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Tittel Drilling results Klinkenberg mine 2001				
Forfatter Røsholt, Bernt		Dato År 05.10 2001	Bedrift (Oppdragsgiver og/eller oppdragstaker) Crew Norway AS (Mindex ASA)	
Kommune Røros	Fylke Sør-Trøndelag	Bergdistrikt	1: 50 000 kartblad 17203	1: 250 000 kartblad Røros
Fagområde Boring	Dokument type		Forekomster (forekomst, gruvefelt, undersøkelsesfelt) Klinkenberg	
Råstoffgruppe Malm/metall	Råstofftype Cu Zn			
Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse A drilling program covering 9 drillholes with a total of 611m was drilled in the period April 4th to May 4th 2001. Additional three to four holes could be added to the drilling made in this program to get a better picture of the orebody and its probable extension down dip towards the NW.				



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DRILLING RESULTS

KLINKENBERG MINE 2001

Bernt Røsholt

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Fig
Bilag 1

CREW NORWAY AS

Mutingsområder pr Febr. 2001

Abrahamshøgda (3)

Klinkenhåmårn (10)

Storhøgda (1)

CREW NORWAY AS

Storhøgda

Fjellgjelt

Sødal

Mats

Klinkenberg

1 km

Abraham



1720 IV 1720 I
1720 III 1720 II

AURSUNDEN

AURSUNDEN

Drilling results Klinkenberg mine 2001

Background.

Klinkenberg mine is located in Røros schists north of the lake Aursunden about 20 km NE of the Røros Township.

Klinkenberg mine was found as early as 1668 and operated intermittently until 1892. The outcropping mineralization is dominated by pyrite and ore rich on Zn. Pyrite was extracted at the late stage of the mine's life, and some copper in the earlier days. The mine never developed to a significant mine since the copper resources were too low. Klinkenberg dump volume is estimated at 23000 m³. Zn rich ore may be found both at the dumps and in the underground mine. Pillars have been rock chip sampled and returned Zn contents up to 10,7% over 0,95m.

The deposit was mapped and sampled by Crew (Mindex) in 1998. For details, see enclosure no 1.

In 1999 the Røros area was covered by a helicopter survey and the Klinkenberg deposit responded well to the helicopter survey with a distinct EM-dipole anomaly with a coinciding moderate magnetic anomaly. See NGU Report 99.118.

Ground Mag, VLF and EM horizontal loop survey confirmed the helicopter anomalies. See NGU Report 2000.064.

The Klinkenberg area is claimed with in total 14 claim areas including Storhøgda (1) to the NE and Abraham (3) to the SW. See fig 1.

A detailed geological map was also prepared over the area by Mr. Rune Wilberg. See enclosed map fig no 2.

Drilling program.

A drilling program covering 6 drill holes with a total of 860m was planned. See Fig 2. The drilling at Klinkenberg was carried out between April 4th and May 4th 2001. It was decided to do the drilling on snow conditions to minimize the terrain damages. A total of 610,8m was drilled on 9 holes.

The table below gives the locations, depths and rough results of mineral intersections. Fig no3 shows the location of the holes drilled. Due to the complicated folding system of the area, it was necessary to drill rather close holes as well as close to the outcropping mineralization to optimize the information from the drillholes.

The winter drilling program was hampered by very cold conditions resulting in delays at the drill site Kjønnvollmyran being drilled before Klinkenberg. This delay was transferred to the Klinkenberg project. In addition, one of the two drilling machines broke down in the final drillings leading to additional delays. The Environmental Section of Røros Kommune had set the 1st of May as a deadline for the winter drilling. With their positive corporation Crew had the deadline postponed with a few days. As a result of the delays, the drilling program at Klinkenberg was about 250m shorter than budgeted. A planned drillhole at the approximate location UTM 635958E/6958735N to complete the 6-5-7 profile towards the NE was therefore never drilled.



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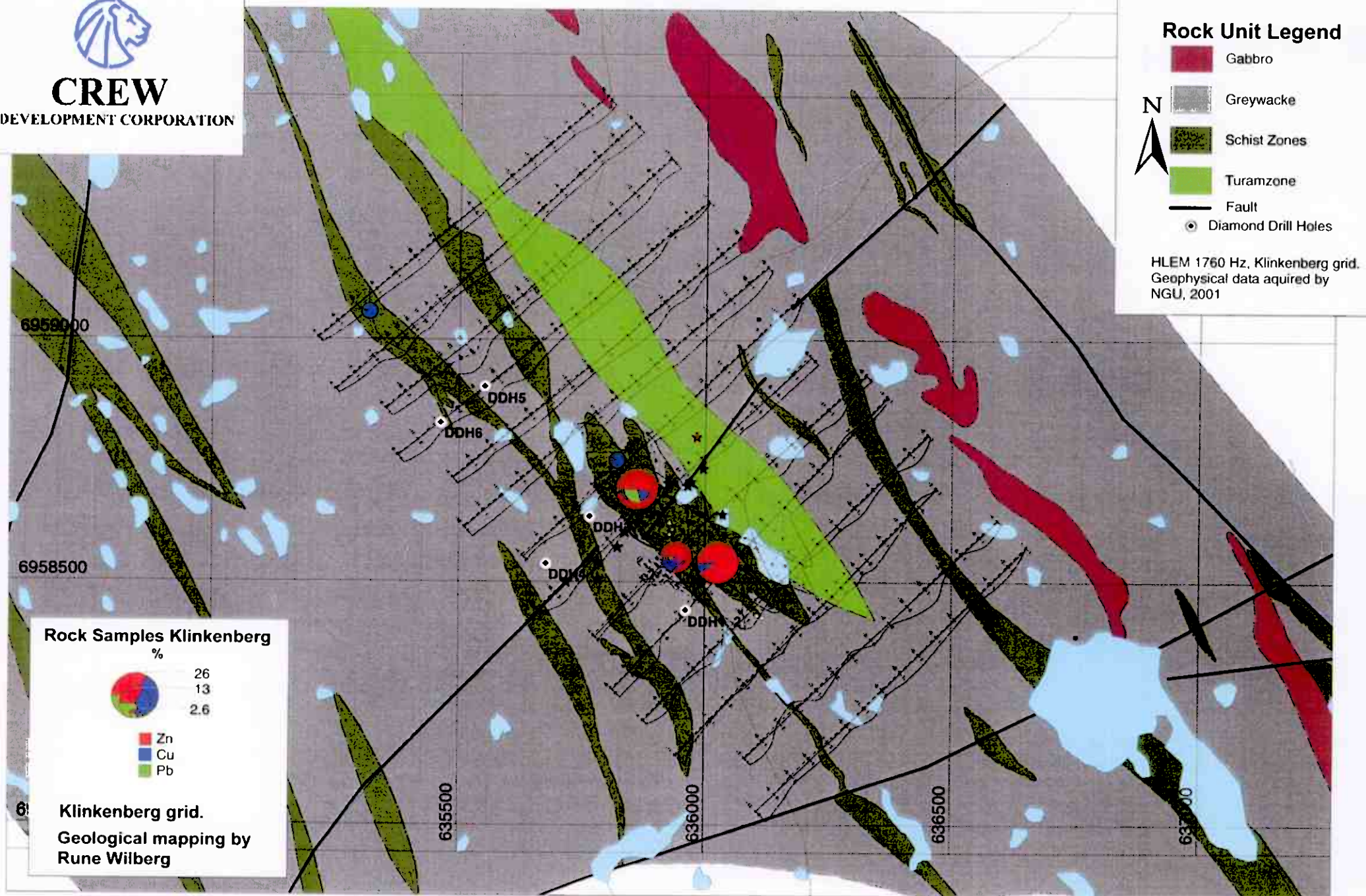


Fig 2: 2001 drilling plan



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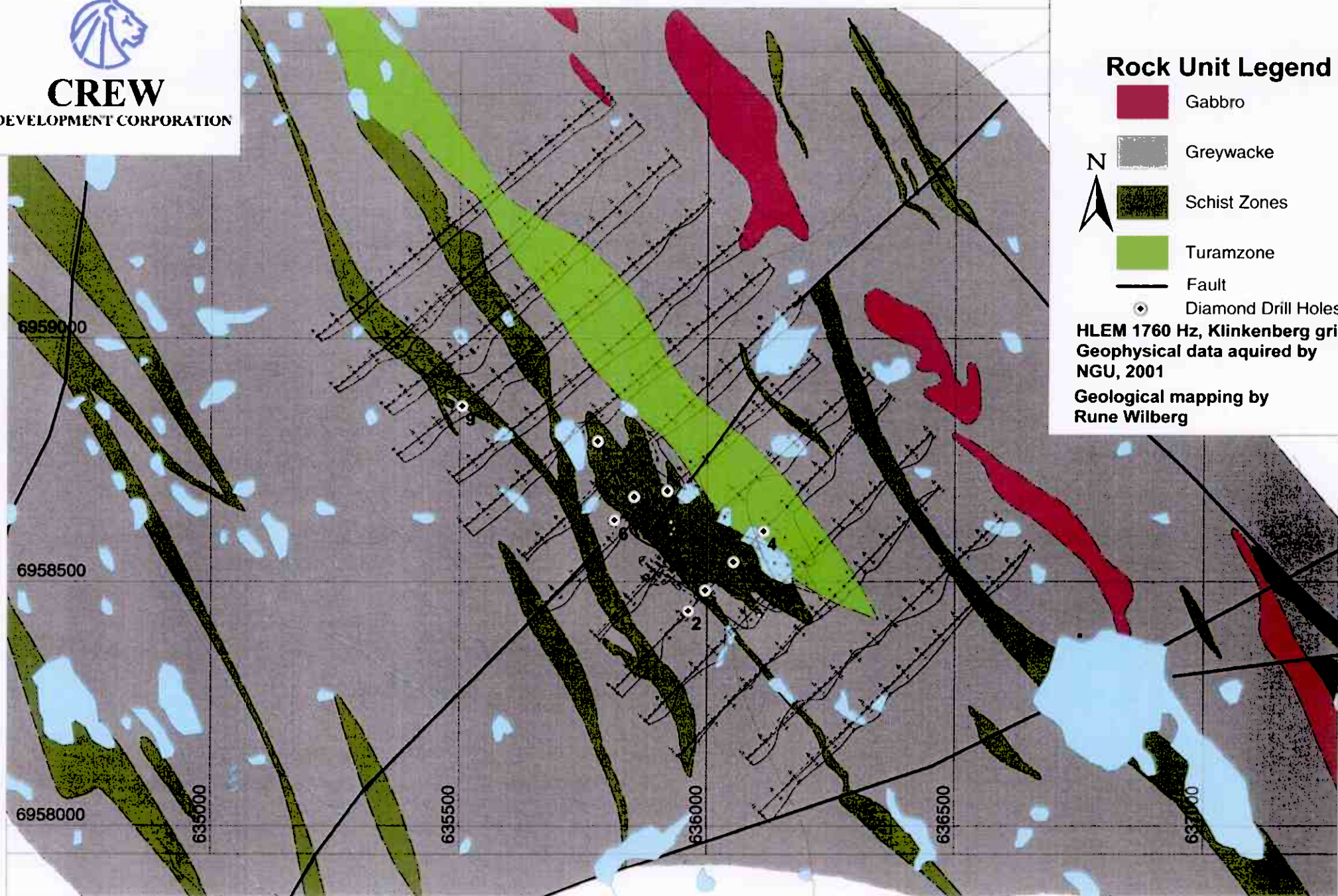


Fig 3: Drill locations 2001

Klinkenberg

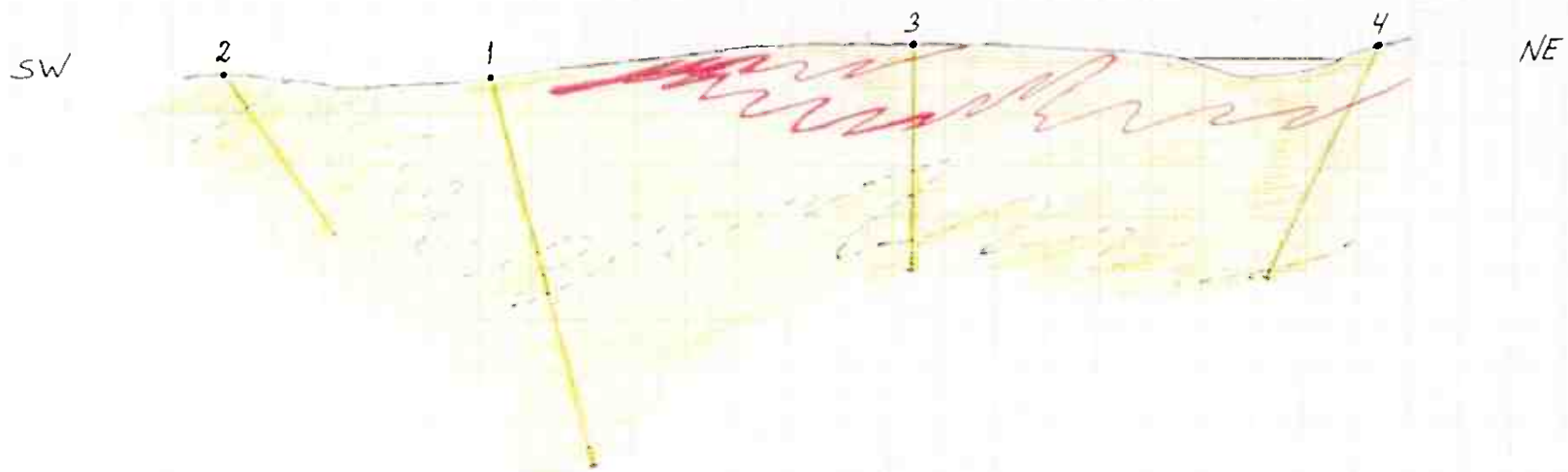
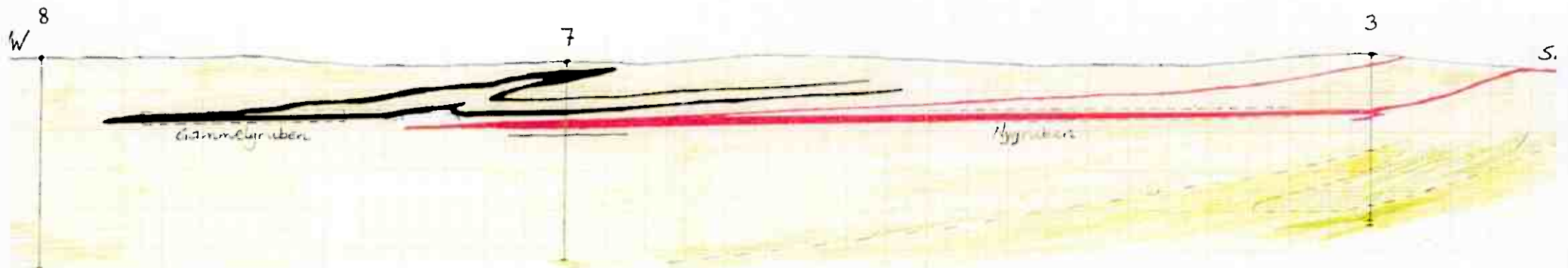


Fig 4



scale 1:1000

0 10 20 30 40 50m

Chlorite schist

Greywacke

section dominated by banded, massive to semimassive Zn-pyritic min.

section dominated by brecciated, massive to semimassive Cu-pyrrohotitic min.

Drill holes Klinkenberg 2001

Hole no.	UTM E	UTM N	Inclin./Azim.	Overb.	Depth	Minr. Section	Minr
1	635996	6958482	75°/NE (52°)	3,0	78,4		
2	635962	6958440	55°/NE (52°)	3,0	37,7		
3	636053	6958540	85°/SE (130°)	3,0	43,5		
4	636114	6958603	65°/SW (227°)	2,0	49,6		
5	635852	6958674	55°/NE (50°)	6,0	55,2	40m diss minr	Py, SI
6	635812	6958626	65°/NE (54°)	1,5	93,3		
7	635919	6958686	65°/NE (47°)	3,0	55,0	1,5-5,6, 9,66-19,85	Cpy, Po, SI
8	635778	6958788	55°/NE (57°)	3,0	65,2		
9	635505	6958861	55°/NE (61°)	1,5	132,9		
Sum					610,8		

It was drilled two profiles comprising of 4 and 3 holes respectively, holes no 2-1-3-4 in the SE profile and 6-5-7 in the central part of the mineralization. Two single holes, no 8 and 9 towards the NW were also drilled. Hole no 8 was sunk to intersect the probable continuation of the mineralization, while hole no 9 was sunk to intersect a combined deep-seated horizontal loop and mag anomaly.

Enclosure no 2 is a complete list of analytical results of the drillholes with both major and trace elements.

Enclosure no 3 is a copy of the original core logs.

Enclosure no 4 is Certificate of analysis from XRAL laboratories.

Drilling results.

Four drill holes; no 2, 1, 3 and 4 making up a profile across the mineralized structure in the SE were first sunk. **Fig no 4** on the facing page show the profile. In spite of strong horizontal loop anomalies in the same profile, very scarce mineralizations were intersected. The reason for this may be that small flakes of native copper is found in foliation planes of the mica schist and in small cracks near surface due to supergene enrichment.

