

P-06-255

Oskarshamn site investigation

Boremap mapping of telescopic drilled borehole KLX13A

Gunnar Rauséus, Karl-Johan Mattsson
Geosigma AB

Jan Ehrenborg, Mirab AB

November 2007

Svensk Kärnbränslehantering AB

Swedish Nuclear Fuel
and Waste Management Co
Box 250, SE-101 24 Stockholm
Tel +46 8 459 84 00



Oskarshamn site investigation

Boremap mapping of telescopic drilled borehole KLX13A

Gunnar Rauséus, Karl-Johan Mattsson
Geosigma AB

Jan Ehrenborg, Mirab AB

November 2007

Keywords: KLX13A, 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.

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

Abstract

This report presents the Boremap mapping of KLX13A, which is a c 596 m long core drilled borehole. The borehole was drilled with declination 224.5° and inclination –82.3° and mapping was conducted between 2006-09-20 and 2006-10-04.

The lithology in KLX13A consists of 85.6% Ävrö granite (501044), 12.5% diorite/gabbro (501033), 1.0% fine-grained granite (511058) and 0.7% fine-grained diorite-gabbro (505102).

The interval between 485–596 m shows increased brittle-ductile deformation and alteration with red staining, argillitization and hematitization. Also the interval shows increased frequency of open and sealed fractures and sealed fracture networks. Gouge occurs in this interval at 494.5–495.0 m borehole length.

Four, 1–2 cm wide rock occurrences have been mapped as sandstone.

Sammanfattning

Denna rapport presenterar boremapkarteringen av KLX13A som är ett ca 596 meter långt kärnborrhål. Borrhålet borrades med deklination 224,5° och inklinering -82,3° och karterades mellan 2006-09-20 och 2006-10-04.

KLX13A utgörs av 85,6 % Ävrögranit (501044), 12,5 % diorit/gabbro (501033), 1,0 % finkornig granit (511058) och 0,7 % finkornig diorit-gabbro (505102).

Intervallet mellan 485–596 m visar förhöjd deformation och omvandling med rödfärgning, leromvandling och hematitisering. Intervallet visar också ökad frekvens av öppna och läkta sprickor samt läkta spricknätverk. Mellan 494,5–495,5 m förekommer en tektoniskt nermaldd bergart (gouge).

Intressant att belysa är förekomsten av, 1–2 cm breda bergartsförekomster, som karterats som sandsten.

Contents

1	Introduction	7
2	Objective and scope	9
3	Equipment	11
3.1	Description of software	11
3.2	Other equipment	11
3.3	BIPS-image video film sequences	11
3.4	BIPS-image video film quality	11
3.4.1	BIPS-image resolution	11
3.4.2	BIPS-image contrast	11
3.4.3	BIPS-image quality	12
4	Execution	13
4.1	General	13
4.2	Preparations	13
4.3	Execution of measurements	13
4.3.1	Fracture definitions	13
4.3.2	Fracture alteration and joint alteration number	14
4.3.3	Mapping of fractures not visible in the BIPS-image	14
4.3.4	Definition of veins and dikes	15
4.3.5	Mineral codes	15
4.4	Data handling	15
4.5	Geological summary table, general description	15
4.5.1	Columns in the geological summary table	16
4.6	Nonconformities	17
5	Results	19
5.1	General	19
5.2	Lithology and structures	19
5.3	Fracture mineralogy	20
Appendix 1	Geological summary table for KLX13A	23
Appendix 2	Search paths for the geological summary table	25
Appendix 3	BIPS-image for KLX13A	27
Appendix 4	WellCad diagram for KLX13A	53
Appendix 5	Legend to WellCad Diagram for KLX13A	59
Appendix 6	In-data: Borehole length and diameter for KLX13A	61
Appendix 7	In-data: Reference marks for length adjustments for KLX13A	63
Appendix 8	In-data: Borehole deviation data for KLX13A	65

1 Introduction

This report gives a brief presentation of the data gained from the mapping of KLX13A 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 400-06-104. In Table 1-1 controlling documents for performing this activity are listed. Both activity plan and method descriptions are SKB's internal controlling documents.

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

Borehole KLX13A is situated within the Laxemar area (Figure 1-1). KLX13A is a c 600 m long telescopic borehole with orientation 224.5/–82.3°. Mapping of the borehole was performed between 2006-09-20 and 2006-10-04.

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

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

Activity Plan	Number	Version
Boremapkartering av KLX13A	AP PS 400-06-104	1.0
Method Descriptions	Number	Version
Nomenklatur vid Boremapkartering	SKB MD 143.008	1.0
Method Description for Boremap mapping	SKB MD 143.006	2.0
Mätsystembeskrivning för Boremap	SKB MD 146.005	1.0
Instruktion: Regler för bergarters benämningar vid platsundersökning i Oskarshamn	SKB MD 132.004	1.0
Instruktion för längdkalibrering vid undersökningar i kärnbrorrhål	SKB MD 620.010	2.0

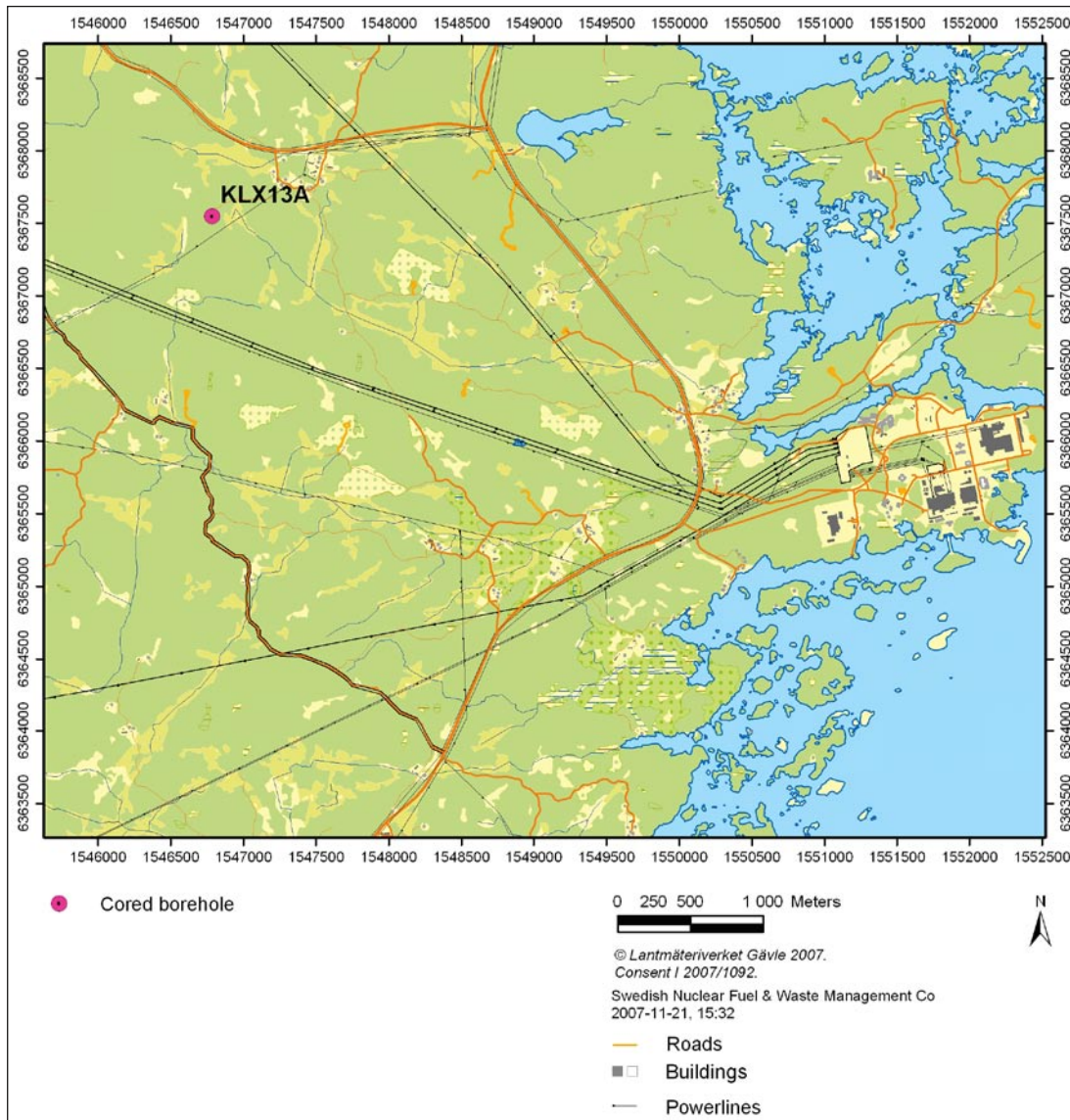


Figure 1-1. Location of the core drilled borehole KLX13A.

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 KLX13A. 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 KLX13A was Boremap v. 3.7.5, with bedrock and mineral standards of SKB. The data presentation was made using WellCad v. 4, Microsoft Access and Microsoft Excel. Boremap is the software that unites orthodox core mapping with modern video mapping, where Boremap shows the image from BIPS (Borehole Image Processing System) and extracts the geometrical parameters: length, width, strike and dip from the image.

3.2 Other equipment

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

3.3 BIPS-image video film sequences

The BIPS-image of KLX13A covers the interval 101.00–592.80 m.

3.4 BIPS-image video film quality

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

3.4.1 BIPS-image resolution

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

3.4.2 BIPS-image contrast

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

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

3.4.3 BIPS-image quality

BIPS-image quality is sometimes limited due to:

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

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

The image quality is classified into four levels; good, acceptable, bad and very bad. Good quality means a more or less clear image which is easy to interpret. If the quality is acceptable it means that the image is not good, but that the mapping can be performed without any problems. An image of bad quality is somewhat difficult to interpret while an image of very bad quality cannot be interpreted except from very obvious and outstanding features. 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 KLX13A is presented in Table 3-1.

Table 3-1. BIPS-image quality in KLX13A.

