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Oskarshamn site investigation

Boremap mapping of core drilled borehole KLX12A

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Keywords: KLX12A, Geology, Drill core mapping, Boremap, Fractures, BIPS, Laxemar.

Abstract

This report presents the Boremap mapping of KLX12A, which is a c. 602 m long core drilled borehole. The borehole was drilled with declination 310° and inclination –72.8° and the mapping was conducted between 2006-04-03 and 2006-05-25.

KLX12A consists of 60.7% Ävrö granite (501044) and 22.6% diorite/gabbro (501033) and 14.7% quartz monzodiorite (501036). The remaining 2% consists of fine-grained granite (511058), fine-grained diorite-gabbro (505102) and fine-grained dioritoid (501030).

The interval 100–421 m is totally dominated by Ävrö granite (501044) with subordinated occurrence of fine-grained granite (511058), fine-grained diorite-gabbro (505102) and fine-grained dioritoid (501030). The section from 421 m to 528 m is dominated by diorite/gabbro (501033). Subordinate rock type is Ävrö granite (501044). The section between 528 m to 598 m is dominated by quartz monzodiorite (501036).

Three sections have been highlighted based on anomalous fracture frequencies, alterations and structural features. These sections cover the following intervals: 185–196 m, 382–400 m and 500–520 m. Another notable feature is the presence of gouge in the borehole, occurring at 185, 270, 392 and 445 metres length.

Sammanfattning

Denna rapport presenterar boremapkartering av KLX12A som ett är ett ca 602 meter långt kärnborrhål. Borrhålet borrades med deklination 310° och inklination –72,8° och karterades mellan 2006-04-03 och 2006-05-25.

KLX12A utgörs av 60,7 % Ävrögranit (501044), 22,6 % diorit/gabbro (501033) och 14,7 % kvartsmonzodiorit (501036). De övriga 2 % utgörs av finkornig granit (511058), finkornig diorit-gabbro (505102) och finkornig dioritoid (501030).

Intervallet 100–421 m domineras av Ävrögranit (501044) med underordnad förekomst av finkornig granit (511058), finkornig diorit-gabbro (505102) och finkornig dioritoid (501030). Intervallet 421–528 m domineras av diorit/gabbro (501033), underordnad bergart Ävrö granit (501044). Intervallet 528 till 598 m domineras av kvartzmonzodiorit (501036).

Tre sektioner kan urskiljas baserat på förhöjd sprickfrekvens, sidobergets omvandlingar och geologiska strukturer. Dessa sektioner återfinns i följande intervall: 185–196 m, 382–400 m och 500–520 m. Noterbart är förekomst av partier med tektoniskt nermald bergart (gouge) vid borrhålsdjupen 185, 270, 392 och 445 m.

Contents

1 Introduction

This report gives a brief presentation of the data gained from the mapping of KLX12A in the Laxemar area, which is one of the activities performed within the site investigation at Oskarshamn. The work was carried out in accordance with activity plan AP PS 400-06-042. In Table 1-1 controlling documents for performing this activity are listed. Both activity plan and method descriptions are SKB's internal controlling documents.

SKB investigates two potential sites for a deep repository for nuclear waste in the Swedish Precambrian basement at approximately 500 m depth. These places are Forsmark in northern Uppland and Oskarshamn in eastern Småland. In order to make a preliminary evaluation of the rock mass down to a depth of about 1,000 m at these sites, SKB has initiated a drilling program using core drilled boreholes. Every borehole usually starts with a percussion drilled part the first 100 m, where only drill cuttings are examined together with BIPS, followed by core drilling.

Borehole KLX12A is situated within the Laxemar area (Figure 1-1). KLX12A is a c. 602 m long telescopic borehole with borehole orientation 310/–72.8°. Mapping of the borehole was performed between 2006-04-03 and 2006-04-25.

Detailed mapping of the drill core is essential for a three dimensional modelling of the geology at depth. The mapping is based on the use of BIPS-image (Borehole Image Processing System) of the borehole wall and by the study of the drill core itself. The BIPS-image enables the study of orientations, since the Boremap software calculates strike and dip of planar features such as foliations, rock contacts and fractures.

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

Activity plan	Number	Version
Boremapkartering av KLX12A	AP PS 400-06-042	1.0
Method descriptions	**Number**	**Version**
Nomenklatur vid Boremapkartering	SKB MD 143.008	1.0
Method Description for Boremap mapping	SKB MD 143.006	2.0
Mätsystembeskrivning för Boremap	SKB MD 146.005	1.0
Instruktion: Regler för bergarters benämningar vid platsundersökning I Oskarshamn	SKB MD 132.004	1.0
Instruktion för längdkalibrering vid undersökningar i kärnborrhål	SKB MD 620.010	2.0

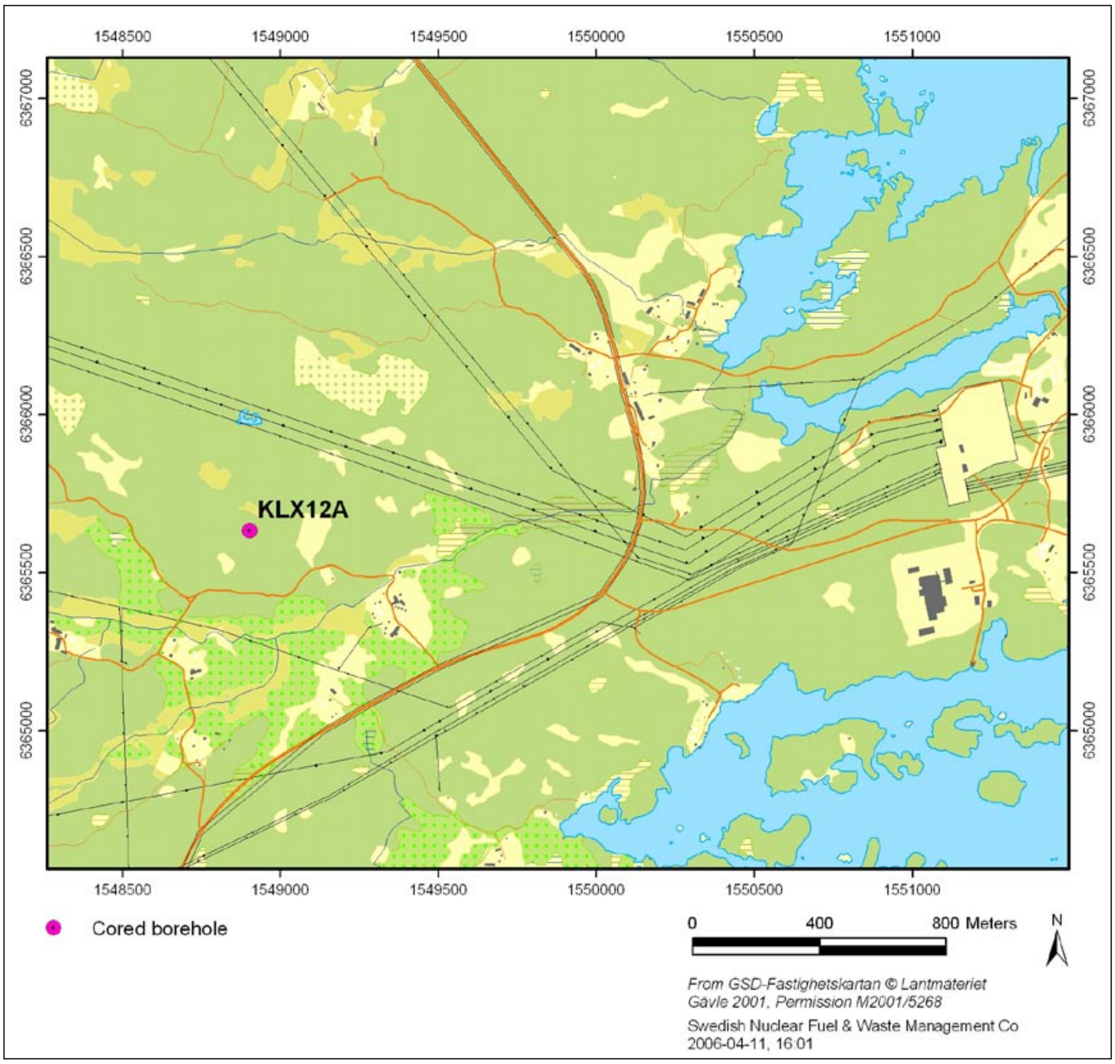


Figure 1-1. *Location of the core drilled borehole KLX12A.*

2 Objective and scope

The principal aim of the mapping activities presented in this report is to obtain a documentation of geological structures and lithologies intersecting borehole KLX12A. Geological structures will be correctly orientated in space along the borehole with the Boremap system. The result will serve as a platform for forthcoming investigations of the drill core, as well as various site descriptive modelling.

3 Equipment

3.1 Description of software

Software used for the mapping of KLX12A was Boremap v. 3.7.5, with bedrock and mineral standards of SKB. The data presentation was made using WellCad v. 4, Microsoft Access and Microsoft Excel. Boremap is the software that unites orthodox core mapping with modern video mapping, where Boremap shows the image from BIPS (Borehole Image Processing System) and extracts the geometrical parameters: length, width, strike and dip from the image.

3.2 Other equipment

The following equipment is used to facilitate the core mapping: folding rule, pen, diluted hydrochloric acid, knife, water-filled atomiser and hand lens.

3.3 BIPS-image video film sequences

The BIPS-image of KLX12A covers the interval 102.02 m–601.05 m.

3.4 BIPS-image video film quality

The visibility of thin fractures in BIPS depends on image resolution, image contrast and image quality.

3.4.1 BIPS-image resolution

Resolution of the BIPS-image is perhaps the principal reason why very thin fractures as well as very thin apertures are not visible in the BIPS-image and the resolution depends on the BIPS video camera pixel size and illumination angle.

3.4.2 BIPS-image contrast

Thick fractures are always visible in both drill core and the BIPS-image. However, the visibility of thin fractures depends strongly on the contrast between the fracture and the wall rock. A bright fracture in a dark rock is clearly visible in the BIPS-image. But a bright coloured fracture in a light coloured rock might, however, be clearly visible in the drill core but not visible in the BIPS-image, especially if the fracture and wall rock have the same colour. The opposite is true for dark fractures.

In very rare cases when the BIPS-image contrast between a very thin fracture and the wall rock is very strong the fracture might be visible in the BIPS-image even if it is not visible in the drill core.

3.4.3 BIPS-image quality

BIPS-image quality is sometimes limited due to:

1) blackish coatings probably related to the drilling equipment,
2) vertical bleached bands from the clayey mixture of drill cuttings and water,
3) light and dark bands at high angle to the drill hole related to the automatic aperture of the video camera,
4) vertical enlargements of pixels due to stick-slip movement of the camera probe.

Vertical bleached bands and blackish coatings are usually the main disturbances in the BIPS-image quality.

The image quality is classified into four levels; good, acceptable, bad and very bad. Good quality means a more or less clear image which is easy to interpret. If the quality is acceptable it means that the image is not good, but that the mapping can be performed without any problems. An image of bad quality is somewhat difficult to interpret while an image of very bad quality cannot be interpreted except from very obvious and outstanding features. It should be remembered that even if only 10–20% of the image is visible, this is often enough for an acceptable interpretation. When the BIPS-image quality is so bad that fractures and structures cannot be identified, they can still be oriented using the *guide-line method* (section 4.3.3). The BIPS-image quality for KLX12A is presented in Table 3-1.

The BIPS-image for KLX12A is in general good to acceptable with a few exceptions with bad BIPS-image quality, in the intervals between 253–259 m and 300–344 m.

Table 3-1. BIPS-image quality in KLX12A.

From (m)	To (m)	Quality
102	193	Good
193	253	Acceptable
253	259	Bad
254	300	Acceptable
300	344	Bad
344	601	Acceptable

4 Execution

4.1 General

Mapping of the drill core of the telescopic drilled borehole was performed and documented according to activity plan AP PS 400-06-042 (SKB, internal document) referring to the Method Description for Boremap mapping (SKB MD 143.006, v. 2.0), Nomenklatur vid Boremapkartering (SKB MD 143.008, v. 1.0), Instruktion: Regler för bergarters benämningar vid platsundersökningen i Oskarshamn (SKB MD 132.004) and Instruktion för längdkalibrering vid undersökningar i kärnborrhål (SKB MD 620.010), all of them SKB internal documents.

The drill core was displayed on inclined roller tables and mapped in its entire length with the Boremap software. The core mapping was carried out without any detailed geological knowledge of the area but with access to geophysical logs from the borehole and rock samples.

The term *oxidation* has been used as an alteration type until the mapping of KLX05. However, research has shown that the red colour of the bedrock is actually not only a result of oxidation. Since April 2005 the term *red staining* is used instead of the term *oxidation*.

The mapping was performed by Gunnar Rauséus (Geosigma AB) and Jan Ehrenborg (Mírab Mineral Resurser AB).

4.2 Preparations

Any depth registered in the BIPS-image deviates from the true depth in the borehole, a deviation which increases with depth, with approximately 0.4 m/100 m. This problem is eliminated by adjusting the depth of the BIPS-image to reference slots cut into the borehole walls every fiftieth metre (Appendix 7). The level for each slot is measured in the BIPS-images and then adjusted to the correct level using the correct depth value from the SICADA database.

Necessary indata for length adjustment and orientation in space are borehole diameter, reference marks, length and deviation; both collected from SICADA database (Appendices 6–8).

4.3 Execution of measurements

Concepts used during the core mapping, are defined in this chapter.

4.3.1 Fracture definitions

Definitions of different fracture types and aperture, crush zones and sealed fracture network are found in Nomenklatur vid Boremapkartering (SKB MD 143.008, v. 1.0), SKB internal document. Apertures for broken fractures have been mapped in accordance with the definitions in MD 143.008 v. 1.0.

Two types of fractures are mapped in Boremap; broken and unbroken. Broken are fractures that split the core while unbroken fractures do not split the core. All fractures are described with their fracture minerals and other characteristics, e.g. width, aperture and roughness. Visible apertures are measured down to 1 mm in the BIPS-image. Smaller apertures, which are impossible to detect in the BIPS-image, are denoted a value of 0.5 mm. If the core pieces don't fit well, the aperture is considered "probable". If the core pieces do fit well, but the fracture surfaces are dull or altered, the aperture is considered "possible".

All fractures with apertures > 0 mm are treated as open in the SICADA database. Only few broken fractures are given the aperture = 0 mm. Unbroken fractures usually have apertures = 0 mm. Unbroken fractures that have apertures > 0 mm are interpreted as partly open and are included in the open-category. Open and sealed fractures are finally frequency calculated and shown in Appendix 1.

4.3.2 Fracture alteration and joint alteration number

Joint alteration number is principally related to the thickness of, and the clay content in a fracture. Thick fractures rich in clay minerals are given joint alteration numbers between 2 and 3. The majority of the broken fractures are very thin to extremely thin and seldom contain clay minerals. These fractures receive joint alteration numbers between 1 and 2.

A subdivision of fractures with joint alteration numbers between 1 and 2 was introduced to facilitate both the evaluation process for fracture alterations and the possibility to compare the alterations between different fractures in the boreholes. The subdivision is based on fracture mineralogy as follows:

a) fracture wall alterations,

b) fracture mineral fillings assumed to have been deposited from circulating water-rich solutions,

c) fracture mineral fillings most likely resulting from altered wall rock material.

Joint alteration number equal to 1: Fractures with or without wall rock alteration, e.g. oxidation or epidotization, and without mineral fillings is considered as fresh. The joint alteration number is thus set to 1.

Minerals such as calcite, quartz, fluorite, zeolites, laumontite and sulphides are regarded as deposited by circulating water-rich solutions and not as true fracture alteration minerals. The joint alteration number is thus set to 1.

Joint alteration number equal to 1.5: epidote, prehnite, hematite, chlorite and/or clay minerals are regarded as fracture minerals most likely resulting from altered wall rock. A weak alteration is thus assumed and the joint alteration number was set to 1.5. Extra considerations have been given to clay minerals since the occurrence of these minerals often resulted in a higher joint alteration number.

Joint alteration numbers higher than 1.5: When the mineral fillings is thick and contain a few mm of clay minerals, often together with epidote and chlorite, the joint alteration number is set to 2. In rare cases, when a fracture contains 5–10 mm thick clay, together with chlorite, the joint alteration number is set to 3 or higher.

When the alteration of a fracture is too thick (and/or intense) to give the fracture the joint alteration number 1.5 and too thin and/or weak to give it a 2, 1.7 and 1.8 is used.

4.3.3 Mapping of fractures not visible in the BIPS-image

Not all fractures are visible in the BIPS-images, and these fractures are orientated by using the *guide-line method*, based on the following data:

- Amplitude (measured along the drill core) which is the interval between fracture extremes along the drill core.
- The relation between the orientations of the fracture trace, measured on the drill core and a well defined structure visible in the BIPS-image.
- Absolute depth.

Orientation of fractures and other structures with the *guide-line method* is done in the following way: The first step is to calculate the amplitude of the fracture trace in the BIPS-image (with 76 mm diameter) from the measured fracture amplitude in the drill core (with 50 mm diameter). The second step is the correction of strike and dip. This is done by rotating the fracture trace in the BIPS-image relative to a feature with known orientation. The fracture trace is then put at the correct depth according to the depth measured on the drill core.

The *guide-line method* can be used to orientate any feature that is not visible in the BIPS-image. It is also a valuable tool to control that the personnel working with the drill core is observing the same feature as the personnel delineating the trace in the BIPS-image, especially in intervals rich in fractures.

The error of orientating fractures using the *guide-line method* is not known but experience and an estimation using stereographic plots indicated that the error is most likely insignificant. Accordingly, the *guide-line method* is so far considered better than mapping lots of non-oriented fractures. The fractures in question are mapped as "non-visible in BIPS" and can therefore be separated from fractures visible in BIPS which probably have a more accurate orientation.

4.3.4 Definition of veins and dikes

Rock occurrence is the way Boremap handles the occurrence of lithology up to 1 metre wide. Chiefly two different rock occurrences are mapped: veins and dikes. These two are separated by their respectively length in the drill core; veins are set to 0–20 cm and dikes are set to 20–100 cm. Rock occurrences that covers more than 100 cm of the drill core are mapped under the feature *rock type.*

4.3.5 Mineral codes

In the case where properties and/or minerals are not represented in the mineral list, following mineral codes have been used:

X1 Gypsum.
X4 Unknown mineral, possibly sphene.
X5 Bleached fracture walls.
X6 Polished fracture walls.
X7 Broken fractures with a fresh appearance and no mineral fill.
X8 Fractures with epidotized / saussuritized walls.

4.4 Data handling

Mapping of the drill core is performed on-line on the SKB network, in order to obtain the best possible data security. Before every break (> 15 minutes) a back-up is saved on the local disk. Regular quality controls are performed. Every working day a Summary report (from Boremap) and a WellCad plot are printed in order to find possible misprints. The mapping is also quality checked by a routine in Boremap before it is exported to and archived in SICADA database. Personnel from SKB also perform spot test controls and regular quality revisions. All primary data is stored in SKB's database SICADA and only these data are later used for interpretation and modelling.

4.5 Geological Summary table, general description

A Geological Summary table (Appendix 1) is an overview of the features mapped with the Boremap software. It also facilitates comparisons between Boremap information collected from different boreholes and is more objective than a pure descriptive borehole summary. The table is the result of cooperation between Jan Ehrenborg from the mapping personnel and Pär Kinnbom from PO (site investigation, Oskarshamn). The aim was to make a standard form in handy A4-size, where all information is taken directly from the Boremap database using simple and well defined search paths for each geological parameter (Appendix 2).

Data from the Boremap database cannot automatically be extracted into the Geological Summary table. First the data has to be sorted out and frequencies in the different column must be calculated in Microsoft Excel. WellCad is used to create the Geological Summary table from the frequency calculations of mapped features. From the Boremap database the data to the non-frequency columns are retrieved, i.e. lithology and red staining.

The Geological Summary table consists of 23 columns, each one representing a specific geological parameter, presented as either intervals or frequencies (see section 4.5.1 for column description). Intervals are calculated for parameters with a width ≥ 1 m and frequencies for parameters with a width < 1 m. Frequency information is treated as point observations. It should be noted that parameters with a thickness of only 1 mm get the same "value" as a similar parameter with a thickness of 999 mm since both are treated as point observations and used for frequency calculations.

Parameters are sometimes related in such a way that the mapping of one parameter cause a decrease in the frequency of another parameter. This type of intimate relationship between parameters has been noted for the following cases;

- There is a decrease in the frequency of *unbroken fractures* with oxidized walls and without mineral fillings in intervals mapped with *Alteration – red staining.*
- No *unbroken fractures* are mapped in intervals of *sealed fracture network*.
- No *broken fractures* are mapped in intervals with *crush.*
- Hybrid rock and composite dikes generally include a large amount of fine to medium grained granite veins. These veins are not mapped and the frequency presented for veins + dikes in column 6 (Appendix 1) are lower than the true frequency in composite dike intervals.

4.5.1 Columns in the Geological Summary table

The Geological Summary table includes the following 23 columns:

Column 1: *Rock Type / Lithology*, interval column. Only lithologies longer than 1 m are presented here. Shorter lithologies are presented in column 6. This column is identical with the ordinary WellCad presentation.

Column 2: *Rock Type / Grain size*, interval column. Interval limits follows column 1. This column is identical with the ordinary WellCad presentation.

Column 3: *Rock Type / Texture*, interval column. Interval limits follows column 1. This column is identical with the ordinary WellCad presentation.

Column 4: *Alteration / Type*, interval column. No frequency column is presented for alteration/ type. The alteration/ type column is identical with the ordinary WellCad presentation.

Column 5: *Alteration / intensity*, interval column. This column is identical with the ordinary WellCad presentation.

Column 6: *Rock Occurrence / Veins + Dikes < 1 m wide*, frequency column. This rock type column can be seen as the frequency complement to the rock type/lithology interval column.

Only rock type sections that are thinner than 1 m can be described as rock occurrences in Boremap. Thicker rock type sections are mapped as rock type.

Column 7: *Structure / Shear Zone < 1 m wide*, frequency column. This column includes ductile shear structures as well as brittle-ductile shear structures and these are mapped as rock occurrences in Boremap.

Column 8: *Structure / Brecciated < 1 m wide*, frequency column. Breccias < 1 m wide are mapped as rock occurrence in Boremap. Very thin micro breccias along sealed/natural fracture planes are generally not considered.

