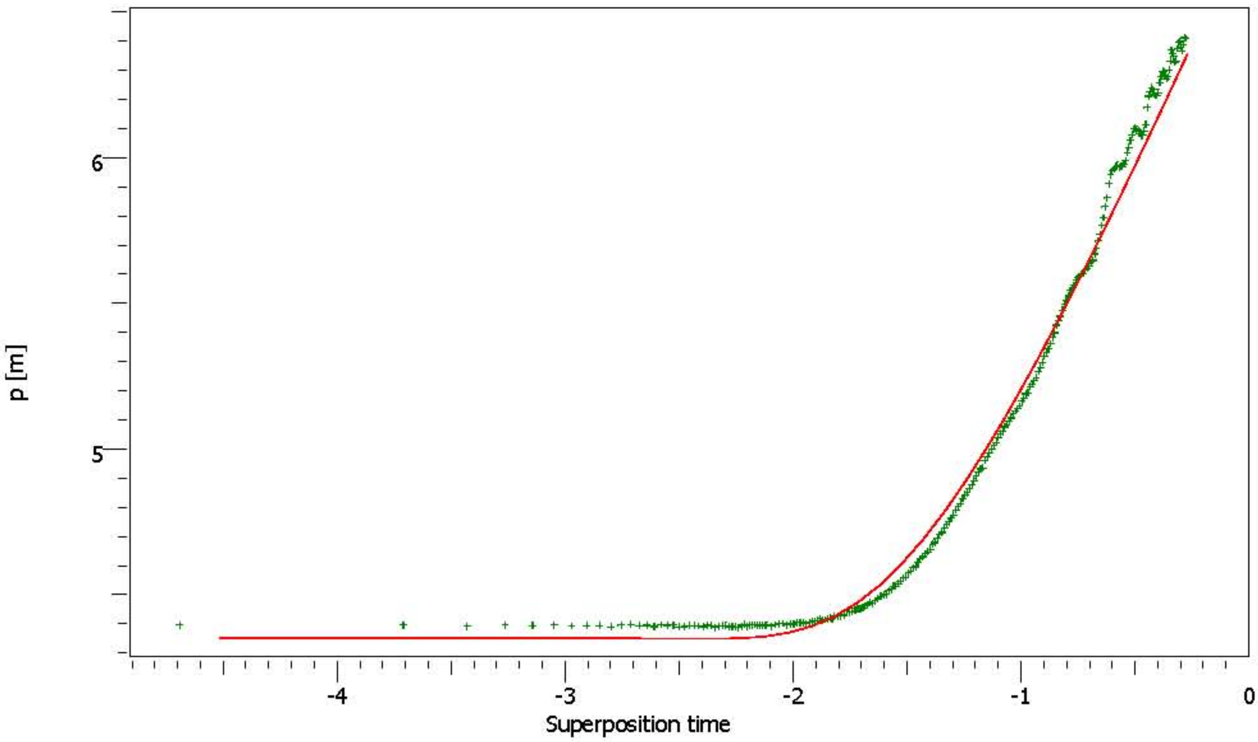
Reservoir & Boundary parameters

Pi	6.82 m
T	1.85E-4 m2/s
K	1.34E-6 m/s
S	1.99E-5

Derived & Secondary Parameters

Rinv	3360 m
Test. Vol.	165.522 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:7 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	4.39492 m
Pi	6.82 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.32E-5 [sec]-1
PMatch	0.66 [m]-1
S	1.99E-5
T	1.85E-4 m2/s
K	1.34E-6 m/s
Pi	6.82 m
Well distance	529 m

Model Parameters
Reservoir & Boundary parameters

Pi	6.82 m
T	1.85E-4 m2/s
K	1.34E-6 m/s
S	1.99E-5

Derived & Secondary Parameters

Rinv	3360 m
Test. Vol.	165.522 MMm3

Main Results	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX02:7 observation — Test Name / # Interference HLX21 pumping

Test date / time	2005-08-15
Formation interval	209.00 -347.00m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	529 m
Well Radius rw	0.038 m
Pay Zone h	138 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.32E-5 [sec]-1
PMatch	0.66 [m]-1
S	1.99E-5
T	1.85E-4 m2/s
K	1.34E-6 m/s
Pi	6.82 m
Well distance	529 m

Model Parameters

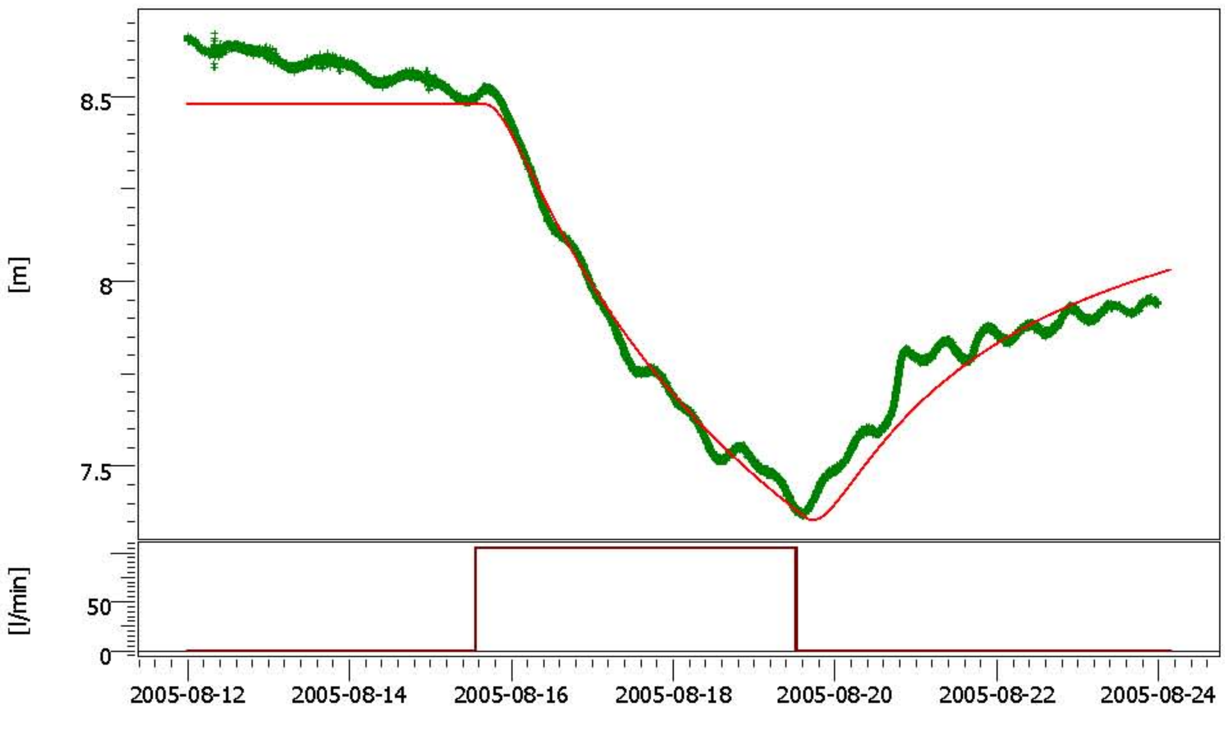
Reservoir & Boundary parameters

Pi	6.82 m
T	1.85E-4 m2/s
K	1.34E-6 m/s
S	1.99E-5

Derived & Secondary Parameters

Rinv	3360 m
Test. Vol.	165.522 MMm3

	History plot	Dd1
SKB	Company Svensk Kärnbränslehantering AB Well KLX02:8 observation	Field Laxemar Test Name / # Interference HLX21 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02obs_12-24Aug05 production #1
Rate 105.5 l/min
Rate change 105.5 l/min
P@dt=0 8.49543 m
Pi 8.48 m
Smoothing 0.1

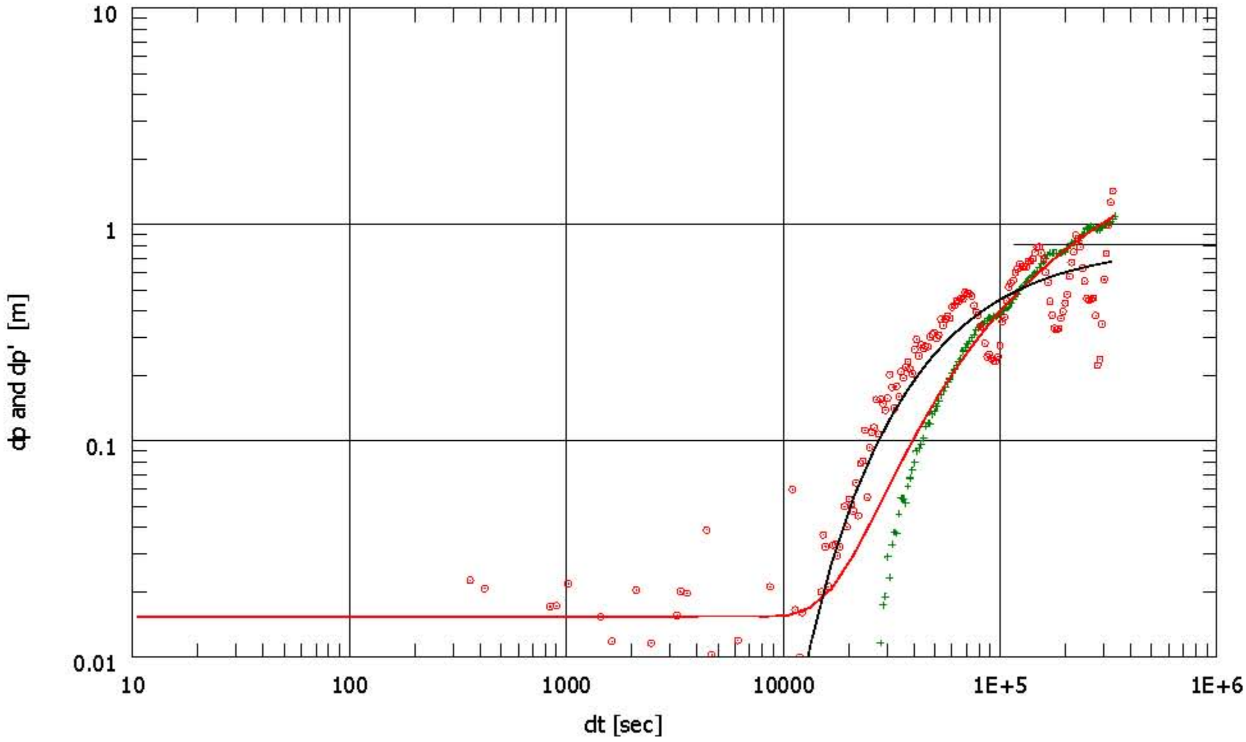
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 4.31E-6 [sec]-1
PMatch 0.62 [m]-1
S 1.59E-4
T 1.73E-4 m2/s
K 3.43E-5 m/s
Pi 8.48 m
Well distance 503 m

Model Parameters
Reservoir & Boundary parameters
Pi 8.48 m
T 1.73E-4 m2/s
K 3.43E-5 m/s
S 1.59E-4

Derived & Secondary Parameters
Rinv 1090 m
Test. Vol. 137.899 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:8 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 production #1
Rate 105.5 l/min
Rate change 105.5 l/min
P@dt=0 8.49543 m
Pi 8.48 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

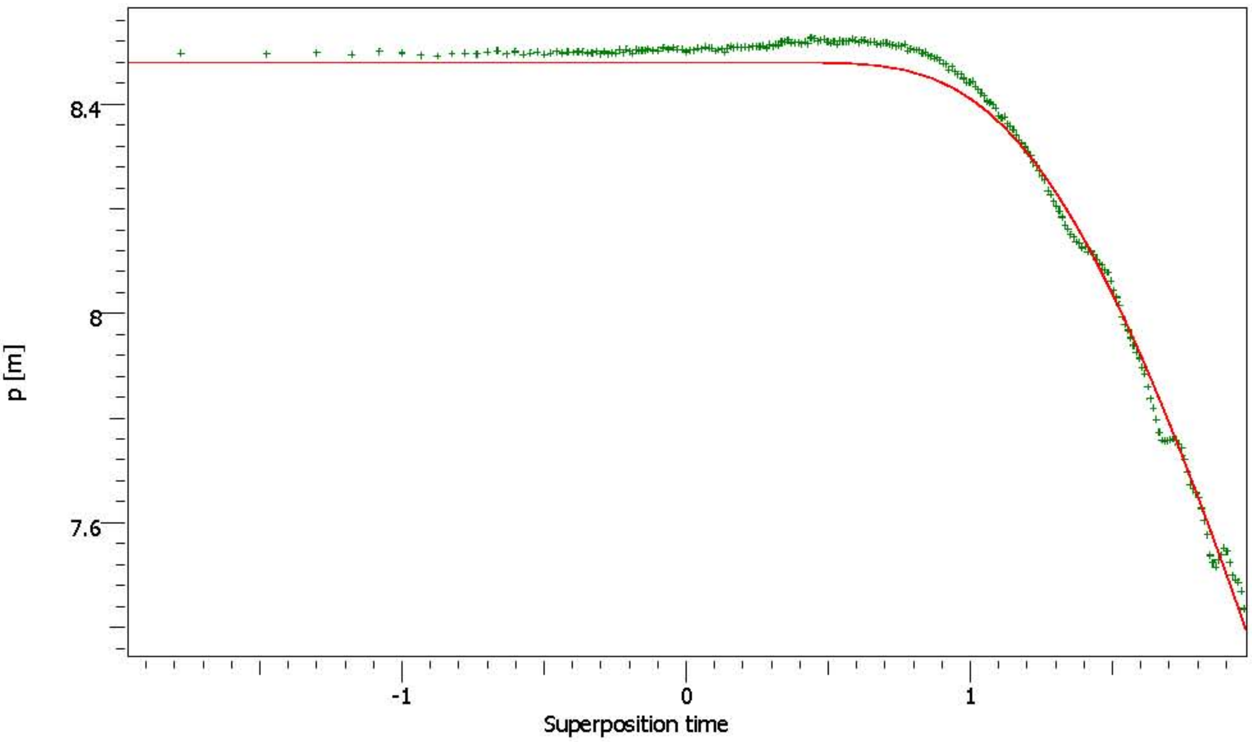
Main Model Parameters
TMatch 4.31E-6 [sec]-1
PMatch 0.62 [m]-1
S 1.59E-4
T 1.73E-4 m2/s
K 3.43E-5 m/s
Pi 8.48 m
Well distance 503 m

Model Parameters
Reservoir & Boundary parameters
Pi 8.48 m
T 1.73E-4 m2/s
K 3.43E-5 m/s
S 1.59E-4

Derived & Secondary Parameters
Rinv 1090 m
Test. Vol. 137.899 MMm3

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well KLX02:8 observation
Field Laxemar
Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	8.49543 m
Pi	8.48 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.31E-6 [sec]-1
PMatch	0.62 [m]-1
S	1.59E-4
T	1.73E-4 m2/s
K	3.43E-5 m/s
Pi	8.48 m
Well distance	503 m

Model Parameters
Reservoir & Boundary parameters

Pi	8.48 m
T	1.73E-4 m2/s
K	3.43E-5 m/s
S	1.59E-4

Derived & Secondary Parameters

Rinv	1090 m
Test. Vol.	137.899 MMm3

Test date / time	2005-08-15
Formation interval	202.95 -208.00m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	503 m
Well Radius rw	0.038 m
Pay Zone h	5.05 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.31E-6 [sec]-1
PMatch	0.62 [m]-1
S	1.59E-4
T	1.73E-4 m2/s
K	3.43E-5 m/s
Pi	8.48 m
Well distance	503 m

Model Parameters

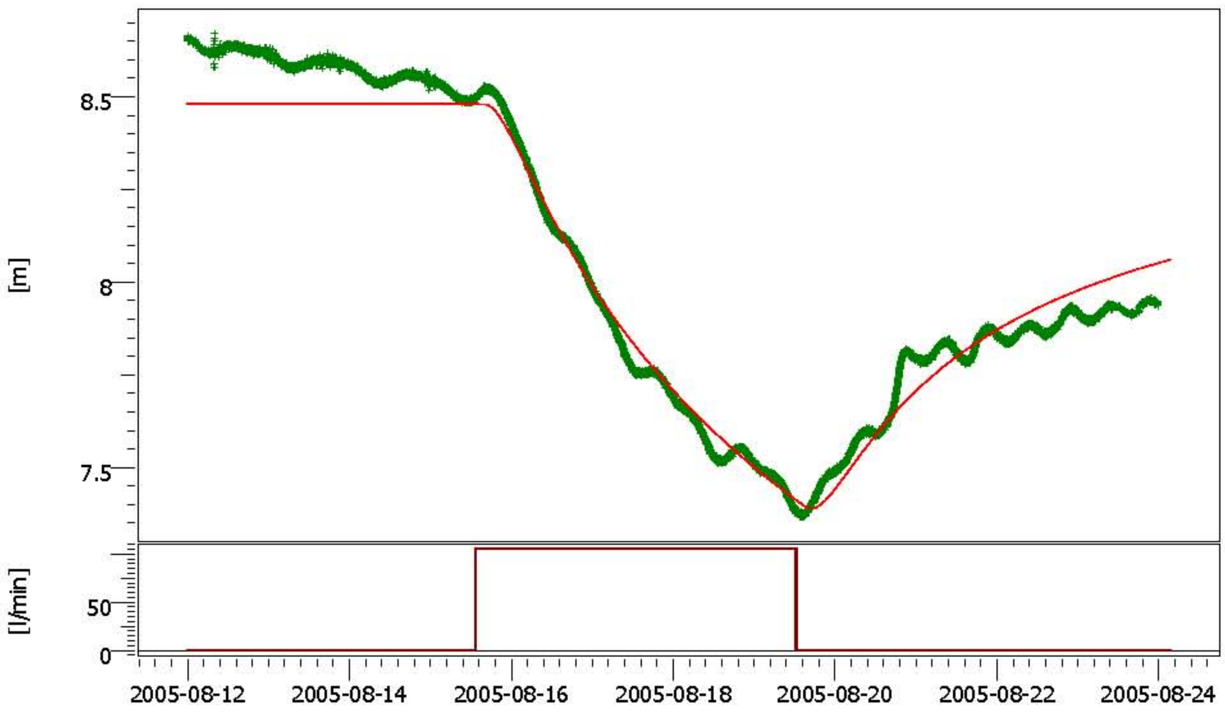
Reservoir & Boundary parameters

Pi	8.48 m
T	1.73E-4 m2/s
K	3.43E-5 m/s
S	1.59E-4

Derived & Secondary Parameters

Rinv	1090 m
Test. Vol.	137.899 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:8 observation	Field Laxemar Test Name / # Interference HLX21 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02obs_12-24Aug05 build-up #1
Rate 0 l/min
Rate change 105.5 l/min
P@dt=0 7.38114 m
Pi 8.48 m
Smoothing 0.1

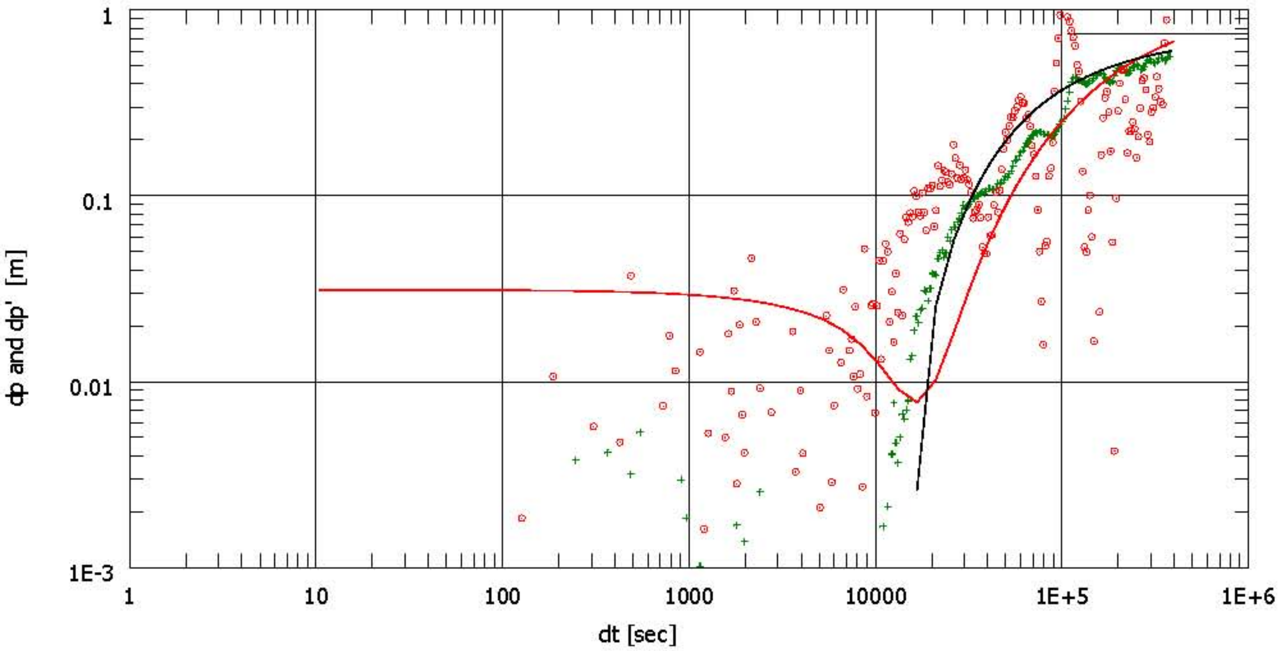
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 4.65E-6 [sec]-1
PMatch 0.668 [m]-1
S 1.59E-4
T 1.87E-4 m2/s
K 3.7E-5 m/s
Pi 8.48 m
Well distance 503 m

Model Parameters
Reservoir & Boundary parameters
Pi 8.48 m
T 1.87E-4 m2/s
K 3.7E-5 m/s
S 1.59E-4

Derived & Secondary Parameters
Rinv 1200 m
Test. Vol. 167.349 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:8 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 build-up #1
Rate 0 l/min
Rate change 105.5 l/min
P@dt=0 7.38114 m
Pi 8.48 m
Smoothing 0.1

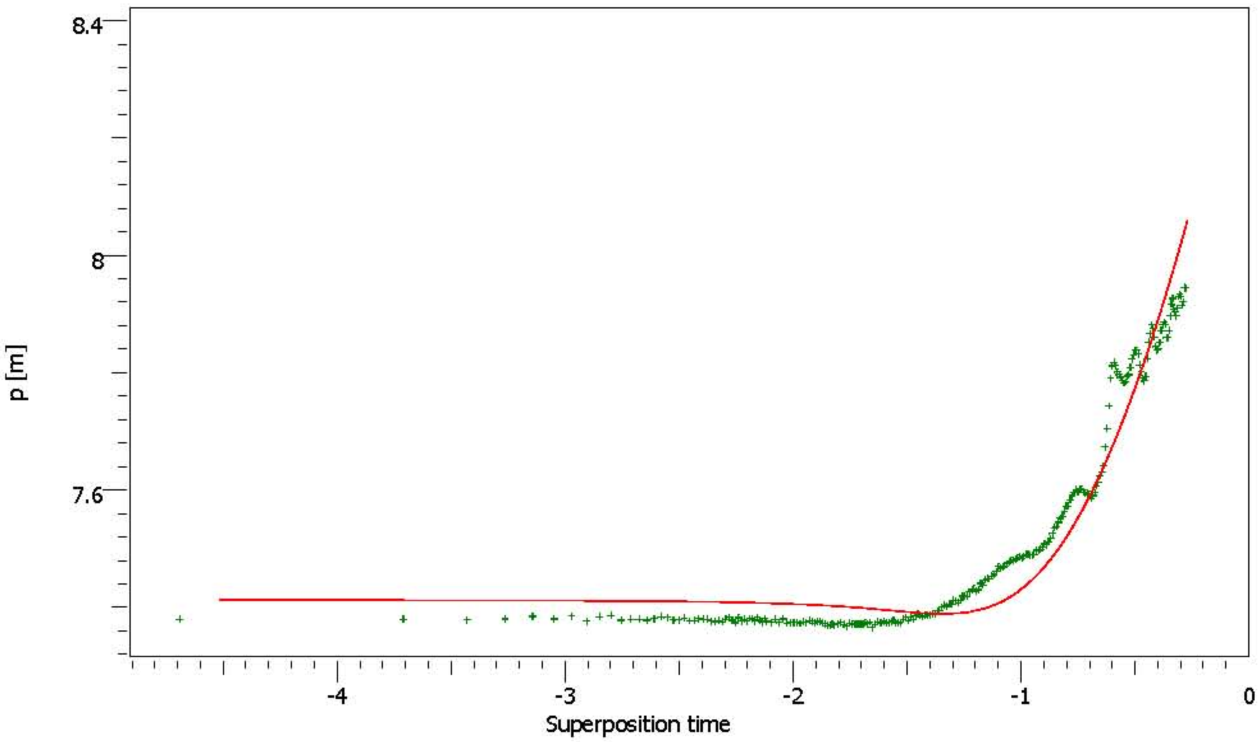
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 4.65E-6 [sec]-1
PMatch 0.668 [m]-1
S 1.59E-4
T 1.87E-4 m2/s
K 3.7E-5 m/s
Pi 8.48 m
Well distance 503 m

Model Parameters
Reservoir & Boundary parameters
Pi 8.48 m
T 1.87E-4 m2/s
K 3.7E-5 m/s
S 1.59E-4

Derived & Secondary Parameters
Rinv 1200 m
Test. Vol. 167.349 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:8 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX02obs_12-24Aug05 build-up #1
Rate 0 l/min
Rate change 105.5 l/min
P@dt=0 7.38114 m
Pi 8.48 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 4.65E-6 [sec]-1
PMatch 0.668 [m]-1
S 1.59E-4
T 1.87E-4 m2/s
K 3.7E-5 m/s
Pi 8.48 m
Well distance 503 m

Model Parameters
Reservoir & Boundary parameters
Pi 8.48 m
T 1.87E-4 m2/s
K 3.7E-5 m/s
S 1.59E-4

Derived & Secondary Parameters
Rinv 1200 m
Test. Vol. 167.349 MMm3

Test date / time	2005-08-15
Formation interval	202.95 -208.00m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	503 m
Well Radius rw	0.038 m
Pay Zone h	5.05 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.65E-6 [sec]-1
PMatch	0.668 [m]-1
S	1.59E-4
T	1.87E-4 m2/s
K	3.7E-5 m/s
Pi	8.48 m
Well distance	503 m

Model Parameters

Reservoir & Boundary parameters

Pi	8.48 m
T	1.87E-4 m2/s
K	3.7E-5 m/s
S	1.59E-4

Derived & Secondary Parameters

Rinv	1200 m
Test. Vol.	167.349 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX07B:1 observation	Field Laxemar Test Name / # Interference HLX21 pumping

Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX07Bobs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	6.85741 m
Pi	6.873 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.2E-5 [sec]-1
PMatch	0.898 [m]-1
S	9.01E-5
T	2.51E-4 m2/s
K	2.85E-6 m/s
Pi	6.873 m
Well distance	482 m

Model Parameters

Reservoir & Boundary parameters

Pi	6.873 m
T	2.51E-4 m2/s
K	2.85E-6 m/s
S	9.01E-5

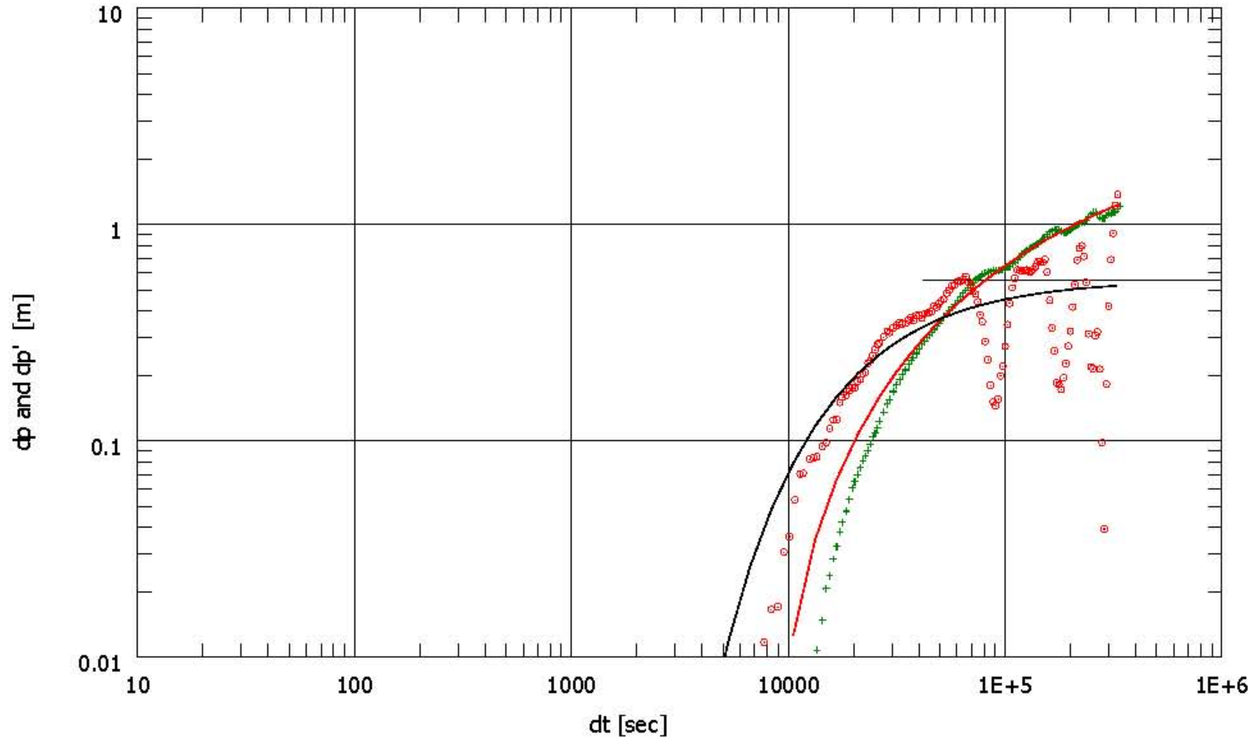
Derived & Secondary Parameters

Rinv	1730 m
Test. Vol.	199.572 MMm3

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well KLX07B:1 observation

Field Laxemar
Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	6.85741 m
Pi	6.873 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.2E-5 [sec]-1
PMatch	0.898 [m]-1
S	9.01E-5
T	2.51E-4 m2/s
K	2.85E-6 m/s
Pi	6.873 m
Well distance	482 m

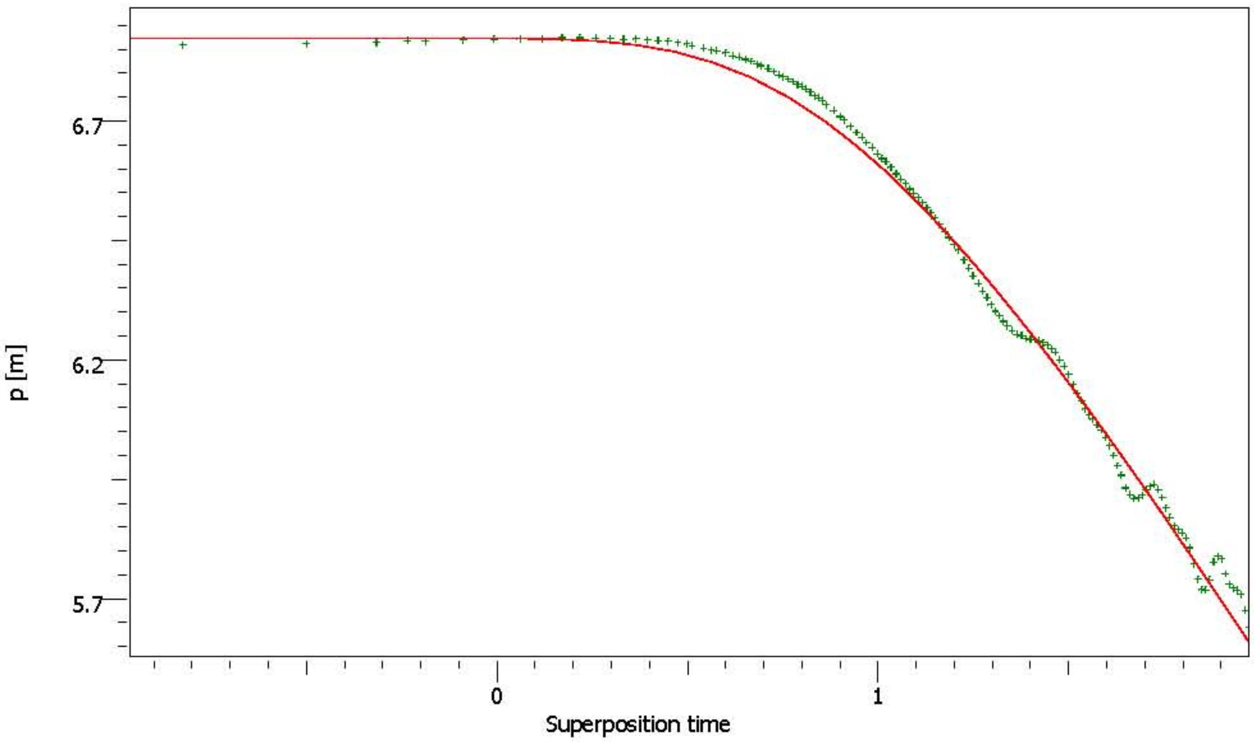
Model Parameters
Reservoir & Boundary parameters

Pi	6.873 m
T	2.51E-4 m2/s
K	2.85E-6 m/s
S	9.01E-5

Derived & Secondary Parameters

Rinv	1730 m
Test. Vol.	199.572 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX07B:1 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	6.85741 m
Pi	6.873 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.2E-5 [sec]-1
PMatch	0.898 [m]-1
S	9.01E-5
T	2.51E-4 m2/s
K	2.85E-6 m/s
Pi	6.873 m
Well distance	482 m

Model Parameters

Reservoir & Boundary parameters

Pi	6.873 m
T	2.51E-4 m2/s
K	2.85E-6 m/s
S	9.01E-5

Derived & Secondary Parameters

Rinv	1730 m
Test. Vol.	199.572 MMm3

Main Results	Dd1
Company Svensk Kärnbränslehantering AB Well KLX07B:1 observation	Field Laxemar Test Name / # Interference HLX21 pumping

Test date / time	2005-08-15
Formation interval	112.00 - 200.13m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	482 m
Well Radius rw	0.038 m
Pay Zone h	88.13 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.2E-5 [sec]-1
PMatch	0.898 [m]-1
S	9.01E-5
T	2.51E-4 m2/s
K	2.85E-6 m/s
Pi	6.873 m
Well distance	482 m

Model Parameters

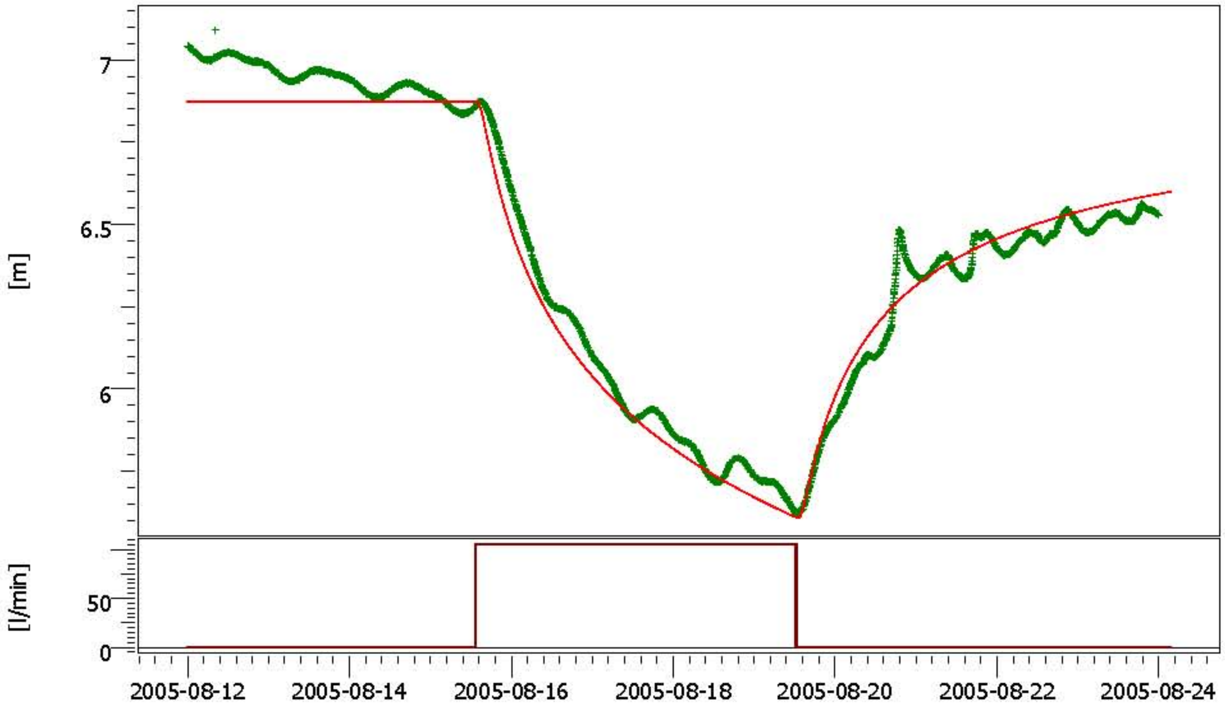
Reservoir & Boundary parameters

Pi	6.873 m
T	2.51E-4 m2/s
K	2.85E-6 m/s
S	9.01E-5

Derived & Secondary Parameters

Rinv	1730 m
Test. Vol.	199.572 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX07B:1 observation	Field Laxemar Test Name / # Interference HLX21 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX07Bobs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	5.62534 m
Pi	6.873 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.05E-5 [sec]-1
PMatch	1.11 [m]-1
S	6.5E-5
T	3.09E-4 m2/s
K	3.51E-6 m/s
Pi	6.873 m
Well distance	482 m

Model Parameters

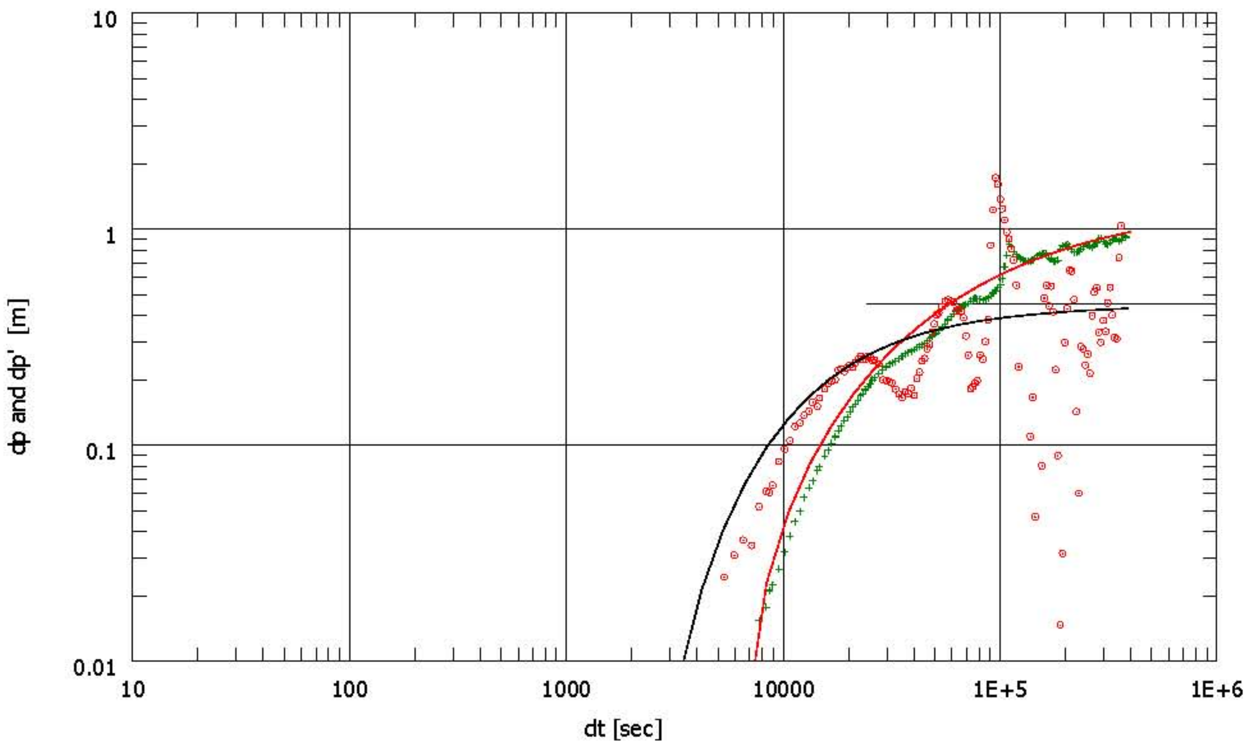
Reservoir & Boundary parameters

Pi	6.873 m
T	3.09E-4 m2/s
K	3.51E-6 m/s
S	6.5E-5

Derived & Secondary Parameters

Rinv	2400 m
Test. Vol.	275.667 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX07B:1 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 build-up #1
Rate 0 l/min
Rate change 105.5 l/min
P@dt=0 5.62534 m
Pi 6.873 m
Smoothing 0.1

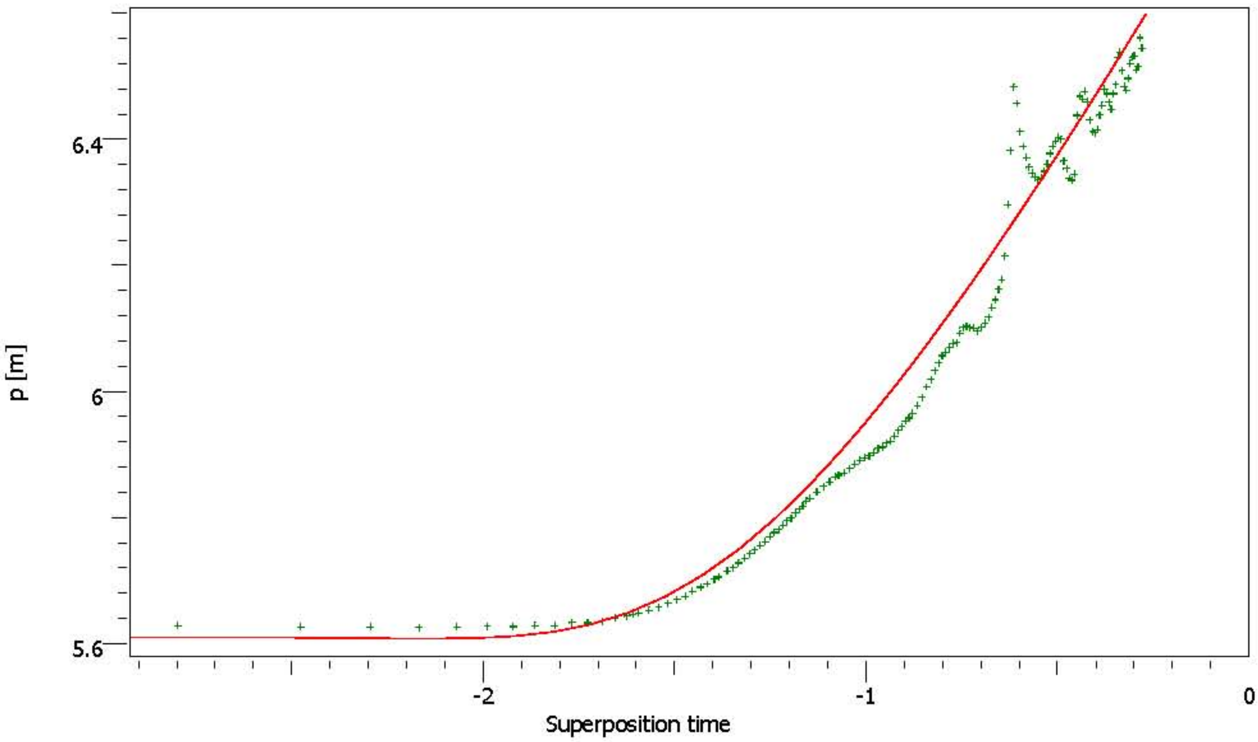
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 2.05E-5 [sec]-1
PMatch 1.11 [m]-1
S 6.5E-5
T 3.09E-4 m2/s
K 3.51E-6 m/s
Pi 6.873 m
Well distance 482 m

Model Parameters
Reservoir & Boundary parameters
Pi 6.873 m
T 3.09E-4 m2/s
K 3.51E-6 m/s
S 6.5E-5

Derived & Secondary Parameters
Rinv 2400 m
Test. Vol. 275.667 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX07B:1 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 build-up #1
Rate 0 l/min
Rate change 105.5 l/min
P@dt=0 5.62534 m
Pi 6.873 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 2.05E-5 [sec]-1
PMatch 1.11 [m]-1
S 6.5E-5
T 3.09E-4 m2/s
K 3.51E-6 m/s
Pi 6.873 m
Well distance 482 m

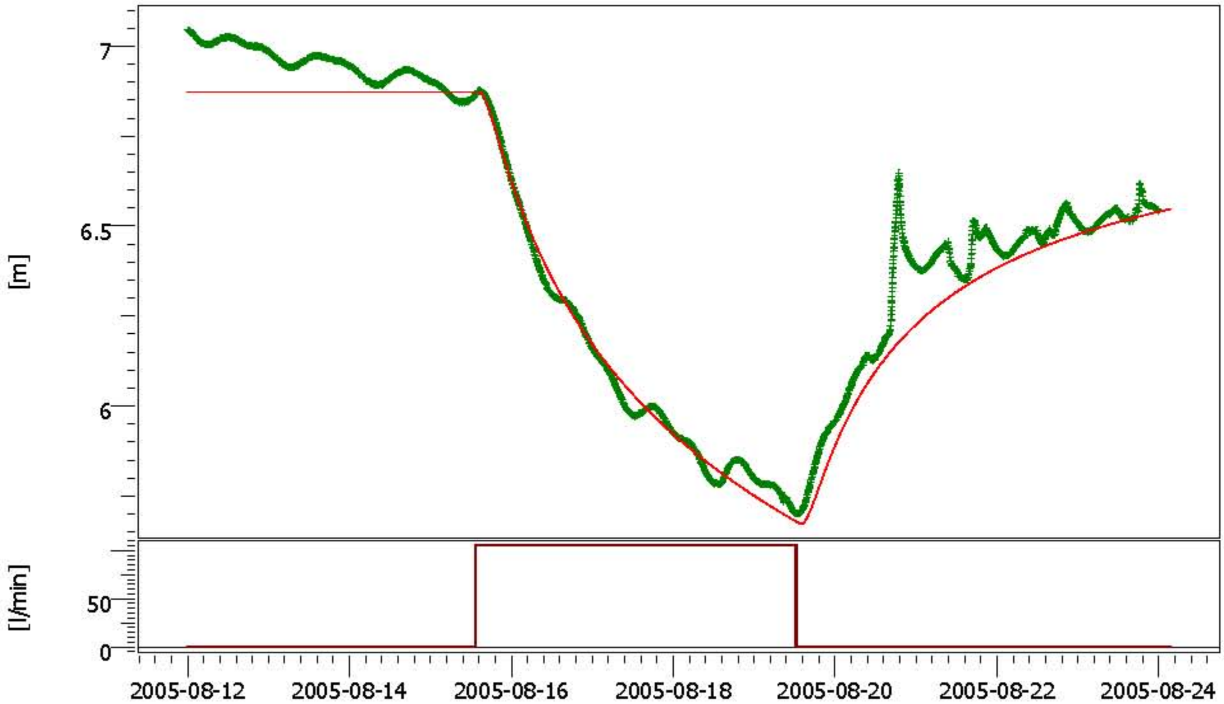
Model Parameters
Reservoir & Boundary parameters
Pi 6.873 m
T 3.09E-4 m2/s
K 3.51E-6 m/s
S 6.5E-5

Derived & Secondary Parameters
Rinv 2400 m
Test. Vol. 275.667 MMm3

Main Results	Bu1
Company Svensk Kärnbränslehantering AB Well KLX07B:1 observation	Field Laxemar Test Name / # Interference HLX21 pumping

Test date / time	2005-08-15
Formation interval	112.00 - 200.13m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	482 m
Well Radius rw	0.038 m
Pay Zone h	88.13 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	2.05E-5 [sec]-1
PMatch	1.11 [m]-1
S	6.5E-5
T	3.09E-4 m2/s
K	3.51E-6 m/s
Pi	6.873 m
Well distance	482 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	6.873 m
T	3.09E-4 m2/s
K	3.51E-6 m/s
S	6.5E-5
Derived & Secondary Parameters	
Rinv	2400 m
Test. Vol.	275.667 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX07B:2 observation	Field Laxemar Test Name / # Interference HLX21 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX07Bobs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	6.873 m
Pi	6.873 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.07E-5 [sec]-1
PMatch	0.91 [m]-1
S	1.03E-4
T	2.54E-4 m2/s
K	4.1E-6 m/s
Pi	6.873 m
Well distance	480 m

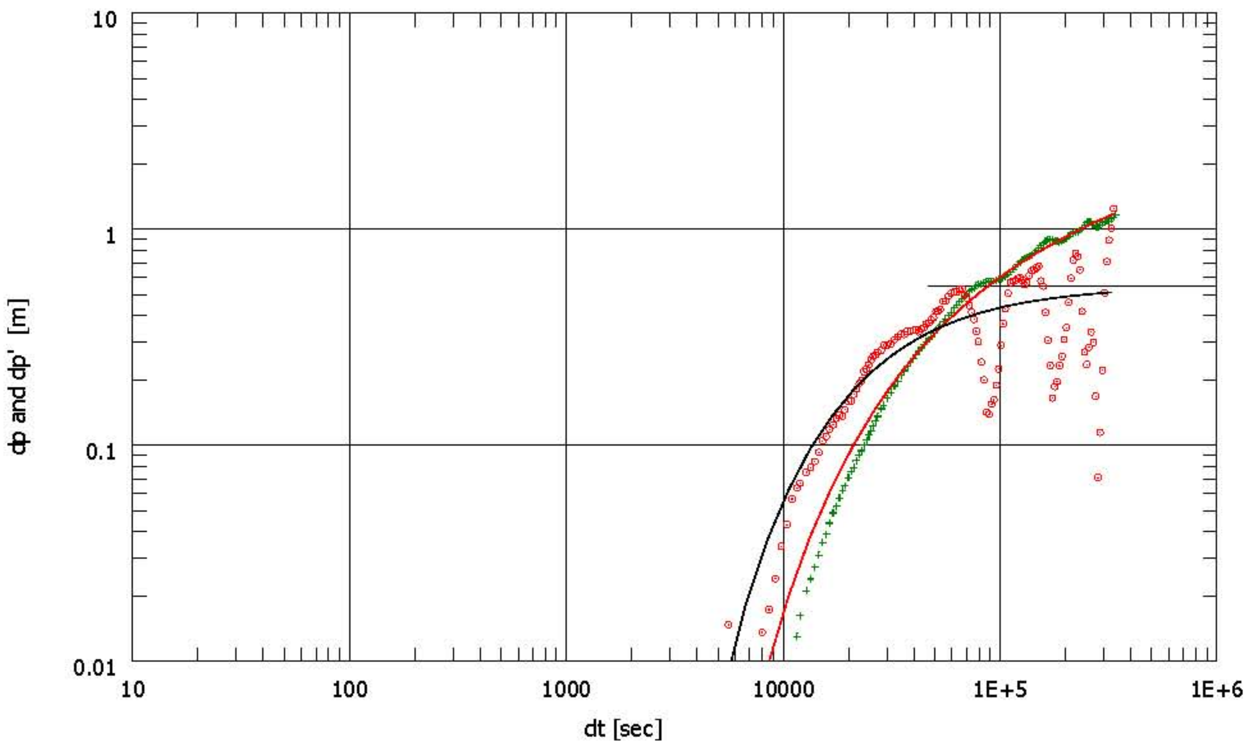
Model Parameters
Reservoir & Boundary parameters

Pi	6.873 m
T	2.54E-4 m2/s
K	4.1E-6 m/s
S	1.03E-4

Derived & Secondary Parameters

Rinv	1640 m
Test. Vol.	204.235 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX07B:2 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	6.873 m
Pi	6.873 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.07E-5 [sec]-1
PMatch	0.91 [m]-1
S	1.03E-4
T	2.54E-4 m2/s
K	4.1E-6 m/s
Pi	6.873 m
Well distance	480 m

Model Parameters

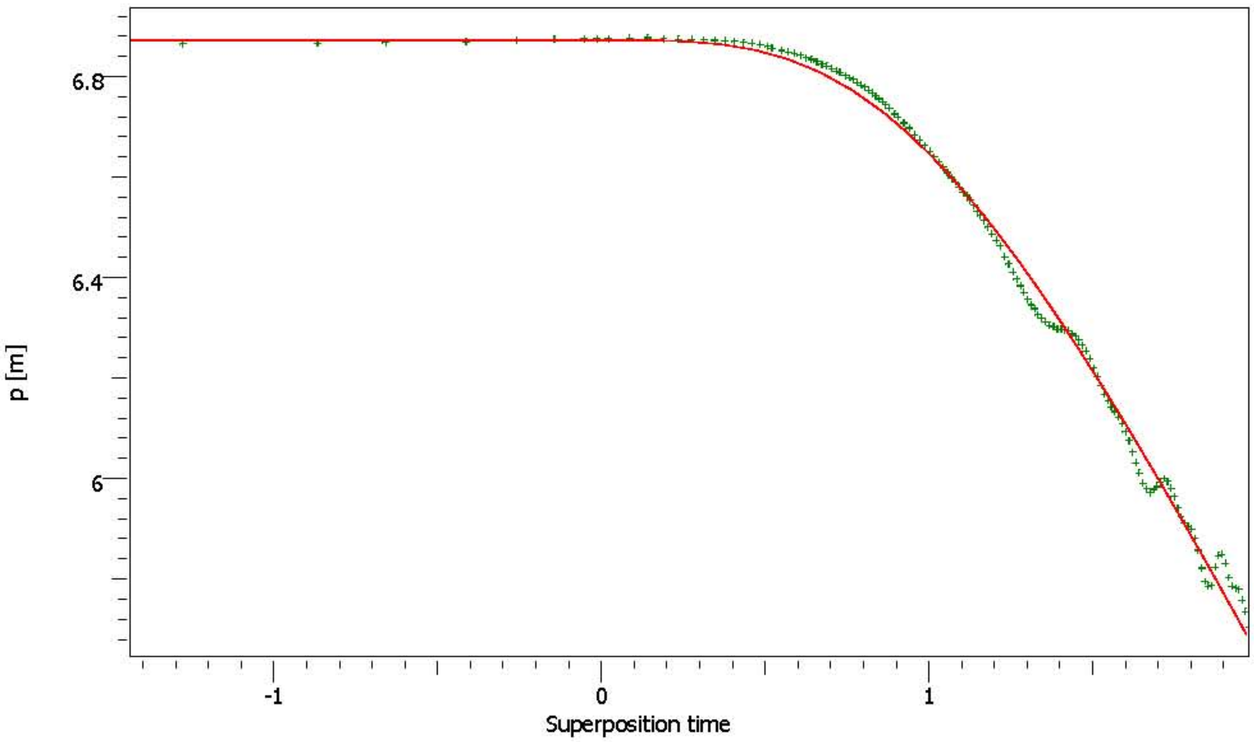
Reservoir & Boundary parameters

Pi	6.873 m
T	2.54E-4 m2/s
K	4.1E-6 m/s
S	1.03E-4

Derived & Secondary Parameters

Rinv	1640 m
Test. Vol.	204.235 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX07B:2 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	6.873 m
Pi	6.873 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.07E-5 [sec]-1
PMatch	0.91 [m]-1
S	1.03E-4
T	2.54E-4 m2/s
K	4.1E-6 m/s
Pi	6.873 m
Well distance	480 m

Model Parameters
Reservoir & Boundary parameters

Pi	6.873 m
T	2.54E-4 m2/s
K	4.1E-6 m/s
S	1.03E-4

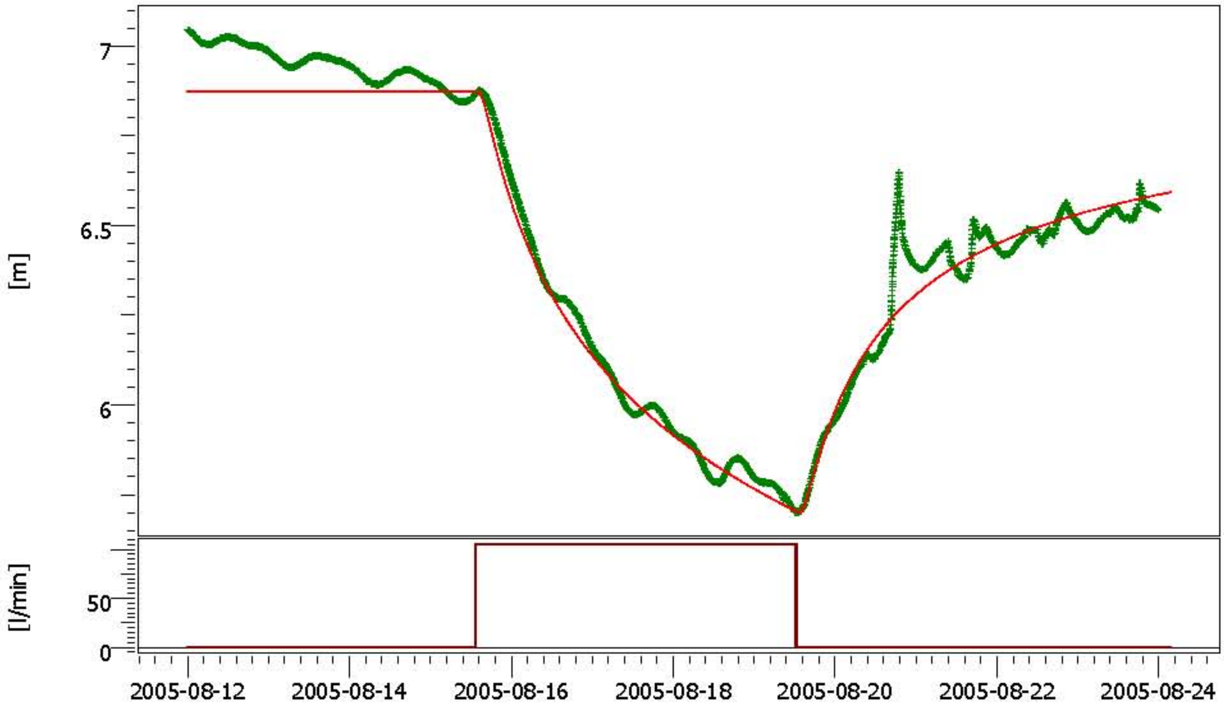
Derived & Secondary Parameters

Rinv	1640 m
Test. Vol.	204.235 MMm3

SKB	Main Results	Dd1
	Company Svensk Kärnbränslehantering AB Well KLX07B:2 observation	Field Laxemar Test Name / # Interference HLX21 pumping

Test date / time	2005-08-15
Formation interval	49.00 - 111.00m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	480 m
Well Radius rw	0.038 m
Pay Zone h	62 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.07E-5 [sec]-1
PMatch	0.91 [m]-1
S	1.03E-4
T	2.54E-4 m2/s
K	4.1E-6 m/s
Pi	6.873 m
Well distance	480 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	6.873 m
T	2.54E-4 m2/s
K	4.1E-6 m/s
S	1.03E-4
Derived & Secondary Parameters	
Rinv	1640 m
Test. Vol.	204.235 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX07B:2 observation	Field Laxemar Test Name / # Interference HLX21 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX07Bobs_12-24Aug05 build-up #1
Rate 0 l/min
Rate change 105.5 l/min
P@dt=0 5.70224 m
Pi 6.873 m
Smoothing 0.1

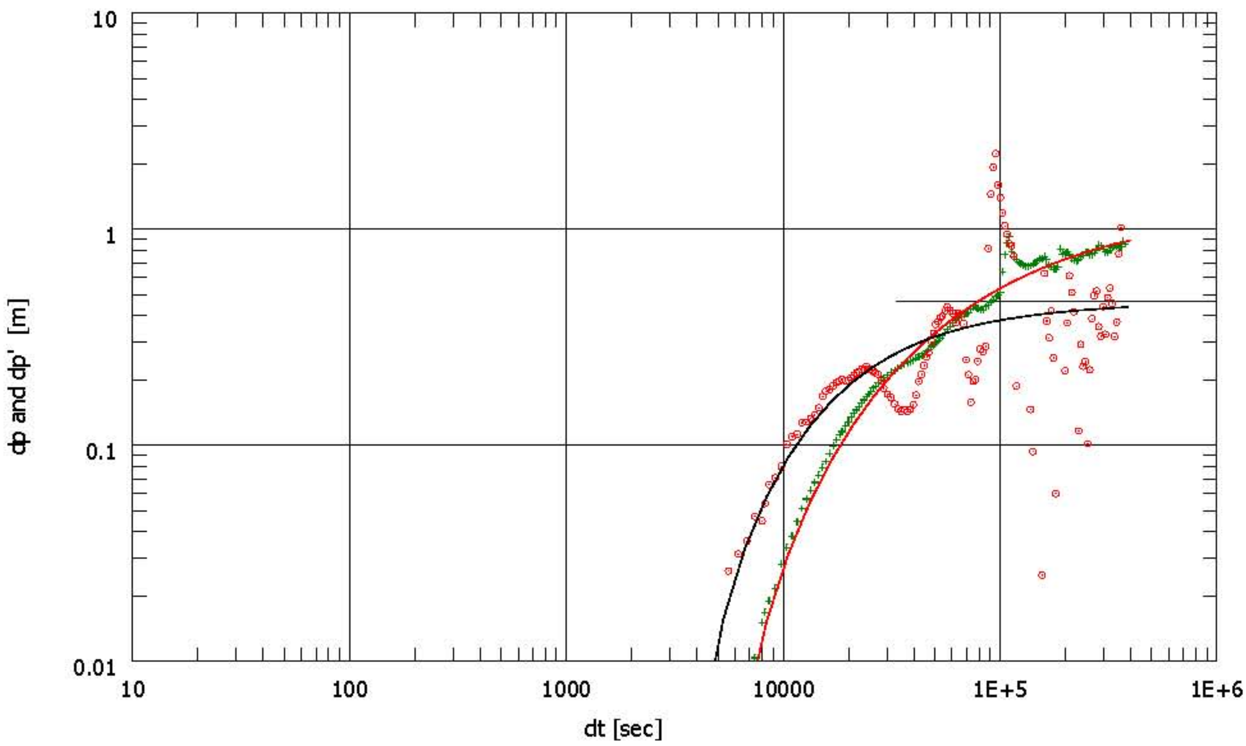
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.52E-5 [sec]-1
PMatch 1.07 [m]-1
S 8.57E-5
T 2.99E-4 m2/s
K 4.83E-6 m/s
Pi 6.873 m
Well distance 480 m

Model Parameters
Reservoir & Boundary parameters
Pi 6.873 m
T 2.99E-4 m2/s
K 4.83E-6 m/s
S 8.57E-5

Derived & Secondary Parameters
Rinv 2050 m
Test. Vol. 266.41 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX07B:2 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	5.70224 m
Pi	6.873 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.52E-5 [sec]-1
PMatch	1.07 [m]-1
S	8.57E-5
T	2.99E-4 m2/s
K	4.83E-6 m/s
Pi	6.873 m
Well distance	480 m

Model Parameters

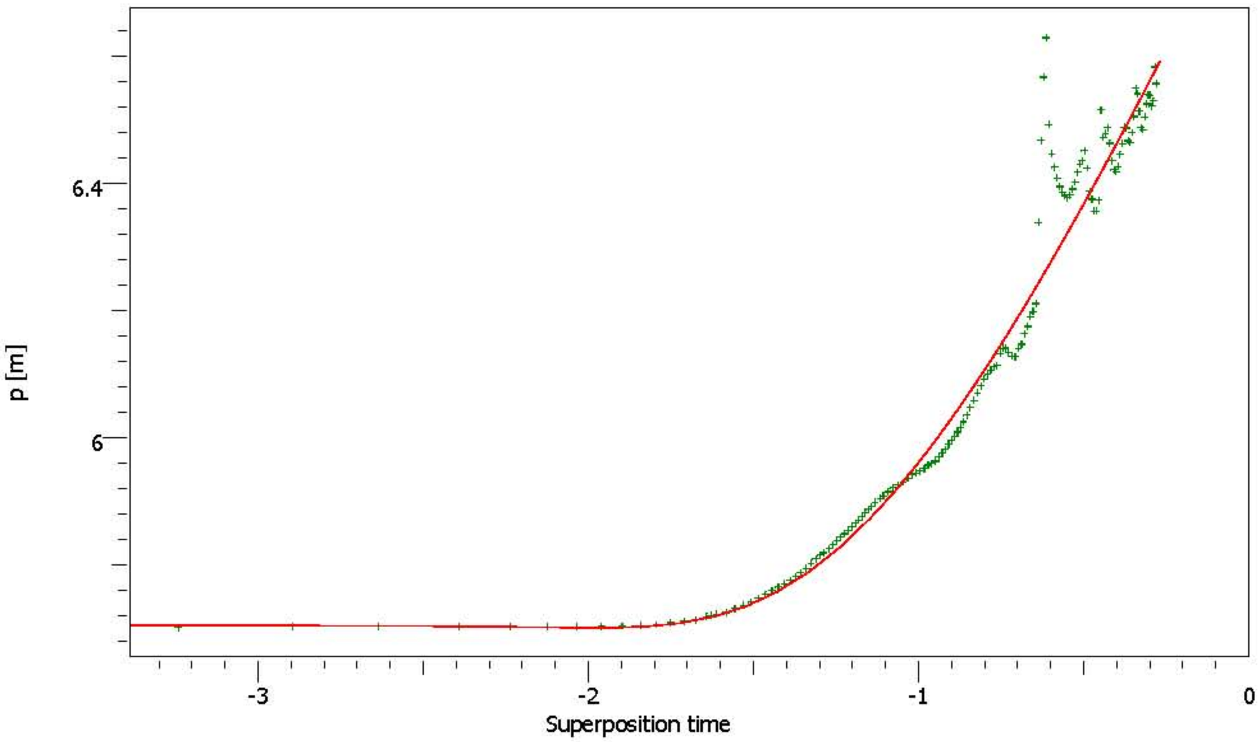
Reservoir & Boundary parameters

Pi	6.873 m
T	2.99E-4 m2/s
K	4.83E-6 m/s
S	8.57E-5

Derived & Secondary Parameters

Rinv	2050 m
Test. Vol.	266.41 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX07B:2 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	5.70224 m
Pi	6.873 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.52E-5 [sec]-1
PMatch	1.07 [m]-1
S	8.57E-5
T	2.99E-4 m2/s
K	4.83E-6 m/s
Pi	6.873 m
Well distance	480 m

Model Parameters

Reservoir & Boundary parameters

Pi	6.873 m
T	2.99E-4 m2/s
K	4.83E-6 m/s
S	8.57E-5

Derived & Secondary Parameters

Rinv	2050 m
Test. Vol.	266.41 MMm3

Main Results	Bu1

Company Svensk Kärnbränslehantering AB
Well KLX07B:2 observation
Field Laxemar
Test Name / # Interference HLX21 pumping

Test date / time	2005-08-15
Formation interval	49.00 - 111.00m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	480 m
Well Radius rw	0.038 m
Pay Zone h	62 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.52E-5 [sec]-1
PMatch	1.07 [m]-1
S	8.57E-5
T	2.99E-4 m2/s
K	4.83E-6 m/s
Pi	6.873 m
Well distance	480 m

Model Parameters

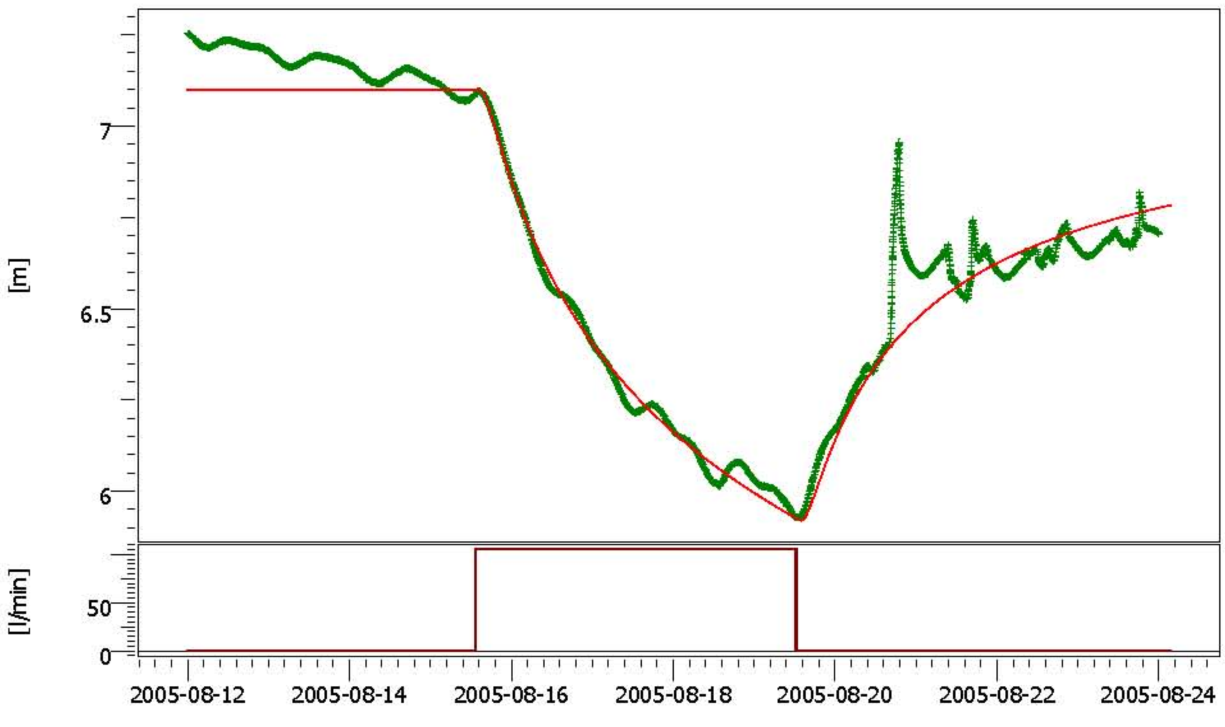
Reservoir & Boundary parameters

Pi	6.873 m
T	2.99E-4 m2/s
K	4.83E-6 m/s
S	8.57E-5

Derived & Secondary Parameters

Rinv	2050 m
Test. Vol.	266.41 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX07B:3 observation	Field Laxemar Test Name / # Interference HLX21 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX07Bobs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	7.099 m
Pi	7.099 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.1E-5 [sec]-1
PMatch	0.939 [m]-1
S	1.01E-4
T	2.62E-4 m2/s
K	6.83E-6 m/s
Pi	7.099 m
Well distance	485 m

Model Parameters

Reservoir & Boundary parameters

Pi	7.099 m
T	2.62E-4 m2/s
K	6.83E-6 m/s
S	1.01E-4

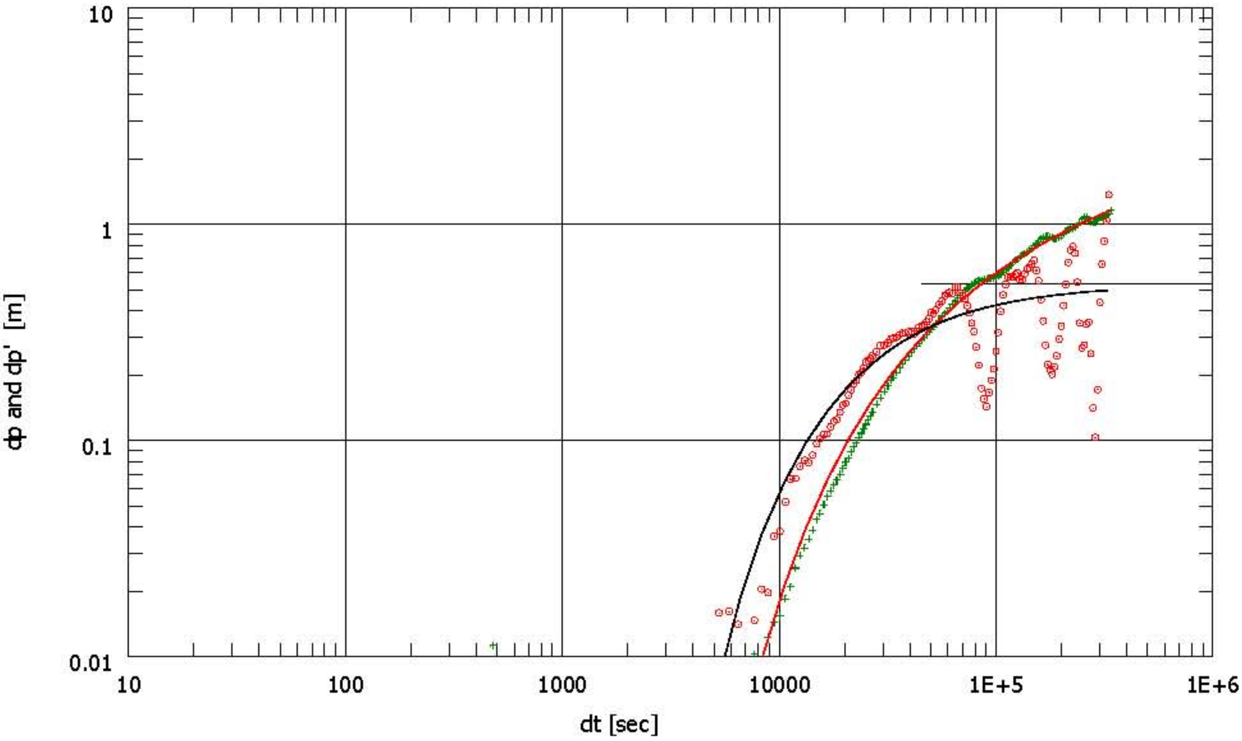
Derived & Secondary Parameters

Rinv	1670 m
Test. Vol.	209.083 MMm3

Ecrin v4.02.03 KLX07B_3obs

2007-12-11

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX07B:3 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	7.099 m
Pi	7.099 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.1E-5 [sec]-1
PMatch	0.939 [m]-1
S	1.01E-4
T	2.62E-4 m2/s
K	6.83E-6 m/s
Pi	7.099 m
Well distance	485 m

Model Parameters

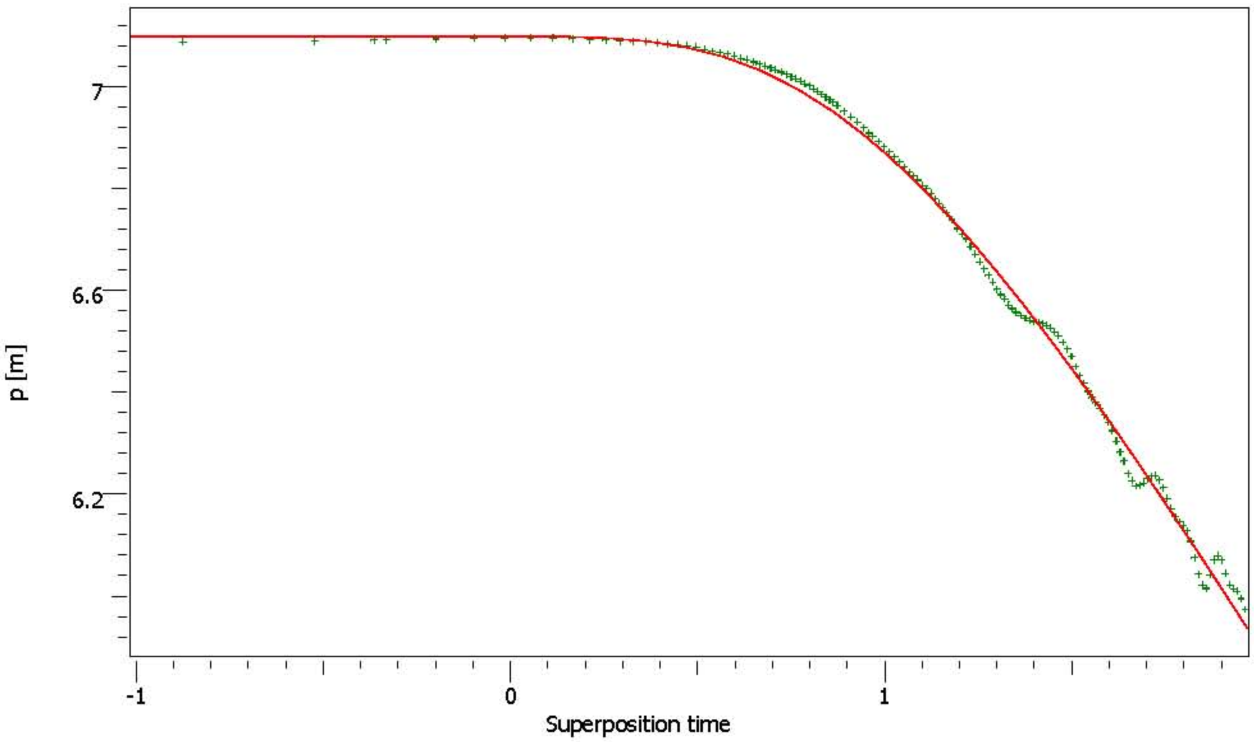
Reservoir & Boundary parameters

Pi	7.099 m
T	2.62E-4 m2/s
K	6.83E-6 m/s
S	1.01E-4

Derived & Secondary Parameters

Rinv	1670 m
Test. Vol.	209.083 MMm3

SKB	Semi-Log plot	Dd1
	Company Svensk Kärnbränslehantering AB Well KLX07B:3 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 production #1

Rate	105.5 l/min
Rate change	105.5 l/min
P@dt=0	7.099 m
Pi	7.099 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.1E-5 [sec]-1
PMatch	0.939 [m]-1
S	1.01E-4
T	2.62E-4 m2/s
K	6.83E-6 m/s
Pi	7.099 m
Well distance	485 m

Model Parameters

Reservoir & Boundary parameters

Pi	7.099 m
T	2.62E-4 m2/s
K	6.83E-6 m/s
S	1.01E-4

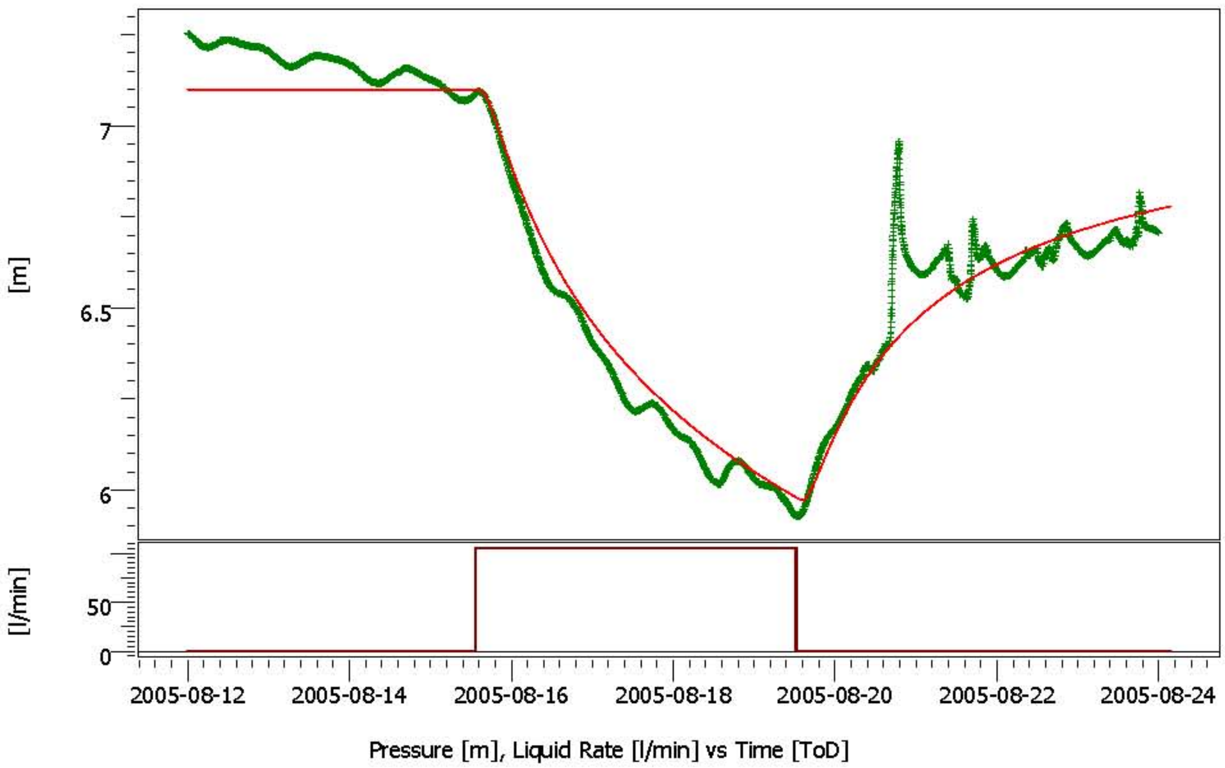
Derived & Secondary Parameters

Rinv	1670 m
Test. Vol.	209.083 MMm3

Main Results	Dd1
Company Svensk Kärnbränslehantering AB Well KLX07B:3 observation	Field Laxemar Test Name / # Interference HLX21 pumping

Test date / time	2005-08-15
Formation interval	9.64 - 48m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	485 m
Well Radius rw	0.038 m
Pay Zone h	38.4 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.1E-5 [sec]-1
PMatch	0.939 [m]-1
S	1.01E-4
T	2.62E-4 m2/s
K	6.83E-6 m/s
Pi	7.099 m
Well distance	485 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	7.099 m
T	2.62E-4 m2/s
K	6.83E-6 m/s
S	1.01E-4
Derived & Secondary Parameters	
Rinv	1670 m
Test. Vol.	209.083 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX07B:3 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	5.92827 m
Pi	7.099 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.42E-6 [sec]-1
PMatch	0.919 [m]-1
S	1.16E-4
T	2.57E-4 m2/s
K	6.69E-6 m/s
Pi	7.099 m
Well distance	485 m

Model Parameters

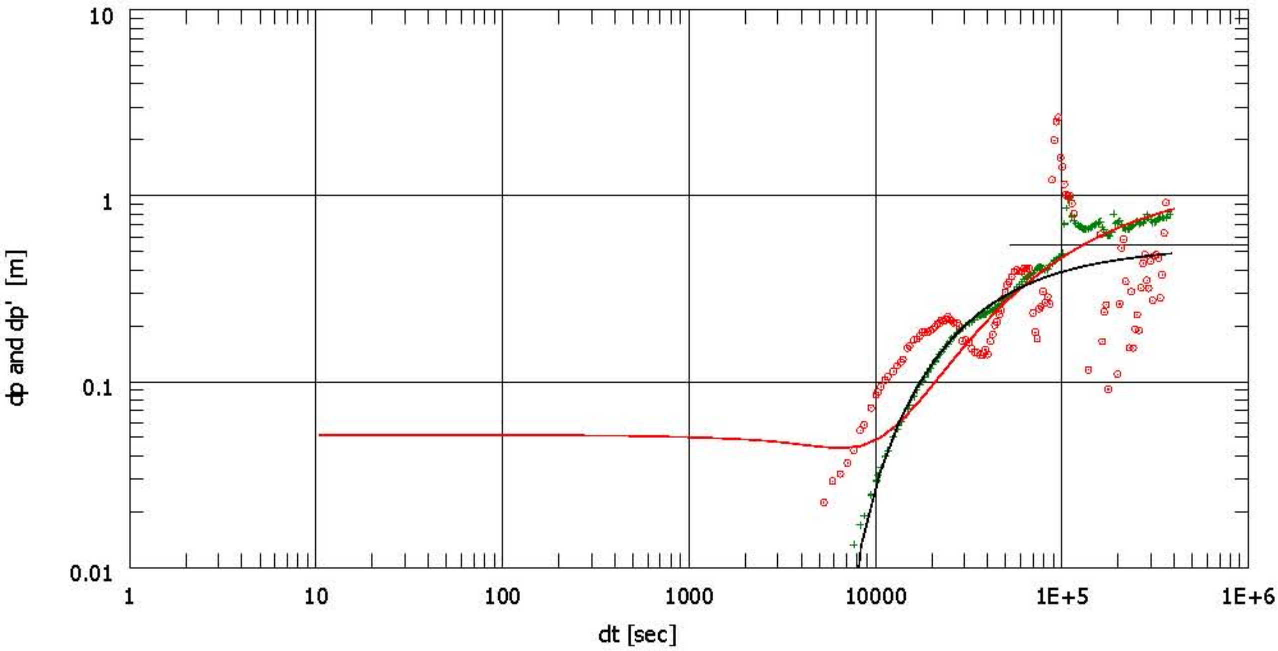
Reservoir & Boundary parameters

Pi	7.099 m
T	2.57E-4 m2/s
K	6.69E-6 m/s
S	1.16E-4

Derived & Secondary Parameters

Rinv	1640 m
Test. Vol.	228.986 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX07B:3 observation	Field Laxemar Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	5.92827 m
Pi	7.099 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.42E-6 [sec]-1
PMatch	0.919 [m]-1
S	1.16E-4
T	2.57E-4 m2/s
K	6.69E-6 m/s
Pi	7.099 m
Well distance	485 m

Model Parameters
Reservoir & Boundary parameters

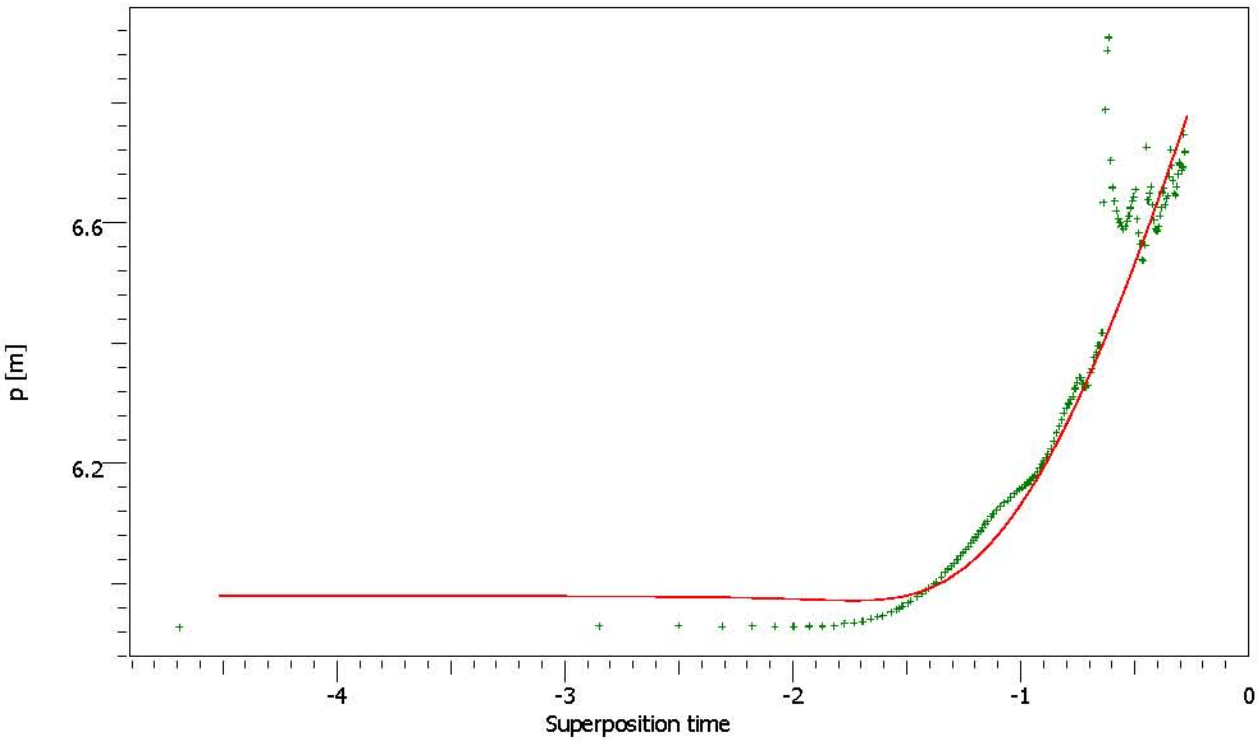
Pi	7.099 m
T	2.57E-4 m2/s
K	6.69E-6 m/s
S	1.16E-4

Derived & Secondary Parameters

Rinv	1640 m
Test. Vol.	228.986 MMm3

Semi-Log plot	Bu1

Company Svensk Kärnbränslehantering AB
Well KLX07B:3 observation
Field Laxemar
Test Name / # Interference HLX21 pumping



KLX07Bobs_12-24Aug05 build-up #1

Rate	0 l/min
Rate change	105.5 l/min
P@dt=0	5.92827 m
Pi	7.099 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.42E-6 [sec]-1
PMatch	0.919 [m]-1
S	1.16E-4
T	2.57E-4 m2/s
K	6.69E-6 m/s
Pi	7.099 m
Well distance	485 m

Model Parameters
Reservoir & Boundary parameters

Pi	7.099 m
T	2.57E-4 m2/s
K	6.69E-6 m/s
S	1.16E-4

Derived & Secondary Parameters

Rinv	1640 m
Test. Vol.	228.986 MMm3

SKB	Main Results	Bu1
	Company Svensk Kärnbränslehantering AB Well KLX07B:3 observation	Field Laxemar Test Name / # Interference HLX21 pumping

Test date / time	2005-08-15
Formation interval	9.64 - 48m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M. Morosini
TEST TYPE	Interference
Well distance	485 m
Well Radius rw	0.038 m
Pay Zone h	38.4 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.42E-6 [sec]-1
PMatch	0.919 [m]-1
S	1.16E-4
T	2.57E-4 m2/s
K	6.69E-6 m/s
Pi	7.099 m
Well distance	485 m

Model Parameters

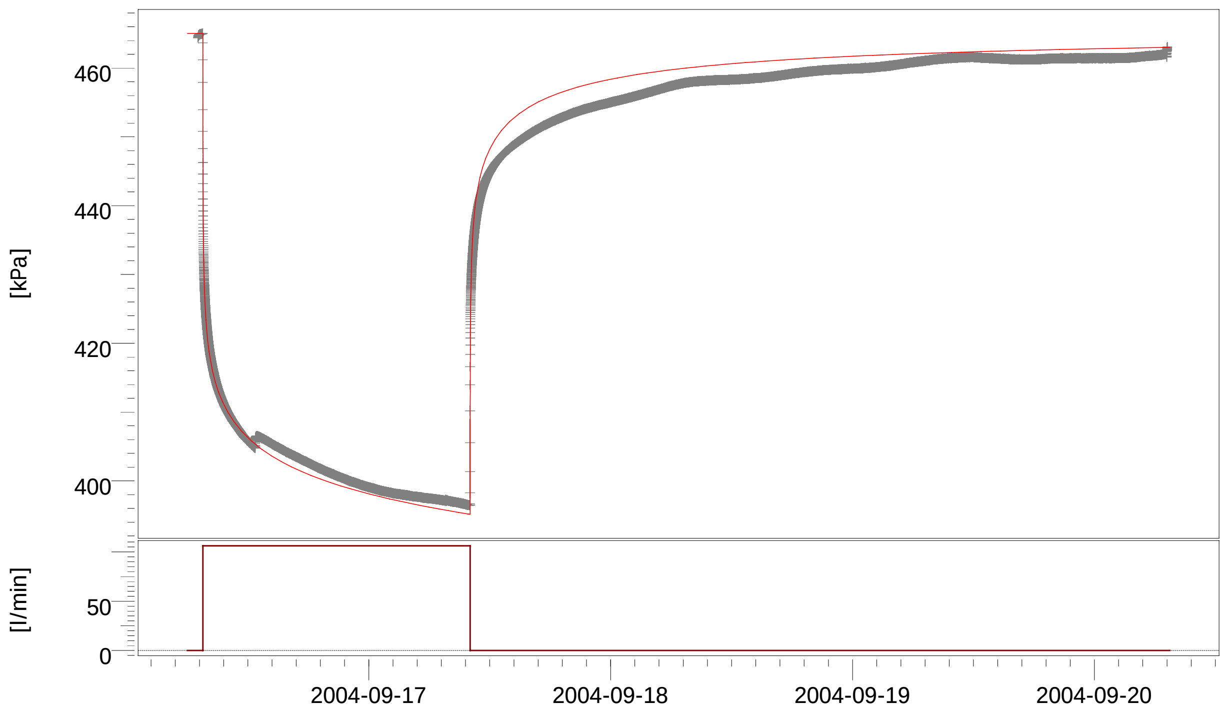
Reservoir & Boundary parameters

Pi	7.099 m
T	2.57E-4 m2/s
K	6.69E-6 m/s
S	1.16E-4

Derived & Secondary Parameters

Rinv	1640 m
Test. Vol.	228.986 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX22	Field Laxemar Test Name / # Test i anslutning till borrning



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

Pressures 8 production #1	
Rate	106.169 l/min
Rate change	106.169 l/min
P@dt=0	463.668 kPa
Pi	465.028 kPa
Smoothing	0.1

Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

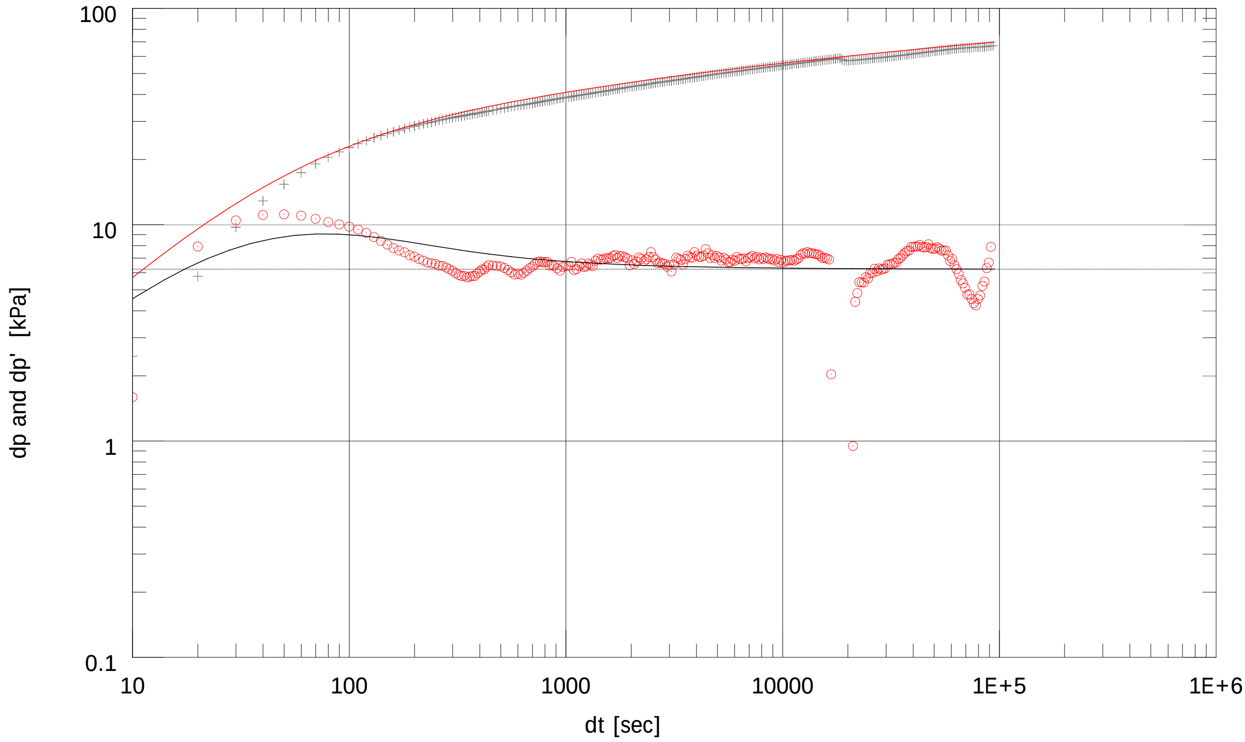
Main Model Parameters	
TMatch	0.0652 1/sec
PMatch	0.0803 1/kPa
C	2.18E-6 m3/Pa
Total Skin	-3.41
T	2.23E-4 m2/s
K	1.49E-6 m/s
Pi	465.028 kPa

Model Parameters	
Well & Wellbore parameters (HLX22)	
C	2.18E-6 m3/Pa
Skin	-3.41
Reservoir & Boundary parameters	
Pi	465.028 kPa
T	2.23E-4 m2/s
K	1.49E-6 m/s

Derived & Secondary Parameters	
Rinv	681 m
Test. Vol.	21.8453 MMm3
Delta P (Total Skin)	-42.4428 kPa
Delta P Ratio (Total Skin)	-0.607272 Fraction

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX22 — Test Name / # Test i anslutning till borrning



Pressures 8 production #1

Rate	106.169 l/min
Rate change	106.169 l/min
P@dt=0	463.668 kPa
Pi	465.028 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0652 1/sec
PMatch	0.0803 1/kPa
C	2.18E-6 m3/Pa
Total Skin	-3.41
T	2.23E-4 m2/s
K	1.49E-6 m/s
Pi	465.028 kPa

Model Parameters

Well & Wellbore parameters (HLX22)

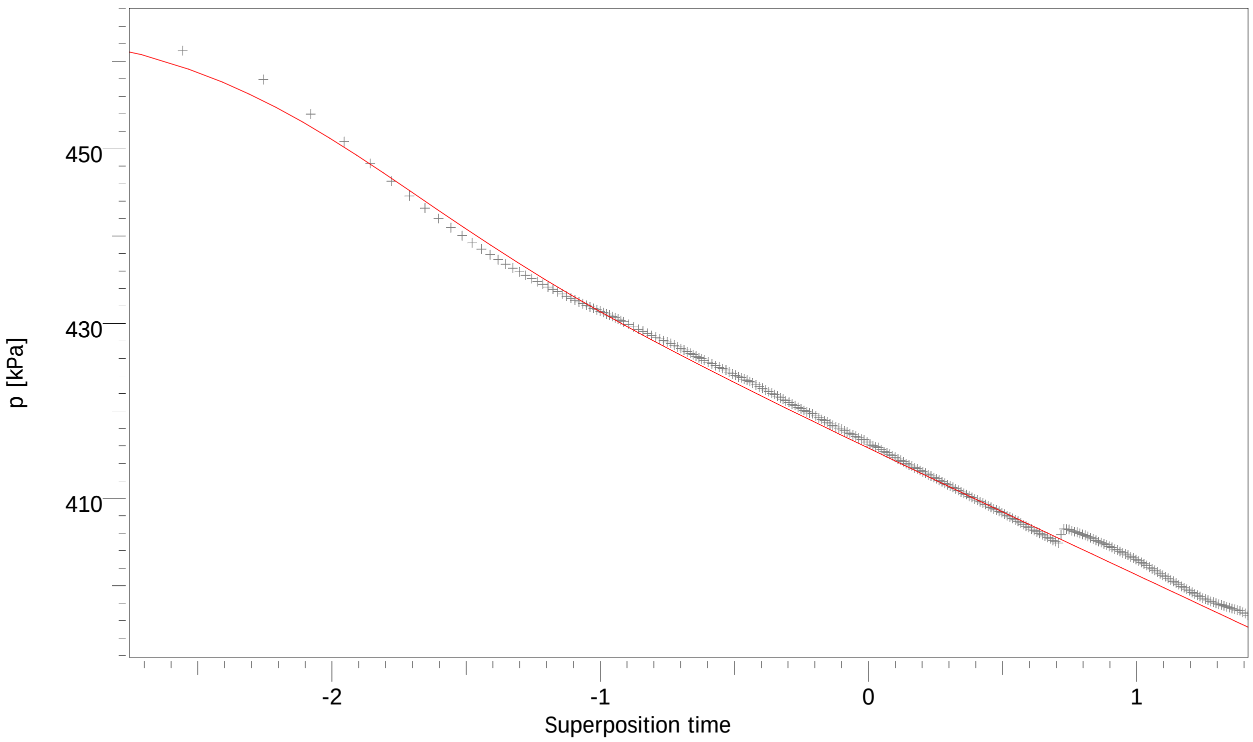
C	2.18E-6 m3/Pa
Skin	-3.41

Reservoir & Boundary parameters

Pi	465.028 kPa
T	2.23E-4 m2/s
K	1.49E-6 m/s

Derived & Secondary Parameters

Rinv	681 m
Test. Vol.	21.8453 MMm3
Delta P (Total Skin)	-42.4428 kPa
Delta P Ratio (Total Skin)	-0.607272 Fraction



Pressures 8 production #1
Rate 106.169 l/min
Rate change 106.169 l/min
P@dt=0 463.668 kPa
Pi 465.028 kPa
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Vertical
Reservoir Homogeneous
Boundary Infinite

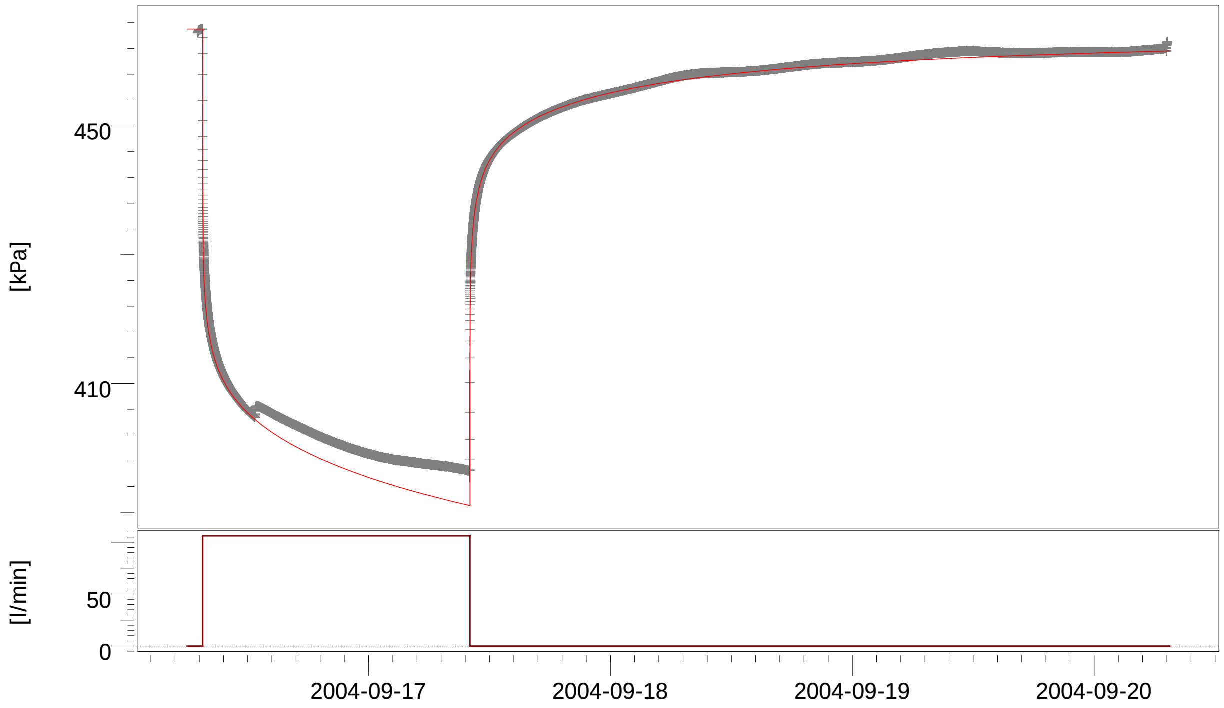
Main Model Parameters
TMatch 0.0652 1/sec
PMatch 0.0803 1/kPa
C 2.18E-6 m3/Pa
Total Skin -3.41
T 2.23E-4 m2/s
K 1.49E-6 m/s
Pi 465.028 kPa

Model Parameters
Well & Wellbore parameters (HLX22)
C 2.18E-6 m3/Pa
Skin -3.41
Reservoir & Boundary parameters
Pi 465.028 kPa
T 2.23E-4 m2/s
K 1.49E-6 m/s

Derived & Secondary Parameters
Rinv 681 m
Test. Vol. 21.8453 MMm3
Delta P (Total Skin) -42.4428 kPa
Delta P Ratio (Total Skin) -0.607272 Fraction

	Main Results	Dd1
SKB	Company Svensk Kärnbränslehantering AB Well HLX22	Field Laxemar Test Name / # Test i anslutning till borrning

Test date / time	2004-09-16 - 2004-09-20
Formation interval	9.03m (foderrör) - 163.2m (EOH)
Perforated interval	161-163
Gauge type / #	Troll
Gauge depth	ca 40m
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	150 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	1500 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	3E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	0.0652 1/sec
PMatch	0.0803 1/kPa
C	2.18E-6 m3/Pa
Total Skin	-3.41
T	2.23E-4 m2/s
K	1.49E-6 m/s
Pi	465.028 kPa
Model Parameters	
Well & Wellbore parameters (HLX22)	
C	2.18E-6 m3/Pa
Skin	-3.41
Reservoir & Boundary parameters	
Pi	465.028 kPa
T	2.23E-4 m2/s
K	1.49E-6 m/s
Derived & Secondary Parameters	
Rinv	681 m
Test. Vol.	21.8453 MMm3
Delta P (Total Skin)	-42.4428 kPa
Delta P Ratio (Total Skin)	-0.607272 Fraction



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

Pressures 8 build-up #1

Rate	0 l/min
Rate change	106.169 l/min
P@dt=0	396.469 kPa
Pi	465.028 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Intersecting faults - Any angle

Main Model Parameters

TMatch	0.182 1/sec
PMatch	0.158 1/kPa
C	1.53E-6 m3/Pa
Total Skin	-0.628
T	4.38E-4 m2/s
K	2.92E-6 m/s
Pi	465.028 kPa

Model Parameters

Well & Wellbore parameters (HLX22)

C	1.53E-6 m3/Pa
Skin	-0.628

Reservoir & Boundary parameters

Pi	465.028 kPa
T	4.38E-4 m2/s
K	2.92E-6 m/s
L1 - No flow	34.9 m
L2 - No flow	334 m
Angle	1.78049 Radians

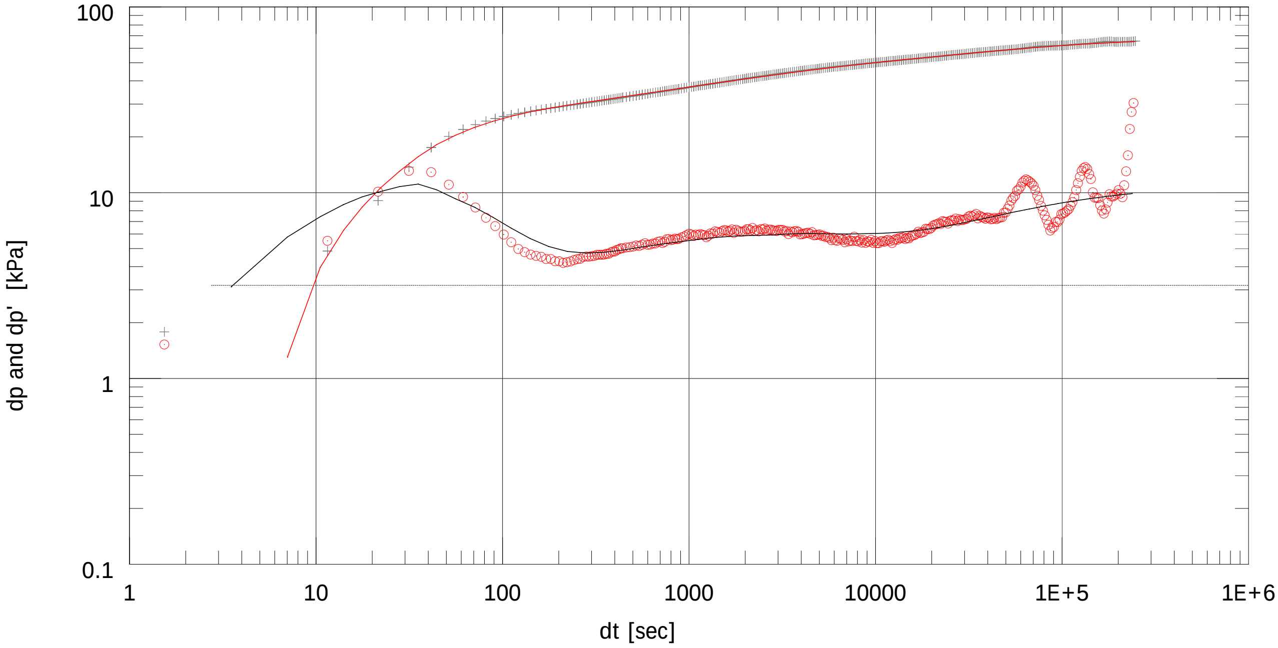
Derived & Secondary Parameters

Delta P (Total Skin)	-3.98324 kPa
Delta P Ratio (Total Skin)	-0.0564431 Fraction

Log-Log plot	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX22

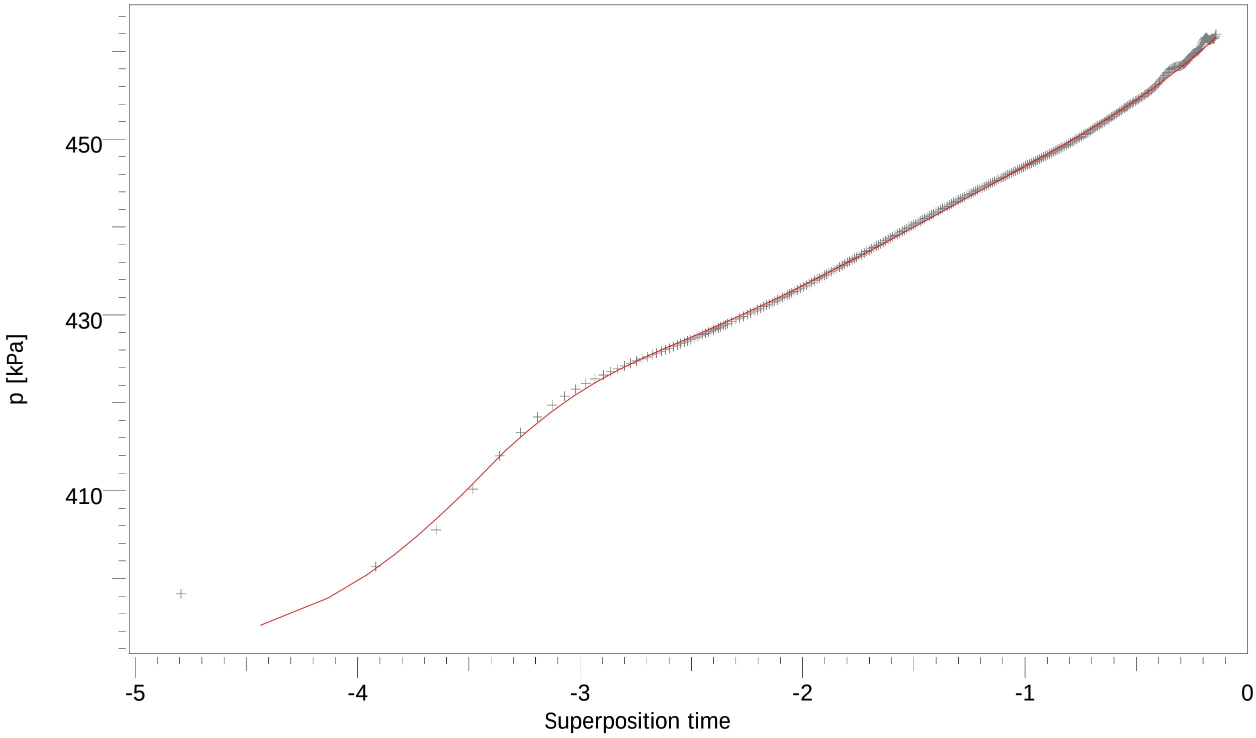
Field Laxemar
Test Name / # Test i anslutning till borrning



Pressures 8 build-up #1	
Rate	0 l/min
Rate change	106.169 l/min
P@dt=0	396.469 kPa
Pi	465.028 kPa
Smoothing	0.1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Intersecting faults - Any angle
Main Model Parameters	
TMatch	0.182 1/sec
PMatch	0.158 1/kPa
C	1.53E-6 m3/Pa
Total Skin	-0.628
T	4.38E-4 m2/s
K	2.92E-6 m/s
Pi	465.028 kPa

Model Parameters	
Well & Wellbore parameters (HLX22)	
C	1.53E-6 m3/Pa
Skin	-0.628
Reservoir & Boundary parameters	
Pi	465.028 kPa
T	4.38E-4 m2/s
K	2.92E-6 m/s
L1 - No flow	34.9 m
L2 - No flow	334 m
Angle	1.78049 Radians
Derived & Secondary Parameters	
Delta P (Total Skin)	-3.98324 kPa
Delta P Ratio (Total Skin)	-0.0564431 Fraction

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX22	Field Laxemar Test Name / # Test i anslutning till borrning

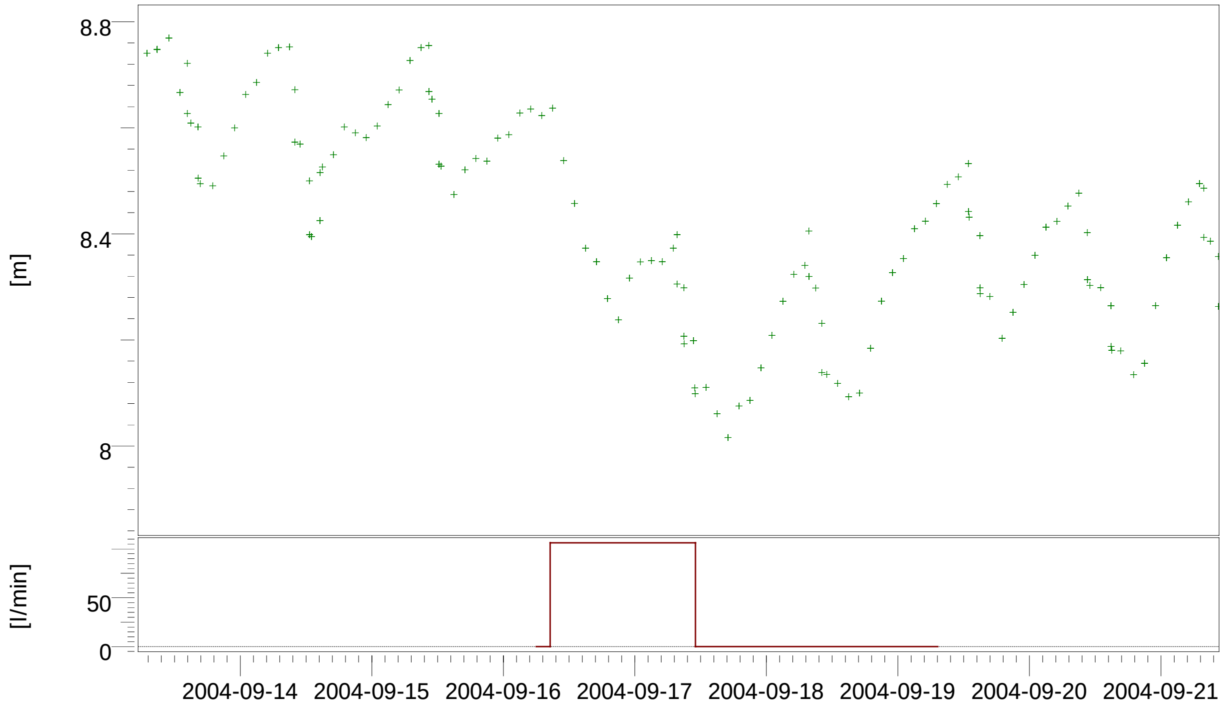


Pressures 8 build-up #1	
Rate	0 l/min
Rate change	106.169 l/min
P@dt=0	396.469 kPa
Pi	465.028 kPa
Smoothing	0.1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Intersecting faults - Any angle
Main Model Parameters	
TMatch	0.182 1/sec
PMatch	0.158 1/kPa
C	1.53E-6 m3/Pa
Total Skin	-0.628
T	4.38E-4 m2/s
K	2.92E-6 m/s
Pi	465.028 kPa

Model Parameters	
Well & Wellbore parameters (HLX22)	
C	1.53E-6 m3/Pa
Skin	-0.628
Reservoir & Boundary parameters	
Pi	465.028 kPa
T	4.38E-4 m2/s
K	2.92E-6 m/s
L1 - No flow	34.9 m
L2 - No flow	334 m
Angle	1.78049 Radians
Derived & Secondary Parameters	
Delta P (Total Skin)	-3.98324 kPa
Delta P Ratio (Total Skin)	-0.0564431 Fraction

Test date / time	2004-09-16 - 2004-09-20
Formation interval	9.03m (foderrör) - 163.2m (EOH)
Perforated interval	161-163
Gauge type / #	Troll
Gauge depth	ca 40m
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	150 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	1500 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	3E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Intersecting faults - Any angle
Main Model Parameters	
TMatch	0.182 1/sec
PMatch	0.158 1/kPa
C	1.53E-6 m3/Pa
Total Skin	-0.628
T	4.38E-4 m2/s
K	2.92E-6 m/s
Pi	465.028 kPa
Model Parameters	
Well & Wellbore parameters (HLX22)	
C	1.53E-6 m3/Pa
Skin	-0.628
Reservoir & Boundary parameters	
Pi	465.028 kPa
T	4.38E-4 m2/s
K	2.92E-6 m/s
L1 - No flow	34.9 m
L2 - No flow	334 m
Angle	1.78049 Radians
Derived & Secondary Parameters	
Delta P (Total Skin)	-3.98324 kPa
Delta P Ratio (Total Skin)	-0.0564431 Fraction

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX11:1 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



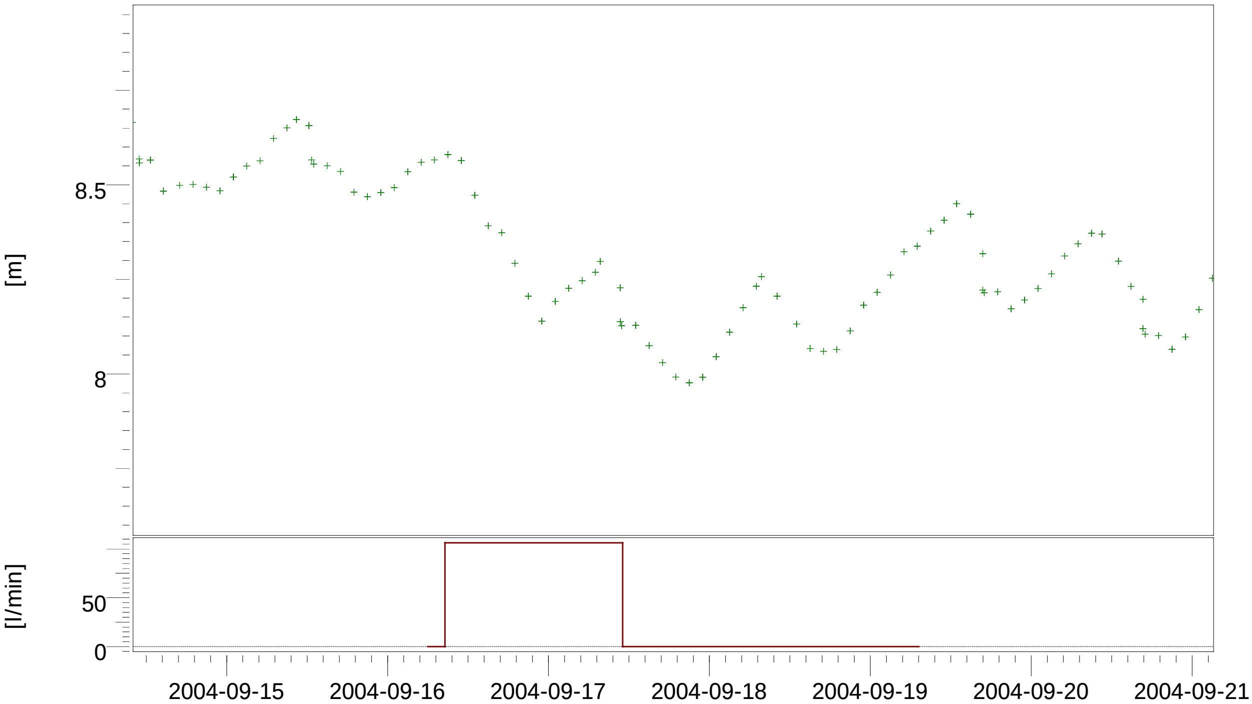
Pressure [m], Liquid Rate [l/min] vs Time [ToD]

Main Results	Dd1

Company Svensk Kärnbränslehantering AB | Field Laxemar
Well HLX11:1 ObsHole | Test Name / # HLX22 pumping test

Test date / time	
Formation interval	17 - 70m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	585 m
Well Radius rw	0.0695 m
Pay Zone h	53 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	100 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX11:2 ObsHole	Field Laxemar Test Name / # HLX22 pumping test

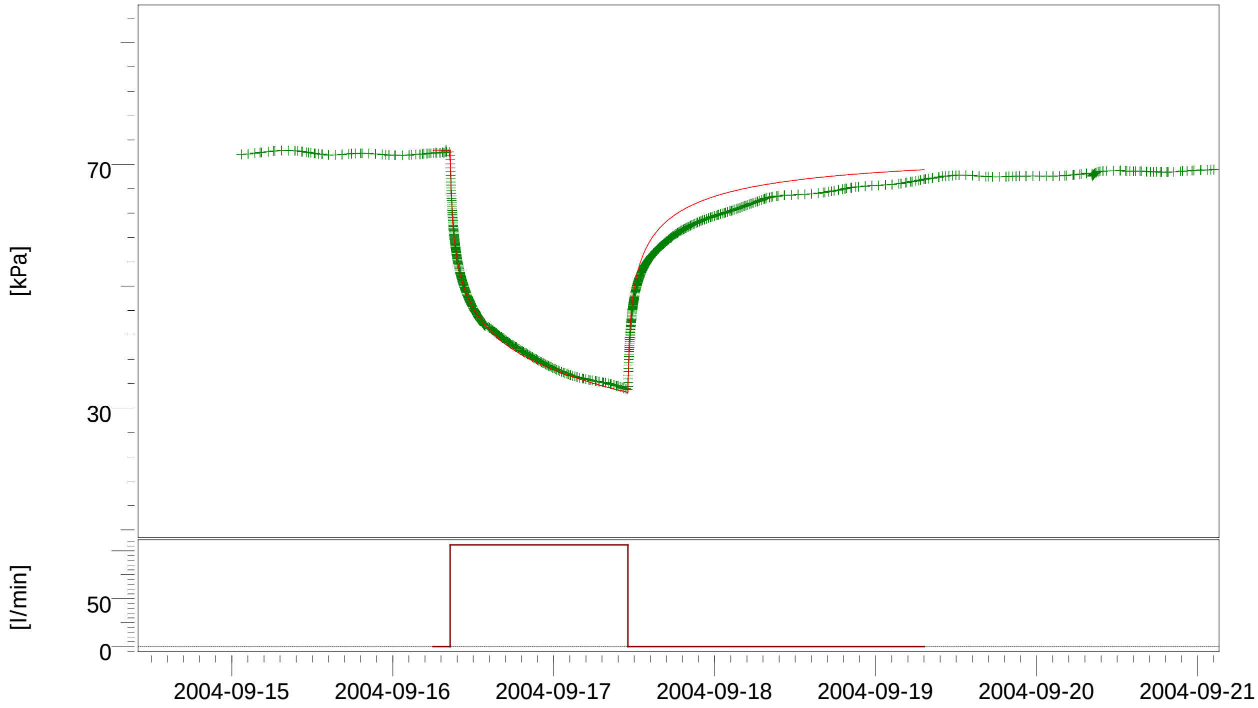


Pressure [m], Liquid Rate [l/min] vs Time [ToD]

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX11:2 ObsHole	Test Name / #	HLX22 pumping test

Test date / time	2004-09-16
Formation interval	6 - 16m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	589 m
Well Radius rw	0.0695 m
Pay Zone h	10 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	100 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX21 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX21obs to HLX22 pumptest 040915-040923 production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	72.0402 kPa
Pi	72.317 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0016 1/sec
PMatch	0.0734 1/kPa
C	5.92E-9 m3/Pa
S	3.14E-5
T	1.99E-4 m2/s
K	1.33E-6 m/s
Pi	72.317 kPa
Well distance	63 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.92E-9 m3/Pa
Skin	0.472

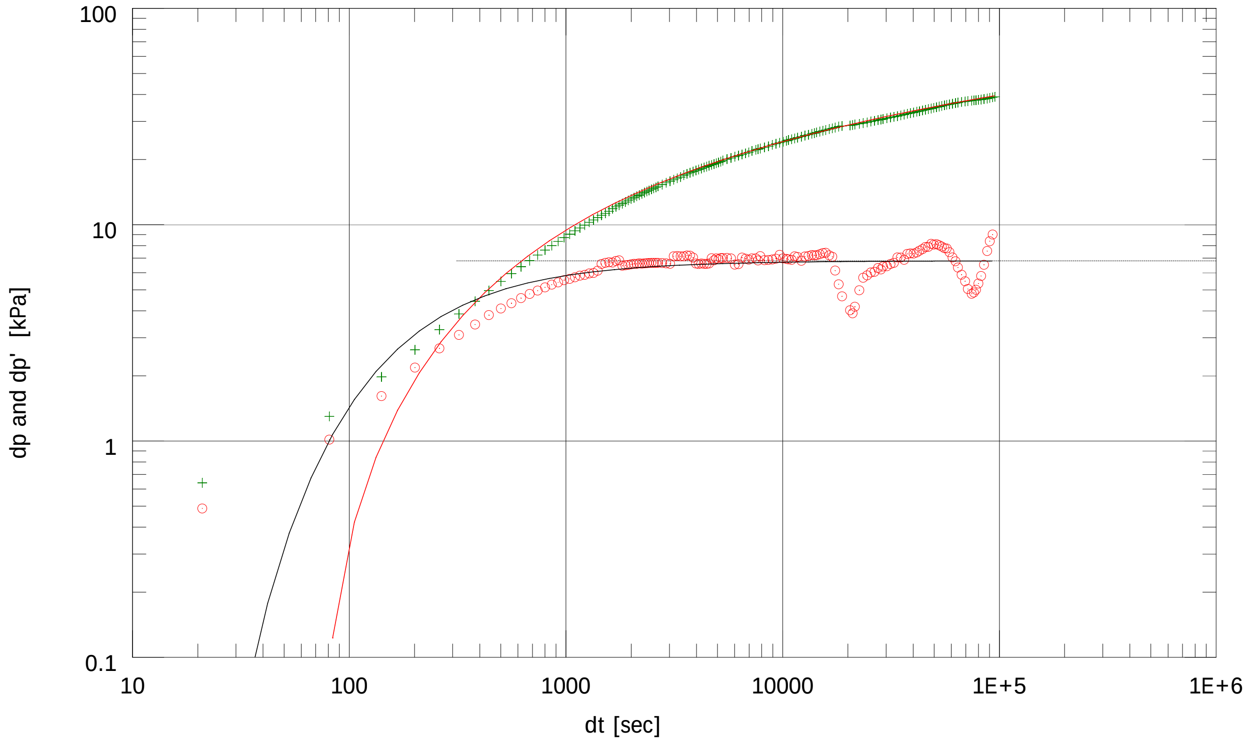
Reservoir & Boundary parameters

Pi	72.317 kPa
T	1.99E-4 m2/s
K	1.33E-6 m/s
S	3.14E-5

Derived & Secondary Parameters

Rinv	1390 m
Test. Vol.	45.4127 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX21 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



HLX21obs to HLX22 pumptest 040915-040923 production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	72.0402 kPa
Pi	72.317 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0016 1/sec
PMatch	0.0734 1/kPa
C	5.92E-9 m3/Pa
S	3.14E-5
T	1.99E-4 m2/s
K	1.33E-6 m/s
Pi	72.317 kPa
Well distance	63 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.92E-9 m3/Pa
Skin	0.472

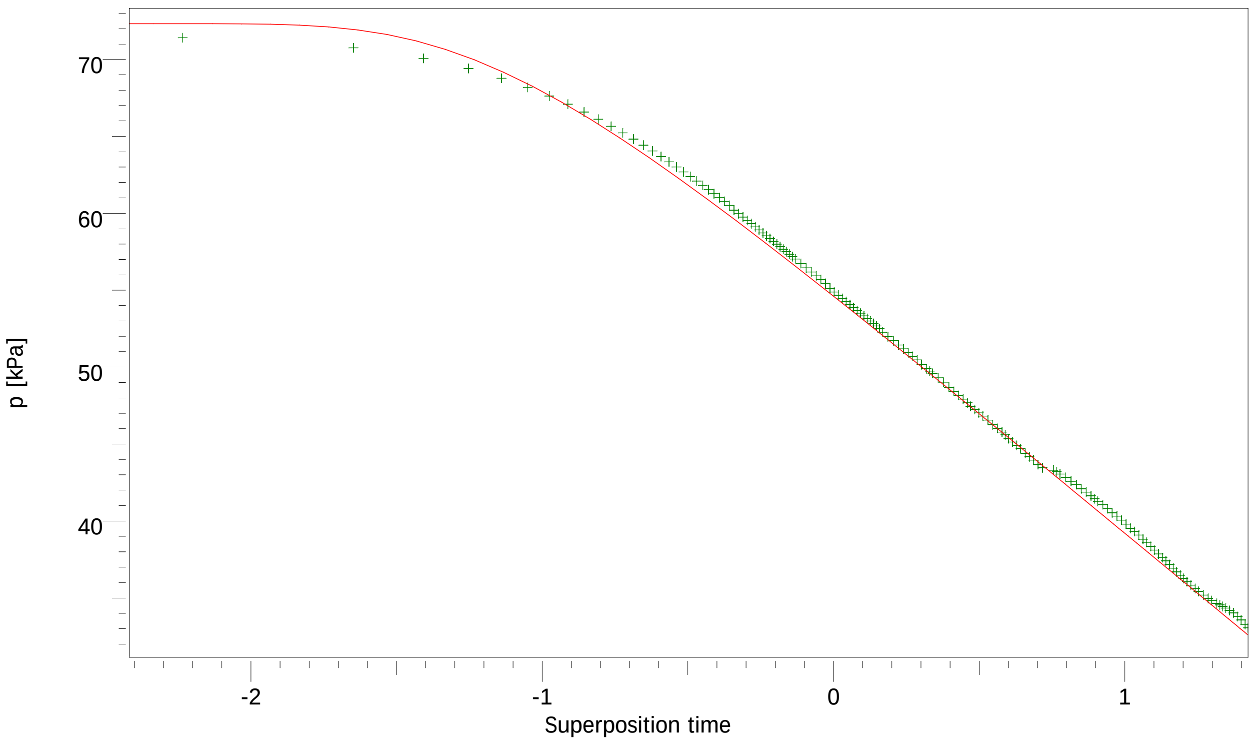
Reservoir & Boundary parameters

Pi	72.317 kPa
T	1.99E-4 m2/s
K	1.33E-6 m/s
S	3.14E-5

Derived & Secondary Parameters

Rinv	1390 m
Test. Vol.	45.4127 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX21 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



HLX21obs to HLX22 pumptest 040915-040923 production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	72.0402 kPa
Pi	72.317 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0016 1/sec
PMatch	0.0734 1/kPa
C	5.92E-9 m3/Pa
S	3.14E-5
T	1.99E-4 m2/s
K	1.33E-6 m/s
Pi	72.317 kPa
Well distance	63 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.92E-9 m3/Pa
Skin	0.472

Reservoir & Boundary parameters

Pi	72.317 kPa
T	1.99E-4 m2/s
K	1.33E-6 m/s
S	3.14E-5

Derived & Secondary Parameters

Rinv	1390 m
Test. Vol.	45.4127 MMm3

Test date / time	2004-09-16
Formation interval	
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	63 m
Well Radius rw	0.07 m
Pay Zone h	150 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0016 1/sec
PMatch	0.0734 1/kPa
C	5.92E-9 m3/Pa
S	3.14E-5
T	1.99E-4 m2/s
K	1.33E-6 m/s
Pi	72.317 kPa
Well distance	63 m

Model Parameters

Well & Wellbore parameters (Active well)

C	5.92E-9 m3/Pa
Skin	0.472

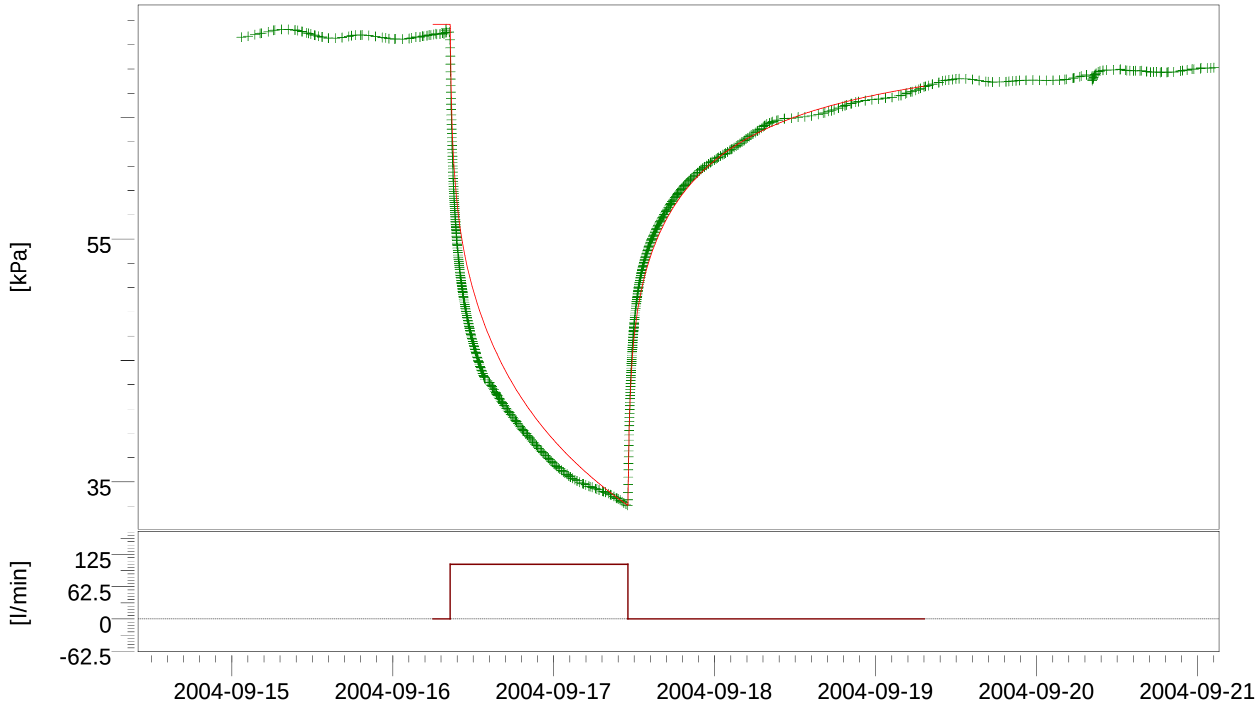
Reservoir & Boundary parameters

Pi	72.317 kPa
T	1.99E-4 m2/s
K	1.33E-6 m/s
S	3.14E-5

Derived & Secondary Parameters

Rinv	1390 m
Test. Vol.	45.4127 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX21 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX21obs to HLX22 pumptest 040915-040923 build-up #1

Rate	0 l/min
Rate change	106.142 l/min
P@dt=0	33.0536 kPa
Pi	72.6775 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	0.00153 1/sec
PMatch	0.0879 1/kPa
S	3.92E-5
T	2.38E-4 m2/s
K	1.59E-6 m/s
Pi	72.6775 kPa
Well distance	63 m

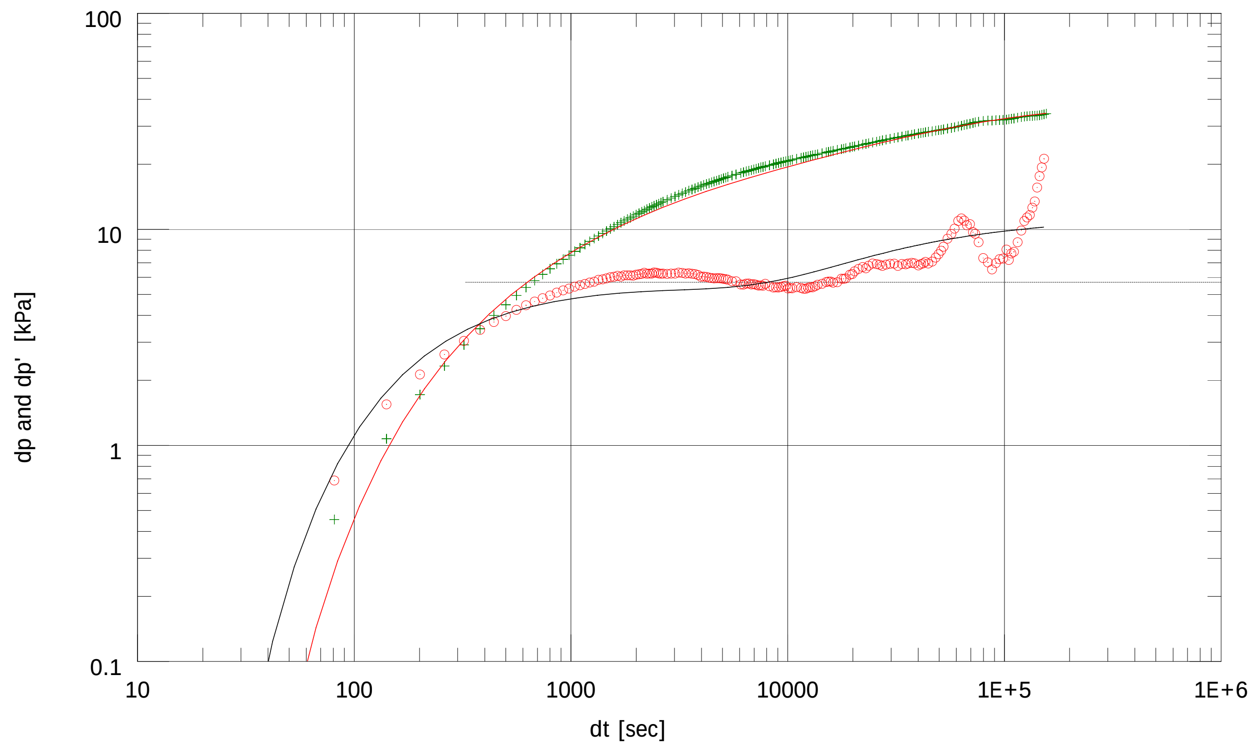
Model Parameters

Reservoir & Boundary parameters

Pi	72.6775 kPa
T	2.38E-4 m2/s
K	1.59E-6 m/s
S	3.92E-5
L - No flow	350 m

Derived & Secondary Parameters

	Log-Log plot	Bu1
SKB	Company Svensk Kärnbränslehantering AB Well HLX21 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



HLX21obs to HLX22 pumptest 040915-040923 build-up #1

Rate	0 l/min
Rate change	106.142 l/min
P@dt=0	33.0536 kPa
Pi	72.6775 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	0.00153 1/sec
PMatch	0.0879 1/kPa
S	3.92E-5
T	2.38E-4 m2/s
K	1.59E-6 m/s
Pi	72.6775 kPa
Well distance	63 m

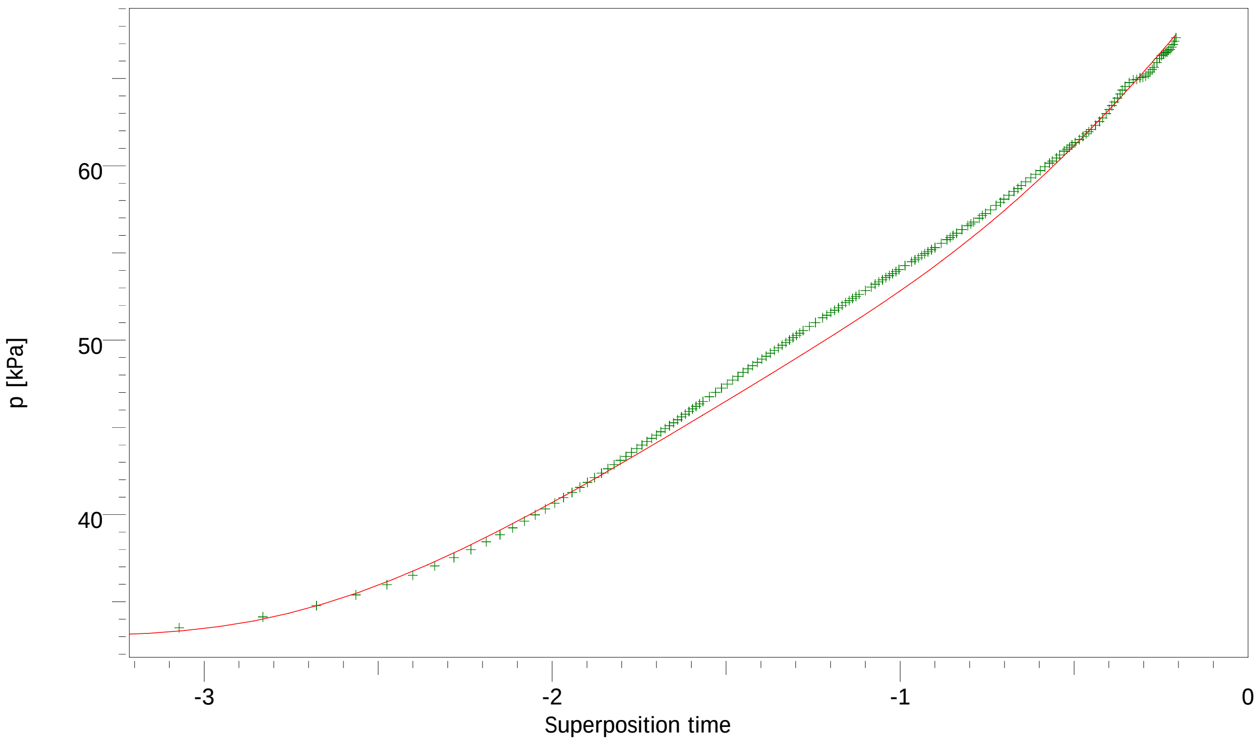
Model Parameters

Reservoir & Boundary parameters

Pi	72.6775 kPa
T	2.38E-4 m2/s
K	1.59E-6 m/s
S	3.92E-5
L - No flow	350 m

Derived & Secondary Parameters

	Semi-Log plot	Bu1
SKB	Company Svensk Kärnbränslehantering AB Well HLX21 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



HLX21obs to HLX22 pumptest 040915-040923 build-up #1

Rate	0 l/min
Rate change	106.142 l/min
P@dt=0	33.0536 kPa
Pi	72.6775 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	0.00153 1/sec
PMatch	0.0879 1/kPa
S	3.92E-5
T	2.38E-4 m2/s
K	1.59E-6 m/s
Pi	72.6775 kPa
Well distance	63 m

Model Parameters

Reservoir & Boundary parameters

Pi	72.6775 kPa
T	2.38E-4 m2/s
K	1.59E-6 m/s
S	3.92E-5
L - No flow	350 m

Derived & Secondary Parameters

Main Results	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX21 ObsHole — Test Name / # HLX22 pumping test

Test date / time	2004-09-16
Formation interval	
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	63 m
Well Radius rw	0.07 m
Pay Zone h	150 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	0.00153 1/sec
PMatch	0.0879 1/kPa
S	3.92E-5
T	2.38E-4 m2/s
K	1.59E-6 m/s
Pi	72.6775 kPa
Well distance	63 m

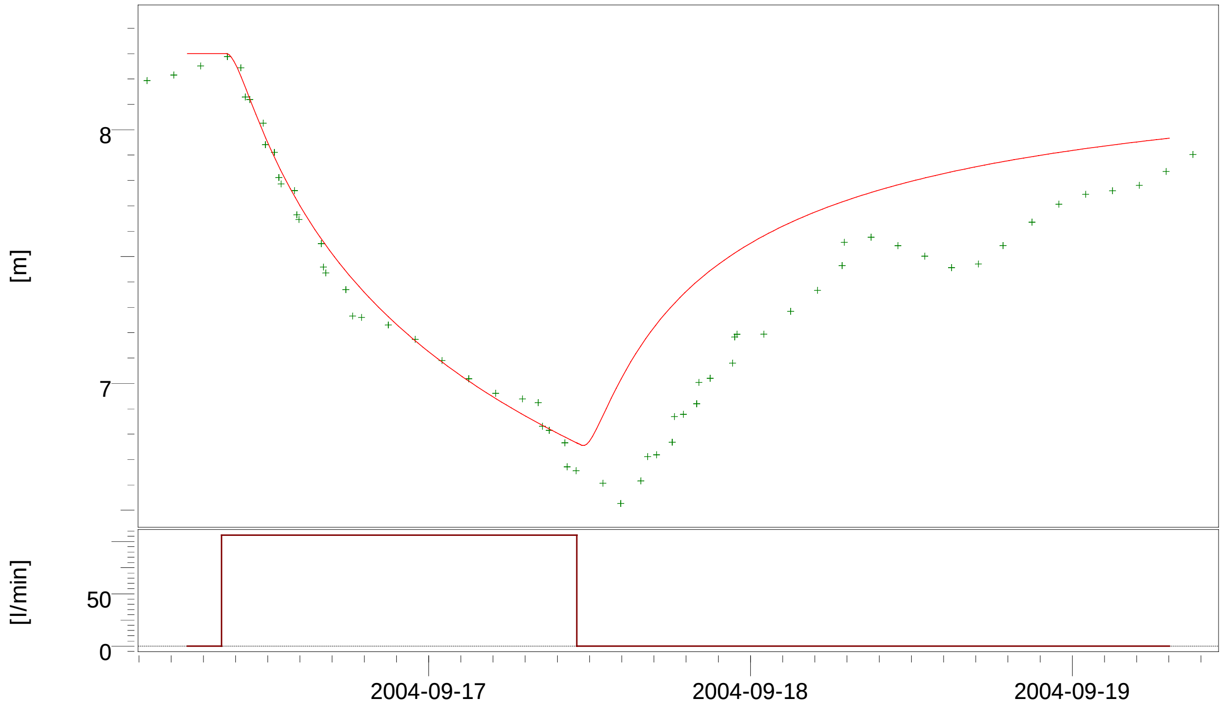
Model Parameters

Reservoir & Boundary parameters

Pi	72.6775 kPa
T	2.38E-4 m2/s
K	1.59E-6 m/s
S	3.92E-5
L - No flow	350 m

Derived & Secondary Parameters

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:1 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02obs_16-17Sept04_HLX22pump production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	8.25109 m
Pi	8.3 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.49E-5 1/sec
PMatch	0.679 1/m
S	1.79E-5
T	1.88E-4 m2/s
K	1.3E-7 m/s
Pi	8.3 m
Well distance	548 m

Model Parameters

Reservoir & Boundary parameters

Pi	8.3 m
T	1.88E-4 m2/s
K	1.3E-7 m/s
S	1.79E-5

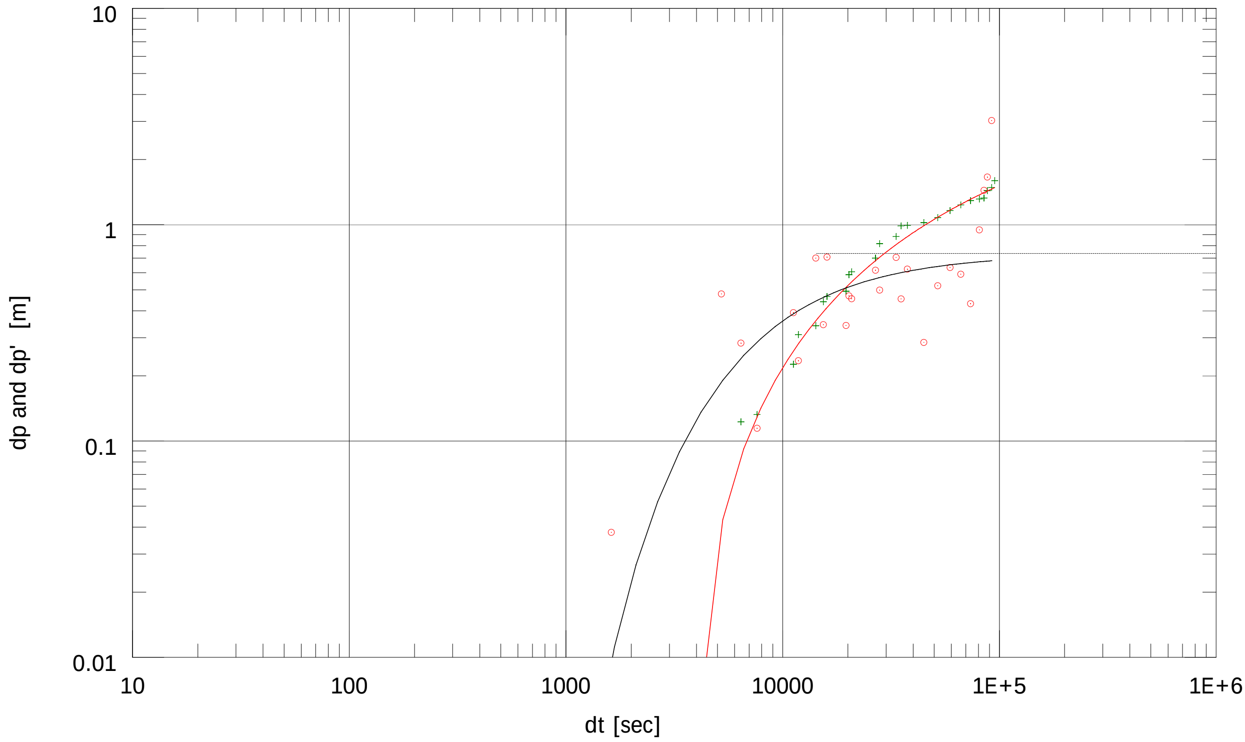
Derived & Secondary Parameters

Rinv	1780 m
Test. Vol.	42.7658 MMm3

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB — Well KLX02:1 ObsHole

Field Laxemar — Test Name / # HLX22 pumping test



KLX02obs_16-17Sept04_HLX22pump production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	8.25109 m
Pi	8.3 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.49E-5 1/sec
PMatch	0.679 1/m
S	1.79E-5
T	1.88E-4 m2/s
K	1.3E-7 m/s
Pi	8.3 m
Well distance	548 m

Model Parameters

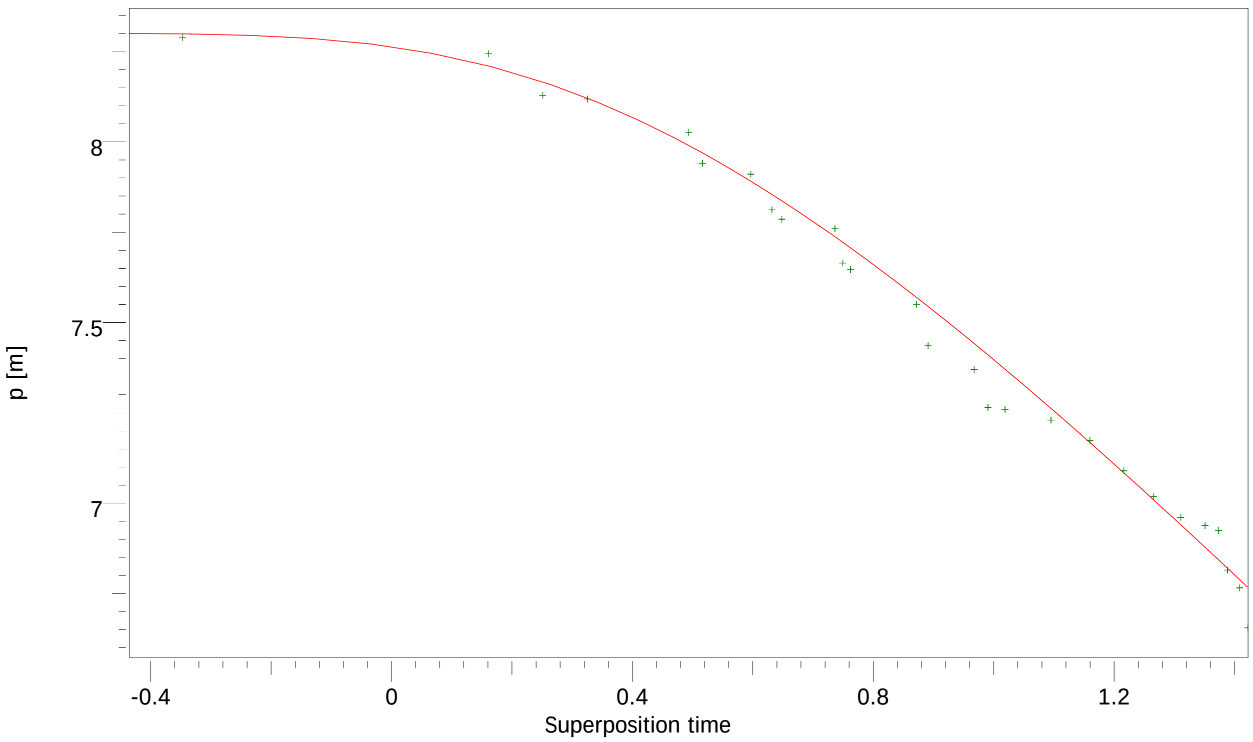
Reservoir & Boundary parameters

Pi	8.3 m
T	1.88E-4 m2/s
K	1.3E-7 m/s
S	1.79E-5

Derived & Secondary Parameters

Rinv	1780 m
Test. Vol.	42.7658 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well KLX02:1 ObsHole	Test Name / # HLX22 pumping test



KLX02obs_16-17Sept04_HLX22pump production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	8.25109 m
Pi	8.3 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.49E-5 1/sec
PMatch	0.679 1/m
S	1.79E-5
T	1.88E-4 m2/s
K	1.3E-7 m/s
Pi	8.3 m
Well distance	548 m

Model Parameters

Reservoir & Boundary parameters

Pi	8.3 m
T	1.88E-4 m2/s
K	1.3E-7 m/s
S	1.79E-5

Derived & Secondary Parameters

Rinv	1780 m
Test. Vol.	42.7658 MMm3

Main Results	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX02:1 ObsHole — Test Name / # HLX22 pumping test

Test date / time	2004-09-16
Formation interval	256.4 - 1700m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	548 m
Well Radius rw	0.038 m
Pay Zone h	1444 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	100 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.49E-5 1/sec
PMatch	0.679 1/m
S	1.79E-5
T	1.88E-4 m2/s
K	1.3E-7 m/s
Pi	8.3 m
Well distance	548 m

Model Parameters

Reservoir & Boundary parameters

Pi	8.3 m
T	1.88E-4 m2/s
K	1.3E-7 m/s
S	1.79E-5

Derived & Secondary Parameters

Rinv	1780 m
Test. Vol.	42.7658 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:1 ObsHole	Field Laxemar Test Name / # HLX22 pumping test

Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02obs_16-17Sept04_HLX22pump build-up #1

Rate	0 l/min
Rate change	106.142 l/min
P@dt=0	6.65509 m
Pi	8.3 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.69E-5 1/sec
PMatch	0.452 1/m
S	1.54E-5
T	1.25E-4 m2/s
K	8.64E-8 m/s
Pi	8.3 m
Well distance	548 m

Model Parameters

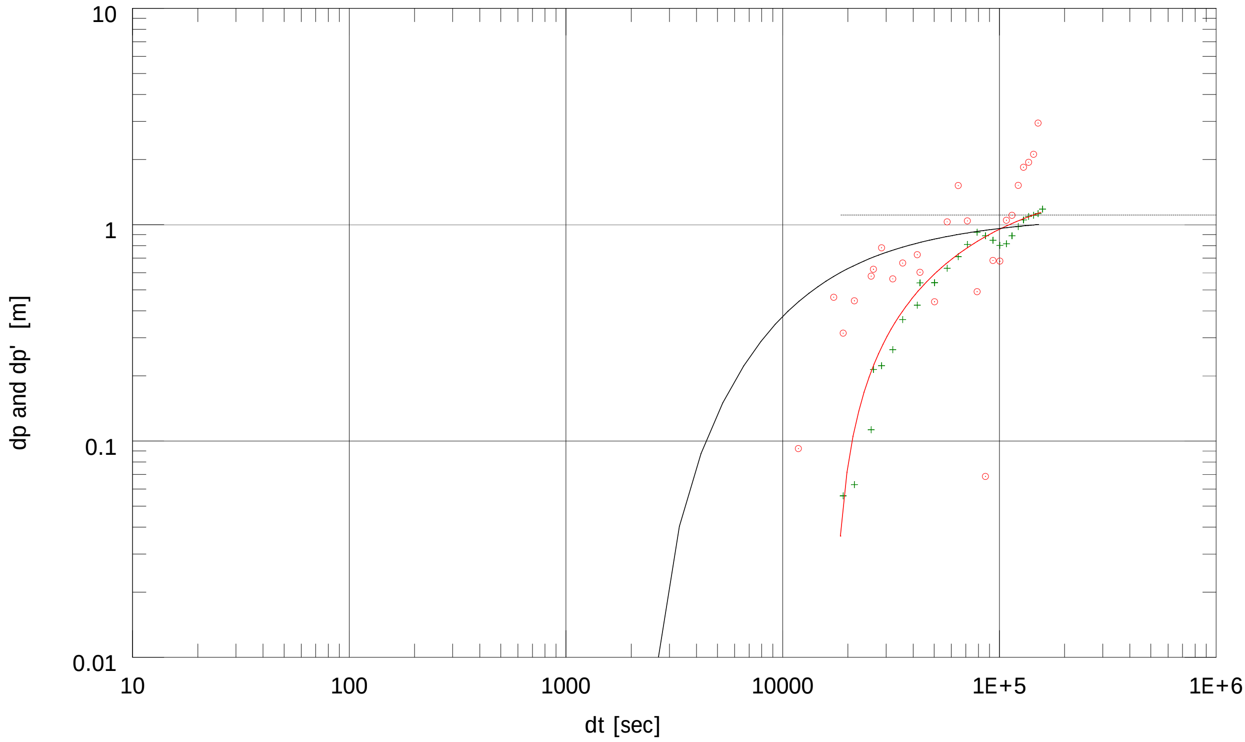
Reservoir & Boundary parameters

Pi	8.3 m
T	1.25E-4 m2/s
K	8.64E-8 m/s
S	1.54E-5

Derived & Secondary Parameters

Rinv	2020 m
Test. Vol.	47.2369 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:1 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