From (m)	To (m)	Quality
101	593	Good

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 400-06-104 (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, v.1.0) and *Instruktion för längdkalibrering vid undersökningar i kärnbrorrhål* (SKB MD 620.010, v.2.0), all of them SKB internal documents.

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

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

The mapping was performed by Gunnar Rauséus (Geosigma AB), 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 metre (Appendix 7). The level for each slot is measured in the BIPS-images and then adjusted to the correct level using the correct depth value from the SICADA database.

Necessary in data 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.

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

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

4.3.2 Fracture alteration and joint alteration number

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

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

- a) fracture wall alterations,
- b) fracture mineral fillings assumed to have been deposited from circulating water-rich solutions,
- c) fracture mineral fillings most likely resulting from altered wall rock material.

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

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

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

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

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

4.3.3 Mapping of fractures not visible in the BIPS-image

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

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

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

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

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

4.3.4 Definition of veins and dikes

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

4.3.5 Mineral codes

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

X2 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.

All information is taken directly from the Boremap database using simple and well defined search paths for each geological parameter (Appendix 2).

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

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

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

4.5.1 Columns in the geological summary table

The geological summary table includes the following 23 columns:

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

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

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

Column 4: *Alteration/Type*, interval column. No frequency column is presented for alteration/type. The alteration/type column are 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 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 certainly 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

In three sections, 587.940–590.250 m, 493.60–493.77 m and 498.57–499.37 m, all open fractures were mapped as not oriented due to difficulties to correlate the drill core pieces to the BIPS-image.

Sections with core loss occur frequently in the interval 470–596 m borehole length.

5 Results

5.1 General

Borehole KLX13A is oriented with declination 224.5° and inclination –82.3°. The drill core covers the interval 100.36–595.85 m with BIPS-image covering the interval 101.00–592.80 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 400-06-104). Only data in databases are accepted for further interpretation and modelling. The data presented in this report are regarded as copies of the original data. Data in the databases may be revised, if needed. Such revisions will not necessarily result in a revision of the P-report, although the normal procedure is that major revisions entail a revision of the P-report. Minor revisions are normally presented as supplements, available at www.skb.se.

5.2 Lithology and structures

The lithology in KLX13A (Table 5-1) is dominated by Ävrö granite (501044). Subordinate rock types comprise diorite/gabbro (501033), fine-grained granite (511058) and fine-grained diorite-gabbro (505102). The interval between 485–596 m shows increased brittle-ductile deformation and alteration with red staining, argillitization and hematitization. Also, the interval shows increased frequency of open and sealed fractures and sealed fracture networks. Gouge exists within the interval at 494.5–495.0 m borehole depth.

Four, 1–2 cm wide rock occurrences have been mapped as sandstone. Three of them occur in the interval 221.80–222.43 m and the fourth at 337.30 m.

Table 5-1. Lithology distribution in KLX13A.

Rock types	%
Ävrö granite (501044)	85.6
Diorite/gabbro (501033)	12.5
Fine-grained granite (511058)	1.0
Fine-grained diorite-gabbro (505102)	0.7

Ten sections in KLX13A are recognized by anomalous fracture frequencies, alterations and structural features.

Section interval characteristics

1. 102–112 m. Moderate increase in frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, ductile shear zones, foliation, saussuritization and red staining occurs within this section. This section also includes a contact between two rock types.
2. 119–125 m. Moderate increase in frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, brittle-ductile and ductile shear zones, epidotization and red staining occurs within this section. This section also includes a contact between two rock types.
3. 167–185 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, ductile shear zones, foliation, saussuritization and red staining occurs within this section. This section also includes a contact between two rock types and an intrusion of fine-grained granite (511058).
4. 248–257 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, crush zone, foliation, epidotization, argillitization and red staining occurs within this section. This section also includes a contact between two rock types and an intrusion of fine-grained granite (511058).
5. 290–301 m. Moderate increase in frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, brittle-ductile and ductile shear zones, foliation and red staining occurs within this section.
6. 347–353 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, ductile shear zones and red staining occurs within this section.
7. 362–366 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks and red staining occurs within this section. This section also includes a contact between two rock types.
8. 385–439 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks crush zones, foliation and red staining occurs within this section. This section also includes a contact between two rock types.
9. 465–485 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, crush zones, core loss, brittle-ductile shear zones, foliation and red staining occurs within this section.
10. 485–596 m. Increased frequency of open fractures and open fractures with aperture > 0.5 mm, sealed fracture networks, crush zone, core loss, brecciation, brittle-ductile shear zone, cataclasite, mylonite, foliation, gouge, hematitization, epidotization, argillitization and red staining occurs within this section.

5.3 Fracture mineralogy

Tables 5-3 and 5-4 show the frequency of minerals and rock wall alteration in sealed fractures and open fractures respectively.

Chlorite and calcite are the most frequently occurring minerals in both open and sealed fractures (Tables 5-3 and 5-4). Subordinate minerals in open fractures are clay minerals, pyrite and oxidized walls, and in sealed fractures oxidized walls. For X-mineral classification, see section 4.3.5.

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

Mineral	%
Adularia	1.2
Calcite	77.1
Chalcopyrite	0.4
Chlorite	81.4
Clay Minerals	48.2
Epidote	5.1
Hematite	11.9
Iron Hydroxide	0.2
Laumontite	0.4
Muscovite	0.1
Oxidized Walls	9.9
Prehnite	1.3
Pyrite	16.0
Quartz	0.4
Unknown Mineral	0.1
White Feldspar	0.1
X2	0.2
X7	2.6
X8	0.4

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

Mineral	%
Adularia	3.8
Calcite	48.5
Chlorite	30.2
Clay Minerals	0.4
Epidote	15.2
Fluorite	0.3
Laumontite	0.1
Oxidized Walls	63.6
Prehnite	2.6
Pyrite	6.3
Quartz	9.5
Red Feldspar	0.2
Unknown Mineral	0.1
White Feldspar	2.3
X5	1.6
X7	0.4
X8	3.6

Search paths for the geological summary table

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

BIPS-image for KLX13A

Borehole Image Report

Borehole Name: KLX13A
Mapping Name: KLX13A_Geosigma_1
Mapping Range: 101.000 - 595.850 m
Diameter: 76.0 mm
Printed Range: 101.000 - 594.056
Pages: 26

Image File Information:

File: G:\skb\bips\loskarshamn\KLX13A\Used\KLX13A_100-594m.BIP
Date/Time: 2006-09-12 08:33:00
Start Depth: 101.000 m
End Depth: 594.056 m
Resolution: 1.00 mm/pixel (depth)
Orientation: Gravmetric
Image height: 493056 pixels
Image width: 360 pixels
BIP Version: BIP-III
Locality: LAXEMAR
Borehole: KLX13A
Scan Direction: Down
Color adjust: 0 0 0 (RGB)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 101.000 - 121.000 m
Azimuth: 230.2
Inclination: 82.5



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

2 (26)

Borehole: KLX13A
 Mapping: KLX13A_Geosigma_1

Depth range: 121.000 - 141.000 m
 Azimuth: 230.0
 Inclination: 82.2



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

3 (26)

Borehole: KLX13A
 Mapping: KLX13A_Geosigma_1

Depth range: 141.000 - 161.000 m
 Azimuth: 230.0
 Inclination: 82.3



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

4 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 161.000 - 181.000 m
Azimuth: 230.0
Inclination: 82.2



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

5 (26)

Borehole: KLX13A
 Mapping: KLX13A_Geosigma_1

Depth range: 181.000 - 201.000 m
 Azimuth: 230.9
 Inclination: 82.1



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

6 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 201.000 - 221.000 m
Azimuth: 230.9
Inclination: 82.1



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

7 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 221.000 - 241.000 m
Azimuth: 230.0
Inclination: 82.2



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

8 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 241.000 - 261.000 m
Azimuth: 231.1
Inclination: 82.4



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

9 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 261.000 - 281.000 m
Azimuth: 232.0
Inclination: 82.2



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

10 (26)

Borehole: KLX13A
 Mapping: KLX13A_Geosigma_1

Depth range: 281.000 - 301.000 m
 Azimuth: 231.1
 Inclination: 82.4



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

11 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 301.000 - 321.000 m
Azimuth: 232.0
Inclination: 82.2



