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## **Oskarshamn site investigation**

### **Boremap mapping of core drilled borehole KLX11A**

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Geosigma AB

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December 2007

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*Keywords:* KLX11A, Geology, Drill core mapping, Boremap, Fractures, BIPS, Laxemar.

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

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

A pdf version of this document can be downloaded from [www.skb.se](http://www.skb.se).

## Abstract

This report presents the Boremap mapping of KLX11A, which is a c. 992 m long core drilled borehole. The borehole was drilled with declination  $86.7^\circ$  and inclination  $-73.3^\circ$  and mapping was conducted between 2006-05-08 and 2006-05-18.

The lithology in KLX11A consists of 97.0% quartz monzodiorite (501036), 1.9% fine-grained diorite-gabbro (505102), 0.5% pegmatite (501061) and 0.1% fine-grained granite (511058).

Ten sections have been highlighted based on anomalous fracture frequencies, alterations and structural features. These sections cover the following intervals: 168–171 m, 244–268 m, 306–309 m, 345–350 m, 495–513 m, 522–539 m, 575–85 m, 597–602 m, 849–861 m and 974–975 m. In some cases these sections are associated with lithological changes. Another notable feature is the presence of five gouges in the borehole, occurring at 143, 509, 525, 598 and 863 meters length.

## Sammanfattning

Denna rapport presenterar boremapkarteringen av KLX11A som är ett ca 992 meter långt kärnborrhål. Borrhålet borrades med deklination 86.7° och inklinationen -73.3°. Borrhålet karterades mellan 2006-05-08 och 2006-05-18.

KLX11A utgörs av 97.0 % kvartsmonzodiorit (501036) 1.9 % finkornig diorit-gabbro (505102), 0.5 % pegmatit (501061) och 0.2 % finkornig granit (511058)

Tio sektioner i KLX11A kan urskiljas baserat på förhöjd sprickfrekvens, sidobergsomvandlingar och geologiska strukturer. Dessa sektioner återfinns i följande intervall: 168–171 m, 244–268 m, 306–309 m, 345–350 m, 495–513 m, 522–539 m, 575–85 m, 597–602 m, 849–861 m och 974–975 m. Dessa sektioner är ibland associerade med litologiska förändringar. Noterbart är fem partier med tektoniskt nedmald bergart, (gouge), som förekommer vid borrhålsdjupen 143, 509, 525, 598 och 863 m.

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# 1 Introduction

This document reports the data gained from the mapping of KLX11A 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 400-06-041. In Table 1-1 controlling documents for performing this activity are listed. Both activity plan and method descriptions are SKB's internal controlling documents. Rock type nomenclature that has been used is shown in Table 1-2.

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.

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

<b>Activity plan</b>	<b>Number</b>	<b>Version</b>
Boremapkartering av KLX11A	AP PS 400-06-041	1.0
<b>Method descriptions</b>	<b>Number</b>	<b>Version</b>
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

**Table 1-2. Rock type nomenclature for the site investigation at Oskarshamn.**

<b>Rock type</b>	<b>Rock code</b>	<b>Rock description</b>
Dolerite	501027	Dolerite
Fine-grained Götemar granite	531058	Granite, fine-to medium-grained, ("Götemar granite")
Coarse-grained Götemar granite	521058	Granite, coarse-grained, ("Götemar granite")
Fine-grained granite	511058	Granite, fine-to medium-grained
Pegmatite	501061	Pegmatite
Granite	501058	Granite, medium- to coarse-grained
Ävrö granite	501044	Granite to quartz monzodiorite, generally porphyritic
Quartz monzodiorite	501036	Quartz monzonite to monzodiorite, equigranular to weakly porphyritic
Diorite/gabbro	501033	Diorite to gabbro
Fine-grained dioritoid	501030	Intermediate magmatic rock
Fine-grained diorite-gabbro	505102	Mafic rock, fine-grained
Sulphide mineralization	509010	Sulphide mineralization
Sandstone	506007	Sandstone

Borehole KLX11A is situated within the Laxemar area (Figure 1-1). KLX11A is a c 992 m long telescopic borehole with orientation 86.7/−73.3°. Mapping of the borehole was conducted between 2006-05-08 and 2006-05-18.

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.



Figure 1-1. Location of the core drilled borehole KLX11A.

## **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 KLX11A. 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 KLX11A 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 a 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 KLX11A covers the interval 100.79–990.14 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 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 KLX11A is presented in Table 3-1.

The BIPS-image for KLX11A is in general good to acceptable with exception for bad BIPS-image in the interval 595–698 m.

**Table 3-1. BIPS-image quality in KLX11A.**

From (m)	To (m)	Quality
100	105	Bad
105	400	Good
400	595	Acceptable
595	698	Bad
698	990	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 400-06-041 (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 kärnbrorrhål* (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*.

Mapping was performed by Gunnar Rauséus, Stefan Eklund, Karl-Johan Mattsson (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 meter (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 m 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
- X5 Bleached 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  $\geq 1$  m and frequencies for parameters with a width  $< 1$  m. Frequency information is treated as 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

BIPS-image is missing in the following intervals; 288.87–288.99 m, 319.82–319.95 m and 579.71–579.92 m.

## 5 Results

### 5.1 General

Borehole KLX11A is oriented with declination 86.7° and inclination –73.3°. The drill core is c. 892 m long and covers the interval 100.03–992.29 m while the BIPS-image covers the interval 100.79–990.14 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 400-06-041). 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](http://www.skb.se).

### 5.2 Lithology and structures

The lithology in KLX11A (Table 5-1) is dominated by quartz monzodiorite (501036). Subordinated rock types are fine-grained diorite-gabbro (505102), pegmatite (501061) and fine-grained granite (511058).

Ten sections in KLX11A are recognized by anomalous fracture frequencies, alterations and structural features.

**Table 5-1. Lithology distribution in KLX11A.**

%	Rock types
97.0	Quartz monzodiorite (501036)
1.9	Fine-grained diorite-gabbro (505102)
0.5	Pegmatite (501061)
0.1	Fine-grained granite (511058)



### **Section interval characteristics**

1. 168–171 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, crush zones, brittle ductile shear zones, and red staining occurs in this section.
2. 244–268 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, crush zones, foliation, lineation, red staining and saussuritization occurs within this section. This interval also includes intrusions of fine-grained diorite-gabbro (505102) and fine-grained granite (511058) in the quartz monzodiorite (501036).
3. 306–309 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, crush zones, brittle-ductile shear zones, foliation and red staining occurs within this section. This interval also includes an intrusion of fine-grained granite (511058) in the quartz monzodiorite (501036).
4. 345–350 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, foliation, red staining and saussuritization occurs within this section.
5. 495–513 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, cataclasites, ductile and brittle-ductile shear zones, breccia, crush zones, gouge, foliation, red staining and chloritization occurs within this section.
6. 522–539 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, brittle-ductile shear zones, gouge, foliation and red staining occurs within this section. This interval also includes an intrusion of fine-grained diorite-gabbro (505102) in the quartz monzodiorite (501036).
7. 575–585 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, breccia, cataclasite, ductile and brittle-ductile shear zones, crush zone, foliation and red staining occurs within this section.
8. 597–602 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, breccia, brittle-ductile shear zones, gouge, foliation and red staining occurs within this section.
9. 849–861 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, brittle-ductile shear zones, breccia, gouge, foliation, mylonite and red staining occurs within this section.
10. 974–975 m. Increased frequency of open fractures, sealed fracture network, brittle-ductile shear zones and mylonite occurs within this section.

### **5.3 Fracture mineralogy**

Chlorite and calcite are the most frequently occurring minerals in both open and sealed fractures (Tables 5-2 and 5-3). Subordinate minerals in open fractures are clay minerals, pyrite and oxidized fracture walls. Subordinated in sealed fractures are saussuritized walls (X8) and quartz. Clay minerals are more abundant in open fractures but seem 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. Gouges occur at 143, 509, 525, 598 and 863 m drill core length.

**Table 5-2. Frequency of minerals and rock wall alteration in open fractures.**

<b>%</b>	<b>Mineral</b>
85.7	Chlorite
83.8	Calcite
31.0	Clay minerals
22.4	Pyrite
14.2	Oxidized walls
10.4	Epidote
8.7	Hematite
4.7	Prehnite
2.7	X8, Saussuritized walls
2.2	Quartz
< 2.2	Laumontite, X5 bleached fracture walls, X1 Gypsum, adularia, biotite, white feldspar, fluorite and red feldspar, X7 (no mineral)

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

<b>%</b>	<b>Mineral</b>
44.5	Calcite
32.4	Chlorite
21.6	X8, Saussuritized walls
16.3	Quartz
8.9	White feldspar
7.1	Epidote
3.8	X5, Bleached fracture walls
2.7	Adularia
2.0	Pyrite
< 2.0	Hematite, clay minerals, red feldspar, unknown mineral, laumontite, chalcopyrite, biotite and fluorite, X7 (no mineral)



## 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
<b>Rock type</b>	Lithology	5	Sub 1		Interval
	Grain size	5	Sub 5		Interval
	Texture	5	Sub 6		Interval
<b>Alteration</b>	Type	7	Sub 1 = 700		Interval
	Intensity	7	Sub 1 = 700	Sub 2	Interval
<b>Rock occurrence</b>	Vein + dyke	31	Sub 1 = 2 and 18		Frequence
<b>Structure</b>	Shear zone, < 1m wide	31	Sub 4 = 41 and 42		Frequence
	Brecciated, < 1m wide	31	Sub 4 = 7		Frequence
	Brecciated, >= 1m wide	5	Sub 3 = 7	Sub 4; 101 and 102 = 102	Interval
		5	Sub 3 = 7	Sub 4; 103 and 104 = 104	
	Mylonite, < 1 m wide	31	Sub 4 = 34		Frequence
	Mylonite, >= 1 m wide	5	Sub 3 = 34	Sub 4; 101 and 102 = 102	Interval
		5	Sub 3 = 34	Sub 4; 103 and 104 = 104	
	Foliated, < 1 m wide	31	Sub 4 = 81		Frequence
Foliated, >= 1 m wide	5	Sub 3 = 81	Sub 4; 101 and 102 = 102	Interval	
	5	Sub 3 = 81	Sub 4; 103 and 104 = 104		
<b>Sealed fracture</b>	All unbroken fractures and broken fractures	3			Frequence
		2	SNUM 11= 0		
	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	
<b>Open fractures</b>	All, Aperture > 0	2 and 3	SNum 11>0		Frequence
	Uncertain, Aperture = 0.5 possible and 0.5 probable	2 and 3	SNum 11>0	Sub 12 = 3	Frequence
		2 and 3	SNum 11>0	Sub 12 = 2	
	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 KLX11A**

**Borehole Image Report**

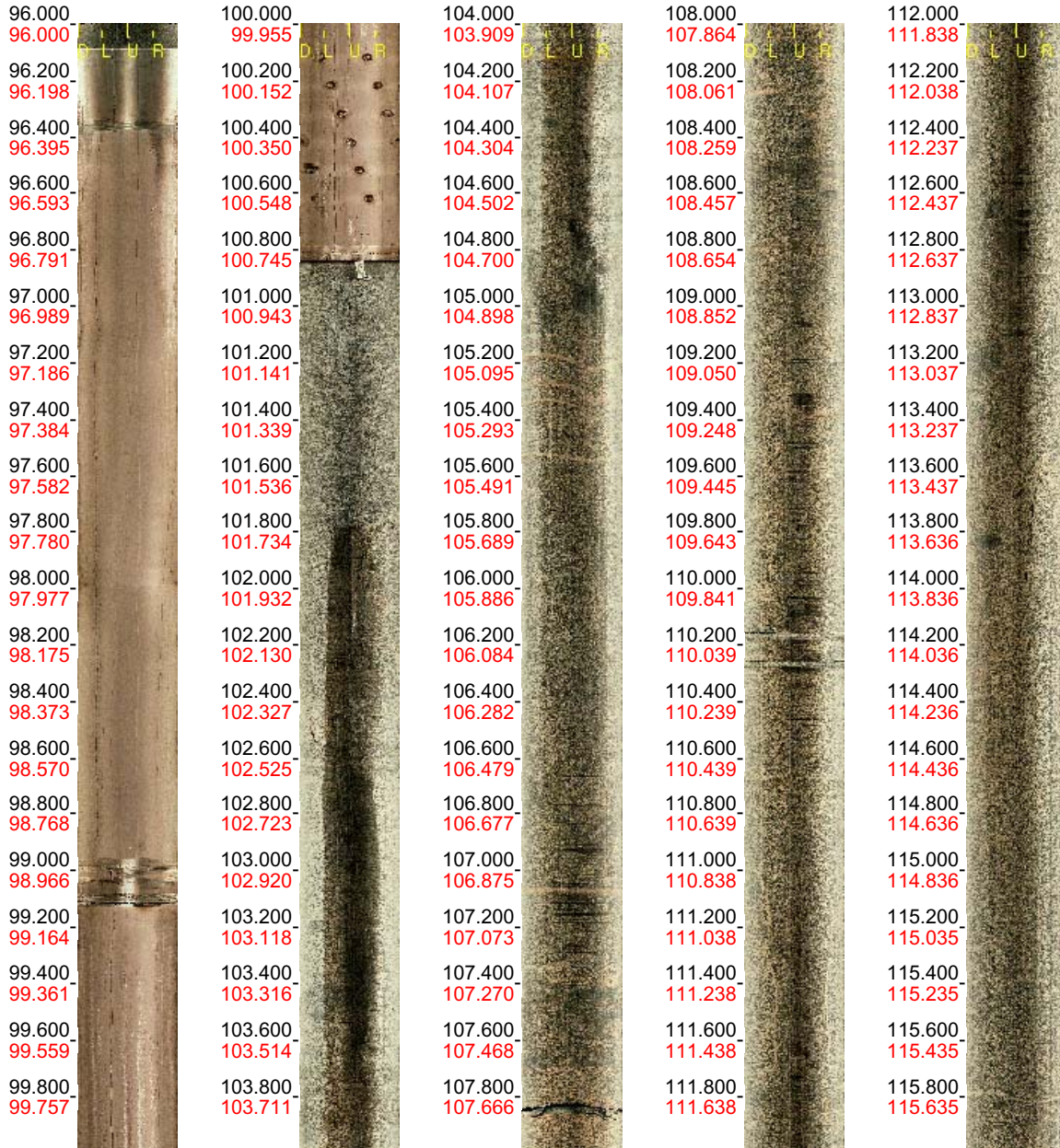
Borehole Name: KLX11A  
Mapping Name: KLX11A\_Geosigma\_1  
Mapping Range: 96.000 - 1000.000 m  
Diameter: 76.0 mm  
Printed Range: 96.000 - 989.440  
Pages: 46

Image File Information:

File: D:\BIPSbilder\KLX11A\KLX11A\_101-989.BIP  
Date/Time: 2006-04-05 08:34:00  
Start Depth: 96.000 m  
End Depth: 989.440 m  
Resolution: 1.00 mm/pixel (depth)  
Orientation: Gravmetric  
Image height: 893440 pixels  
Image width: 360 pixels  
BIP Version: BIP-III  
Locality: LAXEMAR  
Borehole: KLX11A  
Scan Direction: Down  
Color adjust: 0 0 0 (RGB)

