

Samatosum

822870

**MINNOVA INC.  
SAMATOSUM PROJECT**

**MEMORANDUM**

DATE: March 6, 1991  
 TO: John Parkis  
 COPIES TO: Dave Watkins, Alex Davidson  
 FROM: Bob Priesen  
 SUBJECT: Underground Drilling--Possible New Gold Zone

Underground diamond drill holes U1330-38, and U1330-43 intersected the following base metal and gold mineralization below the known Sam mineralization on two adjacent sections 20 meters apart:

DRILL HOLE U1330-38:

Section 96+80mW, 045, -85, 73.8m  
 From 54.8m - 56.9m (2.1m core length)  
 (approx 1275m elevation)

METERS	%Cu	%Pb	%Zn	Ag	Au
<u>2.1</u>	0.82	2.26	4.43	87g/t	<u>37.08g/t</u>

DRILL HOLE U1330-43:

Section 97+00mW, 045, -80, 105.2m  
 From 67.6m - 69.9m (2.3m core length)  
 (approx 1250m elevation)

<u>2.3</u>	0.79	4.02	8.27	165g/t	<u>11.16g/t</u>
------------	------	------	------	--------	-----------------

From 77.9m - 88.9m (11m core length)

<u>11.0</u>	0.43	2.00	3.23	67g/t	<u>7.29g/t</u>
-------------	------	------	------	-------	----------------

Assays for the above intersections are as yet unchecked. The intersections were made while attempting to locate the Sam Orebody down-dip, and are comprised of semi-massive to massive pyritic zones. They probably represent a single deformed zone.

The geometry and extent of the zone is unknown, as is its relationship to Sam. Previous surface drill coverage in the area failed to intersect similar mineralization, thus suggesting the zone is compact and possibly steeply plunging.

