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Oskarshamn site investigation

Hydrogeochemical monitoring programme for core and percussion drilled boreholes 2007

Summary of ground water chemistry results from summer and autumn sampling

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Sweco Environment

December 2008

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Keywords: Groundwater, Borehole, Chemical analysis, Isotope determinations, Elements, Sulphide, AP PS 400-07-044.

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

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

A pdf version of this document can be downloaded from www.skb.se.

Abstract

This report summarises the results from the hydrogeochemical monitoring programme for core and percussion drilled boreholes 2007. Groundwater sampling has been performed in permanently installed boreholes in summer during June–August, and in autumn during November–December. Throughout the summer period groundwater sampling was carried out in totally 11 sections; KLX02:2, KLX05:3, KLX05:7, KLX07A:2, KLX08:3, KLX10A:2, KLX10A:5, KLX12A:2, KLX18A:3, KLX19A:3 and HLX20:2. The autumn sampling period included sampling of groundwater from 10 sections; KLX04:5, KLX05:7, KLX07A:2, KLX08:3, KLX08:4, KLX10A:2, KLX12A:2, KLX15A:3, KLX18A:3 and KLX19A:3.

The programme started in 2005 and since then water sampling has been performed twice every year. The objective of the hydrogeochemical monitoring programme is to determine the groundwater composition in selected sections chosen for this purpose. The sampling method during 2007 was gradually changed in comparison with previous years. Sampling was made in time series instead of after 3–5 conversions.

Obtained results from the activities presented here include groundwater chemistry data in accordance with SKB chemistry class 5 including options and SKB chemistry class 3 including options. Options for SKB chemistry class 5 include lanthanoids and other trace elements, As, In, environmental metals, TOC and the isotopes ^{34}S , ^{37}Cl , $^{87}\text{Sr}/^{86}\text{Sr}$, $^{10}\text{B}/^{11}\text{B}$, ^{13}C , ^{226}Ra , ^{222}Rn , ^{238}U , ^{234}U and ^{230}Th . Options for SKB chemistry class 3 include TOC, DOC and the isotopes ^2H , ^{18}O and ^3H .

All data from the activity are stored in the Sicada database.

Sammanfattning

Denna rapport sammanfattar resultaten från det hydrogeokemiska monitoringsprogrammet för kärn- och hammarborrhål år 2007. Grundvattenprovtagning har genomförts i permanent installerade borrhål under en sommaromgång, juni–augusti, samt en höstomgång, november–december. Under sommaromgången provtogs 11 sektioner; KLX02:2, KLX05:3, KLX05:7, KLX07A:2, KLX08:3, KLX10A:2, KLX10A:5, KLX12A:2, KLX18A:3, KLX19A:3 och HLX20:2. Höstomgången omfattade provtagning i 10 sektioner; KLX04:5, KLX05:7, KLX07A:2, KLX08:3, KLX08:4, KLX10A:2, KLX12A:2, KLX15A:3, KLX18A:3 och KLX19A:3.

Monitoringsprogrammet startade 2005 och provtagning har genomförts två gånger per år. Syftet med provtagningen är att dokumentera grundvattensammansättningen för de i programmet ingående borrhålssektionerna. Under 2007 har provtagningsmetodiken successivt förändrats i jämförelse med tidigare år; istället för provtagning efter 3–5 omsättningar har provtagning utförts i tidsserier.

Resultat från denna aktivitet inkluderar vattenkemidata enligt SKB kemiklass 5 med tillval och SKB kemiklass 3 med tillval. Tillval till SKB kemiklass 5 utgörs av lantanoider och övriga spårelement, As, In, miljömetaller, TOC samt isotoperna ^{34}S , ^{37}Cl , ^{87}Sr , $^{10}\text{B}/^{11}\text{B}$, ^{13}C , ^{226}Ra , ^{222}Rn , ^{238}U , ^{234}U och ^{230}Th . Tillval till SKB kemiklass 3 utgörs av TOC, DOC och isotoperna ^2H , ^{18}O och ^3H .

All data från aktivitetens genomförande återfinns i databasen Sicada.

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1 Introduction

This document presents the data collected during 2007 within the hydrogeochemical monitoring programme for core and percussion drilled boreholes.

The work was carried out in accordance with activity plan AP PS 400-07-044 including supplements. Documents controlling the performance of this activity are listed in Table 1-1. Both the activity plan and the method descriptions are SKB internal controlling documents.

The field work was carried out in June–August and in November–December 2007. During the summer period groundwater sampling was carried out in 11 borehole sections, while the autumn period included sampling of groundwater from 10 borehole sections.

Data from the filed work, as well as analytical results, are traceable by the number of the activity plan in the database Sicada.

A map showing the investigation site at Oskarshamn, including the boreholes sampled in the hydrogeochemical monitoring programme for core and percussion drilled boreholes 2007, is presented in Figure 1-1.

Table 1-1. Documents controlling the performance of the activity.

Activity plan	Number	Version
Hydrogeokemisk monitoring av kärn- och hammarborrhål 2007.	AP PS 400-07-044	1.0
Method descriptions	Number	Version
Mätsystembeskrivning (MSB) – Handhavande del, System för hydrologisk och meteorologisk datainsamling. Vattenprovtagning och utspädningsmätning i observationshål.	SKB MD 368.010	2 (Aug 2004)
Instruktion för rengöring av borrhålsutrustning och viss markbaserad utrustning.	SKB MD 600.004	1.0 (2002-02-07)

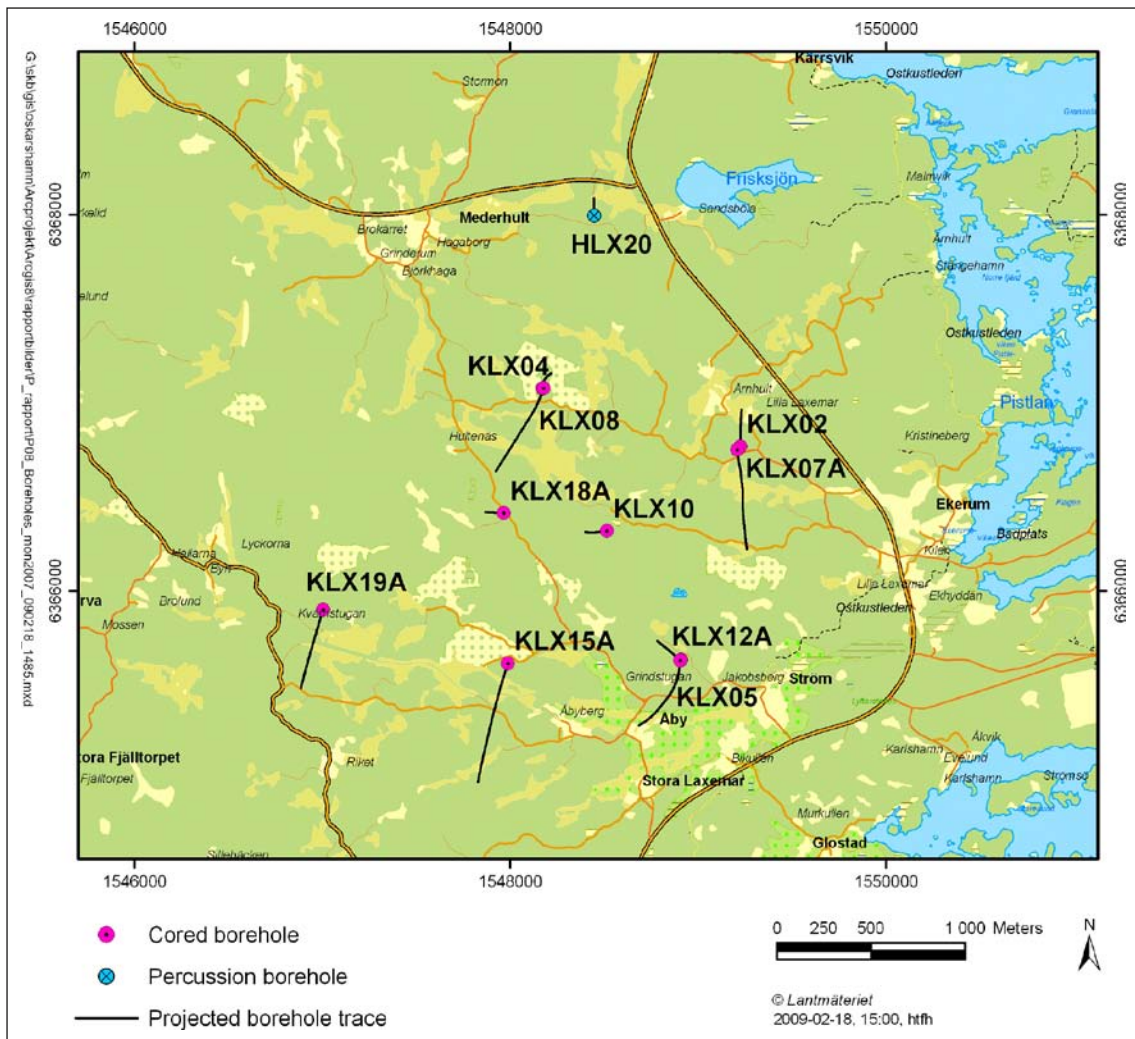


Figure 1-1. Overview of the Oskarshamn site investigation area. The following borehole sections was monitored during the summer period KLX02:2, KLX05:3, KLX05:7, KLX07A:2, KLX08:3, KLX10A:2, KLX10A:5, KLX12A:2, KLX18A:3, KLX19A:3 and HLX20:2. The autumn sampling period included sampling of groundwater from KLX04:5, KLX05:7, KLX07A:2, KLX08:3, KLX08:4, KLX10A:2, KLX12A:2, KLX15A:3, KLX18A:3 and KLX19A:3.

2 Objective and scope

According to the general programme for the Oskarshamn site investigation, core and percussion drilled boreholes are to be monitored twice every year. The water sampling is performed in circulation sections that are sealed off using permanently installed packers. The objective of the hydrogeochemical monitoring programme is to determine ground water composition over time in selected borehole sections chosen for this purpose. Previous water sampling within the programme has been made since 2005.

Ground water sampling within the monitoring programme of 2007 was carried out in summer during June–August and in autumn during November–December. Throughout the summer period groundwater sampling was carried out in totally 11 sections, while the autumn sampling period included sampling of groundwater from 10 sections.

Apart from sending samples to laboratory for chemical analysis, field measurements of pH, temperature and conductivity were performed. Archive samples and sample portions not sent for analysis were stored in freezers and refrigerators.

2.1 Summer period

The following sections were sampled during the summer period:

- KLX02 section 2, 1,145 to 1,164 m.
- KLX05 section 3 and 7, 625 to 633 and 241 to 255 m.
- KLX07A section 2, 753 to 780 m.
- KLX08 section 3, 626 to 683 m.
- KLX10A section 2 and 5, 625 to 633 and 351 to 368 m.
- KLX12A section 2, 535 to 545 m.
- KLX18A section 3, 472 to 489 m.
- KLX19A section 3, 509 to 517 m.
- HLX20 section 2, 71 to 80 m.

Six (6) sections (KLX02:2, KLX05:7, KLX07A:2, KLX08:3, KLX19A:3, HLX20:2) were sampled once after 3–5 conversions.

Eight (8) sections (KLX05:3 stopped after the first time series sample due to low flow rate, KLX05:7, KLX07A:2, KLX10A:2, KLX10A:5, KLX12A:2, KLX18A:3 and KLX19A:3 two times) were sampled in time series (chapter 4.3).

2.2 Autumn period

The following sections were sampled during the autumn period:

- KLX04 section 5, 507 to 530 m.
- KLX05 section 7, 241 to 255 m.
- KLX07A section 2, 753 to 780 m.
- KLX08 section 3 and 4, 626 to 683 and 594 to 625 m.
- KLX10A section 2, 689 to 710 m.
- KLX12A section 2, 535 to 545 m.
- KLX15A section 3, 623 to 640 m.
- KLX18A section 3, 472 to 489 m.
- KLX19A section 3, 509 to 517 m.

All sections during the autumn period were sampled in time series (chapter 4.3).

3 Equipment

3.1 Description of equipment

Groundwater sampling is performed in boreholes with permanently installed packers. The pump equipment used for the groundwater sampling is schematically presented in Figure 3-1.

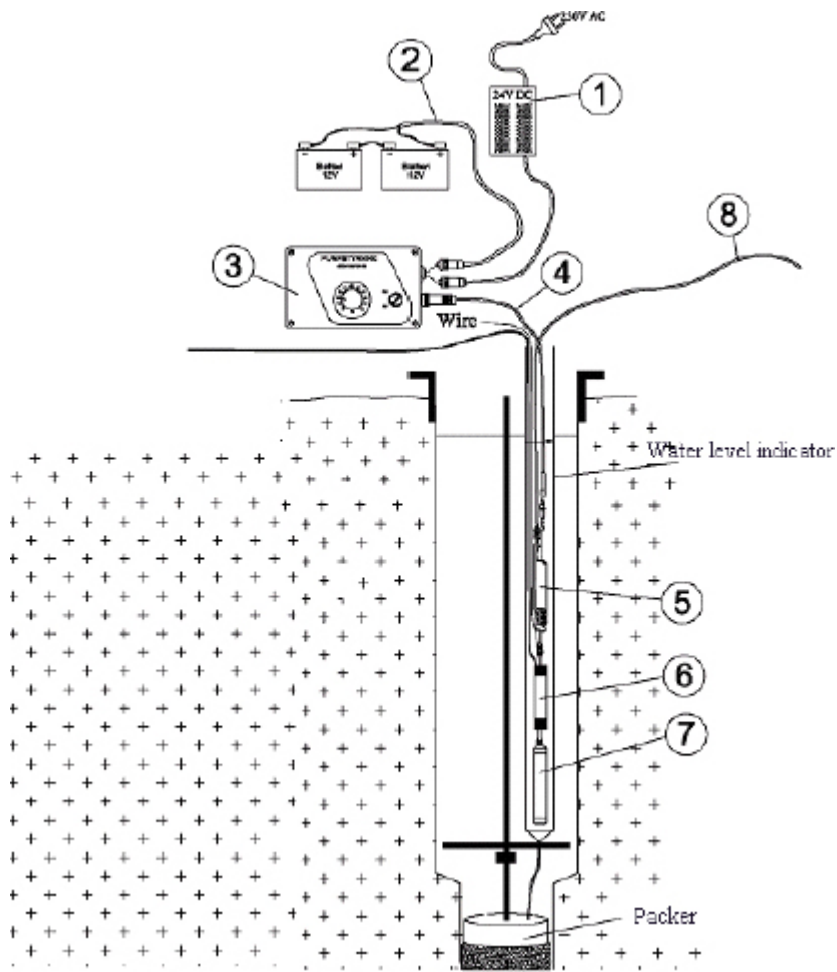


Figure 3-1. Schematic drawing of the equipment used for ground water sampling. 1. Battery eliminator 2. Battery cable 3. Pump control GEOPUMP UV 45 4. Pump cable 5. GEOPUMP UV 45 6. Mini packer 7. Filter holder with filter 8. Pump tube, polyamide 8/6 mm.

4 Execution

4.1 General

The activity was performed in accordance with the activity plan AP PS 400-07-044 including supplements. It also followed the method description SKB MD 368.010 (Mätsystembeskrivning (MSB) – Handhavande del, System för hydrologisk och meteorologisk datainsamling. Vattenprovtagning och utspädningsmätning i observationshål. SKB internal document) and SKB MD 600.004 (Instruktion för rengöring av borrhålsutrustning och viss markbaserad utrustning. SKB internal document).

4.2 Preparations

The portable pH- and conductivity-meters were calibrated at the Äspö Laboratory every second week.

Sampling bottles belonging to the same sample portion was labelled with the same SKB sampling number. Acid washed bottles for analysis of main components and archive samples was prepared with 1 ml HNO₃ suprapur. Acid washed bottles for analysis of iron was prepared with 5 ml HCl suprapur.

Before installation of a pump in a borehole the functionality of the pump was checked using a bucket. To reduce the risk of particles entering the permanent installation in the boreholes, tubes and cables were placed on plastic sheaths. During the lowering of the pump into a borehole all visible particles on the tube and cable were wiped off. New tubes and pump filters were used in each borehole section.

4.3 Execution of field work

Water sampling in each borehole section was performed using identical pump equipment set-ups, as shown in Figure 3-1.

The method of water sampling during 2007 was gradually changed in comparison with previous years. During 2005, 2006 and part of 2007 sampling was made after 3–5 conversions. This means that the water volume in the tube, plus the volume in the section should be converted preferably five times, but at least three times before sampling.

The change in water sampling method from 3–5 conversions to time series sampling resulted in five sampling occasions instead of one for each borehole section.

During each of the first 3 sampling occasions a SKB chemistry class 3 including options was sampled after 1, 2 and 3 conversions respectively. After the third conversion field measurements of electric conductivity were performed until electric conductivity stabilised, then a fourth SKB chemistry class 3 including options was sampled. During the time series sampling the activity leader was updated on electric conductivity values and took part in the decision of when the fourth SKB chemistry class 3 including options should be sampled. After the fourth sampling of SKB chemistry class 3 including options a SKB chemistry class 5 including options was sampled. In most cases after one additional day. Field measurements of electric conductivity were performed until the last sample was taken.

During part of the autumn period 2007 analyse of HS⁻ and Fe(II)/Fe(tot) were added to the first four sampling occasions (KLX07A:2, KLX10A:2, KLX15A:3 and KLX19A:3).

Sampling in time series resulted in converted water volumes much greater than 3–5 conversions. To control the volume of groundwater pumped to the surface the flow was measured. The total delivered amount of water was collected in tanks. The tanks were later emptied onto the rinse slab at Simpevarp.

The water level in the borehole sections was logged in order to determine the maximal draw-down during the sampling period. The drawdown was generally not allowed to exceed 10 m.

Determination of density as well as field measurements of pH, temperature and conductivity were performed. After sampling the pumps were uninstalled.

Archive samples, as well as samples not analyzed due to high drill water content, were stored in a freezer. Some of the sample portions in each SKB chemistry class 3 (²H, ¹⁸O, ³H and main components) were stored in a refrigerator to enable future analyses if required.

4.3.1 Summer period

The first six (6) sections (KLX02:2, KLX05:7, KLX07A:2, KLX08:3, KLX19A:3, HLX20:2) sampled during the summer period were sampled after 3–5 conversions. In each of these six sections one SKB chemistry class 5 including options was sampled. Depending on drill water content, collected samples were analysed as SKB chemistry class 5, 3 or 2.

Eight (8) sections (KLX05:3, KLX05:7, KLX07A:2, KLX10A:2, KLX10A:5, KLX12A:2, KLX18A:3 and KLX19A:3) were sampled in time series. KLX05:3 was stopped after the first sample occasion due to low flow rate. In KLX19A:3 time series sampling was made twice.

Groundwater sampling was performed in the 11 sections listed in Table 4-1.

Converted water volume, volume of water sample, drawdown, pump effect and flow rate for each borehole section are listed in Appendix 1 Table A1-1.

Events during field work, such as pump start, date and time of water sampling and field measurements of temperature, pH and electric conductivity are listed in Appendix 1 Table A1-2 to A1-16.

Pumping was performed twice in section KLX07A:2 and KLX05:7 and three times in KLX19A:3.

4.3.2 Autumn period

Sampling was made in time series in the same way as during the summer period. In four borehole sections (KLX07A:2, KLX10A:2, KLX15A:3 and KLX19A:3) HS⁻ and Fe(II)/Fe(tot) was sampled and analysed as additional options with each SKB chemistry class 3.

Groundwater sampling was performed in time series in the 10 sections listed in Table 4-2.

The water level in the borehole sections was logged in order to determine the maximal draw-down during the sampling period.

Converted water volume, volume of water sample, drawdown, pump effect and flow rate for each borehole section during the field work are listed in Appendix 1 Table A1-17.

Events during the field work, such as pump start, date of water sampling and field measurements of temperature, pH and electric conductivity are listed in Appendix 1 Table A1-18 to A1-27.

Table 4-1. Volume in tube and borehole section and the desired conversion volume.

Borehole section	Volume tube + section (L)	Volume × 3 (L)	Volume × 5 (L)
KLX02:2	43.8	131.3	218.9
KLX05:3	25.1	75.2	125.3
KLX05:7	16.2	48.5	80.8
KLX07A:2	34.9	104.7	174.5
KLX08:3	59.1	177.3	295.5
KLX10A:2	31.1	93.3	155.6
KLX10A:5	20.3	60.7	101.2
KLX12A:2	23.2	69.5	115.8
KLX18A:3	37.3	111.9	186.5
KLX19A:3	36.5	109.4	182.3
HLX20:2	138.5	415.4	692.4

Table 4-2. Volume in tube and borehole section and the desired conversion volume.

Borehole section	Volume tube+section (L)	Volume x 3 (L)	Volume x 5 (L)
KLX04:5	26.4	79.1	131.8
KLX05:7	16.2	48.5	80.8
KLX07A:2	34.9	104.7	174.5
KLX08:3	59.1	177.3	295.5
KLX08:4	48.8	146.3	243.9
KLX10A:2	31.1	93.3	155.6
KLX12A:2	23.2	69.5	115.8
KLX15A:3	58.0	173.9	289.9
KLX18A:3	37.3	111.9	186.5
KLX19A:3	36.5	109.4	182.3

4.4 Data handling

All data related to events during field work such as installation of pumps, water sampling and field measurements were noted in protocols. Before the protocols were handed over to SKB they were quality checked and signed by the responsible personnel.

Quality control of chemical analyse results were made by the responsible personnel before they were sent to SKB. A statistical evaluation showing results above and below the 90th and 10th percentile, as well as the 95th and 5th percentile, were conducted. In addition to the statistical evaluation calculation of charge balance errors (equation 4-1) were made and reported.

$$\text{Relative error (\%)} = 100 \times \frac{\sum \text{cations(equivalents)} - \sum \text{anions(equivalents)}}{\sum \text{cations(equivalents)} + \sum \text{anions(equivalents)}} \quad (\text{equation 4-1})$$

When the quality checked data are sent to SKB, routines for quality control and data management are applied.

Some of the constituents are determined by more than one method and/or laboratory. All analytical results are stored in the Sicada database. The applied hierarchy path “Hydrogeochemistry/ Hydrochemical investigation/Analyses/Water in the database” contains two types of tables, raw data tables and primary data tables (final data tables).

Data regarding basic water analyses are inserted into the raw data tables for further evaluation. The evaluation results in a final reduced dataset for each sample. These data sets are compiled in a primary data table named “water composition”. The evaluation is based on:

- Comparison of the results from different laboratories and/or methods.
- Calculation of charge balance errors, (equation 4-1). Relative errors within $\pm 5\%$ are considered acceptable.
- General judgement of plausibility based on earlier results and experience.

All results from special analyses of trace metals and isotopes are inserted directly into primary data tables. In cases when the analyses are repeated or performed by more than one laboratory, a “best choice” notation will indicate those results which are considered most reliable.

An overview of the data management is given in Figure 4-1.

