Bergvesenet rapport nr	Intern Journal nr	Internt arkiv nr	Rapport lokalisering	Gradering
4811	0496/03			Åpen
Kommer fra ..arkiv	Ekstern rapport nr	Oversendt fra Crew Norway AS	Fortrolig pga	Fortrolig fra dato:

Tittel
Drilling results Tjønnvollmyran Target, Røros, Norway

Forfatter	Dato År	Bedrift (Oppdragsgiver og/eller oppdragstaker)
Røsholt, Bernt Wilberg, Rune	2001	Crew Norway AS

Kommune	Fylke	Bergdistrikt	1: 50 000 kartblad	1: 250 000 kartblad
Holtålen	Sør-Trøndelag		17201	Trondheim Røros

Fagområde	Dokument type	Forekomster (forekomst, gruvefelt, undersøkelsesfelt)
Boring		Tjønnvollmyran
Råstoffgruppe	**Råstofftype**	
Malm/metall	Zn Cu Au	

Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

A drilling program of 6 holes with a total of 534m was carried out during March 13th to April 4th 2001.

It is obvious that the results of the drilling has not proved any economic drill sections.

However several arguments are poining at reason for a follow up of Tjønnvollmyran target, with Trancient EM and 1400m core drilling. The main reason:is that the Tjønnvollmyran sulphide zone is outcropping over a strike length for more than 1,5 km and has a thickness up to 15m, which indicates a sulphide zone with a magnitude larger than ever seen in the Røros environment.

CREW
DEVELOPMENT CORPORATION

DRILLING RESULTS

TJØNNVOLLMYRAN TARGET 2001

Bernt Røsholt
Rune Wilberg

Contents

Enclosures.

No 1 Assay results 2001 XRAL, of core logs. Au + 32 elements.
No 2 Field report 2001 with core logging, R. Wilberg.
No 3 Tjønnvollmyran core logging, Rune Wilberg and Denis Schlatter.
No 4 Certificate of analysis, XRAL

Drilling results Tjønnvollmyran 2001

Background.

The Tjønnvollmyran target no 37 is located in Holtålen municipality about 3 km SE of the abandoned massive sulphide deposit Kjøli, no 69, and about 45 km NE of township Røros in the Killingdal Menna ore field. **See fig no 1** and Killingdal-Menna ore field, Crew internal report. Tjønnvollmyran claim was worked in 1913 and during three months one vertical and one inclined shaft were sunk. Dump volume 80 m^3.
In 1999 the Røros area was covered by a helicopter survey and a distinct coinciding EM-Mag anomaly appeared over Tjønnvollmyran target area. See NGU Report 99.118.
Ground Mag, VLF and EM horizontal loop survey over the target area confirmed the helicopter anomalies. See Quantec Geoscience report Sept 2000.
Deep soil samples and prospecting was also carried out in the target area. Distinct geochemical anomalies were also located. The local target area is partly marshy, however, several outcrops are found. Rune Wilberg has made a detailed geological map over the area, which is presented in **Fig no2.** It exhibits the local geology and proposed drill holes 2001. Note that an error of digitizing of the map resulted that the mineralized Chlorite-Sericite -Schist was moved 10-20m to the East in the Northern part of the map. For correct details, see copy of original field map in "Exploration in Killingdal-Menna Ore field 2001". Crew internal report.
Fig no 3 exhibits the actual drillholes with HLEM 3520 Hz anomalies coinciding with the DOB Zn anomalies.

Drilling program.

A drilling program of 6 drill holes with a total of 534m was carried out during March 13th to April 4th 2001.
The table below gives the locations, depths etc. of the holes.

Drillholes at Tjønnvollmyran target, Røros 2001

Drillhole	UTM E	UTM N	Elev.(m)	Dip	Azim.	Overb.	Tot depth
1E	636699	6972895	880	45	90	10,0	87,70
1W	636700	6972898	880	85	270	3,0	107,20
2E	636606	6972575	885	75	90	3,0	103,50
3E	636839	6972495	867	75	90	4,5	62,70
4E	636738	6972490	873	75	90	4,5	69,40
5E	636630	6972172	880	75	90	4,5	103,50
Sum						29,5	534,00

Fig 1

Project: **Røros Zinc Project**

Title: **Figure 2: Regional geological map, Killingdal trend**

Approval	Design:	Date:
BR	KA	Jan. 2002

CREW DEVELOPMENT CORPORATION
O. H. Bangs vei 54-58
N-1363 Høvik, Norway

CREW DEVELOPMENT CORPORATION

Project no.:

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640000

Falkfangarvola
Alen
Svartbekken grid
Jensåsbekken grid
Tjønnvollmyra grid
Storskarven

Geological Legend

- Fjellsjø and Kjørrudal Formations
- Hersjø Formation
- Gula Group (Gula Schist)
- Intermediate intrusive rocks
- Mafic intrusive Rock
- Røsjø Formation
- Røros Formation
- Hummelfjell Formation
- Historical Development
- Diamond drill holes, 2001
- Target area

Detailed geology, Tjønnvollmyran grid

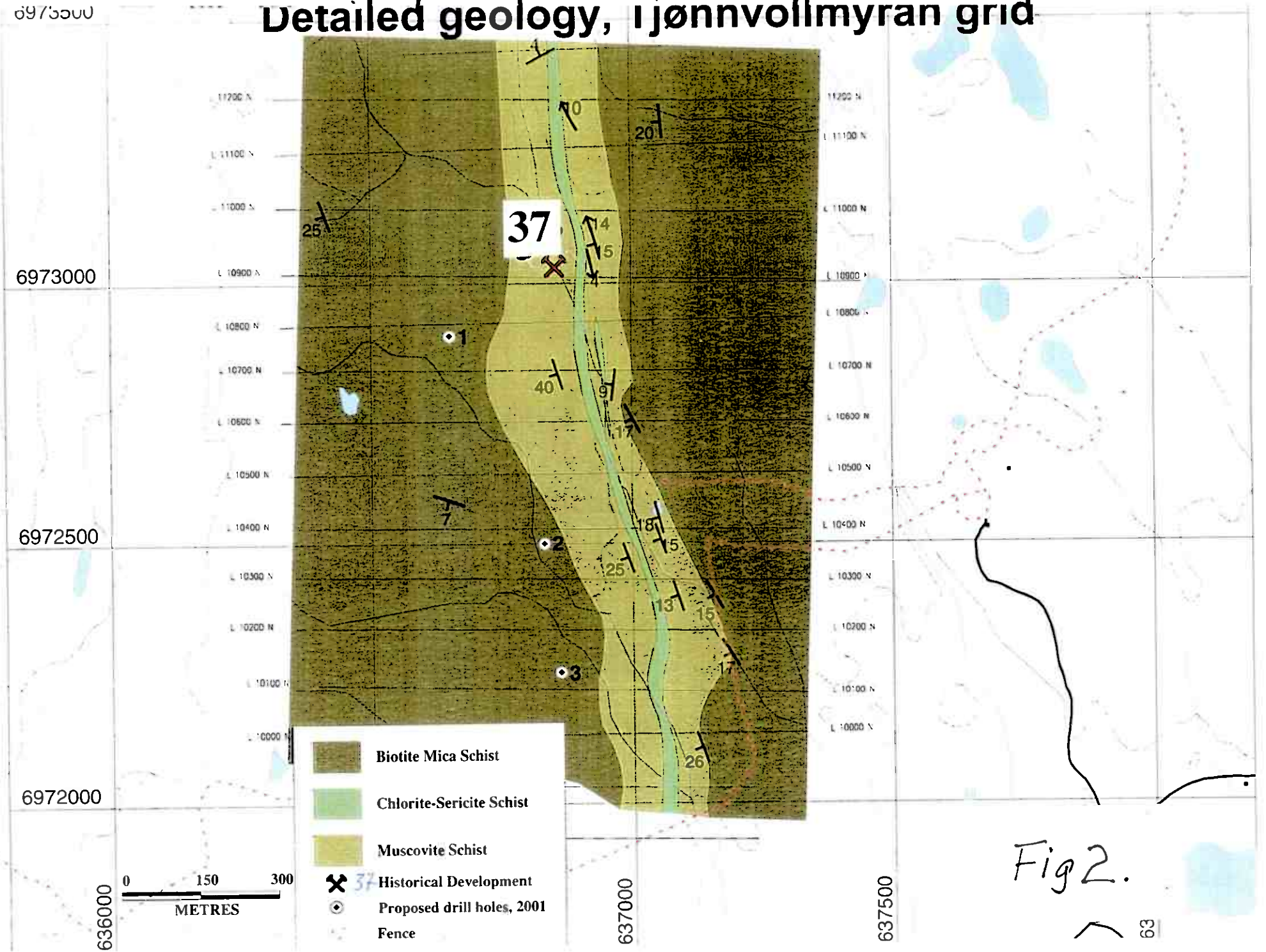
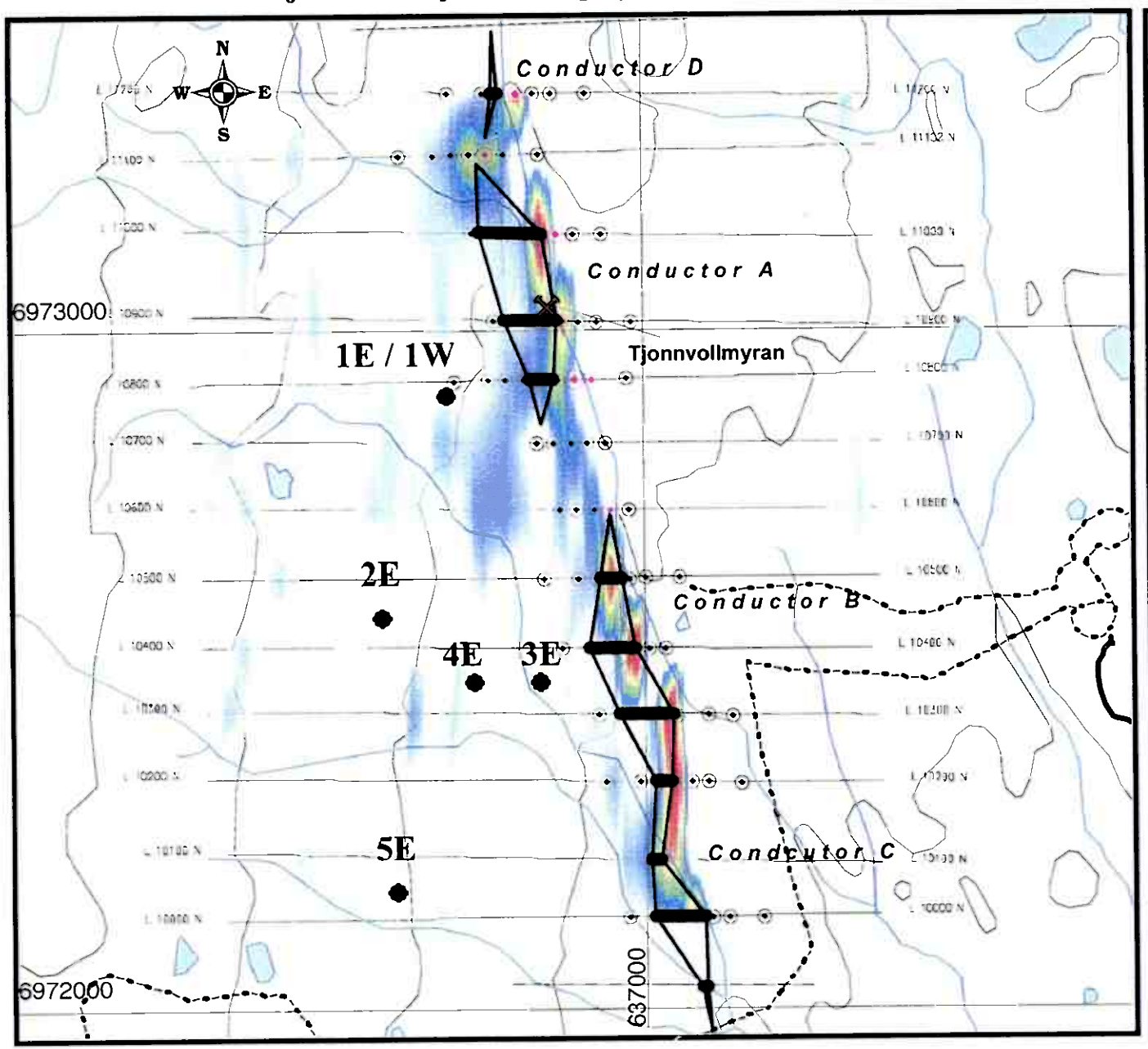


Fig 2.