Borehole: KLX11A  
 Mapping: KLX11A\_Geosigma\_1

Depth range: 96.000 - 116.000 m  
 Azimuth: 86.7  
 Inclination: -73.3



Printed: 2006-05-18 18:11:05

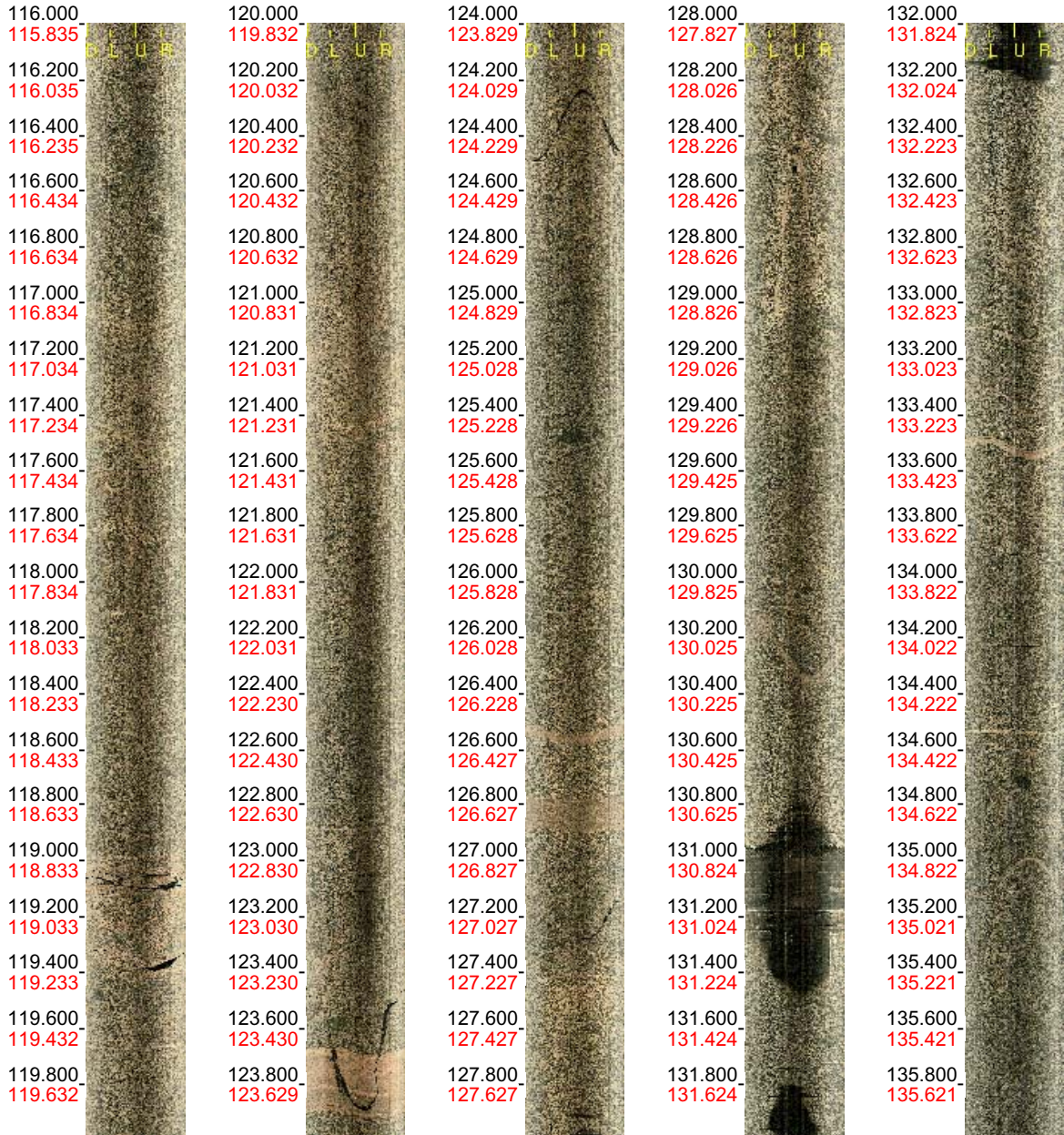
Scale: 1 : 20

Aspect: 150 %

2 (46)

Borehole: KLX11A  
 Mapping: KLX11A\_Geosigma\_1

Depth range: 116.000 - 136.000 m  
 Azimuth: 87.4  
 Inclination: -72.9



Printed: 2006-05-18 18:11:05

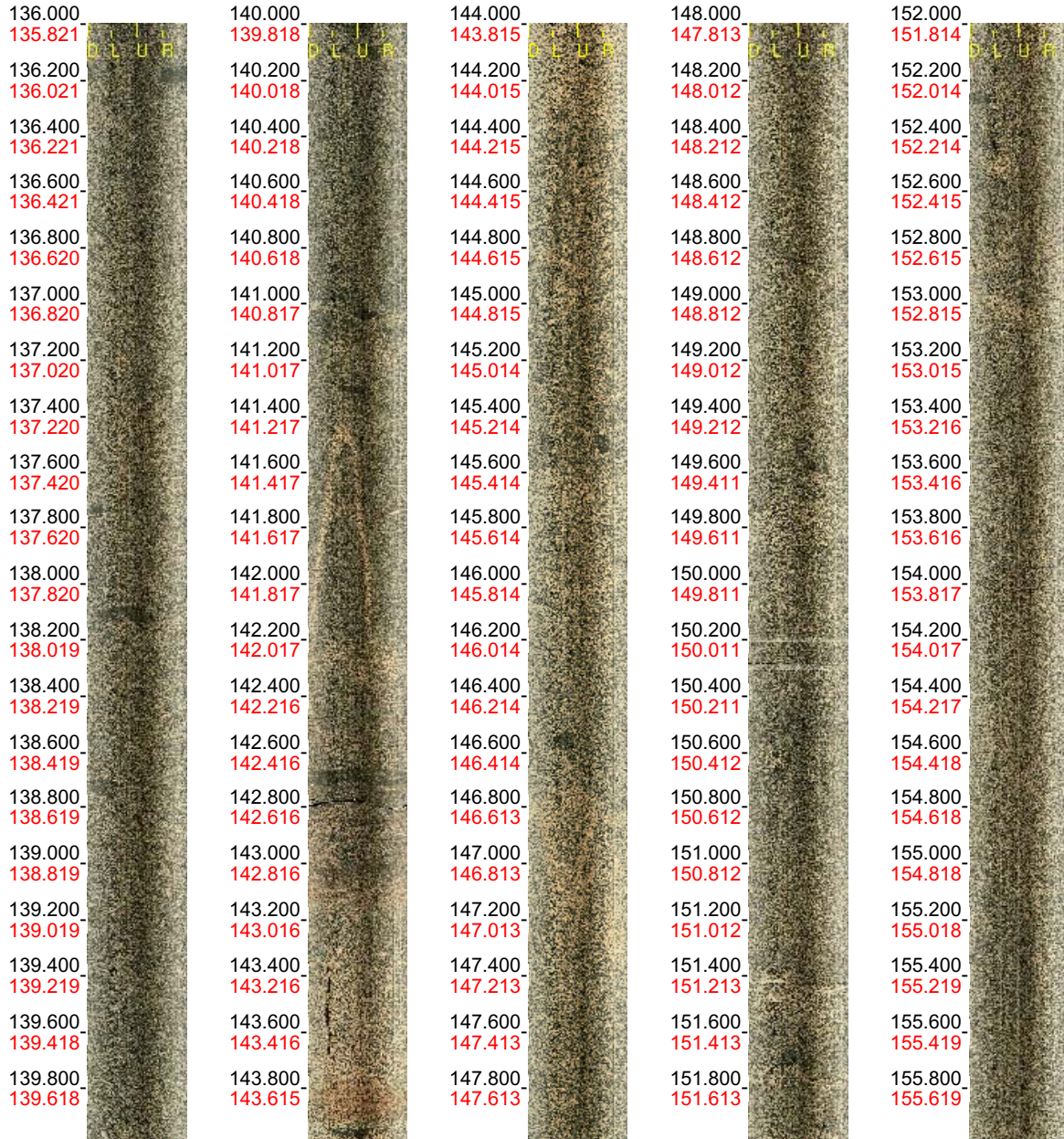
Scale: 1 : 20

Aspect: 150 %

3 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 136.000 - 156.000 m  
Azimuth: 87.4  
Inclination: -72.8



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

4 (46)



Borehole: KLX11A  
 Mapping: KLX11A\_Geosigma\_1

Depth range: 156.000 - 176.000 m  
 Azimuth: 87.4  
 Inclination: -72.7



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

5 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 176.000 - 196.000 m  
Azimuth: 87.5  
Inclination: -72.5



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

6 (46)

Borehole: KLX11A  
 Mapping: KLX11A\_Geosigma\_1

Depth range: 196.000 - 216.000 m  
 Azimuth: 87.5  
 Inclination: -72.2



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

7 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 216.000 - 236.000 m  
Azimuth: 88.1  
Inclination: -72.2



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

8 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 236.000 - 256.000 m  
Azimuth: 88.2  
Inclination: -71.9



Printed: 2006-05-18 18:11:05

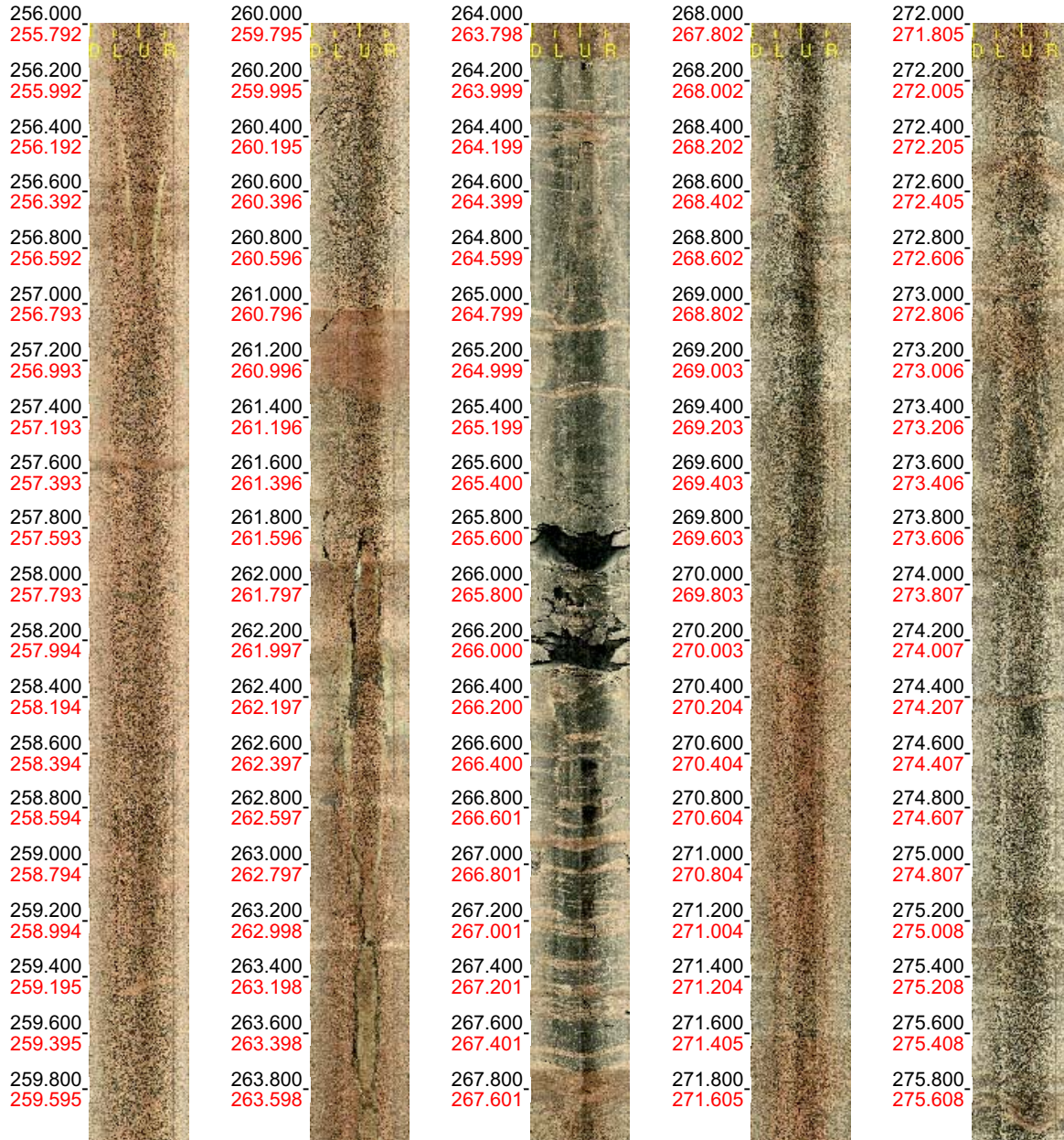
Scale: 1 : 20

Aspect: 150 %

9 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 256.000 - 276.000 m  
Azimuth: 87.5  
Inclination: -71.9



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

10 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 276.000 - 296.000 m  
Azimuth: 88.2  
Inclination: -71.7



Printed: 2006-05-18 18:11:05

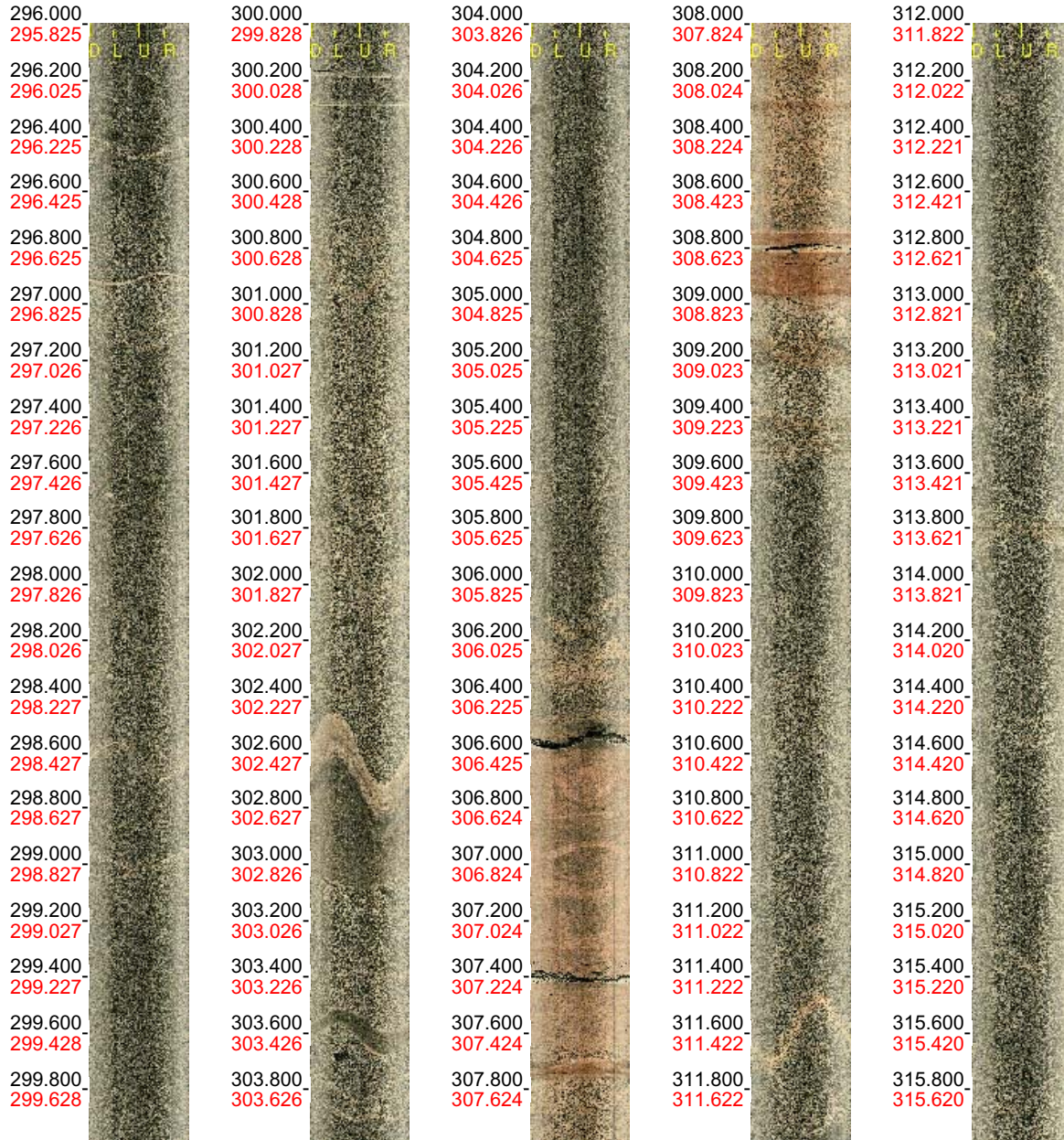
Scale: 1 : 20

Aspect: 150 %

11 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 296.000 - 316.000 m  
Azimuth: 88.8  
Inclination: -71.5