Column 9: *Structure / Brecciated ≥ 1 m wide*, interval column. Breccias > 1 m wide are mapped as rock type/structure in Boremap.

Column 10: *Structure / Mylonite < 1 m wide*, frequency column. Mylonites < 1 m wide are mapped as rock occurrence/structure in Boremap.

Column 11: *Structure / Mylonite ≥ 1 m wide* is an interval column. Mylonites > 1 m wide are mapped as rock type/structure in Boremap.

Column 12: *Structure / Foliated < 1 m wide* is a frequency column. Sections with foliation < 1 m wide are mapped as rock occurrence/structure in Boremap.

Column 13: *Structure / Foliated ≥ 1 m wide* is an interval column. Sections with foliation ≥ 1 m wide are mapped as rock type/structure in Boremap.

Column 14: *Sealed fractures / All*, frequency column. This column includes all fractures mapped as unbroken in the Boremap system and this includes unbroken fractures where the drill core is not broken as well as broken fractures interpreted to have broken up artificially during/after drilling.

Column 15: *Sealed fractures / Broken fractures with aperture = 0*, frequency column. This column includes unbroken fractures interpreted to have broken up artificially during/after drilling.

Column 16: *Sealed fractures / Sealed Fracture Network < 1 m wide*, frequency column. The sealed fracture network parameter is the only parameter that is generally evaluated directly from observations of the drill core. These types of sealed fractures can only in rare cases be observed in the BIPS-image.

Column 17: *Sealed fractures / Sealed Fracture Network ≥ 1 m wide*, interval column.

Column 18: *Open fractures / All Apertures > 0*, frequency column. This column includes all broken fractures, both fractures that with certainty were open before drilling and fractures that probably or possibly were open before drilling.

Column 19: *Open fractures / Uncertain, Aperture = 0.5 probable + 0.5 possible*, frequency column. This column includes fractures that probably or possibly open before drilling.

Column 20: *Open fractures / Certain, Aperture = 0.5 and > 0.5*, frequency column. This column includes fractures that with certainty were open before drilling.

Column 21: *Open fractures / Joint alteration > 1.5*, frequency column. This column show fractures with stronger joint alteration than normal. This parameter is generally correlated with the location of lithologies with a more weathered appearance.

Column 22: *Open fractures / Crush < 1 m wide*, frequency column. This column includes shorter sections with crush.

Column 23: *Open fractures / Crush ≥ 1 m wide*, interval column. This column includes longer sections with crush.

4.6 Nonconformities

Core loss occurs in three intervals: 225.34–241.89 m, 343.95–367.23 m and 467.14–483.63 m. Lenght of each core loss varies from 2–35 cm, mapping in these sections is based only on the BIPS-image. Most core losses are mechanical and are related to the rock stress measurements.

The last part of the core, from 601.045 to 602.14 is mapped without BIPS-image.

5 Results

5.1 General

Borehole KLX12A was drilled with declination 310° and inclination –72.8°. The drill core is c. 502 m long and covers the interval 100.47–602.14 m while the BIPS-image covers the interval 102.023–601.045 m.

All results from the mapping are principally found in the Appendices. Information from the SICADA database is shown in the Geological Summary table in Appendix 1 and a search path to Geological Summary table is presented in Appendix 2. The BIPS-image is presented in Appendix 3, the WellCad diagram in Appendix 4 and In-data, such as borehole length, reference marks, deviation data and diameter are presented in Appendices 6–8.

Original data from the reported activity are stored in the primary database SICADA. Data are traceable in SICADA by the Activity Plan number (AP PS 400-06-042). Only data in databases are accepted for further interpretation and modelling. The data presented in this report are regarded as copies of the original data. Data in the databases may be revised, if needed. Such revisions will not necessarily result in a revision of the P-report, although the normal procedure is that major revisions entail a revision of the P-report. Minor revisions are normally presented as supplements, available at www.skb.se.

5.2 Lithology and structures

Table 5-1 shows the rock type distribution in KLX12A. The section from 100 to 421 m is dominated by Ävrö granite (501044), with subordinate occurrence of fine-grained granite (511058) in the interval 133–140 m, diorite/gabbro (501033) in the interval 162–178 m and fine-grained diorite-gabbro (505102) in the interval 277–279 m. The section from 421 m to 528 m is dominated by diorite/gabbro (501033). Subordinate rock type is Ävrö granite (501044). The section between 528 m to 598 m is dominated by quartz monzodiorite (501036).

Three sections in KLX12A are recognized by anomalous fracture frequencies, alterations and structural features.

Section interval characteristics

1. 132–146 m. Open fractures with aperture > 0.5 mm, foliation, brittle-ductile shear zones, and red staining occurs within this section.
2. 270–271 m. Open fractures with aperture > 0.5 mm, increased joint alteration, brittle-ductile shear zone, gouge and red staining occurs within this section.

Table 5-1. Lithology distribution in KLX12A.

%	Rock types
60.7	Ävrö granite (501044)
22.7	Diorite/gabbro (501033)
14.7	Quartz monzodiorite (501036)
1.6	Fine-grained granite (511058)
0.2	Fine-grained diorite-gabbro (505102)
0.2	Fine-grained dioritoid (501030)

3. 380–400 m. Open fractures with aperture > 0.5 mm, sealed fracture network, mylonite, foliation, crush and gouge occurs within this section.
4. 495–500 m. increased frequency of open fractures, open fractures with joint alteration > 1.5 and open fractures with aperture > 0.5 mm, sealed fracture networks and crush zone occurs within this section.

5.3 Fracture mineralogy

Tables 5-3 and 5-4 show the frequency of minerals found in open and sealed fractures in KLX12A. Chlorite and calcite are the most frequently occurring minerals in both open and sealed fractures. Subordinate minerals in open fractures are clay minerals, pyrite and epidote. Clay minerals are more abundant in open fractures but are almost absent in sealed fractures. This may reflect the fact that it is easier to detect clay minerals on open fracture surfaces than in sealed fractures.

Table 5-3. Frequency of minerals and rock wall alteration in open fractures.

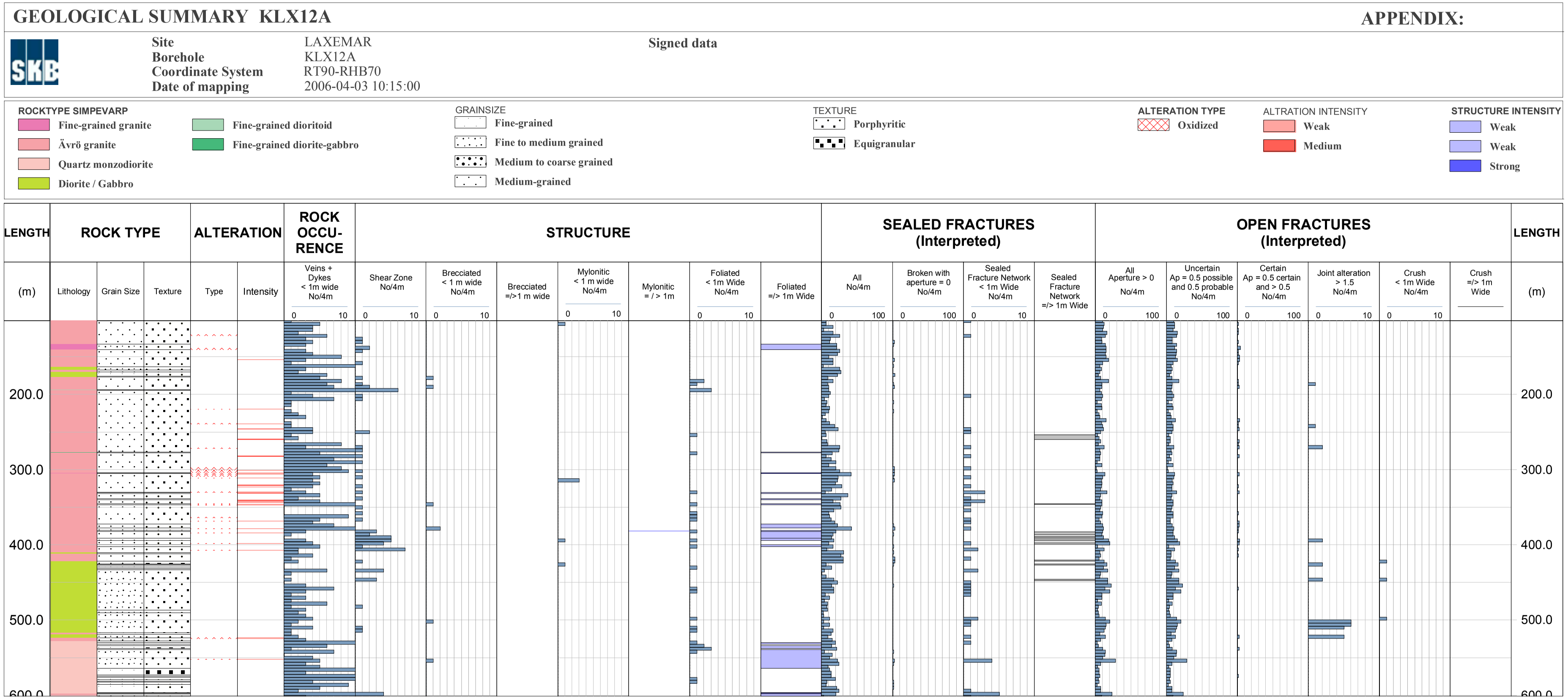
%	Mineral
82.8	Chlorite
80.7	Calcite
39.9	Pyrite
34.4	Clay minerals
11.9	Oxidized walls
11.5	Epidote
4.7	X1, Gypsum
2.8	Quartz
1.2	Prehnite
1.0	Adularia
< 1.0	White Feldspar, X5 bleached fracture walls, X8 oxidized walls, biotite, chalcopyrite, iron hydroxide

Table 5-4. Frequency of minerals and rock wall alteration in sealed fractures.

%	Mineral
59.2	Calcite
40.0	Chlorite
34.7	Epidote
29.2	Oxidized walls
13.0	Quartz
7.2	Prehnite
6.4	Pyrite
5.7	X8, Saussuritized walls
5.1	X5, Bleached fracture walls
2.4	Adularia
1.8	White feldspar
< 1.8	Clay minerals, red feldspar, chalcopyrite, iron hydroxid

Appendix 1

Geological Summary table for KLX12A



Appendix 2

Search paths for the Geological Summary table

TABLE HEAD LINES		INFORMATION SOURCE			PRESENTATION
Head lines	**Sub head lines**	**Varcode**	**First suborder**	**Second suborder**	**Interval / frequence**
Rock type	Lithology	5	Sub 1		Interval
	Grain size	5	Sub 5		Interval
	Texture	5	Sub 6		Interval
Alteration	Type	7	Sub 1 = 700		Interval
	Intensity	7	Sub 1 = 700	Sub 2	Interval
Rock occurrence	Vein + dyke	31	Sub 1 = 2 and 18		Frequence
Structure	Shear zone, < 1m wide	31	Sub 4 = 41 and 42		Frequence
	Brecciated, < 1m wide	31	Sub 4 = 7		Frequence
	Brecciated, >/= 1m wide	5 5	Sub 3 = 7 Sub 3 = 7	Sub 4; 101 and 102 = 102 Sub 4; 103 and 104 = 104	Interval
	Mylonite, < 1 m wide	31	Sub 4 = 34		Frequence
	Mylonite, >/= 1 m wide	5 5	Sub 3 = 34 Sub 3 = 34	Sub 4; 101 and 102 = 102 Sub 4; 103 and 104 = 104	Interval
	Foliated, < 1 m wide	31	Sub 4 = 81		Frequence
	Foliated, >/= 1 m wide	5 5	Sub 3 = 81 Sub 3 = 81	Sub 4; 101 and 102 = 102 Sub 4; 103 and 104 = 104	Interval
Sealed fracture	All unbroken fractures and broken fractures	3 2	 SNUM 11= 0		Frequence
	Broken fractures, Aperture = 0	2	SNum 11 = 0		Frequence
	Sealed fracture network < 1 m wide	32			Frequence
	Sealed fracture network>/= 1 m wide	32			Interval
Open fractures	All, Aperture > 0	2 and 3	SNum 11>0		Frequence
	Uncertain, Aperture = 0.5 possible and 0.5 probable	2 and 3 2 and 3	SNum 11>0 SNum 11>0	Sub 12 = 3 Sub 12 = 2	Frequence
	Certain, Aperture = 0.5 and >0.5	2 and 3	SNum 11>0	Sub 12 = 1	Frequence
	Joint alteration > 1.5	2	SNum16 > 1.5		Frequence
	Crush < 1 m wide	4			Frequence
	Crush >/= 1 m wide	4			Interval

BIPS-image for KLX12A

Borehole Name:	KLX12A
Mapping Name:	KLX12A_JEGR_3
Mapping Range:	102.012 - 599.145 m
Diameter:	76.0 mm
Printed Range:	101.000 - 599.304
Pages:	26

Image File Information:

File:	D:\BIPSbilder\KLX12A\KLX12A_101-599m.BIP
Date/Time:	2006-03-24 09:26:00
Start Depth:	101.000 m
End Depth:	599.304 m
Resolution:	1.00 mm/pixel (depth)
Orientation:	Gravmetric
Image height:	498304 pixels
Image width:	360 pixels
BIP Version:	BIP-III
Locality:	LAXEMAR
Borehole:	KLX12A
Scan Direction:	Down
Color adjust:	0 0 0 (RGB)

Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 1 (26)

Borehole: KLX12A
Mapping: KLX12A_JEGR_3

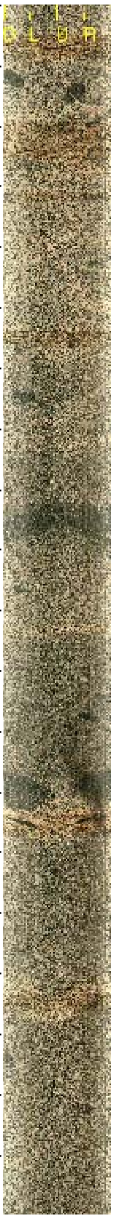
Depth range: 101.000 - 121.000 m
Azimuth: 310.0
Inclination: -72.8

Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 2 (26)

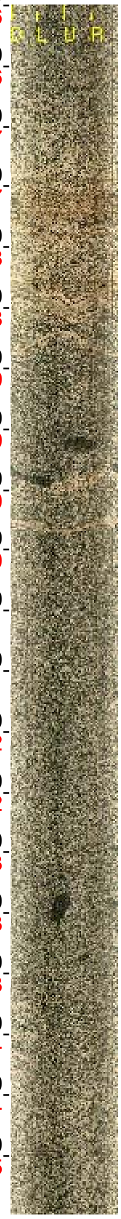
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 121.000 - 141.000 m
Azimuth: 309.8
Inclination: -72.8

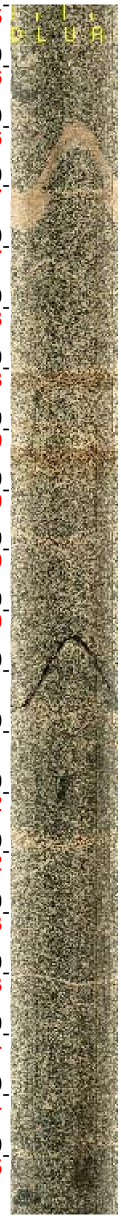
121.000
121.126
121.200
121.326
121.400
121.527
121.600
121.727
121.800
121.928
122.000
122.128
122.200
122.329
122.400
122.529
122.600
122.730
122.800
122.930
123.000
123.131
123.200
123.331
123.400
123.532
123.600
123.732
123.800
123.933
124.000
124.133
124.200
124.334
124.400
124.534
124.600
124.735
124.800
124.935



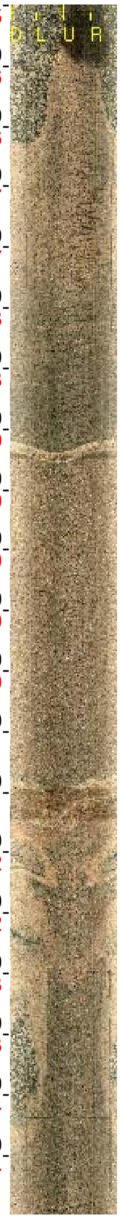
125.000
125.136
125.200
125.336
125.400
125.537
125.600
125.737
125.800
125.938
126.000
126.138
126.200
126.339
126.400
126.539
126.600
126.740
126.800
126.940
127.000
127.141
127.200
127.341
127.400
127.542
127.600
127.742
127.800
127.943
128.000
128.143
128.200
128.343
128.400
128.544
128.600
128.744
128.800
128.945



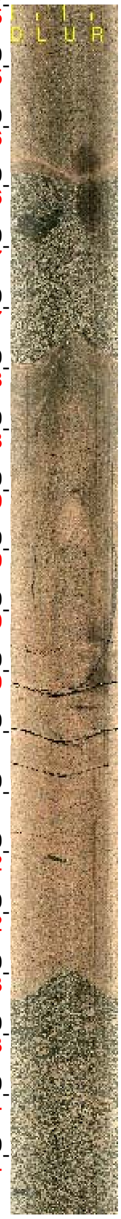
129.000
129.145
129.200
129.346
129.400
129.546
129.600
129.747
129.800
129.947
130.000
130.148
130.200
130.348
130.400
130.549
130.600
130.749
130.800
130.950
131.000
131.150
131.200
131.351
131.400
131.551
131.600
131.752
131.800
131.952
132.000
132.153
132.200
132.353
132.400
132.554
132.600
132.754
132.800
132.955



133.000
133.155
133.200
133.356
133.400
133.556
133.600
133.757
133.800
133.957
134.000
134.158
134.200
134.358
134.400
134.559
134.600
134.759
134.800
134.960
135.000
135.160
135.200
135.360
135.400
135.561
135.600
135.761
135.800
135.962
136.000
136.162
136.200
136.363
136.400
136.563
136.600
136.764
136.800
136.964



137.000
137.165
137.200
137.365
137.400
137.566
137.600
137.766
137.800
137.967
138.000
138.167
138.200
138.368
138.400
138.568
138.600
138.769
138.800
138.969
139.000
139.170
139.200
139.370
139.400
139.571
139.600
139.771
139.800
139.972
140.000
140.172
140.200
140.373
140.400
140.573
140.600
140.774
140.800
140.974

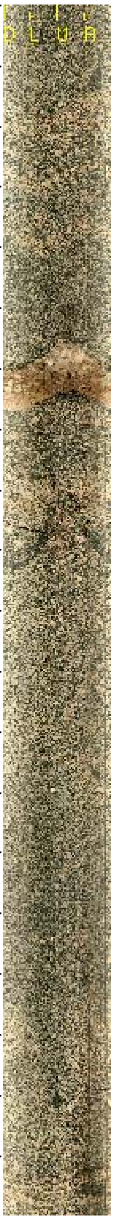


Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 3 (26)

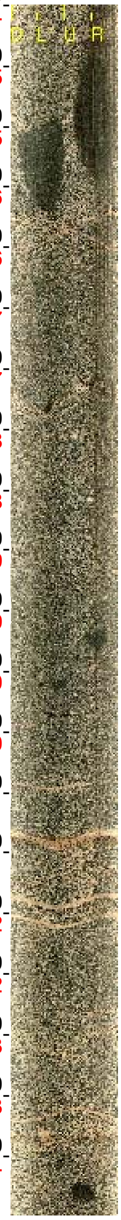
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 141.000 - 161.000 m
Azimuth: 312.4
Inclination: -72.7

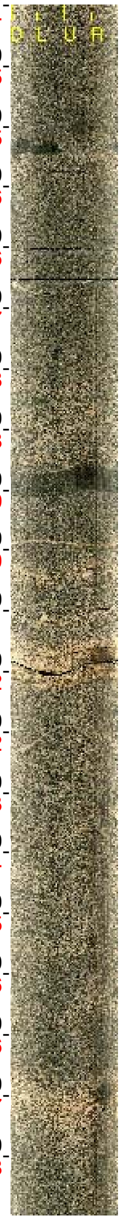
141.000 141.175
141.200 141.375
141.400 141.576
141.600 141.776
141.800 141.977
142.000 142.177
142.200 142.378
142.400 142.578
142.600 142.778
142.800 142.979
143.000 143.179
143.200 143.380
143.400 143.580
143.600 143.781
143.800 143.981
144.000 144.182
144.200 144.382
144.400 144.583
144.600 144.783
144.800 144.984



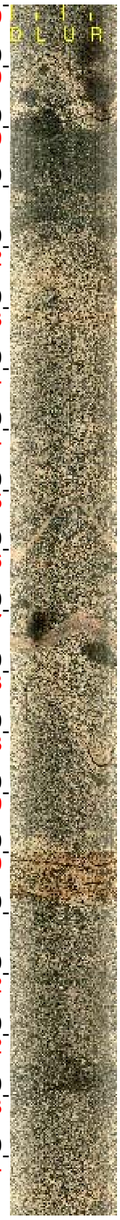
145.000 145.184
145.200 145.385
145.400 145.585
145.600 145.786
145.800 145.986
146.000 146.187
146.200 146.387
146.400 146.588
146.600 146.788
146.800 146.989
147.000 147.189
147.200 147.390
147.400 147.590
147.600 147.791
147.800 147.991
148.000 148.192
148.200 148.392
148.400 148.593
148.600 148.793
148.800 148.994



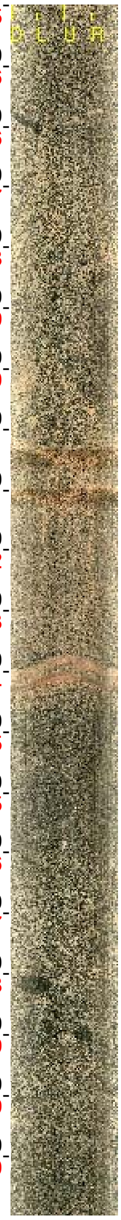
149.000 149.194
149.200 149.395
149.400 149.595
149.600 149.796
149.800 149.996
150.000 150.197
150.200 150.398
150.400 150.598
150.600 150.799
150.800 151.000
151.000 151.201
151.200 151.402
151.400 151.602
151.600 151.803
151.800 152.004
152.000 152.205
152.200 152.406
152.400 152.606
152.600 152.807
152.800 153.008



