

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
64.80 TO 79.50	EPICLASTICS «EPI»	<p>Colour: light purple grey Grain Size: Fine to medium grained</p> <p>-Fine granular appearance, strong hornfels, biotite development = purple colouration -Occasional zones with thinly bedded light grey, light purple interbeds</p> <p>69.6 - 70.3m Light grey, fine grained felsics 74.3 - 75.3m Young mafic dyke, light green, 1-2% feldspars, porphyritic. Irregular upper contact. Good chill at lower contact.</p> <p>-Good bedding measurements from thinly bedded zones as follows:</p> <p style="margin-left: 40px;">75.35m 75.4m 79.15m 79.2m 79.35m</p>	65 66 77 77 75			23284 75.82 - 78.94m
79.50 TO 131.67	EPICLASTICS /ARGILLITE «EPI/ARG»	<p>Colour: Light purple, dark grey Grain Size: Fine to medium grained</p> <p>-Fine to medium grained granular epiclastics with some coarse to very coarse and lapilli stone intervals - thin bedding developed in epiclastics -Occasional dark grey massive argillite beds</p> <p>79.5 - 80.05m Argillite 80.05 - 85.66m Epiclastics, 2-3cm frags at 85.0m - 85.13m bedding at 85.66 - 86.95m Argillite, trace pyrite 86.95 - 100.35m Epiclastics Numerous coarse and very coarse 3-7cm intervals. Good bedding angles. 90.95m erosional base, coarse grained fining uphole. Rare felsic frags to 6cm. 1-2% pyrrhotite at lower contact</p> <p>- 88.05m bedding at - 91.45m bedding at - 96.2m bedding at - 96.25m bedding at</p> <p>100.35 - 102.43m Argillite</p>	63 70 72 75 77	-Strong biotite, up to 50% biotite locally	85.66 - 86.95m Trace pyrite	23285 95.1 - 98.1m

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		102.43 - 103.63m Epiclastics 103.63 - 104.37m Argillite 104.37 - 111.62m Epiclastics, fine to med grained - at 107.75m - bedding at 107.95m 111.62 - 116.15m Felsic Tuff, Ash, Quartz eye phytic. 112.7 - 112.8m grading fining up hole in granular lithic QP Tuff. 116.15 - 118.1m Epiclastics 118.1 - 119.6m Argillite 119.6 - 120.77m Epiclastics 120.7 - 122.41m Young mafic dyke, 3-5% Felspar porphyritic 122.41 - 131.67m Epiclastics, fine to medium grained with numerous coarse to very coarse grained zones with occassional 0.4-1cm felsic lithics. 118.5m 2cm cht. - bedding at 125.53m	66 70 75			23286 123.05 - 125.58m
131.67 TO 146.60	«ARG»	Colour: Black Grain Size: Fine grained -Massive argillite, homogeneous throughout -Screen of epiclastics from 140.82 - 141.3m -Gradational lower contact over 30cm. <1cm felsic lithics within the argillite. Lighter grey colour to argillite.			-Trace pyrrhotite along fracture planes and rare 0.5cm blebs. 23287 135.64 - 138.24m	
146.60 TO 156.45	Felsic Ash Tuff «F ASH/» «TUFF»	Colour: light grey Grain Size: Fine Grained -Massive, strongly hornfelsed, very siliceous with patchy biotite alteration. -Possible vague fragments at top of interval. -Vague fine bedding within ash from 148.0m to 148.35m - bedding at 148.05m - bedding at 148.25m	70 58	-Weak biotite disseminated and occassional <10cm patches	-Trace to <1% pyrite along fracture planes and finely disseminated. -Trace disseminated pyrrhotite -<1% very fine black metallic, finely disseminated	23288 150.68 - 153.68m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
156.45 TO 199.70	Felsic Lapilli Tuff, Tuff Breccia «RHY/TBx»	<p>Colour: Mottle cream, grey and purple</p> <p>-0.5-1cm creamy grey, vague felsic fragments with occasional zones of 2-6cm fragments in a light purple (biotite) groundmass.</p> <p>-very distinctive mottled appearance</p> <p>169.85m Clay gouge along fracture plane at 55 deg to core axis</p> <p>‡162.95 - 165.45‡ «YMD» 1-2% Clay altered laths and 1-2% 1mm white feldspars.</p> <p>Massive, sharp upper contact, irregular lower contact with oxidization over 70cm [lower contact]</p> <p>179.92 - 180.8m Young mafic dyke</p> <p>188.0 - 188.8m Mafic dyke</p> <p>189.7 1.5cm fault breccia fault at</p> <p>195.36 - 195.7m Mafic dyke</p>	10 45	<p>-Moderate biotite within groundmass strongly silicified</p> <p>177.3 - 195.8m Weakly chloritic as 3-7mm patches</p>		<p>-Preferential alteration of groundmass resulting in a biotitic groundmass</p> <p>23289 172.52 - 175.57</p> <p>23290 192.28 - 195.28</p>
199.70 TO 289.95	Slumach Rhyolite Flow, Lapilli Tuff, Tuff Breccia «RHY LT»	<p>Colour: Light to medium grey, patchy mottled purple brown</p> <p>Grain Size: Fine Grained</p> <p>-Fine massive, siliceous rhyolite flow with 1-2mm retrograded cordierite</p> <p>205.74 - 207.87m Mafic Dyke, dark green, fine grained, massive, <1-1% <1-2mm white calcite specks. Good chill at upper contact.</p> <p>213.7 - 217.63m and 219.76 - 220.68m Dark grey, massive siliceous rhyolite?</p> <p>213.66 - 222.5m Very broken core, fault gouge at approximately 217.8m and 221.0m</p> <p>‡213.66‡ «FLT»</p> <p>-Below 233m within strongly silicified zone, patchy mottled fragmental appearance with 1-3cm round felsic lithics.</p>		<p>-Strongly silicified</p> <p>‡228.14 - 233.55‡ «S-I Sil» Strong to intense silica flooding</p>	<p>199.7 - 213.66m 5% very finely disseminated pyrite</p> <p>225.35 - 289.95m <1-1% disseminated sphalerite, trace galena and chalcopryrite. Localized concentrations as follows: ‡225.35-226.60‡ «2-3% Sp» 2-3% sphalerite disseminated and as 0.2-0.7cm semi massive veinlets. <1% galena intergrown with sphalerite</p>	<p>23291 210.92 - 213.66m</p> <p>Reduce to BQ at 222.50m</p>

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		<p>medium grey with 20 - 40cm biotite cordierite hornfels screens</p> <p>303.7 - 304.25m Mafic dyke, dark green, massive, hornfelsed</p> <p>304.25 - 306.45m Light grey more felsic looking massive hornfels with 10-40cm screens of biotite cordierite hornfels. Cordierite porphyroblasts up to 5mm</p> <p>306.45 - 307.63m Mafic Dyke, massive hornfels fault gouge at 306.86m and at lower contact Upper contact Lower contact</p> <p>307.63 - 309.75m Intermediate dyke, medium green, massive, 3% 2-3mm feldspar laths, calcite fractures, disseminated specks, and feldspar alteration</p> <p>309.75 - 316.0m Felsic - Dacitic? Medium grey, purple grey, massive, greenish 2-3mm cordierite</p> <p>311.8 - 312.2m Mafic Dyke</p> <p>316.0 2-3mm of clay gouge</p> <p>316.0 - 393.8m Mar Andesite proper. Well developed biotite cordierite hornfels</p> <p>325.44m to approximately 329.8m Felsic Dyke? Medium grey, fine grained, massive, very siliceous and very blocky. Patchy faint creamy grey cordierite? Lower contact in rubble</p> <p>329.85 - 332.55m 4-5mm cordierite</p> <p>332.55 - 335.7m Mafic dyke, hornfelsed, massive</p> <p>335.7 - 336.85m Giant cordierite 0.5 - 1cm</p> <p>336.85 - 337.2 and 337.52 - 339.2 Mafic dyke, weak pervasive calcite, calcite specks. Massive, hornfelsed</p> <p>339.2 - 348.0m 0.5 - 1.0cm Cordierite porphyroblasts</p> <p>348.0 - 348.57m Young mafic dyke; mm calcite amygdules Upper contact Lower contact</p> <p>349.52 - 349.81m Young mafic dyke</p>	<p>62 69</p> <p>85 48</p>	<p>316.0-393.8m «i biot cord» Intense biotite cordierite</p> <p>316.0 - 320.15m Moderately abundant <1cm wormy quartz veins. Same interval cordierite 6-7mm and up to 1cm</p>	<p>305.2 - 306.45m 2 - 3% fine disseminated pyrite. Includes 305.45 - 305.68m with 2 - 3% disseminated chalcocopyrite</p> <p>Trace disseminated pyrite</p> <p>320.23m Trace red brown sphalerite</p> <p>325.51 - 325.62m 3-5% fine pyrite veining, stockwork</p>	<p>23321 305.41 - 306.05m</p> <p>23322 316.08 - 319.08m</p> <p>23323 340.46 - 343.51m</p>

