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## **Oskarshamn site investigation**

# **Evaluation of hydraulic interference tests, pumping borehole KLX27A**

## Subarea Laxemar

Cristian Enachescu, Stephan Rohs, Reinder van der Wall, Phillip Wolf Golder Associates GmbH

Mansueto Morosini, Svensk Kärnbränslehantering AB

February 2008

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*Keywords:* Site/project, Hydrogeology, Hydraulic tests, Pump tests, Interference tests, Hydraulic parameters, Transmissivity.

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## Abstract

Hydraulic interference tests have been performed at the Laxemar area in the active pumping borehole KLX27A in two different sections. During the pumping phase the pressure response in 16 observation boreholes was monitored in up to ten different sections per borehole, which were separated with packers. The tests are part of the general program for site investigations and specifically for the Laxemar subarea. The hydraulic testing programme has the aim to characterise the rock with respect to its hydraulic properties and the interference tests have the purpose to resolve hydraulic connectivity in the fracture network, especially to the selected lineament NW042. Data is subsequently delivered for the site descriptive model.

This report describes the results and primary data evaluation of the interference tests in borehole KLX27A performed between 10<sup>th</sup> of October and 23<sup>rd</sup> of November 2007. The tests were executed by SKB during drilling of KLX27A through a wireline tool.

The main objective of the interference testing was to characterize the rock around the borehole with special respect to connectivity of lineaments. Transient evaluation of the flow and recovery period of the constant rate interference pump tests provided additional information such as transmissivities, flow regimes and hydraulic boundaries.

## Sammanfattning

Hydrauliska interferenstester har utförts i Laxemarområdet med pumpning i borrhål KLX27A i två sektioner. Under pumpningen har tryckresponsen uppmätts i 16 observationshål i upp till tio sektioner per borrhål med enskild manschett. Hydraultestprogrammet har som mål att karakterisera berget utifrån dess hydrauliska egenskaper och interferenstesterna har som syfte att undersöka konnektiviteten mellan sprickzoner, särskilt till lineament NW042. Erhållna data utgör sedan indata för den platsspecifika modellen.

Följande rapport redovisar resultaten och primärdata från utvärderingen av interferenstesterna i borrhål KLX27A utförda mellan den 10 october till den 23 november 2007. Testerna utfördes av SKB under borrning av KLX27A med en wireline sond.

Huvudsyftet med interferenstesterna var att karakterisera berget i anslutning till borrhålet med avseende på konnektivitet mellan olika lineament. Transient utvärdering av flödes- och återhämtningsfasen för pumptesterna utförda med konstant flöde vid interferenstesten har givit ytterligare information med avseende på transmissivitet, flödesregim och hydrauliska gränser.

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- Appendix 3 SICADA data tables (pump tests)
- Appendix 4 Index calculation
- Appendix 5 Observation holes test analysis diagrams
- Appendix 6 Observation holes test summary sheets
- Appendix 7 SICADA data tables (observation holes)
- Appendix 8 Nomenclature

## 1 Introduction

A general program for site investigations presenting survey methods has been prepared /SKB 2001a/ as well as a site specific program for the investigations in the Laxemar area /SKB 2006/. The hydraulic interference tests form part of the site characterization program in the work breakdown structure of the execution program /SKB 2002/. The execution of the investigations is basically controlled through a general program /SKB 2001a/ and a program specifically for the Oskarshamn location /SKB 2001b/.

This document reports the results and evaluation gained by the hydraulic interference tests (pumping tests) performed in borehole KLX27A, which is one of the activities performed within the site investigation at Oskarshamn. The evaluation was carried out in accordance with activity plan AP PS 400-07-72. A fuller account of the execution of these tests is given in the KLX27A drilling report /Ask et al. 2008/. In Table 1-1 controlling documents for performing this activity are listed. Both activity plan and method descriptions are SKB's internal controlling documents.

Hydraulic interference tests (pumping tests) have been performed by SKB in borehole KLX27A in two different sections with section lengths of 37 m and 11 m. Both sections were separated with packers above and below. Monitoring of pressure response was carried out by SKB in 16 additional boreholes (see Figure 1-1). Monitoring data were delivered by SKB for further analyses.

Measurements were carried out between 10<sup>th</sup> of October and 23<sup>rd</sup> of November 2007 in the framework of the drilling of KLX27A according to AP PS 400-07-58) following the methodologies described in SKB MD 321.002 (wireline testing), SKB MD 321.003 (pump tests), SKB MD 330.003 (interference tests), the activity plan AP PS 400-07-72 (SKB internal controlling documents) specifying in detail the interference tests campaign. Data and results were delivered to the SKB site characterization database SICADA where they are traceable by the activity plan number.

| Activity plan  | Number                       | Version |
|--|------------------------------|---------|
| Utvärdering och rapporting av interferenstester I KLX27A och KLX19A.                                   | AP PS 400-07-72 (evaluation) | 1.0     |
| Kärnborrning KLX27A.   | AP PS 400-07-58 (execution)  | 1.0     |
| Method descriptions  | Number                       | Version |
| Analysis of injection and single-hole pumping tests.   | SKB MD 320.004e              | 1.0     |
| Hydraulic injection tests.   | SKB MD 323.001               | 1.0     |
| Metodbeskrivning för Interferenstester.  | SKB MD 330.003               | 1.0     |
| Metodbeskrivning för vattenprovtagning, pumptests och tryckmätning<br>i samband med wireline-borrning. | SKB MD 321.002               | 1.0     |
| Metodbeskrivning för hydrauliska enhålspumptester.   | SKB MD 321.003               | 1.0     |
| Instruktion för rengöring av borrhålsutrustning och viss markbaserad utrustning.                       | SKB MD 600.004               | 1.0     |
| Instruktion för längdkalibrering vid undersökningar I kärnborrhål.                                     | SKB MD 620.010               | 1.0     |
| Allmänna ordnings-, skydds- och miljöregler för platsundersökningar Oskarshamn.                        | SKB SDPO-003                 | 1.0     |
| Miljökontrollprogram Platsundersökningar.  | SKB SDP-301                  | 1.0     |
| Hantering av primärdata vid platsundersökningar.   | SKB SDP-508                  | 1.0     |
|  |                              |         |

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



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

The hydraulic testing programme has the aim to characterise the rock with respect to its hydraulic properties of the fractured zones and rock mass between them. This report describes the results and primary data evaluation of the interference tests in borehole KLX27A. The commission was conducted by Golder Associates AB and Golder Associates GmbH.

Borehole KLX27A is situated in the Laxemar area approximately 6 km west of the nuclear power plant of Simpevarp, Figure 1-1. The borehole was drilled from August 2007 to November 2007 at 650.56 m length with an inner diameter of 76 mm and an inclination of -65.37°. The upper 14.76 m is cased with large diameter telescopic casing ranging from diameter (outer diameter) 208–323 mm. The upper 75.60 m of the borehole is percussion drilled with a diameter from 157 mm to 197 mm.

## 2 Objective and scope

The major objective of the performed testing program was the interference testing in order to resolve the hydraulic connectivity of the fracture network. A special additional objective of the interference tests was to resolve the hydraulic properties of the lineament NW042 and of a diorite dyke which is connected to the lineament NS001. Previous investigations indicated that this diorite dyke may work as hydraulic barrier /Enachescu et al. 2007/.

Both phases of each pump test (perturbation and recovery) were analysed to provide more information to characterize the rock around the borehole (with special consideration of the mentioned lineament NW042) and the hydraulic properties of the Diorite dyke connected to the lineament NS001.

The scope of work consisted of preparation and analysis of data of pumping tests in two different sections (37 m and 11 m section length). The analysis and reporting for this report contains the measurements in KLX27A, as well as the data of the observation boreholes, both recorded, collected and delivered by SKB.

The following pump tests were performed between 10<sup>th</sup> of October and 23<sup>rd</sup> of November 2007.

## 2.1 Conditions that possibly affect the observed responses besides responses due to the source intended to study

Besides the response due to the pumping in KLX27A (source) the observed responses were influenced by following effects:

- all observation holes were influenced by earth-tidal effects,
- all sections of the observation hole HLX32 were influenced by an unknown effect during pumping in KLX27A in section 210–247 m.

#### 2.2 Pumped borehole

Technical data of the borehole KLX27A is shown in Table 2-2. The reference point in the borehole is the centre of top of casing (ToC), given as Elevation in the table below. The Swedish National coordinate system (RT90) is used in the x-y direction and RHB70 in the z-direction. Northing and Easting refer to the top of the boreholes at the ground surface. Information to the observed boreholes was not presented.

| Borehole | Priority | Secup<br>[mbToC] | Seclow<br>[mbToC] | Seclen<br>[m] | Duration pumping [h] | Duration recovery<br>[h] |
|----------|----------|------------------|-------------------|---------------|----------------------|--------------------------|
| KLX27A   |          | 210.00           | 247.00            | 37.00         | 64.0                 | 49.0                     |
| KLX27A   |          | 639.20           | 650.56            | 11.00         | 15.0                 | 42.5                     |
|          |          |                  |                   | Total:        | 79.0                 | 91.5                     |

| Table 2-1. Performed test programm | Table 2-1. | Performed | test | programme |
|------------------------------------|------------|-----------|------|-----------|
|------------------------------------|------------|-----------|------|-----------|

| Title   | Value  |  |   |                                    |   |
|---|--|--|---|------------------------------------|---|
| Old idcode name(s):<br>Comment:<br>Borehole length (m):<br>Reference level: | KLX27A<br>No comment e<br>650.56<br>TOC  | exists   |   |                                    |   |
| Drilling period(s):   | From date<br>2007-08-15<br>2007-10-08  | To date<br>2007-08-27<br>2007-11-21  | Secup (m)<br>0.16<br>75.60  | Seclow (m)<br>75.60<br>650.56      | Drilling type<br>Percussion drilling<br>Core drilling |
| Starting point coordinate:<br>(centerpoint of TOC)                          | Length (m)<br>0.000<br>3.00  | Northing (m)<br>6365608.29<br>6365609.54   | Easting (m)<br>1546742.63<br>1546742.65                             | Elevation (masl)<br>16.98<br>14.25 | Coord system<br>RT90-RHB70<br>RT90-RHB70              |
| Angles:   | Length (m)<br>0.00   | Bearing<br>0.73  | Inclination (– =<br>–65.37  | = down)<br>RT90-RHB70              |   |
| Borehole diameter:  | Secup (m)<br>0.16<br>9.20<br>14.76<br>73.50<br>75.60<br>77.02  | Seclow (m)<br>9.20<br>14.76<br>73.50<br>75.60<br>77.02<br>650.56                     | Hole diam (m)<br>0.341<br>0.254<br>0.197<br>0.157<br>0.086<br>0.076 |                                    |   |
| Core diameter:  | Secup (m)<br>75.60<br>76.12  | Seclow (m)<br>76.12<br>650.56  | Core diam (m)<br>0.072<br>0.050                                     | )                                  |   |
| Casing diameter:  | Secup (m)<br>0.00<br>0.16  | Seclow (m)<br>14.76<br>9.20  | Case in (m)<br>0.200<br>0.310                                       | Case out (m)<br>0.208<br>0.323     |   |
| Cone dimensions:  | Secup (m)<br>72.28<br>75.28  | Seclow (m)<br>75.28<br>77.02   | Cone in (m)<br>0.100<br>0.080                                       | Cone out (m)<br>0.104<br>0.084     |   |
| Grove milling:  | Length (m)<br>100.00<br>150.00<br>200.00<br>250.00<br>300.00<br>350.00<br>400.00<br>450.00<br>550.00<br>600.00<br>630.00 | Trace detectal<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes | ble   |                                    |   |

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

## 2.3 Tests

The tests performed in KLX27A are listed in Table 2-4. They were conducted according to the Activity Plan AP PS 400-07-58 (SKB internal document). All tests were conducted as constant rate pump tests. Interference tests were carried out with additional installation of pressure transducers in selected monitoring boreholes. Groundwater data of further monitoring boreholes were provided by SKB.

Observations were made in the following boreholes (Table 2-3).

## 2.4 Control of equipment

As the pump tests were not performed by Golder it is just assumed that control of equipment was performed according to a Quality plan. The basis for equipment handling is described in the "Mätssystembeskrivning" SKB MD 345.101–123 which is composed of two parts 1) management description, 2) drawings and technical documents of the modified PSS2 tool.

|  | Table 2-3. | <b>Observation boreholes – see</b> | Tables 5-2 and 5-3 for | <sup>r</sup> distances and responses. |
|--|------------|------------------------------------|------------------------|---------------------------------------|
|--|------------|------------------------------------|------------------------|---------------------------------------|

| Bh ID | No of<br>Intervals<br>monitored | Log<br>time<br>[s] | Bh ID  | No of<br>Intervals<br>monitored | Log<br>time<br>[s] | Bh ID  | No of<br>Intervals<br>monitored | Log<br>time<br>[s] |
|-------|---------------------------------|--------------------|--------|---------------------------------|--------------------|--------|---------------------------------|--------------------|
| HLX27 | 3                               | 600                | HLX42  | 2                               | 600                | KLX19A | 8                               | 600                |
| HLX28 | 3                               | 600                | KLX11A | 10                              | 600                | KLX20A | 6                               | 600                |
| HLX32 | 3                               | 600                | KLX11E | 1                               | 7200               | KLX23A | 2                               | 600                |
| HLX36 | 2                               | 600                | KLX14A | 3                               | 600                | KLX24A | 3                               | 600                |
| HLX37 | 4                               | 600                | KLX15A | 9                               | 600                |        |                                 |                    |
| HLX38 | 1                               | 600                | KLX16A | 3                               | 600                |        |                                 |                    |

| Bh ID  | Test section<br>(mbToC) | Test type* | Test no | Pump start<br>Date, time<br>(yyyy-mm-dd<br>hh:mm) | Pump stop<br>Date, time<br>(yyyy-mm-dd<br>hh:mm) |
|--------|-------------------------|------------|---------|---|--|
| KLX27A | 210.00–247.00           | 1B         | 1       | 2007-10-18<br>20:03                               | 2007-10-21<br>12:01                              |
| KLX27A | 639.20–650.56           | 1B         | 1       | 2007-11-22<br>14:30                               | 2007-11-23<br>05:22                              |

\* 1B: pumping test-submersible pump.

## 3 Equipment

### 3.1 Description of equipment

The pumping test was performed during drilling through the drillstem, utilising a wireline probe developed by SKB. With this equipment water sampling, pump tests and measurements of absolute pressure in a borehole section can be made without having to lift the drill stem.

The principal components are:

- an inflatable packer,
- pressure gauges for the test section and for the packer,
- a water sampler,
- a submersible pump (placed in the upper part of the drill stem) and
- a flow meter (placed at the ground surface).

The probe is lowered through the drill stem into position at the drill bit. The test section is between the lower end of the packer and the bottom of the borehole, see Figure 3-1.

Before the pumping tests are made leakage tests of the drill string are done.

Hydraulic tests performed during drilling are generally affected to some degree by disturbances caused by the drilling operations. Transients from changes in pressure, temperature and salinity might affect the hydraulic response curves.

#### Pumping tests

The wireline probe is emplaced at the bottom of the drill stem. A submersible pump is lowered into the upper part of the drill stem at a length of about 40 m. The test section is hydraulically connected to the drill stem by opening a valve at a predetermined pressure. This creates a passage between the test section and the water column in the drill stem. The packer remains expanded during the entire test. Water is pumped from the drill stem and the pressure in the test section and packer are recorded in a data logger. The pumped surface flow rate is recorded in a data logger on the ground surface. The pressure gauge (or pressure transducer) is situated 1.10 m below the lower end of the packer. The test consists of a pressure drawdown phase and a recovery phase.

#### 3.2 Sensors

The following equipment and sensors were utilised in the pumped borehole,

- submersible pump: Grundfoss MP1, range 0.1–35 L/min,
- data logger and absolute pressure transducer RBR DR-1050 with 0–20MPa range and  $\pm 0.05\%$  accuracy of full scale, resolution < 0.001% full scale,
- water level dipper,
- inflatable packer,
- flow gauge: range is 0–83 L/min and an accuracy of  $\pm$  0.5% of actual flow value and also  $\pm$  0.062% of full scale current (4–20 mA),
- Data logger Campbell CR23X,



Figure 3-1. The wireline probe and its emplacement in the borehole.

Observation boreholes all form part of the SKB Hydro Monitoring System (HMS) and comprise.

- Druck PTX 1830 transducers with an accuracy of  $\pm 0.1\%$  of FS BSL maximum.
- Datataker data acquisition system.
- Inflatable packers.

#### 3.3 Data acquisition system

Pressure and flow data are logged in a SKB logger system (DMS) consisting of a central computer with data acquisition programme and database with logged data. Connected to this central computer are Campbell loggers CR10and CR23 for the borehole head equipment and RBR logger/transducer for the bottom hole equipment. The central computer is located at the drill site and connected through Ethernet to the SKB's main computer, Figure 3-2.

The stand-alone RBR-loggern is serially connected to the computer when initialising a measurement and when retrieving the data.



Figure 3-2. Overview of data acquisition system.

## 4 Execution

## 4.1 General

As the pump tests were not performed by Golder, they were performed by SKB in the frawork of the drilling of borehole KLX27A /Ask et al. 2008/. Testing, analyses and reporting were carried out according to SKB's methodology as outlined in the internal SKB document SKB MD 321.002. The activity has to involve the following components:

- Preparations
- Function control of transmitters and data system
- Pumping/interference testing
- Analyses of hydraulic tests
- Reporting

The basic testing sequence for the pumping tests was to perform a constant rate withdrawal followed by a pressure recovery.

## 4.2 Preparations

As the pump tests were not performed by Golder, no description about performed testing preparations can be given for the pump tests in KLX27A.

## 4.3 Execution of field work

#### 4.3.1 Test principle

#### Pump tests

The pump tests were conducted as constant flow rate tests (CRw phase) followed by a pressure recovery period (CRwr phase). The intention was to achieve a drawdown as high as possible, which is limited by several factors like flow capacity of the valves at the regulation unit, maximum flow rate and depth of the pump, head loss due to friction inside the tubing, etc. The pump phase lasted about 2.5days and 15hour respectively for the ttested sections. The actual durations are shown in Table 2-1.

#### **Observation wells**

For evaluation as interference tests, 16 boreholes were used to monitor the pressure change in different intervals. Recording and data collection was done by SKB. SKB delivered the data as ASCII files (mio-format). An overview of the monitored boreholes and their intervals is given in Table 2-3.

#### 4.3.2 Test procedure

A test cycle includes the following phases: 1) Transfer of down-hole equipment to the section. 2) Packer inflation. 3) Pressure stabilisation. 4) Constant rate withdrawal. 5) Pressure recovery. 6) Packer deflation. The pump tests in KLX27A have been carried out by applying a constant rate withdrawal with a drawdown as high as possible. The flow rates and resulting drawdown are summarised in Table 4-1.

Table 4-1. Flow rate and drawdown of pumping tests.

| Bh ID  | Section<br>[mbToC] | Flow rate<br>[L/min] | Drawdown*<br>[kPa] |
|--------|--------------------|----------------------|--------------------|
| KLX27A | 210.00–247.00      | 3.96                 | 435                |
| KLX27A | 639.20-650.56      | 4.45                 | 201                |

\* Difference between pressure just before start and immediately before stop of pumping.

Before start of the pumping tests, approximately stable pressure conditions prevailed in the test section. After the perturbation period, the pressure recovery in the section was measured. Tidal effects were observed as disturbances of the pressure responses, no major rainfall happened during performance of the pump tests which may have disturbed the measurements.

The extracted water was collected in tanks, which were removed by SKB and discharged into the sea.

## 4.4 Data handling/post processing

#### Pump tests

SKB was responsible for recording and collecting the data of the pumping boreholes. SKB delivered the ASCII data in mio-format. These files were imported and processed to Excel for further evaluation and analysis. Finally, the test data were exported from Excel in \*.txt format. These files were also used for the subsequent test analysis.

#### **Observation wells**

SKB was responsible for recording and collecting the data of the observation boreholes. The sample rate in those boreholes was between 5 minutes and 2 hours. SKB delivered the ASCII data in mio-format. These files were imported and processed to Excel for further evaluation and analysis. In addition, barometric data were delivered by SKB to eliminate barometric fluctuations from the observation data. Even by consideration of barometric pressure changes, the observation data showed still major disturbance by natural fluctuation.

#### 4.5 Analyses and interpretations

#### 4.5.1 Analysis software

The pump tests were analysed using a type curve matching method. The analysis was performed using Paradigm's test analysis program Interpret 2006. Interpret 2006 is an interactive analysis environment allowing the user to interpret constant pressure, constant rate and slug/pulse tests in source as well as observation boreholes. The program allows the calculation of type-curves for homogeneous, dual porosity and composite flow models in variable flow geometries from linear to spherical.

#### 4.5.2 Analysis approach

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

#### 4.5.3 Analysis methodology

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

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

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

#### 4.5.4 Correlation between storativity and skin factor

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

#### Pump and recovery phase (CRw and CRwr)

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

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

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

#### 4.5.5 Steady state analysis

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

#### 4.5.6 Flow models used for analysis

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

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

The flow dimension displayed by the test can be diagnosed from the slope of the pressure derivative. A slope of 0.5 indicates linear flow, a slope of 0 (horizontal derivative) indicates radial flow and a slope of -0.5 indicates spherical flow. The flow dimension diagnosis was commented for each of the tests. All tests were analysed using a flow dimension of two (radial flow).

## 4.5.7 Calculation of the static formation pressure and equivalent freshwater head

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

- (1) straight line extrapolation in cases infinite acting radial flow (IARF) occurred,
- (2) type curve extrapolation in cases infinite acting radial flow (IARF) is unclear or was not reached.

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

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

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

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

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

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



Figure 4-1. Schematic methodologies for calculation of the freshwater head.

#### 4.5.8 Calculation of the radius of the inner zone

The radius of influence was calculated as follows:

$$ri = 1.89 * \sqrt{\frac{T_{s1}}{S_T} * t_2} \ [m]$$

 $T_{s1}$  recommended inner zone transmissivity of the recovery phase [m<sup>2</sup>/s]

- t<sub>2</sub> time when hydraulic formation properties changes [s]
- $S_T$  for the calculation of the ri the storage coefficient (S) is estimated from the transmissivity /Rhen et al. 2006/:

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

## 4.5.9 Derivation of the recommended transmissivity and the confidence range

In all cases both test phases were analysed (CRw and CRwr). The parameter sets (i.e. transmissivities) derived from the individual analyses of a specific test usually differ. In the case when the differences are small the recommended transmissivity value is chosen from the test phase that shows the best data and derivative quality, which is most of the cases at the CRwr phase. In cases when a composite flow model was deemed to be most representative for the hydraulic behaviour of the specific test section, than the most representative zone transmissivity was selected as recommended value.

The confidence range of the transmissivity was derived using expert judgement. Factors considered were the range of transmissivities derived from the individual analyses of the test as well as additional sources of uncertainty such as noise in the flow rate measurement, numeric effects in the calculation of the derivative or possible errors in the measurement of the wellbore storage coefficient. No statistical calculations were performed to derive the confidence range of transmissivity.

## 4.6 Analysis and interpretation of the reponse in the observation holes

In 16 boreholes with a total of 63 sections (Table 2-3) the responses were monitored during the pumping tests in KLX27A. Those data were analysed according to the methodology description (SKB MD 330.003) to derive hydraulic connectivity parameters. Furthermore the data of the responding observation holes were analysed using a type curve matching method with Paradigm's Interpret 2006 software package.

#### 4.6.1 Hydraulic connectivity parameters

#### Calculation of the indices

For the interference test analysis, the data of the pumping hole and the observation holes were compared. Therefore both data sets were plotted in one graph to decide if the observation borehole shows a response, which is related to the pumping. In case of a response in the observation sections due to pumping in KLX27A, the response time  $(dt_L)$  and the maximum drawdown  $(s_p)$  in these sections were calculated. The 3D distance between the point of application in the pumping borehole and the observation borehole  $(r_s)$  was provided by SKB. These parameters combined with the pumping flow rate  $(Q_p)$  are the variables used to calculate the indices, which characterize the hydraulic connectivity between the pumping and the observed section. The parameters and the calculated hydraulic connectivity parameters are shown in the tables in section 5 and appendix 6. The indices are calculated as follows:

| Index 1: $r_s^2/dt_L$ | = | normalised distance $r_s$ with respect to the response time $[m^2/s]$ ,   |
|-----------------------|---|---|
| Index 2: $s_p/Q_p$    | = | normalised drawdown with respect to the pumping rate [s/m <sup>2</sup> ]. |

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).

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 |
|--|-----------|---|-------------|-------------|
| $r_s^2/dt_L > 100 \text{ m}^2/\text{s}$        | Excellent | $s_p/Q_p > 1.10^5 \text{ s/m}^2$                        | Excellent   |             |
| $10 < r_s^2/dt_L \le 100 \text{ m}^2/\text{s}$ | High      | $3 \cdot 10^4 < s_p/Q_p \le 1 \cdot 10^5 \text{ s/m}^2$ | High        |             |
| $1 < r_s^2/dt_L \le 10 \text{ m}^2/\text{s}$   | Medium    | $1 \cdot 10^4 < s_p/Q_p \le 3 \cdot 10^4 \text{ s/m}^2$ | Medium      |             |
| $0.1 < r_s^2/dt_L \le 1 m^2/s$                 | Low       | $s_p\!/Q_p \le 1\!\cdot\!10^4 \; \text{s/m}^2$          | Low         |             |
|  |           | $s_p < 0.1 m$   | No response |             |
| Index 2 new (s /O )·ln(                        | (r /r.)   | Colour co   | de          |             |

| $\operatorname{Index} 2 \operatorname{Inew} (S_p/Q_p) \operatorname{In}(\Gamma_s/\Gamma_0)$ |      |
|---|------|
| $(s_p/Q_p) \cdot \ln(r_s/r_0) > 5 \cdot 10^5 \text{ s/m}^2$                                 | Exce |
| $5 \cdot 10^4 < (s_p/Q_p) \cdot \ln(r_s/r_0) \le 5 \cdot 10^5 \text{ s/m}^2$                | High |
| $5 \cdot 10^3 < (s_p/Q_p) \cdot \ln(r_s/r_0) \le 5 \cdot 10^4 \text{ s/m}^2$                | Med  |
| $5 \cdot 10^2 < (s_p/Q_p) \cdot \ln(r_s/r_0) \le 5 \cdot 10^3 \text{ s/m}^2$                | Low  |
| $s_p < 0.1 m$   | No r |



Calculated response indexes are given in Tables 5-2, 5-3 and 6-3.

#### Derivation of the indices and limitations

To evaluate the hydraulic connectivity between the active and the observed section, the drawdown in the observation section  $(s_p)$  caused by pumping in the active section and the response time after start of pumping  $(dt_L)$  is needed.

To get these two values the data of both sections are plotted in one graph. The time, the observation hole needed to react to the pumping in KLX27A with a drawdown of at least 0.1 m and the amount of drawdown at the end of the pumping were taken out of the graph. Often it is not really clear if the section responds to the pumping or if the drawdown is based on natural processes exclusively. In unclear cases, the data sets were regarded in total to better differentiate between those effects. By looking at the pressure response of the days before and after the pumping phase, it is easier to distinguish between natural fluctuations and those induced by pumping. Furthermore it should be pointed out, that some of the responses could be caused by the drawdown in the section above or below of the same observation borehole.

All observation data are influenced by natural fluctuations of the groundwater level such as tidal effects and long term trends. The pressure changes due to tidal effects are different for the observation boreholes but in case of these performed tests relative large and of major importance for the data evaluation.

The pressure changes in the observation sections generated by the pumping are often very marginal. In general, it is a combination of natural processes and the pumping in KLX27A producing the pressure changes in the monitored sections. If there is a reaction, it shows – in most of the cases – not a sharp but a smooth transition from undisturbed to disturbed (by

pumping) behaviour, which makes it more difficult to determine the response time exactly. If neither start time nor stop time of pumping can provide reliable data for the response time index 1 was not calculated.

In six observation sections (HLX37\_3, HLX37\_4, KLX20A\_5, KLX20A\_6, KLX24A\_1 and KLX24A\_2) the drawdown was below of 0.1 m and therefore these sections were classified as no response according to the document SKB 330.003 (Bilagor B). Nevertheless, the indices 2 and 2 new were calculated as there was observed a slight but noisy response which was obviously due to pumping in source.

#### 4.6.2 Approximate calculation of hydraulic diffusivity

The distance  $r_s$  between different borehole sections has been calculated as the spherical distance using co-ordinates for the mid-chainage of each section. The calculation of the hydraulic diffusivity is based on radial flow:

 $\eta = T / S = r_s^2 / [4 \cdot dt_L \cdot (1 + dt_L / tp) \cdot \ln(1 + tp / dt_L)]$ 

The time lag dt<sub>L</sub> is defined as the time when the pressure response in an observation section is greater than ca 0.1 metres (The time difference between a certain first observable response in the observation section and the stop of the pumping). The pumping time is included as tp. /Streltsova 1988/.

The estimates of the hydraulic diffusivity according to above should be seen as indicative values of the hydraulic diffusivity. Observation sections straddling a planar, major conductive feature that also intersects the pumping section should provide reliable estimates of the hydraulic diffusivity, but these cases have to be judged based on the geological model of the site.

For the calculation of the hydraulic diffusivity the recommended transmissivity  $T_T$  and Storativity S derived from the transient type curve analysis were used. No calculation based on dt<sub>L</sub> was done, because of the often poor quality of dt<sub>L</sub> and to ensure the consistency between the calculated diffusivity values.

Values of the hydraulic diffusivity are shown in Tables 5-2, 5-3 and 6-3.

#### 4.6.3 Response analysis

To derive transmissivities and storativities from the sections of the observation boreholes Paradigm's analysis software Interpret 2006 was used. Interpret 2006 is an interactive program that uses a constant rate solution to provide optimized hydraulic parameters for a wide range of potential reservoir models. Some of the features of Interpret 2006 include extensive superposition of constant rate events, non-linear regression and multi-event rate normalized plots. Multi-event plots allow the relevant phases to be presented on a single plot to evaluate for consistency of the formation response throughout the test. Additionally, it can accommodate changing wellbore storage and skin between the test periods.

#### Analysis approach

The interference tests are analysed using line source type curves calculated for different flow models as identified from the log-log derivative of the pressure response.

#### Assumptions

To understand the assumption used in the analysis of observation zone data it is useful to imagine in a first instance a source zone connected with the observation zones through fractures of equal transmissivity ( $T_1$  to  $T_4$ ). In Figure 4-2 the case of a source zone connected with 4 observation zones is presented.



Figure 4-2. Schematic sketch of a pumping hole (source) and observation holes.

If we note the flow rate at the source as q, each of the response in each of the observation zones will be influenced by a flow rate of q/4 because the transmissivities of the 4 fractures are equal, so the rate will be evenly distributed between the fractures as well.

We complicate now the system by adding a new fracture of much higher transmissivity  $(T_5)$  to the system (see Figure 4-3).

Because of the larger transmissivity, most of the flow rate of the source will be captured by this fracture, so the other 4 fractures will receive less flow. Because of this, the magnitude of the response at the 4 observation zones will be higher than in the first case. The pathway transmissivity derived from the analysis of the observation zones will be in the second case



Figure 4-3. Schematic sketch of a pumping hole (source) and observation holes with an added fracture.

much higher than in the first case. However, the pathway transmissivity between source and any of the observation zones did not change. The transmissivity derived in the second case is false because the analysis is conducted under the assumption that the flow rate of the source is evenly distributed in space. This assumption is clearly not valid in the second case. In reality, the flow rate around the source will be distributed inversely proportional to the transmissivity of the individual pathways:

$$q = q_1 + q_2 + \dots + q_n$$
  
 $\frac{T_1}{q_1} = \frac{T_2}{q_2} = \dots = \frac{T_n}{q_n}$ 

The analysis of observation zones (i.e. interference test analysis) assumes that:

$$\mathbf{q}_1 = \mathbf{q}_2 = \ldots = \mathbf{q}_n.$$

This assumption will typically result in similar transmissivities:

$$\mathbf{T}_1 = \mathbf{T}_2 = \ldots = \mathbf{T}_n.$$

The distance used for the analysis is the shortest way between the source and the observation hole and no pathway tortuosity was considered. This assumption influences the storativity derived from the transient analysis.

#### Methodology

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

- Identification of the flow model by evaluation of the derivative on the log-log diagnostic plot. Initial estimates of the model parameters are obtained by conventional straight-line analysis.
- Superposition type curve matching in log-log coordinates. The type curves are based on /Theis 1935/ calculated for a line source (i.e. finite wellbore radius).

#### Flow models used for analysis

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

In the most cases a homogenous flow model was used, otherwise a two shell composite flow model was chosen for the analysis.

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

The flow dimension displayed by the test can be diagnosed from the slope of the pressure derivative. A slope of 0.5 indicates linear flow, a slope of 0 (horizontal derivative) indicates radial flow and a slope of -0.5 indicates spherical flow. The flow dimension diagnosis was commented for each of the tests. All tests were analysed using a flow dimension of two (radial flow).

#### 4.7 Nonconformities

No information about nonconformities happened during performance of the pump tests in KLX27A were delivered by SKB.

## 5 Results

In the following, results of the pump tests conducted in KLX27A are presented and analysed. The results are given as general comments to test performance, the identified flow regimes and calculated parameters and finally the parameters which are considered as most representative are chosen and justification is given. All results are also summarized in the Tables 6-1 to 6-3 of the synthesis chapter and in the summary sheets (Appendix 3). No disturbing activities like heavy rainfall were observed during the pump tests in borehole KLX27A. The only disturbing effects observed were caused by tidal influence. As at both performed pump tests the derivative is flat at late times, both pump tests were evaluated using a flow dimension of 2. In section 639.20–650.56 m, there was a very steep downward trend at the skin dominated flow phase. In this case, a composite model was chosen with a change of transmissivity in some distance from the borehole to match the flat part of the derivative and the connecting slope.

#### 5.1 Results pump tests

#### 5.1.1 Section 210.00–247.00 m, test no. 1, pumping

#### Comments to test

The test was conducted as a constant rate pump test phase with a flow rate of 3.96 L/min, followed by a pressure recovery phase. The maximum drawdown just before stop of flowing was about 435 kPa. The flow rate during the pumping phase of about 3.96 L/min and the resulting drawdown of about 435 kPa indicate a relatively moderate interval transmissivity. Around 14 hours after pump start, a short interruption in pumping caused a partly pressure recovery followed by an immediate restart of the pump. After approximate 64 hours of pumping, the shut in-tool was closed and the pump was stopped. The CRw phase is stable and of good quality and analysable. The CRwr phase shows a change in recovery slope relatively short after start of this phase. It is assumed that this effect is caused by a change in wellbore storage due to a change in volume, probably induced by a tool problem. However, the recovery is of good quality and amenable for quantitative analysis.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CRw phase shows a very noisy but still flat derivative at middle and late times. The CRwr phase shows a very steep downward trend at the skin dominated which could not be matched, even by using a relative high skin factor. However, the data quality is beside of this of very good quality and good to match with a flat derivative at late times. At middle times and late times the derivative of both phases is flat, which is indicative for radial flow (flow dimension of 2). A homogeneous radial flow model was chosen for the analysis of the CRw and CRwr phases. The analysis is presented in Appendix 1-1.

#### Selected representative parameters

The recommended transmissivity of  $8.0 \cdot 10^{-6}$  m<sup>2</sup>/s was derived from the analysis of the CRwr phase. The confidence range for the interval transmissivity is estimated to be  $4.0 \cdot 10^{-6}$  to  $2.0 \cdot 10^{-5}$  m<sup>2</sup>/s. The flow dimension displayed during the test is 2. The static pressure measured at transducer depth, was derived from the CRwr phase using type curve extrapolation in the Horner plot to a value of 1,833.8 kPa.

The analyses of both phases are of good quality and consistent. No further analysis recommended.

#### 5.1.2 Section 639.20-650.56 m, test no. 1, pumping

#### Comments to test

The test was conducted as a constant rate pump test phase with a flow rate of 4.45 L/min, followed by a pressure recovery phase. The maximum drawdown just before stop of flowing was about 201 kPa. The flow rate during the pumping phase and the resulting drawdown indicate a relatively moderate to high interval transmissivity. After approximate 15 hours of pumping, the shut in-tool was closed and the pump was stopped. The CRw phase is stable and of good quality and analysable. The CRwr phase shows a change in recovery slope relatively short after start of this phase. It is assumed that this effect is caused by a change in wellbore storage due to a change in volume, probably induced by a tool problem. In addition, the recovery phase was interrupted by a sudden pressure drop of approximately 50 kPa, followed by a further recovery. However, the recovery is of good quality and amenable for quantitative analysis.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. In case of the present test the CRw phase shows a noisy but still flat derivative at middle and late times. The steep downward trend at middle times during the skin dominated flow period was matched by using a composite flow model. The analysis of the CRwr phase stops at the skin dominated part due to the interrupted pressure recovery. Therefore the analysis of the CRwr phase is of relative high uncertainty. However, the data quality is beside of this of good quality and a composite model with radial flow was used to match the downward slope of the skin dominated part. At middle times and late times the derivative of the CRw phase is flat, which is indicative for radial flow (flow dimension of 2). An infinite acting composite radial flow model was chosen for the analysis of the CRwr phases. The analysis is presented in Appendix 1-2.

#### Selected representative parameters

The recommended transmissivity of  $8.7 \cdot 10^{-5}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase (outer zone). The confidence range for the interval transmissivity is estimated to be  $4.0 \cdot 10^{-5}$  to  $2.0 \cdot 10^{-4}$  m<sup>2</sup>/s. The flow dimension displayed during the test is 2. The static pressure measured at transducer depth, was derived from the CRwr phase using type curve extrapolation in the Horner plot to a value of 5,635.8 kPa.

The analyses of both phases are of good quality and consistent. No further analysis recommended.

#### 5.2 Results response analysis

In the following, the data of the observation zones which responded to pumping are presented and analysed. The results of the analysis are also summarized in the Table 6-3 of the summary chapter and in the summary sheets (Appendices 6 and 8).

Table 5-1 summarises all the tests and the observed boreholes. Furthermore it shows the response matrix based on the calculated indices 1 ( $r_s^2/dt_L$ ), 2 ( $s_p/Q_p$ ) and 2 new ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) (see Section 4.6.1).

| Pumping hole |   | KLX27   | A   |  | KLX27A   |  |   |  |
|--------------|---|---|---|--|--|--|---|--|
|              | Section (mbToC)   | 210.00  | -247.00   |  | 639.20-650.56  |  |   |  |
|              | Flow rate (I/min)   | 3.96  |   |  | 4.45<br>201  |  |   |  |
|              | Drawdown (kPa)  | 438   |   |  |  |  |   |  |
| Sec          | Section (m)   | Respo   | nse indic   | ces  |  |  |   |  |
| no.          |   | 1   | 2   | 2 new  | 1  | 2  | 2 new   |  |
| 1            | 153.00–165.00   |   |   |  |  |  |   |  |
| 2            | 100.00-152.00   |   |   |  |  |  |   |  |
| 3            | 0.00–99.00  |   |   |  |  |  |   |  |
| 1            | 91.00–154.00  | L   |   |  |  |  |   |  |
| 2            | 70.00–90.00   | L   |   |  |  |  |   |  |
| 3            | 7.50–69.00  | L   |   |  |  |  |   |  |
| 4            | 0.00–6.50   | n.o.  | n.o.  | n.o.   | n.o.   | n.o.   | n.o.  |  |
| 1            | 31.00–163.00  |   |   |  |  |  |   |  |
| 2            | 20.00-30.00   |   |   |  |  |  |   |  |
| 3            | 0.00–19.00  |   |   |  |  |  |   |  |
| 1            | 50.00-199.50  |   |   |  |  |  |   |  |
| 2            | 0.00-49.00  |   |   |  |  |  |   |  |
| 1            | 150.00-200.00   | М   |   |  |  |  |   |  |
| 2            | 111.00–149.00   | М   |   |  |  |  |   |  |
| 3            | 94.00-110.00  | n.c.  |   |  |  |  |   |  |
| 4            | 0.00-93.00  | n.c.  |   |  |  |  |   |  |
| 1            | 0.00–199.50   |   |   |  |  |  |   |  |
| 1            | 30.00-152.60  |   |   |  |  |  |   |  |
| 2            | 0.00–29.00  |   |   |  |  |  |   |  |
| 1            | 703.00–992.00   |   |   |  |  |  |   |  |
| 2            | 587.00-702.00   |   |   |  |  |  |   |  |
| 3            | 573.00-586.00   |   |   |  |  |  |   |  |
| 4            | 495.00-572.00   |   |   |  |  |  |   |  |
| 5            | 315.00-494.00   |   |   |  |  |  |   |  |
| 6            | 273.00-314.00   |   |   |  |  |  |   |  |
| 7            | 256.00-272.00   |   |   |  |  |  |   |  |
| 8            | 180.00–255.00   |   |   |  |  |  |   |  |
| 9            | 103.00–179.00   |   |   |  |  |  |   |  |
| 10           | 0.00-102.00   |   |   |  |  |  |   |  |
| 1            | 2.00-121.00   |   |   |  |  |  |   |  |
| 1            | 123.00-176.27   |   |   |  |  |  |   |  |
| 2            | 77.00–122.00  |   |   |  |  |  |   |  |
| 3            | 0.00-76.00  |   |   |  |  |  |   |  |
| 1            | 902.00-1,000.00   |   |   |  |  |  |   |  |
| 2            | 641.00-901.00   |   |   |  |  |  |   |  |
| 3            | 623.00-640.00   |   |   |  |  |  |   |  |
| 4            | 481.00-622.00   |   |   |  |  |  |   |  |
| 5            | 273.00-480.00   |   |   |  |  |  |   |  |
| 6            | 260.00-272.00   |   |   |  |  |  |   |  |
| 7            | 191.00-259.00   |   |   |  |  |  |   |  |
| 8            | 79.00–190.00  |   |   |  |  |  |   |  |
|              |   |   |   | +  |  | _  |   |  |
|              | Sec           no.           1           2           3           1           2           3           1           2           3           1           2           3           1           2           3           1           2           3           1           2           3           4           5           6           7           8 | Pumping hole           Section (mbToC)           Flow rate (l/min)           Drawdown (kPa)           Sec         Section (m)           1         153.00–165.00           2         100.00–152.00           3         0.00–99.00           1         91.00–154.00           2         70.00–90.00           3         7.50–69.00           4         0.00–6.50           1         31.00–163.00           2         20.00–30.00           3         0.00–19.00           1         50.00–199.50           2         0.00–49.00           1         150.00–200.00           2         111.00–149.00           3         94.00–110.00           4         0.00–93.00           1         30.00–152.60           2         0.00–29.00           1         703.00–992.00           2         587.00–702.00           3         573.00–586.00           4         495.00–572.00           5         315.00–494.00           6         273.00–314.00           7         256.00–272.00           8         180.00–255.00 <t< td=""><td>Pumping hole         KLX27           Section (mbToC)         210.00           Flow rate (l/min)         3.96           Drawdown (kPa)         438           Sec         Section (m)         Response           no.         1         1           1         153.00–165.00         2           2         100.00–152.00         1           3         0.00–99.00         1           2         70.00–90.00         L           3         7.50–69.00         L           4         0.00–6.50         n.o.           1         31.00–163.00         2           2         0.00–30.00         1           3         0.00–199.50         2           2         0.00–49.00         M           3         94.00–110.00         n.c.           1         0.00–93.00         n.c.           1         0.00–199.50         1           3         94.00–110.00         n.c.           1         0.00–29.00         1           1         0.00–29.00         1           1         30.00–314.00         1           2         573.00–586.00         4</td><td>Pumping hole         KLX27A           Section (mbToC)         210.00-247.00           Flow rate (l/min)         3.96           Drawdown (kPa)         438           Sec         Section (m)         Response india           no.         1         2           1         153.00-165.00        </td><td>Pumping hole         KLX27A           Section (mbToC)         210.00-247.00           Flow rate (l/min)         3.96           Drawdown (kPa)         438           Sec         Section (m)         Response indices           no.         1         2         2 new           1         153.00-165.00        </td><td>Pumping hole         KLX27A         KLX27           Section (mbToC)         210.00-247.00         639.20           Flow rate (l/min)         3.96         4.45           Drawdown (kPa)         438         201           Sec         Section (m)         Response indices           no.         1         2         2 new         1           1         153.00-165.00         1         2         1         1           2         100.00-152.00         1         1         1         1         1           3         0.00-99.00         1         1         1         1         1         1           3         7.50-69.00         1         1         1         1         1         1           4         0.00-6.50         n.o.         n.o.         n.o.         1         1           3         0.00-190.00         1         1         1         1         1         1           2         0.00-49.00         1         1         1         1         1         1           3         94.00-110.00         n.c.         1         1         1         1         1           1         10.</td><td>Pumping hole         KLX27A         KLX27A           Section (mbToC)         210.00–247.00         639.20–650.50           Flow rate (l/min)         3.96         4.45           Drawdowr (kPa)         438         2 100           Sec         Section (mbToC)         1         2         2 new         1         2           1         153.00–165.00         1         2         2 new         1         2           1         91.00–152.00         1         2         1         6         1         2           3         0.00–99.00         1         <th1< th="">         1</th1<></td></t<> | Pumping hole         KLX27           Section (mbToC)         210.00           Flow rate (l/min)         3.96           Drawdown (kPa)         438           Sec         Section (m)         Response           no.         1         1           1         153.00–165.00         2           2         100.00–152.00         1           3         0.00–99.00         1           2         70.00–90.00         L           3         7.50–69.00         L           4         0.00–6.50         n.o.           1         31.00–163.00         2           2         0.00–30.00         1           3         0.00–199.50         2           2         0.00–49.00         M           3         94.00–110.00         n.c.           1         0.00–93.00         n.c.           1         0.00–199.50         1           3         94.00–110.00         n.c.           1         0.00–29.00         1           1         0.00–29.00         1           1         30.00–314.00         1           2         573.00–586.00         4 | Pumping hole         KLX27A           Section (mbToC)         210.00-247.00           Flow rate (l/min)         3.96           Drawdown (kPa)         438           Sec         Section (m)         Response india           no.         1         2           1         153.00-165.00 | Pumping hole         KLX27A           Section (mbToC)         210.00-247.00           Flow rate (l/min)         3.96           Drawdown (kPa)         438           Sec         Section (m)         Response indices           no.         1         2         2 new           1         153.00-165.00 | Pumping hole         KLX27A         KLX27           Section (mbToC)         210.00-247.00         639.20           Flow rate (l/min)         3.96         4.45           Drawdown (kPa)         438         201           Sec         Section (m)         Response indices           no.         1         2         2 new         1           1         153.00-165.00         1         2         1         1           2         100.00-152.00         1         1         1         1         1           3         0.00-99.00         1         1         1         1         1         1           3         7.50-69.00         1         1         1         1         1         1           4         0.00-6.50         n.o.         n.o.         n.o.         1         1           3         0.00-190.00         1         1         1         1         1         1           2         0.00-49.00         1         1         1         1         1         1           3         94.00-110.00         n.c.         1         1         1         1         1           1         10. | Pumping hole         KLX27A         KLX27A           Section (mbToC)         210.00–247.00         639.20–650.50           Flow rate (l/min)         3.96         4.45           Drawdowr (kPa)         438         2 100           Sec         Section (mbToC)         1         2         2 new         1         2           1         153.00–165.00         1         2         2 new         1         2           1         91.00–152.00         1         2         1         6         1         2           3         0.00–99.00         1 <th1< th="">         1</th1<> |  |

#### Table 5-1. Response matrix with index 1, index 2 and index 2 new.

|             |     | Pumping hole      | KLX27A |                  |       | KLX27A |               |       |  |  |
|-------------|-----|-------------------|--------|------------------|-------|--------|---------------|-------|--|--|
|             |     | Section (mbToC)   | 210.00 | )–247.00         | )     | 639.2  | 639.20-650.56 |       |  |  |
|             |     | Flow rate (I/min) | 3.96   |                  |       | 4.45   |               |       |  |  |
|             |     | Drawdown (kPa)    | 438    |                  |       | 201    |               |       |  |  |
| Observation | Sec | Section (m)       | Respo  | Response indices |       |        |               |       |  |  |
| borehole    | no. |                   | 1      | 2                | 2 new | 1      | 2             | 2 new |  |  |
| KLX16A      | 1   | 327.00-433.55     |        |                  |       |        |               |       |  |  |
|             | 2   | 86.00-326.00      |        |                  |       |        |               |       |  |  |
|             | 3   | 0.00-85.00        |        |                  |       |        |               |       |  |  |
| KLX19A      | 1   | 661.00-800.00     |        |                  |       |        |               |       |  |  |
|             | 2   | 518.00-660.00     |        |                  |       |        |               |       |  |  |
|             | 3   | 509.00-517.00     | М      |                  |       |        |               |       |  |  |
|             | 4   | 481.50-508.00     | М      |                  |       |        |               |       |  |  |
|             | 5   | 311.00-480.50     | М      |                  |       |        |               |       |  |  |
|             | 6   | 291.00-310.00     | М      |                  |       |        |               |       |  |  |
|             | 7   | 136.00–290.00     | L      |                  |       |        |               |       |  |  |
|             | 8   | 0.00-135.00       | L      |                  |       |        |               |       |  |  |
| KLX20A      | 1   | 294.00-457.00     |        |                  |       |        |               |       |  |  |
|             | 2   | 260.00-296.00     |        |                  |       |        |               |       |  |  |
|             | 3   | 181.00–259.00     |        |                  |       |        |               |       |  |  |
|             | 4   | 145.00–180.00     |        |                  |       |        |               |       |  |  |
|             | 5   | 103.00–144.00     | n.c.   |                  |       |        |               |       |  |  |
|             | 6   | 0.00-102.00       | n.c.   |                  |       |        |               |       |  |  |
| KLX23A      | 1   | 49.00-100.00      | М      |                  |       |        |               |       |  |  |
|             | 2   | 0.00-48.00        |        |                  |       |        |               |       |  |  |
| KLX24A      | 1   | 69.00–100.00      | n.c.   |                  |       |        |               |       |  |  |
|             | 2   | 41.00-68.00       | n.c.   |                  |       |        |               |       |  |  |
|             | 3   | 0.00-40.00        |        |                  |       |        |               |       |  |  |

#### Index 1 (r<sup>2</sup>/t<sub>L</sub>)

 $r_{s}^{2}/dt_{L} > 100 \text{ m}^{2}/\text{s}$ Excellent  $10 < r_s^2/dt_L \le 100 \text{ m}^2/\text{s}$ High  $1 < r_s^2/dt_L \le 10 \text{ m}^2/\text{s}$ Medium  $0.1 < r_s^2/dt_L \le 1 \text{ m}^2/s$ Low Not calculated due to strong natural fluctuations

#### Index 2 new $(s_p/Q_p) \cdot ln(r_s/r_0)$

| $(s_p/Q_p) \cdot \ln(r_s/r_0) > 5 \cdot 10^5 \text{ s/m}^2$                  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|
| $5 \cdot 10^4 < (s_p/Q_p) \cdot \ln(r_s/r_0) \le 5 \cdot 10^5 \text{ s/m}^2$ |  |  |  |  |  |  |
| $5 \cdot 10^3 < (s_p/Q_p) \cdot \ln(r_s/r_0) \le 5 \cdot 10^4 \text{ s/m}^2$ |  |  |  |  |  |  |
| $5 \cdot 10^2 < (s_p/Q_p) \cdot \ln(r_s/r_0) \le 5 \cdot 10^3 \text{ s/m}^2$ |  |  |  |  |  |  |
| s <sub>p</sub> < 0.1 m   |  |  |  |  |  |  |

#### Index 2 (s<sub>p</sub>/Q<sub>p</sub>)

| Е    | $s_p/Q_p > 1.10^5 \text{ s/m}^2$                    |
|------|---|
| Н    | 3·10⁴ < s <sub>p</sub> /Q <sub>p</sub> ≤ 1·10⁵ s/m² |
| Μ    | 1·10⁴ < s <sub>p</sub> /Q <sub>p</sub> ≤ 3·10⁴ s/m² |
| L    | $s_p/Q_p \le 1.10^4 \text{ s/m}^2$                  |
| n.c. | s <sub>n</sub> < 0.1 m                              |

2 2

Excellent High Medium Low No response indices but analysed

Excellent High Medium Low No response indices but analysed

blank = observed but no response at all

n.o. = not observed

n.c. = no clear response due to pumping in source

#### 5.3 KLX27A test section 210.00–247.00 m pumped

This interference test was conducted as constant rate pump test phase followed by a recovery pressure phase in the source section. The mean flow rate was 3.96 l/min with a drawdown of 438 kPa. In sum 12 observation sections responded due to the pumping. Table 5-2 summarizes the responding test sections and selected parameters. Figure 5-1 shows the drawdown of the observed sections related to the distance. The pumped borehole KLX27A is shown with consideration of the effective borehole radius  $r_{wf,}$  calculation based on the skin factor.

 $r_{wf} = r_w \cdot e^{-\xi}$ 

In the following sections the response analysis of each responded section is presented.



*Figure 5-1.* Distance vs. Drawdown for the responding test sections, KLX27A Section 210.00–247.00 m pumped.

| Source<br>borehole   |            | Section<br>(m)  | Flow rate<br>Qm (l/min)           | Drawdown<br>(m)                   | r <sub>wf</sub><br>(m) |   |   |   |                            |
|----------------------|------------|-----------------|-----------------------------------|-----------------------------------|------------------------|---|---|---|----------------------------|
| KLX27A               | 1          | 210.00–247.00   | 3.96                              | 44.65                             | 3.8E–5                 |   |   |   |                            |
| Observation borehole | Sec<br>no. | Section<br>(m)  | Distance<br>r <sub>s</sub><br>(m) | Drawdown<br>s <sub>p</sub><br>(m) | dt∟<br>(s)             | Index 1<br>r <sub>s</sub> ²/dt <sub>∟</sub><br>(m²/s) | Index 2<br>s <sub>p</sub> /Q <sub>p</sub><br>(s/m²) | Index 2 new<br>(s <sub>p</sub> /Q <sub>p</sub> )·In(r <sub>s</sub> /r <sub>0</sub> )<br>(s/m <sup>2</sup> ) | Diffusivity<br>ŋ<br>(m²/s) |
| HLX27                | 1          | 153.00–165.00   | 1,137.0                           | n.r.                              | -                      | -   | -   | _   | -                          |
|                      | 2          | 100.00–152.00   | 1,141.0                           | n.r.                              | -                      | -   | -   | _   | -                          |
|                      | 3          | 0.00-99.00      | 1,151.0                           | n.r.                              | -                      | -   | -   | _   | -                          |
| HLX28                | 1          | 91.00-154.00    | 155.0                             | 0.13                              | 111,420                | 0.22 <b>L</b>   | 2,007.9   | 10,126.4  | 0.57                       |
|                      | 2          | 70.00–90.00     | 195.0                             | 0.14                              | 109,620                | 0.35 <b>L</b>   | 2,162.3   | 11,401.8  | 0.77                       |
|                      | 3          | 7.50–69.00      | 234.0                             | 0.10                              | 218,820                | 0.25 <b>L</b>   | 1,544.5   | 8,425.7   | 1.43                       |
|                      | 4          | 0.00-6.50       | n.o.                              | n.o.                              | _                      | _   | _   | _   | _                          |
| HLX32                | 1          | 31.00–163.00    | 136.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 2          | 20.00-30.00     | 177.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 3          | 0.00–19.00      | 188.0                             | n.r.                              | -                      | -   | -   | _   | -                          |
| HLX36                | 1          | 50.00-199.50    | 544.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 2          | 0.00-49.00      | 543.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
| HLX37                | 1          | 150.00-200.00   | 546.0                             | 0.12                              | 118,620                | 2.51 <b>M</b>   | 1,853.4   | 11,681.3  | 7.69                       |
|                      | 2          | 111.00–149.00   | 566.0                             | 0.14                              | 114,420                | 2.80 <b>M</b>   | 2,162.3   | 13,705.9  | 7.91                       |
|                      | 3          | 94.00-110.00    | 574.0                             | 0.05)*                            | _                      | _   | 772.3   | 4,905.8   | _                          |
|                      | 4          | 0.00-93.00      | 614.0                             | 0.05)*                            | _                      | _   | 772.3   | 4,961.6   | _                          |
| HLX38                | 1          | 0.00–199.50     | 488.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
| HLX42                | 1          | 30.00–152.60    | 1,071.0                           | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 2          | 0.00–29.00      | 1,127.0                           | n.r.                              | _                      | _   | _   | _   | _                          |
| KLX11A               | 1          | 703.00–992.00   | 891.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 2          | 587.00-702.00   | 741.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 3          | 573.00-586.00   | 724.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 4          | 495.00-572.00   | 706.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 5          | 315.00-494.00   | 681.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 6          | 273 00-314 00   | 651.0                             | nr                                | _                      | _   | _   | _   | _                          |
|                      | 7          | 256 00-272 00   | 647.0                             | n r                               | _                      | _   | _   | _   | _                          |
|                      | ,<br>8     | 180.00-272.00   | 647.0                             | n.r.                              |                        |   | _   | _   |                            |
|                      | 0          | 103.00 179.00   | 650.0                             | n.i.                              | _                      |   | -   | _   | -                          |
|                      | 10         | 0.00 102.00     | 671.0                             | n.i.                              | _                      | -   | -   | _   | -                          |
|                      | 10         | 2 00 121 00     | 662.0                             | n r                               |                        |   |   | _   |                            |
|                      | 1          | 122.00 176.27   | 547.0                             | n r                               |                        | -   |   | _   |                            |
| KLA 14A              | ו<br>ר     | 77.00.122.00    | 547.0                             | 11.1.<br>n.r                      | _                      | _   | -   | _   | -                          |
|                      | 2          | 77.00=122.00    | 529.0                             |                                   | _                      | -   | -   | _   | -                          |
|                      | 3          | 0.00-76.00      | 524.0                             | n.r.                              | _                      | _   |   | _   |                            |
| KLX15A               | 1<br>2     | 902.00-1,000.00 | 1,300.0                           | n.r.                              | _                      | -   | -   | -   | -                          |
|                      | 2          | 641.00-901.00   | 1,339.0                           | n.r.                              | _                      | _   | -   | _   | -                          |
|                      | 3          | 623.00-640.00   | 1,264.0                           | n.r.                              | -                      | -   | -   | _   | -                          |
|                      | 4          | 481.00-622.00   | 1,235.0                           | n.r.                              | -                      | _   | -   | -   | -                          |
|                      | 5          | 2/3.00-480.00   | 1,222.0                           | n.r.                              | -                      | -   | -   | -   | -                          |
|                      | 6          | 260.00-272.00   | 1,220.0                           | n.r.                              | -                      | -   | -   | -   | -                          |
|                      | 7          | 191.00–259.00   | 1,225.0                           | n.r.                              | -                      | -   | -   | -   | -                          |
|                      | 8          | 79.00–190.00    | 1,234.0                           | n.r.                              | -                      | -   | -   | -   | -                          |
|                      | 9          | 0.00-78.00      | 1,253.0                           | n.r.                              | -                      | -   | -   | -   | _                          |

| Table 5-2. Res | sponded test s | sections and se | elected para | meters (section | 210.00-247 | .00 m | pumped | ). |
|----------------|----------------|-----------------|--------------|-----------------|------------|-------|--------|----|
|                |                |                 |              | <b>`</b>        |            |       |        |    |

| Source<br>borehole   |            | Section<br>(m) | Flow rate<br>Qm (I/min)           | Drawdown<br>(m)                   | r <sub>wf</sub><br>(m) |   |   |   |                            |
|----------------------|------------|----------------|-----------------------------------|-----------------------------------|------------------------|---|---|---|----------------------------|
| KLX27A               | 1          | 210.00-247.00  | 3.96                              | 44.65                             | 3.8E–5                 |   |   |   |                            |
| Observation borehole | Sec<br>no. | Section<br>(m) | Distance<br>r <sub>s</sub><br>(m) | Drawdown<br>s <sub>p</sub><br>(m) | dt∟<br>(s)             | Index 1<br>r <sub>s</sub> ²/dt <sub>⊾</sub><br>(m²/s) | Index 2<br>s <sub>p</sub> /Q <sub>p</sub><br>(s/m²) | Index 2 new<br>(s <sub>p</sub> /Q <sub>p</sub> )·In(r <sub>s</sub> /r <sub>0</sub> )<br>(s/m <sup>2</sup> ) | Diffusivity<br>ŋ<br>(m²/s) |
| KLX16A               | 1          | 327.00-433.55  | 1,093.0                           | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 2          | 86.00-326.00   | 1,153.0                           | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 3          | 0.00-85.00     | 1,238.0                           | n.r.                              | _                      | _   | _   | _   | -                          |
| KLX19A               | 1          | 661.00-800.00  | 497.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 2          | 518.00-660.00  | 347.0                             | n.r.                              | _                      | -   | -   | _   | -                          |
|                      | 3          | 509.00-517.00  | 307.0                             | 0.80                              | 15,420                 | 6.11 <b>M</b>   | 12,047.1  | 68,991.8  | 1.72                       |
|                      | 4          | 481.50-508.00  | 290.0                             | 0.78                              | 15,420                 | 5.45 <b>M</b>   | 11,892.6  | 67,429.8  | 1.47                       |
|                      | 5          | 311.00-480.50  | 261.0                             | 0.78                              | 16,020                 | 4.25 <b>M</b>   | 11,892.6  | 66,176.8  | 1.19                       |
|                      | 6          | 291.00-310.00  | 224.0                             | 0.61                              | 15,420                 | 3.25 <b>M</b>   | 9,267.0   | 50,149.6  | 2.40                       |
|                      | 7          | 136.00–290.00  | 275.0                             | 0.13                              | 175,020                | 0.43 <b>L</b>   | 2,007.9   | 11,277.6  | 1.30                       |
|                      | 8          | 0.00–135.00    | 303.0                             | 0.13                              | 108,420                | 0.85 <b>L</b>   | 2,007.9   | 11,472.3  | 2.94                       |
| KLX20A               | 1          | 294.00-457.00  | 759.0                             | n.r.                              | _                      | _   | _   | _   | _                          |
|                      | 2          | 260.00–293.00  | 712.0                             | n.r.                              | _                      | _   | _   | _   | -                          |
|                      | 3          | 181.00–259.00  | 694.0                             | n.r.                              | _                      | _   | _   | _   | -                          |
|                      | 4          | 145.00–180.00  | 689.0                             | n.r.                              | _                      | _   | _   | _   | -                          |
|                      | 5          | 103.00–144.00  | 683.0                             | 0.06)*                            | _                      | _   | 926.7   | 6,048.1   | -                          |
|                      | 6          | 0.00-102.00    | 681.0                             | 0.04)*                            | _                      | _   | 617.8   | 4,030.3   | -                          |
| KLX23A               | 1          | 49.00–100.00   | 462.0                             | 0.13                              | 113,820                | 1.88 <b>M</b>   | 2,007.9   | 12,319.3  | 4.30                       |
|                      | 2          | 0.00-48.00     | 456.0                             | n.r.                              | -                      | _   | _   | _   | _                          |
| KLX24A               | 1          | 69.00–100.00   | 744.0                             | 0.05 )*                           | _                      | _   | 772.3   | 5,106.1   | -                          |
|                      | 2          | 41.00-68.00    | 748.0                             | 0.05)*                            | _                      | _   | 772.3   | 5,110.3   | -                          |
|                      | 3          | 0.00-40.00     | 754.0                             | n.r.                              | -                      | _   | _   | -   | -                          |

)\* no response according to SKB 330.003 (Bilagor B); see Section 4.6.1 for greater detail n.r. no response due to pumping in source Key for index 1, 2 and 2 new, see Table 5-1.

#### 5.3.1 Response HLX28, section 1 (91.00–154.00 m)

#### Comments to test

A total drawdown during the flow period of 1.3 kPa (0.13 m) was observed in this section. A drawdown of 0.01 m was reached after appr. 1,857 min. (111,420 s) after pump start in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "low response time", index 2 ( $s_p/Q_p$ ) as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Despite of a poor data quality, mainly affected by tidal influence, the CRw phase was analysable but shows a relative high range of uncertainty. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of the CRw phase a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-1.

#### Selected representative parameters

The recommended transmissivity of  $1.1 \cdot 10^{-4}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase. The confidence range for the borehole transmissivity is estimated to be  $3.0 \cdot 10^{-5}$  m<sup>2</sup>/s to  $3.0 \cdot 10^{-4}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to a missing response after pump stop.

The analysis of the CRw phase shows major influence of tidal fluctuations but is still representative for the observed section. No further analysis recommended.

#### 5.3.2 Response HLX28, section 2 (70.00–90.00 m)

#### Comments to test

A total drawdown during the flow period of 1.4 kPa (0.14 m) was observed in this section. A drawdown of 0.01 m was reached after appr. 1,827 min. (109,620 s) after pump start in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "low response time", index 2 ( $s_p/Q_p$ ) as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Despite of a poor data quality, mainly affected by tidal influence, the CRw phase was analysable but shows a relative high range of uncertainty. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of the CRw phase, a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-2.

#### Selected representative parameters

The recommended transmissivity of  $1.0 \cdot 10^{-4}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase. The confidence range for the borehole transmissivity is estimated to be  $3.0 \cdot 10^{-5}$  m<sup>2</sup>/s to  $3.0 \cdot 10^{-4}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to a missing response after pump stop.

The analysis of the CRw phase shows major influence of tidal fluctuations but is still representative for the observed section. No further analysis recommended.

#### 5.3.3 Response HLX28, section 3 (7.50-69.00 m)

#### Comments to test

A total drawdown during the flow period of 1.0 kPa (0.10 m) was observed in this section. A drawdown of 0.01 m was reached after appr. 3,647 min. (218,820 s) after pump start in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "low response time", index 2 ( $s_p/Q_p$ ) as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Despite of a poor data quality, mainly affected by tidal influence, the CRw phase was analysable but shows a relative high range of uncertainty. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of the CRw phase, a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-3.

#### Selected representative parameters

The recommended transmissivity of  $1.3 \cdot 10^{-4}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase. The confidence range for the borehole transmissivity is estimated to be  $4.0 \cdot 10^{-5}$  m<sup>2</sup>/s to  $4.0 \cdot 10^{-4}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to a missing response after pump stop.

The analysis of the CRw phase shows major influence of tidal fluctuations but is still representative for the observed section. No further analysis recommended.

#### 5.3.4 Response HLX37, section 1 (150.00–200.00 m)

#### Comments to test

A total drawdown during the flow period of 1.2 kPa (0.12 m) was observed in this section. A drawdown of 0.01 m was reached after appr. 1,977 min. (118,620 s) after pump start in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "medium response time", index 2 ( $s_p/Q_p$ ) as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Despite of a poor data quality, mainly affected by tidal influence, the CRw phase was analysable but shows a relative high range of uncertainty. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of the CRw phase, a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-4.

#### Selected representative parameters

The recommended transmissivity of  $1.1 \cdot 10^{-4}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase. The confidence range for the borehole transmissivity is estimated to be  $3.0 \cdot 10^{-5}$  m<sup>2</sup>/s to  $3.0 \cdot 10^{-4}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to a missing response after pump stop.

The analysis of the CRw phase shows major influence of tidal fluctuations but is still representative for the observed section. No further analysis recommended.

#### 5.3.5 Response HLX37, section 2 (111.00–149.00 m)

#### Comments to test

A total drawdown during the flow period of 1.4 kPa (0.14 m) was observed in this section. A drawdown of 0.01 m was reached after appr. 1,907 min. (114,420 s) after pump start in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "medium response time", index 2 ( $s_p/Q_p$ ) as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response". Despite of a poor data quality, mainly affected by tidal influence, the CRw phase was analysable but shows a relative high range of uncertainty. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of the CRw phase, a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-5.

#### Selected representative parameters

The recommended transmissivity of  $1.1 \cdot 10^{-4}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase. The confidence range for the borehole transmissivity is estimated to be  $3.0 \cdot 10^{-5}$  m<sup>2</sup>/s to  $3.0 \cdot 10^{-4}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to a missing response after pump stop.

The analysis of the CRw phase shows major influence of tidal fluctuations but is still representative for the observed section. No further analysis recommended.

#### 5.3.6 Response HLX37, section 3 (94.00–110.00 m)

#### Comments to test

A total drawdown during the flow period of 0.5 kPa (0.05 m) was observed in this section. This is no response according to SKB 330.003 but anyway considered as reaction due to pumping in source. As the slight reaction includes a relative high grade of uncertainty at what response time a drawdown of 0.01 m was reached, no index 1 was calculated. The calculated index 2  $(s_p/Q_p)$  is rated as as "low response" and the new index 2  $(s_p/Q_p) \cdot \ln(r_s/r_0)$  as "low response".

Due to the slight response and therefore very high disturbing effects from background noise and natural fluctuation, no analysis of the CRw phase was performed. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

#### 5.3.7 Response HLX37, section 4 (0.00-93.00 m)

#### Comments to test

A total drawdown during the flow period of 0.5 kPa (0.05 m) was observed in this section. This is no response according to SKB 330.003 but anyway considered as reaction due to pumping in source. As the slight reaction includes a relative high grade of uncertainty at what response time a drawdown of 0.01 m was reached, no index 1 was calculated. The calculated index 2 ( $s_p/Q_p$ ) is rated as as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "low response".

Due to the slight response and therefore very high disturbing effects from background noise and natural fluctuation, no analysis of the CRw phase was performed. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

#### 5.3.8 Response KLX19A, section 3 (509.00-517.00 m)

#### Comments to test

A total drawdown during the flow period of 7.8 kPa (0.80 m) was observed in this section. A recovery of 0.01 m was reached after appr. 257 min. (15,420 s) after pump stop in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "medium response time", index 2 ( $s_p/Q_p$ ) as "medium response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "high response".

Both phases show some minor influence of natural fluctuation but are still adequate for quantitative analysis.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of both phases a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-6.

#### Selected representative parameters

The recommended transmissivity of  $1.6 \cdot 10^{-5}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase, which shows the best data and derivative quality. The confidence range for the borehole transmissivity is estimated to be  $8.0 \cdot 10^{-6}$  m<sup>2</sup>/s to  $3.0 \cdot 10^{-5}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to poor data quality.

The analyses of the CRw and CRwr phases show some minor influence of natural fluctuation. No further analysis recommended.

#### 5.3.9 Response KLX19A, section 4 (481.50–508.00 m)

#### Comments to test

A total drawdown during the flow period of 7.7 kPa (0.78 m) was observed in this section. A recovery of 0.01 m was reached after appr. 257 min. (15,420 s) after pump stop in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "medium response time", index 2 ( $s_p/Q_p$ ) as "medium response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "high response".

Both phases show some minor influence of natural fluctuation but are still adequate for quantitative analysis.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of both phases a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-7.

#### Selected representative parameters

The recommended transmissivity of  $1.5 \cdot 10^{-5}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase, which shows the best data and derivative quality. The confidence range for the borehole transmissivity is estimated to be  $8.0 \cdot 10^{-6}$  m<sup>2</sup>/s to  $3.0 \cdot 10^{-5}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to poor data quality.

The analyses of the CRw and CRwr phases show some minor influence of natural fluctuation. No further analysis recommended.

#### 5.3.10 Response KLX19A, section 5 (311.00-480.50 m)

#### Comments to test

A total drawdown during the flow period of 7.7 kPa (0.78 m) was observed in this section. A recovery of 0.01 m was reached after appr. 267 min. (16,020 s) after pump stop in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "medium response time", index 2 ( $s_p/Q_p$ ) as "medium response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "high response".

Both phases show some minor influence of natural fluctuation but are still adequate for quantitative analysis.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of both phases a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-8.

#### Selected representative parameters

The recommended transmissivity of  $1.5 \cdot 10^{-5}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase, which shows the best data and derivative quality. The confidence range for the borehole transmissivity is estimated to be  $8.0 \cdot 10^{-6}$  m<sup>2</sup>/s to  $3.0 \cdot 10^{-5}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to poor data quality.

The analyses of the CRw and CRwr phases show some minor influence of natural fluctuation. No further analysis recommended.

#### 5.3.11 Response KLX19A, section 6 (291.00-310.00 m)

#### Comments to test

A total drawdown during the flow period of 6.0 kPa (0.61 m) was observed in this section. A recovery of 0.01 m was reached after appr. 257 min. (15,420 s) after pump stop in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "medium response time", index 2 ( $s_p/Q_p$ ) as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "high response".

Both phases show some minor influence of natural fluctuation but are still adequate for quantitative analysis.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of both phases a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-9.

#### Selected representative parameters

The recommended transmissivity of  $4.3 \cdot 10^{-5}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase, which shows the best data and derivative quality. The confidence range for the borehole transmissivity is estimated to be  $2.0 \cdot 10^{-5}$  m<sup>2</sup>/s to  $9.0 \cdot 10^{-5}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to poor data quality.

The analyses of the CRw and CRwr phases show some minor influence of natural fluctuation. No further analysis recommended.

#### 5.3.12 Response KLX19A, section 7 (136.00-290.00 m)

#### Comments to test

A total drawdown during the flow period of 1.3 kPa (0.13 m) was observed in this section. A drawdown of 0.01 m was reached after appr. 2,917 min. (175,020 s) after pump start in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "low response time", index 2 ( $s_p/Q_p$ ) as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Despite of a poor data quality, mainly affected by tidal influence, the CRw phase was analysable but shows a relative high range of uncertainty. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours. *Flow regime and calculated parameters* 

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of the CRw phase a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-10.

#### Selected representative parameters

The recommended transmissivity of  $9.0 \cdot 10^{-5}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase. The confidence range for the borehole transmissivity is estimated to be  $3.0 \cdot 10^{-5}$  m<sup>2</sup>/s to  $3.0 \cdot 10^{-4}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to poor data quality.

The analysis of the CRw phase shows major influence of tidal fluctuations but is still representative for the observed section. No further analysis recommended.

#### 5.3.13 Response KLX19A, section 8 (0.00–135.00 m)

#### Comments to test

A total drawdown during the flow period of 1.3 kPa (0.13 m) was observed in this section. A drawdown of 0.01 m was reached after appr. 1,807 min. (108,420 s) after pump start in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "low response time", index 2 ( $s_p/Q_p$ ) as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Despite of a poor data quality, mainly affected by tidal influence, the CRw phase was analysable but shows a relative high range of uncertainty. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of the CRw phase a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-11.

#### Selected representative parameters

The recommended transmissivity of  $1.2 \cdot 10^{-4}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase. The confidence range for the borehole transmissivity is estimated to be  $4.0 \cdot 10^{-5}$  m<sup>2</sup>/s to  $4.0 \cdot 10^{-4}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to poor data quality.

The analysis of the CRw phase shows major influence of tidal fluctuations but is still representative for the observed section. No further analysis recommended.
### 5.3.14 Response KLX20A, section 5 (103.00-144.00 m)

#### Comments to test

A total drawdown during the flow period of 0.6 kPa (0.06 m) was observed in this section. This is no response according to SKB 330.003 but anyway considered as reaction due to pumping in source. As the slight reaction includes a relative high grade of uncertainty at what response time a drawdown of 0.01 m was reached, no index 1 was calculated. The calculated index 2 ( $s_p/Q_p$ ) is rated as as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Due to the slight response and therefore very high disturbing effects from background noise and natural fluctuation, no analysis of the CRw phase was performed. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

### 5.3.15 Response KLX20A, section 6 (0.00-102.00 m)

#### Comments to test

A total drawdown during the flow period of 0.4 kPa (0.04 m) was observed in this section. This is no response according to SKB 330.003 but anyway considered as reaction due to pumping in source. As the slight reaction includes a relative high grade of uncertainty at what response time a drawdown of 0.01 m was reached, no index 1 was calculated. The calculated index 2 ( $s_p/Q_p$ ) is rated as as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Due to the slight response and therefore very high disturbing effects from background noise and natural fluctuation, no analysis of the CRw phase was performed. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

### 5.3.16 Response KLX23A, section 1 (49.00-100.00 m)

#### Comments to test

A total drawdown during the flow period of 1.3 kPa (0.13 m) was observed in this section. A drawdown of 0.01 m was reached after appr. 1,897 min. (113,820 s) after pump start in KLX27A (210.00–247.00). The calculated index 1 ( $r_s^2/dt_L$ ) is rated as "medium response time", index 2 ( $s_p/Q_p$ ) as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Despite of a poor data quality, mainly affected by tidal influence, the CRw phase was analysable but shows a relative high range of uncertainty. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

#### Flow regime and calculated parameters

The flow dimension is interpreted from the slope of the semi-log derivative plotted in log-log coordinates. For the analysis of the CRw phase a homogeneous radial flow model was chosen. The analysis is presented in Appendix 5-12.

#### Selected representative parameters

The recommended transmissivity of  $1.1 \cdot 10^{-4}$  m<sup>2</sup>/s was derived from the analysis of the CRw phase. The confidence range for the borehole transmissivity is estimated to be  $4.0 \cdot 10^{-5}$  m<sup>2</sup>/s to  $3.0 \cdot 10^{-4}$  m<sup>2</sup>/s. The flow dimension during the test is 2. A static pressure measured at transducer depth was not possible to derive from the CRwr phase due to poor data quality.

The analysis of the CRw phase shows major influence of tidal fluctuations but is still representative for the observed section. No further analysis recommended.

### 5.3.17 Response KLX24A, section 1 (69.00-100.00 m)

#### Comments to test

A total drawdown during the flow period of 0.5 kPa (0.05 m) was observed in this section. This is no response according to SKB 330.003 but anyway considered as reaction due to pumping in source. As the slight reaction includes a relative high grade of uncertainty at what response time a drawdown of 0.01 m was reached, no index 1 was calculated. The calculated index 2 ( $s_p/Q_p$ ) is rated as as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Due to the slight response and therefore very high disturbing effects from background noise and natural fluctuation, no analysis of the CRw phase was performed. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

#### 5.3.18 Response KLX24A, section 2 (41.00-68.00 m)

#### Comments to test

A total drawdown during the flow period of 0.5 kPa (0.05 m) was observed in this section. This is no response according to SKB 330.003 but anyway considered as reaction due to pumping in source. As the slight reaction includes a relative high grade of uncertainty at what response time a drawdown of 0.01 m was reached, no index 1 was calculated. The calculated index 2 ( $s_p/Q_p$ ) is rated as as "low response" and the new index 2 ( $s_p/Q_p$ )·ln( $r_s/r_0$ ) as "medium response".

Due to the slight response and therefore very high disturbing effects from background noise and natural fluctuation, no analysis of the CRw phase was performed. The CRwr phase was not analysable due to the fact that no recovery was observed during an observation period of 36 hours.

### 5.4 KLX27A test section 639.20–650.56 m pumped

This interference test was conducted as constant rate pump test phase followed by a recovery pressure phase in the source section. The mean flow rate was 4.5 l/min with a drawdown of 201 kPa. In sum, none of the 62 observation sections responded due to the pumping. Table 5-3 summarizes the test sections and selected parameters.

| Source<br>borehole   |            | Section (m)                 | Flow rate<br>Qm (I/min)           | Drawdown<br>(m)                   | r <sub>wf</sub><br>(m) |   |  |  |                            |
|----------------------|------------|-----------------------------|-----------------------------------|-----------------------------------|------------------------|---|--|--|----------------------------|
| KLX27A               | 1          | 639.20-650.56               | 4.45                              | 20.49                             | 3.8E-2                 |   |  |  |                            |
| Observation borehole | Sec<br>no. | Section<br>(m)              | Distance<br>r <sub>s</sub><br>(m) | Drawdown<br>s <sub>p</sub><br>(m) | dt⊾(s)                 | Index 1<br>r <sub>s</sub> ²/dt <sub>⊾</sub><br>(m²/s) | Index 2<br>s <sub>p</sub> /Q <sub>p</sub><br>(s/m <sup>2</sup> ) | Index 2 new<br>(s <sub>p</sub> /Q <sub>p</sub> )·In(r <sub>s</sub> /r <sub>0</sub> )<br>(s/m²) | Diffusivity<br>ŋ<br>(m²/s) |
| HLX27                | 1          | 153.00-165.00               | 1,258.1                           | n.r.                              | -                      | -   | -  | -  | -                          |
|                      | 2<br>3     | 0.00-99.00                  | 1,285.1                           | n.r.                              | _                      | _   | _  | -  | _                          |
| HLX28                | 1<br>2     | 91.00–154.00<br>70.00–90.00 | 491.6<br>523.2                    | n.r.<br>n.r.                      |                        |   |  | -  |                            |
|                      | 3<br>4     | 7.50–69.00<br>0.00–6.50     | 553.8<br>n.o.                     | n.r.<br>n.o.                      | _<br>_                 | -   | -  | _  | _                          |
| HLX32                | 1          | 31.00–163.00                | 510.7                             | n.r.                              | _                      | _   | _  | _  | _                          |
|                      | 2          | 20.00-30.00                 | 574.2                             | n.r.                              | -                      | -   | -  | -  | -                          |
|                      | 3          | 0.00–19.00                  | 588.3                             | n.r.                              | -                      | -   | -  | _  | -                          |
| HLX36                | 1<br>2     | 50.00–199.50<br>0.00–49.00  | 629.7<br>666.3                    | n.r.<br>n.r.                      | -                      | -   | -  | _  | -                          |

#### Table 5-3. Responded test sections and selected parameters (section 639.20-650.56 m pumped).

| Source<br>borehole      |            | Section (m)     | Flow rate<br>Qm (l/min)           | Drawdown<br>(m)                   | r <sub>wf</sub><br>(m) |   |  |   |                            |
|-------------------------|------------|-----------------|-----------------------------------|-----------------------------------|------------------------|---|--|---|----------------------------|
| KLX27A                  | 1          | 639.20–650.56   | 4.45                              | 20.49                             | 3.8E-2                 |   |  |   |                            |
| Observation<br>borehole | Sec<br>no. | Section<br>(m)  | Distance<br>r <sub>s</sub><br>(m) | Drawdown<br>s <sub>p</sub><br>(m) | dt∟(s)                 | Index 1<br>r <sub>s</sub> ²/dt <sub>∟</sub><br>(m²/s) | Index 2<br>s <sub>p</sub> /Q <sub>p</sub><br>(s/m <sup>2</sup> ) | Index 2 new<br>(s <sub>p</sub> /Q <sub>p</sub> )·In(r <sub>s</sub> /r <sub>0</sub> )<br>(s/m <sup>2</sup> ) | Diffusivity<br>ŋ<br>(m²/s) |
| HLX37                   | 1          | 150.00-200.00   | 587.3                             | n.r.                              | -                      | _   | -  | -   | _                          |
|                         | 2          | 94 00-110 00    | 648.2                             | nr                                | _                      | _   | _  | _   | _                          |
|                         | 4          | 0.00-93.00      | 732.4                             | n.r.                              | _                      | _   | _  | _   |                            |
| HLX38                   | 1          | 0.00–199.50     | 669.8                             | n.r.                              | _                      | _   | _  | -   | _                          |
| HLX42                   | 1          | 30.00-152.60    | 1,305.9                           | n.r.                              | _                      | _   | _  | _   | _                          |
|                         | 2          | 0.00-29.00      | 1,380.3                           | n.r.                              | -                      | -   | -  | -   | _                          |
| KLX11A                  | 1          | 703.00-992.00   | 524.3                             | n.r.                              | _                      | _   | _  | _   | _                          |
|                         | 2          | 587.00-702.00   | 468.8                             | n.r.                              | -                      | _   | -  | -   | _                          |
|                         | 3          | 573.00-586.00   | 469.9                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 4          | 495.00-572.00   | 476.9                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 5          | 315.00-494.00   | 494.4                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 6          | 273.00-314.00   | 553.2                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | /          | 256.00-272.00   | 583.1                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | ð          | 180.00-255.00   | 642.9                             | n.r.                              | -                      | -   | -  | _   | -                          |
|                         | 9<br>10    | 0.00-102.00     | 727 3                             | n                                 | _                      | _   | _  | _   | _                          |
| KI X11F                 | 10         | 2.00-121.00     | 711.2                             | n.r.                              |                        |   |  | _   |                            |
|                         |            | 102.00 176.07   | 694.4                             |                                   |                        |   |  |   |                            |
| KLX 14A                 | 2          | 77 00 122 00    | 602 0                             | n                                 | -                      | -   | -  | _   | -                          |
|                         | 2          | 0.00-76.00      | 696.9                             | n                                 | _                      | _   | _  | _   | _                          |
|                         |            | 0.00 10.00      | 000.0                             |                                   |                        |   |  |   |                            |
| KLX15A                  | 1          | 902.00-1,000.00 | 1,396.2                           | n.r.                              | -                      | -   | _  | -   | -                          |
|                         | 2          | 641.00-901.00   | 1,359.0                           | 11.1.<br>p.r                      | -                      | -   | -  | _   | -                          |
|                         | 3<br>⊿     | 481 00 622 00   | 1,312.0                           | n                                 | _                      | _   | _  | _   | _                          |
|                         | 5          | 273 00-480 00   | 1,301.9                           | n                                 | _                      | _   | _  | _   | _                          |
|                         | 6          | 260.00-272.00   | 1,320.0                           | n.r.                              | _                      | _   | _  | _   | _                          |
|                         | 7          | 191.00-259.00   | 1.333.2                           | n.r.                              | _                      | _   | _  | _   | _                          |
|                         | 8          | 79.00–190.00    | 1,351.4                           | n.r.                              | _                      | _   | _  | _   | _                          |
|                         | 9          | 0.00-78.00      | 1,380.5                           | n.r.                              | -                      | -   | -  | _   | -                          |
| KLX16A                  | 1          | 327.00-433.55   | 1.249.8                           | n.r.                              | _                      | _   | _  | _   | _                          |
|                         | 2          | 86.00-326.00    | 1,345.5                           | n.r.                              | _                      | _   | _  | _   | _                          |
|                         | 3          | 0.00-85.00      | 1,465.4                           | n.r.                              | _                      | _   | _  | _   | _                          |
| KI X19A                 | 1          | 661 00-800 00   | 404 8                             | nr                                | _                      | _   | _  | _   | _                          |
|                         | 2          | 518.00-660.00   | 340.1                             | n.r.                              | _                      | _   | _  | _   | _                          |
|                         | 3          | 509.00-517.00   | 338.5                             | n.r.                              | _                      | _   | _  | _   | _                          |
|                         | 4          | 481.50-508.00   | 339.9                             | n.r.                              | -                      | -   | -  | _   | _                          |
|                         | 5          | 311.00-480.50   | 346.9                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 6          | 291.00-310.00   | 414.9                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 7          | 136.00-290.00   | 509.7                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 8          | 0.00–135.00     | 548.5                             | n.r.                              | -                      | -   | -  | -   | _                          |
| KLX20A                  | 1          | 294.00-457.00   | 687.4                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 2          | 260.00–293.00   | 683.7                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 3          | 181.00-259.00   | 691.8                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 4          | 145.00-180.00   | 699.0                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 5          | 103.00-144.00   | 709.9<br>704 F                    | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | o          | 0.00-102.00     | 121.5                             | n.t.                              | -                      | _   | -  | _   | -                          |
| KLX23A                  | 1          | 49.00-100.00    | 581.0                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 2          | 0.00-48.00      | 611.1                             | n.r.                              | -                      | _   | -  | -   | _                          |
| KLX24A                  | 1          | 69.00-100.00    | 768.1                             | n.r.                              | _                      | -   | _  | -   | -                          |
|                         | 2          | 41.00-68.00     | 773.5                             | n.r.                              | -                      | -   | -  | -   | -                          |
|                         | 3          | 0.00-40.00      | 790.3                             | n.r.                              | -                      | -   | -  | -   | -                          |

)\* no response according to SKB 330.003 (Bilagor B); see Section 4.6.1 for greater detail n.r. no response due to pumping in source Key for index 1, 2 and 2 new, see Table 5-1.

### 6 Summary and conclusions

The summary and conclusions chapter summarizes the basic test parameters and analysis results.

### 6.1 Summary of results

Table 6-1. General test data from constant rate pump tests.

| Borehole<br>ID | Borehole<br>secup<br>(m) | Borehole<br>Seclow<br>(m) | Date and time<br>Test start<br>YYYYMMDD hh:mm | Date and time<br>Test stop<br>YYYYMMDD hh:mm | Q <sub>p</sub><br>(m³/s) | Q <sub>m</sub><br>(m³/s) | tp<br>(s) | t <sub>⊧</sub><br>(s) | p₀<br>(kPa) | p <sub>i</sub><br>(kPa) | p <sub>p</sub><br>(kPa) | p <sub>⊧</sub><br>(kPa) | Te <sub>w</sub><br>(°C) | Test phases<br>Analysed te<br>marked bold | s measured<br>est phases<br>d |
|----------------|--------------------------|---------------------------|---|--|--------------------------|--------------------------|-----------|-----------------------|-------------|-------------------------|-------------------------|-------------------------|-------------------------|---|-------------------------------|
| KLX27A         | 210.00                   | 247.00                    | 20071010 00:00                                | 20071023 12:00                               | 6.33E-05                 | 6.60E-05                 | 230,340   | 176,400               | 1,846       | 1,847                   | 1,412                   | 1,823                   | #NV                     | CRw                                       | CRwr                          |
| KLX27A         | 639.20                   | 650.56                    | 20071119 00:00                                | 20071125 00:00                               | 7.00E-05                 | 7.42E-05                 | 53,580    | 153,180               | 5,016       | 5,638                   | 5,437                   | 5,630                   | #NV                     | CRw                                       | CRwr                          |

#### Nomenclature

- Qp Flow in test section immediately before stop of flow [m<sup>3</sup>/s].
- Qm Arithmetical mean flow during perturbation phase [m<sup>3</sup>/s].
- tp Duration of perturbation phase [s].
- tf Duration of recovery phase [s].
- p0 Pressure in borehole before packer inflation [kPa].
- pi Pressure in test section before start of flowing [kPa].
- pp Pressure in test section before stop of flowing [kPa].
- pF Pressure in test section at the end of the recovery [kPa].

Tew Temperature in test section.

Test phases CRw: constant rate pump (withdrawal) phase. CRwr: recovery phase following the constant rate pump (withdrawal) phase.