Tjonnvollmyran Geophysical & Geochemical Compilation



Tjonnvollmyran Grid

Claim no.: 37 / Target no.: 50

VLF-EM - HLEM(3520Hz) And Zn DOB Geochemistry

HLEM 3520 Hz

- Conductor Outline
- Conductor

Zn DOB Geochemistry

- 151 to 300 ppm Zn (1)
- 94 to 150 ppm Zn (5)
- 7 to 94 ppm Zn (73)

Deposit Legend

- Historical Occurrence
- Drillhole 2001

Fig 3

Drilling results.

The strong EM anomaly was caused by a semimassive to massive sulphide horizon with thickness up to 15m in chlorite schist. The Tjønnvollmyran Claim (37) with assay results up to 8% Cu, 0,2 % Pb and 0,8% Zn is partly reflected in the drill sections in the footwall of the sulphide horizon. See **Fig 4,** exhibiting the three sections from the target area based on the outcrops and results from the drill holes. Note that the vertical scale is 2,5 times the horizontal scale.

Some selected elements from the drill core assays are presented in the table below. Enclosure no 1 is a complete assay list of Au+32 elements and 18 XRF assays of major elements.

Suceptibility measurements at the drill cores returned numbers up to 3000 units (Kappa) in the mineralized sections with Cpy and po confirming the coinciding moderate magnetic anomalies over the target.

More details of geology and mineralizations, see enclosure no 2 and no 3, Field report and core logging from Tjønnvollmyran 2001 by Rune Wilberg and Denis Schlatter (core logging).

Assay results of
Tjønnvollmyran Drill target

Drillhole number	from	to	m	Cu %	Zn %	Pb %	Ag ppm	Au ppb
1W	49.63	50.33	0.7	0,42	0,2	0,21	9,1	24
1 E	55.53	56	0.47	0,26				74
1 E	56	57.53	1.53	0,14			0,5	14
2	95.1	96.52	1.42	1,43	0,66	0,14	10,7	203
2	96.52	97.52	1	0,03	0,15	0,10	0,3	11
3	37.88	39.24	1.36	0,22	0,07		1,1	88
3	39.24	40.84	1.6	0,08	0,14	0,03	1,1	10
4	61.2	63	1.8	0,06	0,02		0,7	37
4	63	64.9	1.9	0,06	0,52	0,2	1,2	56
4	64.9	65.9	1	0,02	0,07	0,03	1,8	16
5	92	93.64	1.64	0,05	0,02			10
5	93.64	94.8	1.16	0,27	0,67	0,37	5,9	66
5	94.8	95.44	0.64	0,03	0.02		0,4	9

Enclosure no 4 is documented assays from Tjønnvollmyran by XRAL Laboratories in Don Mills, Toronto, Canada.

The highest base metal concentrations are found in the footwall of the sulphide zone. The elevated Cu and Zn assays are frequently coinciding with high and elevated contents of Al, Mg, Fe, Mn, V, Ag, Pb, Bi, Cd, Li and Au.

Tjønnvollmyran

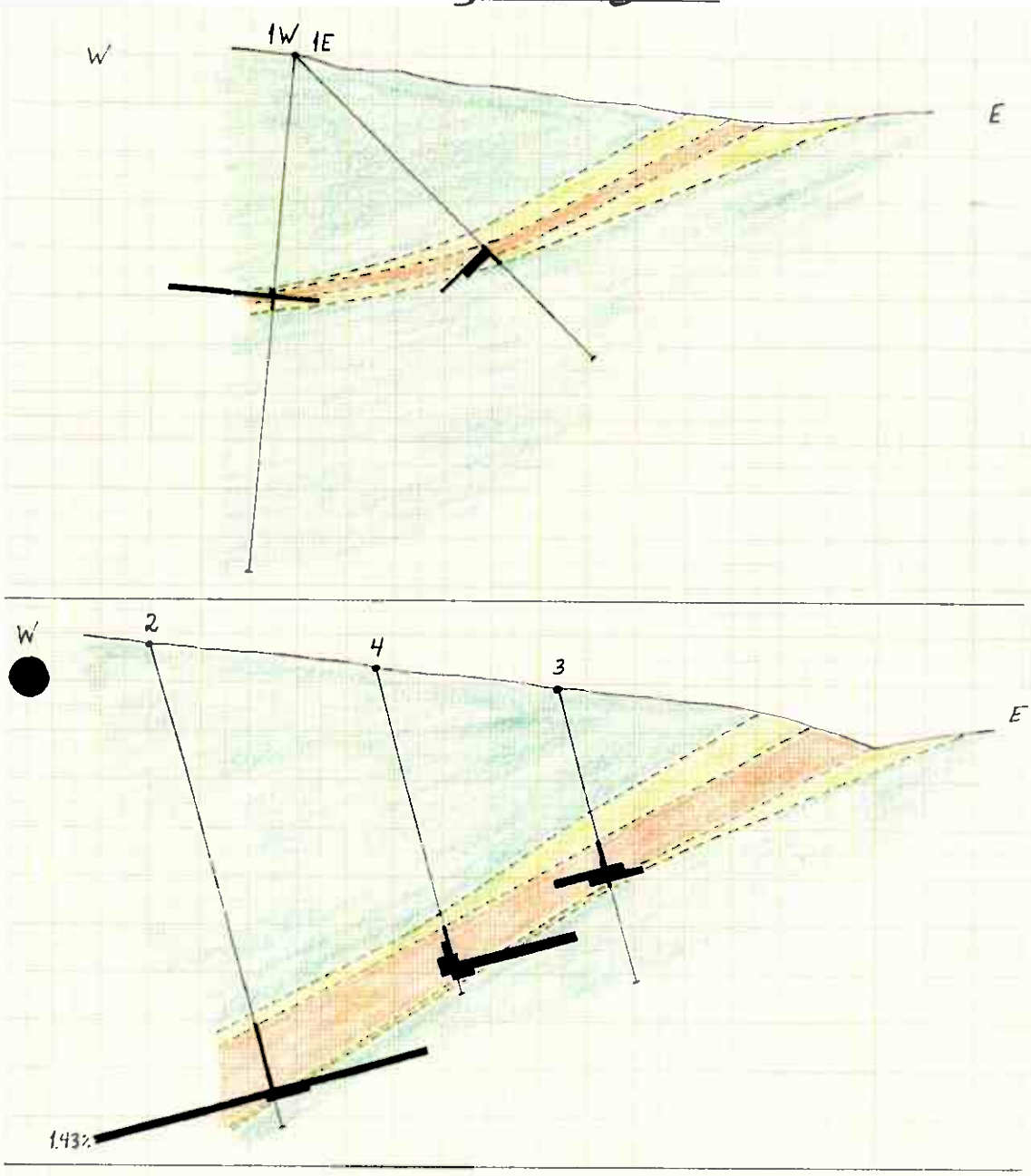
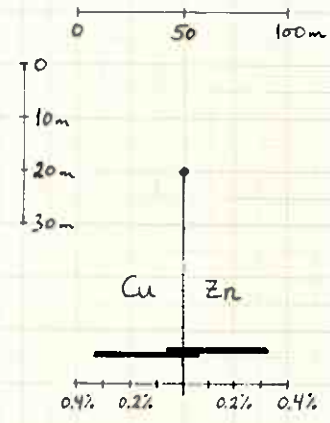


Fig 4

Horizontal scale:
1:2500

Vertical scale:
1:1000



biotite schist

muscovite schist with biotite porph. blasts

chlorite schist with sulfide-diss.

Conclusions.

It is obvious that the result of the drilling at Tjønnvollmyran has not proved any economic drill sections. However, several arguments below are pointing at reasons for a follow up of Tjønnvollmyran target:

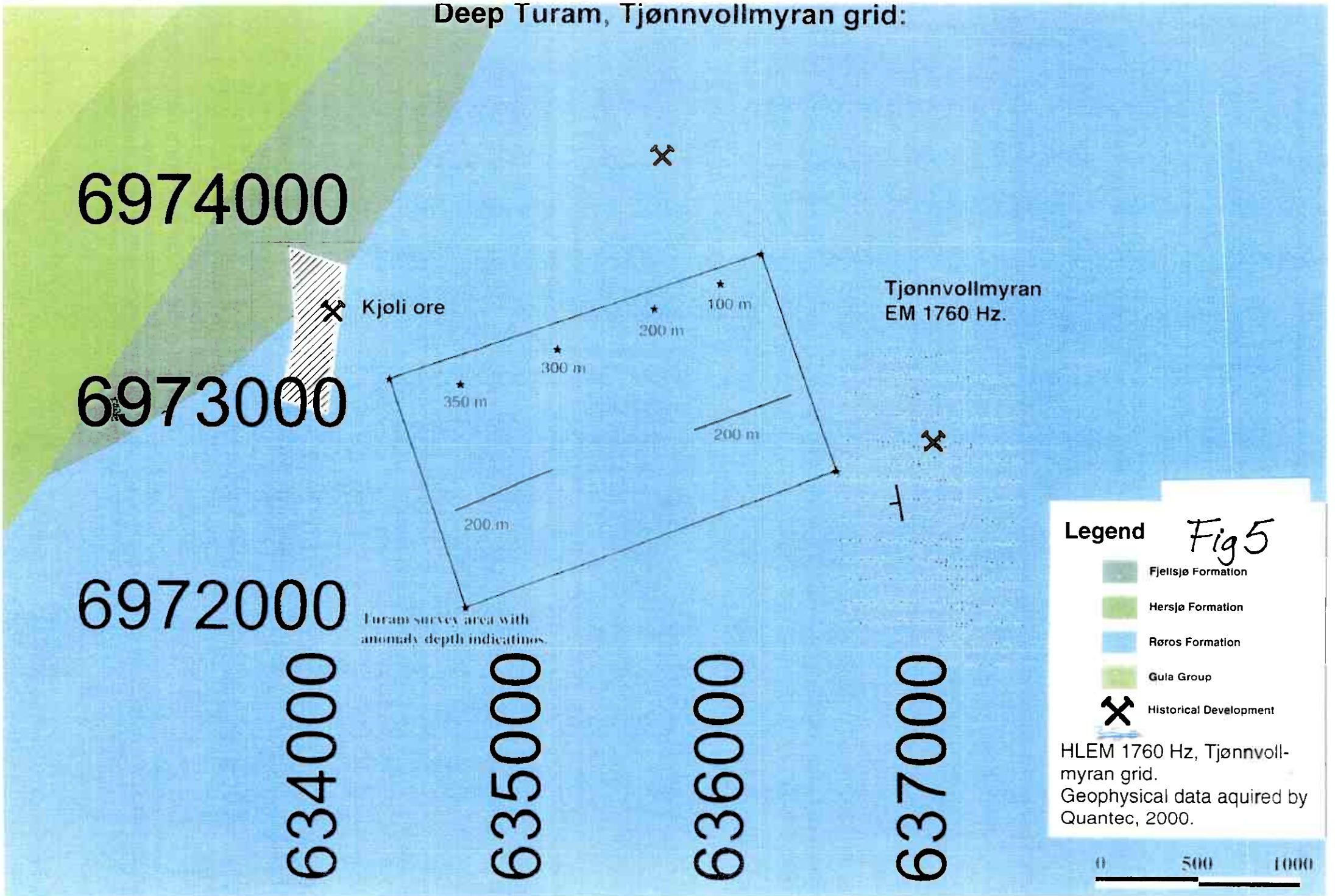
- The Tjønnvollmyran sulphide zone is outcropping over a strike length for more than 1,5 kilometer and has a thickness up to15 meters, which indicates a sulphide zone with a magnitude larger than ever seen in the Røros environment.
- Such a huge sulphide zone represents a significant eruption with sulfur and will most likely also a certain amount of base metals.
- The drilling confirmed base metals concentrations in the footwall of the sulphide horizon in all the sections. None of these sections were economic in size or content, however, lateral zonation of metal distribution is recognized at Røros mining camps and is also common elsewhere. It should therefore be a fair chance for the sulphide horizon to develop to economic grades down dip.
- Old Turam EM survey from 1955, (H. Brækken, NGU 1955) was carried out in the vicinity of Kjøli mine located about 3 kilometers NW of Tjønnvollmyran Claim. The survey located strong EM anomalies which could correspond to the same sulphide zone that has been located by the 2001 drilling and dips about 13^0 to the west. **Fig no 5** exhibits the extension of the Kjøli ore in the West and the Tjønnvollmyran Claim 3 km to the SE. The framed area in between is from the Turam surveyed area with depth indications of strong anomalies.