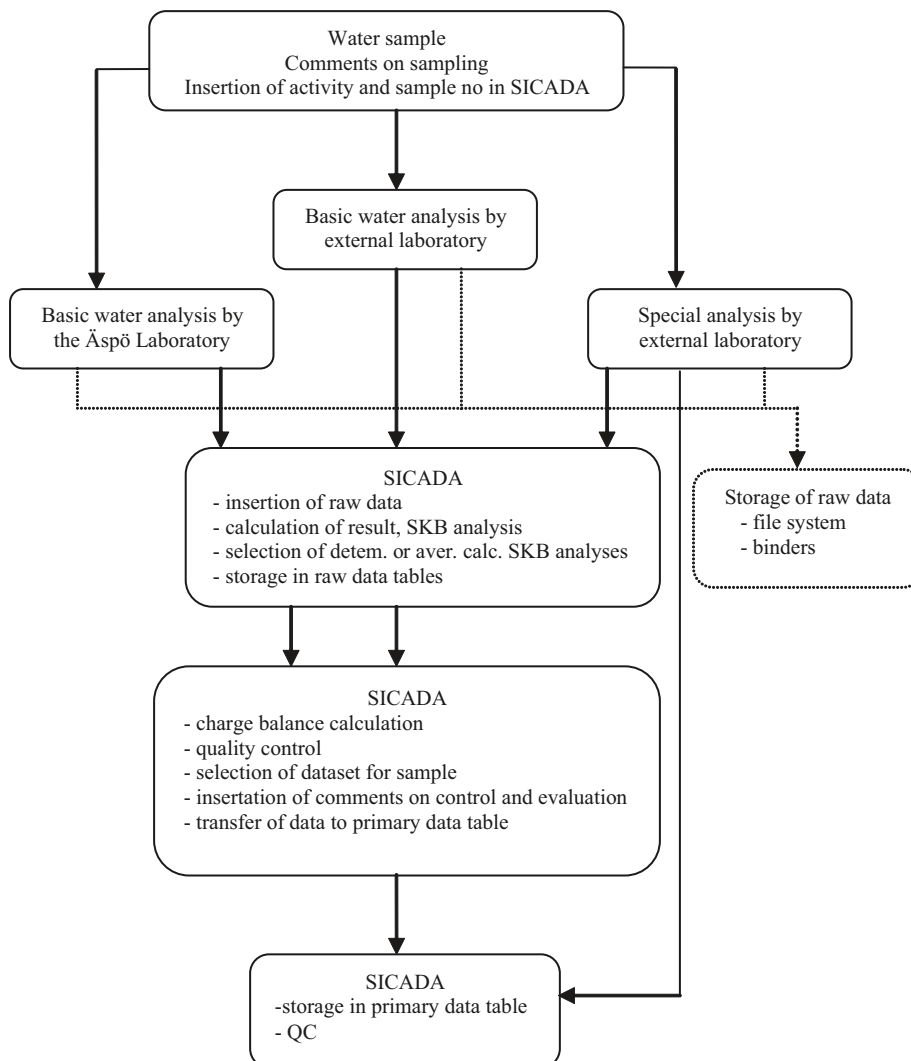


Figure 4-1. Overview of data management for hydrogeochemical data.

4.5 Water sampling, sample treatment and analyses

Water pumped from the borehole was conveyed from the tube into the sample bottles. A water sample is defined as groundwater collected on one occasion and consists of several sample portions, labelled with the same SKB sample number.

The sampling bottles for each SKB chemistry class 3 including options consist of:

- five 250 ml plastic bottles for pH, conductivity, anions, density and archive samples,
- three 100 ml plastic bottles; one for ^2H ^{18}O , one for drill water (brown) and one acid washed for main components,
- one 500 ml plastic bottle for ^3H (dried),
- during the autumn period options for SKB chemistry class 3 was extended with two Winklerflasks for HS^- and one 500 ml plastic acid washed bottle for Fe(II)/Fe(tot). Four borehole sections (KLX10A:2, KLX19A:3, KLX07A:2, KLX15A:3) was sampled with this extended version of SKB chemistry class 3 during the autumn period.

The sampling bottles for each SKB chemistry class 5 including options consist of:

- eight 250 ml plastic bottles for pH, conductivity, anions, density, nutrient salts, TOC, DOC and archive samples,
- nine 100 ml plastic bottles; six for I^- , ^2H ^{18}O , $^{87}\text{Sr}/^{86}\text{Sr}$, ^{13}C and drill water (brown) and three acid washed for main components and archive samples,
- three 500 ml plastic bottles; two for ^3H (dried) and ^{37}Cl and one acid washed for Fe(II)/Fe(tot),
- three 1,000 ml plastic bottles for ^{34}S , U/Th and Ra/Rn,
- two 50 ml flasks for NH_4 ,
- two Winklerflasks for HS^- .

Portioning into sample bottles, filtration and conservation of samples were performed in field.

An overview of sample treatment and analyse methods is given in Appendix 2 Table A2-1.

An overview of methods, reporting limits and uncertainties is given in Appendix 2 Table A2-2.

All analytical results are traceable by the activity plan number and the SKB sample numbers in the database Sicada.

4.6 Control analyses

Control analyses of main components, TOC, DOC and bromide has been made by sending a number of selected samples for analysis at two different laboratories.

4.6.1 Summer period

During the summer period two SKB sample numbers (11985 and 15031) were sent for control analyses of main components, TOC and DOC. Nine samples (SKB numbers 11917, 11918, 11923, 11943, 11985, 1197, 1198, 15029 and 15031) were sent for control analysis of bromide.

4.6.2 Autumn period

During the autumn period two samples (SKB number 15179 and 15242) were sent for control analyses of main components, TOC and DOC. Nine samples (SKB numbers 15155, 15156, 15179, 15190, 15191, 15192, 15242, 15243, 15244 and 15245) were sent for control analysis of bromide.

4.7 Nonconformities

4.7.1 Summer period

Sampling has gradually been made in time series instead of after 3–5 conversion. The change in sampling method resulted in five sample occasions for each borehole section, instead of one.

During the summer period pumping was stopped in borehole KLX05 section 3 after the first conversion due to low hydraulic conductivity and consequently low flow rate. The pumping was stopped because of problems keeping such a low flow rate continuously.

4.7.2 Autumn period

No nonconformities happened during the autumn period.

5 Results

Water chemistry data obtained within the hydrogeochemical monitoring programme during 2007 originate from ground water samples from KLX02:2, KLX04:5, KLX05:3, KLX05:7, KLX07A:2, KLX08:3, KLX08:4, KLX10A:2, KLX10A:5, KLX12A:2, KLX15A:3, KLX18A:3, KLX19A:3 and HLX20:2.

5.1 Chemical analyses

Results from the chemical analyses are presented below and in Appendix 3. The results are stored in the Sicada database and are traceable by the activity plan number AP PS 400-07-044 and the SKB sample numbers. It is only the data in the database that are accepted for further interpretation (modelling).

5.1.1 Summer period

Results from the summer period include water chemistry data for borehole sections KLX02:2, KLX05:3, KLX05:7, KLX07A:2, KLX08:3, KLX10A:2, KLX10A:5, KLX12A:2, KLX18A:3, KLX19A:3 and HLX20.

5.1.2 Autumn period

Results from the autumn period include water chemistry data for borehole sections KLX04:5, KLX05:7, KLX07A:2, KLX08:3, KLX08:4, KLX10A:2, KLX12A:2, KLX15A:3, KLX18A:3 and KLX19A:3.

5.2 Field measurements of electric conductivity

Due to the change in sample method, from 3–5 conversions to time series, electric conductivity became an important parameter. For each section field measurements of electric conductivity were made at least once a day and at every sample occasion.

5.2.1 Summer period

In Appendix 4 Figure A4-1 field measurement of electric conductivity is plotted versus date. Appendix 4 Figure A4-2 shows electric conductivity plotted versus minutes after pump start. Appendix 4 Figure A4-3 shows electric conductivity plotted versus pumped volume (L).

5.2.2 Autumn period

In Appendix 4 Figure A4-4 field measurement of electric conductivity is plotted versus date. Appendix 4 Figure A4-5 shows electric conductivity plotted versus minutes after pump start. Appendix 4 Figure A4-6 shows electric conductivity plotted versus pumped volume (L).

5.3 Sulphide analyses

Four (4) borehole sections during the autumn period were analysed for HS⁻ in the four first sample occasions. Appendix 5 Figure A5-1 shows HS⁻ concentration versus time (min) after pump start. Appendix 5 Figure A5-2 shows HS⁻ concentration plotted versus volume (L) after pump start.

5.4 Basic water analyses

The basic water analyses include Na, K, Ca, Mg, Si, Li, S, Sr, SO₄²⁻, Cl⁻, HCO₃⁻, Br⁻, and F⁻. Furthermore, measurements were made of pH, electric conductivity, drill water content and density. The basic water analysis data and relative charge balance errors are compiled in Appendix 3 Table A3-1.

Values of pH from laboratory and field measurements, are compared in Figure 5-1 (summer) and in Figure 5-2 (autumn). All values are from the last sample occasion in each borehole section.

The sulphur in sulphate has been analysed with two different methods, as sulphur in sulphate using spectrophotometer and as total sulphur using ICP-AES. In Figure 5-3 the sulphur in sulphate are compared to the total sulphur content for the summer period 2007. In Figure 5-4 the sulphur in sulphate are compared to the total sulphur content for the autumn period 2007.

The chloride concentration is plotted versus the corresponding value of electric conductivity for both the summer and the autumn period in Figure 5-5. The plot shows one point that deviates from the other results, KLX12A:2 which was sampled during the autumn period.

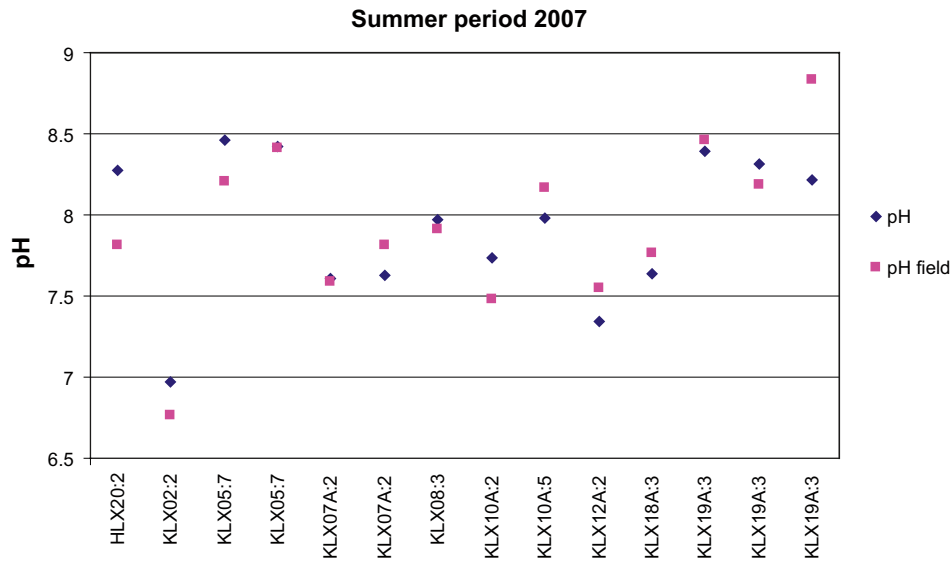


Figure 5-1. pH analysed at the Äspö Laboratory compared to pH measured in field for the last sampling occasion in each borehole section during the summer period.

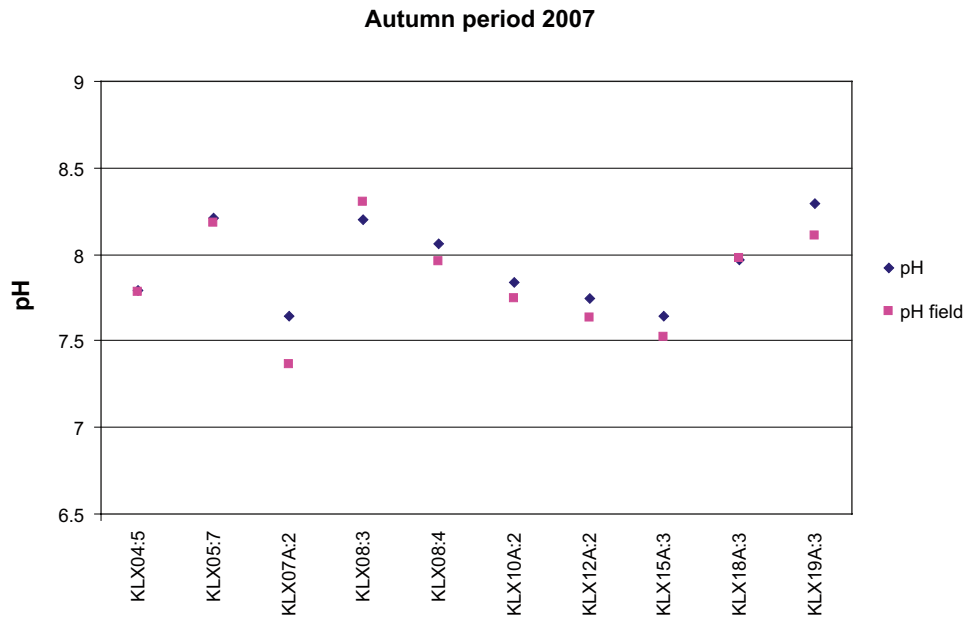


Figure 5-2. pH analysed at the Äspö Laboratory compared to pH measured in field for the last sampling occasion in each borehole section during the autumn period.

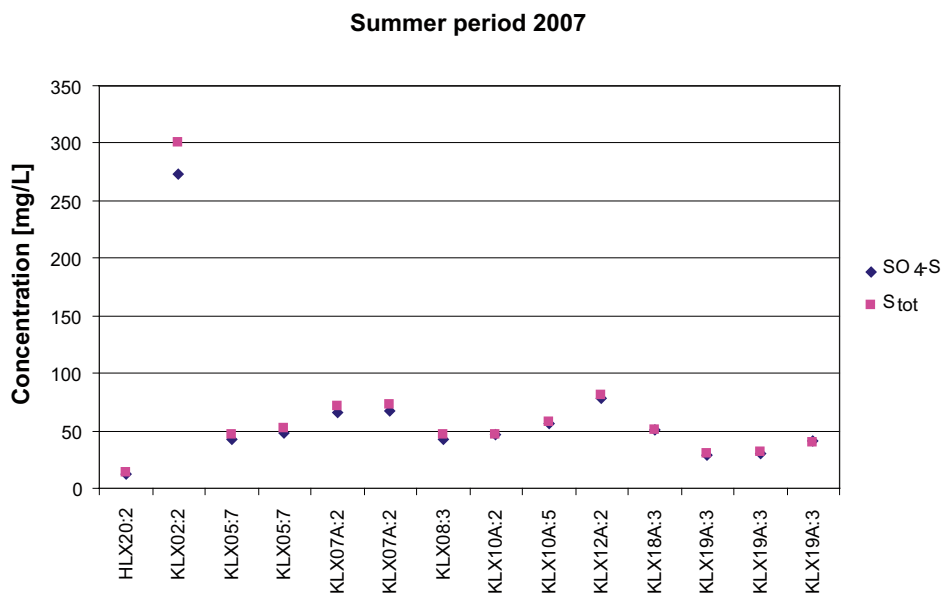


Figure 5-3. Comparison of sulphur in sulphate (analysed using spectrophotometer) with total sulphur content (analysed using ICP-AES) for investigated sections during the summer period 2007.

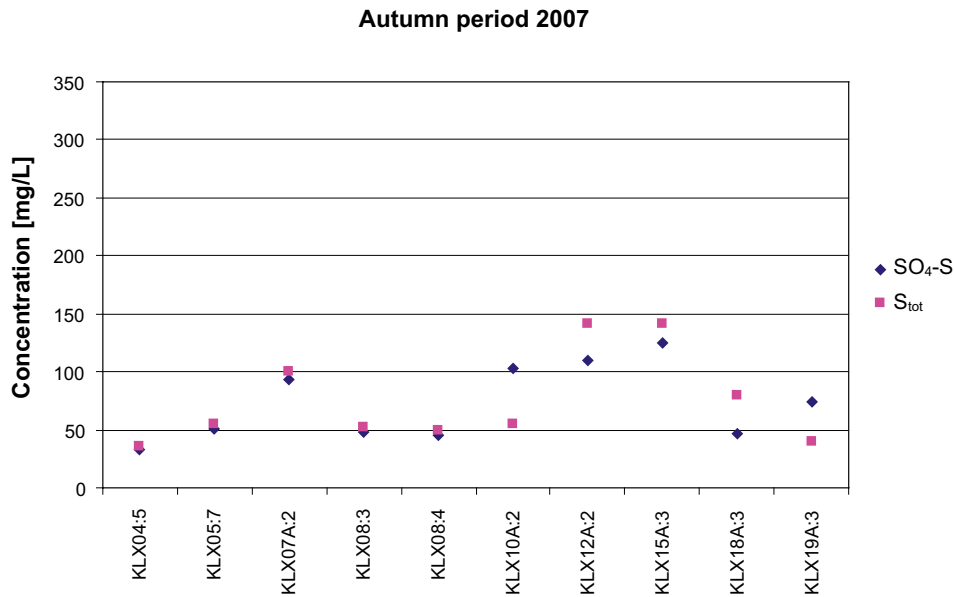


Figure 5-4. Comparison of sulphur in sulphate (analysed using spectrophotometer) with total sulphur content (analysed using ICP-AES) for investigated sections during the autumn period 2007.

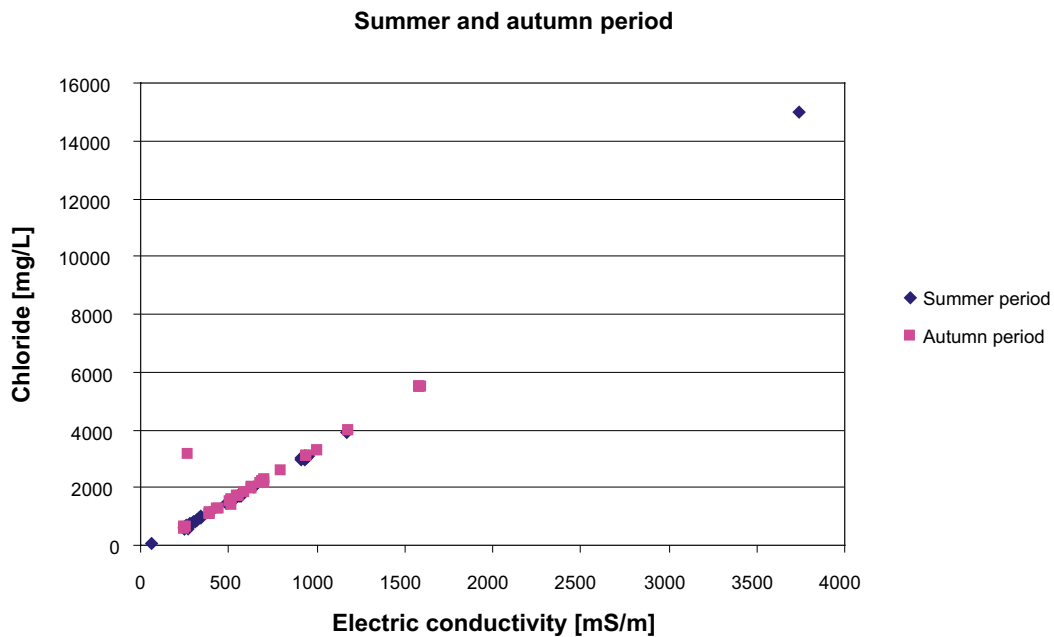


Figure 5-5. Chloride concentration plotted versus electrical conductivity for sampling conducted during the summer and autumn period.

5.5 Trace elements (rare earth elements and other)

The analyses of trace and rare elements include As, Ba, Cd, Ce, Cs, Dy, Er, Eu, Gd, Hg, Hf, Ho, In, La, Lu, Nd, Pr, Rb, Sc, Sm, Th, Tb, Tl, Tm, U, V, Y, Yb and Zr. Commonly occurring metals, such as Cu, Zn, Pb and Mo are not included in the analysis programme due to contamination considerations. The trace element data are compiled in Appendix 3 Table A3-2.

5.6 Stable and radioactive isotopes

The isotope determinations include stable isotopes as well as radioactive isotopes. The isotope data are compiled in Appendix 3 Table A3-3. The ^3H and $^2\text{H}^{18}\text{O}$ results from the monitored sections during the summer and autumn period are presented in Figure 5-6 and 5-7 respectively.

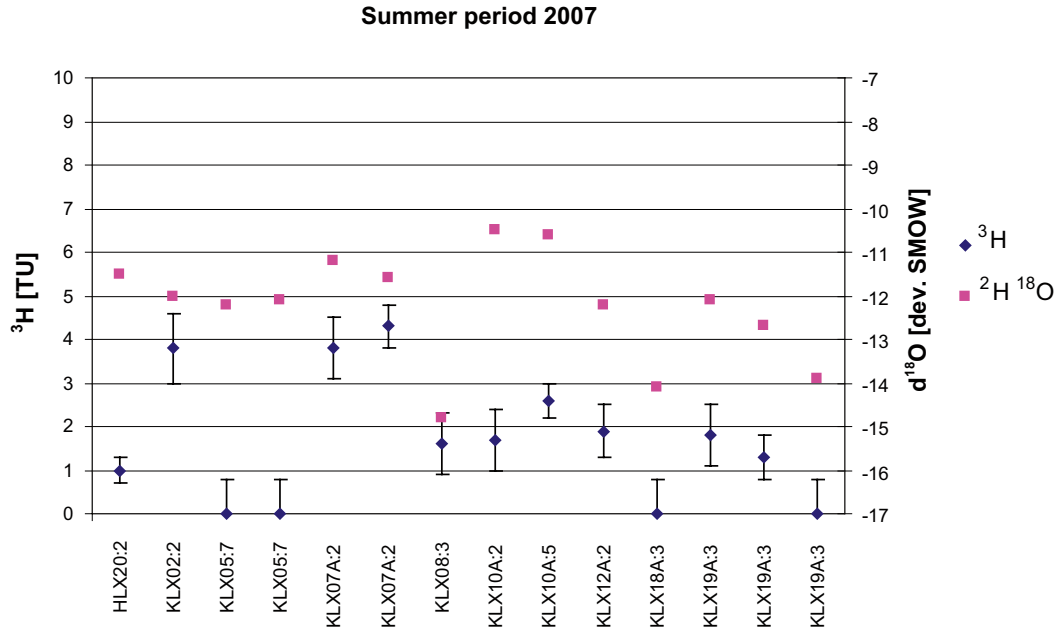


Figure 5-6. $^2\text{H}^{18}\text{O}$ and ^3H data from samples collected from the monitored sections during the summer period (error bars shows standard deviation).

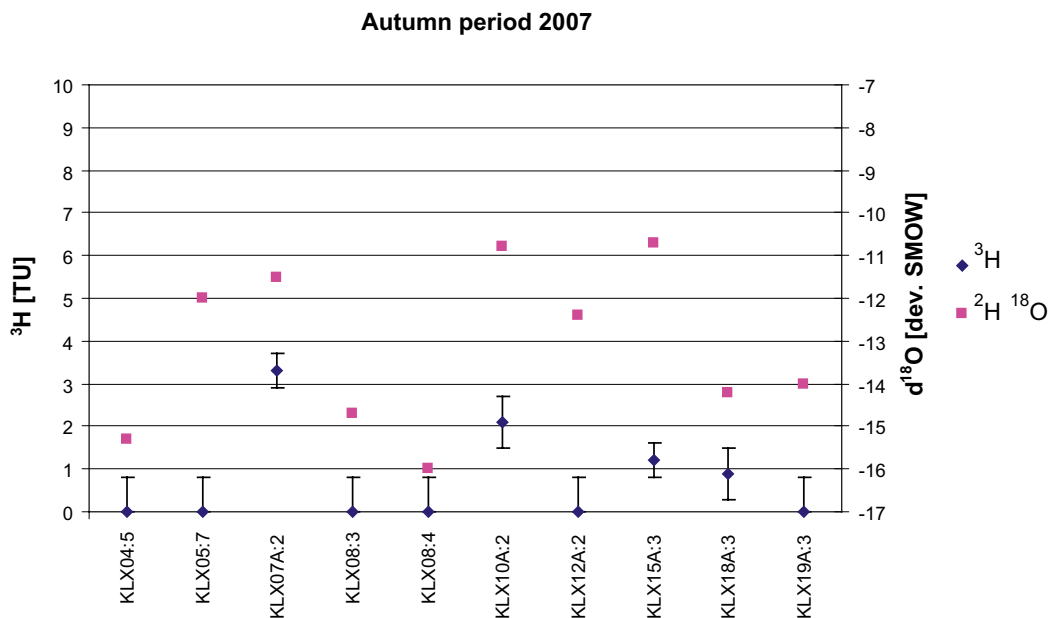


Figure 5-7. $^2\text{H}^{18}\text{O}$ and ^3H data from samples collected from the monitored sections during the autumn period (error bars shows standard deviation).