KLX02obs_16-17Sept04_HLX22pump build-up #1

Rate	0 l/min
Rate change	106.142 l/min
P@dt=0	6.65509 m
Pi	8.3 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.69E-5 1/sec
PMatch	0.452 1/m
S	1.54E-5
T	1.25E-4 m2/s
K	8.64E-8 m/s
Pi	8.3 m
Well distance	548 m

Model Parameters

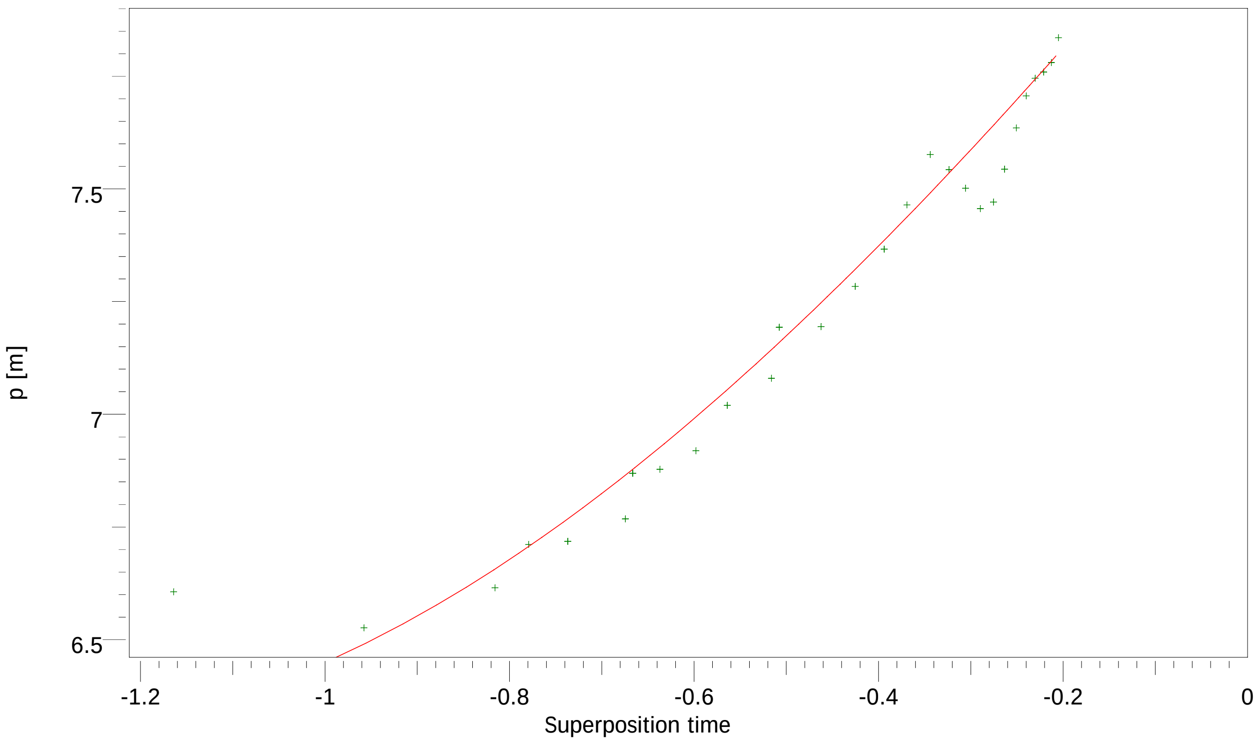
Reservoir & Boundary parameters

Pi	8.3 m
T	1.25E-4 m2/s
K	8.64E-8 m/s
S	1.54E-5

Derived & Secondary Parameters

Rinv	2020 m
Test. Vol.	47.2369 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:1 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



KLX02obs_16-17Sept04_HLX22pump build-up #1

Rate	0 l/min
Rate change	106.142 l/min
P@dt=0	6.65509 m
Pi	8.3 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.69E-5 1/sec
PMatch	0.452 1/m
S	1.54E-5
T	1.25E-4 m2/s
K	8.64E-8 m/s
Pi	8.3 m
Well distance	548 m

Model Parameters

Reservoir & Boundary parameters

Pi	8.3 m
T	1.25E-4 m2/s
K	8.64E-8 m/s
S	1.54E-5

Derived & Secondary Parameters

Rinv	2020 m
Test. Vol.	47.2369 MMm3

Main Results	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX02:1 ObsHole — Test Name / # HLX22 pumping test

Test date / time	2004-09-16
Formation interval	256.4 - 1700m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	548 m
Well Radius rw	0.038 m
Pay Zone h	1444 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	100 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.69E-5 1/sec
PMatch	0.452 1/m
S	1.54E-5
T	1.25E-4 m2/s
K	8.64E-8 m/s
Pi	8.3 m
Well distance	548 m

Model Parameters

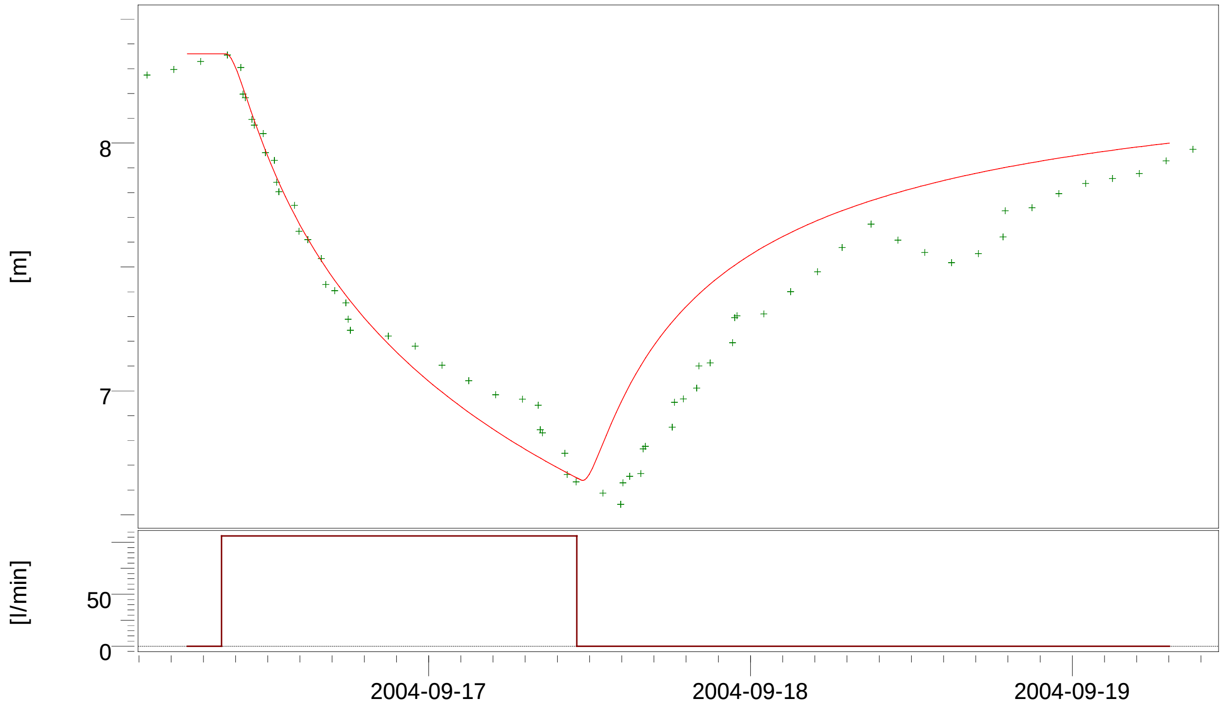
Reservoir & Boundary parameters

Pi	8.3 m
T	1.25E-4 m2/s
K	8.64E-8 m/s
S	1.54E-5

Derived & Secondary Parameters

Rinv	2020 m
Test. Vol.	47.2369 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:2 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02obs_16-17Sept04_HLX22pump production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	8.32882 m
Pi	8.36 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.77E-5 1/sec
PMatch	0.631 1/m
S	1.69E-5
T	1.74E-4 m2/s
K	3.67E-6 m/s
Pi	8.36 m
Well distance	523 m

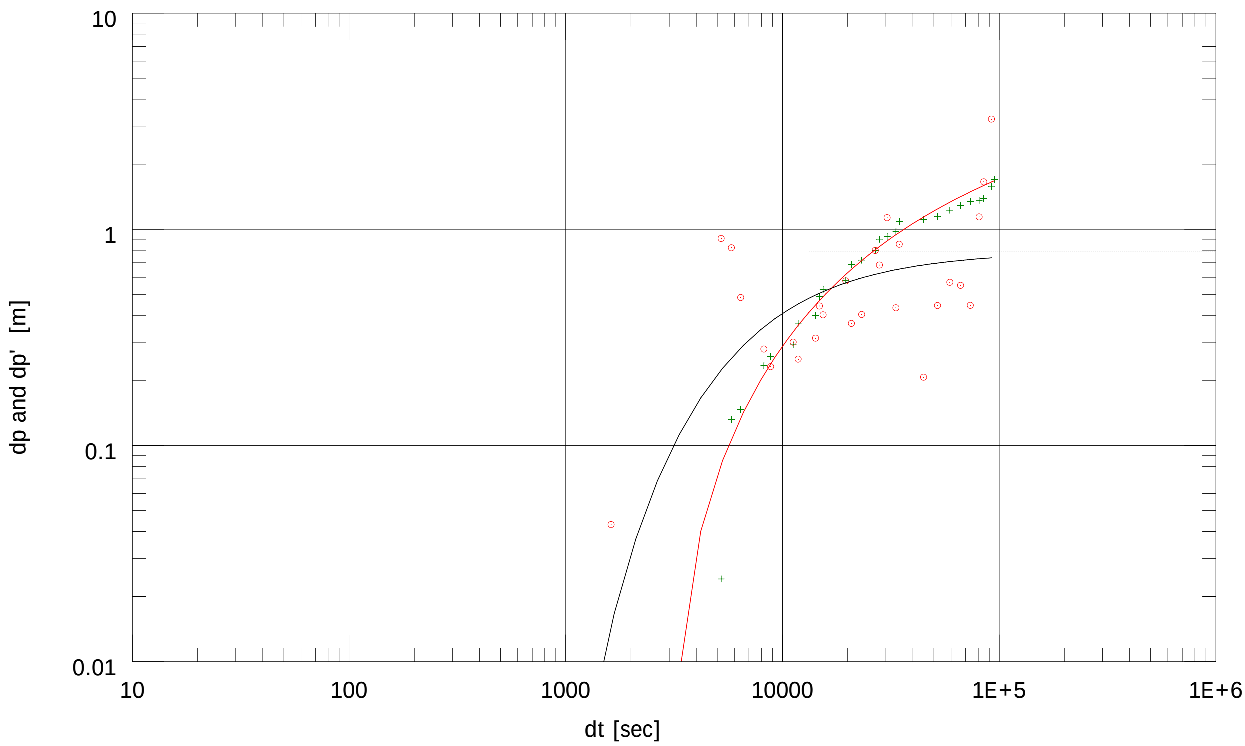
Model Parameters
Reservoir & Boundary parameters

Pi	8.36 m
T	1.74E-4 m2/s
K	3.67E-6 m/s
S	1.69E-5

Derived & Secondary Parameters

Rinv	1770 m
Test. Vol.	39.7016 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:2 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



KLX02obs_16-17Sept04_HLX22pump production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	8.32882 m
Pi	8.36 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.77E-5 1/sec
PMatch	0.631 1/m
S	1.69E-5
T	1.74E-4 m2/s
K	3.67E-6 m/s
Pi	8.36 m
Well distance	523 m

Model Parameters
Reservoir & Boundary parameters

Pi	8.36 m
T	1.74E-4 m2/s
K	3.67E-6 m/s
S	1.69E-5

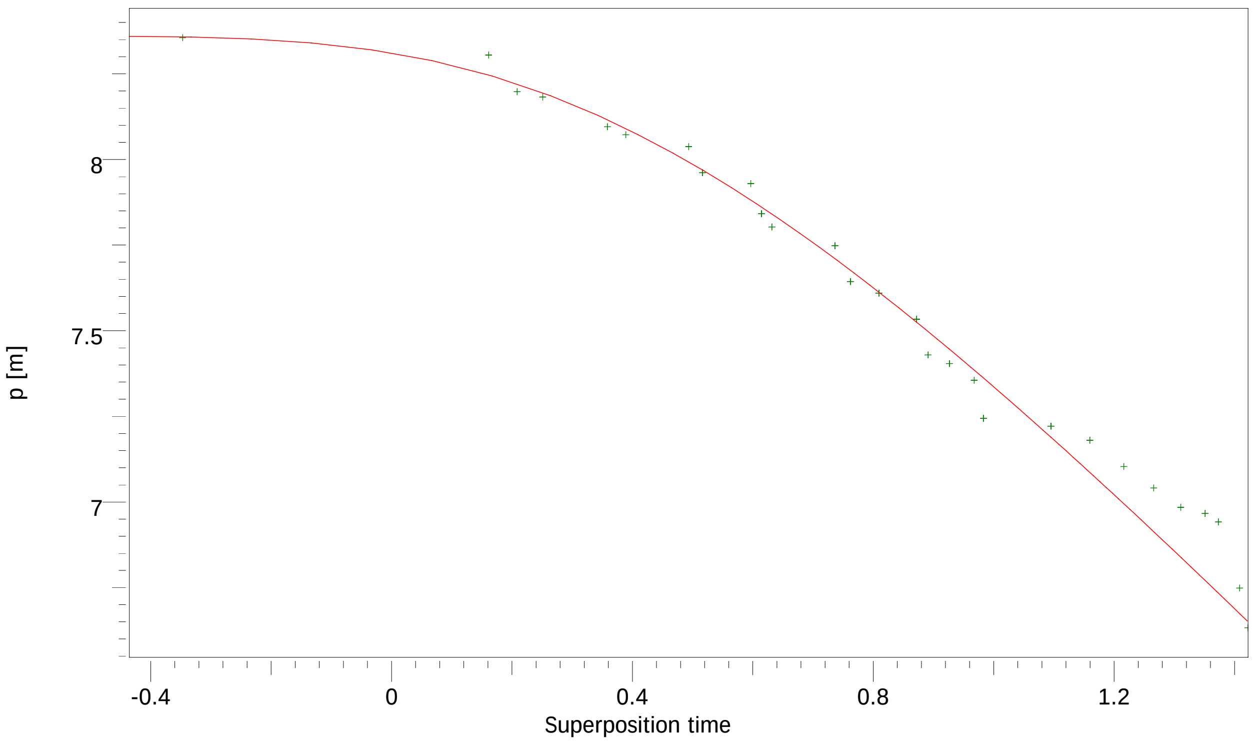
Derived & Secondary Parameters

Rinv	1770 m
Test. Vol.	39.7016 MMm3

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well KLX02:2 ObsHole

Field Laxemar
Test Name / # HLX22 pumping test



KLX02obs_16-17Sept04_HLX22pump production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	8.32882 m
Pi	8.36 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.77E-5 1/sec
PMatch	0.631 1/m
S	1.69E-5
T	1.74E-4 m2/s
K	3.67E-6 m/s
Pi	8.36 m
Well distance	523 m

Model Parameters
Reservoir & Boundary parameters

Pi	8.36 m
T	1.74E-4 m2/s
K	3.67E-6 m/s
S	1.69E-5

Derived & Secondary Parameters

Rinv	1770 m
Test. Vol.	39.7016 MMm3

Main Results	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX02:2 ObsHole — Test Name / # HLX22 pumping test

Test date / time	2004-09-16
Formation interval	207.9 - 255.4m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	523 m
Well Radius rw	0.038 m
Pay Zone h	47.5 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	100 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.77E-5 1/sec
PMatch	0.631 1/m
S	1.69E-5
T	1.74E-4 m2/s
K	3.67E-6 m/s
Pi	8.36 m
Well distance	523 m

Model Parameters

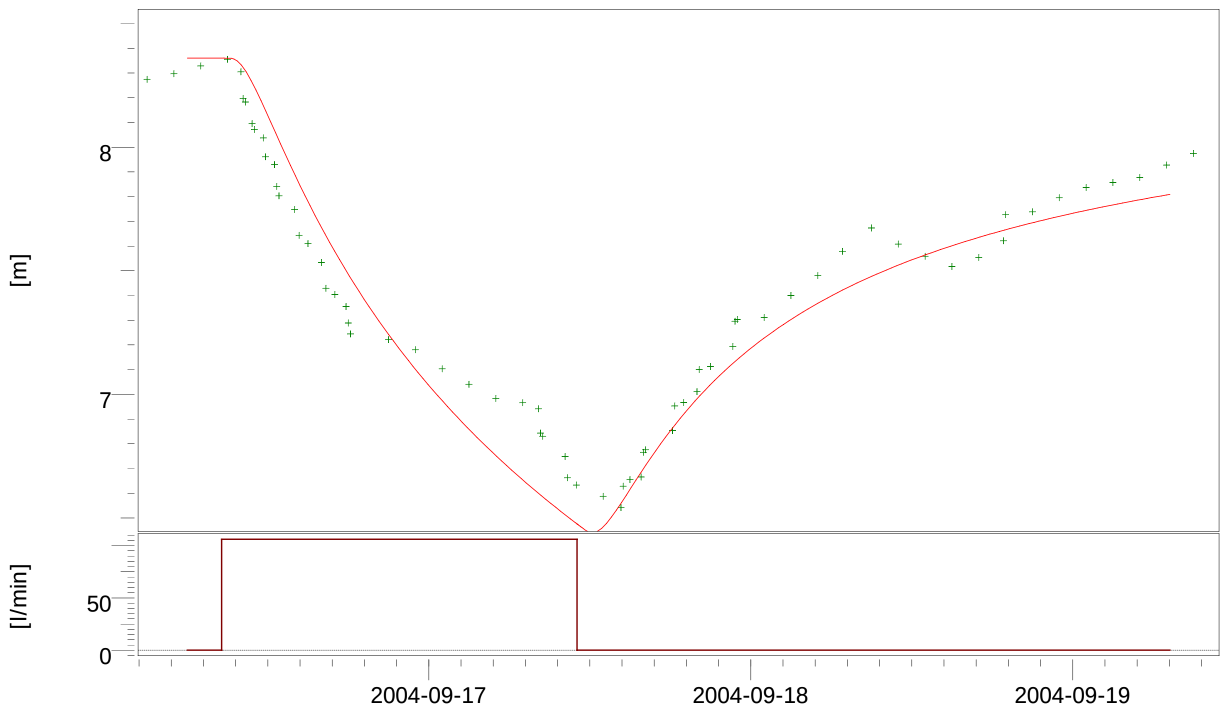
Reservoir & Boundary parameters

Pi	8.36 m
T	1.74E-4 m2/s
K	3.67E-6 m/s
S	1.69E-5

Derived & Secondary Parameters

Rinv	1770 m
Test. Vol.	39.7016 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:2 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02obs_16-17Sept04_HLX22pump build-up #1

Rate	0 l/min
Rate change	106.142 l/min
P@dt=0	6.63249 m
Pi	8.36 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.82E-5 1/sec
PMatch	0.398 1/m
S	2.21E-5
T	1.1E-4 m2/s
K	2.31E-6 m/s
Pi	8.36 m
Well distance	523 m

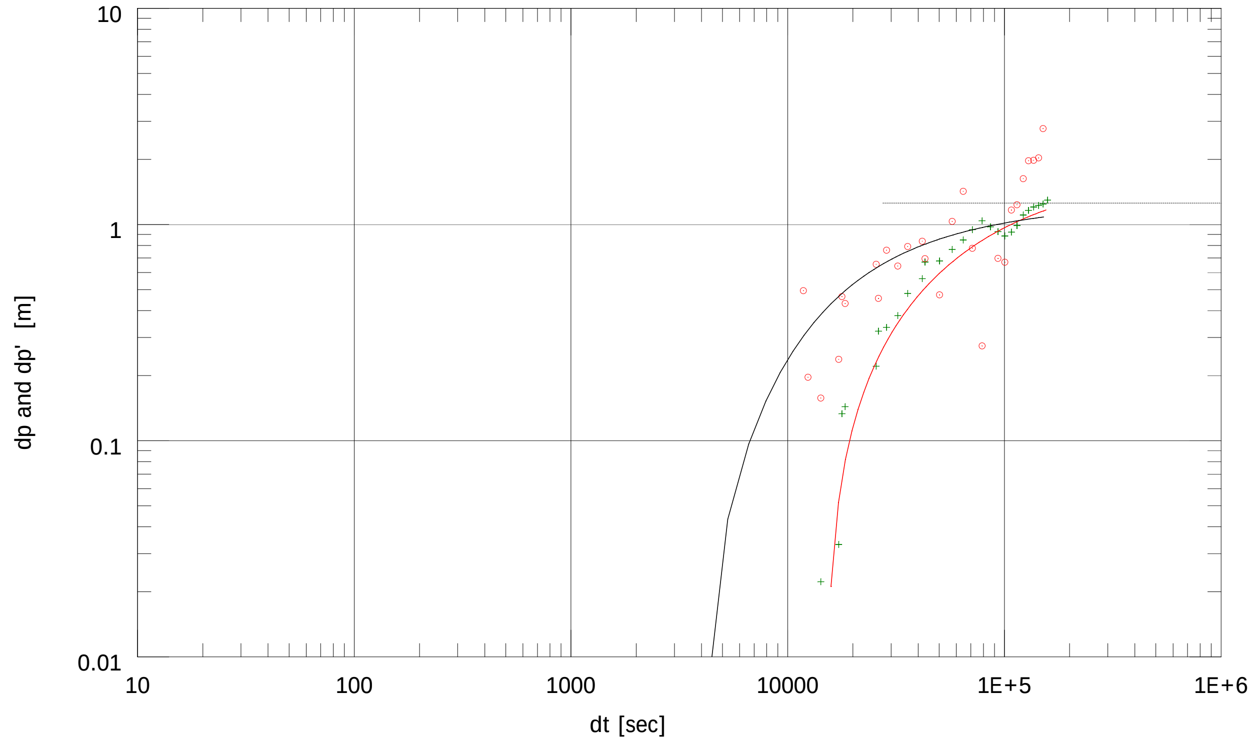
Model Parameters
Reservoir & Boundary parameters

Pi	8.36 m
T	1.1E-4 m2/s
K	2.31E-6 m/s
S	2.21E-5

Derived & Secondary Parameters

Rinv	1580 m
Test. Vol.	41.6195 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:2 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



KLX02obs_16-17Sept04_HLX22pump build-up #1

Rate 0 l/min
Rate change 106.142 l/min
P@dt=0 6.63249 m
Pi 8.36 m
Smoothing 0.1

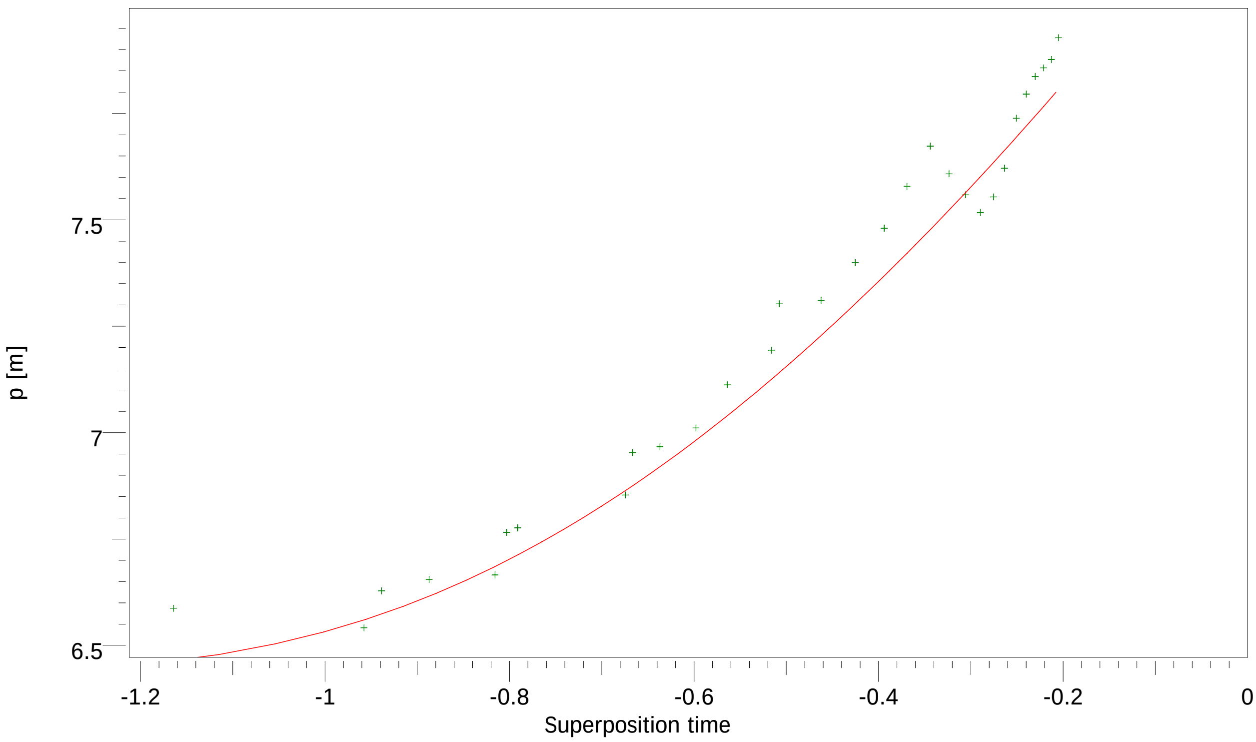
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.82E-5 1/sec
PMatch 0.398 1/m
S 2.21E-5
T 1.1E-4 m2/s
K 2.31E-6 m/s
Pi 8.36 m
Well distance 523 m

Model Parameters
Reservoir & Boundary parameters
Pi 8.36 m
T 1.1E-4 m2/s
K 2.31E-6 m/s
S 2.21E-5

Derived & Secondary Parameters
Rinv 1580 m
Test. Vol. 41.6195 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX02:2 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



KLX02obs_16-17Sept04_HLX22pump build-up #1

Rate	0 l/min
Rate change	106.142 l/min
P@dt=0	6.63249 m
Pi	8.36 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.82E-5 1/sec
PMatch	0.398 1/m
S	2.21E-5
T	1.1E-4 m2/s
K	2.31E-6 m/s
Pi	8.36 m
Well distance	523 m

Model Parameters

Reservoir & Boundary parameters

Pi	8.36 m
T	1.1E-4 m2/s
K	2.31E-6 m/s
S	2.21E-5

Derived & Secondary Parameters

Rinv	1580 m
Test. Vol.	41.6195 MMm3

Main Results	Bu1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	KLX02:2 ObsHole	Test Name / #	HLX22 pumping test

Test date / time	2004-09-16
Formation interval	207.9 - 255.4m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	523 m
Well Radius rw	0.038 m
Pay Zone h	47.5 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	100 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.82E-5 1/sec
PMatch	0.398 1/m
S	2.21E-5
T	1.1E-4 m2/s
K	2.31E-6 m/s
Pi	8.36 m
Well distance	523 m

Model Parameters

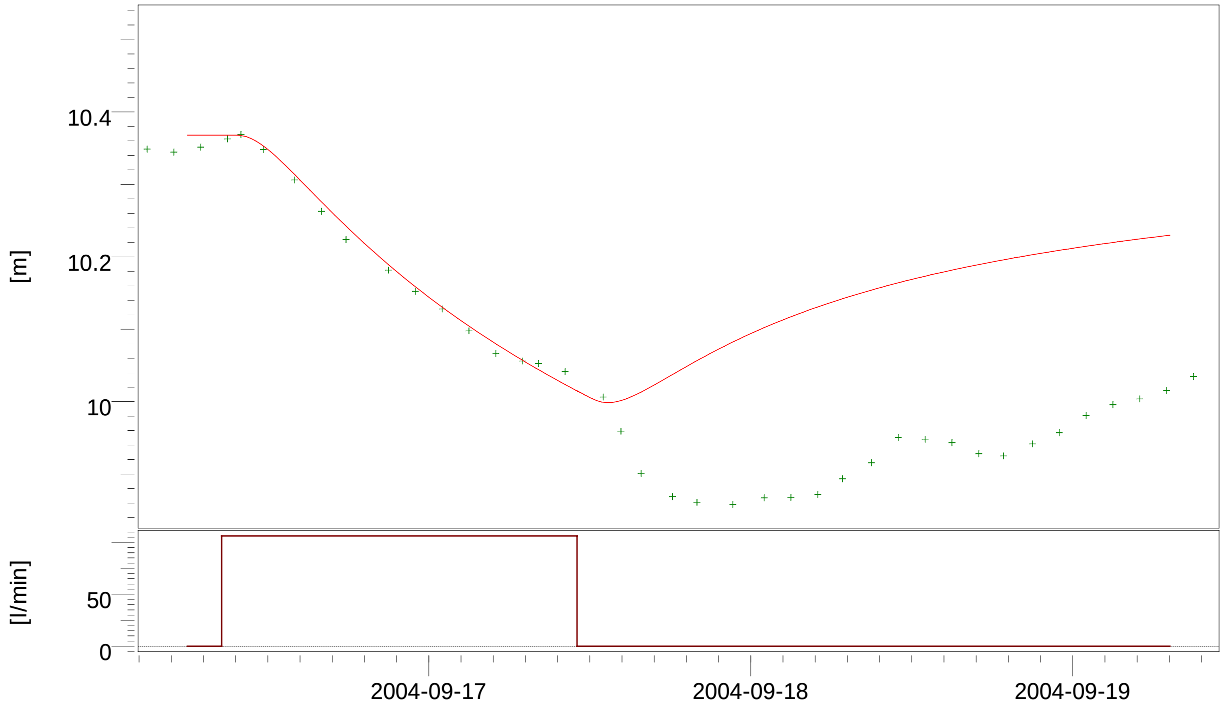
Reservoir & Boundary parameters

Pi	8.36 m
T	1.1E-4 m2/s
K	2.31E-6 m/s
S	2.21E-5

Derived & Secondary Parameters

Rinv	1580 m
Test. Vol.	41.6195 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:3 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX02obs_16-17Sept04_HLX22pump production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	10.3513 m
Pi	10.368 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.08E-5 1/sec
PMatch	1.51 1/m
S	1.45E-4
T	4.18E-4 m2/s
K	8.8E-6 m/s
Pi	10.368 m
Well distance	516 m

Model Parameters

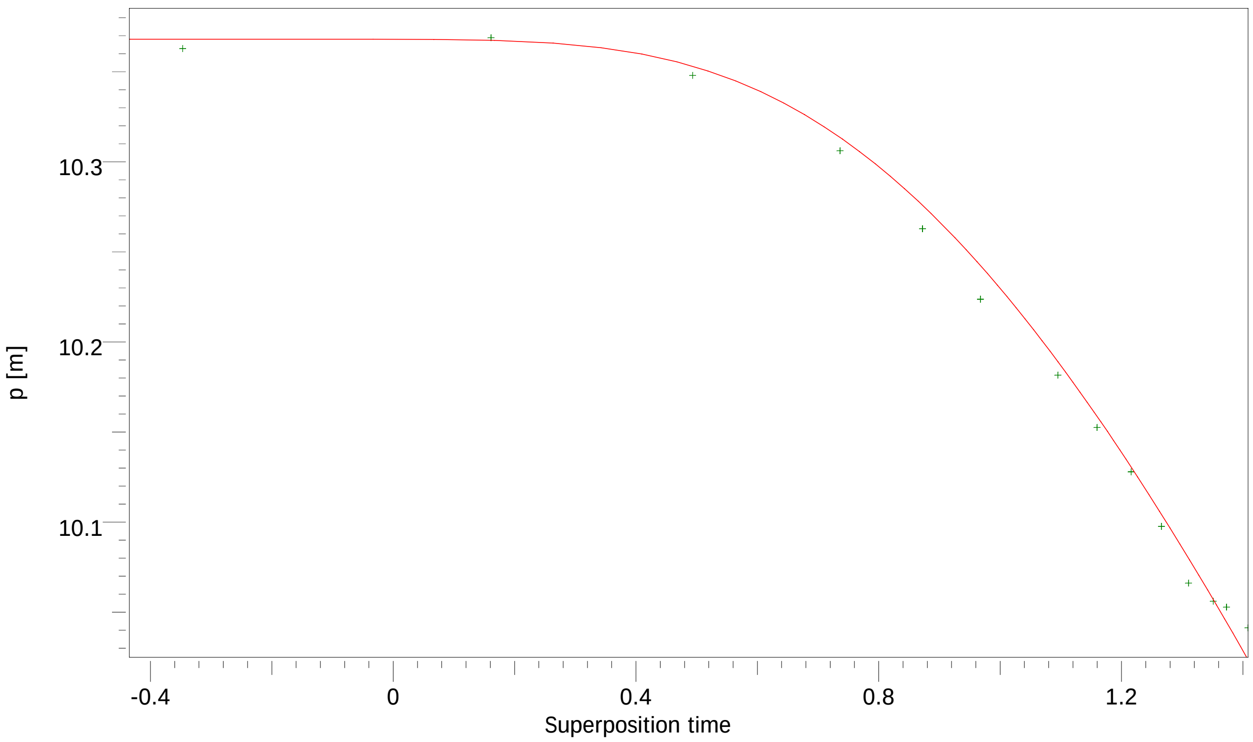
Reservoir & Boundary parameters

Pi	10.368 m
T	4.18E-4 m2/s
K	8.8E-6 m/s
S	1.45E-4

Derived & Secondary Parameters

Rinv	921 m
Test. Vol.	92.3025 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:3 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



KLX02obs_16-17Sept04_HLX22pump production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	10.3513 m
Pi	10.368 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.08E-5 1/sec
PMatch	1.51 1/m
S	1.45E-4
T	4.18E-4 m2/s
K	8.8E-6 m/s
Pi	10.368 m
Well distance	516 m

Model Parameters

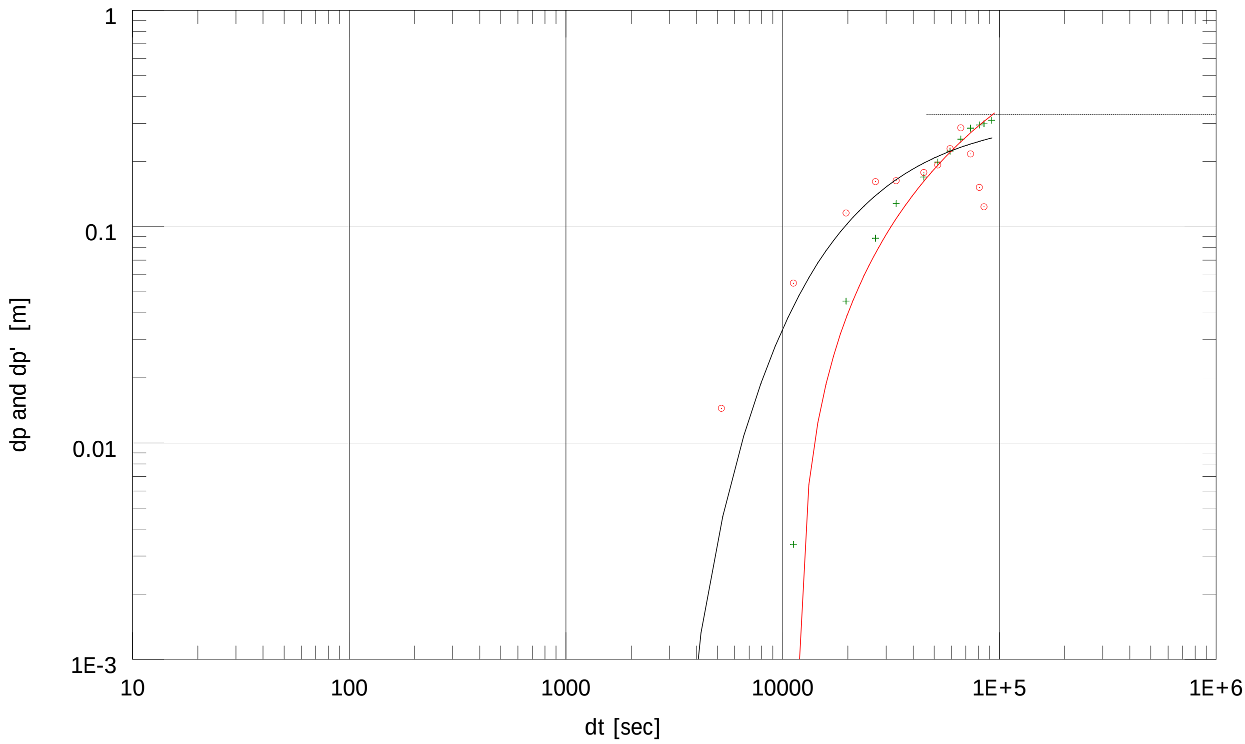
Reservoir & Boundary parameters

Pi	10.368 m
T	4.18E-4 m2/s
K	8.8E-6 m/s
S	1.45E-4

Derived & Secondary Parameters

Rinv	921 m
Test. Vol.	92.3025 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:3 ObsHole	Field Laxemar Test Name / # HLX22 pumping test



KLX02obs_16-17Sept04_HLX22pump production #1

Rate	106.142 l/min
Rate change	106.142 l/min
P@dt=0	10.3513 m
Pi	10.368 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.08E-5 1/sec
PMatch	1.51 1/m
S	1.45E-4
T	4.18E-4 m2/s
K	8.8E-6 m/s
Pi	10.368 m
Well distance	516 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.368 m
T	4.18E-4 m2/s
K	8.8E-6 m/s
S	1.45E-4

Derived & Secondary Parameters

Rinv	921 m
Test. Vol.	92.3025 MMm3

Main Results	Dd1
Company Svensk Kärnbränslehantering AB Well KLX02:3 ObsHole	Field Laxemar Test Name / # HLX22 pumping test

Test date / time	2004-09-16
Formation interval	202.95 - 206.9m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	Andersson, Hagman, Henriksson
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	516 m
Well Radius rw	0.038 m
Pay Zone h	47.5 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	100 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.08E-5 1/sec
PMatch	1.51 1/m
S	1.45E-4
T	4.18E-4 m2/s
K	8.8E-6 m/s
Pi	10.368 m
Well distance	516 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.368 m
T	4.18E-4 m2/s
K	8.8E-6 m/s
S	1.45E-4

Derived & Secondary Parameters

Rinv	921 m
Test. Vol.	92.3025 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX23 pumped borehole	Field Laxemar Test Name / # Interferenstest HLX23

Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

Pressure
--- Pi

HLX23pumping production #1
Rate 101.776 l/min
Rate change 101.776 l/min
P@dt=0 569.717 kPa
Pi 569.6 kPa
Smoothing 0.1

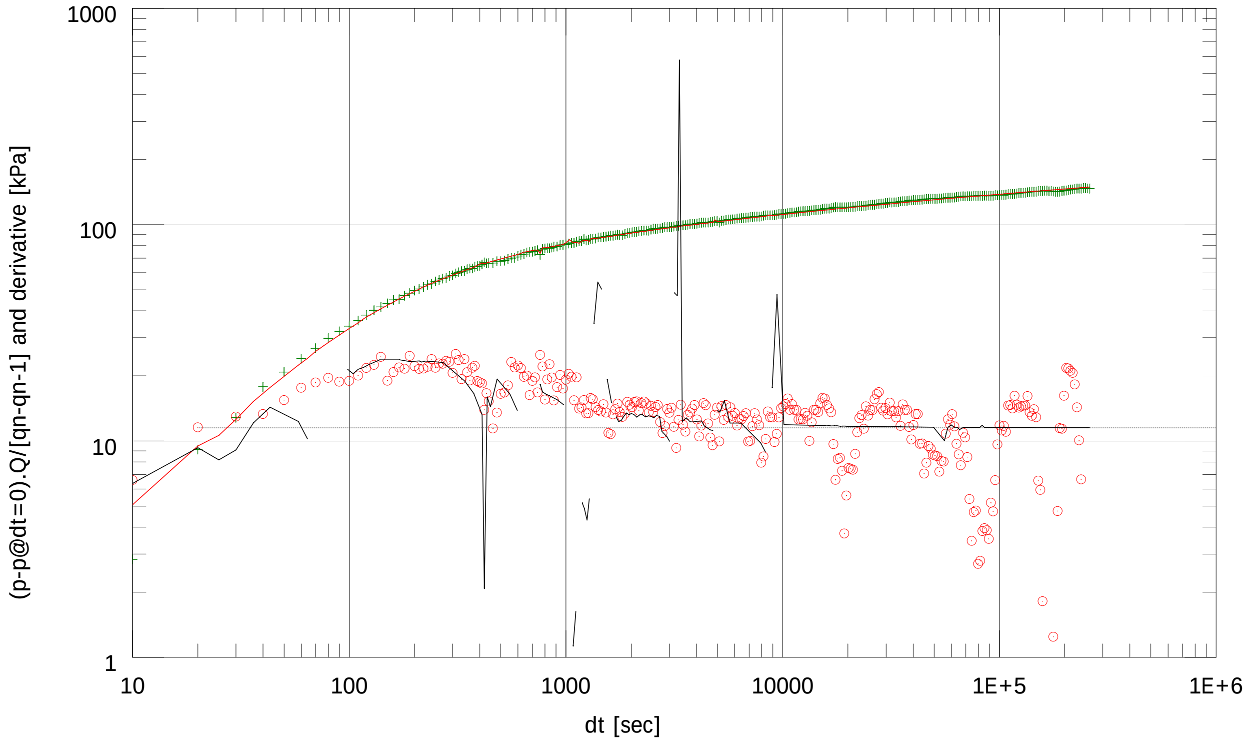
Selected Model
Model Option Standard Model
Well Vertical
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 0.0247 1/sec
PMatch 0.0435 1/kPa
C 2.98E-6 m3/Pa
Total Skin -3.1
T 1.13E-4 m2/s
K 7.53E-7 m/s
Pi 569.6 kPa

Model Parameters
Well & Wellbore parameters (HLX23 pumped borehole)
C 2.98E-6 m3/Pa
Skin -3.1
Reservoir & Boundary parameters
Pi 569.6 kPa
T 1.13E-4 m2/s
K 7.53E-7 m/s

Derived & Secondary Parameters
Rinv 1230 m
Test. Vol. 70.7425 MMm3
Delta P (Total Skin) -71.1768 kPa
Delta P Ratio (Total Skin) -0.476104 Fraction

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX23 pumped borehole	Field Laxemar Test Name / # Interferenstest HLX23



HLX23pumping production #1

Rate	101.776 l/min
Rate change	101.776 l/min
P@dt=0	569.717 kPa
Pi	569.6 kPa
Smoothing	0.1

Derived & Secondary Parameters

Rinv	1230 m
Test. Vol.	70.7425 MMm3
Delta P (Total Skin)	-71.1768 kPa
Delta P Ratio (Total Skin)	-0.476104 Fraction

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0247 1/sec
PMatch	0.0435 1/kPa
C	2.98E-6 m3/Pa
Total Skin	-3.1
T	1.13E-4 m2/s
K	7.53E-7 m/s
Pi	569.6 kPa

Model Parameters

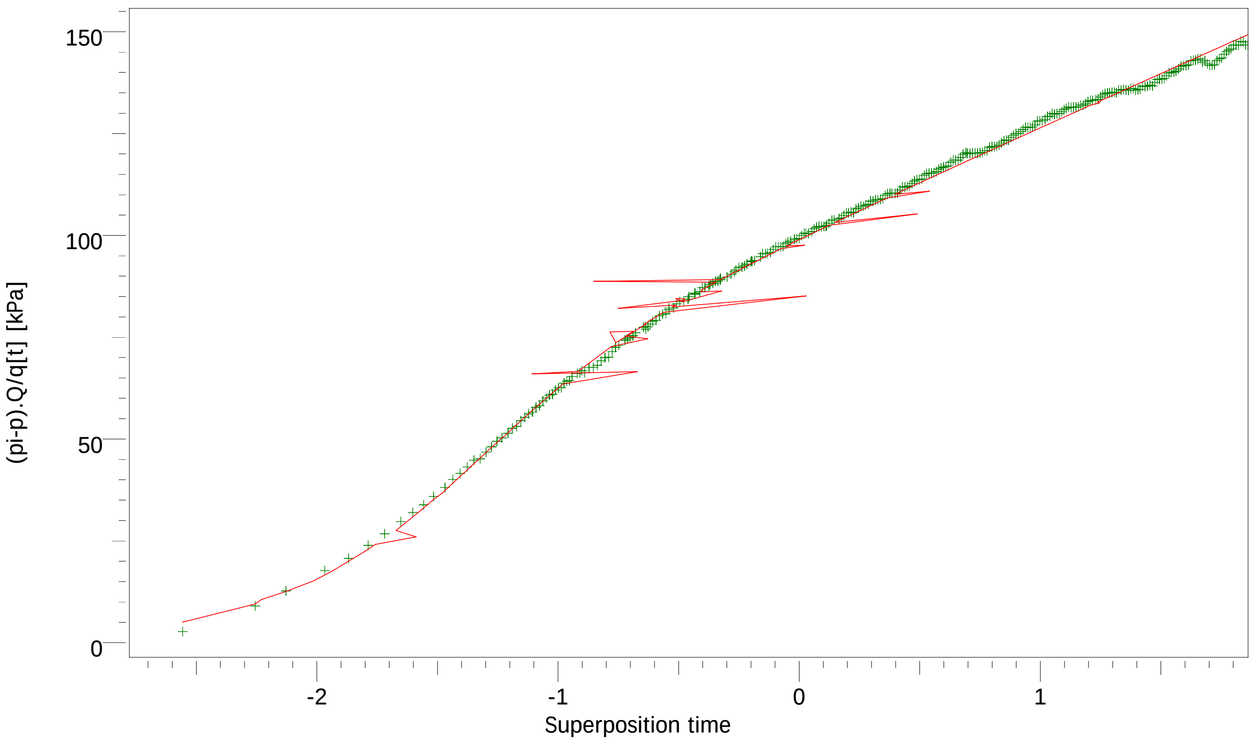
Well & Wellbore parameters (HLX23 pumped borehole)

C	2.98E-6 m3/Pa
Skin	-3.1

Reservoir & Boundary parameters

Pi	569.6 kPa
T	1.13E-4 m2/s
K	7.53E-7 m/s

SKB	Semi-Log plot	Dd1
	Company Svensk Kärnbränslehantering AB Well HLX23 pumped borehole	Field Laxemar Test Name / # Interferenstest HLX23



HLX23pumping production #1
Rate 101.776 l/min
Rate change 101.776 l/min
P@dt=0 569.717 kPa
Pi 569.6 kPa
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Vertical
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 0.0247 1/sec
PMatch 0.0435 1/kPa
C 2.98E-6 m3/Pa
Total Skin -3.1
T 1.13E-4 m2/s
K 7.53E-7 m/s
Pi 569.6 kPa

Model Parameters
Well & Wellbore parameters (HLX23 pumped borehole)
C 2.98E-6 m3/Pa
Skin -3.1
Reservoir & Boundary parameters
Pi 569.6 kPa
T 1.13E-4 m2/s
K 7.53E-7 m/s

Derived & Secondary Parameters
Rinv 1230 m
Test. Vol. 70.7425 MMm3
Delta P (Total Skin) -71.1768 kPa
Delta P Ratio (Total Skin) -0.476104 Fraction

Test date / time	2005-06-28
Formation interval	6 - 160.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	150 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	1E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0247 1/sec
PMatch	0.0435 1/kPa
C	2.98E-6 m3/Pa
Total Skin	-3.1
T	1.13E-4 m2/s
K	7.53E-7 m/s
Pi	569.6 kPa

Model Parameters

Well & Wellbore parameters (HLX23 pumped borehole)

C	2.98E-6 m3/Pa
Skin	-3.1

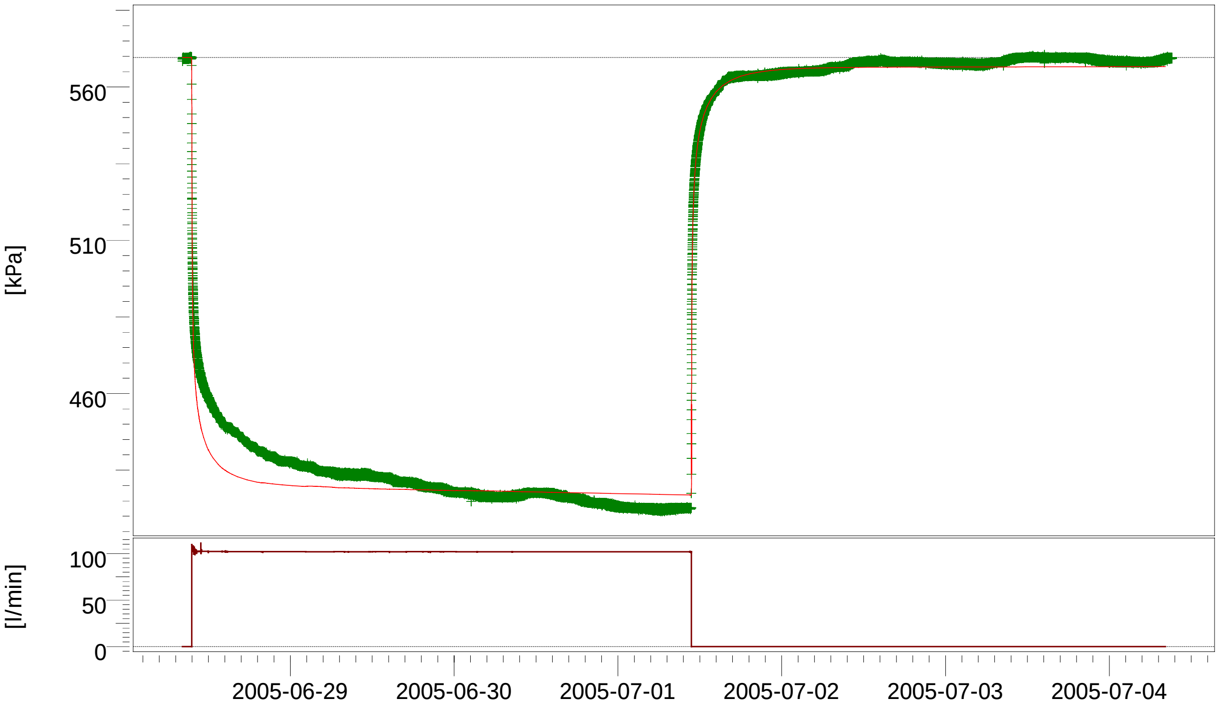
Reservoir & Boundary parameters

Pi	569.6 kPa
T	1.13E-4 m2/s
K	7.53E-7 m/s

Derived & Secondary Parameters

Rinv	1230 m
Test. Vol.	70.7425 MMm3
Delta P (Total Skin)	-71.1768 kPa
Delta P Ratio (Total Skin)	-0.476104 Fraction

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX23 pumped borehole	Field Laxemar Test Name / # Interferenstest HLX23



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

Pressure
--- Pi

HLX23pumping build-up #1

Rate	0 l/min
Rate change	101.776 l/min
P@dt=0	427.459 kPa
Pi	569.6 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	0.0235 1/sec
PMatch	0.0317 1/kPa
C	2.29E-6 m3/Pa
Total Skin	-5.49
T	8.24E-5 m2/s
K	5.5E-7 m/s
Pi	569.6 kPa

Model Parameters

Well & Wellbore parameters (HLX23 pumped borehole)

C	2.29E-6 m3/Pa
Skin	-5.49

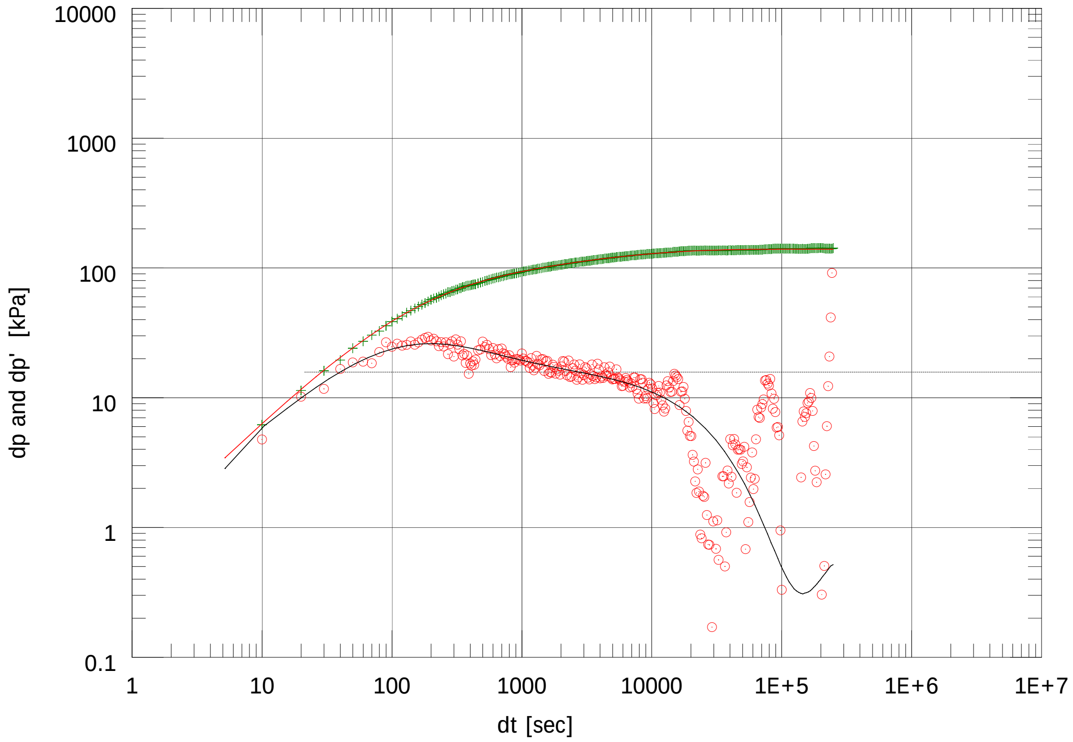
Reservoir & Boundary parameters

Pi	569.6 kPa
T	8.24E-5 m2/s
K	5.5E-7 m/s
Omega	0.0191
Lambda	3.05E-9

Derived & Secondary Parameters

Delta P (Total Skin)	-173.034 kPa
Delta P Ratio (Total Skin)	-1.2398 Fraction

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX23 pumped borehole	Field Laxemar Test Name / # Interferenstest HLX23



HLX23pumping build-up #1

Rate	0 l/min
Rate change	101.776 l/min
P@dt=0	427.459 kPa
Pi	569.6 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	0.0235 1/sec
PMatch	0.0317 1/kPa
C	2.29E-6 m3/Pa
Total Skin	-5.49
T	8.24E-5 m2/s
K	5.5E-7 m/s
Pi	569.6 kPa

Model Parameters

Well & Wellbore parameters (HLX23 pumped borehole)

C	2.29E-6 m3/Pa
Skin	-5.49

Reservoir & Boundary parameters

Pi	569.6 kPa
T	8.24E-5 m2/s
K	5.5E-7 m/s
Omega	0.0191
Lambda	3.05E-9

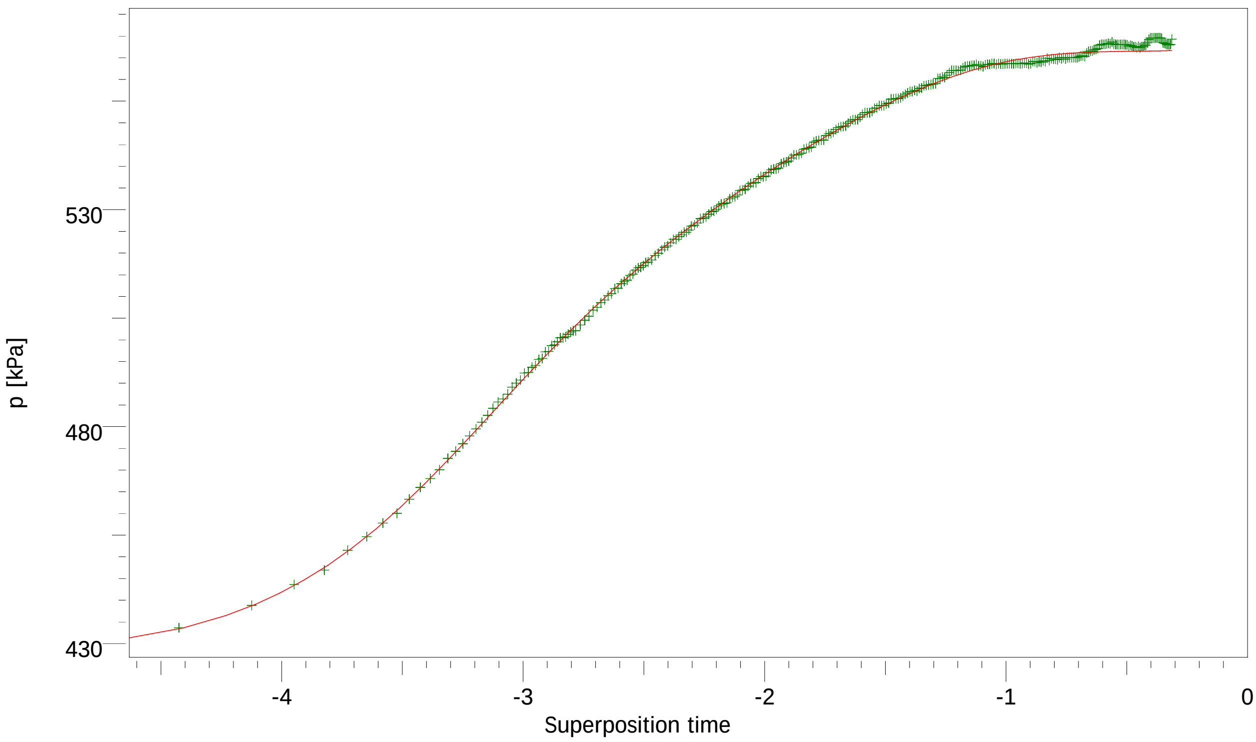
Derived & Secondary Parameters

Delta P (Total Skin)	-173.034 kPa
Delta P Ratio (Total Skin)	-1.2398 Fraction

Semi-Log plot	Bu1

Company Svensk Kärnbränslehantering AB — Well HLX23 pumped borehole

Field Laxemar — Test Name / # Interferenstest HLX23



HLX23pumping build-up #1	
Rate	0 l/min
Rate change	101.776 l/min
P@dt=0	427.459 kPa
Pi	569.6 kPa
Smoothing	0.1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite
Main Model Parameters	
TMatch	0.0235 1/sec
PMatch	0.0317 1/kPa
C	2.29E-6 m3/Pa
Total Skin	-5.49
T	8.24E-5 m2/s
K	5.5E-7 m/s
Pi	569.6 kPa

Model Parameters	
Well & Wellbore parameters (HLX23 pumped borehole)	
C	2.29E-6 m3/Pa
Skin	-5.49
Reservoir & Boundary parameters	
Pi	569.6 kPa
T	8.24E-5 m2/s
K	5.5E-7 m/s
Omega	0.0191
Lambda	3.05E-9
Derived & Secondary Parameters	
Delta P (Total Skin)	-173.034 kPa
Delta P Ratio (Total Skin)	-1.2398 Fraction

Test date / time	2005-06-28
Formation interval	6 - 160.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	150 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	1E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Two porosity PSS
Boundary	Infinite

Main Model Parameters

TMatch	0.0235 1/sec
PMatch	0.0317 1/kPa
C	2.29E-6 m3/Pa
Total Skin	-5.49
T	8.24E-5 m2/s
K	5.5E-7 m/s
Pi	569.6 kPa

Model Parameters

Well & Wellbore parameters (HLX23 pumped borehole)

C	2.29E-6 m3/Pa
Skin	-5.49

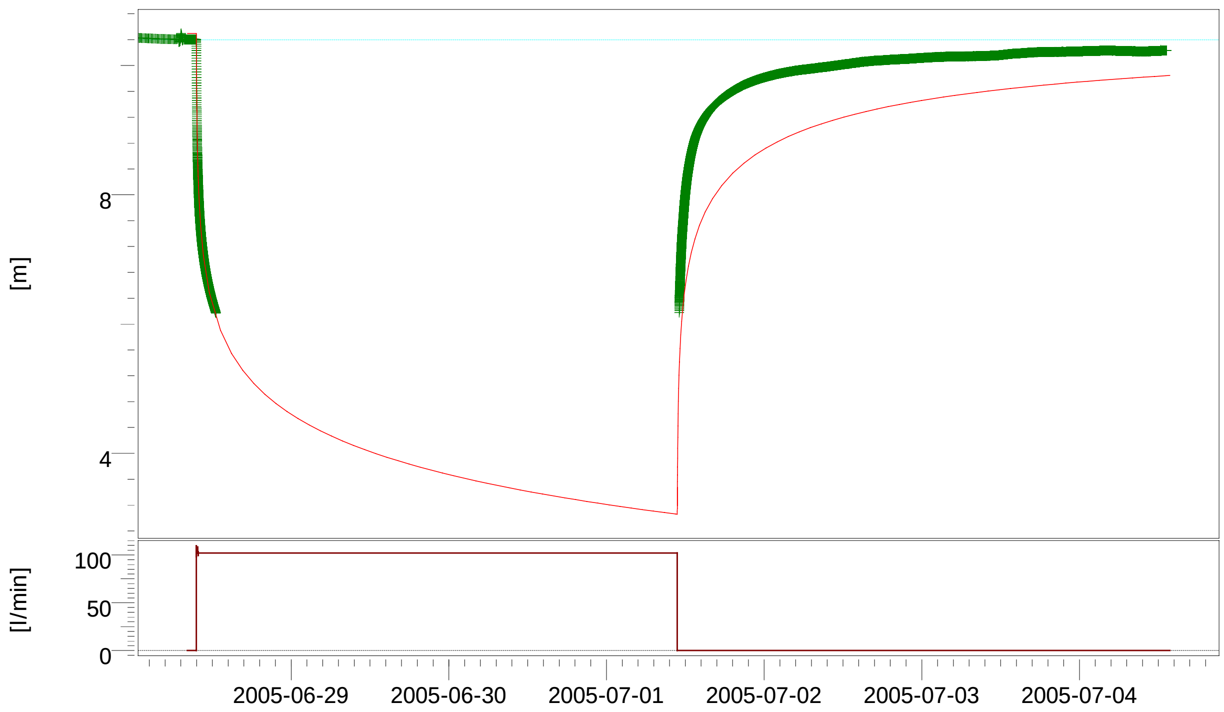
Reservoir & Boundary parameters

Pi	569.6 kPa
T	8.24E-5 m2/s
K	5.5E-7 m/s
Omega	0.0191
Lambda	3.05E-9

Derived & Secondary Parameters

Delta P (Total Skin)	-173.034 kPa
Delta P Ratio (Total Skin)	-1.2398 Fraction

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # Interferencetest HLX10



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

Pressure
P@dt=0

HLX24_1obs to HLX23 pumptest 050628-050710 production #1

Rate	101.987 l/min
Rate change	101.987 l/min
P@dt=0	10.3975 m
Pi	10.495 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity Slab
Boundary	Infinite

Main Model Parameters

TMatch	0.00414 1/sec
PMatch	0.525 1/m
S	1E-5
T	1.39E-4 m2/s
K	1.04E-6 m/s
Pi	10.495 m
Well distance	58 m

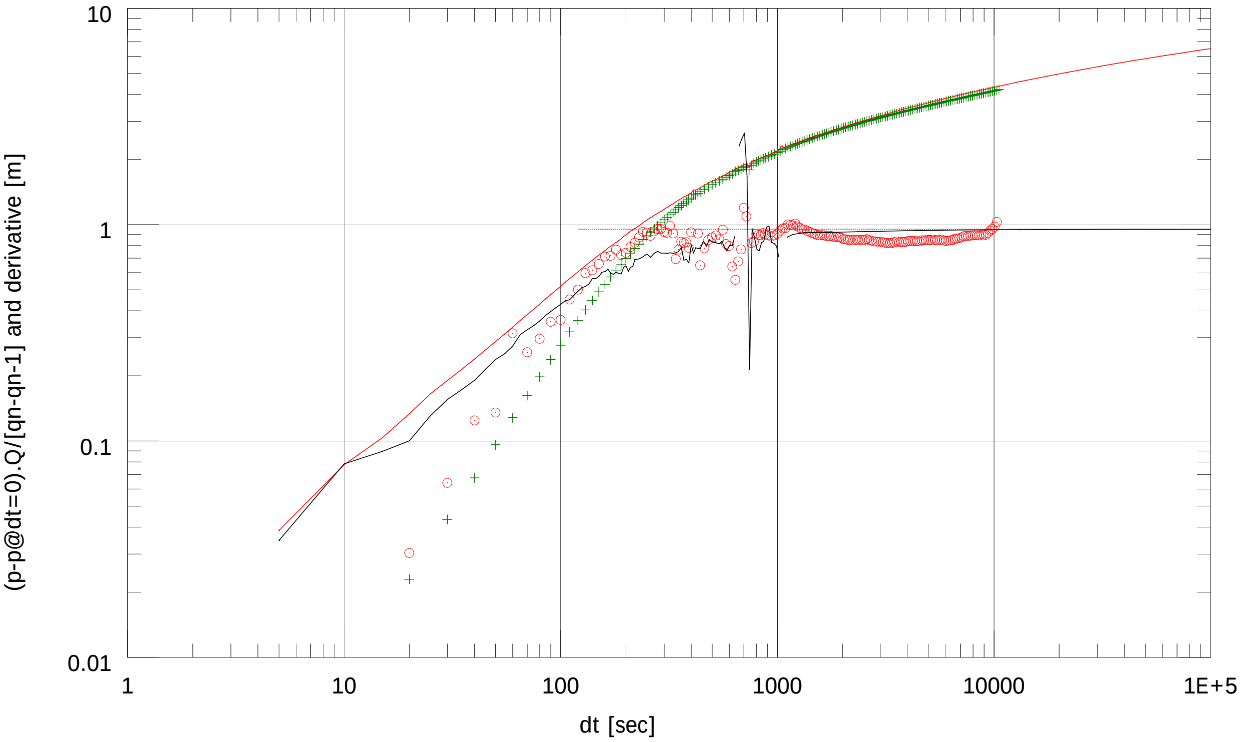
Model Parameters

Reservoir & Boundary parameters

Pi	10.495 m
T	1.39E-4 m2/s
K	1.04E-6 m/s
S	1E-5
Omega	6.07E-5
Lambda	1.39E-5

Derived & Secondary Parameters

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # Interferencetest HLX10



HLX24_1obs to HLX23 pumptest 050628-050710 production #1

Rate 101.987 l/min
Rate change 101.987 l/min
P@dt=0 10.3975 m
Pi 10.495 m
Smoothing 0.1

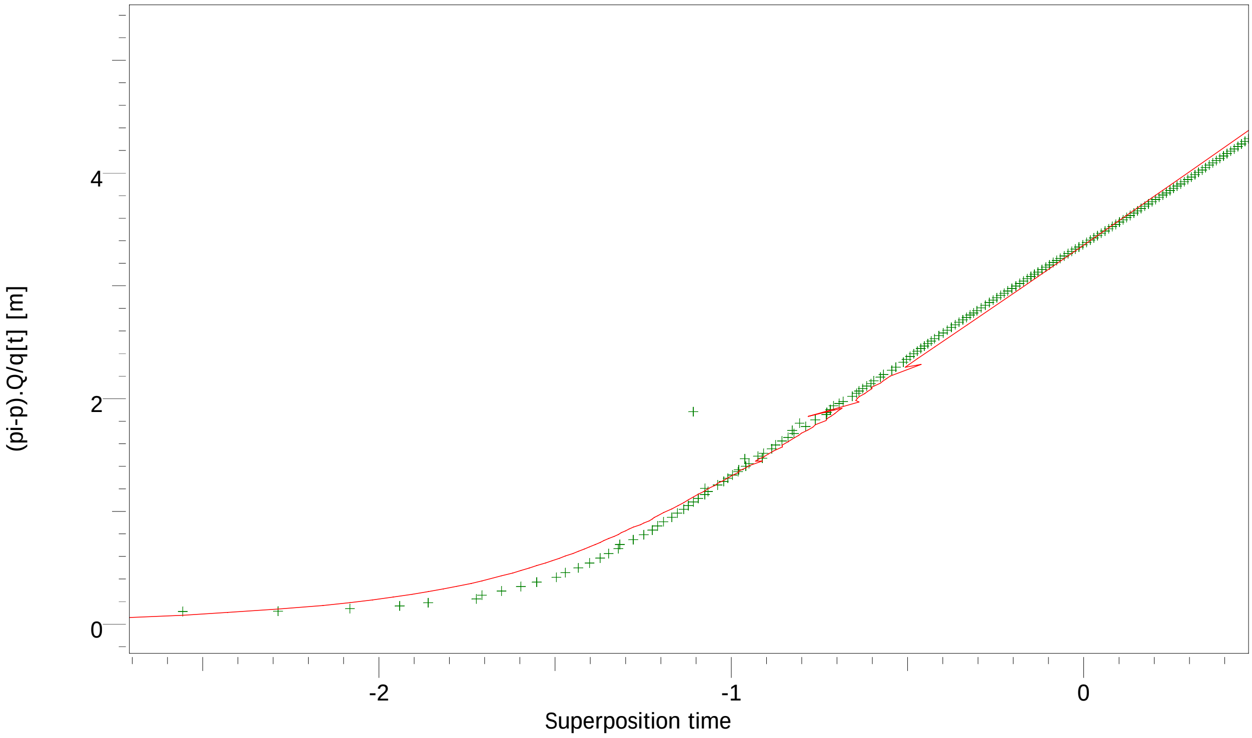
Selected Model
Model Option Standard Model
Well Line source
Reservoir Two porosity Slab
Boundary Infinite

Main Model Parameters
TMatch 0.00414 1/sec
PMatch 0.525 1/m
S 1E-5
T 1.39E-4 m2/s
K 1.04E-6 m/s
Pi 10.495 m
Well distance 58 m

Model Parameters
Reservoir & Boundary parameters
Pi 10.495 m
T 1.39E-4 m2/s
K 1.04E-6 m/s
S 1E-5
Omega 6.07E-5
Lambda 1.39E-5

Derived & Secondary Parameters

SKB	Semi-Log plot	Dd1
	Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # Interferencetest HLX10



HLX24_1obs to HLX23 pumptest 050628-050710 production #1

Rate	101.987 l/min
Rate change	101.987 l/min
P@dt=0	10.3975 m
Pi	10.495 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity Slab
Boundary	Infinite

Main Model Parameters

TMatch	0.00414 1/sec
PMatch	0.525 1/m
S	1E-5
T	1.39E-4 m2/s
K	1.04E-6 m/s
Pi	10.495 m
Well distance	58 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.495 m
T	1.39E-4 m2/s
K	1.04E-6 m/s
S	1E-5
Omega	6.07E-5
Lambda	1.39E-5

Derived & Secondary Parameters

Test date / time	2004-12-29 14:58
Formation interval	41.00 - 175.20m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	58 m
Well Radius rw	0.07 m
Pay Zone h	134 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity Slab
Boundary	Infinite

Main Model Parameters

TMatch	0.00414 1/sec
PMatch	0.525 1/m
S	1E-5
T	1.39E-4 m2/s
K	1.04E-6 m/s
Pi	10.495 m
Well distance	58 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.495 m
T	1.39E-4 m2/s
K	1.04E-6 m/s
S	1E-5
Omega	6.07E-5
Lambda	1.39E-5

Derived & Secondary Parameters

History plot	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX24:1 Observation

Field Laxemar
Test Name / # Interferencetest HLX10

Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX24_1obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.987 l/min
P@dt=0	3.1 m
Pi	10.0213 m
Smoothing	0.1

Selected Model

Model Option	External model

Main Model Parameters

TMatch	1.94E-7 1/sec
PMatch	0.608 1/m
C	3.12 m3/Pa
S	0.247
T	1.61E-4 m2/s
K	1.2E-6 m/s
Pi	10.0213 m
Well distance	58 m

Model Parameters

Well & Wellbore parameters (Active well)

C	3.12 m3/Pa

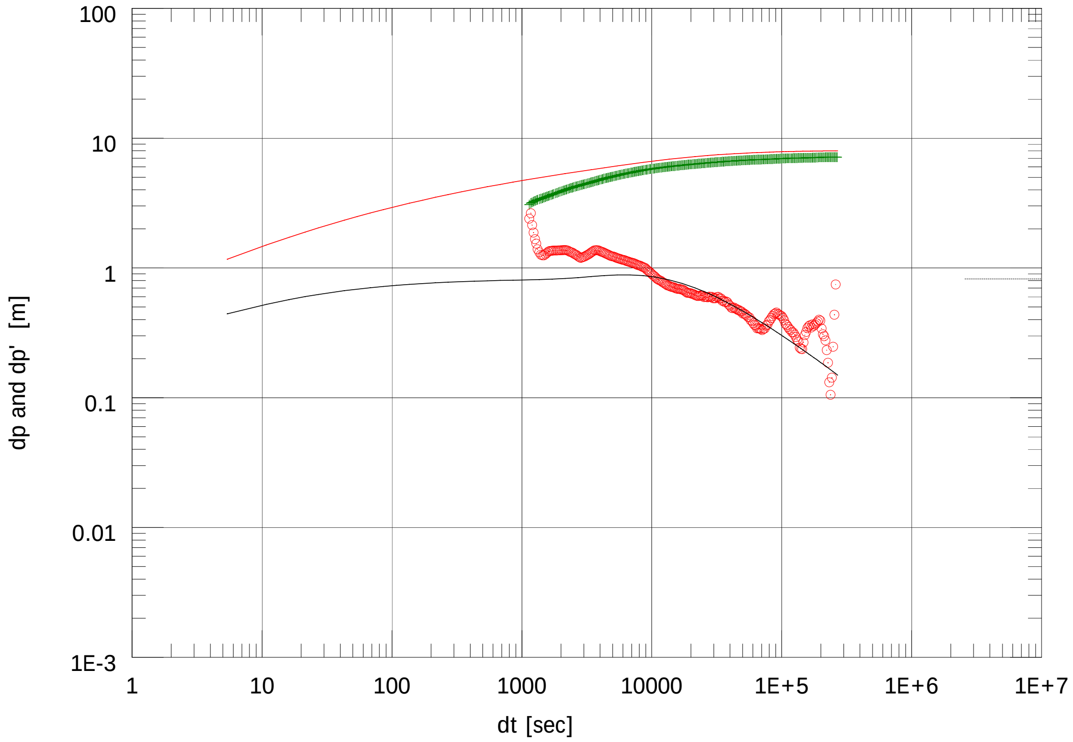
Reservoir & Boundary parameters

Pi	10.0213 m
T	1.61E-4 m2/s
K	1.2E-6 m/s
S	0.247
Skin	0
Lid	7.89105
Mob. Ratio	0.00100488
Dif. Ratio.	0.854597
alpha	0.999986

Derived & Secondary Parameters

Rinv	23.6 m
Test. Vol.	103.062 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # Interferencetest HLX10



HLX24_1obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.987 l/min
P@dt=0	3.1 m
Pi	10.0213 m
Smoothing	0.1

Selected Model

Model Option	External model

Main Model Parameters

TMatch	1.94E-7 1/sec
PMatch	0.608 1/m
C	3.12 m3/Pa
S	0.247
T	1.61E-4 m2/s
K	1.2E-6 m/s
Pi	10.0213 m
Well distance	58 m

Model Parameters

Well & Wellbore parameters (Active well)

C	3.12 m3/Pa

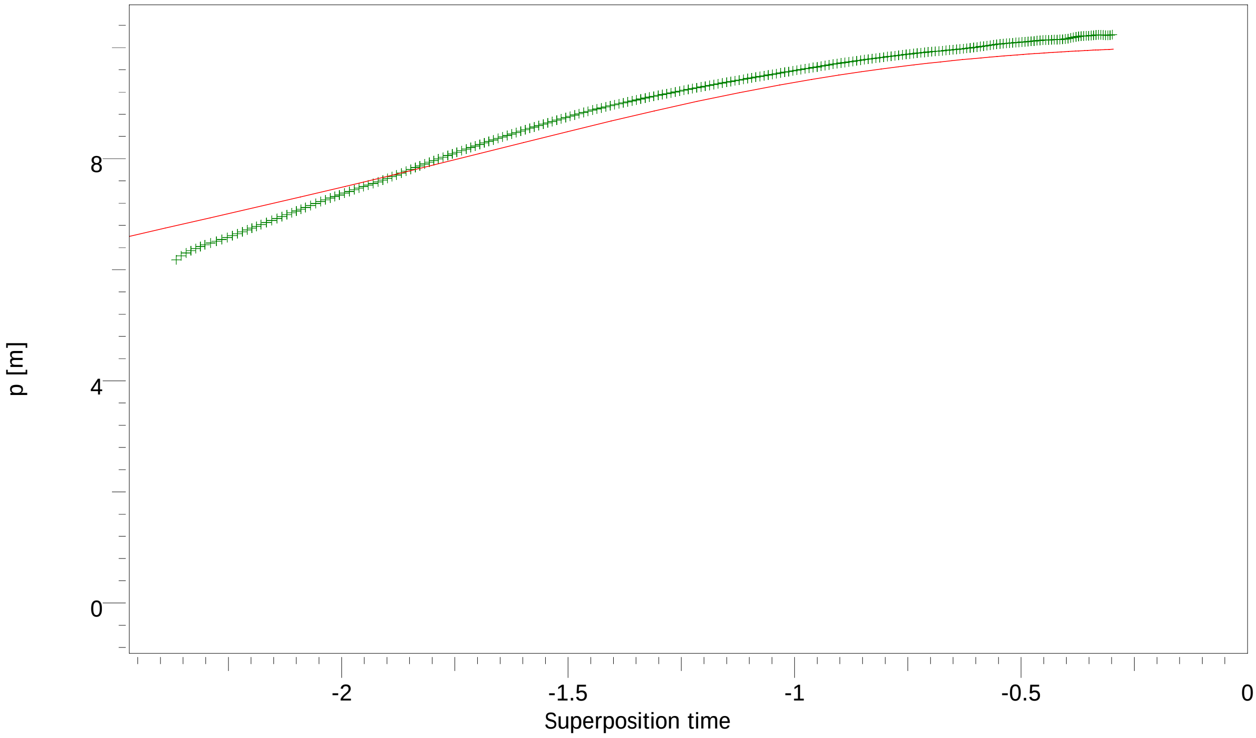
Reservoir & Boundary parameters

Pi	10.0213 m
T	1.61E-4 m2/s
K	1.2E-6 m/s
S	0.247
Skin	0
Lid	7.89105
Mob. Ratio	0.00100488
Dif. Ratio.	0.854597
alpha	0.999986

Derived & Secondary Parameters

Rinv	23.6 m
Test. Vol.	103.062 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # Interferencetest HLX10



HLX24_1obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.987 l/min
P@dt=0	3.1 m
Pi	10.0213 m
Smoothing	0.1

Selected Model

Model Option	External model

Main Model Parameters

TMatch	1.94E-7 1/sec
PMatch	0.608 1/m
C	3.12 m3/Pa
S	0.247
T	1.61E-4 m2/s
K	1.2E-6 m/s
Pi	10.0213 m
Well distance	58 m

Model Parameters

Well & Wellbore parameters (Active well)

C	3.12 m3/Pa

Reservoir & Boundary parameters

Pi	10.0213 m
T	1.61E-4 m2/s
K	1.2E-6 m/s
S	0.247
Skin	0
Lid	7.89105
Mob. Ratio	0.00100488
Dif. Ratio.	0.854597
alpha	0.999986

Derived & Secondary Parameters

Rinv	23.6 m
Test. Vol.	103.062 MMm3

Test date / time	2004-12-29 14:58
Formation interval	41.00 - 175.20m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	58 m
Well Radius rw	0.07 m
Pay Zone h	134 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	External model

Main Model Parameters

TMatch	1.94E-7 1/sec
PMatch	0.608 1/m
C	3.12 m3/Pa
S	0.247
T	1.61E-4 m2/s
K	1.2E-6 m/s
Pi	10.0213 m
Well distance	58 m

Model Parameters

Well & Wellbore parameters (Active well)

C	3.12 m3/Pa

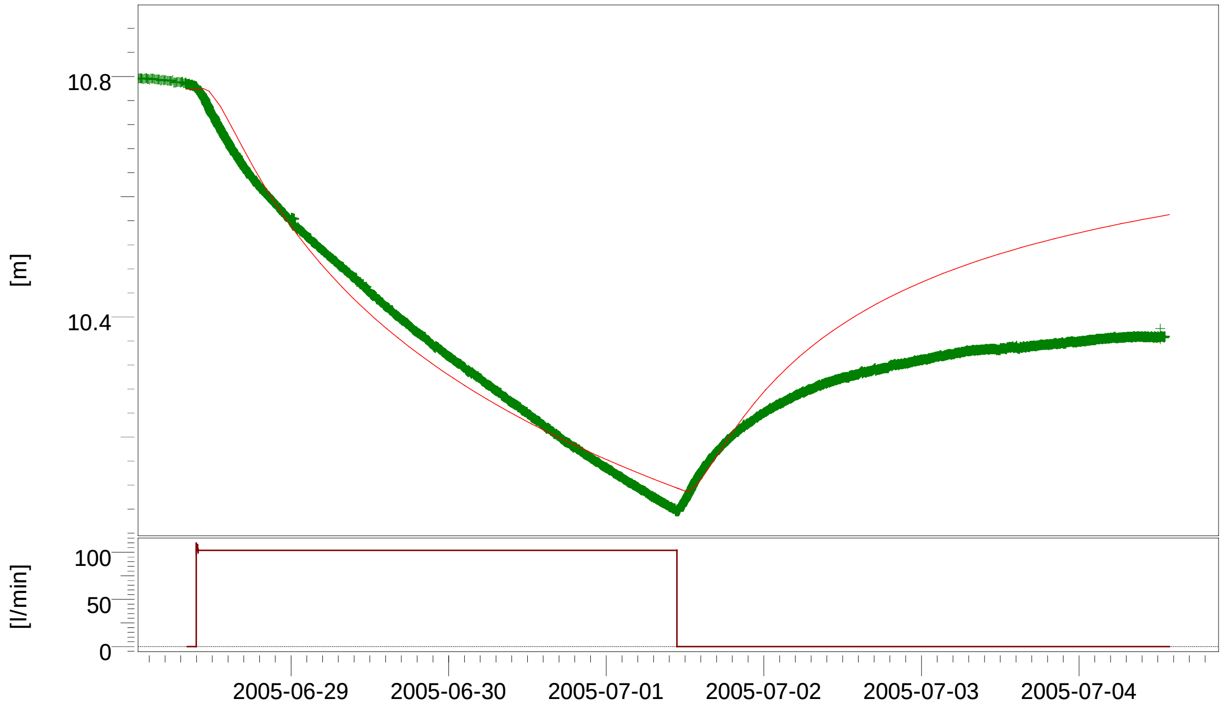
Reservoir & Boundary parameters

Pi	10.0213 m
T	1.61E-4 m2/s
K	1.2E-6 m/s
S	0.247
Skin	0
Lid	7.89105
Mob. Ratio	0.00100488
Dif. Ratio.	0.854597
alpha	0.999986

Derived & Secondary Parameters

Rinv	23.6 m
Test. Vol.	103.062 MMm3

History plot	Dd1
Company Svenk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # HLX23 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX24_2obs to HLX23 pumptest 050628-050710 production #1

Rate	101.987 l/min
Rate change	101.987 l/min
P@dt=0	10.7824 m
Pi	10.78 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.2E-5 1/sec
PMatch	1.53 1/m
S	0.00903
T	4.07E-4 m2/s
K	1.32E-5 m/s
Pi	10.78 m
Well distance	61.2 m

Model Parameters

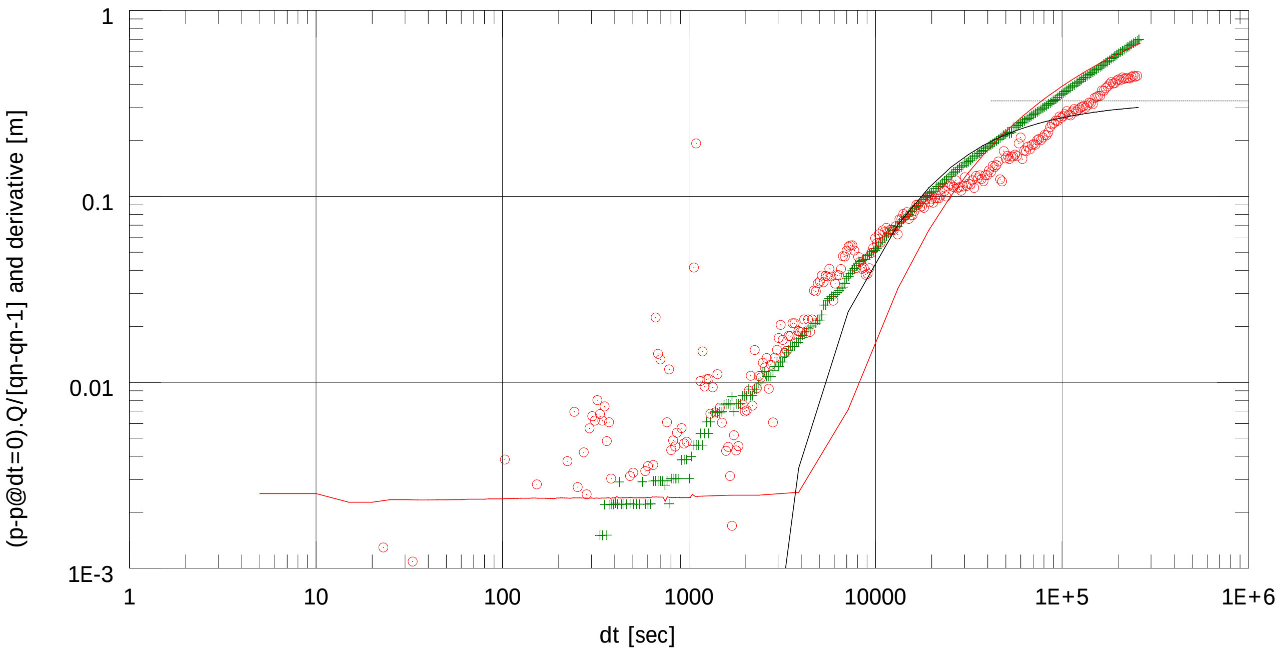
Reservoir & Boundary parameters

Pi	10.78 m
T	4.07E-4 m2/s
K	1.32E-5 m/s
S	0.00903

Derived & Secondary Parameters

Rinv	193 m
Test. Vol.	252.345 MMm3

Log-Log plot	Dd1
Company Svenk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX24_2obs to HLX23 pumptest 050628-050710 production #1

Rate	101.987 l/min
Rate change	101.987 l/min
P@dt=0	10.7824 m
Pi	10.78 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.2E-5 1/sec
PMatch	1.53 1/m
S	0.00903
T	4.07E-4 m2/s
K	1.32E-5 m/s
Pi	10.78 m
Well distance	61.2 m

Model Parameters

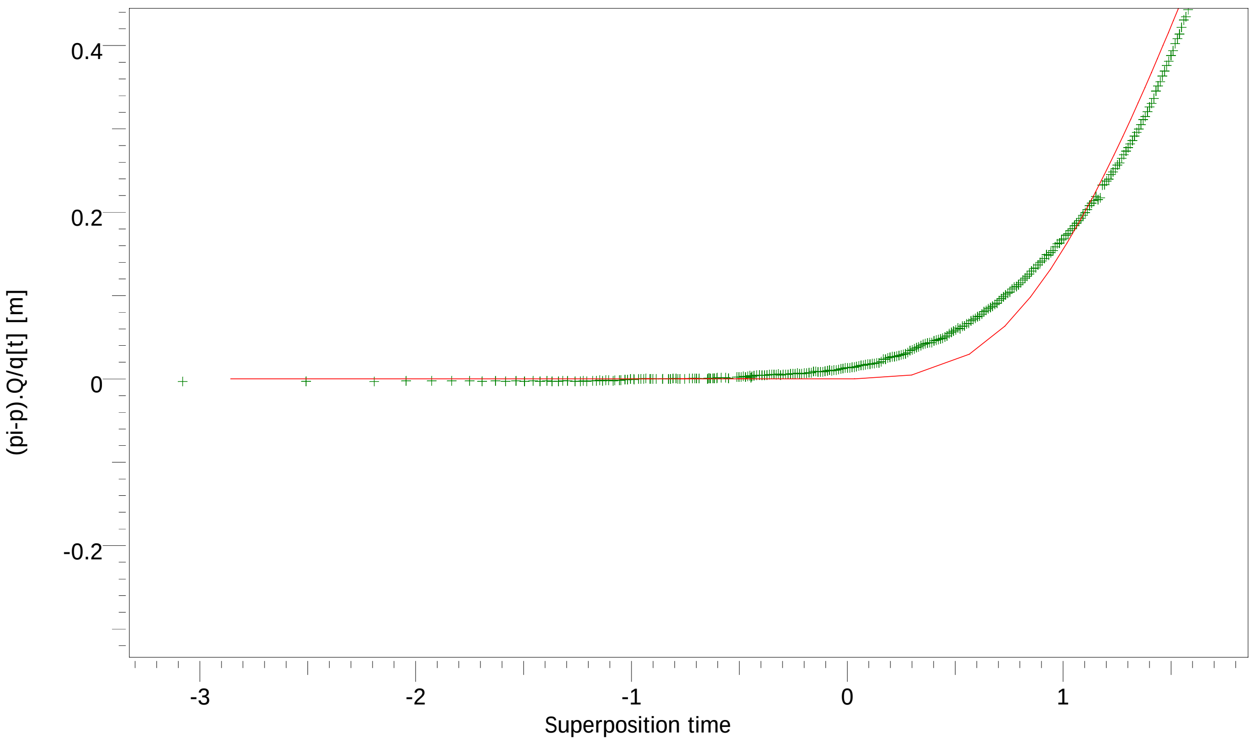
Reservoir & Boundary parameters

Pi	10.78 m
T	4.07E-4 m2/s
K	1.32E-5 m/s
S	0.00903

Derived & Secondary Parameters

Rinv	193 m
Test. Vol.	252.345 MMm3

Semi-Log plot	Dd1
Company Svenk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX24_2obs to HLX23 pumptest 050628-050710 production #1

Rate	101.987 l/min
Rate change	101.987 l/min
P@dt=0	10.7824 m
Pi	10.78 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.2E-5 1/sec
PMatch	1.53 1/m
S	0.00903
T	4.07E-4 m2/s
K	1.32E-5 m/s
Pi	10.78 m
Well distance	61.2 m

Model Parameters
Reservoir & Boundary parameters

Pi	10.78 m
T	4.07E-4 m2/s
K	1.32E-5 m/s
S	0.00903

Derived & Secondary Parameters

Rinv	193 m
Test. Vol.	252.345 MMm3

Company	Svenk Kärnbränslehantering AB	Field	Laxemar
Well	HLX24:2 Observation	Test Name / #	HLX23 pumping

Test date / time	2005-06-28
Formation interval	9.10 - 40m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	61.2 m
Well Radius rw	0.07 m
Pay Zone h	30.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.2E-5 1/sec
PMatch	1.53 1/m
S	0.00903
T	4.07E-4 m2/s
K	1.32E-5 m/s
Pi	10.78 m
Well distance	61.2 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.78 m
T	4.07E-4 m2/s
K	1.32E-5 m/s
S	0.00903

Derived & Secondary Parameters

Rinv	193 m
Test. Vol.	252.345 MMm3

History plot	Bu1
Company Svenk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # HLX23 pumping

Pressure [m], Liquid Rate [l/min] vs Time [ToD]

Pressure
--- P user

HLX24_2obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.987 l/min
P@dt=0	10.0762 m
Pi	10.78 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity Slab
Boundary	Infinite

Main Model Parameters

TMatch	1.4E-6 1/sec
PMatch	0.408 1/m
S	0.0206
T	1.08E-4 m2/s
K	3.51E-6 m/s
Pi	10.78 m
Well distance	61.2 m

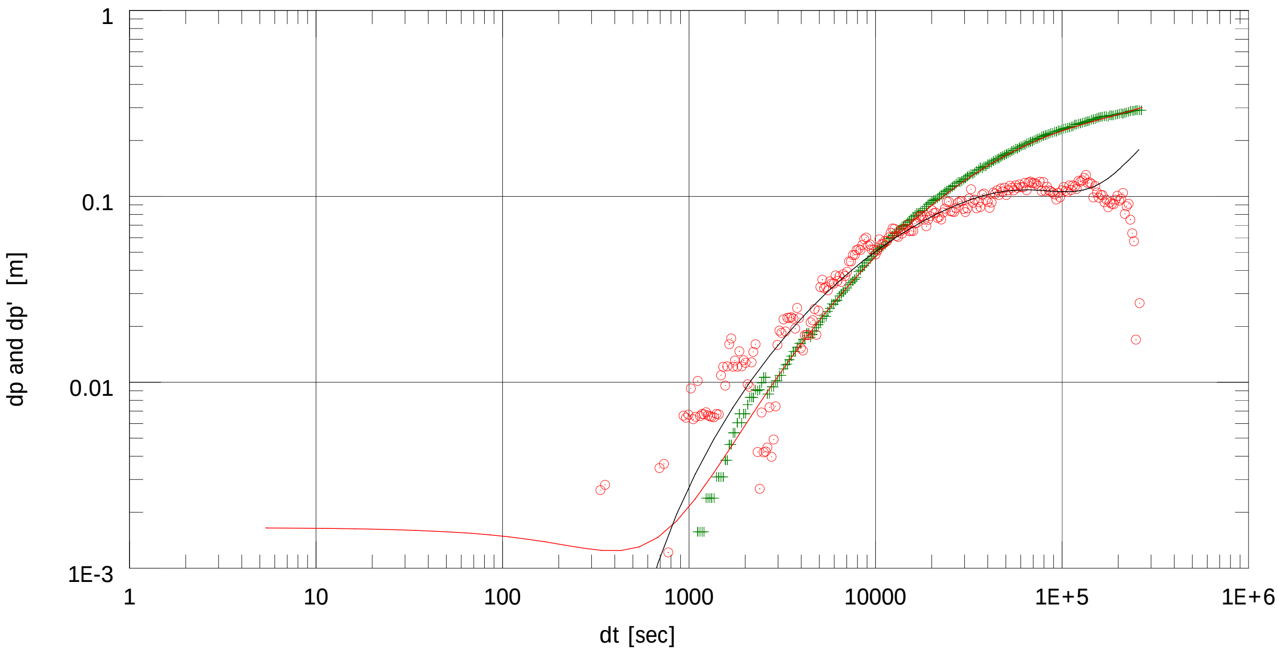
Model Parameters

Reservoir & Boundary parameters

Pi	10.78 m
T	1.08E-4 m2/s
K	3.51E-6 m/s
S	0.0206
Omega	9.51E-5
Lambda	6.79E-6

Derived & Secondary Parameters

Log-Log plot	Bu1
Company Svenk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX24_2obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.987 l/min
P@dt=0	10.0762 m
Pi	10.78 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity Slab
Boundary	Infinite

Main Model Parameters

TMatch	1.4E-6 1/sec
PMatch	0.408 1/m
S	0.0206
T	1.08E-4 m2/s
K	3.51E-6 m/s
Pi	10.78 m
Well distance	61.2 m

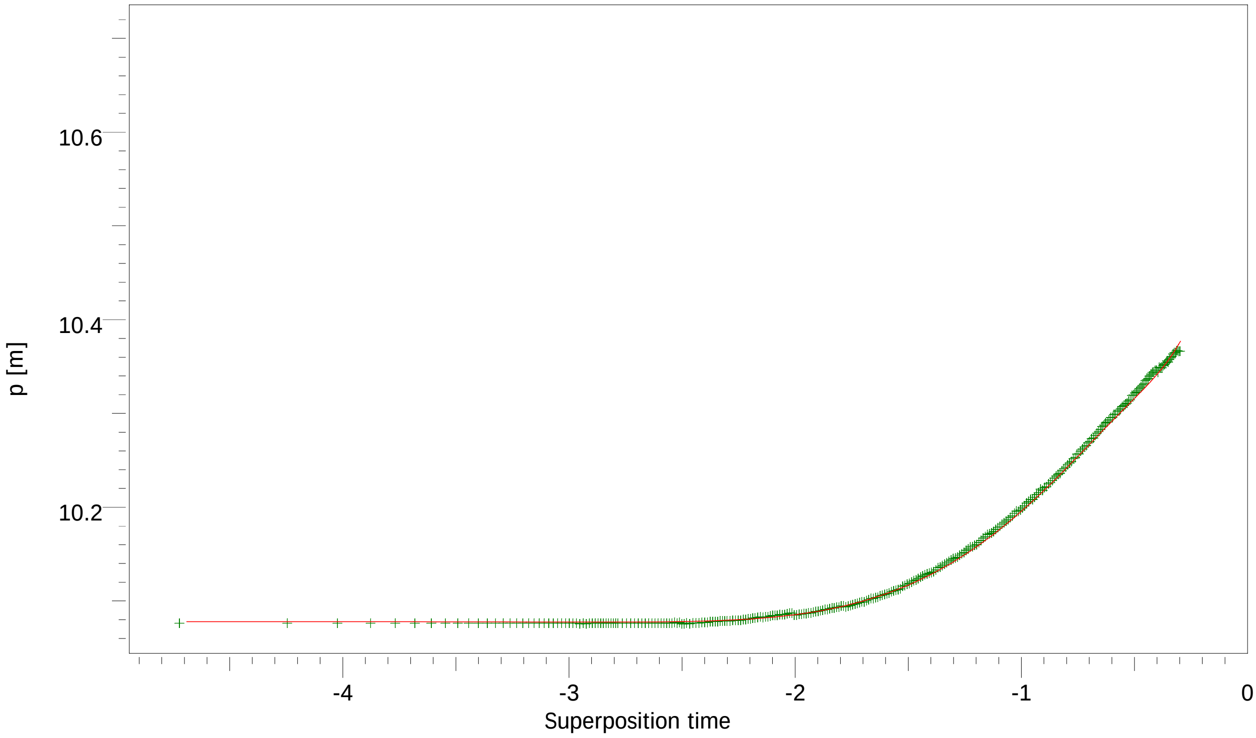
Model Parameters

Reservoir & Boundary parameters

Pi	10.78 m
T	1.08E-4 m2/s
K	3.51E-6 m/s
S	0.0206
Omega	9.51E-5
Lambda	6.79E-6

Derived & Secondary Parameters

Semi-Log plot	Bu1
Company Svenk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX24_2obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.987 l/min
P@dt=0	10.0762 m
Pi	10.78 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity Slab
Boundary	Infinite

Main Model Parameters

TMatch	1.4E-6 1/sec
PMatch	0.408 1/m
S	0.0206
T	1.08E-4 m2/s
K	3.51E-6 m/s
Pi	10.78 m
Well distance	61.2 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.78 m
T	1.08E-4 m2/s
K	3.51E-6 m/s
S	0.0206
Omega	9.51E-5
Lambda	6.79E-6

Derived & Secondary Parameters

Test date / time	2005-06-28
Formation interval	9.10 - 40m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
TEST TYPE	Interference
Well distance	61.2 m
Well Radius rw	0.07 m
Pay Zone h	30.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity Slab
Boundary	Infinite

Main Model Parameters

TMatch	1.4E-6 1/sec
PMatch	0.408 1/m
S	0.0206
T	1.08E-4 m2/s
K	3.51E-6 m/s
Pi	10.78 m
Well distance	61.2 m

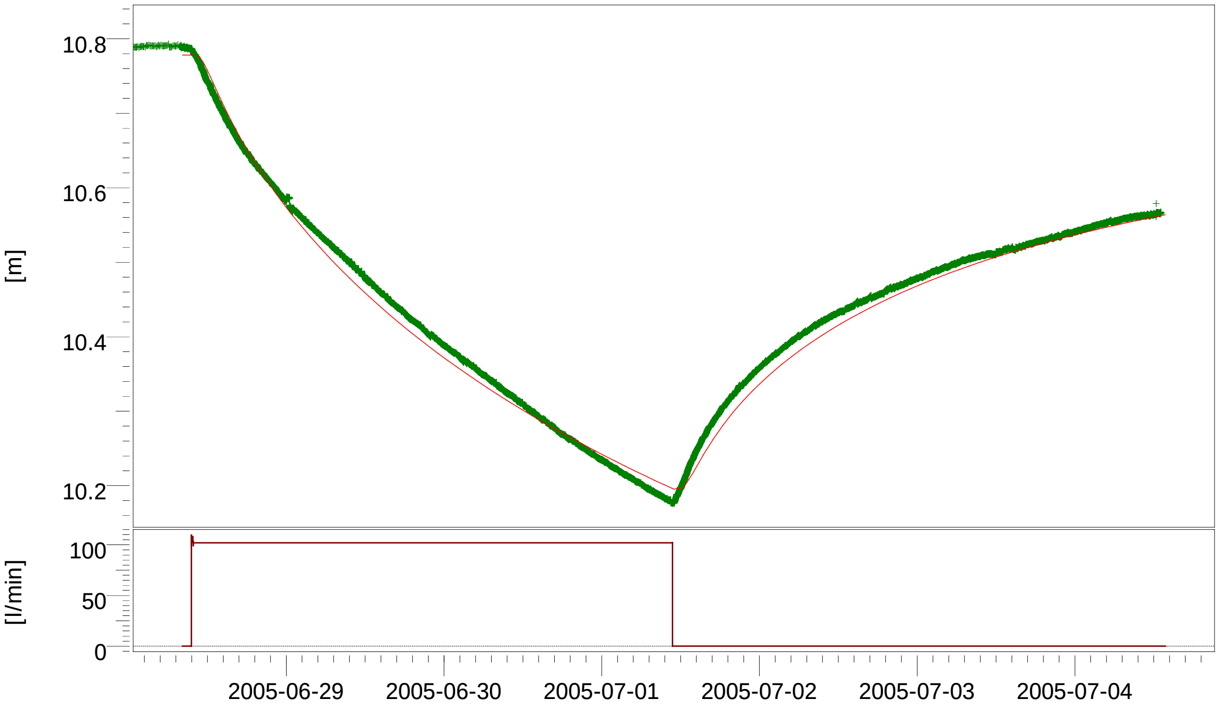
Model Parameters

Reservoir & Boundary parameters

Pi	10.78 m
T	1.08E-4 m2/s
K	3.51E-6 m/s
S	0.0206
Omega	9.51E-5
Lambda	6.79E-6

Derived & Secondary Parameters

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation, detrended	Field Laxemar Test Name / # Interferencetest HLX23



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX242obsDetrend(Cor) production #1

Rate	101.987 l/min
Rate change	101.987 l/min
P@dt=0	10 m
Pi	10.7779 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	1.98E-5 1/sec
PMatch	2.69 1/m
S	0.00969
T	7.15E-4 m2/s
K	2.31E-5 m/s
Pi	10.7779 m
Well distance	61 m

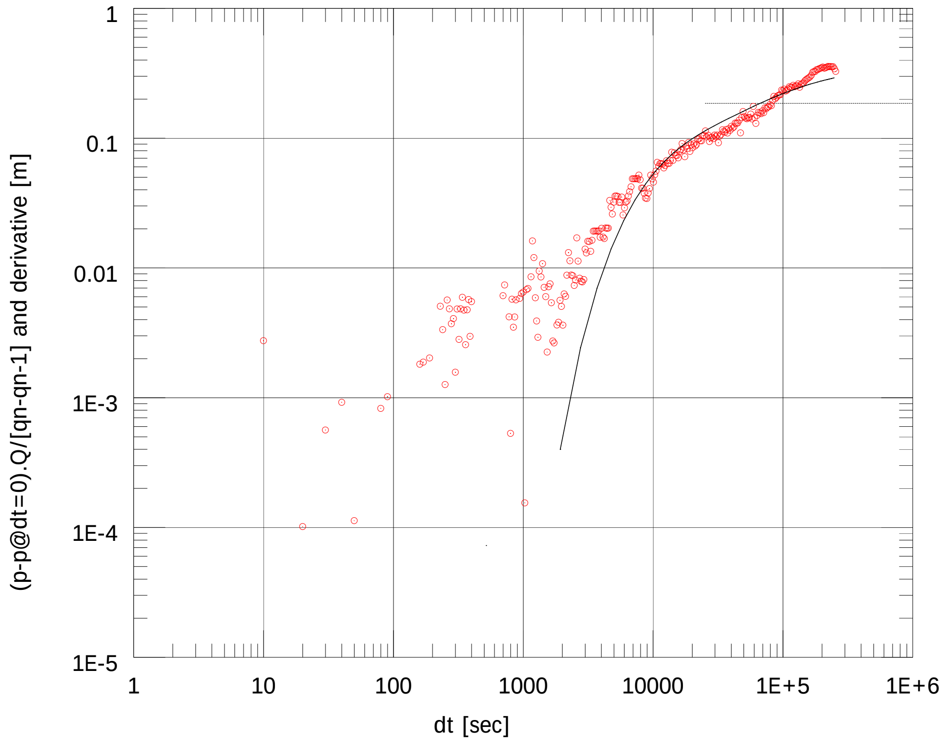
Model Parameters

Reservoir & Boundary parameters

Pi	10.7779 m
T	7.15E-4 m2/s
K	2.31E-5 m/s
S	0.00969
L - No flow	88.5 m

Derived & Secondary Parameters

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation, detrended	Field Laxemar Test Name / # Interferencetest HLX23



HLX242obsDetrend(Cor) production #1

Rate	101.987 l/min
Rate change	101.987 l/min
P@dt=0	10 m
Pi	10.7779 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

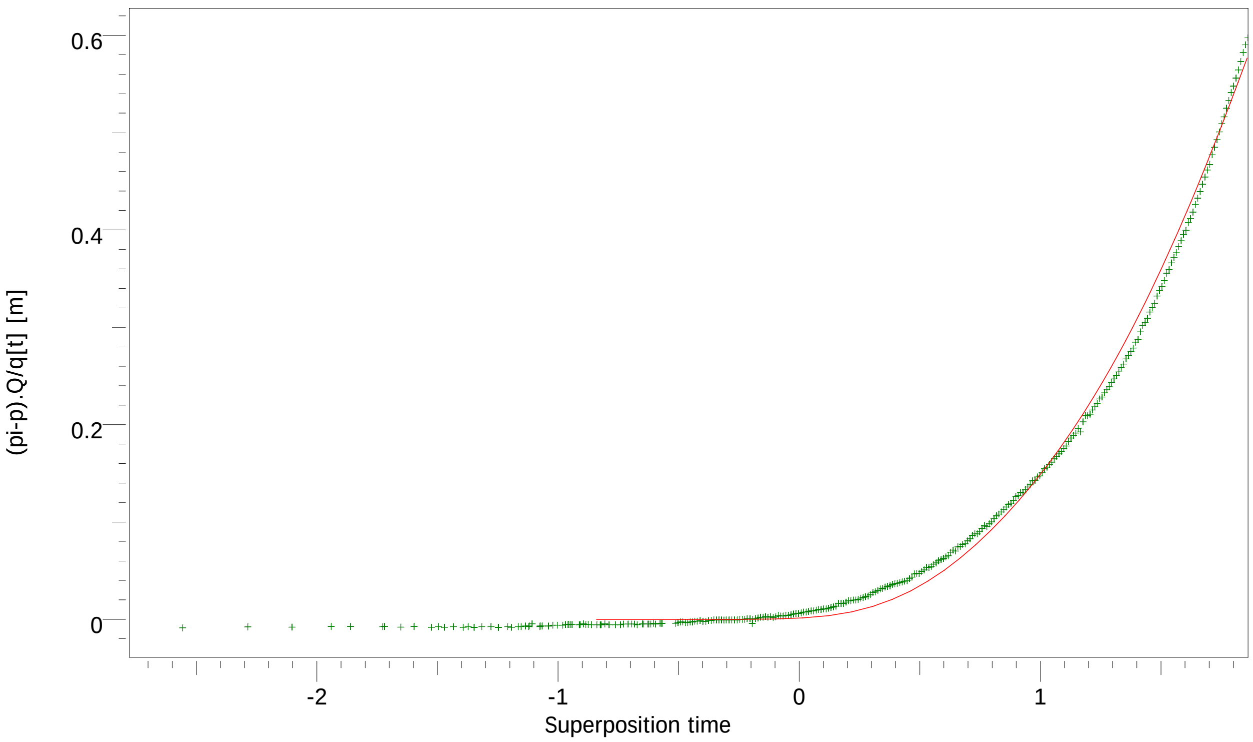
TMatch	1.98E-5 1/sec
PMatch	2.69 1/m
S	0.00969
T	7.15E-4 m2/s
K	2.31E-5 m/s
Pi	10.7779 m
Well distance	61 m

Model Parameters
Reservoir & Boundary parameters

Pi	10.7779 m
T	7.15E-4 m2/s
K	2.31E-5 m/s
S	0.00969
L - No flow	88.5 m

Derived & Secondary Parameters

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation, detrended	Field Laxemar Test Name / # Interferencetest HLX23



HLX242obsDetrend(Cor) production #1

Rate	101.987 l/min
Rate change	101.987 l/min
P@dt=0	10 m
Pi	10.7779 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	1.98E-5 1/sec
PMatch	2.69 1/m
S	0.00969
T	7.15E-4 m2/s
K	2.31E-5 m/s
Pi	10.7779 m
Well distance	61 m

Model Parameters
Reservoir & Boundary parameters

Pi	10.7779 m
T	7.15E-4 m2/s
K	2.31E-5 m/s
S	0.00969
L - No flow	88.5 m

Derived & Secondary Parameters

Test date / time	2005-06-28
Formation interval	9.10 - 40m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	61 m
Well Radius rw	0.07 m
Pay Zone h	31 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	1.98E-5 1/sec
PMatch	2.69 1/m
S	0.00969
T	7.15E-4 m2/s
K	2.31E-5 m/s
Pi	10.7779 m
Well distance	61 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.7779 m
T	7.15E-4 m2/s
K	2.31E-5 m/s
S	0.00969
L - No flow	88.5 m

Derived & Secondary Parameters

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation, detrended	Field Laxemar Test Name / # Interferencetest HLX23

Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX242obsDetrend(Cor) build-up #1

Rate	0 l/min
Rate change	101.987 l/min
P@dt=0	10.1768 m
Pi	10.7857 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	2.33E-5 1/sec
PMatch	2.6 1/m
S	0.00795
T	6.9E-4 m2/s
K	2.22E-5 m/s
Pi	10.7857 m
Well distance	61 m

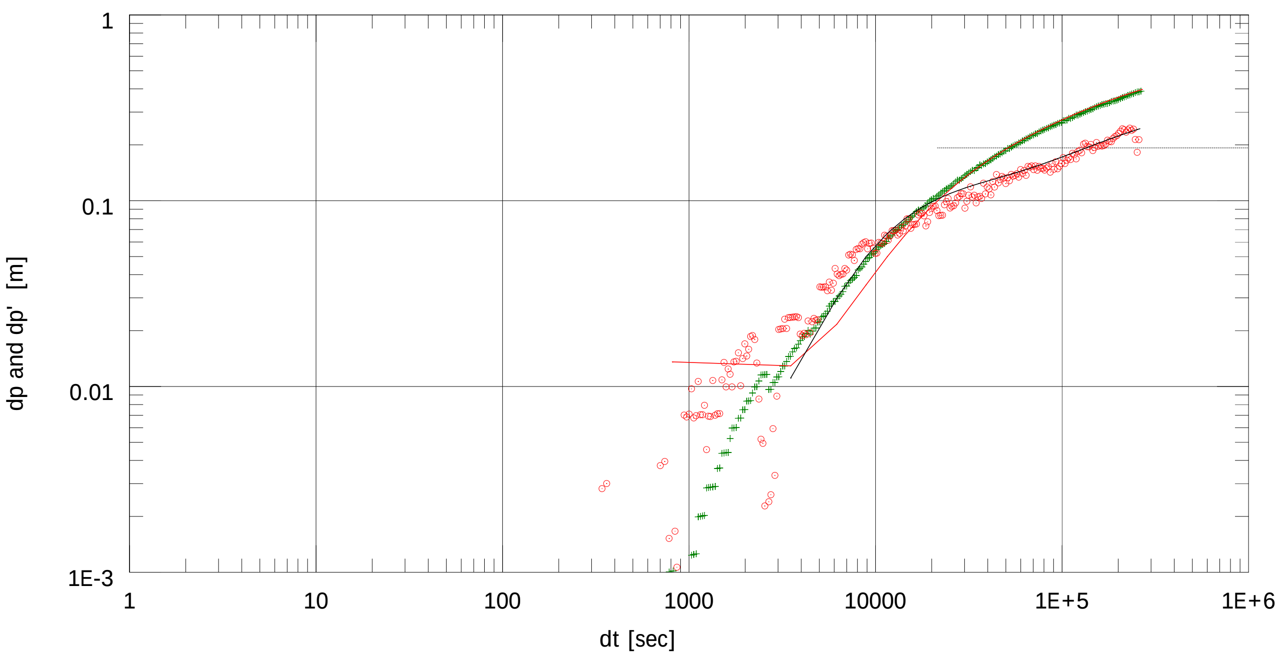
Model Parameters

Reservoir & Boundary parameters

Pi	10.7857 m
T	6.9E-4 m2/s
K	2.22E-5 m/s
S	0.00795
L - No flow	117 m

Derived & Secondary Parameters

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation, detrended	Field Laxemar Test Name / # Interferencetest HLX23



HLX242obsDetrend(Cor) build-up #1

Rate	0 l/min
Rate change	101.987 l/min
P@dt=0	10.1768 m
Pi	10.7857 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	2.33E-5 1/sec
PMatch	2.6 1/m
S	0.00795
T	6.9E-4 m2/s
K	2.22E-5 m/s
Pi	10.7857 m
Well distance	61 m

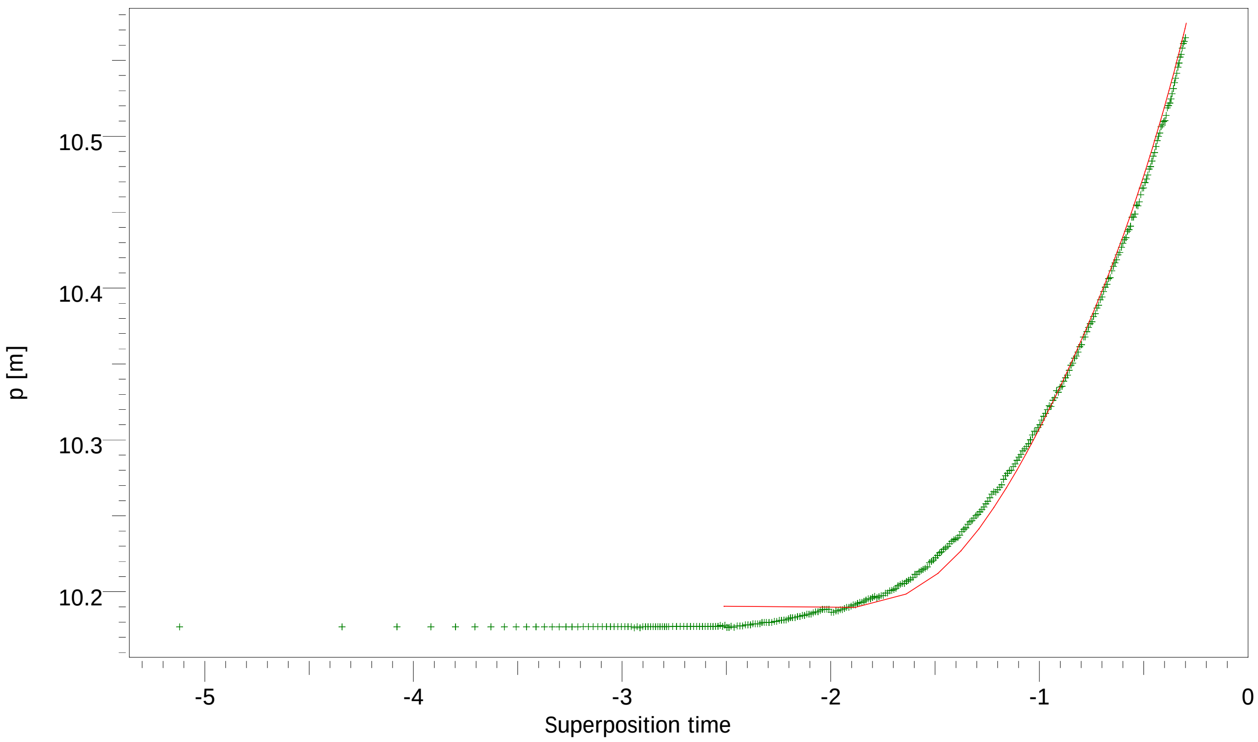
Model Parameters

Reservoir & Boundary parameters

Pi	10.7857 m
T	6.9E-4 m2/s
K	2.22E-5 m/s
S	0.00795
L - No flow	117 m

Derived & Secondary Parameters

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation, detrended	Field Laxemar Test Name / # Interferencetest HLX23



HLX242obsDetrend(Cor) build-up #1

Rate	0 l/min
Rate change	101.987 l/min
P@dt=0	10.1768 m
Pi	10.7857 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	2.33E-5 1/sec
PMatch	2.6 1/m
S	0.00795
T	6.9E-4 m2/s
K	2.22E-5 m/s
Pi	10.7857 m
Well distance	61 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.7857 m
T	6.9E-4 m2/s
K	2.22E-5 m/s
S	0.00795
L - No flow	117 m

Derived & Secondary Parameters

Main Results	Bu1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation, detrended	Field Laxemar Test Name / # Interferencetest HLX23

Test date / time	2005-06-28
Formation interval	9.10 - 40m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	61 m
Well Radius rw	0.07 m
Pay Zone h	31 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	2.33E-5 1/sec
PMatch	2.6 1/m
S	0.00795
T	6.9E-4 m2/s
K	2.22E-5 m/s
Pi	10.7857 m
Well distance	61 m

Model Parameters

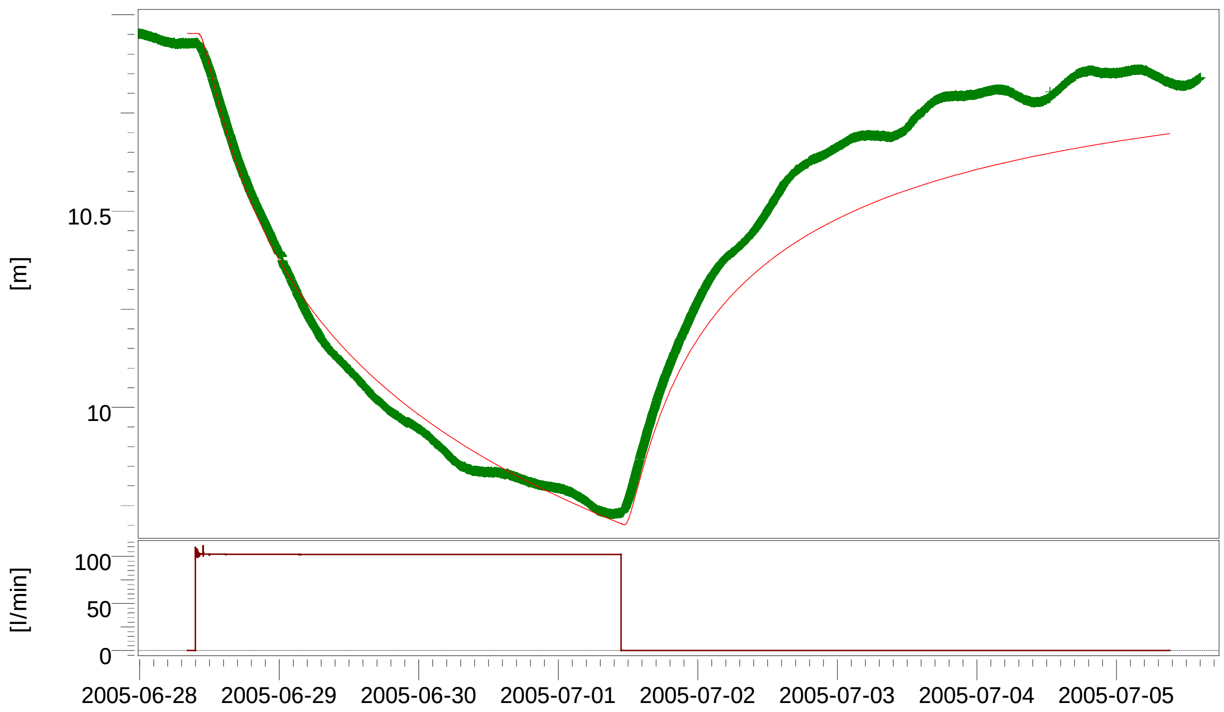
Reservoir & Boundary parameters

Pi	10.7857 m
T	6.9E-4 m2/s
K	2.22E-5 m/s
S	0.00795
L - No flow	117 m

Derived & Secondary Parameters

History plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX33:1 Observation — Test Name / # HLX23 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX33_1obs to HLX23 pumptest 050628-050710 production #1

Rate	101.946 l/min
Rate change	101.946 l/min
P@dt=0	10.9278 m
Pi	10.9523 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.55E-5 1/sec
PMatch	1.1 1/m
S	1.22E-4
T	2.92E-4 m2/s
K	1.71E-6 m/s
Pi	10.9523 m
Well distance	307 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.9523 m
T	2.92E-4 m2/s
K	1.71E-6 m/s
S	1.22E-4

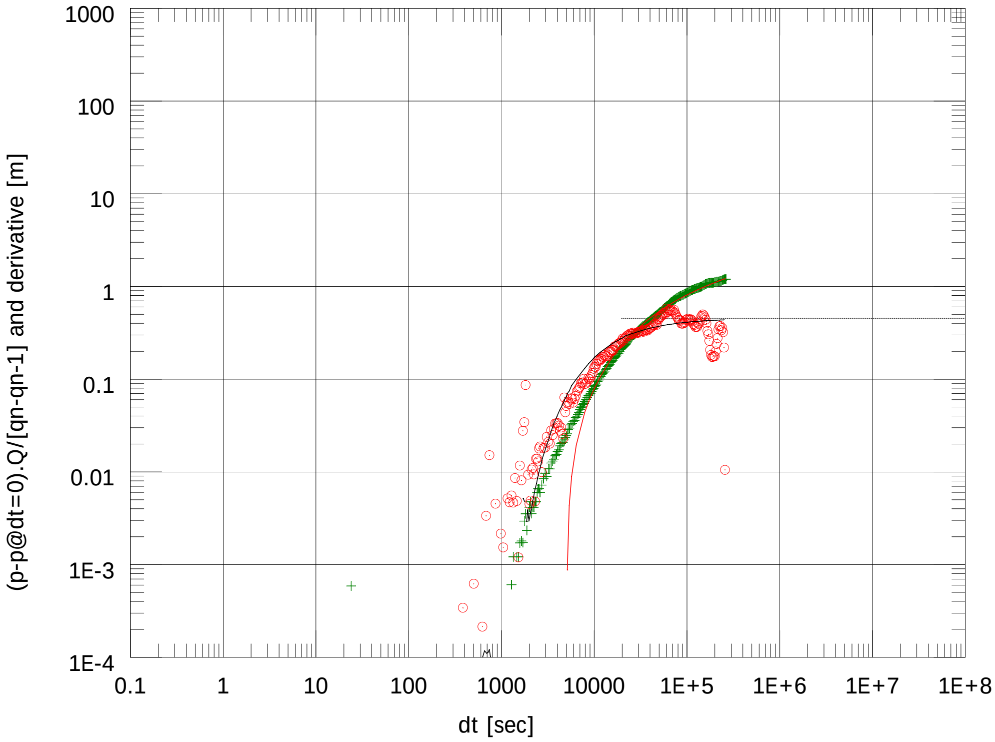
Derived & Secondary Parameters

Rinv	1420 m
Test. Vol.	184.109 MMm3

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX33:1 Observation

Field Laxemar
Test Name / # HLX23 pumping



HLX33_1obs to HLX23 pumptest 050628-050710 production #1

Rate	101.946 l/min
Rate change	101.946 l/min
P@dt=0	10.9278 m
Pi	10.9523 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.55E-5 1/sec
PMatch	1.1 1/m
S	1.22E-4
T	2.92E-4 m2/s
K	1.71E-6 m/s
Pi	10.9523 m
Well distance	307 m

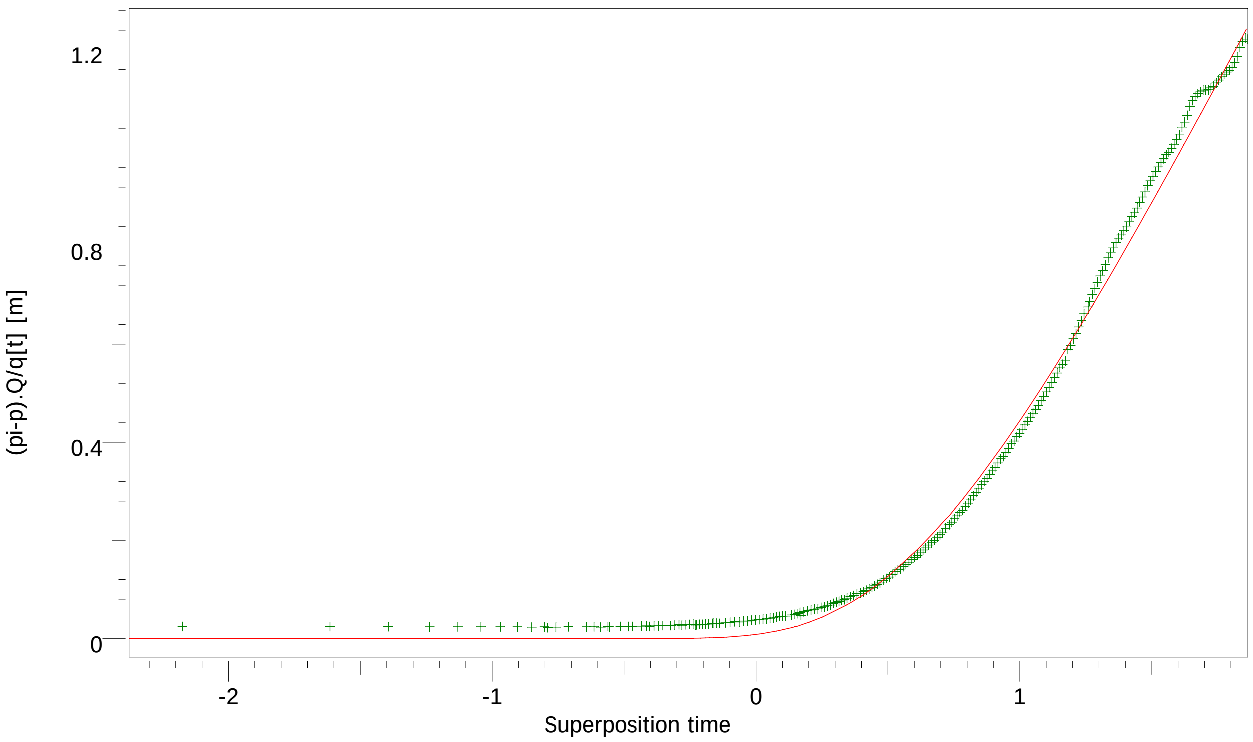
Model Parameters
Reservoir & Boundary parameters

Pi	10.9523 m
T	2.92E-4 m2/s
K	1.71E-6 m/s
S	1.22E-4

Derived & Secondary Parameters

Rinv	1420 m
Test. Vol.	184.109 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX33:1 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX33_1obs to HLX23 pumptest 050628-050710 production #1

Rate	101.946 l/min
Rate change	101.946 l/min
P@dt=0	10.9278 m
Pi	10.9523 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.55E-5 1/sec
PMatch	1.1 1/m
S	1.22E-4
T	2.92E-4 m2/s
K	1.71E-6 m/s
Pi	10.9523 m
Well distance	307 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.9523 m
T	2.92E-4 m2/s
K	1.71E-6 m/s
S	1.22E-4

Derived & Secondary Parameters

Rinv	1420 m
Test. Vol.	184.109 MMm3

Test date / time	2005-06-28
Formation interval	31 - 202.1m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini
TEST TYPE	Interference
Well distance	306.7 m
Well Radius rw	0.07 m
Pay Zone h	171.1 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.55E-5 1/sec
PMatch	1.1 1/m
S	1.22E-4
T	2.92E-4 m2/s
K	1.71E-6 m/s
Pi	10.9523 m
Well distance	307 m

Model Parameters

Reservoir & Boundary parameters

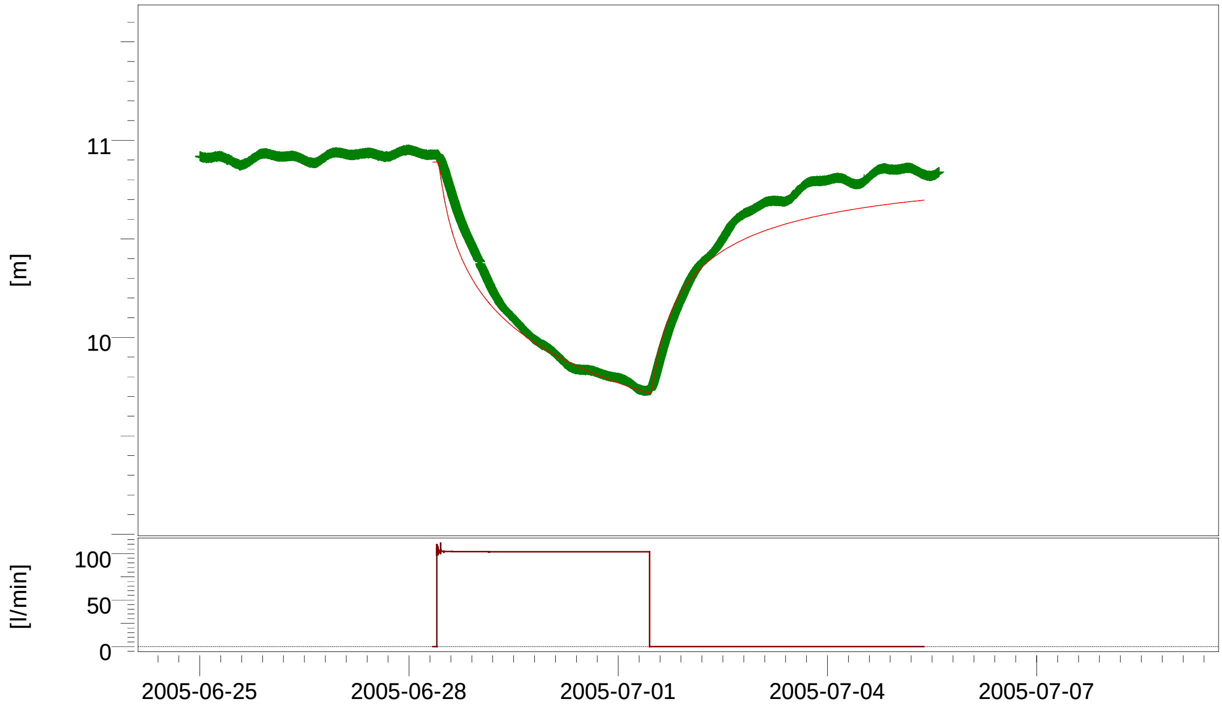
Pi	10.9523 m
T	2.92E-4 m2/s
K	1.71E-6 m/s
S	1.22E-4

Derived & Secondary Parameters

Rinv	1420 m
Test. Vol.	184.109 MMm3

History plot	Bu1

Company Svensk Kärnbränslehantering AB | Field Laxemar
Well HLX33:1 Observation | Test Name / # HLX23 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX33_1obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.946 l/min
P@dt=0	9.73092 m
Pi	10.89 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.22E-5 1/sec
PMatch	1.47 1/m
S	7.93E-5
T	3.9E-4 m2/s
K	2.28E-6 m/s
Pi	10.89 m
Well distance	307 m

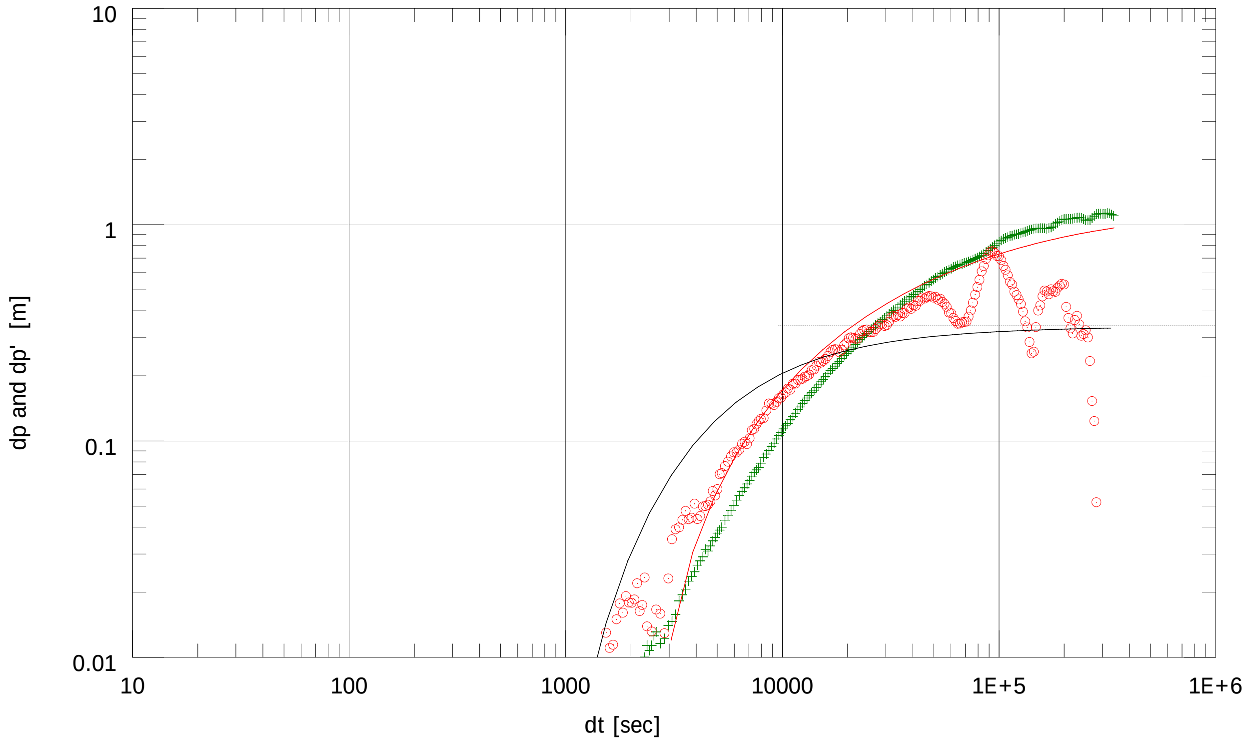
Model Parameters
Reservoir & Boundary parameters

Pi	10.89 m
T	3.9E-4 m2/s
K	2.28E-6 m/s
S	7.93E-5

Derived & Secondary Parameters

Rinv	2300 m
Test. Vol.	315.804 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX33:1 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX33_1obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.946 l/min
P@dt=0	9.73092 m
Pi	10.89 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.22E-5 1/sec
PMatch	1.47 1/m
S	7.93E-5
T	3.9E-4 m2/s
K	2.28E-6 m/s
Pi	10.89 m
Well distance	307 m

Model Parameters

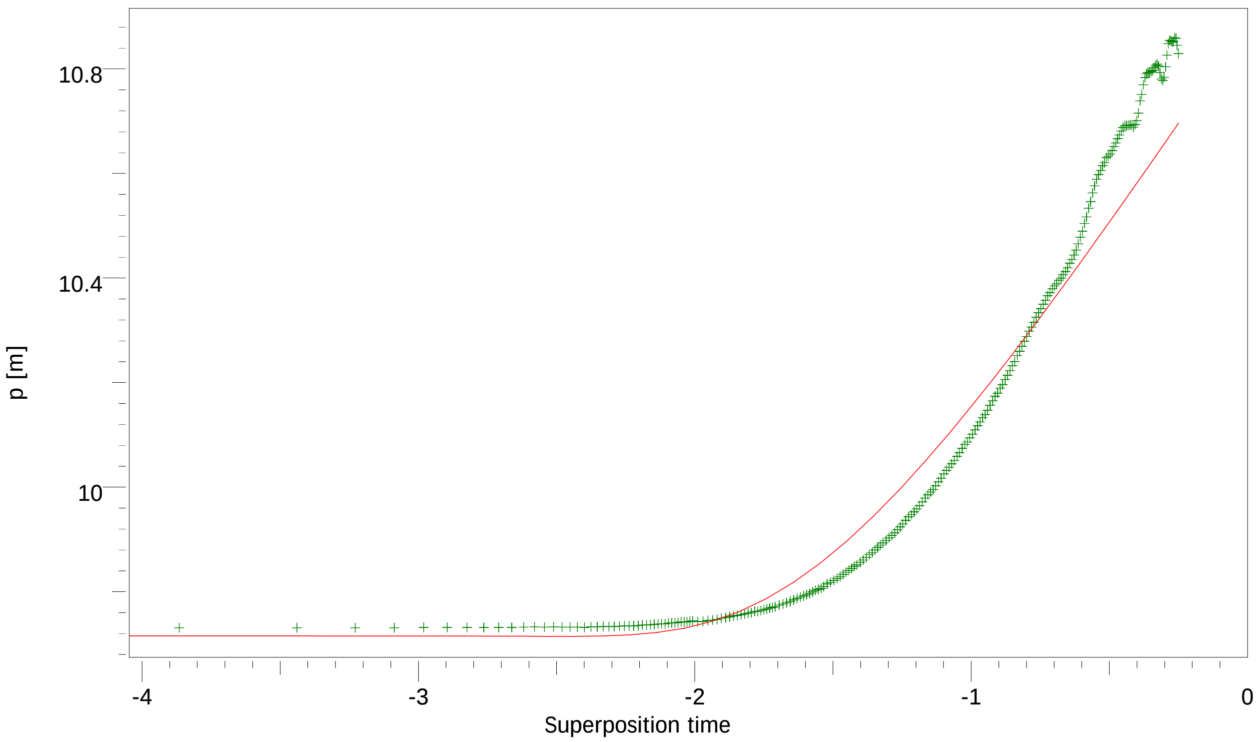
Reservoir & Boundary parameters

Pi	10.89 m
T	3.9E-4 m2/s
K	2.28E-6 m/s
S	7.93E-5

Derived & Secondary Parameters

Rinv	2300 m
Test. Vol.	315.804 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX33:1 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX33_1obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.946 l/min
P@dt=0	9.73092 m
Pi	10.89 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.22E-5 1/sec
PMatch	1.47 1/m
S	7.93E-5
T	3.9E-4 m2/s
K	2.28E-6 m/s
Pi	10.89 m
Well distance	307 m

Model Parameters
Reservoir & Boundary parameters

Pi	10.89 m
T	3.9E-4 m2/s
K	2.28E-6 m/s
S	7.93E-5

Derived & Secondary Parameters

Rinv	2300 m
Test. Vol.	315.804 MMm3

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX33:1 Observation	Test Name / #	HLX23 pumping

Test date / time 2005-06-28
Formation interval 31 - 202.1m
Perforated interval
Gauge type / #
Gauge depth
Field crew
Analysis Mansueto Morosini

TEST TYPE Interference

Well distance 306.7 m
Well Radius rw 0.07 m
Pay Zone h 171.1 m

Water Salt (ppm) 10000
Form. compr. 4.35113E-10 Pa-1
Reservoir T 10 °C
Reservoir P 200 m

FLUID TYPE Water

Volume Factor B 1 B/STB
Viscosity 1E-3 Pa.sec
Total Compr. ct 4.35113E-10 Pa-1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 5.22E-5 1/sec
PMatch 1.47 1/m
S 7.93E-5
T 3.9E-4 m2/s
K 2.28E-6 m/s
Pi 10.89 m
Well distance 307 m

Model Parameters
Reservoir & Boundary parameters
Pi 10.89 m
T 3.9E-4 m2/s
K 2.28E-6 m/s
S 7.93E-5

Derived & Secondary Parameters
Rinv 2300 m
Test. Vol. 315.804 MMm3

History plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX33:2 Observation — Test Name / # HLX23 pumping

Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX33_2obs to HLX23 pumptest 050628-050710 production #1

Rate	101.978 l/min
Rate change	101.978 l/min
P@dt=0	10.8064 m
Pi	10.8245 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.33E-5 1/sec
PMatch	1.74 1/m
S	1.85E-4
T	4.62E-4 m2/s
K	2.21E-5 m/s
Pi	10.8245 m
Well distance	327 m

Model Parameters

Well & Wellbore parameters (Active well)

Skin	-0.327

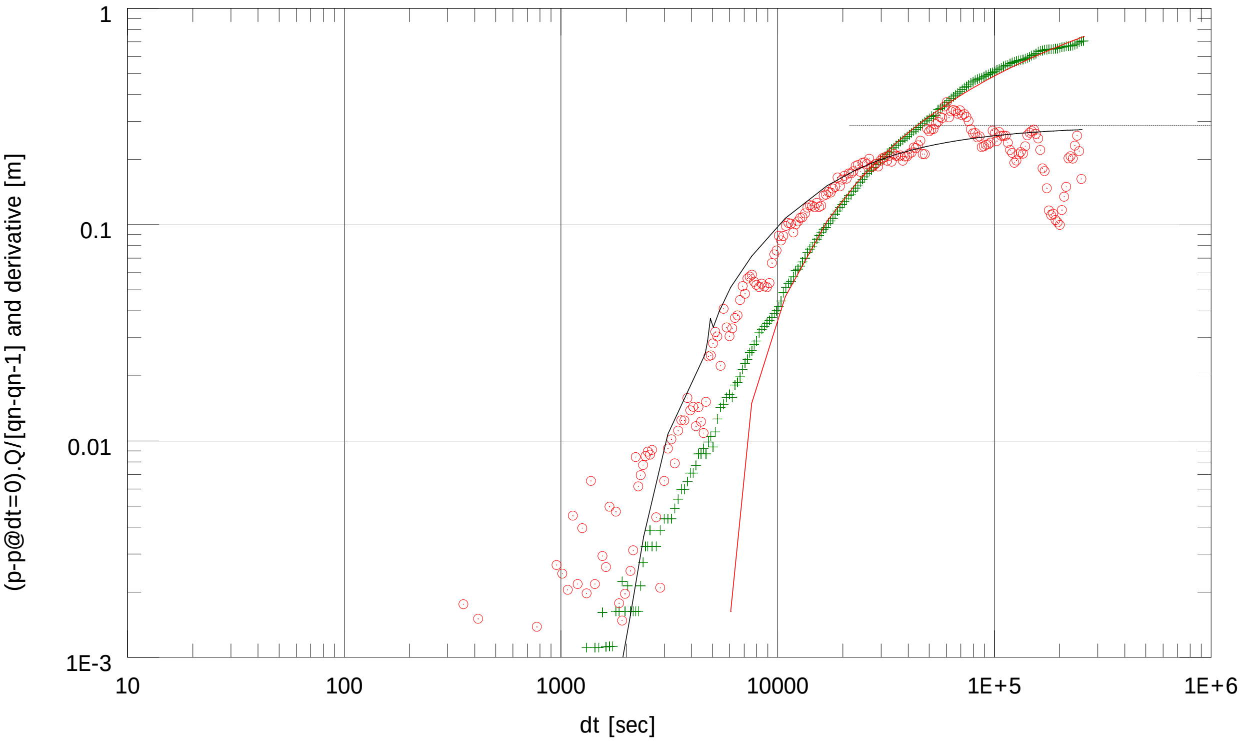
Reservoir & Boundary parameters

Pi	10.8245 m
T	4.62E-4 m2/s
K	2.21E-5 m/s
S	1.85E-4

Derived & Secondary Parameters

Rinv	1430 m
Test. Vol.	285.47 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX33_2obs to HLX23 pumptest 050628-050710 production #1

Rate	101.978 l/min
Rate change	101.978 l/min
P@dt=0	10.8064 m
Pi	10.8245 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.33E-5 1/sec
PMatch	1.74 1/m
S	1.85E-4
T	4.62E-4 m2/s
K	2.21E-5 m/s
Pi	10.8245 m
Well distance	327 m

Model Parameters

Well & Wellbore parameters (Active well)

Skin	-0.327

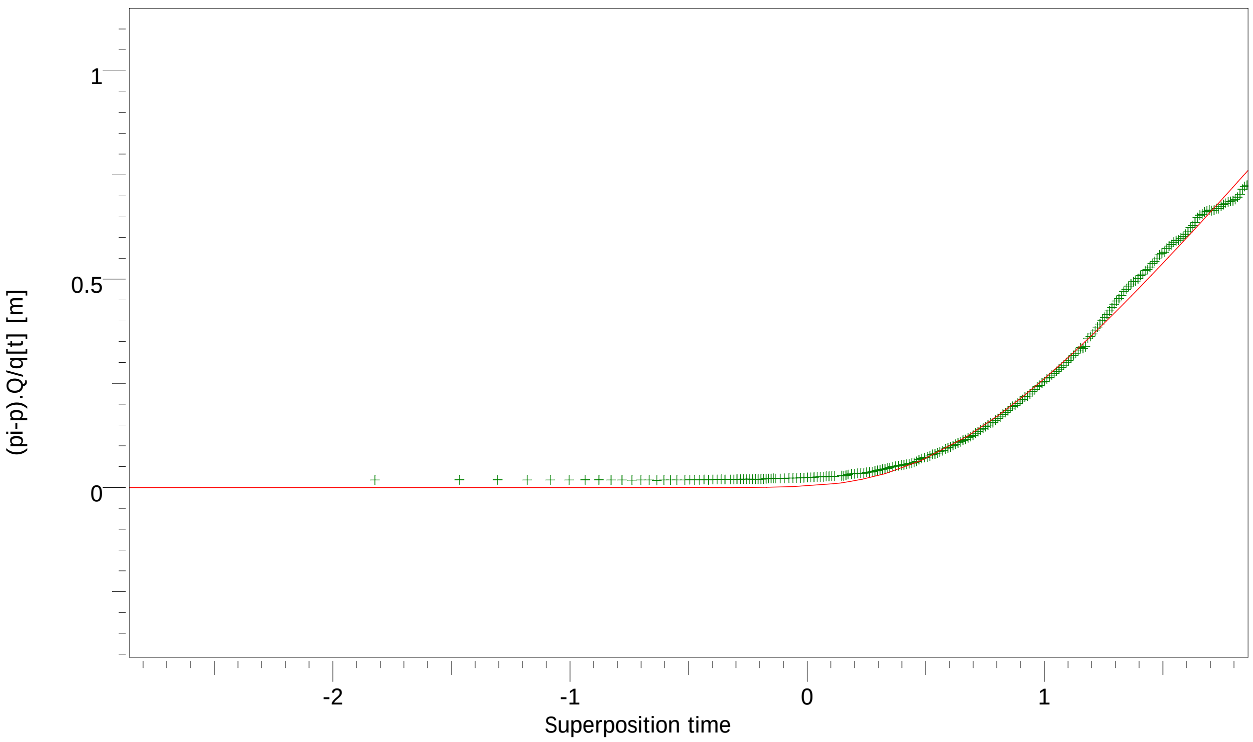
Reservoir & Boundary parameters

Pi	10.8245 m
T	4.62E-4 m2/s
K	2.21E-5 m/s
S	1.85E-4

Derived & Secondary Parameters

Rinv	1430 m
Test. Vol.	285.47 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX33_2obs to HLX23 pumptest 050628-050710 production #1

Rate	101.978 l/min
Rate change	101.978 l/min
P@dt=0	10.8064 m
Pi	10.8245 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.33E-5 1/sec
PMatch	1.74 1/m
S	1.85E-4
T	4.62E-4 m2/s
K	2.21E-5 m/s
Pi	10.8245 m
Well distance	327 m

Model Parameters

Well & Wellbore parameters (Active well)

Skin	-0.327

Reservoir & Boundary parameters

Pi	10.8245 m
T	4.62E-4 m2/s
K	2.21E-5 m/s
S	1.85E-4

Derived & Secondary Parameters

Rinv	1430 m
Test. Vol.	285.47 MMm3

Company	Svensk Kärnbränslehantering AB
Well	HLX33:2 Observation
Field	Laxemar
Test Name / #	HLX23 pumping

Test date / time	2005-06-28
Formation interval	9.1 - 30m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Interference
Well distance	327.5 m
Well Radius rw	0.07 m
Pay Zone h	20.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.33E-5 1/sec
PMatch	1.74 1/m
S	1.85E-4
T	4.62E-4 m2/s
K	2.21E-5 m/s
Pi	10.8245 m
Well distance	327 m

Model Parameters

Well & Wellbore parameters (Active well)

Skin	-0.327

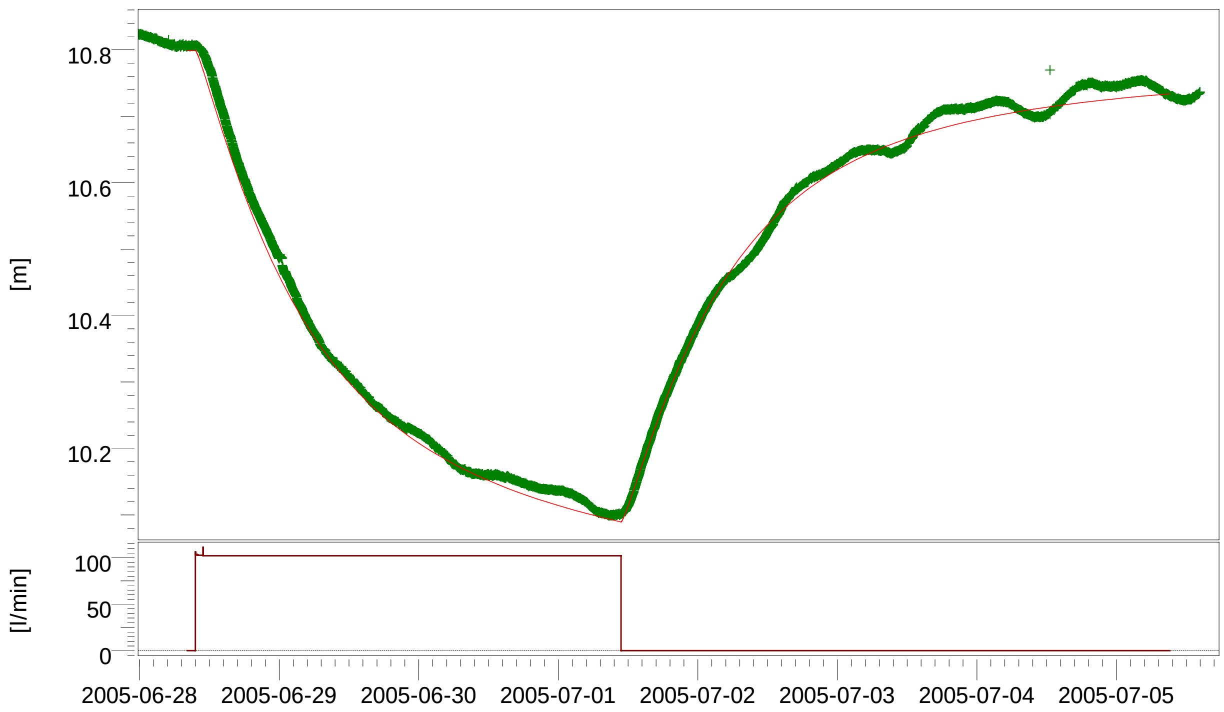
Reservoir & Boundary parameters

Pi	10.8245 m
T	4.62E-4 m2/s
K	2.21E-5 m/s
S	1.85E-4

Derived & Secondary Parameters

Rinv	1430 m
Test. Vol.	285.47 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # HLX23 pumping



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX33_2obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.978 l/min
P@dt=0	10.101 m
Pi	10.799 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00541 1/sec
PMatch	5.42 1/m
S	2.48E-6
T	0.00144 m2/s
K	6.88E-5 m/s
Pi	10.799 m
Well distance	327 m

Model Parameters

Well & Wellbore parameters (Active well)

Skin	4.15

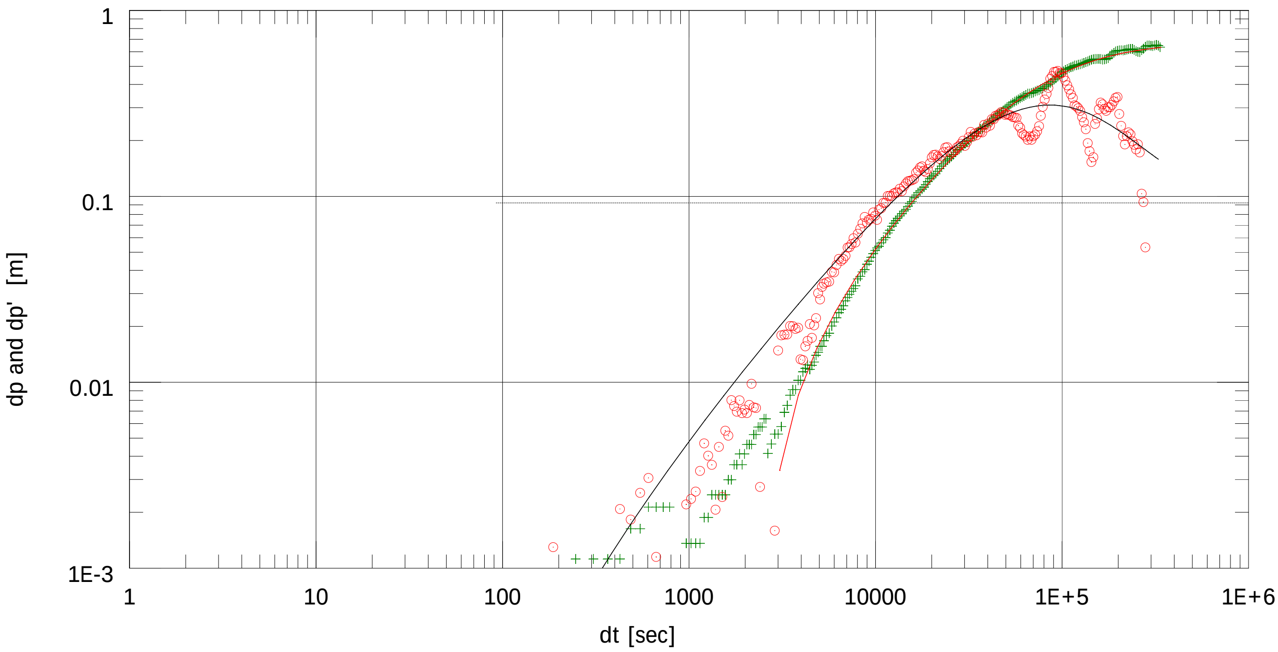
Reservoir & Boundary parameters

Pi	10.799 m
T	0.00144 m2/s
K	6.88E-5 m/s
S	2.48E-6

Derived & Secondary Parameters

Rinv	24900 m
Test. Vol.	1157.55 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX33_2obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.978 l/min
P@dt=0	10.101 m
Pi	10.799 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00541 1/sec
PMatch	5.42 1/m
S	2.48E-6
T	0.00144 m2/s
K	6.88E-5 m/s
Pi	10.799 m
Well distance	327 m

Model Parameters

Well & Wellbore parameters (Active well)