It i s proposed that the old Turam anomalies are confirmed buy a "Trancient EM" survey prior to any drilling. .

Under the condition that strong "Trancient EM" anomalies confirms the old Turam anomalies a drilling program of around 1400m with a total budget at NOK 1580000. See proposed work program and budget below:

Target no 50, Tjønnvollmyr:

Trancient EM survey	NOK 100000
Wireline core drilling 1400m á NOK 900/m	" 1260000
Assays	" 60000
Logging, splitting, shipment of samples	" 40000
Geological follow up	" 80000
Field transportation, travel, housing, allowances	" 40000
Sum	NOK1580000


Deep Turam, Tjønnvollmyran grid:
6974000
6973000
6972000
634000
635000
636000
637000
Kjøli ore
100 m
200 m
300 m
350 m
200 m
200 m
Tjønnvollmyran
EM 1760 Hz.
Turam survey area with
anomaly depth indications.
Legend
Fig 5
Fjellsjø Formation
Hersjø Formation
Røros Formation
Gula Group
Historical Development
HLEM 1760 Hz, Tjønnvoll-
myran grid.
Geophysical data aquired by
Quantec, 2000.
0
500
1000

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ENCLOSURES

CREW NORWAY AS
Drilling results Tjønnvollmyran 2001

				Sample Ident		Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn
				Scheme Code		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
Drillhole	number	from	to	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
Tjonnvollmyr	1W	48.63	49.63	400393	1W	-0.5	0.03	3.36	3.94	0.05	0.4	0.09	6.6	0.05	75	145	526	4.28	22	43	207	96.8
Tjonnvollmyr	1W	49.63	50.33	400394	1W	-0.5	0.02	3.31	3.44	0.05	0.44	0.09	5.9	0.05	67	165	578	5.99	29	38	4270	1990
Tjonnvollmyr	1W	50.33	51.1	400395	1W	4.1	0.02	6.69	5.31	0.07	0.19	0.9	7.6	0.02	66	104	570	3.06	14	44	33.4	78.7
Tjonnvollmyr	1W	51.1	51.7	400396	1W	-0.5	0.02	7.47	2.62	0.05	0.32	7.41	7	0.02	48	61	1160	2.5	10	34	24.6	88.4
Tjonnvollmyr	1W	51.7	52.85	400397	1W	-0.5	0.03	4.06	3.96	0.07	0.65	0.67	4.5	0.05	55	117	488	3.83	16	57	56	95.3
Tjonnvollmyr	1 E	48.5	49.33	401451	1E	-0.5	0.03	2.89	3.48	0.06	0.99	0.2	10.5	0.11	91	173	470	3.62	19	52	8.4	71
Tjonnvollmyr	1 E	54.9	55.53	401452	1E	-0.5	0.03	2.79	3.36	0.05	0.41	0.09	6.7	0.06	74	132	427	3.63	17	45	1.8	64.8
Tjonnvollmyr	1 E	55.53	56	401453	1E	5.1	0.03	3.76	3.77	0.05	0.75	0.09	5.3	0.07	65	129	619	7.77	43	52	2630	112
Tjonnvollmyr	1 E	56	57.53	401454	1E	-0.5	0.02	5.25	4.81	0.06	0.33	0.37	6.1	0.03	68	111	592	4.42	19	44	1390	111
Tjonnvollmyr	1 E	57.53	60.07	401455	1E	-0.5	0.03	4.97	3.47	0.07	0.76	3.54	4.7	0.06	51	89	745	3.56	20	56	66	124
Tjonnvollmyr	1 E	66	66.34	401456	1E	-0.5	0.06	3.37	3.87	0.06	2.09	1.17	5.4	0.21	91	154	560	3.89	22	95	39.6	83.3
Tjonnvollmyr	2	81.9	85	400385	2	-0.5	0.03	4.67	4.29	0.07	0.53	0.16	4.2	0.03	52	139	570	3.77	18	55	1.2	79.7
Tjonnvollmyr	2	85	87.2	400386	2	1.7	0.02	5.62	4.63	0.06	0.42	0.23	6.7	0.03	69	135	599	5.59	26	44	43.9	69.9
Tjonnvollmyr	2	87.2	90.2	400387	2	0.5	0.02	5.64	5.07	0.06	0.53	0.15	7	0.04	72	139	702	4.67	19	49	2	81.4
Tjonnvollmyr	2	90.2	92.35	400388	2	-0.5	0.02	4.43	3.87	0.06	0.35	0.11	4.7	0.02	51	140	506	4.93	19	44	3.6	76.5
Tjonnvollmyr	2	92.35	94.35	400389	2	0.9	0.02	4.23	3.83	0.07	0.42	0.13	4.1	0.03	46	114	405	3.66	19	107	3.1	61.2
Tjonnvollmyr	2	94.35	95.1	400390	2	-0.5	0.01	4.63	3.92	0.05	0.16	0.08	6.4	0.02	60	139	570	9.56	25	35	208	128
Tjonnvollmyr	2	95.1	96.52	400391	2	0.6	0.02	4.85	4.05	0.05	0.7	0.19	4	0.06	78	116	716	12.9	80	71	14290	6630
Tjonnvollmyr	2	96.52	97.52	400392	2	-0.5	0.03	3.84	3.8	0.06	1.27	1.11	4.5	0.12	74	126	513	4.1	20	73	347	1490
Tjonnvollmyr	3	7.68	8	401329	3	-0.5	0.06	2.96	4	0.07	2.5	0.18	10.3	0.23	107	142	238	4	20	58	5.4	64.9
Tjonnvollmyr	3	23.73	24	401330	3	-0.5	0.05	3.06	3.91	0.07	1.8	0.14	11.6	0.18	104	131	469	3.95	21	57	7.1	66.3
Tjonnvollmyr	3	29	29.4	401331	3	-0.5	0.03	3.86	3.78	0.07	0.7	0.19	2.7	0.05	48	112	463	3.09	16	66	3	55.5
Tjonnvollmyr	3	32	34.1	401332	3	-0.5	0.02	5.06	4.58	0.07	0.34	0.25	5.5	0.03	64	102	708	4.5	21	53	4.7	77.2
Tjonnvollmyr	3	34.1	35.76	401333	3	-0.5	0.02	5.38	4.96	0.07	0.37	0.15	6.3	0.03	69	119	754	5.38	27	55	80.4	107
Tjonnvollmyr	3	35.76	36.5	401334	3	-0.5	0.02	4.59	3.96	0.05	0.33	0.11	4.5	0.03	54	129	557	8.58	30	44	37.7	100
Tjonnvollmyr	3	36.5	37.88	401335	3	-0.5	0.01	3.36	2.83	0.04	0.07	0.08	2.8	-0.01	38	147	401	4.84	17	32	212	110
Tjonnvollmyr	3	37.88	39.24	401336	3	-0.5	0.03	4.38	3.94	0.05	0.94	0.08	8.1	0.07	70	143	716	5.95	22	45	2230	663
Tjonnvollmyr	3	39.24	40.84	401337	3	-0.5	0.02	5.69	4.42	0.06	0.15	1.41	3.6	0.02	53	137	975	5.27	22	64	792	1430
Tjonnvollmyr	3	40.84	41.76	401338	3	-0.5	0.05	3.45	3.84	0.07	1.74	1.3	2.4	0.16	71	133	525	3.96	24	104	68.2	91.4
Tjonnvollmyr	3	44.7	45	401339	3	-0.5	0.06	3.64	4.27	0.07	2.39	1.23	6.3	0.23	98	159	600	4.28	23	101	56	90.6
Tjonnvollmyr	3	59.41	59.7	401340	3	3	0.05	3.33	4.38	0.07	1.81	0.4	10.1	0.16	98	154	377	4.43	24	99	51.7	91.1
Tjonnvollmyr	4	55	57	400379	4	1.9	0.02	3.79	3.32	0.07	0.45	0.15	3.9	0.03	42	90	397	3.31	18	46	1.2	58.6

Prepared by Bernt Rosholt 2/11/02

Encl. 1

CREW NORWAY AS
Drilling results Tjønnvollmyran 2001

				Sample Ident		Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn
				Scheme Code		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
Drillhole	number	from	to	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
Tjonnvollmyr	4	57	58.2	400380	4	-0.5	0.02	4.91	4.12	0.06	0.4	0.16	5.6	0.03	58	106	569	5.32	21	41	3.3	70.6
Tjonnvollmyr	4	58.2	61.2	400381	4	2.2	0.02	5.29	5.03	0.05	0.49	0.11	6.6	0.04	72	159	786	5.65	24	48	332	113
Tjonnvollmyr	4	61.2	63	400382	4	-0.5	0.02	4.86	4.12	0.05	0.29	0.1	5.2	0.02	58	127	556	6.52	23	43	583	195
Tjonnvollmyr	4	63	64.9	400383	4	-0.5	0.02	6.34	5.18	0.06	0.4	0.13	8	0.04	79	126	750	7.13	22	45	576	5230
Tjonnvollmyr	4	64.9	65.9	400384	4	-0.5	0.02	5.49	4.01	0.06	0.45	1.37	2.6	0.03	52	130	732	4.37	17	41	175	702
Tjonnvollmyr	5	47.16	47.81	401341	5	-0.5	0.04	2.31	2.95	0.09	1.01	0.46	3.4	0.11	70	156	283	2.96	15	51	2.5	46.1
Tjonnvollmyr	5	91	92	401342	5	-0.5	0.03	3.45	3.74	0.06	0.5	0.12	3.3	0.04	48	114	609	4.07	17	55	132	75.9
Tjonnvollmyr	5	92	93.64	401343	5	-0.5	0.02	4.06	4.02	0.05	0.55	0.09	5.2	0.05	56	133	688	5.08	20	51	545	239
Tjonnvollmyr	5	93.64	94.8	401344	5	-0.5	0.02	3.73	3.25	0.05	0.58	0.17	4	0.04	51	141	546	6.04	24	41	2730	6680
Tjonnvollmyr	5	94.8	95.44	401345	5	-0.5	0.03	3.35	2.93	0.06	1.05	1.49	2.4	0.08	46	100	526	3.83	20	61	318	186
Tjonnvollmyr	5	95.44	96.75	401346	5	-0.5	0.05	3.15	3.5	0.06	1.77	1.14	4.7	0.17	76	135	481	3.77	21	119	52.1	90.5