6 Summary

Two sample periods, summer and autumn, were carried out during 2007 and a total of 22 borehole sections were sampled. Sampling was conducted in accordance with SKB chemistry class 3 and 5. The sampling method was gradually changed, from sampling after 3-5 conversions to sampling in time series. When the sampling method changed electric conductivity became an important parameter, the last sample in each time series was sampled when electric conductivity was stable.

Field work and handling of samples have been quality controlled and documented according to given guidelines in the activity plan. During 2007 no accidents or other incidents took place that affected the quality of the performed field work and handling of samples negatively.

Obtained results have been quality controlled and the comparison of the results from different laboratories and/or methods showed agreement in most cases. The charge balance error exceeded the acceptable level of $\pm 5\%$ in two cases, for KLX04:5 (5.23%) and KLX10A:2 (5.13%).

Sampling conditions and events during field work

Summer period

Table A1-1. Sampling conditions in borehole sections sampled during the summer period.

	KLX02:2	KLX05:3	KLX05:7*	KLX07A:2*	KLX08:3	KLX10A:2
Pumped, converted water volume (L)	180	35	77, 220	172, 750	250	319
Water sample, volume (L)	7.65	1.5	7.65, 12.7	7.65, 12.7	7.65	12.7
Maximal drawdown (m)	12	27	0.85, 1.45	0.3, 0.35	2.3	7.6
Maximum pump effect (%)	50	30	20, 35	90, 60	58	26
Maximum flow rate (L/min)	0.19	0.005	0.1, 0.26	0.4, 0.52	0.3	0.95

	KLX10A:5	KLX12A:2	KLX18A:3	KLX19A:3*	HLX20:2
Pumped, converted water volume (L)	990	213	200	135, 165, 5,463	250
Water sample, volume (L)	12.7	12.7	12.7	7.65, 12.7, 12.7	7.65
Maximal drawdown (m)	1.4	4	15.8	2.55, 2.5, 1.6	2.3
Maximum pump effect (%)	55	30	30	50, 70, 45	58
Maximum flow rate (L/min)	0.42	0.11	0.95	0.5, 0.51, 0.5	0.3

* Borehole KLX05, KLX07A and KLX19A was sampled more than one time.

Table A1-2. Events in KLX02, 1,145 to 1,164 m, section 2.

Date	Event	SKB sample no.
2007-07-09	Deflation of packer	
2007-07-09	Installation of pump	
2007-07-09	Start of pump	
2007-07-10	Pump failure, installation of new pump	
2007-07-10	Start of pump	
2007-07-10	Water sampling: SKB class 5	11997
	T _{field} : 16.9°C, pH _{field} : 6.76, conductivity _{field} : 366 mS/m	
2007-07-10	Stop of pump	

Table A1-3. Events in KLX05, 625 to 633 m, section 3.

Date	Event	SKB sample no.
2007-06-25	Deflation of packer	
2007-06-25	Installation of pump	
2007-06-25	Start of pump	
2007-06-28	Due to low flow the flow ceased and was restarted	
2007-06-28	Water sampling: SKB class 3, ¹⁸ O, main components T _{field} : 20.6°C, pH _{field} : 8.02, conductivity _{field} : 845 mS/m	11954
2007-06-29	Due to low flow the flow ceased and was restarted	
2007-06-29	Attempt to increase flow to reduce risk of ceased flow, leads to pump failure	
2007-06-29	Installation of new pump	
2007-07-01	Due to low flow the flow ceased and was restarted	
2007-07-02	Due to low flow the flow ceased and was restarted	
2007-07-02	Due to low flow the flow ceased and was restarted	
2007-07-02	Due to low flow the flow ceased, the pump could not be restarted and it was decided to end conversion in KLX05:3	
2007-07-02	Stop of pump	

Table A1-4. Events in KLX05, 241 to 255 m, section 7.

Date	Event	SKB sample no.
2007-06-18	Deflation of packer	
2007-06-18	Installation of pump	
2007-06-18	Start of pump	
2007-06-19	Water sampling: SKB class 5 T _{field} : 14.0°C, pH _{field} : 8.21, conductivity _{field} : 199 mS/m	11924
2007-06-19	Stop of pump	

Table A1-5. Events in KLX05, 241 to 255 m, section 7.

Date	Event	SKB sample no.
2007-08-13	Deflation of packer	
2007-08-13	Installation of pump	
2007-08-13	Start of pump*	
2007-08-13	Water sampling: SKB class 3 T _{field} : 18.4°C, pH _{field} : 8.24, conductivity _{field} : 246 mS/m	11990
2007-08-13	Water sampling: SKB class 3 T _{field} : 20.8°C, pH _{field} : 8.39, conductivity _{field} : 249 mS/m	15032
2007-08-13	Water sampling: SKB class 3 T _{field} : 18.6°C, pH _{field} : 8.38, conductivity _{field} : 247 mS/m	15034
2007-08-14	Water sampling: SKB class 3 T _{field} : 15.6°C, pH _{field} : 8.44, conductivity _{field} : 248 mS/m	15035
2007-08-14	Water sampling: SKB class 5 T _{field} : 17.8°C, pH _{field} : 8.41, conductivity _{field} : 246 mS/m	11998
2007-08-14	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-6. Events in KLX07A, 753 to 780 m, section 2.

Date	Event	SKB sample no.
2007-06-11	Deflation of packer	
2007-06-11	Installation of pump	
2007-06-12	Start of pump	
2007-06-13	Water sampling: SKB class 5	11918
	T _{field} : 15.3°C, pH _{field} : 7.59, conductivity _{field} : 425 mS/m	
2007-06-13	Stop of pump	

Table A1-7. Events in KLX07A, 753 to 780 m, section 2.

Date	Event	SKB sample no.
2007-06-26	Deflation of packer	
2007-06-26	Installation of pump	
2007-06-26	Start of pump*	
2007-06-26	Water sampling: SKB class 3	11939
	T _{field} : 12.5°C, conductivity _{field} : 329 mS/m	
2007-06-26	Water sampling: SKB class 3	11941
	T _{field} : 13.1°C, pH _{field} : 7.06, conductivity _{field} : 357 mS/m	
2007-06-26	Water sampling: SKB class 3	11942
	T _{field} : 13.5°C, pH _{field} : 7.54, conductivity _{field} : 357 mS/m	
2007-06-26	Water sampling: SKB class 3	11948
	T _{field} : 12.1°C, pH _{field} : 7.78, conductivity _{field} : 374 mS/m	
2007-06-27	Water sampling: SKB class 5	11943
	T _{field} : 11.9°C, pH _{field} : 7.81, conductivity _{field} : 357 mS/m	
2007-06-27	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-8. Events in KLX08, 626 to 683 m, section 3.

Date	Event	SKB sample no.
2007-08-14	Deflation of packer	
2007-08-14	Installation of pump	
2007-08-14	Start of pump	
2007-08-15	Water sampling: SKB class 5	15029
	T _{field} : 15.4°C, pH _{field} : 7.91, conductivity _{field} : 693 mS/m	
2007-08-15	Stop of pump	

Table A1-9. Events in KLX10A, 689 to 710 m, section 2.

Date	Event	SKB sample no.
2007-07-05	Deflation of packer	
2007-07-05	Installation of pump	
2007-07-08	Start of pump*	
2007-07-09	Water sampling: SKB class 3	11959
	T _{field} : 13.2°C, pH _{field} : 7.76, conductivity _{field} : 683 mS/m	
2007-07-09	Water sampling: SKB class 3	11955
	T _{field} : 15.3°C, pH _{field} : 7.28, conductivity _{field} : 893 mS/m	
2007-07-10	Water sampling: SKB class 3	11988
	T _{field} : 12.6°C, pH _{field} : 7.34, conductivity _{field} : 677 mS/m	
2007-07-11	Water sampling: SKB class 3	11993
	pH _{field} : 7.45 (conductivity meter broken)	
2007-07-12	Water sampling: SKB class 5	11984
	pH _{field} : 7.48 (conductivity meter broken)	
2007-07-12	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-10. Events in KLX10A, 351 to 368 m, section 5.

Date	Event	SKB sample no.
2007-06-26	Deflation of packer	
2007-06-26	Installation of pump	
2007-06-26	Start of pump*	
2007-06-26	Water sampling: SKB class 3	11938
	T _{field} : 12.5°C, pH _{field} : 7.81, conductivity _{field} : 422 mS/m	
2007-06-26	Water sampling: SKB class 3	11940
	T _{field} : 12.4°C, pH _{field} : 7.98, conductivity _{field} : 414 mS/m	
2007-06-26	Water sampling: SKB class 3	11949
	T _{field} : 11.7°C, pH _{field} : 8.10, conductivity _{field} : 403 mS/m	
2007-06-27	Water sampling: SKB class 3	11952
	T _{field} : 12.4°C, pH _{field} : 8.20, conductivity _{field} : 520 mS/m	
2007-06-28	Water sampling: SKB class 5	11946
	T _{field} : 10.5°C, pH _{field} : 8.17, conductivity _{field} : 420 mS/m	
2007-06-28	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-11. Events in KLX12A, 535 to 545 m, section 2.

Date	Event	SKB sample no.
2007-07-03	Deflation of packer	
2007-07-03	Installation of pump	
2007-07-08	Start of pump*	
2007-07-09	Water sampling: SKB class 3	11956
	T _{field} : 14.6°C, pH _{field} : 7.73, conductivity _{field} : 756 mS/m	
2007-07-09	Water sampling: SKB class 3	11986
	T _{field} : 17.6°C, pH _{field} : 7.77, conductivity _{field} : 951 mS/m	
2007-07-10	Flow ceased and was restarted	
2007-07-10	Water sampling: SKB class 3	11991
	T _{field} : 16.1°C, pH _{field} : 7.68, conductivity _{field} : 860 mS/m	
2007-07-11	Flow ceased and was restarted	
2007-07-11	Water sampling: SKB class 3	11989
	T _{field} : 25°C, pH _{field} : 7.63, conductivity meter broken	
2007-07-11	Water sampling: SKB class 5	11985
	pH _{field} : 7.55, conductivity meter broken	
2007-07-11	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-12. Events in KLX18A, 472 to 489 m, section 3.

Date	Event	SKB sample no.
2007-06-12	Deflation of packer	
2007-06-12	Installation of pump	
2007-06-13	Start of pump	
2007-06-13	Maximum drawdown 33 m, the pump was stopped	
2007-06-25	Start of pump*	
2007-06-26	Water sampling: SKB class 3	11937
	T _{field} : 16.6°C, conductivity _{field} : 281 mS/m	
2007-06-26	Water sampling: SKB class 3	11947
	T _{field} : 15.0°C, pH _{field} : 7.96, conductivity _{field} : 324 mS/m	
2007-06-27	Attempt to start the pump failed, deflation of packer, check of pump and restart of pump	
2007-06-28	Pump failure, installation of new pump	
2007-06-29	Flow ceased and was restarted	
2007-06-29	Water sampling: SKB class 3	11950
	T _{field} : 16.2°C, pH _{field} : 8.02, conductivity _{field} : 396 mS/m	
2007-06-29	Flow ceased and was restarted	
2007-07-01	Flow ceased and was restarted	
2007-07-02	Flow ceased and was restarted	
2007-07-02	Water sampling: SKB class 3	11951
	T _{field} : 23°C, pH _{field} : 7.83, conductivity _{field} : 485 mS/m	
2007-07-03	Flow ceased and was restarted	
2007-07-03	Water sampling: SKB class 5	11944
	T _{field} : 17.1°C, pH _{field} : 7.76 conductivity _{field} : 512 mS/m	
2007-07-03	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-13. Events in KLX19A, 509 to 517 m, section 3.

Date	Event	SKB sample no.
2007-06-13	Deflation of packer	
2007-06-13	Installation of pump	
2007-06-13	Start of pump	
2007-06-13	Water sampling: SKB class 5	11917
	T _{field} : 15.1°C, pH _{field} : 8.46, conductivity _{field} : 224 mS/m	
2007-06-13	Stop of pump	

Table A1-14. Events in KLX19A, 509 to 517 m, section 3.

Date	Event	SKB sample no.
2007-07-04	Deflation of packer	
2007-07-04	Installation of pump	
2007-07-04	Start of pump*	
2007-07-04	Water sampling: SKB class 3	11953
	T _{field} : 14.7°C, pH _{field} : 8.11, conductivity _{field} : 280 mS/m	
2007-07-04	Water sampling: SKB class 3	11958
	T _{field} : 14.3°C, pH _{field} : 8.15, conductivity _{field} : 295 mS/m	
2007-07-04	Water sampling: SKB class 3	11960
	T _{field} : 13.7°C, pH _{field} : 8.30, conductivity _{field} : 295 mS/m	
2007-07-04	Water sampling: SKB class 3	11957
	T _{field} : 13.7°C, pH _{field} : 8.03, conductivity _{field} : 310 mS/m	
2007-07-04	Water sampling: SKB class 5	11945
	T _{field} : 14.2°C, pH _{field} : 8.19, conductivity _{field} : 322 mS/m	
2007-07-04	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-15. Events in KLX19A, 509 to 517 m, section 3.

Date	Event	SKB sample no.
2007-08-13	Deflation of packer	
2007-08-13	Installation of pump	
2007-08-13	Start of pump*	
2007-08-13	Water sampling: SKB class 3	11987
	T _{field} : 16.3°C, pH _{field} : 7.58, conductivity _{field} : 340 mS/m	
2007-08-13	Water sampling: SKB class 3	11992
	T _{field} : 17.2°C, pH _{field} : 8.23, conductivity _{field} : 328 mS/m	
2007-08-13	Water sampling: SKB class 3	15033
	T _{field} : 16.9°C, pH _{field} : 7.89, conductivity _{field} : 338 mS/m	
2007-08-20	Water sampling: SKB class 3	15036
	T _{field} : 14.0°C, pH _{field} : 8.80, conductivity _{field} : 559 mS/m	
2007-08-21	Water sampling: SKB class 5	15031
	T _{field} : 14.6°C, pH _{field} : 8.83, conductivity _{field} : 567 mS/m	
2007-08-21	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-16. Events in HLX20, 7 to –80 m, section 2.

Date	Event	SKB sample no.
	No packer installed in borehole	
2007-06-14	Installation of pump	
2007-06-17	Start of pump	
2007-06-18	Water sampling: SKB class 5	11923
	T_{field} : 16.4°C, pH_{field} : 7.81, $\text{conductivity}_{\text{field}}$: 50.1 mS/m	
2007-06-18	Stop of pump	

Autumn period

Table A1-17. Sampling conditions in borehole sections during the autumn period.

	KLX04:5	KLX05:7	KLX07A:2	KLX08:3	KLX08:4	KLX10A:2*
Pumped, converted water volume (L)	5,538	2,160	5,760	4,320	4,440	86, 635
Water sample, volume (L)	15.2	15.2	23.9	15.2	15.2	3.6, 12
Maximal drawdown (m)	2.8	2.6	0.6	4.3	4.9	4.5, 7
Maximum pump effect (%)	70	45	83	58	70	50, 34
Maximum flow rate L/min)	0.5	0.3	0.5	0.5	0.5	0.06, 0.085

	KLX12A:2	KLX15A:3	KLX18A:3	KLX19A:3
Pumped, converted water volume (L)	1,000	3,620	729	6,480
Water sample, volume (L)	15.2	23.9	15.2	23.9
Maximal drawdown (m)	13.4	3.2	16	2.8
Maximum pump effect (%)	40	45	40	70
Maximum flow rate (L/min)	0.085	0.31	0.07	0.5

*Pumping and sampling in borehole KLX10A was stopped 2007-11-14 and restarted 2007-12-04.

Table A1-18. Events in KLX04, 507 to 530 m, section 5.

Date	Event	SKB sample no.
2007-10-29	Deflation of packer	
2007-10-29	Installation of pump	
2007-10-30	Start of pump*	
2007-10-30	Water sampling: SKB class 3	15158
	T_{field} : broken pH_{field} : 7.43, $\text{conductivity}_{\text{field}}$: broken	
2007-10-30	Water sampling: SKB class 3	15159
	T_{field} : 9.1°C, pH_{field} : 7.62, $\text{conductivity}_{\text{field}}$: broken	
2007-10-30	Water sampling: SKB class 3	15161
	T_{field} : 9.2°C, pH_{field} : 7.79, $\text{conductivity}_{\text{field}}$: broken	
2007-11-01	Water sampling: SKB class 3	15174
	T_{field} : 10.4°C, pH_{field} : 8.01, $\text{conductivity}_{\text{field}}$: 470 mS/m	
2007-11-07	Water sampling: SKB class 5	15156
	T_{field} : 7.5°C, pH_{field} : 7.78, $\text{conductivity}_{\text{field}}$: 600 mS/m	
2007-11-01	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-19. Events in KLX05, 241 to 255 m, section 7.

Date	Event	SKB sample no.
2007-11-06	Deflation of packer	
2007-11-06	Installation of pump	
2007-11-07	Start of pump*	
2007-11-07	Water sampling: SKB class 3	15181
	T _{field} : 6.3°C, pH _{field} : 8.30, conductivity _{field} : 300 mS/m	
2007-11-07	Water sampling: SKB class 3	15182
	T _{field} : 6.3°C, pH _{field} : 8.43, conductivity _{field} : 310 mS/m	
2007-11-07	Water sampling: SKB class 3	15183
	T _{field} : 6.6°C, pH _{field} : 8.54, conductivity _{field} : 310 mS/m	
2007-11-08	Water sampling: SKB class 3	15188
	T _{field} : 7.8°C, pH _{field} : 8.22, conductivity _{field} : 300 mS/m	
2007-11-12	Water sampling: SKB class 5	15190
	T _{field} : 5.9°C, pH _{field} : 8.18, conductivity _{field} : 330 mS/m	
2007-11-12	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-20. Events in KLX07A, 753 to 780 m, section 2.

Date	Event	SKB sample no.
2007-12-03	Deflation of packer	
2007-12-04	Installation of pump	
2007-12-05	Start of pump*	
2007-12-05	Water sampling: SKB class 3	15234
	T _{field} : 5.7°C, pH _{field} : 7.40, conductivity _{field} : 713 mS/m	
2007-12-05	Water sampling: SKB class 3	15235
	T _{field} : 6.6°C, pH _{field} : 7.49, conductivity _{field} : 709 mS/m	
2007-12-05	Water sampling: SKB class 3	15236
	T _{field} : 6.8°C, pH _{field} : 7.58, conductivity _{field} : 697 mS/m	
2007-12-06	Water sampling: SKB class 3	15239
	T _{field} : 8.5°C, pH _{field} : 7.63, conductivity _{field} : 714 mS/m	
2007-12-13	Water sampling: SKB class 5	15245
	T _{field} : 7.0°C, pH _{field} : 7.36, conductivity _{field} : 812 mS/m	
2007-12-13	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-21. Events in KLX08, 626 to 683 m, section 3.

Date	Event	SKB sample no.
2007-10-29	Deflation of packer	
2007-10-29	Installation of pump	
2007-10-30	Start of pump*	
2007-10-30	Water sampling: SKB class 3	15157
	T _{field} : broken pH _{field} : 7.46, conductivity _{field} : broken	
2007-10-30	Water sampling: SKB class 3	15160
	T _{field} : broken pH _{field} : 7.99, conductivity _{field} : broken	
2007-10-30	Water sampling: SKB class 3	15162
	T _{field} : 9.1°C, pH _{field} : 8.21, conductivity _{field} : broken	
2007-11-01	Water sampling: SKB class 3	15173
	T _{field} : 10.6°C, pH _{field} : 8.39, conductivity _{field} : 680 mS/m	
2007-11-05	Water sampling: SKB class 5	15179
	T _{field} : 6.1°C, pH _{field} : 8.30, conductivity _{field} : 720 mS/m	
2007-11-05	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-22. Events in KLX08, 626 to 683 m, section 4.

Date	Event	SKB sample no.
2007-11-05	Deflation of packer	
2007-11-05	Installation of pump	
2007-11-06	Start of pump*	
2007-11-06	Water sampling: SKB class 3	15176
	T _{field} : 8.4°C, pH _{field} : 7.29, conductivity _{field} : 640 mS/m	
2007-11-06	Water sampling: SKB class 3	15177
	T _{field} : 8.4°C, pH _{field} : 7.74, conductivity _{field} : 630 mS/m	
2007-11-06	Water sampling: SKB class 3	15180
	T _{field} : 8.6°C, pH _{field} : 7.97, conductivity _{field} : 640 mS/m	
2007-11-08	Water sampling: SKB class 3	15187
	T _{field} : 8.2°C, pH _{field} : 7.99, conductivity _{field} : 680 mS/m	
2007-11-12	Water sampling: SKB class 5	15191
	T _{field} : 6.7°C, pH _{field} : 7.96, conductivity _{field} : 700 mS/m	
2007-11-12	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-23. Events in KLX10A, 689 to 710 m, section 2.

Date	Event	SKB sample no.
2007-11-12	Deflation of packer	
2007-11-13	Installation of pump	
2007-11-13	Start of pump*	
2007-11-13	Water sampling: SKB class 3	15193
	T _{field} : 6.4°C, pH _{field} : 7.40, conductivity _{field} : 970 mS/m	
2007-11-14	Water sampling: SKB class 3	15194
	T _{field} : 4.4°C, pH _{field} : 7.51, conductivity _{field} : 1,030 mS/m	
2007-11-14	Stop of pump	
2007-12-04	Deflation of packer	
2007-12-04	Installation of pump	
2007-12-04	Start of pump	
2007-12-05	Water sampling: SKB class 3	15237
	T _{field} : 8.2°C, pH _{field} : 7.77, conductivity _{field} : 957 mS/m	
2007-12-10	Water sampling: SKB class 3	15241
	T _{field} : 8.1°C, pH _{field} : 7.77, conductivity _{field} : 960 mS/m	
2007-12-10	Water sampling: SKB class 5	15242
	T _{field} : 7.5°C, pH _{field} : 7.75, conductivity _{field} : 926 mS/m	
2007-12-10	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-24. Events in KLX12A, 626 to 683 m, section 2.

Date	Event	SKB sample no.
2007-11-06	Deflation of packer	
2007-11-06	Installation of pump	
2007-11-07	Start of pump*	
2007-11-07	Water sampling: SKB class 3	15184
	T _{field} : 4.9°C, pH _{field} : 7.81, conductivity _{field} : 990 mS/m	
2007-11-07	Water sampling: SKB class 3	15185
	T _{field} : 6.0°C, pH _{field} : 7.82, conductivity _{field} : 1,040 mS/m	
2007-11-07	Water sampling: SKB class 3	15186
	T _{field} : 5.5°C, pH _{field} : 7.89, conductivity _{field} : 1,060 mS/m	
2007-11-08	Pump failure, installation of new pump	
2007-11-08	Start of pump	
2007-11-14	Water sampling: SKB class 3	15189
	T _{field} : 10.3°C, pH _{field} : 7.67, conductivity _{field} : 1,250 mS/m	
2007-11-15	Water sampling: SKB class 5	15192
	T _{field} : 7.1°C, pH _{field} : 7.63, conductivity _{field} : 1,260 mS/m	
2007-11-15	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-25. Events in KLX15A, 623 to 640 m, section 3.