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

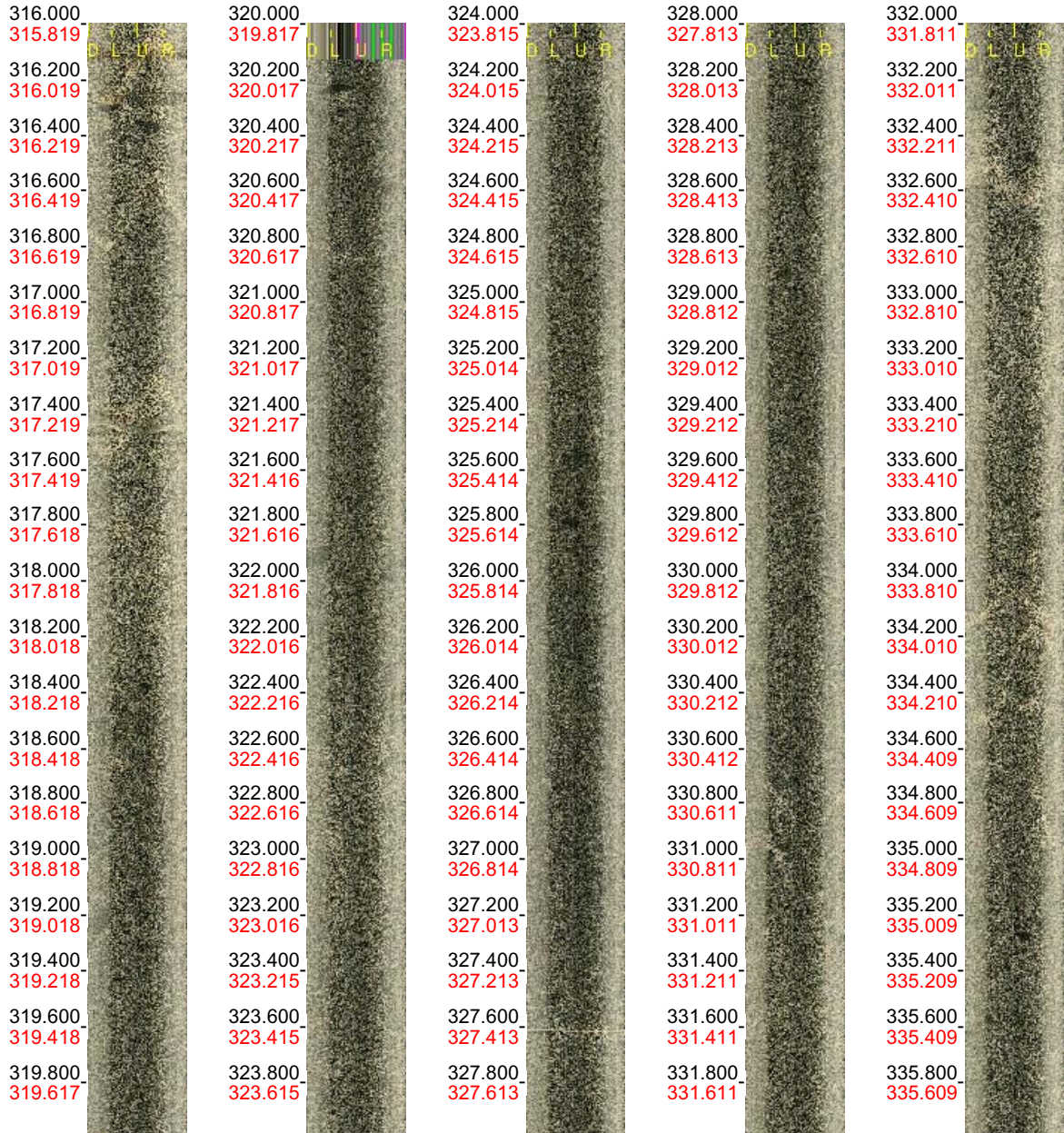
Aspect: 150 %

12 (46)



Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 316.000 - 336.000 m  
Azimuth: 88.8  
Inclination: -71.7



Printed: 2006-05-18 18:11:05

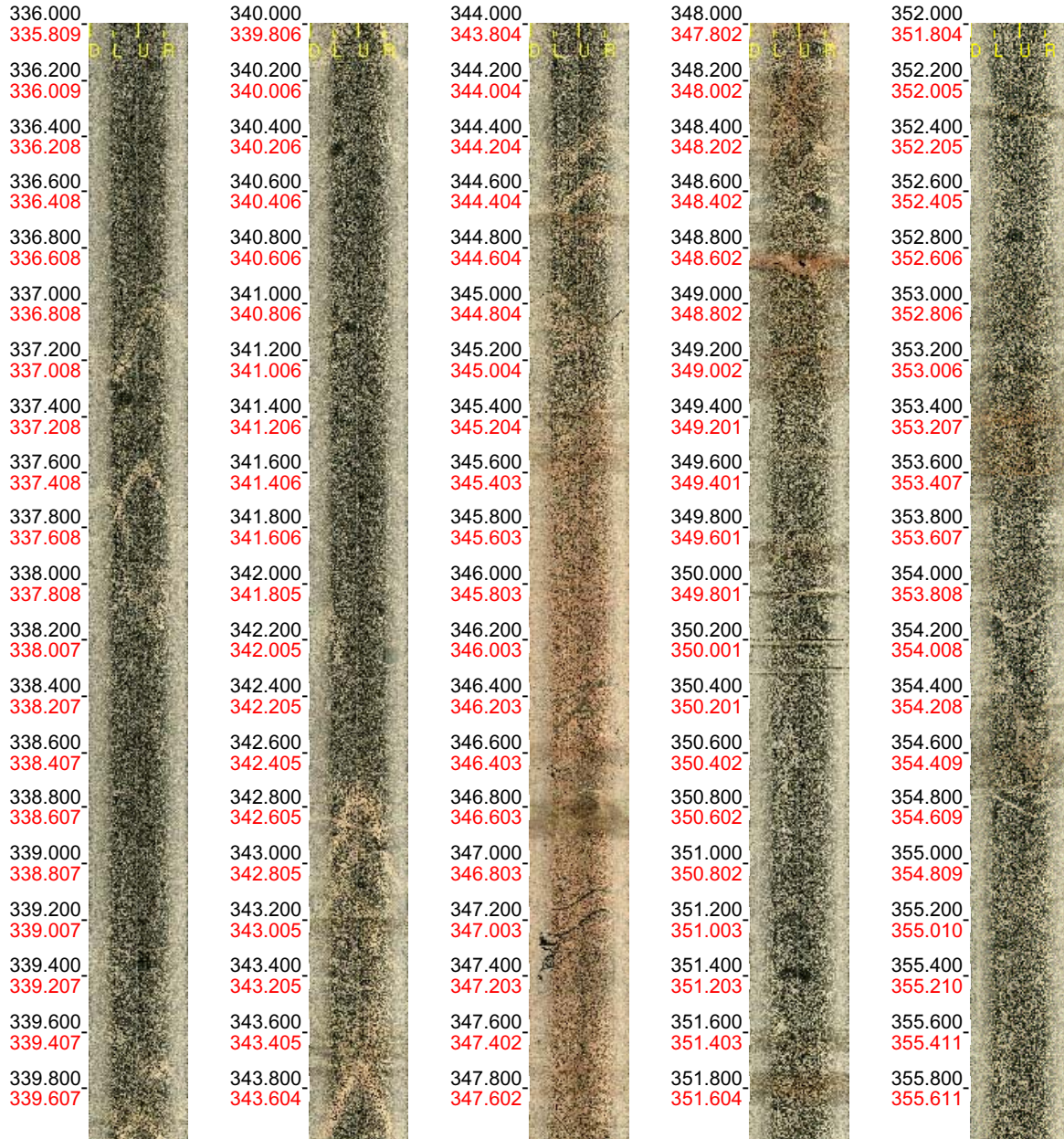
Scale: 1 : 20

Aspect: 150 %

13 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 336.000 - 356.000 m  
Azimuth: 88.8  
Inclination: -71.4



Printed: 2006-05-18 18:11:05

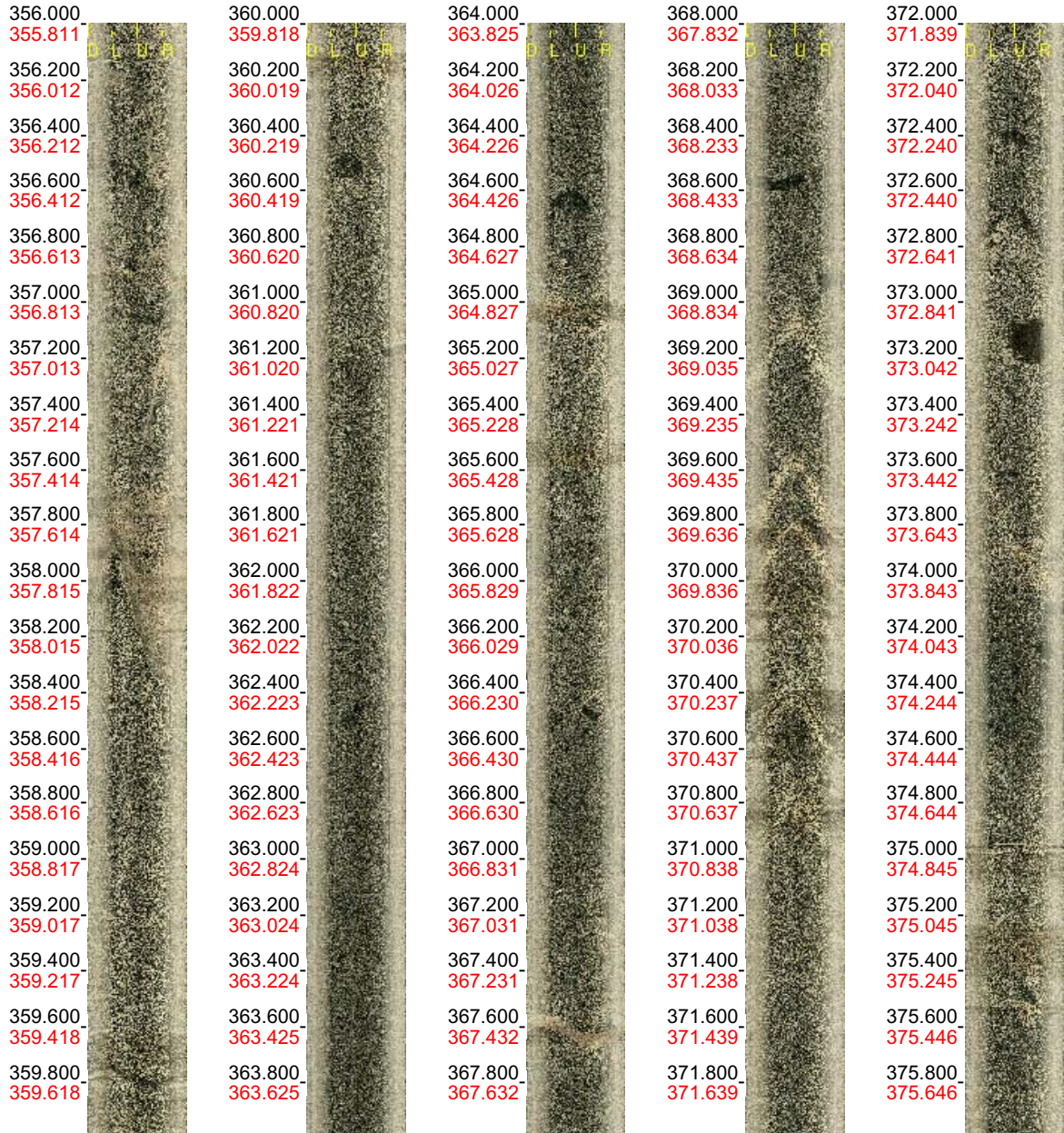
Scale: 1 : 20

Aspect: 150 %

14 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 356.000 - 376.000 m  
Azimuth: 88.8  
Inclination: -71.4



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

15 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 376.000 - 396.000 m  
Azimuth: 88.8  
Inclination: -71.3



Printed: 2006-05-18 18:11:05

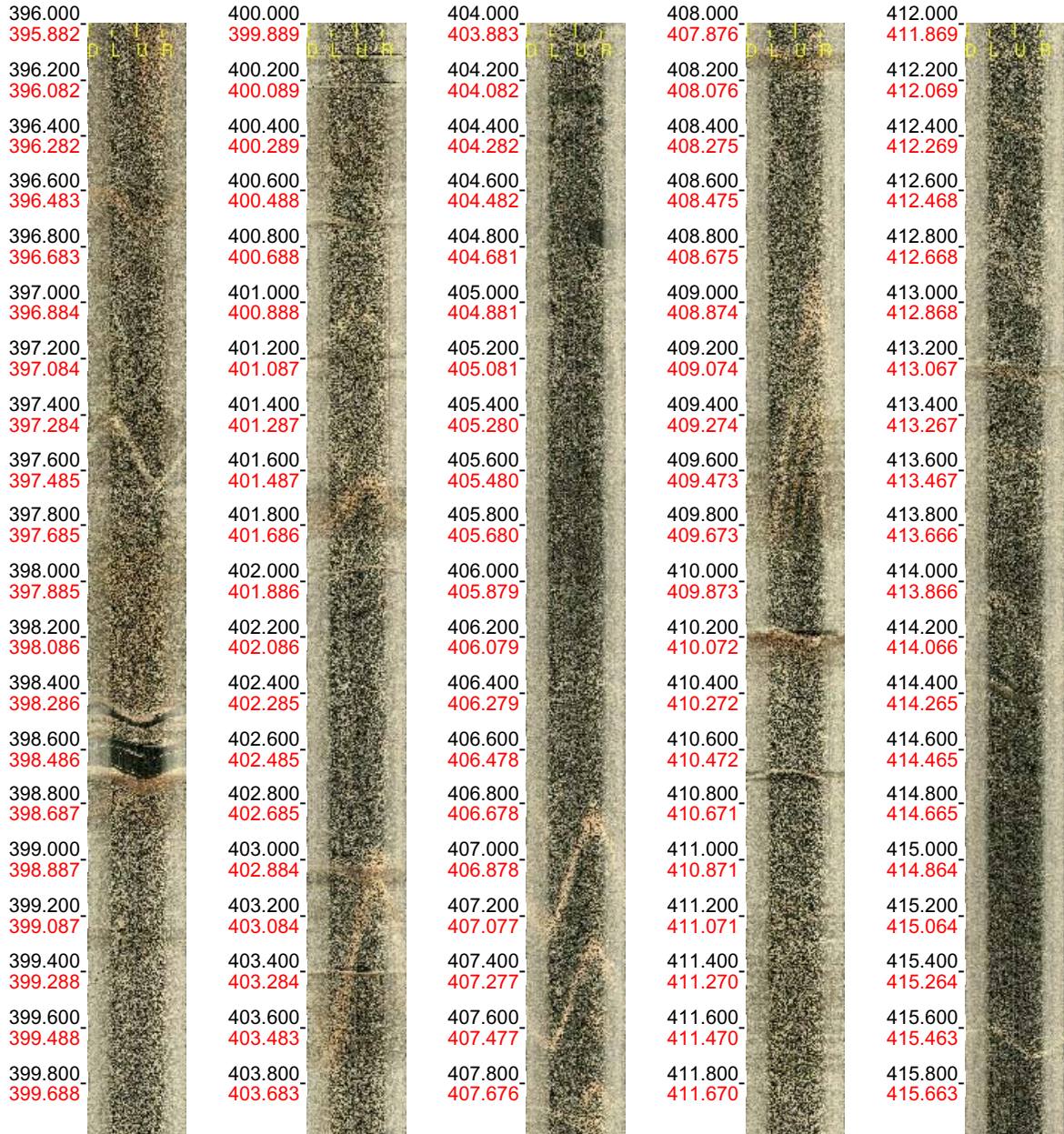
Scale: 1 : 20

Aspect: 150 %

16 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 396.000 - 416.000 m  
Azimuth: 89.4  
Inclination: -71.1