Skin	4.15

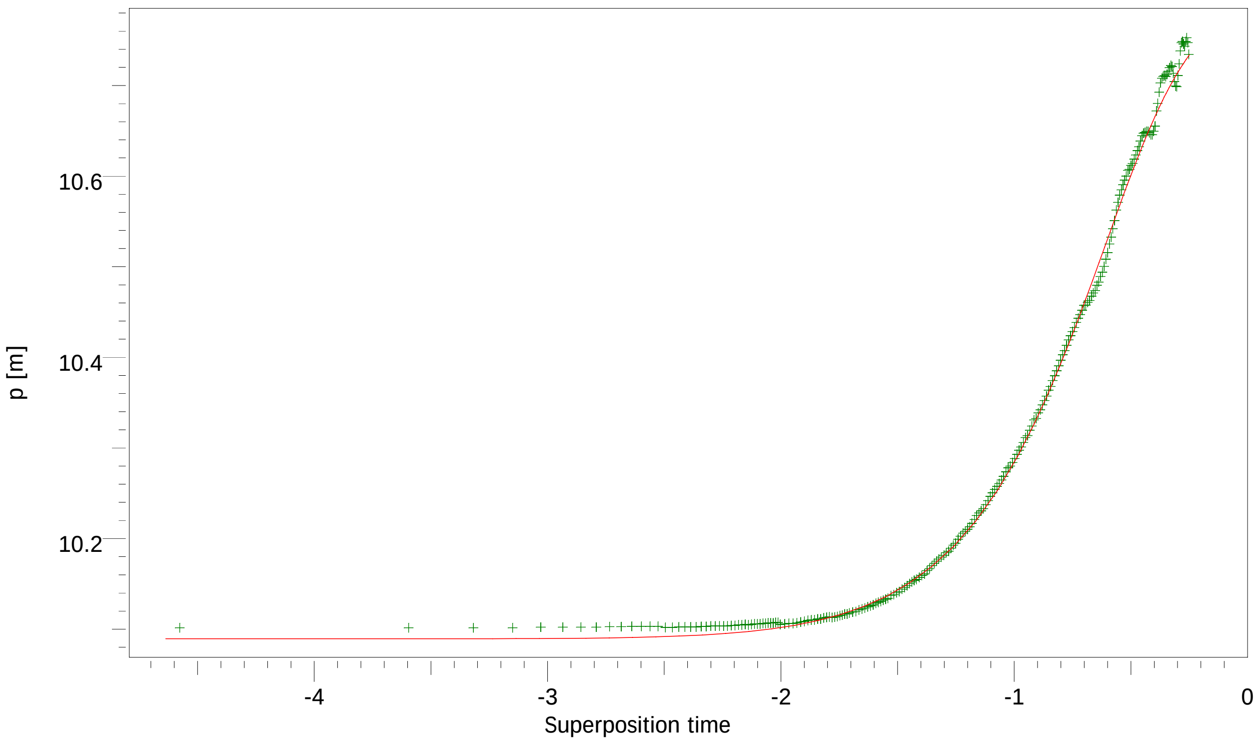
Reservoir & Boundary parameters

Pi	10.799 m
T	0.00144 m2/s
K	6.88E-5 m/s
S	2.48E-6

Derived & Secondary Parameters

Rinv	24900 m
Test. Vol.	1157.55 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # HLX23 pumping



HLX33_2obs to HLX23 pumptest 050628-050710 build-up #1

Rate	0 l/min
Rate change	101.978 l/min
P@dt=0	10.101 m
Pi	10.799 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00541 1/sec
PMatch	5.42 1/m
S	2.48E-6
T	0.00144 m2/s
K	6.88E-5 m/s
Pi	10.799 m
Well distance	327 m

Model Parameters

Well & Wellbore parameters (Active well)

Skin	4.15

Reservoir & Boundary parameters

Pi	10.799 m
T	0.00144 m2/s
K	6.88E-5 m/s
S	2.48E-6

Derived & Secondary Parameters

Rinv	24900 m
Test. Vol.	1157.55 MMm3

Test date / time	2005-06-28
Formation interval	9.1 - 30m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Interference
Well distance	327.5 m
Well Radius rw	0.07 m
Pay Zone h	20.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	200 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.00541 1/sec
PMatch	5.42 1/m
S	2.48E-6
T	0.00144 m2/s
K	6.88E-5 m/s
Pi	10.799 m
Well distance	327 m

Model Parameters

Well & Wellbore parameters (Active well)

Skin	4.15

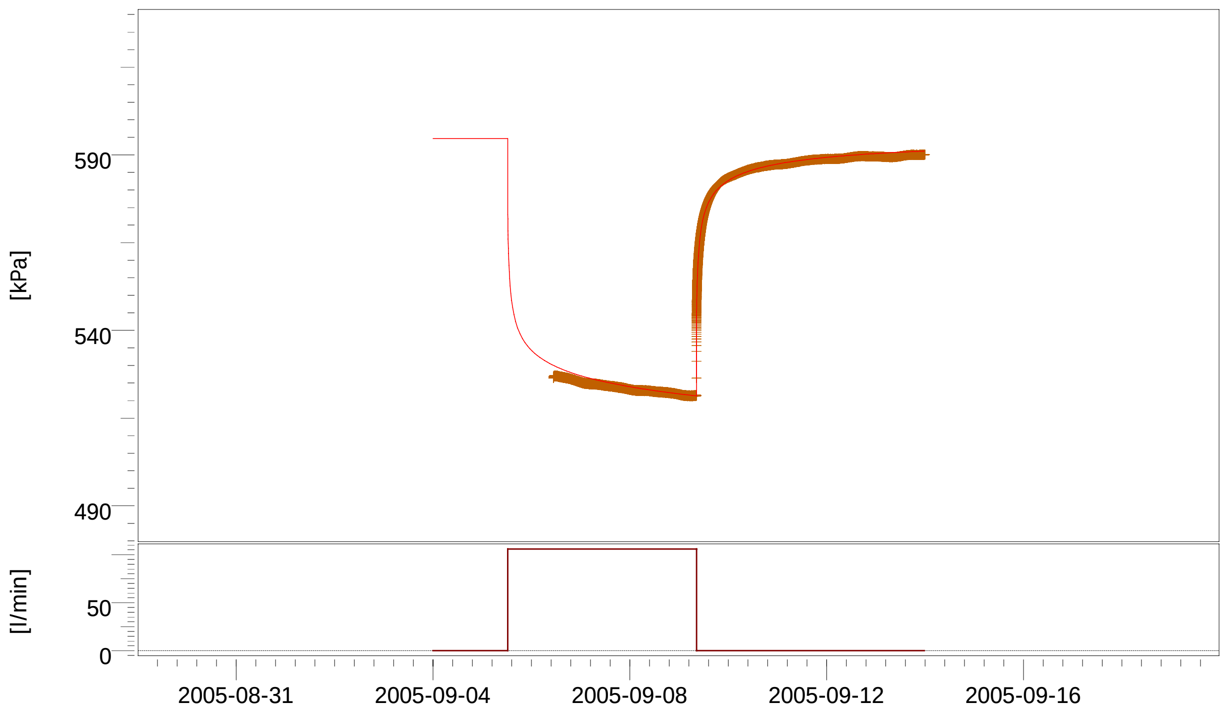
Reservoir & Boundary parameters

Pi	10.799 m
T	0.00144 m2/s
K	6.88E-5 m/s
S	2.48E-6

Derived & Secondary Parameters

Rinv	24900 m
Test. Vol.	1157.55 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX30 pumping	Field Laxemar Test Name / # Interference test HLX30



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX30AirPcorr build-up #1

Rate	0 l/min
Rate change	105.931 l/min
P@dt=0	521.319 kPa
Pi	594.64 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.122 1/sec
PMatch	0.113 1/kPa
C	1.64E-6 m3/Pa
Total Skin	-3.8
T	3.05E-4 m2/s
K	1.98E-6 m/s
Pi	594.64 kPa

Model Parameters

Well & Wellbore parameters (HLX30 pumping)

C	1.64E-6 m3/Pa
Skin	-3.8

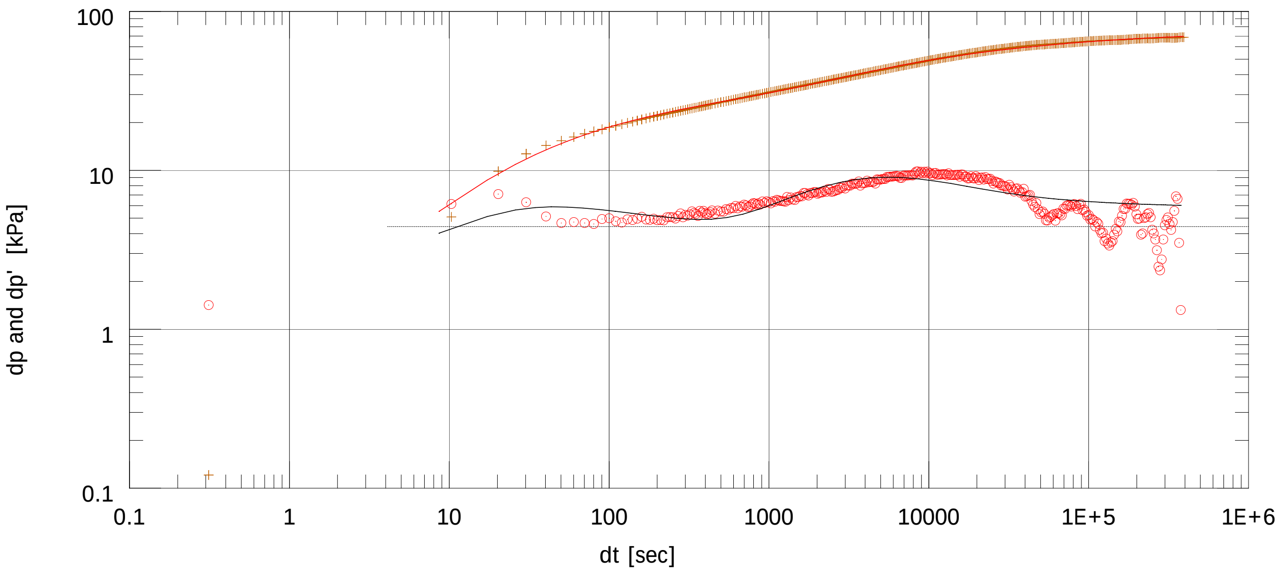
Reservoir & Boundary parameters

Pi	594.64 kPa
T	3.05E-4 m2/s
K	1.98E-6 m/s
Ri	93.4 m
M	1.31
D	0.205

Derived & Secondary Parameters

Delta P (Total Skin)	-33.6201 kPa
Delta P Ratio (Total Skin)	-0.482024 Fraction

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX30 pumping	Field Laxemar Test Name / # Interference test HLX30



HLX30AirPcorr build-up #1

Rate	0 l/min
Rate change	105.931 l/min
P@dt=0	521.319 kPa
Pi	594.64 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.122 1/sec
PMatch	0.113 1/kPa
C	1.64E-6 m3/Pa
Total Skin	-3.8
T	3.05E-4 m2/s
K	1.98E-6 m/s
Pi	594.64 kPa

Model Parameters

Well & Wellbore parameters (HLX30 pumping)

C	1.64E-6 m3/Pa
Skin	-3.8

Reservoir & Boundary parameters

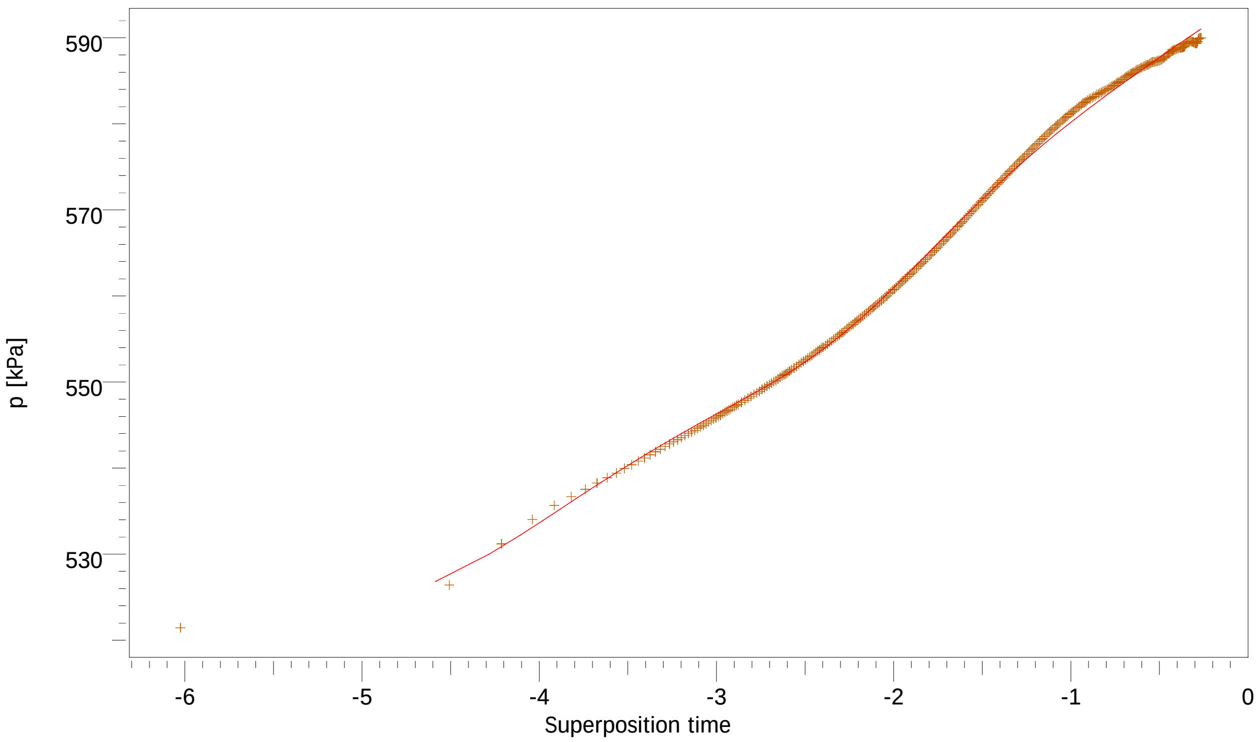
Pi	594.64 kPa
T	3.05E-4 m2/s
K	1.98E-6 m/s
Ri	93.4 m
M	1.31
D	0.205

Derived & Secondary Parameters

Delta P (Total Skin)	-33.6201 kPa
Delta P Ratio (Total Skin)	-0.482024 Fraction

Semi-Log plot	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX30 pumping
Field Laxemar
Test Name / # Interference test HLX30



HLX30AirPcorr build-up #1

Rate	0 l/min
Rate change	105.931 l/min
P@dt=0	521.319 kPa
Pi	594.64 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.122 1/sec
PMatch	0.113 1/kPa
C	1.64E-6 m3/Pa
Total Skin	-3.8
T	3.05E-4 m2/s
K	1.98E-6 m/s
Pi	594.64 kPa

Model Parameters

Well & Wellbore parameters (HLX30 pumping)

C	1.64E-6 m3/Pa
Skin	-3.8

Reservoir & Boundary parameters

Pi	594.64 kPa
T	3.05E-4 m2/s
K	1.98E-6 m/s
Ri	93.4 m
M	1.31
D	0.205

Derived & Secondary Parameters

Delta P (Total Skin)	-33.6201 kPa
Delta P Ratio (Total Skin)	-0.482024 Fraction

Main Results	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX30 pumping — Test Name / # Interference test HLX30

Test date / time	2005-09-05 12:26
Formation interval	9.10 - 163.4m
Perforated interval	
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/Henriksson
Analysis	M.Morosini
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.0695 m
Pay Zone h	154.3 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	1500 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	5E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.122 1/sec
PMatch	0.113 1/kPa
C	1.64E-6 m3/Pa
Total Skin	-3.8
T	3.05E-4 m2/s
K	1.98E-6 m/s
Pi	594.64 kPa

Model Parameters

Well & Wellbore parameters (HLX30 pumping)

C	1.64E-6 m3/Pa
Skin	-3.8

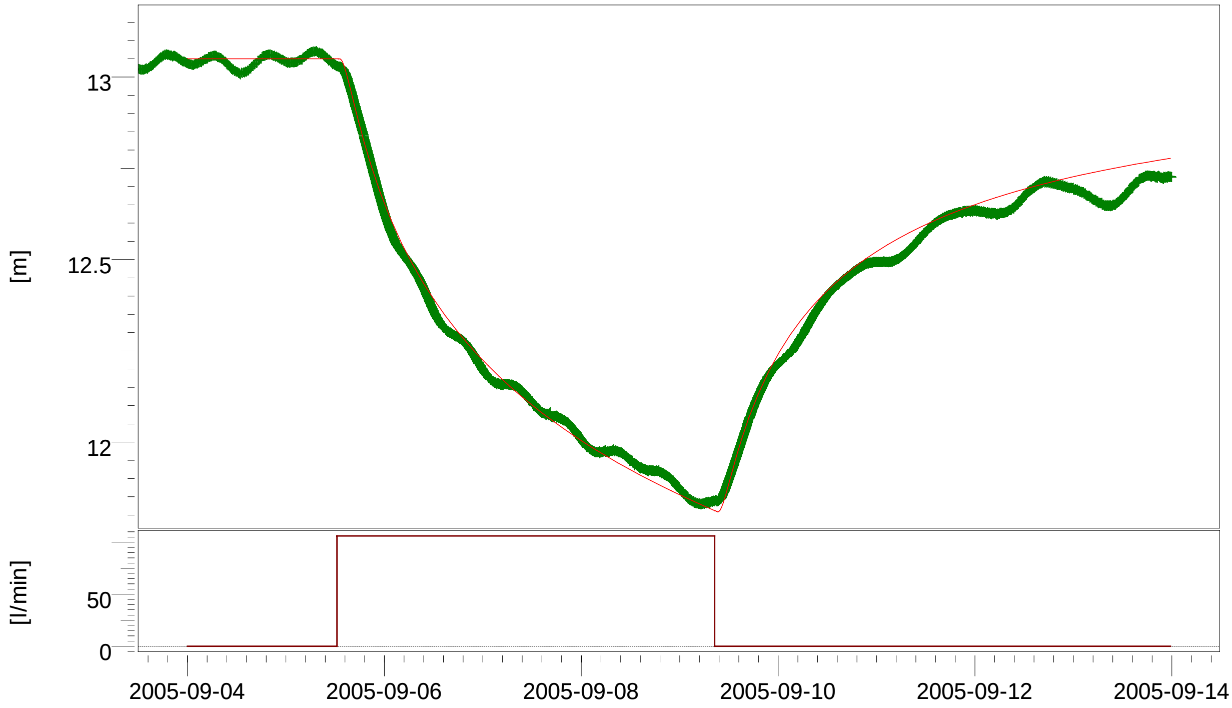
Reservoir & Boundary parameters

Pi	594.64 kPa
T	3.05E-4 m2/s
K	1.98E-6 m/s
Ri	93.4 m
M	1.31
D	0.205

Derived & Secondary Parameters

Delta P (Total Skin)	-33.6201 kPa
Delta P Ratio (Total Skin)	-0.482024 Fraction

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX13 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX13obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	13.0297 m
Pi	13.05 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.87E-5 [sec]-1
PMatch	1.08 [m]-1
S	9.33E-5
T	3.03E-4 m2/s
K	1.61E-6 m/s
Pi	13.05 m
Well distance	417 m

Model Parameters

Reservoir & Boundary parameters

Pi	13.05 m
T	3.03E-4 m2/s
K	1.61E-6 m/s
S	9.33E-5

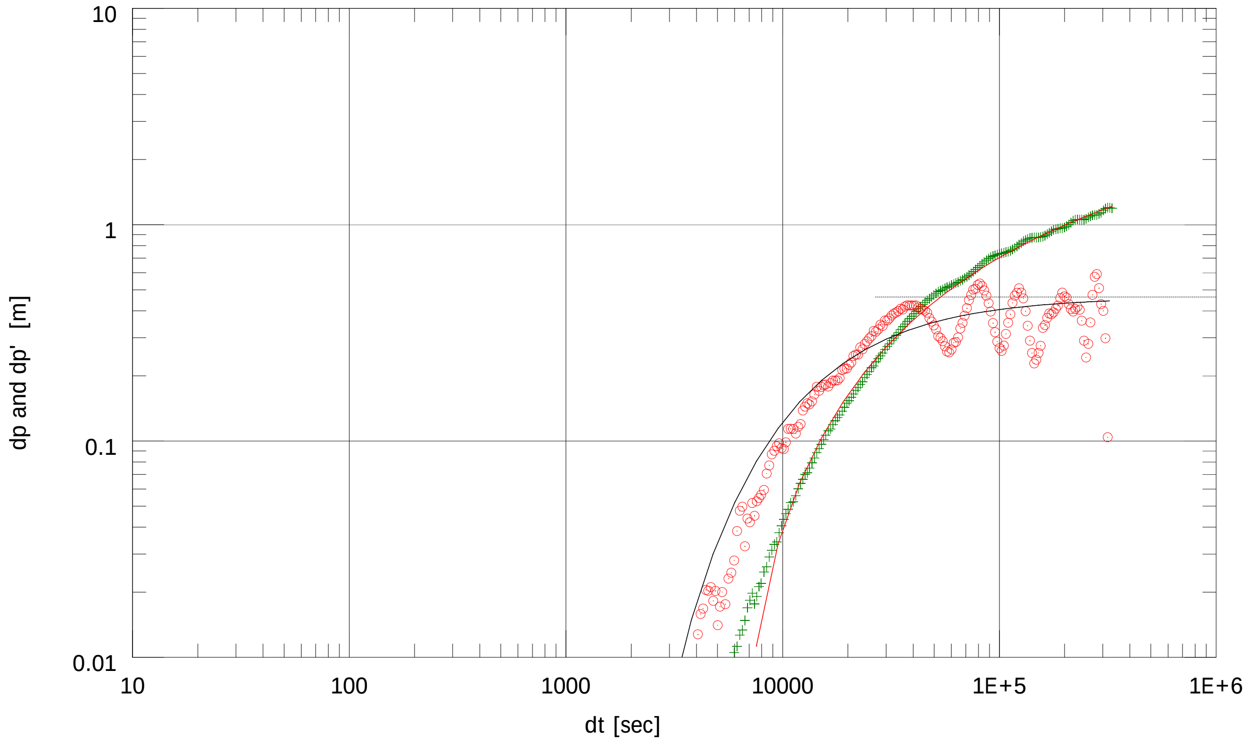
Derived & Secondary Parameters

Rinv	1850 m
Test. Vol.	235.91 MMm3

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX13 Observation

Field Laxemar
Test Name / # Interference test HLX30



HLX13obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	13.0297 m
Pi	13.05 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.87E-5 [sec]-1
PMatch	1.08 [m]-1
S	9.33E-5
T	3.03E-4 m2/s
K	1.61E-6 m/s
Pi	13.05 m
Well distance	417 m

Model Parameters
Reservoir & Boundary parameters

Pi	13.05 m
T	3.03E-4 m2/s
K	1.61E-6 m/s
S	9.33E-5

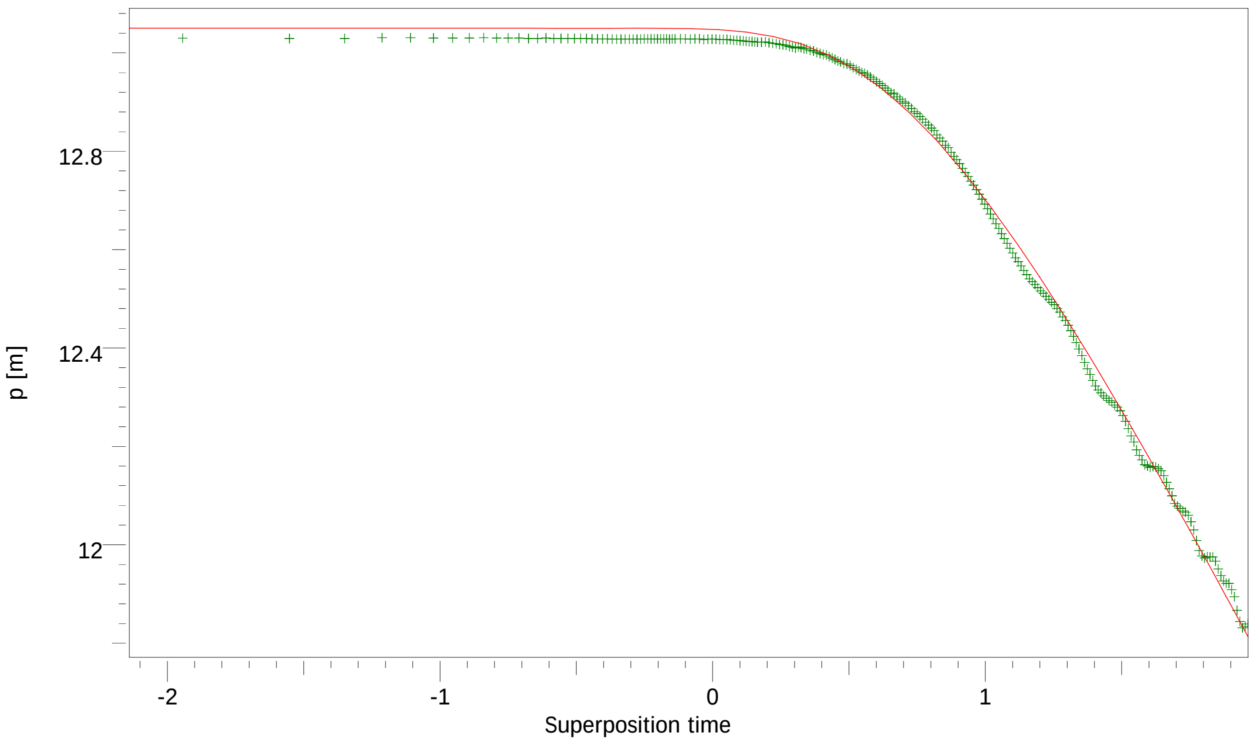
Derived & Secondary Parameters

Rinv	1850 m
Test. Vol.	235.91 MMm3

Ecrin v4.02.03 HLX13obs

2007-12-11

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX13 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX13obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	13.0297 m
Pi	13.05 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.87E-5 [sec]-1
PMatch	1.08 [m]-1
S	9.33E-5
T	3.03E-4 m2/s
K	1.61E-6 m/s
Pi	13.05 m
Well distance	417 m

Model Parameters

Reservoir & Boundary parameters

Pi	13.05 m
T	3.03E-4 m2/s
K	1.61E-6 m/s
S	9.33E-5

Derived & Secondary Parameters

Rinv	1850 m
Test. Vol.	235.91 MMm3

Test date / time	2005-09-04
Formation interval	11.87 - 202.02m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	417 m
Well Radius rw	0.0695 m
Pay Zone h	188.15 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.87E-5 [sec]-1
PMatch	1.08 [m]-1
S	9.33E-5
T	3.03E-4 m2/s
K	1.61E-6 m/s
Pi	13.05 m
Well distance	417 m

Model Parameters

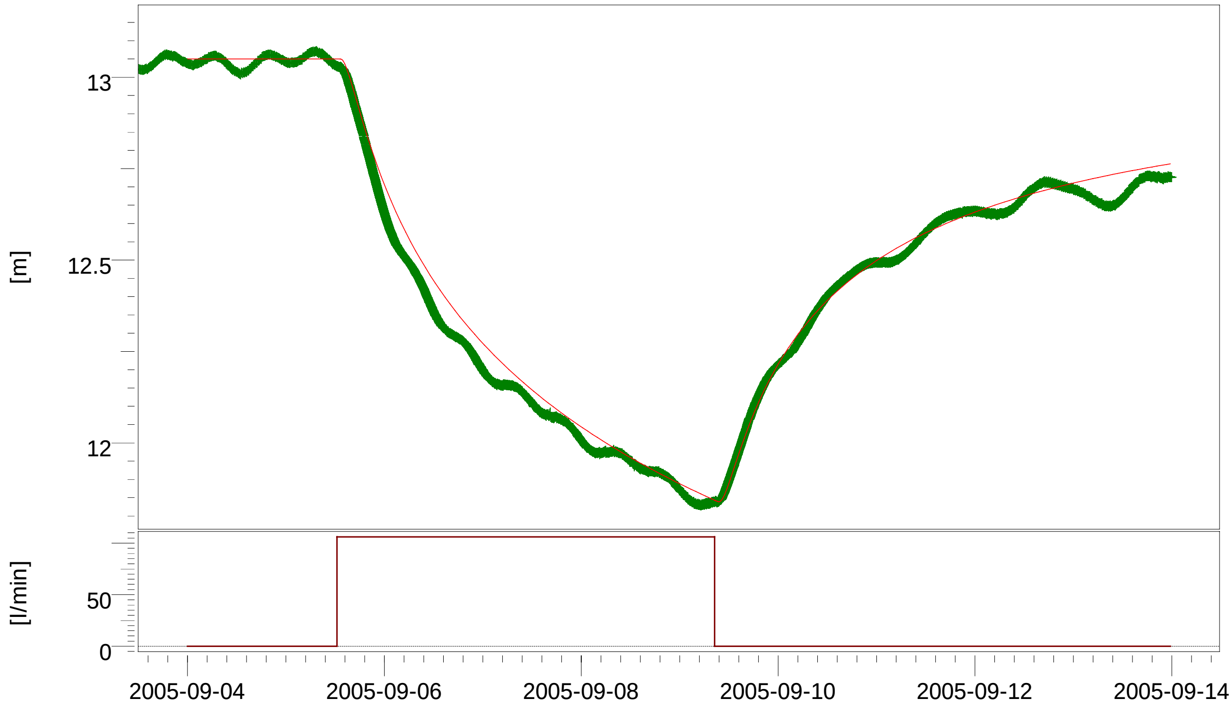
Reservoir & Boundary parameters

Pi	13.05 m
T	3.03E-4 m2/s
K	1.61E-6 m/s
S	9.33E-5

Derived & Secondary Parameters

Rinv	1850 m
Test. Vol.	235.91 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX13 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX13obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	11.838 m
Pi	13.05 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.5E-5 [sec]-1
PMatch	1.02 [m]-1
S	1.1E-4
T	2.86E-4 m2/s
K	1.52E-6 m/s
Pi	13.05 m
Well distance	417 m

Model Parameters

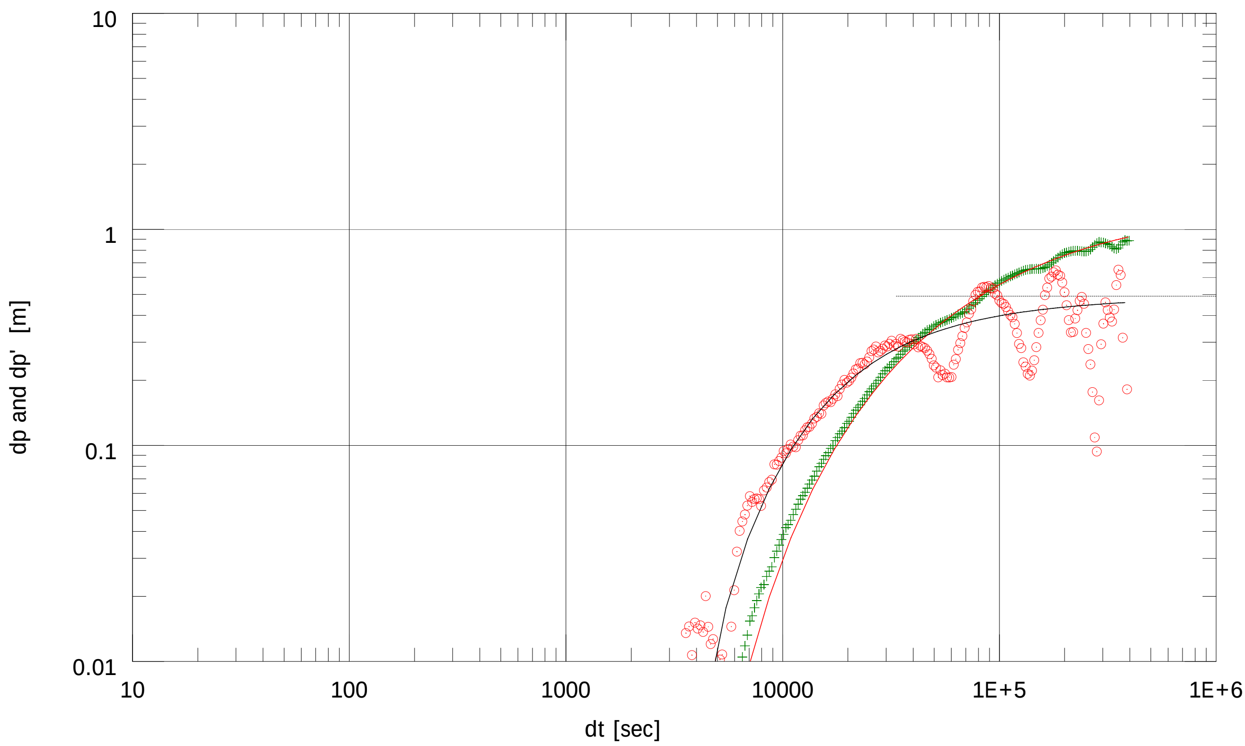
Reservoir & Boundary parameters

Pi	13.05 m
T	2.86E-4 m2/s
K	1.52E-6 m/s
S	1.1E-4

Derived & Secondary Parameters

Rinv	1820 m
Test. Vol.	267.587 MMm3

	Log-Log plot	Bu1
	Company Svensk Kärnbränslehantering AB Well HLX13 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX13obs build-up #1

Rate 0 l/min
Rate change 106 l/min
P@dt=0 11.838 m
Pi 13.05 m
Smoothing 0.1

Selected Model

Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters

TMatch 1.5E-5 [sec]-1
PMatch 1.02 [m]-1
S 1.1E-4
T 2.86E-4 m2/s
K 1.52E-6 m/s
Pi 13.05 m
Well distance 417 m

Model Parameters

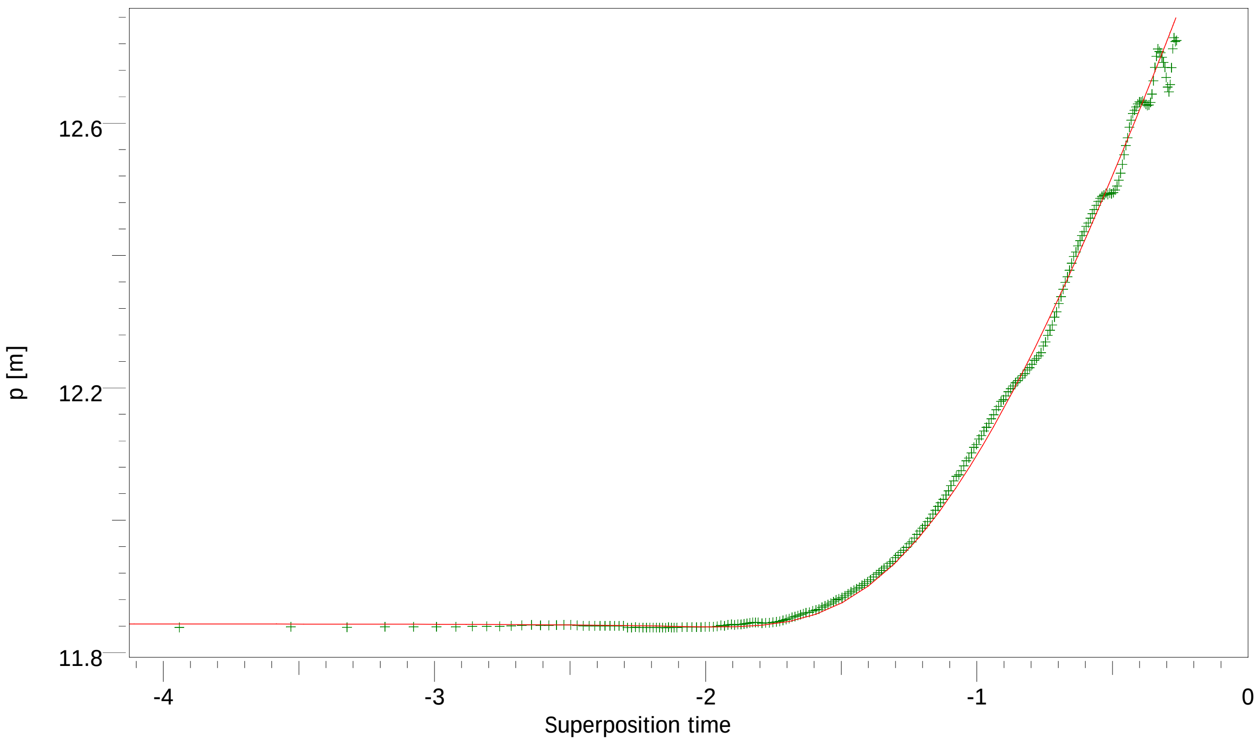
Reservoir & Boundary parameters

Pi 13.05 m
T 2.86E-4 m2/s
K 1.52E-6 m/s
S 1.1E-4

Derived & Secondary Parameters

Rinv 1820 m
Test. Vol. 267.587 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX13 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX13obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	11.838 m
Pi	13.05 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.5E-5 [sec]-1
PMatch	1.02 [m]-1
S	1.1E-4
T	2.86E-4 m2/s
K	1.52E-6 m/s
Pi	13.05 m
Well distance	417 m

Model Parameters

Reservoir & Boundary parameters

Pi	13.05 m
T	2.86E-4 m2/s
K	1.52E-6 m/s
S	1.1E-4

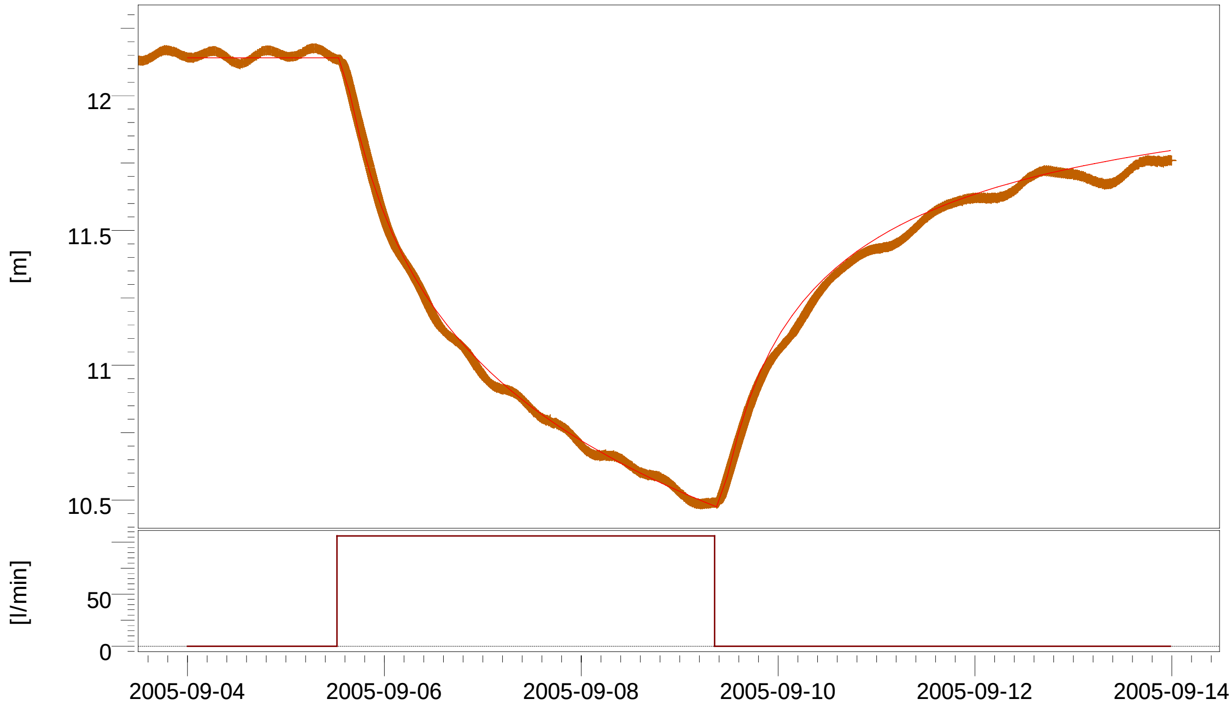
Derived & Secondary Parameters

Rinv	1820 m
Test. Vol.	267.587 MMm3

Main Results	Bu1
Company Svensk Kärnbränslehantering AB Well HLX13 Observation	Field Laxemar Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	11.87 - 202.02m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	417 m
Well Radius rw	0.0695 m
Pay Zone h	188.15 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.5E-5 [sec]-1
PMatch	1.02 [m]-1
S	1.1E-4
T	2.86E-4 m2/s
K	1.52E-6 m/s
Pi	13.05 m
Well distance	417 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	13.05 m
T	2.86E-4 m2/s
K	1.52E-6 m/s
S	1.1E-4
Derived & Secondary Parameters	
Rinv	1820 m
Test. Vol.	267.587 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX14:1 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX14:1obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	12.1331 m
Pi	12.14 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.26E-5 [sec]-1
PMatch	0.859 [m]-1
S	6.72E-5
T	2.41E-4 m2/s
K	2.3E-6 m/s
Pi	12.14 m
Well distance	398 m

Model Parameters

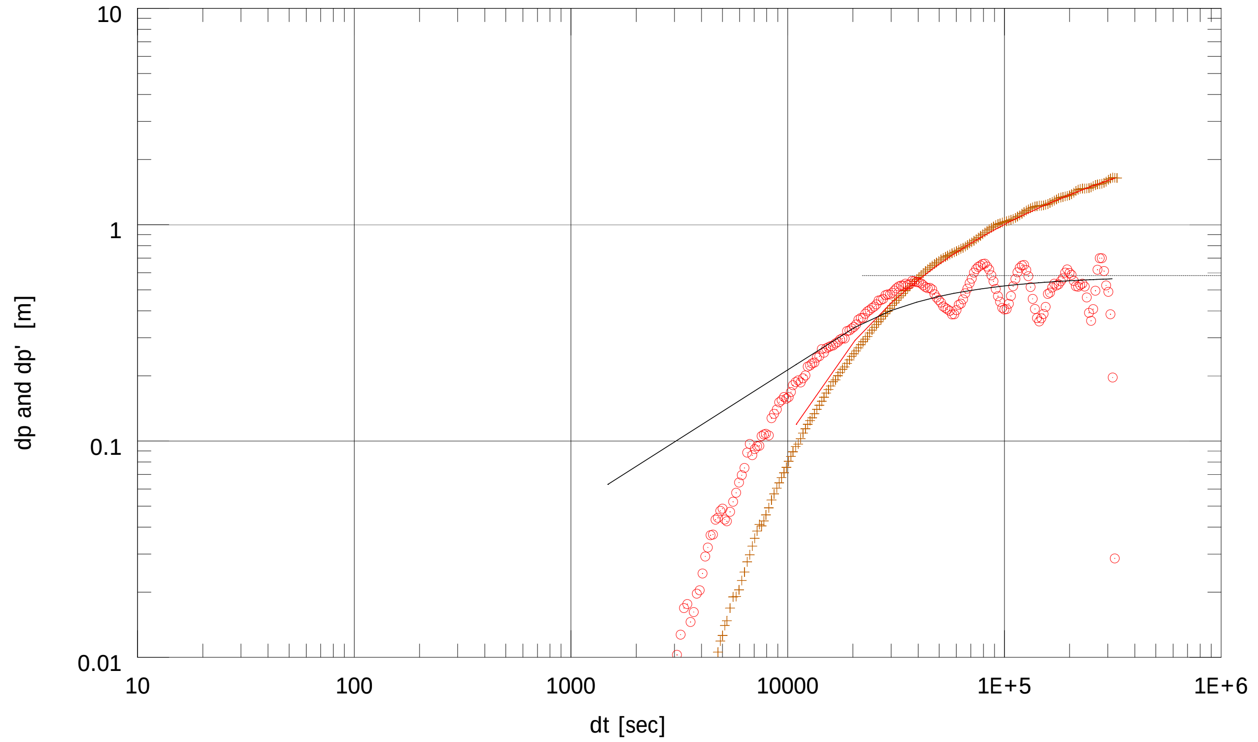
Reservoir & Boundary parameters

Pi	12.14 m
T	2.41E-4 m2/s
K	2.3E-6 m/s
S	6.72E-5

Derived & Secondary Parameters

Rinv	1950 m
Test. Vol.	187.758 MMm3

SKB	Log-Log plot	Dd1
	Company Svensk Kärnbränslehantering AB Well HLX14:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX14:1obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	12.1331 m
Pi	12.14 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.26E-5 [sec]-1
PMatch	0.859 [m]-1
S	6.72E-5
T	2.41E-4 m2/s
K	2.3E-6 m/s
Pi	12.14 m
Well distance	398 m

Model Parameters

Reservoir & Boundary parameters

Pi	12.14 m
T	2.41E-4 m2/s
K	2.3E-6 m/s
S	6.72E-5

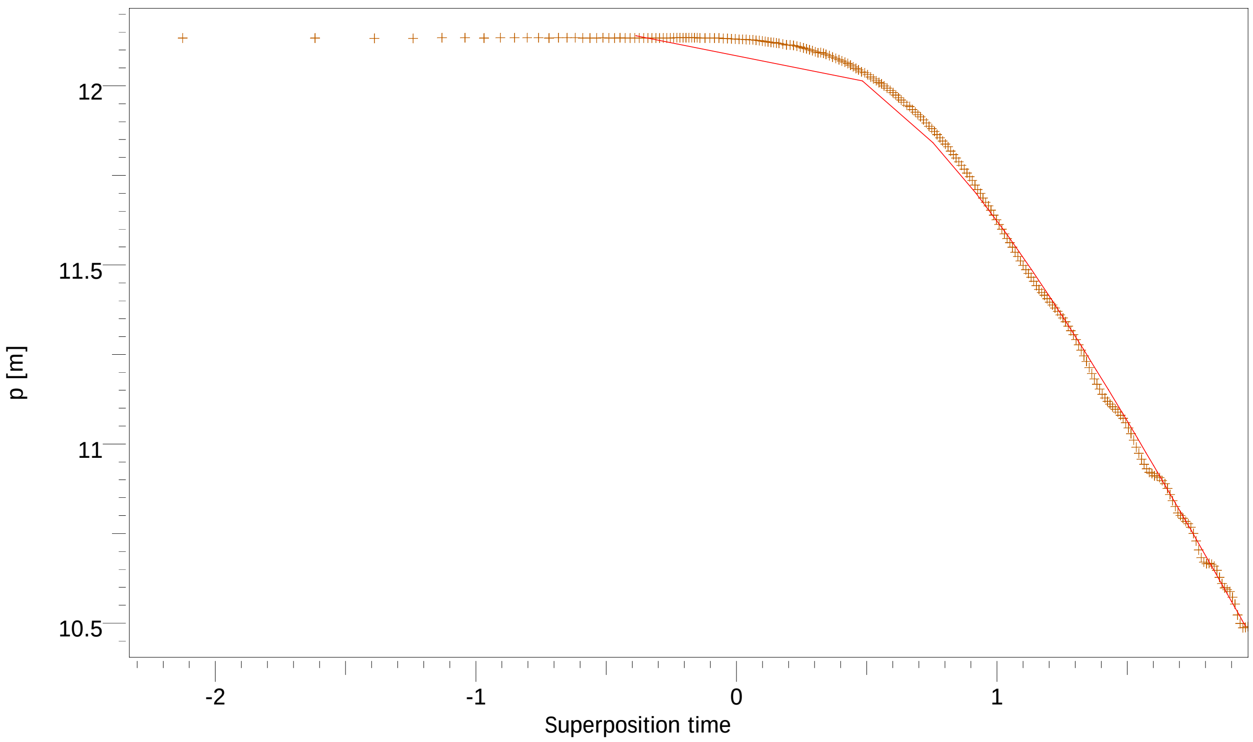
Derived & Secondary Parameters

Rinv	1950 m
Test. Vol.	187.758 MMm3

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX14:1 Observation

Field Laxemar
Test Name / # Interference test HLX30



HLX14:1obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	12.1331 m
Pi	12.14 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.26E-5 [sec]-1
PMatch	0.859 [m]-1
S	6.72E-5
T	2.41E-4 m2/s
K	2.3E-6 m/s
Pi	12.14 m
Well distance	398 m

Model Parameters
Reservoir & Boundary parameters

Pi	12.14 m
T	2.41E-4 m2/s
K	2.3E-6 m/s
S	6.72E-5

Derived & Secondary Parameters

Rinv	1950 m
Test. Vol.	187.758 MMm3

Main Results	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX14:1 Observation — Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	11.00 -115.90m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	398.4 m
Well Radius rw	0.0695 m
Pay Zone h	104.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.26E-5 [sec]-1
PMatch	0.859 [m]-1
S	6.72E-5
T	2.41E-4 m2/s
K	2.3E-6 m/s
Pi	12.14 m
Well distance	398 m

Model Parameters

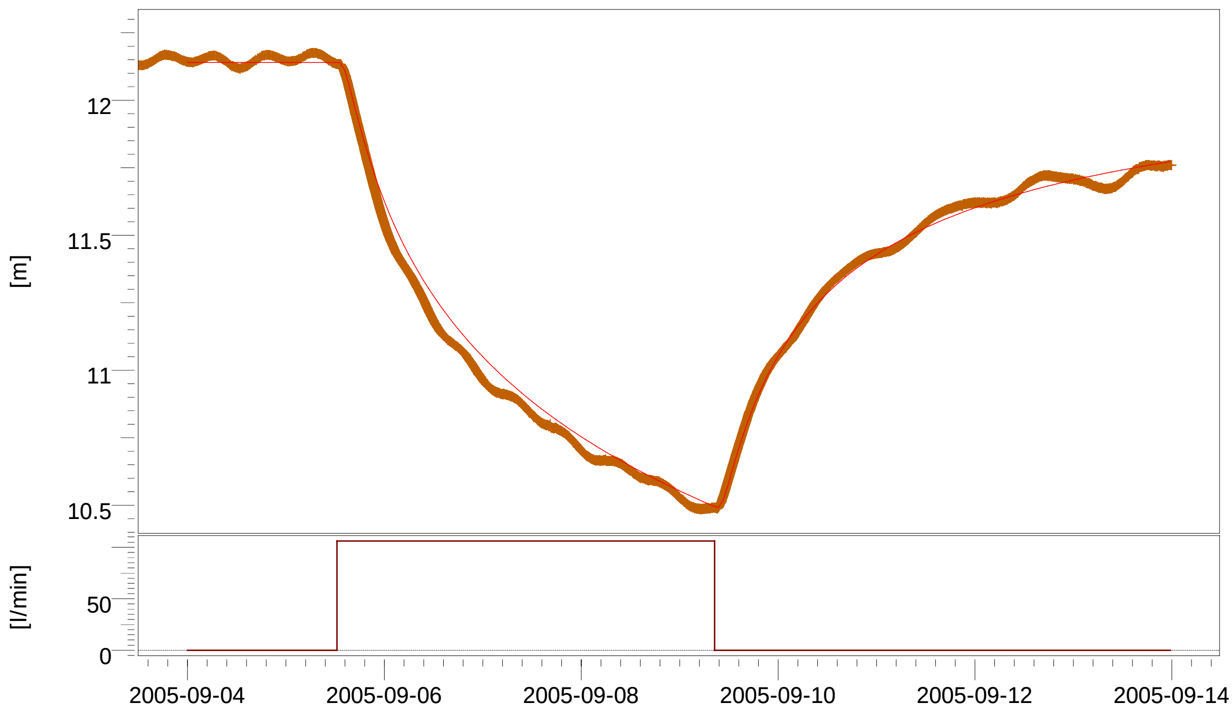
Reservoir & Boundary parameters

Pi	12.14 m
T	2.41E-4 m2/s
K	2.3E-6 m/s
S	6.72E-5

Derived & Secondary Parameters

Rinv	1950 m
Test. Vol.	187.758 MMm3

	History plot	Bu1
	Company Svensk Kärnbränslehantering AB Well HLX14:1 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX14:1obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 10.4902 m
Pi 12.14 m
Smoothing 0.1

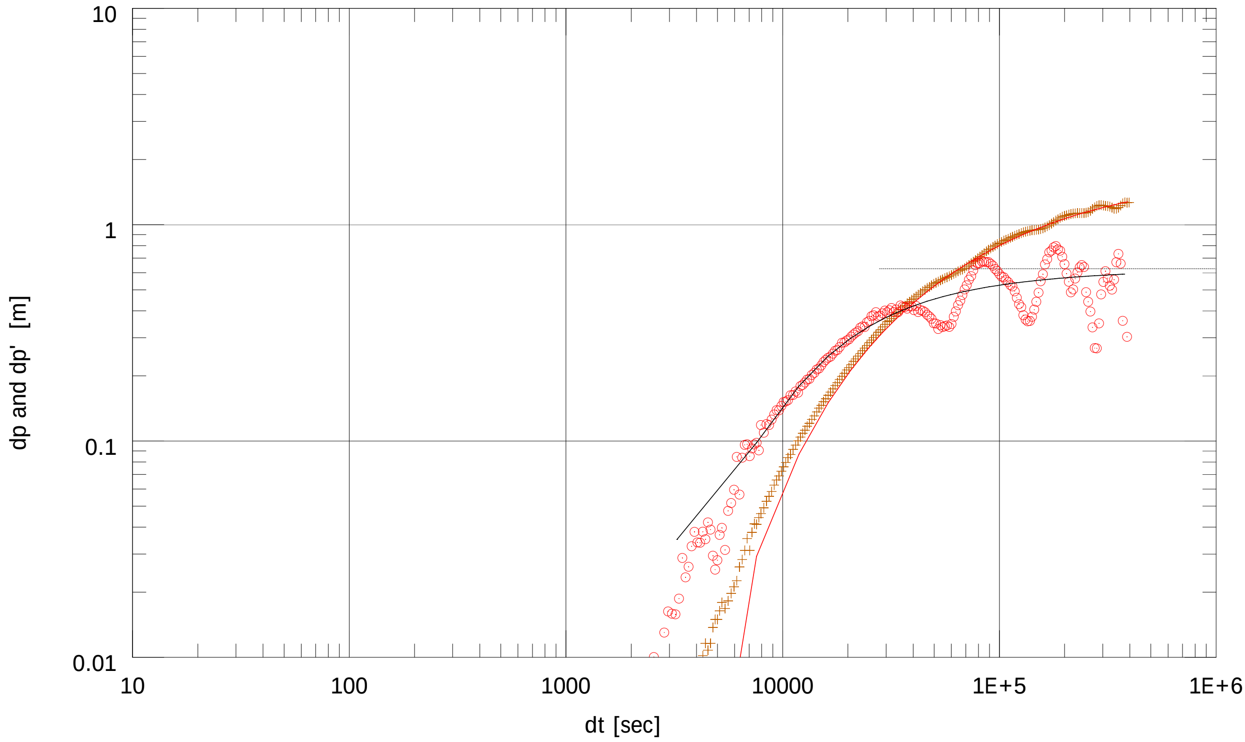
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.79E-5 [sec]-1
PMatch 0.799 [m]-1
S 7.91E-5
T 2.24E-4 m2/s
K 2.14E-6 m/s
Pi 12.14 m
Well distance 398 m

Model Parameters
Reservoir & Boundary parameters
Pi 12.14 m
T 2.24E-4 m2/s
K 2.14E-6 m/s
S 7.91E-5

Derived & Secondary Parameters
Rinv 1900 m
Test. Vol. 209.787 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX14:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX14:1obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 10.4902 m
Pi 12.14 m
Smoothing 0.1

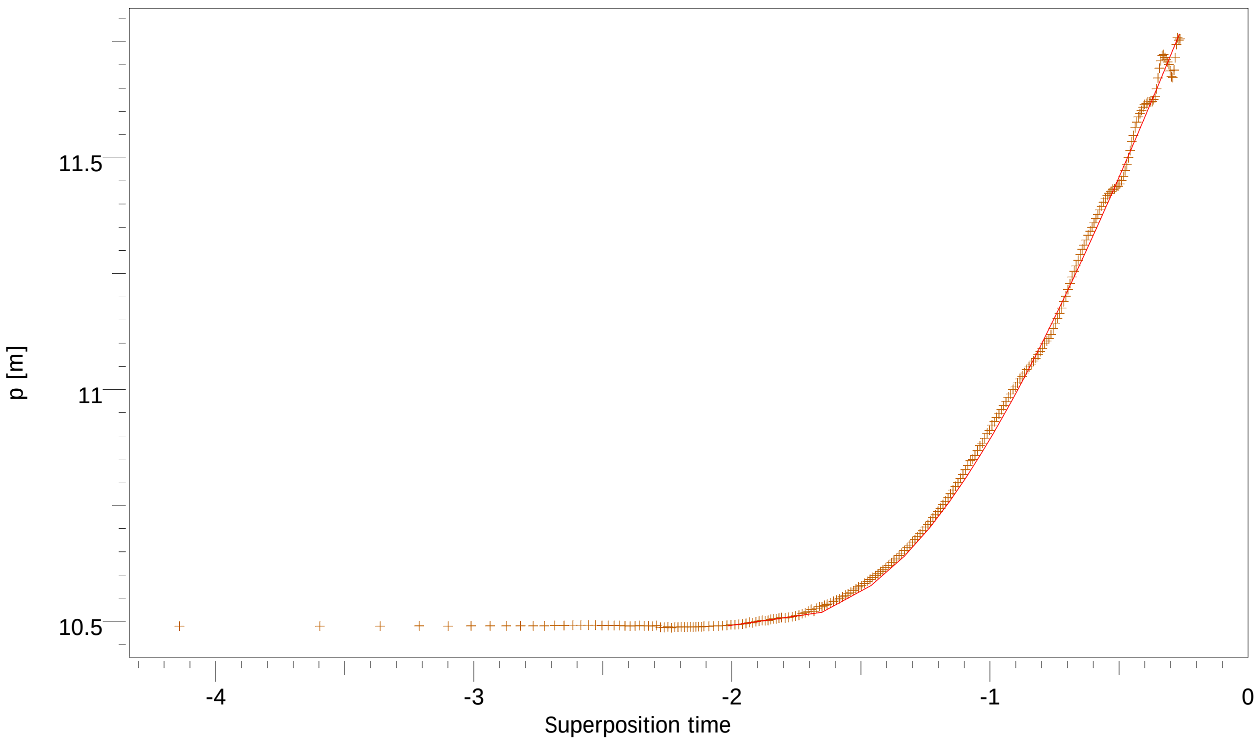
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.79E-5 [sec]-1
PMatch 0.799 [m]-1
S 7.91E-5
T 2.24E-4 m2/s
K 2.14E-6 m/s
Pi 12.14 m
Well distance 398 m

Model Parameters
Reservoir & Boundary parameters
Pi 12.14 m
T 2.24E-4 m2/s
K 2.14E-6 m/s
S 7.91E-5

Derived & Secondary Parameters
Rinv 1900 m
Test. Vol. 209.787 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX14:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX14:1obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	10.4902 m
Pi	12.14 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.79E-5 [sec]-1
PMatch	0.799 [m]-1
S	7.91E-5
T	2.24E-4 m2/s
K	2.14E-6 m/s
Pi	12.14 m
Well distance	398 m

Model Parameters
Reservoir & Boundary parameters

Pi	12.14 m
T	2.24E-4 m2/s
K	2.14E-6 m/s
S	7.91E-5

Derived & Secondary Parameters

Rinv	1900 m
Test. Vol.	209.787 MMm3

Test date / time	2005-09-04
Formation interval	11.00 -115.90m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	398.4 m
Well Radius rw	0.0695 m
Pay Zone h	104.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.79E-5 [sec]-1
PMatch	0.799 [m]-1
S	7.91E-5
T	2.24E-4 m2/s
K	2.14E-6 m/s
Pi	12.14 m
Well distance	398 m

Model Parameters

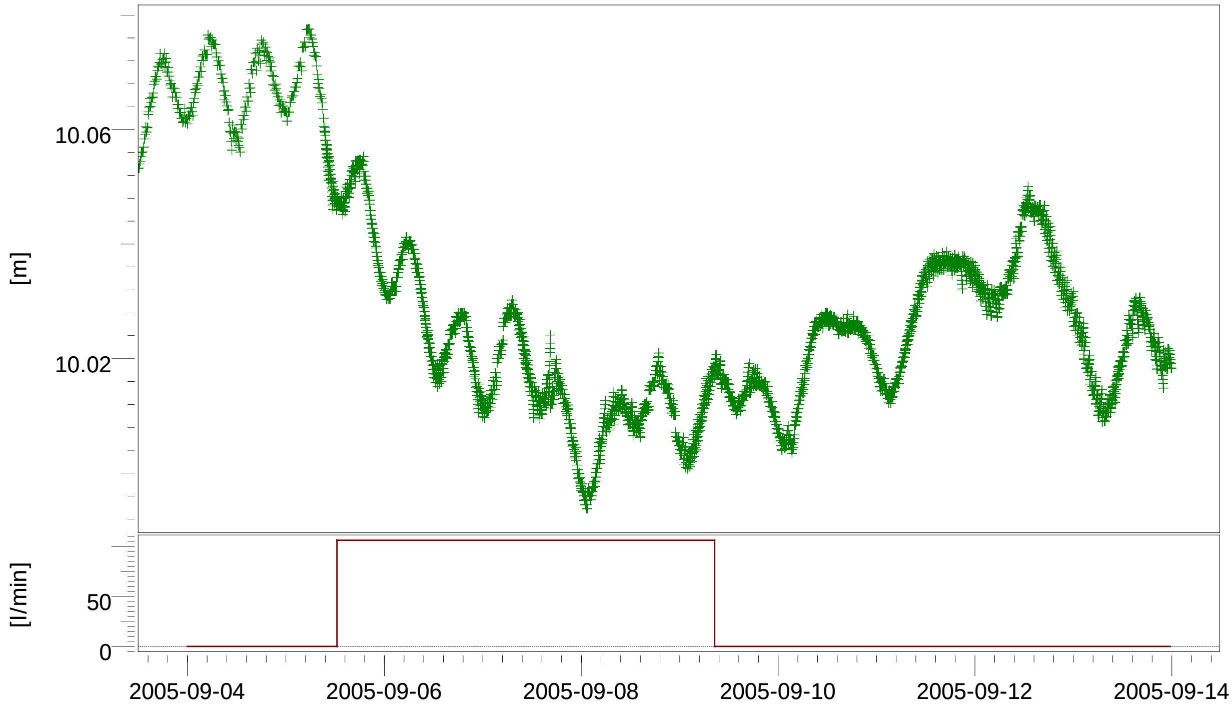
Reservoir & Boundary parameters

Pi	12.14 m
T	2.24E-4 m2/s
K	2.14E-6 m/s
S	7.91E-5

Derived & Secondary Parameters

Rinv	1900 m
Test. Vol.	209.787 MMm3

History plot	Analysis 1
Company Svensk Kärnbränslehantering AB Well HLX23:1 Observation	Field Laxemar Test Name / # Interference test HLX30



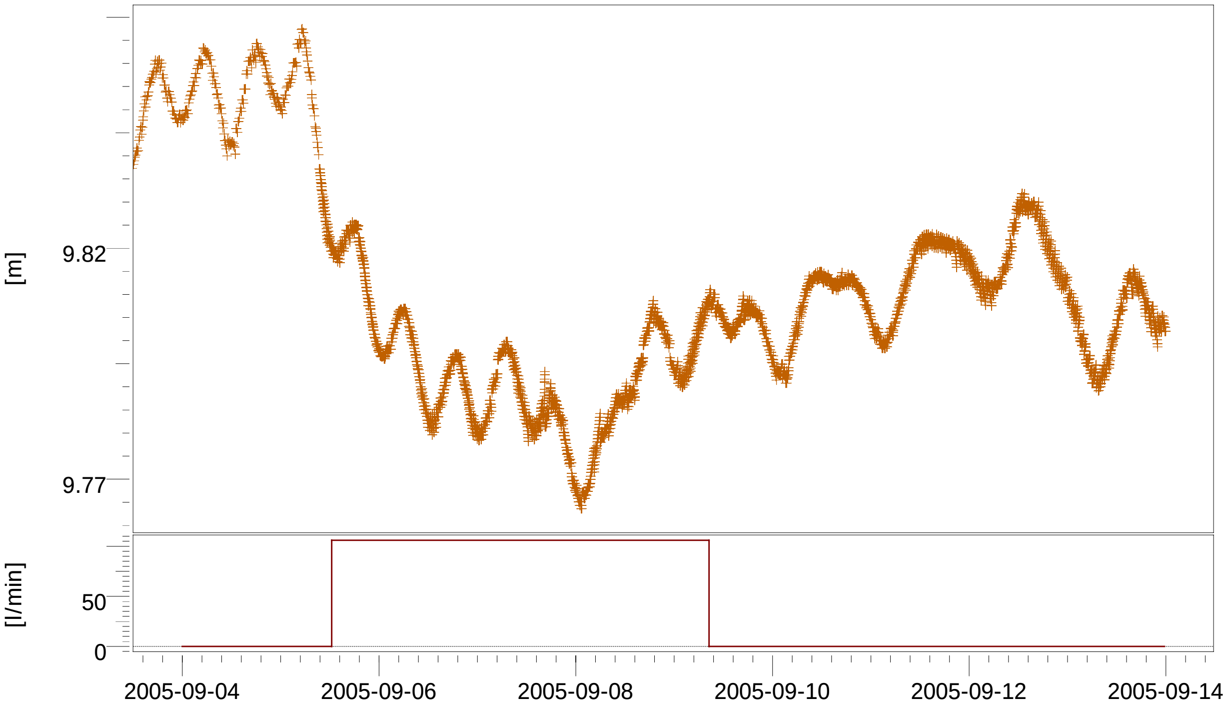
Pressure [m], Liquid Rate [l/min] vs Time [ToD]

Main Results	Analysis 1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX23:1 Observation	Test Name / #	Interference test HLX30

Test date / time	2005-09-04
Formation interval	61.00 - 160.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	50 m
Well Radius rw	0.0695 m
Pay Zone h	99.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

History plot	Analysis 1
Company Svensk Kärnbränslehantering AB Well HLX23:2 Observation	Field Laxemar Test Name / # Interference test HLX30



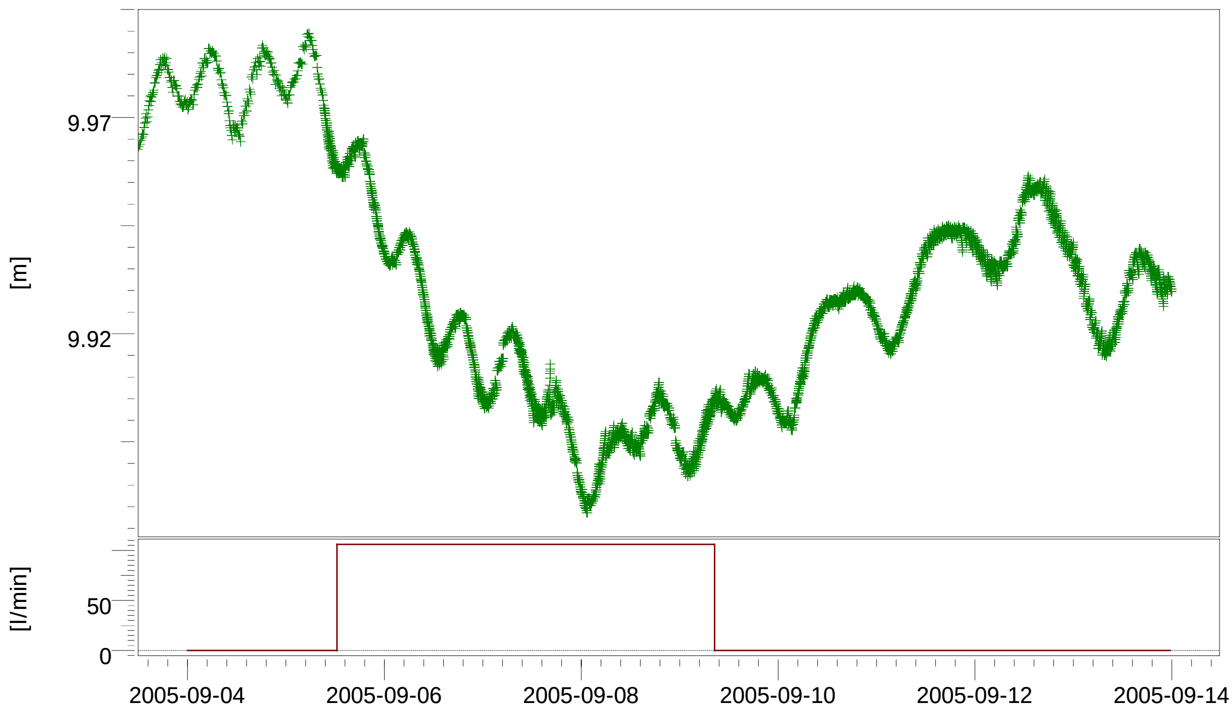
Pressure [m], Liquid Rate [l/min] vs Time [ToD]

Main Results	Analysis 1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX23:2 Observation	Test Name / #	Interference test HLX30

Test date / time	2005-09-04
Formation interval	6 - 60m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	50 m
Well Radius rw	0.0695 m
Pay Zone h	99.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

History plot	Analysis 1
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation	Field Laxemar Test Name / # Interference test HLX30

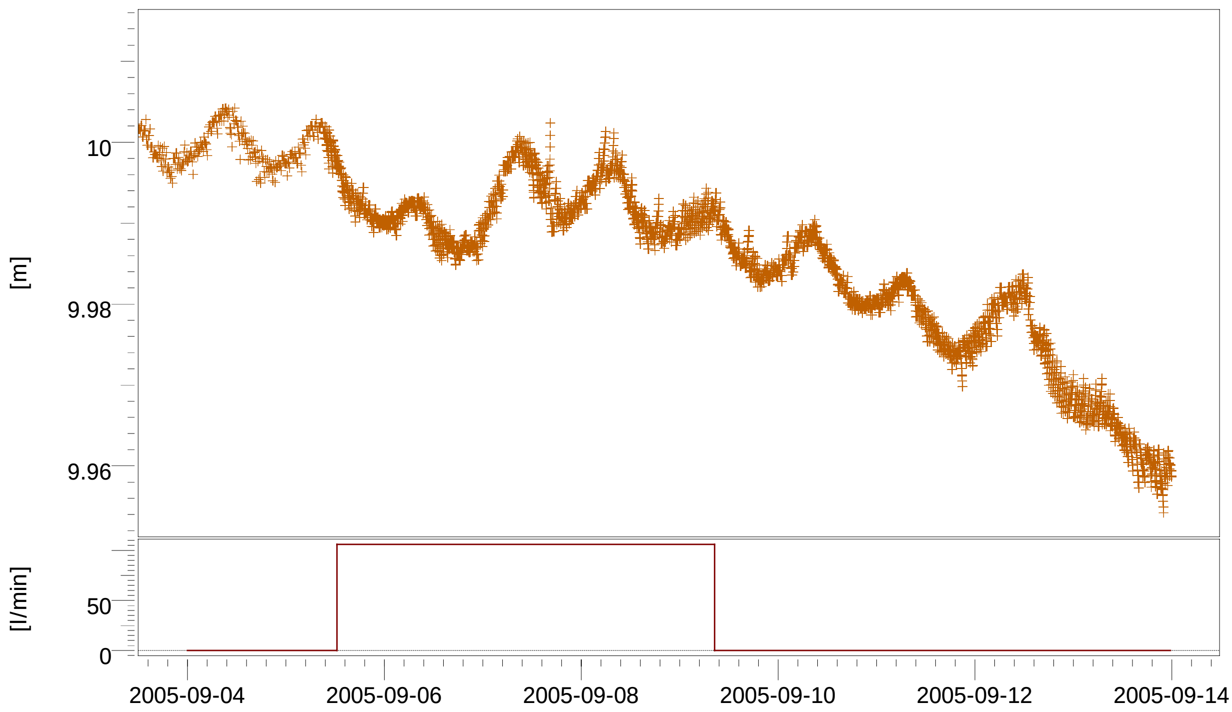


Pressure [m], Liquid Rate [l/min] vs Time [ToD]

Main Results	Analysis 1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well HLX24:1 Observation	Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	41.00 - 175.20m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	50 m
Well Radius rw	0.0695 m
Pay Zone h	30.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

History plot	Analysis 1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # Interference test HLX30

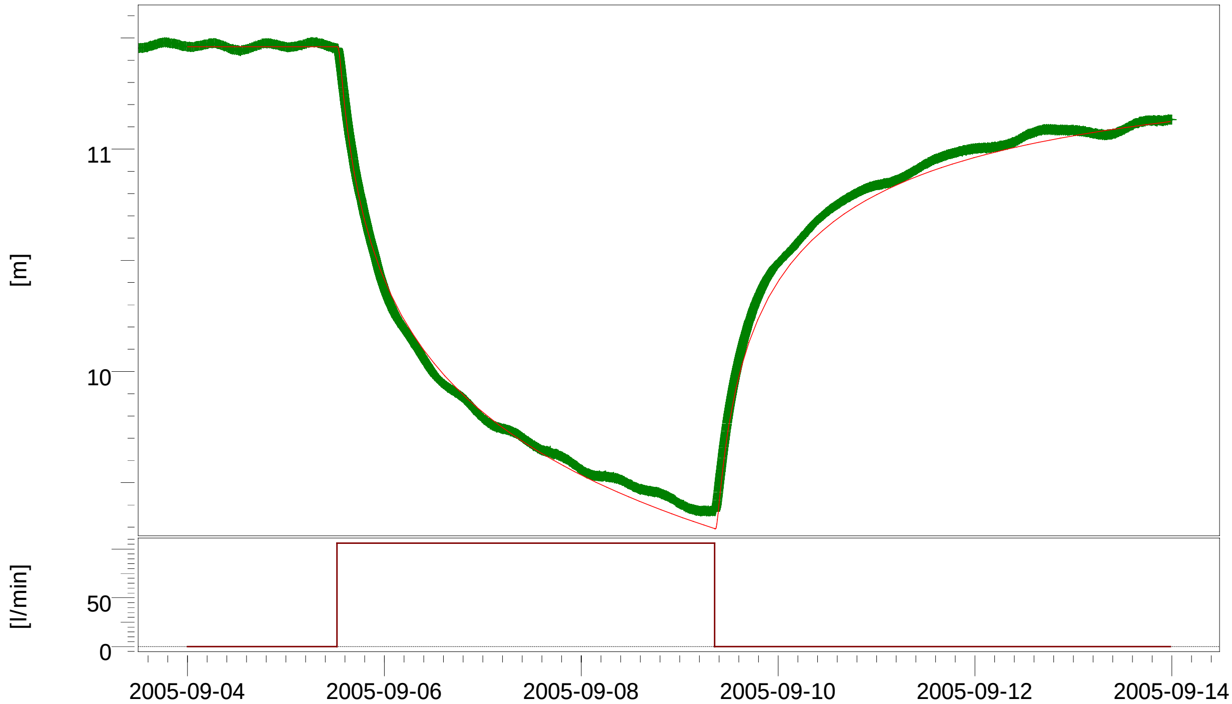


Pressure [m], Liquid Rate [l/min] vs Time [ToD]

Main Results	Analysis 1
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation	Field Laxemar Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	9.10 - 40.00m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	50 m
Well Radius rw	0.0695 m
Pay Zone h	30.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX25:1 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX25:1obs production #1
Rate 106 l/min
Rate change 106 l/min
P@dt=0 11.4521 m
Pi 11.46 m
Smoothing 0.1

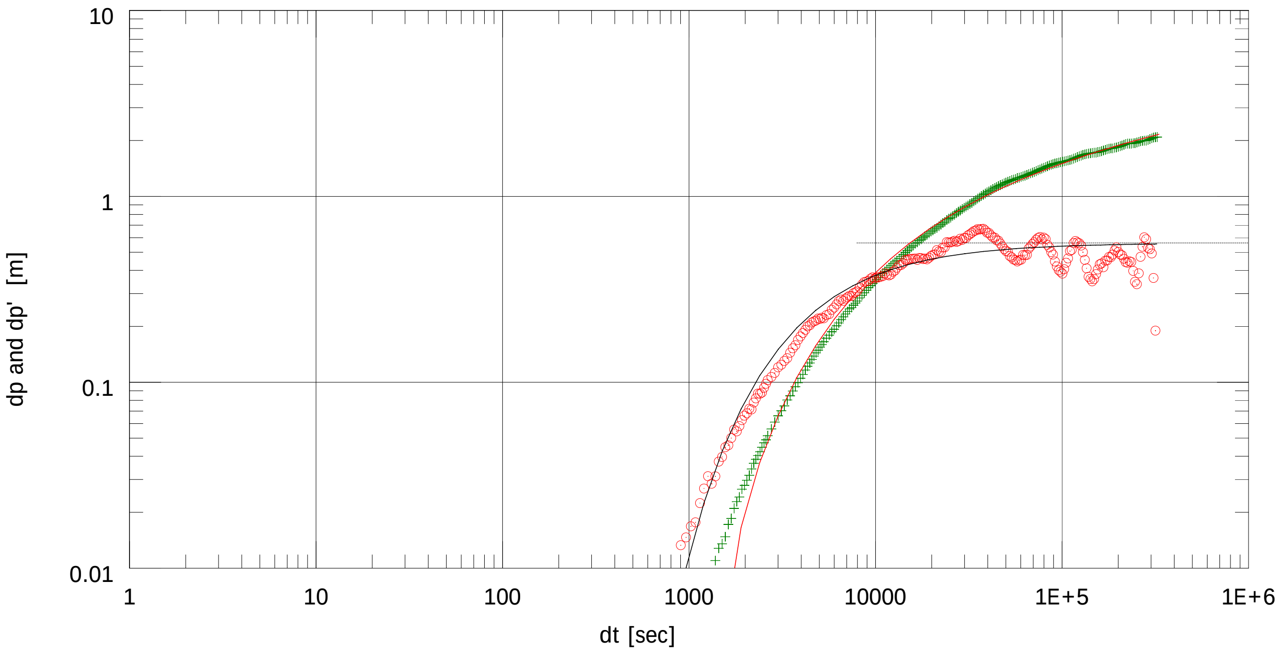
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 6.3E-5 1/sec
PMatch 0.891 1/m
S 4.55E-5
T 2.5E-4 m2/s
K 1.77E-6 m/s
Pi 11.46 m
Well distance 295 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.46 m
T 2.5E-4 m2/s
K 1.77E-6 m/s
S 4.55E-5

Derived & Secondary Parameters
Rinv 2380 m
Test. Vol. 190.785 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX25:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX25:1obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.4521 m
Pi	11.46 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.3E-5 1/sec
PMatch	0.891 1/m
S	4.55E-5
T	2.5E-4 m2/s
K	1.77E-6 m/s
Pi	11.46 m
Well distance	295 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.46 m
T	2.5E-4 m2/s
K	1.77E-6 m/s
S	4.55E-5

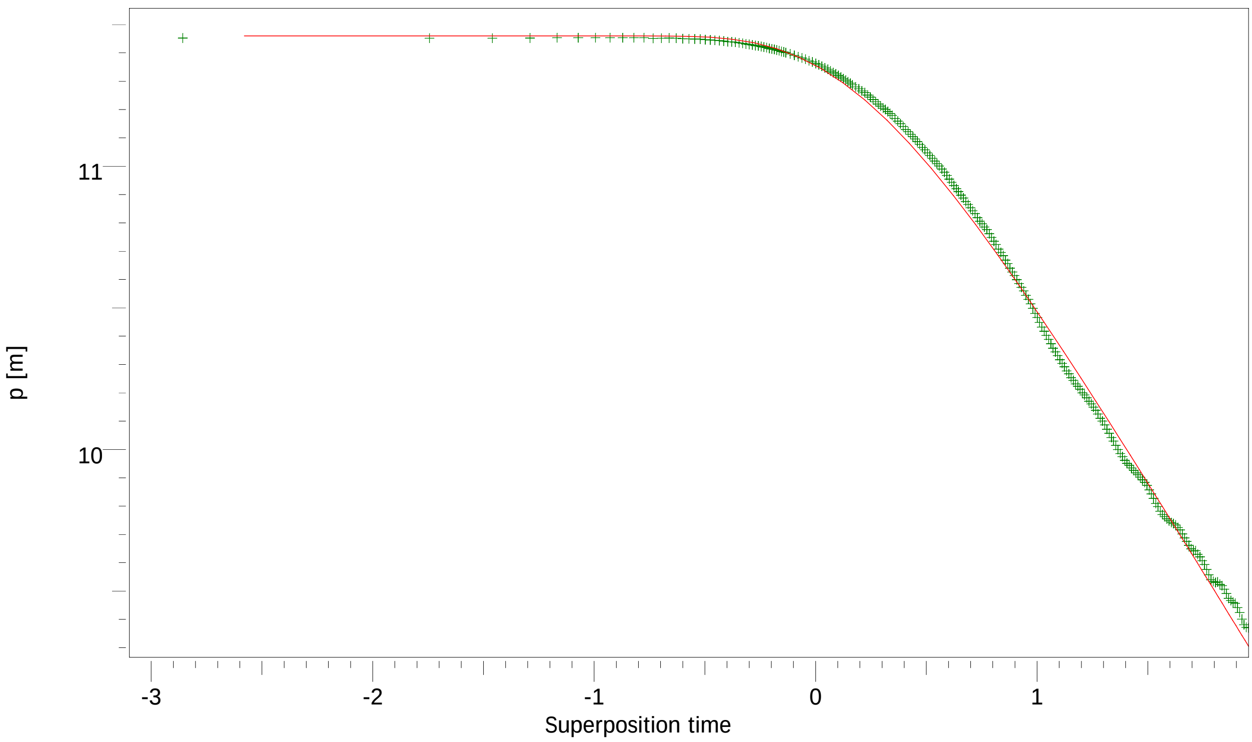
Derived & Secondary Parameters

Rinv	2380 m
Test. Vol.	190.785 MMm3

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX25:1 Observation

Field Laxemar
Test Name / # Interference test HLX30



HLX25:1obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.4521 m
Pi	11.46 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.3E-5 1/sec
PMatch	0.891 1/m
S	4.55E-5
T	2.5E-4 m2/s
K	1.77E-6 m/s
Pi	11.46 m
Well distance	295 m

Model Parameters
Reservoir & Boundary parameters

Pi	11.46 m
T	2.5E-4 m2/s
K	1.77E-6 m/s
S	4.55E-5

Derived & Secondary Parameters

Rinv	2380 m
Test. Vol.	190.785 MMm3

Main Results	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX25:1 Observation

Field Laxemar
Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	61.00 - 202.50m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	295.4 m
Well Radius rw	0.0695 m
Pay Zone h	141.5 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.3E-5 1/sec
PMatch	0.891 1/m
S	4.55E-5
T	2.5E-4 m2/s
K	1.77E-6 m/s
Pi	11.46 m
Well distance	295 m

Model Parameters

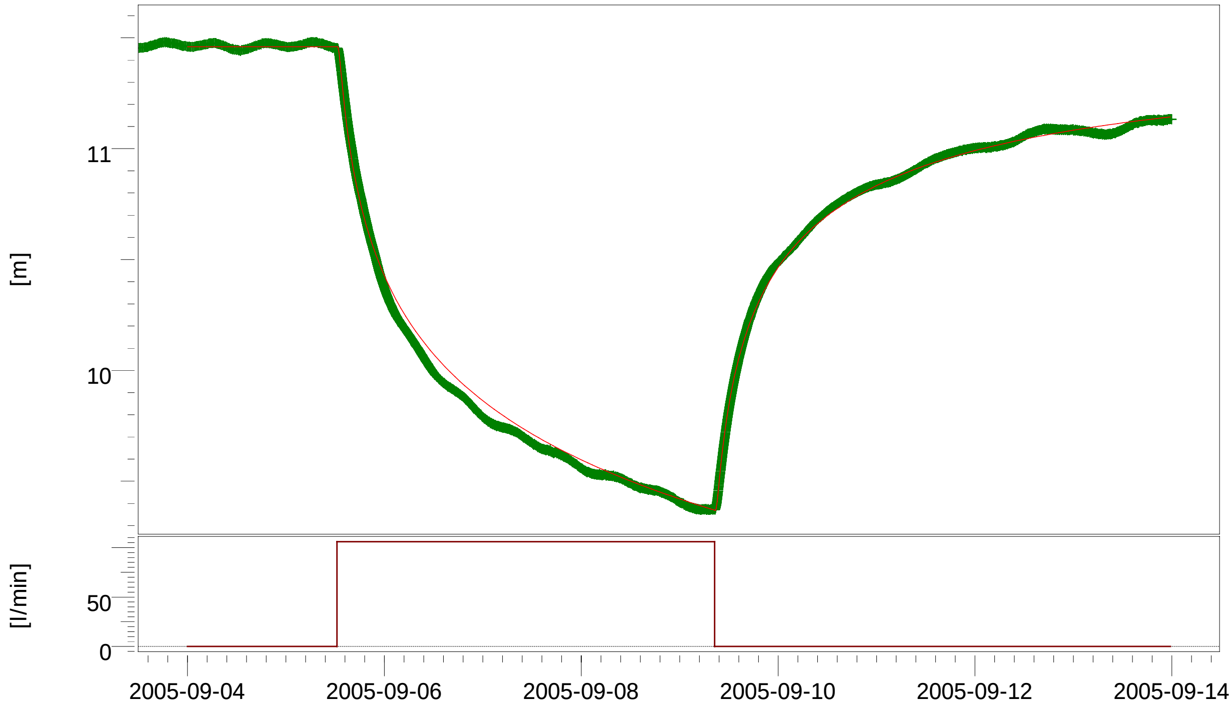
Reservoir & Boundary parameters

Pi	11.46 m
T	2.5E-4 m2/s
K	1.77E-6 m/s
S	4.55E-5

Derived & Secondary Parameters

Rinv	2380 m
Test. Vol.	190.785 MMm3

	History plot	Bu1
	Company Svensk Kärnbränslehantering AB Well HLX25:1 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX25:1obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	9.37197 m
Pi	11.46 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.95E-5 1/sec
PMatch	0.946 1/m
S	4.38E-5
T	2.66E-4 m2/s
K	1.88E-6 m/s
Pi	11.46 m
Well distance	295 m

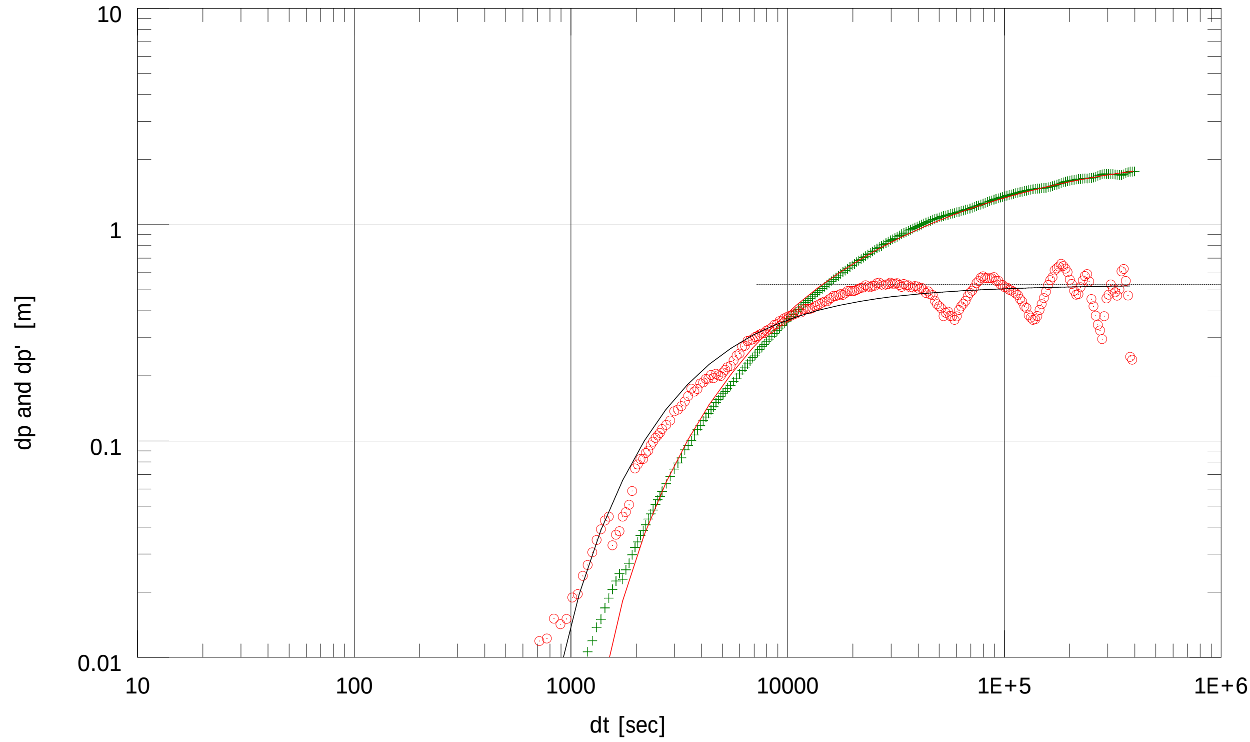
Model Parameters
Reservoir & Boundary parameters

Pi	11.46 m
T	2.66E-4 m2/s
K	1.88E-6 m/s
S	4.38E-5

Derived & Secondary Parameters

Rinv	2780 m
Test. Vol.	248.977 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX25:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX25:1obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 9.37197 m
Pi 11.46 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

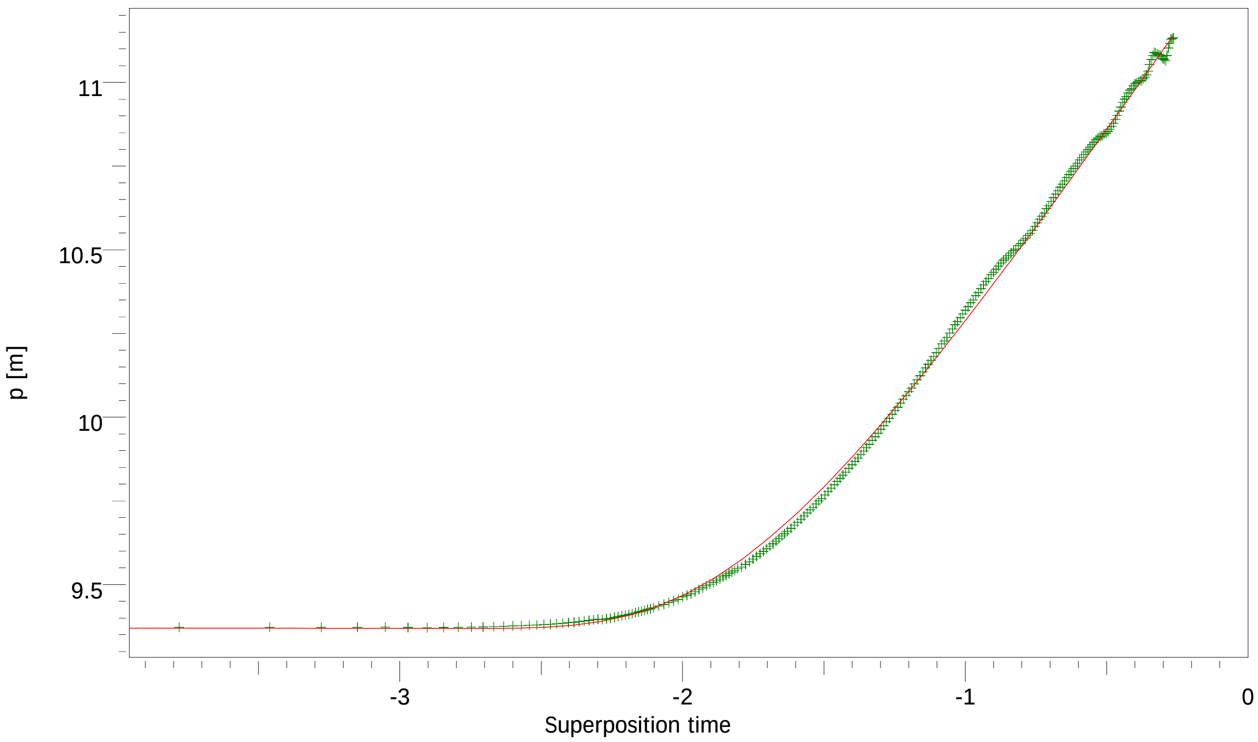
Main Model Parameters
TMatch 6.95E-5 1/sec
PMatch 0.946 1/m
S 4.38E-5
T 2.66E-4 m2/s
K 1.88E-6 m/s
Pi 11.46 m
Well distance 295 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.46 m
T 2.66E-4 m2/s
K 1.88E-6 m/s
S 4.38E-5

Derived & Secondary Parameters
Rinv 2780 m
Test. Vol. 248.977 MMm3

Semi-Log plot	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX25:1 Observation
Field Laxemar
Test Name / # Interference test HLX30



HLX25:1obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 9.37197 m
Pi 11.46 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 6.95E-5 1/sec
PMatch 0.946 1/m
S 4.38E-5
T 2.66E-4 m2/s
K 1.88E-6 m/s
Pi 11.46 m
Well distance 295 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.46 m
T 2.66E-4 m2/s
K 1.88E-6 m/s
S 4.38E-5

Derived & Secondary Parameters
Rinv 2780 m
Test. Vol. 248.977 MMm3

Main Results	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX25:1 Observation — Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	61.00 - 202.50m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	295.4 m
Well Radius rw	0.0695 m
Pay Zone h	141.5 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	6.95E-5 1/sec
PMatch	0.946 1/m
S	4.38E-5
T	2.66E-4 m2/s
K	1.88E-6 m/s
Pi	11.46 m
Well distance	295 m

Model Parameters

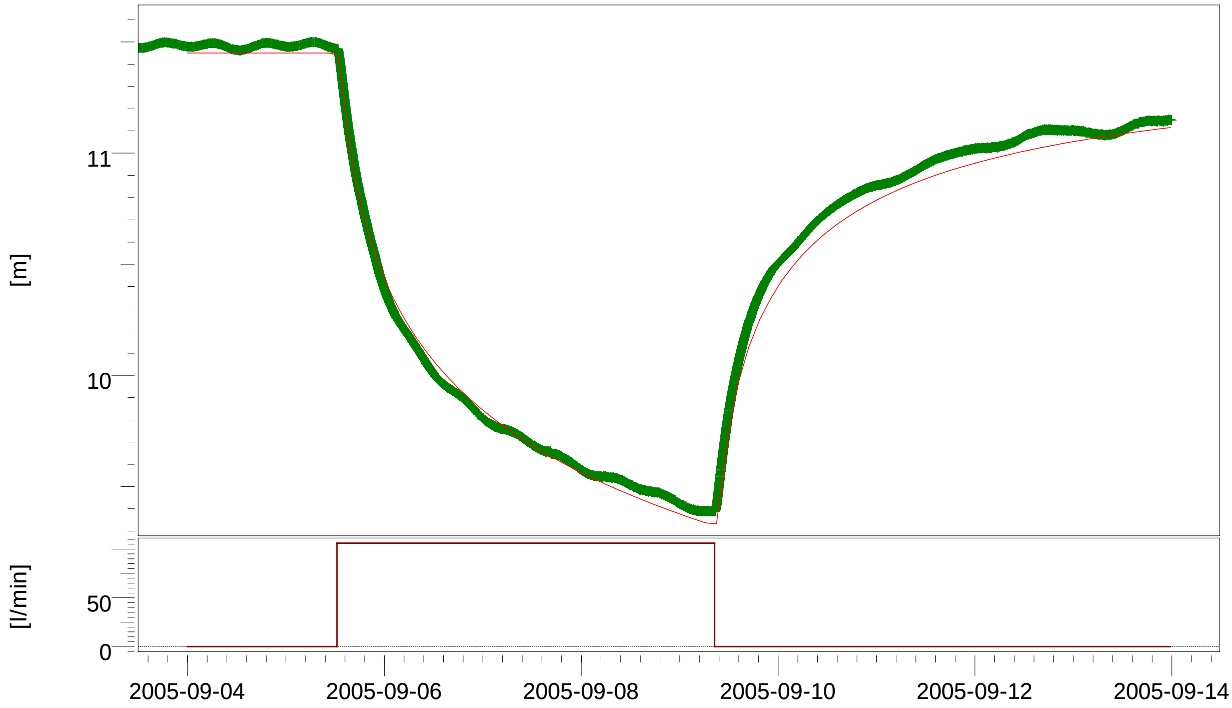
Reservoir & Boundary parameters

Pi	11.46 m
T	2.66E-4 m2/s
K	1.88E-6 m/s
S	4.38E-5

Derived & Secondary Parameters

Rinv	2780 m
Test. Vol.	248.977 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX25:2 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX25:2obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.4677 m
Pi	11.45 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.96E-5 1/sec
PMatch	0.894 1/m
S	4.33E-5
T	2.51E-4 m2/s
K	4.66E-6 m/s
Pi	11.45 m
Well distance	312 m

Model Parameters

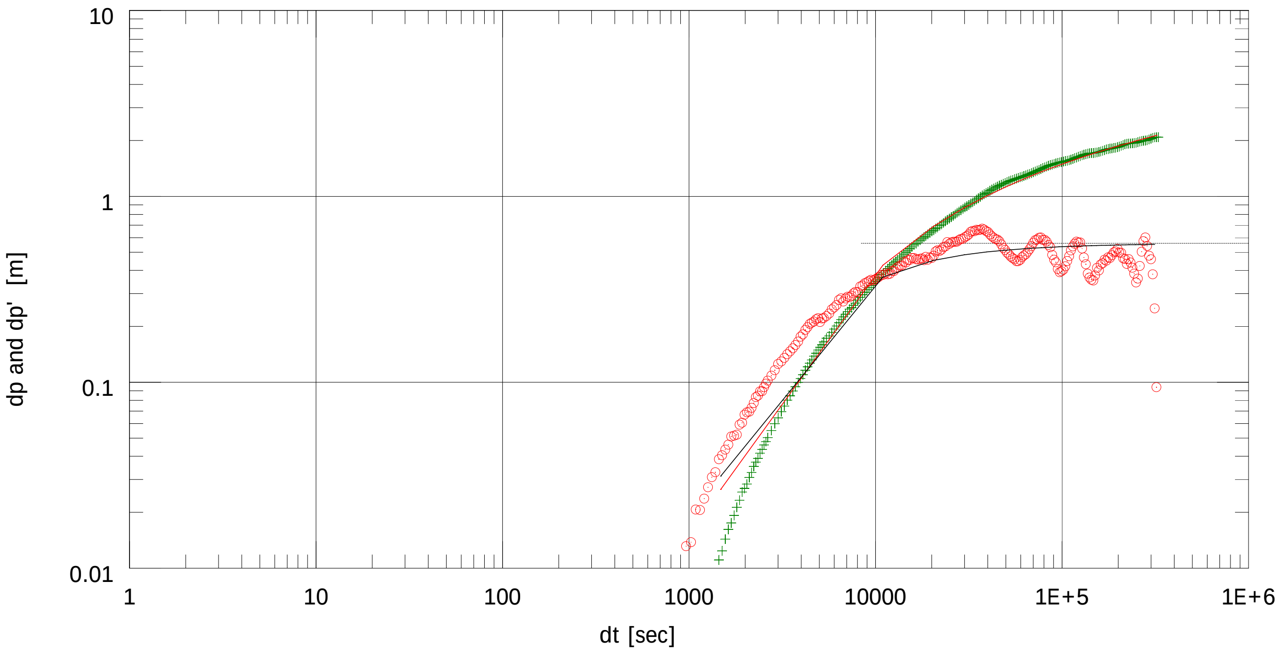
Reservoir & Boundary parameters

Pi	11.45 m
T	2.51E-4 m2/s
K	4.66E-6 m/s
S	4.33E-5

Derived & Secondary Parameters

Rinv	2460 m
Test. Vol.	194.031 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX25:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX25:2obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.4677 m
Pi	11.45 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.96E-5 1/sec
PMatch	0.894 1/m
S	4.33E-5
T	2.51E-4 m2/s
K	4.66E-6 m/s
Pi	11.45 m
Well distance	312 m

Model Parameters

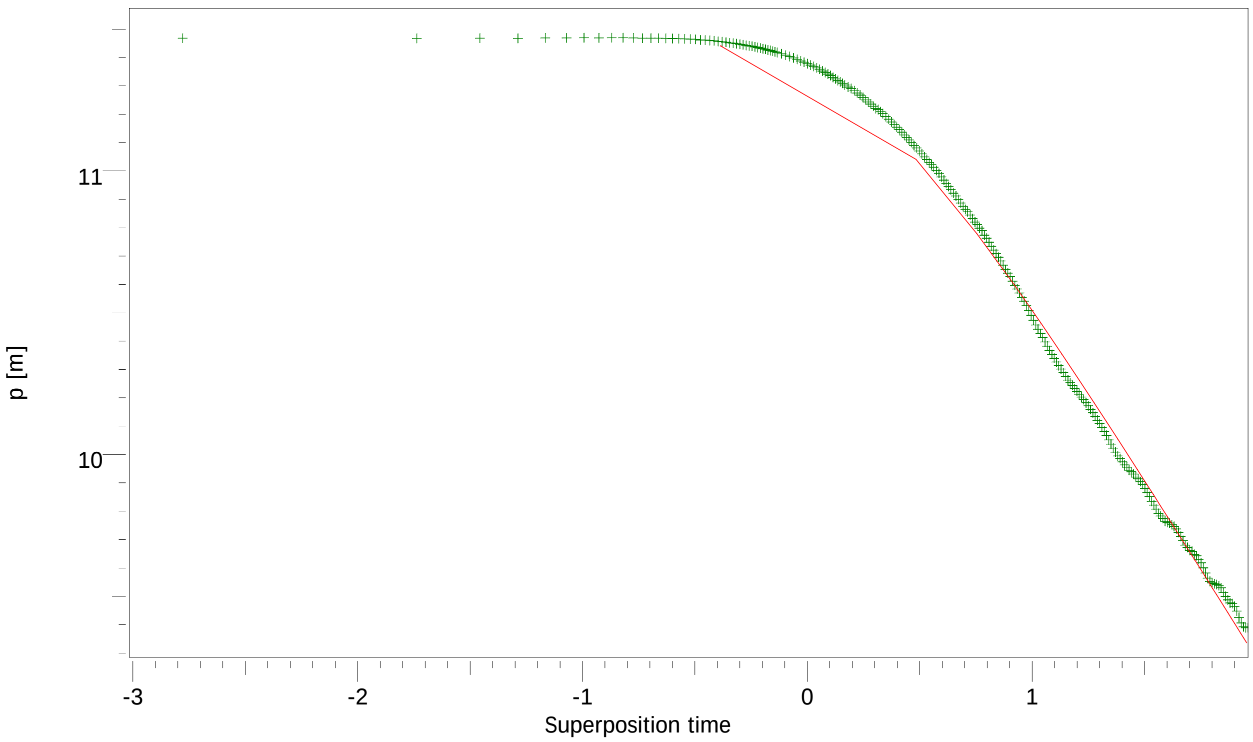
Reservoir & Boundary parameters

Pi	11.45 m
T	2.51E-4 m2/s
K	4.66E-6 m/s
S	4.33E-5

Derived & Secondary Parameters

Rinv	2460 m
Test. Vol.	194.031 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX25:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX25:2obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.4677 m
Pi	11.45 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.96E-5 1/sec
PMatch	0.894 1/m
S	4.33E-5
T	2.51E-4 m2/s
K	4.66E-6 m/s
Pi	11.45 m
Well distance	312 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.45 m
T	2.51E-4 m2/s
K	4.66E-6 m/s
S	4.33E-5

Derived & Secondary Parameters

Rinv	2460 m
Test. Vol.	194.031 MMm3

SKB	Main Results	Dd1
	Company Svensk Kärnbränslehantering AB Well HLX25:2 Observation	Field Laxemar Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	6.12 - 60.00m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	311.9 m
Well Radius rw	0.0695 m
Pay Zone h	53.88 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.96E-5 1/sec
PMatch	0.894 1/m
S	4.33E-5
T	2.51E-4 m2/s
K	4.66E-6 m/s
Pi	11.45 m
Well distance	312 m

Model Parameters

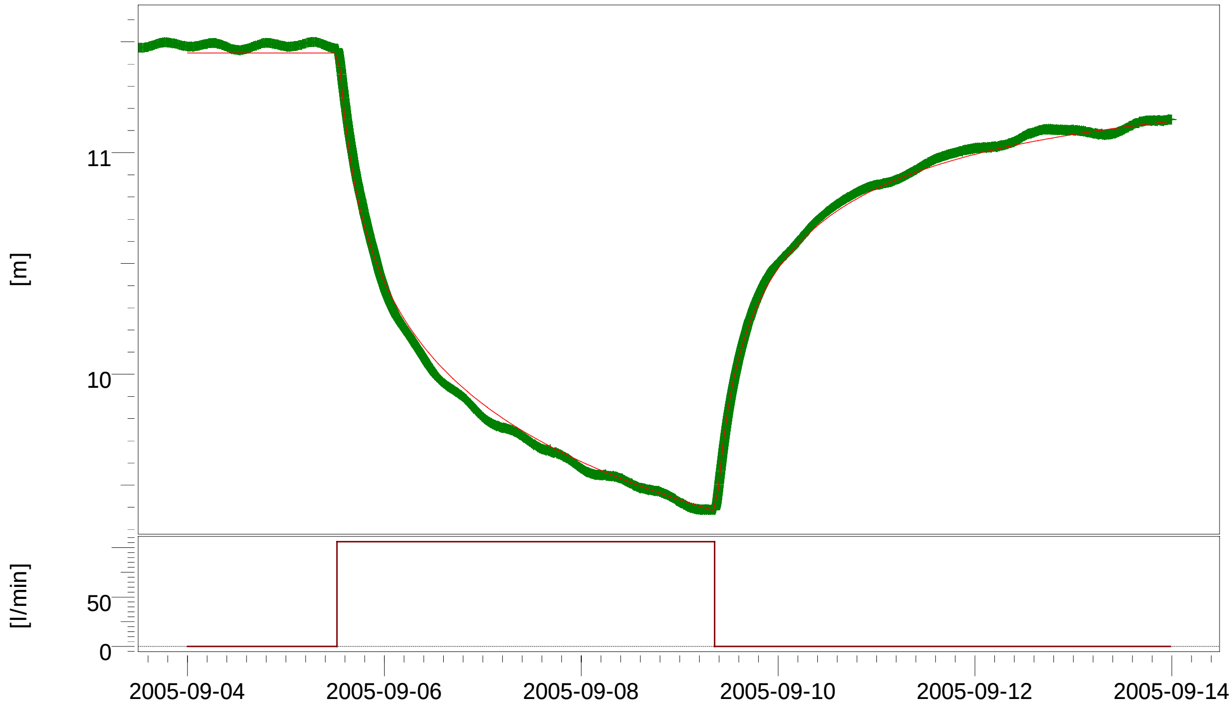
Reservoir & Boundary parameters

Pi	11.45 m
T	2.51E-4 m2/s
K	4.66E-6 m/s
S	4.33E-5

Derived & Secondary Parameters

Rinv	2460 m
Test. Vol.	194.031 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX25:2 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX25:2obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	9.38825 m
Pi	11.45 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	7.32E-5 1/sec
PMatch	0.97 1/m
S	3.83E-5
T	2.72E-4 m2/s
K	5.06E-6 m/s
Pi	11.45 m
Well distance	312 m

Model Parameters

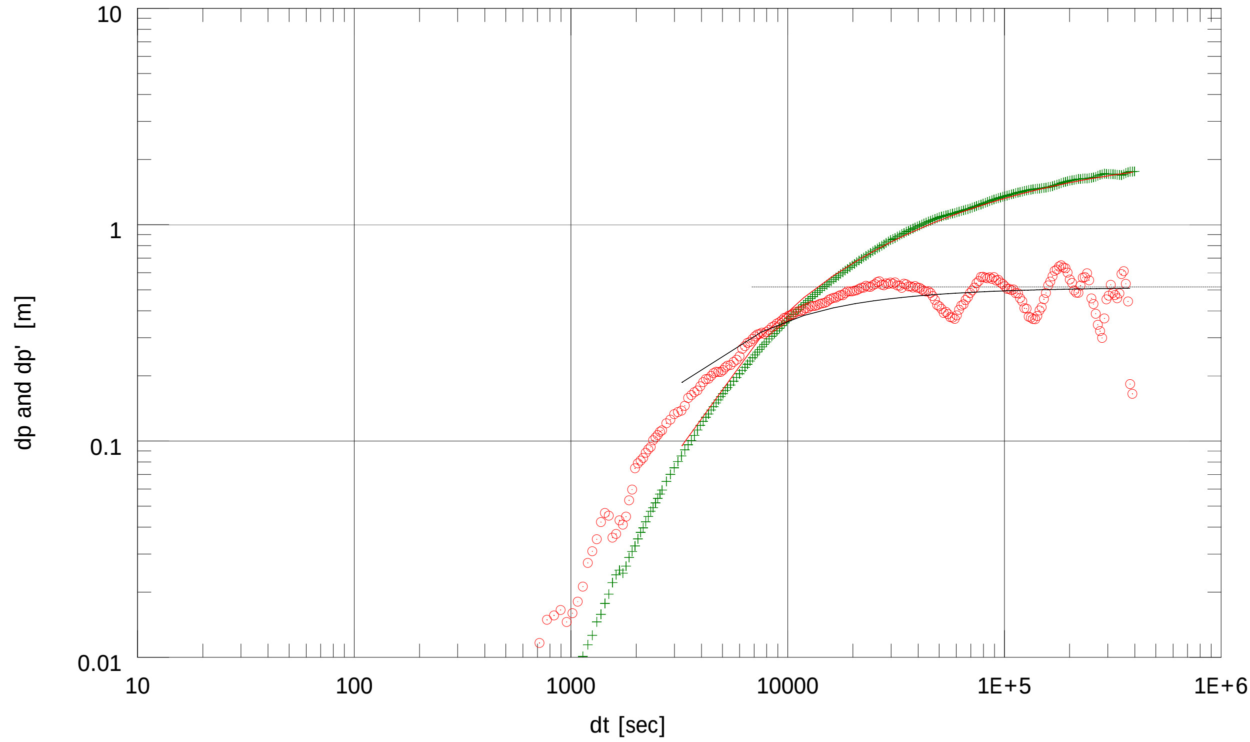
Reservoir & Boundary parameters

Pi	11.45 m
T	2.72E-4 m2/s
K	5.06E-6 m/s
S	3.83E-5

Derived & Secondary Parameters

Rinv	3010 m
Test. Vol.	255.275 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX25:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX25:2obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	9.38825 m
Pi	11.45 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	7.32E-5 1/sec
PMatch	0.97 1/m
S	3.83E-5
T	2.72E-4 m2/s
K	5.06E-6 m/s
Pi	11.45 m
Well distance	312 m

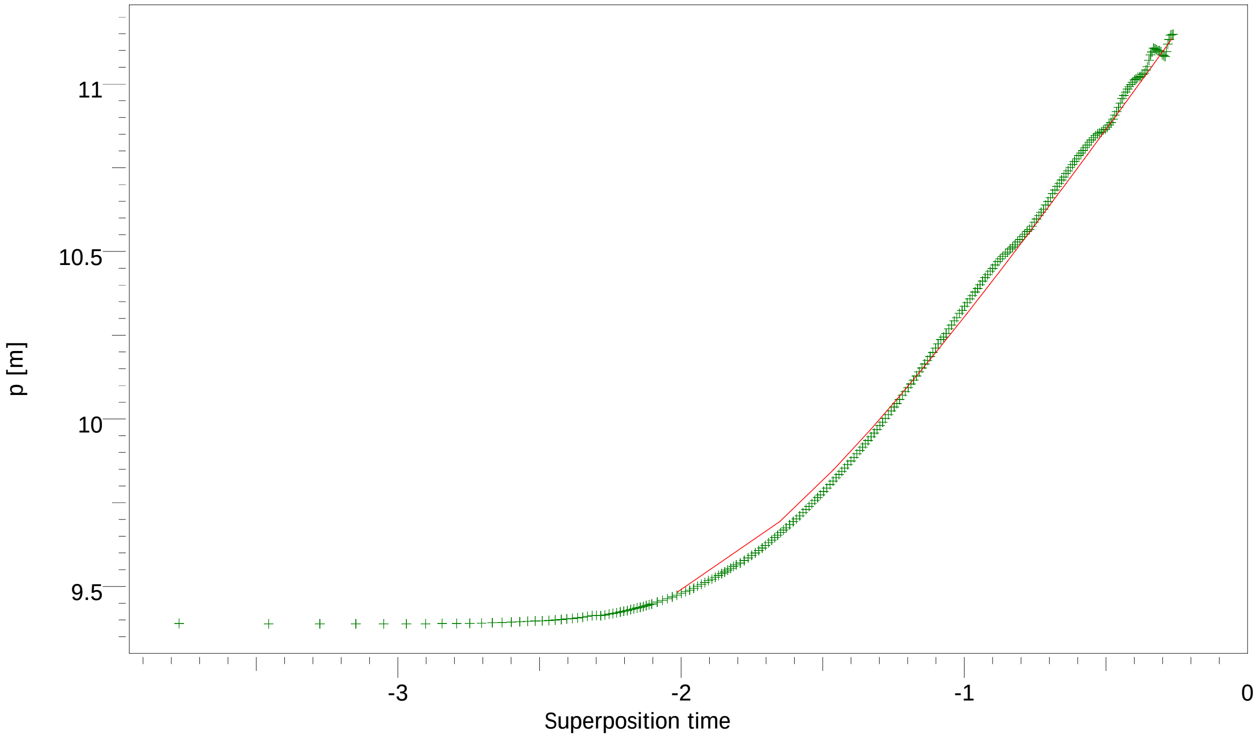
Model Parameters
Reservoir & Boundary parameters

Pi	11.45 m
T	2.72E-4 m2/s
K	5.06E-6 m/s
S	3.83E-5

Derived & Secondary Parameters

Rinv	3010 m
Test. Vol.	255.275 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX25:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX25:2obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	9.38825 m
Pi	11.45 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	7.32E-5 1/sec
PMatch	0.97 1/m
S	3.83E-5
T	2.72E-4 m2/s
K	5.06E-6 m/s
Pi	11.45 m
Well distance	312 m

Model Parameters
Reservoir & Boundary parameters

Pi	11.45 m
T	2.72E-4 m2/s
K	5.06E-6 m/s
S	3.83E-5

Derived & Secondary Parameters

Rinv	3010 m
Test. Vol.	255.275 MMm3

Main Results	Bu1
Company Svensk Kärnbränslehantering AB Well HLX25:2 Observation	Field Laxemar Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	6.12 - 60.00m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	311.9 m
Well Radius rw	0.0695 m
Pay Zone h	53.88 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	7.32E-5 1/sec
PMatch	0.97 1/m
S	3.83E-5
T	2.72E-4 m2/s
K	5.06E-6 m/s
Pi	11.45 m
Well distance	312 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.45 m
T	2.72E-4 m2/s
K	5.06E-6 m/s
S	3.83E-5

Derived & Secondary Parameters

Rinv	3010 m
Test. Vol.	255.275 MMm3

History plot	Dd1-homo

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX31:1 Observation — Test Name / # Interference test HLX30

HLX31obs:1 production #1

Rate	105.931 l/min
Rate change	105.931 l/min
P@dt=0	11.0649 m
Pi	11.025 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	0.00236 1/sec
PMatch	0.525 1/m
S	1.99E-5
T	1.47E-4 m2/s
K	4.58E-6 m/s
Pi	11.025 m
Well distance	56 m

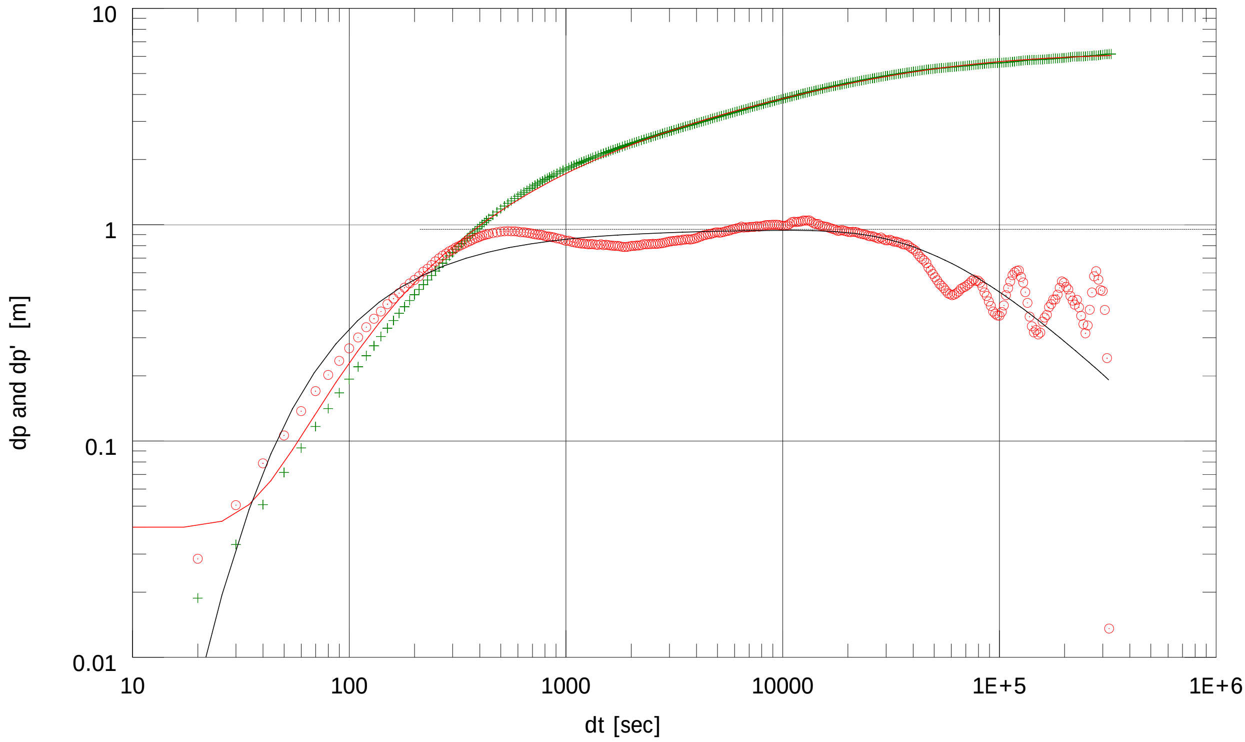
Model Parameters
Reservoir & Boundary parameters

Pi	11.025 m
T	1.47E-4 m2/s
K	4.58E-6 m/s
S	1.99E-5
L - Constant P.	729 m

Derived & Secondary Parameters

Log-Log plot	Dd1-homo

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX31:1 Observation — Test Name / # Interference test HLX30



HLX31obs:1 production #1

Rate	105.931 l/min
Rate change	105.931 l/min
P@dt=0	11.0649 m
Pi	11.025 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	0.00236 1/sec
PMatch	0.525 1/m
S	1.99E-5
T	1.47E-4 m2/s
K	4.58E-6 m/s
Pi	11.025 m
Well distance	56 m

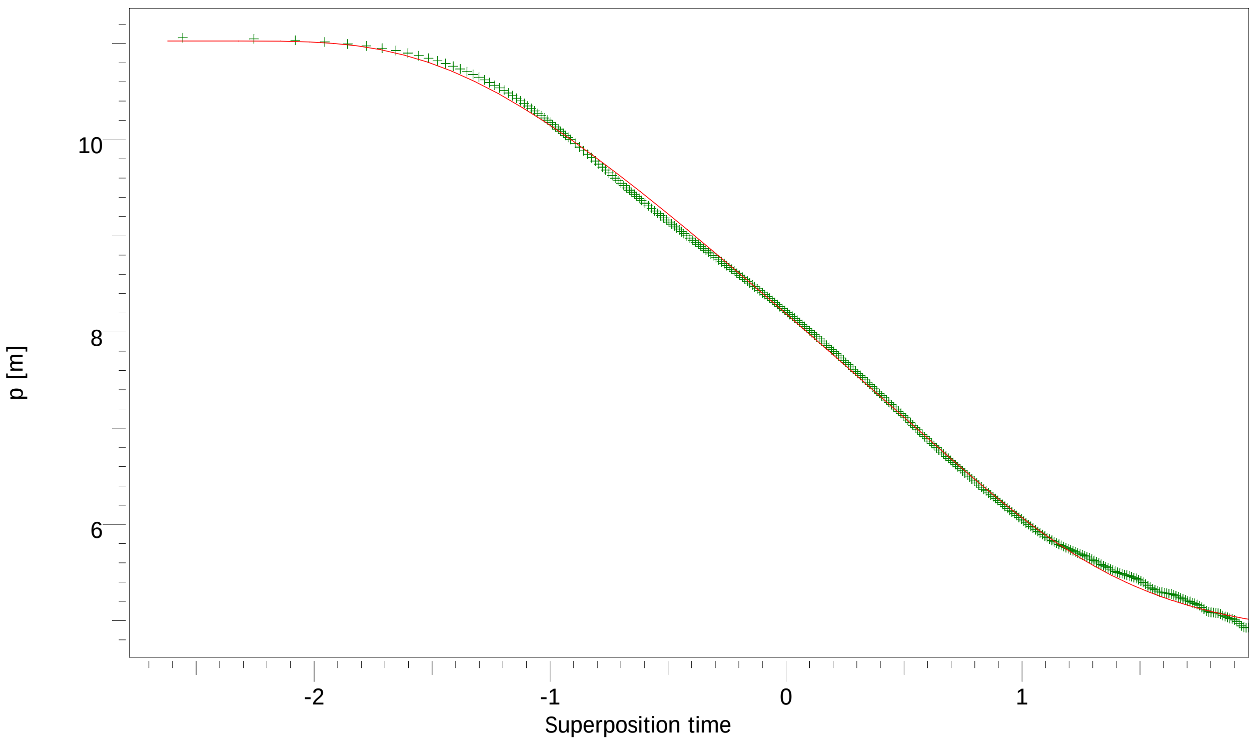
Model Parameters

Reservoir & Boundary parameters

Pi	11.025 m
T	1.47E-4 m2/s
K	4.58E-6 m/s
S	1.99E-5
L - Constant P.	729 m

Derived & Secondary Parameters

Semi-Log plot	Dd1-homo
Company Svensk Kärnbränslehantering AB Well HLX31:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX31obs:1 production #1

Rate	105.931 l/min
Rate change	105.931 l/min
P@dt=0	11.0649 m
Pi	11.025 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	0.00236 1/sec
PMatch	0.525 1/m
S	1.99E-5
T	1.47E-4 m2/s
K	4.58E-6 m/s
Pi	11.025 m
Well distance	56 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.025 m
T	1.47E-4 m2/s
K	4.58E-6 m/s
S	1.99E-5
L - Constant P.	729 m

Derived & Secondary Parameters

Main Results	Dd1-homo

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX31:1 Observation — Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	101.00 - 133.20m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	56 m
Well Radius rw	0.0695 m
Pay Zone h	32.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	0.00236 1/sec
PMatch	0.525 1/m
S	1.99E-5
T	1.47E-4 m2/s
K	4.58E-6 m/s
Pi	11.025 m
Well distance	56 m

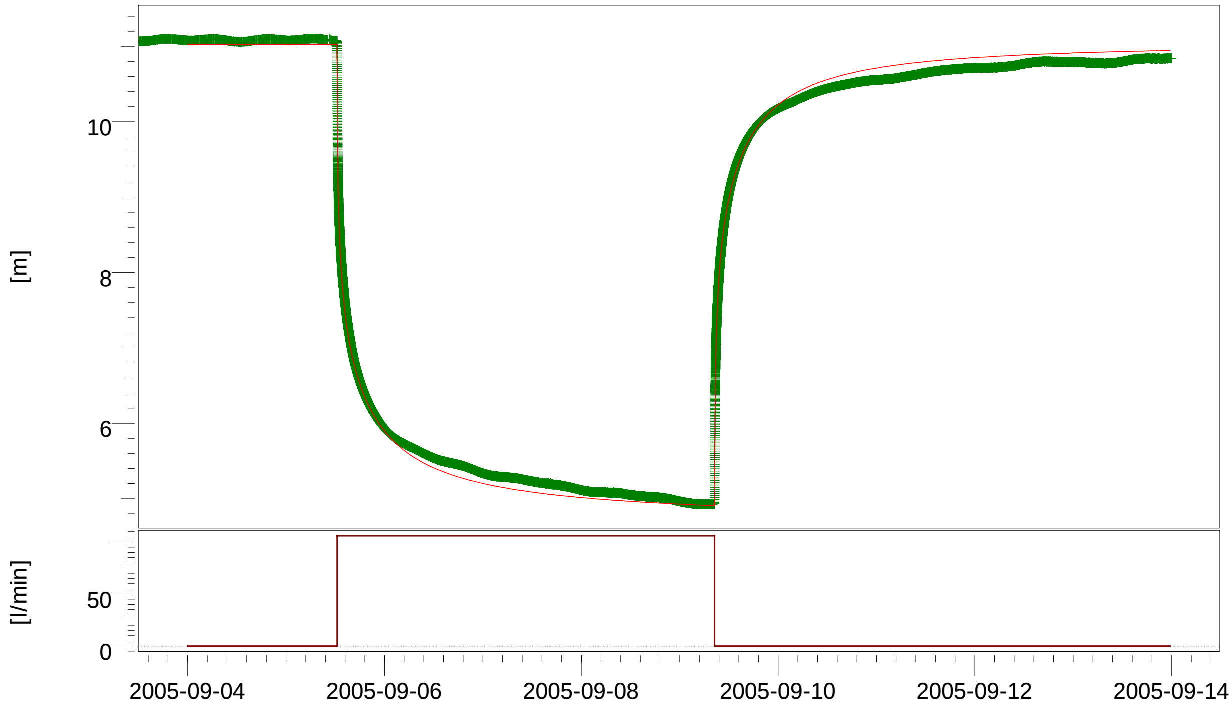
Model Parameters

Reservoir & Boundary parameters

Pi	11.025 m
T	1.47E-4 m2/s
K	4.58E-6 m/s
S	1.99E-5
L - Constant P.	729 m

Derived & Secondary Parameters

SKB	History plot	Bu1-homo
	Company Svensk Kärnbränslehantering AB Well HLX31:1 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX31obs:1 build-up #1
Rate 0 l/min
Rate change 105.931 l/min
P@dt=0 4.9295 m
Pi 11.025 m
Smoothing 0.1

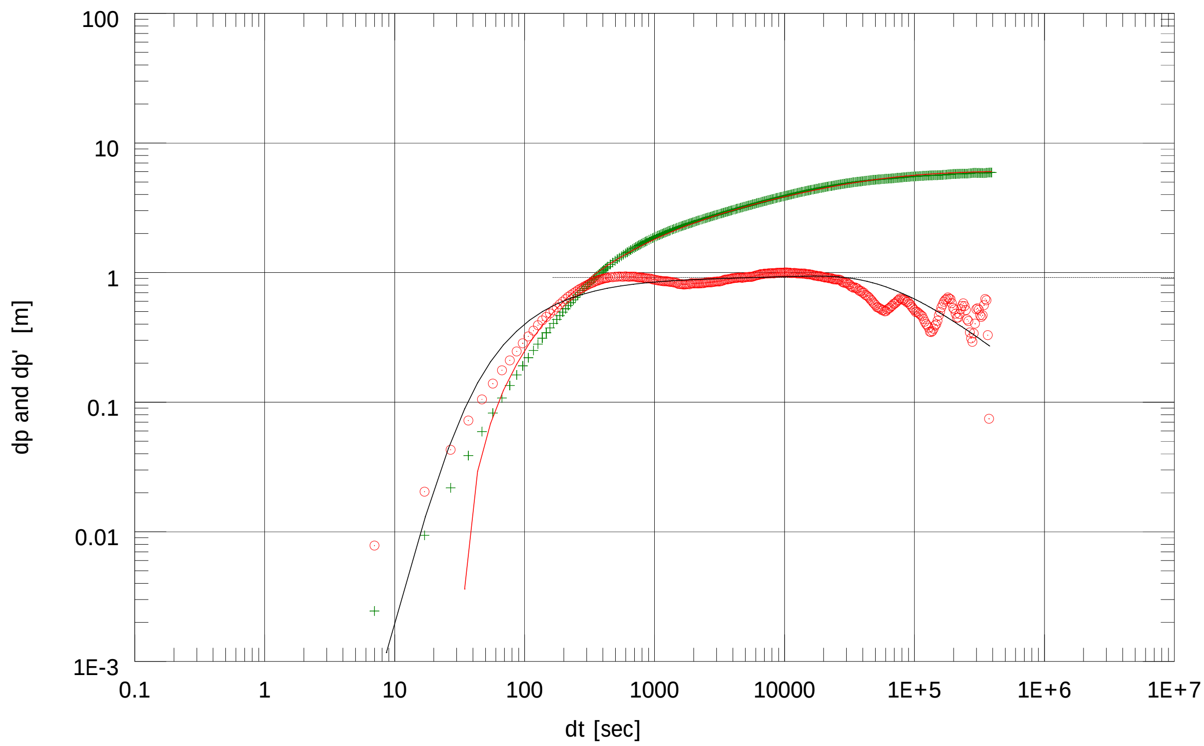
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary One fault

Main Model Parameters
TMatch 0.00303 1/sec
PMatch 0.546 1/m
S 1.61E-5
T 1.53E-4 m2/s
K 4.76E-6 m/s
Pi 11.025 m
Well distance 56 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.025 m
T 1.53E-4 m2/s
K 4.76E-6 m/s
S 1.61E-5
L - Constant P. 889 m

Derived & Secondary Parameters

Log-Log plot	Bu1-homo
Company Svensk Kärnbränslehantering AB Well HLX31:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX31obs:1 build-up #1
Rate 0 l/min
Rate change 105.931 l/min
P@dt=0 4.9295 m
Pi 11.025 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary One fault

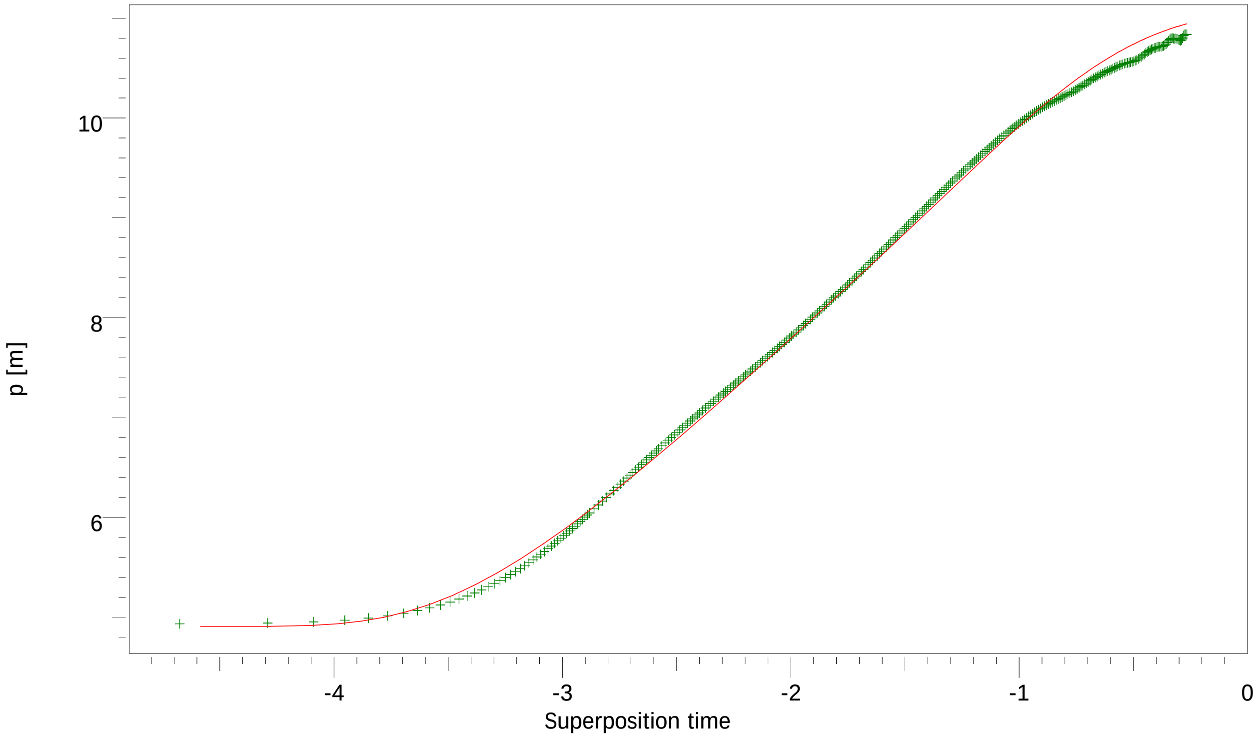
Main Model Parameters
TMatch 0.00303 1/sec
PMatch 0.546 1/m
S 1.61E-5
T 1.53E-4 m2/s
K 4.76E-6 m/s
Pi 11.025 m
Well distance 56 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.025 m
T 1.53E-4 m2/s
K 4.76E-6 m/s
S 1.61E-5
L - Constant P. 889 m

Derived & Secondary Parameters

Semi-Log plot	Bu1-homo

Company Svensk Kärnbränslehantering AB
Well HLX31:1 Observation
Field Laxemar
Test Name / # Interference test HLX30



HLX31obs:1 build-up #1

Rate	0 l/min
Rate change	105.931 l/min
P@dt=0	4.9295 m
Pi	11.025 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	0.00303 1/sec
PMatch	0.546 1/m
S	1.61E-5
T	1.53E-4 m2/s
K	4.76E-6 m/s
Pi	11.025 m
Well distance	56 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.025 m
T	1.53E-4 m2/s
K	4.76E-6 m/s
S	1.61E-5
L - Constant P.	889 m

Derived & Secondary Parameters

Main Results	Bu1-homo
Company Svensk Kärnbränslehantering AB Well HLX31:1 Observation	Field Laxemar Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	101.00 - 133.20m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	56 m
Well Radius rw	0.0695 m
Pay Zone h	32.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	One fault

Main Model Parameters

TMatch	0.00303 1/sec
PMatch	0.546 1/m
S	1.61E-5
T	1.53E-4 m2/s
K	4.76E-6 m/s
Pi	11.025 m
Well distance	56 m

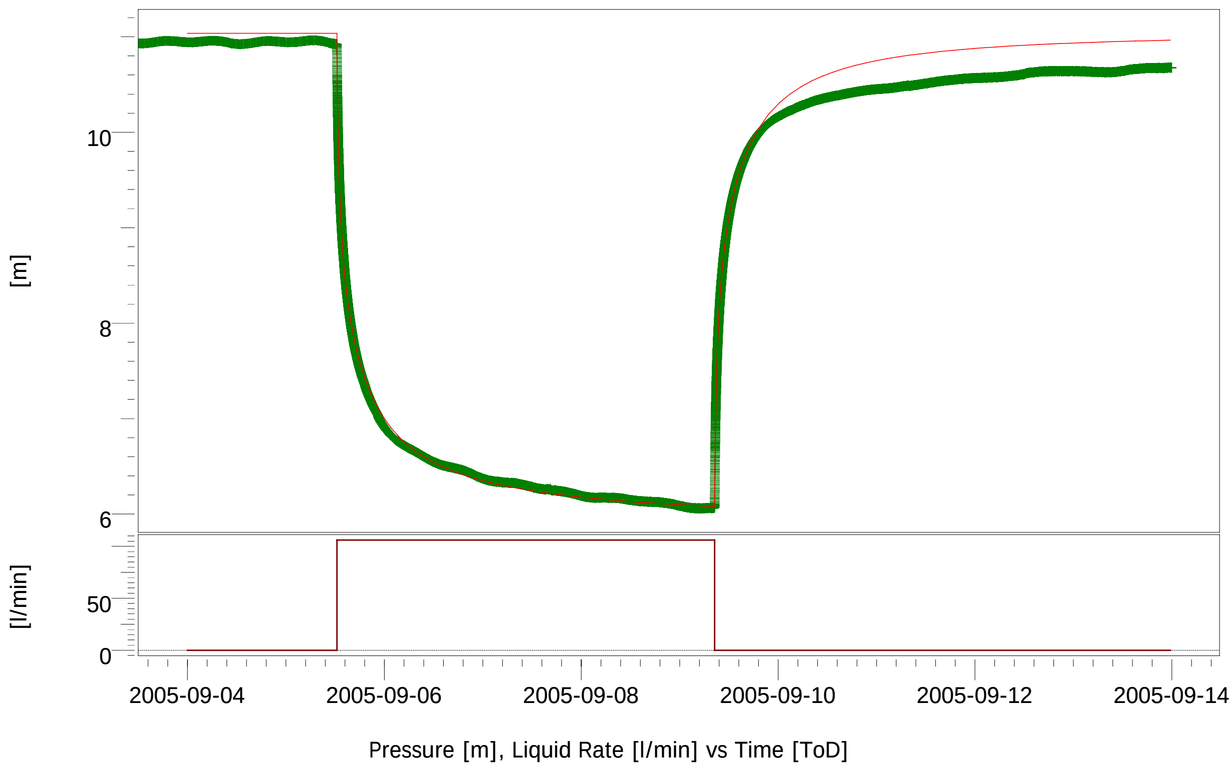
Model Parameters

Reservoir & Boundary parameters

Pi	11.025 m
T	1.53E-4 m2/s
K	4.76E-6 m/s
S	1.61E-5
L - Constant P.	889 m

Derived & Secondary Parameters

	History plot	Dd1
SKB	Company Svensk Kärnbränslehantering AB Well HLX31:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX31:2obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	10.9221 m
Pi	11.0373 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	One fault

Main Model Parameters

TMatch	0.00112 1/sec
PMatch	0.569 1/m
S	7.19E-6
T	1.6E-4 m2/s
K	1.76E-6 m/s
Pi	11.0373 m
Well distance	141 m

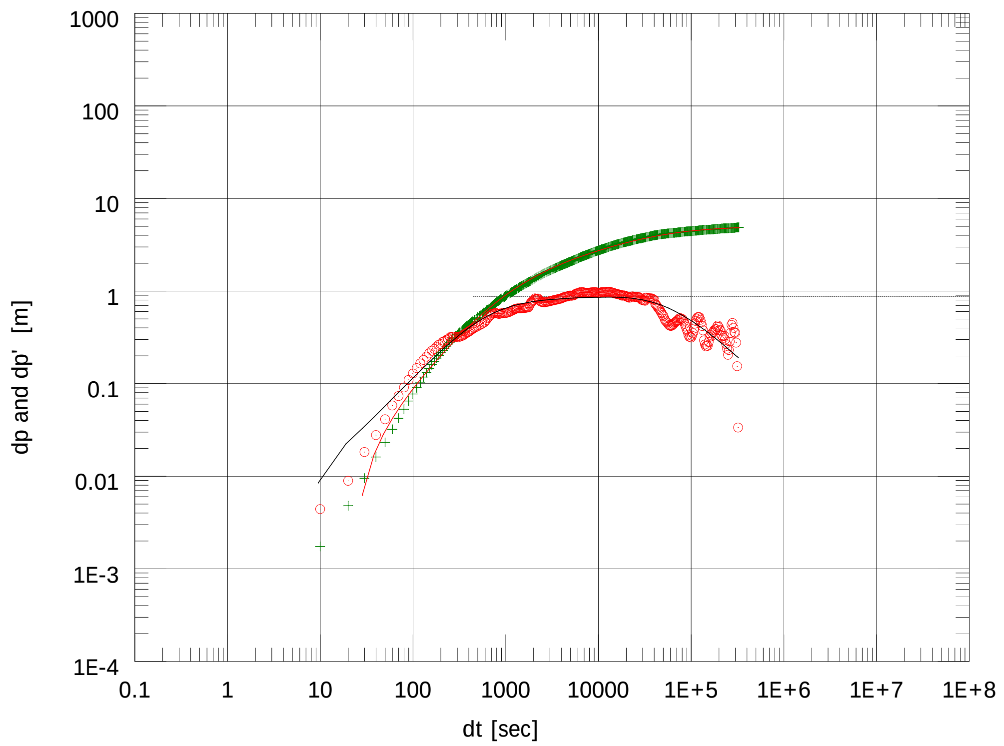
Model Parameters

Reservoir & Boundary parameters

Pi	11.0373 m
T	1.6E-4 m2/s
K	1.76E-6 m/s
S	7.19E-6
Omega	1.01E-5
Lambda	4.9E-6
L - Constant P.	1320 m

Derived & Secondary Parameters

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well HLX31:2 Observation	Test Name / # Interference test HLX30



HLX31:2obs production #1
Rate 106 l/min
Rate change 106 l/min
P@dt=0 10.9221 m
Pi 11.0373 m
Smoothing 0.1

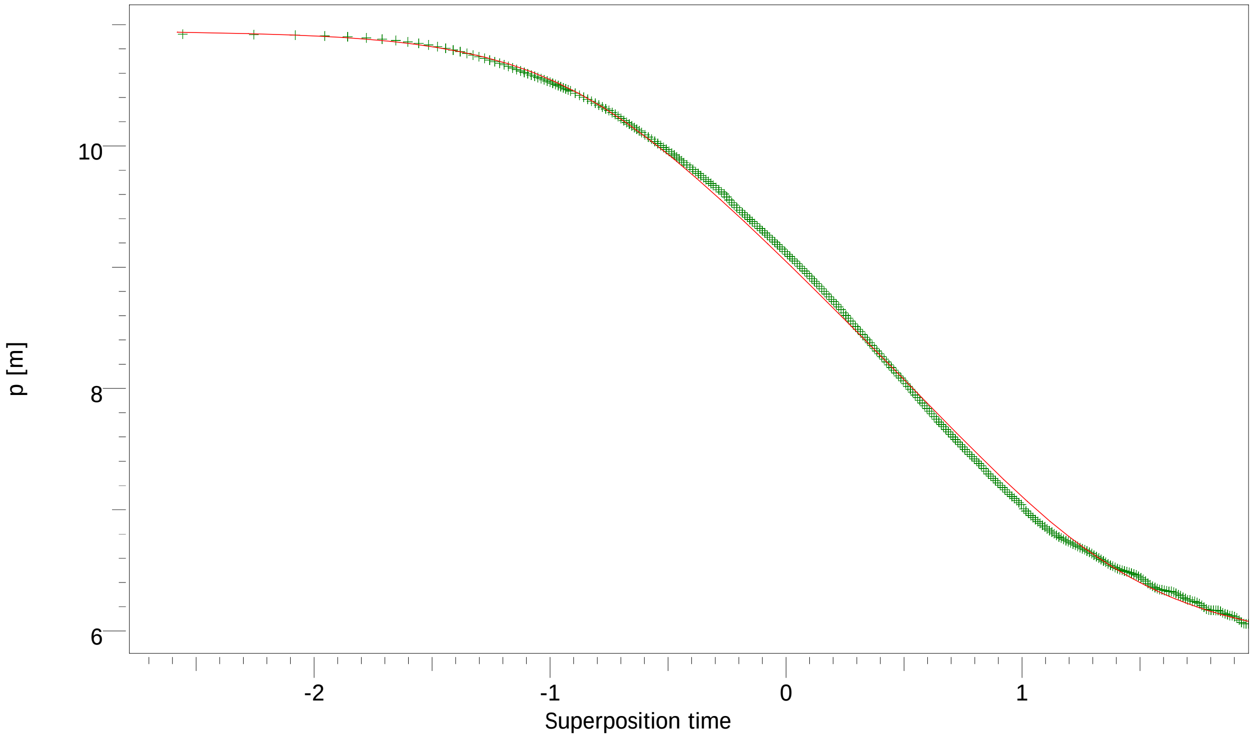
Selected Model
Model Option Standard Model
Well Line source
Reservoir Two porosity PSS
Boundary One fault

Main Model Parameters
TMatch 0.00112 1/sec
PMatch 0.569 1/m
S 7.19E-6
T 1.6E-4 m2/s
K 1.76E-6 m/s
Pi 11.0373 m
Well distance 141 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.0373 m
T 1.6E-4 m2/s
K 1.76E-6 m/s
S 7.19E-6
Omega 1.01E-5
Lambda 4.9E-6
L - Constant P. 1320 m

Derived & Secondary Parameters

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX31:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX31:2obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	10.9221 m
Pi	11.0373 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	One fault

Main Model Parameters

TMatch	0.00112 1/sec
PMatch	0.569 1/m
S	7.19E-6
T	1.6E-4 m2/s
K	1.76E-6 m/s
Pi	11.0373 m
Well distance	141 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.0373 m
T	1.6E-4 m2/s
K	1.76E-6 m/s
S	7.19E-6
Omega	1.01E-5
Lambda	4.9E-6
L - Constant P.	1320 m

Derived & Secondary Parameters

Main Results	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX31:2 Observation
Field Laxemar
Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	9.10 - 100.00m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	140.9 m
Well Radius rw	0.0695 m
Pay Zone h	90.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	One fault

Main Model Parameters

TMatch	0.00112 1/sec
PMatch	0.569 1/m
S	7.19E-6
T	1.6E-4 m2/s
K	1.76E-6 m/s
Pi	11.0373 m
Well distance	141 m

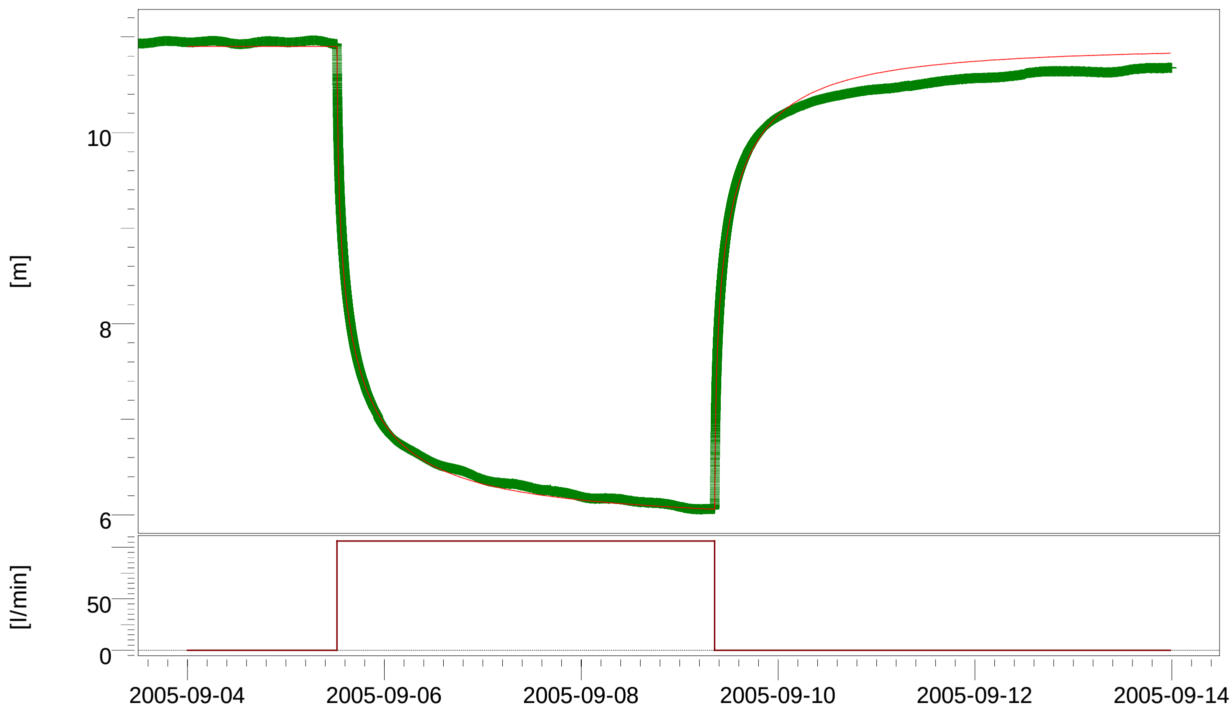
Model Parameters

Reservoir & Boundary parameters

Pi	11.0373 m
T	1.6E-4 m2/s
K	1.76E-6 m/s
S	7.19E-6
Omega	1.01E-5
Lambda	4.9E-6
L - Constant P.	1320 m

Derived & Secondary Parameters

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX31:2 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX31:2obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	6.06228 m
Pi	10.9 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	One fault

Main Model Parameters

TMatch	0.00121 1/sec
PMatch	0.593 1/m
S	6.92E-6
T	1.67E-4 m2/s
K	1.83E-6 m/s
Pi	10.9 m
Well distance	141 m

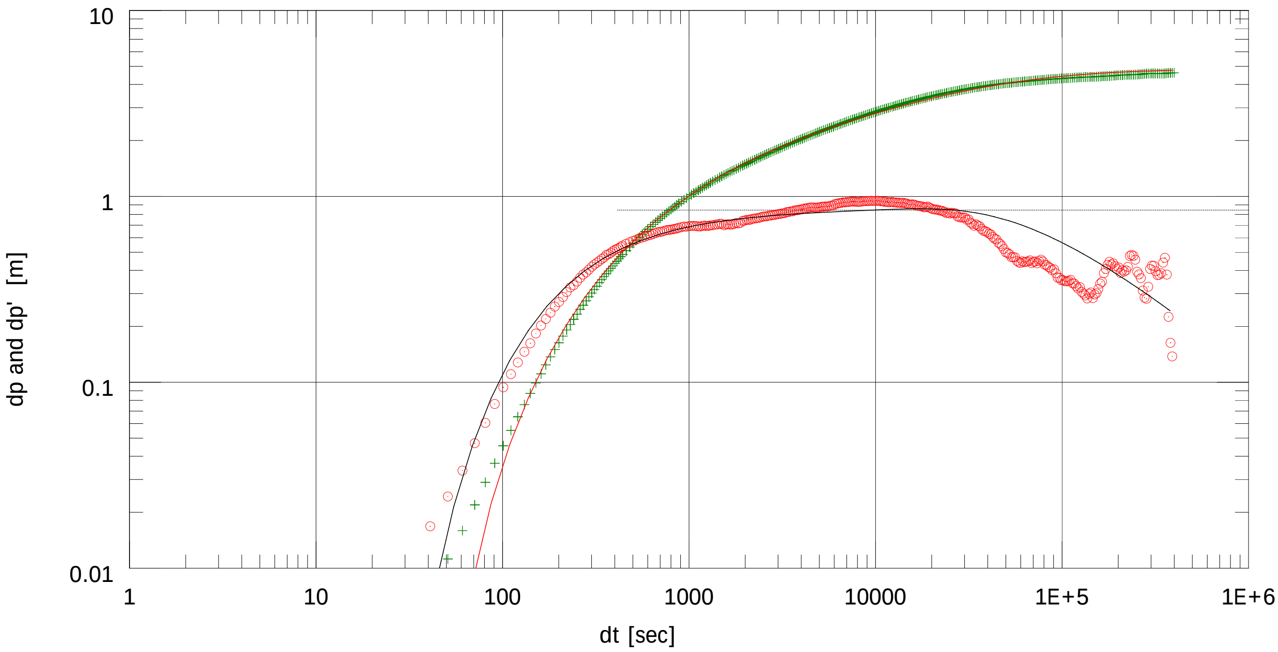
Model Parameters

Reservoir & Boundary parameters

Pi	10.9 m
T	1.67E-4 m2/s
K	1.83E-6 m/s
S	6.92E-6
Omega	9.95E-6
Lambda	0.0859
L - Constant P.	1390 m

Derived & Secondary Parameters

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well HLX31:2 Observation	Test Name / # Interference test HLX30



HLX31:2obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	6.06228 m
Pi	10.9 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	One fault

Main Model Parameters

TMatch	0.00121 1/sec
PMatch	0.593 1/m
S	6.92E-6
T	1.67E-4 m2/s
K	1.83E-6 m/s
Pi	10.9 m
Well distance	141 m

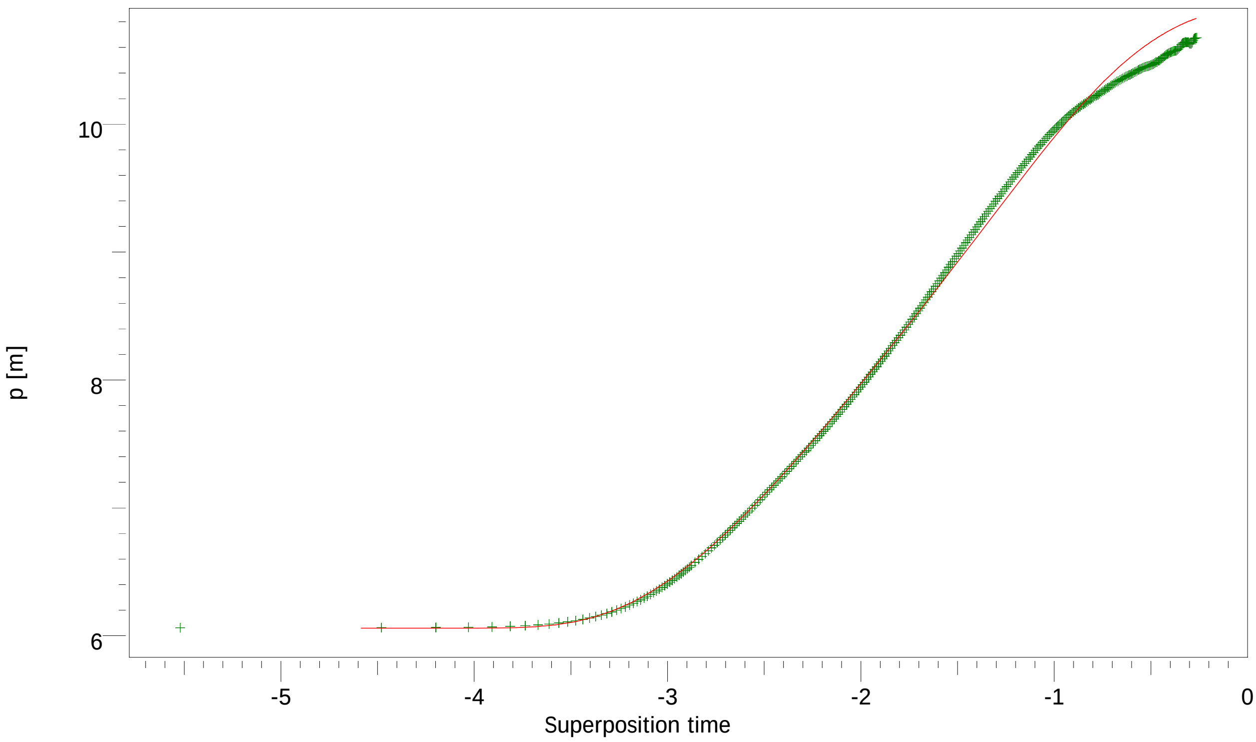
Model Parameters

Reservoir & Boundary parameters

Pi	10.9 m
T	1.67E-4 m2/s
K	1.83E-6 m/s
S	6.92E-6
Omega	9.95E-6
Lambda	0.0859
L - Constant P.	1390 m

Derived & Secondary Parameters

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX31:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX31:2obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 6.06228 m
Pi 10.9 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Two porosity PSS
Boundary One fault

Main Model Parameters
TMatch 0.00121 1/sec
PMatch 0.593 1/m
S 6.92E-6
T 1.67E-4 m2/s
K 1.83E-6 m/s
Pi 10.9 m
Well distance 141 m

Model Parameters
Reservoir & Boundary parameters
Pi 10.9 m
T 1.67E-4 m2/s
K 1.83E-6 m/s
S 6.92E-6
Omega 9.95E-6
Lambda 0.0859
L - Constant P. 1390 m

Derived & Secondary Parameters

Test date / time	2005-09-04
Formation interval	9.10 - 100.00m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	140.9 m
Well Radius rw	0.0695 m
Pay Zone h	90.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Two porosity PSS
Boundary	One fault

Main Model Parameters

TMatch	0.00121 1/sec
PMatch	0.593 1/m
S	6.92E-6
T	1.67E-4 m2/s
K	1.83E-6 m/s
Pi	10.9 m
Well distance	141 m

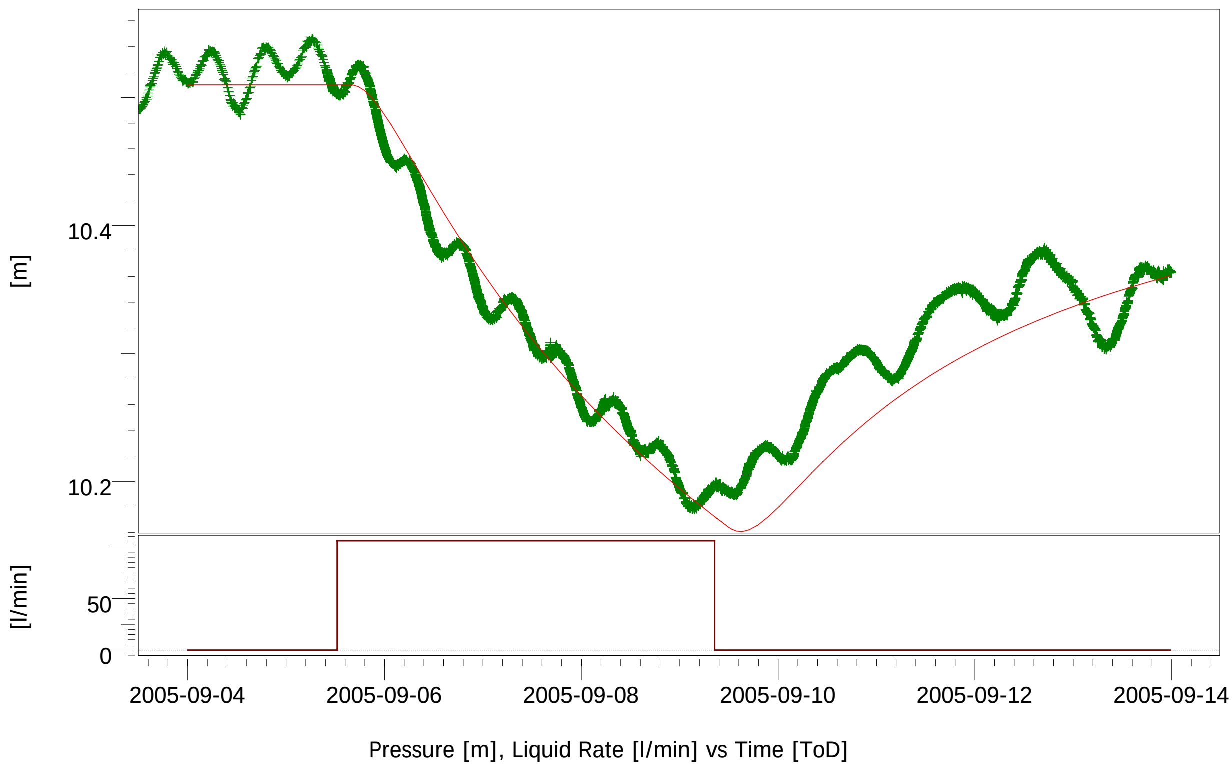
Model Parameters

Reservoir & Boundary parameters

Pi	10.9 m
T	1.67E-4 m2/s
K	1.83E-6 m/s
S	6.92E-6
Omega	9.95E-6
Lambda	0.0859
L - Constant P.	1390 m