Date	Event	SKB sample no.
2007-12-03	Deflation of packer	
2007-12-03	Installation of pump	
2007-12-04	Start of pump*	
2007-12-04	Water sampling: SKB class 3	15231
	T _{field} : 7.2°C, pH _{field} : 7.11, conductivity _{field} : 1,511 mS/m	
2007-12-04	Water sampling: SKB class 3	15232
	T _{field} : 6.7°C, pH _{field} : 7.08, conductivity _{field} : 1,510 mS/m	
2007-12-04	Water sampling: SKB class 3	15233
	T _{field} : 6.2°C, pH _{field} : 7.38, conductivity _{field} : 1,645 mS/m	
2007-12-06	Water sampling: SKB class 3	15238
	T _{field} : 8.6°C, pH _{field} : 7.77, conductivity _{field} : 1,625 mS/m	
2007-12-12	Water sampling: SKB class 5	15244
	T _{field} : 6.0°C, pH _{field} : 7.52, conductivity _{field} : 1,637 mS/m	
2007-12-12	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-26. Events in KLX18A, 472 to 489 m, section 3.

Date	Event	SKB sample no.
2007-10-31	Deflation of packer	
2007-10-31	Installation of pump	
2007-10-31	Start of pump*	
2007-10-31	Water sampling: SKB class 3	15163
	T _{field} : 7.4°C, pH _{field} : 7.73, conductivity _{field} : 470 mS/m	
2007-11-01	Water sampling: SKB class 3	15164
	T _{field} : 12.1°C, pH _{field} : 7.81, conductivity _{field} : 530 mS/m	
2007-11-01	Water sampling: SKB class 3	15175
	T _{field} : 13.0°C, pH _{field} : 8.0, conductivity _{field} : 550 mS/m	
2007-11-06	Water sampling: SKB class 3	15178
	T _{field} : 7.7°C, pH _{field} : 8.08, conductivity _{field} : 580 mS/m	
2007-11-07	Water sampling: SKB class 5	15155
	T _{field} : 6.7°C, pH _{field} : 7.98, conductivity _{field} : 610 mS/m	
2007-11-07	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Table A1-27. Events in KLX19A, 509 to 517 m, section 3.

Date	Event	SKB sample no.
2007-12-03	Deflation of packer	
2007-12-03	Installation of pump	
2007-12-03	Start of pump*	
2007-12-03	Water sampling: SKB class 3	15228
	T _{field} : 8.3°C, pH _{field} : 7.56, conductivity _{field} : 507 mS/m	
2007-12-13	Water sampling: SKB class 3	15229
	T _{field} : 7.9°C, pH _{field} : 7.64, conductivity _{field} : 563 mS/m	
2007-12-03	Water sampling: SKB class 3	15230
	T _{field} : 7.7°C, pH _{field} : 7.90, conductivity _{field} : 553 mS/m	
2007-12-06	Water sampling: SKB class 3	15240
	T _{field} : 8.7°C, pH _{field} : 8.26, conductivity _{field} : 591 mS/m	
2007-12-11	Water sampling: SKB class 5	15243
	T _{field} : 7.4°C, pH _{field} : 8.11, conductivity _{field} : 605 mS/m	
	Stop of pump	

* Field measurement of temperature, pH and conductivity has been made in between water sampling, these values can be found in Sicada.

Sampling and analyse methods

Appendix 2

Table A2-1. Sample handling routines and analyse methods.

Component group	Component/element	Sample container (material)	Volume (ml)	Filtering	Preparation/Conservation	Analyse methods	Analysis within – or delivery time to lab	Included in SKB class
Drill water	Uranine	Plastic (brown)	100	No	No	Spectrofluometry	–	2,3,5
Anions	HCO ₃	Plastic	250	No	No	Titration	The same day – maximum 24 h	2,3,5
	pH (lab)					Pot.meas.		2,3,5
	cond (lab)					Cond. meas.	2,3,5	
	SO ₄ ²⁻ , Br ⁻ , F ⁻	Plastic	250	No	No	IC	Not critical (month)	3,5
Cations	Cl ⁻					Titration	Not critical (month)	2,3,5
	Br ⁻ , I ⁻	Plastic	100	No	No	ICP-SFMS	Not critical (month)	5
	Na, K, Ca, Mg, S(tot), Si (tot), Li, Sr, Fe, Mn	Plastic (acid washed)	100	Yes (0,47 µm)	Yes (1 mL HNO ₃ , suprapur)	ICP-AES/ICP-SFMS	Not critical (month)	3 (except Fe, Mn),5
Environmental metals	Al, As, Ba, Cd, Co, Cr, Cu, Hg, In, Mo, Ni, P, Pb, V, Zn					ICP-SFMS	Not critical (month)	5
Boron isotopes	¹⁰ B/ ¹¹ B*					ICP-SFMS	No limit	5
Lantanoids	Sc, Rb, Y, Zr, Sb, Cs, La, Hf, Tl, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, U, Th					ICP-SFMS	Not critical (month)	5
Fe(II), Fe (tot)	Fe(II), Fe(tot)	Plastic (PEH, acid washed)	500	Yes (0,47 µm)	Yes (5 mL HCl, suprapur)	Spectrophotometry	As soon as possible the same day	5
Hydrogen sulphide	HS ⁻	Glass (Winkler)	About 120×2	Yes (0,45 µm)	Yes (0.5 mL 1M ZnAc, 0.5 mL 1M NaOH)	Spectrophotometry	Immediately or if conserved, a few days	5
Nutrient salts	NO ₂ , NO ₃ +NO ₂ , PO ₄	Plastic	250	Yes (0,45 µm)	No	Spectrophotometry	Short transportation time	5
	NH ₄	Glass (flask)	2×25	No	No	Spectrophotometry	Maximum 24 h	5

Component group	Component/ element	Samplecontainer (material)	Volume (ml)	Filtering	Preparation/ Conservation	Analyse methods	Analysis within - or delivery time to lab
Dissolved organic carbon	DOC	Plastic	250	Yes (0,45 µm)	No	Potassium peroxodisulfate (K ₂ S ₂ O ₈), sulfuric acid and UV oxidation and IR detection of carbon dioxide	Short transportation time
Total organic carbon	TOC	Plastic	250	No	No	Potassium peroxodisulfate (K ₂ S ₂ O ₈), sulfuric acid and UV oxidation and IR detection of carbon dioxide	Short transportation time
Environmental isotopes	δ ² H, δ ¹⁸ O	Plastic	100	No	No	MS	Not critical (month)
Tritium	³ H (enhanced)	Plastic (dry bottle)	500	No	No	LSC	Not critical (month)
Chlorine-37	δ ³⁷ Cl	Plastic	500	No	No	ICP MS	Not critical (month)
Carbon isotopes	δ ¹³ C, pmC (¹⁴ C)	Plastic (fluorescence)	2×100	No	No	(A)MS	A few days
Sulphur isotopes	δ ³⁴ S	Plastic	1,000	No	No	Combustion, Micromass Optima isotope MS	No limit
Strontium isotopes	⁸⁷ Sr/ ⁸⁶ Sr	Plastic	100	No	No	TIMS	Days or weeks
Uranium and Thorium isotopes	²³⁴ U, ²³⁵ U, ²³⁸ U, ²³⁰ Th, ²³² Th	Plastic (HPDE)	1,000	No	No	Chemical Separat. Alfa spectroscopy	No limit
Radon and Radium isotopes	²²² Ra, ²²⁶ Rn	Plastic (HPDE)	1,000	No	No	LSS	Immediate transport
Density	Density	Plastic	250	No	No	Pycnometer	-
Archive samples with acid	-	Plastic (acid washed)	2×100	Yes (0,47 µm)	Yes (1 mL HNO ₃ , suprapur)	-	Storage in freeze container
Archive samples without acid	-	Plastic	2×250	Yes (0,45 µm)	No	-	Storage in freeze container

* The B-isotope ratio is given as ¹⁰B/¹¹B (the result reported from the consulting laboratory). If the notation according to international standard for environmental isotopes, ¹¹B/¹⁰B, it is necessary to invert the ¹⁰B/¹¹B value (1/¹⁰B/¹¹B).

Abbreviations and definitions:

IC	Ion chromatograph
ICP-AES	Inductively Coupled Plasma Atomic Emission Spectrometry
ICP-MS	Inductively Coupled Plasma Mass Spectrometry
ICP-SFMS	Inductively Coupled Plasma Sector Field Mass Spectrometry
MS	Mass Spectrometry
LSC	Liquid Scintillation Counting
(A)MS	(Accelerator) Mass Spectrometry
TIMS	Thermal Ionization Mass Spectrometry
LSS	Liquid Scintillation Spectroscopy

Table A2-2 (page 1 of 3). Methods, reporting limits and measurement uncertainties (updated 2008).

Component	Method ¹	Reporting limits (RL), detection limits (DL) or range ²	Unit	Measurement uncertainty ³
pH	Potentiometric	10-mar	pH unit	±0.1
EC	Electrical Conductivity meas.	1–150 150–10,000	mS/m	5% 3%
HCO ₃	Alkalinity titration	1	mg/L	4%
Cl ⁻	Mohr- titration	≥ 70	mg/L	5%
Cl ⁻	IC	0.5–70		8%
SO ₄	IC	0.5	mg/L	12%
Br ⁻	IC	DL 0.2, RL 0.5	mg/L	15%
Br	ICP SFMS	0.001, 0.004, 0.010 ⁴	mg/L	25% ⁵
F ⁻	IC	DL 0.2, RL 0.5	mg/L	13%
F ⁻	Potentiometric	DL 0.1, RL 0.2		12%
I ⁻	ICP SFMS	0.001, 0.004, 0.010 ⁴	mg/L	25% ⁵
Na	ICP AES	0.1	mg/L	13%
K	ICP AES	0.4	mg/L	12%
Ca	ICP AES	0.1	mg/L	12%
Mg	ICP AES	0.09	mg/L	12%
S(tot)	ICP AES	0.16	mg/L	12%
Si(tot)	ICP AES	0.03	mg/L	14%
Sr	ICP AES	0.002	mg/L	12%
Li	ICP AES	0.004	mg/L	12.2%
Fe	ICP AES	0.02	mg/L	13.3% ⁶
Fe	ICP SFMS	0.0004, 0.002, 0.004 ⁴	mg/L	20% ⁶
Mn	ICP AES	0.003	mg/L	12.1% ⁵
Mn	ICP SFMS	0.00003, 0.00004, 0.0001 ⁴	mg/L	53% ⁶
Fe(II), Fe(tot)	Spectrophotometry	DL 0.006, RL 0.02	mg/L	0.005 (0.02–0.05 mg/L) 9% (0.05–1 mg/L) 7% (1–3 mg/L)
HS ⁻	Spectrophotometry, SKB	SKB DL 0.006, RL 0.02	mg/L	25%
HS ⁻	Spectrophotometry, external laboratory	0.01	mg/L	0.02 (0.01–0.2 mg/L) 12% (> 0.2 mg/L)
NO ₂ as N	Spectrophotometry	0.1	mg/L	2%
NO ₃ as N	Spectrophotometry	0.2	mg/L	5%
NO ₂ +NO ₃ as N	Spectrophotometry	0.2	mg/L	0.2 (0.2–20 mg/L) 2% (> 20 mg/L)
NH ₄ as N	Spectrophotometry, SKB	11	mg/L	30% (11–20 mg/L) 25% (20–50 mg/L) 12% (50–1,200 mg/L)
NH ₄ as N	Spectrophotometry external laboratory	0.8	mg/L	0.8 (0.8–20 mg/L) 5% (> 20 mg/L)
PO ₄ as P	Spectrophotometry	0.7	mg/L	0.7 (0.7–20 mg/L) 3% (> 20 mg/L)
Al,	ICP SFMS	0.2, 0.3, 0.7 ⁴	mg/L	17.6% ⁶
Zn	ICP SFMS	0.2, 0.8, 2 ⁴	mg/L	15.5, 17.7, 25.5% ⁶

Table A2-2 (page 2 of 3). Methods, reporting limits and measurement uncertainties (updated 2008).

Component	Method ¹	Reporting limits (RL), detection limits (DL) or range ²	Unit	Measurement uncertainty ³
Ba, Cr, Mo,	ICP SFMS	0.01, 0.04, 0.1 ⁴	mg/L	Ba 15% ⁴ , Cr 22% ⁵ Mo 39% ⁶
Pb	ICP SFMS	0.01, 0.1, 0.3 ⁴	mg/L	15% ⁶
Cd	ICP SFMS	0.002, 0.02, 0.5 ⁴	mg/L	15.5% ⁶
Hg	ICP AFS	0.002	mg/L	10.7% ⁶
Co	ICP SFMS	0.005, 0.02, 0.05 ⁴	mg/L	25.9% ⁶
V	ICP SFMS	0.005, 0.03, 0.05 ⁴	mg/L	18.1% ⁶
Cu	ICP SFMS	0.1, 0.2, 0.5 ⁴	mg/L	14.4% ⁶
Ni	ICP SFMS	0.05, 0.2, 0.5 ⁴	mg/L	15.8% ⁶
P	ICP SFMS	1, 5, 40 ⁴	mg/L	16.3% ⁶
As	ICP SFMS	0.01 (520 mS/m)	mg/L	59.2% ⁶
La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu	ICP SFMS	0.005, 0.02, 0.05 ⁴	mg/L	20%, 20%, 25% ⁶
Sc, In, Th	ICP SFMS	0.05, 0.2, 0.5 ⁴	mg/L	25% ⁶
Rb, Zr, Sb, Cs	ICP SFMS	0.025, 0.1, 0.25 ⁴	mg/L	15%, 20%, 20% ⁵ 25% ⁶
Tl	ICP SFMS	0.025, 0.1, 0.25 ⁴	mg/L	14.3% ^{5 and 6}
Y, Hf	ICP SFMS	0.005, 0.02, 0.05 ⁴	mg/L	15%, 20%, 20% ⁵ 25% ⁶
U	ICP SFMS	0.001, 0.005, 0.01 ⁴	mg/L	13.5%, 14.3%, 15.9% ⁵ 19.1%, 17.9%, 20.9% ⁶
DOC	UV oxidation, IR Carbon analysator	0.5	mg/L	8%
TOC	UV oxidation, IR Carbon analysator	0.5	mg/L	10%
δ ² H	MS	2	‰ SMOW ⁷	0.9 (one standard deviation)
δ ¹⁸ O	MS	0.1	‰ SMOW ⁷	0.1 (one standard dev.)
³ H	LSC	0.8	TU ⁸	0.8
δ ³⁷ Cl	A (MS)	0.2	‰ SMOC ⁹	0.2 ¹⁵
δ ¹³ C	A (MS)	–	‰ PDB ¹⁰	0.3 ¹⁵
¹⁴ C pmc	A (MS)	–	PMC ¹¹	0.4 ¹⁵
δ ³⁴ S	MS	0.2	‰ CDT ¹²	0.4 (one standard dev.)
⁸⁷ Sr/ ⁸⁶ Sr	TIMS	–	No unit (ratio) ¹³	0.00002
¹⁰ B/ ¹¹ B	ICP SFMS	–	No unit (ratio) ¹³	–
²³⁴ U, ²³⁵ U, ²³⁸ U, ²³² Th, ³⁰ Th	Alfa spectr.	0.0001	Bq/L ¹⁴	≤5% (Counting statistics uncertainty)
²²² Rn, ²²⁶ Ra	LSS	0.015	Bq/L ¹⁴	≤5% (Counting statistics uncertainty)

Table A2-2 (page 3 of 3). Methods, reporting limits and measurement uncertainties (updated 2008).

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1. Many elements may be determined by more than one ICP technique depending on concentration range. The most relevant technique and measurement uncertainty for the concentrations normally encountered in groundwater are presented. In cases where two techniques were frequently used, both are displayed.
 2. Reporting limits (RL), generally 10×standard deviation, if nothing else is stated. Measured values below RL or DL are stored as negative values in Sicada (i.e. -RL value and -DL value).
 3. Measurement uncertainty reported by the laboratory, generally as ± percent of measured value in question at 95% confidence interval.
 4. Reporting limits at electrical cond. 520 mS/m, 1,440 mS/m and 3,810 mS/m respectively.
 5. Measurement uncertainty at concentrations 100×RL.
 6. Measurement uncertainty at concentrations 10×RL.
 7. Per mille deviation from SMOW (Standard Mean Oceanic Water).
 8. TU=Tritium Units, where one TU corresponds to a tritium/hydrogen ratio of 10–18 (1 Bq/L Tritium = 8.45 TU).
 9. Per mille deviation from SMOC (Standard Mean Oceanic Chloride).
 10. Per mille deviation from PDB (the standard PeeDee Belemnite).
 11. The following relation is valid between pmC (percent modern carbon) and Carbon-14 age:
$$\text{pmC} = 100 \cdot e^{((1950-y-1.03t)/8274)}$$
 where y = the year of the C-14 measurement and t = C-14 age.
 12. Per mille deviation 16 from CDT (the standard Canyon Diablo Troilite).
 13. Isotope ratio without unit.
 14. The following expressions are applicable to convert activity to concentration, for uranium-238 and thorium-232:
1 ppm U = 12.4 Bq/kg²³⁸U, 1 ppm Th = 3.93 Bq/kg²³²Th.
 15. Isotopes are often reported as per mill deviation from a standard. The deviation is calculated as:
$$\delta y_l = 1,000 \times (K_{\text{sample}} - K_{\text{standard}}) / K_{\text{standard}}$$
 where K= the isotope ratio and y_l = 2H, 18O, 37Cl, 13C or 34S etc.
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Groundwater chemistry data

Appendix 3

Table A3-1 (page 1 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	Na mg/L	K mg/L	Ca mg/L	Mg mg/L	Si mg/L	Li mg/L	SO42 mg/L	SO4S mg/L	Sr mg/L	Cl mg/L	Br mg/L	F mg/L	Mn mg/L	I mg/L	HCO3 mg/L
HLX20	71.00	80.00	2007-06-18 14:35:00	11923	103.0	1.77	12.3	3.4	6.81	0.015	36.90	13.20	0.236	50.2	0.250	4.02	0.04400	0.004	198.00
KLX02	1145.00	1164.00	2007-07-10 14:47:00	11997	3,510.0	14.80	5,660.0	9.3	10.80	2.530	821.00	300.00	102.000	15,000.0	112.000	1.96	0.61400	1.100	21.70
KLX04	507.00	530.00	2007-10-30 10:23:00	15158	-	-	-	-	-	-	53.60	-	-	1,100.0	6.100	1.88	-	-	98.30
KLX04	507.00	530.00	2007-10-30 10:51:00	15159	-	-	-	-	-	-	65.70	-	-	1,080.0	5.850	2.00	-	-	79.30
KLX04	507.00	530.00	2007-10-30 13:32:00	15161	-	-	-	-	-	-	72.90	-	-	1,090.0	6.000	2.03	-	-	71.20
KLX04	507.00	530.00	2007-11-01 13:54:00	15174	-	-	-	-	-	-	89.70	-	-	1,250.0	7.050	2.05	-	-	52.80
KLX04	507.00	530.00	2007-11-07 16:56:00	15156	755.0	4.11	272.0	11.2	7.66	0.169	99.30	36.20	5.480	1,410.0	8.230	2.23	0.20300	0.089	37.50
KLX05	241.00	255.00	2007-06-19 06:00:00	11924	454.0	4.48	53.6	7.4	5.11	0.050	128.00	46.80	1.070	610.0	2.650	3.35	0.08160	-	192.00
KLX05	625.00	633.00	2007-06-28 13:20:00	11954	-	-	-	-	-	-	110.00	-	-	3,930.0	25.900	2.10	-	-	224.00
KLX05	241.00	255.00	2007-08-13 12:58:00	11990	-	-	-	-	-	-	115.00	-	-	621.0	2.800	3.33	-	-	186.00
KLX05	241.00	255.00	2007-08-13 15:04:00	15032	-	-	-	-	-	-	134.00	-	-	613.0	3.450	3.50	-	-	188.00
KLX05	241.00	255.00	2007-08-13 16:56:00	15034	-	-	-	-	-	-	139.00	-	-	597.0	3.000	3.45	-	-	189.00
KLX05	241.00	255.00	2007-08-14 08:33:00	15035	-	-	-	-	-	-	148.00	-	-	596.0	3.000	3.50	-	-	196.00
KLX05	241.00	255.00	2007-08-14 10:21:00	11998	446.0	4.34	55.0	7.2	5.40	0.050	146.00	51.80	0.986	592.0	2.750	3.25	0.08440	0.024	194.00
KLX05	241.00	255.00	2007-11-07 08:56:00	15181	-	-	-	-	-	-	115.00	-	-	610.0	2.180	3.20	-	-	203.00
KLX05	241.00	255.00	2007-11-07 09:55:00	15182	-	-	-	-	-	-	134.00	-	-	605.0	2.350	3.03	-	-	188.00
KLX05	241.00	255.00	2007-11-07 10:54:00	15183	-	-	-	-	-	-	141.00	-	-	595.0	2.330	3.15	-	-	190.00
KLX05	241.00	255.00	2007-11-08 14:55:00	15188	-	-	-	-	-	-	153.00	-	-	598.0	2.380	3.08	-	-	192.00
KLX05	241.00	255.00	2007-11-12 08:02:00	15190	451.0	3.48	60.8	8.1	5.73	0.049	154.00	54.90	1.090	637.0	2.680	3.13	0.06860	0.012	184.00
KLX07A	753.00	780.00	2007-06-13 07:00:00	11918	749.0	6.25	306.0	18.6	7.51	0.125	199.00	70.70	4.580	1,590.0	9.700	1.95	0.31800	0.060	41.60
KLX07A	753.00	780.00	2007-06-26 09:45:00	11939	-	-	-	-	-	-	197.00	-	-	1,710.0	9.770	1.68	-	-	42.30
KLX07A	753.00	780.00	2007-06-26 11:00:00	11941	-	-	-	-	-	-	197.00	-	-	1,630.0	9.500	1.80	-	-	40.50
KLX07A	753.00	780.00	2007-06-26 14:48:00	11942	-	-	-	-	-	-	196.00	-	-	1,590.0	9.580	1.78	-	-	41.50
KLX07A	753.00	780.00	2007-06-26 17:02:00	11948	-	-	-	-	-	-	199.00	-	-	1,620.0	9.650	1.75	-	-	41.50
KLX07A	753.00	780.00	2007-06-27 08:42:00	11943	741.0	6.42	337.0	20.1	7.44	0.132	203.00	72.30	5.180	1,680.0	10.000	1.73	0.36900	0.065	41.00
KLX07A	735.00	780.00	2007-12-05 08:10:00	15234	-	-	-	-	-	-	244.00	-	-	2,130.0	12.000	1.74	-	-	44.80
KLX07A	735.00	780.00	2007-12-05 09:12:00	15235	-	-	-	-	-	-	255.00	-	-	2,130.0	12.700	1.70	-	-	32.60

-- = not analysed.