Printed: 2006-05-18 18:11:05

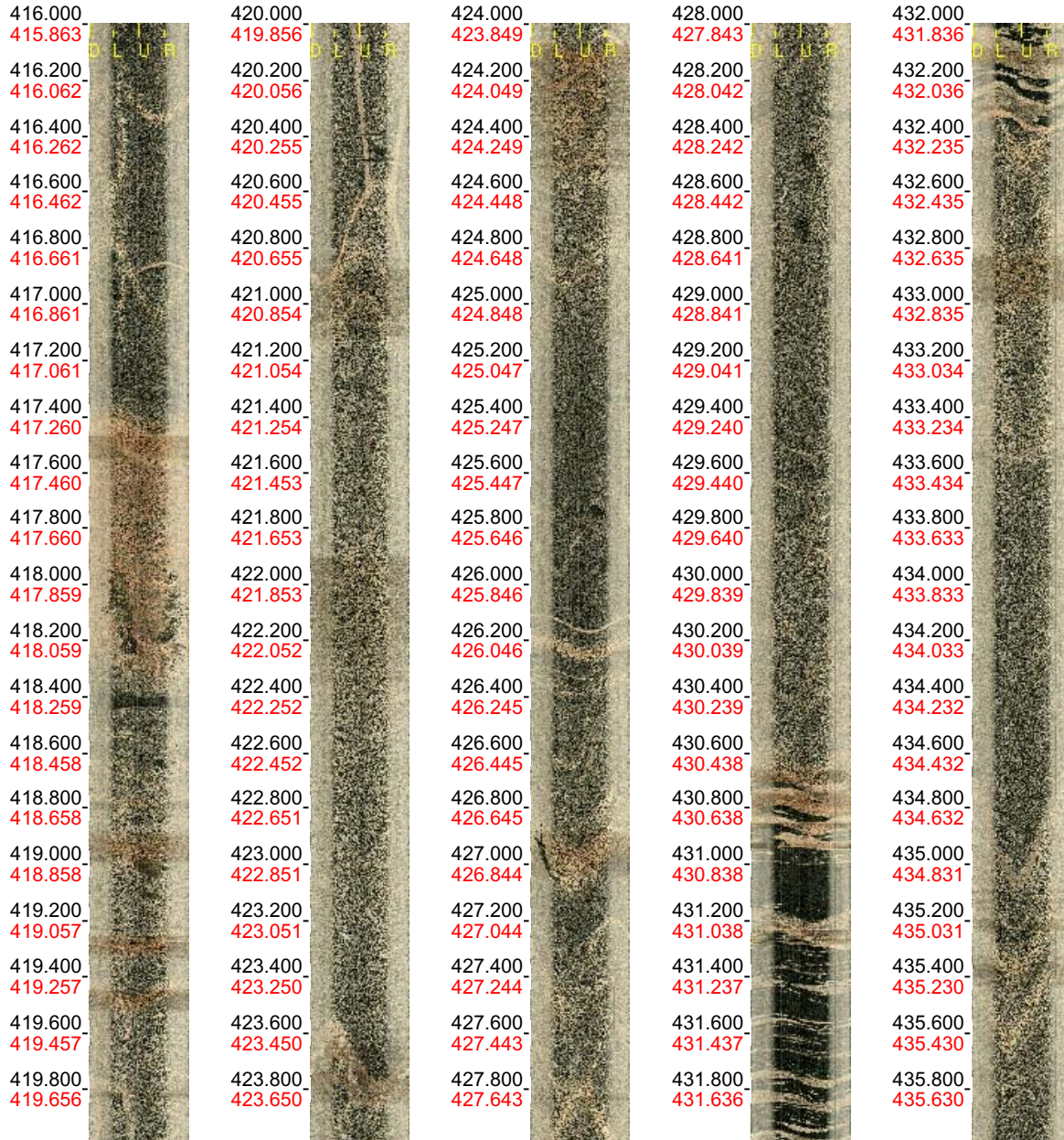
Scale: 1 : 20

Aspect: 150 %

17 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 416.000 - 436.000 m  
Azimuth: 89.4  
Inclination: -71.1



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

18 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 436.000 - 456.000 m  
Azimuth: 89.4  
Inclination: -71.1



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

19 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 456.000 - 476.000 m  
Azimuth: 89.4  
Inclination: -71.1



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

20 (46)



Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 476.000 - 496.000 m  
Azimuth: 89.4  
Inclination: -71.0



Printed: 2006-05-18 18:11:05

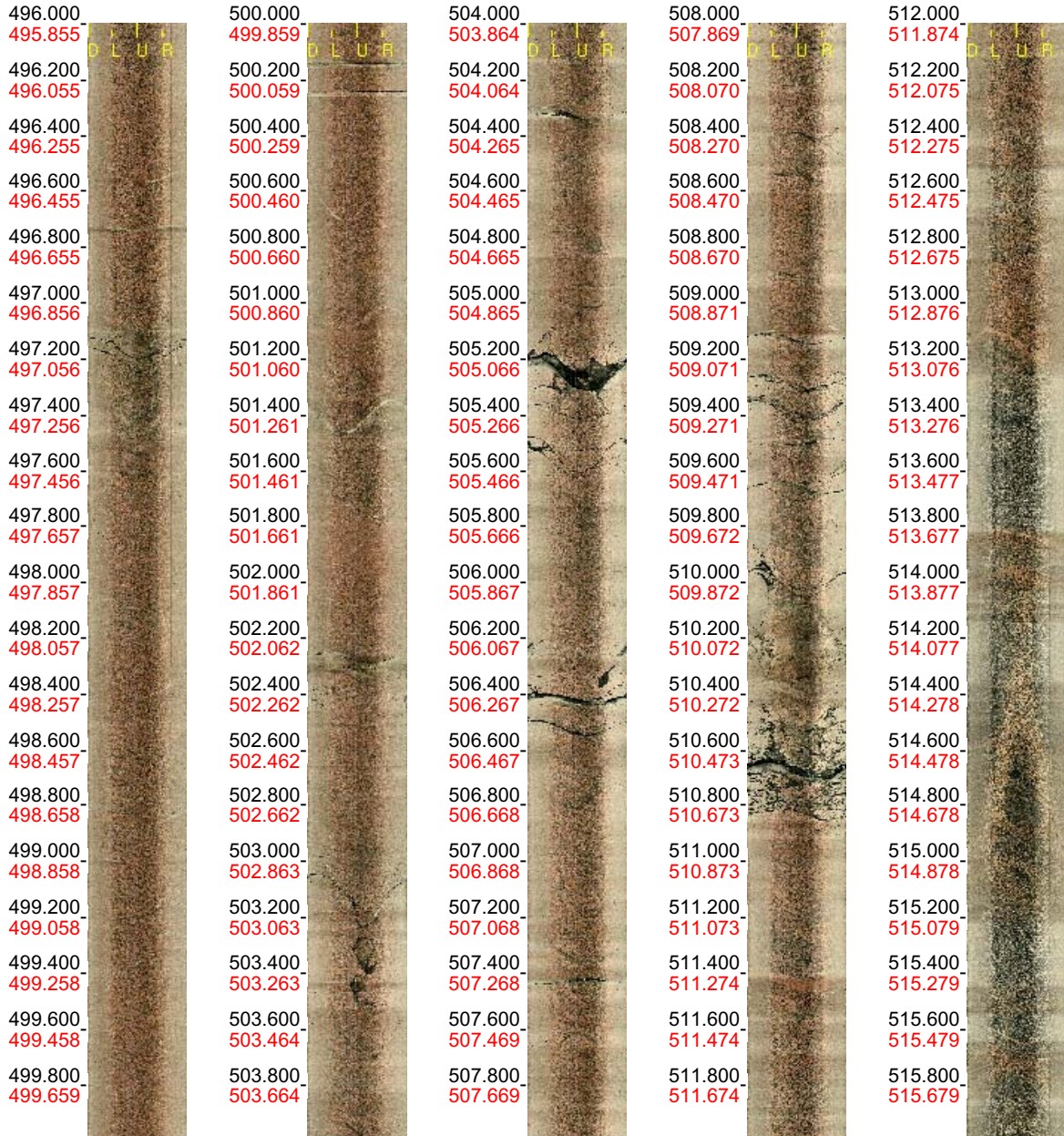
Scale: 1 : 20

Aspect: 150 %

21 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 496.000 - 516.000 m  
Azimuth: 89.4  
Inclination: -70.8



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

22 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 516.000 - 536.000 m  
Azimuth: 89.4  
Inclination: -70.7



Printed: 2006-05-18 18:11:05

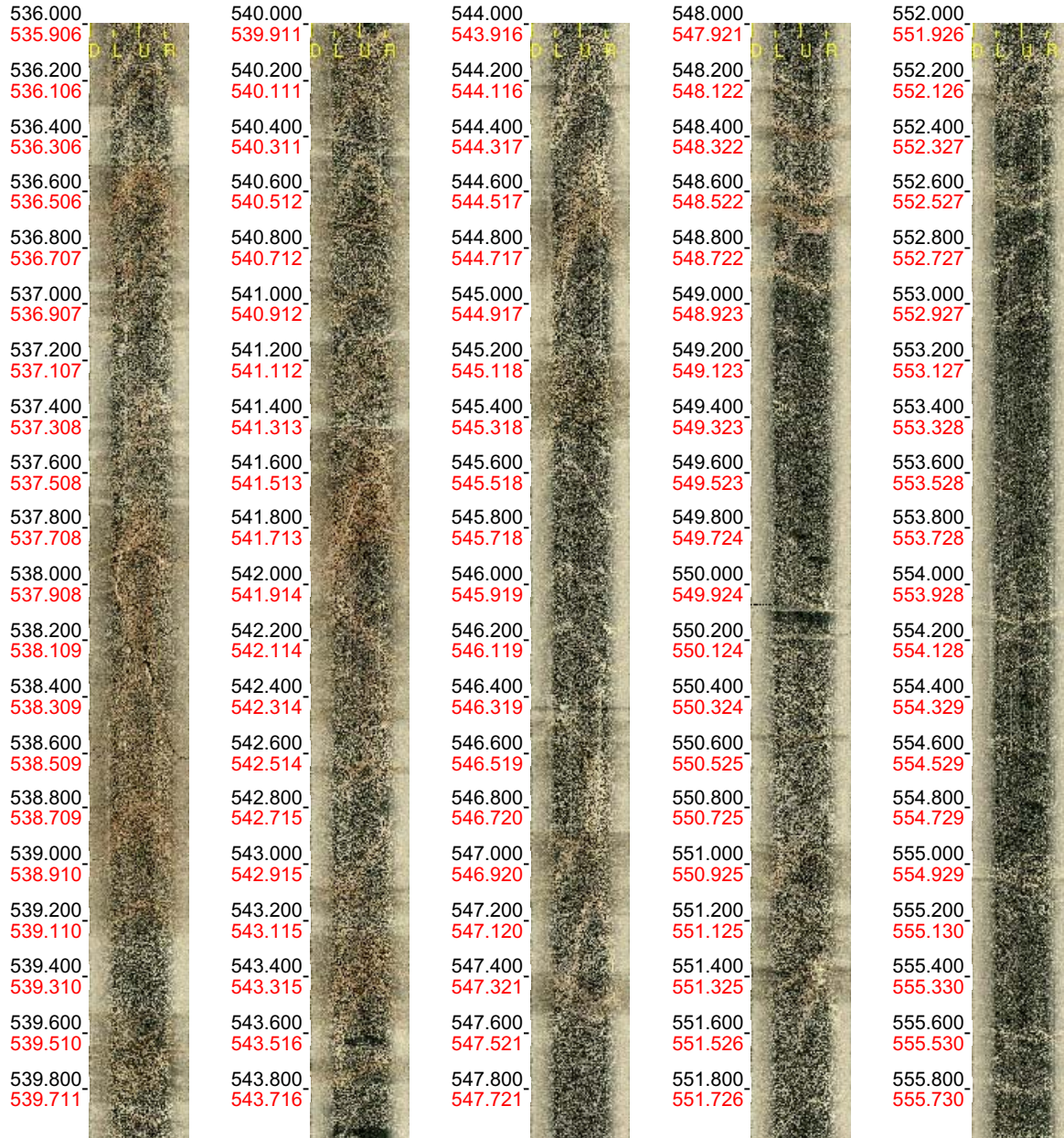
Scale: 1 : 20

Aspect: 150 %

23 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 536.000 - 556.000 m  
Azimuth: 89.4  
Inclination: -70.7



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

24 (46)

Borehole: KLX11A  
 Mapping: KLX11A\_Geosigma\_1

Depth range: 556.000 - 576.000 m  
 Azimuth: 90.0  
 Inclination: -70.7



Printed: 2006-05-18 18:11:05

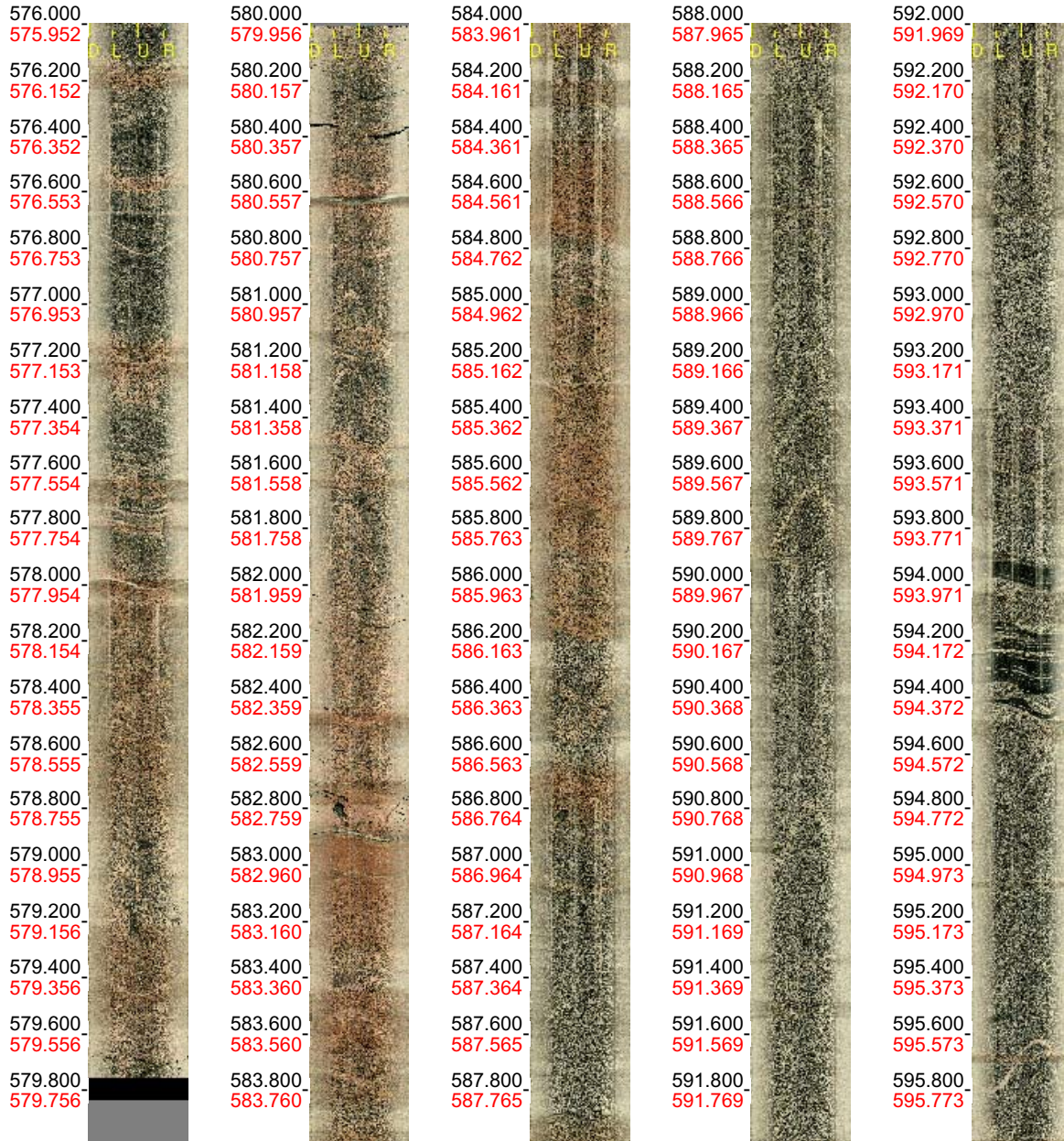
Scale: 1 : 20

Aspect: 150 %

25 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 576.000 - 596.000 m  
Azimuth: 90.0  
Inclination: -70.5



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

26 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 596.000 - 616.000 m  
Azimuth: 90.6  
Inclination: -70.4



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

27 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 616.000 - 636.000 m  
Azimuth: 90.6  
Inclination: -70.1



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

28 (46)



Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 636.000 - 656.000 m  
Azimuth: 91.7  
Inclination: -69.9



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

29 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 656.000 - 676.000 m  
Azimuth: 91.7  
Inclination: -69.7



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

30 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 676.000 - 696.000 m  
Azimuth: 92.2  
Inclination: -69.7



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

31 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 696.000 - 716.000 m  
Azimuth: 92.2  
Inclination: -69.3



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

32 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 716.000 - 736.000 m  
Azimuth: 92.2  
Inclination: -69.3



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

33 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 736.000 - 756.000 m  
Azimuth: 92.7  
Inclination: -69.1



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

34 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 756.000 - 776.000 m  
Azimuth: 92.7  
Inclination: -68.9



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

35 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 776.000 - 796.000 m  
Azimuth: 93.2  
Inclination: -68.9



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

36 (46)



Borehole: KLX11A  
 Mapping: KLX11A\_Geosigma\_1

Depth range: 796.000 - 816.000 m  
 Azimuth: 93.2  
 Inclination: -68.6



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

37 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 816.000 - 836.000 m  
Azimuth: 93.1  
Inclination: -68.5



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

38 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 836.000 - 856.000 m  
Azimuth: 93.6  
Inclination: -68.3



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

39 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 856.000 - 876.000 m  
Azimuth: 94.1  
Inclination: -68.0



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

40 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 876.000 - 896.000 m  
Azimuth: 93.6  
Inclination: -68.0



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

41 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 896.000 - 916.000 m  
Azimuth: 94.0  
Inclination: -67.8



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

42 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 916.000 - 936.000 m  
Azimuth: 94.0  
Inclination: -67.7



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

43 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 936.000 - 956.000 m  
Azimuth: 94.5  
Inclination: -67.4



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

44 (46)



Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 956.000 - 976.000 m  
Azimuth: 94.5  
Inclination: -67.3



Printed: 2006-05-18 18:11:05

Scale: 1 : 20

Aspect: 150 %

45 (46)