Printed: 2006-10-03 17:51:09

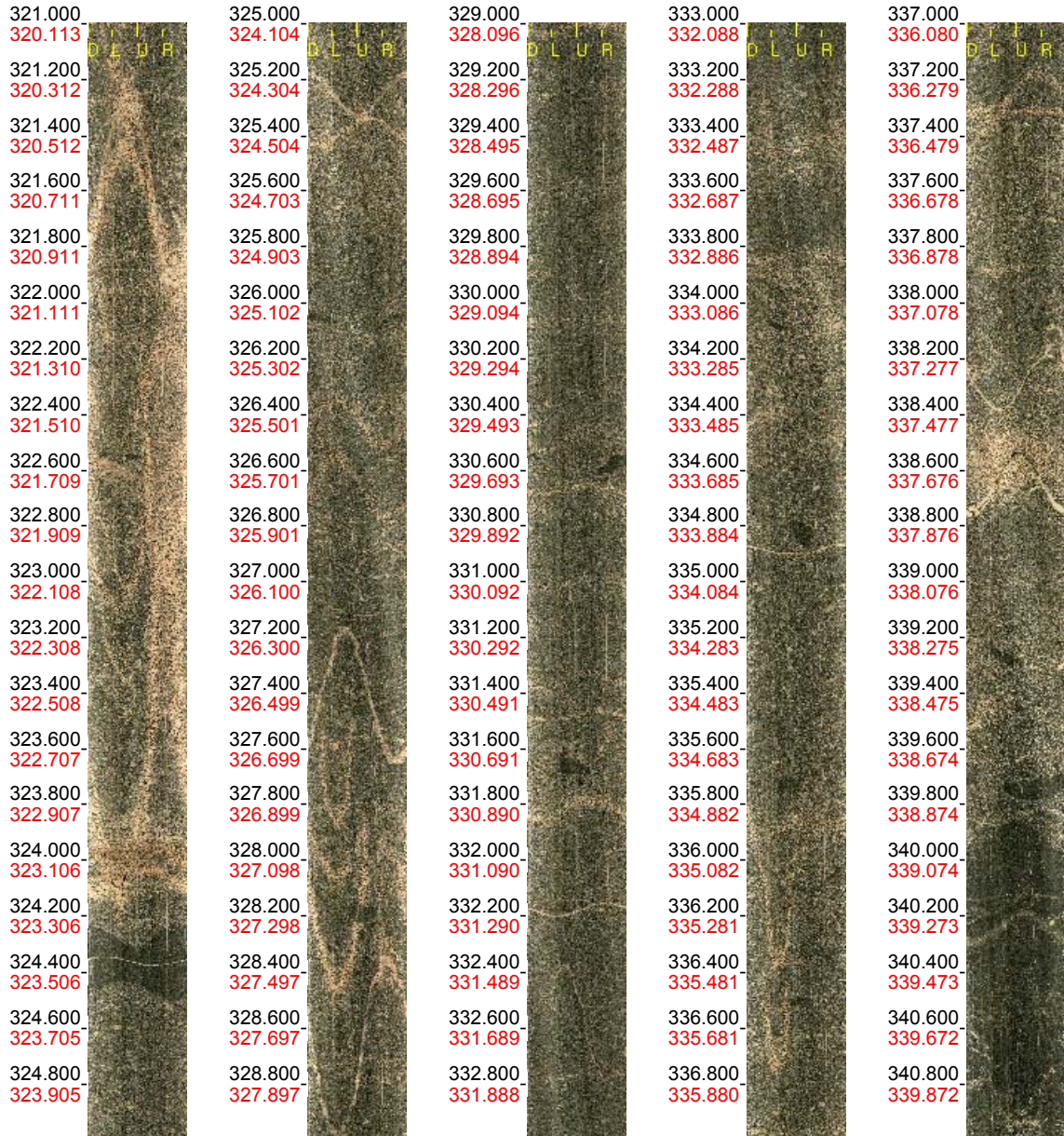
Scale: 1 : 20

Aspect: 150 %

12 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 321.000 - 341.000 m
Azimuth: 232.0
Inclination: 82.2



Printed: 2006-10-03 17:51:09

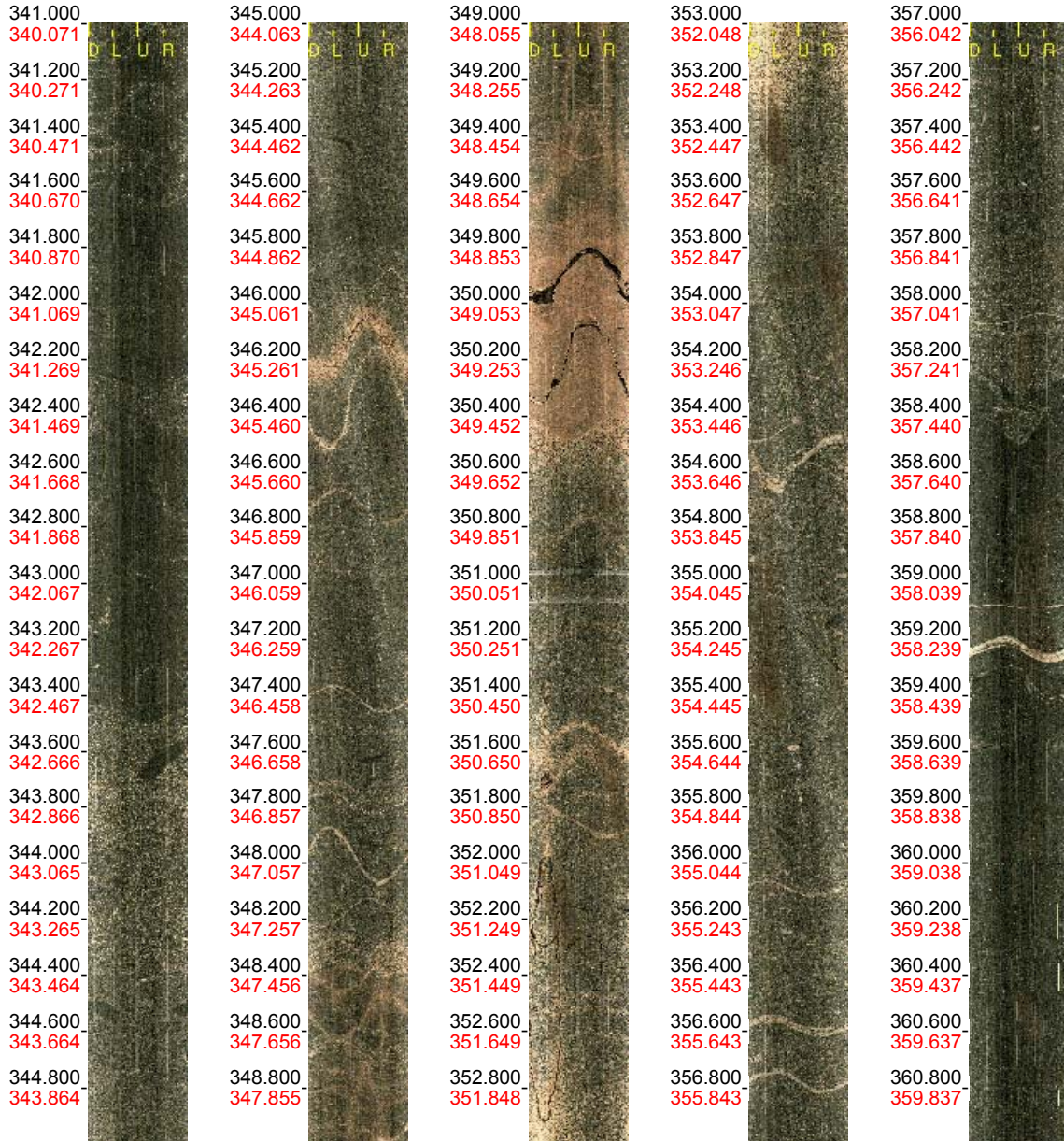
Scale: 1 : 20

Aspect: 150 %

13 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 341.000 - 361.000 m
Azimuth: 230.9
Inclination: 82.1



Printed: 2006-10-03 17:51:09

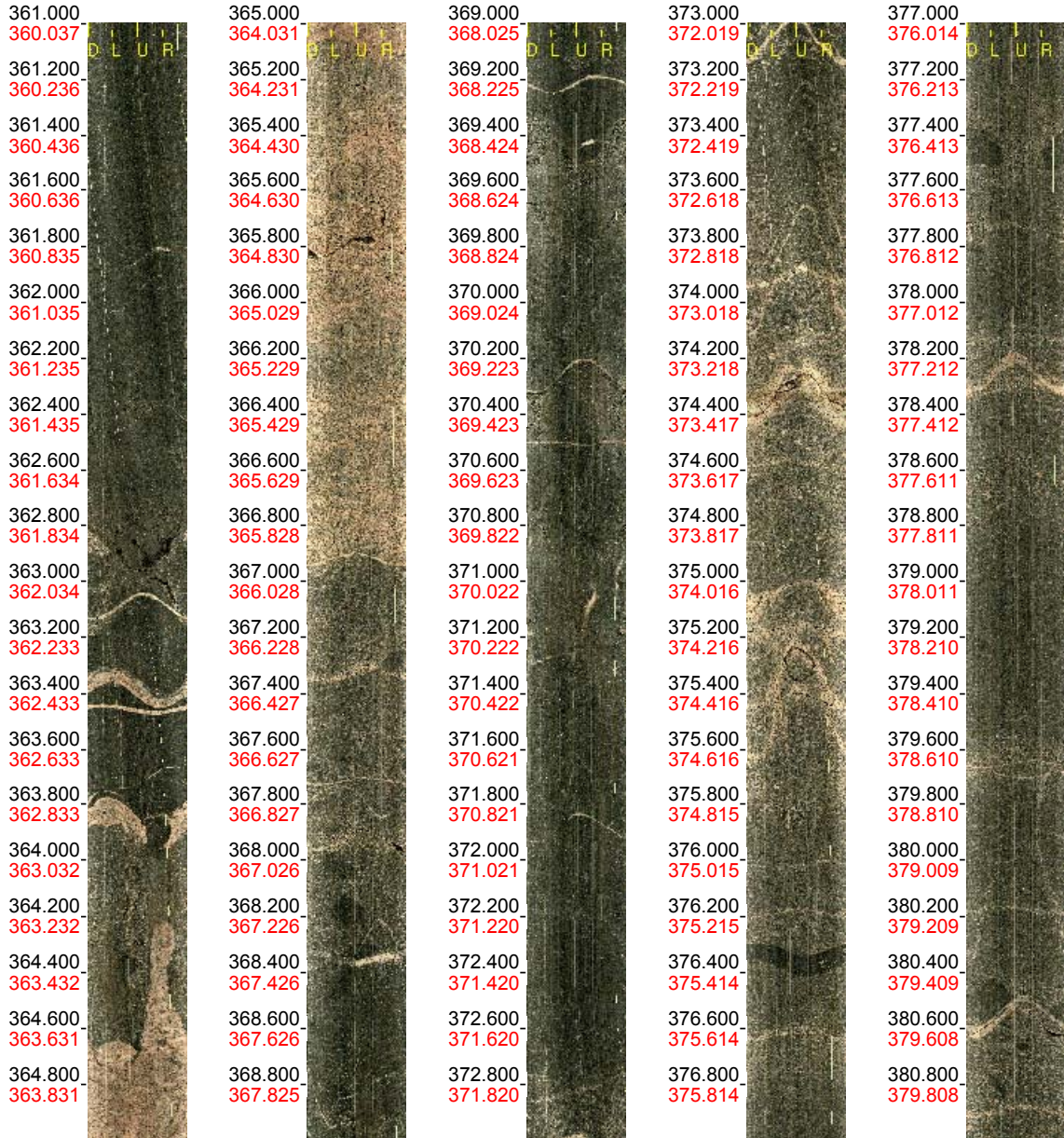
Scale: 1 : 20

Aspect: 150 %

14 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 361.000 - 381.000 m
Azimuth: 230.9
Inclination: 82.1



