820831

1990 - 1991 DRILL LOGS

SENECA PROJECT
(92H/5W)

MINNOVA INC.

HOLE NUMBER: 85-7E

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 1
LOCATION: Pit Area

PLOTTING COORDS GRID: IDEAL
NORTH: 310.00S
EAST: 150.00E
ELEV: 260.00

ALTERNATE COORDS GRID: Pit Grid
NORTH: 3+ 0S
EAST: 0+40W
ELEV: 260.00

COLLAR DIP: -80° 0' 0"
LENGTH OF THE HOLE: 170.10m
START DEPTH: 107.90m
FINAL DEPTH: 278.00m

COLLAR GRID AZIMUTH: 230° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: May 11, 1991
DATE COMPLETED: May 13, 1991
DATE LOGGED: May 13, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: YES
HOLE SIZE: BQLTK

CONTRACTOR: F. Boisvenu Drilling
CASING: Yes
CORE STORAGE: on property

PURPOSE: Deepen 85-7 to explore for Trough area stratigraphy below the Seneca deposit. Dummy probe lost.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
158.50	-	-81° 0'	ACID	OK		-	-	-	-	-	
198.70	-	-81° 0'	ACID	OK		-	-	-	-	-	
249.90	-	-81° 0'	ACID	OK		-	-	-	-	-	
276.50	237° 0'	-78° 0'	TRO-PARI	OK	AZ 216+21 decl.	-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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LOGGED BY: Paul Baxter

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
107.90 TO 168.60	DACITE (FP) FLOW/DOME «DAC FL/DOME»	Colour: medium green Grain Size: f.gr. 7-10%, 1-2 mm whitish, faint ghost like fsp cryst. locally absent, and patchy fine mafic laths in a green aphanitic groundmass; massive, locally fragmentally textured with increased bleaching and py stockwork			«wk Py Stkwk» Patchy, 2-4% diss. py and traces of diss. sp, cp, pyrite also forming patchy weak stockwork and fracture coatings Occassional vugs filled by well developed crystals of py, sp, cp, vugs and diss. sp declining downhole	Continuation of flow with py stockwork and open void sp-gn-cp Without sulphides, unit could be confused with FP dykes; FP dykes fsp sharper outlined, more euhedral
		108.9-110.8 -Andesite dyke -round, dark green, 1-3 mm round chlorite amygdule sharp upper contact, weak chill margin @ -lower contact in rubble	17		┤107.9-128.0├ «tr Sph,cp»	
				110.8-111.6 -0.5 cm wide white siliceous stockwork		
		120.9-123.0 -very rubbly core, green clay fault gouge from approx. 122.0-122.5				
		126.2-128.75 -fragmented dacite flow, lapilli and minor block size fragments		-weak grey bleached colour		
				130.55-131.25 -green epidote within pyrite stockwork	-strong pyrite stockwork, 5-7% py	
		142.75-146.4 -fragmented dacite flow as above		-moderate bleached appearance	144.25-145.6 -3-5%, locally 10% very fine pyrite with matrix to flow fragments	
		146.4-147.4 -coarse grained ash tuff, patchy hematite				
		146.9 Py Exhalite(?) -6 cm fine diss. pydrite, 15% mixed with hyaloclastite? sheared appearance			┤146.8-146.9├«Py Exh»	
				146.9-168.6 -patchy epidote within vugs and coating fractures		
		Lower contact in rubble				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
168.60 TO 189.60	QFP DYKE «QFPD»	Colour: medium green Grain Size: f. to m.gr. 3-5% subrounded, 1-3 mm quartz eyes, 7-8% white, 1-2 mm fsp crystal, 5% mm dark green clots/laths with very fine inclusions of white specks Massive, patchy crystal tuff appearance from 169.3 -171.3 Sharp lower contact @	25		<1% disseminated pyrite	Part of dacite flow/dome complex
189.60 TO 200.60	DACITE FP FLOW/DOME «DAC FL/ DOME»	Colour: med. green Grain Size: f.gr. Continuation of flow Last 20 cm weakly brecciated/fragmental		«gyp» 1 mm - 1.5 cm wide whitish translucent gypsum veinlets some with bleached selvages. Patchy mm wide epidote veinlets	<1% diss. py	
200.60 TO 212.45	AMYGDALOIDAL ANDESITE FLOW «AND FL»	Colour: dark green Grain Size: f.gr. 1-3% round to irregular chlorite amygdules, fairly massive with patchy brecciation with minor gypsum veining 200.6-202.0 -flow breccia with fragments of dacite flow 210.2-212.0 -weak to moderately brecciated, reddish grey silica stockwork		-weak chlorite throughout and as fracture coatings; 1-2 mm to 5 mm wide gypsum veining. Local diss. epidote, minor epidote associated with gypsum veining	«Tr sph cp» -<1-1% diss. pyrite, <1% sphalerite and trace chalcopyrite with gypsum veining at 203.6, 204.9 and from 206.2-207.2 210.2-212.45 -3-5% pyrite finely disseminated and forming weak stockwork separate from silica stockwork	«Anh»

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
212.45 TO 278.00	DACITE FP FLOW/DOME «DAC FL/DOM E»	Colour: med. green Grain Size: f.gr. 10-12%, 1-3 mm greenish weakly epidotized fsp crystals. Massive gypsum veinlets common		«wk epi» 1-5 mm wide gypsum veinlets common; wider veins have bleached selvages; weak epidote alteration of fsp crystals patchy weak hematite within fsp crystals		«Anh» 212.45-213.8 -<1-3% pyrite 214.4 -4 mm wide sphalerite veinlet remainder of unit: no sulphides
		╣253.7╠ «FLT @ 40 deg» -5 cm fault zone @	40	strongest gypsum veining from 245.9-253.8, gypsum veining less abundant downhole 259.15-278.0 -hematite associated with gypsum viens and locally within feldspars		

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
29111	144.25	145.60	1.35							21	20	222	.5	20			
29112	146.70	147.20	0.50							129	134	1670	1.5	20			

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
28959	137.00	140.00	3.00	15.08	0.065	2.14	6.27	1.57	2.99	0.41	5.99	0.07	60.35	0.63	1.56	97.12	2.4	1	50	199	123	1	458	5
28960	171.30	174.30	3.00	14.88	0.06	2.2	2.16	2.7	1.65	0.19	4.32	0.01	68.1	0.28	.07	96.6	0.5	1	161	47	34	1	129	5
28961	204.80	207.80	3.00	15.67	0.045	4.31	10.18	0.85	7.05	0.6	3.73	0.04	48.93	0.74	1.04	93.17	3.2	1	42	391	20	1	2222	5
28962	235.30	238.30	3.00	14.55	0.055	3.39	3.25	2.01	1.83	0.11	5.99	0.01	64.24	0.42	.47	96.33	1.2	1	58	23	10	1	122	40
28963	246.00	249.00	3.00	14.38	0.115	4.09	3.01	2.2	1.78	0.14	5.4	0.01	63.12	0.42	.86	95.52	0.5	1	449	44	15	1	93	5
28964	269.00	272.00	3.00	14.96	0.075	2.46	3.44	2.04	2.21	0.15	5.97	0.01	64.69	0.44	.31	96.76	1.1	1	128	16	13	1	90	25

HOLE NUMBER: S91-02

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS:
METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 1
LOCATION: Pit

PLOTTING COORDS GRID: IDEAL
NORTH: 328.00N
EAST: 16.00W
ELEV: 461.00

ALTERNATE COORDS GRID: FIELD
NORTH: 2+50N
EAST: 2+40E
ELEV: 461.00

COLLAR DIP: -65° 0' 0"
LENGTH OF THE HOLE: 300.20m
START DEPTH: 0.00m
FINAL DEPTH: 300.20m

COLLAR GRID AZIMUTH: 3° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 53° 0' 0"

DATE STARTED: May 7, 1991
DATE COMPLETED: May 11, 1991
DATE LOGGED: May 11, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: BQLTK

CONTRACTOR: F. Boisvenu Drilling Ltd.
CASING: 3.05 m
CORE STORAGE: on property

PURPOSE: Test 85-3 horizon 200 meters downdip to the NE.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.50	-	-65° 0'	ACID	OK		-	-	-	-	-	
100.60	-	-65° 0'	ACID	OK		-	-	-	-	-	
158.50	-	-64° 0'	ACID	OK		-	-	-	-	-	
189.00	-	-65° 0'	ACID	OK		-	-	-	-	-	
295.70	-	-66° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.05	Casing					
3.05 TO 36.05	QFP FLOW «DAC QP FLO W»	Colour: medium brown green Grain Size: f.gr. 5-7%, <1-2 mm angular quartz eyes and 10-12%, 1-3 mm subhedral to euhedral pinkish and orange white feldspars in a very fine groundmass; massive locally brecciated 27.4 -10 cm interval of <5 mm subangular brown and green QP flow fragments tightly packed; occasional interfragmental quartz eyes; 40 cm weak, brecciated texture below 27.4 m 32.2-36.05 -fragmental QFP, distinct fragments of QFP, some showing flow banding		Patchy brown surface oxidation, otherwise fresh		
36.05 TO 44.55	QFP BRECCIA «DAC FLBX»	Colour: medium green Grain Size: 5 mm - 3 cm and rarely over 10 cm subrounded to angular fragments of, aphyric, FP, QFP flow in coarse sand matrix of <3 mm grains of flow Contact between fragmental QFP flow and lower breccia occupied by 1.9 m, FP dyke		Local hematite within matrix	Trace grains of py within matrix	
44.55 TO 70.40	FP DYKE «FPD»	Colour: grey green Grain Size: f.gr. 5-7%, 1-2 mm euhedral to subhedral feldspar crystals; occasional <1-3 cm mafic xenoliths 54.0-55.3 -magnetic fine to medium grained diorite xenoliths 30 cm brown oxidized, brecciated zone at lower contact, fault?		Soft, pinkish zeolite? fracture coatings		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
70.40 TO 99.30	QFP DOME «DAC QP FL»	Colour: beige grey Grain Size; f.gr. 10-12%, 1-2 mm pink white feldspar crystals and 5-7%, 1-5 mm angular, square and subrounded quartz eyes; grey aphanitic groundmass Massive, no brecciation textures as in previous QFP 73.2-73.6 -feldspar hornblende porphyry dyke cutting QFP		Occassional soft, pinkish mineral coating fracture surfaces		
99.30 TO 123.40	ANDESITE FP DYKE «FPD»	- Colour: medium green grey Grain Size: f.gr. 10-12%, 1-2 mm tan white subhedral feldspar crystals often with zoned appearance with chloritic cores; weakly magnetic; locally 3-4% mm chlorite altered phenos Weakly amygdalidal mainly at top of unit with irregular shaped 2-3 mm quartz amygdules Patchy, pinkish white zeolite filled cavities usually <1 cm; pat;chy weak brecciated texture 114.0-114.3 -green sandy andesitic interval 114.3-117.75 «FLT» -fault zone -rubbly core, some fault gouge; some core pieces of thinly bedded sandy green andesitic epiclastics 122.6 -30 cm screen of heterolithic volcanic fragment breccia Sharp lower contact				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
123.40 TO 137.30	AMYGDALOIDAL DYKE «MD»	Colour: med. to dark green Grain size: f.gr. Patchy, 10-12%, 1-2 mm grey silica amygdules occasionally coalescing, patchy 2-3% irregular calcite amygdules, patchy pinhead chlorite amygdules; <1-1% white 1-2 mm feldspar crystals -weakly magnetic 123.4-128.7 -dark green to green black finer chilled margin 125.05-126.05 -andesite crystal tuff and hematite stained lapilli tuff 128.7-130.3 -possible andesite flow, mottled grey and green colour, possible hyaloclastite 2nd intrusive pulse marked by chill margin 133.2 10 cm chilled lower contact			-weak very fine pyrite veining stock-work	
137.30 TO 145.25	ANDESITIC FP FLOW «AND FL»	Colour: mottled and speckled grey green Grain Size: f. to m.gr. Mottled appearance of green fsp phyric, weakly amygdular fragments in a grey siliceous stockwork; some grains within stockwork show a concentric building of silica around grains Weakly magnetic Irregular lower contact over 15 cm		«silica flooded» Weak preferential silica alteration of interblock hyaloclastite?	Trace pyrite	FP frags in hyaloclastite or brecciation and silica flooding of massive FP flow
145.25 TO 198.60	FHP DYKE «FHPD»	Colour: tan grey Grain Size: f.gr. 10-15%, 1-2 mm euhedral feldspar crystals, some zoned or with chloritic cores, fine <1-1 mm chlorite altered amph laths and abundant usually <0.5 cm speckled diorite xenoliths				Vuggy dyke margins with calcite - zeolite fillings

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		145.25-151.7 -2-4%, <0.5 cm irregular zeolite +/- calcite filled cavities 146.8-147.8 -mafic dyke; very fine dark green black chill margins, coarser green core, 1 mm calcite amygdules 175.7 -unit becoming quite vuggy; some vugs filled with white calcite; pinkish zeolites and occasionally chlorite Faulted lower contact @	25			
198.60 TO 207.45	FELSIC FLOW PEBBLE CONGLOM «OZC»	Colour: med. grey Grain Size: c.gr. Up to 6 cm, averaging, 1-2 cm grey and bleached subrounded felsic flow fragments, occasionally feldspar phyric, in a grey pyritic muddy coarse sand matrix; poorly sorted, matrix supported, locally fragment supported Rare, < 5 mm massive sphalerite fragments 203.15 -3 cm grey fault gouge 205.8-206.95 -fault gouge as matrix Last 30 cm, amygdaloidal basalt fragments		Bleaching and sericite alteration of fragments prior deposition	«Sph,py,ba Stkwk» 3-5% diss py. within matrix and locally rimming fragments where py may reach 10% <1% sp and cp diss. within matrix and diss within some fragments 199.8-200.3 201.3-201.6 soft white veining stockwork (barite) with elevated sp and cp diss. within stockwork, 1-2% sp, up to 1% cp	Identical to OZC in hole 85-3; lacking MS at top of unit
207.45 TO 208.55	BASALT BRECCIA «BAS BX»	Colour: medium to dark green Grain Size: f.gr. Angular block and lapilli sized angular fragments of chlorite-calcite amygdaloidal basalt with a hematite stained argillaceous matrix				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
208.55 TO 209.25	SILTY ARGILLITE «ARG/XT»	Colour: green black Grain Size: f.gr. Poorly bedded, contains <1-2 cm layers or large fragments of feldspar phyric XT or fiamme				Also known as the footwall marker
209.25 TO 211.90	DACITE AND BASALT LAP TUFF/ CONGLOM «DAC/BAS LT »	Colour: grey green Grain Size: c.gr. Up to 6 cm subroundeed fragments of FP flow and amygdular basalt, argillite fragments at top and patchy FP vitric fragments; hematitic argillaceous FP matrix at top of unit decreasing below 210 m <5 mm rounded fragments in last 40 cm; weak resemblance to OZC Lower contact @	33		Trace diss. py. within matrix increasing below 210.6 m Last 40 cm, <1-1% diss. py.	Debris flow
211.90 TO 225.70	«FPD»	Colour: maroon, green Grain Size: f.gr. 10%, 1-3 mm fsp crystals and occasional amphibole laths; vuggy, minor fillings of calcite 218.5-220.15 -screen of dacite lithic tuff, hematite altered matrix -lower contact in rubble				
225.70 TO 289.80	DACITE LITHIC TUFF «DAC LTH T»	Colour: light to med.green, maroon, orange green Grain Size: c.gr. Angular to subrounded lapilli sized fragments of green and maroon dacite FP flow, dark green FP vitric fragments (fiamme) in a weakly fsp phyric ash tuff matrix 225.7-230.3 -rubbly core 233.35 -15 cm green fault gouge 233.35-238.1 -orangish coloration to matrix; fragment poor				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		238.1-238.8 -dark green, weakly magnetic amygdaloidal mafic dyke 238.8-260.1 -light green colour, domination of light green soft feldspar phyric dacite fragments, minor siliceous maroon FP flow frags and dark green fiamme 265.45-269.25 -Mafic dyke: dark green, fine grained, massive, 1 mm calcite amygdules at upper contact, 1-2% white fsp laths in core of dyke; lower contact in rubble 286.9-289.8 -FP dacite fragments decreasing abundance, appearance of large angular amygdular basalt fragments		-moderate to strong clay alteration of light green fragments		
289.80 TO 295.10	BASALT DYKE «MD»	Colour: dark green Grain Size: f.gr. Massive characterized by 7-10%, 1-2 mm round grey siliceous spots = amydules; occasional <1-1 mm chlorite and calcite amygdules Lower contact in rubble				
295.10 TO 300.20	DACITE LITH TUFF «DAC LTH T» -	Colour: dark maroon green Grain Size: c.gr. Maroon grey feldspar phyric dacite flow fragments, subrounded, coarse sand matrix of flow materiat				

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm	COMMENTS
29101	198.60	199.60	1.00	.19	.01	.84	3.09	.034	.48							
29102	199.60	200.60	1.00	.23	.02	1.37	5.49	.034	7.50							
29103	200.60	201.60	1.00	.29	.10	2.52	4.46	.034	8.84							
29104	201.60	202.60	1.00							1625	332	9750	19.3	160	15000	
29105	202.60	203.60	1.00							14	140	1300	9.6	100	7500	
29106	203.60	204.60	1.00							32	39	116	1.9	40	2650	
29107	204.60	205.80	1.20							25	60	119	.9	20	3200	
29108	205.80	206.60	0.80							32	48	100	2.4	25	1450	
29109	206.60	207.45	0.85							1190	527	11750	13.8	150	2200	
29110	211.50	211.90	0.40							160	98	1010	2.8	40		
AVE.	198.60	201.60	3.00	0.24	0.04	1.58	4.35	0.034	5.61							

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
28951	8.80	11.90	3.10	14.17	0.055	0.74	2.15	3.05	1.89	0.05	4.59	0.01	69.22	0.29	.10	96.31	0.2	1	39	166	13	1	63	30
28952	39.60	42.70	3.10	15.38	0.06	0.79	3.3	2.53	2.56	0.11	5.77	0.01	65.67	0.37	.04	96.57	1.2	1	42	136	16	1	293	50
28953	71.00	74.00	3.00	14.73	0.06	1.67	2.2	2.23	1.18	0.06	6.23	0.01	68.9	0.29	.02	97.58	0.5	1	29	55	12	1	29	35
28954	106.70	109.70	3.00	15.89	0.015	1.65	5.52	0.67	3.54	0.12	7.5	0.09	60.04	0.62	.06	95.71	1.7	1	17	54	8	1	77	10
28955	140.20	143.20	3.00	16.4	0.07	3.94	5.75	1.43	3.37	0.13	6.4	0.06	57.41	0.58	.24	95.8	2.2	1	21	40	8	1	93	15
28956	243.80	246.80	3.00	13.52	0.01	5.46	3.22	1.13	2.13	0.11	0.65	0.02	64	0.43	.06	90.75	0.8	1	42	17	12	1	52	10
28957	274.30	277.30	3.00	15.15	0.01	1.47	3.61	1.14	2.12	0.08	6.64	0.03	65.96	0.48	.01	96.7	0.4	1	40	17	17	1	55	30
28958	290.10	293.10	3.00	17.32	0.015	6.78	9.72	0.56	8.49	0.26	3.18	0.02	46.31	0.6	.16	93.42	2.1	1	36	102	8	1	64	10

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 1
LOCATION: Pit area

PLOTTING COORDS GRID: IDEAL
NORTH: 593.00S
EAST: 1109.00E
ELEV: 139.00

ALTERNATE COORDS GRID: Pit
NORTH: 9+90S
EAST: 4+30W
ELEV: 139.00

COLLAR DIP: -80° 0' 0"
LENGTH OF THE HOLE: 159.70m
START DEPTH: 0.00m
FINAL DEPTH: 159.70m

COLLAR GRID AZIMUTH: 50° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 50° 0' 0"

DATE STARTED: May 14, 1991
DATE COMPLETED: May 15, 1991
DATE LOGGED: May 15, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: BQLTK

CONTRACTOR: F. Boisvenu Drilling Ltd
CASING: 3.05
CORE STORAGE: on property

PURPOSE: To test SE strike extension of Zn bearing sediments and coincident Ba soil anomaly

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
67.40	-	-80° 0'	ACID	OK		-	-	-	-	-	
143.30	-	-80° 0'	ACID	OK		-	-	-	-	-	
158.20	43° 0'	-80° 0'	TRO-PARI	OK	022 + 21 deg decl.	-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.05	Casing					
3.05 TO 21.20	QFP CRYSTAL LAP TUFF «QFP XT/LT»	Colour: speckled orange tan Grain Size: m. to c.gr. Abundant orange and white coloured 1-2 mm feldspar 3-4%, 1-2 mm quartz eyes, 2-7% 1-5 mm dark green chloritic vitrics and orangish aphanitic (FP) flow fragments up to 1 cm; massive, no bedding 18.6-21.2 -becoming finer grained, quartz and lapilli content decreasing				
21.20 TO 23.85	ARGILLITE «ARG»	Colour: dark grey black Grain Size: f.gr. Poorly bedded and laminated @ Iron stained (weathered) away from fractures	75		Patchy very fine grained diss pyrite	
23.85 TO 42.55	QFP TUFF BRECCIA «QFP TBX»	Colour: medium grey and speckled white green Grain Size: f. to c.gr. Block size angular fragments of fine grained grey ash tuff in a very coarse QFP matrix; matrix composed of 25-30%, 2-3 mm white fsp and up to 10%, 2-4 mm round quartz eyes set in a finer shardy ash matrix 27.0 -5 cm fault gouge 27.5 -4 cm iron stained fault gouge @ 32.55-32.95 -laminated argillite, possible fragment? 34.4-39.6 -(Q)FP crystal tuff, lapilli tuff; sharp upper contact argillite fragments from 39.0-39.1	60 55		39.3 -two <5 mm pyritic fragments	Coarse grained QFP usually seen in immediate HW to Zn exhalite argillites

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
42.55 TO 58.80	ARGILLITE, SILTSTONE, MINOR DAC AND ASH TUFF «ARG/SLTST/ ASH»	Colour: medium dark grey, light med. green Grain Size: f. to c.gr. Thinly bedded and laminated argillite and siltstone interbedded with occasional coarse grained intervals of dacite ash tuff, crystal tuff and volcanic derived sandstone 53.0 -10 cm pale green massive chert 42.9 -bedding @	 60		«Py lam» -occasional very fine grained pyrite rich laminations and pyritic muds; minor diss. pyrite within volcanic sandstones	
58.80 TO 70.60	INTERBED FINE SEDS & COARSE ASH TUFFS SST «SLTST/ASH/ XT»	Colour: grey, green orange Grain Size: f. to c.gr. Laminated to thinly bedded grey and green very fine grained silicified or cherty sediments interbedded/interlaminated with coarse grained orangish and green feldspar tuff/sandstones 67.4-70.4 -very coarse ash flow with dark green vitrics and up to 1 cm orange (potassic) fragments interbedded with finer seds Bedding: 59.9 @ 69.0 @ Lower contact in rubble	 75 68			
70.60 TO 96.10	DACITE ASH «DAC ASH»	Colour: medium green Grain Size: v.f.gr. Massive, aphyric, possible bedding at top of unit patchy coarser grained <30 cm intervals of fsp crystal tuff and ash tuff with dark green vitric grains Unit characterized by lighter green strong perv. 1 mm wide wormy stockwork		Patchy silicification probably a primary feature		Other holes in Trough area have a unit similar to this in the footwall but silica flooded dacite flow is not present here.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		72.5-73.1 -possible bedded silicified ashes				
96.10 TO 159.70	DACITE ASH TUFF «DAC ASH T»	Colour: light to medium green Grain Size: f. to m.gr. Massive, aphyric ashes with occasional <5 mm orange lithic FP flow fragment gradually coarsening below 125 m; becoming more granular with the appearance of <5 mm dark green fiamme below 147.6 m 130.25-147.6 «pseudobx» -moderately developed pseudobreccia lighter green stockwork				
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm	COMMENTS
29113	21.20	22.55	1.35							100	34	119	.4	3	730	
29114	22.55	23.10	0.55							87	21	57	.3	2	430	
29115	39.55	39.90	0.35							65	23	68	.5	2	350	
29125	42.25	42.55	0.30							32	24	73	.7	4	340	
29116	42.55	43.60	1.05							30	21	90	.7	1	520	
29117	43.60	44.40	0.80							30	22	77	.8	1	830	
29118	44.40	45.25	0.85							29	17	86	1.0	2	1040	
29119	45.25	46.30	1.05							16	18	87	1.1	3	920	
29120	46.30	47.55	1.25							16	18	69	1.0	3	1000	
29121	47.55	48.80	1.25							16	20	70	1.0	2	980	
29122	48.80	49.55	0.75							13	14	48	1.0	.9	850	
29123	49.55	50.70	1.15							11	15	50	.6	2	730	
29124	52.80	53.60	0.80							18	11	73	.5	1	200	

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
28965	6.50	9.50	3.00	14.12	0.015	1.28	3.03	0.73	1.35	0.09	7.47	0.01	67.69	0.3	.17	96.26	1.2	1	46	17	18	1	46	4
28966	73.50	76.50	3.00	13.1	0.055	0.88	2.67	2.84	1.57	0.11	4.76	0.01	70.65	0.36	.17	97.16	1.2	1	33	25	18	1	48	2
28967	109.40	112.40	3.00	13.07	0.015	0.73	2.25	2.01	3.16	0.05	2.31	0.01	71.16	0.34	.06	95.15	0.4	1	28	6	15	1	43	3
28968	137.00	140.00	3.00	14.48	0.035	0.82	2.89	2.29	3.31	0.06	2.9	0.01	67.6	0.42	.05	94.85	0.6	1	167	7	13	1	53	2

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 1
LOCATION: Southwest of Pit

PLOTTING COORDS GRID: IDEAL PIT
NORTH: 644.00S
EAST: 53.00E
ELEV: 192.00

ALTERNATE COORDS GRID: FIELD PIT
NORTH: 4+45S
EAST: 5+10W
ELEV: 192.00

COLLAR DIP: -80° 0' 0"
LENGTH OF THE HOLE: 149.70m
START DEPTH: 0.00m
FINAL DEPTH: 149.70m

COLLAR GRID AZIMUTH: 230° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: May 15, 1991
DATE COMPLETED: May 18, 1991
DATE LOGGED: May 18, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: YES
HOLE SIZE: BQLTK