#### Table 6-2. Results from analysis of constant rate pump tests.

| Interval po                          | osition            |                                       | Stationar<br>paramete                   | y flow<br>ers                              | Transier<br>Flow reg                     | nt analysis<br>jime                       | Formatio                               | n paramet                                  | ers                                   |  |  |                                     |                            |                           |                     |                |                       |                         | Static co              | nditions                 |
|--------------------------------------|--------------------|---------------------------------------|---|--|--|---|--|--|---------------------------------------|--|--|-------------------------------------|----------------------------|---------------------------|---------------------|----------------|-----------------------|-------------------------|------------------------|--------------------------|
| Borehole<br>ID                       | up<br>m btoc       | low<br>m btoc                         | Q/s<br>m²/s                             | T <sub>м</sub><br>m²/s                     | Perturb.<br>Phase                        | Recovery<br>Phase                         | T <sub>f1</sub><br>m²/s                | T <sub>f2</sub><br>m²/s                    | T <sub>s1</sub><br>m²/s               | T <sub>s2</sub><br>m²/s                    | T⊤<br>m²/s                             | T <sub>TMIN</sub><br>m²/s           | T <sub>TMAX</sub><br>m²/s  | C<br>m³/Pa                | ξ<br>_              | dt₁<br>min     | dt₂<br>min            | r <sub>inner</sub><br>m | p*<br>kPa              | h <sub>wif</sub><br>masl |
| KLX27A                               | 210.00             | 247.00                                | 1.4E–06                                 | 1.6E–06                                    | 2  | WBS2                                      | 8.4E-06                                | #NV  | 8.0E-06                               | #NV  | 8.0E-06                                | 4.0E-06                             | 2.0E-05                    | 1.4E–07                   | 21.2                | 378            | 1,266                 | #NV                     | 1,833.8                | 1.83                     |
| KLX27A                               | 639.20             | 650.56                                | 3.4E-06                                 | 3.3E-06                                    | 22                                       | WBS22                                     | 2.6E-06                                | 8.7E-05                                    | 2.6E-06                               | 8.5E–05                                    | 8.7E–05                                | 4.0E-05                             | 2.0E-04                    | 1.0E-07                   | -1.0                | 52             | 502                   | 8.0                     | 5,635.8                | -0.76                    |
| Nomencl                              | ature              |                                       |   |  |  |   |  |  |                                       |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |
| Q/s                                  | Sp                 | ecific cap                            | oacity.                                 |  |  |   |  |  |                                       |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |
| T <sub>M</sub>                       | Tr                 | ansmissiv                             | ity accord                              | ing to /Moy                                | /e 1967/.                                |   |  |  |                                       |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |
| Flow regin                           | ne Th<br>the<br>zo | e flow reg<br>e flow dim<br>ne) was ເ | gime descr<br>nension us<br>used in the | ription refe<br>ed in the a<br>analysis, i | rs to the ro<br>nalysis (1<br>if two num | ecommendo<br>= linear flo<br>bers are gi  | ed model u<br>w, 2 = radi<br>ven (WBS2 | used in the<br>al flow, 3 =<br>22 or 22) a | transient a<br>spherical<br>2 zones c | analysis. W<br>flow). If or<br>composite i | /BS denote<br>Ily one nur<br>nodel was | es wellbore<br>nber is use<br>used. | e storage a<br>ed (e.g. WE | nd skin an<br>3S2 or 2) a | id is fol<br>a homo | lowed<br>geneo | by a set<br>us flow r | t of nur<br>model       | nbers des<br>(1 compos | cribing<br>site          |
| T <sub>f</sub>                       | Tr.<br>flo         | ansmissiv<br>w model                  | vity derived<br>was used l              | l from the a<br>both T <sub>f1</sub> (ini  | analysis o<br>ner zone)                  | f the perturl<br>and T <sub>f2</sub> (out | bation pha<br>ter zone) a              | se (CRw).<br>re given.                     | In case a l                           | homogene                                   | ous flow m                             | iodel was u                         | used only o                | one T <sub>f</sub> valu   | e is rep            | ported,        | in case               | a two                   | zone com               | posite                   |
| Ts                                   | Tr<br>mo           | ansmissiv<br>odel was                 | vity derived used both                  | l from the a<br>T <sub>s1</sub> (inner z   | analysis o<br>cone) and                  | f the recove<br>T <sub>s2</sub> (outer z  | ery phase (<br>one) are g              | CRwr). In iven.                            | case a hor                            | nogeneou                                   | s flow mod                             | el was use                          | ed only one                | $T_s$ value i             | s repor             | ted, in        | case a                | two zo                  | ne compo               | site flow                |
| Τ <sub>T</sub>                       | Re                 | commen                                | ded transn                              | nissivity.                                 |  |   |  |  |                                       |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |
| T <sub>TMIN</sub> / T <sub>TMA</sub> | <sub>AX</sub> Co   | onfidence                             | range low                               | er/upper lii                               | mit.                                     |   |  |  |                                       |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |
| С                                    | W                  | ellbore st                            | orage coef                              | ficient.                                   |  |   |  |  |                                       |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |
| ξ                                    | Sk                 | in factor                             | (calculated                             | l based on                                 | a Storativ                               | vity of 1 · 10-€                          | <sup>3</sup> ).                        |  |                                       |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |
| $dt_1 / dt_2$                        | Es                 | timated s                             | start/stop ti                           | me of eval                                 | uation for                               | the recomn                                | nended tra                             | nsmissivity                                | / (T⊤).                               |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |
| r <sub>inner</sub>                   | Ra                 | idius of th                           | ne inner zo                             | ne (see Se                                 | ection 4.5.                              | 8).                                       |  |  |                                       |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |
| p*                                   | Th<br>ex           | e parame<br>trapolatio                | eter p* den<br>n.                       | oted the st                                | tatic forma                              | ation pressu                              | re (measu                              | red at tran                                | sducer de                             | oth) and w                                 | as derived                             | from the H                          | IORNER p                   | lot of the (              | CHir ph             | ase us         | sing stra             | ight lin                | e or type-o            | curve                    |
| h <sub>wif</sub>                     | Fr                 | esh-wate                              | r head (ba                              | sed on trar                                | nsducer de                               | epth and p*                               | ).                                     |  |                                       |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |
| #NV                                  | No                 | ot analyse                            | ed/no value                             | es.  |  |   |  |  |                                       |  |  |                                     |                            |                           |                     |                |                       |                         |                        |                          |

| Pumped s       | ection            | Observation I      | borehole          | Transie          | nt analysi    | is                      |                         |             |             |            |                           |                          |         |          |          | Index ca                                    | lculation                                 |   |                          |
|----------------|-------------------|--------------------|-------------------|------------------|---------------|-------------------------|-------------------------|-------------|-------------|------------|---------------------------|--------------------------|---------|----------|----------|---|---|---|--------------------------|
|                |                   |                    |                   | Flow reg         | gime          | Formatio                | n parame                | ter         |             |            |                           |                          |         |          |          |   |   |   |                          |
| Borehole<br>ID | Section<br>m btoc | Borehole<br>ID_Sec | Section<br>m btoc | Pertub.<br>phase | Rec.<br>phase | T <sub>f1</sub><br>m²/s | T <sub>f2</sub><br>m²/s | T₅₁<br>m²/s | T₅₂<br>m²/s | T⊤<br>m²/s | T <sub>TMIN</sub><br>m²/s | T <sub>™AX</sub><br>m²/s | S       | dt₁<br>s | dt₂<br>s | Index 1<br>r <sub>s</sub> ²/dt <sub>L</sub> | Index 2<br>s <sub>p</sub> /Q <sub>p</sub> | Index 2 new<br>(sp/Qp)·<br>In(rs/ <sub>r</sub> 0) | Diffusivit<br>ŋ<br>(T/S) |
| KLX27A         | 210.00-           | HLX27_1            | 153.00–165.00     | _                | -             | _                       | -                       | _           | _           | _          | _                         | _                        | _       | -        | -        | No resp                                     | onse due to                               | pumping   | _                        |
|                | 247.00            | HLX27_2            | 100.00-152.00     | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | HLX27_3            | 0.00–99.00        | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | HLX28_1            | 91.00-154.00      | 2                | n.a.          | 1.1E-04                 | -                       | -           | -           | 1.1E–04    | 3.0E-05                   | 3.0E-04                  | 1.9E-04 | 35,418   | 177,372  | 0.22  | 2,007.85                                  | 10,126.42   | 5.7E-01                  |
|                |                   | HLX28_2            | 70.00–90.00       | 2                | n.a.          | 1.0E-04                 | -                       | -           | -           | 1.0E-04    | 3.0E-05                   | 3.0E-04                  | 1.3E-04 | 70,152   | 164,844  | 0.35  | 2,162.30                                  | 11,401.78   | 7.7E–01                  |
|                |                   | HLX28_3            | 7.50-69.00        | 2                | n.a.          | 1.3E-04                 | -                       | -           | -           | 1.3E-04    | 4.0E-05                   | 4.0E-04                  | 9.3E-05 | 62,094   | 164,844  | 0.25  | 1,544.50                                  | 8,425.73  | 1.4E+00                  |
|                |                   | HLX28_4            | 0.00-6.50         | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | HLX32_1            | 31.00–163.00      | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | HLX32_2            | 20.00-30.00       | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | HLX32_3            | 0.00–19.00        | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | HLX36_1            | 50.00-199.50      | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | HLX36_2            | 0.00-49.00        | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | HLX37_1            | 150.00-200.00     | 2                | n.a.          | 1.1E-04                 | -                       | -           | -           | 1.1E–04    | 3.0E-05                   | 3.0E-04                  | 1.4E-05 | 102,528  | 181,752  | 2.51  | 1,853.40                                  | 11,681.25   | 7.7E+00                  |
|                |                   | HLX37_2            | 111.00-149.00     | 2                | n.a.          | 1.1E-04                 | -                       | -           | -           | 1.1E-04    | 3.0E-05                   | 3.0E-04                  | 1.4E-05 | 103,674  | 178,692  | 2.80  | 2,162.30                                  | 13,705.91   | 7.9E+00                  |
|                |                   | HLX37_3            | 94.00-110.00      | n.a.             | n.a.          | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | n.c.  | 772.25                                    | 4,905.81  | -                        |
|                |                   | HLX37_4            | 0.00–93.00        | n.a.             | n.a.          | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | n.c.  | 772.25                                    | 4,961.60  | -                        |
|                |                   | HLX38_1            | 0.00-199.50       | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | HLX42_1            | 30.00-152.60      | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | HLX42_2            | 0.00-29.00        | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11A_1           | 703.00–992.00     | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11A_2           | 587.00-702.00     | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11A_3           | 573.00-586.00     | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11A_4           | 495.00-572.00     | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11A_5           | 315.00-494.00     | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11A_6           | 273.00-314.00     | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11A_7           | 256.00-272.00     | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11A_8           | 180.00–255.00     | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11A_9           | 103.00-179.00     | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11A_10          | 0.00-102.00       | -                | _             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | -                        |
|                |                   | KLX11E_1           | 2.00-121.00       | -                | -             | -                       | -                       | -           | -           | -          | -                         | -                        | -       | -        | -        | No resp                                     | onse due to                               | pumping   | _                        |
|                |                   | KLX14A_1           | 123.00-176.27     | _                | _             | -                       | _                       | _           | _           | _          | _                         | _                        | _       | _        | _        | No resp                                     | onse due to                               | pumping   | _                        |

| Table 6-3. Results from analysis of t | the interference tests |
|---------------------------------------|------------------------|
|---------------------------------------|------------------------|

| Pumped s       | section           | Observation        | borehole          | Transie          | nt analysi<br>nime | is<br>Formatio          | n naramei               | ter                     |                         |            |                           |                           |         |                      |          | Index ca                        | lculation                                 |   |                           |
|----------------|-------------------|--------------------|-------------------|------------------|--------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------|---------------------------|---------------------------|---------|----------------------|----------|---------------------------------|---|---|---------------------------|
| Borehole<br>ID | Section<br>m btoc | Borehole<br>ID_Sec | Section<br>m btoc | Pertub.<br>phase | Rec.<br>phase      | T <sub>f1</sub><br>m²/s | T <sub>f2</sub><br>m²/s | T <sub>s1</sub><br>m²/s | T <sub>s2</sub><br>m²/s | T⊤<br>m²/s | T <sub>TMIN</sub><br>m²/s | T <sub>TMAX</sub><br>m²/s | S       | dt <sub>1</sub><br>s | dt₂<br>s | Index 1<br>r <sub>s</sub> ²/dt∟ | Index 2<br>s <sub>p</sub> /Q <sub>p</sub> | Index 2 new<br>(sp/Qp)·<br>In(rs/ <sub>r</sub> 0) | Diffusivity<br>ŋ<br>(T/S) |
|                |                   | KLX14A_2           | 77.00–122.00      | _                | _                  | _                       | _                       | _                       | _                       | _          | -                         | -                         | _       | -                    | -        | No resp                         | onse due to                               | pumping   | _                         |
|                |                   | KLX14A_3           | 0.00-76.00        | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX15A_1           | 902.00-1,000.0    | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX15A_2           | 641.00-901.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX15A_3           | 623.00-640.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX15A_4           | 481.00-622.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX15A_5           | 273.00-480.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX15A_6           | 260.00-272.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX15A_7           | 191.00–259.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX15A_8           | 79.00–190.00      | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX15A_9           | 0.00-78.00        | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX16A_1           | 327.00-433.55     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX16A_2           | 86.00-326.00      | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX16A_3           | 0.00-85.00        | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX19A_1           | 661.00-800.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX19A_2           | 518.00-660.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX19A_3           | 509.00-517.00     | 2                | 2                  | 1.6E–05                 | -                       | 1.3E–05                 | -                       | 1.6E–05    | 8.0E-06                   | 3.0E-05                   | 9.0E-06 | n.a.                 | n.a.     | 6.11                            | 12,047.08                                 | 68,991.77   | 1.7E+00                   |
|                |                   | KLX19A_4           | 481.50-508.00     | 2                | 2                  | 1.5E–05                 | -                       | 1.3E–05                 | -                       | 1.5E–05    | 8.0E-06                   | 3.0E-05                   | 1.1E–05 | 103,674              | 210,420  | 5.45                            | 11,892.63                                 | 67,429.78   | 1.5E+00                   |
|                |                   | KLS19A_5           | 311.00-480.50     | 2                | 2                  | 1.5E–05                 | -                       | 1.6E–05                 | -                       | 1.5E–05    | 8.0E-06                   | 3.0E-05                   | 1.3E–05 | 71,886               | 205,344  | 4.25                            | 11,892.63                                 | 66,176.76   | 1.2E+00                   |
|                |                   | KLX19A_6           | 291.00-310.00     | 2                | 2                  | 4.3E-05                 | -                       | 3.2E-05                 | -                       | 4.3E-05    | 2.0E-05                   | 9.0E-05                   | 1.8E–05 | 73,116               | 178,692  | 3.25                            | 9,266.98                                  | 50,149.63   | 2.4E+00                   |
|                |                   | KLX19A_7           | 136.00-290.00     | 2                | n.a.               | 9.0E-05                 | _                       | _                       | _                       | 9.0E-05    | 3.0E-05                   | 3.0E-04                   | 6.9E–05 | 108,858              | 181,752  | 0.43                            | 2,007.85                                  | 11,277.61   | 1.3E+00                   |
|                |                   | KLX19A_8           | 0.00-135.00       | 2                | n.a.               | 1.2E-04                 | -                       | -                       | -                       | 1.2E-04    | 4.0E-05                   | 4.0E-04                   | 4.0E-05 | n.a.                 | n.a.     | 0.85                            | 2,007.85                                  | 11,472.30   | 2.9E+00                   |
|                |                   | KLX20A_1           | 294.00-457.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX20A_2           | 260.00-296.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX20A_3           | 181.00–259.00     | -                | -                  | -                       | -                       | -                       | -                       | -          | -                         | -                         | -       | -                    | -        | No resp                         | onse due to                               | pumping   | -                         |
|                |                   | KLX20A_4           | 145.00-180.00     | _                | _                  | _                       | _                       | _                       | _                       | _          | _                         | _                         | _       | _                    | _        | No resp                         | onse due to                               | pumping   | _                         |
|                |                   | KLX20A_5           | 103.00–144.00     | n.a.             | n.a.               | _                       | _                       | _                       | _                       | -          | -                         | _                         | _       | _                    | -        | n.c.                            | 926.70                                    | 6,048.09  | -                         |
|                |                   | KLX20A_6           | 0.00-103.00       | n.a.             | n.a.               | _                       | _                       | _                       | _                       | -          | -                         | _                         | _       | _                    | -        | n.c                             | 617.80                                    | 4,030.25  | -                         |
|                |                   | KLX23A_1           | 49.00-100.00      | 2                | n.a.               | 1.1E–04                 | _                       | _                       | _                       | 1.1E–04    | 4.0E-05                   | 3.0E-04                   | 2.5E-05 | 120,024              | 173,094  | 1.88                            | 2,007.85                                  | 12,319.27   | 4.3E+00                   |
|                |                   | KLX23A_2           | 0.00-48.00        | _                | _                  | _                       | _                       | -                       | _                       | _          | _                         | _                         | _       | _                    | _        | No resp                         | onse due to                               | pumping   | _                         |
|                |                   |                    | 69.00–100.00      | n.a.             | n.a.               | _                       | _                       | _                       | _                       | _          | _                         | _                         | _       | _                    | _        | n.c.                            | 772.25                                    | 5,106.14  | _                         |
|                |                   |                    | 41.00-68.00       | n.a.             | n.a.               | _                       | _                       | _                       | _                       | _          | _                         | _                         | _       | _                    | _        | n.c.                            | 772.25                                    | 5,110.28  | _                         |
|                |                   | KLX24A 3           | 0.00-40.00        | _                | _                  | _                       | _                       | _                       | _                       | _          | _                         | _                         | _       | _                    | _        | No resp                         | onse due to                               | pumping   | _                         |

| Pumped s       | ection            | Observation        | borehole          | Transier                     | nt analysi            | is<br>_                            |                         |                                 |                         |            |                           |                           |   |          |          | Index ca                                    | alculation                                |                                      |                           |
|----------------|-------------------|--------------------|-------------------|------------------------------|-----------------------|------------------------------------|-------------------------|---------------------------------|-------------------------|------------|---------------------------|---------------------------|---|----------|----------|---|---|--------------------------------------|---------------------------|
| Borehole<br>ID | Section<br>m btoc | Borehole<br>ID_Sec | Section<br>m btoc | Flow reg<br>Pertub.<br>phase | gime<br>Rec.<br>phase | Formati<br>T <sub>f1</sub><br>m²/s | T <sub>f2</sub><br>m²/s | eter<br>T <sub>s1</sub><br>m²/s | T <sub>s2</sub><br>m²/s | T⊤<br>m²/s | T <sub>TMIN</sub><br>m²/s | T <sub>TMAX</sub><br>m²/s | S | dt₁<br>s | dt₂<br>s | Index 1<br>r <sub>s</sub> ²/dt <sub>L</sub> | Index 2<br>s <sub>p</sub> /Q <sub>p</sub> | Index 2 new<br>(sp/Qp)·<br>In(rs/,0) | Diffusivity<br>ŋ<br>(T/S) |
| KLX27A         | 639.20-           | HLX27_1            | 153.00–165.00     | _                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                | 650.56            | HLX27_2            | 100.00-152.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX27_3            | 0.00–99.00        | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX28_1            | 91.00-154.00      | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX28_2            | 70.00–90.00       | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX28_3            | 7.50-69.00        | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX28_4            | 0.00-6.50         | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX32_1            | 31.00–163.00      | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX32_2            | 20.00-30.00       | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX32_3            | 0.00-19.00        | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX36_1            | 50.00-199.50      | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX36_2            | 0.00-49.00        | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX37_1            | 150.00-200.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX37_2            | 111.00–149.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX37_3            | 94.00-110.00      | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX37_4            | 0.00-93.00        | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX38_1            | 0.00–199.50       | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX42_1            | 30.00-152.60      | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | HLX42_2            | 0.00-29.00        | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11A_1           | 703.00–992.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11A_2           | 587.00-702.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11A_3           | 573.00-586.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11A_4           | 495.00-572.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11A_5           | 315.00-494.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11A_6           | 273.00-314.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11A_7           | 256.00-272.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11A_8           | 180.00–255.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11A_9           | 103.00–179.00     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11A_10          | 0.00-102.00       | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | _ | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX11E_1           | 2.00-121.00       | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX14A_1           | 123.00–176.27     | -                            | -                     | -                                  | -                       | -                               | -                       | -          | -                         | -                         | - | -        | -        | No resp                                     | onse due to                               | pumping                              | -                         |
|                |                   | KLX14A 2           | 77.00-122.00      | _                            | _                     | _                                  | _                       | _                               | _                       | _          | _                         | _                         | _ | _        | _        | No resp                                     | onse due to                               | pumping                              | _                         |

| Pumped s       | section           | Observation        | borehole          | Transie          | nt analys     | is<br>Format            | ion naram               | otor                    |                         |            |                           |                           |   |          |          | Index c            | alculation                                |   |                           |
|----------------|-------------------|--------------------|-------------------|------------------|---------------|-------------------------|-------------------------|-------------------------|-------------------------|------------|---------------------------|---------------------------|---|----------|----------|--------------------|---|---|---------------------------|
| Borehole<br>ID | Section<br>m btoc | Borehole<br>ID_Sec | Section<br>m btoc | Pertub.<br>phase | Rec.<br>phase | T <sub>f1</sub><br>m²/s | T <sub>f2</sub><br>m²/s | T <sub>s1</sub><br>m²/s | T <sub>s2</sub><br>m²/s | T⊤<br>m²/s | T <sub>TMIN</sub><br>m²/s | T <sub>TMAX</sub><br>m²/s | S | dt₁<br>s | dt₂<br>s | Index 1<br>r₅²/dt∟ | Index 2<br>s <sub>p</sub> /Q <sub>p</sub> | Index 2 new<br>(sp/Qp)·<br>In(rs/ <sub>r</sub> 0) | Diffusivity<br>ŋ<br>(T/S) |
|                |                   | KLX14A_3           | 0.00-76.00        | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX15A_1           | 902.00-1,000.0    | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | -                         | _ | -        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX15A_2           | 641.00-901.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | -                         | _ | -        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX15A_3           | 623.00-640.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | -                         | _ | -        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX15A_4           | 481.00-622.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | -                         | _ | -        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX15A_5           | 273.00-480.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | -                         | _ | -        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX15A_6           | 260.00-272.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | -                         | _ | -        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX15A_7           | 191.00–259.00     | _                | _             | _                       | _                       | -                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX15A_8           | 79.00–190.00      | _                | _             | _                       | _                       | -                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX15A_9           | 0.00-78.00        | _                | _             | _                       | _                       | -                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX16A_1           | 327.00-433.55     | _                | _             | _                       | _                       | -                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX16A_2           | 86.00-326.00      | _                | _             | _                       | -                       | -                       | _                       | _          | _                         | _                         | _ | -        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX16A_3           | 0.00-85.00        | _                | _             | _                       | _                       | -                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX19A_1           | 661.00-800.00     | _                | _             | _                       | _                       | -                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX19A_2           | 518.00-660.00     | _                | _             | _                       | _                       | -                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX19A_3           | 509.00-517.00     | _                | _             | _                       | _                       | -                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX19A 4           | 481.50-508.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLS19A 5           | 311.00-480.50     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   |                    | 291.00-310.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX19A_7           | 136.00-290.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX19A 8           | 0.00-135.00       | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX20A 1           | 294.00-457.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   |                    | 260.00-296.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX20A 3           | 181.00-259.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX20A 4           | 145.00-180.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX20A 5           | 103.00-144.00     | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX20A 6           | 0.00-102.00       | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX23A_1           | 49.00-100.00      | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   |                    | 0.00-48.00        | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX24A 1           | 69.00-100.00      | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX24A 2           | 41.00-68.00       | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resp            | onse due t                                | o pumping   | _                         |
|                |                   | KLX24A 3           | 0.00-40.00        | _                | _             | _                       | _                       | _                       | _                       | _          | _                         | _                         | _ | _        | _        | No resr            | onse due t                                |   | _                         |

#### Nomenclature

| Flow regime             | The flow regime description refers to the recommended model used in the transient analysis. WBS denotes wellbore storage and skin and is followed by a set of numbers describing the flow dimension used in the analysis (1 = linear flow, 2 = radial flow, 3 = spherical flow). If only one number is used (e.g. WBS2 or 2) a homogeneous flow model (1 composite zone) was used in the analysis, if two numbers are given (WBS22 or 22) a 2 zones composite model was used. |
|-------------------------|---|
| T <sub>f</sub>          | Transmissivity derived from the analysis of the perturbation phase (CRw). In case a homogeneous flow model was used only one $T_{\rm f}$ value is reported, in case a two zone composite flow model was used both $T_{\rm f1}$ (inner zone) and $T_{\rm f2}$ (outer zone) are given.  |
| Ts                      | Transmissivity derived from the analysis of the recovery phase (CRwr). In case a homogeneous flow model was used only one $T_{\rm s}$ value is reported, in case a two zone composite flow model was used both $T_{\rm s1}$ (inner zone) and $T_{\rm s2}$ (outer zone) are given.   |
| Τ <sub>T</sub>          | Recommended transmissivity.   |
| $T_{TMIN}$ / $T_{TMAX}$ | Confidence range lower/upper limit.   |
| S                       | Storativity.  |
| dt1 / dt2               | Estimated start/stop time of evaluation of the recommended transmissivity $(T_T)$ .   |
| Index 1                 | $r_{\rm s}{}^2/dt_{\rm L}$ (m²/s) normalised distance $r_{\rm s}$ with respect to the response time.  |
| Index 2                 | sp/Qp (s/m <sup>2</sup> ) normalised drawdown with respect to the pumping rate.   |
| Index 2 new             | $(sp/Qp) \cdot ln(r_s/r_0) (s/m^2)$ ormalised drawdown with respect to the pumping rate and distance.   |
| Diffusivity ŋ           | $T_T/S$ (m <sup>2</sup> /s).  |
| n.a.                    | Not analysed due to strong natural fluctuations.  |
| n.c.                    | Not calculated.   |

The Figures 6-1 to 6-2 present the transmissivity and conductivity profiles.

### 6.2 Correlation analysis

A correlation analysis was used with the aim of examining the consistency of results and deriving general condlusion regarding the testing and analysis methods used.

#### 6.2.1 Comparison of steady state and transient analysis results

The steady state derived transmissivities ( $T_M$  and Q/s) were compared in a cross-plot with the recommended transmissivity values derived from the transient analysis for the pump tests (see following Figure 6-3).

The correlation analysis shows that one of the steady state derived transmissivities differs by less than one order of magnitude from the transmissivities derived from the transient analysis. The test with the higher transmissivity shows a difference of around 1.5 orders of magnitude.

### 6.3 Conclusions

#### 6.3.1 Transmissivity derived from the pump tests

Figure 6-1 presents a profile of transmissivities, including the confidence range derived from the transient analysis. The method used for deriving the recommended transmissivity and its confidence range is described in Section 4.5.9.

Whenever possible, the transmissivities derived are representative for the "undisturbed formation" further away from the borehole. The borehole vicinity was typically described using a skin effect. A composite model was chosen for the pump and recovery phase of the pump test performed in section 639.20–650.56 m. Depending on the quality of the data, the outer zone transmissivity of the pump phase was recommended for this test.

The transmissivity profile in Figure 6-1 shows transmissivities of  $8.0 \cdot 10^{-6}$  m<sup>2</sup>/s and  $8.7 \cdot 10^{-5}$  m<sup>2</sup>/s.



*Figure 6-1. Results summary of KLX27A – profile of transmissivity, transmissivities derived from the pump tests.* 



*Figure 6-2. Results summary of KLX27A – profile of hydraulic conductivity, conductivity derived from the pump tests.* 



*Figure 6-3.* Correlation analysis of transmissivities derived by steady state and transient methods for *the pump tests.* 

### 6.3.2 Flow regimes encountered

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

In the pump tests performed in section 639.20–650.56 m, the pressure derivative suggests a change of transmissivity with increased distance from the borehole. In this case a composite flow model was used in the analysis.

The flow dimension displayed by the tests can be diagnosed from the slope of the pressure derivative. A slope of 0.5 indicates linear flow, a slope of 0 (horizontal derivative) indicates radial flow and a slope of -0.5 indicates spherical flow. The flow dimension diagnosis was commented for each of the tests. However, in all cases it was possible to achieve to acceptable analysis results (good match quality) by using radial flow geometry (flow dimension of 2).

#### 6.3.3 Interference tests and hydraulic connectivity

For the interference tests two constant rate pump tests were performed in KLX27A. Altogether 63 sections in 16 boreholes mainly along the lineaments NW042, NS001 and NS059 were monitored. 18 sections in six observation holes responded during the pump test in test section 210.00–247.00 m. Six of the observed sections responded with less than 0.1 m during the pump phase. According to SKB document 330.003 this slight reaction is not considered as a response. However, a calculation of the indices 2 and 2 new was performed also for these responses. During the pump test in test section 639.20–650.56 m, no section of the observation holes responded at all.

The responding observation sections are located in boreholes along the lineament NW042 and NS001 up to approximately 750 m away from KLX27A.

The recommended transmissivities derived from the transient analysis range from  $1.5 \cdot 10^{-5}$  m<sup>2</sup>/s to  $1.3 \cdot 10^{-4}$  m<sup>2</sup>/s. Transmissivities of  $1.5 \cdot 10^{-5}$  m<sup>2</sup>/s were measured in the deeper responding sections of observation borehole KLX19A, most of the other responding sections were analysed with transmissivities in the range of  $1.0 \cdot 10^{-4}$  m<sup>2</sup>/s.

### 6.3.4 Interpretation of the responses

Preliminary evaluations indicated that the dolerite dyke in NS001 acts as a hydraulic barrier. Pumping in KLX27A in NW042 on the east side of the dolerite dyke in NS001 generates responses in boreholes HLX28, KLX19A and KLX23A east of the dolerite dyke in NS001. A clear response in HLX37 was observed in the two deep sections which are connected to the formation east of the dolerite dyke in NS001 whereas the two upper sections west of the dolerite dyke showed only a very slight response. In KLX20A, only the upper two sections which are located east of the lineament NS001 showed a slight reaction. The deeper sections west of this lineament showed no reaction at all. No response was observed in HLX32 which is close to the pumped borehole but previous flow logging investigations /Rohs et al. 2007/ performed in HLX32 showed that major hydraulic connections are limited to the near surface part of this borehole and that there is no hydraulic connection to the lineament NW042 in the deeper parts of HLX32.

The tests also show that some hydraulic connection is not necessarily limited to major lineaments. The deeper section of KLX23A showed a clear response to pumping in KLX27A without being connected to any major lineament. A very slight response was observed in the deeper sections of KLX24A which are also not connected to any major lineament but more far away from the pumped borehole than KLX23A.

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Interference test analysis

## **APPENDIX 1**

Pump Test Analysis Diagrams

## **APPENDIX 1-1**

## Test 210.00 – 247.00 m

Pump Test Analysis diagrams



Pressure and flow rate vs. time; cartesian plot





CRw phase; log-log match

Simulation (Constant Skin) - Flow Period 3



CRwr phase; test simulation

### Borehole: KLX27A Test: 210.00 - 247.00 m

Log-Log Match - Flow Period 3



### CRwr phase; log-log match

```
Horner Match - Flow Period 3
```



CRwr phase; HORNER match

## **APPENDIX 1-2**

## Test 639.20 – 650.56 m

Pump Test Analysis diagrams



Pressure and flow rate vs. time; cartesian plot



CRw phase; log-log match





CRw phase; test simulation

Log-Log Match - Flow Period 4



CRwr phase; log-log match



CRwr phase; HORNER match

Interference test analysis

## **APPENDIX 2**

Pump Test Summary Sheets

|  | Test Sum   | mary Sheet   |                                     |                          |                  |
|--|--|--|-------------------------------------|--------------------------|------------------|
| Project:   | Oskarshamn site investigation  | n <u>Test type:[1]</u>   |                                     |                          | CRwr             |
| Area:  | Laxema   | r Test no:   |                                     |                          | 1                |
| Borehole ID:   | KLX27/   | A Test start:  |                                     |                          | 071010 00:00     |
| Test section from - to (m):  | 210.00-247.00 n  | n Responsible for test execution:  |                                     |                          | n.n.             |
| Section diameter, 2·r <sub>w</sub> (m):  | 0.070  | 6 Responsible for test evaluation:   |                                     | Crist                    | ian Enachescu    |
| Linear plot Q and p  | -  | Flow period  | •                                   | Recovery period          |                  |
|  |  | Indata   |                                     | Indata                   |                  |
|  |  | p <sub>0</sub> (kPa) =   | 1846                                |                          |                  |
|  | ~  | p <sub>i</sub> (kPa ) =  | 1847                                |                          | 1                |
| 2000<br>KLX27A_210.00-247.00_071010_1_CRwr_Q_r   | → P section<br>→ Q   | p <sub>p</sub> (kPa) =   | 1412                                | p <sub>F</sub> (kPa ) =  | 1823             |
| 1900 -   | - 16   | $Q_{p} (m^{3}/s) =$  | 6.33E-05                            |                          |                  |
| 1800 -   | F I  | tp(s) =  | 230340                              | t <sub>F</sub> (s) =     | 176400           |
| 5 1700 -   | 12 City  | S el S <sup>*</sup> (-)=   | 1.00E-06                            | S el S <sup>*</sup> (-)= | 1.00E-06         |
| 8 1600 -<br>98   | P P P P P P P P P P P P P P P P P P P  | EC <sub>w</sub> (mS/m)=  |                                     |                          |                  |
| Š 1500 -   |  | Temp <sub>w</sub> (gr C)=  | #NV                                 |                          | 1                |
|  | and a second   | Derivative fact.=  | 0                                   | Derivative fact.=        | 0                |
| 1300 -   |  |  |                                     |                          | 1                |
| 1200 10 20 30 40<br>6 10 20 30 Elapsed   | 50 60 70 80 90<br>Time (h)   |  |                                     |                          | 1                |
|  |  | Results  |                                     | Results                  |                  |
|  |  | $Q/s (m^2/s) =$  | 1.4E-06                             |                          | Т                |
| Log-Log plot incl. derivates- f  | low period   | $T_{\rm M} (m^2/s) =$  | 1.6E-06                             |                          | 1                |
| 5 51   | •  | Flow regime:   | transient                           | Flow regime:             | transient        |
|  |  | dt₁ (min) =  | 273.96                              | dt₁ (min) =              | 377.64           |
| Log-Log Match  | - Flow Period 2  | $dt_2$ (min) =   | 3157.44                             | $dt_2$ (min) =           | 1266.36          |
|  | 9 ( 9 <sub>10 10</sub> 11 10 10 10 10 10 10 10 10 10 10 10 10  | $T (m^2/s) =$  | 8.4E-06                             | $T(m^2/s) =$             | 8.0E-06          |
| · · · · · · · · · · · · · · · · · · ·  |  | S (-) =  | 1.0E-06                             | S (-) =                  | 1.0E-06          |
|  | A.   | $K_{c}(m/s) =$   | 2.3E-07                             | $K_{c}(m/s) =$           | 2.2E-07          |
| Trade output   |  | $S_{s}(1/m) =$   | 1.0E-06                             | $S_{s}(1/m) =$           | 1.00E-06         |
| 20 pa 10   |  | $C_{\rm c}$ (m <sup>3</sup> /Pa) =   | NA                                  | $C_{\rm m}^{3}/Pa) =$    | 1.4E-07          |
|  |  | $C_{D}(-) =$   | NA                                  | $C_{D}(-) =$             | 1.6E+01          |
|  |  | ξ(-) =   | 24.15                               | ε(-) =                   | 21.17            |
|  |  | ر ) د<br>ا   |                                     | 5()                      |                  |
|  | ۰ ۲<br>۲   | $T_{ops}(m^2/s) =$   | NA                                  | $T_{ops}(m^2/s) =$       | NA               |
| 0.4  | pased time (hm)  | $S_{GRF}(-) =$   | NA                                  | $S_{GRF}(-) =$           | NA               |
|  |  | $D_{GRF}(-) =$   | NA                                  | $D_{GRF}(-) =$           | NA               |
| Log-Log plot incl. derivatives-  | recovery period  | Selected represe   | ntative param                       | ieters.                  |                  |
| <u> </u>   |  | $dt_1$ (min) =   | 377.64                              | C (m <sup>3</sup> /Pa) = | 1.4E-07          |
| Log-Log Match  | - Flow Period 3  | $dt_2$ (min) =   | 1266.36                             | $C_{\rm D}(-) =$         | 1.6E+01          |
| 1000   |  | $T_{T}(m^2/s) =$   | 8.0E-06                             | ξ(-) =                   | 21.17            |
|  |  | S (-) =  | 1.0E-06                             | 5()                      | 1                |
|  |  | $K_s(m/s) =$   | 2.2E-07                             |                          |                  |
| 2 100 · · · · · · · · · · · · · · · · · ·  |  | $S_{s}(1/m) =$   | 1.0E-06                             |                          |                  |
|  | 4<br>4   | Comments:  |                                     |                          | <u>_</u>         |
| in the start of th | 1  | The recommended t  | ransmissivity of                    | 8.0•10-6 m2/s was o      | derived from the |
|  |  | analysis of the CRw  | r phase. The cor                    | if idence range for th   | e interval       |
|  | A many weeks with the second s | transmissivity is est  | imated to be 4.0                    | •10-6 to 2.0•10-5 m2     | 2/s. The flow    |
|  |  | dimension displayed  | d during the test                   | is 2. The static press   | ure measured at  |
|  |  | extrapolation in the   | as derived from<br>Horner plot to a | value of 1 833 8 kP      | ig type curve    |
| 0.01 0.1 Ein   | saud time (hra)  | <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> <sup>1</sup> | piot to a                           |                          |                  |
|  |  |  |                                     |                          |                  |

|  | Test Sumn                     | nary Sheet   |                                     |  |                  |
|--|-------------------------------|--|-------------------------------------|--|------------------|
| Project:   | Oskarshamn site investigation | Test type:[1]                                      |                                     |  | CRwr             |
| Area:  | Laxemar                       | Test no:   |                                     |  | 1                |
| Borehole ID:   | KLX27A                        | Test start:  |                                     |  | 071119 00:00     |
| Test section from - to (m):  | 639.20-650.56 m               | Responsible for                                    |                                     |  | n.n.             |
| Section diameter. 2·r <sub>w</sub> (m):  | 0.076                         | Responsible for                                    |                                     | Cristi                                       | ian Enachescu    |
|  |                               | test evaluation:                                   |                                     |  |                  |
| Linear plot Q and p  |                               | Flow period  |                                     | Recovery period                              |                  |
|  |                               | Indata   |                                     | Indata                                       |                  |
|  |                               | p <sub>0</sub> (kPa) =                             | 5016                                |  |                  |
| 5700 <del>-</del>  | т 14                          | p <sub>i</sub> (kPa ) =                            | 5638                                |  |                  |
| KLX27A_639.00-650.00_071119_1_CRwr_Q_r   | P section                     | p <sub>p</sub> (kPa) =                             | 5437                                | p <sub>F</sub> (kPa ) =                      | 5630             |
| 5650 -   |                               | $Q_{p} (m^{3}/s) =$                                | 7.00E-05                            |  |                  |
| <b>王</b> 5600 -  |                               | tp (s) =   | 53580                               | t <sub>F</sub> (s) =                         | 153180           |
| 1989 True (1911)   | + 8 al                        | S el S <sup>*</sup> (-)=                           | 1.00E-06                            | S el S <sup>*</sup> (-)=                     | 1.00E-06         |
| 2 5550 -<br>9 2  | - 6 <u>6</u>                  | EC <sub>w</sub> (mS/m)=                            |                                     |  |                  |
| 5500   | <b></b>                       | Temp <sub>w</sub> (gr C)=                          | #NV                                 |  |                  |
| 5450 -   |                               | Derivative fact.=                                  | 0                                   | Derivative fact.=                            | 0                |
|  |                               |  |                                     | 1  |                  |
| 5400   | 17 19 21 23 25                |  |                                     |  |                  |
|  | , (n)                         | Results  | l                                   | Results                                      |                  |
|  |                               | Q/s (m²/s)=  | 3.4E-06                             |  |                  |
| Log-Log plot incl. derivates- fl   | ow period                     | T <sub>M</sub> (m²/s)=                             | 3.2E-06                             |  | <b> </b>         |
| • • •  |                               | Flow regime:                                       | transient                           | Flow regime:                                 | transient        |
| Lond on Match  | - Plane Bashad g              | $dt_1$ (min) =                                     | 52.38                               | $dt_1$ (min) =                               | #NV              |
| 100  | - How Penoa 3                 | $dt_2$ (min) =                                     | 501.66                              | $dt_2$ (min) =                               | #NV              |
|  |                               | $T(m^2/s) =$                                       | 8.7E-05                             | $T (m^2/s) =$                                | 8.5E-05          |
|  | :                             | S (-) =  | 1.0E-06                             | S (-) =                                      | 1.0E-06          |
|  |                               | K_ (m/s) =   | 7.9E-06                             | K <sub>2</sub> (m/s) =                       | 7.7E-06          |
| Transmission of the second sec | a<br>a<br>a                   | S <sub>2</sub> (1/m) =                             | 9.1E-08                             | $S_{a}(1/m) =$                               | 9.1E-08          |
|  | **                            | $C (m^3/Pa) =$                                     | NA                                  | $C (m^3/Pa) =$                               | 1.0E-07          |
| America Ca   |                               | $C_{n}(-) =$                                       | NA                                  | $C_{D}(-) =$                                 | 1.1E+01          |
|  |                               | ۲) =   | -1.01                               | ۶) =   | -2.61            |
| 0.1  |                               | S (-)  |                                     | S (-)  | 2.0.             |
|  | •                             | $T (m^2/c) =$                                      | NΔ                                  | $T (m^2/c) =$                                | NΔ               |
| 0.0<br>0.0001 · · · · · · · · · · · · · · · · · ·  |                               | l <sub>GRF</sub> (fii /s) –<br>S <sub></sub> (-) = | NΔ                                  | l <sub>GRF</sub> (m /s) −<br>S(-) =          | NΔ               |
|  |                               | $O_{GRF(-)}$                                       |                                     | $O_{\text{GRF}}(-) =$                        |                  |
| Log log plot incl. derivatives.  | recovery period               | Salected represe                                   | no<br>estative naram                | D <sub>GRF</sub> (-) -                       |                  |
| Log-Log plot mon derivatives   |                               | dt. (min) =  | 52.38                               | $(m^{3}/p_{0}) =$                            | 1 0F-07          |
| Loo-Log Match  | Prove Proving a               | $dt_1(min) =$                                      | 501.66                              | $C_{(m/Pa)} =$                               | 1 1F+01          |
| 1000   | - Flow Period 4               | $u_2(mm) =$  | 8 7E-05                             |  | -1.01            |
|  |                               | $I_{T}(m^{-}/s) =$                                 | 1 0E 06                             | ς(-) –                                       | -1.01            |
|  |                               | S(-) -   | 7.9E_06                             |  |                  |
| 100  |                               | $R_{s}(11/5) =$                                    | 0.1E.08                             |  |                  |
| (app)  |                               | $S_s(1/11) =$                                      | 9.1E-00                             |  |                  |
| a ri artitati  | ***** <b>`</b> `              | Comments:  | ·i-sisity of                        | 9 7-10 5 m 2/a waa d                         | 1 : I from the   |
|  |                               | The recommended t                                  | ransmissivity of<br>phase (outer zo | 8.7•10-5 m2/s was a $r_{e}$ . The confidence | lerived from the |
|  |                               | interval transmissivi                              | ity is estimated t                  | o be 4.0•10-5 to 2.0•                        | 10-4  m2/s. The  |
|  |                               | flow dimension disp                                | played during the                   | e test is 2. The static                      | pressure         |
|  |                               | measured at transdu                                | cer depth, was d                    | erived from the CRw                          | vr phase using   |
|  |                               | type curve extrapola                               | tion in the Horn                    | er plot to a value of 5                      | 5,635.8 kPa.     |
| Espe   | aaz sme (rea)                 |  |                                     |  |                  |

Borehole: KLX27A

# **APPENDIX 3**

SICADA data tables

(Pump tests)

KLX27A

| SKB                                    |                     |                                    | SICA      | ADA/I             | Data I     | mport ?                | ſempl  | ate  | (Sim)<br>SKB 8        | plified version v1.7 |  |                      |        |
|--|---------------------|------------------------------------|-----------|-------------------|------------|------------------------|--|--|-----------------------|----------------------|--|----------------------|--------|
| File Identity<br>Created By<br>Created |                     |                                    |           | File Time<br>Zone |            | Quality Check<br>Deliv | Compiled By<br>For Delivery<br>Yery Approval |  |                       | <u> </u>             |  |                      |        |
| Activity Type                          |                     | KLX27A<br>KLX27A - Interference te | st        |                   |            | Project                |  | AP PS 400-07-72  |                       |                      |  |                      |        |
| Activity Informa                       | ation               |                                    |           | 1                 | [          | Additional Activ       | ity Data<br>1160                             | ID80   | P20                   | P200                 | P220   | R240                 | R25    |
| Idcode                                 | Start Date          | Stop Date                          | Secup (m) | Seclow (m)        | Section No | Company                | Instrument                                   | Observation borehole   | Field crew<br>manager | Field crew           | Person<br>evaluating data                          | calibratio<br>n type | Report |
| KLX27A                                 | 2007-10-10 00:00:00 | 2007-10-23 12:00:00                | 210,00    | 247,00            |            | Golder                 |  | HLX27, HLX28, HLX32, HLX36, HLX37,<br>HLX38, HLX42, KLX11A, KLX11E, KLX14A,<br>KLX15A, KLX16A, KLX19A, KLX20A,<br>KLX23A, KLX24A<br>HLX27, HLX28, HLX32, HLX36, HLX37, |                       |                      | S. Rohs, J.<br>Böhner, R. van<br>der Wall, P. Wolf |                      |        |
| KLX27A                                 | 2007-11-19 00:00:00 | 2007-11-25 00:00:00                | 639,20    | 650,56            |            | Golder                 |  | HLX38, HLX42, KLX11A, KLX11E, KLX14A,<br>KLX15A, KLX16A, KLX19A, KLX20A,<br>KLX23A, KLX24A   |                       |                      | S. Rohs, J.<br>Böhner, R. van<br>der Wall, P. Wolf |                      |        |
|  |                     |                                    |           |                   |            |                        |  |  |                       |                      |  |                      |        |
|  |                     |                                    |           |                   |            |                        |  |  |                       |                      |  |                      |        |

| Table                |               | plu_s_hole                | _test_d   |
|----------------------|---------------|---------------------------|---|
|                      |               | PLU Injection and pumping | g, General information  |
|                      |               |                           |   |
| Column               | Datatype      | Unit                      | Column Description  |
| site                 | CHAR          |                           | Investigation site name   |
| activity_type        | CHAR          |                           | Activity type code  |
| start_date           | DATE          |                           | Date (yymmdd hh:mm:ss)  |
| stop_date            | DATE          |                           | Date (yymmdd hh:mm:ss)  |
| project              | CHAR          |                           | project code  |
| idcode               | CHAR          |                           | Object or borehole identification code                          |
| secup                | FLOAT         | m                         | Upper section limit (m)   |
| seclow               | FLOAT         | m                         | Lower section limit (m)   |
| section_no           | INTEGER       | number                    | Section number  |
| test_type            | CHAR          |                           | Test type code (1-7), see table description                     |
| formation_type       | CHAR          |                           | 1: Rock, 2: Soil (superficial deposits)                         |
| start_flow_period    | DATE          | yyyymmdd                  | Date & time of pumping/injection start (YYYY-MM-DD hh:mm:ss)    |
| stop_flow_period     | DATE          | yyyymmdd                  | Date & time of pumping/injection stop (YYYY-MM-DD hh:mm:ss)     |
| flow_rate_end_qp     | FLOAT         | m**3/s                    | Flow rate at the end of the flowing period                      |
| value_type_qp        | CHAR          |                           | 0:true value,-1 <lower meas.limit1:="">upper meas.limit</lower> |
| mean_flow_rate_qm    | FLOAT         | m**3/s                    | Arithmetic mean flow rate during flow period                    |
| q_measll             | FLOAT         | m**3/s                    | Estimated lower measurement limit of flow rate                  |
| q_measlu             | FLOAT         | m**3/s                    | Estimated upper measurement limit of flow rate                  |
| tot_volume_vp        | FLOAT         | m**3                      | Total volume of pumped or injected water                        |
| dur_flow_phase_tp    | FLOAT         | s                         | Duration of the flowing period of the test                      |
| dur_rec_phase_tf     | FLOAT         | s                         | Duration of the recovery period of the test                     |
| initial_head_hi      | FLOAT         | m                         | Hydraulic head in test section at start of the flow period      |
| head_at_flow_end_h   | FLOAT         | m                         | Hydraulic head in test section at stop of the flow period.      |
| final_head_hf        | FLOAT         | m                         | Hydraulic head in test section at stop of recovery period.      |
| initial press pi     | FLOAT         | kPa                       | Groundwater pressure in test section at start of flow period    |
| press at flow end    | FLOAT         | kPa                       | Groundwater pressure in test section at stop of flow period.    |
| final press pf       | FLOAT         | kPa                       | Ground water pressure at the end of the recovery period.        |
| fluid temp tew       | FLOAT         | oC                        | Measured section fluid temperature, see table description       |
| fluid elcond ecw     | FLOAT         | mS/m                      | Measured section fluid el. conductivity.see table descr.        |
| fluid salinity tdsw  | FLOAT         | ma/l                      | Total salinity of section fluid based on EC.see table descr.    |
| fluid salinity tdswm | FLOAT         | mg/l                      | Tot, section fluid salinity based on water sampling see         |
| reference            | CHAR          |                           | SKB report No for reports describing data and evaluation        |
| comments             | VARCHAR       |                           | Short comment to data   |
| error flag           | CHAR          |                           | If error flag = "*" then an error occured and an error          |
| in use               | CHAR          |                           | If in use = "*" then the activity has been selected as          |
| sian                 | CHAR          |                           | Activity QA signature   |
| In                   | FLOAT         | m                         | Hydraulic point of application                                  |
| sign<br>Ip           | CHAR<br>FLOAT | m                         | Activity QA signature<br>Hydraulic point of application         |

| KLX27A |
|--------|
|--------|

|        |                     |                     | (m)    | (m)    |            |           |             | (yyyymmdd)          | (yyyymmdd)          | (m**3/s)  |          | (m**3/s)   | (m**3/s) | (m**3/s) | (m**3)     |
|--------|---------------------|---------------------|--------|--------|------------|-----------|-------------|---------------------|---------------------|-----------|----------|------------|----------|----------|------------|
|        |                     |                     |        |        |            |           | formation_t |                     |                     | flow_rate | value_ty | mean_flow_ | q_measl_ | q_measl  | tot_volume |
| idcode | start_date          | stop_date           | secup  | seclow | section_no | test_type | уре         | start_flow_period   | stop_flow_period    | _end_qp   | pe_qp    | rate_qm    | _1       | u        | _vp        |
| KLX27A | 2007-10-10 00:00:00 | 2007-10-23 10:00:00 | 210,00 | 247,00 |            | 1B        | 1           | 2007-10-18 19:03:00 | 2007-10-21 10:02:00 | 6,60E-05  | 0        | 6,60E-05   | 1,67E-08 | 8,33E-04 | 1,5E+01    |
| KLX27A | 2007-11-19 00:00:00 | 2007-11-25 00:00:00 | 639,20 | 650,56 |            | 1B        | 1           | 2007-11-22 14:34:00 | 2007-11-23 05:27:00 | 7,42E-05  | 0        | 7,42E-05   | 1,67E-08 | 8,33E-04 | 4,0E+00    |

|        | (m)    | n)     | 1) (s)    | (s)      | (m)       | (m)         | (m)      | (kPa)      | (kPa)        | (kPa)     | (oC)     | (mS/m)     | (mg/l)     | (mg/l)       |          |         | (m)    |
|--------|--------|--------|-----------|----------|-----------|-------------|----------|------------|--------------|-----------|----------|------------|------------|--------------|----------|---------|--------|
|        |        |        | dur_flow_ | dur_rec_ | initial_h | head_at_flo | final_he | initial_pr | press_at_flo | final_pre | fluid_te | fluid_elco | fluid_sali | fluid_salini | referenc | comment |        |
| idcode | secup  | seclow | phase_tp  | phase_tf | ead_hi    | w_end_hp    | ad_hf    | ess_pi     | w_end_pp     | ss_pf     | mp_tew   | nd_ecw     | nity_tdsw  | ty_tdswm     | е        | S       | lp     |
| KLX27A | 210,00 | 247,0  | 230400    | 176400   |           |             | 1,83     | 1847       | 1409         | 1823      | #NV      |            |            |              |          |         | 228,50 |
| KLX27A | 639,20 | 650,5  | 54000     | 153000   |           |             | -0,76    | 5638       | 5437         | 5630      | #NV      |            |            |              |          |         | 644,88 |

| Table                |          | plu_s_hole_te                     | st_ed1   |
|----------------------|----------|-----------------------------------|--|
|                      |          | PLU Single hole tests, pumping/in | jection. Basic evaluation  |
|                      |          |                                   |  |
| Column               | Datatype | Unit                              | Column Description   |
| site                 | CHAR     | Onit                              | Investigation site name  |
| activity_type        | CHAR     |                                   | Activity type code   |
| start_date           | DATE     |                                   | Date (yymmdd hh:mm:ss)   |
| stop_date            | DATE     |                                   | Date (yymmdd hh:mm:ss)   |
| project              | CHAR     |                                   | project code   |
| lacode               |          | m                                 | Upper section limit (m)  |
| seclow               | FLOAT    | m                                 | Lower section limit (m)  |
| section_no           | INTEGER  | number                            | Section number   |
| test_type            | CHAR     |                                   | Test type code (1-7), see table description!   |
| formation_type       | CHAR     |                                   | Formation type code. 1: Rock, 2: Soil (superficial deposits)   |
| lp<br>               | FLOAT    | m                                 | Hydraulic point of application for test section, see descr.  |
| seclen_class         | FLOAT    | m<br>***2/2                       | Planned ordinary test interval during test campaign.   |
| value type q s       | CHAR     | 111 2/5                           | Otrue value -1:Q/s <lower 1:q="" limit="" meas="" s="">upper meas limit</lower>  |
| transmissivity_tq    | FLOAT    | m**2/s                            | Tranmissivity based on Q/s, see table description  |
| value_type_tq        | CHAR     |                                   | 0:true value,-1:TQ <lower meas.limit,1:tq="">upper meas.limit.</lower>   |
| bc_tq                | CHAR     |                                   | Best choice code. 1 means TQ is best choice of T, else 0   |
| transmissivity_moye  | FLOAT    | m**2/s                            | Transmissivity,TM, based on Moye (1967)  |
| bc_tm                | CHAR     |                                   | Best choice code. 1 means Tmoye is best choice of T, else 0  |
| value_type_tm        | CHAR     | ,                                 | 0:true value,-1:TM <lower meas.limit,1:tm="">upper meas.limit.</lower>   |
| hydr_cond_moye       | FLOAT    | m/s                               | K_M: Hydraulic conductivity based on Moye (1967)   |
| width of channel b   | FLOAT    | m                                 | b.Aquiler inickness repr. for T(generally b=Lw), see descr. B:Inferred width of formation for evaluated TB                               |
| tb                   | FLOAT    | m**3/s                            | TB:Flow capacity in 1D formation of T & width B, see descr.  |
| I measl tb           | FLOAT    | m**3/s                            | Estimated lower meas. limit for evaluated TB,see description   |
| u_measl_tb           | FLOAT    | m**3/s                            | Estimated upper meas. limit of evaluated TB,see description  |
| sb                   | FLOAT    | m                                 | SB:S=storativity,B=width of formation,1D model,see descript.   |
| assumed_sb           | FLOAT    | m                                 | SB* : Assumed SB,S=storativity,B=width of formation,see  |
| leakage_factor_lf    | FLOAT    | m                                 | Lf:1D model for evaluation of Leakage factor   |
| transmissivity_tt    | FLOAT    | m**2/s                            | TT:Transmissivity of formation, 2D radial flow model,see   |
| value_type_tt        | CHAR     |                                   | Uttrue value,-1:1 I <lower i="" meas.limit,1:1="">upper meas.limit,</lower>  |
| l measl a s          | FLOAT    | m**2/s                            | Estimated lower meas, limit for evaluated TT.see table descr   |
| u measl q s          | FLOAT    | m**2/s                            | Estimated upper meas. limit for evaluated TT, see description  |
| storativity_s        | FLOAT    |                                   | S:Storativity of formation based on 2D rad flow,see descr.   |
| assumed_s            | FLOAT    |                                   | Assumed Storativity,2D model evaluation,see table descr.   |
| s_bc                 | FLOAT    |                                   | Best choice of S (Storativity) ,see descr.   |
| ri                   | FLOAT    | m                                 | Radius of influence  |
| ri_index             | CHAR     | 41-                               | ri index=index of radius of influence :-1,0 or 1, see descr.   |
| bydr. cond. ksf      | FLOAT    | 1/S                               | K/b.2D rad flow model evaluation of leakage coeff,see desc   |
| value type ksf       | CHAR     | 11//5                             | 0:true value1:Ksf <lower meas.limit.1:ksf="">upper meas.limit.</lower>   |
| I_measl_ksf          | FLOAT    | m/s                               | Estimated lower meas.limit for evaluated Ksf,see table desc.   |
| u_measl_ksf          | FLOAT    | m/s                               | Estimated upper meas.limit for evaluated Ksf,see table descr   |
| spec_storage_ssf     | FLOAT    | 1/m                               | Ssf:Specific storage,3D model evaluation,see table descr.  |
| assumed_ssf          | FLOAT    | 1/m                               | Ssf*:Assumed Spec.storage,3D model evaluation,see table des.   |
| с                    | FLOAT    | m**3/pa                           | C: Wellbore storage coefficient; flow or recovery period   |
| cd                   | FLOAT    |                                   | CD: Dimensionless wellbore storage coefficient   |
| skin<br>dt1          | FLOAT    | <b>C</b>                          | Skin factor; best estimate of flow/recovery period, see descr.   |
| dt2                  | FLOAT    | 5                                 | Estimated start time of evaluation, see table description  |
| t1                   | FLOAT    | s                                 | Start time for evaluated parameter from start flow period  |
| t2                   | FLOAT    | s                                 | Stop time for evaluated parameter from start of flow period  |
| dte1                 | FLOAT    | s                                 | Start time for evaluated parameter from start of recovery  |
| dte2                 | FLOAT    | s                                 | Stop time for evaluated parameter from start of recovery   |
| p_horner             | FLOAT    | kPa                               | p*:Horner extrapolated pressure, see table description   |
| transmissivity_t_nlr | FLOAT    | m**2/s                            | T_NLR Transmissivity based on None Linear Regression   |
| storativity_s_nlr    | FLOAT    |                                   | S_NLR=storativity based on None Linear Regression,see  |
| value_type_t_nir     | CHAR     |                                   | Utrue value,-111_NLR <lower meas.limit,11:="">upper meas.limit<br/>Best choice code, 1 means T, NI R is best choice of T, else 0</lower> |
| c nlr                | FLOAT    | m**3/pa                           | Wellbore storage coefficient, based on NLR, see descr.   |
| _<br>cd_nlr          | FLOAT    |                                   | Dimensionless wellbore storage constant, see table descrip.  |
| skin_nlr             | FLOAT    |                                   | Skin factor based on Non Linear Regression,see desc.   |
| transmissivity_t_grf | FLOAT    | m**2/s                            | T_GRF:Transmissivity based on Genelized Radial Flow, see   |
| value_type_t_grf     | CHAR     |                                   | 0:true value,-1:T_GRF <lower meas.limit,1:="">upper meas.limit</lower>   |
| bc_t_grf             | CHAR     |                                   | Best choice code. 1 means T_GRF is best choice of T, else 0  |
| storativity_s_grf    | FLOAT    |                                   | S_GRF:Storativity based on Generalized Radial Flow, see des.   |
| flow_dim_grf         | FLOAT    |                                   | Interred flow dimesion based on Generalized Rad. Flow model  |
| error flag           | CHAR     | no_unit                           | Short comment to the evaluated parameters  |
| in use               | CHAR     |                                   | If in use = "*" then the activity has been selected as   |
| sign                 | CHAR     |                                   | Activity QA signature  |
|                      |          |                                   |  |

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KLX27A

|        |                     |                     | (m)    | (m)    |            |           |            | (m)      | (m)       | (m**2/s)  | )        | (m**2/s)  |          |       | (m**2/s)   |       |          | (m/s)    | (m)       | (m)          |
|--------|---------------------|---------------------|--------|--------|------------|-----------|------------|----------|-----------|-----------|----------|-----------|----------|-------|------------|-------|----------|----------|-----------|--------------|
|        |                     |                     |        |        |            |           | formation_ | t        | seclen_cl | spec_cap  | value_ty | transmis  | value_ty | 1     | transmissi |       | value_ty | hydr_con | formation | width_of_cha |
| idcode | start_date          | stop_date           | secup  | seclow | section_no | test_type | уре        | lp       | ass       | acity_q_s | pe_q_s   | sivity_tq | pe_tq    | bc_tq | vity_moye  | bc_tm | pe_tm    | d_moye   | _width_b  | nnel_b       |
| KLX27A | 2007-10-10 00:00:00 | 2007-10-23 10:00:00 | 210,00 | 247,00 |            | 1B        |            | 1 288,50 | 37,00     | 1,43E-06  | 6 (      | )         |          |       | 1,63E-06   | 0     |          | 4,41E-08 |           |              |
| KLX27A | 2007-11-19 00:00:00 | 2007-11-25 00:00:00 | 639,20 | 650,56 |            | 1B        |            | 1 644,88 | 11,36     | 3,42E-06  | 6 (      | )         |          |       | 3,25E-06   | 0     |          | 2,86E-07 |           |              |

|        | (m)    | (m     | i) (m**3/s) | (m**3/s)  | (m**3/s | ) (m) | (m)     | ) (m)     | (m**2/s)  | )        |       | (m**2/s) | (m**2/s) |            |          |      | (m)     |          | (1/s    | ) (m/s  | 5)       | (m/s)    | (m/s)   | (1/m)    | (1/m)   |
|--------|--------|--------|-------------|-----------|---------|-------|---------|-----------|-----------|----------|-------|----------|----------|------------|----------|------|---------|----------|---------|---------|----------|----------|---------|----------|---------|
|        |        |        |             | I_measl_t | u_measl |       | assumed | leakage_f | transmis  | value_ty |       | I_measl_ | u_measl  | storativit | assumed  |      |         |          | leakage | hydr_co | value_ty | I_measI_ | u_measl | spec_sto | assumed |
| idcode | secup  | seclow | tb          | b         | _tb     | sb    | _sb     | actor_lf  | sivity_tt | pe_tt    | bc_tt | q_s      | _q_s     | y_s        | _s       | s_bc | ri      | ri_index | coeff   | nd_ksf  | pe_ksf   | ksf      | _ksf    | rage_ssf | _ssf    |
| KLX27A | 210,00 | 247,0  | 0           |           |         |       |         |           | 7,98E-06  | 6 (      | ) 1   | 4,00E-06 | 2,00E-05 | 1,00E-06   | 1,00E-06 | i    | 1594,64 | 0        | )       |         |          |          |         |          |         |
| KLX27A | 639,20 | 650,5  | 6           |           |         |       |         |           | 8,69E-05  | 5 (      | ) 1   | 4,00E-05 | 2,00E-04 | 1,00E-06   | 1,00E-06 |      | 1196,60 | 0        | )       |         |          |          |         |          |         |

|        | (m)    | ) (m)  | ) (m**3/pa) |          |      | (s)   | (s)   | ) (s) | (s)    | (s)   | (s) (   | (kPa)  | (m**2/s)  |            |          |          | (m**3/pa) |        |          | (m**2/s)   |            |          |            |         | (no_unit) |
|--------|--------|--------|-------------|----------|------|-------|-------|-------|--------|-------|---------|--------|-----------|------------|----------|----------|-----------|--------|----------|------------|------------|----------|------------|---------|-----------|
|        |        |        |             |          |      |       |       |       |        |       |         | tr     | ansmissi  | storativit | value_ty |          |           |        |          | transmiss  | i value_ty |          | storativit | flow_di |           |
| idcode | secup  | seclow | c           | cd       | skin | dt1   | dt2   | t1    | t2 dte | 1 dte | 2 p_hor | ner vi | ity_t_nlr | y_s_nlr    | pe_t_nlr | bc_t_nlr | c_nIr     | cd_nlr | skin_nlr | vity_t_grf | pe_t_grf   | bc_t_grf | y_s_grf    | m_grf   | comment   |
| KLX27A | 210,00 | 247,00 | ) 1,42E-07  | 1,57E+01 | 21,2 | 22658 | 75982 | 2     |        |       | 183     | 33,8   |           |            |          |          |           |        |          |            |            |          |            |         |           |
| KLX27A | 639,20 | 650,56 | 6 1,03E-07  | 1,14E+01 | -1,0 | 3143  | 30100 | )     |        |       | 563     | 35,8   |           |            |          |          |           |        |          |            |            |          |            |         |           |

Interference analysis

# **APPENDIX 4**

Index calculation

Interference analysis

# **APPENDIX 4-1**

Index calculation

KL27A Section 210.00-247.00 m pumped

| Activitypl     | an No.   | AP PS 40   | 0-07-72                        |   |                |                     |           |               |      |
|----------------|--|--|--------------------------------|---|----------------|---------------------|-----------|---------------|------|
| Pumping        | j Hole:  | k  | KLX27A                         |   | Pumping \$     | Section             | [m bToC]: | 210.00-247    | 7.00 |
| Test Star      | t:   | 10.10.200  | 7 00:00                        |   | Test Stop:     |                     |           | 23.10.2007 12 | 2:00 |
| Pump Sta       | art:   | 18.10.200  | 7 19:03                        |   | Pump Stop      | ):                  |           | 21.10.2007 1  | 1:02 |
| Flow Rate      | e Q <sub>p</sub> [m³/s]:   | 6  | .60E-05                        |   |                |                     |           |               |      |
| Pressure       | data   |  |                                |   | Nomencla       | ture                | Unit      | Value         |      |
| Pressure       | in test section  | before start of fle  | owing:                         |   |                | p <sub>i</sub>      | kPa       | 1             | 847  |
| Pressure       | in test section  | before stop of flo   | owing:                         |   |                | $p_p$               | kPa       | 1             | 409  |
| Maximum        | n pressure cha   | nge during flowir  | ng period:                     |   |                | $dp_p$              | kPa       |               | 438  |
| Observat       | tion Hole:   |  | HLX27                          |   | Section no     | <b>)</b> .:         |           | HLX2          | 27_1 |
| Distance       | r <sub>s</sub> [m]:  |  | 1137.00                        |   | Section len    | igth:               |           | 153.00-16     | 5.00 |
| Response       | e time dt <sub>L</sub> [s]:  |  | #NV                            |   | max. Draw      | down s <sub>p</sub> | [m]:*     | #             | #NV  |
| Pressure       | data   |  |                                |   | Nomencla       | ture                | Unit      | Value         |      |
| Pressure       | in test section  | before start of flo  | owing:                         |   |                | p <sub>i</sub>      | kPa       | (             | 60.5 |
| Pressure       | in test section  | before stop of flo   | owing:                         |   |                | P <sub>n</sub>      | kPa       |               | 60.0 |
| Maximum        | n pressure cha   | nae durina flowir  | na period:*                    |   |                | dp                  | kPa       |               | 0.5  |
|                |  |  |                                |   |                | ΤÞ                  |           |               |      |
| Normalize      | ed distance wit  | th respect to the<br>r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:   | response tim                   | ne<br>#NV                                 |                |                     |           |               |      |
| Index 2        | <b>New</b><br>t:   | s <sub>p</sub> /Q <sub>p</sub> [s/m²]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> )<br>no response du  | <b>[s/m²]:</b><br>e to pumping | #NV<br>#NV<br>g in sourc                  | ce             |                     |           | * see comme   | nt   |
|                | Pur  | mpstart  |                                |   | Pumps          | stop                |           |               |      |
| 2000           |  | 1  |                                |   |                |                     |           | 63            |      |
|                |  | i  |                                |   |                |                     |           |               |      |
| 1900           |  | 1  |                                |   |                |                     |           |               |      |
|                |  |  |                                |   |                |                     |           | 62 <b>G</b>   |      |
| 1800 <b>E</b>  |  |  |                                |   |                |                     |           | Ay            |      |
| II [KI         |  |  |                                |   |                |                     |           | well          |      |
| <b>9</b> 1700  |  |  |                                |   |                |                     |           | tion          |      |
| ctive          |  |  |                                |   |                |                     |           | + 61 <b>K</b> |      |
| َ<br>ع 1600    |  |  |                                |   |                |                     |           | Obse          |      |
| nss            | A second se |  |                                |   |                |                     |           | lire (        |      |
| <b>ed</b> 1500 | ·  | <u> </u>   | <b>K</b>                       |   |                | and a               |           | essi          |      |
|                |  | De la companya de la comp |                                | S. C. | and the second |                     |           | 60 ቬ          |      |
|                |  | 1  |                                | r<br>Annang katal                         |                |                     | ~~        |               |      |
| 1400           | 1  |  | X                              |   |                | 1                   | → KLX27A  |               |      |
|                |  | 1  |                                |   |                |                     |           |               |      |
| 1300<br>18.1   | 0.2007   | 19.10.2007   | 20.10.2007                     |   | 21.10.2007     | 22                  | .10.2007  | 23.10.2007    |      |
|                | -  |  |                                | Date                                      |                |                     |           |               |      |
|                |  |  |                                |   |                |                     |           |               |      |
|                |  |  |                                |   |                |                     |           |               |      |
| Activitypla                                  | an No.   | AP PS 400-07-72   |   |                      |                    |
|--|--|---|---|----------------------|--------------------|
| Pumping                                      | Hole:  | KLX27A  | Pumping Section   | on [m bToC]:         | 210.00-247.00      |
| Test Start:                                  | :  | 10.10.2007 00:00  | Test Stop:  |                      | 23.10.2007 12:00   |
| Pump Sta                                     | rt:  | 18.10.2007 19:03  | Pump Stop:  |                      | 21.10.2007 11:02   |
| Flow Rate                                    | e Q <sub>p</sub> [m³/s]:   | 6.60E-05  |   |                      |                    |
| Pressure                                     | data   |   | Nomenclature  | Unit                 | Value              |
| Pressure i                                   | in test section  | before start of flowing:  | p <sub>i</sub>  | kPa                  | ı 1847             |
| Pressure i                                   | in test section  | before stop of flowing:   | p <sub>p</sub>  | kPa                  | ı 1409             |
| Maximum                                      | pressure cha   | nge during flowing period:  | dpp   | kPa                  | ı 438              |
| Observati                                    | ion Hole:  | HLX27   | Section no.:  |                      | HLX27_2            |
| Distance r                                   | r. [m]:  | 1141.00   | Section length:   |                      | 100.00-152.00      |
| Response                                     | time dt <sub>l</sub> [s]:  | #NV   | max. Drawdown   | s <sub>o</sub> [m]:* | #NV                |
| Pressure                                     | data   |   | Nomenclature  | Unit                 | Value              |
| Pressure i                                   | in test section  | before start of flowing:  | Di  | kPa                  | 62.6               |
| Pressure i                                   | in test section  | before stop of flowing.   | Pi<br>D   | kPa                  | 62.0               |
| Maximum                                      |  | nge during flowing period:*   | Pp<br>dp  | ki d<br>kDa          | 02.1               |
| IVIAXIIIIUIII                                | pressure cha   | nge during nowing period.   | up <sub>p</sub>   | KF d                 | 0.5                |
| Normalize<br>Index 1                         | ed distance wit  | th respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:   | #NV   |                      |                    |
| Normalize<br>Index 2<br>Index 2 N<br>Comment | ed drawdown v<br>l <b>ew</b><br>:  | vith respect to pumping flow ra<br><b>s</b> <sub>p</sub> /Q <sub>p</sub> [ <b>s/m</b> <sup>2</sup> ]:<br>( <b>s</b> <sub>p</sub> /Q <sub>p</sub> )*In( <b>r</b> <sub>s</sub> / <b>r</b> <sub>0</sub> ) [ <b>s/m</b> <sup>2</sup> ]:<br>no response due to pumping   | te<br>#NV<br>#NV<br>in source   |                      | * see comment      |
| 2000   | Pur  | npstart   | Pumpstop  |                      | 64                 |
| 2000 -                                       |  |   |   |                      | 64                 |
|  |  | i   | i   |                      |                    |
| 1900 -                                       |  | 1   |   |                      |                    |
|  | 1  |   |   |                      |                    |
| - <sup>1800</sup> -                          |  |   |   |                      |                    |
| [kb;   |  |   |   |                      | <sup>- 63</sup> Ie |
| <b>1700</b>                                  |  |   |   |                      | M UQ               |
| ive  | and a second sec |   |   |                      | vatic              |
| Acti   |  | No. AND   | All and a second second   | ie alte, a           | ser                |
| <b>9,</b> 1600 -                             |  |   |   | Jan Marine y         | Op Op              |
| ess.   |  | and the second se | and the second se | 1 W.                 |                    |
| <b>ت</b> <sub>1500 -</sub>                   |  |   | ·   | •                    |                    |
|  |  |   |   |                      |                    |
| 1400 -                                       |  | Luna han share when   |   |                      |                    |
|  |  | <br>  |   |                      |                    |
| 1300   |  | l   |   |                      | E1                 |
| 18.10  | 0.2007   | 19.10.2007 20.10.2007   | 21.10.2007  | 22.10.2007           | 23.10.2007         |
|  |  | [   | Date  |                      |                    |
|  |  |   |   |                      |                    |

| Activityplan No.  | AP PS 400-07-72  |                       |                       |                   |
|---|--|-----------------------|-----------------------|-------------------|
| Pumping Hole:   | KLX27A   | Pumping Section       | [m bToC]:             | 210.00-247.00     |
| Test Start:   | 10.10.2007 00:00   | Test Stop:            |                       | 23.10.2007 12:00  |
| Pump Start:   | 18.10.2007 19:03   | Pump Stop:            |                       | 21.10.2007 11:02  |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:           | 6.60E-05   |                       |                       |                   |
| Pressure data   |  | Nomenclature          | Unit                  | Value             |
| Pressure in test section be                             | efore start of flowing:  | p <sub>i</sub>        | kPa                   | 1847              |
| Pressure in test section be                             | efore stop of flowing:   | p <sub>p</sub>        | kPa                   | 1409              |
| Maximum pressure chang                                  | e during flowing period:   | dpp                   | kPa                   | 438               |
| Observation Hole:                                       | HLX27  | Section no.:          |                       | HLX27_3           |
| Distance r. [m]:  | 1151 00  | Section length        |                       | 0 00-99 00        |
| Response time dt. [s]:                                  | #NV  | max. Drawdown s.      | [m]:*                 | 0.00 00.00<br>#NV |
| Pressure data   | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,  | Nomenclature          | Unit                  | Value             |
| Processing test costion by                              | oforo start of flowing   | nomonolaturo          | kDo                   | 62.2              |
|   | store start of Howing.   | Pi                    | кра                   | 63.3              |
| Pressure in test section be                             | erore stop of flowing:   | ρ <sub>p</sub>        | кра                   | 62.8              |
| Maximum pressure chang                                  | e during flowing period:*  | dpp                   | kPa                   | 0.5               |
| Normalized distance with Index 1 r.                     | respect to the response time<br><sub>s</sub> ²/dt <sub>L</sub> [m²/s]:   | e<br>#NV              |                       |                   |
| Normalized drawdown with<br>Index 2 s<br>Index 2 New (s | h respect to pumping flow ra<br><sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | tte<br>#NV<br>#NV     |                       |                   |
|   |  |                       |                       | * see comment     |
| Comment: n  | o response due to pumping  | in source             |                       |                   |
|   |  |                       |                       |                   |
| 2000 - Pumps  | start  | Pumpstop              |                       | 64                |
| 2000  |  |                       |                       | 04                |
|   |  | 1                     |                       |                   |
| 1900  |  |                       |                       |                   |
|   |  | i                     |                       | B                 |
|   |  |                       |                       | KP                |
|   |  |                       |                       | well              |
| <b>9</b> 1700   |  |                       |                       | ion               |
| ctive   |  | And the second second |                       | - 63 - C          |
| <b>Ž</b> 1600   |  | - Therefore a star    |                       | Dbse              |
| nss   |  | A DE S                |                       | lire (            |
| 2<br>4<br>1500  | The second s   |                       | ·····                 | esst              |
| 1000  |  |                       |                       | Å                 |
|   | anna han da sa   |                       |                       |                   |
| 1400  |  |                       | ← KLX27A<br>← HLX27_3 | ]                 |
| 1300  | 9 10 2007 20 40 2007   | 21 10 2007 22         | 10 2007               | 62                |
| 10.10.2007  | 20.10.2007   | Date                  |                       | 20.10.2007        |
|   |  |                       |                       |                   |

| Activityp   | lan No.                     | AP PS 400   | )-07-72                 |   |   |                         |                                 |                  |
|---|-----------------------------|---|-------------------------|---|---|-------------------------|---------------------------------|------------------|
| Pumping   | g Hole:                     | К   | LX27A                   |   | Pumping Sec                             | tion [m b               | ToC]:                           | 210.00-247.00    |
| Test Star   | t:                          | 10.10.2007  | 7 00:00                 |   | Test Stop:                              |                         |                                 | 23.10.2007 12:00 |
| Pump St   | art:                        | 18.10.2007  | 7 19:03                 |   | Pump Stop:                              |                         |                                 | 21.10.2007 11:02 |
| Flow Rat  | e Q <sub>p</sub> [m³/s]:    | 6.6   | 60E-05                  |   |   |                         |                                 |                  |
| Pressure  | e data                      |   |                         |   | Nomenclatur                             | e U                     | nit                             | Value            |
| Pressure  | in test section             | before start of flo   | wing:                   |   |   | p <sub>i</sub>          | kPa                             | 1847             |
| Pressure  | in test section             | before stop of flo  | wing:                   |   | ŗ                                       | 0 <sub>p</sub>          | kPa                             | 1409             |
| Maximun   | n pressure cha              | nge during flowing  | g period:               |   | dr                                      | 0 <sub>p</sub>          | kPa                             | 438              |
| Observa   | tion Hole:                  |   | HLX28                   |   | Section no.:                            |                         |                                 | HLX28_1          |
| Distance  | r. [m]:                     |   | 155.00                  |   | Section length                          | :                       |                                 | 91.00-154.00     |
| Respons   | e time dt <sub>1</sub> [s]: | 1   | 111420                  |   | max. Drawdow                            | /n s <sub>p</sub> [m]:' | ł                               | 0.13             |
| Pressure  | e data                      |   |                         |   | Nomenclatur                             | e U                     | nit                             | Value            |
| Pressure  | in test section             | before start of flo   | wina:                   |   |   | D <sub>i</sub>          | kPa                             | 129.7            |
| Pressure  | in test section             | before stop of flo  | wina:                   |   | r                                       | )                       | kPa                             | 128.4            |
| Maximun   | n pressure cha              | nae durina flowing  | a period.;              | *   | r<br>dr                                 | -р<br>)-                | kPa                             | 13               |
| Maximu  |                             |   | g peniou.               |   | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~  | Ър                      | κια                             | 1.0              |
| Normaliz  | ed distance wit             | h respect to the r  | esponse                 | time                                      |   | Low                     |                                 |                  |
| muex i  |                             | r <sub>s</sub> /at <sub>L</sub> [m /s].                     |                         | 0.22                                      |   | LOW                     |                                 |                  |
| Normaliz  | ed drawdown v               | vith respect to pur   | mping flo               | w rate                                    |   |                         |                                 |                  |
| Index 2   |                             | s <sub>p</sub> /Q <sub>p</sub> [s/m²]:                      |                         | 2007.85                                   |   | Low                     |                                 |                  |
| Index 2 I   | New                         | (c /0 )*ln(r /r )   | [c/m <sup>2</sup> ],    | 40400 40                                  |   | Mediu                   |                                 |                  |
|   |                             | $(\mathbf{s}_{p}/\mathbf{w}_{p})$ $(\mathbf{s}/\mathbf{s})$ | [5/111].                | 10126.42                                  |   | wealu                   | n                               |                  |
| Common  |                             | $(S_p/w_p) \prod (I_s/I_0)$                                 |                         | 10126.42                                  | source                                  | weatur                  | m                               | * see comment    |
| Commen  | it:                         | no clear respons<br>pressure recove                         | se due to<br>ry probat  | pumping in<br>ply influence               | source<br>ed by natural flu             | uctuations              | 5<br>5                          | * see comment    |
| Commen  | it:                         | no clear respons<br>pressure recove                         | se due to<br>ry probat  | pumping in<br>pumping in<br>ply influence | source<br>ed by natural flu             |                         | 5                               | * see comment    |
| Commen  | )Pur                        | no clear respons<br>pressure recove                         | ry probat               | pumping in<br>ply influence               | source<br>ed by natural flu<br>Pumpstop |                         | s<br>                           | * see comment    |
| Commen  | )Pur                        | no clear respons<br>pressure recove                         | se due to<br>ry probat  | pumping in<br>ply influence               | source<br>ed by natural flu<br>Pumpstop |                         | m<br>5                          | * see comment    |
| 2000  | )<br>Pur                    | no clear respons<br>pressure recove                         | es due to<br>ry probat  | pumping in<br>ply influence               | source<br>ed by natural flu<br>Pumpstop |                         | m                               | * see comment    |
| 2000  | )Pur                        | no clear respons<br>pressure recove                         | se due to<br>ry probat  | 10126.42<br>pumping in<br>bly influence   | source<br>ed by natural flu<br>Pumpstop |                         | 5<br>                           | * see comment    |
| 2000<br>1900  | )<br>Pur                    | no clear respons<br>pressure recove                         | e due to<br>ry probat   | pumping in<br>ply influence               | source<br>ed by natural flu<br>Pumpstop |                         | m<br>5                          | * see comment    |
| 2000<br>1900  | Pur                         | no clear respons<br>pressure recove                         | e due to<br>ry probat   | 10126.42<br>pumping in<br>bly influence   | source<br>ed by natural flu<br>Pumpstop | uctuations              | 5<br>                           | * see comment    |
| 2000<br>1900<br><b>[e_y]</b>  | )<br>Pur                    | no clear respons<br>pressure recove                         | e due to<br>ry probat   | pumping in<br>ply influence               | source<br>ed by natural flu<br>Pumpstop |                         | m<br>5                          | * see comment    |
| 2000<br>1900<br>[ed.y]<br>[Non<br>2000<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900            | Pur                         | no clear respons<br>pressure recove                         | se due to<br>ry probat  | 10126.42<br>pumping in<br>bly influence   | source<br>ed by natural flu<br>Pumpstop |                         | 5<br>                           | * see comment    |
| Commen<br>2000<br>1900<br>1800<br>1700  | Pur                         | no clear respons<br>pressure recove                         | se due to<br>ry probat  | 10126.42<br>pumping in<br>bly influence   | source<br>ed by natural flu<br>Pumpstop |                         | m<br>5                          | * see comment    |
| Commen<br>2000<br>1900<br><b>[kba]</b><br>1800<br>1800<br>1800  | Pur                         | no clear respons<br>pressure recove                         | e due to<br>ry probat   | 10126.42                                  | source<br>ed by natural flu<br>Pumpstop |                         | m<br>5                          | * see comment    |
| Commen<br>2000<br>1900<br>1800<br>1800<br>1700<br>1600  | Pur                         | no clear respons<br>pressure recove                         | e due to<br>ry probat   | 10126.42<br>pumping in<br>bly influence   | source<br>ed by natural flu<br>Pumpstop |                         | m<br>5                          | * see comment    |
| Commen<br>2000<br>1900<br>[Rad]<br>1800<br>1800<br>1500   | Pur                         | no clear respons<br>pressure recove                         | e due to<br>ry probat   | 10126.42                                  | source<br>ed by natural flu<br>Pumpstop |                         | 5<br>                           | * see comment    |
| Commen<br>2000<br>1900<br>1800<br>1800<br>1700<br>1600<br>1500  | Pur                         | no clear respons<br>pressure recove                         | e due to<br>ry probat   | 10126.42<br>pumping in<br>ply influence   | source<br>ed by natural flu<br>Pumpstop |                         | m<br>5                          | * see comment    |
| Commen<br>2000<br>1900<br><b>[kba]</b><br>1800<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900    | Pur                         | no clear respons<br>pressure recove                         | e due to<br>ry probat   | 10126.42                                  | source<br>ed by natural flu<br>Pumpstop |                         | 5<br>                           | * see comment    |
| Commen<br>2000<br>1900<br><b>[ 1800</b><br>1700<br>1600<br>1500<br>1400                                   | Pur<br>Pur                  | no clear respons<br>pressure recove                         | e due to<br>ry probat   | 10126.42<br>pumping in<br>ply influence   | source<br>ed by natural flu<br>Pumpstop |                         | KLX27A                          | * see comment    |
| Commen<br>2000<br>1900<br><b>[kba]</b><br>1800<br>1800<br>1500<br>1400                                    | Pur                         | no clear respons<br>pressure recove                         | ise due to<br>ry probat | 10126.42                                  | source<br>ed by natural flu<br>Pumpstop |                         | KLX27A<br>HLX28_1               | * See comment    |
| Commen<br>2000<br>1900<br><b>[easure Active well [kba]</b><br>1700<br>1800<br>1500<br>1400<br>1300<br>18. | Pur<br>Pur<br>              | no clear respons<br>pressure recove                         | 20.10.2007              | 10126.42<br>pumping in<br>ply influence   | SOURCE<br>ed by natural flu<br>Pumpstop |                         | M<br>S<br>→ KLX27A<br>→ HLX28_1 | * see comment    |
| Commen<br>2000<br>1900<br><b>[ed] [kba]</b><br>1800<br>1600<br>1500<br>1400<br>1300<br>18.                | Pur<br>Pur<br>              | no clear respons<br>pressure recove                         | 20.10.2007              | Date                                      | Source<br>ed by natural flu<br>Pumpstop |                         | KLX27A<br>HLX28_1               | * See comment    |

| Pumping Hole: KLX27A Pumping Section [m bToC]:   |   |
|--|---|
|  | 210.00-247.00   |
| Test Start:         10.10.2007 00:00         Test Stop:  | 23.10.2007 12:00  |
| Pump Start: 18.10.2007 19:03 Pump Stop:  | 21.10.2007 11:02  |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: 6.60E-05   |   |
| Pressure data Nomenclature Unit  | Value   |
| Pressure in test section before start of flowing: p <sub>i</sub> kP  | a 1847  |
| $\label{eq:pp} \mbox{Pressure in test section before stop of flowing:} \qquad \mbox{$p_p$} \qquad \mbox{$kP$}$   | a 1409  |
| Maximum pressure change during flowing period: dp <sub>p</sub> kP  | a 438   |
| Observation Hole: HLX28 Section no.:   | HLX28_2   |
| Distance r <sub>e</sub> [m]: 195.00 Section length:  | 70.00-90.00   |
| Response time dt <sub>l</sub> [s]: 109620 max. Drawdown s <sub>p</sub> [m]:*   | 0.14  |
| Pressure data Nomenclature Unit  | Value   |
| Pressure in test section before start of flowing:  | a 129.8   |
| Pressure in test section before stop of flowing:   | a 128.4   |
| Maximum pressure change during flowing period:* $dp_{a}$ kP  | a 14  |
|  |   |
| Normalized distance with respect to the response time $r^{2}/dt$ $r^{2}/dt$  |   |
| $\prod_{s} a_{L} [m/s]. \qquad 0.55 \qquad \text{Low}$   |   |
| Normalized drawdown with respect to pumping flow rate  |   |
| Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: 2162.30 Low  |   |
| Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: 11401.78 Medium   |   |
| Comment: no clear response due to pumping in source  | * see comment   |
| pressure recovery probably influenced by natural fluctuations  |   |
|  |   |
|  | 132   |
|  |   |
|  |   |
| 1900   |   |
| 1900   | - 131   |
| 1900   | - 131<br>- 23   |
|  | - 131<br>- 131<br>ell [kBa]   |
|  | - 131<br>- 131<br>- 130<br>- 130  |
| 1900<br>1800<br>1700<br>1700   | - 131<br>- 131<br>(KPa]   |
| 1900<br>1800<br>1700<br>1700   | - 131<br>- 130<br>Jack Male (kPale)   |
| 1900<br>1800<br>1700<br>1600   | - 131<br>- 131<br>- 130<br>- 130<br>- 130<br>- 130<br>- 130<br>- 130<br>- 130<br>- 130<br>- 131<br>- 130<br>- 131<br>- 131 |
| 1900<br>1800<br>1700<br>1600<br>1600   | 131<br>130<br>129<br>129<br>129   |
| 1900<br>1800<br>1700<br>1600<br>1500   | 131<br>131<br>130<br>129<br>129<br>129<br>129<br>129  |
| 1900<br>1800<br>1700<br>1600<br>1500   | List 130 Lis  |
| 1900<br><b>Ferry Particular Sector Action of Control of Con</b>   | List List List List List List List List   |
| 1900<br>1900<br>1800<br>1700<br>1600<br>1500<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>1400<br>140<br>14  | List<br>List<br>List<br>List<br>List<br>List<br>List<br>List  |
|  | Lizz<br>1131<br>131<br>131<br>131<br>131<br>131<br>129<br>129<br>128<br>128<br>127<br>127<br>127<br>127<br>127<br>127<br>127<br>127   |
| 1900<br>1900<br>1900<br>1900<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000<br>1000 | Lessure Opservation well [kba]  |

| Activitypla   | an No.                      | AP F   | PS 400-07-72  |                                       |   |                            |                  |
|---|-----------------------------|--|---|---------------------------------------|---|----------------------------|------------------|
| Pumping   | Hole:                       |  | KLX27A  |                                       | Pumping Secti   | on [m bToC]:               | 210.00-247.00    |
| Test Start  | t:                          | 10.1   | 0.2007 00:00  |                                       | Test Stop:  |                            | 23.10.2007 12:00 |
| Pump Sta  | art:                        | 18.1   | 0.2007 19:03  |                                       | Pump Stop:  |                            | 21.10.2007 11:02 |
| Flow Rate   | e Q <sub>p</sub> [m³/s]:    |  | 6.60E-05  |                                       |   |                            |                  |
| Pressure  | data                        |  |   |                                       | Nomenclature  | Unit                       | Value            |
| Pressure  | in test section             | before star  | t of flowing:   |                                       | p   | kF                         | Pa 1847          |
| Pressure  | in test section             | before stop  | o of flowing:   |                                       | pp  | kF                         | Pa 1409          |
| Maximum   | n pressure cha              | nge during   | flowing period:   |                                       | dpp   | kF                         | Pa 438           |
| Observat  | ion Hole:                   |  | HLX28   |                                       | Section no.:  |                            | HLX28_3          |
| Distance  | r. [m]:                     |  | 234.00  |                                       | Section length:   |                            | 7.50-69.00       |
| Response  | e time dt <sub>1</sub> [s]: |  | 218820  |                                       | max. Drawdown   | s <sub>o</sub> [m]:*       | 0.10             |
| Pressure  | data                        |  |   |                                       | Nomenclature  | Unit                       | Value            |
| Pressure  | in test section             | before star  | t of flowing <sup>.</sup>   |                                       | n   | k P                        | Pa 123.9         |
| Pressure  | in test section             | before stor  | of flowing:   |                                       | Pi<br>n   |                            | a 120.9          |
| Movimum   |                             | ngo during   | flowing poriod:*  |                                       | Pp<br>dp  |                            | a $122.9$        |
| IVIAXIIIIUII  | i pressure cha              | nge duning   | nowing period.  |                                       | up <sub>p</sub>   | κr                         | a 1.0            |
| Normalize   | ed distance wit             | th respect to  | o the response ti   | ime                                   |   |                            |                  |
| Index 1   |                             | r <sub>s</sub> -/dt <sub>L</sub> [m-   | ˈ/s]:   | 0.25                                  |   | Low                        |                  |
| Normalize   | ed drawdown v               | with respect   | to pumpina flov   | v rate                                |   |                            |                  |
| Index 2   |                             | s <sub>p</sub> /Q <sub>p</sub> [s/n  | n <sup>2</sup> ]:   | 1544.50                               |   | Low                        |                  |
|   |                             | р р <b>.</b>   | -   |                                       |   |                            |                  |
|   |                             |  |   |                                       |   |                            |                  |
| Index 2 N   | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*In   | (r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:   | 8425.73                               |   | Medium                     |                  |
| Index 2 N   | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*In   | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | 8425.73                               |   | Medium                     | * see comment    |
| Index 2 N   | lew<br>t:                   | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                            | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>Dumping in                 | source<br>ed by natural fluc                                      | <b>Medium</b>              | * see comment    |
| Index 2 N   | lew<br>::                   | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                            | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>Dumping in<br>ly influence | source<br>ed by natural fluc                                      | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                            | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | source<br>ed by natural fluc<br>Pumpstop                          | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment  | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br><sup>mpstart</sup>      | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | source<br>ed by natural fluc<br>Pumpstop                          | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment  | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br><sup>mpstart</sup><br>I | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | source<br>ed by natural fluc<br>Pumpstop<br>I<br>I                | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900  | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>mpstart                 | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | ed by natural fluc<br>Pumpstop                                    | <b>Medium</b><br>etuations | * see comment    |
| Index 2 N<br>Comment  | lew<br>::<br>               | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>mpstart                 | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | source<br>ed by natural fluc<br>Pumpstop<br>I<br>I<br>I<br>I<br>I | <b>Medium</b><br>ctuations | * see comment    |
| 2000<br>1900  | lew<br>::<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>mpstart                 | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | Source<br>ed by natural fluc<br>Pumpstop                          | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900  | lew<br>::<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>mpstart                 | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | source<br>ed by natural fluc<br>Pumpstop                          | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br><b>[ecy]</b><br>1800<br>1900                      | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>mpstart                 | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | ed by natural fluc<br>Pumpstop                                    | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br><b>[ed]</b> 1800<br>1900                          | lew<br>::<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                            | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | ed by natural fluc<br>Pumpstop                                    | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1900<br>1700                                      | lew<br>::<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                            | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | Source<br>ed by natural fluc<br>Pumpstop                          | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1800                              | lew<br>:                    | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>pumping in<br>ly influence | Source<br>ed by natural fluc<br>Pumpstop                          | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600                              | lew<br>:                    | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>Dumping in<br>ly influence | source<br>ed by natural fluc<br>Pumpstop                          | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1000<br>1500                      | lew<br>:                    | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73                               | Pumpstop  | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600<br>1500                      | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*Ind  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73                               | Pumpstop  | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600<br>1500<br>1400              | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*Ind  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73                               | Pumpstop  | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600<br>1500<br>1400              | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>Dumping in<br>ly influence | Pumpstop  | Medium<br>etuations        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900      | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*In   | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73                               | Pumpstop  | Medium<br>etuations        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1900<br>1800<br>1000<br>1000<br>1000<br>1000<br>1 | lew<br>::<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73                               | Pumpstop  | Medium<br>etuations        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1400<br>1810                      | lew<br>::<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>ecovery probabl | 8425.73<br>Dumping in<br>ly influence | Pumpstop  | Medium<br>etuations        | * see comment    |

| Activitypla        | an No.                      | AP PS 400-07-72  |           |                 |                    |                        |
|--------------------|-----------------------------|--|-----------|-----------------|--------------------|------------------------|
| Pumping            | Hole:                       | KLX27A   |           | Pumping Section | n [m bToC]:        | 210.00-247.00          |
| Test Start         | t:                          | 10.10.2007 00:00   | -         | Fest Stop:      |                    | 23.10.2007 12:00       |
| Pump Sta           | art:                        | 18.10.2007 19:03   | F         | Pump Stop:      |                    | 21.10.2007 11:02       |
| Flow Rate          | e Q <sub>p</sub> [m³/s]:    | 6.60E-05   |           |                 |                    |                        |
| Pressure           | data                        |  |           | Nomenclature    | Unit               | Value                  |
| Pressure           | in test section             | before start of flowing:   |           | pi              | kPa                | 1847                   |
| Pressure           | in test section             | before stop of flowing:  |           | pp              | kPa                | 1409                   |
| Maximum            | n pressure cha              | nge during flowing period:   |           | dpp             | kPa                | 438                    |
| Observat           | ion Hole:                   | HLX32  | \$        | Section no.:    |                    | HLX32_1                |
| Distance           | r, [m]:                     | 136.00   | 5         | Section length: |                    | 31.00-163.00           |
| Response           | e time dt <sub>L</sub> [s]: | #NV  | r         | nax. Drawdown s | <sub>p</sub> [m]:* | #NV                    |
| Pressure           | data                        |  |           | Nomenclature    | Unit               | Value                  |
| Pressure           | in test section             | before start of flowing:   |           | pi              | kPa                | 64.3                   |
| Pressure           | in test section             | before stop of flowing:  |           | D <sub>n</sub>  | kPa                | 68.7                   |
| Maximum            | pressure cha                | nae during flowing period:*  |           | dp <sub>n</sub> | kPa                | 4 4                    |
| Maximum            |                             |  |           | чрр             |                    |                        |
| Normalize          | ed distance wit             | h respect to the response time $r^{2}/dt$ $[m^{2}/c]$ .                                    | e<br>#NIV |                 |                    |                        |
| IIIUEX I           |                             | ι <sub>s</sub> /αι <sub>L</sub> [iii / <b>5</b> ].   | #11       |                 |                    |                        |
| Normalize          | ed drawdown v               | vith respect to pumping flow ra  | ate       |                 |                    |                        |
| Index 2            |                             | s <sub>p</sub> /Q <sub>p</sub> [s/m²]:   | #NV       |                 |                    |                        |
| Index 2 N          | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV       |                 |                    | * and commont          |
| Comment            | t:                          | no response due to pumping   | in source | 9               |                    | See comment            |
|                    |                             |  | ,         |                 |                    |                        |
|                    |                             |  |           |                 |                    |                        |
| 2000               | Pur                         | npstart  |           | Pumpstop        |                    | 77                     |
|                    |                             | 1  |           | 1               |                    | - 76                   |
| 1900               |                             | 1  |           |                 |                    | - 75                   |
|                    |                             |  |           |                 |                    |                        |
| रू <sup>1800</sup> |                             |  |           |                 |                    | 72 <b>[kba</b> ]       |
| I [kb              |                             |  |           |                 |                    | - 71 <b>III</b>        |
| <b>1</b> 700       |                             |  |           | /               |                    | 70 10                  |
| ctive              |                             |  |           |                 |                    |                        |
| <b>ě</b> 1600      |                             |  |           |                 |                    |                        |
| Inss               |                             |  |           | 1               |                    |                        |
| <b>e</b><br>1500   |                             |  |           |                 |                    | 65 <u>65</u>           |
|                    |                             |  |           | 1               |                    | <sub>64</sub> <b>ل</b> |
| 1400               |                             | Landan marine  |           |                 |                    | - 63                   |
| 1400               |                             |  |           |                 | KLX27A<br>HLX32_   | 1 - 62<br>1 - 61       |
| 1300               | - 2007                      | 10 40 2007   |           | 1 10 2007       |                    | 60                     |
| 18.1               | 0.2007                      | 19.10.2007 20.10.2007  | Date      | 1.10.2007       | 22.10.2007         | 23.10.2007             |
|                    |                             |  |           |                 |                    |                        |
|                    |                             |  |           |                 |                    |                        |

| Activitypla       | an No.                                | AP PS 400-07-72  |                              |           |                    |
|-------------------|---------------------------------------|--|------------------------------|-----------|--------------------|
| Pumping           | Hole:                                 | KLX27A   | Pumping Section              | [m bToC]: | 210.00-247.00      |
| Test Start        | t:                                    | 10.10.2007 00:00   | Test Stop:                   | :         | 23.10.2007 12:00   |
| Pump Sta          | art:                                  | 18.10.2007 19:03   | Pump Stop:                   | :         | 21.10.2007 11:02   |
| Flow Rate         | e Q <sub>p</sub> [m <sup>3</sup> /s]: | 6.60E-05   |                              |           |                    |
| Pressure          | data                                  |  | Nomenclature                 | Unit      | Value              |
| Pressure          | in test section                       | before start of flowing:   | p <sub>i</sub>               | kPa       | 1847               |
| Pressure          | in test section                       | before stop of flowing:  | pp                           | kPa       | 1409               |
| Maximum           | n pressure cha                        | nge during flowing period:   | dpp                          | kPa       | 438                |
| Observat          | tion Hole:                            | HLX32  | Section no.:                 |           | HLX32_2            |
| Distance          | r, [m]:                               | 177 00   | Section length:              |           | 20 00-30 00        |
| Response          | e time dt <sub>L</sub> [s]:           | #NV  | max. Drawdown s <sub>n</sub> | [m]:*     | _0.00 00.00<br>#NV |
| Pressure          | data                                  |  | Nomenclature                 | Unit      | Value              |
| Pressure          | in test section                       | before start of flowing:   | D:                           | kPa       | 61.6               |
| Pressure          | in test section                       | before stop of flowing.  | ۳۱<br>D_                     | kPa       | 65.9               |
| Maximum           |                                       | are during flowing period.*  | Mp<br>dn                     | k Do      | A 2                |
|                   | i pressure uild                       | ige during nowing period.  | uγ <sub>p</sub>              | кгd       | 4.3                |
| Normalize         | ed distance wit                       | h respect to the response time   | )                            |           |                    |
| Index 1           |                                       | r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:   | #NV                          |           |                    |
| Normaliza         | ad drawdown y                         | with respect to pumping flow ra  | to                           |           |                    |
| Index 2           |                                       | s./Q. [s/m <sup>2</sup> ]:   | #NV                          |           |                    |
|                   |                                       | -h -b [, ].  |                              |           |                    |
| Index 2 N         | lew                                   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                          |           |                    |
|                   |                                       | -  | -                            | :         | * see comment      |
| Comment           | t:                                    | no response due to pumping   | in source                    |           |                    |
|                   |                                       |  |                              |           |                    |
|                   | Pur                                   | nostart  | Pumoston                     |           |                    |
| 2000              |                                       |  |                              |           | 73                 |
|                   |                                       | 1<br>  |                              |           | - 72               |
| 1900              |                                       | <br>   |                              |           | 71                 |
|                   |                                       |  | <br> <br>                    |           | 70 –               |
| <sup>1800</sup> و |                                       |  |                              |           | 69 <b>[kB</b>      |
| ll [kF            |                                       |  |                              |           | <b>kell</b>        |
| <b>8</b> 1700     |                                       |  |                              |           | ion                |
| ctive             |                                       |  |                              |           |                    |
| <b>9</b> 1600     |                                       |  |                              |           |                    |
| ssur              |                                       |  |                              |           |                    |
| <b>E</b> 1500     |                                       |  |                              |           | 64 SS              |
| 1300              |                                       |  |                              |           | <b>4</b><br>63     |
|                   |                                       | Lundhan de martin  |                              |           | 62                 |
| 1400              |                                       |  |                              | KLX27A    |                    |
|                   |                                       | I<br>I   |                              |           | + 61               |
| 1300<br>18.1      | 0.2007                                | 19.10.2007 20.10.2007  | 21.10.2007 22                | 2.10.2007 | 60<br>23.10.2007   |
|                   |                                       | [  | Date                         |           |                    |
|                   |                                       |  |                              |           |                    |
|                   |                                       |  |                              |           |                    |

| Activitypla                                  | an No.   | AP PS 400-07-72   |   |                       |                   |
|--|--|---|---|-----------------------|-------------------|
| Pumping                                      | Hole:  | KLX27A  | Pumping Section   | on [m bToC]:          | 210.00-247.00     |
| Test Start                                   | :  | 10.10.2007 00:00  | Test Stop:  |                       | 23.10.2007 12:00  |
| Pump Sta                                     | irt:   | 18.10.2007 19:03  | Pump Stop:  |                       | 21.10.2007 11:02  |
| Flow Rate                                    | e Q <sub>p</sub> [m³/s]:                       | 6.60E-05  |   |                       |                   |
| Pressure                                     | data   |   | Nomenclature  | Unit                  | Value             |
| Pressure                                     | in test section                                | before start of flowing:  | p <sub>i</sub>  | kPa                   | 1847              |
| Pressure                                     | in test section                                | before stop of flowing:   | pp  | kPa                   | 1409              |
| Maximum                                      | pressure cha                                   | nge during flowing period:  | dpp   | kPa                   | 438               |
| Observat                                     | ion Hole:                                      | HLX32   | Section no.:  |                       | HLX32_3           |
| Distance                                     | r [m]·   | 188.00  | Section length:   |                       | 0.00-19.00        |
| Response                                     | s time dt. [s]:                                | #NV   | max. Drawdown   | s, [m]:*              | 0.00-19.00<br>#NV |
| Pressure                                     | data   | // <b>V</b>   | Nomenclature  | Unit                  | Value             |
| Proceuro                                     | in tost soction                                | before start of flowing:  | n   | kDo                   | 52.4              |
| Pressure                                     |  | before start of flowing:  | Pi  | кра                   | 53.4              |
| Pressure                                     | In test section                                | before stop of flowing:   | ρ <sub>p</sub>  | kPa                   | 53.6              |
| Maximum                                      | pressure cha                                   | nge during flowing period:*   | dpp   | kPa                   | 0.2               |
| Normalize<br>Index 1<br>Normalize<br>Index 2 | ed distance wit<br>ed drawdown v<br><b>lew</b> | In respect to the response time<br>$r_s^2/dt_L [m^2/s]$ :<br>with respect to pumping flow ra-<br>$s_p/Q_p [s/m^2]$ :<br>$(s_p/Q_p)*ln(r_s/r_0) [s/m^2]$ : | e<br>#NV<br>ate<br>#NV<br>#NV   |                       |                   |
| Comment                                      | :  | no response due to pumping  | in source   |                       | * see comment     |
|  |  |   |   |                       |                   |
|  | Pur  | npstart   | Pumpstop  |                       |                   |
| 2000 -                                       |  |   |   |                       | 55                |
|  |  | i i   | i   |                       |                   |
| 1900 -                                       |  | 1   |   |                       |                   |
|  |  |   |   |                       | a]                |
|  |  |   |   |                       | – 54 <b>–</b>     |
|  |  |   |   |                       | wei i             |
| <b>8</b> 1700 -                              |  |   | it a substantiate   | and the second second | tion              |
| ctive  |  | a shi an einstationing the state  | The second se | •                     | irva              |
| <b>Š</b><br><b>D</b> 1600                    |  | A the first of a strike in a second is  | 1.  |                       | pse               |
| uns  |  |   |   |                       | 0<br>0            |
| Jres   |  |   |   |                       | 53 <b>TSS</b>     |
| 1500   |  |   |   |                       | Pre               |
|  |  |   |   |                       |                   |
| 1400   |  | The second and the second s   |   |                       |                   |
|  |  | 1   | ļ   |                       | 3                 |
| 1300   |  | l<br>   |   |                       | 52                |
| 18.10  | 0.2007   | 19.10.2007 20.10.2007   | 21.10.2007  | 22.10.2007            | 23.10.2007        |
|  |  |   |   |                       |                   |
|  |  |   |   |                       |                   |

| Activitypla     | an No.                   | AP PS  | 400-07-72   |           |             |                     |           |                   |
|-----------------|--------------------------|--|---|-----------|-------------|---------------------|-----------|-------------------|
| Pumping         | Hole:                    |  | KLX27A  |           | Pumping     | Section             | [m bToC]: | 210.00-247.00     |
| Test Start      | :                        | 10.10.2  | 2007 00:00  |           | Test Stop:  |                     |           | 23.10.2007 12:00  |
| Pump Sta        | rt:                      | 18.10.2  | 2007 19:03  |           | Pump Stop   | ):                  |           | 21.10.2007 11:02  |
| Flow Rate       | e Q <sub>p</sub> [m³/s]: |  | 6.60E-05  |           |             |                     |           |                   |
| Pressure        | data                     |  |   |           | Nomencla    | iture               | Unit      | Value             |
| Pressure i      | n test section           | before start o   | f flowing:  |           |             | pi                  | kPa       | 1847              |
| Pressure i      | n test section           | before stop of   | f flowing:  |           |             | $p_{p}$             | kPa       | 1409              |
| Maximum         | pressure char            | nge during flo   | wing period:  |           |             | $dp_p$              | kPa       | 438               |
| Observat        | ion Hole:                |  | HLX36   |           | Section no  | D.:                 |           | HLX36_1           |
| Distance r      | . [m]:                   |  | 544.00  |           | Section ler | ath:                |           | 50.00-199.50      |
| Response        | time dt [s]:             |  | #NV   |           | max. Draw   | down s <sub>n</sub> | [m]:*     | #NV               |
| Pressure        | data                     |  |   |           | Nomencla    | iture               | Unit      | Value             |
| Prossura i      | n test section           | hafora start o   | f flowing:  |           |             | n.                  | k Da      | 136.8             |
| Dressure        |                          | before stop of   | f flowing:  |           |             | Pi                  | Kr'd      | 100.0             |
| Flessule        |                          |  | i nowing.   |           |             | Ρp                  | KPa       | 130.3             |
| Maximum         | pressure char            | nge during flo   | wing period:*   |           |             | ap <sub>p</sub>     | kPa       | 0.5               |
| Normalize       | ed distance with         | h respect to th<br>r <sup>2</sup> /dt. [m <sup>2</sup> /s <sup>-</sup> | ne response tim   | ie<br>#NV |             |                     |           |                   |
| IIIdex I        |                          | is /ut [iii /3   | 1.  |           |             |                     |           |                   |
| Normalize       | ed drawdown w            | vith respect to  | pumping flow r  | ate       |             |                     |           |                   |
| Index 2         |                          | s <sub>p</sub> /Q <sub>p</sub> [s/m ]                                  |   | #NV       |             |                     |           |                   |
| Index 2 N       | ew                       | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /                  | /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV       |             |                     |           | * coo commont     |
| Comment         | :                        | no response  | due to pumping  | n in sour | се          |                     |           | See comment       |
|                 |                          |  |   | ,         |             |                     |           |                   |
|                 |                          |  |   |           |             |                     |           |                   |
| 2000 -          | Pum                      | npstart  |   |           | Pump        | stop                |           | <u>1</u> 138      |
|                 |                          | I  |   |           |             | I                   |           |                   |
| 1900 -          |                          | 1  |   |           |             |                     |           |                   |
|                 |                          | 1  |   |           |             | I                   |           |                   |
| 1900            |                          |  |   |           |             |                     |           | - 137 <b>E</b>    |
| (Pa]            |                          |  |   |           |             |                     |           | II [KI            |
| ell [ŀ          |                          |  |   |           |             |                     |           | aw c              |
| ≥ 1700 -<br>20  |                          |  |   |           |             |                     |           | ation             |
| Activ           |                          |  |   |           |             |                     |           | + 136 <b>2</b>    |
| <b>e</b> 1600 - |                          |  |   |           |             |                     |           | Obs               |
| esst            |                          |  |   |           |             |                     |           | nre               |
| <b>د</b> 1500 - |                          |  |   |           |             |                     |           | ress              |
|                 |                          |  |   |           |             |                     |           | - 135 <b>ū</b>    |
| 1400 -          |                          | Lunnah.  | - Anno |           |             |                     |           |                   |
| 1400            |                          | 1  |   |           |             | 1                   | KLX27A    |                   |
|                 |                          | I  |   |           |             | I                   |           | <u> </u>          |
| 1300 -<br>18.10 | 1.2007                   | 19.10.2007   | 20.10.2007  |           | 21.10.2007  | 22                  | .10.2007  | 134<br>23.10.2007 |
|                 |                          |  |   | Date      |             |                     |           |                   |
|                 |                          |  |   |           |             |                     |           |                   |
|                 |                          |  |   |           |             |                     |           |                   |