Holes no 2 and no 1 are almost free for any intersection of base metals. Only 3m were assayed from 3,2-6,2m from drillhole no 2 where weak traces of Cpy and Py were registered. See table below for results.

Chemical analysis of drill holes 1, 2, 3 and 4.

				Smpl. ID	Fe	Cu	Zn	Ag	Au	Cu	Zn
				Sch. Code	ICP70	ICP70	ICP70	ICP70	FA301	ICAY50	ICAY50
Drillhole	number	from	to	An. Unit	%	ppm	ppm	Ppm	ppb	%	%
				Det. Lim.	0.01	0.5	0.5	0.2	1	0.01	0.01
Klinkenberg	1 No analysis										
Klinkenberg	2	3.2	6.2	400375	3.89	56.6	93.1	0.3	11	n.a.	n.a.
Klinkenberg	3	2.07	2.46	401321	4.04	1390	4010	0.3	20	n.a.	n.a.
Klinkenberg	3	2.46	2.55	401322	12.1	10210	>10000	15.3	670	1.1	10.9
Klinkenberg	3	2.55	3	401323	3.53	301	1920	-0.2	12	n.a.	n.a.
Klinkenberg	3	3	4.62	401324	3.91	79.7	372	0.8	9	n.a.	n.a.
Klinkenberg	3	13.83	14	401325	5.61	3060	>10000	4.7	36	n.a.	2.76
Klinkenberg	3	14	14.62	401326	15.4	6400	>10000	37.2	100	n.a.	17.8

Klinkenberg	3	14.62	15.43	401327	3.87	167	572	0.9	12	n.a.	n.a.
Klinkenberg	3	15.43	16.14	401328	4.76	733	434	1.5	21	n.a.	n.a.
Klinkenberg	4	11.23	12.23	400377	3.16	30.1	105	0.7	9	n.a.	n.a.
Klinkenberg	4	12.23	12.48	400376	6.61	943	15220	0.9	17	n.a.	1.66
Klinkenberg	4	12.48	13.48	400378	3.67	52.4	231	-0.2	9	n.a.	n.a.

Drillhole no 3 had a 10 cm section at around 1,5m depth with good mineralization of Cpy, Sl, Py and native copper. This section was never analyzed since the section was located in the top of the hole where the casing was mounted. Further in the same drillhole intersections of Sl, Cpy and Py are registered from 2,07-4,62m and 13,83-16,14m. Only weak traces of base metals and precious elements occur in the lower parts of each section, so only the sections 2,07-3,0m and 13,83-14,62m should be regarded as potential ore zones. **The upper zone from 2,07-2,55m has over 0,48m a content of 0,32% Cu, 2,4% Zn, 3,1ppm Ag and 142ppb Au while the lower zone from 13,83-14,62 over 0,79m has a content of 0,6% Cu, 14,1% Zn, 30,2ppm Ag and 86ppb Au.**

It is believed that the upper section corresponds to the near surface outcropping Sl mineralizations in pit no 13, 35m to the NE and the lower section to the underground mineralizations that can be seen about 80m to the NW. Both sections belongs to "the mineralization dominated by banded, massive to semimassive Zn-py-ore". Also see longitudinal section drillhole 3-7-8, **fig no 4**.

Drillhole no 4 has also one intersection of zinc mineralization over 0,25m at shallow depth from 12,23-12,48m with 1,66%Zn and 0,1%Cu. This indicates that the nature of the zinc mineralization could be of considerable extension.

Chemical analysis of drill holes 6, 5 and 7.

				Smpl. ID	Fe	Cu	Zn	Ag	Au	Cu	Zn
				Sch. Code	ICP70	ICP70	ICP70	ICP70	FA301	ICAY50	ICAY50
Drillhole	number	from	to	An. Unit	%	ppm	ppm	ppm	ppb	%	%
				Det. Lim.	0.01	0.5	0.5	0.2	1	0.01	0,01
Klinkenberg	5	13.85	14.3	401301	6.23	2500	921	0.5	17	n.a.	n.a.
Klinkenberg	5	14.3	15.28	401302	13.5	8460	>10000	16	84	n.a.	6.1
Klinkenberg	5	15.28	16.18	401303	5.55	1080	1070	-0.2	14	n.a.	n.a.
Klinkenberg	5	28.86	29.15	401304	7.57	4750	4640	1.8	72	n.a.	n.a.
Klinkenberg	5	29.15	29.5	401305	14.3	3110	11210	1.8	56	n.a.	1.3
Klinkenberg	5	29.5	30	401306	3.94	1910	552	-0.2	31	n.a.	n.a.
Klinkenberg	5	30	32.6	401307	5.32	1820	1420	-0.2	24	n.a.	n.a.
Klinkenberg	5	43.22	44.18	401308	4.18	843	4150	0.7	33	n.a.	n.a.
Klinkenberg	5	44.18	44.73	401309	19.8	12800	>10000	7.5	90	1.33	2.19
Klinkenberg	5	44.73	45.46	401310	5.93	574	2630	-0.2	11	n.a.	n.a.
Klinkenberg	5	45.46	45.91	401311	20.4	14610	>10000	13.5	172	1.7	6.6
Klinkenberg	5	45.91	47.16	401312	3.39	511	4000	2.1	18	n.a.	n.a.
Klinkenberg	5	47.16	47.34	401313	16.5	8750	>10000	31.5	606	n.a.	9.15
Klinkenberg	5	47.34	48	401314	5.06	755	740	1.3	13	n.a.	n.a.
Klinkenberg	6	13	14	401315	3.59	99.8	183	-0.2	11	n.a.	n.a.
Klinkenberg	6	31.4	32	401316	3.22	45.3	105	-0.2	8	n.a.	n.a.
Klinkenberg	6	37.72	39.67	401317	3.31	93.8	85.4	-0.2	8	n.a.	n.a.
Klinkenberg	6	39.67	41	401318	3.42	64.8	87.5	0.3	10	n.a.	n.a.
Klinkenberg	6	71.52	72.62	401319	2.84	31.8	65.5	0.5	9	n.a.	n.a.
Klinkenberg	6	78.43	79.45	401320	3.4	57.8	86.8	-0.2	11	n.a.	n.a.
Klinkenberg	7	1.7	3.2	400351	25.1	>10000	3340	13.5	158	4.29	n.a.
Klinkenberg	7	3.2	4.57	400352	20.8	17530	1790	4.9	58	1.78	n.a.
Klinkenberg	7	4.57	5.6	400353	12.9	7000	808	2.4	36	n.a.	n.a.
Klinkenberg	7	9.67	10.21	400354	16.6	25900	415	7.1	212	2.67	n.a.

Klinkenberg

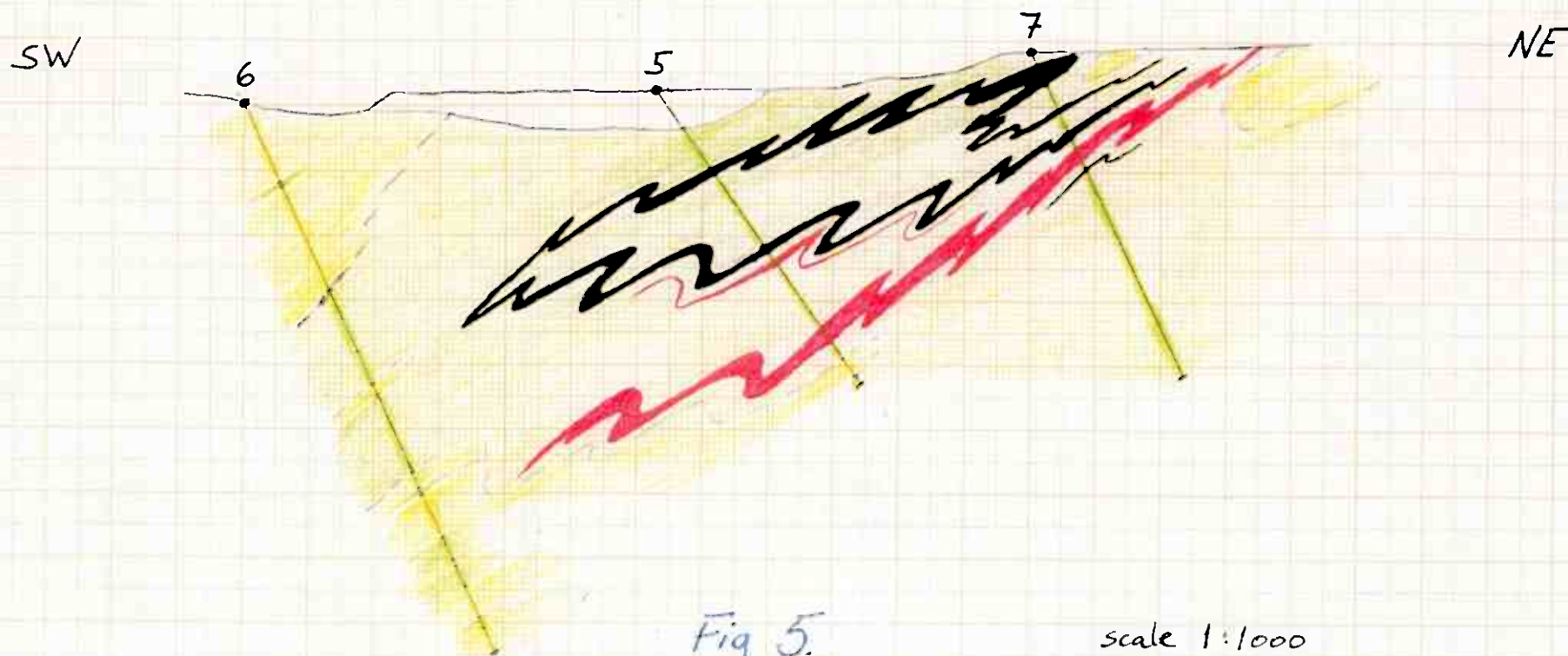
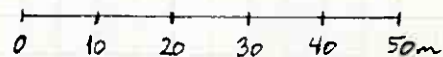


Fig 5.

scale 1:1000



Klinkenberg	7	10.21	13.23	400355	11.1	3220	281	1.3	44	n.a.	n.a.
Klinkenberg	7	13.23	14.77	400356	20.4	>10000	7390	21.6	1250	9.86	n.a.
Klinkenberg	7	14.77	15.93	400357	6.86	323	1340	-0.2	16	n.a.	n.a.
Klinkenberg	7	15.93	16.93	400358	17.2	35580	9150	8.5	723	3.65	n.a.
Klinkenberg	7	16.93	18.38	400359	17.8	17700	6700	4.7	402	1.69	n.a.
Klinkenberg	7	18.38	19.07	400360	8.33	658	2330	2.2	15	n.a.	n.a.
Klinkenberg	7	19.07	19.85	400361	13	33200	5700	9.5	701	4.02	n.a.
Klinkenberg	7	19.85	23	400362	4.88	292	308	-0.2	17	n.a.	n.a.
Klinkenberg	7	23	23.6	400363	4.14	357	152	0.3	11	n.a.	n.a.
Klinkenberg	7	35.9	37.4	400364	4.88	1030	1440	-0.2	16	n.a.	n.a.
Klinkenberg	7	37.4	38.7	400365	5.65	1210	990	-0.2	16	n.a.	n.a.
Klinkenberg	7	43.55	45.25	400366	4.41	937	260	0.6	14	n.a.	n.a.

Drillhole no 6 has no intersection of any mineralization. Assayed sections returned only background values. This hole with a depth to 93,3m should therefore limit the mineralization to the SW. See **fig no 5**. Fig no 5 has the same legend as fig no 4.

Drillhole no 5 intersected in total six mineralized zones from 0,18 to 2,6m in thickness. The two upper sections from 14,3-15,25m returned 6,1% Zn and 0,9% Cu over 0,98m and from 29,15-29,50m 1,3% Zn and 0,3% Cu over 0,35m. These two sections are believed to be the same Zn-bearing horizon described as "bands dominated by massive to semimassive Zn-pyrite mineralization". Just below the lowest Zn-bearing zone, a 2,6m Cu-bearing zone with only 0,2% Cu and 0,1% Zn occur. From 44,18-47,34 three narrow intersections 0,55m, 0,45m and 0,18m respectively occur with copper contents from 0,1-1,7% and zinc contents from 2,2-9,2%. These three intersections are regarded to be "the brecciated massive to semimassive Cu-pyrrhotite mineralization".

Drillhole no 7 intersected five mineralized zones, which could be merged into three different zones as follows:

From 1,7-5,6m with 2,51% Cu and 0,21% Zn and

From 9,67-18,38m with 2,72% Cu and 0,26% Zn (or 13,23-18,38m with 4,14% Cu and 0,42% Zn) and

From 19,07-19,85m with 4,0% Cu and 0,6% Zn.

The upper intersections down to 14,77m are dominated by copper with pyrrhotite and are therefore believed to be "the brecciated massive to semimassive Cu-pyrrhotite mineralization". From 15,93m and downwards, the gangue mineral dominantly is pyrite. Copper is clearly dominating against zinc, but this part is regarded to be of the type "bands dominated by massive to semimassive Zn-pyrite mineralization".

Chemical analysis of drill holes no 8 and 9.

				Smpl. ID	Fe	Cu	Zn	Ag	Au	Cu	Zn
				Sch. Code	ICP70	ICP70	ICP70	ICP70	FA301	ICAY50	ICAY50
Drillhole	number	from	to	An. Unit	%	ppm	ppm	ppm	ppb	%	%
				Det. Lim.	0.01	0.5	0.5	0.2	1	0.01	0.01
Klinkenberg	8	6	7	400369	4.24	18.3	57.8	-0.2	8	n.a.	n.a.
Klinkenberg	8	7	8	400370	3.91	15.4	142	-0.2	9	n.a.	n.a.
Klinkenberg	8	8	9	400371	3.94	27.7	277	-0.2	12	n.a.	n.a.
Klinkenberg	8	46.4	47.4	400374	4.69	90.4	253	-0.2	10	n.a.	n.a.
Klinkenberg	8	47.4	47.62	400367	7.19	1750	2090	-0.2	28	n.a.	n.a.
Klinkenberg	8	47.62	48.62	400373	4.93	403	707	-0.2	18	n.a.	n.a.
Klinkenberg	8	51.38	51.95	400368	7.24	1330	682	-0.2	19	n.a.	n.a.
Klinkenberg	8	60.2	61.2	400372	5.27	353	502	0.4	19	n.a.	n.a.

Klinkenberg	9	51.2	53.8	400405	3.58	59.2	88.6	-0.2	6	n.a.	n.a.
Klinkenberg	9	85	85.2	400406	3.97	39.9	95.8	-0.2	10	n.a.	n.a.
Klinkenberg	9	103.15	103.7	400407	2.75	52	63.1	-0.2	9	n.a.	n.a.

Drillhole no 8 has only intersected weak copper and zinc mineralizations over a few centimeters around 50m and 60m. The upper intersection at around 50m may be the trace of the continuation of one of the Klinkenberg mineralized zones.

Drillhole no 9 which was drilled on a combined weak horizontal loop and magnetic anomaly intersected no mineralizations.

Geology.

The Klinkenberg mine is hosted in chlorite schist, which is surrounded by greywacke. The chlorite schist is strongly folded. The width of the ruler shaped mineralization is close to 200m with a modest to about 30° dip towards the SW. Along strike it can be followed for more than 500m. Towards the SE it is quite flatlying at and close to the surface before it finally goes up in the air. In the other direction, towards the NW, it dips gradually with an average dip at around 3°.

Two different ore types have been identified:

1. The underlying type is a banded, massive to semimassive Sphalerite-Pyrite ore. The bands may be up to one meter in thickness and can be followed over long distances. Two branches of this type is identified as can be seen on **fig no 4**.
2. The upper type of mineralization is a brecciated massive to semimassive Chalcopyrite-Pyrrhotite ore. This type can be very rich in copper like intersections in drillhole no 7 show up to 10%Cu over 1,5m. Like type no 1, this type also occurs in two branches.

Trace elements Au and Ag are bound to the base metals and will give credits in the range of 20-30ppm Ag and 200-500ppb Au for an average ore with 1-2%Cu and 5-10% Zn. Contents of Cd will be rather low and in the range of 0,1% in a 50% Zn concentrate. The Pb content is low, and will be around 0,7% in a 50% Zn concentrate. Au, Ag, Cd, Sn and Pb are all having a positive correlation to Zn, while also Au has a positive correlation to Cu.

Environment.

As stated above, the Klinkenberg deposit was drilled at wintertime to minimize terrain damages. All transportations were carried out on snow covered ground, so no terrain damages may be seen. Photos **Fig 6a-d** show the nine drill sites in July 2001. All plastic material has been removed from the sites, so only the drill casings and caps are left together with some pieces of wood.

Conclusions.

Nine holes totaling 611m have been sunk at the Klinkenberg deposit during April and early May 2001. Additional three to four more holes could be added to the drilling made in this program to get a better picture of the ore body and its probable extension down dip towards the NW.

