1992 DRILL LOGS

RAINBOW-TAM O'SHANTER
PN 661

HOLE NUMBER: TM92-24

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD	PLOTTING COORDS GRID: DEADWOOD 1992	ALTERNATE COORDS GRID:	COLLAR DIP: -45° 0' 0"
PROJECT NUMBER: 661	NORTH:	NORTH: 0+ 0S	LENGTH OF THE HOLE: 158.50m
CLAIM NUMBER:	EAST: 470.00W	EAST: 0+ 0E	START DEPTH: 0.00m
LOCATION:	ELEV: 1313.00	ELEV: 1313.00	FINAL DEPTH: 158.50m

COLLAR GRID AZIMUTH: 10° 0' 0"   COLLAR ASTRONOMIC AZIMUTH: 50° 0' 0"

DATE STARTED: March 24, 1992	COLLAR SURVEY: NO	PULSE EM SURVEY: NO	CONTRACTOR: ATLAS DRILLING
DATE COMPLETED: March 27, 1992	MULTISHOT SURVEY: NO	PLUGGED: NO	CASING:
DATE LOGGED: March 28, 1992	RQD LOG: NO	HOLE SIZE: NQ	CORE STORAGE: GREENWOOD

PURPOSE: TEST GOLD ZONE IN 91-16, 200 METRES ALONG STRIKE TO SOUTHEAST

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
65.80	-	-45° 0'	ACID	OK		-	-	-	-	-	
106.38	-	-50° 0'	ACID	OK		-	-	-	-	-	
149.65	-	-47° 0'	ACID	OK		-	-	-	-	-	
158.50	-	-46° 0'	ACID	OK		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 26.21	«DIOR/HBDR»	Colour: var. drk. to light green and beige Grain Size: var. v.f.gr. to m.gr. The interval consists of a diorite/hornblende diorite unit that varies compositionally and texturally throughout. 1.52-12.69 -the unit is generally dark green, fine grained to very fine grianed without any obvious internal structural fabric 12.69-16.00 -the unit is coarser grained and lighter green to beige. Feldspar phenocrysts are up to 2 mm in size and randomly oriented. Upper contact @	38	Alteration varies throughout from silicification and chlorite alteration to strong clay alteration with possible leucoxene and albite alteration 1.52-12.69 -alteration is predominantly silica and chlorite. Occasional quartz carbonate veinlets cut across the interval 12.69-16.00 -feldspars are str. altered to clays and leucoxene may be present. Some epidote is present in this interval. Chlorite veinlets are oriented at 18 deg to c.a.	Sulphides vary in content from trace amounts to 5-10% in areas. This is primarily pyrite, but occasional trace amounts to 1% Cp are present. Sulphides occur as veinlets and dissem inations. In areas the core is weakly magnetic reflecting the presence of pyrrhotite, not magnetite 1.52-12.69 -pyrite occurs in trace amounts to 3% (+ As Py with scorodite) as fine grained disseminations and veinlets. Many fractures are rusty reflecting oxidation of pyrite 12.69-14.8 -pyrite is absent, but from 14.8-16.0 a number of pyritic veinlets occur with chlorite vnlts at an angle of 18 deg. to c.a.	Recoveries: 1.52-2.44: 100% 2.44-4.57: 98% 4.57-6.1: 100% 6.1-7.95: 102% 7.95-9.14: 50% 9.14-10.67: 108% 10.67-11.89: 80% 11.89-14.02: 100% 14.02-17.07: 100% 17.07-20.12: 100% 20.12-23.16: 90% 23.16-26.21: 110% 26.21-29.26: 110% 29.26-32.31: 100% 32.31-35.36: 110% 35.36-38.4: 124% 38.4-39.6: 100% 39.6-41.45: 108% 41.45-44.5: 100% 44.5-45.72: 100%, rubbly core 45.72-47.55: 113% broken 47.55-50.6: 118% 50.6-53.65: 116%
		13.6-13.77 -brecciated, strongly clay altered zone @	40			
		16.00-23.81 -a finer grained dark green hornblende diorite unit. The upper contact appears gradational not sharp. Clay gouge at 20.0. At 21.82 is a 1 cm wide banded quartz vein oriented @ Immediately adjacent to this is a 1 cm wide py vein that parallels the qtz vn. 23.81-26.21 -a medium grained slight greyish green, strongly altered diorite	50	16.00-19.03 -a 1-2% calcite vein stockwork is present and the unit is silicified, chloritized with 5% carbonate alt'n of matrix 19.3-20.12 -chlorite vnlts and clay gouge 23.81-26.21 -feldspars are strongly altered to cla minerals. Carbonate alteration of matrix is pervasive (10%). Minor quartz carbonate veinlets occur	16.00-23.81 -trace to 1% dissem. and vnlt pyrite. At 21.82 is a 1 cm py vein. 23.81-26.81 -pyrite occurs in trace amounts to 2% dissem.	
26.21 TO 53.10	«DIOR»	Colour: green to lt. grey green Grain Size: m.gr. to f.gr. This interval may be a different phase of the overlying unit. It consists primarily of a green to light grey green feldspar phyric diorite. Grain size varies from m.gr. to f.gr. The		Alteration varies from str. chlorite and clay alteration to silicification and str. bleaching. Carbonate is pervasive through the matrix.	Sulphide content through this material ranges from trace amounts up to 5% locally as vnlts and f.gr. dissem. Chalcopyrite occurs only in trace	It is difficult to tell what the original protolith is in the areas that are bleached, however, the gradual transition to these zones suggests the

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		interval is strongly bleached in areas. The upper 40 cm of the interval consists of quartz carbonate fracturing. The dominant orientation is @	40	Chlorite forms stockwork veinlets. Bleaching may be carused by albite. Occasional banded quartz veins occur through the interval	amounts as does pyrrhotite.	rock type is diorite
		26.21-31.20 -intrusive textures are readily seen, after which alteration overprints textures		26.64-31.20 -clay and chlorite alt'n are dominant with minor silicification and carbonation		
		32.96 -a weak fabric is seen in the core oriented @	40	29.74 -a 5 cm wide banded qtz vn. occurs with at least 2 pulses evident. The vn. is oriented at 42 deg to c.a.	╣34.2-34.28╠ «5% py, tr cp»	
		33.65 -a 5 cm wide breccia occurs at right angles to c.a. This is bounded on either side by banded qtz. veining		29.74-35.26 -clay and carbonate alteration are dominant		
		35.9-36.14 -another brecciated interval. Stockwork fracturing occurs from 36.14-37.88		35.36-41.55 -alteration is primarily silica, chlorite and carbonate (10%). The interval is strongly bleached in areas	36.14-37.88 -pyrite and pyrrhotite occur to approx. 5% as a stockwork system associated with carbonate and chlorite veinlets	
		41.55-49.57 -the interval appears strongly sheared @ This appears to have happened at high pressures imparting what appears to be a mylonitic texture to the core. Shearing fragments appear very well comminuted	58	41.55-49.57 -very str. chlorite, clay and silica alteration occurs ╣49.57-50.1╠ «stkwrk sil» -complete overprinting by silica	41.55-49.57 -sulphide content increases to 5% to 10%. This is primarily pyrite, with trace amounts of cp and pyrrhotite ╣48.32-48.42╠ «8% py, tr. cp»	
		50.1-53.1 -the core is characterized by the shear/mylonitic fabric previously described. In places the fabric is @ only -the bottom contact is strongly fractured/sheared @ stockwork	10 38	╣50.1-53.1╠ «Talc, carb vnlts» -the dominant alteration is clay, chlorite and bleaching, with minor talc and carbonate veinlets associated with fabric	╣51.87╠ «py, cp vn» -this is a small (1 cm) py vein with minor cp at 40 deg to c.a. ╣52.7╠ «py, cp vn» -another small (1 cm) py vein with minor cp at 34 deg. to c.a. ╣52.7-53.1╠ «2-3% cpy stkwrk» -chalcopyrite occurs as stockwork vnlts near contact with underlying unit	