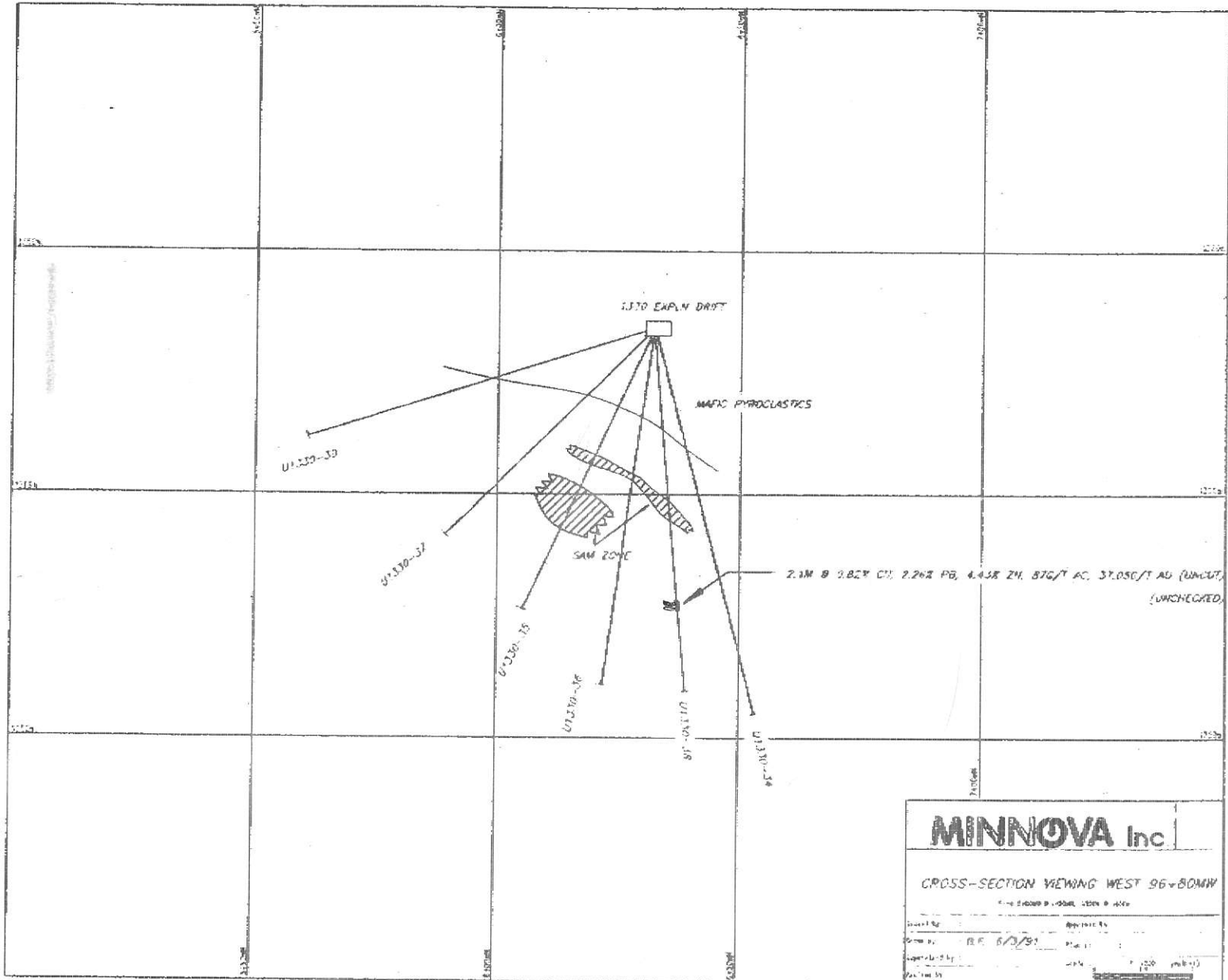
- 2 -

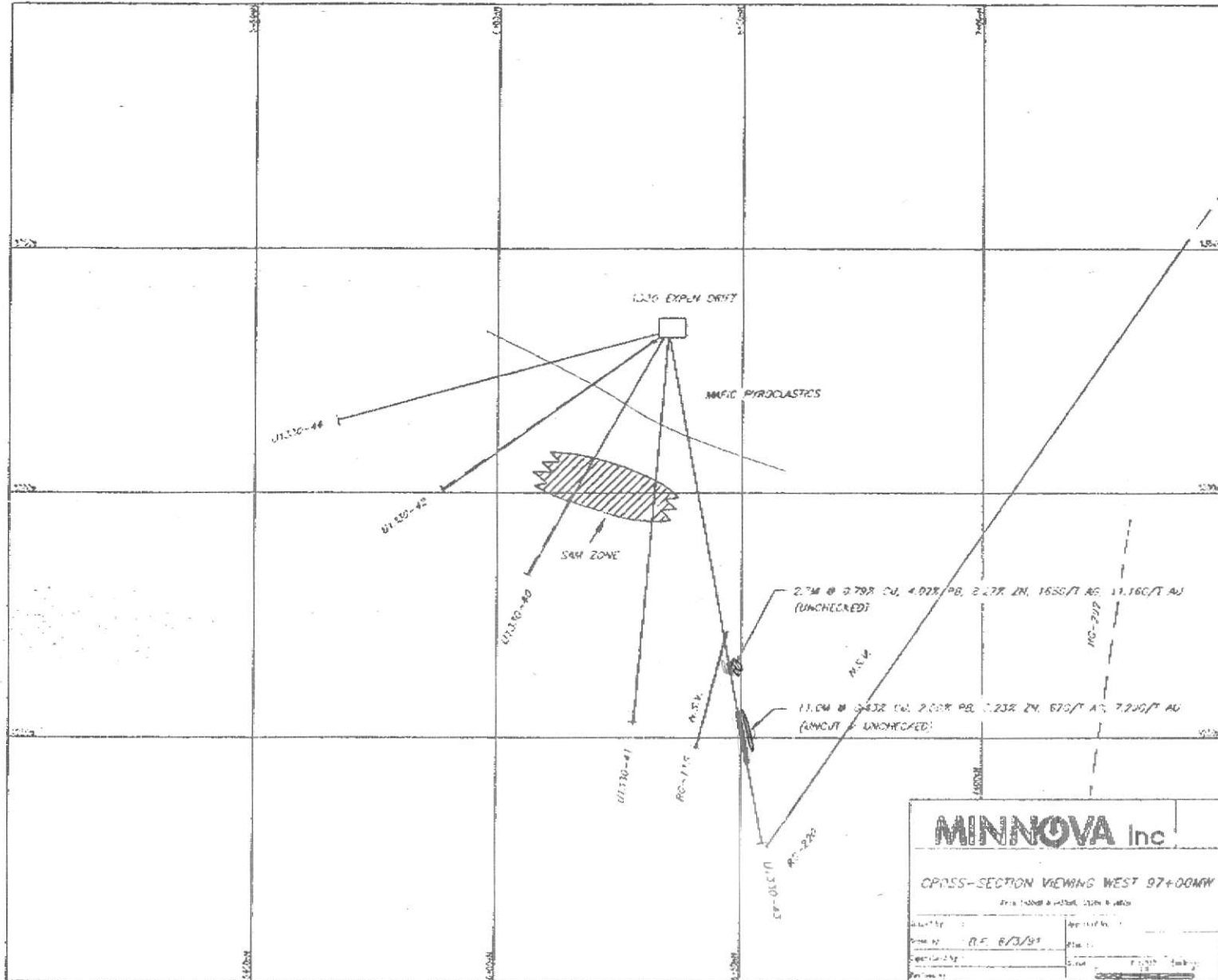
It is almost certain these intersections are not true thickness because of the orientation of the drill holes with respect to the regional trend of the rock formations (i.e., the zone was drilled "down dip").

Further attempts to intersect the zone will be made with the current underground program; however, the 1330 Exploration Drift is poorly located to drill it off properly. If additional future follow-up is deemed necessary, it will have to be carried out from either a new underground access or from surface.