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

15 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 381.000 - 401.000 m
Azimuth: 230.7
Inclination: 81.9



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

16 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 401.000 - 421.000 m
Azimuth: 229.8
Inclination: 82.0



Printed: 2006-10-03 17:51:09

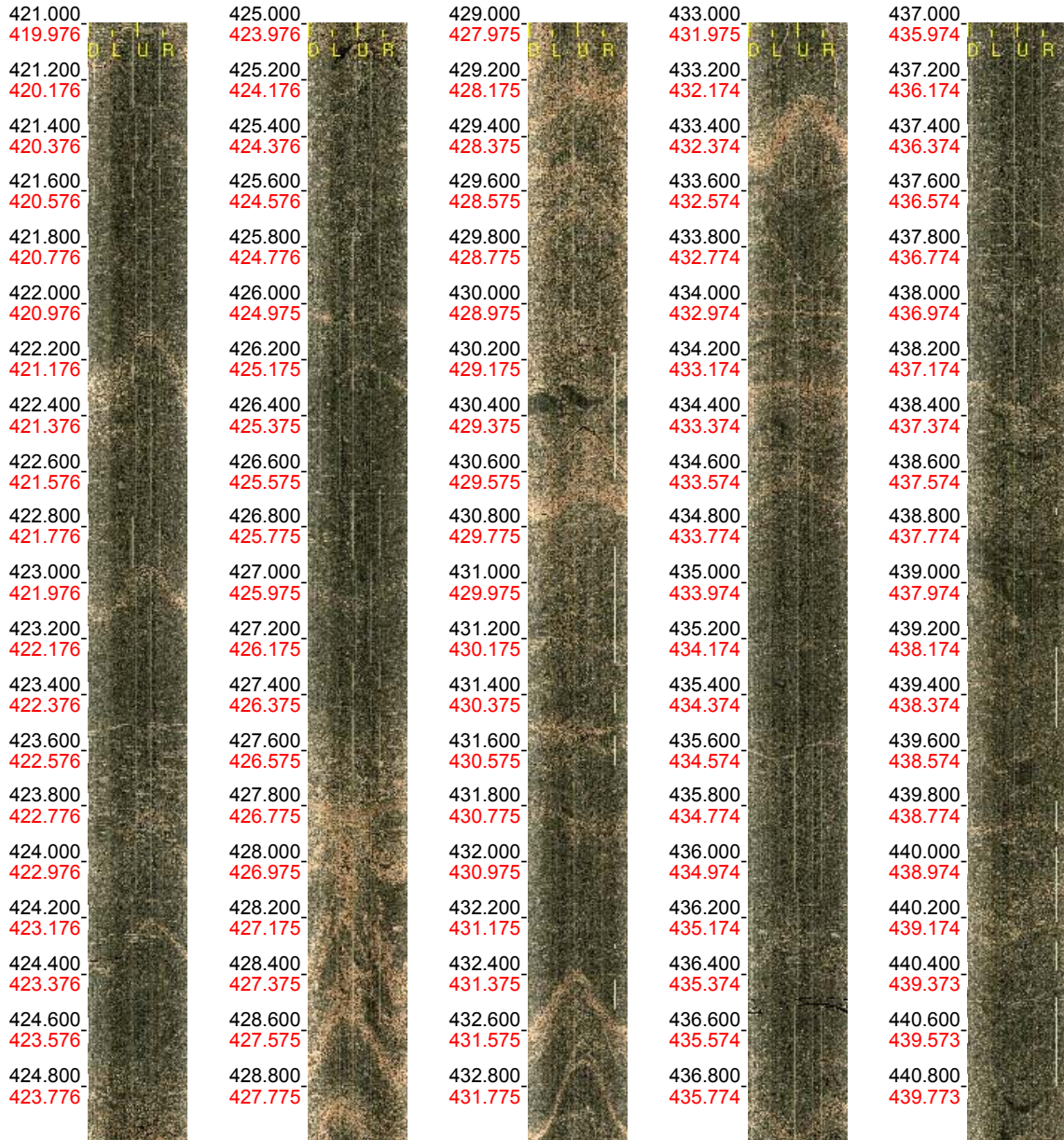
Scale: 1 : 20

Aspect: 150 %

17 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 421.000 - 441.000 m
Azimuth: 228.8
Inclination: 81.9



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

18 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 441.000 - 461.000 m
Azimuth: 228.8
Inclination: 81.9



Printed: 2006-10-03 17:51:09

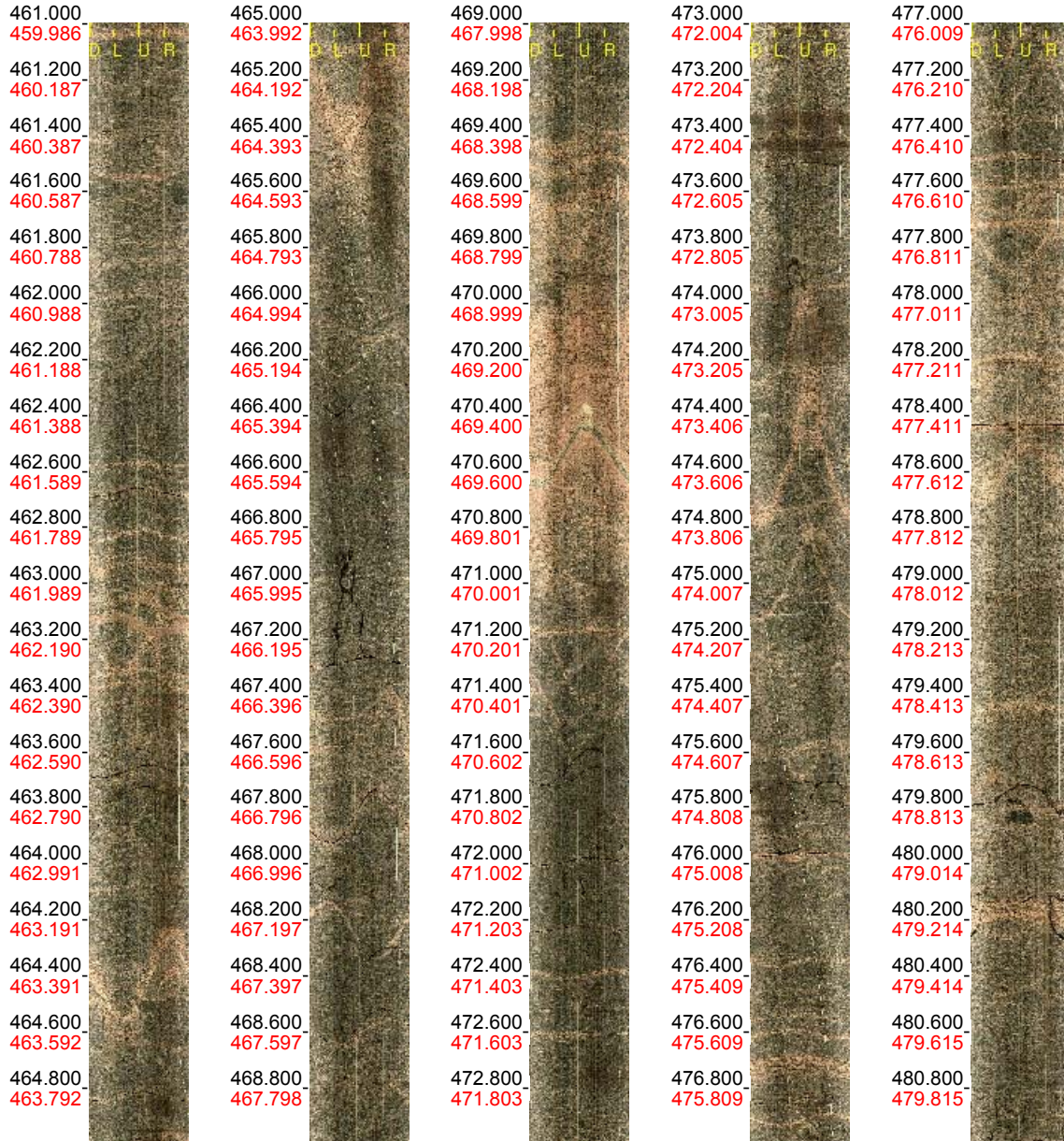
Scale: 1 : 20

Aspect: 150 %

19 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 461.000 - 481.000 m
Azimuth: 228.8
Inclination: 81.9