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53.10 TO 59.37	«SIL AND»	Colour: drk. green Grain Size: f.gr. This interval consists of a fine grained to aphanitic dark green chloritized and silicified andesite flow. Minor interbeds of greyish green tuffaceous material are seen. Flow banding is seen locally @ In areas chlorite filled vesicles, unstrained are visible. These are up to 2 mm in diameter. Minor bands of quartz carbonate vnlts occur through the interval with the most common orientation from 28-30 deg to c.a. These are commonly associated with small pyrite veinlets 54.3-54.57 -is a 2 cm wide quartz vein with banded selvages oriented @ 57.4-57.91 -core very broken, may be faulted The bottom contact of this interval has a slightly sheared fabric and is a sharp contact @	38 14 38	Alteration through the interval is dominantly silicification overprinting a strong chlorite alteration. Small quartz carbonate veinlets cross cut the interval and carbonate alteration of the matrix is minor. On some fracture surfaces a light manganese staining is visible. Chlorite occurs as veinlets along fractures and within the matrix.	Sulphide content ranges from trace amounts to 1% locally. Pyrite is the only visible sulphide occuring as disseminations and minor veinlets 54.3-54.57 -minor pyritic selvages are associated with 2 cm wide quartz vein	Recoveries: 53.65-56.69: 112% 56.69-57.91: 100%, broken core 57.91-59.74: 100% 59.74-61.57: 100% 61.57-62.79: 100% 62.79-64.62: 100% 64.62-65.84: 100% 65.84-68.88: 100% 68.88-71.93: 100% 71.93-74.10: 100% 74.10-75.59: 100% 75.59-77.27: 100% 77.27-78.03: 100% 78.03-81.08: 100% 81.08-84.13: 100% 84.13-86.56: 100%
59.37 TO 60.12	«QTZ VN BX/ SIL»	Colour: grey/white Grain Size: f.gr. A fine grained massive locally brecciate qtz vn with a sharp upper contact @ Brecciated fragments are subrounded varying in size from mm scale to 1 cm in dimension. 60.00 -.5 cm chlorite, carb, py vn occurs @	38 38	Intra-breccia spaces have been qtz-carb healed. This secondary silica and carb crosses bx fragments where these have been fractured. Chlorite vnlts and fracture fillings are also common, impartingf a greyish green colour to the interval	Py occurs only in tr. amounts along fractures and generally assoc. with chloritic areas.	
60.12 TO 62.24	«MYLONITE/S HEAR BX»	Colour: light grey green Grain Size: variable The top contact with the overlying qtz vn. bx unit is sharp @ The interval is light greyish green, brecciate and comminuted with a flowlike convoluted texture. Fragments and subrounded to angular with a preferred elongation along the shear fabric. Fragment size ranges from mm scale to several cm. The fragments are qtz, similar to previous	48	Chlorite alteration is dominant occuring, through matrix and as veinlets along shear fabric. This has been overprinted by silicification. Minor carbonate occurs along fractures	Py occurs in tr amounts to 1%, generally associate with the qtz frags within this shearing, along fracs within the frags. At 61.12 .5 cm pyrite vein occurs oriented @ 38 deg to c.a.	

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		interval described. The bottom contact is sharp oriented @	20			
62.24 TO 63.75	«STKWRK SIL »	Colour: grey/white Grain Size: f.gr. This is a zone of grey-white, fine grained stkwrk silicification stkwrk fracturing is approx. 70% The bottom contact is sharp oriented @	62	The interval has been completely silicified. Fractures have been filled by silica	Pyrite occurs along stkwrk fracturing up to 20% ╢62.24-63.75╟ «20% stkwrk py»	
63.75 TO 71.21	«MYLONIZED ANDESITE»	Colour: grey green Grain Size: variable This is a strongly sheared or mylonitized andesitic unit of variable grain size ranging from mm scale to cm scale. Various orientations to the fabric are seen, with the dominant orientation at 20 deg to the core axis. Generally however, the fabric is highly convoluted. The bottom contact for this interval is not distinctive or well defined		Chlorite alteration is strong through the interval. This occurs as linings along structural fabric and as linings along structural fabric and as replacement of fragments. Silicification overprints the chlorite alteration	Sulphide content is low through this interval, occuring only in trace amts. to 2%. The only sulphide visible is pyrite. 66.0-66.04 -.5 cm wide pyrite vein oriented at 40 deg to c.a.	
71.21 TO 89.20	«INTERBED C	Colour: buff to light grey green				
TO 89.21	HT & TUFF»	Grain Size: f.gr. to v.f.gr. This interval consists of very broken up core with no distinct contacts visible due to broken nature of the core. The cherty units are generally v.f.gr., massive and buff grey in colour. One possible bedding orientation is @ Those cherty units are generally weakly fractured (20%). Tuffaceous intervals are fine grained with occasional 1 mm size volcanic clasts. A number of possible fault zones and breccia zones are seen through the interval. 73.7-74.1 -a sheared and gouged zone @ 74.6-75.8 -a sheared zone	22 10	The dominant alteration through the interval is chlorite occuring along fractures. Minor carbonate veinlets are seen occasionally within fault zones clay gouge is common while bx zones are generally silicified 73.7-74.1 -silicification in fault zone	Only trace amounts of pyrite are seen through this interval as disseminations and veinlets	

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		75.3-76.0 -a silicified bx zone 78.0-78.6 -a brecciated zone 81.98-82.84 -a small interval of m.gr. andesitic flow. Fabric is oriented @ 88.39-88.50 -a fault zone with clay gouge The bottom contact for this interval is sharp @	 38 24	75.3-76.0 -silicification of bx 81.7-81.98 -strong clay alteration 81.98-87.0 -minor talc is seen along fracture surfaces Occasional quartz veinlets seen in the interval have open cavities with euhedral crystal growth of qtz crystals 88.8-89.0 -a zone of silicification or qtz vein strongly fractured	 88.8-89.0 -pyrite occurs to 10% as fracture fillings and veinlets	
89.20 TO 105.46	«TERT DYKE»	Colour: drk. grey green Grain Size: m.gr. This is a dark grey green biotite - hornblende m.gr. tertiary dyke. Phenocrysts are generally subhedral to anhedral with occasional euhedral crystals 89.2-90.2 -a bleached margin of the dyke Fractures hosting chlorite veinlets occur every 2-5 cm oriented generally 38 deg. to c.a. 103.0-105.46 -qtz carb. vns oriented @	 48	 Alteration throughout the unit is primarily weak carbonate alteration of feldspar phenocrysts 89.2-90.2 -the dyke is strongly bleached predom. clay alteration 89.2-91.9 -2-5% stkwrk carbonate vnlts. These die out abruptly after 91.9. Chlorite vnlts are abundant throughout (5%) occuring along fractures at semi-regular intervals (2-5 cm) 103.0-105.46 -qtz carb. vn increasing again to 5%. These vnlts have a greater periodicity (3-5 cm) and a more common orientation than those in the upper portion of the interval 105.2-105.46		

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				-strongly bleached clay altered intrusive margin		
105.46 TO 108.50	«CHERTY ASH TUFF»	Colour: grey green Grain Size: v.f.gr. This is a grey green, v.f.gr. cherty ash tuff unit 107.82-108.5 -the unit is moderately brecciated and fragmented		Chloritic alteration is present through out in minor amounts, within matrix and as very small veinlets 107.82-108.5 -the chlorite content increases within brecciated fragments	Pyrite occurs only in trace amounts as veinlets 108.4-108.5 -a 1 cm wide pyritic qtz carbonate vein oriented @ 12 deg to c.a.	
108.50 TO 109.50	«DIORITE INTRUSION»	Colour: green Grain Size: f.gr. to m.gr. This is a green, f.-m.gr. diorite intrusion. Feldspars are 1-2 mm in length, subhedral and randomly oriented.		The interval has been strongly chloritically altered. As well fsp are altered to what may be leucoxene small patches of talc occur along fractures	Three very small pyrite vnlts occur from 108.89-109.07	
109.50 TO 110.45	«STKWRK SILICIFICATION»	Colour: grey white Grain Size: f.gr. The upper 20 cm of this interval is characterized by a number of open space fractures oriented @ The remainder of the interval is typical 70% stkwrk fracturing subsequently healed by silica	32	Complete silicification of interval	Overall sulphide (py) content is 5% occuring as vnlts within the fractures 110.1-110.3 -pyrite content increases to 10%	
110.45 TO 113.60	«DIOR»	Colour: green Grain Size: f.-m.gr. 110.45-111.80 -is a fine grained and green diorite intrusion. Feldspar phenocrysts are less than 1 mm in length and subhedral 111.80-112.47 -a small segment of cherty ash tuff 112.47-113.60 -the diorite is more leucocratic with fsp phenocrysts up to 2 mm, subhedral to anhedral The lower contact is @	18	110.45-111.80 -str. chlorite alteration occurs. A buff beige mineral which may be leucoxene is also present 112.47-113.60 -the diorite is more silicified, chlorite alteratin is still dominant. The buff beige mineral that may be leucoxene is also present 2-5%	110.45-111.80 -py occurs to 3% finely disseminated throughout 112.47-113.60 -py is disseminated in trace amounts to 2%	

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113.60 TO 115.12	«STKWRK SIL /CHT»	Colour: grey white Grain Size: f.gr. This is similar to the interval 109.5-110.45. The upper 30 cm is characterized by open space fracs. The bottom contact is sharp @	20	Stockwork fracturing and subsequent silica healing is dominant	Pyrite is present to 10% throughout as veinlets associated with fracturing	
115.12 TO 143.60	«LEUCO-DIORITE»	Colour: light grey green Grain Size: m. to c.gr Generally this is a light grey green m. to c.gr. leucodiorite. Feldspars comprise roughly 80% of matrix. Grain size varies throughout. Occasional shear zones occur throughout imparting a shear fabric to the core. A number of brecciated zones occur through the interval and these are cemented by silica and fluorite. 122.14-122.85 -a brecciated zone that has qtz and fluorite veins cementing the breccia 122.85-143.6 -the diorite becomes altered in a patchy pattern with 5 mm dark green to black patches comprising 15-20% of the matrix 122.85-143.6 -the diorite becomes altered in a patchy pattern in a patchy pattern with 5 mm dark green to black patches comprising 15-20% of the matrix 128.2-129.35 -weak shear fabric @ 129.5-130.5 -a silicified brecciated interval 137.5-137.80 -2 cm wide white qtz vn oriented @ At the bottom contact a strong shearing fabric develops and becomes strongly convoluted	40 5	Chlorite and clay alteration is dominant throughout. Banded and massive white, clear and cream coloured qtz veins are seen through the interval. Commonly chlorite vnlts occur with these vnlts Open space fluorite veins are seen locally with euhedral fluorite crystals growing into open spaces Large areas of patchy magnetite similar to that seen in hole TM-16 119.5-119.75 -a number of small banded qtz veins ╣122.14-122.85╠ «qtz, fluorite vns» ╣122.85-135.0╠ «<20% chl patch. alt'n» ╣135.0-143.6╠ «<20% Mt patch. alt'n» ╣128.35-128.97╠ «sil»	Pyrite occurs finely disseminated throughout in trace amounts. In some areas the pyrite ocntent is up to 20%. Locally 2 mm euhedral pyrite cubes are seen. 128.35-128.97 -pyrite occurs to 1% along fractures ╣130.5-132.89╠ «<20% py» -pyrite occurs along weak fabric in core	