Bob Friesen







FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 0.60	<CSB>					
4.40 TO 5.20	<DOL MAFICS>	Banded pale to dark green chloritic mafics with numerous white Qtz-carb veins parallel foliation. Faults: { 0.6 - 1.2m } <flt bx> { 5.0 - 5.2 } <flt bx>	40	Intense ferro-dol. Patchy sil'n by white QV	{ 1% } pyrite.	
5.20 TO 10.90	<ALT MAF/ MELT>	Mottled, banded altered mafics grading into yellow sericitized lapilli tuff. 5% white Qtz-carb veins. Foliation: 7.1m 11.0m 13.6m 17.3m Faults: { 5.8 - 6.1 } <flt bx> blocks 6.1 - 6.8m healed flt bx. { 8.7 - 8.9 } <flt bx> 12 - 12.2m wacky 16.4 - 16.8 flt bx + blocky	55 44 50 51	Intense ferro-dol. Patchy sil'n.	1-2% pyrite. Local, v. minor base metals associated QV.	2 cm gouge at lower contact. Angle to c/a 45 - 55 deg.
10.90 TO 21.40	<SLT ARG>	Black silicified, highly graphitic argillite. Tectonised.		Patchy to pervasive sil'n.	Minor base metals associated with veins in sil arg.	blocky to broken recovery.
21.40 TO 27.50	<MAF/ SIL ARG>	Black silicified graphitic argillite intermixed with grey green mafic Tectonised. Foliation at 24.6 27.3 Faults, 23.1 - 23.4m flt bx.	56 60	Patchy sil'n. Moderate ferro-dol'n mafic.	2-4% pyrite. Locally 5-7% over 2-5cm associated with QV	Blocky to broken core.
27.50 TO 29.20	<MAF/ARG FLT ZONE>	Fault zone through mafic/sil argillite. 10% white Qtz-carb veins.	64			Blocky + gouge + bx.
29.20 TO 32.00	<MAF/QTZ/ SER FLT ZONE>	Banded to laminated, tectonised, mafic, sericite and quartz within flt zone.	55	Intense pale yellow ser'n.		Miner zone 20 deg and 21 deg to c/a at 31.0m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CN	ALTERATION	MINERALIZATION	REMARKS
32.00 TO 34.20	«QTZ/SER FLT ZONE»	Mainly faulted qtz and yellow sericite	45 45	Intense pale yellow ser'n.		Blacky and minor gouge intervals.
34.20 TO 35.70	«ALT SED FLT ZONE»	34.2 - 34.7m block of partly silicified, grey to black sericite and argillite. 34.7 - 35.7m intense fault gouge, very soft and clayey.		Patchy sil'n due to qtz-carb flooding	{34.2 - 34.7} «30Cp30Sp6a20"» fine to blebby dissemination min'l'ca.	34.2 - 34.7m deformed.
35.70 TO 38.20	«SWSK/QV SED»	Qtz carb flooded, and patchy silicified, altered sed with local semi-massive sulphides.	45 50	Patchy qtz-carbonate flooded, patchy sil'n.	35.7 - 36.7m 100Cp30Sp(6nTt?) in qtz carb flooded sed. Large patches to stringer-like veins Cp. 36.2 - 37.2 increased Py «200Py80Cp20SpTt» veins, patches Cp vary in orientation from parallel to s/a, to 45 - 50 deg. 37.2 - 38.2m decreased Py and base metals.	Patchy to mottled mixture black-grey-white.  fine to coarse grades and blebs py. Patches to veins of Cp. Blebs SpTt difficult to see.  in patchy sed with white v. fine qtz-carb matrix
38.20 TO 38.50	«FLT GOUGE»	Intensely faulted grey seds to gouge.				
38.50 TO 38.70	«SEL SED MUT»	Grey partly silicified, sericitized, pyritic seds. (MUT)	65	Patchy to faintly banded, sil'n by faint white OR	70 fine grained brown pyrite as patches wisps and bands.	
38.70 TO 42.00	«SEL SED MUT FLT ZONE»	Compact fault breccia and gouge comprising sil seds and mut. Patchy white QV and veins	50	Patchy sil'n with sericite partings.	Blebby sp associated with white QV veins/patches 3-5% Py (1/2% Sp overall).	
42.00 TO 54.00	«ALT SED»	Locally, blacky + gaged, grey to dark brown and black, sericitic pyritic seds. Qtz carb vein 48.5 - 48.7m Foliation: 45.3m 48.2m 53.3m Faults and fractures 43.3 - 43.7 «flt giv/bk» 44.2 - 44.4m flt bx/blocky 46.3 - 47.7m sheared quite friable, local gouge. 53.0 - 53.3m flt gouv/blocky 54.1 - 54.8 «flt giv/blocky»	35 47 50 55	Intense grey ser'n Patches and 10-20cm zones flooded with qtz-carbonate.	Fine grained, wispy, patchy and banded brown/yellow pyrite. Occasional zones of honey brown Blebby Sp associated with sil'n. Pyrite increases to lower contact. Overall 7-15% py. 53.3 - 53.7 «70Py10Cp»	MUT.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CN	ALTERATION	MINERALIZATION	REMARKS
54.30 TO 56.90	«SASE»	Semi massive pyrite and base metal sulphides in a matrix of Qtz-carb and grey seds? banding	30 55	Patchy matrix sil'n	Fine to blebby disseminations of Cp. 200Py100CpSpn	faulted lower contact
56.94 TO 62.50	«SIL SEDS»	Grey silicified seds (wacke protolith?) with sericitic partings.  Lower contact with fit	54 45	Moderate to intense development grey sericite. Patchy sil'n.	S-Jt pyrite as wispy brown fine grains.  Blebby Sp and Tt occur where white Qtz-carb veins cross sil-seds 58.4 - 59.4 «500y10Sp/20Tt»	Intensely faulted sed to grey gouge. 56.9 - 57.0  Overall trace Sp and Tt.
62.54 TO 66.64	«FLT 600f BX»	Compact grey gouge and breccia. Coarse clasts sil sed.			44 Pyrite. Traces of Sp.	
64.60 TO 73.80	«SIL SED»	Partly faulted, grey, patchy silicified seds with sericitic partings. Patches and veins of white Qtz-carb (7-10%) Foliation: 67.1m 69.0m 73.5m  Faults and fractures: 68.5 - 68.8 «flt gou/block» 69.3 - 69.4 flt bx 74.7 - 73.2 «flt bx/block» Strained/shattered texture.	45 45 50	Patchy to banded sil'n Moderate to intense development grey sericite.	2-5% pyrite. Occasional Sp blebs associated with white Qtz-carb + silicified patches.	(Sil-Mut) Cherty Protolith?
E.O.H.						