CONTRACTOR: Boisvenu
CASING: Pulled
CORE STORAGE: Property

PURPOSE: Test Cu-Pb-Ba soil anomaly. Hole abandonned. Lost 101 meters of rods.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
57.90	-	-79° 0'	ACID	OK		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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-	-	-	-	-		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 27.10	Casing					
27.10 TO 49.00	FP DAC FLOW /DOME «DAC FL»	Colour: light to medium green Grain Size: f.gr. 7-10%, 1-2 mm orangish white feldspars, massive, moderately developed mottled, pseudobreccia texture		«sil» -weak silicification	«tr sp, cp» -traces of diss sphalerite and chalco-pyrite; patchy <1-5% diss py cubes, minor veinlets	
49.00 TO 58.05	ANDESITE DYKE «AND DYKE»	Colour: dark green Grain Size: f. to m.gr. Massive, 5-7%, <1-1 mm epditoe grains as altered feldspars, 1-2%, 1 mm chlorite and occasional calcite amygdules		2-6 cm epidote patches with diffuse edges; disseminated epidote as alteration of feldspars	-trace diss cp, patchy diss. brassy py cubes 53.65 -15 cm long by 1-2 mm wide calcite veinlet with chalcopyrite clots	
58.05 TO 149.70	FP DACITE FLOW/DOME «DAC FL»	Colour: light to med. green Grain Size: f.gr. 7-15%, whitish feldspars, massive, patchy mottled pseudobreccia and silicification 64.4-68.3 -strong pseudobreccia and silicification 84.9-107.9 -massive flow/dome, no pseudobreccia textures		⟊68.75-84.9⟊ «I bleaching» -light beige colour intense bleaching, silicified 74.9-79.4 -dolomite altered including, <1 cm dolomite veining 92.5-120.2	58.05-66.7 -1-3%, locally 5-7 coarse brassy diss pyrite 66.7-67.4 -dark grey, very fine grained, fine sulphide stockwork ⟊68.75-84.9⟊ «Py stkwk» -coarse brassy open void pyrite veining 84.9-120.2 -trace diss chalcopyrite, mainly from 84.9-103.5	Alteration and mineralization probably not related to synvolcanic hydrothermal activity (Vein mineralization)

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
				-feldspar crystals becoming ghosted	╡103.5-120.2╞ «wk Py Stkwk» -weak, very fine grained dark py stockwork, up to 5% diss py	
				114.3-129.3 -patchy up to 1 m strongly bleached intervals	120.2-132.4 -patchy dark grey fine sulphide stockwork	
		╡137.65-138.7╞ «FLT» -fault zone, fault gouge, very rubbly core			╡132.4-136.8╞ «wk Py Stkwk, tr cp»	
					138.7-149.7 -patchy 2-5% diss py and weak fine veining	
	E.O.H.					149.7 -rods become stuck, break rods, 100.9m left in hole, hole abandoned, casing pulled

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
36001	70.90	71.90	1.00							13	67	53	.8	1	920		
36002	82.70	83.90	1.20							8	23	48	.6	1	310		

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
28969	30.20	33.20	3.00	14.84	0.015	2.58	3.71	0.93	1.71	0.27	6.37	0.04	64.73	0.49	.11	95.79	0.9	1	45	351	26	1	277	5
28970	61.30	64.30	3.00	12.4	0.015	1.98	4.37	0.63	1.28	0.16	5.38	0.01	68.99	0.4	1.69	97.3	1	1	49	30	18	1	78	16
28971	91.70	94.80	3.10	13.71	0.015	2.7	3.32	0.7	1.78	0.2	6.07	0.01	67.08	0.44	.45	96.47	0.5	1	28	75	30	1	116	55
28972	117.00	120.00	3.00	12.89	0.055	1.66	4.76	1.07	1.45	0.16	5.61	0.01	67.08	0.41	2.47	97.62	0.4	1	271	20	20	1	83	20
28973	140.50	143.50	3.00	14.69	0.085	2.2	3.32	1.52	2.04	0.29	5.21	0.02	66.68	0.43	.18	96.64	0.5	1	707	33	17	1	142	10

HOLE NUMBER: S90-01

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 3
LOCATION: Vent

PLOTTING COORDS GRID: IDEAL
NORTH: 550.00N
EAST: 9832.00E
ELEV: 367.00

ALTERNATE COORDS GRID: Vent
NORTH: 5+20N
EAST: 98+20W
ELEV: 367.00

COLLAR DIP: -65° 0' 0"
LENGTH OF THE HOLE: 387.71m
START DEPTH: 0.00m
FINAL DEPTH: 387.71m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: November 22, 1990
DATE COMPLETED: November 29, 1990
DATE LOGGED: November 29, 1990

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: Frontier Drilling
CASING: Yes
CORE STORAGE: Property

PURPOSE: Test postulated intersection of Vent stockwork / alteration pipe with Trough seds 300 m downdip

DIRECTIONAL DATA: and 200 m west of Vent showing

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
91.44	-	-58° 0'	ACID	OK	
182.88	-	-59° 0'	ACID	OK	
302.06	-	-49° 0'	ACID	OK	
364.01	-	-48° 0'	ACID	OK	

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
-	-	-	-	-	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 32.92	Casing	Blocks and rubble of feldspar				Much difficulty collaring due to boulders
32.92 TO 80.77	Feldspar porphyry dike «FHPD»	Colour: green Grain Size: m.gr. Randomly oriented 3-4 mm feldspar phenocrysts set in a f.gr. matrix, massive -occasional vague mafic phenos - remnant hornblends? -also rare remnant mafic xenoliths up to 1 cm in size 51.21-54.25 -granodiorite dike or boulder in fault; biotite-qtz-fspar 62.50-63.50 -DAC ash ultra fine grain		Nil -weak epidote at base	Trace pyrite	29001 45.11-48.11 More likely boulder lodged in fault
80.77 TO 89.61	«DAC ASH ULTRA FINES»	Colour: drab green Grain Size: ultra f.gr. Upper ctc sharp, no hornfels, homogeneous, massive ash beds; occasional thin beds	35	Nil	1-3% py; sulphide mud at top of sequence, 5-10% ultra fine grained py	
89.61 TO 94.79	FELDSPAR PORPHYRY DIKE «FPD»	Colour: lt. green, speckled Grain Size: m.gr. Massive feldspar porphyritic chaotic organization of phenocrysts; rare mafic patches 94.79 -Fault		Mod. epidote attacking fsp phenocrysts	Nil	
94.79 TO 105.46	«DAC ASH» minor lap tuff	Colour: lt. green to drab green Grain Size: v.f.gr. to m.gr. Fine grain, massive ash beds with occasional thin		Upper portion affected by moderate to	2-3% py as laminae in ash beds and as	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		beds and laminae; minor lapilli tuff bed with vague clasts of feldspar porphyritic dome material 100.73-102.60 -sulphide mud 102.60-103.20 -Andesite Dike(?); stg. chlorite and epidote	40	stg. epidote	clots or patches in LT beds 100.73-102.60 -sulphide mud, 5% ultrafine grained pyrite	299002 99.60-102.60
105.46 TO 131.06	«FPD»	Colour: Grain Size: Feldspar porphyritic massive upper section has a fragmental look occasional mafic patches, xenoliths, pitted surface		Very weak epidote	1-3% diss. pyrite in upper section; minor narrow quartz veining carrying </- 5% coarse grained pyrite @ 122.1 125.5	
131.06 TO 143.72	«DAC LT, GM S» Dacite lap tuff, minor ash	Colour: green and white mottled Grain Size: m.gr. Felsic lapilli are vague - ghostly green shardy feldspar porphyritic fiamme show proferred orientation at occasional block/bomb of fsp porphyritic dome material have reaction rims; minor ultra fine ash beds 141.35 -Fault, gouge	50 55	Nil; hematitic cherty bands in upper 2 meters	Sulphide (pyrite) fragments <1 cm in size in LT beds 143.0 -c.gr. chalcopyrite in vug	Partially welded ash flow tuff 29003 137.4-140.47
143.72 TO 191.36	«DAC FL BX» Dacite flow flow bx	Colour: Grain Size: Feldspar porphyritic lapilli size fragments in a silicified matrix; monolithic fragment supported very rare foreign frags 151.18 -Fault		«m - stg si» Moderate to strong matrix silicification feldspars are weakly epidotized	1-2% disseminated pyrite 160.92 «Cp vn» -chalcopyrite veinlet 1 cm; 1 cm vein selvages	29004 155.5-158.50 In places resembles feldspar porphyry dike Matrix silicification gives fragmental

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
						appearance; silicification due to proximity to dike? 29005 186.59-189.59
		Lower ctc conformable at	90			
191.36 TO 196.22	«DAC LT, GM S»	Colour: striped dark green and white Grain Size: m.gr. Green shardy fiamme and interstitial cherty zones (remnant felsics?) preferred orientation welded in places	65	Nil	Trace - 1% py as clots on possible fragments	Welded ash flow screen
196.22 TO 217.37	«AND LTH LT» Andesite Lithic Tuff	Colour: green with lt. green pink & white patches Grain Size: m.gr. Contact sharp -distinctive highly altered pyroclastic; characterized by abundant white felsic lithics often with weak reaction rims; matrix supported; matrix andesitic; large patches or zones of epidote and potash alteration; notable pumaceous lapilli	48	«m - stg. epi» Moderate to strong epidote alteration also pinkish alteration - could be potash or barite	«tr. cp» ⌈210.10-210.80⌋ «1-2% cp» -chalcopyrite ocurs as disseminations within felsic lithics	«gyp» gypsum/anhydrite veins, frequent magnetic 29006 197.21-200.21 29007 214-217
217.37 TO 225.60	«DAC FL?» Dacite flow or early dike	Colour: grey green Grain Size: m.gr. Massive, fsp pophyritic; affected by gypsum veinlets; phenocrysts are poorly formed Lower contact	50	Nil	Trace pyrite associated with veins	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
225.60 TO 255.33	«AND BLT» Andesite block and lap tuff	Colour: green white and yellowish green Grain Size: m.gr. Spectacular white fragment breccia; heterolithic but felsics dominate; block and lapilli size felsic lithics dominate; frag-rich; felsics have well developed reaction rims; some fragments are vesicular or scoriaceous; fragments can be angular to bomb shaped		«m epi» Moderate epi	«gyp, tc. cp/sph» Gypsum/anhydrite veins throughout some felsic lithics carry galena and most chalcopyrite occur within or close to felsic lithics	«Mill Rock» Ubiquitous mineralized dome fragments 29008 227.7-230.7
		231.4-232.81 -Early andesite dike; tr.cp., strong chlorite			237-243 -tr-15 disseminate sphalerite usually within felsic lithics	16346 242.93-243.43 -trace geochem
		249.2-256.18 -hematized zone followed by bleached zone contains numerous barren banded quartz vein		⟦249.2-254.32⟧ «stg. hem»	⟦247.27-248.27⟧ «1-2% cp» -tr-1% sph in narrow qtz vein running parallel to c.a. and as disseminations	16344 -geochem trace only 247.27-248.27
255.33 TO 263.20	«DAC FL» Dacite Flow?	Colour: lt. green Grain Size: m.gr. Massive, feldspar phyric; ghostly phenos		255.33-256.12 -upper part bleached	tr-1% py, tr cp	Possible dike
		Lower contact, faulted 3 cm gouge		256.12-258.17 -chloritized remainder fresh		
263.20 TO 267.90	«AND LT» Andesite lithic lap tuff	Colour: green and yellow green Grain Size: Matrix supported fragments affected by pervasive epidote flooding		«stg. chlor» wk-mod epidote, strong chlorite	«tr. cp» -1-2% py associated with wormy qtz veins 266.25-266.82 -qtz veinlets (wormy) plus 5% py	
267.90 TO 280.25	«DAC FL» Dacite Flow	Colour: olive green Grain Size: m.gr. Massive, fsp phyric, fsp vague; cut by gypsum on anhydrite veins		Nil	1-2% py	Possibly an early felsic dyke gypsum veining

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-cut by gypsum or anhydrite veins				-similar to 255.33 to 263.20
		Lower ctc, sharp @	70			29009 270.4-273.4
280.25 TO 320.00	«AND LTH LT » Andesite lithic lapilli tuff	Colour: green and yellowish green Grain Size: m.gr. Felsic(?) lithic rich; clasts have well developed reaction rims; some frothy scoriaceous frags; framework set in a f.gr. andesitic matrix; fragment rich but matrix supported Block and bombs are now vague and vesicles are filled with chlorite and occasionally base metal mineralization; some amygdules reach 5 mm in size		«m. chl» Epidote attacks felsic clasts and veinlet selvages Chlorite intensifies downhole	«tr-1% cp/shp» Chalcopyrite occurs as disseminations within felsic lithics as veinlets associated with sphalerite and disseminated in andesitic matrix Some vesicles filled with chalcopyrite and sphalerite	Well mineralized in upper portion 29010 291.08-294.08 29011 310.0-313.0
320.00 TO 333.00	«AND FL» Andesite Flow	Colour: dark green Grain Size: m.gr. Massive, amygdaloidal andesite flow; uninterrupted except for tuff bed at 325.50		«i chl» Intense chlorite amygdules are chlorite filled; epidote patches and vein selvage alteration	«tr sph» 321.3-322.3 -1 cm band of sphalerite quartz and 3-5% py [325.4-325.9] «tr-1% cp» -tr sph, tuffaceous horizon with numerous felsic clasts in siliceous matrix	Extreme chlorite 16345 321.3-322.3 29012 329-332
333.00 TO 387.71	«FPD» Felsic Dyke	Colour: lt. green Grain Size: m.gr. Massive, fresh, fsp porphyritic; fsp vague but up to 3 mm; shattered appearance, rare patches - poss. xenoliths		Nil	Trace to 1% pyrite	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		⌊335.75⌋ «FLT»				
		⌊345.0-348.73⌋ «FLT GGE» -fault gouge			345-349 -Fault gouge - contains 1-5% pyrite	Rock on either side of the gouge is badly shattered
					345.0-345.35 -muddy pyrite gouge	
		381.34-381.83 -Andesite dyke; epidote altered patches and vein selvages; no chills				383.51-386.51
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
16346	242.93	243.43	0.50							1475	5	461	1.7	1			
16344	247.27	248.27	1.00							12101	26	6205	2.6	1	1300		Quartz veinlet
16345	321.30	322.30	1.00							711	4	1068	1.4	2	1620		

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
29001	45.11	48.11	3.00	13.59	0.015	1.53	3.1	0.61	1.32	0.21	7.39	0.02	68.95	0.33	0.39	97.46	0.6	5	82	41	33	1	101	5
29002	99.60	102.60	3.00	13.69	0.085	0.84	3.53	1.79	2.38	0.2	5.29	0.01	68.22	0.39	1.1	97.53	0.8	5	162	15	31	1	134	5
29003	137.47	140.47	3.00	15.3	0.055	0.44	4.65	2.11	3.41	0.25	3.99	0.04	64.85	0.55	1.32	96.96	0.6	1	123	11	26	1	109	5
29004	155.50	158.50	3.00	14.43	0.02	1.3	2.93	0.73	1.86	0.18	7.25	0.03	68	0.42	0.35	97.5	0.6	8	53	23	22	1	67	10
29005	186.59	189.59	3.00	13.97	0.02	2.85	3.36	0.71	2.08	0.16	6.93	0.04	64.68	0.39	1.38	96.56	0.8	5	53	2	23	1	55	5
29006	197.21	200.21	3.00	19.21	0.005	12.04	8.24	0.05	6.53	0.79	2.42	0.09	41.42	0.51	2.48	93.79	2	1	50	298	16	1	1358	5
29007	214.00	217.00	3.00	18.72	0.01	3.11	8.11	0.38	6.68	0.57	6.11	0.11	48	0.55	1.46	93.81	1.4	1	45	614	12	1	1398	5
29008	227.70	230.70	3.00	19.5	0.005	7.79	7.79	0.02	6.95	0.67	4.77	0.09	44.59	0.53	0.72	93.41	1.8	1	21	501	11	1	376	5
29009	270.40	273.40	3.00	14.21	0.075	1.75	3.09	0.11	1.57	0.2	8.93	0.01	66.44	0.34	0.6	97.32	0.9	5	708	33	24	1	91	5
29010	291.08	294.08	3.00	17.43	0.01	7.41	9.87	0.01	7.36	0.51	2.93	0.1	47.55	0.73	0.3	94.21	2.4	1	22	787	3	1	1600	10
29011	310.00	313.00	3.00	16.18	0.01	6.87	9.3	0.16	8.71	0.17	2.86	0.11	48.55	0.69	0.34	93.96	1.9	1	20	72	3	1	78	5
29012	329.00	332.00	3.00	16.45	0.005	4.37	10.07	0.07	12.06	0.8	1.9	0.12	46.91	0.6	0.26	93.61	1.8	1	33	134	3	1	344	5
29013	354.79	357.79	3.00	13.46	0.125	1.7	2.69	3.05	1.45	0.2	4.71	0.01	68.81	0.34	0.31	96.87	0.2	9	359	8	26	1	75	5
29014	383.51	386.51	3.00	14.29	0.03	2.65	3.62	0.57	2.05	0.2	7.06	0.08	65.72	0.38	0.47	97.11	0.5	5	237	36	27	1	90	5

HOLE NUMBER: S91-05

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 9
LOCATION: NTS 92H/5

PLOTTING COORDS GRID: Ideal
NORTH: 560.00N
EAST: 9570.00E
ELEV: 355.00

ALTERNATE COORDS GRID: Vent
NORTH: 5+65N
EAST: 96+ 0E
ELEV: 355.00

COLLAR DIP: -80° 0' 0"
LENGTH OF THE HOLE: 275.84m
START DEPTH: 0.00m
FINAL DEPTH: 275.84m

COLLAR GRID AZIMUTH: 180° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: May 21, 1991
DATE COMPLETED: May 25, 1991
DATE LOGGED: May 25, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ,BQ

CONTRACTOR: F. Boisvenu Drilling
CASING: 30.5 Pulled
CORE STORAGE: Property

PURPOSE: To test coincident IP and VLF anomaly 200 m west of hole S90-01

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
61.00	-	-79° 0'	ACID	OK		-	-	-	-	-	
123.40	-	-78° 0'	ACID	OK		-	-	-	-	-	
272.80	-	-78° 0'	ACID	OK		-	-	-	-	-	
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LOGGED BY: Colin Burge

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 30.50	CASING					
30.50 TO 54.00	ANDESITE LAPILLI AND BLOCK TUFF «AND BLT»	Colour: green and pale yellow Grain Size: m. to c.gr. Felsic fragments dominate, set in an andesitic matrix; matrix supported Felsic frags often have reaction rims Abundant vesicular - pumaceous frags Lapilli size frags dominate -large fresh f.p. dome frags toward base		«m. epi» mod epidote/carbonate epidote attacks felsic fragments and crystals forming large patches 53.0-53.3 -hematite altered chert forms matrix to dome frags	«tr cp, sph» tr-1% chalcopyrite disseminated	Mill rock
54.00 TO 69.15	ANDESITE FLOW/DIKE «AND FL»	Colour: green and lt. green Grain Size: f. to m.gr. Massive -hornblende phyric -contains amygdules filled with epidote -occasional faint xenoliths of foreign frags included		Weak to moderate epi w. chlor. -hornblende have altered to chlorite	Nil	No chill margins noted however could be a dike
69.15 TO 74.35	DACITE BLOCK AND LAPILLI TUFF «DAC BLT»	Colour: lt. grey to lt. green Grain Size: m. to c.gr. -large feldspar phyric -fragment supported -andesitic matrix where present 69.7 -hematic chert beds, narrow, contorted @	40	Nil	Tr-1% py	Felsic framework unaltered
74.35 TO 76.80	ANDESITE FLOW/DIKE «AND FLOW»	Colour: green Grain Size: f.gr. -massive, vague white elliptical xx features -possibly amygdules -also faint black flecks		«m. epi» -mod. epidote, weak chlorite -epidote forms patches and also attacks veinlets forming selvedges	-1-2% disseminated pyrite -tr. cp.	-possible dike

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
76.80 TO 147.60	ANDESITE BLOCK AND LAP TUFF «AND BLT»	Colour: green and white Grain Size: f. to c.gr. -numerous large and irregular shaped felsic bombs dominate unit -dome bombs are frothy and vesicular, others massive -some have reaction rims -felsic frags dominate with occasional epidote altered mafic lapilli 77-93 -abundant lapilli to block size bombs and lithics 93-101.9 -mostly ash and lapilli size frags 101.9-107.9 -distinctive irregular felsic bombs 107.9-147.6 -lapilli size and fsp crystal tuffs, bombs less frequent -no bombs Andesite-dacite		«m. epi» -weak to med. epidote, is patchy and often attacks veinlets -moderate carbonate alteration 107.9-147.6 -mod to strong silica, fragments become harder to see 146.0-147.6 -moderate to strong chlorite	«tr. cp» -tr-1% cp, tr. sph 83-83.5 -Jasper lapilli 107.8-108.2 -1-2% cp 108.65-109.35 -large 1 x 2 cm angular pyrite frags with tr. cp 146.0-147.6 -1-25 cp as disseminations, 1-2% coarse pyrite	Mill rock 77-80: 28975 107.5-110.5: 28976 141.8-144.8: 28977
147.60 TO 161.50	QUARTZ FSP PORPHYRY DIKE «QFPD»	Colour: grey green Grain Size: f. to c.gr. -euhedral fsp and quartz eyes to 2 mm -fsp far more frequent and appear randomly oriented -fresh -contacts lost		-Nil	-tr-1% py as disseminated cubes	
161.50 TO 166.40	DACITE FLOW /DIKE «DAC FL»	Colour: white to light green Grain Size: f.gr. -some grinding at contact, possible fault -v.f. grained matrix -massive, faintly feldspar phyric otherwise homogenous		Nil	Nil	Possibly a large felsic block, poor recovery through unit

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
166.40 TO 178.90	ANDESITE BLOCK AND LAP TUFF «AND BLT»	Colour: green and white Grain Size: f. to c.gr. -mainly lapilli size felsic bombs, irregular shaped often with reaction rims -some frags frothy and pumaceous possibly more mafic in character		┤168.6-169.7├ «stg. epi» -epidote attacks felsic blocks forming large patches ┤170.7-171.8├ «stg. epi» Two zones of strong epidote alteration contain quartz veinlets no S -upper zone has green micas and a mercury mineral	«tr. sph»	As previously described 168.6-171.6: 28978
178.90 TO 275.84	DACITE FLOW /DOME «DAC FL»	Colour: lt. green Flow top breccia feldspar phyric, massive, appears as a flow breccia in upper portion but may be due to si ┤185.6-187.01├ «MD» -Andesite dike massive, dark green faintly f.p. unit possible flow 188.9-189.7 -shattered zone with some flt gouge ┤189.7├ «FLT» 189.7-190.8 -back in above mentioned mafic dike below 205 -frequent 1 cm veinlets of anhydrite 229.4-255.0 -massive, fsp crystals prominent; numerous brown flecks possible phlogopite or leucoxenes?, tr. cp and 1% py and anhydrite veinlets		Network silicification at top; gives appearance of a flow breccia ┤178.9-229.4├ «stg. si» -moderate chlor.	178.9-229.4 -tr. py 229.4-250.4 -tr. cp/sph -1-2% py as veinlets -up to 5% py associated with shattered zones in fault	Dome resembles gypsum bearing dome beneath Seneca deposit ┤205.7-275.84├ «anh» -anhydrite veins 202.7-205.7: 28979 230.1-233.1: 28980 251.46-254.46: 28981

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		255 -possible flow -contact irregular @	35	┤255.0-272├ «stg. si» strong pervasive silicification and a weak pyrite pseudo breccia, occasional brecciated zones	-1% pyrite	272.84-275.84: 28982
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
36003	101.50	102.50	1.00							32	46	53	1.7	5	11		

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
28974	41.10	44.10	3.00	18.45	0.005	6.08	9.15	0.03	5.93	0.54	5.15	0.05	48.8	.68	.25	95.11	2.7	1	12	269	8	1	214	5
28975	77.00	80.00	3.00	19.99	0.015	5.41	8.95	0.1	6.46	0.72	5.92	0.04	45.99	.64	.88	95.11	2.7	1	71	162	8	1	777	5
28976	107.50	110.50	3.00	16	0.005	5	4.23	0.01	2.02	0.3	7.07	0.02	62.27	.52	.10	97.54	1.7	1	7	225	13	1	86	20
28977	141.80	144.80	3.00	18.24	0.005	7.39	8.18	0.04	7.12	0.62	5.32	0.05	47.24	.61	.26	95.07	2.5	1	36	512	8	1	720	70
28978	168.60	171.60	3.00	16.57	0.015	4.56	10	0.35	4.65	0.57	1.35	0.03	43.82	.72	.11	82.75	1.5	1	105	21	22	1	295	20
28979	202.70	205.70	3.00	14.2	0.035	2.27	3.61	0.95	2.12	0.22	5.58	0.03	66.75	.53	.29	96.59	1.4	1	143	21	13	1	89	55
28980	230.10	233.10	3.00	14.29	0.025	2.49	3.48	0.62	1.41	0.17	6.9	0.01	66.4	.34	1.08	97.21	0.5	1	170	63	16	1	63	20
28981	251.46	254.46	3.00	13.89	0.02	3.23	3.09	0.64	1.2	0.17	6.32	0.01	67.97	.35	.53	97.40	0.9	1	113	16	12	1	56	10
28982	272.80	275.80	3.00	13.34	0.015	3.3	4.36	0.38	1.51	0.14	6.38	0.01	66.17	.47	1.55	97.62	1.3	1	49	36	15	1	57	5

MINNOVA INC.
HOLE NUMBER: S91-06 DRILL HOLE RECORD IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 3
LOCATION: NTS 92H/5

PLOTTING COORDS GRID: Ideal
NORTH: 188.00N
EAST: 9688.00E
ELEV: 278.00

ALTERNATE COORDS GRID: Vent Grid
NORTH: 1+90N
EAST: 97+10E
ELEV: 278.00

COLLAR DIP: -80° 0' 0"
LENGTH OF THE HOLE: 226.80m
START DEPTH: 0.00m
FINAL DEPTH: 226.80m

COLLAR GRID AZIMUTH: ° ' "
COLLAR ASTRONOMIC AZIMUTH: 50° 0' 0"