Table A3-1 (page 2 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time ¹ of sampling	SKB sample no.	Na mg/L	K mg/L	Ca mg/L	Mg mg/L	Si mg/L	Li mg/L	SO42 mg/L	SO4S mg/L	Sr mg/L	Cl mg/L	Br mg/L	F mg/L	Mn mg/L	I mg/L	HCO3 mg/L
KLX07A	735.00	780.00	2007-12-05 10:03:00	15236	–	–	–	–	–	–	244.00	–	–	2,110.0	11.300	1.81	–	–	32.00
KLX07A	735.00	780.00	2007-12-06 09:37:00	15239	–	–	–	–	–	–	512.00	–	–	2,170.0	25.700	3.10	–	–	31.70
KLX07A	735.00	780.00	2007-12-13 07:00:00	15245	984.0	7.37	568.0	25.6	7.33	0.191	281.00	99.70	9.400	2,540.0	14.600	1.70	0.42300	0.135	28.60
KLX08	626.00	683.00	2007-08-15 07:30:00	15029	995.0	8.81	411.0	10.5	7.11	0.192	129.00	47.00	7.670	2,200.0	11.300	2.30	0.09930	0.072	25.20
KLX08	626.00	683.00	2007-10-30 10:09:00	15157	–	–	–	–	–	–	114.00	–	–	2,220.0	10.500	2.25	–	–	52.30
KLX08	626.00	683.00	2007-10-30 12:07:00	15160	–	–	–	–	–	–	123.00	–	–	2,280.0	10.200	2.00	–	–	26.70
KLX08	626.00	683.00	2007-10-30 14:16:00	15162	–	–	–	–	–	–	129.00	–	–	2,280.0	10.900	2.15	–	–	23.50
KLX08	626.00	683.00	2007-11-01 13:41:00	15173	–	–	–	–	–	–	138.00	–	–	2,220.0	10.900	2.25	–	–	18.90
KLX08	626.00	683.00	2007-11-05 08:04:00	15179	1,030.0	6.93	399.0	8.8	7.67	0.192	146.00	52.60	7.830	2,230.0	11.100	2.15	0.08130	0.078	18.00
KLX08	594.00	625.00	2007-11-06 08:35:00	15176	–	–	–	–	–	–	97.30	–	–	1,820.0	9.250	2.30	–	–	5.30
KLX08	594.00	625.00	2007-11-06 10:08:00	15177	–	–	–	–	–	–	118.00	–	–	1,850.0	9.200	2.30	–	–	29.00
KLX08	594.00	625.00	2007-11-06 11:28:00	15180	–	–	–	–	–	–	122.00	–	–	1,860.0	9.350	2.35	–	–	27.00
KLX08	594.00	625.00	2007-11-08 13:29:00	15187	–	–	–	–	–	–	130.00	–	–	1,980.0	10.100	2.30	–	–	20.20
KLX08	594.00	625.00	2007-11-12 10:13:00	15191	926.0	3.15	357.0	8.2	7.05	0.173	135.00	49.40	6.640	2,010.0	10.300	2.50	0.08850	0.037	20.20
KLX10	351.00	368.00	2007-06-26 15:50:00	11938	–	–	–	–	–	–	75.80	–	–	1,740.0	5.980	1.95	–	–	151.00
KLX10	351.00	368.00	2007-06-26 16:40:00	11940	–	–	–	–	–	–	115.00	–	–	1,740.0	6.030	1.90	–	–	117.00
KLX10	351.00	368.00	2007-06-26 17:35:00	11949	–	–	–	–	–	–	135.00	–	–	1,780.0	6.400	2.10	–	–	103.00
KLX10	351.00	368.00	2007-06-27 16:35:00	11952	–	–	–	–	–	–	163.00	–	–	1,960.0	6.850	1.98	–	–	81.40
KLX10	351.00	368.00	2007-06-28 07:48:00	11946	962.0	6.70	272.0	39.3	5.79	0.101	167.00	57.70	4.330	1,990.0	6.550	2.15	0.23700	–	80.50
KLX10	689.00	710.00	2007-07-09 06:47:00	11959	–	–	–	–	–	–	13.70	–	–	3,050.0	11.100	1.86	–	–	179.00
KLX10	689.00	710.00	2007-07-09 14:56:00	11955	–	–	–	–	–	–	85.10	–	–	3,110.0	11.400	2.37	–	–	76.10
KLX10	689.00	710.00	2007-07-10 06:54:00	11988	–	–	–	–	–	–	129.00	–	–	3,090.0	10.800	1.90	–	–	48.10
KLX10	689.00	710.00	2007-07-11 07:10:00	11993	–	–	–	–	–	–	136.00	–	–	3,100.0	11.700	1.88	–	–	44.20
KLX10	689.00	710.00	2007-07-12 05:58:00	11984	1,280.0	12.00	593.0	44.6	8.44	0.182	138.00	46.70	10.300	3,100.0	12.100	1.84	–	–	43.00
KLX10	689.00	710.00	2007-11-13 13:32:00	15193	–	–	–	–	–	–	28.50	–	–	3,150.0	12.000	1.69	–	–	240.00
KLX10	689.00	710.00	2007-11-14 07:28:00	15194	–	–	–	–	–	–	110.00	–	–	3,110.0	11.400	1.73	–	–	56.70
KLX10	689.00	710.00	2007-12-05 10:31:00	15237	–	–	–	–	–	–	133.00	–	–	3,100.0	11.800	1.80	–	–	40.30
KLX10	689.00	710.00	2007-12-10 08:20:00	15241	–	–	–	–	–	–	307.00	–	–	3,100.0	26.000	3.10	–	–	33.40

– = not analysed.

Table A3-1 (page 3 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time ¹ of sampling	SKB sample no.	Na mg/L	K mg/L	Ca mg/L	Mg mg/L	Si mg/L	Li mg/L	SO42 mg/L	SO4S mg/L	Sr mg/L	Cl mg/L	Br mg/L	F mg/L	Mn mg/L	I mg/L	HCO3 mg/L
KLX10	689.00	710.00	2007-12-10 13:43:00	15242	1,140.0	10.90	598.0	36.0	8.16	0.196	307.00	55.10	10.800	3,100.0	25.900	3.20	0.24600	0.200	33.20
KLX12A	535.00	545.00	2007-07-09 08:17:00	11956	–	–	–	–	–	–	211.00	–	–	2,930.0	15.100	1.99	–	–	61.40
KLX12A	535.00	545.00	2007-07-09 16:07:00	11986	–	–	–	–	–	–	222.00	–	–	3,000.0	14.300	2.14	–	–	50.00
KLX12A	535.00	545.00	2007-07-10 08:38:00	11991	–	–	–	–	–	–	226.00	–	–	2,990.0	16.500	2.05	–	–	50.40
KLX12A	535.00	545.00	2007-07-11 08:38:00	11989	–	–	–	–	–	–	231.00	–	–	3,040.0	16.400	2.00	–	–	50.70
KLX12A	535.00	545.00	2007-07-11 12:36:00	11985	1,470.0	7.08	511.0	17.8	7.69	0.148	233.00	81.40	8.950	3,080.0	15.500	1.58	0.17100	0.180	47.10
KLX12A	535.00	545.00	2007-11-07 10:48:00	15184	–	–	–	–	–	–	145.00	–	–	3,180.0	17.600	1.65	–	–	153.00
KLX12A	535.00	545.00	2007-11-07 15:16:00	15185	–	–	–	–	–	–	242.00	–	–	3,280.0	17.300	1.87	–	–	56.70
KLX12A	535.00	545.00	2007-11-07 18:09:00	15186	–	–	–	–	–	–	252.00	–	–	3,300.0	16.900	1.78	–	–	43.40
KLX12A	535.00	545.00	2007-11-14 15:44:00	15189	–	–	–	–	–	–	333.00	–	–	3,960.0	20.600	1.97	–	–	18.10
KLX12A	535.00	545.00	2007-11-15 07:09:00	15192	1,820.0	7.71	680.0	18.0	6.56	0.182	330.00	142.00	12.700	3,980.0	20.900	1.92	0.19600	0.084	18.50
KLX15A	623.00	640.00	2007-12-04 10:06:00	15231	–	–	–	–	–	–	326.00	–	–	5,470.0	26.900	1.70	–	–	35.10
KLX15A	623.00	640.00	2007-12-04 13:11:00	15232	–	–	–	–	–	–	338.00	–	–	5,460.0	26.500	1.57	–	–	30.50
KLX15A	623.00	640.00	2007-12-04 16:32:00	15233	–	–	–	–	–	–	358.00	–	–	5,480.0	27.700	1.67	–	–	27.60
KLX15A	623.00	640.00	2007-12-06 08:45:00	15238	–	–	–	–	–	–	380.00	–	–	5,470.0	26.600	1.62	–	–	23.30
KLX15A	623.00	640.00	2007-12-12 14:49:00	15244	1,860.0	13.90	1,410.0	55.1	5.58	0.265	375.00	141.00	24.500	5,500.0	25.900	1.74	0.50200	0.310	21.30
KLX18A	472.00	489.00	2007-06-26 07:10:00	11937	–	–	–	–	–	–	113.00	–	–	876.0	5.200	2.38	–	–	143.00
KLX18A	472.00	489.00	2007-06-26 18:08:00	11947	–	–	–	–	–	–	121.00	–	–	1,150.0	6.480	2.58	–	–	105.00
KLX18A	472.00	489.00	2007-06-29 08:00:00	11950	–	–	–	–	–	–	133.00	–	–	1,370.0	7.730	2.31	–	–	81.50
KLX18A	472.00	489.00	2007-07-02 14:07:00	11951	–	–	–	–	–	–	152.00	–	–	1,450.0	8.150	2.40	–	–	71.90
KLX18A	472.00	489.00	2007-07-03 07:03:00	11944	761.0	3.73	217.0	13.8	6.61	0.106	151.00	51.30	4.010	1,510.0	8.400	2.45	0.09590	–	65.90
KLX18A	472.00	489.00	2007-10-31 17:09:00	15163	–	–	–	–	–	–	101.00	–	–	1,290.0	7.000	1.90	–	–	128.00
KLX18A	472.00	489.00	2007-11-01 07:20:00	15164	–	–	–	–	–	–	145.00	–	–	1,520.0	8.280	1.73	–	–	66.20
KLX18A	472.00	489.00	2007-11-01 14:15:00	15175	–	–	–	–	–	–	153.00	–	–	1,580.0	8.930	2.10	–	–	58.50
KLX18A	472.00	489.00	2007-11-06 10:33:00	15178	–	–	–	–	–	–	145.00	–	–	1,600.0	8.580	2.33	–	–	72.00
KLX18A	472.00	489.00	2007-11-07 14:26:00	15155	816.0	3.42	225.0	14.0	6.44	0.113	142.00	79.10	4.470	1,570.0	8.250	2.28	0.07660	0.137	75.90
KLX19A	509.00	517.00	2007-06-13 17:05:00	11917	450.0	6.25	56.7	7.6	7.24	0.040	84.40	30.40	0.984	699.0	3.700	3.43	0.07260	0.036	149.00
KLX19A	509.00	517.00	2007-07-04 10:02:00	11953	–	–	–	–	–	–	78.90	–	–	760.0	3.800	3.15	–	–	143.00

– = not analysed.

Table A3-1 (page 4 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time ¹ of sampling	SKB sample no.	Na mg/L	K mg/L	Ca mg/L	Mg mg/L	Si mg/L	Li mg/L	SO42 mg/L	SO4S mg/L	Sr mg/L	Cl mg/L	Br mg/L	F mg/L	Mn mg/L	I mg/L	HCO3 mg/L
KLX19A	509.00	517.00	2007-07-04 11:17:00	11958	–	–	–	–	–	–	86.20	–	–	779.0	4.130	3.33	–	–	137.00
KLX19A	509.00	517.00	2007-07-04 12:40:00	11960	–	–	–	–	–	–	87.80	–	–	805.0	3.980	3.23	–	–	131.00
KLX19A	509.00	517.00	2007-07-04 14:30:00	11957	–	–	–	–	–	–	89.40	–	–	850.0	4.230	3.23	–	–	125.00
KLX19A	509.00	517.00	2007-07-04 16:50:00	11945	563.0	6.62	71.4	8.1	6.99	0.049	90.30	31.30	1.210	894.0	4.480	3.20	0.06760	–	120.00
KLX19A	509.00	517.00	2007-08-13 11:40:00	11987	–	–	–	–	–	–	84.80	–	–	953.0	5.070	3.08	–	–	117.00
KLX19A	509.00	517.00	2007-08-13 13:34:00	11992	–	–	–	–	–	–	63.20	–	–	964.0	3.530	2.23	–	–	110.00
KLX19A	509.00	517.00	2007-08-13 15:56:00	15033	–	–	–	–	–	–	92.50	–	–	989.0	5.530	3.03	–	–	107.00
KLX19A	509.00	517.00	2007-08-13 16:07:00	15036	–	–	–	–	–	–	112.00	–	–	1750.0	9.400	2.90	–	–	37.30
KLX19A	509.00	517.00	2007-08-21 07:19:00	15031	962.0	8.31	152.0	10.1	6.39	0.085	122.00	39.80	2.650	1750.0	9.600	2.75	0.06800	0.075	36.30
KLX19A	509.00	517.00	2007-12-03 09:56:00	15228	–	–	–	–	–	–	92.40	–	–	1720.0	8.850	2.60	–	–	55.50
KLX19A	509.00	517.00	2007-12-03 11:04:00	15229	–	–	–	–	–	–	104.00	–	–	1690.0	8.580	2.60	–	–	46.80
KLX19A	509.00	517.00	2007-12-03 12:08:00	15230	–	–	–	–	–	–	103.00	–	–	1690.0	8.500	2.45	–	–	46.10
KLX19A	509.00	517.00	2007-12-06 13:22:00	15240	–	–	–	–	–	–	220.00	–	–	1800.0	18.300	5.05	–	–	33.30
KLX19A	509.00	517.00	2007-12-11 08:02:00	15243	977.0	5.89	157.0	10.2	6.13	0.085	223.00	40.00	2.650	1850.0	19.200	5.20	0.06470	0.106	30.20

– = not analysed.

Table A3-1 (page 5 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time ¹	SKB sample no.	Fe mg/L	Fetot mg/L	Fe(II) mg/L	HS mg/L	TOC mg/L	DOC mg/L	NO2<N mg/L	NO3<N mg/L	NO2<N+NO3<N mg/L	NH4<N mg/L	PO4<P mg/L	P mg/L
HLX20	71.00	80.00	20070618 14:35:00	11923	0.0342	0.041	0.033	0.025	3.1	3.1	0.0002	<0.0003	0.0003	0.1400	0.0201	0.03040
KLX02	1145.00	1164.00	20070710 14:47:00	11997	1.7400	1.780	1.770	0.152	2.4	2.3	<0.0002	0.0016	0.0017	0.1400	<0.0005	<0.04
KLX04	507.00	530.00	20071030 10:23:00	15158	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	20071030 10:51:00	15159	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	20071030 13:32:00	15161	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	20071101 13:54:00	15174	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	20071107 16:56:00	15156	0.1360	0.146	0.137	0.043	2.1	2.0	<0.0002	<0.0003	<0.0003	0.0662	0.0008	<0.005
KLX05	241.00	255.00	20070619 06:00:00	11924	0.2970	–	–	–	–	–	–	–	–	–	–	–
KLX05	625.00	633.00	20070628 13:20:00	11954	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	20070813 12:58:00	11990	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	20070813 15:04:00	15032	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	20070813 16:56:00	15034	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	20070814 08:33:00	15035	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	20070814 10:21:00	11998	0.3630	0.369	0.346	0.114	7.0	7.0	0.0005	0.0169	0.0174	0.0393	0.0090	0.01130
KLX05	241.00	255.00	20071107 08:56:00	15181	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	20071107 09:55:00	15182	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	20071107 10:54:00	15183	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	20071108 14:55:00	15188	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	20071112 08:02:00	15190	0.3680	0.380	0.369	0.028	5.9	5.8	0.0003	<0.0003	0.0003	0.0338	0.0040	0.00668
KLX07A	753.00	780.00	20070613 07:00:00	11918	0.3650	0.353	0.359	0.165	2.6	2.4	0.0002	0.0010	0.0012	0.0900	<0.0005	0.01670
KLX07A	753.00	780.00	20070626 09:45:00	11939	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	20070626 11:00:00	11941	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	20070626 14:48:00	11942	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	20070626 17:02:00	11948	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	20070627 08:42:00	11943	0.4260	0.438	0.419	0.061	2.5	2.3	<0.0002	0.0083	0.0085	0.1160	0.0009	0.00680
KLX07A	735.00	780.00	20071205 08:10:00	15234	–	0.299	0.288	0.419	2.8	2.5	–	–	–	–	–	–
KLX07A	735.00	780.00	20071205 09:12:00	15235	–	0.342	0.333	0.156	3.0	2.6	–	–	–	–	–	–

– = not analysed.

Table A3-1 (page 6 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time ¹	SKB sample no.	Fe mg/L	Fetot mg/L	Fe(II) mg/L	HS mg/L	TOC mg/L	DOC mg/L	NO2<N mg/L	NO3<N mg/L	NO2<N+NO3<N mg/L	NH4<N mg/L	PO4<P mg/L	P mg/L
KLX07A	735.00	780.00	20071205 10:03:00	15236	–	0.337	0.353	0.122	2.5	2.4	–	–	–	–	–	–
KLX07A	735.00	780.00	20071206 09:37:00	15239	–	0.385	0.382	0.072	2.2	2.1	–	–	–	–	–	–
KLX07A	735.00	780.00	20071213 07:00:00	15245	0.3710	0.380	0.376	0.036	2.0	1.9	<0.0002	<0.0003	<0.0003	0.1120	<0.0005	<0.005
KLX08	626.00	683.00	20070815 07:30:00	15029	0.1370	0.154	0.142	0.280	2.3	2.2	0.0002	0.0023	0.0025	0.0299	0.0059	0.02330
KLX08	626.00	683.00	20071030 10:09:00	15157	–	–	–	–	–	–	–	–	–	–	–	–
KLX08	626.00	683.00	20071030 12:07:00	15160	–	–	–	–	–	–	–	–	–	–	–	–
KLX08	626.00	683.00	20071030 14:16:00	15162	–	–	–	–	–	–	–	–	–	–	–	–
KLX08	626.00	683.00	20071101 13:41:00	15173	–	–	–	–	–	–	–	–	–	–	–	–
KLX08	626.00	683.00	20071105 08:04:00	15179	0.0806	0.099	0.088	0.153	1.5	1.6	<0.0002	0.0003	0.0004	0.0253	0.0035	0.01120
KLX08	594.00	625.00	20071106 08:35:00	15176	–	–	–	–	–	–	–	–	–	–	–	–
KLX08	594.00	625.00	20071106 10:08:00	15177	–	–	–	–	–	–	–	–	–	–	–	–
KLX08	594.00	625.00	20071106 11:28:00	15180	–	–	–	–	–	–	–	–	–	–	–	–
KLX08	594.00	625.00	20071108 13:29:00	15187	–	–	–	–	–	–	–	–	–	–	–	–
KLX08	594.00	625.00	20071112 10:13:00	15191	0.1020	0.115	0.105	0.074	1.6	1.7	<0.0002	<0.0003	<0.0003	0.0145	0.0015	<0.005
KLX10	351.00	368.00	20070626 15:50:00	11938	–	–	–	–	–	–	–	–	–	–	–	–
KLX10	351.00	368.00	20070626 16:40:00	11940	–	–	–	–	–	–	–	–	–	–	–	–
KLX10	351.00	368.00	20070626 17:35:00	11949	–	–	–	–	–	–	–	–	–	–	–	–
KLX10	351.00	368.00	20070627 16:35:00	11952	–	–	–	–	–	–	–	–	–	–	–	–
KLX10	351.00	368.00	20070628 07:48:00	11946	0.2140	0.347	0.334	0.256	–	–	–	–	–	0.0274	–	–
KLX10	689.00	710.00	20070709 06:47:00	11959	–	–	–	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	20070709 14:56:00	11955	–	–	–	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	20070710 06:54:00	11988	–	–	–	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	20070711 07:10:00	11993	–	–	–	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	20070712 05:58:00	11984	–	–	–	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	20071113 13:32:00	15193	–	–	–	29.100	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	20071114 07:28:00	15194	–	–	–	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	20071205 10:31:00	15237	–	0.038	0.035	1.960	3.1	2.7	–	–	–	–	–	–
KLX10	689.00	710.00	20071210 08:20:00	15241	–	0.075	0.064	1.580	2.3	2.1	–	–	–	–	–	–

– = not analysed.

Table A3-1 (page 7 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time ¹	SKB sample no.	Fe mg/L	Fetot mg/L	Fe(II) mg/L	HS mg/L	TOC mg/L	DOC mg/L	NO2<N mg/L	NO3<N mg/L	NO2<N+NO3<N mg/L	NH4<N mg/L	PO4<P mg/L	P mg/L
KLX10	689.00	710.00	20071210 13:43:00	15242	0.0501	0.076	0.065	1.640	2.4	2.3	<0.0002	<0.0003	<0.0003	0.0958	0.0052	0.01430
KLX12A	535.00	545.00	20070709 08:17:00	11956	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	20070709 16:07:00	11986	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	20070710 08:38:00	11991	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	20070711 08:38:00	11989	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	20070711 12:36:00	11985	0.0206	0.033	0.024	–	3.7	3.6	0.0002	0.0023	0.0025	0.0373	0.0033	0.00492
KLX12A	535.00	545.00	20071107 10:48:00	15184	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	20071107 15:16:00	15185	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	20071107 18:09:00	15186	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	20071114 15:44:00	15189	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	20071115 07:09:00	15192	0.0289	0.026	0.024	1.930	2.1	2.4	<0.0002	0.0004	0.0004	0.0136	0.0006	<0.005
KLX15A	623.00	640.00	20071204 10:06:00	15231	–	0.441	0.443	1.730	61.0	62.0	–	–	–	–	–	–
KLX15A	623.00	640.00	20071204 13:11:00	15232	–	0.463	0.478	2.460	46.0	47.0	–	–	–	–	–	–
KLX15A	623.00	640.00	20071204 16:32:00	15233	–	0.457	0.437	1.510	34.0	36.0	–	–	–	–	–	–
KLX15A	623.00	640.00	20071206 08:45:00	15238	–	0.399	0.393	0.352	16.0	15.0	–	–	–	–	–	–
KLX15A	623.00	640.00	20071212 14:49:00	15244	0.3510	0.320	0.337	0.291	3.4	3.8	<0.0002	<0.0003	<0.0003	0.0881	<0.0005	<0.04
KLX18A	472.00	489.00	20070626 07:10:00	11937	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	20070626 18:08:00	11947	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	20070629 08:00:00	11950	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	20070702 14:07:00	11951	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	20070703 07:03:00	11944	0.0610	0.059	0.054	1.430	–	–	–	–	–	0.0589	–	–
KLX18A	472.00	489.00	20071031 17:09:00	15163	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	20071101 07:20:00	15164	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	20071101 14:15:00	15175	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	20071106 10:33:00	15178	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	20071107 14:26:00	15155	0.0290	0.033	0.025	2.350	3.1	3.5	<0.0002	0.0005	0.0006	0.0263	0.0021	<0.005
KLX19A	509.00	517.00	20070613 17:05:00	11917	0.1400	0.152	0.128	0.165	4.7	4.5	0.0004	<0.0003	0.0004	0.0803	0.0230	0.05830
KLX19A	509.00	517.00	20070704 10:02:00	11953	–	–	–	–	–	–	–	–	–	–	–	–

– = not analysed.

Table A3-1 (page 8 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time ¹	SKB sample no.	Fe mg/L	Fetot mg/L	Fe(II) mg/L	HS mg/L	TOC mg/L	DOC mg/L	NO ₂ <N mg/L	NO ₃ <N mg/L	NO ₂ <N+NO ₃ <N mg/L	NH ₄ <N mg/L	PO ₄ <P mg/L	P mg/L
KLX19A	509.00	517.00	20070704 11:17:00	11958	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	20070704 12:40:00	11960	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	20070704 14:30:00	11957	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	20070704 16:50:00	11945	0.0969	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	20070813 11:40:00	11987	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	20070813 13:34:00	11992	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	20070813 15:56:00	15033	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	20070813 16:07:00	15036	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	20070821 07:19:00	15031	0.0707	0.084	0.074	0.027	1.5	1.5	0.0002	0.0010	0.0012	0.0307	0.0040	<0.004
KLX19A	509.00	517.00	20071203 09:56:00	15228	–	0.130	0.125	0.779	2.4	2.2	–	–	–	–	–	–
KLX19A	509.00	517.00	20071203 11:04:00	15229	–	0.125	0.108	0.337	2.0	2.0	–	–	–	–	–	–
KLX19A	509.00	517.00	20071203 12:08:00	15230	–	0.118	0.110	0.410	2.1	2.1	–	–	–	–	–	–
KLX19A	509.00	517.00	20071206 13:22:00	15240	–	0.098	0.090	0.041	1.5	1.5	–	–	–	–	–	–
KLX19A	509.00	517.00	20071211 08:02:00	15243	0.0528	0.063	0.061	0.022	1.4	1.2	<0.0002	<0.0003	<0.0003	0.0319	0.0022	0.00538

– = not analysed.