The drilling program performed has though given a good general picture of the Klinkenberg deposit; Klinkenberg ore body is ruler shaped and can be followed over



Klinkenberg
Fig 6a

DDH 2



DDH 1



Klinkenberg
Fig 6 b

DDH 3



DDH 4

Klinkenberg
Fig 6c.

DDH 7

DDH 5



DDH 6

Klinkenberg

DDH 8



Fig 6 d.

DDH 9

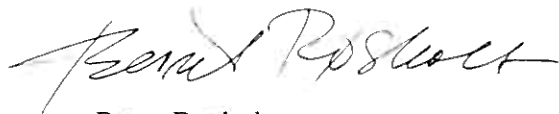
strike for more than 500m. It has a gentle dip at about 3° towards the NW. The ore comprises of two different types:

1. Underlying type dominated by banded, massive to semimassive Sphalerite-Pyrite mineralization. The mineralized bands with a thickness from a few centimeters up to one meter are intensely folded and have a width of up to 200m.
2. Overlying type dominated by brecciated, massive to semi-massive Chalcopyrite-Pyrrhotite mineralization. Drill hole no 7 demonstrates that this ore type may be found as high grade copper ore over several meters.

The content of cadmium and lead in the ore is low. Some credits are expected for the gold and silver contents.

The Klinkenberg deposit with its ruler shaped ore body seems to be limited of size, and can therefore not be regarded as a single target follow up. It has, however, demonstrated high grade sections, which could represent a potential for a limited high grade tonnage. Therefore it should be regarded as "a supplementary resource in the area", which could jointly be extracted with major deposits if they are located in the vicinity.

Høvik 5/10-2001



Bernt Røsholt

Enclosures.

No 1 Klinkenberg 1998,

R. Wilberg and B. Røsholt

Klinkenberg

Wilberg/Røsholt

Encl. no 1
1998

32. Klinkenberg (Klinkenhåmmåren) UTM 0635821 6958721

Location:

Klinkenberg mine is located south of Klinkenhåmmåren, 955m a.s.l. at UTM 0635821 6958721 (GPS08T). The road to Bendikssetra is accessible by car; from here it is a 3km walk, preferentially along the fault zone passing through Snøfonntjønnan.

History of the mine:

The ore deposit was found in 1668, and was initially operated by Det Øresundske Kobberverk. Production of copper ore took place during several shorter periods. Approx. 1790 a new ore horizon was detected, encouraging reinforced mining activity by Røros Kobberverk. In 1796 27 workers were employed at the mine (and totally 470 at Røros Kobberverk). Mining ceased in 1831.

The mine was reopened in 1880 by a farmer from Glåmos, now as a pyrite mine. The ore was transported to Jensvoll (Glåmos) station by horse. This mining period ceased in 1892. Annual production of pyrite ore was in 1892 476 tons.

It is claimed that mining activity at Klinkenberg took place until the beginning of Worldwar I, but no production statistics exist.

Description of the mine and mineralization:

The Klinkenberg ore deposit is followed with underground mining and pitting along a NW-SE extension of approx. 480m (see sketch map).

The initial mining activity was limited to the NW end, called Gammelgruben (GPS08T is at the dump outside the mine entrance), which holds the Cu-containing pyrrhotitic ore type.

Later exploitation was concentrated at Nygruben, following the strike extension SE'wards from Gammelgruben. UTM 0635941 6958551 is the NW'ernmost adit (19) in Nygruben (which is rock chip sampled), and UTM 0635861 6958691 is tailings of Zn-rich Py-Sl-Cpy ore, adjacent to three shafts (4).

SE'wards from Nygruben the outcropping, extremely Zn-rich ore is tested with shafts and excavations. The extension further SE is neither delineated by workings (covered ground) nor drilling, which is not conducted at any part of the deposit.

In the NW'ern part, Gammelgruben, only the pyrrhotitic ore type is found, as isoclinally, repeated layers of massive, brecciated Po-Py-Cpy($\pm$ Mt) ore of up to 0.8m thickness. SE of Gammelgruben only the pyritic ore type is found to occur, that is the Zn-rich, banded Py-Sl-Cpy($\pm$ Mt) ore, which Nygruben is entirely based on.

The reason for this apparently sudden(?) change in ore type is not yet understood. It is a possibility that it is a lateral change from Cu-pyrrhotitic- to Zn-pyritic ore, to the abnormally Zn-rich, almost massive Sl ore in the distal SE-extension.

The alteration signature is also different. Chloritization accompany the pyrrhotitic ore, while sericitization accompany the pyritic ore.

The workings from NW to SE; numbers refer to the sketch map:

Nos. 1 and 2 (Gammelgruben) are adits connected to a larger room, 25m inwards, most of what is accessible. Layers of massive, brecciated, Po-dominated Po-Py-Cpy ($\pm$ Mt $\pm$ Graphite) ore are repeated by isoclinal folding. In the pillar inwards from 2 can be seen 8 dm-thick (up to 30cm) ore bands in an overall thickness of 3m.

At the entrance of 1 the uppermost ore layer is 0.7m thick, with 4-5 dm-thick layers below in the adit.

In the fine grained, durchbewegt ore, Py is irregularly distributed in 1-3mm, up to 15mm sized crystals, and Mt is occasionally abundant in irregular bands.

Intercalated in the ore is in places lenses and bands (few-cm thick) of coarse grained, massive, unoriented hornblende surrounded by few cm of ankerite. At the dump, samples of ankerite-tremolite rock with coarse grained Py are observed.

The remobilized ore layers are embedded more or less concordant with the bedding in the schist, relatively flatlying and undulating, but more local discordant relationships occur frequently.

Wallrock is fine grained, gray-green schist with lamellae of biotite and hornblende (garben texture). Especially in the adit roof well-developed kinkfolding (flatlying axis at 162°) occur. Chlorite schist (in places with large, up to 2-3cm, hornblende needles) commonly accompany the ore layers, specially along their footwall.

No. 3 is a waterfilled, inaccessible adit with side branches inclining westwards, most likely following the here west-dipping pyrrhotitic ore, outcropping at the entrance, from 1 and 2.

No. 4 is three waterfilled shafts. In the inaccessible wall of the middle shaft is seen from distance what appear to be Py-Sl ore, the NW'ernmost outcrop of the pyritic ore type. This means that the pyritic ore here appears at a higher level than the pyrrhotitic that is exploited below, from adit 3. A large dump of Zn-rich pyritic ore close by show massive, fine grained, banded (mm-cm scale) Py-Sl(-Cpy) ore with minor Mt, and in places, bound to local chlorite layers, abundant Gn.

No. 5 is a shaft. No accessible ore outcrop, but at the surrounding dump appear only the pyrrhotitic ore type. A small dump 25m to the SE, containing Py-Sl ore, might however be derived from this shaft.

No. 6 is a small digging with a tiny outcrop of Sl-Py ore; the small dump showing Zn-rich ore.

No. 7: Outcropping Py-Sl ore. No digging.

No. 8: The dump from this digging shows pyrrhotitic ore.

No. 9: Small (2x2 m²) digging. Sl-Py ore.

No. 10: Cpy impregnation in outcrop.

No. 11: Small digging showing 10-20cm thick fine grained Py-Sl ore with mm-band of Cpy at quartz lens contact. SW-erly dip.

No. 12: Small digging shows a rustzone; Py-Sl in quartzite and sericite schist.

No. 13: Zn-rich Sl-Py ore at the dump derived from the digging.

No. 14: Trench in the creek showing upfolded (axis 185°/5°) antiform with Py-Sl ore at the crest.

No. 15: Waterfilled pit. Adjacent outcropping Zn-rich Sl-Py ore.

No. 16: UTM 0636216 6958442 (GPS123T). The wall of a waterfilled pit exposes two (or the same that is folded) Sl-Py layers, 10 and at least 20cm thick, in quartz-sericite schist and greywacke. 90m east of 16: Rusty overburden and weak gossan, and some small boulders of Sl-Py ore (carried from other places or upweathered?).

No. 17: Excavation exposing Sl-Py-banded, 60-70cm thick sericite schist with thin quartz bands. The 5 massive sulphide bands are 2-6cm thick, and they are banded, with alternating Py and Sl bands of 3-5mm thickness. They are repeated by isoclinal folding, axis 185°/5°.

No. 18 and 19 are interconnected adits, 40m inwards to the NE, and 50m to the NW from 19. Parts of the mine are waterfilled, but considerable areas are accessible.

At the entrance of adit 18 is outcropping a 50-60cm thick layer of massive Py-Sl ore with minor Cpy, Mt (tend to be concentrated close to the footwall contact most places, where Mt-enrichment is observed) and Po in occasional bands, thinning out (splitting up?) to 30cm a few meters inwards. The footwall consists of white sericite schist, and hangingwall of gray chlorite-sericite schist. A similar sulphide layer occurs 1m above. At the SE-wall of the entrance of adit 19 is outcropping several massive Py-Sl bands of up to 15-20cm thickness, repeated by isoclinal folding, over a width of 2m. Additional Py-Sl bands can be seen above the roof of the entrance, making up an overall mineralized thickness of 3.5m.

At the NW-wall of the entrance of adit 19 is outcropping a 0.5m thick massive Py-Sl ore, and a few meters inwards it is 6-7 massive layers, averaging 10-15cm thickness each, in 1.7m overall thickness.

The ore bands are intensely isoclinal folded, and are locally cut by the schistosity, e.g. in kinkfolded areas, but the overall picture is a flatlying ore unit followed inwards with the horizontal adits. In the east part and west part of this mine, however, the ore unit (and waterfilled adits) dips to the east and west respectively. At the inner end of adit 19 a 0.5m thickness contain only mm-4cm thick Py-Sl bands, but it appears like the adit should have been lower down. The other adit, following the ore zone 30m to the SE, is in the

inner part inclined to the NE.

Generally, in the mine, the main massive Py-Sl ore layer average approx. 0.5m thickness, increasing to 1-1.5m in places. In addition, several massive layers of dm-thickness occur above and below, making up an overall mineralized thickness of 1.5-3.5m, and massive Sl-Py ore is even outcropping above the adits (digging 11).

Geophysical ground measurements (EM) were conducted in 1949 (Singsaas & Brækken 1950). Referring to their report on the results from the mine area. It is however worth calling attention to an interesting anomaly approx. 200m north of Klinkenberg Gammelgrube.

This extensive conductor could be the extension of the Klinkenberg ore zone, displaced 100m to the NE. In fact, a distinct fault zone, running NE'wards from the westernmost Snøfjelltjørn is directed towards the NW end of the Klinkenberg deposit, where the two (previously connected?) geophysical anomalies ceases out. In any case this anomaly should be followed up.

Dump volume: 23 000 m³.

Susceptibility:

4 000-20 000 at the pyrrhotitic ore (Po-Py-Cpy-Mt) at Gammelgruben, and 20-40 at its wallrocks.

Other measurements, e.g. the Py-Sl ore, are lacking/not yet conducted.

Samples for analysis:

- 399688 (UTM 0635821 6958721): Semimassive to massive Po-Py-Cpy-Mt ore; loc. NW'ernmost adit (Gammelgruben), upper ore horizon, RCS of 0.7m thick ore.
- 399689 (UTM 0635861 6958691): Massive, fine grained, banded Sl-Py (-Cpy) ore.
- 399690 (UTM 0635821 6958721): Chlorite schist with Cpy-Po stringers and quartz boudins.
- 399691 (UTM 0635861 6958691): Massive, Sl-rich Sl-Py-Cpy ore.
- 399692 (UTM 0635861 6958691): Massive, banded Sl-Py-Cpy ore.
- 399693 (UTM 0635861 6958691): Same as 399692, but more Cpy.
- 399694 (UTM 0635861 6958691): Same as 399692, with chlorite layers with associated Gn(-Po-Cpy) impregnation.
- 399784 (UTM 0635941 6958551): Sericite schist with frequent, mm-cm thick bands of massive Py-Sl(-Cpy).
- 400053 (UTM 0635941 6958551): Massive Py-Sl(-Mt) ore; loc. adit (13) entrance, RCS of 0.9m thickness.
- 400054 (UTM 0635941 6958551): Massive Py-Sl ore; loc. adit (13), RCS of 0.45m thickness.
- 400055 (UTM 0635941 6958551): Massive Py-Sl ore with occasional schist bands; loc. adit (13), RCS of 0.75m thickness.
- 400056 (UTM 0635941 6958551): Massive Py-Sl ore; loc. adit (13), RCS of 0.95m thickness.

Result of chemical analysis:

Element	Au30	Ag	Cu	Pb	Zn	As	Fe
Units	ppb	ppm	ppm	ppm	ppm	ppm	%
L.R.L.	5	0,2	1	2	1	5	0,01
399688	41	1,4	14000	54	856	27	> 10.00
399689	122	11,9	16000	3752	128000	95	> 10.00
399690	144	1,1	30000	64	1593	9	20,4
399691	438	12,4	3883	5317	245000	99	27,3
399692	137	8,6	2914	2647	163300	190	< 10.00
399693	128	7,3	15000	1915	104000	140	> 10.00
399694	350	51,8	15000	27700	48000	64	> 10.00
399784	419	12,3	9141	3024	34000	196	11
400053	778	10,7	50000	797	26800	187	> 10.00
400054	756	7	31600	2110	43000	136	> 10.00
400055	644	7,7	21600	1889	73200	112	> 10.00
400056	737	8,7	26000	2877	107300	191	> 10.00

3200N

3100N

3000N

2900N

100W
2800N

Klinkenberg 32

scale 1:1000
CREW NORWAY AS
0 10 20 30 40 50m

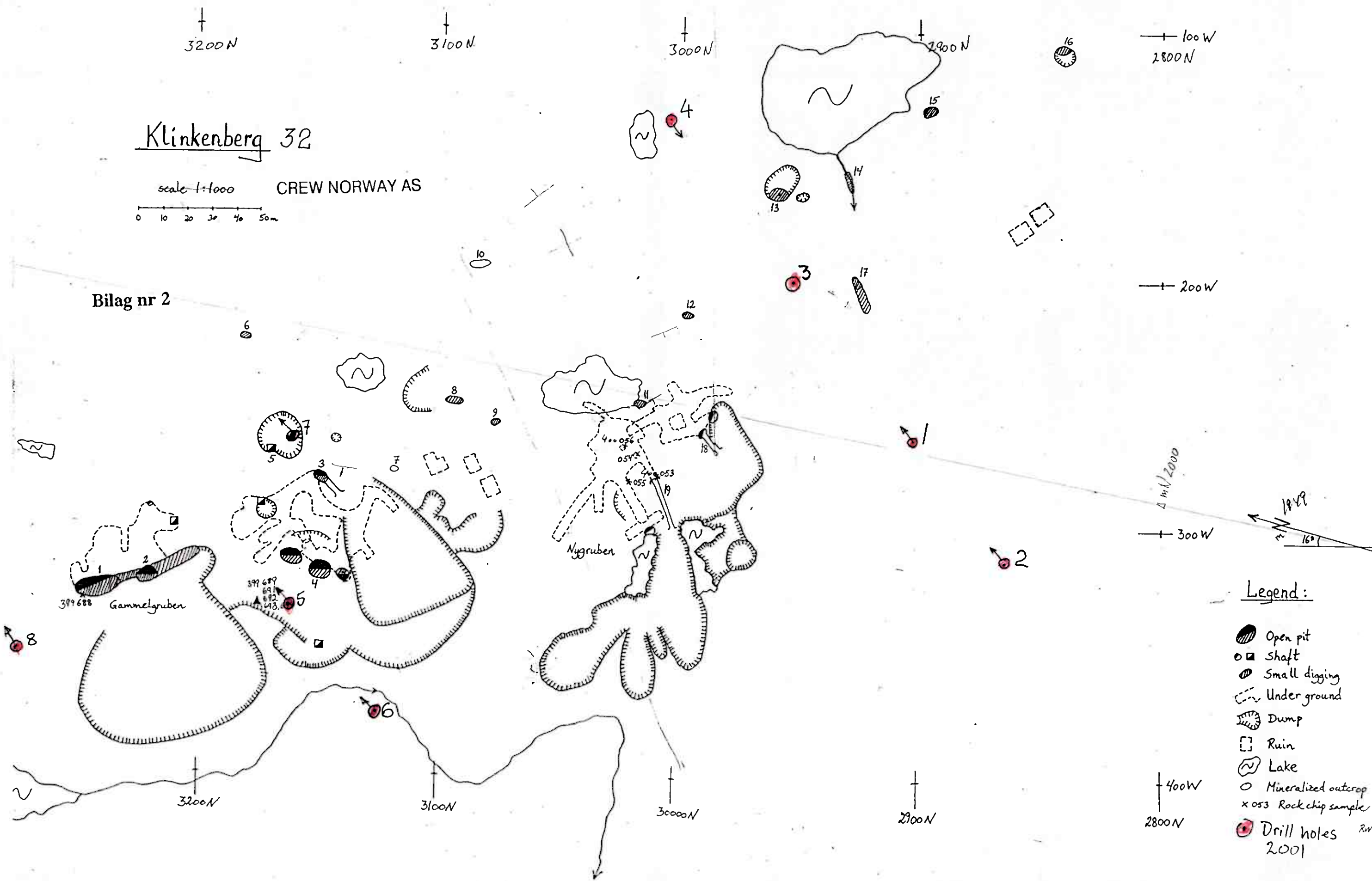
Bilag nr 2

200W

300W
4 ml 2000

Legend:

- Open pit
- Shaft
- Small digging
- Under ground
- Dump
- Ruin
- Lake
- Mineralized outcrop
- x 053 Rock chip sample
- Drill holes 2001



Enclosures.