910 P03

MINNOVA INC

MAR 06 '91 14:40

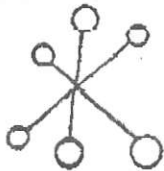


Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL					COMMENTS	
				CE %	ZN %	PB %	AG g/t	AU g/t	SB ppm	AS ppm	CO ppm	ZN ppm	Pa ppm		SG g/t
BCD10023	33.20	34.20	1.00	0.01	0.02	0.03	2.8	0.03							
BCD10024	34.20	34.70	0.50	3.43	3.36	5.96	3571	6.04				3.18			
BCD10025	34.70	35.70	1.00	0.53	0.41	0.12	473.0	1.38				2.78			
BCD10026	35.70	36.20	0.50	5.44	2.26	0.23	263.0	1.21				1.17			
BCD10027	36.20	37.20	1.00	2.03	1.38	0.21	1136	3.67				3.65			
BCD10028	37.20	38.20	1.00	2.04	1.48	0.15	2030	3.79				3.24			
BCD10029	38.20	38.50	0.30	0.33	0.44	0.79	159.0	0.90				2.76			
BCD10030	38.50	39.70	1.20	0.36	0.42	0.31	89.6	0.74							
BCD10031	39.70	41.20	1.50	0.12	0.23	0.10	33.4	0.63							
BCD10032	41.20	42.00	0.80	0.13	0.44	0.22	32.6	0.35							
BCD10033	42.00	44.00	2.00												
BCD10034	44.00	46.00	2.00	0.42	0.03	0.45	5.6	0.50							
BCD10035	46.00	48.00	2.00	0.02	0.08	0.03	2.6	0.59							
BCD10036	48.00	50.00	2.00	0.41	0.01	0.42	4.5	0.61							
BCD10037	50.00	51.00	1.00	0.45	0.01	0.42	3.3	0.57							
BCD10038	51.00	53.00	2.00	0.03	0.41	0.03	3.6	0.13							
BCD10039	53.00	54.10	1.10	0.01	0.15	0.05	1.2	0.73							
BCD10040	54.10	54.80	0.70	0.03	0.56	0.06	1.3	1.72				2.03			
BCD10041	54.80	55.80	1.00	0.70	6.32	3.82	116.0	23.27				3.54			
BCD10042	55.80	56.90	1.10	0.32	2.72	0.04	41.0	49.64				4.86			
BCD10043	56.90	58.40	1.50	0.26	0.73	0.43	55.0	2.28				2.82			
BCD10044	58.40	59.40	1.00	1.02	1.32	0.59	457.0	0.70							
BCD10045	59.40	61.10	1.70	0.44	0.31	0.03	13.5	0.10							
BCD10046	61.10	62.50	1.40	0.04	0.24	0.06	14.6	0.08							
BCD10047	62.50	66.10	3.60	0.04	0.02	0.36	16.8	0.42							
BCD10048	66.60	68.60	2.00	0.02	0.44	0.15	1.4	0.52							
BCD10049	68.60	70.10	1.50	0.01	0.27	0.10	0.6	0.42							
BCD10050	71.70	73.20	1.50	0.02	0.37	0.50	1.7	0.25							

910 P04

MINNOVA INC

MAR 06 '91 14:40



# ECO-TECH LABORATORIES LTD.

## ASSAYING - ENVIRONMENTAL TESTING

10041 East Trans Canada Hwy., Kamloops, B.C. V2C 2J8 (604) 573-5700 Fax 573-4557

MARCH 4, 1991

### CERTIFICATE OF ASSAY ETK 91-104


MINNOVA INC.  
SAMATASUM MINE  
P.O. BOX 739  
BARRIERE, B.C.  
VOE LEO

SAMPLE IDENTIFICATION: 28 CORE samples received FEBRUARY 26, 1991  
----- PROJECT: SAM UNDERGROUND  
SHIPMENT NO.: U-1330-38

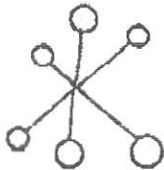
ET#	Description	Au (g/t)	Au (oz/t)	Ag (g/t)	Ag (oz/t)	Cu (%)	Pb (%)	Zn (%)	SPECIFIC GRAV (g/cm3)
104 - 1	10823	<.03	<.001	2.8	.08	.01	.03	.02	
104 - 2	10824	6.84 *	.199	3571.	104.1	3.48	5.96	9.36	3.18
104 - 3	10825	1.38	.040	473.0	13.79	.53	.12	.41	2.70
104 - 4	10826	1.21	.035	263.0	7.67	5.44	.23	2.26	3.17
104 - 5	10827	3.87 **	.113	1136.	33.13	2.08	.21	1.38	3.65
104 - 6	10828	3.79	.111	2030.	59.20	2.04	.15	1.40	3.24
104 - 7	10829	.90	.026	189.0	5.51	.33	.79	1.44	2.76
104 - 8	10830	.74	.022	89.6	2.61	.31	.31	.42	
104 - 9	10831	.63	.018	33.4	.97	.12	.18	.23	
104 - 10	10832	.35	.010	32.6	.95	.13	.22	.44	
104 - 11	10833	.49	.014	104.0	3.03	.31	.74	2.64	2.82
104 - 12	10834	.56	.016	5.6	.16	.02	.05	.03	
104 - 13	10835	.59	.017	2.8	.08	.02	.03	.08	
104 - 14	10836	.61	.018	4.5	.13	.01	.02	.01	
104 - 15	10837	.57	.017	3.3	.10	.01	.02	.01	
104 - 16	10838	.17	.005	3.6	.11	.03	.03	<.01	
104 - 17	10839	.73	.021	1.2	.04	.01	.05	.15	
104 - 18	10840	1.72	.050	1.3	.04	.03	.06	.56	2.83
104 - 19	10841	23.27 *	.679	116.0	3.38	.70	3.82	6.32	3.54
104 - 20	10842	49.64 *	1.448	61.0	1.78	.92	.84	2.72	4.00
104 - 21	10843	2.28	.066	59.0	1.72	.26	.43	.73	2.82
104 - 22	10844	.78	.023	457.0	13.33	1.02	.69	1.32	
104 - 23	10845	.18	.005	13.5	.39	.04	.03	.11	
104 - 24	10846	.08	.002	14.6	.43	.04	.06	.24	
104 - 25	10847	.42	.012	16.8	.49	.04	.36	.82	
104 - 26	10848	.52	.015	1.4	.04	.02	.15	.44	
104 - 27	10849	.42	.012	.6	.02	.01	.10	.27	
104 - 28	10850	.25	.007	1.7	.05	.02	.50	.37	