Derived & Secondary Parameters

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX33:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX33:1obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	10.503 m
Pi	10.51 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.68E-6 [sec]-1
PMatch	1.78 [m]-1
S	4.38E-4
T	5E-4 m2/s
K	2.92E-6 m/s
Pi	10.51 m
Well distance	557 m

Model Parameters

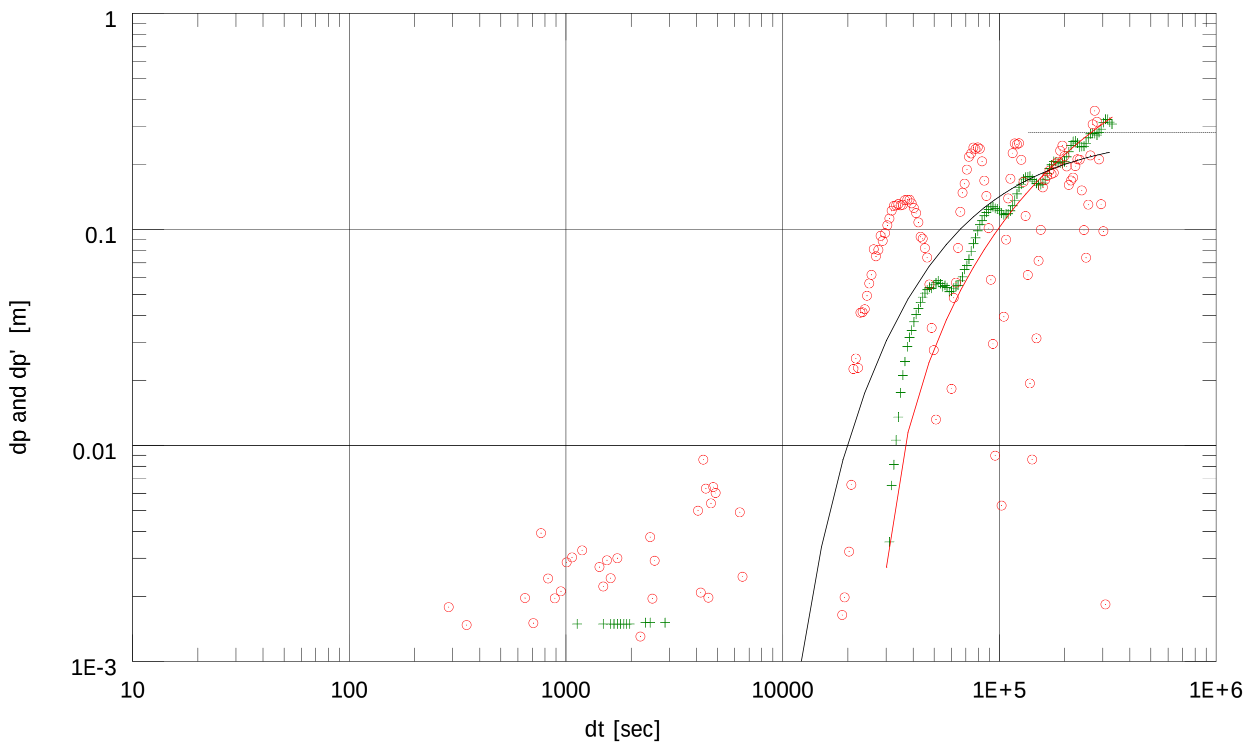
Reservoir & Boundary parameters

Pi	10.51 m
T	5E-4 m2/s
K	2.92E-6 m/s
S	4.38E-4

Derived & Secondary Parameters

Rinv	1100 m
Test. Vol.	388.949 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX33:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX33:1obs production #1
Rate 106 l/min
Rate change 106 l/min
P@dt=0 10.503 m
Pi 10.51 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 3.68E-6 [sec]-1
PMatch 1.78 [m]-1
S 4.38E-4
T 5E-4 m2/s
K 2.92E-6 m/s
Pi 10.51 m
Well distance 557 m

Model Parameters
Reservoir & Boundary parameters
Pi 10.51 m
T 5E-4 m2/s
K 2.92E-6 m/s
S 4.38E-4

Derived & Secondary Parameters
Rinv 1100 m
Test. Vol. 388.949 MMm3

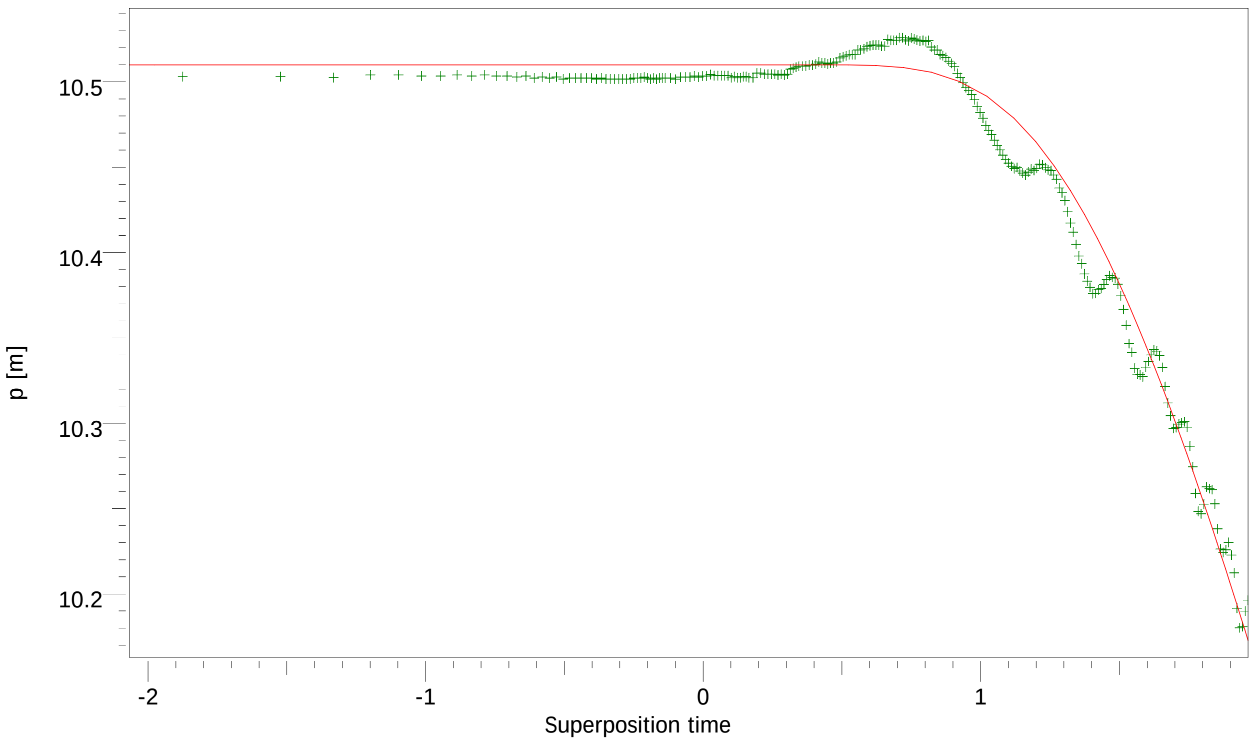
Ecrin v4.02.03 HLX33_1obs

2007-12-11

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX33:1 Observation

Field Laxemar
Test Name / # Interference test HLX30



HLX33:1obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	10.503 m
Pi	10.51 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.68E-6 [sec]-1
PMatch	1.78 [m]-1
S	4.38E-4
T	5E-4 m2/s
K	2.92E-6 m/s
Pi	10.51 m
Well distance	557 m

Model Parameters
Reservoir & Boundary parameters

Pi	10.51 m
T	5E-4 m2/s
K	2.92E-6 m/s
S	4.38E-4

Derived & Secondary Parameters

Rinv	1100 m
Test. Vol.	388.949 MMm3

Main Results	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX33:1 Observation
Field Laxemar
Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	31.00 - 202.1m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	557.1 m
Well Radius rw	0.0695 m
Pay Zone h	171.1 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.68E-6 [sec]-1
PMatch	1.78 [m]-1
S	4.38E-4
T	5E-4 m2/s
K	2.92E-6 m/s
Pi	10.51 m
Well distance	557 m

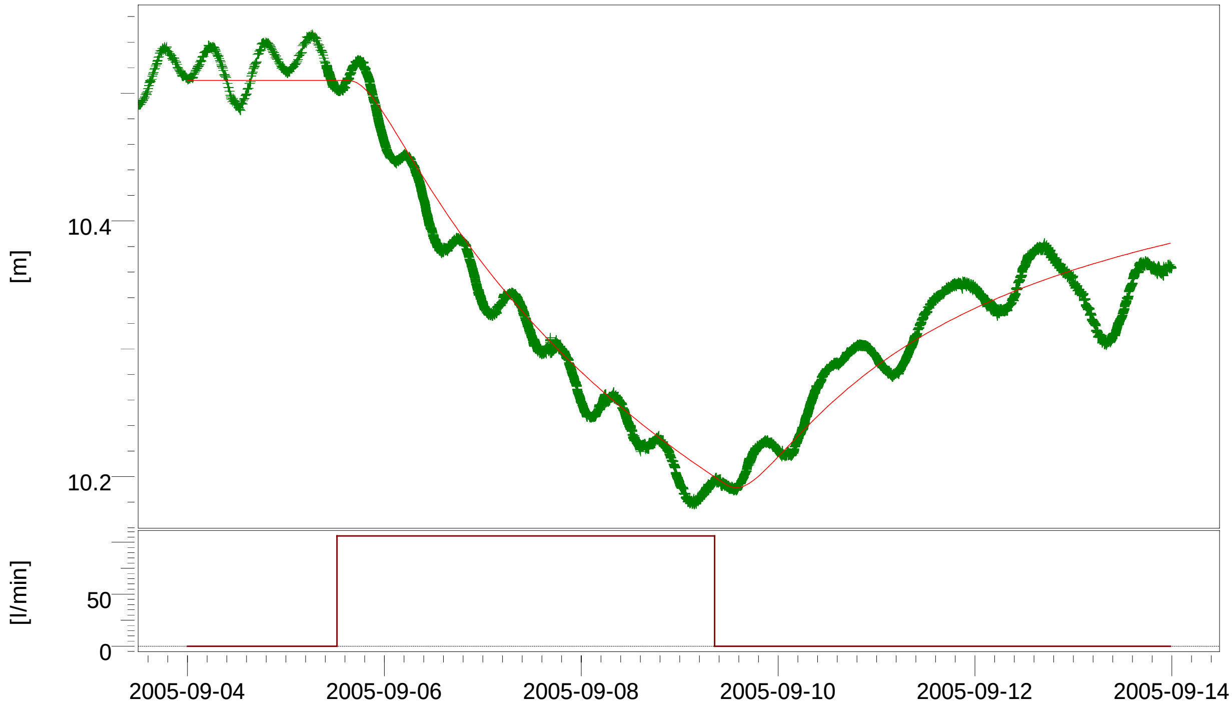
Model Parameters
Reservoir & Boundary parameters

Pi	10.51 m
T	5E-4 m2/s
K	2.92E-6 m/s
S	4.38E-4

Derived & Secondary Parameters

Rinv	1100 m
Test. Vol.	388.949 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX33:1 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX33:1obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	10.196 m
Pi	10.51 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.22E-6 [sec]-1
PMatch	2.12 [m]-1
S	4.54E-4
T	5.95E-4 m2/s
K	3.48E-6 m/s
Pi	10.51 m
Well distance	557 m

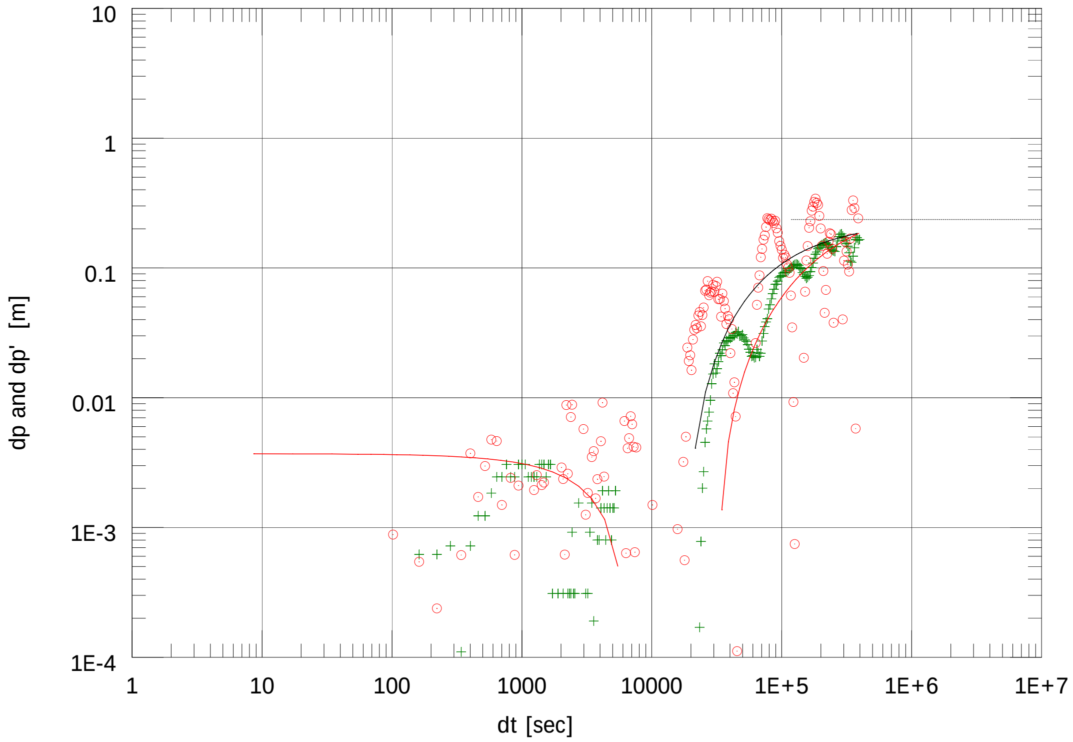
Model Parameters
Reservoir & Boundary parameters

Pi	10.51 m
T	5.95E-4 m2/s
K	3.48E-6 m/s
S	4.54E-4

Derived & Secondary Parameters

Rinv	1290 m
Test. Vol.	556.514 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX33:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX33:1obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 10.196 m
Pi 10.51 m
Smoothing 0.1

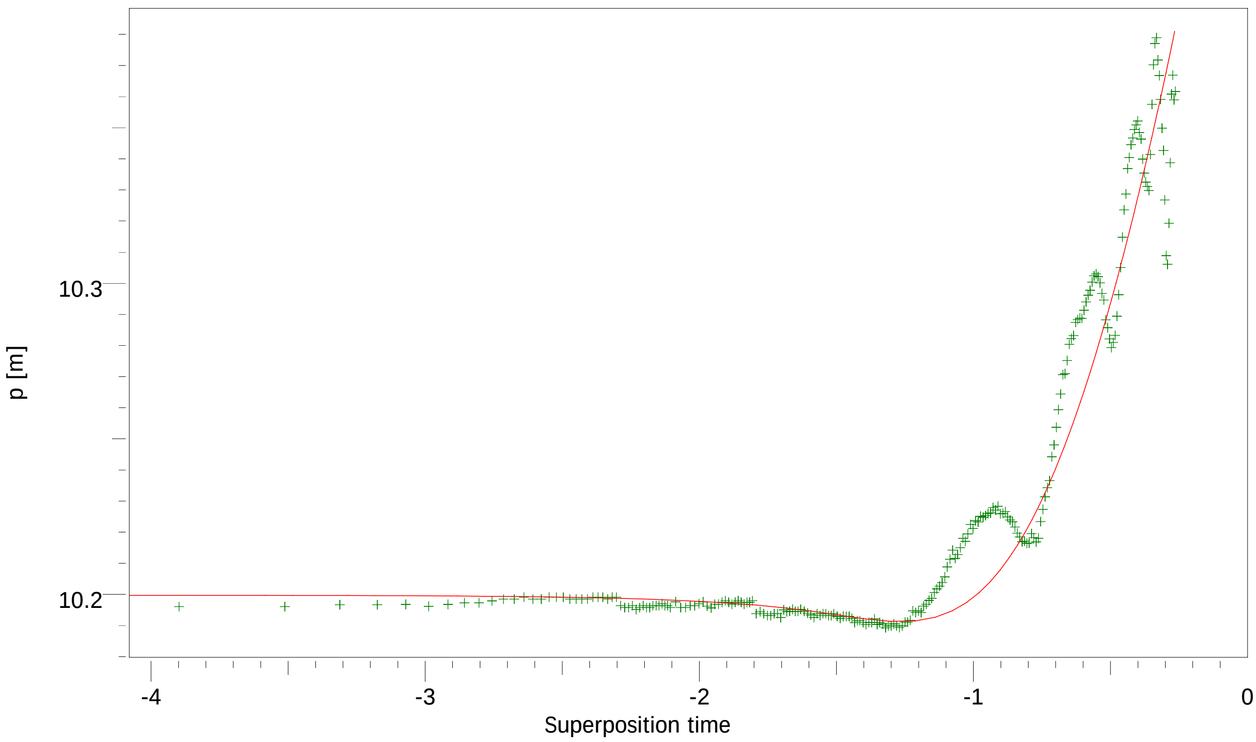
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 4.22E-6 [sec]-1
PMatch 2.12 [m]-1
S 4.54E-4
T 5.95E-4 m2/s
K 3.48E-6 m/s
Pi 10.51 m
Well distance 557 m

Model Parameters
Reservoir & Boundary parameters
Pi 10.51 m
T 5.95E-4 m2/s
K 3.48E-6 m/s
S 4.54E-4

Derived & Secondary Parameters
Rinv 1290 m
Test. Vol. 556.514 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX33:1 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX33:1obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	10.196 m
Pi	10.51 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.22E-6 [sec]-1
PMatch	2.12 [m]-1
S	4.54E-4
T	5.95E-4 m2/s
K	3.48E-6 m/s
Pi	10.51 m
Well distance	557 m

Model Parameters
Reservoir & Boundary parameters

Pi	10.51 m
T	5.95E-4 m2/s
K	3.48E-6 m/s
S	4.54E-4

Derived & Secondary Parameters

Rinv	1290 m
Test. Vol.	556.514 MMm3

Main Results	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX33:1 Observation — Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	31.00 - 202.1m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	557.1 m
Well Radius rw	0.0695 m
Pay Zone h	171.1 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.22E-6 [sec]-1
PMatch	2.12 [m]-1
S	4.54E-4
T	5.95E-4 m2/s
K	3.48E-6 m/s
Pi	10.51 m
Well distance	557 m

Model Parameters

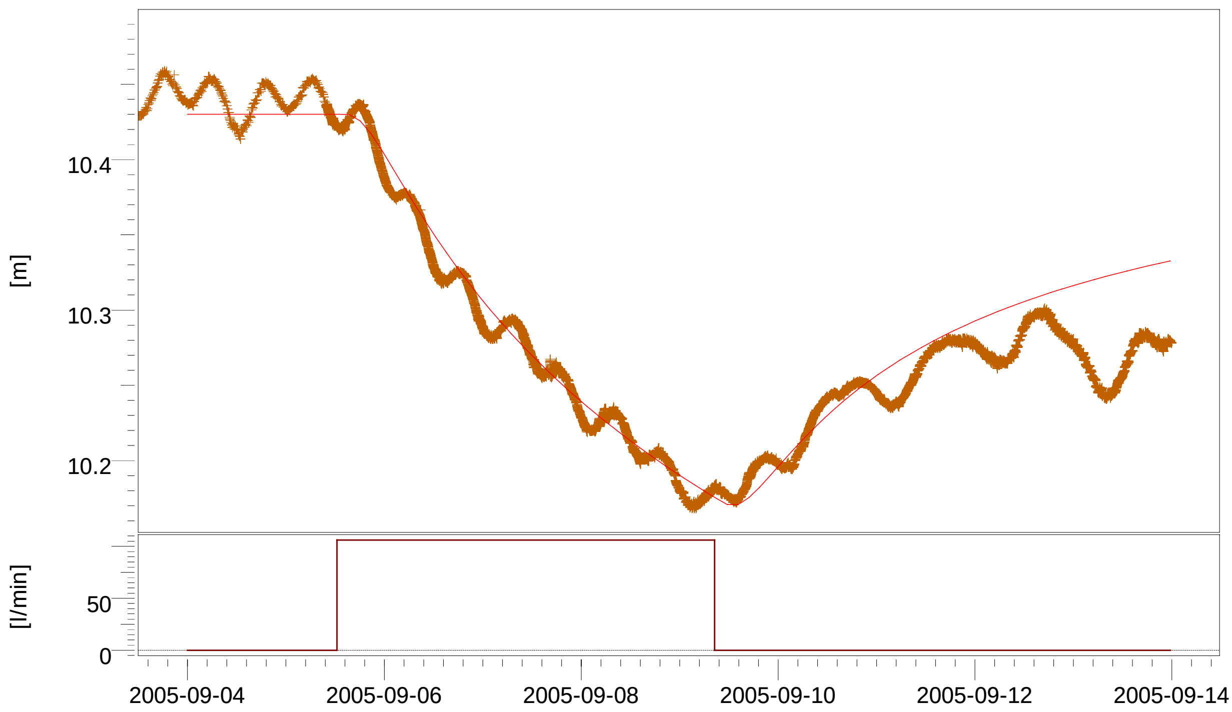
Reservoir & Boundary parameters

Pi	10.51 m
T	5.95E-4 m2/s
K	3.48E-6 m/s
S	4.54E-4

Derived & Secondary Parameters

Rinv	1290 m
Test. Vol.	556.514 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX33:2obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	10.4216 m
Pi	10.43 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.84E-6 [sec]-1
PMatch	2.81 [m]-1
S	4.99E-4
T	7.9E-4 m2/s
K	3.78E-5 m/s
Pi	10.43 m
Well distance	572 m

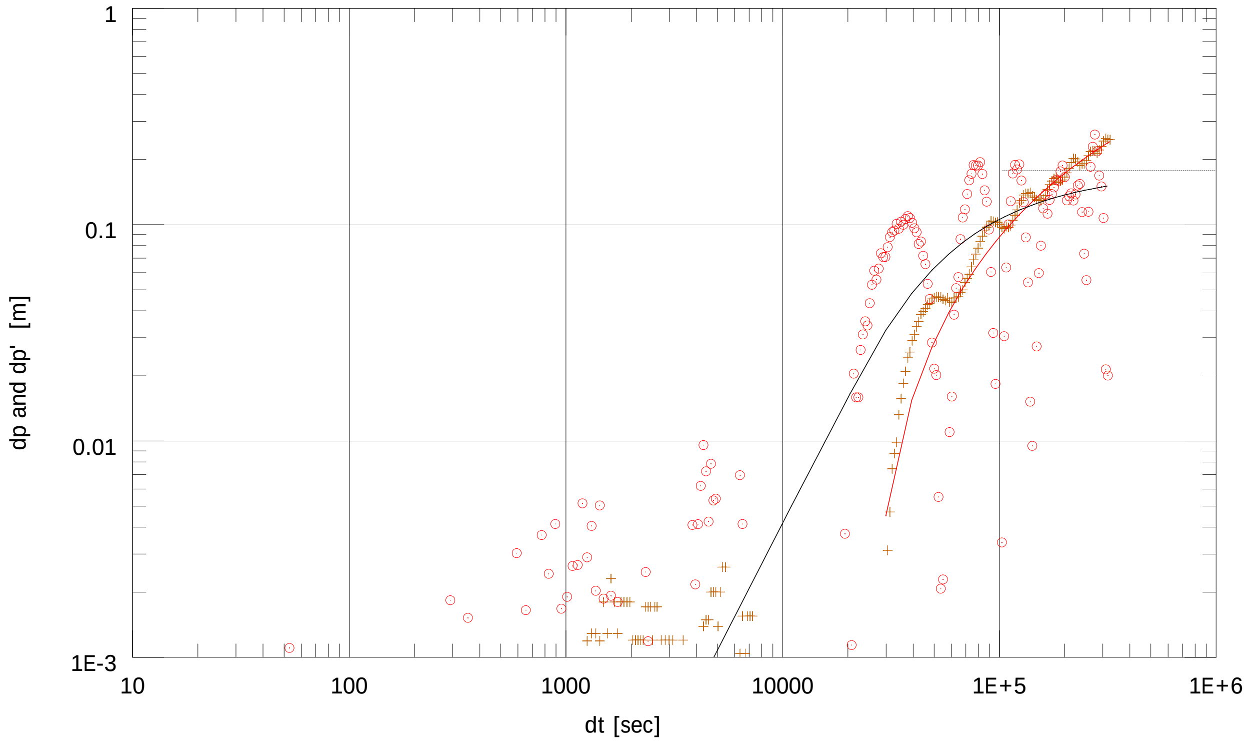
Model Parameters
Reservoir & Boundary parameters

Pi	10.43 m
T	7.9E-4 m2/s
K	3.78E-5 m/s
S	4.99E-4

Derived & Secondary Parameters

Rinv	1280 m
Test. Vol.	602.633 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX33:2obs production #1
Rate 106 l/min
Rate change 106 l/min
P@dt=0 10.4216 m
Pi 10.43 m
Smoothing 0.1

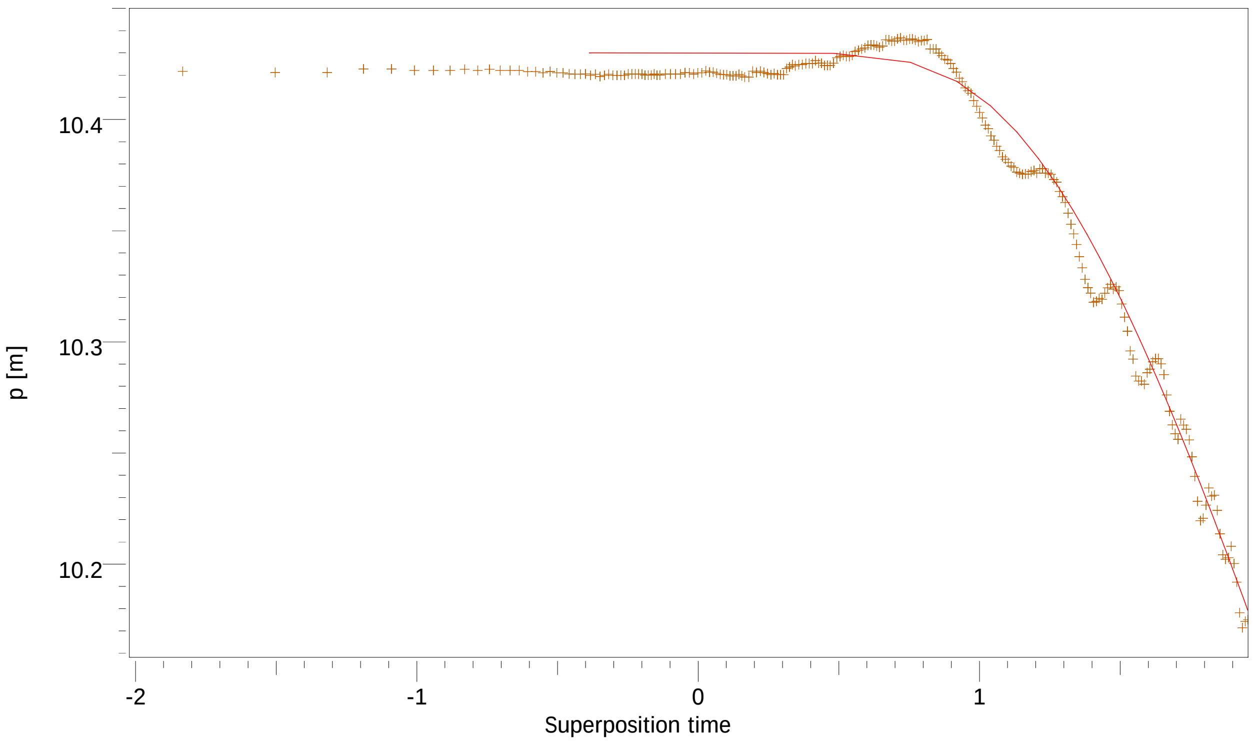
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 4.84E-6 [sec]-1
PMatch 2.81 [m]-1
S 4.99E-4
T 7.9E-4 m2/s
K 3.78E-5 m/s
Pi 10.43 m
Well distance 572 m

Model Parameters
Reservoir & Boundary parameters
Pi 10.43 m
T 7.9E-4 m2/s
K 3.78E-5 m/s
S 4.99E-4

Derived & Secondary Parameters
Rinv 1280 m
Test. Vol. 602.633 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX33:2obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	10.4216 m
Pi	10.43 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.84E-6 [sec]-1
PMatch	2.81 [m]-1
S	4.99E-4
T	7.9E-4 m2/s
K	3.78E-5 m/s
Pi	10.43 m
Well distance	572 m

Model Parameters

Reservoir & Boundary parameters

Pi	10.43 m
T	7.9E-4 m2/s
K	3.78E-5 m/s
S	4.99E-4

Derived & Secondary Parameters

Rinv	1280 m
Test. Vol.	602.633 MMm3

	Main Results	Dd1
SKB	Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	9.10 - 30.00m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	571.8 m
Well Radius rw	0.0695 m
Pay Zone h	20.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.84E-6 [sec]-1
PMatch	2.81 [m]-1
S	4.99E-4
T	7.9E-4 m2/s
K	3.78E-5 m/s
Pi	10.43 m
Well distance	572 m

Model Parameters

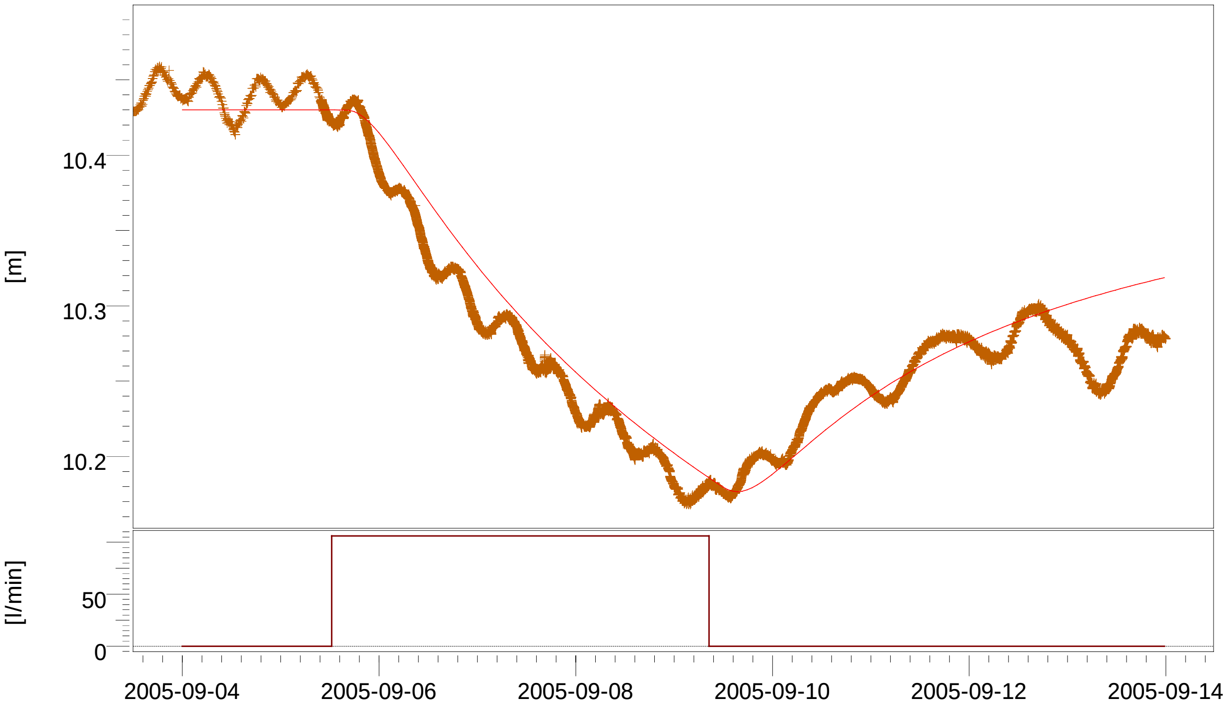
Reservoir & Boundary parameters

Pi	10.43 m
T	7.9E-4 m2/s
K	3.78E-5 m/s
S	4.99E-4

Derived & Secondary Parameters

Rinv	1280 m
Test. Vol.	602.633 MMm3

	History plot	Bu1
SKB	Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX33:2obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	10.181 m
Pi	10.43 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.48E-6 [sec]-1
PMatch	2.37 [m]-1
S	5.85E-4
T	6.66E-4 m2/s
K	3.18E-5 m/s
Pi	10.43 m
Well distance	572 m

Model Parameters

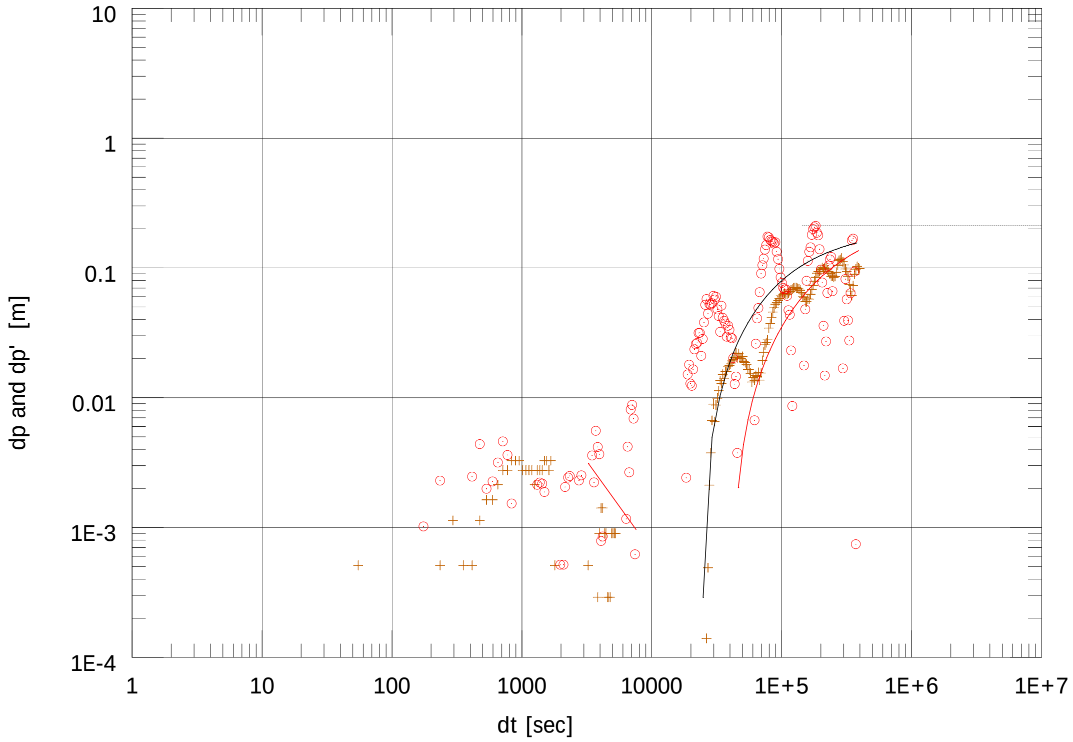
Reservoir & Boundary parameters

Pi	10.43 m
T	6.66E-4 m2/s
K	3.18E-5 m/s
S	5.85E-4

Derived & Secondary Parameters

Rinv	1200 m
Test. Vol.	623.669 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX33:2obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	10.181 m
Pi	10.43 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.48E-6 [sec]-1
PMatch	2.37 [m]-1
S	5.85E-4
T	6.66E-4 m2/s
K	3.18E-5 m/s
Pi	10.43 m
Well distance	572 m

Model Parameters

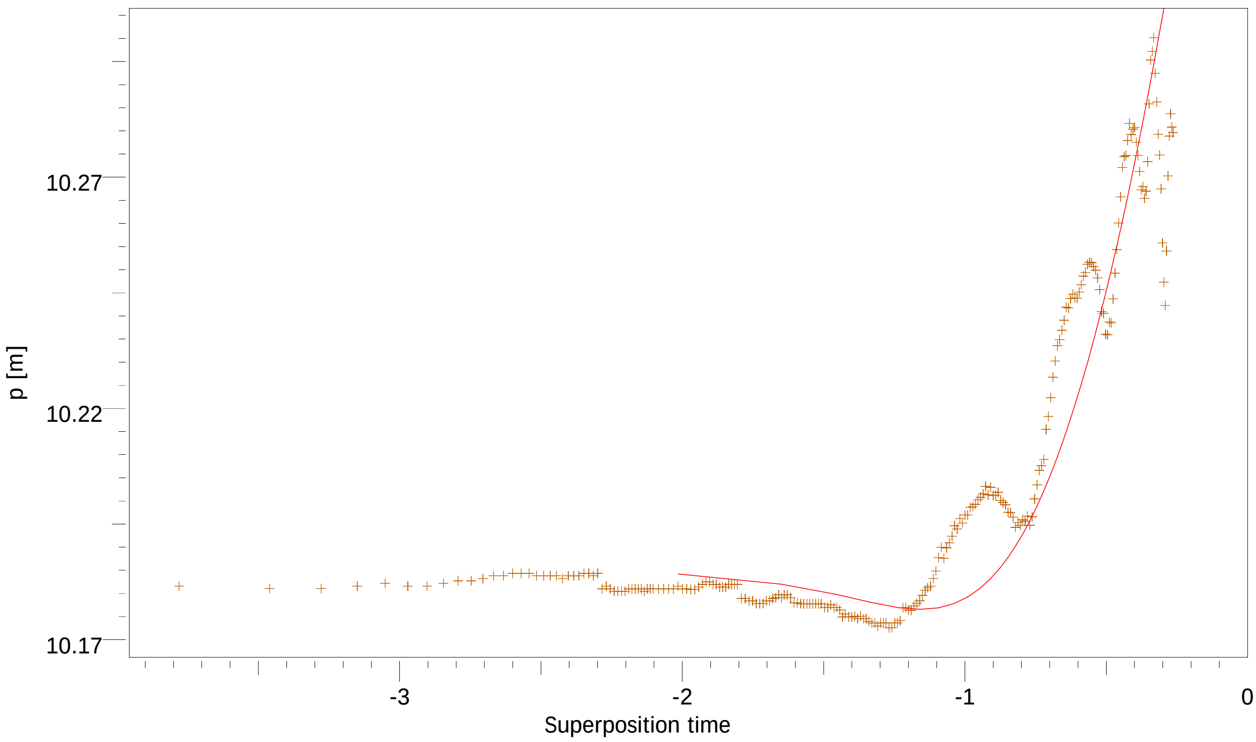
Reservoir & Boundary parameters

Pi	10.43 m
T	6.66E-4 m2/s
K	3.18E-5 m/s
S	5.85E-4

Derived & Secondary Parameters

Rinv	1200 m
Test. Vol.	623.669 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX33:2 Observation	Field Laxemar Test Name / # Interference test HLX30



HLX33:2obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 10.181 m
Pi 10.43 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 3.48E-6 [sec]-1
PMatch 2.37 [m]-1
S 5.85E-4
T 6.66E-4 m2/s
K 3.18E-5 m/s
Pi 10.43 m
Well distance 572 m

Model Parameters
Reservoir & Boundary parameters
Pi 10.43 m
T 6.66E-4 m2/s
K 3.18E-5 m/s
S 5.85E-4

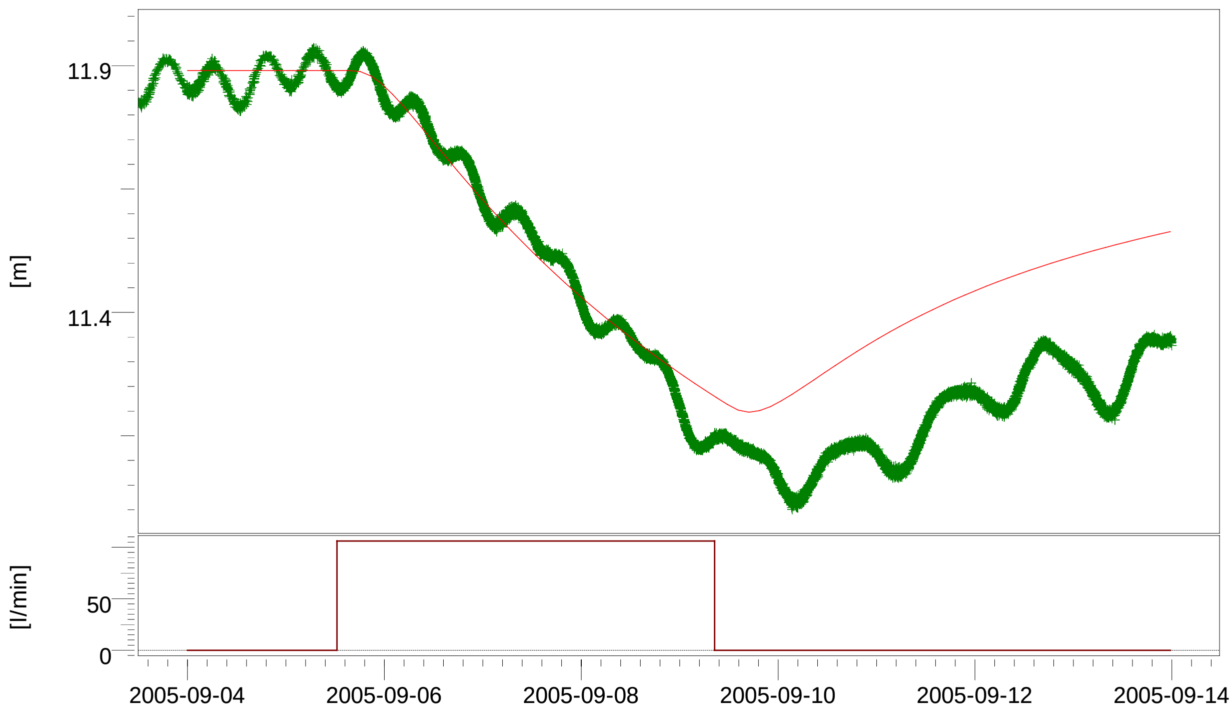
Derived & Secondary Parameters
Rinv 1200 m
Test. Vol. 623.669 MMm3

Main Results	Bu1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX33:2 Observation	Test Name / #	Interference test HLX30

Test date / time	2005-09-04
Formation interval	9.10 - 30.00m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	571.8 m
Well Radius rw	0.0695 m
Pay Zone h	20.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	3.48E-6 [sec]-1
PMatch	2.37 [m]-1
S	5.85E-4
T	6.66E-4 m2/s
K	3.18E-5 m/s
Pi	10.43 m
Well distance	572 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	10.43 m
T	6.66E-4 m2/s
K	3.18E-5 m/s
S	5.85E-4
Derived & Secondary Parameters	
Rinv	1200 m
Test. Vol.	623.669 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX04:3 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:3obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.8526 m
Pi	11.89 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.03E-6 [sec]-1
PMatch	0.792 [m]-1
S	1.3E-4
T	2.22E-4 m2/s
K	1.22E-6 m/s
Pi	11.89 m
Well distance	753 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.89 m
T	2.22E-4 m2/s
K	1.22E-6 m/s
S	1.3E-4

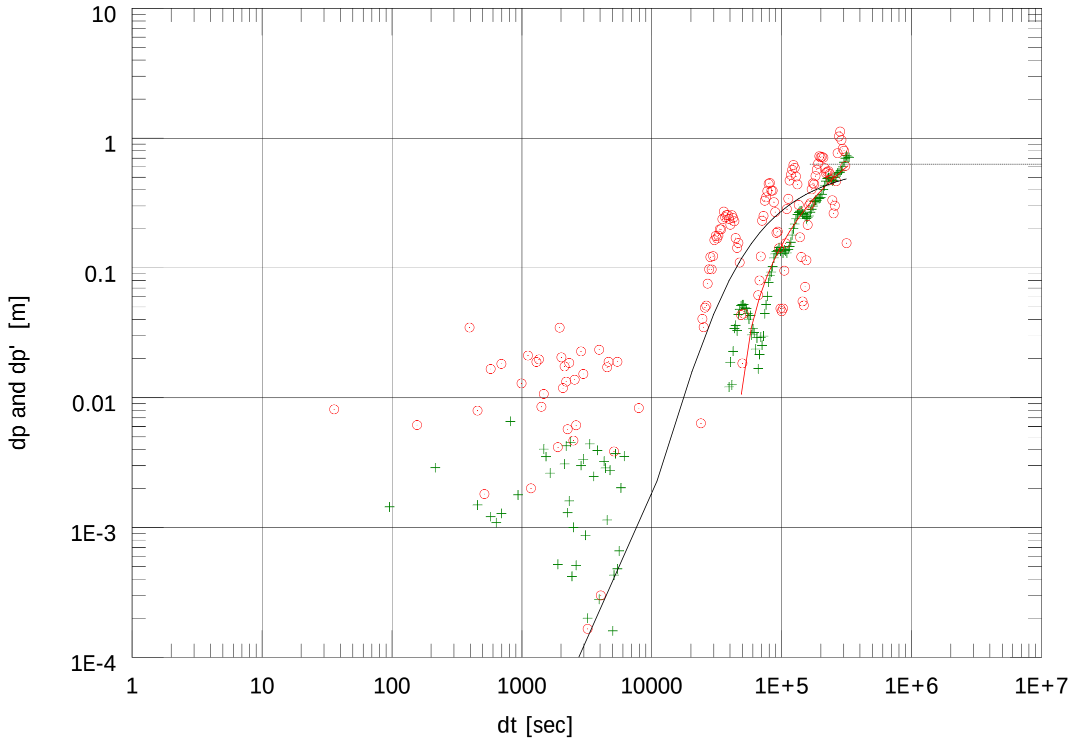
Derived & Secondary Parameters

Rinv	1350 m
Test. Vol.	173.121 MMm3

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well KLX04:3 Observation

Field Laxemar
Test Name / # Interference test HLX30



KLX04:3obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.8526 m
Pi	11.89 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.03E-6 [sec]-1
PMatch	0.792 [m]-1
S	1.3E-4
T	2.22E-4 m2/s
K	1.22E-6 m/s
Pi	11.89 m
Well distance	753 m

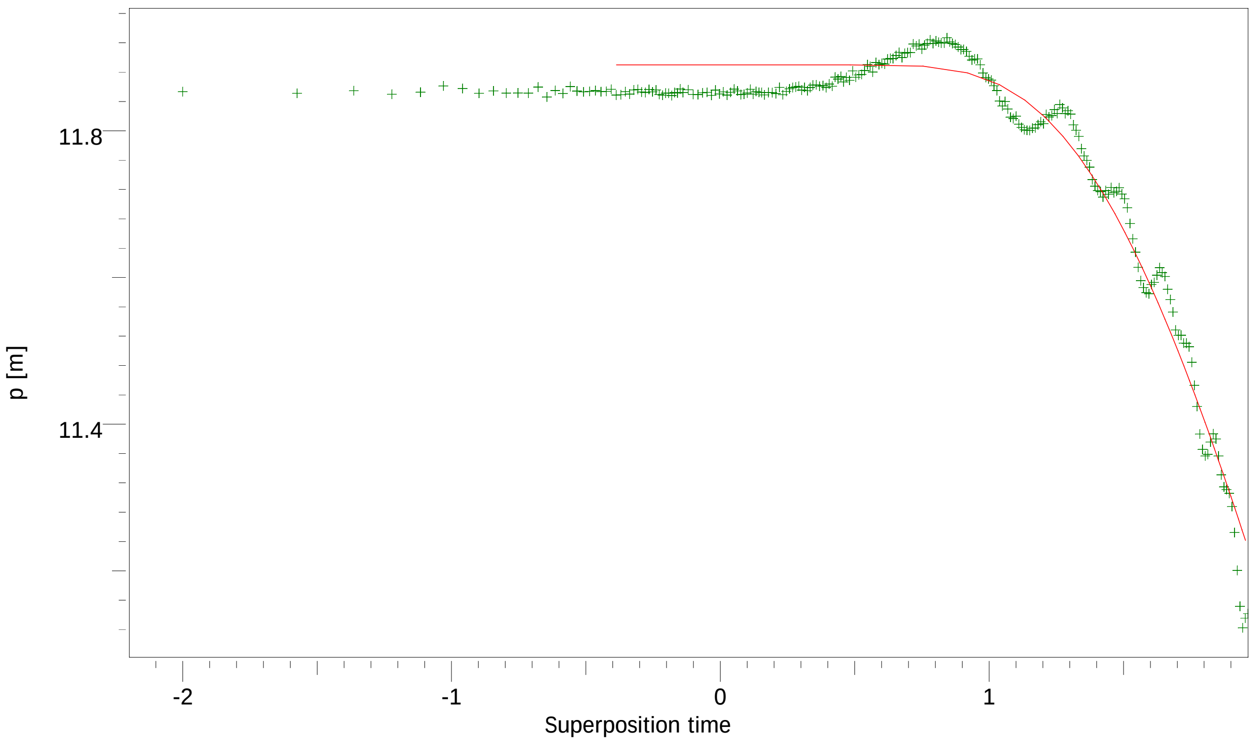
Model Parameters
Reservoir & Boundary parameters

Pi	11.89 m
T	2.22E-4 m2/s
K	1.22E-6 m/s
S	1.3E-4

Derived & Secondary Parameters

Rinv	1350 m
Test. Vol.	173.121 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX04:3 Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:3obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.8526 m
Pi	11.89 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.03E-6 [sec]-1
PMatch	0.792 [m]-1
S	1.3E-4
T	2.22E-4 m2/s
K	1.22E-6 m/s
Pi	11.89 m
Well distance	753 m

Model Parameters
Reservoir & Boundary parameters

Pi	11.89 m
T	2.22E-4 m2/s
K	1.22E-6 m/s
S	1.3E-4

Derived & Secondary Parameters

Rinv	1350 m
Test. Vol.	173.121 MMm3

Test date / time	2005-09-04
Formation interval	686 - 869m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	753 m
Well Radius rw	0.038 m
Pay Zone h	183 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	3.03E-6 [sec]-1
PMatch	0.792 [m]-1
S	1.3E-4
T	2.22E-4 m2/s
K	1.22E-6 m/s
Pi	11.89 m
Well distance	753 m

Model Parameters

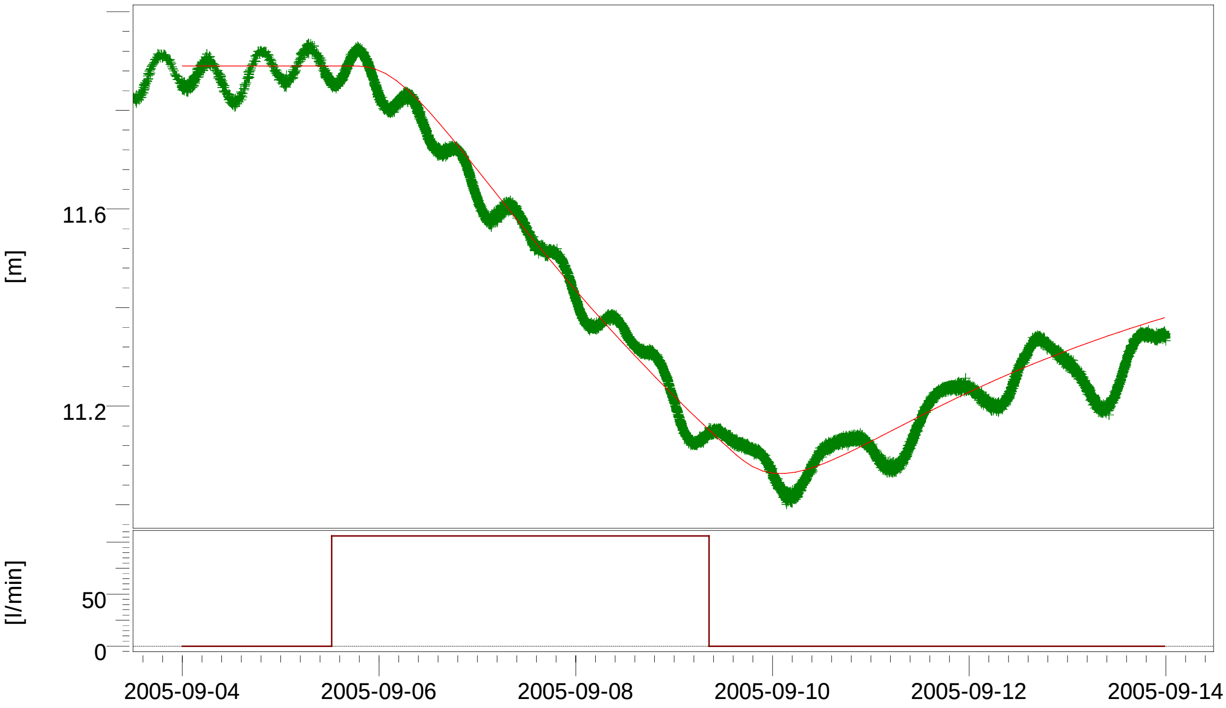
Reservoir & Boundary parameters

Pi	11.89 m
T	2.22E-4 m2/s
K	1.22E-6 m/s
S	1.3E-4

Derived & Secondary Parameters

Rinv	1350 m
Test. Vol.	173.121 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX04:3 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:3obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	11.15 m
Pi	11.89 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.8E-6 [sec]-1
PMatch	0.456 [m]-1
S	1.25E-4
T	1.28E-4 m2/s
K	7E-7 m/s
Pi	11.89 m
Well distance	753 m

Model Parameters

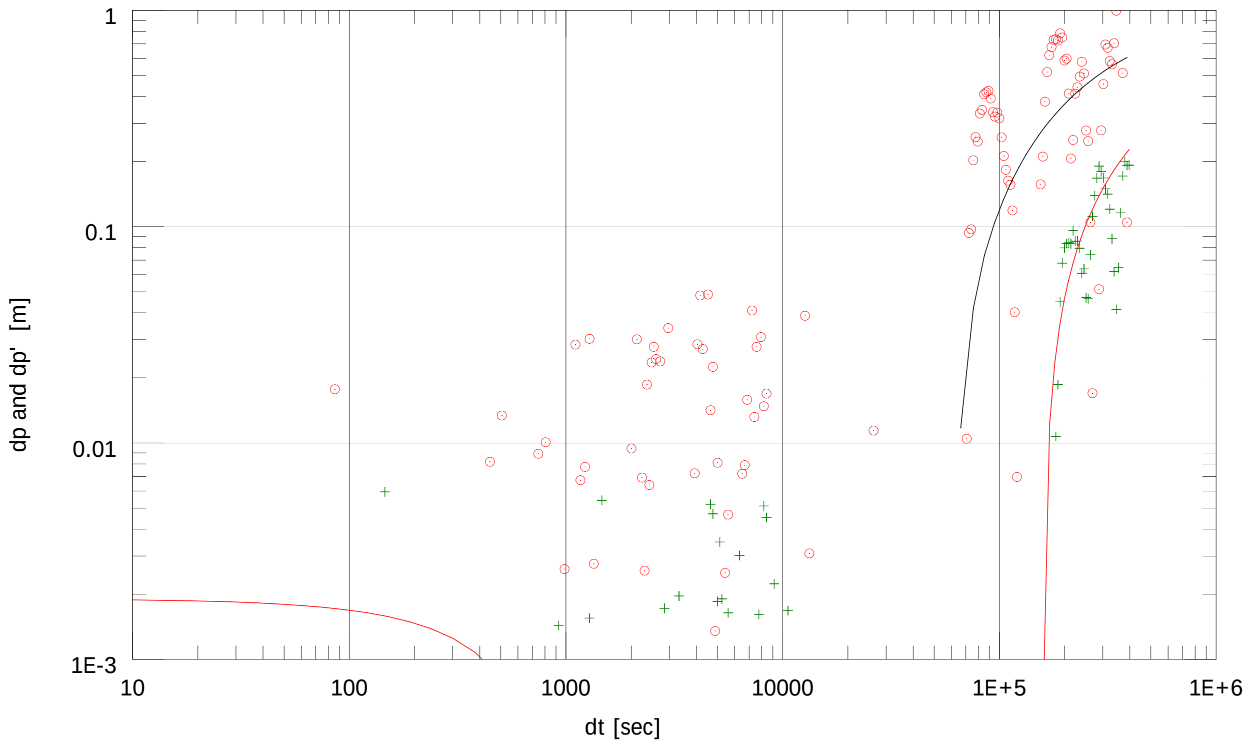
Reservoir & Boundary parameters

Pi	11.89 m
T	1.28E-4 m2/s
K	7E-7 m/s
S	1.25E-4

Derived & Secondary Parameters

Rinv	1140 m
Test. Vol.	119.675 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well KLX04:3 Observation	Test Name / # Interference test HLX30



KLX04:3obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 11.15 m
Pi 11.89 m
Smoothing 0.1

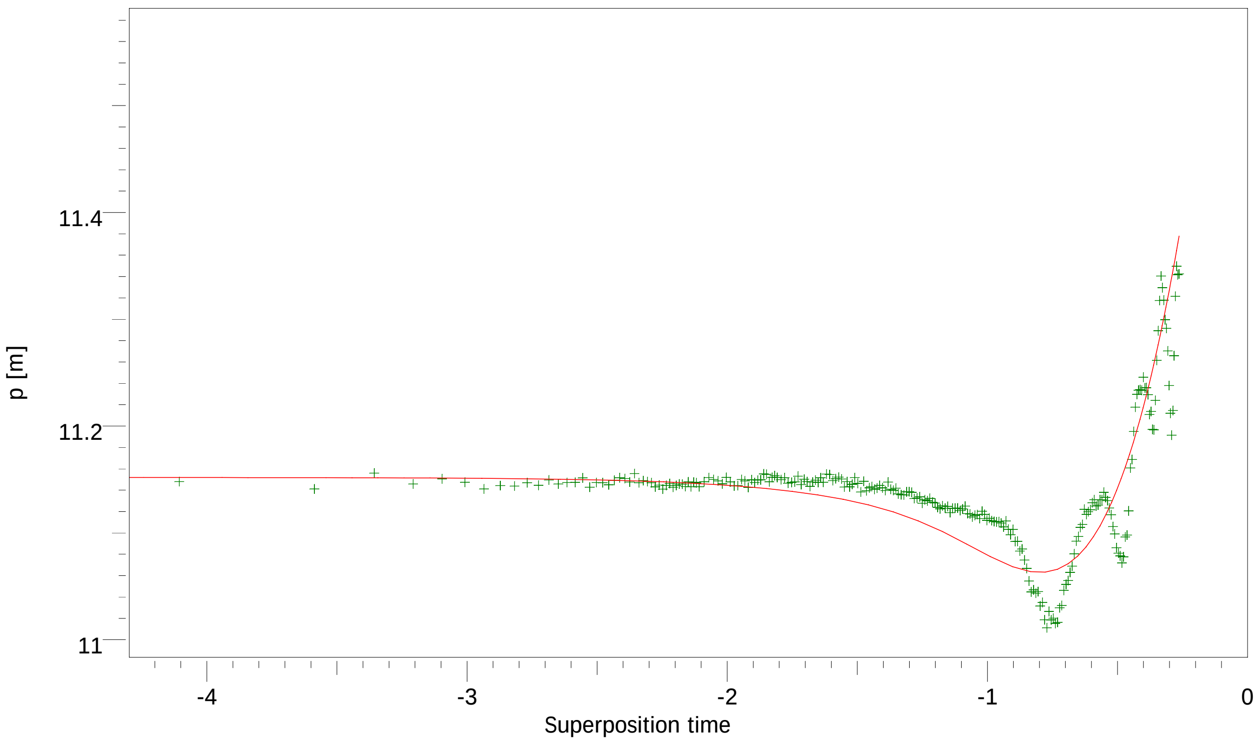
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.8E-6 [sec]-1
PMatch 0.456 [m]-1
S 1.25E-4
T 1.28E-4 m2/s
K 7E-7 m/s
Pi 11.89 m
Well distance 753 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.89 m
T 1.28E-4 m2/s
K 7E-7 m/s
S 1.25E-4

Derived & Secondary Parameters
Rinv 1140 m
Test. Vol. 119.675 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX04:3 Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:3obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 11.15 m
Pi 11.89 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.8E-6 [sec]-1
PMatch 0.456 [m]-1
S 1.25E-4
T 1.28E-4 m2/s
K 7E-7 m/s
Pi 11.89 m
Well distance 753 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.89 m
T 1.28E-4 m2/s
K 7E-7 m/s
S 1.25E-4

Derived & Secondary Parameters
Rinv 1140 m
Test. Vol. 119.675 MMm3

Main Results	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX04:3 Observation — Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	686 - 869m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	753 m
Well Radius rw	0.038 m
Pay Zone h	183 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.8E-6 [sec]-1
PMatch	0.456 [m]-1
S	1.25E-4
T	1.28E-4 m2/s
K	7E-7 m/s
Pi	11.89 m
Well distance	753 m

Model Parameters

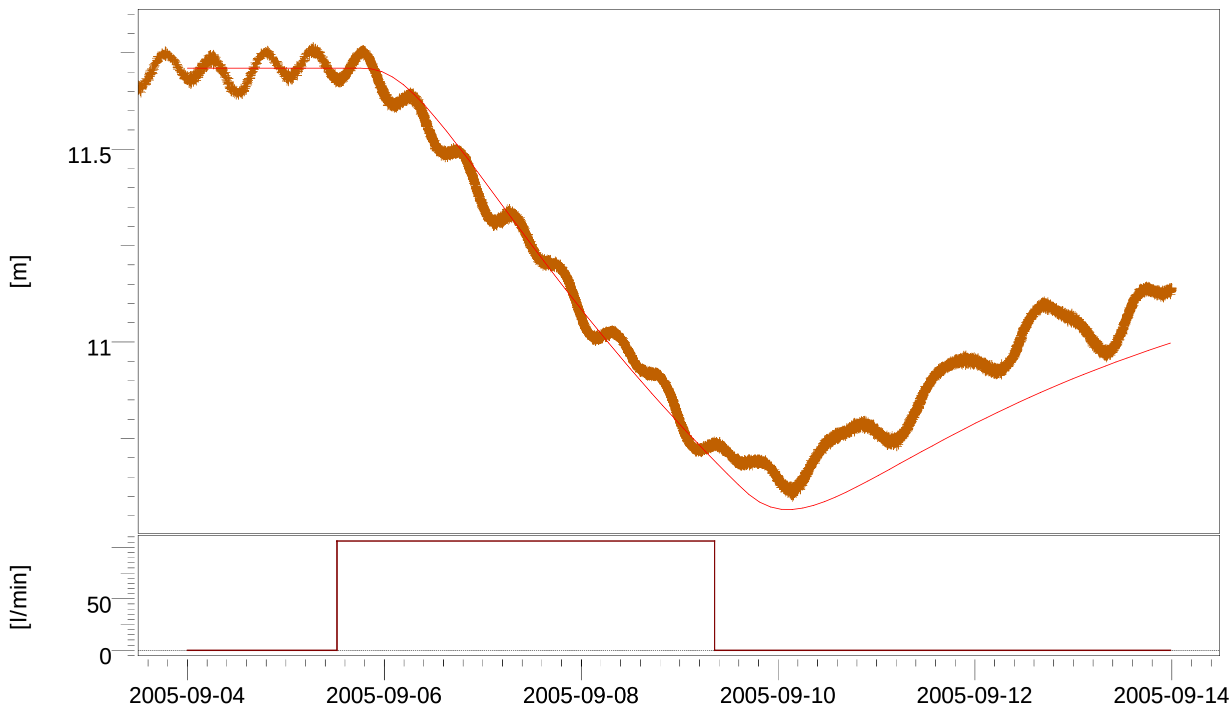
Reservoir & Boundary parameters

Pi	11.89 m
T	1.28E-4 m2/s
K	7E-7 m/s
S	1.25E-4

Derived & Secondary Parameters

Rinv	1140 m
Test. Vol.	119.675 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well KLX04:4 Observation	Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:4obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.6821 m
Pi	11.71 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.78E-6 [sec]-1
PMatch	0.325 [m]-1
S	1.4E-4
T	9.14E-5 m2/s
K	5.93E-7 m/s
Pi	11.71 m
Well distance	606 m

Model Parameters

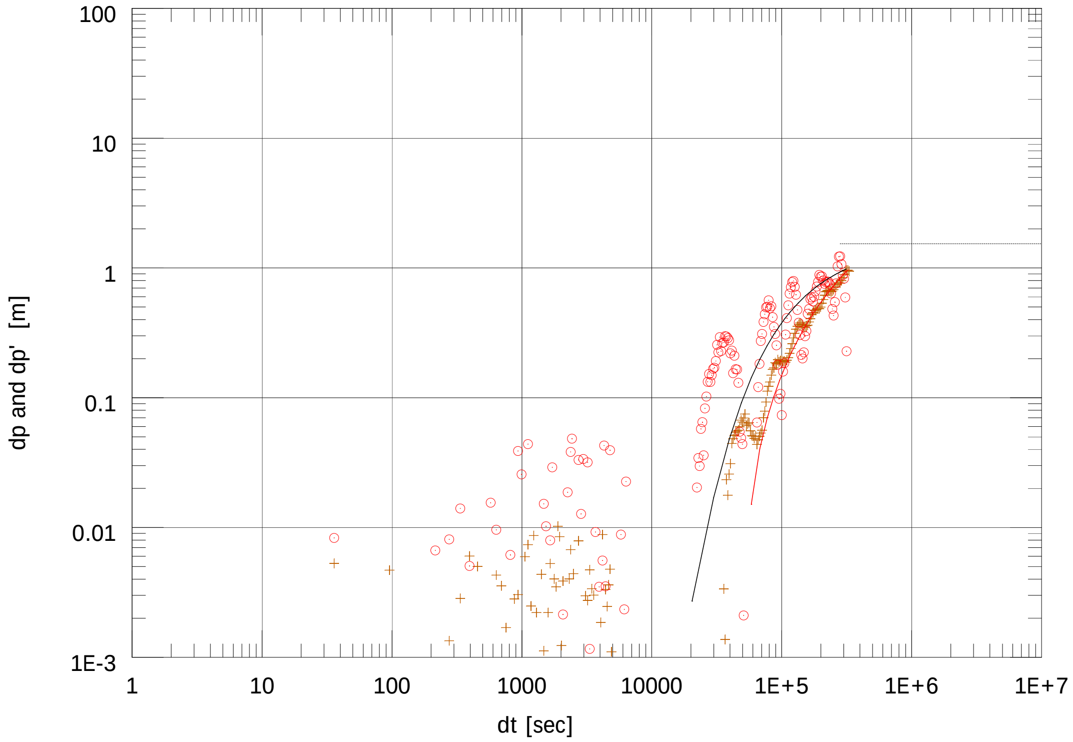
Reservoir & Boundary parameters

Pi	11.71 m
T	9.14E-5 m2/s
K	5.93E-7 m/s
S	1.4E-4

Derived & Secondary Parameters

Rinv	830 m
Test. Vol.	71.1014 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX04:4 Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:4obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.6821 m
Pi	11.71 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.78E-6 [sec]-1
PMatch	0.325 [m]-1
S	1.4E-4
T	9.14E-5 m2/s
K	5.93E-7 m/s
Pi	11.71 m
Well distance	606 m

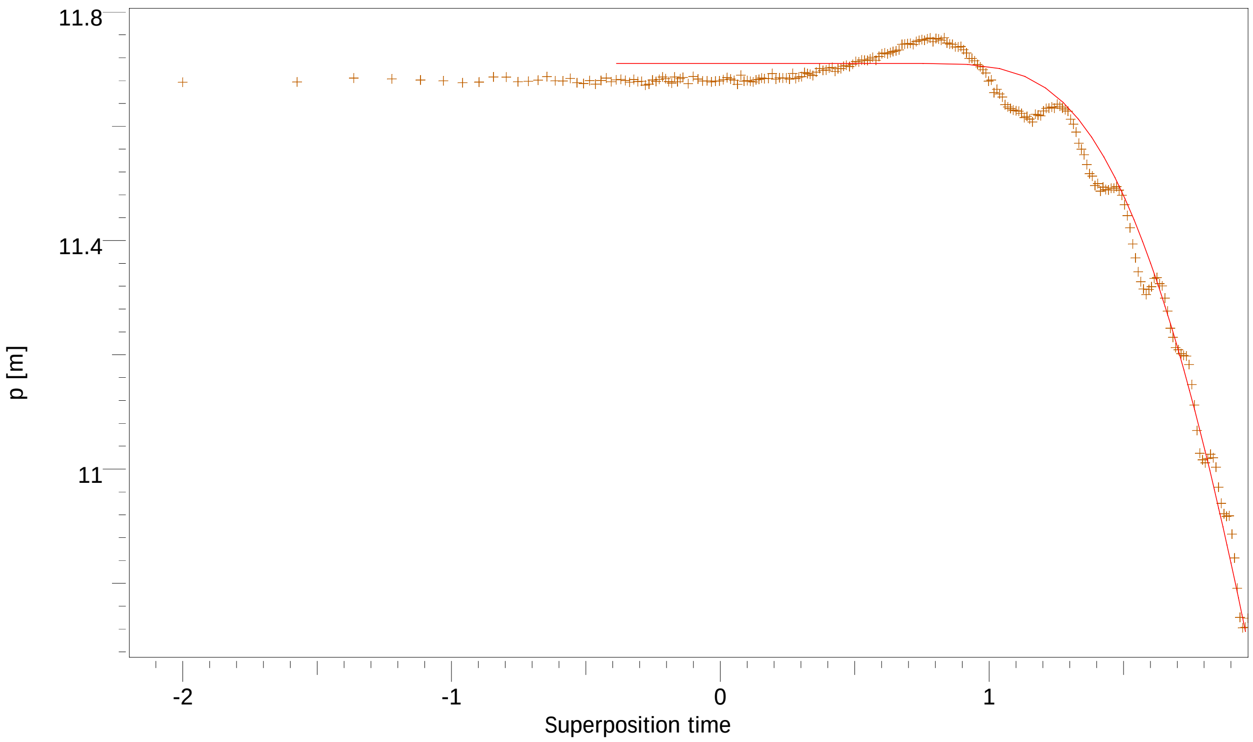
Model Parameters
Reservoir & Boundary parameters

Pi	11.71 m
T	9.14E-5 m2/s
K	5.93E-7 m/s
S	1.4E-4

Derived & Secondary Parameters

Rinv	830 m
Test. Vol.	71.1014 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX04:4 Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:4obs production #1
Rate 106 l/min
Rate change 106 l/min
P@dt=0 11.6821 m
Pi 11.71 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.78E-6 [sec]-1
PMatch 0.325 [m]-1
S 1.4E-4
T 9.14E-5 m2/s
K 5.93E-7 m/s
Pi 11.71 m
Well distance 606 m

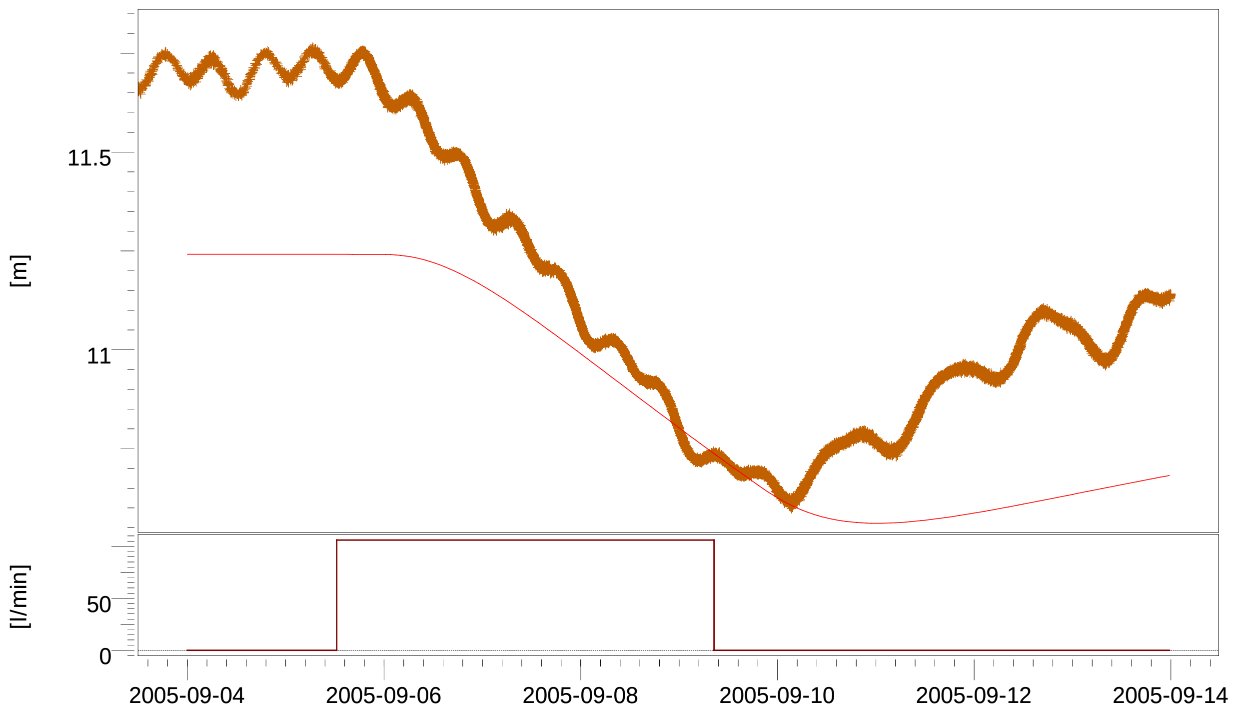
Model Parameters
Reservoir & Boundary parameters
Pi 11.71 m
T 9.14E-5 m2/s
K 5.93E-7 m/s
S 1.4E-4

Derived & Secondary Parameters
Rinv 830 m
Test. Vol. 71.1014 MMm3

Main Results	Dd1

Test date / time	2005-09-04
Formation interval	531 - 606m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	606 m
Well Radius rw	0.038 m
Pay Zone h	154 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.78E-6 [sec]-1
PMatch	0.325 [m]-1
S	1.4E-4
T	9.14E-5 m2/s
K	5.93E-7 m/s
Pi	11.71 m
Well distance	606 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	11.71 m
T	9.14E-5 m2/s
K	5.93E-7 m/s
S	1.4E-4
Derived & Secondary Parameters	
Rinv	830 m
Test. Vol.	71.1014 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX04:4 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:4obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	10.7373 m
Pi	11.2412 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.01E-6 [sec]-1
PMatch	0.34 [m]-1
S	2.57E-4
T	9.54E-5 m2/s
K	6.19E-7 m/s
Pi	11.2412 m
Well distance	606 m

Model Parameters

Reservoir & Boundary parameters

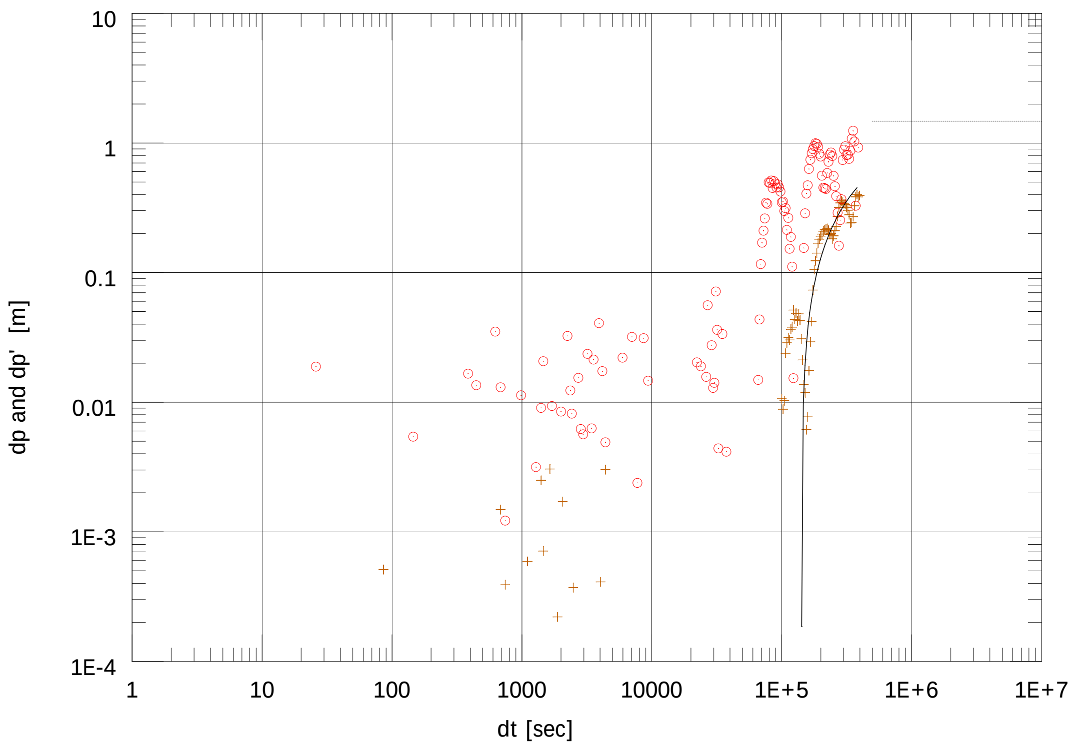
Pi	11.2412 m
T	9.54E-5 m2/s
K	6.19E-7 m/s
S	2.57E-4

Derived & Secondary Parameters

Rinv	685 m
Test. Vol.	89.127 MMm3

Log-Log plot	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX04:4 Observation — Test Name / # Interference test HLX30



KLX04:4obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	10.7373 m
Pi	11.2412 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.01E-6 [sec]-1
PMatch	0.34 [m]-1
S	2.57E-4
T	9.54E-5 m2/s
K	6.19E-7 m/s
Pi	11.2412 m
Well distance	606 m

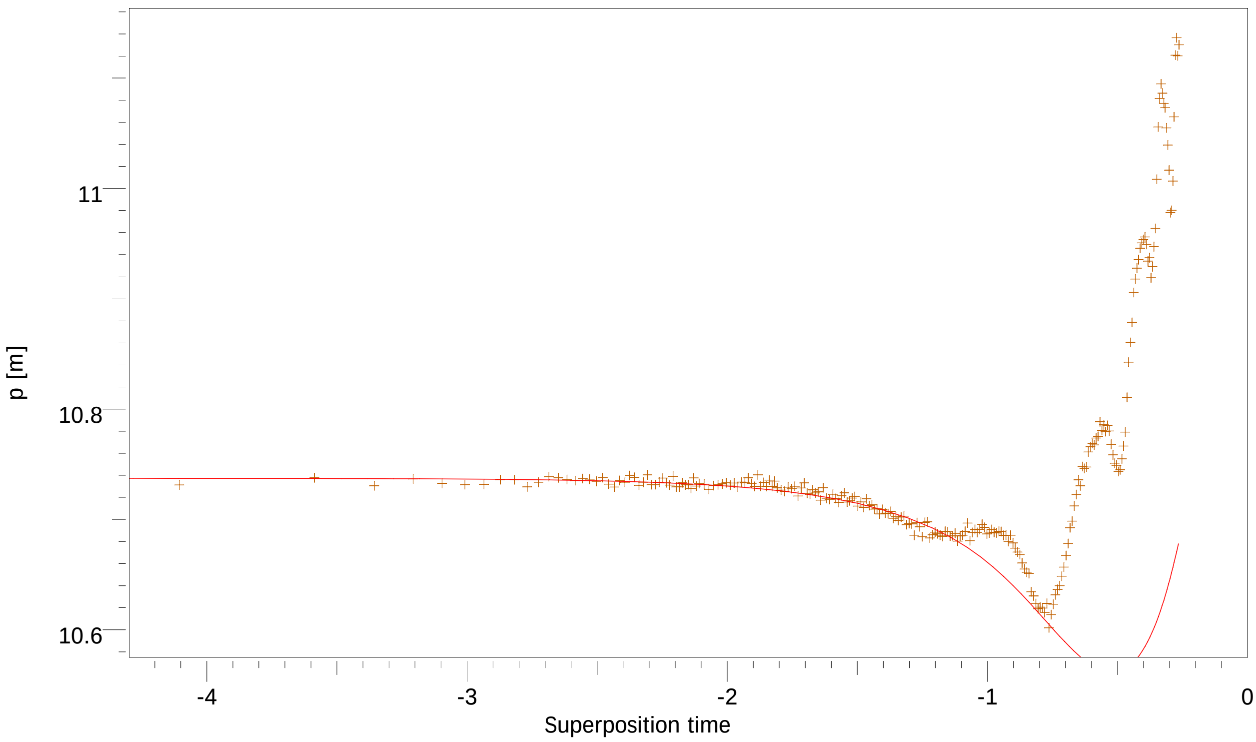
Model Parameters
Reservoir & Boundary parameters

Pi	11.2412 m
T	9.54E-5 m2/s
K	6.19E-7 m/s
S	2.57E-4

Derived & Secondary Parameters

Rinv	685 m
Test. Vol.	89.127 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX04:4 Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:4obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	10.7373 m
Pi	11.2412 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.01E-6 [sec]-1
PMatch	0.34 [m]-1
S	2.57E-4
T	9.54E-5 m2/s
K	6.19E-7 m/s
Pi	11.2412 m
Well distance	606 m

Model Parameters
Reservoir & Boundary parameters

Pi	11.2412 m
T	9.54E-5 m2/s
K	6.19E-7 m/s
S	2.57E-4

Derived & Secondary Parameters

Rinv	685 m
Test. Vol.	89.127 MMm3

Company Svensk Kärnbränslehantering AB
Well KLX04:4 Observation
Field Laxemar
Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	531 - 606m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	606 m
Well Radius rw	0.038 m
Pay Zone h	154 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.01E-6 [sec]-1
PMatch	0.34 [m]-1
S	2.57E-4
T	9.54E-5 m2/s
K	6.19E-7 m/s
Pi	11.2412 m
Well distance	606 m

Model Parameters

Reservoir & Boundary parameters

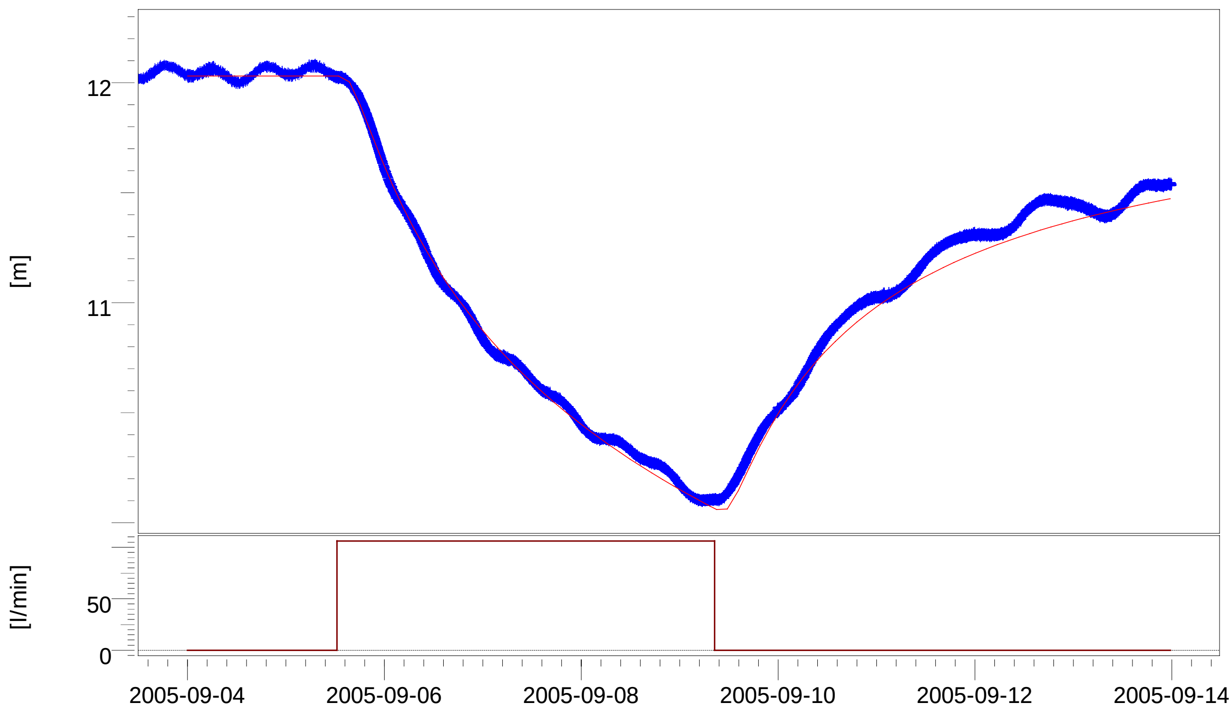
Pi	11.2412 m
T	9.54E-5 m2/s
K	6.19E-7 m/s
S	2.57E-4

Derived & Secondary Parameters

Rinv	685 m
Test. Vol.	89.127 MMm3

History plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX04:5 Observation — Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:5obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	12.0272 m
Pi	12.03 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.41E-6 [sec]-1
PMatch	0.515 [m]-1
S	5.41E-5
T	1.45E-4 m2/s
K	6.29E-6 m/s
Pi	12.03 m
Well distance	533 m

Model Parameters

Reservoir & Boundary parameters

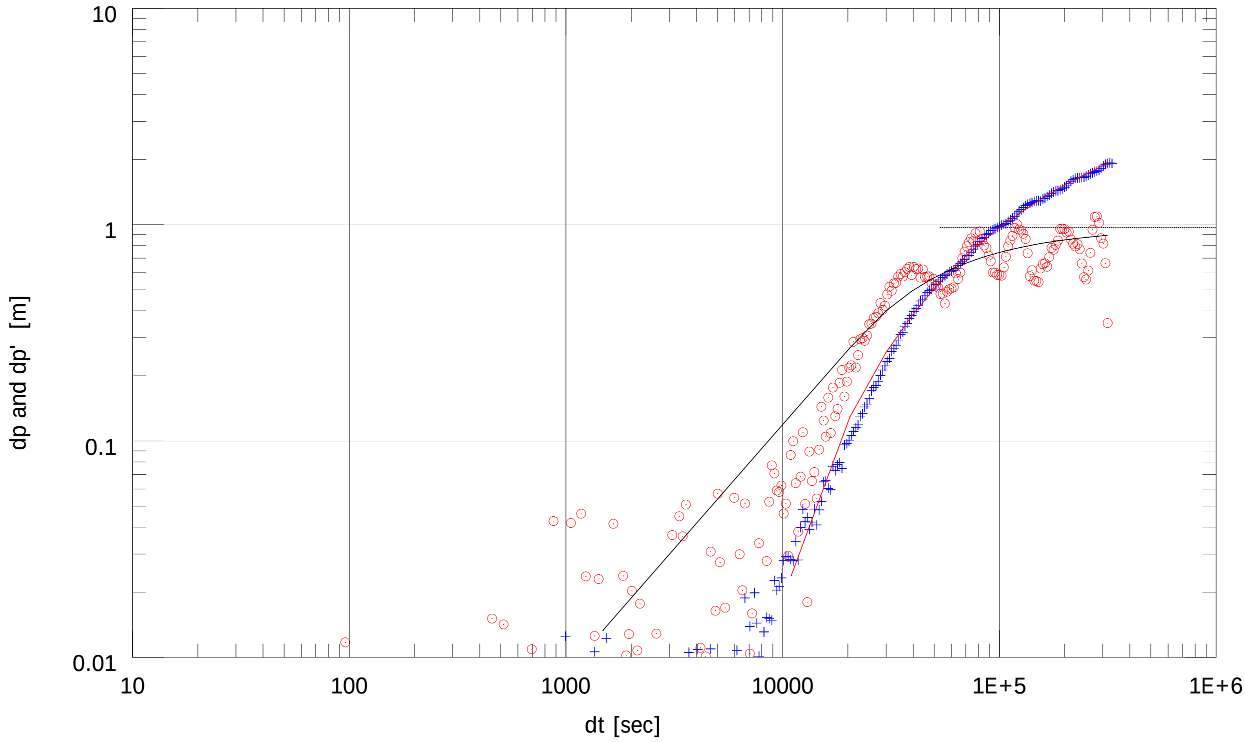
Pi	12.03 m
T	1.45E-4 m2/s
K	6.29E-6 m/s
S	5.41E-5

Derived & Secondary Parameters

Rinv	1680 m
Test. Vol.	112.513 MMm3

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well KLX04:5 Observation
Field Laxemar
Test Name / # Interference test HLX30



KLX04:5obs production #1
Rate 106 l/min
Rate change 106 l/min
P@dt=0 12.0272 m
Pi 12.03 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 9.41E-6 [sec]-1
PMatch 0.515 [m]-1
S 5.41E-5
T 1.45E-4 m2/s
K 6.29E-6 m/s
Pi 12.03 m
Well distance 533 m

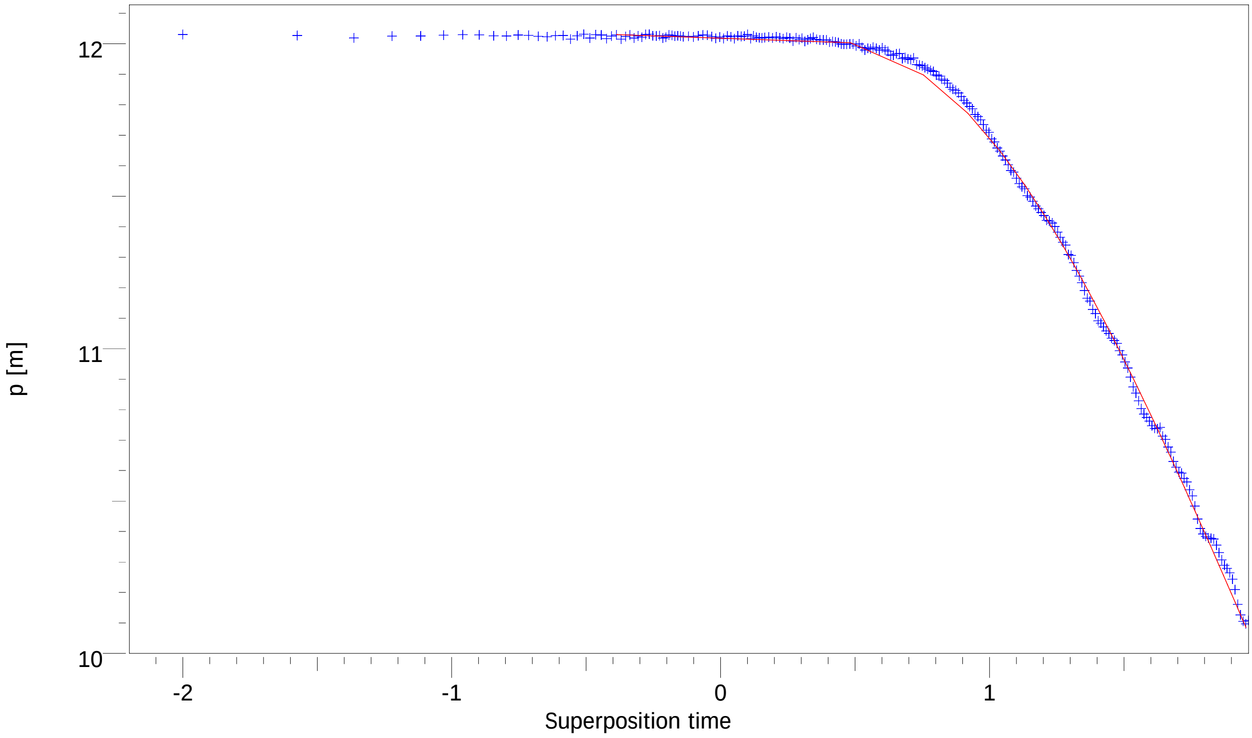
Model Parameters
Reservoir & Boundary parameters
Pi 12.03 m
T 1.45E-4 m2/s
K 6.29E-6 m/s
S 5.41E-5

Derived & Secondary Parameters
Rinv 1680 m
Test. Vol. 112.513 MMm3

Ecrin v4.02.03 KLX04_5obs

2007-12-28

	Semi-Log plot	Dd1
SKB	Company Svensk Kärnbränslehantering AB Well KLX04:5 Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:5obs production #1
Rate 106 l/min
Rate change 106 l/min
P@dt=0 12.0272 m
Pi 12.03 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

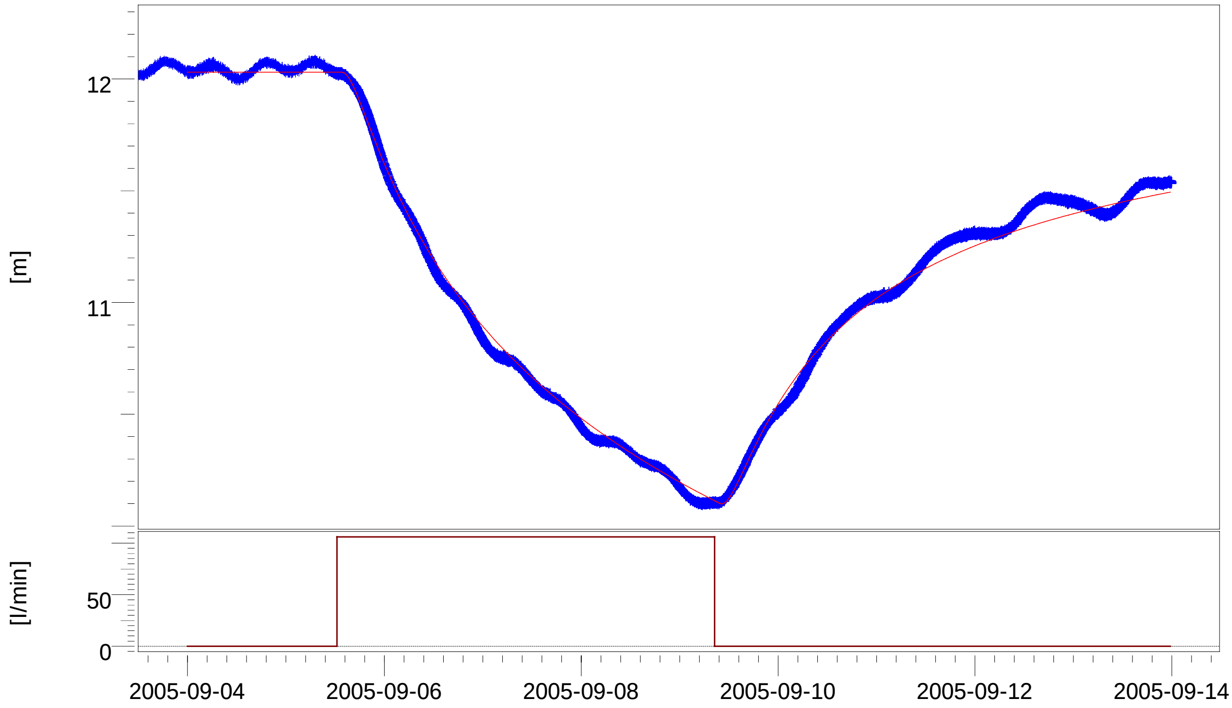
Main Model Parameters
TMatch 9.41E-6 [sec]-1
PMatch 0.515 [m]-1
S 5.41E-5
T 1.45E-4 m2/s
K 6.29E-6 m/s
Pi 12.03 m
Well distance 533 m

Model Parameters
Reservoir & Boundary parameters
Pi 12.03 m
T 1.45E-4 m2/s
K 6.29E-6 m/s
S 5.41E-5

Derived & Secondary Parameters
Rinv 1680 m
Test. Vol. 112.513 MMm3

Test date / time	2005-09-04
Formation interval	507 - 530m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	533 m
Well Radius rw	0.038 m
Pay Zone h	23 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	9.41E-6 [sec]-1
PMatch	0.515 [m]-1
S	5.41E-5
T	1.45E-4 m2/s
K	6.29E-6 m/s
Pi	12.03 m
Well distance	533 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	12.03 m
T	1.45E-4 m2/s
K	6.29E-6 m/s
S	5.41E-5
Derived & Secondary Parameters	
Rinv	1680 m
Test. Vol.	112.513 MMm3

	History plot	Bu1
	Company Svensk Kärnbränslehantering AB Well KLX04:5 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:5obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	10.0997 m
Pi	12.03 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.72E-6 [sec]-1
PMatch	0.536 [m]-1
S	5.45E-5
T	1.51E-4 m2/s
K	6.54E-6 m/s
Pi	12.03 m
Well distance	533 m

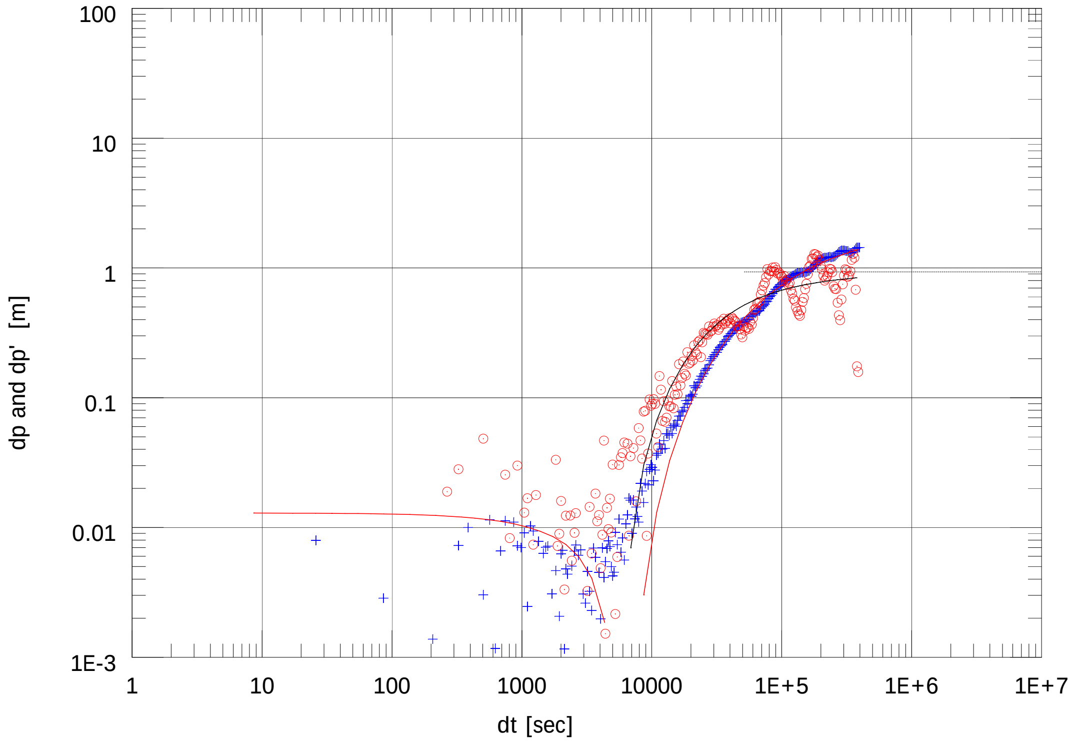
Model Parameters
Reservoir & Boundary parameters

Pi	12.03 m
T	1.51E-4 m2/s
K	6.54E-6 m/s
S	5.45E-5

Derived & Secondary Parameters

Rinv	1870 m
Test. Vol.	140.669 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX04:5 Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:5obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 10.0997 m
Pi 12.03 m
Smoothing 0.1

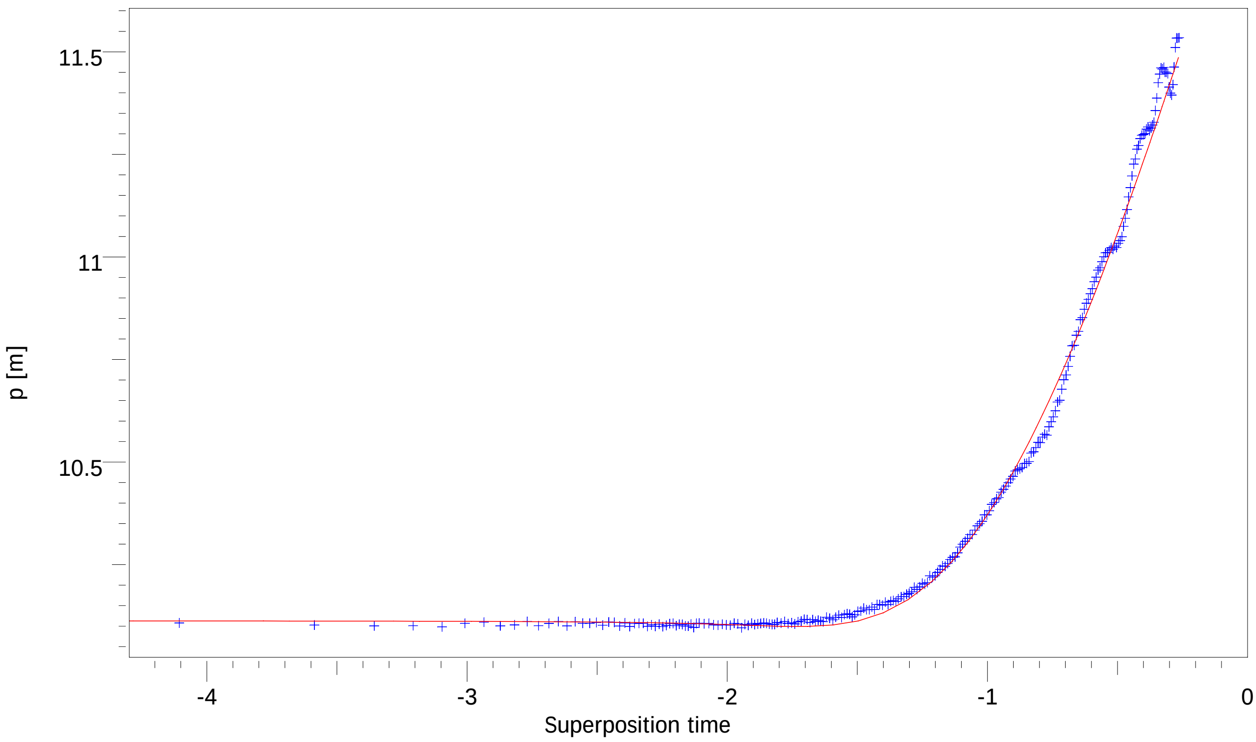
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 9.72E-6 [sec]-1
PMatch 0.536 [m]-1
S 5.45E-5
T 1.51E-4 m2/s
K 6.54E-6 m/s
Pi 12.03 m
Well distance 533 m

Model Parameters
Reservoir & Boundary parameters
Pi 12.03 m
T 1.51E-4 m2/s
K 6.54E-6 m/s
S 5.45E-5

Derived & Secondary Parameters
Rinv 1870 m
Test. Vol. 140.669 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX04:5 Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:5obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 10.0997 m
Pi 12.03 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 9.72E-6 [sec]-1
PMatch 0.536 [m]-1
S 5.45E-5
T 1.51E-4 m2/s
K 6.54E-6 m/s
Pi 12.03 m
Well distance 533 m

Model Parameters
Reservoir & Boundary parameters
Pi 12.03 m
T 1.51E-4 m2/s
K 6.54E-6 m/s
S 5.45E-5

Derived & Secondary Parameters
Rinv 1870 m
Test. Vol. 140.669 MMm3

Main Results	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX04:5 Observation — Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	507 - 530m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	533 m
Well Radius rw	0.038 m
Pay Zone h	23 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	9.72E-6 [sec]-1
PMatch	0.536 [m]-1
S	5.45E-5
T	1.51E-4 m2/s
K	6.54E-6 m/s
Pi	12.03 m
Well distance	533 m

Model Parameters

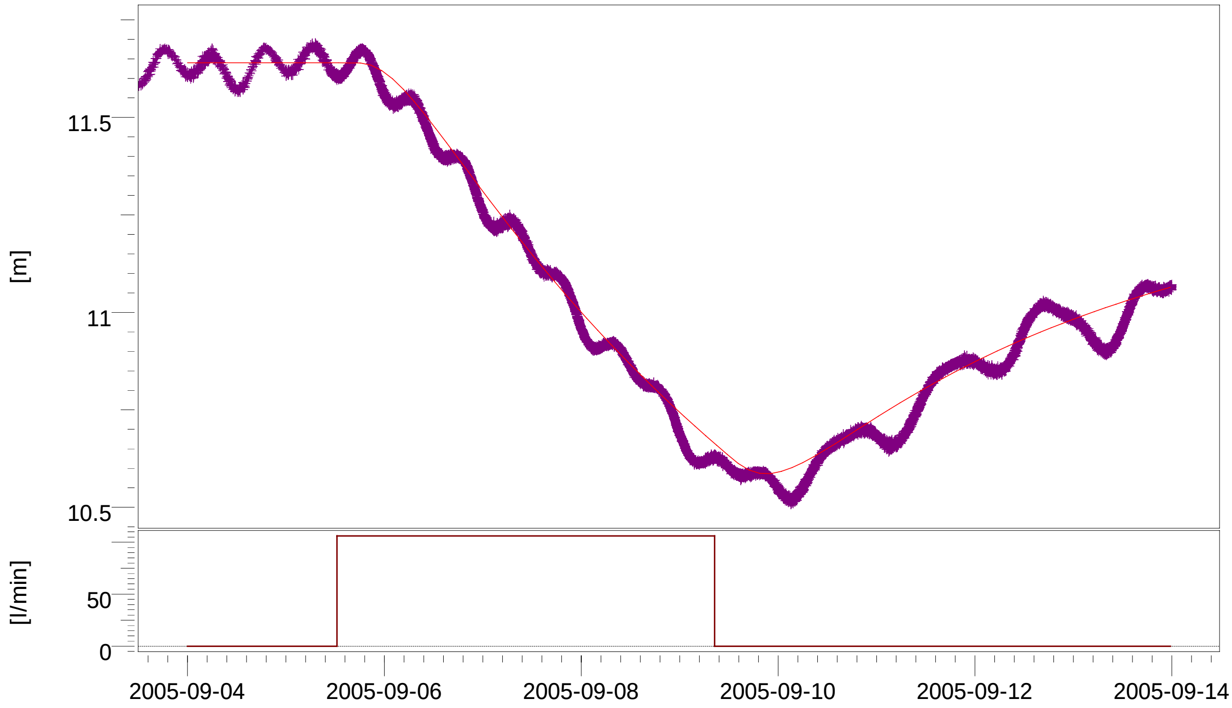
Reservoir & Boundary parameters

Pi	12.03 m
T	1.51E-4 m2/s
K	6.54E-6 m/s
S	5.45E-5

Derived & Secondary Parameters

Rinv	1870 m
Test. Vol.	140.669 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:6obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.6008 m
Pi	11.64 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.28E-6 [sec]-1
PMatch	0.414 [m]-1
S	2.8E-4
T	1.16E-4 m2/s
K	4.23E-7 m/s
Pi	11.64 m
Well distance	427 m

Model Parameters

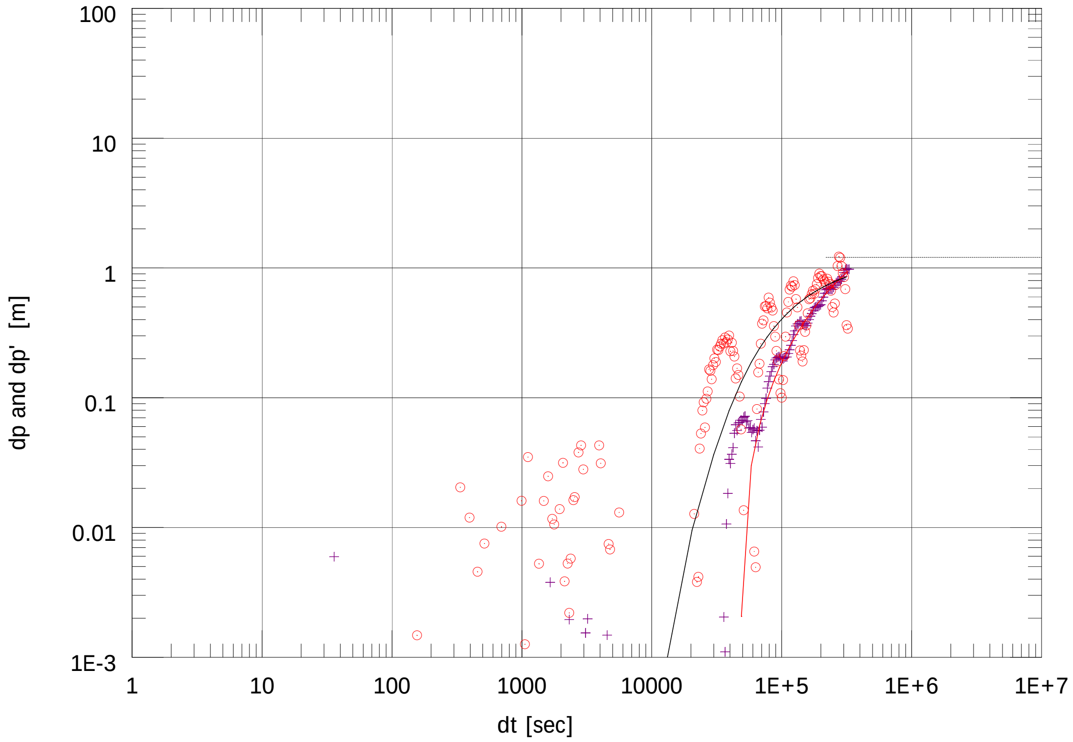
Reservoir & Boundary parameters

Pi	11.64 m
T	1.16E-4 m2/s
K	4.23E-7 m/s
S	2.8E-4

Derived & Secondary Parameters

Rinv	662 m
Test. Vol.	90.4585 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well Observation	Test Name / # Interference test HLX30



KLX04:6obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	11.6008 m
Pi	11.64 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.28E-6 [sec]-1
PMatch	0.414 [m]-1
S	2.8E-4
T	1.16E-4 m2/s
K	4.23E-7 m/s
Pi	11.64 m
Well distance	427 m

Model Parameters

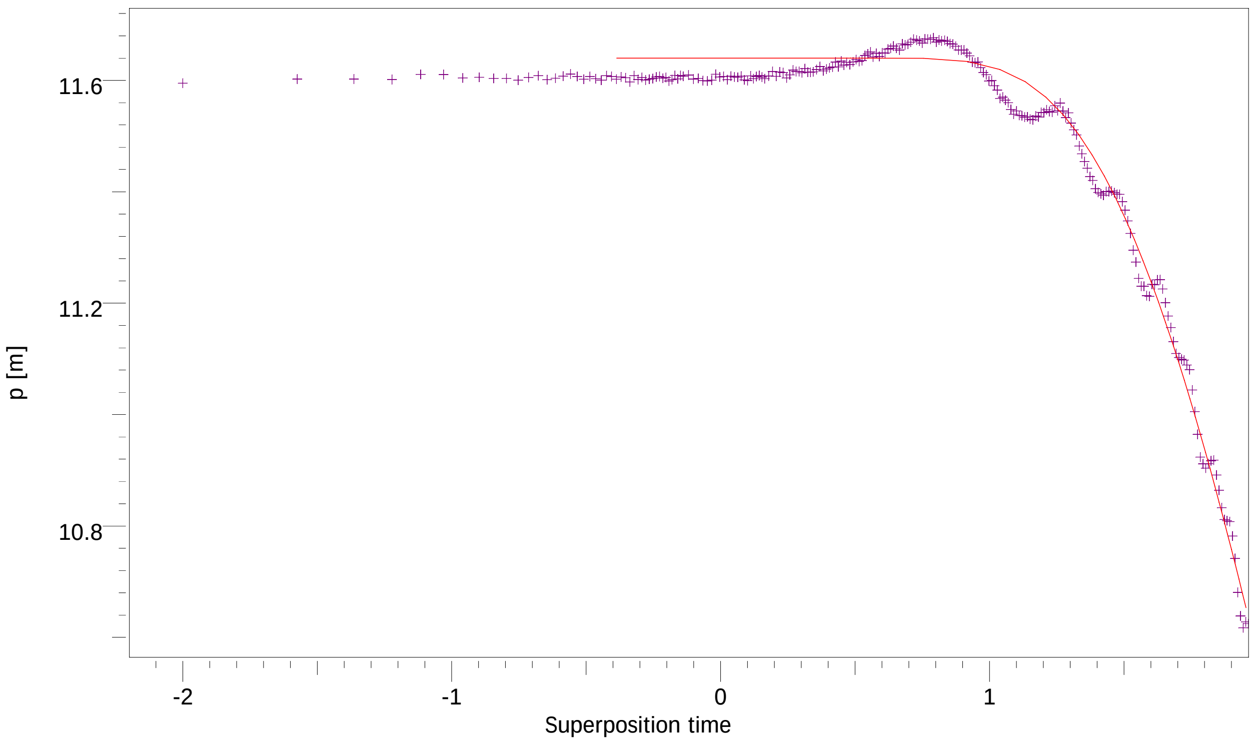
Reservoir & Boundary parameters

Pi	11.64 m
T	1.16E-4 m2/s
K	4.23E-7 m/s
S	2.8E-4

Derived & Secondary Parameters

Rinv	662 m
Test. Vol.	90.4585 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:6obs production #1
Rate 106 l/min
Rate change 106 l/min
P@dt=0 11.6008 m
Pi 11.64 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 2.28E-6 [sec]-1
PMatch 0.414 [m]-1
S 2.8E-4
T 1.16E-4 m2/s
K 4.23E-7 m/s
Pi 11.64 m
Well distance 427 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.64 m
T 1.16E-4 m2/s
K 4.23E-7 m/s
S 2.8E-4

Derived & Secondary Parameters
Rinv 662 m
Test. Vol. 90.4585 MMm3

Main Results	Dd1

Company Svensk Kärnbränslehantering AB
Well Observation
Field Laxemar
Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	9.10 - 133.20m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	427 m
Well Radius rw	0.038 m
Pay Zone h	275 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	2.28E-6 [sec]-1
PMatch	0.414 [m]-1
S	2.8E-4
T	1.16E-4 m2/s
K	4.23E-7 m/s
Pi	11.64 m
Well distance	427 m

Model Parameters

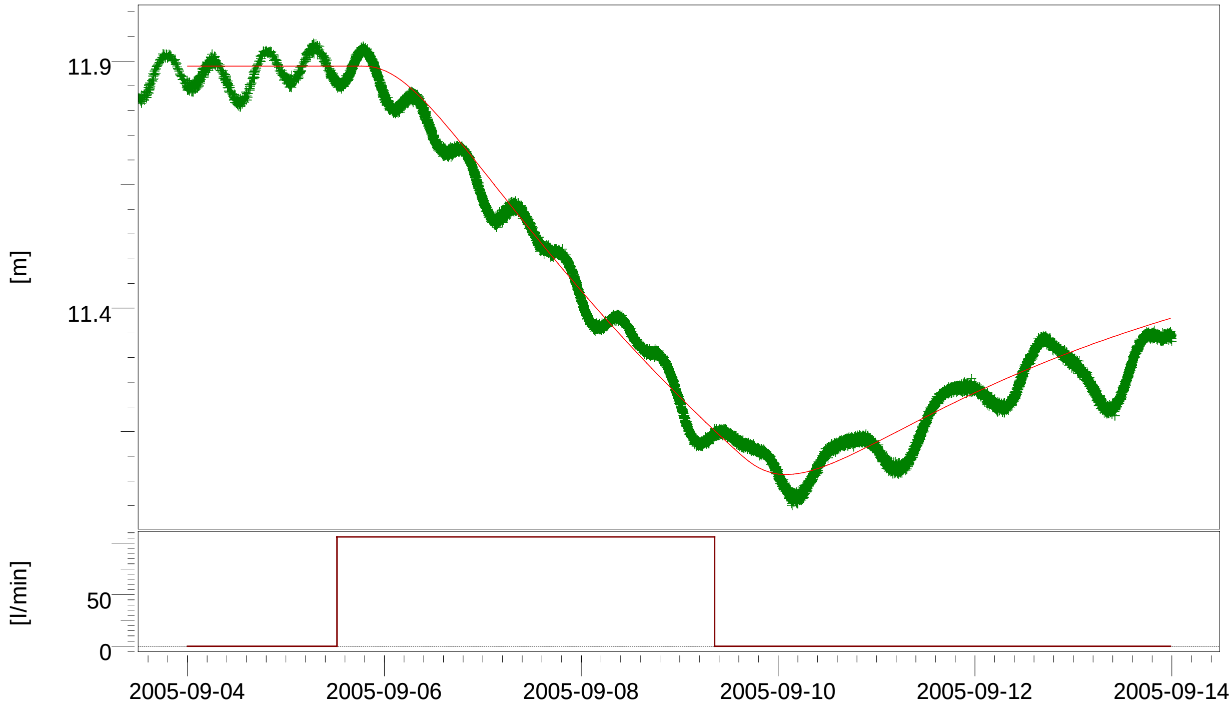
Reservoir & Boundary parameters

Pi	11.64 m
T	1.16E-4 m2/s
K	4.23E-7 m/s
S	2.8E-4

Derived & Secondary Parameters

Rinv	662 m
Test. Vol.	90.4585 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:3obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	11.15 m
Pi	11.89 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.8E-6 [sec]-1
PMatch	0.456 [m]-1
S	3.89E-4
T	1.28E-4 m2/s
K	4.66E-7 m/s
Pi	11.89 m
Well distance	427 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.89 m
T	1.28E-4 m2/s
K	4.66E-7 m/s
S	3.89E-4

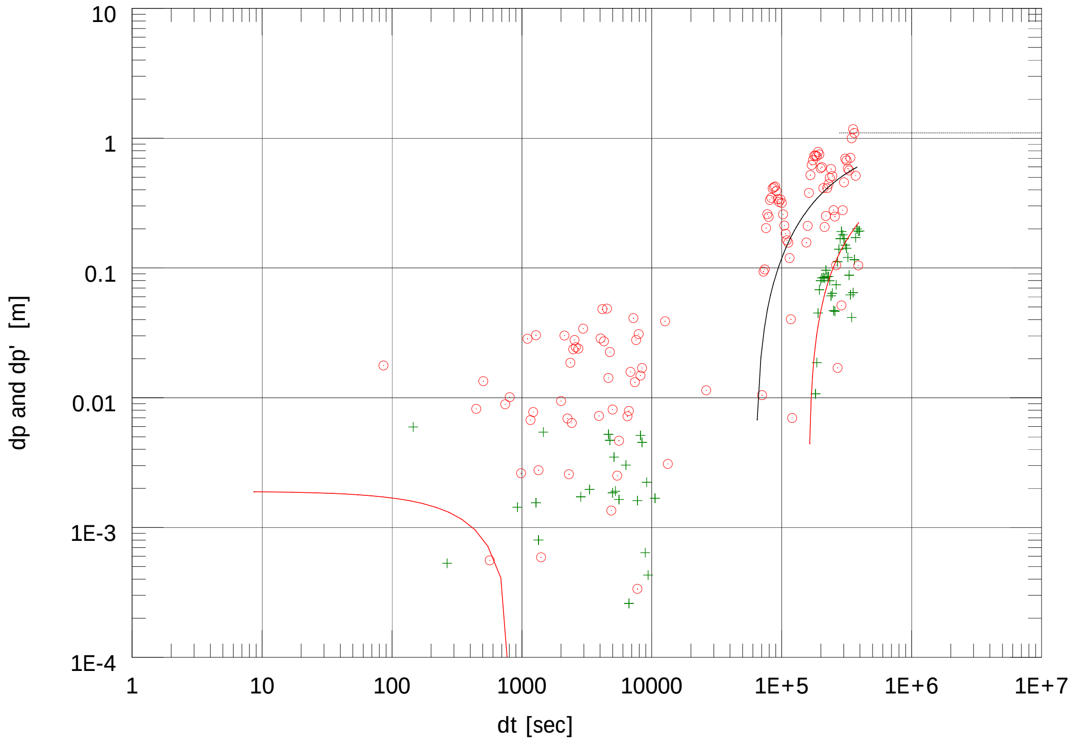
Derived & Secondary Parameters

Rinv	646 m
Test. Vol.	119.673 MMm3

Log-Log plot	Bu1

Company Svensk Kärnbränslehantering AB
Well Observation

Field Laxemar
Test Name / # Interference test HLX30



KLX04:3obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	11.15 m
Pi	11.89 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.8E-6 [sec]-1
PMatch	0.456 [m]-1
S	3.89E-4
T	1.28E-4 m2/s
K	4.66E-7 m/s
Pi	11.89 m
Well distance	427 m

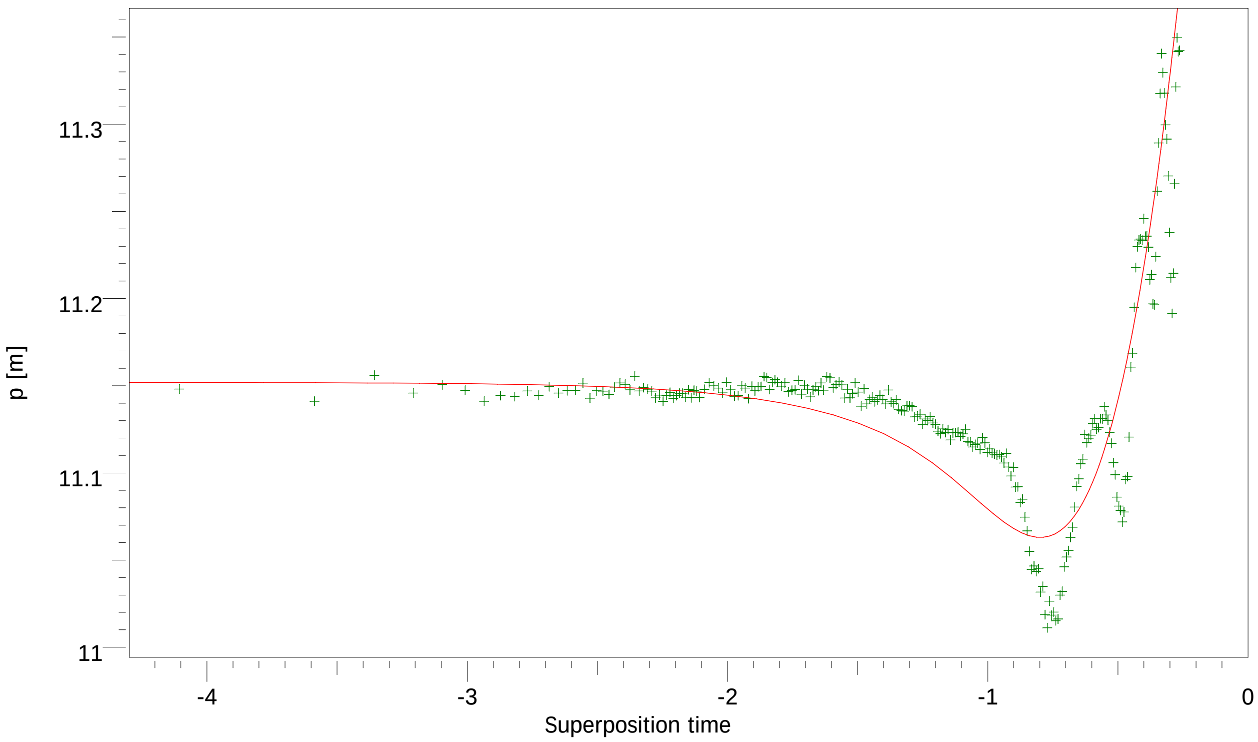
Model Parameters
Reservoir & Boundary parameters

Pi	11.89 m
T	1.28E-4 m2/s
K	4.66E-7 m/s
S	3.89E-4

Derived & Secondary Parameters

Rinv	646 m
Test. Vol.	119.673 MMm3

	Semi-Log plot	Bu1
	Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:3obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 11.15 m
Pi 11.89 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.8E-6 [sec]-1
PMatch 0.456 [m]-1
S 3.89E-4
T 1.28E-4 m2/s
K 4.66E-7 m/s
Pi 11.89 m
Well distance 427 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.89 m
T 1.28E-4 m2/s
K 4.66E-7 m/s
S 3.89E-4

Derived & Secondary Parameters
Rinv 646 m
Test. Vol. 119.673 MMm3

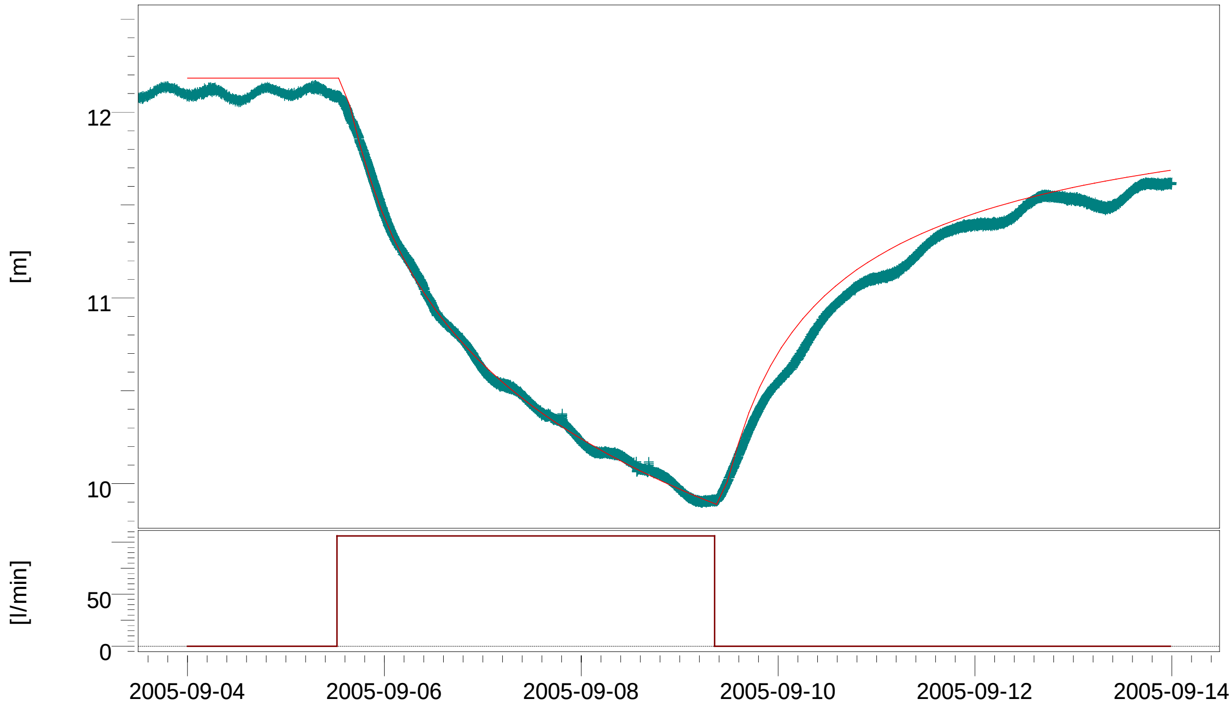
Main Results	Bu1

Company Svensk Kärnbränslehantering AB
Well Observation

Field Laxemar
Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	9.10 - 133.20m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	427 m
Well Radius rw	0.038 m
Pay Zone h	275 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.8E-6 [sec]-1
PMatch	0.456 [m]-1
S	3.89E-4
T	1.28E-4 m2/s
K	4.66E-7 m/s
Pi	11.89 m
Well distance	427 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	11.89 m
T	1.28E-4 m2/s
K	4.66E-7 m/s
S	3.89E-4
Derived & Secondary Parameters	
Rinv	646 m
Test. Vol.	119.673 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:7obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	12.0876 m
Pi	12.1826 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.96E-5 [sec]-1
PMatch	0.594 [m]-1
S	6.17E-5
T	1.67E-4 m2/s
K	2.49E-6 m/s
Pi	12.1826 m
Well distance	371 m

Model Parameters

Reservoir & Boundary parameters

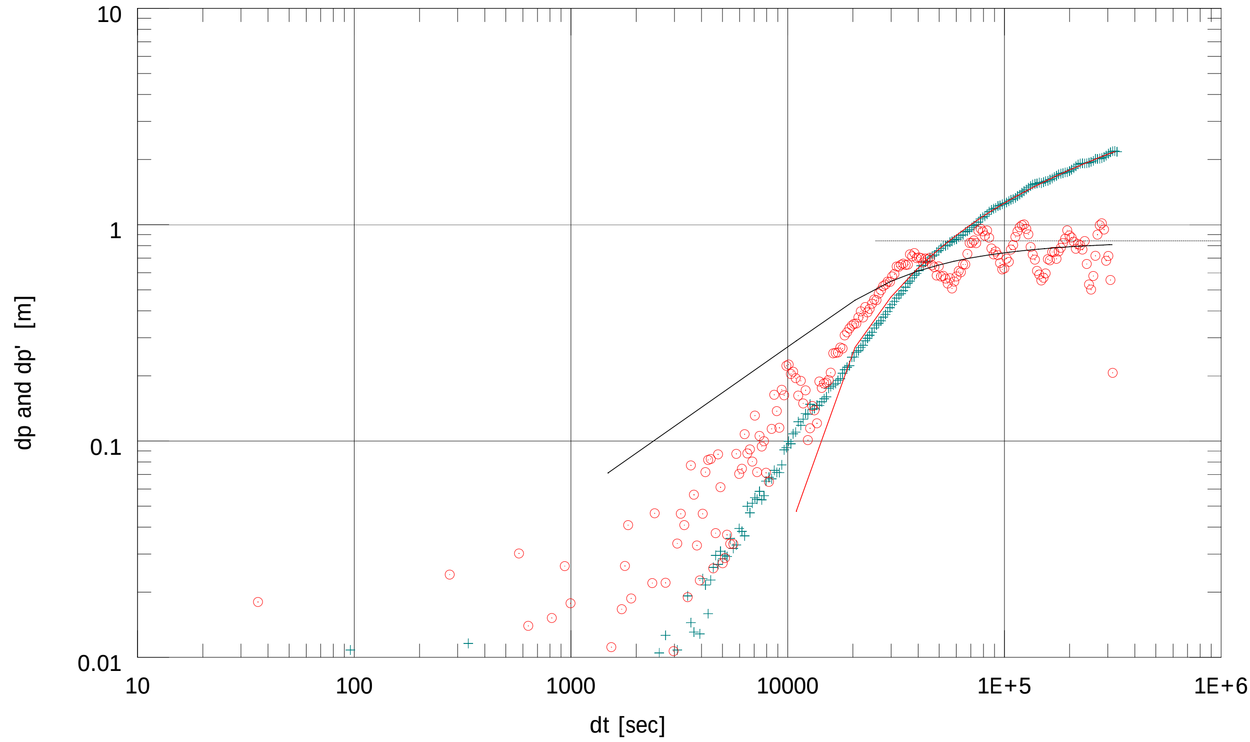
Pi	12.1826 m
T	1.67E-4 m2/s
K	2.49E-6 m/s
S	6.17E-5

Derived & Secondary Parameters

Rinv	1690 m
Test. Vol.	129.738 MMm3

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well Observation — Test Name / # Interference test HLX30



KLX04:7obs production #1
Rate 106 l/min
Rate change 106 l/min
P@dt=0 12.0876 m
Pi 12.1826 m
Smoothing 0.1

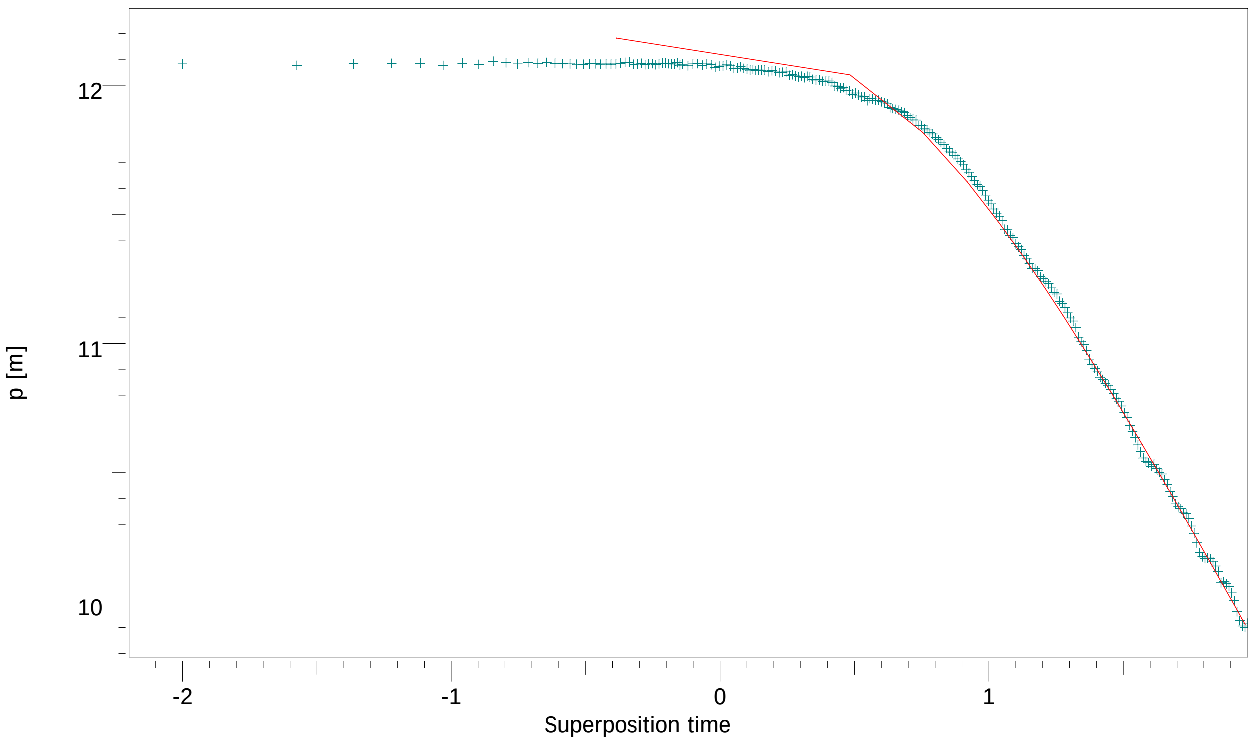
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.96E-5 [sec]-1
PMatch 0.594 [m]-1
S 6.17E-5
T 1.67E-4 m2/s
K 2.49E-6 m/s
Pi 12.1826 m
Well distance 371 m

Model Parameters
Reservoir & Boundary parameters
Pi 12.1826 m
T 1.67E-4 m2/s
K 2.49E-6 m/s
S 6.17E-5

Derived & Secondary Parameters
Rinv 1690 m
Test. Vol. 129.738 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well Observation	Test Name / # Interference test HLX30



KLX04:7obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	12.0876 m
Pi	12.1826 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.96E-5 [sec]-1
PMatch	0.594 [m]-1
S	6.17E-5
T	1.67E-4 m2/s
K	2.49E-6 m/s
Pi	12.1826 m
Well distance	371 m

Model Parameters

Reservoir & Boundary parameters

Pi	12.1826 m
T	1.67E-4 m2/s
K	2.49E-6 m/s
S	6.17E-5

Derived & Secondary Parameters

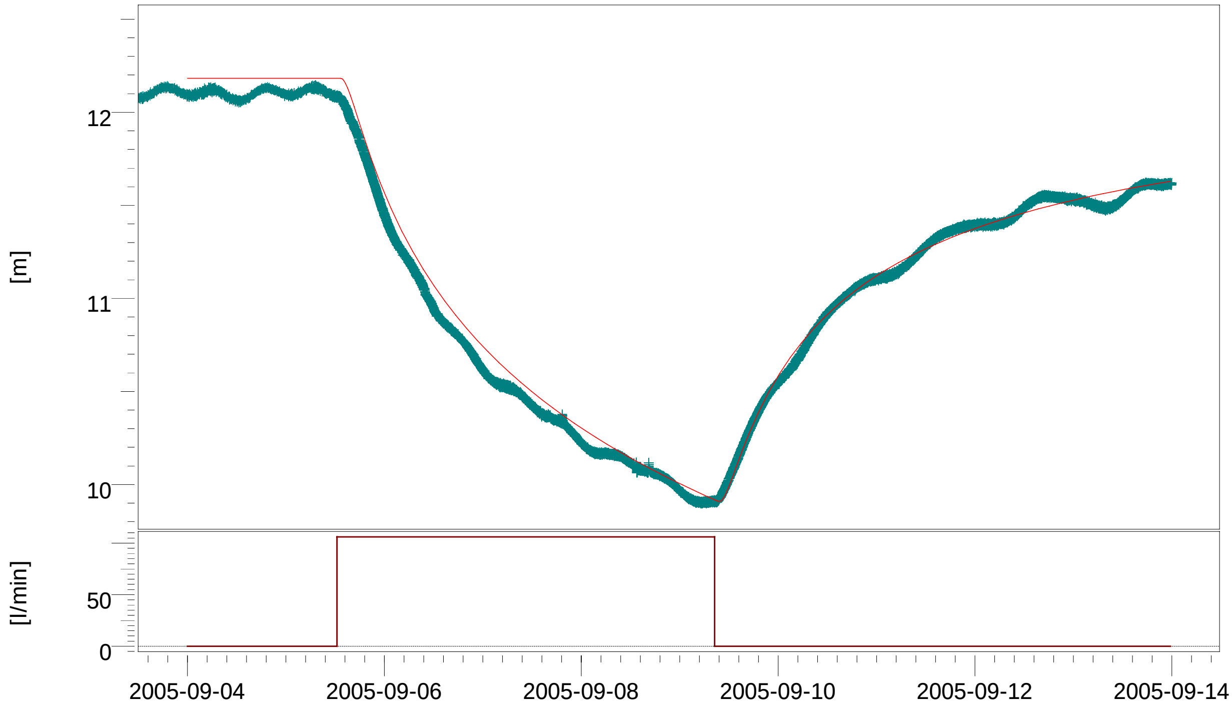
Rinv	1690 m
Test. Vol.	129.738 MMm3

Main Results	Dd1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	9.10 - 133.20m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	371 m
Well Radius rw	0.038 m
Pay Zone h	67 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.96E-5 [sec]-1
PMatch	0.594 [m]-1
S	6.17E-5
T	1.67E-4 m2/s
K	2.49E-6 m/s
Pi	12.1826 m
Well distance	371 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	12.1826 m
T	1.67E-4 m2/s
K	2.49E-6 m/s
S	6.17E-5
Derived & Secondary Parameters	
Rinv	1690 m
Test. Vol.	129.738 MMm3

History plot	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well Observation — Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:7obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 9.90969 m
Pi 12.1826 m
Smoothing 0.1

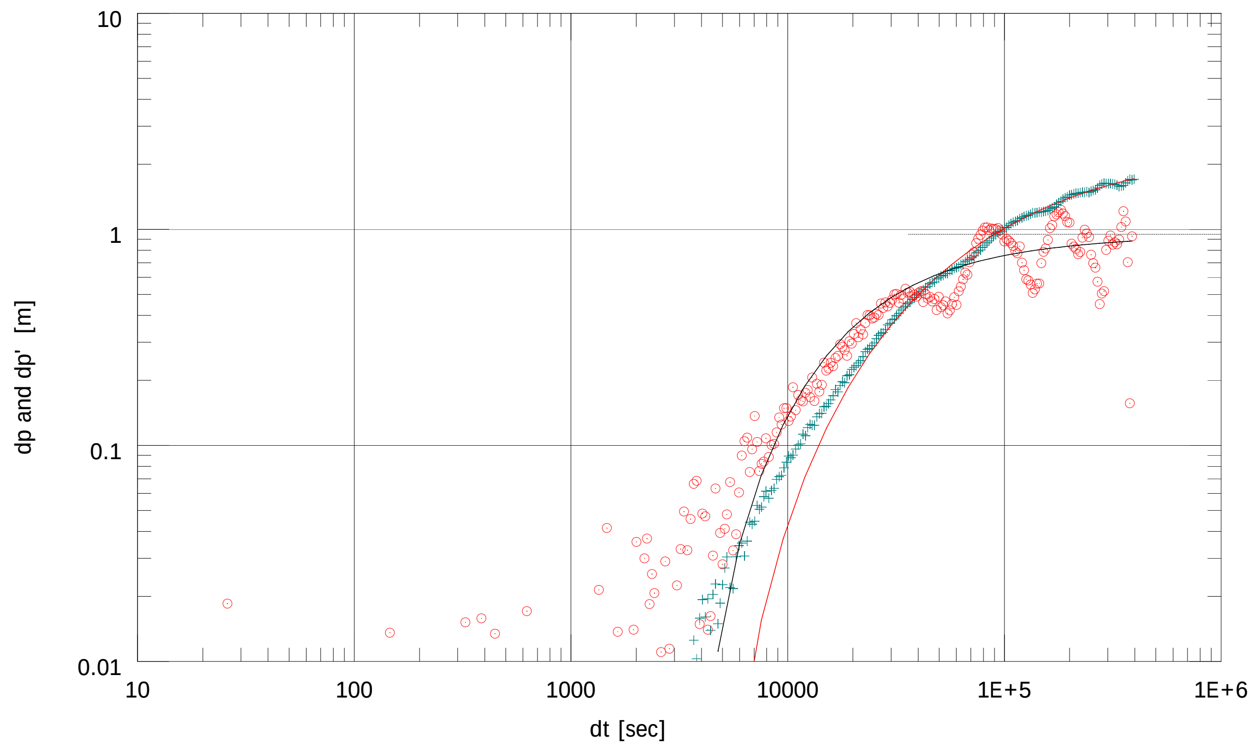
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.39E-5 [sec]-1
PMatch 0.527 [m]-1
S 7.76E-5
T 1.48E-4 m2/s
K 2.21E-6 m/s
Pi 12.1826 m
Well distance 371 m

Model Parameters
Reservoir & Boundary parameters
Pi 12.1826 m
T 1.48E-4 m2/s
K 2.21E-6 m/s
S 7.76E-5

Derived & Secondary Parameters
Rinv 1550 m
Test. Vol. 138.31 MMm3

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:7obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	9.90969 m
Pi	12.1826 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.39E-5 [sec]-1
PMatch	0.527 [m]-1
S	7.76E-5
T	1.48E-4 m2/s
K	2.21E-6 m/s
Pi	12.1826 m
Well distance	371 m

Model Parameters

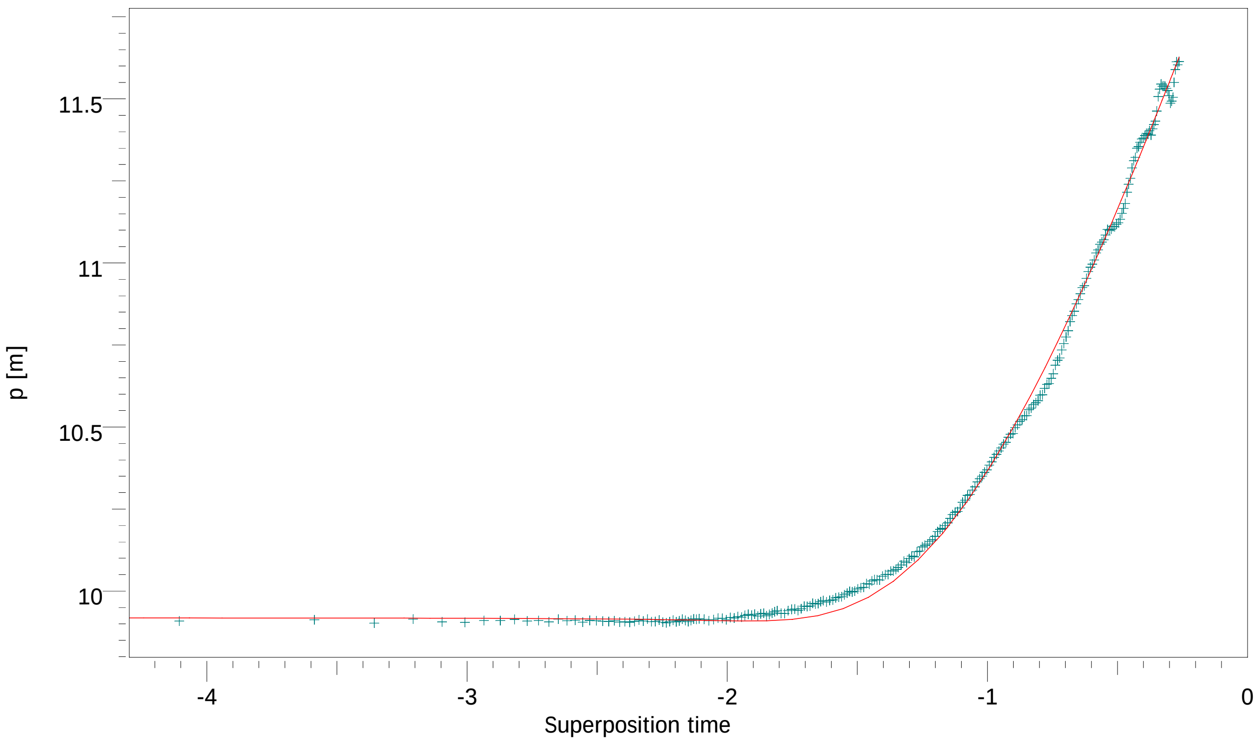
Reservoir & Boundary parameters

Pi	12.1826 m
T	1.48E-4 m2/s
K	2.21E-6 m/s
S	7.76E-5

Derived & Secondary Parameters

Rinv	1550 m
Test. Vol.	138.31 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well Observation	Test Name / # Interference test HLX30



KLX04:7obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	9.90969 m
Pi	12.1826 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.39E-5 [sec]-1
PMatch	0.527 [m]-1
S	7.76E-5
T	1.48E-4 m2/s
K	2.21E-6 m/s
Pi	12.1826 m
Well distance	371 m

Model Parameters
Reservoir & Boundary parameters

Pi	12.1826 m
T	1.48E-4 m2/s
K	2.21E-6 m/s
S	7.76E-5

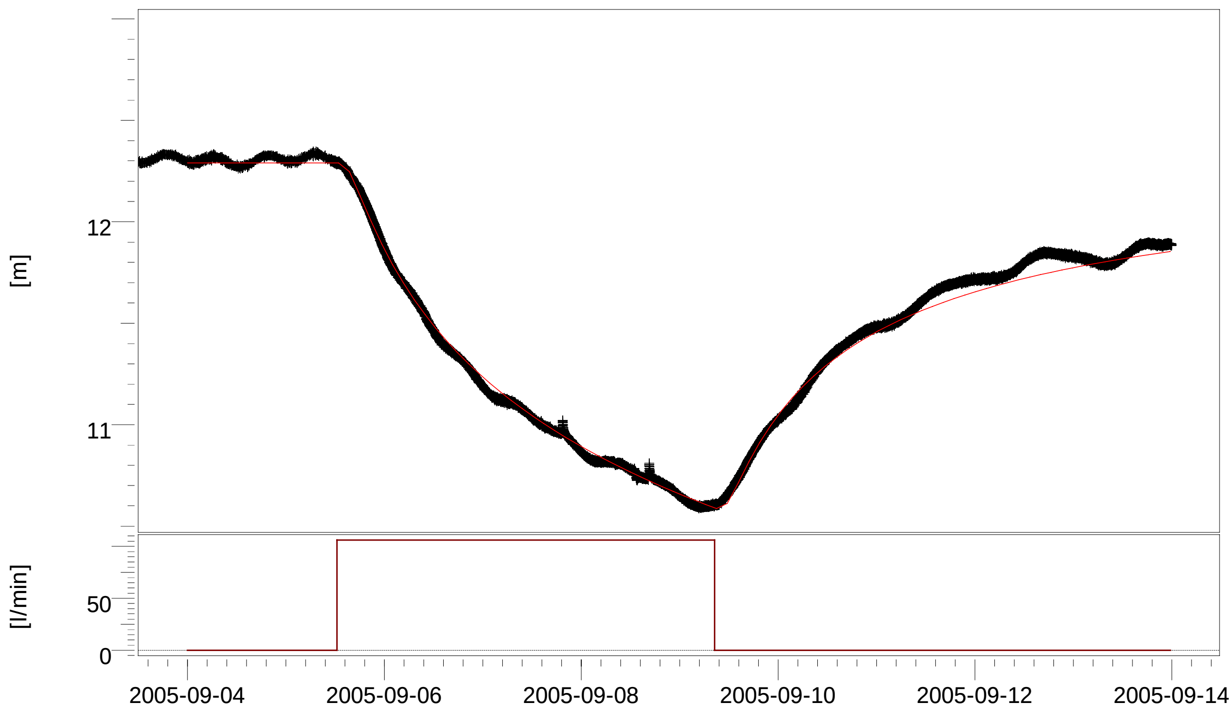
Derived & Secondary Parameters

Rinv	1550 m
Test. Vol.	138.31 MMm3

Main Results	Bu1
Company Svensk Kärnbränslehantering AB Well Observation	Field Laxemar Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	9.10 - 133.20m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	371 m
Well Radius rw	0.038 m
Pay Zone h	67 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.39E-5 [sec]-1
PMatch	0.527 [m]-1
S	7.76E-5
T	1.48E-4 m2/s
K	2.21E-6 m/s
Pi	12.1826 m
Well distance	371 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	12.1826 m
T	1.48E-4 m2/s
K	2.21E-6 m/s
S	7.76E-5
Derived & Secondary Parameters	
Rinv	1550 m
Test. Vol.	138.31 MMm3

History plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX04:8 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:8obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	12.2909 m
Pi	12.29 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.21E-5 [sec]-1
PMatch	0.665 [m]-1
S	1.39E-4
T	1.87E-4 m2/s
K	1.25E-6 m/s
Pi	12.29 m
Well distance	333 m

Model Parameters

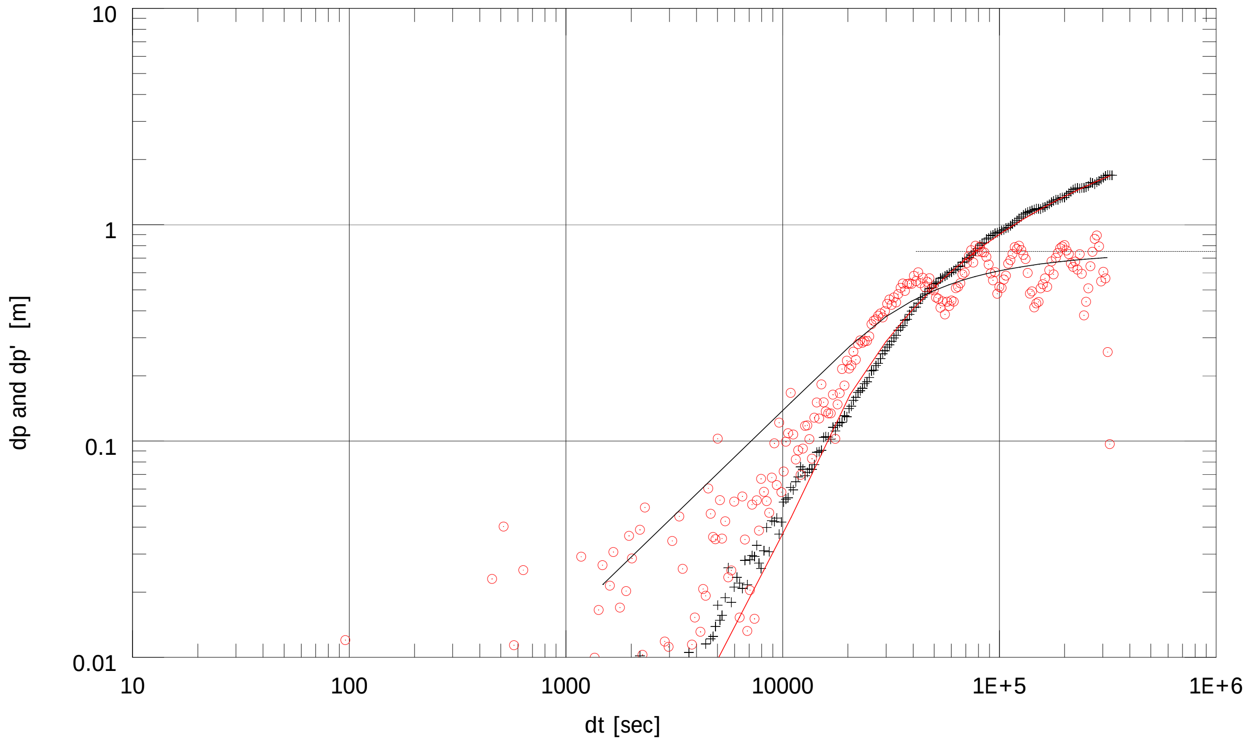
Reservoir & Boundary parameters

Pi	12.29 m
T	1.87E-4 m2/s
K	1.25E-6 m/s
S	1.39E-4

Derived & Secondary Parameters

Rinv	1190 m
Test. Vol.	145.259 MMm3

Log-Log plot	Dd1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well KLX04:8 Observation	Test Name / # Interference test HLX30



KLX04:8obs production #1
Rate 106 l/min
Rate change 106 l/min
P@dt=0 12.2909 m
Pi 12.29 m
Smoothing 0.1

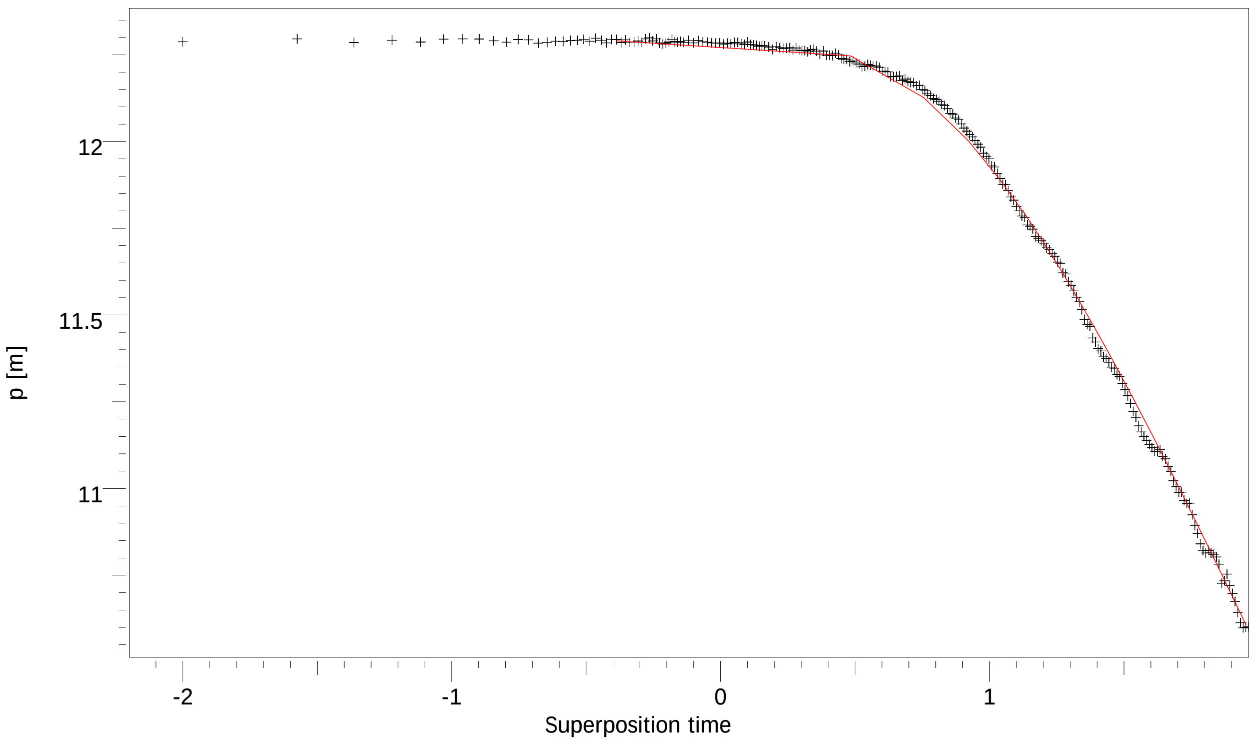
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.21E-5 [sec]-1
PMatch 0.665 [m]-1
S 1.39E-4
T 1.87E-4 m2/s
K 1.25E-6 m/s
Pi 12.29 m
Well distance 333 m

Model Parameters
Reservoir & Boundary parameters
Pi 12.29 m
T 1.87E-4 m2/s
K 1.25E-6 m/s
S 1.39E-4

Derived & Secondary Parameters
Rinv 1190 m
Test. Vol. 145.259 MMm3

Semi-Log plot	Dd1
Company Svensk Kärnbränslehantering AB Well KLX04:8 Observation	Field Laxemar Test Name / # Interference test HLX30



KLX04:8obs production #1

Rate	106 l/min
Rate change	106 l/min
P@dt=0	12.2909 m
Pi	12.29 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.21E-5 [sec]-1
PMatch	0.665 [m]-1
S	1.39E-4
T	1.87E-4 m2/s
K	1.25E-6 m/s
Pi	12.29 m
Well distance	333 m