| Activitypla                                  | an No.                    | AP F   | PS 400-07-72   |                        |             |                     |           |                  |
|--|---------------------------|--|--|------------------------|-------------|---------------------|-----------|------------------|
| Pumping                                      | Hole:                     |  | KLX27A   |                        | Pumping \$  | Section             | [m bToC]: | 210.00-247.00    |
| Test Start                                   | :                         | 10.1   | 0.2007 00:00   |                        | Test Stop:  |                     |           | 23.10.2007 12:00 |
| Pump Sta                                     | rt:                       | 18.1   | 0.2007 19:03   |                        | Pump Stop   | ):                  |           | 21.10.2007 11:02 |
| Flow Rate                                    | e Q <sub>p</sub> [mº/s]:  |  | 6.60E-05   |                        |             |                     |           |                  |
| Pressure                                     | data                      |  |  |                        | Nomencla    | iture               | Unit      | Value            |
| Pressure i                                   | in test section           | before star  | t of flowing:  |                        |             | p <sub>i</sub>      | kPa       | 1847             |
| Pressure i                                   | in test section           | before stop  | o of flowing:  |                        |             | $p_p$               | kPa       | 1409             |
| Maximum                                      | pressure char             | nge during   | flowing period:  |                        |             | $dp_p$              | kPa       | 438              |
| Observat                                     | ion Hole:                 |  | HLX36  |                        | Section no  | <b>D.</b> :         |           | HLX36_2          |
| Distance r                                   | r <sub>s</sub> [m]:       |  | 543.00   |                        | Section len | igth:               |           | 0.00-49.00       |
| Response                                     | time dt <sub>L</sub> [s]: |  | #NV  |                        | max. Draw   | down s <sub>p</sub> | [m]:*     | #NV              |
| Pressure                                     | data                      |  |  |                        | Nomencla    | ture                | Unit      | Value            |
| Pressure i                                   | in test section           | before star  | t of flowing:  |                        |             | p <sub>i</sub>      | kPa       | 102.4            |
| Pressure i                                   | in test section           | before stop  | o of flowing:  |                        |             | $p_p$               | kPa       | 102.3            |
| Maximum                                      | pressure char             | nge during   | flowing period:*   |                        |             | dp <sub>p</sub>     | kPa       | 0.1              |
| Normalize<br>Index 1<br>Normalize<br>Index 2 | ed distance wit           | h respect t<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²<br>/ith respect<br>s <sub>p</sub> /Q <sub>p</sub> [s/n | o the response time<br>² <b>/s]:</b><br>: to pumping flow ra<br>1²]: | e<br>#NV<br>ate<br>#NV |             |                     |           |                  |
| Index 2 N                                    | ew                        | (s <sub>p</sub> /Q <sub>p</sub> )*In   | (r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:                            | #NV                    |             |                     |           | * see comment    |
| Comment                                      |                           | no respon  | se due to pumping  | in sourc               | ce .        |                     |           |                  |
|  | Pun                       | npstart  |  |                        | Pumps       | stop                |           |                  |
| 2000 -                                       |                           | 1  |  |                        |             |                     |           | 104              |
|  |                           | I  |  |                        |             | l                   |           |                  |
| 1900 -                                       |                           | 1  |  |                        |             | 1                   |           |                  |
|  |                           |  |  |                        |             | ĺ                   |           | a]               |
| <b>1800</b> ·                                | <b>1</b>                  |  |  |                        |             |                     |           |                  |
|  |                           |  |  |                        |             |                     |           | well             |
| <b>0</b> 1700 -<br><b>0</b>                  |                           |  |  |                        |             |                     |           | tion             |
| ctiv   |                           |  | · · · · ·  |                        |             |                     |           | erva             |
| <b>9</b> 1600 ·                              |                           |  |  |                        |             |                     |           | Obs              |
| nssə   |                           |  |  |                        |             |                     |           |                  |
| <b>له</b> 1500 -                             |                           |  |  |                        |             |                     |           |                  |
|  |                           | 1  |  |                        |             |                     |           | <b>E</b>         |
| 1400 -                                       |                           | Barren .   | Manghagewohnen   |                        |             |                     |           |                  |
|  |                           | <br> <br>  |  |                        |             | 1<br> <br>          |           |                  |
| 1300 -<br>18.10                              | ).2007                    | 19.10.2007   | 20.10.2007   | Date                   | 21.10.2007  | 22.                 | 10.2007   | 101 23.10.2007   |
|  |                           |  |  | _ 410                  |             |                     |           |                  |

| Activitypla  | an No.                     | AP F  | PS 400-07-72  |   |  |                            |                  |
|--|----------------------------|---|---|---|--|----------------------------|------------------|
| Pumping  | Hole:                      |   | KLX27A  |   | Pumping Secti  | ion [m bToC]:              | 210.00-247.00    |
| Test Start   | t:                         | 10.1  | 0.2007 00:00  |   | Test Stop:   |                            | 23.10.2007 12:00 |
| Pump Sta   | art: $(1 + 3)^{3}$         | 18.1  | 0.2007 19:03  |   | Pump Stop:   |                            | 21.10.2007 11:02 |
| Flow Rate  | e Q <sub>p</sub> [m°/s]:   |   | 6.60E-05  |   |  |                            |                  |
| Pressure   | data                       |   |   |   | Nomenclature   | Unit                       | Value            |
| Pressure   | in test section            | before star   | rt of flowing:  |   | р  | i kPa                      | a 1847           |
| Pressure   | in test section            | before stop   | o of flowing:   |   | þ  | b kPa                      | a 1409           |
| Maximum  | n pressure char            | nge during  | flowing period:   |   | dpt  | b kPa                      | a 438            |
| Observat   | tion Hole:                 |   | HLX37   |   | Section no.:   |                            | HLX37_1          |
| Distance   | r [m]·                     |   | 546.00  |   | Section length:  |                            | 150 00-200 00    |
| Response   | time dt. [s]:              |   | 118620  |   | max Drawdowr   | ns [m]·*                   | 0.12             |
| Breesure   |                            |   | 110020  |   | Nemeneleture   | I Sp [III].                | Value            |
| Flessule   |                            | h afana atau  |   |   | Nomenciature   | Unit                       | value            |
| Pressure   | in test section            | Defore star   | T OT TIOWING:   |   | р  | kPa                        | a 131.2          |
| Pressure   | in test section            | before stop   | o of flowing:   |   | pt   | kPa                        | a 130.0          |
| Maximum  | n pressure char            | nge during  | flowing period:*  | 5                                       | db <sup>t</sup>  | kPa                        | a 1.2            |
| Normalize  | ed distance wit            | h respect t   | o the response  | time                                    |  |                            |                  |
| Index 1  |                            | r <sub>s</sub> ²/dt <sub>L</sub> [m²  | ²/s]:   | 2.51                                    |  | Medium                     |                  |
| Normalize  | ed drawdown w              | vith respect  | t to pumping flo  | w rate                                  |  |                            |                  |
| Index 2  |                            | s <sub>p</sub> /Q <sub>p</sub> [s/n   | n <sup>2</sup> ]:   | 1853.40                                 |  | Low                        |                  |
|  |                            |   |   |   |  |                            |                  |
|  |                            |   | (   | 44004.05                                |  | <b>NA</b> - 1 <sup>1</sup> |                  |
| Index 2 N  | lew                        | (s <sub>p</sub> /Q <sub>p</sub> )*In  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:   | 11681.25                                |  | Medium                     | * see comment    |
| Index 2 N  | lew<br>t:                  | (s <sub>p</sub> /Q <sub>p</sub> )*In  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                      | 11681.25                                | source   | Medium                     | * see comment    |
| Index 2 N  | <b>lew</b><br>t:           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>ecovery probab  | 11681.25<br>pumping in<br>oly influence | source<br>ed by natural flue                                 | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N  | lew<br>t:                  | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>ecovery probab  | 11681.25<br>pumping in<br>bly influence | source<br>ed by natural flue                                 | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>npstart                | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>oly influence | source<br>ed by natural fluc<br>Pumpstop                     | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>npstart                | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>ly influence  | source<br>ed by natural flue<br>Pumpstop                     | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900   | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>npstart<br>I<br>I<br>I | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>oly influence | source<br>ed by natural fluc<br>Pumpstop<br>I<br>I<br>I      | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900   | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>npstart                | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>oly influence | source<br>ed by natural fluc<br>Pumpstop<br>I<br>I<br>I<br>I | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900   | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>npstart                | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>ly influence  | source<br>ed by natural flue<br>Pumpstop                     | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900   | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>npstart                | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>oly influence | source<br>ed by natural fluc<br>Pumpstop                     | <b>Medium</b>              | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br><b>[EX]</b><br>1800<br>1800                          | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r<br>npstart                | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>ly influence  | source<br>ed by natural fluc<br>Pumpstop                     | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>Ison<br>1700   | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>oly influence | source<br>ed by natural fluc<br>Pumpstop                     | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1700<br>1700<br>1700                                 | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25 pumping in ly influence        | source<br>ed by natural fluc<br>Pumpstop                     | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600                                 | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25 pumping in oly influence       | source<br>ed by natural fluc<br>Pumpstop                     | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1500                                 | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25 pumping in ily influence       | source<br>ed by natural fluc<br>Pumpstop                     | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1800<br>1500                         | lew t: Pun                 | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>oly influence | source<br>ed by natural fluc<br>Pumpstop                     | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600<br>1500                         | lew t: Pun                 | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>ily influence | source<br>ed by natural fluc<br>Pumpstop                     | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1800<br>1500<br>1400                 | lew t: Pun                 | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25 pumping in oly influence       | source<br>ed by natural fluc<br>Pumpstop                     | Medium<br>ctuations        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600<br>1400                         | lew t: Pun                 | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25 pumping in ily influence       | source<br>ed by natural fluc<br>Pumpstop                     | Medium<br>ctuations        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1800<br>1500<br>1400<br>1300<br>18.1 | lew<br>t:<br>Pun           | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25 pumping in oly influence       | Source<br>ed by natural flue<br>Pumpstop                     | Medium<br>ctuations        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1800<br>1500<br>1400<br>1810         | lew<br>t:<br>Pun<br>0.2007 | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>pressure r                           | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to<br>recovery probab | 11681.25<br>pumping in<br>ily influence | source<br>ed by natural fluc<br>Pumpstop                     | Medium<br>ctuations        | * See comment    |

| Activitypla   | an No.                                | AP PS  | 6 400-07-72   |   |   |                            |                  |
|---|---------------------------------------|--|---|---|---|----------------------------|------------------|
| Pumping   | Hole:                                 |  | KLX27A  |   | Pumping Secti   | on [m bToC]:               | 210.00-247.00    |
| Test Start  | :<br>                                 | 10.10  | .2007 00:00   |   | Test Stop:  |                            | 23.10.2007 12:00 |
| Flow Rate   | e Q <sub>2</sub> [m <sup>3</sup> /s]: | 10.10  | 6.60E-05  |   | Pump Stop.  |                            | 21.10.2007 11.02 |
| Pressure  | data                                  |  | 0.002.00  |   | Nomenclature  | Unit                       | Value            |
| Pressure i  | in test section                       | before start   | of flowina:   |   | q   | kP                         | a 1847           |
| Pressure i  | in test section                       | before stop  | of flowing:   |   | p   | kP                         | a 1409           |
| Maximum   | pressure cha                          | nge during fl  | owing period:   |   | dp <sub>p</sub>   | kP                         | a 438            |
| Observat  | ion Hole:                             |  | HLX37   |   | Section no.:  |                            | HLX37_2          |
| Distance r  | r [m]·                                |  | 566 00  |   | Section length:   |                            | 111 00-149 00    |
| Response  | time dt <sub>i</sub> [s]:             |  | 114420  |   | max. Drawdowr   | n s <sub>n</sub> [m]:*     | 0.14             |
| Pressure  | data                                  |  |   |   | Nomenclature  | Unit                       | Value            |
| Pressure i  | in test section                       | before start   | of flowing:   |   | р   | i kP                       | a 146.2          |
| Pressure i  | in test section                       | before stop  | of flowing:   |   | p   | kP                         | a 144.8          |
| Maximum   | pressure cha                          | nge during fl  | owing period:   | *                                       | dpp   | , kP                       | a 1.4            |
| Normalize   | ad distance wit                       | h respect to   | the response  | time                                    |   |                            |                  |
| Index 1   |                                       | r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s                                  | s]:   | 2.80                                    |   | Medium                     |                  |
|   |                                       |  |   |   |   |                            |                  |
| Normalize   | ed drawdown v                         | vith respect t<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup>                               | o pumping flo<br><b>]:</b>  | w rate 2162.30                          |   | Low                        |                  |
|   |                                       |  |   |   |   |                            |                  |
| Index 2 N   | lew                                   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r   | /s/r₀) [s/m²]:  | 13705.91                                |   | Medium                     |                  |
| Index 2 N   | lew                                   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r   | /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | 13705.91                                |   | Medium                     | * see comment    |
| Index 2 N<br>Comment  | lew                                   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure res                           | sponse due to covery probab   | 13705.91<br>pumping in<br>bly influence | source<br>ed by natural fluc                            | Medium                     | * see comment    |
| Index 2 N   | lew<br>::                             | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure re                            | s <b>/r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>ponse due to<br>covery probat  | 13705.91<br>pumping in<br>bly influence | source<br>ed by natural fluc                            | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure rea<br>npstart                | s <b>/r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>sponse due to<br>covery probat | 13705.91<br>pumping in<br>bly influence | source<br>ed by natural fluc<br>Pumpstop                | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure ree<br>npstart                | sponse due to<br>covery probat  | 13705.91<br>pumping in<br>bly influence | source<br>ed by natural fluc<br>Pumpstop                | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure ree<br>npstart<br>I<br>I<br>I | sponse due to<br>covery probab  | 13705.91<br>pumping in<br>bly influence | source<br>ed by natural fluc<br>Pumpstop<br>I<br>I<br>I | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure res<br>npstart                | s <b>/r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>sponse due to<br>covery probat | 13705.91<br>pumping in<br>bly influence | source<br>ed by natural fluc<br>Pumpstop                | <b>Medium</b><br>ctuations | * see comment    |
| 2000 -<br>1900 -<br>1900 -  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure res<br>npstart                | s <b>/r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>sponse due to<br>covery probat | 13705.91<br>pumping in<br>bly influence | source<br>ed by natural fluc<br>Pumpstop                | <b>Medium</b><br>ctuations | * see comment    |
| Index 2 N<br>Comment  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure rea                           | s <b>/r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>sponse due to<br>covery probat | 13705.91<br>pumping in<br>bly influence | source<br>ed by natural fluc<br>Pumpstop                | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>1900 -<br>1900 -  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure rea                           | s <b>/r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>sponse due to<br>covery probab | 13705.91<br>pumping in<br>oly influence | source<br>ed by natural fluc<br>Pumpstop                | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>1900 -<br>1900 -<br>1700 -  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure res                           | ponse due to<br>covery probab   | 13705.91<br>pumping in<br>bly influence | source<br>ed by natural fluc<br>Pumpstop                | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>1900 -<br>1800 -<br>1700 -<br>1700 -<br>1600 -  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure rea                           | sponse due to<br>covery probat  | 13705.91 pumping in oly influence       | source<br>ed by natural fluc<br>Pumpstop                | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>1900 -<br>1800 -<br>1600 -  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure rea                           | s <b>/r<sub>0</sub>) [s/m<sup>2</sup>]:</b>                                   | 13705.91 pumping in oly influence       | source<br>ed by natural fluc<br>Pumpstop                | Medium                     | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>1900 -<br>1800 -<br>1600 -<br>1500 -  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure rea                           | s <b>/r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>sponse due to<br>covery probat | 13705.91 pumping in ply influence       | source<br>ed by natural fluc<br>Pumpstop                | <b>Medium</b><br>etuations | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>1800 -<br>1800 -<br>1600 -<br>1500 -  | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure rea                           | s/r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                       | 13705.91<br>pumping in<br>oly influence | source<br>ed by natural fluc<br>Pumpstop                | Medium<br>etuations        | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>1900 -<br>1900 -<br>1900 -<br>1000 -<br>1500 -<br>1500 -  | lew                                   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure rea                           | sponse due to<br>covery probab  | 13705.91 pumping in oly influence       | source<br>ed by natural fluc<br>Pumpstop                | Medium<br>etuations        | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>1900 -<br>1800 -<br>1800 -<br>1500 -<br>1500 -<br>1500 -  | lew :: Pur                            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r   | s <b>/r<sub>0</sub>) [s/m<sup>2</sup>]:</b>                                   | 13705.91 pumping in bly influence       | source<br>ed by natural fluc<br>Pumpstop                | Medium<br>ctuations        | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>1800 -<br>1800 -<br>1500 -<br>1400 -<br>1400 -<br>1300 -<br>18.10   | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure rea                           | sponse due to<br>covery probab  | 13705.91 pumping in oly influence       | Source<br>ed by natural fluc<br>Pumpstop                | Medium<br>etuations        | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>190 -<br>1900 - | lew<br>::<br>Pur                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no clear res<br>pressure red                           | sponse due to<br>covery probab  | 13705.91 pumping in oly influence       | Source<br>ed by natural fluc<br>Pumpstop                | Medium<br>etuations        | * see comment    |

| Activitypl  | an No.                   | AP  | PS 400-07-72   |  |   |              |                  |
|---|--------------------------|---|--|--|---|--------------|------------------|
| Pumping   | Hole:                    |   | KLX27A   |  | Pumping Secti   | on [m bToC]: | 210.00-247.00    |
| Test Star   | t:                       | 10.1  | 10.2007 00:00  | -  | Fest Stop:  |              | 23.10.2007 12:00 |
| Pump Sta  | art:                     | 18.1  | 10.2007 19:03  | I  | Pump Stop:  |              | 21.10.2007 11:02 |
| Flow Rate   | e Q <sub>p</sub> [m³/s]: |   | 6.60E-05   |  |   |              |                  |
| Pressure  | data                     |   |  |  | Nomenclature  | Unit         | Value            |
| Pressure  | in test section          | before sta  | rt of flowing:   |  | р   | kPa          | a 1847           |
| Pressure  | in test section          | before sto  | p of flowing:  |  | pp  | kPa          | a 1409           |
| Maximum   | n pressure cha           | nge during  | flowing period:  |  | dpp   | kPa          | a 438            |
| Observat  | tion Hole:               |   | HLX37  | :  | Section no.:  |              | HLX37_3          |
| Distance  | r [m]·                   |   | 574 00   | c  | Section length:   |              | 94 00-110 00     |
| Response  | time dt. [s]             |   | #NIV   | r  | nax Drawdowr  | s [m]·*      | 0.05             |
| Brossuro  | data                     |   | πinv   |  | Nomeneleture  | Unit         | Value            |
| Dressure  | in test costion          | hafara ata  | wheef flow in an   |  | Nomencialure  | Unit         | value            |
| Pressure  | in test section          | before sta  | nt of flowing:   |  | þ   | і кра        | a 130.3          |
| Pressure  | in test section          | before sto  | p of flowing:  |  | P <sub>p</sub>  | kPa          | a 129.8          |
| Maximum   | n pressure cha           | nge during  | flowing period:*   |  | dpp   | kPa          | a 0.5            |
| Index 1<br>Normalize  | ed drawdown v            | r <sub>s</sub> ²/dt <sub>L</sub> [m<br>vith respec<br>s <sub>p</sub> /Q <sub>p</sub> [s/r | 1 <sup>2</sup> /s]:<br>t to pumping flow<br>n <sup>2</sup> ]:  | #NV<br>w rate<br>772.25                              |   | Low**        |                  |
|   |                          |   |  |  |   |              |                  |
| Index 2 N   | lew                      | (s <sub>p</sub> /Q <sub>p</sub> )*Ir  | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:   | 4905.81  |   | Medium**     | * see comment    |
| Index 2 M   | <b>lew</b><br>t:         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp              | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery ph<br>ponse according  | 4905.81<br>pumping in s<br>ase probab<br>to SKB MD   | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0             | Medium**     | * see comment    |
| Index 2 M   | <b>lew</b><br>t:<br>Pur  | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>mpstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 4905.81<br>pumping in s<br>hase probab<br>to SKB MD  | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen   | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp              | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according   | 4905.81<br>pumping in s<br>ase probab<br>to SKB MD   | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen   | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>mpstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 4905.81<br>pumping in s<br>hase probab<br>to SKB MD  | source<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop  | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000<br>1900   | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>npstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 4905.81<br>pumping in s<br>ase probab<br>to SKB MD   | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000   | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>mpstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery ph<br>ponse according  | 4905.81<br>pumping in s<br>ase probab<br>to SKB MD   | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 №<br>Commen<br>2000<br>1900<br>5 <sup>1800</sup>  | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>npstart   | <b>h(r<sub>s</sub>/r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>response due to p<br>and recovery ph<br>ponse according t  | 4905.81<br>pumping in s<br>ase probab<br>to SKB MD   | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| 2000<br>1900  | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>mpstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 4905.81<br>pumping in s<br>hase probab<br>to SKB MD  | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000<br>1900<br><b>[ex]</b> 1800<br><b>[ex]</b> 1800<br>1900                           | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>npstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 4905.81<br>pumping in s<br>ase probab<br>to SKB MD   | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000<br>1900<br>[Ed 1800<br>1800<br>1900<br>1900<br>1900                               | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>mpstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 4905.81<br>pumping in s<br>hase probab<br>to SKB MD  | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000<br>1900<br>1800<br>1800<br>1700<br>1000   | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>npstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery ph<br>ponse according  | 4905.81<br>pumping in s<br>ase probab<br>to SKB MD   | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000<br>1900<br>1800<br>1700<br>1700   | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>npstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 4905.81<br>pumping in s<br>hase probab<br>to SKB MD  | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000<br>1900<br>1800<br>1800<br>1000<br>1600   | lew t: Pur               | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>mpstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery ph<br>ponse according t  | 4905.81<br>pumping in s<br>hase probabi<br>to SKB MD | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000<br>1900<br>1800<br>1800<br>1800<br>1500   | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>npstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 4905.81<br>pumping in s<br>hase probabi<br>to SKB MD | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000<br>1900<br>[type]<br>1800<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900 | lew t: Pur               | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>mpstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 4905.81<br>pumping in s<br>hase probab<br>to SKB MD  | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000<br>1900<br>1800<br>1800<br>1800<br>1100<br>1400                                   | lew t: Pur               | (s <sub>p</sub> /Q <sub>p</sub> )*Ir<br>no clear r<br>response<br>** no resp<br>npstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according to  | 4905.81<br>pumping in s<br>hase probab<br>to SKB MD  | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**     | * see comment    |
| Index 2 M<br>Commen<br>2000<br>1900<br>Ison<br>1000<br>1000<br>1100<br>1400<br>1300                           | lew t: Pur               | (s <sub>p</sub> /Q <sub>p</sub> )*Ir  | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according to  | 4905.81<br>pumping in s<br>hase probabi<br>to SKB MD | source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0             | Medium**     | * see comment    |
| Index 2 N<br>Commen<br>2000<br>1900<br>1800<br>1800<br>1800<br>1500<br>1400<br>18.1                           | lew<br>t:<br>Pur         | (s <sub>p</sub> /Q <sub>p</sub> )*lr<br>no clear r<br>response<br>** no resp<br>npstart   | h(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery ph<br>ponse according to<br>and recovery ph<br>ponse according to<br>an according to<br>an according to<br>an according to<br>an according to<br>according to<br>accordi | 4905.81 pumping in states probabilito SKB MD         | Source<br>ly influenced by<br>330.003 (s <sub>p</sub> < 0             | Medium**     | * see comment    |

| Activitypla                                      | an No.                    | AP   | PS 400-07-72   |            |               |                        |                              |                  |
|--|---------------------------|--|--|------------|---------------|------------------------|------------------------------|------------------|
| Pumping  | Hole:                     |  | KLX27A   |            | Pumping       | Section                | [m bToC]:                    | 210.00-247.00    |
| Test Start                                       | :                         | 10.1   | 0.2007 00:00   |            | Test Stop:    |                        |                              | 23.10.2007 12:00 |
| Pump Sta   | irt:                      | 18.1   | 0.2007 19:03   |            | Pump Stop     | D:                     |                              | 21.10.2007 11:02 |
| Flow Rate  | e Q <sub>p</sub> [m³/s]:  |  | 6.60E-05   |            |               |                        |                              |                  |
| Pressure   | data                      |  |  |            | Nomencla      | ature                  | Unit                         | Value            |
| Pressure i                                       | in test section           | before sta   | rt of flowing:   |            |               | pi                     | kPa                          | 1847             |
| Pressure in test section before stop of flowing: |                           |  |  |            |               | $p_p$                  | kPa                          | 1409             |
| Maximum pressure change during flowing period:   |                           |  |  |            |               | $dp_p$                 | kPa                          | 438              |
| Observat   | ion Hole:                 |  | HLX37  |            | Section no    | o.:                    |                              | HLX37_4          |
| Distance r                                       | r <sub>s</sub> [m]:       |  | 617.00   |            | Section ler   | ngth:                  |                              | 0.00-93.00       |
| Response   | time dt <sub>L</sub> [s]: |  | #NV  |            | max. Draw     | down s <sub>p</sub>    | [m]:*                        | 0.05             |
| Pressure   | data                      |  |  |            | Nomencla      | ature                  | Unit                         | Value            |
| Pressure i                                       | in test section           | before sta   | rt of flowing:   |            |               | pi                     | kPa                          | 145.3            |
| Pressure i                                       | in test section           | before sto   | p of flowing:  |            |               | pp                     | kPa                          | 144.8            |
| Maximum  | pressure char             | nae durina   | flowing period:*   |            |               | dp                     | kPa                          | 0.5              |
|  |                           | <u> </u>   |  |            |               | 14                     |                              |                  |
| Normalize  | ed distance wit           | h respect t<br>r <sub>s</sub> ²/dt <sub>L</sub> [m | to the response t<br><sup>2</sup> /s]:   | ime<br>#NV |               |                        |                              |                  |
|  |                           |  | -  |            |               |                        |                              |                  |
| Normalize  | ed drawdown w             | vith respec  | t to pumping flow  | v rate     |               |                        |                              |                  |
| Index 2  |                           | s <sub>p</sub> /Q <sub>p</sub> [s/r                | n²]:   | 772.25     |               | Lo                     | W**                          |                  |
| Index 2 N  | lew                       | (s <sub>p</sub> /Q <sub>p</sub> )*In               | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:   | 4961.60    |               | Ме                     | dium**                       | *                |
| Comment  |                           | no clear r   | esponse due to r   | oumping in | SOURCE        |                        |                              | see comment      |
| Common   | •                         | response   | and recovery ph  | ase proba  | bly influence | ed by oth              | er effects                   |                  |
|  |                           | no resp  | onse according   | to SKB ML  | 0 330.003 (8  | s <sub>p</sub> < 0.1 n | n)                           |                  |
| 2000 -   | Pun                       | npstart  |  |            | Pump          | stop                   |                              | <u>1</u> 147     |
|  |                           | i  |  |            |               | i                      |                              |                  |
| 1900 -   |                           |  |  |            |               |                        |                              |                  |
| 1000   |                           | 1<br>  |  |            |               | 1                      |                              |                  |
|  |                           |  |  |            |               |                        |                              | + 146 <b>[5</b>  |
| - <sup>1800</sup> -                              |                           |  |  |            |               | <b>F</b>               |                              |                  |
|  |                           |  |  |            |               |                        |                              | well             |
| <b>8</b> 1700 -                                  | -                         | and the second second                              |  |            |               |                        |                              | tion             |
| ctive  |                           |  | and the second |            |               |                        |                              | - 145            |
| ح<br>ب 1600 -                                    |                           |  |  |            |               | And Artic              |                              | Obse             |
| Inss   |                           | 1 1  |  |            |               |                        |                              | lie              |
| <b>e</b><br>1500 -                               |                           |  |  |            |               |                        |                              | Isse             |
| 1500 -   |                           |  |  |            |               |                        |                              | - 144 <b>E</b>   |
|  |                           |  |  |            |               |                        |                              |                  |
|  |                           |  | the second se  |            |               | _                      |                              |                  |
| 1400 -   |                           | I  |  |            |               |                        | KLX27A                       |                  |
| 1400 -   |                           |  |  |            |               | 1                      | KLX27A<br>HLX37_4            |                  |
| 1400 -<br>1300 -                                 | 2007                      | 10.10.2007   | 20 40 2007   |            | 21 10 2007    | <br> <br> <br>         | KLX27A<br>HLX37_4            | 143              |
| 1400 -<br>1300 -<br>18.10                        | 0.2007                    | 19.10.2007   | 20.10.2007   | Date       | 21.10.2007    | <br> <br> <br> <br>22. | KLX27A<br>HLX37_4<br>10.2007 | 143 23.10.2007   |

| Activityplan No.                              | AP PS 400-07-72   |                    |                   |                 |
|---|---|--------------------|-------------------|-----------------|
| Pumping Hole:                                 | KLX27A  | Pumping Section    | [m bToC]:         | 210.00-247.00   |
| Test Start:                                   | 10.10.2007 00:00  | Test Stop:         | 2                 | 3.10.2007 12:00 |
| Pump Start:                                   | 18.10.2007 19:03  | Pump Stop:         | 2                 | 1.10.2007 11:02 |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | 6.60E-05  |                    |                   |                 |
| Pressure data                                 |   | Nomenclature       | Unit              | Value           |
| Pressure in test section                      | before start of flowing:  | p <sub>i</sub>     | kPa               | 1847            |
| Pressure in test section                      | before stop of flowing:   | pp                 | kPa               | 1409            |
| Maximum pressure char                         | nge during flowing period:  | dpp                | kPa               | 438             |
| Observation Hole:                             | HLX38   | Section no.:       |                   | HLX38_1         |
| Distance r. [m]:                              | 488.00  | Section length:    |                   | 0 00-199 50     |
| Response time dt <sub>1</sub> [s]:            | +00.00<br>#NV   | max. Drawdown s.   | [m]:*             | #NV             |
| Pressure data                                 |   | Nomenclature       | Unit              | Value           |
| Pressure in test section                      | before start of flowing.  | D.                 | kPa               | 52 3            |
| Pressure in test section                      | before stop of flowing.   | ri<br>n            | kDo               | 52.5            |
| Maximum procesure cher                        | nge during flowing pariod:*   | Чр<br>dn           | кга<br>kDo        | 02.0            |
| maximum pressure cha                          | nge during nowing period:"  | uþ <sub>p</sub>    | кра               | 0.3             |
| Normalized distance wit                       | h respect to the response time $\frac{2}{10}$   | 41NN /             |                   |                 |
| Index 1                                       | r <sub>s</sub> -/dt <sub>L</sub> [m-/s]:  | #NV                |                   |                 |
| Normalized drawdown v                         | vith respect to pumping flow ra   | te                 |                   |                 |
| Index 2                                       | s <sub>n</sub> /Q <sub>n</sub> [s/m <sup>2</sup> ]:   | #NV                |                   |                 |
|   |   |                    |                   |                 |
| Index 2 New                                   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV                | -                 |                 |
| Commont:                                      | no rochonco duo to numeiro i  |                    | *                 | see comment     |
|   | no response que lo pumping i  |                    |                   |                 |
|   |   |                    |                   |                 |
| Pur   | npstart   | Pumpstop           |                   |                 |
| 2000  |   |                    |                   | 53              |
|   | 1   | I                  |                   |                 |
| 1900 -  |   |                    |                   | —               |
|   |   |                    |                   |                 |
| رم <sup>1800</sup>                            |   |                    |                   | kPa             |
|   | A second s |                    | · 👬               | vell            |
| 1700  |   | 1 mars             |                   | v v             |
| tive  |   | e 🕆 🍋 👌            |                   |                 |
| <b>A</b> 1600                                 | Ladin Andrea  |                    | 1 <sup>6</sup> ** | pser            |
|   | # •   |                    |                   | 0<br>9          |
| Pres  |   |                    |                   | s               |
| - 1500  |   |                    |                   | Pre             |
|   |   |                    |                   |                 |
| 1400 -  |   |                    | KLX27A            |                 |
|   | 1   |                    |                   |                 |
| 1300  | 19 10 2007 20 10 2007   | 21 10 2007 22      | 10 2007           |                 |
| 10.10.2007                                    | 10.10.2007 20.10.2007   | Date 21.10.2007 22 | .10.2001          | 20.10.2007      |
|   |   |                    |                   |                 |
|   |   |                    |                   |                 |

| Activitypla                                  | an No.                            | AP PS 400-07-72   |                    |                  |                      |                     |
|--|-----------------------------------|---|--------------------|------------------|----------------------|---------------------|
| Pumping                                      | Hole:                             | KLX27A  |                    | Pumping Section  | [m bToC]:            | 210.00-247.00       |
| Test Start                                   | t:                                | 10.10.2007 00:00  |                    | Test Stop:       |                      | 23.10.2007 12:00    |
| Pump Sta                                     | art:                              | 18.10.2007 19:03  |                    | Pump Stop:       |                      | 21.10.2007 11:02    |
| Flow Rate                                    | e Q <sub>p</sub> [m³/s]:          | 6.60E-05  |                    |                  |                      |                     |
| Pressure                                     | data                              |   |                    | Nomenclature     | Unit                 | Value               |
| Pressure                                     | in test section                   | before start of flowing:  |                    | pi               | kPa                  | 1847                |
| Pressure                                     | in test section                   | before stop of flowing:   |                    | pp               | kPa                  | 1409                |
| Maximum                                      | n pressure cha                    | nge during flowing period:  |                    | dpp              | kPa                  | 438                 |
| Observat                                     | ion Hole:                         | HLX42   |                    | Section no.:     |                      | HLX42_1             |
| Distance                                     | r. [m]:                           | 1071.00   |                    | Section length:  |                      | 30.00-152.60        |
| Response                                     | e time dt <sub>L</sub> [s]:       | #NV   |                    | max. Drawdown s  | , [m]:*              | #NV                 |
| Pressure                                     | data                              |   |                    | Nomenclature     | Unit                 | Value               |
| Pressure                                     | in test section                   | before start of flowing:  |                    | Di               | kPa                  | 92.0                |
| Pressure                                     | in test section                   | before stop of flowing:   |                    | D <sub>n</sub>   | kPa                  | 91.5                |
| Maximum                                      | nressure cha                      | nae during flowing period.*   |                    | dp-              | kPa                  | 0.5                 |
| Maximum                                      |                                   | nge during nowing period.   |                    | σ <del>P</del> p | Ki u                 | 0.0                 |
| Normalize<br>Index 1                         | ed distance wit                   | h respect to the response tir<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:   | me<br><b>#NV</b>   |                  |                      |                     |
| Normalize<br>Index 2<br>Index 2 N<br>Comment | ed drawdown v<br><b>lew</b><br>t: | vith respect to pumping flow<br><b>s</b> <sub>p</sub> /Q <sub>p</sub> [ <b>s</b> /m <sup>2</sup> ]:<br>( <b>s</b> <sub>p</sub> /Q <sub>p</sub> )*In( <b>r</b> <sub>s</sub> / <b>r</b> <sub>0</sub> ) [ <b>s</b> /m <sup>2</sup> ]:<br>no response due to pumpin | rate<br>#NV<br>#NV | се               |                      | * see comment       |
|  | Pur                               | npstart   |                    | Pumpstop         |                      |                     |
| 2000   |                                   | 1   |                    |                  |                      | 93                  |
|  |                                   | i<br>I  |                    | İ                |                      |                     |
| 1900   |                                   | <br>  |                    | <br>             |                      |                     |
|  | 1                                 |   |                    | i                |                      | a                   |
| <b>E</b> 1800                                |                                   |   |                    |                  |                      |                     |
| II [ki                                       |                                   |   |                    |                  |                      | × s² lla            |
| <b>9</b> 1700                                |                                   |   | ~                  |                  |                      | tion                |
| ctive  |                                   |   |                    |                  |                      | ervat               |
| <b>e</b> 1600                                |                                   |   |                    | ~                |                      | Obse                |
| nsse   |                                   |   |                    |                  |                      |                     |
| <b>e</b><br>1500                             |                                   |   |                    |                  |                      | essi <sup>191</sup> |
|  |                                   |   |                    | 1                |                      | 2                   |
| 1100   | ]                                 | 1   |                    |                  |                      |                     |
| 1400   |                                   | <br> <br>   |                    |                  | ← KLX27A<br>← HLX42_ | 1                   |
| 1300   | ļ                                 | <br>  |                    |                  |                      | 90                  |
| 18.10  | 0.2007                            | 19.10.2007 20.10.2007   | Date               | 21.10.2007 2     | 2.10.2007            | 23.10.2007          |
|  |                                   |   |                    |                  |                      |                     |

| Activitypla     | an No.                      | AP                                   | PS 400-07-72                               |          |             |                     |           |                   |
|-----------------|-----------------------------|--------------------------------------|--|----------|-------------|---------------------|-----------|-------------------|
| Pumping         | Hole:                       |                                      | KLX27A                                     |          | Pumping \$  | Section             | [m bToC]: | 210.00-247.00     |
| Test Start      | ::                          | 10.1                                 | 10.2007 00:00                              |          | Test Stop:  |                     |           | 23.10.2007 12:00  |
| Pump Sta        | art:                        | 18.1                                 | 10.2007 19:03                              |          | Pump Stop   | ):                  |           | 21.10.2007 11:02  |
| Flow Rate       | e Q <sub>p</sub> [m³/s]:    |                                      | 6.60E-05                                   |          |             |                     |           |                   |
| Pressure        | data                        |                                      |  |          | Nomencla    | iture               | Unit      | Value             |
| Pressure        | in test section             | before sta                           | rt of flowing:                             |          |             | pi                  | kPa       | 1847              |
| Pressure        | in test section             | before sto                           | p of flowing:                              |          |             | $p_p$               | kPa       | 1409              |
| Maximum         | n pressure cha              | inge during                          | flowing period:                            |          |             | $dp_{p}$            | kPa       | 438               |
| Observat        | ion Hole:                   |                                      | HLX42                                      |          | Section no  | <b>)</b> .:         |           | HLX42_2           |
| Distance        | r, [m]:                     |                                      | 1127.00                                    |          | Section ler | ath:                |           | 0.00-29.00        |
| Response        | e time dt <sub>L</sub> [s]: |                                      | #NV  |          | max. Draw   | down s <sub>p</sub> | [m]:*     | #NV               |
| Pressure        | data                        |                                      |  |          | Nomencla    | iture               | Unit      | Value             |
| Pressure        | in test section             | before sta                           | rt of flowing:                             |          |             | p <sub>i</sub>      | kPa       | 114.6             |
| Pressure        | in test section             | before sto                           | p of flowing:                              |          |             | D <sub>n</sub>      | kPa       | 114.4             |
| Maximum         | pressure cha                | nae durina                           | flowing period.*                           |          |             | dp <sub>n</sub>     | kPa       | 0.2               |
|                 |                             |                                      |  |          |             | ·ιρ                 |           |                   |
| Normalize       | ed distance wi              | th respect                           | to the response time                       | e<br>#NV |             |                     |           |                   |
| IIIGEA I        |                             | ι <sub>s</sub> /αι_ μι               | · /5].                                     |          |             |                     |           |                   |
| Normalize       | ed drawdown v               | with respec                          | t to pumping flow ra                       | ate      |             |                     |           |                   |
| Index 2         |                             | s <sub>p</sub> /Q <sub>p</sub> [s/ı  | m²]:                                       | #NV      |             |                     |           |                   |
| Index 2 N       | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*Ir | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m²]: | #NV      |             |                     |           | * see comment     |
| Comment         | :                           | no respor                            | nse due to pumping                         | in sour  | се          |                     |           |                   |
|                 |                             |                                      |  |          |             |                     |           |                   |
|                 | Pu                          | mpstart                              |  |          | Pump        | stop                |           |                   |
| 2000            |                             | ſ                                    |  |          |             |                     |           | 117               |
|                 |                             | I                                    |  |          |             | l                   |           |                   |
| 1900            |                             | 1                                    |  |          |             | l<br>•              |           |                   |
|                 |                             |                                      |  |          |             | 1                   |           | 116 -             |
| <sup>1800</sup> |                             | 1                                    |  |          |             |                     |           |                   |
| [kb             |                             |                                      |  |          |             |                     |           | /ell [            |
| <b>17</b> 00    |                             |                                      |  |          |             | <u> </u>            |           | v                 |
| tive            |                             |                                      |  |          |             |                     |           | - 115 <b>vati</b> |
| A CI            |                             |                                      |  |          |             |                     |           | Diser and         |
| 3000 IS         |                             | ware in the                          |  |          |             |                     |           | e Ot              |
| res             |                             |                                      |  | -        |             | -                   |           |                   |
| <b>L</b> 1500   |                             |                                      |  |          |             |                     |           | - 114 <b>Š</b>    |
|                 |                             | 1                                    |  |          |             |                     |           |                   |
| 1400            |                             |                                      |  |          |             |                     |           |                   |
|                 |                             | I                                    |  |          |             | l                   |           |                   |
| 1300            |                             | l<br>                                |  |          | 1           | <br>                |           | 113               |
| 18.1            | 0.2007                      | 19.10.2007                           | 20.10.2007                                 | Date     | 21.10.2007  | 22                  | 2.10.2007 | 23.10.2007        |
|                 |                             |                                      |  | Duit     |             |                     |           |                   |
|                 |                             |                                      |  |          |             |                     |           |                   |

| Activityplan No.                              | AP PS 400-07-72   |   |                 |                       |                  |
|---|---|---|-----------------|-----------------------|------------------|
| Pumping Hole:                                 | KLX27A  |   | Pumping Section | on [m bToC]:          | 210.00-247.00    |
| Test Start:                                   | 10.10.2007 00:00  |   | Test Stop:      |                       | 23.10.2007 12:00 |
| Pump Start:                                   | 18.10.2007 19:03  |   | Pump Stop:      |                       | 21.10.2007 11:02 |
| Flow Rate Q <sub>p</sub> [m <sup>°</sup> /s]: | 6.60E-05  |   |                 |                       |                  |
| Pressure data                                 |   |   | Nomenclature    | Unit                  | Value            |
| Pressure in test section be                   | efore start of flowing:   |   | pi              | kPa                   | 1847             |
| Pressure in test section be                   | efore stop of flowing:  |   | pp              | kPa                   | 1409             |
| Maximum pressure chang                        | ge during flowing period:   |   | dpp             | kPa                   | 438              |
| Observation Hole:                             | KLX11A  |   | Section no.:    |                       | KLX11A_1         |
| Distance r <sub>s</sub> [m]:                  | 891.00  |   | Section length: |                       | 703.00-992.00    |
| Response time dt <sub>l</sub> [s]:            | #NV   |   | max. Drawdown   | s <sub>p</sub> [m]:*  | #NV              |
| Pressure data                                 |   |   | Nomenclature    | Unit                  | Value            |
| Pressure in test section be                   | efore start of flowing:   |   | Di              | kPa                   | 136.3            |
| Pressure in test section b                    | efore stop of flowing:  |   | n               | kPa                   | 134 0            |
| Maximum pressure chance                       | ne during flowing period.*  |   | dp-             | ki a<br>kPa           | 1 4              |
|   | je during nowing period.  |   | ΦΡρ             |                       | 1.7              |
| Normalized distance with                      | respect to the response t   | ime<br>#NV  |                 |                       |                  |
|   | <sub>s</sub> /ut[ [iii /3].   | <i>#</i> 1 <b>\\</b>  |                 |                       |                  |
| Normalized drawdown wit                       | h respect to pumping flov<br>sp/Qp [s/m²]:  | v rate<br><b>#NV</b>  |                 |                       |                  |
| Index 2 New (                                 | s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV   |                 |                       | *                |
| Comment: n                                    | no response due to pumpi  | na in sour  | ce              |                       | see comment      |
|   |   |   |                 |                       |                  |
| Dump  | atat  |   | Dumpeten        |                       |                  |
| 2000 Pump                                     | start   |   |                 |                       | 138              |
|   |   |   |                 |                       |                  |
| 1900 -  |   |   | i               |                       |                  |
|   |   |   |                 |                       | - 137            |
| تو <sup>1800</sup>                            |   |   |                 |                       | [kPa             |
|   |   |   |                 |                       | well             |
| <b>b</b> 1700                                 |   |   |                 |                       |                  |
| ctive   |   | - And | the state       |                       | erva             |
| <b>₹</b><br><b>9</b> 1600 -                   |   |   |                 | the second second     | 135 <b>SqO</b>   |
| nsse  |   |   |                 |                       | nre              |
| <b>4</b> 1500                                 |   |   |                 |                       | Less             |
|   |   |   |                 |                       | <b>Ē</b><br>134  |
| 1400 -  | and the second second   |   |                 |                       |                  |
|   |   |   |                 | ← KLX27A<br>← KLX11A_ | 1                |
| 1300  | 9 10 2007 20 10 2007  |   | 21 10 2007      | 22 10 2007            | 133              |
| 10.10.2007                                    | 20.10.2007 20.10.2007   | Date  | 21.10.2001      | 22.10.2001            | 23.10.2007       |
|   |   |   |                 |                       |                  |

| Activitypla                                  | an No.                                | AP P   | S 400-07-72  |                      |                      |                    |                  |
|--|---------------------------------------|--|--|----------------------|----------------------|--------------------|------------------|
| Pumping                                      | Hole:                                 |  | KLX27A   |                      | Pumping Section      | n [m bToC]:        | 210.00-247.00    |
| Test Star                                    | t:                                    | 10.10  | 0.2007 00:00   |                      | Test Stop:           |                    | 23.10.2007 12:00 |
| Pump Sta                                     | art:                                  | 18.10  | 0.2007 19:03   |                      | Pump Stop:           |                    | 21.10.2007 11:02 |
| Flow Rate                                    | e Q <sub>p</sub> [m <sup>3</sup> /s]: |  | 6.60E-05   |                      |                      |                    |                  |
| Pressure                                     | data                                  |  |  |                      | Nomenclature         | Unit               | Value            |
| Pressure                                     | in test section                       | before start   | of flowing:  |                      | p <sub>i</sub>       | kPa                | 1847             |
| Pressure                                     | in test section                       | before stop  | of flowing:  |                      | p <sub>p</sub>       | kPa                | 1409             |
| Maximum                                      | n pressure cha                        | nge during f   | lowing period:   |                      | dpp                  | kPa                | 438              |
| Observat                                     | Observation Hole: KLX11A              |  |  |                      | Section no.:         |                    | KLX11A_2         |
| Distance                                     | r, [m]:                               |  | 741.00   |                      | Section length       |                    | 587.00-702.00    |
| Response                                     | e time dt <sub>L</sub> [s]:           |  | #NV  |                      | max. Drawdown s      | <sub>p</sub> [m]:* | #NV              |
| Pressure                                     | data                                  |  |  |                      | Nomenclature         | Unit               | Value            |
| Pressure                                     | in test section                       | before start   | of flowina:  |                      | Di                   | kPa                | 137.0            |
| Pressure                                     | in test section                       | before stop  | of flowing.  |                      | n.                   | kPa                | 135.7            |
| Movimum                                      |                                       | nan during f   | lowing partadis  |                      | Чр<br>dra            | NF d               |                  |
| Iviaximum                                    | i pressure cha                        | inge during f  | iowing period:*  |                      | ap <sub>p</sub>      | кРа                | 1.3              |
| Normalize<br>Index 2<br>Index 2 N<br>Comment | ed drawdown v<br><b>lew</b><br>t:     | with respect<br>s <sub>p</sub> /Q <sub>p</sub> [s/m<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(<br>no respons | to pumping flow<br><sup>2</sup> ]:<br>r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>e due to pumpir | r rate<br>#NV<br>#NV | ce                   |                    | * see comment    |
|  | Pu                                    | mpstart  |  |                      | Pumpstop             |                    |                  |
| 2000   |                                       | l<br>I   |  |                      | 1                    |                    | 138              |
|  |                                       |  |  |                      | I                    |                    |                  |
| 1900   |                                       | - <del> </del><br>   |  |                      |                      |                    | 137              |
|  | South 1                               |  | t  |                      |                      |                    |                  |
| <sup>1800</sup> م                            | +                                     |  |  |                      |                      |                    | [kb_             |
| [kP  |                                       | The Last   |  |                      |                      |                    |                  |
| <b>1700</b>                                  |                                       | •••  |  |                      | maria 12             |                    |                  |
| <u>Š</u>                                     |                                       |  |  |                      |                      | Y 🔨 🖊              | atic             |
| Acti   |                                       |  | [  |                      | -                    | <b>M</b>           | serv             |
| <b>e</b> 1600                                | 1                                     |  | † <b>1</b>   |                      |                      |                    | 135 <b>9</b>     |
| essi   |                                       |  | 1  |                      |                      |                    | iure             |
| <b>د</b> 1500                                |                                       | ┥ ┃  | <u>                                     </u>   |                      |                      |                    | Less             |
|  |                                       |  |  |                      |                      |                    | Ē                |
|  |                                       | Kunnen   |  |                      | Lange and the second |                    | + 134            |
| 1400   |                                       |  |  |                      |                      | KLX27A             | 2                |
| 1300   | 0.2007                                | 10.10.0007   | 00.40.0007   |                      | 21 10 2007           |                    | 133              |
| 18.1   | 0.2007                                | 19.10.2007   | 20.10.2007   | Date                 | 21.10.2007           | 22.1U.2UU <i>1</i> | 23.10.2007       |
|  |                                       |  |  |                      |                      |                    |                  |
|  |                                       |  |  |                      |                      |                    |                  |

| Activityplan   | No.  | AP P   | S 400-07-72  |                             |                 |                        |                   |
|--|--|--|--|-----------------------------|-----------------|------------------------|-------------------|
| Pumping H  | ole:   |  | KLX27A   |                             | Pumping Sect    | ion [m bToC]:          | 210.00-247.00     |
| Test Start:  |  | 10.10  | 0.2007 00:00   |                             | Test Stop:      |                        | 23.10.2007 12:00  |
| Pump Start:  | 0  | 18.10  | 0.2007 19:03   |                             | Pump Stop:      |                        | 21.10.2007 11:02  |
| Flow Rate Q  | ף [m³/s]:  |  | 6.60E-05   |                             |                 |                        |                   |
| Pressure da  | ata  |  |  |                             | Nomenclature    | Unit                   | Value             |
| Pressure in t  | test section   | before star  | t of flowing:  |                             | р               | i kPa                  | a 1847            |
| Pressure in t  | test section   | before stop  | of flowing:  |                             | p               | b kPa                  | a 1409            |
| Maximum pressure change during flowing period: dp <sub>p</sub> kPa |  |  |  |                             |                 | a 438                  |                   |
| Observation  | n Hole:  |  | KLX11A   |                             | Section no.:    |                        | KLX11A_3          |
| Distance r. [  | ml:  |  | 724.00   |                             | Section length: |                        | 573.00-586.00     |
| Response tir   | me dt <sub>l</sub> [s]:  |  | #NV  |                             | max. Drawdowr   | ո s <sub>p</sub> [m]:* | #NV               |
| Pressure da  | ata  |  |  |                             | Nomenclature    | Unit                   | Value             |
| Pressure in t  | test section   | before star  | t of flowing:  |                             | a               | kPa                    | 1367              |
| Pressure in t  | test section   | before ston  | of flowing:  |                             | P<br>D          | k Pa                   | 135.3             |
| Movimum pr   |  | ngo during t   | flowing pariod:*   |                             | dn              |                        |                   |
|  |  | nge dunng i  | nowing period.   |                             | αþ              |                        | a 1.4             |
| Index 1<br>Normalized o<br>Index 2<br>Index 2 New<br>Comment:      | drawdown v<br><b>v</b>   | r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup><br>vith respect<br>s <sub>p</sub> /Q <sub>p</sub> [s/m<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(<br>no respons | /s]:<br>to pumping flor<br>(²]:<br>(r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:<br>se due to pump | #NV<br>w rate<br>#NV<br>#NV | ce              |                        | * see comment     |
| 2000   | Pur  | npstart  |  |                             | Pumpstop        |                        | - 128             |
| 2000   |  | 1  |  |                             | 1               |                        | 130               |
| 1000 -   |  | 1  |  |                             | l               |                        |                   |
| 1900   |  | 1  |  | ţ                           | l I             |                        | + 137             |
|  | and the second sec |  | •  |                             |                 |                        | J J               |
| हू <sup>1800</sup>   | when '   | <b>X</b>   | +  |                             |                 |                        | [k                |
| EXE  |  |  |  |                             |                 |                        | vell              |
| <b>1700</b>  |  |  |  | 1                           |                 | •                      | - 136 <b>C</b>    |
| tive   |  |  |  | and a second                | man /           |                        | vati              |
| <b>Y</b> 1600  |  |  |  | an a                        |                 |                        | oser              |
|  |  |  |  |                             | ~               | and a                  | 135 <b>O</b><br>9 |
| res  |  | 1 1  |  |                             |                 |                        | sur               |
| <b>L</b> 1500  |  |  |  |                             |                 |                        | Pres              |
|  |  | <u>(</u>   |  |                             |                 |                        | - 134             |
| 1400   |  | Kannan   | Mangel Mangel Martin   |                             |                 | r                      |                   |
|  |  | i I  |  |                             | i<br>I          | KLX27A                 | _3                |
| 1300   |  |  | · · · · · ·  |                             |                 | ·                      | 133               |
| 18.10.200  | )7   | 19.10.2007   | 20.10.2007   | Data                        | 21.10.2007      | 22.10.2007             | 23.10.2007        |
|  |  |  |  | Date                        |                 |                        |                   |
|  |  |  |  |                             |                 |                        |                   |

| Activityplan No.  | AP PS 400-07-72  |                      |               |                      |                  |                  |
|---|--|----------------------|---------------|----------------------|------------------|------------------|
| Pumping Hole:   | KLX27A   |                      | Pumping Se    | ction [m             | bToC]:           | 210.00-247.00    |
| Test Start:   | 10.10.2007 00:00   |                      | Test Stop:    |                      |                  | 23.10.2007 12:00 |
| Pump Start:   | 18.10.2007 19:03   |                      | Pump Stop:    |                      |                  | 21.10.2007 11:02 |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:                                       | 6.60E-05   |                      |               |                      |                  |                  |
| Pressure data   |  |                      | Nomenclatu    | ire                  | Unit             | Value            |
| Pressure in test section be   | fore start of flowing:   |                      |               | p <sub>i</sub>       | kPa              | 1847             |
| Pressure in test section be   | fore stop of flowing:  |                      |               | $p_p$                | kPa              | 1409             |
| Maximum pressure change   | e during flowing period:   |                      | (             | dpp                  | kPa              | 438              |
| Observation Hole:   | KLX11A   |                      | Section no.:  |                      |                  | KLX11A_4         |
| Distance r <sub>s</sub> [m]:  | 706.00   |                      | Section lenat | h:                   |                  | 495.00-572.00    |
| Response time dt <sub>l</sub> [s]:  | #NV  |                      | max. Drawdo   | wn s <sub>n</sub> [m | ]:*              | #NV              |
| Pressure data   |  |                      | Nomenclatu    | ire                  | Unit             | Value            |
| Pressure in test section be   | fore start of flowing:   |                      |               | Di                   | kPa              | 136.0            |
| Pressure in test section be   | fore stop of flowing.  |                      |               | D <sub>n</sub>       | kPa              | 134 7            |
| Maximum pressure change   | during flowing period.*  |                      | (             | rp<br>dn             | k Pa             | 13               |
|   | e during nowing period.  |                      |               | μp                   | KF a             | 1.5              |
| Normalized distance with r  | espect to the response t<br><sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:   | ime<br><b>#NV</b>    |               |                      |                  |                  |
| Normalized drawdown with<br>Index 2 s <sub>p</sub><br>Index 2 New (s<br>Comment: no | respect to pumping flov<br>/Q <sub>p</sub> [s/m <sup>2</sup> ]:<br><sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | w rate<br>#NV<br>#NV | ce            |                      |                  | * see comment    |
|   |  |                      | Dunnala       |                      |                  |                  |
| 2000 Pumpsi   | tart   |                      | Pumpsto       | p                    |                  | 138              |
|   |  |                      |               |                      |                  |                  |
| 1900 -  |  |                      | I             |                      |                  |                  |
|   |  |                      | !             |                      |                  | - 137            |
| 1800  |  |                      |               |                      |                  | Paj              |
| K baj   |  |                      |               |                      |                  |                  |
|   |  |                      |               |                      |                  |                  |
| ≥ 1700<br>2   | <u>x</u>   |                      |               |                      |                  | ation            |
| Activ   | The former   |                      |               |                      |                  | erva             |
| <b>9</b> 1600 -   | - Regelt - March   |                      | Mer Ale       |                      | •                | sq<br>135 O      |
| ISSE  |  |                      |               |                      | ris j            | nre              |
| L 1500  |  |                      | <b>`</b>      |                      | <u> </u>         | Less             |
|   |  |                      |               |                      |                  | <b>Ē</b>         |
| 1400 -  | and the second second  |                      |               |                      |                  | - 134            |
|   |  |                      |               |                      | KLX27A<br>KLX11A | 4                |
| 1300 - 18.10.2007 19.   |  |                      | •             |                      |                  | 100              |
| 1   | 10.2007 20.10.2007   |                      | 21.10.2007    | 22.10.2              | 007              | 23.10.2007       |
|   | 10.2007 20.10.2007   | Date                 | 21.10.2007    | 22.10.2              | 007              | 23.10.2007       |

| Activitypla                                      | an No.                   | AP F  | PS 400-07-72                              |                      |             |                   |           |                  |
|--|--------------------------|---|---|----------------------|-------------|-------------------|-----------|------------------|
| Pumping  | Hole:                    |   | KLX27A                                    |                      | Pumping     | Section           | [m bToC]: | 210.00-247.00    |
| Test Start                                       | :                        | 10.1  | 0.2007 00:00                              |                      | Test Stop:  |                   |           | 23.10.2007 12:00 |
| Pump Sta   | art:                     | 18.1  | 0.2007 19:03                              |                      | Pump Stop   | <b>)</b> :        |           | 21.10.2007 11:02 |
| Flow Rate  | e Q <sub>p</sub> [m³/s]: |   | 6.60E-05                                  |                      |             |                   |           |                  |
| Pressure   | data                     |   |   |                      | Nomencla    | ature             | Unit      | Value            |
| Pressure   | in test section          | before star   | t of flowing:                             |                      |             | pi                | kPa       | 1847             |
| Pressure in test section before stop of flowing: |                          |   |   |                      |             | $p_p$             | kPa       | 1409             |
| Maximum pressure change during flowing period:   |                          |   |   |                      |             | $dp_{p}$          | kPa       | 438              |
| Observat   | ion Hole:                |   | KLX11A                                    |                      | Section no  | o.:               |           | KLX11A_5         |
| Distance   | r. [m]:                  |   | 681.00                                    |                      | Section ler | nath.             |           | 315 00-494 00    |
| Response   | time dt [s]:             |   | #NV                                       |                      | max. Draw   | down s.           | [m]:*     | #NV              |
| Pressure   | data                     |   |   |                      | Nomencla    | eturo             | Unit      | Value            |
| D  |                          | h a fama a fam                                      | ( . ( ()                                  |                      | Nomencia    | ature             | Unit      | Value            |
| Pressure   | in test section          | before star   | T OF FIOWING:                             |                      |             | p <sub>i</sub>    | kPa       | 134.6            |
| Pressure   | in test section          | perore stop   | o of flowing:                             |                      |             | p <sub>p</sub>    | kPa       | 133.4            |
| Maximum  | pressure cha             | nge during  | flowing period:*                          |                      |             | dpp               | kPa       | 1.2              |
| Normalize  | ed distance wi           | th respect t  | o the response                            | time<br>#NV          |             |                   |           |                  |
| IIIUEX I   |                          | r <sub>s</sub> /ut_ [m                              | /5].                                      | #IN V                |             |                   |           |                  |
| Normalize<br>Index 2                             | ed drawdown v            | with respect<br>s <sub>p</sub> /Q <sub>p</sub> [s/n | t to pumping flo<br>n <sup>2</sup> ]:     | w rate<br><b>#NV</b> |             |                   |           |                  |
| Index 2 N  | lew                      | (s <sub>p</sub> /Q <sub>p</sub> )*In                | (r <sub>s</sub> /r <sub>0</sub> ) [s/m²]: | #NV                  |             |                   |           | * see comment    |
| Comment  | :                        | no respon   | se due to pump                            | ing in sour          | се          |                   |           | See comment      |
|  |                          | -   |   | -                    |             |                   |           |                  |
|  |                          |   |   |                      | Dura        | -1                |           |                  |
| 2000   | Pu                       | Inpstant  |   |                      | Pump        | stop              |           | 138              |
|  |                          |   |   |                      |             | 1                 |           |                  |
| 1900   |                          | -   |   |                      |             | 1<br><del> </del> |           | - 137            |
|  |                          |   |   |                      |             | 1                 |           |                  |
| <b>T</b> <sup>1800</sup>                         |                          | <u> </u>  |   |                      |             |                   |           |                  |
| [kPa   |                          |   |   |                      |             | 1                 |           |                  |
| <b>1</b> 700                                     |                          |   |   |                      |             |                   |           | K                |
| i ve   |                          |   |   |                      |             |                   |           | vatic            |
| Acti   |                          | - Share   |   |                      | No.         | 5                 |           |                  |
| 1600   | -                        |   |   |                      |             |                   |           |                  |
| ress   |                          |   |   |                      |             |                   |           |                  |
| <b>L</b> 1500                                    |                          |   |   |                      |             |                   |           |                  |
|  |                          |   |   |                      |             |                   |           | 132 🖬            |
| 1400   |                          | Rennenal  | Anna Anna anna                            |                      |             |                   |           | - 131            |
|  |                          | i   |   |                      |             | i                 |           | 5                |
| 1300   |                          | <br>  | 1   |                      | 1           | 1                 |           |                  |
| 18.10  | 0.2007                   | 19.10.2007  | 20.10.2007                                | Data                 | 21.10.2007  | 22                | .10.2007  | 23.10.2007       |
|  |                          |   |   | Date                 |             |                   |           |                  |
|  |                          |   |   |                      |             |                   |           |                  |

| Activitypla                 | in No.  | AP PS   | 6 400-07-72                             |                                       |             |                     |           |                            |
|-----------------------------|---|---|---|---------------------------------------|-------------|---------------------|-----------|----------------------------|
| Pumping                     | Hole:   |   | KLX27A                                  |                                       | Pumping \$  | Section             | [m bToC]: | 210.00-247.00              |
| Test Start:                 | :   | 10.10.  | 2007 00:00                              |                                       | Test Stop:  |                     |           | 23.10.2007 12:00           |
| Pump Star                   | rt:   | 18.10.  | 2007 19:03                              |                                       | Pump Stop   | ):                  |           | 21.10.2007 11:02           |
| Flow Rate                   | Q <sub>p</sub> [m <sup>3</sup> /s]:   |   | 6.60E-05                                |                                       |             |                     |           |                            |
| Pressure                    | data  |   |   |                                       | Nomencla    | iture               | Unit      | Value                      |
| Pressure in                 | n test section  | before start of                                     | of flowing:                             |                                       |             | p <sub>i</sub>      | kPa       | 1847                       |
| Pressure in                 |   |   | $p_p$                                   | kPa                                   | 1409        |                     |           |                            |
| Maximum                     | pressure cha  | nge during flo                                      | owing period:                           |                                       |             | $dp_{p}$            | kPa       | 438                        |
| Observati                   | ion Hole:   |   | KLX11A                                  |                                       | Section no  | D.:                 |           | KLX11A_6                   |
| Distance r                  | . [m]:  |   | 651.00                                  |                                       | Section ler | ath:                |           | 273.00-314.00              |
| Response                    | time dt <sub>1</sub> [s]:   |   | #NV                                     |                                       | max. Draw   | down s <sub>n</sub> | [m]:*     | #NV                        |
| Pressure                    | data  |   |   |                                       | Nomencla    | ture                | Unit      | Value                      |
| Pressure i                  | n test section  | before start o                                      | of flowing.                             |                                       |             | D;                  | kPa       | 133.9                      |
| Pressura i                  | n test section  | hefore stop   | of flowing.                             |                                       |             | Г<br>П.,            | k Da      | 132 6                      |
| Movimum                     |   |   | nowing.                                 | e e e e e e e e e e e e e e e e e e e |             | Pp<br>dp            | kPa       | 102.0                      |
| Maximum                     | pressure cha  | nge during no                                       | owing period:                           |                                       |             | up <sub>p</sub>     | кра       | 1.3                        |
| Normalize                   | d distance wit  | h respect to t                                      | the response t                          | time<br><b>#NV</b>                    |             |                     |           |                            |
| macx i                      |   |   | ,1.                                     | <i>"</i> <b>····</b>                  |             |                     |           |                            |
| Normalize                   | d drawdown v  | vith respect to                                     | o pumping flo <sup>.</sup>              | w rate                                |             |                     |           |                            |
| Index 2                     |   | s <sub>p</sub> /œ <sub>p</sub> [s/m]                | ŀ                                       | #IN V                                 |             |                     |           |                            |
| Index 2 No                  | ew  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> | ₅/r₀) [s/m²]:                           | #NV                                   |             |                     |           | * see comment              |
| Comment:                    |   | no response   | e due to pump                           | ina in sour                           | се          |                     |           | see comment                |
|                             |   |   |   | 5                                     |             |                     |           |                            |
|                             | Dur   |   |   |                                       | Dura        |                     |           |                            |
| 2000                        | Pur   | npstart   |   |                                       | Pump        | stop                |           | 136                        |
|                             |   | 1   |   |                                       |             |                     |           |                            |
| 1900 -                      |   | ļ   |   |                                       |             |                     |           | - 135                      |
|                             |   |   |   |                                       |             | 1                   |           |                            |
| ूल<br>1800 -                |   |   |   |                                       |             |                     |           | [kba                       |
| I [kb                       | A CONTRACT OF A |   |   |                                       |             |                     |           | <sup>- 134</sup> <b>II</b> |
| <b>8</b> 1700 -             |   |   |   |                                       |             |                     |           | ioi                        |
| tive                        |   | Sec. 1  |   |                                       | Section.    |                     | •         | - 133 <b>Ž</b>             |
| <b>9</b> 1600 -             |   |   | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |                                       |             |                     |           | pbse                       |
| ssur                        |   |   |   |                                       |             |                     |           |                            |
| ë<br>4 1500 -               |   |   |   |                                       |             |                     |           | - 132 <b>NSS</b>           |
| 1000                        |   | 1   |   |                                       |             |                     |           | Ĕ                          |
| 1400                        |   | human   | an Anna                                 |                                       |             |                     |           | - 131                      |
| 1400 -                      |   |   | <b>x</b>                                |                                       |             |                     | KLX27A    |                            |
|                             |   | i<br>İ  |   |                                       |             | I                   | KLX11A_   | 6                          |
| 1300 <del> </del><br>18.10. | .2007   | 19.10.2007  | 20.10.2007                              |                                       | 21.10.2007  | 22                  | 10.2007   | 4 130<br>23.10.2007        |
|                             |   |   |   | Date                                  |             |                     |           |                            |
|                             |   |   |   |                                       |             |                     |           |                            |

| Activityplan No.                              | AP PS 400-07-72  |  |                        |              |                  |
|---|--|--|------------------------|--------------|------------------|
| Pumping Hole:                                 | KLX27A   |  | <b>Pumping Section</b> | [m bToC]:    | 210.00-247.00    |
| Test Start:                                   | 10.10.2007 00:00   |  | Test Stop:             |              | 23.10.2007 12:00 |
| Pump Start:                                   | 18.10.2007 19:03   |  | Pump Stop:             |              | 21.10.2007 11:02 |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | 6.60E-05   |  |                        |              |                  |
| Pressure data                                 |  |  | Nomenclature           | Unit         | Value            |
| Pressure in test section be                   | efore start of flowing:  |  | pi                     | kPa          | 1847             |
| Pressure in test section be                   | efore stop of flowing:   |  | pp                     | kPa          | 1409             |
| Maximum pressure chang                        | e during flowing period:   |  | dpp                    | kPa          | 438              |
| Observation Hole:                             | KLX11A   |  | Section no.:           |              | KLX11A_7         |
| Distance r <sub>s</sub> [m]:                  | 647.00   |  | Section length:        |              | 256.00-272.00    |
| Response time dt <sub>L</sub> [s]:            | #NV  |  | max. Drawdown s₀       | [m]:*        | #NV              |
| Pressure data                                 |  |  | Nomenclature           | Unit         | Value            |
| Pressure in test section be                   | efore start of flowing:  |  | Di                     | kPa          | 129.3            |
| Pressure in test section be                   | fore stop of flowing:  |  | ۳۱<br>D.               | kPa          | 128.0            |
| Maximum prossure chang                        | o during flowing poriod:*  |  | Pp<br>dp               | ki a<br>kPa  | 120.0            |
|   | e during nowing period.  |  | up <sub>p</sub>        | кга          | 1.3              |
| Normalized distance with Index 1              | respect to the response t  | ime<br><b>#NV</b>  | ,                      |              |                  |
|   |  |  |                        |              |                  |
| Normalized drawdown with                      | h respect to pumping flov<br>"/ <b>Q</b> " [s/m²l:   | v rate<br>#NV  | ,                      |              |                  |
|   | р чр <b>со</b> тт <b>ј</b> .   |  |                        |              |                  |
| Index 2 New (s                                | s <sub>p</sub> /Q <sub>p</sub> )*ln(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV  | ,                      |              | * see comment    |
| Comment: n                                    | o response due to pumpi  | ing in sour  | ce                     |              | see comment      |
|   |  | U  |                        |              |                  |
|   |  |  | Dumastar               |              |                  |
| 2000 Pumps                                    | start  |  | Pumpstop               |              | 131              |
|   |  |  |                        |              |                  |
| 1900  |  |  |                        |              |                  |
|   |  |  |                        |              | - 130            |
| <b>1800</b>                                   |  |  |                        |              | kPa.             |
| Ě   |  |  |                        |              | ell [            |
| 1700  |  |  |                        |              | - 129 <b>S</b>   |
| tive  | - State of the second sec |  |                        |              | vatic            |
| A G   |  | and the second sec   | moning the             |              | Ser              |
|   |  | and the second s |                        |              | 128 0            |
| Less  |  |  |                        | and a second | sur              |
| 1500  |  |  |                        |              | Pres             |
|   |  |  |                        |              | - 127            |
| 1400  |  |  |                        |              |                  |
|   |  |  | ļ                      |              | 7                |
| 1300  | · · · · · · · · ·  |  |                        |              | 126              |
| 18.10.2007 19                                 | 9.10.2007 20.10.2007   | Date   | 21.10.2007 22          | 2.10.2007    | 23.10.2007       |
|   |  | 2410   |                        |              |                  |
|   |  |  |                        |              |                  |

| Activityplan No.                              | AP PS 400-07-72  |                               |           |                  |
|---|--|-------------------------------|-----------|------------------|
| Pumping Hole:                                 | KLX27A   | Pumping Section               | [m bToC]: | 210.00-247.00    |
| Test Start:                                   | 10.10.2007 00:00   | Test Stop:                    | :         | 23.10.2007 12:00 |
| Pump Start:                                   | 18.10.2007 19:03   | Pump Stop:                    | :         | 21.10.2007 11:02 |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | 6.60E-05   |                               |           |                  |
| Pressure data                                 |  | Nomenclature                  | Unit      | Value            |
| Pressure in test section b                    | efore start of flowing:  | p <sub>i</sub>                | kPa       | 1847             |
| Pressure in test section b                    | efore stop of flowing:   | pp                            | kPa       | 1409             |
| Maximum pressure chang                        | ge during flowing period:  | dpp                           | kPa       | 438              |
| Observation Hole:                             | KLX11A   | Section no.:                  |           | KLX11A_8         |
| Distance r <sub>a</sub> [m]:                  | 647.00   | Section length:               |           | 180.00-255.00    |
| Response time dt <sub>l</sub> [s]:            | #NV  | max. Drawdown s <sub>n</sub>  | [m]:*     | #NV              |
| Pressure data                                 |  | Nomenclature                  | Unit      | Value            |
| Pressure in test section b                    | efore start of flowing:  | Di                            | kPa       | 133.2            |
| Pressure in test section b                    | efore stop of flowing.   | ri<br>n                       | kDo       | 122.1            |
| Maximum proceuro chan                         | and during flowing pariod.*  | Pp<br>dp                      | KF d      | 102.1            |
| Maximum pressure chanç                        | je during nowing period.   | up <sub>p</sub>               | кра       | 1.1              |
| Normalized distance with                      | respect to the response time $\frac{2}{dt}$  | -#NI\/                        |           |                  |
| index i i                                     | <sub>s</sub> /ut <sub>L</sub> [iii /s].  | #IN V                         |           |                  |
| Normalized drawdown wit                       | th respect to pumping flow ra  | te                            |           |                  |
| Index 2 s                                     | s <sub>p</sub> /Q <sub>p</sub> [s/m²]:   | #NV                           |           |                  |
| Index 2 New (                                 | s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV                           |           | •                |
| Comment <sup>.</sup> r                        | no response due to pumping i   | in source                     |           | see comment      |
|   |  |                               |           |                  |
|   |  |                               |           |                  |
|   | start  |                               |           | 135              |
|   |  |                               |           |                  |
| 1900  |  |                               |           |                  |
|   |  |                               |           | - 134            |
| <b>1800</b>                                   | •  |                               |           | kPa]             |
| i μ<br>i μ                                    |  |                               |           | ell [            |
| <b>1</b> 700                                  |  | <u>A</u>                      |           | - 133 <b>N</b>   |
| ive   | A STATE OF S | $\sum_{n \in \mathbb{N}}  n $ |           | vatic            |
| A CC  | a the second second second second second second second second second second second second second second second   |                               | Joseph C  | ser 🖌            |
|   | •  |                               |           | 132 <b>Ö</b>     |
| Jres  |  |                               |           | ans:             |
| L 1500  |  |                               |           | Pres             |
|   |  |                               |           | - 131            |
| 1400  |  |                               |           |                  |
|   |  | l                             |           |                  |
| 1300  | 10 10 2007   | 21 10 2007                    | 10 2007   | 130              |
| 10.10.2007                                    | 20.10.2007 20.10.2007  | 21.10.2007 22<br>Date         |           | 23.10.2007       |
|   |  |                               |           |                  |
|   |  |                               |           |                  |

| Activitypla          | an No.                                | AP PS   | 400-07-72   |                   |              |                      |             |                  |
|----------------------|---------------------------------------|---|---|-------------------|--------------|----------------------|-------------|------------------|
| Pumping              | Hole:                                 |   | KLX27A  |                   | Pumping Se   | ection               | [m bToC]:   | 210.00-247.00    |
| Test Start           | :                                     | 10.10.  | 2007 00:00  |                   | Test Stop:   |                      |             | 23.10.2007 12:00 |
| Pump Sta             | art:                                  | 18.10.  | 2007 19:03  |                   | Pump Stop:   |                      |             | 21.10.2007 11:02 |
| Flow Rate            | e Q <sub>p</sub> [m <sup>3</sup> /s]: |   | 6.60E-05  |                   |              |                      |             |                  |
| Pressure             | data                                  |   |   |                   | Nomenclati   | ure                  | Unit        | Value            |
| Pressure             | in test section                       | before start of   | of flowing:   |                   |              | p <sub>i</sub>       | kPa         | 1847             |
| Pressure             | in test section                       | before stop o   | of flowing:   |                   |              | p <sub>p</sub>       | kPa         | 1409             |
| Maximum              | n pressure chai                       | nge during flo  | owing period:   |                   |              | dp <sub>p</sub>      | kPa         | 438              |
| Observat             | ion Hole:                             |   | KLX11A  |                   | Section no.  |                      |             | KLX11A_9         |
| Distance             | r. [m]·                               |   | 650.00  |                   | Section leng | th·                  |             | 103 00-179 00    |
| Response             | e time dt <sub>i</sub> [s]:           |   | #NV   |                   | max. Drawdo  | own s <sub>n</sub> l | [m]:*       | #NV              |
| Pressure             | data                                  |   |   |                   | Nomenclati   | ure                  | Unit        | Value            |
| Pressure             | in test section                       | hefore start o  | of flowing:   |                   |              | n.                   | kPa         | 137 1            |
| Dropoure             | in toot aastian                       | boforo etan a   | of flowing.   |                   |              | Pi<br>n              | кга<br>ир-  | 107.1            |
|                      |                                       |   | · · · · · ·   |                   |              | Pp                   | кра         | 130.1            |
| Maximum              | pressure chai                         | nge during flo  | owing period:*  |                   |              | dpp                  | kPa         | 1.0              |
| Normalize<br>Index 1 | ed distance wit                       | h respect to t<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s  | he response tim   | e<br><b>#NV</b>   |              |                      |             |                  |
| Normalize<br>Index 2 | ed drawdown w                         | vith respect to<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]<br>(s./Q.)*In(r.                          | p pumping flow r:<br> :<br>/r <sub>e</sub> ) [s/m <sup>2</sup> ]: | ate<br>#NV<br>#NV |              |                      |             |                  |
|                      |                                       | ( <b>o</b> p/ <b>o</b> p/ in(is   | 9.0) [o, ].   |                   |              |                      |             | * see comment    |
| Comment              | t:                                    | no response   | due to pumping  | in sour           | се           |                      |             |                  |
|                      |                                       |   |   |                   |              |                      |             |                  |
|                      | Dur                                   |   |   |                   | Duranat      |                      |             |                  |
| 2000                 | Pur                                   | npstart   |   |                   |              | р                    |             | 139              |
|                      |                                       | 1   |   |                   | 1            |                      |             |                  |
| 1900                 |                                       | +   |   |                   | i            |                      |             |                  |
|                      |                                       |   |   |                   | <br>         |                      |             | - 138            |
| 1800 B               |                                       |   |   |                   | <u> </u>     |                      |             | [kPa             |
| [kb                  | in a statistic statistics             |   |   |                   |              |                      |             | vell             |
| <b>1700</b>          |                                       |   | <b>.</b>  |                   |              |                      |             | 137 <b>C</b>     |
| tive                 |                                       | 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - |   |                   |              |                      |             | vati             |
| A CC                 |                                       | •   |   | a station of the  | the second   |                      | and a state | Sser             |
| Sure                 |                                       |   |   |                   | A COLOR      | 2.CX                 | a stand     | 136 <b>O</b>     |
| res                  |                                       |   |   |                   |              |                      |             | sur              |
| <b>L</b> 1500        |                                       |   |   |                   |              |                      |             | Pres             |
|                      |                                       | ( I   |   |                   |              |                      |             | <b>–</b><br>135  |
| 1400                 |                                       | <b>L</b> annanden   | - Andrews   |                   |              |                      |             |                  |
|                      |                                       | 1   |   |                   | <br>         |                      | KLX27A      | 9                |
| 1200                 |                                       |   |   |                   |              |                      |             | - 134            |
| 18.10                | 0.2007                                | 19.10.2007  | 20.10.2007  |                   | 21.10.2007   | 22.7                 | 10.2007     | 23.10.2007       |
|                      |                                       |   |   | Date              |              |                      |             |                  |
|                      |                                       |   |   |                   |              |                      |             |                  |

| Activitypla                       | an No.                                | AP PS   | 400-07-72   |                    |                |                     |           |                  |
|-----------------------------------|---------------------------------------|---|---|--------------------|----------------|---------------------|-----------|------------------|
| Pumping                           | Hole:                                 |   | KLX27A  |                    | Pumping S      | Section             | [m bToC]: | 210.00-247.00    |
| Test Star                         | t:                                    | 10.10.2   | 007 00:00   |                    | Test Stop:     |                     |           | 23.10.2007 12:00 |
| Pump Sta                          | art:                                  | 18.10.2   | 007 19:03   |                    | Pump Stop      | :                   |           | 21.10.2007 11:02 |
| Flow Rate                         | e Q <sub>p</sub> [m <sup>3</sup> /s]: |   | 6.60E-05  |                    |                |                     |           |                  |
| Pressure                          | data                                  |   |   |                    | Nomencla       | ture                | Unit      | Value            |
| Pressure                          | in test section                       | before start of   | f flowing:  |                    |                | p <sub>i</sub>      | kPa       | 1847             |
| Pressure                          | in test section                       | before stop of  | flowing:  |                    |                | $p_p$               | kPa       | 1409             |
| Maximum                           | n pressure cha                        | nge during flo <sup>,</sup>   | wing period:  |                    |                | $dp_{p}$            | kPa       | 438              |
| Observat                          | ion Hole:                             |   | KLX11A  |                    | Section no     | ).:                 |           | KLX11A_10        |
| Distance                          | r, [m]:                               |   | 671 00  |                    | Section len    | ath <sup>.</sup>    |           | 0 00-102 00      |
| Response                          | e time dt <sub>i</sub> [s]:           |   | #NV   |                    | max. Draw      | down s <sub>n</sub> | [m]:*     | #NV              |
| Pressure                          | data                                  |   |   |                    | Nomencla       | ture                | Unit      | Value            |
| Pressure                          | in test section                       | before start of   | f flowing <sup>.</sup>  |                    |                | D:                  | kPa       | 151.3            |
| Proceuro                          | in test section                       | before stop of  | flowing   |                    |                | n                   | kDo       | 150.7            |
|                                   |                                       |   | ilowing.  |                    |                | Pp                  | кга       | 150.7            |
| Maximum                           | n pressure cha                        | nge during flo  | wing period:*   |                    |                | ap <sub>p</sub>     | kPa       | 0.6              |
| Normalize<br>Index 2<br>Index 2 N | ed drawdown v<br><b>lew</b>           | vith respect to<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> / | pumping flow<br>r <sub>0</sub> ) [s/m²]:  | rate<br>#NV<br>#NV |                |                     |           |                  |
|                                   |                                       |   |   |                    |                |                     |           | * see comment    |
| Comment                           | t:                                    | no response   | due to pumpir   | ng in sour         | ce             |                     |           |                  |
|                                   |                                       |   |   |                    |                |                     |           |                  |
|                                   | Pur                                   | mpstart   |   |                    | Pumps          | top                 |           |                  |
| 2000                              |                                       | 1   |   |                    |                |                     |           | 153              |
| 1900                              |                                       | 1   |   |                    | l              |                     |           |                  |
| 1900                              |                                       | 1   |   |                    | I              |                     |           | - 152            |
|                                   |                                       |   |   |                    | I              |                     |           | Paj              |
| [kPa]                             | Man American                          | 1 I   |   |                    |                |                     |           | ell [k           |
|                                   |                                       | and the second second   |   | . •                |                |                     |           | 151 <b>L</b>     |
| <b>9</b> 1700                     |                                       |   | and the second se | Start Col          | in contraction | , shinking          | Martin    | atio             |
| Acti                              |                                       |   | •   |                    |                |                     |           | serv             |
| <b>9</b> 1600                     |                                       |   |   |                    |                |                     |           | ä                |
| ess                               |                                       |   |   |                    |                |                     |           | sure             |
| <b>ک</b> <sub>1500</sub>          |                                       |   |   |                    |                |                     |           |                  |
|                                   |                                       |   |   |                    |                |                     |           | - 149            |
| 1400                              |                                       |   | n Anne ann  |                    |                |                     |           |                  |
|                                   |                                       | 1   |   |                    | l              |                     | KLX27A    | 10               |
| 1300                              |                                       | <br>  |   |                    | I              |                     | ,         | 148              |
| 18.1                              | 0.2007                                | 19.10.2007  | 20.10.2007  | Dete               | 21.10.2007     | 22                  | 10.2007   | 23.10.2007       |
|                                   |                                       |   |   | Date               |                |                     |           |                  |
|                                   |                                       |   |   |                    |                |                     |           |                  |

| Activitypla          | an No.                   | AP  | PS 400-07-72   |                   |                     |           |                         |
|----------------------|--------------------------|---|--|-------------------|---------------------|-----------|-------------------------|
| Pumping              | Hole:                    |   | KLX27A   | Pumping           | Section             | [m bToC]: | 210.00-247.00           |
| Test Star            | ::                       | 10.1  | 0.2007 00:00   | Test Stop         |                     |           | 23.10.2007 12:00        |
| Pump Sta             | art:                     | 18.1  | 0.2007 19:03   | Pump Sto          | p:                  |           | 21.10.2007 11:02        |
| Flow Rate            | e Q <sub>p</sub> [m³/s]: |   | 6.60E-05   |                   |                     |           |                         |
| Pressure             | data                     |   |  | Nomencl           | ature               | Unit      | Value                   |
| Pressure             | in test section          | before sta  | rt of flowing:   |                   | pi                  | kPa       | 1847                    |
| Pressure             | in test section          | before sto  | p of flowing:  |                   | pp                  | kPa       | 1409                    |
| Maximum              | pressure cha             | nge during  | flowing period:  |                   | dpp                 | kPa       | 438                     |
| Observat             | ion Hole:                |   | KLX11E   | Section n         | 0.:                 |           | KLX11E_1                |
| Distance             | r [m]·                   |   | 662.00   | Section le        | nath:               |           | 2 00-121 00             |
| Response             | time dt. [s]:            |   | #N\/   | max Dray          | vdown s.            | [m]·*     | 2.00 121.00<br>#NV      |
| Pressure             | data                     |   | TTIN V   | Nomenci           | aturo               | Linit     | Value                   |
| Pressure             |                          | h - f   |  | Nomenci           | alure               | Unit      | value                   |
| Pressure             | in test section          | perore sta  | rt of flowing:   |                   | pi                  | kPa       | 152.0                   |
| Pressure             | in test section          | before sto  | p of flowing:  |                   | pp                  | kPa       | 151.5                   |
| Maximum              | pressure cha             | nge during  | flowing period:*                                       |                   | dpp                 | kPa       | 0.5                     |
| Index 1<br>Normalize | ed drawdown v            | r <sub>s</sub> ²/dt <sub>L</sub> [m<br>vith respec<br>s <sub>p</sub> /Q <sub>p</sub> [s/r | t to pumping flow range                                | #NV<br>ate<br>#NV |                     |           |                         |
| Index 2 N            | lew                      | (s <sub>p</sub> /Q <sub>p</sub> )*In  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV               |                     |           | * see comment           |
| Comment              | t:                       | no respor   | se due to pumping                                      | in source         |                     |           | see comment             |
|                      |                          |   |  |                   |                     |           |                         |
|                      | Pur                      | nostart   |  | Pum               | ostop               |           |                         |
| 2000                 |                          | í<br>I  |  |                   | +                   |           | 155                     |
|                      |                          | 1   |  |                   | I<br>I              |           |                         |
| 1900                 | 1                        | 1   |  |                   | +                   |           |                         |
|                      |                          |   |  |                   |                     |           | + 154                   |
| <sup>1800</sup> و    |                          |   |  |                   |                     |           | KP                      |
| I [kF                |                          |   |  |                   |                     |           | vell                    |
| <b>17</b> 00         |                          |   |  |                   | <b>_</b>            |           | <sup>153</sup> <b>6</b> |
| tive                 |                          |   |  |                   |                     |           | vati                    |
| <b>AC</b>            |                          |   |  |                   |                     |           | pser                    |
| sure                 |                          |   | 1  |                   |                     |           | - 152 <b>O</b>          |
| res                  |                          |   | ****   |                   |                     |           | ssur                    |
| <b>L</b> 1500        | +                        |   | ***  |                   |                     |           | Pres                    |
|                      |                          | 1   |  |                   |                     |           | + 151                   |
| 1400                 |                          | -   |  |                   | <mark>⊮</mark><br>Ⅰ |           |                         |
|                      |                          | i   |  |                   | i                   | KLX27A    | _1                      |
| 1300                 | ļ                        | 1   | 1  |                   | 1                   | ,         |                         |
| 18.1                 | 0.2007                   | 19.10.2007  | 20.10.2007   | 21.10.2007        | 22                  | .10.2007  | 23.10.2007              |
|                      |                          |   |  | Date              |                     |           |                         |
|                      |                          |   |  |                   |                     |           |                         |

| Activitypla                                  | an No.  | AP PS 40  | 0-07-72  |  |             |                     |           |                  |
|--|---|---|--|--|-------------|---------------------|-----------|------------------|
| Pumping                                      | Hole:   |   | KLX27A   |  | Pumping S   | Section             | [m bToC]: | 210.00-247.00    |
| Test Start                                   | :   | 10.10.200   | 07 00:00   |  | Test Stop:  |                     |           | 23.10.2007 12:00 |
| Pump Sta                                     | irt:  | 18.10.200   | 07 19:03   |  | Pump Stop   | :                   |           | 21.10.2007 11:02 |
| Flow Rate                                    | e Q <sub>p</sub> [m³/s]:  | 6   | 6.60E-05   |  |             |                     |           |                  |
| Pressure                                     | data  |   |  |  | Nomencla    | ture                | Unit      | Value            |
| Pressure i                                   | in test section   | before start of f   | lowing:  |  |             | p <sub>i</sub>      | kPa       | 1847             |
| Pressure i                                   | in test section   | before stop of f  | owing:   |  |             | $p_p$               | kPa       | 1409             |
| Maximum                                      | pressure cha  | nge during flowi  | ng period:   |  |             | $dp_{p}$            | kPa       | 438              |
| Observat                                     | ion Hole:   |   | KLX14A   |  | Section no  | .:                  |           | KLX14A_1         |
| Distance r                                   | r, [m]:   |   | 547 00   |  | Section len | ath.                |           | 123 00-176 30    |
| Response                                     | time dt [s]:  |   | #NV  |  | max. Drawo  | down s <sub>e</sub> | [m]:*     | #NV              |
| Pressure                                     | data  |   |  |  | Nomencla    | ture                | Unit      | Value            |
| Pressure i                                   | in test section   | before start of f   | lowing <sup>.</sup>  |  |             | n:                  | kPa       | 55 9             |
| Pressure                                     | in test section   | before stop of f  | owing:   |  |             | n<br>n              |           | 55.9             |
| Movimum                                      |   |   | ownig.<br>na nariadi*  |  |             | Pp<br>dp            | kPa       | 0.0              |
| waximum                                      | pressure cha  | nge during now  | ng penod.  |  |             | upp                 | кра       | 0.3              |
| Normalize<br>Index 1                         | ed distance wit   | h respect to the<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:  | response tim   | ie<br><b>#NV</b>   |             |                     |           |                  |
| Normalize<br>Index 2<br>Index 2 N<br>Comment | ed drawdown v<br>lew  | vith respect to p<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub><br>no response du | umping flow r<br>) [s/m²]:<br>ie to pumping  | ate<br>#NV<br>#NV<br>g in sour   | ce          |                     |           | * see comment    |
| 2000   | Pur   | npstart   |  |  | Pumps       | top                 |           | 59               |
| 2000 -                                       |   |   |  |  |             |                     |           | 50               |
|  |   | Ì   |  |  | Ī           |                     |           |                  |
| 1900 -                                       |   | 1   |  |  |             |                     |           |                  |
|  |   |   |  |  | Ĩ           |                     |           | + 57 <b>元</b>    |
| हा <sup>1800 -</sup>                         |   |   |  |  |             |                     |           | KP               |
| I [kF  |   |   |  |  |             |                     |           | vell             |
| <b>17</b> 00 -                               |   |   |  |  |             |                     |           | v                |
| tive   |   |   |  |  |             |                     |           |                  |
| A CC   | and the second se | the state   |  | and a second sec | Print.      | Jan Strange         | where a   | DSer -           |
| 2001 Sure                                    |   | and the second second   | The contraction of the contracti | /  |             |                     | 1. S. S.  | e Of             |
| res  |   | 2.00  |  |  | -           |                     |           | sur              |
| <b>L</b> 1500 ·                              |   |   |  |  |             |                     |           | Si               |
|  |   | (   |  |  |             |                     |           |                  |
| 1400 -                                       |   | Lannahan,   | Manpun   |  |             |                     |           |                  |
|  |   | I<br>I  |  |  | l<br>l      |                     | KLX27A    | 1                |
| 4000   |   | <u>I</u>  |  |  | i           |                     | • NEA14A_ | · = A            |
| 1300 -<br>18.10                              | ).2007  | 19.10.2007  | 20.10.2007   |  | 21.10.2007  | 22                  | .10.2007  | 23.10.2007       |
|  |   |   |  | Date   |             |                     |           |                  |
|  |   |   |  |  |             |                     |           |                  |

| Activitypla                                  | an No.                              | AP PS  | \$ 400-07-72   |                        |  |                 |           |                  |
|--|-------------------------------------|--|--|------------------------|--|-----------------|-----------|------------------|
| Pumping                                      | Hole:                               |  | KLX27A   |                        | Pumping Se   | ction [         | m bToC]:  | 210.00-247.00    |
| Test Start:                                  | :                                   | 10.10.   | 2007 00:00   |                        | Test Stop:   |                 |           | 23.10.2007 12:00 |
| Pump Sta                                     | rt:                                 | 18.10.   | 2007 19:03   |                        | Pump Stop:   |                 |           | 21.10.2007 11:02 |
| Flow Rate                                    | Q <sub>p</sub> [m <sup>3</sup> /s]: |  | 6.60E-05   |                        |  |                 |           |                  |
| Pressure                                     | data                                |  |  |                        | Nomenclatu   | re              | Unit      | Value            |
| Pressure i                                   | n test section                      | before start   | of flowing:  |                        |  | p <sub>i</sub>  | kPa       | 1847             |
| Pressure i                                   | n test section                      | before stop  | of flowing:  |                        |  | $p_p$           | kPa       | 1409             |
| Maximum                                      | pressure cha                        | nge during fl  | owing period:  |                        | С  | dp <sub>p</sub> | kPa       | 438              |
| Observati                                    | ion Hole:                           |  | KLX14A   |                        | Section no.:   |                 |           | KLX14A_2         |
| Distance r                                   | . [m]·                              |  | 529.00   |                        | Section length   | h.              |           | 77 00-122 00     |
| Response                                     | time dt. [s]:                       |  | #NV  |                        | max Drawdo   | wn s. [         | ml·*      | #N\/             |
| Broccuro                                     | data                                |  | <i>H</i> INV   |                        | Nemenalatu   |                 |           | Value            |
| Flessule                                     | uala                                |  |  |                        | Nomenciatu   | re              | Unit      | value            |
| Pressure i                                   | n test section                      | before start   | ot flowing:  |                        |  | pi              | kPa       | 54.5             |
| Pressure i                                   | n test section                      | before stop  | of flowing:  |                        |  | pp              | kPa       | 54.2             |
| Maximum                                      | pressure cha                        | nge during fl  | owing period:*   |                        | c  | dp <sub>p</sub> | kPa       | 0.3              |
| Normalize<br>Index 1<br>Normalize<br>Index 2 | ed distance wit                     | h respect to<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s<br>vith respect t<br>s <sub>p</sub> /Q <sub>p</sub> [s/m² | the response tim<br>s]:<br>o pumping flow r<br>]:  | e<br>#NV<br>ate<br>#NV |  |                 |           |                  |
| Index 2 N                                    | <b>ew</b><br>:                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r<br>no response  | ₅ <b>/r₀) [s/m²]:</b><br>e due to pumping  | #NV<br>j in sour       | се   |                 |           | * see comment    |
|  | Pur                                 | npstart  |  |                        | Pumpstor   | 0               |           |                  |
| 2000 -                                       |                                     | f<br>I   |  |                        | <u>_</u>   |                 |           |                  |
|  |                                     |  |  |                        | · · ·  |                 |           |                  |
| 1900 -                                       |                                     | +  |  |                        | <u> </u>   |                 |           |                  |
|  |                                     |  |  |                        | 1  |                 |           |                  |
| <b>-</b> 1800 -                              |                                     |  |  |                        | ir   |                 |           | kPa]             |
| [kPa   |                                     |  |  |                        |  |                 |           | - 55 <b>  </b>   |
| <b>I</b> 1700 -                              |                                     |  |  |                        |  |                 |           | N L              |
| 9 1700                                       |                                     |  |  |                        | ,  |                 |           | atio             |
| Acti   | the state                           | 1. A.  | and the second s | Sec. 2                 | Sandy 3  |                 | sta 1     | Serv             |
| 9 1600 -                                     |                                     |  |  |                        | The second secon |                 |           | – <sup>a</sup> o |
| essi   |                                     |  | State and  |                        |  |                 | × .       | <b>9</b>         |
| <b>ፚ</b> <sub>1500 -</sub>                   |                                     |  | •••  |                        |  |                 |           |                  |
|  |                                     | 1  |  |                        |  |                 |           | L                |
| 4400   |                                     | human  | man and a second   |                        |  |                 |           |                  |
| 1400 -                                       |                                     |  |  |                        |  |                 | KLX27A    | ן ך              |
|  |                                     | 1  |  |                        | I<br>I   |                 | ●KLX14A_2 | 2                |
| 1300 -<br>18 10                              | .2007                               | 19.10.2007   | 20.10.2007   |                        | 21.10.2007   | 22.1            | 0.2007    | 53<br>23.10.2007 |
| 10.10  |                                     |  | 20.10.2007   | Date                   |  | 22.1            |           | 20.10.2001       |
|  |                                     |  |  |                        |  |                 |           |                  |

| Activitypla          | an No.                   | AP P   | S 400-07-72  |                   |                 |                      |                           |  |
|----------------------|--------------------------|--|--|-------------------|-----------------|----------------------|---------------------------|--|
| Pumping              | Hole:                    |  | KLX27A   |                   | Pumping Se      | ection               | [m bToC]:                 | 210.00-247.00  |
| Test Start           | ::                       | 10.10  | .2007 00:00  |                   | Test Stop:      |                      |                           | 23.10.2007 12:00   |
| Pump Sta             | art:                     | 18.10  | .2007 19:03  |                   | Pump Stop:      |                      |                           | 21.10.2007 11:02   |
| Flow Rate            | e Q <sub>p</sub> [m³/s]: |  | 6.60E-05   |                   |                 |                      |                           |  |
| Pressure             | data                     |  |  |                   | Nomenclatu      | ure                  | Unit                      | Value  |
| Pressure i           | in test section          | before start   | of flowing:  |                   |                 | p <sub>i</sub>       | kPa                       | 1847   |
| Pressure i           | in test section          | before stop  | of flowing:  |                   |                 | pp                   | kPa                       | 1409   |
| Maximum              | pressure cha             | nge during f   | lowing period:   |                   |                 | dpp                  | kPa                       | 438  |
| Observat             | ion Hole:                |  | KLX14A   |                   | Section no.:    | :                    |                           | KLX14A_3   |
| Distance r           | r. [m]:                  |  | 524.00   |                   | Section leng    | th:                  |                           | 0.00-76.00   |
| Response             | e time dt [s]:           |  | #NV  |                   | max. Drawdo     | own s <sub>e</sub> l | [m]:*                     | #NV  |
| Pressure             | data                     |  |  |                   | Nomenclatu      | ure                  | Unit                      | Value  |
| Pressure i           | in test section          | hefore start   | of flowing:  |                   |                 | n:                   | kPa                       | 104 5  |
| Proseuro             | in test section          | hefore eton  | of flowing:  |                   |                 | r<br>n               |                           | 103.7  |
| Movimum              |                          | beiore stop  | or nowing.   |                   |                 | Pp<br>dn             | кга                       | 103.7  |
| Maximum              | i pressure cha           | nge during i   | lowing period:   |                   |                 | up <sub>p</sub>      | кра                       | 0.8  |
| Normalize<br>Index 1 | ed distance wit          | h respect to<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/  | the response time  | e<br><b>#NV</b>   |                 |                      |                           |  |
| Normalize            | ed drawdown v<br>lew     | vith respect t<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup><br>(s <sub>p</sub> /Q <sub>p</sub> )*In(i | to pumping flow ra<br><sup>2</sup> ]:<br>r <sub>s</sub> /r <sub>o</sub> ) [s/m <sup>2</sup> ]: | ate<br>#NV<br>#NV | ~               |                      |                           | * see comment  |
| Comment              |                          | no respons   | e due to pumping   | III SOUI          |                 |                      |                           |  |
| 2000 -               | Pur                      | npstart  |  |                   | Pumpsto         | ор                   |                           |  |
| 2000                 |                          |  |  |                   |                 |                      |                           | 100  |
|                      |                          | l  |  |                   | ļ               |                      |                           |  |
| 1900 -               | 1                        | 1  |  |                   |                 |                      |                           |  |
|                      | 1                        |  |  |                   | i               |                      |                           | E I  |
| <sup>1800</sup> و    |                          |  |  |                   | <u> </u>        |                      |                           | [kb  |
| I [kb                |                          |  |  |                   |                 |                      |                           |  |
| <b>8</b> 1700 ·      |                          |  |  |                   |                 |                      |                           | uo   |
| tive                 | Manintring               |  |  |                   |                 |                      |                           | vati   |
| AC 1000              |                          |  |  |                   |                 |                      |                           | osei   |
| sure                 |                          | A REAL PROPERTY  | and the second   |                   |                 |                      |                           | e OI   |
| res                  |                          |  |  | and the           |                 |                      |                           | - 104 <b>JNS</b>   |
| <b>L</b> 1500 ·      |                          |  |  | Carl Carlos       | A CONTRACTOR OF | a literate a         | <b>k</b>                  | Pres   |
|                      |                          | 1  | •••  |                   |                 |                      | Contraction of the second | and the second second second second second second second second second second second second second second second |
| 1400 -               |                          | -  |  |                   |                 |                      | • • • • • •               |  |
|                      |                          | I  |  |                   | l<br>l          |                      | KLX27A                    | 3  |
| 1300                 |                          | I  |  |                   |                 |                      |                           | 103  |
| 18.10                | 0.2007                   | 19.10.2007   | 20.10.2007   |                   | 21.10.2007      | 22.7                 | 10.2007                   | 23.10.2007   |
|                      |                          |  |  | Date              |                 |                      |                           |  |
|                      |                          |  |  |                   |                 |                      |                           |  |

