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Oskarshamn site investigation

Hydrochemical logging in KLX13A

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Abstract

Hydrochemical logging, also called tube sampling, has been performed in the core drilled borehole KLX13A. The method is a fast and simple sampling technique for obtaining information about the chemical composition of the water along an open borehole. The equipment consists of an approximately 1,000 m long polyamide tube divided into units of 50 m. An appropriate number of tube units can be used to suit the actual borehole length, in this case c. 600 m.

The water content in each tube unit constituted one sample. Every second sample, starting with the lowermost tube unit, was analysed according to SKB chemistry class 3 (isotope options excluded). Samples for isotope determination were collected at the time of sampling and stored in a freezer (^3H , $\delta^{13}\text{C}$ and ^{14}C in a refrigerator); oxygen-18 ($\delta^{18}\text{O}$), deuterium ($\delta^2\text{H}$), tritium (^3H), boron-10/boron-11 ratio ($^{10}\text{B}/^{11}\text{B}$), chlorine-37 ($\delta^{37}\text{Cl}$) and strontium-87/strontium-86 ratio ($^{87}\text{Sr}/^{86}\text{Sr}$) from odd-numbered tube units and sulphur-34 ($\delta^{34}\text{S}$), carbon-13 ($\delta^{13}\text{C}$) and carbon-14 (^{14}C) from even-numbered tube units. If these samples are analysed later, the results from the analyses will be reported in a separate report.

The drill water content remaining in the borehole after drilling was low (between 0.1 and 0.2%) for all tube units except the one representing the deepest part of the borehole, 535–585 m, where the drill water content was 41.8%. The relative charge balance error did not exceed the acceptable limit of $\pm 5\%$, for any of the six samples analysed.

Sammanfattning

Hydrokemisk loggning, även kallad slangprovtagning, har utförts i det kärnborrade borrhålet KLX13A. Metoden är snabb och enkel att använda för att erhålla information om den kemiska sammansättningen hos grundvattnet längs ett öppet borrhål. Utrustningen består av en cirka 1 000 m lång polyamidslang uppdelad i enheter om vardera 50 m. Lämpligt antal slangenheter kan användas för att anpassa längden till det aktuella borrhålets längd, i detta fall ca 600 m.

Innehållet i en slangenhet utgör ett prov. Varannan slangenhet, med start från den nedersta, analyserades enligt SKB kemiklass 3 (exklusive alla tillval). Prover för bestämning av isotoptillvalen togs ut vid provtagningstillfället och sparades i frys (^3H , $\delta^{13}\text{C}$ och ^{14}C i kylskåp); syre-18 ($\delta^{18}\text{O}$), deuterium ($\delta^2\text{H}$), tritium (^3H), kvoten bor-10/bor-11 ($^{10}\text{B}/^{11}\text{B}$), klor-37 ($\delta^{37}\text{Cl}$) och kvoten strontium-87/strontium-86 ($^{87}\text{Sr}/^{86}\text{Sr}$) ur udda enheter, svavel-34 ($\delta^{34}\text{S}$), kol-13 ($\delta^{13}\text{C}$) och kol-14 (^{14}C) ur jämna enheter. Om dessa prover analyseras senare kommer resultaten av dessa analyser att sammanfattas i en separat rapport.

Halten kvarvarande spolvatten i borrhålet efter avslutad borrning var låg (mellan 0,1 och 0,2 %) för alla slangenheter utom den som representerar den djupaste delen av borrhålet, 535–585 m, där spolvattenhalten var 41,8 %. Det relativa felet i jonbalansen översteg inte den acceptabla nivån av $\pm 5\%$ i något av de sex analyserade proverna.

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1 Introduction

This document reports the performance and results from the Hydrochemical logging in borehole KLX13A. The Hydrochemical logging is one of the activities performed within the site investigation at Oskarshamn /1, 2/. The work was carried out in accordance with activity plan AP PS 400-06-076. In Table 1-1 controlling documents for performing this activity are listed. Both activity plan and method descriptions are SKB's internal controlling documents. The obtained data from the activity are reported to the database SICADA, where they are traceable by the activity plan number.

Borehole KLX13A is a 595.85 m long telescopic borehole, drilled within the site investigation in the Oskarshamn area. The percussion drilled borehole HLX14 served as the source of flushing water for the drilling of KLX13A. The locations of KLX13A and HLX14 are shown in Figure 1-1.

The borehole KLX13A is one of the so called SKB chemical type; see method descriptions MD 620.003 (Method description for drilling cored boreholes) and 610.003 (Method description for percussion drilling). The cleaning procedures of all equipment used in the borehole, during and after drilling, were performed according to level 1 in the cleaning instructions in MD 600.004 (Instruktion för rengöring av borrhålsutrustning och viss markbaserad utrustning).

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

Activity plan	Number	Version
Hydrokemisk loggning i KLX13A	AP PS 400-06-076	1.0
Method descriptions	Number	Version
Metodbeskrivning för hydrokemisk loggning	SKB MD 422.001	2.0
Instruktion för rengöring av borrhålsutrustning och viss markbaserad utrustning	SKB MD 600.004	1.0