No 2 Complete list of chemical analysis

CREW NORWAY AS
Drilling results Klinkenberg 2001

Encl. no 2

Drillhole	number	from	to	sample ID	Sample Ident	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	
					Scheme Code	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	
					Analysis Unit	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
					Detection Limit	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.5	0.01	2	1	2	0.01	1	1	0.5	0.5	3	0.5	0.5	0.5	1	0.2	1	10	5	
Klinkenberg	1			no sample	400375	400375	-0.5	0.04	2.47	2.86	0.08	1.12	0.57	4.8	0.11	69	132	445	3.89	24	67	56.6	93.1	-3	13.2	8.7	9.2	2	0.3	-1	-10	-5
Klinkenberg	2	3.2	6.2	400375	400375	-0.5	0.04	2.47	2.86	0.08	1.12	0.57	4.8	0.11	69	132	445	3.89	24	67	56.6	93.1	-3	13.2	8.7	9.2	2	0.3	-1	-10	-5	
Klinkenberg	3	2.07	2.46	401321	401321	-0.5	0.02	2.13	2.35	0.06	0.4	0.14	3.9	0.04	41	116	389	4.04	20	57	1390	4010	-3	3.3	4.8	9.3	3	0.3	12	-10	-5	
Klinkenberg	3	2.46	2.55	401322	401322	-0.5	0.02	2.04	2.33	0.04	0.35	0.09	2.7	0.04	36	105	469	12.1	40	78	10210	>10000	6	2	3.1	9.8	5	15.3	284	14	-5	
Klinkenberg	3	2.55	3	401323	401323	-0.5	0.02	1.87	2.18	0.12	0.69	0.3	3.3	0.08	49	141	282	3.53	19	67	301	1920	-3	7.1	8.1	11.3	28	-0.2	3	-10	-5	
Klinkenberg	3		4.62	401324	401324	-0.5	0.03	2.37	2.84	0.06	0.68	0.17	4.8	0.07	60	122	345	3.91	48	68	79.7	372	-3	4.7	7.2	8.9	4	0.8	-1	-10	-5	
Klinkenberg	3	13.83	14	401325	401325	0.5	0.02	1.95	2.07	0.06	0.42	0.18	3.5	0.03	34	115	359	5.61	25	79	3060	>10000	-3	3.9	10.7	7.5	4	4.7	86	-10	-5	
Klinkenberg	3	14	14.62	401326	401326	0.6	0.02	0.96	1.04	0.02	0.24	0.41	1	0.02	16	75	493	15.4	99	82	6400	>10000	26	2.9	8.8	6.8	45	37.2	549	-10	-5	
Klinkenberg	3	14.62	15.43	401327	401327	-0.5	0.02	2.03	2.2	0.06	0.54	0.17	3.6	0.05	34	88	344	3.87	23	74	167	572	-3	5.1	13.2	6.3	8	0.9	-1	-10	-5	
Klinkenberg	3	15.43	16.14	401328	401328	0.6	0.02	1.58	1.9	0.06	0.19	1.88	4.2	0.01	37	118	498	4.76	17	66	733	434	-3	34.4	13.5	8.2	33	1.5	-1	-10	-5	
Klinkenberg	4	11.23	12.23	400377	400377	-0.5	0.03	2	2.35	0.06	1.05	0.86	4.7	0.11	63	139	379	3.16	17	54	30.1	105	-3	12.2	6.4	10.5	1	0.7	-1	-10	-5	
Klinkenberg	4	12.23	12.48	400376	400376	1.8	0.03	3.27	3.79	0.07	1.11	0.25	6.4	0.12	69	124	440	6.61	90	77	943	15220	-3	9.7	8.9	8.3	105	0.9	64	-10	-5	
Klinkenberg	4	12.48	13.48	400378	400378	-0.5	0.03	2.44	2.76	0.07	0.93	0.8	4.2	0.09	61	141	465	3.67	22	65	52.4	231	-3	12.8	6.3	6.4	2	-0.2	-1	-10	-5	
Klinkenberg	5	13.85	14.3	401301	401301	-0.5	0.02	1.4	1.67	0.06	0.26	0.15	1.7	0.02	20	87	350	6.23	49	66	2500	921	-3	5.7	11.1	8.8	4	0.5	-1	-10	-5	
Klinkenberg	5	14.3	15.28	401302	401302	-0.5	0.02	1.3	1.54	0.04	0.34	0.21	1.3	0.03	21	112	412	13.5	165	103	8460	>10000	-3	4.5	8.7	9.2	12	1.6	133	-10	-5	
Klinkenberg	5	15.28	16.18	401303	401303	-0.5	0.02	2.17	2.58	0.07	0.47	0.19	2.7	0.05	37	147	469	5.55	29	62	1080	1070	-3	7.3	8.8	8.7	-1	-0.2	-1	-10	-5	
Klinkenberg	5	28.86	29.15	401304	401304	-0.5	0.03	2.71	3.07	0.07	0.58	0.31	7.4	0.07	69	167	679	7.57	78	60	4750	4640	-3	6	14.3	8.3	14	1.8	6	-10	-5	
Klinkenberg	5	29.15	29.5	401305	401305	-0.5	0.03	2.33	2.76	0.07	0.65	0.15	5.1	0.08	58	103	602	14.3	192	92	3110	11210	-3	3.1	11.2	11.9	90	1.8	23	-10	-5	
Klinkenberg	5	29.5	30	401306	401306	-0.5	0.02	0.93	1.21	0.06	0.41	0.15	1.9	0.04	23	128	216	3.94	29	47	1910	552	-3	3.9	11.7	8.6	4	-0.2	-1	-10	-5	
Klinkenberg	5	30	32.6	401307	401307	2.3	0.03	1.29	1.62	0.07	0.54	0.18	2.1	0.05	26	106	310	5.32	35	63	1820	1420	-3	5.1	11.6	9.2	3	-0.2	3	-10	-5	
Klinkenberg	5	43.22	44.18	401308	401308	-0.5	0.03	1.66	1.92	0.05	0.58	0.17	3.2	0.06	36	146	277	4.18	28	68	843	4150	-3	6.7	13.2	8.7	5	0.7	10	-10	-5	
Klinkenberg	5	44.18	44.73	401309	401309	0.8	0.02	3.32	3.99	0.04	0.53	0.08	5.6	0.07	63	116	565	19.8	170	35	12800	>10000	77	2.4	8.5	9.4	6	7.5	48	-10	-5	
Klinkenberg	5	44.73	45.46	401310	401310	-0.5	0.03	2.78	3.38	0.07	0.46	0.17	5.5	0.05	57	150	490	5.93	19	59	574	2630	-3	5.7	16.4	10	-1	-0.2	2	-10	-5	
Klinkenberg	5	45.46	45.91	401311	401311	1.4	0.02	1.41	1.65	0.02	0.13	0.04	1.1	0.02	22	105	325	20.4	145	33	14610	>10000	86	2.9	9.6	8.5	7	13.5	179	-10	-5	
Klinkenberg	5	45.91	47.16	401312	401312	-0.5	0.03	1.54	1.81	0.07	0.79	0.24	2.8	0.07	35	96	288	3.39	19	44	511	4000	-3	8.2	17.4	8.6	16	2.1	9	-10	-5	
Klinkenberg	5	47.16	47.34	401313	401313	0.6	0.02	0.73	0.86	0.02	0.3	0.17	0.5	0.03	13	120	246	16.5	101	62	8750	>10000	89	4.1	8.5	8.1	17	31.5	227	60	-5	
Klinkenberg	5	47.34	48	401314	401314	-0.5	0.02	2.05	2.13	0.08	0.27	0.53	3.4	0.02	32	118	372	5.06	51	142	755	740	-3	12.2	19.3	10.6	16	1.3	-1	-10	-5	
Klinkenberg	6	13	14	401315	401315	-0.5	0.03	2.18	2.66	0.05	0.92	0.39	6	0.09	63	147	275	3.59	20	58	99.8	183	-3	8.5	11.2	8	-1	-0.2	-1	-10	-5	
Klinkenberg	6	31.4	32	401316	401316	-0.5	0.04	2	2.29	0.06	0.94	1.14	4.6	0.11	67	171	424	3.22	19	55	45.3	105	-3	15.7	5	4.3	-1	-0.2	-1	-10	-5	
Klinkenberg	6	37.72	39.67	401317	401317	0.5	0.03	2.14	2.45	0.07	0.98	0.36	5	0.1	61	150	340	3.31	19	58	93.8	85.4	-3	12.5	8.4	6	-1	-0.2	-1	-10	-5	
Klinkenberg	6	39.67	41	401318	401318	-0.5	0.04	2.27	2.58	0.08	1.09	0.44	4.9	0.11	67	145	368	3.42	21	59	64.8	87.5	-3	13.4	7.2	4.7	-1	0.3	-1	-10	-5	
Klinkenberg	6	71.52	72.62	401319	401319	-0.5	0.04	1.78	1.83	0.06	1	1.94	4.1	0.11	57	137	589	2.84	18	47	31.8	65.5	-3	16.9	5.4	2.7	2	0.5	-1	-10	-5	
Klinkenberg	6	78.43	79.45	401320	401320	-0.5	0.04	2.3	2.59	0.08	1.13	0.33	4.9	0.11	66	130	342	3.4	20	61	57.8	86.8	-3	12.8	8.6	2.5	-1	-0.2	-1	-10	-5	
Klinkenberg	7	1.7	3.2	400351	400351	0.8	0.02	1.91	0.61	-0.01	0.17	3.79	-0.5	0.02	14	50	1100	25.1	258	41	>10000	3340	-3	67.9	2.4	7.1	-1	13.5	15	-10	-5	
Klinkenberg	7	3.2	4.57	400352	400352	0.6	0.02	3.46	3.4	0.05	0.41	1.45	4.3	0.06	64	86	804	20.8	237	36	17530	1790	3	21.7	7.4	6.8	2	4.9	6	-10	-5	
Klinkenberg	7	4.57	5.6	400353	400353	-0.5	0.04	3.06	3.44	0.05	1.04	0.45	5.4	0.11	80	142	511	12.9	89	51	7000	808	-3	9.9	8.7	6.3	-1	2.4	2	-10	-5	
Klinkenberg	7	9.67	10.21	400354	400354	-0.5	0.02	3.34	3.77	0.05	0.5	1.13	3.1	0.07	50	122	764	16.6	353	42	25900	415	-3	10.4	6.5	6.8	-1	7.1	-1	-10	-5	
Klinkenberg	7	10.21	13.23	400355	400355	-0.5	0.02	5.53	6.31	0.07	0.26	0.24	10.3	0.04	89	128	910	11.1	93	55	3220	281	-3	5.5	13.5	14.2	3	1.3	-1	-10	-5	
Klinkenberg	7	13.23	14.77	400356	400356	0.9	0.02	2.66	2.98	0.03	0.16	0.54	3	0.03	38	82	556	20.4	262	30	>10000	7390	62	4.9	4.6	8	4	0.6	30	22	-5	
Klinkenberg	7	14.77	15.93	400357	400357	-0.5	0.02	4.44	5.02	0.09	0.27	0.22	9.5	0.05	77	171	664	6.86	20	57	323	1340	-3	8.3	16.6	14.6	-1	-0.2	-1	-10	-5	
Klinkenberg	7	15.93	16.93	400358	400358	0.5	0.02	3.02	3.66	0.03	0.37	0.09	5	0.06	57	133	542	17.2	201	33	35580	9150	42	3.3	6.6	8.3	-1	8.5	29	-10	-5	
Klinkenberg	7	16.93	18.38	400359	400359	0.7	0.03	3.24	3.86	0.06	0.56	0.19	4.6	0.07	69	201	541	17.8	211	34	17700	6700	50	5.6	9.6	9.7	-1	4.7	17	-10	-5	
Klinkenberg	7	18.38	19.07	400360	400360	-0.5	0.02	5.04	5.4	0.07	0.18	0.16	9.8	0.04	83	147																

CREW NORWAY AS
Drilling results Klinkenberg 2001

2

Klinkenberg	8	51.38	51.95	400368	400368	2.3	0.02	4.03	4.66	0.08	0.11	0.19	6	0.02	62	150	682	7.24	28	56	1330	682	-3	6.7	12.4	7.6	3	-0.2	3	-10	7
Klinkenberg	8	60.2	61.2	400372	400372	2.2	0.03	3.1	3.68	0.08	0.59	0.23	5.2	0.06	60	127	544	5.27	25	68	353	502	-3	9.2	15.9	7.5	-1	0.4	-1	-10	-5
Klinkenberg	9	7.45	8	400401	400401	-0.5	0.04	2.55	2.78	0.08	1.07	0.29	6.1	0.1	70	132	344	3.52	24	59	47.7	78.3	-3	12.8	11.3	9.6	-1	-0.2	-1	-10	-5
Klinkenberg	9	42	43	400402	400402	-0.5	0.04	2.58	2.99	0.08	1.23	0.69	5.6	0.11	68	114	470	3.98	22	68	21	92.3	-3	12.4	9.7	5.3	-1	0.2	-1	-10	-5
Klinkenberg	9	45	46	400403	400403	-0.5	0.04	2.36	2.8	0.08	1.13	0.63	5.3	0.1	62	110	426	3.85	22	67	54.3	84.1	-3	12.3	10.5	4.8	-1	-0.2	-1	-10	-5
Klinkenberg	9	47	49	400404	400404	-0.5	0.04	2.49	2.89	0.08	1.12	0.77	6.3	0.11	71	105	503	4.05	22	70	77.6	89.1	-3	13	10.4	5.9	-1	-0.2	-1	-10	-5
Klinkenberg	9	51.2	53.8	400405	400405	-0.5	0.04	2.31	2.74	0.08	1.15	0.36	5.1	0.11	63	132	339	3.58	21	62	59.2	88.6	-3	13.4	11.2	5.4	-1	-0.2	-1	-10	-5
Klinkenberg	9	85	85.2	400406	400406	-0.5	0.04	2.6	3.04	0.07	1.76	0.37	6.1	0.17	90	143	403	3.97	24	66	39.9	95.8	-3	15.1	6.3	6.1	-1	-0.2	-1	-10	-5
Klinkenberg	9	103.15	103.65	400407	400407	-0.5	0.03	1.82	1.99	0.06	0.81	1.52	3.4	0.09	52	132	493	2.75	18	52	52	63.1	-3	21.5	4.2	6.1	-1	-0.2	-1	-10	-5

D400351	1	0.02	1.83	0.57	-0.01	0.17	3.83	0.5	0.02	12	45	1080	23.6	250	38	>10000	3240	-3	65.8	2.3	7.6	-1	12.6	15	-10	-5
D400363	-0.5	0.03	2.01	2.34	0.07	0.7	0.42	6.7	0.08	57	167	522	3.9	21	53	369	149	-3	10	9.1	8.2	41	0.4	-1	-10	-5
D400375	-0.5	0.04	2.38	2.73	0.08	1.11	0.56	4.6	0.11	67	129	431	3.72	23	66	59.9	94	-3	12.5	8.5	9.5	1	0.5	-1	-10	-5
D401302	0.6	0.02	1.28	1.51	0.04	0.36	0.22	1.2	0.03	21	110	409	13.3	187	103	8320	>10000	-3	4.4	8.6	8.3	13	14.7	131	-10	-5
D401314	-0.5	0.02	2.07	2.14	0.08	0.28	0.55	3.4	0.02	33	119	377	5.08	55	145	740	760	-3	12.3	19.3	10.2	17	1	-1	-10	-5
D401326	0.6	0.02	0.96	1.04	0.02	0.24	0.41	1.1	0.02	16	75	495	15.3	99	81	6330	>10000	26	2.9	8.7	7	45	36.6	544	-10	-5
BBLANK	-0.5	0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.5	-0.01	-2	-1	-2	-0.01	-1	-1	-0.5	-0.5	-3	-0.5	-0.5	-0.5	-1	-0.2	-1	-10	-5
SXRAL01	-0.5	0.06	0.82	0.74	0.13	0.1	0.91	1.7	0.05	26	267	526	2.81	479	668	69.4	73.5	502	41.6	8.2	6.5	1	5.1	-1	-10	-5

4

Prepared by Bernt Rosholt 9/7/01

Enclosures.

No 3 Core Logs 2001

R. Wilberg and D. Schlatter

KLINK

①

Encl. 3.