153.000 153.209
153.200 153.410
153.400 153.610
153.600 153.811
153.800 154.012
154.000 154.213
154.200 154.414
154.400 154.614
154.600 154.815
154.800 155.016
155.000 155.217
155.200 155.418
155.400 155.618
155.600 155.819
155.800 156.020
156.000 156.221
156.200 156.422
156.400 156.622
156.600 156.823
156.800 157.024



157.000 157.225
157.200 157.426
157.400 157.626
157.600 157.827
157.800 158.028
158.000 158.229
158.200 158.430
158.400 158.631
158.600 158.831
158.800 159.032
159.000 159.233
159.200 159.434
159.400 159.635
159.600 159.835
159.800 160.036
160.000 160.237
160.200 160.438
160.400 160.639
160.600 160.839
160.800 161.040

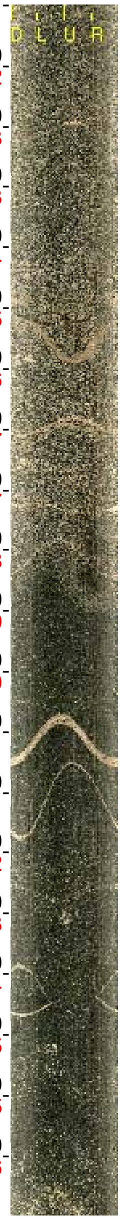


Printed: 2006-04-27 14:45:50   Scale: 1 : 20   Aspect: 150 %   4 (26)

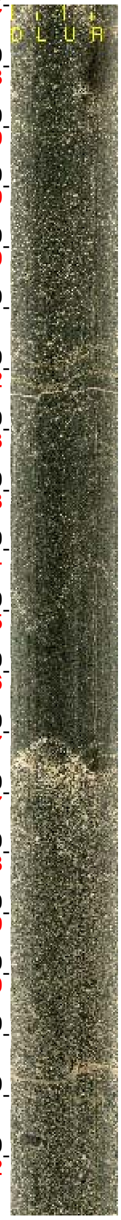
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 161.000 - 181.000 m
Azimuth: 313.7
Inclination: -72.6

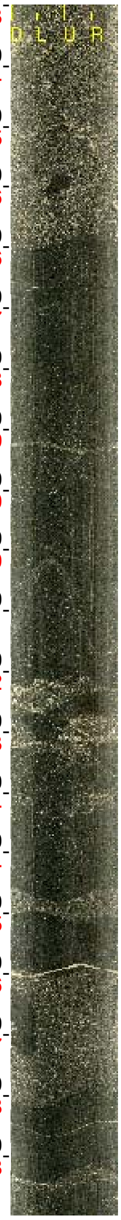
161.000
161.241
161.200
161.442
161.400
161.643
161.600
161.843
161.800
162.044
162.000
162.245
162.200
162.446
162.400
162.647
162.600
162.847
162.800
163.048
163.000
163.249
163.200
163.450
163.400
163.651
163.600
163.851
163.800
164.052
164.000
164.253
164.200
164.454
164.400
164.655
164.600
164.855
164.800
165.056



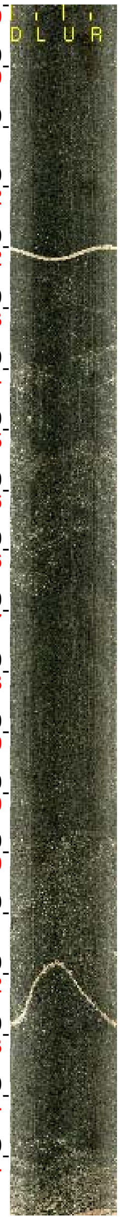
165.000
165.257
165.200
165.458
165.400
165.659
165.600
165.859
165.800
166.060
166.000
166.261
166.200
166.462
166.400
166.663
166.600
166.863
166.800
167.064
167.000
167.265
167.200
167.466
167.400
167.667
167.600
167.867
167.800
168.068
168.000
168.269
168.200
168.470
168.400
168.671
168.600
168.871
168.800
169.072



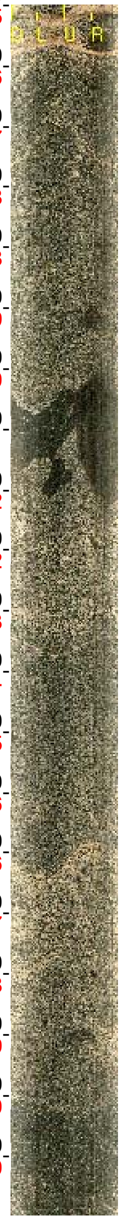
169.000
169.273
169.200
169.474
169.400
169.675
169.600
169.876
169.800
170.076
170.000
170.277
170.200
170.478
170.400
170.679
170.600
170.880
170.800
171.080
171.000
171.281
171.200
171.482
171.400
171.683
171.600
171.884
171.800
172.084
172.000
172.285
172.200
172.486
172.400
172.687
172.600
172.888
172.800
173.088



173.000
173.289
173.200
173.490
173.400
173.691
173.600
173.892
173.800
174.092
174.000
174.293
174.200
174.494
174.400
174.695
174.600
174.896
174.800
175.096
175.000
175.297
175.200
175.498
175.400
175.699
175.600
175.900
175.800
176.100
176.000
176.301
176.200
176.502
176.400
176.703
176.600
176.904
176.800
177.104



177.000
177.305
177.200
177.506
177.400
177.707
177.600
177.908
177.800
178.108
178.000
178.309
178.200
178.510
178.400
178.711
178.600
178.912
178.800
179.112
179.000
179.313
179.200
179.514
179.400
179.715
179.600
179.916
179.800
180.116
180.000
180.317
180.200
180.518
180.400
180.719
180.600
180.920
180.800
181.120

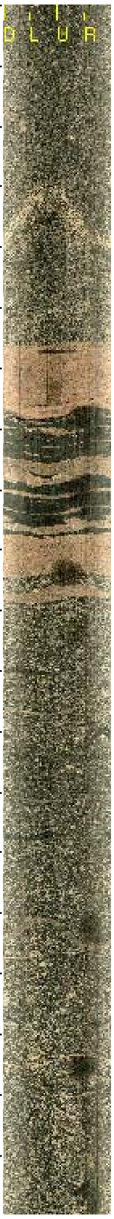


Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 5 (26)

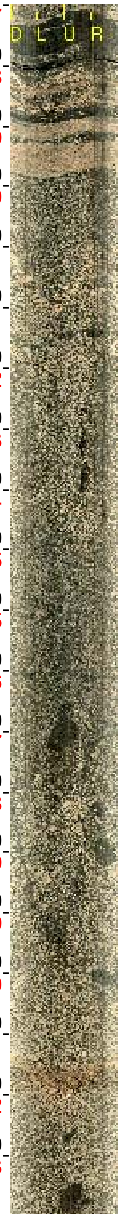
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 181.000 - 201.000 m
Azimuth: 313.9
Inclination: -72.5

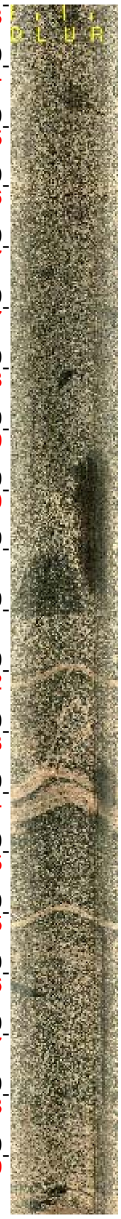
181.000	181.321
181.200	181.522
181.400	181.723
181.600	181.924
181.800	182.124
182.000	182.325
182.200	182.526
182.400	182.727
182.600	182.928
182.800	183.129
183.000	183.329
183.200	183.530
183.400	183.731
183.600	183.932
183.800	184.133
184.000	184.333
184.200	184.534
184.400	184.735
184.600	184.936
184.800	185.137



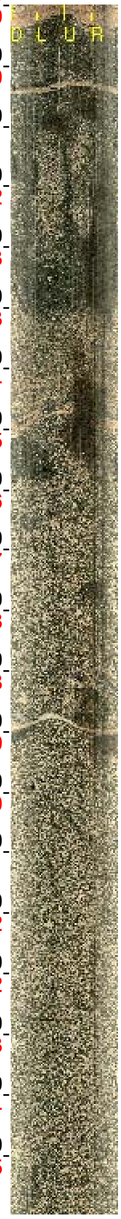
185.000	185.337
185.200	185.538
185.400	185.739
185.600	185.940
185.800	186.141
186.000	186.341
186.200	186.542
186.400	186.743
186.600	186.944
186.800	187.145
187.000	187.345
187.200	187.546
187.400	187.747
187.600	187.948
187.800	188.149
188.000	188.349
188.200	188.550
188.400	188.751
188.600	188.952
188.800	189.153



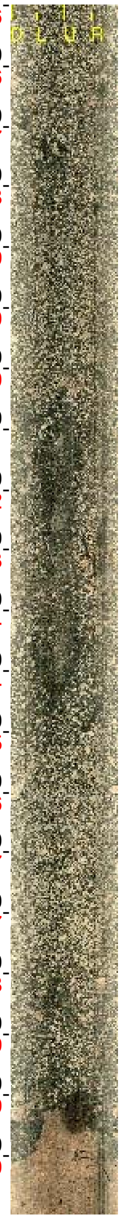
189.000	189.353
189.200	189.554
189.400	189.755
189.600	189.956
189.800	190.157
190.000	190.357
190.200	190.558
190.400	190.759
190.600	190.960
190.800	191.161
191.000	191.361
191.200	191.562
191.400	191.763
191.600	191.964
191.800	192.165
192.000	192.365
192.200	192.566
192.400	192.767
192.600	192.968
192.800	193.169



193.000	193.369
193.200	193.570
193.400	193.771
193.600	193.972
193.800	194.173
194.000	194.373
194.200	194.574
194.400	194.775
194.600	194.976
194.800	195.177
195.000	195.378
195.200	195.578
195.400	195.779
195.600	195.980
195.800	196.181
196.000	196.382
196.200	196.582
196.400	196.783
196.600	196.984
196.800	197.185



197.000	197.386
197.200	197.586
197.400	197.787
197.600	197.988
197.800	198.189
198.000	198.390
198.200	198.590
198.400	198.791
198.600	198.992
198.800	199.193
199.000	199.394
199.200	199.594
199.400	199.795
199.600	199.996
199.800	200.197
200.000	200.397
200.200	200.598
200.400	200.799
200.600	200.999
200.800	201.200

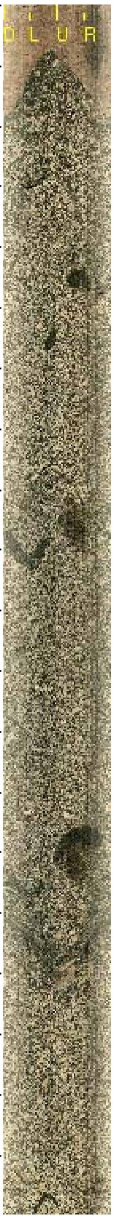


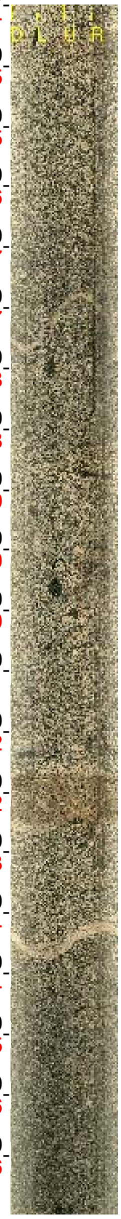
Printed: 2006-04-27 14:45:50   Scale: 1 : 20   Aspect: 150 %   6 (26)

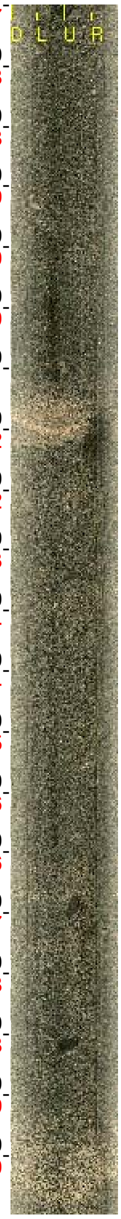
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

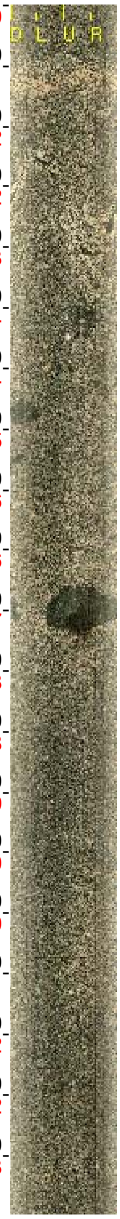
Depth range: 201.000 - 221.000 m
Azimuth: 310.5
Inclination: -72.4

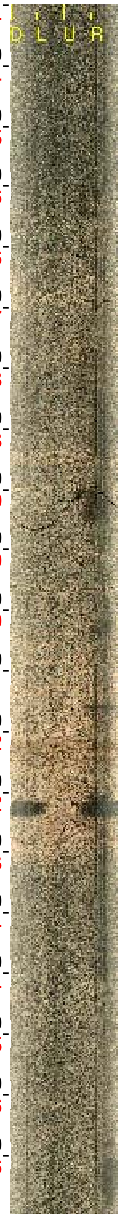
201.000	201.401	205.000	205.414	209.000	209.427	213.000	213.440	217.000	217.454
201.200	201.601	205.200	205.615	209.200	209.628	213.200	213.641	217.200	217.654
201.400	201.802	205.400	205.815	209.400	209.828	213.400	213.842	217.400	217.855
201.600	202.003	205.600	206.016	209.600	210.029	213.600	214.042	217.600	218.056
201.800	202.203	205.800	206.217	209.800	210.230	213.800	214.243	217.800	218.256
202.000	202.404	206.000	206.417	210.000	210.430	214.000	214.444	218.000	218.457
202.200	202.605	206.200	206.618	210.200	210.631	214.200	214.644	218.200	218.658
202.400	202.805	206.400	206.818	210.400	210.832	214.400	214.845	218.400	218.858
202.600	203.006	206.600	207.019	210.600	211.032	214.600	215.046	218.600	219.059
202.800	203.207	206.800	207.220	210.800	211.233	214.800	215.246	218.800	219.260
203.000	203.407	207.000	207.420	211.000	211.434	215.000	215.447	219.000	219.460
203.200	203.608	207.200	207.621	211.200	211.634	215.200	215.648	219.200	219.661
203.400	203.809	207.400	207.822	211.400	211.835	215.400	215.848	219.400	219.862
203.600	204.009	207.600	208.022	211.600	212.036	215.600	216.049	219.600	220.062
203.800	204.210	207.800	208.223	211.800	212.236	215.800	216.250	219.800	220.263
204.000	204.411	208.000	208.424	212.000	212.437	216.000	216.450	220.000	220.464
204.200	204.611	208.200	208.624	212.200	212.638	216.200	216.651	220.200	220.664
204.400	204.812	208.400	208.825	212.400	212.838	216.400	216.852	220.400	220.865
204.600	205.013	208.600	209.026	212.600	213.039	216.600	217.052	220.600	221.066
204.800	205.213	208.800	209.226	212.800	213.240	216.800	217.253	220.800	221.266









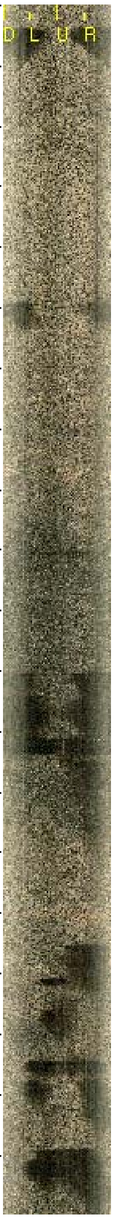


Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 7 (26)

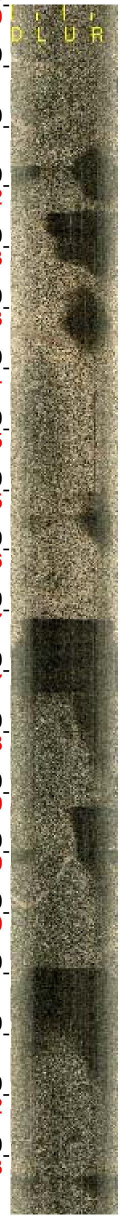
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 221.000 - 241.000 m
Azimuth: 314.4
Inclination: -72.3

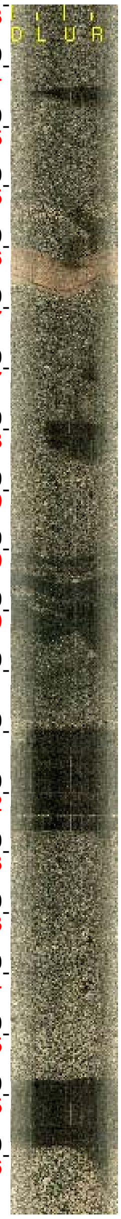
221.000
221.467
221.200
221.667
221.400
221.868
221.600
222.069
221.800
222.269
222.000
222.470
222.200
222.671
222.400
222.871
222.600
223.072
222.800
223.273
223.000
223.473
223.200
223.674
223.400
223.875
223.600
224.075
223.800
224.276
224.000
224.477
224.200
224.677
224.400
224.878
224.600
225.079
224.800
225.279



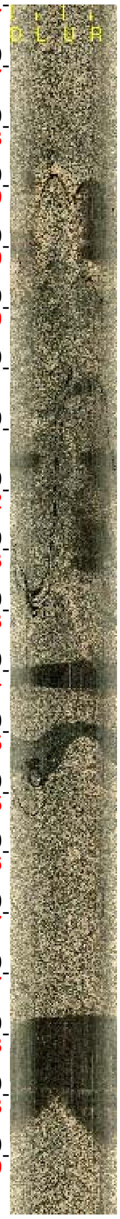
225.000
225.480
225.200
225.681
225.400
225.881
225.600
226.082
225.800
226.283
226.000
226.483
226.200
226.684
226.400
226.885
226.600
227.085
226.800
227.286
227.000
227.487
227.200
227.687
227.400
227.888
227.600
228.089
227.800
228.289
228.000
228.490
228.200
228.691
228.400
228.891
228.600
229.092
228.800
229.293



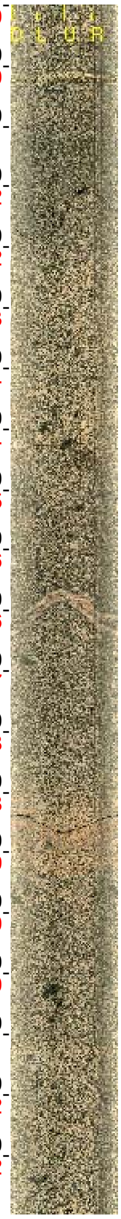
229.000
229.493
229.200
229.694
229.400
229.895
229.600
230.095
229.800
230.296
230.000
230.497
230.200
230.697
230.400
230.898
230.600
231.099
230.800
231.299
231.000
231.500
231.200
231.701
231.400
231.901
231.600
232.102
231.800
232.303
232.000
232.503
232.200
232.704
232.400
232.905
232.600
233.105
232.800
233.306



233.000
233.507
233.200
233.707
233.400
233.908
233.600
234.109
233.800
234.309
234.000
234.510
234.200
234.711
234.400
234.911
234.600
235.112
234.800
235.313
235.000
235.513
235.200
235.714
235.400
235.915
235.600
236.115
235.800
236.316
236.000
236.517
236.200
236.717
236.400
236.918
236.600
237.118
236.800
237.319



237.000
237.520
237.200
237.720
237.400
237.921
237.600
238.122
237.800
238.322
238.000
238.523
238.200
238.724
238.400
238.924
238.600
239.125
238.800
239.326
239.000
239.526
239.200
239.727
239.400
239.928
239.600
240.128
239.800
240.329
240.000
240.530
240.200
240.730
240.400
240.931
240.600
241.132
240.800
241.332

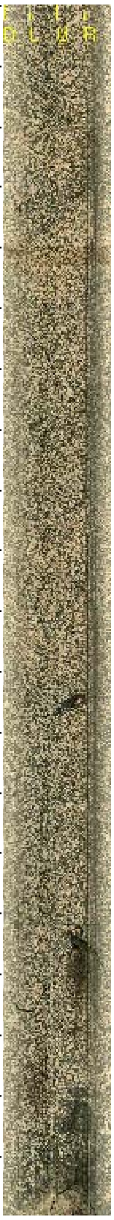


Printed: 2006-04-27 14:45:50   Scale: 1 : 20   Aspect: 150 %   8 (26)

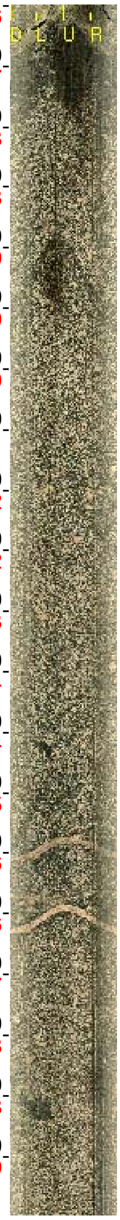
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 241.000 - 261.000 m
Azimuth: 309.0
Inclination: -72.3

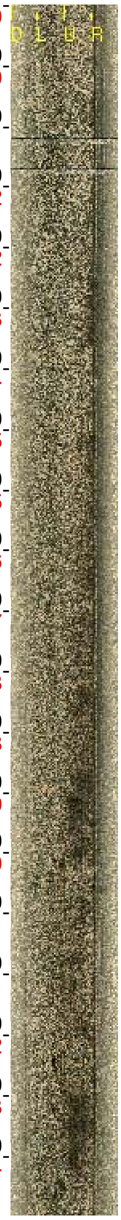
241.000
241.533
241.200
241.734
241.400
241.934
241.600
242.135
241.800
242.336
242.000
242.536
242.200
242.737
242.400
242.938
242.600
243.138
242.800
243.339
243.000
243.540
243.200
243.740
243.400
243.941
243.600
244.142
243.800
244.342
244.000
244.543
244.200
244.744
244.400
244.944
244.600
245.145
244.800
245.346