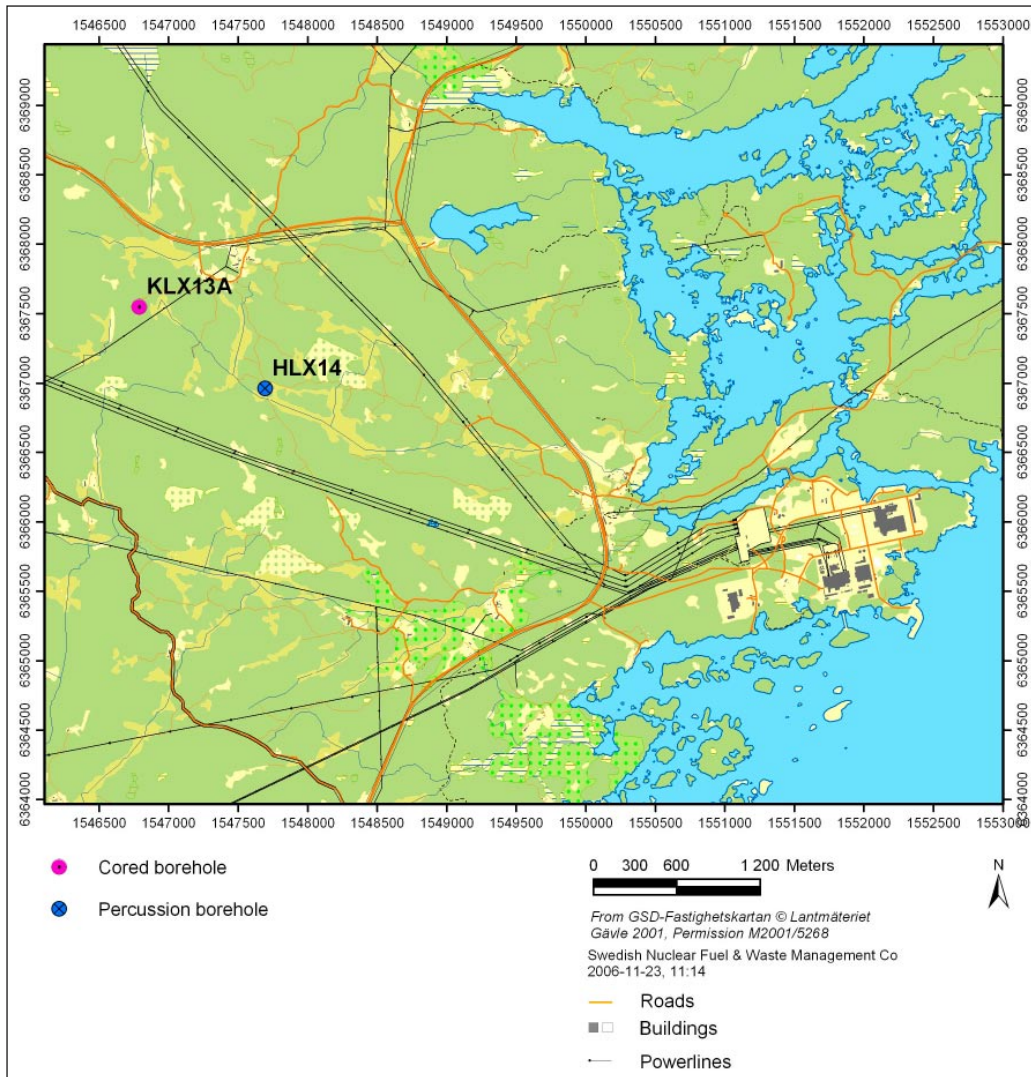


Figure 1-1. Location of the core drilled borehole KLX13A and the percussion drilled borehole HLX14 within the site investigation in the Oskarshamn area.

2 Objective and scope

Hydrochemical logging was performed in order to obtain an overview of the chemical composition of the water along the open borehole KLX13A. The technique used for sampling is fast and simple, also for boreholes of considerable lengths.

The analysis program was carried out according to SKB chemistry class 3 except for optional isotopes. Sample portions intended for isotope analyses were collected at the time of sampling. If these samples will be analysed, the results will be presented in a separate report.

3 Sampling equipment

For the Hydrochemical logging an approximately 600 m long polyamide tube, divided into units of 50 m, was used. The equipment is described in the method description, see Table 1-1.

A schematic picture of the equipment used for the Hydrochemical logging is shown in Figure 3-1. The tube units are connected using metal couplings and manual shut off valves. The external and internal diameters of the tube units are 10 and 8 mm, respectively. The first tube lowered down the borehole has a non-return valve at the bottom to prevent water outflow while lifting the tube units. At the lower end of the tube array, a weight is added in order to stretch the array and thereby prevent fastening.

The water content in each tube unit constitutes one sample, and the volume of each sample is approximately two and a half litres.

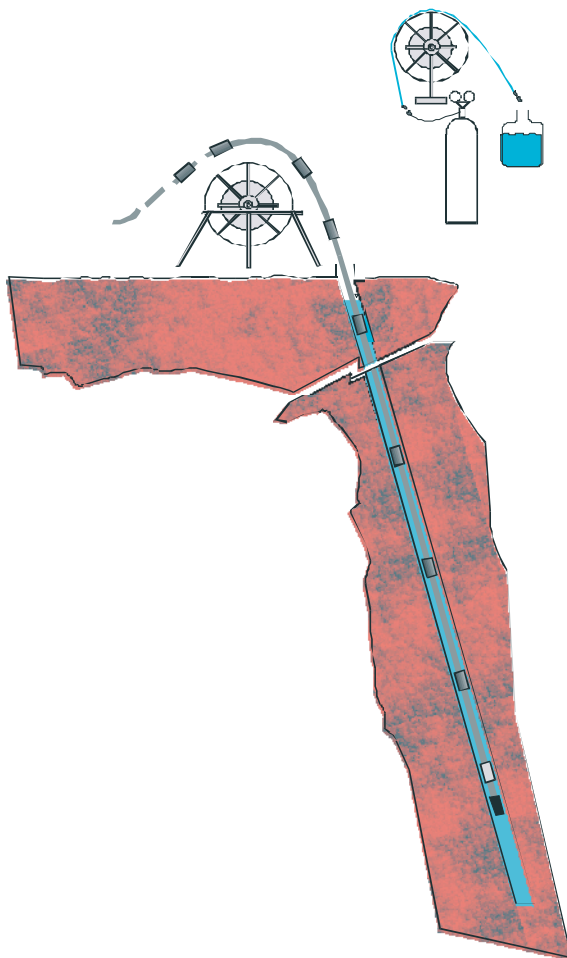


Figure 3-1. Equipment for Hydrochemical logging in boreholes. At the lower end of the tube array there is a non-return valve and a weight connected. Each tube unit is 50 m long.

4 Execution

4.1 Hydrochemical logging

The Hydrochemical logging in KLX13A was performed on September 19, 2006 according to the activity plan AP PS 400-06-076 and in compliance with the method description SKB MD 422.001 (cf. Table 1-1).