| Activityplan No.   | AP PS 400-07-72  |                              |                    |  |
|--|--|------------------------------|--------------------|--|
| Pumping Hole:  | KLX27A   | Pumping Section              | [m bToC]:          | 210.00-247.00  |
| Test Start:  | 10.10.2007 00:00   | Test Stop:                   |                    | 23.10.2007 12:00   |
| Pump Start:  | 18.10.2007 19:03   | Pump Stop:                   |                    | 21.10.2007 11:02   |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:  | 6.60E-05   |                              |                    |  |
| Pressure data  |  | Nomenclature                 | Unit               | Value  |
| Pressure in test section be  | fore start of flowing:   | p <sub>i</sub>               | kPa                | 1847   |
| Pressure in test section be  | fore stop of flowing:  | pp                           | kPa                | 1409   |
| Maximum pressure change  | e during flowing period:   | dpp                          | kPa                | 438  |
| Observation Hole:  | KLX15A   | Section no.:                 |                    | KLX15A_1   |
| Distance r. [m]:   | 1388.00  | Section length:              |                    | 902 00-1000 00   |
| Response time dt <sub>1</sub> [s]:   | #NV  | max. Drawdown s <sub>n</sub> | [m]:*              | #NV  |
| Pressure data  |  | Nomenclature                 | Unit               | Value  |
| Pressure in test section be  | fore start of flowing.   | D:                           | kPa                | 30.9   |
| Pressure in test section be  | fore stop of flowing.  | Mi<br>n                      | k Do               | 20.9   |
|  |  | Pp                           | кра                | 29.9   |
| Maximum pressure change  | e during flowing period:*  | ap <sub>p</sub>              | kPa                | 1.0  |
| Normalized distance with r<br>Index 1 r <sub>s</sub><br>Normalized drawdown with<br>Index 2 s <sub>r</sub>   | respect to the response time<br><sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>In respect to pumping flow ra<br>J/Q <sub>p</sub> [s/m <sup>2</sup> ]: | #NV<br>te<br>#NV             |                    |  |
| Index 2 New (s   | s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV                          |                    | * see comment  |
| Comment: no  | o response due to pumping i  | in source                    |                    |  |
| Pumps  | tart   | Pumpstop                     |                    | 22   |
| Line and Lin | .10.2007 20.10.2007  | 21.10.2007 22<br>Date        | KLX27A<br>KLX15A_1 | - 31<br>- 31<br>- 31<br>- 31<br>- 31<br>- 31<br>- 29<br>- 29<br>- 29<br>- 29<br>- 29<br>- 29<br>- 29<br>- 29 |
|  |  |                              |                    |  |

| Activityplan No.  | AP PS 400-07-72   |   |  |  |
|---|---|---|--|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>10.10.2007 00:00<br>18.10.2007 19:03<br>6.60E-05  | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]:                              | <b>210.00-247.00</b><br>23.10.2007 12:00<br>21.10.2007 11:02 |
| Pressure data   |   | Nomenclature                                | Unit                                   | Value  |
| Pressure in test section b  | before start of flowing:  | p <sub>i</sub>                              | kPa                                    | 1847   |
| Pressure in test section b  | before stop of flowing:   | p <sub>p</sub>                              | kPa                                    | 1409   |
| Maximum pressure chan   | ge during flowing period:   | dpp   | kPa                                    | 438  |
| Observation Hole:   | KLX15A  | Section no.:                                |  | KLX15A_2   |
| Distance r <sub>s</sub> [m]:  | 1339.00   | Section length:                             |  | 641.00-901.00  |
| Response time dt <sub>L</sub> [s]:  | #NV   | max. Drawdown s <sub>p</sub>                | , [m]:*                                | #NV  |
| Pressure data   |   | Nomenclature                                | Unit                                   | Value  |
| Pressure in test section b  | before start of flowing:  | p <sub>i</sub>                              | kPa                                    | 56.2   |
| Pressure in test section b  | pefore stop of flowing:   | pp  | kPa                                    | 56.4   |
| Maximum pressure chan   | ge during flowing period:*  | dpp   | kPa                                    | 0.2  |
| Index 1<br>Normalized drawdown wi<br>Index 2<br>Index 2 New<br>Comment:                             | r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>th respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>no response due to pumping | #NV<br>te<br>#NV<br>#NV                     |  | * see comment  |
| 2000 Pum  | pstart  | Pumpstop                                    |  | T 60   |
|   |   | i<br>I                                      |  |  |
| 1900 -  |   | <br>  |  |  |
|   |   | į   |  | - 59   |
| 1800  |   |   |  | (Pa]   |
| [kPa  |   |   |  | - <sup>58</sup>  |
| <b>1</b> 700  |   |   |  | v<br>v<br>v  |
| tive  |   |   | - m 1                                  | - 57 L   |
| <b>9</b> 1600   |   | $ \sim $                                    | $\checkmark$ $\downarrow$ $\downarrow$ | Obse   |
| nssa  |   |   | × .                                    | 56 nre (   |
| <b>د</b> 1500   |   |   |  | Jress  |
|   |   |   |  |  |
| 1400  | harman Many Angerson  |   |  | + 55   |
|   |   | İ   | KLX27A<br>KLX15A_2                     |  |
| 1300  | 10 10 2007  | 21 10 2007                                  | 2 10 2007                              | 54   |
| 10.10.2007  | 19.10.2007 20.10.2007   | 21.10.2007 22                               | 2.10.2007                              | 23.10.2007   |

| Activityplan No.   | AP PS 400-07-72  |                            |                        |  |
|--|--|----------------------------|------------------------|--|
| Pumping Hole:  | KLX27A   | Pumping Section            | [m bToC]:              | 210.00-247.00  |
| Test Start:  | 10.10.2007 00:00   | Test Stop:                 |                        | 23.10.2007 12:00   |
| Pump Start:  | 18.10.2007 19:03   | Pump Stop:                 |                        | 21.10.2007 11:02   |
| Flow Rate $Q_p$ [m <sup>3</sup> /s]:                               | 6.60E-05   |                            |                        |  |
| Pressure data  |  | Nomenclature               | Unit                   | Value  |
| Pressure in test sectior   | h before start of flowing:   | Di                         | kPa                    | 1847   |
| Pressure in test sectior   | before stop of flowing:  | pp                         | kPa                    | 1409   |
| Maximum pressure cha   | ange during flowing period:  | dpp                        | kPa                    | 438  |
| Observation Hole:  | KLX15A   | Section no.:               |                        | KLX15A_3   |
| Dictoroc r [m]:  | 4004.00  | Continu longth.            |                        | 622.00.640.00  |
| Response time dt. [s]:   | 1264.00<br>#NIV  | Section length:            | [m]·*                  | 623.00-640.00<br>#NIV  |
|  | #INV   |                            | [m].                   | #111   |
| Pressure data  |  | Nomenclature               | Unit                   | Value  |
| Pressure in test section   | before start of flowing:   | p <sub>i</sub>             | kPa                    | 52.0   |
| Pressure in test section   | h before stop of flowing:  | pp                         | kPa                    | 51.3   |
| Maximum pressure cha   | ange during flowing period:*   | dpp                        | kPa                    | 0.7  |
| Index 1<br>Normalized drawdown<br>Index 2<br>Index 2 New           | <pre>with respect to the response time r<sub>s</sub><sup>2</sup>/dt<sub>L</sub> [m<sup>2</sup>/s]: with respect to pumping flow ra s<sub>p</sub>/Q<sub>p</sub> [s/m<sup>2</sup>]: (s<sub>p</sub>/Q<sub>p</sub>)*ln(r<sub>s</sub>/r<sub>0</sub>) [s/m<sup>2</sup>]:</pre> | / #NV<br>ite<br>#NV<br>#NV |                        | * see comment  |
| Comment:   | no response due to pumping   | in source                  |                        |  |
| 2000 T   | Impstart   | Pumpstop                   |                        | 53   |
|  |  | i<br>I                     |                        |  |
| 1900<br>1800<br>1700<br>1600<br>1500<br>1400<br>1300<br>18.10.2007 | 19.10.2007   | 21.10.2007 22<br>Date      | KLX27A<br>KLX15A_3<br> | 52<br>51<br>51<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50<br>50 |
|  |  |                            |                        |  |

| Activityplan No.  | AP PS 400-07-72   |                                |             |                    |
|---|---|--------------------------------|-------------|--------------------|
| Pumping Hole:   | KLX27A  | Pumping Section                | [m bToC]:   | 210.00-247.00      |
| Test Start:   | 10.10.2007 00:00  | Test Stop:                     |             | 23.10.2007 12:00   |
| Pump Start:   | 18.10.2007 19:03  | Pump Stop:                     |             | 21.10.2007 11:02   |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:               | 6.60E-05  |                                |             |                    |
| Pressure data   |   | Nomenclature                   | Unit        | Value              |
| Pressure in test section                                    | before start of flowing:  | p <sub>i</sub>                 | kPa         | 1847               |
| Pressure in test section                                    | before stop of flowing:   | pp                             | kPa         | 1409               |
| Maximum pressure char                                       | nge during flowing period:  | dpp                            | kPa         | 438                |
| Observation Hole:   | KLX15A  | Section no.:                   |             | KLX15A_4           |
| Distance r. [m]:  | 1235.00   | Section length:                |             | 481.00-622.00      |
| Response time dt <sub>L</sub> [s]:                          | #NV   | max. Drawdown s <sub>p</sub>   | [m]:*       | #NV                |
| Pressure data   |   | Nomenclature                   | Unit        | Value              |
| Pressure in test section                                    | before start of flowing:  | Pi                             | kPa         | 56.2               |
| Pressure in test section                                    | before stop of flowing:   | D <sub>n</sub>                 | kPa         | 55.4               |
| Maximum pressure char                                       | nae during flowing period.*   | dp <sub>o</sub>                | kPa         | 0.8                |
|   |   | άPp                            |             | 0.0                |
| Normalized distance with Index 1                            | h respect to the response time<br>rs <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:   | e<br>#NV                       |             |                    |
| Normalized drawdown w<br>Index 2<br>Index 2 New<br>Comment: | rith respect to pumping flow rasp/Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>no response due to pumping | ate<br>#NV<br>#NV<br>in source |             | * see comment      |
|   |   |                                |             |                    |
| 2000 - Pur  | pstart  | Pumpstop                       |             |                    |
| 2000  | 1<br>   | l I                            |             |                    |
| 1900  |   |                                |             |                    |
| 1900 -  | т<br>   | I<br>I                         |             | - 57               |
|   |   |                                |             | а]                 |
|   |   |                                |             | ЦХ.                |
| E E   |   |                                |             | well               |
| 1700  |   |                                |             | <sup>+ 56</sup> io |
| tive  |   |                                | ~ I         | rvat               |
| <b>a</b> 1600   |   |                                | • \/        | pse                |
| ssur  | · · · · · · · · · · · · · · · · · · ·   |                                | · · · · · · | - 55 <b>O</b>      |
|   |   |                                |             | nssa               |
| 1500  |   |                                |             | Pre                |
|   |   |                                |             | - 54               |
| 1400 -  | I<br>I  |                                | KLX27A      |                    |
| 1300  |   | <u> </u>                       |             | 53                 |
| 18.10.2007  | 19.10.2007 20.10.2007   | 21.10.2007 22                  | 2.10.2007   | 23.10.2007         |
|   |   |                                |             |                    |

| Activityplan No.                              | AP PS 400-07-72   |                              |           |                    |
|---|---|------------------------------|-----------|--------------------|
| Pumping Hole:                                 | KLX27A  | Pumping Section              | [m bToC]: | 210.00-247.00      |
| Test Start:                                   | 10.10.2007 00:00  | Test Stop:                   |           | 23.10.2007 12:00   |
| Pump Start:                                   | 18.10.2007 19:03  | Pump Stop:                   |           | 21.10.2007 11:02   |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | 6.60E-05  |                              |           |                    |
| Pressure data                                 |   | Nomenclature                 | Unit      | Value              |
| Pressure in test section be                   | fore start of flowing:  | p <sub>i</sub>               | kPa       | 1847               |
| Pressure in test section be                   | fore stop of flowing:   | pp                           | kPa       | 1409               |
| Maximum pressure change                       | e during flowing period:  | dpp                          | kPa       | 438                |
| Observation Hole:                             | KLX15A  | Section no.:                 |           | KLX15A_5           |
| Distance r. [m]:                              | 1222 00   | Section length               |           | 273 00-480 00      |
| Response time dt <sub>1</sub> [s]:            | #NV   | max. Drawdown s <sub>n</sub> | [m]:*     | #NV                |
| Pressure data                                 |   | Nomenclature                 | Unit      | Value              |
| Pressure in test section be                   | fore start of flowing:  | Di                           | kPa       | 61.6               |
| Pressure in test section be                   | fore stop of flowing.   | Г !<br>D <sub>2</sub>        | kPa       | 61.0               |
| Maximum pressure change                       | a during flowing period.*   | do-                          | kPa       | 0.6                |
|   | e during nowing period.   | uγ <sub>p</sub>              | ĸra       | 0.0                |
| Normalized distance with r                    | espect to the response time<br>//dt. [m²/s]:  | e<br>#NV                     |           |                    |
|   | , «.լ. [ , o].  |                              |           |                    |
| Normalized drawdown with                      | respect to pumping flow ra  | te                           |           |                    |
| Index 2 s <sub>p</sub>                        | /Q <sub>p</sub> [s/m²]:   | #NV                          |           |                    |
| Index 2 New (s                                | <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                          |           |                    |
| Comment                                       |   |                              |           | * see comment      |
| Comment: nc                                   | response due to pumping   | In source                    |           |                    |
|   |   |                              |           |                    |
| Pumps   | art   | Pumpstop                     |           |                    |
| 2000  |   | i                            |           | 63                 |
| i i   |   | i                            |           |                    |
| 1900  |   |                              |           | 62                 |
|   |   | i                            |           |                    |
| <b>E</b> <sup>1800</sup>                      |   | AA                           |           | <u> </u>           |
|   | $\sim$  | 1 min /                      | m 1       | well               |
| <b>9</b> 1700                                 |   |                              |           |                    |
| stive   | · · · · · · · · · · · · · · · · · · ·   |                              |           | irvat              |
| <b>e</b> 1600                                 |   |                              |           | Obse               |
| Inss  |   |                              |           |                    |
| <b>e</b>                                      |   |                              |           | essu               |
|   |   |                              |           | Ĕ                  |
|   | and the second second   |                              |           | - 59               |
| 1400  |   |                              | KLX27A    | ]                  |
|   |   |                              | KLX15A_5  |                    |
| 1300 <del> </del><br>18.10.2007 19.           | 10.2007 20.10.2007  | 21.10.2007 22                | .10.2007  | + 58<br>23.10.2007 |
|   | [   | Date                         |           |                    |
|   |   |                              |           |                    |
| Activitypla                     | an No.   | AP PS  | 400-07-72   |                         |                 |                        |                  |
|---------------------------------|--|--|---|-------------------------|-----------------|------------------------|------------------|
| Pumping                         | Hole:  |  | KLX27A  |                         | Pumping Sect    | ion [m bToC]:          | 210.00-247.00    |
| Test Start                      | :  | 10.10.   | 2007 00:00  |                         | Test Stop:      |                        | 23.10.2007 12:00 |
| Pump Sta                        | art:   | 18.10.   | 2007 19:03  |                         | Pump Stop:      |                        | 21.10.2007 11:02 |
| Flow Rate                       | e Q <sub>p</sub> [m³/s]:   |  | 6.60E-05  |                         |                 |                        |                  |
| Pressure                        | data   |  |   |                         | Nomenclature    | Unit                   | Value            |
| Pressure                        | in test section  | before start of  | of flowing:   |                         | P               | i kP                   | a 1847           |
| Pressure                        | in test section  | before stop o  | of flowing:   |                         | p               | p kP                   | a 1409           |
| Maximum                         | pressure cha   | nge during flo   | owing period:   |                         | dp              | » kP                   | a 438            |
| Observat                        | ion Hole:  |  | KLX15A  |                         | Section no.:    |                        | KLX15A_6         |
| Distance i                      | r, [m]:  |  | 1220.00   |                         | Section length: |                        | 260 00-472 00    |
| Response                        | time dt [s]:   |  | #NV   |                         | max. Drawdowr   | n s <sub>n</sub> [m]:* | #NV              |
| Pressure                        | data   |  |   |                         | Nomenclature    | Unit                   | Value            |
| Pressure                        | in test section  | before start o   | of flowing:   |                         | r               | . kP                   | a 61.0           |
| Pressure                        | in test section  | hefore eton  | of flowing:   |                         | ۲<br>۳          |                        | a 60.4           |
| Movimum                         |  | ngo during flo   |   |                         | Pi<br>dp        |                        | a 00.4           |
| Maximum                         | i pressure cha   | nge during no  | bwing period.   |                         | up              |                        | a 0.0            |
| Normalize<br>Index 1            | ed distance wit  | th respect to t<br>r <sub>s</sub> ²/dt <sub>l</sub> [m²/s  | the response tim  | e<br>#NV                |                 |                        |                  |
| Index 2<br>Index 2 N<br>Comment | lew<br>::  | s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub><br>no response | :<br>/ <b>r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>due to pumping | #NV<br>#NV<br>) in sour | се              |                        | * see comment    |
|                                 | Pur  | mpstart  |   |                         | Pumpstop        |                        | 20               |
| 2000                            |  |  |   |                         |                 |                        | 63               |
|                                 |  | 1  |   |                         | !               |                        |                  |
| 1900 -                          |  |  |   |                         | l I             |                        | 62               |
|                                 |  |  |   |                         | i               |                        | <b>B</b>         |
| <b>E</b> 1800                   |  |  |   |                         |                 |                        | [kb              |
| ll [ki                          |  |  |   |                         | <b>I</b>        |                        | well             |
| <b>8</b> 1700                   | And the second s |  |   |                         |                 |                        |                  |
| stive                           |  | 1 Second   |   |                         | man 1           | home ,                 | rvat             |
| 9 1600                          | -  |  |   |                         |                 | <b>V</b>               | bse              |
| ssur                            |  |  |   |                         |                 |                        | - 60 <b>O</b>    |
| Pres                            |  |  |   |                         |                 |                        | nsst             |
| 1500                            |  |  |   |                         |                 |                        | Рк               |
|                                 |  | -  |   |                         |                 |                        | - 59             |
| 1400                            | -  | I  |   |                         |                 | KLX27A                 |                  |
|                                 |  |  |   |                         | l               |                        | <u>_</u> 6       |
| 1300                            | 0007   | 10.40.0007   |   |                         | 01 40 0007      | 00.40.0007             | 58               |
| 18.10                           | J.2UU <i>1</i>   | 19.10.2007   | 20.10.2007  | Date                    | 21.10.2007      | 22.10.2007             | 23.10.2007       |
|                                 |  |  |   |                         |                 |                        |                  |
|                                 |  |  |   |                         |                 |                        |                  |

| Activitypla                | an No.  | AP PS 40  | 0-07-72              |                 |             |                     |           |                        |
|----------------------------|---|---|----------------------|-----------------|-------------|---------------------|-----------|------------------------|
| Pumping                    | Hole:   | ł   | (LX27A               |                 | Pumping     | Section             | [m bToC]: | 210.00-247.00          |
| Test Start:                | :   | 10.10.200   | 7 00:00              |                 | Test Stop:  |                     |           | 23.10.2007 12:00       |
| Pump Sta                   | rt:   | 18.10.200   | 7 19:03              |                 | Pump Stop   | ):                  |           | 21.10.2007 11:02       |
| Flow Rate                  | e Q <sub>p</sub> [m³/s]:  | 6   | .60E-05              |                 |             |                     |           |                        |
| Pressure                   | data  |   |                      |                 | Nomencla    | ature               | Unit      | Value                  |
| Pressure i                 | n test section  | before start of fl  | owing:               |                 |             | pi                  | kPa       | 1847                   |
| Pressure i                 | in test section   | before stop of fl   | owing:               |                 |             | pp                  | kPa       | 1409                   |
| Maximum                    | pressure cha  | nge during flowir   | ng period:           |                 |             | $dp_{p}$            | kPa       | 438                    |
| Observati                  | ion Hole:   | ł   | (LX15A               |                 | Section no  | o.:                 |           | KLX15A_7               |
| Distance r                 | . [m]:  |   | 1225.00              |                 | Section ler | nath:               |           | 191.00-259.00          |
| Response                   | time dt <sub>i</sub> [s]:   |   | #NV                  |                 | max. Draw   | down s <sub>n</sub> | [m]:*     | #NV                    |
| Pressure                   | data  |   |                      |                 | Nomencla    | ature               | Unit      | Value                  |
| Pressure i                 | n test section  | before start of fl  | owina.               |                 |             | D:                  | kPa       | 60 4                   |
| Pressure i                 | in test section   | before stop of fl   | owing.               |                 |             | n<br>n              | kDa       | 60.4<br>60.1           |
| Maximum                    |   |   | Jwilig.              |                 |             | Pp<br>dp            | кга       | 00.1                   |
| Maximum                    | pressure cha  | nge during nowir  | ig period:           |                 |             | up <sub>p</sub>     | кра       | 0.3                    |
| Normalize<br>Index 1       | ed distance wit   | th respect to the<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]: | response tim         | e<br><b>#NV</b> |             |                     |           |                        |
| Index 2<br>Index 2 N       | ed drawdown v<br>ew   | no response du  | [s/m <sup>2</sup> ]: | #NV<br>#NV      | се          |                     |           | * see comment          |
|                            | Pur   | mpstart   |                      |                 | Pump        | stop                |           |                        |
| 2000 -                     |   | ſ   |                      |                 | I           | '<br>               |           | 63                     |
|                            |   | 1   |                      |                 |             | 1                   |           |                        |
| 1900 -                     |   | 1   |                      |                 |             | 1                   |           |                        |
|                            |   |   |                      |                 |             | 1                   |           | <sup>- 62</sup>        |
| - <sup>1800</sup> -        |   |   |                      |                 |             |                     |           | kPa.                   |
| [kP;                       |   |   |                      |                 |             |                     |           | ell                    |
| <b>17</b> 00 -             |   |   |                      |                 |             |                     |           | <sup>61</sup> <b>u</b> |
| ive i                      |   |   |                      |                 |             |                     |           | /atic                  |
| Act                        | A CONTRACT OF A CONTRACTACT OF A CONTRACT CT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACT OF A CONTRACTACTACTACTACTACTACTACTACTACTACTACTACTA |   |                      |                 |             | Street Street       | some d    | ser 🔨                  |
| <b>9,</b> 1600 -           |   |   | The second second    |                 |             |                     |           | 60 <b>Q</b>            |
| ess                        |   |   |                      |                 |             |                     |           | sure                   |
| <b>ت</b> <sub>1500 -</sub> |   | <u>} </u>   |                      |                 |             |                     |           | res:                   |
|                            |   | 1   |                      |                 |             |                     |           | + 59 <b>H</b>          |
| 1400 -                     |   | 1   | Annone               |                 |             |                     |           |                        |
|                            |   | 1   |                      |                 |             | 1                   | KLX27A    |                        |
|                            |   | i   |                      |                 |             | I                   |           | <u></u>                |
| 1300 -<br>18.10            | 1.2007  | 19.10.2007  | 20.10.2007           |                 | 21.10.2007  | 22                  | .10.2007  | + 58<br>23.10.2007     |
|                            |   |   |                      | Date            |             |                     |           |                        |
|                            |   |   |                      |                 |             |                     |           |                        |

| Activitypla                     | an No.                    | AP PS  | 400-07-72  |  |               |                      |          |                  |
|---------------------------------|---------------------------|--|--|--|---------------|----------------------|----------|------------------|
| Pumping                         | Hole:                     |  | KLX27A   |  | Pumping Se    | ction [              | m bToC]: | 210.00-247.00    |
| Test Start                      | :                         | 10.10.2  | 2007 00:00   |  | Test Stop:    |                      |          | 23.10.2007 12:00 |
| Pump Sta                        | irt:                      | 18.10.2  | 2007 19:03   |  | Pump Stop:    |                      |          | 21.10.2007 11:02 |
| Flow Rate                       | e Q <sub>p</sub> [m³/s]:  |  | 6.60E-05   |  |               |                      |          |                  |
| Pressure                        | data                      |  |  |  | Nomenclatu    | ıre                  | Unit     | Value            |
| Pressure i                      | in test section           | before start c   | of flowing:  |  |               | p <sub>i</sub>       | kPa      | 1847             |
| Pressure i                      | in test section           | before stop o  | f flowing:   |  |               | $p_p$                | kPa      | 1409             |
| Maximum                         | pressure char             | nge during flo   | wing period:   |  |               | dp <sub>p</sub>      | kPa      | 438              |
| Observat                        | ion Hole:                 |  | KLX15A   |  | Section no.:  |                      |          | KLX15A_8         |
| Distance r                      | r, [m]:                   |  | 1234.00  |  | Section lengt | th:                  |          | 79.00-190.00     |
| Response                        | time dt <sub>l</sub> [s]: |  | #NV  |  | max. Drawdo   | own s <sub>n</sub> [ | m]:*     | #NV              |
| Pressure                        | data                      |  |  |  | Nomenclatu    | ire                  | Unit     | Value            |
| Pressure i                      | in test section           | before start o   | of flowing:  |  |               | D;                   | kPa      | 63.2             |
| Pressure i                      | in test section           | hefore stop o  | f flowing:   |  |               | г.<br>D.             | kDa      | 62.2             |
| Movimum                         |                           |  | wing pariod.*  |  |               | Рр<br>dn             | k Da     | 02.7             |
| waximum                         | pressure char             | nge during no  | iwing period.  |  |               | up <sub>p</sub>      | кра      | 0.5              |
| Normalize<br>Index 1            | ed distance wit           | h respect to t<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s | he response tim<br>]:  | e<br>#NV   |               |                      |          |                  |
| Index 2<br>Index 2 N<br>Comment | lew<br>:                  | $s_p/Q_p [s/m^2]$<br>$(s_p/Q_p)*In(r_s)$<br>no response  | /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>due to pumping   | #NV<br>#NV   | ce            |                      |          | * see comment    |
|                                 |                           |  |  |  |               |                      |          |                  |
| 2000 -                          | Pun                       | npstart  |  |  | Pumpsto       | р                    |          | T 66             |
|                                 |                           | ļ  |  |  | I             |                      |          |                  |
| 1900 -                          |                           | <br>   |  |  |               |                      |          |                  |
|                                 |                           |  |  |  | I             |                      |          | - 65             |
| 1800 -                          |                           |  |  |  |               |                      |          | Pa]              |
| kPa]                            |                           |  |  |  | - 1           |                      |          |                  |
| ell [                           |                           |  |  |  | <b>!</b>      |                      |          | - 64 <b>8</b>    |
| ≥ 1700 -<br>2                   |                           |  |  |  |               |                      |          | ation            |
| Activ                           |                           |  |  |  |               |                      |          | serva            |
| <b>9</b> 1600 -                 | A CONTRACT OF A           |  |  |  |               |                      |          | 63 SQ            |
| ารระ                            |                           | The second   | and the second sec | A CONTRACTOR OF THE OWNER OWNER OF THE OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNER OWNE | man 1         |                      | m /      | nre "            |
| <b>č</b> <sub>1500 -</sub>      |                           |  |  | <i>•</i>   | <b>~~</b>     |                      |          | ess .            |
|                                 |                           |  |  |  | - 1           |                      |          | Ē                |
|                                 |                           | Januar In  | mana and a second  |  |               |                      |          | + 62             |
| 1400 -                          |                           |  |  |  |               |                      | KLX27A   | 3                |
| 1300 -                          |                           | <br>   | 1  |  |               |                      | 1        | 61               |
| 18.10                           | ).2007                    | 19.10.2007   | 20.10.2007   | Date   | 21.10.2007    | 22.1                 | 0.2007   | 23.10.2007       |
|                                 |                           |  |  |  |               |                      |          |                  |

| Activitypla   | an No.                                  | AP P   | S 400-07-72  |                               |             |                     |           |                              |
|---|---|--|--|-------------------------------|-------------|---------------------|-----------|------------------------------|
| Pumping   | Hole:                                   |  | KLX27A   |                               | Pumping 3   | Section             | [m bToC]: | 210.00-247.00                |
| Test Start  |   | 10.10  | .2007 00:00  |                               | Test Stop:  |                     |           | 23.10.2007 12:00             |
| Pump Sta  | art:                                    | 18.10  | .2007 19:03  |                               | Pump Stop   | ):                  |           | 21.10.2007 11:02             |
| Flow Rate   | e Q <sub>p</sub> [m³/s]:                |  | 6.60E-05   |                               |             |                     |           |                              |
| Pressure  | data                                    |  |  |                               | Nomencla    | iture               | Unit      | Value                        |
| Pressure  | in test section                         | before start   | of flowing:  |                               |             | p <sub>i</sub>      | kPa       | 1847                         |
| Pressure  | in test section                         | before stop  | of flowing:  |                               |             | $p_p$               | kPa       | 1409                         |
| Maximum   | pressure cha                            | nge during fl  | owing period:  |                               |             | $dp_p$              | kPa       | 438                          |
| Observat  | ion Hole:                               |  | KLX15A   |                               | Section no  | D.:                 |           | KLX15A_9                     |
| Distance  | r <sub>s</sub> [m]:                     |  | 1253.00  |                               | Section ler | igth:               |           | 0.00-78.00                   |
| Response  | time dt <sub>L</sub> [s]:               |  | #NV  |                               | max. Draw   | down s <sub>p</sub> | [m]:*     | #NV                          |
| Pressure  | data                                    |  |  |                               | Nomencla    | ture                | Unit      | Value                        |
| Pressure  | in test section                         | before start   | of flowing:  |                               |             | p <sub>i</sub>      | kPa       | 64.9                         |
| Pressure  | in test section                         | before stop  | of flowing:  |                               |             | p <sub>p</sub>      | kPa       | 64.5                         |
| Maximum   | pressure cha                            | nge during fl  | owing period:*   |                               |             | dp₀                 | kPa       | 0.4                          |
| Normalize<br>Index 1<br>Normalize<br>Index 2<br>Index 2 N | ed distance wit<br>ed drawdown v<br>lew | th respect to<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/<br>vith respect t<br>s <sub>p</sub> /Q <sub>p</sub> [s/m²<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r | the response time<br>s]:<br>to pumping flow ra<br>?]:<br>c <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | e<br>#NV<br>ate<br>#NV<br>#NV |             |                     |           | * see commont                |
| Comment   | ::                                      | no respons   | e due to pumping   | in sour                       | ce          |                     |           |                              |
| 2000  | Pur                                     | npstart  |  |                               | Pump        | stop                |           |                              |
|   |   | 1  |  |                               |             | 1<br>               |           |                              |
| 1000  |   |  |  |                               |             |                     |           |                              |
| 1900  |   | 1  |  |                               |             | l                   |           |                              |
|   |   |  |  |                               |             |                     |           | - 66 <b>-</b>                |
|   |   |  |  |                               |             | <b>r</b>            |           | I [k                         |
| il [k   |   |  |  |                               |             |                     |           | wel                          |
| ¥ 1700<br>€   |   |  |  |                               |             |                     |           | tion                         |
| ctiv  | the second                              |  |  |                               |             |                     |           | - 65 <b>65</b>               |
| <b>4</b> 1600   |   |  |  |                               |             |                     |           | )psec                        |
| nsse  |   |  |  |                               |             | <b>P</b> 7          |           | nre 😽                        |
| <b>4</b> 1500   |   |  |  | •                             |             |                     | <b>`</b>  |                              |
|   |   |  |  |                               |             |                     |           | - 64 <b>G</b>                |
| 1400  |   | hunnh  |  |                               |             |                     |           |                              |
| 1400  |   | 1  |  |                               |             |                     | KLX27A    |                              |
|   |   | 1<br>  |  |                               |             |                     |           | <u>)</u>                     |
| 1300<br>18.1  | l<br>.2007                              | 19.10.2007   | 20.10.2007   |                               | 21.10.2007  | 22.                 | 10.2007   | <del>6</del> 3<br>23.10.2007 |
|   |   |  |  | Date                          |             |                     |           |                              |
|   |   |  |  |                               |             |                     |           |                              |

| Activityplan No.  | AP PS 400-07-72  |                    |                                     |                              |
|---|--|--------------------|-------------------------------------|------------------------------|
| Pumping Hole:   | KLX27A   | Pumping Sectio     | n [m bToC]:                         | 210.00-247.00                |
| Test Start:   | 10.10.2007 00:00   | Test Stop:         |                                     | 23.10.2007 12:00             |
| Pump Start:   | 18.10.2007 19:03   | Pump Stop:         |                                     | 21.10.2007 11:02             |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:           | 6.60E-05   |                    |                                     |                              |
| Pressure data   |  | Nomenclature       | Unit                                | Value                        |
| Pressure in test section bef                            | ore start of flowing:  | p <sub>i</sub>     | kPa                                 | 1847                         |
| Pressure in test section bef                            | ore stop of flowing:   | pp                 | kPa                                 | 1409                         |
| Maximum pressure change                                 | during flowing period:   | dpp                | kPa                                 | 438                          |
| Observation Hole:                                       | KLX16A   | Section no.:       |                                     | KLX16A_1                     |
| Distance r <sub>s</sub> [m]:                            | 1093.00  | Section length:    |                                     | 327.00-433.55                |
| Response time dt <sub>L</sub> [s]:                      | #NV  | max. Drawdown      | s <sub>p</sub> [m]:*                | #NV                          |
| Pressure data   |  | Nomenclature       | Unit                                | Value                        |
| Pressure in test section bef                            | ore start of flowing:  | Pi                 | kPa                                 | 171.4                        |
| Pressure in test section bef                            | ore stop of flowing:   | D <sub>n</sub>     | kPa                                 | 170.5                        |
| Maximum pressure change                                 | during flowing period.*  | dp-                | kPa                                 | 0.9                          |
|   |  | ۳Pp                |                                     | 0.0                          |
| Normalized distance with re<br>Index 1 rs <sup>2</sup>  | espect to the response time<br>/dt <sub>L</sub> [m <sup>2</sup> /s]:   | #NV                |                                     |                              |
| Index 2 s <sub>p</sub> /<br>Index 2 New (s <sub>p</sub> | respect to pumping flow ra<br>Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>/Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV<br>#NV         |                                     | * see comment                |
| Comment: no   | response due to pumping  | In source          |                                     |                              |
| Pumpst  | art  | Pumpstop           |                                     | 171                          |
| 2000  |  |                    |                                     | 1/4                          |
|   |  | l                  |                                     |                              |
| 1900  |  |                    |                                     | - 173                        |
|   |  |                    |                                     | a]                           |
| <b>E</b> 1800   |  |                    |                                     | – 172 –                      |
|   |  |                    |                                     | wel                          |
| ≷ 1700<br>ຍ   |  |                    |                                     | atio                         |
| Activ   | Street and a stree | Burn A             | a set a                             |                              |
| <b>9</b> 1600 -   |  |                    |                                     | Op:                          |
| SS  | - Starter  | • • • • • •        | <b>•</b>                            |                              |
| <u>م</u> 1500   |  |                    |                                     |                              |
| · · · · · · · · · · · · · · · · · · ·                   |  |                    |                                     |                              |
|   |  |                    |                                     |                              |
| 1400 -  |  |                    |                                     | - 169                        |
| 1400  |  |                    | KLX27A<br>KLX16A                    | 1 169                        |
| 1400  | 0.2007 20.10.2007  | 21.10.2007         | KLX27A<br>KLX16A_<br>22.10.2007     | 1 169<br>1 168<br>23.10.2007 |
| 1400<br>1300<br>18.10.2007<br>19.1                      | 0.2007 20.10.2007  | 21.10.2007<br>Date | ← KLX27A<br>← KLX16A_<br>22.10.2007 | 1 169<br>1 168<br>23.10.2007 |

| Activitypla                 | an No.                              | AP PS 4  | 100-07-72      |                 |                       |           |                     |
|-----------------------------|-------------------------------------|--|----------------|-----------------|-----------------------|-----------|---------------------|
| Pumping                     | Hole:                               |  | KLX27A         | Pumping         | Section               | [m bToC]: | 210.00-247.00       |
| Test Start:                 | :                                   | 10.10.20   | 00:00 00:00    | Test Stop       | :                     |           | 23.10.2007 12:00    |
| Pump Star                   | rt:                                 | 18.10.20   | 007 19:03      | Pump Sto        | p:                    |           | 21.10.2007 11:02    |
| Flow Rate                   | Q <sub>p</sub> [m <sup>3</sup> /s]: |  | 6.60E-05       |                 |                       |           |                     |
| Pressure                    | data                                |  |                | Nomenc          | ature                 | Unit      | Value               |
| Pressure in                 | n test section                      | before start of  | flowing:       |                 | <b>p</b> <sub>i</sub> | kPa       | 1847                |
| Pressure i                  | n test section                      | before stop of   | flowing:       |                 | $p_{p}$               | kPa       | 1409                |
| Maximum                     | pressure cha                        | inge during flov   | ving period:   |                 | $dp_{p}$              | kPa       | 438                 |
| Observati                   | ion Hole:                           |  | KLX16A         | Section r       | 10.:                  |           | KLX16A_2            |
| Distance r.                 | . [m]:                              |  | 1153 00        | Section le      | enath:                |           | 86 00-326 00        |
| Response                    | time dt <sub>i</sub> [s]:           |  | #NV            | max. Drav       | wdown s <sub>~</sub>  | [m]:*     | #NV                 |
| Pressure                    | data                                |  |                | Nomencl         | ature                 | Unit      | Value               |
| Pressure i                  | n test section                      | before start of  | flowing        |                 | n.                    | kDa       | 166 /               |
| Pressure in                 | n test section                      | before stop of   | flowing:       |                 | n<br>n                | kDa       | 165.0               |
| Mavimum                     | nressure abo                        | nge during flow  | ving pariod.*  |                 | Pp<br>dn              | kDa       | 100.9<br>0 E        |
| waximum                     | pressure cha                        | inge during flov   | ving period:"  |                 | up <sub>p</sub>       | кра       | 0.5                 |
| Normalize<br>Index 1        | ed distance wi                      | th respect to th<br>r <sub>e<sup>2</sup>/dt<sub>1</sub> [m<sup>2</sup>/s]:</sub> | e response tim | e<br><b>#NV</b> |                       |           |                     |
|                             |                                     | .ş,a.[ [,o].   |                |                 |                       |           |                     |
| Normalize                   | d drawdown v                        | with respect to  | pumping flow r | ate             |                       |           |                     |
| Index 2                     |                                     | s <sub>p</sub> /Q <sub>p</sub> [s/m²]:   |                | #NV             |                       |           |                     |
| Index 2 No                  | ew                                  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r                           | ∵₀) [s/m²]:    | #NV             |                       |           | * coo commont       |
| Comment:                    |                                     | no response o  | due to pumping | in source       |                       |           | see comment         |
|                             | -                                   |  |                |                 |                       |           |                     |
|                             |                                     |  |                |                 |                       |           |                     |
| <sup>2000</sup> T           | Pu                                  | mpstart  |                | Pum             | pstop                 |           | 167                 |
|                             |                                     | i  |                |                 | i                     |           |                     |
| 1900 -                      |                                     | <br>-+   |                |                 | 1                     |           |                     |
| 1000                        |                                     |  |                |                 | i                     |           |                     |
| 1900                        | <u>1</u>                            |  |                |                 |                       |           | Pa]                 |
|                             |                                     |  |                |                 |                       |           |                     |
| ell [J                      |                                     | 34 T   | s.             |                 | 1                     |           | — ме                |
| ≷ 1700 -<br>2               |                                     |  |                |                 |                       | •         | tion t              |
| Activ                       |                                     |  |                |                 | A CONTRACTOR          |           | 166 <b>2</b>        |
| <b>9</b> 1600 -             |                                     |  |                |                 |                       |           | Obs                 |
| nssé                        |                                     |  |                |                 | ٠<br>۲                |           | nre (               |
| <b>č</b> 1500 –             |                                     | ↓ ↓  |                |                 |                       |           | ,ess                |
|                             |                                     | 1  |                |                 | 1                     |           | <u> </u>            |
| 1400                        |                                     | June has   | Magazara       |                 | <u> </u>              |           |                     |
| 1400 -                      |                                     |  |                |                 |                       | KLX27A    |                     |
|                             |                                     | I  |                |                 | i                     | KLX16A_:  |                     |
| 1300 <del> </del><br>18.10. | .2007                               | 19.10.2007   | 20.10.2007     | 21.10.2007      | 22                    | .10.2007  | + 165<br>23.10.2007 |
|                             |                                     |  |                | Date            |                       |           |                     |
| 1                           |                                     |  |                |                 |                       |           |                     |

| Activitypl                        | an No.                                | AP PS 4   | 400-07-72   |                                  |               |                      |                   |                  |
|-----------------------------------|---------------------------------------|---|---|----------------------------------|---------------|----------------------|-------------------|------------------|
| Pumping                           | g Hole:                               |   | KLX27A  | I                                | Pumping Se    | ction [I             | m bToC]:          | 210.00-247.00    |
| Test Star                         | t:                                    | 10.10.2   | 007 00:00   | -                                | Fest Stop:    |                      |                   | 23.10.2007 12:00 |
| Pump Sta                          | art:                                  | 18.10.2   | 007 19:03   | F                                | Pump Stop:    |                      |                   | 21.10.2007 11:02 |
| Flow Rate                         | e Q <sub>p</sub> [m <sup>3</sup> /s]: |   | 6.60E-05  |                                  |               |                      |                   |                  |
| Pressure                          | e data                                |   |   |                                  | Nomenclatu    | re                   | Unit              | Value            |
| Pressure                          | in test section                       | before start of   | flowing:  |                                  |               | Di                   | kPa               | 1847             |
| Pressure                          | in test section                       | before stop of  | flowing:  |                                  |               | p <sub>p</sub>       | kPa               | 1409             |
| Maximum                           | n pressure cha                        | inge during flow  | wing period:  |                                  | C             | dp <sub>p</sub>      | kPa               | 438              |
| Observat                          | tion Hole:                            |   | KLX16A  | ę                                | Section no.:  |                      |                   | KLX16A_3         |
| Distance                          | r [ma].                               |   | 4000.00   |                                  |               | L.                   |                   |                  |
| Distance                          | r <sub>s</sub> [m]:<br>a time dt [c]: |   | 1238.00   |                                  | Section lengt | n:<br>woofr          | ml·*              | 0.00-85.00       |
| Response                          | e time dt <sub>L</sub> [S].           |   | #INV  |                                  | nax. Diawuu   | wn s <sub>p</sub> [r | nj.               | #INV             |
| Pressure                          | e data                                |   |   |                                  | Nomenclatu    | re                   | Unit              | Value            |
| Pressure                          | in test section                       | before start of   | flowing:  |                                  |               | p <sub>i</sub>       | kPa               | 183.4            |
| Pressure                          | in test section                       | before stop of  | flowing:  |                                  |               | $\mathbf{p}_{p}$     | kPa               | 184.4            |
| Maximum                           | n pressure cha                        | nge during flow   | wing period:*   |                                  | C             | dp <sub>p</sub>      | kPa               | 1.0              |
| Normalize<br>Index 2<br>Index 2 N | ed drawdown v<br>New                  | with respect to<br><b>s</b> <sub>p</sub> /Q <sub>p</sub> [ <b>s</b> /m <sup>2</sup> ]:<br>( <b>s</b> <sub>p</sub> /Q <sub>p</sub> )*In( <b>r</b> <sub>s</sub> / | pumping flow r<br>r <sub>0</sub> ) [s/m <sup>2</sup> ]: | rate<br>#NV<br>#NV               | 9             |                      |                   | * see comment    |
| Commen                            |                                       |   |   | g in source                      | <u> </u>      |                      |                   |                  |
| 2000                              | Pu                                    | mpstart   |   |                                  | Pumpstop      | p                    |                   |                  |
|                                   |                                       |   |   |                                  |               |                      |                   |                  |
| 1900                              |                                       | -   |   |                                  |               |                      |                   |                  |
|                                   |                                       | i   |   |                                  | İ             |                      |                   |                  |
|                                   |                                       |   |   |                                  |               |                      |                   | 185 6            |
| kPa                               | l t                                   |   |   |                                  |               |                      |                   |                  |
| ell [                             |                                       |   | a an T  |                                  | Mary Mary     | Section 20           | and the second    | Ň Š              |
| ≥ 1700<br>2                       |                                       | E.  | Carlo Maria   | 2.10 m                           |               |                      |                   | atio             |
| ctiv                              |                                       | 1 seens   | •   |                                  |               |                      |                   | - 184 <b>20</b>  |
| <b>ସ</b> 1600                     |                                       |   |   |                                  |               |                      |                   | Q                |
| nss                               | •                                     |   |   |                                  | <b>[</b>      |                      |                   | lie (            |
| <b>E</b> 1500                     | <u> </u>                              | 1   |   |                                  |               |                      |                   | ISSE             |
| 1300                              |                                       |   |   |                                  |               |                      |                   | 183 <b>4</b>     |
|                                   |                                       | human   | -   |                                  |               |                      |                   |                  |
| 1400                              |                                       |   | =   |                                  |               |                      | KLX27A<br>KLX16A_ | 3                |
| 1300                              |                                       | I   |   |                                  |               |                      | 1                 | 182              |
|                                   |                                       |   |   |                                  |               |                      |                   |                  |
| 18.1                              | 0.2007                                | 19.10.2007  | 20.10.2007  | 2 <sup>.</sup>                   | .10.2007      | 22.10                | ).2007            | 23.10.2007       |
| 18.1                              | 0.2007                                | 19.10.2007  | 20.10.2007  | <sup>2<sup>·</sup></sup><br>Date | .10.2007      | 22.10                | ).2007            | 23.10.2007       |

| Activityplan No.   | AP PS 400-07-72   |                               |                               |                                 |
|--|---|-------------------------------|-------------------------------|---------------------------------|
| Pumping Hole:  | KLX27A  | Pumping Section               | [m bToC]:                     | 210.00-247.00                   |
| Test Start:  | 10.10.2007 00:00  | Test Stop:                    | 2                             | 23.10.2007 12:00                |
| Pump Start:  | 18.10.2007 19:03  | Pump Stop:                    | 2                             | 21.10.2007 11:02                |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:                      | 6.60E-05  |                               |                               |                                 |
| Pressure data  |   | Nomenclature                  | Unit                          | Value                           |
| Pressure in test section I   | pefore start of flowing:  | p <sub>i</sub>                | kPa                           | 1847                            |
| Pressure in test section b   | pefore stop of flowing:   | pp                            | kPa                           | 1409                            |
| Maximum pressure chan  | nge during flowing period:  | dpp                           | kPa                           | 438                             |
| Observation Hole:  | KLX19A  | Section no.:                  |                               | KLX19A_1                        |
| Distance r <sub>s</sub> [m]:                                       | 497.00  | Section length:               |                               | 661.00-800.00                   |
| Response time dt <sub>L</sub> [s]:                                 | #NV   | max. Drawdown s <sub>p</sub>  | [m]:*                         | #NV                             |
| Pressure data  |   | Nomenclature                  | Unit                          | Value                           |
| Pressure in test section b   | pefore start of flowing:  | Di                            | kPa                           | 93.3                            |
| Pressure in test section I   | pefore stop of flowing:   | p <sub>o</sub>                | kPa                           | 92.3                            |
| Maximum pressure chan  | ge during flowing period:*  | dpp                           | kPa                           | 1.0                             |
|  |   | · r                           |                               |                                 |
| Normalized distance with   | r respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:  | •<br>#NV                      |                               |                                 |
| Normalized drawdown w<br>Index 2<br>Index 2 New<br>Comment:        | ith respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>no response due to pumping | te<br>#NV<br>#NV<br>in source | *                             | see comment                     |
| Pum  | inetart   | Pumpston                      |                               |                                 |
| 2000   |   |                               |                               | 94                              |
| 1900<br>1800<br>1800<br>1600<br>1500<br>1400<br>1300<br>18.10.2007 | 19.10.2007  | 21.10.2007 22<br>Date         | KLX27A<br>KLX19A_1<br>10.2007 | Bressure Observation well [KPa] |

| Activityplan No.                 | AP PS 400-07-72  |                      |                    |                   |
|----------------------------------|--|----------------------|--------------------|-------------------|
| Pumping Hole:                    | KLX27A   | Pumping Section      | n [m bToC]:        | 210.00-247.00     |
| Test Start:                      | 10.10.2007 00:00   | Test Stop:           |                    | 23.10.2007 12:00  |
| Flow Pate O [m <sup>3</sup> /s]: | 18.10.2007 19:03<br>6.60E.05   | Pump Stop:           |                    | 21.10.2007 11:02  |
| Procesure data                   | 0.00E-05   | Nomonoloturo         | Unit               | Volue             |
|                                  |  | Nomenciature         | Unit               | value             |
| Pressure in test section         | before start of flowing:   | P <sub>i</sub>       | kPa                | 1847              |
| Meximum pressure char            | before stop of flowing:  | ρ <sub>p</sub><br>dp | кра                | 1409              |
|                                  |  |                      | кра                | 438               |
| Observation Hole:                | KLX19A   | Section no.:         |                    | KLX19A_2          |
| Distance r <sub>s</sub> [m]:     | 347.00   | Section length:      |                    | 518.00-660.00     |
| Response time $dt_{L}$ [s]:      | #NV  | max. Drawdown s      | <sub>p</sub> [m]:* | #NV               |
| Pressure data                    |  | Nomenclature         | Unit               | Value             |
| Pressure in test section         | before start of flowing:   | p <sub>i</sub>       | kPa                | 88.8              |
| Pressure in test section         | before stop of flowing:  | p <sub>p</sub>       | kPa                | 87.9              |
| Maximum pressure chai            | nge during flowing period:*  | dpp                  | kPa                | 0.9               |
| Normalized distance wit          | h respect to the response time   | 3                    |                    |                   |
| Index 1                          | $r_s^2/dt_L [m^2/s]$ :   | ,<br>#NV             |                    |                   |
| Normalized drawdown w<br>Index 2 | vith respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m²]:                  | ite<br>#NV           |                    |                   |
| Index 2 New                      | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                  |                    | * see comment     |
| Comment:                         | no response due to pumping   | in source            |                    |                   |
| Pur                              | nostart  | Pumoston             |                    |                   |
| 2000                             |  |                      |                    | 91                |
|                                  | 1<br> <br>-  |                      |                    |                   |
| 1900 -                           | <br>   |                      |                    | - 90              |
|                                  |  | ĺ                    |                    | <b>a</b> ]        |
|                                  |  |                      |                    |                   |
|                                  |  |                      |                    | 89 C              |
| <b>9</b> 1700                    |  |                      |                    | /atio             |
|                                  | $\Lambda / \Lambda$  |                      | nl                 | pserv             |
|                                  |  |                      | $\checkmark$ /     | - <sup>88</sup> - |
| <b>ě</b>                         |  |                      |                    | essu              |
|                                  |  |                      |                    | <b>Č</b>          |
| 1400 -                           | Luna hangen hannen   |                      |                    |                   |
|                                  | <br> <br>  | I<br>I               | KLX27A<br>         |                   |
| 1300                             |  |                      |                    | 86                |
| 18.10.2007                       | 19.10.2007 20.10.2007  | 21.10.2007           | 22.10.2007         | 23.10.2007        |
|                                  |  |                      |                    |                   |

| Activityplan No.   | AP PS 400-07-72  |                      |                              |           |                  |
|--|--|----------------------|------------------------------|-----------|------------------|
| Pumping Hole:  | KLX27A   |                      | <b>Pumping Section</b>       | [m bToC]: | 210.00-247.00    |
| Test Start:  | 10.10.2007 00:00   |                      | Test Stop:                   |           | 23.10.2007 12:00 |
| Pump Start:  | 18.10.2007 19:03   |                      | Pump Stop:                   |           | 21.10.2007 11:02 |
| Flow Rate Q <sub>p</sub> [m <sup>°</sup> /s]:  | 6.60E-05   |                      |                              |           |                  |
| Pressure data  |  |                      | Nomenclature                 | Unit      | Value            |
| Pressure in test sectio  | n before start of flowing:   |                      | pi                           | kPa       | 1847             |
| Pressure in test sectio  | n before stop of flowing:  |                      | pp                           | kPa       | 1409             |
| Maximum pressure ch  | ange during flowing period:  |                      | dpp                          | kPa       | 438              |
| Observation Hole:  | KLX19A   |                      | Section no.:                 |           | KLX19A_3         |
| Distance r <sub>s</sub> [m]:   | 307.00   |                      | Section length:              |           | 509.00-517.00    |
| Response time dt <sub>L</sub> [s]:   | 15420  |                      | max. Drawdown s <sub>p</sub> | , [m]:*   | 0.80             |
| Pressure data  |  |                      | Nomenclature                 | Unit      | Value            |
| Pressure in test sectio  | n before start of flowing:   |                      | Pi                           | kPa       | 120.6            |
| Pressure in test sectio  | n before stop of flowing:  |                      | D <sub>D</sub>               | kPa       | 112.8            |
| Maximum pressure ch  | ange during flowing period.  | *                    | dp <sub>o</sub>              | kPa       | 7.8              |
|  | ange daring nowing period.   |                      | Ψρ                           |           | 1.0              |
| Normalized distance w  | vith respect to the response<br>r <sup>2</sup> /dt [m <sup>2</sup> /s]:  | time                 | м                            | odium     |                  |
| Index I  | י <sub>s</sub> /מנ נווו /אן.   | 0.11                 | IVI                          | euluin    |                  |
| Normalized drawdown  | with respect to pumping flo  | w rate               |                              |           |                  |
| Index 2  | s <sub>p</sub> /Q <sub>p</sub> [s/m²]:   | 12047.08             | М                            | edium     |                  |
|  |  |                      |                              |           |                  |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:  | 68991.77             | H                            | igh       | * see comment    |
| Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             | Hiurce                       | igh       | * see comment    |
| Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             | Hiurce                       | igh       | * see comment    |
| Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             | Urce                         | igh       | * see comment    |
| Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>clear response due to pur<br>umpstart      | 68991.77             | Urce<br>Pumpstop             | igh       | * see comment    |
| Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>clear response due to pur<br>umpstart<br>I | 68991.77             | Hi<br>urce<br>Pumpstop       | igh       | * see comment    |
| Index 2 New           Comment:           2000           1900   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>clear response due to pur                  | 68991.77             | Pumpstop                     | igh       | * see comment    |
| Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>clear response due to pur<br>umpstart      | 68991.77             | Hi<br>urce<br>Pumpstop       | igh       | * see comment    |
| Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>clear response due to pur<br>umpstart      | 68991.77             | Hi<br>urce<br>Pumpstop       | igh       | * see comment    |
| Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>clear response due to pur<br>umpstart      | 68991.77             | Pumpstop                     | igh       | * see comment    |
| Index 2 New<br>Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>clear response due to pur<br>umpstart      | 68991.77             | Pumpstop                     | igh       | * see comment    |
| Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             | Pumpstop                     | igh       | * see comment    |
| Index 2 New<br>Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             | Pumpstop                     | igh       | * see comment    |
| Index 2 New<br>Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             | Pumpstop                     | igh       | * see comment    |
| Index 2 New<br>Comment:<br>2000 P<br>1900<br>1900<br>1800<br>1800<br>1600<br>1500                          | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             | Pumpstop                     | igh       | * see comment    |
| Index 2 New<br>Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             | Pumpstop                     | igh       | * see comment    |
| Index 2 New<br>Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             | Pumpstop                     | igh       | * see comment    |
| Index 2 New<br>Comment:<br>2000 P<br>1900<br>1900<br>1800<br>1800<br>1600<br>1500<br>1400<br>1300          | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             | Pumpstop                     | igh<br>   | * see comment    |
| Index 2 New<br>Comment:<br>P<br>2000<br>1900<br>1900<br>1800<br>1800<br>1500<br>1400<br>1300<br>18.10.2007 | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77             |                              | igh<br>   | * See comment    |
| Index 2 New<br>Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 68991.77 mping in so |                              | igh       | * See comment    |

| Activityplan No.             | AP                                   | PS 400-07-72                               |             |                                 |                                  |                  |
|------------------------------|--------------------------------------|--|-------------|---------------------------------|----------------------------------|------------------|
| Pumping Hole:                | :                                    | KLX27A                                     |             | Pumping Section                 | n [m bToC]:                      | 210.00-247.00    |
| Test Start:                  | 10.                                  | 10.2007 00:00                              |             | Test Stop:                      |                                  | 23.10.2007 12:00 |
| Pump Start:                  | 18.<br>n <sup>3</sup> /cl:           | 10.2007 19:03                              |             | Pump Stop:                      |                                  | 21.10.2007 11:02 |
| Pressure data                | ii /5j.                              | 0.00E-05                                   |             | Nomenclature                    | Unit                             | Value            |
| Brossure in test             | anotion hofore at                    | ort of flowing:                            |             |                                 | kDe.                             | 1047             |
| Pressure in test             | section before sto                   | an of flowing:                             |             | p <sub>i</sub>                  | кра                              | 1847             |
| Maximum press                | sure change during                   | n flowing period:                          |             | Pp<br>dp                        | kPa                              | /38              |
| Observation He               | ole:                                 | KLX19A                                     |             | Section no.:                    |                                  | KLX19A_4         |
|                              |                                      |  |             |                                 |                                  | _                |
| Distance r <sub>s</sub> [m]: |                                      | 290.00                                     |             | Section length:                 |                                  | 481.50-508.00    |
| Response time                | dt <sub>L</sub> [s]:                 | 15420                                      |             | max. Drawdown s                 | s <sub>p</sub> [m]:*             | 0.78             |
| Pressure data                |                                      |  |             | Nomenclature                    | Unit                             | Value            |
| Pressure in test             | section before sta                   | art of flowing:                            |             | pi                              | kPa                              | 120.8            |
| Pressure in test             | section before sto                   | op of flowing:                             |             | pp                              | kPa                              | 113.1            |
| Maximum press                | sure change during                   | g flowing period:                          | *           | dpp                             | kPa                              | 7.7              |
| Normalized dist              | ance with respect                    | to the response                            | time        |                                 |                                  |                  |
| Index 1                      | r <sub>s</sub> ²/dt∟ [n              | <sup>.</sup><br>n²/s]:                     | 5.45        | r                               | Medium                           |                  |
| Normalized dray              | udowo with roopo                     | at to pumping flo                          | w roto      |                                 |                                  |                  |
| Index 2                      | s./Q. [s/                            | ct to pumping no<br>m <sup>2</sup> 1·      | 11892 63    | n                               | Medium                           |                  |
|                              | ο <sub>β</sub> , «ρ [ο,              | ].   |             |                                 |                                  |                  |
| Index 2 New                  | (s <sub>p</sub> /Q <sub>p</sub> )*li | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m²]: | 67429.78    | ŀ                               | ligh                             |                  |
|                              |                                      |  |             |                                 |                                  | * coo commont    |
| Comment:                     | clear res                            | ponse due to pu                            | mping in sc | urce                            |                                  | * see comment    |
| Comment:                     | clear res                            | ponse due to pu                            | mping in sc | urce                            |                                  | * see comment    |
| Comment:                     | clear res                            | ponse due to pu                            | mping in sc | urce<br>Pumpstop                |                                  | * see comment    |
| 2000                         | Clear res                            | ponse due to pu                            | mping in sc | urce<br>Pumpstop                |                                  | * see comment    |
| 2000                         | Clear res<br>Pumpstart               | ponse due to pu                            | mping in sc | Urce<br>Pumpstop<br>I<br>I<br>I |                                  | * see comment    |
| 2000                         | Clear res                            | ponse due to pu                            | mping in so | Urce<br>Pumpstop                |                                  | * see comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in sc | Urce<br>Pumpstop                |                                  | * see comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in sc | Urce<br>Pumpstop                |                                  | * see comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in sc | Urce<br>Pumpstop                |                                  | * see comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in sc | Urce<br>Pumpstop                |                                  | * see comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in sc | Urce<br>Pumpstop                |                                  | * see comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in sc | Urce<br>Pumpstop                |                                  | * see comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in sc | Urce<br>Pumpstop                |                                  | * see comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in so | Urce<br>Pumpstop                |                                  | * see comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in sc | Urce                            |                                  | * See comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in sc | Urce<br>Pumpstop                | KLX27A                           | * see comment    |
| Comment:                     | Clear res                            | ponse due to pu                            | mping in sc | Urce<br>Pumpstop                | KLX27A<br>KLX19A_4               | * See comment    |
| Comment:                     | Clear res                            | ponse due to pui                           | mping in sc | UICE<br>Pumpstop                | KLX27A<br>KLX19A_2<br>22.10.2007 | * See comment    |
| Comment:                     | Clear res                            | ponse due to pur                           | mping in sc | UICE<br>Pumpstop                | KLX27A<br>KLX19A_4<br>22.10.2007 | * See comment    |

| Activityplan No                  | 0.              | AP PS 400-07-72  |              |                 |                                  |   |
|----------------------------------|-----------------|--|--------------|-----------------|----------------------------------|---|
| Pumping Hole                     | e:              | KLX27A   |              | Pumping Section | n [m bToC]:                      | 210.00-247.00   |
| Test Start:                      |                 | 10.10.2007 00:00   |              | Test Stop:      |                                  | 23.10.2007 12:00  |
| Pump Start:                      | - 3/ -          | 18.10.2007 19:03   |              | Pump Stop:      |                                  | 21.10.2007 11:02  |
| Flow Rate Q <sub>p</sub> [       | [m³/s]:         | 6.60E-05   |              |                 |                                  |   |
| Pressure data                    | a               |  |              | Nomenclature    | Unit                             | Value   |
| Pressure in tes                  | st section b    | efore start of flowing:  |              | pi              | kPa                              | 1847  |
| Pressure in tes                  | st section b    | efore stop of flowing:   |              | pp              | kPa                              | 1409  |
| Maximum pres                     | ssure chan      | ge during flowing period:  |              | dpp             | kPa                              | 438   |
| Observation H                    | Hole:           | KLX19A   |              | Section no.:    |                                  | KLX19A_5  |
| Distance r <sub>s</sub> [m]      | 1:              | 261.00   |              | Section length: |                                  | 311.00-480.50   |
| Response time                    | -<br>e dt∟ [s]: | 16020  |              | max. Drawdown s | s <sub>o</sub> [m]:*             | 0.78  |
| Pressure data                    | a               |  |              | Nomenclature    | Unit                             | Value   |
| Pressure in tes                  | st section b    | efore start of flowing:  |              | pi              | kPa                              | 120.8   |
| Pressure in tes                  | st section b    | efore stop of flowina:   |              | D <sub>n</sub>  | kPa                              | 113.1   |
| Maximum pres                     | ssure chan      | ae durina flowina period:  | *            | dp <sub>p</sub> | kPa                              | 7.7   |
|                                  |                 | ge aannig normig ponear  |              | - i þ           |                                  |   |
| Normalized dis<br>Index 1        | stance with     | respect to the response<br>s <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:            | time<br>4.25 | Ν               | Medium                           |   |
|                                  |                 |  |              |                 |                                  |   |
| Normalized dra                   | awdown wi       | th respect to pumping flo  | ow rate      |                 |                                  |   |
| Index 2                          | :               | s <sub>p</sub> /Q <sub>p</sub> [s/m⁻]:   | 11892.63     | r               | Viedium                          |   |
| Index 2 New                      | (               | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | 66176.76     | ŀ               | High                             |   |
|                                  |                 |  |              |                 | 0                                | * see comment   |
| Comment:                         |                 | clear response due to pu   | mping in sc  | ource           |                                  | * see comment   |
| Comment:                         |                 | clear response due to pu   | mping in sc  | ource           |                                  | * see comment   |
| Comment:                         | Pum             | clear response due to pu   | mping in sc  | Pumpstop        |                                  | * see comment   |
| 2000                             | Pum             | clear response due to pu   | mping in sc  | Pumpstop        |                                  | * see comment   |
| 2000                             | Pum             | clear response due to pu   | mping in so  | Pumpstop        |                                  | * see comment   |
| 2000                             | Pum<br>I<br>I   | clear response due to pu   | mping in sc  | Pumpstop        |                                  | * see comment   |
| 2000                             | Pum             | clear response due to pu   | mping in so  | Pumpstop        |                                  | * see comment   |
| Comment:                         | Pum             | clear response due to pu   | mping in sc  | Pumpstop        |                                  | * see comment   |
| Comment:<br>2000<br>1900<br>1800 | Pum             | clear response due to pu   | mping in so  | Pumpstop        |                                  | * see comment   |
| Comment:                         | Pum             | clear response due to pu   | mping in so  | Pumpstop        |                                  | * see comment<br>124<br>123<br>122<br>121<br>122<br>121<br>120<br>120<br>119<br>119 |
| Comment:                         | Pum             | clear response due to pu   | mping in sc  | Pumpstop        |                                  | * see comment   |
| Comment:                         | Pum             | clear response due to pu   | mping in so  | Pumpstop        |                                  | * see comment   |
| Comment:                         | Pum             | clear response due to pu   | mping in so  | Pumpstop        |                                  | * see comment   |
| Comment:                         | Pum             | clear response due to pu   | mping in so  | Pumpstop        |                                  | * see comment   |
| Comment:                         | Pum             | clear response due to pu   | mping in so  | Pumpstop        |                                  | * see comment   |
| Comment:                         | Pum             | clear response due to pu   | mping in so  | Pumpstop        |                                  | * See comment   |
| Comment:                         | Pum             | Destart  | mping in so  | Pumpstop        | KLX27A                           | * See comment   |
| Comment:                         | Pum             | clear response due to pu   | mping in sc  | Pumpstop        | KLX27A<br>KLX19A                 | * See comment   |
| Comment:                         | Pum             | Destart 20.10.2007   | mping in so  | Pumpstop        | KLX27A<br>KLX19A_5<br>22.10.2007 | * See comment   |
| Comment:                         | Pum             | Destart 20.10.2007   | mping in so  | Pumpstop        | KLX27A<br>KLX19A 5<br>22.10.2007 | * See comment   |

| Pumping Hole:         KLX27A         Pumping Section [m bToC]:         210.00           Test Start:         10.10.2007 00:00         Test Stop:         23.10.200   | 247 00          |
|---|-----------------|
| Test Start:         10.10.2007 00:00         Test Stop:         23.10.200   | 211100          |
|   | 7 12:00         |
| Pump Start:         18.10.2007 19:03         Pump Stop:         21.10.200           Flow Bate O $[m^3/a]$ :         0.005 05         0.005 05         0.005 05         0.005 05   | / 11:02         |
| Proseuro data   | •               |
|   | e               |
| Pressure in test section before start of flowing: p <sub>i</sub> kPa  | 1847            |
| Pressure in test section before stop of flowing: $p_p$ kPa  | 1409            |
| Maximum pressure change during flowing period: dpp kPa  | 438             |
| Observation Hole: KLX19A Section no.: KLX   | (19 <b>A_</b> 6 |
| Distance r <sub>s</sub> [m]: 224.00 Section length: 291.00-   | 300.00          |
| Response time dt <sub>L</sub> [s]: 15420 max. Drawdown s <sub>p</sub> [m]:*   | 0.61            |
| Pressure data Nomenclature Unit Valu  | е               |
| Pressure in test section before start of flowing: p <sub>i</sub> kPa  | 123.1           |
| Pressure in test section before stop of flowing: $p_0$ kPa  | 117.1           |
| Maximum pressure change during flowing period:* dpp kPa   | 6.0             |
| Normalized distance with respect to the response time   |                 |
| Index 1 $r_s^2/dt_L [m^2/s]$ : 3.25 Medium  |                 |
|   |                 |
| Normalized drawdown with respect to pumping flow rate $r_{1}$   |                 |
| $\frac{1}{2} = \frac{1}{2} \sum_{p \in \mathcal{P}} \frac{1}{2} \sum_{p \in P$ |                 |
| Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: 50149.63 High  | ment            |
| Comment: clear response due to pumping in source  | non             |
|   |                 |
| Pumpstart Pumpstop  |                 |
| 2000  |                 |
| - 124   |                 |
| 1900  |                 |
| 123   | oa]             |
| 122   | all [kf         |
|   | on we           |
|   | vatic           |
| <b>b</b> 1600 120   | bser            |
|   | Ire O           |
| <b>2</b> 1500 <b>119</b>  | essu            |
| - 118   | P               |
| 1400  |                 |
| → KLX27A + 117<br>→ KLX19A_6  |                 |
|   |                 |
| 18.10.2007 19.10.2007 20.10.2007 21.10.2007 22.10.2007 23.10.2007   |                 |
| Date  |                 |

| Activityplan No.            | AP   | PS 400-07-72  |   |   |                           |                  |
|-----------------------------|--|---|---|---|---------------------------|------------------|
| Pumping Hole:               |  | KLX27A  |   | Pumping Section   | on [m bToC]:              | 210.00-247.00    |
| Test Start:                 | 10.  | 10.2007 00:00   |   | Test Stop:  |                           | 23.10.2007 12:00 |
| Pump Start:                 | - <sup>3</sup> /-1   | 10.2007 19:03   |   | Pump Stop:  |                           | 21.10.2007 11:02 |
| Flow Rate Q <sub>p</sub> [m | n°/sj:   | 6.60E-05  |   |   |                           |                  |
| Pressure data               |  |   |   | Nomenclature  | Unit                      | Value            |
| Pressure in test            | section before sta   | art of flowing:   |   | pi  | kPa                       | a 1847           |
| Pressure in test            | section before sto   | op of flowing:  |   | pp  | kPa                       | a 1409           |
| Maximum press               | sure change during   | g flowing period:   |   | dpp   | kPa                       | a 438            |
| Observation He              | ole:   | KLX19A  |   | Section no.:  |                           | KLX19A_7         |
| Distance r [m]·             |  | 275 00  |   | Section length:   |                           | 136 00-290 00    |
| Response time (             | dt. [s]·   | 175020  |   | max Drawdown  | s [m]·*                   | 0.13             |
|                             | ալ լոյ.  | 175020  |   | Nemenalatura  | Sp [III].                 | Value            |
| Pressure data               |  |   |   | Nomenciature  | Unit                      | value            |
| Pressure in test            | section before sta   | art of flowing:   |   | p <sub>i</sub>  | kPa                       | a 129.0          |
| Pressure in test            | section before sto   | op of flowing:  |   | p <sub>p</sub>  | kPa                       | a 127.7          |
| Maximum press               | sure change during   | g flowing period:*  | 5                                       | dp <sub>p</sub>   | kPa                       | a 1.3            |
| Normalized dista            | ance with respect  | to the response   | time                                    |   |                           |                  |
| Index 1                     | r <sub>s</sub> ²/dt∟ [n  | n²/s]:  | 0.43                                    |   | Low                       |                  |
| Normalized drav             | wdown with respe   | ct to pumping flo   | w rate                                  |   |                           |                  |
| Index 2                     | s <sub>p</sub> /Q <sub>p</sub> [s/   | /m <sup>2</sup> ]:  | 2007.85                                 |   | Low                       |                  |
|                             | F F -  | -   |   |   |                           |                  |
|                             |  | 2   |   |   |                           |                  |
| Index 2 New                 | (s <sub>p</sub> /Q <sub>p</sub> )*I  | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:  | 11277.61                                |   | Medium                    | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I  | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                       | <b>11277.61</b> pumping in              | source  | Medium                    | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61<br>pumping in<br>bly influence | source<br>d by natural fluc                                 | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61<br>pumping in<br>oly influence | source<br>d by natural fluc                                 | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure<br>Pumpstart           | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61<br>pumping in<br>ly influence  | source<br>d by natural fluc<br>Pumpstop                     | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New Comment:        | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure<br>Pumpstart           | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61<br>pumping in<br>oly influence | source<br>d by natural fluc<br>Pumpstop                     | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure<br>Pumpstart<br>I<br>I | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61<br>pumping in<br>ly influence  | source<br>d by natural fluc<br>Pumpstop<br>I<br>I<br>I      | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure<br>Pumpstart           | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61<br>pumping in<br>bly influence | source<br>d by natural fluc<br>Pumpstop<br>I<br>I<br>I<br>I | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure<br>Pumpstart           | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61<br>pumping in<br>ly influence  | source<br>ed by natural fluc<br>Pumpstop                    | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61<br>pumping in<br>bly influence | source<br>ed by natural fluc<br>Pumpstop                    | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure<br>Pumpstart           | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61<br>pumping in<br>ly influence  | source<br>ed by natural fluc<br>Pumpstop                    | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61 pumping in bly influence       | source<br>ed by natural fluc<br>Pumpstop                    | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61<br>pumping in<br>ly influence  | source<br>ed by natural fluc<br>Pumpstop                    | Medium<br>tuations        | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61                                | source<br>ed by natural fluc<br>Pumpstop                    | <b>Medium</b><br>tuations | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61 pumping in ly influence        | source<br>ed by natural fluc                                | Medium                    | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61                                | source<br>ed by natural fluc<br>Pumpstop                    | Medium<br>tuations        | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61 pumping in ly influence        | source<br>ed by natural fluc                                | Medium<br>tuations        | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                       | 11277.61                                | source<br>ed by natural fluc<br>Pumpstop                    | Medium<br>tuations        | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to<br>recovery probab | 11277.61 pumping in ly influence        | source<br>ed by natural fluc                                | Medium<br>tuations        | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I  | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                       | 11277.61                                | Source<br>ed by natural fluc<br>Pumpstop                    | Medium<br>tuations        | * see comment    |
| Index 2 New<br>Comment:     | (s <sub>p</sub> /Q <sub>p</sub> )*I<br>no clear<br>pressure                        | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                       | 11277.61 pumping in ily influence       | Source<br>ed by natural fluc                                | Medium<br>tuations        | * see comment    |

| Activityplan No. AP PS 400-07-72   |                         |
|--|-------------------------|
| Pumping Hole: KLX27A Pumping Section [m bToC]: 210   | 0.00-247.00             |
| Test Start:         10.10.2007 00:00         Test Stop:         23.10  | 2007 12:00              |
| Pump Start: 18.10.2007 19:03 Pump Stop: 21.10  | 2007 11:02              |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: 6.60E-05   |                         |
| Pressure data Nomenclature Unit  | Value                   |
| Pressure in test section before start of flowing: p <sub>i</sub> kPa   | 1847                    |
| Pressure in test section before stop of flowing: pp kPa  | 1409                    |
| Maximum pressure change during flowing period: dp <sub>p</sub> kPa   | 438                     |
| Observation Hole: KLX19A Section no.:  | KLX19A_8                |
| Distance r <sub>e</sub> [m]: 303.00 Section length:  | 0.00-135.00             |
| Response time dt <sub>i</sub> [s]: 108420 max. Drawdown s <sub>b</sub> [m]:*   | 0.13                    |
| Pressure data Nomenclature Unit  | Value                   |
| Pressure in test section before start of flowing:  | 129 1                   |
| Pressure in test section before stop of flowing:   | 127.1                   |
| Maximum prossure change during flowing period:* $dp = kPa$   | 127.0                   |
|  | 1.5                     |
| Normalized distance with respect to the response time  |                         |
| Index 1 r <sub>s</sub> <sup>-</sup> /dt <sub>L</sub> [m <sup>-</sup> /s]: 0.85 Low                                     |                         |
| Normalized drawdown with respect to pumping flow rate  |                         |
| Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: 2007.85 Low  |                         |
| Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: 11472.30 Medium |                         |
| Comment: no clear response due to pumping in source  | comment                 |
| pressure recovery probably influenced by natural fluctuations  |                         |
| Pumpstart Pumpstop   |                         |
| 2000   | 130                     |
|  |                         |
| 1900   |                         |
|  | _                       |
|  | [kPa                    |
|  | <sup>129</sup> <b>I</b> |
| <b>1</b> 700   | on v                    |
| ÷.   | rvati                   |
|  | psei                    |
|  | Le O                    |
|  | 128 <b>NSS</b>          |
|  | Pre                     |
|  |                         |
| 1400 - KLX27A  |                         |
| KLX19A_8   |                         |
| 1300   | 127                     |
| 18.10.2007 19.10.2007 20.10.2007 21.10.2007 22.10.2007 23.1  | 0.2007                  |
| 18.10.2007 19.10.2007 20.10.2007 21.10.2007 22.10.2007 23.10<br>Date   | 0.2007                  |

| Activitypla                                | an No.   | AP P  | S 400-07-72                              |                      |  |                     |           |                           |
|--|--|---|--|----------------------|--|---------------------|-----------|---------------------------|
| Pumping                                    | Hole:  |   | KLX27A                                   |                      | Pumping  | Section             | [m bToC]: | 210.00-247.00             |
| Test Start                                 | :  | 10.10   | 0.2007 00:00                             |                      | Test Stop:   |                     |           | 23.10.2007 12:00          |
| Pump Sta                                   | irt:   | 18.10   | 0.2007 19:03                             |                      | Pump Stop  | ):                  |           | 21.10.2007 11:02          |
| Flow Rate                                  | e Q <sub>p</sub> [m³/s]:   |   | 6.60E-05                                 |                      |  |                     |           |                           |
| Pressure                                   | data   |   |  |                      | Nomencla   | iture               | Unit      | Value                     |
| Pressure i                                 | in test section  | before start  | of flowing:                              |                      |  | pi                  | kPa       | 1847                      |
| Pressure i                                 | in test section  | before stop   | of flowing:                              |                      |  | $p_p$               | kPa       | 1409                      |
| Maximum                                    | pressure char  | nge during f  | lowing period:                           |                      |  | $dp_{p}$            | kPa       | 438                       |
| Observat                                   | ion Hole:  |   | KLX20A                                   |                      | Section no   | <b>D.</b> :         |           | KLX20A_1                  |
| Distance r                                 | r, [ <b>m</b> ]:   |   | 759.00                                   |                      | Section ler  | ngth:               |           | 294.00-457.00             |
| Response                                   | time dt <sub>L</sub> [s]:  |   | #NV                                      |                      | max. Draw  | down s <sub>p</sub> | [m]:*     | #NV                       |
| Pressure                                   | data   |   |  |                      | Nomencla   | iture               | Unit      | Value                     |
| Pressure i                                 | in test section  | before start  | of flowing:                              |                      |  | p <sub>i</sub>      | kPa       | 142.1                     |
| Pressure i                                 | in test section  | before stop   | of flowing:                              |                      |  | p <sub>n</sub>      | kPa       | 141.0                     |
| Maximum                                    | pressure char  | nge during f  | lowing period:*                          |                      |  | dp <sub>p</sub>     | kPa       | 1.1                       |
| Normoliza                                  | d diatanaa wit   | h roopoot to  | the response t                           | limo                 |  | - 1                 |           |                           |
| Index 1                                    |  | r <sub>s</sub> ²/dt <sub>L</sub> [m²/               | s]:                                      | #NV                  |  |                     |           |                           |
| Normalize<br>Index 2                       | ed drawdown w  | /ith respect<br>s <sub>p</sub> /Q <sub>p</sub> [s/m | to pumping flow<br><sup>2</sup> ]:       | w rate<br><b>#NV</b> |  |                     |           |                           |
| Index 2 N                                  | lew  | (s <sub>p</sub> /Q <sub>p</sub> )*In(               | r <sub>s</sub> /r <sub>0</sub> ) [s/m²]: | #NV                  |  |                     |           | * see comment             |
| Comment                                    |  | no respons  | e due to pump                            | ing in sour          | се   |                     |           |                           |
|  | Pun  | nostart   |  |                      | Pump   | stop                |           |                           |
| 2000 -                                     |  |   |  |                      |  |                     |           | 145                       |
|  |  | l<br>I  | t l                                      |                      |  | l<br>I              | Ì         | 1                         |
| 1900 ·                                     |  | 1   |  |                      |  |                     |           | 144                       |
|  | 1  |   |  |                      |  |                     |           |                           |
| - <sup>1800</sup>                          | 1  |   |  |                      |  |                     |           | kPa]                      |
| [kP;                                       |  |   |  |                      |  |                     |           | <sup>- 143</sup> <b>]</b> |
| <b>1700</b> -                              |  |   |  |                      |  |                     |           | on w                      |
| tive                                       | The state of the s |   |  |                      |  |                     |           | 142 LA                    |
| <b>O</b><br><b>O</b><br><b>O</b><br>1600 · |  |   |  |                      |  |                     |           | psei                      |
| ssur                                       |  | The second  | C. C. C. C. C. C. C. C. C. C. C. C. C. C | 3                    | linnen   |                     |           | e<br>O                    |
| <b>J L E C</b>                             |  |   |  | No. Cont             | n de la compañía de la |                     |           | - 141 <b>NSS</b>          |
| 1500 -                                     |  |   |  |                      |  |                     |           | Pre                       |
|  |  | L.  |  |                      |  |                     |           | - 140                     |
| 1400 ·                                     |  | l   |  |                      |  |                     | KLX27A    | 1                         |
| 1300 -                                     |  | <br>+ · · ·   | I  |                      |  | <br>                |           | 139                       |
| 18.10                                      | ).2007   | 19.10.2007  | 20.10.2007                               | Date                 | 21.10.2007   | 22                  | 10.2007   | 23.10.2007                |
|  |  |   |  |                      |  |                     |           |                           |

| Activitypla                 | an No.                    | AP PS  | 400-07-72                              |                    |                |                      |              |                  |
|-----------------------------|---------------------------|--|--|--------------------|----------------|----------------------|--------------|------------------|
| Pumping                     | Hole:                     |  | KLX27A                                 |                    | Pumping        | Section              | [m bToC]:    | 210.00-247.00    |
| Test Start                  | :                         | 10.10.2  | 2007 00:00                             |                    | Test Stop:     |                      |              | 23.10.2007 12:00 |
| Pump Sta                    | irt:                      | 18.10.2  | 2007 19:03                             |                    | Pump Stop      | D:                   |              | 21.10.2007 11:02 |
| Flow Rate                   | e Q <sub>p</sub> [m³/s]:  |  | 6.60E-05                               |                    |                |                      |              |                  |
| Pressure                    | data                      |  |  |                    | Nomencla       | ature                | Unit         | Value            |
| Pressure                    | in test section           | before start o   | f flowing:                             |                    |                | pi                   | kPa          | 1847             |
| Pressure                    | in test section           | before stop of   | f flowing:                             |                    |                | $p_p$                | kPa          | 1409             |
| Maximum                     | pressure char             | nge during flo   | wing period:                           |                    |                | $dp_p$               | kPa          | 438              |
| Observat                    | ion Hole:                 |  | KLX20A                                 |                    | Section n      | 0.:                  |              | KLX20A_2         |
| Distance I                  | r, [m]:                   |  | 712.00                                 |                    | Section ler    | ngth:                |              | 260.00-296.00    |
| Response                    | time dt <sub>L</sub> [s]: |  | #NV                                    |                    | max. Draw      | vdown s <sub>p</sub> | [m]:*        | #NV              |
| Pressure                    | data                      |  |  |                    | Nomencla       | ature                | Unit         | Value            |
| Pressure                    | in test section           | before start o   | f flowing:                             |                    |                | pi                   | kPa          | 145.3            |
| Pressure                    | in test section           | before stop of   | f flowina:                             |                    |                | p <sub>n</sub>       | kPa          | 144.5            |
| Maximum                     | pressure char             | nae durina flo   | wing period:*                          |                    |                | dp                   | kPa          | 0.8              |
|                             |                           | ige damig ne   |  |                    |                | Ψ₽p                  |              | 0.0              |
| Normalize<br>Index 1        | ed distance wit           | h respect to th<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s] | ne response t<br> :                    | time<br><b>#NV</b> |                |                      |              |                  |
|                             |                           |  |  |                    |                |                      |              |                  |
| Normalize                   | ed drawdown w             | ith respect to   | pumping flow                           | w rate             |                |                      |              |                  |
| Index 2                     |                           | s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:        | 1                                      | #NV                |                |                      |              |                  |
| Index 2 N                   | lew                       | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /      | /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                |                |                      |              |                  |
| Commont                     |                           |  | duo to pump                            | ing in cour        | ~~~            |                      |              | * see comment    |
| Comment                     | •                         | no response  | due to pump                            | ing in sour        | ce             |                      |              |                  |
|                             |                           |  |  |                    |                |                      |              |                  |
| 2000                        | Pun                       | npstart  |  |                    | Pump           | stop                 |              | 149              |
| 2000 -                      |                           |  |  |                    |                | 1                    |              | 148              |
| 4000                        |                           |  |  |                    |                |                      | t            |                  |
| 1900 -                      |                           | 1  |  |                    |                |                      | •            | - 147            |
|                             |                           |  |  |                    |                |                      |              | al               |
|                             |                           |  |  |                    |                |                      |              | EkF              |
| ell [ŀ                      |                           |  |  |                    |                |                      |              | – 146 <b>e</b>   |
| <b>3</b> 1700 -<br><b>9</b> |                           | +  |  |                    |                |                      |              | atio             |
| Acti                        | and the second states     |  |  |                    |                |                      |              | serv             |
| <b>1600</b>                 |                           |  |  |                    |                |                      |              | 145 <b>Q</b>     |
| ress                        |                           | New Contraction  | Stores .                               |                    | And the second | Sand Second          |              | sure             |
| <b>L</b> 1500 ·             |                           |  |  |                    |                |                      | - The second | Pres             |
|                             |                           | ( L  |  |                    |                |                      |              | - 144            |
| 1400                        |                           |  |  |                    |                | <b>,</b><br>         |              |                  |
|                             |                           | 1  |  |                    |                | 1                    |              | 2                |
| 1300                        | 2007                      | 10.10.2007   | 00.40.000=                             |                    | 01 10 0007     | 1                    | 10 2007      | 143              |
| 18.10                       | J.ZUU <i>T</i>            | 19.10.2007   | 20.10.2007                             | Date               | 21.10.2007     | 22.                  | 10.2007      | 23.10.2007       |
|                             |                           |  |  |                    |                |                      |              |                  |
| 1                           |                           |  |  |                    |                |                      |              |                  |

| Activitypl    | an No.                      | AP F                                      | PS 400-07-72                                 |             |              |                           |           |                  |
|---------------|-----------------------------|---|--|-------------|--------------|---------------------------|-----------|------------------|
| Pumping       | J Hole:                     |   | KLX27A                                       |             | Pumping Se   | ction                     | [m bToC]: | 210.00-247.00    |
| Test Star     | t:                          | 10.1                                      | 0.2007 00:00                                 |             | Test Stop:   |                           |           | 23.10.2007 12:00 |
| Pump Sta      | art:                        | 18.1                                      | 0.2007 19:03                                 |             | Pump Stop:   |                           |           | 21.10.2007 11:02 |
| Flow Rate     | e Q <sub>p</sub> [m³/s]:    |   | 6.60E-05                                     |             |              |                           |           |                  |
| Pressure      | e data                      |   |  |             | Nomenclatu   | ure                       | Unit      | Value            |
| Pressure      | in test section             | before star                               | t of flowing:                                |             |              | p <sub>i</sub>            | kPa       | 1847             |
| Pressure      | in test section             | before stop                               | o of flowing:                                |             |              | $\mathbf{p}_{\mathbf{p}}$ | kPa       | 1409             |
| Maximum       | n pressure cha              | nge during                                | flowing period:                              |             |              | dp <sub>p</sub>           | kPa       | 438              |
| Observat      | tion Hole:                  |   | KLX20A                                       |             | Section no.  | :                         |           | KLX20A_3         |
| Distance      | r, [m]:                     |   | 694.00                                       |             | Section leng | th:                       |           | 181.00-259.00    |
| Response      | e time dt <sub>L</sub> [s]: |   | #NV  |             | max. Drawdo  | own s <sub>p</sub>        | [m]:*     | #NV              |
| Pressure      | data                        |   |  |             | Nomenclatu   | ure                       | Unit      | Value            |
| Pressure      | in test section             | before star                               | t of flowing:                                |             |              | p <sub>i</sub>            | kPa       | 145.2            |
| Pressure      | in test section             | before stor                               | o of flowing:                                |             |              | p <sub>n</sub>            | kPa       | 143.9            |
| Maximum       | n pressure cha              | nae durina                                | flowing period.*                             | ÷           |              | dp.                       | kPa       | 1.3              |
|               |                             |   | ine mig period.                              |             |              | чгр                       |           |                  |
| Normalize     | ed distance wi              | th respect to<br>r <sub>c</sub> ²/dt, fm² | o the response <sup>·</sup><br>2 <b>/s1:</b> | time<br>#NV | ,            |                           |           |                  |
|               |                             | 3 L L                                     | -  |             |              |                           |           |                  |
| Normalize     | ed drawdown                 | with respect                              | to pumping flo                               | w rate      |              |                           |           |                  |
| Index 2       |                             | s <sub>p</sub> /Q <sub>p</sub> [s/n       | າ <sup>2</sup> ]:                            | #NV         | 1            |                           |           |                  |
| Index 2 N     | New                         | (s"/Q")*In                                | (r₅/r₀) [s/m²]:                              | #NV         | ,            |                           |           |                  |
|               |                             | · P F                                     |  |             |              |                           |           | * see comment    |
| Commen        | t:                          | no respon                                 | se due to pump                               | ing in sour | ce           |                           |           |                  |
|               |                             |   |  |             |              |                           |           |                  |
|               | Pu                          | mpstart                                   |  |             | Pumpsto      | q                         |           |                  |
| 2000          |                             | Í   |  |             | 'l'l'l'l'l   |                           |           | 148              |
|               |                             | l   |  |             |              |                           |           |                  |
| 1900          |                             | 1   |  |             |              |                           |           | 147              |
|               |                             |   |  |             | į            |                           |           | a]               |
|               |                             |   |  |             | ſ            |                           |           | 146 <b>41</b>    |
| ell [k        | 1                           |   |  |             |              |                           |           | law r            |
| š 1700        |                             |   | -  |             |              |                           |           |                  |
| Activ         |                             | and the second                            |  |             | Warman .     | $\wedge$                  |           | serv             |
| <b>9</b> 1600 |                             |   | -  |             |              |                           |           | 144 <b>d</b>     |
| ress          |                             |   |  |             |              |                           |           | sure             |
| <b>L</b> 1500 |                             |   |  |             |              |                           |           | 143 <b>Se</b>    |
|               |                             |   | ·  | •           |              |                           |           |                  |
| 1400          |                             |   |  |             |              |                           | КІ Х27А   | 142              |
|               |                             | 1   |  |             |              |                           |           | 3                |
| 1300          | 0 2007                      | 19 10 2007                                | 20 10 2007                                   |             | 21 10 2007   | 22                        | 10 2007   | 141              |
| 10.1          | 0.2001                      | 10.10.2007                                | 20.10.2007                                   | Date        | 20.2007      | 22.                       |           | 20.10.2007       |
|               |                             |   |  |             |              |                           |           |                  |
|               |                             |   |  |             |              |                           |           |                  |

| Activitypla     | an No.                      | API   | PS 400-07-72                              |             |  |                     |              |                  |
|-----------------|-----------------------------|---|---|-------------|--|---------------------|--------------|------------------|
| Pumping         | Hole:                       |   | KLX27A                                    |             | Pumping \$   | Section             | [m bToC]:    | 210.00-247.00    |
| Test Start      | t:                          | 10.1  | 0.2007 00:00                              |             | Test Stop:   |                     |              | 23.10.2007 12:00 |
| Pump Sta        | art:                        | 18.1  | 0.2007 19:03                              |             | Pump Stop  | :                   |              | 21.10.2007 11:02 |
| Flow Rate       | e Q <sub>p</sub> [m³/s]:    |   | 6.60E-05                                  |             |  |                     |              |                  |
| Pressure        | data                        |   |   |             | Nomencla   | ture                | Unit         | Value            |
| Pressure        | in test section             | before sta  | rt of flowing:                            |             |  | pi                  | kPa          | 1847             |
| Pressure        | in test section             | before sto  | p of flowing:                             |             |  | $p_p$               | kPa          | 1409             |
| Maximum         | n pressure cha              | nge during  | flowing period:                           |             |  | $dp_{p}$            | kPa          | 438              |
| Observat        | ion Hole:                   |   | KLX20A                                    |             | Section no   | <b>)</b> .:         |              | KLX20A_4         |
| Distance        | r. [m]:                     |   | 689.00                                    |             | Section len  | ath:                |              | 145.00-180.00    |
| Response        | e time dt <sub>L</sub> [s]: |   | #NV                                       |             | max. Draw  | down s <sub>p</sub> | [m]:*        | #NV              |
| Pressure        | data                        |   |   |             | Nomencla   | ture                | Unit         | Value            |
| Pressure        | in test section             | before sta  | rt of flowing:                            |             |  | D;                  | kPa          | 134.2            |
| Pressure        | in test section             | before sto  | n of flowing:                             |             |  | г.<br>П.            | k Do         | 122.2            |
| Movimum         |                             |   | flowing pariod.*                          | ł           |  | Pp<br>dp            | k Do         | 1 100.2          |
| Waximun         | i pressure cha              | nge dunng   | nowing period.                            |             |  | upp                 | Kra          | 1.0              |
| Normalize       | ed distance wi              | th respect t  | o the response                            | time<br>#NV |  |                     |              |                  |
| IIIUEX I        |                             | r <sub>s</sub> /ut_ [m  | /5].                                      | #IN V       |  |                     |              |                  |
| Normalize       | ed drawdown v               | with respec   | t to pumping flo                          | w rate      |  |                     |              |                  |
| Index 2         |                             | s <sub>p</sub> /Q <sub>p</sub> [s/r   | n²]:                                      | #NV         |  |                     |              |                  |
|                 |                             |   | 2   |             |  |                     |              |                  |
| Index 2 N       | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*In  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m²]: | #NV         |  |                     |              | *                |
| Comment         | ··                          | no respor   | se due to pump                            | ina in sour | ce   |                     |              | see comment      |
| Comment         |                             | потезрог  |   | ing in sour |  |                     |              |                  |
|                 |                             |   |   |             |  |                     |              |                  |
|                 | Pu                          | mpstart   |   |             | Pumps  | stop                |              |                  |
| 2000            |                             | 1   |   |             |  |                     | •            | 136              |
|                 |                             | Ì   |   |             | l  |                     | 1            |                  |
| 1900            |                             | 1   |   |             |  |                     |              |                  |
|                 |                             |   |   |             |  |                     |              | - 135            |
| <sup>1800</sup> |                             |   | •   |             |  |                     |              | [kb              |
| II [K           | Personal Contraction        |   | Ť   |             |  |                     | •            | well             |
| <b>9</b> 1700   |                             | The second second second second second second second second second second second second second second second se | Part .                                    |             |  |                     | •            | - 134 <b>u</b>   |
| ctive           |                             |   |   | <u> </u>    |  |                     |              | ervat            |
| <b>ě</b> 1600   |                             |   | · •                                       |             | - Andrew Contraction of the second se | A CONTRACTOR        | internet and | bbse             |
| ssur            |                             |   |   |             |  |                     | State .      |                  |
| e<br>L<br>1500  |                             |   |   |             |  |                     |              | nsse             |
| 1000            |                             | 1   |   |             |  |                     |              | Ĕ                |
|                 |                             | L.  | -   |             |  |                     |              | + 132            |
| 1400            |                             |   |   |             |  |                     | KLX27A       |                  |
|                 |                             |   |   |             |  |                     |              | 4                |
| 1300            | 0.2007                      | 19.10.2007  | 20 10 2007                                |             | 21.10.2007   | 22                  | .10.2007     | 131              |
|                 |                             |   | _55.2007                                  | Date        |  |                     |              |                  |
|                 |                             |   |   |             |  |                     |              |                  |
|                 |                             |   |   |             |  |                     |              |                  |

| Activitypian No.  | AP PS 4  | 00-07-72  |  |  |                    |
|---|--|---|--|--|--------------------|
| Pumping Hole:   |  | KLX27A  | Pumping Se   | ction [m bToC                            | ]: 210.00-247.00   |
| Test Start:   | 10.10.20   | 07 00:00  | Test Stop:   |  | 23.10.2007 12:00   |
| Pump Start:   | 18.10.20   | 07 19:03  | Pump Stop:   |  | 21.10.2007 11:02   |
| Flow Rate Q <sub>p</sub> [m <sup>3</sup> ,  | /s]:   | 6.60E-05  |  |  |                    |
| Pressure data   |  |   | Nomenclatu   | re Unit                                  | Value              |
| Pressure in test se   | ection before start of   | flowing:  |  | p <sub>i</sub> k                         | kPa 1847           |
| Pressure in test se   | ection before stop of  | flowing:  |  | p <sub>p</sub> k                         | (Pa 1409           |
| Maximum pressu  | re change during flow  | ving period:  | С  | lp <sub>p</sub> k                        | KPa 438            |
| Observation Hol   | е:   | KLX20   | Section no.:   |  | KLX20A_5           |
| Distance r <sub>s</sub> [m]:  |  | 683.00  | Section lenat  | ו:                                       | 103.00-144.00      |
| Response time dt  | , [s]:   | #NV   | max. Drawdo  | wn s <sub>n</sub> [m]:*                  | 0.06               |
| Pressure data   |  |   | Nomenclatu   | re Unit                                  | Value              |
| Pressure in test s  | ection before start of   | flowina:  |  | D;                                       | (Pa 151.9          |
| Pressure in test s  | ection before stop of t  | flowing:  |  | D  | (Pa 151.3          |
| Maximum pressu  | re change during flow  | ving period.*   | c  |  | (Pa 06             |
| Maximum pressu  |  | ing pendu.  |  | Pp r                                     | 0.0                |
| Normalized distar<br>Index 1  | nce with respect to the<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:  | e response tim  | ne<br>#NV  |  |                    |
|   |  |   |  |  |                    |
| Normalized draw   | down with respect to p   | oumping flow r  | rate   | L ow**                                   |                    |
| index 2   | s <sub>p</sub> /Q <sub>p</sub> [s/m]:  |   | 920.70   | LOW                                      |                    |
|   |  |   |  |  |                    |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r   | <sub>0</sub> ) [s/m²]:  | 6048.09  | Medium**                                 | * see comment      |
| Index 2 New Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r   | <b>o) [s/m<sup>2</sup>]:</b> onse due to pu   | 6048.09<br>mping in source   | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r<br>no clear respo<br>response and<br>** no response                           | <b>b)</b> [s/m <sup>2</sup> ]:<br>Description of the second se | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s. <                         | Medium**                                 | * see comment      |
| Index 2 New Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r<br>no clear respo<br>response and<br>** no response                           | <b>b)</b> [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>e according to  | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <             | Medium**<br>by other effects<br>< 0.1 m) | * see comment      |
| Index 2 New Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r<br>no clear respo<br>response and<br>** no response<br>Pumpstart              | <b>b)</b> [s/m <sup>2</sup> ]:<br>bonse due to purecovery phase<br>according to     bonse due to purecovery phase<br>bonse due t   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**<br>by other effects<br>< 0.1 m) | * see comment      |
| Index 2 New Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r<br>no clear respo<br>response and<br>** no response<br>Pumpstart              | <b>o)</b> [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>e according to  | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**<br>by other effects<br>c 0.1 m) | * see comment      |
| Index 2 New Comment:  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r<br>no clear respo<br>response and<br>** no response<br>Pumpstart              | <b>o)</b> [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>according to  | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**<br>by other effects<br>< 0.1 m) | * see comment      |
| Index 2 New           Comment:           2000           1900                                  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r<br>no clear respo<br>response and<br>** no response<br>Pumpstart              | o) [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**<br>by other effects<br>c 0.1 m) | * see comment<br>S |
| Index 2 New           Comment:           2000           1900                                  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r<br>no clear respo<br>response and<br>** no response<br>Pumpstart              | <b>o)</b> [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>according to  | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>s</sub> /r   | o) [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>e according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r<br>no clear respo<br>response and<br>** no response<br>Pumpstart              | o) [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:<br>2000<br>1900<br>1900<br>1800<br>1800<br>1800                       | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>i</sub><br>no clear respo<br>response and<br>** no response<br>Pumpstart | o) [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>e according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:<br>2000<br>1900<br>1800<br>1800                                       | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>i</sub><br>no clear respo<br>response and<br>** no response<br>Pumpstart | o) [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>i</sub><br>no clear respo<br>response and<br>** no response<br>Pumpstart | o) [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>e according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:<br>2000<br>1900<br>1800<br>1800<br>1800                               | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>i</sub><br>no clear respo<br>response and<br>** no response<br>Pumpstart | o) [s/m <sup>2</sup> ]:<br>onse due to pure<br>recovery phase<br>e according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:<br>2000<br>1900<br>1800<br>1800<br>1600<br>1500                       | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>i</sub><br>no clear respo<br>response and<br>** no response<br>Pumpstart | o) [s/m <sup>2</sup> ]:<br>onse due to pure<br>recovery phase<br>e according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:<br>2000<br>1900<br>1900<br>1800<br>1800<br>1600<br>1500               | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>i</sub><br>no clear respo<br>response and<br>** no response<br>Pumpstart | o) [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:<br>2000<br>1900<br>1800<br>1800<br>1800<br>1600<br>1500<br>1400       | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>i</sub><br>no clear respo<br>response and<br>** no response<br>Pumpstart | o) [s/m <sup>2</sup> ]:<br>onse due to pu<br>recovery phase<br>according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:<br>2000<br>1900<br>1800<br>1800<br>1800<br>1600<br>1500<br>1400       | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>i</sub><br>no clear respo<br>response and<br>** no response<br>Pumpstart | o) [s/m <sup>2</sup> ]:<br>onse due to pure<br>recovery phase<br>e according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:<br>2000<br>1900<br>1800<br>1800<br>1800<br>1600<br>1500<br>1400       | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>i</sub><br>no clear respo<br>response and<br>** no response<br>Pumpstart | o) [s/m <sup>2</sup> ]:<br>onse due to pure<br>recovery phase<br>according to   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |
| Index 2 New<br>Comment:<br>2000<br>1900<br>1800<br>1800<br>1600<br>1500<br>1400<br>18.10.2007 | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>i</sub><br>no clear response and<br>** no response<br>Pumpstart          | o) [s/m <sup>2</sup> ]:   | 6048.09<br>mping in source<br>se probably influenced<br>SKB MD 330.003 (s <sub>p</sub> <<br>Pumpstop | Medium**                                 | * see comment      |