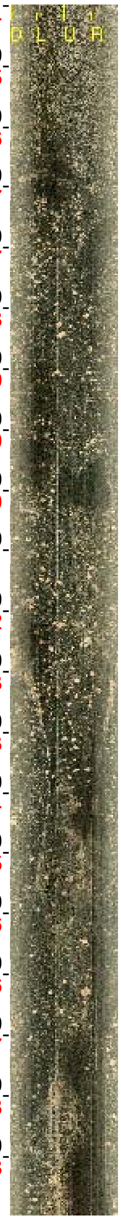
245.000
245.546
245.200
245.747
245.400
245.948
245.600
246.148
245.800
246.349
246.000
246.550
246.200
246.750
246.400
246.951
246.600
247.152
246.800
247.352
247.000
247.553
247.200
247.754
247.400
247.954
247.600
248.155
247.800
248.356
248.000
248.556
248.200
248.757
248.400
248.958
248.600
249.158
248.800
249.359



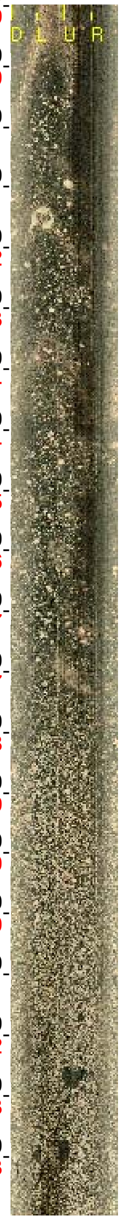
249.000
249.560
249.200
249.760
249.400
249.961
249.600
250.162
249.800
250.362
250.000
250.563
250.200
250.764
250.400
250.965
250.600
251.165
250.800
251.366
251.000
251.567
251.200
251.768
251.400
251.968
251.600
252.169
251.800
252.370
252.000
252.571
252.200
252.771
252.400
252.972
252.600
253.173
252.800
253.374



253.000
253.574
253.200
253.775
253.400
253.976
253.600
254.177
253.800
254.377
254.000
254.578
254.200
254.779
254.400
254.980
254.600
255.180
254.800
255.381
255.000
255.582
255.200
255.783
255.400
255.983
255.600
256.184
255.800
256.385
256.000
256.586
256.200
256.786
256.400
256.987
256.600
257.188
256.800
257.388



257.000
257.589
257.200
257.790
257.400
257.991
257.600
258.191
257.800
258.392
258.000
258.593
258.200
258.794
258.400
258.994
258.600
259.195
258.800
259.396
259.000
259.597
259.200
259.797
259.400
259.998
259.600
260.199
259.800
260.400
260.000
260.600
260.200
260.801
260.400
261.002
260.600
261.203
260.800
261.403

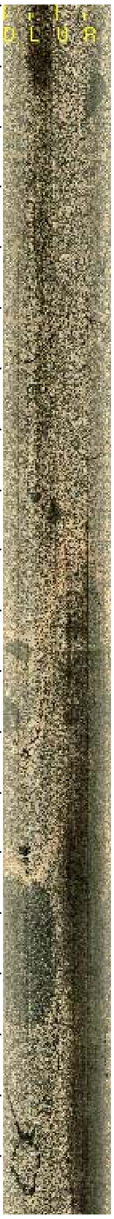


Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 9 (26)

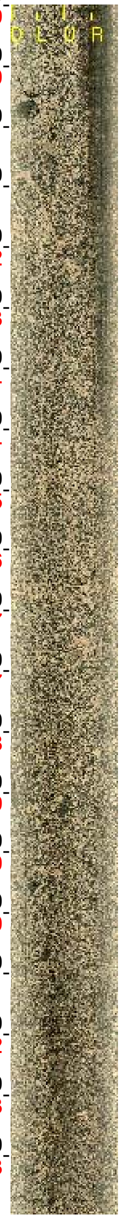
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 261.000 - 281.000 m
Azimuth: 311.2
Inclination: -72.2

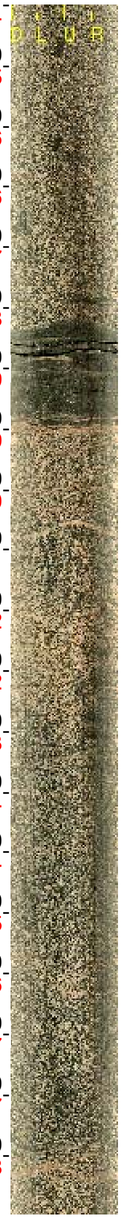
261.000	261.604
261.200	261.805
261.400	262.006
261.600	262.206
261.800	262.407
262.000	262.608
262.200	262.809
262.400	263.009
262.600	263.210
262.800	263.411
263.000	263.612
263.200	263.812
263.400	264.013
263.600	264.214
263.800	264.415
264.000	264.615
264.200	264.816
264.400	265.017
264.600	265.218
264.800	265.418



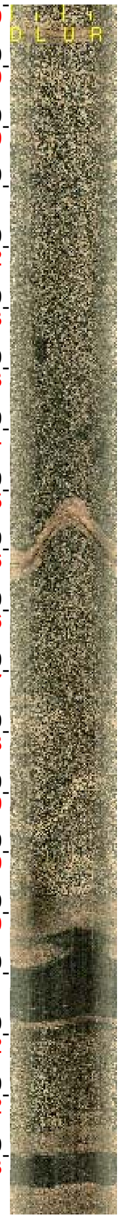
265.000	265.619
265.200	265.820
265.400	266.021
265.600	266.221
265.800	266.422
266.000	266.623
266.200	266.824
266.400	267.024
266.600	267.225
266.800	267.426
267.000	267.627
267.200	267.827
267.400	268.028
267.600	268.229
267.800	268.430
268.000	268.630
268.200	268.831
268.400	269.032
268.600	269.233
268.800	269.433



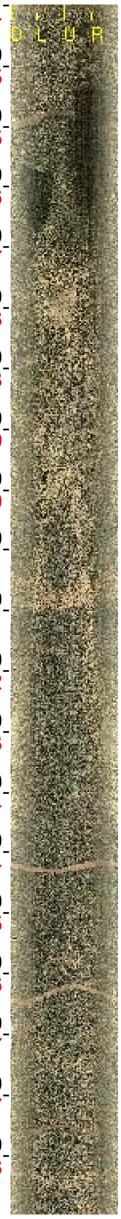
269.000	269.634
269.200	269.835
269.400	270.036
269.600	270.236
269.800	270.437
270.000	270.638
270.200	270.839
270.400	271.039
270.600	271.240
270.800	271.441
271.000	271.642
271.200	271.842
271.400	272.043
271.600	272.244
271.800	272.444
272.000	272.645
272.200	272.846
272.400	273.047
272.600	273.247
272.800	273.448



273.000	273.649
273.200	273.850
273.400	274.050
273.600	274.251
273.800	274.452
274.000	274.653
274.200	274.853
274.400	275.054
274.600	275.255
274.800	275.456
275.000	275.656
275.200	275.857
275.400	276.058
275.600	276.259
275.800	276.459
276.000	276.660
276.200	276.861
276.400	277.062
276.600	277.262
276.800	277.463



277.000	277.664
277.200	277.865
277.400	278.065
277.600	278.266
277.800	278.467
278.000	278.668
278.200	278.868
278.400	279.069
278.600	279.270
278.800	279.471
279.000	279.671
279.200	279.872
279.400	280.073
279.600	280.274
279.800	280.474
280.000	280.675
280.200	280.876
280.400	281.077
280.600	281.277
280.800	281.478



Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 10 (26)

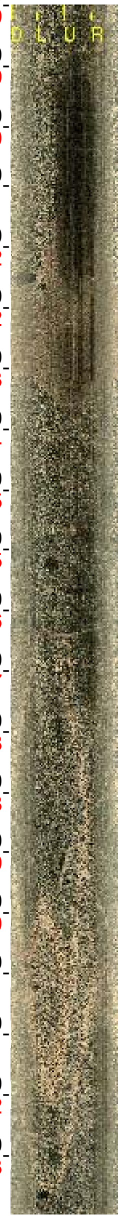
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 281.000 - 301.000 m
Azimuth: 312.3
Inclination: -72.2

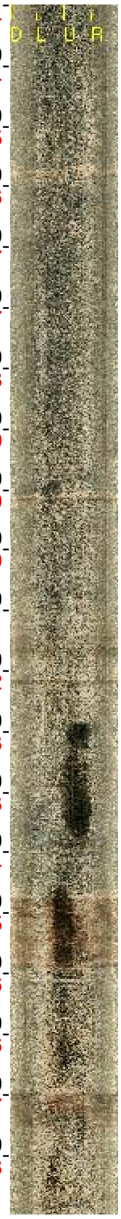
281.000	281.679
281.200	281.880
281.400	282.080
281.600	282.281
281.800	282.482
282.000	282.683
282.200	282.883
282.400	283.084
282.600	283.285
282.800	283.486
283.000	283.686
283.200	283.887
283.400	284.088
283.600	284.289
283.800	284.489
284.000	284.690
284.200	284.891
284.400	285.092
284.600	285.292
284.800	285.493

285.000	285.694
285.200	285.895
285.400	286.095
285.600	286.296
285.800	286.497
286.000	286.698
286.200	286.898
286.400	287.099
286.600	287.300
286.800	287.500
287.000	287.701
287.200	287.902
287.400	288.103
287.600	288.303
287.800	288.504
288.000	288.705
288.200	288.906
288.400	289.106
288.600	289.307
288.800	289.508

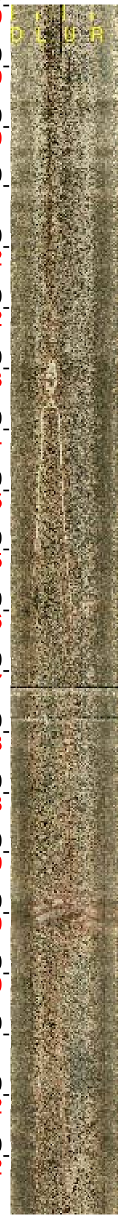
289.000	289.709
289.200	289.909
289.400	290.110
289.600	290.311
289.800	290.512
290.000	290.712
290.200	290.913
290.400	291.114
290.600	291.315
290.800	291.515
291.000	291.716
291.200	291.917
291.400	292.118
291.600	292.318
291.800	292.519
292.000	292.720
292.200	292.921
292.400	293.121
292.600	293.322
292.800	293.523



293.000	293.724
293.200	293.924
293.400	294.125
293.600	294.326
293.800	294.527
294.000	294.727
294.200	294.928
294.400	295.129
294.600	295.330
294.800	295.530
295.000	295.731
295.200	295.932
295.400	296.133
295.600	296.333
295.800	296.534
296.000	296.735
296.200	296.936
296.400	297.136
296.600	297.337
296.800	297.538



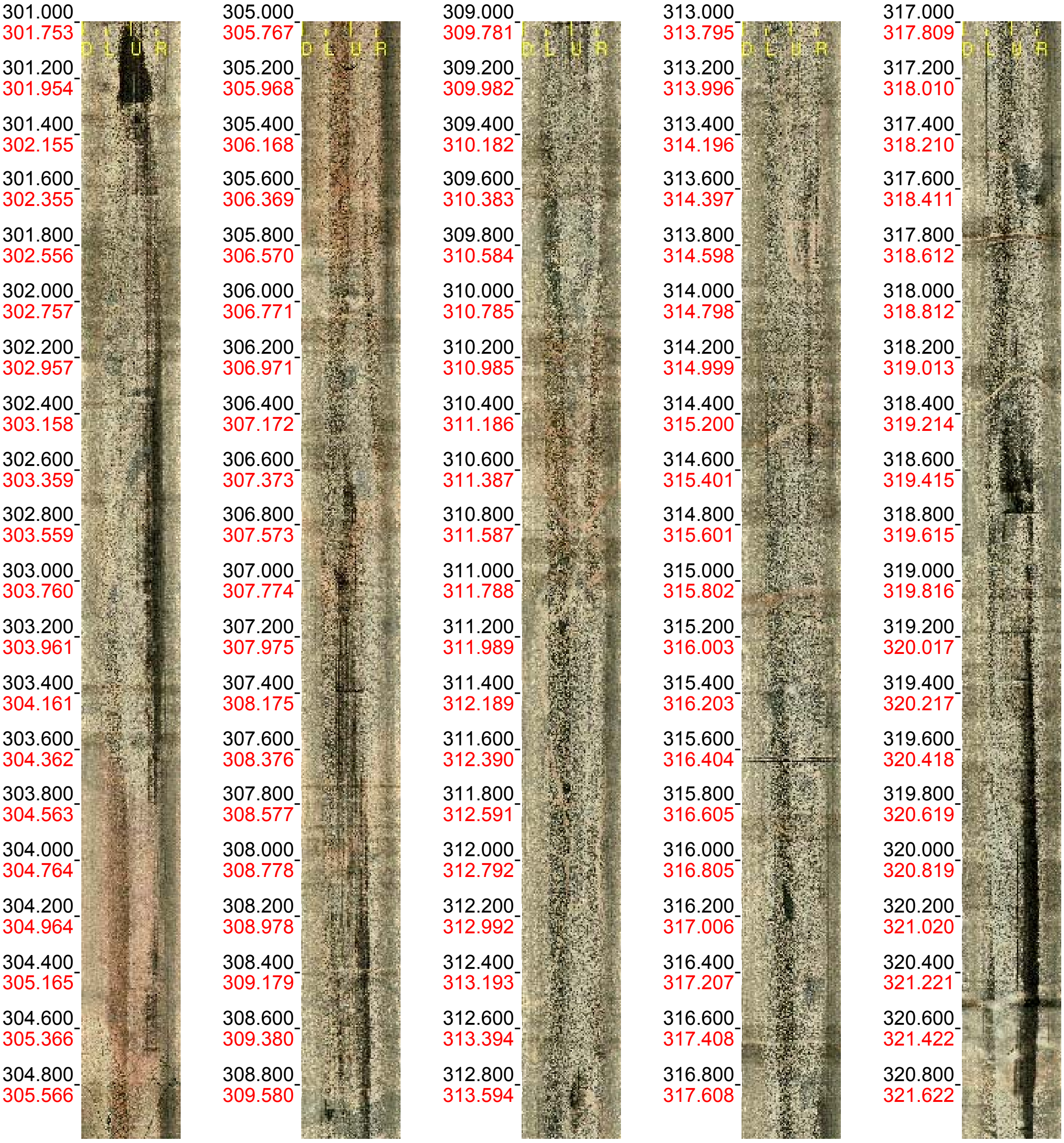
297.000	297.739
297.200	297.939
297.400	298.140
297.600	298.341
297.800	298.542
298.000	298.742
298.200	298.943
298.400	299.144
298.600	299.345
298.800	299.545
299.000	299.746
299.200	299.947
299.400	300.148
299.600	300.348
299.800	300.549
300.000	300.750
300.200	300.950
300.400	301.151
300.600	301.352
300.800	301.552



Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 11 (26)

Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 301.000 - 321.000 m
Azimuth: 306.2
Inclination: -72.4

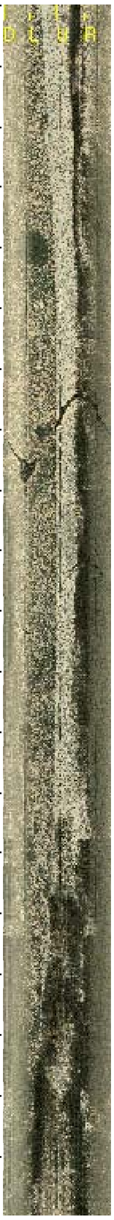


Printed: 2006-04-27 14:45:50 | Scale: 1 : 20 | Aspect: 150 % | 12 (26)

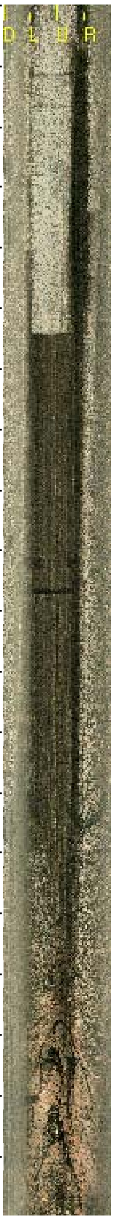
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 321.000 - 341.000 m
Azimuth: 305.9
Inclination: -74.5

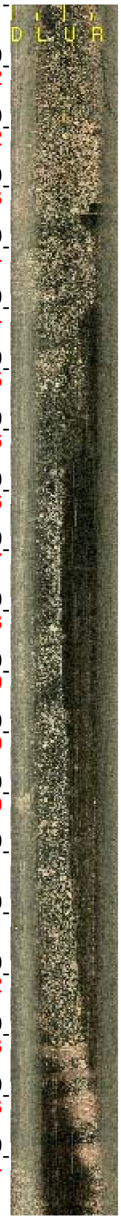
321.000	321.823
321.200	322.024
321.400	322.224
321.600	322.425
321.800	322.626
322.000	322.826
322.200	323.027
322.400	323.228
322.600	323.429
322.800	323.629
323.000	323.830
323.200	324.031
323.400	324.231
323.600	324.432
323.800	324.633
324.000	324.833
324.200	325.034
324.400	325.235
324.600	325.436
324.800	325.636



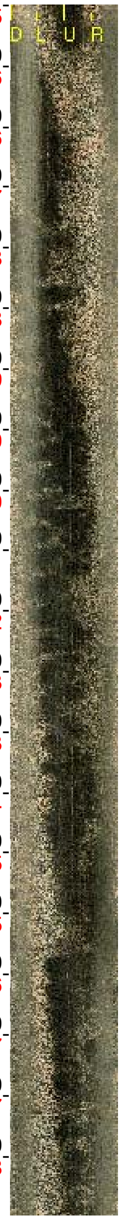
325.000	325.837
325.200	326.038
325.400	326.238
325.600	326.439
325.800	326.640
326.000	326.840
326.200	327.041
326.400	327.242
326.600	327.443
326.800	327.643
327.000	327.844
327.200	328.045
327.400	328.245
327.600	328.446
327.800	328.647
328.000	328.847
328.200	329.048
328.400	329.249
328.600	329.449
328.800	329.650



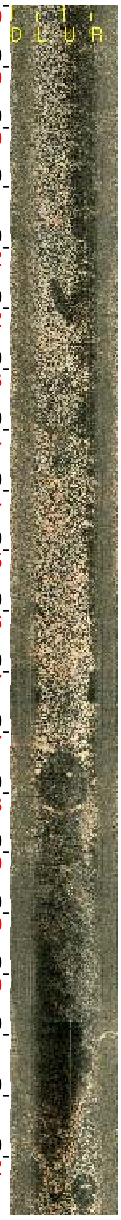
329.000	329.851
329.200	330.052
329.400	330.252
329.600	330.453
329.800	330.654
330.000	330.854
330.200	331.055
330.400	331.256
330.600	331.456
330.800	331.657
331.000	331.858
331.200	332.059
331.400	332.259
331.600	332.460
331.800	332.661
332.000	332.861
332.200	333.062
332.400	333.263
332.600	333.463
332.800	333.664



333.000	333.865
333.200	334.066
333.400	334.266
333.600	334.467
333.800	334.668
334.000	334.868
334.200	335.069
334.400	335.270
334.600	335.470
334.800	335.671
335.000	335.872
335.200	336.073
335.400	336.273
335.600	336.474
335.800	336.675
336.000	336.875
336.200	337.076
336.400	337.277
336.600	337.477
336.800	337.678



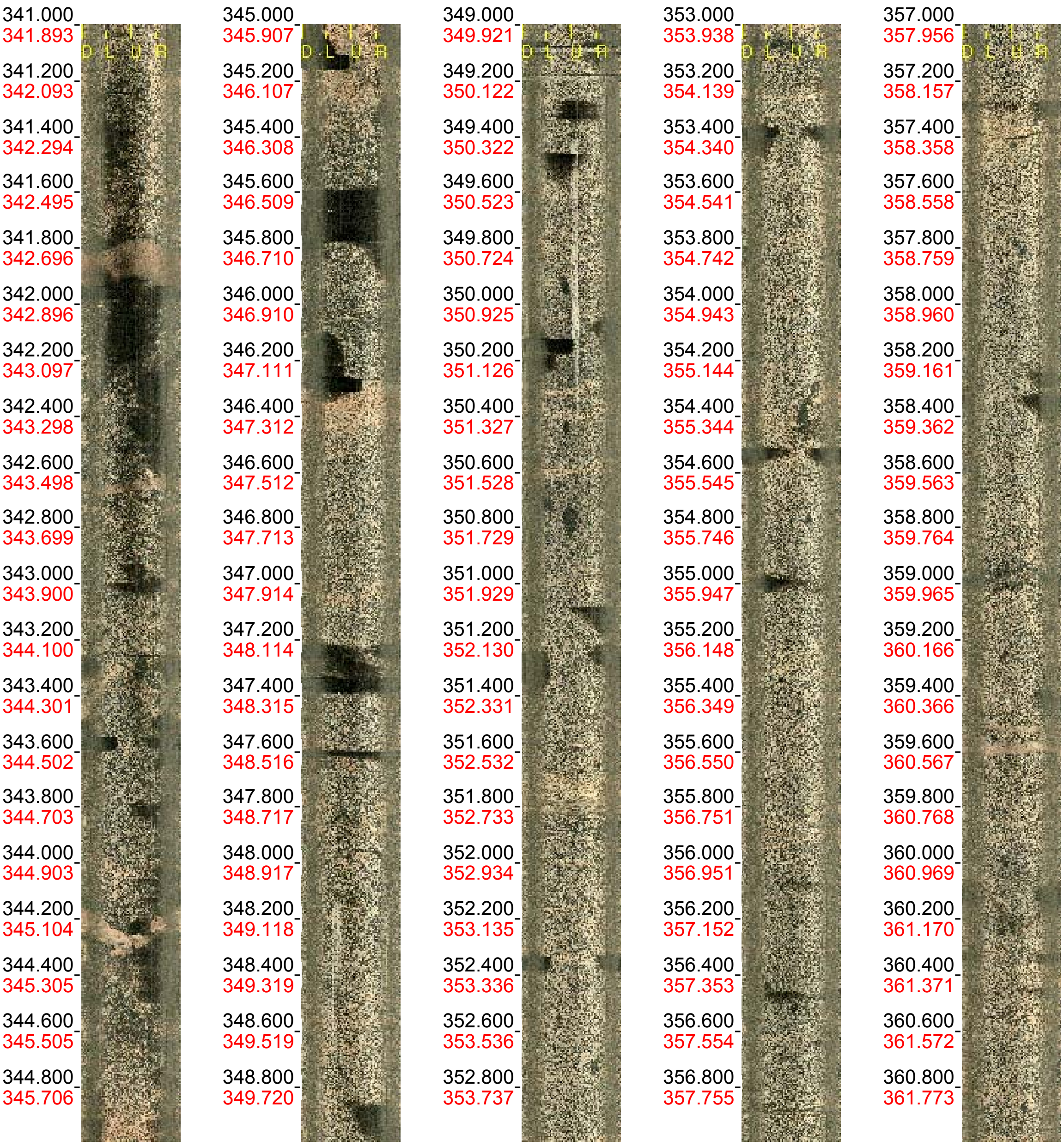
337.000	337.879
337.200	338.080
337.400	338.280
337.600	338.481
337.800	338.682
338.000	338.882
338.200	339.083
338.400	339.284
338.600	339.484
338.800	339.685
339.000	339.886
339.200	340.087
339.400	340.287
339.600	340.488
339.800	340.689
340.000	340.889
340.200	341.090
340.400	341.291
340.600	341.491
340.800	341.692



Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 13 (26)

Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 341.000 - 361.000 m
Azimuth: 306.6
Inclination: -75.2



Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 14 (26)

Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 361.000 - 381.000 m
Azimuth: 306.6
Inclination: -75.2

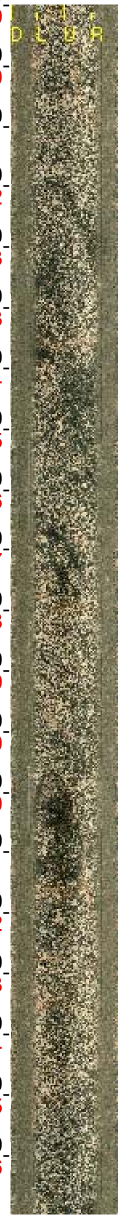
Printed: 2006-04-27 14:45:50   Scale: 1 : 20   Aspect: 150 %   15 (26)

Borehole: KLX12A
Mapping: KLX12A_JEGR_3

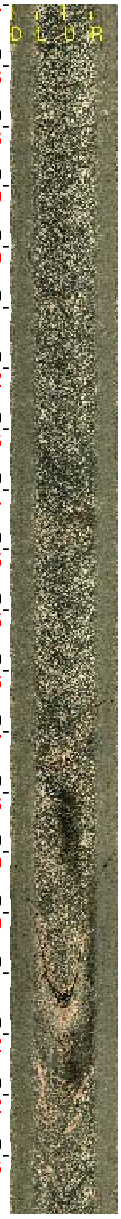
Depth range: 381.000 - 401.000 m
Azimuth: 306.6
Inclination: -75.2

381.000 / 382.061
381.200 / 382.262
381.400 / 382.463
381.600 / 382.664
381.800 / 382.865
382.000 / 383.066
382.200 / 383.267
382.400 / 383.468
382.600 / 383.668
382.800 / 383.869
383.000 / 384.070
383.200 / 384.271
383.400 / 384.472
383.600 / 384.673
383.800 / 384.874
384.000 / 385.075
384.200 / 385.276
384.400 / 385.476
384.600 / 385.677
384.800 / 385.878

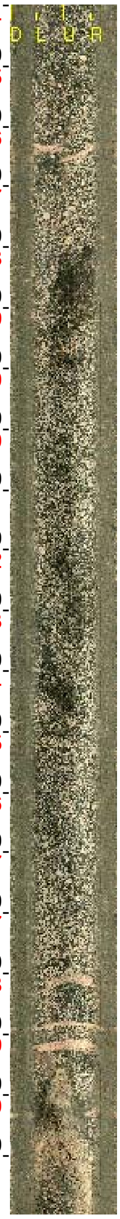
385.000 / 386.079
385.200 / 386.280
385.400 / 386.481
385.600 / 386.682
385.800 / 386.883
386.000 / 387.083
386.200 / 387.284
386.400 / 387.485
386.600 / 387.686
386.800 / 387.887
387.000 / 388.088
387.200 / 388.289
387.400 / 388.490
387.600 / 388.690
387.800 / 388.891
388.000 / 389.092
388.200 / 389.293
388.400 / 389.494
388.600 / 389.695
388.800 / 389.896



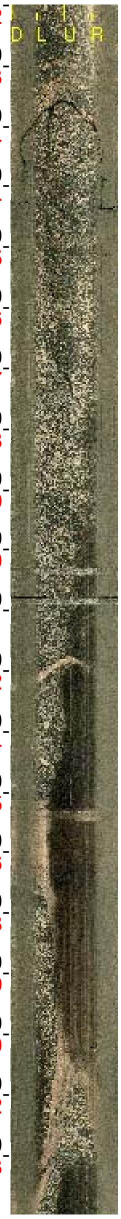
389.000 / 390.097
389.200 / 390.298
389.400 / 390.498
389.600 / 390.699
389.800 / 390.900
390.000 / 391.101
390.200 / 391.302
390.400 / 391.503
390.600 / 391.704
390.800 / 391.905
391.000 / 392.105
391.200 / 392.306
391.400 / 392.507
391.600 / 392.708
391.800 / 392.909
392.000 / 393.110
392.200 / 393.311
392.400 / 393.512
392.600 / 393.712
392.800 / 393.913



393.000 / 394.114
393.200 / 394.315
393.400 / 394.516
393.600 / 394.717
393.800 / 394.918
394.000 / 395.119
394.200 / 395.320
394.400 / 395.520
394.600 / 395.721
394.800 / 395.922
395.000 / 396.123
395.200 / 396.324
395.400 / 396.525
395.600 / 396.726
395.800 / 396.927
396.000 / 397.127
396.200 / 397.328
396.400 / 397.529
396.600 / 397.730
396.800 / 397.931



397.000 / 398.132
397.200 / 398.333
397.400 / 398.534
397.600 / 398.734
397.800 / 398.935
398.000 / 399.136
398.200 / 399.337
398.400 / 399.538
398.600 / 399.739
398.800 / 399.940
399.000 / 400.141
399.200 / 400.342
399.400 / 400.544
399.600 / 400.745
399.800 / 400.946
400.000 / 401.148
400.200 / 401.349
400.400 / 401.550
400.600 / 401.752
400.800 / 401.953

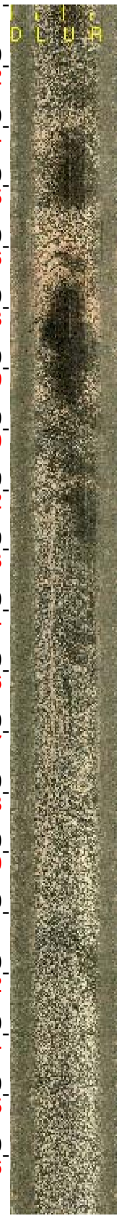


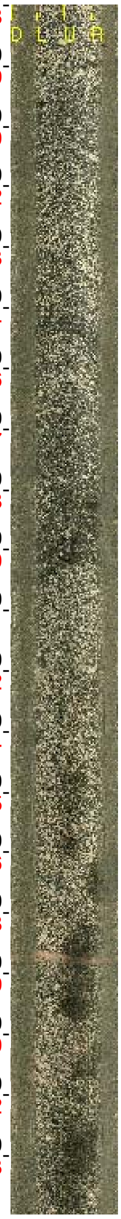
Printed: 2006-04-27 14:45:50   Scale: 1 : 20   Aspect: 150 %   16 (26)

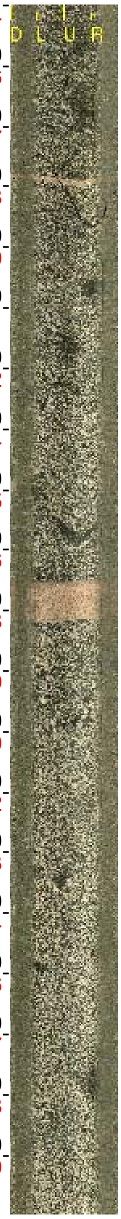
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

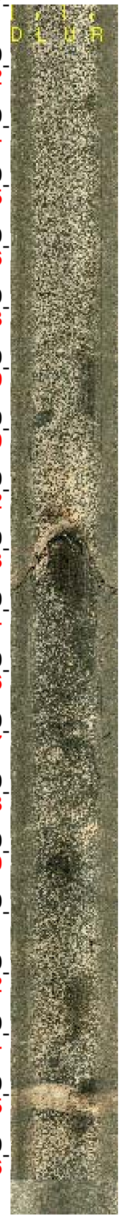
Depth range: 401.000 - 421.000 m
Azimuth: 311.1
Inclination: -75.2

401.000	402.154	405.000	406.181	409.000	410.208	413.000	414.234	417.000	418.261
401.200	402.356	405.200	406.382	409.200	410.409	413.200	414.436	417.200	418.462
401.400	402.557	405.400	406.584	409.400	410.610	413.400	414.637	417.400	418.664
401.600	402.758	405.600	406.785	409.600	410.812	413.600	414.838	417.600	418.865
401.800	402.960	405.800	406.986	409.800	411.013	413.800	415.040	417.800	419.066
402.000	403.161	406.000	407.188	410.000	411.214	414.000	415.241	418.000	419.268
402.200	403.362	406.200	407.389	410.200	411.416	414.200	415.442	418.200	419.469
402.400	403.564	406.400	407.590	410.400	411.617	414.400	415.644	418.400	419.670
402.600	403.765	406.600	407.792	410.600	411.818	414.600	415.845	418.600	419.872
402.800	403.966	406.800	407.993	410.800	412.020	414.800	416.046	418.800	420.073
403.000	404.168	407.000	408.194	411.000	412.221	415.000	416.248	419.000	420.274
403.200	404.369	407.200	408.396	411.200	412.422	415.200	416.449	419.200	420.476
403.400	404.570	407.400	408.597	411.400	412.624	415.400	416.650	419.400	420.677
403.600	404.772	407.600	408.798	411.600	412.825	415.600	416.852	419.600	420.878
403.800	404.973	407.800	409.000	411.800	413.026	415.800	417.053	419.800	421.080
404.000	405.174	408.000	409.201	412.000	413.228	416.000	417.254	420.000	421.281
404.200	405.376	408.200	409.402	412.200	413.429	416.200	417.456	420.200	421.482
404.400	405.577	408.400	409.604	412.400	413.630	416.400	417.657	420.400	421.684
404.600	405.778	408.600	409.805	412.600	413.832	416.600	417.858	420.600	421.885
404.800	405.980	408.800	410.006	412.800	414.033	416.800	418.060	420.800	422.086







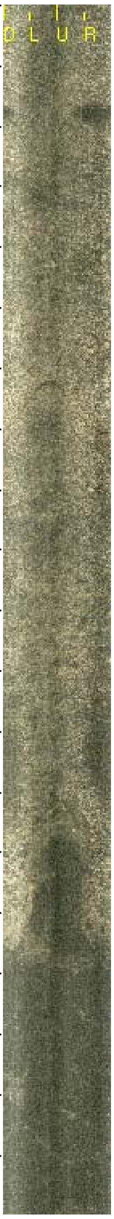


Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 17 (26)

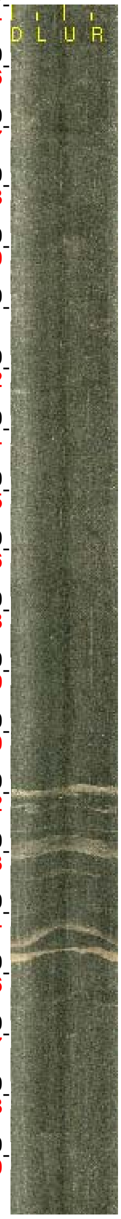
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 421.000 - 441.000 m
Azimuth: 310.9
Inclination: -75.3

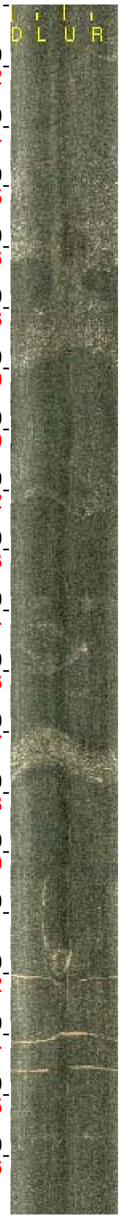
421.000
422.288
421.200
422.489
421.400
422.690
421.600
422.892
421.800
423.093
422.000
423.294
422.200
423.496
422.400
423.697
422.600
423.898
422.800
424.100
423.000
424.301
423.200
424.502
423.400
424.704
423.600
424.905
423.800
425.106
424.000
425.308
424.200
425.509
424.400
425.710
424.600
425.912
424.800
426.113



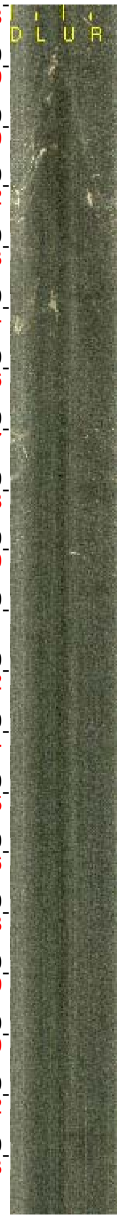
425.000
426.314
425.200
426.516
425.400
426.717
425.600
426.918
425.800
427.120
426.000
427.321
426.200
427.522
426.400
427.724
426.600
427.925
426.800
428.126
427.000
428.328
427.200
428.529
427.400
428.730
427.600
428.932
427.800
429.133
428.000
429.334
428.200
429.536
428.400
429.737
428.600
429.938
428.800
430.140



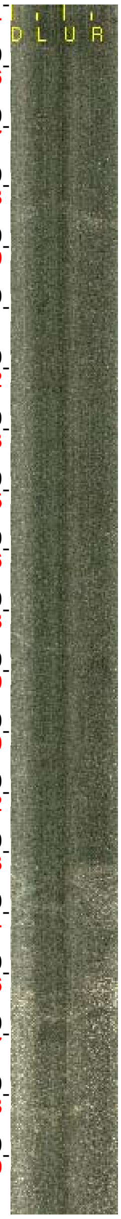
429.000
430.341
429.200
430.542
429.400
430.744
429.600
430.945
429.800
431.146
430.000
431.348
430.200
431.549
430.400
431.750
430.600
431.952
430.800
432.153
431.000
432.354
431.200
432.556
431.400
432.757
431.600
432.958
431.800
433.160
432.000
433.361
432.200
433.562
432.400
433.764
432.600
433.965
432.800
434.166



433.000
434.368
433.200
434.569
433.400
434.770
433.600
434.972
433.800
435.173
434.000
435.374
434.200
435.576
434.400
435.777
434.600
435.978
434.800
436.180
435.000
436.381
435.200
436.582
435.400
436.784
435.600
436.985
435.800
437.186
436.000
437.388
436.200
437.589
436.400
437.790
436.600
437.992
436.800
438.193



437.000
438.394
437.200
438.596
437.400
438.797
437.600
438.998
437.800
439.199
438.000
439.401
438.200
439.602
438.400
439.803
438.600
440.005
438.800
440.206
439.000
440.408
439.200
440.609
439.400
440.810
439.600
441.012
439.800
441.213
440.000
441.414
440.200
441.616
440.400
441.817
440.600
442.018
440.800
442.219

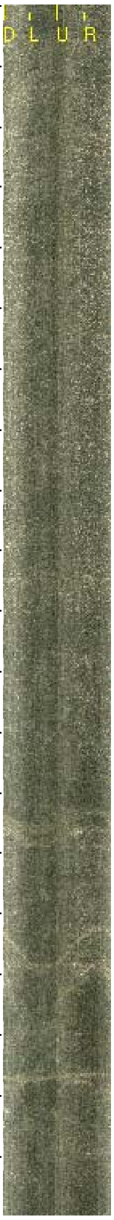


Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 18 (26)

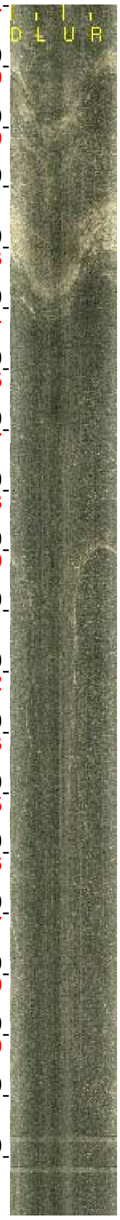
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 441.000 - 461.000 m
Azimuth: 305.6
Inclination: -75.3

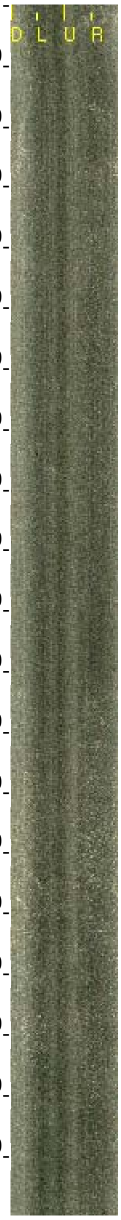
441.000	442.421
441.200	442.622
441.400	442.823
441.600	443.025
441.800	443.226
442.000	443.427
442.200	443.629
442.400	443.830
442.600	444.031
442.800	444.233
443.000	444.434
443.200	444.635
443.400	444.837
443.600	445.038
443.800	445.239
444.000	445.441
444.200	445.642
444.400	445.843
444.600	446.045
444.800	446.246



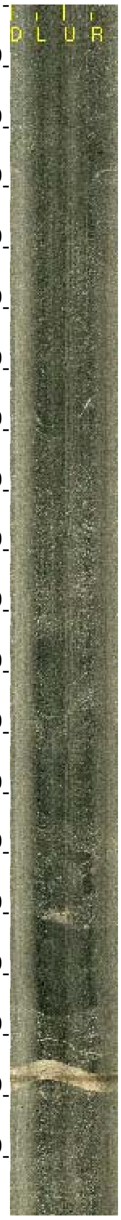
445.000	446.447
445.200	446.649
445.400	446.850
445.600	447.051
445.800	447.253
446.000	447.454
446.200	447.655
446.400	447.857
446.600	448.058
446.800	448.259
447.000	448.461
447.200	448.662
447.400	448.863
447.600	449.065
447.800	449.266
448.000	449.467
448.200	449.669
448.400	449.870
448.600	450.071
448.800	450.271



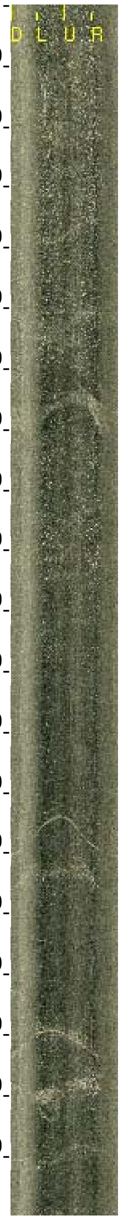
449.000	450.471
449.200	450.671
449.400	450.871
449.600	451.071
449.800	451.271
450.000	451.471
450.200	451.671
450.400	451.871
450.600	452.071
450.800	452.271
451.000	452.471
451.200	452.671
451.400	452.871
451.600	453.071
451.800	453.271
452.000	453.471
452.200	453.671
452.400	453.871
452.600	454.071
452.800	454.271



453.000	454.471
453.200	454.671
453.400	454.871
453.600	455.071
453.800	455.271
454.000	455.471
454.200	455.671
454.400	455.871
454.600	456.071
454.800	456.271
455.000	456.471
455.200	456.671
455.400	456.871
455.600	457.071
455.800	457.271
456.000	457.471
456.200	457.671
456.400	457.871
456.600	458.071
456.800	458.271



457.000	458.471
457.200	458.671
457.400	458.871
457.600	459.071
457.800	459.271
458.000	459.471
458.200	459.671
458.400	459.871
458.600	460.071
458.800	460.271
459.000	460.471
459.200	460.671
459.400	460.871
459.600	461.071
459.800	461.271
460.000	461.471
460.200	461.671
460.400	461.871
460.600	462.071
460.800	462.271

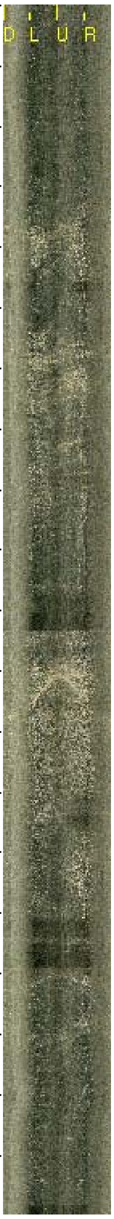


Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 19 (26)

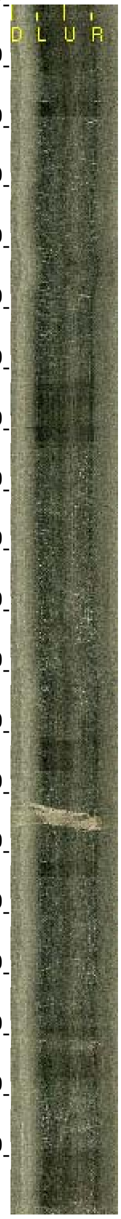
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 461.000 - 481.000 m
Azimuth: 298.0
Inclination: -75.3

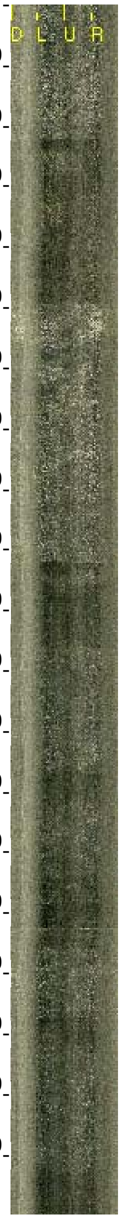
461.000
462.471
461.200
462.671
461.400
462.871
461.600
463.071
461.800
463.271
462.000
463.471
462.200
463.671
462.400
463.871
462.600
464.071
462.800
464.271
463.000
464.471
463.200
464.671
463.400
464.871
463.600
465.071
463.800
465.271
464.000
465.471
464.200
465.671
464.400
465.871
464.600
466.071
464.800
466.271



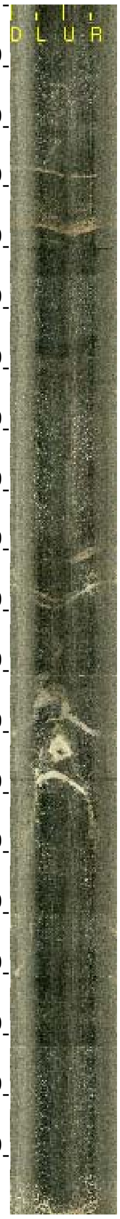
465.000
466.471
465.200
466.671
465.400
466.871
465.600
467.071
465.800
467.271
466.000
467.471
466.200
467.671
466.400
467.871
466.600
468.071
466.800
468.271
467.000
468.471
467.200
468.671
467.400
468.871
467.600
469.071
467.800
469.271
468.000
469.471
468.200
469.671
468.400
469.871
468.600
470.071
468.800
470.271