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143.60 TO 151.49	«SIL, FLUORITE,FLT BX»	Colour: grey, green white Grain Size: variable This is a grey green white strongly brecciated fault zone. Silicification is pervasive throughout and locally areas of vuggy, drusy fluorite cavities occurs through the interval. Brecciated fragments vary in size from mm scale to cm scale. Secondary and tertiary silica envelope these fragments cementing them together. Local areas of intense silicification similar to distinct zones in core described previously but not fault related are stockwork fractured to 70%.		Silica veining is the dominant alt'n throughout the interval. At least two pulses are seen, indicated by some banded textures. In areas vuggy, qtz lined cavities area seen. Elsewhere similar cavities are seen to be later filled by silica. Fluorite lined cavities are seen locally. This fluorite is a translucent purple colour. Chlorite is common along some fracture surfaces. ╢143.6-151.49╟ «sil» ╢145.9-146.45╟ «2-3% fluorite»	Pyrite averages 10-15% throughout occuring as veinlets and fracture fillings ╢143.6-151.49╟ «10-15% py»	147.2-148.3 -broken core 149.3-150.57 -broken core
151.49 TO 156.10	«SILIC. DIORITE»	Colour: grey, green white Grain Size: f.gr to m.gr. This is quite likely a strongly silicified f. to m.gr. Intense silicification has destroyed most primary textures, but locally what appear to be relict fsp grains. Stkwrk fracturing is as high as 30% and generally these areas are the most silicified.		Silicification is pervasive throughout associated with areas of high fracture density. Chlorite is common along fractures giving a greenish colour to the core.	Pyrite ranges from trace amounts to 15-20% occuring as veinlets and fracture fillings. ╢151.49-156.1╟ «5-10% py»	
156.10 TO 158.50	«INTERBED. CHT/CHT. ASH TUFF»	Colour: grey green Grain Size: f.g. to m.gr. The interval consists of interbedded granular chert/silicification and fine grained light green ash tuff Chert intervals are medium grained granular with 5-10% fracturing lined by chlorite		Chlorite is common along fractures within the chert units and dominant within the fine grained ash tuff units	Pyrite occurs in trace to2% concentrations. This is generally assoc. with fractures and commonly with chlorite	

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
BCD44426	1.52	4.52	3.00	0.1	11	.	118	1	18	1	43	100	.	.	.		.	
BCD44427	4.52	7.52	3.00	0.1	1	31	124	1	15	1	86	123	.	4980	.		.	
BCD44428	7.52	10.52	3.00	0.1	1	77	81	1	1	1	83	23	.	6083	.		.	
BCD44429	10.52	12.69	2.17	0.1	1	23	34	1	1	1	63	16	.	6346	.		.	
BCD44431	16.00	19.00	3.00	0.1	1	63	128	1	11	1	48	81	.	7329	.		.	
BCD44432	19.00	22.00	3.00	0.1	1	45	109	1	14	1	58	148	.	7150	.		.	
BCD44433	22.00	23.81	1.81	0.1	1	26	139	1	6	1	48	97	.	6779	.		.	
BCD44434	23.81	26.21	2.40	0.1	1	106	91	1	14	1	83	107	.	7786	.		.	
BCD44436	29.21	32.21	3.00	0.1	1	52	123	1	25	1	84	696	.	7800	.	0.87	0.025	
BCD44437	32.21	35.21	3.00	0.1	1	45	136	1	16	2	67	416	.	8349	.	0.44	0.013	
BCD44438	35.21	38.21	3.00	0.1	6	94	89	1	10	1	47	148	.	5593	.		.	
BCD44439	38.21	41.21	3.00	0.1	22	155	57	1	15	2	57	64	.	6489	.		.	
BCD44440	41.21	44.21	3.00	0.1	9	49	71	1	18	1	58	46	.	6917	.		.	
BCD44441	44.21	47.21	3.00	0.1	10	10	90	1	15	2	67	113	.	8221	.		.	
BCD44442	47.21	49.57	2.36	0.1	11	23	171	1	15	3	47	130	.	7068	.		.	
BCD44443	49.57	50.10	0.53	0.1	7	195	65	1	15	2	27	46	.	4023	.		.	
BCD44444	50.10	53.10	3.00	1.7	13	37	2360	1	31	3	93	540	.	6858	.	0.65	0.019	
BCD44445	53.10	56.10	3.00	0.4	1	23	133	1	1	1	65	106	.	7976	.		.	
BCD44446	56.10	59.37	3.27	0.2	1	23	78	1	315	1	357	41	.	7712	.		.	
BCD44447	59.37	60.12	0.75	0.2	3	21	42	3	20	3	33	49	.	3162	.		.	
BCD44448	60.12	62.24	2.12	0.1	1	48	210	1	19	3	35	236	.	6523	.		.	
BCD44449	62.24	63.75	1.51	4.2	21	7	269	12	51	26	23	158	.	3112	.		.	
BCD44450	63.75	66.75	3.00	0.1	1	35	105	1	28	5	54	150	.	6631	.		.	
BCD44452	69.75	71.21	1.46	0.9	1	29	46	1	18	4	59	20	.	5949	.		.	
BCD44453	71.21	74.21	3.00	0.4	14	32	61	1	55	6	91	42	.	4560	.		.	
BCD44455	77.21	80.21	3.00	0.2	143	10	28	1	5	5	64	33	.	5665	.		.	
BCD44456	80.21	83.21	3.00	1.3	118	14	33	1	84	1	245	43	.	6451	.		.	
BCD44457	83.21	86.21	3.00	0.1	57	86	117	1	13	8	47	53	.	6714	.		.	
BCD44458	86.21	89.20	2.99	0.1	55	47	114	1	15	5	48	157	.	6583	.		.	
BCD44459	89.20	92.20	3.00	0.6	6	128	37	1	17	2	65	18	.	4551	.		.	
BCD44461	95.20	98.20	3.00	1.1	1	186	26	1	12	1	62	16	.	4209	.		.	
BCD44462	98.20	101.20	3.00	0.9	1	217	23	1	12	1	65	13	.	4574	.		.	
BCD44463	101.20	104.20	3.00	0.9	5	172	18	1	20	1	66	13	.	4490	.		.	
BCD44464	104.20	105.46	1.26	0.4	15	60	15	1	25	2	61	12	.	4085	.		.	
BCD44465	105.46	108.50	3.04	0.1	40	79	70	1	19	3	34	53	.	5928	.		.	
BCD44466	108.50	109.50	1.00	0.1	42	31	185	1	19	3	59	197	.	8875	.		.	
BCD44467	109.50	110.45	0.95	1.2	45	12	69	7	403	6	1207	59	.	2179	.		.	
BCD44468	110.45	113.60	3.15	0.4	41	40	129	1	138	6	399	72	.	6374	.		.	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t
BCD44469	113.60	115.12	1.52	0.6	36	39	48	7	30	5	49	32	.	28938	.		.
BCD44470	115.12	118.12	3.00	0.1	47	29	222	1	11	2	55	102	.	87669	.		.
BCD44471	118.12	122.14	4.02	0.1	57	64	181	1	3	2	63	73	.	83270	.		.
BCD44472	122.14	122.85	0.71	1.1	26	20	77	1	1	5	55	56	.	50408	.		.
BCD44474	125.85	128.85	3.00	0.6	90	11	57	1	63	4	415	186	.	69818	.		.
BCD44475	128.85	131.85	3.00	0.4	108	12	105	1	1	5	43	132	.	62928	.		.
BCD44476	131.85	134.85	3.00	0.6	139	27	25	1	1	5	24	175	.	59998	.		.
BCD44477	134.85	137.85	3.00	0.5	169	39	13	1	1	4	26	79	.	56098	.		.
BCD44478	137.85	140.85	3.00	0.7	198	43	16	1	1	5	36	259	.	62558	.		.
BCD44479	140.85	143.60	2.75	0.9	431	12	84	1	1	13	51	123	.	69238	.		.
BCD44480	143.60	146.60	3.00	2.1	56	55	31	7	40	9	118	41	.	36478	.		.
BCD44481	146.60	149.60	3.00	1.2	52	50	43	4	38	9	72	31	.	28408	.		.
BCD44482	149.60	151.49	1.89	1	85	34	52	5	39	10	93	65	.	49938	.		.
BCD44483	151.49	154.49	3.00	1.1	72	28	75	4	43	9	113	48	.	35478	.		.
BCD44484	154.49	156.10	1.61	1	53	45	238	2	30	15	37	26	.	43628	.		.
BCD44485	156.10	158.50	2.40	2.4	57	51	103	4	145	11	361	97	.	33438	.		.