Model Parameters

Reservoir & Boundary parameters

Pi	12.29 m
T	1.87E-4 m2/s
K	1.25E-6 m/s
S	1.39E-4

Derived & Secondary Parameters

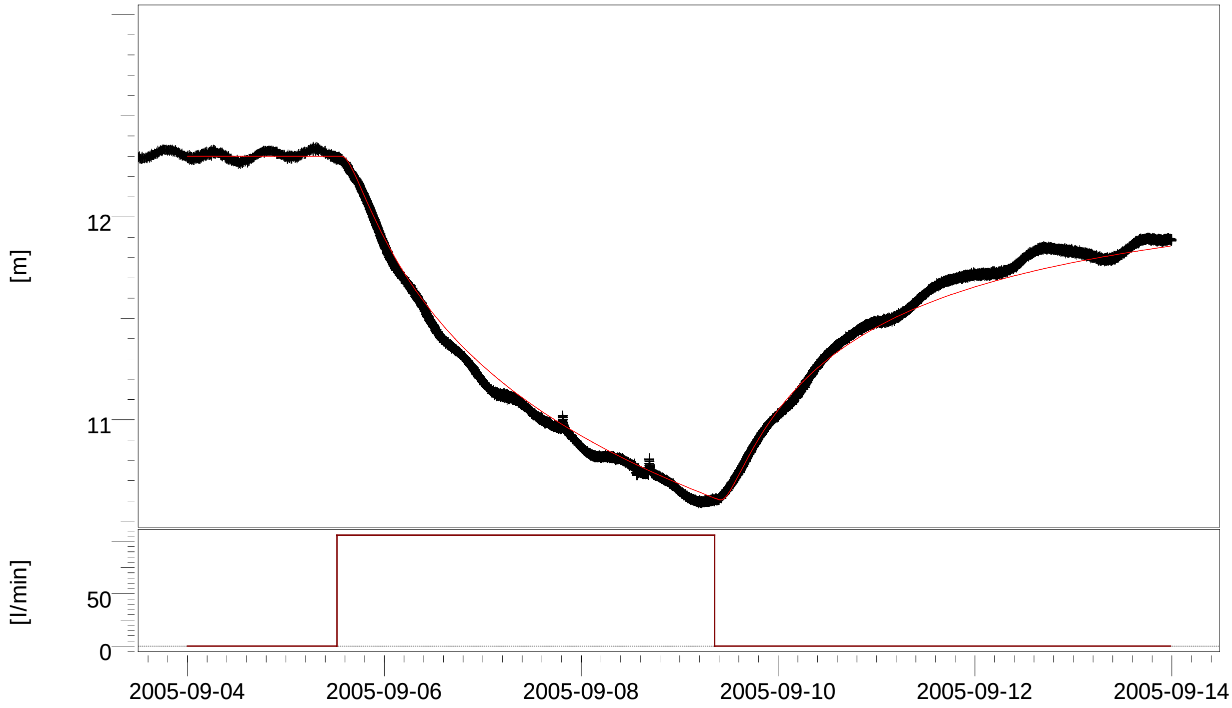
Rinv	1190 m
Test. Vol.	145.259 MMm3

Main Results	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well KLX04:8 Observation — Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	9.10 - 133.20m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	333 m
Well Radius rw	0.038 m
Pay Zone h	149.8 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1
Selected Model	
Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite
Main Model Parameters	
TMatch	1.21E-5 [sec]-1
PMatch	0.665 [m]-1
S	1.39E-4
T	1.87E-4 m2/s
K	1.25E-6 m/s
Pi	12.29 m
Well distance	333 m
Model Parameters	
Reservoir & Boundary parameters	
Pi	12.29 m
T	1.87E-4 m2/s
K	1.25E-6 m/s
S	1.39E-4
Derived & Secondary Parameters	
Rinv	1190 m
Test. Vol.	145.259 MMm3

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well KLX04:8 Observation	Field Laxemar Test Name / # Interference test HLX30



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

KLX04:8obs build-up #1

Rate	0 l/min
Rate change	106 l/min
P@dt=0	10.5994 m
Pi	12.3 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.14E-5 [sec]-1
PMatch	0.653 [m]-1
S	1.45E-4
T	1.83E-4 m2/s
K	1.22E-6 m/s
Pi	12.3 m
Well distance	333 m

Model Parameters

Reservoir & Boundary parameters

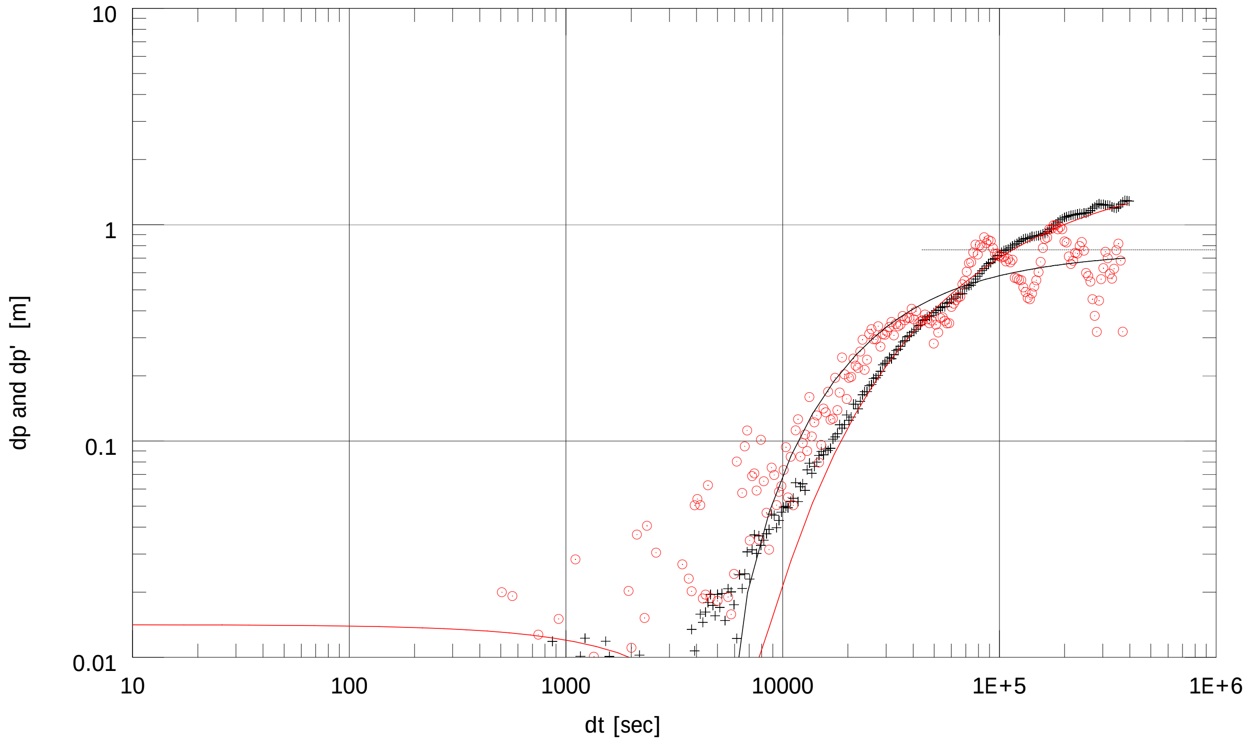
Pi	12.3 m
T	1.83E-4 m2/s
K	1.22E-6 m/s
S	1.45E-4

Derived & Secondary Parameters

Rinv	1260 m
Test. Vol.	171.333 MMm3

Log-Log plot	Bu1

Company Svensk Kärnbränslehantering AB
Well KLX04:8 Observation
Field Laxemar
Test Name / # Interference test HLX30



KLX04:8obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 10.5994 m
Pi 12.3 m
Smoothing 0.1

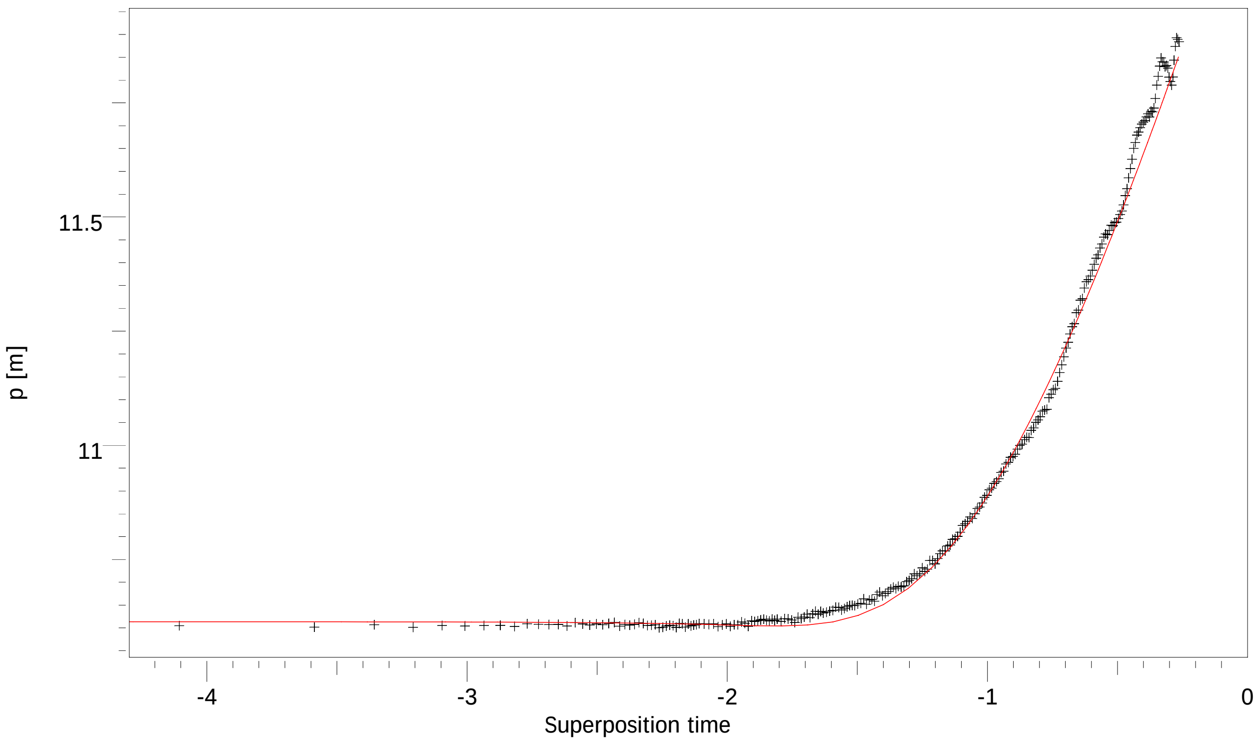
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.14E-5 [sec]-1
PMatch 0.653 [m]-1
S 1.45E-4
T 1.83E-4 m2/s
K 1.22E-6 m/s
Pi 12.3 m
Well distance 333 m

Model Parameters
Reservoir & Boundary parameters
Pi 12.3 m
T 1.83E-4 m2/s
K 1.22E-6 m/s
S 1.45E-4

Derived & Secondary Parameters
Rinv 1260 m
Test. Vol. 171.333 MMm3

Semi-Log plot	Bu1
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well KLX04:8 Observation	Test Name / # Interference test HLX30



KLX04:8obs build-up #1
Rate 0 l/min
Rate change 106 l/min
P@dt=0 10.5994 m
Pi 12.3 m
Smoothing 0.1

Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 1.14E-5 [sec]-1
PMatch 0.653 [m]-1
S 1.45E-4
T 1.83E-4 m2/s
K 1.22E-6 m/s
Pi 12.3 m
Well distance 333 m

Model Parameters
Reservoir & Boundary parameters
Pi 12.3 m
T 1.83E-4 m2/s
K 1.22E-6 m/s
S 1.45E-4

Derived & Secondary Parameters
Rinv 1260 m
Test. Vol. 171.333 MMm3

Main Results	Bu1
Company Svensk Kärnbränslehantering AB Well KLX04:8 Observation	Field Laxemar Test Name / # Interference test HLX30

Test date / time	2005-09-04
Formation interval	9.10 - 133.20m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	L.Andersson/J.Henriksson
Analysis	M.Morosini
TEST TYPE	Interference
Well distance	333 m
Well Radius rw	0.038 m
Pay Zone h	149.8 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	1500 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	1.14E-5 [sec]-1
PMatch	0.653 [m]-1
S	1.45E-4
T	1.83E-4 m2/s
K	1.22E-6 m/s
Pi	12.3 m
Well distance	333 m

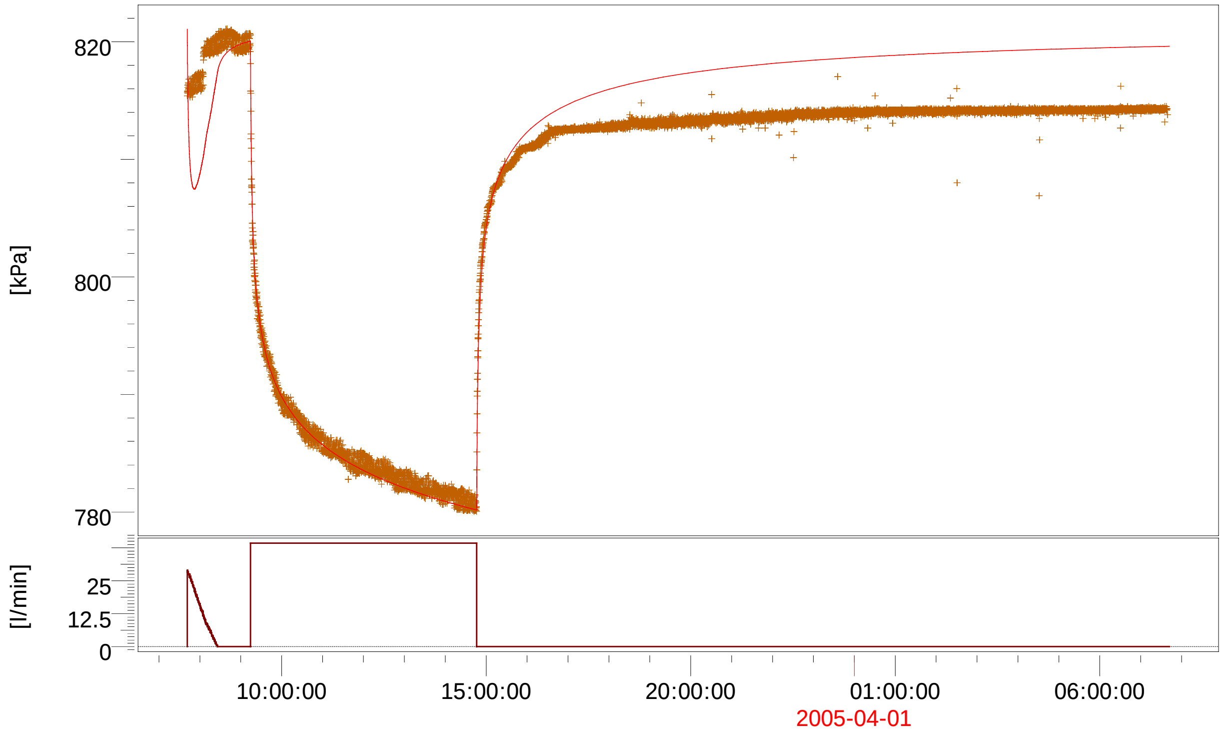
Model Parameters

Reservoir & Boundary parameters

Pi	12.3 m
T	1.83E-4 m2/s
K	1.22E-6 m/s
S	1.45E-4

Derived & Secondary Parameters

Rinv	1260 m
Test. Vol.	171.333 MMm3



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX33 pumpbrunn_050331-050401 #2 production #2

Rate	39.2632 l/min
Rate change	39.2632 l/min
P@dt=0	819.656 kPa
Pi	821.081 kPa
Smoothing	0.3

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0288 [sec]-1
PMatch	0.101 [kPa]-1
C	2.29E-6 m3/Pa
Total Skin	-4.01
T	1.04E-4 m2/s
K	5.38E-7 m/s
Pi	821.081 kPa

Model Parameters

Well & Wellbore parameters (HLX33 pumping borehole)

C	2.29E-6 m3/Pa
Skin	-4.01

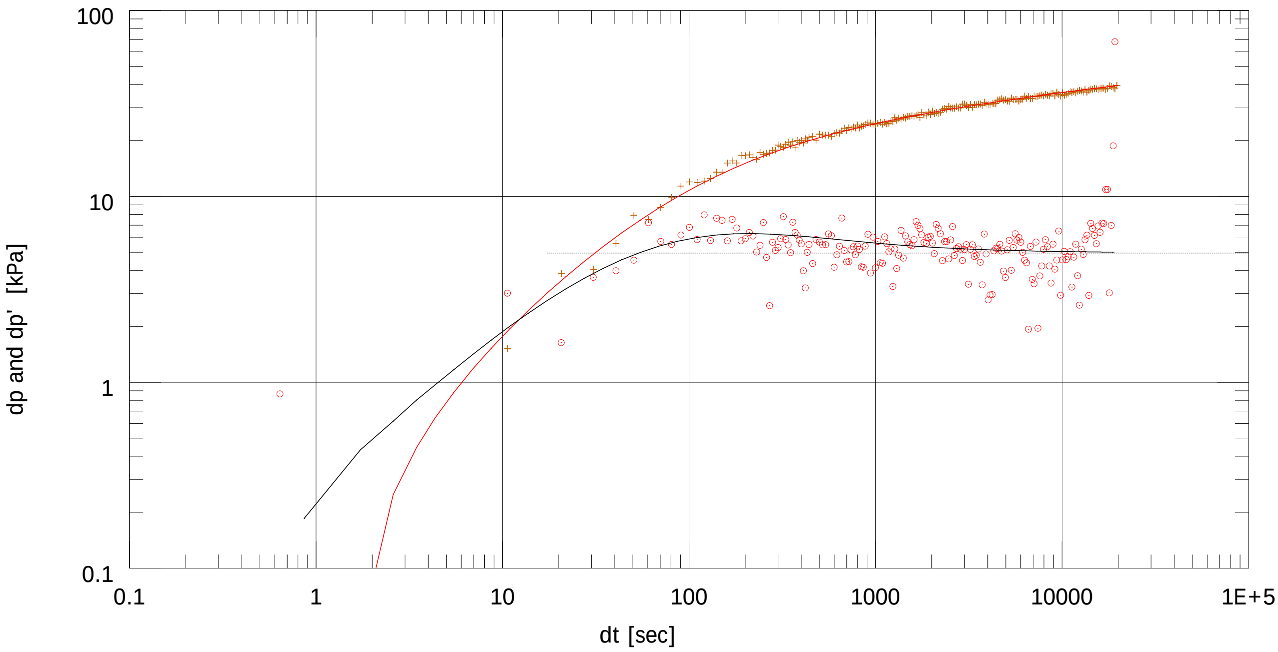
Reservoir & Boundary parameters

Pi	821.081 kPa
T	1.04E-4 m2/s
K	5.38E-7 m/s

Derived & Secondary Parameters

Rinv	280 m
Test. Vol.	4.76415 MMm3
Delta P (Total Skin)	-39.7919 kPa
Delta P Ratio (Total Skin)	-0.997459 Fraction

Log-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX33 pumping borehole	Field Laxemar Test Name / # HLX33 Interference test



HLX33 pumpbrunn_050331-050401 #2 production #2

Rate	39.2632 l/min
Rate change	39.2632 l/min
P@dt=0	819.656 kPa
Pi	821.081 kPa
Smoothing	0.3

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0288 [sec]-1
PMatch	0.101 [kPa]-1
C	2.29E-6 m3/Pa
Total Skin	-4.01
T	1.04E-4 m2/s
K	5.38E-7 m/s
Pi	821.081 kPa

Model Parameters

Well & Wellbore parameters (HLX33 pumping borehole)

C	2.29E-6 m3/Pa
Skin	-4.01

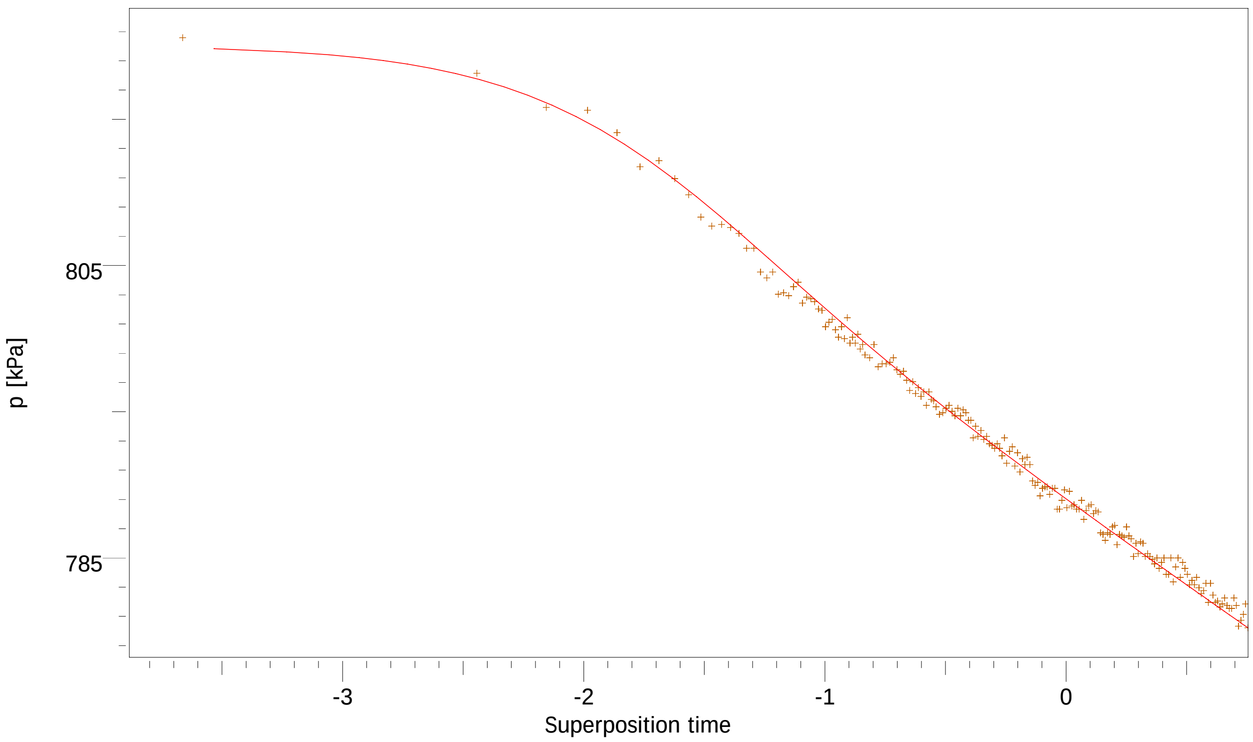
Reservoir & Boundary parameters

Pi	821.081 kPa
T	1.04E-4 m2/s
K	5.38E-7 m/s

Derived & Secondary Parameters

Rinv	280 m
Test. Vol.	4.76415 MMm3
Delta P (Total Skin)	-39.7919 kPa
Delta P Ratio (Total Skin)	-0.997459 Fraction

Semi-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX33 pumping borehole	Field Laxemar Test Name / # HLX33 Interference test



HLX33 pumpbrunn_050331-050401 #2 production #2

Rate 39.2632 l/min
Rate change 39.2632 l/min
P@dt=0 819.656 kPa
Pi 821.081 kPa
Smoothing 0.3

Selected Model
Model Option Standard Model
Well Vertical
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 0.0288 [sec]-1
PMatch 0.101 [kPa]-1
C 2.29E-6 m3/Pa
Total Skin -4.01
T 1.04E-4 m2/s
K 5.38E-7 m/s
Pi 821.081 kPa

Model Parameters
Well & Wellbore parameters (HLX33 pumping borehole)
C 2.29E-6 m3/Pa
Skin -4.01
Reservoir & Boundary parameters
Pi 821.081 kPa
T 1.04E-4 m2/s
K 5.38E-7 m/s

Derived & Secondary Parameters
Rinv 280 m
Test. Vol. 4.76415 MMm3
Delta P (Total Skin) -39.7919 kPa
Delta P Ratio (Total Skin) -0.997459 Fraction

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX33 pumping borehole	Test Name / #	HLX33 Interference test

Test date / time	2005-03-31
Formation interval	9.10 - 202.1m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field Crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	193 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	0.0288 [sec]-1
PMatch	0.101 [kPa]-1
C	2.29E-6 m3/Pa
Total Skin	-4.01
T	1.04E-4 m2/s
K	5.38E-7 m/s
Pi	821.081 kPa

Model Parameters

Well & Wellbore parameters (HLX33 pumping borehole)

C	2.29E-6 m3/Pa
Skin	-4.01

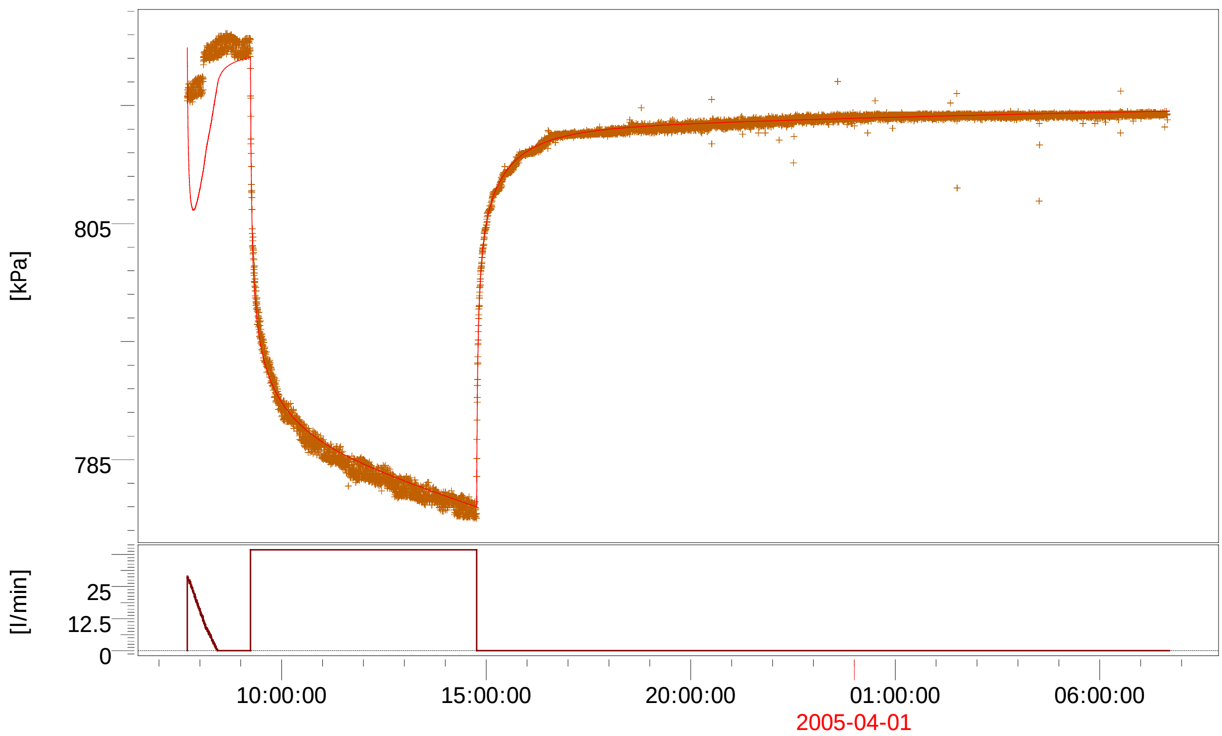
Reservoir & Boundary parameters

Pi	821.081 kPa
T	1.04E-4 m2/s
K	5.38E-7 m/s

Derived & Secondary Parameters

Rinv	280 m
Test. Vol.	4.76415 MMm3
Delta P (Total Skin)	-39.7919 kPa
Delta P Ratio (Total Skin)	-0.997459 Fraction

History plot	Bu2
Company Svensk Kärnbränslehantering AB Well HLX33 pumping borehole	Field Laxemar Test Name / # HLX33 Interference test



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX33 pumpbrunn_050331-050401 #2 build-up #2

Rate	0 l/min
Rate change	39.2632 l/min
P@dt=0	780.425 kPa
Pi	819.9 kPa
Smoothing	0.3

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.0378 [sec]-1
PMatch	0.125 [kPa]-1
C	2.16E-6 m3/Pa
Total Skin	-3.53
T	1.28E-4 m2/s
K	6.64E-7 m/s
Pi	819.9 kPa

Model Parameters

Well & Wellbore parameters (HLX33 pumping borehole)

C	2.16E-6 m3/Pa
Skin	-3.53

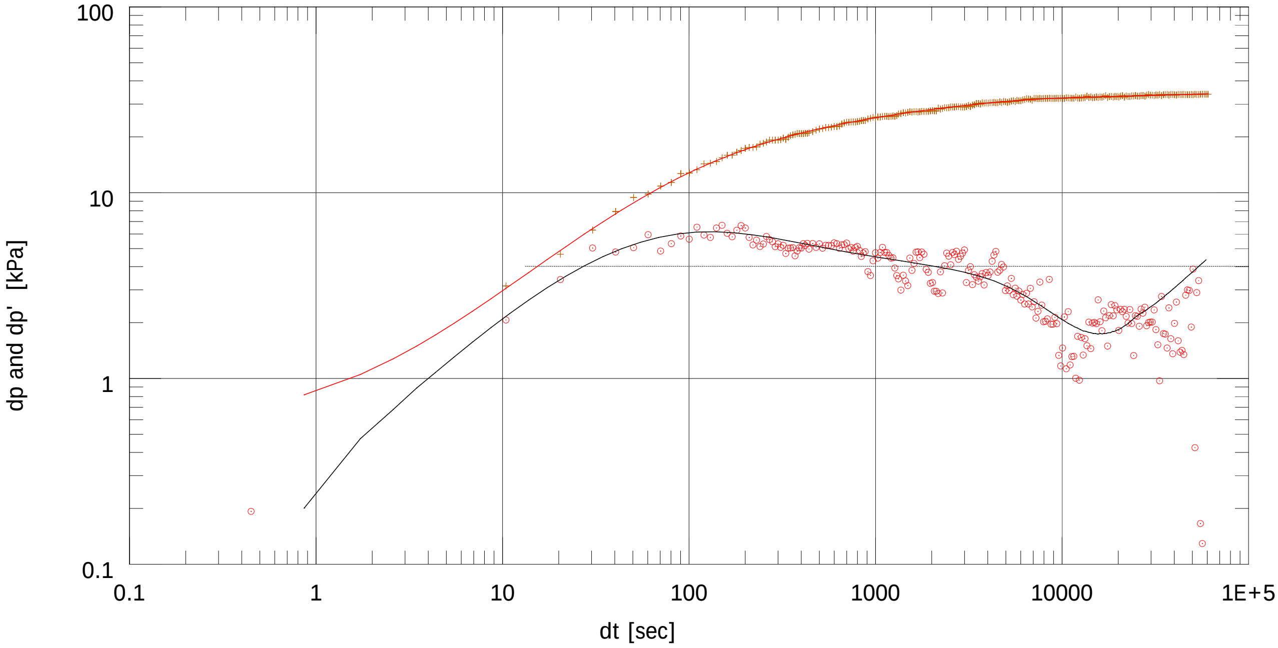
Reservoir & Boundary parameters

Pi	819.9 kPa
T	1.28E-4 m2/s
K	6.64E-7 m/s
Ri	260 m
M	10.7
D	1.24

Derived & Secondary Parameters

Delta P (Total Skin)	-28.2959 kPa
Delta P Ratio (Total Skin)	-0.844004 Fraction

Log-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well HLX33 pumping borehole	Field Laxemar Test Name / # HLX33 Interference test



HLX33 pumpbrunn_050331-050401 #2 build-up #2

Rate	0 l/min
Rate change	39.2632 l/min
P@dt=0	780.425 kPa
Pi	819.9 kPa
Smoothing	0.3

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.0378 [sec]-1
PMatch	0.125 [kPa]-1
C	2.16E-6 m3/Pa
Total Skin	-3.53
T	1.28E-4 m2/s
K	6.64E-7 m/s
Pi	819.9 kPa

Model Parameters

Well & Wellbore parameters (HLX33 pumping borehole)

C	2.16E-6 m3/Pa
Skin	-3.53

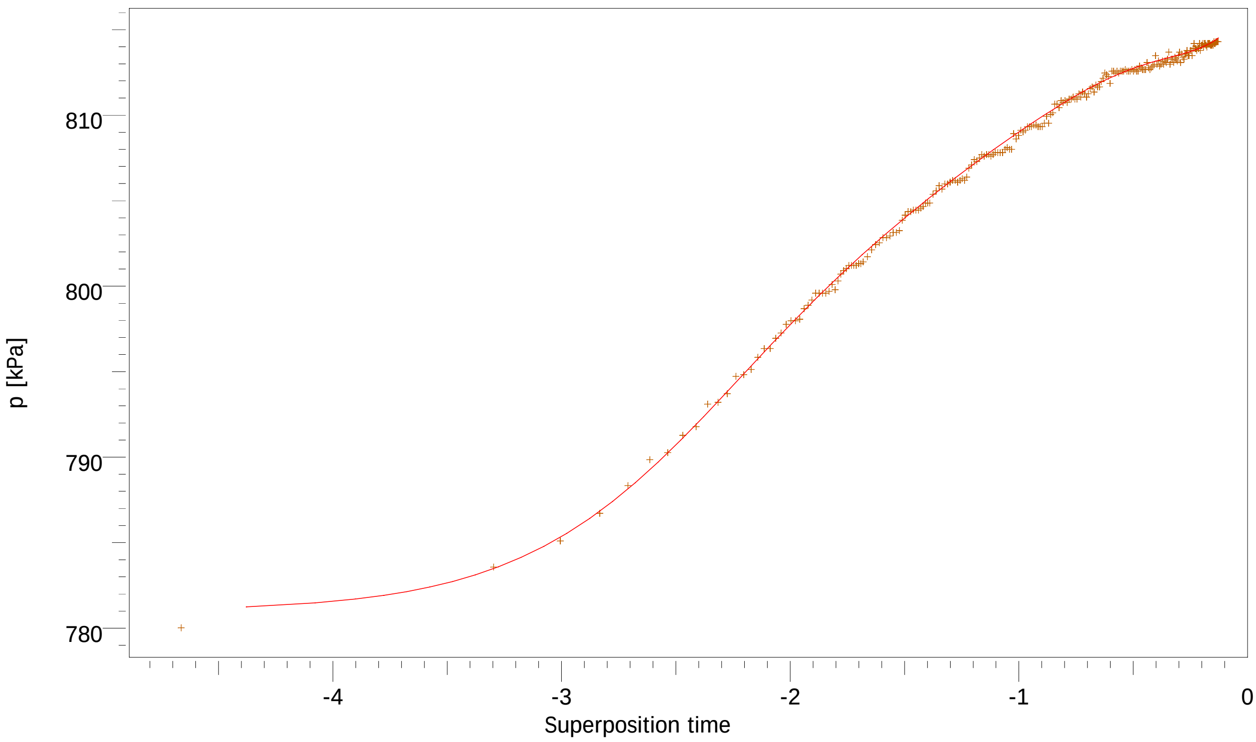
Reservoir & Boundary parameters

Pi	819.9 kPa
T	1.28E-4 m2/s
K	6.64E-7 m/s
Ri	260 m
M	10.7
D	1.24

Derived & Secondary Parameters

Delta P (Total Skin)	-28.2959 kPa
Delta P Ratio (Total Skin)	-0.844004 Fraction

Semi-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well HLX33 pumping borehole	Field Laxemar Test Name / # HLX33 Interference test



HLX33 pumpbrunn_050331-050401 #2 build-up #2

Rate	0 l/min
Rate change	39.2632 l/min
P@dt=0	780.425 kPa
Pi	819.9 kPa
Smoothing	0.3

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.0378 [sec]-1
PMatch	0.125 [kPa]-1
C	2.16E-6 m3/Pa
Total Skin	-3.53
T	1.28E-4 m2/s
K	6.64E-7 m/s
Pi	819.9 kPa

Model Parameters

Well & Wellbore parameters (HLX33 pumping borehole)

C	2.16E-6 m3/Pa
Skin	-3.53

Reservoir & Boundary parameters

Pi	819.9 kPa
T	1.28E-4 m2/s
K	6.64E-7 m/s
Ri	260 m
M	10.7
D	1.24

Derived & Secondary Parameters

Delta P (Total Skin)	-28.2959 kPa
Delta P Ratio (Total Skin)	-0.844004 Fraction

SKB

Company Svensk Kärnbränslehantering AB
Well HLX33 pumping borehole
Field Laxemar
Test Name / # HLX33 Interference test

Test date / time	2005-03-31
Formation interval	9.10 - 202.1m
Perforated interval	Open hole
Gauge type / #	
Gauge depth	
Field Crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	193 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	15 °C
Reservoir P	2000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.0378 [sec]-1
PMatch	0.125 [kPa]-1
C	2.16E-6 m3/Pa
Total Skin	-3.53
T	1.28E-4 m2/s
K	6.64E-7 m/s
Pi	819.9 kPa

Model Parameters

Well & Wellbore parameters (HLX33 pumping borehole)

C	2.16E-6 m3/Pa
Skin	-3.53

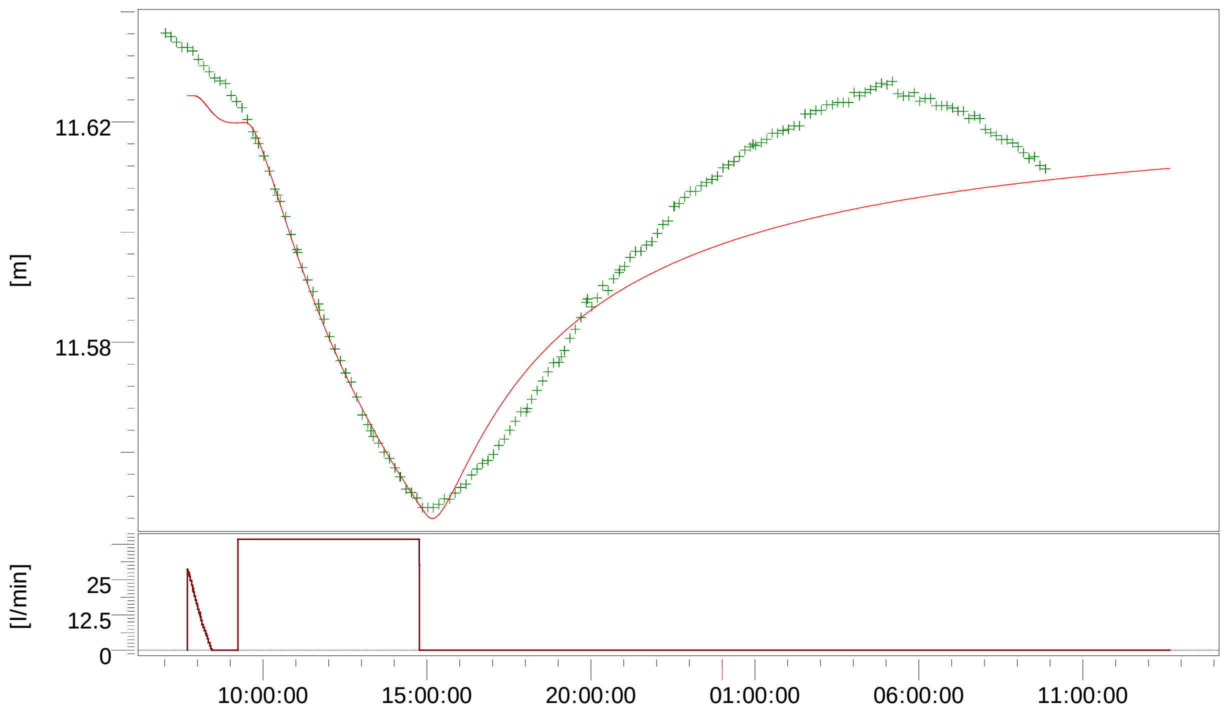
Reservoir & Boundary parameters

Pi	819.9 kPa
T	1.28E-4 m2/s
K	6.64E-7 m/s
Ri	260 m
M	10.7
D	1.24

Derived & Secondary Parameters

Delta P (Total Skin)	-28.2959 kPa
Delta P Ratio (Total Skin)	-0.844004 Fraction

	History plot	Dd2
	Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation hole	Field Laxemar Test Name / # Pumpingtest HLX33



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX24:1 production #2

Rate	30.2836 l/min
Rate change	30.2836 l/min
P@dt=0	11.6237 m
Pi	11.6248 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.96E-5 1/sec
PMatch	10.6 1/m
S	1.87E-4
T	8.33E-4 m2/s
K	6.21E-6 m/s
Pi	11.6248 m
Well distance	273 m

Model Parameters

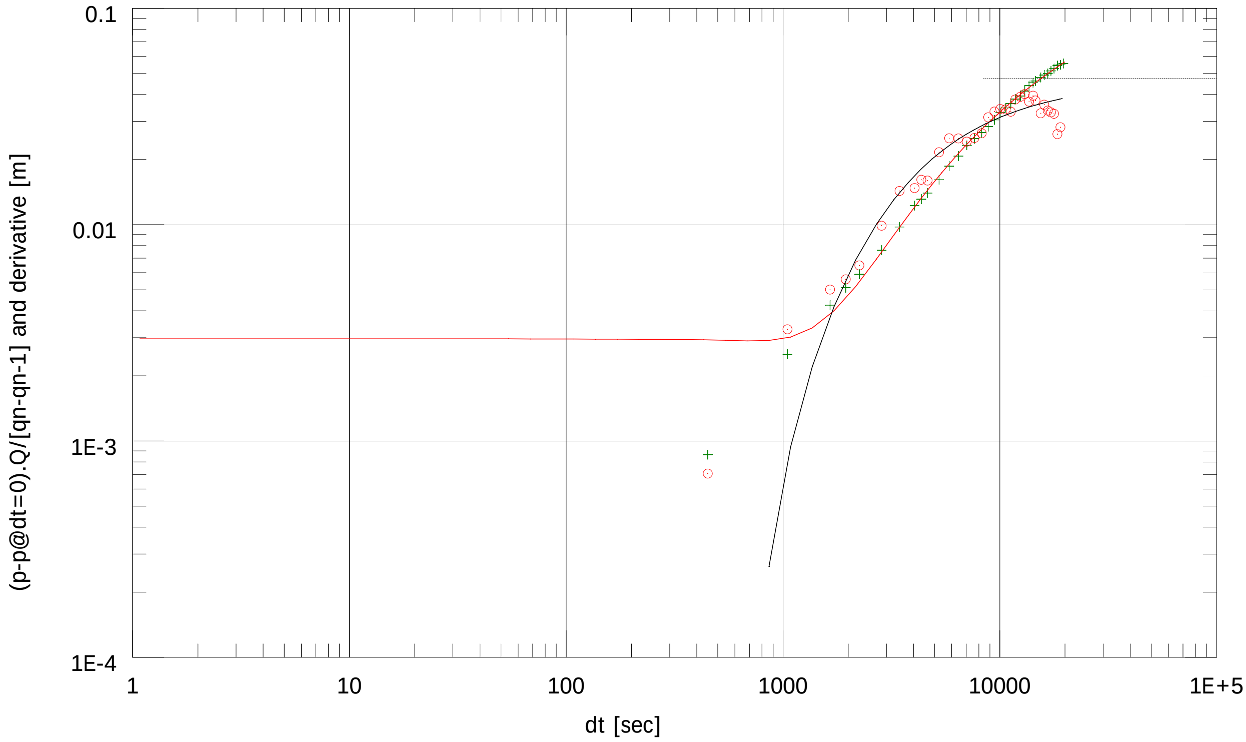
Reservoir & Boundary parameters

Pi	11.6248 m
T	8.33E-4 m2/s
K	6.21E-6 m/s
S	1.87E-4

Derived & Secondary Parameters

Rinv	528 m
Test. Vol.	39.1776 MMm3

	Log-Log plot	Dd2
SKB	Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation hole	Field Laxemar Test Name / # Pumpingtest HLX33



HLX24:1 production #2

Rate	30.2836 l/min
Rate change	30.2836 l/min
P@dt=0	11.6237 m
Pi	11.6248 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.96E-5 1/sec
PMatch	10.6 1/m
S	1.87E-4
T	8.33E-4 m2/s
K	6.21E-6 m/s
Pi	11.6248 m
Well distance	273 m

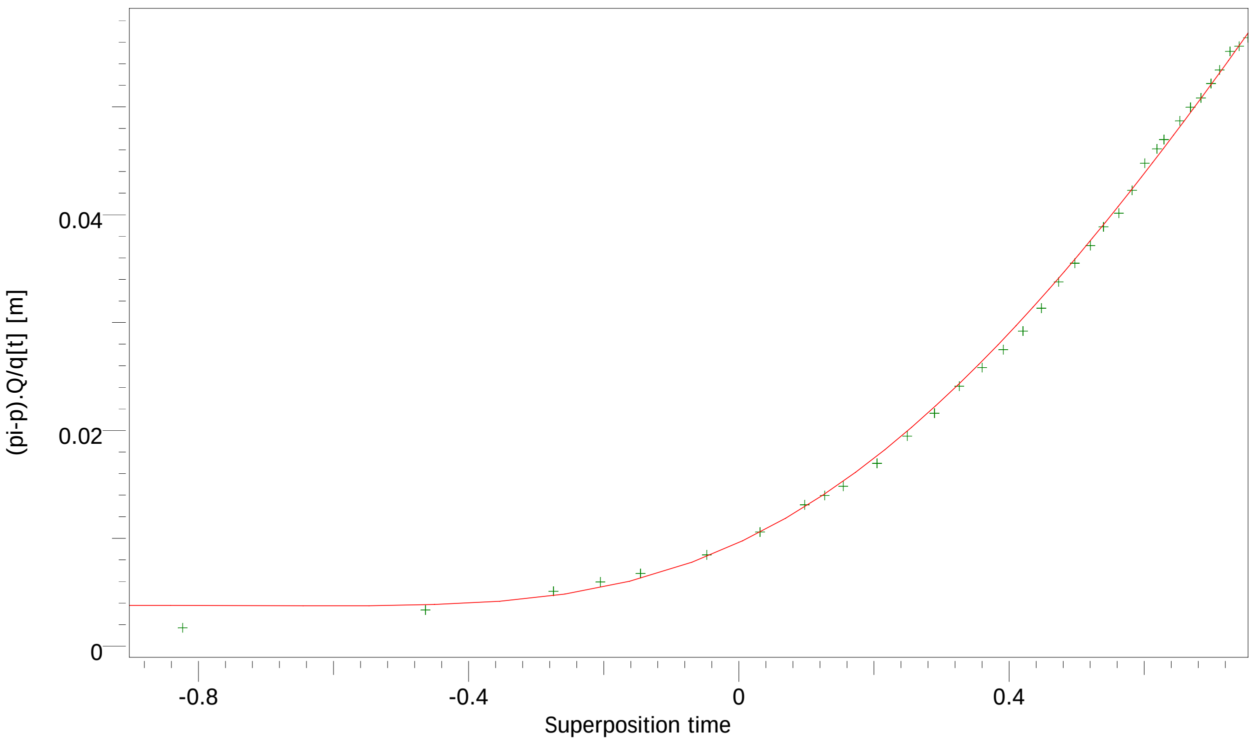
Model Parameters
Reservoir & Boundary parameters

Pi	11.6248 m
T	8.33E-4 m2/s
K	6.21E-6 m/s
S	1.87E-4

Derived & Secondary Parameters

Rinv	528 m
Test. Vol.	39.1776 MMm3

Semi-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation hole	Field Laxemar Test Name / # Pumpingtest HLX33



HLX24:1 production #2

Rate	30.2836 l/min
Rate change	30.2836 l/min
P@dt=0	11.6237 m
Pi	11.6248 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.96E-5 1/sec
PMatch	10.6 1/m
S	1.87E-4
T	8.33E-4 m2/s
K	6.21E-6 m/s
Pi	11.6248 m
Well distance	273 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.6248 m
T	8.33E-4 m2/s
K	6.21E-6 m/s
S	1.87E-4

Derived & Secondary Parameters

Rinv	528 m
Test. Vol.	39.1776 MMm3

Main Results	Dd2

Company Svensk Kärnbränslehantering AB
Well HLX24:1 Observation hole
Field Laxemar
Test Name / # Pumpingtest HLX33

Test date / time	2005-03-31
Formation interval	41 - 175.2m
Perforated interval	open hole, casing 0-9m
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Interference
Well distance	273.1 m
Well Radius rw	0.07 m
Pay Zone h	134.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	5.96E-5 1/sec
PMatch	10.6 1/m
S	1.87E-4
T	8.33E-4 m2/s
K	6.21E-6 m/s
Pi	11.6248 m
Well distance	273 m

Model Parameters

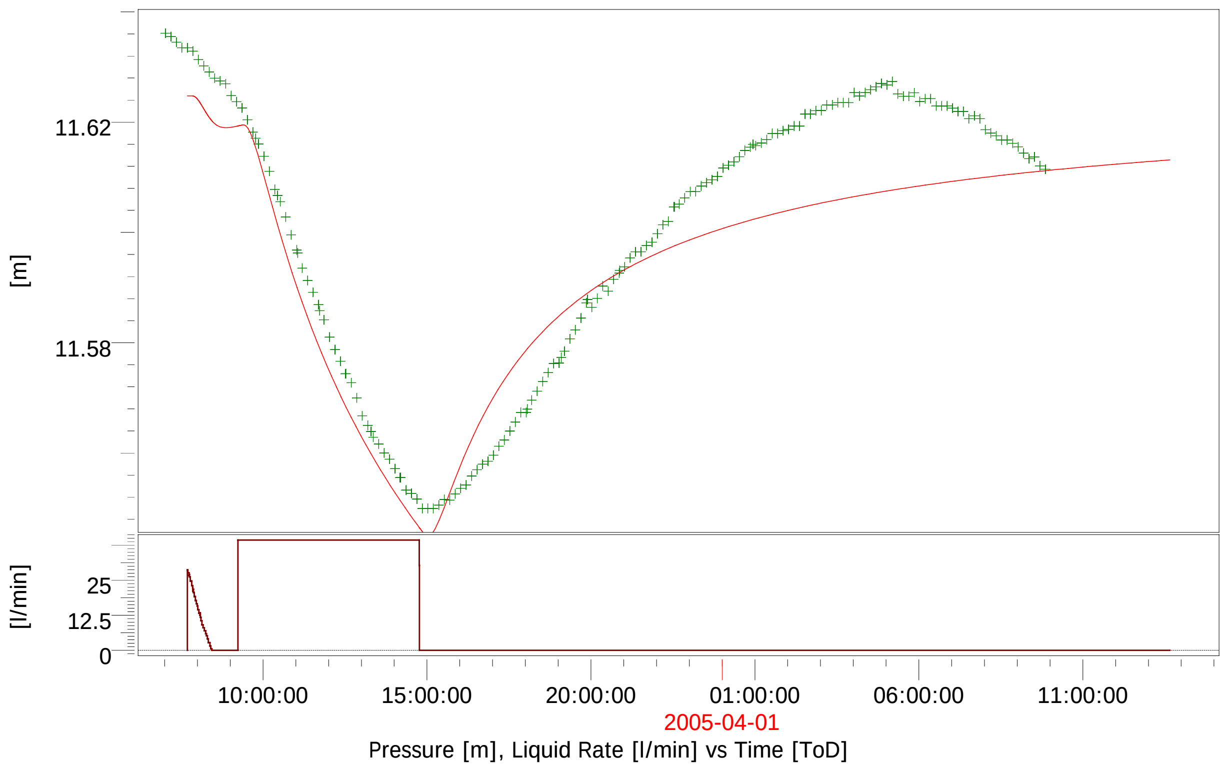
Reservoir & Boundary parameters

Pi	11.6248 m
T	8.33E-4 m2/s
K	6.21E-6 m/s
S	1.87E-4

Derived & Secondary Parameters

Rinv	528 m
Test. Vol.	39.1776 MMm3

History plot	Bu2
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation hole	Field Laxemar Test Name / # Pumpingtest HLX33



HLX24:1 build-up #2
Rate 0 l/min
Rate change 30.2836 l/min
P@dt=0 11.5516 m
Pi 11.6248 m
Smoothing 0.1

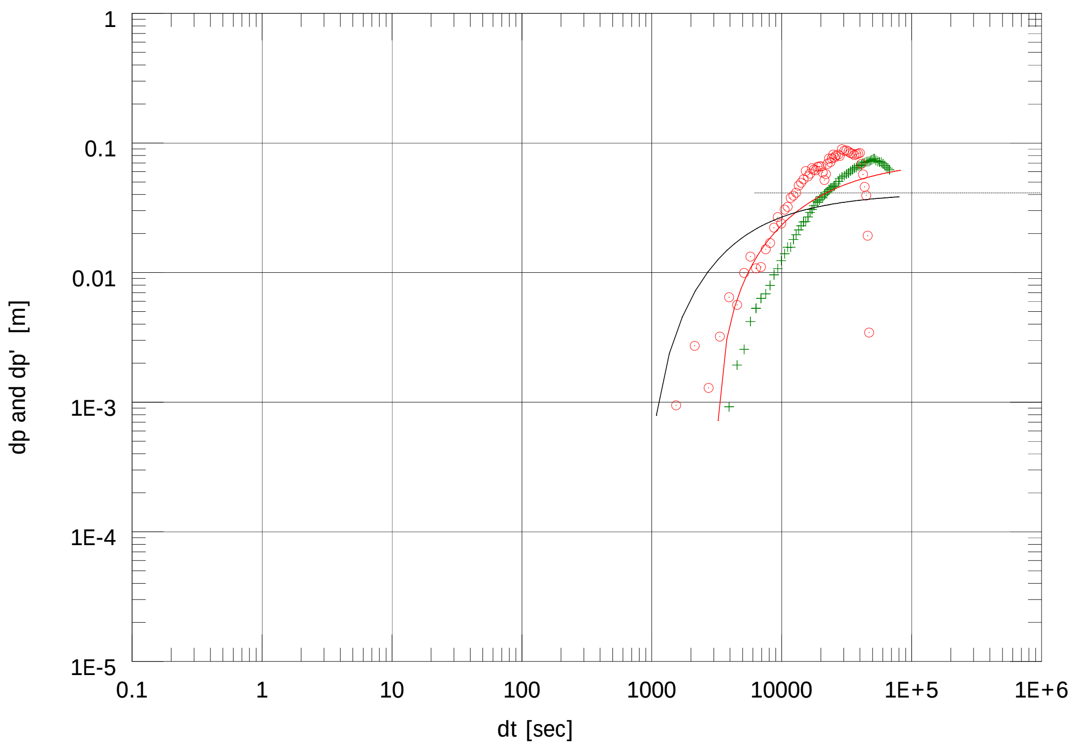
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 8.08E-5 1/sec
PMatch 12.1 1/m
S 1.59E-4
T 9.57E-4 m2/s
K 7.13E-6 m/s
Pi 11.6248 m
Well distance 273 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.6248 m
T 9.57E-4 m2/s
K 7.13E-6 m/s
S 1.59E-4

Derived & Secondary Parameters
Rinv 1140 m
Test. Vol. 154.746 MMm3

Log-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation hole	Field Laxemar Test Name / # Pumpingtest HLX33



HLX24:1 build-up #2
Rate 0 l/min
Rate change 30.2836 l/min
P@dt=0 11.5516 m
Pi 11.6248 m
Smoothing 0.1

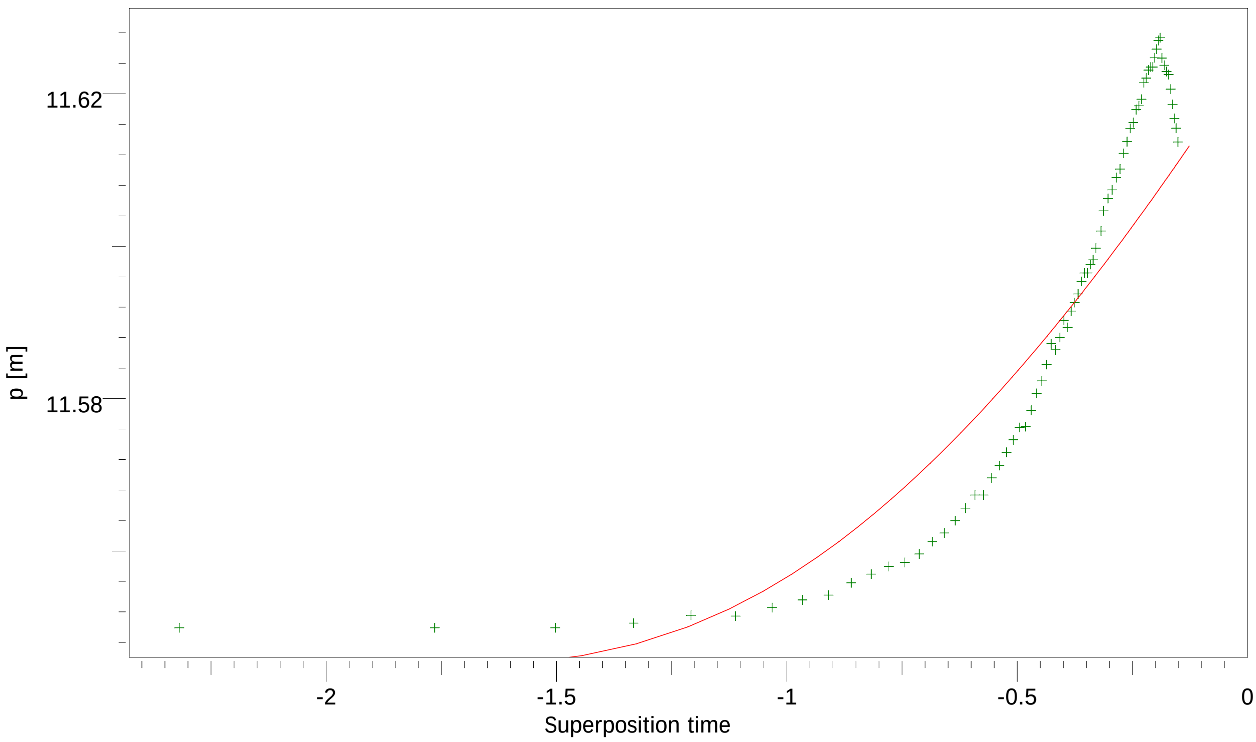
Selected Model
Model Option Standard Model
Well Line source
Reservoir Homogeneous
Boundary Infinite

Main Model Parameters
TMatch 8.08E-5 1/sec
PMatch 12.1 1/m
S 1.59E-4
T 9.57E-4 m2/s
K 7.13E-6 m/s
Pi 11.6248 m
Well distance 273 m

Model Parameters
Reservoir & Boundary parameters
Pi 11.6248 m
T 9.57E-4 m2/s
K 7.13E-6 m/s
S 1.59E-4

Derived & Secondary Parameters
Rinv 1140 m
Test. Vol. 154.746 MMm3

Semi-Log plot	Bu2
Company Svensk Kärnbränslehantering AB Well HLX24:1 Observation hole	Field Laxemar Test Name / # Pumpingtest HLX33



HLX24:1 build-up #2

Rate	0 l/min
Rate change	30.2836 l/min
P@dt=0	11.5516 m
Pi	11.6248 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	8.08E-5 1/sec
PMatch	12.1 1/m
S	1.59E-4
T	9.57E-4 m2/s
K	7.13E-6 m/s
Pi	11.6248 m
Well distance	273 m

Model Parameters
Reservoir & Boundary parameters

Pi	11.6248 m
T	9.57E-4 m2/s
K	7.13E-6 m/s
S	1.59E-4

Derived & Secondary Parameters

Rinv	1140 m
Test. Vol.	154.746 MMm3

Main Results	Bu2

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX24:1 Observation hole	Test Name / #	Pumpingtest HLX33

Test date / time	2005-03-31
Formation interval	41 - 175.2m
Perforated interval	open hole, casing 0-9m
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Interference
Well distance	273.1 m
Well Radius rw	0.07 m
Pay Zone h	134.2 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	8.08E-5 1/sec
PMatch	12.1 1/m
S	1.59E-4
T	9.57E-4 m2/s
K	7.13E-6 m/s
Pi	11.6248 m
Well distance	273 m

Model Parameters

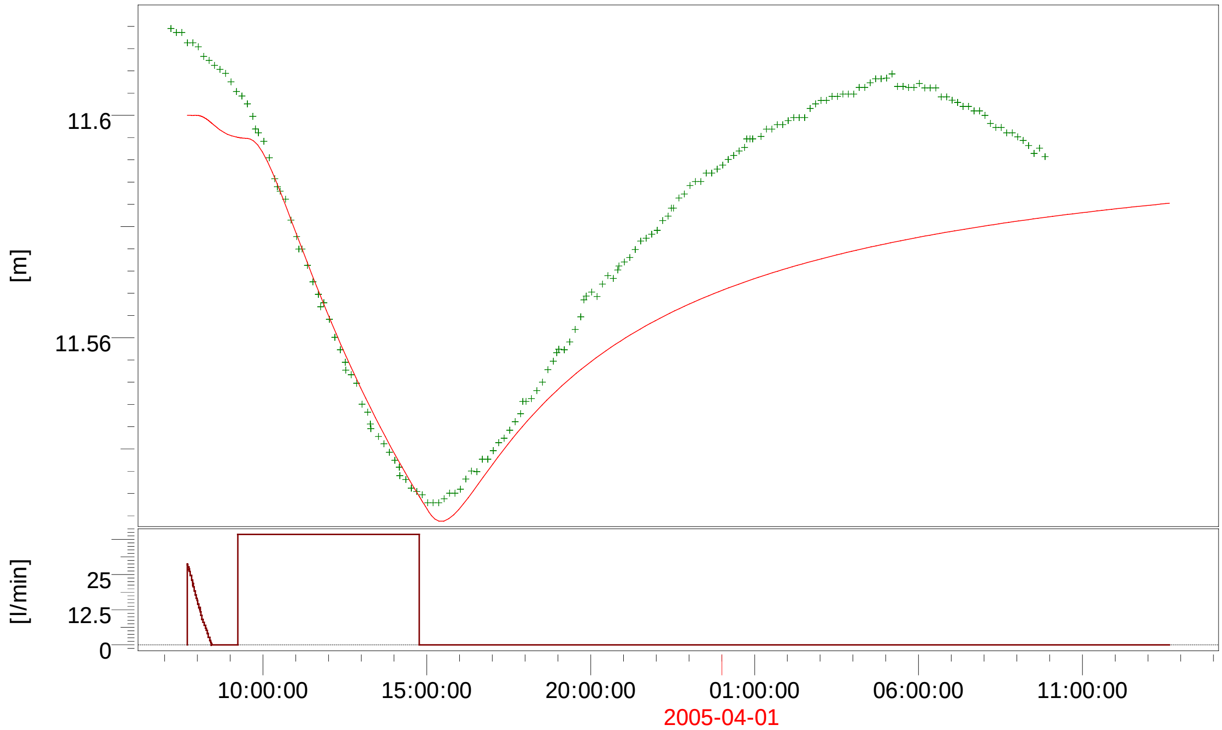
Reservoir & Boundary parameters

Pi	11.6248 m
T	9.57E-4 m2/s
K	7.13E-6 m/s
S	1.59E-4

Derived & Secondary Parameters

Rinv	1140 m
Test. Vol.	154.746 MMm3

History plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation hole	Field Laxemar Test Name / # Pumpingtest HLX33



Pressure [m], Liquid Rate [l/min] vs Time [ToD]

HLX24obs brunn pumpning i HLX33_050331-050401 production #3

Rate	39.2632 l/min
Rate change	39.2632 l/min
P@dt=0	11.6043 m
Pi	11.6 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.06E-5 1/sec
PMatch	6.66 1/m
S	1.74E-4
T	6.8E-4 m2/s
K	2.2E-5 m/s
Pi	11.6 m
Well distance	310 m

Model Parameters

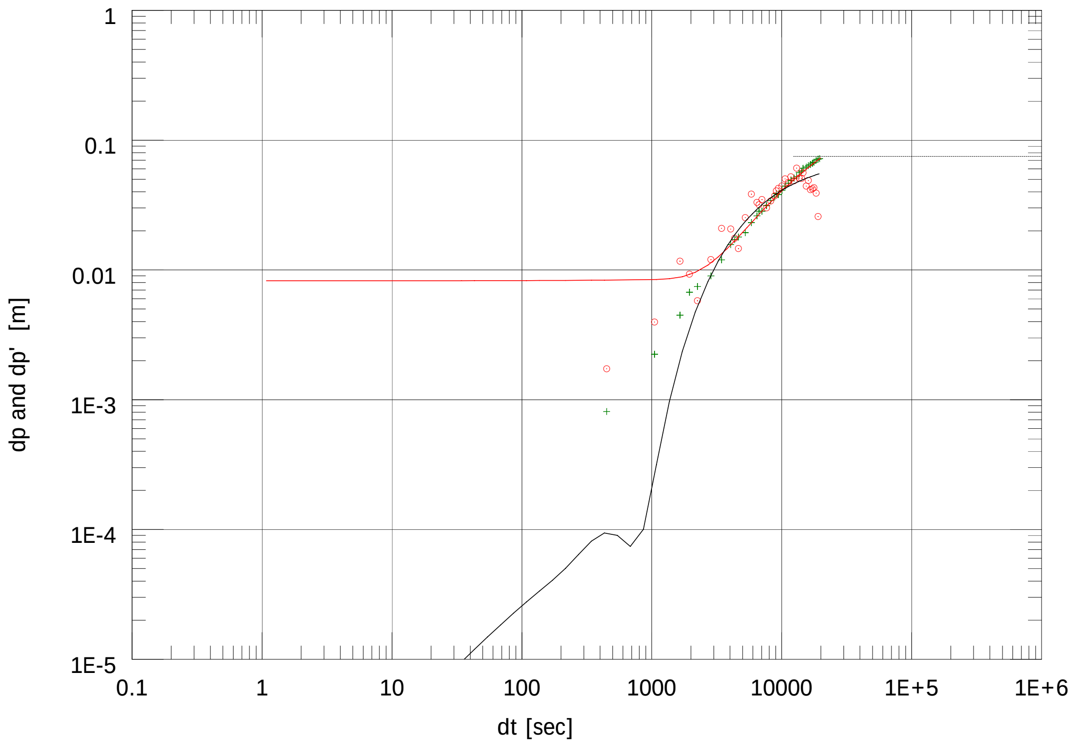
Reservoir & Boundary parameters

Pi	11.6 m
T	6.8E-4 m2/s
K	2.2E-5 m/s
S	1.74E-4

Derived & Secondary Parameters

Rinv	494 m
Test. Vol.	32.005 MMm3

Log-Log plot	Dd2
Company Svensk Kärnbränslehantering AB Well HLX24:2 Observation hole	Field Laxemar Test Name / # Pumpingtest HLX33



HLX24obs brunn pumpning i HLX33_050331-050401 production #3

Rate	39.2632 l/min
Rate change	39.2632 l/min
P@dt=0	11.6043 m
Pi	11.6 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.06E-5 1/sec
PMatch	6.66 1/m
S	1.74E-4
T	6.8E-4 m2/s
K	2.2E-5 m/s
Pi	11.6 m
Well distance	310 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.6 m
T	6.8E-4 m2/s
K	2.2E-5 m/s
S	1.74E-4

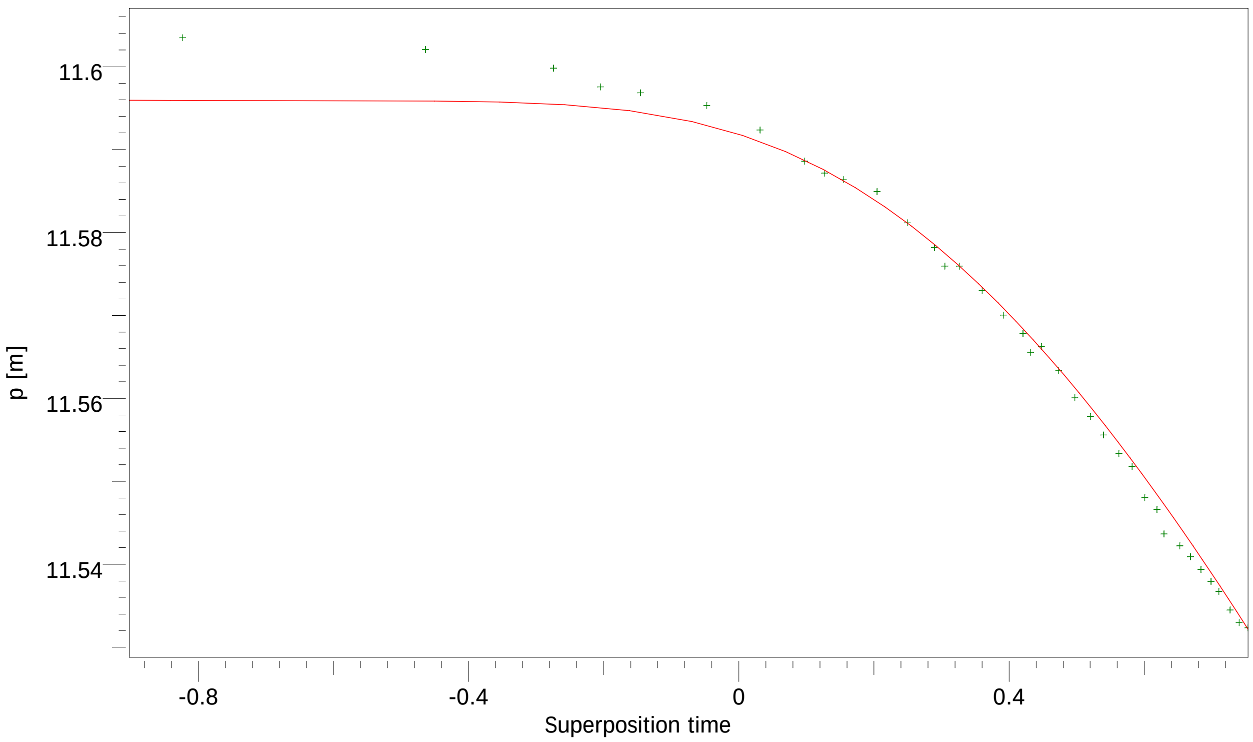
Derived & Secondary Parameters

Rinv	494 m
Test. Vol.	32.005 MMm3

Semi-Log plot	Dd2

Company Svensk Kärnbränslehantering AB
Well HLX24:2 Observation hole

Field Laxemar
Test Name / # Pumpingtest HLX33



HLX24obs brunn pumpning i HLX33_050331-050401 production #3

Rate	39.2632 l/min
Rate change	39.2632 l/min
P@dt=0	11.6043 m
Pi	11.6 m
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.06E-5 1/sec
PMatch	6.66 1/m
S	1.74E-4
T	6.8E-4 m2/s
K	2.2E-5 m/s
Pi	11.6 m
Well distance	310 m

Model Parameters
Reservoir & Boundary parameters

Pi	11.6 m
T	6.8E-4 m2/s
K	2.2E-5 m/s
S	1.74E-4

Derived & Secondary Parameters

Rinv	494 m
Test. Vol.	32.005 MMm3

Main Results	Dd2
Company Svensk Kärnbränslehantering AB	Field Laxemar
Well HLX24:2 Observation hole	Test Name / # Pumpingtest HLX33

Test date / time	2005-03-31
Formation interval	9.1 - 40m
Perforated interval	open hole, casing 0-9m
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Interference
Well distance	309.9 m
Well Radius rw	0.07 m
Pay Zone h	30.9 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	203.943 m
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Line source
Reservoir	Homogeneous
Boundary	Infinite

Main Model Parameters

TMatch	4.06E-5 1/sec
PMatch	6.66 1/m
S	1.74E-4
T	6.8E-4 m2/s
K	2.2E-5 m/s
Pi	11.6 m
Well distance	310 m

Model Parameters

Reservoir & Boundary parameters

Pi	11.6 m
T	6.8E-4 m2/s
K	2.2E-5 m/s
S	1.74E-4

Derived & Secondary Parameters

Rinv	494 m
Test. Vol.	32.005 MMm3

Appendix 7 Test diagrams for the interference test in HLX33 June 2006.

Diagrams are presented for the following boreholes: Page 1

Nomenclature in AQTESOLV:

T = transmissivity (m^2/s)
S = storativity (-)
K_Z/K_r = ratio of hydraulic conductivities in the vertical and radial direction (set to 1)
S_w = skin factor
r(w) = borehole radius (m)
r(c) = effective casing radius (m)
b = aquifer thickness
r/B=leakage coefficient (-)

Appendix 7.1 Interference test in HLX33: 9.0-202.1 m

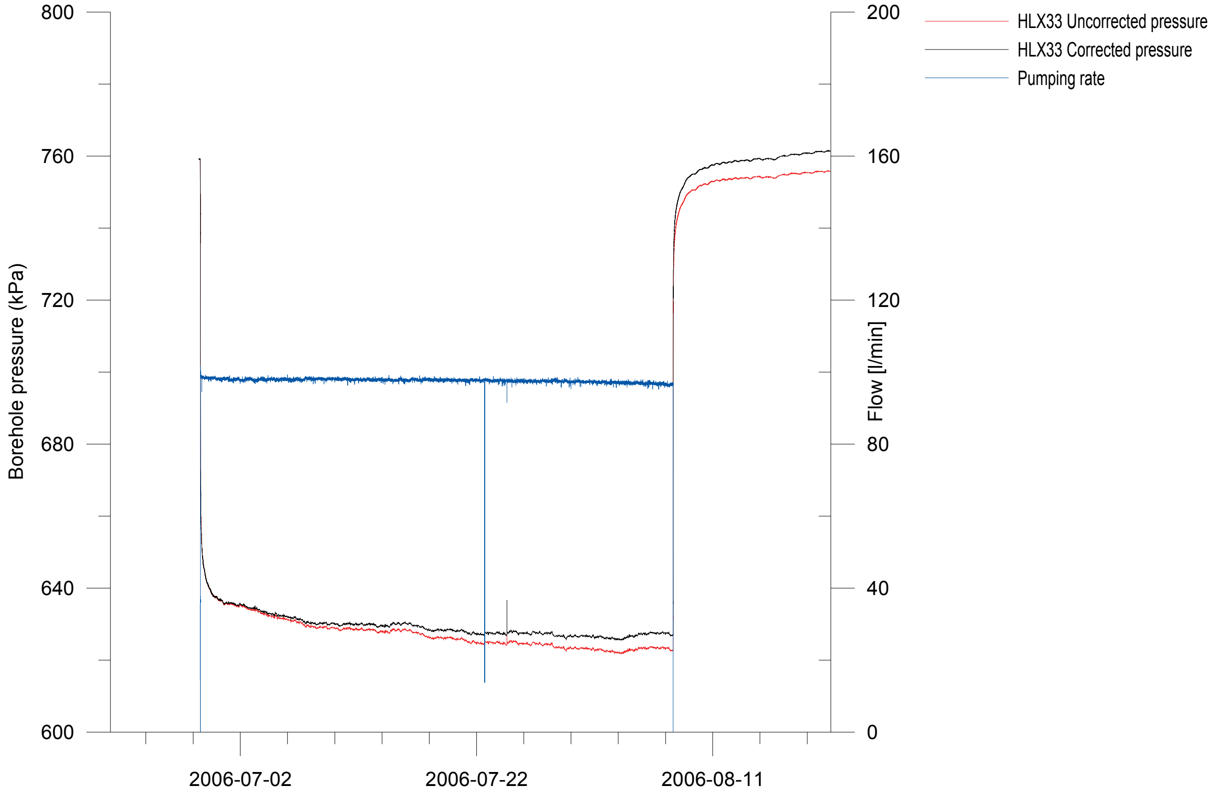


Figure 1. *Linear plot of flow rate, pressure and corrected pressure versus time in the pumping borehole HLX33.*

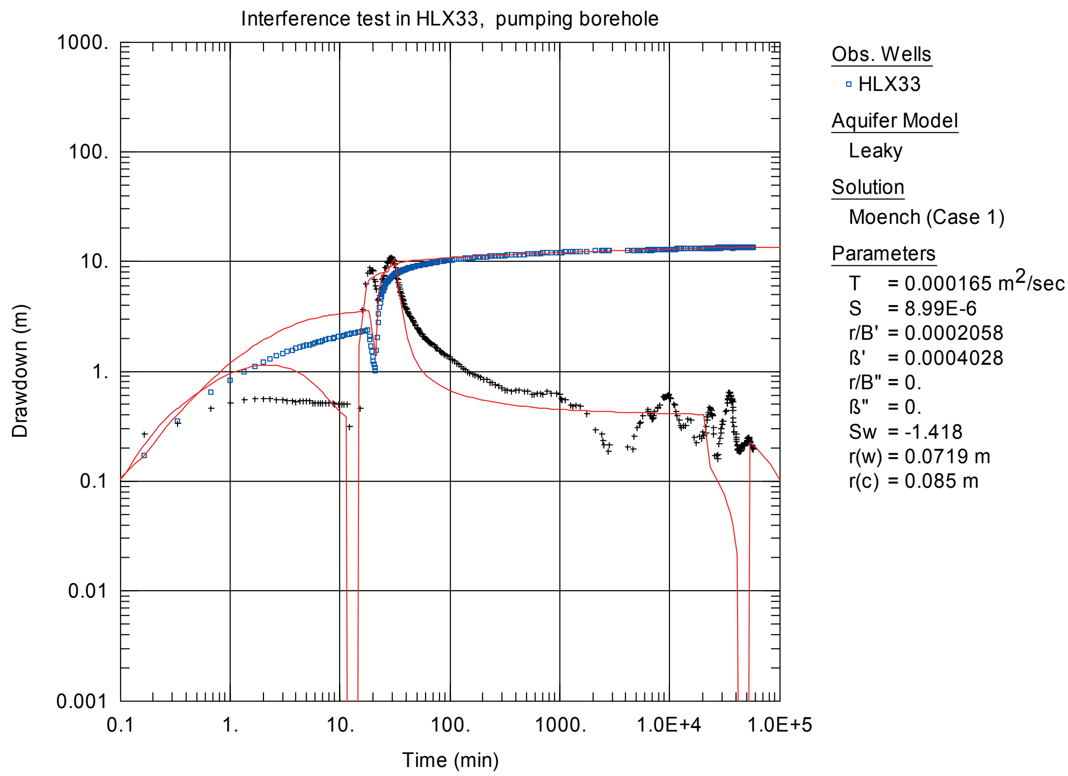


Figure 2. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the pumping borehole HLX33.*

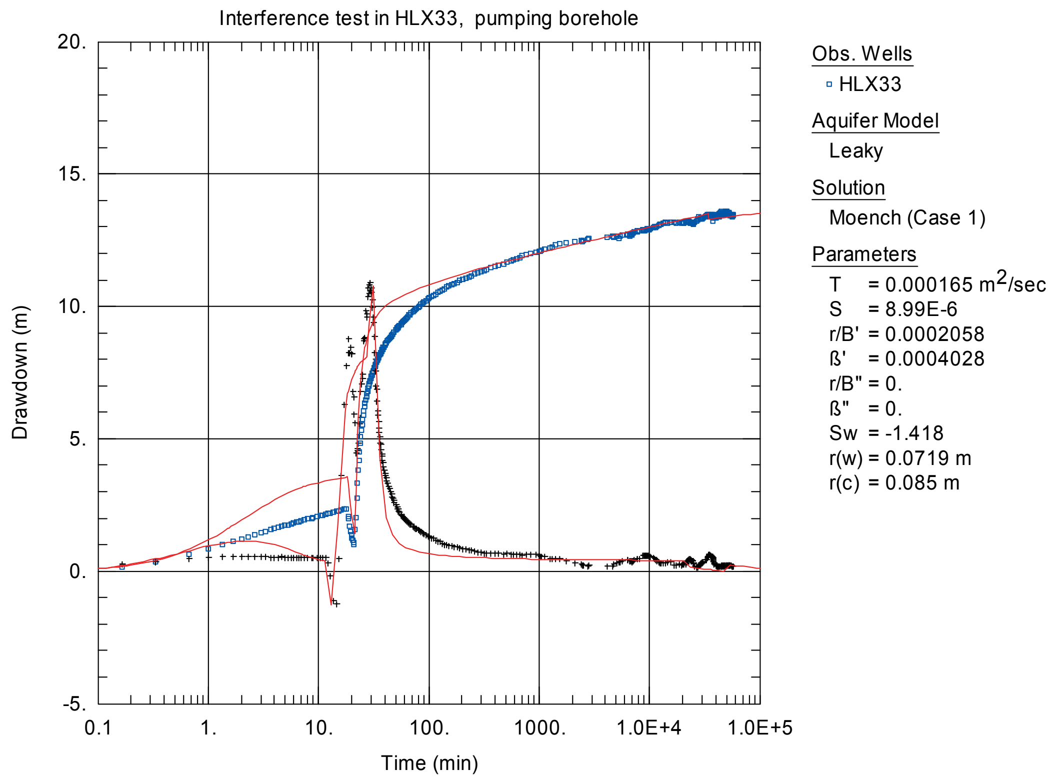


Figure 3. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the pumping borehole HLX33.*

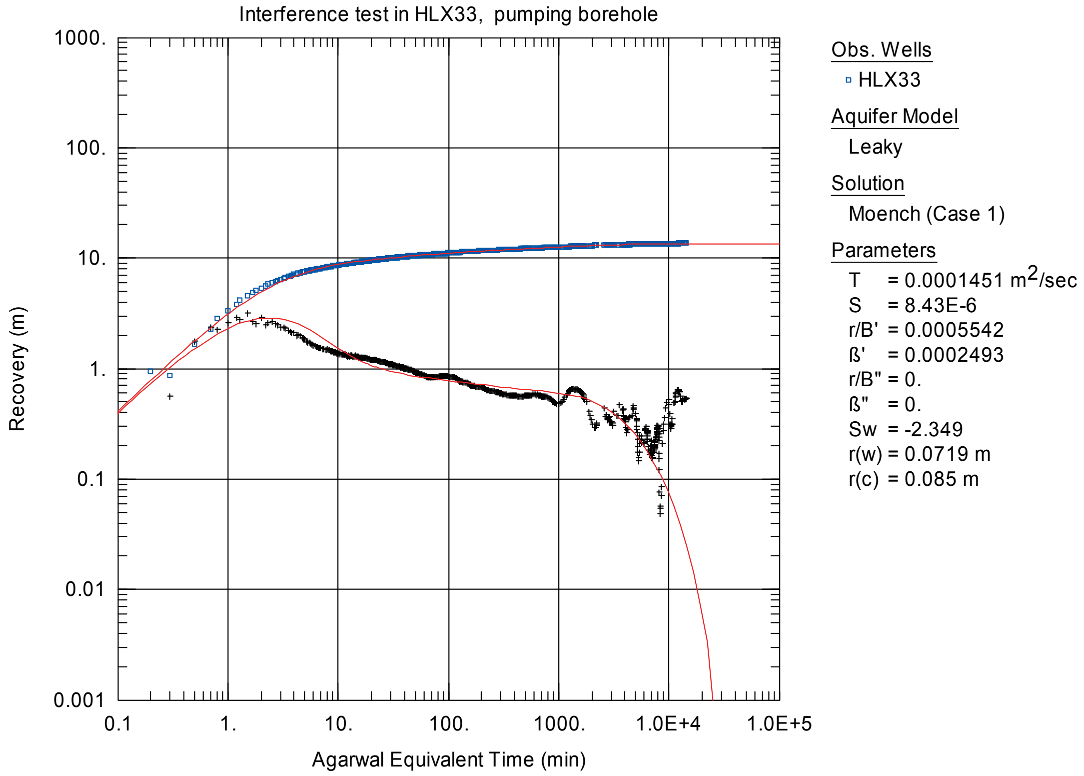


Figure 4. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) together with simulated curves (red) in the pumping borehole HLX33.*

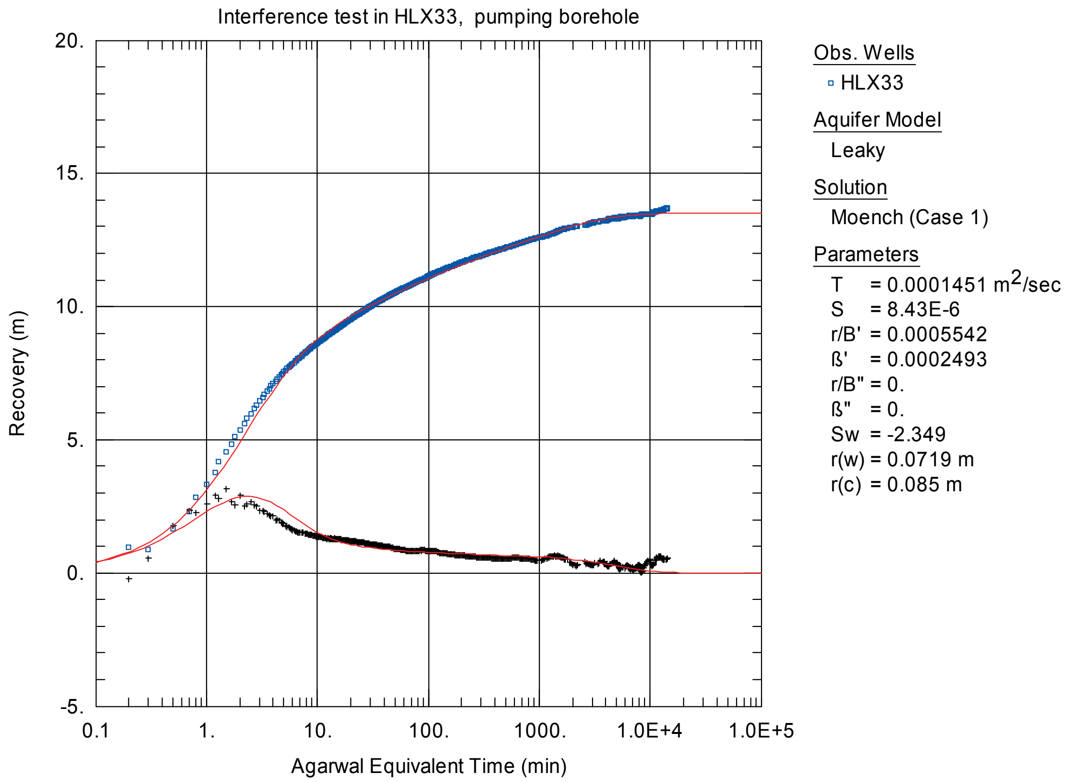


Figure 5. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) together with simulated curves (red) in the pumping borehole HLX33.*

Appendix 7.2 Observation borehole HLX11

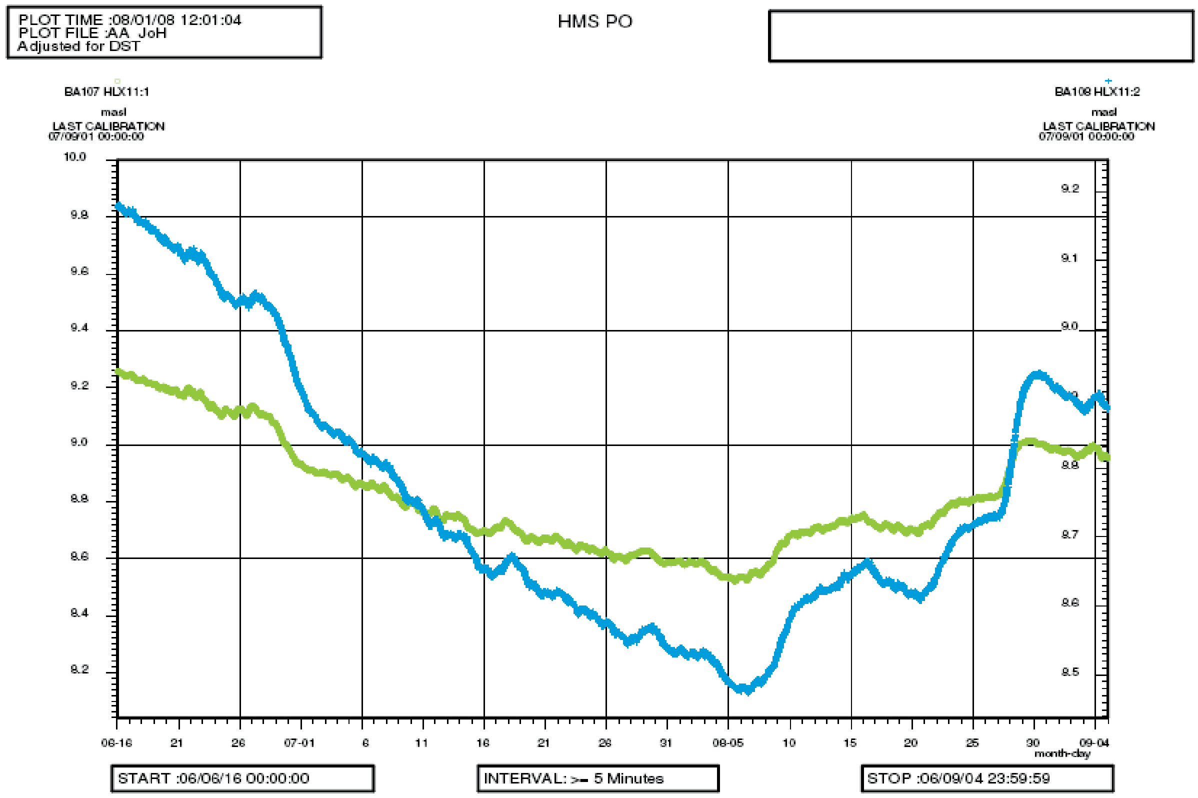


Figure 6. *Linear plot of pressure versus time in the observation borehole HLX11 during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

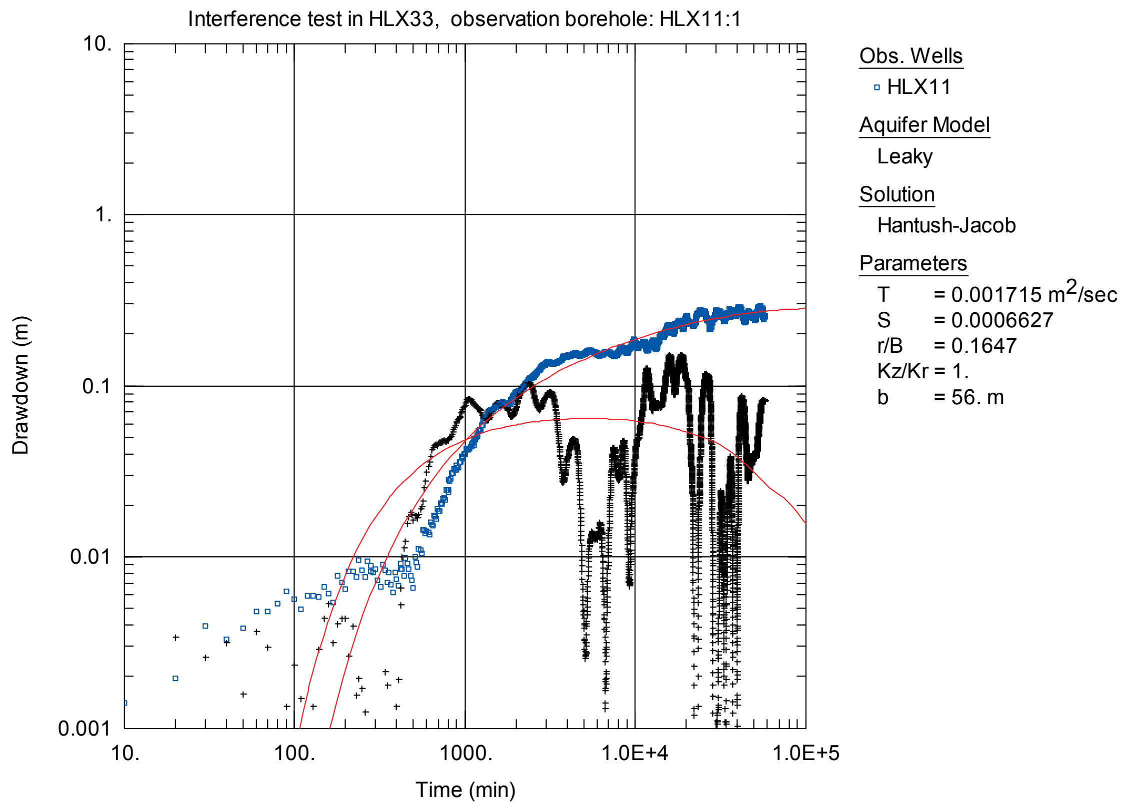


Figure 7. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX11:1 during pumping in borehole HLX33.*

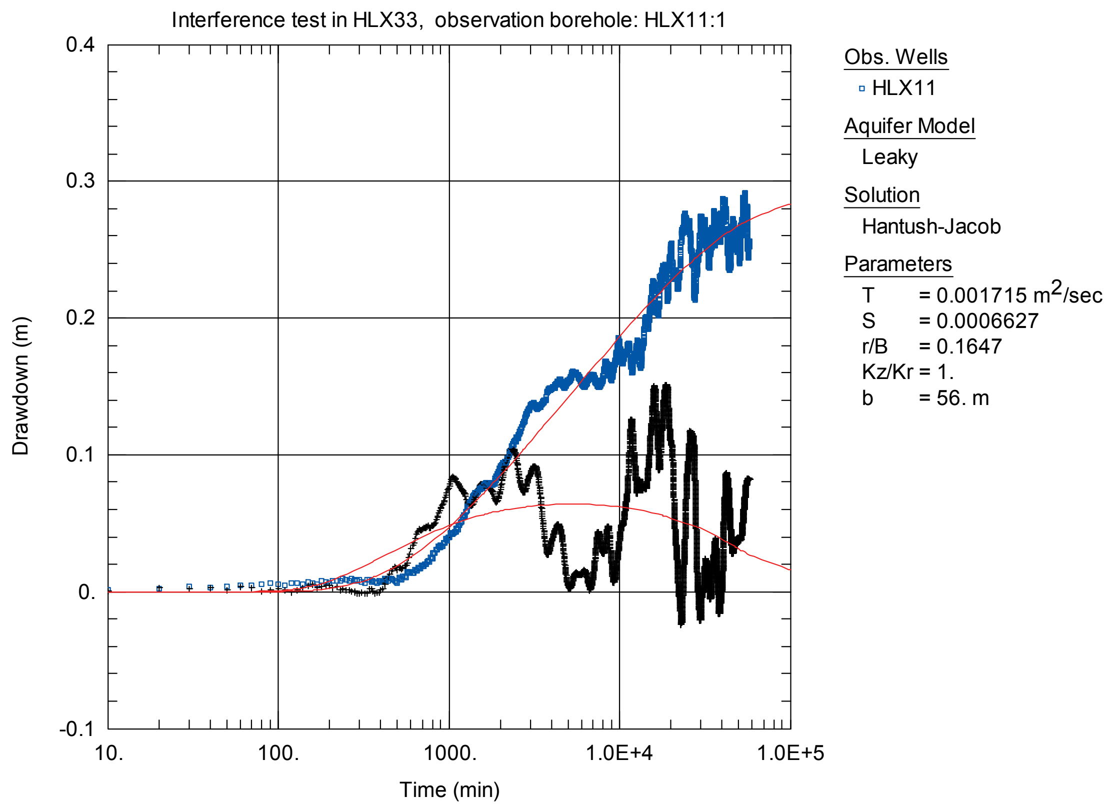


Figure 8. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX11:1 during pumping in borehole HLX33.*

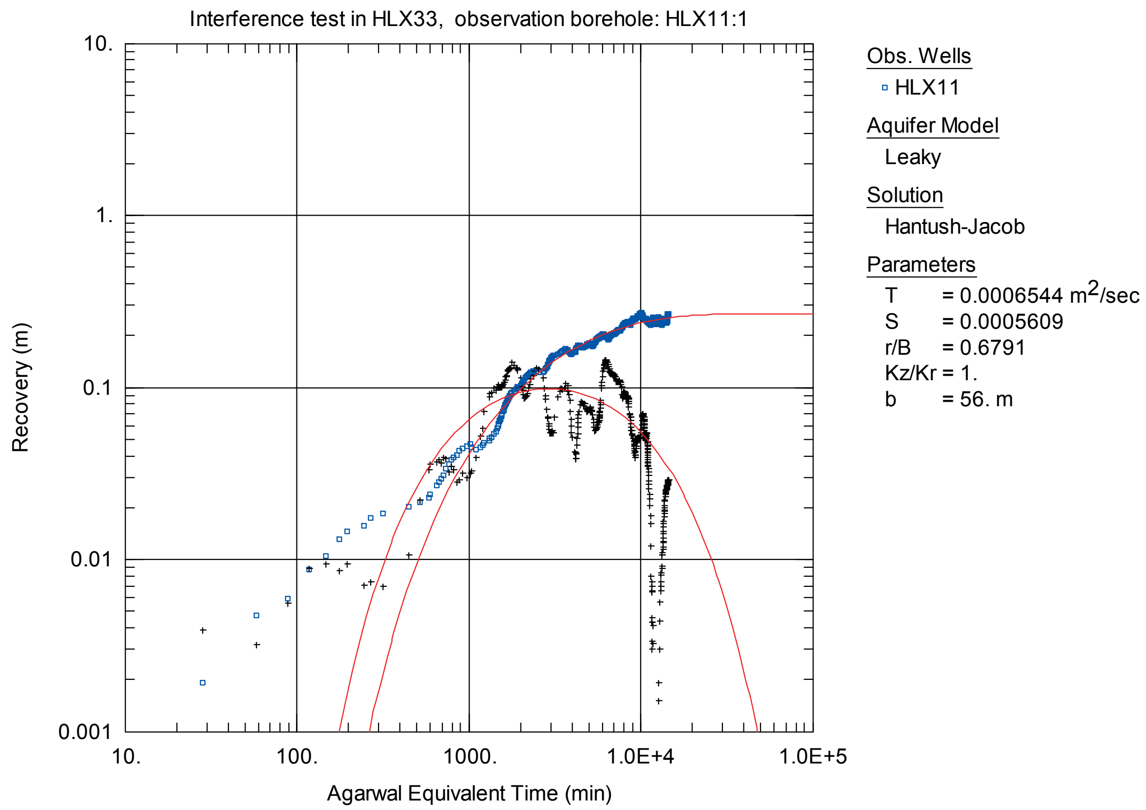


Figure 9. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX11:1 during pumping in borehole HLX33.*

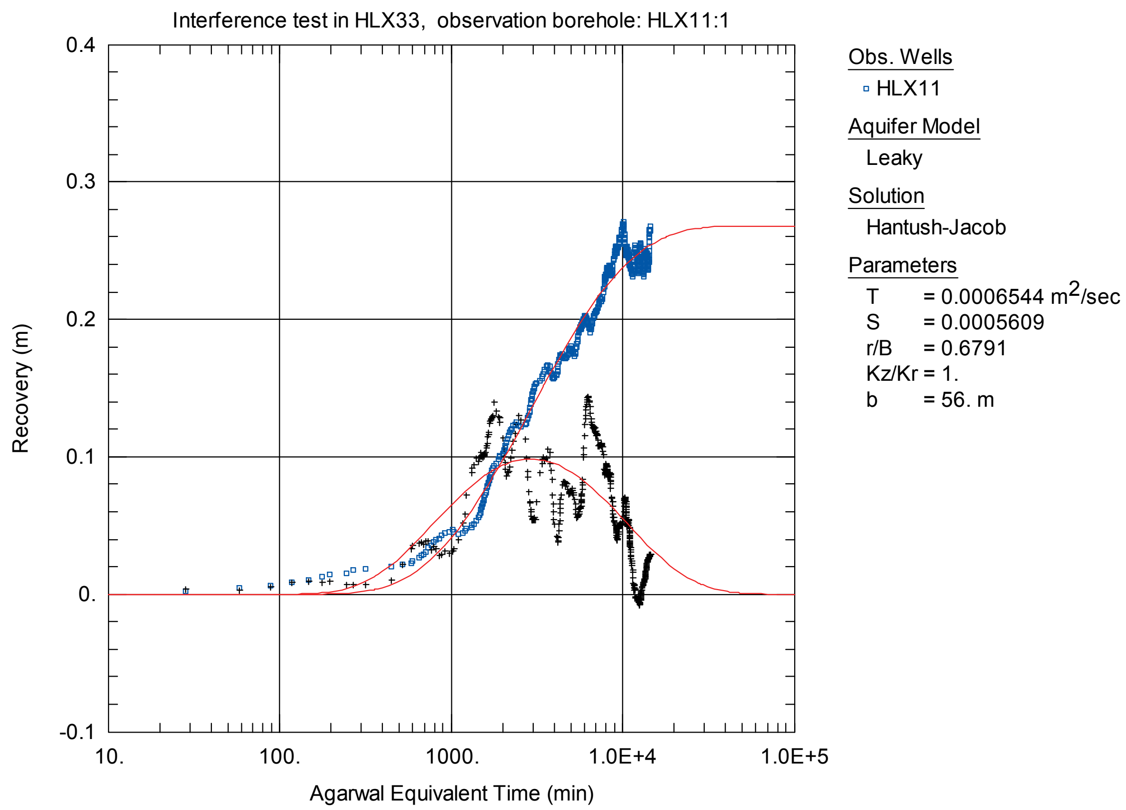


Figure 10. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX11:1 during pumping in borehole HLX33.*

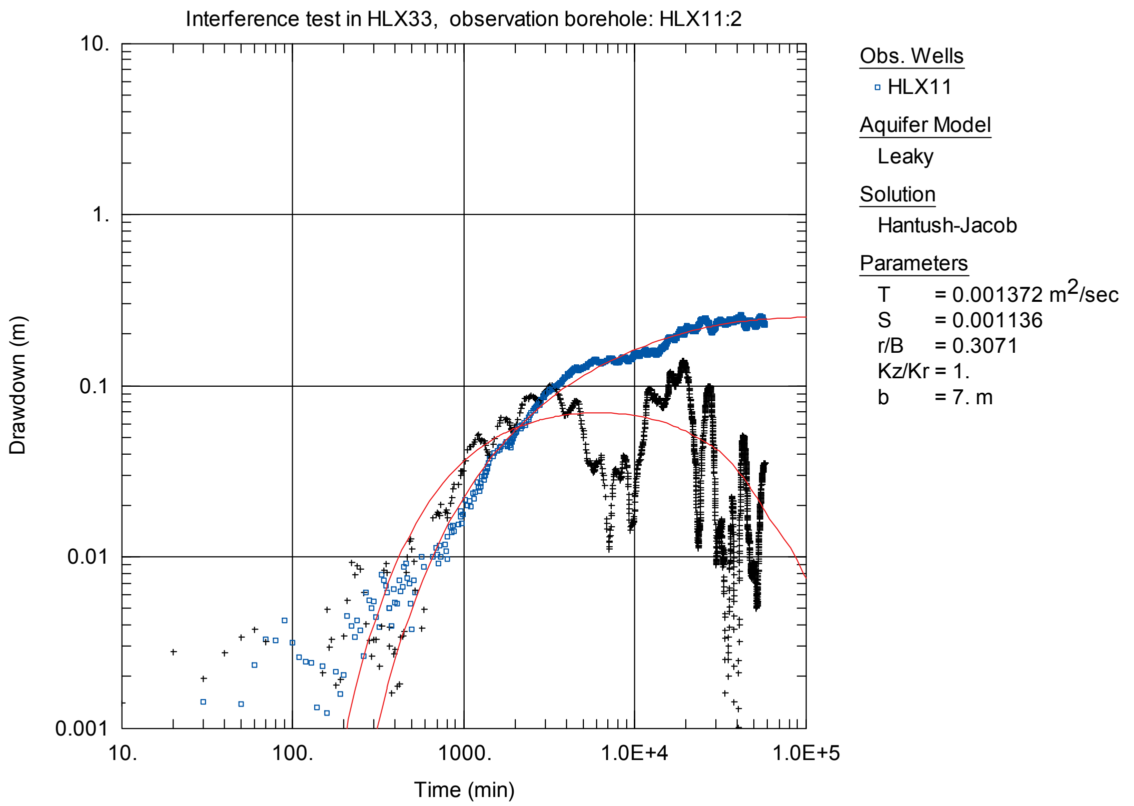


Figure 11. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX11:2 during pumping in borehole HLX33.*

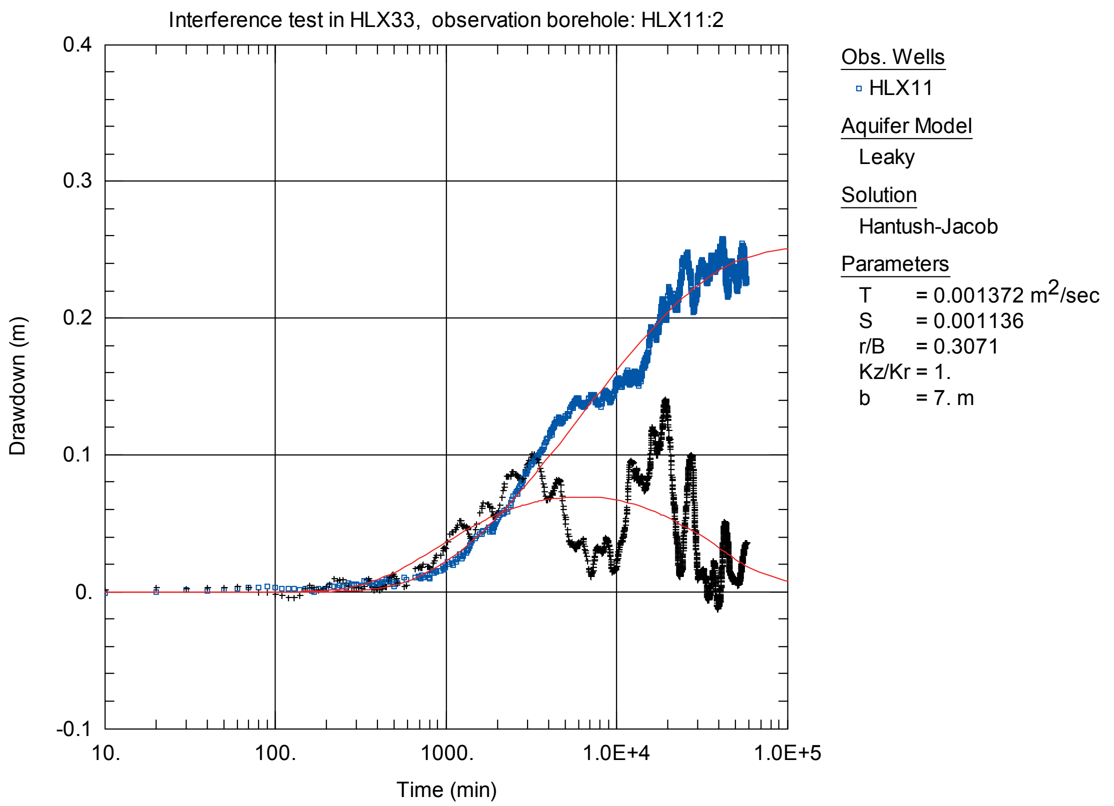


Figure 12. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX11:2 during pumping in borehole HLX33.*

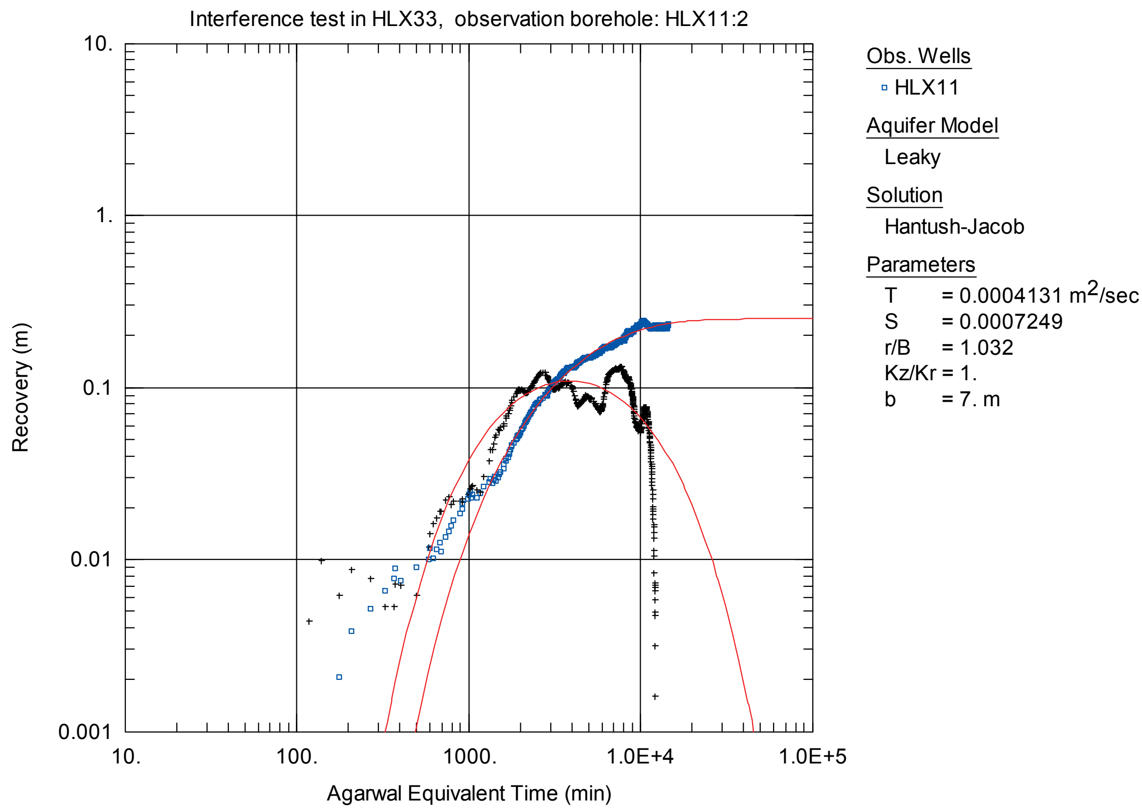


Figure 13. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX11:2 during pumping in borehole HLX33.*

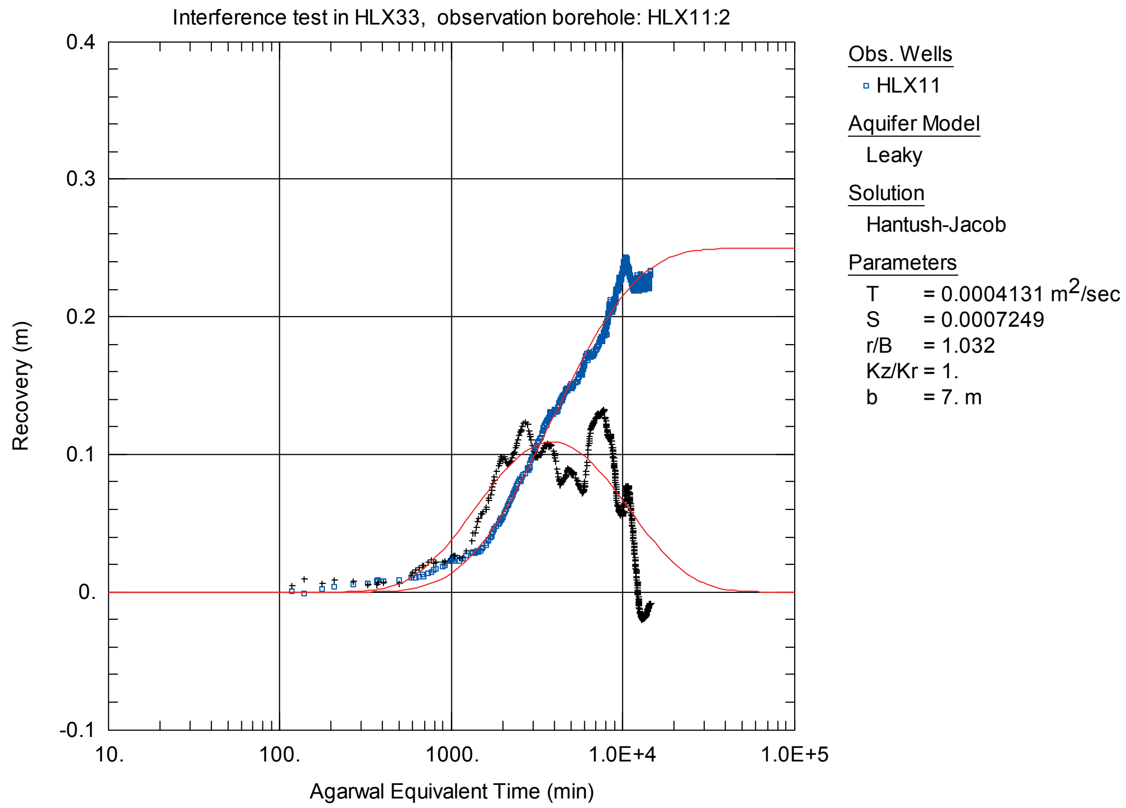


Figure 14. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX11:2 during pumping in borehole HLX33.*

Appendix 7.3 Observation borehole HLX23

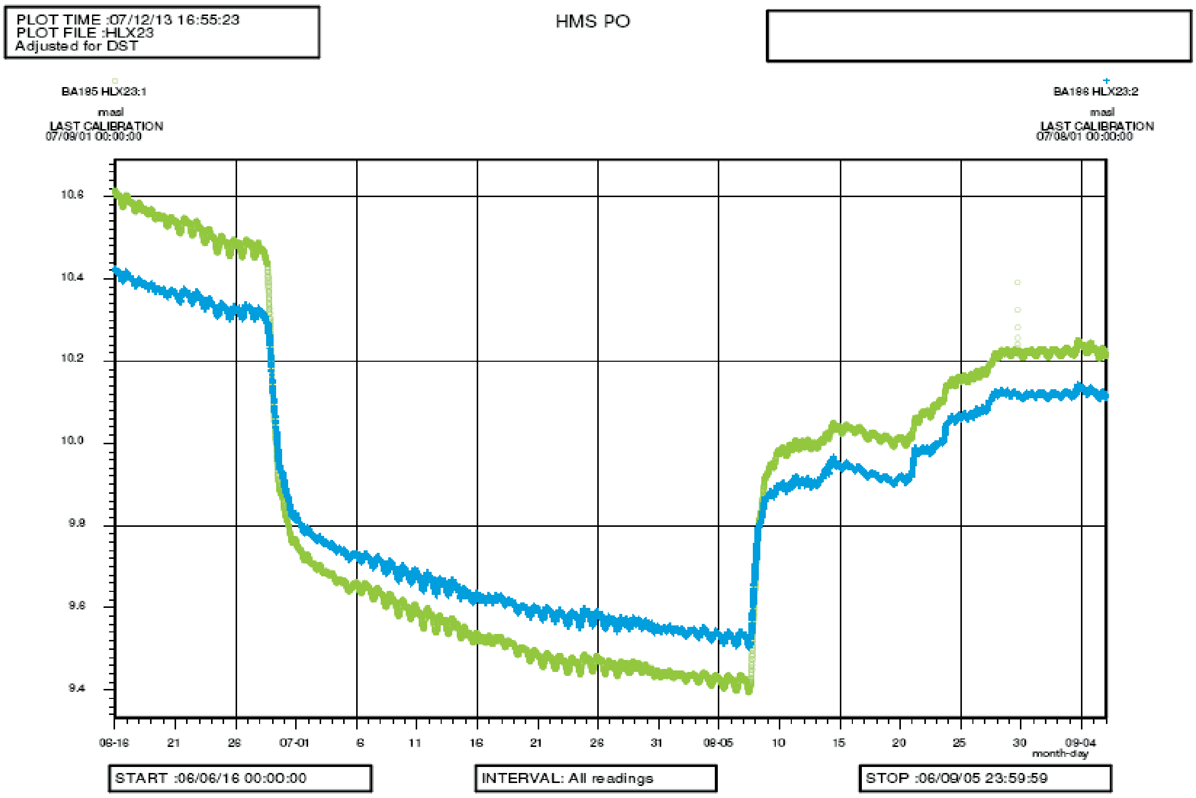


Figure 15. *Linear plot of pressure versus time in the observation borehole HLX11 during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

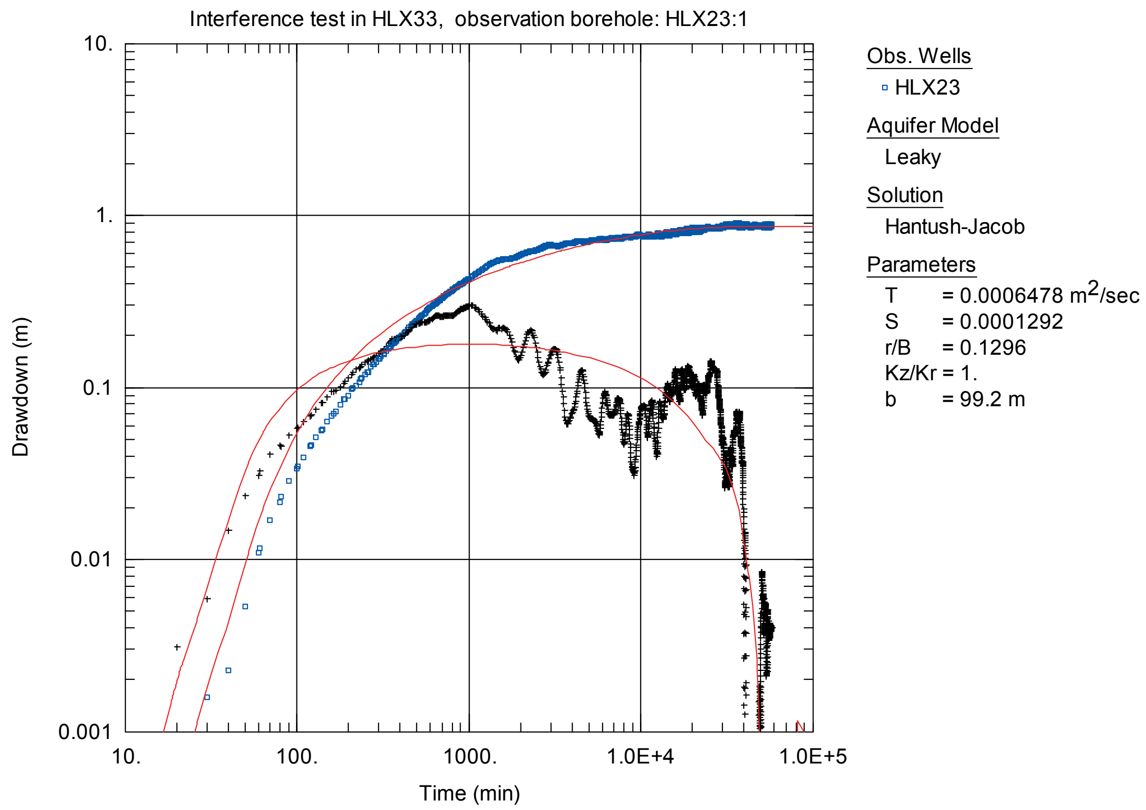


Figure 16. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX23:1 during pumping in borehole HLX33.*

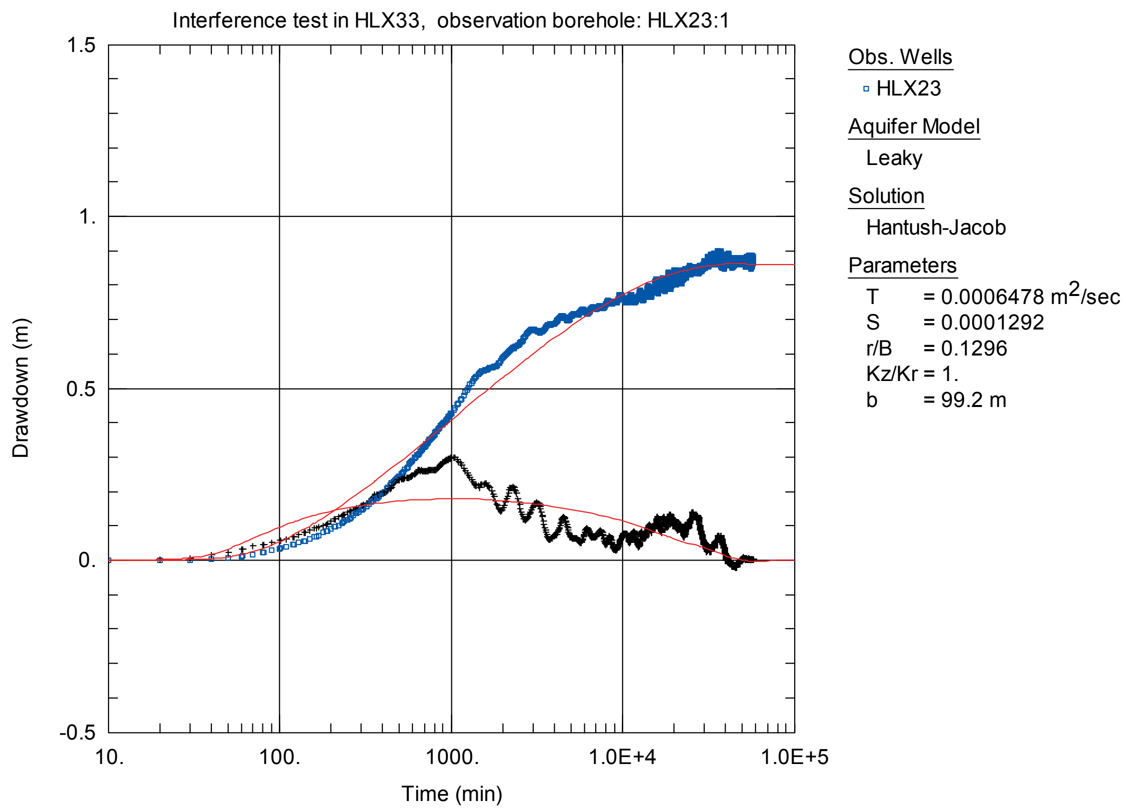


Figure 17. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX23:1 during pumping in borehole HLX33.*

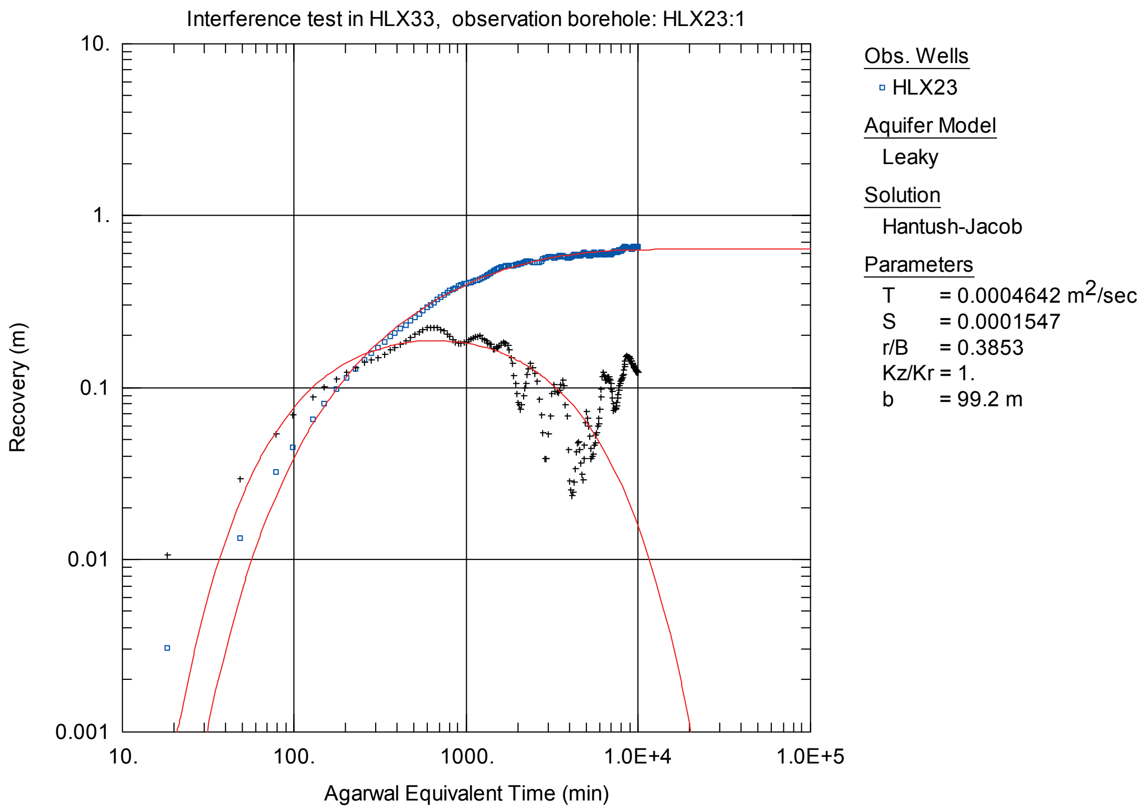


Figure 18. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX23:1 during pumping in borehole HLX33.*

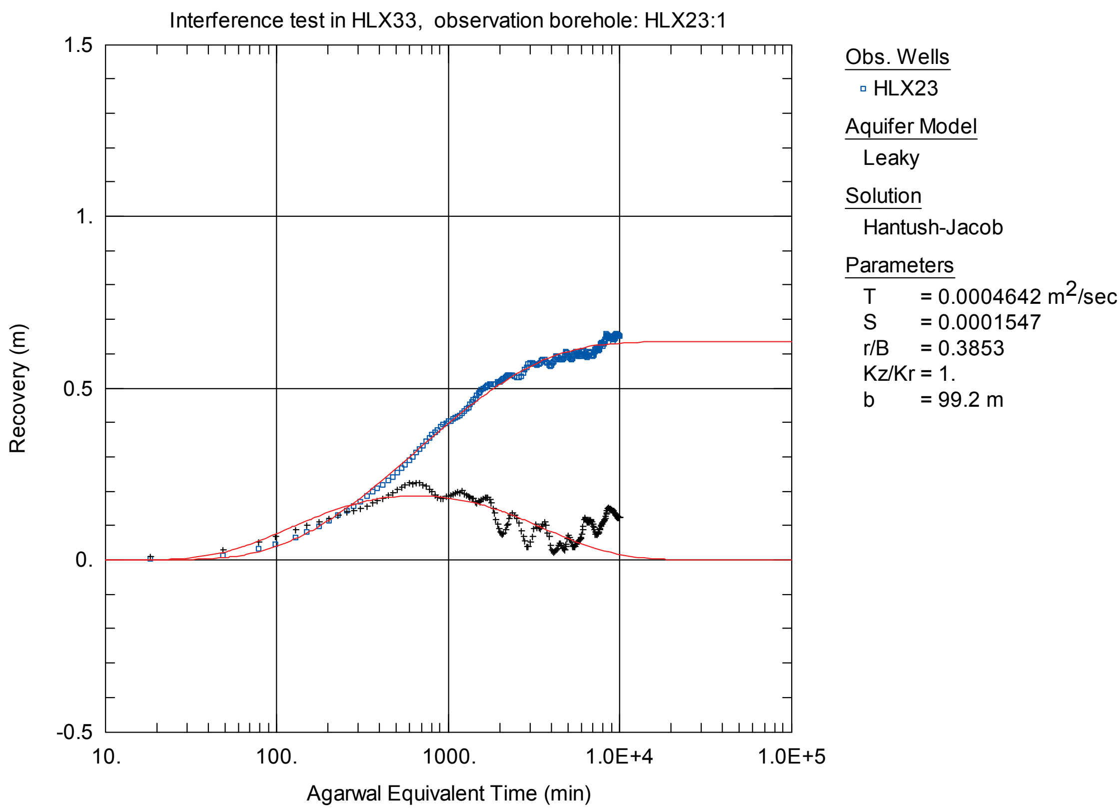


Figure 19 *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX23:1 during pumping in borehole HLX33.*

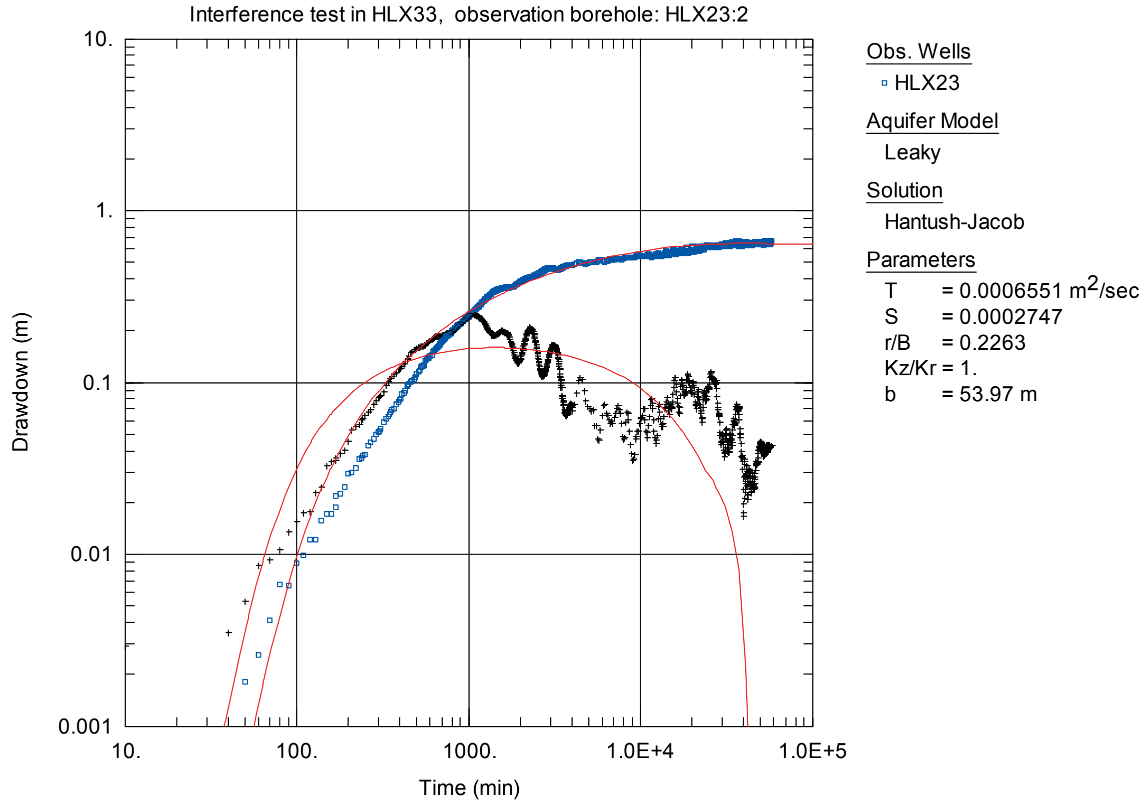


Figure 20. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX23:2 during pumping in borehole HLX33.*

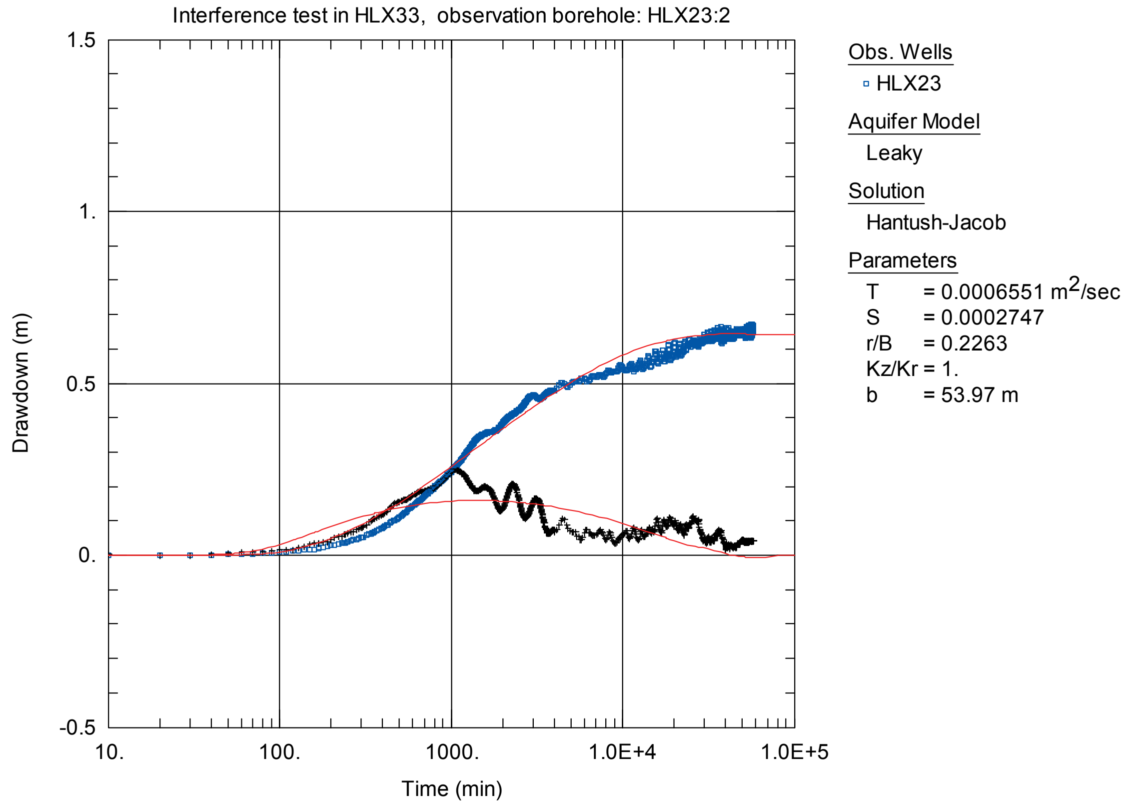


Figure 21. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX23:2 during pumping in borehole HLX33.*

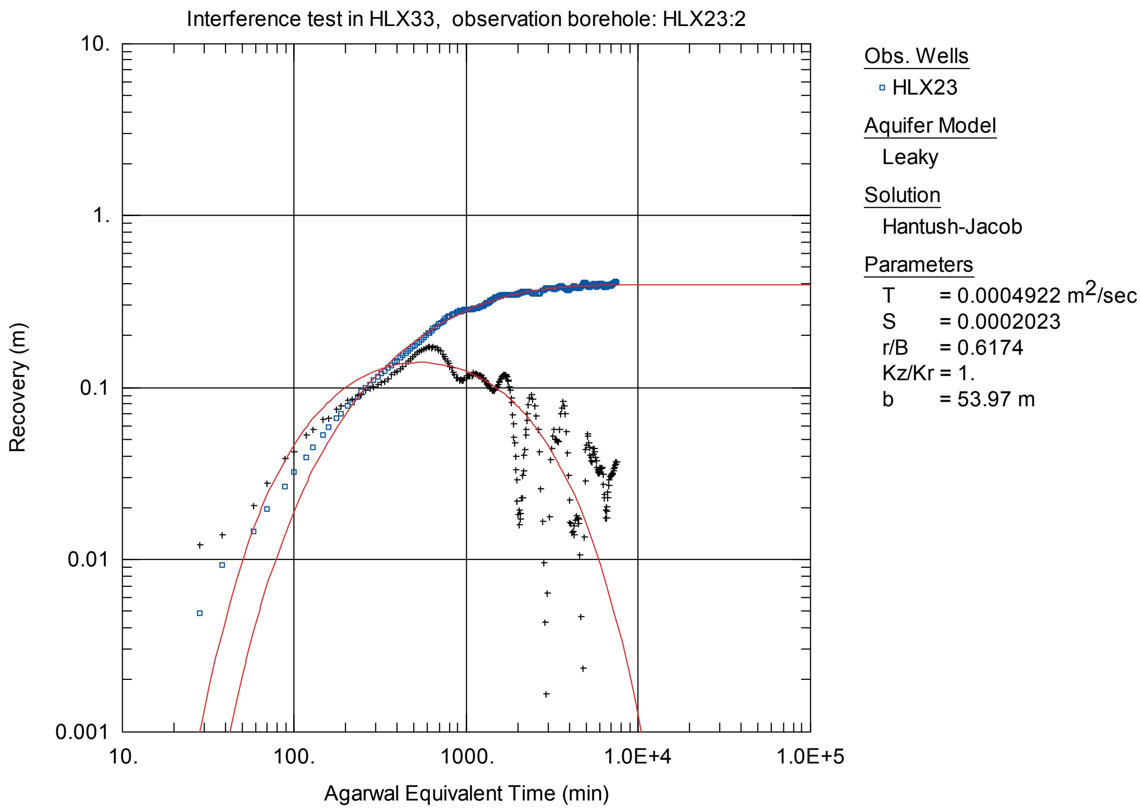


Figure 22. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX23:2 during pumping in borehole HLX33.*

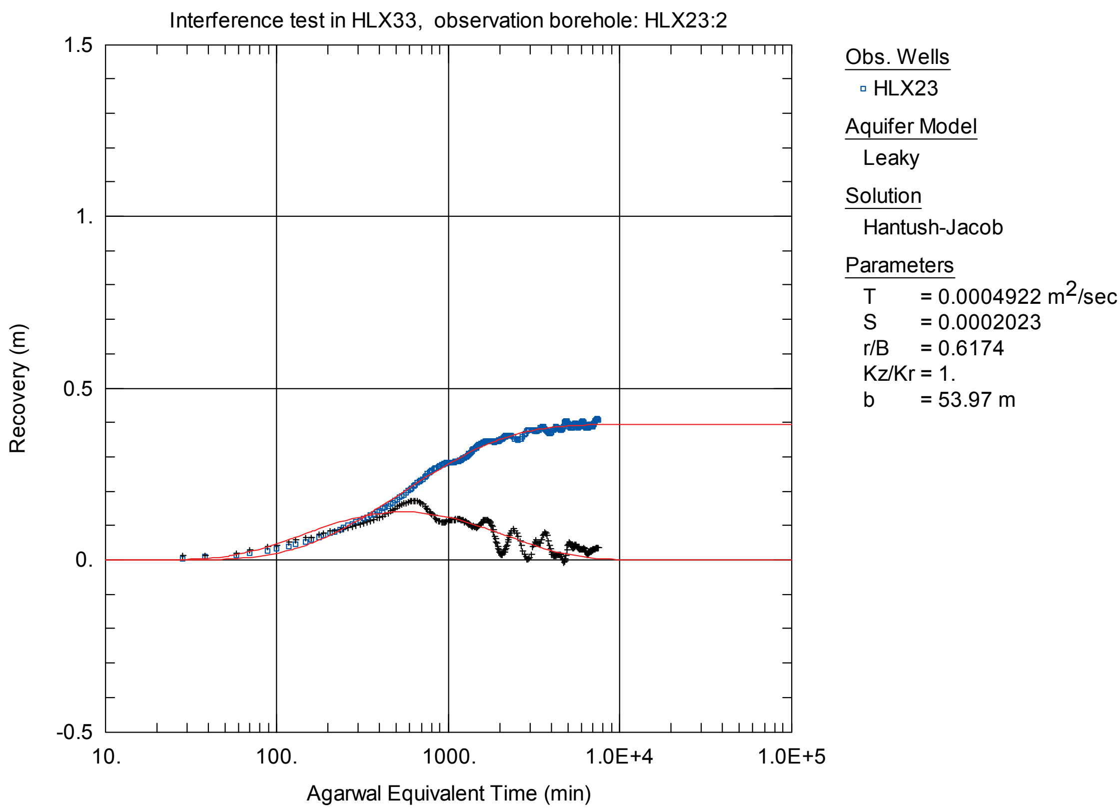


Figure 23. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX23:2 during pumping in borehole HLX33.*

Appendix 7.4 Observation borehole HLX24

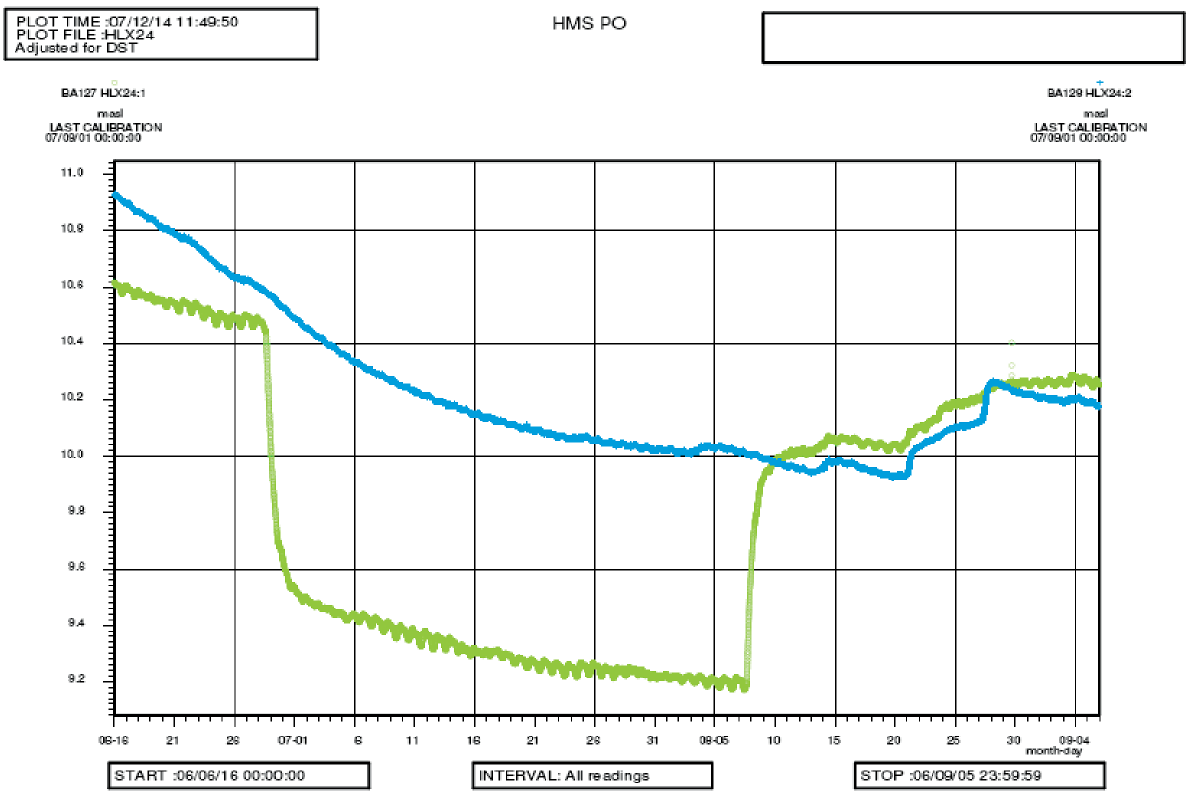


Figure 24. *Linear plot of pressure versus time in the observation borehole HLX24 during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07. The figure shows that the level in HLX24:2 is unaffected by the pumping in HLX33, performed 2006-06-28 – 2006-08-07.*

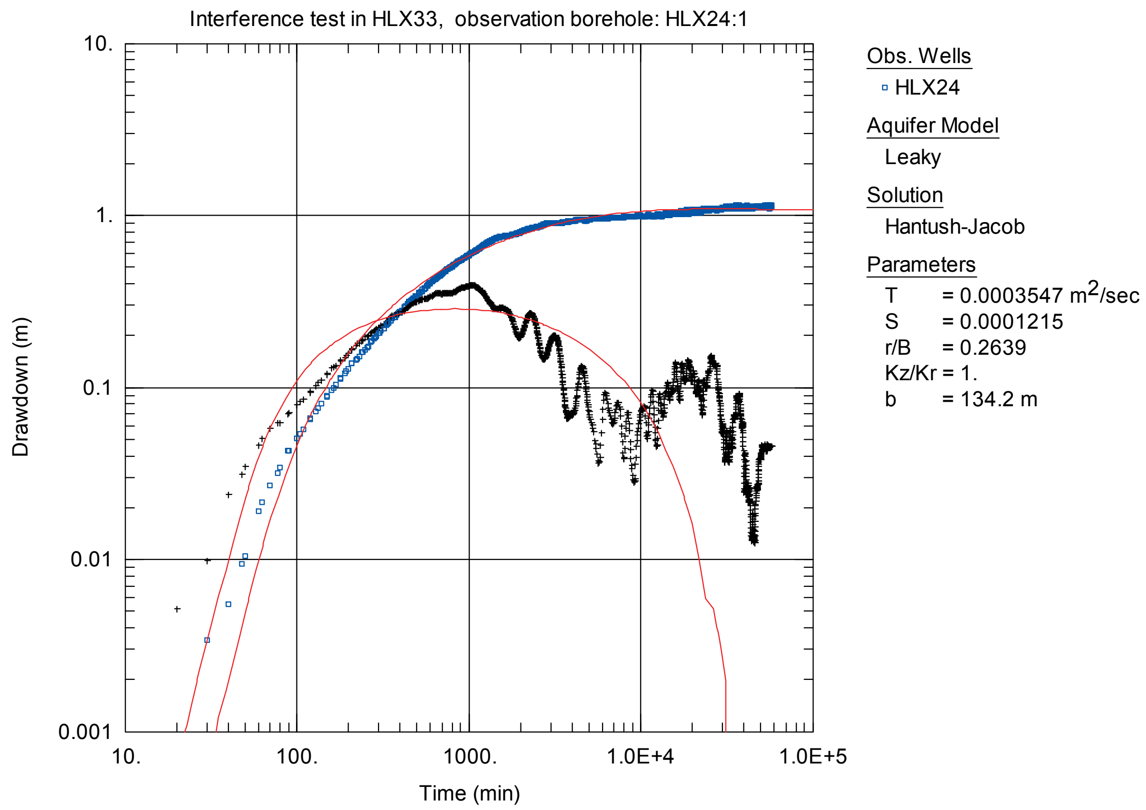


Figure 25. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX24:1 during pumping in borehole HLX33.*

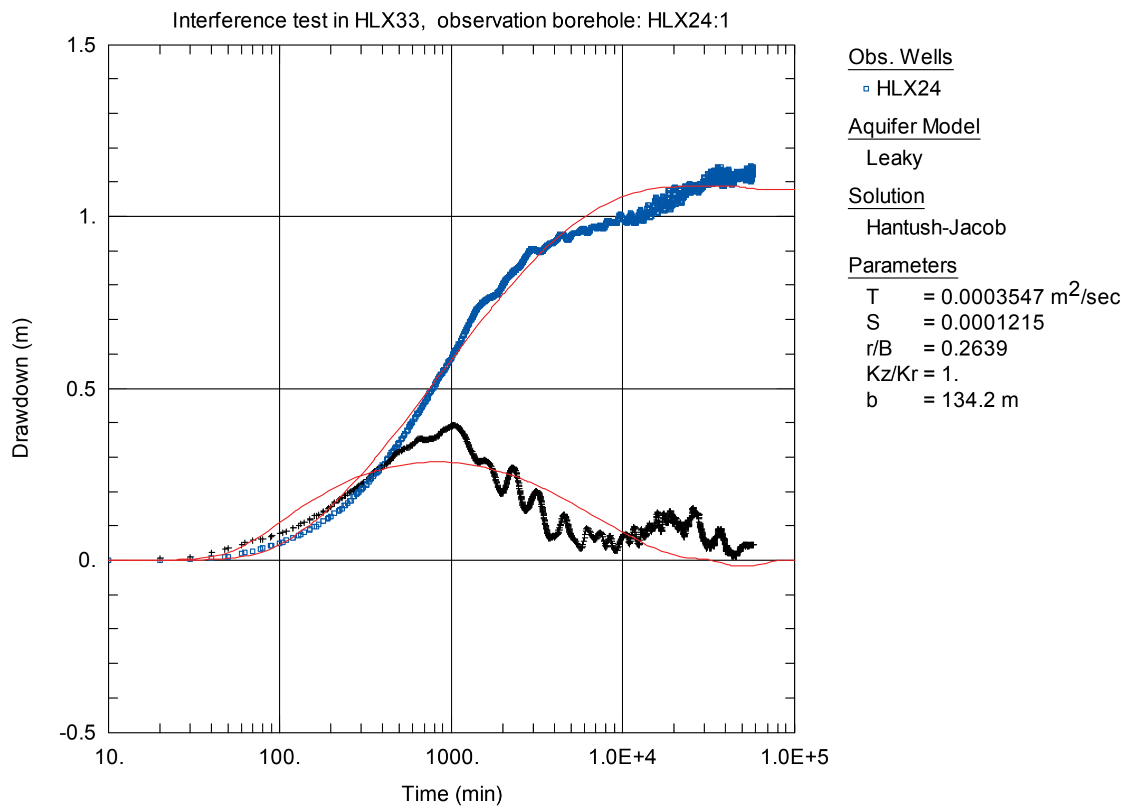


Figure 26. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX24:1 during pumping in borehole HLX33.*

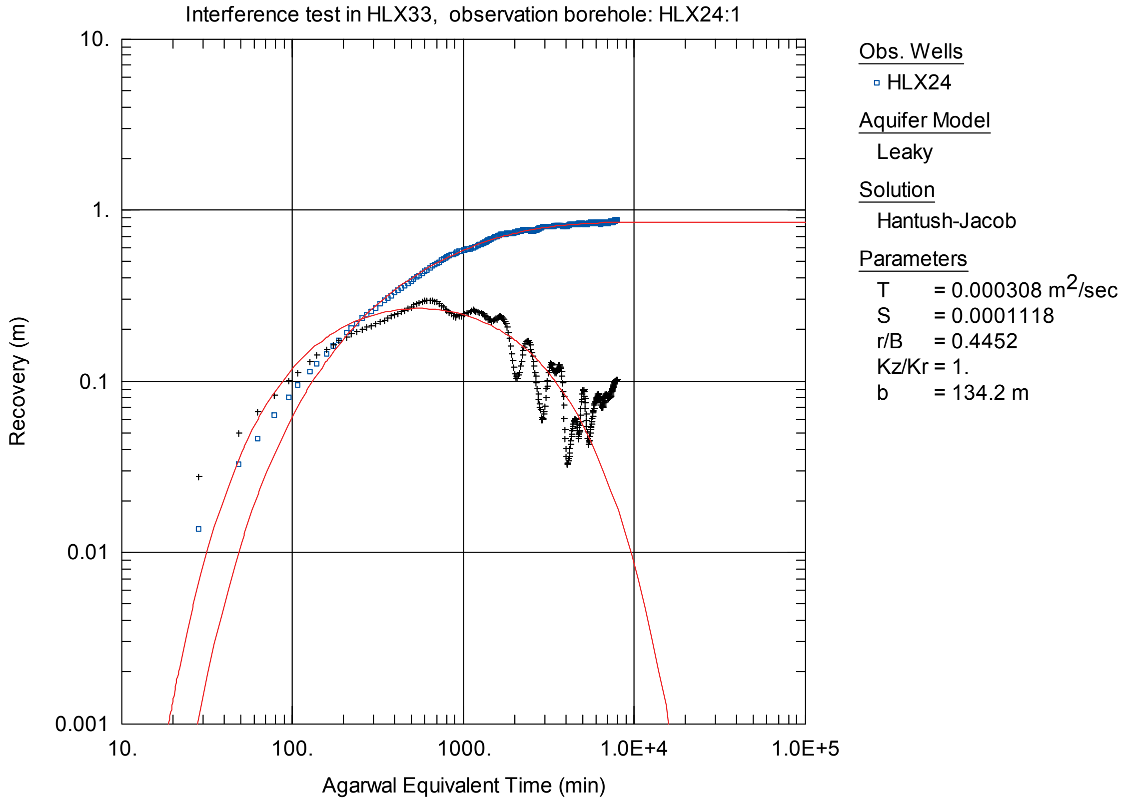


Figure 27. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX24:1 during pumping in borehole HLX33.*

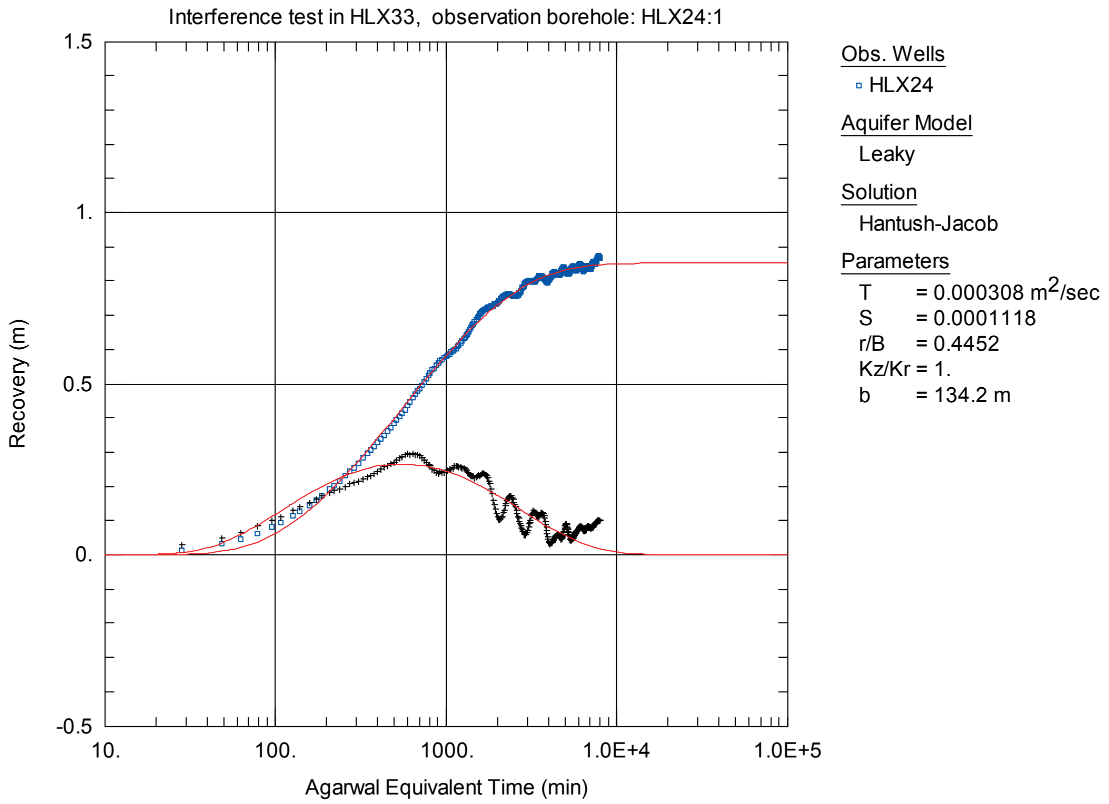


Figure 28. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX24:1 during pumping in borehole HLX33.*

Appendix 7.5 Observation borehole HLX25

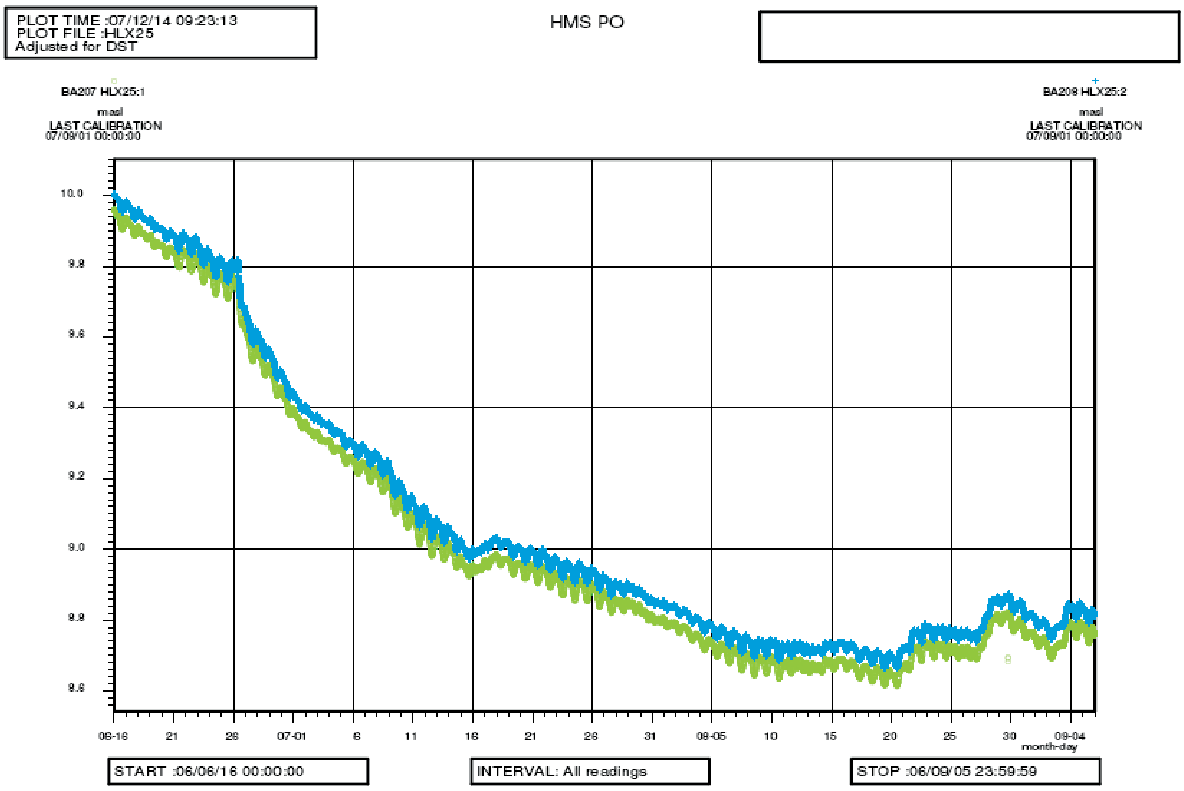


Figure 29. *Linear plot of pressure versus time in the observation borehole HLX25 during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

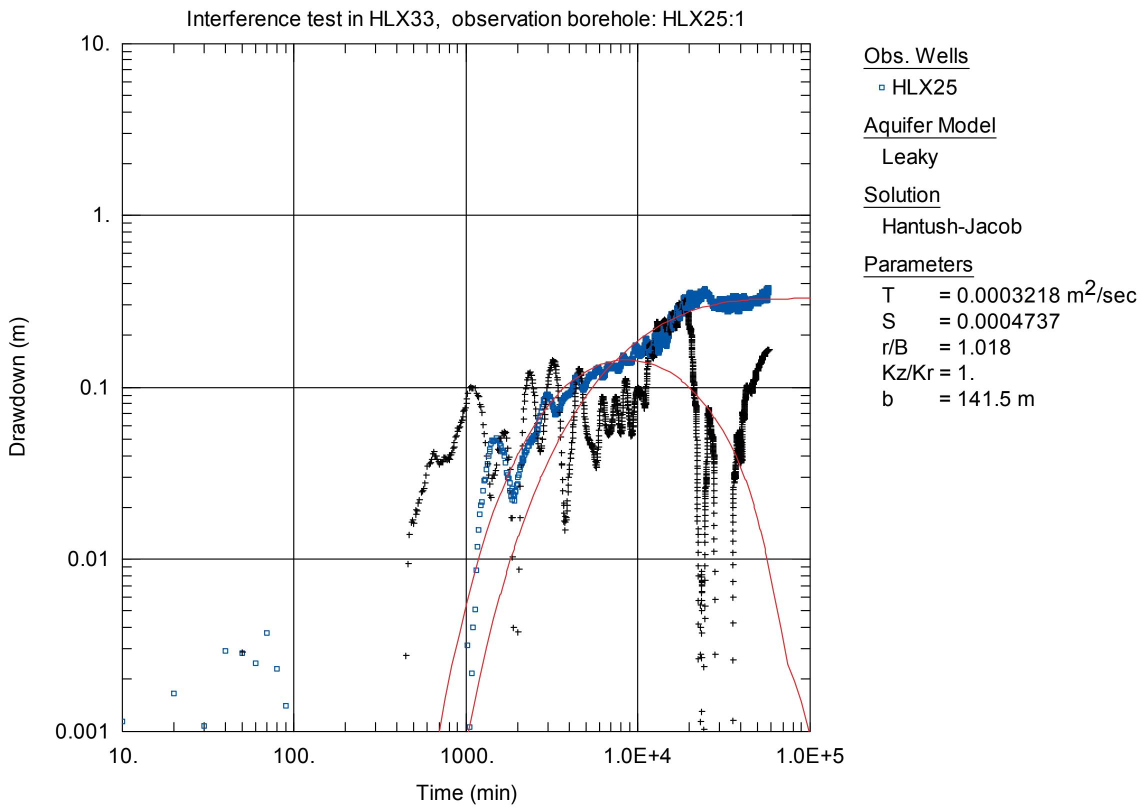


Figure 30. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX25:1 during pumping in borehole HLX33.*