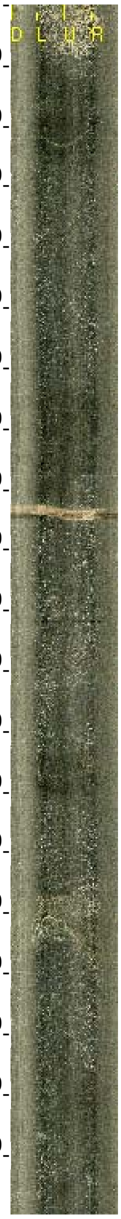
469.000
470.471
469.200
470.671
469.400
470.871
469.600
471.071
469.800
471.271
470.000
471.471
470.200
471.671
470.400
471.871
470.600
472.071
470.800
472.271
471.000
472.471
471.200
472.671
471.400
472.871
471.600
473.071
471.800
473.271
472.000
473.471
472.200
473.671
472.400
473.871
472.600
474.071
472.800
474.271



473.000
474.471
473.200
474.671
473.400
474.871
473.600
475.071
473.800
475.271
474.000
475.471
474.200
475.671
474.400
475.871
474.600
476.071
474.800
476.271
475.000
476.471
475.200
476.671
475.400
476.871
475.600
477.071
475.800
477.271
476.000
477.471
476.200
477.671
476.400
477.871
476.600
478.071
476.800
478.271



477.000
478.471
477.200
478.671
477.400
478.871
477.600
479.071
477.800
479.271
478.000
479.471
478.200
479.671
478.400
479.871
478.600
480.071
478.800
480.271
479.000
480.471
479.200
480.671
479.400
480.871
479.600
481.071
479.800
481.271
480.000
481.471
480.200
481.671
480.400
481.871
480.600
482.071
480.800
482.271

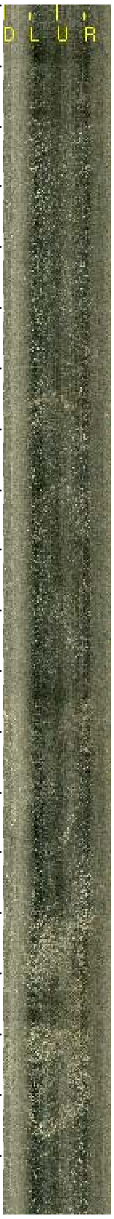


Printed: 2006-04-27 14:45:50   Scale: 1 : 20   Aspect: 150 %   20 (26)

Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 481.000 - 501.000 m
Azimuth: 303.0
Inclination: -75.4

481.000
482.471
481.200
482.671
481.400
482.871
481.600
483.071
481.800
483.271
482.000
483.471
482.200
483.671
482.400
483.871
482.600
484.071
482.800
484.271
483.000
484.471
483.200
484.671
483.400
484.871
483.600
485.071
483.800
485.271
484.000
485.471
484.200
485.671
484.400
485.871
484.600
486.071
484.800
486.271



485.000
486.471
485.200
486.671
485.400
486.871
485.600
487.071
485.800
487.271
486.000
487.471
486.200
487.671
486.400
487.871
486.600
488.071
486.800
488.271
487.000
488.471
487.200
488.671
487.400
488.871
487.600
489.071
487.800
489.271
488.000
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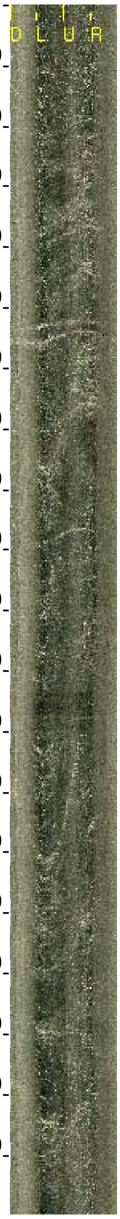
488.200
489.671
488.400
489.871
488.600
490.071
488.800
490.271



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489.600
491.071
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490.000
491.471
490.200
491.671
490.400
491.871
490.600
492.071
490.800
492.271
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491.200
492.671
491.400
492.871
491.600
493.071
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492.000
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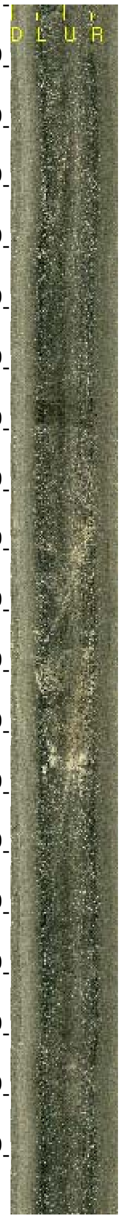
494.271



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495.671
494.400
495.871
494.600
496.071
494.800
496.271
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496.471
495.200
496.671
495.400
496.871
495.600
497.071
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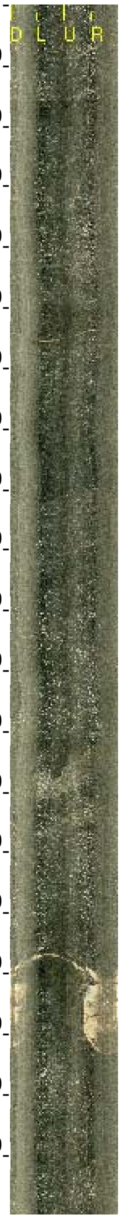
496.800
498.271



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497.600
499.071
497.800
499.271
498.000
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498.200
499.671
498.400
499.871
498.600
500.071
498.800
500.272
499.000
500.473
499.200
500.673
499.400
500.874
499.600
501.075
499.800
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500.000
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500.200
501.677
500.400
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500.600
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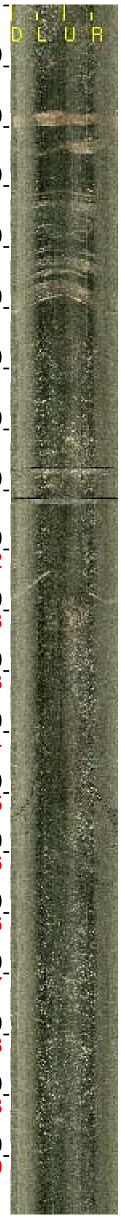
502.279



Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 21 (26)

Borehole: KLX12A
Mapping: KLX12A_JEGR_3

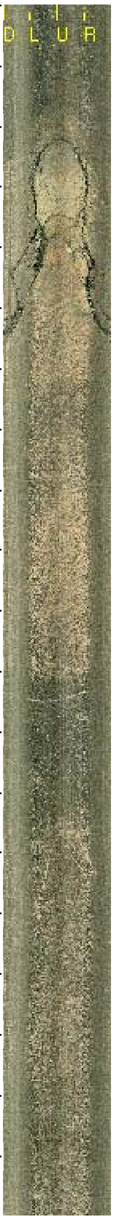
Depth range: 501.000 - 521.000 m
Azimuth: 307.9
Inclination: -75.4

Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 22 (26)

Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 521.000 - 541.000 m
Azimuth: 311.2
Inclination: -75.4

521.000
522.551
521.200
522.752
521.400
522.953
521.600
523.153
521.800
523.354
522.000
523.555
522.200
523.756
522.400
523.956
522.600
524.157
522.800
524.358
523.000
524.558
523.200
524.759
523.400
524.960
523.600
525.161
523.800
525.361
524.000
525.562
524.200
525.763
524.400
525.963
524.600
526.164
524.800
526.365



525.000
526.566
525.200
526.766
525.400
526.967
525.600
527.168
525.800
527.368
526.000
527.569
526.200
527.770
526.400
527.971
526.600
528.171
526.800
528.372
527.000
528.573
527.200
528.773
527.400
528.974
527.600
529.175
527.800
529.376
528.000
529.576
528.200
529.777
528.400
529.978
528.600
530.178
528.800
530.379

529.000
530.580
529.200
530.781
529.400
530.981
529.600
531.182
529.800
531.383
530.000
531.583
530.200
531.784
530.400
531.985
530.600
532.186
530.800
532.386
531.000
532.587
531.200
532.788
531.400
532.988
531.600
533.189
531.800
533.390
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533.591
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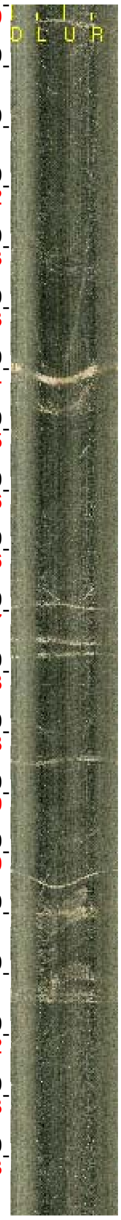
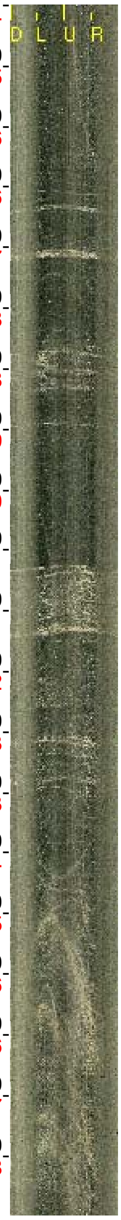
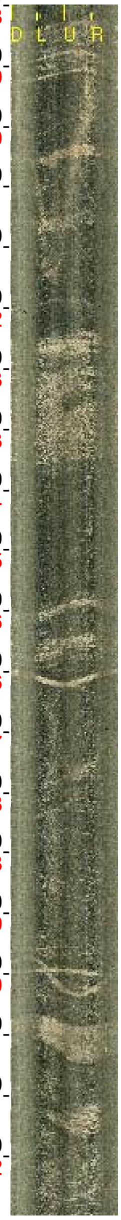
534.193
532.800
534.393



533.000
534.594
533.200
534.795
533.400
534.996
533.600
535.196
533.800
535.397
534.000
535.598
534.200
535.798
534.400
535.999
534.600
536.200
534.800
536.401
535.000
536.601
535.200
536.802
535.400
537.003
535.600
537.203
535.800
537.404
536.000
537.605
536.200
537.806
536.400
538.006
536.600
538.207
536.800
538.408



537.000
538.608
537.200
538.809
537.400
539.010
537.600
539.211
537.800
539.411
538.000
539.612
538.200
539.813
538.400
540.013
538.600
540.214
538.800
540.415
539.000
540.616
539.200
540.816
539.400
541.017
539.600
541.218
539.800
541.418
540.000
541.619
540.200
541.820
540.400
542.021
540.600
542.221
540.800
542.422

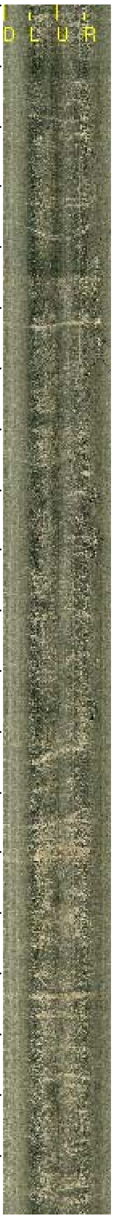


Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 23 (26)

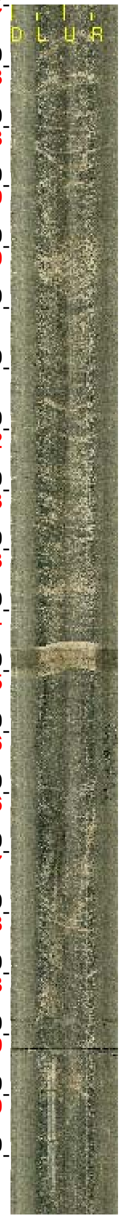
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 541.000 - 561.000 m
Azimuth: 309.5
Inclination: -75.4

541.000
542.623
541.200
542.823
541.400
543.024
541.600
543.225
541.800
543.426
542.000
543.626
542.200
543.827
542.400
544.028
542.600
544.228
542.800
544.429
543.000
544.630
543.200
544.831
543.400
545.031
543.600
545.232
543.800
545.433
544.000
545.633
544.200
545.834
544.400
546.035
544.600
546.236
544.800
546.436

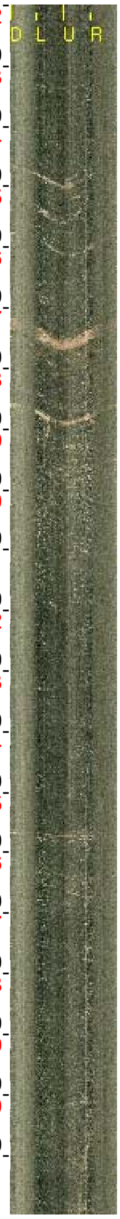


545.000
546.637
545.200
546.838
545.400
547.038
545.600
547.239
545.800
547.440
546.000
547.641
546.200
547.841
546.400
548.042
546.600
548.243
546.800
548.443
547.000
548.644
547.200
548.845
547.400
549.046
547.600
549.246
547.800
549.447
548.000
549.648
548.200
549.848
548.400
550.049
548.600
550.250
548.800
550.451

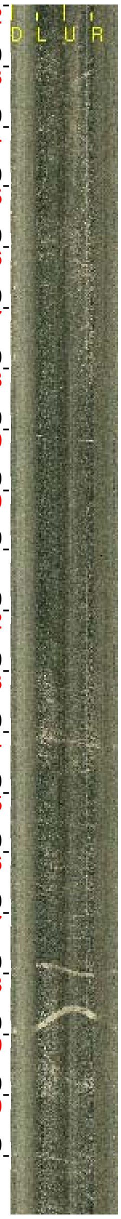


549.000
550.652
549.200
550.853
549.400
551.054
549.600
551.255
549.800
551.456
550.000
551.657
550.200
551.858
550.400
552.059
550.600
552.260
550.800
552.461
551.000
552.662
551.200
552.863
551.400
553.064
551.600
553.265
551.800
553.466
552.000
553.667
552.200
553.868
552.400
554.069
552.600
554.270
552.800
554.471

553.000
554.672
553.200
554.873
553.400
555.074
553.600
555.275
553.800
555.476
554.000
555.677
554.200
555.878
554.400
556.079
554.600
556.280
554.800
556.481
555.000
556.682
555.200
556.883
555.400
557.084
555.600
557.285
555.800
557.486
556.000
557.687
556.200
557.888
556.400
558.089
556.600
558.290
556.800
558.491



557.000
558.692
557.200
558.893
557.400
559.094
557.600
559.295
557.800
559.496
558.000
559.697
558.200
559.898
558.400
560.099
558.600
560.300
558.800
560.501
559.000
560.702
559.200
560.903
559.400
561.104
559.600
561.305
559.800
561.506
560.000
561.707
560.200
561.908
560.400
562.109
560.600
562.310
560.800
562.511

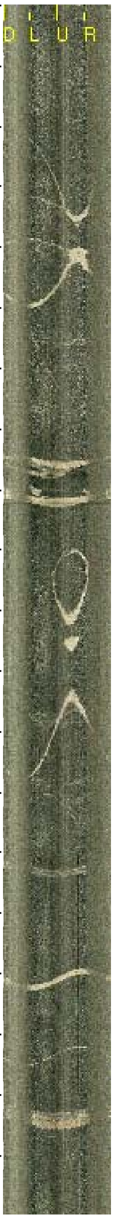


Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 24 (26)

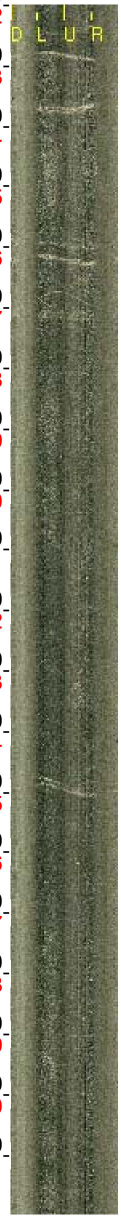
Borehole: KLX12A
Mapping: KLX12A_JEGR_3

Depth range: 561.000 - 581.000 m
Azimuth: 310.3
Inclination: -75.3

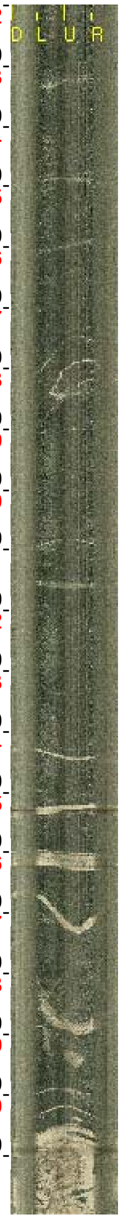
561.000	562.712
561.200	562.913
561.400	563.114
561.600	563.315
561.800	563.516
562.000	563.717
562.200	563.918
562.400	564.119
562.600	564.320
562.800	564.521
563.000	564.722
563.200	564.923
563.400	565.124
563.600	565.325
563.800	565.526
564.000	565.727
564.200	565.928
564.400	566.129
564.600	566.330
564.800	566.531



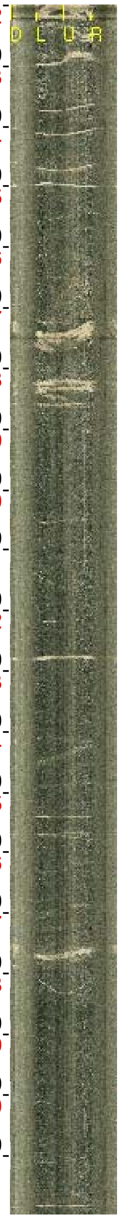
565.000	566.732
565.200	566.933
565.400	567.134
565.600	567.335
565.800	567.536
566.000	567.737
566.200	567.938
566.400	568.139
566.600	568.340
566.800	568.541
567.000	568.742
567.200	568.943
567.400	569.144
567.600	569.345
567.800	569.546
568.000	569.747
568.200	569.948
568.400	570.149
568.600	570.350
568.800	570.551



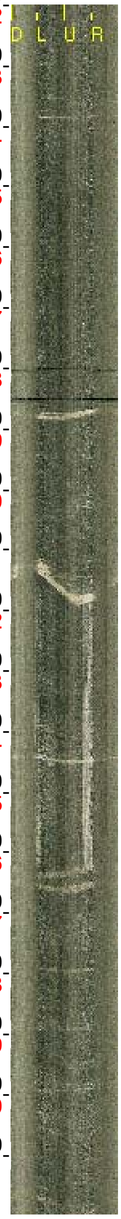
569.000	570.752
569.200	570.953
569.400	571.154
569.600	571.355
569.800	571.556
570.000	571.757
570.200	571.958
570.400	572.159
570.600	572.360
570.800	572.561
571.000	572.762
571.200	572.963
571.400	573.164
571.600	573.365
571.800	573.566
572.000	573.767
572.200	573.968
572.400	574.169
572.600	574.370
572.800	574.571



573.000	574.772
573.200	574.973
573.400	575.174
573.600	575.375
573.800	575.576
574.000	575.777
574.200	575.978
574.400	576.179
574.600	576.380
574.800	576.581
575.000	576.782
575.200	576.983
575.400	577.184
575.600	577.385
575.800	577.586
576.000	577.787
576.200	577.988
576.400	578.189
576.600	578.390
576.800	578.591



577.000	578.792
577.200	578.993
577.400	579.194
577.600	579.395
577.800	579.596
578.000	579.797
578.200	579.998
578.400	580.199
578.600	580.400
578.800	580.601
579.000	580.802
579.200	581.003
579.400	581.204
579.600	581.405
579.800	581.606
580.000	581.807
580.200	582.008
580.400	582.209
580.600	582.410
580.800	582.611



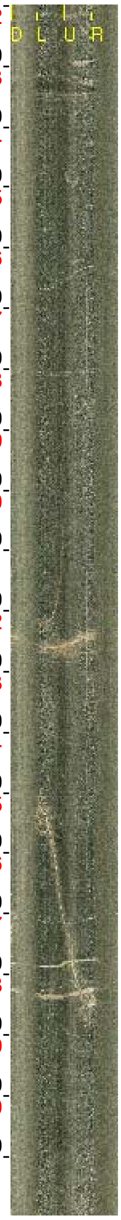
Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 25 (26)

Borehole: KLX12A
Mapping: KLX12A_JEGR_3

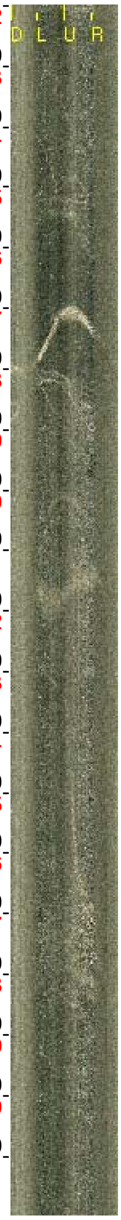
Depth range: 581.000 - 599.304 m
Azimuth: 310.5
Inclination: -75.5

581.000 582.812
581.200 583.013
581.400 583.214
581.600 583.415
581.800 583.616
582.000 583.817
582.200 584.018
582.400 584.219
582.600 584.420
582.800 584.621
583.000 584.822
583.200 585.023
583.400 585.224
583.600 585.425
583.800 585.626
584.000 585.827
584.200 586.028
584.400 586.229
584.600 586.430
584.800 586.631

585.000 586.832
585.200 587.033
585.400 587.234
585.600 587.435
585.800 587.636
586.000 587.837
586.200 588.038
586.400 588.239
586.600 588.440
586.800 588.641
587.000 588.842
587.200 589.043
587.400 589.244
587.600 589.445
587.800 589.646
588.000 589.847
588.200 590.048
588.400 590.249
588.600 590.450
588.800 590.651



589.000 590.852
589.200 591.053
589.400 591.254
589.600 591.455
589.800 591.656
590.000 591.857
590.200 592.058
590.400 592.259
590.600 592.460
590.800 592.661
591.000 592.862
591.200 593.063
591.400 593.264
591.600 593.465
591.800 593.666
592.000 593.867
592.200 594.068
592.400 594.269
592.600 594.470
592.800 594.671