Prepared by Bernt Røsholt 2/11/02

CREW NORWAY AS
Drilling results Tjønnvollmyran 2001

Sample Ident	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	Ba	La	W	Pb	Bi	Li	SiO2	Al2O3	CaO	MgO	Sample Ident	Na2O
Scheme Code	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	XRF10	XRF102	XRF102	XRF102	Scheme Code	XRF102
Analysis Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	Analysis Unit	%
Detection Limit	3	0.5	0.5	0.5	1	0.2	1	10	5	1	0.5	10	2	5	1	0.01	0.01	0.01	0.01	Detection Limit	0.01
400393 1W	-3	2.5	4.8	4.1	12	0.8	-1	-10	-5	110	10.4	-10	32	-5	27	-3000	-3000	-3000	-3000	400393	-3000
400394 1W	-3	3.5	18.7	5.1	17	9.1	16	-10	-5	36	10.6	-10	2100	33	20	-3000	-3000	-3000	-3000	400394	-3000
400395 1W	-3	15.6	15.4	5.6	-1	0.3	-1	-10	-5	11	30.9	-10	6	-5	33	-3000	-3000	-3000	-3000	400395	-3000
400396 1W	-3	89.4	10.4	5.1	-1	0.2	-1	-10	-5	20	22.9	-10	17	-5	18	25.9	13.6	15.8	15.9	400396	1.2
400397 1W	-3	10.4	12.7	4.8	2	0.3	-1	-10	-5	33	25.8	-10	37	-5	28	-3000	-3000	-3000	-3000	400397	-3000
401451 1E	-3	5.7	9	5.5	-1	-0.2	-1	-10	-5	293	24.5	-10	8	-5	22	65.5	13.3	1.34	5.46	401451	2.55
401452 1E	-3	2.5	3.8	5	12	0.4	-1	-10	-5	121	9	-10	7	-5	21	-3000	-3000	-3000	-3000	401452	-3000
401453 1E	-3	3.5	13.9	6.4	6	-0.2	-1	-10	-5	69	24.8	-10	20	-5	23	-3000	-3000	-3000	-3000	401453	-3000
401454 1E	-3	8.4	15.5	4.9	4	0.5	-1	-10	-5	29	25.7	-10	12	INF	29	-3000	-3000	-3000	-3000	401454	-3000
401455 1E	-3	62.4	14.8	5.8	-1	0.5	-1	-10	-5	39	26	-10	36	-5	25	46.1	16.2	7.73	9.62	401455	0.85
401456 1E	-3	24.8	10.4	5.2	-1	0.3	-1	-10	-5	290	25.2	-10	6	-5	48	56.1	16.5	5.09	5.86	401456	1.95
400385 2	-3	5.6	14.4	6	-1	0.3	-1	-10	-5	25	22.9	-10	8	-5	28	-3000	-3000	-3000	-3000	400385	-3000
400386 2	-3	4.3	11.1	5.4	2	-0.2	-1	-10	-5	18	16.6	-10	4	-5	27	-3000	-3000	-3000	-3000	400386	-3000
400387 2	-3	4.6	13.7	5.3	-1	0.3	-1	-10	-5	26	17.9	-10	-2	-5	35	-3000	-3000	-3000	-3000	400387	-3000
400388 2	-3	4.4	13.7	6.2	3	0.4	-1	-10	-5	17	17.9	-10	12	-5	29	-3000	-3000	-3000	-3000	400388	-3000
400389 2	-3	5.1	21.3	6.5	1	-0.2	-1	-10	-5	18	30.5	-10	9	-5	36	-3000	-3000	-3000	-3000	400389	-3000
400390 2	57	2.6	11	7.8	2	-0.2	-1	-10	-5	10	14	-10	27	8	27	-3000	-3000	-3000	-3000	400390	-3000
400391 2	-3	3.7	9.4	7.7	4	10.7	17	-10	-5	33	9.6	-10	1370	7	31	-3000	-3000	-3000	-3000	400391	-3000
400392 2	-3	14.6	8.1	5	-1	0.3	3	-10	-5	154	22.3	-10	1040	12	38	-3000	-3000	-3000	-3000	400392	-3000
401329 3	-3	7.9	11.2	4	-1	0.4	-1	-10	-5	328	23.9	-10	7	-5	18	61.2	15.7	1.83	4.97	401329	1.96
401330 3	-3	5.2	8.9	7.2	-1	0.2	-1	-10	-5	281	29.2	-10	5	-5	25	61	15.7	1.25	5.56	401330	2.8
401331 3	-3	5.2	5.9	6.3	-1	0.3	-1	-10	-5	35	18	-10	2	-5	24	59.6	15.3	0.82	8.75	401331	0.19
401332 3	-3	4.9	12.9	5.2	-1	0.3	-1	-10	-5	19	12.2	-10	6	-5	23	50.7	15	0.96	13.4	401332	0.04
401333 3	-3	4.4	14.3	7	-1	1	-1	-10	-5	19	15.5	-10	6	-5	30	-3000	-3000	-3000	-3000	401333	-3000
401334 3	22	3.9	13.5	9	2	0.4	-1	-10	-5	17	17.7	11	15	-5	25	-3000	-3000	-3000	-3000	401334	-3000
401335 3	15	2.1	9.7	6.5	2	0.5	-1	-10	-5	9	11.7	-10	14	-5	19	-3000	-3000	-3000	-3000	401335	-3000
401336 3	-3	2.4	7.9	6.1	1	1.1	-1	-10	-5	53	14.5	-10	124	INF	30	-3000	-3000	-3000	-3000	401336	-3000
401337 3	-3	20.9	10.9	6.7	2	1.1	2	-10	-5	18	21.1	-10	296	-5	31	-3000	-3000	-3000	-3000	401337	-3000
401338 3	-3	24.2	12.9	6	-1	0.3	-1	-10	-5	209	26.9	-10	10	-5	34	55.7	16.8	5.55	5.88	401338	1.22
401339 3	-3	24.4	15	5.2	-1	0.2	-1	-10	-5	305	26.8	-10	9	-5	52	56.5	16.7	4.8	6.04	401339	1.87
401340 3	-3	16.8	19.8	6.6	-1	0.3	-1	-10	-5	195	29.9	-10	6	-5	55	58.3	17.1	1.91	5.65	401340	1.93
400379 4	-3	5.3	14.6	5.1	-1	-0.2	-1	-10	-5	18	22.7	-10	15	-5	23	-3000	-3000	-3000	-3000	400379	-3000

Prepared by Bernt Røsholt 2/11/02

CREW NORWAY AS
Drilling results Tjønnvollmyran 2001

Sample Ident	As	Sr	Y	Zr	Mo	Ag	Cd	Sn	Sb	Ba	La	W	Pb	Bi	Li	SiO2	Al2O3	CaO	MgO	Sample Ident	Na2O
Scheme Code	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	XRF10	XRF102	XRF102	XRF102	Scheme Code	XRF102
Analysis Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%	Analysis Unit	%
Detection Limit	3	0.5	0.5	0.5	1	0.2	1	10	5	1	0.5	10	2	5	1	0.01	0.01	0.01	0.01	Detection Limit	0.01
400380 4	-3	4.3	12.8	6.2	1	-0.2	-1	-10	-5	17	20.1	-10	20	9	28	-3000	-3000	-3000	-3000	400380	-3000
400381 4	-3	4.6	12.1	6.2	-1	0.4	-1	-10	-5	26	14.1	-10	6	-5	35	-3000	-3000	-3000	-3000	400381	-3000
400382 4	23	3.4	13.5	6.4	1	0.7	-1	-10	-5	16	15.8	-10	69	8	32	-3000	-3000	-3000	-3000	400382	-3000
400383 4	62	3.1	11.6	5.6	-1	1.2	10	-10	-5	23	15.6	-10	1820	13	38	-3000	-3000	-3000	-3000	400383	-3000
400384 4	9	17.9	7.1	6.8	1	1.8	-1	-10	-5	30	21.9	-10	304	5	35	-3000	-3000	-3000	-3000	400384	-3000
401341 5	-3	11.3	8.9	4.1	-1	0.2	-1	-10	-5	194	15.3	-10	5	-5	12	-3000	-3000	-3000	-3000	401341	-3000
401342 5	-3	4	17.6	5.6	-1	-0.2	-1	-10	-5	27	23.9	-10	4	-5	26	-3000	-3000	-3000	-3000	401342	-3000
401343 5	-3	2.7	9.5	5.7	-1	-0.2	-1	-10	-5	23	16.9	-10	55	-5	29	-3000	-3000	-3000	-3000	401343	-3000
401344 5	47	4.9	8.8	6	5	5.9	14	-10	-5	24	14	-10	3680	6	26	-3000	-3000	-3000	-3000	401344	-3000
401345 5	211	22.6	11.3	4.8	1	0.4	-1	-10	-5	78	26.3	-10	32	-5	29	-3000	-3000	-3000	-3000	401345	-3000
401346 5	-3	18.7	7.2	5.4	-1	-0.2	-1	-10	-5	209	25.1	-10	11	-5	41	-3000	-3000	-3000	-3000	401346	-3000

Prepared by Bernt Røsholt 2/11/02

CREW NORWAY AS
Drilling results Tjønnvollmyran 2001

Sample Ident		K2O	Fe2O3	MnO	TiO2	P2O5	Cr2O3	LOI	Sum	Rb	Sr	Y	Zr	Nb	Ba	Cu	Sample Ident	Au
Scheme Code		XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	ICAY50	Scheme Code	FA301
Analysis Unit		%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	%	Analysis Unit	ppb
Detection Limit		0.01	0.01	0.01	0.001	0.01	0.01		0.01	2	2	2	2	2	20	0.01	Detection Limit	1
400393	1W	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400393	10
400394	1W	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400394	24
400395	1W	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400395	8
400396	1W	0.57	6.46	0.23	0.765	0.14	0.02	19.6	100.2	22	188	26	172	10	73	-3000	400396	8
400397	1W	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400397	7
401451	1E	1.35	7.41	0.14	0.79	0.16	0.04	2.05	100.1	46	105	23	165	11	479	-3000	401451	7
401452	1E	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401452	9
401453	1E	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401453	74
401454	1E	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401454	14
401455	1E	2.32	7.76	0.13	0.889	0.18	0.03	7.4	99.3	77	130	30	200	13	258	-3000	401455	10
401456	1E	2.56	7.91	0.1	0.829	0.18	0.04	2.9	100.2	96	252	26	159	15	498	-3000	401456	8
400385	2	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400385	8
400386	2	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400386	9
400387	2	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400387	10
400388	2	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400388	11
400389	2	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400389	15
400390	2	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400390	32
400391	2	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	1.4	400391	203
400392	2	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400392	11
401329	3	3.74	7.99	0.11	0.884	0.19	0.03	1.4	100.1	111	99	27	183	15	611	-3000	401329	8
401330	3	2.68	7.96	0.11	0.888	0.18	0.03	1.85	100.1	81	88	25	177	15	601	-3000	401330	9
401331	3	2.53	7.26	0.1	0.912	0.19	0.03	4.3	100.1	69	37	26	234	12	317	-3000	401331	8
401332	3	0.75	11.8	0.19	0.84	0.19	0.03	6.45	100.3	26	22	23	228	11	131	-3000	401332	8
401333	3	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401333	24
401334	3	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401334	22
401335	3	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401335	13
401336	3	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401336	88
401337	3	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401337	10
401338	3	2.56	7.95	0.1	0.823	0.18	0.03	3.25	100.1	91	174	27	161	15	428	-3000	401338	11
401339	3	2.96	8.12	0.1	0.843	0.17	0.04	2	100.2	110	221	26	165	15	540	-3000	401339	9
401340	3	3.1	8.39	0.09	0.888	0.18	0.04	2.45	100.2	124	136	25	183	16	548	-3000	401340	8
400379	4	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400379	8

Prepared by Bernt Røsholt 2/11/02

CREW NORWAY AS
Drilling results Tjønnvollmyran 2001

Sample Ident	K2O	Fe2O3	MnO	TiO2	P2O5	Cr2O3	LOI	Sum	Rb	Sr	Y	Zr	Nb	Ba	Cu	Sample Ident	Au
Scheme Code	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	XRF102	ICAY50	Scheme Code	FA301
Analysis Unit	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	%	Analysis Unit	ppb
Detection Limit	0.01	0.01	0.01	0.001	0.01	0.01		0.01	2	2	2	2	2	20	0.01	Detection Limit	1
400380 4	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400380	13
400381 4	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400381	10
400382 4	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400382	37
400383 4	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400383	56
400384 4	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	400384	16
401341 5	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401341	6
401342 5	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401342	8
401343 5	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401343	10
401344 5	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401344	66
401345 5	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401345	9
401346 5	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	-3000	401346	8

Prepared by Bernt Røsholt 2/11/02

Encl. 2

Field report Rune Wilberg.