The equipment was lowered to a length of 585 m of borehole length, in order to avoid potential settled drilling debris at the bottom of the borehole, and thereby decrease the risk of fastening. The tubes were lowered down the borehole at a rate of about five m/minute. The lowering of the tube units started at 08:05 and the lifting of the tubes started at 10:37. The last tube unit was retrieved at 11:22. Pressurized nitrogen gas was used to empty the tube units and the water samples were portioned into sample bottles. Each tube unit represented one sample.

The ground water level measured before and after the Hydrochemical logging was 10.91 and 10.97 m, respectively, below top of casing. As the tube unit at the top of the tube array only was lowered to 35 metres of its length, this tube unit was not completely filled with sample water.

4.2 Sample treatment and chemical analysis

An overview of sample treatment and analysis routines of the activity is given in Appendix 1.

An overview showing the samples obtained at the logging occasion is given in Table 4-1. The analysis program was carried out according to SKB chemistry class 3 except for optional isotopes. Sample portions intended for isotope analyses were collected at the sampling occasion but not sent for analysis. These samples are stored in a freezer at SKB (except for the samples collected for ^3H , $\delta^{13}\text{C}$ and ^{14}C determinations which are stored in a refrigerator). If these samples will be sent for analysis the results will be presented in a separate report. The data from the Hydrochemical logging are stored in the database SICADA. The SKB sample numbers are 11319–11330.

The uppermost tube unit was not completely filled with sample water, see section 4.1. All other tube units seemed, by visual inspection, to be fully filled with sample water; only small bubbles of gas was observed during lifting. Due to the lack of water in the uppermost tube unit, see above, no archive samples and no samples for $\delta^{13}\text{C}$ and ^{14}C determinations were collected from this tube unit.

Table 4-1. Overview of samples collected at the Hydrochemical logging in KLX13A. Filled cells represent collected samples. Striped (blue) filling represents samples sent for analyses, light (yellow) filling represents samples collected and stored in a freezer (tritium and carbon isotopes in a refrigerator) and dashed (purple) cells represent archive samples.

Sample information			Collected sample portions											Archive
Tube unit	Length [m]	SKB no.	Cond., pH, alk.	Major Comp.	Ura-nine	An-ions	^3H	$\delta^2\text{H}$ $\delta^{18}\text{O}$	$\delta^{37}\text{Cl}$	$^{10}\text{B}/^{11}\text{B}$	$^{87}\text{Sr}/^{86}\text{Sr}$	δ^{34}	δ^{13} and ^{14}C	Filtered 2x250 mL
20	0-35	11319											-	-
11	85	11320												
10	135	11321												
9	185	11322												
8	235	11323												
7	285	11324												
6	335	11325												
5	385	11326												
4	435	11327												
3	485	11328												
2	535	11329												
1	585	11330												

- No sample due to lack of water in tube unit.

4.3 Data handling

The following routines for quality control and data management are generally applied for hydrogeochemical analysis data, irrespectively of sampling method or sampling object.

All analytical results were stored in the SICADA database. The applied hierarchy path "Hydrochemistry/Hydrochemical investigation/Analyses/Water in the database" contains two types of tables, raw data tables and primary data tables (final data tables).

Data from **basic water analyses** are inserted into raw data tables for further evaluation. The evaluation results in a final data set 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. The analyses are repeated if a large disparity is noted (generally more than 10%).

Calculation of charge balance errors. Relative errors within $\pm 5\%$ are considered acceptable (in surface waters $\pm 10\%$).

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

General judgement of plausibility based on earlier results and experiences.

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

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

4.4 Nonconformities

The activity was performed without any deviations from the controlling documents for the activity that can affect the quality of data. Due to problems with lack of water in sampling tube number 20 (0–35 m), no archive sample or samples for $\delta^{13}\text{C}$ and ^{14}C determinations were collected from this tube unit.