Printed: 2006-10-03 17:51:09

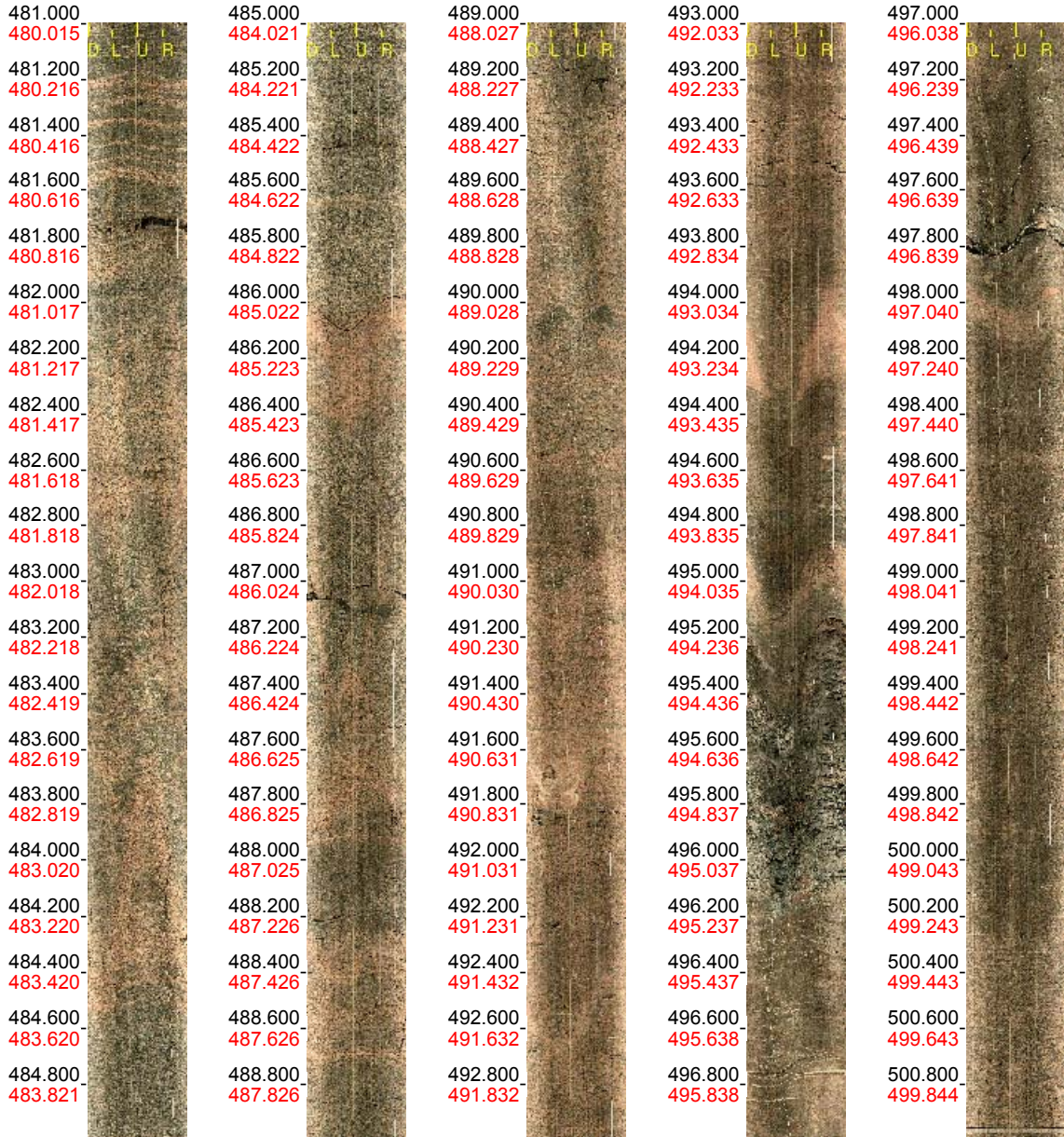
Scale: 1 : 20

Aspect: 150 %

20 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 481.000 - 501.000 m
Azimuth: 227.9
Inclination: 82.0



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

21 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 501.000 - 521.000 m
Azimuth: 226.9
Inclination: 81.9



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

22 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 521.000 - 541.000 m
Azimuth: 226.9
Inclination: 81.9



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

23 (26)

Borehole: KLX13A
Mapping: KLX13A_Geosigma_1

Depth range: 541.000 - 561.000 m
Azimuth: 226.9
Inclination: 81.8



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

24 (26)

Borehole: KLX13A
 Mapping: KLX13A_Geosigma_1

Depth range: 561.000 - 581.000 m
 Azimuth: 228.7
 Inclination: 81.6



Printed: 2006-10-03 17:51:09

Scale: 1 : 20

Aspect: 150 %

25 (26)

Borehole: KLX13A
 Mapping: KLX13A_Geosigma_1

Depth range: 581.000 - 594.056 m
 Azimuth: 228.8
 Inclination: 81.9




Printed: 2006-10-03 17:51:09

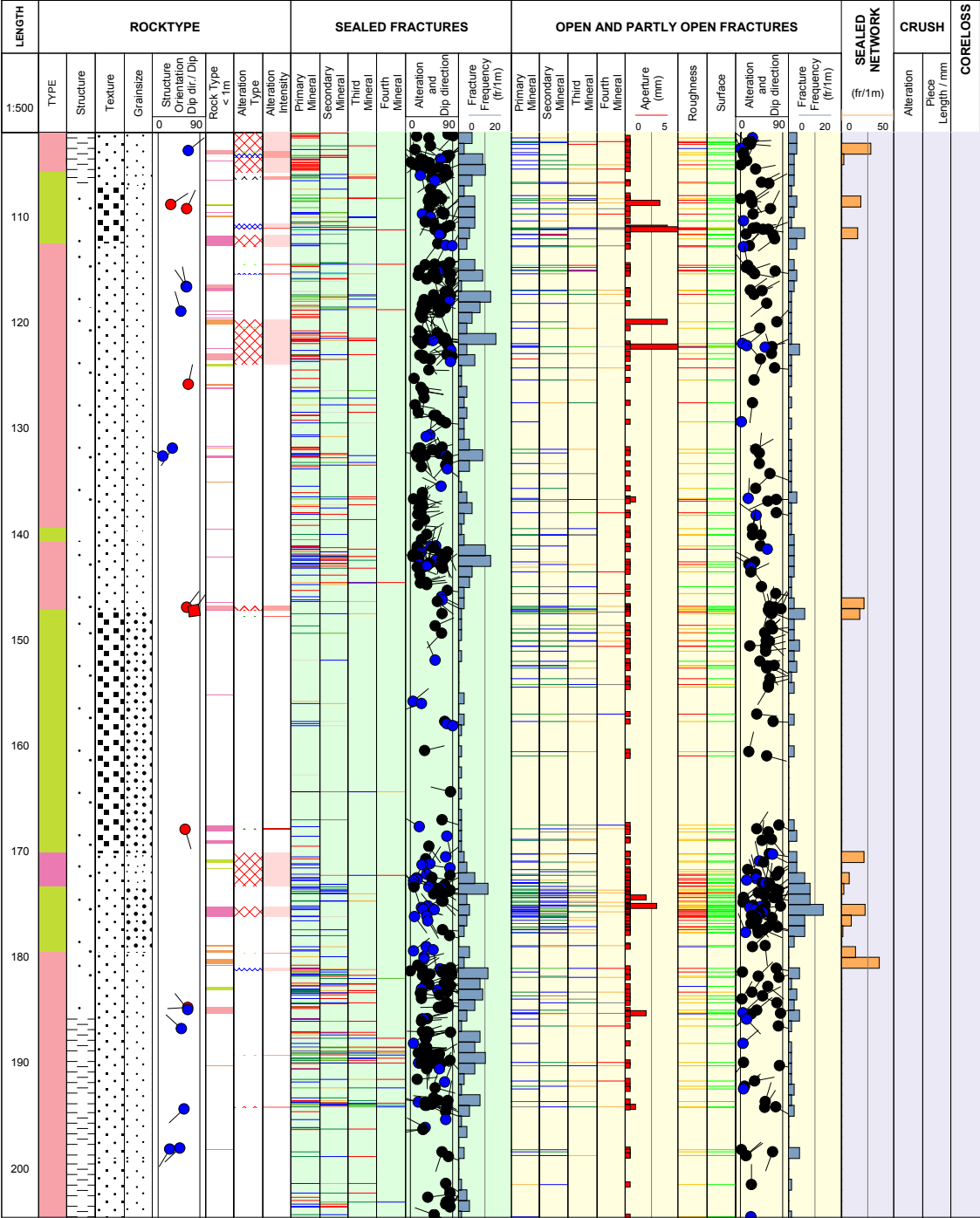
Scale: 1 : 20

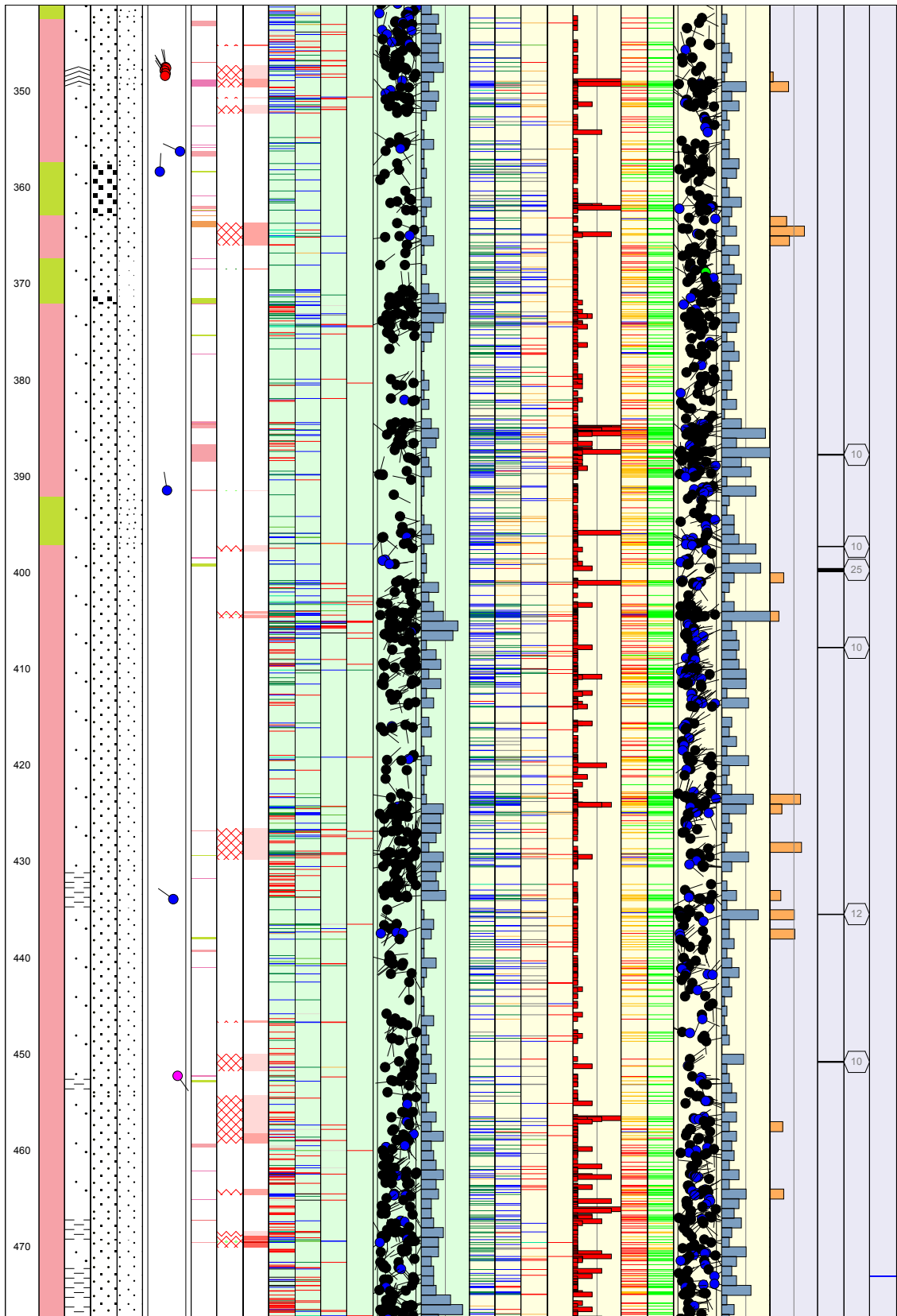
Aspect: 150 %

26 (26)