NOTE: < = less than  
\* = sample screened & metallics assayed  
\*\* = no charge for screen

FAX: 1-672-5676  
1-672-0188

  
ECO-TECH LABORATORIES LTD.  
R. JUTTA JEALOUSE  
B.C. Certified Assayer

SC91/MINNOVA

**ECO-TECH LABORATORIES LTD.**

ASSAYING - ENVIRONMENTAL TESTING

10041 East Trans Canada Hwy., Kamloops, B.C. V2C 2J3 (604) 573-5700 Fax 573-4557

## METALLIC CALCULATION

SAMPLE NUMBER	-140 VALUE	+140 VALUE	CALCULATED VALUE
104-2	6.8	26.53061	6.840903
104-5	3.7	77.93159	3.865168
104-19	22.7	293.231	23.27379
104-20	42.15	4702.607	49.63882



FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	(ANGLE) TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 0.60	*CSG*					
0.60 TO 14.74	*DDI MAFICS*	Pale to dark green chloritic mafic tuffs altered to patchy, mottled and banded grey white qtz and dolomite, and greenish-yellow sericite.  Foliation: 4.3 8.8m 14.7m  Faults and fractures: Minor gouge, blocky zones at 1.6m, 4.5m, 5.8m, 5.8m, 7.7 - 7.8m fit zone 9.8 - 10.5 ft w/fit gouge/blocks 11.4 - 12.8 ft w/fit gouge/blocks	53 51 57	Intense ferra-dol. Moderate greenish yellow ser'n. Patchy to locally pervasive sil'n at 11.1 - 12.3m Alteration increases to lower contact.	1-2% Pyrite	Erosional lower contact.
14.74 TO 20.98	*BFLT*	Host, sericitized lapilli in grey dolomitic tuff matrix.  Foliation variable, 16.2m 17.6m 20.9m	52 44 61	Intense ferra-dol. Moderate - intense patchy to laminated ser'n. Patchy sil'n.	1-2% pyrite	Original lapilli difficult to see due to alteration Core locally blocky Lower contact faulted from 20.7m.
20.98 TO 25.90	*SIL A16 FLT ZNE*	Faulted zone of black silicified, graphitic argillite (+ minor mafic). 8% gouge, breccia and broken blocks. Intense gouge at upper and lower contacts. Foliation in remnant blocks	45 57	Patchy sil'n associated with QV in blocky remnants.  Med-intense ferra-dol of mafics	1% pyrite.	Minor chert component. Blocky chert/sil arg sections show tectonized texture.
25.90 TO 29.00	*QTZ/SEI XAF*	Slightly strained, partly faulted interval of textonized, mixed, laminated to banded qtz, sericite and mafic.  Foliation	22 64	Intense pale yellow ser'n.	1-5% pyrite.	Friable
29.00 TO 33.10	*QTZ/SEI QV FLT ZNE*	Faulted zone of pale yellow qtz/sei (+mafic?) and grey QV with mottled grey-white sed inclusions  Foliation in blocks	54 55	Intense pale yellow sericite in gouge.	Patchy 2-7% pyrite.	Intense gouge near upper and lower contacts. Lower contact 58 deg. to c/e.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS	
33.80 TO 47.40	<SIL SEDS/ MUT>	Pale to dark grey, silicified seds with grey sericitic partings and white patches, veinlets and veins of quartz-carb. Locally sil seds pass into more pyritic/sericitic seds, a grey-brown mat. Remnant fragmental and black sil arg present within altered seds.		Patchy to pervasive quartz flooding. Moderate to intense development grey sericite as partings (foliation) between banded sil'n and white QV.	Variable pyrite in range 5-25% distributed as disseminated grains, blebs patches, laminae and bands parallel to foliation. Blebbly honey to dark brown sugary sp scattered throughout associated with sil patches/veins. Local concentrations as follows: 36.4 - 37.5% ±2%Sp5%Py 42.1 - 44.1% ±1%Sp6%Py 51.0 - 51.7% ±1%Sp7%Py 53.5 - 55.5% ±5%Sp6%Py 61.5 - 63.0% ±2%Sp6%Py Pyrite increasing to lower contact.		
		Foliation: 34.0m 36.6m 44.8m 50.0m 56.5m 63.8m Lower contact 67.6m	47 57 48 46 46 47 32			Blebs Sp6 assoc white Qtz-carb flooding Abundant white QV patches.	
		Low angle due to minor fault. Faults and fractures: 38.0 - 38.1 flt gou/bx 39.9 - 40.0 flt br 45.1 - 45.7 flt bx/blocky 47.3 - 48.1 flt gou/bx+blocky 48.6 - 48.8 flt gou + blocky 49.2 - 49.3m minor gouge 51.7 - 51.9 flt gou/bx 52.8 - 53.3 flt gou + blocks 53.4 - 53.5m flt gou 56.5 - 56.7m flt gou+block 57.7 - 59.4 minor gou+blocky 60.7 - 61.1 flt gou+blocks including 60.7 - 61.3m, sheared at 61.5 - 61.6m flt gou/bx 67.5 - 67.6m gouge parallel to foliation at contact Sil seds and semi-massive sulphides.				63.0 - 67.6m very fine wisps, bands of brown pyrite in sil seds 10 - 24%	67.3 - 67.4m QV with banded Py+Sp parallel to foliation; low angle to c/a, 24 deg.
67.60 TO 69.30	<SMSX/ BSSX>	Semi massive to massive base metal sulphides in a silicified matrix. 68.6 - 69.7m flt gouge faint banding of sulphides visible. Bands vary in angle to c/a between 69.7 - 69.9m Pyrite band undulates parallel to c/a.			Fine to coarse grain size blebs Cp, An, Sp Cp also forms patches 1-2cm width. 67.6 - 68.6m SMSX 20% Py, 15 - 20% Cp6nSp 68.6 - 69.9m Cp increases to end of sample 20-30% Py, 15-25% Cp6nSp	Faulted lower contact at 35 deg to c/a.	