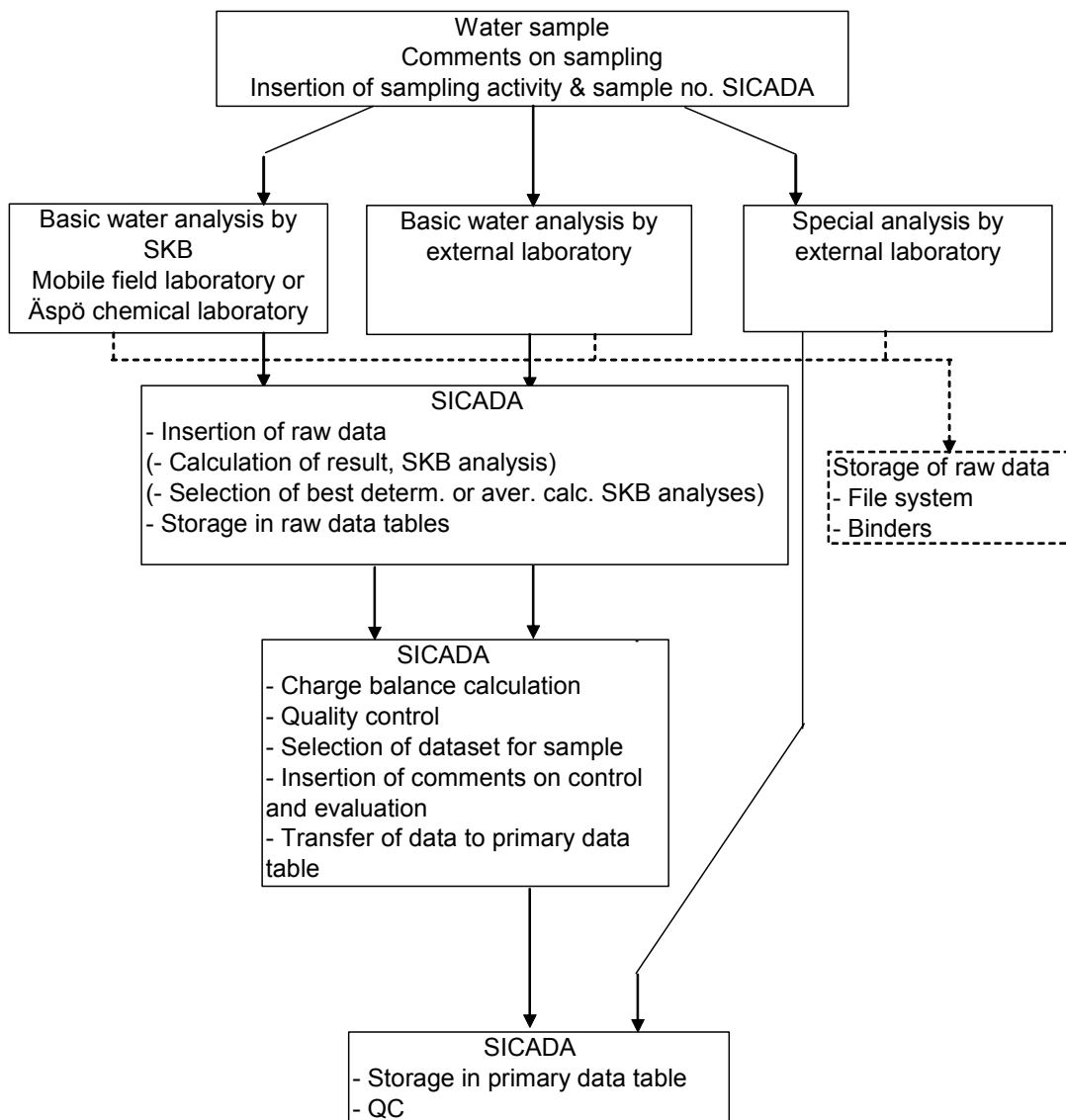


Figure 4-1. Overview of data management for hydrogeochemical data.

5 Results

5.1 Analytical results

The results from the chemical analyses are presented in Appendix 2. The original results are stored in the primary data base (SICADA), and the data in this data base will be used for further interpretation (modelling).

Diagrams showing the drill water content and the electric conductivity along the borehole, at the time of the Hydrochemical logging, are presented in Figures 5-1 and 5-2. Results from analyses of pH, HCO_3^- and some of the major constituents (Na^+ , Ca^+ and Cl^-) are shown in Figures 5-3 to 5-5, respectively. Sulphate (SO_4^{2-}) analysed by ion chromatography (IC) is compared with sulphate determined as total sulphur using inductively coupled plasma atomic emission spectrometry (ICP-AES) in Figure 5-6. Results are plotted for the mid-length of each tube unit.

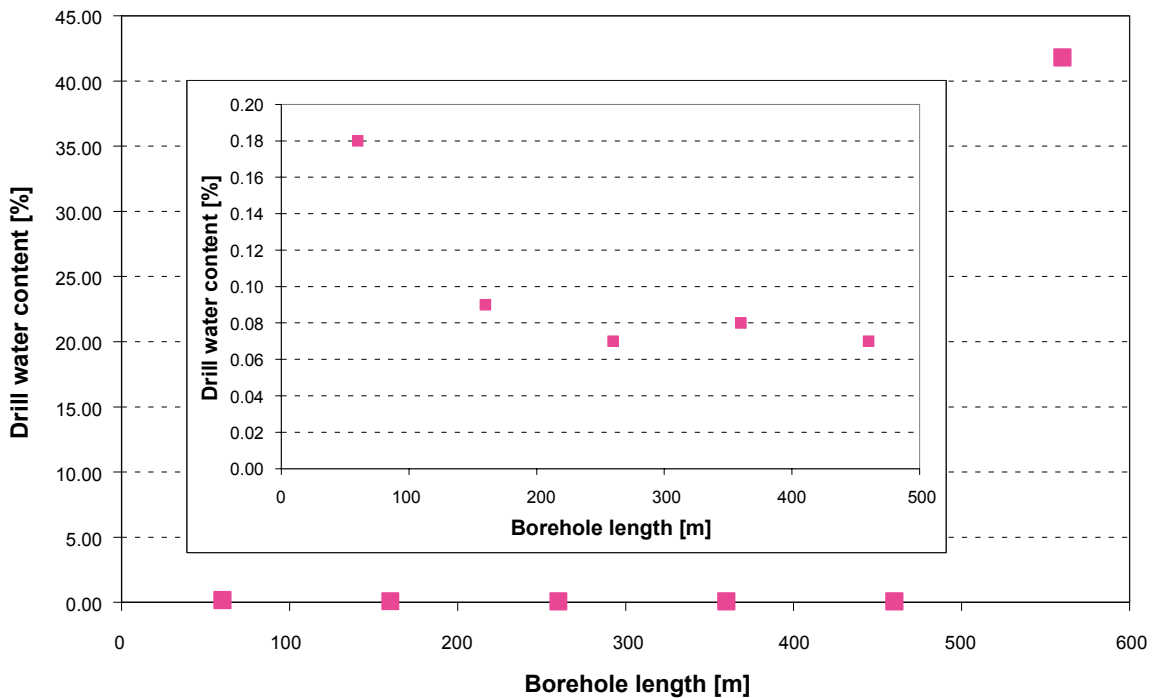


Figure 5-1. Drill water content remaining at different borehole lengths at the time of the Hydrochemical logging in KLX13A. The small figure shows a more detailed resolution of the low drill water content.