| Activitypla  | an No.                      | AP F  | PS 400-07-72   |   |  |                                 |                  |
|--|-----------------------------|---|--|---|--|---------------------------------|------------------|
| Pumping  | Hole:                       |   | KLX27A   | Pum   | nping Section  | n [m bToC]:                     | 210.00-247.00    |
| Test Start   | t:                          | 10.1  | 0.2007 00:00   | Test  | Stop:  |                                 | 23.10.2007 12:00 |
| Pump Sta   | art:                        | 18.1  | 0.2007 19:03   | Pum   | ip Stop:   |                                 | 21.10.2007 11:02 |
| Flow Rate  | e Q <sub>p</sub> [m³/s]:    |   | 6.60E-05   |   |  |                                 |                  |
| Pressure   | data                        |   |  | Nor   | nenclature   | Unit                            | Value            |
| Pressure   | in test section             | before star   | t of flowing:  |   | pi   | kPa                             | 1847             |
| Pressure   | in test section             | before stop   | o of flowing:  |   | $p_p$  | kPa                             | 1409             |
| Maximum  | n pressure char             | nge during  | flowing period:  |   | $dp_{p}$   | kPa                             | 438              |
| Observat   | ion Hole:                   |   | KLX20  | Sect  | tion no.:  |                                 | KLX20A_6         |
| Distance   | r、[m]:                      |   | 681.00   | Sect  | ion length:  |                                 | 0.00-102.00      |
| Response   | e time dt <sub>L</sub> [s]: |   | #NV  | max   | . Drawdown s   | s <sub>p</sub> [m]:*            | 0.04             |
| Pressure   | data                        |   |  | Nor   | nenclature   | Unit                            | Value            |
| Pressure   | in test section             | before star   | t of flowing:  |   | pi   | kPa                             | 152.6            |
| Pressure   | in test section             | before stop   | o of flowina:  |   | D <sub>n</sub>   | kPa                             | 152.2            |
| Maximum  | n pressure char             | nae durina <sup>.</sup>   | flowing period:*   |   | dp <sub>o</sub>  | kPa                             | 0.4              |
|  | ·<br>· · · · ·              | <u> </u>  |  |   | • •  |                                 |                  |
| Normalize  | ed distance wit             | h respect to  | o the response ti<br>²/sl·   | me<br>#NV   |  |                                 |                  |
|  |                             | is /at [iii   | /3].   | <i>#</i> <b>!\</b>  |  |                                 |                  |
| Normalize  | ed drawdown w               | vith respect  | to pumping flow  | / rate  |  |                                 |                  |
| Index 2  |                             | s <sub>p</sub> /Q <sub>p</sub> [s/m   | n²]:   | 617.80  | L  | -OW**                           |                  |
|  |                             |   |  |   |  |                                 |                  |
| Index 2 N  | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*In  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:  | 4030.25   | Ν  | Medium**                        | *                |
| Index 2 N  |                             | (s <sub>p</sub> /Q <sub>p</sub> )*In(   | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 4030.25   | N.<br>   | /ledium**                       | * see comment    |
| Index 2 N  | lew<br>t:                   | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a                               | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha                     | 4030.25<br>oumping in sour<br>ase probably in                 | rce<br>fluenced by c   | Medium**                        | * see comment    |
| Index 2 N  | lew<br>t:                   | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no respo                | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>Sumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1             | Medium**<br>other effects<br>m) | * see comment    |
| Index 2 N  | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response            | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>Sumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1<br>Pumpstop | Medium**                        | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no respo<br>npstart    | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1<br>Pumpstop | Medium**<br>other effects<br>m) | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1<br>Pumpstop | Medium**                        | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no respo<br>npstart    | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1<br>Pumpstop | Medium**                        | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no response<br>npstart  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1<br>Pumpstop | Medium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900   | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no respo<br>npstart    | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1             | Medium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900   | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1             | Medium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>[Ed. 1800<br>[Ed. 1800<br>1900<br>1900                 | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no respo<br>npstart    | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | Ce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1              | Medium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1700                                   | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1             | Medium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1700<br>1800                           | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no respo<br>npstart    | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | Ce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1              | Medium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600                                   | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1             | Aedium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600<br>1500                           | lew<br>t:<br>Pun            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no respo<br>npstart    | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | Ce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1              | Aedium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1600<br>1500                           | lew t: Pun                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | rce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1             | Aedium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600<br>1500                           | lew t: Pun                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | Ce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1              | Aedium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1600<br>1500<br>1400                   | lew t: Pun                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | CCE<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1             | Aedium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1700<br>1600<br>1500<br>1400           | lew t: Pun                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | Ce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1              | Aedium**                        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>[Eval<br>1800<br>1800<br>1500<br>1400<br>1300<br>18.10 | lew<br>:<br>Pun             | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | Ce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1              | Aedium**                        | * See comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1800<br>1600<br>1400<br>1300<br>18.10  | lew<br>:<br>Pun             | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pha<br>onse according t | 4030.25<br>pumping in sour<br>ase probably in<br>o SKB MD 330 | Ce<br>fluenced by c<br>.003 (s <sub>p</sub> < 0.1              | Aedium**                        | * See comment    |

| Activitypla  | an No.                      | AP PS  | 400-07-72   |   |  |                            |               |                  |
|--|-----------------------------|--|---|---|--|----------------------------|---------------|------------------|
| Pumping  | J Hole:                     |  | KLX27A  |   | Pumping Sec                                      | tion [m l                  | oToC]:        | 210.00-247.00    |
| Test Star  | t:                          | 10.10.2  | 007 00:00   |   | Test Stop:                                       |                            |               | 23.10.2007 12:00 |
| Pump Sta   | art:                        | 18.10.2  | 007 19:03   |   | Pump Stop:                                       |                            |               | 21.10.2007 11:02 |
| Flow Rate  | e Q <sub>p</sub> [m³/s]:    |  | 6.60E-05  |   |  |                            |               |                  |
| Pressure   | data                        |  |   |   | Nomenclatur                                      | re U                       | Init          | Value            |
| Pressure   | in test section             | before start of  | flowing:  |   |  | p <sub>i</sub>             | kPa           | 1847             |
| Pressure   | in test section             | before stop of   | flowing:  |   |  | р <sub>р</sub>             | kPa           | 1409             |
| Maximum  | n pressure cha              | nge during flov  | wing period:  |   | d  | p <sub>p</sub>             | kPa           | 438              |
| Observat   | tion Hole:                  |  | KLX23A  |   | Section no.:                                     |                            |               | KLX23A_1         |
| Distance   | r. [m]:                     |  | 462.00  |   | Section length                                   | 1:                         |               | 49.00-100.00     |
| Response   | e time dt <sub>i</sub> [s]: |  | 113820  |   | max. Drawdov                                     | <br>wn s <sub>n</sub> [m]: | *             | 0.13             |
| Pressure   | data                        |  |   |   | Nomenclatur                                      | e U                        | Init          | Value            |
| Pressure   | in test section             | before start of  | flowina:  |   |  | Di                         | kPa           | 129.6            |
| Pressure   | in test section             | before stop of   | flowing   |   |  | р.                         | kPa           | 128.3            |
| Movimum  |                             | ngo during flo   | ving pariod.  | *                                       | Ь  | rp<br>n                    | k Po          | 120.0            |
| Maximum  | i pressure cha              | nge during nov   | wing period.  |   | u  | Pp                         | кра           | 1.3              |
| Normalize  | ed distance wit             | th respect to th<br>r_ <sup>2</sup> /dt, [m <sup>2</sup> /s]   | ne response   | time<br>1 88                            |  | Mediu                      | m             |                  |
| maox 1   |                             |  | •   | 1100                                    |  | moura                      |               |                  |
| Normalize<br>Index 2   | ed drawdown v               | with respect to<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | pumping flo   | w rate <b>2007.85</b>                   |  | Low                        |               |                  |
|  |                             |  |   |   |  |                            |               |                  |
| Index 2 N  | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m²]:  | 12319.27                                |  | Mediu                      | m             | * see comment    |
| Index 2 N  | <b>lew</b><br>t:            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | <b>r<sub>0</sub>) [s/m<sup>2</sup>]:</b>                                | 12319.27<br>pumping in                  | source   | Mediu                      | m             | * see comment    |
| Index 2 N  | <b>lew</b><br>t:            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /<br>no clear resp<br>pressure reco                            | <b>r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>onse due to<br>overy probat | 12319.27<br>pumping in<br>bly influence | source<br>ed by natural fl                       | <b>Mediu</b><br>uctuation  | <b>m</b><br>s | * see comment    |
| Index 2 N  | <b>lew</b><br>t:<br>Pur     | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /<br>no clear resp<br>pressure reco<br>mpstart                 | <b>r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>onse due to<br>overy probab | 12319.27<br>pumping in<br>bly influence | source<br>ed by natural fl<br>Pumpstop           | Mediu<br>uctuation         | m<br>s        | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /<br>no clear resp<br>pressure reco                            | <b>r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>onse due to<br>overy probat | 12319.27<br>pumping in<br>bly influence | source<br>ed by natural fl<br>Pumpstop           | Mediu                      | <b>m</b><br>s | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /<br>no clear resp<br>pressure reco<br><sup>mpstart</sup><br>I | <b>r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>onse due to<br>overy probab | 12319.27<br>pumping in<br>oly influence | source<br>ed by natural fl<br>Pumpstop<br>I<br>I | Mediu<br>uctuation         | m<br>s        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /<br>no clear resp<br>pressure reco<br>mpstart                 | <b>r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>onse due to<br>overy probat | 12319.27<br>pumping in<br>bly influence | source<br>ed by natural fl<br>Pumpstop           | Mediu                      | m<br>s        | * see comment    |
| Index 2 N<br>Comment<br>2000   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /<br>no clear resp<br>pressure reco<br>mpstart                 | <b>r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>onse due to<br>overy probab | 12319.27<br>pumping in<br>oly influence | source<br>ed by natural fl<br>Pumpstop           | Mediu<br>uctuation         | m<br>s        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /<br>no clear resp<br>pressure reco                            | <b>r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>onse due to<br>overy probat | 12319.27<br>pumping in<br>oly influence | source<br>ed by natural fl<br>Pumpstop           | Mediu                      | m<br>s        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | <b>r<sub>0</sub>) [s/m<sup>2</sup>]:</b><br>onse due to<br>overy probab | 12319.27<br>pumping in<br>ply influence | source<br>ed by natural fl<br>Pumpstop           | Mediu                      | <b>m</b><br>s | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br><b>[EX]</b> 1800<br>1800<br>1800   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>onse due to<br>overy probab    | 12319.27<br>pumping in<br>oly influence | source<br>ed by natural fl<br>Pumpstop           | Mediu                      | <b>m</b><br>s | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br><b>[ed] 1800</b><br>1800<br>1700<br>1700   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>onse due to<br>overy probab    | 12319.27<br>pumping in<br>oly influence | source<br>ed by natural fl                       | Mediu                      | m<br>s        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1700<br>8 8 1600   | lew t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>onse due to<br>overy probab    | 12319.27<br>pumping in<br>oly influence | source<br>ed by natural fl                       | Mediu                      | m<br>s        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>onse due to<br>overy probat    | 12319.27<br>pumping in<br>ply influence | source<br>ed by natural fl                       | Mediu                      | m<br>s        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                   | 12319.27<br>pumping in<br>oly influence | Source<br>ed by natural fl                       | Mediu                      | m<br>s        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1700<br>1600<br>1500   | lew t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                   | 12319.27<br>pumping in<br>oly influence | source<br>ed by natural fl                       | Mediu                      | m<br>s        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1600<br>1500   | New t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                   | 12319.27<br>pumping in<br>oly influence | source<br>ed by natural fl                       | Mediu                      | m<br>s        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1800<br>1500<br>1400   | lew t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                   | 12319.27<br>pumping in<br>oly influence | source<br>ed by natural fl                       | Mediu<br>uctuation         | m<br>S        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>Index 4<br>2000<br>1900<br>1900<br>1000<br>1500<br>1400                              | lew t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                   | 12319.27<br>pumping in<br>ply influence | source<br>ed by natural fl                       | Mediu<br>uctuation         | m<br>S        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1800<br>1000<br>1400<br>1300   | lew t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                   | 12319.27<br>pumping in<br>oly influence | source<br>ed by natural fl                       | Mediu<br>uctuation         | m<br>S        | * see comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>I 1000<br>I 1800<br>I 1700<br>I 1600<br>1400<br>I 1400<br>I 1300<br>I 1300<br>I 1300 | New<br>t:<br>Pur<br>0.2007  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                   | 12319.27<br>pumping in<br>ply influence | Source<br>ed by natural fl                       |                            | m<br>S<br>    | * See comment    |
| Index 2 N<br>Comment<br>2000<br>1900<br>1800<br>1800<br>1800<br>1400<br>1300<br>18.1   | Sew<br>t:<br>Pur<br>0.2007  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /  | r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                   | 12319.27<br>pumping in<br>oly influence | Source<br>ed by natural fl                       | Mediu<br>uctuation         | m<br>S<br>    | * see comment    |

| Activitypla   | an No.  | AP PS 400-07-72   |                          |                    |                    |
|---------------|---|---|--------------------------|--------------------|--------------------|
| Pumping       | Hole:   | KLX27A  | Pumping Section          | [m bToC]:          | 210.00-247.00      |
| Test Star     | :   | 10.10.2007 00:00  | Test Stop:               |                    | 23.10.2007 12:00   |
| Pump Sta      | art:  | 18.10.2007 19:03  | Pump Stop:               |                    | 21.10.2007 11:02   |
| Flow Rate     | e Q <sub>p</sub> [m <sup>3</sup> /s]:   | 6.60E-05  |                          |                    |                    |
| Pressure      | data  |   | Nomenclature             | Unit               | Value              |
| Pressure      | in test section   | before start of flowing:  | p <sub>i</sub>           | kPa                | 1847               |
| Pressure      | in test section   | before stop of flowing:   | pp                       | kPa                | 1409               |
| Maximum       | pressure cha  | nge during flowing period:  | dpp                      | kPa                | 438                |
| Observat      | ion Hole:   | KLX23A  | Section no.:             |                    | KLX23A_2           |
| Distance      | r. [m]·   | 456.00  | Section length:          |                    | 0 00-48 00         |
| Response      | e time dt <sub>i</sub> [s]:   | +30.00<br>#NV   | max. Drawdown s          | [m]:*              | 0.00 40.00<br>#NV  |
| Pressure      | data  |   |                          | Linit              | Value              |
| Flessule      |   |   | Nomenciature             | Unit               | value              |
| Pressure      | in test section   | before start of flowing:  | p <sub>i</sub>           | kPa                | 143.0              |
| Pressure      | in test section   | before stop of flowing:   | P <sub>p</sub>           | kPa                | 142.8              |
| Maximum       | pressure cha  | nge during flowing period:*   | dpp                      | kPa                | 0.2                |
| Normalize     | ed drawdown v<br>Iew  | r <sub>s</sub> -/dt <sub>L</sub> [m <sup>-</sup> /s]:<br>vith respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV<br>ate<br>#NV<br>#NV |                    |                    |
|               |   |   |                          |                    | * see comment      |
| Comment       | :   | no clear response due to pun  | nping in source          |                    |                    |
|               |   |   |                          |                    |                    |
|               | Pur   | npstart   | Pumpstop                 |                    |                    |
| 2000          |   | 1   |                          |                    | 145                |
|               |   | I   |                          |                    |                    |
| 1900          | -   | 1   |                          |                    |                    |
|               | 1   |   |                          |                    | - <sup>144</sup> 🕞 |
| <b>1800</b>   |   |   |                          |                    | A                  |
| [k            |   |   |                          |                    | well               |
| <b>9</b> 1700 |   | · • * • *   |                          |                    | ion                |
| tive          | A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A | THE REPORTS DESCRIPTION OF THE LODGE  | Mar Share Hall Mart and  |                    | - 143 <b>2</b>     |
| <b>a</b> 1600 |   | The second second second second second second second second second second second second second second second s  |                          | and item           | pse                |
| sur           |   |   |                          |                    | e<br>O             |
| Pres          |   |   |                          |                    | ssu                |
| 1500          | 1   |   |                          |                    | 142 <b>Ú</b>       |
|               |   |   |                          |                    |                    |
| 1400          |   |   |                          |                    | 1                  |
|               |   | 1   |                          | KLX27A<br>KLX23A_2 |                    |
| 1300          |   | <br>  |                          |                    | 141                |
| 18.1          | 0.2007  | 19.10.2007 20.10.2007   | 21.10.2007 22            | .10.2007           | 23.10.2007         |
|               |   |   | Dale                     |                    |                    |
|               |   |   |                          |                    |                    |

| Activitypl  | an No.                      | AP F   | PS 400-07-72   |  |   |  |                           |          |  |
|---|-----------------------------|--|--|--|---|--|---------------------------|----------|--|
| Pumping   | g Hole:                     |  | KLX27A   |  | Pumping Se  | ction [r                                 | n bToC]:                  | 210.     | 00-247.00  |
| Test Star   | t:                          | 10.1   | 0.2007 00:00   | -  | Fest Stop:  |  |                           | 23.10.2  | 007 12:00  |
| Pump Sta  | art:                        | 18.1   | 0.2007 19:03   | F  | Pump Stop:  |  |                           | 21.10.2  | 007 11:02  |
| Flow Rate   | e Q <sub>p</sub> [m³/s]:    |  | 6.60E-05   |  |   |  |                           |          |  |
| Pressure  | e data                      |  |  |  | Nomenclatu  | re                                       | Unit                      | V        | alue   |
| Pressure  | in test section             | before star  | t of flowing:  |  |   | p <sub>i</sub>                           | kPa                       |          | 1847   |
| Pressure  | in test section             | before stop  | o of flowing:  |  |   | <b>p</b> <sub>p</sub>                    | kPa                       |          | 1409   |
| Maximum   | n pressure cha              | nge during   | flowing period:  |  | C   | dp <sub>p</sub>                          | kPa                       |          | 438  |
| Observat  | tion Hole:                  |  | KLX24  | ę  | Section no.:  |  |                           | K        | (LX24A_1   |
| Distance  | r. [m]:                     |  | 744.00   | ç  | Section lenat   | h:                                       |                           | 69.      | 00-100.00  |
| Response  | e time dt <sub>1</sub> [s]: |  | #NV  | r  | nax. Drawdo   | wn s <sub>n</sub> [r                     | n]:*                      |          | 0.05   |
| Pressure  | e data                      |  |  |  | Nomenclatu  | re                                       | Unit                      | V        | alue   |
| Pressure  | in test section             | before star  | t of flowina:  |  |   | р <sub>і</sub>                           | kPa                       |          | 140.3  |
| Pressure  | in test section             | before stor  | of flowing:  |  |   | D.,                                      | kPa                       |          | 139.8  |
| Movimum   |                             | ngo during   | flowing poriod:*   |  |   | Pp<br>In                                 | k Do                      |          | 0.5  |
| Maximun   | i pressure cha              | nge dunng  | nowing period.   |  | (   | νPp                                      | кга                       |          | 0.5  |
| Normaliz  | ed distance wit             | th respect to  | o the response ti  | ime  |   |  |                           |          |  |
| Index 1   |                             | r <sub>s</sub> ²/dt <sub>L</sub> [m²   | f/s]:  | #NV  |   |  |                           |          |  |
| Normaliz  | ed drawdown y               | with respect   | to pumping flow  | v rate   |   |  |                           |          |  |
| Index 2   |                             | s_/Q_ [s/m   | 1 <sup>2</sup> 1:  | 772.25   |   | Low                                      | I**                       |          |  |
|   |                             | ob,  | . 1.   |  |   |  | -                         |          |  |
|   |                             |  |  |  |   |  |                           |          |  |
| Index 2 M   | New                         | (s <sub>p</sub> /Q <sub>p</sub> )*In   | (r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:  | 5106.14  |   | Мес                                      | lium**                    | * 500 00 | omment   |
| Index 2 M   | New                         | (s <sub>p</sub> /Q <sub>p</sub> )*In   | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 5106.14  | source  | Мес                                      | lium**                    | * see co | omment   |
| Index 2 N   | New<br>t:                   | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a                                | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery ph                      | 5106.14<br>oumping in s<br>ase probabl               | source<br>y influenced  | Mec<br>by othe                           | lium**                    | * see co | omment   |
| Index 2 M   | New<br>t:                   | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no respo                 | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery ph<br>onse according t  | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <                                     | Mec<br>by othe<br>< 0.1 m)               | lium**<br>er effects      | * see co | omment   |
| Index 2 M   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no respo                 | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery ph<br>onse according t  | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpstoj                         | Mec<br>by othe<br>< 0.1 m)               | lium**<br>er effects      | * see co | omment   |
| Index 2 M<br>Commen   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no respo<br>npstart      | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpstop                         | Mec<br>by othe<br>< 0.1 m)               | lium**<br>er effects<br>) | * see co | omment   |
| Index 2 M<br>Commen   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no respo<br>npstart      | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto<br>I<br>I<br>I           | Mec<br>by othe<br>< 0.1 m)               | lium**<br>er effects<br>) | * see co |  |
| Index 2 N<br>Commen<br>2000<br>1900   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no respo<br>npstart      | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery ph<br>onse according t  | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto<br>I<br>I                | Mec<br>by othe<br>< 0.1 m)               | lium**<br>er effects<br>) | * see co | omment   |
| Index 2 N<br>Commen<br>2000<br>1900   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no respo<br>npstart      | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto<br>I<br>I<br>I           | Mec<br>by othe<br>< 0.1 m)               | lium**<br>er effects<br>) | * see co | omment<br>142  |
| Index 2 M<br>Commen<br>2000<br>1900   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no respo<br>npstart      | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery ph<br>onse according t  | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto                          | Mec<br>by othe<br>< 0.1 m)               | lium**                    | * see co | 142<br>I42   |
| Index 2 M<br>Commen<br>2000<br>1900   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no respo<br>npstart      | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto<br>I<br>I<br>I<br>I<br>I | Mec<br>by othe<br>< 0.1 m)               | lium**                    | * see co | omment   |
| Index 2 M<br>Commen<br>2000<br>1900<br><b>[ety]</b><br>1800<br>1900                         | New t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no respo<br>mpstart      | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto<br>I<br>I<br>I<br>I      | Mec<br>by othe<br>< 0.1 m)               | lium** er effects )       | * see co | ation well [kPa]   |
| Index 2 N<br>Commen<br>2000<br>1900<br>1800<br>1700   | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear re<br>response a<br>** no response<br>npstart   | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpstoj                         | Mec<br>by othe<br>< 0.1 m)               | lium**                    | * see co | pmment<br>142<br>142   |
| Index 2 M<br>Commen<br>2000<br>1900<br>1900<br>1800<br>1700<br>1600                         | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>mpstart  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto                          | Mec<br>by othe<br>< 0.1 m)               | lium**                    | * see co | Opservation well [kPa]   |
| Index 2 N<br>Commen<br>2000<br>1900<br>1800<br>1700<br>1700<br>1600                         | New<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto<br>I                     | Mec                                      | lium**                    | * see co | omment   |
| Index 2 M<br>Commen<br>2000<br>1900<br>1900<br>1800<br>1000<br>1500                         | New t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>mpstart  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto                          | Mec                                      | lium**                    | * see co | Litter Deservation well [kPa]  |
| Index 2 N<br>Commen<br>2000<br>1900<br>1800<br>1800<br>1700<br>1600<br>1500                 | New t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto                          | Mec                                      | lium**                    | * see co | Dumment<br>141<br>142<br>141<br>141<br>141<br>141<br>142<br>141<br>142   |
| Index 2 M<br>Commen<br>2000<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900         | New t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>mpstart  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>esponse due to p<br>and recovery pho<br>onse according t | 5106.14  | Source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto                          | Mec                                      | lium**                    | * see co | Drmment<br>142<br>141<br>140<br>140<br>140<br>140  |
| Index 2 N<br>Commen<br>2000<br>1900<br>1800<br>1800<br>1700<br>1600<br>1500<br>1400         | New t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 5106.14  | source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto                          | Mec                                      | lium**                    | * see co | Dumment<br>141<br>142<br>141<br>141<br>142<br>141<br>142<br>141<br>142   |
| Index 2 N<br>Commen<br>2000<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900         | New t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re-<br>response a<br>** no response<br>mpstart | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 5106.14  | Source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpsto                          | Mec                                      | lium**                    | * see co | Dumment<br>142<br>141<br>140<br>140<br>139   |
| Index 2 N<br>Commen<br>2000<br>1900<br>1900<br>1800<br>1800<br>1600<br>1400<br>1300<br>18.1 | New t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 5106.14<br>pumping in s<br>ase probabl<br>to SKB MD  | Source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpstop                         | Mec<br>by othe<br>c 0.1 m)<br>p          | lium**                    | * See co | Dumment<br>142<br>141<br>140<br>Lassure Observation well [kPa]<br>140<br>140<br>139<br>007   |
| Index 2 N<br>Commen<br>2000<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900<br>1900         | New t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*Ind<br>no clear re<br>response a<br>** no response<br>npstart  | (r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | 5106.14<br>pumping in s<br>ase probable<br>to SKB MD | Source<br>y influenced<br>330.003 (s <sub>p</sub> <<br>Pumpstop                         | Mec<br>by othe<br>c 0.1 m)<br>p<br>22.10 | lium**                    | * See co | LIA2<br>142<br>141<br>140<br>LIA2<br>140<br>LIA2<br>140<br>LIA2<br>140<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2<br>LIA2 |

| Activitypla  | an No.                      | AP   | PS 400-07-72   |  |   |                                    |                  |
|--|-----------------------------|--|--|--|---|------------------------------------|------------------|
| Pumping  | Hole:                       |  | KLX27A   | Р  | umping Section  | on [m bToC]:                       | 210.00-247.00    |
| Test Start   | t:                          | 10.1   | 10.2007 00:00  | Т  | est Stop:   |                                    | 23.10.2007 12:00 |
| Pump Sta   | art:                        | 18.1   | 10.2007 19:03  | Р  | ump Stop:   |                                    | 21.10.2007 11:02 |
| Flow Rate  | ə Q <sub>p</sub> [m³/s]:    |  | 6.60E-05   |  |   |                                    |                  |
| Pressure   | data                        |  |  | ٩  | Nomenclature  | Unit                               | Value            |
| Pressure i   | in test section             | before sta   | art of flowing:  |  | p <sub>i</sub>  | kPa                                | a 1847           |
| Pressure i   | in test section             | before sto   | op of flowing:   |  | pp  | kPa                                | a 1409           |
| Maximum  | n pressure cha              | nge during   | g flowing period:  |  | dpp   | kPa                                | a 438            |
| Observat   | ion Hole:                   |  | KLX24  | S  | ection no.:   |                                    | KLX24A_2         |
| Distance r   | r. [m]·                     |  | 748 00   | S  | ection length.  |                                    | 41 00-68 00      |
| Response   | e time dt <sub>i</sub> [s]: |  | #NV  | m  | nax. Drawdown   | s <sub>o</sub> [m]:*               | 0.05             |
| Pressure   | data                        |  |  | Ν  | Iomenclature  | Unit                               | Value            |
| Pressure i   | in test section             | before sta   | art of flowing <sup>.</sup>  |  | D:  | kPa                                | 152.5            |
| Prossura i   | in test section             | before sto   | on of flowing:   |  | Pi<br>D   | ki c                               | 152.0            |
| Maximum  |                             |  | por nowing.  |  | Pp<br>dp  | KF d                               | 1 152.0          |
| Maximum  | n pressure cha              | nge auring   | g flowing period:"   |  | up <sub>p</sub>   | KPa                                | u 0.5            |
| Index 1<br>Normalize   | ed drawdown v               | r <sub>s</sub> ²/dt <sub>L</sub> [m<br>with respect<br>s <sub>p</sub> /Q <sub>p</sub> [s/i   | n <sup>2</sup> /s]:<br>t to pumping flov<br>m <sup>2</sup> ]:  | #NV<br>v rate<br>772.25                                |   | Low**                              |                  |
|  |                             |  |  |  |   |                                    |                  |
| Index 2 N  | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*lı   | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | 5110.28  |   | Medium**                           | * see comment    |
| Index 2 N  | lew<br>I:                   | (s <sub>p</sub> /Q <sub>p</sub> )*In<br>no clear n<br>response<br>** no resp                 | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>pumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0             | Medium**<br>other effects<br>.1 m) | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*II<br>no clear i<br>response<br>** no resp<br>mpstart      | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>bumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**<br>other effects<br>.1 m) | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*II<br>no clear i<br>response<br>** no resp<br>mpstart      | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>pumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**<br>other effects<br>.1 m) | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*II<br>no clear i<br>response<br>** no resp<br>mpstart<br>I | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>pumping in s<br>ase probably<br>to SKB MD 3 | ource<br>/ influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**<br>other effects<br>.1 m) | * see comment    |
| Index 2 N<br>Comment   | lew<br>:<br>Pur             | (s <sub>p</sub> /Q <sub>p</sub> )*II<br>no clear i<br>response<br>** no resp<br>mpstart      | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>pumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**<br>other effects<br>.1 m) | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*II<br>no clear i<br>response<br>** no resp<br>mpstart      | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>pumping in s<br>ase probably<br>to SKB MD 3 | ource<br>/ influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**<br>other effects<br>.1 m) | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*II<br>no clear i<br>response<br>** no resp<br>mpstart      | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>pumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**<br>other effects<br>.1 m) | * see comment    |
| Index 2 N<br>Comment   | lew<br>:<br>Pur             | (s <sub>p</sub> /Q <sub>p</sub> )*II<br>no clear i<br>response<br>** no resp<br>mpstart      | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>pumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium**<br>other effects<br>.1 m) | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*II<br>no clear i<br>response<br>** no resp<br>mpstart      | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>Dumping in s<br>ase probably<br>to SKB MD 3 | ource<br>/ influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*II   | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>Dumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment   | lew<br>:<br>Pur             | (s <sub>p</sub> /Q <sub>p</sub> )*II<br>no clear i<br>response<br>** no resp<br>mpstart      | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>pumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment<br>2000 -<br>1900 -<br>1900 -<br>1800 -<br>1700 -<br>1600 - | lew<br>:<br>Pur             | (s <sub>p</sub> /Q <sub>p</sub> )*II   | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>Dumping in s<br>ase probably<br>to SKB MD 3 | ource<br>/ influenced by<br>330.003 (s <sub>p</sub> < 0             | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment   | lew<br>t:<br>Pur            | (s <sub>p</sub> /Q <sub>p</sub> )*II   | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>Dumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment   | lew<br>:<br>Pur             | (s <sub>p</sub> /Q <sub>p</sub> )*II   | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>pumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment   | lew<br>:<br>Pur             | (s <sub>p</sub> /Q <sub>p</sub> )*II   | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>and recovery ph<br>ponse according t   | 5110.28<br>Dumping in s<br>ase probably<br>to SKB MD 3 | ource<br>/ influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment   | lew<br>:<br>Pur             | (s <sub>p</sub> /Q <sub>p</sub> )*II   | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | 5110.28<br>Dumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment   | lew                         | (s <sub>p</sub> /Q <sub>p</sub> )*II   | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>conse according to<br>the point of the point  | 5110.28<br>Dumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment   | lew t: Pur                  | (s <sub>p</sub> /Q <sub>p</sub> )*II   | n(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | 5110.28<br>Dumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment   | lew<br>:<br>Pur             | (s <sub>p</sub> /Q <sub>p</sub> )*II   | n(r <sub>s</sub> /r <sub>o</sub> ) [s/m <sup>2</sup> ]:  | 5110.28<br>Dumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |
| Index 2 N<br>Comment   | lew<br>:<br>Pur             | (s <sub>p</sub> /Q <sub>p</sub> )*II   | n(r <sub>s</sub> /r <sub>o</sub> ) [s/m <sup>2</sup> ]:<br>response due to p<br>ponse according to<br>ponse acco | 5110.28<br>Dumping in s<br>ase probably<br>to SKB MD 3 | ource<br>y influenced by<br>330.003 (s <sub>p</sub> < 0<br>Pumpstop | Medium** other effects .1 m)       | * see comment    |

| Activitypla     | an No.                    | AP PS 400-07-72  |                                    |                        |                  |
|-----------------|---------------------------|--|------------------------------------|------------------------|------------------|
| Pumping         | Hole:                     | KLX27A   | Pumping Section                    | n [m bToC]:            | 210.00-247.00    |
| Test Start      | :                         | 10.10.2007 00:00   | Test Stop:                         |                        | 23.10.2007 12:00 |
| Pump Sta        | art:                      | 18.10.2007 19:03   | Pump Stop:                         |                        | 21.10.2007 11:02 |
| Flow Rate       | e Q <sub>p</sub> [m³/s]:  | 6.60E-05   |                                    |                        |                  |
| Pressure        | data                      |  | Nomenclature                       | Unit                   | Value            |
| Pressure i      | in test section           | before start of flowing:   | p <sub>i</sub>                     | kPa                    | 1847             |
| Pressure i      | in test section           | before stop of flowing:  | pp                                 | kPa                    | 1409             |
| Maximum         | pressure cha              | nge during flowing period:   | dpp                                | kPa                    | 438              |
| Observat        | ion Hole:                 | KLX24A   | Section no.:                       |                        | KLX24A_3         |
| Distance r      | r, [m]:                   | 754.00   | Section length:                    |                        | 0.00-40.00       |
| Response        | time dt <sub>i</sub> [s]: | #NV  | max. Drawdown s                    | " [m]:*                | #NV              |
| Pressure        | data                      |  | Nomenclature                       | Unit                   | Value            |
| Pressure        | in test section           | before start of flowing.   | D:                                 | kPa                    | 161 4            |
| Pressure        | in test section           | before stop of flowing.  | ri<br>n                            | kDo                    | 161.7            |
| Maximum         |                           | and during flowing pariod:*  | Mp<br>dp                           | k Do                   | 0.2              |
| waximum         | i pressure chai           | nge during nowing period."   | upp                                | кра                    | 0.2              |
| Normalize       | ed distance wit           | h respect to the response time<br>r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:  | #NV                                |                        |                  |
| Normalize       | ed drawdown v             | vith respect to pumping flow ra  | te<br>#NV                          |                        |                  |
|                 |                           | 3p/@p [3/11].  |                                    |                        |                  |
| Index 2 N       | lew                       | (s <sub>p</sub> /Q <sub>p</sub> )*ln(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | #NV                                |                        | * coo commont    |
| Comment         | :                         | no response due to pumping i   | n source                           |                        | See comment      |
|                 |                           |  |                                    |                        |                  |
|                 | Dur                       |  | Durmatan                           |                        |                  |
| 2000 -          | Pur                       |  | Pumpstop                           |                        | 163              |
|                 |                           |  | <br>                               |                        |                  |
| 1900 -          |                           | 1  |                                    |                        |                  |
|                 |                           |  |                                    |                        |                  |
| <b>–</b> 1800 · |                           |  |                                    |                        | kPa]             |
| [kPa            |                           |  |                                    |                        | + 162 <b>E</b>   |
| <b>17</b> 00 -  |                           |  |                                    |                        | M UQ             |
| ice i           | ALL PROPERTY AND          |  |                                    |                        | vatic            |
| Act             |                           | the solution   |                                    | •                      | serv             |
| 1600 ·          |                           |  | Conger and the first of the second | A Martin and           | do do            |
| ress            |                           | The second states of the secon |                                    | Islan share as the set |                  |
| <b>L</b> 1500 · |                           | 41 14  |                                    |                        |                  |
|                 |                           |  |                                    |                        | _                |
| 1400 ·          |                           | Kannan Mangananan  |                                    |                        |                  |
|                 |                           | I  |                                    | KLX27A<br>KLX24A_3     |                  |
| 1300 -          |                           | 1  | I                                  |                        | 160              |
| 18.10           | 0.2007                    | 19.10.2007 20.10.2007  | 21.10.2007 2                       | 22.10.2007             | 23.10.2007       |
|                 |                           | Ξ  | Jate                               |                        |                  |
|                 |                           |  |                                    |                        |                  |

Interference analysis

## **APPENDIX 4-2**

Index calculation

KLX27A Section 639.20-650.56 m pumped

| Activityplan No.  | AP PS 400-07-72   |   |           |  |
|---|---|---|-----------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:      | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34  | Pumping Section [<br>Test Stop:<br>Pump Stop: | m bToC]:  | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Flow Rate Q <sub>p</sub> [m <sup>-</sup> /s]:           | 7.42E-05  | Nomenclature                                  | Unit      | Value  |
| Pressure in test secti                                  | on before start of flowing:   | n   | kPa       | 5638   |
| Pressure in test section                                | on before stop of flowing:  | Pi<br>Do                                      | kPa       | 5437   |
| Maximum pressure c                                      | hange during flowing period:  | dp <sub>p</sub>                               | kPa       | 201  |
| Observation Hole:                                       | HLX27   | Section no.:                                  |           | HLX27_1  |
| Distance r. [m]·  | 1258 10   | Section length:                               |           | 153 0-165 0  |
| Response time dt  | 1238.10<br>]: #NV   | max. Drawdown s <sub>o</sub> [                | m]:*      | 155.0-165.0<br>#NV   |
| Pressure data   |   | Nomenclature                                  | Unit      | Value  |
| Pressure in test secti                                  | on before start of flowing:   | р <sub>і</sub>                                | kPa       | 64.4   |
| Pressure in test secti                                  | on before stop of flowing:  | P <sub>P</sub>                                | kPa       | 64.7   |
| Maximum pressure c                                      | hange during flowing period:*   | dpp   | kPa       | 0.3  |
| Index 1<br>Normalized drawdow<br>Index 2<br>Index 2 New | r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:<br>m with respect to pumping flow rat<br>s <sub>p</sub> /Q <sub>p</sub> [s/m²]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r₅/r₀) [s/m²]: | #NV<br>te<br>#NV<br>#NV                       |           |  |
| O ann an ta   |   |   | * S       | ee comment   |
| Comment:  | no response due to pumping i  | n source                                      |           |  |
| S500 5500 5500 5500 5500 5500 5500 5500                 | Pumpstart   | F   | Pumpstop  | 65<br>64.5<br>64<br>64<br>63.5<br>63.5<br>63<br>63<br>63<br>63<br>63<br>63<br>63<br>63<br>63<br>63<br>63<br>63<br>63 |
| 5300 <b>2</b> 2.11.2007 12:00                           | ,<br>22.11.2007 18:00 2   | 3.11.2007 00:00 23.11.2<br>Date               | 007 06:00 | 62<br>23.11.2007 12:00   |

| Activityplan No.   | AP PS 400-07-72  |  |                        |  |
|--|--|--|------------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s] | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>: 7.42E-05                               | Pumping Sect<br>Test Stop:<br>Pump Stop: | on [m bToC]:           | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27                           |
| Pressure data  | -  | Nomenclature                             | Unit                   | Value  |
| Pressure in test sec   | tion before start of flowing:  | p  | i kPa                  | 5638   |
| Pressure in test sec   | tion before stop of flowing:   | P  | kPa                    | 5437   |
| Maximum pressure   | change during flowing period:  | dp                                       | kPa                    | 201  |
| Observation Hole:  | HLX27  | Section no.:                             |                        | HLX27_2  |
| Distance r <sub>s</sub> [m]:   | 1268.20  | Section length:                          |                        | 100.0-152.0  |
| Response time $dt_L$ [   | s]: #NV  | max. Drawdowr                            | n s <sub>p</sub> [m]:* | #NV  |
| Pressure data  |  | Nomenclature                             | Unit                   | Value  |
| Pressure in test sec   | tion before start of flowing:  | p  | <sub>i</sub> kPa       | 66.6   |
| Pressure in test sec   | tion before stop of flowing:   | P  | kPa                    | 67.0   |
| Maximum pressure   | change during flowing period:*   | dp                                       | b <b>kPa</b>           | 0.4  |
| Normalized distance<br>Index 1   | e with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:            | e<br>#NV                                 |                        |  |
| Normalized drawdo<br>Index 2   | wn with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:  | ate<br>#NV                               |                        |  |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                                      | * s                    | see comment  |
| Comment:   | no response due to pumping   | in source                                |                        |  |
| 5700   | Pumpstart  |  | Pumpstop               | 67.5   |
| Active well [kPa]  |  | and Maria and Maria and Maria            |                        | - 67<br>- 67<br>- 66.5<br>- 66<br>- 66<br>- 66<br>- 66<br>- 67<br>- 67<br>- 67<br>- 67 |
| 5400   |  |  |                        | - 65<br>- 65   |
| 22.11.2007 12:00   | 22.11.2007 18:00   | 23.11.2007 00:00<br>Date                 | 23.11.2007 06:00       | 23.11.2007 12:00   |

| Activityplan No.  | AP PS 400-07-72   |   |                     |  |
|---|---|---|---------------------|--|
| Pumping Hole:<br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>2</sub> [m <sup>3</sup> /s] | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7 42E-05  | Pumping Section [<br>Test Stop:<br>Pump Stop: | n bToC]:            | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27           |
| Pressure data   | 1. <del>1</del> 2L-00   | Nomenclature                                  | Unit                | Value  |
| Pressure in test sect   | ion before start of flowing:  | Di  | kPa                 | 5638   |
| Pressure in test sect   | ion before stop of flowing:   | p <sub>p</sub>                                | kPa                 | 5437   |
| Maximum pressure  | change during flowing period:   | dp <sub>p</sub>                               | kPa                 | 201  |
| Observation Hole:   | HLX27   | Section no.:                                  |                     | HLX27_3  |
| Distance r <sub>s</sub> [m]:  | 1285.10   | Section length:                               |                     | 0.0-99.0   |
| Response time dt <sub>L</sub> [s  | 5]: #NV   | max. Drawdown s <sub>p</sub> [                | m]:*                | #NV  |
| Pressure data   |   | Nomenclature                                  | Unit                | Value  |
| Pressure in test sect   | ion before start of flowing:  | p <sub>i</sub>                                | kPa                 | 67.4   |
| Pressure in test sect   | ion before stop of flowing:   | pp  | kPa                 | 67.7   |
| Maximum pressure  | change during flowing period:*  | dpp   | kPa                 | 0.3  |
| Normalized distance<br>Index 1<br>Normalized drawdov  | with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:<br>vn with respect to pumping flow ra | #NV<br>ate                                    |                     |  |
| Index 2   | s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | #NV   |                     |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                          | #NV   | * S                 | ee comment   |
| Comment:  | no response due to pumping  | in source                                     |                     |  |
| Lessure Active well [kPa]   | Pumpstart   | 22.11.2002.00.00                              | KLX27A_1<br>HLX27_3 | 68<br>67.5<br>67.5<br>66.5<br>66.5<br>66.5<br>65.5<br>65<br>72.11 2000 |
| 22.11.2007 12:00  | 22.11.2007 18:00  | Date 23.11.20                                 | <i>301</i> UO.UU    | 23.11.2007 12:00   |
|   |   |   |                     |  |

| Activityplan No.  | AP PS 400-07-72  |   |   |   |
|---|--|---|---|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>0</sub> [m <sup>3</sup> /s]:   | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | Pumping Secti<br>Test Stop:<br>Pump Stop: | on [m bToC]:                                | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data   |  | Nomenclature                              | Unit  | Value   |
| Pressure in test secti  | on before start of flowing:  | p   | i kPa                                       | 5638  |
| Pressure in test secti  | on before stop of flowing:   | P   | , kPa                                       | 5437  |
| Maximum pressure c  | hange during flowing period:   | dp  | , kPa                                       | 201   |
| Observation Hole:   | HLX28  | Section no.:                              |   | HLX28_1   |
| Distance r <sub>s</sub> [m]:  | 491.60   | Section length:                           |   | 91.0-154.0  |
| Response time dt <sub>L</sub> [s  | ]: #NV   | max. Drawdowr                             | n s <sub>p</sub> [m]:*                      | #NV   |
| Pressure data   |  | Nomenclature                              | Unit  | Value   |
| Pressure in test secti  | on before start of flowing:  | р   | i kPa                                       | 133.7   |
| Pressure in test secti  | on before stop of flowing:   | Pr  | kPa   | 133.9   |
| Maximum pressure c  | hange during flowing period:*  | dp  | , kPa                                       | 0.2   |
| Index 1<br>Normalized drawdow<br>Index 2  | r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:<br>/n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m²]: | #NV<br>ate<br>#NV                         |   |   |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                               | #NV                                       | * 9   | ee comment  |
| Comment:  | no response due to pumping   | in source                                 |   |   |
| 5700  | Pumpstart  |   | Pumpstop                                    | 134.2   |
| biological |  | June Proposition                          |   | - 134<br>- 133.8<br>- 133.6<br>- 133.4<br>- 133.4<br>- 133.2<br>- 133.2<br>- 133.2<br>- 132.8<br>- 132.8<br>- 132.6 |
| 5300  | 22.11.2007 18:00   | 23.11.2007 00:00<br>Date                  | € KLX27A_1<br>→ HLX28_1<br>23.11.2007 06:00 | + 132.4<br>132.2<br>23.11.2007 12:00  |

| Pumping Hole:         KLX27A         Pumping Section [m bToC]:         633.2           Test Start:         19.11.2007 00:00         Test Stop:         25.11.200           Pump Start:         22.11.2007 14:34         Pump Stop:         23.11.20           Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:         7.42E-05         Pump Stop:         23.11.20           Pressure data         Nomenclature         Unit           Pressure in test section before start of flowing:         p,         kPa           Maximum pressure change during flowing period:         dp,         kPa           Observation Hole:         HLX28         Section no.:         Init           Distance r <sub>s</sub> [m]:         523.20         Section length:         7           Response time dtL [s]:         #NV         max. Drawdown s <sub>p</sub> [m]**         Pressure in test section before start of flowing:         p,         kPa           Pressure in test section before start of flowing:         p,         kPa         Maximum pressure change during flowing period:*         dp,         kPa           Normalized distance with respect to pumping period:*         Nomenclature         Unit         Pressure in test section before start of flowing:         p,         kPa           Normalized distance with respect to pumping flow rate         Index 1         r_s*/dt_ [m*/r_s]         #NV   |  |  |            |                        |                                      |                       | AP PS 400-07-72  | No.   | Activityplan I  |
|--|--|--|------------|------------------------|--------------------------------------|-----------------------|--|---|---|
| Pressure data     Nomenclature     Unit       Pressure in test section before start of flowing:     p,     kPa       Pressure in test section before stop of flowing:     p,     kPa       Maximum pressure change during flowing period:     dp,     kPa       Observation Hole:     HLX28     Section no.:     I       Distance r <sub>s</sub> [m]:     523.20     Section length:     T       Response time dt <sub>L</sub> [s]:     #NV     max. Drawdown s <sub>p</sub> [m]:*     T       Pressure in test section before start of flowing:     p,     kPa       Pressure in test section before stop of flowing:     p,     kPa       Pressure in test section before stop of flowing:     p,     kPa       Pressure in test section before stop of flowing:     p,     kPa       Pressure in test section before stop of flowing:     p,     kPa       Normalized distance with respect to the response time     Index 1     r_s²/dt <sub>L</sub> [m²/s]:     #NV       Normalized drawdown with respect to pumping flow rate     Index 2     s_p/Q_p [s/m²]:     #NV       Index 2 New     (s_p/Q_p)*In(r_p/r_0) [s/m²]:     #NV     see commen       Comment:     no response due to pumping in source     1     rs   | <b>.20-650.56</b><br>2007 00:00<br>2007 05:27  | <b>639.2</b><br>25.11.20<br>23.11.20                     | [m bToC]:  | Section [              | Pumping S<br>Test Stop:<br>Pump Stop |                       | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 | <b>lole:</b><br>::<br>Ω <sub>p</sub> [m <sup>3</sup> /s]: | Pumping Ho<br>Fest Start:<br>Pump Start:<br>Flow Rate Q |
| Pressure in test section before start of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure change during flowing period:<br>Pressure in test section before start of flowing:<br>Pressure in test section before start of flowing period:<br>Maximum pressure change during flowing period:<br>Maximum pressure change flowing period:<br>Mormalized distance with respect to the response time<br>Index 1 r_r_2 <sup>7</sup> /dt, [m <sup>7</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> ) <sup>1</sup> In(r <sub>x</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Pressure in the response due to pumping in source<br>Torment:<br>no response due to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdown with respect to pumping in source<br>Normalized drawdow   | Value  |  | Unit       | ature                  | Nomencla                             |                       |  | lata  | Pressure da   |
| Pressure in test section before stop of flowing:<br>Maximum pressure change during flowing period:<br>Distance r <sub>s</sub> [m]: 523.20<br>Section no.:<br>Distance r <sub>s</sub> [m]: 523.20<br>Section length:<br>Response time dt <sub>1</sub> [s]: #NV<br>max. Drawdown s <sub>p</sub> [m]:*<br>Pressure data<br>Nomenclature<br>Unit<br>Pressure in test section before start of flowing:<br>Pressure in test section before start of flowing:<br>Normalized distance with respect to pumping flow rate<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>p</sub> /r <sub>p</sub> ) [s/m <sup>2</sup> ]:<br>Pressure in test section before start of pumping in source<br>Pressure in test section before start of pumping in source<br>Pressure in test section before start of pumping in source<br>Pressure in test section before start of pumping in source<br>Pressure in test section before start of pumping in source<br>Pressure in test section before start of pumping in source<br>Pressure in test section before start of pumping in source<br>Pressure in test section before start of pumping in source<br>Pressure in test sectin before start of pumping in source<br>Pressur  | 5638   |  | kPa        | p <sub>i</sub>         |                                      |                       | before start of flowing:   | test section  | Pressure in t   |
| Maximum pressure change during flowing period:       dp,       kPa         Observation Hole:       HLX28       Section no.:       I         Distance r <sub>s</sub> [m]:       523.20       Section length:       7         Response time dt <sub>L</sub> [s]:       #NV       max. Drawdown s <sub>p</sub> [m]:*       7         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       p,       kPa         Maximum pressure change during flowing period:*       dp,       kPa         Normalized distance with respect to the response time index 1       r_s²/dt_(m²/s):       #NV         Normalized drawdown with respect to pumping flow rate index 2       s_y/Qp [s/m²]:       #NV         Index 2 New       (s <sub>p</sub> /Qp)*In(r <sub>j</sub> /r <sub>0</sub> ) [s/m²]:       #NV         Comment:       no response due to pumping in source       *see commen         foot       foot       foot       foot         foot       foot       foot       foot       foot         foot       foot       foot       foot       foot       foot         index 1       rs²/dt_(m²/s)       #NV       index 2       foot       foot       foot         foot       foot       foot       foot       foot       foot       foot <td>5437</td> <td></td> <td>kPa</td> <td><math>p_p</math></td> <td></td> <td></td> <td>before stop of flowing:</td> <td>test section</td> <td>Pressure in t</td>   | 5437   |  | kPa        | $p_p$                  |                                      |                       | before stop of flowing:  | test section  | Pressure in t   |
| Observation Hole:       HLX28       Section no.:       I         Distance rs [m]:       523.20       Section length:<br>max. Drawdown sp [m]:*       7         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       p,       kPa         Pressure in test section before start of flowing:       p,       kPa         Maximum pressure change during flowing period:*       dp,       kPa         Normalized distance with respect to the response time<br>Index 1       r s <sup>2</sup> /dt, [m <sup>2</sup> /s]:       #NV         Normalized drawdown with respect to pumping flow rate<br>Index 2       sp/Qp [s/m <sup>2</sup> ]:       #NV         Index 2 New       (sp/Qp)*In(r,/r_0) [s/m <sup>2</sup> ]:       #NV         Comment:       no response due to pumping in source       * see commen         feed/upd/file       feed/file       file       file         feed/file       file       file       file       file         feed/file       file       file       file       file       file         file       file       file       file       file       file       file         file       file       file       file       file       file       file       file         file       file       file <td>201</td> <td></td> <td>kPa</td> <td>dpp</td> <td></td> <td></td> <td>nge during flowing period:</td> <td>pressure char</td> <td>/laximum pr</td>  | 201  |  | kPa        | dpp                    |                                      |                       | nge during flowing period:   | pressure char   | /laximum pr   |
| Distance rs [m]: 523.20 Section length: max. Drawdown sp [m]:*<br>Pressure data Nomenclature Unit<br>Pressure in test section before start of flowing: pi kPa<br>Pressure in test section before stop of flowing: pp kPa<br>Maximum pressure change during flowing period:* dpp kPa<br>Normalized distance with respect to the response time<br>Index 1 rs²/dt, [m²/s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 New (sp/Qp)*In(rs/rs) [s/m²]: #NV<br>Index 2 New (sp/Qp)*In(rs/rs) [s/m²]: #NV<br>Comment: no response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Maximum pressure due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test of the response due to pumping in source<br>Test  | HLX28_2  | ŀ  |            | 0.:                    | Section no                           |                       | HLX28  | on Hole:  | Observatior   |
| Response time dt_[s]:       #NV       max. Drawdown sp[m]:*         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       pi       kPa         Pressure in test section before stop of flowing:       pp       kPa         Maximum pressure change during flowing period:*       dpp       kPa         Normalized distance with respect to the response time<br>Index 1       rs²/dt_[m²/s]:       #NV         Normalized drawdown with respect to pumping flow rate<br>Index 2       sp/Qp [s/m²]:       #NV         Index 2 New       (sp/Qp)*In(rs/rs) [s/m²]:       #NV         Comment:       no response due to pumping in source       * see commen         for period       period       period       period         see comment:       no response due to pumping in source       * see commen         for period       period       period       period         see       period       period       period       period         for period       period       period       period       period         location       no response due to pumping in source       period       period       period         for period       period       period       period       period       period       period   | 70.0-90.0  | 7  |            | nath:                  | Section len                          |                       | 523.20   | [m]:  | Distance r <sub>s</sub> [                               |
| Pressure data     Nomenclature     Unit       Pressure in test section before start of flowing:     pi     kPa       Pressure in test section before stop of flowing:     pp     kPa       Maximum pressure change during flowing period:*     dpp     kPa       Normalized distance with respect to the response time<br>Index 1     rs²/dtu [m²/s]:     #NV       Normalized drawdown with respect to pumping flow rate<br>Index 2     sp/Qp [s/m²]:     #NV       Index 2 New     (sp/Qp)*In(rs/ro) [s/m²]:     #NV       Comment:     no response due to pumping in source     * see commen  | #NV  |  | [m]:*      | /down s <sub>p</sub> [ | max. Draw                            |                       | #NV  | ime dt <sub>L</sub> [s]:                                  | Response tir  |
| Pressure in test section before start of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>p</sub> /r <sub>p</sub> ) [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>p</sub> /r <sub>p</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment:<br>no response due to pumping in source   | Value  |  | Unit       | ature                  | Nomencla                             |                       |  | lata  | Pressure da   |
| Pressure in test section before stop of flowing:<br>Maximum pressure change during flowing period:*<br>Normalized distance with respect to the response time<br>Index 1 r_s²/dt, [m²/s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s_y/Q_p [s/m²]: #NV<br>Index 2 New (s_p/Q_p)*In(r_y/r_0) [s/m²]: #NV<br>Comment: no response due to pumping in source   | 133.7  |  | kPa        | pi                     |                                      |                       | before start of flowing:   | test section  | Pressure in t   |
| Maximum pressure change during flowing period:* dp, kPa<br>Normalized distance with respect to the response time<br>Index 1 r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>o</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source   | 133.8  |  | kPa        | $p_p$                  |                                      |                       | before stop of flowing:  | test section  | Pressure in t   |
| Normalized distance with respect to the response time<br>Index 1 r_s <sup>2</sup> /dt_ [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s_p/Q_p [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s_p/Q_p)*In(r_s/r_o) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source  | 0.1  |  | kPa        | $dp_{p}$               |                                      |                       | nge during flowing period:*  | pressure char   | /laximum pr   |
| Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>* see comment<br>Comment: no response due to pumping in source   |  |  |            |                        |                                      | ne<br>#NV             | th respect to the response time $r_s^2/dt_L [m^2/s]$ :                                     | distance with   | Normalized o<br>ndex 1                                  |
| Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV *see comment<br>Comment: no response due to pumping in source   |  |  |            |                        |                                      | rate<br><b>#NV</b>    | <pre>with respect to pumping flow rat<br/>sp/Qp [s/m<sup>2</sup>]:</pre>                   | drawdown w  | Normalized o<br>ndex 2                                  |
| Comment: no response due to pumping in source  | ant  |  | *          |                        |                                      | #NV                   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | w   | ndex 2 New  |
| Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart | <u>///</u>   |  |            |                        | e                                    | g in sourc            | no response due to pumping in  |   | Comment:  |
|  | 134.2<br>134<br>133.8<br>133.6<br>133.4<br>133.2<br>133.2<br>132.8<br>132.6<br>132.4 | 13<br>13<br>13<br>13<br>13<br>13<br>13<br>13<br>13<br>13 | Pumpstop   | F                      | our de la companya                   |                       | Pumpstart  | F   | Pressure Active well [kPa]                              |
| 5300 <b>i</b> 1<br>22.11.2007 12:00 22.11.2007 18:00 23.11.2007 00:00 23.11.2007 06:00 23.11.2007 1<br>Date  | 132.2<br>7 12:00   | • 13:<br>23.11.2007 1:                                   | 2007 06:00 | 23.11.2                | :00                                  | 23.11.2007 00<br>Date | 22.11.2007 18:00 23  | 07 12:00  | 5300 -<br>22.11.2007                                    |

| Activityplan No.  | AP PS 400-07-72  |                                      |                                   |         |   |
|---|--|--------------------------------------|-----------------------------------|---------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 | <b>Pumpin</b><br>Test Sto<br>Pump St | <b>g Section [m</b><br>p:<br>top: | bToC]:  | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data   |  | Nomen                                | clature                           | Unit    | Value   |
| Pressure in test secti  | on before start of flowing:  |                                      | Di                                | kPa     | 5638  |
| Pressure in test secti  | on before stop of flowing:   |                                      | p <sub>p</sub>                    | kPa     | 5437  |
| Maximum pressure c  | hange during flowing period:   |                                      | dpp                               | kPa     | 201   |
| Observation Hole:   | HLX28  | Section                              | no.:                              |         | HLX28_3   |
| Distance r. [m]:  | 553 80   | Section                              | lenath:                           |         | 7 5-69 0  |
| Response time dt <sub>L</sub> [s  | ]: #NV   | max. Dra                             | awdown s <sub>p</sub> [m          | ]:*     | #NV   |
| Pressure data   | -  | Nomen                                | clature                           | Unit    | Value   |
| Pressure in test secti  | on before start of flowing:  |                                      | p <sub>i</sub>                    | kPa     | 128.0   |
| Pressure in test secti  | on before stop of flowing:   |                                      | p <sub>p</sub>                    | kPa     | 128.3   |
| Maximum pressure c  | hange during flowing period:*  |                                      | dpp                               | kPa     | 0.3   |
| Normalized distance<br>Index 1  | with respect to the response time $r_s^2/dt_L [m^2/s]$ :                                   | e<br>#NV                             |                                   |         |   |
| Normalized drawdow<br>Index 2   | n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | ate<br>#NV                           |                                   |         |   |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                                  |                                   | * 56    | e comment   |
| Comment:  | no response due to pumping   | in source                            |                                   |         |   |
| Lessure Active well [kPa]   |  |                                      | Pu                                | Mpstop  | 128.6<br>128.4<br>128.2<br>128.2<br>128.2<br>127.8<br>127.6<br>127.4<br>127.2<br>127.2<br>127.2<br>127.2<br>127.2<br>127.2<br>127.4<br>127.2<br>127.2<br>127.4<br>127.2<br>127.2<br>127.2<br>127.2<br>127.3 |
| 5300 22.11.2007 12:00   | 22.11.2007 18:00   | 23.11.2007 00:00                     | 23.11.200                         | 7 06:00 | 126.6 23.11.2007 12:00  |
|   |  |                                      |                                   |         |   |

| Activityplan No.   | AP PS 400  | )-07-72                                      |   |           |   |
|--|--|--|---|-----------|---|
| <b>Pumping Hole</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [r | <b>K</b><br>19.11.2007<br>22.11.2007<br>n <sup>3</sup> /s]: 7.4                    | <b>LX27A</b><br>7 00:00<br>7 14:34<br>42E-05 | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]: | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27        |
| Pressure data  |  |  | Nomenclature                                | Unit      | Value   |
| Pressure in test   | section before start of flo  | wina:  | Di  | kPa       | 5638  |
| Pressure in test   | section before stop of flo   | wing:  | P <sub>p</sub>                              | kPa       | 5437  |
| Maximum press  | sure change during flowing   | g period:                                    | dpp   | kPa       | 201   |
| Observation H  | ole:   | HLX32  | Section no.:                                |           | HLX32_1   |
| Distance r <sub>s</sub> [m]:   |  | 510.70                                       | Section length:                             |           | 31.0-163.0  |
| Response time  | dt <sub>∟</sub> [s]:   | #NV  | max. Drawdown s <sub>p</sub>                | [m]:*     | #NV   |
| Pressure data  |  |  | Nomenclature                                | Unit      | Value   |
| Pressure in test   | section before start of flo  | wing:  | p <sub>i</sub>                              | kPa       | 78.2  |
| Pressure in test   | section before stop of flo   | wing:  | pp  | kPa       | 79.8  |
| Maximum press  | sure change during flowing   | g period:*                                   | dpp   | kPa       | 1.6   |
| Normalized dist<br>Index 1   | ance with respect to the r<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:             | esponse time<br>#N                           | IV  |           |   |
| Normalized dra<br>Index 2  | wdown with respect to pur<br><b>s<sub>p</sub>/Q<sub>p</sub> [s/m<sup>2</sup>]:</b> | mping flow rate<br>#N                        | iv  |           |   |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> )              | [s/m²]: #N                                   | IV  | * S       | ee comment  |
| Comment:   | no response due  | e to pumping in so                           | urce  |           |   |
| ssure Active well [kPa]  | Pumpstart  | *****  | ******                                      | Pumpstop  | <sup>28</sup><br>78<br>78<br>78<br>78<br>78<br>78<br>78<br>76<br>78 |
| 5400<br>5300<br>22.11.2007 12:0  | 0 22.11.2007 18:00   | 23.11.20<br>Da                               | 07 00:00 23.1 <sup>-</sup><br>I <b>te</b>   |           | 74 <b>SSE</b><br>72<br>70<br>23.11.2007 12:00                       |

| Activityplan No.  | AP PS 400-07-72   |                          |  |           |  |
|---|---|--------------------------|--|-----------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05  | <b>Pur</b><br>Tes<br>Pun | nping Section [<br>t Stop:<br>np Stop: | m bToC]:  | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27                            |
| Pressure data   |   | No                       | nenclature                             | Unit      | Value  |
| Pressure in test section  | on before start of flowing:   |                          | p <sub>i</sub>                         | kPa       | 5638   |
| Pressure in test section  | on before stop of flowing:  |                          | pp                                     | kPa       | 5437   |
| Maximum pressure ch   | nange during flowing period:  |                          | dpp                                    | kPa       | 201  |
| Observation Hole:   | HLX32   | Sec                      | tion no.:                              |           | HLX32_2  |
| Distance r <sub>s</sub> [m]:  | 574.20  | Sec                      | tion length:                           |           | 20.0-30.0  |
| Response time $dt_{L}$ [s]  | : #NV   | max                      | . Drawdown s <sub>p</sub> [            | m]:*      | #NV  |
| Pressure data   |   | No                       | menclature                             | Unit      | Value  |
| Pressure in test section  | on before start of flowing:   |                          | pi                                     | kPa       | 75.5   |
| Pressure in test section  | on before stop of flowing:  |                          | pp                                     | kPa       | 76.9   |
| Maximum pressure ch   | nange during flowing period:*   |                          | dpp                                    | kPa       | 1.4  |
| Normalized distance of Index 1<br>Normalized drawdowr Index 2                                       | <pre>with respect to the response time r<sub>s</sub><sup>2</sup>/dt<sub>L</sub> [m<sup>2</sup>/s]: n with respect to pumping flow ra s<sub>p</sub>/Q<sub>p</sub> [s/m<sup>2</sup>]:</pre> | #NV<br>#te<br>#NV        |  |           |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV                      |  | * S       | ee comment   |
| Comment:  | no response due to pumping  | in source                |  |           |  |
| Lessure Active well [kPa]   | Pumpstart   |                          | F                                      | Pumpstop  | 78<br>77<br>76<br>76<br>75<br>75<br>74<br>74<br>73<br>72<br>72<br>72<br>71<br>70 |
| 22.11.2007 12:00  | 22.11.2007 18:00  | Date                     | 23.11.2                                | uur uo.uu | 23.11.2007 12:00   |

| Activityplan No.  | AP PS 400-07-72  |  |          |  |
|---|--|--|----------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q. [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 | Pumping Section [r<br>Test Stop:<br>Pump Stop: | n bToC]: | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data   | · /.42L-03   | Nomenclature                                   | Unit     | Value  |
| Pressure in test sect   | ion before start of flowing:   | D:   | kPa      | 5638   |
| Pressure in test sect   | ion before stop of flowing:  | p <sub>p</sub>                                 | kPa      | 5437   |
| Maximum pressure  | change during flowing period:  | dp <sub>p</sub>                                | kPa      | 201  |
| Observation Hole:   | HLX32  | Section no.:                                   |          | HLX32_3  |
| Distance r <sub>s</sub> [m]:  | 588.30   | Section length:                                |          | 0.0-19.0   |
| Response time dt <sub>L</sub> [s  | 5]: #NV  | max. Drawdown s <sub>p</sub> [r                | n]:*     | #NV  |
| Pressure data   |  | Nomenclature                                   | Unit     | Value  |
| Pressure in test sect   | ion before start of flowing:   | p <sub>i</sub>                                 | kPa      | 58.8   |
| Pressure in test sect   | ion before stop of flowing:  | pp   | kPa      | 59.1   |
| Maximum pressure  | change during flowing period:*   | dpp  | kPa      | 0.3  |
| Index 1 Normalized drawdov Index 2  | $r_s^2/dt_L [m^2/s]$ :<br>vn with respect to pumping flow rat<br>$s_p/Q_p [s/m^2]$ :       | #NV<br>e<br>#NV                                |          |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*ln(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV  | * 50     | ee comment   |
| Comment:  | no response due to pumping i   | n source                                       |          |  |
|   |  |  |          |  |
| Lessure Active well [KPa]   |  |  | KLX27A_1 | 59.4<br>59.2<br>59 [4]<br>58.8<br>58.8<br>58.6<br>58.6<br>58.4<br>58.4<br>58.2<br>58.2<br>58.2<br>58.2 |
| 22.11.2007 12:00  | 22.11.2007 18:00 2:  | 3.11.2007 00:00 23.11.20<br>Date               | 07 06:00 | 23.11.2007 12:00   |
|   |  |  |          |  |
| Activityplan No.  | AP PS 400-07-72  |                      |  |                    |  |
|---|--|----------------------|--|--------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 |                      | Pumping Section<br>Test Stop:<br>Pump Stop:  | ı [m bToC]:        | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27 |
| Pressure data   |  |                      | Nomenclature   | Unit               | Value  |
| Pressure in test secti  | on before start of flowing:  |                      | Pi   | kPa                | 5638   |
| Pressure in test secti  | on before stop of flowing:   |                      | p <sub>p</sub>   | kPa                | 5437   |
| Maximum pressure c  | hange during flowing period:   |                      | dpp  | kPa                | 201  |
| Observation Hole:   | HLX36  |                      | Section no.:   |                    | HLX36_1  |
| Distance r <sub>s</sub> [m]:  | 629.70   |                      | Section length:  |                    | 50.0-199.5   |
| Response time dt <sub>L</sub> [s]   | ]: #NV   |                      | max. Drawdown s  | <sub>p</sub> [m]:* | #NV  |
| Pressure data   |  |                      | Nomenclature   | Unit               | Value  |
| Pressure in test secti  | on before start of flowing:  |                      | p <sub>i</sub>   | kPa                | 139.6  |
| Pressure in test secti  | on before stop of flowing:   |                      | pp   | kPa                | 139.7  |
| Maximum pressure c  | hange during flowing period:*  |                      | dpp  | kPa                | 0.1  |
| Normalized distance<br>Index 1  | with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:              | e<br>#NV             |  |                    |  |
| Normalized drawdow<br>Index 2   | n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | ate<br>#NV           |  |                    |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                  |  | * 94               | ee comment   |
| Comment:  | no response due to pumping   | in sourc             | ce   |                    |  |
| 5700  | Pumpstart  |                      |  | Pumpstop           | 140.2  |
| e well [kba]  |  | vn.vr                | and and a state of the state of |                    | - 140<br>139.8 <b>[E</b><br>139.6 <b>n</b><br>139.6 <b>n</b> |
| essure Activ  |  |                      |  |                    | - 139.4 Lasgo<br>- 139.2 lass                                |
| 5400  | <br> <br> <br> <br> <br>   |                      |  | KLX27A_1           | - 138.8  |
| 5300  | <br>   |                      |  | HLX36_1            | 138.6  |
| 22.11.2007 12:00  | 22.11.2007 18:00   | 23.11.2007 0<br>Date | 0:00 23.1  | 11.2007 06:00      | 23.11.2007 12:00   |

| Activityplan No.   | AP PS 400-07-72   |                         |   |                    |   |
|--|---|-------------------------|---|--------------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> / | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>s]: 7.42E-05                              | F<br>T<br>F             | Pumping Section<br>Test Stop:<br>Pump Stop: | ı [m bToC]:        | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data  | -   | I                       | Nomenclature                                | Unit               | Value   |
| Pressure in test se  | ection before start of flowing:   |                         | pi  | kPa                | 5638  |
| Pressure in test se  | ection before stop of flowing:  |                         | Pp  | kPa                | 5437  |
| Maximum pressure   | e change during flowing period:   |                         | dpp   | kPa                | 201   |
| Observation Hole   | HLX36   | S                       | Section no.:                                |                    | HLX36_2   |
| Distance r <sub>s</sub> [m]:   | 666.30  | S                       | Section length:                             |                    | 0.0-49.0  |
| Response time dt   | [s]: #NV  | r                       | nax. Drawdown s                             | <sub>p</sub> [m]:* | #NV   |
| Pressure data  |   | I                       | Nomenclature                                | Unit               | Value   |
| Pressure in test se  | ection before start of flowing:   |                         | pi  | kPa                | 106.9   |
| Pressure in test se  | ection before stop of flowing:  |                         | pp  | kPa                | 106.7   |
| Maximum pressure   | e change during flowing period:*  |                         | dpp   | kPa                | 0.2   |
| Normalized distan  | ce with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:            | #NV                     |   |                    |   |
| Normalized drawd<br>Index 2  | own with respect to pumping flow rat<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: | te<br>#NV               |   |                    |   |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV                     |   | * 64               | e comment   |
| Comment:   | no response due to pumping i  | in source               | )   |                    |   |
| 5500 5500 5500 5500 5500 5500 5500 550   | Pumpstart   |                         | •••••                                       | Pumpstop           | 107.2<br>107<br>106.8<br>106.6<br>106.4<br>106.4<br>106.2<br>106<br>105.8<br>105.8<br>105.6<br>105.4<br>105.4 |
| 5300 + • • • • • • • • • • • • • • • • • •   | 22.11.2007 18:00 2  | 23.11.2007 00:1<br>Date | 00 23.1                                     | 11.2007 06:00      | + 105.2<br>23.11.2007 12:00   |
|  |   |                         |   |                    |   |

| Pumping Hole:<br>Test Start:<br>Pump Start:   | KLX27A   | Pumping S               | Section [m             | bToC1:  | 630 20-650 56   |
|---|--|-------------------------|------------------------|---------|---|
| Flow Rate Q <sub>n</sub> [m <sup>3</sup> /s]: | 22.11.2007 00.00<br>22.11.2007 14:34<br>7.42E-05   | Test Stop:<br>Pump Stop | :                      |         | 25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data                                 |  | Nomencla                | ture                   | Unit    | Value   |
| Pressure in test sectior                      | n before start of flowing:   |                         | D <sub>i</sub>         | kPa     | 5638  |
| Pressure in test section                      | n before stop of flowing:  |                         | р <sub>р</sub>         | kPa     | 5437  |
| Maximum pressure cha                          | ange during flowing period:  |                         | dpp                    | kPa     | 201   |
| Observation Hole:                             | HLX37  | Section no              | ).:                    |         | HLX37_1   |
| Distance r <sub>s</sub> [m]:                  | 587.30   | Section len             | ath:                   |         | 150.0-200.0   |
| Response time $dt_{L}$ [s]:                   | #NV  | max. Draw               | down s <sub>p</sub> [m | ]:*     | #NV   |
| Pressure data                                 |  | Nomencla                | ture                   | Unit    | Value   |
| Pressure in test section                      | n before start of flowing:   |                         | p <sub>i</sub>         | kPa     | 135.3   |
| Pressure in test section                      | n before stop of flowing:  |                         | pp                     | kPa     | 135.5   |
| Maximum pressure cha                          | ange during flowing period:*   |                         | $dp_{p}$               | kPa     | 0.2   |
| Normalized distance w<br>Index 1              | ith respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:               | e<br>#NV                |                        |         |   |
| Normalized drawdown<br>Index 2                | with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:     | ate<br>#NV              |                        |         |   |
| Index 2 New                                   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                     |                        | * 500   | comment   |
| Comment:                                      | no response due to pumping   | in source               |                        |         |   |
| Lessure Active well [kPa]                     | Pumpstart  | June Providence         | Pu                     | mpstop  | 135.8<br>135.6<br>135.4<br>135.2<br>135.4<br>135.2<br>135.4<br>134.8<br>134.8<br>134.6<br>134.4<br>134.4<br>134.2<br>134.2<br>134.2 |
| 5300 22.11.2007 12:00                         | 22.11.2007 18:00   | 23.11.2007 00:00        | 23.11.2007             | 7 06:00 |   |

| Activityplan No.   | AP PS 400-07-72   |  |            |   |
|--|---|--|------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> / | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>s]: 7.42E-05  | Pumping Section<br>Test Stop:<br>Pump Stop:  | [m bToC]:  | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27 |
| Pressure data  |   | Nomenclature   | Unit       | Value   |
| Pressure in test se  | ection before start of flowing:   | p <sub>i</sub>   | kPa        | 5638  |
| Pressure in test se  | ection before stop of flowing:  | pp   | kPa        | 5437  |
| Maximum pressur  | e change during flowing period:   | dpp  | kPa        | 201   |
| Observation Hole   | e: HLX37  | Section no.:   |            | HLX37_2   |
| Distance r <sub>s</sub> [m]:   | 633.10  | Section length:  |            | 111.0-149.0   |
| Response time dt <sub>L</sub>  | [s]: #NV  | max. Drawdown s <sub>p</sub>   | [m]:*      | #NV   |
| Pressure data  |   | Nomenclature   | Unit       | Value   |
| Pressure in test se  | ection before start of flowing:   | p <sub>i</sub>   | kPa        | 150.2   |
| Pressure in test se  | ection before stop of flowing:  | p <sub>p</sub>   | kPa        | 150.4   |
| Maximum pressur  | e change during flowing period:*  | dpp  | kPa        | 0.2   |
| Index 1  | $r_s^2/dt_L [m^2/s]$ :<br>own with respect to pumping flow ra   | #NV  |            |   |
| Index 2  | s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>-</sup> ]:   | #NV  |            |   |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                      | #NV  | * c        | ee comment  |
| Comment:   | no response due to pumping  | in source  |            |   |
| 5700   | Pumpstart   |  | Pumpstop   | 150.6   |
| 5600   | in vour free  | and a start of the |            | 150.4<br>150.2<br>150.2<br>150 <b>Te</b>              |
| 5500   | " Infrança de la companya de la companya de la companya de la companya de la companya de la companya de la comp | Nacard .   | · ·        | - 149.8<br>- 149.8<br>- Aution<br>- Aution            |
| ressure A  |   |  | I          | - 149.6 <b>Sq</b><br><b>9 J</b><br>149.4 <b>J</b>     |
| <b>L</b> 5400  | <br> <br>   | <br> <br>  | <b>i</b>   | Pres  |
|  |   |  |            | - 149.2   |
| 5300 <b>•</b><br>22.11.2007 12:00  | 22.11.2007 18:00  | 23.11.2007 00:00 23.11.<br>Date  | 2007 06:00 | + 148.8<br>23.11.2007 12:00                           |

| Activityplan No.  | AP PS 400-07-72  |               |   |                         |  |
|---|--|---------------|---|-------------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>2</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   |               | Pumping Sectior<br>Test Stop:<br>Pump Stop:   | n [m bToC]:             | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27 |
| Pressure data   |  |               | Nomenclature  | Unit                    | Value  |
| Pressure in test sect   | ion before start of flowing:   |               | Di  | kPa                     | 5638   |
| Pressure in test sect   | ion before stop of flowing:  |               | p <sub>p</sub>  | kPa                     | 5437   |
| Maximum pressure of   | change during flowing period:  |               | dpp   | kPa                     | 201  |
| Observation Hole:   | HLX37  |               | Section no.:  |                         | HLX37_3  |
| Distance r <sub>s</sub> [m]:  | 648.20   |               | Section length:   |                         | 94.0-110.0   |
| Response time dt <sub>L</sub> [s  | s]: #NV  |               | max. Drawdown s   | <sub>p</sub> [m]:*      | #NV  |
| Pressure data   |  |               | Nomenclature  | Unit                    | Value  |
| Pressure in test sect   | ion before start of flowing:   |               | Pi  | kPa                     | 137.5  |
| Pressure in test sect   | ion before stop of flowing:  |               | pp  | kPa                     | 137.9  |
| Maximum pressure of   | change during flowing period:*   |               | dpp   | kPa                     | 0.4  |
| Normalized distance   | with respect to the response time<br>r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]: | #NV           |   |                         |  |
| Normalized drawdow<br>Index 2   | vn with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:              | ite<br>#NV    |   |                         |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*ln(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:             | #NV           |   | * e                     | ee comment   |
| Comment:  | no response due to pumping   | in sourc      | e   |                         |  |
| 5700  | Pumpstart  |               |   | Pumpstop                | 138.5  |
| 5600 5600   |  | *****         | and and the state of the state |                         | - 138<br>- 137.5 [Ed J]<br>137.5 137.5                       |
| S400  |  |               |   | • KLX27A_1<br>• HLX37_3 | - 136.5 <b>Sec</b><br>- 136.5 <b>Sec</b><br>- 136            |
| 5300 <b>•</b><br>22.11.2007 12:00   | 22.11.2007 18:00 2   | 23.11.2007 00 | ):00 23.  | 11.2007 06:00           | + 135.5<br>23.11.2007 12:00                                  |
|   |  | Date          |   |                         |  |

| KLX27A         19.11.2007 00:00         22.11.2007 14:34         i]:       7.42E-05         ction before start of flowing:         ction before stop of flowing:         e change during flowing period:         :       HLX37         732.40         [s]:       #NV         ction before start of flowing:         ction before start of flowing:         ction before stop of flowing:         ction before stop of flowing:         ction before stop of flowing:         ction before stop of flowing:         e change during flowing period:*         : $r_s^2/dt_L [m^2/s]$ :         :       with respect to pumping flow rate | P<br>Tr<br>P<br>N<br>S<br>S<br>m<br>N<br>*   | umping Section         est Stop:         ump Stop:         lomenclature         pi         pp         dpp         ection no.:         ection length:         nax. Drawdown sp         lomenclature         pi         pp         dpp         dp         dp         dp         ection length:         nax. Drawdown sp         lomenclature         pi         pp         dpp | [m bToC]:<br>Unit<br>kPa<br>kPa<br>kPa<br>kPa<br>kPa<br>kPa<br>kPa<br>kPa   | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27<br>Value<br>5638<br>5437<br>201<br>HLX37_4<br>0.0-93.0<br>#NV<br>Value<br>148.7<br>148.7<br>0.0  |
|--|--|--|---|--|
| ction before start of flowing:<br>ction before stop of flowing:<br>e change during flowing period:<br><b>HLX37</b><br>732.40<br>[s]: #NV<br>ction before start of flowing:<br>ction before stop of flowing:<br>e change during flowing period:*<br>e with respect to the response time<br>$r_s^2/dt_L [m^2/s]$ :   | N<br>S<br>M<br>N<br>#NV  | lomenclature<br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub><br>ection no.:<br>ection length:<br>nax. Drawdown s <sub>p</sub><br>lomenclature<br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub>  | Unit<br>kPa<br>kPa<br>kPa<br>(m]:*<br>Unit<br>kPa<br>kPa<br>kPa<br>kPa  | Value<br>5638<br>5437<br>201<br>HLX37_4<br>0.0-93.0<br>#NV<br>Value<br>148.7<br>148.7<br>0.0   |
| ction before start of flowing:         ction before stop of flowing:         e change during flowing period:         :       HLX37         732.40         [s]:       #NV         ction before start of flowing:         ction before stop of flowing:         ction before stop of flowing:         ction before stop of flowing:         e change during flowing period:*         e with respect to the response time $r_s^2/dt_L$ [m²/s]:         own with respect to pumping flow rate  | S<br>m<br>N<br>#NV   | p <sub>i</sub><br>P <sub>p</sub><br>dp <sub>p</sub><br>ection no.:<br>ection length:<br>nax. Drawdown s <sub>p</sub><br>lomenclature<br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub>  | kPa<br>kPa<br>kPa<br>kPa<br>kPa<br>kPa<br>kPa<br>kPa  | 5638<br>5437<br>201<br>HLX37_4<br>0.0-93.0<br>#NV<br>Value<br>148.7<br>148.7<br>148.7<br>0.0   |
| ction before stop of flowing:         a change during flowing period:         a change during flowing period:         :       HLX37         732.40         [s]:       #NV         ction before start of flowing:         ction before stop of flowing:         ction before stop of flowing:         ction before stop of flowing:         a change during flowing period:*         a cwith respect to the response time $r_s^2/dt_L [m^2/s]$ :         awn with respect to pumping flow rate  | S<br>m<br>N<br>#NV   | P <sub>p</sub><br>dp <sub>p</sub><br>ection no.:<br>ection length:<br>nax. Drawdown s <sub>p</sub><br>lomenclature<br>P <sub>i</sub><br>P <sub>p</sub><br>dp <sub>p</sub>  | kPa<br>kPa<br>.[m]:*<br><b>Unit</b><br>kPa<br>kPa<br>kPa  | 5437<br>201<br>HLX37_4<br>0.0-93.0<br>#NV<br>Value<br>148.7<br>148.7<br>148.7<br>0.0   |
| e change during flowing period:<br>HLX37<br>732.40<br>[s]: #NV<br>ction before start of flowing:<br>ction before stop of flowing:<br>e change during flowing period:*<br>e with respect to the response time<br>$r_s^2/dt_L [m^2/s]$ :   | S<br>m<br>N<br>#NV   | dp <sub>p</sub><br>ection no.:<br>ection length:<br>nax. Drawdown s <sub>p</sub><br>lomenclature<br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub>  | kPa<br>[m]:*<br>Unit<br>kPa<br>kPa<br>kPa   | 201<br>HLX37_4<br>0.0-93.0<br>#NV<br>Value<br>148.7<br>148.7<br>0.0  |
| HLX37<br>732.40<br>[s]: #NV<br>tion before start of flowing:<br>tion before stop of flowing:<br>e change during flowing period:*<br>with respect to the response time<br>$r_s^2/dt_L [m^2/s]$ :  | \$<br>S<br>M<br>N<br>*NV   | ection no.:<br>ection length:<br>nax. Drawdown s <sub>p</sub><br>lomenclature<br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub>   | .[m]:*<br><b>Unit</b><br>kPa<br>kPa<br>kPa  | HLX37_4<br>0.0-93.0<br>#NV<br>Value<br>148.7<br>148.7<br>0.0   |
| T32.40<br>[s]: #NV<br>to before start of flowing:<br>to before stop of flowing:<br>e change during flowing period:*<br>with respect to the response time<br>$r_s^2/dt_L [m^2/s]$ :   | S<br>m<br>N<br>#NV   | ection length:<br>nax. Drawdown s <sub>p</sub><br><b>lomenclature</b><br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub>   | .[m]:*<br>Unit<br>kPa<br>kPa<br>kPa   | 0.0-93.0<br>#NV<br>Value<br>148.7<br>148.7<br>0.0  |
| [s]: #NV<br>ction before start of flowing:<br>ction before stop of flowing:<br>e change during flowing period:*<br>with respect to the response time<br>$r_s^2/dt_L [m^2/s]$ :   | m<br>N<br>#NV  | nax. Drawdown s <sub>p</sub><br>Iomenclature<br>P <sub>i</sub><br>P <sub>p</sub><br>dp <sub>p</sub>  | [m]:*<br>Unit<br>kPa<br>kPa<br>kPa  | #NV<br>Value<br>148.7<br>148.7<br>0.0  |
| ction before start of flowing:<br>ction before stop of flowing:<br>e change during flowing period:*<br>ce with respect to the response time<br>r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:   | *NV  | lomenclature<br>Pi<br>Pp<br>dpp  | Unit<br>kPa<br>kPa<br>kPa   | <b>Value</b><br>148.7<br>148.7<br>0.0  |
| ction before start of flowing:<br>ction before stop of flowing:<br>e change during flowing period:*<br>ce with respect to the response time<br>r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>own with respect to pumping flow rate  | #NV  | P <sub>i</sub><br>P <sub>p</sub><br>dp <sub>p</sub>  | kPa<br>kPa<br>kPa   | 148.7<br>148.7<br>0.0  |
| ction before stop of flowing:<br>e change during flowing period:*<br>e with respect to the response time<br>r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>own with respect to pumping flow rate   | #NV  | p <sub>p</sub><br>dp <sub>p</sub>  | kPa<br>kPa  | 148.7<br>0.0   |
| e change during flowing period:*<br>e with respect to the response time<br>r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:   | #NV  | dp <sub>p</sub>  | kPa   | 0.0  |
| e with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:  | #NV  |  |   |  |
| own with respect to pumping flow rate  | <u>م</u>   |  |   |  |
| s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:  | #NV  |  |   |  |
| (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | #NV  |  | * 9   | ee comment   |
| no response due to pumping ir  | n source   |  |   |  |
| Pumpstart  |  |  | Pumpstop  | <u>1</u> 150   |
| ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,   | ******   | **************************************   |   | - 149.5<br>- 149<br>- 148.5<br>- 148.5<br>- 148<br>- 148<br>- 148<br>- 148<br>- 148<br>- 148<br>- 148<br>- 148<br>- 148<br>- 149<br>- 149.5  |
| 22.11.2007 18:00 23  |  | 0 23.11  |   | 146.5 <b>Sec</b><br>146.5 <b>1</b> 46<br>145.5<br>145<br>23.11.2007 12:00  |
|  | sp/Qp)*In(rs/ro) [s/m <sup>2</sup> ]:<br>no response due to pumping in<br>Pumpstart<br>22.11.2007 18:00 23 | Sp <sup>1</sup> d <sup>2</sup> p [Sim]. #NV<br>(Sp <sup>1</sup> d <sup>2</sup> p)*In(r <sub>s</sub> /r <sub>0</sub> ) [S/m <sup>2</sup> ]: #NV<br>no response due to pumping in source<br>Pumpstart<br>22.11.2007 18:00<br>23.11.2007 00:0<br>Date   | spodp [sm] . #W<br>(sp/Qp)*In(rs/ro) [s/m <sup>2</sup> ]: #NV<br>no response due to pumping in source<br>Pumpstart<br>22.11.2007 18:00 23.11.2007 00:00 23.11<br>Date | space [smi]. #W<br>(sp/Qp)*ln(rs/ro) [s/m <sup>2</sup> ]: #NV<br>no response due to pumping in source<br>Pumpstart<br>Pumpstop<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000<br>0000 |

| Activityplan No.   | AP PS 400-07-72   |  |                               |  |  |
|--|---|--|-------------------------------|--|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s] | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>: 7.42E-05                                | <b>Pumpir</b><br>Test Sto<br>Pump S  | ng Section [m<br>op:<br>Stop: | hbToC]:                                      | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data  |   | Nomen  | clature                       | Unit   | Value  |
| Pressure in test sec   | tion before start of flowing:   |  | p <sub>i</sub>                | kPa  | 5638   |
| Pressure in test sec   | tion before stop of flowing:  |  | p <sub>p</sub>                | kPa  | 5437   |
| Maximum pressure   | change during flowing period:   |  | dpp                           | kPa  | 201  |
| Observation Hole:  | HLX38   | Section  | n no.:                        |  | HLX38_1  |
| Distance r <sub>s</sub> [m]:   | 669.80  | Section  | lenath:                       |  | 0.0-199.5  |
| Response time dt <sub>L</sub> [  | s]: #NV   | max. Dr  | rawdown s <sub>p</sub> [m     | n]:*   | #NV  |
| Pressure data  |   | Nomer  | clature                       | Unit   | Value  |
| Pressure in test sec   | tion before start of flowing:   |  | p <sub>i</sub>                | kPa  | 55.0   |
| Pressure in test sec   | tion before stop of flowing:  |  | $p_p$                         | kPa  | 55.3   |
| Maximum pressure   | change during flowing period:*  |  | $dp_p$                        | kPa  | 0.3  |
| Normalized distance<br>Index 1   | e with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:             | e<br>#NV   |                               |  |  |
| Normalized drawdov<br>Index 2  | vn with respect to pumping flow ra<br><b>s<sub>p</sub>/Q<sub>p</sub> [s/m<sup>2</sup>]:</b> | ate<br>#NV   |                               |  |  |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV  |                               | * 56   | e comment  |
| Comment:   | no response due to pumping  | in source  |                               |  |  |
| 5500 5500 5500 5500 5500 5500 5500 550   | Pumpstart   | and a decision of the second s | Pu                            | Impstop           KLX27A_1           HLX38_1 | 55.6<br>55.4<br>55.2<br>55<br>54.8<br>54.8<br>54.8<br>54.8<br>54.6<br>54.4<br>54.4<br>54.2<br>54.2<br>54.2<br>54.2<br>55<br>55<br>55<br>54.8<br>54.8<br>54.8<br>54.8<br>54.8<br>54.8 |
| 5300 <del></del><br>22.11.2007 12:00   | 22.11.2007 18:00  | 23.11.2007 00:00<br>Date   | 23.11.200                     | 7 06:00                                      | 53.8<br>23.11.2007 12:00   |
|  |   |  |                               |  |  |

| Activityplan No.  | AP PS 400-07-72  |   |                      |  |
|---|--|---|----------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>2</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 | Pumping Section<br>Test Stop:<br>Pump Stop: | n [m bToC]:          | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27                         |
| Pressure data   | 1.422-00   | Nomenclature                                | Unit                 | Value  |
| Pressure in test secti  | on before start of flowing:  | Di  | kPa                  | 5638   |
| Pressure in test secti  | on before stop of flowing:   | p <sub>p</sub>                              | kPa                  | 5437   |
| Maximum pressure c  | hange during flowing period:   | dp <sub>p</sub>                             | kPa                  | 201  |
| Observation Hole:   | HLX42  | Section no.:                                |                      | HLX42_1  |
| Distance r <sub>s</sub> [m]:  | 1305.90  | Section length:                             |                      | 30.0-152.6   |
| Response time dt <sub>L</sub> [s  | ]: #NV   | max. Drawdown s                             | s <sub>p</sub> [m]:* | #NV  |
| Pressure data   |  | Nomenclature                                | Unit                 | Value  |
| Pressure in test secti  | on before start of flowing:  | p <sub>i</sub>                              | kPa                  | 95.1   |
| Pressure in test secti  | on before stop of flowing:   | pp  | kPa                  | 95.3   |
| Maximum pressure c  | hange during flowing period:*  | dpp   | kPa                  | 0.2  |
| Normalized distance<br>Index 1  | with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:              | #NV   |                      |  |
| Normalized drawdow<br>Index 2   | n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | ite<br>#NV                                  |                      |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV   | * s                  | ee comment   |
| Comment:  | no response due to pumping   | in source                                   |                      |  |
| 5700  | Pumpstart  |   | Pumpstop             | 95.6   |
| essure Active well [kPa]  |  | Jan Jan Jan Jan Jan Jan Jan Jan Jan Jan     |                      | - 95.4<br>- 95.2<br>- 95<br>- 94.8<br>- 94.6<br>- 94.6<br>- 94.4<br>- 94.4<br>- 94.4 |
| 5400<br>5300<br>22.11.2007 12:00  | 22.11.2007 18:00   | 23.11.2007 00:00 23.<br>Date                |                      | 94.2 <b>5</b><br>94<br>93.8<br>93.6<br>23.11.2007 12:00                              |

| Activityplan No.  | AP PS 400-07-72   |   |                      |  |
|---|---|---|----------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>2</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7 42F-05  | Pumping Section<br>Test Stop:<br>Pump Stop: | on [m bToC]:         | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27 |
| Pressure data   |   | Nomenclature                                | Unit                 | Value  |
| Pressure in test secti  | on before start of flowing:   | Di  | kPa                  | 5638   |
| Pressure in test secti  | on before stop of flowing:  | p <sub>p</sub>                              | kPa                  | 5437   |
| Maximum pressure c  | hange during flowing period:  | dpp   | kPa                  | 201  |
| Observation Hole:   | HLX42   | Section no.:                                |                      | HLX42_2  |
| Distance r <sub>s</sub> [m]:  | 1380.30   | Section length:                             |                      | 0.0-29.0   |
| Response time $dt_L$ [s   | ]: #NV  | max. Drawdown                               | s <sub>p</sub> [m]:* | #NV  |
| Pressure data   |   | Nomenclature                                | Unit                 | Value  |
| Pressure in test secti  | on before start of flowing:   | p <sub>i</sub>                              | kPa                  | 116.9  |
| Pressure in test secti  | on before stop of flowing:  | pp  | kPa                  | 116.9  |
| Maximum pressure c  | hange during flowing period:*   | dpp   | kPa                  | 0.0  |
| Normalized distance<br>Index 1<br>Normalized drawdow  | with respect to the response time<br><b>r</b> <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>In with respect to pumping flow ra | # <b>NV</b>                                 |                      |  |
| Index 2   | s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | #NV   |                      |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*ln(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV   | * c                  | see comment  |
| Comment:  | no response due to pumping  | in source                                   |                      |  |
| 5700  | Pumpstart   |   | Pumpstop             | 117.2  |
| 0000<br>Ctive well [Kb]   | Aryan Mrya  | Mar Mar Mar Mar Mar Mar Mar Mar Mar Mar     |                      | - 116.8 [FL]   |
| Stand   |   |   |                      | - 116.4 <b>Sq</b><br>- 116.2 <b>Se</b><br>- 116.2 <b>L</b>   |
| 5300  | <br> <br> <br> <br> <br> <br>   |   | KLX27A_1     HLX42_2 | - 116  |
| 22.11.2007 12:00  | 22.11.2007 18:00  | 23.11.2007 00:00 2<br>Date                  | 3.11.2007 06:00      | 23.11.2007 12:00   |

| Activityplan No.  | AP PS 400-07-72  |   |                      |   |
|---|--|---|----------------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>2</sub> [m <sup>3</sup> /s | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>1: 7.42E-05                              | Pumping Section<br>Test Stop:<br>Pump Stop: | on [m bToC]:         | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data   |  | Nomenclature                                | Unit                 | Value   |
| Pressure in test sec  | tion before start of flowing:  | Pi  | kPa                  | 5638  |
| Pressure in test sec  | tion before stop of flowing:   | pp  | kPa                  | 5437  |
| Maximum pressure  | change during flowing period:  | dpp   | kPa                  | 201   |
| Observation Hole:   | KLX11A   | Section no.:                                |                      | KLX11A_1  |
| Distance r <sub>e</sub> [m]:  | 524 30   | Section length:                             |                      | 703 0-992 0   |
| Response time dt  | [s]: #NV   | max. Drawdown                               | s <sub>p</sub> [m]:* | #NV   |
| Pressure data   |  | Nomenclature                                | Unit                 | Value   |
| Pressure in test sec  | tion before start of flowing:  | p <sub>i</sub>                              | kPa                  | 138.7   |
| Pressure in test sec  | tion before stop of flowing:   | p <sub>p</sub>                              | kPa                  | 138.9   |
| Maximum pressure  | change during flowing period:*   | dpp   | kPa                  | 0.2   |
| Normalized distanc<br>Index 1   | e with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:            | #NV   |                      |   |
| Normalized drawdo<br>Index 2  | wn with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:  | #NV   |                      |   |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*ln(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV   | * s                  | ee comment  |
| Comment:  | no response due to pumping   | in source                                   |                      |   |
| 5500 5500 5500 5500 5500 5500 5500 550  | Pumpstart  |   | Pumpstop             | 139.5<br>139<br>139<br>138.5 <b>[e</b> ]<br>138.5 <b>[e</b> ]<br>136.5 <b>[e</b> ]<br>136.5 <b>[e</b> ]<br>136.5 <b>[e</b> ]<br>136.5 <b>[e</b> ] |
| 22.11.2007 12:00  | 22.11.2007 18:00   | 23.11.2007 00:00 2<br>Date                  | 3.11.2007 06:00      | 23.11.2007 12:00  |
|   |  |   |                      |   |