Borehole: KLX11A  
Mapping: KLX11A\_Geosigma\_1

Depth range: 976.000 - 989.440 m  
Azimuth: 94.9  
Inclination: -67.2




Printed: 2006-05-18 18:11:05

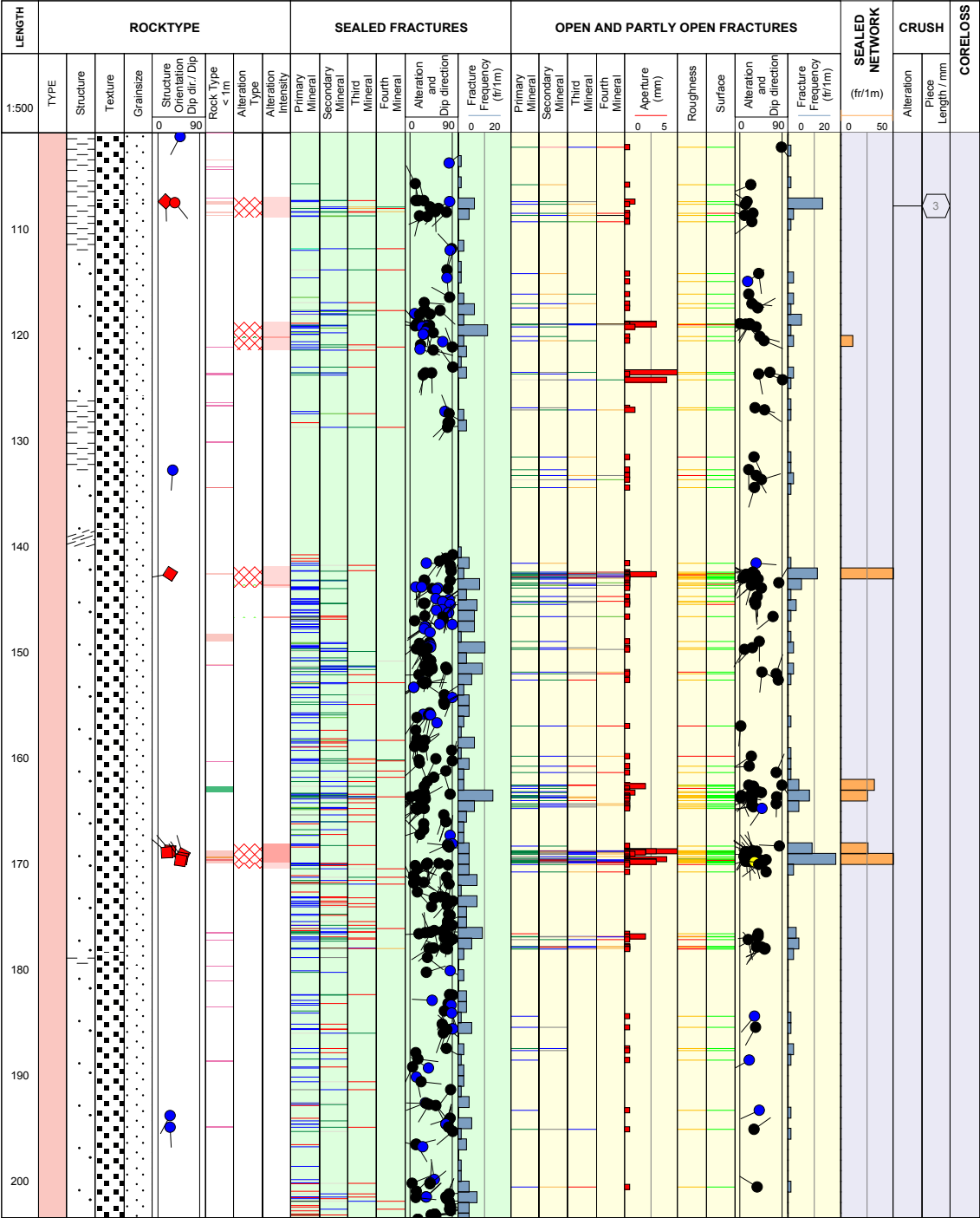
Scale: 1 : 20

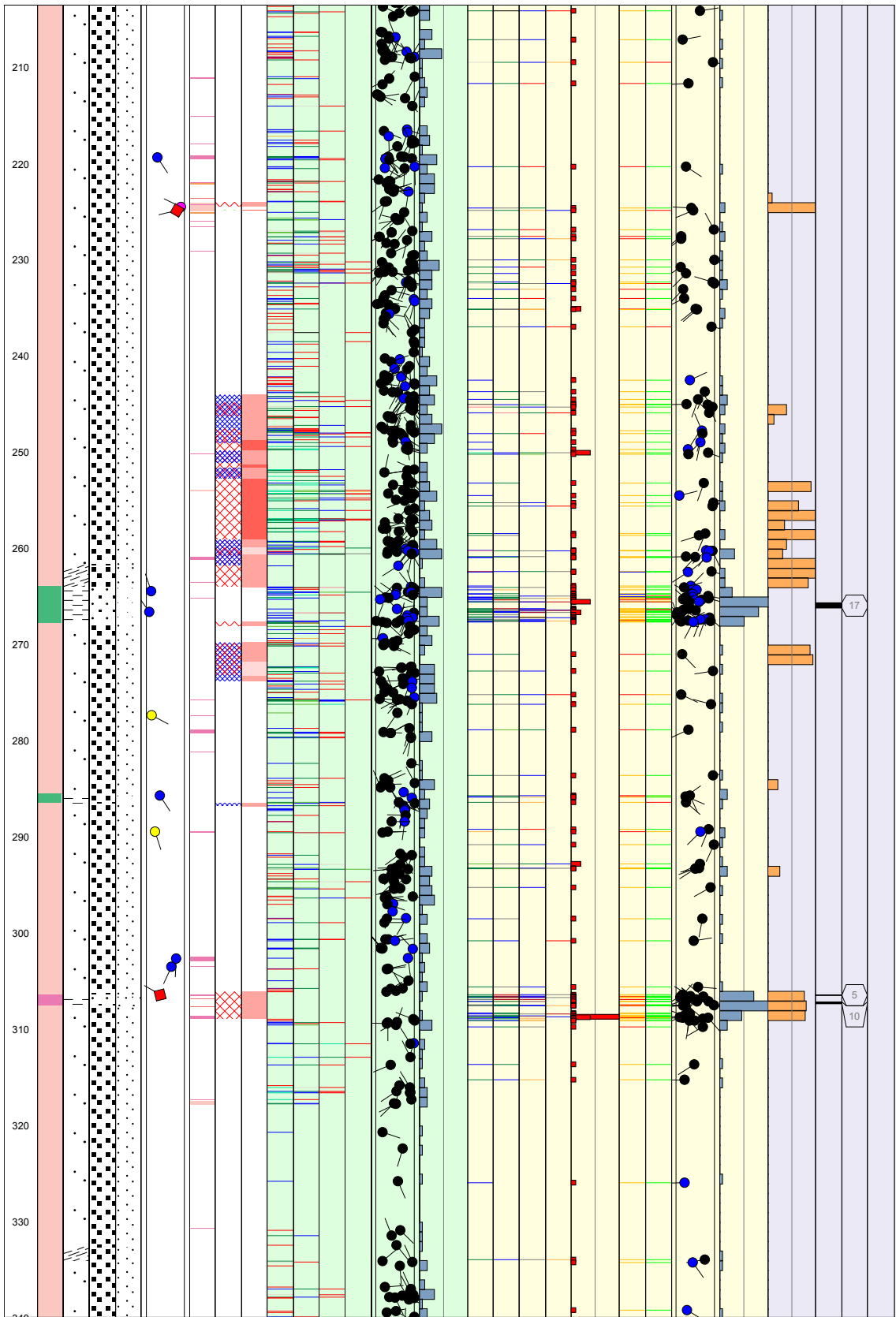
Aspect: 150 %

46 (46)

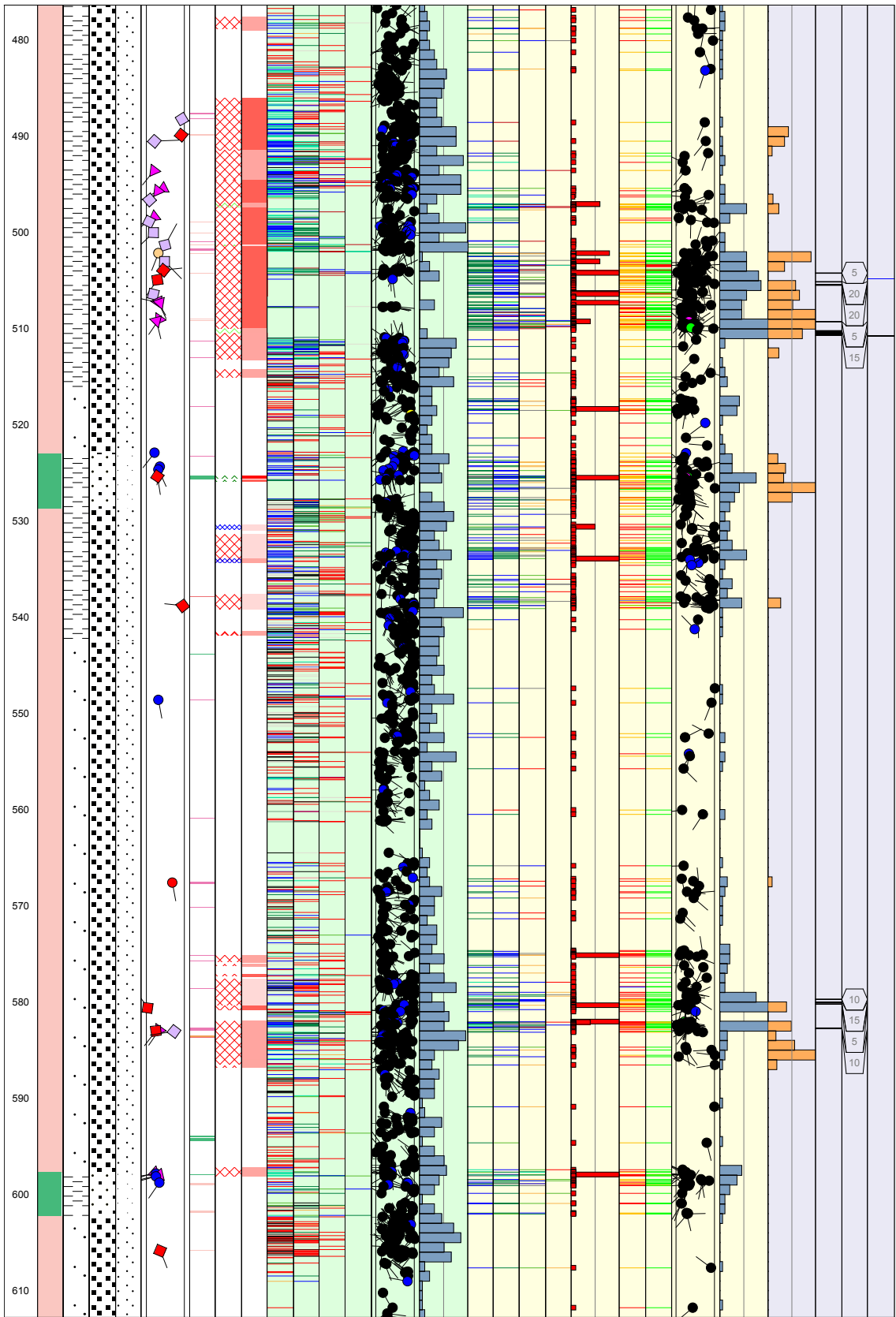
WellCad diagram for KLX11A

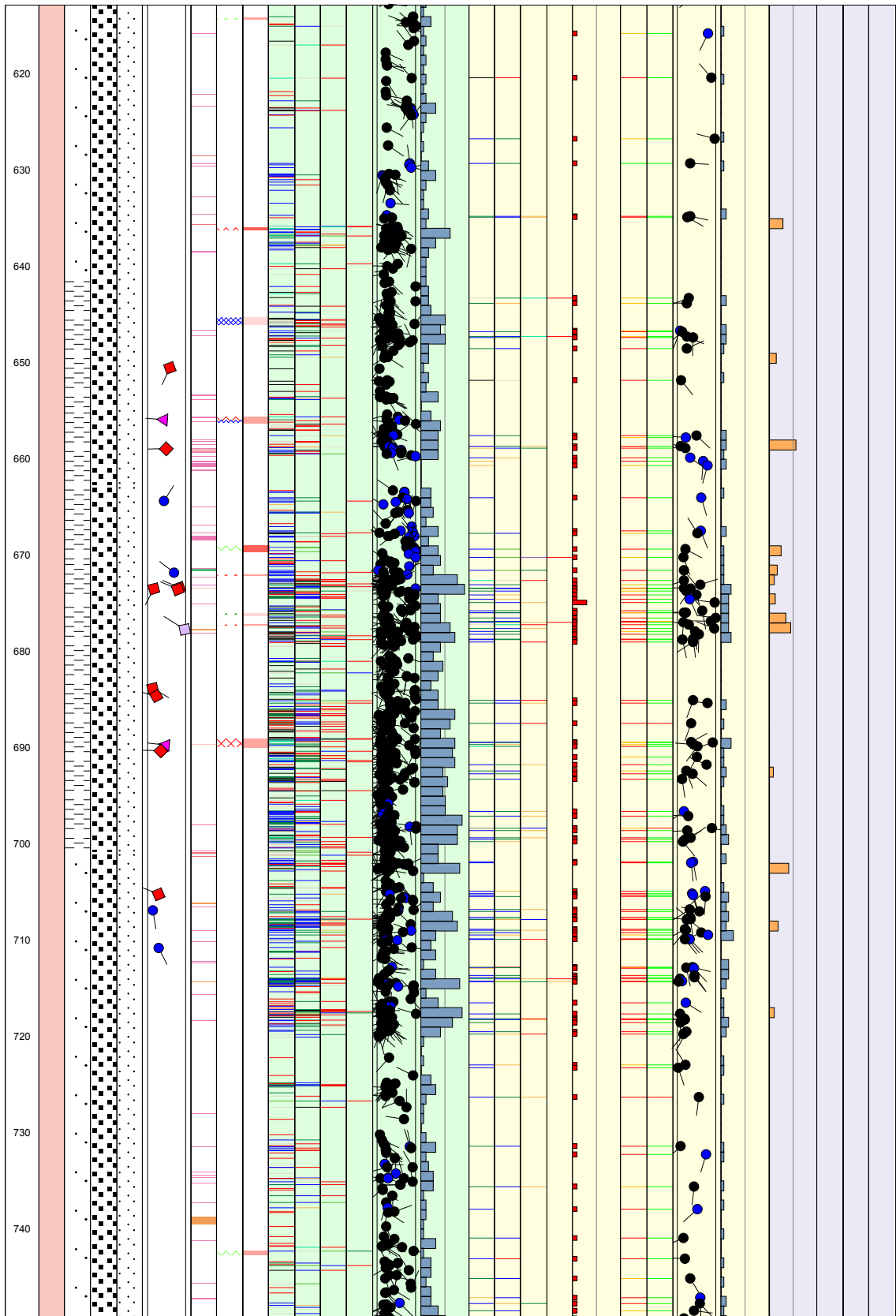
<b>Title</b> GEOLOGY IN KLX11A		<b>Appendix:</b>		
	<b>Site</b>	LAXEMAR	<b>Coordinate System</b>	RT90-RHB70
	<b>Borehole</b>	KLX11A	<b>Northing [m]</b>	6366339.72
	<b>Diameter [mm]</b>	76	<b>Easting [m]</b>	1546608.49
	<b>Length [m]</b>	992.290	<b>Elevation [m.a.s.l.]</b>	27.14
	<b>Bearing [°]</b>	89.84	<b>Drilling Start Date</b>	2005-11-24 06:00:00
	<b>Inclination [°]</b>	-76.76	<b>Drilling Stop Date</b>	2006-03-02 11:00:00
	<b>Date of coremapping</b>	2006-05-04 10:49:00	<b>Plot Date</b>	2007-10-25 22:03:45
	<b>Rocktype data from</b>	p_rock	<b>Signed data</b>	