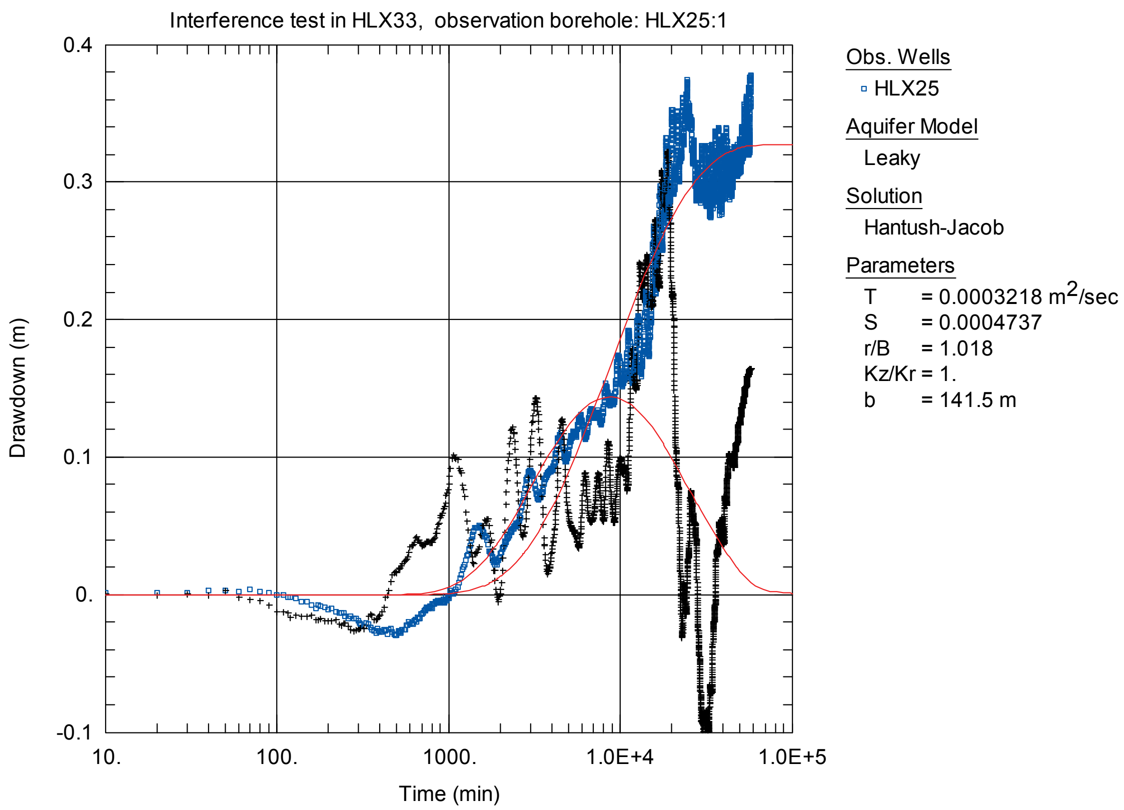


Figure 31. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX25:1 during pumping in borehole HLX33.*

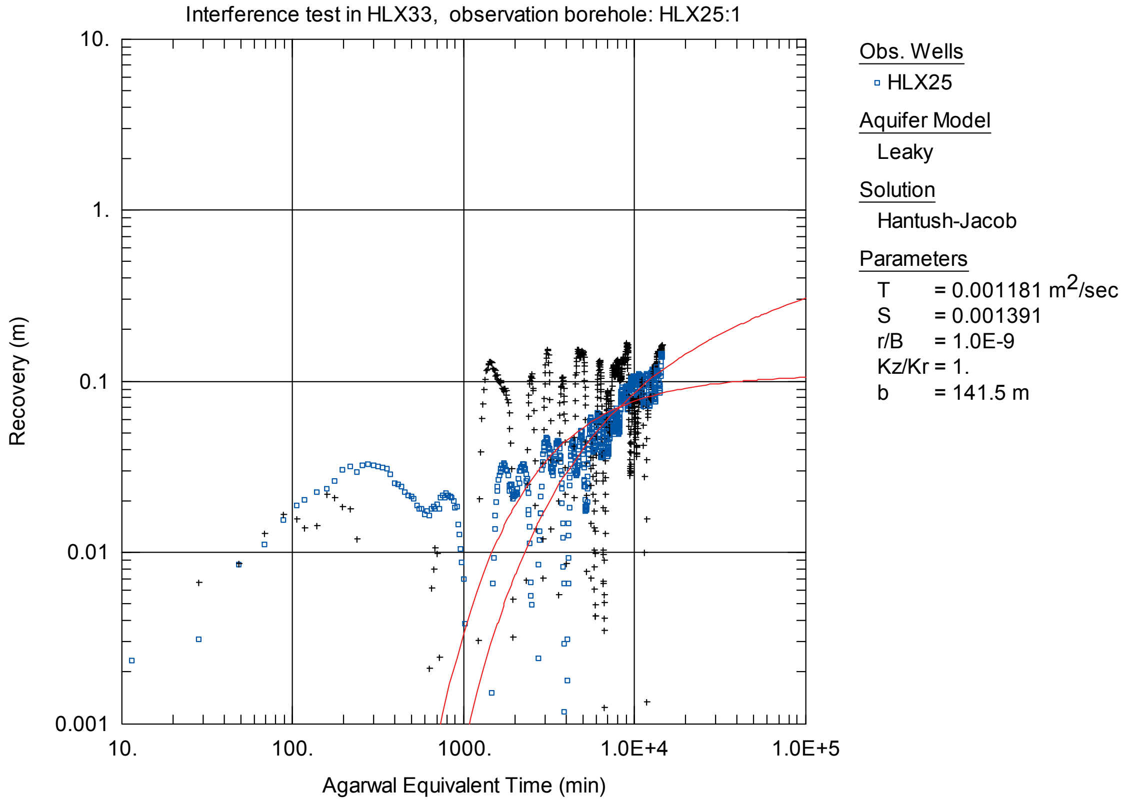


Figure 32. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX25:1 during pumping in borehole HLX33.*

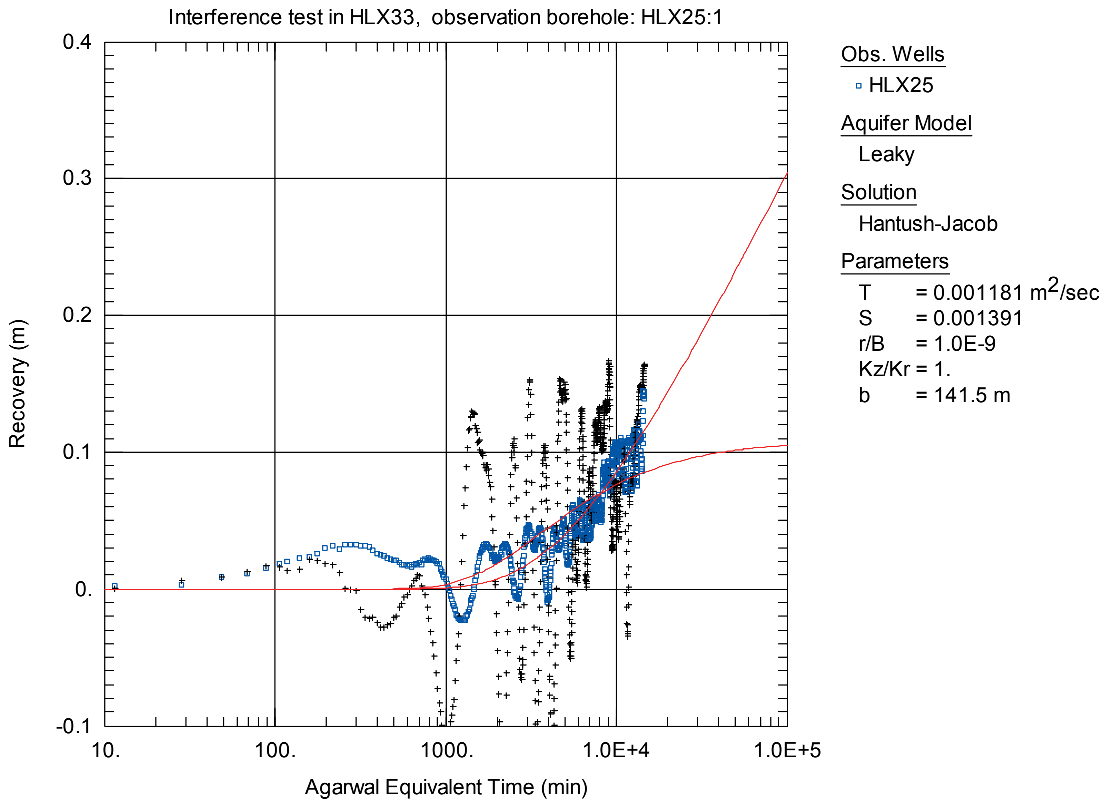


Figure 33. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX25:1 during pumping in borehole HLX33.*

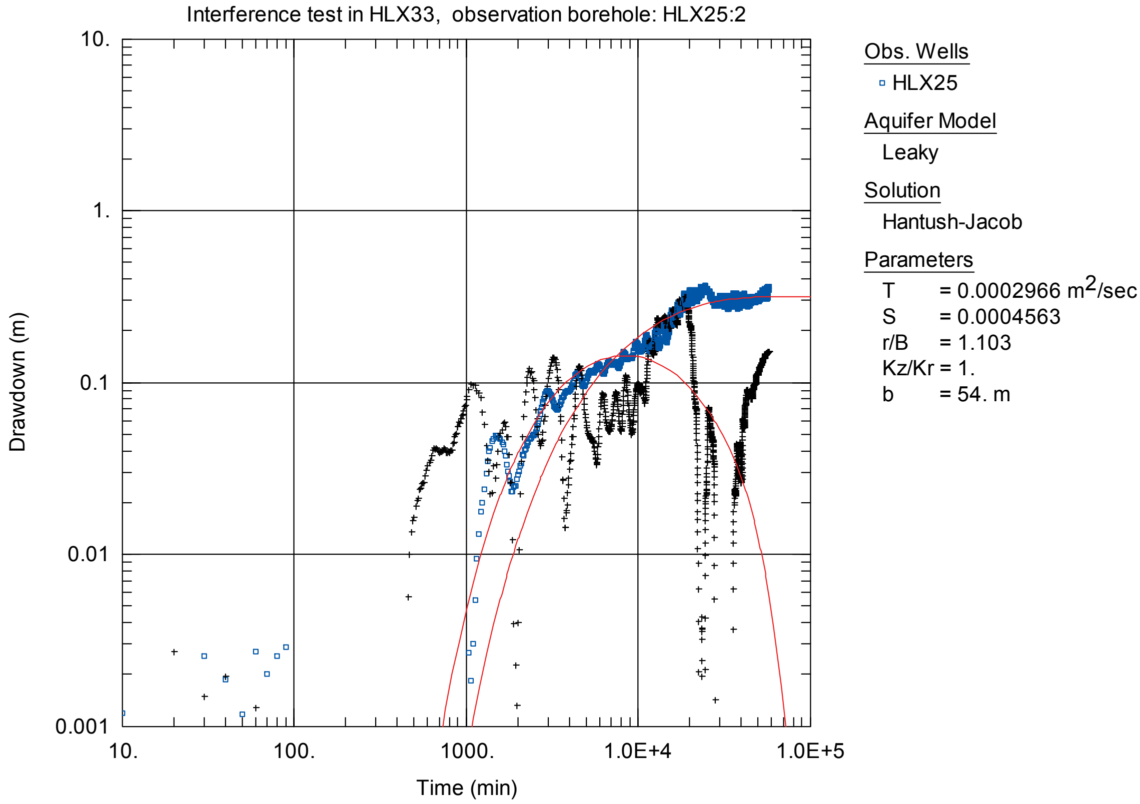


Figure 34. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX25:2 during pumping in borehole HLX33.*

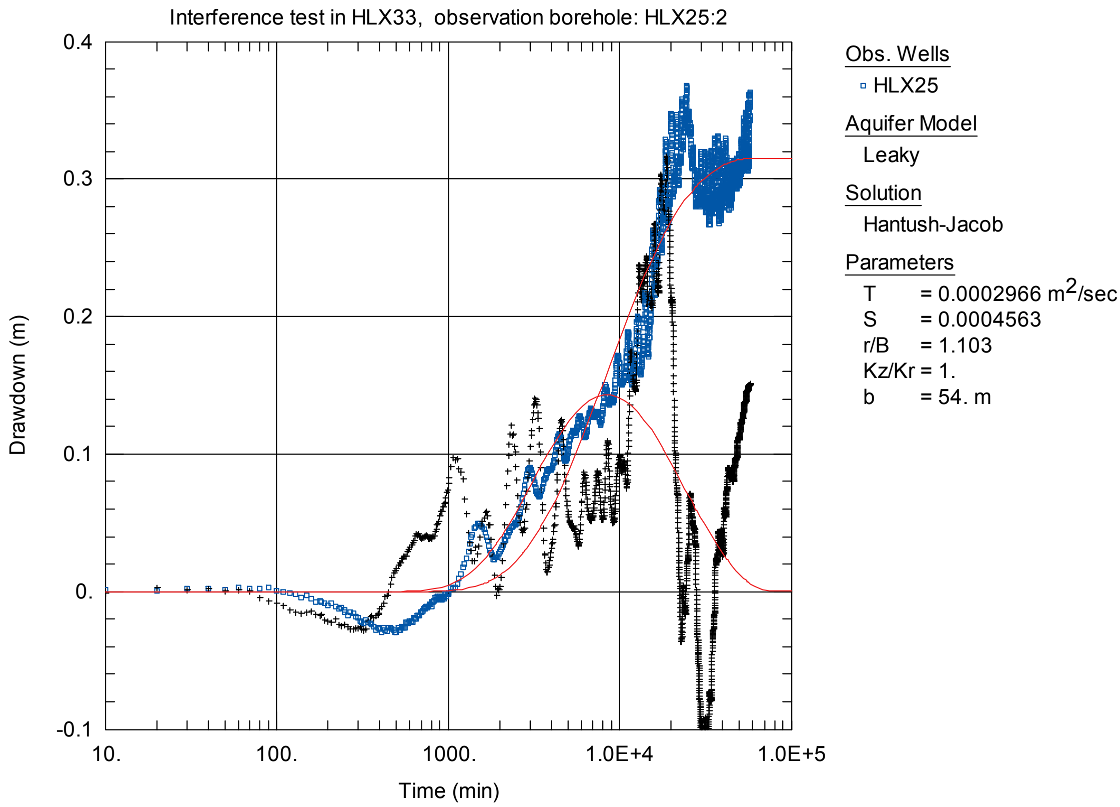


Figure 35. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX25:2 during pumping in borehole HLX33.*

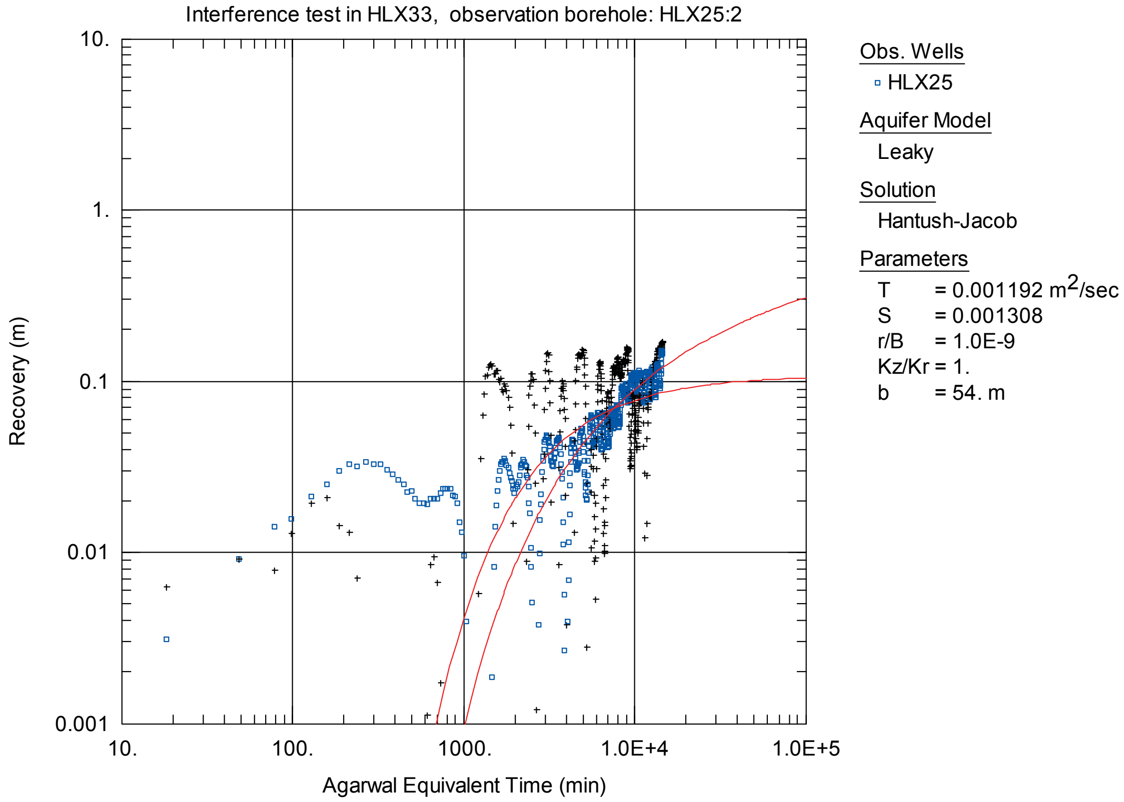


Figure 36. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX25:2 during pumping in borehole HLX33.*

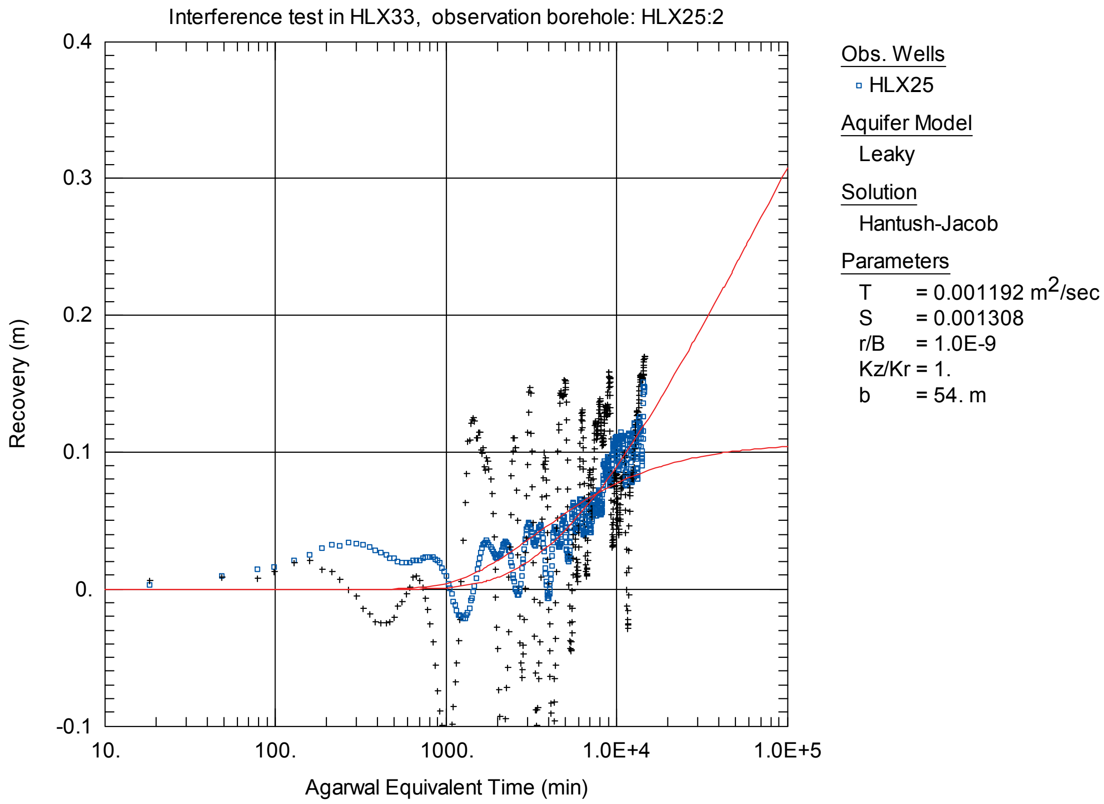


Figure 37. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX25:2 during pumping in borehole HLX33.*

Appendix 7.6 Observation borehole HLX30

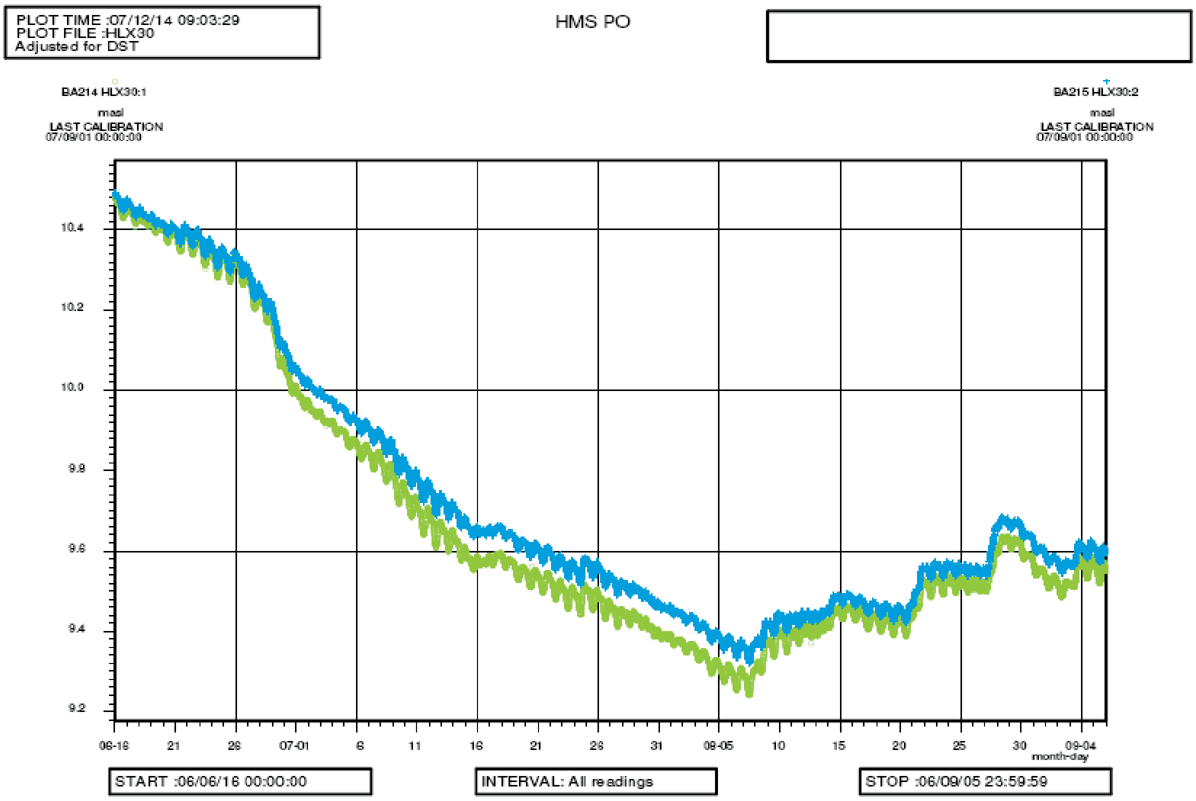


Figure 38. *Linear plot of pressure versus time in the observation borehole HLX25 during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

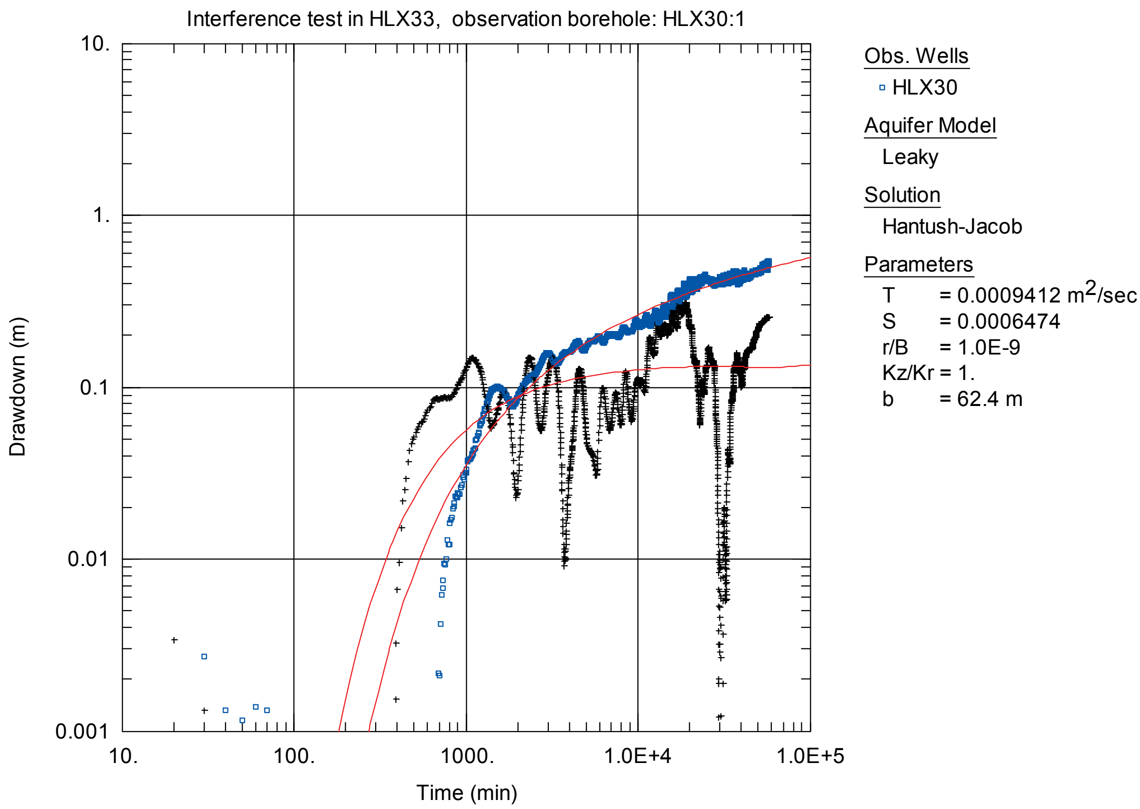


Figure 39. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX30:1 during pumping in borehole HLX33.*

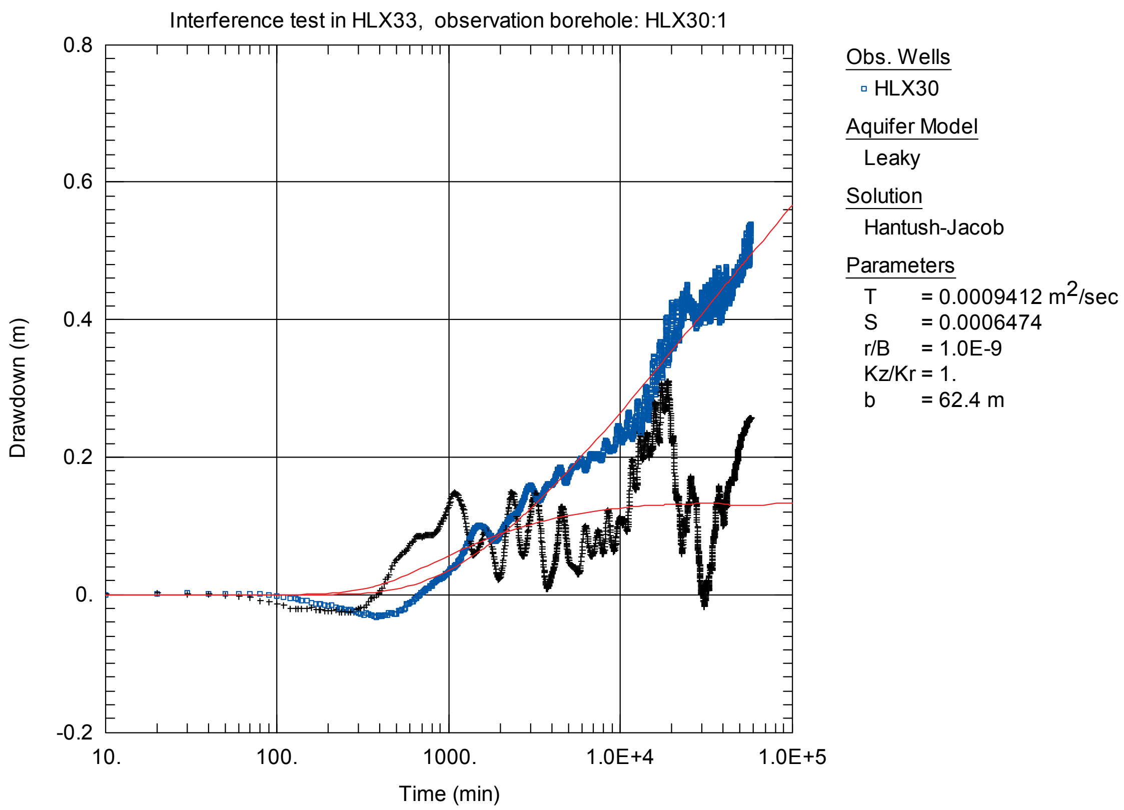


Figure 40. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX30:1 during pumping in borehole HLX33.*

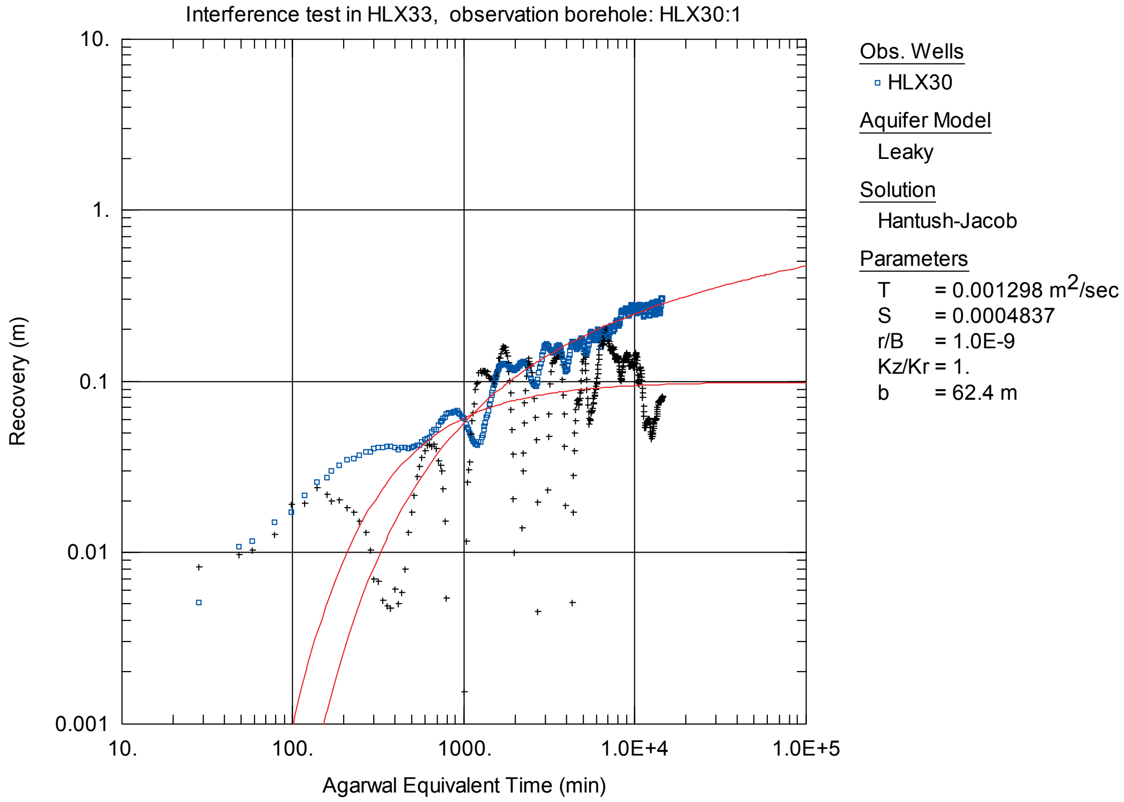


Figure 41. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX30:1 during pumping in borehole HLX33.*

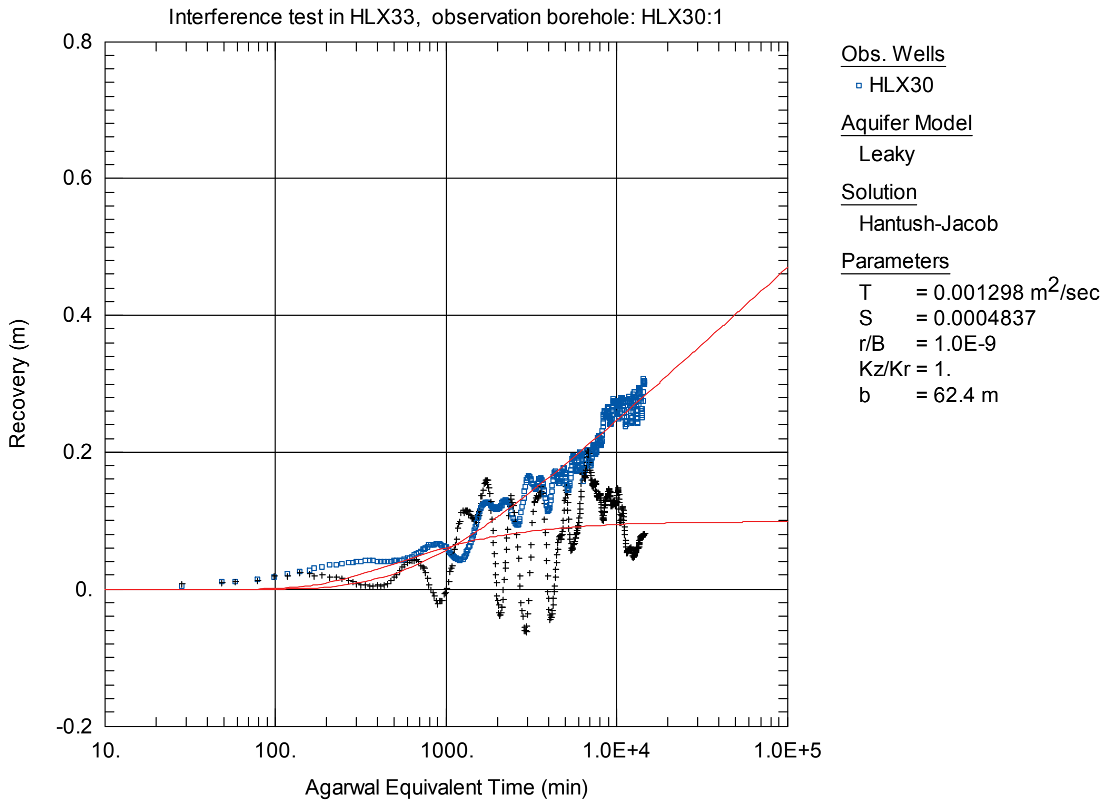


Figure 42. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX30:1 during pumping in borehole HLX33.*

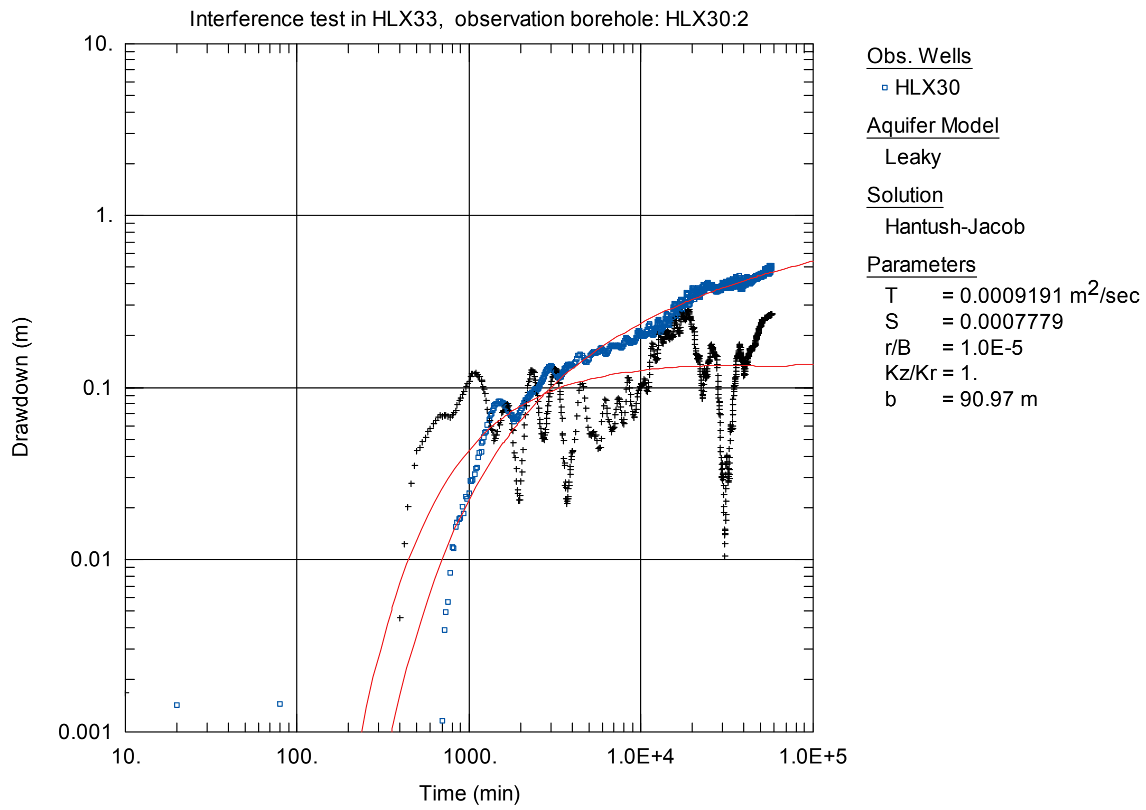


Figure 43. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX30:2 during pumping in borehole HLX33.*

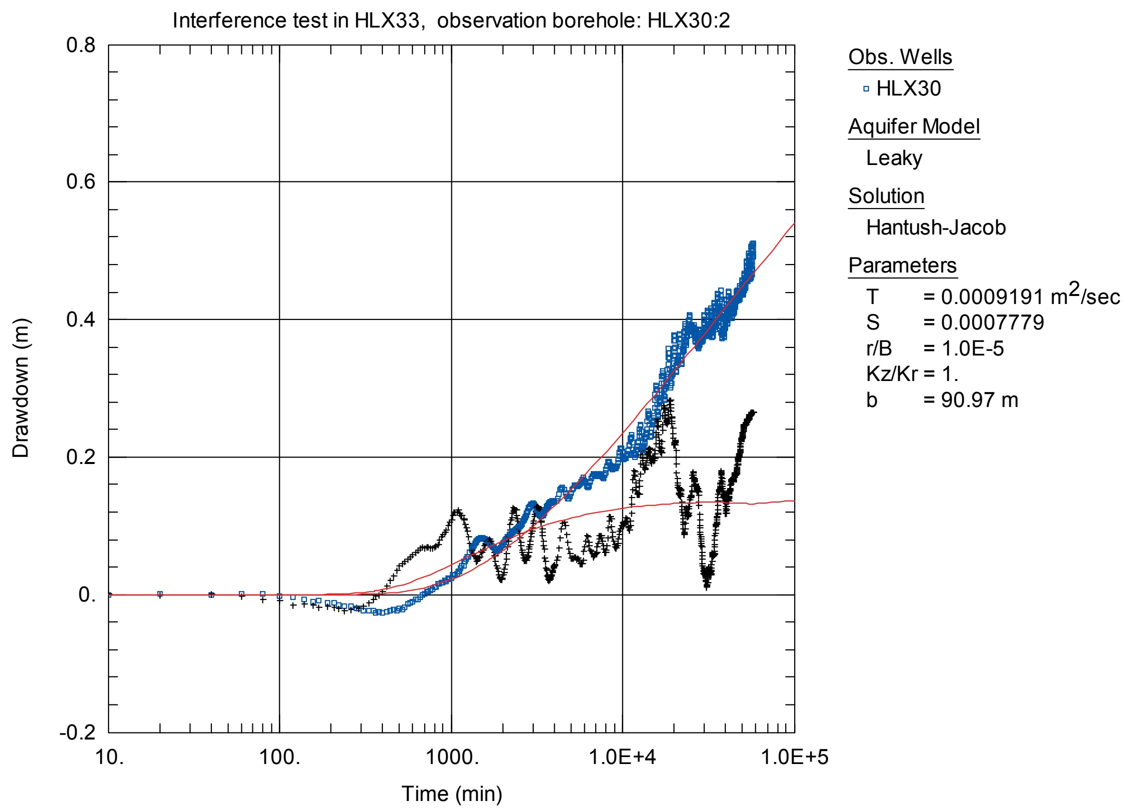


Figure 44. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX30:2 during pumping in borehole HLX33.*

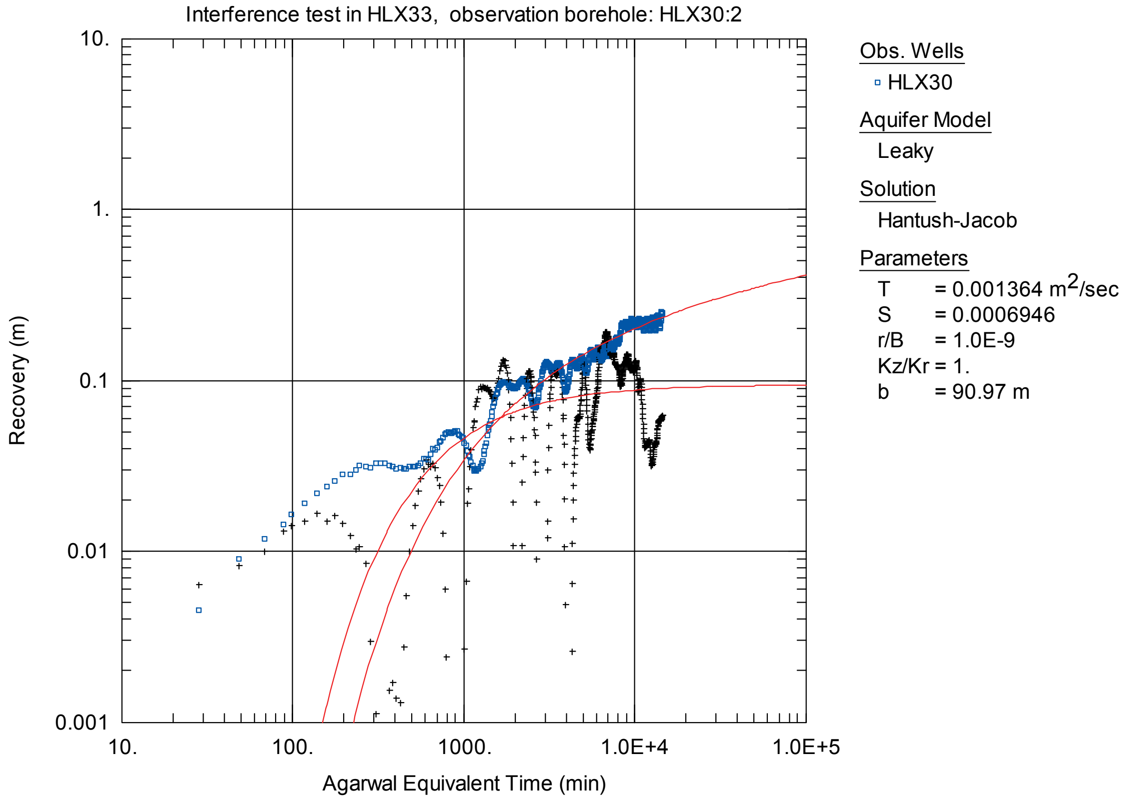


Figure 45. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX30:2 during pumping in borehole HLX33.*

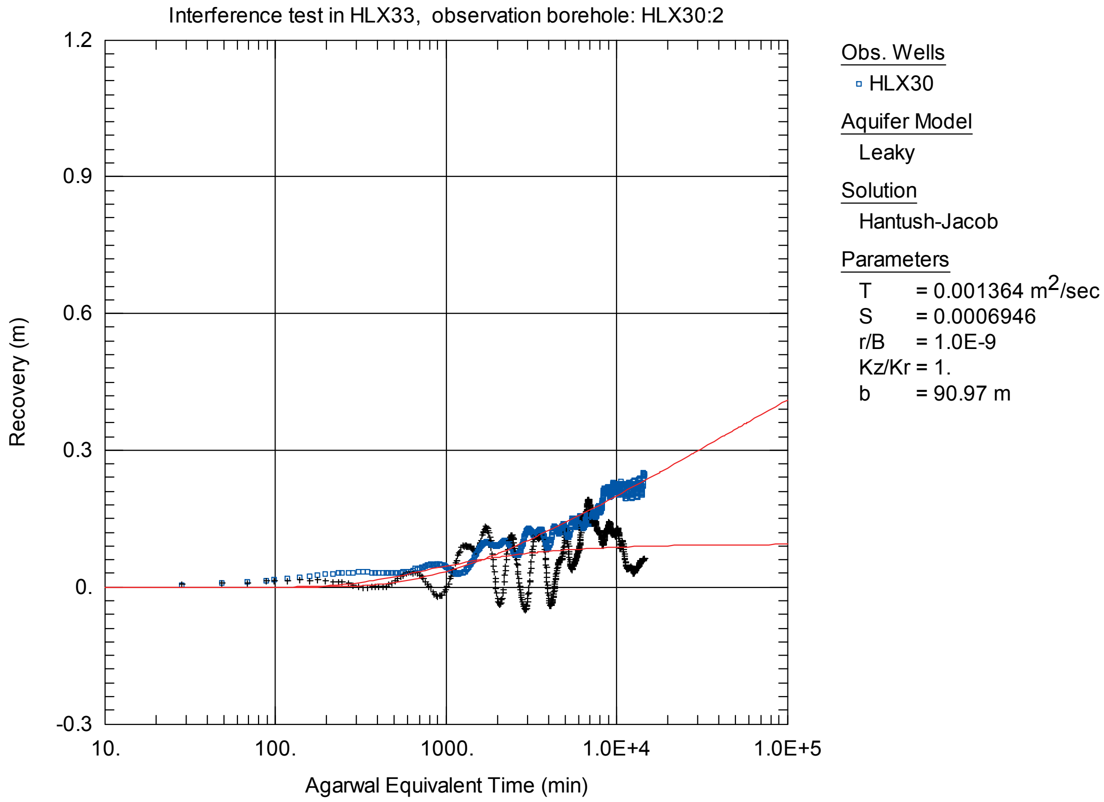


Figure 46. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX30:2 during pumping in borehole HLX33.*

Appendix 7.7 Observation borehole HLX31

Figure 47. *Linear plot of pressure and corrected pressure versus time in the observation borehole HLX31 during pumping in borehole HLX33.*

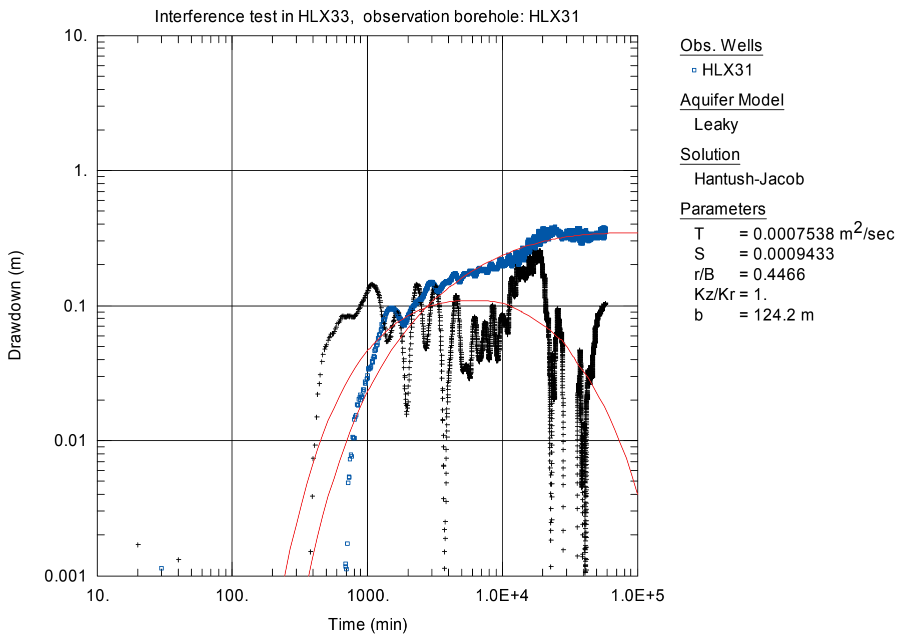


Figure 48. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX31 during pumping in borehole HLX33.*

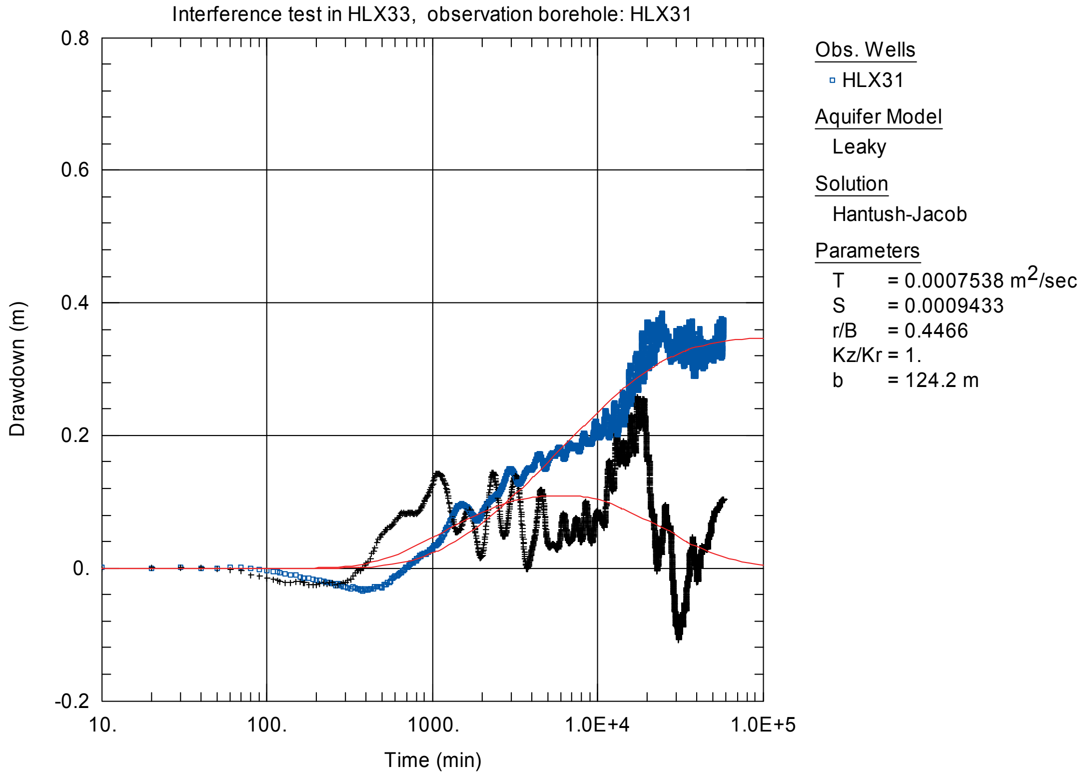


Figure 49. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole HLX31 during pumping in borehole HLX33.*

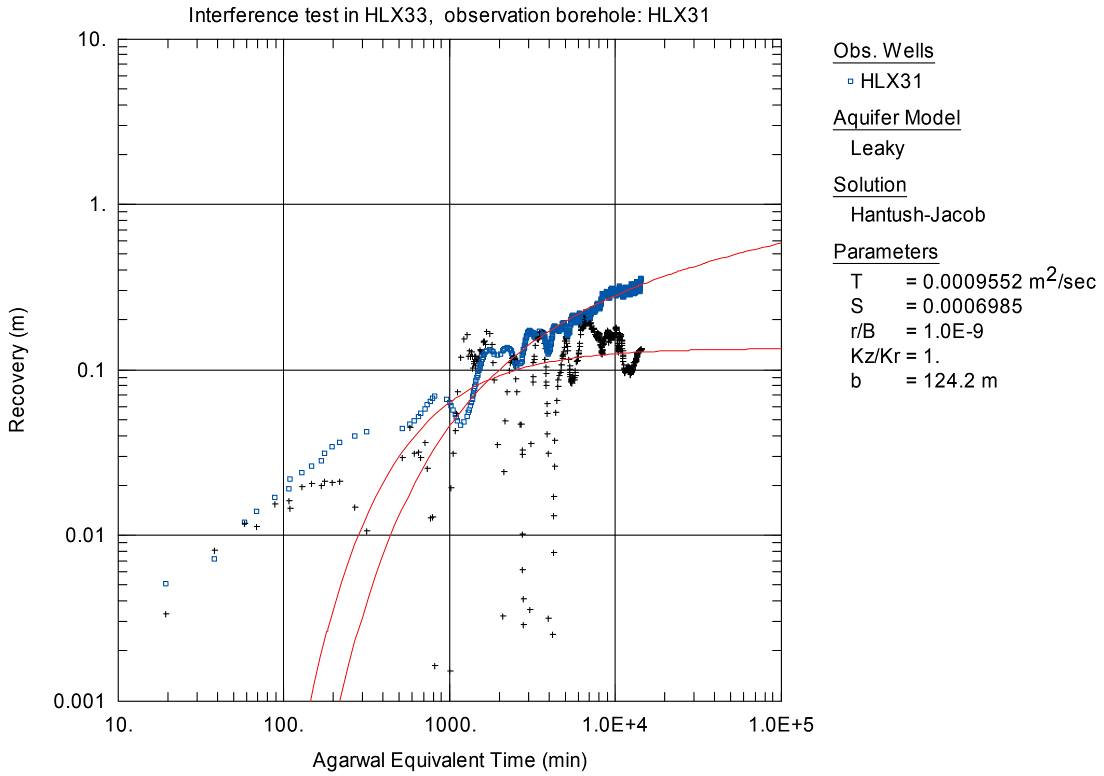


Figure 50. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX31 during pumping in borehole HLX33.*

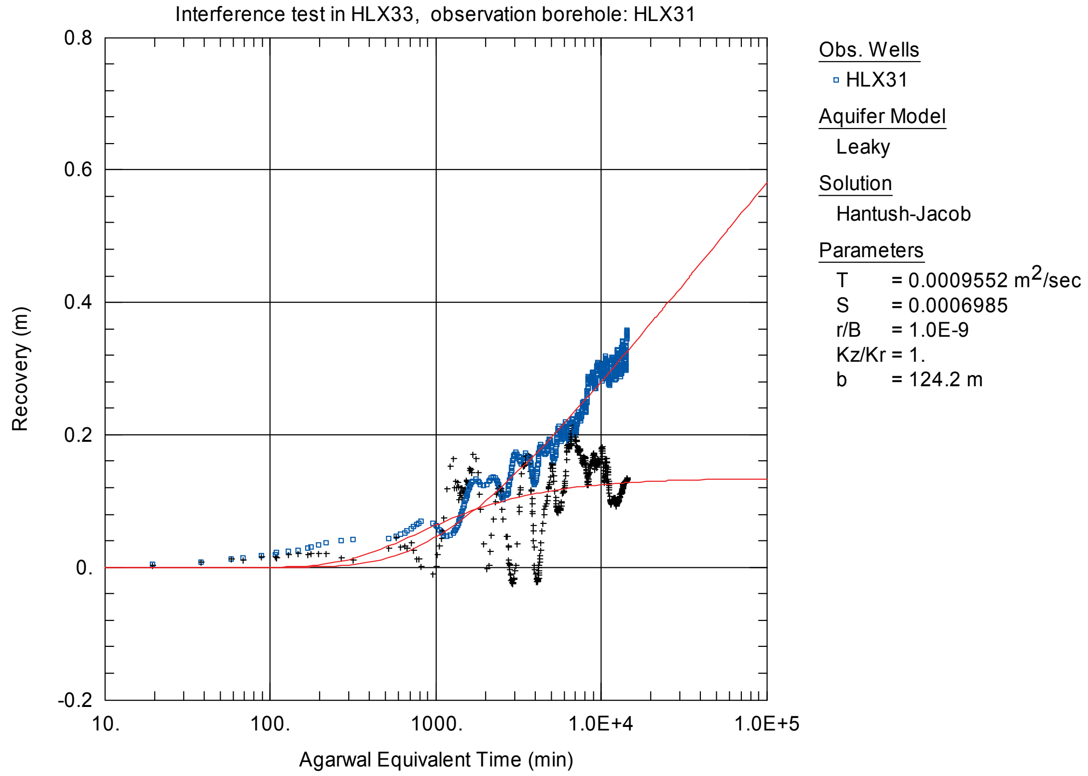


Figure 51. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole HLX31 during pumping in borehole HLX33.*

Appendix 7.8 Observation borehole KLX02

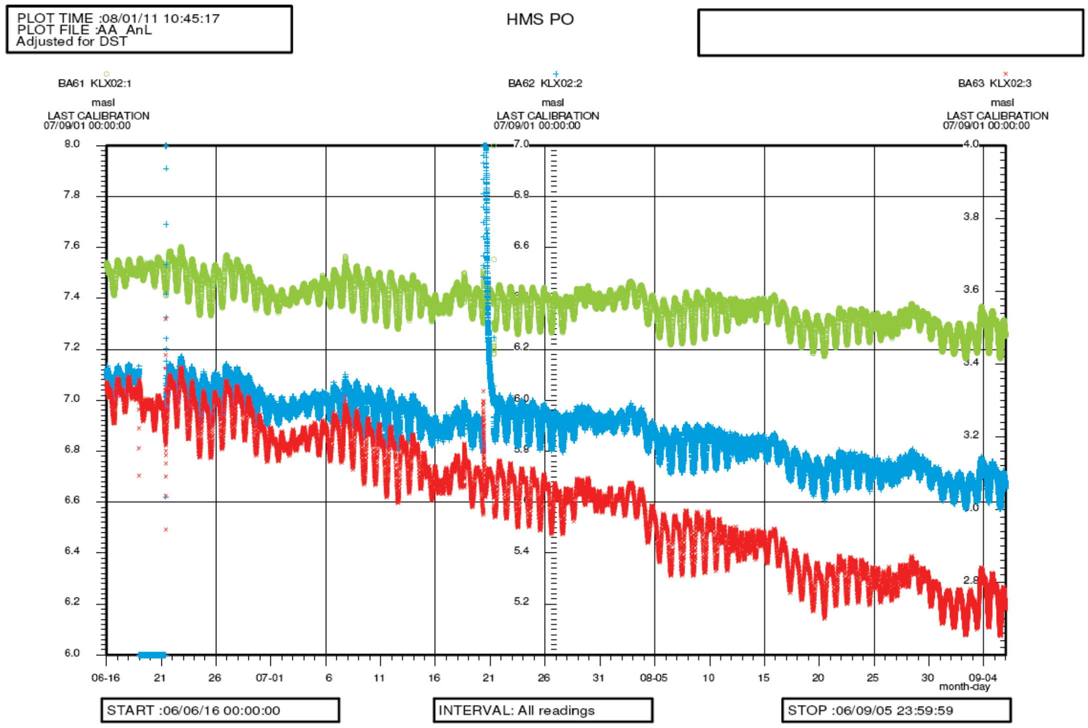


Figure 52. Linear plot of pressure versus time in the observation borehole KLX02 (sections 1, 2 and 3) during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07. The figure shows that the levels in KLX02:1, KLX02:2 and KLX02:3 are unaffected by the pumping in HLX33, performed 2006-06-28 – 2006-08-07.

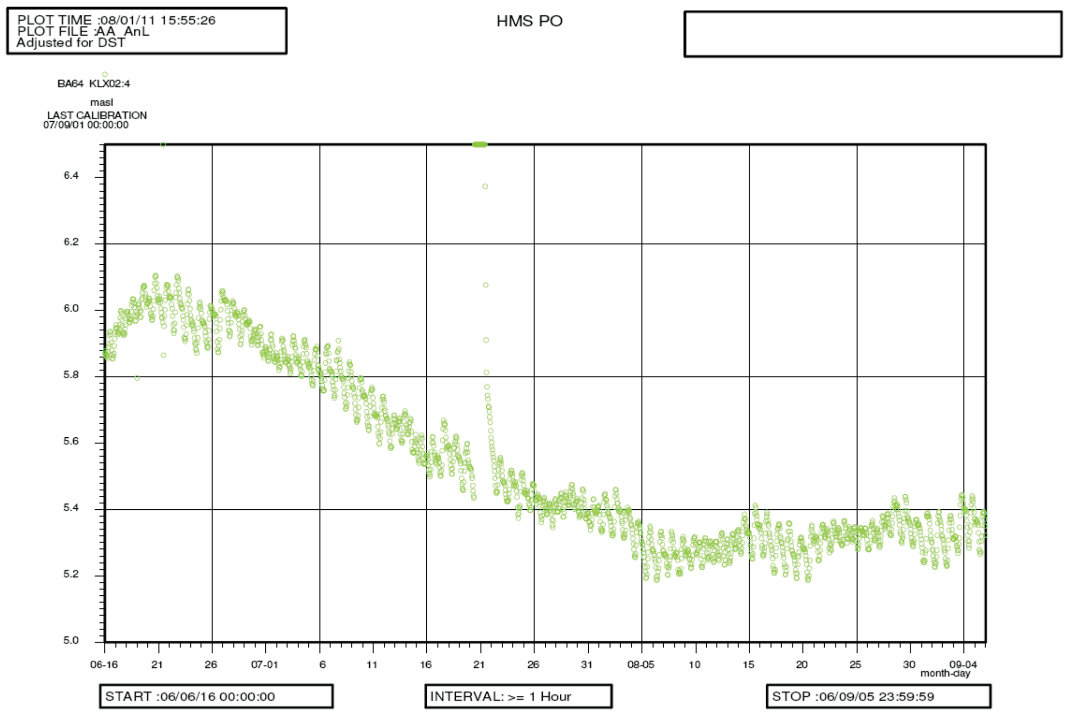


Figure 53. Linear plot of pressure versus time in the observation borehole KLX02:4 during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07. A possible weak response from the pumping in HLX33 can not be confirmed but nor excluded. Because of the uncertainty in the response no unambiguous transient evaluation is possible in this borehole.

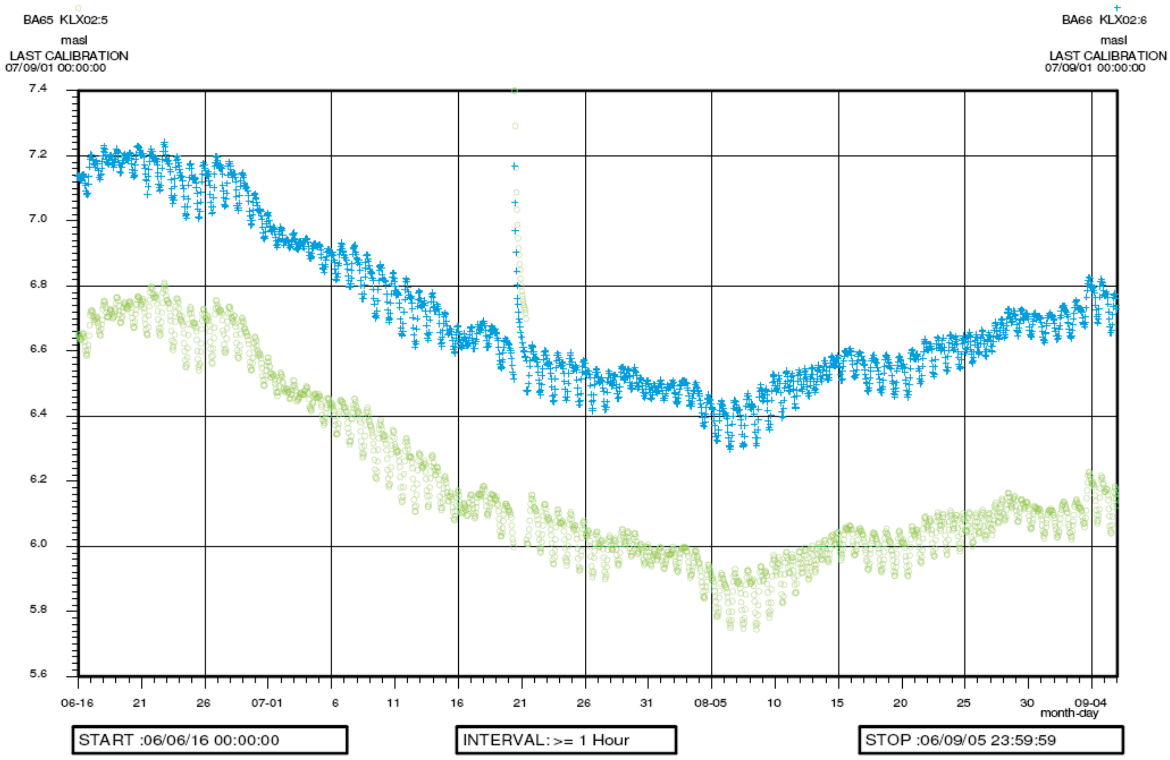


Figure 54. *Linear plot of pressure versus time in the observation borehole KLX02 (sections 5 and 6) during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

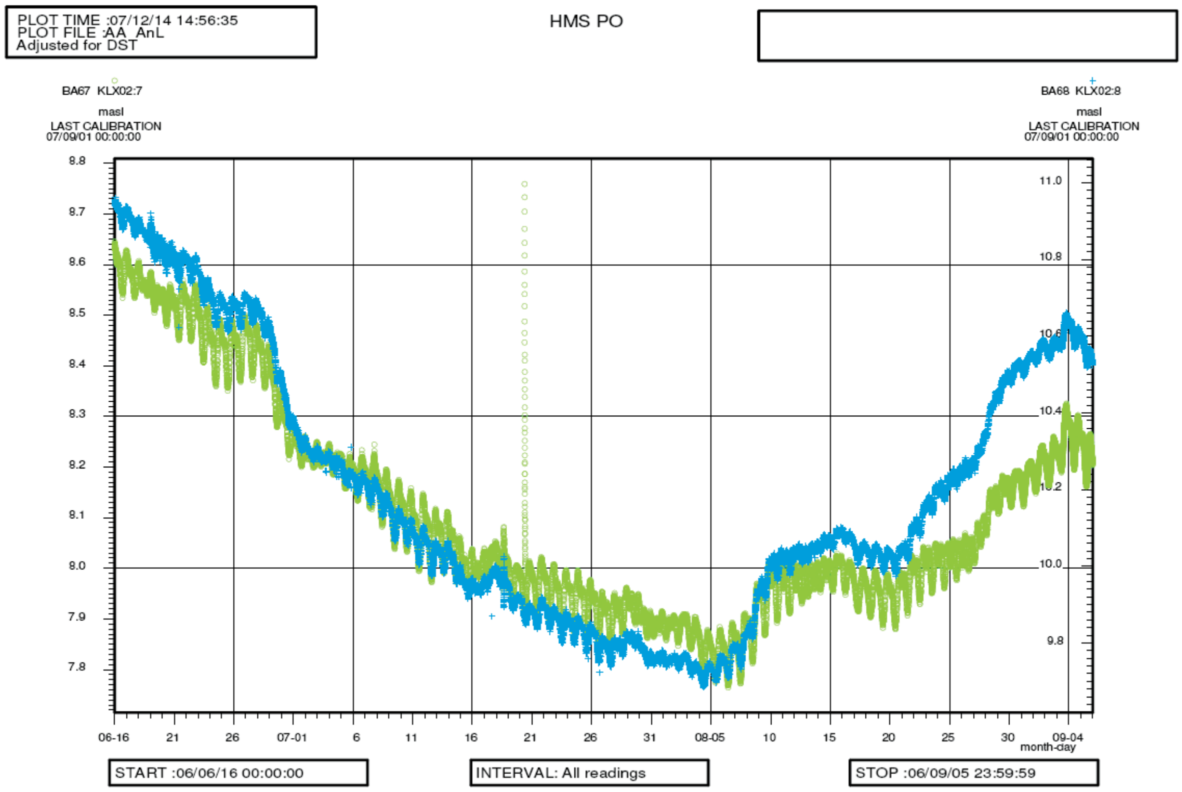


Figure 55. *Linear plot of pressure versus time in the observation borehole KLX02 (sections 7 and 8) during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

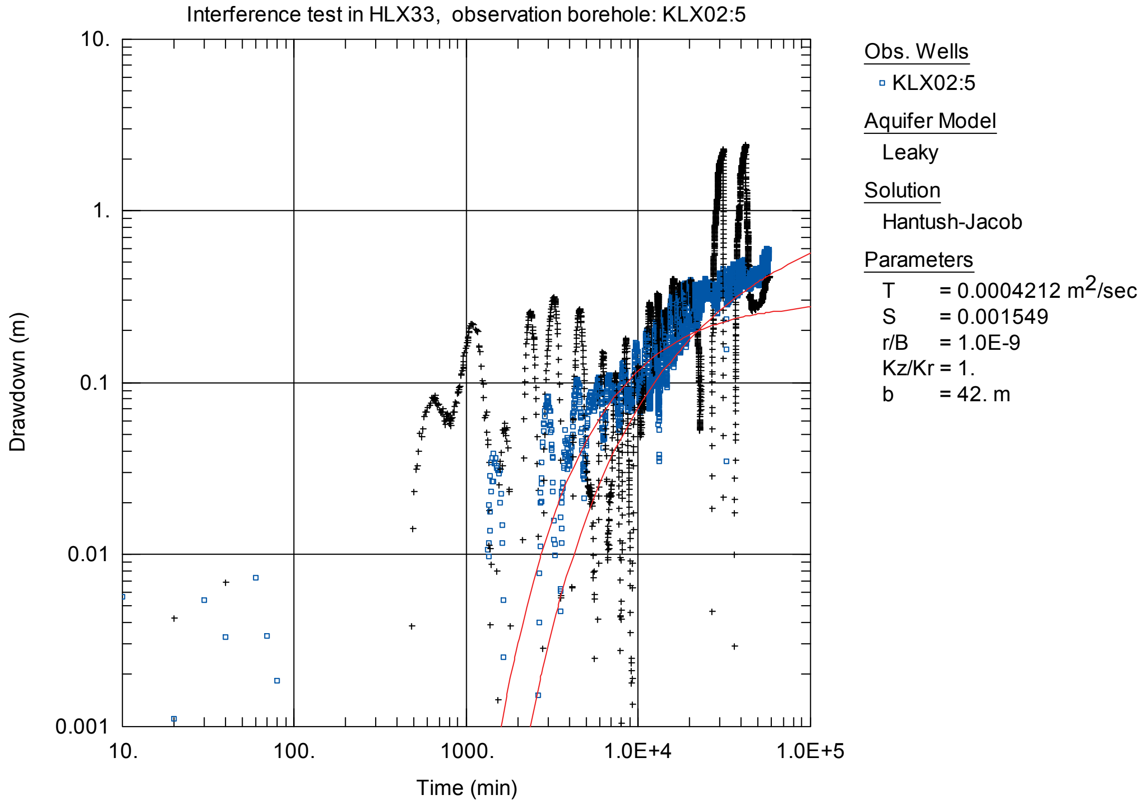


Figure 56. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX02:5 during pumping in borehole HLX33.*

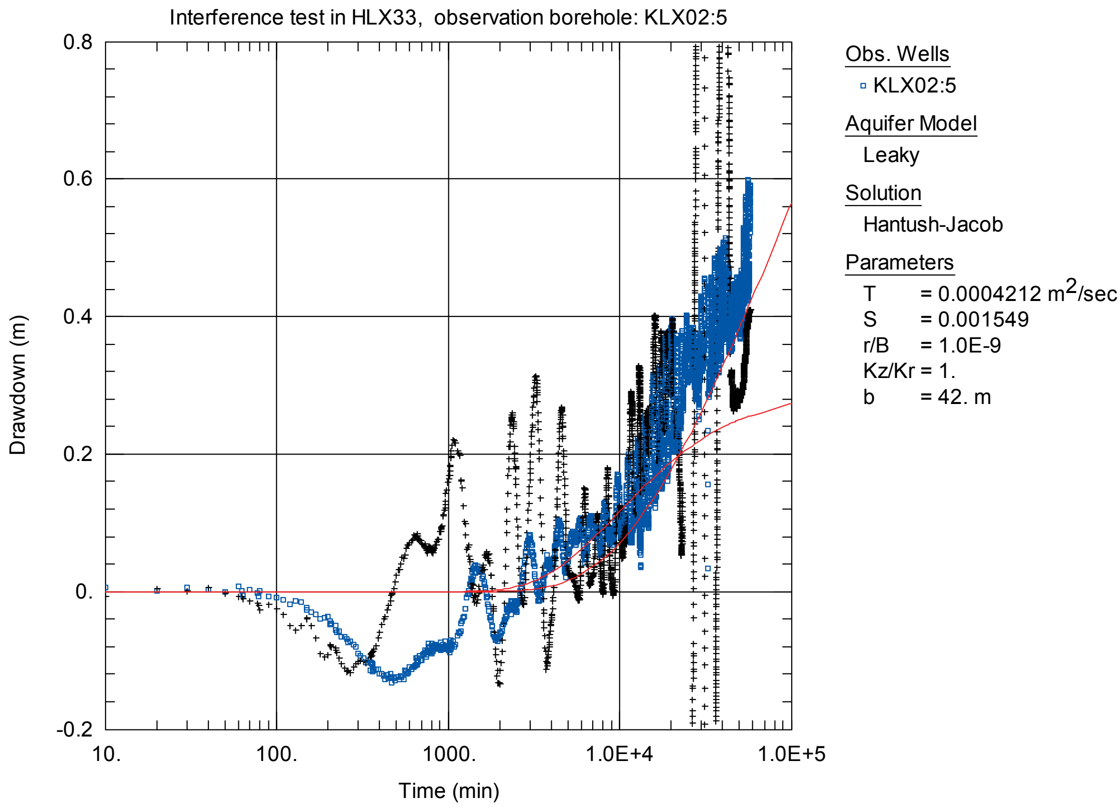


Figure 57. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX02:5 during pumping in borehole HLX33.*

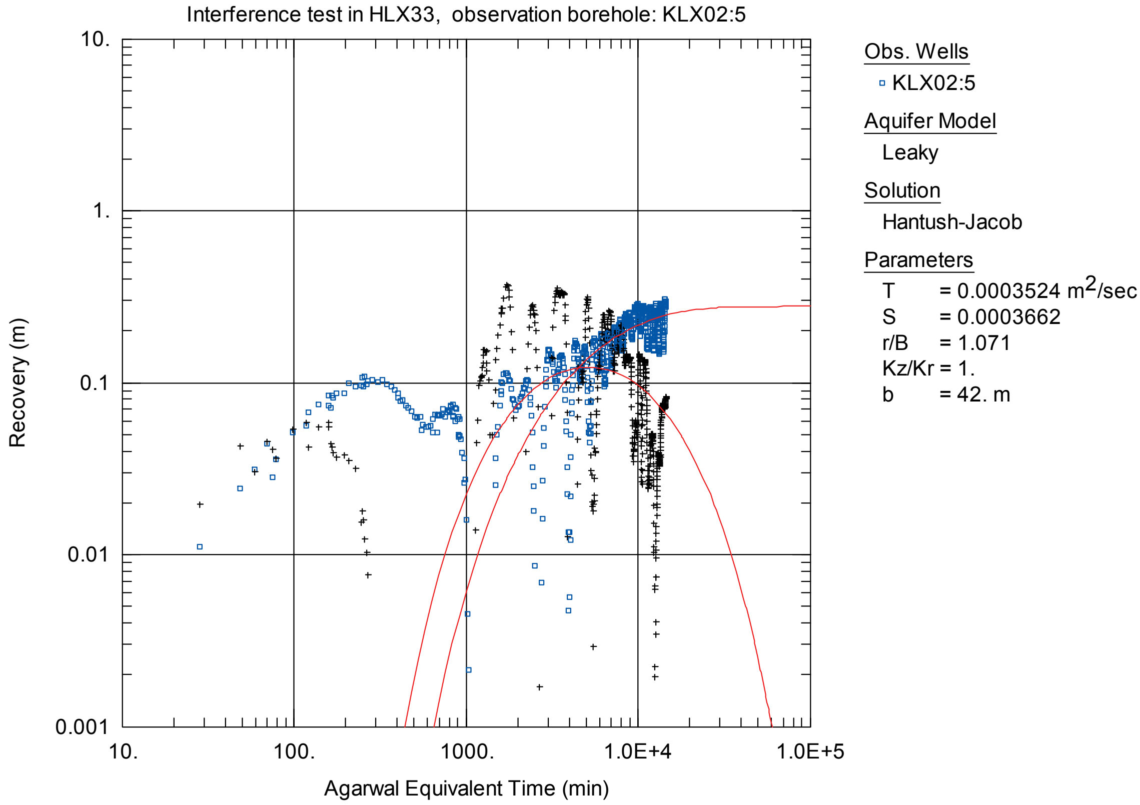


Figure 58. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX02:5 during pumping in borehole HLX33.*

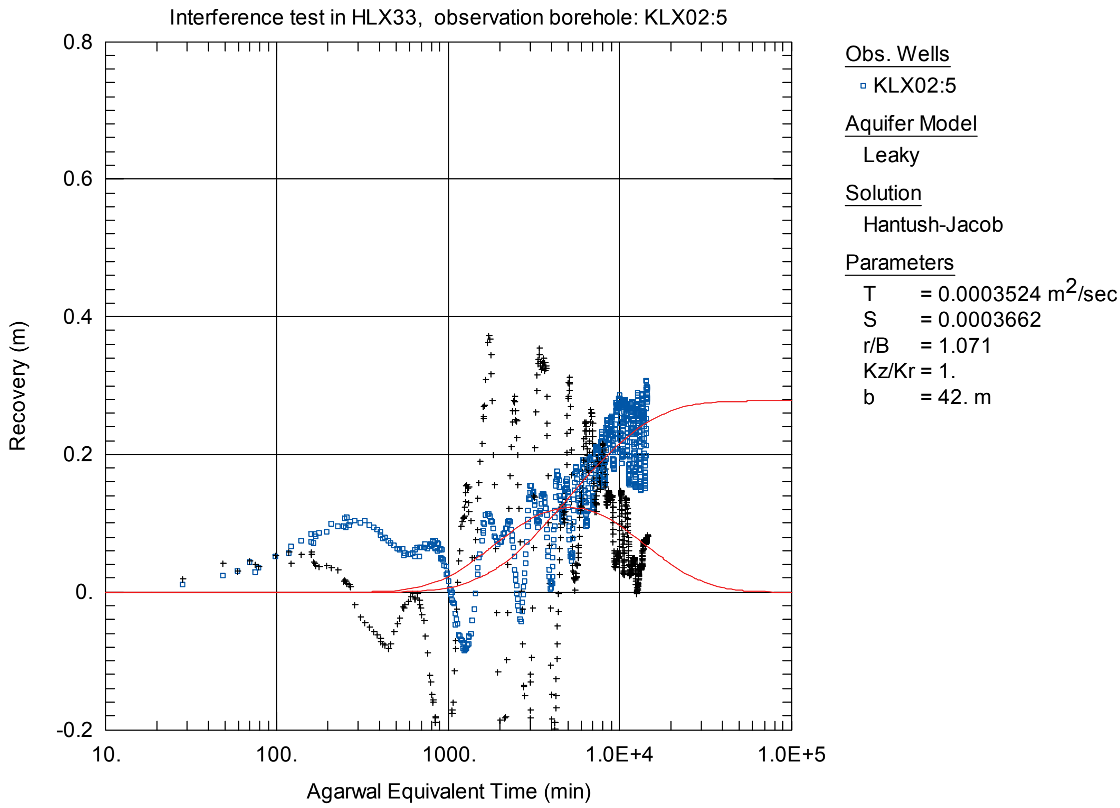


Figure 59. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX02:5 during pumping in borehole HLX33.*

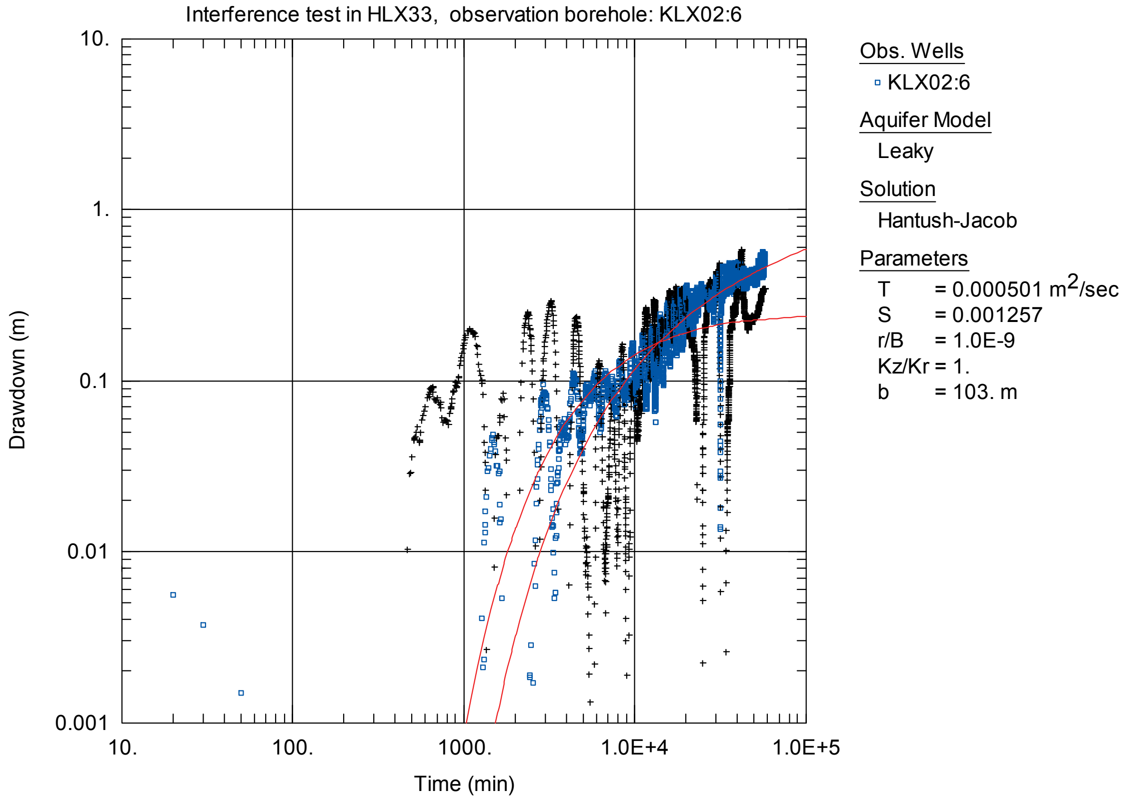


Figure 60. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX02:6 during pumping in borehole HLX33.*

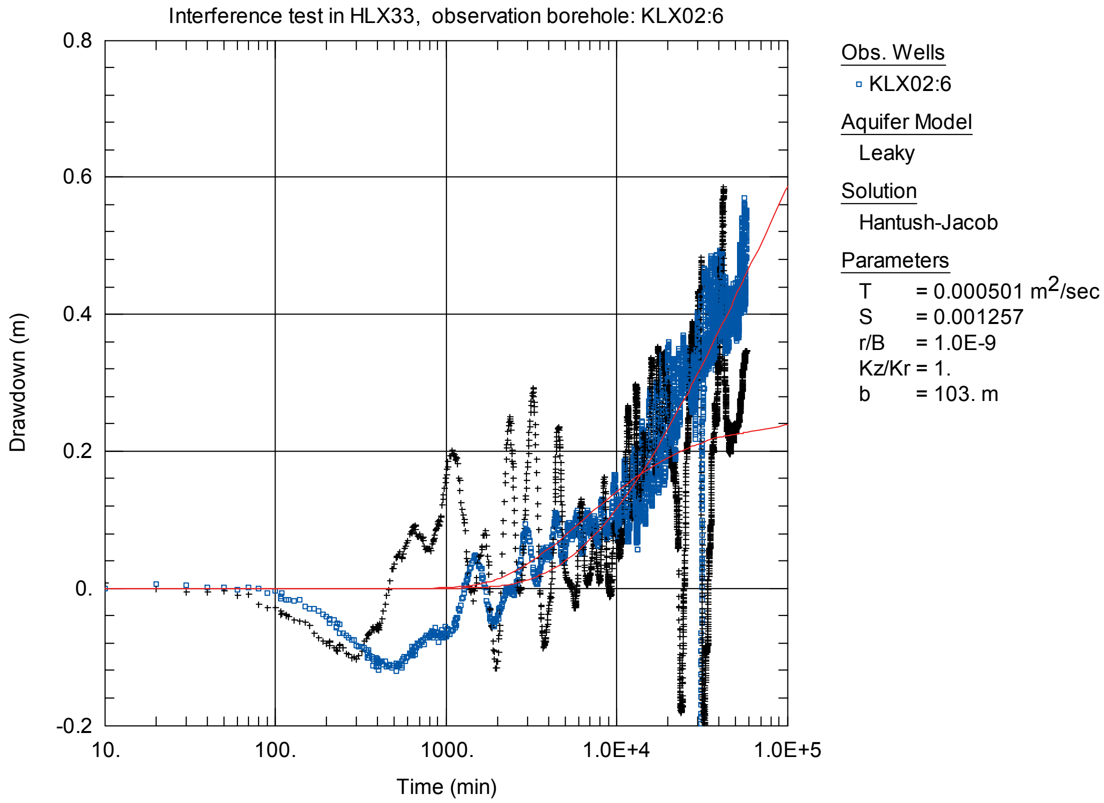


Figure 61. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX02:6 during pumping in borehole HLX33.*

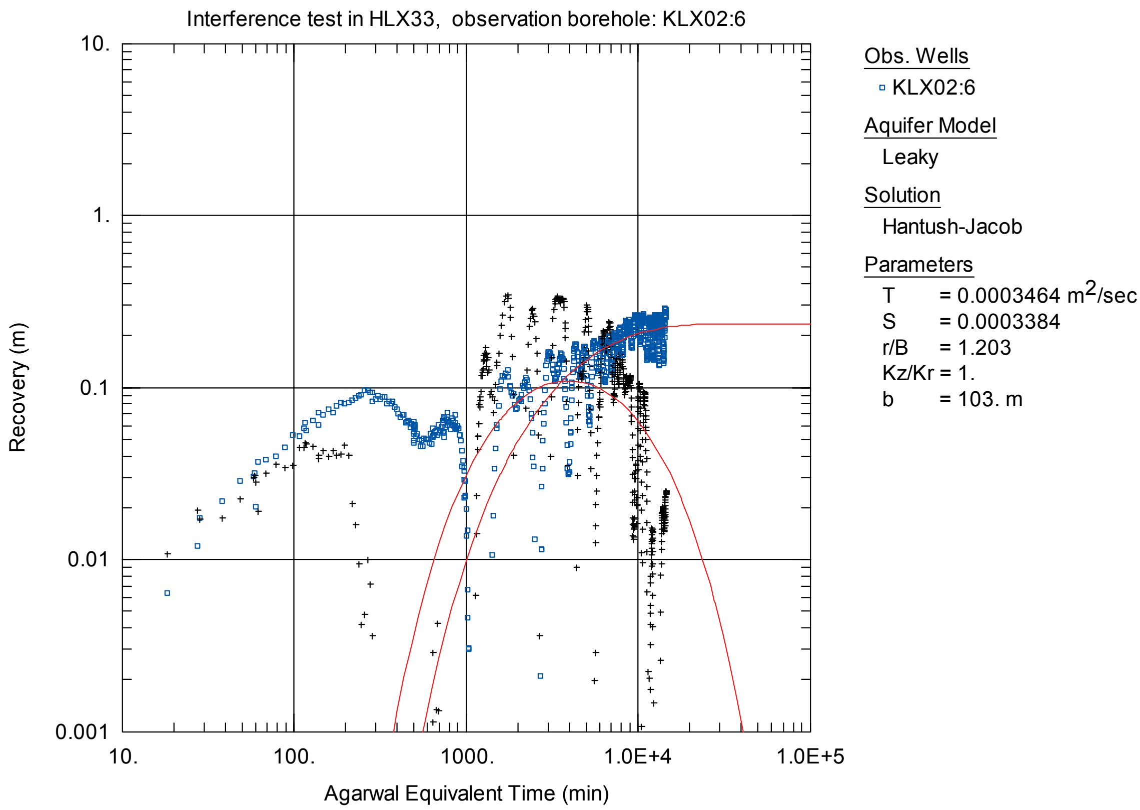


Figure 62. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX02:6 during pumping in borehole HLX33.*

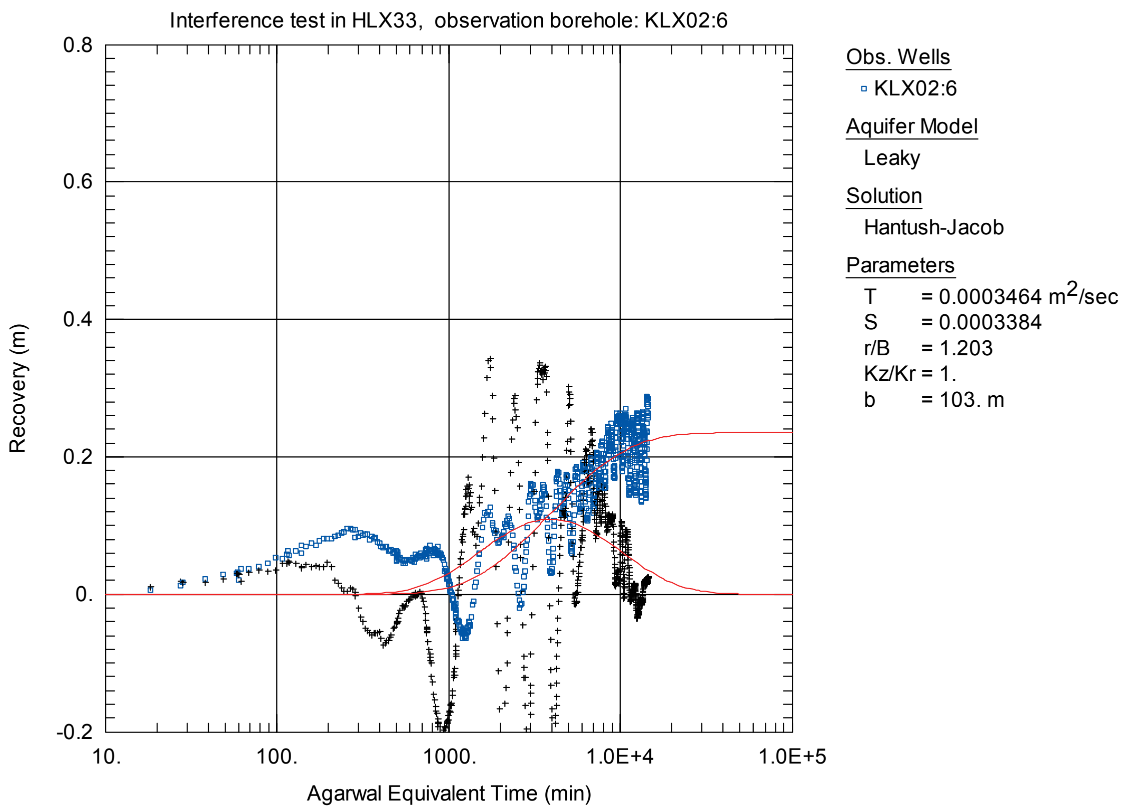


Figure 63. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX02:6 during pumping in borehole HLX33.*

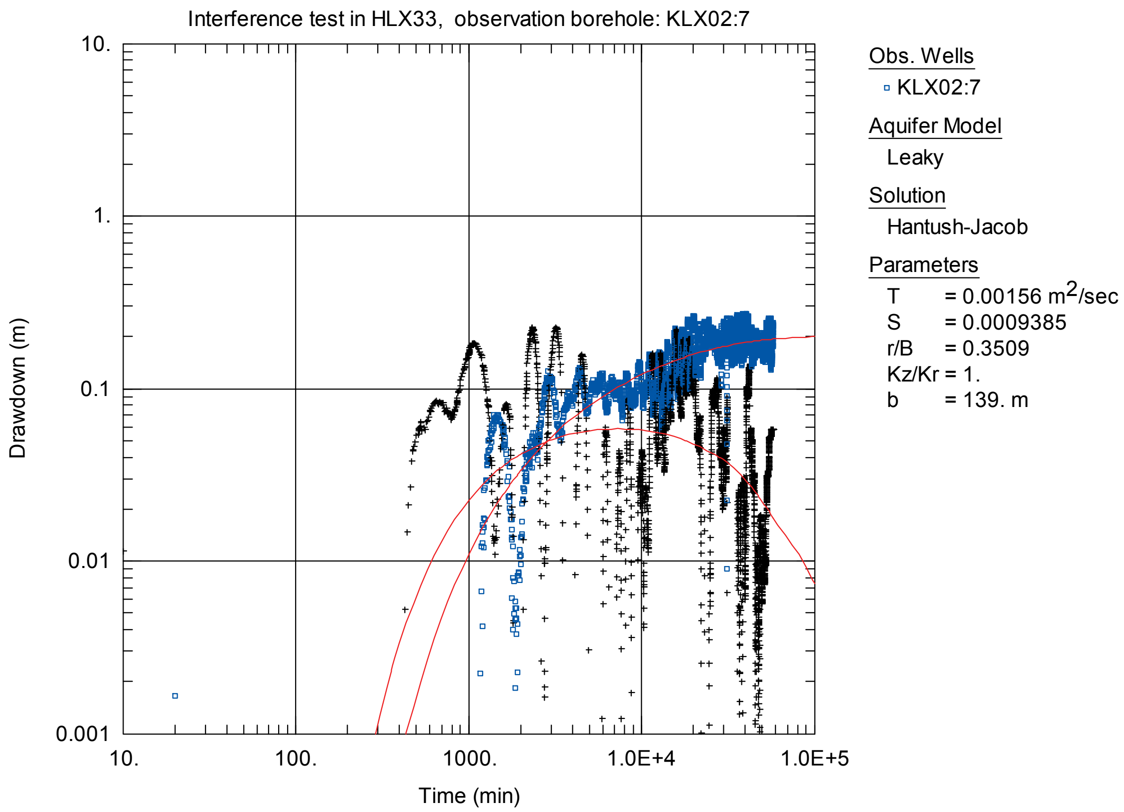


Figure 64. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX02:7 during pumping in borehole HLX33.*

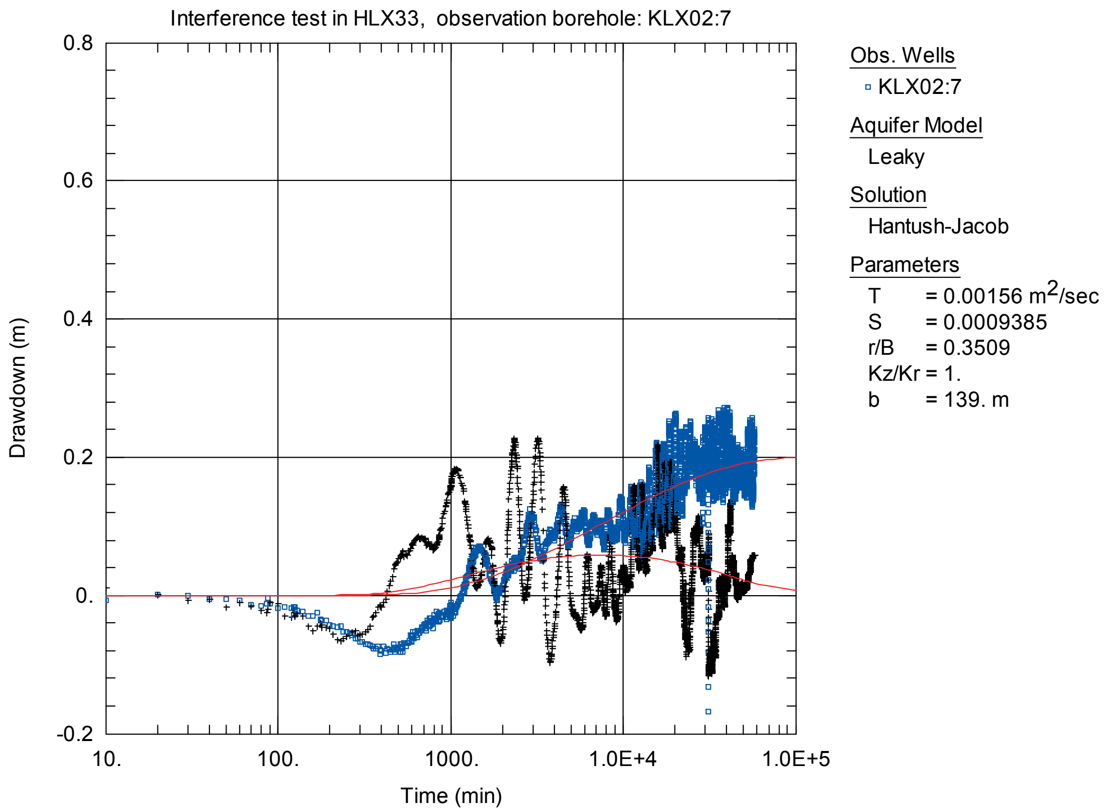


Figure 65. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX02:7 during pumping in borehole HLX33.*

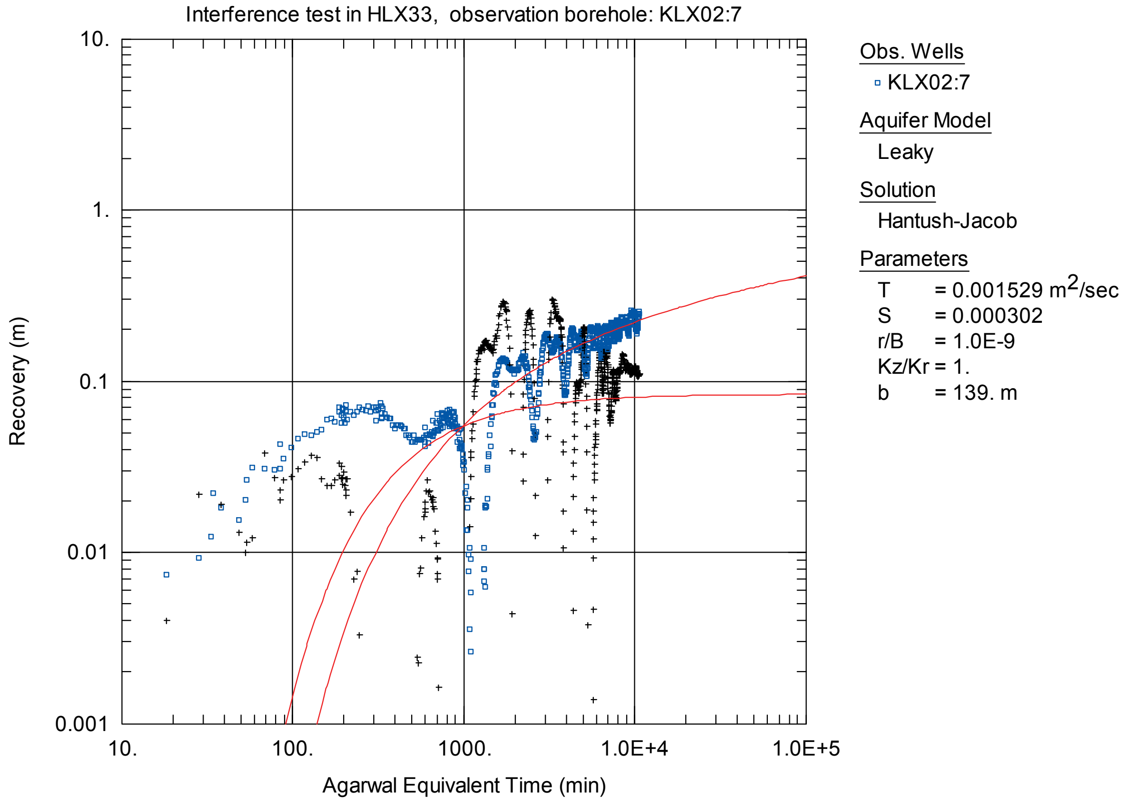


Figure 66. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX02:7 during pumping in borehole HLX33.*

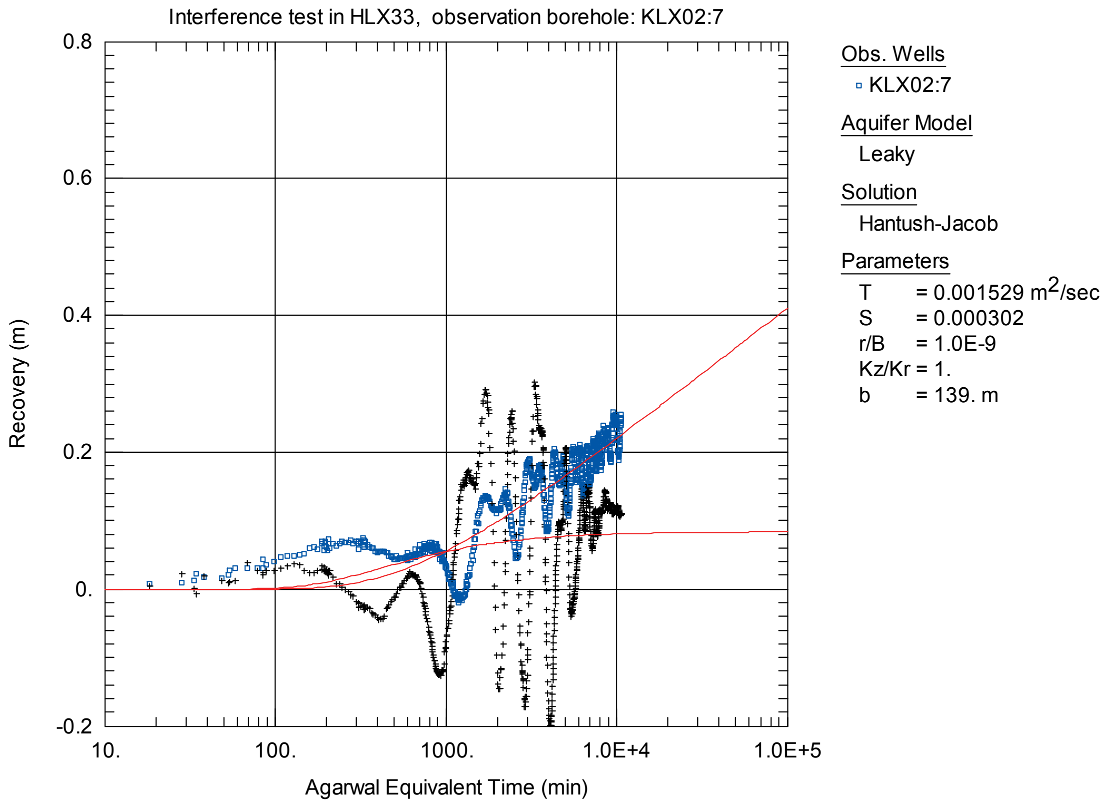


Figure 67. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX02:7 during pumping in borehole HLX33.*

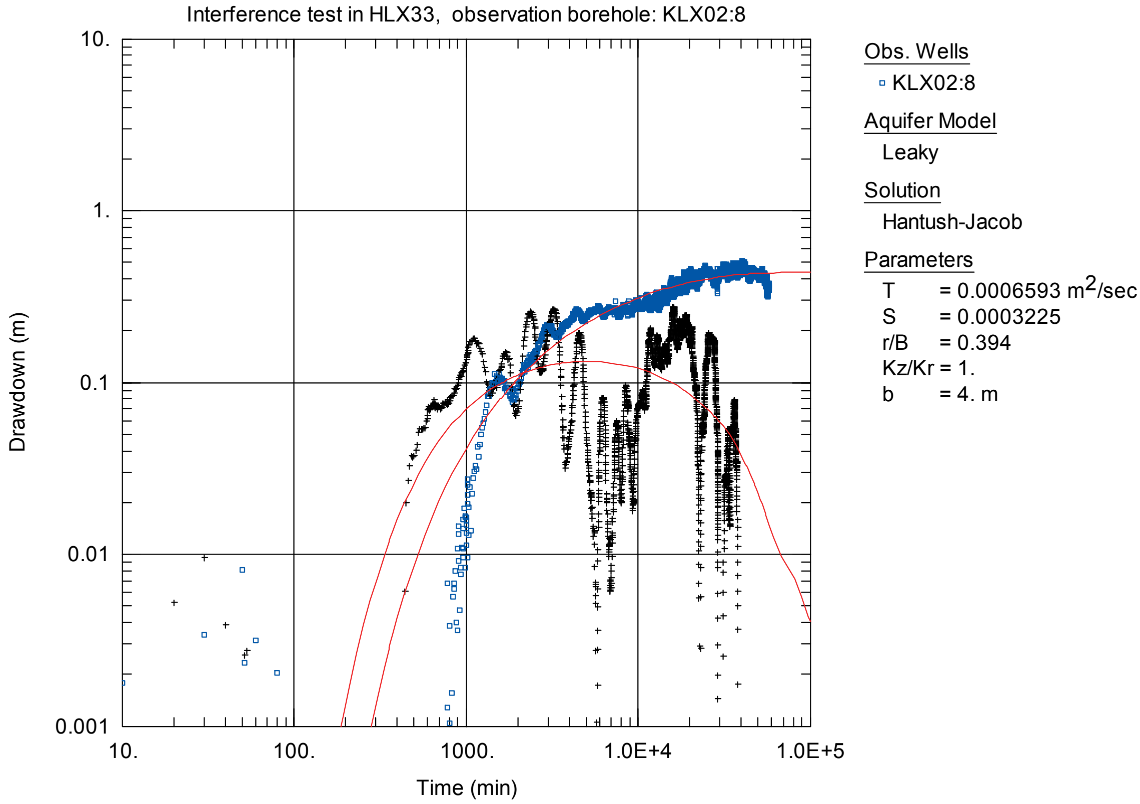


Figure 68. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX02:8 during pumping in borehole HLX33.*

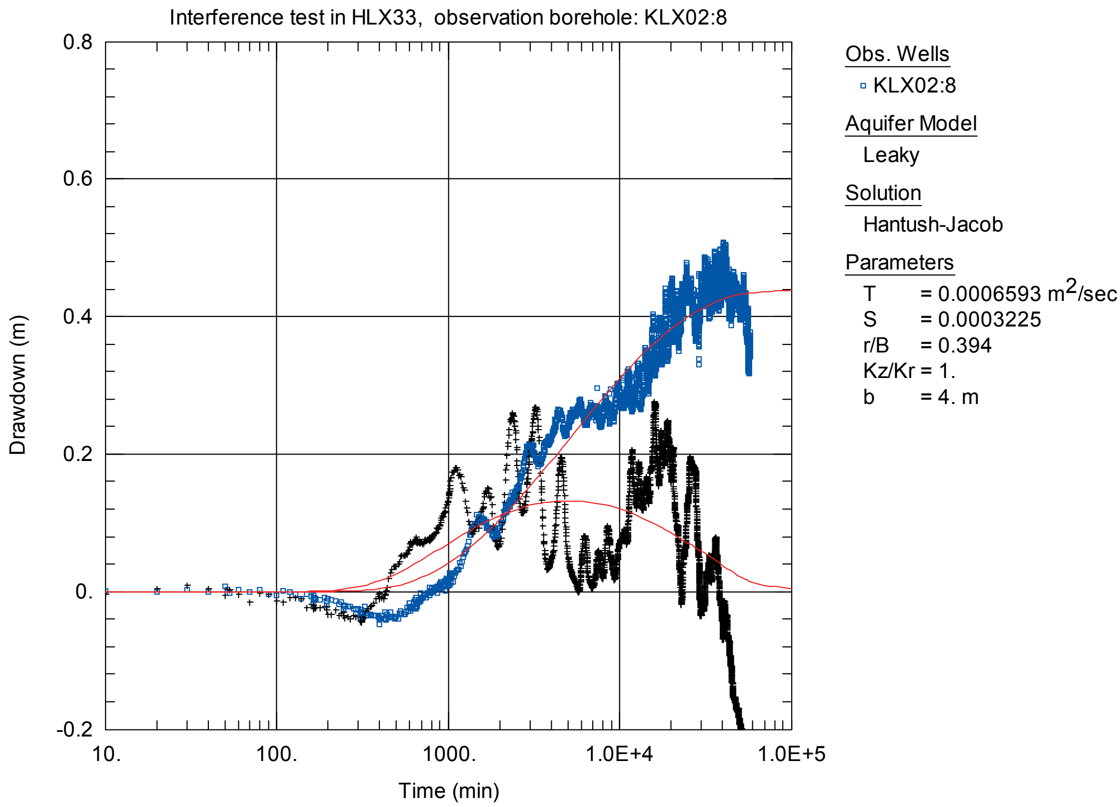


Figure 69. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX02:8 during pumping in borehole HLX33.*

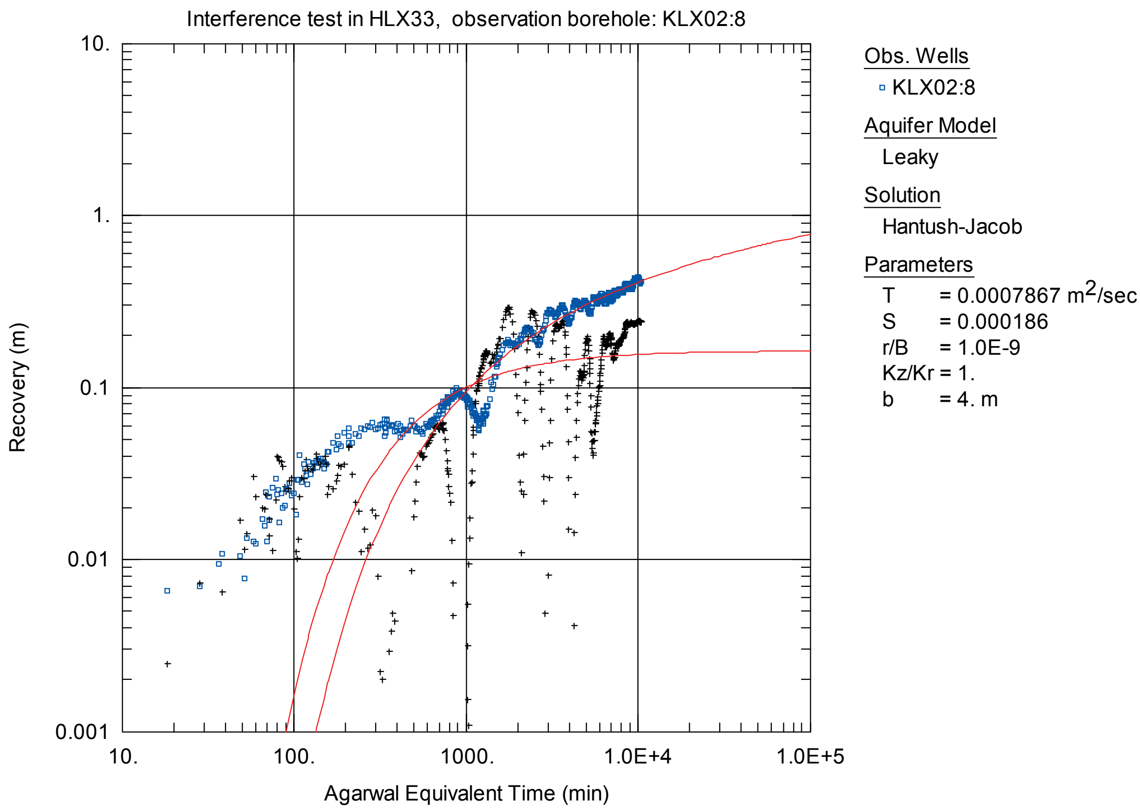


Figure 70. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX02:8 during pumping in borehole HLX33.*

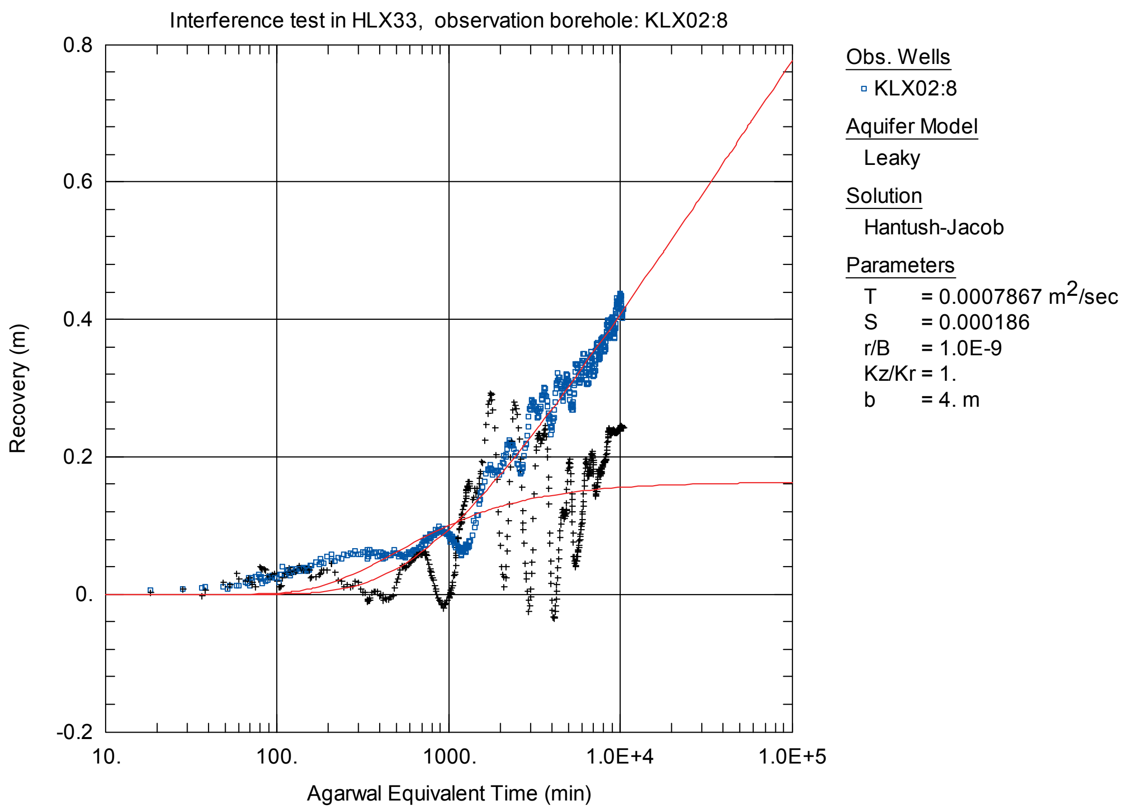


Figure 71. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX02:8 during pumping in borehole HLX33.*

Appendix 7.9 Observation borehole KLX04

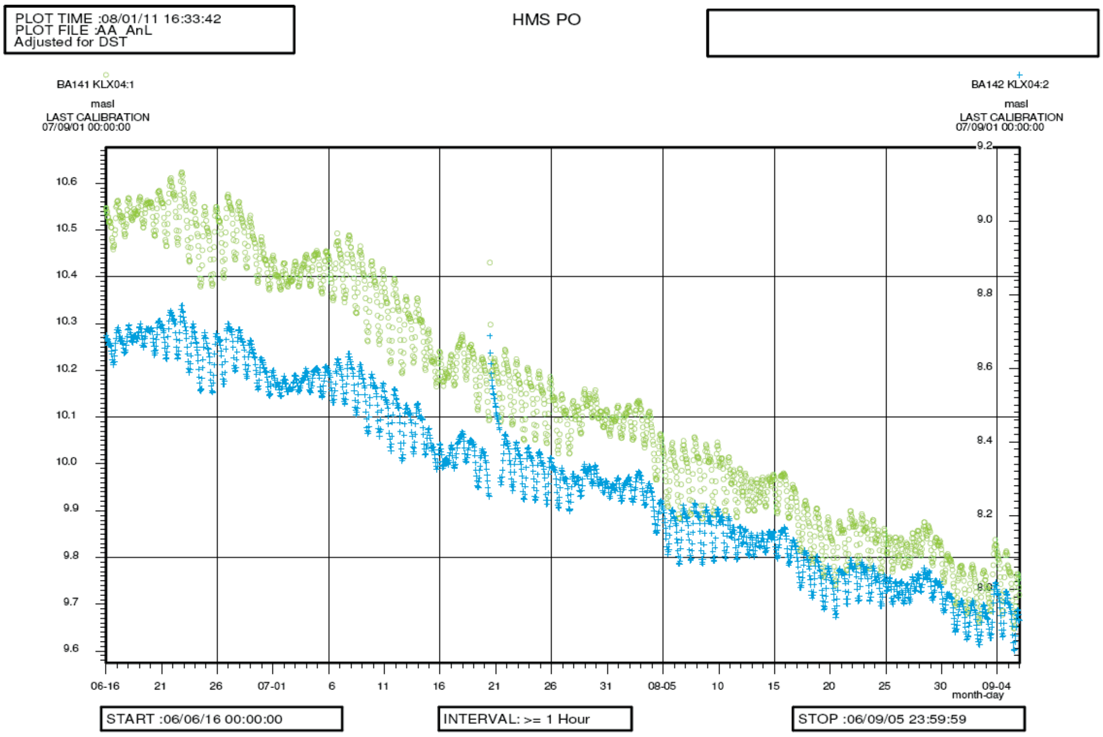


Figure 72. *Linear plot of pressure versus time in the observation borehole KLX04 (sections 1 and 2) during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07. The figure shows that the levels in KLX04:1 and KLX04:2 are unaffected by the pumping in HLX33, performed 2006-06-28 – 2006-08-07.*

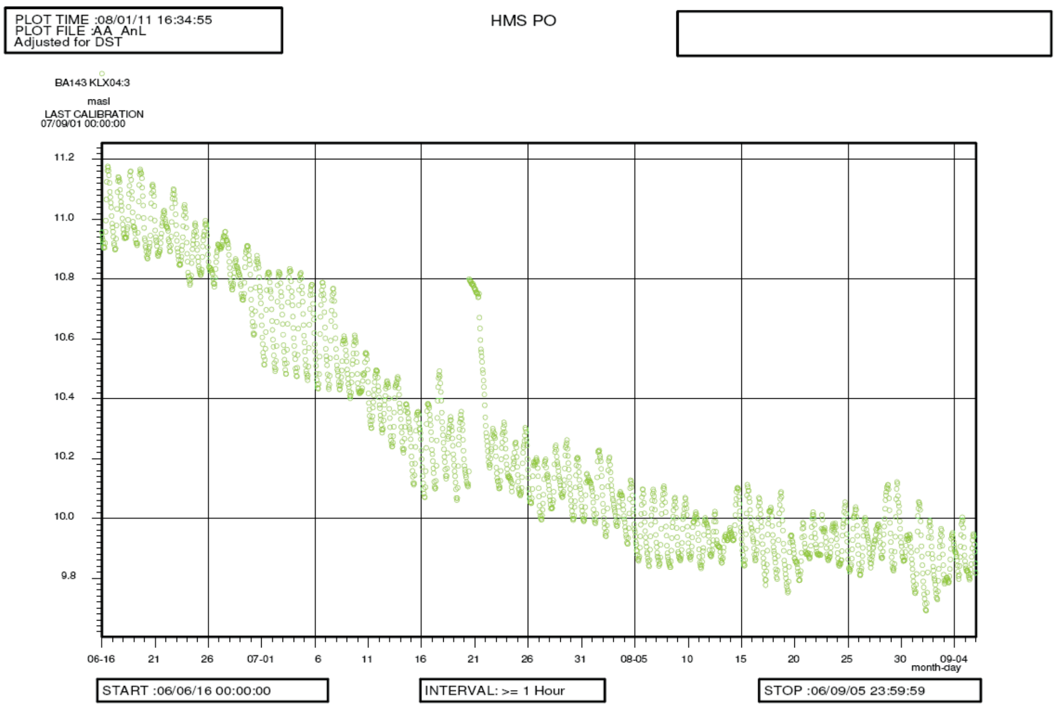


Figure 73. *Linear plot of pressure versus time in the observation borehole KLX04:3 during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07. A possible weak response from the pumping in HLX33 can not be confirmed but nor excluded. Because of the uncertainty in the response no unambiguous transient evaluation is possible in this borehole.*

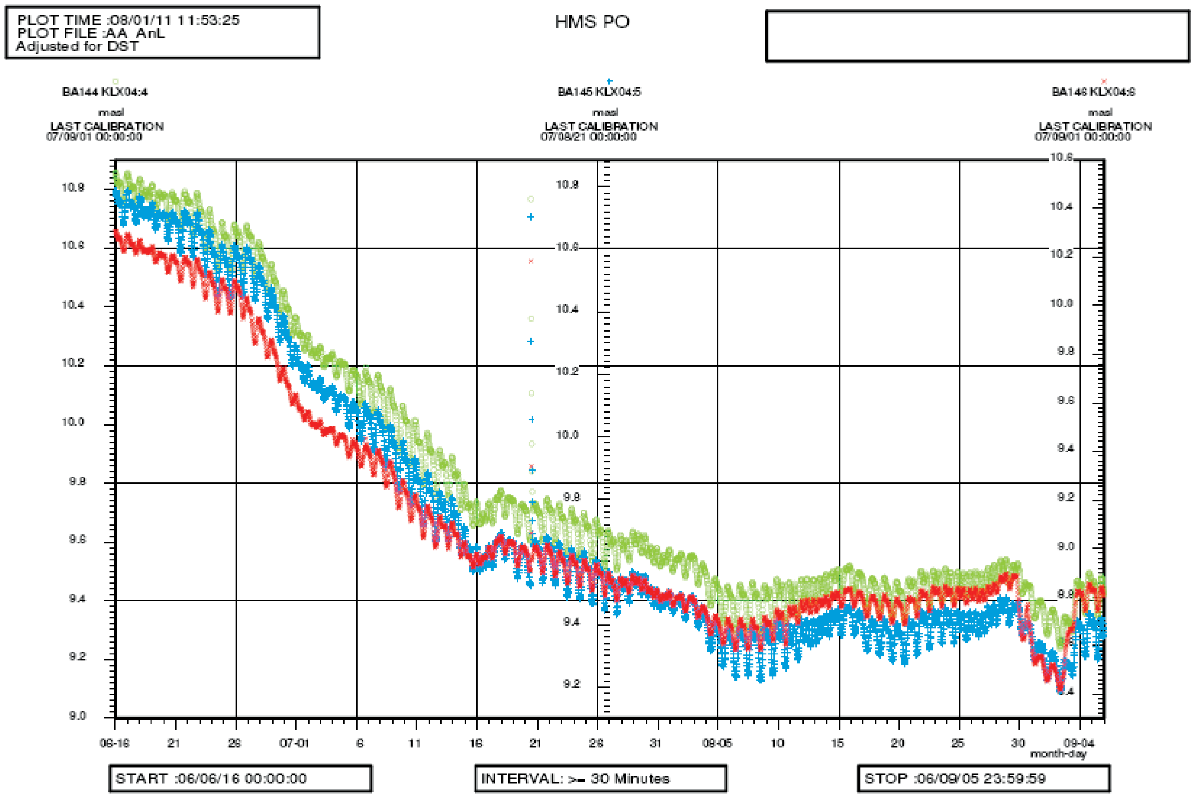


Figure 74. *Linear plot of pressure versus time in the observation borehole KLX04 (sections 4, 5 and 6) during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

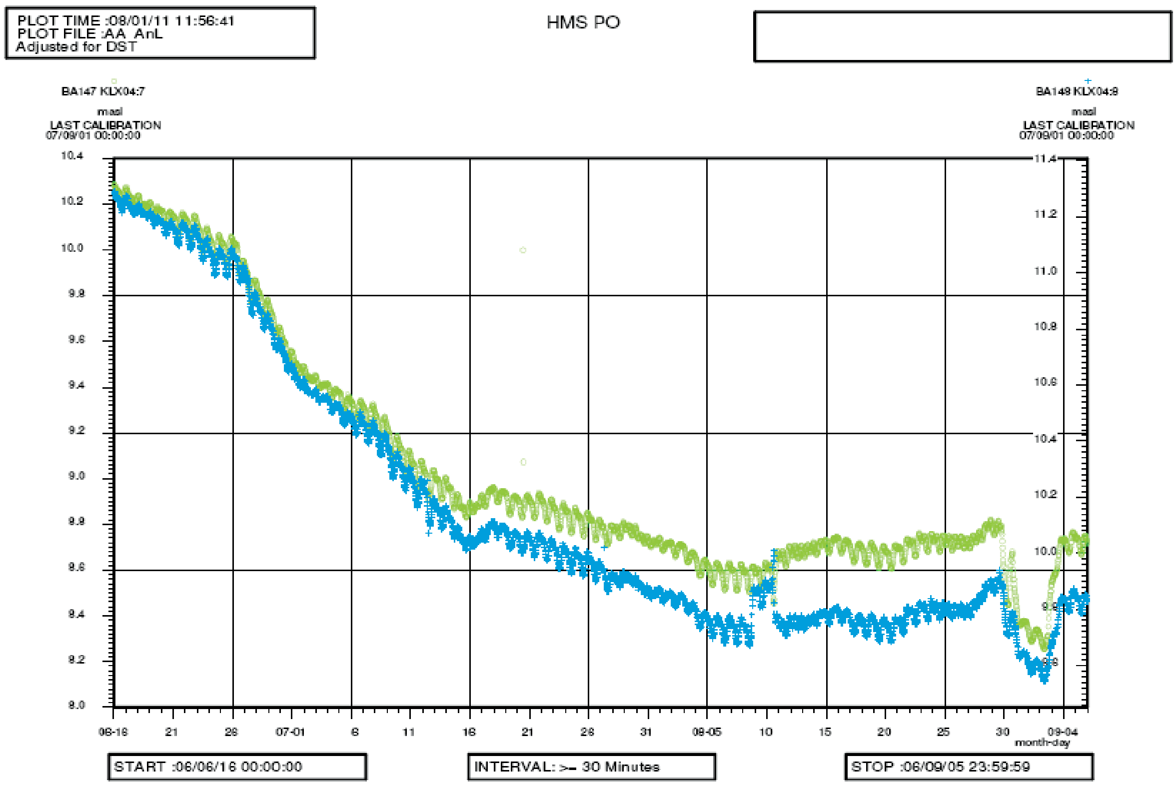


Figure 75. *Linear plot of pressure versus time in the observation borehole KLX04 (sections 7 and 8) during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

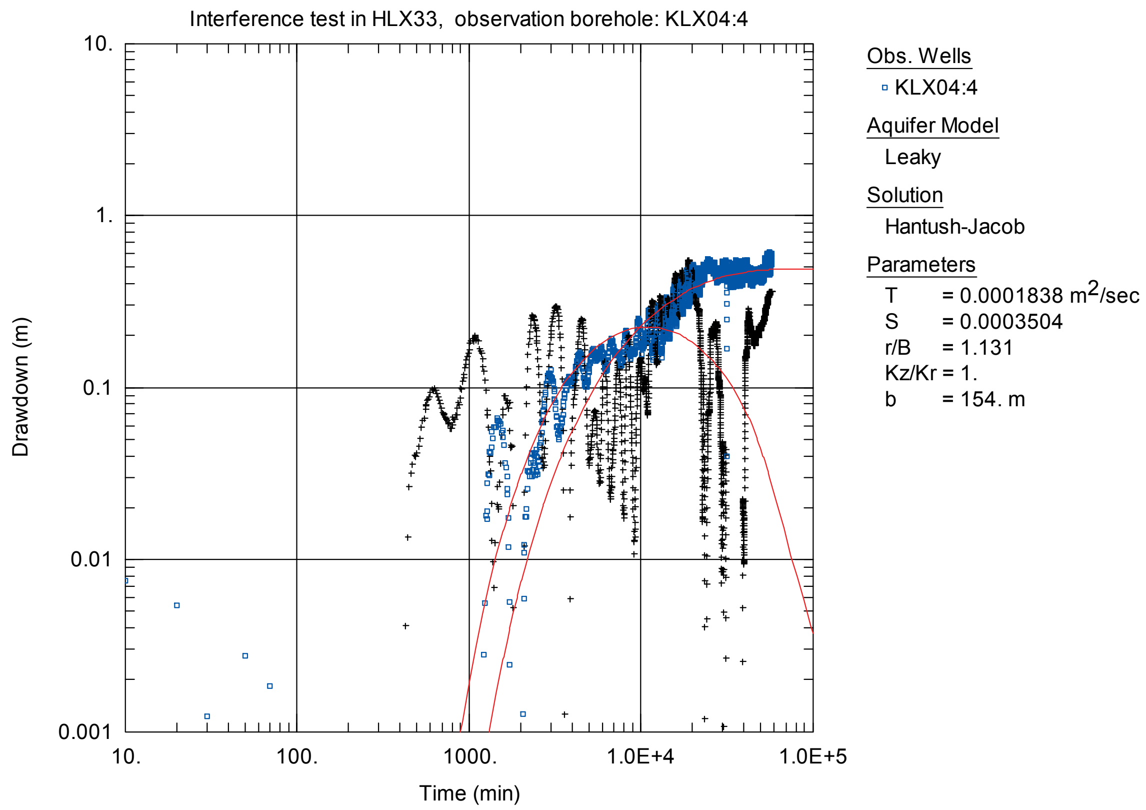


Figure 76. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX04:4 during pumping in borehole HLX33.*

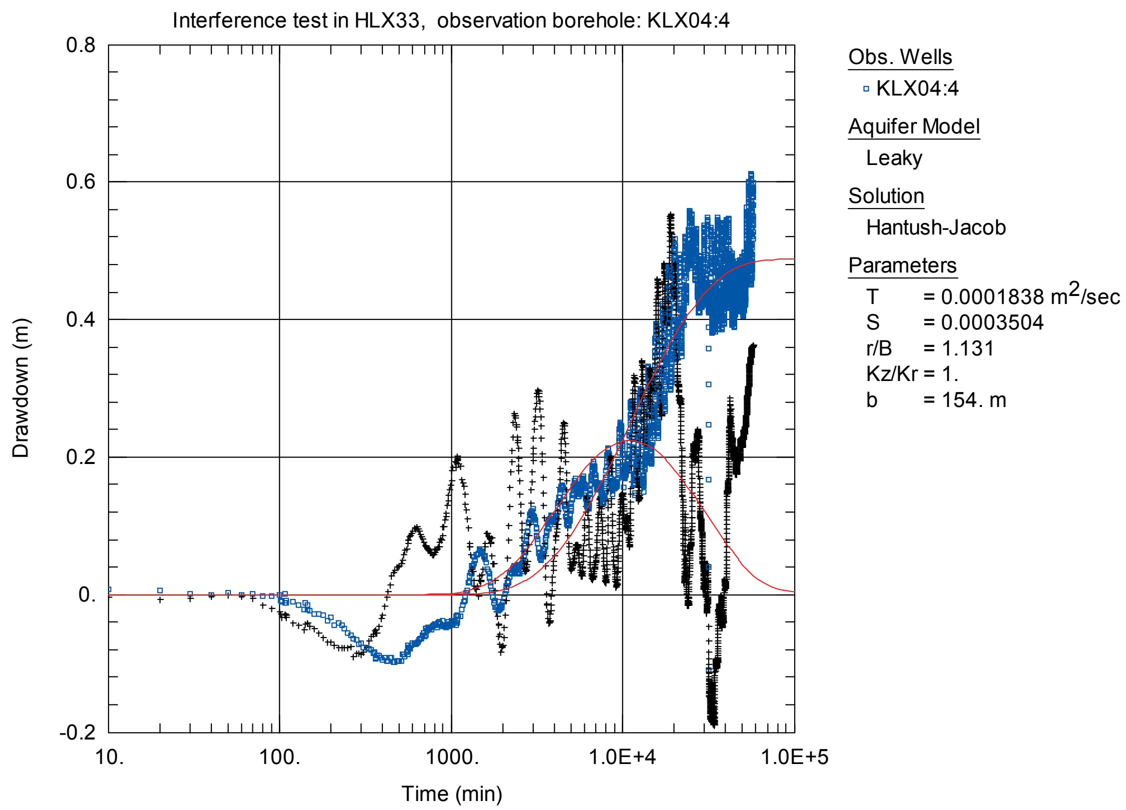


Figure 77. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX04:4 1 during pumping in borehole HLX33.*

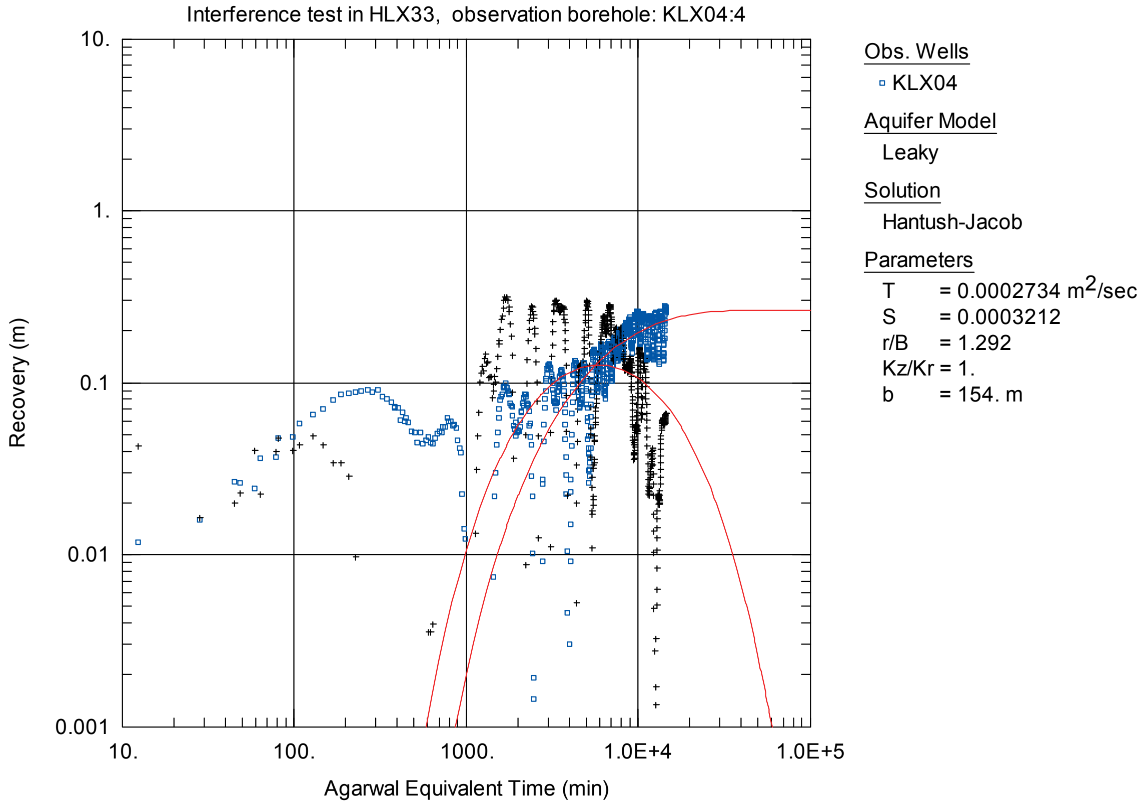


Figure 78. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX04:4 during pumping in borehole HLX33.*

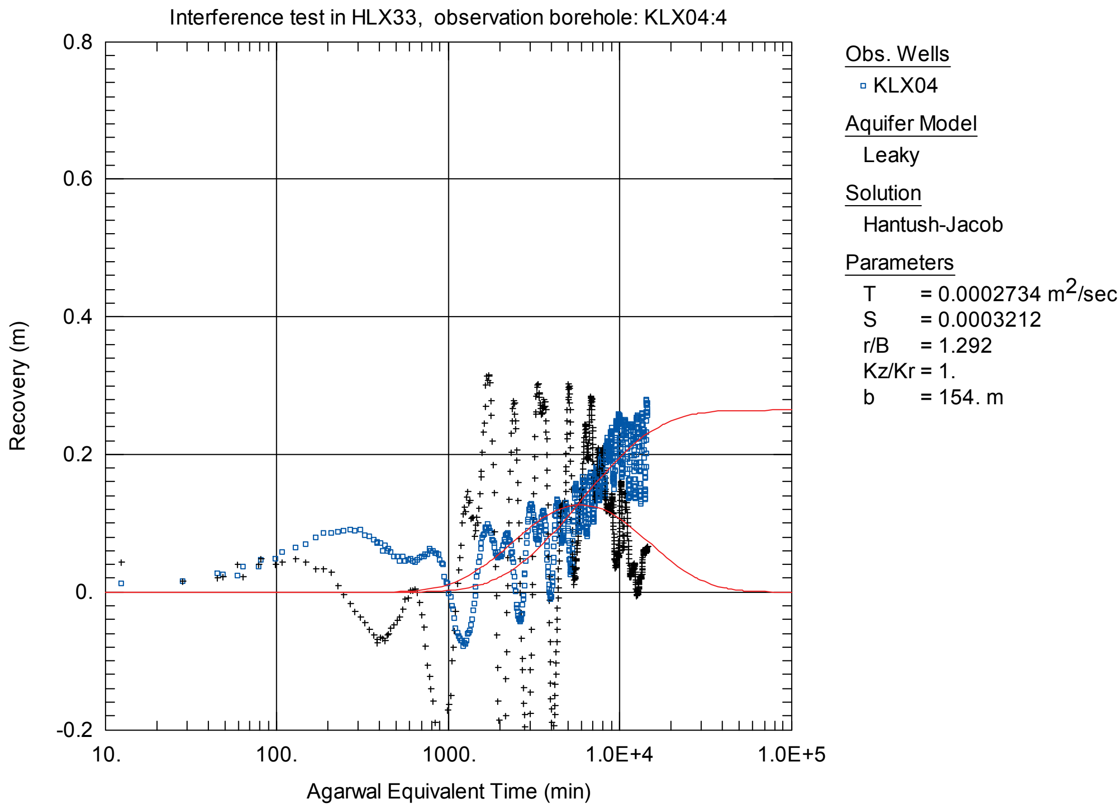


Figure 79. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX04:4 during pumping in borehole HLX33.*

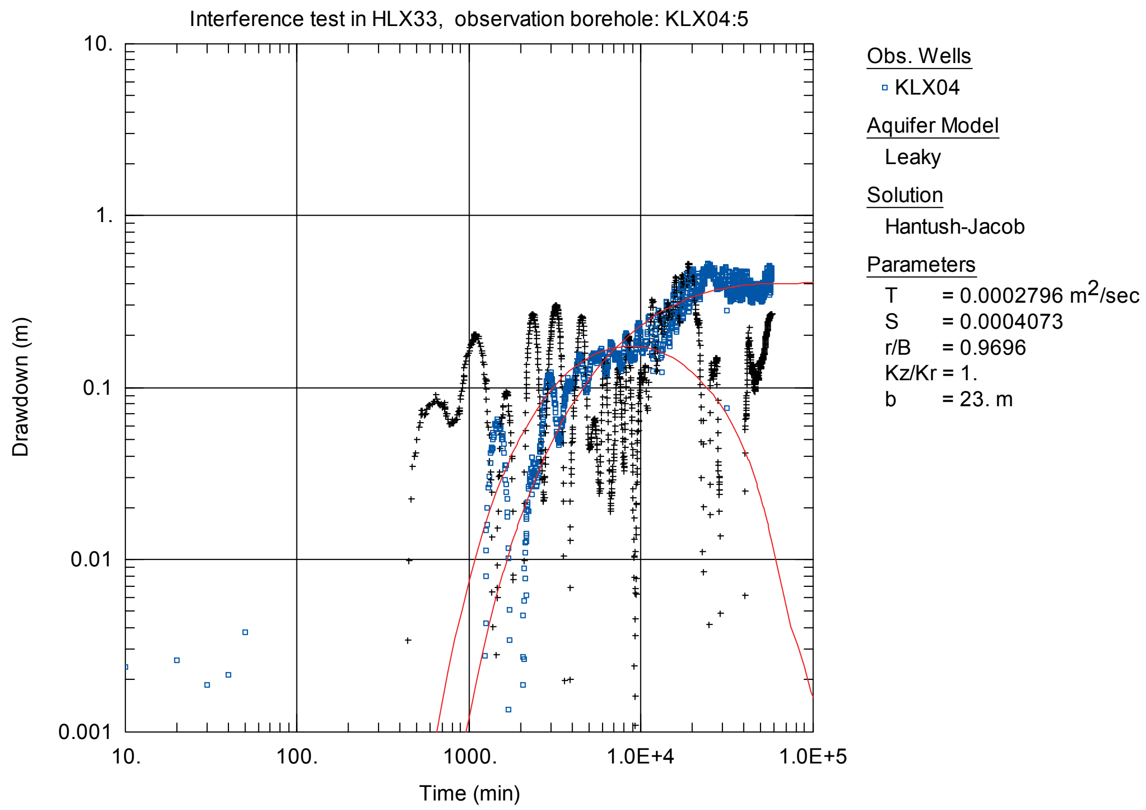


Figure 80. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX04:5 during pumping in borehole HLX33.*

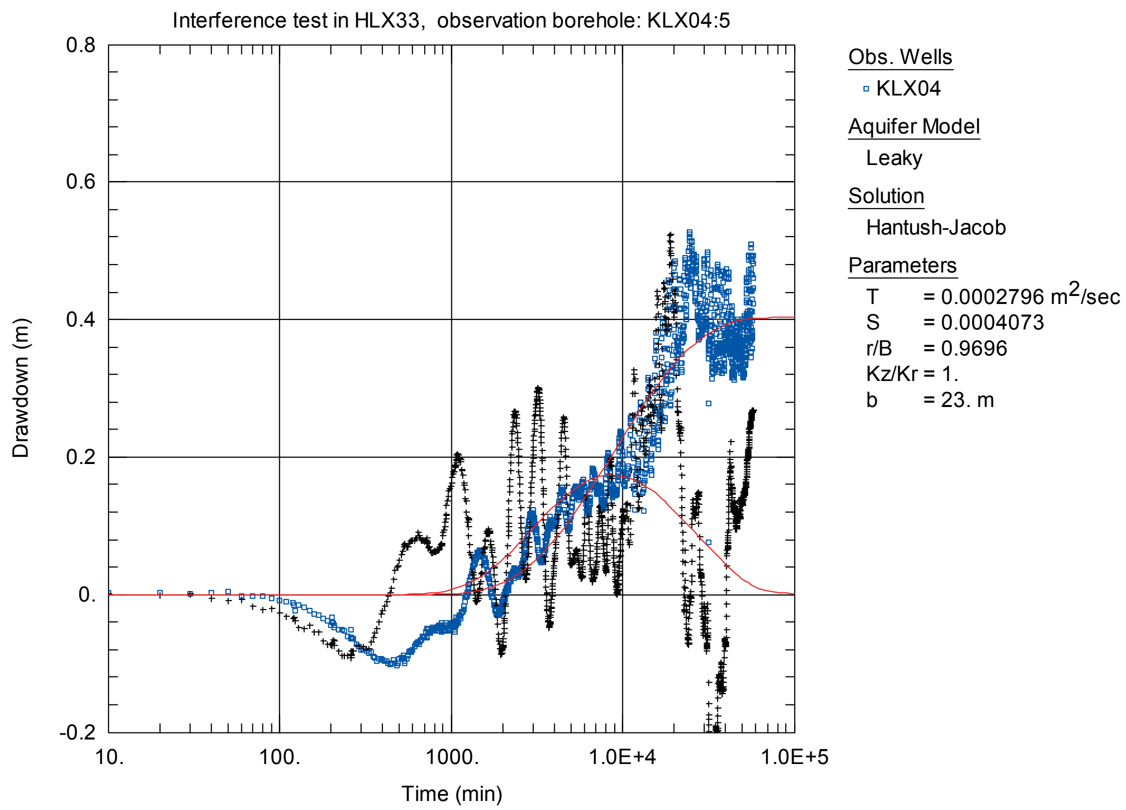


Figure 81. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX04:5 during pumping in borehole HLX33.*

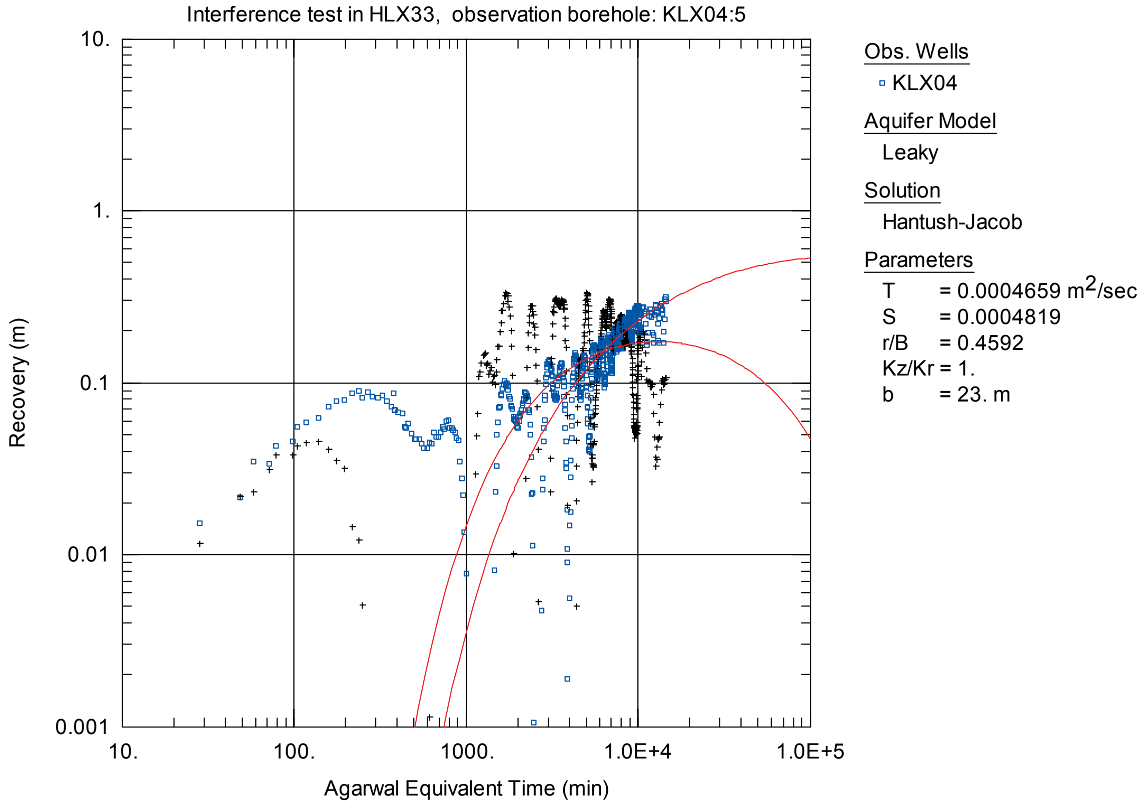


Figure 82. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX04:5 during pumping in borehole HLX33.*

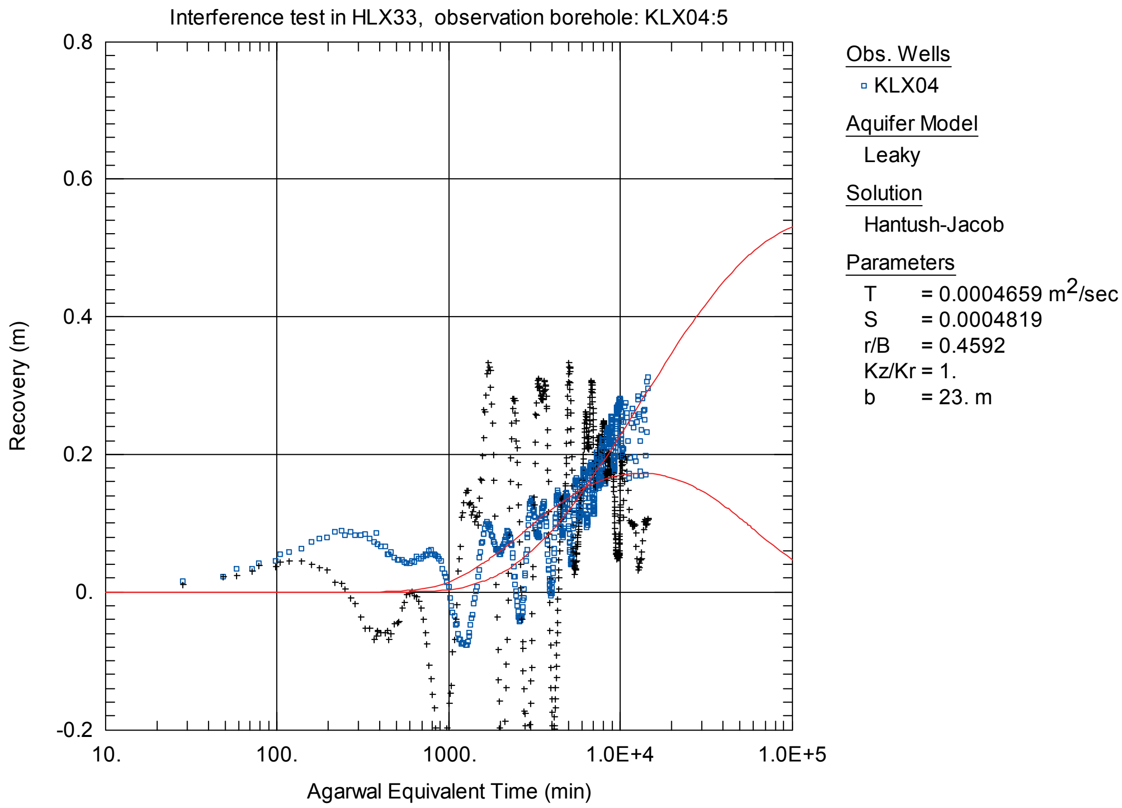


Figure 83. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX04:5 during pumping in borehole HLX33.*

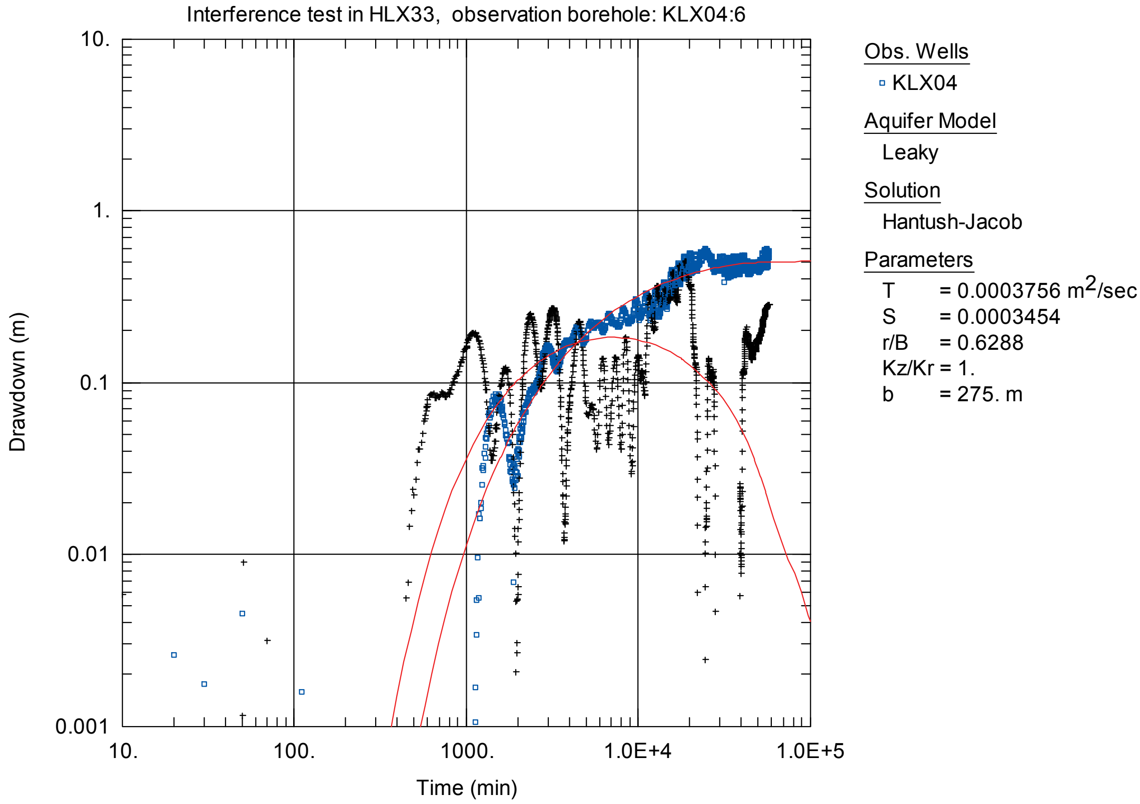


Figure 84. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX04:6 during pumping in borehole HLX33.*

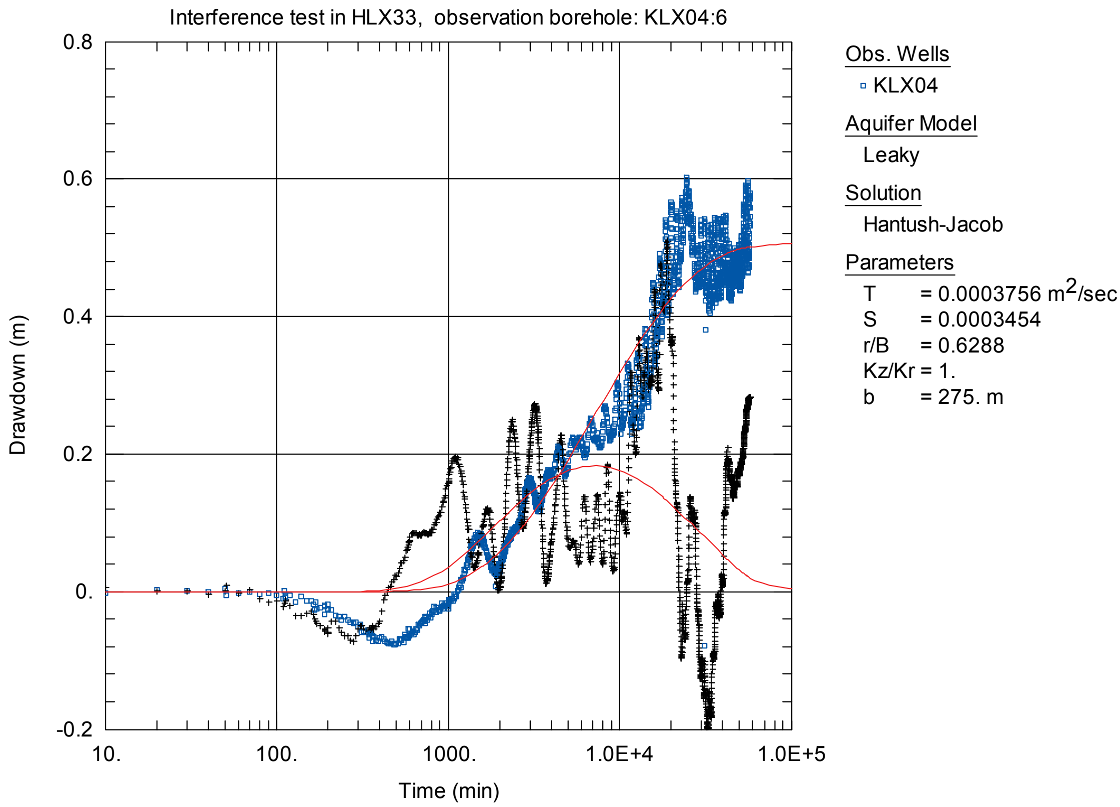


Figure 85. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX04:6 during pumping in borehole HLX33.*