HOLE NUMBER: MM-15

MINNOVA INC.
DRILL HOLE RECORD

DATE: 27-November-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
E.O.H.		<p>356.5 - 358.65m 0.5 - 1cm dark cordierite 358.65 - 380.5m Massive, very dark grey. cordierite vague but present with zones of well outlined 5-7mm and up to 1cm cordierite porphyroblasts 363.32 - 368.2m 1-2% 1-3mm rounded and irregular shaped white clots. Possible remnant feldspars (crystal tuff, lithic tuff) or amygdules (flow) 385.2 - 386.0m 0.7 - 1cm cordierite</p>		<p>349.81-366.4m «Qtz Vns» Fairly abundant <0.5cm wormy quartz veining. Patchy intense veining. 377.05 - 382.05m Weak qtz/silica veinlets</p>	<p>391.5m 1cm with 10% very fine pyrite</p>	<p>23324 366.37 - 369.37m 23325 390.75 - 393.75m</p>

Sample	From (m)	To (m)	Length (m)	ASSAYS						GEOCHEMICAL								COMMENTS		
				CU %	ZN %	PB %	AG g/T	AU g/T	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	BA PPM	AS PPM	SB PPM			
23292	225.35	225.95	0.60								705	8000	4800	21.5	173					
23293	225.95	226.60	0.65								625	16500	4300	13.2	174					
23295	227.65	228.15	0.50								2900	8600	590	11.8	357					
23297	229.15	230.15	1.00								41	5150	765	1.3	13					
23298	230.15	231.27	1.12								51	2850	465	0.9	2					
23299	233.02	234.38	1.36								165	2750	525	1.4	24					
23300	234.38	235.78	1.40								93	1600	330	0.6	1					
23302	242.14	242.64	0.50	.004	2.25	.16	2.2	.06												
23303	242.64	243.12	0.48	.009	.19	.02	0.2	.02												
23304	243.12	244.62	1.50								111	8150	2450	1.3	30					
23306	246.12	247.62	1.50								42	445	21	0.5	2					
23307	247.62	249.12	1.50								77	6600	180	0.4	1					
23308	249.12	250.62	1.50								14	675	96	0.6	2					
23309	260.62	252.05	1.43								33	7600	255	0.6	5					
23313	274.60	275.10	0.50								1100	465	42	3.7	242					
23314	278.70	279.50	0.80								24	5400	1680	2.1	120					
23316	284.70	285.70	1.00								845	4600	1410	2.4	228					
23317	285.70	286.70	1.00								795	3450	139	1.6	184					
23318	286.70	287.70	1.00								520	7600	57	1.4	94					
23319	287.70	288.60	0.90								365	540	220	1.2	80					
23321	305.41	306.05	0.64								3950	101	38	2.8	27					

Sample	From (m)	To (m)	Length (m)	AL2O3 %	BA %	CAO %	FE2O3 %	K2O %	MGO %	MNO2 %	NA2O %	P2O5 %	SiO2 %	TiO2 %	S %	TOT %	AG PPM	AS PPM	BA PPM	CU PPM	PB PPM	SB PPB	ZN PPM	AU PPB
23282	19.81	22.56	2.75	17.11	0.065	2.25	5.28	2.42	1.92	0.16	6.2	0.12	61.52	0.66	0.04	97.73	1.7	1	273	10	28	2	66	10
23283	48.16	50.90	2.74	16.66	0.075	2.45	4.16	3.44	2.23	0.08	3.29	0.12	64.98	0.47	0.45	98.38	1.5	14	62	27	31	1	81	5
23284	75.82	78.94	3.12	15.63	0.075	2.07	3.11	2.46	1.43	0.05	4.19	0.1	67.84	0.38	0.16	97.5	0.4	2	161	16	14	1	46	5
23285	95.10	98.10	3.00	16.51	0.045	2.79	4.7	1.97	2	0.09	4.96	0.13	64.53	0.67	0.18	98.58	1.5	1	318	31	22	1	68	5
23286	123.05	125.58	2.53	17.65	0.055	2.98	5.59	1.26	2.8	0.08	4.05	0.15	62.73	0.71	0.13	98.19	1.5	1	425	19	31	1	82	10
23287	135.64	138.24	2.60	17.64	0.07	2.22	4.66	2.96	2.42	0.06	1.9	0.13	63.65	0.61	1.47	97.78	1.2	15	204	54	159	1	156	15
23288	150.68	153.68	3.00	12.88	0.04	1.95	2.19	1.91	0.71	0.08	4.62	0.09	73.49	0.34	0.21	98.5	1	12	24	9	11	1	31	10
23289	172.52	175.57	3.05	13.37	0.075	1.63	1.27	2.03	1.44	0.04	3.1	0.07	74.85	0.16	0.07	98.1	0.7	7	109	4	18	1	34	5
23290	192.28	195.28	3.00	13.8	0.08	0.77	1.49	1.01	2.88	0.04	2.29	0.07	74.13	0.18	0.02	96.74	0.2	1	130	2	16	1	26	5
23291	210.92	213.66	2.74	10.62	0.195	1.38	2.05	2.28	1.42	0.07	0.29	0.07	75.2	0.18	1.62	95.38	0.2	1	158	5	26	1	72	5
23294	226.60	227.65	1.05	24.09	0.115	0.07	3.34	3.28	4.31	0.01	0.44	0.09	61.41	0.4	0.93	98.48	2.2	1	271	363	306	1	925	25
23301	237.82	240.82	3.00	10.68	0.18	0.33	1.64	5.34	1.28	0.07	0.21	0.05	77.02	0.18	0.65	97.63	0.7	4	172	68	322	2	1459	5
23305	244.62	246.12	1.50	11.15	0.23	0.23	2.44	6.29	1.96	0.22	0.18	0.07	74.38	0.22	0.52	97.89	0.5	23	88	266	36	1	395	445
23310	256.90	257.45	0.55	11.32	0.235	0.25	2.06	6.8	1.61	0.18	0.19	0.06	74.5	0.22	0.57	97.99	0.1	33	84	52	65	1	1307	220
23311	265.79	266.29	0.50	18.77	0.055	7.63	9.09	3.03	6.27	0.39	1.48	0.26	49.72	0.97	0.3	97.96	2.3	2	304	86	54	1	162	10
23312	267.31	270.31	3.00	14.67	0.225	0.36	2.03	6.21	2.97	0.14	0.36	0.08	69.24	0.27	0.14	96.71	0.1	21	176	3	29	1	216	10
23315	281.03	284.03	3.00	12.8	0.08	0.19	3.23	3.87	3.52	0.17	0.07	0.09	71.38	0.25	0.62	96.27	0.2	20	193	68	309	1	935	20
23320	300.60	303.07	2.47	18.74	0.125	0.4	8.33	5.15	3.95	0.2	0.41	0.14	55.22	0.77	2.65	96.08	0.5	16	232	340	96	1	333	15
23322	316.08	319.08	3.00	10.48	0.02	0.26	6.8	1.81	5.34	0.18	0.02	0.14	70.31	0.46	1.09	97.13	1	35	150	70	65	1	245	5
23323	340.46	343.51	3.05	18.25	0.04	1.77	6.4	2.36	5.72	0.16	4.53	0.16	56.51	0.65	0.08	96.63	1.2	17	322	35	38	2	124	5
23324	366.37	369.37	3.00	19.16	0.11	0.93	7.74	4.25	5.77	0.26	3.73	0.16	54.62	0.69	0.08	97.5	1.9	16	513	375	45	1	209	5
23325	390.75	393.75	3.00	19.44	0.12	3.5	8.11	4.12	5.92	0.25	1.99	0.21	51.99	0.79	0.16	96.61	2.6	12	316	110	286	1	186	5

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0.00 TO 3.05	Casing					
3.05 TO 77.25	MAGGIE EPICLASTICS «EPI»	<p>Colour: grey to purplish grey Grain Size: Fine grained to coarse grained</p> <ul style="list-style-type: none"> -Clastic appearance -Well sorted in most places -Some Siliceous patches or beds at -Strongly hornfelsed -Rock contains quartz, feldspar, and matrix biotite <p>‡9.60‡«flt»</p> <p>17.80 - 18.20m Coarser material, 1-2cm size clasts, lithics 21.60m Very coarse material, 2-3cm clast</p> <p>Below 32.60m Siliceous bands or beds become more frequent, form patches of siliceous material</p> <p>‡39.40-39.90‡«YMD»</p> <ul style="list-style-type: none"> -Feldspar prophyritic, well developed chill margins <p>Below 48.50m Hornfelsing intensifies and rock loses its clastic appearance, purple mottled looking 53.80 - 57.18m White to light grey, massive, siliceous unit - contains traces of pyrite, otherwise homogeneous, could be a felsic dyke? 57.18 - 77.25m Purple hornfels, no visible fragments, vague mottling. Minor quartz veining, less than 1 cm</p> <p>‡69.50-70.72‡«ID»</p> <ul style="list-style-type: none"> -Intermediate dyke, olive green, chill margin. Carbonate veinlets in middle 	70	nil	nil	<p>-Hornfelsed wackes</p> <p>23326 11.28 - 14.28m</p> <p>23327 36.40 - 39.40m</p> <p>23328 66.19 - 69.19m</p>
77.25 TO 96.10	MAFIC SILL/DYKE «MD»	<p>Colour: Black to Grey Grain Size: Very Fine Grained</p> <ul style="list-style-type: none"> -Massive, homogeneous, aphyric unit. Biotite rich -very vague 2mm possible amygdules <p>‡84.85-86.70‡«ID»</p>				<p>-Possible very fine grain flow. Mistaken in quick log for argillite</p>