Sample	From (m)	To (m)	Length (m)
BCD44430	12.69	16.00	3.31
BCD44435	26.21	29.21	3.00
BCD44451	66.75	69.75	3.00
BCD44454	74.21	77.21	3.00
BCD44460	92.20	95.20	3.00
BCD44473	122.85	125.85	3.00

FILE COPY

HOLE NUMBER: TM-25

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: TAM O'SHANTER
PROJECT NUMBER: 661
CLAIM NUMBER:
LOCATION:

PLOTTING COORDS GRID:
NORTH: 209.00S
EAST: 490.00E
ELEV: 1440.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0S
EAST: 0+ 0E
ELEV: 1440.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 96.47m
START DEPTH: 0.00m
FINAL DEPTH: 96.47m

COLLAR GRID AZIMUTH: 270° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 270° 0' 0"

DATE STARTED: March 27, 1992
DATE COMPLETED: March 30, 1992
DATE LOGGED: March 31, 1992

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

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

CONTRACTOR: ATLAS DRILLING
CASING:
CORE STORAGE: GREENWOOD

PURPOSE: TEST 1.4 KM LINEAR AU SOIL ANOMALY IN AREA OF HIGHEST VALUES, HOLE LOST AT 96.47 M

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	-	-45° 0'	ACID	OK		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 0.61	«CASING»					
0.61 TO 1.52	«BROKEN CORE»					
1.52 TO 96.47	«INTERBED TUFF SEDS, SNDSTONE, QTZ, PEBBLE CONGLOM.	Colour: grey green to white Grain Size: variable This interval consists of interbedded f.gr. grey green tuffaceous siltstone and tuffaceous sand-stone, white m.gr. qtz rich sandstones, and white and oxidized qtz/cht pebble conglom. All units are well bedded, and fining sequence suggest tops are up hole. Quartz rich sandstones have rounded qtz grains up to 1 mm. These are clast supported and cemented by siliceous matrix. Qtz-cht pebble conglomerate varies from matrix supported to clast supported. Pebble grains range from white qtz grains to grey green tuffaceous pebbles, to chert frags. These are generally subrounded to subangular and randomly oriented. 12.58 -bedding 19.61 -bedding/contact 30.00 -bedding 33.1-42.6	 38 60 32	Volcaniclastic units are chloritic, weathered out conglomerate units are generally strongly oxidized. Small pyritic open space filling qtz vein-lets cross cut the core at irregular intervals. 7.37-8.82 -oxidation 8.82-9.24 -hematite -minor hematite vnlts 16.6-17.9 -oxidation 18.32-19.1 -oxidation 21.0-21.4 -oxidation -oxidation give rise to a boxwork texture in this interval 21.7-25.29 -str. oxidation Manganese staining is seen on most fracture surfaces 33.1-42.6 -str. oxidation of qtz/cht pebble conglomerate	Coarser grained sandstone units generally have pyrite contents of 5-10% These are strongly oxidized. Pyrite veinlets are common through these more permeable units 7.37-8.82: 5% py 16.6-17.9: 2% py 18.32-19.1: 2% py 21.0-21.4 -20% py -this occurs as veins and veinlets flooding the interval 21.7-25.29 -10-20% boxwork texture oxidized py veins, the core is very broken and rubbly 25.29-29.2 -5-10% boxwork texture oxidized py vnlts. 33.1-42.6 -10% oxidized pyrite 42.6-62.4 -2-3% pyrite	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-is an interval of qtz-cht pebble conglomerate. The upper 70 cm is strongly fractured and crosscut by pyrite vnlts that have been weathered out creating boxwork textures and open spaces				
		42.2 -bedding @	50			
		46.40-46.84 -the core is strongly broken with minor gouge indicating a small fault zone				
		48.17 -the core is strongly gouged @ approx.	90			
		50.60-50.90 -core is strongly broken and may be a fault zone				
		55.30-56.1 -strongly broken core				
		54.80 -bedding @	58			
		64.32-67.2 -core is broken, rubbly				
		69.9 -bedding @	56			
		68.5-68.6 -fault gouge	90			
		74.65-66.1 -core is weakly brecciated				
		66.7 -small fault				
		77.9-78.0 -fault gouge				
		80.16 -broken core, possible fault				
		82.05 -bedding @	62			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		86.48-86.7 -fault gouge 87.28-87.48 -fault gouge 91.73-91.87 -fault gouge 92.47 -bedding @	54			
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	GEOCHEMICAL As ppm	Ba ppm	Cu ppm	Fe ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	g/tAu g/t	S ppm	COMMENTS
BCD44486	1.52	4.52	3.00	0.1	15	154	42	4006	1	20	3	55	11			
BCD44487	4.52	7.52	3.00	0.1	16	71	43	5120	1	19	4	69	29			
BCD44488	7.52	10.52	3.00	0.3	23	69	45	3480	2	22	5	56	21			
BCD44489	10.52	13.52	3.00	0.1	36	72	56	4485	1	20	4	72	15			
BCD44490	13.52	16.52	3.00	0.1	17	99	40	4488	1	21	5	74	28			
BCD44491	16.52	19.52	3.00	0.1	28	50	39	3753	2	16	4	60	15			
BCD44492	19.52	22.52	3.00	0.1	100	83	63	4986	5	15	4	50	32			
BCD44493	22.52	25.52	3.00	0.1	53	210	27	3144	12	10	4	50	16			
BCD44494	25.52	28.52	3.00	0.1	44	127	40	3949	5	18	4	55	21			
BCD44495	28.52	31.52	3.00	0.1	33	129	46	4789	2	21	5	68	15			
BCD44496	31.52	34.52	3.00	0.1	101	356	45	5619	19	19	5	48	18			
BCD44497	34.52	37.52	3.00	0.1	63	315	51	3039	4	16	5	39	27			
BCD44498	37.52	40.52	3.00	0.1	23	151	37	4497	3	17	5	72	9			
BCD44499	40.52	43.52	3.00	0.1	10	272	41	3740	2	17	3	54	11			
BCD44500	43.52	46.52	3.00	0.1	18	218	30	3856	1	17	4	63	20			
BCD44501	46.52	49.52	3.00	0.3	12	129	35	3856	3	19	4	69	10			
BCD44502	49.52	52.52	3.00	0.1	13	170	39	3354	1	17	4	76	10			
BCD44503	52.52	55.52	3.00	0.1	19	251	42	4239	2	19	4	72	12			
BCD44504	55.52	58.52	3.00	0.1	10	141	45	4386	1	18	4	78	8			
BCD44505	58.52	61.52	3.00	0.1	12	154	37	3525	4	16	3	64	9			
BCD44506	61.52	64.52	3.00	0.1	11	412	36	3570	1	20	3	77	29			
BCD44507	64.52	67.52	3.00	0.2	17	139	26	2481	3	14	4	56	7			
BCD44508	67.52	70.52	3.00	0.1	15	430	35	3655	2	18	4	67	12			
BCD44509	70.52	73.52	3.00	0.1	17	341	31	3545	3	16	5	84	7			
BCD44510	73.52	76.52	3.00	0.1	14	152	31	3192	2	18	4	56	5			
BCD44511	76.52	79.52	3.00	0.1	20	135	43	2768	4	15	5	61	7			
BCD44512	79.52	82.52	3.00	0.2	16	476	35	2622	1	16	4	64	4			
BCD44513	82.52	85.52	3.00	0.1	18	239	57	3983	2	17	4	87	6			
BCD44514	85.52	88.52	3.00	0.1	25	309	48	3732	2	20	5	78	6			
BCD44515	88.52	91.52	3.00	0.1	28	249	42	4037	1	18	4	86	5			
BCD44516	91.52	94.52	3.00	0.1	24	244	44	3094	3	17	4	64	14			
BCD44517	94.52	96.47	1.95	0.2	23	163	37	2507	1	13	4	46	31			

FILE COPY

MINNOVA INC.

HOLE NUMBER: TM92-27 DRILL HOLE RECORD IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER:
LOCATION:

PLOTTING COORDS GRID: DEADWOOD 1992
NORTH: 70.00S
EAST: 595.00W
ELEV: 1360.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0S
EAST: 0+ 0E
ELEV: 1360.00

COLLAR DIP: -50° 0' 0"
LENGTH OF THE HOLE: 163.98m
START DEPTH: 0.00m
FINAL DEPTH: 163.98m

COLLAR GRID AZIMUTH: 10° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 50° 0' 0"

DATE STARTED: March 31, 1992
DATE COMPLETED: April 2, 1992
DATE LOGGED: April 3, 1992