593.000 594.872
593.200 595.073
593.400 595.274
593.600 595.475
593.800 595.676
594.000 595.877
594.200 596.078
594.400 596.279
594.600 596.480
594.800 596.681
595.000 596.882
595.200 597.083
595.400 597.284
595.600 597.485
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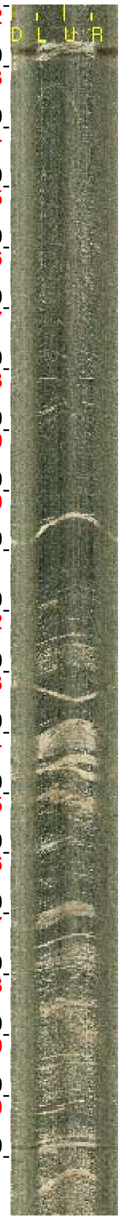
596.000 597.887
596.200 598.088
596.400 598.289
596.600 598.490
596.800 598.691



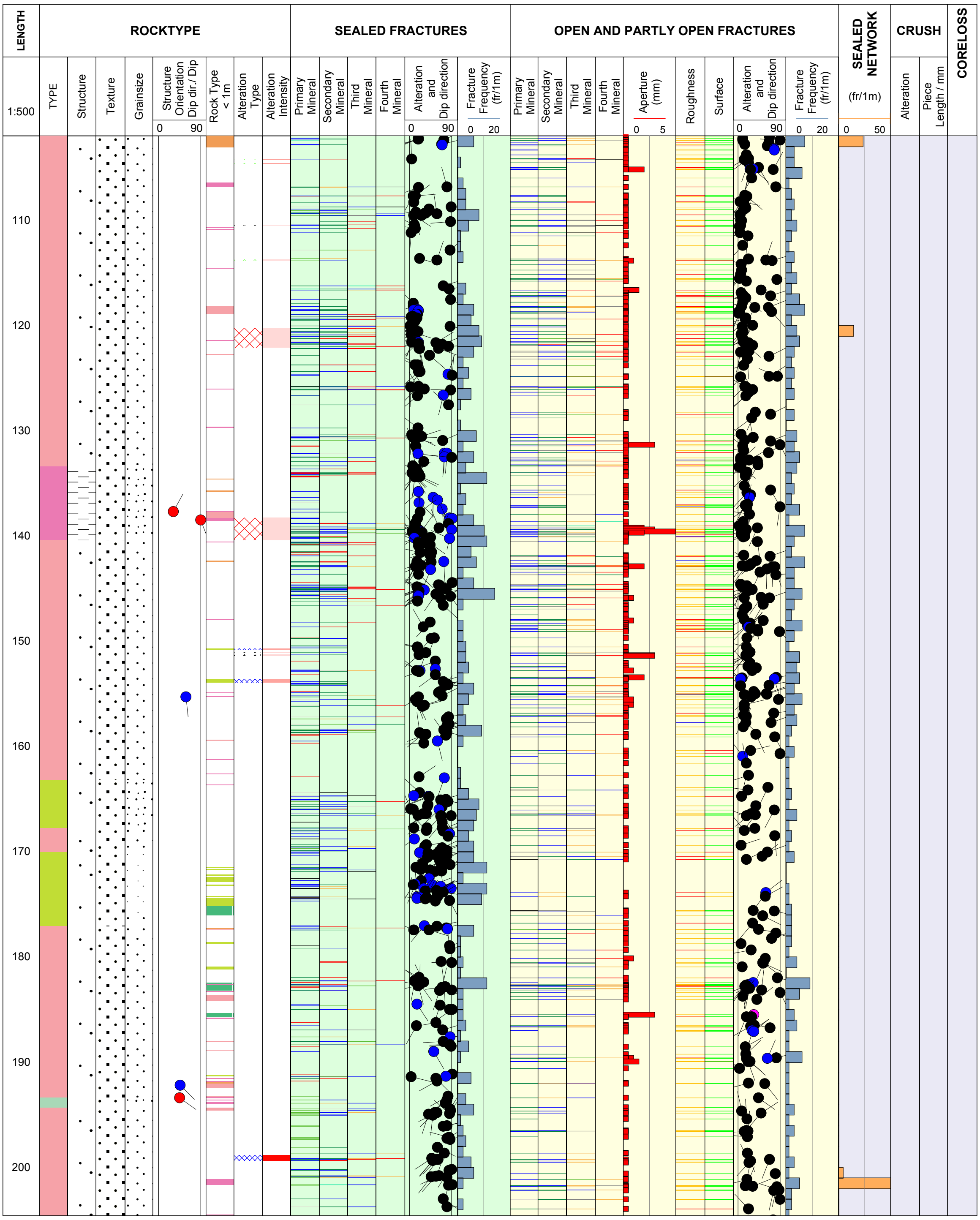
597.000 598.892
597.200 599.093
597.400 599.294
597.600 599.495
597.800 599.696
598.000 599.897
598.200 600.098
598.400 600.299
598.600 600.500
598.800 600.701
599.000 600.902
599.200
599.400
599.600
599.800
600.000
600.200
600.400
600.600
600.800

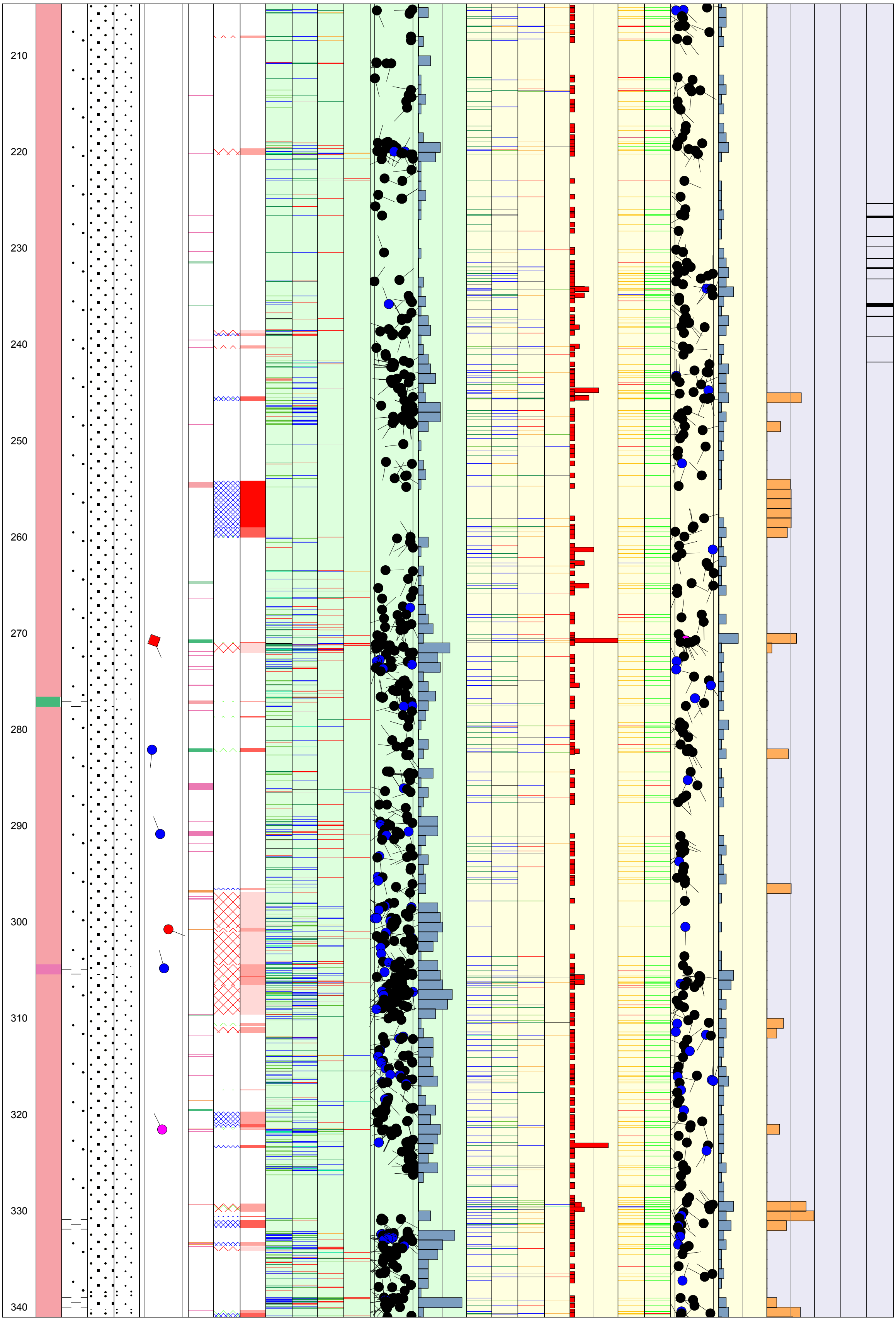
Printed: 2006-04-27 14:45:50 Scale: 1 : 20 Aspect: 150 % 26 (26)

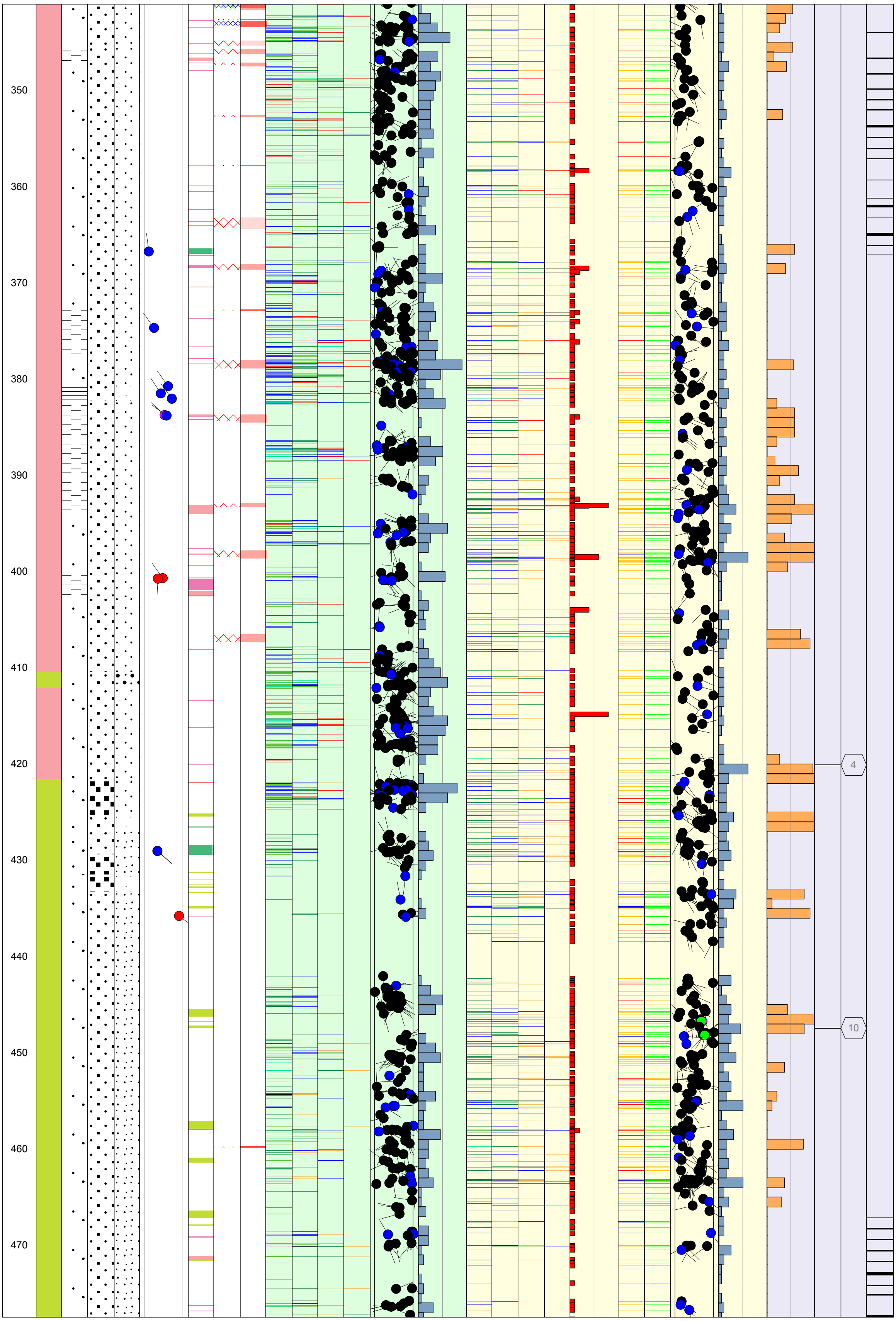
WellCad diagram for KLX12A

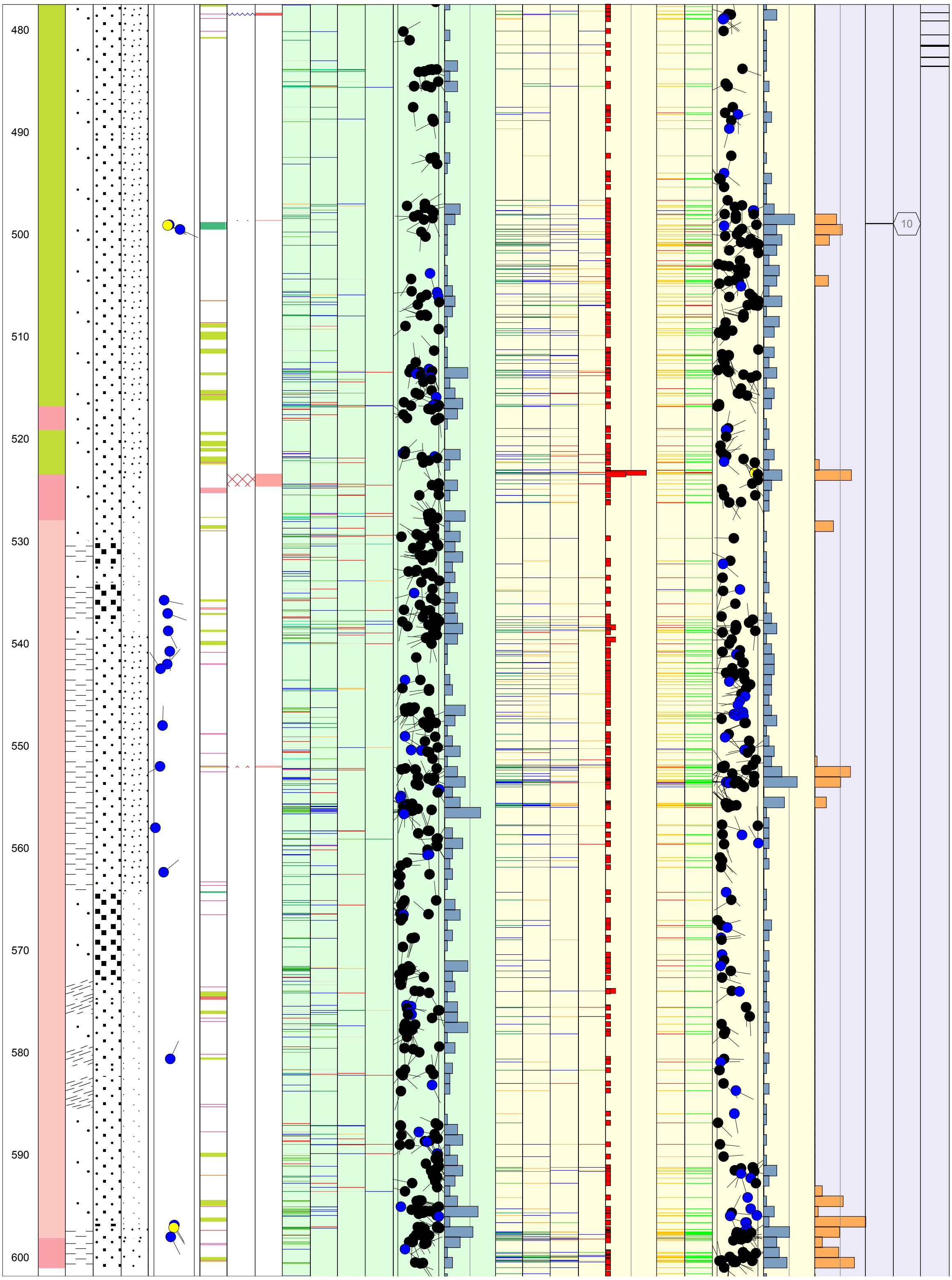
Title GEOLOGY IN KLX12A **Appendix:**

Site	LAXEMAR	**Coordinate System**	RT90-RHB70
Borehole	KLX12A	**Northing [m]**	6365630.78
Diameter [mm]	76	**Easting [m]**	1548904.44
Length [m]	602.290	**Elevation [m.a.s.l.]**	17.74
Bearing [°]	315.92	**Drilling Start Date**	2005-11-10 09:30:00
Inclination [°]	-75.30	**Drilling Stop Date**	2006-03-04 14:48:00
Date of coremapping	2006-04-03 10:15:00	**Plot Date**	2007-10-25 22:03:45
Rocktype data from	p_rock	**Signed data**	




210
220
230
240
250
260
270
280
290
300
310
320
330
340


350
360
370
380
390
400
410
420
430
440
450
460
470
4
10


480
490
500
510
520
530
540
550
560
570
580
590
600
10

Appendix 5

Legend to WellCad Diagram for KLX12A

Title LEGEND FOR LAXEMAR KLX12A

Site	LAXEMAR
Borehole	KLX12A
Plot Date	2007-10-25 22:03:45
Signed data	

ROCKTYPE LAXEMAR

- Äspö Diorite
- Dolerite
- Fine-grained Götemargranite
- Coarse-grained Götemargranite
- Fine-grained granite
- Pegmatite
- Granite
- Ävrö granite
- Quartz monzodiorite
- Diorite / Gabbro
- Fine-grained dioritoid
- Fine-grained diorite-gabbro
- Sulphide mineralization
- Sandstone
- Soil
- Ävrö quartz monzodiorite
- Ävrö granodiorite

ROCK ALTERATION TYPE

- Oxidized
- Chloritisized
- Epidotisized
- Weathered
- Tectonized
- Sericitisized
- Quartz dissolution
- Silicification
- Argillization
- Albitization
- Carbonatization
- Saussuritization
- Steatitization
- Uralitization
- Laumontitization
- Fract zone alteration

MINERAL

- Biotite
- Epidote
- White Feldspar
- Calcite
- Chlorite
- Quartz
- Unknown
- Pyrite
- Clay Minerals
- Prehnite

STRUCTURE

- Cataclastic
- Schistose
- Gneissic
- Mylonitic
- Ductile Shear Zone
- Brittle-Ductile Zone
- Veined
- Banded
- Massive
- Foliated
- Brecciated
- Lineated

TEXTURE

- Hornfelsed
- Porphyritic
- Ophitic
- Equigranular
- Augen-Bearing
- Unequigranular
- Metamorphic

GRAINSIZE

- Aphanitic
- Fine-grained
- Fine to medium grained
- Medium to coarse grained
- Coarse-grained
- Medium-grained

STRUCTURE ORIENTATION

- Cataclastic
- Bedded
- Gneissic
- Schistose
- Brittle-Ductile Shear Zone
- Ductile Shear Zone
- Lineated
- Banded
- Veined
- Brecciated
- Foliated
- Mylonitic

ROCK ALTERATION INTENSITY

- No intensity
- Faint
- Weak
- Medium
- Strong

ROUGHNESS

- Planar
- Undulating
- Stepped
- Irregular

SURFACE

- Rough
- Smooth
- Slickensided

CRUSH ALTERATION

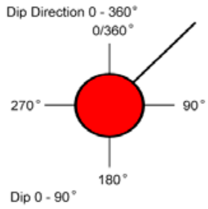
- Slightly Altered
- Moderately Altered
- Highly Altered
- Completley Altered
- Gouge
- Fresh

FRACTURE ALTERATION

- Slightly Altered
- Moderately Altered
- Highly Altered
- Completely Altered
- Gouge
- Fresh

FRACTURE DIRECTION

STRUKTURE ORIENTATION



In-data: Borehole length and diameter for KLX12A

Hole Diam T - Drilling: Borehole diameter

KLX12A, 2005-11-10 09:30:00 - 2006-03-04 14:48:00 (100.570 - 602.290 m)

Sub Secup (m)	Sub Seclow (m)	Hole Diam (m)	Comment
100.570	102.130	0.0860	T-86
102.130	602.290	0.0758	Corac N/3

Appendix 7

In-data: Reference marks for length adjustments for KLX12A

Reference Mark T - Reference mark in drillhole

KLX12A, 2006-03-10 14:00:00 - 2006-03-11 15:00:00 (110.000 - 580.000 m)

Bhlen (m)	Rotation Speed (rpm)	Start Flow (l/min)	Stop Flow (l/min)	Stop Pressure (bar)	Cutter Time (s)	Trace Detectable	Cutter Diameter (mm)	Comment
110.00	400.00	350	1000	32.0	240	Yes		
150.00	400.00	250	1000	32.0	240	Yes		
200.00	400.00	300	1000	32.0	300	Yes		
250.00	400.00	230	1000	32.0	180	Yes		
300.00	400.00	250	1000	32.0	180	Yes		
350.00	400.00	300	1000	32.0	120	Yes		
400.00	400.00	300	1000	32.0	120	Yes		
450.00	400.00	250	1000	32.0	120	Yes		
500.00	400.00	650	1000	32.0	120	Yes		Högt flöde, fräser
550.00	400.00	650	1000	32.0	120	Yes		Högt flöde, fräser
580.00	400.00	650	1000	32.0	120	Yes		Högt flöde, fräser