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		-feldspar porphyritic olive green. Carbonate filled amygdules ‡87.0‡«flt» -Sandy gouge 10cm				23329 91.29 - 94.29m
96.10 TO 143.22	MAGGIE EPICLASTICS «EPI»	-Clastic looking, numerous lithic fragments -Very strong biotite hornfels -Siliceous patches -Includes felsic ash tuffs ‡114.12-116.74‡«ID» -Feldspar porphyritic - light -Thicker bedded usually 10-20cm -Thin bedded hornfelsed zone at 125.0m, Bedding -Occasional felsic lithic fragment 129.16 - 129.40m Young dyke ‡129.87-130.27‡«YMD» -Good Chill Margins	45		-Below 120.0m smears of pyrrhotite on foliation plane ‡143.20‡«po» - 2-3cm pyrrhotite rich band at lower contact	23330 122.53 - 125.53m
143.22 TO 159.13	ARGILLITE «ARG»	Colour: Black Grain Size: Fine Grained Contact sharp at -Massive -Featureless -Occasionally strongly hornfelsed bands ‡143.48-144.20‡ «YMD» lower ctc gradational as more felsic material (ash) contaminates sediments	50		- 1-3% pyrrhotite locally -irregular shaped clots of pyrrhotite up to 1x1cm -pyrrhotite as smears on foliation planes po as smears on foliation planes ‡147.3‡ «po frags» po at lower ctc	-flame structure at top of argillite 153.01-156.01 23331

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159.13 TO 217.28	RHY TBX «RHY TBX»	<p>Colour: white and light brown Grain Size: medium to coarse grained</p> <p>-rhyolite crystal -lithic tuff - breccia -strong hornfels often masks fragments - clasts look vague and ghostly -siliceous patches interpreted to be rhyolite blocks -crystal (feldspars) rich matrix in some zones -fragment rich poorly sorted</p> <p>‡160.16-160.86‡ «MD»</p> <p>195.68-199.95 -cherty zones -increased hornfelsing -bands of cordierite usually less than 10 cm wide</p> <p>-faulted lower etc</p>		-nil	-nil	<p>Slumach Rhyolite Hanging wall clastics</p> <p>177.39-180.39 23332</p>
217.28 TO 235.50	ANDESITE «AND LT»	<p>Colour: dk brown with light blue spots Grain Size:</p> <p>-lapilli size lithic fragments occur occasionally, easily seen on dry core - otherwise 5-7 mm size cordierite elliptical shapes dominate fine grained biotite matrix -some zones have tiny < 1 mm cordierite rich zones</p> <p>‡223.0-224.40‡ «YMD»</p> <p>‡229.2-230.05‡ «YMD»</p> <p>‡233.90-234.20‡ «Qtz» -pegmatite - very coarse crystals of quartz and anthophyllite (?) (fibrous, soft mineral)</p> <p>etc gradational</p>		«i biot-cord»	tr py	<p>typical "dalmationite" identical to Mar andesite</p> <p>234.0 -large 3 x 5 cm fragment of massive pyrite in quartz -anthophyllite vein</p>

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235.50 TO 312.20	RHYOLITE LT «RHY LT»	<p>Colour: white to light grey-green Grain Size: medium grained</p> <p>-rhyolite lapilli tuffs and ash/chert beds alternating -lapilli stones are 1-2 cm in size sub-rounded and poorly sorted -some zones are fragment supported where cordierite alteration hasn't masked textures -246.0-257.0 LT and cherty zones ‡238.60‡ «FLT»</p> <p>‡242.28-246.20‡ «YID» -young intermediate dike feldspar porphyritic, olive green colour -good chill margins</p> <p>‡250.1‡ «FLT» gouge</p> <p>‡262.30-262.90‡ «FLT» -gouge plus broken rock</p> <p>‡265.0‡ «FLT» -strong silica flooding below fault zone dissem. fine flecks of white reflective mineral, soft, possibly anthophyllite</p> <p>‡277.15‡ «FLT» -2 cm gouge</p> <p>280.35-285.60 -TBx -LT -large felsic lithics, vague, up to 10 cm, fragment supported</p> <p>288.55-288.90 -thin bedded material at 55 deg possible chert</p>		<p>‡257.0-265.5‡ «carb» -carbonate altered pitted appearance -cavities up to 1 x 2 cm occur through-out section</p> <p>‡265.50-278.90‡ «i si»</p> <p>274.0-278.9 -biotite -patchy mottles flooding in the matrix</p> <p>‡278.90-280.35‡ «i si» -intense silicification</p> <p>280.35 -strong silicification</p>	<p>237.70-237.90 -5-7% fine grain dissem. pyrite</p> <p>249.04 sulphide rich fragments</p> <p>254.3-254.50 -tr sph.</p> <p>256.20-257.0 -py 2-3% sph tr-1%</p> <p>262-263 core loss approx. 1 meter 265.50-274.0 -tr. sph. -locally 1-2% disseminated brown clots -sph appears to favour more silicified zones</p>	<p>249.02-252.02 23335</p> <p>271.10-272.60 23336</p> <p>coarse fragmental phase</p> <p>289.90-290.30</p>	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>or silicified ash</p> <p>‡292.60-293.60‡ «YMD» -good chill margins</p> <p>295.0-306.5 -felsic lapilli in matrix of sphalerite mineralization -lapilli of various sizes up to 2 cm, well rounded poorly sorted but frag supported</p>				<p>23337</p> <p>-contained disseminated sph. 288.90-312.20 -1-2% diss. sph -tr-1% py -tr-1% ga</p> <p>294.80-295.30 23338 -coarse disseminations of sph(?) form a weakly developed stockwork (or biotite) 296.30-297.80 23339 -plus very fine grain galena</p> <p>297.80-299.30 23341</p>
312.20 TO 424.00	INTERM. LT XT «RHY LT/XT»	<p>Colour: Grain Size: -heterolithic felsic and mafics -more intermediate look LT</p> <p>‡323.60-324.55‡ «MD» -fault gouge at lower contact mafic sill/flow variety</p> <p>‡337.20-346.42‡ «LT-XT» -mod biot, felsic lithics form framework, feldspar crystals apparent in matrix</p> <p>‡346.85-347.80‡ «MD»</p> <p>‡355.45-358.55‡ «MD» -mafic sill or flow variety, faintly porphyritic</p> <p>346.42-390.1 -biot. flooded felsic lapilli tuff -clear sub-rounded felsic lapilli stone with crystal tuff matrix, biotite rich matrix</p>		<p>‡312.20-337.20‡ «st. biot» -biotite flooding</p>	<p>‡319.65-323.40‡ «2% sph»</p> <p>337.20-346.42 tr sph</p> <p>345.3-346.05 -1-2% sph, tr-1% cp</p> <p>355.42-355.45 -cp 1-2%, sph tr-1% in veinlet adjacent to dike ‡346.42-390.1‡ «1% sph» -tr-1% diss. sph</p> <p>‡373.99‡ «sph» -veinlet of spaherite up to 1 cm wide cuts core at high angle -fracture fill variety</p> <p>‡377.04‡ «sph»</p>	<p>315.08-316.08 23341</p> <p>319.65-320.65 23342</p> <p>308.98-309.98 23343</p> <p>330-333.0 23344</p> <p>345.17-346.17 23345</p>

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		390.1- -large (up to 2 cm) irregular, sub-rounded felsic lapilli dominate rock -strong biotite flooded matrix †393.0† «FLT» -rubble/sand and cave 415.10 -biotite forms bands possibly remnant beds at 415.10-424.0 -possible transitional intermediate tuffaceous beds -strong hornfels, few fragments contact vague and irregular	40		-clots 1 cm wide occur in a veinlet brown sphalerite 419.60-419.70 -py 1-2% -cp tr -strong biotite alteration in zone	387.73-389.23 23347 407.52-410.52 23349 416.66-419.66 23350 -possible horizon
424.00 TO 454.50	CRYSTAL TUFF «RHY TUFF»	Colour: grey Grain Size: fine to medium grained -strongly hornfelsed siliceous and biotite bearing rock -clearly amygdaloidal or quartz phytic below 440.3 †425.20-426.60† «YMD» 429.18-429.29 -narrow young mafic dike -occasional felsic dike		-siliceous upper portion -strong biotite	-nil	possible intrusive 426.60-429.60 23351 avoiding dike 444.75-447.75 23352
454.50 TO 480.67	INTERMED. LAPILLI TUFF «RHY LT»	Colour: white and grey Grain Size: medium grained -mafic (biotite rich) and felsic fragments occur in a siliceous matrix -felsic frags are irregular and sub-rounded		-nil -soft reflective mineral occurring in aggregates, possibly anthophyllite	-tr. py	462.38-465.38 23353