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

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

CONTRACTOR: ATLAS DRILLING
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
64.60	-	-51° 0'	ACID	OK	
162.15	-	-50° 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 1.52	«CASING»					
1.52 TO 23.25	«BX FLT ZONE»	Colour: grey green Grain Size: variable This interval consists of extremely broken and rubbly core for the first 12.20 m after which it is more competent and silicified. A number of small fault gouges cut the interval as do some qtz veins. Pyrite veins and vnlts occur commonly with the qtz veins and silicified areas. The host rock for this zone appears to be a diorite, m.gr. and leucocratic Brecciated fragments are subrounded ranging in size from mm scale to several centimetres. Structural fabric is @	20	Alteration varies from strong clay alteration and oxidation near the top of the interval to strong silica and chlorite alteration with oxidation along fractures and of pyrite veins. Chlorite occurs as fracture fillings and vnlts. Talc occurs in vnlts in trace amts. Fuchsite is seen in trace amounts	Pyrite is the dominant sulphide seen through the interval occurring as veins and vnlts within siliceous zones and qtz veins. Arsenopyrite is seen in tr amounts and serodite (arsenic oxide)	3.96-4.08: 20% core recovery This zone is probably related to structural control of hole TM91-20A
		1.52-12.20 -the core is extremely broken and rubbly. Intact core consists of fractured qtz veins, altered diorite and shear zones		╣1.52-12.20╠ -intact core varies from qtz vns, «silicified» shear zones and strongly clay altered diorite. Oxidation is common.	1.52-12.20 -pyrite content is 2-5% overall, but within qtz vn. intervals reaches 10-15% as stockwork vnlts along fractures.	
		12.20-17.07 -is a silicified breccia zone. This zone contains qtz frags to several cm in dimension		╣12.20-17.07╠ «s.sil» -is strongly silicification (60%) and chlorite alteration. Silicification is pervasive while chlorite generally occurs as veinlets.	12.20-17.07 «Py 2%, Aspy tr» -pyrite occurs as veinlets and open space fillings in trace to 2% concentrations. Arsenopyrite is seen in trace amounts	
		13.46-14.90 -is a qtz vein @ -the vein is fractured with a number of oxidized voids	50	13.46-14.90 -open voids are oxidized and contain chlorite	13.46-14.90 -py vnlts and open space fillings occur to 5% within a qtz vein	
		17.07-18.1 -is a slightly brecciated but quite well preserved m.gr. light green diorite		17.07-18.1 -strong silicification	17.07-18.1 -2-5% disseminated pyrite	
		18.1-19.75 -is a strong chlorite altered zone with occasional qtz vn frags in it.				
		19.75-21.85 -a strongly fractured qtz vn/py vn zone		19.75-21.85 -20% chlorite along fractures	╣19.75-21.85╠ «-20% vein pyrite»	
		20.5-20.7 -a 4 cm wide pyrite vein @ 20.77-20.9	20			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-fault gouge 21.85-23.25 -sheared fabric @ 22.45-23.25 -gouge zone	20	ǂ21.85-23.25ǂ «s.arg, tr fuchsite» -strong clay alteration and trace fuchsite		
23.25 TO 88.40	«DIORITE»	Colour: green Grain Size: f.gr. m.gr. This is a strongly altered interval which in areas looks possibly andesitic but overally appears dioritic. Textures range from fine grained phases to medium grained. Fsp are subhedral and randomly oriented. A number of breccia zones occur through the interval. Stockwork fracturing occurs through the interval 23.25-28.2 -the unit is strongly bleached 25.91-26.6 -a brecciated interval sealed by silica carbonate and chlorite. The bx is tight 27.25-27.6 -is a brecciated and veined interval oriented @ 10 The bx is sealed by talc, chlorite carbonate 28.24-28.84 -a brecciated zone cemented by silica, carbonate and possibly sericite 44.5-47.0 -the core begins to develop a shear fabric @ 38 -fine grained sulphides line this fabric		Silica carbonate alteration occurs through the interval. Carbonate occurs to about 10% through the matrix, as does silica stockwork qtz carbonate vnlts occur along stockwork fractures Chlorite alteration in the form of vnlts and replacement is abundant (20%) ǂ23.25-28.2ǂ «s.sil» -strong silicification 28.24-28.84 -possible sericite with silica and carbonate 29.5 -minor epidote occurs 33.6-38.1 -feldspars are altered, a pinkish colour, possibly K fsp. ǂ40.3-44.17ǂ «s. bleaching» -the core is strongly bleached with clay, silica and possible albite alteration	Disseminated pyrite occurs through the interval to 10% and locally as high as 20% Occasional pyrite vns occur with carbonate veining 35.0 -a 1 cm wide pyrite vn with carbonate oriented @ 30 deg to c.a. 35.47 -1 cm wide pyrite and carbonate vn oriented at 22 deg to c.a. 44.5-47.0	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
					-f.gr. sulphides along structural fabric	
		45.0 -quartz vein @	30			
		48.9-52.0 -is a qtz carbonate tight bx zone chlorite carbonate and silica fill spaces between brecciated fragments				
		55.30-55.68 -is a fault breccia				
		55.68-88.40 -diorite is chilled to a f.gr. to aphanitic interval 67.35 -2 cm wide qtz vein @ 76.22-78.17 -silicified bx zone. Fragments are angular and rotated	32	╣55.68-88.40╠ «s arg, m chl+cb stwk» -primarily clay, chlorite + carbonate -chlorite occurs along stockwork fractures ╣76.22-78.17╠ «chalcedony cement» -banded and opaline silica cement the bx	╣55.68-86.48╠ «Py tr» -trace py, occasional vnlts occur at low angles to c.a. (<10 deg) and these generally have chloritic vein selvages assoc. with them.	
		81.08-84.5 -silicified bx		╣81.08-84.5╠ «chalcedony cement» -banded and opaline silica cement the bx, occasional qtz lined cavities are seen		
		86.48-88.40 -silicified bx -shear fabric developed @	40	86.48-88.40 -banded and opaline silica cement bx	86.48-88.40 -2% pyrite as vnlts.	
88.40 TO 100.82	«DEBRIX FLO W BX»	Colour: grey green Grain Size: variable This is a grey green debris flow breccia unit. Fragments in the interval range in size from mm scale to several cm and are either rounded or angular. Frags and qtz and diorite. The weak structural fabric developed is @	38	Silicification, clay, chlorite and carb alteration occurs through the interval. Diorite frags are either silicified or chloritized. A number of open spaced fractures occur through the interval and these are lined with fine grained euhedral qtz grains	Pyrite occurs to 3% throughout as stockwork veinlets and fractures fillings. Trace amounts of chalcopyrite are seen with pyrite locally Pyrite occurs to 10% locally	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
100.82 TO 140.50	«LEUCO DIOR ITE»	Colour: grey green Grain Size: m.gr. This interval consists of a grey green medium grained leucodiorite. Feldspars are subhedral in shape, comprising 60-70% of matrix. Some small finer grained intervals occur throughout. Some small open space fractures occur through		Alteration is generally clay and silica with minor carbonate alteration of matrix Occasional qtz carbonate vnlts are seen through the core. Some talc vnlts are present	Sulphides average 3-5% throughout as disseminations. Stockwork vnlts and as large 2-3 cm amorphous masses. These are generally associated with areas of silicification. Trace to 1% Cp occurs with py 115.3-115.45 -a small silicified interval with 10% py, cp vnlts and with what may be visible gold 114.2-114.6 -15% py, 3% cp	100.82-117.50 -sulphide content is approx. 5-10% with tr - 2% Cp.
140.50 TO 160.70	«F.GR. DIOR ITE»	Colour: dark green Grain Size: f.gr. This is a dark green, f.gr. diorite. Localised areas are medium grained with euhedral randomly oriented feldspar phenocrysts 145.51-146.90 -is a slightly altered, slightly brecciated interval, buff grey in colour 148.68 -1 cm wide qtz carbonate pyrite vn occurs oriented @ 156.25-160.7 -a buff coloured, m.gr. clay altered intrusive interval Bottom contact is distinct @	 60 22	Alteration of the f.gr. unit consists of strong silicification. The medium grained intervals are strongly altered to clay minerals 140.5-145.51 -strong silicification 145.51-146.90 -strong clay altered 146.90-156.25 -str. silicification, minor carbonate 156.25-160.7 -str. clay alteration	Pyrite and pyrrhotite are the only sulphides seen through the interval. These usually occur associated with carbonate vnlts and are seen only in the fine grained intervals. 140.5-145.51 -2% pyrite, pyrrhotite 146.9-156.25 -tr to 2% py, pyrrhotite	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
160.70 TO 163.98	«CHTY ASH TUFF»	Colour: grey green Grain Size: v.f.gr. to aphanitic Grey green aphanitic to v.f.gr. cherty ash tuff Conchoidal fracture seen in areas 161.3-161.6 -a brecciated talc-carbonate veined interval @	20	This interval is silicified and from 161.3-161.6 is a talc carbonate vein interval, chlorite occurs along fractures 163.14-163.58 -a stkwrk silicified zone	Pyrite occurs as vnlts in trace amounts to 5% locally 163.14-163.59 -2-5% stkwrk pyrite	
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
BCD44518	1.52	4.52	3.00	0.1	25	81	58	1	24	4	53	24	.	4444	.		.	
BCD44519	4.52	7.52	3.00	0.1	40	58	47	1	21	3	55	11	.	3934	.		.	
BCD44520	7.52	10.52	3.00	0.1	16	120	233	1	22	4	84	28	.	4057	.		.	
BCD44521	10.52	13.46	2.94	0.1	18	186	58	1	19	5	43	17	.	4256	.		.	
BCD44522	13.46	13.90	0.44	0.1	36	44	60	3	15	3	20	148	.	3173	.		.	
BCD44523	13.90	16.90	3.00	0.1	15	40	48	1	25	5	48	84	.	4030	.		.	
BCD44524	16.90	19.75	2.85	0.1	10	38	139	1	16	4	136	188	.	6677	.		.	
BCD44525	19.75	21.85	2.10	0.9	98	24	319	1	25	7	97	74	.	5493	.		.	
BCD44526	21.85	23.25	1.40	0.8	64	38	35	1	12	3	89	220	.	4804	.		.	
BCD44527	23.25	26.25	3.00	0.6	61	45	31	1	13	4	42	294	.	5313	.		.	
BCD44528	26.25	29.25	3.00	0.1	35	37	29	1	1	1	48	61	.	5216	.		.	
BCD44529	29.25	32.25	3.00	0.1	1	23	27	1	11	1	49	34	.	6228	.		.	
BCD44530	32.25	35.25	3.00	0.1	6	37	28	1	15	1	50	31	.	6506	.		.	
BCD44531	35.25	38.25	3.00	0.1	17	274	38	1	15	2	50	52	.	7861	.		.	
BCD44532	38.25	41.25	3.00	0.2	10	44	30	1	8	1	49	59	.	5797	.		.	
BCD44533	41.25	44.25	3.00	0.1	24	95	41	1	11	3	40	404	.	6852	.		.	
BCD44534	44.25	47.25	3.00	0.1	31	174	50	1	1	1	82	347	.	7475	.		.	
BCD44535	47.25	50.25	3.00	0.1	43	99	44	1	29	3	174	89	.	6871	.		.	
BCD44536	50.25	53.25	3.00	0.2	21	65	33	1	21	4	109	84	.	6195	.		.	
BCD44537	53.25	56.25	3.00	0.1	34	70	74	1	11	8	70	55	.	6467	.		.	
BCD44538	56.25	59.25	3.00	0.1	28	41	48	1	27	9	40	63	.	4903	.		.	
BCD44539	59.25	62.25	3.00	0.1	33	79	70	1	30	8	36	35	.	5212	.		.	
BCD44540	62.25	65.25	3.00	0.1	25	168	59	5	26	8	24	61	.	4466	.		.	
BCD44541	65.25	68.25	3.00	0.1	31	184	43	1	47	8	91	34	.	5016	.		.	
BCD44542	68.25	71.25	3.00	0.1	35	67	30	1	28	7	27	39	.	4483	.		.	
BCD44543	71.25	74.25	3.00	0.1	28	79	54	1	30	6	32	21	.	4651	.		.	
BCD44544	74.25	76.22	1.97	0.1	22	38	111	1	27	7	39	24	.	4578	.		.	
BCD44545	76.22	78.19	1.97	0.8	27	41	81	5	19	7	25	21	.	3138	.		.	
BCD44546	78.19	81.08	2.89	0.2	25	46	49	3	24	8	28	29	.	4128	.		.	
BCD44547	81.08	84.50	3.42	0.1	39	143	85	1	24	8	55	107	.	5483	.		.	
BCD44548	84.50	86.48	1.98	0.1	40	214	64	1	23	8	56	35	.	6814	.		.	
BCD44549	86.48	88.40	1.92	6.6	66	42	184	2	444	12	1549	614	.	7266	.		.	
BCD44550	88.40	91.40	3.00	0.4	31	24	153	2	19	5	23	169	.	3667	.		.	
BCD44551	91.40	94.40	3.00	0.4	34	39	343	4	38	10	75	219	.	4717	.		.	
BCD44552	94.40	97.40	3.00	0.5	23	40	142	18	17	7	20	60	.	3513	.		.	
BCD44553	97.40	100.82	3.42	1.7	39	51	355	3	47	11	77	256	.	6399	.		.	
BCD44554	100.82	103.82	3.00	0.1	78	46	525	1	66	14	180	1510	.	8588	.	1.40	0.041	
BCD44555	103.82	106.82	3.00	0.4	44	60	560	3	131	12	302	309	.	7815	.	0.38	0.011	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe % ppm	S %	Aug/t g/t	Auopt oz/t
BCD44556	106.82	109.82	3.00	1.8	50	47	628	1	421	10	1390	240	.	89630	.		.
BCD44557	109.82	112.82	3.00	2.8	43	45	575	14	46	11	113	152	.	83330	.		.
BCD44558	112.82	114.20	1.38	0.1	112	57	630	1	22	9	27	146	.	83850	.		.
BCD44559	114.20	114.60	0.40	0.1	240	71	1261	36	17	26	31	471	.	118550	.	0.57	0.017
BCD44560	114.60	115.30	0.70	0.3	65	51	567	26	19	12	27	178	.	69520	.		.
BCD44562	115.45	118.45	3.00	0.1	45	42	581	6	43	13	108	216	.	75690	.		.
BCD44563	118.45	121.45	3.00	0.1	24	73	513	2	24	9	27	132	.	77570	.		.
BCD44564	121.45	124.45	3.00	0.2	45	44	566	1	24	2	36	216	.	72010	.		.
BCD44565	124.45	127.45	3.00	0.8	55	48	957	1	21	2	36	505	.	70920	.	0.63	0.018
BCD44566	127.45	130.45	3.00	1.6	33	42	1196	1	94	2	350	1700	.	67240	.	2.34	0.068
BCD44567	130.45	133.45	3.00	0.8	11	28	1007	1	28	1	47	2090	.	55410	.	2.82	0.082
BCD44568	133.45	136.45	3.00	0.7	25	28	539	1	22	2	30	920	.	54860	.	1.28	0.037
BCD44569	136.45	140.50	4.05	0.1	1	82	282	1	20	1	85	333	.	95340	.		.
BCD44570	140.50	143.50	3.00	2.3	1	27	139	1	3	1	47	346	.	103890	.		.
BCD44571	143.50	145.51	2.01	2.8	1	26	96	1	1	1	47	168	.	82900	.		.
BCD44572	145.51	146.90	1.39	0.1	1	394	80	1	14	1	100	624	.	86970	.	0.64	0.019
BCD44573	146.90	149.90	3.00	2.2	1	22	51	1	4	1	53	145	.	82350	.		.
BCD44574	149.90	152.90	3.00	2.7	1	24	116	1	25	1	123	403	.	97620	.	0.53	0.015
BCD44575	152.90	156.25	3.35	1.9	1	13	105	1	4	1	45	289	.	79590	.		.
BCD44576	156.25	160.70	4.45	0.1	1	93	111	1	38	1	186	454	.	78260	.	0.52	0.015
BCD44577	160.70	163.98	3.28	0.1	4	151	132	1	56	1	242	263	.	53410	.		.