MINNOVA INC.  
DRILL HOLE RECORD

HOLE NUMBER: U1330-43

DATE: 31-January-1991

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CN	ALTERATION	MINERALIZATION	REMARKS
69.90 TO 71.40	«FLT ZONE»	Gouge + blocky, pyritic sil seds and SMSX			15% Py, 5% Sp6nSp	
70.40 TO 77.90	«SIL SEDS»	Grey silicified sediments with sericitic partings. Foliation 70.8m Partly sheared 73.4m Partly sheared 76.4m Faulted lower contact. 77.0 - 77.9m 5cm intense gouge.	45 20 30		Moderately pyritic, 7-15%, locally 20% over 4-5cm of patchy sil'n. Blocky Sp - associated with QV and silicified bands. 71.9 - 73.4% «15% Py 15% Sp6nSp»	
77.90 TO 88.90	«SMSX/SSSX»	Upper faulted contact. Semi massive to massive pyrite and base metal sulphides in a silicified matrix. White patches and veins of Qtz-carbonate visible. Interval locally sheared. Foliation/banding 78.4m 78.9m 81.3m 84.3m 87.6m 88.7m Faulting and fractures: 78.3 - 78.8% «flt/fractures» + gouge at 78.4m and 78.7m. 85.0 - 85.5% «flt gouge/blocky» Minor gouge at 86.3, 86.6. Lower contact faulted.	60 51 40 32 47 55 50	Interval of semi-massive sulphides may illustrate the collision of syngenetic mineralization and later stage [mesothermal] Qtz-carbonate veins.	Variable distribution pyrite and base metal sulphides as follows: 78.3 - 80.4% «15% Py 15% Sp6nSp» 80.4 - 81.4m SMSX 35 - 40% 25% Py 10-15% Sp6nSp. 82.4 - 83.4m 30% Py, 15% Sp6nSp includes white Qtz carb vs and trace Tt. 83.4 - 84.4m increased white QV in matrix. SMSX 85.5 - 86.5m includes partly sheared blocks. 86.5 - 87.5m more massive. Fine grained wispy pyrite with Cp blebs. 88.0 - 88.9m Coarser pyrite associated with white Qtz-carb 30% Py 10% Sp6nSp	Mainly fine grained pyrite, fine-coarse Sp.
86.90 TO 89.30	«SIL SEDS TO FLT ZONE»	Blocky interval of minor gouge and blocks of grey silicified, pyritic sediments. Gouge filled fractures at	50	Moderate development sericitic partings Patchy to pervasive sil'n. Numerous faint white QV.	5-7% Py, 1-2% Sp.	
89.30 TO 93.60	«SIL SEDS»	Grey silicified, sericitic pyritic secs. Numerous faint white Qtz-carb veins. Rare veins to 10cm. Interval appears moderately chaotic, tectonized. Binge zone 91.4m.	30	Patchy to pervasive sil'n. Grey sericite moderately developed as partings to sil-sed.	5-7% Py locally 10% Traces of Sp6nSp. 93.4 - 93.4% «30% Sp6nSp» associated with white/cream Qtz-carb vein.	Possible altered waste?

910 P10

MINNOVA INC

MAR 06 '91 14:43

HOLE NUMBER: U1330-43

DRILL HOLE RECORD

LOGGED BY: A.G.FRENCH

PAGE: 4

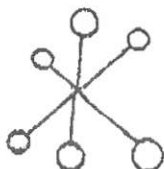
FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
93.40 TO 95.26	«FIT ZONE»	Friable grey gouge and friable sil sed.				
95.26 TO 102.80	«SIL SEDS/ AUT»	Grey-brown mat 95.2 to 97.0m. Passes into intensely deformed sil sed. Numerous hinge zones.  White qtz-carb veins 101.4 - 101.9m in partly sheared sil sed. 102.1 - 102.4 «flt blocky + gouge»	26 62	Silicification and sericite are banded.	3-5% pyrite.	Cherty protolith?
102.80 TO 105.20	«SERT/QV»	Yellow sericitized sediments, partly faulted with blocky qtz. 103.4 - 103.8 «flt gou/blocky»	10 40	Weak to intense yellow ser'n. Wacke protolith?	5-7% pyrite.	
	E.O.H.					



Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL					COMMENTS	
				CU %	ZN %	PB %	AU g/t	SB ppm	AS ppm	CU ppm	ZN ppm	PB ppm	SG g/t		AU g/t
BC024976	31.00	32.70	1.70	0.10	0.13	0.15	71.7	0.36							
BC024977	33.51	35.50	2.00	0.03	0.19	0.38	16.7	0.19							
BC024978	36.60	37.60	1.00	0.01	0.30	0.19	7.8	0.22							
BC024979	39.60	41.60	2.00	0.01	0.09	0.14	6.9	0.23							
BC024980	43.10	44.10	1.00	0.14	0.30	0.25	31.8	0.05							
BC024981	44.10	45.10	1.00	0.07	0.27	0.09	19.3	0.00							
BC024982	45.70	47.30	1.60	0.14	0.75	0.31	16.4	0.14							
BC024983	50.00	51.00	1.00	0.09	0.11	0.16	30.2	0.11							
BC024984	51.00	51.70	0.70	0.63	7.60	3.90	249.7	0.10			3.44				
BC024985	51.70	53.50	1.80	0.06	1.38	0.52	26.4	0.17							
BC024986	53.50	54.50	1.00	0.01	1.32	0.90	23.7	0.11							
BC024987	54.50	55.50	1.00	0.04	2.94	0.51	14.1	0.00							
BC024988	55.50	56.50	1.00	0.02	0.20	0.10	7.6	0.04							
BC024989	55.00	60.00	5.00	0.02	0.02	0.33	13.6	0.07							
BC024990	61.50	63.00	1.50	0.07	0.19	0.34	32.3	0.02							
BC024991	63.00	64.50	1.50	0.01	0.02	0.01	0.9	0.00							
BC024992	64.50	66.00	1.50	0.01	0.20	0.20	15.7	0.01							
BC024993	66.00	67.60	1.60	0.05	0.65	0.30	51.0	0.71							
BC024994	67.60	68.60	1.00	0.70	11.00	4.30	211.2	5.02			3.47				
BC024995	68.60	69.90	1.30	0.06	6.14	3.76	129.2	15.26			3.62				
BC024996	69.90	70.00	0.10	0.19	3.02	0.97	110.4	3.05			3.19				
BC024997	70.00	71.90	1.90	0.07	1.18	0.07	63.6	0.00							
BC024998	71.90	73.00	1.10	0.02	0.56	0.24	25.4	0.02							
BC024999	73.00	74.30	1.30	0.01	0.17	0.05	5.3	0.10							
BC025000	74.30	75.00	0.70	0.02	0.35	0.16	24.2	0.20							
BC026226	76.00	77.90	1.90	0.07	0.49	0.17	42.1	0.50							
BC026227	77.90	78.90	1.00	0.32	5.64	1.16	53.6	0.05			3.77				
BC026228	78.90	80.00	1.10	0.39	3.54	1.00	57.1	1.61			3.06				
BC026229	80.00	81.00	1.00	0.39	3.96	2.20	103.8	1.34			3.57				
BC026230	81.00	82.00	1.00	0.27	3.96	1.46	43.2	5.66			3.32				
BC026231	82.00	83.00	1.00	0.45	4.20	2.54	64.6	0.63			3.00				
BC026232	83.00	84.00	1.00	0.40	4.14	4.04	105.1	7.24			3.39				
BC026233	84.00	85.00	1.00	0.49	2.92	1.74	64.3	04.50			3.29				
BC026234	85.00	85.50	0.50	0.22	1.96	1.14	32.1	0.05							
BC026235	85.50	86.50	1.00	0.14	0.70	0.32	23.6	0.76							
BC026236	86.50	87.50	1.00	0.41	2.46	2.00	65.3	5.65			4.22				
BC026237	87.50	88.00	0.50	0.72	1.76	3.92	60.0	0.54			3.02				
BC026238	88.00	88.90	0.90	1.00	0.39	0.93	101.3	37.6			3.77				
BC026239	89.90	90.30	0.40	0.03	0.03	0.05	3.0	0.91							
BC026240	93.00	93.00	0.00	0.03	0.29	0.32	12.2	0.27							

MAR 06 '91 14:44 MINNICOA TNC





## ECO-TECH LABORATORIES LTD.

ASSAYING - ENVIRONMENTAL TESTING

10041 East Trans Canada Hwy. Kamloops, B.C. V2C 2J3 (804) 673-6700 Fax 673-4557

MINNOVA INC.