DATE STARTED: May 26, 1991
DATE COMPLETED: May 28, 1991
DATE LOGGED: May 28, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: BQLTK

CONTRACTOR: F. Boisvenu Diamond Drill
CASING: 6.1 m
CORE STORAGE: Property

PURPOSE: To test Vent alteration pipe 300 m west and test the 87-12 MS horizon 525 east

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DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
53.30	-	-80° 0'	ACID	OK		-	-	-	-	-	
120.40	-	-80° 0'	ACID	OK		-	-	-	-	-	
166.10	-	-80° 0'	ACID	OK		-	-	-	-	-	
208.80	-	-80° 0'	ACID	OK		-	-	-	-	-	
222.20	62° 0'	-79° 0'	TRO-PARI	OK	041+21	-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 6.10	Casing					
6.10 TO 9.10	ANDESITE ASH TUFF, LAP TUFF «AND ASH/LT»	Colour: med. green Grain Size: Coarse, granular ash, patchy finer ash, bedded @ 65-70 deg to c.a.; occasional dark green fiamme, rare epidote altered creamy white felsic fragments up to 3 cm		Patchy epidote alteration of felsic fragments	Patchy fine diss. pyrite 7.25 -3-4 mm pyrite and pyrite rich frags	
9.10 TO 14.00	DACITE LAP TUFF «DAC LT»	Colour: mottled whitish green Grain Size: c.gr. Creamy grey, marroon, and reddish green angular felsic fragments averaging less than 1 cm but occuring up to 6 cm; patchy areas of reddish white strong silicified mottled zones - possible chert fragments or chert beds?, patchy coarse granular ash tuff 11.0-11.1 JASP -red jasper fragments			<1-2% diss. py. mainly within frags occasionally diss. with matrix and within ash tuff 11.0-11.1 «Jsp+Py» -5% diss. brassy py 11.6-11.8 -3-4% py diss and as 2-3 mm frags	
14.00 TO 17.50	ANDESITE LAP TUFF «AND LT»	Colour: medium green Grain Size: f.gr. Coarse ash to fine lapilli sized andesite frags, occasionally amygduloidal, and occasional felsic fragments up to 3 cm with 1-2 mm wide reaction rims 14.0-14.25 -red jasper fragments			<1% diss py,; felsic fragments often contain fine diss. py 14.0-14.25 «Jsp+Py» -2-3% coarse brassy py	
17.50 TO 29.50	ANDESITE FLOW «AND FL»	Colour: medium to dark green Grain Size: f.gr. 5-7% green epidotized fsp phenocrysts, massive		«mod ep» Moderate epidote as epidote altered	«tr. sp» Trace sphalerite within epidote	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		23.9-25.6 -screen of andesite lapilli tuff		fsp crystals, occasional epidote veins and occasional round patches usually <1 cm, some with diffuse edges	veinlets and occasionally within epi. patches; patchy diss. pyrite 20.4-20.95 -7-8% very fine diss. pyrite	
29.50 TO 52.00	ANDESITE BLK. AND LAP TUFF «AND BLT»	Colour: mottled creamy medium green Grain Size: c.gr. Block and lapilli size, epidote-calcite altered creamy white felsic fragments, some quite frothy and more indistinct occasionally amygdaloidal andesite lapilli 51.7 -4 cm wide green fault gouge Lower contact in rubble		«str. ep-calc» -strong epidote-calcite alteration preferentially within and adjacent to felsic fragments, some epidote patches up to 40 cm wide	«tr sp» -trace sphalerite mainly as rare grains within white felsic fragments 29.6 -3 cm wide epidote vein with 2-3% sp and 3-4% py 51.5-51.7 -3-5% brassy py, up to 1% cp	
52.00 TO 121.20	DACITE FLOW /DYKE «DAC FL/DYKE»	Colour: light to medium grey green Grain Size: f.gr. 7-10% white euhedral to subheral 1-2 mm fsp crystals and crystal clusters. Massive but with a fine white pervasive stockwork which is partially calcite 75.5-76.2 -screen of dacite lapilli tuff Lower contact possibly faulted		[52.0-77.0] «wk ep» -weak epidote as 1 mm diss. grains (after mafics?) and rare veinlets and 5 mm patches (xenoliths?) -epidote decreasing below 77 m	-<1-2% diss. py, fine dark py smeared along breakage surfaces; patchy 2-3% py -1-2% diss. pyrite, tr. diss cp 76.7-77.7 -trace sp 88.5-92.5 -trace diss. sp.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
121.20 TO 122.80	ANDESITE ASH «AND ASH»	Colour: dark green Grain Size: f. to m.gr. First 30 cm abundant <1 cm rounded felsic frags; remainder of unit ash with occasional <1 cm amygdaloidal andesite fragments		Weak calcite as calcite clots in first 10 cm and occasional 1-3 mm throughout	1-2% diss. py	
122.80 TO 126.15	ANDESITE LAPILLI TUFF «AND LT»	Colour: mottled light and dark green Grain Size: Bleached felsic fragments some with diss sp and epidote corroded andesite frags in a strong epi. and calcite altered matrix		«str. ep» -strong pervasive epidote as matrix to fragments and alteration of fragments including massive sphalerite frags	«MSph Frgs» -occasional epidote altered massive sp frags up to 1 cm, minor sp diss within felsic fragments, <1% py	
126.15 TO 133.00	ANDESITE FLOW BX «AND FL BX»	Colour: dark green Grain size: f.gr. Faintly outlined pinhead chlorite amygdule frags, occasionally silicified; patchy hyaloclastite		«wk. sil» Patchy weak silification of andesite fragments imparting grey colour to some fragments; patchy grey siliceous veining/stockwork	«5-7% py, <1-1% cp» 5-7% py diss., 5 mm clots, and minor veinlets <1- locally 1% cp diss and minor veinlets CP veinlets cross-cutting lower contact	Could this correlate with the ore hosting flow breccia in the pit area?
133.00 TO 136.60	DACITE FP DYKE? «FPD?»	Colour: medium green Grain Size: f.gr. 5-7%, 1-2 mm green epidotized fsp in an aphanitic green matrix, massive 135.9-136.3 -screen of dacite lapilli tuff with dacite flow fragments		-epidote alteration of feldspars		
136.60 TO 150.45	(Q)FP DYKE «QFPD»	Colour: Grain Size: f.gr. 10-12%, 1-3 mm greenish white euhedral feldspars and patchy 1-2% angular and rounded quartz eyes,		Weak gypsum veining, weak epidote alteration of feldspars		«Gyp»

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		some which may be amygdules; occasional <1-2 cm and up to 4 cm green mafic xenoliths faulted lower contact with chloritic gypsum veining @	20			
150.45 TO 176.20	DACITE FP DYKE «FPD»	Colour: light to med. green Grain Size: f.gr. Massive, very similar to previous unit but fsp are fresher and quartz eyes are rare ┤175.1-175.3├ «FLT» @ 25 -fault zone; green milled rock, carbonate-gypsum veining parallel to clay slips @	25	Weak calcite +/- gypsum veining	<1% diss. py	
		175.3-176.2 -Andesite flow?			-5% diss. py.	
176.20 TO 188.80	«QFPD» QFP Dike	Colour: light to medium green Grain Size: f.gr. 7-10%, 1-2 mm euhedral fsp, patchy 1-2%, 1-3 mm qtz eyes; occasional <1-2 cm dark green mafic xenoliths; sharp lower contact @	45			
188.80 TO 195.55	ANDESITE LAPILLI TUFF «AND LT»	Colour: dark green Grain Size: f.gr. Indistinctly outlined andesitic fragments, occasionally chlorite amygdaloidal and <5% marroon and grey FP flow fragments up to 2.5 cm 191.75-192.7 -QFP dyke; 3-5 cm wide dyke margins of quartz and fsp crystals in a dark green glassy (quenched) groundmass 195.55 -sharp but irregular lower contact		Weak carbonate veining	Trace cp within microfractures, <1-1% diss. py	
195.55 TO 216.40	QFP DYKE «QFPD»	Colour: light to medium green Same as previous QFP dykes ┤208.9-210.35├ «DAC FL BX»				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		┤212.4-214.8├ «DAC FL BX» Screens of dacite flow breccia 208.9-210.35 -<1-2 cm fragments with a light creamy green silica matrix 212.4-214.8 -flow breccia with reddish discoloration to matrix		-weak silica flooding	-2-3% diss. py -2-3% diss. py, locally 7-10% py over 5 cm	
216.40 TO 220.80	DACITE FLOW BRECCIA «DAC FL BX»	Colour: medium green Grain Size: f.gr. Weak breccia texture pervasive reddish siliceous matrix; gradational lower contact			-<1-1% diss py	
220.80 TO 226.80	DACITE LAP TUFF «DAC LT» E.O.H.	Colour: reddish light green Grain Size: c.gr. 1-4 cm and occasional to 8 cm subrounded to subangular cream, marroon and green felsic flow fragments, possible pumice fragments, fragment supported, massive			Trace diss. py, rare fragments with 5-10% diss. py	

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
36004	10.70	11.40	0.70							114	57	126	.6	5	311		
36005	14.00	14.40	0.40							322	71	305	.6	5	87		
36006	122.80	124.45	1.65	.099	.01	.34	2.9			1007	57	2671	2.1	5	26		MS Clasts
36007	124.45	126.15	1.70	.062	.01	.39	2.6			596	57	3056	2.4	10	13		MS Clasts

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
28983	10.00	13.00	3.00	13.55	0.17	1.33	4.75	1.33	2.66	0.24	4.32	0.01	67.33	0.41	0.82	96.91	1.6	1	602	107	191	1	230	10
28984	35.10	38.10	3.00	19.35	0.005	12.34	9.23	0.07	4.65	0.71	2.33	0.01	45.51	0.59	0.27	95.06	2.5	1	16	64	136	1	792	5
28985	65.50	68.50	3.00	13.32	0.135	3.15	3.04	0.52	1.35	0.18	5.5	0.01	69.85	0.3	0.8	98.14	1	1	719	89	21	1	90	5
28986	96.00	99.00	3.00	14.02	0.115	3	3.47	0.57	1.34	0.21	5.72	0.01	68.09	0.36	1	97.89	1.5	1	925	19	30	1	334	5
28987	122.00	122.70	0.70	16.43	0.01	3.61	10.01	0.38	7.23	0.7	3.8	0.01	49.76	0.73	0.98	93.63	0.9	1	46	543	13	1	373	5
28988	126.50	129.50	3.00	17.03	0.005	3.6	10.74	0.36	7.96	0.71	3.19	0.02	49.28	0.77	1.33	95.01	1.9	1	17	386	19	1	288	5
28989	160.00	163.00	3.00	13.58	0.115	2.85	3.62	0.94	1.43	0.2	5.42	0.01	67.91	0.31	1.3	97.68	0.7	1	844	35	15	1	82	5
28990	189.00	191.50	2.50	15.75	0.285	1.86	8.42	0.45	7.07	0.56	4.34	0.01	55.34	0.7	0.55	95.34	1.6	1	36	66	6	1	226	5
28991	222.00	225.00	3.00	13.86	0.135	1.79	4.96	1.95	3.54	0.29	3.41	0.08	65.47	0.73	0.58	96.79	1.1	1	273	12	15	1	133	5

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: S91-07

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 3
LOCATION: NTS 92H/5

PLOTTING COORDS GRID: Ideal
NORTH: 200.00N
EAST: 9410.00E
ELEV: 280.00

ALTERNATE COORDS GRID: Vent
NORTH: 2+15N
EAST: 94+50E
ELEV: 280.00

COLLAR DIP: -75° 0' 0"
LENGTH OF THE HOLE: 211.80m
START DEPTH: 0.00m
FINAL DEPTH: 211.80m

COLLAR GRID AZIMUTH: ° ' "
COLLAR ASTRONOMIC AZIMUTH: 50° 0' 0"

DATE STARTED: May 28, 1991
DATE COMPLETED: May 31, 1991
DATE LOGGED: May 31, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: BTLTK

CONTRACTOR: F. Boisvenu Drilling Ltd.
CASING: 12.2 meters
CORE STORAGE: Property

PURPOSE: 250 m east strike extension of massive sulphides in hole 87-12. (Hole open to 209 meters.)

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
47.20	-	-73° 0'	ACID	OK		-	-	-	-	-	
100.60	-	-73° 0'	ACID	OK		-	-	-	-	-	
131.10	-	-73° 0'	ACID	OK		-	-	-	-	-	
181.30	-	-73° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 12.20	Casing					
12.20 TO 20.00	DACITE DYKE «FD»	Colour: light green Grain Size: f.gr. Pervasive shattered and milled texture, fine white veinlet stockwork very rubbly core, recovery?			2-3% py mainly as mm veinlets which often act as breakage surfaces, some with smeared pyrite slickensides	
20.00 TO 22.85	ANDESITE LAP TUFF «AND LT»	Colour: dark green Grain Size: f.gr. Extremely rubbly core, occasional <2 cm frothy creamy green rounded fragments		«wk ep» 3-5% diss, 1-3 mm epidote clots, possibly after feldspars, and as epidote amygdules within some frags	trace cp, py	
22.85 TO 28.50	DACITE FP DYKE «FPD»	Colour: tight green Grain Size: f.gr. Similar to previous dyke, pervasive milled texture patchy 3-5% epidote and hematite altered fsp crystals, very rubbly core		Weak epidote and hematite alteration of fsp	24.0-24.5 -minor dark grey muddy, smeared pyrite	
28.50 TO 31.20	ANDESITE DYKE «AND DYKE»	Colour: dark green Grain Size: f.gr. 4-5% epidote altered fsp crystals, minor white calcite veinlets, hematite fracture coatings massive		epidote altered fsp crystals		
31.20 TO 36.80	DACITE FP DYKE «FD»	Colour: light green Grain Size: f.gr. Same as previous dacite dykes; still retains pervasive milled texture with fine white veining stockwork		Patchy epidote alteration of mafic crystals	Patchy 1-2% diss. py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
36.80 TO 44.80	ANDESITE FLOW «AND FL»	Colour: dark green Grain Size: f.gr. Amygdaloidal with mainly rounded epidote amygdules minor amygdules with chalcopyrite, quartz and chlorite 42.2-43.9 -lighter green more dacitic appearance, possible flow breccia		«mod ep» moderate epidote as epidote filled amygdules, diss. epidote grains, and irregular epidote veining	«1% cp» <1% chalcopyrite mainly within amygdules, minor 1-3 mm clots; patchy 3-4% brassy py diss. aggregate and irregular veining 42.8-43.4 -10-15% coarse brassy py veining	
44.80 TO 63.90	QUARTZ-FSP-HORNBLENDE PORPH DIKE «QFPD»	Colour: light grey green Grain Size: f.gr. 5-7%, 1-3 mm white fsp crystals, 1-3% up to 3 mm epidote altered mafic (hornblende) laths occasional angular quartz eyes, massive but with weak milled texture, weak fine white carbonate veining Upper contact 10 cm strong milled and fragmented texture 59.0-63.9 -gradual color change to dark green andesitic appearance; epidote increases, fsp content decreases lower contact in rubble		epidote alteraton of mafic crystals	trace pyrite	Zoned dyke; FP core, andesitic margin
63.90 TO 149.05	DACITE FLOW /DOME «DAC FL/DOME»	Colour: light to med. green Grain Size: f.gr. Massive, very weak patchy mottled texture, 2-3%, <1-1 mm greenish epidote altered flecks; very weak calcite veining [71.2-74.75] «FHP DYKE» -same as previous dyke with darker green andesitic lower dyke margin [96.3-101.0] «FLT?» -possible fault zone?, brecciated milled texture, numerous anastamosing grey smeared sulphide veinlets		 -patchy weak epidote	<1% py 96.3-101.0 -5-7% py diss and smeared veinlets	Much finer grained and more siliceous then previous dyke

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
					103.7-105.35 -brecciated, 5% coarse brassy py veining, patchy associated bleaching	
		Below 122 m -patchy, strong brecciated appearance increased, white carbonate veining		╢127.6-149.05╟ «WK ANH» -very minor 1-2 mm wide anhydrite veinlets		
		Faint but sharp lower contact @	35			
149.05 TO 163.90	FELDSPAR PORPH DYKE «FPD»	Colour: light green Grain Size: f.gr. 5-7%, 1-3 mm white fsp crystals and crystal aggregates, 1-3%, <1-1 mm dark green mafic flecks in an aphanitic groundmass, strongly brecciated with a fine white carbonate? stockwork 158.4-160.4 -Andesite dyke, dark green, 5-7%, 1-3 mm epidote clots, minor epidote veining 163.9 -lower contact in rubble, possible faulted - clay slips along broken core surfaces		trace anhydrite veinlets	trace pyrite	
163.90 TO 169.90	RHYOLITE «RHY»	Colour: beige green Grain Size: f.gr. Faint, <1-1 mm ghosted grains, moderate brecciated appearance with fine white partially calcite stockwork Strong silicified appearance 169.2-169.9 -spotted hornfels?, appearance or possible spherulies? <5 mm		strongly silicified trace anhydrite veining	<1% diss py	Large xenolith within surrounding FP Dyke?
		sharp lower contact @	40			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
169.90 TO 178.10	FSP PORPH DYKE «FPD»	Colour: light green Grain Size: f.gr. Same as previous FP dyke; up to 10% fsp crystals, rare quartz eyes Sharp lower contact @	62			
178.10 TO 210.20	DACITE FLOW «DAC FLOW»	Colour: medium green Grain Size: f.gr. Same as previous dacite flow from 63.9-149.05 -patchy flow breccia texture over 50 cm widths 198.8-199.7 -FP Dyke 203.0-205.0 209.0-210.2 -weak bleaching, weak flow breccia texture 205.0-209.0 -Andesite dyke -up to 10%, 2-4 mm epidote clots with a 1.1 m more clastic FP core sharp lower contact @	20	«ANH» -fairly abundant anhydrite veins from 1-8 mm wide; minor calcite veinlets, minor calcite within anhydrite veins	-patchy coarse brassy py aggregate and occasional brassy py veinlets	
210.20 TO 211.80	FELDSPAR PORPH DYKE «FP DYKE» E.O.H.	Colour: med. grey green Grain Size: f.gr. 10%, 1-2 mm fsp, 1-3%, <1 mm green mafic flecks, massive, 20 cm brecciated and veined upper contact				

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
	0.00	0.00	0.00														

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
28992	38.10	41.10	3.00	16.23	0.02	4.39	10.31	0.33	6.44	0.62	3.46	0.06	51.42	0.72	1.66	95.66	1.8	1	24	1916	1	1	252	5
28993	77.50	80.50	3.00	14.16	0.015	2.7	3.54	0.57	1.89	0.19	5.89	0.01	67.22	0.51	0.35	97.04	1.3	1	28	34	16	1	60	5
28994	108.00	111.00	3.00	14.06	0.025	3.42	3.79	0.39	1.79	0.22	5.74	0.01	66.23	0.51	0.7	96.88	1.2	1	151	33	9	1	57	5
28995	138.70	141.70	3.00	14.09	0.02	3.75	3.27	0.66	1.65	0.18	5.03	0.01	67.3	0.52	0.49	96.96	1.5	1	52	45	11	1	54	5
28996	166.00	169.00	3.00	11.62	0.06	3.6	1.57	1.5	0.47	0.06	3.78	0.01	73.06	0.12	1.15	96.98	0.7	13	100	50	10	1	90	10
28997	181.50	184.50	3.00	12.66	0.015	3.6	4.19	0.51	1.86	0.17	5.36	0.01	65.49	0.43	2.27	96.55	0.5	1	23	22	19	1	58	5

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: S91-08 | IMPERIAL UNITS: | METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: NTS 92H/5

PLOTTING COORDS GRID: Ideal
NORTH: 99.00N
EAST: 9136.00E
ELEV: 261.00

ALTERNATE COORDS GRID: Vent
NORTH: 1+20N
EAST: 91+85E
ELEV: 261.00

COLLAR DIP: -80° 0' 0"
LENGTH OF THE HOLE: 221.90m
START DEPTH: 0.00m
FINAL DEPTH: 221.90m

COLLAR GRID AZIMUTH: 180° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: May 31, 1991
DATE COMPLETED: June 4, 1991
DATE LOGGED: June 4, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: YES
PLUGGED: NO
HOLE SIZE: BQLTK

CONTRACTOR: F. Boisvenu Drilling
CASING: 61.0 m
CORE STORAGE: property

PURPOSE: Test massive sulphides in 87-12 125 meters south. (Hole open to 202 meters)

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
124.40	-	-81° 0'	ACID	OK		-	-	-	-	-	
173.70	-	-80° 0'	ACID	OK		-	-	-	-	-	
215.80	-	-80° 0'	ACID	OK		-	-	-	-	-	
217.30	234° 0'	-80° 0'	TRO-PARI	OK	213+21 deg. decl.	-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 61.00	Casing					
61.00 TO 87.50	DACITE FP FLOW, FLOW BRECCIA «DAC FLBX»	Colour: medium green, patchy mottled light green Grain Size: f.gr. 2-3%, 1-2 mm white fsp crystals; fairly common flow breccia texture with patchy mottled light creamy green silicification; patchy secondary brecciation 83.96-84.0 «FLT @ 55 deg» -faulted lower contact @ -4 cm green strongly sheared clay gouge 84.0-87.5 -possibly part of underlying dyke; weak mottled reddish green colour lower contact rubbly, dark green, minor carbonate veining @	55 40	weak silicification	trace pyrite	
87.50 TO 118.30	DACITE FSP PORPH DYKE «FPD»	Colour: light green Grain Size: f.gr. 3-5%, locally 10%, 1-2 mm white fsp, patchy <1-2%, 1-2 mm rounded and angular quartz eyes Moderate to strongly brecciated, fine white silica and carbonate stockwork; patchy crushed milled zones 99.1-100.0 -rubbly core poor recovery, possible fault zone, -fault @ lower contact in rubble	45			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
118.30 TO 134.90	ANDESITE DYKE? «AND D»	Colour: medium green Grain Size: f.gr. 1-3%, <1-1 mm dark green mafic clots, rare larger clots which resemble mafic xenoliths, weak pervasive brecciation 123.45-124.95 «AND LT» -fragmental intervals angular flow frags, darker green andesitic matrix		Patchy 1-3% up to 5 mm disseminated epidote clots	<1% diss. py, occasional smeared pyrite along slip planes	Check lithogeochemistry # 29000
134.90 TO 144.80	DACITE FSP PORPH DYKE «FPD»	Colour: medium green Grain Size: f.gr. 5-7%, 1-2 mm fsp, rare quartz eyes, rare mafic xenoliths, trace anhydrite, occasional smeared py slips sharp lower contact @	50			
144.80 TO 148.30	ANDESITE DYKE «AND D?»	Colour: medium green Grain Size: f.gr. Similar to unit from 118.3-134.9 but lacking weak epidote alteration Massive, 3-5%, 1-3 mm mafic clots, some resembling xenoliths 146.1 -2 cm smeared pyrite, fault @	25	«ANH VNS» Anhydrite veins common	1-2% diss py, occasional mm py veinlets	Flow or Dyke?
148.30 TO 149.55	DACITE ASH TUFF & AND FLOW «ASH/AND FL»	Colour: f.gr. Grain Size: 148.3-148.9 -poorly bedded dacite 148.9-149.55 -Andesite flow, dark green, massive chlorite				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		amygdules in last 20 cm				
149.55 TO 188.10	DACITE ASH, ASH TUFF, ULTRAFINES PYRITIC ASH EXHALITE «DAC ASH»	Colour: light to medium green Grain Size: aphanitic to medium grained Massive to finely laminated aphanitic to fine grained ashes, interbedded with finely laminated to thinly bedded pyritic ashes, rare solid py laminations, occasional coarser ash tuffs, and minor chert Erosional basal contacts, flame structures and fining up hole sequences all indicate tops up hole 163.55-168.5 -overall increase in grain size; dominantly medium to coarse grained ash tuffs interbedded with pyritic ashes Bedding measurements: 152.5 m @ 60 155.0 m @ 65 168.2 m @ 65 176 m @ 70 176.95-188.1 -massive aphanitic ashes with a fine darker stockwork; occasional < 20 cm coarser grained tuff intervals		Occasional anhydrite veinlets	┤149.55-176.95├ «Py Lam» -1-2 mm laminations and up to 10 cm dark grey beds of ash with abundant very fine grained diss. pyrite, traces cp, sp? -1-2% diss. py within coarser grained tuff intervals	
188.10 TO 195.90	DACITE ASH & CRYSTAL TUFF, ASH FLOW «DAC ASH FL »	Colour: speckled light green Grain Size: medium to coarse grained Massive, medium ash grading down hole into coarser grained quartz and fsp phyric crystal tuffs, overall 5-10% dark green vitric grains occasionally up to fine lapilli; quartz and fsp contents increase down hole, up to 10% fsp and >5% quartz eyes Sharp lower contact @ 50			Trace diss. pyrite	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
195.90 TO 205.60	ANDESITE DYKE «AND DYKE»	Colour: dark green Grain Size: m. to c.gr. 2.0-2.5 -finer grained margins with chlorite amygdular feldspar phyric cores 10-12% up to 5 mm green white crystals = fsp magnetic core to dyke from 199.15-204.55		«Anh» Occasional anhydrite veins		
205.60 TO 207.55	ANDESITIC LITHIC TUFF «AND LT»	Colour: medium to dark green Grain Size: f.gr. 205.6-206.7 -rip up clasts? of dacite ash and rare dacite flow frags in an andesitic matrix 206.7-207.55 -dacite ash, massive, minor mixing with FP dyke			-<1% py	-possible flow top breccia or fragmentation along dyke margin
207.55 TO 221.90	QFP DYKE «QFPD» E.O.H.	Colour: light green Grain Size: f. to m.gr. 7-10%, 1-2 mm white euhedral fsp, 2-5%, <1-1 mm, occasionally larger, angular quartz eyes, 2-4% dark green, 1-2 mm clots and occasional 1-2 cm dark green mafic xenolith, massive		«Anh» -weak to moderate anhydrite veining	-trace py	