FILE COPY

HOLE NUMBER: TM92-28

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER:
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID:
NORTH: 25.00S
EAST: 796.00W
ELEV: 1375.00

ALTERNATE COORDS GRID: TAM91 GRID
NORTH: 0+ 0N
EAST: 0+ 0E
ELEV: 1362.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 180.44m
START DEPTH: 0.00m
FINAL DEPTH: 180.44m

COLLAR GRID AZIMUTH: 190° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: April 2, 1992
DATE COMPLETED: April 4, 1992
DATE LOGGED: April 5, 1992

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

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

CONTRACTOR: ATLAS DRILLING
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
84.13	-	-47° 0'	ACID	OK		-	-	-	-	-	
180.44	-	-48° 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 18.46	«F.GR. DIORITE»	Colour: dark green Grain Size: f.gr. This is a fine grained, dark green diorite. The core is strongly broken, rubbly and oxidized along fracture surfaces. Approximately 10-15% v.f. stkwrk fractures occur through the intervals. These are generally lined by fine pyrite. Frequent small (<1 cm) wide pyrite veins and qtz veins cross the interval		The interval is strongly silicified throughout. Fracture surfaces are strongly oxidized.	Pyrite is the only sulphide seen through the interval. This occurs as fine vnlts along fractures, disseminations and larger (<1 cm) veins. The larger veins tend to be weathered with boxwork texture ╣3.05-18.46╠ «10-15% py»	
18.46 TO 34.14	«DIORITE»	Colour: light green Grain Size: m.gr. The diorite through this interval is light grey greenish. with m.gr. subhedral to euhedral fsp phenocrysts that have been strongly altered to clay minerals. Several sheared and brecciated zones occur through the interval as do several zones of silicification associated with the brecciated intervals. 19.5 -clay fault gouge 22.10-22.3 -shear 2 -this small shear has small qtz veins along fabric with chlorite laminae	42	Diorite is strongly altered to clay minerals through the interval. ╣18.46-34.14╠ «str. clay alt'n» Several small zones of intense silicification are seen through the interval Minor talc is seen along some fractures The upper 50 cm of the interval is stkwrk fractured and silicified. 20.0-20.1 -stkwrk silicification 20.47-20.9 -stkwrk silicification 23.9-24.55 -stkwrk silicification and brecciation -some oxidized open spaces show drusy qtz linings	Overall pyrite content averages 2-3% generally as vnlts and veins commonly with silicification. Pyrite veins are strongly oxidized with boxwork textures 20.0-20.1 -5% py 20.47-20.9 -5% py 23.44-23.5 -boxwork pyrite vein, oxidized, @ 90 deg to c.a. ╣24.75-25.47╠ «20% py stkwrk» -py is strongly oxidized 29.76-29.80 -f.gr. pyrite vein at 48 deg to c.a.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
34.14 TO 57.60	«BX ALT'N Z ONE»	Colour: var, grey green to white, buff Grain size: variable This zone is brecciated to a certain degree through the entire interval. Brecciated frags appear to be, in general, f.gr. chilled margin frags seen at the end of the previous interval. Open spaces fractures are common with f.gr. drusy quartz linings. Small sub-intervals are granular possibly clay altered diorite. These are stkwrk fractured with chlorite lining fractures Lower contact is oriented @	 38	Alteration varies widely throughout. Silicification is predominant, particularly as cement for the brecciated zones. Clay alteration is common in what may be large frags of diorite. Localized areas of str. oxid. reflect increases in pyrite content.	Pyrite occurs only in amounts commonly around 5% throughout. Minor oxidized py vnlts. are seen throughout 40.45-42.26 -5-10% disseminated and boxwork oxidized pyrite vnlts.	
57.60 TO 80.47	«DIORITE»	Colour: green Grain Size: m.gr. This is a light to dark green diorite. Fsp phenocrysts are generally of the order of 1-2 mm although some short, fine grained intervals are seen. From 57.6-59.13 the diorite is mod. bleached. Minor 1 cm wide qtz carbonate vnlts cut the core at, at irregular intervals 61.55 -a 5 cm wide qtz carbonate cemented bx occurs @ 75.70 -the hole begins entering a wide zone of shearing and faulting 75.7-75.97 -shear and brecciated fabric @ ╢75.7-80.47╟ «Flt Zone» The brecciated frags range in size from 1 mm to 3 cm 75.7-77.62 -1-3 cm wide qtz veins cut the interval 77.62-78.64 -a qtz vein similar to that seen near the end of hole TM91-20A. The core is broken and rubbly through this interval	 10 38 64 64	57.6-59.13 -fsp are strongly altered to clays and matrix is strongly chloritized 59.13-70.9 -the core is silicified through this interval, f.gr. leucoxene is seen in concentrations of 2-3% 70.9-75.7 -weak to mod. clay alt'n 75.7-80.47 chloritic alteration of fault gouge and brecciated zones is dominant ╢77.62-78.64╟ «chl frac, minor fuchsite »	57.6-75.7 -pyrite occurs disseminated in concen. of 2-5%. 75.0-75.7 -small laminae of v.f.gr. sulphide occurs from 5-10%. These occur along fractures 75.70-77.62 -pyrite occurs in concentrations of 5-7% generally associated with qtz veins and along fractures ╢75.7-77.62╟ « 5-75 py, tr cp» -chalcopyrite occurs in tr. amounts ╢77.62-77.82╟ «10% cp» ╢77.82-78.64╟ «10-20% py» -from 77.67-77.82: chalcopyrite occurs along fractures with minor	Core recovery from 77.62-78.64: 60%