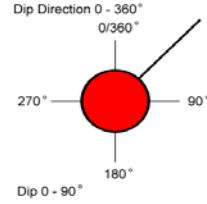
WellCad diagram for KLX13A

Title GEOLOGY IN KLX13A		Appendix:		
	Site	LAXEMAR	Coordinate System	RT90-RHB70
	Borehole	KLX13A	Northing [m]	6367547.14
	Diameter [mm]	76	Easting [m]	1546787.36
	Length [m]	595.850	Elevation [m.a.s.l.]	24.15
	Bearing [°]	224.48	Drilling Start Date	2006-05-19 14:02:00
	Inclination [°]	-82.23	Drilling Stop Date	2006-08-16 09:02:00
	Date of coremapping	2006-09-06 11:38:00	Plot Date	2007-10-25 22:03:45
	Rocktype data from	p_rock	Signed data	





Legend to WellCad Diagram for KLX13A

Title		LEGEND FOR LAXEMAR	KLX13A
		Site Borehole Plot Date Signed data	LAXEMAR KLX13A 2007-10-25 22:03:45
		<p>ROCKTYPE LAXEMAR</p> <ul style="list-style-type: none"> Aspö Diorite Dolerite Fine-grained Götemargranite Coarse-grained Götemargranite Fine-grained granite Pegmatite Granite Ävrö granite Quartz monzodiorite Diorite / Gabbro Fine-grained dioritoid Fine-grained diorite-gabbro Sulphide mineralization Sandstone Soil Ävrö quartz monzodiorite Ävrö granodiorite <p>STRUCTURE</p> <ul style="list-style-type: none"> Cataclastic Schistose Gneissic Mylonitic Ductile Shear Zone Brittle-Ductile Zone Veined Banded Massive Foliated Brecciated Lineated <p>TEXTURE</p> <ul style="list-style-type: none"> Hornfelsed Porphyritic Ophitic Equigranular Augen-Bearing Unequigranular Metamorphic <p>GRAINSIZE</p> <ul style="list-style-type: none"> Aphanitic Fine-grained Fine to medium grained Medium to coarse grained Coarse-grained Medium-grained <p>STRUCTURE ORIENTATION</p> <ul style="list-style-type: none"> Cataclastic Bedded Gneissic Schistose Brittle-Ductile Shear Zone Ductile Shear Zone Lineated Banded Veined Brecciated Foliated Mylonitic <p>ROCK ALTERATION TYPE</p> <ul style="list-style-type: none"> Oxidized Chloritised Epidotised Weathered Tectonized Sericitized Quartz dissolution Silicification Argillization Albitization Carbonatization Saussuritization Steatitization Uralitization Laumontitization Fract zone alteration <p>ROCK ALTERATION INTENSITY</p> <ul style="list-style-type: none"> No intensity Faint Weak Medium Strong <p>ROUGHNESS</p> <ul style="list-style-type: none"> Planar Undulating Stepped Irregular <p>SURFACE</p> <ul style="list-style-type: none"> Rough Smooth Slickensided <p>CRUSH ALTERATION</p> <ul style="list-style-type: none"> Slightly Altered Moderately Altered Highly Altered Completley Altered Gouge Fresh <p>MINERAL</p> <ul style="list-style-type: none"> Epidote Flourite White Feldspar Hematite Calcite Chlorite Chalcopyrite Quartz Pyrite Clay Minerals Laumontite Zeolite Prehnite Iron Hydroxide Oxidized Walls <p>FRACTURE ALTERATION</p> <ul style="list-style-type: none"> Slightly Altered Moderately Altered Highly Altered Completely Altered Gouge Fresh <p>FRACTURE DIRECTION</p> <p>STRUCTURE ORIENTATION</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 KLX13A

Hole Diam T - Drilling: Borehole diameter

KLX13A, 2006-05-19 14:02:00 - 2006-08-16 09:02:00 (99.860 - 595.850 m)

Sub Secup (m)	Sub Seclow (m)	Hole Diam (m)	Comment
99.860	100.360	0.0860	
100.360	595.850	0.0758	Corac

Printout from SICADA 2006-10-03 18:06:44.

Appendix 7

In-data: Reference marks for length adjustments for KLX13A

Reference Mark T - Reference mark in drillhole

KLX13A, 2006-08-30 11:30:00 - 2006-08-31 08:00:00 (110.000 - 581.000 m)

Bhlen (m)	Rotation Speed (rpm)	Start Flow (l/h)	Stop Flow (l/h)	Stop Pressure (bar)	Cutter Time (s)	Trace Detectable	Cutter Diameter (mm)	Comment
110.00	400.00	300	1000	30.0	53	Yes		060830
150.00	400.00	320	1000	30.0	59	Yes		060830
200.00	400.00	350	1000	30.0	64	Yes		060830
250.00	400.00	300	1000	30.0	62	Yes		060830
300.00	400.00	300	1000	32.0	59	Yes		060830
350.00	400.00	300	1000	32.0	67	Yes		060830
400.00	400.00	300	1000	32.0	72	Yes		060830
450.00	400.00	300	1000	30.0	67	Yes		060830
500.00	400.00	350	1000	30.0	73	Yes		060830
550.00	400.00	300	1000	30.0	65	Yes		060831
581.00	400.00	350	1000	30.0	71	Yes		060831 Släppte kulan 7:28 060831

Printout from SICADA 2006-10-03 17:57:50.

In-data: Borehole deviation data for KLX13A

Deviations protocol – KLX13A

SICADA - object_location

Idcode	Coord System	Northing (m)	Eastng (m)	Elevation (m.a.s.l.)	Length (m)	Vertical Depth (m)	Inclination (degrees)	Bearing (degrees)	Inclination Uncert (degrees)	Bearing Uncert (degrees)	Radius Uncert (m)	Origin	Indat
KLX13A	RT90-RHB70	6367547.14	1546787.36	24.15	0.00	0.00	-82.24	224.48	0.993	2.694	0.00	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367546.85	1546787.08	21.18	3.00	2.97	-82.24	224.48	0.993	2.694	0.05	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367546.57	1546786.79	18.21	6.00	5.94	-82.19	224.50	0.993	2.694	0.10	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367546.27	1546786.51	15.24	9.00	8.92	-82.16	224.69	0.993	2.694	0.16	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367545.98	1546786.22	12.26	12.00	11.89	-82.12	225.20	0.993	2.694	0.21	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367545.70	1546785.93	9.29	15.00	14.86	-82.19	225.75	0.993	2.694	0.26	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367545.42	1546785.63	6.32	18.00	17.83	-82.30	226.63	0.993	2.694	0.31	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367545.15	1546785.34	3.35	21.00	20.81	-82.53	227.46	0.993	2.694	0.36	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367544.89	1546785.06	0.37	24.00	23.78	-82.62	228.23	0.993	2.694	0.42	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367544.63	1546784.77	-2.60	27.00	26.76	-82.63	228.82	0.993	2.694	0.47	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367544.38	1546784.48	-5.58	30.00	29.73	-82.75	229.10	0.993	2.694	0.52	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367544.13	1546784.19	-8.56	33.00	32.71	-82.78	229.09	0.993	2.694	0.57	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367543.89	1546783.91	-11.53	36.00	35.69	-82.85	229.09	0.993	2.694	0.62	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367543.64	1546783.63	-14.51	39.00	38.66	-82.80	229.35	0.993	2.694	0.68	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367543.40	1546783.34	-17.49	42.00	41.64	-82.83	230.31	0.993	2.694	0.73	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367543.16	1546783.05	-20.46	45.00	44.61	-82.78	230.31	0.993	2.694	0.78	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367542.92	1546782.76	-23.44	48.00	47.59	-82.81	230.39	0.993	2.694	0.83	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367542.68	1546782.47	-26.41	51.00	50.57	-82.81	230.54	0.993	2.694	0.88	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367542.44	1546782.18	-29.39	54.00	53.54	-82.81	230.59	0.993	2.694	0.94	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367542.21	1546781.89	-32.37	57.00	56.52	-82.83	231.29	0.993	2.694	0.99	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367541.97	1546781.60	-35.34	60.00	59.50	-82.84	231.47	0.993	2.694	1.04	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367541.74	1546781.31	-38.32	63.00	62.47	-82.89	231.58	0.993	2.694	1.09	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367541.51	1546781.02	-41.30	66.00	65.45	-82.88	231.58	0.993	2.694	1.14	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367541.28	1546780.73	-44.27	69.00	68.43	-82.96	231.57	0.993	2.694	1.20	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367541.05	1546780.44	-47.25	72.00	71.40	-82.98	231.14	0.993	2.694	1.25	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367540.82	1546780.15	-50.23	75.00	74.38	-83.02	231.00	0.993	2.694	1.30	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367540.59	1546779.87	-53.21	78.00	77.36	-83.06	231.13	0.993	2.694	1.35	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367540.36	1546779.59	-56.19	81.00	80.34	-83.00	230.65	0.993	2.694	1.40	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367540.13	1546779.31	-59.16	84.00	83.32	-83.04	230.83	0.993	2.694	1.46	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367539.90	1546779.02	-62.14	87.00	86.29	-82.99	231.01	0.993	2.694	1.51	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367539.67	1546778.74	-65.12	90.00	89.27	-83.03	231.17	0.993	2.694	1.56	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367539.44	1546778.46	-68.10	93.00	92.25	-82.97	231.01	0.993	2.694	1.61	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367539.21	1546778.17	-71.07	96.00	95.23	-82.97	230.66	0.993	2.694	1.66	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367538.98	1546777.89	-74.05	99.00	98.20	-82.97	230.61	0.993	2.694	1.72	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367538.75	1546777.60	-77.03	102.00	101.18	-82.95	230.54	0.993	2.694	1.77	Measured	2007-01-17 09:55