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DIAMOND DRILL LOG		drill pad #		drill hole # 1		logged by RW		date 7/05/01							
Y UTM 6395995		X UTM 6958480		m asl		azimuth		dip							
m		foliation structure		grain size 0.5 2 8		from/to		sample #		chlorite alteration 65-68		rock type and minerals		zone	
0										w m s other					
2															
4															
6		60°								X		2.75-2.84: qtz-carb. vein		2.30m overburden	
8		J										3.41-3.52: qtz-carb. vein		2.30-35.00 chl. sch w/ bioporphyl. with thin carb. bands/ lenses and minor, small carb. spots.	
10															
12															
14		70°													
16		J													
18												8.66-8.68: qtz-carb. vein			
20		J													
22															
24		40-70°										12.79-12.87: qtz-carb. vein			
26															
28															
30															
32		60°													
34															
36		80°													
38												18.00-18.19: qtz-carb. veins			
40															
42		70°-80°													
44		J													
46															
48		J													
50												24.59-24.60: qtz-carb. vein			

DIAMOND DRILL LOG		drill pad #		drill hole # 1		logged by PW		date 7/5/01	
Y UTM		X UTM		m asl		azimuth		dip	
m	structure	grain size 0.5 2 8	from/to	sample #	alteration			rock type and minerals	zone
					w	CS m	s other		
50									
52	70-80°				X		25.43-25.83: qtz-carb veins		
54							26.65-26.67: q-carb vein		
56	V								
58									
60							30.78-30.92: q-carb veins		
62	~~70-80°~~								
64									
66							33.57-33.59: q-carb. vein		
68	70°								
70							35.02-35.05: q-carb vein	35.00-39.50: massive greywacke with carb. spots and - bands	
72	65°								
74	20-90°								
76									
78									
80	60°							39.50-43.20: Chlorite schist w/ bioporf. bl. and - lamellae	
82	70						41.32-41.38: q-carb-vein		
84	80-90								
86							43.28-43.32: qtz-vein	43.20-74.90: massive greywacke with carb. spots and - bands, mixed with sections of chl. sch. w/ bioporf. bl. and qtz-carb. veins.	
88									
90									
92							46.23-46.24: q-carb vein		
94	V						47.94-47.97: q-carb vein		
96									
98							49.83-49.95: q-carb-veins		
100									

DIAMOND DRILL LOG		drill pad #		drill hole #		logged by		date	
Y UTM		X UTM		m asl		azimuth		dip	
m		structure		grain size 0.5 2 8		from/to		sample #	

KLINK

DIAMOND DRILL LOG		drill pad #		drill hole # 1		logged by Ren		date 9/05/01		
Y UTM		X UTM		m asl		azimuth		dip		
m	structure	grain size 0.5 2 8	from/to	sample #	alteration			rock type and minerals	zone	
					CS	other				
					w	m	s			
100	J							76.06-76.13 q-c-vein	74.90-78.35: chl. sch. w/ bio- perf. bl. and minor carb. spots.	
102										
104										
106								77.83-77.90 q-c-vein		
108								78.11-78.14 q-c-vein	78.35: EOH	
110										
112										
114										
116										
118										
120										
122										
124										
126										
128										
130										
132										
134										
136										
138										
140										
142										
144										
146										
148										
150										

76.06-76.13.
q-c-vein

77.83-77.90.
q-c-vein

78.11-78.14.
q-c-vein

74.90-78.35:
chl. sch. w/ bio-
perf. bl. and minor
carb. spots.

78.35: EOH

DIAMOND DRILL LOG		drill pad #	drill hole #	2	logged by	PW	date	7/05/01
Y UTM 635959		X UTM 6358435		m asl	azimuth		dip	1:200 / 1:100
m	foliated structure	grain size 0.5 2 8	from/to	sample #	alteration	rock type and minerals	zone	
0					ch w m s			
21								
42						2.10m overburden		
6	50°		3.2		X	2.6-7.0: qtz veins		
8	(110°-120°)			400375		2.10 - 7.80 : chl. sch w/ bioporph. and freq. qtz(-carb) veins. Weak pyx(-py) -diss.		
10								
12			6.2					
14								
16	40°-60°				X	7.80 - 8.64: qtz veins	and a few cm-thick carb-rich bands	
18						8.64 - 11.42: qtz veins	7.80 - 37.70: massive greywacke w/ ankerite spots, mixed with sections of chl. sch (with bio- porph. bl. and lamellae) with qtz veins. (qtz occur in sections of chl. sch.)	
20						11.42 - 11.58: qtz veins	In places, trace of py in both schist and greywacke	
22	55°					13.95 - 15.00: qtz veins	From 21.50 to 40ft: some, dm-thick silicified sections w/ feldspar- spots and some pyxx.	
24								
26								
28								
30	50°							
32								
34								
36								
38								
40						20.55 - 21.15: qtz veins		
42						21.72 - 22.70 qtz veins		
44	sed. banding, 60° fol.: 55°							
46								
48								
50	fol.: 55-60					24.82 - 26.30 qtz veins		

to

Zeldom

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[illegible]

DIAMOND DRILL LOG		drill pad #	drill hole # 3		logged by DS		date			
Y UTM		X UTM		m asl		azimuth		dip	1:200	
m	structure	grain size 0.5 2 8	from/to	sample #	CS w m s			alteration other	rock type and minerals	zone
25.50										
26.52										
27.54									Greenschist + biotite with carbonate veinlets	
28.56										
29.58										
30.60								288	fine grained chlorite fine grained silicates	
31.62								31.26	chd schist with biotite porphyroblasts	
32.64										
33.66										
34.68										
35.70										
36.72	Fol. 70°									
37.74										
38.76								37.86		
39.78	No Fol.								Greenschist Qtz and carbonate veinlets	
40.80								40.22		
41.82									chlorite schist with biotite porphyroblasts	
42.84								Ankerite: 42.22 Pyrite spec	Greenschist carbonates	
43.86								43.5		
44.88									E.O.N.	
45.90										
46.92										
47.94										
48.96										
49.98										
50.00										

DIAMOND DRILL LOG		drill pad #	drill hole #	logged by	date
Y UTM	636108	X UTM	6958602	RW	7/05/01
m	join structure	grain size 0.5 2 8	from/to	sample #	alteration
					other
0					
21					1.60m overburden
42					1.60-2.05: massive greywacke
6	50°			X	2.05-19.60: 2.38-2.39: qtz-vein 3.58-3.76: qtz-vein
84	interm. foliation				chlorite schist w/ thin biotite bands and minor - porf. bl. vts. In places cont. musc. Freq. qtz- carb. veins.
105	0-90° reanu- lation				In places traces of porphy
124	↓				Minor sections are are less chloritic, with mod. lvs-lamellae and thin carb. bands.
147	55°				6.00-6.70: qtz-veins
16					12.23-12.48: 4-5, few-mm- thick qtz-carb- feil bands w/ asy. cpy-sl- py-liss. Thin thickness of min 5-8cm.
18					7.65-7.80: qtz-carb-veins
20	↓				8.45-8.75: q-carb-veins
22	60°				9.28-9.32: —
24			11.23	400377	10.00-11.90: —
26	15°-70°	cpy-sl-py	12.23	400376	12.50-13.70: —
28	30°-45°		12.48	400378	
30			13.48		
32	50°				14.40-14.72: —
34					16.00-16.10: —
36	60-70°				16.95-17.10: —
38					18.00-19.55: —
40	40°			X	19.60-42.20: chl. sch. (less chl. than section above) w/ bio porf. bl.
42	50°				
44					22.55-23.05: q-carb-veins
46	70° or n.				
48					24.08-24.18: q-carb. vein
50					

DIAMOND DRILL LOG		drill pad #		drill hole # 4		logged by RW		date 9/05/01	
Y UTM		X UTM		m asl		azimuth		dip	
m	structure	grain size 0.5 2 8		from/to	sample #	alteration		rock type and minerals	
						CS	other		zone
						w	m	s	
50							25.48-25.50:		
52	70°						7-carb vein		
54							26.27-28.10:		
56							q-c-veins		
58									
60	kink 30-70°						30.50-30.55:		
62							qtz-vein		
64									
66									
68	50°								
70									
72									
74									
76									
78									
80									
82									
84							42.20-47.30:	42.20-48.10	
86							qtz-veins (frequent)	chl. sch. w/ freq. qtz-veins	
88							43.50-45.50: weak mt-diss.	w/ minor, variable amount of muscovite	
90									
92									
94									
96									
98								48.10-48.70: greywacke w/ carb. spots. 48.70-49.60: chl. sch. rich in biot lamellae	
100								49.60m: EOH	

(X) desc.: 40-60 (same in the rest of the hole: 20-40).

DIAMOND DRILL LOG		drill pad #	drill hole #	5	logged by	DS	date	2105101
Y UTM	63 58 50	X UTM	69 58 674	m asl	azimuth	dip	4:200-1:100	
m	structure ° to c.a.	grain size 0.5 2 8	from/to	sample #	chlorite alteration w m s	other	rock type and minerals	zone
0								
1.2								
2.4								
3.8								
4.8								
5.10								
6.12								
7.14								
8.16								
9.18	Fol 55°				X	7.16-7.26 garnet 2.76 stringer sph. 1cm 7.77-8.00 rough sulfide impregnated	med alt. chlorite schist with biotite porphyroblasts	
10.20	Fol 60°				X	8.9-8.51 qtz. ca. veining		
11.22						some biotite bands at 1-2 cm intervals 9-10m		
12.24					X			
13.26	Fol 45°				X			
14.28	(litrochem)		13.85			sulfid. stringers sp. of chlorite 14.3	silicified chlorite schist	
15.20	(litrochem)		14.30			cpn, ps, sph. 14.45- 14.55 Hbl (garnet) 14.55	semi-invasive ore silicified sulfide impregnated	
16.22	(litrochem)		15.28			14.55-14.58 cpn, ps, sph, cpn	semi-invasive ore	
17.24			16.18			sulfide impregnated biotite porphyroblasts	med. alt. chlorite schist with chlorite schist with qtz-veining	
18.26	Fol 70°					qtz-vein 10-15cm	chlorite schist with qtz- veining	
19.28	17.53-25.3 clear foliation						chlorite schist with biotite porphyroblasts (foliated)	
20.40						620m weak impregnated of sulfides		
21.42								
22.44						Expos		
23.46	crenulation Fol 60°							
24.48	No foliation					24.83 w.p. clay	chlorite schist with biotite porphyroblasts (less foliated)	
25.50								

DIAMOND DRILL LOG		drill pad #	drill hole #	logged by	date
Y UTM 63 58 09		X UTM 69 58 626	m asl	azimuth	dip
m	Fol structure	grain size 0.5 2 8	from/to	sample #	alteration w m s other
0					Overburden
1.2					1.0
2.4					Carbonate (Ankerite)
3.8	weak foliat.				porphyroblasts of Biotite bearing greenschist
4.8					
5.10					
6.12					
7.14					256
8.18	more foliation 45°				greenschist with Biotite porphyroblasts
9.18					
10.20					
11.22					
12.24					
13.26			13.0	401315	13.0 chloritic rock with Qtz-veining
14.28			14.0		sulfide impregnation 159
15.30					silicification in bands of cm
16.32					Greenschist Fe-poor rich
17.34	35°				1620 frequently with Biotite porphyroblasts,
18.36					1767 1820 Greenschist / rare Biotite with Biotite porphyroblasts
19.38	No foliation				Greenschist with silica bands
20.40					2026 2046 diorite - bed, Qtz - calcite
21.42	No foliation				Greenschist; Fe-poor rich
22.44					
23.46					2322 2344 diorite - bed
24.48	crenulation in diorite				
25.50					

DIAMOND DRILL LOG									
drill pad #		drill hole # 6		logged by QS		date 3105			
Y UTM		X UTM		m asl		azimuth		dip	
m	structure	grain size 0.5 2 8	from/to	sample #	alteration chlorite es w m s	other	rock type and minerals		zone
25.50									
26.52									
27.84							Gneiss, rich in Fsp		
28.86							(partly silica banding)		
29.58									
30.80									
31.62	Fol 47°		31.40						
32.84			32.00	401316			chlorite schist with biotite porphyroblasts		
33.66									
34.68							chlorite schist with biotite porphyro blasts		
35.70							(some ~20cm intervals with more gneiss-like Fsp-rich beds)		
36.72									
37.74									
38.76			37.72						
39.78				401317	X	partial impregn.	chlorite schist; biotite with frequent qtz-veining		
40.80			39.67						
41.82				401318	X				
42.84			41.0						
43.86	Fol 60°						chlorite schist biotite porphyroblasts (some intervals more of gneiss-like type could this be the "recrystallized" that was overprinted by chlorite - collection type?)		
44.88									
45.90									
46.92									
47.94									
48.96									
49.98	No fol.								
50.100									

DIAMOND DRILL LOG		drill pad #	drill hole #	logged by	date
Y UTM		X UTM		m asl	azimuth
m	structure	grain size 0.5 2 8	from/to	sample #	alteration
				CS w m s	other
					dip
					1:200 400
50 100					50.6
51 102		a ₁ a ₂			
52 104	Fol 70°				chlorite schist; biotite porphyroblasts
53 106					
54 108		a ₂			
55 110					55.3
56 112	No Fol. to weak				chlorite "schist" with porphyroblasts of biotite
57 114	Fol.				Cr
58 116					
59 118					
60 120					
61 122					
62 124		a ₁			62.53
63 126					
64 128					few perite spers
65 130					Greiswade rich in Fsp +
66 132					65.3
67 134					66.7
68 136				Si	Perite impregn.
69 138				Si	Greiswade, rich in Fsp + bands of ~ 10 cm that are clearly silicified
70 140					
71 142					
72 144		71.52	401319	Si	
73 146		72.62			
74 148	Fol 65°				73.82
75 150					chlorite schist porphyroblasts of biot

DIAMOND DRILL LOG		drill pad #	drill hole #	logged by	date					
Y UTM		X UTM		m asl	azimuth		dip	1:200 (100)		
m	structure	grain size 0.5 2 8	from/to	sample #	clay w	CS m	alteration s	other	rock type and minerals	zone
75.50										
76.52										
77.54										
78.56										
79.58										
80.60										
81.62										
82.64										
83.66										
84.68										
85.70										
86.72										
87.74										
88.76										
89.78										
90.80										
91.82										
92.84										
93.86										
94.88										
95.90										
96.92										
97.94										
98.96										
99.98										
100.00										

Fol 65°

strong crenul.
85° Fol

pyrite imp.

77.5

chrt. schist

Gneiss

78.4

spec. of G7

chrt. schist

qtz-veining
violet purple, black

82.0

Esper rich
Gneiss
(few cm rich
in leuc. of
dark schist)

x

87.8

chrt. schist
qtz-veining

89.08

Esper rich
Gneissfew intervals of chrt.
schist

93.5 B.O.H.

DIAMOND DRILL LOG		drill pad #	drill hole # 7		logged by <i>Ryl</i>	date 10/100	
Y UTM 635914	X UTM 6958689	m asl	azimuth		dip	1:200	
m	structure	drain size 0.5 2 8	from/to	sample #	alteration w m s other	rock type and minerals	zone
0		1 1 1					
21							
30							
42			1.70		X	1.30-1.75: fine gr. chlorite schist (no biopls)	
45°		po-cpy		400351			
83			3.20			3.20-5.60: chlorite sch.	py-type 1000-2000
84		po-cpy		400352	X		
105	folding 0-70°	po-cpy	4.57			4.5-5.6: feldspar 4.65-4.80: silicification	
126		po-cpy	5.60	400353		5.0-5.4: coarse bio porf. blasts. 5.6 5.45-5.60: silic.	
147	70°				X	5.6-9.66: chlorite schist w/bio porf. blasts	
168						7.63-8.72: glauc. 7.61	
189						8.72	
201		po-cpy	9.67	400354		9.80-24.50: glauc. 9.82	
221	50°	po-cpy	10.21		X	9.66-20.20: chl. sch. w/in places coarse bio porf. blasts. sections rich in up to large sized feldspar xx. + glauc.	
242				400355			
263	70°	cpy-po	13.23				
284		cpy-po		400356			
305		cpy-po	14.77				
321		py-cpy	15.93	400357			
347		py-cpy (m)		400358			
368		py-cpy-dnt	16.93				
389		py-cpy (m)		400359			
403		py-cpy (m)	18.38	400360		18.60-19.05: sporadic mtn in the chl. sch.	
422		py-cpy (m)	19.07	400361		17.5-19.8: rich in calcite	
442		py-po	19.85		X	20.25-20.40: calcite 20.5-21.5: 20.2 po-cpy-dnt.	
463				400362		20.20-22.00 chlorite schist w/bio porf. blasts	
484					X	22.00	
505	70°		23.00	400363	X	22.00-23.00: more pronouncedly foliated chl. sch.	
	folding (0-90°)		23.60			23.00-23.60: calc. thin, thick, py-dnt. bands. 23.6	
					X	23.00-23.60: felsic sch. w/interm. folded bio- bands w/py-dnt. 23.60-30.8 chl. sch. w/bio porf.	