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
36008	154.20	155.80	1.60							41	39	127	1.0	5	58		
36009	170.20	171.60	1.40							30	35	101	1.0	5	59		
36010	171.60	173.00	1.40							86	35	86	.9	5	51		
36011	173.00	173.90	0.90							61	49	131	.7	5	6		
36012	173.90	174.90	1.00							39	42	129	.6	5	4		
36013	174.90	176.05	1.15							19	37	89	.7	5	29		
36014	176.05	176.95	0.90							17	30	48	.8	5	81		

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
28998	66.50	69.50	3.00	13.64	0.075	1.61	2.5	0.8	1.54	0.17	5.77	0.01	71.25	0.33	0.11	97.79	1.8	1	264	21	16	1	83	5
28999	100.00	103.00	3.00	13.28	0.05	1.82	2.37	1.83	2.09	0.09	3.59	0.01	70.98	0.3	0.27	96.66	0.8	1	160	10	11	1	48	5
29000	125.00	128.00	3.00	16.09	0.015	2.92	4.62	0.27	2.6	0.18	7.44	0.05	62.08	0.57	0.19	97.02	1.5	1	50	79	29	1	123	5
29026	157.90	160.90	3.00	13.42	0.1	0.78	3.22	2.61	3.6	0.15	1.18	0.01	70.47	0.31	0.57	96.41	0.6	1	74	10	11	1	78	5
29027	191.00	194.00	3.00	14.85	0.08	1.03	3.4	2.46	4.03	0.16	2.48	0.01	66.44	0.38	0.4	95.71	0.7	1	91	25	8	1	84	5

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: S91-09 IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 9
LOCATION: NTS 92H/5

PLOTTING COORDS GRID: Ideal
NORTH: 381.00N
EAST: 9138.00E
ELEV: 304.00

ALTERNATE COORDS GRID: Vent Grid
NORTH: 3+85N
EAST: 91+75E
ELEV: 304.00

COLLAR DIP: -90° 0' 0"
LENGTH OF THE HOLE: 206.65m
START DEPTH: 0.00m
FINAL DEPTH: 206.65m

COLLAR GRID AZIMUTH: 180° 0' 0" COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: June 5, 1991
DATE COMPLETED: June 8, 1991
DATE LOGGED: June 8, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: YES
PLUGGED: NO
HOLE SIZE: BQLTK

CONTRACTOR: F. Boisvenu Drilling
CASING: 18.9 m
CORE STORAGE: Property

PURPOSE: Test massive sulphides in 87-12 200 meters north, (Hole open to 160 meters)

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
61.00	-	-90° 0'	ACID			-	-	-	-	-	
103.60	-	-90° 0'	ACID			-	-	-	-	-	
146.30	-	-90° 0'	ACID			-	-	-	-	-	
202.10	0° 0'	-87° 0'	TRO-PARI		compass stuck in housing	-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 18.90	Casing					
18.90 TO 21.30	QUARTZ FSP PORPH DYKE «QFPD»	Colour: medium green Grain Size: f. to m.gr. 7-10%, 1-3 mm euhedral white fsp, <1-3% quartz eyes; massive lower contact possibly	43			
21.30 TO 38.90	DACITE FLOW «DAC FL»	Colour: light green Grain Size: f.gr. 5% <1-2 mm faint whitish euhedral fsp crystals, 1-3% <1 mm tan flecks (leucoxene?) massive, local flow breccia texture 32.9-34.2 -FP Dyke 34.2-36.0 -broken core, weak shattered appearance, faulted at 36.0 m @	15	Patchy moderate bleaching	Trace diss cp, <1% diss py, occasional py slips	Feldspars much fainter than previous dyke
38.90 TO 45.40	ANDESITE LAP TUFF «AND LT»	Colour: medium to dark green Grain Size: f. to c.gr. 15-20%, <1-3 cm white frothy subangular felsic fragments and less distinct andesite frags, occasionally chlorite amygdaloidal Lower contact in rubble		«m ep» moderate epidote altering felsic frags and occurring as abundant 2-5 mm and up to 1 cm disseminated clots	Trace cp and <1% py within felsic fragments 39.35 -large cp clots associated with large epidote patches; occasional coarse brassy py clots	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
45.40 TO 57.40	DACITE FLOW «DAC FL»	Colour: light green Grain Size: f.gr. 3-5%, <1-1 mm faint white fsp crystals in an aphanitic groundmass, massive, increasing shattered appearance towards lower contact Faulted lower contact			<1-2% diss py, patchy 3-5 cm zones of up to 10% diss. py, trace cp	
57.40 TO 62.25	FELDSPAR PORPHYRY DYKE «FPD»	Colour: light green Grain Size: f. - m.gr. 10%, 1-3 mm white fsp crystals, overall <1% qtz eyes, locally 1-2%; rare dark green mafic xenoliths 15 cm milled gougy upper contact darker green, more andesitic looking lower dyke margin, lower contact in rubble		Patchy weak epidote alteration of fsp	Trace pyrite	
62.25 TO 206.65	DACITE FLOW /DOME «DAC FL/DOME»	Colour: light green Grain Size: f.gr. Continuation of previous flow; fairly pervasive mottled flow breccia texture with patchy massive sections; fsp locally absent 62.25-66.1 -brecciated overprinted with fine grey silica stockwork 70.9-75.9 -Fault zone; crushed milled zone with anastamosing fault gouge 71.4-71.55 «FLT @ 30» -15 cm fault gouge with sharp contact @ 30 91.4-118 -strong shattered appearance with gougy milled fault zones as follows: 95.0-96.0 «FLT» -gougy milled zone, sharp upper contact @ 30		Local weak epidote alteration of fsp trace anhydrite - calcite veining	62.25-66.1 -5-7% fine diss. pyrites, patchy coarse brassy py clots and narrow veinlets, trace sp with coarse brassy py Overall <1% diss. py; occasional <5 cm patches of fine pyrite, occasional coarse py aggregates and veinlets	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		⟨100.2-102.0⟩ «FLT» -gougy milled zone, sharp slip surface at: 101.8 m @ 102.0 m @	 25 25			
		112.2-117.7 -possible more andesitic composition or alteration of dacite flow - green epidote alteration of fsp crystals				
		⟨144.9-151.95⟩ «AND DYKE» -andesite dyke; dark green, 5% green epidote altered fsp, massive, <10 cm faint marroon coloure margins		-epidote alteration of feldspars, <1%, 1-4 cm epidote patches		
					152.4-153.4 -moderately bleached interval with patchy 5-7% fine diss. py	
		153.4-160.6 -well developed mottled flow breccia texture				
		160.6-160.9 -screen of dacite lapilli tuff; well packed angular 5 mm - 1 cm dacite flow fragments			-2-3% diss. py	
		172.4-182.5 -good mottled flow breccia texture				
				⟨187.5-191.4⟩ «Anh» -trace anhydrite veining		
		⟨192.8-192.9⟩ «FLT @ 25» -10 cm fault gouge zone, sharp lower contact @	 25			
		198.8-206.65 -medium grey green coloration, fsp absent, first 1.8 m strong fragmental (flow breccia) texture with possible sphalerites; remainder of unit aphyric and massive, moderate brecciated overprint with fine white carbonate stockwork				
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
	0.00	0.00	0.00														

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
29028	23.50	26.50	3.00	13.18	0.055	2.94	2.08	0.58	0.5	0.1	5.59	0.01	70.79	0.28	0.5	96.6	0.4	7	431	13	23	1	58	10
29029	42.00	45.00	3.00	18.94	0.005	6.62	8.5	0.12	5.73	0.53	4.8	0.01	48.69	0.63	0.46	95.01	1.7	1	14	244	8	1	281	5
29030	78.60	81.60	3.00	14.83	0.105	2.15	3.88	1.56	1.98	0.31	5.34	0.01	66.34	0.54	0.5	97.54	1.3	1	188	8	11	1	147	10
29031	106.00	109.00	3.00	14.96	0.035	2.54	3.2	0.62	1.7	0.26	6.41	0.01	66.05	0.55	0.3	96.62	1.5	1	251	138	11	1	105	5
29032	136.50	139.50	3.00	15.04	0.06	1.65	3.87	0.82	2.14	0.29	6.72	0.01	65.49	0.57	0.46	97.11	1.6	1	168	9	8	1	124	5
29033	170.00	173.00	3.00	14.2	0.01	2.29	3.37	0.16	1.66	0.24	7.34	0.01	67.7	0.48	0.46	97.91	1.6	1	61	6	14	1	88	5
29034	201.00	204.00	3.00	12.48	0.085	3.39	1.49	1.58	0.56	0.07	3.76	0.01	72.15	0.22	0.3	96.08	0.9	10	469	7	9	1	22	10

HOLE NUMBER: S91-10

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: NTS 92H/5

PLOTTING COORDS GRID: Ideal
NORTH: 284.00N
EAST: 8930.00E
ELEV: 283.00

ALTERNATE COORDS GRID: Vent
NORTH: 3+ 0N
EAST: 89+85E
ELEV: 283.00

COLLAR DIP: -75° 0' 0"
LENGTH OF THE HOLE: 246.30m
START DEPTH: 0.00m
FINAL DEPTH: 246.30m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: June 8, 1991
DATE COMPLETED: June 11, 1991
DATE LOGGED: June 11, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: YES
HOLE SIZE: BQLTK

CONTRACTOR: F. Boisvenu Drilling
CASING: 22.9 m
CORE STORAGE: On Site

PURPOSE: Test massive sulphides in hole 87-12 250 m to the west. (Dummy probe stuck at 55 m)

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
67.10	-	-75° 0'	ACID	OK	
115.20	-	-75° 0'	ACID	OK	
152.40	-	-75° 0'	ACID	OK	
194.50	-	-75° 0'	ACID	OK	
241.70	238° 0'	-74° 0'	TRO-PARI	OK	217 + 21

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
-	-	-	-	-	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 22.90	Casing					
22.90 TO 105.10	FELSIC DYKE «FD»	Colour: light brown, patchy, med. grey Grain Size: f.gr. Locally <1-1 mm, <1-3% euhedral calcite altered feldspars, patchy <1-2 mm pitted amygdules/ vesicles, which occasionally are calcareous, <1 to locally 2-3%, < 1 mm chlorite flecks and laths (amphiboles) Massive, very fine grained groundmass ╟63.8-66.1╢ «FLT» @ 40 deg -fault zone, shattered and milled, patchy pale green siliceous stockwork, weak calcite veining 64.1 -fault gouge @	40	Calcite alteration of feldspars; soft pink mineral (zeolite) along breakage surfaces		Massive - no flow textures
		66.1-105.1 -2-5% sericite - calcite altered feldspars and 2-5% green chlorite-calcite altered 1-3 mm mafic clots (amphiboles) Sharp lower contact, slightly irregular @	25	-calcite - sericite alteration of fsp, chlorite-calcite altered mafics		
105.10 TO 127.45	DACITE FLOW «DAC FL»	Colour: light green Grain Size: v.f.gr. Massive, aphyric, weak, very fine white veining stockwork 10-15 cm wide fault gouge zones as follows: 115.4 125.9 127.0 111.5-113.1 -mafic dyke, dark green fine grained, massive, fine calcite amygdules, 60 cm fault gouge at upper contact, indistinct lower contact 113.1-116.8		Trace anhydrite	Trace py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-felsic dyke, same as previous unit but lacking abundance of altered fsp and mafics, trace anhydrite veinlets				
127.45 TO 160.35	FELDSPAR PORPHYRY DYKE «FP DYKE»	Colour: light green Grain Size: f. to m.gr. 7-15%, 1-3 mm euhedral fsp and fsp clusters, 1-3% dark green mafic clots with leucoxene? flecks, few which look like hornblende laths, occasional > 1 cm mafic xenoliths, rare quartz eyes, massive, fine white carbonate veining [142.4-149.15] «AND DYKE» -Andesite dyke -medium to dark green, 3-75, 1-3 mm epidote altered crystals (mafics?), faint white feldspars, massive, sharp upper contact @ 60 156.65-160.35 -dyke margin, slightly darker colour, epidote alteration of feldspars and xenoliths		Patchy weak epidote alteration of fsp		
160.35 TO 162.50	DACITE FLOW BRECCIA «DAC FLBX»	Colour: pale green Grain Size: f.gr. Block and lapilli size fragments of bleached pale green dacite flow with ghosted feldspars, tightly packed Numerous 1-3 cm gougy zones and interfragmental gouge; shearing and fault increase below 161.9 m last 25 cm strongest shearing, convoluted layering C-S fabric, shearing @ 55		Strong bleached altered appearance	Local interfragmental pyrite Smeared sulphides producing laminated green black layering	
162.50 TO 163.85	MASSIVE & FRAGMENTAL SULPHIDES «MS»	Colour: dark grey Grain Size: f.gr. 162.5-162.88 -massive sulphides with approx. 15% felsic frags; sulphides cut by fine anhydrite veining Possible bedding at top of unit @ 60-65 deg			-20% sp, 15-20% py, 1-2% cp, patchy 1-2% galena	-weakly conductive

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		162.88-163.85 -sulphides becoming sheared, brecciated into fragments and mixed wiht a chloritic gougy matrix 163.45-163.8 -orange fwhite irregular broken veining, possible barite? Sharp lower contact @	53			
163.85 TO 173.20	FELDSPAR PORPHYRY DYKE «FPD»	Colour: light green Grain Size: f.gr. 5-10%, 1-2 mm white fsp crystals, <1-2% green mm chlorite flecks and larger xenoliths Massive but becoming shattered with fault gouge zones below 170.0 m 170 m -10 cm fault gouge @ 171.3-171.5 -green fault gouge with <5 mm pyrite and sphalerite fragments 172.6 -smeared sphalerite slip surfaces, minor gouge @ Minor gouge and smeared sulphides along lower contact	20 30 33	Minor anhydrite veining	Rare mm wide py veinlets	
173.20 TO 220.80	ALTERED & MINERALIZED DACITE FLOW /DOME «DAC FL»	Colour: med. grey to light green at end of unit Grain Size: fine grained Massive, patchy autobrecciation and flow banding brecciated with fine sulphide stockwork and sulphide flooding 174.55-175.8 -FP dyke, fresh trace py and cp, sharp upper contact @ sharp lower contact @	30 60	173.2-190.0 -feldspars altered to soft light green sericite -below FP dyke fsp patchy	⫞173.2-189.1⫟ «Sph/cp Stkwk» <1-2% diss black and straw coloured sphalerite, <1-1% diss. cp, 10-20	Stockwork and sulphide good conductors

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
				below 190 patchy fresher sharper outlined feldspars	diss and stringer py 177.8-182.3 -well developed fine py-sp-cp stockwork 10-20% diss and stringer py, 2-3% sp, <1-1% cp 183.65-189.1 -weaker py-cp-sp stockwork with 8 cm semi-massive zone at 188.8 m 189.1-211.6 «Py Stkwk»	
				202.0-220.8 -occasional carbonate-anhydrite veining	-10-25% fine py as 1-4 mm wide stringers, trace straw coloured sphalerite, and very fine diss py flooding throughout	
				215.0-220.8 -bleached, light green colour, fsp ghosted		
		220.4-220.8 -bleached dacite flow frags and hyaloclastite with sheared appearance Sharp lower contact @	55		220.4-2520.8 -<1% diss. sp, trace gn	
220.80 TO 234.20	FELDSPAR PORPHYRY DYKE «FPD»	Colour: med. green Grain Size: f. to m.gr. 10%, 1-3 mm white fresh feldspar phenocrysts, 1% 1-3 mm mafic grains and occasional 1-2 cm mafic xenoliths, massive Lower contact @	30	Anhydrite veining common		
234.20 TO 235.20	DACITE FLOW «DAC FL»	Colour: light green Grain Size: f.gr. Massive, 5-7% faint ghosted light green altered fsp crystals in an aphanitic groundmass 234.85-235.05		Serite? altered fsp -trace anhydrite veining	234.8-235.05	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-lapilli tuff, weakly bleached, dacite flow frags and <1%, 3-4 mm py-sp fragments			-<1%, 3-4 mm py-sp fragments	
235.20 TO 235.70	MASSIVE SULPHIDES «MS»	Colour: black, green, grey Grain Size: f.gr. 15 cm of massive py-sp-cp mixed with strongly altered dacite flow fragments 235.35-235.7 -gougy fragmental to stringery textured pyrite and sphalerite, approx 1-2% Zn -fault gouge at upper and lower contacts upper @ lower @	 70 50		-first 15 cm, 2% Cu, 5% Zn	Lower horizon! Good conductor over 15 cm width
235.70 TO 240.50	DACITE FLOW BRECCIA «DAC FLBX»	Colour: mottled light green Grain Size: f.gr. Very faint possible feldspars, mottle flow breccia texture 236.55 -5 cm fault gouge @ 240.5 -sharp lower contact @	 60 55	Weak anhydrite veining, fairly fresh appearance	235.7-236.6 -5-7% fine brassy pyrite diss and fine stockwork	
240.50 TO 246.30	FELDSPAR PORPHYRY DYKE «FPD»	Colour: medium green Grain Size: f. to m.gr. 5-10%, 1-3 mm white feldspars, 2-4% green, <1 mm mafic flecks and locally 2-3%, 5 mm - 1 cm mafic xenoliths -massive		Below 244 - 1-2% diss epidote		Dummy probe stuck in hole at 55 m
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm	COMMENTS
36015	161.70	162.50	0.80	.02	.01	.08	4.5	.03	.05							
36016	162.50	163.20	0.70	1.34	.79	21.8	42.4	.93	.48							MASSIVE SULPHIDES
36017	163.20	163.85	0.65	.31	.02	5.12	14.3	.34	.11							MASSIVE SULPHIDES
36018	163.85	164.70	0.85	.01	.01	.05	0.6	.03	.06							
36019	173.20	174.55	1.35	.024	.22	.40	15.9			225	1692	3679	15.9	90	212	
36020	174.55	175.80	1.25							140	40	889	2.4	20	913	
36021	175.80	176.80	1.00	.299	.03	2.80	28.2			2912	240	25152	30.0	140	34	
36022	176.80	177.80	1.00							81	287	1463	10.3	90	85	
36023	177.80	179.30	1.50	.229	.03	3.23	16.0			1767	266	25562	15.3	10	52	
36024	179.30	180.80	1.50	.128	.03	1.89	10.0			1545	229	19333	9.7	60	121	
36025	180.80	182.30	1.50	.076	.02	1.54	8.8			823	65	14374	5.7	65	131	
36026	182.30	183.80	1.50							241	16	1631	1.7	25	254	
36027	183.80	185.30	1.50	.492	.04	9.90	20.2			4956	440	90040	22.1	60	79	
36028	185.30	186.80	1.50	.359	.01	1.23	10.0			3641	35	10794	6.2	40	81	
36029	186.80	188.30	1.50	.138	.01	.88	3.1			1441	34	8708	3.4	40	211	
36030	188.30	189.10	0.80							1307	20	1390	3.3	35	123	
36031	189.10	190.60	1.50							73	161	1018	3.7	40	336	
36032	190.60	192.10	1.50							21	23	111	2.7	20	296	
36033	220.30	220.80	0.90	.036	.12	.48	8.0			348	1230	4543	5.2	60	210	
36034	234.20	235.20	1.00							730	10	6900	2.4	40	760	
36035	235.20	235.70	0.50	1.66	.01	10.0	35.2	.40	.04							MS/.15 M
36036	235.70	236.60	0.90							82	1	390	.2	5	640	
36037	236.60	237.20	0.60							12	1	158	.2	5	360	

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
29035	26.80	29.80	3.00	13.14	0.2	0.87	2.06	3.68	0.72	0.08	3.55	0.01	72.92	0.29	0.09	97.61	0.7	15	366	9	5	1	40	5
29036	57.00	60.00	3.00	13.17	0.085	0.81	1.97	1.86	0.76	0.07	6.16	0.01	72.54	0.3	0.15	97.87	0.9	11	180	4	8	1	24	5
29037	94.00	97.00	3.00	13.07	0.28	2.3	2.06	4.41	0.74	0.09	2.61	0.01	71.1	0.28	0.29	97.23	0.9	29	567	7	9	1	42	5
29038	118.00	121.00	3.00	12.85	0.065	1.94	1.99	1.56	0.78	0.06	5.94	0.01	70.48	0.3	0.46	96.43	0.8	120	206	4	9	1	23	5
29078	149.15	152.15	3.00	13.63	0.03	1.81	3.04	1.17	2.12	0.12	5	0.01	68.55	0.31	0.46	96.25	0.3	12	75	31	5	1	87	10
36023	177.80	179.30	1.50	12.53	0.5	0.58	6.36	5.11	0.71	0.02	0.08	0.01	64.42	0.35	4.99	95.65	15.8	162	52	1767	255	24	25427	10
29039	200.60	203.60	3.00	13.77	0.19	3.21	2.79	1.44	1.08	0.02	5.84	0.01	65.91	0.38	2.46	97.1	4.8	26	280	47	112	1	184	25
29040	237.20	240.20	3.00	14.85	0.02	1.49	2.85	0.81	2.58	0.13	6.04	0.01	66.97	0.42	0.36	96.5	1.1	1	61	7	9	1	116	10

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: S91-11
IMPERIAL UNITS:
METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 3
LOCATION: NTS 92H/5

PLOTTING COORDS GRID: Ideal
NORTH: 10.00S
EAST: 9880.00E
ELEV: 261.00

ALTERNATE COORDS GRID: Vent
NORTH: 0+ 3S
EAST: 98+90E
ELEV: 261.00

COLLAR DIP: -80° 0' 0"
LENGTH OF THE HOLE: 385.60m
START DEPTH: 0.00m
FINAL DEPTH: 385.60m

COLLAR GRID AZIMUTH: 180° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: June 11, 1991
DATE COMPLETED: June 17, 1991
DATE LOGGED: June 17, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: YES
HOLE SIZE: BQLTK

CONTRACTOR: F. Boisvenu Drilling
CASING: 34.1 m
CORE STORAGE: Property

PURPOSE: Test Deep EM anomaly on L98E 1+50S.

(Hole open to 129 meters)

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
45.70	-	-80° 0'	ACID	OK		-	-	-	-	-	
91.40	-	-80° 0'	ACID	OK		-	-	-	-	-	
147.80	-	-80° 0'	ACID	OK		-	-	-	-	-	
207.30	-	-81° 0'	ACID			-	-	-	-	-	
256.00	-	-81° 0'	ACID			-	-	-	-	-	
288.00	-	-80° 0'	ACID	OK		-	-	-	-	-	
361.20	-	-79° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 34.10	Casing					
34.10 TO 69.00	FELDSPAR HORNBLENDE PORPHYRY DYKE «FHPD»	Colour: medium green Grain Size: f. to m.gr. 10%, 1-3 mm euhedral feldspar phenocrysts, 5-7% <1-1 mm irregular and fine lath shaped green mafic flecks, laths = hornblende; occasional 0.5-2 cm mafic xenoliths; rare 1-2 mm round quartz eyes 65.5-65.9 -Fault zone, grey fault gouge, sulphides smeared and diss. within gouge 68.9 -6 cm grey pyritic fault gouge, shearing @	 30	60.5-69.0 -strongly bleached	-patchy, brassy pyrite disseminated and veinlets	
69.00 TO 72.20	ANDESITE FLOW «AND FLOW»	Colour: dark green Grain Size: f.gr. Massive, aphyric, <1% to locally 3%, 1-2 mm chlorite +/- silica amygdules				Trace cp within veinlets and amygdules 71.4-72.2 -up to f5-7% fine diss. pyrite
72.20 TO 268.40	DACITE FLOW /DOME «DAC FLOW/DOME»	Colour: light green, patchy, mottled green Grain Size: f.gr. Massive to patchy mottled flow breccia, patchy secondary brecciation wiht white siliceous stockwork; patchy dark green, sericite/chlorite stockwork especially within flow breccia zones Patchy, pitted feldspar phyric up to 7%, 1-2 mm weakly calcareous feldspars; patchy 2-3% green mafic flecks; 2-3% white, <1 mm flecks = leucoxene?		Fairly fresh, patchy silica stockwork	┤72.2-99.2├ «tr sp-cp» -trace diss sphalerite and chalcopyrite rare py-cp and py-cp-sp veins, some veining over 15 cm width -some veining mineralization coarse grained open void fillings 93.15 -15 cm stringery py-cp-sp ┤135.7-139.2├ «Sph stgr»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
					-<1% diss sp, two 1-2 mm wide py-sp stringers, very shallow to c.a.	
		161.1-186.0 -irregular red hematitic patches				
		198.5 m -Fault @	40			
				⟨209.3-268.4⟩ «Anh vns» -1-3 mm wide anhydritic veins, some irregular patches to 5 cm		
		255.3-258.0 -Dacite dyke; medium green, same appearance as usual FP dyke but lacking fsp; abundant mafic flecks and xenoliths				
		-sharp upper contact @	25			
		-sharp lower contact @	20			
268.40 TO 292.00	FELDSPAR HORNBLENDE PORPHYRY DYKE «FHPD»	Colour: medium green Grain Size: f. to m.gr. 10-12%, 1-3 mm euhedral feldspar phenocrysts -5% mm dark green flecks some with euhedral lath shapes, <1-2 cm mafic xenoliths common		«Anh vns» -fine anhydrite veining common	278.3-286.3 -1-3% diss. pyrite	
		284.65-285.7 -screen of dacite flow with abundant anhydrite veining				
		292.0 -sharp lower contact @	40			
292.00 TO 308.20	QUARTZ FSP PORPHYRY DYKE «QFPD»	Colour: med. green Grain Size: f. to m.gr. 10%, 1-3 mm euhedral fsp, 3-5%, 1-3 mm subrounded quartz eyes, occasional mafic xenoliths, decreased mafic flecks from previous unit -massive -fragmental upper contact possible fault breccia?		«Anh vns» -weak anhydrite veining	-trace pyrite	
		-sharp lower sheared contact @	45			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
308.20 TO 324.30	DACITE FLOW/DOME «DAC FL»	Colour: olive green Grain Size: f.gr. 3-5%, 1-2 mm, chalky white, very soft altered feldspars phenocrysts -1-1% <1 mm green mafic flecks in an aphanitic groundmass massive -sharp but irregular lower contact		«Anh» -weak anhydrite veining; sericite or possible anhydrite?? alteration of fsp	-tr py	
324.30 TO 385.60	FELDSPAR HORNBLENDE PORPHYRY DYKE «FHPD»	Colour: medium green Grain size: f. to m.gr. 10-15%, 1-2 mm euhedral feldspar crystals, 3-5% mm mafic flecks, some with good rectangular out-lines locally quartz phyric, quartz eyes more common below 343 m		«Anh» -weak anhydrite veining, locally quite strong over 1 mm widths	-trace py, cp	