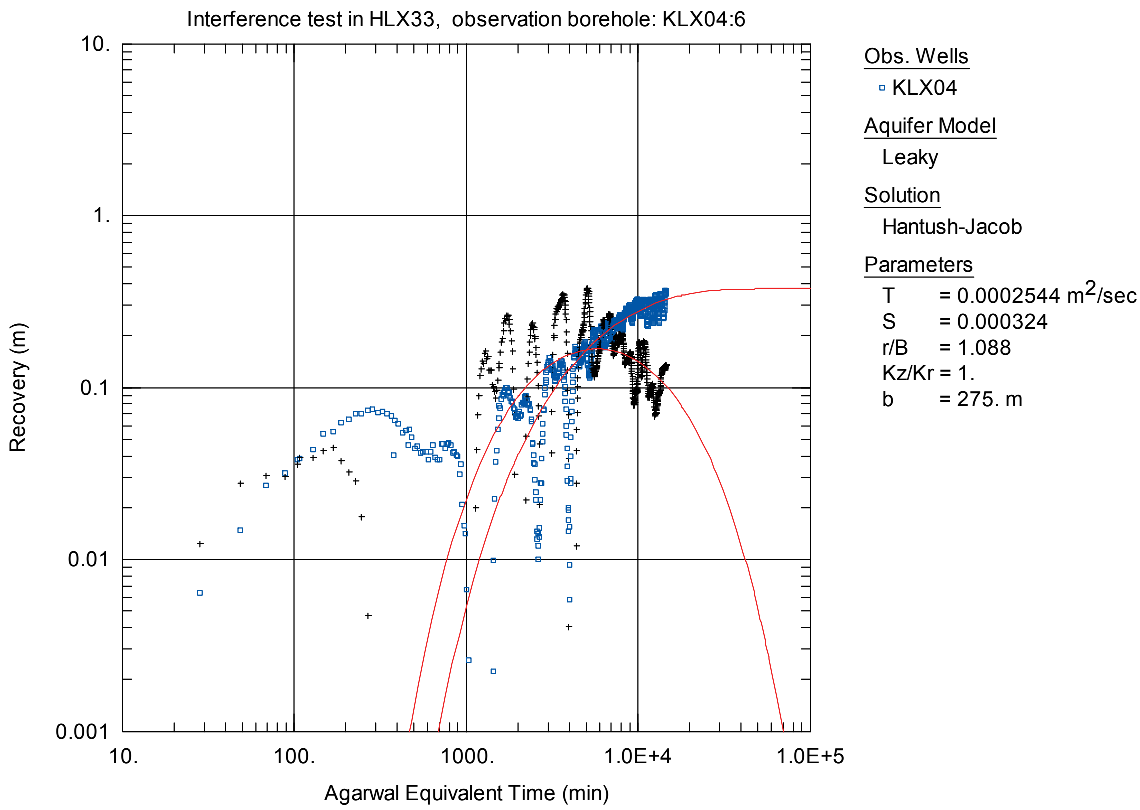


Figure 86. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX04:6 during pumping in borehole HLX33.*

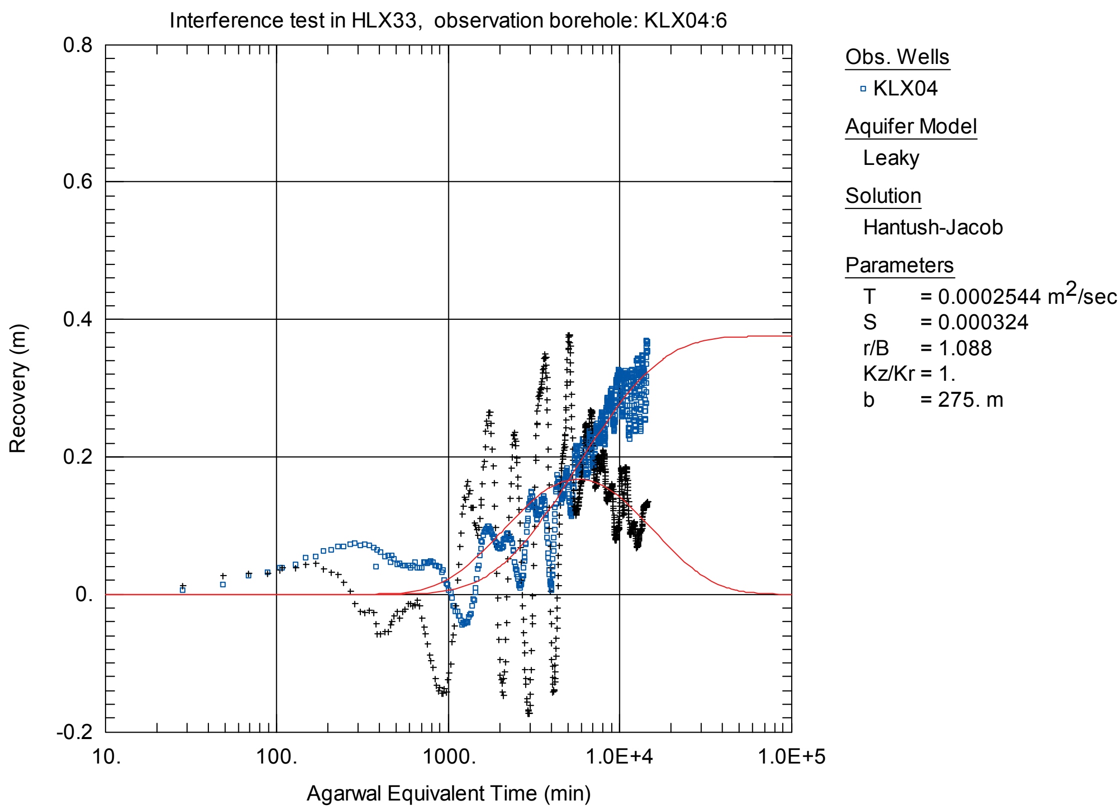


Figure 87. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX04:6 during pumping in borehole HLX33.*

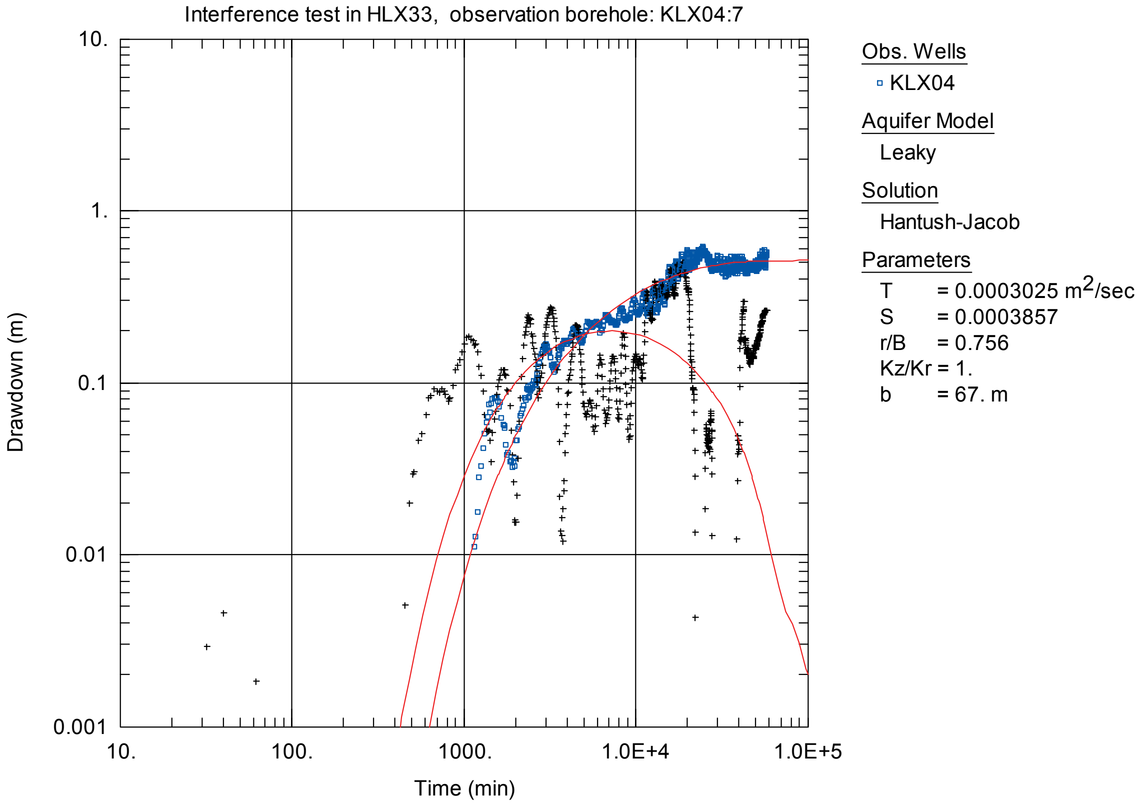


Figure 88. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX04:7 during pumping in borehole HLX33.*

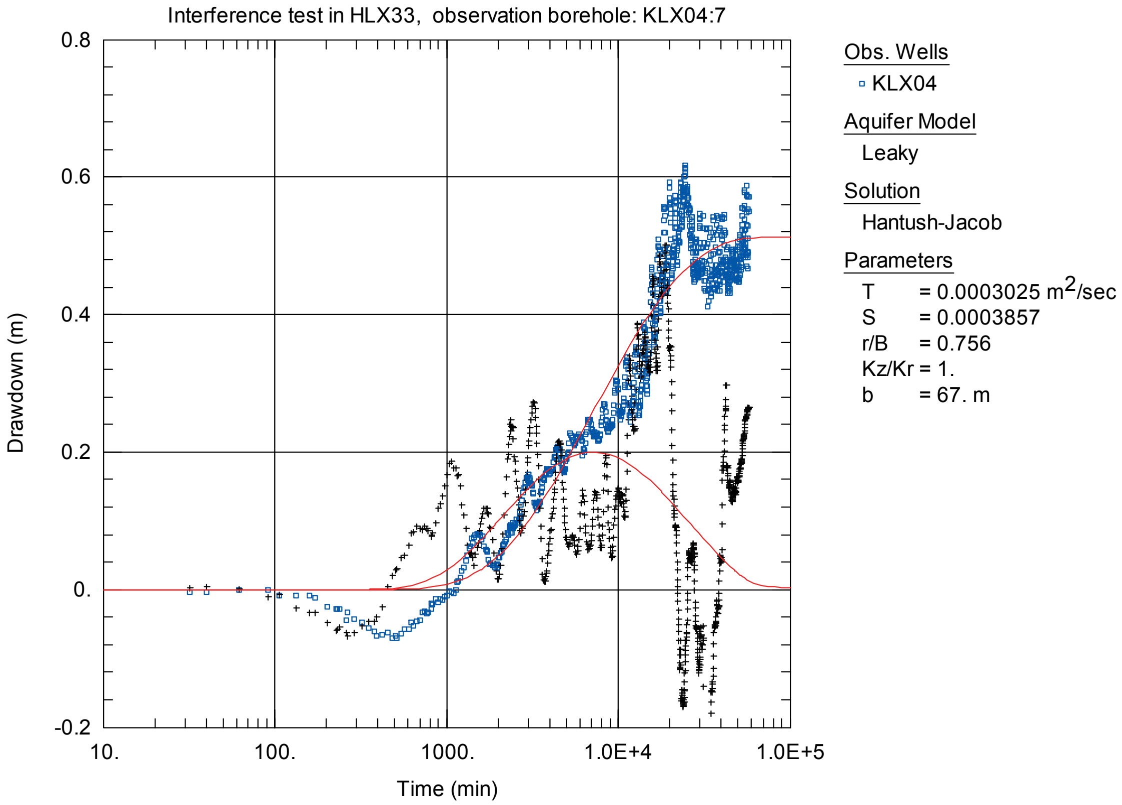


Figure 89. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX04:7 during pumping in borehole HLX33.*

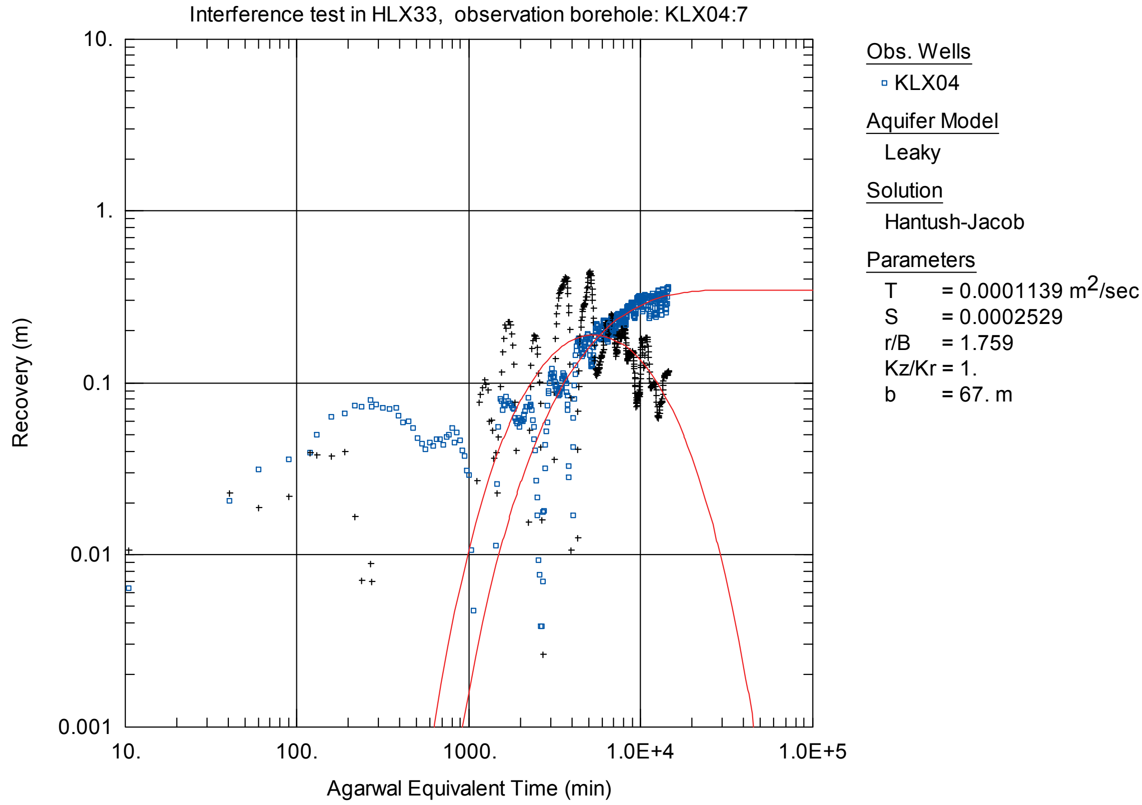


Figure 90. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX04:7 during pumping in borehole HLX33.*

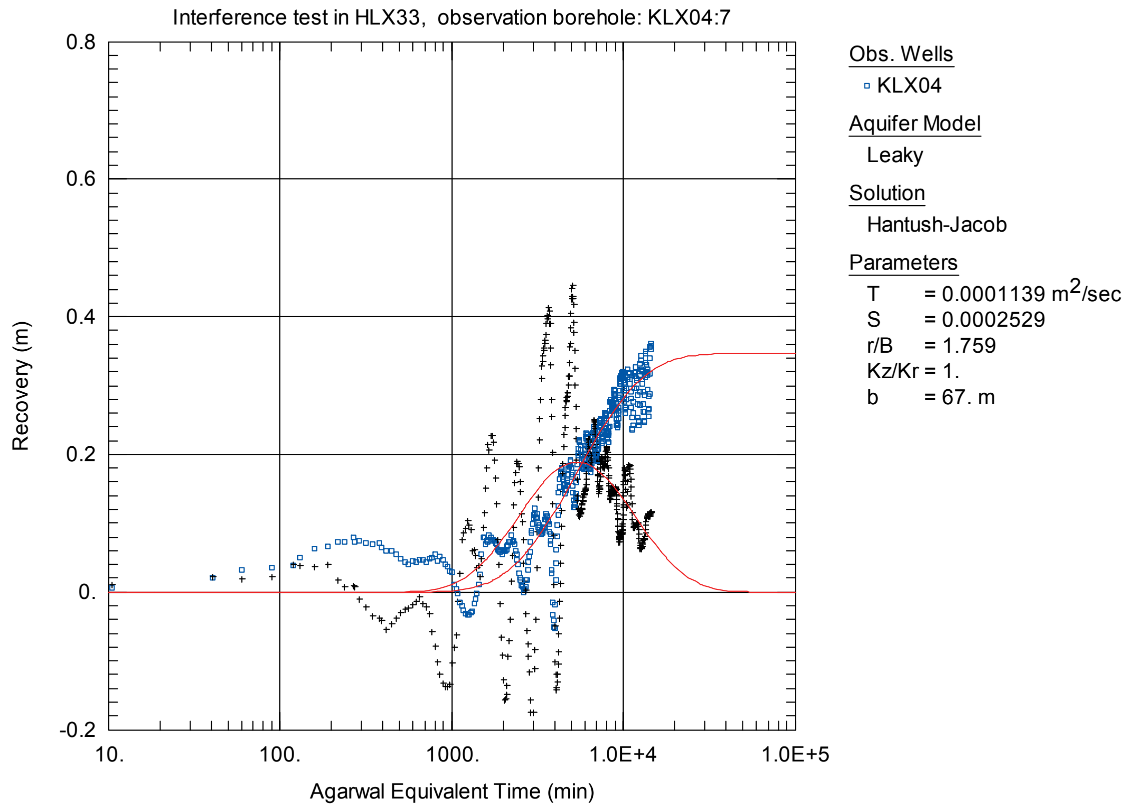


Figure 91. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX04:7 during pumping in borehole HLX33.*

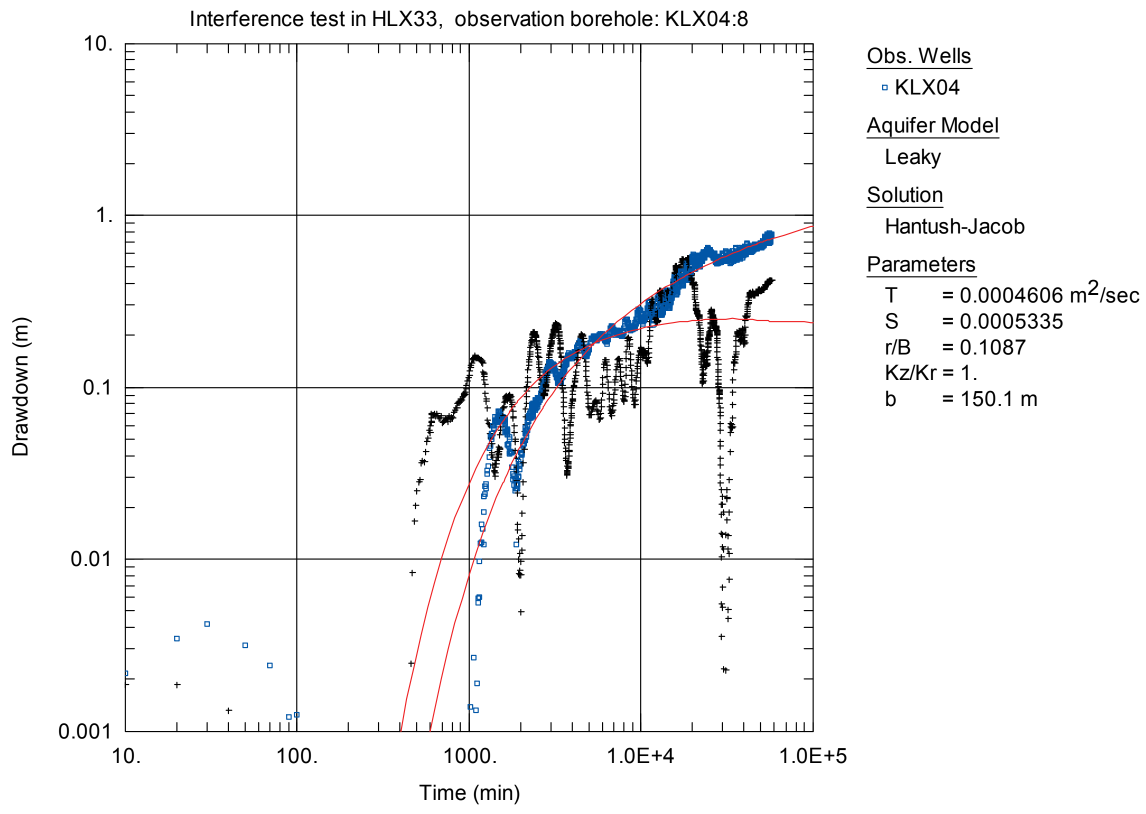


Figure 92. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX04:8 during pumping in borehole HLX33.*

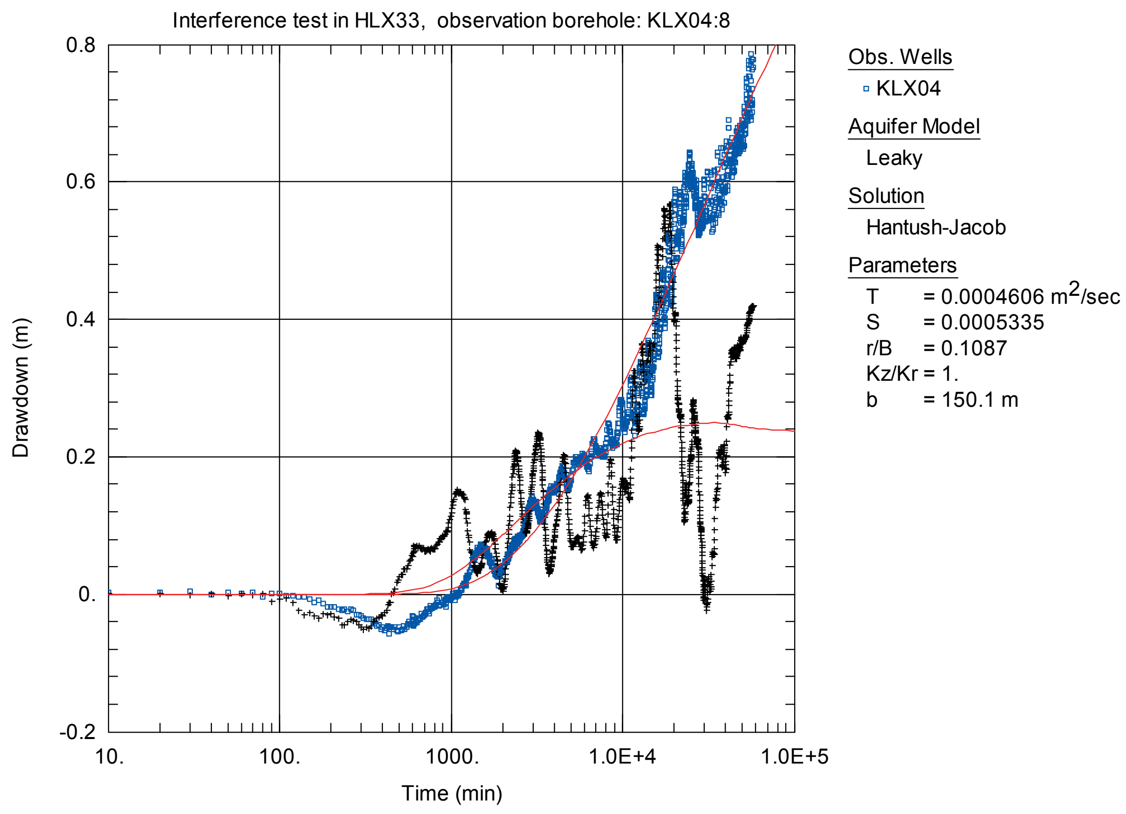


Figure 93. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX04:8 during pumping in borehole HLX33.*

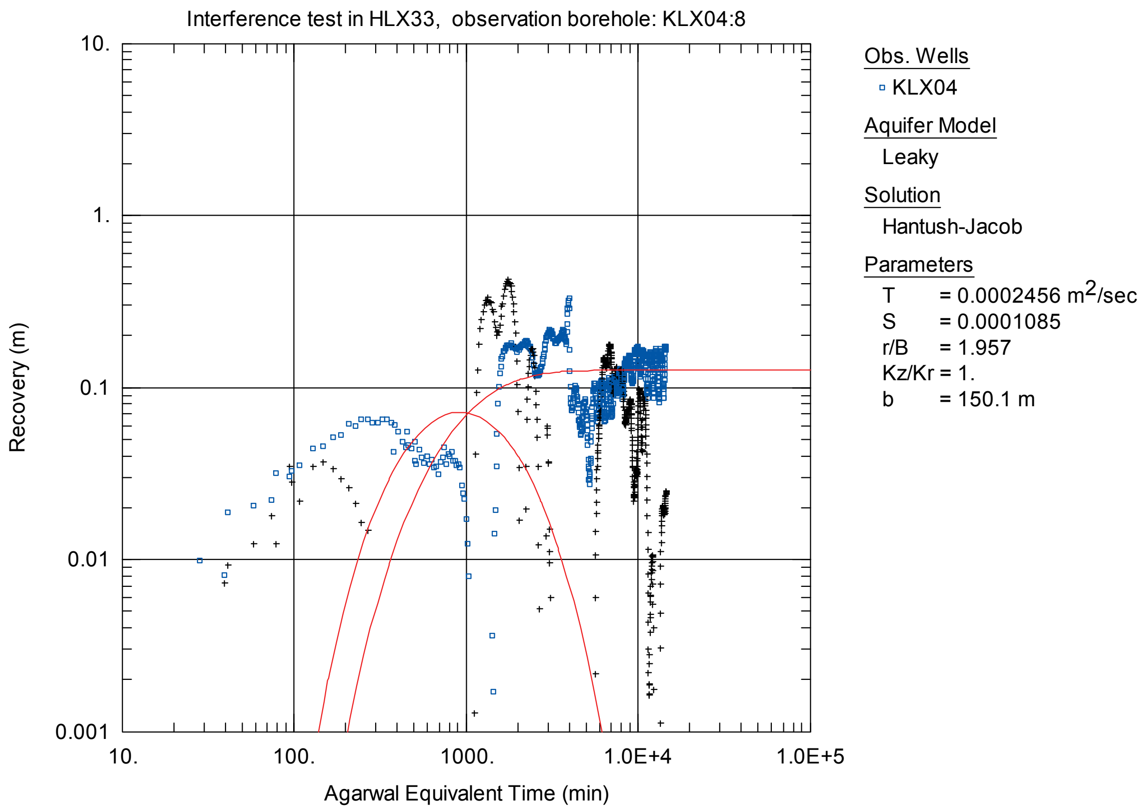


Figure 94. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX04:8 during pumping in borehole HLX33. The type curve fit is showing a possible, however not unambiguous, evaluation.*

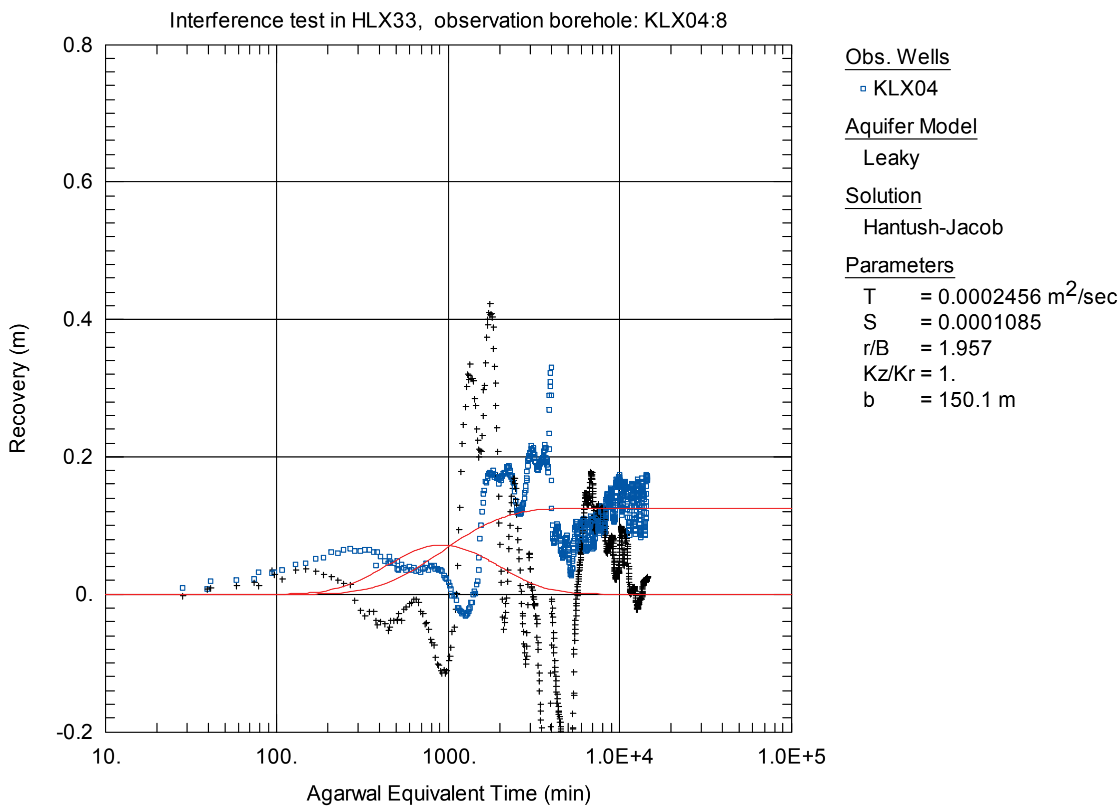


Figure 95. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX04:8 during pumping in borehole HLX33. The type curve fit is showing a possible, however not unambiguous, evaluation.*

Appendix 7.10 Observation borehole KLX07A

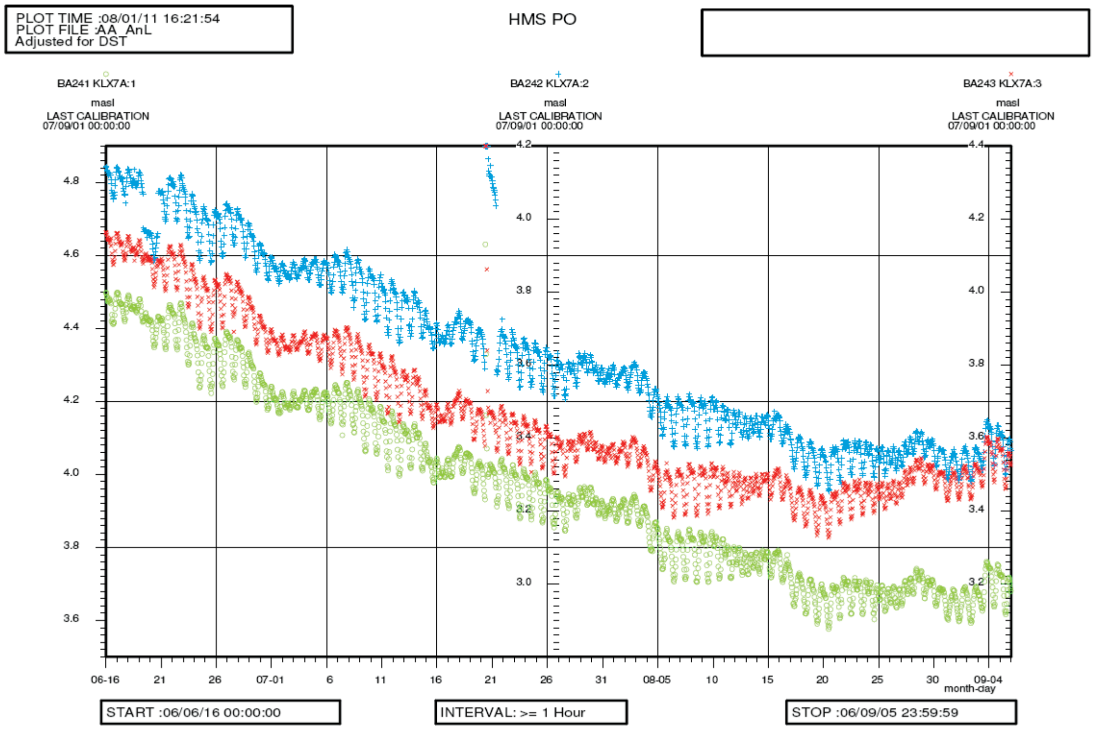


Figure 96. *Linear plot of pressure versus time in the observation borehole KLX07A (sections 1,2 and 3) during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07. The figure shows that the levels in KLX07A:1, KLX07A:2 and KLX07A:3 are unaffected by the pumping in HLX33, performed 2006-06-28 – 2006-08-07.*

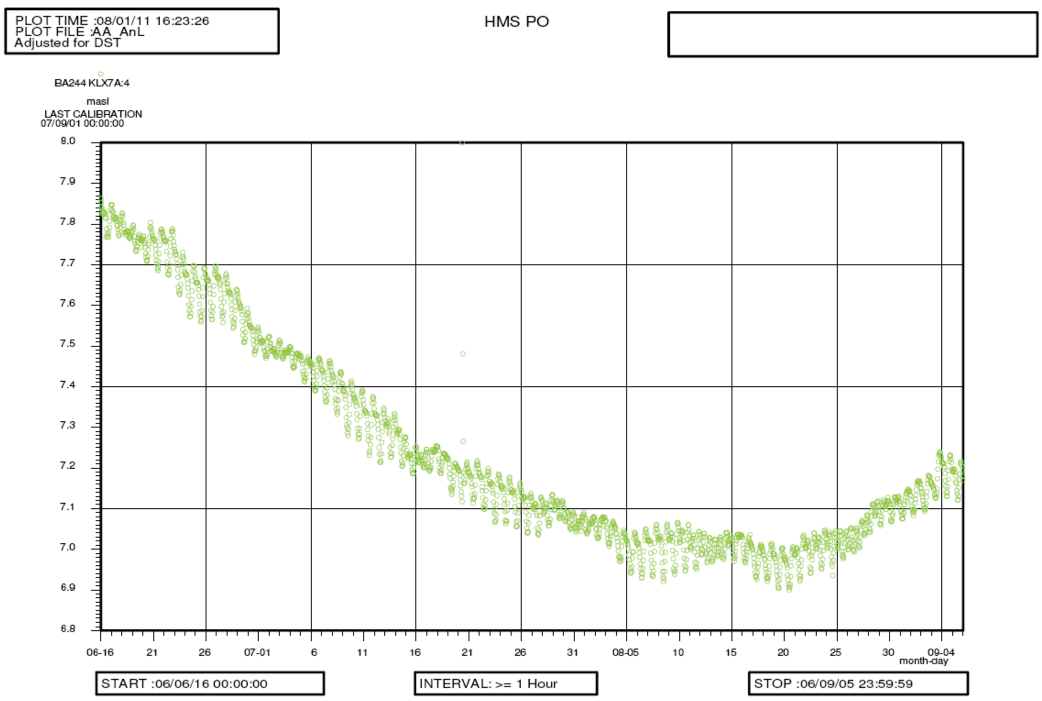


Figure 97. *Linear plot of pressure versus time in the observation borehole KLX07A:4 during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07. A possible weak response from the pumping in HLX33 can not be confirmed but nor excluded. Because of the uncertainty in the response no unambiguous transient evaluation is possible in this borehole.*

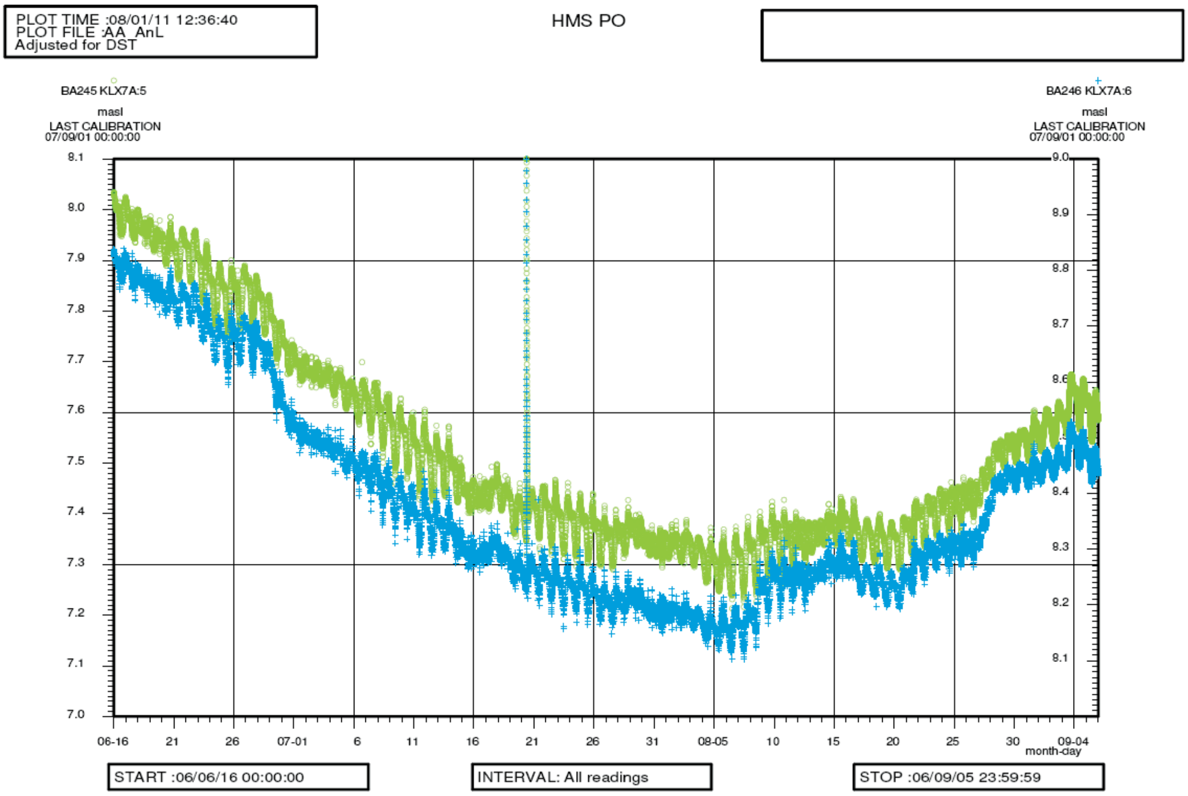


Figure 98. *Linear plot of pressure versus time in the observation borehole KLX07A (sections 5 and 6) during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

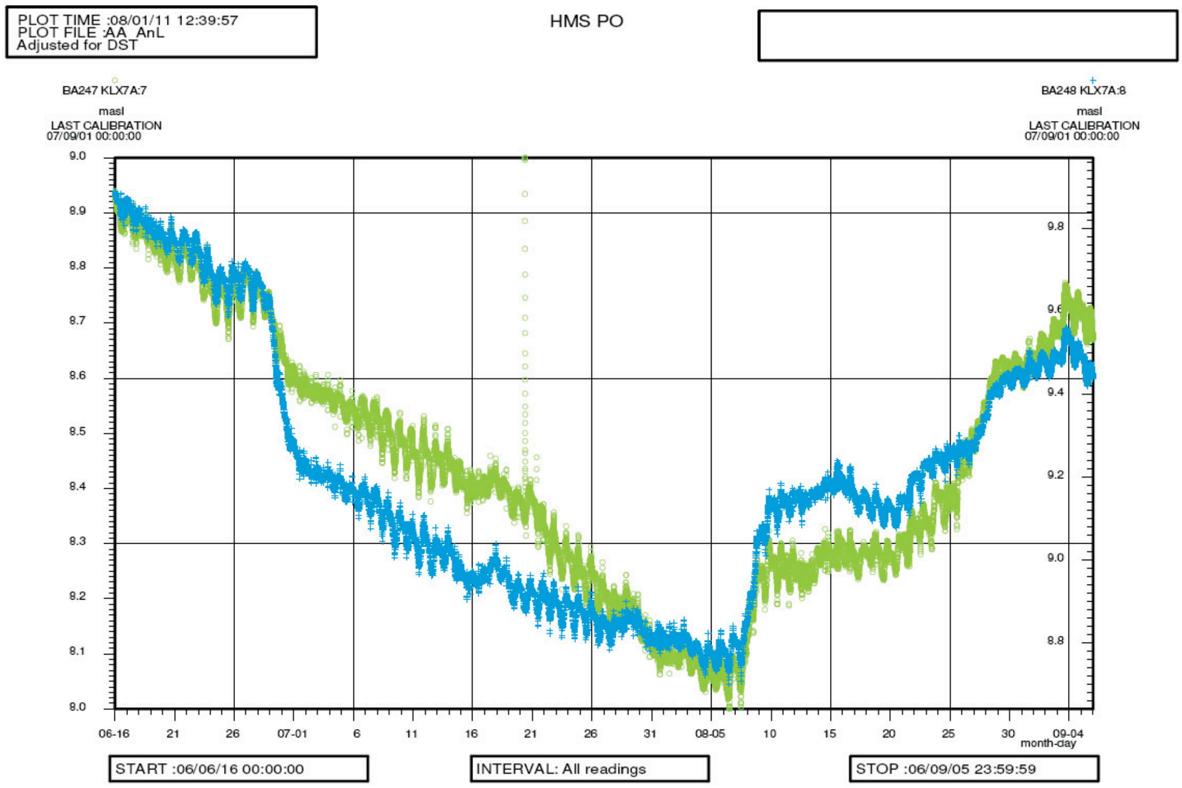


Figure 99. *Linear plot of pressure versus time in the observation borehole KLX07A (sections 7 and 8) during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

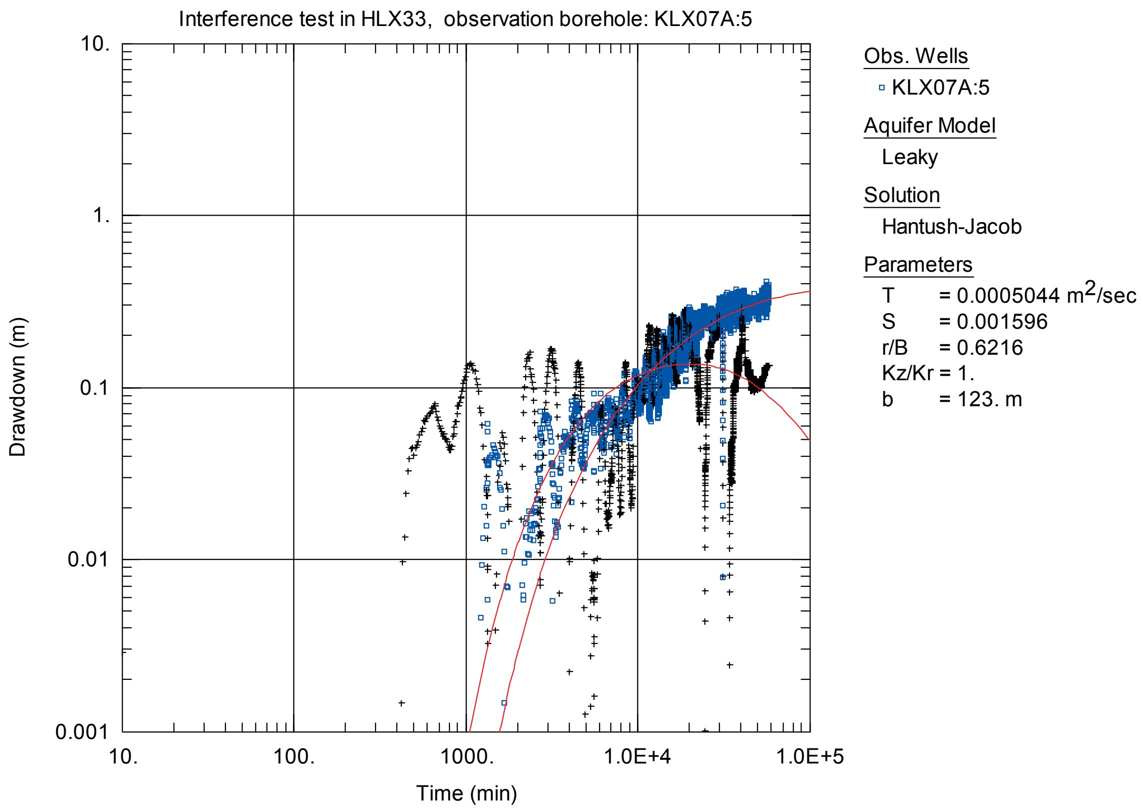


Figure 100. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07A:5 during pumping in borehole HLX33.*

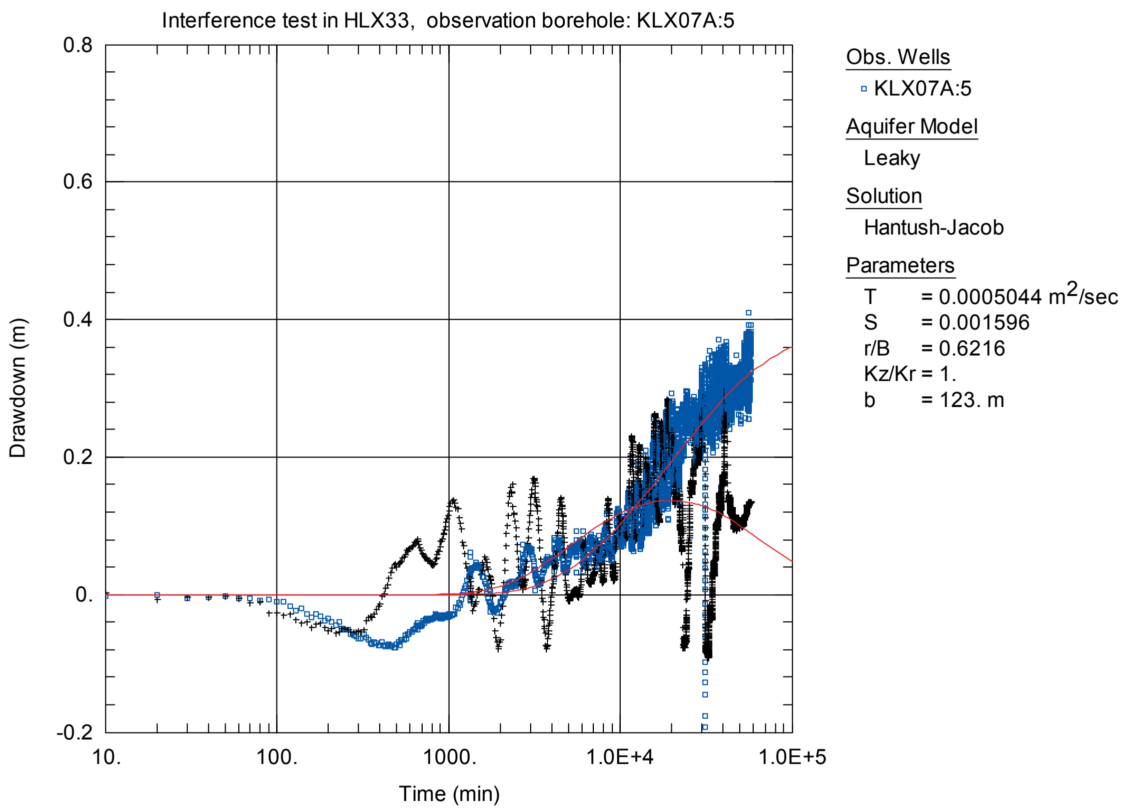


Figure 101. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07A:5 during pumping in borehole HLX33.*

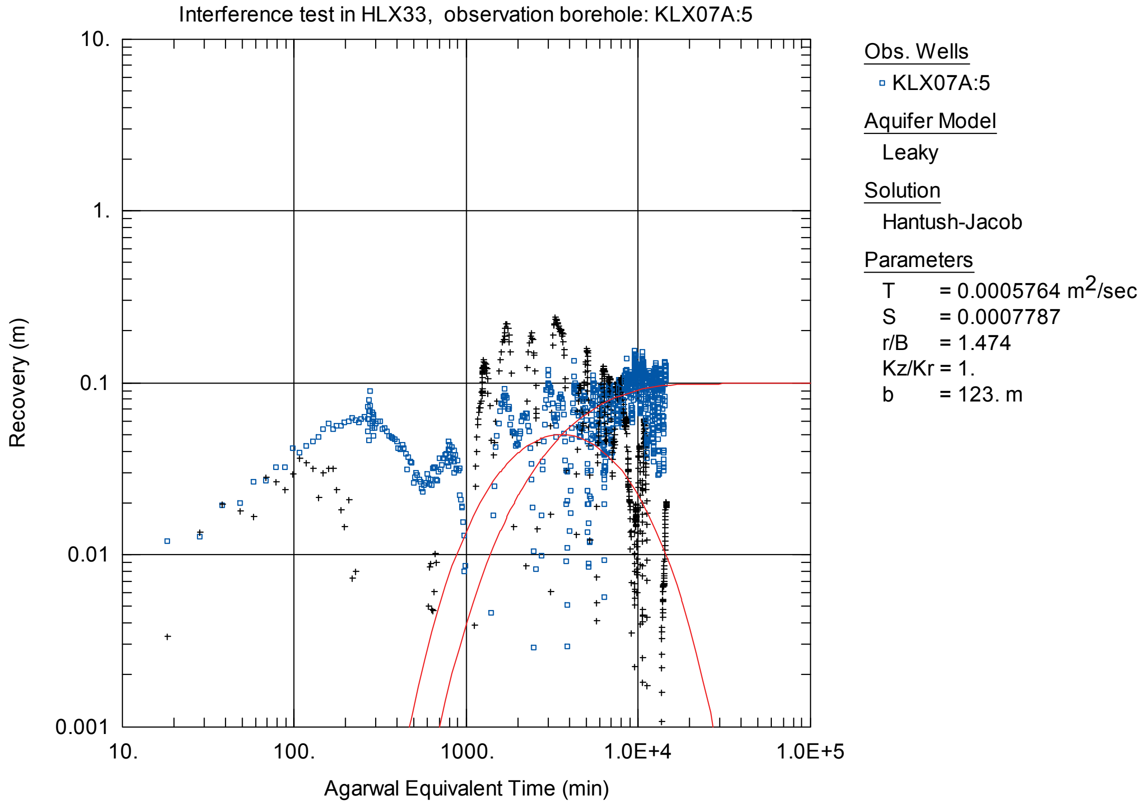


Figure 102. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07A:5 during pumping in borehole HLX33.*

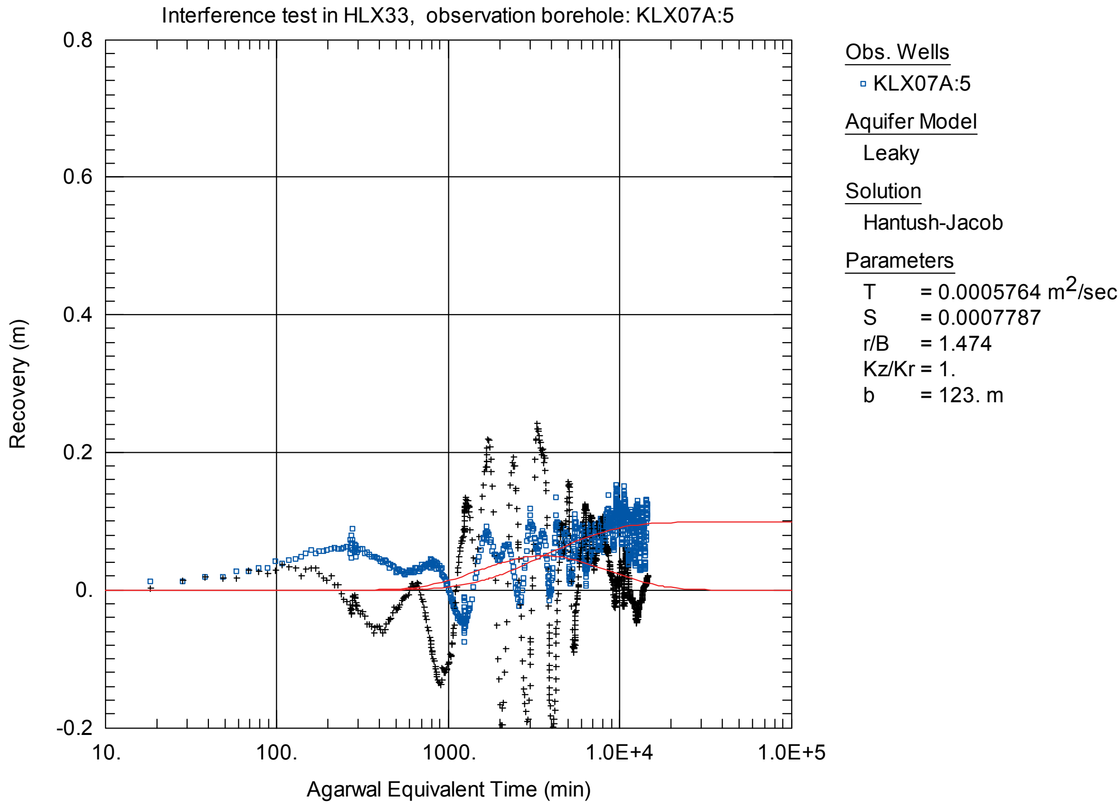


Figure 103. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07A:5 during pumping in borehole HLX33.*

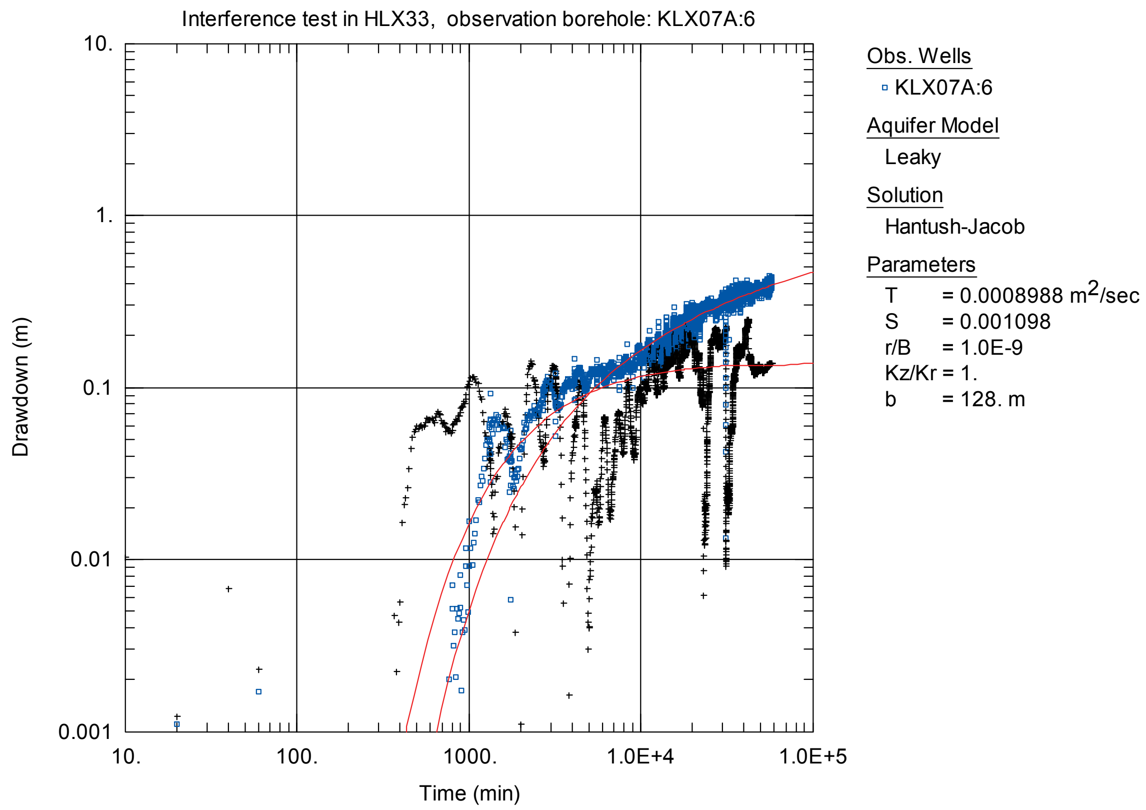


Figure 104. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07A:6 during pumping in borehole HLX33.*

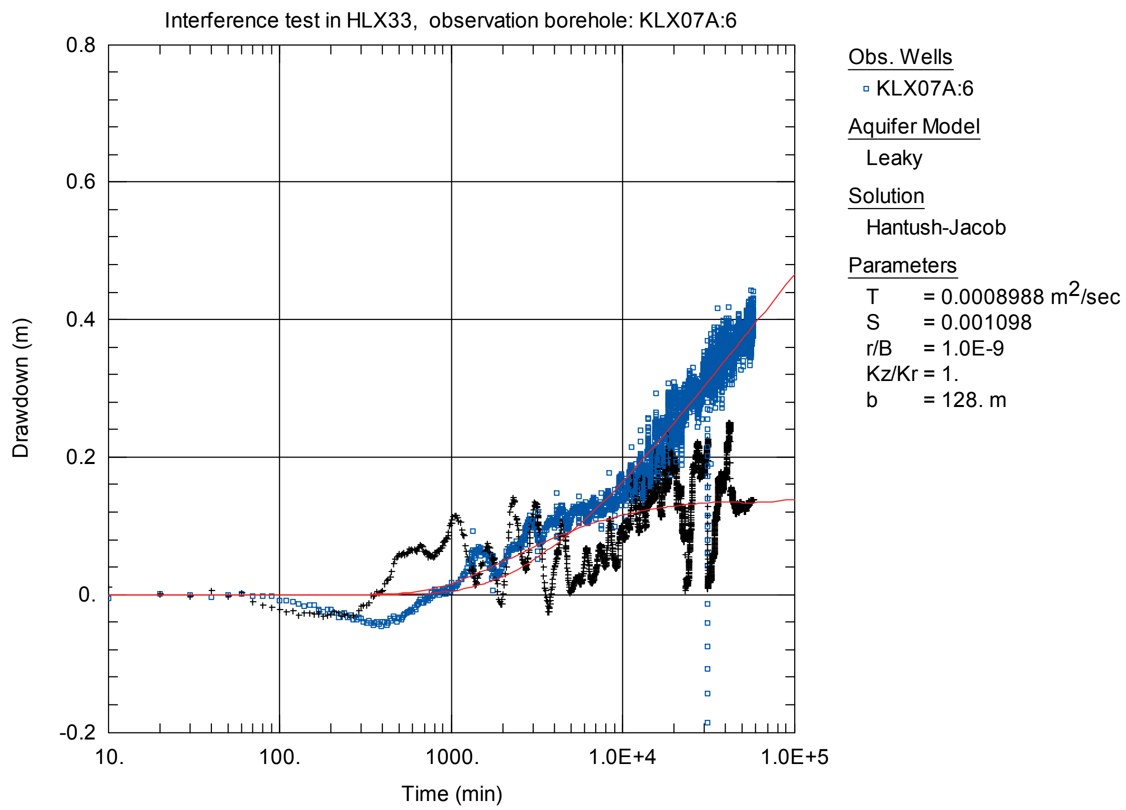


Figure 105. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07A:6 during pumping in borehole HLX33.*

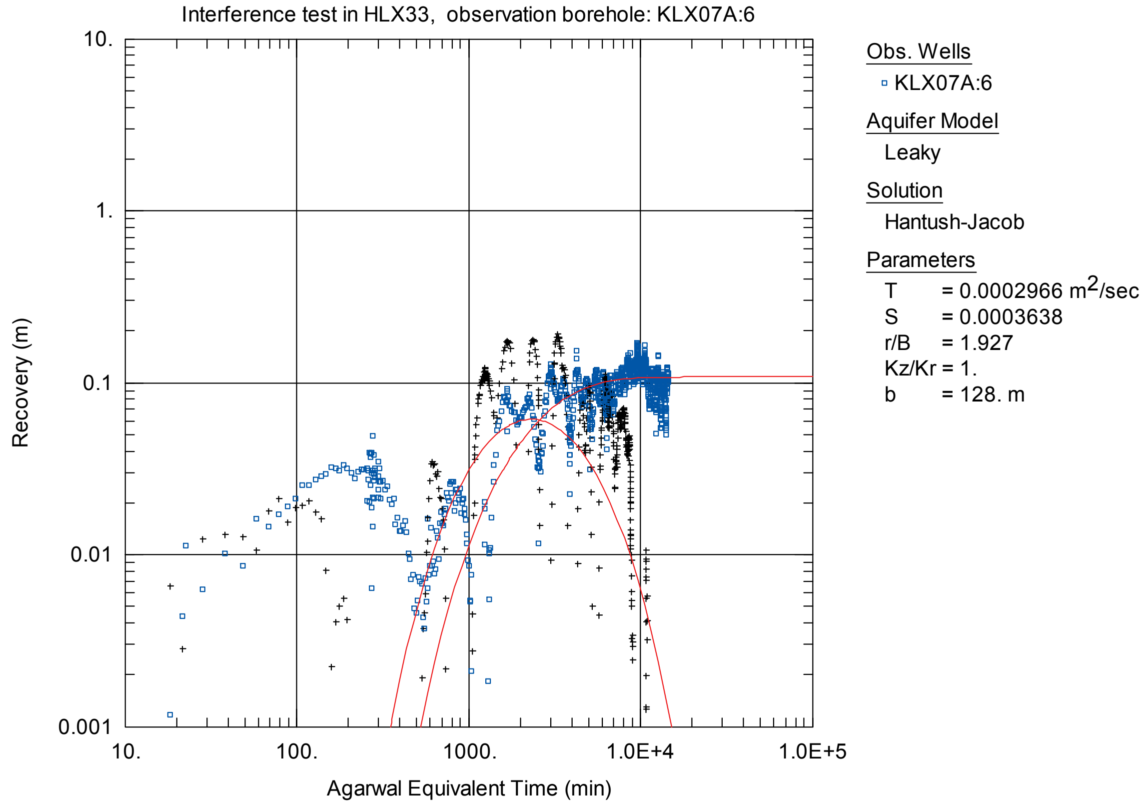


Figure 106. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07A:6 during pumping in borehole HLX33.*

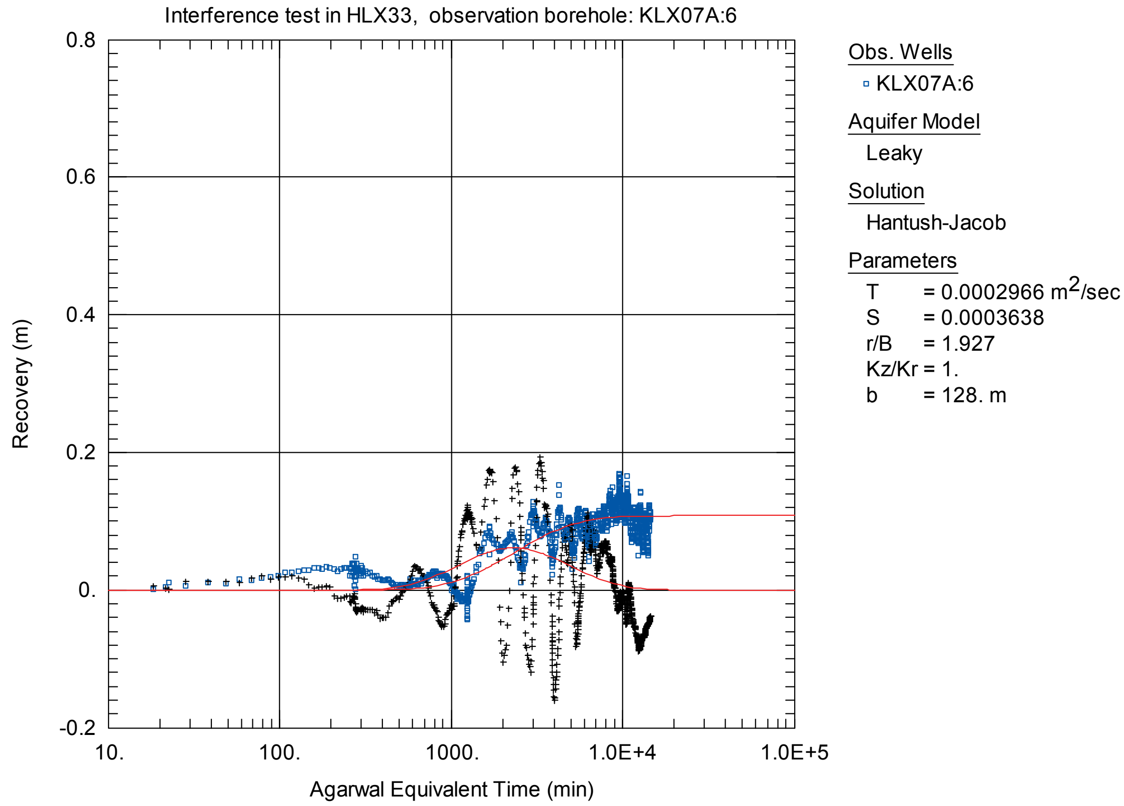


Figure 107. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07A:6 during pumping in borehole HLX33.*

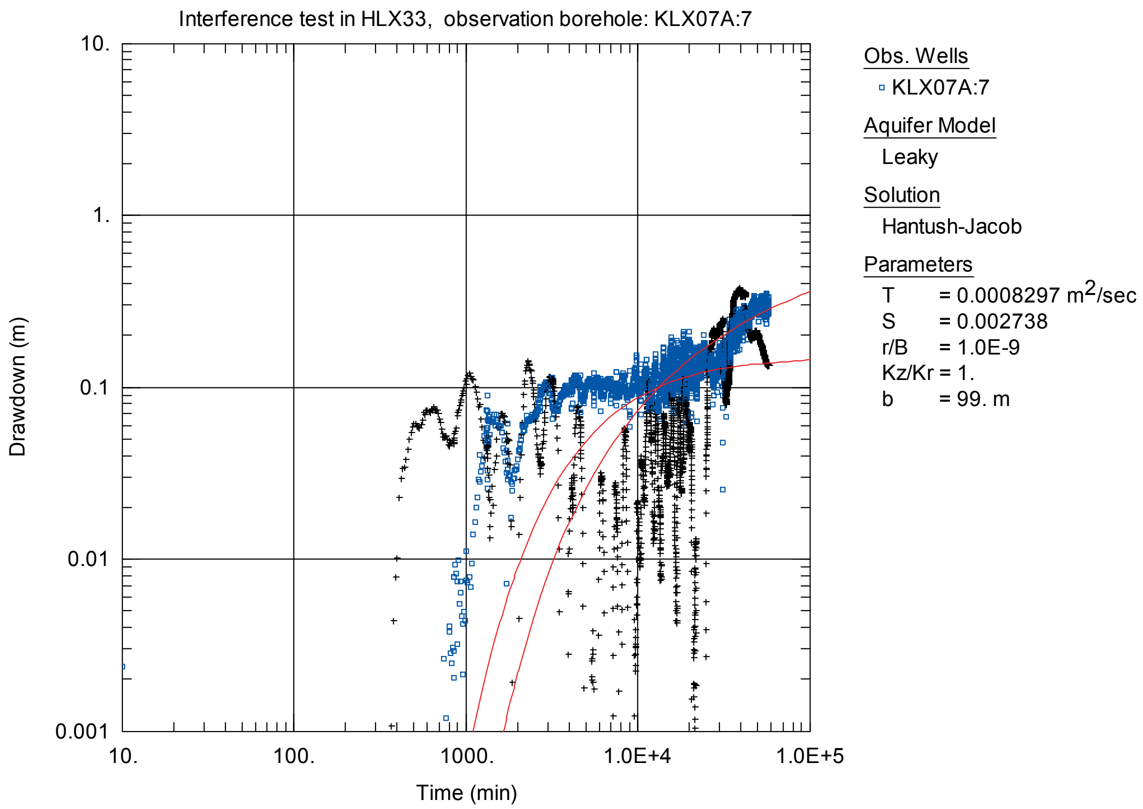


Figure 108. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07A:7 during pumping in borehole HLX33.*

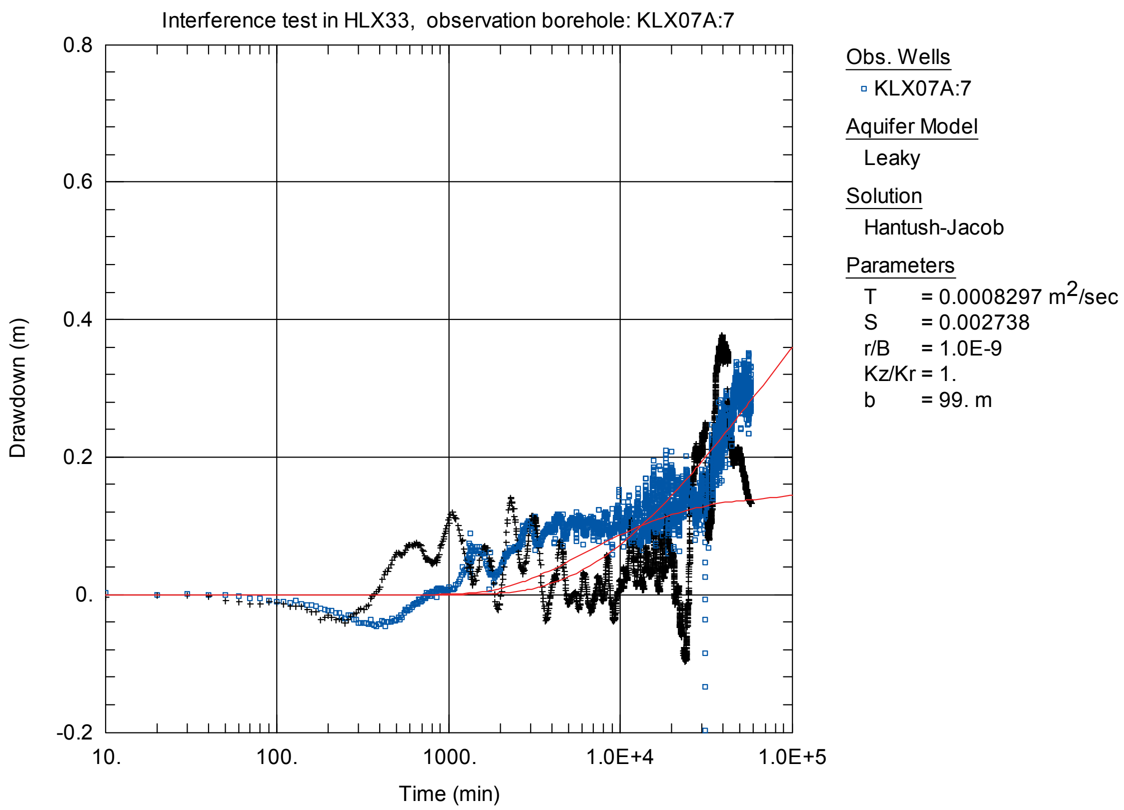


Figure 109. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07A:7 during pumping in borehole HLX33.*

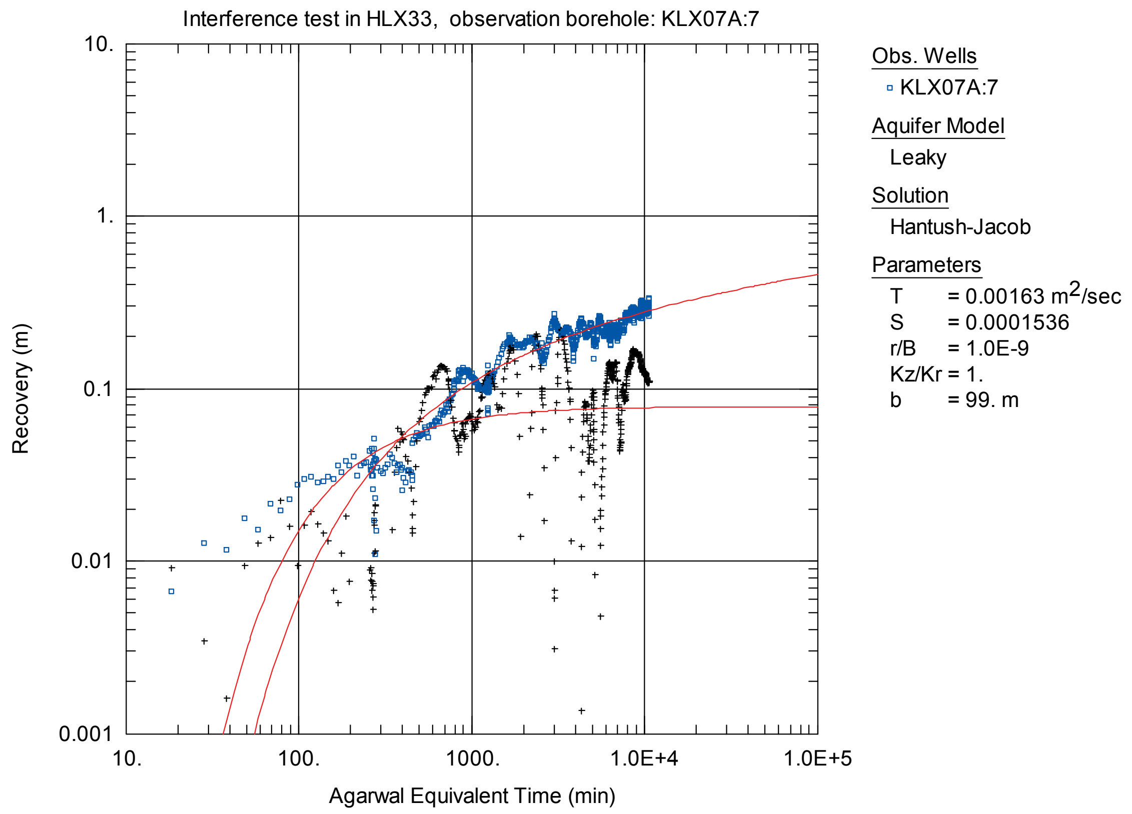


Figure 110. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07A:7 during pumping in borehole HLX33.*

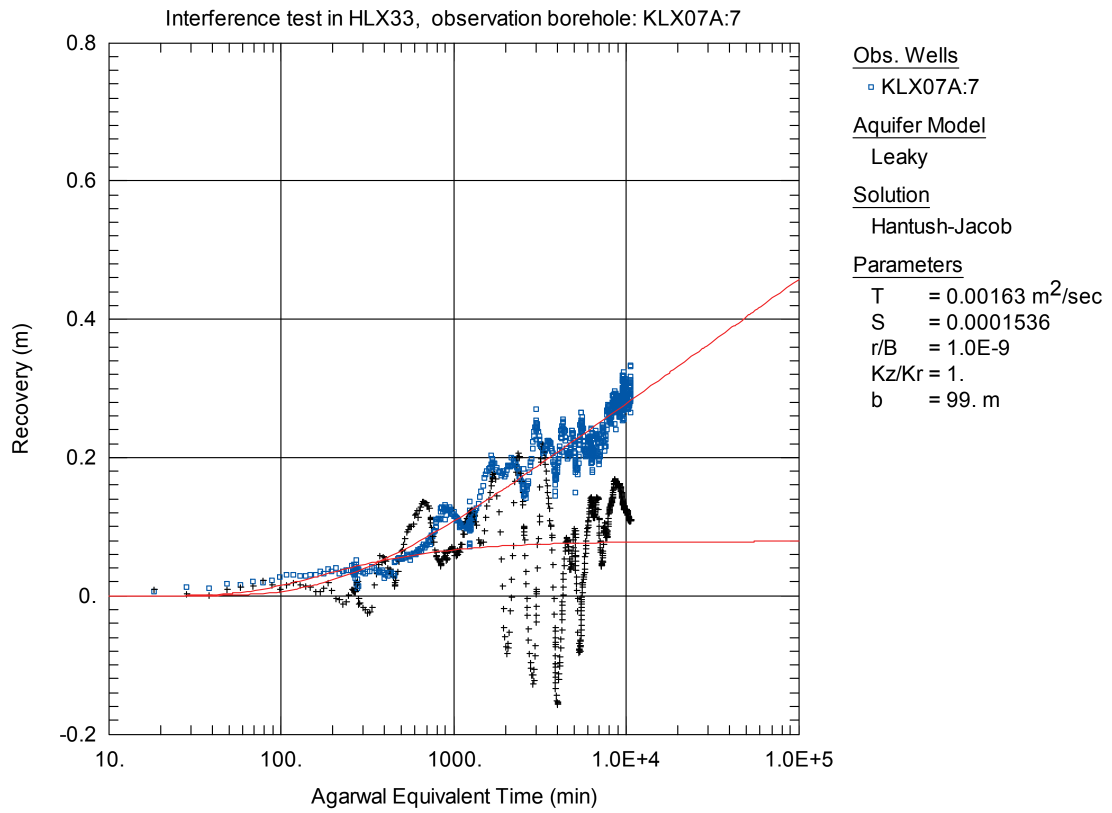


Figure 111. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07A:7 during pumping in borehole HLX33.*

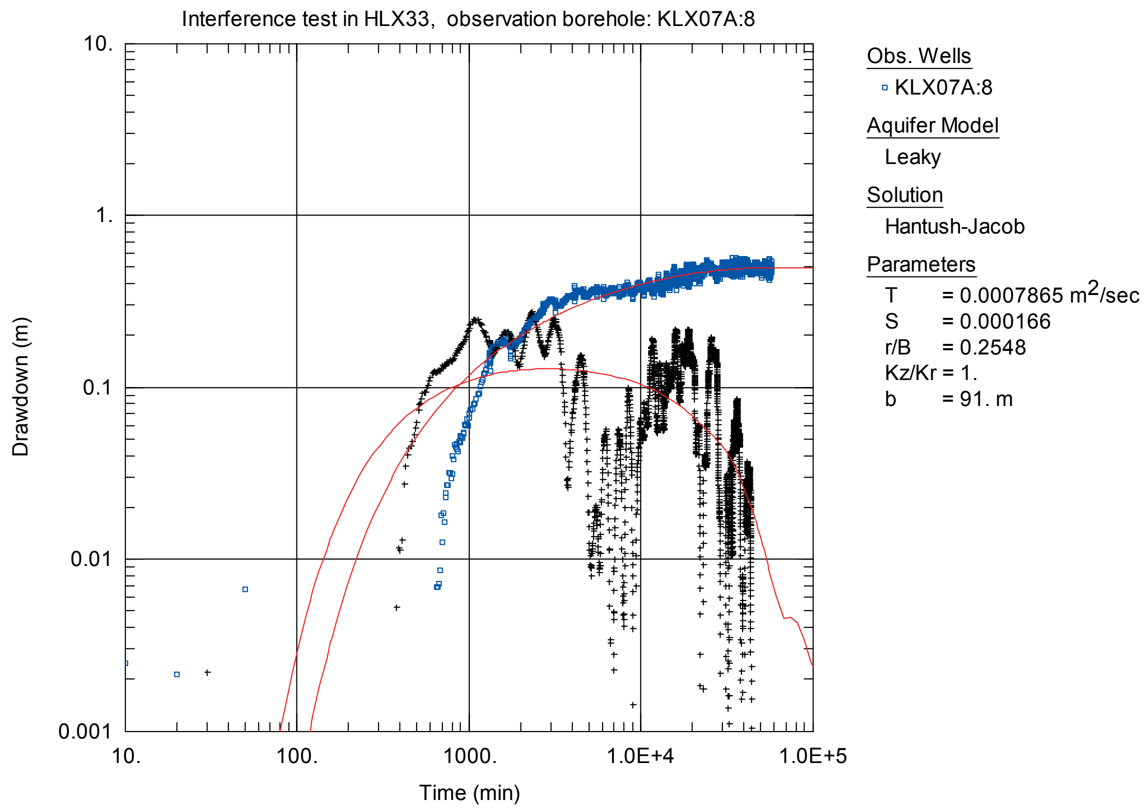


Figure 112. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07A:8 during pumping in borehole HLX33.*

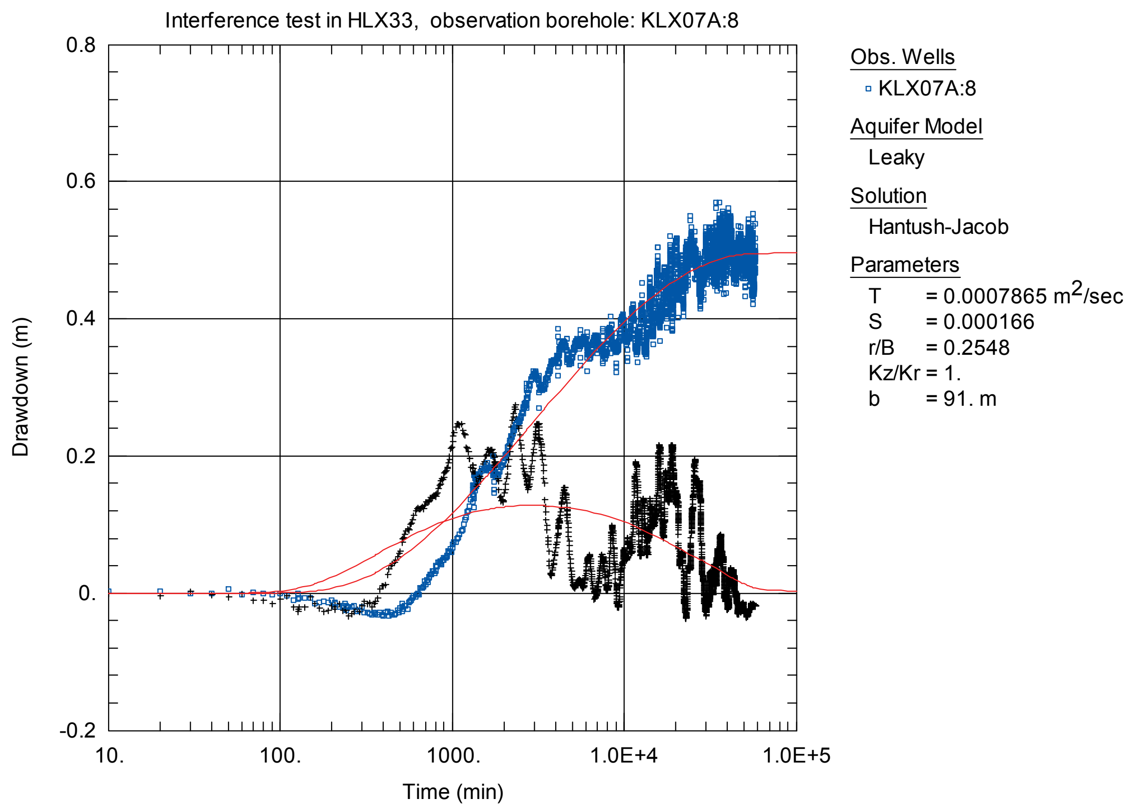


Figure 113. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07A:8 during pumping in borehole HLX33.*

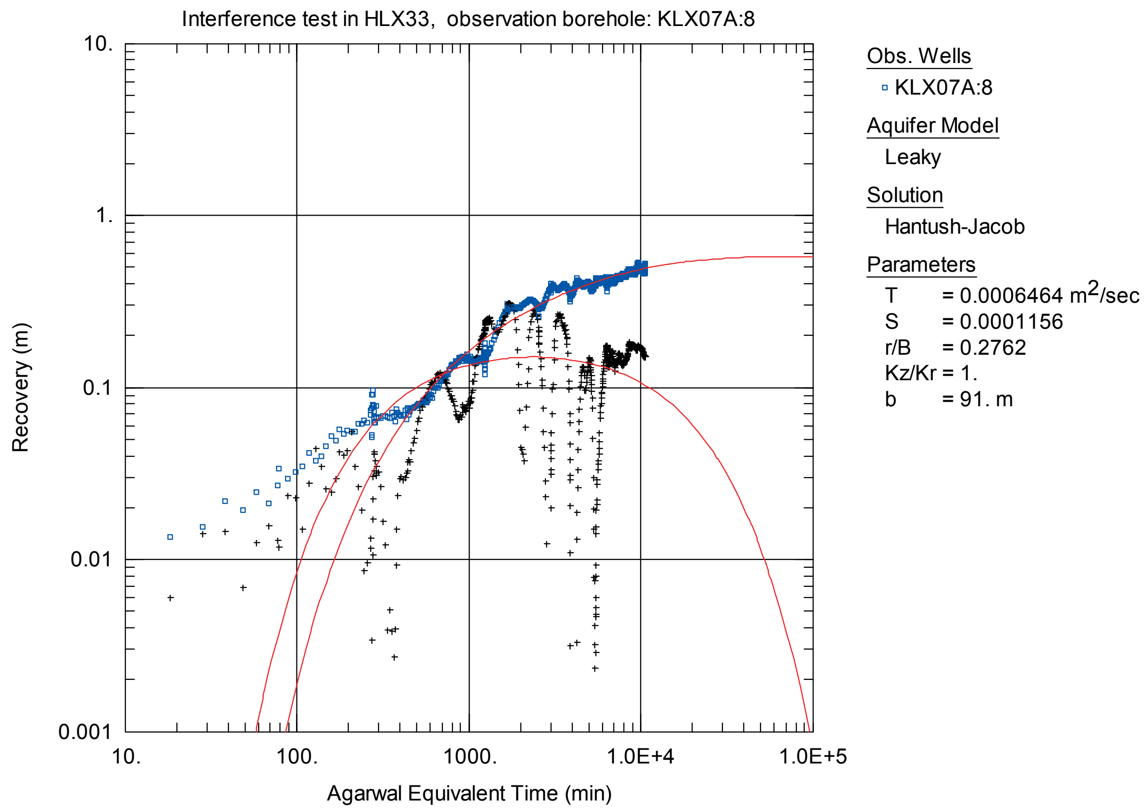


Figure 114. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07A:8 during pumping in borehole HLX33.*

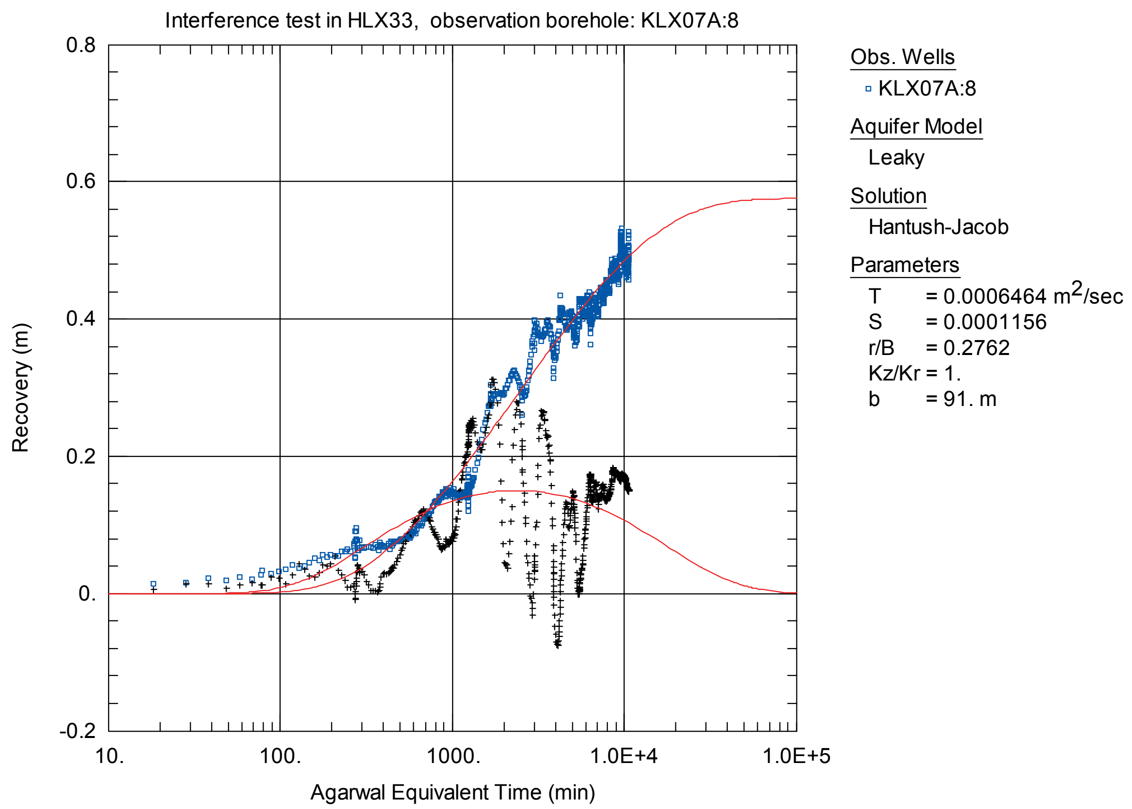


Figure 115. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07A:8 during pumping in borehole HLX33.*

Appendix 7.11 Observation borehole KLX07B

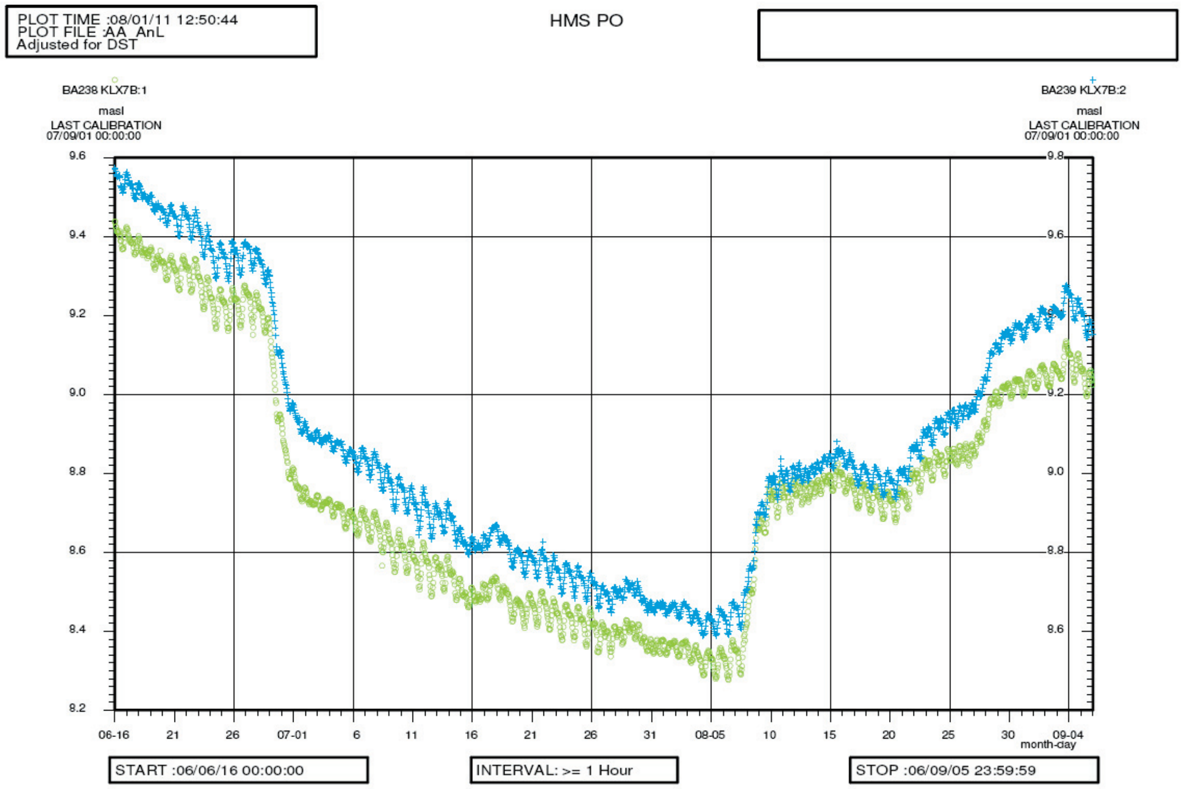


Figure 116. *Linear plot of pressure versus time in the observation borehole KLX07B during pumping in borehole HLX33 performed 2006-06-28 – 2006-08-07.*

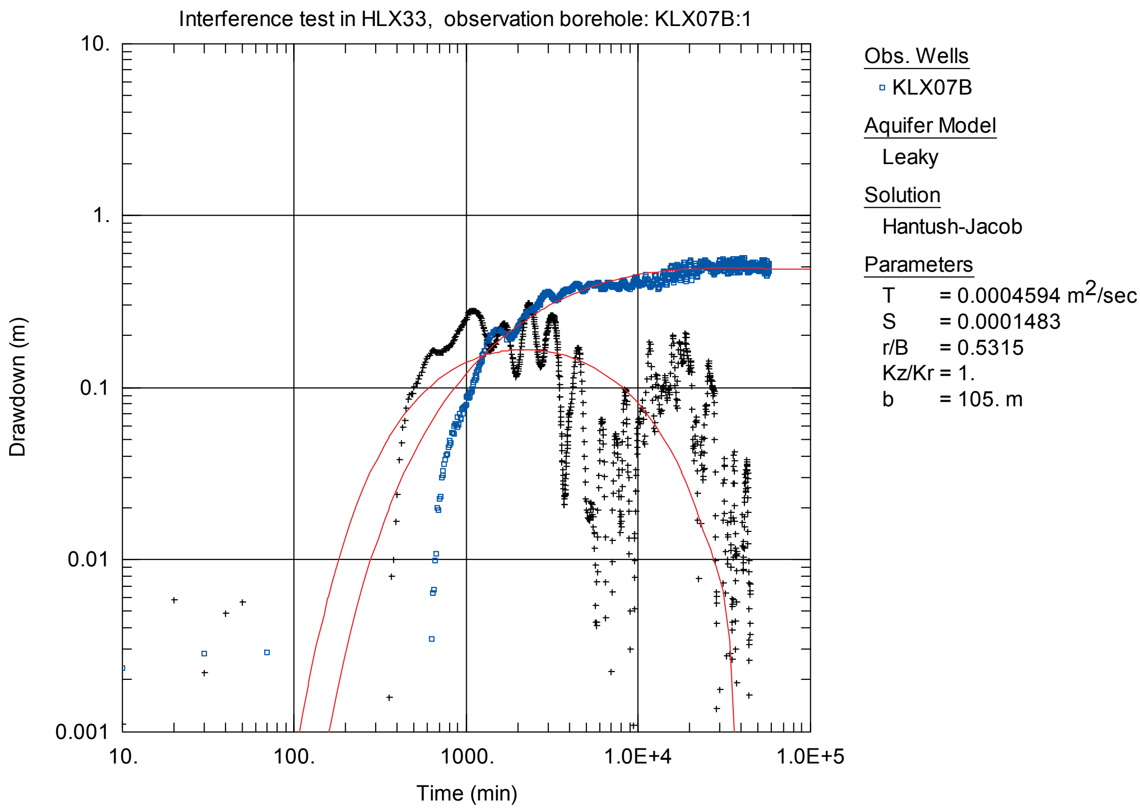


Figure 117. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07B:1 during pumping in borehole HLX33.*

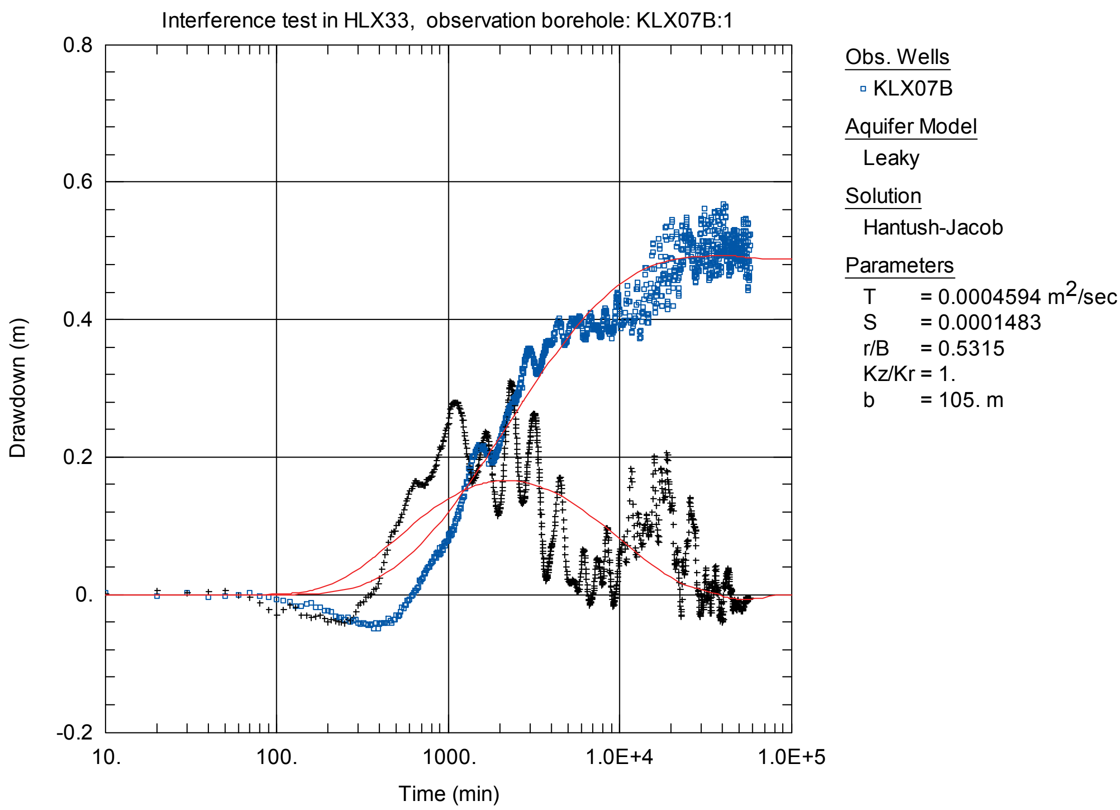


Figure 118. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07B:1 during pumping in borehole HLX33.*

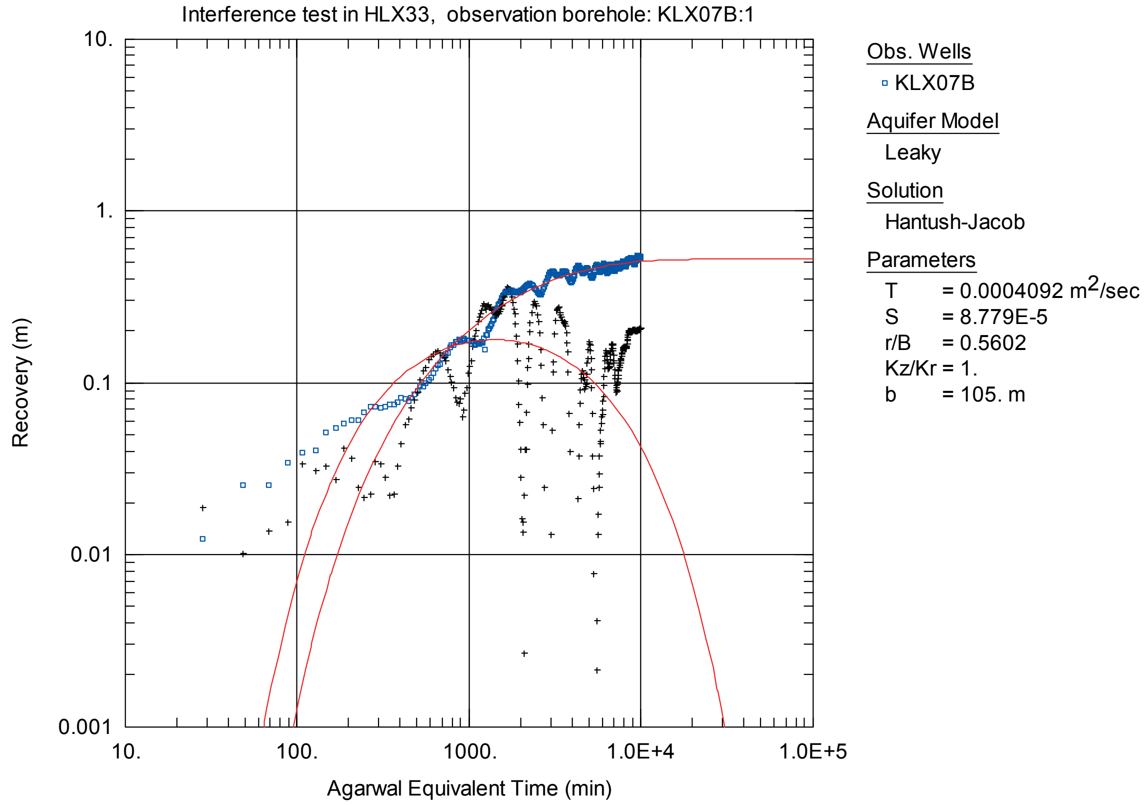


Figure 119. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07B:1 during pumping in borehole HLX33.*

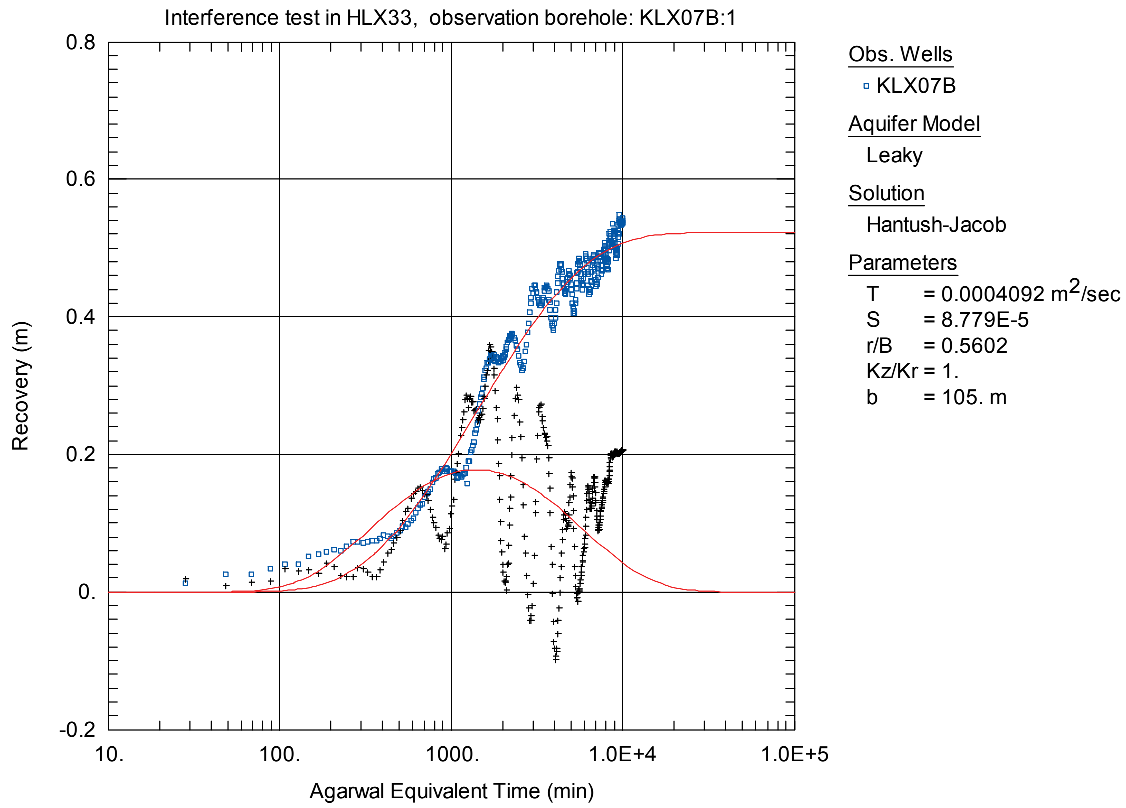


Figure 120. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07B:1 during pumping in borehole HLX33.*

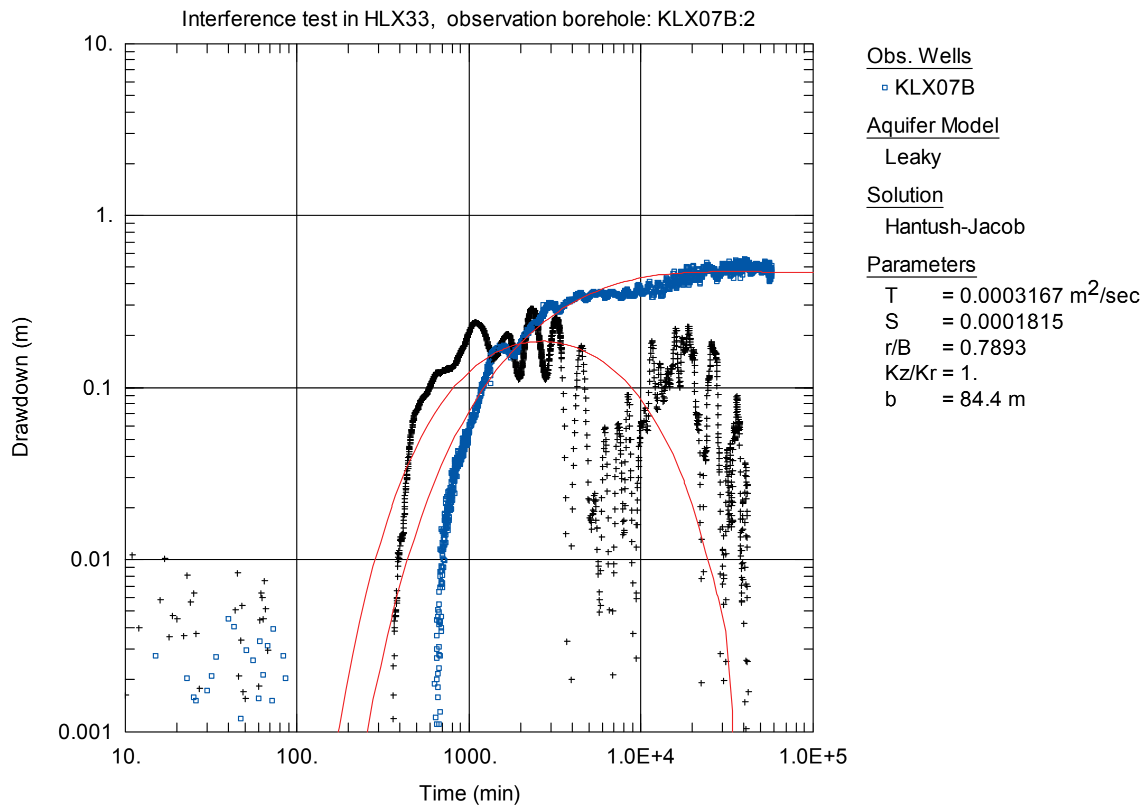


Figure 121. *Log-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07B:2 during pumping in borehole HLX33.*

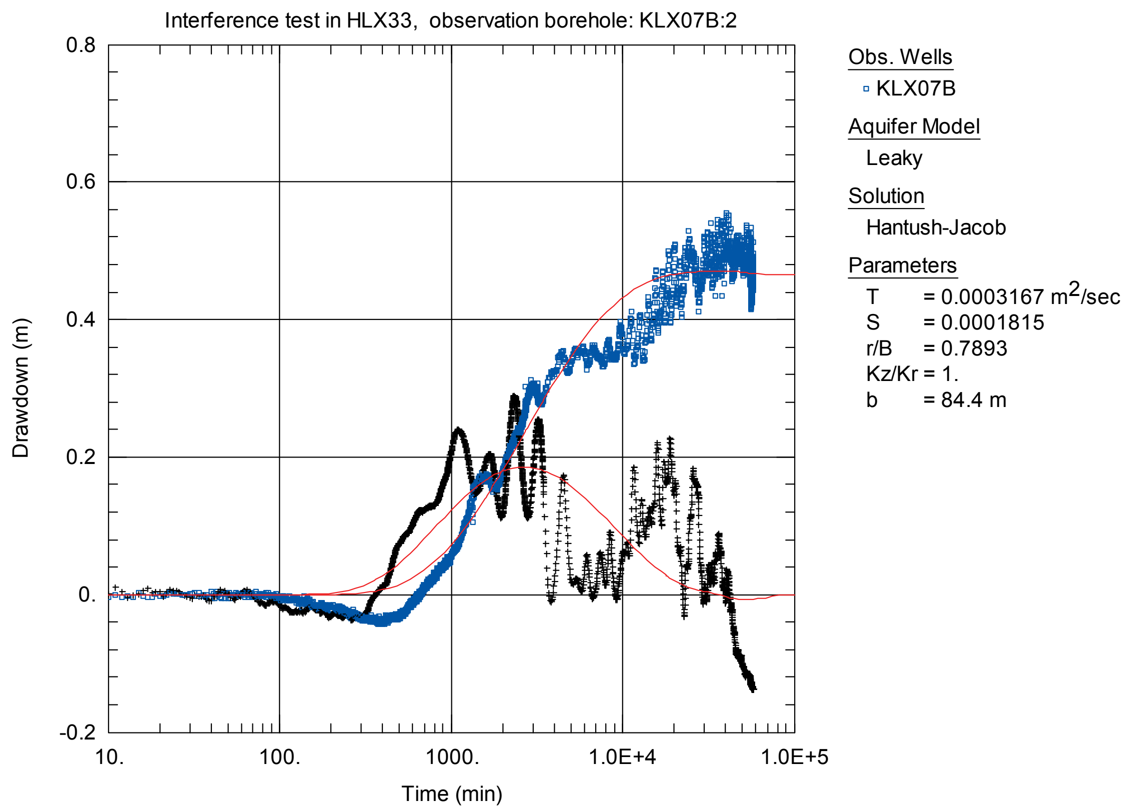


Figure 122. *Lin-log plot of drawdown (blue □) and drawdown derivative (black +) versus time together with simulated curves (red) in the observation borehole KLX07B:2 during pumping in borehole HLX33.*

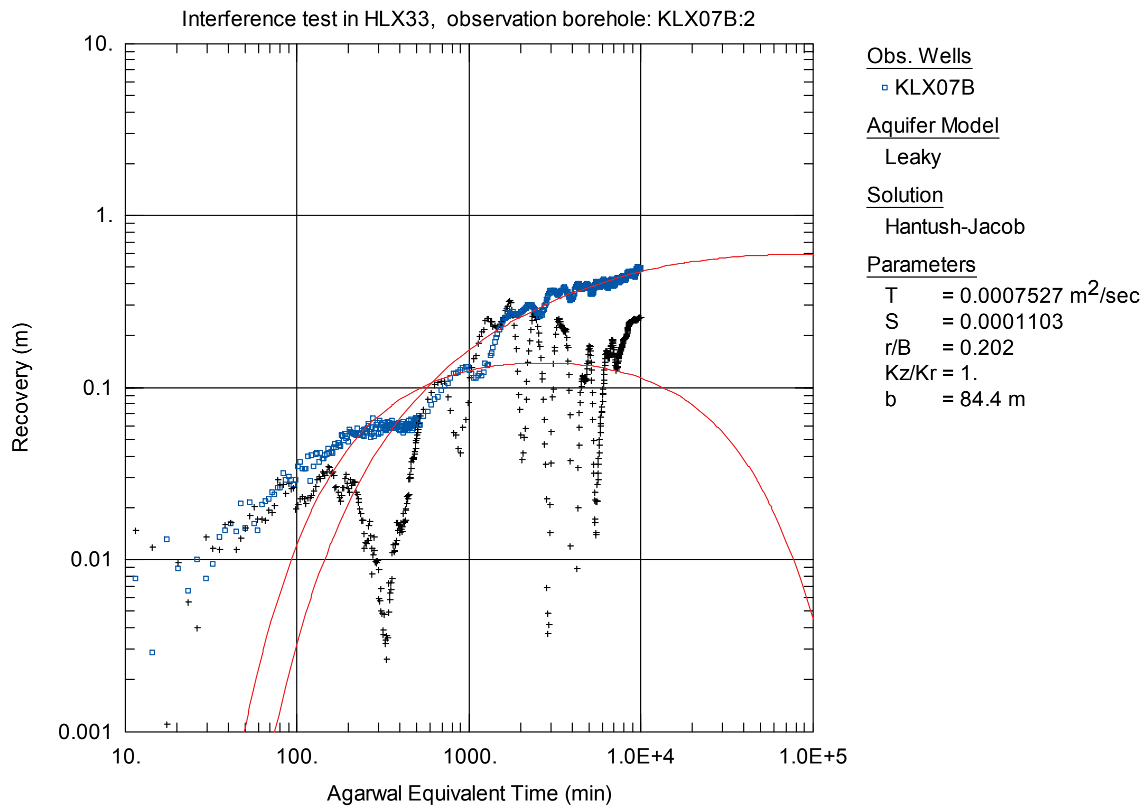


Figure 123. *Log-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07B:2 during pumping in borehole HLX33.*

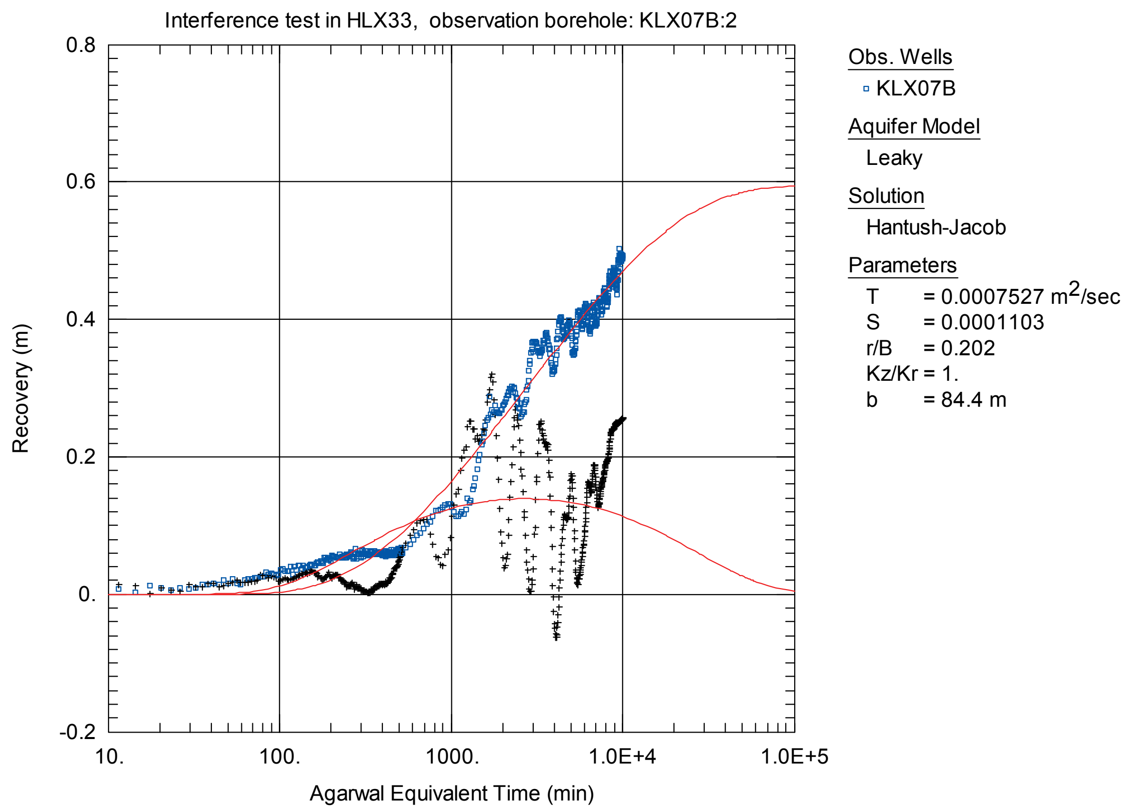
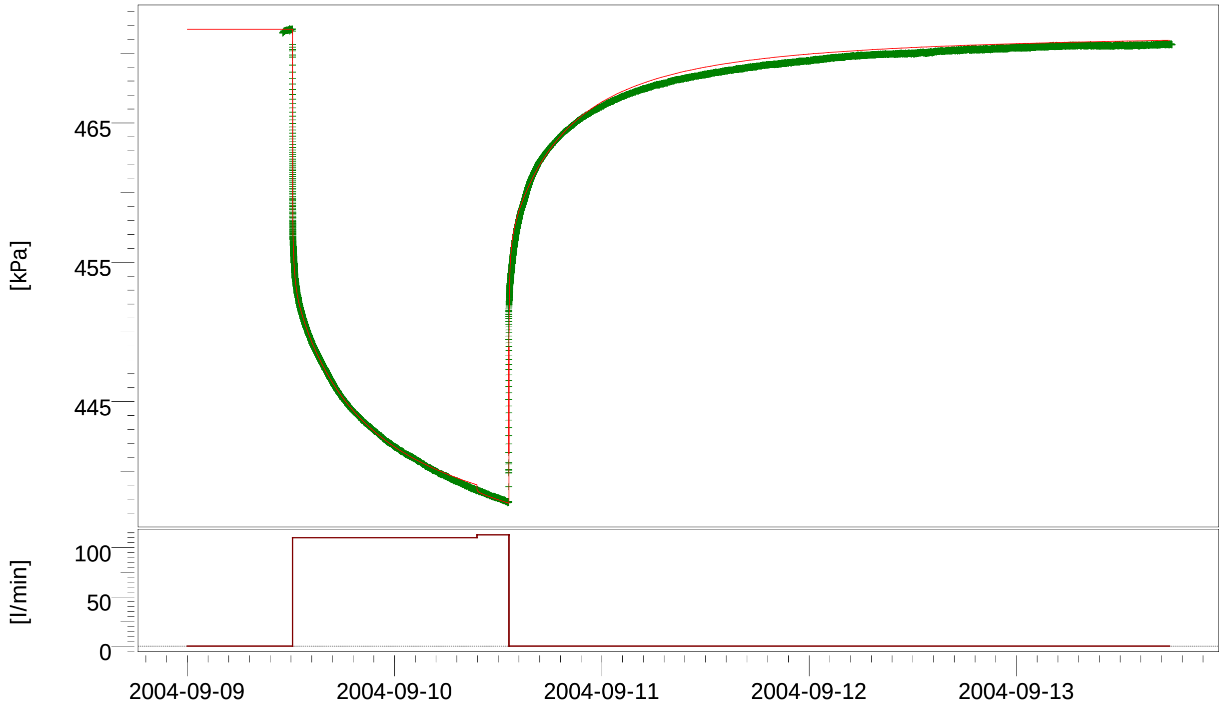


Figure 124. *Lin-log plot of pressure recovery (blue □) and -derivative (black +) versus equivalent time (dte) in the observation borehole KLX07B:2 during pumping in borehole HLX33.*

History plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX24

Field Laxemar
Test Name / # HLX24 pumping test



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX24pumptest_airpcorrected production #1

Rate	113 l/min
Rate change	113 l/min
P@dt=0	470.261 kPa
Pi	471.72 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.341 1/sec
PMatch	0.264 1/kPa
C	1.45E-6 m3/Pa
Total Skin	-2.49
T	7.81E-4 m2/s
K	4.7E-6 m/s
Pi	471.72 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	1.45E-6 m3/Pa
Skin	-2.49

Reservoir & Boundary parameters

Pi	471.72 kPa
T	7.81E-4 m2/s
K	4.7E-6 m/s
Ri	241 m
M	1.25
D	0.0381

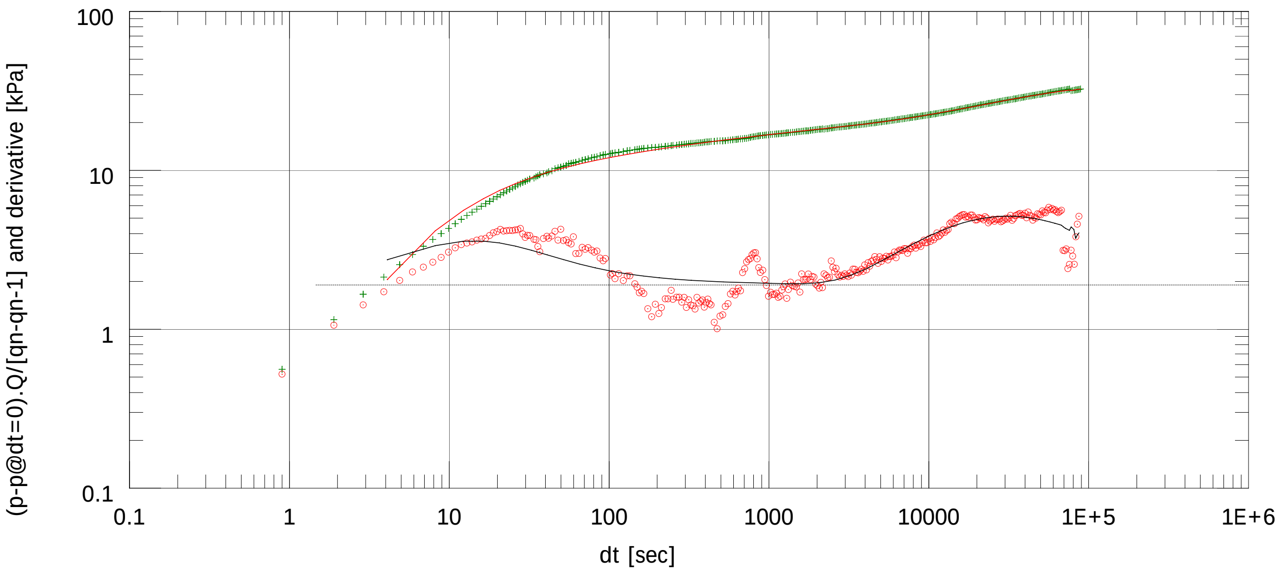
Derived & Secondary Parameters

Delta P (Total Skin)	-9.442 kPa
Delta P Ratio (Total Skin)	-0.277588 Fraction

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX24

Field Laxemar
Test Name / # HLX24 pumping test



HLX24pumptest_airpcorrected production #1

Rate	113 l/min
Rate change	113 l/min
P@dt=0	470.261 kPa
Pi	471.72 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.341 1/sec
PMatch	0.264 1/kPa
C	1.45E-6 m3/Pa
Total Skin	-2.49
T	7.81E-4 m2/s
K	4.7E-6 m/s
Pi	471.72 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	1.45E-6 m3/Pa
Skin	-2.49

Reservoir & Boundary parameters

Pi	471.72 kPa
T	7.81E-4 m2/s
K	4.7E-6 m/s
Ri	241 m
M	1.25
D	0.0381

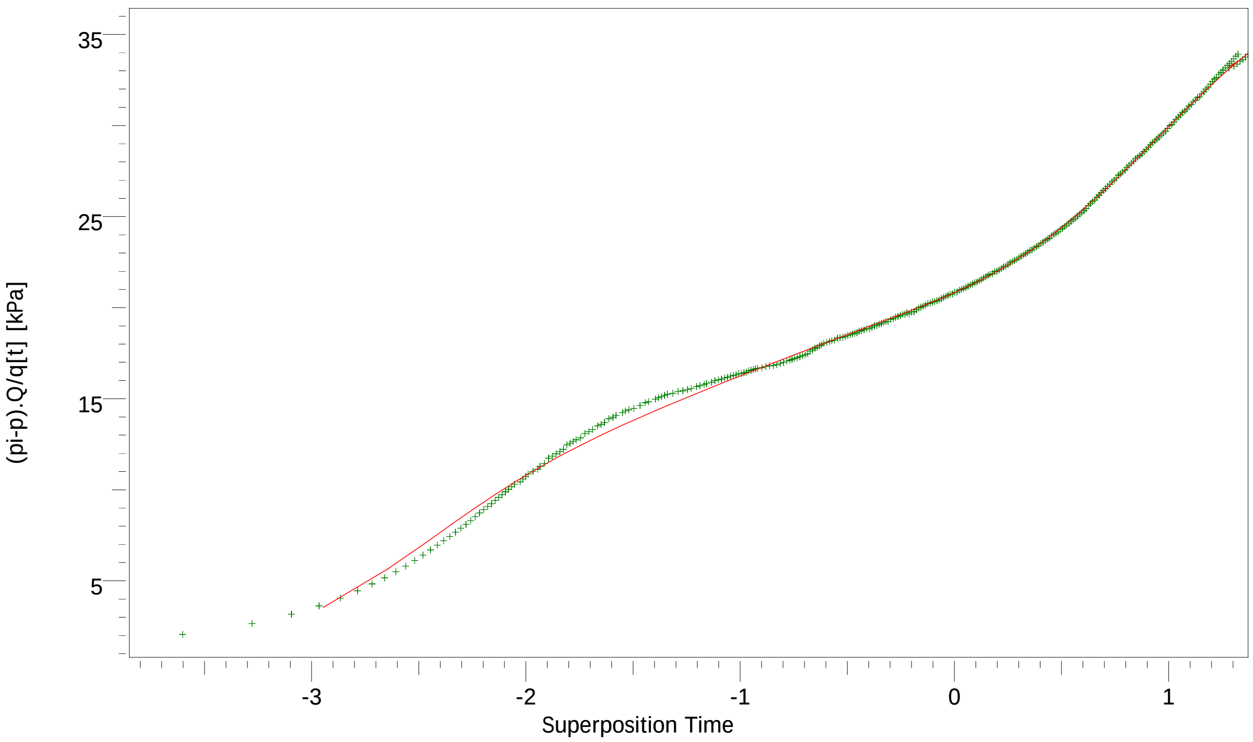
Derived & Secondary Parameters

Delta P (Total Skin)	-9.442 kPa
Delta P Ratio (Total Skin)	-0.277588 Fraction

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX24

Field Laxemar
Test Name / # HLX24 pumping test



HLX24pumptest_airpcorrected production #1

Rate	113 l/min
Rate change	113 l/min
P@dt=0	470.261 kPa
Pi	471.72 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.341 1/sec
PMatch	0.264 1/kPa
C	1.45E-6 m3/Pa
Total Skin	-2.49
T	7.81E-4 m2/s
K	4.7E-6 m/s
Pi	471.72 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	1.45E-6 m3/Pa
Skin	-2.49

Reservoir & Boundary parameters

Pi	471.72 kPa
T	7.81E-4 m2/s
K	4.7E-6 m/s
Ri	241 m
M	1.25
D	0.0381

Derived & Secondary Parameters

Delta P (Total Skin)	-9.442 kPa
Delta P Ratio (Total Skin)	-0.277588 Fraction

Main Results	Dd1

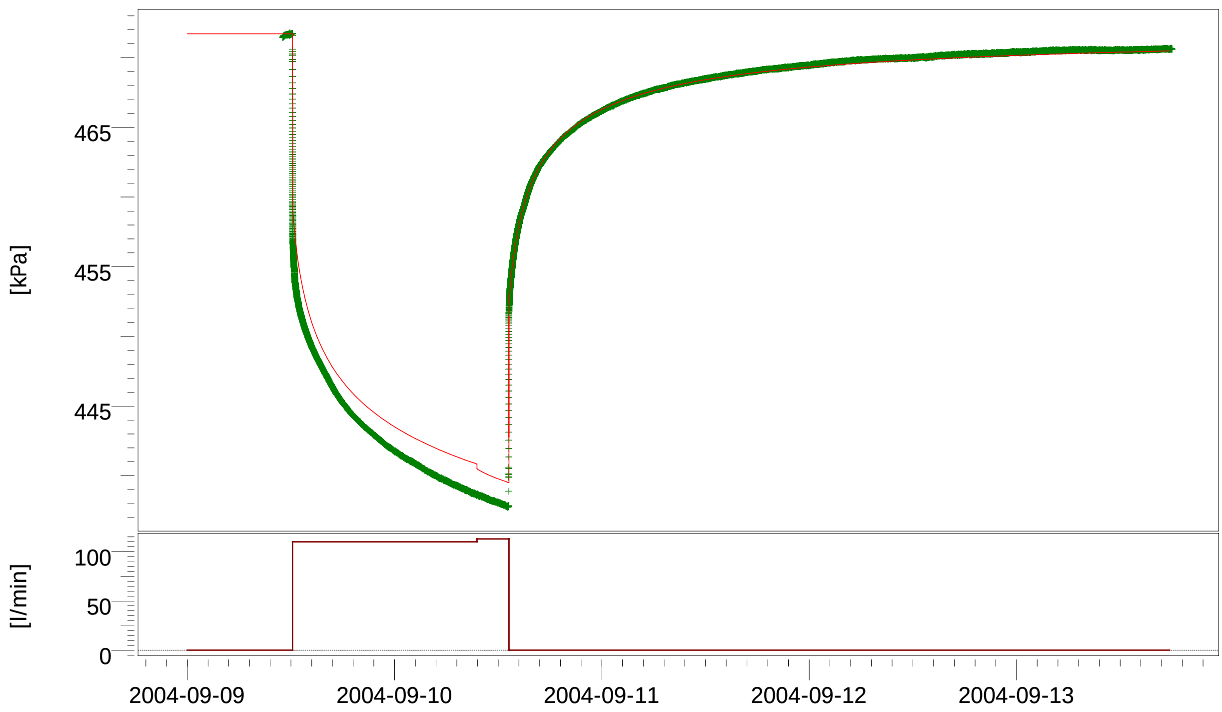
Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX24	Test Name / #	HLX24 pumping test

Test date / time	2004-09-09
Formation interval	9 - 175.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	166.1 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 kPa
Fluid type	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	1E-9 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite
Main Model Parameters	
TMatch	0.341 1/sec
PMatch	0.264 1/kPa
C	1.45E-6 m3/Pa
Total Skin	-2.49
T	7.81E-4 m2/s
K	4.7E-6 m/s
Pi	471.72 kPa
Model Parameters	
Well & Wellbore parameters (HLX24)	
C	1.45E-6 m3/Pa
Skin	-2.49
Reservoir & Boundary parameters	
Pi	471.72 kPa
T	7.81E-4 m2/s
K	4.7E-6 m/s
Ri	241 m
M	1.25
D	0.0381
Derived & Secondary Parameters	
Delta P (Total Skin)	-9.442 kPa
Delta P Ratio (Total Skin)	-0.277588 Fraction

History plot	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX24

Field Laxemar
Test Name / # HLX24 pumping test



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX24pumptest_airpcorrected build-up #1

Rate	0 l/min
Rate change	113 l/min
P@dt=0	437.77 kPa
Pi	471.72 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	2.56 1/sec
PMatch	2.76 1/kPa
C	2.03E-6 m3/Pa
Total Skin	28.3
T	0.00818 m2/s
K	4.93E-5 m/s
Pi	471.72 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	2.03E-6 m3/Pa
Skin	28.3

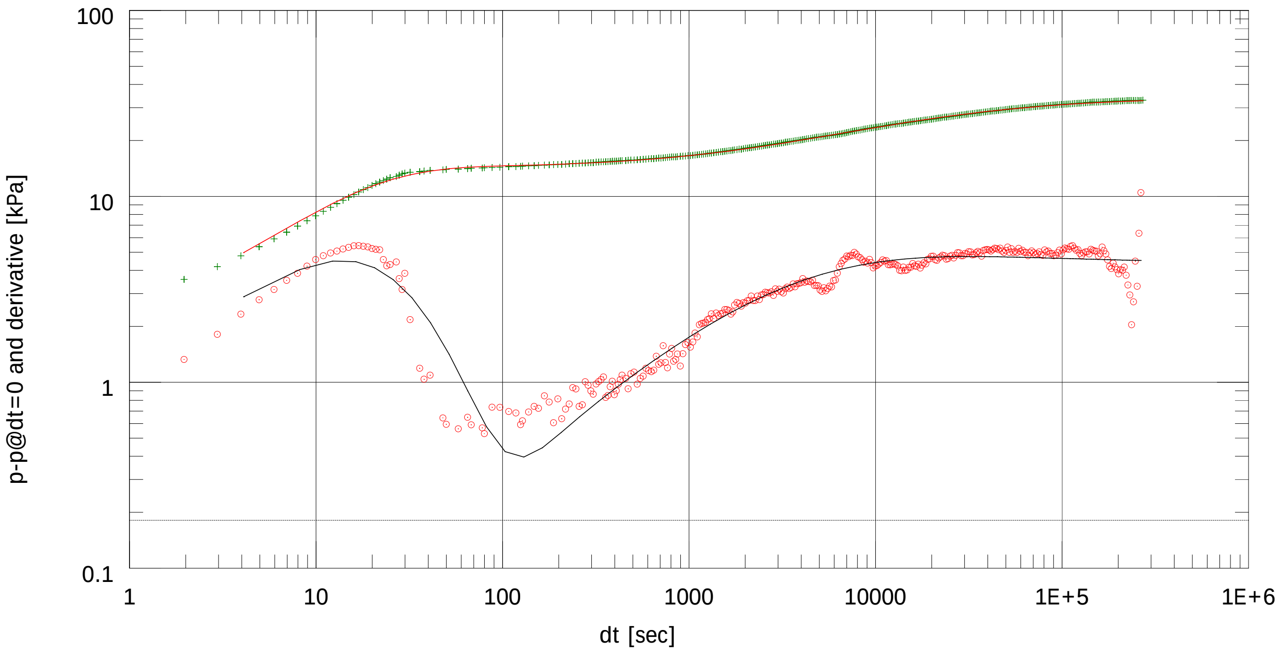
Reservoir & Boundary parameters

Pi	471.72 kPa
T	0.00818 m2/s
K	4.93E-5 m/s
Ri	105 m
M	24.1
D	10.1

Derived & Secondary Parameters

Delta P (Total Skin)	10.2511 kPa
Delta P Ratio (Total Skin)	0.330841 Fraction

Log-Log plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX24	Field Laxemar Test Name / # HLX24 pumping test



HLX24pumptest_airpcorrected build-up #1

Rate	0 l/min
Rate change	113 l/min
P@dt=0	437.77 kPa
Pi	471.72 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	2.56 1/sec
PMatch	2.76 1/kPa
C	2.03E-6 m3/Pa
Total Skin	28.3
T	0.00818 m2/s
K	4.93E-5 m/s
Pi	471.72 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	2.03E-6 m3/Pa
Skin	28.3

Reservoir & Boundary parameters

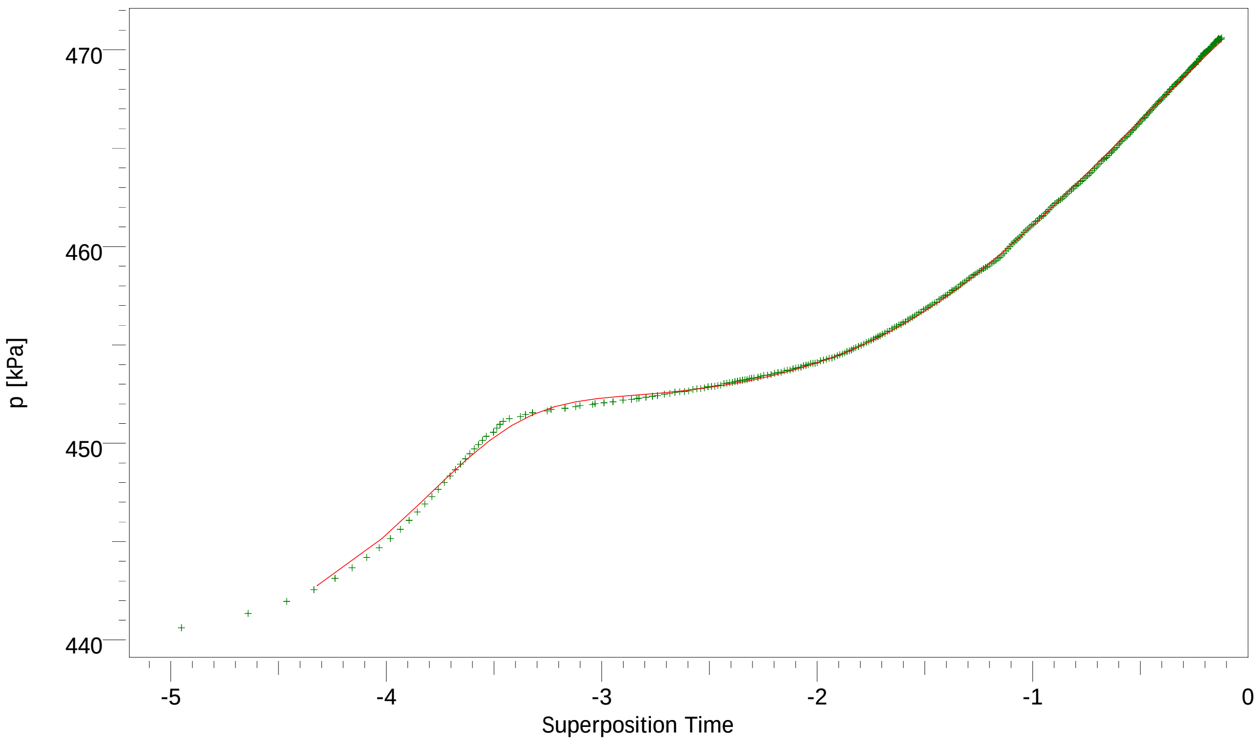
Pi	471.72 kPa
T	0.00818 m2/s
K	4.93E-5 m/s
Ri	105 m
M	24.1
D	10.1

Derived & Secondary Parameters

Delta P (Total Skin)	10.2511 kPa
Delta P Ratio (Total Skin)	0.330841 Fraction

Semi-Log plot	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX24
Field Laxemar
Test Name / # HLX24 pumping test



HLX24pumptest_airpcorrected build-up #1

Rate	0 l/min
Rate change	113 l/min
P@dt=0	437.77 kPa
Pi	471.72 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	2.56 1/sec
PMatch	2.76 1/kPa
C	2.03E-6 m3/Pa
Total Skin	28.3
T	0.00818 m2/s
K	4.93E-5 m/s
Pi	471.72 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	2.03E-6 m3/Pa
Skin	28.3

Reservoir & Boundary parameters

Pi	471.72 kPa
T	0.00818 m2/s
K	4.93E-5 m/s
Ri	105 m
M	24.1
D	10.1

Derived & Secondary Parameters

Delta P (Total Skin)	10.2511 kPa
Delta P Ratio (Total Skin)	0.330841 Fraction

Main Results	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX24
Field Laxemar
Test Name / # HLX24 pumping test

Test date / time	2004-09-09
Formation interval	9 - 175.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	166.1 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 kPa
Fluid type	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	1E-9 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	2.56 1/sec
PMatch	2.76 1/kPa
C	2.03E-6 m3/Pa
Total Skin	28.3
T	0.00818 m2/s
K	4.93E-5 m/s
Pi	471.72 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	2.03E-6 m3/Pa
Skin	28.3

Reservoir & Boundary parameters

Pi	471.72 kPa
T	0.00818 m2/s
K	4.93E-5 m/s
Ri	105 m
M	24.1
D	10.1

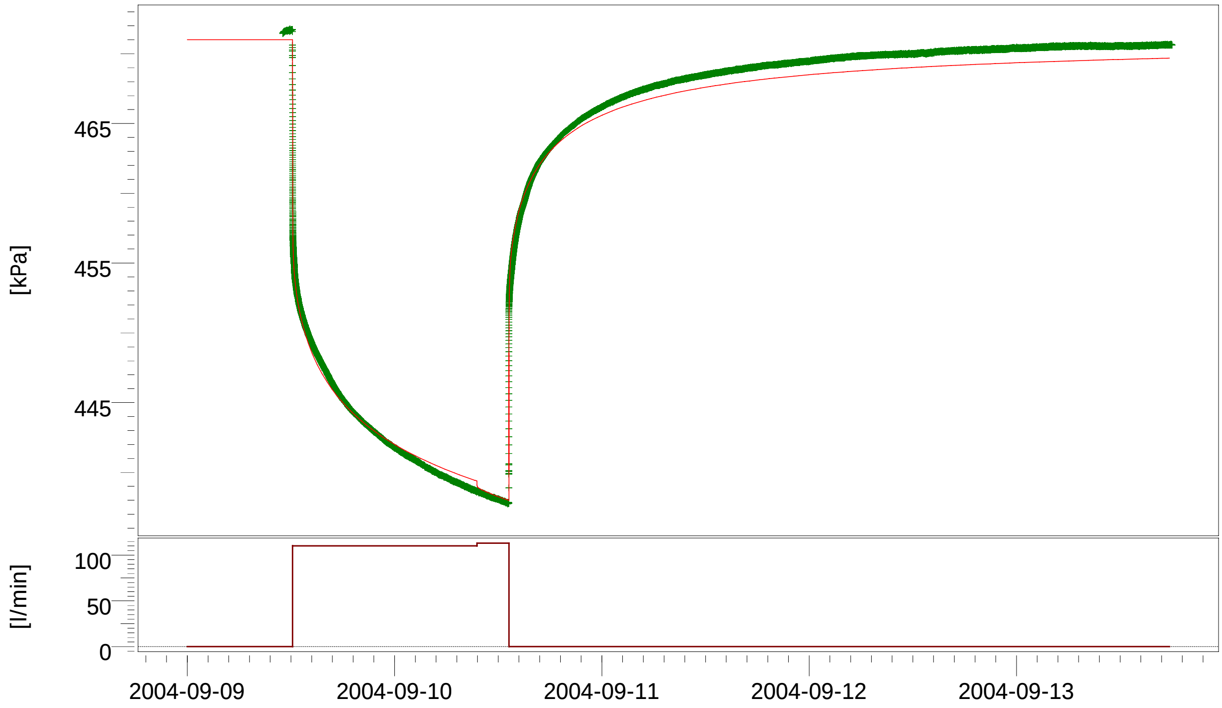
Derived & Secondary Parameters

Delta P (Total Skin)	10.2511 kPa
Delta P Ratio (Total Skin)	0.330841 Fraction

History plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX24

Field Laxemar
Test Name / # HLX24 pumping test



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX24pumptest_airpcorrected production #1

Rate	113 l/min
Rate change	113 l/min
P@dt=0	470.261 kPa
Pi	471 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.222 1/sec
PMatch	0.354 1/kPa
C	3.01E-6 m3/Pa
Total Skin	-1.15
T	0.00105 m2/s
K	6.33E-6 m/s
Pi	471 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	3.01E-6 m3/Pa
Skin	-1.15

Reservoir & Boundary parameters

Pi	471 kPa
T	0.00105 m2/s
K	6.33E-6 m/s
Ri	132 m
M	3.42
D	3.42

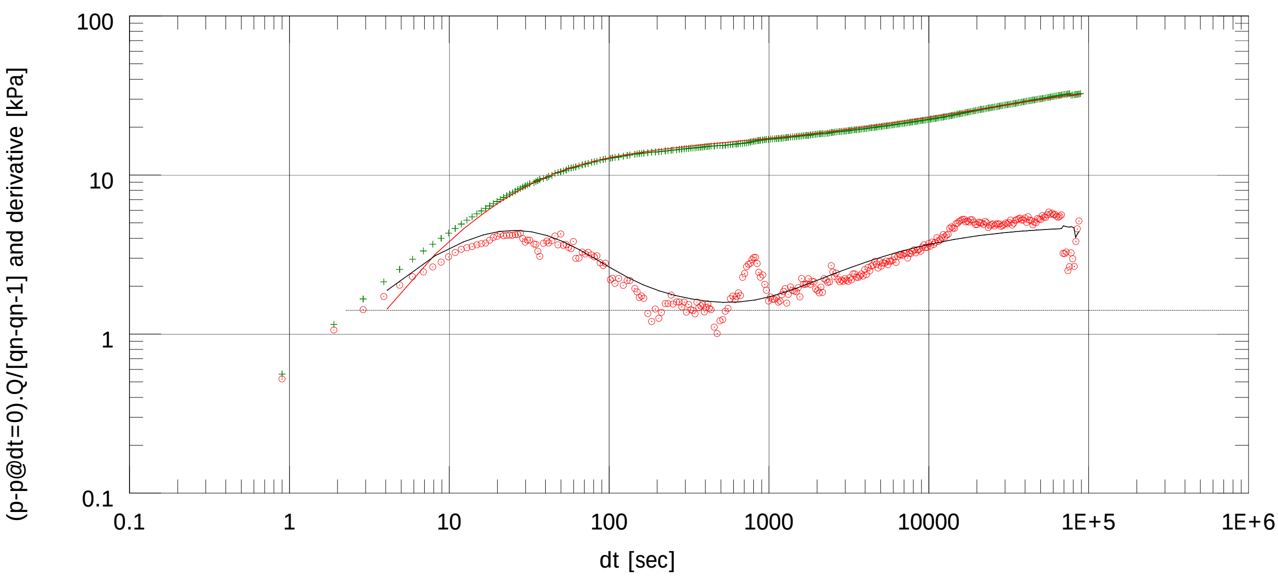
Derived & Secondary Parameters

Delta P (Total Skin)	-3.25248 kPa
Delta P Ratio (Total Skin)	-0.0985462 Fraction

Log-Log plot	Dd1

Company Svensk Kärnbränslehantering AB — Field Laxemar

Well HLX24 — Test Name / # HLX24 pumping test



HLX24pumptest_airpcorrected production #1

Rate	113 l/min
Rate change	113 l/min
P@dt=0	470.261 kPa
Pi	471 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.222 1/sec
PMatch	0.354 1/kPa
C	3.01E-6 m3/Pa
Total Skin	-1.15
T	0.00105 m2/s
K	6.33E-6 m/s
Pi	471 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	3.01E-6 m3/Pa
Skin	-1.15

Reservoir & Boundary parameters

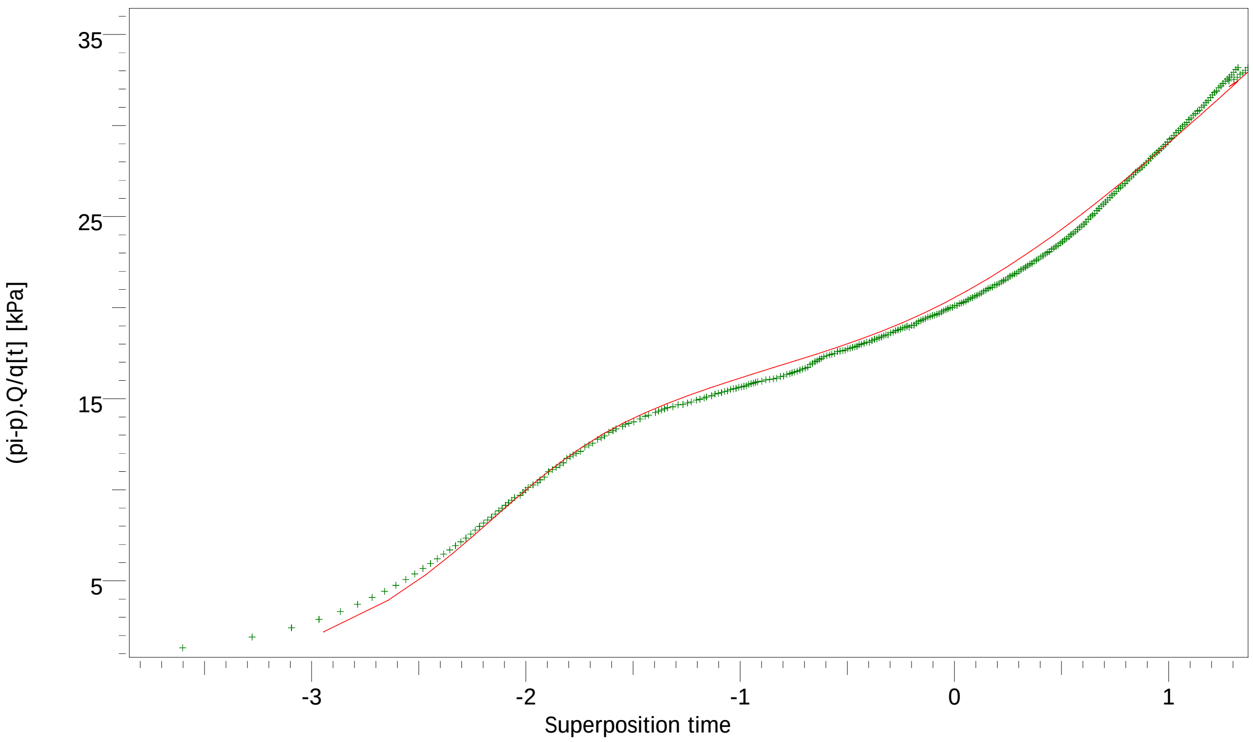
Pi	471 kPa
T	0.00105 m2/s
K	6.33E-6 m/s
Ri	132 m
M	3.42
D	3.42

Derived & Secondary Parameters

Delta P (Total Skin)	-3.25248 kPa
Delta P Ratio (Total Skin)	-0.0985462 Fraction

Semi-Log plot	Dd1

Company Svensk Kärnbränslehantering AB
Well HLX24
Field Laxemar
Test Name / # HLX24 pumping test



HLX24pumptest_airpcorrected production #1

Rate	113 l/min
Rate change	113 l/min
P@dt=0	470.261 kPa
Pi	471 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.222 1/sec
PMatch	0.354 1/kPa
C	3.01E-6 m3/Pa
Total Skin	-1.15
T	0.00105 m2/s
K	6.33E-6 m/s
Pi	471 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	3.01E-6 m3/Pa
Skin	-1.15

Reservoir & Boundary parameters

Pi	471 kPa
T	0.00105 m2/s
K	6.33E-6 m/s
Ri	132 m
M	3.42
D	3.42

Derived & Secondary Parameters

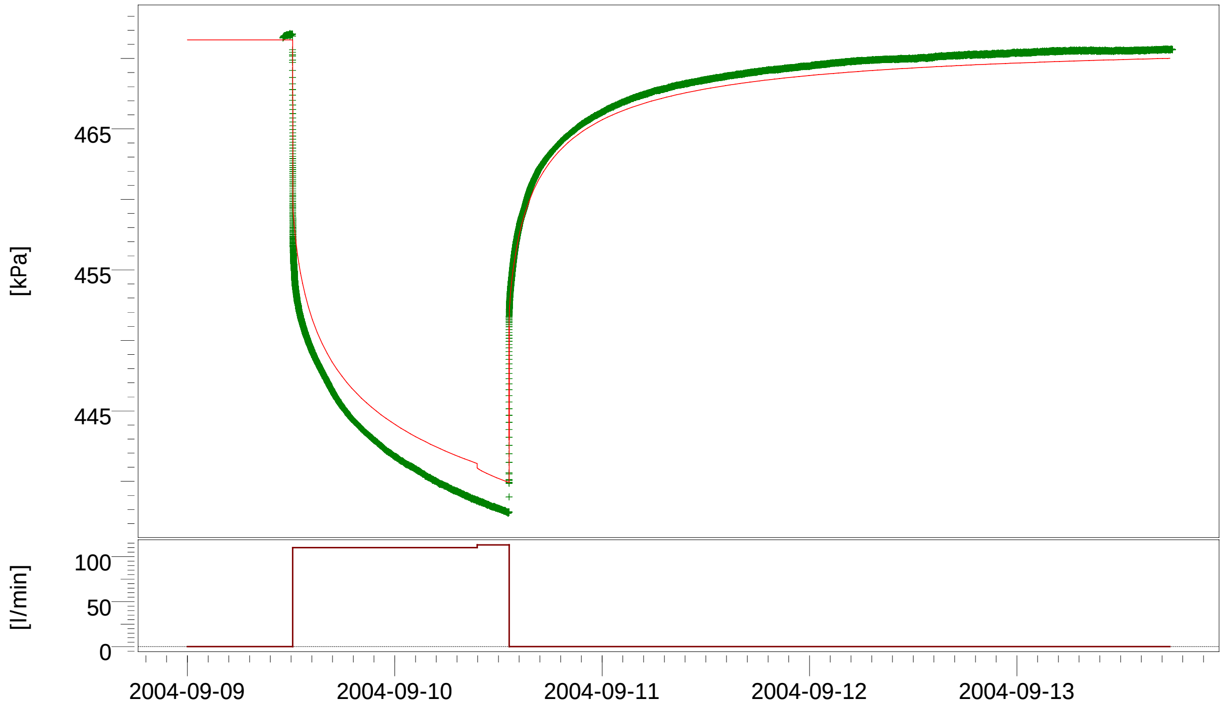
Delta P (Total Skin)	-3.25248 kPa
Delta P Ratio (Total Skin)	-0.0985462 Fraction

Main Results	Dd1

Company	Svensk Kärnbränslehantering AB	Field	Laxemar
Well	HLX24	Test Name / #	HLX24 pumping test

Test date / time	2004-09-09
Formation interval	9 - 175.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	166.1 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	1E-11 Pa-1
Selected Model	
Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite
Main Model Parameters	
TMatch	0.222 1/sec
PMatch	0.354 1/kPa
C	3.01E-6 m3/Pa
Total Skin	-1.15
T	0.00105 m2/s
K	6.33E-6 m/s
Pi	471 kPa
Model Parameters	
Well & Wellbore parameters (HLX24)	
C	3.01E-6 m3/Pa
Skin	-1.15
Reservoir & Boundary parameters	
Pi	471 kPa
T	0.00105 m2/s
K	6.33E-6 m/s
Ri	132 m
M	3.42
D	3.42
Derived & Secondary Parameters	
Delta P (Total Skin)	-3.25248 kPa
Delta P Ratio (Total Skin)	-0.0985462 Fraction

History plot	Bu1
Company Svensk Kärnbränslehantering AB Well HLX24	Field Laxemar Test Name / # HLX24 pumping test



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

HLX24pumptest_airpcorrected build-up #1

Rate	0 l/min
Rate change	113 l/min
P@dt=0	439.919 kPa
Pi	471.314 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	1.05 1/sec
PMatch	1.2 1/kPa
C	2.15E-6 m3/Pa
Total Skin	7.8
T	0.00354 m2/s
K	2.13E-5 m/s
Pi	471.314 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	2.15E-6 m3/Pa
Skin	7.8

Reservoir & Boundary parameters

Pi	471.314 kPa
T	0.00354 m2/s
K	2.13E-5 m/s
Ri	111 m
M	11.1
D	5.88

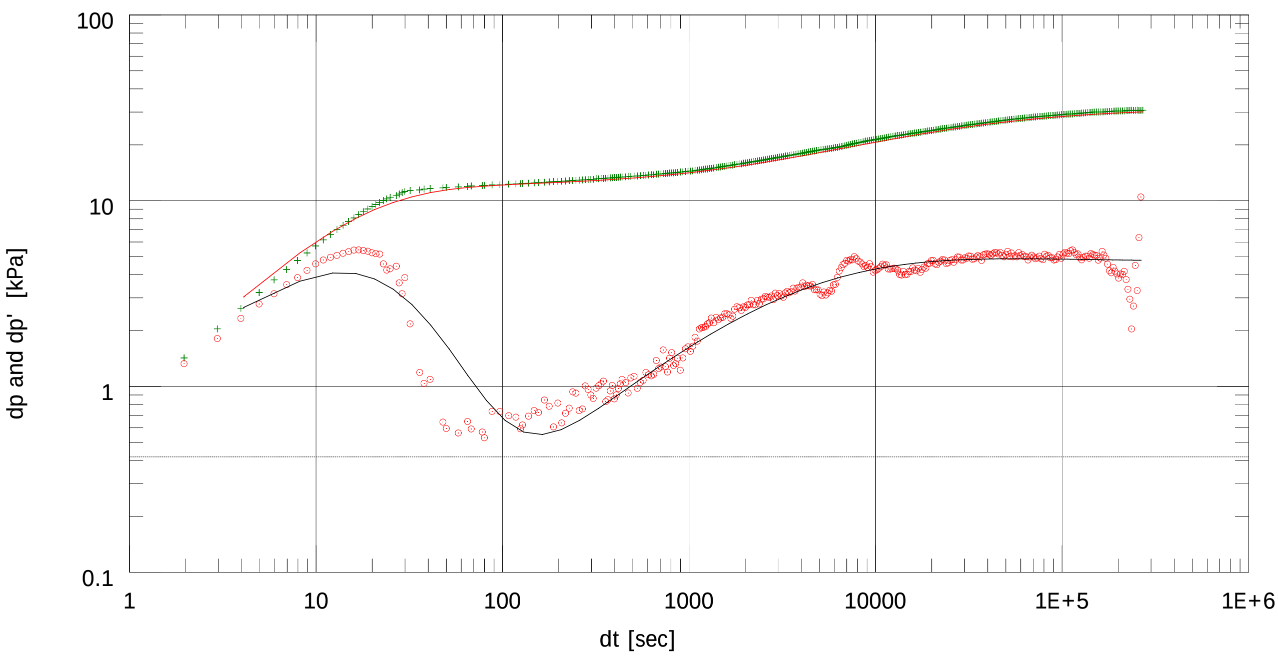
Derived & Secondary Parameters

Delta P (Total Skin)	6.5256 kPa
Delta P Ratio (Total Skin)	0.216895 Fraction

Log-Log plot	Bu1

Company Svensk Kärnbränslehantering AB
Well HLX24

Field Laxemar
Test Name / # HLX24 pumping test



HLX24pumptest_airpcorrected build-up #1

Rate	0 l/min
Rate change	113 l/min
P@dt=0	439.919 kPa
Pi	471.314 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	1.05 1/sec
PMatch	1.2 1/kPa
C	2.15E-6 m3/Pa
Total Skin	7.8
T	0.00354 m2/s
K	2.13E-5 m/s
Pi	471.314 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	2.15E-6 m3/Pa
Skin	7.8

Reservoir & Boundary parameters

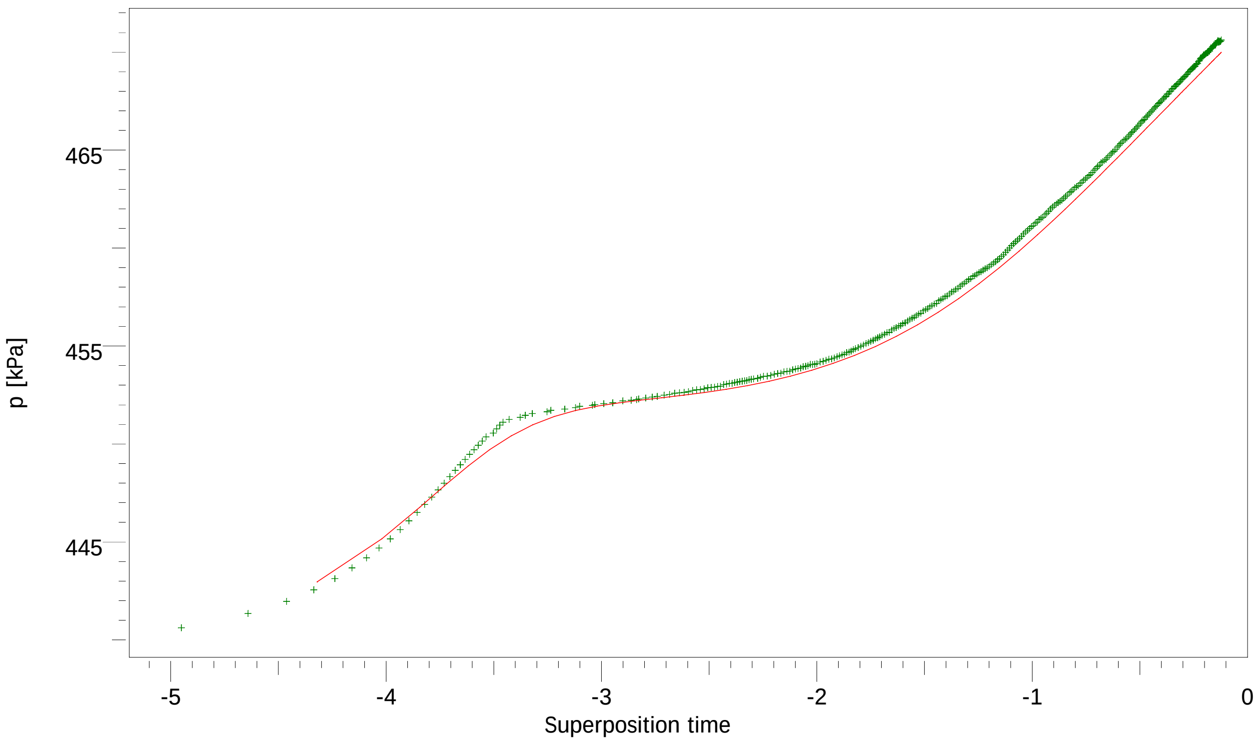
Pi	471.314 kPa
T	0.00354 m2/s
K	2.13E-5 m/s
Ri	111 m
M	11.1
D	5.88