DIAMOND DRILL LOG		drill pad #		drill hole # 7		logged by RW		date	
Y UTM	X UTM	m asl		azimuth		dip		<1:200-1:100	
m	structure	grain size 0.5 2 8	from/to	sample #	alteration w m s other	rock type and minerals		zone	
50					X				
52						24.0-26.5: weak py-diss.			
54									
56	90°					28.80-30.80: weak po-pyl-cpy-diss.			
58						29.25-30.35: qtz veins			
60									
62	folded 0-90°					30.8-32.4: fine-gr chf sch., siliceal banded		* 1	
64									
66	70-80°					32.20-34.50: py-cpy-diss 32.4-35.0: chf. sch. w/ bioplr.			
68									
70						35.25-40.05: qtz veins.			
72			35.9	400364	X	35.81-35.90: gnt (0.5 -1 mm size) 35.7-38.7: po-cpy py-diss (richer diss.: 37.0-38.70)	35.00-41.70 chf. sch.	* 2	
74			37.4			37.4-37.8: core loss 37.4-41.3: crushing			
76			38.7	400365					
78									
80	40°					39.90-40.00: core loss 40.5-40.3: weak py- cpy-diss.			
82						40.95: weak py-diss 41.0-45.6: qtz (calcite) veins			
84	50°					41.4-41.7: weak py-diss			
86	50° places are undrilled				X	41.7	41.70-53.50: chf. sch w/biopl.		
88			43.55			43.60-43.64: cpy- po-diss.			
90				400366		44.3-45.2: sporadic weak po-cpy-diss.			
92	70°		45.25						
94						46.90-47.05: py-po- diss.			
96						46.9-47.4: qtz veins w/biotite at the contacts.			
98	60°					48.05-48.90: qtz veins			
100	core undrilled				X				

could correspond to unit with
at 10m in H.S (50.40 to 53.43) ???

possible start "TURBIDITE"

DIAMOND DRILL LOG		drill pad #		drill hole # 7		logged by RW			date 1.10.00	
Y UTM		X UTM		m asl		azimuth			dip	1:200
m	structure	grain size 0.5 2 8	from/to	sample #	alteration			rock type and minerals		zone
					w	CS	other			
					m	s				
100							50.28-50.30: qtz vein			
102							52.46-52.47: qtz vein			
104	70°									
106										
108							53.50-54.00: finegr. 53.50- chlonite sch., silica- 54.00 banded			
110							54.00-55.05: chl. sch. w/ bio- porf. bl.			
112							55.05: EoH			
114										
116										
118										
120										
122										
124										
126										
128										
130										
132										
134										
136										
138										
140										
142										
144										
146										
148										
150										

KUNIKENBEEK DPH 7

self-min:

1.70-5.60: self-min. section:

1.70-3.20: massive to semimass. po-cpy(-py) min: upper 0.4m: mass. po w/ minor cpy, lower 1.1m: semimass. (cpy-rich) po-cpy-min. (turb.).

3.55-4.10
4.27-4.57
5.13-5.17
5.41-5.46
5.58-5.60

semimass - mass. brecciated po-cpy(-py)-min.
w/ fragm. of chlorite schist + felsic fragm + minor carbonate.
Po-type, size: 1000-2000

Stringers of po-cpy outside the mass.-semimass. sect.

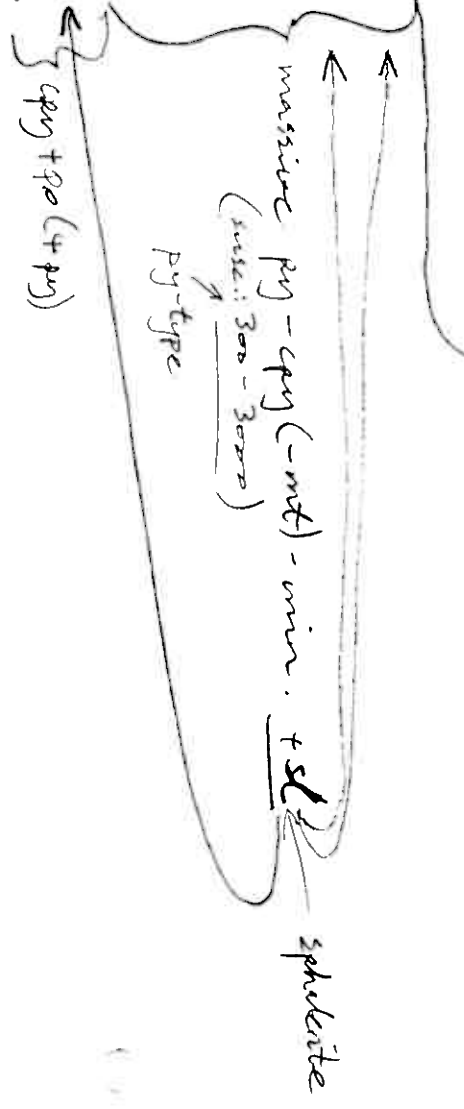
9.66-19.85: self-min. section:

9.66-9.82
10.06-10.10
13.22-13.36
13.45-14.45

colm-thick ch sch. sections

cpy-rich, mass to semimass. cpy-po-min

14.62-14.77
15.92-16.00
16.10-16.32
16.76-16.93
17.00-17.02
17.27-17.37
17.45-17.49
17.94-18.33
19.20-19.50
19.76-19.83



Minor diss. + stringers of po, w/ cpy and py outside mass.-bands.

DIAMOND DRILL LOG		drill pad #		drill hole # 8		logged by RW		date 8/05/01			
Y UTM 635782		X UTM 6958784		m asl		azimuth		dip		1:200/1:00	
m	foliation structure	grain size 0.5 2 8	from/to	sample #	CS alteration			rock type and minerals		zone	
					w	m	s	other			
0											
21											
42										3m overburden	
63	int. folding										
8	0°-70°					X					
10	45°-70°										
12	int. folding										
14	~ 45°										
16	int. folding	po-ep	6.0	400369				6.20: weak po-ep-diss.		3.00-14.80: chlorite schist w/ bio porf. blast's. Minor max-thin bio-bands and very minor thin felsic bands and carbonate bands.	
18		po-ep	7.0	400370				6.69: " "		Carbonate ass. w/ the thin sulf. bands at 6.20, 6.69 and 8.73.	
20			8.0	400371				8.73: weak po-ep-diss.			
22	~ 75°		9.0								
24	~ 0°-30°										
26	~ 45°										
28											
30											
32										13.95-14.45: hydrot. qtz.	
34										14.80-16.20: same as above, w/ felsic banding	
36										16.20-17.50: same as 3.0-14.8	
38										17.50-17.90: same as -	
40										17.90-29.00: same as 3.0-14.8	
42											
44											
46	~ 70°										
48											
50	int. folding										
52	0°-30°										

DIAMOND DRILL LOG		drill pad #		drill hole # 8		logged by RW		date	
Y UTM		X UTM		m asl		azimuth		dip	
m	structure	grain size 0.5 2 8	from/to	sample #	CS w m s	alteration other	rock type and minerals		zone
50									
52					X				
54									
56									
58	~50°-70°								
60							29.00-39.50: chl. sch w/ minor bio porf. U.		
62	600								
64									
66									
68	cren.								
70					X				
72	V					35.90-35.95: qtz veins			
74									
76	cren.								
78		PY-PO				38.33-38.65: weak py-po 38.85-39.00: qtz veins			
80	int. folding 0-60°				X		39.50-44.50: chl. sch. w/ frag. mm- thick bio. bands very minor bio porf. U.		
82									
84									
86									
88	60-70°								
90					X		44.50-47.30: chlorite sch w/ traces of py-po.		
92									
94			46.40						
96		po-py-cpy	47.40 47.62	400374 400367		47.21-47.30: qtz vein 47.87-48.00: qtz vein 48.10-48.18: qtz vein 48.17-49.21: qtz vein	47.30-47.62: chlorite -mus. c. sch. w/ sulf- stringers 47.62-56.00: chlorite sch. w/ traces of po.		
98			48.62	400373					
100									

DIAMOND DRILL LOG		drill pad #		drill hole # 8		logged by RW		date			
Y UTM		X UTM		m asl		azimuth		dip		1:200	
m	structure	grain size 0.5 2 8	from/to	sample #	alteration			rock type and minerals		zone	
					w	m	s	other			
100	int. folding							X	50.30-50.77:		
102			51.38	400368					qtz-vein		
104		po-py-qtz	51.95							51.40-52.05:	
106									qtz veins		
108									51.38-51.95:		
110									po-py-qtz-dis		
112	int. folding 60°							X			
114									56.00-61.20:		
116	0-60°								chl. sch. w/weak		
118	50°								dev. of bio. porf. lt.		
120			60.2	400372					60.29-60.30:		
122		po-py-qtz	61.2							qtz vein.	
124									60.25-61.20:		
126									py-po-qtz-dis		
128									61.20-65.20:		
130									chl. sch. w/ bio-		
132									porf. blasts and -thin		
134									bands.		
136											
138											
140											
142											
144											
146											
148											
150											
									65.20: EOH		

50.30-50.77:
qtz-vein
51.40-52.05:
qtz veins
51.38-51.95:
po-py-qtz-dis

56.00-61.20:
chl. sch. w/ weak
dev. of bio. porf. U.

60.29-60.30:
qtz vein.

60.25-61.20:
py-po-qtz-dis

61.20-65.20:
chl. sch. w/ bio-
porf. blasts and -thin
qtz-carb. vein
bands.

65.20: EOH

DIAMOND DRILL LOG		drill pad #	drill hole # 9		logged by KA	date 10.5.2001		
Y UTM 635503		X UTM 6358862		m asl	azimuth	dip	1:200 100	
m	structure	grain size 0.5 2 8	from/to	sample #	alteration w m s other		rock type and minerals	zone
0								
12					X	qtz veining	anhedral po-bl.	
24							breccia	
30	60° CA (foliation)						chlorite - biotite schist	
48							zones with more f. sp. po-bl	
51.8								
61.2							chlorite schist	
75.4								
81.8			7.15 8.00	400401			schist with py. specks.	
91.8						qtz vein - py. encl.	50.5 cm across frequent qtz - veining.	
105.2						qtz veining		
112.4					X	qtz veining	chl. schist in po-bl.	
124							of biotite minor qtz-veining	
134.8								
148					X	Heavy rusty anhydrite	chlorite - bio-sch in po-bl. of anhydrite	
152.8					X	qtz-veining are frequent	chlorite schist in biotite po-bl.	
162.8					X			
173.4					X	py. specks all over the section	frequent qtz - veining	
183.8					X			
193.8					X			
204.0	52° to CA				X			
41.42					X			
42.44					X			
43.46					X			
44.48					X			
45.50					X			

DIAMOND DRILL LOG		drill pad #		drill hole #		logged by		date 11/5-2001	
Y UTM		X UTM		m asl		azimuth		dip	
m		structure		grain size 0.5 2 8		from/to		sample #	
						alteration		rock type and minerals	
						w m s other		zone	
50									chl. schist
52									w po-bl. & bi
54									no gl. veining
56									core loss
58									clay material
60									chl. schist
62									w po-bl. & bi
64									no gl. veining
66									chl. schist
68									biotite po-bl. & bi
70									frequent gl. veining
72									small po-bl. & bi
74									gl. veining
76									chl. schist
78									biotite po-bl. & bi
80									chl. schist
82									po-bl. & bi
84									small po-bl. & bi
86									strings
88									chl. schist
90									w f-spr po-bl. & bi
92									small po-bl. & bi
94									few po-bl. & bi
96									strings
98									po-bl. & bi
100									strings

strings are associated w gl. veining

DIAMOND DRILL LOG		drill pad #		drill hole #		logged by		date 11/5-2004	
Y UTM		X UTM		m asl		azimuth		dip	
m		grain size 0.5 2 8		from/to		sample #		alteration	
structure						w m s		other	
100									
102				51.2					chl. schist
104									Weak sulf stamps
106						400405			qtz-vein
108				53.8					Sulf speck.
110	67° fol. some of fol inherent in biotite is circled								graywacke/chl. sch in base po. blastic
112									and chl schist in no 120
114									alternating layers to more and more graywacke sch.
116									
118									
120									
122									
124									Graywacke w po. blastic sch f. sp.
126									
128									
130									chlorite sch
132									graywacke
134									
136									gradually transition to more chl sch.
138									
140									
142									Chlorite sch with biotite
144									dark sulf very weak
146	55° to CA								irregular layers of po. blast (sp.) (5-10cm)
148									
150									qtz-vein

DIAMOND DRILL LOG		drill pad #		drill hole #		logged by		KA		date		11/5-2001	
Y UTM		X UTM		m asl		azimuth		dip		1:200		100	
m	structure	grain size 0.5 2 8	from/to	sample #	chlorite alteration				rock type and minerals		zone		
					w	m	s	other					
50													
52													
54					X					Graywacke -			
56										with bands			
58										of chlorite			
60					X					altered rock.			
62										Minor qtz-veins			
64													
66													
68													
70				qtz-vein									
72			85.0 85.2	706406						chlorite schist			
74	52° to CA									with white po-blast			
76													
78										gray wacke			
80										with fsp. po-blast			
82										and carbonates			
84	fol and bedding 62° to CA			qtz-vein	X			qtz-vein		Zones with mica			
86				qtz-vein				qtz-vein		chloritic altered			
88								qtz-vein		rock.			
90													
92													
94													
96	65° to CA							qtz-vein					
98	Some exfoliation									chlorite schist			
100										with white po-blast			

DIAMOND DRILL LOG		drill pad #		drill hole #		logged by		date	
Y UTM		X UTM		m asl		azimuth		dip	
m	structure	grain size 0.5 2 8	from/to	sample #	alteration			rock type and minerals	zone
					w	m	s	other	
100					X				
2									
4									Graywacke
6			103, 15	400407	X			sulf stringers PY + CP? w qtz-veinlets	chlorite schist
8			102, 65						
10									
12					X				Graywacke and chlorite alteration in alternating zones
14					X				
16					X				
18									
20					X			qtz-veinlets (x5cm)	chlorite schist w biotite po-blasts
22								qtz-veinlet	
24	62° to CA				X				Graywacke w carbonat/tsp po-blasts
28					X				Zones w chl. alt. more schistoses
30	CONTINUES ON RW'S SHEET!								
32									
34									
36									
38									
40									
42									
44									
46									
48									
50									

DIAMOND DRILL LOG		drill pad #		drill hole # 9		logged by		date	
Y UTM		X UTM		m asl		azimuth		dip	1:200
m	structure	grain size 0.5 2 8	from/to	sample #	alteration	rock type and minerals	zone		
					w CS m s other				
114	50								
115	52		qtz + carb.			carb spotted greywacke			
116	54		qtz + carb.			chl. sch. w/ bioporf. bl.			
117	56					carb. - greywacke			
118	58								
119	60					chl. sch. w/ bioporf.			
120	62					w/ minor ~~sch.~~ sections of greywacke			
121	64		qtz						
122	66		qtz						
123	68		qtz						
124	70								
125	72								
126	74		qtz						
127	76								
128	78		qtz						
129	80		qtz						
130	82		qtz						
131	84		qtz + carb.			carb spotted greywacke (minor chl. sch.)			
132	86								
133	88		qtz + carb.			chl. sch w/ bioporf. bl. & carb.			
	90		qtz						
	92					133.80: EOH			
	94								
	96								
	98								
	100								

the
nks
py
de;

Enclosures.

No 4 Certificate of analysis, XRAL Laboratories

Encl no 4



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1885 Leslie Street
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CERTIFICATE OF ANALYSIS

Work Order: 063673

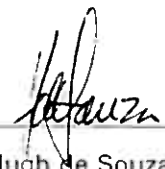
To: **Crew Developement**
Attn: **Denis Schlatter**
O.H. Bangsvei 54-58
N-1363
HOVIK,
NORWAY

Date : 28/06/01

Copy 1 to :

P.O. No. :
Project No. : Klinkenberg
No. of Samples : 63 Core
Date Submitted : 31/05/01
Report Comprises : Cover Sheet plus
Pages 1 to 18

Distribution of unused material:
Pulps: STORE
Rejects: STORE

Certified By : 
Dr. Hugh de Souza, General Manager
XRAL Laboratories

ISO 9002 REGISTERED

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Report Footer: L.N.R. = Listed not received I.S. = Insufficient Sample
n.a. = Not applicable -- = No result
*INF = Composition of this sample makes detection impossible by this method
M after a result denotes ppb to ppm conversion, % denotes ppm to % conversion



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Element.	Au
Method.	FA301
Det.Lim.	1
Units.	ppb
400351	158
400352	58
400353	36
400354	212
400355	44
400356	1250
400357	16
400358	723
400359	402
400360	15
400361	701
400362	17
400363	11
400364	16
400365	16
400366	14
400367	28
400368	19
400369	8
400370	9
400371	12
400372	19
400373	18
400374	10
400375	11
400376	17
400377	9
400378	9
400401	9
400402	9



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Element.	Au
Method.	FA301
Det.Lim.	1
Units.	ppb
400403	10
400404	8
400405	6
400406	10
400407	9
401301	17
401302	84
401303	14
401304	72
401305	56
401306	31
401307	24
401308	33
401309	90
401310	11
401311	172
401312	18
401313	606
401314	13
401315	11
401316	8
401317	8
401318	10
401319	9
401320	11
401321	20
401322	670
401323	12
401324	9
401325	36



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Element.	Au
Method.	FA301
Det.Lim.	1
Units.	ppb
401326	100
401327	12
401328	21
*Dup 400351	171
*Dup 400363	11
*Dup 400375	11
*Dup 401302	92
*Dup 401314	14
*Dup 401326	98



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Element. Method. Det.Lim. Units.	SiO2 XRF102 0.01 %	Al2O3 XRF102 0.01 %	CaO XRF102 0.01 %	MgO XRF102 0.01 %	Na2O XRF102 0.01 %	K2O XRF102 0.01 %	Fe2O3 XRF102 0.01 %	MnO XRF102 0.01 %	TiO2 XRF102 0.001 %	P2O5 XRF102 0.01 %	Cr2O3 XRF102 0.01 %	LOI XRF102 0.01A %	Sum XRF102 0.01 %	Rb XRF102 2 ppm	Sr XRF102 2 ppm	Y XRF102 2 ppm
*Std NIST8606	45.8	7.50	22.0	1.72	0.72	0.79	13.8	1.53	0.357	0.39	<0.01	1.96	96.6	42	26	44
400351	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400352	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400353	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400354	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400355	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400356	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400357	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400358	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400359	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400360	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400361	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400362	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400363	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400364	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400365	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400366	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400367	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400368	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400369	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400370	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400371	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400372	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400373	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400374	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400375	54.9	18.9	2.56	5.33	2.05	3.36	9.07	0.10	0.971	0.20	0.04	2.90	100.4	109	129	26
400376	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400377	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400378	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400401	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.