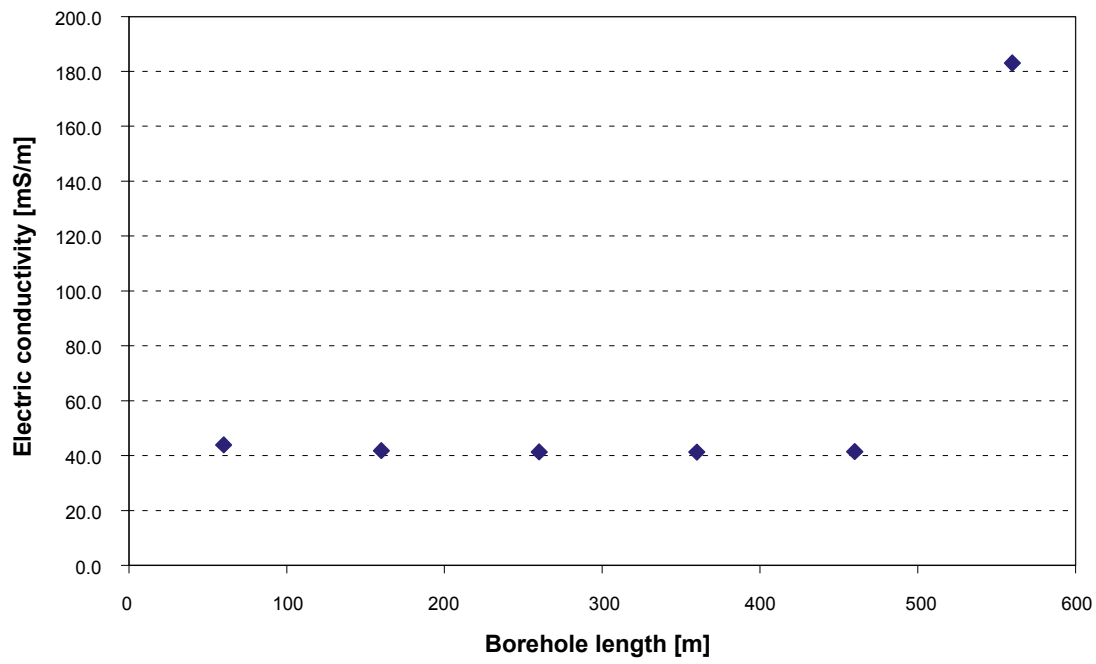


Figure 5-2. Electric conductivity values along the borehole KLX13A obtained from the Hydrochemical logging in KLX13A.

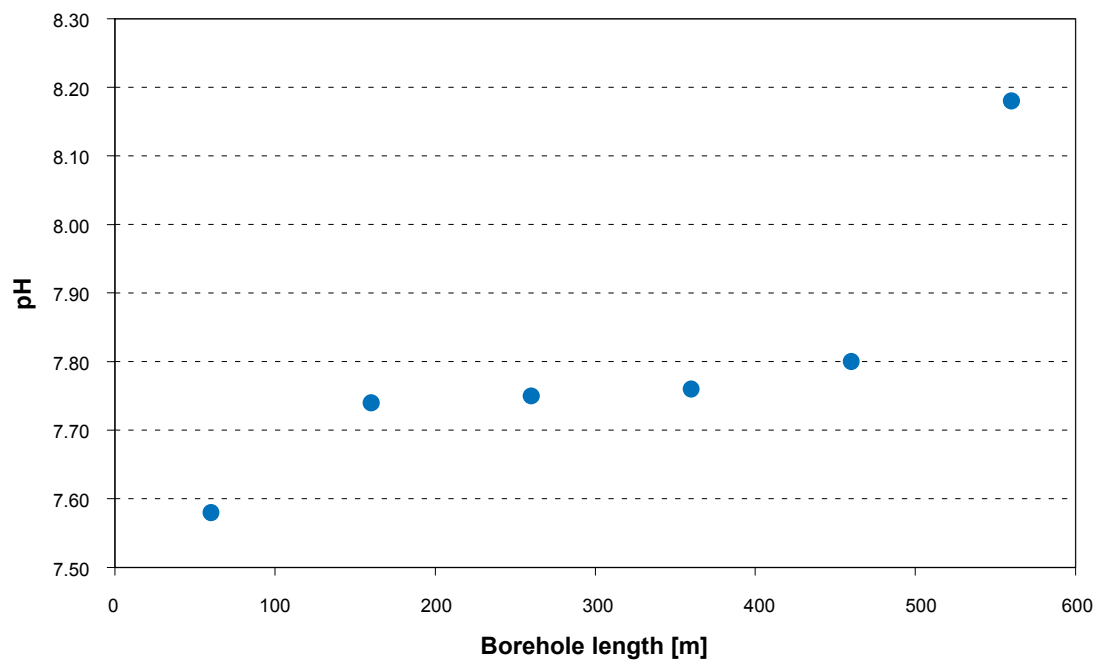


Figure 5-3. Results from pH measurements obtained from the Hydrochemical logging in KLX13A.

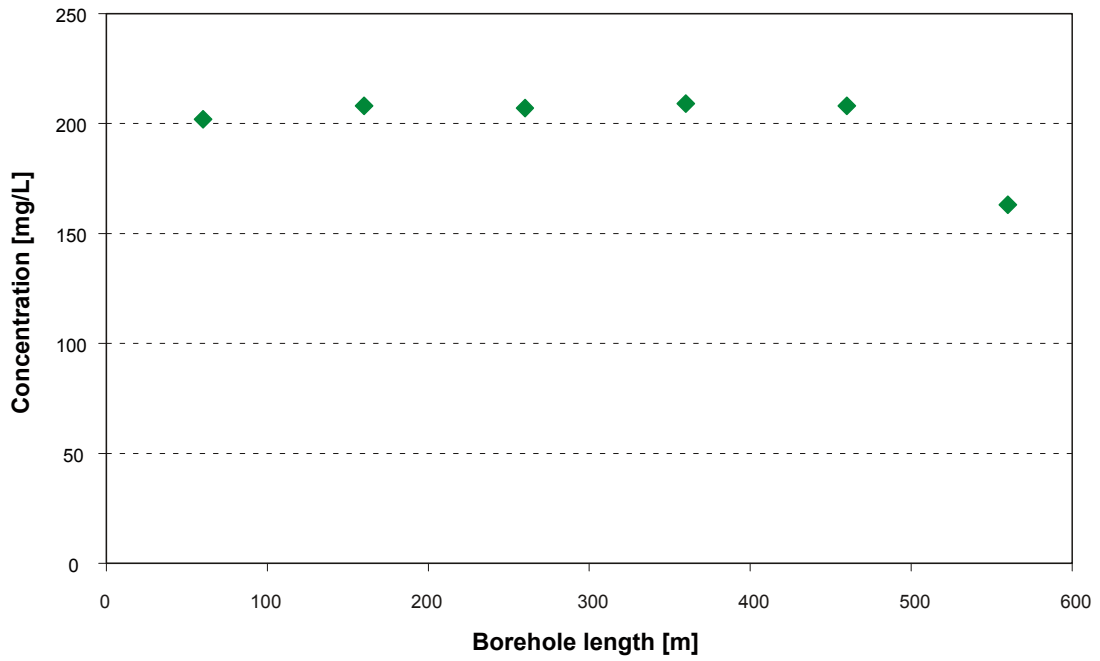


Figure 5-4. Results from analysis of hydrogen carbonate (HCO_3^-) in water samples obtained from the Hydrochemical logging in KLX13A.