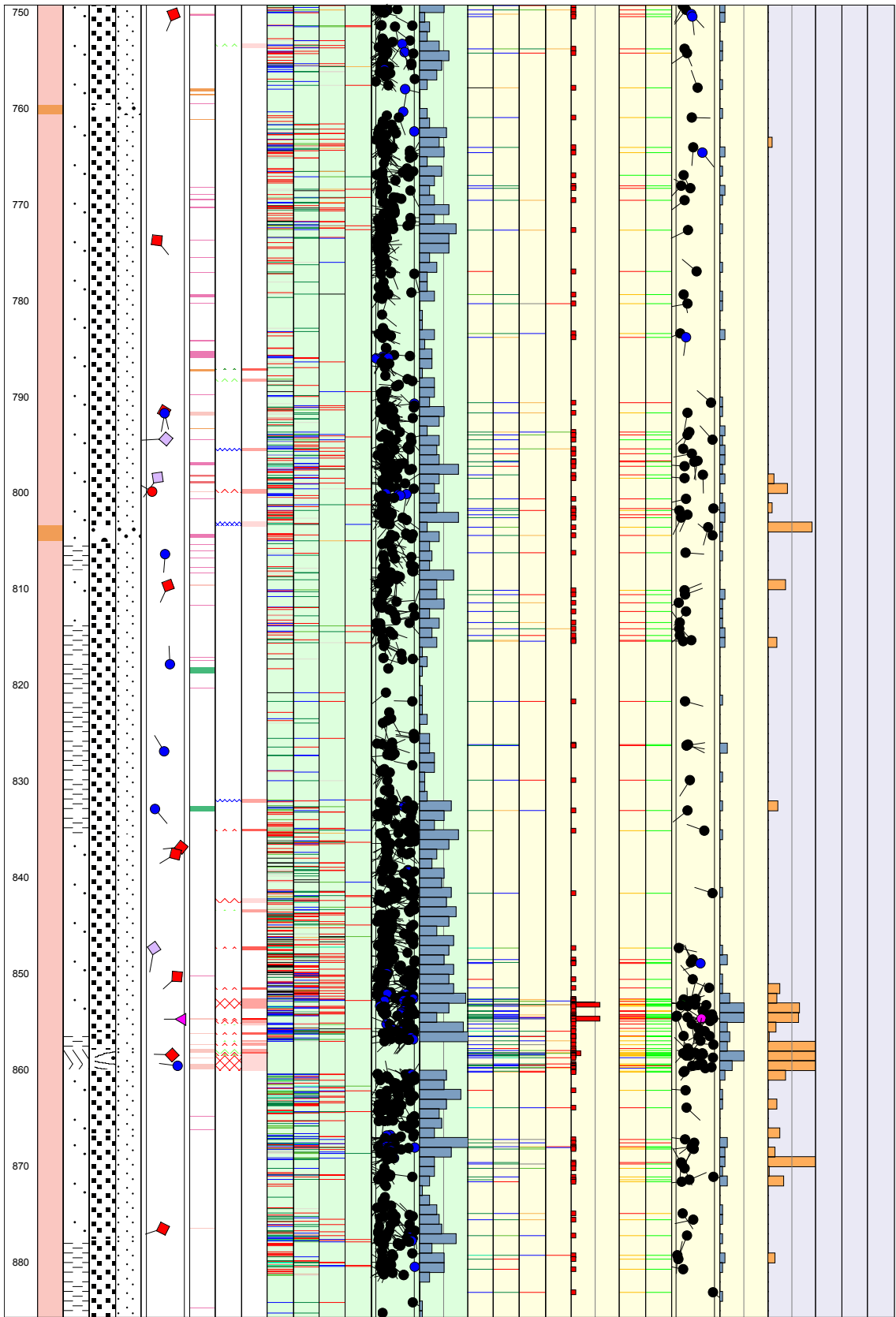




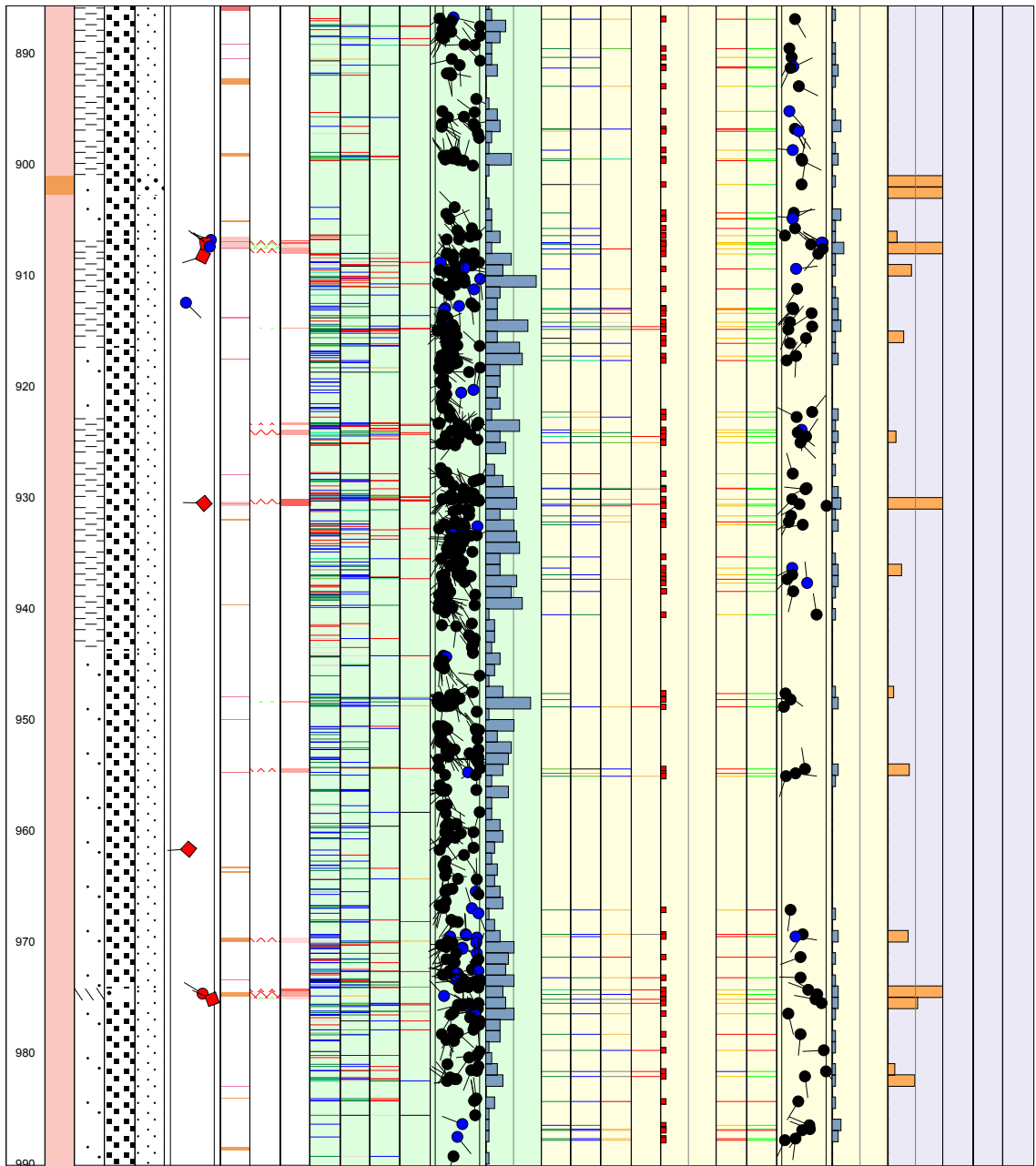













Legend to WellCad diagram for KLX11A

Title		LEGEND FOR LAXEMAR	KLX11A
		Site	LAXEMAR
		Borehole	KLX11A
	Plot Date	2007-10-25 22:03:45	
	Signed data		
<p><b>ROCKTYPE LAXEMAR</b></p> <ul style="list-style-type: none"> <li> Aspö Diorite</li> <li> Dolerite</li> <li> Fine-grained Götemargranite</li> <li> Coarse-grained Götemargranite</li> <li> Fine-grained granite</li> <li> Pegmatite</li> <li> Granite</li> <li> Ävrö granite</li> <li> Quartz monzodiorite</li> <li> Diorite / Gabbro</li> <li> Fine-grained dioritoid</li> <li> Fine-grained diorite-gabbro</li> <li> Sulphide mineralization</li> <li> Sandstone</li> <li> Soil</li> <li> Ävrö quartz monzodiorite</li> <li> Ävrö granodiorite</li> </ul>			
<p><b>ROCK ALTERATION TYPE</b></p> <ul style="list-style-type: none"> <li> Oxidized</li> <li> Chloritised</li> <li> Epidotised</li> <li> Weathered</li> <li> Tectonized</li> <li> Sericitized</li> <li> Quartz dissolution</li> <li> Silicification</li> <li> Argillization</li> <li> Albitization</li> <li> Carbonatization</li> <li> Saussuritization</li> <li> Steatitization</li> <li> Uralitization</li> <li> Laumontitization</li> <li> Fract zone alteration</li> </ul>			
<p><b>MINERAL</b></p> <ul style="list-style-type: none"> <li> Biotite</li> <li> Epidote</li> <li> White Feldspar</li> <li> Hematite</li> <li> Calcite</li> <li> Chlorite</li> <li> Quartz</li> <li> Unknown</li> <li> Pyrite</li> <li> Clay Minerals</li> <li> Laumontite</li> <li> Prehnite</li> <li> Oxidized Walls</li> </ul>			
<p><b>STRUCTURE</b></p> <ul style="list-style-type: none"> <li> Cataclastic</li> <li> Schistose</li> <li> Gneissic</li> <li> Mylonitic</li> <li> Ductile Shear Zone</li> <li> Brittle-Ductile Zone</li> <li> Veined</li> <li> Banded</li> <li> Massive</li> <li> Foliated</li> <li> Brecciated</li> <li> Lineated</li> </ul>		<p><b>STRUCTURE ORIENTATION</b></p> <ul style="list-style-type: none"> <li> Cataclastic</li> <li> Bedded</li> <li> Gneissic</li> <li> Schistose</li> <li> Brittle-Ductile Shear Zone</li> <li> Ductile Shear Zone</li> <li> Lineated</li> <li> Banded</li> <li> Veined</li> <li> Brecciated</li> <li> Foliated</li> <li> Mylonitic</li> </ul>	
<p><b>ROCK ALTERATION INTENSITY</b></p> <ul style="list-style-type: none"> <li> No intensity</li> <li> Faint</li> <li> Weak</li> <li> Medium</li> <li> Strong</li> </ul>			
<p><b>ROUGHNESS</b></p> <ul style="list-style-type: none"> <li> Planar</li> <li> Undulating</li> <li> Stepped</li> <li> Irregular</li> </ul>			
<p><b>SURFACE</b></p> <ul style="list-style-type: none"> <li> Rough</li> <li> Smooth</li> <li> Slickensided</li> </ul>			
<p><b>CRUSH ALTERATION</b></p> <ul style="list-style-type: none"> <li> Slightly Altered</li> <li> Moderately Altered</li> <li> Highly Altered</li> <li> Completely Altered</li> <li> Gouge</li> <li> Fresh</li> </ul>			
<p><b>FRACTURE ALTERATION</b></p> <ul style="list-style-type: none"> <li> Slightly Altered</li> <li> Moderately Altered</li> <li> Highly Altered</li> <li> Completely Altered</li> <li> Gouge</li> <li> Fresh</li> </ul>			
<p><b>TEXTURE</b></p> <ul style="list-style-type: none"> <li> Hornfelsed</li> <li> Porphyritic</li> <li> Ophitic</li> <li> Equigranular</li> <li> Augen-Bearing</li> <li> Unequigranular</li> <li> Metamorphic</li> </ul>			
<p><b>GRAINSIZE</b></p> <ul style="list-style-type: none"> <li> Aphanitic</li> <li> Fine-grained</li> <li> Fine to medium grained</li> <li> Medium to coarse grained</li> <li> Coarse-grained</li> <li> Medium-grained</li> </ul>			
<p><b>FRACTURE DIRECTION</b></p> <p><b>STRUKTURE ORIENTATION</b></p> <p>Dip Direction 0 - 360°</p> <p>0/360°</p> <p>270°</p> <p>180°</p> <p>90°</p> <p>Dip 0 - 90°</p> 			

**In-data: Borehole length and diameter for KLX11A**

**Core Diam T – Drilling: Borehole core diameter**

KLX11A, 2005-11-24 06:00:00 – 2006-03-02 11:00:00 (100.060 – 992.290 m)

Sub secup (m)	Sub seclow (m)	Core diam (m)	Comment
100.060	100.530	0.0720	T-86
100.530	992.290	0.0502	Corac N/3

## In-data: Reference marks for length adjustments for KLX11A

### Reference Mark T – Reference mark in drillhole

KLX11A, 2006-03-05 07:30:00 – 2006-03-05 16:00:00 (110.000 – 974.000 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	180	1,000	25.0	45	Yes		
150.00	400.00	180	1,000	25.0	45	Yes		
200.00	400.00	180	1,000	30.0	35	Yes		
250.00	400.00	210	1,000	30.0	35	Yes		
300.00	400.00	210	1,000	32.0	35	Yes		
350.00	400.00	220	1,000	32.0	30	Yes		
400.00	400.00	230	1,000	35.0	35	Yes		
450.00	400.00	230	1,000	35.0	30	Yes		
500.00	400.00	220	1,000	35.0	30	Yes		
550.00	400.00	240	1,000	32.0	30	Yes		
600.00	400.00	220	1,000	32.0	30	Yes		
650.00	400.00	220	1,000	30.0	30	Yes		
700.00	400.00	330	1,000	32.0	30	Yes		Större startflöde före fräsning. Läckage ca 5 L/min vid fyllning av rör efter fräsning. Tar upp rören. Släppte kulan 16:15.
750.00	400.00	200	1,000	26.0	36	Yes		060307
800.00	400.00	200	1,000	26.0	28	Yes		060307
850.00	400.00	260	1,000	27.0	44	Yes		060307
900.00	400.00	280	1,000	30.0	60	Yes		060312
944.00	400.00	320	1,000	36.0	50	Yes		060313
974.00	400.00	380	1,000	33.0	55	Yes		060313 Släppte kulan 15:40.

## In-data: Borehole deviation data for KLX11A

## SICADA - object\_location

Idcode	Coord System	Northing (m)	Eastings (m)	Elevation (m.a.s.l.)	Length (m)	Vertical (m)	Depth (m)	Inclination (degrees)	Bearing (degrees)	Inclination Uncert (degrees)	Bearing Uncert (degrees)	Radius Uncert (m)	Origin	Indat
KLX11A	RT90-RHB70	6366339.72	1546608.49	27.14	0.00	0.00		-76.77	89.84	0.825	1.250	0.00	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.72	1546609.18	24.22	3.00	2.92		-76.73	89.84	0.825	1.250	0.04	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.72	1546609.87	21.30	6.00	5.84		-76.57	89.79	0.825	1.250	0.09	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.72	1546610.57	18.39	9.00	8.76		-76.30	89.74	0.825	1.250	0.13	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.73	1546611.29	15.47	12.00	11.67		-76.08	89.69	0.825	1.250	0.17	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.73	1546612.01	12.56	15.00	14.58		-76.00	89.64	0.825	1.250	0.22	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.74	1546612.74	9.65	18.00	17.49		-75.88	89.59	0.825	1.250	0.26	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.74	1546613.48	6.74	21.00	20.40		-75.72	89.54	0.825	1.250	0.30	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.75	1546614.22	3.84	24.00	23.31		-75.61	89.49	0.825	1.250	0.35	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.75	1546614.97	0.93	27.00	26.21		-75.51	89.44	0.825	1.250	0.39	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.76	1546615.72	-1.97	30.00	29.11		-75.38	89.39	0.825	1.250	0.43	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.77	1546616.48	-4.87	33.00	32.02		-75.28	89.34	0.825	1.250	0.48	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.78	1546617.25	-7.77	36.00	34.92		-75.18	89.29	0.825	1.250	0.52	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.79	1546618.02	-10.67	39.00	37.82		-75.04	89.24	0.825	1.250	0.56	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.80	1546618.80	-13.57	42.00	40.71		-74.89	89.19	0.825	1.250	0.60	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.81	1546619.58	-16.47	45.00	43.61		-74.75	89.14	0.825	1.250	0.65	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.82	1546620.37	-19.36	48.00	46.50		-74.71	89.09	0.825	1.250	0.69	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.84	1546621.16	-22.25	51.00	49.40		-74.63	89.04	0.825	1.250	0.73	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.85	1546621.96	-25.15	54.00	52.29		-74.50	88.99	0.825	1.250	0.78	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.87	1546622.77	-28.04	57.00	55.18		-74.38	88.94	0.825	1.250	0.82	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.88	1546623.58	-30.92	60.00	58.07		-74.17	88.89	0.825	1.250	0.86	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.90	1546624.40	-33.81	63.00	60.95		-74.03	88.84	0.825	1.250	0.91	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.91	1546625.23	-36.69	66.00	63.84		-73.96	88.79	0.825	1.250	0.95	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.93	1546626.06	-39.57	69.00	66.72		-73.86	88.74	0.825	1.250	0.99	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.95	1546626.90	-42.46	72.00	69.60		-73.75	88.69	0.825	1.250	1.04	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.97	1546627.74	-45.33	75.00	72.48		-73.59	88.64	0.825	1.250	1.08	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.99	1546628.59	-48.21	78.00	75.35		-73.45	88.59	0.825	1.250	1.12	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.01	1546629.45	-51.09	81.00	78.23		-73.37	88.54	0.825	1.250	1.17	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.04	1546630.31	-53.96	84.00	81.10		-73.22	88.49	0.825	1.250	1.21	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.06	1546631.18	-56.83	87.00	83.97		-72.98	88.44	0.825	1.250	1.25	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.08	1546632.06	-59.70	90.00	86.84		-72.85	88.39	0.825	1.250	1.30	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.11	1546632.95	-62.56	93.00	89.71		-72.80	88.34	0.825	1.250	1.34	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.13	1546633.83	-65.43	96.00	92.57		-72.77	88.29	0.825	1.250	1.38	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.16	1546634.72	-68.29	99.00	95.44		-72.72	88.24	0.825	1.250	1.43	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.19	1546635.62	-71.16	102.00	98.30		-72.66	88.19	0.825	1.250	1.47	Measured	2007-01-17 09:54