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Element. Method. Det.Lim. Units.	SiO2 XRF102 0.01 %	Al2O3 XRF102 0.01 %	CaO XRF102 0.01 %	MgO XRF102 0.01 %	Na2O XRF102 0.01 %	K2O XRF102 0.01 %	Fe2O3 XRF102 0.01 %	MnO XRF102 0.01 %	TiO2 XRF102 0.001 %	P2O5 XRF102 0.01 %	Cr2O3 XRF102 0.01 %	LOI XRF102 0.01A %	Sum XRF102 0.01 %	Rb XRF102 2 ppm	Sr XRF102 2 ppm	Y XRF102 2 ppm
400402	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400403	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400404	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400405	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400406	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
400407	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401301	59.5	15.2	0.38	3.37	0.24	3.51	12.4	0.09	0.810	0.16	0.03	4.30	100.0	104	46	23
401302	36.6	9.96	0.64	2.71	<0.01	2.21	25.4	0.09	0.579	0.11	0.03	7.60	85.0	75	37	<2
401303	61.4	14.6	1.03	4.49	0.46	2.62	10.9	0.12	0.822	0.16	0.04	3.60	100.3	86	88	25
401304	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401305	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401306	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401307	63.2	14.5	0.63	2.73	0.53	3.67	10.0	0.07	0.800	0.17	0.03	3.60	100.1	119	55	21
401308	63.8	14.4	0.97	3.81	0.87	2.90	8.66	0.07	0.674	0.14	0.04	3.35	99.8	110	70	22
401309	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401310	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401311	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401312	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401313	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401314	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401315	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401316	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401317	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401318	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401319	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401320	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
*Std XRAL04	48.6	14.8	11.2	11.6	1.32	0.39	9.25	0.16	0.375	0.04	0.06	2.35	100.1	16	113	10
401321	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401322	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401323	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.



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Element.	SiO2	Al2O3	CaO	MgO	Na2O	K2O	Fe2O3	MnO	TiO2	P2O5	Cr2O3	LOI	Sum	Rb	Sr	Y
Method.	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102
Det.Lim.	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.001	0.01	0.01	0.01A	0.01	2	2	2
Units.	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm
401324	58.1	17.5	1.58	5.19	1.56	2.67	9.03	0.08	0.965	0.16	0.03	3.10	100.1	93	90	24
401325	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401326	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
401327	58.1	17.9	0.62	5.21	0.39	3.95	8.67	0.07	0.887	0.15	0.03	4.15	100.2	132	59	26
401328	62.2	13.3	3.05	3.53	1.24	2.40	9.09	0.08	0.750	0.14	0.03	2.95	98.9	85	91	26
*Dup 400351	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
*Dup 400363	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
*Dup 400375	54.7	18.8	2.55	5.32	2.04	3.36	9.09	0.10	0.970	0.20	0.04	2.90	100.2	107	129	26
*Dup 401302	36.7	9.95	0.64	2.71	<0.01	2.19	25.5	0.09	0.577	0.11	0.03	7.70	85.3	74	37	<2
*Dup 401314	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
*Dup 401326	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.



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Element.	Zr	Nb	Ba
Method.	XRF102	XRF102	XRF102
Det.Lim.	2	2	20
Units.	ppm	ppm	ppm
*Std NIST8606	33	7	238
400351	n.a.	n.a.	n.a.
400352	n.a.	n.a.	n.a.
400353	n.a.	n.a.	n.a.
400354	n.a.	n.a.	n.a.
400355	n.a.	n.a.	n.a.
400356	n.a.	n.a.	n.a.
400357	n.a.	n.a.	n.a.
400358	n.a.	n.a.	n.a.
400359	n.a.	n.a.	n.a.
400360	n.a.	n.a.	n.a.
400361	n.a.	n.a.	n.a.
400362	n.a.	n.a.	n.a.
400363	n.a.	n.a.	n.a.
400364	n.a.	n.a.	n.a.
400365	n.a.	n.a.	n.a.
400366	n.a.	n.a.	n.a.
400367	n.a.	n.a.	n.a.
400368	n.a.	n.a.	n.a.
400369	n.a.	n.a.	n.a.
400370	n.a.	n.a.	n.a.
400371	n.a.	n.a.	n.a.
400372	n.a.	n.a.	n.a.
400373	n.a.	n.a.	n.a.
400374	n.a.	n.a.	n.a.
400375	203	17	396
400376	n.a.	n.a.	n.a.
400377	n.a.	n.a.	n.a.
400378	n.a.	n.a.	n.a.
400401	n.a.	n.a.	n.a.



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Element.	Zr	Nb	Ba
Method.	XRF102	XRF102	XRF102
Det.Lim.	2	2	20
Units.	ppm	ppm	ppm
400402	n.a.	n.a.	n.a.
400403	n.a.	n.a.	n.a.
400404	n.a.	n.a.	n.a.
400405	n.a.	n.a.	n.a.
400406	n.a.	n.a.	n.a.
400407	n.a.	n.a.	n.a.
401301	155	12	615
401302	84	6	329
401303	167	13	433
401304	n.a.	n.a.	n.a.
401305	n.a.	n.a.	n.a.
401306	n.a.	n.a.	n.a.
401307	151	15	731
401308	133	14	381
401309	n.a.	n.a.	n.a.
401310	n.a.	n.a.	n.a.
401311	n.a.	n.a.	n.a.
401312	n.a.	n.a.	n.a.
401313	n.a.	n.a.	n.a.
401314	n.a.	n.a.	n.a.
401315	n.a.	n.a.	n.a.
401316	n.a.	n.a.	n.a.
401317	n.a.	n.a.	n.a.
401318	n.a.	n.a.	n.a.
401319	n.a.	n.a.	n.a.
401320	n.a.	n.a.	n.a.
*Std XRAL04	35	4	103
401321	n.a.	n.a.	n.a.
401322	n.a.	n.a.	n.a.
401323	n.a.	n.a.	n.a.



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Element.	Zr	Nb	Ba
Method.	XRF102	XRF102	XRF102
Det. Lim.	2	2	20
Units.	ppm	ppm	ppm
401324	171	14	389
401325	n.a.	n.a.	n.a.
401326	n.a.	n.a.	n.a.
401327	176	14	459
401328	189	13	354
*Dup 400351	n.a.	n.a.	n.a.
*Dup 400363	n.a.	n.a.	n.a.
*Dup 400375	200	16	398
*Dup 401302	84	6	326
*Dup 401314	n.a.	n.a.	n.a.
*Dup 401326	n.a.	n.a.	n.a.



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Element. Method. Det.Lim. Units.	Be ICP70 0.5 ppm	Na ICP70 0.01 %	Mg ICP70 0.01 %	Al ICP70 0.01 %	P ICP70 0.01 %	K ICP70 0.01 %	Ca ICP70 0.01 %	Sc ICP70 0.5 ppm	Ti ICP70 0.01 %	V ICP70 2 ppm	Cr ICP70 1 ppm	Mn ICP70 2 ppm	Fe ICP70 0.01 %	Co ICP70 1 ppm	Ni ICP70 1 ppm	Cu ICP70 0.5 ppm
400351	0.8	0.02	1.91	0.61	<0.01	0.17	3.79	<0.5	0.02	14	50	1100	>15.0	258	41	>10000
400352	0.6	0.02	3.46	3.40	0.05	0.41	1.45	4.3	0.06	64	86	804	>15.0	237	36	>10000
400353	<0.5	0.04	3.06	3.44	0.05	1.04	0.45	5.4	0.11	80	142	511	12.9	89	51	7000
400354	<0.5	0.02	3.34	3.77	0.05	0.50	1.13	3.1	0.07	50	122	764	>15.0	353	42	>10000
400355	<0.5	0.02	5.53	6.31	0.07	0.26	0.24	10.3	0.04	89	128	910	11.1	93	55	3220
400356	0.9	0.02	2.66	2.98	0.03	0.16	0.54	3.0	0.03	38	82	556	>15.0	262	30	>10000
400357	<0.5	0.02	4.44	5.02	0.09	0.27	0.22	9.5	0.05	77	171	664	6.86	20	57	323
400358	0.5	0.02	3.02	3.66	0.03	0.37	0.09	5.0	0.06	57	133	542	>15.0	201	33	>10000
400359	0.7	0.03	3.24	3.86	0.06	0.56	0.19	4.6	0.07	69	201	541	>15.0	211	34	>10000
400360	<0.5	0.02	5.04	5.40	0.07	0.18	0.16	9.8	0.04	83	147	573	8.33	30	58	658
400361	<0.5	0.01	2.65	1.37	<0.01	0.16	3.37	1.9	0.02	20	111	878	13.0	119	17	>10000
400362	<0.5	0.02	3.10	3.47	0.07	0.25	0.19	6.1	0.04	57	154	556	4.88	21	51	292
400363	<0.5	0.04	2.15	2.52	0.07	0.73	0.42	7.3	0.09	58	178	549	4.14	22	56	357
400364	<0.5	0.02	2.49	3.04	0.08	0.24	0.22	4.0	0.03	40	150	710	4.88	21	69	1030
400365	<0.5	0.02	2.54	2.85	0.08	0.35	0.25	4.0	0.04	42	188	538	5.65	25	60	1210
400366	<0.5	0.03	2.32	2.74	0.08	0.67	0.66	4.4	0.07	53	125	576	4.41	29	67	937
400367	<0.5	0.02	2.49	3.03	0.09	0.14	0.20	4.4	0.02	43	138	490	7.19	69	44	1750
400368	2.3	0.02	4.03	4.66	0.08	0.11	0.19	6.0	0.02	62	150	682	7.24	28	56	1330
400369	<0.5	0.04	2.55	3.13	0.08	0.87	0.35	11.5	0.08	106	144	334	4.24	23	73	18.3
400370	<0.5	0.04	2.41	2.85	0.09	0.63	0.32	12.3	0.07	105	138	326	3.91	20	66	15.4
400371	<0.5	0.04	2.28	2.69	0.08	0.37	0.22	10.8	0.05	86	122	322	3.94	19	68	27.7
400372	2.2	0.03	3.10	3.68	0.08	0.59	0.23	5.2	0.06	60	127	544	5.27	25	68	353
400373	<0.5	0.02	3.05	3.52	0.09	0.08	0.23	4.2	0.02	42	133	453	4.93	22	58	403
400374	<0.5	0.03	2.52	3.17	0.07	0.18	0.19	5.8	0.03	51	125	541	4.69	19	64	90.4
400375	<0.5	0.04	2.47	2.86	0.08	1.12	0.57	4.8	0.11	69	132	445	3.89	24	67	56.6
400376	1.8	0.03	3.27	3.79	0.07	1.11	0.25	6.4	0.12	69	124	440	6.61	90	77	943
400377	<0.5	0.03	2.00	2.35	0.06	1.05	0.86	4.7	0.11	63	139	379	3.16	17	54	30.1
400378	<0.5	0.03	2.44	2.76	0.07	0.93	0.80	4.2	0.09	61	141	465	3.67	22	65	52.4
400401	<0.5	0.04	2.55	2.78	0.08	1.07	0.29	6.1	0.10	70	132	344	3.52	24	59	47.7
400402	<0.5	0.04	2.58	2.99	0.08	1.23	0.69	5.6	0.11	68	114	470	3.98	22	68	21.0



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Element. Method. Det.Lim. Units.	Be ICP70 0.5 ppm	Na ICP70 0.01 %	Mg ICP70 0.01 %	Al ICP70 0.01 %	P ICP70 0.01 %	K ICP70 0.01 %	Ca ICP70 0.01 %	Sc ICP70 0.5 ppm	Ti ICP70 0.01 %	V ICP70 2 ppm	Cr ICP70 1 ppm	Mn ICP70 2 ppm	Fe ICP70 0.01 %	Co ICP70 1 ppm	Ni ICP70 1 ppm	Cu ICP70 0.5 ppm
400403	<0.5	0.04	2.36	2.80	0.08	1.13	0.63	5.3	0.10	62	110	426	3.85	22	67	54.3
400404	<0.5	0.04	2.49	2.89	0.08	1.12	0.77	6.3	0.11	71	105	503	4.05	22	70	77.6
400405	<0.5	0.04	2.31	2.74	0.08	1.15	0.36	5.1	0.11	63	132	339	3.58	21	62	59.2
400406	<0.5	0.04	2.60	3.04	0.07	1.76	0.37	6.1	0.17	90	143	403	3.97	24	66	39.9
400407	<0.5	0.03	1.82	1.99	0.06	0.81	1.52	3.4	0.09	52	132	493	2.75	18	52	52.0
401301	<0.5	0.02	1.40	1.67	0.06	0.26	0.15	1.7	0.02	20	87	350	6.23	49	66	2500
401302	<0.5	0.02	1.30	1.54	0.04	0.34	0.21	1.3	0.03	21	112	412	13.5	165	103	8460
401303	<0.5	0.02	2.17	2.58	0.07	0.47	0.19	2.7	0.05	37	147	469	5.55	29	62	1080
401304	<0.5	0.03	2.71	3.07	0.07	0.58	0.31	7.4	0.07	69	167	679	7.57	78	60	4750
401305	<0.5	0.03	2.33	2.76	0.07	0.65	0.15	5.1	0.08	58	103	602	14.3	192	92	3110
401306	<0.5	0.02	0.93	1.21	0.06	0.41	0.15	1.9	0.04	23	128	216	3.94	29	47	1910
401307	2.3	0.03	1.29	1.62	0.07	0.54	0.18	2.1	0.05	26	106	310	5.32	35	63	1820
401308	<0.5	0.03	1.66	1.92	0.05	0.58	0.17	3.2	0.06	36	146	277	4.18	28	68	843
401309	0.8	0.02	3.32	3.99	0.04	0.53	0.08	5.6	0.07	63	116	565	>15.0	170	35	>10000
401310	<0.5	0.03	2.78	3.38	0.07	0.46	0.17	5.5	0.05	57	150	490	5.93	19	59	574
401311	1.4	0.02	1.41	1.65	0.02	0.13	0.04	1.1	0.02	22	105	325	>15.0	145	33	>10000
*Blk BLANK	<0.5	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01	<2	<1	<2	0.01	<1	<1	<0.5
*Std NIST8606	2.0	0.03	0.39	1.26	0.16	0.09	8.66	3.0	0.08	19	22	4810	4.47	9	18	48.7
401312	<0.5	0.03	1.54	1.81	0.07	0.79	0.24	2.8	0.07	35	96	288	3.39	19	44	511
401313	0.6	0.02	0.73	0.86	0.02	0.30	0.17	0.5	0.03	13	120	246	>15.0	101	62	8750
401314	<0.5	0.02	2.05	2.13	0.08	0.27	0.53	3.4	0.02	32	118	372	5.06	51	142	755
401315	<0.5	0.03	2.18	2.66	0.05	0.92	0.39	6.0	0.09	63	147	275	3.59	20	58	99.8
401316	<0.5	0.04	2.00	2.29	0.06	0.94	1.14	4.6	0.11	67	171	424	3.22	19	55	45.3
401317	<0.5	0.03	2.14	2.45	0.07	0.98	0.36	5.0	0.10	61	150	340	3.31	19	58	93.8
401318	<0.5	0.04	2.27	2.58	0.08	1.09	0.44	4.9	0.11	67	145	368	3.42	21	59	64.8
401319	<0.5	0.04	1.78	1.83	0.06	1.00	1.94	4.1	0.11	57	137	589	2.84	18	47	31.8
401320	<0.5	0.04	2.30	2.59	0.08	1.13	0.33	4.9	0.11	66	130	342	3.40	20	61	57.8
401321	<0.5	0.02	2.13	2.35	0.06	0.40	0.14	3.9	0.04	41	116	399	4.04	20	57	1390
401322	<0.5	0.02	2.04	2.33	0.04	0.35	0.09	2.7	0.04	36	105	469	12.1	40	78	>10000
401323	<0.5	0.02	1.87	2.18	0.12	0.69	0.30	3.3	0.08	49	141	282	3.53	19	67	301