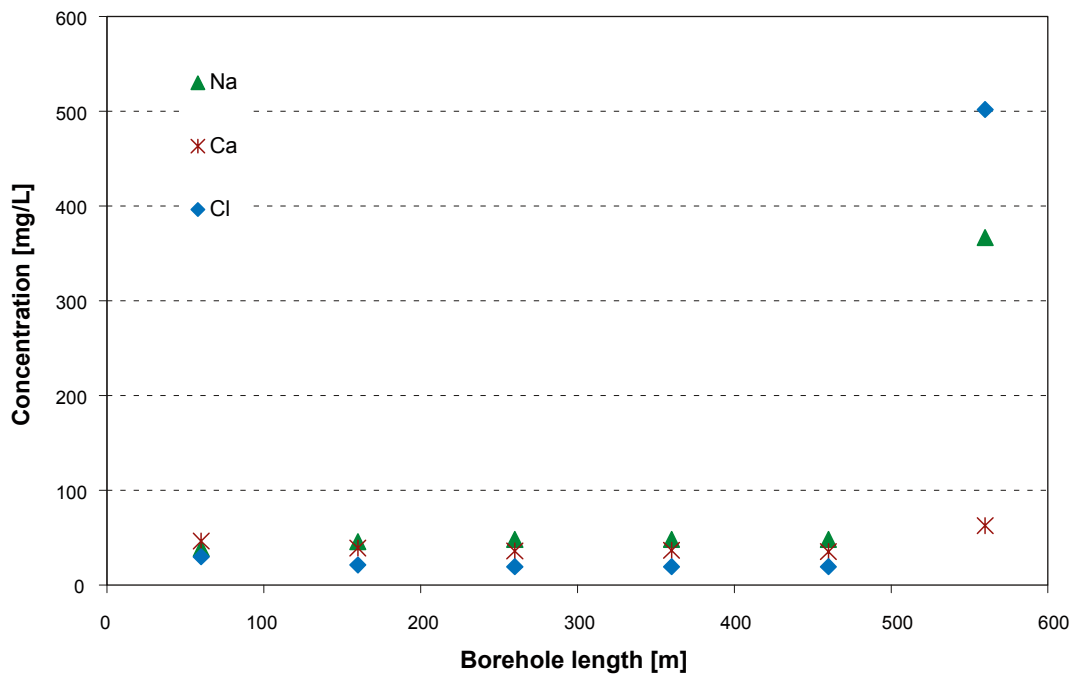


Figure 5-5. Results from analysis of the constituents Na^+ , Ca^{2+} and Cl^- in water samples obtained from the Hydrochemical logging in KLX13A.

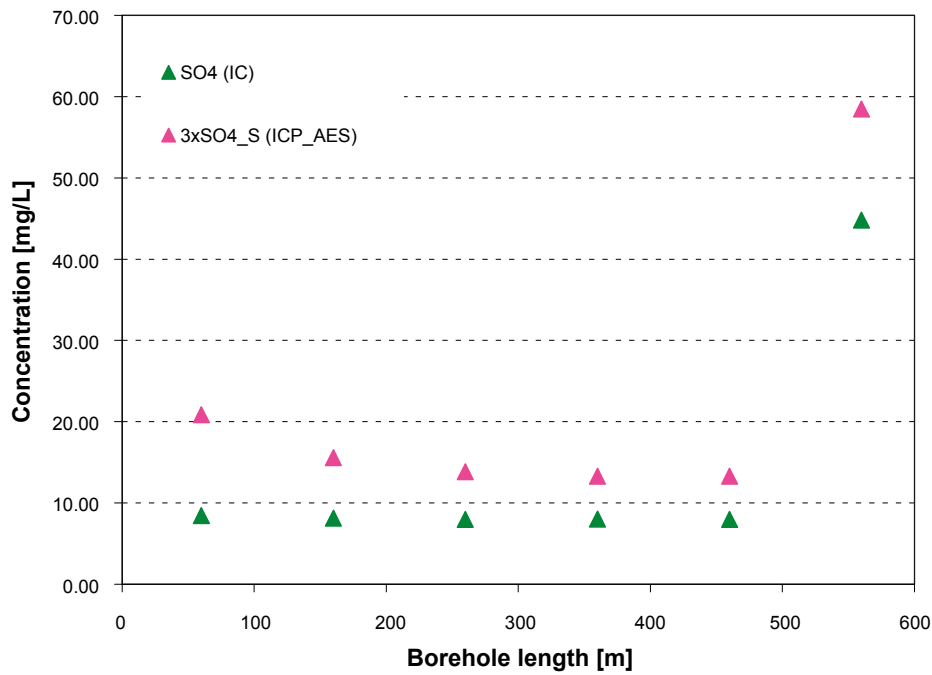


Figure 5-6. Sulphate (IC) compared to total sulphur (ICP-AES), results from the Hydrochemical logging in KLX13A.

5.2 Quality of the analyses

The charge balance errors give an indication of the quality and uncertainty of the analyses of major constituents. The relative charge balance errors were calculated for the selected sets of data, see Appendix 2. If the relative errors are within $\pm 5\%$ they are considered acceptable. The errors did not exceed 5% for any of the six analysed samples. This indicates that the analyses of the major components are consistent.

6 Summary and discussions

The Hydrochemical logging of KLX13A was conducted successfully. The main results are summarized and discussed below.