| Activityplan No.   | AP PS 400-07-72  |                       |   |                    |  |
|--|--|-----------------------|---|--------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> / | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>'s]: 7.42E-05                              |                       | Pumping Sectior<br>Test Stop:<br>Pump Stop: | ו [m bToC]:        | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27 |
| Pressure data  | -  |                       | Nomenclature                                | Unit               | Value  |
| Pressure in test se  | ection before start of flowing:  |                       | Pi  | kPa                | 5638   |
| Pressure in test se  | ection before stop of flowing:   |                       | P <sub>p</sub>                              | kPa                | 5437   |
| Maximum pressur  | e change during flowing period:  |                       | dpp   | kPa                | 201  |
| Observation Hole   | e: KLX11A  |                       | Section no.:                                |                    | KLX11A_2   |
| Distance r <sub>s</sub> [m]:   | 468.80   |                       | Section length:                             |                    | 587.0-702.0  |
| Response time dt   | [s]: #NV   |                       | max. Drawdown s                             | <sub>p</sub> [m]:* | #NV  |
| Pressure data  |  |                       | Nomenclature                                | Unit               | Value  |
| Pressure in test se  | ection before start of flowing:  |                       | Pi  | kPa                | 139.1  |
| Pressure in test se  | ection before stop of flowing:   |                       | pp  | kPa                | 135.5  |
| Maximum pressur  | e change during flowing period:*   |                       | dpp   | kPa                | 3.6  |
| Normalized distan<br>Index 1   | ce with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:             | #NV                   |   |                    |  |
| Normalized drawd<br>Index 2  | own with respect to pumping flow ra<br><b>s<sub>p</sub>/Q<sub>p</sub> [s/m<sup>2</sup>]:</b> | te<br>#NV             |   |                    |  |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | #NV                   |   | * Si               | ee comment   |
| Comment:   | no response due to pumping i   | in sourc              | e   |                    |  |
| 5700   | Pumpstart  |                       |   | Pumpstop           | 142  |
| 5600<br>[KJ3]  |  |                       |   |                    | - 140<br>- 138 <b>[F<br/>J]</b>                              |
| 0000 SSUE  |  | *********             | ,*************************************      | ******             | 136 136<br>136 136<br>134 136<br>134 136                     |
| 5400   |  |                       |   |                    | - 132 <b>Sec</b><br>- 130                                    |
| 5300 <b>22.11.2007 12:00</b>   | 22.11.2007 18:00 2   | 23.11.2007 00<br>Date | :00 23.1                                    | 11.2007 06:00      | 128  |

| Activityplan N   | 0.                                  | AP PS 400-07-72  |                     |   |  |  |
|--|-------------------------------------|--|---------------------|---|--|--|
| <b>Pumping Hol</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> | l <b>e:</b><br>[m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 |                     | Pumping Section<br>Test Stop:<br>Pump Stop: | ı [m bToC]:                                    | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27 |
| Pressure data  | a                                   |  |                     | Nomenclature                                | Unit   | Value  |
| Pressure in te   | st section l                        | pefore start of flowing:   |                     | Di  | kPa  | 5638   |
| Pressure in te   | st section l                        | before stop of flowing:  |                     | p <sub>p</sub>                              | kPa  | 5437   |
| Maximum pre  | ssure chan                          | ge during flowing period:  |                     | dpp   | kPa  | 201  |
| Observation  | Hole:                               | KLX11A   |                     | Section no.:                                |  | KLX11A_3   |
| Distance r <sub>s</sub> [m   | n]:                                 | 469.90   |                     | Section length:                             |  | 573.0-586.0  |
| Response tim   | e dt <sub>L</sub> [s]:              | #NV  |                     | max. Drawdown s                             | <sub>p</sub> [m]:*                             | #NV  |
| Pressure data  | а                                   |  |                     | Nomenclature                                | Unit   | Value  |
| Pressure in te   | st section l                        | pefore start of flowing:   |                     | Pi  | kPa  | 138.7  |
| Pressure in te   | st section l                        | before stop of flowing:  |                     | pp  | kPa  | 134.9  |
| Maximum pre  | ssure chan                          | ge during flowing period:*   |                     | dpp   | kPa  | 3.8  |
| Normalized di<br>Index 1   | stance with                         | n respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:                 | #NV                 |   |  |  |
| Normalized dr<br>Index 2   | rawdown w                           | ith respect to pumping flow rat<br><b>s<sub>p</sub>/Q<sub>p</sub> [s/m<sup>2</sup>]:</b>   | te<br>#NV           |   |  |  |
| Index 2 New  |                                     | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                 |   | * S  | ee comment   |
| Comment:   |                                     | no response due to pumping i   | n sour              | ce  |  |  |
| 5700   | F                                   | Pumpstart  |                     |   | Pumpstop                                       | 142  |
| 5600 ••••  |                                     |  | ********            |   |  | - 140<br>- 138 138<br>- 136 138<br>- 136                     |
| <b>June 4001</b>   |                                     |  |                     |   | <ul> <li>KLX27A_1</li> <li>KLX11A_3</li> </ul> | - 130  |
| 5300 +<br>22.11.2007 1:  | 2:00                                | 22.11.2007 18:00 2   | 3.11.2007 0<br>Date | 0:00 23.1                                   | 11.2007 06:00                                  | 128<br>23.11.2007 12:00                                      |

| Activityplan No  | Э.  | AP PS 400-07-72   |                      |   |                    |   |
|--|---|---|----------------------|---|--------------------|---|
| <b>Pumping Hol</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> | <b>e:</b><br>[m <sup>3</sup> /s]:                   | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05  |                      | Pumping Section<br>Test Stop:<br>Pump Stop: | ı [m bToC]:        | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data  | a   |   |                      | Nomenclature                                | Unit               | Value   |
| Pressure in ter  | st section bef                                      | ore start of flowing:   |                      | Pi  | kPa                | 5638  |
| Pressure in te   | st section bef                                      | ore stop of flowing:  |                      | P <sub>p</sub>                              | kPa                | 5437  |
| Maximum pres   | ssure change  | during flowing period:  |                      | dpp   | kPa                | 201   |
| Observation  | Hole:   | KLX11A  |                      | Section no.:                                |                    | KLX11A_4  |
| Distance r <sub>s</sub> [m   | ]:  | 476.90  |                      | Section length:                             |                    | 495.0-572.0   |
| Response time  | e dt <sub>L</sub> [s]:                              | #NV   |                      | max. Drawdown s                             | <sub>p</sub> [m]:* | #NV   |
| Pressure data  | a   |   |                      | Nomenclature                                | Unit               | Value   |
| Pressure in te   | st section bef                                      | ore start of flowing:   |                      | Pi  | kPa                | 138.4   |
| Pressure in te   | st section bef                                      | ore stop of flowing:  |                      | pp  | kPa                | 135.9   |
| Maximum pres   | ssure change  | during flowing period:*   |                      | dpp   | kPa                | 2.5   |
| Index 1<br>Normalized dr<br>Index 2  | r <sub>s</sub> ²<br>awdown with<br>s <sub>p</sub> / | /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>respect to pumping flow ra<br>/Q <sub>p</sub> [s/m <sup>2</sup> ]: | #NV<br>te<br>#NV     |   |                    |   |
| Index 2 New  | (s <sub>1</sub>                                     | <sub>o</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                     | #NV                  |   | * \$               | ee comment  |
| Comment:   | no  | response due to pumping i   | in sourc             | ce  |                    |   |
| 5700   | Pun   | npstart   |                      |   | Pumpstop           | 140   |
| ssure Active well [kPa]  |   |   | ********             | ,,,,  |                    | - 139<br>- 138<br>- 137<br>- 137<br>- 136<br>- 137<br>- 136<br>- 137<br>- 136<br>- 137<br>- 136<br>- 137<br>- 138<br>- 137<br>- 138<br>- 138<br>- 138<br>- 139<br>- 138<br>- 137<br>- 138<br>- 138<br>- 138<br>- 137<br>- 138<br>- 136<br>- 136<br>- 137<br>- 138<br>- 136<br>- 137<br>- 136<br>- 136<br>- 136<br>- 136<br>- 137<br>- 136<br>- 137<br>- 136<br>- 136<br>- 136<br>- 137<br>- 136<br>- 136<br>- 136<br>- 136<br>- 137<br>- 136<br>- 136 |
| 5400<br>5300<br>22.11.2007 12  | 2:00  | 22.11.2007 18:00 2  | 23.11.2007 0<br>Date | 0:00 23.1                                   |                    | - 133<br>- 132<br>- 131<br>- 130<br>- 23.11.2007 12:00  |

| Activityplan No.   | AP PS 400-07-72  |  |                        |   |
|--|--|--|------------------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s] | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>: 7.42E-05                               | <b>Pumping Section</b><br>Test Stop:<br>Pump Stop: | ı [m bToC]:            | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27                     |
| Pressure data  |  | Nomenclature                                       | Unit                   | Value   |
| Pressure in test sec   | tion before start of flowing:  | p <sub>i</sub>                                     | kPa                    | 5638  |
| Pressure in test sec   | tion before stop of flowing:   | Pp   | kPa                    | 5437  |
| Maximum pressure   | change during flowing period:  | dpp  | kPa                    | 201   |
| Observation Hole:  | KLX11A   | Section no.:                                       |                        | KLX11A_5  |
| Distance r <sub>s</sub> [m]:   | 494.40   | Section length:                                    |                        | 315.0-494.0   |
| Response time dt <sub>L</sub> [  | s]: #NV  | max. Drawdown s                                    | <sub>p</sub> [m]:*     | #NV   |
| Pressure data  |  | Nomenclature                                       | Unit                   | Value   |
| Pressure in test sec   | tion before start of flowing:  | p <sub>i</sub>                                     | kPa                    | 137.3   |
| Pressure in test sec   | tion before stop of flowing:   | pp   | kPa                    | 135.9   |
| Maximum pressure   | change during flowing period:*   | dpp  | kPa                    | 1.4   |
| Normalized distance<br>Index 1   | e with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:            | ;<br>#NV   |                        |   |
| Normalized drawdov<br>Index 2  | wn with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:  | #NV  |                        |   |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV  | * c                    | ee comment  |
| Comment:   | no response due to pumping   | in source  |                        |   |
| 5700   | Pumpstart  |  | Pumpstop<br>I<br>I     | 139   |
| 5600 Ke well [kBa]   |  | ***********  |                        | - 137<br>- 137<br>- 136<br>- 135<br>- 135<br>- 135                        |
| 5400   |  |  | KLX27A_1<br>→ KLX11A_5 | - 134 Classed<br>- 134 Classed<br>- 133 Sector<br>- 132<br>- 132<br>- 131 |
| 5300 <b>2</b> 2.11.2007 12:00  | 22.11.2007 18:00   | 23.11.2007 00:00 23.1<br>Date                      | 11.2007 06:00          | 130   |

| Activityplan No.                            | AP PS 400-07-72   |   |  |   |
|---|---|---|--|---|
| Pumping Hole:<br>Test Start:<br>Pump Start: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34  | Pumping Section [<br>Test Stop:<br>Pump Stop: | m bToC]:   | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27               |
| Pressure data                               | /sj. 7.42E-05   | Nomenclature                                  | Unit   | Value   |
| Pressure in test s                          | ection before start of flowing.   | D.  | kPa  | 5638  |
| Pressure in test s                          | section before stop of flowing:   | Pi<br>Do                                      | kPa  | 5437  |
| Maximum pressu                              | re change during flowing period:  | dp <sub>p</sub>                               | kPa  | 201   |
| Observation Ho                              | le: KLX11A  | Section no.:                                  |  | KLX11A_6  |
| Distance r. [m]:                            | 553 20  | Section length:                               |  | 273 0-314 0   |
| Response time d                             | t <sub>L</sub> [s]: #NV   | max. Drawdown s <sub>o</sub>                  | [m]:*  | #NV   |
| Pressure data                               |   | Nomenclature                                  | Unit   | Value   |
| Pressure in test s                          | section before start of flowing:  | p <sub>i</sub>                                | kPa  | 136.6   |
| Pressure in test s                          | section before stop of flowing:   | pp  | kPa  | 135.5   |
| Maximum pressu                              | re change during flowing period:*   | dpp   | kPa  | 1.1   |
| Index 1<br>Normalized draw                  | down with respect to the response time<br>$r_s^2/dt_L [m^2/s]$ :<br>$s_r/Q_n [s/m^2]$ : | #NV<br>te<br>#NV                              |  |   |
| Index 2 New                                 | (s <sub>p</sub> /Q <sub>p</sub> )*ln(r₅/r₀) [s/m²]:                                     | #NV   | * -  |   |
| Comment:                                    | no response due to pumping i  | n source                                      | <u> </u>   | ee comment  |
| 5700  | Pumpstart   |   | Pumpstop   | 138<br>- 137  |
| essure Active well [kPa]                    | •   | *****   |  | 136 <b>[ed3]</b><br>137 138 139 139 139 139 139 139 139 139 139 139 |
| 5400<br>5300<br>22.11.2007 12:00            | 22.11.2007 18:00 2  | 3.11.2007 00:00 23.11.2<br>Date               | <ul> <li>KLX27A_1</li> <li>→ KLX11A_6</li> <li>2007 06:00</li> </ul> | 132<br>132<br>131<br>131<br>130<br>23.11.2007 12:00                 |

| Activityplan No.  | AP PS 400-07-72  |                      |   |             |   |
|---|--|----------------------|---|-------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>2</sub> Im | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br><sup>3</sup> /sl: 7 42E-05   |                      | Pumping Section<br>Test Stop:<br>Pump Stop: | ı [m bToC]: | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27                                |
| Pressure data   |  |                      | Nomenclature                                | Unit        | Value   |
| Pressure in test s  | section before start of flowing:   |                      | Di  | kPa         | 5638  |
| Pressure in test  | section before stop of flowing:  |                      | p <sub>p</sub>                              | kPa         | 5437  |
| Maximum pressu  | re change during flowing period:   |                      | dpp   | kPa         | 201   |
| Observation Ho  | le: KLX11A   |                      | Section no.:                                |             | KLX11A_7  |
| Distance r <sub>s</sub> [m]:  | 583.10   |                      | Section length:                             |             | 256.0-272.0   |
| Response time d   | t <sub>L</sub> [s]: #NV  |                      | max. Drawdown s                             | 。[m]:*      | #NV   |
| Pressure data   |  |                      | Nomenclature                                | Unit        | Value   |
| Pressure in test  | section before start of flowing:   |                      | Pi  | kPa         | 132.3   |
| Pressure in test  | section before stop of flowing:  |                      | Pp  | kPa         | 131.2   |
| Maximum pressu  | re change during flowing period:*  |                      | dpp   | kPa         | 1.1   |
| Normalized dista<br>Index 1<br>Normalized draw                                    | nce with respect to the response time<br>r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>down with respect to pumping flow ra | #NV<br>ate           |   |             |   |
| Index 2   | s <sub>p</sub> /Q <sub>p</sub> [s/m]:  | #IN V                |   |             |   |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m²]:  | #NV                  |   | * 50        | ee comment  |
| Comment:  | no response due to pumping   | in sourc             | ce  |             |   |
| 5000<br>5500<br>5500  | Pumpstart  | *****                | *******                                     | Pumpstop    | 133<br>132<br>132<br>130<br>130<br>129<br>0<br>0<br>9<br>229<br>129<br>0<br>9<br>229<br>129 |
| 5400<br>5300<br>22.11.2007 12:00  | 22.11.2007 18:00   | 23.11.2007 0<br>Date | 0:00 23.1                                   |             | - 128 <b>Sec</b><br>- 127<br>- 127<br>- 126<br>- 23.11.2007 12:00                           |

| Activityp                     | lan No.   | AP PS 400-07-72   |                       |   |             |   |
|-------------------------------|---|---|-----------------------|---|-------------|---|
| Pumpin<br>Test Sta<br>Pump St | <b>g Hole:</b><br>rt:<br>tart:<br>ta O[m <sup>3</sup> /o] | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34  |                       | Pumping Sectior<br>Test Stop:<br>Pump Stop: | n [m bToC]: | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressur                       | te Q <sub>p</sub> [m <sup>-</sup> /s]:                    | 7.42E-05  |                       | Nomenclature                                | Unit        | Value   |
| Proceure                      | o in tost soct  | ion before start of flowing:  |                       |   | kPo         | 5639  |
| Pressure                      | e in test sect  | ion before stop of flowing:   |                       | pi<br>D <sub>o</sub>                        | kPa         | 5437  |
| Maximu                        | m pressure o  | change during flowing period:   |                       | dp <sub>p</sub>                             | kPa         | 201   |
| Observa                       | ation Hole:   | KLX11A  |                       | Section no.:                                |             | KLX11A_8  |
| Distance<br>Respons           | e r <sub>s</sub> [m]:<br>se time dt <sub>1</sub> [s       | 620.50<br>sl: #NV   |                       | Section length:<br>max. Drawdown s          | _ [m]:*     | 180.0-255.0<br>#NV  |
| Pressur                       | e data  |   |                       | Nomenclature                                | Unit        | Value   |
| Pressure                      | e in test sect  | ion before start of flowing:  |                       | Di  | kPa         | 136.4   |
| Pressure                      | e in test sect  | ion before stop of flowing:   |                       | P₀  | kPa         | 135.5   |
| Maximu                        | m pressure o  | change during flowing period:*  |                       | dp <sub>p</sub>                             | kPa         | 0.9   |
| Normaliz<br>Index 2           | zed drawdov<br><b>New</b>                                 | vn with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>n</sub> /Q <sub>n</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                   |   |             |   |
|                               | non   | (op ap) m(1910) [om ].  |                       |   | * Se        | ee comment  |
| Comme                         | nt:   | no response due to pumping i  | in sourc              | e   |             |   |
| t well [kPa]                  | 500 <b>.</b>  | Pumpstart   | ***                   |   | Pumpstop    | 137<br>136<br>136<br>135<br>136   |
| Pressure Active               |   |   |                       |   | KLX27A_1    | - 134 II<br>- 133 II<br>- 132 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 131 II<br>- 132 II<br>- 133 II<br>- 134 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 135 II<br>- 1 |
| 5:<br>22. <sup>-</sup>        | 300   | 22.11.2007 18:00 2  | 23.11.2007 00<br>Date | :00 23.1                                    |             | 131<br>23.11.2007 12:00   |

| Activityplan No.   | AP PS 400-07-72   |  |                           |                |   |
|--|---|--|---------------------------|----------------|---|
| Pumping Hole:<br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]. | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05  | Pumping Se<br>Test Stop:<br>Pump Stop: | ection [m                 | bToC]:         | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27                      |
| Pressure data  |   | Nomenclatu                             | ure                       | Unit           | Value   |
| Pressure in test sect  | ion before start of flowing:  |  | pi                        | kPa            | 5638  |
| Pressure in test sect  | ion before stop of flowing:   |  | p <sub>p</sub>            | kPa            | 5437  |
| Maximum pressure   | change during flowing period:   |  | dpp                       | kPa            | 201   |
| Observation Hole:  | KLX11A  | Section no.:                           | :                         |                | KLX11A_9  |
| Distance r <sub>s</sub> [m]:   | 643.80  | Section leng                           | th:                       |                | 103.0-179.0   |
| Response time dt <sub>L</sub> [s   | s]: #NV   | max. Drawdo                            | own s <sub>p</sub> [m     | ]:*            | #NV   |
| Pressure data  |   | Nomenclatu                             | ure                       | Unit           | Value   |
| Pressure in test sect  | ion before start of flowing:  |  | pi                        | kPa            | 141.3   |
| Pressure in test sect  | ion before stop of flowing:   |  | $\mathbf{p}_{\mathrm{p}}$ | kPa            | 141.6   |
| Maximum pressure   | change during flowing period:*  |  | dpp                       | kPa            | 0.3   |
| Normalized drawdov<br>Index 2<br>Index 2 New   | r <sub>s</sub> /dt <sub>L</sub> [III /s]:<br>vn with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r₀) [s/m <sup>2</sup> ]: | #NV<br>te<br>#NV<br>#NV                |                           |                |   |
| _  |   |  |                           | * se           | e comment   |
| Comment:   | no response due to pumping i  | IN SOURCE                              |                           |                |   |
| Stop   | Pumpstart   | and the second second                  | Pu                        | Mpstop         | 142<br>141.5<br>141.5<br>141.5<br>141.5<br>- 141.5<br>- 140.5<br>- 140.5<br>- 140 |
| 5300 + •<br>22.11.2007 12:00   | 22.11.2007 18:00 2  | 23.11.2007 00:00<br>Date               | 23.11.2007                | <b>*</b> 06:00 | 139.5<br>23.11.2007 12:00   |

| Activityplan No.  | AP PS 400-07-72  |   |                         |   |
|---|--|---|-------------------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | Pumping Section<br>Test Stop:<br>Pump Stop: | on [m bToC]:            | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27 |
| Pressure data   |  | Nomenclature                                | Unit                    | Value   |
| Pressure in test sectio   | n before start of flowing:   | p <sub>i</sub>                              | kPa                     | 5638  |
| Pressure in test sectio   | n before stop of flowing:  | pp  | kPa                     | 5437  |
| Maximum pressure ch   | ange during flowing period:  | dpp   | kPa                     | 201   |
| Observation Hole:   | KLX11A   | Section no.:                                |                         | KLX11A_10   |
| Distance r <sub>s</sub> [m]:  | 727.30   | Section length:                             |                         | 0.0-102.0   |
| Response time dt <sub>L</sub> [s]:  | #NV  | max. Drawdown                               | s <sub>p</sub> [m]:*    | #NV   |
| Pressure data   |  | Nomenclature                                | Unit                    | Value   |
| Pressure in test sectio   | n before start of flowing:   | p <sub>i</sub>                              | kPa                     | 156.4   |
| Pressure in test section  | n before stop of flowing:  | pp  | kPa                     | 156.7   |
| Maximum pressure ch   | ange during flowing period:*   | dpp   | kPa                     | 0.3   |
| Normalized distance v<br>Index 1  | <pre>vith respect to the response time     r<sub>s</sub><sup>2</sup>/dt<sub>L</sub> [m<sup>2</sup>/s]:</pre> | )<br>#NV                                    |                         |   |
| Normalized drawdown<br>Index 2  | with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:                       | te<br>#NV                                   |                         |   |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                   | #NV   | * c                     | ee comment  |
| Comment:  | no response due to pumping   | in source                                   |                         |   |
| 5700  | Pumpstart  |   | Pumpstop                | 158   |
| 5600 title well [kba]   | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~   | June June Verner and Andrews                |                         | - 157.5<br>- 157<br>- 157<br>- 156.5 .<br>- 156.5     |
| JC 5400   |  |   | KLX27A_1<br>→ KLX11A 10 | - 156 <b>O anssa</b><br>- 155.5 <b>J</b>              |
| 5300 <b>22.11.2007 12:00</b>  | 22.11.2007 18:00 :   | 23.11.2007 00:00 2<br>Date                  | 23.11.2007 06:00        | 154.5<br>23.11.2007 12:00                             |

| Activityplan N  | lo.                                | AP PS 400-07-72  |                         |   |                    |  |
|---|------------------------------------|--|-------------------------|---|--------------------|--|
| Pumping Hol<br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> | <b>le:</b><br>[m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   |                         | Pumping Section<br>Test Stop:<br>Pump Stop: | ı [m bToC]:        | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27          |
| Pressure dat  | a                                  |  |                         | Nomenclature                                | Unit               | Value  |
| Pressure in te  | est section l                      | pefore start of flowing:   |                         | Pi  | kPa                | 5638   |
| Pressure in te  | est section l                      | before stop of flowing:  |                         | P <sub>p</sub>                              | kPa                | 5437   |
| Maximum pre   | essure chan                        | ge during flowing period:  |                         | dpp   | kPa                | 201  |
| Observation   | Hole:                              | KLX11E   |                         | Section no.:                                |                    | KLX11E_1   |
| Distance r <sub>s</sub> [m  | n]:                                | 711.20   |                         | Section length:                             |                    | 2.0-121.0  |
| Response tim  | e dt <sub>L</sub> [s]:             | #NV  |                         | max. Drawdown s                             | <sub>p</sub> [m]:* | #NV  |
| Pressure dat  | a                                  |  |                         | Nomenclature                                | Unit               | Value  |
| Pressure in te  | est section l                      | pefore start of flowing:   |                         | Pi  | kPa                | 157.8  |
| Pressure in te  | est section l                      | pefore stop of flowing:  |                         | pp  | kPa                | 158.1  |
| Maximum pre   | essure chan                        | ge during flowing period:*   |                         | dpp   | kPa                | 0.3  |
| Index 1<br>Normalized dr<br>Index 2                                   | rawdown w                          | $r_s^2/dt_L [m^2/s]:$<br>ith respect to pumping flow rat<br>$s_p/Q_p [s/m^2]:$<br>$(s_r/Q_r)*ln(r_r/r_r) [s/m^2]:$ | #NV<br>te<br>#NV<br>#NV |   |                    |  |
|   |                                    |  | #144                    |   | * Se               | ee comment   |
| Comment:  |                                    | no response due to pumping i   | n sourd                 | ce  |                    |  |
| 5700  | F                                  | Pumpstart  |                         |   | Pumpstop           | 158.5  |
| ctive well [kPa]  |                                    | • • •  |                         |   |                    | - 158<br>- 158<br>- 157.5 [ed]<br>- 157.5 Ilian<br>- 157 Ilian |
| A Pressure  |                                    |  |                         |   |                    | - 156.5 <b>Sig</b><br>- 156.5 <b>J</b>                         |
| 5300  | 12:00                              | 22.11.2007 18:00 2   | 3.11.2007 0             | 0:00 23.1                                   | 11.2007 06:00      | 155.5 23.11.2007 12:00   |
|   |                                    |  | Date                    |   |                    |  |

| Activityplan No.  | AP PS 400-07-72  |  |                         |  |
|---|--|--|-------------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 | <b>Pumping Sec</b><br>Test Stop:<br>Pump Stop: | tion [m bToC]:          | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data   |  | Nomenclature                                   | e Unit                  | Value  |
| Pressure in test secti  | on before start of flowing:  |  | o <sub>i</sub> kPa      | 5638   |
| Pressure in test secti  | on before stop of flowing:   | t  | p <sub>p</sub> kPa      | 5437   |
| Maximum pressure o  | hange during flowing period:   | dr   | o <sub>p</sub> kPa      | 201  |
| Observation Hole:   | KLX14A   | Section no.:                                   |                         | KLX14A_1   |
| Distance r <sub>s</sub> [m]:  | 684.40   | Section length:                                |                         | 123.00-176.27  |
| Response time $dt_L$ [s   | ]: #NV   | max. Drawdow                                   | 'n s <sub>p</sub> [m]:* | #NV  |
| Pressure data   |  | Nomenclature                                   | e Unit                  | Value  |
| Pressure in test secti  | on before start of flowing:  |  | o <sub>i</sub> kPa      | 58.7   |
| Pressure in test secti  | on before stop of flowing:   | ŗ  | p <sub>p</sub> kPa      | 58.9   |
| Maximum pressure o  | hange during flowing period:*  | dr   | p <sub>p</sub> kPa      | 0.2  |
| Normalized distance<br>Index 1  | with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:              | e<br>#NV                                       |                         |  |
| Normalized drawdow<br>Index 2   | n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | ate<br>#NV                                     |                         |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV  | * c                     | ee comment   |
| Comment:  | no response due to pumping   | in source                                      |                         |  |
| Lessure Active well [kPa]   |  | M. M.  | Pumpstop                | 59.2<br>59<br>58.8<br>58.6<br>58.6<br>58.2<br>58.2<br>58<br>58.2<br>58<br>58<br>58.2<br>58<br>58<br>58<br>58<br>58<br>58<br>58<br>58<br>58<br>58<br>58<br>58<br>58 |
| 22.11.2007 12:00  | 22.11.2007 18:00   | 23.11.2007 00:00<br>Date                       | 23.11.2007 06:00        | 23.11.2007 12:00   |
|   |  |  |                         |  |

| Activityplan No.   | AP PS 400-07-72  |   |                       |                               |  |
|--|--|---|-----------------------|-------------------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Elow Pate O [m <sup>3</sup> /c]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34   | Pumping So<br>Test Stop:<br>Pump Stop:  | ection [m             | bToC]:                        | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data  | 7.42E-05   | Nomenclat   | ure                   | Unit                          | Value  |
| Pressure in test secti   | on before start of flowing:  |   | D.                    | kPa                           | 5638   |
| Pressure in test section   | on before stop of flowing:   |   | Pi<br>Da              | kPa                           | 5437   |
| Maximum pressure c   | hange during flowing period:   |   | dp <sub>p</sub>       | kPa                           | 201  |
| Observation Hole:  | KLX14A   | Section no.   | :                     |                               | KLX14A_2   |
| Distance r. [m]  | 692.00   | Section leng  | th                    |                               | 77 0-122 0   |
| Response time dt <sub>L</sub> [s]  | ]: #NV   | max. Drawd  | own s <sub>o</sub> [m | ]:*                           | #NV  |
| Pressure data  |  | Nomenclat   | ure                   | Unit                          | Value  |
| Pressure in test section   | on before start of flowing:  |   | Pi                    | kPa                           | 57.1   |
| Pressure in test section   | on before stop of flowing:   |   | р <sub>р</sub>        | kPa                           | 57.5   |
| Maximum pressure c   | hange during flowing period:*  |   | dpp                   | kPa                           | 0.4  |
| Index 1<br>Normalized drawdow<br>Index 2<br>Index 2 New                                | r <sub>s</sub> <sup>-</sup> /dt <sub>L</sub> [m <sup>-</sup> /s]:<br>n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r₀) [s/m <sup>2</sup> ]: | #NV<br>ate<br>#NV<br>#NV  |                       |                               |  |
|  | (-h -h)(.a. 0) [].   |   |                       | * Se                          | ee comment   |
| Comment:   | no response due to pumping   | In source   |                       |                               |  |
| ssure Active well [kPa]  |  | and and the second second second second second second second second second second second second second second s | M.                    | Pumpstop                      | 57.8<br>57.6<br>57.4<br>57.4<br>57.2<br>57.4<br>57.2<br>57.4<br>57<br>57.4<br>57<br>57<br>56.8<br>56.8<br>56.8<br>56.6<br>56.4<br>56.4<br>56.4 |
| 5400<br>5300<br>22.11.2007 12:00   | 22.11.2007 18:00   | 23.11.2007 00:00<br>Date  | 23.11.2007            | KLX27A_1     KLX14A_2 7 06:00 | 56.2 <b>5</b> 5.8 55.6 23.11.2007 12:00  |

| Activityplan No.  | AP PS 400-07-72  |   |                                      |   |
|---|--|---|--------------------------------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | Pumping Section [<br>Test Stop:<br>Pump Stop:   | m bToC]:                             | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data   |  | Nomenclature  | Unit                                 | Value   |
| Pressure in test sect   | ion before start of flowing:   | p <sub>i</sub>  | kPa                                  | 5638  |
| Pressure in test sect   | ion before stop of flowing:  | pp  | kPa                                  | 5437  |
| Maximum pressure of   | change during flowing period:  | dpp   | kPa                                  | 201   |
| Observation Hole:   | KLX14A   | Section no.:  |                                      | KLX14A_3  |
| Distance r <sub>s</sub> [m]:  | 696.90   | Section length:   |                                      | 0.0-76.0  |
| Response time $dt_L$ [s   | ]: #NV   | max. Drawdown s <sub>p</sub> [  | m]:*                                 | #NV   |
| Pressure data   |  | Nomenclature  | Unit                                 | Value   |
| Pressure in test sect   | ion before start of flowing:   | p <sub>i</sub>  | kPa                                  | 106.8   |
| Pressure in test sect   | ion before stop of flowing:  | pp  | kPa                                  | 106.9   |
| Maximum pressure of   | change during flowing period:*   | dpp   | kPa                                  | 0.1   |
| Normalized drawdow<br>Index 2<br>Index 2 New  | /n with respect to pumping flow rat<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | te<br>#NV<br>#NV  |                                      |   |
|   |  |   | * S                                  | ee comment  |
| Comment:  | no response due to pumping i   | n source  |                                      |   |
| 5700  | Pumpstart  |   | Pumpstop                             | 107.2   |
| Lessure Active well [kPa]   | In Market  | Am Markan Markan Markan Markan Markan Markan Markan Markan Markan Markan Markan Markan Markan Markan Markan Mar<br>Markan Markan M<br>Markan Markan M |                                      | 107<br>106.8<br>106.6<br>106.4<br>106.4<br>106.2<br>106<br>106<br>106<br>106<br>106<br>106<br>105.8 |
| 5300  | 22.11.2007 18:00 2:  | 3.11.2007 00:00 23.11.2<br>Date   | KLX27A_1<br>→ KLX14A_3<br>0007 06:00 | + 105.6<br>105.4<br>23.11.2007 12:00  |

| Activityplan No.  | AP PS 400-07-72  |   |                    |   |
|---|--|---|--------------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 | <b>Pumping Section</b><br>Test Stop:<br>Pump Stop:  | ı [m bToC]:        | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27 |
| Pressure data   |  | Nomenclature  | Unit               | Value   |
| Pressure in test section  | on before start of flowing:  | p <sub>i</sub>  | kPa                | 5638  |
| Pressure in test section  | on before stop of flowing:   | pp  | kPa                | 5437  |
| Maximum pressure ch   | ange during flowing period:  | dpp   | kPa                | 201   |
| Observation Hole:   | KLX15A   | Section no.:  |                    | KLX15A_1  |
| Distance r <sub>s</sub> [m]:  | 1396.20  | Section length:   |                    | 902.0-1000.0  |
| Response time dt <sub>L</sub> [s]:  | #NV  | max. Drawdown s   | <sub>թ</sub> [m]:* | #NV   |
| Pressure data   |  | Nomenclature  | Unit               | Value   |
| Pressure in test section  | on before start of flowing:  | p <sub>i</sub>  | kPa                | 32.8  |
| Pressure in test section  | on before stop of flowing:   | P <sub>p</sub>  | kPa                | 33.1  |
| Maximum pressure ch   | ange during flowing period:*   | dpp   | kPa                | 0.3   |
| Normalized distance v<br>Index 1  | vith respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:              | ≆<br>#NV  |                    |   |
| Normalized drawdowr<br>Index 2  | with respect to pumping flow rasp/Q <sub>p</sub> [s/m <sup>2</sup> ]:                      | ate<br>#NV  |                    |   |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV   | * S                | ee comment  |
| Comment:  | no response due to pumping   | in source   |                    |   |
| 5700  | Pumpstart  |   | Pumpstop           | 33.5  |
| 5600 <b></b>  | ran and an a   |   |                    | 33<br>[E]   |
| ctive well [k]  |  |   | ·                  |   |
| Pressure A  | through  | and the second |                    | - 31.5 <b>SQ</b>                                      |
| 5400  |  |   |                    | <b>2</b>  |
| 5300 <del>1 2</del><br>22.11.2007 12:00   | 22.11.2007 18:00   | 23.11.2007 00:00 23.1<br>Date   | 11.2007 06:00      |   |

| Activityplan No.   | AP PS 400-07-72  |   |              |  |
|--|--|---|--------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s] | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>]: 7.42E-05                              | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]:    | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27 |
| Pressure data  |  | Nomenclature                                | Unit         | Value  |
| Pressure in test sec   | tion before start of flowing:  | p <sub>i</sub>                              | kPa          | 5638   |
| Pressure in test sec   | tion before stop of flowing:   | pp  | kPa          | 5437   |
| Maximum pressure   | change during flowing period:  | dpp   | kPa          | 201  |
| Observation Hole:  | KLX15A   | Section no.:                                |              | KLX15A_2   |
| Distance r <sub>s</sub> [m]:   | 1359.60  | Section length:                             |              | 641.0-901.0  |
| Response time $dt_L$ [   | s]: #NV  | max. Drawdown s <sub>p</sub>                | , [m]:*      | #NV  |
| Pressure data  |  | Nomenclature                                | Unit         | Value  |
| Pressure in test sec   | tion before start of flowing:  | p <sub>i</sub>                              | kPa          | 60.9   |
| Pressure in test sec   | tion before stop of flowing:   | pp  | kPa          | 61.4   |
| Maximum pressure   | change during flowing period:*   | dpp   | kPa          | 0.5  |
| Normalized distance  | e with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:            | #NV   |              |  |
| Index 2  | wh with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:  | #NV   |              |  |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV   | * 0          | oo commont   |
| Comment:   | no response due to pumping   | in source                                   |              |  |
| 5700   | Pumpstart  |   |              | 62<br>- 61.5   |
| sure Active well [kPa]   |  |   |              | e Observation well [kPa]                                     |
| 5400   |  | A. 444. 444. 444. 444. 444. 444. 444. 4     |              | - 59.5 <b>5</b> 9  |
| 22.11.2007 12:00   | 22.11.2007 18:00   | 23.11.2007 00:00 23.1<br>Date               | 1.2007 06:00 | 23.11.2007 12:00   |

| Pumping Hole:       KLX27A       Pumping Section [m bToC]:       639.20-1         Test Start:       19.11.2007 00:00       Test Stop:       25.11.2007         Pump Start:       22.11.2007       Pump Stop:       23.11.2007         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       p,       kPa         Maximum pressure in test section before start of flowing:       p,       kPa         Maximum pressure change during flowing period:       dp,       kPa         Observation Hole:       KLX15A       Section length:       623.0         Response time dti_ [s]:       #NV       max. Drawdown s, [m]:*       623.0         Pressure in test section before start of flowing:       p,       kPa         Pressure in test section before start of flowing:       p,       kPa         Pressure in test section before start of flowing:       p,       kPa         Pressure in test section before start of flowing:       p,       kPa         Normalized distance with respect to pumping flow rate       Index 1       r_e*/dt.[m²/s]:       #NV         Normalized drawdown with respect to pumping flow rate       Index 2       s_p/Q_p [s/m²]:       #NV         Index 2       Nor response due to pumping in source       *see comment  | Activityplan  | No.  | AP PS 400-07-72  |                      |   |                    |   |
|--|---|--|--|----------------------|---|--------------------|---|
| Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       p, kPa         Pressure in test section before stop of flowing:       p, kPa         Maximum pressure change during flowing period:       dp, kPa         Observation Hole:       KLX15A       Section no.:       KLX         Distance r <sub>s</sub> [m]:       1312.80       Section length:       623.0         Response time dt <sub>1</sub> [s]:       #NV       max. Drawdown s <sub>p</sub> [m].*       623.0         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       p, kPa       KPa         Pressure in test section before start of flowing:       p, kPa       KPa         Maximum pressure change during flowing period:*       dp <sub>p</sub> kPa         Normalized distance with respect to the response time Index 1       r <sub>a</sub> <sup>2</sup> /dt, [m <sup>7</sup> /s]: #NV       Normalized drawdown with respect to pumping flow rate Index 2       s <sub>a</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV         Index 2 New       (s <sub>a</sub> /Q <sub>a</sub> ) <sup>1</sup> (n(r <sub>a</sub> r <sub>a</sub> ) [s/m <sup>2</sup> ]: #NV       *see comment         Comment:       no response due to pumping in source       *see comment         Index 2 New       (s <sub>a</sub> /Q <sub>a</sub> ) <sup>2</sup> (n(r <sub>a</sub> /r <sub>a</sub> ) [s/m <sup>2</sup> ]: #NV       *see comment         Index 4 Option       Pumpstart       Pumpstart       Pumpstart       *see c   | Pumping Ho<br>Test Start:<br>Pump Start:<br>Flow Rate Q | <b>ole:</b><br>Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   |                      | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]:          | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27                   |
| Pressure in test section before start of flowing:       p.       kPa         Pressure in test section before stop of flowing:       p.       kPa         Maximum pressure change during flowing period:       dp.       kPa         Observation Hole:       KLX15A       Section no.:       KLX         Distance r.s [m]:       1312.80       Section no.:       KLX         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       p.       kPa         Pressure in test section before stop of flowing:       p.       kPa         Pressure in test section before stop of flowing:       p.       kPa         Pressure in test section before stop of flowing:       p.       kPa         Maximum pressure change during flowing period:*       dp.       kPa         Normalized distance with respect to the response time Index 1       r.s <sup>2</sup> /dt. [m <sup>7</sup> ]:       #NV         Normalized drawdown with respect to pumping flow ratee Index 2       s.g/Qa,p [s/m <sup>2</sup> ]:       #NV         Index 2 New       (s.g/Qa,p)*In(r.gr.g) [s/m <sup>2</sup> ]:       #NV       * see comment         Comment:       no response due to pumping in source       * see comment         under gamma       p.       p.       gamma       gamma         gamma       p. <td>Pressure da</td> <td>ata</td> <td></td> <td></td> <td>Nomenclature</td> <td>Unit</td> <td>Value</td>   | Pressure da   | ata  |  |                      | Nomenclature                                | Unit               | Value   |
| Pressure in test section before stop of flowing:<br>Maximum pressure change during flowing period:<br>Dbservation Hole:<br>KLX15A<br>Section no.:<br>KLX<br>Distance r <sub>s</sub> [m]:<br>1312.80<br>Section length:<br>Pressure data<br>Pressure data<br>Pressure data<br>Pressure in test section before start of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure and<br>Maximum pressure change during flowing period:<br>Maximum period:<br>Maximum pressure change during flowing period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>Maximum period:<br>M   | Pressure in t   | test section                                       | before start of flowing:   |                      | p <sub>i</sub>                              | kPa                | 5638  |
| Maximum pressure change during flowing period:       dpp       kPa         Observation Hole:       KLX15A       Section no.:       KLX         Distance rs [m]:       1312.80       Section length:       623.0         Response time dt_ [s]:       #NV       max. Drawdown sp. [m]:*       623.0         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       pi       kPa         Pressure in test section before stop of flowing:       pp       kPa         Normalized distance with respect to the response time index 1       r, s <sup>2</sup> /dt_L [m <sup>2</sup> /s]:       #NV         Normalized drawdown with respect to pumping flow rate index 2       s.y/Qp. [s/m <sup>2</sup> ]:       #NV         Index 1       r s <sup>2</sup> /dt_L [m <sup>2</sup> /s]:       #NV       *         Index 2 New       (s.y/Qp.) <sup>1</sup> (n(r,Jr_0) [s/m <sup>2</sup> ]:       #NV       *         Index 2 New       (s.y/Qp.) <sup>2</sup> (n - fr_0) [s/m <sup>2</sup> ]:       #NV       *  | Pressure in t   | test section                                       | before stop of flowing:  |                      | pp  | kPa                | 5437  |
| Observation Hole:       KLX15A       Section no.:       KLX         Distance r <sub>s</sub> [m]:       1312.80       Section length:       623.0         Response time dt <sub>L</sub> [s]:       #NV       max. Drawdown s <sub>p</sub> [m].*       623.0         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       p <sub>1</sub> kPa         Pressure in test section before stop of flowing:       p <sub>0</sub> kPa         Maximum pressure change during flowing period.*       dp <sub>p</sub> kPa         Normalized distance with respect to the response time lindex 1       r_s²/dt <sub>L</sub> [m²/s]:       #NV         Normalized drawdown with respect to pumping flow rate lindex 2       s_y/Q_p [s/m²]:       #NV         Index 2 New       (s_p/Q_p)*In(r_J/r_0) [s/m²]:       #NV         Comment:       no response due to pumping in source       * see comment         form  | Maximum pr  | ressure chai                                       | nge during flowing period:   |                      | dpp   | kPa                | 201   |
| Distance r <sub>s</sub> [m]: 1312.80 Section length: 623.0<br>Response time dt <sub>L</sub> [s]: #NV max. Drawdown s <sub>p</sub> [m].*<br>Pressure data Nomenclature Unit<br>Pressure in test section before start of flowing: p <sub>1</sub> kPa<br>Pressure in test section before stop of flowing: p <sub>2</sub> kPa<br>Maximum pressure change during flowing period.* dp <sub>2</sub> kPa<br>Normalized distance with respect to the response time<br>Index 1 r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>z</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0   | Observation   | n Hole:  | KLX15A   |                      | Section no.:                                |                    | KLX15A_3  |
| Response time dt_ [s]:       #NV       max. Drawdown s <sub>p</sub> [m]:*         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       p <sub>i</sub> kPa         Pressure in test section before stop of flowing:       p <sub>p</sub> kPa         Maximum pressure change during flowing period:*       dp <sub>p</sub> kPa         Normalized distance with respect to the response time index 1       rs²/dt_ [m²/s]:       #NV         Normalized drawdown with respect to pumping flow rate index 2       sp/Qp [s/m²]:       #NV         Index 2 New       (sp/Qp)*in(rs/ro) [s/m²]:       #NV         Comment:       no response due to pumping in source       * see comment         form       pumpstart       Pumpstart       Pumpstop         of of of of of of of of of of of of of o  | Distance r <sub>s</sub> [                               | [m]:   | 1312.80  |                      | Section length:                             |                    | 623.0-640.0   |
| Pressure data     Nomenclature     Unit       Pressure in test section before start of flowing:     pi     kPa       Pressure in test section before stop of flowing:     po     kPa       Maximum pressure change during flowing period:*     dpo     kPa       Normalized distance with respect to the response time lindex 1     rs²/dt_[m²/s]:     #NV       Normalized drawdown with respect to pumping flow rate lindex 2     sp/Qp [s/m²]:     #NV       Index 2 New     (sp/Qp)*ln(r,Jr_o) [s/m²]:     #NV       Comment:     no response due to pumping in source     * see comment   | Response tir  | me dt <sub>L</sub> [s]:                            | #NV  |                      | max. Drawdown s <sub>p</sub>                | <sub>շ</sub> [m]:* | #NV   |
| Pressure in test section before start of flowing:<br>Pressure in test section before stop of flowing:<br>Maximum pressure change during flowing period:*<br>Mormalized distance with respect to the response time<br>Index 1 r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source  | Pressure da   | ata  |  |                      | Nomenclature                                | Unit               | Value   |
| Pressure in test section before stop of flowing:<br>Maximum pressure change during flowing period:*<br>Normalized distance with respect to the response time<br>Index 1 r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source   | Pressure in t   | test section                                       | before start of flowing:   |                      | p <sub>i</sub>                              | kPa                | 55.5  |
| Maximum pressure change during flowing period:*<br>Mormalized distance with respect to the response time<br>Index 1 r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source   | Pressure in t   | test section                                       | before stop of flowing:  |                      | pp  | kPa                | 56.0  |
| Normalized distance with respect to the response time<br>Index 1 r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source  | Maximum pr  | ressure chai                                       | nge during flowing period:*  |                      | dpp   | kPa                | 0.5   |
| Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source  | Normalized of <b>Index 1</b>                            | distance wit                                       | h respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:   | ∍<br><b>#NV</b>      |   |                    |   |
| Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source  | Normalized of <b>Index 2</b>                            | drawdown v   | vith respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | ate<br>#NV           |   |                    |   |
| Comment: no response due to pumping in source  | Index 2 New   | N  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | #NV                  |   | * S                | ee comment  |
| Pumpstart<br>Pumpstart<br>Fey<br>Solution<br>Fey<br>Solution<br>Solution<br>Fey<br>Solution<br>Solution<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Solution<br>Fey<br>Soluti | Comment:  |  | no response due to pumping   | in sourc             | ce  |                    |   |
| Second Se   | 5700  |  | Pumpstart  |                      |   | Pumpstop           | 56.5  |
|  | essure Active well [kPa]                                |  | and the second sec |                      |   |                    | - 55.5 - 55.5<br>- 55.5 - 55.5<br>- 55.5 - 55.5<br>- 54.5 - 54.5 - 54.5 |
| 5300<br>22.11.2007 12:00<br>22.11.2007 12:00<br>22.11.2007 12:00<br>23.11.2007 00:00<br>23.11.2007 00:00<br>23.11.2007 00:00<br>23.11.2007 12:00<br>Date   | 5400 -<br>5300 -<br>22.11.2007                          | 7 12:00  | 22.11.2007 18:00   | 23.11.2007 (<br>Date | 0:00 23.1                                   |                    | 54 <b>Se</b><br>53.5<br>53.2<br>23.11.2007 12:00                        |

| Pumping Hole:         KLX27A         Pumping Section [m bToC]:         63           Test Start:         19.11.2007 00:00         Test Stop:         25.11           Pump Start:         22.11.2007 14:34         Pump Stop:         23.11           Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:         7.42E-05         Pump Stop:         23.11           Pressure data         Nomenclature         Unit           Pressure in test section before start of flowing:         p <sub>i</sub> kPa           Pressure in test section before stop of flowing:         p <sub>p</sub> kPa           Maximum pressure change during flowing period:         dp <sub>p</sub> kPa           Observation Hole:         KLX15A         Section no.:           Distance r <sub>s</sub> [m]:         1301.90         Section length:           Response time dt <sub>L</sub> [s]:         #NV         max. Drawdown s <sub>p</sub> [m]:*           Pressure data         Nomenclature         Unit           Pressure in test section before stop of flowing:         p <sub>i</sub> kPa           Pressure in test section before stop of flowing:         p <sub>p</sub> kPa           Maximum pressure change during flowing period:*         dp <sub>p</sub> kPa           Normalized distance with respect to the response time         Index 1         r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:         #NV  |  |
|--|--|
| Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing: $p_i$ $kPa$ Pressure in test section before stop of flowing: $p_p$ $kPa$ Maximum pressure change during flowing period: $dp_p$ $kPa$ Observation Hole:       KLX15A       Section no.:         Distance $r_s$ [m]:       1301.90       Section length:         Response time dt <sub>L</sub> [s]:       #NV       max. Drawdown $s_p$ [m]:*         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing: $p_i$ $kPa$ Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing: $p_p$ $kPa$ Pressure in test section before start of flowing: $p_p$ $kPa$ Maximum pressure change during flowing period:* $dp_p$ $kPa$ Maximum pressure change during flowing period:* $dp_p$ $kPa$ Normalized distance with respect to the response time       Index 1 $r_s^2/dt_L$ [m²/s]:       #NV         Normalized drawdown with respect to pumping flow rate       Index 2 $s_p/Q_p$ [s/m²]:       #NV         Index 2 New       ( $s_p/Q_p)^* ln(r_s/r_0)$ [s/m²]:  | <b>9.20-650.56</b><br>.2007 00:00<br>.2007 05:27                             |
| Pressure in test section before start of flowing: $p_i$ kPa         Pressure in test section before stop of flowing: $p_p$ kPa         Maximum pressure change during flowing period: $dp_p$ kPa         Observation Hole:       KLX15A       Section no.:         Distance $r_s[m]$ :       1301.90       Section length:         Response time dt_[s]:       #NV       max. Drawdown $s_p[m]$ :*         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing: $p_i$ kPa         Pressure in test section before start of flowing: $p_i$ kPa         Pressure in test section before start of flowing: $p_p$ kPa         Pressure in test section before start of flowing: $p_p$ kPa         Maximum pressure change during flowing period:* $dp_p$ kPa         Mormalized distance with respect to the response time       Index 1 $r_s^2/dt_L [m^2/s]$ :       #NV         Normalized drawdown with respect to pumping flow rate       Index 2 $s_p/Q_p[s/m^2]$ :       #NV         Index 2 New       ( $s_p/Q_p)^{1} h(r_s/r_o) [s/m^2]$ :       #NV       * see comm         Comment:       no response due to pumping in source       * see comm  | Value  |
| Pressure in test section before stop of flowing: $p_p$ $kPa$ Maximum pressure change during flowing period: $dp_p$ $kPa$ Observation Hole:       KLX15A       Section no.:         Distance $r_s [m]$ :       1301.90       Section length:         Response time dt_ [s]: $\#NV$ max. Drawdown $s_p [m]$ :*         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing: $p_i$ $kPa$ Pressure in test section before start of flowing: $p_p$ $kPa$ Maximum pressure change during flowing period:* $dp_p$ $kPa$ Normalized distance with respect to the response time Index 1 $r_s^2/dt_L [m^2/s]$ : $\#NV$ Normalized drawdow $(s_p/Q_p)^s ln(r_s/r_0) [s/m^2]$ : $\#NV$ * see comm         Comment:       no response due to pumping in source       * see comm  | 5638   |
| Maximum pressure change during flowing period:       dpp       kPa         Observation Hole:       KLX15A       Section no.:         Distance $r_s [m]$ :       1301.90       Section length:<br>max. Drawdown $s_p [m]$ :*         Pressure data       Nomenclature       Unit         Pressure data       pi       kPa         Pressure in test section before start of flowing:       pi       kPa         Maximum pressure change during flowing period:*       dpp       kPa         Normalized distance with respect to the response time<br>Index 1 $r_s^2/dt_L [m^2/s]$ :       #NV         Normalized drawdown with respect to pumping flow rate<br>Index 2 $s_p/Q_p [s/m^2]$ :       #NV         Index 2 New $(s_p/Q_p)^* ln(r_s/r_0) [s/m^2]$ :       #NV         Comment:       no response due to pumping in source       * see comm  | 5437   |
| Observation Hole:       KLX15A       Section no.:         Distance $r_s$ [m]:       1301.90       Section length:         Response time $dt_{L}$ [s]:       #NV       max. Drawdown $s_p$ [m]:*         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing: $p_i$ kPa         Pressure in test section before stop of flowing: $p_p$ kPa         Maximum pressure change during flowing period:* $dp_p$ kPa         Normalized distance with respect to the response time       Index 1 $r_s^2/dt_L$ [m²/s]:       #NV         Normalized drawdown with respect to pumping flow rate       Index 2 $s_p/Q_p$ [s/m²]:       #NV         Index 2 New       ( $s_p/Q_p$ )*In( $r_s/r_0$ ) [s/m²]:       #NV       * see comm         Comment:       no response due to pumping in source       * see comm   | 201  |
| Distance $r_s[m]$ :       1301.90       Section length:<br>max. Drawdown $s_p[m]$ :*         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing: $p_i$ $kPa$ Pressure in test section before stop of flowing: $p_p$ $kPa$ Maximum pressure change during flowing period:* $dp_p$ $kPa$ Normalized distance with respect to the response time $Index 1$ $r_s^2/dt_L [m^2/s]$ : $\#NV$ Normalized drawdown with respect to pumping flow rate $max P_p (s_p/Q_p [s/m^2]$ : $\#NV$ * see comm         Index 2 New $(s_p/Q_p)*In(r_s/r_0) [s/m^2]$ : $\#NV$ * see comm         Comment:       no response due to pumping in source       * see comm   | KLX15A_4   |
| Response time dt_ [s]:       #NV       max. Drawdown sp [m]:*         Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing:       pi       kPa         Pressure in test section before stop of flowing:       pp       kPa         Maximum pressure change during flowing period:*       dpp       kPa         Normalized distance with respect to the response time<br>Index 1       rs²/dt_ [m²/s]:       #NV         Normalized drawdown with respect to pumping flow rate<br>Index 2       sp/Qp [s/m²]:       #NV         Index 2 New       (sp/Qp)*In(rs/ro) [s/m²]:       #NV         Comment:       no response due to pumping in source       * see comm  | 481.0-622.0  |
| Pressure data       Nomenclature       Unit         Pressure in test section before start of flowing: $p_i$ kPa         Pressure in test section before stop of flowing: $p_p$ kPa         Maximum pressure change during flowing period:* $dp_p$ kPa         Normalized distance with respect to the response time       Index 1 $r_s^2/dt_L [m^2/s]$ :       #NV         Normalized drawdown with respect to pumping flow rate       Index 2 $s_p/Q_p [s/m^2]$ :       #NV         Index 2 New $(s_p/Q_p)*ln(r_s/r_0) [s/m^2]$ :       #NV       * see comm         Comment:       no response due to pumping in source       * see comm   | #NV  |
| Pressure in test section before start of flowing: $p_i$ $kPa$ Pressure in test section before stop of flowing: $p_p$ $kPa$ Maximum pressure change during flowing period:* $dp_p$ $kPa$ Normalized distance with respect to the response time $Index 1$ $r_s^2/dt_L [m^2/s]$ :       #NV         Normalized drawdown with respect to pumping flow rate $Index 2$ $s_p/Q_p [s/m^2]$ :       #NV         Index 2 New $(s_p/Q_p)*In(r_s/r_0) [s/m^2]$ :       #NV       * see comm         Comment:       no response due to pumping in source       * see comm   | Value  |
| Pressure in test section before stop of flowing: $p_p$ kPa         Maximum pressure charge during flowing period:* $dp_p$ kPa         Normalized distance with respect to the response time $Index 1$ $r_s^2/dt_L [m^2/s]$ :       #NV         Normalized drawdown with respect to pumping flow rate $Index 2$ $s_p/Q_p [s/m^2]$ :       #NV         Index 2 New $(s_p/Q_p)*In(r_s/r_0) [s/m^2]$ :       #NV       * see comm         Comment:       no response due to pumping in source       * see comm   | 59.6   |
| Maximum pressure change during flowing period:* $dp_p$ $kPa$ Normalized distance with respect to the response time<br>Index 1 $r_s^2/dt_L$ [m²/s]:       #NV         Normalized drawdown with respect to pumping flow rate<br>Index 2 $s_p/Q_p$ [s/m²]:       #NV         Index 2 New $(s_p/Q_p)*ln(r_s/r_0)$ [s/m²]:       #NV         Comment:       no response due to pumping in source       * see comm   | 60.1   |
| Normalized distance with respect to the response time         Index 1 $r_s^2/dt_L [m^2/s]$ :       #NV         Normalized drawdown with respect to pumping flow rate       Index 2 $s_p/Q_p [s/m^2]$ :       #NV         Index 2 $s_p/Q_p [s/m^2]$ :       #NV       * see comm         Index 2 New $(s_p/Q_p)*ln(r_s/r_0) [s/m^2]$ :       #NV         Comment:       no response due to pumping in source  | 0.5  |
| Index 2 New       (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:       #NV         Comment:       no response due to pumping in source   |  |
| Comment: no response due to pumping in source  | pent   |
|  |  |
| Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstop   | 60.5<br>60<br>59.5<br>59.5<br>59<br>58<br>58<br>58<br>58<br>58<br>58<br>57.5 |
| 22.11.2007 12:00 22.11.2007 18:00 23.11.2007 00:00 23.11.2007 06:00 23.110 | J07 12:00  |

| Activityplan No.   | AP PS 400-07-72  |   |                      |  |
|--|--|---|----------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s] | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | Pumping Section<br>Test Stop:<br>Pump Stop: | on [m bToC]:         | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27         |
| Pressure data  |  | Nomenclature                                | Unit                 | Value  |
| Pressure in test sect  | ion before start of flowing:   | Pi  | kPa                  | 5638   |
| Pressure in test sect  | ion before stop of flowing:  | p <sub>p</sub>                              | kPa                  | 5437   |
| Maximum pressure   | change during flowing period:  | dpp   | kPa                  | 201  |
| Observation Hole:  | KLX15A   | Section no.:                                |                      | KLX15A_5   |
| Distance r <sub>s</sub> [m]:   | 1304.40  | Section length:                             |                      | 273.0-480.0  |
| Response time $dt_L$ [s  | 5]: #NV  | max. Drawdown                               | s <sub>p</sub> [m]:* | #NV  |
| Pressure data  |  | Nomenclature                                | Unit                 | Value  |
| Pressure in test sect  | ion before start of flowing:   | Pi  | kPa                  | 65.7   |
| Pressure in test sect  | ion before stop of flowing:  | pp  | kPa                  | 66.1   |
| Maximum pressure   | change during flowing period:*   | dpp   | kPa                  | 0.4  |
| Index 1<br>Normalized drawdov<br>Index 2<br>Index 2 New  | r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>vn with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>r</sub> /Q <sub>2</sub> )*In(r <sub>2</sub> /r <sub>2</sub> ) [s/m <sup>2</sup> ]: | #NV<br>ate<br>#NV<br>#NV                    |                      |  |
|  |  | <i>#</i> 1 <b></b>                          | * S                  | ee comment   |
| Comment:   | no response due to pumping   | in source                                   |                      |  |
| S300   | Pumpstart  |   | Pumpstop             | 66.5<br>66<br>66<br>65.5<br>65<br>65<br>65<br>64<br>64<br>64<br>63.5 |
| 22.11.2007 12:00   | 22.11.2007 18:00   | 23.11.2007 00:00 2:<br>Date                 | 3.11.2007 06:00      | 23.11.2007 12:00   |
|  |  |   |                      |  |

| KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34   | Pumping Section<br>Test Stop:<br>Pump Stop:  | [m bToC]:   | <b>639.20-650.56</b><br>25.11.2007 00:00   |
|--|--|---|--|
| 7.42E-05   | i amp otop.  |   | 23.11.2007 05:27   |
|  | Nomenclature   | Unit  | Value  |
| n before start of flowing:   | <b>p</b> i   | kPa   | 5638   |
| n before stop of flowing:  | p <sub>p</sub>   | kPa   | 5437   |
| ange during flowing period:  | dpp  | kPa   | 201  |
| KLX15A   | Section no.:   |   | KLX15A_6   |
| 1320.00  | Section length:  |   | 260.0-272.0  |
| #NV  | max. Drawdown s  | 。[m]:*  | #NV  |
|  | Nomenclature   | Unit  | Value  |
| n before start of flowing:   | p <sub>i</sub>   | kPa   | 64.8   |
| n before stop of flowing:  | Pp   | kPa   | 65.2   |
| ange during flowing period:*   | dpp  | kPa   | 0.4  |
| <pre>r<sub>s</sub><sup>2</sup>/dt<sub>L</sub> [m<sup>2</sup>/s]: with respect to pumping flow ra s<sub>p</sub>/Q<sub>p</sub> [s/m<sup>2</sup>]: (s<sub>p</sub>/Q<sub>p</sub>)*ln(r<sub>s</sub>/r<sub>0</sub>) [s/m<sup>2</sup>]:</pre> | #NV<br>ate<br>#NV<br>#NV   |   |  |
| no response due to pumping   | in source  | * S   | ee comment   |
|  |  |   |  |
| Pumpstart  |  | Pumpstop  | 65.5<br>65<br>64.5<br>64.5<br>64.5<br>64<br>64<br>64<br>64<br>64<br>63.5<br>63<br>63<br>63<br>63   |
|  | n before start of flowing:<br>n before stop of flowing:<br>ange during flowing period:<br>KLX15A<br>1320.00<br>#NV<br>n before start of flowing:<br>n before stop of flowing:<br>ange during flowing period:*<br>//th respect to the response time<br>r_s²/dt_ [m²/s]:<br>with respect to pumping flow ra<br>sp/Qp [s/m²]:<br>(sp/Qp)*In(r_s/r_0) [s/m²]:<br>no response due to pumping<br>Pumpstart | n before start of flowing:       pi         n before stop of flowing:       pp         ange during flowing period:       dpp         KLX15A       Section no.:         1320.00       Section length:         #NV       max. Drawdown s         Nomenclature         n before start of flowing:       pi         m before start of flowing:       pi         n before start of flowing:       pp         ange during flowing period:*       dpp         vith respect to the response time       rs²/dt_ [m²/s]:         rs²/dt_ [m²/s]:       #NV         with respect to pumping flow rate       sp/Qp [s/m²]:         sp/Qp [s/m²]:       #NV         no response due to pumping in source       Pumpstart | Internet Notice C     Oring       In before start of flowing:     p <sub>1</sub> kPa       In before start of flowing:     p <sub>2</sub> kPa       KLX15A     Section no.:       1320.00     Section length:       #NV     max. Drawdown s <sub>p</sub> [m]:*       Nomenclature     Unit       n before start of flowing:     p <sub>1</sub> kPa       n before start of flowing:     p <sub>1</sub> kPa       ange during flowing period:*     dp <sub>p</sub> kPa       n before start of flowing:     p <sub>1</sub> kPa       ange during flowing period:*     dp <sub>p</sub> kPa       n before start of flowing:     p <sub>2</sub> kPa       n before start of flowing:     p <sub>1</sub> kPa       ange during flowing period:*     dp <sub>p</sub> kPa       n before start of flowing:     p <sub>2</sub> kPa       ith respect to the response time     r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:     #NV       with respect to pumping flow rate     s <sub>p</sub> /Q <sub>p</sub> [s/m²]:     *NV       no response due to pumping in source     *       Pumpstart     Pumpstop |

| nping Section<br>t Stop:<br>np Stop:<br>menclature<br>Pi<br>Pp<br>dpp<br>tion no.:<br>tion length:<br>t. Drawdown sp<br>menclature<br>Pi<br>pp<br>dpp  | [m bToC]:<br>Unit<br>kPa<br>kPa<br>kPa<br>[m]:*<br>Unit<br>kPa<br>kPa<br>kPa<br>kPa | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27<br>Value<br>5638<br>5437<br>201<br>KLX15A_7<br>191.0-259.0<br>#NV<br>Value<br>65.8<br>66.2 |
|--|---|--|
| menclature<br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub><br>tion no.:<br>tion length:<br>tor length:<br>to Drawdown s <sub>p</sub><br>menclature<br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub> | Unit<br>kPa<br>kPa<br>kPa<br>[m]:*<br>Unit<br>kPa<br>kPa<br>kPa<br>kPa              | Value<br>5638<br>5437<br>201<br>KLX15A_7<br>191.0-259.0<br>#NV<br>Value<br>65.8<br>66.2  |
| p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub><br>tion no.:<br>tion length:<br>c. Drawdown s <sub>p</sub><br>menclature<br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub>                              | kPa<br>kPa<br>kPa<br>[m]:*<br>Unit<br>kPa<br>kPa<br>kPa<br>kPa                      | 5638<br>5437<br>201<br>KLX15A_7<br>191.0-259.0<br>#NV<br>Value<br>65.8<br>66.2   |
| P <sub>p</sub><br>dp <sub>p</sub><br>tion no.:<br>tion length:<br>c. Drawdown s <sub>p</sub><br>menclature<br>P <sub>i</sub><br>P <sub>p</sub><br>dp <sub>p</sub>  | kPa<br>kPa<br>[m]:*<br>Unit<br>kPa<br>kPa<br>kPa                                    | 5437<br>201<br>KLX15A_7<br>191.0-259.0<br>#NV<br>Value<br>65.8<br>66.2   |
| dp <sub>p</sub><br>tion no.:<br>tion length:<br>t. Drawdown s <sub>p</sub><br>menclature<br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub>  | kPa<br>[m]:*<br>Unit<br>kPa<br>kPa<br>kPa<br>kPa                                    | 201<br>KLX15A_7<br>191.0-259.0<br>#NV<br>Value<br>65.8<br>66.2   |
| tion no.:<br>tion length:<br>c. Drawdown s <sub>p</sub><br><b>nenclature</b><br>P <sub>i</sub><br>P <sub>p</sub><br>dp <sub>p</sub>  | [m]:*<br><b>Unit</b><br>kPa<br>kPa<br>kPa   | KLX15A_7<br>191.0-259.0<br>#NV<br>Value<br>65.8<br>66.2  |
| tion length:<br>a. Drawdown s <sub>p</sub><br>menclature<br>P <sub>i</sub><br>P <sub>p</sub><br>dp <sub>p</sub>  | [m]:*<br><b>Unit</b><br>kPa<br>kPa<br>kPa   | 191.0-259.0<br>#NV<br><b>Value</b><br>65.8<br>66.2   |
| a. Drawdown s <sub>p</sub><br>menclature<br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub>  | [m]:*<br>Unit<br>kPa<br>kPa<br>kPa  | #NV<br>Value<br>65.8<br>66.2   |
| p <sub>i</sub><br>p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub>  | Unit<br>kPa<br>kPa<br>kPa   | Value<br>65.8<br>66.2  |
| p <sub>i</sub><br>p <sub>p</sub><br>dp <sub>p</sub>  | kPa<br>kPa<br>kPa   | 65.8<br>66.2   |
| P <sub>P</sub><br>dp <sub>p</sub>  | kPa<br>kPa  | 66.2   |
| dp <sub>p</sub>  | kPa   |  |
|  |   | 0.4  |
|  |   |  |
|  | * Se  | e comment  |
|  |   |  |
|  | Pumpstop  | 66.5<br>66<br>65.5<br>65.5<br>64.5<br>64.5<br>64.5<br>64.5<br>64   |
|  |   | KLX27A_1<br>KLX15A_7<br>23.11.2007 06:00   |

| AP PS 400-07-72   |   |   |  |   |
|---|---|---|--|---|
| KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br><sup>3</sup> /s]: 7.42E-05  | <b>Pump</b><br>Test S<br>Pump   | <b>Ping Section [m</b><br>Stop:<br>Stop:  | bToC]:   | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27  |
|   | Nom   | enclature   | Unit   | Value   |
| section before start of flowing:  |   | p <sub>i</sub>  | kPa  | 5638  |
| section before stop of flowing:   |   | pp  | kPa  | 5437  |
| re change during flowing period:  |   | dpp   | kPa  | 201   |
| le: KLX15A  | Section   | on no.:   |  | KLX15A_8  |
| 1351.40   | Sectio  | on length:  |  | 79.0-190.0  |
| t <sub>L</sub> [s]: #NV   | max.  | Drawdown s <sub>p</sub> [m  | n]:*   | #NV   |
|   | Nome  | enclature   | Unit   | Value   |
| section before start of flowing:  |   | p <sub>i</sub>  | kPa  | 67.2  |
| section before stop of flowing:   |   | pp  | kPa  | 67.5  |
| re change during flowing period:*   |   | dpp   | kPa  | 0.3   |
| r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:<br>down with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m²]:<br>(s <sub>n</sub> /Q <sub>n</sub> )*In(r₅/r₀) [s/m²]: | #NV<br>ate<br>#NV<br>#NV  |   |  |   |
| (-p-p) (-s-0) [ ]   | _   |   | * se   | e comment   |
| no response due to pumping  | in source   |   |  |   |
| Pumpstart   |   | Pu  | KLX27A_1<br>KLX15A_8   | 68<br>67.5<br>67.5<br>66.5<br>66.5<br>66<br>65.5<br>65  |
|   | Date  | 23.11.200   |  |   |
|   | AP PS 400-07-72<br>KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>3's]: 7.42E-05<br>section before start of flowing:<br>are change during flowing period:<br>le: KLX15A<br>1351.40<br>$t_{L}$ [s]: #NV<br>section before start of flowing:<br>are change during flowing period:*<br>nce with respect to the response time<br>$r_{s}^{2}/dt_{L}$ [m <sup>2</sup> /s]:<br>down with respect to pumping flow ra-<br>$s_{p}/Q_{p}$ [s/m <sup>2</sup> ]:<br>( $s_{p}/Q_{p}$ )*In( $r_{s}/r_{0}$ ) [s/m <sup>2</sup> ]:<br>no response due to pumping<br>Pumpstart<br>22.11.2007 18:00 | AP PS 400-07-72<br>KLX27A       Pump         19.11.2007 00:00       Test S         22.11.2007 14:34       Pump         section before start of flowing:       Section         section before start of flowing period:       Intervention         le:       KLX15A       Section         t_L [s]:       #NV       max.         section before start of flowing:       Intervention         section before start of flowing:       Intervention         section before start of flowing:       max.         section before start of flowing:       Intervention         rec change during flowing period:*       Ince with respect to the response time         r_s^2/dt_L [m²/s]:       #NV         down with respect to pumping flow rate       Sp/Q_p [s/m²]:         ypumpstart       Intervention         Pumpstart       Intervention         V       Nord         V       Nord         V       Intervention         V       Intervention         V       V         NO       V <tr< td=""><td>KLX27A       Pumping Section [m         19.11.2007 00:00       Test Stop:         22.11.2007 14:34       Pump Stop:         */si:       7.42E-05         Nomenclature         section before start of flowing:       <math>p_i</math>         re change during flowing period:       <math>dp_p</math>         ter change during flowing period:       Nomenclature         section before start of flowing:       <math>p_i</math>         tsection before start of flowing:       <math>p_i</math>         section before start of flowing:       <math>p_i</math>         section before start of flowing:       <math>p_i</math>         section before start of flowing:       <math>p_i</math>         re change during flowing period:*       <math>dp_p</math>         nce with respect to the response time       <math>r_s^2/dt_L [m^2/s]</math>:         <math>r_s^2/dt_L [m^2/s]</math>:       #NV         down with respect to pumping flow rate       <math>s_p/Q_p [s/m^2]</math>:         <math>s_p/Q_p [s/m^2]</math>:       #NV         no response due to pumping in source       Pumpstant         Pumpstant       Pu         <math>0</math> <math>0</math> <math>0</math> <math>0</math> <math>2112007 1000</math> <math>22112007 0000</math> <math>22112007 1000</math> <math>22112007 0000</math></td><td>AP PS 400-07-72       KLX27A<br/>19.11.2007 00:00<br/>22.11.2007 14:34       Pumping Section [m bToC]:<br/>Test Stop:         section before start of flowing:       pi       KPa<br/>weak         section before start of flowing:       pi       KPa<br/>weak         re change during flowing period:       dpp       kPa<br/>weak         tig:       #NV       Section length:<br/>max. Drawdown sp. [m]:*         tig:       #NV       Momenclature       Unit<br/>max. Drawdown sp. [m]:*         section before start of flowing:       pi       kPa<br/>weak         tig:       #NV       Section length:<br/>max. Drawdown sp. [m]:*         section before start of flowing:       pi       kPa<br/>weak         tig:       #NV       Momenclature       Unit<br/>max. Drawdown sp. [m]:*         section before start of flowing:       p.       kPa<br/>weak         tig:       #NV       Momenclature       Unit         section before stop of flowing:       p.       kPa         rec change during flowing period:*       #NV       dpp       kPa         nce with respect to pumping flow rate<br/>sp/Qa, [s/m<sup>2</sup>]:       #NV       *section       *section         or or sponse due to pumping in source       *section       *section       *section         visual       #Sectiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii</td></tr<> | KLX27A       Pumping Section [m         19.11.2007 00:00       Test Stop:         22.11.2007 14:34       Pump Stop:         */si:       7.42E-05         Nomenclature         section before start of flowing: $p_i$ re change during flowing period: $dp_p$ ter change during flowing period:       Nomenclature         section before start of flowing: $p_i$ tsection before start of flowing: $p_i$ section before start of flowing: $p_i$ section before start of flowing: $p_i$ section before start of flowing: $p_i$ re change during flowing period:* $dp_p$ nce with respect to the response time $r_s^2/dt_L [m^2/s]$ : $r_s^2/dt_L [m^2/s]$ :       #NV         down with respect to pumping flow rate $s_p/Q_p [s/m^2]$ : $s_p/Q_p [s/m^2]$ :       #NV         no response due to pumping in source       Pumpstant         Pumpstant       Pu $0$ $0$ $0$ $0$ $2112007 1000$ $22112007 0000$ $22112007 1000$ $22112007 0000$ | AP PS 400-07-72       KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34       Pumping Section [m bToC]:<br>Test Stop:         section before start of flowing:       pi       KPa<br>weak         section before start of flowing:       pi       KPa<br>weak         re change during flowing period:       dpp       kPa<br>weak         tig:       #NV       Section length:<br>max. Drawdown sp. [m]:*         tig:       #NV       Momenclature       Unit<br>max. Drawdown sp. [m]:*         section before start of flowing:       pi       kPa<br>weak         tig:       #NV       Section length:<br>max. Drawdown sp. [m]:*         section before start of flowing:       pi       kPa<br>weak         tig:       #NV       Momenclature       Unit<br>max. Drawdown sp. [m]:*         section before start of flowing:       p.       kPa<br>weak         tig:       #NV       Momenclature       Unit         section before stop of flowing:       p.       kPa         rec change during flowing period:*       #NV       dpp       kPa         nce with respect to pumping flow rate<br>sp/Qa, [s/m <sup>2</sup> ]:       #NV       *section       *section         or or sponse due to pumping in source       *section       *section       *section         visual       #Sectiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii |

| Activityplan No.  | AP PS 400-07-72   |   |            |  |
|---|---|---|------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Elow Pate O [m <sup>3</sup> / | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34  | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]:  | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data   | sj: 7.42E-05  | Nomenclature                                | Unit       | Value  |
| Pressure in test se   | action before start of flowing:   | D.  | kPa        | 5638   |
| Pressure in test se   | ection before stop of flowing:  | Pi<br>D <sub>o</sub>                        | kPa        | 5437   |
| Maximum pressur   | e change during flowing period:   | dp <sub>p</sub>                             | kPa        | 201  |
| Observation Hole  | e: KLX15A   | Section no.:                                |            | KLX15A_9   |
| Distance r. [m]:  | 1380 50   | Section length:                             |            | 0 0-78 0   |
| Response time dt  | [s]: #NV  | max. Drawdown s <sub>p</sub>                | [m]:*      | #NV  |
| Pressure data   |   | Nomenclature                                | Unit       | Value  |
| Pressure in test se   | ection before start of flowing:   | p <sub>i</sub>                              | kPa        | 69.4   |
| Pressure in test se   | ection before stop of flowing:  | p <sub>p</sub>                              | kPa        | 69.6   |
| Maximum pressur   | e change during flowing period:*  | dpp   | kPa        | 0.2  |
| Index 1<br>Normalized drawd<br>Index 2  | r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:<br>lown with respect to pumping flow rat<br>s <sub>p</sub> /Q <sub>p</sub> [s/m²]: | #NV<br>te<br>#NV                            |            |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                                  | #NV   | * c        | ee comment   |
| Comment:  | no response due to pumping i  | in source                                   |            |  |
| 5500 5500 5500 5500 5500 5500 5500 550  | Pumpstart   |   | Pumpstop   | 70<br>69.5<br>69<br>69<br>68.5<br>68<br>68<br>68<br>68<br>68<br>68<br>68<br>68<br>68<br>68<br>68<br>68<br>68 |
| 22.11.2007 12:00  | 22.11.2007 18:00 2  | 23.11.2007 00:00 23.11.<br>Date             | 2007 06:00 | 23.11.2007 12:00   |
|   |   |   |            |  |

| <b>ping Section [</b><br>Stop:<br>p Stop: | m bToC]: | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27   |
|---|----------|---|
| nenclature                                | Unit     | Value   |
| p <sub>i</sub>                            | kPa      | 5638  |
| p <sub>p</sub>                            | kPa      | 5437  |
| $dp_p$                                    | kPa      | 201   |
| ion no.:                                  |          | KLX16A_1  |
| on length:                                |          | 327.00-433.55   |
| Drawdown s <sub>p</sub> [                 | m]:*     | #NV   |
| nenclature                                | Unit     | Value   |
| p <sub>i</sub>                            | kPa      | 172.3   |
| pp  | kPa      | 172.7   |
| dpp                                       | kPa      | 0.4   |
|   |          |   |
|   | * 50     | e comment   |
|   |          |   |
| F   | Pumpstop | 173<br>172.5<br><b>Fedy</b><br>172.5<br><b>Fedy</b><br>172.5<br><b>True</b><br>172.5<br><b>Fedy</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>172.5<br><b>True</b><br>170.5<br>23.111.2007 12:00 |
|   | 23.11.20 | • KLX27A_1<br>• KLX16A_1<br>23.11.2007 06:00  |

| Activityplan No.  | AP PS 400-07-72  |   |                         |  |
|---|--|---|-------------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 | Pumping Sec<br>Test Stop:<br>Pump Stop:   | tion [m bToC]:          | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data   |  | Nomenclature  | e Unit                  | Value  |
| Pressure in test secti  | on before start of flowing:  |   | p <sub>i</sub> kPa      | 5638   |
| Pressure in test secti  | on before stop of flowing:   | ţ   | p <sub>p</sub> kPa      | 5437   |
| Maximum pressure c  | hange during flowing period:   | dr  | p <sub>p</sub> kPa      | 201  |
| Observation Hole:   | KLX16A   | Section no.:  |                         | KLX16A_2   |
| Distance r <sub>s</sub> [m]:  | 1345.50  | Section length:   | :                       | 86.0-326.0   |
| Response time $dt_L$ [s   | ]: #NV   | max. Drawdow  | /n s <sub>p</sub> [m]:* | #NV  |
| Pressure data   |  | Nomenclature  | e Unit                  | Value  |
| Pressure in test secti  | on before start of flowing:  |   | p <sub>i</sub> kPa      | 169.4  |
| Pressure in test secti  | on before stop of flowing:   | ţ   | p <sub>p</sub> kPa      | 169.7  |
| Maximum pressure c  | hange during flowing period:*  | dr  | p <sub>p</sub> kPa      | 0.3  |
| Normalized distance<br>Index 1  | with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:              | e<br>#NV  |                         |  |
| Normalized drawdow<br>Index 2   | n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | ate<br>#NV  |                         |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV   | * c                     | ee comment   |
| Comment:  | no response due to pumping   | in source   |                         |  |
| 5700  | Pumpstart  |   | Pumpstop                | 170  |
| Lessure Active well [KPa]   |  | and a second and a second and a second and a second and a second and a second and a second and a second and a s |                         | - 169.8<br>- 169.4<br>- 169.4<br>- 169.2<br>- 169.2<br>- 169.8<br>- 169.4<br>- 169.2<br>- 169.8<br>- 169.8<br>- 169.4<br>- 169.4<br>- 169.8<br>- 169.4<br>- 169.4<br>- 169.6<br>- 169.4<br>- 169.6<br>- 169.6<br>- 169.6<br>- 169.6<br>- 169.6<br>- 169.6<br>- 169.6<br>- 169.8<br>- 169.6<br>- 169.8<br>- 169.6<br>- 169.8<br>- 168.8<br>- 1 |
| 5300<br>22.11.2007 12:00  | 22.11.2007 18:00   | 23.11.207 00:00   |                         | 168.4<br>168.2<br>168<br>167.8<br>23.11.2007 12:00   |
|   |  | Date  |                         |  |

| Activityplan No.  | AP PS 400-07-72   |  |                                       |   |
|---|---|--|---------------------------------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>2</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7 42E-05  | Pumping Section<br>Test Stop:<br>Pump Stop:  | [m bToC]:                             | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27        |
| Pressure data   |   | Nomenclature   | Unit                                  | Value   |
| Pressure in test secti  | on before start of flowing:   | p <sub>i</sub>   | kPa                                   | 5638  |
| Pressure in test secti  | on before stop of flowing:  | Pp   | kPa                                   | 5437  |
| Maximum pressure c  | hange during flowing period:  | dpp  | kPa                                   | 201   |
| Observation Hole:   | KLX16A  | Section no.:   |                                       | KLX16A_3  |
| Distance r <sub>s</sub> [m]:  | 1465.40   | Section length:  |                                       | 0.0-85.0  |
| Response time $dt_L$ [s   | ]: #NV  | max. Drawdown s <sub>p</sub>   | [m]:*                                 | #NV   |
| Pressure data   |   | Nomenclature   | Unit                                  | Value   |
| Pressure in test secti  | on before start of flowing:   | p <sub>i</sub>   | kPa                                   | 190.8   |
| Pressure in test secti  | on before stop of flowing:  | Pp   | kPa                                   | 191.0   |
| Maximum pressure c  | hange during flowing period:*   | dpp  | kPa                                   | 0.2   |
| Normalized distance<br>Index 1<br>Normalized drawdow  | <pre>with respect to the response time rs²/dtL [m²/s]: rn with respect to pumping flow ra</pre>                 | <b>#NV</b><br>te   |                                       |   |
| Index 2   | s <sub>p</sub> /Q <sub>p</sub> [s/m²]:  | #NV  |                                       |   |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:                      | #NV  | * S                                   | ee comment  |
| Comment:  | no response due to pumping i  | n source   |                                       |   |
| 5700  | Pumpstart   |  | Pumpstop                              | 191.5   |
| ssure Active well [KPa]   | and a second and a second second second second second second second second second second second second second s | A survey and a survey of the s |                                       | 191<br>191<br>190.5<br>190.5<br>190.5<br>190.5<br>190<br>190<br>190 |
| 5400<br>5300<br>22.11.2007 12:00  | 22.11.2007 18:00 2  | 23.11.2007 00:00 23.11<br>Date   | KLX27A_1<br>→ KLX16A_3<br>.2007 06:00 | 189.5<br>23.11.2007 12:00   |

| Activityplan No.   | AP PS 400-07-72   |  |          |  |
|--|---|--|----------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate O [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05  | Pumping Section [n<br>Test Stop:<br>Pump Stop: | n bToC]: | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27                         |
| Pressure data  | 7.42E-03  | Nomenclature                                   | Unit     | Value  |
| Pressure in test section   | on before start of flowing.   | D:   | kPa      | 5638   |
| Pressure in test section   | on before stop of flowing:  | Pr<br>Pp                                       | kPa      | 5437   |
| Maximum pressure cl  | nange during flowing period:  | dpp  | kPa      | 201  |
| Observation Hole:  | KLX19A  | Section no.:                                   |          | KLX19A_1   |
| Distance r <sub>s</sub> [m]:   | 404.80  | Section length:                                |          | 661.0-800.0  |
| Response time dt <sub>L</sub> [s]  | : #NV   | max. Drawdown s <sub>p</sub> [r                | n]:*     | #NV  |
| Pressure data  |   | Nomenclature                                   | Unit     | Value  |
| Pressure in test section   | on before start of flowing:   | p <sub>i</sub>                                 | kPa      | 93.9   |
| Pressure in test section   | on before stop of flowing:  | pp   | kPa      | 94.3   |
| Maximum pressure cl  | nange during flowing period:*   | dpp  | kPa      | 0.4  |
| Normalized distance v<br>Index 1<br>Normalized drawdown<br>Index 2                     | <pre>with respect to the response time r<sub>s</sub><sup>2</sup>/dt<sub>L</sub> [m<sup>2</sup>/s]: n with respect to pumping flow ra s<sub>p</sub>/Q<sub>p</sub> [s/m<sup>2</sup>]:</pre> | e<br>#NV<br>ate<br>#NV                         |          |  |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV  | * s      | ee comment   |
| Comment:   | no response due to pumping  | in source                                      | 0        |  |
| Lessure Active well [kba]  | Pumpstart   | 23.11.2007.00:00 - 23.11.20                    | Pumpstop | 94.5<br>94<br>93<br>93.5<br>93.5<br>93<br>93<br>93<br>93<br>93<br>93<br>92.5<br>92.5 |
|  |   | Date   |          |  |
| Activityplan No.  | AP PS 400-07-72  |   |            |  |
|---|--|---|------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]:  | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27        |
| Pressure data   |  | Nomenclature                                | Unit       | Value  |
| Pressure in test sectio   | n before start of flowing:   | p <sub>i</sub>                              | kPa        | 5638   |
| Pressure in test sectio   | n before stop of flowing:  | pp  | kPa        | 5437   |
| Maximum pressure ch   | ange during flowing period:  | dpp   | kPa        | 201  |
| Observation Hole:   | KLX19A   | Section no.:                                |            | KLX19A_2   |
| Distance r <sub>s</sub> [m]:  | 340.10   | Section length:                             |            | 518.0-660.0  |
| Response time $dt_L$ [s]:   | #NV  | max. Drawdown s <sub>p</sub>                | [m]:*      | #NV  |
| Pressure data   |  | Nomenclature                                | Unit       | Value  |
| Pressure in test sectio   | n before start of flowing:   | p <sub>i</sub>                              | kPa        | 90.4   |
| Pressure in test sectio   | n before stop of flowing:  | pp  | kPa        | 90.9   |
| Maximum pressure ch   | ange during flowing period:*   | dpp   | kPa        | 0.5  |
| Normalized distance w<br>Index 1  | <pre>vith respect to the response time r<sub>s</sub><sup>2</sup>/dt<sub>L</sub> [m<sup>2</sup>/s]:</pre> | e<br>#NV                                    |            |  |
| Normalized drawdown<br>Index 2  | with respect to pumping flow rasp/Q <sub>p</sub> [s/m <sup>2</sup> ]:                                    | ate<br>#NV                                  |            |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:               | #NV   | * S        | ee comment   |
| Comment:  | no response due to pumping   | in source                                   |            |  |
| Lessure Active well [KPa]   | umpstart   |   | Pumpstop   | 91.5<br>91<br>91<br>91<br>90.5<br>88.5<br>88.5<br>88.5<br>88 |
| 22.11.2007 12:00  | 22.11.2007 18:00   | 23.11.2007 00:00 23.11.<br>Date             | 2007 06:00 | 23.11.2007 12:00   |
|   |  |   |            |  |

| Activityplan No.  | AP PS 400-07-72  |   |           |   |
|---|--|---|-----------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | Pumping Section [<br>Test Stop:<br>Pump Stop: | n bToC]:  | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data   |  | Nomenclature                                  | Unit      | Value   |
| Pressure in test section  | on before start of flowing:  | p <sub>i</sub>                                | kPa       | 5638  |
| Pressure in test section  | on before stop of flowing:   | Pp  | kPa       | 5437  |
| Maximum pressure c  | hange during flowing period:   | dpp   | kPa       | 201   |
| Observation Hole:   | KLX19A   | Section no.:                                  |           | KLX19A_3  |
| Distance r <sub>s</sub> [m]:  | 338.50   | Section length:                               |           | 509.0-517.0   |
| Response time $dt_L$ [s]  | : #NV  | max. Drawdown s <sub>p</sub> [                | m]:*      | #NV   |
| Pressure data   |  | Nomenclature                                  | Unit      | Value   |
| Pressure in test secti  | on before start of flowing:  | p <sub>i</sub>                                | kPa       | 126.0   |
| Pressure in test section  | on before stop of flowing:   | pp  | kPa       | 126.3   |
| Maximum pressure c  | hange during flowing period:*  | dpp   | kPa       | 0.3   |
| Normalized distance<br>Index 1<br>Normalized drawdow<br>Index 2                                     | with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:<br>n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m²]: | e<br>#NV<br>ate<br>#NV                        |           |   |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | #NV   | * S       | ee comment  |
| Comment:  | no response due to pumping   | in source                                     |           |   |
| Lessure Active well [kba]   | Pumpstart  |   | Pumpstop  | 126.5<br>126<br>126<br>125.5 <b>[edy]</b><br>125.5 <b>Ieven Constant</b><br>125<br>124.5<br>124.5 |
| 5300 + •<br>22.11.2007 12:00  | 22.11.2007 18:00   | 23.11.2007 00:00 23.11.20<br>Date             | 007 06:00 | + 123.5<br>23.11.2007 12:00   |
|   |  |   |           |   |

| Activityplan No.   | AP PS 400-07-72  |   |           |  |
|--|--|---|-----------|--|
| Pumping Hole:<br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>2</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7 42E-05   | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]: | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data  |  | Nomenclature                                | Unit      | Value  |
| Pressure in test section   | on before start of flowing:  | p <sub>i</sub>                              | kPa       | 5638   |
| Pressure in test section   | on before stop of flowing:   | P <sub>P</sub>                              | kPa       | 5437   |
| Maximum pressure ch  | nange during flowing period:   | dpp   | kPa       | 201  |
| Observation Hole:  | KLX19A   | Section no.:                                |           | KLX19A_4   |
| Distance r <sub>s</sub> [m]:   | 339.90   | Section length:                             |           | 481.5-508.0  |
| Response time $dt_{L}$ [s]   | : #NV  | max. Drawdown s <sub>p</sub>                | [m]:*     | #NV  |
| Pressure data  |  | Nomenclature                                | Unit      | Value  |
| Pressure in test section   | on before start of flowing:  | pi  | kPa       | 126.2  |
| Pressure in test section   | on before stop of flowing:   | Pp  | kPa       | 126.6  |
| Maximum pressure ch  | nange during flowing period:*  | dpp   | kPa       | 0.4  |
| Normalized distance v<br>Index 1<br>Normalized drawdowr<br>Index 2                           | with respect to the response time<br>r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: | #NV<br>ate<br>#NV                           |           |  |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*ln(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | #NV   | * e       | ee comment   |
| Comment:   | no response due to pumping   | in source                                   |           |  |
| Lessure Active well [KPa]  | Pumpstart  | 23.11.2007.00:00 23.11                      | Pumpstop  | 127<br>126.5<br>126<br>126<br>125.5 <b>Icd</b><br>125.5 <b>Icd</b><br>125<br>125<br>125<br>125<br>125<br>125<br>125<br>125 |
|  |  | Date  |           |  |

| AP PS 400-07-72  |  |   |  |
|--|--|---|--|
| KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | <b>Pumping Section</b><br>Test Stop:<br>Pump Stop:   | i [m bToC]:   | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27  |
|  | Nomenclature   | Unit  | Value  |
| on before start of flowing:  | p <sub>i</sub>   | kPa   | 5638   |
| on before stop of flowing:   | Pp   | kPa   | 5437   |
| ange during flowing period:  | dpp  | kPa   | 201  |
| KLX19A   | Section no.:   |   | KLX19A_5   |
| 346.90   | Section length:  |   | 311.0-480.5  |
| #NV  | max. Drawdown s  | 。 [m]:*   | #NV  |
|  | Nomenclature   | Unit  | Value  |
| on before start of flowing:  | p <sub>i</sub>   | kPa   | 126.3  |
| on before stop of flowing:   | pp   | kPa   | 126.6  |
| ange during flowing period:*   | dpp  | kPa   | 0.3  |
| <pre>r<sub>s</sub><sup>2</sup>/dt<sub>L</sub> [m<sup>2</sup>/s]: with respect to pumping flow rasp/Q<sub>p</sub> [s/m<sup>2</sup>]: (s<sub>p</sub>/Q<sub>p</sub>)*In(r<sub>s</sub>/r<sub>0</sub>) [s/m<sup>2</sup>]:</pre> | #NV<br>ate<br>#NV<br>#NV   |   |  |
| no response due to pumping   | in source  | * S   | ee comment   |
| no response due to pamping   |  |   |  |
| umpstart   | 23.11.2007.00:00 23.1  | Pumpstop  | 127<br>126.5<br>126.5<br>126.5<br>126.5<br>125.5<br>125.5<br>125<br>125<br>125<br>125<br>125<br>125<br>125<br>12   |
|  | Date   |   |  |
|  | AP PS 400-07-72<br>KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05<br>The before start of flowing:<br>the before stop of flowing:<br>the before start of flowing:<br>the before start of flowing:<br>the before stop of flowing:<br>the before stop of flowing:<br>the transpect to the response times<br>$r_s^2/dt_L [m^2/s]$ :<br>the with respect to pumping flow ra-<br>$s_p/Q_p [s/m^2]$ :<br>( $s_p/Q_p$ )*In( $r_s/r_0$ ) [ $s/m^2$ ]:<br>no response due to pumping<br>tumpstart<br>tumpstart | AP PS 400-07-72       KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05       Pump Stop:<br>7.42E-05         Image during flowing:       p,<br>p,<br>nange during flowing:       p,<br>p,<br>p,<br>nange during flowing period:       p,<br>dp,         Image during flowing:       p,<br>max. Drawdown s,<br>max. KL X27 A       Pumping Section [m bToC]:         19.11.2007 00:00       Test Stop:         22.11.2007 14:34       Pump Stop:         n before start of flowing:       p,       KPa         ange during flowing period:       dp,       KPa         MV       max. Drawdown s <sub>p</sub> [m]:*       Momenclature       Unit         M KLX19A       Section no.:       346.90       Section length:         #NV       max. Drawdown s <sub>p</sub> [m]:*       Momenclature       Unit         In before start of flowing:       p,       KPa         ange during flowing period:       dp,       KPa         #NV       max. Drawdown s <sub>p</sub> [m]:*       Momenclature       Unit         In before start of flowing:       p,       KPa         ange during flowing period:*       dp,       KPa         with respect to the response time       r, s <sup>2</sup> /dt, [m <sup>2</sup> /s]:       #NV         r, s <sup>2</sup> /dt, [m <sup>2</sup> /s]:       #NV       no response due to pumping in source       *         umpstart       Pumpstop       Mixina.       *         Mixina.       Date       211.207.000       211.207.000 |

| Activityplan No.  | AP PS 400-07-72  |   |           |  |
|---|--|---|-----------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:   | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]: | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data   |  | Nomenclature                                | Unit      | Value  |
| Pressure in test section  | n before start of flowing:   | p <sub>i</sub>                              | kPa       | 5638   |
| Pressure in test section  | n before stop of flowing:  | pp  | kPa       | 5437   |
| Maximum pressure ch   | ange during flowing period:  | dpp   | kPa       | 201  |
| Observation Hole:   | KLX19A   | Section no.:                                |           | KLX19A_6   |
| Distance r <sub>s</sub> [m]:  | 414.90   | Section length:                             |           | 291.0-310.0  |
| Response time $dt_L$ [s]:   | #NV  | max. Drawdown s <sub>r</sub>                | , [m]:*   | #NV  |
| Pressure data   |  | Nomenclature                                | Unit      | Value  |
| Pressure in test section  | n before start of flowing:   | Pi  | kPa       | 128.2  |
| Pressure in test section  | n before stop of flowing:  | pp  | kPa       | 128.5  |
| Maximum pressure ch   | ange during flowing period:*   | dpp   | kPa       | 0.3  |
| Normalized distance w   | <pre>ith respect to the response time r<sub>s</sub><sup>2</sup>/dt<sub>L</sub> [m<sup>2</sup>/s]: with respect to pumping flow ra-</pre> | #NV   |           |  |
| Index 2   | s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:  | #NV   |           |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*ln(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | #NV   | * s       | see comment  |
| Comment:  | no response due to pumping   | in source                                   |           |  |
| For a construction of the | umpstart<br>22.11.2007 18:00   | 23.11.2007 00:00 23.1                       | Pumpstop  | 129<br>128.5<br>128.5<br>128 Illion uoite<br>127.5<br>127.5<br>127<br>127<br>127<br>127<br>126.5<br>126.5<br>126<br>23.11.2007 12:00 |

| Pumping Hole:  | KLX27A   | Dum                      |   |          |  |
|--|--|--------------------------|---|----------|--|
| Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:                       | 19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | Test<br>Pum              | <b>ping Section [rr</b><br>Stop:<br>p Stop: | n bToC]: | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data  |  | Nom                      | enclature                                   | Unit     | Value  |
| Pressure in test section b   | efore start of flowing:  |                          | Pi  | kPa      | 5638   |
| Pressure in test section b   | efore stop of flowing:   |                          | p <sub>p</sub>                              | kPa      | 5437   |
| Maximum pressure chang   | ge during flowing period:  |                          | dpp   | kPa      | 201  |
| Observation Hole:  | KLX19A   | Sect                     | ion no.:                                    |          | KLX19A_7   |
| Distance r <sub>s</sub> [m]:   | 509.70   | Secti                    | on length:                                  |          | 136.0-290.0  |
| Response time dt <sub>L</sub> [s]:   | #NV  | max.                     | Drawdown s <sub>p</sub> [m                  | n]:*     | #NV  |
| Pressure data  |  | Nom                      | enclature                                   | Unit     | Value  |
| Pressure in test section b   | efore start of flowing:  |                          | pi  | kPa      | 133.1  |
| Pressure in test section b   | efore stop of flowing:   |                          | pp  | kPa      | 133.4  |
| Maximum pressure chang   | ge during flowing period:*   |                          | dpp   | kPa      | 0.3  |
| Index 1     Index 1       Normalized drawdown with       Index 2       Index 2 New | ' <sub>s</sub> /ατ <sub>L</sub> [m /s]:<br>th respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>'s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r₀) [s/m <sup>2</sup> ]: | #NV<br>ate<br>#NV<br>#NV |   |          |  |
| Commont  |  |                          |   | * S      | ee comment   |
| Comment: r   | to response due to pumping   | In source                |   |          |  |
| Lessure Active well [kPa]  | ostart   |                          |   | Pumpstop | 133.6<br>133.4<br>133.2<br>133.2<br>133.2<br>133.2<br>132.8<br>132.6<br>132.4<br>132.4<br>132.2<br>132.2<br>132.2<br>132.2<br>132.2<br>132.2<br>132.2<br>132.2 |
| 22.11.2007 12:00   | 22.11.2007 18:00   | 23.11.2007 00:00<br>Date | 23.11.200                                   | 7 06:00  | 23.11.2007 12:00   |

| Activityplan No.  | AP PS 400-07-72  |  |                                      |   |
|---|--|--|--------------------------------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | Pumping Section [n<br>Test Stop:<br>Pump Stop: | n bToC]:                             | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data   |  | Nomenclature                                   | Unit                                 | Value   |
| Pressure in test section  | on before start of flowing:  | p <sub>i</sub>                                 | kPa                                  | 5638  |
| Pressure in test section  | on before stop of flowing:   | pp   | kPa                                  | 5437  |
| Maximum pressure c  | hange during flowing period:   | dpp  | kPa                                  | 201   |
| Observation Hole:   | KLX19A   | Section no.:                                   |                                      | KLX19A_8  |
| Distance r <sub>s</sub> [m]:  | 548.50   | Section length:                                |                                      | 0.0-135.0   |
| Response time $dt_{L}$ [s]  | : #NV  | max. Drawdown s <sub>p</sub> [r                | n]:*                                 | #NV   |
| Pressure data   |  | Nomenclature                                   | Unit                                 | Value   |
| Pressure in test section  | on before start of flowing:  | pi   | kPa                                  | 133.1   |
| Pressure in test section  | on before stop of flowing:   | pp   | kPa                                  | 133.4   |
| Maximum pressure cl   | hange during flowing period:*  | dpp  | kPa                                  | 0.3   |
| Normalized drawdown<br>Index 2<br>Index 2 New   | n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | te<br>#NV<br>#NV                               |                                      |   |
| Comment:  | no response due to pumping i   | in source                                      | <u> </u>                             | ee comment  |
|   |  |  |                                      |   |
| 5700 - F  | Pumpstart  |  |                                      | 133.6   |
| Pressure Active well [kPa]  | Marine Marine Marine   | nor and a second                               |                                      | 133.2 [ed<br>133.2 133.2<br>133.3 133.4<br>132.8 132.6<br>132.6 Opservation well<br>132.4 132.4   |
| 5300 22.11.2007 12:00   | <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br> <br>  | 23.11.2007 00:00 23.11.20<br>Date              | • KLX27A_1<br>• KLX19A_8<br>07 06:00 | - 132.2<br>- 132.2<br>- 132<br>- |

| Pumping Hole:         KLX27A         Pumping Section [m bToC]:         633-20-650.51           Test Stat:         19.11.2007 00:00         Test Stop:         25.11.2007 10:07           Prims Stat:         19.11.2007 00:00         Test Stop:         25.11.2007 10:07           Pressure data         Nomenclature         Unit         Value           Pressure in test section before start of flowing:         p,         kPa         5633           Maximum pressure change during flowing period:         dp,         kPa         5633           Maximum pressure change during flowing period:         dp,         kPa         5633           Maximum pressure change during flowing period:         dp,         kPa         5633           Maximum pressure change during flowing period:         max. Drawdown s, [m]:*         #KLX20A         Section no.:         KLX20A, '           Pressure in test section before start of flowing:         p,         kPa         143.3           Maximum pressure change during flowing period:*         dp,         kPa         143.3           Maximum pressure change during flowing period:*         dp,         kPa         143.3           Maximum pressure change during flowing period:*         dp,         kPa         0.5           Normalized distance with respect to pumping flow rate index 2  | Activityplan No.  | AP PS 400-07-72   |   |           |   |
|--|---|---|---|-----------|---|
| Pressure data       Nomenclature       Unit       Value         Pressure in test section before stap of flowing:       p,       kPa       5633         Maximum pressure change during flowing period:       dp,       kPa       2543         Maximum pressure change during flowing period:       dp,       kPa       2543         Observation Hole:       KLX20A       Section no.:       KLX20A_1         Distance r <sub>a</sub> [m]:       667.40       Section length:       294.0-457.1         Response time dt <sub>i</sub> [s]:       #NV       max. Drawdown s <sub>b</sub> [m].*       #NN         Pressure data       Nomenclature       Unit       Value         Pressure in test section before stap of flowing:       p,       kPa       143.1         Pressure in test section before stop of flowing:       p,       kPa       143.1         Maximum pressure change during flowing period:*       dp,       kPa       0.5         Normalized distance with respect to pumping flow rate       Index 1       r_s/dt_[m²/s]:       #NV         Normalized drawdown with respect to pumping in source       * see comment   | <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05  | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]: | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure in test section before start of flowing:<br>Pressure in test section before stop of flowing:<br>Maximum pressure change during flowing period:<br>Distance r, [m]:<br>Response time dti, [s]:<br>#NV<br>Pressure data<br>Pressure in test section before stop of flowing:<br>Pressure in test section before start of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Phy<br>Normalized distance with respect to the response time<br>Index 1 r_s <sup>-7</sup> /dt, [m <sup>7</sup> /s]:<br>Movemalized drawdown with respect to pumping flow rate<br>Index 2 s_g/Q_p [s/m <sup>2</sup> ]:<br>Movemalized frawdown with respect to pumping in source<br>Tomment:<br>Tomment:<br>Tomment:<br>Normalized drawdown with respect to pumping in source<br>Tomment:<br>Tomment:<br>Normalized drawdown with respect to pumping in source<br>Tomment:<br>Normalized drawdown with respect to pumping in source<br>Tom  | Pressure data   |   | Nomenclature                                | Unit      | Value   |
| Pressure in test section before stop of flowing:       Pp       kPa       5433         Maximum pressure change during flowing period:       dp,       kPa       201         Observation Hole:       KLX20A       Section no.:       KLX20A_1         Distance rs [m]:       687.40       Section length:       294.0-457.0         Response time dt [5]:       #NV       max. Drawdown sp, [m]:*       #NN         Pressure data       Nomenclature       Unit       Value         Pressure in test section before start of flowing:       pi       kPa       1143.1         Pressure in test section before stop of flowing:       pp       kPa       1143.1         Maximum pressure change during flowing period:*       dp,       kPa       1143.1         Normalized distance with respect to the response time Index 1       rs <sup>2</sup> /dt [m <sup>2</sup> /s]:       #NV         Normalized drawdown with respect to pumping flow rate Index 2       sp/Qp [s/m <sup>2</sup> ]:       #NV         Index 2 New       (sp/Qp)*In(r_/r_0) [s/m <sup>2</sup> ]:       #NV       see comment         Comment:       no response due to pumping in source       Pumpstop       43.3         Modulu       Gas and and and and and and and and and and  | Pressure in test sectic   | on before start of flowing:   | p <sub>i</sub>                              | kPa       | 5638  |
| Maximum pressure change during flowing period:       dp,       kPa       20         Observation Hole:       KLX20A       Section no.:       KLX20A_f         Distance r_n [m]:       687.40       Section length:       294.0-457.0         Response time dt_ [s]:       #NV       max. Drawdown sp, [m]:*       #NN         Pressure data       Nomenclature       Unit       Value         Pressure in test section before start of flowing:       p,       kPa       143.1         Pressure in test section before stop of flowing:       p,       kPa       0.2         Normalized distance with respect to the response time lindex 1       r_s <sup>2</sup> /dt_L [m <sup>7</sup> /s]:       #NV         Normalized drawdown with respect to pumping flow rate lindex 2       s       see comment         Comment:       no response due to pumping in source       Pumpstop       43.9         Outgoing       Pumpstat       Pumpstop       43.9         Index 2 New       (s_y/Q_p)*In(r,Jr_n) [s/m <sup>2</sup> ]:       #NV       Normalized drawdown with respect to pumping in source       1000000000000000000000000000000000000  | Pressure in test section  | on before stop of flowing:  | pp  | kPa       | 5437  |
| Observation Hole:       KLX20A       Section no.:       KLX20A 1         Distance rs [m]:       687.40       Section length:       294.0-457.0         Response time dt, [s]:       #NV       max. Drawdown sp. [m]:*       #NV         Pressure data       Nomenclature       Unit       Value         Pressure in test section before start of flowing:       p,       kPa       143.1         Pressure in test section before start of flowing:       p,       kPa       143.1         Maximum pressure change during flowing period:*       dp,       kPa       0.3         Normalized distance with respect to the response time Index 2       s,/Q_p [s/m <sup>2</sup> ]:       #NV       see comment:         Index 2 New       (s,/Q_p)*In(r,/r_0) [s/m <sup>2</sup> ]:       #NV       see comment:       * see comment:         Comment:       no response due to pumping in source       * see comment       * see comment       * see comment         use of the period of the pe  | Maximum pressure ch   | ange during flowing period:   | dpp   | kPa       | 201   |
| Distance rs [m]: 687.40 Section length: 294.0-457.0<br>Response time dt, [s]: #NV max. Drawdown sp [m]:* #NV<br>Pressure data Nomenclature Unit Value<br>Pressure in test section before start of flowing: p, kPa 143.1<br>Pressure in test section before stop of flowing: pp, kPa 143.1<br>Maximum pressure change during flowing period:* dp, kPa 0.3<br>Normalized distance with respect to the response time<br>Index 1 rs '2/dt, [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 ss/Qp, [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Qp)'In(rs/rg) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source  | Observation Hole:   | KLX20A  | Section no.:                                |           | KLX20A_1  |
| Response time dti [s]:       #NV       max. Drawdown sp [m].*       #NN         Pressure data       Nomenclature       Unit       Value         Pressure in test section before start of flowing:       p,       kPa       143.1         Pressure in test section before start of flowing:       p,       kPa       143.1         Maximum pressure change during flowing period:*       dp,       kPa       0.3         Normalized distance with respect to the response time index 1       r_s²/dti_[m²/s]:       #NV         Normalized drawdown with respect to pumping flow rate index 2       sp/Qp [s/m²]:       #NV         Index 2 New       (s_y/Qp)'In(r_y/r_0) [s/m²]:       #NV         Comment:       no response due to pumping in source       * see comment         frequence       frequence       frequence       frequence         frequence       frequence       frequence       frequence         frequence       response due to pumping in source       response       frequence       frequence         frequence       frequence       frequence       frequence       frequence       frequence         index 2       sp/Qp frequence       frequence       frequence       frequence       frequence         frequence       frequence       frequence   | Distance r <sub>s</sub> [m]:  | 687.40  | Section length:                             |           | 294.0-457.0   |
| Pressure data     Nomenclature     Unit     Value       Pressure in test section before start of flowing:     p,     kPa     143.1       Pressure in test section before stop of flowing:     p,     kPa     143.1       Maximum pressure change during flowing period:*     dp,     kPa     0.3       Normalized distance with respect to the response time<br>Index 1     r_s^2/dt_L [m²/s]:     #NV     kPa     0.3       Normalized drawdown with respect to pumping flow rate<br>Index 2     s,/Q,p [s/m²]:     #NV     kPa     kPa       Index 2 New     (s,p/Q,p)1n(r,f_r0) [s/m²]:     #NV     kee comment     kee comment       Comment:     no response due to pumping in source     * see comment     * see comment       from ongoing of the set of  | Response time dt <sub>L</sub> [s]:  | #NV   | max. Drawdown s <sub>p</sub>                | [m]:*     | #NV   |
| Pressure in test section before start of flowing:<br>Pressure in test section before stop of flowing:<br>Pressure in test section before stop of flowing:<br>Maximum pressure change during flowing period:<br>Mormalized distance with respect to the response time<br>Index 1 r_s <sup>2</sup> /dt, [m <sup>7</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>p</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source  | Pressure data   |   | Nomenclature                                | Unit      | Value   |
| Pressure in test section before stop of flowing:<br>Maximum pressure change during flowing period:*<br>Normalized distance with respect to the response time<br>Index 1 r_s <sup>2</sup> /dt_ [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source   | Pressure in test section  | on before start of flowing:   | Pi  | kPa       | 143.6   |
| Maximum pressure change during flowing period:* dp, kPa 0.3<br>Normalized distance with respect to the response time<br>Index 1 r_s <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Index 2 New (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>p</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source  | Pressure in test section  | on before stop of flowing:  | pp  | kPa       | 143.9   |
| Normalized distance with respect to the response time<br>Index 1 r_s <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]: #NV<br>Normalized drawdown with respect to pumping flow rate<br>Index 2 s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]: #NV<br>Comment: no response due to pumping in source   | Maximum pressure ch   | ange during flowing period:*  | dpp   | kPa       | 0.3   |
| Comment: no response due to pumping in source<br>Pumpstart Pumpstart   | Index 1<br>Normalized drawdowr<br>Index 2<br>Index 2 New  | r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>) with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV<br>ate<br>#NV<br>#NV                    |           |   |
| Pumpstart         Pumpstop           Image: Construction of the second   | Comment:  | no response due to pumping  | in source                                   | * S       | ee comment  |
| Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart<br>Pumpstart |   |   |   |           |   |
| 22.11.2007 12:00         22.11.2007 18:00         23.11.2007 00:00         23.11.2007 06:00         23.11.2007 12:00   | S300<br>22.11.2007 12:00  | Pumpstart   | 23.11.2007 00:00 23.1                       | Pumpstop  | 144<br>143.5<br>143.5<br>143.5<br>143.5<br>142.5<br>142.5<br>142<br>142<br>142<br>141.5<br>23.11.2007 12:00 |

| Activityplan No.   | AP PS 400-07-72  |  |  |           |   |
|--|--|--|--|-----------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s] | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>: 7.42E-05                               | <b>Բւ</b><br>Τe<br>Pւ                    | Imping Section [<br>est Stop:<br>Imp Stop: | m bToC]:  | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27                                    |
| Pressure data  |  | N  | omenclature                                | Unit      | Value   |
| Pressure in test sec   | tion before start of flowing:  |  | Di   | kPa       | 5638  |
| Pressure in test sec   | tion before stop of flowing:   |  | P <sub>p</sub>                             | kPa       | 5437  |
| Maximum pressure   | change during flowing period:  |  | dpp  | kPa       | 201   |
| Observation Hole:  | KLX20A   | Se                                       | ection no.:                                |           | KLX20A_2  |
| Distance r <sub>e</sub> [m]:   | 683 70   | Se                                       | ection length:                             |           | 260 0-296 0   |
| Response time dt <sub>L</sub> [  | s]: #NV  | m  | ax. Drawdown s <sub>p</sub> [              | m]:*      | ±0010 ±0010<br>#NV  |
| Pressure data  |  | N  | omenclature                                | Unit      | Value   |
| Pressure in test sec   | tion before start of flowing:  |  | p <sub>i</sub>                             | kPa       | 149.0   |
| Pressure in test sec   | tion before stop of flowing:   |  | Pp   | kPa       | 149.3   |
| Maximum pressure   | change during flowing period:*   |  | dpp  | kPa       | 0.3   |
| Normalized distance<br>Index 1   | e with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:            | )<br>#NV                                 |  |           |   |
| Normalized drawdov<br>Index 2  | wn with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:  | ate<br>#NV                               |  |           |   |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                                      |  | * 9       | ee comment  |
| Comment:   | no response due to pumping   | in source                                |  |           |   |
| Lessure Active well [KPa]  | Pumpstart  | en en en en en en en en en en en en en e | F  | Pumpstop  | 150<br>149.5<br>149<br>148.5<br>148.5<br>148.5<br>148<br>148<br>148<br>148<br>148<br>148<br>148 |
| 5300 <b>. . . . . . . . . .</b>  | 22.11.2007 18:00   | 23.11.2007 00:00<br>Date                 | 23.11.2                                    | 007 06:00 | 147<br>23.11.2007 12:00   |
|  |  |  |  |           |   |