Tjønnvollmyran drilling:

The gently west –dipping (11 - 14°) sulfide sheet at Tjønnvollmyran is intersected with 6 drillholes, following it approximately 400 m down – dip, over a strike length of 730 m (see enclosed drill hole profiles).
The sulfides are hosted in chlorite schist with a minor sericite content. The thickness of the chlorite schist varies from 14.5 m (Dh. 2) to 1 m (Dh. 1W), while the thickness of the sulfide impregnation reach 14.5 m in Dh. 2, and decrease to 0.7 – 0.8 m in Dh. 1W and 1E.
Pyrite is the major sulfide, and occur as disseminated grains from 0.5 – 2 mm in size, while pyrrhotite and chalcopyrite occur as stringers. Sphalerite tend to be concentrated in a few mm – thick bands. Finegrained galena is observed a few places, as is native Cu. A general picture is py – diss., and partly po – stringers in the upper parts of the sheet, and concentration of po and the base metals Cu, Zn and partly Pb in the lower 2 – 4 m. In the thinner part of the mineralization, intersected by 1W and 1E, py is almost abcent, while po and base metals are concentrated to approx 25 % sulfides.
The sulfides are generally bound to 1 - 20 mm thick quartz – feldspar – rich layers. Garnet appears occasionally in the mineralized chlorite schist.
As observed in outcrop, around and south of the shaft, up to dm – thick layers and lenses of pure carbonate / marble (occasionally base metal impregnated) appear in the chlorite schist. Frequent carbonate layers (1 – 2 cm thick) also occur in the mineralized chlorite schist in 1W (51.05 – 51.70 m) and 1E (57.53 – 57.77 and 59.80 – 60.00).
Dh. 4 intersects 6 – 7 approx 10 cm thick layers where the schist contains 2 – 3 mm – sized quartz – feldspar eyes. The same can be observed in Dh. 1W between 50.80 – 51.10, and in outcrop at the river bank just below the shaft. This could possibly represent tuffaceous units.
The mineralized chlorite schist is enveloped in muscovite – dominated schist with biotite porphyroblasts, and in places minor hornblende porphyroblasts, chlorite and garnet.
The hanging – wall is made up of finegrained biotite – dominated garnet – mica schist with few – mm – thick quartz – feldspar bands, with thinner sections of lighter garben schist.
The footwall constitutes of finegrained, lighter grey (quartz -) mica schist, frequently with biotite – and hornblende porphyroblasts, and in places with garnet. Typical for the footwall schist is a distinct carbonate banding (2 – 7 mm thick bands).
Quartz (± carbonate) veins are frequent in all units.
Susceptibility measured on the cores show 20 – 40 at the hangingwall garnet – biotite schist, approx 20 at the upper 15 – 20 m of the footwall carbonate – banded mica schist, and 40 – 60 at the lower parts of the same. The enveloping muscovite schist with biotite porphyroblasts shows 15 – 20. Po – cpy – stringer mineralization shows 200 – 1500, while py – disseminated bands give 80 – 300.

TJONVOLLM.

DIAMOND DRILL LOG	drill pad #	drill hole # 1 Est	logged by DJ	date
Y UTM ~~66~~ 636696	X UTM 6972896	m asl	azimuth	dip 1:200

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w m s CS	alteration other	rock type and minerals	zone
0								
1 2								
2 4							overburden	
3 6								
4 8								
5 10		q_2				4.3		
6 12							fgr. biotite schist with garnet	
7 14	Fol 55°							
8 16								
9 18								
10 20						10-12m some qz. veins		
11 22								
12 24								
13 26								
14 28								
15 30						15.71-15.95 qz-dol ppr veins		
16 32	Fol 70°							
17 34						16-20m interval with less strongly sericitized fine grains		
18 36								
19 38								
20 40								
21 42								
22 44								
23 46								
24 48								
25 50								

Incl. 3

TJDN

DIAMOND DRILL LOG	drill pad #	drill hole # 16	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 w	CS m	s	other	rock type and minerals	zone
25 50										
26 52										
27 54										
28 56								28.2. passive hyd-ro-fr		
29 58		Qz.V.								
30 60	Fol 55°									
31 62										
32 64										
33 66										
34 68										
35 70										
36 72										
37 74										
38 76										
39 78										
40 80										
41 82										
42 84										
43 86										
44 88										
45 90										
46 92	Fol 57°									
47 94										
48 96										
49 98	(lithochem)	Cz Cz	48.5	401451				9% pyrite + Blz		
50 100			49.33							

T3010

DIAMOND DRILL LOG	drill pad #	drill hole # 10	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 CS w m s other	rock type and minerals	zone
50 100						biot schist + garnet	
51 102							
52 104	crenulation				garnets up to 1.5mm	Biot. mus-schist + porphyroblast of ga + biot (mafic schistosity)	
53 106							
54 108						biot schist + garnet	
55 110			54.9			54.9	
56 112		qz cpy qz	55.53	401452		small interval 55.4-55.5 more fine grained biot gneiss rock	
57 114		cpy qz	56.00	401453	vast mineralized section Cpy Po in stringers	fgr. Muscovite schist porphyroblasts of biotite	
58 116		qz cc	57.53	401454	qz-vein few sulfides cpy stringer @ 57.7	57.55	
59 118	(lithochem)	cc		401455	56.96-57.08 po-cpy-stringers 57.78-57.89 qtz-carb. vein	on-thick bands of carb. at 57.53-57.77 and 59.80-60.00.	
60 120		cc	60.07			60.05: mus. sch ends	
61 122		cc cc cc				60.07	
62 124						60.05-87.70: carb.-banded mica sch.	
63 126							
64 128	66°						
65 130							
66 132	(lithochem)		66.0 16.34	401456			
67 134							
68 136							
69 138							
70 140							
71 142							
72 144							
73 146							
74 148	72°						
75 150							

TDDH 10

DIAMOND DRILL LOG	drill pad #	drill hole #	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 w	CS m	s	other	rock type and minerals	zone
100										
102										
104										
106										
108										
110										
112										
114	65°									
116										
118										
120										
122										
124										
126		—							87.70 ; EOH	
128										
130		susc.:								
132	gnt-bio sch.		20 - 40					(HW)		
134	musc. sch w/ bio porfbl.		15 - 40					(enc.)		
136	po-cpy-sti ngermin:		200 - 350							
138	carb. banded mica sch: 20 at 60-75m		40-60 at 75 - 87m					(FW)		
140										
142										
144										
146										
148										
150										

TJ PNW

DIAMOND DRILL LOG	drill pad #	drill hole # 1W	logged by RW	date 11/05/01
Y UTM 636696	X UTM 6972896	m asl	azimuth	dip ~~1:200~~ 1:100

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w / CS m / s	other	rock type and minerals	zone
0								
2								
4							3.00m overburden	
6	80°					3.67-3.95: qtz-veins	3.00-48.80: grt-bio sch (fine gr.) w/ felsic layers (few - mm - thick)	
8								
10								
12								
14	90°					7.73-7.83: qtz-veins		
16						8.44-8.46 qtz-vein		
18						9.43-9.44 qtz-vein		
20	80°							
22	90°					10.02-10.13: q-veins		
24	40°-70°							
26	60°							
28	35°-60°							
30	70°-80°							
32	70°-80°							
34	70°							
36	60°					17.12-17.45 q-carb veins		
38	|					19.20-20.44: q-veins w/ traces of po		
40	80°							
42						21.71-21.72: q-vein		
44								
46								
48						24.33-24.65 q-veins		
50	↓							

TJQNNV

DIAMOND DRILL LOG	drill pad #	drill hole # 1W	logged by ZW	date 11/05/01
Y UTM	X UTM	m asl	azimuth	dip ~~-1:200~~

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w m s CS	alteration other	rock type and minerals	zone
25 50	80°							
52	↓							
54	70°					27.43-27.44: q-vein		
56								
58	|							
30 60						30.25-30.28: 30.65-30.66: 30.86-30.89:	q-veins	
62	80°							
64	90°					32.17-32.26:		
66	|							
68						34.75-34.76		
35 70						35.17-35.20	q-veins	
72						36.08-36.75		
74	↓					37.15-37.23		
76						38.06-38.35		
78	80°					38.90-39.00: cont. also minor muscovite		
40 80						40.35-40.36: 40.76-40.78:		
82						41.07-41.08		
84						41.32-41.40	q-veins	
86	↓					42.40-42.47		
88	70°					43.45-43.49		
45 90	↓							
92	70°-50°					45.59-45.61		
94	70°-80°					45.90-45.92		
48 96	90°							
98	|		48.63	400393		48.50-48.60: fracture w/ remob. py	48.80-51.05: musc. sch (minor chlorite) w/ bio part (L and weak po-diss. Cont. garnet in the sulf-stringer zone	
50 100		po-cpy-sl-ga	49.63	400394		49.63-50.33: stringer-diss of po-cpy-sl-ga.		
			50.33					

TJ & NNV

DIAMOND DRILL LOG	drill pad #	drill hole # 1W	logged by RW	date 11/05/01
Y UTM	X UTM	m asl	azimuth	dip ~~1:200~~

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w | CS m | s | other	rock type and minerals	zone
50 ~~100~~	70° (lithochem)		50.33		50.80-51.10: cont. 2-3mm sized qtz-feld. phyr "eyes" (prob tuff unit??)	51.05-51.70: alternating band (chl sch and carb. layers (1-2 cm scale) + veins of hydrat. qtz + carbonate.	
102			51.10	400395			
			51.70	400396			
104				400397	51.16-51.17: qtz-carb. vein	52.90-80.30:	
	80°		52.85		51.35-51.37: q-carb vein		
106					52.85-52.89: q-vein	mica sch. with bio - ~~phl~~ and minor	
108					54.45-55.20: q-carb.-veins	hbl. porph. bd. freq. calcite bands (few - mm - thick). Distinct banding	
	70°					In places garnet.	
55 ~~110~~							
	80°						
112						51.70-52.90:	
114						Same as 48.80-51.05	
116							
118							
60 ~~120~~					60.53-60.59: qtz vein		
122							
124							
126							
128							
65 ~~130~~							
132							
134	↓						
136							
	90°						
138							
70 ~~140~~							
142							
144					72.01-72.44: q-carb veins		
146							
148							
75 ~~150~~							

TJ & NNV

DIAMOND DRILL LOG	drill pad #	drill hole # 1W	logged by KW	date 11/05/01
Y UTM	X UTM	m asl	azimuth	dip 1:200

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w | CS m | s	other	rock type and minerals	zone
75 0	90°					75.10-75.20: q-veins		
2								
	80°							
4								
6								
8								
80 10							80.30-80.90: funegr., light grey (more felsic, + musc.) schist.	
12						81.85-82.00: weak po-diss.	80.90-88.90: same as 52.90-80.30	
14								
	90°							
16								
18								
85 20								
22								
24								
26								
28							88.90-89.30: Light grey qtz-musc-schist w/ lw pot. bt.	
90 30							89.30-95.35: same as 52.90-80.30	
32								
34								
36								
38								
95 40								
42						95.63-95.65: q-vein	95.35-95.95: same as 88.90-89.30	
44							95.95-99.65: same as 52.90-80.30	
46								
48								
0 50						99.92-99.93: q-vein	99.65-100.10: same as 88.90-89.30	

TJ@NNV

DIAMOND DRILL LOG	drill pad #	drill hole # 1W	logged by FW	date 11/05/01
Y UTM	X UTM	m asl	azimuth	dip ~~1:200~~

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w	alteration cs m	alteration s	alteration other	rock type and minerals	zone
100 ~~50~~										
52	80°								100.10–107.20: same as 52.90–80.30 (strong carb. banding)	
54								102.15–102.30: q-carb. veins		
56										
58										
105 ~~60~~										
62								106.76–106.87: q-carb. vein		
107 64	↓								107.20: EOH	
66										
68										
70										
72										
74										
76										
78										
80										
82										
84										
86										
88										
90										
92										
94										
96										
98										
100										

TJ ϕ NNV. (5)

DIAMOND DRILL LOG	drill pad #	drill hole # 2	logged by RW	date 10/05/01
Y UTM 636610	X UTM 6972569	m asl	azimuth	dip ~~1:200~~ 1:100

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w | CS m | s	other	rock type and minerals	zone
0								
2							2.40 m overburden	
~~12~~	80°					2.71 - 2.72: qtz-vein		
6							2.40 - 19.73: gnt-bio sch w/ felsic layers (few mm - thick)	
						3.07 - 3.08: qtz vein		
8								
10								
	75°					5.73 - 5.76: qtz-carb vein		
12						6.45 - 6.47: q-carb vein		
14						7.65 - 7.70: qtz vein		
16								
18								
20								
22						11.95 - 12.07 qtz vein		
24								
26	80°							
28								
30								
32								
34								
36								
38						19.81 - 19.94: q-carb veins	~~19.73 - 19.95~~: chlorite-garnet-mica sch w/ break po-diss + traces cpy.	
40								
42							19.95 - 79.40: same as 2.40 - 19.73	
44								
						22.34 - 2235: qtz vein		
46								
48								
50								

TJ4NNV.