- The amount of remaining drill water at the time of the Hydrochemical logging was low, a maximum of 0.2% in all tube units except the one representing the deepest part of the borehole (535–585 m) where the drill water content was as high as 41.8%.
- The charge balance error, giving an indication of the quality and uncertainty of the analyses, did not exceed the acceptable level ($\pm 5\%$) in any of the samples. This indicates that the analyses of the major components are consistent. No results were considered unconfident, based on general trends.
- The results from tube unit 535–585 m are notably different from the other samples.
- Apart from the results from 535–585 m, the water chemistry results from all tube units are similar. No general trends with decreasing or increasing values with borehole length are noticed, except for the pH-value which is somewhat increasing with borehole length.
- Owing to the low drill water content in all samples except for the sample representing 535–585 m, the results from the other tube units can be considered as representative for the water chemistry in the water-bearing fractures of the borehole at 35–485 m (the interval represented by the water in the other five analyzed tube units).
- The notably different water chemistry in the water from tube unit 535–585 m is probably an effect of the high drill water content, 41.8%. Probably the drill water has another water composition. Since the drill water content is high, no conclusions can be drawn about the chemistry of the water in the deepest part of borehole KLX13A.
- In the tube units that can be considered as representative of the water chemistry in the borehole (35–485 m), the electric conductivity ranges from 41.2 to 43.9 mS/m and the chloride concentrations from 19.3 mg/L to 29.8 mg/L. In the lowermost tube unit the corresponding values are 183 mS/m and 502 mg/L respectively.

7 References

- /1/ **SKB, 2001.** Generellt genomförande program för platsundersökningar. SKB R 01-10, Svensk Kärnbränslehantering AB.
- /2/ **SKB, 2005.** Platsundersökning Oskarshamn. Program för fortsatta undersökningar av berggrund, mark, vatten och miljö inom delområde Laxemar. SKB R-05-37, Svensk Kärnbränslehantering AB.

Sampling and analysis methods

Table A1-1. Sample handling routines and analytical methods.

Component group	Component/element	Sample container (material)	Volume (mL)	Filtering	Preparation/Conservation*	Analysis method	Analysis within – or delivery time to lab.
Anions 1	HCO ₃ ⁻ pH (lab) cond (lab)	Plastic	250	No	No	Titration Pot. meas, Cond. meas	The same day – maximum 24 hours
Anions 2	Cl ⁻ , SO ₄ ²⁻ , Br ⁻ , F ⁻	Plastic	100	Yes (in connection with analysis)	No	Titration (Cl ⁻) IC (Cl ⁻ , SO ₄ ²⁻ , Br ⁻ , F ⁻) ISE (F ⁻)	Not critical (month)
Cations, Si and S according to SKB class 3	Na, K, Ca, Mg, S(tot), Si(tot), Li, Sr	Plastic (at low conc. acid washed bottles)	100	Yes (not in the field)	Yes (not in the field, 1 mL HNO ₃)	ICP-AES ICP-MS	Not critical (month)
Environmental isotopes	δ ² H, δ ¹⁸ O	Plastic	100	No	– –	MS	Not critical (month)
Tritium	³ H (enhanced.)	Plastic (dry bottle)	500	No	–	LSC	
Chlorine-37	δ ³⁷ Cl	Plastic	500	No	–	ICP MS	Not critical (month)
Carbon isotopes	δ ¹³ C, pmC (¹⁴ C)	Glass (dark)	100×4	No	–	(A)MS	A few days
Sulphur isotopes	δ ³⁴ S	Plastic	500–1,000	No	–	Combustion, ICP MS	No limit
Strontium–isotopes	⁸⁷ Sr/ ⁸⁶ Sr	Plastic	100	No	–	TIMS	Days or Week
Boron isotopes	¹⁰ B/ ¹¹ B	Plastic	100	Yes	Yes (1 mL HNO ₃)	ICP – MS	No limit
Archive samples without acid	–	Plastic	250×2	Yes	No	–	Storage in freeze container

* Suprapur acid is used for conservation of samples.

Abbreviations and definitions:

IC	Ion Chromatograph
ISE	Ion Selective Electrode
ICP-AES	Inductively Coupled Plasma Atomic Emission Spectrometry
ICP-MS	Inductively Coupled Plasma Mass Spectrometry
MS	Mass Spectrometry
LSC	Liquid Scintillation Counting
(A)MS	(Accelerator) Mass Spectrometry
TIMS	Thermal Ionization Mass Spectrometer

Table A1-2. Reporting limits and measurement uncertainties.

Component	Method	Reporting limits or range	Unit	Measurement uncertainty ²	"Total" uncertainty ³
HCO ₃ ⁻	Alkalinity titration	1	mg/L	4%	< 10%
pH	Pot. meas.	–	–	5%	–
Cond.	Cond. meas.	0.02	mS/m	4%	–
Cl ⁻	Mohr- titration	> 70	mg/L	5%	< 10%
Cl ⁻	IC	1–100		6%	10%
SO ₄ ²⁻	IC	1	mg/L	10%	15%
Br ⁻	IC	0.2	mg/L	9%	20%
F ⁻	IC	0.1	mg/L	10%	20%
F ⁻	ISE	–	–	–	–
Na	ICP	0.1	mg/L	4%	10%
K	ICP	0.4	mg/L	6%	15%
Ca	ICP	0.1	mg/L	4%	10%
Mg	ICP	0.09	mg/L	4%	10%
S(tot)	ICP	0.160	mg/L	21%	15%
Si(tot)	ICP	0.03	mg/L	4%	15%
Sr	ICP	0.002	mg/L	4%	15%
Li	ICP	0.2 ¹ 2	mg/L	10%	20%
δ ² H	MS	2	‰ SMOW ⁴	1‰	–
δ ¹⁸ O	MS	0.1	‰ SMOW ⁴	0.2‰	–
³ H	LSC	0.8 or 0.1	TU ⁵	0.8 or 0.1	Correct order of size
δ ³⁷ Cl	ICP MS	0.2‰ (20 mg/L)	‰ SMOC ⁶	–	–
δ ¹³ C	A (MS)	–	‰ PDB ⁷	–	–
pmC (¹⁴ C)	A (MS)	–	pmC ⁸	–	–
δ ³⁴ S	ICP MS	0.2‰	‰ CDT ⁹	0.3‰	–
⁸⁷ Sr/ ⁸⁶ Sr	TIMS	–	No unit (ratio) ¹⁰	–	–
¹⁰ B/ ¹¹ B	ICP MS	–	No unit (ratio) ¹⁰	–	–