Table A3-1 (page 9 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time¹	SKB sample no.	pH	pH field	El. cond mS/m	El. cond field mS/m	Drill water %	Charge balance %	Density g/ml
HLX20	71.00	80.00	20070618 14:35:00	11923	8.27	7.81	57.4	50	–	2.44	0.9972
KLX02	1145.00	1164.00	20070710 14:47:00	11997	6.97	6.76	3740.0	366	10.20	0.53	1.0158
KLX04	507.00	530.00	20071030 10:23:00	15158	7.50	7.43	393.0	–	9.67	–	–
KLX04	507.00	530.00	20071030 10:51:00	15159	7.70	7.62	392.0	–	3.75	–	–
KLX04	507.00	530.00	20071030 13:32:00	15161	7.61	7.79	390.0	–	3.12	–	–
KLX04	507.00	530.00	20071101 13:54:00	15174	7.71	8.01	445.0	470	2.36	–	–
KLX04	507.00	530.00	20071107 16:56:00	15156	7.79	7.78	517.0	600	1.19	5.23	0.9992
KLX05	241.00	255.00	20070619 06:00:00	11924	8.46	8.21	248.0	199	11.30	0.65	0.9980
KLX05	625.00	633.00	20070628 13:20:00	11954	7.73	8.02	1180.0	845	244.00	–	–
KLX05	241.00	255.00	20070813 12:58:00	11990	8.49	8.24	250.0	246	6.84	–	–
KLX05	241.00	255.00	20070813 15:04:00	15032	8.48	8.39	250.0	249	6.49	–	–
KLX05	241.00	255.00	20070813 16:56:00	15034	8.46	8.38	250.0	247	5.50	–	–
KLX05	241.00	255.00	20070814 08:33:00	15035	8.42	8.44	249.0	248	2.91	–	–
KLX05	241.00	255.00	20070814 10:21:00	11998	8.42	8.41	267.0	246	2.49	0.92	0.9981
KLX05	241.00	255.00	20071107 08:56:00	15181	8.48	8.30	249.0	300	3.08	–	–
KLX05	241.00	255.00	20071107 09:55:00	15182	8.47	8.43	250.0	310	2.79	–	–
KLX05	241.00	255.00	20071107 10:54:00	15183	8.43	8.54	250.0	310	2.45	–	–
KLX05	241.00	255.00	20071108 14:55:00	15188	8.26	8.22	251.0	300	0.86	–	–
KLX05	241.00	255.00	20071112 08:02:00	15190	8.21	8.18	264.0	330	0.39	2.41	0.9982
KLX07A	753.00	780.00	20070613 07:00:00	11918	7.61	7.59	529.0	425	5.25	0.49	0.9992
KLX07A	753.00	780.00	20070626 09:45:00	11939	7.60	–	565.0	329	5.35	–	–
KLX07A	753.00	780.00	20070626 11:00:00	11941	7.65	7.06	534.0	357	5.24	–	–
KLX07A	753.00	780.00	20070626 14:48:00	11942	7.61	7.54	529.0	357	5.26	–	–
KLX07A	753.00	780.00	20070626 17:02:00	11948	7.64	7.78	529.0	374	5.26	–	–
KLX07A	753.00	780.00	20070627 08:42:00	11943	7.63	7.81	559.0	357	5.37	1.70	0.9993
KLX07A	735.00	780.00	20071205 08:10:00	15234	7.49	7.40	684.0	713	5.78	–	1.0000
KLX07A	735.00	780.00	20071205 09:12:00	15235	7.58	7.49	687.0	709	5.81	–	1.0001

– = not analysed.

Table A3-1 (page 10 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time ¹	SKB sample no.	pH	pH field	El. cond mS/m	El. cond field mS/m	Drill water %	Charge balance %	Density g/ml
KLX07A	735.00	780.00	20071205 10:03:00	15236	7.67	7.58	683.0	697	5.89	–	0.9999
KLX07A	735.00	780.00	20071206 09:37:00	15239	7.70	7.63	700.0	714	6.11	–	1.0001
KLX07A	735.00	780.00	20071213 07:00:00	15245	7.64	7.36	798.0	812	6.36	3.22	1.0005
KLX08	626.00	683.00	20070815 07:30:00	15029	7.98	7.91	691.0	693	11.30	0.44	0.9998
KLX08	626.00	683.00	20071030 10:09:00	15157	7.45	7.46	692.0	–	12.50	–	–
KLX08	626.00	683.00	20071030 12:07:00	15160	7.96	7.99	707.0	–	10.80	–	–
KLX08	626.00	683.00	20071030 14:16:00	15162	7.91	8.21	706.0	–	11.40	–	–
KLX08	626.00	683.00	20071101 13:41:00	15173	8.21	8.39	692.0	680	15.20	–	–
KLX08	626.00	683.00	20071105 08:04:00	15179	8.20	8.30	698.0	720	15.20	0.69	1.0000
KLX08	594.00	625.00	20071106 08:35:00	15176	7.40	7.29	592.0	640	4.78	–	–
KLX08	594.00	625.00	20071106 10:08:00	15177	7.30	7.74	588.0	630	5.00	–	–
KLX08	594.00	625.00	20071106 11:28:00	15180	7.40	7.97	590.0	640	5.04	–	–
KLX08	594.00	625.00	20071108 13:29:00	15187	7.97	7.99	630.0	680	4.53	–	–
KLX08	594.00	625.00	20071112 10:13:00	15191	8.06	7.96	630.0	700	3.73	1.12	0.9996
KLX10	351.00	368.00	20070626 15:50:00	11938	8.24	7.81	562.0	422	27.60	–	–
KLX10	351.00	368.00	20070626 16:40:00	11940	8.07	7.98	567.0	414	28.00	–	–
KLX10	351.00	368.00	20070626 17:35:00	11949	8.00	8.10	574.0	403	26.90	–	–
KLX10	351.00	368.00	20070627 16:35:00	11952	8.00	8.20	630.0	520	24.60	–	–
KLX10	351.00	368.00	20070628 07:48:00	11946	7.98	8.17	641.0	420	24.10	1.91	0.9996
KLX10	689.00	710.00	20070709 06:47:00	11959	7.89	7.76	915.0	683	67.30	–	–
KLX10	689.00	710.00	20070709 14:56:00	11955	7.38	7.28	947.0	893	24.80	–	–
KLX10	689.00	710.00	20070710 06:54:00	11988	7.72	7.34	936.0	677	19.70	–	–
KLX10	689.00	710.00	20070711 07:10:00	11993	7.69	7.45	931.0	–	19.00	–	–
KLX10	689.00	710.00	20070712 05:58:00	11984	7.74	7.48	936.0	–	18.60	1.00	–
KLX10	689.00	710.00	20071113 13:32:00	15193	8.40	7.40	938.0	970	20.20	–	–
KLX10	689.00	710.00	20071114 07:28:00	15194	7.68	7.51	940.0	1030	18.20	–	–
KLX10	689.00	710.00	20071205 10:31:00	15237	7.65	7.77	938.0	957	19.00	–	1.0009
KLX10	689.00	710.00	20071210 08:20:00	15241	7.80	7.77	941.0	960	19.20	–	1.0010

– = not analysed.

Table A3-1 (page 11 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time ¹	SKB sample no.	pH	pH field	El. cond mS/m	El. cond field mS/m	Drill water %	Charge balance %	Density g/ml
KLX10	689.00	710.00	20071210 13:43:00	15242	7.84	7.75	942.0	926	19.60	5.13	1.0010
KLX12A	535.00	545.00	20070709 08:17:00	11956	7.54	7.73	908.0	756	5.45	–	–
KLX12A	535.00	545.00	20070709 16:07:00	11986	7.42	7.77	930.0	951	5.76	–	–
KLX12A	535.00	545.00	20070710 08:38:00	11991	7.58	7.68	928.0	860	5.92	–	–
KLX12A	535.00	545.00	20070711 08:38:00	11989	7.53	7.63	942.0	–	5.92	–	–
KLX12A	535.00	545.00	20070711 12:36:00	11985	7.34	7.55	955.0	–	5.71	0.92	1.0011
KLX12A	535.00	545.00	20071107 10:48:00	15184	7.91	7.81	272.0	990	6.55	–	–
KLX12A	535.00	545.00	20071107 15:16:00	15185	7.97	7.82	1010.0	1040	5.93	–	–
KLX12A	535.00	545.00	20071107 18:09:00	15186	7.50	7.89	1010.0	1060	5.68	–	–
KLX12A	535.00	545.00	20071114 15:44:00	15189	7.61	7.67	1190.0	1250	3.54	–	–
KLX12A	535.00	545.00	20071115 07:09:00	15192	7.75	7.63	1190.0	1260	3.43	2.83	1.0021
KLX15A	623.00	640.00	20071204 10:06:00	15231	7.47	7.11	1590.0	1511	6.55	–	1.0043
KLX15A	623.00	640.00	20071204 13:11:00	15232	7.53	7.08	1580.0	1510	6.81	–	1.0041
KLX15A	623.00	640.00	20071204 16:32:00	15233	7.52	7.38	1580.0	1645	7.04	–	1.0041
KLX15A	623.00	640.00	20071206 08:45:00	15238	7.73	7.77	1600.0	1625	7.06	–	1.0042
KLX15A	623.00	640.00	20071212 14:49:00	15244	7.64	7.52	1590.0	1637	6.39	2.47	1.0041
KLX18A	472.00	489.00	20070626 07:10:00	11937	7.56	–	321.0	281	17.10	–	–
KLX18A	472.00	489.00	20070626 18:08:00	11947	7.78	7.96	393.0	324	30.30	–	–
KLX18A	472.00	489.00	20070629 08:00:00	11950	7.87	8.02	459.0	396	38.20	–	–
KLX18A	472.00	489.00	20070702 14:07:00	11951	7.72	7.83	483.0	485	34.70	–	–
KLX18A	472.00	489.00	20070703 07:03:00	11944	7.64	7.76	504.0	512	36.80	1.99	0.9990
KLX18A	472.00	489.00	20071031 17:09:00	15163	8.11	7.73	436.0	470	20.60	–	–
KLX18A	472.00	489.00	20071101 07:20:00	15164	7.74	7.81	503.0	530	32.80	–	–
KLX18A	472.00	489.00	20071101 14:15:00	15175	7.79	8.00	520.0	550	32.10	–	–
KLX18A	472.00	489.00	20071106 10:33:00	15178	7.60	8.08	526.0	580	13.00	–	–
KLX18A	472.00	489.00	20071107 14:26:00	15155	7.97	7.98	522.0	610	11.30	2.65	0.9992
KLX19A	509.00	517.00	20070613 17:05:00	11917	8.39	8.46	264.0	224	12.70	2.24	0.9980
KLX19A	509.00	517.00	20070704 10:02:00	11953	8.21	8.11	281.0	280	13.70	–	–

– = not analysed.

Table A3-1 (page 12 of 12). Compilation of results from basic water analyses.

Idcode	Secup m	Seclow m	Date and time¹	SKB sample no.	pH	pH field	El. cond mS/m	El. cond field mS/m	Drill water %	Charge balance %	Density g/ml
KLX19A	509.00	517.00	20070704 11:17:00	11958	8.31	8.15	287.0	295	14.10	–	–
KLX19A	509.00	517.00	20070704 12:40:00	11960	8.34	8.30	296.0	295	14.40	–	–
KLX19A	509.00	517.00	20070704 14:30:00	11957	8.34	8.03	308.0	310	14.60	–	–
KLX19A	509.00	517.00	20070704 16:50:00	11945	8.31	8.19	323.0	322	14.80	0.75	0.9982
KLX19A	509.00	517.00	20070813 11:40:00	11987	8.20	7.58	336.0	340	13.90	–	–
KLX19A	509.00	517.00	20070813 13:34:00	11992	8.31	8.23	339.0	328	14.00	–	–
KLX19A	509.00	517.00	20070813 15:56:00	15033	8.27	7.89	345.0	338	14.10	–	–
KLX19A	509.00	517.00	20070813 16:07:00	15036	8.21	8.80	568.0	559	9.03	–	–
KLX19A	509.00	517.00	20070821 07:19:00	15031	8.22	8.83	569.0	567	8.72	2.09	0.9992
KLX19A	509.00	517.00	20071203 09:56:00	15228	8.09	7.56	558.0	507	9.66	–	0.9992
KLX19A	509.00	517.00	20071203 11:04:00	15229	8.19	7.64	550.0	563	10.80	–	0.9994
KLX19A	509.00	517.00	20071203 12:08:00	15230	8.18	7.90	548.0	553	10.70	–	0.9993
KLX19A	509.00	517.00	20071206 13:22:00	15240	8.24	8.26	586.0	591	9.57	–	0.9993
KLX19A	509.00	517.00	20071211 08:02:00	15243	8.29	8.11	593.0	605	8.35	4.01	0.9993

– = not analysed.

Table A3-2 (page 1 of 8). Compilation of results from analyses of trace elements and rare earth elements.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	As ug/L	Ba ug/L	Cd ug/L	Hg ug/L	V ug/L	Zr ug/L	U ug/L	Th ug/L	Sc ug/L	Rb ug/L	Y ug/L	In ug/L	Cs ug/L	La ug/L
HLX20	71.00	80.00	2007-06-18 14:35:00	11923	<0.1	40.00	<0.002	<0.002	0.3750	0.1060	0.0803	<0.02	<0.05	4.57	0.0323	<0.05	0.469	0.1200
KLX02	1145.00	1164.00	2007-07-10 14:47:00	11997	<1	323.00	<0.05	0.0039	0.5010	<0.3	0.0933	<0.2	1.7600	76.30	1.1700	<0.5	3.020	1.6600
KLX04	507.00	530.00	2007-10-30 10:23:00	15158	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-10-30 10:51:00	15159	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-10-30 13:32:00	15161	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-11-01 13:54:00	15174	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-11-07 16:56:00	15156	<0.5	229.00	<0.02	<0.002	0.1570	<0.1	0.1710	<0.2	<0.4	11.30	0.0705	<0.2	0.878	0.0344
KLX05	241.00	255.00	2007-06-19 06:00:00	11924	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	625.00	633.00	2007-06-28 13:20:00	11954	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-13 12:58:00	11990	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-13 15:04:00	15032	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-13 16:56:00	15034	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-14 08:33:00	15035	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-14 10:21:00	11998	0.3170	20.50	<0.008	<0.002	0.2910	0.2410	3.5900	<0.02	<0.05	9.81	0.0516	<0.05	0.114	0.0313
KLX05	241.00	255.00	2007-11-07 08:56:00	15181	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-07 09:55:00	15182	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-07 10:54:00	15183	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-08 14:55:00	15188	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-12 08:02:00	15190	0.4000	23.80	<0.002	<0.002	0.1670	0.1120	1.6700	<0.02	0.0760	10.90	0.0313	<0.05	0.198	0.0145
KLX07A	753.00	780.00	2007-06-13 07:00:00	11918	0.1200	122.00	0.0073	<0.002	0.2470	0.0388	0.2640	<0.02	<0.05	15.30	0.0930	<0.05	0.793	0.1070
KLX07A	753.00	780.00	2007-06-26 09:45:00	11939	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-26 11:00:00	11941	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-26 14:48:00	11942	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-26 17:02:00	11948	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-27 08:42:00	11943	<0.5	138.00	<0.02	<0.002	0.1680	<0.1	0.2370	<0.2	<0.4	15.70	0.0932	<0.2	0.851	0.0788
KLX07A	735.00	780.00	2007-12-05 08:10:00	15234	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	735.00	780.00	2007-12-05 09:12:00	15235	–	–	–	–	–	–	–	–	–	–	–	–	–	–

– = not analysed.

Table A3-2 (page 2 of 8). Compilation of results from analyses of trace elements and rare earth elements.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	As ug/L	Ba ug/L	Cd ug/L	Hg ug/L	V ug/L	Zr ug/L	U ug/L	Th ug/L	Sc ug/L	Rb ug/L	Y ug/L	In ug/L	Cs ug/L	La ug/L
KLX07A	735.00	780.00	2007-12-05 10:03:00	15236	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX07A	735.00	780.00	2007-12-06 09:37:00	15239	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX07A	735.00	780.00	2007-12-13 07:00:00	15245	<0.5	193.00	<0.02	0.0031	0.1910	<0.1	0.2000	<0.2	<0.4	23.70	0.1020	<0.2	1.180	0.0655
KLX08	626.00	683.00	2007-08-15 07:30:00	15029	<0.5	137.00	<0.02	<0.002	0.1220	0.3740	0.0234	<0.2	<0.4	19.20	0.2710	<0.2	0.367	0.2090
KLX08	626.00	683.00	2007-10-30 10:09:00	15157	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	626.00	683.00	2007-10-30 12:07:00	15160	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	626.00	683.00	2007-10-30 14:16:00	15162	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	626.00	683.00	2007-11-01 13:41:00	15173	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	626.00	683.00	2007-11-05 08:04:00	15179	<0.5	110.00		<0.002	0.0977	<0.1	0.0177	<0.2	<0.4	17.60	0.0503	0.2360	0.748	<0.02
KLX08	594.00	625.00	2007-11-06 08:35:00	15176	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	594.00	625.00	2007-11-06 10:08:00	15177	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	594.00	625.00	2007-11-06 11:28:00	15180	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	594.00	625.00	2007-11-08 13:29:00	15187	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	594.00	625.00	2007-11-12 10:13:00	15191	<0.5	61.60	<0.02	<0.002	0.0639	<0.1	<0.005	<0.2	<0.4	9.65	0.0389	<0.2	0.832	<0.02
KLX10	351.00	368.00	2007-06-26 15:50:00	11938	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	351.00	368.00	2007-06-26 16:40:00	11940	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	351.00	368.00	2007-06-26 17:35:00	11949	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	351.00	368.00	2007-06-27 16:35:00	11952	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	351.00	368.00	2007-06-28 07:48:00	11946	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-07-09 06:47:00	11959	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-07-09 14:56:00	11955	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-07-10 06:54:00	11988	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-07-11 07:10:00	11993	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-07-12 05:58:00	11984	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-11-13 13:32:00	15193	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-11-14 07:28:00	15194	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-12-05 10:31:00	15237	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-12-10 08:20:00	15241	-	-	-	-	-	-	-	-	-	-	-	-	-	-

-- = not analysed.

Table A3-2 (page 3 of 8). Compilation of results from analyses of trace elements and rare earth elements.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	As ug/L	Ba ug/L	Cd ug/L	Hg ug/L	V ug/L	Zr ug/L	U ug/L	Th ug/L	Sc ug/L	Rb ug/L	Y ug/L	In ug/L	Cs ug/L	La ug/L
KLX10	689.00	710.00	2007-12-10 13:43:00	15242	<0.5	151.00	<0.02	0.0053	0.1600	<0.1	0.0171	<0.2	<0.4	30.60	0.0842	<0.2	0.883	0.0428
KLX12A	535.00	545.00	2007-07-09 08:17:00	11956	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-07-09 16:07:00	11986	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-07-10 08:38:00	11991	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-07-11 08:38:00	11989	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-07-11 12:36:00	11985	<0.5	157.00	<0.02	<0.002	0.1150	<0.1	0.0385	<0.2	<0.4	24.10	0.1150	<0.2	0.146	0.0581
KLX12A	535.00	545.00	2007-11-07 10:48:00	15184	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-11-07 15:16:00	15185	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-11-07 18:09:00	15186	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-11-14 15:44:00	15189	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-11-15 07:09:00	15192	<0.5	67.70	<0.02	<0.002	0.0376	<0.1	0.0068	<0.2	<0.4	23.40	0.0566	<0.2	0.966	0.0804
KLX15A	623.00	640.00	2007-12-04 10:06:00	15231	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX15A	623.00	640.00	2007-12-04 13:11:00	15232	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX15A	623.00	640.00	2007-12-04 16:32:00	15233	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX15A	623.00	640.00	2007-12-06 08:45:00	15238	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX15A	623.00	640.00	2007-12-12 14:49:00	15244	<1	189.00	<0.05	0.0031	0.1430	<0.3	0.2900	<0.2	<0.5	34.40	0.1730	<0.5	1.520	0.1170
KLX18A	472.00	489.00	2007-06-26 07:10:00	11937	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-06-26 18:08:00	11947	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-06-29 08:00:00	11950	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-07-02 14:07:00	11951	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-07-03 07:03:00	11944	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-10-31 17:09:00	15163	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-11-01 07:20:00	15164	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-11-01 14:15:00	15175	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-11-06 10:33:00	15178	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-11-07 14:26:00	15155	<0.5	94.60	<0.02	<0.002	0.4270	<0.1	0.2490	<0.2	<0.4	107.00	0.0438	<0.2	39.200	0.0813
KLX19A	509.00	517.00	2007-06-13 17:05:00	11917	0.5700	93.20	<0.002	<0.002	0.6900	0.1870	0.8320	<0.02	<0.05	11.00	0.1350	<0.05	0.254	0.0583
KLX19A	509.00	517.00	2007-07-04 10:02:00	11953	–	–	–	–	–	–	–	–	–	–	–	–	–	–

– = not analysed.

Table A3-2 (page 4 of 8). Compilation of results from analyses of trace elements and rare earth elements.

Idcode	Secup m	Seclow m	Date and time ¹	SKB sample no.	As ug/L	Ba ug/L	Cd ug/L	Hg ug/L	V ug/L	Zr ug/L	U ug/L	Th ug/L	Sc ug/L	Rb ug/L	Y ug/L	In ug/L	Cs ug/L	La ug/L
KLX19A	509,00	517,00	2007-07-04 11:17:00	11958	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-07-04 12:40:00	11960	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-07-04 14:30:00	11957	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-07-04 16:50:00	11945	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-08-13 11:40:00	11987	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-08-13 13:34:00	11992	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-08-13 15:56:00	15033	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-08-13 16:07:00	15036	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-08-21 07:19:00	15031	<0.5	80.20	<0.02	<0.002	0.0563	<0.1	0.0806	<0.2	<0.4	17.10	0.0533	<0.2	0.361	0.0225
KLX19A	509,00	517,00	2007-12-03 09:56:00	15228	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-12-03 11:04:00	15229	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-12-03 12:08:00	15230	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-12-06 13:22:00	15240	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX19A	509,00	517,00	2007-12-11 08:02:00	15243	<0.5	106.00	<0.02	0.0035	0.0961	<0.1	0.0715	<0.2	<0.4	18.40	0.0216	<0.2	0.389	<0.02

– = not analysed.

Table A3-2 (page 5 of 8). Compilation of results from analyses of trace elements and rare earth elements.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	Hf ug/L	Tl ug/L	Ce ug/L	Pr ug/L	Nd ug/L	Sm ug/L	Eu ug/L	Gd ug/L	Tb ug/L	Dy ug/L	Ho ug/L	Er ug/L	Tm ug/L	Yb ug/L	Lu ug/L
HLX20	71.00	80.00	2007-06-18 14:35:00	11923	<0.005	<0.005	0.1270	0.0119	0.0500	0.0069	0.0056	0.0054	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
KLX02	1145.00	1164.00	2007-07-10 14:47:00	11997	<0.05	<0.05	0.4930	<0.05	0.0924	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
KLX04	507.00	530.00	2007-10-30 10:23:00	15158	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-10-30 10:51:00	15159	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-10-30 13:32:00	15161	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-11-01 13:54:00	15174	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-11-07 16:56:00	15156	<0.02	<0.05	0.0506	<0.02	0.0307	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
KLX05	241.00	255.00	2007-06-19 06:00:00	11924	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	625.00	633.00	2007-06-28 13:20:00	11954	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-13 12:58:00	11990	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-13 15:04:00	15032	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-13 16:56:00	15034	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-14 08:33:00	15035	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-14 10:21:00	11998	0.0540	<0.005	0.0438	0.0052	0.0253	<0.005	<0.005	0.0054	<0.005	<0.005	<0.005	<0.005	<0.005	0.0066	<0.005
KLX05	241.00	255.00	2007-11-07 08:56:00	15181	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-07 09:55:00	15182	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-07 10:54:00	15183	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-08 14:55:00	15188	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-12 08:02:00	15190	<0.005	<0.01	0.0204	<0.005	0.0117	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.004	<0.005	0.0115
KLX07A	753.00	780.00	2007-06-13 07:00:00	11918	<0.005	<0.005	0.0995	0.0094	0.0393	0.0058	0.0144	0.0055	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
KLX07A	753.00	780.00	2007-06-26 09:45:00	11939	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-26 11:00:00	11941	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-26 14:48:00	11942	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-26 17:02:00	11948	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-27 08:42:00	11943	<0.02	<0.03	0.0716	<0.02	0.0331	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
KLX07A	735.00	780.00	2007-12-05 08:10:00	15234	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
KLX07A	735.00	780.00	2007-12-05 09:12:00	15235	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

– = not analysed.