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
36038	135.70	136.90	1.20	.018	.01	.58	2.3			167	28	5881	.5	5	367		

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
29041	69.00	72.00	3.00	18.64	0.025	1.57	10.04	1.03	10.88	0.71	3.4	0.06	44.48	0.72	1.78	93.35	0.5	1	45	172	1	1	447	5
29042	77.70	80.70	3.00	13.33	0.065	0.53	2.56	3.03	2.59	0.15	1.13	0.01	71.84	0.35	0.69	96.27	0.5	8	111	137	14	1	525	10
29043	105.00	108.00	3.00	12.68	0.13	0.58	2.08	3.19	2.81	0.13	1.06	0.01	72.97	0.34	0.53	96.5	0.6	7	365	5	9	1	85	5
29044	139.00	142.00	3.00	14.49	0.06	0.43	2.82	3.01	3.92	0.2	0.98	0.01	69.56	0.38	0.42	96.27	0.5	1	85	19	21	1	317	5
29045	142.00	145.00	3.00	13.54	0.05	0.73	2.13	2.06	2.21	0.13	3.48	0.01	71.73	0.37	0.5	96.92	0.8	11	114	4	9	1	73	5
29046	199.60	202.60	3.00	13.65	0.045	1.46	2.57	2.18	2.52	0.16	3.06	0.01	69.58	0.36	0.88	96.47	1.1	5	106	61	77	1	217	5
29047	230.10	233.10	3.00	13.66	0.05	0.94	2.32	1.94	2.49	0.17	3.62	0.01	69.91	0.36	0.43	95.88	1	1	84	72	18	1	353	10
29048	260.60	263.60	3.00	12.84	0.05	1.81	2.57	2.25	2.88	0.16	2.45	0.01	69.72	0.34	0.73	95.8	0.8	1	132	23	20	1	120	10
29049	294.00	297.00	3.00	12.39	0.08	3.15	2.17	1.57	1.74	0.15	4.22	0.01	69.39	0.27	0.88	96.01	0.8	4	308	22	12	1	72	5
29050	318.50	321.50	3.00	13.08	0.05	1.42	2.24	1.85	1.96	0.13	4.21	0.01	71.37	0.35	0.65	97.31	0.9	3	155	13	11	1	101	5
29051	352.00	355.00	3.00	12.23	0.04	3.39	2.36	1.54	2.42	0.14	3.36	0.01	68.82	0.27	1.42	95.99	0.9	1	114	3	8	1	68	5

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: NTS 92H/5

PLOTTING COORDS GRID: Ideal
NORTH: 306.00N
EAST: 8700.00E
ELEV: 284.00

ALTERNATE COORDS GRID: Vent
NORTH: 3+50N
EAST: 87+50E
ELEV: 284.00

COLLAR DIP: -75° 0' 0"
LENGTH OF THE HOLE: 346.25m
START DEPTH: 0.00m
FINAL DEPTH: 346.25m

COLLAR GRID AZIMUTH: 183° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 233° 0' 0"

DATE STARTED: June 17, 1991
DATE COMPLETED: June 23, 1991
DATE LOGGED: June 23, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: BQLTK

CONTRACTOR: F. Boisvenu Drilling Ltd.
CASING: 37.2 m
CORE STORAGE: On property

PURPOSE: Test MS in S91-10 225 meters grid west.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
54.90	-	-76° 0'	ACID	OK	
134.10	-	-76° 0'	ACID	OK	broken tube
182.90	-	0° 0'	ACID		no good
274.30	-	-76° 0'	ACID	OK	
341.70	243° 0'	-76° 0'	TRO-PARI	OK	Az 222+21
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Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 37.20	Casing					
37.20 TO 44.30	DACITE LAP TUFF «DAC LT»	Colour: med. green Grain Size: f. - m.gr. Predominantly feldspar phyric dacite flow frags and minor andesite fragments in a fsp phyric matrix		Patchy epidote attacking occasional bleached felsic fragments	Trace py	
44.30 TO 69.00	DACITE FLOW BRECCIA «DAC FL BX»	Colour: mottled light to med. green Grain Size: f. - m.gr. 3-5%, 1-2 mm white fresh sharp feldspars, <1-1% dark green <1 mm mafic flecks, mottled flow breccia texture becoming more massive below 57.5 m 64.9-69.0 -more massive, patchy epidote altered fsp, possible dyke 69.0: faulted lower cotnact @	20	Fresh		
69.00 TO 86.70	FELSIC DYKE «FEL DIKE»	Colour: reddish brown Grain Size: f.gr. 5%, 1-2 mm orangish and greenish white, weakly calcite altered feldspar crystals, <1% faint green mafic flecks in an aphanitic groundmass -<10 cm wide amygdaloidal dyke margins		Very weak calcite alteration of fsp		Same rock as top of hole 91-10
86.70 TO 96.25	DACITE FSP PORPHYRY FLOW/DYKE? «FPD?»	Colour: light green Grain Size: f. - m.gr. 7-10%, 1-2 mm greenish white fsp, massive with fairly strong brecciated texture with greenish white stockwork below 92 m 96.0-96.25 -sheared pyritic gouge at lower contact -sharp lower contact @	30		-pyritic fault gouge, trace sphalerite	Unit lacks mafic flecks and xenoliths diagnostics of FP Dyke

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
96.25 TO 106.35	ANDESITE DYKE «AND DIKE»	Colour: dark green Grain Size: f.gr. 5-7% disseminated epidote, some as altered fsp crystals, massive cut by fine white carbonate veining. epidote poor zones more dacitic appearance		Disseminated epidote, 1-5 cm epidote 1-5 cm epidote patches and irregular epidote veining -trace anhydrite	Trace diss. cp, py	
106.35 TO 158.75	FELDSPAR HORNBLENDE PORPHYRY DYKE «FHPD»	Colour: light to med. green Grain Size: f. to m.gr. Massive, 7-10%, 1-2 mm feldspars, up to 5%, 1 mm irregular dark green mafic flecks, some with good lath outlines, occasional cm scale dark green mafic xenoliths 108.3-109.15 -screen of dacite flow		«Anh» Weak anhydrite veining		
158.75 TO 160.40	DACITE FLOW «DAC FL»	Colour: light green Grain Size: f.gr. Massive, 3-5% <1 mm white flecks, leucoxene?, 40 cm brecciated anhydrite veined lower contact; faulted lower contact		Weak anhydrite		
160.40 TO 161.90	ALTERED FROTHY DACITE? FLOW BX «DAC FL BX»	Colour: medium grey Grain size: f.gr. 2-3 mm to 4 cm frothy flow fragments, smaller fragments partially as matrix -7 cm fault gouge at upper contact; lower contact in broken core		Grey bleached appearance	«3-5% py, <1-1% sp, tr cp» -disseminated within and between fragments, minor sulphide veining/ stockwork	
161.90 TO 214.90	FELDSPAR HORNBLENDE POPHYRY DYKE «FHPD»	Colour: medium green Grain Size: f. to m.gr. -7-10%, 1-2 mm euhedral fsp phenocrysts, 2-3%, 1mm mafic flecks some with good rectangular outlines; large mafic xenoliths common, massive Rubbly gougy lower contact		«Anh» -weak anhydrite veining throughout		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
214.90 TO 242.35	ANDESITE LAPILLI TUFF PILLOWED FLOW «AND FLBX»	Colour: med. to dark green Grain Size; f. to m.gr. Unit characterized by large irregular frothy frags some which could be injection pillows, with abundant < 1 mm round amygdules and 1-2 mm green soft altered feldspars; matrix fine - coarse grained ash and flow detritus, possible feldspars and sphalerites; locally hyaloclastite 234.2-235.2 -Fault zone, gougy brecciated core, upper fault @	20	Sericite altered fsp, moderate pervasive sericite, soft core	-<1% diss py rare, coarse brassy aggregate and veinlets [218.95-219.05] «MS/.1M» -15-20% mm diss grains of dark and straw coloured sph, 5% f. diss py, 2% diss cp in dark soft matrix 232.1 -4 cm diss cp-sp, same form as previous exhalite 232.3-232.4 -very fine grained pyrite flooding 242.0-242.35 -3-5% diss and veined pyrite	Horizon?
242.35 TO 346.25	FELDSPAR HORNBLENDE PORPHYRY DYKE «FHPD»	Colour: med. green Grain Size: f. - m.gr. Massive, as for previous FHP dykes; locally qtz phyric 281.95-283.9 -screen of andesite flow, dark breccia, fine grained, massive, <1-1 mm chlorite amygdules, 2-3% fine diss brassy pyrite, minor py veining 303.0-346.25 -<1-1% quartz eyes		«Anh» Fine anhydrite veining common, locally veins up to 5-15 cm wide 286.53-286.8 -quartz vein 304.6-305.3 -weak bleaching, brecciated with dark siliceous veining, minor anhydrite veining	Local 1-2 cm quartz veins with coarse brassy pyrite; rare up to 5 mm clots of cp <1% py cubes 255.1-256.7 -traces of diss. cp 262.8-266.7 -1-2% diss py, minor py veinlets -5% brassy py, trace chalcopyrite -10% fine brassy py associated with siliceous veining, 2-3% diss. pyrite, trace of cp clots	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
				307.0-308.0 -weak bleached vein selvage	-1 cm wide quartz py vein running parallel to core axis	
				309.85-313.2 -patchy moderate bleaching		
				313.2-315.5 -pervasive strong bleaching, silica flooding and quartz veining	-7-10% coarse brassy pyrite, traces cp, sulphide associated with quartz veining	
		315.5-316.4 320.15-320.25 321.85-322.2 -screen of amygdaloidal andesite			314.2-314.35 -2% diss. cp	
		340.2-341.75 -screen of light green fine grained dacite flow breccia				

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
36039	95.75	96.25	0.50							24	21	105	1.4	2	174		
36040	160.40	161.90	1.50	.041	.01	.47	3.5			397	44	3746	1.3	24	144		
36041	218.85	219.15	0.30	.298		3.06	3.8			2434	29	22618	2.1	32	106		Horizon? in And Flbx.
36042	231.10	232.60	1.50							112	4	719	1.3	1	88		
36043	304.60	305.30	0.70							96	10	134	.3	1	137		
36044	313.20	314.20	1.00							67	1	44	.1	2	72		
36045	314.20	315.50	1.30	.441	.01	.01	2.0			4490	4	26	.5	1	67		

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
29052	38.00	41.00	3.00	16.65	0.005	2.32	4.81	0.15	3.75	0.31	7.59	0.01	60.38	0.45	0.06	96.49	0.5	1	7	109	7	1	157	5
29053	71.60	74.60	3.00	13.46	0.06	1.87	2.15	0.81	0.74	0.06	6.85	0.01	70.83	0.28	0.03	97.14	0.4	5	322	6	5	1	18	5
29054	90.00	93.00	3.00	13.3	0.09	3.94	3	0.32	1.89	0.13	4.5	0.01	66.77	0.32	0.39	94.64	0.3	9	123	6	5	1	61	10
36040	160.40	161.90	1.50	16.18	0.145	0.73	8.17	2.93	8.4	0.29	0.05	0.01	52.83	0.65	2.28	92.65	1.3	58	144	397	44	5	3746	24
29055	193.50	196.50	3.00	13.95	0.065	1.02	2.71	1.22	2.86	0.14	4.79	0.01	68.7	0.3	0.4	96.15	0.1	11	40	6	4	1	67	10
29056	220.00	223.00	3.00	19.89	0.055	1.01	7.64	2.42	9.99	0.34	2.38	0.02	47.96	0.55	0.43	92.69	0.4	1	72	66	1	1	341	5
29057	275.80	278.80	3.00	14.22	0.08	1.81	3.12	1.3	2.25	0.18	5.02	0.01	67.89	0.35	0.27	96.48	0.2	14	62	23	5	1	94	5

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: S91-13
IMPERIAL UNITS:
METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: NTS 92H/5

PLOTTING COORDS GRID: Ideal
NORTH: 80.00N
EAST: 8940.00E
ELEV: 244.00

ALTERNATE COORDS GRID: Field
NORTH: 0+97N
EAST: 89+98E
ELEV: 236.00

COLLAR DIP: -80° 0' 0"
LENGTH OF THE HOLE: 92.00m
START DEPTH: 0.00m
FINAL DEPTH: 92.00m

COLLAR GRID AZIMUTH: 180° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: June 24, 1991
DATE COMPLETED: June 26, 1991
DATE LOGGED: June 26, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: YES
HOLE SIZE: BQLTK

CONTRACTOR: F. Boisvenu Drilling
CASING: 21.9 meters-Pulled.
CORE STORAGE: On Site

PURPOSE: Test MS in hole S-91-10 200 meters grid south. Hole abandoned in bad ground

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DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
0.00	-	0° 0'	ACID			-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 21.90	Casing					
21.90 TO 50.55	FELDSPAR PORPHYRY DYKE «FPD»	Colour: light medium green Grain Size: f. to m.gr. 10-15%, 1-3 mm euhedral feldspar crystals and aggregates, occasional mafic flecks, rare mafic xenoliths, cm scale, massive				
50.55 TO 62.00	ANDESITE LAPILLI TUFF «AND BLT»	Colour: dark green Grain Size: f.gr. 50.55-57.3 -massive andesite with occasional 1-4 cm dacite FP flow fragments 57.3-62.0 -strong fragmental texture, <5% reddish and bleached dacite FP fragments up to 8 cm; abundant indistinct fine grained andesite fragments, fragments closely packed, very little obvious matrix		-weak epidote as fine diss grains, an interfragmental alteration and attacking some felsic fragments		
62.00 TO 64.70	FELDSPAR PORPHYRY DYKE? «FPD?»	Colour: medium green Grain Size: f.gr. 5-7%, 1-2 mm euhedral feldspars, <1% mafic flecks and hornblende laths -60 cm lower contact of 1-2 cm spherical growths				Part of underlying flow?
64.70 TO 79.85	DACITE FELDSPAR PORPHYRY DYKE «DAC FL»	Colour: light green Grain Size: f.gr. 5-7%, 1-2 mm feldspar phenocrysts in a very fine grained groundmass, massive to patchy flow breccia 67.4-70.45 -moderate brecciation with dark grey, very fine pyrite stockwork			-occasional veinlets of coarse brassy pyrite -fine pyrite stockwork	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
79.85 TO 84.25	DACITE FELDSPAR CRYSTAL & LAPILLI TUFF «XT/LT»	Colour: light to medium green Grain Size: f. to m.gr. Lapilli to block size dacite flow fragments in a feldspar phyric crystal tuff matrix		-Patchy very weak epidote alteration of feldspars		-flow and ash debris, leading edge of flow
84.25 TO 88.80	DACITE ASH «DAC ASH»	Colour: med. green Grain Size: f. to m. ash Laminated to thinly bedded ash and minor chert laminations becoming massive below 88.0 m bedding @	70		2-5% fine diss. pyrite, locally pyrite rich laminations	
88.80 TO 92.00	FELDSPAR PORPHRY DYKE, FAULT «FPD»	Colour: grey green Grain Size: f.gr. Feldspar porphyritic, minor mafic flecks, very rubbly core, poor recovery 92.0 «FLT»			-<1% diss py	Hole abandoned in very bad ground; casing pulled
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
29087	53.30	56.30	3.00	17.1	0.005	1.95	9.17	0.07	9.69	0.45	4.86	0.04	49.24	0.63	0.19	93.38	0.4	1	26	90	1	1	218	5
29088	71.60	74.60	3.00	15.1	0.04	1.22	3.58	1.14	2.44	0.12	5.34	0.01	66.58	0.38	0.5	96.44	0.3	7	36	5	3	1	51	5
29089	85.00	88.00	3.00	12.93	0.02	0.38	4.52	1.13	3.93	0.19	3.27	0.01	68.96	0.43	0.57	96.33	0.1	1	29	3	1	1	87	5

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: S91-14
IMPERIAL UNITS:
METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: Fleetwood

PLOTTING COORDS GRID: Ideal
NORTH: 398.00N
EAST: 8940.00E
ELEV: 307.00

ALTERNATE COORDS GRID: Field
NORTH: 4+10N
EAST: 90+ 0E
ELEV: 307.00

COLLAR DIP: -75° 0' 0"
LENGTH OF THE HOLE: 263.65m
START DEPTH: 0.00m
FINAL DEPTH: 263.65m

COLLAR GRID AZIMUTH: ° ' "
COLLAR ASTRONOMIC AZIMUTH: 50° 0' 0"

DATE STARTED: June 26, 1991
DATE COMPLETED: July 1, 1991
DATE LOGGED: July 1, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. Boisvenu Drilling
CASING: 48.8 m
CORE STORAGE: Property

PURPOSE: To test S-91-10 massive sulphides 200 m north

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
75.29	-	-77° 0'	ACID	OK		-	-	-	-	-	
131.67	-	-76° 0'	ACID	OK		-	-	-	-	-	
166.73	-	-75° 0'	ACID	OK		-	-	-	-	-	
227.69	-	-76° 0'	ACID	OK		-	-	-	-	-	
263.65	-	-75° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 48.77	CASING					
48.77 TO 80.10	DAC FLOW «DAC FL»	Colour: light green Grain Size: v.f.gr. to m.gr. -massive, faintly feldspar phyric -displays good flow banding textures both parallel to c.a. and at 50-60 deg -fragmental base -numerous quartz and/or carbonate veinlets -lower contact irregular		-nil	-nil	57.00-61.85 -4.45 m core loss, core very brittle and shattered 50.9-53.9: 29079
80.10 TO 92.20	INTERMED. DYKE «FPD»	Colour: lt. green Grain Size: m.gr. -feldspar porphyritic -occasional mafic xenoliths -crowded with phenocrysts -quartz veining near upper contact -lower contact followed by a 25 cm gouge zone 92.20 «FLT»		-weak epidote alteraton of some feldspar phenocrysts -upper contact wealy chlorite altered	-tr - 1% py -tr sph?	-possible flow 81.4-84.4 -29080
92.20 TO 96.85	DAC FLOW «DAC FL»	Colour: grey to light green Grain Size: f.gr. -massive -faintly feldspar phyric -fragmental looking		-nil	-nil	-badly shattered
96.85 TO 108.81	AND BLOCK AND LAP TUFF «AND BLT»	Colour: yellow and dark green Grain Size: f. to m.gr. -andesitic matrix with occasional large up to 10 cm epidote patches -epidote appears to replace felsic lithics -scoriaceous clasts -matrix supported		«stg epi» -strong to intense epidote; attacks felsic lithics, veinlets and feldspar crystals	«1% cp» -trace - 1% chalcopyrite	102.7-105.7 -29081

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
108.81 TO 111.55	INT. FELSIC DIKE «FPD»	Colour: green Grain Size: m.gr. -massive -feldspar porphyritic -badly shattered		-nil	-nil	-possilbe felsic block, similar to 80.1-92.20
111.55 TO 127.90	FELSIC DYKE «FD»	Colour: grey Grain Size: f.gr. -massive -vague feldspar phenocrysts -homogeneous ┤115.45-117.60├ «MD» -andesite dike, epidote (weak - mod), mafic xenoliths		-nil	-nil	Flow, dike or massive ash? 124.1-127.1 -29082
127.90 TO 263.65	DAC FLOW «DAC FL»	Colour: light green to olive Grain Size: f.gr. and m.gr. -massive -feldspar phyric -feldspars weakly sausseritized-random orientation -matrix dominates -shows very weakly developed pseudobreccia in more compentant zones ┤135.50-138.40├ «AND BLT» ┤138.10├ «FLT» ┤138.4-148.40├ «QFPD» 175.30-175.40 -fault zone 179.28-181.1 -DAC XT-LT -crystal lapilli tuff bed ┤186.47-192.2├ «FPD» -faults on contacts below 197.0 -wk pseudobreccia with hematite and trace pyrite		-nil -carbonate veinlets (<1 mm) and micro-veinlets cut core frequently	-trace py - 158.7 -pyrite stringer 2 cm width - coarse grain pyrite 60-70% to c.a. bleaches wall rock ┤160.63-161.25├ «3% py» -2-3% coarse grain pyrite as matrix in fragmental zone - minor quartz -occasional diagenetic pyrite cubes up to 1 cm	151.5-154.5 -29083 181.1-184.1 -29084 218.5-221.5 -29085 numerous crush and gouge zones 255.17-258.17 29086

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		in matrix - individual felsic frags discernible as in a flow breccia ┤212.80├ «FLT» -fault gouge 15 cm 221.60-226.0 -andesite dike (?) -epidote altered ┤245-246├ «FLT» ┤246-251.90├ «DAC LT» -heterolithic epidotized frags -faulted contact ┤251.90-263.65├«FPD» -FP dike feldspar porphyritic - numerous carbonate veinlets randomly cutting core			-possible sulphide (py) fragment at 248.0	Badly shattered
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
	0.00	0.00	0.00													0	

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
29079	50.90	53.90	3.00	13.58	0.02	1.32	2.61	0.62	1.39	0.12	6.52	0.01	70.27	0.38	0.37	97.18	0.6	12	65	4	2	1	34	5
29080	81.40	84.40	3.00	13.86	0.025	2.86	2.79	0.87	1.21	0.15	5.73	0.01	69.19	0.32	0.41	97.41	0.3	11	89	5	2	1	33	5
29081	102.70	105.70	3.00	19.09	0.005	8.95	8.96	0.07	4.91	0.66	2.62	0.01	49.17	0.55	0.12	95.12	0.6	5	4	275	1	1	172	5
29082	124.10	127.10	3.00	11.78	0.12	2.05	1.48	2.91	0.58	0.07	2.47	0.01	73.9	0.21	0.14	95.7	0.7	14	357	29	8	4	24	5
29083	151.50	154.50	3.00	13.62	0.03	1.71	2.93	0.69	1.55	0.16	6.08	0.01	69.49	0.41	0.37	97.05	1	16	175	4	13	1	52	5
29084	181.10	184.10	3.00	13.04	0.035	2.31	3.13	0.33	1.08	0.15	6.73	0.01	69.73	0.43	0.87	97.84	0.9	5	272	4	11	1	42	5
29085	218.50	221.50	3.00	12.5	0.06	2.17	1.89	0.7	0.72	0.12	5.71	0.01	71.93	0.24	0.1	96.15	0.7	11	513	3	5	3	32	5
29086	255.17	258.17	3.00	11.01	0.02	2.33	1.36	0.69	0.49	0.07	4.61	0.01	74.94	0.14	0.12	95.78	0.6	14	37	14	6	6	30	10

HOLE NUMBER: S91-15

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: Vent West

PLOTTING COORDS GRID: Ideal
NORTH: 115.00N
EAST: 8949.00E
ELEV: 272.00

ALTERNATE COORDS GRID: Vent
NORTH: 1+35N
EAST: 90+10E
ELEV: 272.00

COLLAR DIP: -70° 0' 0"
LENGTH OF THE HOLE: 377.00m
START DEPTH: 0.00m
FINAL DEPTH: 377.00m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: July 1, 1991
DATE COMPLETED: July 8, 1991
DATE LOGGED: July 8, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. Boisvenu Drilling
CASING: 51.8 m
CORE STORAGE: Property

PURPOSE: Test S-91-10 massive sulphides 200 meters south ofS91-13 which was abandonned.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
102.70	-	-70° 0'	ACID	OK	
142.30	-	-70° 0'	ACID	OK	
372.50	247°30'	-72° 0'	TRO-PARI	OK	226.5 deg + 21 deg

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
-	-	-	-	-	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 51.80	Casing					
51.80 TO 94.50	FELDSPAR PORPHYRY DYKE «FPD»	Colour: med. grey green Grain Size: f.gr. 10-15%, 1-2 mm feldspars in a fine grey green groundmass, massive, shattered with fine white veining adjacent to QFP dyke ╢73.5-77.1╟ «QFP DYKE» -10%, 4-7 mm chalky orange white feldspar and 7-10%, 3-6 mm rounded quartz eyes -sheared upper and lower contacts, 7 cm, sheared pyritic veining at lower contact @ 79.0 -fault zone @ -fault gouge, brecciated core with sulphide mud matrix ╢87.5-92.0╟ «FLT» -fault zone, rubbly core, poor recovery	35 20		77.1 -7 cm sheared pyritic veining 78.4-79.1 -1-2% diss py, 10 cm sulphide mud in shear at 79.0	
94.50 TO 102.50	ANDESITE LAPILLI TUFF «AND LT»	Colour: dark green Grain Size: f.gr. 5-10% angular 5 mm up to 14 cm fragments of marroon and light green feldspar phyric dacite flow in a fine grained andesitic matrix -lower contact in rubble		2-3% diss epidote grains, some which look like epidote filled amygdules; rare 2-3 cm epidote patches	trace pyrite	rubbly core
102.50 TO 127.80	FELDSPAR PORPHYRY DYKE «FPD»	Colour: med. green grey Grain Size: f.gr. 5-7%, 1-2 mm feldspar phenocrysts and locally 2-3% <5 mm mafic clots/xenoliths in a fine grained groundmass; rare xenoliths up to 10 cm size 102.5-105.3 -very rubbly core, fault zone?				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
127.80 TO 132.80	ANDESITE FLOW OR DYKE «AND DIKE?»	Colour: dark green Grain Size: f.gr. Massive, abundant, <1-3 mm, rare to 7 mm amygdules of chlorite, epidote and chlorite-epidote, patchy chlorite altered mafic phenocrysts Lower contact in rubble		Weak epidotee as <0.5 cm wide veinlets, minor irregular patches		Rubbly core
132.80 TO 143.50	FELDSPAR HORNBLENDE PORPHYRY DYKE «FHPD»	Colour: light to med. grey green Grain Size: f.gr. 5-7%, 1-3 mm euhedral feldspar phenocrysts and fsp clusters, 3-4%, 1-2 mm mafic flecks some with euhedral rectangular outlines (hornblende); massive bat rubbly recovery		132.8-133.2 -weak to moderately bleached	132.8-133.2 -3-5% fine brassy py diss and fine veinlets	Rubbly core
143.50 TO 192.20	QUARTZ FSP HORNBLENDE PORPHYRY DYKE «QFHP»	Colour: Grain Size: -1-5%, <1-3 mm angular and subangular quartz eyes, 7-10%, 1-2 mm subhedral feldspars and 2-3% hornblende laths and mafic flecks; occasional 3-8 mm mafic xenoliths 143.5-151.9 -feldspars ghosted, very faint 144.6-146.0 -Fault Zone -brecciated and healed dyke giving fragmental appearance -10 cm fault zone 145.4 m @ 188.4-192.2 -quartz eye deficient zone, 2-3% fsp, <1-1% mafic flecks Lower contact in rubble	30	«ANH» 2-3 mm to 1-2 cm wide anhydrite veining		Much better core recovery and RQD
192.20 TO 203.70	FELDSPAR HORNBLENDE PORPHYRY DYKE «FHPD»	Colour: reddish brown, brown green Grain Size: f.gr. 5-7%, 1-4 mm euhedral white, orange white and green white feldspar phenocrysts and 2-3%, <1-2 mm hornblende laths and mafic flecks, massive		patchy weak epidote alteration of feldspars		Similar to dyke at top of hole S91-10