DIAMOND DRILL LOG	drill pad #	drill hole # 2	logged by RW	date 10/5/01
Y UTM	X UTM	m asl	azimuth	dip 1:200

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w	CS m	s	other	rock type and minerals	zone
50	80°							25.34-25.67: qtz vein		
52								25.86-25.89: qtz vein		
54								26.92-26.97: qtz vein		
56								27.50-27.59: qtz veins		
58										
30 60	75°							30.52-30.54: q-vein		
62										
64								32.26-32.95: q-veins		
66										
68										
70								35.30-35.32: q-vein		
72										
74								37.66-38.00: q-veins		
76										
78	80°									
40 80										
82										
84										
86								44.81-44.86: q-veins		
88										
90										
92										
94								47.36-47.39: q-carb vein		
96										
98										
50 100										

DIAMOND DRILL LOG	drill pad #	drill hole # 2	logged by RV	date 10/05/01
Y UTM	X UTM	m asl	azimuth	dip 1:200

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w / CS m / s	other	rock type and minerals	zone
50 100	80°					50.92-50.97: q-vein		
102	70°							
104						52.87-52.90: q-vein		
106						53.04-53.10: q-veins		
108						53.77-53.92: q-veins 54.08-54.17: 54.55-55.55:		
110	75°							
112						56.17-56.21:	qtz veins	
114								
116						58.50-58.51		
118								
60 120						60.35-60.62: q-veins		
122								
124						62.10-63.20: q-veins		
126	V							
128	86°							
130						65.20-65.35: mm-sized carb "eyes"		
132								
134								
136								
138								
140						70.00-70.50: q-veins		
142								
144						72.97-72.99: q-vein		
146						73.20-74.10: 73.90-74.10: traces of po.	qtz veins	
148								
75 150	V							

TJ@NNV

DIAMOND DRILL LOG	drill pad #	drill hole # 2	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 w | m | s	other	rock type and minerals	zone
100	80°							
102								
104								
106								
108								
110							79.40–96.70: musc. schist w/ biop. f. bl. and weak po-diss. minor chlorite	
112								
114			81.9					
116				400385				
118								
120			85.0				85.95–86.14: qtz veins	
122				400386				
124		py-dom	87.2					
126				400387				
128								
130			90.2					
132				400388				
134			92.35				92.16–92.28 qtz veins	
136				400389				
138			94.35	400390				
140			95.10				94.90–96.70: chlorite-biotite schist	
142		po-cpy dom		400391				
144			96.52	400392				
146			97.52				96.70–103.50: mica sch w/ bio- and minor hbl, - perf bl. F. eq. calcite bands (few-mm-thick)	
148							98.85–98.86: q-carb vein 99.17–99.18: q-carb vein 99.48–99.55: qtz vein	
150								

DDNNV

DIAMOND DRILL LOG	drill pad #	drill hole # 2	logged by RW	date 10/05/01
Y UTM	X UTM	m asl	azimuth	dip 1:200

m	structure	grain size 0.5 2 8	from/to	sample #	alteration CS w	m	s	other	rock type and minerals	zone
100	80°							100.68-102.12: qtz-carb. veins		
21	|									
42	|									
63	V									
8									103.50: EOH	
105 10										
12										
14										
16										
18										
110 20										
22										
24										
26										
28										
30										
32										
34										
36										
38										
40										
42										
44										
46										
48										
50										

TJÖNNVOLLMYRAN DDH 2

(*)

81.90 - 96.52 : sulf-min. zone :

81.90 - 85.00 : weak py-po-diss.
85.00 - 87.20 : ~~stronger~~ richer py-diss (< 0.5 - 5 mm sized py) + minor po-string
87.20 - 90.20 : weak py-diss + po-stringers
90.20 - 92.35 : weak py-po-diss.
92.35 - 94.35 : —— " ——
94.35 - 95.10 : richer, py-dominated
95.10 - 96.52 : rich po-cpy-stringer min.

---

susc.:

2.40 - 19.73 and 19.95 - 79.40 : 20 - 35 (bio sch.)
79.40 - 96.70 : ~~(25)~~ 30 - 70 (musc. sch.)
85.00 - 95.10 py-diss-bands ⟶ 80 - 300
95.10 - 96.52 : richer po-cpy ⟶ 200 - 1500

TJONVOLUNTJAN

DIAMOND DRILL LOG	drill pad #	drill hole # 3	logged by DS	date 10/05
Y UTM 636835	X UTM 6972494	m asl	azimuth	dip 1:200

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w m s CS	other	rock type and minerals	zone
0								
1 2								
2 4							Overburden	
3 6								
4 8								
5 10						4.5-4.75 Qz-vein 4.40		
6 12	Fol 70°						fgr. biotite schist with garnet	
7 14								
8 16	(lithological sample)		7.68 8.00	401329				
9 18								
10 20								
11 22		Qz						
12 24								
13 26								
14 28	Fol 80°							
15 30								
16 32						16.6.-16.7 92		
17 34		Qz				banded qtz of chlorite		
18 36								
19 38								
20 40		Qz				Qtz + chl. veinlets		
21 42								
22 44								
23 46								
24 48	(lithological sample) 75° Fol		23.73 24.00	401330				
25 50								

TJON

DIAMOND DRILL LOG	drill pad #	drill hole # 3	logged by DJ	date
Y UTM	X UTM	m asl	azimuth	dip	1:200

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w m s CS	alteration other	rock type and minerals	zone
25 50							fgr. Biotite - Micas Schist + Garnet	
26 52						26.4		
27 54							fgr. Muscovite Schist porphyroblasts of biotite frequent qz-veining (+ pyrite specs)	
28 56								
29 58	(lithochem sampl)		29.0					
			29.4	401331				
30 60								
31 62								
32 64			32.0			32.0		
33 66	(lithochem)			401332		sulfide in stringers		
34 68			34.10			34.10		
35 70	Coarse. Fol. 80°			401333		sulfide stringers	intervall with frequent qz-veining some tuff beds ?	
36 72			35.76			more intense sulfidd impgr.		
37 74		Qz	36.50	401334		36.5-37.0 qz-V. +sulf		
38 76		Qz Qz	37.88	401335			intervall with qz-veining up to 30 cm	
39 78	87°	qz qz		401336		most intense sulfidd stringers Cpy + Po + Sph.		
40 80		Qz	39.24	401337		39.24	fgr. chlorite frequent qz. veining	
41 82	(lithochem)	Qz	40.84	401338		40.84	Micas Schist with biotite porphyroblasts + hbl porphyroblast Concilic veinlets of 0.5-1 cm are frequent	
42 84			41.76					
43 86								
44 88								
45 90	Lithochem. sampl	Qz	44.70 45.00	401339				
46 92								
47 94								
48 96								
49 98								
50 100								

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 #	alteration w m s	alteration other	rock type and minerals	zone
50 100								
51 102								
52 104		Qz						
53 106								
54 108								
55 110								
56 112	Fol 85°							
57 114								
58 116								
59 118						58.8		
60 120	(Lithochem smpl.)		59.49 59.70	401340			Biotite schists with biotite porphyroblasts and garnet frequent qz. veining	
61 122								
62 124		Qz Qz						
63 126						62.7	E.O.H	
64 128								
130								
132								
134								
136								
138								
140								
142								
144								
146								
148								
150								

TJV.

DIAMOND DRILL LOG	drill pad #	drill hole # 4	logged by RW	date 10/05/01
Y UTM 6367340	X UTM 6972491	m asl	azimuth	dip ~~1:200~~ 1:100

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w / CS m / s	other	rock type and minerals	zone
0								
21								
42							4.60 m overburden	
63								
84								
105	75°					4.6		
12							4.60-22.70 garnet-biotite sch. w/ freq. qtz-feldsp. layers (with very minor carb. in these layers).	mm this
14								
16								
18								
20								
22	V							
24								
26	60°							
28	75°							
30						15.30-15.32: qtz-vein		
32								
34								
36								
38	V							
40								
42	80°							
44							22.70-24.20:	
46						22.7	grt-chl-musc-bio sch.	
48						23.53-23.55: qtz vein		
50	V					24.13-24.15: qtz vein	24.20-49.85 same as 4.60-22.70	

DIAMOND DRILL LOG	drill pad # 9	drill hole # 4	logged by RV	date 10/05/01
Y UTM	X UTM	m asl	azimuth	dip ~~-1:200~~

m	structure (tcl)	grain size 0.5 2 8	from/to	sample #	alteration CS w m s	other	rock type and minerals	zone
~~50~~								
52	86°							
54						27.85–27.95: qtz-carb vein tr/biotite + po at cont.		
56								
58								
60						30.67–30.92: qtz vein		
62								
64						32.11–32.18: qtz vein		
66						~~32.55–32.64~~: qtz vein		
68						33.05–33.70: qtz-carb-vein; 34.18–34.19: qtz-vein		
70						35.61–35.62: qtz-carb vein		
72								
74						37.92–37.95: qtz-vein		
76								
78						39.00–39.02: qtz-vein w/tr es po + py; 39.14–39.23: qtz-carb vein; 40.25–40.37: q-carb-veins; 40.95–40.98: 41.49–41.51: 42.18–42.28:		
80								
82								
84								
86	↓					43.42–43.48:	q-carb veins	
88								
90	90°					44.09–44.14: 44.37–44.42:		
92	↓							
94	80°							
96								
98	↓					48.60–48.72: q-carb vein; 49.00–49.32: q-carb-veins; 49.66–49.72: q-carb vein	49.85–52.60 chl-musc-bio sch w/ traces of po	
100								

DIAMOND DRILL LOG	drill pad #	drill hole # 4	logged by FW	date 10/05/01
Y UTM	X UTM	m asl	azimuth	dip ~~-1.200~~

m	structure	drain size 0.5 2 8	from/to	sample #	alteration CS w m s other	rock type and minerals	zone
100	80°						
102					51.33-52.60: q-carb. veins w/ some po at contact		
104						52.60-65.95 musk sch w/ bio prof. UI. and weak po-flaky-blebby. Minor chlorite.	
106					53.10-53.13: q-vein		
108							
110			55.0				
112				400379			
114			57.0	400380			
116			58.2				
118		Sulph. diss.		400381			
120							
122			61.2			From 60.70 to 65.90: cont. 6-7 ≤ 10cm thick sect. cont. feld-par "eyes" (poss. tuff ??)	
124				400382			
126			63.0				
128				400383			
130			64.9				
132			65.9	400384		65.95-69.40: mica schist w/ bio- and minor hbl.-porf. blasto. Freq. calcite bands (typically 2-7 mm thick)	
134							
136							
138							
140						69.40: EOH	
142							
144							
146							
148							
150							

TJONVOLLHEIZAN DDH #4

Mineralized zone : 55.00 – 65.90.

Py is major. Po, cpy and sl is minor const.

Diss. of sulf (from < 0.5mm to 1-2mm sized) are bound to qtz-feldsparrich bands (1mm - 2cm thick)

55.00 – 57.00	weak diss	
57.00 – 58.20	stronger	
58.20 – 61.20	weak	
61.20 – 63.00	stronger	
63.00 – 64.90	— " —	
64.90 – 65.90	weak	(65.85 : native Cu)

TJONNOLLGRAV

DIAMOND DRILL LOG	drill pad #	drill hole # 5	logged by DS	date 2016/07
Y UTM 636628	X UTM 6972172	m asl	azimuth	dip 1:200 100

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w | CS m | s	other	rock type and minerals	zone
0								
1 2								
2 4						Overburden		
3 6								
4 8								
5 10						4.46		
6 12	Fol 80°						fgr. biotite schist with garnet	
7 14								
8 16								
9 18								
10 20								
11 22								
12 24								
13 26								
14 28								
15 30								
16 32								
17 34								
18 36						90-Fract with mineral fillings 15, 17, 70 m		
19 38								
20 40								
21 42								
22 44								
23 46								
24 48								
25 50								

DIAMOND DRILL LOG	drill pad #	drill hole # 5	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 #	alteration CS w m s	alteration other	rock type and minerals	zone
25 (50)								
26 (52)						Silicified interval of ~2cm		
27 (54)		Qz+Fsp				Qz+Fspar-vein		
28 (56)	Fol 80°	Qz+chl						
29 (58)								
30 (60)								
31 (62)								
32 (64)								
(66)								
34 (68)								
35 (70)								
36 (72)	Fol 76°							
37 (74)		Qz, Qz				37.4 - 37.8 chl-rims, Qz-V		
38 (76)								
39 (78)								
40 (80)								
41 (82)								
42 (84)								
43 (86)								
44 (88)								
45 (90)								
46 (92)							45.65 — fgr. Bt schist with garnets + chlorite; schistosity more pronounced	
47 (94)			47.16					
48 (96)	Fol 60°	Qz, Qz	47.81	401341		few sulfides Qz-veining + chlorite		
49 (98)	Fol 85°							
50 (100)								

TJ0UV.