Table A3-2 (page 6 of 8). Compilation of results from analyses of trace elements and rare earth elements.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	Hf ug/L	Tl ug/L	Ce ug/L	Pr ug/L	Nd ug/L	Sm ug/L	Eu ug/L	Gd ug/L	Tb ug/L	Dy ug/L	Ho ug/L	Er ug/L	Tm ug/L	Yb ug/L	Lu ug/L
KLX07A	735.00	780.00	2007-12-05 10:03:00	15236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX07A	735.00	780.00	2007-12-06 09:37:00	15239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX07A	735.00	780.00	2007-12-13 07:00:00	15245	<0.02	<0.05	0.0429	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
KLX08	626.00	683.00	2007-08-15 07:30:00	15029	<0.02	<0.02	0.3700	0.0555	0.1960	0.0327	0.0240	0.0244	<0.02	0.0211	<0.02	<0.02	<0.02	<0.02	<0.02
KLX08	626.00	683.00	2007-10-30 10:09:00	15157	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	626.00	683.00	2007-10-30 12:07:00	15160	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	626.00	683.00	2007-10-30 14:16:00	15162	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	626.00	683.00	2007-11-01 13:41:00	15173	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	626.00	683.00	2007-11-05 08:04:00	15179	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.2020
KLX08	594.00	625.00	2007-11-06 08:35:00	15176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	594.00	625.00	2007-11-06 10:08:00	15177	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	594.00	625.00	2007-11-06 11:28:00	15180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	594.00	625.00	2007-11-08 13:29:00	15187	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX08	594.00	625.00	2007-11-12 10:13:00	15191	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0275
KLX10	351.00	368.00	2007-06-26 15:50:00	11938	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	351.00	368.00	2007-06-26 16:40:00	11940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	351.00	368.00	2007-06-26 17:35:00	11949	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	351.00	368.00	2007-06-27 16:35:00	11952	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	351.00	368.00	2007-06-28 07:48:00	11946	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-07-09 06:47:00	11959	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-07-09 14:56:00	11955	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-07-10 06:54:00	11988	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-07-11 07:10:00	11993	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-07-12 05:58:00	11984	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-11-13 13:32:00	15193	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-11-14 07:28:00	15194	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-12-05 10:31:00	15237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX10	689.00	710.00	2007-12-10 08:20:00	15241	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

-- = not analysed.

Table A3-2 (page 7 of 8). Compilation of results from analyses of trace elements and rare earth elements.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	Hf ug/L	Tl ug/L	Ce ug/L	Pr ug/L	Nd ug/L	Sm ug/L	Eu ug/L	Gd ug/L	Tb ug/L	Dy ug/L	Ho ug/L	Er ug/L	Tm ug/L	Yb ug/L	Lu ug/L	
KLX10	689.00	710.00	2007-12-10 13:43:00	15242	<0.02	<0.05	0.0324	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
KLX12A	535.00	545.00	2007-07-09 08:17:00	11956	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX12A	535.00	545.00	2007-07-09 16:07:00	11986	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX12A	535.00	545.00	2007-07-10 08:38:00	11991	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX12A	535.00	545.00	2007-07-11 08:38:00	11989	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX12A	535.00	545.00	2007-07-11 12:36:00	11985	<0.02	<0.02	0.0455	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
KLX12A	535.00	545.00	2007-11-07 10:48:00	15184	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX12A	535.00	545.00	2007-11-07 15:16:00	15185	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX12A	535.00	545.00	2007-11-07 18:09:00	15186	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX12A	535.00	545.00	2007-11-14 15:44:00	15189	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX12A	535.00	545.00	2007-11-15 07:09:00	15192	<0.02	<0.05	0.0563	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
KLX15A	623.00	640.00	2007-12-04 10:06:00	15231	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX15A	623.00	640.00	2007-12-04 13:11:00	15232	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX15A	623.00	640.00	2007-12-04 16:32:00	15233	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX15A	623.00	640.00	2007-12-06 08:45:00	15238	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX15A	623.00	640.00	2007-12-12 14:49:00	15244	<0.05	<0.1	0.0695	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
KLX18A	472.00	489.00	2007-06-26 07:10:00	11937	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX18A	472.00	489.00	2007-06-26 18:08:00	11947	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX18A	472.00	489.00	2007-06-29 08:00:00	11950	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX18A	472.00	489.00	2007-07-02 14:07:00	11951	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX18A	472.00	489.00	2007-07-03 07:03:00	11944	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX18A	472.00	489.00	2007-10-31 17:09:00	15163	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX18A	472.00	489.00	2007-11-01 07:20:00	15164	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX18A	472.00	489.00	2007-11-01 14:15:00	15175	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX18A	472.00	489.00	2007-11-06 10:33:00	15178	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
KLX18A	472.00	489.00	2007-11-07 14:26:00	15155	<0.02	<0.05	0.0681	<0.02	0.0235	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
KLX19A	509.00	517.00	2007-06-13 17:05:00	11917	<0.005	<0.005	0.0955	0.0126	0.0565	0.0107	0.0123	0.0142	<0.005	0.0150	<0.005	0.0132	<0.005	0.0162	<0.005	<0.005
KLX19A	509.00	517.00	2007-07-04 10:02:00	11953	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

-- = not analysed.

Table A3-2 (page 7 of 8). Compilation of results from analyses of trace elements and rare earth elements.

Idcode	Secup m	Seclow m	Date and time ¹	SKB sample no.	Hf ug/L	Tl ug/L	Ce ug/L	Pr ug/L	Nd ug/L	Sm ug/L	Eu ug/L	Gd ug/L	Tb ug/L	Dy ug/L	Ho ug/L	Er ug/L	Tm ug/L	Yb ug/L	Lu ug/L
KLX19A	509.00	517.00	2007-07-04 11:17:00	11958	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-07-04 12:40:00	11960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-07-04 14:30:00	11957	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-07-04 16:50:00	11945	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-08-13 11:40:00	11987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-08-13 13:34:00	11992	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-08-13 15:56:00	15033	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-08-13 16:07:00	15036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-08-21 07:19:00	15031	<0.02	<0.02	0.0266	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
KLX19A	509.00	517.00	2007-12-03 09:56:00	15228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-12-03 11:04:00	15229	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-12-03 12:08:00	15230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-12-06 13:22:00	15240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX19A	509.00	517.00	2007-12-11 08:02:00	15243	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

- = not analysed.

Table A3-3 (page 1 of 8). Compilation of results from isotope analyses.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	d ² H dev SMOW	³ H TU	δ ¹⁸ O dev SMOW	PMC pmc	δ ¹³ C dev PDB	δ ³⁴ S dev CDT	¹⁰ B/ ¹¹ B ratio	δ ³⁷ Cl dev SMOC	⁸⁷ Sr/ ⁸⁶ Sr ratio
HLX20	71.00	80.00	2007-06-18 14:35:00	11923	-81.2	1.00	-11.50	41.50	-16.80	27.3	0.2372	0.10	0.715275
KLX02	1145.00	1164.00	2007-07-10 14:47:00	11997	-78.0	3.80	-12.00	-	-	10.8	0.2388	0.80	0.717475
KLX04	507.00	530.00	2007-10-30 10:23:00	15158	-	-	-	-	-	-	-	-	-
KLX04	507.00	530.00	2007-10-30 10:51:00	15159	-	-	-	-	-	-	-	-	-
KLX04	507.00	530.00	2007-10-30 13:32:00	15161	-	-	-	-	-	-	-	-	-
KLX04	507.00	530.00	2007-11-01 13:54:00	15174	-	-	-	-	-	-	-	-	-
KLX04	507.00	530.00	2007-11-07 16:56:00	15156	-113.2	<0.8	-15.30	41.60	-19.50	16.2	0.2338	-0.04	0.715873
KLX05	241.00	255.00	2007-06-19 06:00:00	11924	-86.0	<0.8	-12.20	-	-	-	-	-	-
KLX05	625.00	633.00	2007-06-28 13:20:00	11954	-	-	-	-	-	-	-	-	-
KLX05	241.00	255.00	2007-08-13 12:58:00	11990	-	-	-	-	-	-	-	-	-
KLX05	241.00	255.00	2007-08-13 15:04:00	15032	-	-	-	-	-	-	-	-	-
KLX05	241.00	255.00	2007-08-13 16:56:00	15034	-	-	-	-	-	-	-	-	-
KLX05	241.00	255.00	2007-08-14 08:33:00	15035	-	-	-	-	-	-	-	-	-
KLX05	241.00	255.00	2007-08-14 10:21:00	11998	-88.1	<0.8	-12.10	30.10	-14.90	24.9	0.2364	-0.01	0.715279
KLX05	241.00	255.00	2007-11-07 08:56:00	15181	-	-	-	-	-	-	-	-	-
KLX05	241.00	255.00	2007-11-07 09:55:00	15182	-	-	-	-	-	-	-	-	-
KLX05	241.00	255.00	2007-11-07 10:54:00	15183	-	-	-	-	-	-	-	-	-
KLX05	241.00	255.00	2007-11-08 14:55:00	15188	-	-	-	-	-	-	-	-	-
KLX05	241.00	255.00	2007-11-12 08:02:00	15190	-87.4	<0.8	-12.00	28.60	-14.80	25.0	0.2334	0.27	0.715208
KLX07A	753.00	780.00	2007-06-13 07:00:00	11918	-85.0	3.80	-11.20	53.70	-20.40	15.9	0.2341	0.37	0.715575
KLX07A	753.00	780.00	2007-06-26 09:45:00	11939	-	-	-	-	-	-	-	-	-
KLX07A	753.00	780.00	2007-06-26 11:00:00	11941	-	-	-	-	-	-	-	-	-
KLX07A	753.00	780.00	2007-06-26 14:48:00	11942	-	-	-	-	-	-	-	-	-
KLX07A	753.00	780.00	2007-06-26 17:02:00	11948	-	-	-	-	-	-	-	-	-
KLX07A	753.00	780.00	2007-06-27 08:42:00	11943	-82.9	4.30	-11.60	53.50	-19.30	15.6	0.2344	0.51	0.715604
KLX07A	735.00	780.00	2007-12-05 08:10:00	15234	-	-	-	-	-	-	-	-	-
KLX07A	735.00	780.00	2007-12-05 09:12:00	15235	-	-	-	-	-	-	-	-	-

- = not analysed.

Table A3-3 (page 2 of 8). Compilation of results from isotope analyses.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	d ² H dev SMOW	³ H TU	δ ¹⁸ O dev SMOW	PMC pmc	δ ¹³ C dev PDB	δ ³⁴ S dev CDT	¹⁰ B/ ¹¹ B ratio	δ ³⁷ Cl dev SMOC	⁸⁷ Sr/ ⁸⁶ Sr ratio
KLX07A	735.00	780.00	2007-12-05 10:03:00	15236		–	–	–	–	–	–	–	–
KLX07A	735.00	780.00	2007-12-06 09:37:00	15239	–	–	–	–	–	–	–	–	–
KLX07A	735.00	780.00	2007-12-13 07:00:00	15245	–83.8	3.30	–11.50	–	–	16.3	0.2353	0.15	0.715542
KLX08	626.00	683.00	2007-08-15 07:30:00	15029	–111.8	1.60	–14.80	–	–	12.6	0.2381	0.31	0.715553
KLX08	626.00	683.00	2007-10-30 10:09:00	15157	–	–	–	–	–	–	–	–	–
KLX08	626.00	683.00	2007-10-30 12:07:00	15160	–	–	–	–	–	–	–	–	–
KLX08	626.00	683.00	2007-10-30 14:16:00	15162	–	–	–	–	–	–	–	–	–
KLX08	626.00	683.00	2007-11-01 13:41:00	15173	–	–	–	–	–	–	–	–	–
KLX08	626.00	683.00	2007-11-05 08:04:00	15179	–109.5	<0.8	–14.70	–	–	14.1	0.2340	0.03	0.715503
KLX08	594.00	625.00	2007-11-06 08:35:00	15176	–	–	–	–	–	–	–	–	–
KLX08	594.00	625.00	2007-11-06 10:08:00	15177	–	–	–	–	–	–	–	–	–
KLX08	594.00	625.00	2007-11-06 11:28:00	15180	–	–	–	–	–	–	–	–	–
KLX08	594.00	625.00	2007-11-08 13:29:00	15187	–	–	–	–	–	–	–	–	–
KLX08	594.00	625.00	2007-11-12 10:13:00	15191	–118.5	<0.8	–16.00	–	–	14.8	0.2340	0.18	0.715438
KLX10	351.00	368.00	2007-06-26 15:50:00	11938	–	–	–	–	–	–	–	–	–
KLX10	351.00	368.00	2007-06-26 16:40:00	11940	–	–	–	–	–	–	–	–	–
KLX10	351.00	368.00	2007-06-26 17:35:00	11949	–	–	–	–	–	–	–	–	–
KLX10	351.00	368.00	2007-06-27 16:35:00	11952	–	–	–	–	–	–	–	–	–
KLX10	351.00	368.00	2007-06-28 07:48:00	11946	–78.6	2.60	–10.60	–	–	–	–	–	–
KLX10	689.00	710.00	2007-07-09 06:47:00	11959	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-07-09 14:56:00	11955	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-07-10 06:54:00	11988	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-07-11 07:10:00	11993	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-07-12 05:58:00	11984	–73.2	1.70	–10.50	–	–	–	–	–	–
KLX10	689.00	710.00	2007-11-13 13:32:00	15193	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-11-14 07:28:00	15194	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-12-05 10:31:00	15237	–	–	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-12-10 08:20:00	15241	–	–	–	–	–	–	–	–	–

– = not analysed.

Table A3-3 (page 3 of 8). Compilation of results from isotope analyses.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	d ² H dev SMOW	³ H TU	δ ¹⁸ O dev SMOW	PMC pmc	δ ¹³ C dev PDB	δ ³⁴ S dev CDT	¹⁰ B/ ¹¹ B ratio	δ ³⁷ Cl dev SMOC	⁸⁷ Sr/ ⁸⁶ Sr ratio
KLX10	689.00	710.00	2007-12-10 13:43:00	15242	-78.4	2.10	-10.80	59.30	-19.70	28.0	0.2350	0.27	0.715674
KLX12A	535.00	545.00	2007-07-09 08:17:00	11956	-	-	-	-	-	-	-	-	-
KLX12A	535.00	545.00	2007-07-09 16:07:00	11986	-	-	-	-	-	-	-	-	-
KLX12A	535.00	545.00	2007-07-10 08:38:00	11991	-	-	-	-	-	-	-	-	-
KLX12A	535.00	545.00	2007-07-11 08:38:00	11989	-	-	-	-	-	-	-	-	-
KLX12A	535.00	545.00	2007-07-11 12:36:00	11985	-84.8	1.90	-12.20	57.00	-22.60	19.5	0.2354	1.13	0.714907
KLX12A	535.00	545.00	2007-11-07 10:48:00	15184	-	-	-	-	-	-	-	-	-
KLX12A	535.00	545.00	2007-11-07 15:16:00	15185	-	-	-	-	-	-	-	-	-
KLX12A	535.00	545.00	2007-11-07 18:09:00	15186	-	-	-	-	-	-	-	-	-
KLX12A	535.00	545.00	2007-11-14 15:44:00	15189	-	-	-	-	-	-	-	-	-
KLX12A	535.00	545.00	2007-11-15 07:09:00	15192	-92.4	<0.8	-12.40	-	-	17.7	0.2329	0.18	0.714788
KLX15A	623.00	640.00	2007-12-04 10:06:00	15231	-	-	-	-	-	-	-	-	-
KLX15A	623.00	640.00	2007-12-04 13:11:00	15232	-	-	-	-	-	-	-	-	-
KLX15A	623.00	640.00	2007-12-04 16:32:00	15233	-	-	-	-	-	-	-	-	-
KLX15A	623.00	640.00	2007-12-06 08:45:00	15238	-	-	-	-	-	-	-	-	-
KLX15A	623.00	640.00	2007-12-12 14:49:00	15244	-81.0	1.20	-10.70	-	-	21.0	0.2353	0.13	0.715576
KLX18A	472.00	489.00	2007-06-26 07:10:00	11937	-	-	-	-	-	-	-	-	-
KLX18A	472.00	489.00	2007-06-26 18:08:00	11947	-	-	-	-	-	-	-	-	-
KLX18A	472.00	489.00	2007-06-29 08:00:00	11950	-	-	-	-	-	-	-	-	-
KLX18A	472.00	489.00	2007-07-02 14:07:00	11951	-	-	-	-	-	-	-	-	-
KLX18A	472.00	489.00	2007-07-03 07:03:00	11944	-103.5	<0.8	-14.10	-	-	-	-	-	-
KLX18A	472.00	489.00	2007-10-31 17:09:00	15163	-	-	-	-	-	-	-	-	-
KLX18A	472.00	489.00	2007-11-01 07:20:00	15164	-	-	-	-	-	-	-	-	-
KLX18A	472.00	489.00	2007-11-01 14:15:00	15175	-	-	-	-	-	-	-	-	-
KLX18A	472.00	489.00	2007-11-06 10:33:00	15178	-	-	-	-	-	-	-	-	-
KLX18A	472.00	489.00	2007-11-07 14:26:00	15155	-105.9	0.90	-14.20	44.10	-19.10	15.0	0.2336	-0.09	0.715346
KLX19A	509.00	517.00	2007-06-13 17:05:00	11917	-90.8	1.80	-12.10	43.00	-16.70	25.9	0.2342	0.34	0.715831
KLX19A	509.00	517.00	2007-07-04 10:02:00	11953	-	-	-	-	-	-	-	-	-

- = not analysed.

Table A3-3 (page 4 of 8). Compilation of results from isotope analyses.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	d ² H dev SMOW	³ H TU	δ ¹⁸ O dev SMOW	PMC pmc	δ ¹³ C dev PDB	δ ³⁴ S dev CDT	¹⁰ B/ ¹¹ B ratio	δ ³⁷ Cl dev SMOC	⁸⁷ Sr/ ⁸⁶ Sr ratio
KLX19A	509.00	517.00	2007-07-04 11:17:00	11958	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-07-04 12:40:00	11960	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-07-04 14:30:00	11957	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-07-04 16:50:00	11945	–93.1	1.30	–12.70	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-08-13 11:40:00	11987	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-08-13 13:34:00	11992	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-08-13 15:56:00	15033	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-08-13 16:07:00	15036	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-08-21 07:19:00	15031	–104.6	<0.8	–13.90	31.00	–17.80	22.0	0.2365	0.33	0.715547
KLX19A	509.00	517.00	2007-12-03 09:56:00	15228	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-12-03 11:04:00	15229	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-12-03 12:08:00	15230	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-12-06 13:22:00	15240	–	–	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-12-11 08:02:00	15243	–101.7	<0.8	–14.00	26.10	–17.30	22.4	0.2355	0.10	0.715522

– = not analysed.

Table A3-3 (page 5 of 8). Compilation of results from isotope analyses.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	²³⁸ U mBq/kg	²³⁵ U mBq/kg	²³⁴ U mBq/kg	²³² Th mBq/kg	²³⁰ Th mBq/kg	²²⁶ Ra Bq/L	²²² Rn BqL
HLX20	71.00	80.00	2007-06-18 14:35:00	11923	1.00	0.05	2.80	0.27	0.58	<0.015	9.00E+001
KLX02	1145.00	1164.00	2007-07-10 14:47:00	11997	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-10-30 10:23:00	15158	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-10-30 10:51:00	15159	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-10-30 13:32:00	15161	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-11-01 13:54:00	15174	–	–	–	–	–	–	–
KLX04	507.00	530.00	2007-11-07 16:56:00	15156	3.00	0.19	15.60	0.34	0.36	1.08E+000	3.61E+002
KLX05	241.00	255.00	2007-06-19 06:00:00	11924	–	–	–	–	–	–	–
KLX05	625.00	633.00	2007-06-28 13:20:00	11954	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-13 12:58:00	11990	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-13 15:04:00	15032	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-13 16:56:00	15034	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-14 08:33:00	15035	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-08-14 10:21:00	11998	39.60	1.44	131.50	0.21	0.46	<0.015	1.31E+002
KLX05	241.00	255.00	2007-11-07 08:56:00	15181	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-07 09:55:00	15182	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-07 10:54:00	15183	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-08 14:55:00	15188	–	–	–	–	–	–	–
KLX05	241.00	255.00	2007-11-12 08:02:00	15190	22.00	1.03	89.50	0.37	0.40	<0.015	5.30E+002
KLX07A	753.00	780.00	2007-06-13 07:00:00	11918	3.20	0.15	9.80	0.11	0.06	<0.015	5.09E+001
KLX07A	753.00	780.00	2007-06-26 09:45:00	11939	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-26 11:00:00	11941	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-26 14:48:00	11942	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-26 17:02:00	11948	–	–	–	–	–	–	–
KLX07A	753.00	780.00	2007-06-27 08:42:00	11943	3.20	0.14	9.50	0.30	0.58	<0.015	5.39E+001
KLX07A	735.00	780.00	2007-12-05 08:10:00	15234	–	–	–	–	–	–	–
KLX07A	735.00	780.00	2007-12-05 09:12:00	15235	–	–	–	–	–	–	–

– = not analysed.

Table A3-3 (page 6 of 8). Compilation of results from isotope analyses.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	²³⁸ U mBq/kg	²³⁵ U mBq/kg	²³⁴ U mBq/kg	²³² Th mBq/kg	²³⁰ Th mBq/kg	²²⁶ Ra Bq/L	²²² Rn BqL
KLX07A	735.00	780.00	2007-12-05 10:03:00	15236	–	–	–	–	–	–	–
KLX07A	735.00	780.00	2007-12-06 09:37:00	15239	–	–	–	–	–	–	–
KLX07A	735.00	780.00	2007-12-13 07:00:00	15245	2.50	0.24	6.70	0.15	0.40	2.10E–001	5.10E+001
KLX08	626.00	683.00	2007-08-15 07:30:00	15029	–	–	–	–	–	–	–
KLX08	626.00	683.00	2007-10-30 10:09:00	15157	–	–	–	–	–	–	–
KLX08	626.00	683.00	2007-10-30 12:07:00	15160	–	–	–	–	–	–	–
KLX08	626.00	683.00	2007-10-30 14:16:00	15162	–	–	–	–	–	–	–
KLX08	626.00	683.00	2007-11-01 13:41:00	15173	–	–	–	–	–	–	–
KLX08	626.00	683.00	2007-11-05 08:04:00	15179	–	–	–	–	–	–	–
KLX08	594.00	625.00	2007-11-06 08:35:00	15176	–	–	–	–	–	–	–
KLX08	594.00	625.00	2007-11-06 10:08:00	15177	–	–	–	–	–	–	–
KLX08	594.00	625.00	2007-11-06 11:28:00	15180	–	–	–	–	–	–	–
KLX08	594.00	625.00	2007-11-08 13:29:00	15187	–	–	–	–	–	–	–
KLX08	594.00	625.00	2007-11-12 10:13:00	15191	0.30	<0.02	0.50	0.17	0.05	6.80E–002	5.11E+001
KLX10	351.00	368.00	2007-06-26 15:50:00	11938	–	–	–	–	–	–	–
KLX10	351.00	368.00	2007-06-26 16:40:00	11940	–	–	–	–	–	–	–
KLX10	351.00	368.00	2007-06-26 17:35:00	11949	–	–	–	–	–	–	–
KLX10	351.00	368.00	2007-06-27 16:35:00	11952	–	–	–	–	–	–	–
KLX10	351.00	368.00	2007-06-28 07:48:00	11946	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-07-09 06:47:00	11959	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-07-09 14:56:00	11955	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-07-10 06:54:00	11988	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-07-11 07:10:00	11993	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-07-12 05:58:00	11984	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-11-13 13:32:00	15193	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-11-14 07:28:00	15194	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-12-05 10:31:00	15237	–	–	–	–	–	–	–
KLX10	689.00	710.00	2007-12-10 08:20:00	15241	–	–	–	–	–	–	–

– = not analysed.