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|--|---|---|----------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Elow Pate O [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.425 05  | Pumping Section [<br>Test Stop:<br>Pump Stop: | m bToC]: | <b>639.20-650.56</b><br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Prow Rate Q <sub>p</sub> [m /s].   | 7.42E-05  | Nomenclature                                  | Unit     | Value   |
| Pressure in test section   | on before start of flowing.   | D.  | kPa      | 5638  |
| Pressure in test section   | on before stop of flowing:  | Pi<br>Po                                      | kPa      | 5437  |
| Maximum pressure ch  | ange during flowing period:   | dp <sub>p</sub>                               | kPa      | 201   |
| Observation Hole:  | KLX20A  | Section no.:                                  |          | KLX20A_3  |
| Distance r <sub>s</sub> [m]:   | 691.80  | Section length:                               |          | 181.0-259.0   |
| Response time dt <sub>L</sub> [s]  | #NV   | max. Drawdown s <sub>p</sub> [                | m]:*     | #NV   |
| Pressure data  |   | Nomenclature                                  | Unit     | Value   |
| Pressure in test section   | on before start of flowing:   | p <sub>i</sub>                                | kPa      | 146.3   |
| Pressure in test section   | on before stop of flowing:  | pp  | kPa      | 146.7   |
| Maximum pressure ch  | nange during flowing period:*   | dpp   | kPa      | 0.4   |
| Index 1<br>Normalized drawdowr<br>Index 2<br>Index 2 New                               | r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:<br>(s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV<br>te<br>#NV<br>#NV                       |          |   |
|  | (-h -h)(.a.o) [ ].  |   | * S      | ee comment  |
| Comment:   | no response due to pumping  | in source                                     |          |   |
| Lessure Active well [KPa]  | Pumpstart   | F   | Pumpstop | 147<br>146.5<br>146 146.5<br>146 145 145.5 <b>Security of the security of</b> |

| Activityplan No.  | AP PS 400-07-72  |   |            |   |
|---|--|---|------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>2</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7 42E-05   | Pumping Section  <br>Test Stop:<br>Pump Stop: | m bToC]:   | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data   | 1.421-00   | Nomenclature                                  | Unit       | Value   |
| Pressure in test secti  | on before start of flowing:  | Di  | kPa        | 5638  |
| Pressure in test secti  | on before stop of flowing:   | P₀<br>P₀                                      | kPa        | 5437  |
| Maximum pressure c  | hange during flowing period:   | dpp   | kPa        | 201   |
| Observation Hole:   | KLX20A   | Section no.:                                  |            | KLX20A_4  |
| Distance r <sub>s</sub> [m]:  | 699.00   | Section length:                               |            | 145.0-180.0   |
| Response time dt <sub>L</sub> [s  | ]: #NV   | max. Drawdown s <sub>p</sub>                  | [m]:*      | #NV   |
| Pressure data   |  | Nomenclature                                  | Unit       | Value   |
| Pressure in test secti  | on before start of flowing:  | p <sub>i</sub>                                | kPa        | 138.2   |
| Pressure in test secti  | on before stop of flowing:   | Pp  | kPa        | 138.5   |
| Maximum pressure c  | hange during flowing period:*  | dpp   | kPa        | 0.3   |
| Normalized distance<br>Index 1  | with respect to the response time<br>r <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]: | e<br>#NV                                      |            |   |
| Index 2   | $s_p/Q_p$ [s/m <sup>2</sup> ]:   | #NV   |            |   |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:             | #NV   | * 9        | see comment   |
| Comment:  | no response due to pumping   | in source                                     | -          |   |
| Lessure Active well [KPa]   | Pumpstart  |   | Pumpstop   | 139.5<br>139<br>138.5 [e<br>138<br>138.5 Isolaria<br>137.5<br>137.5<br>137.5<br>136.5<br>136.5<br>136 |
| 5300 <b>22.11.2007 12:00</b>  | 22.11.2007 18:00   | 23.11.2007 00:00 23.11.2<br>Date              | 2007 06:00 | 135.5<br>23.11.2007 12:00   |

| Activityplan No.  | AP PS 400-07-72  |                       |   |                    |  |
|---|--|-----------------------|---|--------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 | -                     | Pumping Section<br>Test Stop:<br>Pump Stop: | ı [m bToC]:        | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data   |  |                       | Nomenclature                                | Unit               | Value  |
| Pressure in test section  | on before start of flowing:  |                       | pi  | kPa                | 5638   |
| Pressure in test section  | on before stop of flowing:   |                       | pp  | kPa                | 5437   |
| Maximum pressure c  | hange during flowing period:   |                       | dpp   | kPa                | 201  |
| Observation Hole:   | KLX20A   | :                     | Section no.:                                |                    | KLX20A_5   |
| Distance r <sub>s</sub> [m]:  | 709.90   | ;                     | Section length:                             |                    | 103.0-144.0  |
| Response time dt <sub>L</sub> [s]   | : #NV  | I                     | max. Drawdown s                             | <sub>p</sub> [m]:* | #NV  |
| Pressure data   |  |                       | Nomenclature                                | Unit               | Value  |
| Pressure in test section  | on before start of flowing:  |                       | pi  | kPa                | 156.8  |
| Pressure in test section  | on before stop of flowing:   |                       | pp  | kPa                | 157.2  |
| Maximum pressure c  | hange during flowing period:*  |                       | dpp   | kPa                | 0.4  |
| Normalized distance<br>Index 1  | with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:              | e<br>#NV              |   |                    |  |
| Normalized drawdow<br>Index 2   | n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | ate<br>#NV            |   |                    |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV                   |   | * 9                | ee comment   |
| Comment:  | no response due to pumping   | in sourc              | e   |                    |  |
| Solo Solo Solo Solo Solo Solo Solo Solo   | Pumpstart  |                       | Nunnunun                                    | Pumpstop           | 158.5<br>158<br>158<br>157<br>157<br>157<br>157<br>156<br>156<br>156<br>156<br>155<br>155<br>155 |
| 5300 +  | 22.11.2007 18:00   | 23.11.2007 00<br>Date | :00 23.1                                    | 11.2007 06:00      | + 155<br>23.11.2007 12:00  |
|   |  |                       |   |                    |  |

| Activityplan No.  | AP PS 400-07-72  |   |  |   |
|---|--|---|--|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05   | <b>Pumping Se</b><br>Test Stop:<br>Pump Stop: | ection [m bToC]:                             | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27                         |
| Pressure data   |  | Nomenclatu                                    | ure Unit                                     | Value   |
| Pressure in test secti  | on before start of flowing:  |   | p <sub>i</sub> kPa                           | 5638  |
| Pressure in test secti  | on before stop of flowing:   |   | p <sub>p</sub> kPa                           | 5437  |
| Maximum pressure o  | hange during flowing period:   |   | dp <sub>p</sub> kPa                          | 201   |
| Observation Hole:   | KLX20A   | Section no.:                                  |  | KLX20A_6  |
| Distance r <sub>s</sub> [m]:  | 721.50   | Section leng                                  | th:  | 0.0-102.0   |
| Response time $dt_L$ [s   | ]: #NV   | max. Drawdo                                   | own s <sub>p</sub> [m]:*                     | #NV   |
| Pressure data   |  | Nomenclatu                                    | ure Unit                                     | Value   |
| Pressure in test secti  | on before start of flowing:  |   | p <sub>i</sub> kPa                           | 156.1   |
| Pressure in test secti  | on before stop of flowing:   |   | p <sub>p</sub> kPa                           | 156.4   |
| Maximum pressure o  | hange during flowing period:*  |   | dp <sub>p</sub> kPa                          | 0.3   |
| Index 1<br>Normalized drawdow<br>Index 2<br>Index 2 New   | r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:<br>n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m²]:<br>(s <sub>v</sub> /Q <sub>n</sub> )*ln(r₅/r₀) [s/m²]: | #NV<br>ate<br>#NV<br>#NV                      |  |   |
|   | (ep ep(.g. 0) [e].   |   | *  | see comment   |
| Comment:  | no response due to pumping   | in source                                     |  |   |
| 5700  | Pumpstart  |   | Pumpstop                                     | 158.5   |
| Lessure Active well [kba]   |  | an frank server t                             |  | 156.5<br>157.5<br>157.5<br>156.5<br>156.5<br>156.5<br>156.5<br>156.5<br>156.5 |
| 5300  | 22.11.2007 18:00   | 23.11.2007 00:00<br>Date                      | ← KLX27A_1<br>← KLX20A_6<br>23.11.2007 06:00 | 155<br>154.5<br>23.11.2007 12:00  |

| Activityplan No.  | AP PS 400-07-72  |  |                                    |  |
|---|--|--|------------------------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 | <b>Pumping Section [</b><br>Test Stop:<br>Pump Stop: | m bToC]:                           | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data   |  | Nomenclature   | Unit                               | Value  |
| Pressure in test secti  | on before start of flowing:  | p <sub>i</sub>                                       | kPa                                | 5638   |
| Pressure in test secti  | on before stop of flowing:   | pp   | kPa                                | 5437   |
| Maximum pressure c  | hange during flowing period:   | dpp  | kPa                                | 201  |
| Observation Hole:   | KLX23A   | Section no.:   |                                    | KLX23A_1   |
| Distance r <sub>s</sub> [m]:  | 581.00   | Section length:                                      |                                    | 49.0-100.0   |
| Response time dt <sub>L</sub> [s  | ]: #NV   | max. Drawdown s <sub>p</sub>                         | [m]:*                              | #NV  |
| Pressure data   |  | Nomenclature   | Unit                               | Value  |
| Pressure in test secti  | on before start of flowing:  | Pi   | kPa                                | 133.8  |
| Pressure in test secti  | on before stop of flowing:   | pp   | kPa                                | 133.9  |
| Maximum pressure c  | hange during flowing period:*  | dpp  | kPa                                | 0.1  |
| Normalized distance<br>Index 1  | with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:              | #NV  |                                    |  |
| Normalized drawdow<br>Index 2   | n with respect to pumping flow ra<br>s <sub>p</sub> /Q <sub>p</sub> [s/m <sup>2</sup> ]:   | te<br>#NV  |                                    |  |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*ln(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV  | * c                                | ee comment   |
| Comment:  | no response due to pumping i   | n source   | 0                                  |  |
| 5700  | Pumpstart  | F  | Pumpstop                           | 134.2  |
| Lessure Active well [KPa]   | M.M.A.M.   | MM   |                                    | 134<br>133.8<br>133.6<br>133.4<br>133.4<br>133.2<br>133.2<br>133.2<br>133<br>133.2<br>133<br>133.2<br>133<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>133.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135.6<br>135 |
| 5300 22.11.2007 12:00   | 22.11.2007 18:00 2   | 3.11.2007 00:00 23.11.2<br>Date                      | KLX27A_1     KLX23A_1     KLX23A_1 | + 132.6<br>132.4<br>23.11.2007 12:00   |

| Activityplan No.                                   | AP PS 400-07-72  |                                    |                               |                        |   |
|--|--|------------------------------------|-------------------------------|------------------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34   | <b>Pumpi</b><br>Test Ste<br>Pump S | ng Section [m<br>op:<br>Stop: | n bToC]:               | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data                                      | . 7.42E-05   | Nomer                              | nclature                      | Unit                   | Value   |
| Pressure in test sect                              | ion before start of flowing:   |                                    | n.                            | kPa                    | 5638  |
| Pressure in test sect                              | ion before stop of flowing.  |                                    | Pi<br>Dr                      | kPa                    | 5437  |
| Maximum pressure                                   | change during flowing period:  |                                    | dpp                           | kPa                    | 201   |
| Observation Hole:                                  | KLX23A   | Section                            | n no.:                        |                        | KLX23A_2  |
| Distance r [m]:                                    | 611.10   | Section                            | longth:                       |                        | 0.0.48.0  |
| Response time dt                                   | s]: #NV  | max. D                             | rawdown s <sub>~</sub> [rr    | n]:*                   | 0.0-48.0<br>#N\/  |
| Pressure data                                      | <u>.                                    </u>   | Nomer                              | nclature                      | Unit                   | Value   |
| Pressure in test sect                              | ion before start of flowing.   |                                    | D:                            | kPa                    | 150.8   |
| Pressure in test sect                              | ion before stop of flowing:  |                                    | Pi<br>D <sub>n</sub>          | kPa                    | 150.9   |
| Maximum pressure                                   | change during flowing period:*   |                                    | dp <sub>p</sub>               | kPa                    | 0.1   |
| Index 1  | $r_s^2/dt_L [m^2/s]$ :   | #NV<br>te                          |                               |                        |   |
| Index 2  | s <sub>p</sub> /Q <sub>p</sub> [s/m²]:   | #NV                                |                               |                        |   |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | #NV                                |                               | * 50                   | e comment   |
| Comment:   | no response due to pumping   | in source                          |                               |                        |   |
| 5700   | Pumpstart  |                                    | Ρι                            | Impstop                | 152   |
| 5600<br>5500<br>5500                               | and the second state of th | www                                | M                             |                        | 151.5<br>151.5<br>151 - 151.5<br>150.5 - 150.5<br>150 - 150 |
| 5400   |  |                                    |                               | KLX27A_1<br>→ KLX23A_2 | - 149.5<br>- 148.5  |
| 22.11.2007 12:00                                   | 22.11.2007 18:00 2   | 23.11.2007 00:00<br>Date           | 23.11.200                     | 7 06:00                | 23.11.2007 12:00  |

| Activityplan No.  | AP PS 400-07-72   |   |          |   |
|---|---|---|----------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]: | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05  | Pumping Section [<br>Test Stop:<br>Pump Stop: | m bToC]: | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27   |
| Pressure data   |   | Nomenclature                                  | Unit     | Value   |
| Pressure in test sect   | on before start of flowing:   | p <sub>i</sub>                                | kPa      | 5638  |
| Pressure in test sect   | on before stop of flowing:  | Pp  | kPa      | 5437  |
| Maximum pressure o  | hange during flowing period:  | dpp   | kPa      | 201   |
| Observation Hole:   | KLX24A  | Section no.:                                  |          | KLX24A_1  |
| Distance r <sub>s</sub> [m]:  | 768.10  | Section length:                               |          | 69.0-100.0  |
| Response time $dt_L$ [s   | ]: #NV  | max. Drawdown s <sub>p</sub>                  | [m]:*    | #NV   |
| Pressure data   |   | Nomenclature                                  | Unit     | Value   |
| Pressure in test sect   | on before start of flowing:   | p <sub>i</sub>                                | kPa      | 145.0   |
| Pressure in test sect   | on before stop of flowing:  | Pp  | kPa      | 145.2   |
| Maximum pressure of   | hange during flowing period:*   | dpp   | kPa      | 0.2   |
| Normalized distance<br>Index 1<br>Normalized drawdow  | with respect to the response time<br><b>r</b> <sub>s</sub> <sup>2</sup> /dt <sub>L</sub> [m <sup>2</sup> /s]:<br>where the respect to pumping flow rates the rates the ra | #NV<br>te                                     |          |   |
| Index 2   | s <sub>p</sub> /Q <sub>p</sub> [s/m²]:  | #NV   |          |   |
| Index 2 New   | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:  | #NV   | * S      | ee comment  |
| Comment:  | no response due to pumping  | in source                                     |          |   |
| 5700  | Pumpstart   |   | Pumpstop | 145.4   |
| S600<br>For Active well [kBa]<br>S500<br>S500<br>S500   | Mar Mar Mar Mar Mar Mar Mar Mar Mar Mar   | M.M.M.  |          | 145.2<br>145<br>144.8<br>144.6<br>144.4<br>144.2<br>144.2<br>144.2<br>144.2<br>144.2<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>144.8<br>14 |
| 5300 22.11.2007 12:00   | 22.11.2007 18:00  | 23.11.2007 00:00 23.11.2<br>Date              |          | 143.4<br>143.2<br>23.11.2007 12:00  |

| Activityplan No.   | AP PS 400-07-72  |   |            |   |
|--|--|---|------------|---|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s] | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>: 7.42E-05                                 | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]:  | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27                                   |
| Pressure data  |  | Nomenclature                                | Unit       | Value   |
| Pressure in test sect  | tion before start of flowing:  | Pi  | kPa        | 5638  |
| Pressure in test sect  | tion before stop of flowing:   | pp  | kPa        | 5437  |
| Maximum pressure   | change during flowing period:  | dpp   | kPa        | 201   |
| Observation Hole:  | KLX24A   | Section no.:                                |            | KLX24A_2  |
| Distance r <sub>s</sub> [m]:   | 773.50   | Section length:                             |            | 41.0-68.0   |
| Response time $dt_L$ [s  | s]: #NV  | max. Drawdown s <sub>p</sub>                | [m]:*      | #NV   |
| Pressure data  |  | Nomenclature                                | Unit       | Value   |
| Pressure in test sect  | tion before start of flowing:  | Pi  | kPa        | 157.0   |
| Pressure in test sect  | tion before stop of flowing:   | pp  | kPa        | 157.1   |
| Maximum pressure   | change during flowing period:*   | dpp   | kPa        | 0.1   |
| Normalized distance<br>Index 1   | e with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:              | #NV   |            |   |
| Normalized drawdov<br>Index 2  | wn with respect to pumping flow rat<br><b>s<sub>p</sub>/Q<sub>p</sub> [s/m<sup>2</sup>]:</b> | te<br>#NV                                   |            |   |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]:   | #NV   | * S        | ee comment  |
| Comment:   | no response due to pumping i   | n source                                    |            |   |
| 5700   | Pumpstart  |   | Pumpstop   | 157.4   |
| Ltessure Active well [kPa]   | - Mart Martin Mart   | M. M.                                       |            | - 157.2<br>- 157.2<br>- 156.8<br>- 156.4<br>- 156.2<br>- 156<br>- 156<br>- 156<br>- 156 |
| 5300   | 22.11.2007 18:00 2   | 3.11.2007 00:00 23.11.                      | KLX27A_1   | - 155.8<br>- 155.6<br>- 155.4<br>- 23.11.2007 12:00                                     |
| 22.11.2007 12:00   | 22.11.2007 18:00 2   | 3.11.2007 00:00 23.11.<br>Date              | 2007 06:00 | 23.11.2007 12:00  |

| Activityplan No.   | AP PS 400-07-72  |   |                      |  |
|--|--|---|----------------------|--|
| <b>Pumping Hole:</b><br>Test Start:<br>Pump Start:<br>Flow Rate Q <sub>p</sub> [m <sup>3</sup> /s]:  | KLX27A<br>19.11.2007 00:00<br>22.11.2007 14:34<br>7.42E-05                                 | Pumping Section<br>Test Stop:<br>Pump Stop: | [m bToC]:            | 639.20-650.56<br>25.11.2007 00:00<br>23.11.2007 05:27  |
| Pressure data  |  | Nomenclature                                | Unit                 | Value  |
| Pressure in test secti   | on before start of flowing:  | p <sub>i</sub>                              | kPa                  | 5638   |
| Pressure in test secti   | on before stop of flowing:   | pp  | kPa                  | 5437   |
| Maximum pressure c   | hange during flowing period:   | dpp   | kPa                  | 201  |
| Observation Hole:  | KLX24A   | Section no.:                                |                      | KLX24A_3   |
| Distance r <sub>s</sub> [m]:   | 790.30   | Section length:                             |                      | 0.0-40.0   |
| Response time $dt_L$ [s  | ]: #NV   | max. Drawdown s <sub>p</sub>                | [m]:*                | #NV  |
| Pressure data  |  | Nomenclature                                | Unit                 | Value  |
| Pressure in test secti   | on before start of flowing:  | p <sub>i</sub>                              | kPa                  | 167.7  |
| Pressure in test secti   | on before stop of flowing:   | pp  | kPa                  | 167.7  |
| Maximum pressure c   | hange during flowing period:*  | dpp   | kPa                  | 0.0  |
| Normalized distance<br>Index 1   | with respect to the response time<br>r <sub>s</sub> ²/dt <sub>L</sub> [m²/s]:              | e<br>#NV                                    |                      |  |
| Normalized drawdow<br>Index 2  | n with respect to pumping flow ra<br><b>s<sub>p</sub>/Q<sub>p</sub> [s/m<sup>2</sup>]:</b> | ate<br>#NV                                  |                      |  |
| Index 2 New  | (s <sub>p</sub> /Q <sub>p</sub> )*In(r <sub>s</sub> /r <sub>0</sub> ) [s/m <sup>2</sup> ]: | #NV   | * S                  | ee comment   |
| Comment:   | no response due to pumping   | in source                                   |                      |  |
| 5700   | Pumpstart  |   | Pumpstop             |  |
| 5500 Geven and Gevee and Gevee and Gevee and Gevee and Gevee and G | M.M.M.M.   | MMM   | KLX27A_1<br>KLX24A_3 | 168<br>167.8<br>167.4<br>167.4<br>167.2<br>167.2<br>167.2<br>167.2<br>166.8<br>166.6<br>166.6<br>166.4 |
| 5300 22:11.2007 12:00  | 22.11.2007 18:00   | 23.11.2007 00:00 23.11.<br>Date             | 2007 06:00           | 166.2<br>23.11.2007 12:00  |
|  |  |   |                      |  |

# **APPENDIX 5**

KLX27A Section 210.00-247 m pumped HLX28\_1 91.00-154.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and HLX28\_1 91.00-154.00 m observed

Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and HLX28\_1 91.00-154.00 m observed

Not analysable

CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and HLX28\_1 91.00-154.00 m observed

KLX27A Section 210.00-247 m pumped HLX28\_2 70.00-90.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and HLX28\_2 70.00-90.00 m observed

Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and HLX28\_2 70.00-90.00 m observed

Not analysable

CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and HLX28\_2 70.00-90.00 m observed

KLX27A Section 210.00-247 m pumped HLX28\_3 7.50-69.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and HLX28\_3 7.50-69.00 m observed

Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and HLX28\_3 7.50-69.00 m observed

Not analysable

CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and HLX28\_3 7.50-69.00 m observed

KLX27A Section 210.00-247 m pumped HLX37\_1 150.00-200.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and HLX37\_1 150.00-200.00 m observed

Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and HLX37\_1 150.00-200.00 m observed

Not analysable

CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and HLX37\_1 150.00-200.00 m observed

KLX27A Section 210.00-247 m pumped HLX37\_2 111.00-149.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and HLX37\_2 111.00-149.00 m observed

Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and HLX37\_2 111.00-149.00 m observed

Not analysable

CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and HLX37\_2 111.00-149.00 m observed

KLX27A Section 210.00-247 m pumped KLX19A\_3 509.00-517.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_3 509.00-517.00 m observed
Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_3 509.00-517.00 m observed

Log-Log Match - Flow Period 3



CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_3 509.00-517.00 m observed

KLX27A Section 210.00-247 m pumped KLX19A\_4 481.50-508.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_4 481.50-508.00 m observed



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_4 481.50-508.00 m observed

Log-Log Match - Flow Period 3



CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_4 481.50-508.00 m observed

KLX27A Section 210.00-247 m pumped KLX19A\_5 311.00-480.50 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_5 311.00-480.50 m observed

Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_5 311.00-480.50 m observed

Log-Log Match - Flow Period 3



CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_5 311.00-480.50 m observed

KLX27A Section 210.00-247 m pumped KLX19A\_6 291.00-310.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_6 291.00-310.00 m observed

Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_6 291.00-310.00 m observed



CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_6 291.00-310.00 m observed

KLX27A Section 210.00-247 m pumped KLX19A\_7 136.00-290.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_7 136.00-290.00 m observed

Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_7 136.00-290.00 m observed

Not analysable

CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_7 136.00-290.00 m observed

KLX27A Section 210.00-247 m pumped KLX19A\_8 0.00-135.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_8 0.00-136.00 m observed

Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_8 0.00-135.00 m observed

Not analysable

CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX19A\_8 0.00-135.00 m observed

KLX27A Section 210.00-247 m pumped KLX23A\_1 49.00-100.00 observed



Pressure vs. time; log-log match; KLX27A 210.00-247.00 m pumped and KLX23A\_1 49.00-100.00 m observed

Log-Log Match - Flow Period 2



CRw phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX23A\_1 49.00-100.00 m observed

Not analysable

CRwr phase; log-log match; KLX27A 210.00-247.00 m pumped and KLX23A\_1 49.00-100.00 m observed

Interference test analysis

## **APPENDIX 6**

Observation Test Summary Sheets

| Test Summary Sheet                       |  |   |   |  |   |  |  |
|--|--|---|---|--|---|--|--|
| Project:                                 | Oskarshamn site investigation            | Test type:[1]   |   | OI   | CRwr<br>oservation hole   |  |  |
| Area:                                    | Laxemar                                  | Test no:  |   |  | 1   |  |  |
| Borehole ID:                             | HLX28_1<br>(KLX27A 210.00-247.00 pumped) | Test start:   |   |  | 071010 00:00  |  |  |
| Test section from - to (m):              | 91.00-154.00                             | Responsible for test execution:   |   | Stephan Rohs   |   |  |  |
| Distance (m):                            | 155.00                                   | Responsible for   |   | Crist  | ian Enachescu   |  |  |
| Linear plot Q and p                      |  | Flow period   |   | Recovery period  |   |  |  |
|  |  | Indata  |   | Indata   |   |  |  |
| Duranter                                 | Derester                                 | n <sub>e</sub> (kPa) –  |   | indutu   |   |  |  |
| 2000                                     | <sup>31</sup>                            | p₀ (kPa) =  |   |  |   |  |  |
| 1900                                     |  | $p_i(kPa) =$  |   | n (kPa) –  |   |  |  |
|  | 130                                      | $p_p(\mathbf{k} \mathbf{F} \mathbf{a}) =$   | ( (OE 05  | р <sub>F</sub> (кна) =   |   |  |  |
|  | ell[kF                                   | Q <sub>p</sub> (m <sup>°</sup> /s)=   | 6.60E-05  |  | 1   |  |  |
|  | 22 5                                     | tp (s) =  | 230400  | t <sub>F</sub> (s) =   | 176400  |  |  |
| νγν.                                     |  | S el S (-)=   |   | S el S (-)=  |   |  |  |
| SSS SSS                                  | - <sup>228</sup> O                       | EC <sub>w</sub> (mS/m)=   |   |  |   |  |  |
| £ 1500                                   | Press                                    | Temp <sub>w</sub> (gr C)=   |   |  |   |  |  |
| 1400                                     | 27                                       | Derivative fact.=   | NA  | Derivative fact.=  | NA  |  |  |
|  | HLX28_1                                  |   |   |  |   |  |  |
| 13.00 T 19.10.2007 19.10.2007 20.10.2007 | 21.10.2007 22.10.2007 23.10.2007         |   |   |  |   |  |  |
|  |  | Results   |   | Results  | -   |  |  |
|  |  | Q/s $(m^{2}/s) =$   | NA  |  |   |  |  |
| Log-Log plot incl. derivates- f          | low period                               | $T_{M}$ (m <sup>2</sup> /s)=  | NA  |  |   |  |  |
|  | •  | Flow regime:  | transient   | Flow regime:   | transient   |  |  |
| Log-Log Mate                             | h - Flow Period 2                        | dt₁ (min) =   | 590.3   | dt₁ (min) =  | NA  |  |  |
| 10                                       |  | $dt_2$ (min) =  | 2956.2  | $dt_2$ (min) =   | NA  |  |  |
|  |  | $T(m^{2}/c) =$  | 1.1F-04   | $T(m^{2}/c) =$   | NA  |  |  |
| +  | ~  | S (-) =   | 1 9F-04   | S (-) =  | NA  |  |  |
| o (KP3)                                  |  | с()<br>К (m/s) –  | 1 7E-06   | с()<br>К (m/s) –   | NΔ  |  |  |
|  |  | $S_{s}(1/m) =$  | 3.0E-06   | $S_{s}(1/m) =$   | ΝΔ  |  |  |
|  |  | $O_{\rm s}(1/11) = O_{\rm s}(1/11)$   | 0.0E-00   | $O_{\rm s}$ (1/11) =   |   |  |  |
|  | ۵ ۵ ۵<br>۵ ۵                             | C (m /Pa) =   |   | C (m /Pa) =  |   |  |  |
| ۵۵۲ <b>.</b> .                           |  | $C_D(-) =$  |   | $C_D(-) =$   |   |  |  |
|  |  | H(-) =  | NA  | H(-) =   | INA   |  |  |
| 0.001                                    | 10. 100                                  | 2/ \  |   | 2  |   |  |  |
| E  | apsed time (hrs)                         | I <sub>GRF</sub> (m⁻/s) =   |   | I <sub>GRF</sub> (m⁻/s) =  |   |  |  |
|  |  | $S_{GRF}(-) =$  |   | $S_{GRF}(-) =$   |   |  |  |
|  |  | ∪ <sub>GRF</sub> (-) =  |   | ∪ <sub>GRF</sub> (-) =   | Ina   |  |  |
| Log-Log plot Incl. derivatives           | - recovery period                        | Selected represe  | Intative param  | ieters.  |   |  |  |
|  |  | $dt_1 (min) =$  | 590.3   | C (m <sup>°</sup> /Pa) =   | NA  |  |  |
|  |  | $dt_2 (min) =$  | 2956.2  | $C_{D}(-) =$   | NA  |  |  |
|  |  | $T_T (m^2/s) =$   | 1.1E-04   | H(-) =   | NA  |  |  |
|  |  | S (-) =   | 1.9E-04   |  |   |  |  |
|  |  | $K_s (m/s) =$   | 1.7E-06   |  |   |  |  |
|  |  | $S_{s}(1/m) =$  | 3.0E-06   |  |   |  |  |
| Not an                                   | alysable                                 | Comments:   |   |  |   |  |  |
|  |  | The recommended the analysis of the C<br>transmissivity is est<br>flow dimension dur<br>transducer denth wa | transmissivity of<br>CRw phase. The<br>imated to be 3.0<br>ing the test is 2. | <ul> <li>1.1•10-4 m2/s was confidence range for</li> <li>•10-5 m²/s to 3.0•10</li> <li>A static pressure may derive from the CI</li> </ul> | derived from<br>or the borehole<br>)-4 m <sup>2</sup> /s. The<br>easured at |  |  |
|  |  | to a missing respon   | se after pump sto   | op.  | xwi pilase due  |  |  |

|                                     | Test Sum  | mary Sheet                      |                    |   |                             |
|-------------------------------------|---|---------------------------------|--------------------|---|-----------------------------|
| Project:                            | Oskarshamn site investigation   | Test type:[1]                   |                    | Ot  | CRwr<br>oservation hole     |
| Area:                               | Laxema  | r Test no:                      |                    |   | 1                           |
| Borehole ID:                        | HLX28_2<br>(KLX27A 210.00-247.00 pumped)  | 2 Test start:                   |                    |   | 071010 00:00                |
| Test section from - to (m):         | 70.00-90.00   | Responsible for test execution: |                    |   | Stephan Rohs                |
| Distance (m):                       | 195.00  | Responsible for                 |                    | Crist   | ian Enachescu               |
| Linear plot Q and p                 |   | Flow period                     |                    | Recovery period                               |                             |
|                                     |   | Indata                          |                    | Indata  |                             |
| Pumpstart                           | Pumpstop  | p <sub>0</sub> (kPa) =          |                    |   |                             |
|                                     |   | p <sub>i</sub> (kPa ) =         |                    |   |                             |
|                                     | 130   | p <sub>p</sub> (kPa) =          |                    | p <sub>F</sub> (kPa ) =                       |                             |
|                                     | ui (kea   | $Q_{p} (m^{3}/s) =$             | 6.60E-05           |   |                             |
|                                     | 129 00  | tp(s) =                         | 230400             | t <sub>F</sub> (s) =                          | 176400                      |
| 4 Active                            |   | S el S <sup>*</sup> (-)=        |                    | S el S <sup>*</sup> (-)=                      |                             |
| esente                              | + 128 O   | EC <sub>w</sub> (mS/m)=         |                    |   |                             |
| ά. <sub>1500</sub>                  | Let a let a | Temp <sub>w</sub> (gr C)=       |                    |   |                             |
| 500 <b>Connection Augustum</b>      | 127   | Derivative fact.=               | NA                 | Derivative fact.=                             | NA                          |
| 1300                                |   |                                 |                    |   |                             |
| 18.10.2007 19.10.2007 20.10.2007 Da | 2110.2007 22.10.2007 23.10.2007   |                                 |                    |   |                             |
|                                     |   | Results                         |                    | Results                                       |                             |
|                                     |   | $Q/s (m^2/s) =$                 | NA                 |   |                             |
| Log-Log plot incl. derivates- fl    | low period  | $T_{M} (m^2/s) =$               | NA                 |   |                             |
|                                     | •   | Flow regime:                    | transient          | Flow regime:                                  | transient                   |
| Log-Log Match                       | - Flow Period 2   | $dt_1$ (min) =                  | 1169.2             | $dt_1$ (min) =                                | NA                          |
| 10                                  |   | $dt_2$ (min) =                  | 2747.4             | $dt_2$ (min) =                                | NA                          |
|                                     |   | $T(m^2/s) =$                    | 1.0E-04            | $T(m^{2}/s) =$                                | NA                          |
| 1<br>1                              |   | S (-) =                         | 1.3E-04            | S (-) =                                       | NA                          |
|                                     |   | $K_s (m/s) =$                   | 5.0E-06            | $K_s (m/s) =$                                 | NA                          |
|                                     |   | $S_{s}(1/m) =$                  | 6.5E-06            | $S_{s}(1/m) =$                                | NA                          |
|                                     |   | $C (m^3/Pa) =$                  | NA                 | $C (m^3/Pa) =$                                | NA                          |
|                                     |   | $C_{D}(-) =$                    | NA                 | $C_{D}(-) =$                                  | NA                          |
|                                     |   | ¬(-) =                          | NA                 | ¬(-) =  | NA                          |
| •                                   |   |                                 |                    |   |                             |
| 0.1 1 Ela                           | 10 100<br>psed time (hrs)   | $T_{GPF}(m^2/s) =$              | NA                 | $T_{GPE}(m^2/s) =$                            | NA                          |
|                                     |   | $S_{GRF}(-) =$                  | NA                 | $S_{GRF}(-) =$                                | NA                          |
|                                     |   | $D_{GRF}(-) =$                  | NA                 | $D_{GRF}(-) =$                                | NA                          |
| Log-Log plot incl. derivatives-     | recovery period   | Selected represe                | entative paran     | neters.                                       |                             |
|                                     |   | dt <sub>1</sub> (min) =         | 1169.2             | C (m <sup>3</sup> /Pa) =                      | NA                          |
|                                     |   | $dt_2$ (min) =                  | 2747.4             | $C_{D}(-) =$                                  | NA                          |
|                                     |   | $T_{T}(m^{2}/s) =$              | 1.0E-04            | ¬(-) =  | NA                          |
|                                     |   | S (-) =                         | 1.3E-04            |   |                             |
|                                     |   | $K_s (m/s) =$                   | 5.0E-06            |   |                             |
|                                     |   | S <sub>s</sub> (1/m) =          | 6.5E-06            |   |                             |
| Not an                              | alvsable  | Comments:                       |                    |   | ·                           |
|                                     |   | The recommended                 | transmissivity of  | f 1.0•10-4 m2/s was                           | derived from                |
|                                     |   | the analysis of the G           | CRw phase. The     | confidence range for                          | r the borehole              |
|                                     |   | transmissivity is est           | timated to be 3.0  | •10-5 m <sup>2</sup> /s to 3.0•10             | )-4 m <sup>2</sup> /s. The  |
|                                     |   | transducer depth w              | as not possible to | A static pressure me<br>or derive from the CF | sasureu at<br>Swr phase due |
|                                     |   | to a missing respon             | ise after pump st  | op.   | phase due                   |
|                                     |   |                                 |                    |   |                             |

|  | Test Summary Sheet                       |   |  |  |  |  |  |
|--|--|---|--|--|--|--|--|
| Project:                                       | Oskarshamn site investigation            | Test type:[1]   |  | OI   | CRwr<br>oservation hole  |  |  |
| Area:  | Laxemar                                  | Test no:  |  |  | 1  |  |  |
| Borehole ID:                                   | HLX28_3<br>(KLX27A 210.00-247.00 pumped) | Test start:   |  |  | 071010 00:00   |  |  |
| Test section from - to (m):                    | 7.50-69.00                               | Responsible for   |  |  | Stephan Rohs   |  |  |
| Distance (m):                                  | 234.00                                   | Responsible for   |  | Crist  | ian Enachescu  |  |  |
| Linear plot Q and p                            |  | test evaluation:  |  | Recovery perior  |  |  |  |
|  |  | Indata  |  | Indata   |  |  |  |
| Pumpstart                                      | Pumpstop                                 | p <sub>0</sub> (kPa) =  |  |  |  |  |  |
|  |  | p <sub>i</sub> (kPa ) =   |  |  |  |  |  |
|  | 124                                      | p <sub>p</sub> (kPa) =  |  | p <sub>F</sub> (kPa ) =  |  |  |  |
|  | ell [kba                                 | Q <sub>p</sub> (m <sup>3</sup> /s)=   | 6.60E-05   |  |  |  |  |
|  |  | tp (s) =  | 230400   | t <sub>F</sub> (s) =   | 176400   |  |  |
| 0 1600 W 1001                                  |  | S el S <sup>*</sup> (-)=  |  | S el S <sup>*</sup> (-)=   |  |  |  |
| Inssec   | ssure C                                  | EC <sub>w</sub> (mS/m)=   |  |  |  |  |  |
| 1500   | - 122 <b>Č</b>                           | Temp <sub>w</sub> (gr C)=   |  |  |  |  |  |
| 5400   | KLSZA<br>— HJ28_3                        | Derivative fact.=   | NA   | Derivative fact.=  | NA   |  |  |
| 1300<br>18.10.2007 19.10.2007 20.10.2007<br>Da | 21.10.2007 22.10.2007 23.10.2007         |   |  |  |  |  |  |
|  |  | Results   |  | Results  |  |  |  |
|  |  | Q/s (m²/s)=   | NA   |  |  |  |  |
| Log-Log plot incl. derivates- fl               | ow period                                | T <sub>M</sub> (m <sup>2</sup> /s)=   | NA   |  |  |  |  |
|  |  | Flow regime:  | transient  | Flow regime:   | transient  |  |  |
| Log-Log Match                                  | - Flow Period 2                          | dt <sub>1</sub> (min) =   | 1034.9   | dt <sub>1</sub> (min) =  | NA   |  |  |
| 10   |  | dt <sub>2</sub> (min) =   | 2747.4   | $dt_2$ (min) =   | NA   |  |  |
| -  |  | T (m²/s) =  | 1.3E-04  | T (m²/s) =   | NA   |  |  |
| e di   |  | S (-) =   | 9.3E-05  | S (-) =  | NA   |  |  |
|  |  | $K_s (m/s) =$   | 2.2E-06  | $K_s (m/s) =$  | NA   |  |  |
|  |  | $S_s(1/m) =$  | 1.5E-06  | $S_s(1/m) =$   | NA   |  |  |
|  |  | C (m³/Pa) =   | NA   | C (m <sup>3</sup> /Pa) =   | NA   |  |  |
| 0.01 0   |  | $C_D(-) =$  | NA   | $C_{D}(-) =$   | NA   |  |  |
|  |  | η(-) =  | NA   | η(-) =   | NA   |  |  |
| 0.001  | 10 100                                   | 2   |  | 2  |  |  |  |
| Elap   | osed time (hrs)                          | $T_{GRF}(m^2/s) =$  |  | $T_{GRF}(m^2/s) =$   | NA   |  |  |
|  |  | $S_{GRF}(-) =$  |  | $S_{GRF}(-) =$   |  |  |  |
| Log log plot incl. dorivatives                 | recovery period                          |   |  |  | איון   |  |  |
| Log-Log plot mol. derivatives-                 |  | dt (min) -  | 1034 Q   | $C (m^{3/D_{c}})$  | NA   |  |  |
|  |  | $dt_{2}$ (min) =  | 2747 4   | $C_{\rm D}(m/ra) = C_{\rm D}(-) = -$   | NA   |  |  |
|  |  | $T_{12}(m^{2}/c)$   | 1 3E-04  | n(-) = -   | NA   |  |  |
|  |  | $S_{T}(11/S) =$   | 9.3E-05  | ·(-) =   |  |  |  |
|  |  | $K_{a}(m/s) =$  | 2.2E-06  |  |  |  |  |
|  |  | $S_{a}(1/m) =$  | 1.5E-06  |  |  |  |  |
| Noton  | Jycoblo                                  | Comments:   |  |  |  |  |  |
|  | иузами                                   | The recommended<br>the analysis of the C<br>transmissivity is est<br>flow dimension dur<br>transducer depth wa<br>to a missing respon | transmissivity of<br>CRw phase. The<br>iimated to be 4.0<br>iing the test is 2.<br>as not possible to<br>se after pump sto | f 1.3•10-4 m2/s was<br>confidence range fo<br>•10-5 m²/s to 4.0•10<br>A static pressure m<br>o derive from the Cl<br>op. | derived from<br>or the borehole<br>0-4 m <sup>2</sup> /s. The<br>easured at<br>Rwr phase due |  |  |

| Test Summary Sheet   |  |                                    |                    |  |                                 |  |  |
|--|--|------------------------------------|--------------------|--|---------------------------------|--|--|
| Project:   | Oskarshamn site investigation            | Test type:[1]                      |                    | Ot   | CRwr<br>servation hole          |  |  |
| Area:  | Laxemar                                  | Test no:                           |                    |  |                                 |  |  |
| Borehole ID:   | HLX37_1<br>(KLX27A 210.00-247.00 pumped) | Test start:                        | 071010             |  | 071010 00:00                    |  |  |
| Test section from - to (m):  | 150.00-200.00                            | Responsible for<br>test execution: |                    |  | Stephan Rohs                    |  |  |
| Distance (m):  | 546.00                                   | Responsible for test evaluation:   |                    | Crist  | ian Enachescu                   |  |  |
| Linear plot Q and p  |  | Flow period                        |                    | Recovery period  |                                 |  |  |
|  |  | Indata                             |                    | Indata   |                                 |  |  |
| Dumostart  | Dimoton                                  | n. (kPa) –                         |                    | indutu   |                                 |  |  |
| 2000   | 1 133                                    | $p_0 (k P \alpha) =$               |                    |  |                                 |  |  |
| 1900   |  | р <sub>і</sub> (кра) =             |                    | <b>4 D</b>   |                                 |  |  |
|  | 132                                      | p <sub>p</sub> (kPa) =             |                    | р <sub>ғ</sub> (кРа ) =  |                                 |  |  |
|  | al KPP                                   | $Q_{p} (m^{3}/s) =$                | 6.60E-05           |  |                                 |  |  |
|  | 131 E                                    | tp (s) =                           | 230400             | t <sub>F</sub> (s) =   | 176400                          |  |  |
| C the second sec | servati                                  | S el S <sup>*</sup> (-)=           |                    | S el S <sup>*</sup> (-)=   |                                 |  |  |
|  |  | EC <sub>w</sub> (mS/m)=            |                    |  |                                 |  |  |
| <b>د</b> 1500  | Less n                                   | Temp(ar C)=                        |                    |  |                                 |  |  |
|  | 129                                      | Derivative fact -                  | NA                 | Derivative fact -  | NA                              |  |  |
| 1400   | KL327A                                   | Derivative lact                    | INA                | Derivative lact  | INA .                           |  |  |
| 1300   | HLX3/_1<br>128                           |                                    |                    |  |                                 |  |  |
| 18:10/2007 19:10/2007 20:10/2007   | 21.10.2007 22.10.2007 23.10.2007         |                                    |                    |  |                                 |  |  |
|  |  | Results                            |                    | Results  |                                 |  |  |
|  |  | Q/s $(m^{2}/s) =$                  | NA                 |  |                                 |  |  |
| Log-Log plot incl. derivates- fl   | low period                               | $T_{M} (m^{2}/s) =$                | NA                 |  |                                 |  |  |
|  |  | Flow regime:                       | transient          | Flow regime:   | transient                       |  |  |
| Log-Log Match  | h - Flow Period 2                        | dt <sub>4</sub> (min) =            | 1708.8             | dt₄(min) =   | NA                              |  |  |
| 10   |  | $dt_1$ (min) =                     | 3020.2             | $dt_1$ (min) = $dt_2$ (min) =  | NA                              |  |  |
|  |  | $dt_2(mn) =$                       | 1 1E 04            | $\frac{d}{d} \frac{2}{d} \frac{d}{d}                                 |  |  |
| Ĩ  |  | I (m <sup>-</sup> /s) =            | 1.1E-04            | I (m <sup>-</sup> /s) =  |                                 |  |  |
| (R-1)  | ~~~                                      | S(-) =                             | 1.4E-05            | 5(-) =   | NA                              |  |  |
| Derivati   |  | $K_s (m/s) =$                      | 2.1E-06            | K <sub>s</sub> (m/s) =   | NA                              |  |  |
|  |  | $S_{s}(1/m) =$                     | 2.8E-07            | S <sub>s</sub> (1/m) =   | NA                              |  |  |
|  |  | C (m <sup>3</sup> /Pa) =           | NA                 | C (m <sup>3</sup> /Pa) =   | NA                              |  |  |
|  |  | C <sub>D</sub> (-) =               | NA                 | C <sub>D</sub> (-) =   | NA                              |  |  |
|  | 4 <u>6</u> ▲                             | ÷(-) =                             | NA                 | ÷ (-) =  | NA                              |  |  |
|  | <u>م</u>                                 | .,                                 |                    |  |                                 |  |  |
| 0.01 0.1 Else  | psed time (hrs)                          | $T_{1}$ (m <sup>2</sup> /c) -      | NA                 | $T_{1}$ (m <sup>2</sup> /c) -  | NA                              |  |  |
|  |  | $S_{OPF}(-) =$                     | NA                 | $S_{OPF}(-) =$   | NA                              |  |  |
|  |  | $\nabla_{GKF}() =$                 | NA                 | $\nabla_{GKF}() =$   |                                 |  |  |
| lan lan plating derivation   |  | $\square_{GRF}(-) =$               |                    | ⊂GRF (") =   |                                 |  |  |
| Log-Log plot Incl. derivatives-  | recovery period                          | Selected represe                   | intative paran     | ieters.  |                                 |  |  |
|  |  | $at_1 (min) =$                     | 1708.8             | C (m <sup>°</sup> /Pa) =   | NA                              |  |  |
|  |  | $dt_2$ (min) =                     | 3029.2             | $C_D(-) =$   | NA                              |  |  |
|  |  | $T_{T} (m^{2}/s) =$                | 1.1E-04            | ÷ (-) =  | NA                              |  |  |
|  |  | S (-) =                            | 1.4E-05            |  |                                 |  |  |
|  |  | $K_s (m/s) =$                      | 2.1E-06            |  |                                 |  |  |
|  |  | $S_{s}(1/m) =$                     | 2.8E-07            |  |                                 |  |  |
| Noton  | alveahla                                 | Comments:                          |                    |  | •                               |  |  |
|  | arysable                                 | The recommended                    | ranemiesivity      | F 1 1.10-4 m2/e was  | derived from                    |  |  |
|  |  | the analysis of the C              | CRw phase. The     | confidence range fo  | r the borehole                  |  |  |
|  |  | transmissivity is est              | imated to be 3.0   | •10-5 m <sup>2</sup> /s to 3.0•10  | $-4 \text{ m}^2/\text{s}$ . The |  |  |
|  |  | flow dimension dur                 | ing the test is 2. | A static pressure me   | easured at                      |  |  |
|  |  | transducer depth wa                | is not possible to | o derive from the CH   | Rwr phase due                   |  |  |
|  |  | to a missing respon                | se after pump st   | op.  |                                 |  |  |
|  |  |                                    |                    |  |                                 |  |  |

| Test Summary Sheet                       |  |   |  |   |   |  |
|--|--|---|--|---|---|--|
| Project:                                 | Oskarshamn site investigation  | Test type:[1]   |  | Ot  | CRwr<br>oservation hole   |  |
| Area:                                    | Laxemar  | Test no:  |  |   | 1   |  |
| Borehole ID:                             | HLX37_2<br>(KLX27A 210.00-247.00 pumped)   | Test start:   |  |   | 071010 00:00  |  |
| Test section from - to (m):              | 111.00-149.00  | Responsible for test execution:   |  |   | Stephan Rohs  |  |
| Distance (m):                            | 566.00   | Responsible for test evaluation:  |  | Crist   | ian Enachescu   |  |
| Linear plot Q and p                      |  | Flow period   |  | Recovery period   |   |  |
|  |  | Indata  |  | Indata  | ************  |  |
| Pumpstart                                | Pumpstop   | p₀ (kPa) =  |  |   |   |  |
|  |  | p <sub>i</sub> (kPa ) =   |  |   |   |  |
| 1900                                     | - 547  | $p_{p}(kPa) =$  |  | p <sub>F</sub> (kPa ) =   |   |  |
| ₩ 1800                                   |  | $\Omega_{1}$ (m <sup>3</sup> /s)-   | 6.60E-05   |   |   |  |
|  | - 146 c  | $d_{\beta}(m, \sigma)^{\perp}$<br>tp (s) =  | 230400   | t₌ (s) =  | 176400  |  |
| N 200                                    | evatio   | S el S <sup>*</sup> (_)-  |  | S el S <sup>*</sup> (-)-  |   |  |
|  |  | 5 er 5 (-)=<br>FC (mS/m)=   |  | 5 el 5 (-)-   |   |  |
| VS2 1500                                 | essuria de la companya de la compa | Temp (ar C)-  |  |   |   |  |
|  | - 544  | Derivative fact -   | ΝA   | Derivative fact –   | NA  |  |
| 5400                                     |  | Denvalive laci  | INA  | Derivative lact   | nA .  |  |
| 1300<br>18.10.2007 19.10.2007 20.10.2007 | 21.10.2007 22.10.2007 23.10.2007   |   |  |   |   |  |
| D  | ate  | D Ka  |  | D Ka  |   |  |
|  |  | Results   | N 1 A  | Results   |   |  |
|  |  | Q/s (m²/s)=   | NA   |   |   |  |
| Log-Log plot incl. derivates- f          | ow period  | $T_M (m^2/s) =$   | NA   |   |   |  |
|  |  | Flow regime:  | transient  | Flow regime:  | transient   |  |
| Log-Log Match                            | h - Flow Period 2  | $dt_1 (min) =$  | 1727.9   | $dt_1 (min) =$  | NA  |  |
| 10                                       |  | $dt_2$ (min) =  | 2978.2   | $dt_2$ (min) =  | NA  |  |
|  |  | T (m²/s) =  | 1.1E-04  | T (m²/s) =  | NA  |  |
| 1  |  | S (-) =   | 1.4E-05  | S (-) =   | NA  |  |
| (d) avia                                 |  | $K_s (m/s) =$   | 2.9E-06  | $K_s (m/s) =$   | NA  |  |
|  |  | $S_{s}(1/m) =$  | 3.6E-07  | $S_{s}(1/m) =$  | NA  |  |
|  |  | C (m³/Pa) =   | NA   | C (m <sup>3</sup> /Pa) =  | NA  |  |
|  | 1 A1   | C <sub>D</sub> (-) =  | NA   | C <sub>D</sub> (-) =  | NA  |  |
| 0.01                                     | ۵  | ◊ (-) =   | NA   | ◊ (-) =   | NA  |  |
|  |  |   |  |   |   |  |
|  | 10 100   | $T_{GRF}(m^2/s) =$  | NA   | $T_{GRF}(m^2/s) =$  | NA  |  |
| Ela                                      | pana unu (na)  | $S_{GRF}(-) =$  | NA   | $S_{GRF}(-) =$  | NA  |  |
|  |  | $D_{GRF}(-) =$  | NA   | $D_{GRF}(-) =$  | NA  |  |
| Log-Log plot incl. derivatives-          | recovery period  | Selected represe  | ntative paran  | neters.   |   |  |
|  |  | dt <sub>1</sub> (min) =   | 1727.9   | C (m <sup>3</sup> /Pa) =  | NA  |  |
|  |  | $dt_2$ (min) =  | 2978.2   | $C_{\rm D}(-) =$  | NA  |  |
|  |  | $T_{\tau}(m^2/s) =$   | 1.1E-04  | ◊ (-) =   | NA  |  |
|  |  | S(-) =  | 1.4E-05  | ()  |   |  |
| Not analysable                           |  | $K_{a}(m/s) =$  | 2.9E-06  |   |   |  |
|  |  | $S_{1}(1/m) =$  | 3.6E-07  |   |   |  |
|  |  | Commente:   | 5.02 07  |   | 1   |  |
|  |  | The recommended<br>the analysis of the C<br>transmissivity is est<br>flow dimension dur<br>transducer depth wa<br>to a missing respon | transmissivity of<br>CRw phase. The<br>imated to be 3.0<br>ing the test is 2.<br>as not possible to<br>se after pump sto | f 1.1•10-4 m2/s was<br>confidence range fo<br>•10-5 m²/s to 3.0•10<br>A static pressure mo<br>o derive from the CF<br>op. | derived from<br>or the borehole<br>0-4 m²/s. The<br>easured at<br>Rwr phase due |  |

| Test Summary Sheet                    |   |   |                                |                                    |                         |  |
|---------------------------------------|---|---|--------------------------------|------------------------------------|-------------------------|--|
| Project:                              | Oskarshamn site investigation             | Test type:[1]                             |                                | Ot                                 | CRwr<br>oservation hole |  |
| Area:                                 | Laxemar                                   | Test no:                                  |                                |                                    | 1                       |  |
| Borehole ID:                          | KLX19A_3<br>(KLX27A 210.00-247.00 pumped) | Test start:                               |                                |                                    | 071010 00:00            |  |
| Test section from - to (m):           | 509.00-517.00                             | Responsible for test execution:           |                                |                                    | Stephan Rohs            |  |
| Distance (m):                         | 307.00                                    | Responsible for test evaluation:          |                                | Crist                              | ian Enachescu           |  |
| Linear plot Q and p                   | •   | Flow period                               |                                | Recovery period                    |                         |  |
|                                       |   | Indata                                    |                                | Indata                             | <u></u>                 |  |
| Pumpstart                             | Pumpstop                                  | p₀ (kPa) =                                |                                |                                    |                         |  |
|                                       |   | p <sub>i</sub> (kPa ) =                   |                                |                                    |                         |  |
| 1900                                  | _   | p <sub>p</sub> (kPa) =                    |                                | p <sub>F</sub> (kPa ) =            |                         |  |
|                                       |   | $Q_{2} (m^{3}/s) =$                       | 6.60E-05                       |                                    | l                       |  |
|                                       | tio                                       | $\frac{dp(m/d)}{dp(s)} =$                 | 230400                         | t <sub>F</sub> (s) =               | 176400                  |  |
| a autivities                          | pserva                                    | S el S <sup>*</sup> (-)=                  |                                | S el S <sup>*</sup> (-)=           |                         |  |
|                                       | O Para                                    | $EC_w (mS/m) =$                           |                                |                                    | ł                       |  |
| ā 1500                                | Pres                                      | Temp <sub>w</sub> (qr C)=                 |                                |                                    | 1                       |  |
| 1400 <b>1</b>                         | KL227A                                    | Derivative fact.=                         | NA                             | Derivative fact.=                  | NA                      |  |
| 1300 18.10.2007 19.10.2007 20.10.2007 | 21.0.2007 22.10.2007 23.10.2007           |   |                                |                                    |                         |  |
|                                       | ate                                       | Posulte                                   |                                | Poculto                            |                         |  |
|                                       |   |   | ΝΑ                             | Results                            | 1                       |  |
| Log Log plot incl. derivatos, f       | low poriod                                | $Q/s (m^{-}/s) =$                         |                                |                                    |                         |  |
| Log-Log plot incl. derivates- i       |   | I <sub>M</sub> (m <sup>-</sup> /s)=       | NA<br>transient                | Flow regime:                       | transiant               |  |
| 1                                     | h Free Devied 2                           | riow regime.                              |                                | Flow legime.                       |                         |  |
| 10p                                   |   | $dl_1 (min) =$                            | 1009.9                         | $dl_1 (min) =$                     | 2003                    |  |
|                                       |   | $dl_2 (min) =$                            | 3339.9                         | $dl_2$ (mm) =                      | 4087                    |  |
| -                                     |   | I (m <sup>-</sup> /s) =                   | 1.6E-03                        | I (m <sup>-</sup> /s) =            | 1.3E-05                 |  |
|                                       | Charlestone and Charlestone               | S (-) =                                   | 9.0E-06                        | S (-) =                            | 9.5E-06                 |  |
|                                       | × _                                       | $\kappa_{s}$ (m/s) =                      | 1.9E-06                        | $K_s (m/s) =$                      | 1.7E-06                 |  |
|                                       |   | $S_{s}(1/m) =$                            | 1.1E-06                        | $S_{s}(1/m) =$                     | 1.2E-06                 |  |
| e Chi                                 |   | C (m°/Pa) =                               |                                | C (m°/Pa) =                        | NA                      |  |
| 0.075 °                               | <u>م</u>                                  | $C_{\rm D}(-) =$                          | NA                             | $C_{\rm D}(-) =$                   | NA                      |  |
| • //                                  |   | ) (-) =                                   | NA                             | ) (-) =                            | NA                      |  |
| 0.001                                 | 10 100                                    | $T_{CBE}(m^2/s) =$                        | NA                             | $T_{CRF}(m^2/s) =$                 | NA                      |  |
| E                                     | apsed time (hrs)                          | $S_{GRF}(-) =$                            | NA                             | $S_{GRF}(-) =$                     | NA                      |  |
|                                       |   | $D_{GRF}(-) =$                            | NA                             | $D_{GRF}(-) =$                     | NA                      |  |
| Log-Log plot incl. derivatives        | - recovery period                         | Selected represe                          | ntative paran                  | neters.                            |                         |  |
|                                       |   | dt <sub>1</sub> (min) =                   | NA                             | C (m <sup>3</sup> /Pa) =           | NA                      |  |
| Log-Log Mate                          | ch - Flow Period 3                        | $dt_2$ (min) =                            | NA                             | $C_{D}(-) =$                       | NA                      |  |
| 100                                   | ۵   | $T_{T}(m^{2}/s) =$                        | 1.6E-05                        | ノ(-) =                             | NA                      |  |
|                                       | \$<br>*                                   | S (-) =                                   | 9.0E-06                        |                                    |                         |  |
| 10                                    |   | $K_s (m/s) =$                             | 1.9E-06                        |                                    |                         |  |
| y any o (kg                           |   | $S_{s}(1/m) =$                            | 1.1E-06                        |                                    | l                       |  |
|                                       |   | Comments:                                 | 8                              |                                    |                         |  |
|                                       | ▲<br>▲                                    | The recommended                           | transmissivity of              | f 1.6•10-5 m2/s was                | derived from            |  |
| Level Level                           | ,   | the analysis of the C                     | CRw phase, which               | ch shows the best da               | ta and                  |  |
| 0.01                                  |   | derivative quality.                       | The confidence i               | ange for the boreho                | le transmissivity       |  |
|                                       |   | is estimated to be 8 during the test is 2 | .U•1U-6 m <sup>2</sup> /s to 3 | 5.0•10-5 m <sup>2</sup> /s. The fl | ow dimension            |  |
|                                       | 10 100 100 100                            | not possible to deriv                     | ve from the CRv                | vr phase due to poor               | data quality.           |  |
|                                       |   | 1   |                                |                                    | 1                       |  |
|                                       |   |   |                                |                                    |                         |  |

|   | Test Summ  | nary Sheet                                |                                |   |                         |
|---|--|---|--------------------------------|---|-------------------------|
| Project:  | Oskarshamn site investigation  | Test type:[1]                             |                                | OI  | CRwr<br>oservation hole |
| Area:   | Laxemar  | Test no:                                  |                                |   | 1                       |
| Borehole ID:  | KLX19A_4<br>(KLX27A 210.00-247.00 pumped)  | Test start:                               |                                |   | 071010 00:00            |
| Test section from - to (m):   | 481.5.00-508.00  | Responsible for test execution:           |                                |   | Stephan Rohs            |
| Distance (m):   | 290.00   | Responsible for test evaluation:          |                                | Crist   | ian Enachescu           |
| Linear plot Q and p   | •  | Flow period                               |                                | Recovery period                                 |                         |
|   |  | Indata                                    |                                | Indata  |                         |
| Pumpstart   | Pumpstop   | p <sub>0</sub> (kPa) =                    |                                |   |                         |
|   |  | p <sub>i</sub> (kPa ) =                   |                                |   |                         |
|   |  | p <sub>p</sub> (kPa) =                    |                                | p <sub>F</sub> (kPa ) =                         |                         |
|   | 120 3  | Q <sub>p</sub> (m <sup>3</sup> /s)=       | 6.60E-05                       |   |                         |
|   | tion a second se | tp (s) =                                  | 230400                         | t <sub>F</sub> (s) =                            | 176400                  |
|   |  | S el S <sup>*</sup> (-)=                  |                                | S el S <sup>*</sup> (-)=                        |                         |
|   | 115 98   | EC <sub>w</sub> (mS/m)=                   |                                |   |                         |
| 1500  |  | Temp <sub>w</sub> (gr C)=                 |                                |   |                         |
| 1400  | KLIQ7A   | Derivative fact.=                         | NA                             | Derivative fact.=                               | NA                      |
| 1300 1007 10.007 20.002007  | **************************************   |   |                                |   |                         |
| Da  | 1.0100 1.0100 1.0100   |   |                                |   |                         |
|   |  | Results                                   |                                | Results   |                         |
|   |  | Q/s $(m^{2}/s) =$                         | NA                             |   |                         |
| Log-Log plot incl. derivates- fl  | ow period  | $T_{M} (m^{2}/s) =$                       | NA                             |   |                         |
|   |  | Flow regime:                              | transient                      | Flow regime:                                    | transient               |
| Log-Log Match   | - Flow Period 2  | dt <sub>1</sub> (min) =                   | 1727.9                         | dt <sub>1</sub> (min) =                         | 990.9                   |
| 10  |  | dt <sub>2</sub> (min) =                   | 3507.0                         | $dt_2$ (min) =                                  | 3401.9                  |
|   |  | $T(m^{2}/s) =$                            | 1.5E-05                        | T (m²/s) =                                      | 1.3E-05                 |
| کمر<br>1  | A Same and a same and a same a same a same a same a same a same a same a same a same a same a same a same a sa   | S (-) =                                   | 1.1E-05                        | S (-) =   | 9.0E-06                 |
|   |  | $K_s (m/s) =$                             | 5.8E-07                        | K <sub>s</sub> (m/s) =                          | 4.8E-07                 |
|   |  | $S_{s}(1/m) =$                            | 4.0E-07                        | S <sub>s</sub> (1/m) =                          | 3.4E-07                 |
| erro Char   |  | C (m <sup>3</sup> /Pa) =                  | NA                             | C (m <sup>3</sup> /Pa) =                        | NA                      |
| 0.01  |  | $C_{D}(-) =$                              | NA                             | $C_{D}(-) =$                                    | NA                      |
|   |  | ((-) =                                    | NA                             | ((-) =  | NA                      |
|   |  |   |                                |   |                         |
| 0.1 1<br>Elag   | 10 100<br>osed time (hrs)  | $T_{GPE}(m^2/s) =$                        | NA                             | $T_{GPE}(m^2/s) =$                              | NA                      |
|   |  | $S_{GRF}(-) =$                            | NA                             | $S_{GRF}(-) =$                                  | NA                      |
|   |  | $D_{GRF}(-) =$                            | NA                             | $D_{GRF}(-) =$                                  | NA                      |
| Log-Log plot incl. derivatives-   | recovery period  | Selected represe                          | entative paran                 | neters.   |                         |
|   |  | dt <sub>1</sub> (min) =                   | 1727.9                         | C (m <sup>3</sup> /Pa) =                        | NA                      |
| Log-Log Match   | n - Flow Period 3  | dt <sub>2</sub> (min) =                   | 3507.0                         | $C_{D}(-) =$                                    | NA                      |
|   | 4.   | T <sub>⊤</sub> (m²/s) =                   | 1.5E-05                        | ((-) =  | NA                      |
| 10  |  | S (-) =                                   | 1.1E-05                        |   |                         |
| (e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g)<br>(e-g) |  | $K_s (m/s) =$                             | 5.8E-07                        |   |                         |
|   |  | S <sub>s</sub> (1/m) =                    | 4.0E-07                        |   |                         |
|   | •  | Comments:                                 |                                |   | .1                      |
|   |  | The recommended                           | transmissivity of              | f 1.5•10-5 m2/s was                             | derived from            |
|   |  | the analysis of the G                     | CRw phase, which               | ch shows the best da                            | ta and                  |
| 0.001   |  | derivative quality.                       | The confidence                 | ange for the boreho                             | le transmissivity       |
| 0.0001  | 10 100   | is estimated to be 8 during the test is 2 | .0•10-6 m <sup>2</sup> /s to 3 | $3.0 \bullet 10-5 \text{ m}^2/\text{s}$ . The f | low dimension           |
| E   | apsed time (hrs)   | not possible to deri                      | A static pressur               | vr phase due to poor                            | data quality.           |
|   |  | possible to dell                          | - nom the erty                 | Phase due to poor                               | quanty.                 |
|   |  |   |                                |   |                         |

|   | Test Summary Sheet   |   |                                |  |                         |  |  |
|---|--|---|--------------------------------|--|-------------------------|--|--|
| Project:                                | Oskarshamn site investigation  | Test type:[1]                               |                                | Ot   | CRwr<br>oservation hole |  |  |
| Area:                                   | Laxemar  | Test no:                                    |                                |  | 1                       |  |  |
| Borehole ID:                            | KLX19A_5<br>(KLX27A 210.00-247.00 pumped)  | Test start:                                 |                                |  | 071010 00:00            |  |  |
| Test section from - to (m):             | 311.00-480.50  | Responsible for                             |                                | Stephan Roh                                    |                         |  |  |
| Distance (m):                           | 261.00   | test execution:<br>Responsible for          |                                | Crist  | ian Enachescu           |  |  |
|   |  | test evaluation:                            |                                |  |                         |  |  |
| Linear plot Q and p                     |  | Flow period                                 |                                | Recovery period                                |                         |  |  |
| Pumostart                               | Pumostop   | Indata                                      | 1                              | Indata   |                         |  |  |
| 2000                                    | 125  | $p_0 (kPa) =$                               |                                |  | <u> </u>                |  |  |
| 1900                                    |  | p <sub>i</sub> (kPa) =                      |                                | n (kDa) -                                      | ┣─────┤                 |  |  |
|   |  | $p_{p}(\mathbf{K}\mathbf{F}\mathbf{a}) = 0$ | 6 60E-05                       | ρ <sub>F</sub> (κμα ) =                        |                         |  |  |
|   | ion we   | $Q_p (M/S) =$                               | 230400                         | t <sub>r</sub> (s) -                           | 176400                  |  |  |
| a A ctitve                              | pserval  | () =<br>S el S <sup>*</sup> (-)-            | 200100                         | ⊊ (C) =<br>S el S <sup>*</sup> (-)=            | 170.000                 |  |  |
|   | o auns:  | $EC_w (mS/m) =$                             |                                |  | ┢────┤                  |  |  |
| <b>0.</b> 1500                          | Pres   | Temp <sub>w</sub> (gr C)=                   |                                |  | ╂────┤                  |  |  |
| 1400 1400 1400 1400 1400 1400 1400 1400 |  | Derivative fact.=                           | NA                             | Derivative fact.=                              | NA                      |  |  |
| 1300 13.00 10.0007 20.00.2007           | 21.10.2007 22.10.2007 23.10.2007   |   |                                |  |                         |  |  |
| Da                                      | ite  |   |                                |  |                         |  |  |
|   |  | Results                                     |                                | Results  |                         |  |  |
|   |  | Q/s (m <sup>2</sup> /s)=                    | NA                             |  |                         |  |  |
| Log-Log plot incl. derivates- fl        | ow period  | T <sub>M</sub> (m²/s)=                      | NA                             |  |                         |  |  |
|   |  | Flow regime:                                | transient                      | Flow regime:                                   | transient               |  |  |
| Log-Log Match                           | n - Flow Period 2  | dt <sub>1</sub> (min) =                     | 1198.1                         | dt <sub>1</sub> (min) =                        | 2639.4                  |  |  |
|   |  | $dt_2$ (min) =                              | 3422.4                         | $dt_2 (min) =$                                 | 4383.2                  |  |  |
|   | · ·  | $T(m^2/s) =$                                | 1.5E-05                        | $T(m^{2}/s) =$                                 | 1.6E-05                 |  |  |
|   | And the second second second second second second second second second second second second second second second | S(-) =                                      | 1.3E-05                        | S(-) =   | 1.4E-05                 |  |  |
|   | 7  | $K_s (m/s) =$                               | 9.1E-08                        | $K_s (m/s) =$                                  | 9.3E-08                 |  |  |
|   |  | $S_{s}(1/m) =$                              | 7.6E-08                        | $S_{s}(1/m) =$                                 | 8.0E-08                 |  |  |
|   |  | $C(m^{2}/Pa) =$                             | NA                             | $C(m^{2}/Pa) =$                                |                         |  |  |
| 0.01                                    |  |   |                                |  |                         |  |  |
|   |  |   |                                | - (-)  |                         |  |  |
| 0.001                                   | 10 100   | $T_{1}$ (m <sup>2</sup> /s) -               | NA                             | $T_{1}$ (m <sup>2</sup> /s) -                  | NA                      |  |  |
| Eq                                      | psed time (nrs)  | $S_{GRF}(-) =$                              | NA                             | $S_{GRF}(-) =$                                 | NA                      |  |  |
|   |  | $D_{GRF}(-) =$                              | NA                             | $D_{GRF}(-) =$                                 | NA                      |  |  |
| Log-Log plot incl. derivatives-         | recovery period  | Selected represe                            | entative param                 | neters.  |                         |  |  |
|   |  | dt <sub>1</sub> (min) =                     | 1198.1                         | C (m <sup>3</sup> /Pa) =                       | NA                      |  |  |
| 100                                     | n - Flow Penod 3   | dt <sub>2</sub> (min) =                     | 3422.4                         | C <sub>D</sub> (-) =                           | NA                      |  |  |
|   | *  | $T_{T} (m^{2}/s) =$                         | 1.5E-05                        | /(-) =   | NA                      |  |  |
| 10;                                     | **************************************   | S (-) =                                     | 1.3E-05                        |  |                         |  |  |
| ali ve (k.P.a)                          | CONTRACTOR OF  | $K_s (m/s) =$                               | 9.1E-08                        |  |                         |  |  |
| - Der t                                 |  | $S_s(1/m) =$                                | 7.6E-08                        |  |                         |  |  |
|   | A A A A A A A A A A A A A A A A A A A  | Comments:                                   |                                |  |                         |  |  |
|   | <u>۵</u>   | The recommended<br>the analysis of the (    | ransmissivity of               | 1.5•10-5 m2/s was<br>the best da               | derived from ta and     |  |  |
|   | ۵.   | derivative quality.                         | The confidence r               | ange for the boreho                            | le transmissivity       |  |  |
|   | Δ  | is estimated to be 8                        | .0•10-6 m <sup>2</sup> /s to 3 | $3.0 \cdot 10-5 \text{ m}^2/\text{s}$ . The fl | ow dimension            |  |  |
| 0.1 1 Elay                              | 10 100 100 100   | during the test is 2.                       | A static pressure              | e measured at transd                           | ucer depth was          |  |  |
|   |  | not possible to deri                        | ve nom me CKV                  | ri phase due to poor                           | uata quanty.            |  |  |
|   |  |   |                                |  |                         |  |  |

| Test Summary Sheet  |  |  |                                     |  |                             |  |
|---|--|--|-------------------------------------|--|-----------------------------|--|
| Project:  | Oskarshamn site investigation  | Test type:[1]                          |                                     | Ot   | CRwr<br>servation hole      |  |
| Area:   | Laxemar  | Test no:                               |                                     |  | 1                           |  |
| Borehole ID:  | KLX19A_6<br>(KLX27A 210.00-247.00 pumped)  | Test start:                            |                                     |  | 071010 00:00                |  |
| Test section from - to (m):   | 291.00-310.00  | Responsible for                        |                                     |  | Stephan Rohs                |  |
| Distance (m):   | 224.00   | Responsible for                        |                                     | Crist  | ian Enachescu               |  |
| Linear plot Q and p   |  | test evaluation:                       |                                     | Recovery period                                |                             |  |
|   |  | Indata                                 |                                     | Indata   |                             |  |
| Pumpstart   | Pumpstop   | nadita<br>p₀ (kPa) =                   |                                     | indutu   |                             |  |
| 2000  |  | p₀ (kPa) =                             |                                     |  |                             |  |
| 300   | 123  | $p_{\rm p}({\rm kPa}) =$               |                                     | p <sub>⊏</sub> (kPa ) =                        |                             |  |
| R 100   | E A  | $O_{(m^{3}/s)}$                        | 6.60E-05                            | FF (*** - )                                    |                             |  |
|   | 121 E  | $\frac{d_p(m/s)}{tp(s)} =$             | 230400                              | t <sub>⊏</sub> (s) =                           | 176400                      |  |
| Celi no 1   | servati  | Sel S <sup>*</sup> (-)-                |                                     | S el S <sup>*</sup> (-)-                       |                             |  |
|   | 19 Opt   | $EC_{w} (mS/m) =$                      |                                     |  |                             |  |
| <u>د</u> <sub>1500</sub>  | Lassi  | Temp <sub>w</sub> (gr C)=              |                                     |  |                             |  |
| 5400 SHOP   | 107  | Derivative fact.=                      | NA                                  | Derivative fact.=                              | NA                          |  |
|   | KL27A<br>KLXI9A_6  |  |                                     |  |                             |  |
| 18.10.2007 19.10.2007 20.10.2007  | 21.10.2007 22.10.2007 23.10.2007   |  |                                     |  |                             |  |
|   |  | Results                                |                                     | Results  |                             |  |
|   |  | Q/s $(m^{2}/s) =$                      | NA                                  |  |                             |  |
| Log-Log plot incl. derivates- fl  | low period   | $T_{M}$ (m <sup>2</sup> /s)=           | NA                                  |  |                             |  |
|   | -  | Flow regime:                           | transient                           | Flow regime:                                   | transient                   |  |
| Log-Log Matc  | h - Flow Period 2  | dt <sub>1</sub> (min) =                | 1218.6                              | dt <sub>1</sub> (min) =                        | 1628.2                      |  |
| 10  |  | dt <sub>2</sub> (min) =                | 2978.2                              | dt <sub>2</sub> (min) =                        | 3051.0                      |  |
|   |  | T (m²/s) =                             | 4.3E-05                             | $T(m^{2}/s) =$                                 | 3.2E-05                     |  |
| a   |  | S (-) =                                | 1.8E-05                             | S (-) =  | 2.3E-05                     |  |
| d d de la de la de la de la de la de la de la de la de la de la de la de la de la de la de la de la de la de la | A STORE THE REAL PROPERTY OF T | $K_s (m/s) =$                          | 2.3E-06                             | $K_s (m/s) =$                                  | 1.7E-06                     |  |
|   | •7   | $S_{s}(1/m) =$                         | 9.4E-07                             | S <sub>s</sub> (1/m) =                         | 1.2E-06                     |  |
|   |  | C (m <sup>3</sup> /Pa) =               | NA                                  | C (m <sup>3</sup> /Pa) =                       | NA                          |  |
|   | -  | C <sub>D</sub> (-) =                   | NA                                  | C <sub>D</sub> (-) =                           | NA                          |  |
|   |  | ( (-) =                                | NA                                  | ( (-) =  | NA                          |  |
|   |  |  |                                     |  |                             |  |
| 0.01 1 Ela  | 10 100 psed time (hrs)   | T <sub>GRF</sub> (m <sup>2</sup> /s) = | NA                                  | T <sub>GRF</sub> (m <sup>2</sup> /s) =         | NA                          |  |
|   |  | S <sub>GRF</sub> (-) =                 | NA                                  | S <sub>GRF</sub> (-) =                         | NA                          |  |
|   |  | $D_{GRF}(-) =$                         | NA                                  | D <sub>GRF</sub> (-) =                         | NA                          |  |
| Log-Log plot incl. derivatives-   | recovery period  | Selected represe                       | entative paran                      | neters.  |                             |  |
|   |  | dt <sub>1</sub> (min) =                | 1218.6                              | $C (m^3/Pa) =$                                 | NA                          |  |
| Log-Log Match   | h - Flow Period 3  | $dt_2$ (min) =                         | 2978.2                              | $C_{D}(-) =$                                   | NA                          |  |
|   |  | $T_T (m^2/s) =$                        | 4.3E-05                             | ( (-) =  | NA                          |  |
|   | *  | S (-) =                                | 1.8E-05                             |  |                             |  |
| 102<br>(7)<br>(8)<br>(8)<br>(8)<br>(9)  |  | $K_s (m/s) =$                          | 2.3E-06                             |  |                             |  |
| Dertvas   | W.   | $S_{s}(1/m) =$                         | 9.4E-07                             |  |                             |  |
|   |  | Comments:                              |                                     |  |                             |  |
|   |  | The recommended                        | transmissivity of                   | 4.3•10-5 m2/s was                              | derived from                |  |
|   |  | derivative quality 7                   | Kw pnase, which<br>The confidence i | an snows the best da                           | ta anu<br>le transmissivity |  |
|   |  | is estimated to be 2                   | .0•10-5 m <sup>2</sup> /s to 9      | $0.0\bullet10-5 \text{ m}^2/\text{s}$ . The fl | ow dimension                |  |
|   | 10 100   | during the test is 2.                  | A static pressure                   | e measured at transd                           | ucer depth was              |  |
| Elaj  | vanu unin (HB)   | not possible to deriv                  | ve from the CRv                     | vr phase due to poor                           | data quality.               |  |
|   |  |  |                                     |  |                             |  |

| Test Summary Sheet   |   |  |   |   |   |  |
|--|---|--|---|---|---|--|
| Project:   | Oskarshamn site investigation             | Test type:[1]  |   | Of  | CRwr  |  |
| Area:  | Laxemar                                   | Test no:   |   |   | 1   |  |
| Borehole ID:   | KLX19A_7<br>(KLX27A 210.00-247.00 pumped) | Test start:  |   |   | 071010 00:00  |  |
| Test section from - to (m):  | 136.00-290.00                             | Responsible for  |   |   | Stephan Rohs  |  |
| Distance (m):  | 275.00                                    | Responsible for  |   | Crist   | ian Enachescu   |  |
| Linear plot Q and p  |   | test evaluation:<br>Flow period  |   | Recovery period   |   |  |
| p  |   | Indata   |   | Indata  |   |  |
| Pumpstart  | Pumpstop                                  | p <sub>0</sub> (kPa) =   |   |   |   |  |
| 2000   | 130                                       | p <sub>i</sub> (kPa ) =  |   |   |   |  |
| 1900   |   | p <sub>p</sub> (kPa) =   |   | p <sub>F</sub> (kPa ) =   |   |  |
| ₹ <sup>100</sup>   | 129 E                                     | $Q_{p} (m^{3}/s) =$  | 6.60E-05  |   |   |  |
|  | r vell                                    | tp(s) =  | 230400  | t <sub>F</sub> (s) =  | 176400  |  |
| ctive v  |   | S el S <sup>*</sup> (-)=   |   | S el S <sup>*</sup> (-)=  |   |  |
| success And a second se |   | $EC_w (mS/m) =$  |   |   |   |  |
| <b>Se</b> 1500   | n ssa<br>See 2                            | Temp <sub>w</sub> (gr C)=  |   |   |   |  |
| 100 Lunuburger   | -   | Derivative fact.=  | NA  | Derivative fact.=   | NA  |  |
|  | KLX27A<br>KLX19A_7                        |  |   |   |   |  |
| 1300<br>18.10.2007<br>19.10.2007<br>20.10.2007   | 21.10.2007 22.10.2007 23.10.2007          |  |   |   |   |  |
| L.   | are                                       | Results  |   | Results   |   |  |
|  |   | $\Omega/s$ (m <sup>2</sup> /s)-  | NA  |   |   |  |
| Log-Log plot incl. derivates- fl   | low period                                | $T_{\rm rel}$ (m <sup>2</sup> /s)-   | NA  |   |   |  |
|  |   | Flow regime:   | transient   | Flow regime:  | transient   |  |
| Log og Matri   | - Flow Pariod 2                           | dt₁ (min) =  | 1814.3  | dt₁ (min) =   | NA  |  |
| 10   |   | $dt_2$ (min) =   | 3029.2  | $dt_2$ (min) =  | NA  |  |
|  |   | $T(m^{2}/s) =$   | 9.0E-05   | $T(m^{2}/s) =$  | NA  |  |
|  | -   | S (-) =  | 6.9E-05   | S (-) =   | NA  |  |
| (Fa)   |   | $K_{a}(m/s) =$   | 5 9E-07   | $K_{a}(m/s) =$  | NA  |  |
|  |   | $S_{c}(1/m) =$   | 4.5E-07   | $S_{c}(1/m) =$  | NA  |  |
|  |   | $C (m^{3}/P_{2}) =$  | NA  | $C (m^{3}/P_{2}) =$   | NA  |  |
| O unresu   | A A A                                     | $C(\Pi / A) = C_{D}(-) =$  | NA  | $C(\Pi / I a) = C_{D}(-) =$   | NA  |  |
| a  | _   | (-) -  | NA  | ◆(-) —  | NA  |  |
| //   | •   | •() –  |   | •() –   |   |  |
| 0.001  | 10 400                                    | $T_{}(m^{2}/c) =$  | NA  | $T_{}(m^{2}/c) =$   | NA  |  |
| Elap   | psed time (hrs)                           | $S_{CRF}(-) =$   | NA  | $S_{CRF}(-) =$  | NA  |  |
|  |   | $D_{GRE}(-) =$   | NA  | $D_{GRE}(-) =$  | NA  |  |
| Log-Log plot incl. derivatives-  | recovery period                           | Selected represe   | ntative paran   | ieters.   |   |  |
| 3 . 5  | · · · · · · · · · · · · · · · · · · ·     | dt₁ (min) =  | 1814.3  | C (m <sup>3</sup> /Pa) -  | NA  |  |
|  |   | $dt_2$ (min) =   | 3029.2  | $C_{D}(-) =$  | NA  |  |
|  |   | $T_{m}(m^{2}/c) =$   | 9.0E-05   | ♦ (-) =   | NA  |  |
|  |   | S(-) =   | 6.9E-05   | •() –   |   |  |
|  |   | $K_{a}(m/s) =$   | 5.9E-07   |   |   |  |
|  |   | $S_{a}(1/m) =$   | 4.5E-07   |   |   |  |
| NT-4   | alveabla                                  | Comments.  |   |   | <u> </u>  |  |
|  | arysaute                                  | The recommended<br>the analysis of the C<br>transmissivity is est<br>flow dimension dur<br>transducer depth wa<br>to poor data quality | transmissivity of<br>CRw phase. The<br>imated to be 3.0<br>ing the test is 2.<br>as not possible to | 59.0•10-5 m2/s was<br>confidence range fo<br>•10-5 m²/s to 3.0•10<br>A static pressure mo<br>o derive from the CF | derived from<br>r the borehole<br>0-4 m <sup>2</sup> /s. The<br>easured at<br>≀ phase due |  |
|  |   |  |   |   |   |  |

| Test Summary Sheet   |  |                                  |                    |                                   |                            |  |
|--|--|----------------------------------|--------------------|-----------------------------------|----------------------------|--|
| Project:   | Oskarshamn site investigation  | Test type:[1]                    |                    | O                                 | CRwr<br>oservation hole    |  |
| Area:  | Laxemar  | Test no:                         |                    |                                   | 1                          |  |
| Borehole ID:   | KLX19A_8<br>(KLX27A 210.00-247.00 pumped)  | Test start:                      | 071010 (           |                                   | 071010 00:00               |  |
| Test section from - to (m):  | 0.00-135.00  | Responsible for test execution:  |                    |                                   | Stephan Rohs               |  |
| Distance (m):  | 303.00   | Responsible for                  |                    | Crist                             | ian Enachescu              |  |
| Linear plot Q and p  |  | Flow period                      |                    | Recovery period                   |                            |  |
| Prot 4 4.14 P  |  | Indata                           |                    | Indata                            |                            |  |
| Pumpstart  | Pumpstop   | p₀ (kPa) =                       | 1                  |                                   |                            |  |
|  |  | p; (kPa) =                       |                    |                                   |                            |  |
| 1900   |  | $p_{\rm p}(kPa) =$               |                    | p <sub>∈</sub> (kPa ) =           |                            |  |
|  |  | $O_{(m^{3}/s)}$                  | 6.60E-05           |                                   |                            |  |
|  | en la construction de la constru | $\frac{d_p(m/s)}{tp(s)} =$       | 230400             | t₌ (s) =                          | 176400                     |  |
| Active   | second in the second se | Sel S <sup>*</sup> (-)-          |                    | S el S <sup>*</sup> (-)-          |                            |  |
| 9 *800   |  | EC <sub>w</sub> (mS/m)=          |                    | 0 0 0 ( )-                        |                            |  |
| <b>č</b> 1500  | 127 6  | Temp <sub>w</sub> (ar C)=        |                    |                                   |                            |  |
| 5400 <b></b>   | VI 177A  | Derivative fact.=                | NA                 | Derivative fact.=                 | NA                         |  |
| 1300   | KLX9A.8  |                                  |                    |                                   |                            |  |
| 18.10.2007 19.10.2007 20.10.2007 D   | 21.10.2007 22.10.2007 23.10.2007<br>Date   |                                  |                    |                                   |                            |  |
|  |  | Results                          |                    | Results                           |                            |  |
|  |  | $\Omega/s$ (m <sup>2</sup> /s)=  | NA                 |                                   |                            |  |
| Log-Log plot incl. derivates- fl   | low period   | $T_{\rm M}$ (m <sup>2</sup> /s)= | NA                 |                                   |                            |  |
|  | •  | Flow regime:                     | transient          | Flow regime:                      | transient                  |  |
| Log-Log Match  | h - Flow Period 2  | $dt_1$ (min) =                   | NA                 | $dt_1$ (min) =                    | NA                         |  |
|  |  | $dt_2$ (min) =                   | NA                 | $dt_2$ (min) =                    | NA                         |  |
|  |  | $T(m^{2}/s) =$                   | 1.2E-04            | $T(m^{2}/s) =$                    | NA                         |  |
| 1<br>(e-a)   | in the second second second second second second second second second second second second second second second  | S (-) =                          | 4.0E-05            | S (-) =                           | NA                         |  |
| Determine the second se |  | $K_s (m/s) =$                    | 8.7E-07            | $K_s (m/s) =$                     | NA                         |  |
|  |  | $S_{s}(1/m) =$                   | 3.0E-07            | $S_{s}(1/m) =$                    | NA                         |  |
|  | ž<br>A   | $C (m^3/Pa) =$                   | NA                 | C (m <sup>3</sup> /Pa) =          | NA                         |  |
| a.<br>0.01   |  | $C_{D}(-) =$                     | NA                 | $C_{D}(-) =$                      | NA                         |  |
|  |  | /(-) =                           | NA                 | /(-) =                            | NA                         |  |
| 0.001  | 10 100   |                                  |                    |                                   |                            |  |
| Ela  | apsed time (hrs)   | $T_{GPE}(m^2/s) =$               | NA                 | $T_{GPE}(m^2/s) =$                | NA                         |  |
|  |  | $S_{GRF}(-) =$                   | NA                 | $S_{GRF}(-) =$                    | NA                         |  |
|  |  | $D_{GRF}(-) =$                   | NA                 | D <sub>GRF</sub> (-) =            | NA                         |  |
| Log-Log plot incl. derivatives-  | recovery period  | Selected represe                 | entative param     | neters.                           |                            |  |
|  |  | dt <sub>1</sub> (min) =          | NA                 | C (m <sup>3</sup> /Pa) =          | NA                         |  |
|  |  | $dt_2$ (min) =                   | NA                 | C <sub>D</sub> (-) =              | NA                         |  |
|  |  | $T_{T}(m^{2}/s) =$               | 1.2E-04            | ノ(-) =                            | NA                         |  |
|  |  | S (-) =                          | 4.0E-05            |                                   |                            |  |
| Not analysable   |  | $K_s (m/s) =$                    | 8.7E-07            |                                   |                            |  |
|  |  | $S_{s}(1/m) =$                   | 3.0E-07            |                                   |                            |  |
|  |  | Comments:                        | •                  |                                   | •                          |  |
|  |  | The recommended                  | transmissivity of  | f 1.2•10-4 m2/s was               | derived from               |  |
|  |  | the analysis of the O            | CRw phase. The     | confidence range for              | or the borehole            |  |
|  |  | transmissivity is est            | timated to be 4.0  | •10-5 m <sup>2</sup> /s to 4.0•10 | )-4 m <sup>2</sup> /s. The |  |
|  |  | transducer depth w               | as not possible to | o derive from the CI              | Rwr phase due              |  |
|  |  | to poor data quality             |                    |                                   | 1                          |  |
|  |  |                                  |                    |                                   |                            |  |

|  | Test Summary Sheet                       |                |                                     |                    |                                   |                            |  |
|--|--|----------------|-------------------------------------|--------------------|-----------------------------------|----------------------------|--|
| Project:   | Oskarshamn site investig                 | gation         | Test type:[1]                       |                    | OI                                | CRwr<br>oservation hole    |  |
| Area:  | Lax                                      | emar           | Test no:                            |                    |                                   | 1                          |  |
| Borehole ID:   | KLX2<br>(KLX27A 210.00-247.00 pu         | 3A_1<br>mped)  | Test start:                         |                    |                                   | 071010 00:00               |  |
| Test section from - to (m):  | 49.00-10                                 | 00.00          | Responsible for test execution:     |                    |                                   | Stephan Rohs               |  |
| Distance (m):  | 46                                       | 62.00          | Responsible for                     |                    | Crist                             | ian Enachescu              |  |
| Linear plot Q and p  |  |                | Flow period                         |                    | Recovery period                   |                            |  |
|  |  |                | Indata                              |                    | Indata                            |                            |  |
| Pumpstant  |  | 132            | p <sub>0</sub> (kPa) =              |                    |                                   |                            |  |
| 1900   |  | 131            | p <sub>i</sub> (kPa ) =             |                    |                                   |                            |  |
|  |  | [Pa]           | p <sub>p</sub> (kPa) =              |                    | p <sub>F</sub> (kPa ) =           |                            |  |
|  | - 1                                      | well [h        | Q <sub>p</sub> (m <sup>3</sup> /s)= | 6.60E-05           |                                   |                            |  |
|  |  | ation          | tp (s) =                            | 230400             | t <sub>F</sub> (s) =              | 176400                     |  |
| 2 1000 1000 1000 1000 1000 1000 1000 10  | white him when a start when a start when | Obser          | S el S <sup>*</sup> (-)=            |                    | S el S <sup>*</sup> (-)=          |                            |  |
|  |  | 28 nre         | EC <sub>w</sub> (mS/m)=             |                    |                                   |                            |  |
|  |  | Pre            | Temp <sub>w</sub> (gr C)=           |                    |                                   |                            |  |
| 1400 <b>Constant of the providence of the providen</b> | KU27A<br>→ KU27A                         | 127            | Derivative fact.=                   | NA                 | Derivative fact.=                 | NA                         |  |
| 1300   | 21.10.2007 22.10.2007 23.10.20<br>ate    | 126<br>1007    |                                     |                    |                                   |                            |  |
|  |  |                | Results                             |                    | Results                           |                            |  |
|  |  |                | $\Omega/s (m^2/s) =$                | NA                 |                                   |                            |  |
| Log-Log plot incl. derivates- fl   | ow period                                |                | $T_{\rm rel}$ (m <sup>2</sup> /s)-  | NA                 |                                   |                            |  |
|  | F  |                | Flow regime:                        | transient          | Flow regime:                      | transient                  |  |
| Log-Log Match  | - Flow Period 2                          |                | dt₁ (min) =                         | 2000.4             | dt₁ (min) =                       | NA                         |  |
| 100  |  | 7              | $dt_2$ (min) =                      | 2884.9             | $dt_2$ (min) =                    | NA                         |  |
|  | ۵.                                       |                | $T(m^{2}/c) =$                      | 1.1E-04            | $T_{m}^{2}(m^{2}/c) =$            | NA                         |  |
| 10   | ۵  |                | S(-) =                              | 2.5E-05            | S(-) =                            | NA                         |  |
| k Paris  |  | -              | K (m/s) –                           | 2.0E 00            | C () =<br>K (m/s) =               | NA                         |  |
|  |  | -              | $S_{s}(1/m) =$                      | 2.1E 00            | $S_{s}(1/m) =$                    | ΝΔ                         |  |
|  |  |                | $O_{\rm s}(1/11) = O_{\rm s}(1/11)$ |                    | $O_{\rm s}$ (1/11) =              | NA                         |  |
| Heening Provide the Provide th       | * <u>^</u>                               |                | $C(m/Pa) = C_{-}(-) = -$            |                    | $C(m/Pa) = C_{-}(a) = -$          | NA                         |  |
| 0.01   |  |                | $\overline{()}$                     |                    | $\overline{()}$                   | NA                         |  |
| 0.001  |  |                | (-) =                               |                    | (-) =                             |                            |  |
| 0.1 1<br>Elap  | 10<br>sed time (hrs)                     | 100            | $T_{GRF}(m^2/s) =$                  | NA                 | $T_{GRF}(m^2/s) =$                | NA                         |  |
|  |  |                | $S_{GRF}(-) =$                      | NA                 | S <sub>GRF</sub> (-) =            | NA                         |  |
|  |  |                | $D_{GRF}(-) =$                      | NA                 | $D_{GRF}(-) =$                    | NA                         |  |
| Log-Log plot incl. derivatives-  | recovery period                          |                | Selected represe                    | entative paran     | neters.                           | I                          |  |
|  |  |                | dt <sub>1</sub> (min) =             | 2000.4             | C (m <sup>3</sup> /Pa) =          | NA                         |  |
|  |  |                | $dt_2$ (min) =                      | 2884.9             | $C_{D}(-) =$                      | NA                         |  |
|  |  |                | $T_{T}(m^{2}/s) =$                  | 1.1E-04            | (-) =                             | NA                         |  |
|  |  |                | S (-) =                             | 2.5E-05            | ()                                |                            |  |
| Not opplyze blo  |  |                | $K_{c}(m/s) =$                      | 2.1E-06            |                                   |                            |  |
|  |  | $S_{s}(1/m) =$ | 4.8E-07                             |                    |                                   |                            |  |
|  |  |                | Comments:                           |                    |                                   |                            |  |
| Not and  | arysable                                 |                | The recommended                     | tranemiesivity of  | F 1 1.10-1 m2/s was               | derived from               |  |
|  |  |                | the analysis of the C               | CRw phase. The     | confidence range fo               | or the borehole            |  |
|  |  |                | transmissivity is est               | imated to be 4.0   | •10-5 m <sup>2</sup> /s to 3.0•10 | 0-4 m <sup>2</sup> /s. The |  |
|  |  |                | flow dimension dur                  | ing the test is 2. | A static pressure m               | easured at                 |  |
|  |  |                | transducer depth wa                 | as not possible to | o derive from the Cl              | ≺wr phase due              |  |
|  |  |                | to poor uata quality                |                    |                                   |                            |  |
|  |  |                |                                     |                    |                                   |                            |  |