HOLE NUMBER: MM-16

MINNOVA INC.
DRILL HOLE RECORD

DATE: 27-November-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
	E.O.H.	-mafic fagments are angular to sub-angular -fragments appear to be oriented at a steep angle to the core axis	20			

HOLE NUMBER: MM-16

ASSAY SHEET

DATE: 27-November-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS						GEOCHEMICAL							COMMENTS		
				CU %	ZN %	PB %	AG g/T	AU g/T	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	BA PPM	AS PPM		SB PPM	
BCD23348	377.04	378.04	1.00							80	2460	9	0.7	156					

Sample	From (m)	To (m)	Length (m)	AL2O3 %	BA %	CAO %	FE2O3 %	K2O %	MGO %	MNO2 %	NA2O %	P2O5 %	SiO2 %	TiO2 %	S %	TOT %	AG PPM	AS PPM	BA PPM	CU PPM	PB PPM	SB PPB	ZN PPM	AU PPB
23326	11.28	14.28	3.00	16.88	0.01	2.74	3.87	1.43	1.5	0.11	5.48	0.11	65.31	0.48	0.01	97.93	0.9	17	26	9	17	1	72	5
23327	36.40	39.40	3.00	16.05	0.075	1.66	3.58	1.93	1.4	0.1	5.51	0.09	66.85	0.47	0.06	97.78	0.9	17	56	13	18	1	77	10
23328	66.19	69.19	3.00	17.6	0.07	3.09	4.26	2.97	2.32	0.09	3.7	0.13	62.95	0.5	0.52	98.2	1.3	20	92	24	33	1	105	5
23329	91.29	94.29	3.00	18	0.03	8.44	9.21	0.48	6.29	0.21	3.31	0.3	50.58	1.04	0.02	97.9	1.6	7	150	73	21	1	62	5
23330	122.53	125.53	3.00	17.49	0.045	1.96	4.38	2.37	1.93	0.07	3.62	0.1	64.9	0.47	0.39	97.73	0.8	12	77	24	22	1	78	5
23331	153.01	156.01	3.00	16.63	0.055	1.29	6.78	2.76	2.79	0.07	1.48	0.11	62.81	0.63	1.75	97.16	0.5	24	102	63	54	1	142	10
23332	177.39	180.39	3.00	14.69	0.05	1.81	2.22	1.89	1.25	0.08	3.75	0.07	71.88	0.42	0.04	98.16	0.7	11	80	6	12	1	51	20
23333	206.35	209.35	3.00	14.92	0.055	1.65	1.49	2	0.9	0.05	4.45	0.07	72.43	0.18	0.03	98.22	0.4	7	51	6	6	1	41	5
23334	226.20	229.20	3.00	21.42	0.055	1.64	9.7	3.63	3.62	0.03	3.56	0.14	52.37	1.22	0.03	97.42	1.9	1	70	8	23	1	106	5
23335	249.02	252.02	3.00	19.76	0.11	0.38	3.01	4.4	3.68	0.04	0.7	0.08	62.23	0.33	1.33	96.05	0.4	1	214	5	30	1	76	10
23336	271.10	272.60	1.50	16.07	0.145	0.68	1.22	4.85	1.31	0.06	2.23	0.05	70.76	0.21	0.26	97.85	0.5	5	100	9	20	1	352	5
23337	289.30	290.30	1.00	16.56	0.13	0.37	1.5	6.34	0.95	0.04	1.64	0.05	69.64	0.3	0.47	97.99	0.3	18	84	12	53	1	210	5
23338	294.80	296.30	1.50	15.81	0.13	0.33	3.07	6.03	1.2	0.09	1.43	0.05	68.88	0.26	0.65	97.93	0.7	19	74	36	26	1	547	5
23339	296.30	297.80	1.50	15.9	0.125	0.33	2.33	5.96	1.05	0.07	1.71	0.04	69.81	0.25	0.53	98.11	0.4	4	92	32	13	1	470	10
23340	297.80	299.30	1.50	15.14	0.11	0.42	1.58	5.69	0.81	0.05	1.99	0.04	71.66	0.23	0.42	98.15	0.4	13	74	6	3	1	382	5
23343	308.98	309.98	1.00	11.44	0.09	0.37	1.13	4.41	0.68	0.04	1.6	0.05	77.99	0.18	0.09	98.08	0.5	21	56	18	84	1	797	5
23341	315.08	316.08	1.00	15.32	0.13	0.32	2.75	6.98	1.46	0.17	0.91	0.05	69.05	0.3	0.46	97.89	0.7	21	100	28	16	1	233	5
23342	319.65	320.65	1.00	12.28	0.155	0.42	2.29	6.71	1.22	0.13	0.51	0.05	73.44	0.26	0.59	98.05	0.8	21	54	178	56	1	4233	5
23344	330.00	333.00	3.00	15.32	0.155	0.48	3.12	7.07	2	0.28	0.83	0.07	67.63	0.34	0.44	97.75	0.7	4	94	77	42	1	2295	10
23345	345.17	346.17	1.00	12.19	0.145	0.39	2.39	6.06	1.32	0.2	1.53	0.07	73.64	0.27	0.43	98.64	2.1	10	51	926	111	2	2495	720
23346	367.95	369.45	1.50	13.77	0.145	0.37	2.71	5.84	1.65	0.29	1.52	0.07	71.93	0.27	0.18	98.75	0.6	6	87	19	18	1	740	180
23347	387.73	389.23	1.50	15.41	0.13	0.5	2.49	6.21	2.01	0.32	1.53	0.07	69.26	0.28	0.07	98.28	0.6	1	88	8	17	1	222	5
23349	407.52	410.52	3.00	16.57	0.205	0.23	2.56	7.08	2.04	0.21	0.31	0.07	67.5	0.31	0.14	97.24	0.5	14	183	5	21	1	489	10
23350	416.66	419.66	3.00	16.2	0.26	0.29	2.83	6.51	1.7	0.2	0.21	0.06	68.4	0.28	0.19	97.14	0.4	6	271	5	36	1	647	5
23351	426.60	429.60	3.00	10.92	0.23	0.18	3	5	1.23	0.22	0.75	0.05	75.99	0.22	0.13	97.93	0.5	5	97	63	55	5	118	75
23352	444.75	447.75	3.00	14.59	0.22	0.07	2.89	6.35	2.47	0.35	0.81	0.08	69.79	0.29	0.15	98.06	0.9	1	109	30	35	1	350	25
23353	462.38	465.38	3.00	13.55	0.13	0.01	1.9	5.45	1.65	0.14	0.23	0.06	74.1	0.24	0.16	97.6	0.3	5	88	8	25	1	175	5
23354	477.67	480.67	3.00	12.83	0.16	0.01	1.79	4.16	1.61	0.08	0.8	0.05	75.63	0.21	0.18	97.5	0.3	8	194	14	26	1	110	15

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		†182.50-183.73† «YMD» -young mafic dike -carb filled amygdules -chill margins				184.25-187.25 23361
		†187.44-187.76† «YMD»				
		†188.98-183.73† «YMD»				
		†199.05-202.30† «YMD»				
		198.0-198.10 -mafic dike				
		206.60 -possible remnant beds at 50 deg to core axis -biotite rich beds			-occasional clots of magnetite with pink haloes surrounding	214.58-217.58 23362
		230.70-231.0 -mafic dike, feldspar porphyritic				235.35-238.35 23363
		†239.0-243.0† «MD» feldspar phyric mafic dyke -no chills possible sill/flow variety				
		†240.20† «FLT» -2-3 cm gouge				
		253.67-253.74 -dike, young		250.95-253.29 -possible cordierite development as numerous elliptical shapes up to 1-2 mm size appear		258.75-259.25 23364
		†258.31-259.50† «MD»				
		†262.80-265.20† «YMD» -below 250.85 -numerous, small 1 mm alteration spots or haloes -elliptical in shape -commonly oriented at 45 deg to core axis				270.36-273.36 23365
		†287.0† «FLT»				
		†286.80-287.58† «YMD»				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		‡292.75-293.88‡ «MD» -massive, fine grain, black				
293.88 TO 318.50	«RHY LT»	Colour: mottled white with lt. purple matrix Grain Size: -vague felsic lapilli with irregular borders occur in a fine grain biotitic matrix -below 296.0 -grades into speckled hornfels as in previous unit ‡303.15‡ «FLT» ‡303.18-304.0‡ «MD» 304.0-307.05 -intermediate to mafic possibly transitional sequence ‡312.40-313.43‡ «MD»		304.0-307.05 cordierite hornfels	‡295.45-295.85‡ «tr sph» 304.0-307.05 -1-2% py	295.50-296.0 23366 297.84-300.84 23367
318.50 TO 328.33	MAR ANDESITE «AND»	Colour: blue spots in brown matrix Grain Size: fine and medium grained -giant cordierite spots up to .5 cm in size set in a fine grain biotite matrix -numerous wormy silica veinlets up to 1 cm in width ‡327.0-328.30‡ «YMD» ‡328.30-328.33‡ «FLT» -mud gouge - responsible for jamming rod string		«i biot»	«tr cp» -chalcopyrite occurs in 1-2 mm quartz veinlets which wander across core	-typical "dal" -appearance of quartz veins in hornfels reminiscent of Slumach discovery area 319.13-322.12 23368 323.50-324.0 23369 Hole abandoned, twisted rods off at 750 feet, difficulty recovering

HOLE NUMBER: MM-17

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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
	E. O. H.					remainder of string.