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		203.1-203.7 -crushed milled zone, -faulted lower contact @	20			
203.70 TO 245.70	QUARTZ FSP HORNBLENDE PORPHYRY DYKE «QFHPD»	Colour: medium green Grain Size: f.gr. As for previous QFHP Dyke 203.7-205.2 «FLT @ 20» 203.7 -10 cm strongly sheared zone, sheared pyritic veining @ 203.8-205.2 -fault breccia -mm to cm scale, angular dyke fragments in a darker green soft sericite? matrix 244.2-245.7 -strongly brecciated, abundant anhydrite veining 245.7 -sharp lower contact @	20 10		230.7-231.0 -2-3% brassy pyrite veining -10% brassy pyrite, diss and veined within anhydrite	
245.70 TO 313.40	FELSIC DIKE «FEL DIKE»	Colour: brown to tan Grain Size: v.f.gr. <1-1%, <1-1 mm feldspar phenocrysts, rare dark green mafic xenoliths, rare <1 mm hornblende laths in a very fine grained groundmass; massive, cut by fine orange-white carbonate veinlets, hard very siliceous 245.7-249.3 -mafic margin, black, very fine grained, <1-3 mm calcite amygdules, strongly magnetic, magnetism decreasing below 249 m; 249.3-250.1: gradual color change to green-brown		Trace anhydrite veining		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		305.05-305.6 -black fine grained calcite amygdular magnetic margin 305.6-306.5 -screen of FP Dyke with anhydrite veining 306.5-307.2 -black, magnetic margin, 307.2-307.4: grading back to tan grey felsic dyke 310.8-313.4 -black, magnetic, calcite amygdaloidal mafic dyke margin				
313.40 TO 328.40	DACITE FLOW «DAC FL»	Colour: light green Grain Size: f.gr. Massive, locally brecciated with strong anhydrite with strong anhydrite stockwork; patchy granular hyaloclastite? Patchy 5-7% green sericitized relict feldspars -some patches of possible flow breccia textures Sharp lower contact with 50 cm of anhydrite veining	15	«Str. ANH» Strong anhydrite as 1 mm - 10 cm veining and irregualr clots; patchy creamy green silicification; sericite alteration of feldspar	Patchy 2-3% pyrite, diss. and fine veinlets 315.1-316.0 -5-7% brassy pyrite veining	
328.40 TO 334.60	QUARTZ FSP PORPHYRY DYKE «QFPD»	Colour: light to med. green Grain Size: f.gr. <1-3%, 1-2 mm quartz eyes, quartz eye content gradually increasing down hole; 10-12% 1-2 mm green sericitized relict feldspar sharp lower contact	20	«wk ANH» Complete alteration of feldspars to green sericite -weak to moderate anhydrite	312.65-312.95 -15-20% coarse brassy pyrite	
334.60 TO 354.35	FELSIC DYKE «FEL DYKE»	Colour: reddish brown Grain Size: f.gr. 1-3%, <1-1 mm calcite as amygdules and altered feldspar laths, <1-1% mm green flecks; massive cut by fairly abundant fine orange veining (hardness approx 4)				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		Rare <1-2 cm dark green xenoliths 334.6-335.7 -dark green to black magnetic upper margin -similar 80 cm lower margin, contact @	37			
354.35 TO 362.90	DACITE FLOW BRECCIA «DAC FLBX»	Colour: light green Grain Size: f.gr. Weak, fragmental texture, 3-4% white, <1 mm flecks possibly leucoxene?, patchy 1 mm white feldspars 354.35-355.6 -FP Dyke		Locally creamy green irregular wormy silica flooding; trace anhydrite veining	Locallized <10 cm zones of very fine pyrite veinlets	
362.90 TO 367.25	QUARTZ FELDSPAR PORPHYRY DYKE «QFPD»	Colour: med. green Grain Size: f. - m.gr. 10-12%, 1-2 mm feldspar; 2-3%, 1-2 mm angular quartz eyes; 2-3% mafic xenoliths Screens of dacite flow from 364.8-365.25 and 367.0-367.25 365.25-367.0 -dyke margin?, irregular siliceous grey 5 mm spots and veinlets				
367.25 TO 377.00	FELSPAR PORPHYRY DYKE «FPD» E.O.H.	Colour: med. green Grain Size: f.gr. 5-7%, 1-2 mm feldspars, 1-2%, <1 mm mafic flecks, massive		-trace anhydrite veining	-trace py	

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
36047	244.20	245.70	1.50							25	3	27	.1	18	36		

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
29090	96.60	99.60	3.00	16.88	0.005	2.64	8.27	0.31	8.91	0.44	3.77	0.03	51.51	0.61	0.31	93.69	0.7	1	14	71	1	1	285	5
29091	127.80	130.20	2.40	17.05	0.005	5.29	9.03	0.13	8.7	0.32	3.64	0.04	48.77	0.61	0.13	93.72	1.1	1	9	114	1	1	171	10
29092	160.60	163.60	3.00	12.37	0.03	3.05	2.52	1.75	2.7	0.12	2.73	0.01	68.36	0.25	1.06	94.95	0.6	10	35	4	5	1	56	5
29093	194.20	197.20	3.00	13.54	0.08	1.57	2.49	2.11	1	0.13	5.65	0.01	71.23	0.29	0.05	98.15	0.3	7	25	4	5	1	73	5
29094	227.70	230.70	3.00	11.72	0.025	6.91	2.23	1.52	2.66	0.09	2.74	0.01	60.69	0.23	3.5	92.3	0.9	17	30	1	1	1	47	5
29095	261.00	264.00	3.00	12.58	0.07	1.14	1.93	1.65	0.56	0.05	6.34	0.01	73.42	0.29	0.09	98.13	0.5	5	76	2	2	1	20	5
29096	294.70	297.80	3.10	12.52	0.06	1.02	1.89	1.41	0.59	0.05	6.59	0.01	73.14	0.29	0.13	97.69	0.5	5	69	2	1	1	15	5
29097	319.00	322.00	3.00	12.91	0.04	1.32	2.81	2.75	4.02	0.08	0.01	0.01	69.43	0.37	0.9	94.64	0.5	10	42	1	1	1	64	5
29098	358.00	361.00	3.00	13.19	0.045	0.99	3.61	2.16	3.36	0.12	1.91	0.01	69.56	0.57	0.98	96.5	0.4	7	52	6	1	1	73	5

HOLE NUMBER: S91-16

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: Fleetwood

PLOTTING COORDS GRID: Ideal
NORTH: 42.00N
EAST: 8747.00E
ELEV: 258.00

ALTERNATE COORDS GRID: Vent
NORTH: 0+80N
EAST: 88+ 0E
ELEV: 258.00

COLLAR DIP: -81° 0' 0"
LENGTH OF THE HOLE: 347.50m
START DEPTH: 0.00m
FINAL DEPTH: 347.50m

COLLAR GRID AZIMUTH: ° ' "

COLLAR ASTRONOMIC AZIMUTH: 50° 0' 0"

DATE STARTED: July 9, 1991
DATE COMPLETED: July 15, 1991
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: YES
HOLE SIZE: NQ

CONTRACTOR: F. Boisvenu Drilling
CASING: 24.4 m
CORE STORAGE: on property

PURPOSE: Test S91-10 massive sulphides 200 m west and 200 m south,66 NQ rods dropped to bottom of hole(202m)

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
67.00	-	-82° 0'	ACID	OK	
105.70	-	-82° 0'	ACID	OK	
175.90	-	-83° 0'	ACID	OK	coarse etch
221.50	-	-82° 0'	ACID	OK	partial etch
282.50	-	-83° 0'	ACID	OK	partial etch
304.80	-	0° 0'	ACID		no good, water in tube
342.90	45° 0'	-83° 0'	TRO-PARI	OK	024 + 21 decl.

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
-	-	-	-	-	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 24.40	Casing					Bedrock at 60 ft., cased to 80 ft.
24.40 TO 41.80	ANDESITE LAPILLI TUFF «AND LT»	Colour: medium to dark green Grain Size: f. to c.gr. 5 mm - 1 cm occasionally up to 5 cm subangular subrounded fragments of green dacite-andesite occasionally frothy and bleached, white, felsic fragments in a granular coarse ash matrix, massive, very rubbly core 35.7-41.8 -Fault zone -very rubbly core, very poor recovery <10%		«wk ep» -weak epidote as disseminated grains within matrix and as almost 100% alteration of larger fragments		
41.80 TO 44.80	FAULT ZONE «FLT»	Colour: medium green Grain Size: f.gr. Green clay fault gouge with 1-3 mm green dacite granules, 10% recovery				
44.80 TO 66.10	DACITE FLOW «DAC FL»	Colour: light to medium green Grain Size: f.gr. 3-5% greenish white 2-3 mm feldspar phenocrysts, 2-3% <<1 mm white specks, patchy flow breccia texture -very rubbly core, poor recovery 47.9-50.9 52.7-55.8 -no core recovered -lower contact in rubble				
66.10 TO 74.95	ANDESITE LAPILLI TUFF «AND LT»	Colour: dark green Grain Size: f.gr. Indistinct <5 mm to 1 cm andesitic fragments, occasionally frothy fragmen outlines defined by disseminated epidote grains along rims -rare white felsic fragments, tightly packed		Weak, disseminated epidote within matrix	Trace py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
74.95 TO 95.50	DACITE ASH ULTRAFINES «DAC ASH»	Colour: light green Grain Size: aphanitic to fine grained Massive, dacite ash locally bedded but usually bedding planes are distorted - slumped, eroded, flame structures, occasionally darker grey intervals with very fine sulphides 74.95-76.8 -3-5 cm wide zones of feldspar phyric - possible pumice frags 91.85-93.1 -pyritic ash			Occasionally thin beds of pyritic ash, very fine grained diss. py -up to 30 cm wide intervals of 7-10% very fine diss. py; 92.95: 2 cm wide sulphide mud	
95.50 TO 99.50	DACITE LAP TUFF «DAC LT»	Colour: med. green Grain Size: f. to c.gr. <1-2 cm dark green fsp phyric pumice fragments and occasional dacite ash fragments in a coarse grained angular flwo detritus matrix; minor ash and crystal tuff matrix at top of unit			Very fine grained pyrite within dacite ash	Similar in appearance to Seneca pit HW marker but more dacitic GMS
99.50 TO 108.50	DACITE ASH «DAC ASH»	Colour: med. green, dark grey Grain Size: f.gr. Massive to poorly laminated ash, bedding defined by pyritic ash and occasional chert laminations, bedding often distorted, bedding varies from 45-60 deg		Very fine anhydrite veining	Occasional beds and laminations of dark grey ash with very fine dissem. pyrite	
108.50 TO 110.70	ANDESITE LAPILLI TUFF «AND LT»	Colour: medium green Grain Size: f. to c.gr. 4-6 cm dacite FP flow fragments in a green andesitic matrix; occasional <1 cm distinct andesite fragments		Occasional anhydrite veins up to 2 cm wide	2-3% fine diss py, locally 5-7% py over 10 cm	
110.70 TO 115.50	ANDESITE DYKE «MD»	Colour: dark green Grain Size: f.gr. Massive, amygdaloidal with irregular 1-2 mm chlorite - epidote amygdules, 2-3% epidote some as <1 cm patches and as 1-2 mm grains - possible		Epidote alteration as occasional veins, diss grains and small balls and patches weak fine anhydrite veining	trace py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		altered feldspar crystals				
115.50 TO 117.90	ANDESITIC AND DACITE LAP TUFF «DAC LT»	Colour: dark green light green Grain Size: f. to c.gr. 115.5-116.4 -similar to unit from 108.5-110.7 116.4-117.9 -dacite lapilli tuff, light green dacite ash fragments in a fsp phyric crystal tuff matrix		-weak anhydrite veining	116.4 -2-3% diss py within fragments	
117.90 TO 119.95	PYRITIC DACITE ASH «DAC ASH»	Colour: light green, dark green Grain Size: f.gr. Distorted and fragmented interbedded light green dacite ash and dark grey pyritic ash Bedding @ may not be reliable	50	Fine irregular anhydrite veining occasional wide irregular veins	«Tr py» Very fine diss. pyrite with ashes, weak fine pyrite stockwork	
119.95 TO 122.00	DACITE FSP CRYSTAL TUFF «DAC XT»	Colour: light grey green Grain Size: c.gr. Massive, coarse granular texture, abundant 1-2 mm fresh feldspar crystals, weakly fragmental towards base		Anhydrite veining	121.1-121.2 -7-10% coarse brassy pyrite associated with anhydrite veining	
122.00 TO 134.40	DACITE ASH «DAC ASH»	Colour: olive green Grain Size: aphanitic to f.gr. Massive, silicified or cherty ash, brecciated with a dark very fine sulphide stockwork; locally coarse grained ash and fragmented fine ash in coarse ash matrix		«m. to str. ANH» -abundant very fine anhydrite veinlets; silicified	«py stockwork» -very fine dark pyrite stockwork	
134.40 TO 140.10	DACITE FSP PORPHYRY FLOW «DAC FL»	Colour: med. grey Grey Size: f.gr. 3-5%, 1-2 mm feldspars in a fine grained ground mass 134.4-135.8 -flow breccia; fragments of dacite ash and blocks		weak fine anhydrite veining	patchy faint fine sulphide stockwork patchy 2-3% diss py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		of flow in a fsp crystal tuff matrix				
140.10 TO 143.75	DACITE ASH «DAC ASH»	Colour: med. grey green Grain Size: f. to m.gr. Massive to very poorly bedded ash, patchy silicified or cherty ash, occasional fine sulphide rich ash laminations bedding @ 40-50 deg		«w - m anh» weak to moderate fine anhydrite veining	occasional fine sulphide laminations	
143.75 TO 152.20	FELDSPAR PORPHYRY DYKE «FPD»	Colour: med. green Grain Size: f. to c.gr. 7-10%, 1-3 mm feldspars, rare mafic xenoliths and 1-2% mafic flecks, massive 145.15-146.0 -dacite crystal tuff, coarse grained, granular, ash, 5-75 feldspar, massive 152.2 -sharp but irregular lower contact		very weak anhydrite veining	trace diss. py -5-7% fine diss pyrite, trace sph	
152.20 TO 154.50	DACITE ASH «DAC ASH»	Colour: light green, light grey Grain Size: aphanitic to coarse ash 152.2-153.4 -ultrafine ash, light green, massive 153.4-154.5 -coarse granular ash, light grey, massive -contact between the two ashes @	68	-weak to moderate anhydrite veining	153.8 «MS Frag» -weak fine py veining/stockwork 153.4-154.5 -2-3% fine diss. py, locally <1-1% very fine tan sp -1-2 cm massive sulphide fragments at 153.8 and 154.45	
154.50 TO 155.60	MASSIVE SULPHIDES «MS»	Colour: brassy, grey Grain Size: f.gr. Sheared, brecciated, distorted clay gouge, barite, massive pyrite and sphalerite bedding possibly @ Rare pyrite very siliceous fragments	65		40% massive fine pyrite 5-6% sphalerite as <1 cm - 5 cm wide semi-massive zones; traces of chalcopyrite	2.5-3% Zn

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
155.60 TO 184.65	DACITE FLOW «DAC FL»	Colour: light green, medium to dark grey Grain Size: f.gr. Brecciated or flow breccia, patchy white silica stockwork, well developed sulphide stockwork 155.6-155.9 -fine granular ash tuff -individual flow fragments are subangular to angular, monolithic, contain vague amygdules (?) 159.8-162.15 -feldspar porphyry dyke 5% faint feldspar phenocrysts, 1-2% mafic flecks 162.15-164.5 -patchy frothy andesitic? fragments 162.15-164.5 -patchy, frothy andesitic fragments 166.7 -10 cm fault gouge @ -intensely deformed material wrapping around a 5 cm x 5 cm MS clast	50	«stg-i si» -intense silica as a matrix to Dac Flow fragments -in areas of strong mineralization silica stockwork and pervasive silicification; very weak anhydrite as fine veinlets and <1 cm clots -weak anhydrite veining	┤155.6-159.8├ «Sph-cp-py Stkwk» -well developed py-sp-cp stockwork and disseminations trace galena 155.6-159.8 -3-4% sp, 0.5% cp, 5-7% py stringers stockwork and disseminations -last 10 cm weak fine py veining ┤162.15-185.25├ «Sph-cp-py-stkwk» 162.15-164.85 -<1-2% diss. py, trace diss sp 164.85-166.6 -2% sp, 5-7% py ┤166.7├ «MS frags» 166.6-168.05 -7-10% py, 2% sp, 1-2 cp stockwork and diss includes 6 cm massive py-sp zone at top ┤168.05-168.45├ «MS» -massive sphalerite, 3% cp, 7-10% py 168.45-173.95 -8-10% sp, 1% cp, <1% gn, well developed stockwork 173.95-184.65 -strongly brecciated, weak pyrite stockwork with minor sp, cp and gn 176.15-176.66	Style of silicification and sharp angular nature of fragments combined with open space filling reminiscent of epigenetic systems 166.6-173.95 -best developed sphalerite-chalcopyrite stringers and stockwork mineralization -2-5 cm massive sulphide veinlets wander throughas matrix of dacite flow fragments -more pyrite and less chalcopyrite lower down in stockwork system

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		Faulted lower contact @	40		177.38-177.95 -sp-cp stringers	
184.65 TO 195.85	DACITE LAP TUFF «DAC LT»	Colour: creamy green white Grain Size: c.gr. < 2cm angular fragments mainly of dacite flow, minor pumice frags, pyritic ash and chert; strong bleaching masking fragment outlines; coarse granules patchy feldspar phyric ash matrix, massive 184.65 -10 cm fault gouge at upper contact 192.8-193.15 -sulphide mud - possibly large fragments, heterolithic, fining upward sequence		«i si» Strongly bleached and silicified, minor transparent anhydrite veining; bleaching decreasing below 194 m 193.15-193.45 -1-2% diss green mica, fuchsite	3-5% fine diss pyrite, <1% patchy diss cp and sp/gn; py rich fragments <1 cm common 185.0-185.25 -5 mm wide cp stringer 192.8-193.15 -sulphide mud, fragments?	Volcaniclastic 184.6-198.75 -essentially a sediment package of LT/ASH/XT
195.85 TO 196.75	DACITE ASH «DAC ASH»	Colour: light to med. green Grain Size: aphanitic to fine grained Massive to poorly laminated ash 196.2-196.3 -pyritic ash, bedding @	70		Dark grey, very fine sulphide stockwork <1% diss cp, <1% sp as fine veinlets and clots within py veins, 3-5% fine py veining	
196.75 TO 198.75	ANDESITE FLOW? «AND FL»	Colour: med. olive green Grain size: f.gr. Massive at top becoming brecciated or fragmental below 198.2 m; 1-2% <1 mm chlorite spots = amygs 198.2 -20 cm frothy chlorite amygdular fragmental zone			┤198.2-198.4├ «2% cp, 3% sp» -2% cp, 3-4% sp, 1-2% py diss, clots and veins all interfragmental	Similar to unit hosting sp exhalite in hole S-91-12
198.75 TO 219.65	FELDSPAR PORPHYRY DYKE «FP DYKE»	Colour: med. green Grain Size: f.gr. 10-12%, 1-2 mm feldspar phenocrysts, 2-4% <1 mm mafic flecks, rare 1-2 cm mafic xenoliths		Fresh, trace anhydrite veining		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
					201.6-201.75 -brecciated fine quartz stockwork with 5% brassy py	
		Lower contact 10 cm, fragmental appearance				
219.65 TO 225.85	ANDESITE BLOCK AND LAP TUFF «AND BLT»	Colour: dark green Grain Size: f. to c.gr. Angular block and lapilli size red and red-grey dacite fP flow fragment, rounded lapilli sized indistinct amygdaloidal mafic flow fragments in a mafic matrix		«wk chl» weak chlorite alteration within matrix; trace anhydrite veining	 patchy 2-3% and locally 5% diss pyrite	 Dacite fragments look almost identical to FP Dyke
		220.05-223.9 -mafic flow dyke?, massive, chlorite and epidote filled amygdules; no dacite or mafic fragments		-epidote veining, large irregular patches and within amygdules		
		Sharp lower contact with anhydrite veining @	45		py-cp associated with anhydrite veining at lower contact	
225.85 TO 234.10	MAFIC FLOW BRECCIA, PILLOW BX «AND FLBX»	Colour: dark green Grain Size: f. to m.gr. 5-10% rounded to irregular shaped, marroon, calcite and chlorite amygdaloidal ameboid pillows with light green selvages Indistinct green mafic fragments occasionally chlorite amydaloidal in a matrix of 2-5 mm mafic fragments mixed with chlorite -frothy vesicular fragments densely packed		Chlorite alteration of matrix; rare 2 cm wide transparent anhydrite veins		Resembles Seneca Deposit host
		233.3-233.8 -mafic flow breccia mixed with dacite lapilli tuff (possible blocks of dacite) composed of <1 cm dacite flow and rare andesite flow fragments in a coarse ash matrix			-<1% diss. py	
					⌈233.85-233.95⌋ «3% sp» -3% sp, 2-3% py, tr cp as interfragmental disseminations and very fine veinlets	Mineralization at top of massive flow, base of breccia; downdip equivalent of S91-12

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
234.10 TO 242.50	MAFIC FLOW «AND FL»	Colour: dark green Grain Size: f.gr. Fairly massive, patchy 5-7%, 1 mm dark green soft spots, some with euhedral outlines (fsp) 234.1-235.45 -weak fragmental texture 235.45-237.0 -FP Dyke, weak fragmental upper contact, sharp lower contact		Weak anhydrite veining -sericite alteration of feldspars; trace epidote veining	-trace py, cp	
242.50 TO 257.50	FELDSPAR PORPHYRY DYKE «FPD»	Colour: light to med. green Grain Size: f.gr. 10%, 1-2 mm euhedral feldspars, rare mafic xenoliths up to 5 cm 254.0-256 -2nd FP dyke intruding first with banded/layered margins 257.5 -20 cm fragmented lower contact				
257.50 TO 275.80	MAFIC TUFF/ AMEBOID PILLOWED FLOW «AND FL»	Colour: dark green Grain Size: Fine to coarse grained mafic flow detritus, hyalo-clastite, amygdular fragments with occasional frothy amygdular small ameboid injection pillows			┤267.9-272.95├ «tr sp-cp» -traces of sp and cp disseminated and fine interfragmental stringers ┤272.95-275.8├ «sp-cp stringers» -patchy 2-10 cm semi-massive sp+/-py, cp stringers, minor 1-2 mm veinlets and disseminations	
275.80 TO 278.50	MAFIC FLOW «AND FL»	Colour: dark green Grain Size: f.gr. Massive, <1-1 mm round chlorite amygdules, weakly brecciated with fine anhydrite +/- calcite			trace py, cp	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		veinlets Sharp lower contact approx.	 60		277.85-278.15 -strong brecciation, silicification, 5% brassy py, <0.5% cp	
278.50 TO 347.50	FELDSPAR HORNBLENDE PORPHYRY DYKE «FHPD»	Colour: light to med. green Grain Size: f. to m.gr. 5%, 1-2 mm chalky white feldspar, 3-5%, 1-5 mm speckled mafic clots, small rectangular flecks = hornblende, larger clots = xenoliths?; occasional cm scale mafic xenoliths 283.8-286.0 -mafic dyke, massive, epidote chlorite amygdules rubbly core 293.7-297.2 -patchy strong brecciation over 20-50 cm widths with clay gouge and anhydrite matrix, fault zone 339.0 -gougy grey and green slip planes @ E.O.H.	 15	Weak anhydrite veining; occasional cm scale anhydrite veins 305.0-305.65 -massive, translucent, white and orange white anhydrite vein	Trace pyrite	«anh» anhydrite bearing 66 rods dropped to bottom of hole (201.2 meters)