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401324	<0.5	0.03	2.37	2.84	0.06	0.68	0.17	4.8	0.07	60	122	345	3.91	48	68	79.7
401325	0.5	0.02	1.95	2.07	0.06	0.42	0.18	3.5	0.03	34	115	359	5.61	25	79	3060
401326	0.6	0.02	0.96	1.04	0.02	0.24	0.41	1.0	0.02	16	75	493	>15.0	99	82	6400
401327	<0.5	0.02	2.03	2.20	0.06	0.54	0.17	3.6	0.05	34	88	344	3.87	23	74	167
401328	0.6	0.02	1.58	1.90	0.06	0.19	1.88	4.2	0.01	37	118	498	4.76	17	66	733
*Dup 400351	1.0	0.02	1.83	0.57	<0.01	0.17	3.83	<0.5	0.02	12	45	1080	>15.0	250	38	>10000
*Dup 400363	<0.5	0.03	2.01	2.34	0.07	0.70	0.42	6.7	0.08	57	167	522	3.90	21	53	369
*Dup 400375	<0.5	0.04	2.38	2.73	0.08	1.11	0.56	4.6	0.11	67	129	431	3.72	23	66	59.9
*Dup 401302	0.6	0.02	1.28	1.51	0.04	0.36	0.22	1.2	0.03	21	110	409	13.3	167	103	8320
*Dup 401314	<0.5	0.02	2.07	2.14	0.08	0.28	0.55	3.4	0.02	33	119	377	5.08	55	145	740
*Dup 401326	0.6	0.02	0.96	1.04	0.02	0.24	0.41	1.1	0.02	16	75	495	>15.0	99	81	6330
*Blk BLANK	<0.5	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01	<2	<1	<2	<0.01	<1	<1	<0.5
*Std XRAL01	<0.5	0.06	0.82	0.74	0.13	0.10	0.91	1.7	0.05	26	267	526	2.81	479	668	69.4



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Element, Method, Det.Lim. Units.	Zn ICP70 0.5 ppm	As ICP70 3 ppm	Sr ICP70 0.5 ppm	Y ICP70 0.5 ppm	Zr ICP70 0.5 ppm	Mo ICP70 1 ppm	Ag ICP70 0.2 ppm	Cd ICP70 1 ppm	Sn ICP70 10 ppm	Sb ICP70 5 ppm	Ba ICP70 1 ppm	La ICP70 0.5 ppm	W ICP70 10 ppm	Pb ICP70 2 ppm	Bi ICP70 5 ppm	Li ICP70 1 ppm
400351	3340	<3	67.9	2.4	7.1	<1	>10.0	15	<10	<5	19	6.3	<10	46	*INF	4
400352	1790	<3	21.7	7.4	6.8	2	4.9	6	<10	<5	53	12.5	<10	15	*INF	21
400353	808	<3	9.9	8.7	6.3	<1	2.4	2	<10	<5	102	15.5	<10	10	*INF	31
400354	415	<3	10.4	6.5	6.8	<1	7.1	<1	<10	<5	51	10.9	<10	15	*INF	22
400355	281	<3	5.5	13.5	14.2	3	1.3	<1	<10	<5	28	20.4	<10	5	*INF	32
400356	7390	62	4.9	4.6	8.0	4	>10.0	30	22	<5	14	7.8	<10	24	*INF	9
400357	1340	<3	8.3	16.6	14.6	<1	<0.2	<1	<10	<5	32	30.2	<10	5	<5	33
400358	9150	42	3.3	6.6	8.3	<1	8.5	29	<10	<5	37	12.3	<10	22	*INF	15
400359	6700	50	5.6	9.6	9.7	<1	4.7	17	<10	<5	61	15.4	<10	39	*INF	22
400360	2330	<3	4.0	11.8	5.7	<1	2.2	<1	<10	<5	20	15.2	<10	8	<5	19
400361	5700	15	55.2	3.4	6.4	2	9.5	19	<10	<5	10	4.2	<10	33	*INF	3
400362	308	<3	6.7	10.9	12.2	10	<0.2	<1	<10	<5	31	24.2	<10	6	<5	23
400363	152	<3	10.7	9.1	9.1	44	0.3	<1	<10	<5	77	25.8	<10	5	<5	19
400364	1440	<3	8.5	14.1	6.3	1	<0.2	3	<10	<5	33	25.0	<10	5	*INF	15
400365	990	<3	7.5	10.6	8.8	6	<0.2	<1	<10	<5	29	18.0	<10	15	*INF	17
400366	260	<3	12.7	11.1	5.5	3	0.6	<1	<10	<5	48	23.9	<10	10	<5	17
400367	2090	<3	6.3	10.5	12.5	5	<0.2	21	<10	<5	22	20.6	<10	10	*INF	9
400368	682	<3	6.7	12.4	7.6	3	<0.2	3	<10	7	16	19.0	<10	39	*INF	18
400369	57.8	<3	14.0	14.9	7.8	2	<0.2	<1	<10	<5	139	30.0	<10	<2	<5	21
400370	142	<3	11.7	14.2	10.6	3	<0.2	<1	<10	<5	117	28.7	<10	3	<5	19
400371	277	<3	11.0	12.1	9.2	2	<0.2	<1	<10	<5	58	30.0	<10	<2	<5	14
400372	502	<3	9.2	15.9	7.5	<1	0.4	<1	<10	<5	41	26.0	<10	6	<5	22
400373	707	<3	8.5	15.6	11.7	2	<0.2	<1	<10	7	15	24.9	<10	10	<5	20
400374	253	<3	9.4	11.9	9.6	1	<0.2	<1	<10	<5	26	28.0	<10	4	<5	20
400375	93.1	<3	13.2	8.7	9.2	2	0.3	<1	<10	<5	53	27.9	<10	5	<5	25
400376	>10000	<3	9.7	8.9	8.3	105	0.9	64	<10	<5	59	25.6	<10	777	<5	21
400377	105	<3	12.2	6.4	10.5	1	0.7	<1	<10	<5	59	24.4	<10	4	<5	19
400378	231	<3	12.8	6.3	6.4	2	<0.2	<1	<10	<5	49	23.9	<10	<2	<5	19
400401	78.3	<3	12.6	11.3	9.6	<1	<0.2	<1	<10	<5	67	26.9	<10	<2	<5	23
400402	92.3	<3	12.4	9.7	5.3	<1	<0.2	<1	<10	<5	53	28.2	<10	3	<5	25



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400403	84.1	<3	12.3	10.5	4.8	<1	<0.2	<1	<10	<5	48	26.6	<10	<2	<5	21
400404	89.1	<3	13.0	10.4	5.9	<1	<0.2	<1	<10	<5	52	28.0	<10	3	<5	22
400405	88.6	<3	13.4	11.2	5.4	<1	<0.2	<1	<10	<5	60	27.1	<10	5	<5	23
400406	95.8	<3	15.1	6.3	6.1	1	<0.2	<1	<10	<5	140	24.3	<10	<2	<5	33
400407	63.1	<3	21.5	4.2	6.1	<1	<0.2	<1	<10	<5	64	19.5	<10	<2	<5	18
401301	921	<3	5.7	11.1	8.8	4	0.5	<1	<10	<5	27	22.5	<10	11	*INF	9
401302	>10000	<3	4.5	8.7	9.2	12	>10.0	133	<10	<5	27	15.8	<10	2080	*INF	8
401303	1070	<3	7.3	8.8	8.7	<1	<0.2	<1	<10	<5	35	22.4	<10	20	*INF	14
401304	4640	<2	6.0	14.3	8.3	14	1.8	6	<10	<5	56	25.2	<10	18	*INF	21
401305	>10000	<3	3.1	11.2	11.9	90	1.8	23	<10	<5	64	17.7	<10	23	*INF	17
401306	552	<3	3.9	11.7	8.6	4	<0.2	<1	<10	<5	47	19.8	<10	11	*INF	7
401307	1420	<3	5.1	11.6	9.2	3	<0.2	3	<10	<5	55	20.1	<10	58	*INF	11
401308	4150	<3	6.7	13.2	8.7	5	0.7	10	<10	<5	37	22.7	<10	216	<5	15
401309	>10000	77	2.4	8.5	9.4	6	7.5	48	<10	<5	37	15.5	<10	588	*INF	21
401310	2630	<3	5.7	16.4	10.0	<1	<0.2	2	<10	<5	43	27.5	<10	21	<5	22
401311	>10000	86	2.9	9.6	8.5	7	>10.0	179	<10	<5	14	12.9	<10	1570	*INF	8
*Blk BLANK	<0.5	<3	<0.5	<0.5	<0.5	<1	<0.2	<1	<10	<5	<1	<0.5	<10	<2	<5	<1
*Std NIST8606	66.8	<3	4.8	15.3	16.6	927	1.0	<1	15	<5	12	23.9	438	27	<5	9
401312	4000	<3	8.2	17.4	8.6	16	2.1	9	<10	<5	48	25.6	<10	605	6	16
401313	>10000	89	4.1	8.5	8.1	17	>10.0	227	60	<5	19	13.1	<10	6860	*INF	6
401314	740	<3	12.2	19.3	10.6	16	1.3	<1	<10	<5	17	27.9	<10	45	<5	11
401315	183	<3	8.5	11.2	8.0	<1	<0.2	<1	<10	<5	58	23.3	<10	13	<5	20
401316	105	<3	15.7	5.0	4.3	<1	<0.2	<1	<10	<5	74	18.3	<10	5	<5	21
401317	85.4	<3	12.5	8.4	6.0	<1	<0.2	<1	<10	<5	68	24.2	<10	2	<5	25
401318	87.5	<3	13.4	7.2	4.7	<1	0.3	<1	<10	<5	77	23.4	<10	2	<5	27
401319	65.5	<3	16.9	5.4	2.7	2	0.5	<1	<10	<5	62	16.7	<10	4	<5	19
401320	86.8	<3	12.8	8.6	2.5	<1	<0.2	<1	<10	<5	53	22.0	<10	<2	<5	26
401321	4010	<3	3.3	4.8	9.3	3	0.3	12	<10	<5	30	8.1	<10	29	*INF	13
401322	>10000	6	2.0	3.1	9.8	5	>10.0	284	14	<5	26	5.1	<10	1560	*INF	10
401323	1920	<3	7.1	8.1	11.3	28	<0.2	3	<10	<5	47	20.8	<10	17	<5	17



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Element.	Zn	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	Ba	La	W	Pb	Bi	Li
Method.	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70
Det. Lim.	0.5	3	0.5	0.5	0.5	1	0.2	1	10	5	1	0.5	10	2	5	1
Units.	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
401324	372	<3	4.7	7.2	8.9	4	0.8	<1	<10	<5	44	16.4	<10	12	<5	19
401325	>10000	<3	3.9	10.7	7.5	4	4.7	85	<10	<5	22	20.3	<10	55	*INF	17
401326	>10000	26	2.9	8.8	6.8	45	>10.0	549	<10	<5	12	10.7	<10	4590	*INF	6
401327	572	<3	5.1	13.2	6.3	8	0.9	<1	<10	<5	24	23.2	<10	25	<5	14
401328	434	<3	34.4	13.5	8.2	33	1.5	<1	<10	<5	15	21.7	<10	581	<5	16
*Dup 400351	3240	<3	65.8	2.3	7.6	<1	>10.0	15	<10	<5	19	7.3	<10	41	INF	4
*Dup 400363	149	<3	10.0	9.1	8.2	41	0.4	<1	<10	<5	74	23.9	<10	6	<5	18
*Dup 400375	94.0	<3	12.5	8.5	9.5	1	0.5	<1	<10	<5	52	27.2	<10	5	<5	25
*Dup 401302	>10000	<3	4.4	8.6	8.3	13	>10.0	131	<10	<5	27	14.8	<10	2070	*INF	9
*Dup 401314	760	<3	12.3	19.3	10.2	17	1.0	<1	<10	<5	18	27.6	<10	44	<5	11
*Dup 401326	>10000	26	2.9	8.7	7.0	45	>10.0	544	<10	<5	13	11.7	<10	4550	*INF	6
*Blk BLANK	<0.5	<3	<0.5	<0.5	<0.5	<1	<0.2	<1	<10	<5	<1	<0.5	<10	<2	<5	<1
*Std XRAL01	73.5	502	41.6	8.2	6.5	1	5.1	<1	<10	<5	126	9.9	<10	23	<5	9



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Element. Method. Det. Lim. Units.	Cu ICAY50 0.01 %	Zn ICAY50 0.01 %
400351	4.29	n.a.
400352	1.78	n.a.
400353	n.a.	n.a.
400354	2.67	n.a.
400355	n.a.	n.a.
400356	9.86	n.a.
400357	n.a.	n.a.
400358	3.65	n.a.
400359	1.69	n.a.
400360	n.a.	n.a.
400361	4.02	n.a.
400362	n.a.	n.a.
400363	n.a.	n.a.
400364	n.a.	n.a.
400365	n.a.	n.a.
400366	n.a.	n.a.
400367	n.a.	n.a.
400368	n.a.	n.a.
400369	n.a.	n.a.
400370	n.a.	n.a.
400371	n.a.	n.a.
400372	n.a.	n.a.
400373	n.a.	n.a.
400374	n.a.	n.a.
400375	n.a.	n.a.
400376	n.a.	1.66
400377	n.a.	n.a.
400378	n.a.	n.a.
400401	n.a.	n.a.
400402	n.a.	n.a.



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Element. Method. Det.Lim. Units.	Cu ICAY50 0.01 %	Zn ICAY50 0.01 %
400403	n.a.	n.a.
400404	n.a.	n.a.
400405	n.a.	n.a.
400406	n.a.	n.a.
400407	n.a.	n.a.
401301	n.a.	n.a.
401302	n.a.	6.10
401303	n.a.	n.a.
401304	n.a.	n.a.
401305	n.a.	1.30
401306	n.a.	n.a.
401307	n.a.	n.a.
401308	n.a.	n.a.
401309	1.33	2.19
401310	n.a.	n.a.
401311	1.70	6.60
*Blk BLANK	<0.01	<0.01
*Std NIST8604	0.68	2.66
401312	n.a.	n.a.
401313	n.a.	9.15
401314	n.a.	n.a.
401315	n.a.	n.a.
401316	n.a.	n.a.
401317	n.a.	n.a.
401318	n.a.	n.a.
401319	n.a.	n.a.
401320	n.a.	n.a.
401321	n.a.	n.a.
401322	1.10	10.9
401323	n.a.	n.a.



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Element.	Cu	Zn
Method.	ICAY50	ICAY50
Det.Lim.	0.01	0.01
Units.	g	%
401324	n.a.	n.a.
401325	n.a.	2.76
401326	n.a.	17.8
401327	n.a.	n.a.
401328	n.a.	n.a.
*Dup 400351	4.40	0.35
*Dup 400363	n.a.	n.a.
*Dup 400375	n.a.	n.a.
*Dup 401302	0.91	6.23
*Dup 401314	n.a.	n.a.
*Dup 401326	0.66	18.6
*Blk BLANK	<0.01	<0.01
*Std NIST8604	0.68	2.66



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Upper Concentration Limits Have Been Exceeded

Some of the results in this report are outside the applicable analytical range. Please refer to the table below or the current Schedule of Fees and Services for our recommended upper concentration limits. Results greater than the upper concentration limit are reported for the convenience of our clients, but are of poor precision and/or subject to interferences.

Please contact us for additional technical information or for an accurate determination by an appropriate technique.

Method Code	Instrument	Elements	Upper Limit	Comments
ICP 70	ICP/AA	Ag	10 ppm	See note below
ICP 70 ICP 80 ICP 90	ICP	32 elements 24 elements	5,000 ppm	As, Sb, Bi, W, La may be affected for samples with >1.0% Cu, Zn or >25% Fe
XRF 7	XRF	25 elements	4,000 ppm	Matrix dependent. Not suitable for concentrates or highly mineralized samples.
CHM 20	Cold vapour	Hg	100 ppm	
AAH 3	AA Hydride	Sb, As, Bi	200 ppm	
Es 4	DCP Fusion	Be, B, Ge, V	2,000 ppm	
GFAA 10	GFAA	Ce, Se, Te	200 ppm	
CHM 13 CHM 10	Specific Ion	Cl F	5,000 ppm 1%	
ICPMS 10	ICPMS	In	4,000 ppm	

Note: Method code is ICP 70 utilizes a nitric aqua regia digestion. Silver may precipitate from solution as a chloride and may be underestimated. A fire assay determination for silver is recommend.