HOLE NUMBER: MM-17

ASSAY SHEET

DATE: 27-November-1989

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL							COMMENTS			
				CU %	ZN %	PB %	AG g/T	AU g/T	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	BA PPM		AS PPM	SB PPM	
	0.00	0.00	0.00																

Sample	From (m)	To (m)	Length (m)	AL2O3 %	BA %	CAO %	FE2O3 %	K2O %	MGO %	MNO2 %	NA2O %	P2O5 %	SiO2 %	TiO2 %	S %	TOT %	AG PPM	AS PPM	BA PPM	CU PPM	PB PPM	SB PPB	ZN PPM	AU PPB
23355	17.76	20.76	3.00	17.34	0.045	1.94	4.66	2.08	2.23	0.08	5.27	0.11	63.37	0.54	0.02	97.69	1.7	17	100	10	29	2	66	5
23356	44.81	47.81	3.00	15.92	0.095	0.98	3.82	3.64	1.48	0.08	4.41	0.07	66.89	0.47	0.04	97.9	0.9	19	23	10	23	1	38	5
23357	67.20	70.20	3.00	14.57	0.07	1.14	1.31	2.48	0.36	0.03	4.98	0.05	73.38	0.18	0.05	98.6	0.4	10	25	5	10	1	25	5
23358	92.05	93.55	1.50	15.23	0.1	1.55	1.98	4.11	0.56	0.05	4.46	0.06	70.4	0.21	0.04	98.73	0.5	1	38	11	14	1	46	5
23359	121.01	124.01	3.00	14.26	0.09	0.65	1.37	3.85	0.19	0.03	5.02	0.05	72.48	0.18	0.04	98.21	0.3	8	25	1	4	1	29	10
23360	153.01	157.01	4.00	14.43	0.1	0.53	1.51	3.92	0.29	0.03	4.93	0.05	72.53	0.18	0.04	98.55	0.3	11	32	4	8	1	33	10
23361	184.25	187.25	3.00	13.68	0.09	0.58	1.52	3.71	0.25	0.03	4.67	0.05	73.78	0.17	0.04	98.58	0.3	10	23	8	13	1	31	5
23362	214.58	217.58	3.00	14.98	0.105	1.1	1.61	4.33	0.31	0.03	4.66	0.05	70.79	0.19	0.04	98.19	0.3	1	36	11	5	1	32	5
23363	235.35	238.35	3.00	14.74	0.1	0.79	1.58	4.79	0.41	0.03	4.63	0.04	71.62	0.17	0.04	98.94	0.3	1	32	7	2	1	27	5
23364	258.75	259.75	1.00	18.29	0.02	10.31	8.73	1.3	5.54	0.2	2.33	0.3	49.81	0.93	0.17	97.94	2.3	1	43	48	24	1	57	5
23365	270.36	273.36	3.00	15.07	0.1	0.7	1.81	9.4	0.49	0.04	1.6	0.03	68.86	0.2	0.03	98.31	0.4	1	28	6	4	1	33	10
23366	295.50	296.00	0.50	15.83	0.16	0.77	2.93	5.73	3.19	0.11	0.69	0.09	66.43	0.32	0.62	96.87	1.5	1	178	40	268	4	2093	5
23367	297.84	300.84	3.00	14.5	0.09	0.98	1.91	6.35	0.78	0.06	2.89	0.05	70.5	0.19	0.05	98.35	0.6	12	33	9	13	1	72	5
23368	319.13	322.13	3.00	19.71	0.14	0.8	7.37	5.21	7.1	0.25	2.03	0.15	53.36	0.69	0.06	96.86	2	1	266	10	55	4	159	10
23369	323.50	324.00	0.50	17.11	0.115	0.61	7.02	3.84	7.14	0.25	1.18	0.15	58.34	0.64	0.08	96.47	1.5	1	448	141	54	4	143	5

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.05	CASING					
3.05 TO 157.80	MAGGIE EPICLASTICS «EPI»	<p>Colour: purple to white Grain Size: fine to medium grained</p> <p>3.05-57.0 -strongly clastic texture quartz, feldspar and biotite -medium grain wackes with occasional lithic fragments about 5% lithics -white bands probably representing felsic ash tuffs -bedding at 35-40 deg to c.a.</p> <p>‡7.30-8.00‡ «YMD» -good chill, fsp phyrlic, olive colour</p> <p>‡41.9 - 42.90‡ «MD» -sill or flow variety -early mafic dike</p> <p>56.85-56.95 -mafic dike</p> <p>57.0-82.60 -strongly hornfelsed epiclastics, vague lithic fragment outlines -fine grain and coarse material</p> <p>‡63.63-66.14‡ «YMD» -feldspar porphyritic - massive</p> <p>‡75.12-76.12‡ «YMD»</p> <p>‡82.60-83.80‡ «Mafic sill»</p> <p>‡84.80-108.70‡ «Mafic sill» -mafic sill/flow -light reddish speckled parts with grey, fine grain vein selvages, selvages can be quite extensive</p> <p>108.82-109.12</p>	-nil	-nil		<p>17.37-20.37 BCD 23370</p> <p>46.65-49.65 BCD 23371</p> <p>‡84.80- ‡ «2% po» 2% po, tr cp. -veinlets and clots pyrrhotite occurs as fracture fill with coarse grain bladed mafic mineral (hornblende?)</p> <p>90.53-93.53 BCD 23372</p>

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>-young mafic dike</p> <p>109.12-126.0 -resume epiclastics with coarse to medium grained crystal tuffs -strong biotite hornfels also contains more siliceous zones containing pyrolusite, manganese dendrites</p> <p>‡125.54‡ «FLT»</p> <p>126.20-126.55 -young mafic dike</p> <p>126.0-157.8 -argillaceous zones interrupted by occasional crystal tuff beds -argillite contains 1% pyrrhotite -argillaceous component increases downhole as biotite rich crystal tuffs disappear</p> <p>‡143.65-145.0‡ «YMD»</p> <p>145.56-145.63 -young black dike</p>		<p>-tr -1% po -occasional pyrrhotite fragment and clots up to 1 cm in size -po frequently on foliation planes</p>	<p>154.53-157.53 BCD 23374</p>	<p>122.58-123.58 BCD 23373</p>
157.80 TO 245.40	ARGILLITE «ARG»	<p>Colour: black Grain Size: fine grained -massive, black to grey with pyrrhotite smear on the foliation planes, homogeneous</p> <p>10 cm felsic ash beds at top of unit give 50 deg bedding angle</p> <p>‡169.50-170.20‡ «YMD»</p> <p>‡177.92-181.36‡ «ID» -olive green, feldspar porphyry</p> <p>203-204.5 -felsic crystal and ash tuffs</p>	-nil	<p>-tr-1% po, local clots and disseminations</p> <p>159.60 -tr. chalcopyrite and galena within 2x5 cm irregular clot of pyrrhotite</p> <p>-some felsic ash beds contain 1-2% po over 1-3 cm widths</p> <p>182.70 -large 1x5 cm clot of po</p>	<p>182.47-183.47 BCD 23375</p>	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>Slumach hanging wall clastics also feldspar phyric</p> <p>‡295.97-296.80‡ «YMD»</p> <p>307.55-307.70 -biotite rich band -possible small dike</p> <p>‡311.10-312.16‡ «MD»</p> <p>‡309.12-309.98‡ «MD» -early possible sill or flow type</p> <p>‡313.04-317.04‡ «MD» -possibly an early dike of the sill/flow variety that has been weakly hornfelsed (rather than strongly) -faintly fsp phyric</p> <p>‡319.13-322.17‡ «MD» -old mafic sill/flow type of dike</p> <p>‡336.62-336.96‡ «YMD» contact irregular and indistinct</p>				<p>BCD 23379</p> <p>337.41-340.41 BCD 23380</p>
359.88 TO 386.18	ANDESITE «AND»	<p>Colour: light purple to black Grain Size: fine to medium grained -upper part of unit is a massive dimpled rock, cordierite abundant << 1 mm in size. Some zones contain peculiar white bladed crystals -biotite matrix in places where alteration fragments can be seen -possible mafic pyroclastic, LT</p> <p>‡366.40-366.95‡ «MD»</p> <p>‡368.95-370.94‡ «YMD»</p> <p>371.20 -fault -2 cm gouge</p> <p>‡372.70-374.3‡ «MD» -resembles feldspar phyric crystal tuff but lack of hornfels suggests intrusive</p>		<p>-mod to strong biotite -cordierite hornfels</p> <p>-spots are of variable sizes up to 6 cm</p>		<p>363.40-366.40 BCD 23381</p>