Derived & Secondary Parameters

Delta P (Total Skin)	6.5256 kPa
Delta P Ratio (Total Skin)	0.216895 Fraction

Semi-Log plot	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX24 — Test Name / # HLX24 pumping test



HLX24pumptest_airpcorrected build-up #1

Rate	0 l/min
Rate change	113 l/min
P@dt=0	439.919 kPa
Pi	471.314 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	1.05 1/sec
PMatch	1.2 1/kPa
C	2.15E-6 m3/Pa
Total Skin	7.8
T	0.00354 m2/s
K	2.13E-5 m/s
Pi	471.314 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	2.15E-6 m3/Pa
Skin	7.8

Reservoir & Boundary parameters

Pi	471.314 kPa
T	0.00354 m2/s
K	2.13E-5 m/s
Ri	111 m
M	11.1
D	5.88

Derived & Secondary Parameters

Delta P (Total Skin)	6.5256 kPa
Delta P Ratio (Total Skin)	0.216895 Fraction

Main Results	Bu1

Company Svensk Kärnbränslehantering AB — Field Laxemar
Well HLX24 — Test Name / # HLX24 pumping test

Test date / time	2004-09-09
Formation interval	9 - 175.2m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	166.1 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	10 °C
Reservoir P	2000 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	1E-11 Pa-1

Selected Model

Model Option	Standard Model
Well	Vertical
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	1.05 1/sec
PMatch	1.2 1/kPa
C	2.15E-6 m3/Pa
Total Skin	7.8
T	0.00354 m2/s
K	2.13E-5 m/s
Pi	471.314 kPa

Model Parameters

Well & Wellbore parameters (HLX24)

C	2.15E-6 m3/Pa
Skin	7.8

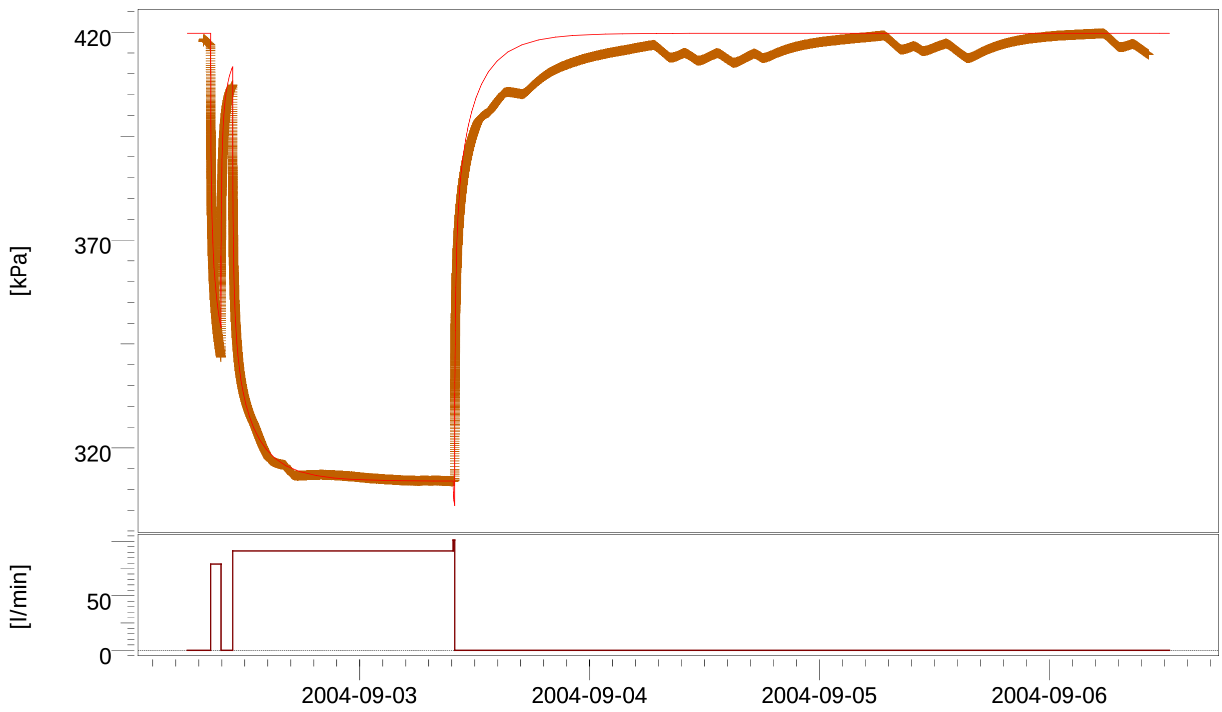
Reservoir & Boundary parameters

Pi	471.314 kPa
T	0.00354 m2/s
K	2.13E-5 m/s
Ri	111 m
M	11.1
D	5.88

Derived & Secondary Parameters

Delta P (Total Skin)	6.5256 kPa
Delta P Ratio (Total Skin)	0.216895 Fraction

History plot	Dd2
Company Svensk Kärnbränslehatering AB Well HLX25	Field Laxemar Test Name / # Pumping test HLX25



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

Pressures 3 production #2

Rate	101.05 l/min
Rate change	101.05 l/min
P@dt=0	407.087 kPa
Pi	419.754 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Fracture - Uniform flux
Reservoir	Homogeneous
Boundary	Parallel faults

Main Model Parameters

TMatch	0.00286 1/sec
PMatch	0.03 1/kPa
C	2.59E-7 m3/Pa
Total Skin	-6.28
T	7.88E-5 m2/s
K	1.58E-5 m/s
Pi	419.754 kPa

Model Parameters

Well & Wellbore parameters (HLX25)

C	2.59E-7 m3/Pa
Skin	0.111
Geometrical Skin	-6.39
Xf	114 m
Theta	1.5708 Radians

Reservoir & Boundary parameters

Pi	419.754 kPa
T	7.88E-5 m2/s
K	1.58E-5 m/s
S - Constant P.	1070 m
N - Constant P.	1060 m

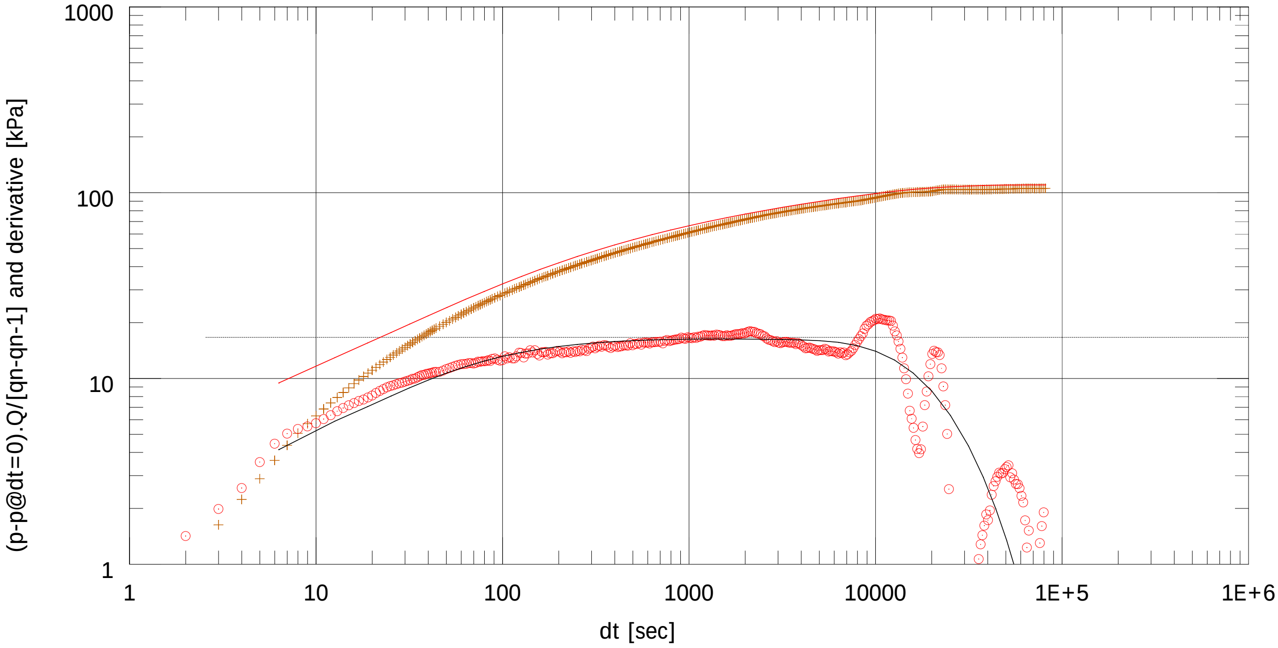
Derived & Secondary Parameters

Delta P (Total Skin)	-209.337 kPa
Delta P Ratio (Total Skin)	-1.9825 Fraction

Log-Log plot	Dd2

Company Svensk Kärnbränslehatering AB
Well HLX25

Field Laxemar
Test Name / # Pumping test HLX25



Pressures 3 production #2

Rate	101.05 l/min
Rate change	101.05 l/min
P@dt=0	407.087 kPa
Pi	419.754 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Fracture - Uniform flux
Reservoir	Homogeneous
Boundary	Parallel faults

Main Model Parameters

TMatch	0.00286 1/sec
PMatch	0.03 1/kPa
C	2.59E-7 m3/Pa
Total Skin	-6.28
T	7.88E-5 m2/s
K	1.58E-5 m/s
Pi	419.754 kPa

Model Parameters

Well & Wellbore parameters (HLX25)

C	2.59E-7 m3/Pa
Skin	0.111
Geometrical Skin	-6.39
Xf	114 m
Theta	1.5708 Radians

Reservoir & Boundary parameters

Pi	419.754 kPa
T	7.88E-5 m2/s
K	1.58E-5 m/s
S - Constant P.	1070 m
N - Constant P.	1060 m

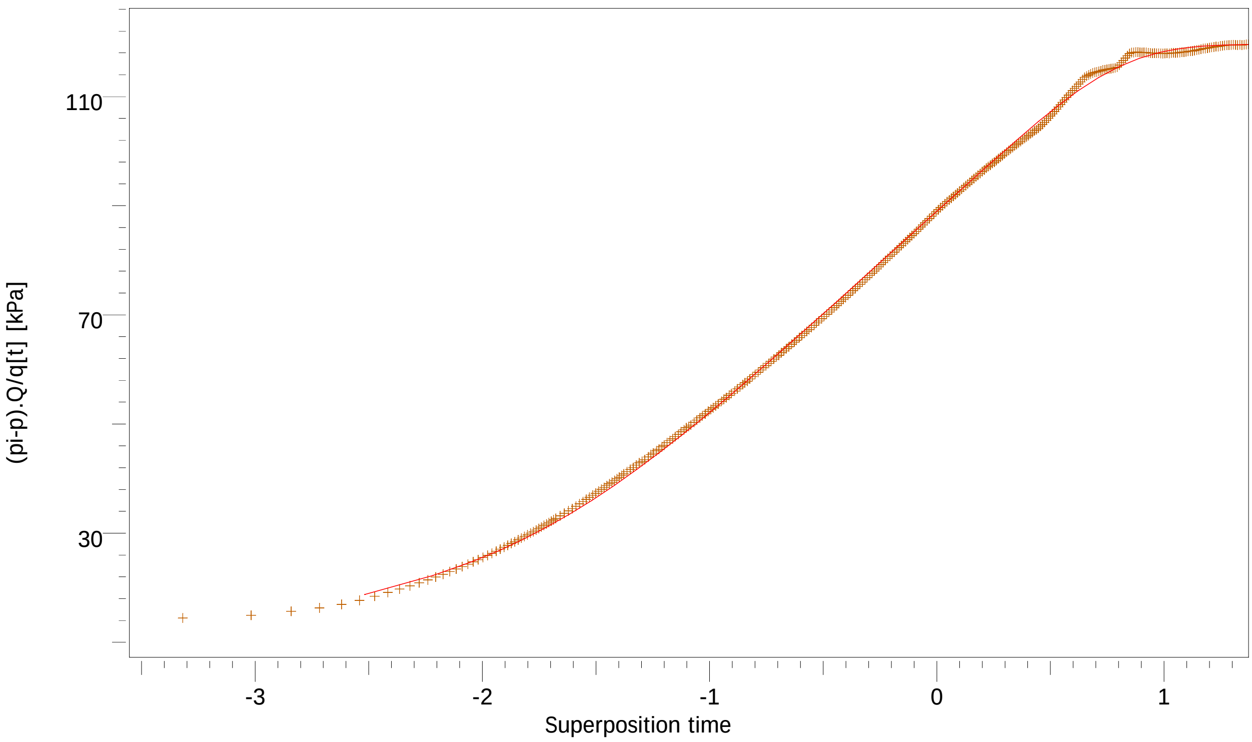
Derived & Secondary Parameters

Delta P (Total Skin)	-209.337 kPa
Delta P Ratio (Total Skin)	-1.9825 Fraction

Semi-Log plot	Dd2

Company Svensk Kärnbränslehatering AB
Well HLX25

Field Laxemar
Test Name / # Pumping test HLX25



Pressures 3 production #2

Rate	101.05 l/min
Rate change	101.05 l/min
P@dt=0	407.087 kPa
Pi	419.754 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Fracture - Uniform flux
Reservoir	Homogeneous
Boundary	Parallel faults

Main Model Parameters

TMatch	0.00286 1/sec
PMatch	0.03 1/kPa
C	2.59E-7 m3/Pa
Total Skin	-6.28
T	7.88E-5 m2/s
K	1.58E-5 m/s
Pi	419.754 kPa

Model Parameters

Well & Wellbore parameters (HLX25)

C	2.59E-7 m3/Pa
Skin	0.111
Geometrical Skin	-6.39
Xf	114 m
Theta	1.5708 Radians

Reservoir & Boundary parameters

Pi	419.754 kPa
T	7.88E-5 m2/s
K	1.58E-5 m/s
S - Constant P.	1070 m
N - Constant P.	1060 m

Derived & Secondary Parameters

Delta P (Total Skin)	-209.337 kPa
Delta P Ratio (Total Skin)	-1.9825 Fraction

Main Results	Dd2

Company Svensk Kärnbränslehatering AB — Field Laxemar
Well HLX25 — Test Name / # Pumping test HLX25

Test date / time	2004-09-02
Formation interval	6 - 202.5m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	5 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	34473.8 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Fracture - Uniform flux
Reservoir	Homogeneous
Boundary	Parallel faults

Main Model Parameters

TMatch	0.00286 1/sec
PMatch	0.03 1/kPa
C	2.59E-7 m3/Pa
Total Skin	-6.28
T	7.88E-5 m2/s
K	1.58E-5 m/s
Pi	419.754 kPa

Model Parameters

Well & Wellbore parameters (HLX25)

C	2.59E-7 m3/Pa
Skin	0.111
Geometrical Skin	-6.39
Xf	114 m
Theta	1.5708 Radians

Reservoir & Boundary parameters

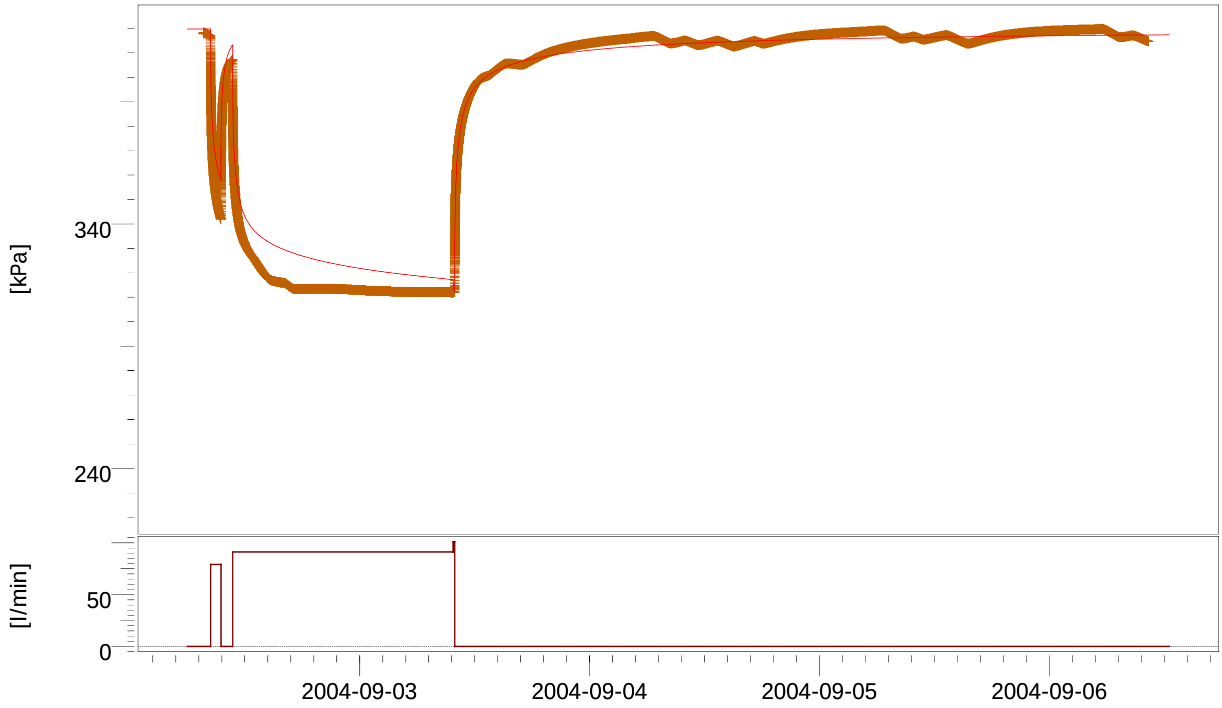
Pi	419.754 kPa
T	7.88E-5 m2/s
K	1.58E-5 m/s
S - Constant P.	1070 m
N - Constant P.	1060 m

Derived & Secondary Parameters

Delta P (Total Skin)	-209.337 kPa
Delta P Ratio (Total Skin)	-1.9825 Fraction

History plot	Bu2

Company Svensk Kärnbränslehatering AB — Field Laxemar
Well HLX25 — Test Name / # Pumping test HLX25



Pressure [kPa], Liquid Rate [l/min] vs Time [ToD]

Pressures 3 build-up #2	
Rate	0 l/min
Rate change	101.05 l/min
P@dt=0	312.075 kPa
Pi	419.754 kPa
Smoothing	0.1

Selected Model	
Model Option	Standard Model
Well	Fracture - Infinite conductivity
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters	
TMatch	0.63 1/sec
PMatch	0.0865 1/kPa
C	2.52E-6 m3/Pa
Total Skin	-4.52
T	2.27E-4 m2/s
K	4.54E-5 m/s
Pi	419.754 kPa

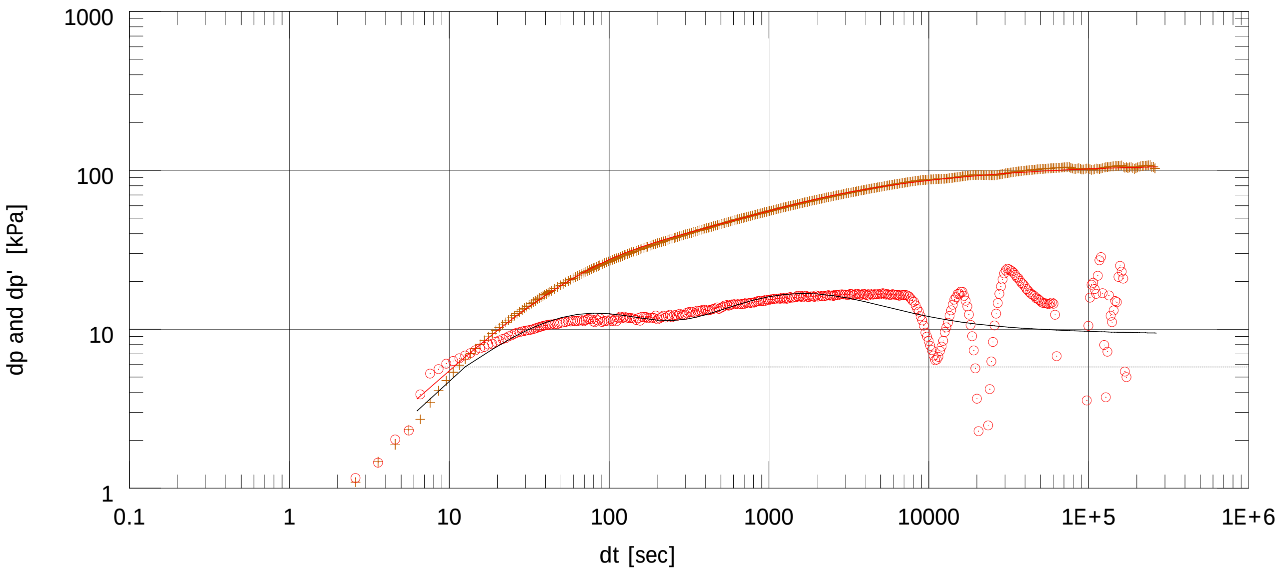
Model Parameters	
Well & Wellbore parameters (HLX25)	
C	2.52E-6 m3/Pa
Skin	0
Geometrical Skin	-4.52
Xf	13 m
Reservoir & Boundary parameters	
Pi	419.754 kPa
T	2.27E-4 m2/s
K	4.54E-5 m/s
Ri	229 m
M	1.6
D	0.151

Derived & Secondary Parameters	
Delta P (Total Skin)	-52.3231 kPa
Delta P Ratio (Total Skin)	-0.497784 Fraction

Log-Log plot	Bu2

Company Svensk Kärnbränslehatering AB
Well HLX25

Field Laxemar
Test Name / # Pumping test HLX25



Pressures 3 build-up #2	
Rate	0 l/min
Rate change	101.05 l/min
P@dt=0	312.075 kPa
Pi	419.754 kPa
Smoothing	0.1

Selected Model	
Model Option	Standard Model
Well	Fracture - Infinite conductivity
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters	
TMatch	0.63 1/sec
PMatch	0.0865 1/kPa
C	2.52E-6 m3/Pa
Total Skin	-4.52
T	2.27E-4 m2/s
K	4.54E-5 m/s
Pi	419.754 kPa

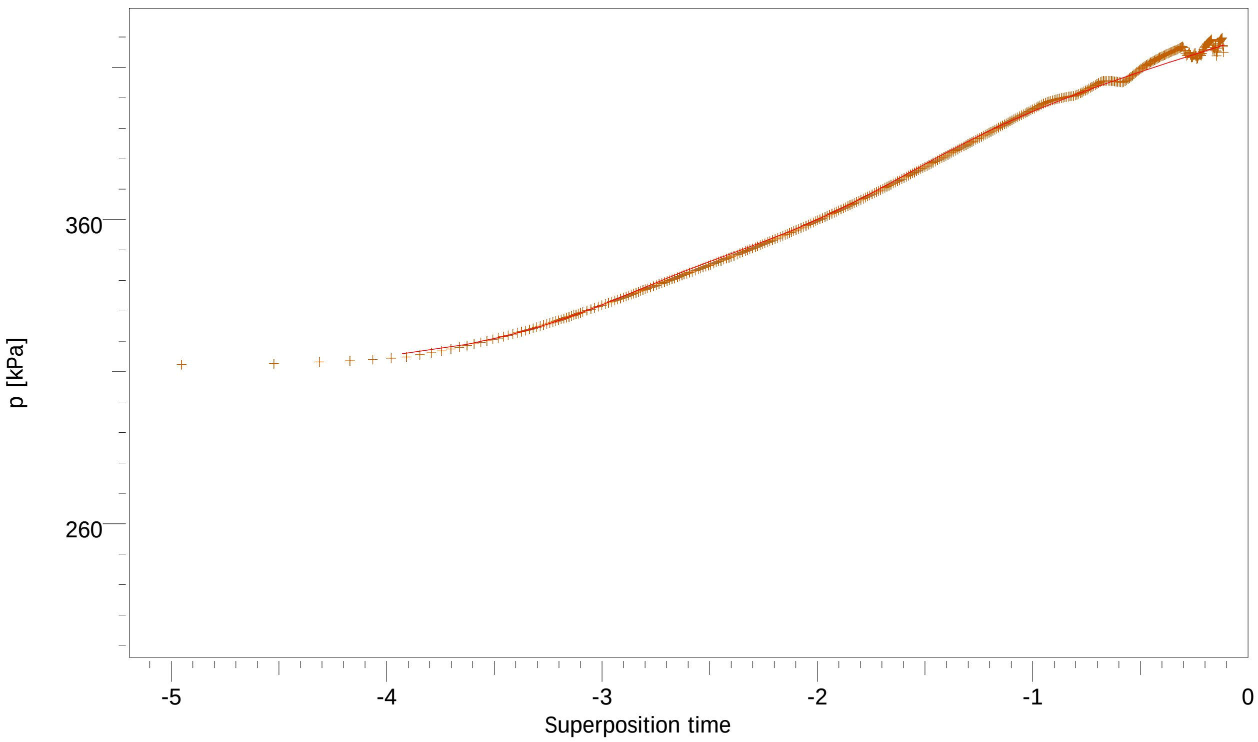
Model Parameters	
Well & Wellbore parameters (HLX25)	
C	2.52E-6 m3/Pa
Skin	0
Geometrical Skin	-4.52
Xf	13 m
Reservoir & Boundary parameters	
Pi	419.754 kPa
T	2.27E-4 m2/s
K	4.54E-5 m/s
Ri	229 m
M	1.6
D	0.151

Derived & Secondary Parameters	
Delta P (Total Skin)	-52.3231 kPa
Delta P Ratio (Total Skin)	-0.497784 Fraction

Semi-Log plot	Bu2

Company Svensk Kärnbränslehatering AB
Well HLX25

Field Laxemar
Test Name / # Pumping test HLX25



Pressures 3 build-up #2

Rate	0 l/min
Rate change	101.05 l/min
P@dt=0	312.075 kPa
Pi	419.754 kPa
Smoothing	0.1

Selected Model

Model Option	Standard Model
Well	Fracture - Infinite conductivity
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.63 1/sec
PMatch	0.0865 1/kPa
C	2.52E-6 m3/Pa
Total Skin	-4.52
T	2.27E-4 m2/s
K	4.54E-5 m/s
Pi	419.754 kPa

Model Parameters

Well & Wellbore parameters (HLX25)

C	2.52E-6 m3/Pa
Skin	0
Geometrical Skin	-4.52
Xf	13 m

Reservoir & Boundary parameters

Pi	419.754 kPa
T	2.27E-4 m2/s
K	4.54E-5 m/s
Ri	229 m
M	1.6
D	0.151

Derived & Secondary Parameters

Delta P (Total Skin)	-52.3231 kPa
Delta P Ratio (Total Skin)	-0.497784 Fraction

Main Results	Bu2

Company Svensk Kärnbränslehatering AB — Field Laxemar
Well HLX25 — Test Name / # Pumping test HLX25

Test date / time	2004-09-02
Formation interval	6 - 202.5m
Perforated interval	open hole
Gauge type / #	
Gauge depth	
Field crew	
Analysis	Mansueto Morosini, SKB
TEST TYPE	Standard
Porosity Phi (%)	10
Well Radius rw	0.07 m
Pay Zone h	5 m
Water Salt (ppm)	10000
Form. compr.	4.35113E-10 Pa-1
Reservoir T	100 °C
Reservoir P	34473.8 kPa
FLUID TYPE	Water
Volume Factor B	1 B/STB
Viscosity	1E-3 Pa.sec
Total Compr. ct	4.35113E-10 Pa-1

Selected Model

Model Option	Standard Model
Well	Fracture - Infinite conductivity
Reservoir	Radial composite
Boundary	Infinite

Main Model Parameters

TMatch	0.63 1/sec
PMatch	0.0865 1/kPa
C	2.52E-6 m3/Pa
Total Skin	-4.52
T	2.27E-4 m2/s
K	4.54E-5 m/s
Pi	419.754 kPa

Model Parameters

Well & Wellbore parameters (HLX25)

C	2.52E-6 m3/Pa
Skin	0
Geometrical Skin	-4.52
Xf	13 m

Reservoir & Boundary parameters

Pi	419.754 kPa
T	2.27E-4 m2/s
K	4.54E-5 m/s
Ri	229 m
M	1.6
D	0.151

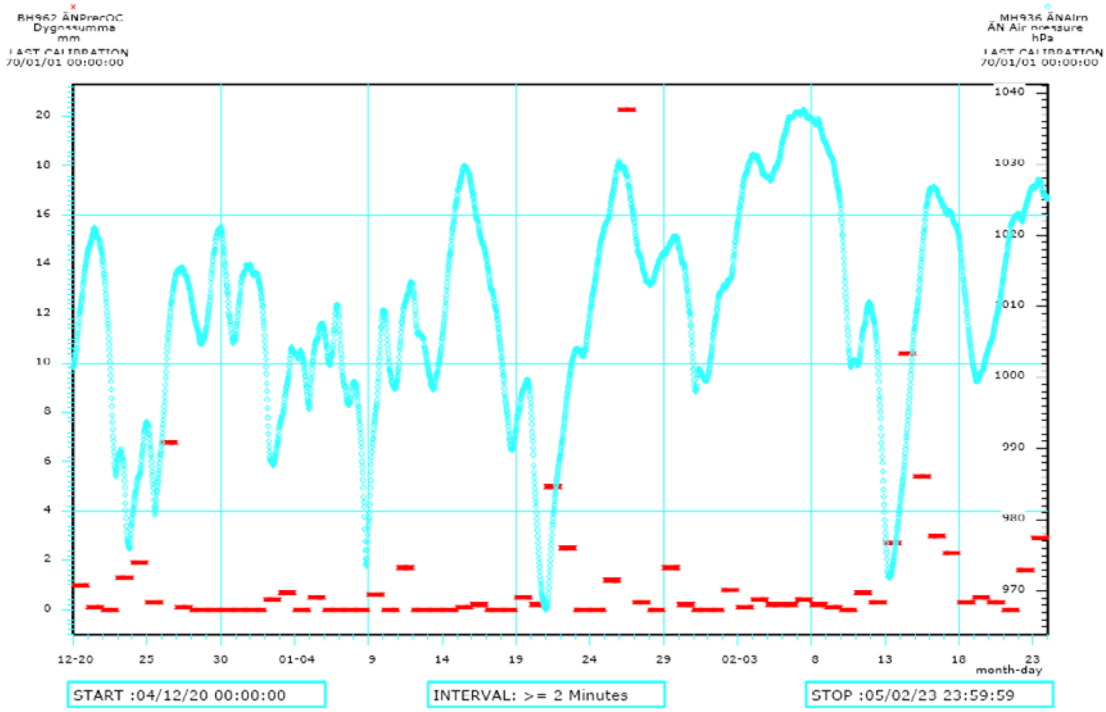
Derived & Secondary Parameters

Delta P (Total Skin)	-52.3231 kPa
Delta P Ratio (Total Skin)	-0.497784 Fraction

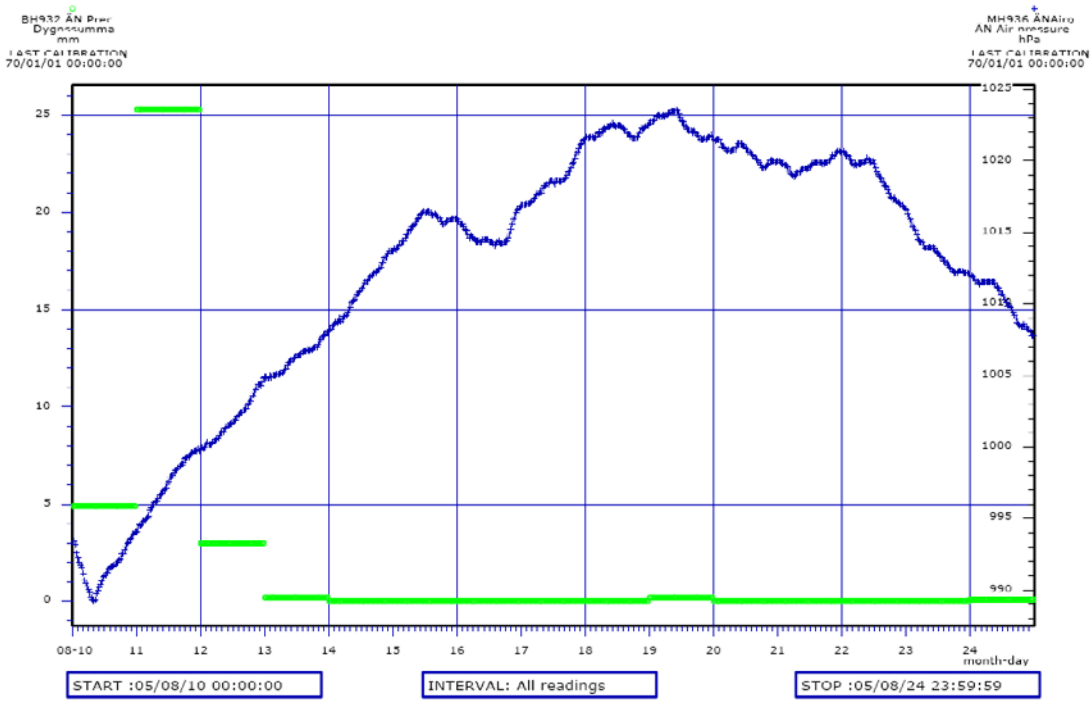
Appendix 10 Precipitaiton and barometric pressure at intereferece tests sites

Note that the daily precipitation in these graphs actually occurred one day prior than plotted.

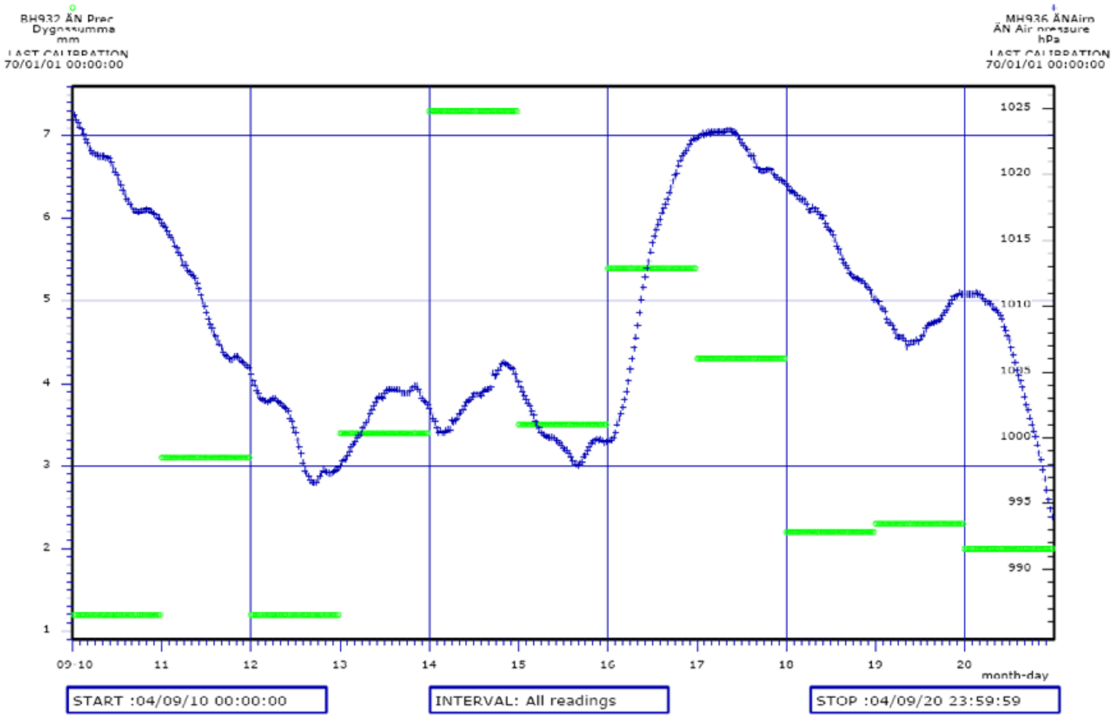
Appendix 10.1 HLX10 test



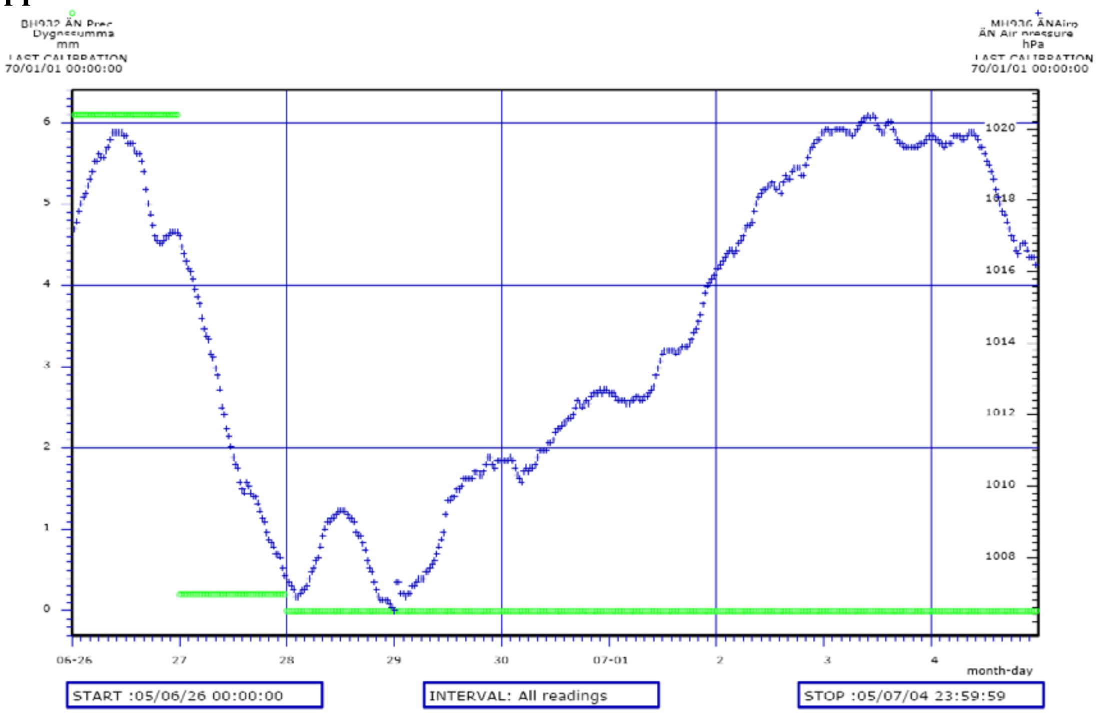
Appendix 10.2 HLX21



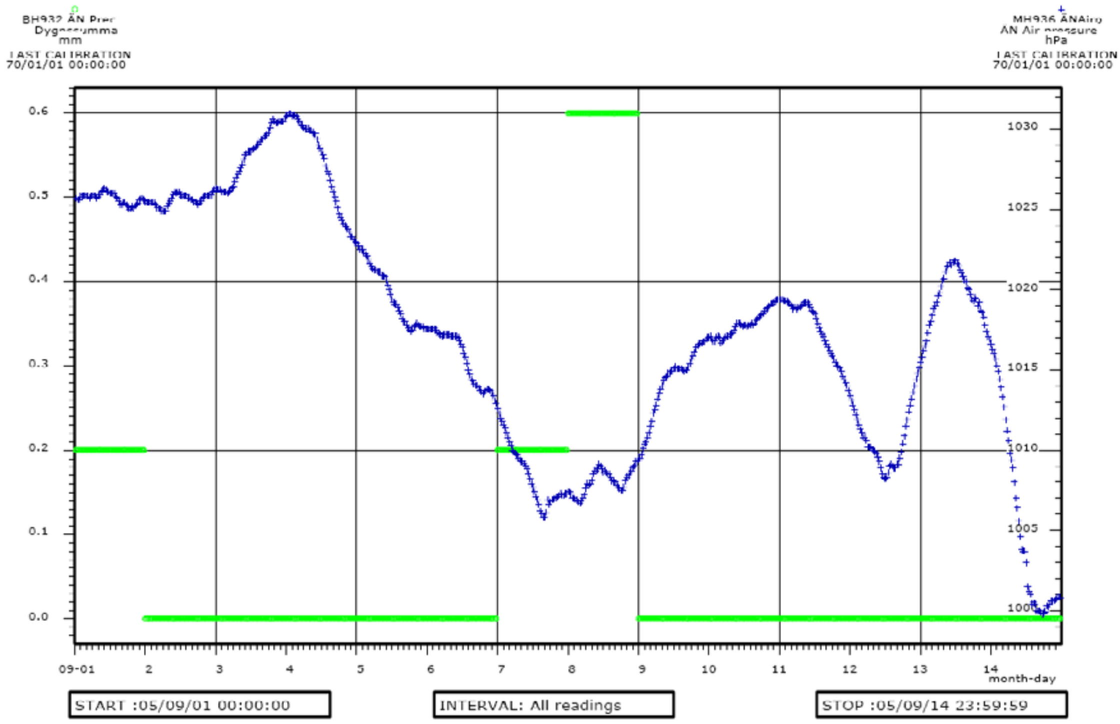
Appendix 10.3 HLX22



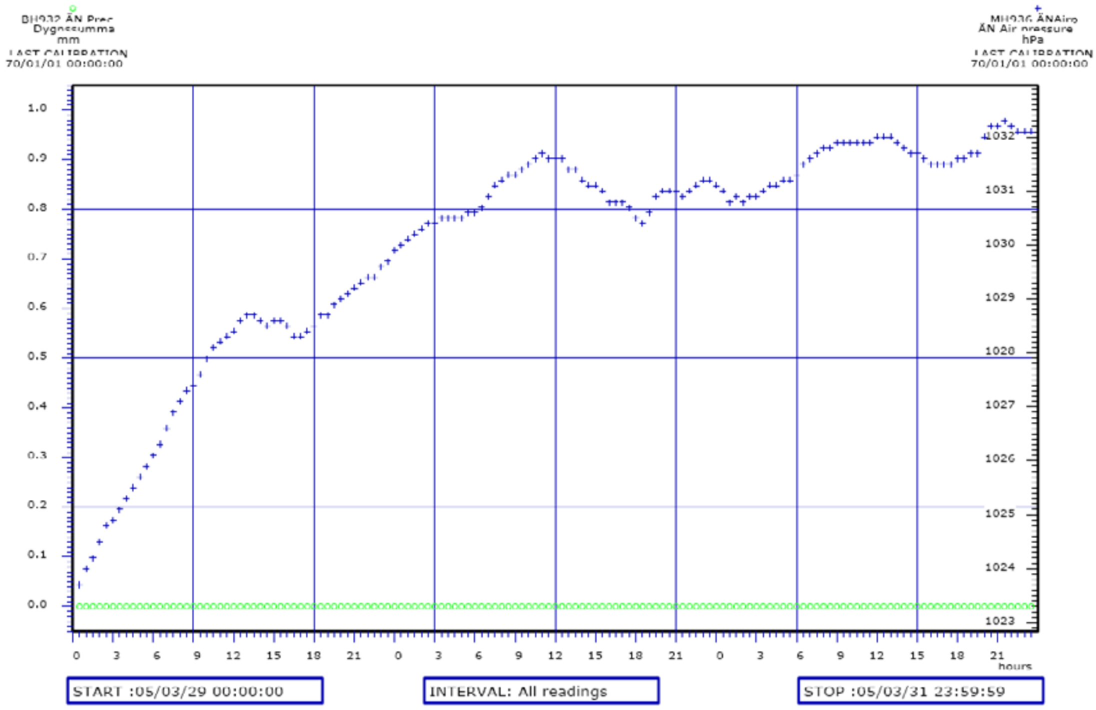
Appendix 10.4 HLX23



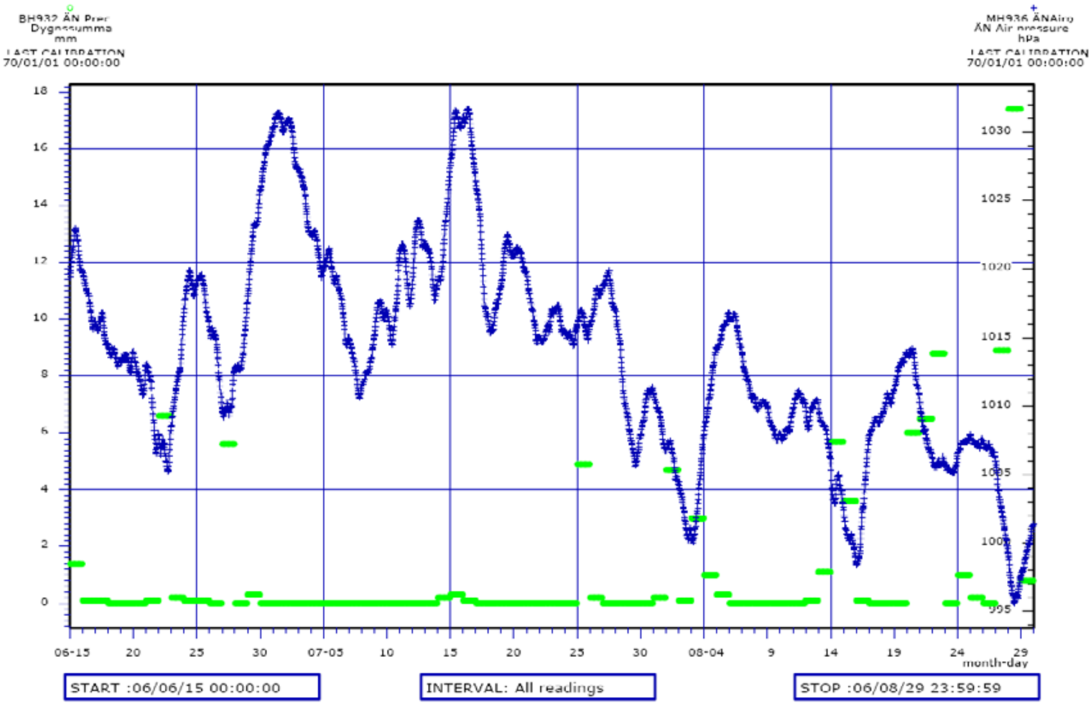
Appendix 10.5 HLX30



Appendix 10.6 HLX33 March05



Appendix 10.7 HLX33 June06



Appendix 11 Nomenclature and definitions

The following is an excerpt from MD 320.004e v1.

Test type:	Test phases	Acronym
Constant perturbation		
a) Injection test:	Constant Head injection and recovery :	CHir
b) Pump test:	Constant Rate withdrawal and recovery:	CRwr
c) Slug test:	Slug test:	Slug

Test phases:

Perturbation phase:	CHi for injection test CRw for pump test
Recovery phase:	CHr for injection test (H stands for Head during the perturbation phase) CRr for pump test (R stands for Rate during the recovery phase)

Phasing:

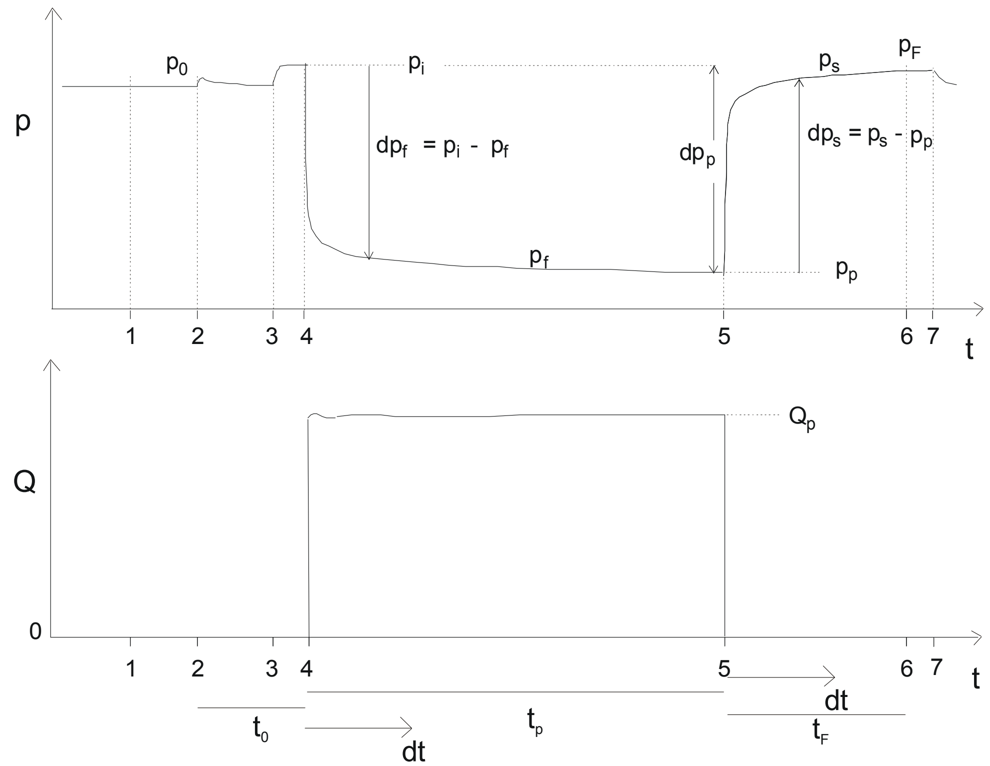
Most injection tests and single-hole pumping tests can be divided into 8 phases:

Phase 0: Starting the recording of data
Phase 1: Saving initial values.
Phase 2: Starting packer expansion (if delimited sections are tested).
Phase 3: Venting the measuring system
Phase 4: Starting the perturbation phase (opening test valve, if there is one)
Phase 5: End of perturbation phase and beginning of recovery phase (closing the test valve)
Phase 6: Recovery ends
Phase 7: Packer pressure released. Stabilisation of borehole pressure.

As an example, figure B3-1 shows variation of the flow and pressure during the various phases of a pumping test (CRwr) and injection test (CHir) respectively.

If the perturbation and recovery phases are repeated after phase 6, the second perturbation phase will begin with phase 6 and the following are called 5b, 6b, 5c, 6c and so on.

a)



b)

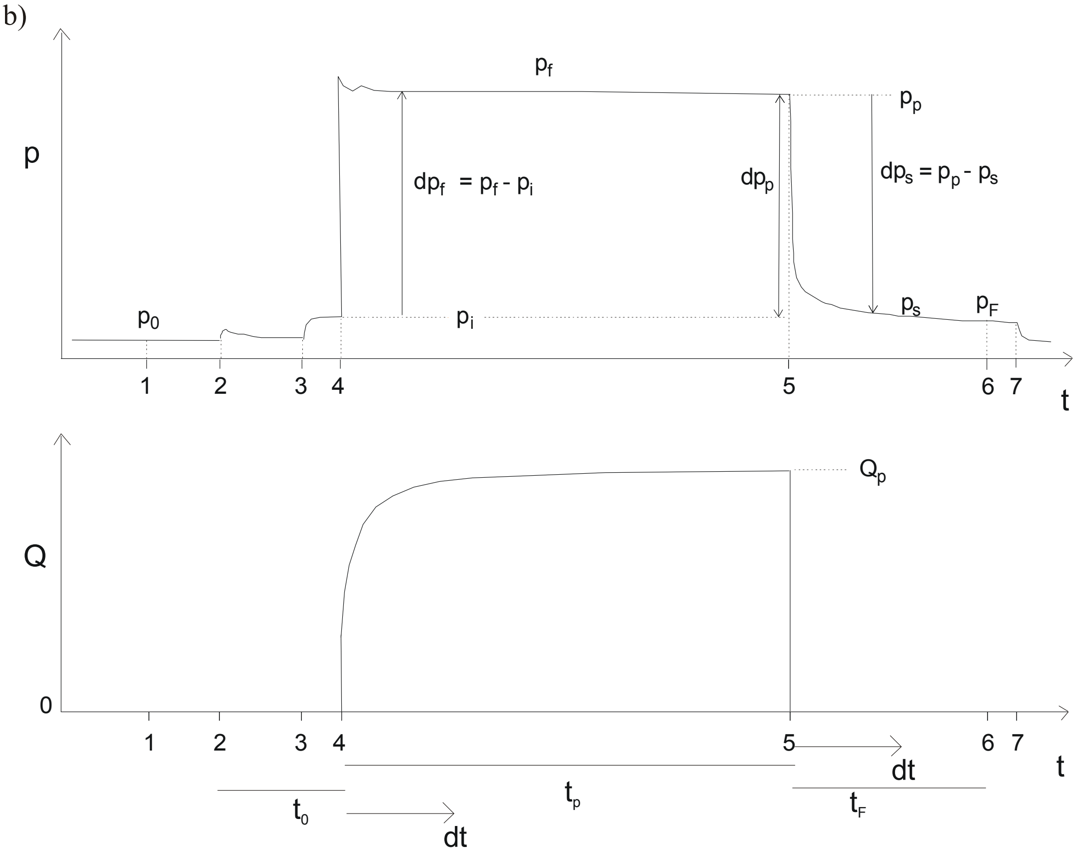


Figure B3-1. Variation of flow (Q) and pressure (p) under
a) a pumping test at constant rate. For open sections the pressure (p) can be replaced by level (h),
b) an injection test at constant pressure.

A number of pressure and flow values are important for comprehensive assessment of the entire test and for determining certain parameters, see figure B3-1:

p_0 = Hydrostatic pressure in the borehole at measuring level before packer expansion
p_i = Pressure in measuring section just before start of flow.
p_p = Pressure in measuring section just before stop of flow.
p_F = Pressure in measuring section at end of recovery.
dp_p = Maximal change in pressure during the perturbation phase = p_p-p_i at increase in pressure or =p_i-p_p at reduction in pressure.
Q_p = Flow rate in test section immediately before stop of flow.
Q_m = Mean value (arithmetical) of flow rate during the flow phase.

If water level is measured in open sections the change in pressure in the test section is to be presented as the change of level in the open section: dh_p= h_p-h_i=s at increase of level and dh_p= h_i-h_p=s at lowering of level (the normal case).

Table of parameters, variables and abbreviations, see above for explanation.

Character	Explanation	Dimension	Unit
A_w	Horizontal area of water surface in open borehole, not including area of signal cables, etc.	[L^2]	m^2
b	Aquifer thickness (Thickness of 2D formation)	[L]	m
B	Width of channel	[L]	m
L	Corrected borehole length	[L]	m
L_0	Uncorrected borehole length	[L]	m
L_p	Point of application for a measuring section based on its centre point or centre of gravity for distribution of transmissivity in the measuring section.	[L]	m
L_w	Test section length.	[L]	m
dL	Step length, Positive Flow Log - overlapping flow logging. (step length, PFL)	[L]	m
r	Radius	[L]	m
r_w	Borehole, well or soil pipe radius in test section.	[L]	m
r_{we}	Effective borehole, well or soil pipe radius in test section. (Consideration taken to skin factor)	[L]	m
r_s	Distance from test section to observation section, the shortest distance.	[L]	m
r_t	Distance from test section to observation section, the **interpreted** shortest distance via conductive structures.	[L]	m
r_D	Dimensionless radius, r_D=r/r_w	-	-
z	Level above reference point	[L]	m
z_r	Level for reference point on borehole	[L]	m
z_{wu}	Level for test section (section that is being flowed), upper limitation	[L]	m
z_{wl}	Level for test section (section that is being flowed), lower limitation	[L]	m
z_{ws}	Level for sensor that measures response in test section (section that is flowed)	[L]	m
z_{ou}	Level for observation section, upper limitation	[L]	m
z_{ol}	Level for observation section, lower limitation	[L]	m
z_{os}	Level for sensor that measures response in observation section	[L]	m
E	Evaporation: hydrological budget:	[L^3/(T L^2)] [L^3/T]	mm/y, mm/d, m^3/s

ET	Evapotranspiration hydrological budget:	$[L^3/(T\ L^2)]$ $[L^3/T]$	mm/y, mm/d, m^3/s
P	Precipitation hydrological budget:	$[L^3/(T\ L^2)]$ $[L^3/T]$	mm/y, mm/d, m^3/s
R	Groundwater recharge hydrological budget:	$[L^3/(T\ L^2)]$ $[L^3/T]$	mm/y, mm/d, m^3/s
D	Groundwater discharge hydrological budget:	$[L^3/(T\ L^2)]$ $[L^3/T]$	mm/y, mm/d, m^3/s
Q_R	Run-off rate	$[L^3/T]$	m^3/s
Q_p	Pumping rate	$[L^3/T]$	m^3/s
Q_I	Infiltration rate	$[L^3/T]$	m^3/s
Q	Volumetric flow. Corrected flow in flow logging ($Q_1 – Q_0$) (Flow rate)	$[L^3/T]$	m^3/s
Q_0	Flow in test section during undisturbed conditions (flow logging).	$[L^3/T]$	m^3/s
Q_p	Flow in test section immediately before stop of flow. Stabilised pump flow in flow logging.	$[L^3/T]$	m^3/s
Q_m	Arithmetical mean flow during perturbation phase.	$[L^3/T]$	m^3/s
Q_1	Flow in test section during pumping with pump flow Q_{p1}, (flow logging).	$[L^3/T]$	m^3/s
Q_2	Flow in test section during pumping with pump flow Q_{p1}, (flow logging).	$[L^3/T]$	m^3/s
ΣQ	Cumulative volumetric flow along borehole	$[L^3/T]$	m^3/s
ΣQ_0	Cumulative volumetric flow along borehole, undisturbed conditions (ie, not pumped)	$[L^3/T]$	m^3/s
ΣQ_1	Cumulative volumetric flow along borehole, with pump flow Q_{p1}	$[L^3/T]$	m^3/s
ΣQ_2	Cumulative volumetric flow along borehole, with pump flow Q_{p2}	$[L^3/T]$	m^3/s
ΣQ_{C1}	Corrected cumulative volumetric flow along borehole, ΣQ_1-ΣQ_0	$[L^3/T]$	m^3/s
ΣQ_{C2}	Corrected cumulative volumetric flow along borehole, ΣQ_2-ΣQ_0	$[L^3/T]$	m^3/s
q	Volumetric flow per flow passage area (Specific discharge (Darcy velocity, Darcy flux, Filtration velocity)).	$([L^3/T*L^2]$	m/s
V	Volume	$[L^3]$	m^3
V_w	Water volume in test section.	$[L^3]$	m^3
V_p	Total water volume injected/pumped during perturbation phase.	$[L^3]$	m^3
v	Velocity	$([L^3/T*L^2]$	m/s
v_a	Mean transport velocity (Average linear velocity (Average linear groundwater velocity, Mean microscopic velocity));. $v_a=q/n_e$	$([L^3/T*L^2]$	m/s
t	Time	[T]	hour,min,s
t_0	Duration of rest phase before perturbation phase.	[T]	s
t_p	Duration of perturbation phase. (from flow start as far as p_p).	[T]	s
t_F	Duration of recovery phase (from p_p to p_F).	[T]	s
t_1, t_2 etc	Times for various phases during a hydro test.	[T]	hour,min,s

dt	Running time from start of flow phase and recovery phase respectively.	[T]	s
dt_e	$dt_e = (dt \cdot tp) / (dt + tp)$ Agarwal equivalent time with dt as running time for recovery phase.	[T]	s
t_D	$t_D = T \cdot t / (S \cdot r_w^2)$. Dimensionless time	-	-
p	Static pressure; including non-dynamic pressure which depends on water velocity. Dynamic pressure is normally ignored in estimating the potential in groundwater flow relations.	$[M/(LT)^2]$	kPa
p_a	Atmospheric pressure	$[M/(LT)^2]$	kPa
p_t	Absolute pressure; $p_t=p_a+p_g$	$[M/(LT)^2]$	kPa
p_g	Gauge pressure; Difference between absolute pressure and atmospheric pressure.	$[M/(LT)^2]$	kPa
p_0	Initial pressure before test begins, prior to packer expansion.	$[M/(LT)^2]$	kPa
p_i	Pressure in measuring section before start of flow.	$[M/(LT)^2]$	kPa
p_f	Pressure during perturbation phase.	$[M/(LT)^2]$	kPa
p_s	Pressure during recovery.	$[M/(LT)^2]$	kPa
p_p	Pressure in measuring section before flow stop.	$[M/(LT)^2]$	kPa
p_F	Pressure in measuring section at end of recovery.	$[M/(LT)^2]$	kPa
p_D	$p_D=2\pi \cdot T \cdot p/(Q \cdot \rho_w g)$, Dimensionless pressure	-	-
dp	Pressure difference, drawdown of pressure surface between two points of time.	$[M/(LT)^2]$	kPa
dp_f	$dp_f = p_i - p_f$ or $= p_f - p_i$, drawdown/pressure increase of pressure surface between two points of time during perturbation phase. dp_f usually expressed positive.	$[M/(LT)^2]$	kPa
dp_s	$dp_s = p_s - p_p$ or $= p_p - p_s$, pressure increase/drawdown of pressure surface between two points of time during recovery phase. dp_s usually expressed positive.	$[M/(LT)^2]$	kPa
dp_p	$dp_p = p_i - p_p$ or $= p_p - p_i$, **maximal** pressure increase/drawdown of pressure surface between two points of time during perturbation phase. dp_p expressed positive.	$[M/(LT)^2]$	kPa
dp_F	$dp_F = p_p - p_F$ or $= p_F - p_p$, **maximal** pressure increase/drawdown of pressure surface between two points of time during recovery phase. dp_F expressed positive.	$[M/(LT)^2]$	kPa
H	Total head; (potential relative a reference level) (indication of h for phase as for p). $H=h_e+h_p+h_v$	[L]	m
h	Groundwater pressure level (hydraulic head (piezometric head; possible to use for level observations in boreholes, static head)); (indication of h for phase as for p). $h=h_e+h_p$	[L]	m
h_e	Height of measuring point (Elevation head); Level above reference level for measuring point.	[L]	m
h_p	Pressure head; Level above reference level for height of measuring point of stationary column of water giving corresponding static pressure at measuring point	[L]	m
h_v	Velocity head; height corresponding to the lifting for which the kinetic energy is capable (usually neglected in hydrogeology)	[L]	m
s	Drawdown; Drawdown from undisturbed level (same as dh_p, positive)	[L]	m
s_p	Drawdown in measuring section before flow stop.	[L]	m
		[L]	
h_0	Initial above reference level before test begins, prior to packer expansion.	[L]	m
h_i	Level above reference level in measuring section before start of flow.	[L]	m

h_f	Level above reference level during perturbation phase.	[L]	m
h_s	Level above reference level during recovery phase.	[L]	m
h_p	Level above reference level in measuring section before flow stop.	[L]	m
h_F	Level above reference level in measuring section at end of recovery.	[L]	m
dh	Level difference, drawdown of water level between two points of time.	[L]	m
dh_f	$dh_f = h_i - h_f$ or $= h_f – h_i$, drawdown/pressure increase of pressure surface between two points of time during perturbation phase. dh_f usually expressed positive.	[L]	m
dh_s	$dh_s = h_s – h_p$ or $= h_p – h_s$, pressure increase/drawdown of pressure surface between two points of time during recovery phase. dh_s usually expressed positive.	[L]	m
dh_p	$dh_p = h_i – h_p$ or $= h_p – h_i$, maximal pressure increase/drawdown of pressure surface between two points of time during perturbation phase. dh_p expressed positive.	[L]	m
dh_F	$dh_F = h_p – h_F$ or $= h_F – h_p$, maximal pressure increase/drawdown of pressure surface between two points of time during perturbation phase. dh_F expressed positive.	[L]	m
Te_w	Temperature in the test section (taken from temperature logging). Temperature		^oC
Te_{w0}	Temperature in the test section during undisturbed conditions (taken from temperature logging). Temperature		^oC
Te_o	Temperature in the observation section (taken from temperature logging). Temperature		^oC
EC_w	Electrical conductivity of water in test section.		mS/m
EC_{w0}	Electrical conductivity of water in test section during undisturbed conditions.		mS/m
EC_o	Electrical conductivity of water in observation section		mS/m
TDS_w	Total salinity of water in the test section.	$[M/L^3]$	mg/L
TDS_{w0}	Total salinity of water in the test section during undisturbed conditions.	$[M/L^3]$	mg/L
TDS_o	Total salinity of water in the observation section.	$[M/L^3]$	mg/L
g	Constant of gravitation (9.81 $m*s^{-2}$) (Acceleration due to gravity)	$[L/T^2]$	m/s^2
π	Constant (approx 3.1416).	[-]	
r	Residual. $r= p_c-p_m$, $r= h_c-h_m$, etc. Difference between measured data (p_m, h_m, etc) and estimated data (p_c, h_c, etc)		
ME	Mean error in residuals. $ME = \frac{1}{n}\sum_{i=1}^{n} r_i$		
NME	Normalized ME. $NME=ME/(x_{MAX}-x_{MIN})$, x: measured variable considered.		
MAE	Mean absolute error. $MAE = \frac{1}{n}\sum_{i=1}^{n} \lvert r_i \rvert$		
NMAE	Normalized MAE. $NMAE=MAE/(x_{MAX}-x_{MIN})$, x: measured variable considered.		

RMS	Root mean squared error. $RMS = \left(\frac{1}{n} \sum_{i=1}^{n} r_i^2 \right)^{0.5}$		
NRMS	Normalized RMR. NRMR=RMR/(x_{MAX}-x_{MIN}), x: measured variable considered.		
SDR	Standard deviation of residual. $SDR = \left(\frac{1}{n-1} \sum_{i=1}^{n} (r_i - ME)^2 \right)^{0.5}$		
SEMR	Standard error of mean residual. $SEMR = \left(\frac{1}{n(n-1)} \sum_{i=1}^{n} (r_i - ME)^2 \right)^{0.5}$		
Q/s	Specific capacity s=dp_p or s=s_p=h_0-h_p (open borehole)	[L^2/T]	m^2/s
D	Interpreted flow dimension according to Barker, 1988.	[-]	-
dt_1	Time of starting for semi-log or log-log evaluated characteristic counted from start of flow phase and recovery phase respectively.	[T]	s
dt_2	End of time for semi-log or log-log evaluated characteristic counted from start of flow phase and recovery phase respectively.	[T]	s
dt_L	Response time to obtain 0.1 m (or 1 kPa) drawdown in observation section counted from start of recovery phase.	[T]	s
TB	Flow capacity in a one-dimensional structure of width B and transmissivity T. Transient evaluation of one-dimensional structure	[L^3/T]	m^3/s
T	Transmissivity	[L^2/T]	m^2/s
T_M	Transmissivity according to Moye (1967)	[L^2/T]	m^2/s
T_Q	Evaluation based on Q/s and regression curve between Q/s and T, as example see Rhén et al (1997) p. 190.	[L^2/T]	m^2/s
T_S	Transmissivity evaluated from slug test	[L^2/T]	m^2/s
T_D	Transmissivity evaluated from PFL-Difference Flow Meter	[L^2/T]	m^2/s
T_I	Transmissivity evaluated from Impeller flow log	[L^2/T]	m^2/s
T_{Sf}, T_{Lf}	Transient evaluation based on semi-log or log-log diagram for perturbation phase in injection or pumping.	[L^2/T]	m^2/s
T_{Ss}, T_{Ls}	Transient evaluation based on semi-log or log-log diagram for recovery phase in injection or pumping.	[L^2/T]	m^2/s
T_T	Transient evaluation (log-log or lin-log). Judged best evaluation of T_{Sf}, T_{Lf}, T_{Ss}, T_{Ls}	[L^2/T]	m^2/s
T_{NLR}	Evaluation based on non-linear regression.	[L^2/T]	m^2/s
T_{Tot}	Judged most representative transmissivity for particular test section and (in certain cases) evaluation time with respect to available data (made by SKB at a later stage).	[L^2/T]	m^2/s
K	Hydraulic conductivity	[L/T]	m/s
K_s	Hydraulic conductivity based on spherical flow model	[L/T]	m/s
K_m	Hydraulic conductivity matrix, intact rock	[L/T]	m/s
k	Intrinsic permeability	[L^2]	m^2
kb	Permeability-thickness product: kb=k·b	[L^3]	m^3

SB	Storage capacity in a one-dimensional structure of width B and storage coefficient S. Transient evaluation of one-dimensional structure	[L]	m
SB*	Assumed storage capacity in a one-dimensional structure of width B and storage coefficient S. Transient evaluation of one-dimensional structure	[L]	m
S	Storage coefficient, (Storativity)	[-]	-
S*	Assumed storage coefficient	[-]	-
S_y	Theoretical specific yield of water (Specific yield; unconfined storage. Defined as total porosity (n) minus retention capacity (S_r)	[-]	-
S_{ya}	Specific yield of water (Apparent specific yield); unconfined storage, field measuring. Corresponds to volume of water achieved on draining saturated soil or rock in free draining of a volumetric unit. $S_{ya}= S_y$ (often called S_y in literature)	[-]	-
S_r	Specific retention capacity, (specific retention of water, field capacity) (Specific retention); unconfined storage. Corresponds to water volume that the soil or rock has left after free draining of saturated soil or rock.	[-]	-
S_f	Fracture storage coefficient	[-]	-
S_m	Matrix storage coefficient	[-]	-
S_{NLR}	Storage coefficient, evaluation based on non-linear regression	[-]	-
S_{Tot}	Judged most representative storage coefficient for particular test section and (in certain cases) evaluation time with respect to available data (made by SKB at a later stage).	[-]	-
S_s	Specific storage coefficient; confined storage.	[1/L]	1/m
S_s*	Assumed specific storage coefficient; confined storage.	[1/L]	1/m
c_f	Hydraulic resistance: The hydraulic resistance is an aquitard with a flow vertical to a two-dimensional formation. The inverse of c is also called Leakage coefficient. c_f=b´/K´ where b´ is thickness of the aquitard and K´ its hydraulic conductivity across the aquitard.	[T]	s
L_f	Leakage factor: $L_f = (K \cdot b \cdot c_f)^{0.5}$ where K represents characteristics of the aquifer.	[L]	m
ξ	Skin factor	[-]	-
ξ*	Assumed skin factor	[-]	-
C	Wellbore storage coefficient	$[(LT^2)\cdot M^2]$	m^3/Pa
C_D	$C_D = C\cdot\rho_w g /(2\pi\cdot S\cdot r_w^2)$, Dimensionless wellbore storage coefficient	[-]	-
ω	$\omega= S_f /(S_f + S_m)$, 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}	Flow dimension interpreted using the GRF method	[-]	-

c_w	Water compressibility; corresponding to β in hydrogeological literature.	$[(LT^2)/M]$	1/Pa
c_r	Pore-volume compressibility, (rock compressibility); Corresponding to α/n in hydrogeological literature.	$[(LT^2)/M]$	1/Pa
c_t	$c_t = c_r + c_w$, total compressibility; compressibility per volumetric unit of rock obtained through multiplying by the total porosity, n. (Presence of gas or other fluids can be included in c_t if the degree of saturation (volume of respective fluid divided by n) of the pore system of respective fluid is also included)	$[(LT^2)/M]$	1/Pa
nc_t	Porosity-compressibility factor: $nc_t= n \cdot c_t$	$[(LT^2)/M]$	1/Pa
nc_tb	Porosity-compressibility-thickness product: $nc_tb= n \cdot c_t \cdot b$	$[(L^2T^2)/M]$	m/Pa
n	Total porosity	-	-
n_e	Kinematic porosity, (Effective porosity)	-	-
e	Transport aperture. $e = n_e \cdot b$	[L]	m
ρ	Density	$[M/L^3]$	$kg/(m^3)$
ρ_w	Fluid density in measurement section during pumping/injection	$[M/L^3]$	$kg/(m^3)$
ρ_o	Fluid density in observation section	$[M/L^3]$	$kg/(m^3)$
ρ_{sp}	Fluid density in standpipes from measurement section	$[M/L^3]$	$kg/(m^3)$
μ	Dynamic viscosity	[M/LT]	Pa s
μ_w	Dynamic viscosity (Fluid density in measurement section during pumping/injection)	[M/LT]	Pa s
FC_T	Fluid coefficient for intrinsic permeability, transference of k to K; $K=FC_T \cdot k$; $FC_T=\rho_w \cdot g/ \mu_w$	[1/LT]	1/(ms)
FC_S	Fluid coefficient for porosity-compressibility, transference of c_t to S_s ; $S_s=FC_S \cdot n \cdot c_t$; $FC_S=\rho_w \cdot g$	$[M/T^2L^2]$	Pa/m
S	S: semi-log		
L	L: log-log		
f	Pump phase or injection phase, designation following S or L (withdrawal)		
s	Recovery phase, designation following S or L (recovery)		
NLR	NLR: Non-linear regression. Performed on the entire test sequence, perturbation and recovery		
M	Moye		
GRF	Generalised Radial Flow according to Barker (1988)		
m	Matrix		
f	Fracture		
measl	Measurement limit. Estimated measurement limit on parameter being measured (T or K)		
T	Judged best evaluation based on transient evaluation.		
Tot	Judged most representative parameter for particular test section and (in certain cases) evaluation time with respect to available data (made by SKB at a later stage).		
b	Bloch property in a numerical groundwater flow model		
e	Effective property (constant) within a domain in a numerical groundwater flow model.		
0	Initial condition, undisturbed condition in open holes		
i	Natural, "undisturbed" condition of formation parameter		
f	Pump phase or injection phase (withdrawal, flowing phase)		
s	Recovery, shut-in phase		
p	Pressure or flow in measuring section at end of perturbation period		

F	Pressure in measuring section at end of recovery period.		
m	Arithmetical mean value		
c	Estimated value. The index is placed last if index for “where” and “what” are used. Simulated value		
m	Measured value. The index is placed last if index for “where” and “what” are used. Measured value		
w	Test section (final difference pressure during flow phase in test section can be expressed dp_{wp}; First index shows “where” and second index shows “what”)		
o	Observation section (final difference pressure during flow phase in observation section can be expressed dp_{op}; First index shows “where” and second index shows “what”)		
f	Fresh-water head. Water is normally pumped up from section to measuring hoses where pressure and level are observed. Density of the water is therefore approximately the same as that of the measuring section. Measured groundwater level is therefore normally represented by what is defined as point-water head. If pressure at the measuring level is recalculated to a level for a column of water with density of fresh water above the measuring point it is referred to as fresh-water head and h is indicated last by an f. Observation section (final level during flow phase in observation section can be expressed h_{opf}; the first index shows “where” and the second index shows “what” and the last one “recalculation”)		

Title COMPOSITE LOG for percussion borehole HLX10

Site	LAXEMAR	**Inclination ToC [°]**	-68.68	**Elevation [m.a.s.l.ToC]**	11.67
Borehole	HLX10	**Date of mapping**	1992-09-30 00:00:00	**Drilling Start Date**	1992-09-30 00:00:00
Diameter [mm]	137	**Coordinate System**	RT90-RHB70	**Drilling Stop Date**	1992-09-30 00:00:00
Length [m]	85.000	**Northing ToC [m]**	6366634.98	**Plot Date**	2007-11-26 22:03:42
Bearing ToC [°]	176.67	**Easting ToC [m]**	1549140.19	**Packer installation for monitoring**	No data

ROCK TYPE
Ävrö granite

DENSITY

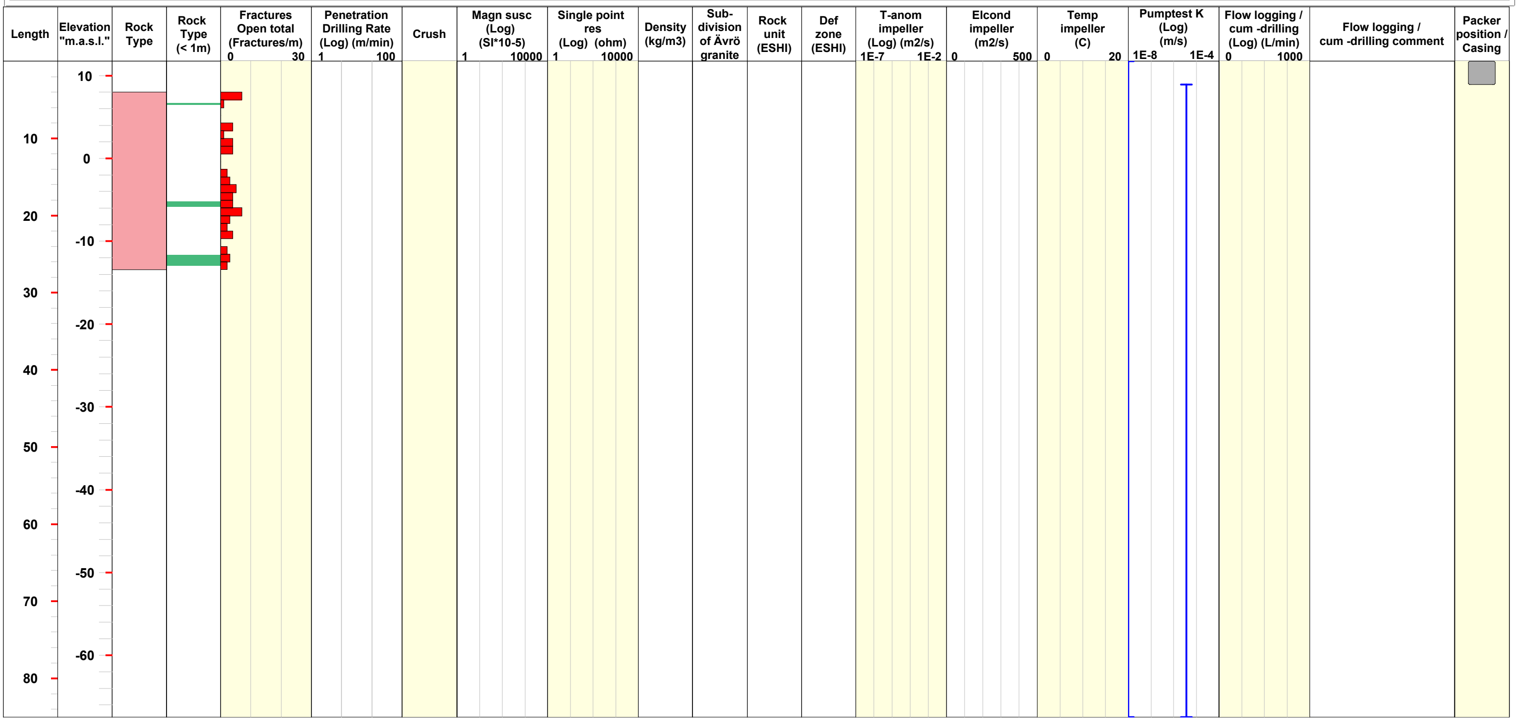
SUBDIVISON OF ÄVRÖ GRANITE

ROCK UNIT (ESHI)

DEFORMATION ZONE (ESHI)

PUMPTEST K TEST TYPE
1B: Pumpingtest-submersible Pump

CASING
Casing



Title COMPOSITE LOG for percussion borehole HLX13

Site	LAXEMAR	**Inclination ToC [°]**	-58.06	**Elevation [m.a.s.l.ToC]**	17.32
Borehole	HLX13	**Date of mapping**	2004-02-24 00:00:00	**Drilling Start Date**	2004-02-24 12:00:00
Diameter [mm]	140	**Coordinate System**	RT90-RHB70	**Drilling Stop Date**	2004-02-26 18:50:00
Length [m]	200.200	**Northing ToC [m]**	6366952.18	**Plot Date**	2007-11-26 22:03:42
Bearing ToC [°]	184.18	**Easting ToC [m]**	1547690.47	**Packer installation for monitoring**	No data

ROCK TYPE
- Dolerite / Diabas
- Fine-grained granite
- Ävrö granite
- Fine-grained dioritoid

DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930

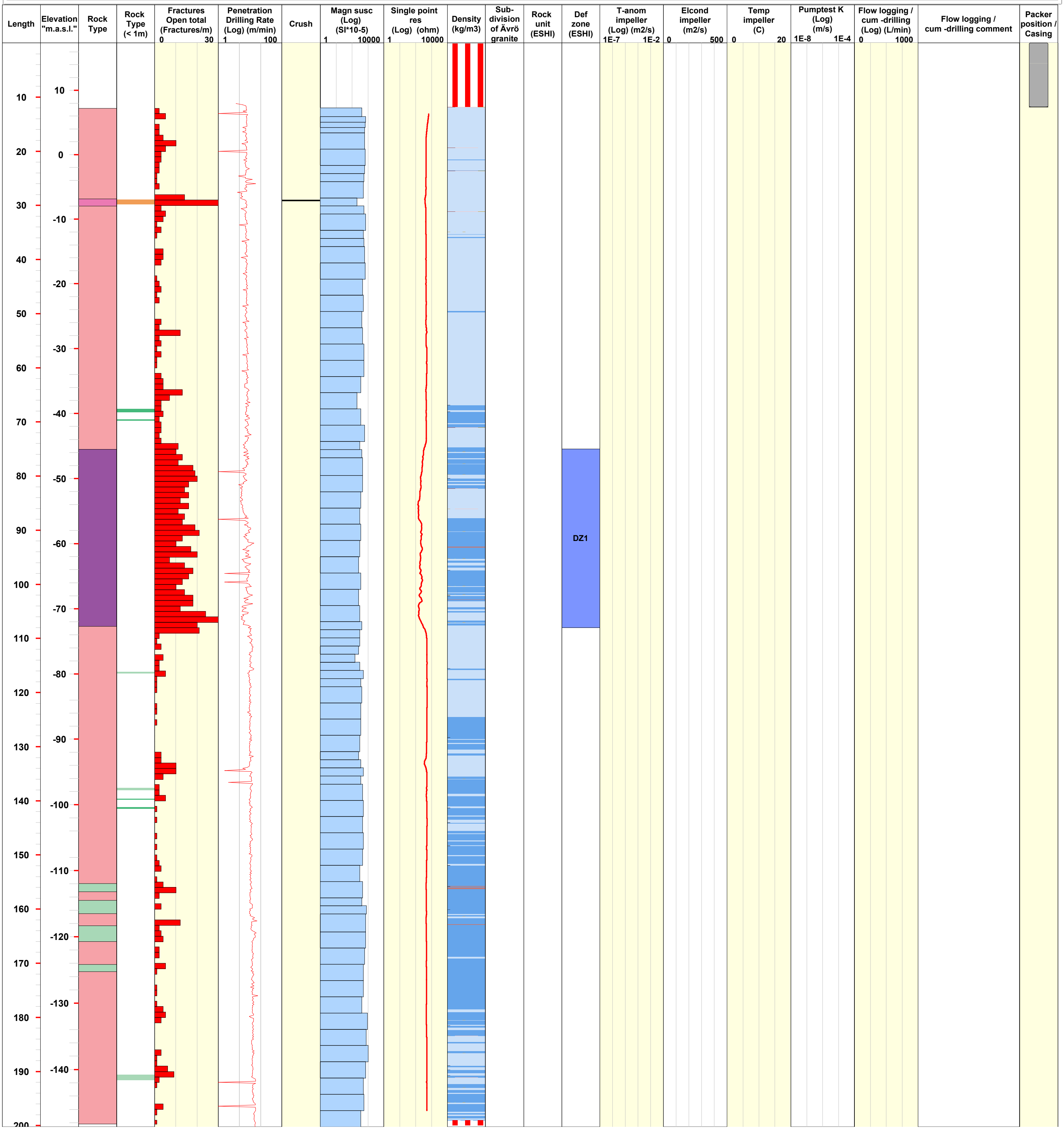
SUBDIVISON OF ÄVRÖ GRANITE

ROCK UNIT (ESHI)

PUMPTEST K TEST TYPE

DEFORMATION ZONE (ESHI)
- DZ

CASING
- Casing



Title COMPOSITE LOG for percussion borehole HLX14

Site	LAXEMAR	**Inclination ToC [°]**	-68.64	**Elevation [m.a.s.l.ToC]**	17.09
Borehole	HLX14	**Date of mapping**	2004-03-08 00:00:00	**Drilling Start Date**	2004-03-08 10:00:00
Diameter [mm]	139	**Coordinate System**	RT90-RHB70	**Drilling Stop Date**	2004-03-11 10:00:00
Length [m]	115.900	**Northing ToC [m]**	7208.67	**Plot Date**	2007-11-26 22:03:42
Bearing ToC [°]	101.70	**Easting ToC [m]**	-1694.65	**Packer installation for monitoring**	2004-11-15 10:30:00

ROCK TYPE LAXEMAR
- Ävrö granite
- Fine-grained dioritoid

DENSITY

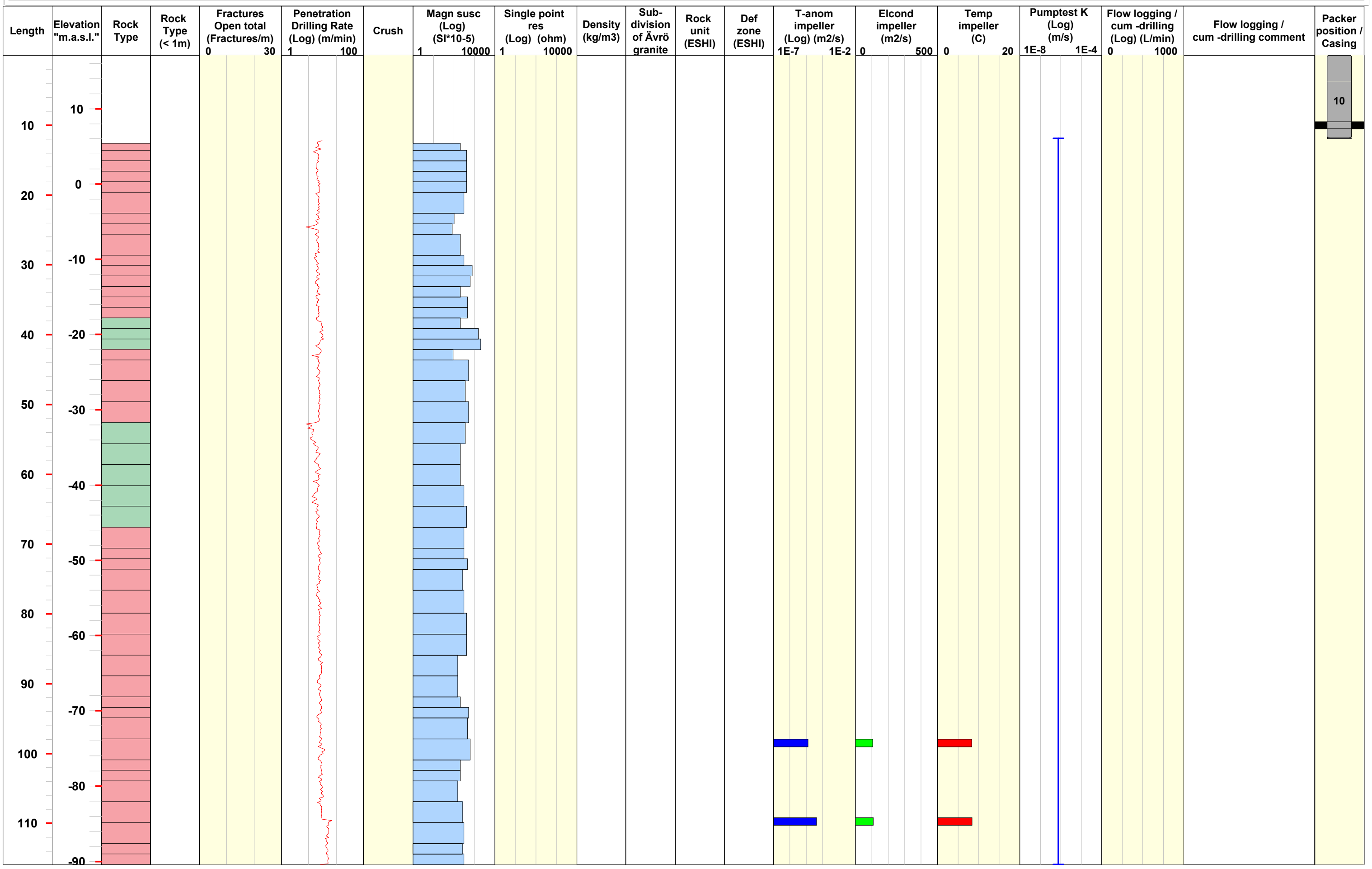
SUBDIVISON OF ÄVRÖ GRANITE

ROCK UNIT (ESHI)

DEFORMATION ZONE (ESHI)

PUMPTEST K TEST TYPE
- 1B: Pumpingtest-submersible Pump

CASING
- Casing



Title COMPOSITE LOG for percussion borehole HLX21

Site	LAXEMAR	Inclination ToC [°]	-56.98	Elevation [m.a.s.l.ToC]	10.24
Borehole	HLX21	Date of mapping	2004-08-30 00:00:00	Drilling Start Date	2004-08-30 08:00:00
Diameter [mm]	138	Coordinate System	RT90-RHB70	Drilling Stop Date	2004-09-02 09:00:00
Length [m]	150.300	Northing ToC [m]	6366567.93	Plot Date	2007-11-26 22:03:42
Bearing ToC [°]	185.54	Easting ToC [m]	1549632.41	Packer installation for monitoring	2004-11-03 15:10:00

ROCK TYPE LAXEMAR
- Fine-grained granite
- Pegmatite
- Ävrö granite

DENSITY
- unclassified
- dens<2710
- 2710<dens<2820

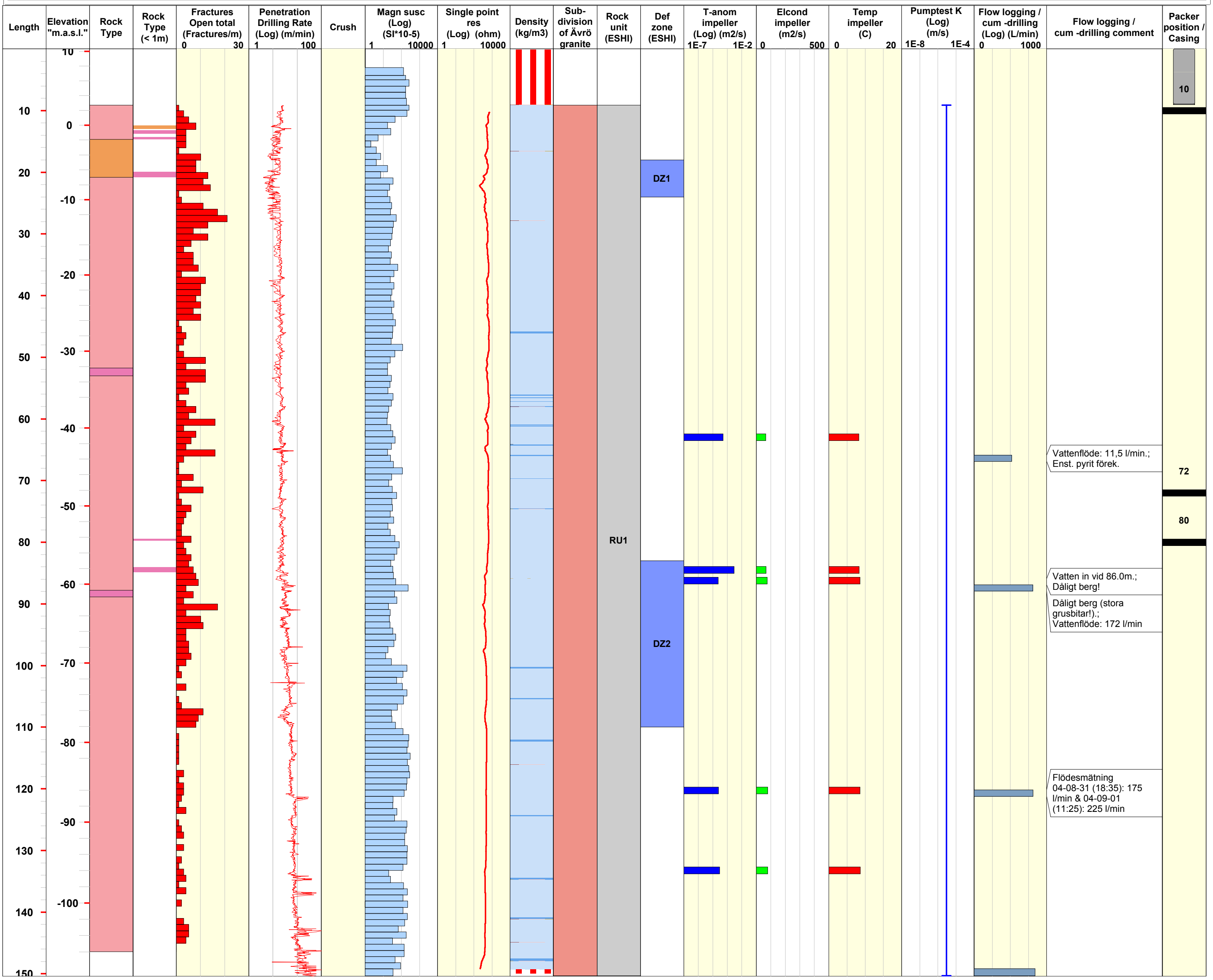
SUBDIVISON OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT (ESHI)
- Medium confidence

PUMPTEST K TEST TYPE
- 1B: Pumpingtest-submersible Pump

DEFORMATION ZONE (ESHI)
- DZ

CASING
- Casing



Title COMPOSITE LOG for percussion borehole HLX22

Site	LAXEMAR	Inclination ToC [°]	-59.43	Elevation [m.a.s.l.ToC]	10.06
Borehole	HLX22	Date of mapping	2004-08-23 00:00:00	Drilling Start Date	2004-08-23 15:30:00
Diameter [mm]	138	Coordinate System	RT90-RHB70	Drilling Stop Date	2004-08-26 09:30:00
Length [m]	163.200	Northing ToC [m]	6366487.83	Plot Date	2007-11-26 22:03:42
Bearing ToC [°]	13.45	Easting ToC [m]	1549661.54	Packer installation for monitoring	2004-12-17 08:00:00

ROCK TYPE LAXEMAR
- Fine-grained granite
- Ävrö granite

DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930

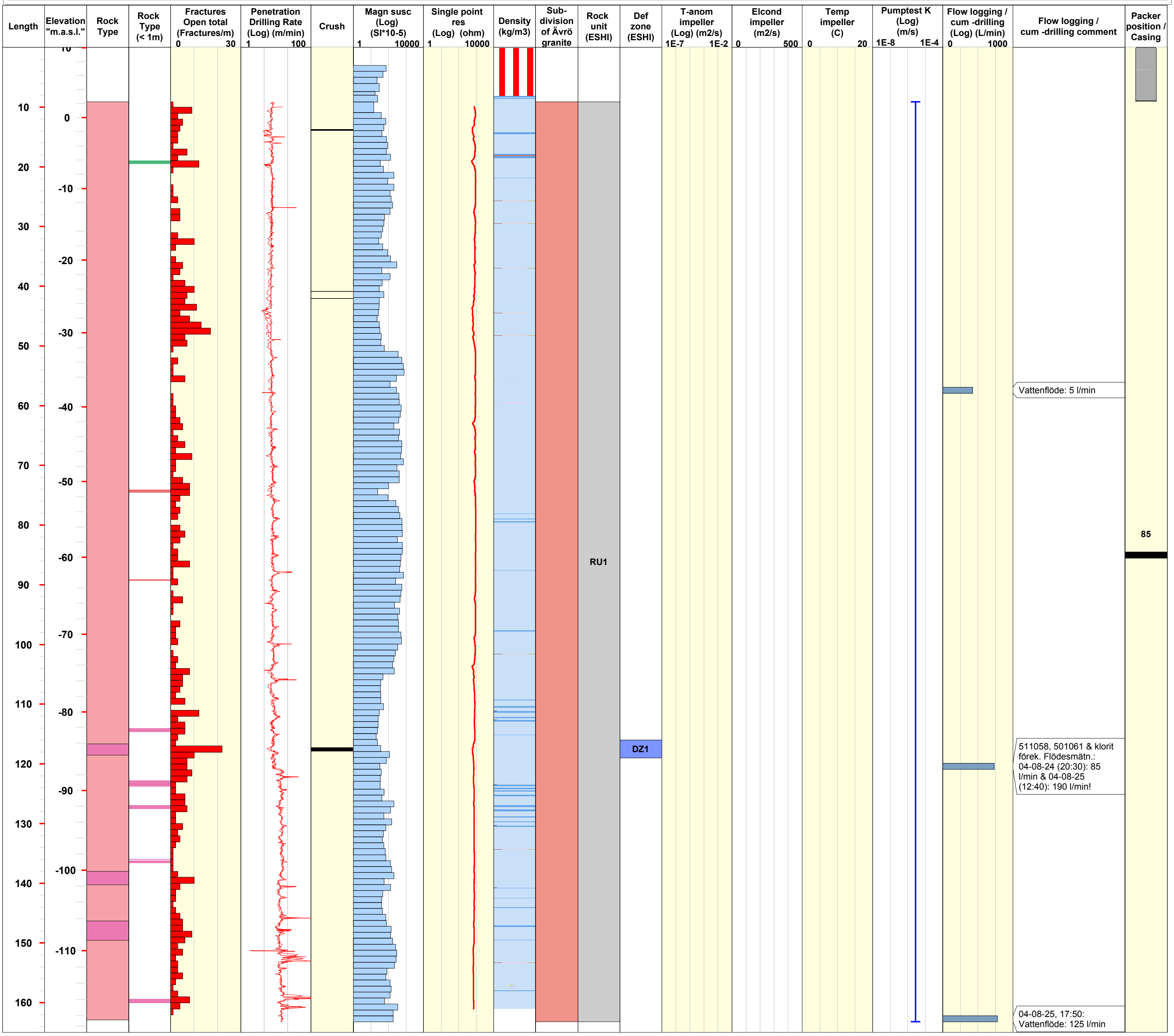
SUBDIVISON OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT (ESHI)
- Medium confidence

DEFORMATION ZONE (ESHI)
- DZ

PUMPTEST K TEST TYPE

CASING
- Casing



Title COMPOSITE LOG for percussion borehole HLX23

Site	LAXEMAR	Inclination ToC [°]	-58.17	Elevation [m.a.s.l.ToC]	14.62
Borehole	HLX23	Date of mapping	2004-09-13 00:00:00	Drilling Start Date	2004-09-13 12:30:00
Diameter [mm]	139	Coordinate System	RT90-RHB70	Drilling Stop Date	2004-09-16 10:00:00
Length [m]	160.200	Northing ToC [m]	6366577.19	Plot Date	2007-11-26 22:03:42
Bearing ToC [°]	182.89	Easting ToC [m]	1548888.72	Packer installation for monitoring	2004-12-10 09:30:00

ROCK TYPE LAXEMAR
- Fine-grained granite
- Ävrö granite
- Fine-grained diorite-gabbro

DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930

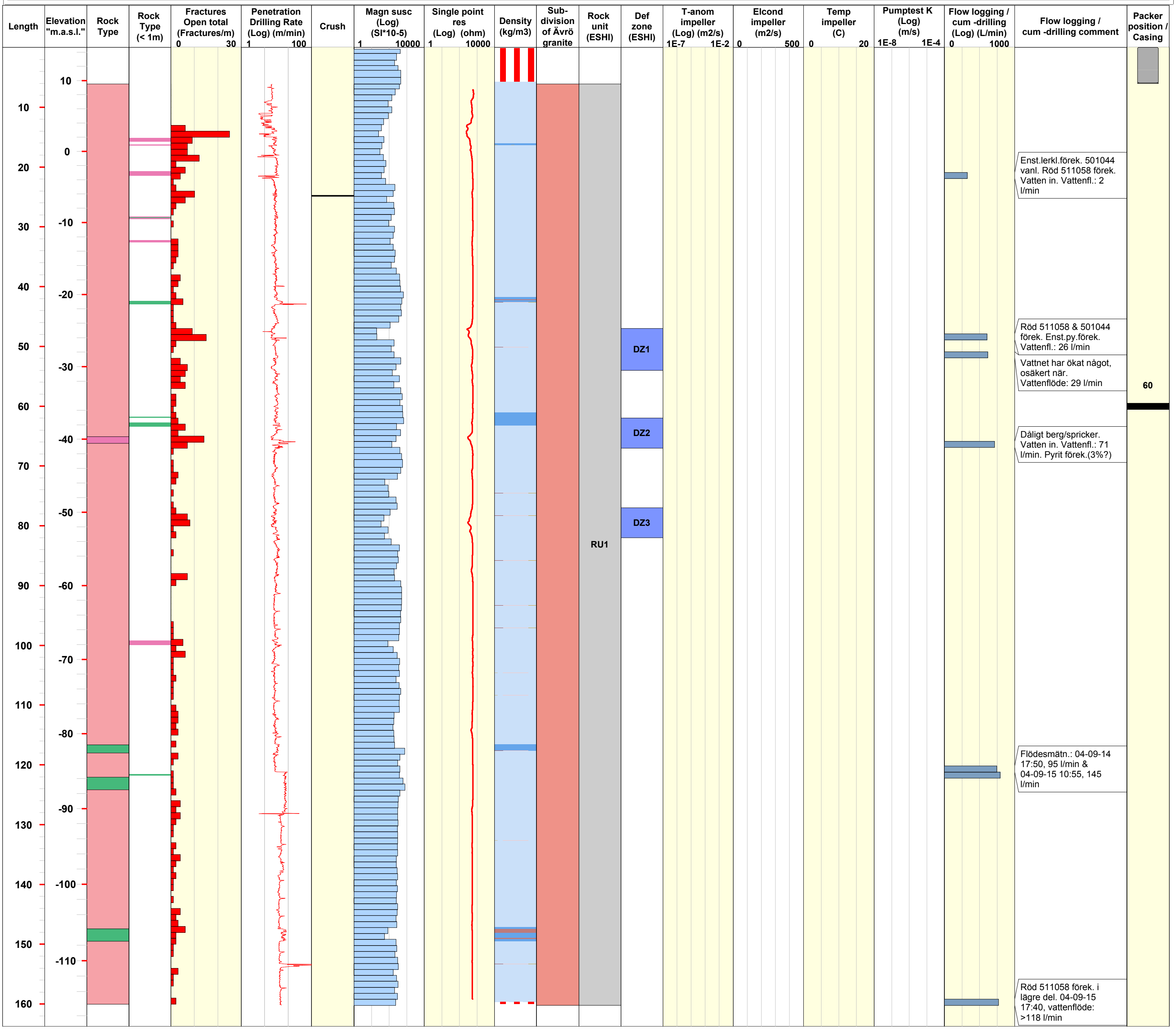
SUBDIVISON OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT (ESHI)
- Medium confidence

DEFORMATION ZONE (ESHI)
- DZ

PUMPTEST K TEST TYPE

CASING
- Casing



Title COMPOSITE LOG for percussion borehole HLX24

Site	LAXEMAR	**Inclination ToC [°]**	-58.38	**Elevation [m.a.s.l.ToC]**	12.74
Borehole	HLX24	**Date of mapping**	2004-09-06 00:00:00	**Drilling Start Date**	2004-09-06 13:00:00
Diameter [mm]	139	**Coordinate System**	RT90-RHB70	**Drilling Stop Date**	2004-09-09 10:00:00
Length [m]	175.200	**Northing ToC [m]**	6520.88	**Plot Date**	2007-11-26 22:03:42
Bearing ToC [°]	10.51	**Easting ToC [m]**	-639.87	**Packer installation for monitoring**	2004-11-04 09:00:00

ROCK TYPE LAXEMAR
- Ävrö granite
- Fine-grained diorite-gabbro

DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930

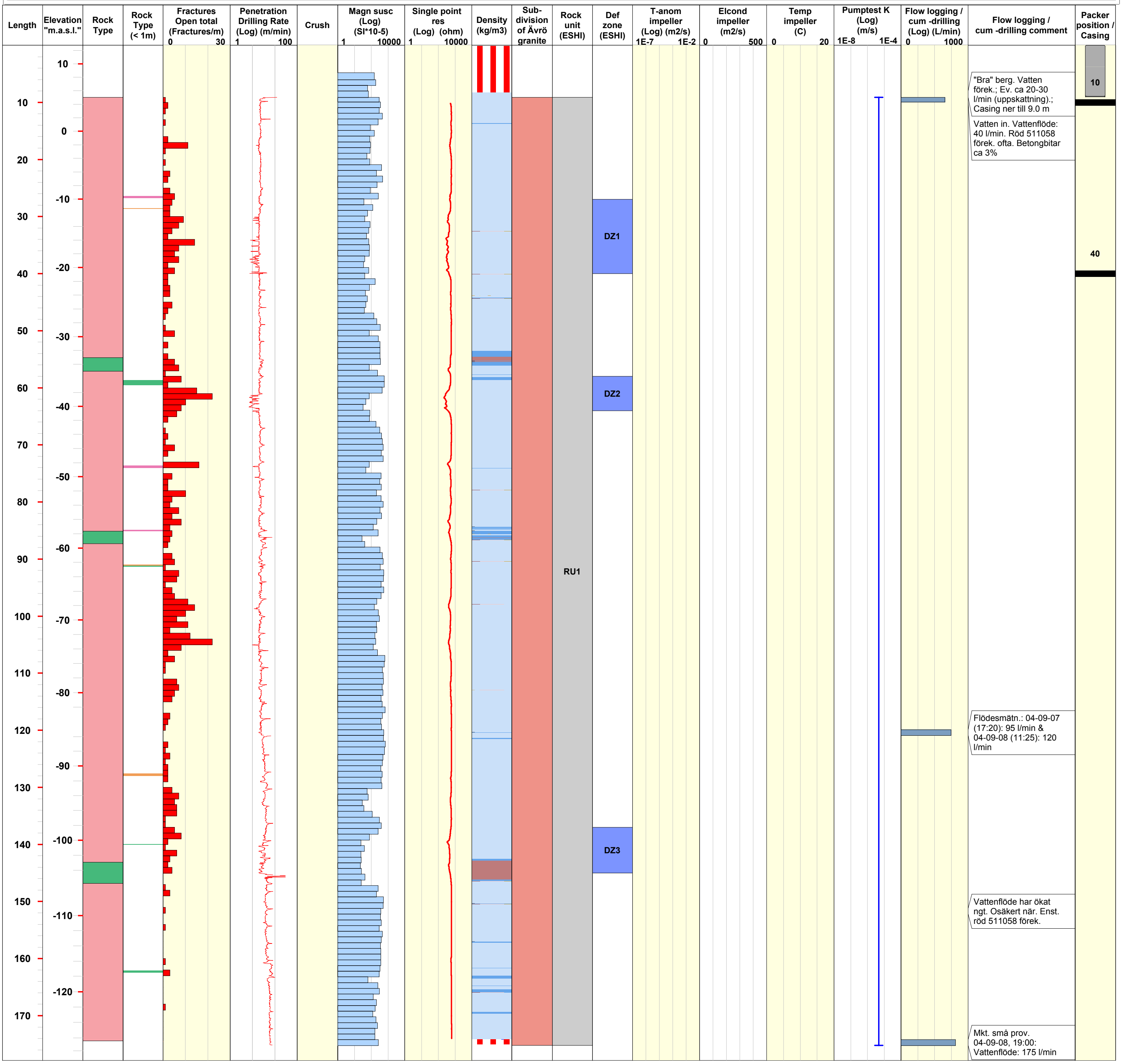
SUBDIVISON OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT (ESHI)
- Medium confidence

DEFORMATION ZONE (ESHI)
- DZ

PUMPTEST K TEST TYPE
- 1B: Pumpingtest-submersible Pump

CASING
- Casing



Title COMPOSITE LOG for percussion borehole HLX25

Site	LAXEMAR	Inclination ToC [°]	-58.58	Elevation [m.a.s.l.ToC]	20.59
Borehole	HLX25	Date of mapping	2004-03-13 12:00:00	Drilling Start Date	2004-08-17 00:00:00
Diameter [mm]	135	Coordinate System	RT90-RHB70	Drilling Stop Date	2004-08-19 00:00:00
Length [m]	202.500	Northing ToC [m]	6366783.16	Plot Date	2007-11-26 22:03:42
Bearing ToC [°]	17.94	Easting ToC [m]	1547776.37	Packer installation for monitoring	2004-11-03 14:15:00

ROCK TYPE LAXEMAR
- Pegmatite
- Granite
- Ävrö granite
- Diorite / Gabbro
- Fine-grained diorite-gabbro

DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930
- dens>2930

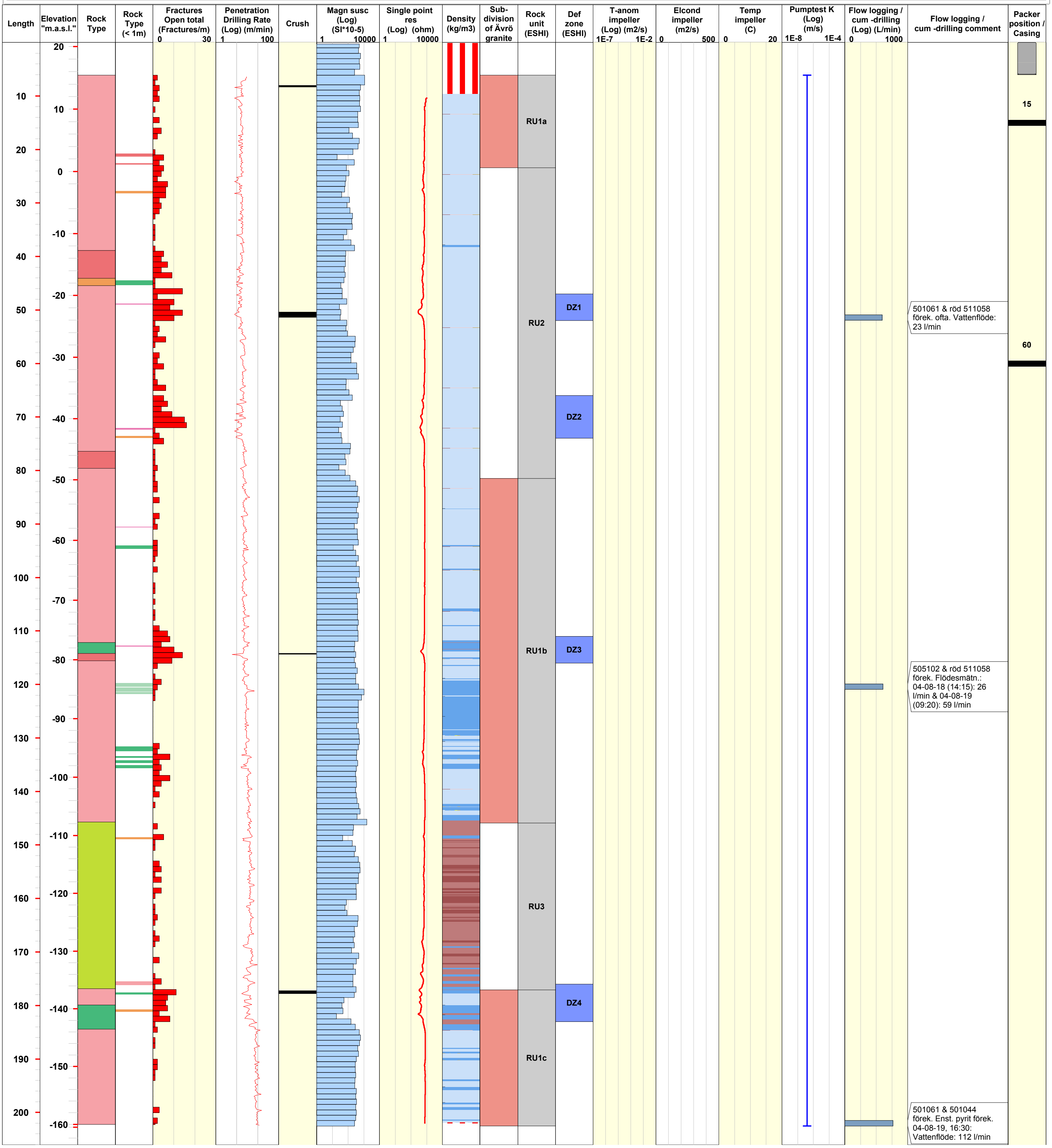
SUBDIVISON OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT (ESHI)
- Medium confidence

DEFORMATION ZONE (ESHI)
- DZ

PUMPTEST K TEST TYPE
- 1B: Pumpingtest-submersible Pump

CASING
- Casing



Title COMPOSITE LOG for percussion borehole HLX30

Site	LAXEMAR	**Inclination ToC [°]**	-61.03	**Elevation [m.a.s.l.ToC]**	12.11
Borehole	HLX30	**Date of mapping**	2004-11-26 00:00:00	**Drilling Start Date**	2004-11-26 07:00:00
Diameter [mm]	139	**Coordinate System**	RT90-RHB70	**Drilling Stop Date**	2004-11-30 17:00:00
Length [m]	163.400	**Northing ToC [m]**	6366729.92	**Plot Date**	2007-11-26 22:03:42
Bearing ToC [°]	55.82	**Easting ToC [m]**	1548026.78	**Packer installation for monitoring**	2004-12-01 14:15:00

ROCK TYPE LAXEMAR
- Ävrö granite
- Fine-grained diorite-gabbro

DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930

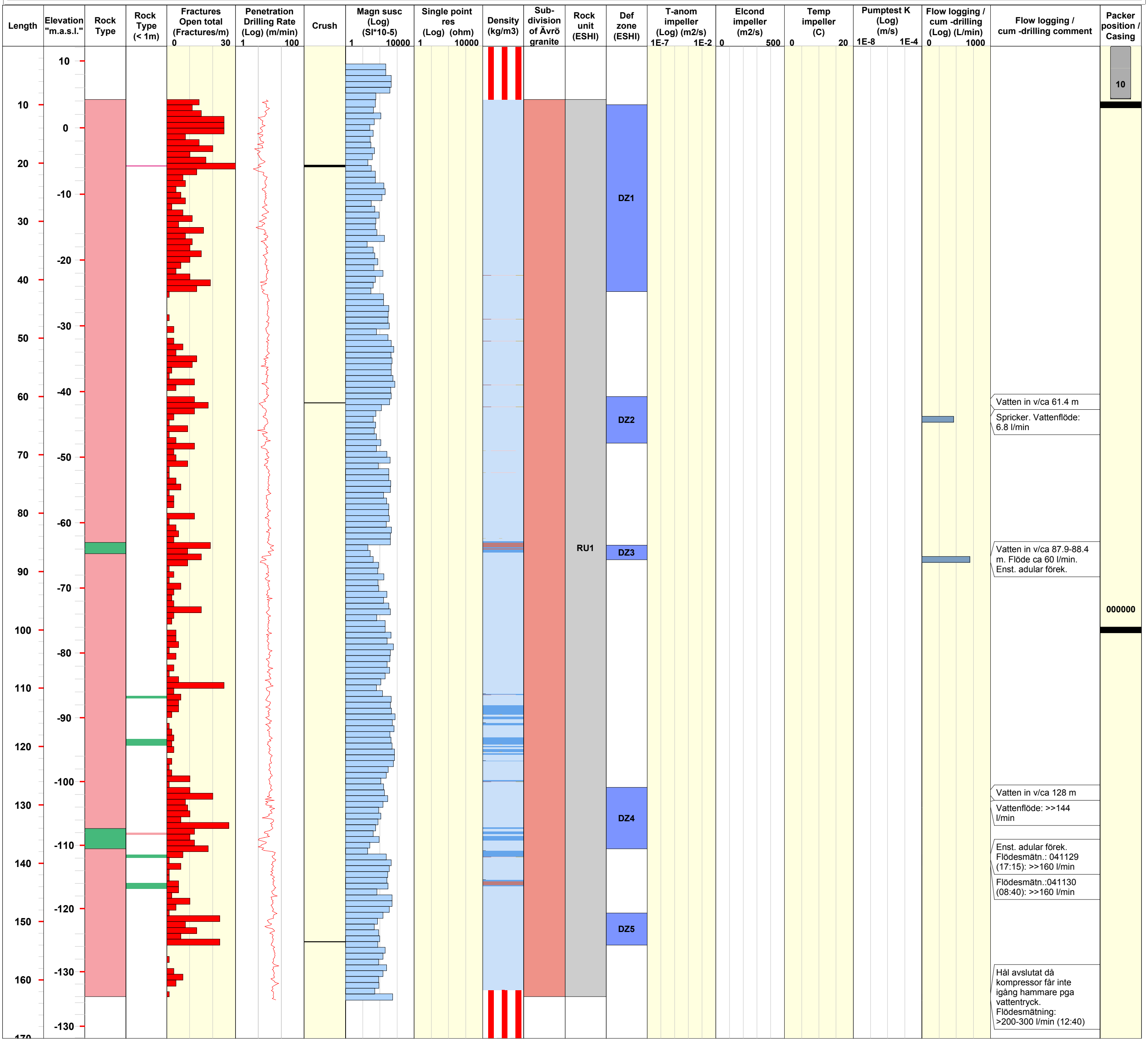
SUBDIVISON OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT (ESHI)
- Medium confidence

DEFORMATION ZONE (ESHI)
- DZ

PUMPTEST K TEST TYPE

CASING
- Casing



Title COMPOSITE LOG for percussion borehole HLX31

Site	LAXEMAR	**Inclination ToC [°]**	-58.75	**Elevation [m.a.s.l.ToC]**	12.09
Borehole	HLX31	**Date of mapping**	2004-12-01 00:00:00	**Drilling Start Date**	2004-12-01 07:00:00
Diameter [mm]	139	**Coordinate System**	RT90-RHB70	**Drilling Stop Date**	2004-12-03 12:00:00
Length [m]	133.200	**Northing ToC [m]**	6366773.69	**Plot Date**	2007-11-26 22:03:42
Bearing ToC [°]	231.77	**Easting ToC [m]**	1548172.31	**Packer installation for monitoring**	2004-12-17 14:43:00

ROCK TYPE LAXEMAR
- Ävrö granite

DENSITY
- unclassified
- dens<2710
- 2710<dens<2820

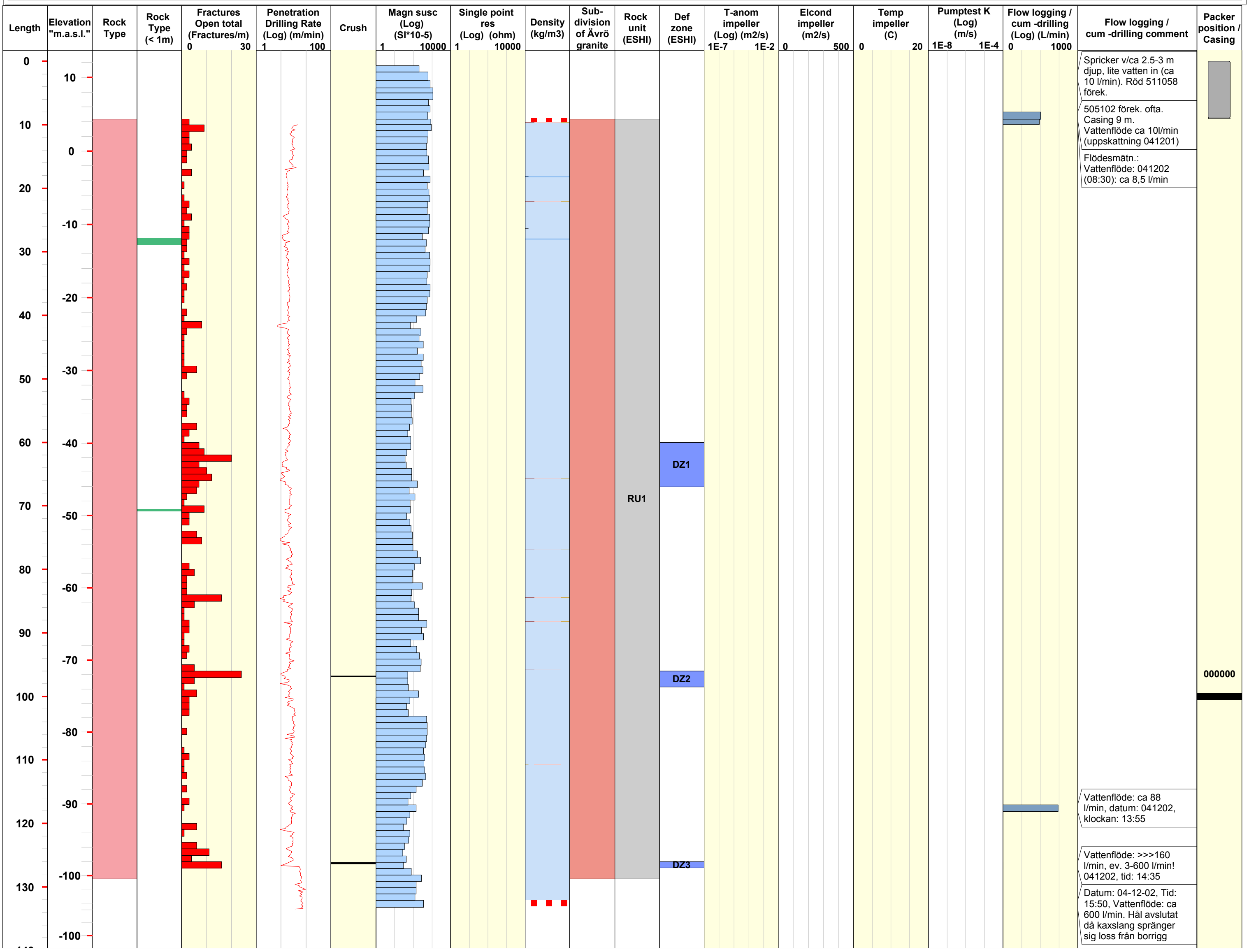
SUBDIVISON OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT (ESHI)
- Medium confidence

PUMPTEST K TEST TYPE

DEFORMATION ZONE (ESHI)
- DZ

CASING
- Casing



Title COMPOSITE LOG for percussion borehole HLX33

Site	LAXEMAR	Inclination ToC [°]	-58.80	Elevation [m.a.s.l.ToC]	12.13
Borehole	HLX33	Date of mapping	2004-12-17 00:00:00	Drilling Start Date	2004-12-17 07:00:00
Diameter [mm]	139	Coordinate System	RT90-RHB70	Drilling Stop Date	2004-12-20 19:15:00
Length [m]	202.100	Northing ToC [m]	6366470.93	Plot Date	2007-11-26 22:03:42
Bearing ToC [°]	21.77	Easting ToC [m]	1548562.75	Packer installation for monitoring	2004-12-22 14:51:00

ROCK TYPE LAXEMAR
- Ävrö granite
- Fine-grained diorite-gabbro

DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930

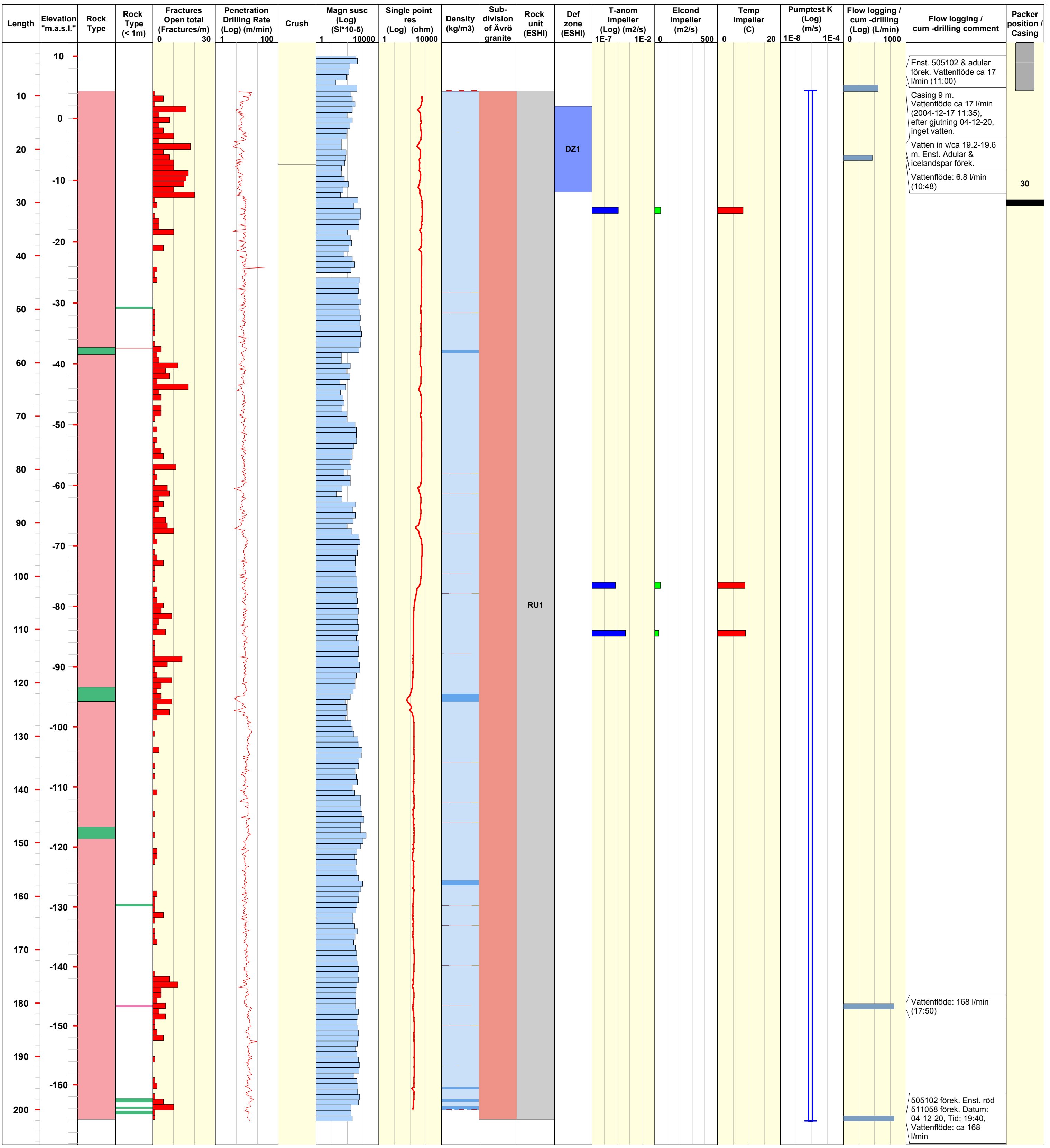
SUBDIVISON OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT (ESHI)
- Medium confidence

DEFORMATION ZONE (ESHI)
- DZ

PUMPTEST K TEST TYPE
- 1B: Pumpingtest-submersible Pump

CASING
- Casing



Title COMPOSITE LOG for cored borehole KLX02

Site	LAXEMAR	Coordinate System	RT90-RHB70	Drilling Start Date	1992-08-15 00:00:00
Borehole	KLX02	Northing ToC [m]	6366768.99	Drilling Stop Date	1992-09-05 00:00:00
Diameter [mm]	76	Easting ToC [m]	1549224.09	Surveying Date	2001-05-11 00:00:00
Length [m]	1700.500	Elevation [m.a.s.l.ToC]	18.40	Chemistry class	5
Bearing ToC [°]	357.30	Inclination ToC [°]	-84.99	Plot Date	2007-11-25 22:03:30

Packer installation for monitoring

ROCK TYPE LAXEMAR
- Fine-grained granite
- Ävrö granite
- Fine-grained dioritoid
- Fine-grained diorite-gabbro

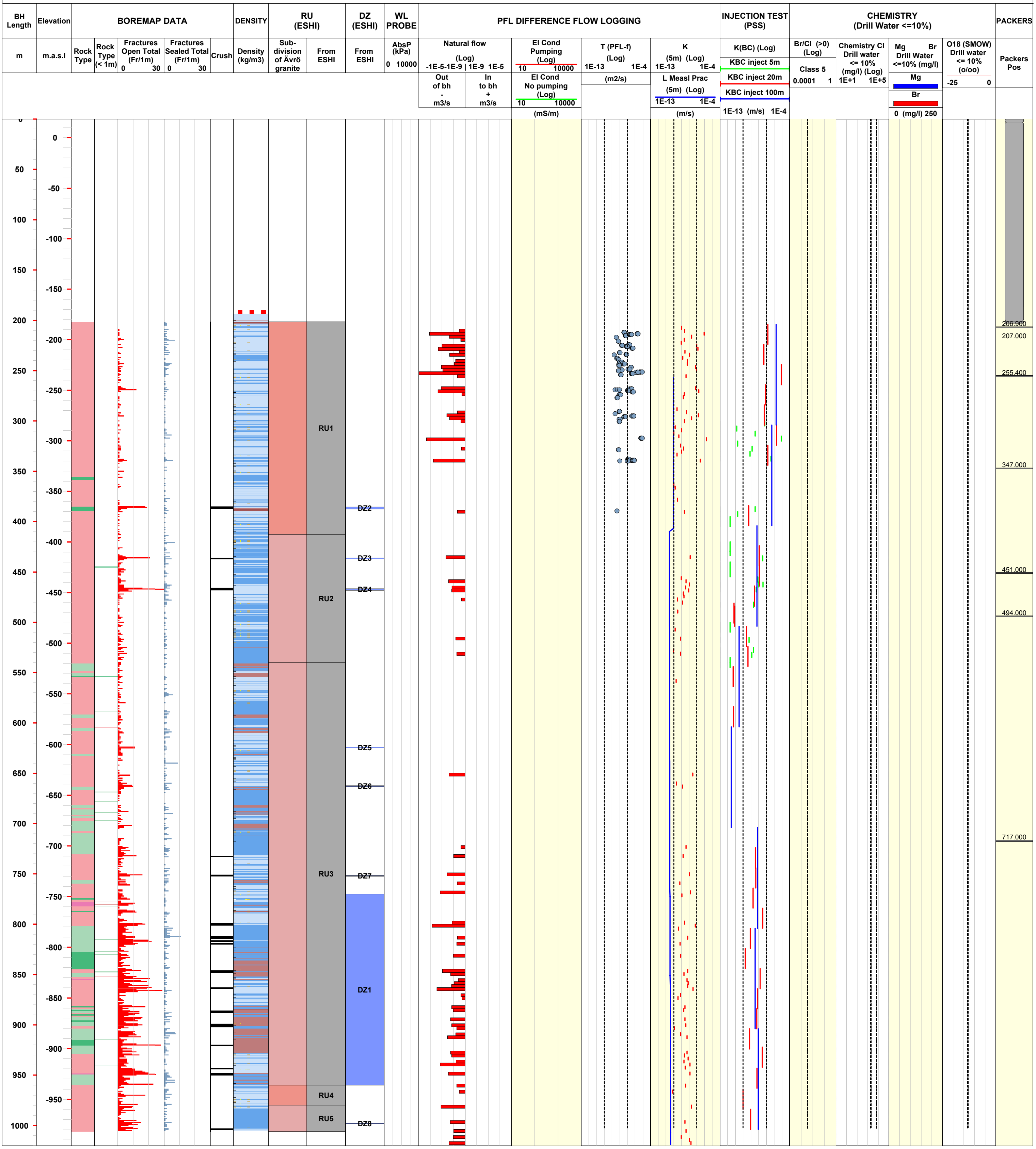
DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930
- dens>2930

SUBDIVISION OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT FROM ESHI
- High confidence

CASING
- Casing

DEFORMATION ZONE FROM ESHI
- DZ



Title COMPOSITE LOG for cored borehole KLX04

Site	LAXEMAR	**Coordinate System**	RT90-RHB70	**Drilling Start Date**	2004-03-13 11:00:00
Borehole	KLX04	**Northing ToC [m]**	6367077.19	**Drilling Stop Date**	2004-06-28 10:12:00
Diameter [mm]	76	**Easting ToC [m]**	1548171.94	**Surveying Date**	2004-02-19 13:10:00
Length [m]	993.490	**Elevation [m.a.s.l.ToC]**	24.09	**Chemistry class**	3
Bearing ToC [°]	0.93	**Inclination ToC [°]**	-84.75	**Plot Date**	2007-11-25 22:03:30

Packer installation for monitoring 2005-01-29 00:00:00

ROCK TYPE
- Fine-grained granite
- Granite
- Ävrö granite
- Quartz monzodiorite
- Diorite / Gabbro
- Fine-grained dioritoid
- Fine-grained diorite-gabbro

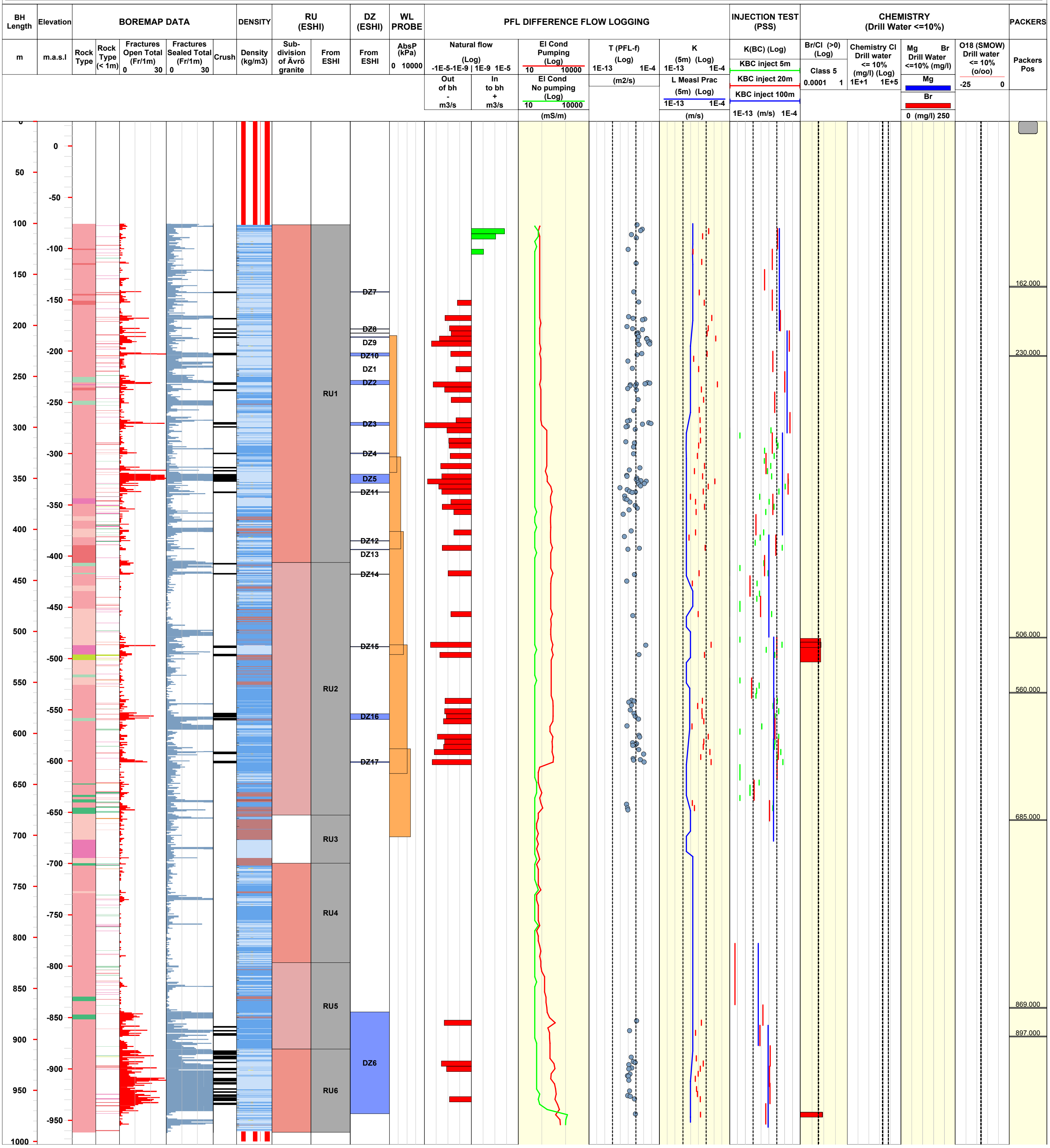
DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930
- dens>2930

SUBDIVISION OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT FROM ESHI
- High confidence

DEFORMATION ZONE FROM ESHI
- DZ

CASING
- Casing



Title COMPOSITE LOG for cored borehole KLX07A

Site	LAXEMAR	**Coordinate System**	RT90-RHB70	**Drilling Start Date**	2005-01-06 14:00:00
Borehole	KLX07A	**Northing ToC [m]**	6366752.09	**Drilling Stop Date**	2005-05-04 10:00:00
Diameter [mm]	76	**Easting ToC [m]**	1549206.86	**Surveying Date**	2005-05-23 10:20:00
Length [m]	844.730	**Elevation [m.a.s.l.ToC]**	18.47	**Chemistry class**	5
Bearing ToC [°]	174.18	**Inclination ToC [°]**	-60.03	**Plot Date**	2007-11-25 22:03:30

Packer installation for monitoring

ROCK TYPE LAXEMAR
- Fine-grained granite
- Ävrö granite
- Fine-grained diorite-gabbro

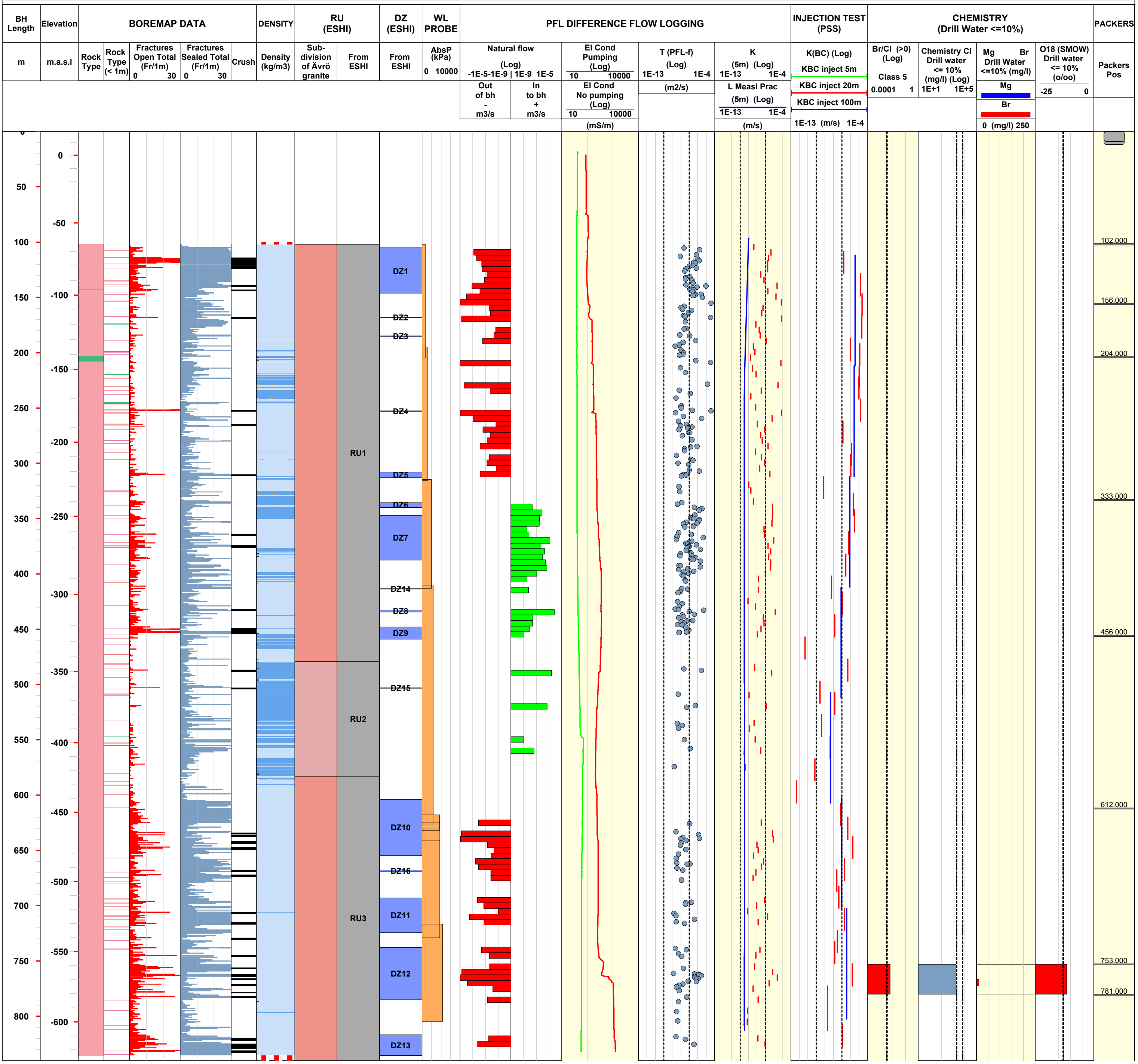
DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930

SUBDIVISION OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK UNIT FROM ESHI
- High confidence

CASING
- Casing

DEFORMATION ZONE FROM ESHI
- DZ



Title COMPOSITE LOG for cored borehole KLX07B

Site	LAXEMAR	Coordinate System	RT90-RHB70	Drilling Start Date	2005-05-23 18:00:00	Packer installation for monitoring
Borehole	KLX07B	Northing ToC [m]	6366753.14	Drilling Stop Date	2005-06-03 08:00:00	
Diameter [mm]	76	Easting ToC [m]	1549206.76	Surveying Date	2005-06-07 15:55:00	
Length [m]	200.130	Elevation [m.a.s.l.ToC]	18.38	Chemistry class	3	
Bearing ToC [°]	174.33	Inclination ToC [°]	-85.14	Plot Date	2007-11-25 22:03:30	

ROCK TYPE LAXEMAR
- Ävrö granite
- Fine-grained diorite-gabbro

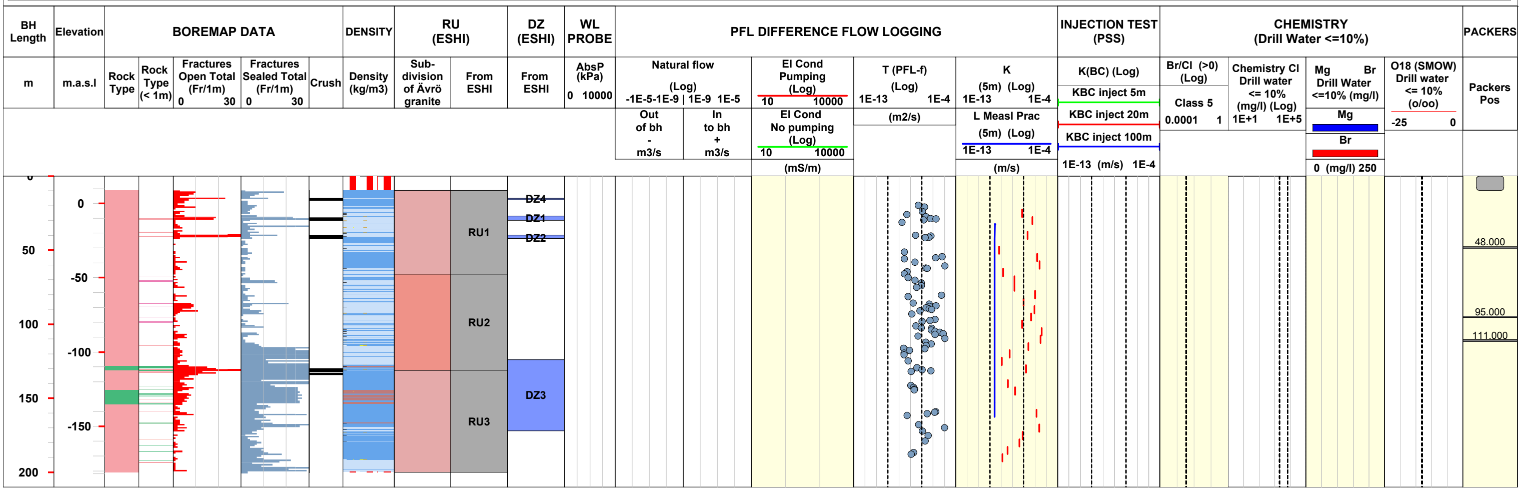
DENSITY
- unclassified
- dens<2710
- 2710<dens<2820
- 2820<dens<2930
- dens>2930

SUBDIVISION OF ÄVRÖ GRANITE
- Ävrö granite
- Ävrö quartz monzodiorite
- Ävrö granodiorite

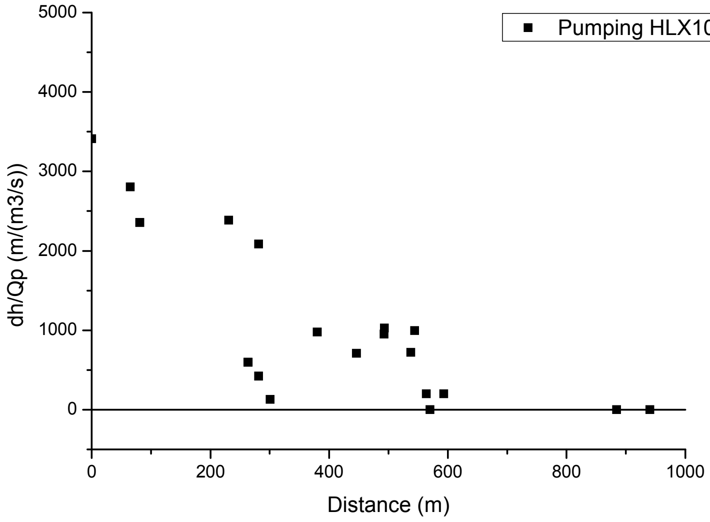
ROCK UNIT FROM ESHI
- High confidence

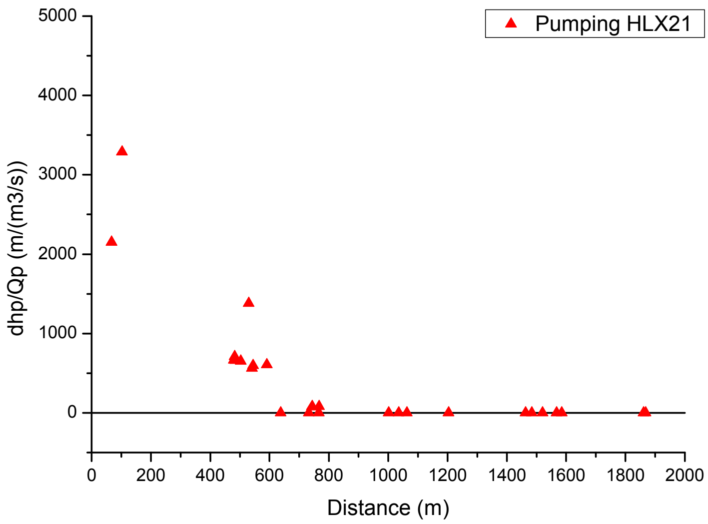
DEFORMATION ZONE FROM ESHI
- DZ

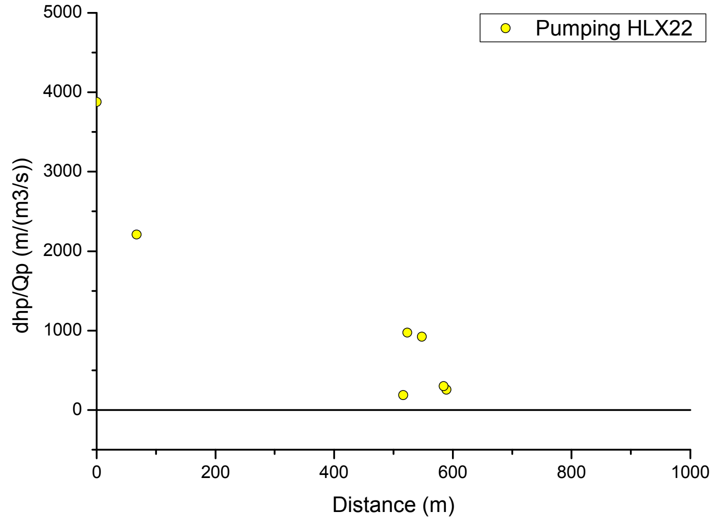
CASING
- Casing

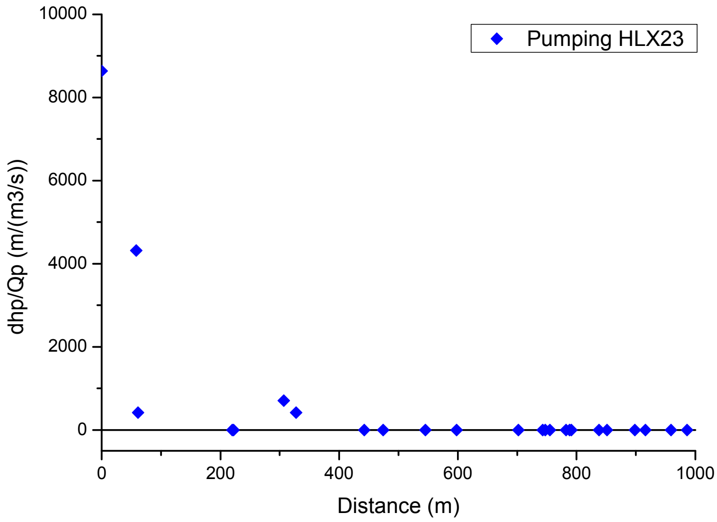


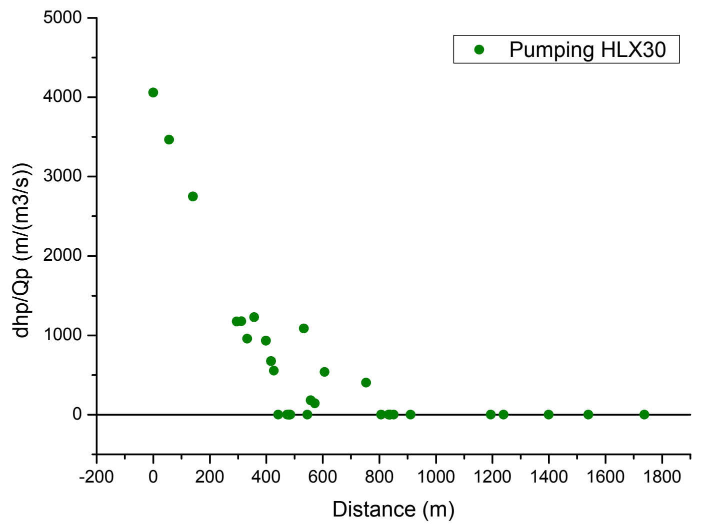
Appendix 13 Distance response plots

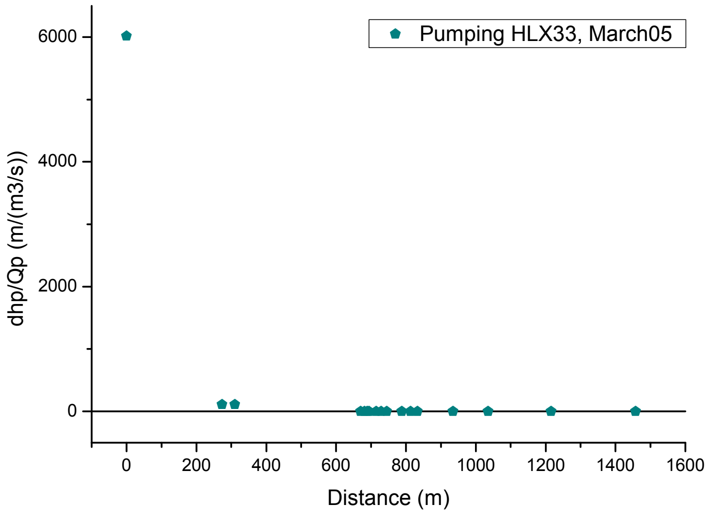


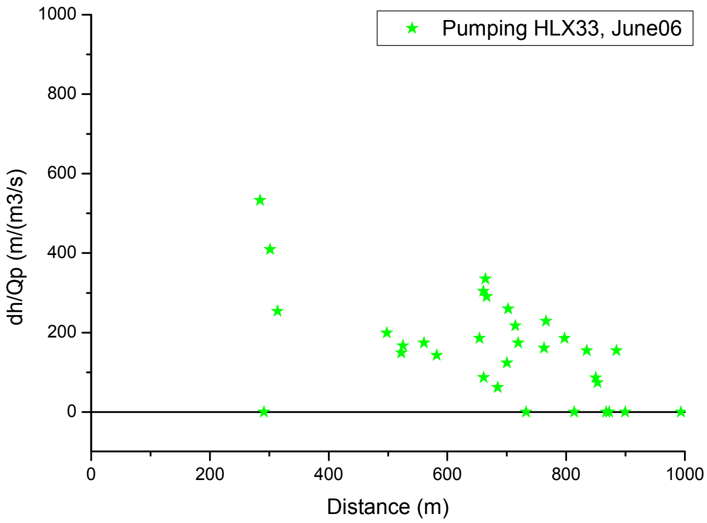



Pumping HLX22
dhp/Qp (m/(m3/s))
Distance (m)
5000
4000
3000
2000
1000
0
0
200
400
600
800
1000


Pumping HLX23
dhp/Qp (m/(m3/s))
Distance (m)
10000
8000
6000
4000
2000
0
0
200
400
600
800
1000


Pumping HLX30
dhp/Qp (m/(m3/s))
Distance (m)
5000
4000
3000
2000
1000
0
-200
0
200
400
600
800
1000
1200
1400
1600
1800


Pumping HLX33, March05
dhp/Qp (m/(m3/s))
6000
4000
2000
0
0
200
400
600
800
1000
1200
1400
1600
Distance (m)


Pumping HLX33, June06
dh/Qp (m/(m3/s)
1000
800
600
400
200
0
0
200
400
600
800
1000
Distance (m)

		Flow regimes of best choice parameter test phase								
Obshole and point of application	Pumped hole	HLX10 85m	HLX21 88m	HLX22 163m	HLX23 67m	HLX24 121m	HLX25 121m	HLX30 138m	HLX33 181m March05	HLX33 181m June06
	Section:	3 - 85	9 - 150	9 - 163	6 - 160	9 - 175	6 - 202	9 - 163	9 - 202	9 - 202
	Qp (L/min):	93	105	98	102	113	100	106	40	97
	tp (d):	43	4	1	3	1	1	4	0,3	40
HLX10_85m	3-85	**w2-**								
HLX11:2 _15m	6-16	L2-	w2-		L2-					L20
HLX11:1 _70m	17 - 70	L2-	w2-		L2-					L20
HLX13_111m	12-200							L2-		
HLX14_25m	11-116							L2-		
HLX21:2_ 67m	9 - 80	L2-			L2-					
HLX21:1_88m	81-150	L2-	**12-**	L2-1	L2-					
HLX22:2_58m	9 - 85	L4-	w4-		L2-					
HLX22:1_163	86 - 163	w2-	w4-	**w2-1**	L2-					
HLX23:2 _49m	6,10 - 60	w2-	L2-							L20
HLX23:1 _67m	61 - 160,2	w4-	L2-		**L2-**					L20
HLX24:2 _10m	9,10 - 40	L4-			L2-1				L2-	L20
HLX24:1 _121m	41 - 175,20	L4-	L2-		L2-	**w2-**			L2-	L20
HLX25:2 _52m	6,12 - 60							L2-		L20
HLX25:1 _121m	61 - 202,5						**12-**	L2-		L20
HLX30:2 _88m	9,10 - 100									L2-
HLX30:1 _138m	101 - 163,4				L2-			**w2-**		L20
HLX31:2_10m	9,10 - 100				L2-			L40		
HLX31:1_118m	101 - 133,2				L2-			L20		L2-
HLX31_118m	9 - 133									
HLX33:2_22m	9 - 30,0	L4-			L2-			L2-		
HLX33:1_ 181m	31 - 202	L4-			L2-			L2-		
HLX33_181m	9 - 202								**w2-**	**w20**
KLX02:3 205	203-207			L2-						
KLX02:2 232m	208 - 255			L2-						
KLX02:1_304m	256 - 1700			L2-						
KLX02:8_205.5m	203-208	L4-	L2-		L2-					L2-
KLX02:7_278m	209-347	L4-	L2-		L2-					L2-
KLX02:6_399,5m	348-451	L4-	L2-		L2-					L20
KLX02:5_473m	452-494	L2-			L2-					L20
KLX02:4_606m	495-717				L2-					
KLX02:3_931m	718-1144									
KLX02:2_1154.5m	1145-1164									
KLX02:1_1432.5m	1165-1700									
KLX04:8_ 87m	12.2-162									L2-
KLX04:7_ 210m	163-230									L20
KLX04:6_ 368m	231-506							L2-		L20
KLX04:5_ 518m	507-530							L2-		L20
KLX04:4_ 608m	531-685							L2-		L20
KLX04:3_ 777m	686-869							L2-		
KLX04:2_ 884	870-897									
KLX04:1_ 949	898-993									
KLX07B:3_29m	10 - 48		L2-							
KLX07B:2_80m	49 - 111		L2-							
KLX07B:1_156m	112 - 200		L2-							
KLX07B:2_ 80m	10-94									L20
KLX07B:1-_ 156m	95-200									L20
KLX07A:8_102m	12-103									L20
KLX07A:7_160m	104-203									
KLX07A:6_250m	204-332									L20
KLX07A:5_380m	333-456									L20
KLX07A:4_490m	457-611									
KLX07A:3_640m	612-752									
KLX07A:2_765m	753-780									
KLX07A:1_820m	781-845									

Flow regime legend

WellAquiferBoundary

well
w : WBS
L :line source
1 :linear flow, fracture

aquifer
2 : radial flow
4 : double porosity radial flow

boundary
- : inifinte acting radial , no boundary
-1 : impermeable boundary
+1 : constant head boundary
0 : leaky boundary

The radial composite regime have been lumped together withe the radial flow regime, denote 2 above.