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		The vein itself is highly fractured with chlorite chalcopyrite and pyrite along these fractures 78.64-80.47 -diorite again, cut by two gouge zones ┤79.0-79.38├ «gouge» ┤79.7-80.10├ «gouge»			pyrite 77.82-78.64 -pyrite is seen from 10-20%, again along fractures. Trace amounts of chalcopyrite are seen	
80.47 TO 188.44	«INTERBED QTZ-CONGLOM SST, SLTST»	Colour: white, grey, grey-green Grain Size: var. c.gr. to f.gr. These sediments are similar to those described in hole TM-25 Conglomerate intervals are white in colour varying from clast supported to matrix supported. Clasts are quartz, chert, and f.gr. chloritic ash tuff. As with hole TM-25 the conglomerate units are fractured more than the finer grained units, and these fractures are oxidized. Sandstone units are grey in colour, quartz rich and clast supported. Fine grained siltstone units are grey green in colour and may be volcanic in origin. In comparison to hole TM-25, this interval has a larger proportion of finer grained sandstones and siltstones with respect to conglomerate units whereas hole TM-25 had a roughly 50:50 proportion between conglomerate and sandstones and siltstones 80.47-134.72 -beds are highly contorted, fragmented due to faulting ┤103.22-105.5├ «breccia» ┤112.45-114.45├ «breccia» 146.0 -bedding @ 165.3-174.9 -a wide interval of grey white qtz pebble conglom.	64	Alteration is not strong through the interval. It consists of weak oxidation of pyrite along fractures primarily in the conglomerate units. This oxidation is not nearly as strong as seen in TM-25 ┤103.22-105.5├ «strong oxid'n»	Pyrite occurs in trace amounts to 3% as veinlets cutting all units, or as disseminations associated with more permeable conglomerate units ┤103.22-105.5├ «5-10% py» 165.3-174.9 -5% diss. pyrite	

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
BCD44578	3.05	6.05	3.00	2.2	1	87	128	1	4	1	46	63	.	71048	.		.	
BCD44579	6.05	9.05	3.00	3	1	152	242	1	3	1	36	71	.	75209	.		.	
BCD44580	9.05	12.05	3.00	2.8	1	22	325	1	2	1	40	82	.	86499	.		.	
BCD44581	12.05	15.05	3.00	1.6	1	28	209	1	5	1	40	299	.	90460	0.36	0.011	.	
BCD44582	15.05	18.46	3.41	1.5	1	33	149	1	4	1	45	101	.	77188	.		.	
BCD44583	18.46	21.46	3.00	0.1	21	10	169	1	16	1	44	118	.	61869	.		.	
BCD44584	21.46	24.46	3.00	0.1	20	58	251	1	9	1	89	57	.	87599	.		.	
BCD44585	24.46	27.46	3.00	0.1	5	267	392	7	1	1	68	76	.	88919	.		.	
BCD44586	27.46	30.46	3.00	0.1	10	35	304	1	1	1	76	95	.	95519	.		.	
BCD44587	30.46	34.14	3.68	0.1	1	34	256	1	1	1	76	147	.	91488	.		.	
BCD44588	34.14	37.14	3.00	0.2	21	27	396	1	1	1	57	1645	.	67169	.	1.52	0.044	
BCD44589	37.14	40.14	3.00	0.3	20	34	276	3	4	1	36	54	.	37609	.		.	
BCD44590	40.14	43.14	3.00	1.8	44	36	252	12	12	2	34	78	.	27209	.		.	
BCD44591	43.14	46.14	3.00	0.6	18	34	254	5	6	1	15	40	.	13758	.		.	
BCD44592	46.14	49.14	3.00	0.6	17	37	293	5	5	1	17	68	.	17219	.		.	
BCD44593	49.14	52.14	3.00	1.1	31	34	475	9	10	1	26	91	.	29679	.		.	
BCD44594	52.14	55.14	3.00	1.5	34	34	682	4	7	2	18	246	.	32209	.	0.22	0.006	
BCD44595	55.14	57.60	2.46	0.5	15	35	251	3	5	1	19	70	.	16999	.		.	
BCD44596	57.60	60.60	3.00	0.1	1	37	280	1	1	1	53	143	.	62809	.		.	
BCD44597	60.60	63.60	3.00	0.1	1	68	134	1	1	1	38	464	.	61439	.	0.46	0.013	
BCD44598	63.60	66.60	3.00	0.1	1	141	188	1	1	1	45	80	.	58219	.		.	
BCD44599	66.60	69.60	3.00	0.1	1	70	193	1	1	1	41	128	.	65559	.		.	
BCD44600	69.60	72.60	3.00	0.1	1	320	204	1	1	1	31	161	.	58949	.		.	
BCD44601	72.60	75.70	3.10	0.2	23	33	224	1	1	1	60	126	.	65149	.		.	
BCD44602	75.70	77.62	1.92	2.1	175	115	869	1	1	1	68	6800	.	50449		6.26	0.183	
BCD44603	77.62	78.64	1.02	7.4	399	8	3341	9	13	10	110	1760	.	52139		1.38	0.040	
BCD44604	78.64	80.47	1.83	0.1	19	109	121	1	1	1	85	80	.	52349	.		.	
BCD44605	80.47	83.47	3.00	0.1	39	48	159	1	2	2	38	105	.	37519	.		.	
BCD44606	83.47	86.47	3.00	0.1	32	155	114	1	1	1	30	82	.	35409	.		.	
BCD44607	86.47	89.47	3.00	0.1	19	211	70	1	1	1	47	111	.	47929	.		.	
BCD44608	89.47	92.47	3.00	0.1	18	42	64	1	1	1	34	96	.	45709	.		.	
BCD44609	92.47	95.47	3.00	0.6	28	1	3	1	2	2	3	57	.	440	.		.	
BCD44610	95.47	98.47	3.00	0.1	15	118	66	1	1	1	30	36	.	40949	.		.	
BCD44611	98.47	101.47	3.00	0.1	13	51	44	1	1	1	30	31	.	42729	.		.	
BCD44612	101.47	104.47	3.00	0.1	10	58	46	1	1	1	30	155	.	39819	.		.	
BCD44613	104.47	107.47	3.00	0.5	26	67	78	1	1	1	25	89	.	36839	.		.	
BCD44614	107.47	110.47	3.00	0.1	34	231	151	2	1	1	26	56	.	47599	.		.	
BCD44615	110.47	113.47	3.00	0.1	22	210	141	1	1	1	27	39	.	48579	.		.	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t
BCD44616	113.47	116.47	3.00	0.1	17	227	67	1	1	1	34	29	.	4721	.		.
BCD44617	116.47	119.47	3.00	0.1	30	123	75	1	1	1	37	96	.	4650	.		.
BCD44618	119.47	122.47	3.00	0.1	28	50	130	1	1	1	32	70	.	4933	.		.
BCD44619	122.47	125.47	3.00	0.1	28	110	145	1	1	1	30	57	.	5138	.		.
BCD44620	125.47	128.47	3.00	0.1	29	68	224	1	1	1	27	61	.	4575	.		.
BCD44621	128.47	131.47	3.00	0.1	32	88	235	1	1	1	24	95	.	4948	.		.
BCD44622	131.47	134.47	3.00	0.1	36	92	107	1	1	1	35	69	.	5343	.		.
BCD44623	134.47	137.47	3.00	0.1	26	66	130	1	1	1	38	38	.	5104	.		.
BCD44624	137.47	140.47	3.00	0.1	25	69	106	1	1	1	58	39	.	4996	.		.
BCD44625	140.47	143.47	3.00	0.1	28	50	194	1	1	1	33	140	.	5024	.		.
BCD44626	143.47	146.47	3.00	0.1	21	53	131	1	1	1	36	119	.	4790	.		.
BCD44627	146.47	149.47	3.00	0.1	33	87	123	1	1	1	32	60	.	4829	.		.
BCD44628	149.47	152.47	3.00	0.1	25	68	97	2	2	1	23	85	.	3041	.		.
BCD44629	152.47	155.47	3.00	0.1	29	97	212	1	1	1	26	131	.	4360	.		.
BCD44630	155.47	158.47	3.00	0.1	33	279	153	1	1	1	26	74	.	4196	.		.
BCD44631	158.47	161.47	3.00	0.1	52	889	56	1	2	1	32	29	.	3708	.		.
BCD44632	161.47	164.47	3.00	0.1	55	406	100	1	5	1	37	34	.	4225	.		.
BCD44633	164.47	167.47	3.00	0.1	39	423	129	2	7	2	23	64	.	2940	.		.
BCD44634	167.47	170.47	3.00	0.1	23	320	66	3	4	1	15	22	.	1742	.		.
BCD44635	170.47	173.47	3.00	0.1	22	755	51	2	6	1	17	18	.	1726	.		.
BCD44636	173.47	176.47	3.00	0.1	37	553	80	2	4	2	21	35	.	3129	.		.
BCD44637	176.47	180.44	3.97	0.1	37	829	44	1	3	2	39	22	.	3576	.		.