Borehole: KLX27A

# **APPENDIX 7**

SICADA data tables

(Observation boreholes)

#### KLX27A

| Page 7/2 |
|----------|
|          |

|                      |                     |                              |                  |                  |            |                       |                 |            | (Sim       | plified version v1.7 | 7)        |                   |          |            |  |  |
|----------------------|---------------------|------------------------------|------------------|------------------|------------|-----------------------|-----------------|------------|------------|----------------------|-----------|-------------------|----------|------------|--|--|
|                      |                     |                              |                  | <del>.</del>     | 4          | <b>T</b>              | • 4             |            |            |                      |           |                   |          |            |  |  |
| CKD                  |                     | SICA                         | DA/D             | ata Ir           | nport      | Temp                  | late            |            |            |                      |           |                   |          |            |  |  |
| JND                  |                     |                              |                  |                  | L          | •                     |                 |            |            |                      |           |                   |          |            |  |  |
|                      |                     |                              |                  |                  |            |                       |                 |            | SKB 8      | Ergodata AB 200      | 5         |                   |          |            |  |  |
|                      |                     |                              | ิจ               |                  | ล          | D                     |                 |            |            |                      | =         |                   |          |            |  |  |
| File Identit         | у                   |                              |                  | File Time        |            |                       | Compiled By     | 1          |            |                      | _         |                   |          |            |  |  |
| Created B            | У                   | Stephan Rohs                 |                  | Zone             |            | Quality Che           | ck For Delivery | /          |            |                      | _         |                   |          |            |  |  |
| Create               | d                   |                              | <u>l</u>         |                  | J          | De                    | livery Approva  |            |            |                      |           |                   |          |            |  |  |
|                      | 1                   |                              |                  |                  | ิล         | [ <del></del>         | -               |            |            |                      | -         |                   |          |            |  |  |
| Activity Typ         | e                   | KLX27A                       |                  |                  |            | Proje                 | ct              | AP PS      | 400-07-72  |                      |           |                   |          |            |  |  |
|                      |                     | KLX27A Interference test-obs | s.holes          |                  |            |                       |                 |            |            |                      |           |                   |          |            |  |  |
|                      |                     |                              |                  |                  | <u>1</u>   | <u> </u>              |                 |            |            |                      |           |                   |          |            |  |  |
| Activity Information |                     |                              |                  |                  |            | Additional Ac         | tivity Data     |            |            |                      |           |                   |          |            |  |  |
|                      |                     |                              |                  |                  |            | C30 C40 I160 P20 P200 |                 |            |            |                      |           | P220 R240 R25 R85 |          |            |  |  |
|                      |                     |                              |                  |                  |            | evaluating            | performing      |            | Field crew | 1200                 | evaluatin | calibratio        |          | njected    |  |  |
| ldcode               | Start Date          | Stop Date                    | Secup (m)        | Seclow (m)       | Section No | data                  | field work      | Instrument | manager    | Field crew           | g data    | n type            | Report   | borehole   |  |  |
| HLX27                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 153,00           | 165,00           | 1          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| HLX27                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 100,00           | 152,00           | 2          | 2 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| HLX27                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 99,00            |            | 3 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
|                      | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 70.00            | 90.00            |            | 2 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| HLX28                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 7,50             | 69,00            | 3          | 3 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| HLX28                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 6,50             | 4          | 4 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| HLX32                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 31,00            | 163,00           | 1          |                       |                 |            |            |                      |           |                   |          | <u> </u>   |  |  |
| HLX32<br>HLX32       | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 20,00            | 30,00            | 2          |                       |                 |            |            |                      |           |                   |          |            |  |  |
| HLX36                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 50.00            | 199.50           |            | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| HLX36                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 49,00            | 2          | 2 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| HLX37                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 150,00           | 200,00           | 1          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| HLX37                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 111,00           | 149,00           | 2          | 2 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| HLX37                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 94,00            | 110,00           | 3          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| HLX38                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 199.50           |            | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| HLX42                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 30,00            | 152,60           | 1          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| HLX42                | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 29,00            | 2          | 2 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX11A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 703,00           | 992,00           | 1          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX11A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 573.00           | 586.00           | 2          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX11A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 495,00           | 572,00           | 4          | 4 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX11A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 315,00           | 494,00           | 5          | 5 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX11A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 273,00           | 314,00           | 6          | 6 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX11A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 256,00           | 272,00           |            | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX11A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 103,00           | 179,00           |            | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX11A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 102,00           | 10         | ) Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX11E               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 2,00             | 121,00           | 1          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX14A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 123,00           | 176,27           | 1          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX14A<br>KLX14A     | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0.00             | 76.00            |            | B Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX15A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 902,00           | 1000,00          | 1          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX15A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 641,00           | 901,00           | 2          | 2 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX15A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 623,00           | 640,00           | 3          | 3 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX15A<br>KLX15A     | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 481,00           | 480.00           | 2          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX15A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 260,00           | 272,00           | 6          | 6 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX15A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 191,00           | 259,00           | 7          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX15A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 79,00            | 190,00           | 8          | 3 Golder              |                 |            |            |                      |           |                   | <u> </u> | <u> </u> ] |  |  |
| KLX15A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 78,00            |            | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX16A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 327,00<br>86.00  | 400,00           |            | 2 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX16A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 85,00            | 3          | 3 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX19A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 661,00           | 800,00           | 1          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX19A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 518,00           | 660,00           | 2          | 2 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX19A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 509,00<br>481 50 | 508.00           |            | 4 Golder              |                 |            |            |                      |           |                   |          | +          |  |  |
| KLX19A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 311,00           | 480,50           | 5          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX19A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 291,00           | 310,00           | 6          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX19A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 136,00           | 290,00           | 1          | Golder                |                 |            |            |                      |           |                   |          | ļ]         |  |  |
| KLX19A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 135,00           | 8          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX20A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 294,00           | 457,00<br>296.00 |            | 2 Golder              |                 |            |            |                      |           |                   |          | +          |  |  |
| KLX20A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 181,00           | 259,00           |            | B Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX20A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 145,00           | 180,00           | 4          | 4 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX20A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 103,00           | 144,00           | 5          | Golder                |                 |            |            |                      |           |                   |          | ļ]         |  |  |
| KLX20A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 102,00           |            | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX23A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 49,00            | 48.00            | 2          | 2 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX24A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 69,00            | 100,00           | 1          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |
| KLX24A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 41,00            | 68,00            | 2          | 2 Golder              |                 |            |            |                      |           |                   |          |            |  |  |
| KLX24A               | 2007-10-10 00:00:00 | 2007-11-25 00:00:00          | 0,00             | 40,00            | 3          | Golder                |                 |            |            |                      |           |                   |          |            |  |  |

| Table                |          | t_obs_d  |   |  |  |  |  |  |  |  |
|----------------------|----------|--|---|--|--|--|--|--|--|--|
|                      |          | PLU interference test, Obs                                   | servation section data  |  |  |  |  |  |  |  |
|                      |          |  |   |  |  |  |  |  |  |  |
| Column               | Datatype | Unit   | Column Description  |  |  |  |  |  |  |  |
| site                 | CHAR     |  | Investigation site name                                       |  |  |  |  |  |  |  |
| activity_type        | CHAR     |  |   |  |  |  |  |  |  |  |
| start_date           | DATE     |  |   |  |  |  |  |  |  |  |
| stop_date            | DATE     |  |   |  |  |  |  |  |  |  |
| project              | CHAR     |  | project code  |  |  |  |  |  |  |  |
| idcode               | CHAR     |  | Object or borehole identification code                        |  |  |  |  |  |  |  |
| secup                | FLOAT    | m  | Upper section limit (m)                                       |  |  |  |  |  |  |  |
| seclow               | FLOAT    | m  | Lower section limit (m)                                       |  |  |  |  |  |  |  |
| section_no           | INTEGER  | number   | Section number  |  |  |  |  |  |  |  |
| test_type            | CHAR     |  | Test type code, one of 7, see table description               |  |  |  |  |  |  |  |
| formation_type       | CHAR     |  | 1: Rock, 2: Soil (superficial deposits)                       |  |  |  |  |  |  |  |
| start_flow_period    | DATE     | yyyymmdd   | Date and time start of pumping/injection(YYMMDDhhmmss)        |  |  |  |  |  |  |  |
| stop_flow_period     | DATE     | yyyymmdd   | Date and time stop of pumping/injection(YYMMDDhhmmss)         |  |  |  |  |  |  |  |
| test_borehole        | CHAR     |  | Idcode of pumped/injected borehole                            |  |  |  |  |  |  |  |
| test_secup           | FLOAT    | m  | Upper limit of pumped/injected section                        |  |  |  |  |  |  |  |
| test_seclow          | FLOAT    | m  | Lower limit of pumped/injected section                        |  |  |  |  |  |  |  |
| lp                   | FLOAT    | m  | Hydraulic point of application, see table description         |  |  |  |  |  |  |  |
| radial_distance_rs   | FLOAT    | m  | Radial distance:test secobs.sec., see table description       |  |  |  |  |  |  |  |
| shortest_distance_rt | FLOAT    | m  | Shortest distance: test secobs.sec., see table description    |  |  |  |  |  |  |  |
| time_lag_press_dtl   | FLOAT    | S  | Time lag, pressure response obs. hole. See table description  |  |  |  |  |  |  |  |
| initial_head_hi      | FLOAT    | m  | Hydraulic head in observationsection, at start of flow period |  |  |  |  |  |  |  |
| head_at_flow_end_h   | n FLOAT  | Hydraulic head in observation section at stop of flow period |   |  |  |  |  |  |  |  |
| final_head_hf        | FLOAT    | m  | Hydraulic head in obs. section at end of recovery period.     |  |  |  |  |  |  |  |
| initial_press_pi     | FLOAT    | kPa  | Groundwater pressure in obs.section at start of flow period   |  |  |  |  |  |  |  |
| press_at_flow_end_   | ¢ FLOAT  | kPa  | Groundwater pressure in obs. section at stop of flow period   |  |  |  |  |  |  |  |
| final_press_pf       | FLOAT    | kPa  | Groundwater pressure in obs.section at stop of the recovery   |  |  |  |  |  |  |  |
| fluid_temp_teo       | FLOAT    | oC   | Measured fluid temperature in obs.section,see descr.          |  |  |  |  |  |  |  |
| fluid_elcond_eco     | FLOAT    | mS/m   | Measured fluid el. conductivity in obs.section,see descr.     |  |  |  |  |  |  |  |
| fluid_salinity_tdso  | FLOAT    | mg/l   | Total dissolved solids of section fluid, based on EC see desc |  |  |  |  |  |  |  |
| fluid_salinity_tdsom | FLOAT    | mg/l   | Tot disolved solids of section fluid based on analysis, see   |  |  |  |  |  |  |  |
| drawdown_sp          | FLOAT    | m  | Drawdown sp in observation section (m)                        |  |  |  |  |  |  |  |
| reference            | CHAR     |  | SKB report No for reports describing data and evaluation      |  |  |  |  |  |  |  |
| comment              | CHAR     |  | Short comment to evaluated data.                              |  |  |  |  |  |  |  |
| error_flag           | CHAR     |  | If error_flag = "*" then an error occured and an error        |  |  |  |  |  |  |  |
| in_use               | CHAR     | If in_use = "*" then the activity has been selected as       |   |  |  |  |  |  |  |  |
| sign                 | CHAR     |  | Activity QA signature   |  |  |  |  |  |  |  |

| idcode           | start_date   | stop_date  | secup                      | seclow           | section_no | test_type       | formation_t start_flow_perio<br>ype d                                   | stop_flow_perio f<br>d   | test_bor<br>ehole | test_sec to<br>up c | est_secl         | p                | radial_dist<br>ance_rs | shortest_d<br>istance_rt |
|------------------|--|--|----------------------------|------------------|------------|-----------------|---|--|-------------------|---------------------|------------------|------------------|------------------------|--------------------------|
| HLX27<br>HLX27   | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00                                   | ) 153,00<br>) 100.00       | 165,00<br>152.00 | 1          | 2               | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00 071021 11:02:00  | KLX27A<br>KLX27A  | 210,00<br>210.00    | 247,00<br>247.00 | 160,00<br>110.00 | 1137,00<br>1141.00     |                          |
| HLX27<br>HLX28   | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0,00                       | 99,00<br>154.00  | ) 3        | 8 2             | 2 1 071018 19:03:00<br>2 1 071018 19:03:00                              | 071021 11:02:00  | KLX27A<br>KLX27A  | 210,00              | 247,00<br>247.00 | 50,00<br>120.00  | 1151,00                |                          |
| HLX28<br>HLX28   | 2007.10.10 00:00 2007.10.10 00:00                  | 2007.10.23 12:00                                   | 0 70,00<br>0 7,50          | 90,00            | 2          | 2               | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00  | KLX27A<br>KLX27A  | 210,00<br>210.00    | 247,00<br>247.00 | 78,00            | 195,00<br>234,00       |                          |
| HLX32<br>HLX32   | 2007.10.10 00:00 2007.10.10 00:00                  | 2007.10.23 12:00                                   | 0 31,00<br>20,00           | 163,00           | 1          | 2               | 2 1 071018 19:03:00<br>2 1 071018 19:03:00                              | 071021 11:02:00  | KLX27A<br>KLX27A  | 210,00              | 247,00<br>247.00 | 95,00<br>25.00   | 136,00                 |                          |
| HLX32<br>HLX36   | 2007.10.10 00:00<br>2007 10 10 00:00               | 2007.10.23 12:00                                   | 0 0,00                     | 19,00            | ) 3        | 3 <u>2</u><br>2 | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00  | KLX27A            | 210,00              | 247,00           | 10,00            | 188,00<br>544.00       |                          |
| HLX36<br>HLX37   | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0,00                       | 49,00            | 2          | 2               | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00  | KLX27A            | 210,00              | 247,00           | 25,00            | 543,00<br>546,00       |                          |
| HLX37<br>HLX37   | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0 111,00                   | 149,00           | 2          | 2 2             | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00  | KLX27A            | 210,00              | 247,00           | 122,00           | 566,00                 |                          |
| HLX37            | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0,00                       | 93,00            | 4          | 2               | 1 071018 19:03:00<br>1 071018 19:03:00<br>1 071018 19:03:00             | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 07100 07100 071000 07100 07100 07100 07100 0710000 07100000000  | KLX27A            | 210,00              | 247,00           | 103,00           | 617,00                 |                          |
| HLX42            | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0,00                       | 152,60           |            | 2               | 1 071018 19:03:00<br>1 071018 19:03:00<br>1 071018 19:03:00             | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 07101 071021 071000 071000 071000 0710000000000   | KLX27A            | 210,00              | 247,00           | 100,00           | 1071,00                |                          |
| KLX11A           | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0 703,00                   | 992,00           | 1          | 2               |   | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 07101 071021 071000 071000 071000 071000 071000 071000 07100000000   | KLX27A            | 210,00              | 247,00           | 850,00           | 891,00                 |                          |
| KLX11A<br>KLX11A | 2007.10.10 00:00 2007.10.10 00:00 2007.10.10 00:00 | 2007.10.23 12:00                                   | 573,00                     | 586,00           | 3          | <u> </u>        |   | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 071000 071000 071000 07100000000   | KLX27A            | 210,00              | 247,00           | 575,00           | 741,00                 |                          |
| KLX11A<br>KLX11A | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | ) 495,00<br>) 315,00       | 494,00           | 5          |                 | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 07102111:02:00   | KLX27A            | 210,00              | 247,00           | 450,00           | 681,00                 |                          |
| KLX11A<br>KLX11A | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 273,00<br>256,00           | 272,00           | 6          | 2               | 1 071018 19:03:00   | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 0  | KLX27A<br>KLX27A  | 210,00              | 247,00           | 260,00           | 651,00                 |                          |
| KLX11A<br>KLX11A | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00 2007.10.23 12:00 2007.10.23 12:00 | 0 180,00<br>0 103,00       | 255,00<br>179,00 | ) 8<br>) 9 | 8 2<br>9 2      | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 07100 071000 0710000 0710000000000   | KLX27A<br>KLX27A  | 210,00<br>210,00    | 247,00<br>247,00 | 200,00           | 647,00<br>650,00       |                          |
| KLX11A<br>KLX11E | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00                                   | 0 0,00 2,00                | 102,00           | 0 10       | 2               | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 07102:00 071021 07102:00 071021 07102:00 071021 07102:00 071000 07102:00 071000 07100000000000000000000000000  | KLX27A<br>KLX27A  | 210,00<br>210,00    | 247,00<br>247,00 | 50,00<br>70,00   | 671,00<br>662,00       |                          |
| KLX14A<br>KLX14A | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00<br>2007.10.23 12:00               | 0 123,00<br>0 77,00        | 176,27<br>122,00 | , 1<br>) 2 | 2               | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00 071021 11:02:00 071021 11:02:00 0  | KLX27A<br>KLX27A  | 210,00<br>210,00    | 247,00<br>247,00 | 155,00<br>85,00  | 547,00<br>529,00       |                          |
| KLX14A<br>KLX15A | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00<br>2007.10.23 12:00               | 0 0,00<br>0 902,00         | 76,00<br>1000,00 | ) 3<br>) 1 | 8 2<br>2        | 1         071018 19:03:00           1         071018 19:03:00           | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 07102:00 0700000000000000000000000000000000  | KLX27A<br>KLX27A  | 210,00<br>210,00    | 247,00<br>247,00 | 60,00<br>950,00  | 524,00<br>1388,00      |                          |
| KLX15A<br>KLX15A | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00<br>2007.10.23 12:00               | 0 641,00<br>0 623,00       | 901,00<br>640,00 | 2          | 2 2<br>3 2      | 1         071018 19:03:00           :         1         071018 19:03:00 | 071021 11:02:00 071021 11:02:00 071021 071021 07102:00 071000000000000000000000000000000000   | KLX27A<br>KLX27A  | 210,00<br>210,00    | 247,00<br>247,00 | 845,00<br>631,00 | 1339,00<br>1264,00     |                          |
| KLX15A<br>KLX15A | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00<br>2007.10.23 12:00               | 0 481,00<br>0 273,00       | 622,00<br>480,00 | 9 4<br>9 5 | 2<br>5 2        | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00 071021 11:02:00 071021 11:02:00 0  | KLX27A<br>KLX27A  | 210,00<br>210,00    | 247,00<br>247,00 | 500,00<br>390,00 | 1235,00<br>1222,00     |                          |
| KLX15A<br>KLX15A | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00<br>2007.10.23 12:00               | 260,00<br>191,00           | 272,00<br>259,00 | 6          | 2               | 1 071018 19:03:00<br>071018 19:03:00                                    | 071021 11:02:00 071021 11:02:00 071021 11:02:00 0  | KLX27A<br>KLX27A  | 210,00<br>210,00    | 247,00<br>247,00 | 265,00<br>200,00 | 1220,00<br>1225,00     |                          |
| KLX15A<br>KLX15A | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00<br>2007.10.23 12:00               | 0 79,00<br>0 0,00          | 190,00<br>78,00  | 8          | 3 2<br>2<br>2   | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 071021 07102:00 07102:00 07102:00 07102:00 07102:00 07102:00 07102:00 0700000000000000000000000000000000  | KLX27A<br>KLX27A  | 210,00<br>210,00    | 247,00<br>247,00 | 130,00 40,00     | 1234,00<br>1253,00     |                          |
| KLX16A<br>KLX16A | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00<br>2007.10.23 12:00               | 0 <u>327,00</u><br>0 86,00 | 433,55           | 5 1<br>2   | 2               | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 07102:00 071021 07102:00 071021 07102:00 07102:00 071021 07102:00 071021 07102:00 0700000000000000000000000000000000   | KLX27A<br>KLX27A  | 210,00<br>210,00    | 247,00<br>247,00 | 370,00<br>210,00 | 1093,00<br>1153,00     |                          |
| KLX16A<br>KLX19A | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00                                   | 0 0,00                     | 85,00<br>800.00  | 3          | 8 2             | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00 071021 11:02:00  | KLX27A<br>KLX27A  | 210,00<br>210,00    | 247,00<br>247,00 | 30,00<br>760,00  | 1238,00<br>497.00      |                          |
| KLX19A<br>KLX19A | 2007.10.10 00:00<br>2007.10.10 00:00               | 2007.10.23 12:00                                   | 0 518,00<br>0 509.00       | 660,00<br>517.00 | ) 2        | 2 2             | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 07100 071021 071000 07100 07100 071000 07100000000   | KLX27A<br>KLX27A  | 210,00<br>210.00    | 247,00<br>247.00 | 580,00<br>515.00 | 347,00<br>307.00       |                          |
| KLX19A<br>KLX19A | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0 481,50<br>0 311 00       | 508,00           | 4          | 2               | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00  | KLX27A            | 210,00              | 247,00           | 500,00           | 290,00<br>261.00       |                          |
| KLX19A<br>KLX19A | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 291,00<br>136.00           | 310,00           | ) 6<br>) 7 | 5 2<br>7 2      | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00  | KLX27A            | 210,00              | 247,00           | 300,00           | 224,00                 |                          |
| KLX19A           | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0,00                       | 135,00           | 8          | 8 2             | 1 071018 19:03:00   | 071021 11:02:00  | KLX27A            | 210,00              | 247,00           | 110,00           | 303,00                 |                          |
| KLX20A           | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 260,00                     | 296,00           |            | 2 2             | 1 071018 19:03:00<br>1 071018 19:03:00<br>1 071018 19:03:00             | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 07101 071021 071000 071000 071000 0710000000000  | KLX27A            | 210,00              | 247,00           | 265,00           | 712,00                 |                          |
| KLX20A           | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0 145,00                   | 180,00           | 4          | 2               | 1 071018 19:03:00<br>1 071018 19:03:00<br>1 071018 19:03:00             | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 07100 07100 071000 07100 07100 07100 07100 0710000 07100000000  | KLX27A            | 210,00              | 247,00           | 175,00           | 689,00<br>683,00       |                          |
| KLX20A           | 2007.10.10 00:00 2007.10.10 00:00 2007.10.10 00:00 | 2007.10.23 12:00                                   | 0,00                       | 102,00           |            | 6 2<br>6 2      |   | 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 11:02:00 071021 07100 07100 071000 071000 071000 071000 071000 071000 071000 071000 071000 071000 071000 071000 071000 071000 071000 07100000000   | KLX27A            | 210,00              | 247,00           | 101,00           | 681,00                 |                          |
| KLX23A           | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0 0,00                     | 48,00            | 2          | 2 2             |   | 071021 11:02:00 071021 11:02:00 071021 11:02:00 0  | KLX27A            | 210,00              | 247,00           | 35,00            | 402,00                 |                          |
| KLX24A<br>KLX24A | 2007.10.10 00:00                                   | 2007.10.23 12:00                                   | 0 41,00                    | 68,00            |            | 2 2             | 1 071018 19:03:00<br>1 071018 19:03:00                                  | 071021 11:02:00 1  | KLX27A            | 210,00              | 247,00           | 65,00            | 744,00                 |                          |
|                  | 2007 11 19 00:00                                   | 2007.11.25.00:00                                   | 153.00                     | 165.00           |            | 2               |   | 071123 05:27:00  | KI X274           | 639.20              | 650.56           | 160.00           | 1258 10                |                          |
| HLX27<br>HLX27   | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 0 100,00                   | 152,00           | 2          | 2 2             | 1 071122 14:34:00<br>1 071122 14:34:00<br>1 071122 14:34:00             | 071123 05:27:00  | KLX27A            | 639,20              | 650,56<br>650,56 | 110,00           | 1268,20                |                          |
| HLX28            | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 0 91,00                    | 154,00           |            | 2               | 1 071122 14:34:00<br>1 071122 14:34:00<br>1 071122 14:34:00             | 071123 05:27:00  | KLX27A            | 639,20              | 650,56<br>650,56 | 120,00           | 491,60                 |                          |
| HLX28            | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 7,50                       | 69,00            | 3          | <u> </u>        | 1 071122 14:34:00<br>1 071122 14:34:00<br>1 071122 14:34:00             | 071123 05:27:00  | KLX27A            | 639,20              | 650,56           | 40,00            | 553,80                 |                          |
| HLX32            | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 0,00                       | 163,00           | 1          |                 | 1 071122 14:34:00<br>1 071122 14:34:00<br>1 071122 14:34:00             | 071123 05:27:00  | KLX27A            | 639,20              | 650,56           | 95,00            | 510,70                 |                          |
| HLX32<br>HLX36   | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 0 0,00                     | 19,00            | 3          | 8 2<br>2        | 1 071122 14:34:00<br>1 071122 14:34:00<br>1 071122 14:34:00             | 071123 05:27:00  | KLX27A            | 639,20              | 650,56<br>650,56 | 10,00            | 588,30                 |                          |
| HLX36            | 2007.11.19 00:00 2007.11.19 00:00 2007.11.19 00:00 | 2007.11.25 00:00                                   | 0,00                       | 49,00            | 2          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00<br>1 071122 14:34:00             | 071123 05:27:00  | KLX27A            | 639,20              | 650,56<br>650,56 | 25,00            | 666,30<br>587,30       |                          |
| HLX37            | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 0 111,00                   | 149,00           | 2          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00<br>1 071122 14:34:00             | 071123 05:27:00  | KLX27A            | 639,20              | 650,56           | 122,00           | 633,10                 |                          |
| HLX37            | 2007.11.19 00:00 2007.11.19 00:00 2007.11.19 00:00 | 2007.11.25 00:00                                   | 0,00                       | 93,00            | 4          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00<br>1 071122 14:34:00             | 071123 05:27:00  | KLX27A            | 639,20              | 650,56           | 103,00           | 732,40                 |                          |
| HLX42            | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 0 30,00                    | 152,60           | 1          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00<br>1 071122 14:34:00             | 071123 05:27:00  | KLX27A            | 639,20              | 650,56           | 100,00           | 1305,90                |                          |
| KLX11A           | 2007.11.19 00:00 2007.11.19 00:00 2007.11.19 00:00 | 2007.11.25 00:00                                   | 0,00                       | 29,00<br>992,00  |            | 2               | 1 071122 14:34:00   | 071123 05:27:00  | KLX27A            | 639,20              | 650,56           | 850,00           | 524,30                 |                          |
| KLX11A           | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 0 573,00                   | 586,00           | 3          | . 2<br>8 2      | 1 071122 14:34:00   | 071123 05:27:00  | KLX27A            | 639,20              | 650,56           | 575,00           | 408,80                 |                          |
| KLX11A           | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 495,00<br>315,00           | 572,00<br>494,00 | 4          |                 | 1 07112214:34:00<br>1 07112214:34:00                                    | 071123 05:27:00  | KLX27A            | 639,20<br>639,20    | 650,56           | 3∠0,00<br>450,00 | 476,90                 |                          |
| KLX11A           | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 213,00                     | 272,00           | 6          | 2               | 1 071122 14:34:00   | 071123 05:27:00  | KLX27A            | 639,20              | 650,56           | 260,00           | 553,20                 |                          |
| KLX11A           | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 0 103,00                   | 255,00           | 9          |                 | 1 07112214:34:00<br>1 07112214:34:00                                    | 071123 05:27:00  | KLX27A            | 639,20<br>639,20    | 650,56           | 200,00<br>165,00 | 643,80                 |                          |
| KLX11E           | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 0,00                       | 121,00           | 10         | 2               | 1 071122 14:34:00<br>1 071122 14:34:00<br>1 071122 14:34:00             | 071123 05:27:00  | KLX27A            | 639,20<br>639,20    | 650,56           | 70,00            | 711,20                 |                          |
| KLX14A           | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 0 123,00<br>0 77,00        | 1/6,27           | 1          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00  | KLX27A            | 639,20<br>639,20    | 000,56<br>650,56 | 85,00            | 692,00                 |                          |
| KLX14A<br>KLX15A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00                                   | 0,00                       | 76,00            | 3          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00  | KLX27A            | 639,20<br>639,20    | 650,56           | 950,00           | 696,90<br>1396,20      |                          |
| KLX15A<br>KLX15A | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 641,00<br>623,00           | 901,00           | 2          | 2<br>3 2        | 1 0/1122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00  | KLX27A            | 639,20<br>639,20    | 650,56           | 845,00<br>631,00 | 1359,60                |                          |
| KLX15A<br>KLX15A | 2007.11.19 00:00                                   | 2007.11.25 00:00                                   | 481,00<br>273,00           | 622,00<br>480,00 | 4          | 2               | 1 0/1122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00  | KLX27A            | 639,20<br>639,20    | 650,56           | 390,00           | 1301,90                |                          |
| KLX15A<br>KLX15A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00                                   | 260,00<br>0 191,00         | 272,00<br>259,00 | 6          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 0/1123 05:27:00<br>071123 05:27:00   | KLX27A<br>KLX27A  | 639,20<br>639,20    | 650,56<br>650,56 | 265,00<br>200,00 | 1320,00<br>1333,20     |                          |
| KLX15A<br>KLX15A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00<br>2007.11.25 00:00               | 79,00<br>0 0,00            | 190,00<br>78,00  | 8          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00<br>071123 05:27:00   | KLX27A<br>KLX27A  | 639,20<br>639,20    | 650,56<br>650,56 | 130,00<br>40,00  | 1351,40<br>1380,50     |                          |
| KLX16A<br>KLX16A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00<br>2007.11.25 00:00               | 0 327,00<br>0 86,00        | 433,55<br>326,00 | 1          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00<br>071123 05:27:00   | KLX27A<br>KLX27A  | 639,20<br>639,20    | 650,56<br>650,56 | 370,00<br>210,00 | 1249,80<br>1345,50     |                          |
| KLX16A<br>KLX19A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00<br>2007.11.25 00:00               | 0,00<br>0 661,00           | 85,00<br>800,00  | 3<br>1 1   | 2<br>2          | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00<br>071123 05:27:00   | KLX27A<br>KLX27A  | 639,20<br>639,20    | 650,56<br>650,56 | 30,00<br>760,00  | 1465,40<br>404,80      |                          |
| KLX19A<br>KLX19A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00<br>2007.11.25 00:00               | 0 518,00<br>0 509,00       | 660,00<br>517,00 | 2<br>0 3   | 2<br>3 2        | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00 07100 07100 071123 05:27:00 07100 071123 05:27:00 071000 071000 07100 07100 07100 07100 07100 07100 07100 07100 07100 071000 07100 07100 07100000000 | KLX27A<br>KLX27A  | 639,20<br>639,20    | 650,56<br>650,56 | 580,00<br>515,00 | 340,10<br>338,50       |                          |
| KLX19A<br>KLX19A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00<br>2007.11.25 00:00               | 0 481,50<br>0 311,00       | 508,00<br>480,50 | 4          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00 071123 05:27:00 071123 05:27:00 071123 05:27:00 0  | KLX27A<br>KLX27A  | 639,20<br>639,20    | 650,56<br>650,56 | 500,00<br>460,00 | 339,90<br>346,90       |                          |
| KLX19A<br>KLX19A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00<br>2007.11.25 00:00               | 291,00<br>136,00           | 310,00<br>290,00 | 6          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00 071123 05:27:00 07112  | KLX27A<br>KLX27A  | 639,20<br>639,20    | 650,56<br>650,56 | 300,00<br>160,00 | 414,90<br>509,70       |                          |
| KLX19A<br>KLX20A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00<br>2007.11.25 00:00               | 0 0,00 0,00 294,00         | 135,00<br>457,00 | 8          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00 071123 05:27:00 07112  | KLX27A<br>KLX27A  | 639,20<br>639,20    | 650,56<br>650,56 | 110,00<br>390,00 | 548,50<br>687,40       |                          |
| KLX20A<br>KLX20A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00<br>2007.11.25 00:00               | 260,00<br>181.00           | 296,00<br>259,00 | 2          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00<br>071123 05:27:00   | KLX27A<br>KLX27A  | 639,20<br>639,20    | 650,56<br>650,56 | 265,00<br>210,00 | 683,70<br>691,80       |                          |
| KLX20A<br>KLX20A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00                                   | 0 145,00<br>0 103.00       | 180,00           | 4          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00<br>071123 05:27:00   | KLX27A<br>KLX27A  | 639,20<br>639.20    | 650,56<br>650.56 | 175,00<br>135.00 | 699,00<br>709.90       |                          |
| KLX20A<br>KLX23A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00                                   | 0 0,00                     | 102,00           | 6          | i 2<br>2        | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00 071123 05:27:00 0  | KLX27A<br>KLX27A  | 639,20<br>639.20    | 650,56<br>650.56 | 101,00           | 721,50<br>581 00       |                          |
| KLX23A<br>KLX24A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00                                   | 0,00                       | 48,00            | 2          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00<br>071123 05:27:00   | KLX27A<br>KLX27A  | 639,20<br>639.20    | 650,56<br>650,56 | 35,00<br>75.00   | 611,10<br>768 10       |                          |
| KLX24A<br>KLX24A | 2007.11.19 00:00<br>2007.11.19 00:00               | 2007.11.25 00:00                                   | 0 41,00<br>0 0.00          | 68,00<br>40.00   | 2          | 2               | 1 071122 14:34:00<br>1 071122 14:34:00                                  | 071123 05:27:00<br>071123 05:27:00   | KLX27A<br>KLX27A  | 639,20<br>639.20    | 650,56<br>650.56 | 65,00<br>35.00   | 773,50                 |                          |
|                  | (m)              | (m)               | (s)<br>time_lag_ | (m)<br>initial_he | (m)<br>head_at_flo | (m)<br>final_he | (kPa) (kP<br>initial_pr press_at_fl | a) (kPa<br>o final_pre | ) (oC)<br>fluid_te | (mS/m)<br>fluid_elc | (mg/l) (mg/l)<br>fluid_sali fluid_salini | ) (m)<br>i drawdown | referenc |  |
|------------------|------------------|-------------------|------------------|-------------------|--------------------|-----------------|-------------------------------------|------------------------|--------------------|---------------------|--|---------------------|----------|--|
| idcode<br>HLX27  | secup<br>153,00  | seclow<br>165,00  | press_dtl        | ad_hi<br>6,17     | w_end_hp<br>6,12   | ad_hf<br>6,11   | ess_pi w_end_pp                     | ss_pf                  | mp_teo             | ond_eco             | nity_tdso ty_tdsom                       | _sp                 | е        | comment<br>no response due to pumping in source                                      |
| HLX27<br>HLX27   | 100,00           | 152,00<br>99,00   |                  | 6,38<br>6,45      | 6,33<br>6,40       | 6,33<br>6,40    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| HLX28<br>HLX28   | 91,00<br>70,00   | 154,00<br>90,00   |                  | 13,22<br>13,23    | 13,09<br>13,09     | 13,10<br>13,11  |                                     |                        |                    |                     |  | 0,13                |          | response due to pumping in source<br>response due to pumping in source               |
| HLX28<br>HLX32   | 7,50<br>31,00    | 69,00<br>163,00   |                  | 12,63<br>6,55     | 12,53<br>7,00      | 12,53<br>6,43   |                                     |                        |                    |                     |  | 0,10                |          | response due to pumping in source<br>no response due to pumping in source            |
| HLX32<br>HLX32   | 20,00 0,00       | 30,00<br>19,00    |                  | 6,28<br>5,44      | 6,72<br>5,46       | 6,17<br>5,51    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| HLX36<br>HLX36   | 50,00<br>0,00    | 199,50<br>49,00   |                  | 13,94<br>10,44    | 13,89<br>10,43     | 13,86<br>10,44  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| HLX37<br>HLX37   | 150,00<br>111,00 | 200,00<br>149,00  |                  | 13,37<br>14,90    | 13,27<br>14,76     | 13,26<br>14,78  |                                     |                        |                    |                     |  | 0,12                |          | response due to pumping in source<br>response due to pumping in source               |
| HLX37<br>HLX37   | 94,00<br>0,00    | 110,00<br>93,00   |                  | 13,28<br>14,81    | 13,23<br>14,76     | 13,22<br>14,75  |                                     |                        |                    |                     |  | 0,05                |          | probably influenced by pumping in source<br>probably influenced by pumping in source |
| HLX38<br>HLX42   | 0,00             | 199,50<br>152,60  |                  | 5,33<br>9,38      | 5,30<br>9,33       | 5,31<br>9,33    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| HLX42<br>KLX11A  | 0,00 703,00      | 29,00<br>992,00   |                  | 11,68<br>13,89    | 11,66<br>13,75     | 11,65<br>13,96  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX11A<br>KLX11A | 587,00<br>573,00 | 702,00<br>586,00  |                  | 13,97<br>13,93    | 13,83<br>13,79     | 13,90<br>13,83  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX11A<br>KLX11A | 495,00<br>315,00 | 572,00<br>494,00  |                  | 13,86<br>13,72    | 13,73<br>13,60     | 13,75<br>13,61  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX11A<br>KLX11A | 273,00<br>256,00 | 314,00<br>272,00  |                  | 13,65<br>13,18    | 13,52<br>13,05     | 13,50<br>13,04  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX11A<br>KLX11A | 180,00           | 255,00<br>179,00  |                  | 13,58<br>13,98    | 13,47<br>13,87     | 13,51<br>13,89  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX11A<br>KLX11E | 0,00 2,00        | 102,00<br>121,00  |                  | 15,42<br>15,49    | 15,36<br>15,44     | 15,35<br>15,45  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX14A<br>KLX14A | 123,00<br>77,00  | 176,27<br>122,00  |                  | 5,70<br>5,56      | 5,67<br>5,53       | 5,68<br>5,53    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX14A<br>KLX15A | 0,00             | 76,00<br>1000,00  |                  | 10,65<br>3,15     | 10,57<br>3,05      | 10,55<br>3,09   |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX15A<br>KLX15A | 641,00<br>623,00 | 901,00<br>640,00  |                  | 5,73<br>5,30      | 5,75<br>5,23       | 5,80<br>5,22    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX15A<br>KLX15A | 481,00<br>273,00 | 622,00<br>480,00  |                  | 5,73<br>6,28      | 5,65<br>6,22       | 5,64<br>6,21    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX15A<br>KLX15A | 260,00<br>191,00 | 272,00<br>259,00  |                  | 6,22<br>6,16      | 6,16<br>6,13       | 6,15<br>6,13    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX15A<br>KLX15A | 79,00<br>0,00    | 190,00<br>78,00   |                  | 6,44<br>6,62      | 6,39<br>6,58       | 6,39<br>6,57    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX16A<br>KLX16A | 327,00<br>86,00  | 433,55<br>326,00  |                  | 17,47             | 17,38<br>16,91     | 17,37           |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX16A<br>KLX19A | 0,00             | 85,00<br>800,00   |                  | 18,70<br>9,51     | 18,80<br>9,41      | 18,81<br>9,40   |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX19A<br>KLX19A | 518,00<br>509,00 | 660,00<br>517,00  |                  | 9,05              | 8,96<br>11,50      | 8,97            |                                     |                        |                    |                     |  | 0,80                |          | no response due to pumping in source<br>response due to pumping in source            |
| KLX19A<br>KLX19A | 481,50 311,00    | 508,00<br>480,50  |                  | 12,31<br>12,31    | 11,53<br>11,53     | 12,05<br>12,06  |                                     |                        |                    |                     |  | 0,78                |          | response due to pumping in source<br>response due to pumping in source               |
| KLX19A<br>KLX19A | 291,00<br>136,00 | 310,00<br>290,00  |                  | 12,55<br>13,15    | 11,94<br>13,02     | 12,35<br>13,03  |                                     |                        |                    |                     |  | 0,61<br>0,13        |          | response due to pumping in source<br>response due to pumping in source               |
| KLX19A<br>KLX20A | 0,00<br>294,00   | 135,00<br>457,00  |                  | 13,16<br>14,49    | 13,03<br>14,37     | 13,04<br>14,41  |                                     |                        |                    |                     |  | 0,13                |          | response due to pumping in source<br>no response due to pumping in source            |
| KLX20A<br>KLX20A | 260,00<br>181,00 | 296,00<br>259,00  |                  | 14,81<br>14,80    | 14,73<br>14,67     | 14,74<br>14,68  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX20A<br>KLX20A | 145,00<br>103,00 | 180,00<br>144,00  |                  | 13,68<br>15,48    | 13,58<br>15,42     | 13,57<br>15,43  |                                     |                        |                    |                     |  | 0,06                |          | no response due to pumping in source<br>probably influenced by pumping in source     |
| KLX20A<br>KLX23A | 0,00 49,00       | 102,00<br>100,00  |                  | 15,56<br>13,24    | 15,52<br>13,08     | 15,50<br>13,09  |                                     |                        |                    |                     |  | 0,04 0,13           |          | probably influenced by pumping in source<br>response due to pumping in source        |
| KLX23A<br>KLX24A | 0,00             | 48,00<br>100,00   |                  | 14,58<br>14,30    | 14,57<br>14,25     | 14,57<br>14,26  |                                     |                        |                    |                     |  | 0,05                |          | no response due to pumping in source<br>probably influenced by pumping in source     |
| KLX24A<br>KLX24A | 41,00            | 68,00<br>40,00    |                  | 15,54<br>16,45    | 15,49<br>16,43     | 15,49<br>16,43  |                                     |                        |                    |                     |  | 0,05                |          | probably influenced by pumping in source<br>no response due to pumping in source     |
| HLX27            | 153,00           | 165,00            |                  | 6,56              | 6,60               | 6,51            |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| HLX27<br>HLX27   | 100,00           | 152,00<br>99,00   |                  | 6,79<br>6,87      | 6,83<br>6,90       | 6,74<br>6,82    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| HLX28<br>HLX28   | 91,00<br>70,00   | 154,00<br>90,00   |                  | 13,63<br>13,63    | 13,65<br>13,64     | 13,55<br>13,55  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| HLX28<br>HLX28   | 7,50<br>0,00     | 69,00<br>6,50     |                  | 13,05<br>#NV      | 13,08<br>#NV       | 12,98<br>#NV    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| HLX32<br>HLX32   | 31,00<br>20,00   | 163,00<br>30,00   |                  | 7,97<br>7,70      | 8,13<br>7,84       | 6,90<br>6,70    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| HLX32<br>HLX36   | 0,00<br>50,00    | 19,00<br>199,50   |                  | 5,99<br>14,23     | 6,02<br>6,02       | 6,03<br>14,27   |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| HLX36<br>HLX37   | 0,00<br>150,00   | 49,00<br>200,00   |                  | 10,90<br>13,79    | 10,88<br>13,81     | 10,89<br>13,70  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| HLX37<br>HLX37   | 111,00<br>94,00  | 149,00<br>110,00  |                  | 15,31<br>14,02    | 15,33<br>14,06     | 15,23<br>14,06  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| HLX37<br>HLX38   | 0,00<br>0,00     | 93,00<br>199,50   |                  | 15,16<br>5,61     | 15,16<br>5,64      | 15,16<br>5,56   |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| HLX42<br>HLX42   | 30,00<br>0,00    | 152,60<br>29,00   |                  | 9,69<br>11,92     | 9,71<br>11,92      | 9,66<br>11,89   |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX11A<br>KLX11A | 703,00<br>587,00 | 992,00<br>702,00  |                  | 14,14<br>14,18    | 14,16<br>13,81     | 13,98<br>13,28  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX11A<br>KLX11A | 573,00<br>495,00 | 586,00<br>572,00  |                  | 14,14<br>14,11    | 13,75<br>13,85     | 13,23<br>13,35  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX11A<br>KLX11A | 315,00<br>273,00 | 494,00<br>314,00  |                  | 14,00<br>13,92    | 13,85<br>13,81     | 13,38<br>13,39  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX11A<br>KLX11A | 256,00<br>180,00 | 272,00<br>255,00  |                  | 13,49<br>13,90    | 13,37<br>13,81     | 12,99<br>13,44  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX11A<br>KLX11A | 103,00           | 179,00<br>102,00  |                  | 14,40<br>15,94    | 14,43<br>15,97     | 14,35<br>15,99  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX11E<br>KLX14A | 2,00<br>123,00   | 121,00<br>176,27  |                  | 16,09<br>5,98     | 16,12<br>6,00      | 16,14<br>5,93   |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX14A<br>KLX14A | 77,00            | 122,00<br>76,00   |                  | 5,82<br>10,89     | 5,86<br>10,90      | 5,77<br>10,86   |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX15A<br>KLX15A | 902,00<br>641,00 | 1000,00<br>901,00 |                  | 3,34<br>6,21      | 3,37<br>6,26       | 3,21<br>6,07    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX15A<br>KLX15A | 623,00<br>481,00 | 640,00<br>622,00  |                  | 5,66<br>6,08      | 5,71<br>6,13       | 5,55<br>5,97    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX15A<br>KLX15A | 273,00<br>260,00 | 480,00<br>272,00  |                  | 6,70<br>6,61      | 6,74<br>6,65       | 6,59<br>6,56    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX15A<br>KLX15A | 191,00<br>79,00  | 259,00<br>190,00  |                  | 6,71<br>6,85      | 6,75<br>6,88       | 6,67<br>6,80    |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX15A<br>KLX16A | 0,00 327,00      | 78,00<br>433,55   |                  | 7,07              | 7,09<br>17,60      | 7,04<br>17,45   |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source<br>no response due to pumping in source         |
| KLX16A<br>KLX16A | 86,00            | 326,00<br>85,00   |                  | 17,27             | 17,30<br>19,47     | 17,25<br>19,47  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX19A<br>KLX19A | 661,00<br>518,00 | 800,00            |                  | 9,57<br>9,22      | 9,61<br>9,27       | 9,42            |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX19A<br>KLX19A | 509,00<br>481,50 | 517,00<br>508,00  |                  | 12,84             | 12,87<br>12,91     | 12,64           |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX19A<br>KLX19A | 311,00<br>291,00 | 480,50<br>310,00  |                  | 12,87             | 12,91<br>13,10     | 12,68<br>12,91  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX19A<br>KLX19A | 136,00           | 290,00<br>135,00  |                  | 13,57<br>13,57    | 13,60<br>13,60     | 13,49<br>13,49  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX20A<br>KLX20A | 294,00<br>260,00 | 457,00<br>296,00  |                  | 14,64<br>15,19    | 14,67<br>15,22     | 14,56<br>15,11  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX20A<br>KLX20A | 181,00<br>145,00 | 259,00<br>180,00  |                  | 14,91<br>14,09    | 14,95<br>14,12     | 14,79<br>13,99  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX20A<br>KLX20A | 103,00           | 144,00<br>102,00  |                  | 15,98<br>15,91    | 16,02<br>15,94     | 16,02<br>15,99  |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX23A<br>KLX23A | 49,00            | 100,00            |                  | 13,64             | 13,65<br>15,38     | 13,55           |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
| KLX24A           | 41,00            | 68,00             |                  | 14,78             | 14,80<br>16,01     | 14,72           |                                     |                        |                    |                     |  |                     |          | no response due to pumping in source   |
|                  | 0.00             | 40,00             | i i              | 17,09             | 17,09              | 17,07           | 1 1                                 | 1                      | 1                  | 1                   | 1  | 1                   | 1        | Ino response que lo pumping in source  |

| Table                 |          | plu_inf_test_obs_               | _ed  |
|-----------------------|----------|---------------------------------|--|
|                       | PLU ir   | nterference test,Observation se | ection evaluation  |
|                       |          |                                 |  |
| Column                | Datatype | Unit                            | Column Description   |
| site                  | CHAR     | •                               | Investigation site name  |
| activity type         | CHAR     |                                 | Activity type code   |
| start date            | DATE     |                                 | Date (vymmdd hh:mm:ss)   |
| stop date             | DATE     |                                 | Date (vymmdd hh:mm:ss)   |
| project               | CHAR     |                                 | project code   |
| idcode                | CHAR     |                                 | Object or borehole identification code   |
| secup                 | FLOAT    | m                               | Upper section limit (m)  |
| seclow                | FLOAT    | m                               | Lower section limit (m)  |
| section no            | INTEGER  | number                          | Section number   |
| test borehole         | CHAR     |                                 | Idcode of pumped/injected borehole   |
| test secup            | FLOAT    | m                               | Upper limit of pumped/injected section   |
| test seclow           | FLOAT    | m                               | Lower limit of pumped/injected section   |
| formation width b     | FLOAT    | m                               | b:Agifer thickness repr. for T(generally b=Lo) see descrip.                    |
| lp                    | FLOAT    | m                               | Hydraulic point of application, see table descr.                               |
| width of channel b    | FLOAT    | m                               | B:Inferred width of formation for evaluated TB                                 |
| tho                   | FLOAT    | m**3/s                          | TBo T=transmissivity B= width of formation see table descr                     |
| l measl tho           | FLOAT    | m**3/s                          | Estimated lower limit for evaluated TB, see table descript.                    |
| u meast tho           | FLOAT    | m**3/s                          | Estimated upper limit for evaluated TB see table descript                      |
| sbo                   | FLOAT    | m                               | Storage capacity of 1D formation (flow or recovery) see descr                  |
| leakage factor lof    | FLOAT    | m                               | Lof: 1D model for evaluation of leakage factor see descr.                      |
| transmissivity to     | FLOAT    | m**2/s                          | To=transmissivity.2D radial flow model, see table descr.                       |
| value type to         | CHAR     |                                 | 0:true value (To) -1: <lower 1:="" limit="" meas="">upper meaus limit</lower>  |
| I meast to            | FLOAT    | m**2/s                          | Estimated lower limit for evaluated To see table descript                      |
| u meast to            | FLOAT    | m**2/s                          | Estimated upper limit of evaluated To see table description                    |
| storativity so        | FLOAT    | 2,0                             | So:Storativity 2D rad flow model, see table descr                              |
| leakage coeff o       | FLOAT    | 1/s                             | K/b': Leakage coefficient 2D rad flow model see descr                          |
| hvdr cond kosf        | FLOAT    | m/s                             | 3D model evaluation of hydraulic conductivity see table des.                   |
| l meast kosf          | FLOAT    | m/s                             | Estimated lowermeas limit of Ks see table description                          |
| u meast kosf          | FLOAT    | m/s                             | Estimated upper meas, limit of Ks.see table description                        |
| spec storage sost     | FLOAT    | 1/m                             | 3D model for evaluation of specific storage se table descr                     |
| dt1                   | FLOAT    | s                               | Estimated start time of evaluation, see table description                      |
| dt2                   | FLOAT    | s                               | Estimated stop time of evaluation, see table description                       |
| t1                    | FLOAT    | s                               | Start time for evaluated parameter from start of flow period                   |
| t2                    | FLOAT    | s                               | Stop time for evaluated parameter from start of flow period                    |
| dte1                  | FLOAT    | s                               | Start time for evaluated parameter from start of recovery                      |
| dte2                  | FLOAT    | s                               | Stop time for evaluated parameter from start of recovery                       |
| index 1               | FLOAT    | m**2/s                          | Normalised distance rs with resp to response time(rs)"2/dtl                    |
| index 2               | FLOAT    | s/m**2                          | Normalised drawdown with respect to numping rate $(sp/Qp)$                     |
| index_2 new           | FLOAT    | s/m*2                           | Norm drawdown with resp. to pump rate & $rs(sp/Qp)$                            |
| diffusivity           | FLOAT    | m**2/s                          | Diffusivity (T/S)  |
| transmissivity to nlr | FLOAT    | m**2/s                          | ToNLR:Transmissivity based on Non Linear Regression see desc                   |
| value type to nir     | CHAR     | 111 2/0                         | 0:true value (ToNLR) -1: <lower 1:="" limit="" meas="">uppermeas limit</lower> |
| storativity so nlr    | FLOAT    |                                 | So. NI R:Storativity based on None Linear Regression see des                   |
| transmissivity to arf | FLOAT    | m**2/s                          | ToGRE=transmissivity based on Generalized Radial Flow see                      |
| value type to orf     | CHAR     | 20                              | 0:true value (ToGRF)1: <lower meas.limit.1:="">upp meaus limit</lower>         |
| storativity so orf    | FLOAT    |                                 | So GRE Storativity based on Generalized Rad. Flow see des                      |
| flow dim arf o        | FLOAT    |                                 | Inferred flow dimension based on Generalized Rad. Flow model                   |
| comments              | CHAR     |                                 | short comment to the evaluated inarameters(Optional)                           |
| error flag            | CHAR     |                                 | If error flag = "*" then an error occurred and an error                        |
| in use                | CHAR     |                                 | If in use = "*" then the activity has been selected as                         |
| sian                  | CHAR     |                                 | Activity OA signature  |
| aigil                 | ULAN     |                                 | Activity wa signature  |

|        |                  |                  | (m)    | (m)    |            |             | (m)        | (m)       | (m)       | (m)    | (m)        | (m**3/s) | (m**3/s)  | (m**3/s) | (m) | (m)       | (m**2/s)  | 1        |
|--------|------------------|------------------|--------|--------|------------|-------------|------------|-----------|-----------|--------|------------|----------|-----------|----------|-----|-----------|-----------|----------|
|        |                  |                  |        |        |            | test_boreho | 1          | test_secl | formation |        | width_of_c |          | I_measl_t | u_measl  |     | leakage_f | transmis  | value_ty |
| idcode | start_date       | stop_date        | secup  | seclow | section_no | е           | test_secup | ow        | _width_b  | lp     | hannel_b   | tbo      | bo        | _tbo     | sbo | actor_lof | sivity_to | pe_to    |
| HLX28  | 2007.10.10 00:00 | 2007.10.23 12:00 | 91,00  | 154,00 | 1          | KLX27A      | 210,00     | 247,00    |           | 120,00 |            |          |           |          |     |           | 1,07E-04  | 0        |
| HLX28  | 2007.10.10 00:00 | 2007.10.23 12:00 | 70,00  | 90,00  | 2          | KLX27A      | 210,00     | 247,00    |           | 78,00  |            |          |           |          |     |           | 9,98E-05  | 0        |
| HLX28  | 2007.10.10 00:00 | 2007.10.23 12:00 | 7,50   | 69,00  | 3          | KLX27A      | 210,00     | 247,00    |           | 40,00  |            |          |           |          |     |           | 1,33E-04  | 0        |
| HLX37  | 2007.10.10 00:00 | 2007.10.23 12:00 | 150,00 | 200,00 | 1          | KLX27A      | 210,00     | 247,00    |           | 175,00 |            |          |           |          |     |           | 1,07E-04  | 0        |
| HLX37  | 2007.10.10 00:00 | 2007.10.23 12:00 | 111,00 | 149,00 | 2          | KLX27A      | 210,00     | 247,00    |           | 122,00 |            |          |           |          |     |           | 1,09E-04  | 0        |
| HLX37  | 2007.10.10 00:00 | 2007.10.23 12:00 | 94,00  | 110,00 | 3          | KLX27A      | 210,00     | 247,00    |           | 105,00 |            |          |           |          |     |           | #NV       | 1        |
| HLX37  | 2007.10.10 00:00 | 2007.10.23 12:00 | 0,00   | 93,00  | 4          | KLX27A      | 210,00     | 247,00    |           | 10,00  |            |          |           |          |     |           | #NV       | I        |
| KLX19A | 2007.10.10 00:00 | 2007.10.23 12:00 | 509,00 | 517,00 | 3          | KLX27A      | 210,00     | 247,00    |           | 515,00 |            |          |           |          |     |           | 1,55E-05  | 0        |
| KLX19A | 2007.10.10 00:00 | 2007.10.23 12:00 | 481,50 | 508,00 | 4          | KLX27A      | 210,00     | 247,00    |           | 500,00 |            |          |           |          |     |           | 1,54E-05  | 0        |
| KLX19A | 2007.10.10 00:00 | 2007.10.23 12:00 | 311,00 | 480,50 | 5          | KLX27A      | 210,00     | 247,00    |           | 460,00 |            |          |           |          |     |           | 1,54E-05  | 0        |
| KLX19A | 2007.10.10 00:00 | 2007.10.23 12:00 | 291,00 | 310,00 | 6          | KLX27A      | 210,00     | 247,00    |           | 300,00 |            |          |           |          |     |           | 4,28E-05  | 0        |
| KLX19A | 2007.10.10 00:00 | 2007.10.23 12:00 | 136,00 | 290,00 | 7          | KLX27A      | 210,00     | 247,00    |           | 160,00 |            |          |           |          |     |           | 9,01E-05  | 0        |
| KLX19A | 2007.10.10 00:00 | 2007.10.23 12:00 | 0,00   | 135,00 | 8          | KLX27A      | 210,00     | 247,00    |           | 110,00 |            |          |           |          |     |           | 1,18E-04  | 0        |
| KLX20A | 2007.10.10 00:00 | 2007.10.23 12:00 | 103,00 | 144,00 | 5          | KLX27A      | 210,00     | 247,00    |           | 135,00 |            |          |           |          |     |           | #NV       | I        |
| KLX20A | 2007.10.10 00:00 | 2007.10.23 12:00 | 0,00   | 102,00 | 6          | KLX27A      | 210,00     | 247,00    |           | 101,00 |            |          |           |          |     |           | #NV       | I        |
| KLX23A | 2007.10.10 00:00 | 2007.10.23 12:00 | 49,00  | 100,00 | 1          | KLX27A      | 210,00     | 247,00    |           | 85,00  |            |          |           |          |     |           | 1,06E-04  | 0        |
| KLX24A | 2007.10.10 00:00 | 2007.10.23 12:00 | 69,00  | 100,00 | 1          | KLX27A      | 210,00     | 247,00    |           | 75,00  |            |          |           |          |     |           | #NV       | ı        |
| KLX24A | 2007.10.10 00:00 | 2007.10.23 12:00 | 41,00  | 68,00  | 2          | KLX27A      | 210,00     | 247,00    |           | 65,00  |            |          |           |          |     |           | #NV       | i        |

|        | (m     | ) (m     | ) (m**2/s  | s) (m**2/s | ;)         | (1/     | s) (m/s) | ) (m/s)  | (m/s    | ) (1/m)   | (s)    | (s     | (s) (s | 5) (5 | s) (s) | (m**2/s) | (s/m**2) | (s/m**2   | (m**2       | /s) (m**2/s) |           |            | (m**2/s)    |           |            |         |         |
|--------|--------|----------|------------|------------|------------|---------|----------|----------|---------|-----------|--------|--------|--------|-------|--------|----------|----------|-----------|-------------|--------------|-----------|------------|-------------|-----------|------------|---------|---------|
|        |        |          | I_measl_   | t u_measl  | storativit | leakage | hydr_co  | I_measI_ | u_measl | spec_stor |        |        |        |       |        |          |          | index_2_n |             | transmissi   | value_typ | storativit | transmissi  | value_typ | storativit | flow_di | comment |
| idcode | secup  | seclow   | 0          | _to        | y_so       | coeff_o | nd_kosf  | kosf     | _kosf   | age_sosf  | dt1    | dt2    | t1 t2  | dte1  | 1 dte2 | index_1  | index_2  | ew        | diffusivity | vity_to_nlr  | e_to_nlr  | y_so_nlr   | vity_to_grf | e_to_grf  | y_so_grf   | m_grf_o | s       |
| HLX28  | 91,00  | 154,00   | 3,00E-05   | 5 3,00E-04 | 4 1,88E-04 | L I     |          |          |         |           | 35418  | 177372 | 2      |       |        | 0,2      | 2007,9   | 10126,4   | 5,69E-      | 01           |           |            |             |           |            |         |         |
| HLX28  | 70,00  | 90,00    | 3,00E-05   | 5 3,00E-04 | 4 1,30E-04 | Ļ       |          |          |         |           | 70152  | 164844 | L I    |       |        | 0,4      | 2162,3   | 11401,8   | 7,68E-      | 01           |           |            |             |           |            |         |         |
| HLX28  | 7,50   | 69,00    | 4,00E-05   | 5 4,00E-04 | 4 9,30E-05 | 5       |          |          |         |           | 62094  | 164844 | ł      |       |        | 0,3      | 1544,5   | 8425,7    | 1,43E+      | 00           |           |            |             |           |            |         |         |
| HLX37  | 150,00 | 200,00   | 3,00E-05   | 5 3,00E-04 | 4 1,39E-05 | 5       |          |          |         |           | 102528 | 181752 | 2      |       |        | 2,5      | 1853,4   | 11681,3   | 7,69E+      | 00           |           |            |             |           |            |         |         |
| HLX37  | 111,00 | 149,00   | 3,00E-05   | 5 3,00E-04 | 4 1,38E-05 | 5       |          |          |         |           | 103674 | 178692 | 2      |       |        | 2,8      | 2162,3   | 13705,9   | 7,91E+      | 00           |           |            |             |           |            |         |         |
| HLX37  | 94,00  | 110,00   | ) #NV      | #NV        | #NV        |         |          |          |         |           | #NV    | #NV    |        |       |        | #NV      | 772,3    | 4905,8    | #NV         |              |           |            |             |           |            |         |         |
| HLX37  | 0,00   | 93,00    | ) #NV      | #NV        | #NV        |         |          |          |         |           | #NV    | #NV    |        |       |        | #NV      | 772,3    | 4961,6    | #NV         |              |           |            |             |           |            |         |         |
| KLX19A | 509,00 | 517,00   | 0 8,00E-06 | 6 3,00E-05 | 5 9,00E-06 | ò       |          |          |         |           | #NV    | #NV    |        |       |        | 6,1      | 12047,1  | 68991,8   | 1,72E+      | 00           |           |            |             |           |            |         |         |
| KLX19A | 481,50 | 508,00   | 8,00E-06   | 6 3,00E-05 | 5 1,05E-05 | 5       |          |          |         |           | 103674 | 210420 | )      |       |        | 5,5      | 11892,6  | 67429,8   | 1,47E+      | 00           |           |            |             |           |            |         |         |
| KLX19A | 311,00 | 480,50   | 0 8,00E-06 | 6 3,00E-05 | 5 1,29E-05 | 5       |          |          |         |           | 71886  | 205344 | Ļ      |       |        | 4,3      | 11892,6  | 66176,8   | 1,19E+      | 00           |           |            |             |           |            |         |         |
| KLX19A | 291,00 | 310,00   | 2,00E-05   | 5 9,00E-05 | 5 1,78E-05 | 5       |          |          |         |           | 73116  | 178692 | 2      |       |        | 3,3      | 9267,0   | 50149,6   | 2,40E+      | 00           |           |            |             |           |            |         |         |
| KLX19A | 136,00 | 290,00   | 3,00E-05   | 5 3,00E-04 | 4 6,92E-05 | 5       |          |          |         |           | 108858 | 181752 | 2      |       |        | 0,4      | 2007,9   | 11277,6   | 1,30E+      | 00           |           |            |             |           |            |         |         |
| KLX19A | 0,00   | 135,00   | 4,00E-05   | 5 4,00E-04 | 4 4,00E-05 | 5       |          |          |         |           | #NV    | #NV    |        |       |        | 0,9      | 2007,9   | 11472,3   | 2,94E+      | 00           |           |            |             |           |            |         |         |
| KLX20A | 103,00 | 0 144,00 | ) #NV      | #NV        | #NV        |         |          |          |         |           | #NV    | #NV    |        |       |        | #NV      | 926,7    | 6048,1    | #NV         |              |           |            |             |           |            |         |         |
| KLX20A | 0,00   | 0 102,00 | ) #NV      | #NV        | #NV        |         |          |          |         |           | #NV    | #NV    |        |       |        | #NV      | 617,8    | 4030,3    | #NV         |              |           |            |             |           |            |         |         |
| KLX23A | 49,00  | 100,00   | 4,00E-05   | 5 3,00E-04 | 4 2,47E-05 | 5       |          |          |         |           | 120024 | 173094 | l I    |       |        | 1,9      | 2007,9   | 12319,3   | 4,30E+      | 00           |           |            |             |           |            |         |         |
| KLX24A | 69,00  | 0 100,00 | ) #NV      | #NV        | #NV        |         |          |          |         |           | #NV    | #NV    |        |       |        | #NV      | 772,3    | 5106,1    | #NV         |              |           |            |             |           |            |         |         |
| KLX24A | 41.00  | 68.00    | ) #NV      | #NV        | #NV        |         |          |          |         |           | #NV    | #NV    |        |       |        | #NV      | 772.3    | 5110.3    | #NV         |              |           |            |             |           |            |         |         |

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Interference test analysis

## **APPENDIX 8**

Nomenclature

| Character       | SICADA designation | Explanation  | Dimension                             | Unit              |
|-----------------|--------------------|--|---------------------------------------|-------------------|
| Variables,      | constants          |  |                                       |                   |
| A <sub>w</sub>  |                    | Horizontal area of water surface in open borehole, not including area of signal cables, etc.   | [L <sup>2</sup> ]                     | m <sup>2</sup>    |
| b               |                    | Aquifer thickness (Thickness of 2D formation)  | [L]                                   | m                 |
| В               |                    | Width of channel   | [L]                                   | m                 |
| L               |                    | Corrected borehole length  | ĨLĨ                                   | m                 |
| Lo              |                    | Uncorrected borehole length  | ÎLÎ                                   | m                 |
| L               |                    | Point of application for a measuring section based on its                                      | ÎLÎ                                   | m                 |
| P               |                    | centre point or centre of gravity for distribution of transmissivity in the measuring section. |                                       |                   |
| L <sub>w</sub>  |                    | Test section length.   | [L]                                   | m                 |
| dĽ              |                    | Step length, Positive Flow Log - overlapping flow logging.<br>(step length, PFL)               | [L]                                   | m                 |
| r               |                    | Radius   | [L]                                   | m                 |
| r               |                    | Borehole, well or soil pipe radius in test section.  |                                       | m                 |
| r <sub>wo</sub> |                    | Effective borehole, well or soil pipe radius in test section                                   |                                       | m                 |
| 'we             |                    | (Consideration taken to skin factor)   | [-]                                   |                   |
| r.              |                    | Distance from test section to observation section, the   | ri 1                                  | m                 |
| 's              |                    | shortest distance.   | [-]                                   |                   |
| ſt              |                    | interpreted shortest distance via conductive structures.                                       |                                       | m                 |
| r <sub>D</sub>  |                    | Dimensionless radius, r <sub>D</sub> =r/r <sub>w</sub>   | -                                     | -                 |
| Z               |                    | Level above reference point  | [L]                                   | m                 |
| Zr              |                    | Level for reference point on borehole  | [L]                                   | m                 |
| Z <sub>wu</sub> |                    | Level for test section (section that is being flowed), upper limitation                        | [L]                                   | m                 |
| Z <sub>wl</sub> |                    | Level for test section (section that is being flowed), lower limitation                        | [L]                                   | m                 |
| Z <sub>ws</sub> |                    | Level for sensor that measures response in test section (section that is flowed)               | [L]                                   | m                 |
| Zou             |                    | Level for observation section, upper limitation  | [L]                                   | m                 |
| Zol             |                    | Level for observation section, lower limitation  |                                       | m                 |
| Z <sub>os</sub> |                    | Level for sensor that measures response in observation section                                 | [L]                                   | m                 |
| E               |                    | Evaporation:   | [L <sup>3</sup> /(T L <sup>2</sup> )] | mm/y,             |
|                 |                    | hydrological budget:   | [] <sup>3</sup> /T]                   | $m^{3}/s$         |
| ET              |                    | Evapotranspiration   | $[L^{3}/(T L^{2})]$                   | mm/y,             |
|                 |                    | hydrological hydgot:   | п <sup>3</sup> /т1                    | $m^{3}/c$         |
| Р               |                    | Precipitation  | $[L^{7}/(T L^{2})]$                   | mm/y,             |
|                 |                    |  | ru <sup>3</sup> / <del>T</del> T      | mm/d,             |
|                 |                    | nydrological budget:   | $[L^{2}/1]$                           | m <sup>-</sup> /s |
| ĸ               |                    | Groundwater recharge   | [L <sup>°</sup> /(1 L <sup>-</sup> )] | mm/y,<br>mm/d,    |
| L               |                    | hydrological budget:   | [L <sup>×</sup> /[]                   | mĭ/s              |
| D               |                    | Groundwater discharge  | [L <sup>3</sup> /(T L <sup>2</sup> )] | mm/y,<br>mm/d,    |
|                 |                    | hydrological budget:   | [L°/T]                                | m³/s              |
| Q <sub>R</sub>  |                    | Run-off rate   | [L³/T]                                | m³/s              |
| Q <sub>p</sub>  |                    | Pumping rate   | [L³/T]                                | m³/s              |
| QI              |                    | Infiltration rate  | [L <sup>3</sup> /T]                   | m³/s              |
|                 |                    |  |                                       |                   |
| Q               |                    | Volumetric flow. Corrected flow in flow logging $(Q_1 - Q_0)$ (Flow rate)                      | [L <sup>3</sup> /T]                   | m³/s              |
| Q <sub>0</sub>  |                    | Flow in test section during undisturbed conditions (flow logging).                             | [L <sup>3</sup> /T]                   | m³/s              |
| Q <sub>p</sub>  |                    | Flow in test section immediately before stop of flow.<br>Stabilised pump flow in flow logging. | [L <sup>3</sup> /T]                   | m³/s              |

| Character        | SICADA designation | Explanation   | Dimension                            | Unit              |
|------------------|--------------------|---|--------------------------------------|-------------------|
| Q <sub>m</sub>   |                    | Arithmetical mean flow during perturbation phase.   | $[L^3/T]$                            | m <sup>3</sup> /s |
| Q <sub>1</sub>   |                    | Flow in test section during pumping with pump flow Q <sub>p1</sub> , (flow logging).  | [L <sup>3</sup> /T]                  | m³/s              |
| Q <sub>2</sub>   |                    | Flow in test section during pumping with pump flow $Q_{p1}$ , (flow logging).   | [L <sup>3</sup> /T]                  | m³/s              |
|                  |                    |   | ru 3/ <del></del> -1                 | 37                |
| ΣQ               | SumQ               | Cumulative volumetric flow along borehole   |                                      | m <sup>-</sup> /S |
| ΣQ <sub>0</sub>  | SumQ0              | conditions (ie, not pumped)   |                                      | m°/s              |
| $\Sigma Q_1$     | SumQ1              | Cumulative volumetric flow along borehole, with pump flow $Q_{p1}$  | [L³/T]                               | m³/s              |
| ΣQ <sub>2</sub>  | SumQ2              | Cumulative volumetric flow along borehole, with pump flow $Q_{n^2}$   | [L <sup>3</sup> /T]                  | m³/s              |
| ΣQ <sub>C1</sub> | SumQC1             | Corrected cumulative volumetric flow along borehole,<br>$\Sigma \Omega_4 - \Sigma \Omega_0$   | [L <sup>3</sup> /T]                  | m³/s              |
| ΣQ <sub>C2</sub> | SumQC2             | Corrected cumulative volumetric flow along borehole,<br>$\Sigma Q_{1} \Sigma Q_{0}$   | [L <sup>3</sup> /T]                  | m³/s              |
| q                |                    | Volumetric flow per flow passage area (Specific   | ([L <sup>3</sup> /T*L <sup>2</sup> ] | m/s               |
| N/               |                    | discharge (Darcy velocity, Darcy llux, Filtration velocity)).   | rı <sup>3</sup> 1                    | m <sup>3</sup>    |
| V                |                    | Water volume in test section  | [∟]<br>[1 <sup>3</sup> 1             | $m^3$             |
| V <sub>p</sub>   |                    | Total water volume injected/pumped during perturbation  | [L <sup>3</sup> ]                    | m <sup>3</sup>    |
| V                |                    | Velocity  | ([  <sup>3</sup> /T*l <sup>2</sup> ] | m/s               |
| Va               |                    | Mean transport velocity (Average linear velocity (Average linear groundwater velocity, Mean microscopic velocity));.  | $([L^3/T^*L^2])$                     | m/s               |
|                  |                    | v <sub>a</sub> =q/n <sub>e</sub>  |                                      |                   |
| t                |                    | Time  | [T]                                  | hour,mi<br>n,s    |
| t <sub>0</sub>   |                    | Duration of rest phase before perturbation phase.   | [T]                                  | S                 |
| t <sub>p</sub>   |                    | Duration of perturbation phase. (from flow start as far as $p_{p}$ ).   | [T]                                  | S                 |
| t <sub>F</sub>   |                    | Duration of recovery phase (from $p_p$ to $p_F$ ).  | [T]                                  | S                 |
| $t_1, t_2$ etc   |                    | Times for various phases during a hydro test.   | [T]                                  | hour,mi<br>n,s    |
| dt               |                    | Running time from start of flow phase and recovery phase respectively.  | [T]                                  | S                 |
| dt <sub>e</sub>  |                    | $dt_e = (dt \cdot tp) / (dt + tp)$ Agarwal equivalent time with dt as running time for recovery phase.  | [T]                                  | S                 |
| t <sub>D</sub>   |                    | $t_D = T \cdot t / (S \cdot r_w^2)$ . Dimensionless time  | -                                    | -                 |
| þ                |                    | Static pressure; including non-dynamic pressure which<br>depends on water velocity. Dynamic pressure is normally<br>ignored in estimating the potential in groundwater flow<br>relations. | [M/(LT) <sup>2</sup> ]               | kPa               |
| р <sub>а</sub>   |                    | Atmospheric pressure  | $[M/(LT)^{2}]$                       | kPa               |
| p <sub>t</sub>   |                    | Absolute pressure; pt=pa+pg   | $[M/(LT)^2]$                         | kPa               |
| Þg               |                    | Gauge pressure; Difference between absolute pressure and atmospheric pressure.  | [M/(LT) <sup>2</sup> ]               | kPa               |
| P <sub>0</sub>   |                    | Initial pressure before test begins, prior to packer expansion.   | [M/(LT) <sup>2</sup> ]               | kPa               |
| Pi               |                    | Pressure in measuring section before start of flow.   | $[M/(LT)^2]$                         | kPa               |
| p <sub>f</sub>   |                    | Pressure during perturbation phase.   | $[M/(LT)^2]$                         | kPa               |
| ps               |                    | Pressure during recovery.   | $[M/(LT)^2]$                         | kPa               |
| pp               |                    | Pressure in measuring section before flow stop.   | [M/(LT) <sup>2</sup> ]               | kPa               |
| р <sub>F</sub>   |                    | Pressure in measuring section at end of recovery.   | $[M/(LT)^2]$                         | kPa               |
| р <sub>D</sub>   |                    | $p_D=2\pi \cdot T \cdot p/(Q \cdot \rho_w g)$ , Dimensionless pressure  | -                                    | -                 |
| dp               |                    | Pressure difference, drawdown of pressure surface between two points of time.   | [M/(LT) <sup>2</sup> ]               | kPa               |

| Character        | SICADA designation | Explanation   | Dimension              | Unit |
|------------------|--------------------|---|------------------------|------|
| dp <sub>f</sub>  |                    | $dp_f = p_i - p_f$ 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) <sup>2</sup> ] | kPa  |
| dp <sub>s</sub>  |                    | $dp_s = p_s - p_p$ 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) <sup>2</sup> ] | kPa  |
| dpp              |                    | $dp_p = p_i - p_p$ or $p_p - p_i$ , <b>maximal</b> pressure<br>increase/drawdown of pressure surface between two<br>points of time during perturbation phase. $dp_p$ expressed<br>positive.   | [M/(LT) <sup>2</sup> ] | kPa  |
| dp <sub>F</sub>  |                    | $dp_F = p_p - p_F$ or $p_F = p_F - p_p$ , <b>maximal</b> pressure<br>increase/drawdown of pressure surface between two<br>points of time during recovery phase. $dp_F$ expressed<br>positive. | [M/(LT) <sup>2</sup> ] | kPa  |
| Н                |                    | Total head; (potential relative a reference level)<br>(indication of h for phase as for p). $H=h_e+h_o+h_v$   | [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 <sub>e</sub>   |                    | Height of measuring point (Elevation head); Level above reference level for measuring point.  | [L]                    | m    |
| h <sub>p</sub>   |                    | 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 <sub>v</sub>   |                    | Velocity head; height corresponding to the lifting for<br>which the kinetic energy is capable (usually neglected in<br>hydrogeology)  | [L]                    | m    |
| s                |                    | Drawdown; Drawdown from undisturbed level (same as dh <sub>p</sub> , positive)  | [L]                    | m    |
| Sp               |                    | Drawdown in measuring section before flow stop.   | [L]<br>[L]             | m    |
| h <sub>0</sub>   |                    | Initial above reference level before test begins, prior to packer expansion.  | [L]                    | m    |
| h <sub>i</sub>   |                    | Level above reference level in measuring section before start of flow.  | [L]                    | m    |
| h <sub>f</sub>   |                    | Level above reference level during perturbation phase.  | [L]                    | m    |
| h <sub>s</sub>   |                    | Level above reference level during recovery phase.  | [L]                    | m    |
| h <sub>p</sub>   |                    | Level above reference level in measuring section before flow stop.  | [L]                    | m    |
| h <sub>F</sub>   |                    | 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 <sub>f</sub>  |                    | $dh_f = h_i - h_f$ 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 <sub>s</sub>  |                    | $dh_s = h_s - h_p$ 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 <sub>p</sub>  |                    | $dh_p = h_i - h_p$ or $= h_p - h_i$ , maximal pressure<br>increase/drawdown of pressure surface between two<br>points of time during perturbation phase. $dh_p$ expressed<br>positive.        | [L]                    | m    |
| dh <sub>F</sub>  |                    | $dh_F = h_p - h_F$ or $= h_F - h_p$ , maximal pressure<br>increase/drawdown of pressure surface between two<br>points of time during perturbation phase. $dh_F$ expressed<br>positive.        | [L]                    | m    |
| Te <sub>w</sub>  |                    | Temperature in the test section (taken from temperature logging). Temperature   |                        | °C   |
| Te <sub>w0</sub> |                    | Temperature in the test section during undisturbed conditions (taken from temperature logging).   |                        | °C   |

| Character         | SICADA designation | Explanation   | Dimension           | Unit             |
|-------------------|--------------------|---|---------------------|------------------|
| Teo               |                    | Temperature in the observation section (taken from  |                     | °C               |
| FC                |                    | Electrical conductivity of water in test section  |                     | mS/m             |
|                   |                    | Electrical conductivity of water in test section during   |                     | mS/m             |
| - <b>•</b> wo     |                    | undisturbed conditions.   |                     |                  |
| EC <sub>o</sub>   |                    | Electrical conductivity of water in observation section   |                     | mS/m             |
|                   |                    | Total salinity of water in the test section.  | $[M/L^3]$           | ma/L             |
| TDS <sub>w0</sub> |                    | Total salinity of water in the test section during  | $[M/L^3]$           | mg/L             |
|                   |                    | undisturbed conditions.   |                     | Ũ                |
| TDS <sub>o</sub>  |                    | Total salinity of water in the observation section.   | [M/L <sup>3</sup> ] | mg/L             |
| g                 |                    | Constant of gravitation (9.81 m*s <sup>-2</sup> ) (Acceleration due to  | [L/T <sup>2</sup> ] | m/s <sup>2</sup> |
|                   |                    | gravity)  |                     |                  |
| π                 | рі                 | 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. $ME = \frac{1}{n} \sum_{i=1}^{n} r_i$  |                     |                  |
| NMF               |                    | Normalized ME_NME=ME/(x <sub>MAX</sub> -x <sub>MM</sub> )_x: measured   |                     |                  |
|                   |                    | variable considered.  |                     |                  |
| MAE               |                    | Mean absolute error. $MAE = \frac{1}{n} \sum_{i=1}^{n}  r_i $   |                     |                  |
| NMAE              |                    | Normalized MAE. NMAE=MAE/(x <sub>MAX</sub> -x <sub>MIN</sub> ), 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 <sub>MAX</sub> -x <sub>MIN</sub> ), 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.<br>$SEMR = \left(\frac{1}{n(n-1)}\sum_{i=1}^{n} (r_i - ME)^2\right)^{0.5}$                               |                     |                  |
| Parameters        | <u>S</u>           | -   |                     |                  |
| Q/s               |                    | Specific capacity $s=dp_p$ or $s=s_p=h_0-h_p$ (open borehole)   | [L <sup>2</sup> /T] | m²/s             |
| D                 |                    | Interpreted flow dimension according to Barker, 1988.   | [-]                 | -                |
| dt1               |                    | Time of starting for semi-log or log-log evaluated<br>characteristic counted from start of flow phase and<br>recovery phase respectively. | [T]                 | S                |
| dt <sub>2</sub>   |                    | End of time for semi-log or log-log evaluated<br>characteristic counted from start of flow phase and<br>recovery phase respectively.      | [T]                 | S                |
| dt∟               |                    | Response time to obtain 0.1 m (or 1 kPa) drawdown in observation section counted from start of recovery phase.                            | [T]                 | S                |
| ТВ                |                    | Flow capacity in a one-dimensional structure of width B<br>and transmissivity T. Transient evaluation of one-<br>dimensional structure    | [L°/T]              | m³/s             |
| Т                 |                    | Transmissivity  | $[L^2/T]$           | m²/s             |
| T <sub>M</sub>    |                    | Transmissivity according to Moye (1967)   | $[L^2/T]$           | m²/s             |
| T <sub>Q</sub>    |                    | Evaluation based on Q/s and regression curve between Q/s and T, as example see Rhén et al (1997) p. 190.                                  | $[L^2/T]$           | m²/s             |
| Ts                |                    | Transmissivity evaluated from slug test   | $[L^2/T]$           | m²/s             |

| Character                         | SICADA designation | Explanation  | Dimension                | Unit              |
|-----------------------------------|--------------------|--|--------------------------|-------------------|
| T <sub>D</sub>                    |                    | Transmissivity evaluated from PFL-Difference Flow<br>Meter   | [L <sup>2</sup> /T]      | m²/s              |
| T                                 |                    | Transmissivity evaluated from Impeller flow log  | $[L^2/T]$                | m²/s              |
| T <sub>Sf</sub> , T <sub>Lf</sub> |                    | Transient evaluation based on semi-log or log-log<br>diagram for perturbation phase in injection or pumping.   | [L <sup>2</sup> /T]      | m²/s              |
| T <sub>Ss</sub> , T <sub>Ls</sub> |                    | Transient evaluation based on semi-log or log-log  | [L <sup>2</sup> /T]      | m²/s              |
| TT                                |                    | Transient evaluation (log-log or lin-log). Judged best   | [L <sup>2</sup> /T]      | m²/s              |
| T                                 |                    | Evaluation based on pon-linear regression  | [] <sup>2</sup> /T]      | m <sup>2</sup> /s |
|                                   |                    | Judged most representative transmissivity for particular<br>test section and (in certain cases) evaluation time with<br>respect to available data (made by SKB at a later stage).  | [L <sup>2</sup> /T]      | m²/s              |
| к                                 |                    | Hydraulic conductivity   | [] /T]                   | m/s               |
| K                                 |                    | Hydraulic conductivity based on spherical flow model   |                          | m/s               |
| K                                 |                    | Hydraulic conductivity based on spherical now model  |                          | m/s               |
| κ <sub>m</sub>                    |                    |  |                          | $m^2$             |
| k<br>kb                           |                    | Dormoobility thicknoss product: kb-k b   | [∟]<br>[1 <sup>3</sup> ] | $m^3$             |
| KD                                |                    |  | [[]]                     | 111               |
| SB                                |                    | Storage capacity in a one-dimensional structure of width<br>B and storage coefficient S. Transient evaluation of one-<br>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  | [-]                      | -                 |
| Sy                                |                    | Theoretical specific yield of water (Specific yield;<br>unconfined storage. Defined as total porosity (n) minus<br>retention capacity ( $S_r$ )  | [-]                      | -                 |
| S <sub>ya</sub>                   |                    | Specific yield of water (Apparent specific yield);<br>unconfined storage, field measuring. Corresponds to<br>volume of water achieved on draining saturated soil or<br>rock in free draining of a volumetric unit. $S_{ya} = S_y$ (often<br>called $S_y$ in literature)          | [-]                      | -                 |
| Sr                                |                    | Specific retention capacity, (specific retention of water,<br>field capacity) (Specific retention); unconfined storage.<br>Corresponds to water volume that the soil or rock has left<br>after free draining of saturated soil or rock.  | [-]                      | -                 |
| S <sub>f</sub>                    |                    | Fracture storage coefficient   | [-]                      | -                 |
| Sm                                |                    | Matrix storage coefficient   | [-]                      | -                 |
| S <sub>NLR</sub>                  |                    | Storage coefficient, evaluation based on non-linear regression   | [-]                      | -                 |
| S <sub>Tot</sub>                  |                    | Judged most representative storage coefficient for<br>particular test section and (in certain cases) evaluation<br>time with respect to available data (made by SKB at a<br>later stage).  | [-]                      | -                 |
| <u> </u>                          |                    | Oppositio starong conflictants conflict distances  | [ 4 /  ]                 | 1/100             |
| Ss<br>S*                          |                    | Specific storage coefficient; confined storage.  |                          | 1/m               |
| 5 <sub>s</sub> ^                  |                    | Assumed specific storage coefficient; confined storage.  | [ 1/L]                   | 1/m               |
| Cf                                |                    | 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 <sub>f</sub>                    |                    | Leakage factor: $L_f = (K \cdot b \cdot c_f)^{v.s}$ where K represents characteristics of the aquifer.   | [L]                      | m                 |
| ξ                                 | Skin               | Skin factor  | [-]                      | -                 |

| Character                             | SICADA<br>designation | Explanation  | Dimension            | Unit               |
|---------------------------------------|-----------------------|--|----------------------|--------------------|
| <u>*</u> *                            | Skin                  | Assumed skin factor  | [-]                  | -                  |
| Ç                                     |                       | Wellbore storage coefficient   | $[(LT^2) \cdot M^2]$ | m <sup>3</sup> /Pa |
|                                       |                       | $C_{0} = C_{10} \alpha / (2\pi S_{11} r^{2})$ Dimensionless wellbore storage     | [(=: ) ]             |                    |
| CD                                    |                       | coefficient  | [-]                  | -                  |
| 0<br>0                                | Stor-ratio            | $\omega = S_{t}/(S_{t} + S_{m})$ storage ratio (Storativity ratio): the ratio    | [-]                  | -                  |
|                                       |                       | of storage coefficient between that of the fracture and                          |                      |                    |
|                                       |                       | total storage.   |                      |                    |
|                                       |                       |  |                      |                    |
| λ                                     | Interflow-coeff       | $\lambda = \alpha \cdot (K_m / K_f) \cdot r_w^2$ interporosity flow coefficient. | [-]                  | -                  |
|                                       |                       |  |                      |                    |
|                                       |                       |  |                      |                    |
|                                       |                       |  |                      |                    |
| Т                                     |                       | Transmissivity interpreted using the GRF method                                  | [] <sup>2</sup> /T]  | m <sup>2</sup> /s  |
| I GRF                                 |                       | Storage coefficient interpreted using the GRE method                             |                      | 1/m                |
|                                       |                       | Flow dimension interpreted using the GRE method                                  |                      | -                  |
| D <sub>GRF</sub>                      |                       |  | [-]                  | -                  |
| C                                     |                       | Water compressibility: corresponding to B in                                     | $[(1 T^2)/M]$        | 1/Pa               |
| U.W.                                  |                       | hydrogeological literature.  |                      | 1/1 U              |
| Cr                                    |                       | Pore-volume compressibility. (rock compressibility):                             | $[(LT^2)/M]$         | 1/Pa               |
| -1                                    |                       | Corresponding to $\alpha/n$ in hydrogeological literature.                       | [(=: ),]             |                    |
|                                       |                       | , i i i i i i i i i i i i i i i i i i i  |                      |                    |
| Ct                                    |                       | $c_t = c_r + c_w$ , total compressibility; compressibility per                   | $[(LT^2)/M]$         | 1/Pa               |
| -                                     |                       | volumetric unit of rock obtained through multiplying by                          |                      |                    |
|                                       |                       | the total porosity, n. (Presence of gas or other fluids can                      |                      |                    |
|                                       |                       | be included in c <sub>t</sub> if the degree of saturation (volume of             |                      |                    |
|                                       |                       | respective fluid divided by n) of the pore system of                             |                      |                    |
|                                       |                       | respective fluid is also included)   |                      |                    |
| nct                                   |                       | Porosity-compressibility factor: $nc_t = n \cdot c_t$                            | $[(LT^2)/M]$         | 1/Pa               |
| nc <sub>t</sub> b                     |                       | Porosity-compressibility-thickness product: nctb= n·ct.b                         | $[(L^2T^2)/M]$       | m/Pa               |
| n                                     |                       | Total porosity   | -                    | -                  |
| n <sub>e</sub>                        |                       | Kinematic porosity, (Effective porosity)   | -                    | -                  |
| е                                     |                       | Transport aperture. $e = n_e \cdot b$  | [L]                  | m                  |
|                                       |                       |  |                      |                    |
| ρ                                     | Density               | Density  | [M/L <sup>3</sup> ]  | $kg/(m^3)$         |
| ρ <sub>w</sub>                        | Density-w             | Fluid density in measurement section during                                      | [M/L <sup>3</sup> ]  | $kg/(m^3)$         |
| -                                     |                       | pumping/injection  |                      |                    |
| ρο                                    | Density-o             | Fluid density in observation section   | $[M/L^3]$            | $kg/(m^3)$         |
| $\rho_{sp}$                           | Density-sp            | Fluid density in standpipes from measurement section                             | $[M/L^3]$            | $kg/(m^3)$         |
| μ                                     | my                    | Dynamic viscosity  | [M/LT]               | Pas                |
| μ <sub>w</sub>                        | my                    | Dynamic viscosity (Fluid density in measurement section                          | [M/LT]               | Pas                |
|                                       |                       | during pumping/injection)  | _                    |                    |
| FCT                                   |                       | Fluid coefficient for intrinsic permeability, transference of                    | [1/LT]               | 1/(ms)             |
|                                       |                       | k to K; K=FC <sub>T</sub> ·k; FC <sub>T</sub> = $\rho_w$ ·g/ $\mu_w$             |                      |                    |
| FCs                                   |                       | Fluid coefficient for porosity-compressibility, transference                     | $[M/T^{2}L^{2}]$     | Pa/m               |
|                                       |                       | of $c_t$ to $S_s$ ; $S_s = FC_s \cdot n \cdot c_t$ ; $FC_s = \rho_w \cdot g$     |                      |                    |
| Index on K,                           | , T and S             |  |                      |                    |
| s                                     |                       | S' semi-log  |                      | 1                  |
| 1                                     |                       |  |                      |                    |
| f                                     |                       | Pump phase or injection phase designation following S                            |                      |                    |
| '                                     |                       | or I (withdrawal)  |                      |                    |
| s                                     |                       | Recovery phase, designation following S or L (recovery)                          |                      |                    |
| NLR                                   |                       | NLR: Non-linear regression. Performed on the entire test                         |                      |                    |
|                                       |                       | sequence, perturbation and recovery  |                      |                    |
| м                                     |                       | Move   |                      |                    |
| GRF                                   |                       | Generalised Radial Flow according to Barker (1988)                               |                      |                    |
| m                                     |                       | Matrix   |                      |                    |
| f                                     |                       | Fracture   |                      |                    |
| т                                     |                       | Judged best evaluation based on transient evaluation.                            |                      |                    |
| · · · · · · · · · · · · · · · · · · · |                       |  | 1                    | ı                  |

| Character  | SICADA          | Explanation   | Dimension | Unit |
|------------|-----------------|---|-----------|------|
|            | designation     | •   |           |      |
| Tot        |                 | Judged most representative parameter for particular test              |           |      |
|            |                 | section and (in certain cases) evaluation time with                   |           |      |
|            |                 | respect to available data (made by SKB at a later stage).             |           |      |
| b          |                 | Bloch property in a numerical groundwater flow model                  |           |      |
| е          |                 | Effective property (constant) within a domain in a                    |           |      |
|            |                 | numerical groundwater flow model.                                     |           |      |
| Index on p | and Q           |   |           |      |
| 0          |                 | Initial condition, undisturbed condition in open holes                |           |      |
| i          |                 | Natural, "undisturbed" condition of formation parameter               |           |      |
| f          |                 | Pump phase or injection phase (withdrawal, flowing                    |           |      |
|            |                 | phase)  |           |      |
| S          |                 | Recovery, shut-in phase   |           |      |
| р          |                 | Pressure or flow in measuring section at end of                       |           |      |
|            |                 | perturbation period   |           |      |
| F          |                 | Pressure in measuring section at end of recovery period.              |           |      |
| m          |                 | Arithmetical mean value   |           |      |
| С          |                 | Estimated value. The index is placed last if index for                |           |      |
|            |                 | "where" and "what" are used. Simulated value                          |           |      |
| m          |                 | Measured value. The index is placed last if index for                 |           |      |
|            |                 | "where" and "what" are used. Measured value                           |           |      |
| Some misc  | ellaneous index | xes on p and h  | •         |      |
| w          |                 | Test section (final difference pressure during flow phase             |           |      |
|            |                 | in test section can be expressed dp <sub>wp</sub> ; First index shows |           |      |
|            |                 | "where" and second index shows "what")                                |           |      |
| 0          |                 | Observation section (final difference pressure during flow            |           |      |
|            |                 | phase in observation section can be expressed dp <sub>op</sub> ;      |           |      |
|            |                 | 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 nead. 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 nead and n is                  |           |      |
|            |                 | during flow phase in observation section can be                       |           |      |
|            |                 | ovproceed be the first index shows "where" and the                    |           |      |
|            |                 | expressed hopf, the mathematical shows where and the                  |           |      |
|            |                 | "receleulation")  |           |      |
|            | l               |   | 1         |      |