DIAMOND DRILL LOG	drill pad #	drill hole # 5	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 #	alteration CS w m s other	rock type and minerals	zone
50 100							
51 102							
52 104							
53 106					52.69	fgr. biot schist with garnets (schistosity somewhat less pronounced)	
54 108							
55 110		Qz			55.4 - 55.9 Qz-veins		
56 112							
57 114							
58 116							
59 118							
60 120							
61 122	Foi 80°						
62 124							
63 126							
64 128							
65 130							
66 132							
67 134							
68 136					Qz-veins		
69 138							
70 140							
71 142							
72 144							
73 146		chl. Qz chl.			75.5 - 75.7 Qz-vein +chl		
74 148							
75 150							

DIAMOND DRILL LOG	drill pad #	drill hole # 5	logged by TJS	date
Y UTM	X UTM	m asl	azimuth	dip	1:200

m	structure	grain size 0.5 2 8	from/to	sample #	alteration w | CS m | s	other	rock type and minerals	zone
75.0								
76.2								
77.4								
78.6							fgr. schist with garnets	
79.8	Fol 90°							
80.0								
81.2		qz				80 - 80.4 qz-veinig Carb. + Bio.		
82.4								
83.6		qz				82.74 - 82.80 qz-veinig		
84.8								
85.18								
85.20								
86.22								
87.24	Fol 85°							
88.26								
88.66						garnet		
89.28							fgr. Muscovite Schist + porphyro-blasts of Biotite	
90.30								
91.32		Po	91.0			Po stringer		
92.34		Po, Cpy	92.0	401342		Po, Cpy stringer		
93.36	Fol 85°			401343		Po impregnation		
			93.64					
94.38				401344		(bad section for Cpy) Po, Cpy impregnation		
95.40			94.8					
				401345				
			95.44				95.44	
96.42				401346			Micas-schist with biotite porphyroblasts + hbl porphyroblasts Calcitic veinlets of 0.5 - 1 cm are frequent	
			96.75					
97.44								
98.46								
99.48								
100.50								

TJONV -

DIAMOND DRILL LOG	drill pad #	drill hole # 5	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 #	alteration w m s	alteration other	rock type and minerals	zone
100								
102								
104		92						
106								
108							103.47 E.O.H.	
110								
112								
114								
116								
118								
120								
122								
124								
126								
128								
130								
132								
134								
136								
138								
140								
142								
144								
146								
148								
150								

Encl. 4

XRAL Laboratories
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Telephone (416) 445-5755
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CERTIFICATE OF ANALYSIS

Work Order: 063672

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

Date : 15/06/01

Copy 1 to :

P.O. No. :
Project No. : Tjonnvellmyran
No. of Samples : 43 Core
Date Submitted : 31/05/01
Report Comprises : Cover Sheet plus
Pages 1 to 12

Distribution of unused material:
Pulps: STORE
Rejects: STORE

Certified By :

Dr. Hugh de Souza, General Manager
XRAL Laboratories

ISO 9002 REGISTERED

Subject to SGS General Terms and Conditions

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

XRAL Laboratories
A Division of SGS Canada Inc.

Work Order: 063672 **Date:** 15/06/01 **FINAL**

Element.	Au
Method.	FA301
Det.Lim.	1
Units.	ppb
400379	8
400380	13
400381	10
400382	37
400383	56
400384	16
400385	8
400386	9
400387	10
400388	11
400389	15
400390	32
400391	203
400392	11
400393	10
400394	24
400395	8
400396	8
400397	7
401329	8
401330	9
401331	8
401332	8
401333	24
401334	22
401335	13
401336	88
401337	10
401338	11
401339	9

Element.	Au
Method.	FA301
Det.Lim.	1
Units.	ppb
401340	8
401341	6
401342	8
401343	10
401344	66
401345	9
401346	8
401451	7
401452	9
401453	74
401454	14
401455	10
401456	8
*Dup 400379	10
*Dup 400391	188
*Dup 401334	26
*Dup 401346	10

Work Order: 063672 **Date:** 15/06/01 **FINAL**

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
*Std NIST8606	45.8	7.58	22.0	1.73	0.72	0.79	13.8	1.52	0.360	0.39	<0.01	0.80	95.5	47	25	42
400379	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.
400380	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.
400381	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.
400382	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.
400383	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.
400384	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.
400385	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.
400386	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.
400387	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.
400388	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.
400389	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.
400390	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.
400391	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.
400392	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.
400393	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.
400394	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.
400395	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.
400396	25.9	13.6	15.8	15.9	1.20	0.57	6.46	0.23	0.765	0.14	0.02	19.6	100.2	22	188	26
400397	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.
401329	61.2	15.7	1.83	4.97	1.96	3.74	7.99	0.11	0.884	0.19	0.03	1.40	100.1	111	99	27
401330	61.0	15.7	1.25	5.56	2.80	2.68	7.96	0.11	0.888	0.18	0.03	1.85	100.1	81	88	25
401331	59.6	15.3	0.82	8.75	0.19	2.53	7.26	0.10	0.912	0.19	0.03	4.30	100.1	69	37	26
401332	50.7	15.0	0.96	13.4	0.04	0.75	11.8	0.19	0.840	0.19	0.03	6.45	100.3	26	22	23
401333	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.
401334	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.
401335	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.
401336	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.
401337	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.
401338	55.7	16.8	5.55	5.88	1.22	2.56	7.95	0.10	0.823	0.18	0.03	3.25	100.1	91	174	27

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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
401339	56.5	16.7	4.80	6.04	1.87	2.96	8.12	0.10	0.843	0.17	0.04	2.00	100.2	110	221	26
401340	58.3	17.1	1.91	5.65	1.93	3.10	8.39	0.09	0.888	0.18	0.04	2.45	100.2	124	136	25
401341	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.
401342	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.
401343	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.
401344	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.
401345	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.
401346	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.
401451	65.5	13.3	1.34	5.46	2.55	1.35	7.41	0.14	0.790	0.16	0.04	2.05	100.1	46	105	23
401452	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.
401453	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.
401454	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.
401455	46.1	16.2	7.73	9.62	0.85	2.32	7.76	0.13	0.889	0.18	0.03	7.40	99.3	77	130	30
401456	56.1	16.5	5.09	5.86	1.95	2.56	7.91	0.10	0.829	0.18	0.04	2.90	100.2	96	252	26
*Dup 400379	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 400391	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 401334	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 401346	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	5	196
400379	n.a.	n.a.	n.a.
400380	n.a.	n.a.	n.a.
400381	n.a.	n.a.	n.a.
400382	n.a.	n.a.	n.a.
400383	n.a.	n.a.	n.a.
400384	n.a.	n.a.	n.a.
400385	n.a.	n.a.	n.a.
400386	n.a.	n.a.	n.a.
400387	n.a.	n.a.	n.a.
400388	n.a.	n.a.	n.a.
400389	n.a.	n.a.	n.a.
400390	n.a.	n.a.	n.a.
400391	n.a.	n.a.	n.a.
400392	n.a.	n.a.	n.a.
400393	n.a.	n.a.	n.a.
400394	n.a.	n.a.	n.a.
400395	n.a.	n.a.	n.a.
400396	172	10	73
400397	n.a.	n.a.	n.a.
401329	183	15	611
401330	177	15	601
401331	234	12	317
401332	228	11	131
401333	n.a.	n.a.	n.a.
401334	n.a.	n.a.	n.a.
401335	n.a.	n.a.	n.a.
401336	n.a.	n.a.	n.a.
401337	n.a.	n.a.	n.a.
401338	161	15	428

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Element.	Zr	Nb	Ba
Method.	XRF102	XRF102	XRF102
Det.Lim.	2	2	20
Units.	ppm	ppm	ppm
401339	165	15	540
401340	183	16	548
401341	n.a.	n.a.	n.a.
401342	n.a.	n.a.	n.a.
401343	n.a.	n.a.	n.a.
401344	n.a.	n.a.	n.a.
401345	n.a.	n.a.	n.a.
401346	n.a.	n.a.	n.a.
401451	165	11	479
401452	n.a.	n.a.	n.a.
401453	n.a.	n.a.	n.a.
401454	n.a.	n.a.	n.a.
401455	200	13	258
401456	159	15	498
*Dup 400379	n.a.	n.a.	n.a.
*Dup 400391	n.a.	n.a.	n.a.
*Dup 401334	n.a.	n.a.	n.a.
*Dup 401346	n.a.	n.a.	n.a.

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Element.	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu
Method.	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70
Det.Lim.	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
Units.	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm
400379	1.9	0.02	3.79	3.32	0.07	0.45	0.15	3.9	0.03	42	90	397	3.31	18	46	1.2
400380	<0.5	0.02	4.91	4.12	0.06	0.40	0.16	5.6	0.03	58	106	569	5.32	21	41	3.3
400381	2.2	0.02	5.29	5.03	0.05	0.49	0.11	6.6	0.04	72	159	786	5.65	24	48	332
400382	<0.5	0.02	4.86	4.12	0.05	0.29	0.10	5.2	0.02	58	127	556	6.52	23	43	583
400383	<0.5	0.02	6.34	5.18	0.06	0.40	0.13	8.0	0.04	79	126	750	7.13	22	45	576
400384	<0.5	0.02	5.49	4.01	0.06	0.45	1.37	2.6	0.03	52	130	732	4.37	17	41	175
400385	<0.5	0.03	4.67	4.29	0.07	0.53	0.16	4.2	0.03	52	139	570	3.77	18	55	1.2
400386	1.7	0.02	5.62	4.63	0.06	0.42	0.23	6.7	0.03	69	135	599	5.59	26	44	43.9
400387	0.5	0.02	5.64	5.07	0.06	0.53	0.15	7.0	0.04	72	139	702	4.67	19	49	2.0
400388	<0.5	0.02	4.43	3.87	0.06	0.35	0.11	4.7	0.02	51	140	506	4.93	19	44	3.6
400389	0.9	0.02	4.23	3.83	0.07	0.42	0.13	4.1	0.03	46	114	405	3.66	19	107	3.1
400390	<0.5	0.01	4.63	3.92	0.05	0.16	0.08	6.4	0.02	60	139	570	9.56	25	35	208
400391	0.6	0.02	4.85	4.05	0.05	0.70	0.19	4.0	0.06	78	116	716	12.9	80	71	>10000
400392	<0.5	0.03	3.84	3.80	0.06	1.27	1.11	4.5	0.12	74	126	513	4.10	20	73	347
400393	<0.5	0.03	3.36	3.94	0.05	0.40	0.09	6.6	0.05	75	145	526	4.28	22	43	207
400394	<0.5	0.02	3.31	3.44	0.05	0.44	0.09	5.9	0.05	67	165	578	5.99	29	38	4270
400395	4.1	0.02	6.69	5.31	0.07	0.19	0.90	7.6	0.02	66	104	570	3.06	14	44	33.4
400396	<0.5	0.02	7.47	2.62	0.05	0.32	7.41	7.0	0.02	48	61	1160	2.50	10	34	24.6
400397	<0.5	0.03	4.06	3.96	0.07	0.65	0.67	4.5	0.05	55	117	488	3.83	16	57	56.0
401329	<0.5	0.06	2.96	4.00	0.07	2.50	0.18	10.3	0.23	107	142	238	4.00	20	58	5.4
401330	<0.5	0.05	3.06	3.91	0.07	1.80	0.14	11.6	0.18	104	131	469	3.95	21	57	7.1
401331	<0.5	0.03	3.86	3.78	0.07	0.70	0.19	2.7	0.05	48	112	463	3.09	16	66	3.0
401332	<0.5	0.02	5.06	4.58	0.07	0.34	0.25	5.5	0.03	64	102	708	4.50	21	53	4.7
401333	<0.5	0.02	5.38	4.96	0.07	0.37	0.15	6.3	0.03	69	119	754	5.38	27	55	80.4
401334	<0.5	0.02	4.59	3.96	0.05	0.33	0.11	4.5	0.03	54	129	557	8.58	30	44	37.7
401335	<0.5	0.01	3.36	2.83	0.04	0.07	0.08	2.8	<0.01	38	147	401	4.84	17	32	212
401336	<0.5	0.03	4.38	3.94	0.05	0.94	0.08	8.1	0.07	70	143	716	5.95	22	45	2230
401337	<0.5	0.02	5.69	4.42	0.06	0.15	1.41	3.6	0.02	53	137	975	5.27	22	64	792
401338	<0.5	0.05	3.45	3.84	0.07	1.74	1.30	2.4	0.16	71	133	525	3.96	24	104	68.2
401339	<0.5	0.06	3.64	4.27	0.07	2.39	1.23	6.3	0.23	98	159	600	4.28	23	101	56.0