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm	COMMENTS
36048	145.15	146.00	0.85							22	12	71	2.2	65	2000	
36049	153.40	154.50	1.10	.09	.01	1.54	17.0	.07	1.30							MS FRAGMENT
36050	154.50	155.60	1.10	.38	.37	5.56	162.17	2.37	8.99							MASSIVE SULPHIDE
36051	155.60	156.60	1.00	.15	.04	2.1	15.4	.07	.99							
36052	156.60	157.60	1.00	.31	.02	4.74	12.7	.07	.41							
36053	157.60	158.70	1.10	.22	.03	2.52	9.4	.07								
36054	158.70	159.80	1.10	.10	.12	1.41	8.7	.07								
36055	159.80	161.00	1.20			.02				20	1	212	.2	5	2100	
36056	161.00	162.15	1.15			.02				24	1	206	.2	5	1200	
36057	162.15	163.50	1.35			.07				62	170	720	2.5	90	5700	
36058	163.50	164.85	1.35			.25				150	365	2500	2.3	95	4200	
36059	164.85	165.70	0.85	.04	.22	.99	22.6	.62								
36060	165.70	166.60	0.90	.12	.93	2.30	22.1	.55								
36061	166.60	168.05	1.45	.45	.08	5.06	19.3	.07								
36062	168.05	168.45	0.40	2.34	.05	19.30	20.5	.07								M.S. Stringer
36063	168.45	169.60	1.15	.83	.23	7.06	7.4	.07								
36064	169.60	170.70	1.10	.77	.53	6.05	9.0	.07								
36065	170.70	171.80	1.10	.41	.09	.93	8.2	.10								
36066	171.80	172.90	1.10	.79	.22	3.30	11.6	.07								
36067	172.90	173.95	1.05	.65	.24	3.75	19.8	.07								
36069	175.50	177.00	1.50			2.11				3900	1080	>10000	11.3	505	740	
36068	173.95	175.50	1.55							1600	340	8400	4.0	215	1100	
36070	177.00	178.50	1.50			2.69				3600	690	>10000	8.5	345	1640	
36404	178.50	180.00	1.50	.249	.10	1.72	6.1			2300	872	15454	5.8	165	8750	
36071	180.00	181.50	1.90							2400	133	5000	4.1	240	1560	
36072	181.50	183.00	1.50							2500	200	4900	5.0	270	860	
36073	183.00	184.65	1.65							650	22	390	2.5	190	800	
36074	184.65	186.15	1.50							5300	6	1620	3.1	5	1100	
36075	186.15	187.65	1.50							210	1	265	0.4	5	560	
36076	198.20	198.40	0.20	1.72	.01	1.88	7.4	.07								
36077	233.80	234.10	0.30	.55	.01	.81	3.5	.07								
36078	272.95	274.35	1.40							520	4	8600	.4	5	1760	
36079	274.39	275.80	1.45							910	4	8800	.2	5	1620	

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
29099	28.30	32.60	4.30	18.24	0.005	6.88	7.25	0.09	5.51	0.36	5.04	0.01	51.08	0.51	0.13	95.09	1.6	1	5	39	123	1	213	5
29100	57.00	60.00	3.00	15.56	0.04	1.5	4.81	1.67	3.67	0.28	3.97	0.01	64.01	0.49	0.14	96.13	1.2	1	40	26	94	1	155	5
36401	87.50	90.50	3.00	15.24	0.005	1.44	6.08	0.22	4.73	0.22	5.84	0.01	61.8	0.55	0.79	96.93	0.9	1	7	14	6	1	85	5
36402	123.70	126.70	3.00	14.75	0.02	1.74	6.34	0.65	4.33	0.27	4.84	0.01	61.77	0.62	1.16	96.51	0.9	1	17	74	37	1	145	5
36403	152.20	153.40	1.20	10.8	1.415	3.69	2.72	2.8	1.75	0.05	0.25	0.01	68.63	0.21	2.08	94.4	4.1	84	139	11	24	10	73	350
36404	178.50	180.00	1.50	7.62	0.875	0.21	5.38	2.11	0.82	0.01	0.01	0.01	75.14	0.24	3.66	96.07	5.8	130	66	2300	872	13	15454	165
36405	209.40	212.40	3.00	15.59	0.05	1.85	3.62	1.08	2.08	0.16	6.52	0.01	66.16	0.4	0.2	97.71	1.4	12	115	46	18	1	191	5
36406	227.70	230.70	3.00	16.29	0.055	6.6	8.95	0.65	9.11	0.42	3.18	0.03	46.07	0.64	0.3	92.3	1.5	1	31	118	1	1	227	5
36407	264.00	267.00	3.00	18.58	0.04	2.21	8.97	0.8	11.34	0.23	2.63	0.05	46.88	0.61	0.65	92.98	0.7	1	51	138	1	1	522	5
36408	297.80	300.80	3.00	15.58	0.05	1.36	4.37	2.46	4.23	0.22	2.68	0.03	64.57	0.54	0.48	96.56	0.9	14	94	24	29	1	202	5
36409	331.30	334.30	3.00	15.69	0.05	1.21	4.36	2.86	5.52	0.2	0.82	0.03	62.62	0.54	0.82	94.72	0.5	1	84	8	18	1	206	5

HOLE NUMBER: S91-17

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: Fleetwood

PLOTTING COORDS GRID: Ideal
NORTH: 51.00S
EAST: 8548.00E
ELEV: 269.00

ALTERNATE COORDS GRID: Vent
NORTH: 0+10N
EAST: 86+ 0E
ELEV: 269.00

COLLAR DIP: -75° 0' 0"
LENGTH OF THE HOLE: 340.46m
START DEPTH: 0.00m
FINAL DEPTH: 340.46m

COLLAR GRID AZIMUTH: ° ' "

COLLAR ASTRONOMIC AZIMUTH: 50° 0' 0"

DATE STARTED: July 16, 1991
DATE COMPLETED: July 22, 1991
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: YES
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. Boisvenu Drilling
CASING: 6.1
CORE STORAGE: On property

PURPOSE: Test S91-16 massive sulphides and footwall strger zone 200 m grid west.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
79.25	-	-75° 0'	ACID	OK		-	-	-	-	-	
121.92	-	-76° 0'	ACID	OK		-	-	-	-	-	
210.62	-	-75° 0'	ACID	OK		-	-	-	-	-	
248.41	-	-74° 0'	ACID		Tube leaks	-	-	-	-	-	
335.89	42°30'	-75° 0'	TRO-PARI	OK	Dip -82	-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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LOGGED BY: Colin Burge

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 6.10	CASING					
6.10 TO 29.10	FELDSPAR PORPHYRY DYKE «FPD»	Colour: light green Grain Size: f. and m.gr. Feldspar phenocrysts (1-3 mm) randomly distributed in ultrafine grained matrix -massive, fresh -faint 1-2 mm chlorite flecks possibly replacing hornblendes -occasional 5 cm xenoliths -upper 6 meters fine grained and fsp, more faint Lower contact sharp at	25	-nil	-tr py near lower ctc	Siliceous mottling, carbonate veining and ground core near lower cts - fault? approx. 29.0
29.10 TO 57.00	ANDESITE BLOCK AND LAPILLI TUFF «AND BLT»	Colour: Grain Size: -distinctive large blocks of felsic material and large scoria bombs (35.66) wiht epidote attacking mafic component of fragments -in general matrix supported -some felsic lapilli flow banded -heterolithic and poorly sorted -some large up to 3 mm chlorite filled amygdules ┤39.5-44.1├ «DAC LT/ASH» -LT/Ash, lapilli and ash tuff, massive well sorted contains jasper horizon at 42.0 m ┤48.2-52.7├ «ASH» -fine grain, massive, almost a mud at base		-moderate to strong epidote attacking framework -chlorite filling amygdules and vesicles of scoria bombs ┤48.2-52.7├ «mod chlor» -chlorite moderate	-trace amounts of chalcopyrite and sphalerite ┤42.0├ «Jasp, py» -bedded hematitic chert and pyrite over 3 cm, 1-3 mm m.gr. py laminae ┤45.2-57.0├ «tr cp» -trace to 1% chalcopyrite as disseminated clots	36410 -29.61-32.61 36411 49.7-52.7 53.95-57.0 -2.65 core loss
57.00 TO 93.30	FELDSPAR PORPHYRY DIKE «FPD»	Colour: light green to grey Grain Size: -massive, fresh feldspar porphyritic -chlorite flecks -occasional 3-5 cm mafic inclusions -lower ctc in rubble		-nil	-nil -traces cp at 62.1 (very unusual)	As previously described 36412 75.3-78.3

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
93.30 TO 108.30	DACITE FLOW BRECCIA «DAC FLBX»	Colour: lt. green and white Grain Size: f.gr and m.gr. 93.3-94.45 -chlorite alt'd fine ash tuff as seen 48.2-52.7 Mottled appearance up to 15 cm strongly feldspar porphyritic zones possibly representing a crystal rich matrix -some more siliceous feldspar phyric zones possibly fragments -siliceous zones have vague, nebulous boundaries lower ctc fairly sharp @ 45-50 deg		-nil -occasional anhydrite veinlets seen to increase in size and abundance down-hole	-nil	Appearance of ash tuff on either side of dike suggests dikes may be dilating stratigraphy 96.3 -mercury mineral in veinlets?
108.30 TO 121.65	DACITE FLOW «DAC FLOW»	Colour: light green Grain Size -massive -chlorite flecks, after hornblende -feldspar phyric, feldspar vague -pitted surface similar to the dikes -lapilli tuff at lower ctc		-nil -anhydrite veinlets	-tr py	May be a dike however contacts appear conformable, no xenoliths 36413 111.6-114.6
121.65 TO 132.65	DACITE FLOW BRECCIA «DAC FLBX»	Colour: lt. green and white Grain Size: f.g and m.gr. Mottled, distinctly feldspar phyric zones as well as siliceous zones where feldspar phenocrysts are vague 130.4-131.2 -dacite lapilli tuff -fragment supported, subangular frags -heterolithic but mostly felsic type lithics ┤132.4-132.65├ «CHT» -disrupted chert at base @	 45	Nil -occasional anhydrite veinlets	Nil ┤132.4-132.65├ «tr cp» -chalcopyrite disseminations and anhydrite clots	 -possible horizon
132.65 TO 146.40	DACITE FLOW (?) «DAC FL»	Colour: light green Grain Size: f.gr. and m.gr. -massive, homogeneous v.f.gr. matrix -feldspar phyric, feldspars vague in places -chloritic flecks - possibly replacing hornblendes		-nil -contains occasional anhydrite veinlets	-nil	Identical to 108.3-121.65 -contacts appear conformable

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-pitted appearance				-no xenoliths 36414 139.0-142.0
146.40 TO 150.47	DACITE CRYSTAL LAPILLI TUFF «DAC XT/LT»	Colour: lt. green and white Grain Size: m.gr. -feldspar phyric, occasional -crystal rich, crowded -weak fabric -lapilli are felsic lithics which are also felsic lithics -seems to contain large clasts of underlying flow near lower contact -lower contact irregular but appears conformable		-nil -anhydrite veins	-nil	
150.47 TO 168.90	DACITE FLOW «DAC FL»	Colour: light green Grain Size: f.gr. -contains xenolith or inclusion near upper contact -pitted appearance -massive -faintly feldspar phyric in some place but usually clearly feld phyric -some chlorite phenos after hole -some zones have very fine vesicles filled with epidote -numerous criss crossing narrow veinlets of gypsum -lower contact irregular but appears conformable		Very weak epidote attacking mafic phenocrysts	Nil	Resembles dikes but finer grain, but xenoliths, no chill margins
168.90 TO 176.05	DACITE LAPILLI/XTL AND ASH TUFF «DAC LT/XT ASH»	Colour: light green Grain Size: f.gr. to m.gr. .5 to 1 meter alternating beds of fragment rich dacite lithic lapilli tuffs, feldspar phyric crystal tuffs, and ultra-fine homogeneous massive ash beds or blocks; ashes are cherty upper ctc @ LT mostly felsic lithics, poorly sorted, sub-rounded	80	nil	nil	36415 169.8-172.8

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
176.05 TO 183.18	ANDESITE FLOW? «AND FL»	Colour: dark green Grain Size: f.gr. Contact sharp with overlying ash @ -massive -amygdaloidal zones 181.45-181.6 -lower contact indistinct	80	Moderate epidote chlorite filled amygdules anhydrite veins and veinlets up to 1 cm width, clear - translucent	Nil	Possible Dike
183.18 TO 184.80	DACITE LAP TUFF «DAC LT»	Colour: green and light green Grain Size; m.gr. -densely packed -heterolithic, poor to well sorted, subrounded -fragments mainly dacitic flow and massive ash clasts		-nil	-pyrite clasts less than 3 mm in size fine grained brassy colour	-are they filling crevices or possible tectonic breccia?
184.80 TO 187.40	ANDESITE FLOW «AND FL»	Colour: dark green Grain Size: f.gr. Upper ctc runs along core axis and massive -amygdaloidal -amygdules filled wtih chlorite < 1 mm	10	-wk. to moderate epidote appears to attack chlorite fill amygdules	-nil	-possible dike
187.40 TO 192.00	DACITE LAP TUFF AND ASH «DAC LT/ASH »	Colour: light green Grain Size: f.gr. Heterolithic lapilli tuff as previously described followed by crystal tuffs and as massive ash bed again more LT near base		Nil	Nil	
192.00 TO 205.27	INTERMED. FELDSPAR PORPH. DIKE «IFPD»	Colour: dark brown with pink spots Grain Size: f. and m.gr. Curious amoeboid shaped features along contacts -contains xenoliths -pink feldspar porphyritic -phenocrysts present only 2 meters away from margin; matrix appears muddy		Nil	Nil	Yet another variety of dike 36416 199.3-202.3
205.27 TO 218.00	DACITE LAP TUFF AND ASH «DAC LT/ASH »	Colour: Grain Size: Fragment supported lapilli tuff, - heterolithic dominated by dome fragments; subrounded to sub-		Nil	«tr py» Rare pyrite clasts in LT	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		angular contains occasional chloritic fragment 206.2-210.52 -ultra fine ash beds - bedding at @ thin bedded -largest fragment are subrounded feldspar phyric dacite flow clasts to 6 cm	80	ǂ216.07-216.7ǂ «i chlor» -intense chlorite	-traces of ultra fine pyrite in ash beds ǂ216.6-216.7ǂ «Py clsts» -pyrite clasts -appears to form fine grained disseminations in siliceous clasts -appear like sulphide frags but not massive -clasts are rounded and 10-20 cm in size	36080 216.5-216.82 -trace only
218.00 TO 251.90	DACITE FLOW «DAC FL»	Colour: green and white Grain Size: f.g and m.gr. -massive, flow banded dacite flow complex -flow banded in variety of angles to c.a. -feldspar phyric -matrix silicification in places 231.85-232.35 DAC LT -lapilli tuffs have contacts nearly parallel to c.a., possibly filling crevices of flow contact strongly deformed, muddy pyrite over 10 cm	55	-wk silica, wk-moderate to matrix silicification; anhydrite veining common; in places they appear stope wall rock	-nil -below 240.8 traces of ultrafine py ǂ251.9ǂ «Py» -semimassive pyrite over 10 cm as deformed zone	ǂ231.55-240.8ǂ «ANH VNS» -spectacular anhydrite veins wandering through pile 36417 239.9-242.9
251.90 TO 291.30	FELDSPAR PORPHRY DIKE «FHPD»	Colour: light green Grain Size: f. and m.gr. -somewhat ghostly feldspar phenocrysts and mafic (chlorite) phenocrysts set in a homogeneous f.gr. matrix -abundant black patches, possibly represent phenocrysts 256.92 -5-10 cm gouge, lower contact 10 cm gouge		-nil -anhydrite veinlets continue to be as intense as overlying flow	252.25-252.4 -pyrite, 5-7% in siliceous band at 45 deg to c.a.	36418 216.2-264.2

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		ǂ276.55-283.9ǂ «FPD» -upper contact @ -strongly feldspar porphyritic away from margins -2 metre homogeneous fine grained margin	30			
291.30 TO 327.00	ANDESITE FLOW/FLOW BRECCIA «AND FLBX»	Colour: dark green Grain Size: f. and m.gr. Upper ctc fault contact -mafic flow fragments frothy appearance densely packed -fragment supported flbx also massive amygdaloidal zones -below 308 rare felsic clasts with felsic clasts common toward base of unit -amygdules infilled with epidote and occasionally pyrite 312.6-312.9 -heterolithic lapilli tuff screen		«wk. chl» Weak chlorite -weak to moderate epidote usually as vein selvage	tr-1% py	36419 291.7-294.7
327.00 TO 332.40	FELDSPAR PORPHYRY DIKE «FPD»	Colour: light green Grain Size: f. to m.gr. ǂ327.0-327.5ǂ «ANH» -massive anhydrite vein Feldspar porphyritic -massive -chlorite flecks probably replacing early hornblendes		Anhydrite veins and veinlets	ǂ327.0-327.5ǂ «ANH VN»	
332.40 TO 336.20	ANDESITE FLOW «AND FLOW»	Colour: dark green Grain Size: f. to m.gr. Andesite flow and flow fragments -vesicular -as described 291.3 m to 327.0		Weak chlorite, anhydrite veinlets	-tr-1% py	36420 322.2-325.2
336.20 TO 340.46	DACITE FLOW «DAC FLOW»	Colour: Grain Size: -massive -siliceous -vague mafic phenocrysts		-anhydrite veinlets	-nil	-possible dike

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		312.6-312.9 -LT screen heterolithic				
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
36080	216.50	216.82	0.32							45	27	227	7.8	140	133		

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
36410	29.61	32.61	3.00	17.15	0.005	3.09	7.57	0.24	6.45	0.43	5.26	0.01	54.3	0.58	0.12	95.21	1	1	22	93	2	1	198	5
36411	49.70	52.70	3.00	16.5	0.005	1.85	10.79	0.1	8.64	0.52	4.42	0.03	50.27	0.81	1.07	95.01	1.2	1	10	592	2	1	334	5
36412	75.30	78.30	3.00	13.18	0.02	0.6	2.46	1.04	1.88	0.14	5.17	0.01	73.28	0.29	0.05	98.12	0.4	25	36	22	6	1	72	10
36413	111.60	114.60	3.00	13.65	0.01	1.95	3.28	0.51	1.62	0.13	6.79	0.01	68.43	0.37	1.63	98.38	1.1	1	27	8	7	1	49	5
36414	139.00	142.00	3.00	14.2	0.005	2.43	3.24	0.23	1.43	0.16	7.52	0.01	68.08	0.39	0.44	98.11	0.9	6	12	6	16	1	64	5
36415	169.80	172.80	3.00	13.52	0.015	3.36	4.22	0.49	3.12	0.14	5.66	0.01	64.63	0.38	1.81	97.36	1	1	30	14	5	1	64	5
36416	199.30	202.30	3.00	14.04	0.125	3.32	3.74	2.43	1.68	0.17	3.26	0.01	66.62	0.37	0.26	96.01	1	1	582	330	10	1	204	5
36417	239.90	242.90	3.00	13.83	0.04	1.75	3.13	1.53	2.6	0.09	4.18	0.01	67.46	0.4	1.5	96.51	0.9	91	96	8	14	1	100	5
36418	261.20	264.20	3.00	12.73	0.035	2.05	2.26	1.41	2.43	0.1	3.85	0.01	70.84	0.39	0.57	96.68	1	1	85	14	4	1	61	5
36419	291.70	294.70	3.00	14.51	0.04	3.73	14.25	1.31	10.52	0.46	0.01	0.04	43.51	0.53	5.37	94.27	0.1	1	136	5	2	1	208	5
36420	322.20	325.20	3.00	16.41	0.075	2.14	7.93	1.84	8.91	0.51	1.27	0.01	53.34	0.57	0.84	93.85	0.9	1	109	92	2	1	242	5

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: S91-18

IMPERIAL UNITS:
METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: Fleetwood

PLOTTING COORDS GRID: IDEAL
NORTH: 225.00N
EAST: 8500.00E
ELEV: 295.00

ALTERNATE COORDS GRID: FIELD
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 295.00

COLLAR DIP: -85° 0' 0"
LENGTH OF THE HOLE: 349.15m
START DEPTH: 0.00m
FINAL DEPTH: 349.15m

COLLAR GRID AZIMUTH: 180° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: November 4, 1991
DATE COMPLETED: November 8, 1991
DATE LOGGED: November 8, 1991

COLLAR SURVEY: YES
MULTISHOT SURVEY: YES
RQD LOG: YES

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: Frontier
CASING: 19.8
CORE STORAGE: Property

PURPOSE: Test MS intersected in S91-16 300 meters grid NW near barium enriched surface samples

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
46.30	-	-82° 0'	ACID	OK		-	-	-	-	-	
86.20	-	-81° 0'	ACID	OK		-	-	-	-	-	
127.10	-	-83° 0'	ACID	OK		-	-	-	-	-	
162.20	-	-83° 0'	ACID	OK		-	-	-	-	-	
205.40	-	-82° 0'	ACID	OK		-	-	-	-	-	
249.00	-	-82° 0'	ACID	OK		-	-	-	-	-	
349.15	-	-83° 0'	ACID	OK		-	-	-	-	-	
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LOGGED BY: Colin Burge

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 19.81	CASING					
19.81 TO 61.57	DACITE BLK. LAPILLI & CRYSTAL TUFF «DAC XTLT»	Colour: Grain Size: -felsic blocks and lapilli dominate unit -very well preserved -crystals (feldspar) in matrix and contained in some lithics -fragment supported -occasional epidotized clast -boundaries often vague -most lithics are feldspar porphyritic and massive -some bomb-like shapes -fragments usually subrounded -poorly sorted -epidotized feldspars in matrix in some zones -andesitic? 39.94 -possible fault rehealed Blocks average 6-10 cm - some have weak reaction rims Lower contact gradational over 2-3 meters		-nil	-trace pyrite usually in fractures	-dome debris 35.7-38.7: 11251
61.57 TO 73.50	DACITE FLOW BRECCIA «DAC FLBX»	Colour: very light green Grain Size: m.gr. -massive, feldspar porphyritic zones dominate -probably clasts -matrix on anastomizing siliceous material -generally monolithic -occasional foreign fragment often epidotized (mafics) Lower contact vague		«m. si» -moderate silicification -matrix network silicification -minor silica veinlets, << 1mm, vuggy, open space	-nil -trace py as coarse cubes in vug at 65.2 m	67.9-70.9: 11252
73.50 TO 132.30	FELDSPAR PORPHYRY DIKE «FHPD»	Colour: grey green Grain Size: m.gr. -contact shows wk. hornfels and some shearing at 74.5 m		-nil	-nil	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-hematitic matrix near ctc -massive feldspar porphyritic -feldspars usually euhedral -chaotically distributed feldspar 1-2 mm -mafic xenoliths -chloritic flecks - retrograde hornblendes? 95.1-98.1 -zone of lapilli and crystal tuffs, chloritized 1-2% disseminated pyrite ┤113.4├ «FLT» -20 cm gouge zone (clay) -dolomite veinlets 1-2 mm common on foliation planes ┤131.8-132.3├ «FLT GGE» -fault gogue, sand, gravel and 3% pyrite, minor quartz			95.1-95.6 -2-3% py, quartz vein 2-3 cm, py in vein and wallrock	-blocky, broken core common 107.3-110.3: 11253
132.30 TO 142.80	INTERMED. DIKE «IPD»	Colour; grey and lt. green Grain Size; f. to m.gr. -massive -feldspar porphyritic -pitted surface -some mafic phenocrysts		-weak epidote -vein selvages and feldspars usually epidotized	-nil 140.8 -chalcopyrite along cleavage plane	
142.80 TO 179.65	DACITE FLOW «DAC FL»	Colour: lt. green to green Grain Size: m.gr. Upper 10 cm has faint pinkish hue hornfels? -massive -feldspar phyric -occasional quartz eyes 1-2 mm -mottled green texture -crystal rich zones 166.42 -ground core possible fault Lower contact sharp @	50	-green mottles chlorite alteration -frequency and width of anhydrite veins increases downhole	┤177.4-177.9├ «tr-1% py» -trace -1% disseminated pyrite	┤168.97-179.65├ «ANH» -anhydrite veins up to 2 cm in width 145.4-148.4: 11254 172.52-175.5: 11255

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
179.65 TO 195.45	DACITE ASHES «ASH»	Colour: light green Grain Size: ultra f.gr. -upper 2 meters contain chloritic feldspar porphyritic fragments 1-2 cm -collapse pumice frags? -massive, homogeneous ashes -weakly developed pseudobreccia -pseudo bx of anhydrite veins and veinlets at base ┤190.8├ «FLT» -20 cm gouge, chloritic 192.5 -thin beds and laminae @ 187.0-188.5 -mafic lapilli tuff(?) ┤193.85├ «CHT» -5 cm wide chert bed, trace to 3% ultra fine pyrite	60	┤187.0-188.5├ «stg. chl.» -strong chlorite	┤187.45├ «M Py frags» -massive pyrite fragments 1 cm ┤187.0-188.5├ «2% py» 1-3% py disseminated locally up to 15% pyrite (288.9 m) ┤192.85├ «py lam» 192.45-192.65 -pyritic ash, py 5-7% u.f.gr. ┤193.85├ «CHT» -5 cm wide chert bed, trace to 3% ultra fine pyrite	
195.45 TO 246.78	FELDSPAR PORPHYRY DIKE «FHPD»	Colour; lt. yellow green Grain Size: m.gr. Upper contact sharp at -massive, feldpsar porphyritic, weak qtz phyric -frequent mafic patches and flecks, 1-2 mm in size to several cm's 203.8 -feldspars - subhedral to euhedral -xenolithic Below 214.94 -small << 1 mm tan coloured crystals- leucoxenes? -feldspars become vague perhaps due to alteration ┤222.97-225.2├ «DAC FLBX» -felsic clast rich tuff or autobrecciated flow 237.02-246.78	55	┤195.47-204.4├ «w. ser» -weak sericite anhydrite veins up to 3 cm wide common 204.4-214.94 -fresh dike		«ANH» Similar to dike in MS zone in S-91-10 205.4-208.4: 11256 227.7-230.7: 11257 Anhydrite vein frequency increases toward lower ctc