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		ctc faulted			385.0-385.20 -py/po fragments up 1 cm in size -elliptical shape	
386.18 TO 397.15	MAFIC DIKE «MD»	Colour: grey to light brown Grain Size: medium grained -massive, faintly feldspar phyrlic -hornfelsed, high biotite content ‡388.01 ‡ «FLT» -open fracture			-1% po occurring as narrow veinlets and as smears on foliation planes	drillers's "cave"
397.15 TO 506.20	RHYOLITE LAPILLI TUFF «RHY LT»	Colour: grey to white Grain Size: fine grained -monolithic felsic lapilli tuff -clasts, where visible are sub-angular to sub-rounded -mottled light green elliptical shapes-interpreted to be remnant cordierites -ash units give a possible bedding at 35 deg to c.a. 397.45 -fault ‡404.50-409.13 ‡ «MD»		«m. cord» -moderate to strong cordierite	397.15-398.30 -3-5% py 401.10-401.50 -poss. tetrahedrite: light grey, steely blue colour 403.15-403.25 -vuggy possible silicified quartz bx with 1-2% tet?, tr sph 403.30-403.60 -vuggy possible qtz vein carrying 1-2% tet?, tr sph.	-Slumach rhyolite is a sequence of lapilli tuffs, ashes and minor flows and chert horizons 401.00-402.00 BCD 23383 -possible tetrahedrite 403.00-403.50 BCD 23384 410.70-411.70

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>476.33-479.0 -felsic ash, fine grain homogeneous, siliceous -no sulphides, bedding at 25 deg to c.a.</p> <p>479.0-490.0 -rhyolite LT -distinguished by white mottled texture and distinctive black sub-angular clasts (1x1 cm) interpreted to be mafic lapilli felsic >> mafics -mafics 5-10% -felsic fragments are vague and of various sizes up to 6 cm</p> <p>485.4-486.0 -qtz vein, vuggy, 1-2% py</p> <p>490.0-506.20 -Rhy ASH/LT (?) -massive siliceous zones often at 40 deg to c.a. and 10-20 cm wide are interbedded with cordierite altered LT note: soft reflective mineral occurs, anthophyllite or tremolite?</p>		<p>479.0-490.0 -mod to strong silica</p> <p>-mod-strong cordierite</p>	<p>-tr-1% sph</p> <p>-tr-1% sph</p>	<p>473.20-474.70 BCD 23397 (ICP)</p> <p>482.10-483.10 BCD 23398 (ICP)</p> <p>501.1-502.6 BCD 23399 (ICP)</p> <p>siliceous zones could be block size fragments.</p>
506.20 TO 529.44	«MAR AND» MAR ANDESITE	<p>Colour: brown Grain Size: fine to medium grained -intense biotite alteration, predominantly a f.g. biotite rich rock with occasional screens of light green felsic(?) material -remnant cordierites and occasional minor wormy silica veinlets < 1 cm</p> <p>523.7-524.0 -felsic ash beds, well bedded at 60 deg to core axis</p> <p>-below 524.0 appears more siliceous however</p>		<p>«i. biot-cord»</p> <p>-intense biotite-cordierite development -size of cordierites quite variable up to .5 cm</p>	<p>«1-2% sph»</p> <p>-tr-1% sph disseminations and clots of blackjack variety -py/po smears on foliation planes</p> <p>506.8 -1-2 cm band of sph at 30 deg to c.a.</p>	<p>typical dal</p> <p>506.5-507.0 BCD 23400 (traces)</p> <p>507.0-508.5 BCD 23401 (ICP) possible horizon</p> <p>508.5-510.0 BCD 23402 (traces)</p> <p>514.15-515.65</p>

HOLE NUMBER: MM-18

MINNOVA INC.
DRILL HOLE RECORD

DATE: 27-November-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
	E.O.H.	cordierites are well developed and frequent possibly part of the transitional sequence				BCD 23402 (traces) 524.0-525.0 BCD 23404 (ICP) strong cordierite alteration and disseminated sph continue to bottom of hole

Sample	From (m)	To (m)	Length (m)	ASSAYS					GEOCHEMICAL							COMMENTS			
				CU %	ZN %	PB %	AG g/T	AU g/T	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	BA PPM		AS PPM	SB PPM	
23385	410.70	411.70	1.00								12	1945	440	0.8	7		1	1	
23387	418.00	418.50	0.50								249	1890	565	4.3	45				
23389	451.73	453.23	1.50								2370	258	17	0.2	268	1570			
23390	453.23	454.73	1.50								27	324	11	0.3	6	1540			
23391	454.73	456.23	1.50								91	115	14	0.5	14	1740			
23392	456.23	457.73	1.50								1095	409	26	1.5	702	1800			
23393	457.73	459.23	1.50								595	2360	19	0.9	71	1840			
23394	459.23	460.73	1.50								188	1380	24	0.6	40	1700			
23395	460.73	462.23	1.50								225	1720	25	0.3	38	1940			
23396	462.23	463.73	1.50								2744	5550	475	5	435	1200			
23400	506.50	507.00	0.50								61	2295	76	0.9	3	750			
23402	508.50	510.00	1.50								40	1940	19	0.3	1				
23403	514.15	515.65	1.50								6	213	16	0.3	4				

Sample	From (m)	To (m)	Length (m)	AL2O3 %	BA %	CAO %	FE2O3 %	K2O %	MGO %	MNO2 %	NA2O %	P2O5 %	SI02 %	TIO2 %	S %	TOT %	AG PPM	AS PPM	BA PPM	CU PPM	PB PPM	SB PPB	ZN PPM	AU PPB
23370	17.37	20.37	3.00	16.44	0.01	2.97	3.28	1.57	1.36	0.11	4.94	0.12	67.11	0.43	0.02	98.37	1.6	1	42	14	44	1	68	5
23371	46.65	49.65	3.00	17.32	0.015	2.7	4.92	2.04	1.91	0.13	5.7	0.11	62.54	0.6	0.04	98.02	1.7	1	101	12	36	1	85	5
23372	90.53	93.53	3.00	18	0.04	8.36	9.09	1.33	6.14	0.22	3.72	0.28	49.91	1.03	0.02	98.17	1.5	1	314	21	28	3	63	10
23373	122.58	125.58	3.00	17.18	0.03	1.99	3.39	2.3	2	0.05	3.86	0.11	65.97	0.4	0.21	97.48	0.9	1	75	17	24	1	63	5
23374	154.53	157.53	3.00	17.03	0.035	2.28	5.43	1.88	2.13	0.06	3.38	0.11	64.25	0.66	0.76	98	1.3	1	125	37	30	1	83	5
23375	182.47	183.47	1.00	18.77	0.05	3.31	9.15	2.43	2.05	0.13	2.17	0.14	56.07	0.56	2.87	97.7	1.2	1	166	64	108	1	129	10
23376	216.76	219.76	3.00	16.51	0.06	2.72	4.67	2.94	1.92	0.07	1.89	0.11	65.29	0.49	1.63	98.29	0.7	1	78	37	26	1	119	5
23377	236.83	239.83	3.00	17.15	0.055	1.94	5.38	3.08	1.82	0.04	2.27	0.1	63.9	0.53	1.76	98.03	0.9	37	85	48	30	1	94	5
23378	264.26	267.26	3.00	15.03	0.045	1.97	2.64	1.86	1.49	0.09	3.47	0.09	70.67	0.41	0.07	97.84	0.6	1	75	13	20	1	58	5
23379	297.79	300.79	3.00	13.27	0.07	1.71	1.18	2.31	1.46	0.05	2.45	0.07	74.99	0.16	0.04	97.78	0.5	5	95	7	17	1	40	5
23380	337.41	340.41	3.00	15.66	0.09	2.65	1.52	2.67	1.53	0.09	3.17	0.09	70.54	0.19	0.04	98.24	0.7	1	78	8	23	1	46	5
23381	363.40	366.40	3.00	21.57	0.09	1.94	8.52	3.27	3.59	0.06	3.24	0.13	52.58	1.17	0.55	96.71	1.7	1	293	38	36	1	77	5
23382	389.23	392.23	3.00	17.79	0.015	8.57	9.06	0.41	6.32	0.2	3.07	0.31	50.45	1	0.48	97.69	1.6	1	39	51	18	1	52	10
23383	401.00	402.00	1.00	9.78	0.11	0.47	1.76	2.51	1.35	0.02	1.08	0.06	79.85	0.16	1.04	98.18	1.5	1	161	54	279	1	225	10
23384	403.00	403.50	0.50	10.45	0.125	0.92	2.13	2.16	1.36	0.02	1.42	0.07	77.31	0.18	1.1	97.26	3.9	14	192	253	922	3	2539	65
23386	419.71	422.71	3.00	12.99	0.225	0.25	2.13	5.53	1.65	0.1	0.18	0.08	72.89	0.25	1.23	97.5	0.4	11	155	36	85	1	2914	10
23388	447.70	449.20	1.50	11.77	0.135	0.46	2.35	3.67	1.44	0.15	1.54	0.07	73.65	0.23	1.16	96.63	0.9	5	132	33	139	2	10790	10
23397	473.20	474.70	1.50	13.54	0.26	0.33	2.39	5.37	1.74	0.12	0.28	0.07	71.75	0.24	0.31	96.4	0.2	1	175	21	19	1	2919	5
23398	482.10	483.10	1.00	7.23	0.13	0.21	1.85	2.71	1.09	0.1	0.12	0.06	82.96	0.13	0.56	97.14	0.2	13	133	14	11	1	2599	5
23399	501.10	502.60	1.50	14.16	0.075	0.17	1.56	3.76	2.23	0.11	0.9	0.05	73.79	0.22	0.04	97.08	0.2	1	104	3	18	1	317	5
23401	507.00	508.50	1.50	18.16	0.225	0.86	5.53	4.54	3.64	0.38	2.93	0.12	59.24	0.74	0.25	96.6	1.3	1	225	134	41	1	1961	10
23404	524.00	525.00	1.00	15.79	0.11	0.26	5.56	4.43	2.41	0.15	0.41	0.09	65.71	0.51	1.38	96.83	1.8	1	161	508	53	2	1707	10