Appendix 8

In-data: Borehole deviation data for KLX12A

SICADA - object_location

Idcode	Coord System	Northing (m)	Easting (m)	Elevation (m.a.s.l.)	Length (m)	Vertical Depth (m)	Inclination (degrees)	Bearing (degrees)	Inclination Uncert (degrees)	Bearing Uncert (degrees)	Radius Uncert (m)	Origin	Indat
KLX12A	RT90-RHB70	6365630.78	1548904.44	17.74	0.00	0.00	-75.31	315.92	0.075	1.405	0.00	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365631.33	1548903.91	14.84	3.00	2.90	-75.43	315.92	0.075	1.405	0.02	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365631.87	1548903.39	11.93	6.00	5.81	-75.44	315.77	0.075	1.405	0.04	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365632.41	1548902.86	9.03	9.00	8.71	-75.46	315.62	0.075	1.405	0.06	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365632.95	1548902.33	6.13	12.00	11.61	-75.38	315.47	0.075	1.405	0.07	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365633.49	1548901.80	3.22	15.00	14.52	-75.32	315.31	0.075	1.405	0.09	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365634.03	1548901.26	0.32	18.00	17.42	-75.30	315.16	0.075	1.405	0.11	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365634.57	1548900.73	-2.58	21.00	20.32	-75.28	315.01	0.075	1.405	0.13	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365635.11	1548900.18	-5.48	24.00	23.22	-75.17	314.86	0.075	1.405	0.15	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365635.65	1548899.64	-8.38	27.00	26.12	-75.16	314.70	0.075	1.405	0.17	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365636.19	1548899.09	-11.28	30.00	29.02	-75.16	314.55	0.075	1.405	0.19	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365636.73	1548898.54	-14.18	33.00	31.92	-75.03	314.51	0.075	1.405	0.21	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365637.28	1548897.99	-17.08	36.00	34.82	-74.85	314.51	0.075	1.405	0.22	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365637.82	1548897.42	-19.97	39.00	37.71	-74.79	314.25	0.075	1.405	0.24	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365638.37	1548896.86	-22.87	42.00	40.61	-74.72	313.57	0.075	1.405	0.26	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365638.92	1548896.28	-25.76	45.00	43.50	-74.66	313.09	0.075	1.405	0.28	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365639.46	1548895.70	-28.65	48.00	46.39	-74.58	313.06	0.075	1.405	0.30	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365640.00	1548895.11	-31.54	51.00	49.28	-74.53	312.53	0.075	1.405	0.32	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365640.55	1548894.52	-34.44	54.00	52.17	-74.41	312.53	0.075	1.405	0.34	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365641.09	1548893.93	-37.32	57.00	55.06	-74.33	312.99	0.075	1.405	0.36	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365641.65	1548893.33	-40.21	60.00	57.95	-74.28	313.45	0.075	1.405	0.38	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365642.21	1548892.74	-43.10	63.00	60.84	-74.18	312.84	0.075	1.405	0.40	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365642.76	1548892.13	-45.98	66.00	63.72	-74.08	311.81	0.075	1.405	0.42	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365643.30	1548891.52	-48.87	69.00	66.61	-74.03	311.05	0.075	1.405	0.44	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365643.85	1548890.89	-51.75	72.00	69.49	-73.90	310.84	0.075	1.405	0.46	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365644.40	1548890.26	-54.63	75.00	72.37	-73.75	311.34	0.075	1.405	0.48	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365644.95	1548889.63	-57.51	78.00	75.25	-73.58	311.22	0.075	1.405	0.50	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365645.51	1548888.98	-60.39	81.00	78.13	-73.50	310.72	0.075	1.405	0.52	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365646.07	1548888.34	-63.27	84.00	81.00	-73.38	310.71	0.075	1.405	0.55	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365646.63	1548887.68	-66.14	87.00	83.88	-73.24	310.70	0.075	1.405	0.57	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365647.20	1548887.02	-69.01	90.00	86.75	-73.05	310.70	0.075	1.405	0.59	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365647.77	1548886.36	-71.88	93.00	89.62	-72.95	310.69	0.075	1.405	0.61	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365648.34	1548885.69	-74.75	96.00	92.49	-72.91	310.68	0.075	1.405	0.63	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365648.92	1548885.02	-77.61	99.00	95.35	-72.84	310.67	0.075	1.405	0.65	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365649.50	1548884.35	-80.48	102.00	98.22	-72.82	310.67	0.075	1.405	0.68	Measured	2007-02-13 10:04

KLX12A	RT90-RHB70	6365650.07	1548883.68	-83.35	105.00	101.09	-72.81	310.66	0.075	1.405	0.70	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365650.65	1548883.00	-86.21	108.00	103.95	-72.80	310.65	0.075	1.405	0.72	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365651.23	1548882.33	-89.08	111.00	106.82	-72.78	310.64	0.075	1.405	0.74	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365651.81	1548881.65	-91.94	114.00	109.68	-72.75	310.63	0.075	1.405	0.76	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365652.39	1548880.98	-94.81	117.00	112.55	-72.72	311.42	0.075	1.405	0.78	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365652.98	1548880.31	-97.67	120.00	115.41	-72.72	311.13	0.075	1.405	0.81	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365653.57	1548879.64	-100.54	123.00	118.28	-72.72	311.17	0.075	1.405	0.83	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365654.15	1548878.97	-103.40	126.00	121.14	-72.72	311.06	0.075	1.405	0.85	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365654.74	1548878.30	-106.27	129.00	124.01	-72.70	311.13	0.075	1.405	0.87	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365655.33	1548877.63	-109.13	132.00	126.87	-72.70	311.42	0.075	1.405	0.89	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365655.92	1548876.96	-111.99	135.00	129.73	-72.70	311.91	0.075	1.405	0.92	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365656.52	1548876.30	-114.86	138.00	132.60	-72.70	312.20	0.075	1.405	0.94	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365657.12	1548875.64	-117.72	141.00	135.46	-72.70	312.38	0.075	1.405	0.96	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365657.72	1548874.98	-120.59	144.00	138.33	-72.69	312.38	0.075	1.405	0.98	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365658.33	1548874.32	-123.45	147.00	141.19	-72.66	313.25	0.075	1.405	1.00	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365658.94	1548873.67	-126.31	150.00	144.05	-72.65	313.25	0.075	1.405	1.02	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365659.55	1548873.02	-129.18	153.00	146.92	-72.63	313.25	0.075	1.405	1.05	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365660.17	1548872.37	-132.04	156.00	149.78	-72.59	312.99	0.075	1.405	1.07	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365660.78	1548871.71	-134.90	159.00	152.64	-72.58	312.85	0.075	1.405	1.09	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365661.39	1548871.05	-137.77	162.00	155.50	-72.56	312.79	0.075	1.405	1.11	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365662.00	1548870.39	-140.63	165.00	158.37	-72.53	312.74	0.075	1.405	1.13	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365662.61	1548869.73	-143.49	168.00	161.23	-72.53	312.69	0.075	1.405	1.16	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365663.22	1548869.06	-146.35	171.00	164.09	-72.53	312.63	0.075	1.405	1.18	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365663.83	1548868.40	-149.21	174.00	166.95	-72.52	312.58	0.075	1.405	1.20	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365664.44	1548867.74	-152.07	177.00	169.81	-72.51	312.53	0.075	1.405	1.22	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365665.05	1548867.07	-154.93	180.00	172.67	-72.48	312.33	0.075	1.405	1.25	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365665.66	1548866.40	-157.80	183.00	175.53	-72.47	312.27	0.075	1.405	1.27	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365666.26	1548865.73	-160.66	186.00	178.39	-72.42	311.30	0.075	1.405	1.29	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365666.86	1548865.04	-163.52	189.00	181.25	-72.41	310.70	0.075	1.405	1.31	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365667.44	1548864.35	-166.38	192.00	184.11	-72.41	309.76	0.075	1.405	1.33	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365668.02	1548863.65	-169.24	195.00	186.97	-72.41	309.56	0.075	1.405	1.36	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365668.60	1548862.96	-172.09	198.00	189.83	-72.39	310.02	0.075	1.405	1.38	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365669.19	1548862.27	-174.95	201.00	192.69	-72.36	311.38	0.075	1.405	1.40	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365669.80	1548861.59	-177.81	204.00	195.55	-72.36	312.16	0.075	1.405	1.42	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365670.41	1548860.92	-180.67	207.00	198.41	-72.35	312.45	0.075	1.405	1.45	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365671.03	1548860.25	-183.53	210.00	201.27	-72.33	312.98	0.075	1.405	1.47	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365671.65	1548859.59	-186.39	213.00	204.13	-72.33	313.51	0.075	1.405	1.49	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365672.28	1548858.93	-189.25	216.00	206.99	-72.29	314.05	0.075	1.405	1.51	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365672.91	1548858.27	-192.10	219.00	209.84	-72.28	313.16	0.075	1.405	1.54	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365673.54	1548857.60	-194.96	222.00	212.70	-72.27	313.16	0.075	1.405	1.56	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365674.16	1548856.93	-197.82	225.00	215.56	-72.25	313.21	0.075	1.405	1.58	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365674.79	1548856.27	-200.68	228.00	218.42	-72.25	314.06	0.075	1.405	1.60	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365675.43	1548855.62	-203.53	231.00	221.27	-72.25	314.10	0.075	1.405	1.62	Measured	2007-02-13 10:04

KLX12A	RT90-RHB70	6365676.06	1548854.96	-206.39	234.00	224.13	-72.26	313.64	0.075	1.405	1.65	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365676.69	1548854.29	-209.25	237.00	226.99	-72.25	312.45	0.075	1.405	1.67	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365677.30	1548853.61	-212.11	240.00	229.84	-72.22	311.61	0.075	1.405	1.69	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365677.90	1548852.92	-214.96	243.00	232.70	-72.22	310.13	0.075	1.405	1.71	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365678.49	1548852.21	-217.82	246.00	235.56	-72.22	309.96	0.075	1.405	1.74	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365679.07	1548851.51	-220.68	249.00	238.41	-72.20	309.38	0.075	1.405	1.76	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365679.65	1548850.80	-223.53	252.00	241.27	-72.19	308.65	0.075	1.405	1.78	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365680.22	1548850.08	-226.39	255.00	244.13	-72.14	308.65	0.075	1.405	1.80	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365680.80	1548849.36	-229.24	258.00	246.98	-72.15	309.36	0.075	1.405	1.83	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365681.39	1548848.65	-232.10	261.00	249.84	-72.16	309.69	0.075	1.405	1.85	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365681.98	1548847.95	-234.95	264.00	252.69	-72.16	310.13	0.075	1.405	1.87	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365682.57	1548847.25	-237.81	267.00	255.55	-72.17	310.43	0.075	1.405	1.89	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365683.17	1548846.55	-240.67	270.00	258.41	-72.16	310.43	0.075	1.405	1.92	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365683.76	1548845.85	-243.52	273.00	261.26	-72.16	310.43	0.075	1.405	1.94	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365684.36	1548845.15	-246.38	276.00	264.12	-72.16	310.25	0.075	1.405	1.96	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365684.96	1548844.45	-249.23	279.00	266.97	-72.16	310.86	0.075	1.405	1.98	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365685.55	1548843.75	-252.09	282.00	269.83	-72.16	309.88	0.075	1.405	2.01	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365686.14	1548843.04	-254.95	285.00	272.68	-72.17	309.81	0.075	1.405	2.03	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365686.73	1548842.34	-257.80	288.00	275.54	-72.20	309.55	0.075	1.405	2.05	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365687.31	1548841.63	-260.66	291.00	278.40	-72.20	309.14	0.075	1.405	2.07	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365687.88	1548840.91	-263.51	294.00	281.25	-72.19	308.46	0.075	1.405	2.10	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365688.45	1548840.20	-266.37	297.00	284.11	-72.22	308.30	0.075	1.405	2.12	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365689.02	1548839.48	-269.23	300.00	286.97	-72.28	307.95	0.075	1.405	2.14	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365689.57	1548838.76	-272.09	303.00	289.83	-72.62	307.68	0.075	1.405	2.16	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365690.11	1548838.05	-274.95	306.00	292.69	-72.82	306.93	0.075	1.405	2.19	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365690.64	1548837.35	-277.82	309.00	295.56	-73.11	306.56	0.075	1.405	2.21	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365691.15	1548836.65	-280.69	312.00	298.43	-73.29	306.56	0.075	1.405	2.23	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365691.66	1548835.96	-283.57	315.00	301.31	-73.56	306.41	0.075	1.405	2.25	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365692.16	1548835.29	-286.45	318.00	304.19	-73.93	305.74	0.075	1.405	2.27	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365692.64	1548834.62	-289.33	321.00	307.07	-74.45	305.89	0.075	1.405	2.29	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365693.11	1548833.98	-292.23	324.00	309.97	-74.83	307.15	0.075	1.405	2.31	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365693.59	1548833.37	-295.13	327.00	312.86	-75.14	308.63	0.075	1.405	2.33	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365694.06	1548832.77	-298.03	330.00	315.76	-75.21	308.63	0.075	1.405	2.35	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365694.54	1548832.17	-300.93	333.00	318.67	-75.25	308.73	0.075	1.405	2.36	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365695.02	1548831.57	-303.83	336.00	321.57	-75.23	307.93	0.075	1.405	2.38	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365695.48	1548830.97	-306.73	339.00	324.47	-75.22	307.23	0.075	1.405	2.40	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365695.95	1548830.36	-309.63	342.00	327.37	-75.21	307.23	0.075	1.405	2.42	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365696.41	1548829.75	-312.53	345.00	330.27	-75.19	307.46	0.075	1.405	2.44	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365696.88	1548829.14	-315.43	348.00	333.17	-75.20	307.54	0.075	1.405	2.46	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365697.35	1548828.53	-318.33	351.00	336.07	-75.19	307.87	0.075	1.405	2.48	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365697.82	1548827.93	-321.23	354.00	338.97	-75.18	307.87	0.075	1.405	2.50	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365698.29	1548827.32	-324.13	357.00	341.87	-75.19	307.56	0.075	1.405	2.52	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365698.75	1548826.71	-327.03	360.00	344.77	-75.17	306.86	0.075	1.405	2.53	Measured	2007-02-13 10:04

KLX12A	RT90-RHB70	6365699.21	1548826.10	-329.93	363.00	347.67	-75.17	306.86	0.075	1.405	2.55	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365699.67	1548825.48	-332.83	366.00	350.57	-75.16	307.16	0.075	1.405	2.57	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365700.14	1548824.87	-335.73	369.00	353.47	-75.16	307.46	0.075	1.405	2.59	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365700.61	1548824.26	-338.63	372.00	356.37	-75.17	307.62	0.075	1.405	2.61	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365701.07	1548823.65	-341.53	375.00	359.27	-75.17	307.31	0.075	1.405	2.63	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365701.54	1548823.04	-344.43	378.00	362.17	-75.16	307.31	0.075	1.405	2.65	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365702.00	1548822.43	-347.33	381.00	365.07	-75.15	307.26	0.075	1.405	2.67	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365702.47	1548821.82	-350.23	384.00	367.97	-75.15	307.43	0.075	1.405	2.68	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365702.94	1548821.21	-353.13	387.00	370.87	-75.14	307.31	0.075	1.405	2.70	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365703.41	1548820.60	-356.03	390.00	373.77	-75.15	307.52	0.075	1.405	2.72	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365703.88	1548819.99	-358.93	393.00	376.67	-75.14	308.15	0.075	1.405	2.74	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365704.36	1548819.39	-361.83	396.00	379.57	-75.16	309.01	0.075	1.405	2.76	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365704.84	1548818.80	-364.73	399.00	382.47	-75.20	309.92	0.075	1.405	2.78	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365705.34	1548818.21	-367.63	402.00	385.37	-75.23	310.44	0.075	1.405	2.80	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365705.84	1548817.63	-370.53	405.00	388.27	-75.25	310.89	0.075	1.405	2.82	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365706.34	1548817.06	-373.43	408.00	391.17	-75.25	311.38	0.075	1.405	2.84	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365706.84	1548816.48	-376.33	411.00	394.07	-75.27	311.55	0.075	1.405	2.85	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365707.35	1548815.91	-379.24	414.00	396.97	-75.27	311.53	0.075	1.405	2.87	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365707.85	1548815.34	-382.14	417.00	399.88	-75.28	311.16	0.075	1.405	2.89	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365708.35	1548814.77	-385.04	420.00	402.78	-75.27	310.70	0.075	1.405	2.91	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365708.85	1548814.19	-387.94	423.00	405.68	-75.27	310.46	0.075	1.405	2.93	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365709.34	1548813.60	-390.84	426.00	408.58	-75.24	309.80	0.075	1.405	2.95	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365709.82	1548813.01	-393.74	429.00	411.48	-75.25	308.23	0.075	1.405	2.97	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365710.29	1548812.41	-396.64	432.00	414.38	-75.25	307.85	0.075	1.405	2.98	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365710.76	1548811.80	-399.54	435.00	417.28	-75.28	307.68	0.075	1.405	3.00	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365711.23	1548811.20	-402.45	438.00	420.19	-75.28	308.04	0.075	1.405	3.02	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365711.70	1548810.60	-405.35	441.00	423.09	-75.28	308.01	0.075	1.405	3.04	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365712.17	1548810.00	-408.25	444.00	425.99	-75.28	307.99	0.075	1.405	3.06	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365712.64	1548809.40	-411.15	447.00	428.89	-75.28	307.97	0.075	1.405	3.08	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365713.10	1548808.80	-414.05	450.00	431.79	-75.32	307.94	0.075	1.405	3.10	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365713.57	1548808.20	-416.95	453.00	434.69	-75.32	307.92	0.075	1.405	3.12	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365714.04	1548807.60	-419.86	456.00	437.60	-75.31	307.89	0.075	1.405	3.13	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365714.51	1548807.00	-422.76	459.00	440.50	-75.29	307.87	0.075	1.405	3.15	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365714.97	1548806.40	-425.66	462.00	443.40	-75.30	307.84	0.075	1.405	3.17	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365715.44	1548805.80	-428.56	465.00	446.30	-75.30	307.82	0.075	1.405	3.19	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365715.91	1548805.19	-431.46	468.00	449.20	-75.30	307.79	0.075	1.405	3.21	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365716.37	1548804.59	-434.37	471.00	452.10	-75.29	307.76	0.075	1.405	3.23	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365716.84	1548803.99	-437.27	474.00	455.01	-75.28	307.74	0.075	1.405	3.25	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365717.31	1548803.39	-440.17	477.00	457.91	-75.28	307.72	0.075	1.405	3.26	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365717.77	1548802.78	-443.07	480.00	460.81	-75.30	307.25	0.075	1.405	3.28	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365718.23	1548802.18	-445.97	483.00	463.71	-75.31	307.39	0.075	1.405	3.30	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365718.69	1548801.57	-448.87	486.00	466.61	-75.31	307.58	0.075	1.405	3.32	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365719.16	1548800.97	-451.78	489.00	469.51	-75.30	308.23	0.075	1.405	3.34	Measured	2007-02-13 10:04

KLX12A	RT90-RHB70	6365719.63	1548800.38	-454.68	492.00	472.42	-75.31	308.31	0.075	1.405	3.36	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365720.10	1548799.78	-457.58	495.00	475.32	-75.34	308.31	0.075	1.405	3.38	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365720.58	1548799.18	-460.48	498.00	478.22	-75.34	308.31	0.075	1.405	3.40	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365721.05	1548798.59	-463.38	501.00	481.12	-75.38	308.63	0.075	1.405	3.41	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365721.52	1548798.00	-466.29	504.00	484.03	-75.40	308.88	0.075	1.405	3.43	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365722.00	1548797.41	-469.19	507.00	486.93	-75.38	309.31	0.075	1.405	3.45	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365722.48	1548796.83	-472.09	510.00	489.83	-75.38	309.72	0.075	1.405	3.47	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365722.97	1548796.25	-475.00	513.00	492.74	-75.37	310.14	0.075	1.405	3.49	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365723.46	1548795.67	-477.90	516.00	495.64	-75.37	310.56	0.075	1.405	3.51	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365723.95	1548795.09	-480.80	519.00	498.54	-75.37	310.06	0.075	1.405	3.53	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365724.43	1548794.51	-483.70	522.00	501.44	-75.37	309.53	0.075	1.405	3.54	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365724.92	1548793.93	-486.61	525.00	504.35	-75.37	309.70	0.075	1.405	3.56	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365725.40	1548793.34	-489.51	528.00	507.25	-75.35	309.70	0.075	1.405	3.58	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365725.88	1548792.76	-492.41	531.00	510.15	-75.36	309.86	0.075	1.405	3.60	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365726.37	1548792.18	-495.32	534.00	513.05	-75.36	309.55	0.075	1.405	3.62	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365726.85	1548791.59	-498.22	537.00	515.96	-75.37	309.53	0.075	1.405	3.64	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365727.33	1548791.01	-501.12	540.00	518.86	-75.38	309.58	0.075	1.405	3.66	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365727.82	1548790.43	-504.02	543.00	521.76	-75.40	309.80	0.075	1.405	3.67	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365728.30	1548789.84	-506.93	546.00	524.67	-75.38	309.53	0.075	1.405	3.69	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365728.78	1548789.25	-509.83	549.00	527.57	-75.30	308.96	0.075	1.405	3.71	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365729.26	1548788.66	-512.73	552.00	530.47	-75.29	308.67	0.075	1.405	3.73	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365729.74	1548788.07	-515.63	555.00	533.37	-75.29	309.22	0.075	1.405	3.75	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365730.22	1548787.48	-518.53	558.00	536.27	-75.29	309.36	0.075	1.405	3.77	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365730.71	1548786.89	-521.44	561.00	539.17	-75.28	309.99	0.075	1.405	3.79	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365731.20	1548786.31	-524.34	564.00	542.08	-75.28	310.08	0.075	1.405	3.80	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365731.69	1548785.73	-527.24	567.00	544.98	-75.28	309.90	0.075	1.405	3.82	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365732.17	1548785.14	-530.14	570.00	547.88	-75.31	309.10	0.075	1.405	3.84	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365732.65	1548784.55	-533.04	573.00	550.78	-75.33	308.94	0.075	1.405	3.86	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365733.12	1548783.96	-535.95	576.00	553.68	-75.41	308.87	0.075	1.405	3.88	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365733.60	1548783.37	-538.85	579.00	556.59	-75.37	309.68	0.075	1.405	3.90	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365734.09	1548782.79	-541.75	582.00	559.49	-75.47	309.71	0.075	1.405	3.92	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365734.57	1548782.21	-544.66	585.00	562.39	-75.49	309.53	0.075	1.405	3.93	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365735.04	1548781.63	-547.56	588.00	565.30	-75.50	309.23	0.075	1.405	3.95	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365735.52	1548781.05	-550.46	591.00	568.20	-75.49	309.23	0.075	1.405	3.97	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365735.99	1548780.46	-553.37	594.00	571.11	-75.47	308.52	0.075	1.405	3.99	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365736.46	1548779.87	-556.27	597.00	574.01	-75.45	308.49	0.075	1.405	4.01	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365736.92	1548779.28	-559.18	600.00	576.92	-75.44	307.29	0.075	1.405	4.03	Measured	2007-02-13 10:04
KLX12A	RT90-RHB70	6365737.27	1548778.82	-561.39	602.29	579.13	-75.44	307.29	0.075	1.405	4.04	Measured	2007-02-13 10:04

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