Table A3-3 (page 7 of 8). Compilation of results from isotope analyses.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	²³⁸ U mBq/kg	²³⁵ U mBq/kg	²³⁴ U mBq/kg	²³² Th mBq/kg	²³⁰ Th mBq/kg	²²⁶ Ra Bq/L	²²² Rn BqL
KLX10	689.00	710.00	2007-12-10 13:43:00	15242	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-07-09 08:17:00	11956	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-07-09 16:07:00	11986	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-07-10 08:38:00	11991	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-07-11 08:38:00	11989	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-07-11 12:36:00	11985	0.80	0.05	2.20	0.17	0.63	<0.015	3.57E+001
KLX12A	535.00	545.00	2007-11-07 10:48:00	15184	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-11-07 15:16:00	15185	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-11-07 18:09:00	15186	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-11-14 15:44:00	15189	–	–	–	–	–	–	–
KLX12A	535.00	545.00	2007-11-15 07:09:00	15192	0.20	0.02	0.50	0.28	0.50	1.76E–001	3.28E+001
KLX15A	623.00	640.00	2007-12-04 10:06:00	15231	–	–	–	–	–	–	–
KLX15A	623.00	640.00	2007-12-04 13:11:00	15232	–	–	–	–	–	–	–
KLX15A	623.00	640.00	2007-12-04 16:32:00	15233	–	–	–	–	–	–	–
KLX15A	623.00	640.00	2007-12-06 08:45:00	15238	–	–	–	–	–	–	–
KLX15A	623.00	640.00	2007-12-12 14:49:00	15244	3.30	0.19	7.20	0.08	0.19	4.42E–001	4.87E+001
KLX18A	472.00	489.00	2007-06-26 07:10:00	11937	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-06-26 18:08:00	11947	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-06-29 08:00:00	11950	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-07-02 14:07:00	11951	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-07-03 07:03:00	11944	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-10-31 17:09:00	15163	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-11-01 07:20:00	15164	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-11-01 14:15:00	15175	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-11-06 10:33:00	15178	–	–	–	–	–	–	–
KLX18A	472.00	489.00	2007-11-07 14:26:00	15155	3.60	0.22	11.20	0.33	0.44	5.30E–002	6.69E+001
KLX19A	509.00	517.00	2007-06-13 17:05:00	11917	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-07-04 10:02:00	11953	–	–	–	–	–	–	–

– = not analysed.

Table A3-3 (page 8 of 8). Compilation of results from isotope analyses.

Idcode	Secup m	Seclow m	Date and time of sampling	SKB sample no.	²³⁸U mBq/kg	²³⁵U mBq/kg	²³⁴U mBq/kg	²³²Th mBq/kg	²³⁰Th mBq/kg	²²⁶Ra Bq/L	²²²Rn BqL
KLX19A	509.00	517.00	2007-07-04 11:17:00	11958	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-07-04 12:40:00	11960	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-07-04 14:30:00	11957	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-07-04 16:50:00	11945	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-08-13 11:40:00	11987	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-08-13 13:34:00	11992	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-08-13 15:56:00	15033	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-08-13 16:07:00	15036	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-08-21 07:19:00	15031	1.20	0.10	4.50	0.02	0.22	<0.015	1.15E+002
KLX19A	509.00	517.00	2007-12-03 09:56:00	15228	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-12-03 11:04:00	15229	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-12-03 12:08:00	15230	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-12-06 13:22:00	15240	–	–	–	–	–	–	–
KLX19A	509.00	517.00	2007-12-11 08:02:00	15243	0.80	<0.02	3.60	0.58	0.65	1.60E–002	1.34E+002

– = not analysed.

Electric conductivity during time series sampling

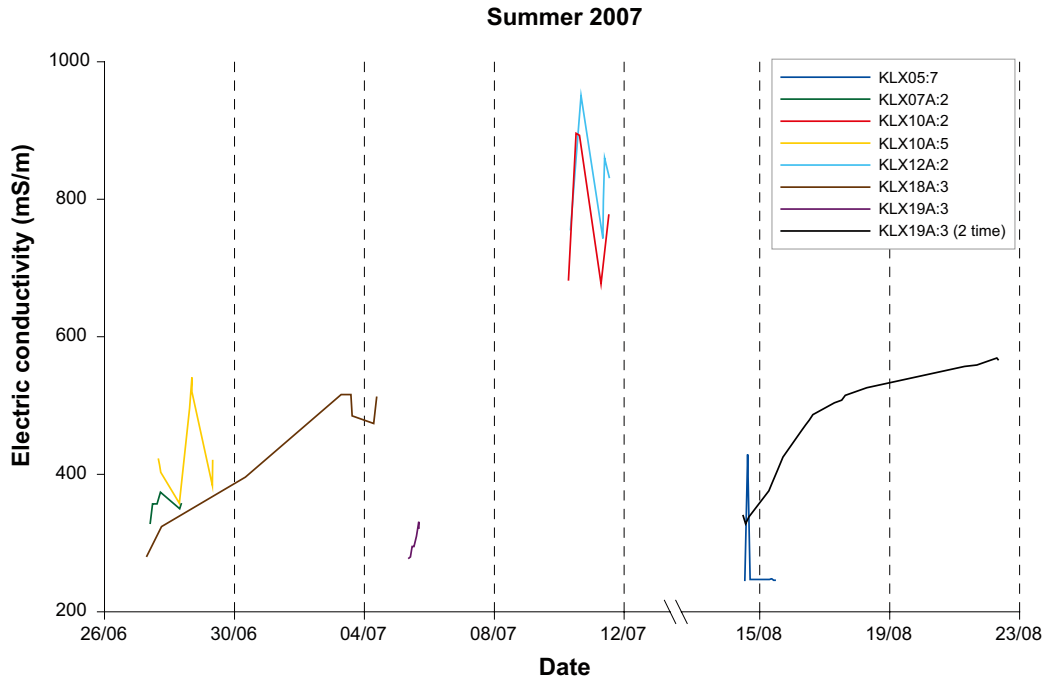


Figure A4-1. Field measurements of electric conductivity plotted versus date for borehole sections sampled during the summer period.

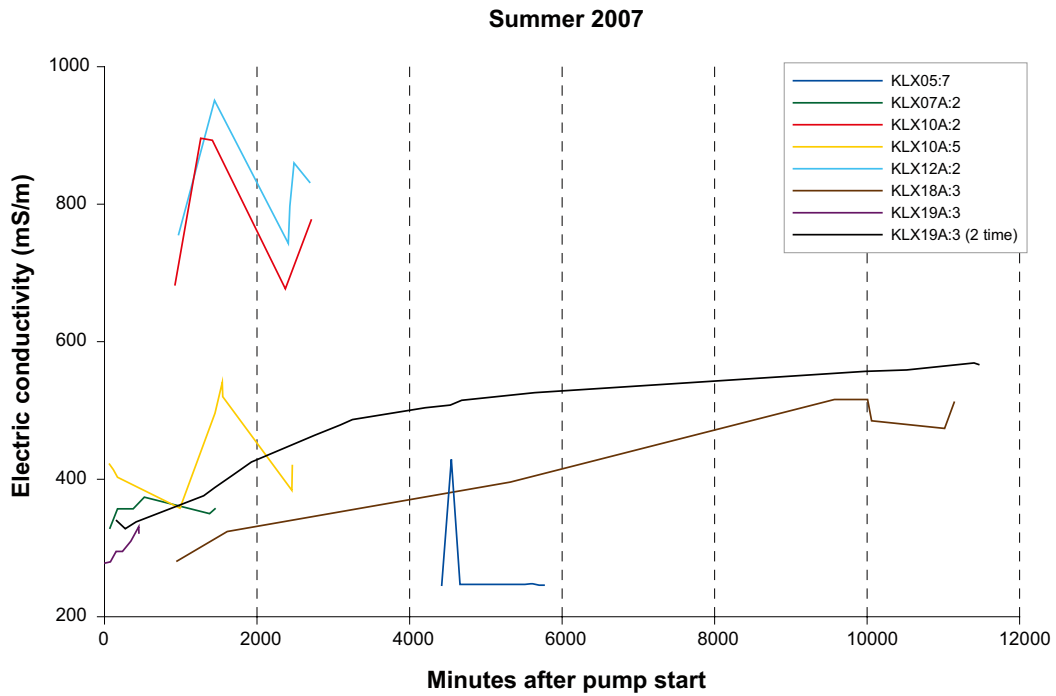


Figure A4-2. Field measurements of electric conductivity plotted versus minutes after pump start for borehole sections sampled during the summer period.

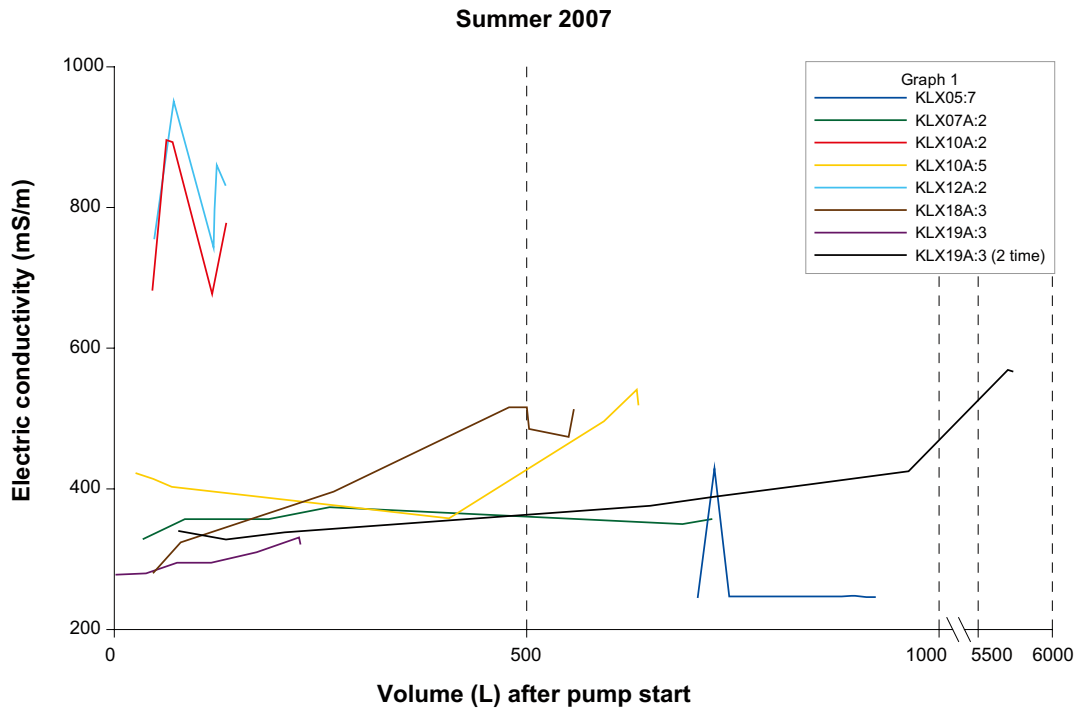


Figure A4-3. Field measurements of electric conductivity plotted versus volume (L) after pump start for borehole sections sampled during the summer period.

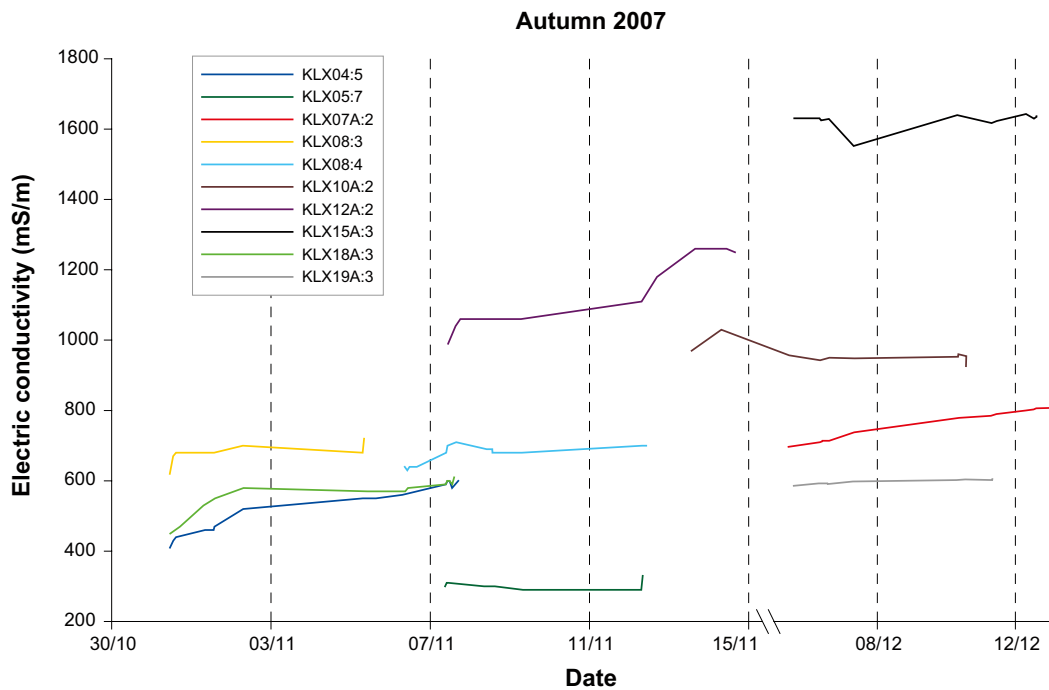


Figure A4-4. Field measurements of electric conductivity plotted versus date for borehole sections sampled during the autumn period.

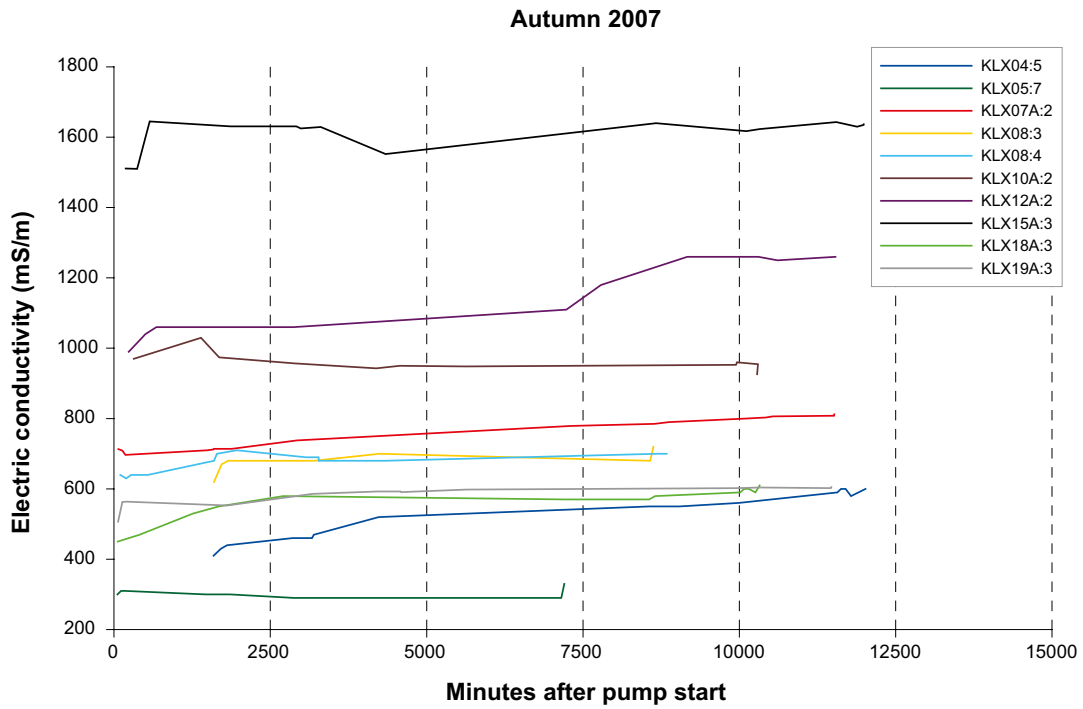


Figure A4-5. Field measurements of electric conductivity plotted versus minutes after pump start for borehole sections sampled during the autumn period.

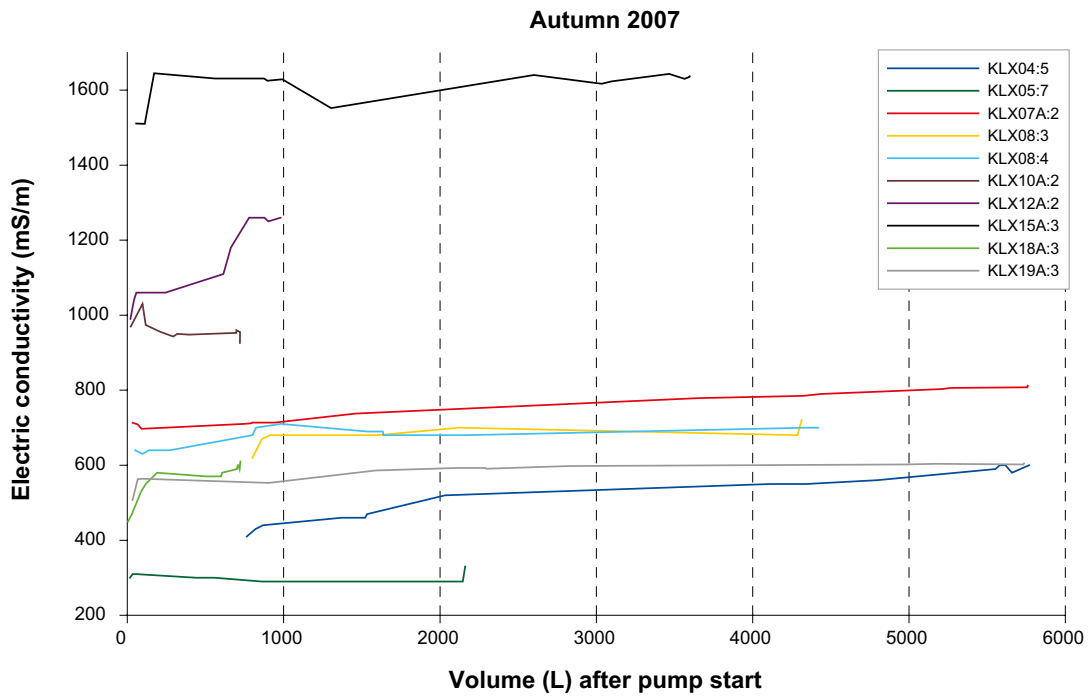


Figure A4-6. Field measurements of electric conductivity plotted versus volume (L) after pump start for borehole sections sampled during the autumn period.

Sulphide during time series sampling

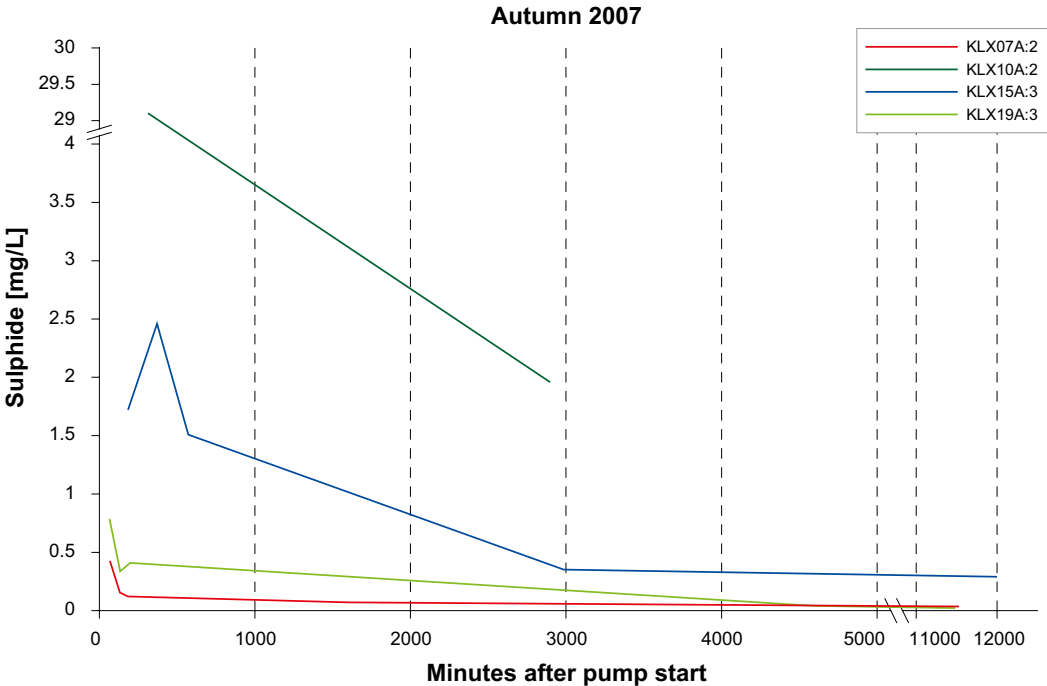


Figure A5-1. HS⁻ concentration (mg/L) plotted versus minutes after pump start.

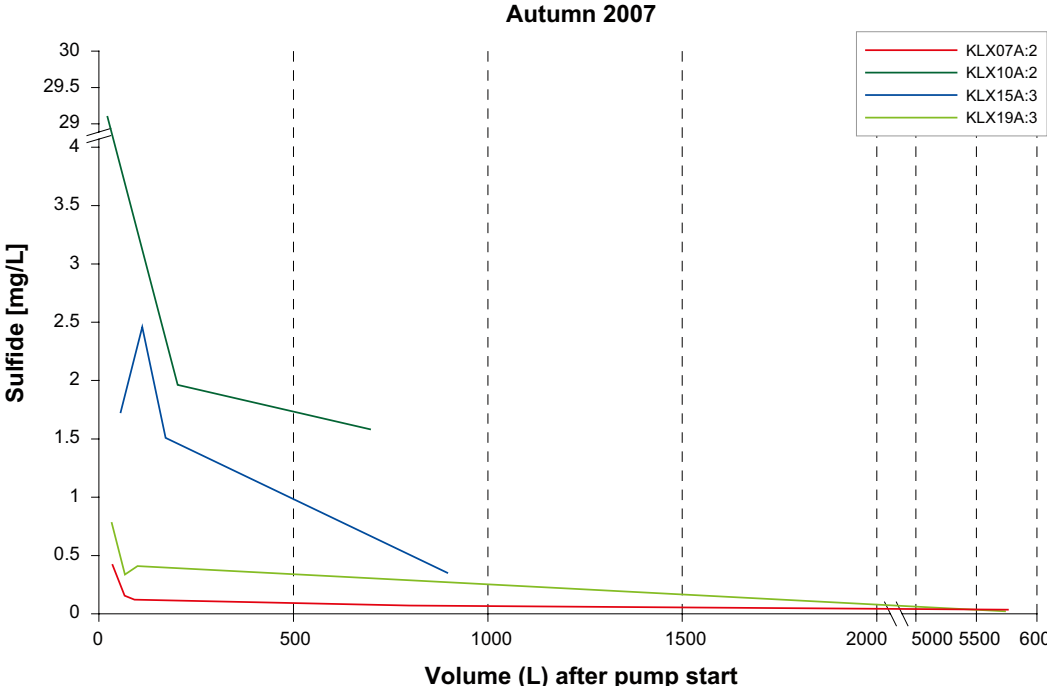


Figure A5-2. HS⁻ concentration (mg/L) plotted versus volume (L) after pump start.