KLX13A	RT90-RHB70	6367538.51	1546777.32	-80.01	105.00	104.16	-82.88	230.52	0.993	2.694	1.82	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367538.27	1546777.03	-82.98	108.00	107.14	-82.87	230.35	0.993	2.694	1.87	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367538.04	1546776.74	-85.96	111.00	110.11	-82.87	230.30	0.993	2.694	1.92	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367537.80	1546776.46	-88.94	114.00	113.09	-82.84	230.31	0.993	2.694	1.98	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367537.56	1546776.17	-91.91	117.00	116.07	-82.81	230.38	0.993	2.694	2.03	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367537.32	1546775.88	-94.89	120.00	119.04	-82.80	230.57	0.993	2.694	2.08	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367537.08	1546775.59	-97.86	123.00	122.02	-82.80	230.29	0.993	2.694	2.13	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367536.84	1546775.30	-100.84	126.00	124.99	-82.80	230.14	0.993	2.694	2.18	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367536.60	1546775.01	-103.82	129.00	127.97	-82.80	230.02	0.993	2.694	2.24	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367536.36	1546774.72	-106.79	132.00	130.95	-82.79	230.07	0.993	2.694	2.29	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367536.11	1546774.43	-109.77	135.00	133.92	-82.79	230.30	0.993	2.694	2.34	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367535.88	1546774.14	-112.75	138.00	136.90	-82.79	230.63	0.993	2.694	2.39	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367535.64	1546773.85	-115.72	141.00	139.88	-82.80	230.46	0.993	2.694	2.44	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367535.40	1546773.56	-118.70	144.00	142.85	-82.81	230.06	0.993	2.694	2.50	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367535.15	1546773.27	-121.68	147.00	145.83	-82.81	230.06	0.993	2.694	2.55	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367534.91	1546772.99	-124.65	150.00	148.80	-82.80	230.04	0.993	2.694	2.60	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367534.67	1546772.70	-127.63	153.00	151.78	-82.78	230.55	0.993	2.694	2.65	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367534.43	1546772.40	-130.60	156.00	154.76	-82.76	230.70	0.993	2.694	2.70	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367534.19	1546772.11	-133.58	159.00	157.73	-82.75	230.70	0.993	2.694	2.76	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367533.95	1546771.82	-136.56	162.00	160.71	-82.75	230.76	0.993	2.694	2.81	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367533.71	1546771.52	-139.53	165.00	163.69	-82.75	231.27	0.993	2.694	2.86	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367533.48	1546771.23	-142.51	168.00	166.66	-82.74	231.29	0.993	2.694	2.91	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367533.24	1546770.93	-145.48	171.00	169.64	-82.73	231.29	0.993	2.694	2.96	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367533.00	1546770.64	-148.46	174.00	172.61	-82.72	231.69	0.993	2.694	3.02	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367532.77	1546770.34	-151.44	177.00	175.59	-82.71	231.45	0.993	2.694	3.07	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367532.53	1546770.04	-154.41	180.00	178.56	-82.71	231.45	0.993	2.694	3.12	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367532.29	1546769.74	-157.39	183.00	181.54	-82.72	231.45	0.993	2.694	3.17	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367532.06	1546769.45	-160.36	186.00	184.52	-82.72	230.94	0.993	2.694	3.22	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367531.82	1546769.15	-163.34	189.00	187.49	-82.72	230.94	0.993	2.694	3.28	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367531.58	1546768.86	-166.31	192.00	190.47	-82.72	230.96	0.993	2.694	3.33	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367531.34	1546768.56	-169.29	195.00	193.44	-82.71	231.22	0.993	2.694	3.38	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367531.10	1546768.26	-172.27	198.00	196.42	-82.72	231.48	0.993	2.694	3.43	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367530.86	1546767.96	-175.24	201.00	199.40	-82.74	231.72	0.993	2.694	3.48	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367530.63	1546767.67	-178.22	204.00	202.37	-82.75	231.95	0.993	2.694	3.54	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367530.40	1546767.37	-181.19	207.00	205.35	-82.77	232.13	0.993	2.694	3.59	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367530.16	1546767.07	-184.17	210.00	208.32	-82.77	231.77	0.993	2.694	3.64	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367529.93	1546766.78	-187.15	213.00	211.30	-82.78	231.72	0.993	2.694	3.69	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367529.70	1546766.48	-190.12	216.00	214.28	-82.79	231.72	0.993	2.694	3.74	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367529.47	1546766.18	-193.10	219.00	217.25	-82.81	231.93	0.993	2.694	3.80	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367529.23	1546765.89	-196.08	222.00	220.23	-82.82	232.29	0.993	2.694	3.85	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367529.01	1546765.59	-199.05	225.00	223.21	-82.82	232.32	0.993	2.694	3.90	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367528.77	1546765.30	-202.03	228.00	226.18	-82.83	231.71	0.993	2.694	3.95	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367528.54	1546765.00	-205.01	231.00	229.16	-82.86	231.82	0.993	2.694	4.00	Measured	2007-01-17 09:55

KLX13A	RT90-RHB70	6367528.31	1546764.71	-207.98	234.00	232.14	-82.88	231.93	0.993	2.694	4.06	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367528.09	1546764.42	-210.96	237.00	235.11	-82.94	231.91	0.993	2.694	4.11	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367527.86	1546764.13	-213.94	240.00	238.09	-82.94	232.03	0.993	2.694	4.16	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367527.63	1546763.84	-216.91	243.00	241.07	-82.93	232.14	0.993	2.694	4.21	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367527.41	1546763.54	-219.89	246.00	244.04	-82.93	232.28	0.993	2.694	4.26	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367527.18	1546763.25	-222.87	249.00	247.02	-82.94	232.48	0.993	2.694	4.32	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367526.96	1546762.96	-225.85	252.00	250.00	-82.95	232.55	0.993	2.694	4.37	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367526.73	1546762.67	-228.82	255.00	252.98	-82.97	232.70	0.993	2.694	4.42	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367526.51	1546762.38	-231.80	258.00	255.95	-83.01	233.00	0.993	2.694	4.47	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367526.29	1546762.08	-234.78	261.00	258.93	-83.01	233.00	0.993	2.694	4.52	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367526.07	1546761.79	-237.76	264.00	261.91	-82.96	232.94	0.993	2.694	4.58	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367525.85	1546761.50	-240.73	267.00	264.89	-82.90	232.99	0.993	2.694	4.63	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367525.62	1546761.20	-243.71	270.00	267.86	-82.88	232.65	0.993	2.694	4.68	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367525.40	1546760.91	-246.69	273.00	270.84	-82.88	232.65	0.993	2.694	4.73	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367525.17	1546760.61	-249.66	276.00	273.82	-82.89	232.64	0.993	2.694	4.78	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367524.95	1546760.32	-252.64	279.00	276.79	-82.90	232.48	0.993	2.694	4.84	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367524.72	1546760.02	-255.62	282.00	279.77	-82.91	232.44	0.993	2.694	4.89	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367524.50	1546759.73	-258.59	285.00	282.75	-82.91	232.42	0.993	2.694	4.94	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367524.27	1546759.44	-261.57	288.00	285.72	-82.91	231.97	0.993	2.694	4.99	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367524.04	1546759.14	-264.55	291.00	288.70	-82.91	231.93	0.993	2.694	5.04	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367523.81	1546758.85	-267.53	294.00	291.68	-82.90	231.90	0.993	2.694	5.10	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367523.58	1546758.56	-270.50	297.00	294.66	-82.90	232.07	0.993	2.694	5.15	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367523.35	1546758.27	-273.48	300.00	297.63	-82.90	232.07	0.993	2.694	5.20	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367523.13	1546757.98	-276.46	303.00	300.61	-82.92	232.07	0.993	2.694	5.25	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367522.90	1546757.68	-279.43	306.00	303.59	-82.93	232.16	0.993	2.694	5.30	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367522.67	1546757.39	-282.41	309.00	306.56	-82.92	232.54	0.993	2.694	5.36	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367522.45	1546757.10	-285.39	312.00	309.54	-82.92	232.54	0.993	2.694	5.41	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367522.22	1546756.80	-288.37	315.00	312.52	-82.92	232.37	0.993	2.694	5.46	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367522.00	1546756.51	-291.34	318.00	315.50	-82.92	232.33	0.993	2.694	5.51	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367521.77	1546756.22	-294.32	321.00	318.47	-82.90	232.33	0.993	2.694	5.56	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367521.55	1546755.92	-297.30	324.00	321.45	-82.90	232.45	0.993	2.694	5.62	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367521.32	1546755.63	-300.27	327.00	324.43	-82.91	232.16	0.993	2.694	5.67	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367521.09	1546755.34	-303.25	330.00	327.40	-82.91	231.93	0.993	2.694	5.72	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367520.86	1546755.05	-306.23	333.00	330.38	-82.92	231.93	0.993	2.694	5.77	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367520.64	1546754.76	-309.20	336.00	333.36	-82.93	231.85	0.993	2.694	5.82	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367520.41	1546754.47	-312.18	339.00	336.33	-82.93	232.24	0.993	2.694	5.87	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367520.18	1546754.17	-315.16	342.00	339.31	-82.93	232.51	0.993	2.694	5.93	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367519.96	1546753.88	-318.14	345.00	342.29	-82.91	232.12	0.993	2.694	5.98	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367519.73	1546753.59	-321.11	348.00	345.27	-82.90	231.66	0.993	2.694	6.03	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367519.50	1546753.30	-324.09	351.00	348.24	-82.88	231.60	0.993	2.694	6.08	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367519.27	1546753.01	-327.07	354.00	351.22	-82.88	231.48	0.993	2.694	6.13	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367519.04	1546752.72	-330.04	357.00	354.20	-82.88	231.58	0.993	2.694	6.19	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367518.80	1546752.43	-333.02	360.00	357.17	-82.89	231.58	0.993	2.694	6.24	Measured	2007-01-17 09:55