KLX11A	RT90-RHB70	6366340.22	1546636.51	-74.02	105.00	101.17	-72.59	88.14	0.825	1.250	1.51	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.25	1546637.41	-76.88	108.00	104.03	-72.55	88.09	0.825	1.250	1.56	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.28	1546638.31	-79.75	111.00	106.89	-72.54	88.04	0.825	1.250	1.60	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.31	1546639.21	-82.61	114.00	109.75	-72.54	87.98	0.825	1.250	1.64	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.34	1546640.11	-85.47	117.00	112.61	-72.54	87.98	0.825	1.250	1.68	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.37	1546641.01	-88.33	120.00	115.47	-72.52	87.98	0.825	1.250	1.73	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.40	1546641.91	-91.19	123.00	118.34	-72.52	88.06	0.825	1.250	1.77	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.43	1546642.81	-94.05	126.00	121.20	-72.50	88.23	0.825	1.250	1.81	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.46	1546643.71	-96.92	129.00	124.06	-72.47	88.41	0.825	1.250	1.86	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.49	1546644.62	-99.78	132.00	126.92	-72.44	88.31	0.825	1.250	1.90	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.51	1546645.52	-102.64	135.00	129.78	-72.41	88.31	0.825	1.250	1.94	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.54	1546646.43	-105.49	138.00	132.64	-72.36	88.34	0.825	1.250	1.99	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.56	1546647.34	-108.35	141.00	135.50	-72.34	88.58	0.825	1.250	2.03	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.59	1546648.25	-111.21	144.00	138.35	-72.33	88.62	0.825	1.250	2.07	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.61	1546649.16	-114.07	147.00	141.21	-72.31	88.81	0.825	1.250	2.12	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.62	1546650.07	-116.93	150.00	144.07	-72.30	88.88	0.825	1.250	2.16	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.64	1546650.98	-119.79	153.00	146.93	-72.29	88.89	0.825	1.250	2.20	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.66	1546651.90	-122.64	156.00	149.79	-72.28	88.55	0.825	1.250	2.25	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.69	1546652.81	-125.50	159.00	152.64	-72.27	88.51	0.825	1.250	2.29	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.71	1546653.72	-128.36	162.00	155.50	-72.26	88.49	0.825	1.250	2.33	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.74	1546654.64	-131.22	165.00	158.36	-72.25	88.38	0.825	1.250	2.38	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.76	1546655.55	-134.07	168.00	161.22	-72.20	88.38	0.825	1.250	2.42	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.79	1546656.47	-136.93	171.00	164.07	-72.19	88.36	0.825	1.250	2.46	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.81	1546657.39	-139.79	174.00	166.93	-72.14	88.38	0.825	1.250	2.51	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.84	1546658.31	-142.64	177.00	169.78	-72.11	88.25	0.825	1.250	2.55	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.87	1546659.23	-145.49	180.00	172.64	-72.07	88.19	0.825	1.250	2.59	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.90	1546660.15	-148.35	183.00	175.49	-72.06	88.17	0.825	1.250	2.63	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.93	1546661.08	-151.20	186.00	178.35	-72.03	88.38	0.825	1.250	2.68	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.95	1546662.00	-154.06	189.00	181.20	-72.00	88.36	0.825	1.250	2.72	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.98	1546662.93	-156.91	192.00	184.05	-71.98	88.35	0.825	1.250	2.76	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.00	1546663.86	-159.76	195.00	186.91	-71.98	88.39	0.825	1.250	2.81	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.03	1546664.79	-162.62	198.00	189.76	-71.96	88.42	0.825	1.250	2.85	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.05	1546665.72	-165.47	201.00	192.61	-71.95	88.58	0.825	1.250	2.89	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.08	1546666.64	-168.32	204.00	195.46	-71.94	88.33	0.825	1.250	2.94	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.11	1546667.57	-171.17	207.00	198.32	-71.93	88.34	0.825	1.250	2.98	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.13	1546668.51	-174.02	210.00	201.17	-71.91	88.34	0.825	1.250	3.02	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.16	1546669.44	-176.88	213.00	204.02	-71.91	88.50	0.825	1.250	3.07	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.18	1546670.37	-179.73	216.00	206.87	-71.87	88.56	0.825	1.250	3.11	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.21	1546671.30	-182.58	219.00	209.72	-71.86	88.66	0.825	1.250	3.15	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.23	1546672.24	-185.43	222.00	212.57	-71.85	88.67	0.825	1.250	3.20	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.25	1546673.17	-188.28	225.00	215.42	-71.85	88.79	0.825	1.250	3.24	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.27	1546674.11	-191.13	228.00	218.27	-71.84	88.79	0.825	1.250	3.28	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.29	1546675.04	-193.98	231.00	221.12	-71.81	88.81	0.825	1.250	3.33	Measured	2007-01-17 09:54

KLX11A	RT90-RHB70	6366341.31	1546675.98	-196.83	234.00	223.97	-71.81	89.01	0.825	1.250	3.37	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.32	1546676.91	-199.68	237.00	226.82	-71.81	89.02	0.825	1.250	3.41	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.34	1546677.85	-202.53	240.00	229.67	-71.80	89.06	0.825	1.250	3.46	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.35	1546678.79	-205.38	243.00	232.52	-71.78	89.10	0.825	1.250	3.50	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.37	1546679.73	-208.23	246.00	235.37	-71.72	89.15	0.825	1.250	3.54	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.38	1546680.67	-211.08	249.00	238.22	-71.67	89.19	0.825	1.250	3.59	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.39	1546681.61	-213.93	252.00	241.07	-71.66	89.21	0.825	1.250	3.63	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.41	1546682.56	-216.77	255.00	243.92	-71.65	89.17	0.825	1.250	3.67	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.42	1546683.50	-219.62	258.00	246.76	-71.63	89.18	0.825	1.250	3.71	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.43	1546684.45	-222.47	261.00	249.61	-71.63	89.19	0.825	1.250	3.76	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.45	1546685.39	-225.31	264.00	252.46	-71.62	89.25	0.825	1.250	3.80	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.46	1546686.34	-228.16	267.00	255.30	-71.60	89.27	0.825	1.250	3.84	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.47	1546687.29	-231.01	270.00	258.15	-71.58	89.28	0.825	1.250	3.89	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.48	1546688.24	-233.85	273.00	261.00	-71.57	89.22	0.825	1.250	3.93	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.50	1546689.18	-236.70	276.00	263.84	-71.57	89.25	0.825	1.250	3.97	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.51	1546690.13	-239.55	279.00	266.69	-71.56	89.28	0.825	1.250	4.02	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.52	1546691.08	-242.39	282.00	269.53	-71.55	89.22	0.825	1.250	4.06	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.53	1546692.03	-245.24	285.00	272.38	-71.55	89.25	0.825	1.250	4.10	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.55	1546692.98	-248.08	288.00	275.23	-71.55	89.25	0.825	1.250	4.15	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.56	1546693.93	-250.93	291.00	278.07	-71.56	89.38	0.825	1.250	4.19	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.57	1546694.88	-253.77	294.00	280.92	-71.55	89.41	0.825	1.250	4.23	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.58	1546695.83	-256.62	297.00	283.76	-71.55	89.52	0.825	1.250	4.28	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.58	1546696.78	-259.47	300.00	286.61	-71.55	89.75	0.825	1.250	4.32	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.59	1546697.73	-262.31	303.00	289.46	-71.55	89.72	0.825	1.250	4.36	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.59	1546698.68	-265.16	306.00	292.30	-71.53	89.72	0.825	1.250	4.41	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.60	1546699.63	-268.00	309.00	295.15	-71.53	89.75	0.825	1.250	4.45	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.60	1546700.58	-270.85	312.00	297.99	-71.52	89.78	0.825	1.250	4.49	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.60	1546701.53	-273.69	315.00	300.84	-71.50	89.78	0.825	1.250	4.54	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.61	1546702.48	-276.54	318.00	303.68	-71.50	89.77	0.825	1.250	4.58	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.61	1546703.43	-279.38	321.00	306.53	-71.48	89.56	0.825	1.250	4.62	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.62	1546704.39	-282.23	324.00	309.37	-71.47	89.53	0.825	1.250	4.67	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.63	1546705.34	-285.07	327.00	312.22	-71.47	89.55	0.825	1.250	4.71	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.64	1546706.29	-287.92	330.00	315.06	-71.45	89.56	0.825	1.250	4.75	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.64	1546707.25	-290.76	333.00	317.90	-71.44	89.45	0.825	1.250	4.79	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.65	1546708.20	-293.61	336.00	320.75	-71.44	89.45	0.825	1.250	4.84	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.66	1546709.16	-296.45	339.00	323.59	-71.43	89.44	0.825	1.250	4.88	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.67	1546710.11	-299.29	342.00	326.44	-71.43	89.46	0.825	1.250	4.92	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.68	1546711.07	-302.14	345.00	329.28	-71.42	89.47	0.825	1.250	4.97	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.69	1546712.03	-304.98	348.00	332.12	-71.41	89.63	0.825	1.250	5.01	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.70	1546712.98	-307.82	351.00	334.97	-71.41	89.53	0.825	1.250	5.05	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.70	1546713.94	-310.67	354.00	337.81	-71.41	89.39	0.825	1.250	5.10	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.72	1546714.89	-313.51	357.00	340.65	-71.41	89.11	0.825	1.250	5.14	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.73	1546715.85	-316.35	360.00	343.50	-71.40	89.10	0.825	1.250	5.18	Measured	2007-01-17 09:54

KLX11A	RT90-RHB70	6366341.75	1546716.81	-319.20	363.00	346.34	-71.38	89.10	0.825	1.250	5.23	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.76	1546717.77	-322.04	366.00	349.18	-71.38	89.28	0.825	1.250	5.27	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.77	1546718.72	-324.88	369.00	352.03	-71.37	89.29	0.825	1.250	5.31	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.78	1546719.68	-327.73	372.00	354.87	-71.37	89.34	0.825	1.250	5.36	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.79	1546720.64	-330.57	375.00	357.71	-71.37	89.45	0.825	1.250	5.40	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.80	1546721.60	-333.41	378.00	360.55	-71.35	89.35	0.825	1.250	5.44	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.81	1546722.56	-336.25	381.00	363.40	-71.34	89.35	0.825	1.250	5.49	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.83	1546723.52	-339.10	384.00	366.24	-71.33	89.35	0.825	1.250	5.53	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.84	1546724.48	-341.94	387.00	369.08	-71.32	89.35	0.825	1.250	5.57	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.85	1546725.44	-344.78	390.00	371.92	-71.32	89.38	0.825	1.250	5.62	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.86	1546726.40	-347.62	393.00	374.76	-71.32	89.48	0.825	1.250	5.66	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.87	1546727.36	-350.46	396.00	377.61	-71.32	89.49	0.825	1.250	5.70	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.87	1546728.32	-353.31	399.00	380.45	-71.31	89.52	0.825	1.250	5.74	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.88	1546729.28	-356.15	402.00	383.29	-71.30	89.52	0.825	1.250	5.79	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.89	1546730.25	-358.99	405.00	386.13	-71.28	89.63	0.825	1.250	5.83	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.89	1546731.21	-361.83	408.00	388.97	-71.27	89.74	0.825	1.250	5.87	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.90	1546732.17	-364.67	411.00	391.81	-71.24	89.75	0.825	1.250	5.92	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.90	1546733.14	-367.51	414.00	394.65	-71.24	89.78	0.825	1.250	5.96	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.91	1546734.10	-370.35	417.00	397.50	-71.24	89.84	0.825	1.250	6.00	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.91	1546735.07	-373.19	420.00	400.34	-71.24	89.75	0.825	1.250	6.05	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.91	1546736.03	-376.03	423.00	403.18	-71.25	89.75	0.825	1.250	6.09	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.92	1546737.00	-378.87	426.00	406.02	-71.26	89.75	0.825	1.250	6.13	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.92	1546737.96	-381.72	429.00	408.86	-71.27	89.70	0.825	1.250	6.18	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.93	1546738.92	-384.56	432.00	411.70	-71.28	89.70	0.825	1.250	6.22	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.93	1546739.89	-387.40	435.00	414.54	-71.31	89.74	0.825	1.250	6.26	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.94	1546740.85	-390.24	438.00	417.38	-71.31	89.76	0.825	1.250	6.31	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.94	1546741.81	-393.08	441.00	420.22	-71.31	89.78	0.825	1.250	6.35	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.94	1546742.77	-395.92	444.00	423.07	-71.30	89.87	0.825	1.250	6.39	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.95	1546743.73	-398.76	447.00	425.91	-71.31	89.80	0.825	1.250	6.44	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.95	1546744.69	-401.61	450.00	428.75	-71.31	89.58	0.825	1.250	6.48	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.96	1546745.65	-404.45	453.00	431.59	-71.31	89.57	0.825	1.250	6.52	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.96	1546746.62	-407.29	456.00	434.43	-71.29	89.54	0.825	1.250	6.57	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.97	1546747.58	-410.13	459.00	437.27	-71.28	89.54	0.825	1.250	6.61	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.98	1546748.54	-412.97	462.00	440.12	-71.27	89.54	0.825	1.250	6.65	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.99	1546749.51	-415.81	465.00	442.96	-71.27	89.56	0.825	1.250	6.70	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.99	1546750.47	-418.66	468.00	445.80	-71.27	89.65	0.825	1.250	6.74	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.00	1546751.43	-421.50	471.00	448.64	-71.27	89.70	0.825	1.250	6.78	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.00	1546752.40	-424.34	474.00	451.48	-71.24	89.70	0.825	1.250	6.82	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.01	1546753.36	-427.18	477.00	454.32	-71.22	89.70	0.825	1.250	6.87	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.01	1546754.33	-430.02	480.00	457.16	-71.22	89.71	0.825	1.250	6.91	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.02	1546755.29	-432.86	483.00	460.00	-71.19	89.62	0.825	1.250	6.95	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.03	1546756.26	-435.70	486.00	462.84	-71.16	89.60	0.825	1.250	7.00	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.03	1546757.23	-438.54	489.00	465.68	-71.13	89.59	0.825	1.250	7.04	Measured	2007-01-17 09:54