1. Reporting limits at salinity ≤ 0.4% (520 mS/m) and ≤ 3.5% (3,810 mS/m) respectively.

2. Measurement uncertainty reported by consulted laboratory, generally 95% confidence interval.

3. Estimated total uncertainty by experience (includes effects of sampling and sample handling).

4. Per mille deviation¹³ from SMOW (Standard Mean Oceanic Water).

5. TU=Tritium Units, where one TU corresponds to a Tritium/hydrogen ratio of 10⁻¹⁸ (1 Bq/L Tritium = 8.45 TU).

6. Per mille deviation¹³ from SMOC (Standard Mean Oceanic Chloride).

7. Per mille deviation¹³ from PDB (the standard PeeDee Belemnite).

8. The following relation is valid between pmC (percent modern carbon) and Carbon-14 age: pmC = 100 × e^{((1.950–y–1.03t)/8.274)} where y = the year of the C-14 measurement and t = C-14 age.

9. Per mille deviation¹³ from CDT (the standard Canyon Diablo Troilite).

10. Isotope ratio without unit.

Isotopes are often reported as per mill deviation from a standard. The deviation is calculated as: δ‰ = 1,000 × (K_{sample} – K_{standard}) / K_{standard}, where K = the isotope ratio and ‰ = ²H, ¹⁸O, ³⁷Cl, ¹³C or ³⁴S etc.

Appendix 2

Water composition

Compilation November 2006.

Idcode	Secup m	Seclow m	Sample no.	Charge Bal %	Na mg/L	K mg/L	Ca mg/L	Mg mg/L	HCO ₃ ⁻ mg/L	Cl ⁻ mg/L	SO ₄ ²⁻ mg/L	SO ₄ -S mg/L	Br ⁻ mg/L	F ⁻ mg/L	Si mg/L	Fe mg/L	Mn mg/L	Li	Sr	pH	Drill_water %	EiCond mS/m	
KLX13A	0.00	35.00	11319		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX13A	35.00	85.00	11320	-1.82	38.4	2.78	46.4	5.7	202	29.8	8.46	6.95	< 0.2	2.36	9.67	0.361	0.320	0.007	0.202	7.58	0.18	43.9	
KLX13A	85.00	135.00	11321		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX13A	135.00	185.00	11322	-0.45	45.5	2.51	39.0	5.3	208	21.2	8.16	5.19	< 0.2	2.82	9.42	0.345	0.254	0.008	0.186	7.74	0.09	41.8	
KLX13A	185.00	235.00	11323		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX13A	235.00	285.00	11324	-0.11	48.0	2.49	36.0	5.0	207	19.4	8.00	4.62	< 0.2	2.88	9.20	0.339	0.227	0.008	0.186	7.75	0.07	41.3	
KLX13A	285.00	335.00	11325		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX13A	335.00	385.00	11326	0.21	48.2	2.47	36.6	5.1	209	19.3	8.05	4.43	< 0.2	2.87	9.27	0.328	0.227	0.008	0.192	7.76	0.08	41.2	
KLX13A	385.00	435.00	11327		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX13A	435.00	485.00	11328	-0.79	47.9	2.43	35.2	4.9	208	19.4	8.00	4.43	< 0.2	2.92	9.20	0.306	0.221	0.007	0.203	7.80	0.07	41.4	
KLX13A	485.00	535.00	11329		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
KLX13A	535.00	585.00	11330	3.77	367	3.34	62.7	5.8	163	502	44.8	19.5	3.30	3.12	6.34	0.857	0.098	0.052	0.942	8.18	41.8	183	

- = Not analysed.

x = No sample due to sampling problems.

xxx = Stored in freezer/refrigerator.

< = below detection limit.

ChargeBal % = Relative charge balance error %.

Cont.

Idcode	Secup m	Seclow m	Sample no.	$\delta^2\text{H}$ dev SMOW	$\delta^{18}\text{O}$ dev SMOW	^3H TU	$\delta^{37}\text{Cl}$ dev SMOC	$^{10}\text{B}/^{11}\text{B}$ no unit	$^{87}\text{Sr}/^{86}\text{Sr}$ no unit	$\delta^{34}\text{S}$ dev CDT	$\delta^{13}\text{C}$ dev PDB	^{14}C pmC
KLX13A	0.00	35.00	11319	-	-	-	-	-	-	XXX	X	X
KLX13A	35.00	85.00	11320	XXX	XXX	XXX	XXX	XXX	XXX	-	-	-
KLX13A	85.00	135.00	11321	-	-	-	-	-	-	XXX	XXX	XXX
KLX13A	135.00	185.00	11322	XXX	XXX	XXX	XXX	XXX	XXX	-	-	-
KLX13A	185.00	235.00	11323	-	-	-	-	-	-	XXX	XXX	XXX
KLX13A	235.00	285.00	11324	XXX	XXX	XXX	XXX	XXX	XXX	-	-	-
KLX13A	285.00	335.00	11325	-	-	-	-	-	-	XXX	XXX	XXX
KLX13A	335.00	385.00	11326	XXX	XXX	XXX	XXX	XXX	XXX	-	-	-
KLX13A	385.00	435.00	11327	-	-	-	-	-	-	XXX	XXX	XXX
KLX13A	435.00	485.00	11328	XXX	XXX	XXX	XXX	XXX	XXX	-	-	-
KLX13A	485.00	535.00	11329	-	-	-	-	-	-	XXX	XXX	XXX
KLX13A	535.00	585.00	11330	XXX	XXX	XXX	XXX	XXX	XXX	-	-	-

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