KLX13A	RT90-RHB70	6367518.57	1546752.13	-336.00	363.00	360.15	-82.89	232.12	0.993	2.694	6.29	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367518.35	1546751.84	-338.97	366.00	363.13	-82.89	231.82	0.993	2.694	6.34	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367518.12	1546751.55	-341.95	369.00	366.10	-82.87	231.88	0.993	2.694	6.39	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367517.89	1546751.26	-344.93	372.00	369.08	-82.87	231.88	0.993	2.694	6.45	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367517.66	1546750.96	-347.91	375.00	372.06	-82.88	232.37	0.993	2.694	6.50	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367517.43	1546750.67	-350.88	378.00	375.03	-82.88	232.36	0.993	2.694	6.55	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367517.20	1546750.37	-353.86	381.00	378.01	-82.86	232.32	0.993	2.694	6.60	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367516.97	1546750.08	-356.84	384.00	380.99	-82.82	232.30	0.993	2.694	6.65	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367516.74	1546749.78	-359.81	387.00	383.96	-82.83	232.26	0.993	2.694	6.71	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367516.52	1546749.48	-362.79	390.00	386.94	-82.81	232.10	0.993	2.694	6.76	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367516.28	1546749.19	-365.76	393.00	389.92	-82.81	231.93	0.993	2.694	6.81	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367516.05	1546748.89	-368.74	396.00	392.89	-82.79	231.75	0.993	2.694	6.86	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367515.82	1546748.60	-371.72	399.00	395.87	-82.79	231.43	0.993	2.694	6.91	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367515.58	1546748.30	-374.69	402.00	398.85	-82.79	231.39	0.993	2.694	6.97	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367515.35	1546748.01	-377.67	405.00	401.82	-82.78	231.39	0.993	2.694	7.02	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367515.11	1546747.71	-380.65	408.00	404.80	-82.80	231.60	0.993	2.694	7.07	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367514.88	1546747.42	-383.62	411.00	407.78	-82.80	231.55	0.993	2.694	7.12	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367514.65	1546747.12	-386.60	414.00	410.75	-82.80	231.50	0.993	2.694	7.17	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367514.41	1546746.83	-389.58	417.00	413.73	-82.80	231.06	0.993	2.694	7.23	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367514.17	1546746.54	-392.55	420.00	416.70	-82.81	231.01	0.993	2.694	7.28	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367513.94	1546746.25	-395.53	423.00	419.68	-82.81	231.01	0.993	2.694	7.33	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367513.70	1546745.96	-398.50	426.00	422.66	-82.81	230.76	0.993	2.694	7.38	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367513.46	1546745.67	-401.48	429.00	425.63	-82.81	230.76	0.993	2.694	7.43	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367513.23	1546745.38	-404.46	432.00	428.61	-82.81	230.68	0.993	2.694	7.49	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367512.99	1546745.09	-407.43	435.00	431.59	-82.81	230.30	0.993	2.694	7.54	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367512.75	1546744.80	-410.41	438.00	434.56	-82.83	230.27	0.993	2.694	7.59	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367512.51	1546744.51	-413.39	441.00	437.54	-82.84	230.25	0.993	2.694	7.64	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367512.27	1546744.22	-416.36	444.00	440.52	-82.84	230.13	0.993	2.694	7.69	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367512.03	1546743.93	-419.34	447.00	443.49	-82.83	230.05	0.993	2.694	7.75	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367511.79	1546743.65	-422.32	450.00	446.47	-82.83	229.95	0.993	2.694	7.80	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367511.55	1546743.36	-425.29	453.00	449.45	-82.82	230.55	0.993	2.694	7.85	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367511.31	1546743.07	-428.27	456.00	452.42	-82.81	230.49	0.993	2.694	7.90	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367511.07	1546742.78	-431.25	459.00	455.40	-82.82	230.46	0.993	2.694	7.95	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367510.83	1546742.49	-434.22	462.00	458.38	-82.84	230.42	0.993	2.694	8.01	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367510.60	1546742.20	-437.20	465.00	461.35	-82.88	230.32	0.993	2.694	8.06	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367510.36	1546741.92	-440.18	468.00	464.33	-82.88	229.29	0.993	2.694	8.11	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367510.11	1546741.64	-443.15	471.00	467.31	-82.89	229.21	0.993	2.694	8.16	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367509.87	1546741.36	-446.13	474.00	470.28	-82.89	229.06	0.993	2.694	8.21	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367509.63	1546741.08	-449.11	477.00	473.26	-82.92	228.76	0.993	2.694	8.27	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367509.38	1546740.80	-452.08	480.00	476.24	-82.93	228.69	0.993	2.694	8.32	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367509.14	1546740.52	-455.06	483.00	479.21	-82.93	228.57	0.993	2.694	8.37	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367508.89	1546740.25	-458.04	486.00	482.19	-82.93	228.56	0.993	2.694	8.42	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367508.65	1546739.97	-461.02	489.00	485.17	-82.93	228.46	0.993	2.694	8.47	Measured	2007-01-17 09:55

KLX13A	RT90-RHB70	6367508.40	1546739.69	-463.99	492.00	488.15	-82.94	228.46	0.993	2.694	8.53	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367508.16	1546739.42	-466.97	495.00	491.12	-82.95	228.40	0.993	2.694	8.58	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367507.92	1546739.14	-469.95	498.00	494.10	-82.97	228.22	0.993	2.694	8.63	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367507.67	1546738.87	-472.92	501.00	497.08	-82.97	228.25	0.993	2.694	8.68	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367507.43	1546738.60	-475.90	504.00	500.06	-82.97	228.25	0.993	2.694	8.73	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367507.18	1546738.32	-478.88	507.00	503.03	-82.97	228.32	0.993	2.694	8.79	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367506.94	1546738.05	-481.86	510.00	506.01	-82.95	228.19	0.993	2.694	8.84	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367506.69	1546737.77	-484.83	513.00	508.99	-82.95	228.19	0.993	2.694	8.89	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367506.45	1546737.50	-487.81	516.00	511.96	-82.99	228.19	0.993	2.694	8.94	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367506.20	1546737.23	-490.79	519.00	514.94	-83.00	228.19	0.993	2.694	8.99	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367505.96	1546736.96	-493.77	522.00	517.92	-83.00	227.94	0.993	2.694	9.05	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367505.71	1546736.68	-496.74	525.00	520.90	-83.00	228.03	0.993	2.694	9.10	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367505.47	1546736.41	-499.72	528.00	523.88	-83.00	227.88	0.993	2.694	9.15	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367505.22	1546736.14	-502.70	531.00	526.85	-83.00	227.88	0.993	2.694	9.20	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367504.98	1546735.87	-505.68	534.00	529.83	-83.00	227.87	0.993	2.694	9.25	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367504.73	1546735.60	-508.66	537.00	532.81	-83.00	228.10	0.993	2.694	9.31	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367504.49	1546735.33	-511.63	540.00	535.79	-82.96	228.10	0.993	2.694	9.36	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367504.24	1546735.05	-514.61	543.00	538.76	-82.93	228.10	0.993	2.694	9.41	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367504.00	1546734.78	-517.59	546.00	541.74	-82.93	228.10	0.993	2.694	9.46	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367503.75	1546734.50	-520.56	549.00	544.72	-82.93	228.19	0.993	2.694	9.51	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367503.50	1546734.23	-523.54	552.00	547.69	-82.94	228.25	0.993	2.694	9.57	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367503.26	1546733.95	-526.52	555.00	550.67	-82.95	228.58	0.993	2.694	9.62	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367503.02	1546733.67	-529.50	558.00	553.65	-82.95	228.75	0.993	2.694	9.67	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367502.77	1546733.40	-532.47	561.00	556.63	-82.97	228.75	0.993	2.694	9.72	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367502.53	1546733.12	-535.45	564.00	559.60	-82.97	228.77	0.993	2.694	9.77	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367502.29	1546732.85	-538.43	567.00	562.58	-82.98	228.77	0.993	2.694	9.83	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367502.05	1546732.57	-541.41	570.00	565.56	-83.00	228.53	0.993	2.694	9.88	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367501.81	1546732.30	-544.38	573.00	568.54	-83.02	228.59	0.993	2.694	9.93	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367501.57	1546732.02	-547.36	576.00	571.51	-83.00	228.66	0.993	2.694	9.98	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367501.33	1546731.75	-550.34	579.00	574.49	-83.00	228.83	0.993	2.694	10.03	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367501.09	1546731.47	-553.32	582.00	577.47	-83.03	228.99	0.993	2.694	10.09	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367500.85	1546731.20	-556.30	585.00	580.45	-83.09	229.01	0.993	2.694	10.14	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367500.61	1546730.93	-559.27	588.00	583.43	-83.16	229.01	0.993	2.694	10.19	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367500.38	1546730.66	-562.25	591.00	586.41	-83.19	229.01	0.993	2.694	10.24	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367500.15	1546730.39	-565.23	594.00	589.38	-83.22	229.01	0.993	2.694	10.29	Measured	2007-01-17 09:55
KLX13A	RT90-RHB70	6367500.00	1546730.23	-567.07	595.85	591.22	-83.22	229.01	0.993	2.694	10.33	Measured	2007-01-17 09:55

Number of rows: 200.

Printout from SICADA 2007-10-26 12:18:07.