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 6.10	Casing					
6.10 TO 67.20	MAGGIE EPICLASTICS «EPI»	<p>Colour: grey with white bands Grain Size: fine to medium grained -well bedded ash, crystal tuff and wackes of variable thicknesses -usually 5-10 cm thick beds at 60 to 70 deg to ca -fragments are angular, well sorted and dominantly composed of quartz and feldspar with secondary biotite -numerous coarser felsic-intermediate lithics, less than 1 cm size -interbeds of siliceous material usually less than 5 cm thick, probably felsic ash tuffs -hornfelsing more evident in finer grain material (biotite)</p> <p>29.57-29.72 -young mafic dike</p> <p>41.10-41.30 -young mafic dike</p> <p>‡51.82‡ «FLT» -rubble zone</p> <p>-below 51.82 -biotite hornfels increases & increased argillaceous component</p> <p>62.0-64.01 -argillite -massive, grey</p> <p>transitional zone at base</p>	-nil	-nil		23.47-26.47 BCD 23405
67.20 TO 126.90	ARGILLITE «ARG»	<p>Colour: grey Grain Size: fine grained -massive, homogeneous</p>	-nil		«po tr-1%» -pyrrhotite occurs as 1x1 cm clots and	-clots of po are magnetic

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-occasional screens of felsic material (ash) contaminating argillite -hairline fractures - carbonate filled 112.70-126.90 -interbedded argillite and felsic ash tuffs 112.70-118.87 -felsic ash tuff 118.87-122.00 -arg 122.0-123.30 -felsic ash/XT †74.52-75.75† «YID» -olive green, feldspar porphyritic †77.89-79.87† «YID» -olive green, amygdaloidal feldspar porphyritic 83.0-83.14 -fault plus narrow young mafic dike (altered) †114.12-116.46† «YID» -olive green, amygdaloidal 123.30 -fault 123.30-126.70 -argillite			disseminations also as smears on foliation	84.89-87.89 BCD 23407
126.90 TO 193.45	«RHY TBX/ASH»	Colour: purple and white Grain Size: fine and coarse grained -mottled and banded hornfelsed ashes, block and lapilli tuffs -upper part of unit consists of thin bedded cherty ashes and crystal at †131.80-135.20† «MD» -mafic dyke, feldspar porphyritic (faintly) upper contact at	60 30	-nil	-tr. py. 129.40 -5 cm band of andesitic ash with 2-3% py/po	Hanging wall Slumach Rhyolite 129.15-129.65 BCD 23408

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>below 140.15 -Rhy LT/XT, vague, ghostly felsic lapilli set in a biotite hornfelsed matrix <<5% block size fragments matrix - supported occasional biotite rich clots or fragments, may even be pumice lapilli (collapsed) -flame like shapes 2-3 cm x .5 cm</p> <p>‡157.27-158.20‡ «YMD» -10 cm block of felsics in middle</p> <p>‡159.45-160.38‡ «YMD»</p> <p>‡163.20-164.97‡ «YMD»</p> <p>169.01-171.95 -mafic to intermediate LT, strong biotite hornfels siliceous clots or possible veins, may also be silicified felsic fragments</p> <p>‡171.95-175.40‡ «MD» -possible andesite flow, lacks biotite alteration -however fine grain, green upper contact appears conformable at</p> <p>‡181.10-188.605‡ «MD» -upper contact runs along core axis</p> <p>183.20 -fault, rubble zone</p> <p>‡193.45‡ «FLT»</p>	55	190.80-196.45 -intense biot - cord development		<p>151.18-153.18 BCD 23409</p> <p>167.49-170.49 BCD 23410</p>
193.45 TO 320.24	SLUMACH RHYOLITE «RHY LT»	<p>Colour: white with pale green spots Grain Size: fine to medium grained -densely packed; poorly sorted felsic LT, angular felsic lithics -clasts are vague and ghost-like -pale green spots and flecks interpreted to be remnant cordierite porphyroblasts</p> <p>209.53-209.67</p>		<p>«i cord»</p> <p>-intense cordierite -zones of strong silification</p>	-1-2% py disseminated	<p>FAULT ZONE 191.80-198.43 -blocky ground, rubble zones -1-3% py -3 zones of gouge at 191.80, 193.45 and 198.35</p>

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-young mafic dike 209.67-210.92 -silicified breccia -large vague sulphide fragments infilled with vuggy quartz		210.92-213.30 -intense cordierite zone		200.50-202.0 BCD 23411 205.5-207.0 BCD 23412 (traces) 208.5-210.0 BCD 23413 (trace only) 210.0-211.0 BCD 23414 (traces)
		215.0-218.1 -rhyolite breccia zone silicified - fragments poorly sorted, vuggy quartz carries mineralization			‡216.50‡ «sph» 216.50-216.60 -3-5% sph, tr cp, 2-3% ga -fracture fill vuggy veinlet	214.90-216.40 BCD 23415 (traces) 216.40-216.90 BCD 23416 ASSAY: 2.5% Zn, 1.2% Pb 216.90-218.40 BCD 23417 (traces) 218.40-219.90 BCD 23418 (traces) 219.90-221.40 BCD 23419 (traces)
		‡234.48-239.40‡ «YID» -light green feldspar phyrlic			224.45-224.50 -sph 5%, cp 1-2% forms vein or band -strong cordierite alteration	213.40-214.90 BCD 23420 (traces) 222.90-224.40 BCD 23421 (trace)
		242.90-243.60 -felsic, ash beds? -vague faint beds at	60		243.50-243.60 -cp 2-3%, sph 3-4% forming disseminations along bedding planes at 60 deg to c.a. -possible horizon	224.40-224.90 BCD 23422 ASSAY: 1-2% Zn, 1% Cu
		243.60-275.10 -biotite flooded felsic lapilli tuff, moderate to well sorted, all clasts have vague boundaries -about 5% mafic fragments, biotite rich		‡243.60-275.10‡ «stg biot»	243.60-275.10 -1-2% sph disseminated in clots and aggregates	224.90-226.40 BCD 23423 (trace) 226.40-227.90 BCD 23424 (ICP)
		‡249.30-250.15‡ «MD»			263.50-264.0	243.50-244.0 BCD 23425 (assay)