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-brecciated increase in anhydrite veining 240.3-241.0 -anhydrite matrix breccia				
246.78 TO 289.94	DACITE FLOW «DAC FL»	Colour: lt yellow green to grey green Grain Size: f.gr. -top .24 m clastic zone foreign sulphide rich clasts (2 cm) -.24 m below dike fault 2 cm gouge -massive, feldspar, porphyritic, weakly quartz phyric -Dome fragments near top display excellent incipient alteration zoning -dome is pseudobrecciated by a sulphide stockwork -stockwork mainly ultrafine grained pyrite ad either silica or anhydrite lower down and becomes massive sulphide above 254.84 -stringers of quartz, pyrite =/- chalcopyrite occur below 254.84 at the following intervals 257.25 258.55 260.26 275.30 281.85-289.94 -ultra fine pyrite flooded zone, dark green colour		«stg. si» -strong silica, weak sericite -feldspar phenocrysts vague -classic pyrite and anhydrite and silica network veining (stockwork) -< 1 mm flecks of cream coloured mineral (leucoxenes?) - sericite associated with	┤246.78-249.02├ «MS Stkwk» 25% Sulphide -.5% Cu, 8% Zn/2.24 m -trace galena ┤249.02-254.84├ «MS Stkwk+Stgrs» ┤254.84-260.26├ «MS Stgrs+Py Stkwk» -5.42 m ┤260-260.26├ «Cp stgr» ┤260.26-281.85├ «wk Py Stkwk» Stockwork begins as pyritic anhydrite + /- silica veinlet system and in upper 6 m becomes sphalerite, chalcopyrite veins Upper 2.24 m 25-30% sphalerite, chalcopyrite ┤281.85-289.94├ «10% py» -pyrite stockwork, pyrite medium and fine grained forms anastomising veins and veinlets	246.78-247.02: 36201 247.02-248.02: 36202 248.02-249.02: 36203 249.02-255.02: 36204-36207 255.1-258.1: 11258 273.1-276.1: 11259 Textbook stockwork 285.4-288.4: 11260 292.05-283.05: 36208 (geochem)
289.94 TO 349.15	FELDSPAR PORPHYRY DIKE «FHPD»	Colour: light green speckled Grain Size: Contact chloritic at massive, feldspar porphyritic -mafic xenoliths common as dark green patches up to 1 cm in size -quartz and anhydrite veins common -veining does not form an interconnecting stock-work as in the overlying flow	35	Quartz and anhydrite veins and veinlets	«tr py» 292.0 -trace cp -quartz veins carry trace to 1% pyrite 298.6-298.8 -anhydrite veining + 3-5% medium grained pyrite	«ANH» 303.6-306.6: 11261

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		┤311.8-316.01├ «DAC FL» -dacite flow (?) massive, feldspar phyric, leucoxenes ┤320.14-327├ «DAC FL» -dacite flow, feldspar phyric qtz plus pyrite veins ┤327-327.3├ «FLT GGE» -fault gouge ┤331.9-332.15├ «ANH VN» -andhydrite vein 343.3-343.8 -shattered gouge filled zones possible fault 346.4 -shear zone at 20 deg to c.a.				336.8-339.8: 11262
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
36201	246.78	247.02	0.24	.99	.07	9.84	14.74	.10	.18								
36202	247.02	248.02	1.00	.55	.08	7.41	12.00	.10	.09								
36203	248.02	249.02	1.00	.99	.12	11.90	17.83	.10	1.07								
36204	249.02	250.52	1.50	.44	.03	5.24	5.49	.07	.03								
36205	250.52	252.02	1.50	.17	.02	2.60	3.09	.07	.01								
36206	252.02	253.52	1.50	.85	.01	7.28	8.23	.07	.02								
36207	253.52	255.02	1.50	.24	.01	1.99	2.40	.03	.03								
36208	282.05	283.05	1.00							15	22	54	7	240			

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
11251	35.70	38.70	3.00	13.33	0.01	1.51	2.68	1.04	1.58	0.15	6.29	0.01	70.53	0.32	0.28	97.7	0.5	20	80	44	22	1	72	5
11252	67.90	70.90	3.00	13.91	0.025	1.31	2.74	1.88	2.62	0.14	3.71	0.01	69.97	0.34	0.08	96.73	0.7	1	75	14	15	1	99	15
11253	107.30	110.30	3.00	14.17	0.005	0.88	3.1	1.32	2.42	0.18	5.3	0.01	69.52	0.34	0.07	97.3	0.6	1	64	14	16	1	77	5
11254	145.40	148.40	3.00	13.93	0.005	0.61	2.45	0.76	1.88	0.14	6.79	0.01	70.89	0.3	0.05	97.8	0.7	4	36	9	14	1	63	5
11255	172.50	175.50	3.00	13.28	0.005	4	3.38	0.92	2.92	0.13	5.28	0.01	63.29	0.29	2.03	95.5	0.7	1	43	7	12	1	55	5
11256	205.40	208.40	3.00	13.66	0.01	2.62	3	1.5	2.9	0.09	4.08	0.01	67.24	0.35	0.65	96.1	0.8	2	87	5	11	1	44	5
11257	227.70	230.70	3.00	13.15	0.025	3.49	3.1	2.16	5	0.09	0.15	0.01	64.04	0.34	0.96	92.5	0.6	1	98	6	8	1	53	5
11258	255.10	258.10	3.00	12.44	0.06	0.13	3.86	3.28	1.91	0.06	0.01	0.01	72.73	0.38	1.78	96.64	0.6	39	219	17	19	1	96	25
11259	273.10	276.10	3.00	10.97	0.19	1.59	3.83	3.36	0.91	0.04	0.01	0.01	73.33	0.34	1.6	96.15	2.9	132	319	446	15	7	27	55
11260	285.40	288.40	3.00	15.1	0.045	1.32	6.5	1.8	5.22	0.19	3.38	0.03	59.62	0.48	2.7	96.4	0.9	111	73	108	13	6	109	20

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: Fleetwood

PLOTTING COORDS GRID: Ideal
NORTH: 525.00N
EAST: 8718.00E
ELEV: 326.00

ALTERNATE COORDS GRID: Field
NORTH: 5+40N
EAST: 87+65E
ELEV: 326.00

COLLAR DIP: -74° 0' 0"
LENGTH OF THE HOLE: 333.50m
START DEPTH: 0.00m
FINAL DEPTH: 333.50m

COLLAR GRID AZIMUTH: 186° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 236° 0' 0"

DATE STARTED: November 9, 1991
DATE COMPLETED: November 13, 1991
DATE LOGGED: November 13, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: Frontier Drilling
CASING: 28.04
CORE STORAGE: on property

PURPOSE: Test for MS 200 m N. of S-12 where Deep-EM conductor projects west from L89E

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
37.19	-	-72° 0'	ACID	OK	
151.20	-	-71° 0'	ACID	OK	
197.50	-	-70° 0'	ACID	OK	
244.80	-	-70° 0'	ACID	OK	
288.60	-	-70° 0'	ACID	OK	

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
-	-	-	-	-	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 28.04	CASING					originally cased to 18.3 m then advanced
28.04 TO 211.00	FELDSPAR PORPHYRY DIKE «FHPD»	Colour: lt. green Grain Size: m.gr. -massive -feldspar porphyritic -weakly quartz phyric, occasional dark patch (hornblende?) -numerous fractures and veins and veinlets of dolomite -dolomite forms massive veins in places (57.0 m) -feldspars randomly distributed, subhedral to euhedral 1-2 mm -phenocryst rich zones		-nil	-nil	No mafic xenoliths observed 46.1-49.1: 11263 blocky ground
		{74.1-77.11} «MD» -massive dark green unit with dolomite and hem. veinlets				
		58.6 -shear zone, 2 cm gouge				
		64.45 -shear zone at, 3 cm gouge	20			
		{80.05-86.0} «SHR ZONE» -zone of deformation and gouge; numerous dolomite veinlets folded	27			Badly shattered
		{89.05-90.05} «ASH» -massive, homogeneous, fine grain, ash (?)			89.05-90.05 -2-3% py in ash bed	
		90.05-101.5 -massive, green, faintly feldspar porphyritic, numerous dolomite veinlets				91.44-94.4: 11264
		{101.5-102.5} «FLT» -shearing and gouge down core axis	10			
		102.5 -resume massive feldspar porphyry dike, fresh, feldspar rich			{115.8-121.3} «Qtz Py Vns» -coarse grained	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
					-pyrite occurs in occasional quartz veins and veinlets	
						Narrow (up to 5 cm) gouge zones frequent throughout unit
		117.6 -<10 cm wide quartz vein carrying 20% pyrite				
		119.0 -Quartz vein carrying 2-3% pyrite				
		⊣120.6-121.3⊢ «QTZ Vn» 2-3% pyrite	10			
		133.7 -2-3 cm quartz vein with 5% py				
		138.7 -shear, 5-10 cm gogue at	30			156.7-159.7: 11265
		166.1-170.1 -Mafic dike? -py 1-3%, locally 5%, numerous mafic patches, brecciated zones (168.7)				
		-resume main unit -feldspar porphyry with occasional quartz eye				
		⊣188.1⊢ «FLT» -10 cm gouge zone				
		⊣186.8-194.8⊢ «QPD» -abundant quartz eyes, some as large as 7 mm, contacts gradational with f.p. unit, quartz rich phase				
		⊣201.3⊢ «FLT» -gouge zone 5 mm	40			
		⊣201.75-203.0⊢ «AND LT» -mafic lapilli tuff or dike (?)		201.75-203.0 -strong chlorite alteration		
		205.05-211.0 -several shear zones in blocky, shattered ground, shears are gouge filled and range 20 to 50 deg.				
		Lower ctc marked by shear				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
211.00 TO 226.00	ANDESITE BLOCK & LAPILLI TUFF «AND BLT»	Colour: green and yellow Grain Size: m.gr. and f.gr. -heterolithic, poorly sorted -large, up to 10 cm epidotized clasts - probably felsic blocks -lapilli, mostly subangular felsics -matrix supported -matrix andesitic -broken hematitic zone near contact		«stg epi» -strong epidote alteration forming patches and vein selvedges	«tr cp» -tr py 211.8-213.4 -10-15% py, tr cp, associated with chloritic zone and fault gouge	 Similar to BLT, seen in S-91-05 218.2-221.2: 11266
226.00 TO 252.60	ANDESITE FLOW, FLOW BRECCIA «AND FLBX»	Colour: dark green and yellow Grain Size: f.gr. -contact not clear -frothy mafic clasts with chlorite filled vesicles -monolithic -magnetite occurs as veinlets and in anhydrite veinlets 235.75-238 -anhydrite forms pseudobreccia -densely packed		«stg. epi» -strong epidote	╟235.3-235.8╢ «tr sph» 242.3 -sphalerite and chalcopyrite filled vesicles 237.8-238.0 -1% cp as disseminatians and vein	«ANH» 244.8-247.8: 11267 -1% magnetite
252.60 TO 312.60	DACITE FLOW «DAC FLOW»	Colour: lt. green Grain Size: f.gr. -irregular contact -massive, vague feldspar phenocrysts -pseudo breccia formed by matrix silicification -abundant anhydrite veining - usually barren, forms a weakly developed stockwork -quartz veins often carry pyrite 259-259.5 -sheared and broken zone -2-3% pyrite 276.75-277.50 -andesite dyke of lapilli tuff screen		-Nil -anhydrite veins and veinlets -silicification probably due to proximity to dike 285.6-286.0 -hematitic chert invades flow or possible flow breccia fragments	«1% py» -trace - 1% disseminated pyrite -local concentrations 5% -pyrite in quartz veins	«ANH» -anhydrite veins up to 5 cm wide 273.4-276.4: 11268 300.8-303.8: 11269

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		277.65 -shear 2 cm gouge 278.0 -shear 2 cm gouge Appears to be brecciated toward base Faint mafic phenocrysts and mafic patches recognized in lower part of unit contact sharp at	 30			possible altered dike?
312.60 TO 333.50	FELDSPAR PORPHYRY DIKE «FQPD»	Colour: grey-green Grain Size: c.gr. -massive, fresh feldspars are subhedral to euhedral -chaotic arrangement -occasional quartz eye up to 5 mm and vague -phenocryst rich and coarser grained variety		-nil	-trace pyrite	-no xenoliths

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
	0.00	0.00	0.00														

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
11263	46.10	49.10	3.00	13.14	0.005	1.24	2.4	0.7	1.44	0.1	6.37	0.01	71.56	0.28	0.09	97.32	1.2	33	55	23	17	1	53	5
11264	91.40	94.40	3.00	16.53	0.01	3.03	4.2	1.73	3.37	0.17	2.58	0.06	61.14	0.54	0.3	93.67	1	16	35	37	25	1	77	5
11265	156.70	159.70	3.00	13.26	0.165	1.6	2.1	0.64	1.16	0.13	6.52	0.01	70.95	0.24	0.24	97	1.1	13	1500	90	14	1	44	5
11266	218.20	221.20	3.00	18.19	0.005	6.98	7.34	0.34	7.44	0.88	3.68	0.1	47.7	0.61	0.22	93.48	1.5	1	101	174	16	1	1221	5
11267	244.80	247.80	3.00	16.11	0.005	6.02	10.18	0.05	7.95	0.68	2.93	0.07	47.41	0.71	1.2	93.3	0.5	1	18	204	14	1	391	5
11268	273.40	276.40	3.00	13.87	0.02	3.33	4.23	1.23	2.73	0.18	4.65	0.04	62.79	0.5	1.93	95.5	0.9	1	72	13	16	1	84	5
11269	300.80	303.80	3.00	12.61	0.03	3.19	3.07	0.91	1.86	0.15	5.31	0.01	66.87	0.37	1.77	96.14	0.9	6	206	10	17	1	62	5

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: S91-20

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SENECA
PROJECT NUMBER: 663
CLAIM NUMBER: DOROTHY 4
LOCATION: Fleetwood

PLOTTING COORDS GRID: Ideal
NORTH: 325.00N
EAST: 8465.00E
ELEV: 305.00

ALTERNATE COORDS GRID: Field
NORTH: 3+75N
EAST: 85+10E
ELEV: 305.00

COLLAR DIP: -75° 0' 0"
LENGTH OF THE HOLE: 355.32m
START DEPTH: 0.00m
FINAL DEPTH: 355.32m

COLLAR GRID AZIMUTH: ° ' "

COLLAR ASTRONOMIC AZIMUTH: 50° 0' 0"

DATE STARTED: November 13, 1991
DATE COMPLETED: November 17, 1991
DATE LOGGED: November 17, 1991

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: Frontier Drilling
CASING: 24.38 m
CORE STORAGE: on property

PURPOSE: To test mineraliz'n S-18, 200 meters grid north. Hole terminated in mineralized rock.

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
50.30	-	-78° 0'	ACID	OK		-	-	-	-	-	
99.70	-	-77° 0'	ACID	OK		-	-	-	-	-	
171.00	-	-79° 0'	ACID	OK		-	-	-	-	-	
232.30	-	-79° 0'	ACID	OK		-	-	-	-	-	
263.00	-	-78° 0'	ACID	OK	tube leaks	-	-	-	-	-	
306.90	-	-79° 0'	ACID	OK		-	-	-	-	-	
355.30	-	-78° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 24.38	CASING					
24.38 TO 48.90	ANDESITE DACITE LAP & XTL TUFF «DAC LT-XT»	Colour: green and white Grain Size; f.gr. -lapilli size felsic clasts and feldspar crystals -fragments are vague and ghostly -matrix is andesitic ash size material -rare mafic fragment 44.4 -shear 2-3 cm gouge		-Nil	-trace pyrite	-correlates with AND-DAC BLT in top of S-18 36.90-39.90: 11270
48.90 TO 53.45	FELDSPAR PORPHYRY DIKE «FPD»	Colour: light grey green Grain Size: f.gr and m.gr. -contact sharp at -massive -feldspars up to 2 mm -random distribution -pitted surface -some phenocrysts, vague	80	-nil	-nil	-no xenoliths -no mafic phenocrysts
53.45 TO 65.60	ANDESITE FLOW «AND FLOW»	Colour: Grain Size: Contact sharp @ -massive -amygdaloidal -amygdules chlorite filled - range up to 7 mm in size -some have irregular, almost hour glass shapes	«m. epi» 80 -moderate epidote -epidote patches -epidote veins and vein selvedges up to 10 cm in size -weak chlorite	-trace - 1% pyrite	57.0-60.0: 11271
65.60 TO 73.00	DACITE CRYSTAL TUFF «DAC XT»	Colour: Grain Size: -contact lost -feldspar phyric -crowded -crystals usually 1-2 mm in size -chloritic matrix in some places -appears to have preferred orientation at top		-nil	-nil	-part of the underlying unit -possible flow top

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		(welding or compaction?) -base contains massive feldspar porphyritic dome fragments -fragments boundaries are difficult to discern -lower ctc gradational				-flow top breccia at base
73.00 TO 105.40	DACITE FLOW «DAC FL»	Colour: light green Grain Size: f.gr. -feldspar porphyritic -massive zones and feldspar porphyritic rich zone -crystal rich zones appear to form a matrix for fsp, porphyritic frags similar to base of overlying unit 73-79.55 -very massive, possibly large blocks		-nil	-nil -trace - 15 py locally	88.8-91.8: 11272
105.40 TO 126.00	ANDESITE FLOW «AND FL»	Colour: dark green Grain Size: f.gr. contact sharp @ -massive -amygdaloidal -chlorite-filled amygdules -faintly feldspar porphyritic -amygdules are not frequent	70	«m. epi» -weak to moderate epidote as patches 4 cm and as vein selvedges	111.95 -pyrite clot 2 x 3cm Deep water?	118-121.0: 11273
126.00 TO 130.76	DACITE FLOW ? FPD «DAC FL?»	Colour: lt. white-green Grain Size; f.gr. and m.gr. -very massive -feldspar porphyritic -random distribution of fspars 129.5-130.12 -silicified andesite flow		-nil	«tr py» -trace pyrite	No mafic xenoliths, possible dyke or Dac flow block in andesite flow
130.76 TO 143.00	ANDESITE FLOW «AND FLOW»	Colour: dark green Grain Size: f.gr. -massive -rare amygdules -chlorite filled amygdules usually small 1 mm		-chlorite	«<1% py» -as disseminations, amygdule fill and vein control	140.8-143.8: 11274

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		in size -sulphide (py) fills amygdules at top			136.30 -minor veinlet carrying chalcopyrite and galena	
143.00 TO 146.30	FELDSPAR PORPHYRY DIKE «FQPD»	Colour: light green, speckled Grain Size: m.gr. -massive, feldspar porphyritic -quartz eyes to 5 mm size -crystals are subhedral and vague ┤143.85├ «FLT» -1 m of sand gouge		-nil	-trace pyrite on foliation planes	-no mafic xenoliths possible flow block?
146.30 TO 168.65	DACITE ASH «ASH»	Colour: khaki green Grain Size: ultra fine grained -massive, well preserved -homogeneous -some crystal rich flow fragments at top of unit -develops thin pyritic laminae lower in unit -beddings range 50-70 deg. -flame structures in coarser ash adn pyrite rich laminae indicate tops uphole 154.5-160.75 -Andesite ash -fine grained, dark green, massive, homogeneous 159.1-160.60 -silicified ash and crystal tuff 162.6-163.3 -sulphide mud v.f.gr. pyrite lower ctc appears conformable		154.5-160.75 -moderate epidote as 1-2 cm patches	1-2% pyrite as thin laminae towards base (ultra fine) 149.65-151.50 -fine grained massive pyrite on foliation plane ┤167.8├ «Py lam» -pyritic laminae 2-3 cm wide -trace chalcopyrite associated with elliptical siliceous clasts immediately above 163.5 -2-3% py, siliceous bands carry medium grained pyrite	Synvolcanic fault offsets frequent in pyritic laminae (concretions or accretionary lapilli) 16.4-166.4: 11275
168.65 TO 179.57	FELDSPAR PORPHYRY DIKE «FPD»	Colour; lt. green Grain Size; f.gr. -massive feldspar porphyritic -mafic xenoliths near upper contact			-trace pyrite	«ANH» -anhydrite veins

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-anhydrite veinlets common up to 2 cm wide -lower contact also appears conformable	 80			-possible flow
179.57 TO 183.75	DACITE ASH AND CRYSTAL TUFF «ASH/XT»	Colour: green Grain Size: ultra f.gr. to f.gr. -thin to thick bedded homogeneous ashes -interbedded with thin beds of feldspar crystal tuffs	 75	-Nil -silicification near base -anhydrite veins	-trace pyrite -py laminae at 183.0	-Alternating thin beds of crystal tuff and ash; reminiscent of Seneca hanging-wall sediments
183.75 TO 209.00	FELDSPAR PORPHYRY DIKE «FD»	Colour: grey with pink crystals Grain Size: f. and m.gr. -massive feldspar porphyritic -matrix dominates -feldspars are pinkish and usually euhedral up to 5 mm size 189.72 -fault and ground core		-nil -dolomite veining common	-nil	-post mineralization as seen: S-91-12: 69-86 m 206.0 -amygdaloidal
209.00 TO 216.70	FELDSPAR PORPHYRY DIKE(?) «FPD?»	Colour: light green Grain Size: f.gr. -massive, feldspar porphyritic -mafic xenoliths common as dark green patches, up to 1 cm -seems to grade in and out of more dacite flow looking material eg 216.5-218.0		-frequent anhydrite veining -siliceous zone	-trace pyrite	«ANH» As seen 168.7-179.6 -and near sulphide zones in S-16, S-10 -possible sill 11276: 212-215
216.70 TO 249.70	DACITE FLOW «DAC FL»	Colour: lt. green to whitish green, mottled Grain Size: f.gr. -contact sheared at -massive QFP dome -quartz porphyritic -qtz eyes usually less than 1 mm -feldspar porphyritic -feldspars vague -phenocrysts usually subhedral	 55	«m. si» -silicification weakly developed anhydrite and pyrite pseudobreccia of stockwork type veining	«2% py» -as an ultrafine pseudobreccia and ultrafine - almost colloform pyrite stringers eg. 222.65	«wk anh-py stkwk» -Fleetwood Dome vaguely quartz phyric. 220.1-223.1: 11277 244-247: 11278

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-flecks of white quartz-sericite mineral on core (leucoxene?)				
249.70 TO 273.47	FELSIC DIKE «FD»	Colour: very light brown Grain Size: ultra f.gr. ctc sharp at .6 m chill margin -extremely massive -weakly porphyritic -homogeneous except for occasional phenocryst - quartz or feldspar?, subhedral 1-2 mm -occasional dolomite vein (pinkish) -chilled margin -contact sharp	55 45	-Nil	-Nil	As seen S-91-10: 0-100 m 262-265: 11279
273.47 TO 355.32	DACITE FLOW «DAC FL»	Colour: very light green mottled Grain Size: f.gr. -massive QFP dome -quartz and feldspar porphyritic -phenocrysts vague and difficult to see -pseudobreccia of quartz, anhydrite and fine sulphide veins form a weak stockwork ┤273.45-278.07├ «DAC LT» -dacite blocks and heterolithic lapilli tuff, LT possibly filling fissures developed in flow? felsic clasts dominate ┤278.07-285.45├ «FHPD» -mafic xenolith rich QFP dike, anhydrite veinlets but no sulphides in veins ┤352.7├ «FLT» -30 cm gouge -resume sphalerite bearing unit below fault		-bleached looking selvedges around individual stockwork veinlets -weak silicification	«┤273.45-278.07├ «tr sph, cp» -siliceous lapilli contain traces of chalcopyrite and sphalerite ┤285.45-355.32├ «tr sph/cp» 300.3-300.6 -quartz-pyrite stringer; 2-3% py ┤307-355.32├ «2% py» «qtz-sph cp vns» -quartz veins carrying 1-2% sphalerite and chalcopyrite, sph is usually brown with purplish margins	«ANH» As seen 216.70-249.70 285.6-288.6: 11280 306.9-309.9: 11281 317.25-318.25: 36210 328.3-331.3: 11282

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
					Unit contains 1-2% ultra fine disseminated pyrite	349.1-352.1: 11283 terminated in mineralized rock Hole should be extended to test Mafic contact
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Pb %	Zn %	Ag g/t	Au g/t	Ba %	GEOCHEMICAL Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
36209	159.50	160.50	1.00							13	50	1	.2	10	20		
36210	317.25	318.25	1.00							700	5200	14	1.0	45	1480		

Sample	From (m)	To (m)	Length (m)	Al2O3 %	BaT %	CaO %	Fe2O3 %	K2O %	MgO %	MnO2 %	Na2O %	P2O5 %	SiO2 %	TiO2 %	S %	Total %	Ag ppm	As ppm	Ba ppm	Cu ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb
11270	36.90	39.90	3.00	12.69	0.005	0.5	2.63	1.06	1.57	0.11	5.44	0.01	72.61	0.3	0.35	97.28	1	77	71	31	17	3	55	5
11271	57.00	60.00	3.00	20.05	0.005	5.38	8.69	0.54	5.09	0.28	5.98	0.07	47.53	0.68	0.16	94.46	1.3	6	106	114	13	1	193	5
11272	88.80	91.80	3.00	13.91	0.005	1.26	2.64	1.06	2.19	0.12	5.48	0.01	69.49	0.31	0.15	96.6	0.7	19	75	8	15	1	79	5
11273	118.00	121.00	3.00	17.73	0.005	3.98	8.6	0.06	5.25	0.32	6.62	0.14	51.89	0.81	0.12	95.53	0.6	1	17	24	16	1	130	5
11274	140.80	143.80	3.00	16.27	0.005	2.43	8.98	0.46	6.14	0.49	4.74	0.16	54.28	0.87	0.74	95.56	0.1	1	25	56	22	1	450	5
11275	163.40	166.40	3.00	15.4	0.005	2.35	7.74	0.1	5.26	0.55	6.3	0.06	56.86	0.69	0.77	96.08	0.5	1	52	58	24	1	226	10
11276	212.00	215.00	3.00	12.42	0.02	3.21	2.9	1.67	3.47	0.12	2.28	0.01	66.83	0.29	0.96	94.16	0.8	1	49	8	17	1	117	5
11277	220.10	223.10	3.00	14.54	0.02	2.08	3.06	1.41	1.36	0.05	5.75	0.01	67.02	0.41	1.71	97.42	0.9	79	92	13	15	1	61	5
11278	244.00	247.00	3.00	14.8	0.015	2.28	2.24	1.63	1.96	0.07	5.4	0.01	66.21	0.43	1.12	96.18	1.2	35	48	8	18	1	85	5
11279	262.00	265.00	3.00	12.17	0.115	1.29	2.03	2.76	0.58	0.07	5.44	0.01	72.32	0.29	0.19	97.24	1.2	1	145	17	11	1	48	5
11280	285.60	288.60	3.00	16.51	0.14	0.34	3.78	3.92	5.75	0.14	0.59	0.09	61.84	0.57	0.88	94.55	0.9	11	142	126	19	1	1728	15
11283	349.10	352.10	3.00	12.56	0.125	0.93	4.21	3.41	2.63	0.11	1.75	0.03	69.23	0.43	1.97	97.38	0.8	19	224	15	28	1	489	5
11281	306.90	309.90	3.00	12.19	0.145	1.39	4.55	4.03	2.29	0.1	0.83	0.02	68.17	0.42	2.87	96.99	1.7	29	253	152	26	1	6254	10