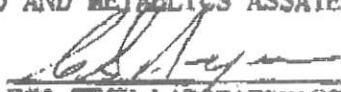
FEBRUARY 28, 1991

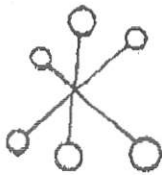
ET#	Description	Au (g/t)	Au (oz/t)	Ag (g/t)	Ag (oz/t)	Cu (%)	Pb (%)	Zn (%)	SPECIFIC GRA (g/cm <sup>3</sup> )
96 - 31	28231	8.63 *	.252	64.6	1.88	.48	2.64	4.28	3.80
96 - 32	28232	7.24 *	.211	109.3	3.19	.48	4.04	4.14	3.39
96 - 33	28233	14.58 *	.425	64.9	1.89	.49	1.74	2.92	3.29
96 - 34	28234	1.65	.048	32.1	.94	.22	1.16	1.96	
96 - 35	28235	.76	.022	23.6	.69	.14	.32	1.78	
96 - 36	28236	5.69 *	.166	85.3	1.90	.41	2.80	2.46	4.22
96 - 37	28237	8.54 *	.249	80.8	1.77	.72	3.92	1.76	3.82
96 - 38	28238	37.60 *	1.097	101.3	2.95	1.06	.99	.39	3.77
96 - 39	28239	.91	.027	8.8	.26	.03	.05	.03	
96 - 40	28240	.27	.008	12.2	.36	.03	.32	.29	

NOTE: < = less than

\* SAMPLE SCREENED AND METALLICS ASSAYED

FAX: 1-672-5676  
1-672-0188

  
ECO-TECH LABORATORIES LTD.  
JUTTA JEALOUSE  
B.C. Certified Assayer



**ECO-TECH LABORATORIES LTD.**

ASSAYING - ENVIRONMENTAL TESTING

10041 East Trans Canada Hwy., Kamloops, B.C. V2C 2J3 (604) 573-5700 Fax 570-4557

FEBRUARY 28, 1991

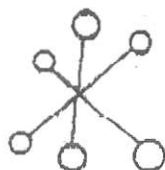
**CERTIFICATE OF ASSAY ETK 91-06**

MINNOVA INC.  
SAMATASUM MINE  
P.O. BOX 739  
BARRIERE, B.C.  
VOE 1E0

SAMPLE IDENTIFICATION: 40 CORE samples received FEBRUARY 22, 1991  
----- PROJECT: SAM UNDERGROUND  
SHIPMENT NO.: U-1330-43

ET#	Description	Au (g/t)	Au (oz/t)	Ag (g/t)	Ag (oz/t)	Cu (%)	Pb (%)	Zn (%)	SPECIFIC GRAVITY (g/cm3)
96 - 1	24976	.36	.010	74.7	2.18	.10	.18	.13	
96 - 2	24977	.19	.006	16.7	.49	.03	.36	.09	
96 - 3	24978	.22	.006	7.8	.23	.01	.19	.38	
96 - 4	24979	.23	.007	6.9	.20	.01	.10	.09	
96 - 5	24980	.05	.001	31.8	.93	.14	.25	.30	
96 - 6	24981	.08	.002	19.3	.58	.07	.09	.27	
96 - 7	24982	.14	.004	36.4	1.06	.14	.31	.75	
96 - 8	24983	.11	.003	38.2	1.11	.09	.16	.11	
96 - 9	24984	.10	.006	249.7	7.28	.88	3.88	7.88	3.44
96 - 10	24985	.17	.005	26.8	.78	.05	.52	1.38	
96 - 11	24986	.11	.003	23.7	.69	.01	.98	1.32	
96 - 12	24987	.10	.003	14.1	.41	.04	.51	2.94	
96 - 13	24988	.04	.001	7.6	.22	.02	.10	.20	
96 - 14	24989	.07	.002	13.6	.40	.02	.31	.82	
96 - 15	24990	.42	.012	32.3	.94	.07	.34	.19	
96 - 16	24991	.48	.014	8.9	.26	.01	.04	.02	
96 - 17	24992	.41	.012	15.7	.46	.01	.20	.20	
96 - 18	24993	.71	.021	51.8	1.51	.05	.30	.65	
96 - 19	24994	5.82 *	.170	211.2	6.18	.70	4.36	11.04	3.47
96 - 20	24995	15.26 *	.445	129.2	3.77	.86	3.76	6.14	3.62
96 - 21	24996	1.05	.031	110.4	3.22	.19	.97	3.02	3.29
96 - 22	24997	.48	.014	63.8	1.86	.07	.47	1.18	
96 - 23	24998	.32	.009	28.4	.74	.02	.24	.50	
96 - 24	24999	.16	.005	5.3	.16	<.01	.05	.17	
96 - 25	25000	.28	.008	24.2	.71	.02	.16	.36	
96 - 26	28226	.58	.017	42.1	1.23	.07	.17	.49	
96 - 27	28227	.85	.025	88.6	1.71	.32	1.16	6.64	3.77
96 - 28	28228	1.61	.047	57.1	1.67	.39	1.80	3.54	3.86
96 - 29	28229	1.34	.039	109.8	3.20	.38	2.20	3.96	3.57
96 - 30	28230	5.66 *	.165	43.2	1.26	.27	1.88	3.98	3.92

*Jutta Jealouse*  
JUTTA JEALOUSE, Certified Assayer

**ECO-TECH LABORATORIES LTD.**

ASSAYING - ENVIRONMENTAL TESTING

10041 East Trans Canada Hwy., Kamloops, B.C. V2C 2J3 (804) 573-5700 fax 573-4657

**METALLIC CALCULATION**

<b>SAMPLE NUMBER</b>	<b>-140 VALUE</b>	<b>+140 VALUE</b>	<b>CALCULATED VALUE</b>
98-19	5.73	14.40542	5.826733
98-20	12.21	891.2466	15.28463
98-30	4.7	557.2941	5.859404
98-31	7.55	1714.151	8.030299
98-32	6.88	396.9788	7.241884
98-33	12.62	872.1461	14.56792
98-36	5.62	50.85995	5.688776
98-37	6.76	2810	8.543308
98-38	35.7	213.2835	37.60098