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS	
		<p>‡264.15-266.70‡ «MD»</p> <p>275.10- -intermediate lapilli tuff -increase to 20-25% mafic, biotite rich clasts, subangular, well sorted with a crystal ricch matrix -mottled faint green and purple matrix</p> <p>‡278.92-279.95‡ «MD» ‡280.90-281.45‡ «MD» ‡284.60-285.30‡ «MD» ‡285.58-287.30‡ «MD»</p> <p>‡296.27‡ «FLT» ‡303.80‡ «FLT»</p> <p>‡307.90-308.8‡ «MD»</p> <p>‡312.6‡ «FLT» ‡312.9‡ «FLT»</p> <p>‡314.3-316.40‡ «MD» -faintly feldspar phyrlic</p> <p>318.24-320.24 -quartz veins 1-2 cm wide cut cut core at various angles</p>			<p>-tr cp, tr-1% sph</p> <p>‡270.50‡ «3% sph» -matrix disseminations and flooding of sphalerite, forms a vein or band</p> <p>‡275.10-316.80‡ «tr sph» -occurs locally in disseminations</p> <p>316.80-317.0 -2-3% sph disseminated cordierite altered band</p> <p>319.74-320.24 -sph 1-2%, cp 1% -quartz veins and clots carry sph/py/cp mineralization -veins form crude bands at 55 deg -occurs at the mafic contact -looks very similar to Slumach vein intersections</p>	<p>244.0-245.50 BCD 23426 (trace)</p> <p>245.50-247.0 BCD 23427 (trace)</p> <p>247.0-248.50 BCD 23428 (trace)</p> <p>250.15-251.65 BCD 23429 (ICP)</p> <p>251.65-253.15 BCD 23430 (traces)</p> <p>263.10-264.10 BCD 23431 (traces)</p> <p>270.4-270.90 BCD 23432 ASSAY: 2-3% Zn</p> <p>281.48-282.98 BCD 23433 (ICP)</p> <p>302.30-303.80 BCD 23434</p> <p>316.74-317.24 BCD 23435 (geochem traces)</p> <p>317.24-318.24 BCD 23436 (ICP)</p> <p>318.24-319.74 BCD 23437 (traces)</p> <p>319.74-320.24 ASSAY: 1-2% Zn, 1% Cu</p>	
320.24 TO 354.08	MAR ANDESITE «MAR»	<p>Colour: black with faintly blue spots Grain Size: medium grained -well developed biotite cordierite hornfels</p>		«i biot cord»	-tr-3% py		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		<p>-some screens of spots reaching 1 cm size -occasional wormy quartz veins and clots usually less than 1 cm</p> <p>‡328.54‡ «FLT» -1 cm gouge</p> <p>-zones light blue in colour show remnant cordierite, porphyroblasts and a matrix rich in very fine reflective mineral</p> <p>332.38 -rubble zone -possible fault</p>		<p>‡346.50-347.50‡ «2% cp» -chalcopyrite and pyrite disseminated at 55 deg to the core axis -a remnant foliation? -no quartz in zone</p>	<p>-local concentration of up to 5% py -very fine grain mainly disseminated -tr sph locally</p>	<p>320.24-321.74 BCD 23439 (ICP)</p> <p>336.41-337.41 BCD 23443</p> <p>345.50-346.50 BCD 23440 (ICP)</p> <p>346.50-347.50 BCD 23441 ASSAY: 2% Cu</p> <p>347.50-348.50 BCD 23442 (traces)</p>
354.08 TO 361.35	MAFIC DIKE «MD»	<p>Colour: black Grain Size: very fine grained -originally a sheared upper etc. -very massive -faintly feldspar phyrlic</p>		-nil		<p>334.41-337.41 BCD 23443 (ICP)</p>
361.35 TO 368.07	FELSIC DIKE «FD»	<p>Colour: mottled purple and white Grain Size: fine grained -extremely massive -mottled, hornfelsed with 1-2 mm size spots or alteration haloes -no clean fragments visible</p>		-1-2% py disseminated	<p>361.49-364.49 BCD 23444 (ICP)</p>	
368.07 TO 377.34	MAFIC DIKE «MD»	<p>Colour: brown to dark green Grain Size: medium grained -biotite rich matrix with faint feldspar crystals in upper portion becoming more prevalent and clearer in lower section</p>		-nil	-tr. py.	<p>374.34-377.34 BCD 23445 (ICP)</p>

HOLE NUMBER: MM-19

MINNOVA INC.
DRILL HOLE RECORD

DATE: 27-November-1989

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS						GEOCHEMICAL						COMMENTS		
				CU %	ZN %	PB %	AG g/T	AU g/T	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	BA PPM		AS PPM	SB PPM
23412	205.50	207.00	1.50								12	1640	680	1.8	19			
23413	208.50	210.00	1.50								241	2009	958	2.5	145	798	3	4
23414	210.00	211.00	1.00								1000	1550	395	7.5	415			
23420	213.40	214.90	1.50								236	4900	1600	25	93			
23415	214.90	216.40	1.50								72	662	199	2.6	32			
23416	216.40	216.90	0.50	.098	3.48	1.16	14.2	.32										
23417	216.90	218.40	1.50								675	5000	1050	3.1	80			
23418	218.40	219.90	1.50								48	4000	495	1.5	30			
23419	219.90	221.40	1.50								380	4200	675	1.2	69			
23421	222.90	224.40	1.50								250	1600	275	11	38			
23422	224.40	224.90	0.50	.72	2.19	.39	11.7	1.31										
23423	224.90	226.40	1.50								52	1640	69	0.5	29			
23425	243.50	244.00	0.50	.262	1.18	.03	6.5	.19										
23426	244.00	245.50	1.50								16	1590	89	0.7	13			
23427	243.50	247.00	1.50								12	2470	2520	0.3	2			
23430	251.65	253.15	1.50								16	472	295	0.4	3			
23431	263.10	264.10	1.00								575	820	82	1.4	158			
23432	270.40	270.90	0.50	.046	1.10	.01	1.8	.03										
23435	316.74	317.24	0.50								100	1800	149	0.8	35			
23437	318.24	319.74	1.50								87	900	223	0.4	76			
23438	319.74	320.24	0.50	.096	.38	.01	2.1	.59	.01									
23441	346.50	347.50	1.00	.56	.02	.01	5.7	.03										
23442	347.50	348.50	1.00								86	155	19	0.9	16			

Sample	From (m)	To (m)	Length (m)	AL2O3 %	BA %	CAO %	FE2O3 %	K2O %	MGO %	MNO2 %	NA2O %	P2O5 %	SiO2 %	TiO2 %	S %	TOT %	AG PPM	AS PPM	BA PPM	CU PPM	PB PPM	SB PPB	ZN PPM	AU PPB
23405	23.47	26.47	3.00	17.2	0.055	2.33	4.67	1.95	1.71	0.13	6	0.11	63.56	0.59	0.02	98.33	1	1	149	18	14	1	92	5
23406	52.45	55.45	3.00	16.41	0.02	2.04	3.66	2.03	2.19	0.07	4.13	0.11	66.34	0.39	0.14	97.53	0.7	1	38	12	27	1	71	5
23407	84.89	87.89	3.00	18.16	0.05	1.38	6.89	3.27	2.68	0.06	1.53	0.11	60.35	0.73	1.66	96.86	0.9	13	111	64	71	1	129	15
23408	129.15	129.65	0.50	16.63	0.045	5.67	4.27	1.63	1.67	0.16	3.93	0.17	62.89	0.39	0.66	98.1	1.1	14	20	27	19	1	1609	125
23409	151.18	154.18	3.00	15.8	0.08	2.34	2.48	2.77	0.74	0.09	3.87	0.09	69.44	0.47	0.03	98.22	0.8	15	36	7	15	2	53	5
23410	167.49	170.49	3.00	16.67	0.065	2.54	4.47	1.93	1.99	0.16	3.38	0.11	66.13	0.52	0.04	98.01	1.3	1	253	8	26	1	103	5
23411	200.50	202.00	1.50	11.12	0.305	0.17	1.35	2.78	1.5	0.02	0.15	0.04	79.77	0.13	0.28	97.64	1.2	15	1309	58	273	2	552	40
23424	226.40	227.90	1.50	13.1	0.24	0.2	1.92	6.65	1.19	0.08	0.21	0.03	73.65	0.23	0.35	97.84	0.5	28	99	55	42	1	1492	5
23429	250.15	251.65	1.50	11.48	0.205	0.6	2.24	5.92	1.61	0.14	0.54	0.07	74.23	0.27	0.17	97.47	0.2	1	70	11	80	2	1481	10
23433	281.48	282.98	1.50	14.1	0.175	0.47	2.63	6.71	2.21	0.15	0.82	0.09	69.4	0.28	0.14	97.16	0.3	1	96	9	55	1	1143	5
23434	302.30	303.80	1.50	15.54	0.18	0.36	2.72	5.79	2.79	0.27	1.43	0.07	67.94	0.29	0.1	97.48	0.4	1	170	5	44	2	383	5
23436	317.24	318.24	1.00	9.29	0.075	0.23	2.37	2.78	1.42	0.09	0.14	0.07	80.37	0.23	0.5	97.57	0.4	6	171	72	257	2	688	45
23439	320.24	321.74	1.50	14.21	0.065	0.55	7.34	2.95	4.69	0.36	0.23	0.13	64.13	0.83	0.2	95.69	1.8	1	298	33	52	1	271	5
23443	334.41	337.41	3.00	20.42	0.045	0.25	7.61	4.48	2.06	0.08	0.37	0.08	59.58	0.85	0.38	96.2	0.8	1	62	213	26	1	121	15
23440	345.50	346.50	1.00	22.55	0.1	0.46	7.33	6.42	4.18	0.17	0.36	0.13	51.28	1.03	1.42	95.42	0.8	1	151	117	40	2	266	5
23444	361.49	364.49	3.00	14.07	0.13	0.74	2	6.04	0.63	0.03	2.58	0.04	71.72	0.19	0.28	98.45	0.3	27	42	23	9	1	27	5
23445	374.34	377.34	3.00	19.5	0.06	9.99	9.28	2.46	6.48	0.26	1.54	0.31	46.14	0.9	0.14	97.07	2.3	1	50	65	23	1	110	5