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Element.	Be	Na	Mg	Al	P	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu
Method.	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70	ICP70
Det.Lim.	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
Units.	ppm	%	%	%	%	%	%	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm
401340	3.0	0.05	3.33	4.38	0.07	1.81	0.40	10.1	0.16	98	154	377	4.43	24	99	51.7
401341	<0.5	0.04	2.31	2.95	0.09	1.01	0.46	3.4	0.11	70	156	283	2.96	15	51	2.5
401342	<0.5	0.03	3.45	3.74	0.06	0.50	0.12	3.3	0.04	48	114	609	4.07	17	55	132
401343	<0.5	0.02	4.06	4.02	0.05	0.55	0.09	5.2	0.05	56	133	688	5.08	20	51	545
401344	<0.5	0.02	3.73	3.25	0.05	0.58	0.17	4.0	0.04	51	141	546	6.04	24	41	2730
401345	<0.5	0.03	3.35	2.93	0.06	1.05	1.49	2.4	0.08	46	100	526	3.83	20	61	318
401346	<0.5	0.05	3.15	3.50	0.06	1.77	1.14	4.7	0.17	76	135	481	3.77	21	119	52.1
401451	<0.5	0.03	2.89	3.48	0.06	0.99	0.20	10.5	0.11	91	173	470	3.62	19	52	8.4
401452	<0.5	0.03	2.79	3.36	0.05	0.41	0.09	6.7	0.06	74	132	427	3.63	17	45	1.8
401453	5.1	0.03	3.76	3.77	0.05	0.75	0.09	5.3	0.07	65	129	619	7.77	43	52	2630
401454	<0.5	0.02	5.25	4.81	0.06	0.33	0.37	6.1	0.03	68	111	592	4.42	19	44	1390
401455	<0.5	0.03	4.97	3.47	0.07	0.76	3.54	4.7	0.06	51	89	745	3.56	20	56	66.0
401456	<0.5	0.06	3.37	3.87	0.06	2.09	1.17	5.4	0.21	91	154	560	3.89	22	95	39.6
*Dup 400379	<0.5	0.02	4.00	3.49	0.07	0.44	0.15	4.0	0.03	44	89	414	3.40	17	46	1.1
*Dup 400391	0.6	0.03	5.04	4.17	0.05	0.70	0.20	4.1	0.06	81	120	741	13.0	80	73	>10000
*Dup 401334	<0.5	0.02	4.63	3.97	0.05	0.31	0.10	4.4	0.03	54	128	558	8.46	28	43	33.5
*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	0.44	1.44	0.15	0.11	7.29	2.7	0.09	26	18	4780	4.63	6	23	53.3
*Dup 401346	<0.5	0.05	3.12	3.44	0.06	1.76	1.16	4.6	0.17	76	132	490	3.74	18	126	53.4
*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	2.2	0.02	0.44	1.42	0.15	0.10	7.57	2.4	0.09	22	17	4330	4.51	5	21	50.6

Work Order: 063672 **Date:** 15/06/01 **FINAL**

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
400379	58.6	<3	5.3	14.6	5.1	<1	<0.2	<1	<10	<5	18	22.7	<10	15	<5	23
400380	70.6	<3	4.3	12.8	6.2	1	<0.2	<1	<10	<5	17	20.1	<10	20	9	28
400381	113	<3	4.6	12.1	6.2	<1	0.4	<1	<10	<5	26	14.1	<10	6	<5	35
400382	195	23	3.4	13.5	6.4	1	0.7	<1	<10	<5	16	15.8	<10	69	8	32
400383	5230	62	3.1	11.6	5.6	<1	1.2	10	<10	<5	23	15.6	<10	1820	13	38
400384	702	9	17.9	7.1	6.8	1	1.8	<1	<10	<5	30	21.9	<10	304	5	35
400385	79.7	<3	5.6	14.4	6.0	<1	0.3	<1	<10	<5	25	22.9	<10	8	<5	28
400386	69.9	<3	4.3	11.1	5.4	2	<0.2	<1	<10	<5	18	16.6	<10	4	<5	27
400387	81.4	<3	4.6	13.7	5.3	<1	0.3	<1	<10	<5	26	17.9	<10	<2	<5	35
400388	76.5	<3	4.4	13.7	6.2	3	0.4	<1	<10	<5	17	17.9	<10	12	<5	29
400389	61.2	<3	5.1	21.3	6.5	1	<0.2	<1	<10	<5	18	30.5	<10	9	<5	36
400390	128	57	2.6	11.0	7.8	2	<0.2	<1	<10	<5	10	14.0	<10	27	8	27
400391	6630	<3	3.7	9.4	7.7	4	>10.0	17	<10	<5	33	9.6	<10	1370	7	31
400392	1490	<3	14.6	8.1	5.0	<1	0.3	3	<10	<5	154	22.3	<10	1040	12	38
400393	96.8	<3	2.5	4.8	4.1	12	0.8	<1	<10	<5	110	10.4	<10	32	<5	27
400394	1990	<3	3.5	18.7	5.1	17	9.1	16	<10	<5	36	10.6	<10	2100	33	20
400395	78.7	<3	15.6	15.4	5.6	<1	0.3	<1	<10	<5	11	30.9	<10	6	<5	33
400396	88.4	<3	89.4	10.4	5.1	<1	0.2	<1	<10	<5	20	22.9	<10	17	<5	18
400397	95.3	<3	10.4	12.7	4.8	2	0.3	<1	<10	<5	33	25.8	<10	37	<5	28
401329	64.9	<3	7.9	11.2	4.0	<1	0.4	<1	<10	<5	328	23.9	<10	7	<5	18
401330	66.3	<3	5.2	8.9	7.2	<1	0.2	<1	<10	<5	281	29.2	<10	5	<5	25
401331	55.5	<3	5.2	5.9	6.3	<1	0.3	<1	<10	<5	35	18.0	<10	2	<5	24
401332	77.2	<3	4.9	12.9	5.2	<1	0.3	<1	<10	<5	19	12.2	<10	6	<5	23
401333	107	<3	4.4	14.3	7.0	<1	1.0	<1	<10	<5	19	15.5	<10	6	<5	30
401334	100	22	3.9	13.5	9.0	2	0.4	<1	<10	<5	17	17.7	11	15	<5	25
401335	110	15	2.1	9.7	6.5	2	0.5	<1	<10	<5	9	11.7	<10	14	<5	19
401336	663	<3	2.4	7.9	6.1	1	1.1	<1	<10	<5	53	14.5	<10	124	INF	30
401337	1430	<3	20.9	10.9	6.7	2	1.1	2	<10	<5	18	21.1	<10	296	<5	31
401338	91.4	<3	24.2	12.9	6.0	<1	0.3	<1	<10	<5	209	26.9	<10	10	<5	34
401339	90.6	<3	24.4	15.0	5.2	<1	0.2	<1	<10	<5	305	26.8	<10	9	<5	52

Work Order: 063672 **Date:** 15/06/01 **FINAL**

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
401340	91.1	<3	16.8	19.8	6.6	<1	0.3	<1	<10	<5	195	29.9	<10	6	<5	55
401341	46.1	<3	11.3	8.9	4.1	<1	0.2	<1	<10	<5	194	15.3	<10	5	<5	12
401342	75.9	<3	4.0	17.6	5.6	<1	<0.2	<1	<10	<5	27	23.9	<10	4	<5	26
401343	239	<3	2.7	9.5	5.7	<1	<0.2	<1	<10	<5	23	16.9	<10	55	<5	29
401344	6680	47	4.9	8.8	6.0	5	5.9	14	<10	<5	24	14.0	<10	3680	6	26
401345	186	211	22.6	11.3	4.8	1	0.4	<1	<10	<5	78	26.3	<10	32	<5	29
401346	90.5	<3	18.7	7.2	5.4	<1	<0.2	<1	<10	<5	209	25.1	<10	11	<5	41
401451	71.0	<3	5.7	9.0	5.5	<1	<0.2	<1	<10	<5	293	24.5	<10	8	<5	22
401452	64.8	<3	2.5	3.8	5.0	12	0.4	<1	<10	<5	121	9.0	<10	7	<5	21
401453	112	<3	3.5	13.9	6.4	6	<0.2	<1	<10	<5	69	24.8	<10	20	<5	23
401454	111	<3	8.4	15.5	4.9	4	0.5	<1	<10	<5	29	25.7	<10	12	INF	29
401455	124	<3	62.4	14.8	5.8	<1	0.5	<1	<10	<5	39	26.0	<10	36	<5	25
401456	83.3	<3	24.8	10.4	5.2	<1	0.3	<1	<10	<5	290	25.2	<10	6	<5	48
*Dup 400379	59.3	<3	5.2	14.2	5.9	<1	<0.2	<1	<10	<5	18	22.2	<10	17	<5	24
*Dup 400391	6650	<3	3.7	9.1	8.9	4	>10.0	16	<10	<5	34	8.8	<10	1410	6	31
*Dup 401334	105	19	3.8	13.1	8.4	2	0.5	<1	<10	<5	16	16.6	<10	12	<5	25
*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	42.2	<3	5.9	17.2	22.4	931	<0.2	<1	17	<5	16	23.9	551	22	<5	11
*Dup 401346	88.4	<3	18.6	6.9	5.2	<1	<0.2	<1	<10	<5	210	25.0	<10	11	<5	40
*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	43.4	<3	6.1	17.3	19.5	963	<0.2	<1	16	<5	16	23.1	748	24	<5	11

Element.	Cu
Method.	ICAY50
Det.Lim.	0.01
Units.	%
400379	n.a.
400380	n.a.
400381	n.a.
400382	n.a.
400383	n.a.
400384	n.a.
400385	n.a.
400386	n.a.
400387	n.a.
400388	n.a.
400389	n.a.
400390	n.a.
400391	1.40
400392	n.a.
400393	n.a.
400394	n.a.
400395	n.a.
400396	n.a.
400397	n.a.
401329	n.a.
401330	n.a.
401331	n.a.
401332	n.a.
401333	n.a.
401334	n.a.
401335	n.a.
401336	n.a.
401337	n.a.
401338	n.a.
401339	n.a.

Element.	Cu
Method.	ICAY50
Det.Lim.	0.01
Units.	%
401340	n.a.
401341	n.a.
401342	n.a.
401343	n.a.
401344	n.a.
401345	n.a.
401346	n.a.
401451	n.a.
401452	n.a.
401453	n.a.
401454	n.a.
401455	n.a.
401456	n.a.
*Dup 400379	n.a.
*Dup 400391	1.36
*Dup 401334	n.a.
*Blk BLANK	n.a.
*Std MRG_1	n.a.
*Dup 401346	n.a.
*Blk BLANK	<0.01
*Std NIST8604	0.71

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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 agua regia digestion. Silver may precipitate from solution as a chloride and may be underestimated. A fire assay determination for silver is recommend.