KLX11A	RT90-RHB70	6366342.04	1546758.20	-441.37	492.00	468.52	-71.13	89.57	0.825	1.250	7.08	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.05	1546759.17	-444.21	495.00	471.36	-71.12	89.50	0.825	1.250	7.13	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.06	1546760.14	-447.05	498.00	474.20	-71.12	89.47	0.825	1.250	7.17	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.07	1546761.11	-449.89	501.00	477.03	-71.09	89.41	0.825	1.250	7.21	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.08	1546762.09	-452.73	504.00	479.87	-71.06	89.54	0.825	1.250	7.26	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.08	1546763.06	-455.57	507.00	482.71	-71.05	89.56	0.825	1.250	7.30	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.09	1546764.04	-458.40	510.00	485.55	-71.05	89.61	0.825	1.250	7.34	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.10	1546765.01	-461.24	513.00	488.38	-71.03	89.66	0.825	1.250	7.39	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.10	1546765.99	-464.08	516.00	491.22	-71.03	89.69	0.825	1.250	7.43	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.11	1546766.96	-466.91	519.00	494.06	-71.03	89.70	0.825	1.250	7.47	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.11	1546767.94	-469.75	522.00	496.89	-71.03	89.70	0.825	1.250	7.52	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.12	1546768.91	-472.59	525.00	499.73	-71.03	89.72	0.825	1.250	7.56	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.12	1546769.89	-475.43	528.00	502.57	-71.05	89.73	0.825	1.250	7.60	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.13	1546770.86	-478.26	531.00	505.41	-71.05	89.78	0.825	1.250	7.65	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.13	1546771.84	-481.10	534.00	508.24	-71.05	89.84	0.825	1.250	7.69	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.13	1546772.81	-483.94	537.00	511.08	-71.03	89.86	0.825	1.250	7.73	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.13	1546773.79	-486.77	540.00	513.92	-71.03	89.89	0.825	1.250	7.78	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.14	1546774.76	-489.61	543.00	516.75	-71.02	89.95	0.825	1.250	7.82	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.14	1546775.74	-492.45	546.00	519.59	-71.01	90.06	0.825	1.250	7.86	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.13	1546776.71	-495.28	549.00	522.43	-70.99	90.20	0.825	1.250	7.90	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.13	1546777.69	-498.12	552.00	525.26	-70.98	90.21	0.825	1.250	7.95	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.13	1546778.67	-500.96	555.00	528.10	-70.97	90.23	0.825	1.250	7.99	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.12	1546779.65	-503.79	558.00	530.94	-70.97	90.23	0.825	1.250	8.03	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.12	1546780.63	-506.63	561.00	533.77	-70.95	90.23	0.825	1.250	8.08	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.11	1546781.61	-509.47	564.00	536.61	-70.94	90.27	0.825	1.250	8.12	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.11	1546782.58	-512.30	567.00	539.44	-70.94	90.38	0.825	1.250	8.16	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.10	1546783.56	-515.14	570.00	542.28	-70.94	90.43	0.825	1.250	8.21	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.09	1546784.54	-517.97	573.00	545.11	-70.94	90.51	0.825	1.250	8.25	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.08	1546785.52	-520.81	576.00	547.95	-70.94	90.53	0.825	1.250	8.29	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.07	1546786.50	-523.64	579.00	550.79	-70.94	90.70	0.825	1.250	8.34	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.06	1546787.48	-526.48	582.00	553.62	-70.92	90.73	0.825	1.250	8.38	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.05	1546788.46	-529.31	585.00	556.46	-70.91	90.74	0.825	1.250	8.42	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.04	1546789.45	-532.15	588.00	559.29	-70.90	90.64	0.825	1.250	8.47	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.03	1546790.43	-534.98	591.00	562.13	-70.88	90.60	0.825	1.250	8.51	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.02	1546791.41	-537.82	594.00	564.96	-70.88	90.62	0.825	1.250	8.55	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366342.01	1546792.39	-540.65	597.00	567.79	-70.85	90.62	0.825	1.250	8.60	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.99	1546793.38	-543.49	600.00	570.63	-70.85	90.79	0.825	1.250	8.64	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.98	1546794.36	-546.32	603.00	573.46	-70.84	90.81	0.825	1.250	8.68	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.96	1546795.35	-549.15	606.00	576.30	-70.84	91.12	0.825	1.250	8.73	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.94	1546796.33	-551.99	609.00	579.13	-70.84	91.10	0.825	1.250	8.77	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.92	1546797.32	-554.82	612.00	581.96	-70.82	91.13	0.825	1.250	8.81	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.91	1546798.30	-557.65	615.00	584.80	-70.81	91.14	0.825	1.250	8.86	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.89	1546799.29	-560.49	618.00	587.63	-70.78	91.16	0.825	1.250	8.90	Measured	2007-01-17 09:54

KLX11A	RT90-RHB70	6366341.87	1546800.28	-563.32	621.00	590.46	-70.76	91.18	0.825	1.250	8.94	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.84	1546801.26	-566.15	624.00	593.30	-70.76	91.22	0.825	1.250	8.98	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.82	1546802.25	-568.98	627.00	596.13	-70.73	91.22	0.825	1.250	9.03	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.80	1546803.24	-571.82	630.00	598.96	-70.72	91.25	0.825	1.250	9.07	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.78	1546804.23	-574.65	633.00	601.79	-70.69	91.29	0.825	1.250	9.11	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.76	1546805.23	-577.48	636.00	604.62	-70.66	91.35	0.825	1.250	9.16	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.73	1546806.22	-580.31	639.00	607.45	-70.64	91.41	0.825	1.250	9.20	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.71	1546807.22	-583.14	642.00	610.28	-70.62	91.41	0.825	1.250	9.24	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.68	1546808.21	-585.97	645.00	613.11	-70.58	91.46	0.825	1.250	9.29	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.66	1546809.21	-588.80	648.00	615.94	-70.54	91.54	0.825	1.250	9.33	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.63	1546810.21	-591.63	651.00	618.77	-70.51	91.56	0.825	1.250	9.37	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.60	1546811.21	-594.45	654.00	621.60	-70.47	91.60	0.825	1.250	9.42	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.57	1546812.22	-597.28	657.00	624.42	-70.42	91.63	0.825	1.250	9.46	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.54	1546813.22	-600.11	660.00	627.25	-70.39	91.75	0.825	1.250	9.50	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.51	1546814.23	-602.93	663.00	630.08	-70.37	91.94	0.825	1.250	9.55	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.48	1546815.24	-605.76	666.00	632.90	-70.34	91.96	0.825	1.250	9.59	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.44	1546816.25	-608.58	669.00	635.73	-70.32	91.95	0.825	1.250	9.63	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.41	1546817.26	-611.41	672.00	638.55	-70.31	91.97	0.825	1.250	9.68	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.37	1546818.27	-614.23	675.00	641.38	-70.28	92.00	0.825	1.250	9.72	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.34	1546819.28	-617.06	678.00	644.20	-70.25	92.19	0.825	1.250	9.76	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.30	1546820.29	-619.88	681.00	647.02	-70.23	92.20	0.825	1.250	9.81	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.26	1546821.31	-622.70	684.00	649.85	-70.22	92.39	0.825	1.250	9.85	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.22	1546822.32	-625.53	687.00	652.67	-70.20	92.41	0.825	1.250	9.89	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.17	1546823.34	-628.35	690.00	655.49	-70.17	92.44	0.825	1.250	9.93	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.13	1546824.35	-631.17	693.00	658.31	-70.15	92.47	0.825	1.250	9.98	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.08	1546825.37	-633.99	696.00	661.13	-70.14	92.47	0.825	1.250	10.02	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.04	1546826.39	-636.81	699.00	663.96	-70.14	92.41	0.825	1.250	10.06	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366341.00	1546827.41	-639.63	702.00	666.78	-70.13	92.44	0.825	1.250	10.11	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.95	1546828.43	-642.46	705.00	669.60	-70.11	92.47	0.825	1.250	10.15	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.91	1546829.45	-645.28	708.00	672.42	-70.09	92.52	0.825	1.250	10.19	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.86	1546830.47	-648.10	711.00	675.24	-70.07	92.59	0.825	1.250	10.24	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.81	1546831.49	-650.92	714.00	678.06	-70.07	93.14	0.825	1.250	10.28	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.76	1546832.51	-653.74	717.00	680.88	-70.06	93.22	0.825	1.250	10.32	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.70	1546833.53	-656.56	720.00	683.70	-70.04	93.28	0.825	1.250	10.37	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.64	1546834.56	-659.38	723.00	686.52	-70.02	93.33	0.825	1.250	10.41	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.58	1546835.58	-662.20	726.00	689.34	-69.99	93.44	0.825	1.250	10.45	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.52	1546836.61	-665.01	729.00	692.16	-69.97	93.53	0.825	1.250	10.50	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.45	1546837.63	-667.83	732.00	694.98	-69.95	93.55	0.825	1.250	10.54	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.39	1546838.66	-670.65	735.00	697.79	-69.93	93.56	0.825	1.250	10.58	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.32	1546839.69	-673.47	738.00	700.61	-69.91	93.58	0.825	1.250	10.63	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.26	1546840.72	-676.29	741.00	703.43	-69.89	93.59	0.825	1.250	10.67	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.20	1546841.75	-679.10	744.00	706.25	-69.89	93.52	0.825	1.250	10.71	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.13	1546842.78	-681.92	747.00	709.06	-69.88	93.56	0.825	1.250	10.76	Measured	2007-01-17 09:54

KLX11A	RT90-RHB70	6366340.07	1546843.81	-684.74	750.00	711.88	-69.88	93.58	0.825	1.250	10.80	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366340.00	1546844.84	-687.55	753.00	714.70	-69.88	93.76	0.825	1.250	10.84	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.93	1546845.87	-690.37	756.00	717.51	-69.87	93.69	0.825	1.250	10.89	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.87	1546846.90	-693.19	759.00	720.33	-69.84	93.70	0.825	1.250	10.93	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.80	1546847.93	-696.00	762.00	723.15	-69.83	93.73	0.825	1.250	10.97	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.73	1546848.96	-698.82	765.00	725.96	-69.81	93.82	0.825	1.250	11.01	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.66	1546850.00	-701.63	768.00	728.78	-69.76	93.97	0.825	1.250	11.06	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.59	1546851.03	-704.45	771.00	731.59	-69.73	93.81	0.825	1.250	11.10	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.52	1546852.07	-707.26	774.00	734.41	-69.72	93.82	0.825	1.250	11.14	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.45	1546853.11	-710.08	777.00	737.22	-69.70	93.81	0.825	1.250	11.19	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.38	1546854.15	-712.89	780.00	740.03	-69.67	93.81	0.825	1.250	11.23	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.32	1546855.19	-715.70	783.00	742.85	-69.65	93.81	0.825	1.250	11.27	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.24	1546856.23	-718.52	786.00	745.66	-69.61	93.99	0.825	1.250	11.32	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.17	1546857.27	-721.33	789.00	748.47	-69.58	93.97	0.825	1.250	11.36	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.10	1546858.32	-724.14	792.00	751.28	-69.55	93.95	0.825	1.250	11.40	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366339.03	1546859.36	-726.95	795.00	754.09	-69.52	93.98	0.825	1.250	11.45	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.95	1546860.41	-729.76	798.00	756.90	-69.52	94.00	0.825	1.250	11.49	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.88	1546861.46	-732.57	801.00	759.71	-69.52	93.98	0.825	1.250	11.53	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.81	1546862.50	-735.38	804.00	762.52	-69.56	93.99	0.825	1.250	11.58	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.73	1546863.55	-738.19	807.00	765.33	-69.56	93.99	0.825	1.250	11.62	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.66	1546864.59	-741.00	810.00	768.15	-69.56	94.23	0.825	1.250	11.66	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.58	1546865.64	-743.81	813.00	770.96	-69.55	94.26	0.825	1.250	11.71	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.50	1546866.69	-746.62	816.00	773.77	-69.53	94.42	0.825	1.250	11.75	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.42	1546867.73	-749.43	819.00	776.58	-69.50	94.67	0.825	1.250	11.79	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.33	1546868.78	-752.24	822.00	779.39	-69.49	94.72	0.825	1.250	11.84	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.25	1546869.83	-755.05	825.00	782.20	-69.47	94.53	0.825	1.250	11.88	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.16	1546870.88	-757.86	828.00	785.01	-69.40	94.56	0.825	1.250	11.92	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366338.08	1546871.93	-760.67	831.00	787.81	-69.36	94.56	0.825	1.250	11.97	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.99	1546872.99	-763.48	834.00	790.62	-69.34	94.77	0.825	1.250	12.01	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.91	1546874.04	-766.29	837.00	793.43	-69.34	94.81	0.825	1.250	12.05	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.82	1546875.10	-769.09	840.00	796.24	-69.32	94.55	0.825	1.250	12.09	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.74	1546876.15	-771.90	843.00	799.04	-69.31	94.55	0.825	1.250	12.14	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.65	1546877.21	-774.70	846.00	801.85	-69.28	94.57	0.825	1.250	12.18	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.57	1546878.27	-777.51	849.00	804.65	-69.27	94.63	0.825	1.250	12.22	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.48	1546879.33	-780.32	852.00	807.46	-69.25	94.45	0.825	1.250	12.27	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.40	1546880.39	-783.12	855.00	810.26	-69.23	94.45	0.825	1.250	12.31	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.32	1546881.45	-785.93	858.00	813.07	-69.20	94.45	0.825	1.250	12.35	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.23	1546882.51	-788.73	861.00	815.87	-69.18	94.46	0.825	1.250	12.40	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.15	1546883.58	-791.53	864.00	818.68	-69.13	94.67	0.825	1.250	12.44	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366337.06	1546884.64	-794.34	867.00	821.48	-69.09	94.67	0.825	1.250	12.48	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.97	1546885.71	-797.14	870.00	824.28	-69.06	94.67	0.825	1.250	12.53	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.89	1546886.78	-799.94	873.00	827.08	-69.03	94.66	0.825	1.250	12.57	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.80	1546887.85	-802.74	876.00	829.88	-69.00	94.57	0.825	1.250	12.61	Measured	2007-01-17 09:54

KLX11A	RT90-RHB70	6366336.72	1546888.92	-805.54	879.00	832.68	-68.97	94.46	0.825	1.250	12.66	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.63	1546890.00	-808.34	882.00	835.48	-68.93	94.48	0.825	1.250	12.70	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.55	1546891.07	-811.14	885.00	838.28	-68.90	94.48	0.825	1.250	12.74	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.47	1546892.15	-813.94	888.00	841.08	-68.89	94.27	0.825	1.250	12.79	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.39	1546893.23	-816.74	891.00	843.88	-68.88	94.22	0.825	1.250	12.83	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.31	1546894.31	-819.54	894.00	846.68	-68.86	94.23	0.825	1.250	12.87	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.23	1546895.39	-822.33	897.00	849.48	-68.83	94.27	0.825	1.250	12.92	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.14	1546896.47	-825.13	900.00	852.27	-68.82	94.69	0.825	1.250	12.96	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366336.05	1546897.55	-827.93	903.00	855.07	-68.80	94.69	0.825	1.250	13.00	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.97	1546898.63	-830.73	906.00	857.87	-68.77	94.47	0.825	1.250	13.05	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.88	1546899.71	-833.52	909.00	860.66	-68.75	94.50	0.825	1.250	13.09	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.80	1546900.80	-836.32	912.00	863.46	-68.73	94.50	0.825	1.250	13.13	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.71	1546901.88	-839.11	915.00	866.26	-68.72	94.64	0.825	1.250	13.17	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.62	1546902.97	-841.91	918.00	869.05	-68.69	94.88	0.825	1.250	13.22	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.53	1546904.05	-844.70	921.00	871.85	-68.68	94.88	0.825	1.250	13.26	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.43	1546905.14	-847.50	924.00	874.64	-68.64	94.94	0.825	1.250	13.30	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.34	1546906.23	-850.29	927.00	877.43	-68.63	94.87	0.825	1.250	13.35	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.25	1546907.32	-853.08	930.00	880.23	-68.61	94.88	0.825	1.250	13.39	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.15	1546908.41	-855.88	933.00	883.02	-68.58	94.82	0.825	1.250	13.43	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366335.06	1546909.50	-858.67	936.00	885.81	-68.56	94.85	0.825	1.250	13.48	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366334.97	1546910.60	-861.46	939.00	888.61	-68.54	94.88	0.825	1.250	13.52	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366334.87	1546911.69	-864.25	942.00	891.40	-68.49	95.02	0.825	1.250	13.56	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366334.77	1546912.79	-867.05	945.00	894.19	-68.48	95.31	0.825	1.250	13.61	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366334.67	1546913.88	-869.84	948.00	896.98	-68.46	95.38	0.825	1.250	13.65	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366334.57	1546914.98	-872.63	951.00	899.77	-68.44	95.38	0.825	1.250	13.69	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366334.46	1546916.08	-875.42	954.00	902.56	-68.44	95.41	0.825	1.250	13.74	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366334.36	1546917.18	-878.21	957.00	905.35	-68.42	95.47	0.825	1.250	13.78	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366334.25	1546918.28	-881.00	960.00	908.14	-68.39	95.51	0.825	1.250	13.82	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366334.15	1546919.38	-883.78	963.00	910.93	-68.37	95.55	0.825	1.250	13.87	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366334.04	1546920.48	-886.57	966.00	913.72	-68.36	95.56	0.825	1.250	13.91	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366333.93	1546921.58	-889.36	969.00	916.50	-68.33	95.56	0.825	1.250	13.95	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366333.83	1546922.68	-892.15	972.00	919.29	-68.31	95.56	0.825	1.250	14.00	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366333.72	1546923.79	-894.94	975.00	922.08	-68.30	95.56	0.825	1.250	14.04	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366333.61	1546924.89	-897.72	978.00	924.87	-68.28	95.56	0.825	1.250	14.08	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366333.50	1546926.00	-900.51	981.00	927.65	-68.25	95.56	0.825	1.250	14.12	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366333.39	1546927.10	-903.30	984.00	930.44	-68.22	95.61	0.825	1.250	14.17	Measured	2007-01-17 09:54
KLX11A	RT90-RHB70	6366333.09	1546930.16	-910.99	992.29	938.14	-68.22	95.61	0.825	1.250	14.29	Measured	2007-01-17 09:54

Number of rows: 330.

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