HOLE NUMBER: TM-29 **FILE COPY** MINNOVA INC.
DRILL HOLE RECORD
IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: TAM O'SHANTER
PROJECT NUMBER: 661
CLAIM NUMBER:
LOCATION:

PLOTTING COORDS GRID:
NORTH: 302.00S
EAST: 440.00E
ELEV: 1444.00

ALTERNATE COORDS GRID: TAM91 GRID
NORTH: 0+ 0S
EAST: 0+ 0E
ELEV: 1444.00

COLLAR DIP: -60° 0' 0"
LENGTH OF THE HOLE: 119.79m
START DEPTH: 0.00m
FINAL DEPTH: 119.79m

COLLAR GRID AZIMUTH: 270° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 270° 0' 0"

DATE STARTED: April 5, 1992
DATE COMPLETED: April 7, 1992
DATE LOGGED: April 8, 1992

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

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

CONTRACTOR: ATLAS DRILLING
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
66.14	-	62° 0'	ACID	OK		-	-	-	-	-	
115.82	-	62° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 0.61	«CASING»					
0.61 TO 119.79	«INTERBED. QTZ/CHT PEBBLE CONGLOMSST, SLTST»	Colour: grey green Grain Size: var., c.gr. to f.gr. The interval consists of alternating beds every several cm of coarse grained (1-2 cm) qtz and cht pebble conglomerate, m.gr. (mm scale) qtz rich sandy units, and v.f.gr. chloritic siltstones The conglomerate units range texturally from medium grained matrix supported to coarse grained clast supported. These are weakly oxidized in areas particularly along fractures. The fine grained silty units are quite chloritic suggesting a volcanic origin Minor open spaced fractures line with fine quartz crystals are seen occasionally		The finer grained units appear highly chloritized. Conglomerate units are weakly oxidized along fractures. Banded hematite alteration is seen locally in trace amounts to as high as 10-15%. These occur as very fine banded laminations as selvages to hair line fractures. Where these fractures cross a permeable bed, a hematite alteration front can be seen migrating along the permeable horizon. This generally occurs along finer grained intervals. ╢18.38-26.37╟ «10-15% hematite» ╢23.17-23.71╟ «20-25% hematite»	Pyrite generally occurs only in trace amounts in conglomerate units as disseminations and veinlets ╢41.7-44.20╟ «5% oxid. py veins» Some very fine specular hematite may be present along fractures	
		Bedding orientation varies throughout: 8.27 m @ 9.60 m @ 24.80 m @ 35.75 m @ 50.00 m @	 40 70 38 60 58	Common orientation is at 68 deg to c.a. though this varies. Clay alt'n is present in trace amounts.		
		54.3 -small fault with oxidized gouge @	40			
		58.18-58.63 -graded bedding fining down hole				
		59.74 -bedding @	78			
		62.4-62.9 -broken core, probable fault				
		64.0-64.1 -broken core, probable fault				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		68.46-68.9 -sed. breccia 70.80 -oxid. fault gouge 74.3-74.8 -broken core 75.7-76.0 -broken core 77.5 -fault gouge 80.5-86.26 -broken core 59.74-e.o.h. -proportion of coarser grained conglomerate to fine graned sediments increases 90.53-94.49 -broken core 93.9 -fault gouge 90.6-119.79 -rock type is predominantly qtz pebble conglom. 113.0 -oxidized fault gouge		68.28-70.0 -strong oxid. 90.6-119.79 -core is weakly oxidized		90.6-92.35: 10% core recovery 92.66-94.49: 60% core recovery
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	GEOCHEMICAL As ppm	Ba ppm	Cu ppm	Fe ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	g/tAu g/t	S ppm	COMMENTS
BCD44638	0.60	3.60	3.00	0.1	71	155	43	3110	6	9	2	75	10			
BCD44639	3.60	6.60	3.00	0.1	42	209	41	4101	6	5	2	99	13			
BCD44640	6.60	9.60	3.00	0.1	26	145	43	4328	4	5	2	93	12			
BCD44641	9.60	12.60	3.00	0.1	29	476	43	3379	7	7	3	66	9			
BCD44642	12.60	15.60	3.00	0.1	22	151	34	4239	5	17	4	77	30			
BCD44643	15.60	18.60	3.00	0.3	38	210	66	4130	5	17	4	49	60			
BCD44644	18.60	21.60	3.00	0.1	24	388	34	4097	4	17	4	70	18			
BCD44645	21.60	24.60	3.00	0.1	23	130	23	3518	6	15	5	45	17			
BCD44646	24.60	27.60	3.00	0.1	18	403	23	4207	3	19	6	67	34			
BCD44647	27.60	30.60	3.00	0.2	21	137	9	2397	5	14	4	56	20			
BCD44648	30.60	33.60	3.00	0.1	28	172	32	4697	3	21	4	79	20			
BCD44649	33.60	36.60	3.00	0.1	24	137	14	3137	4	17	4	55	19			
BCD44650	36.60	39.60	3.00	0.1	32	306	28	3787	5	13	4	56	28			

FILE COPY

HOLE NUMBER: TM92-30

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER:
LOCATION: GREENWOOD

PLOTTING COORDS GRID: DEADWOOD 1992
NORTH: 10.00N
EAST: 392.00W
ELEV: 1305.00

ALTERNATE COORDS GRID: TAM91
NORTH: 0+ ON
EAST: 0+ OE
ELEV: 1305.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 175.56m
START DEPTH: 0.00m
FINAL DEPTH: 175.56m

COLLAR GRID AZIMUTH: 190° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: April 13, 1992
DATE COMPLETED: April 16, 1992
DATE LOGGED: April 16, 1992

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

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

CONTRACTOR: ATLAS
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
78.03	-	-45° 0'	ACID	OK		-	-	-	-	-	
175.60	-	-46° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 2.44	«CASING»					
2.44 TO 11.24	«BX, SHEAR ZONE»	Colour: grey green Grain Size: variable This interval consists of a grey green brecciated and sheared zone. A fine shear fabric formed is oriented @ Fragments in the interval are variably siliceous and albitic. Grain Size varies from v.f.gr. to several cm. Fragment shape varies from rounded to angular elongate oriented along fabric. Round to subround fragments appear strained/sheared with an anti-clockwise shearing motion	70	The predominant alteration through this interval is a wispy chloritic alt-ertion along structural fabric. Some brecciated frags are chloritized, others silicified and possibly albitized. Occasional qtz veins up to 2 cm wide occur oriented at 52 deg to c.a. The bottom 10 cm at the contact is silicified	Sulphide content through the interval si not more than 1%. Pyrite is the only identifiable sulphide. This generally occurs with altered primarily silicified fragments as well as in veinlets	
11.24 TO 14.36	«ALT DIORIT E»	Colour: «light green» Grain Size: m.gr. to f.gr. This is a strongly altered interval of m. to f.gr. diorite. Altered euhedral to subhedral fsp are randomly oriented comprising 60-70% of the matrix Occasional small (<1 cm) pyrite/qtz vnlts with chlorite altered HW selvages occur oriented @ ╢13.43-13.57╟ «Quartz Vein» -this is a grey white strongly fractured (50-60%) qtz vein	40 42	The upper 30 cm of the interval has been strongly altered to clay and chlorite. A soft pinkish coloured alteration mineral is present as well (unidentified) 11.54-14.36 -clay and chlorite alteration is still dominant but this is overprinted by weak silicification Leucoxene is also present through the interval	Pyrite content is only in trace amounts to 1-2%. In areas where silica veining occurs the content increases to 10% generally occurring along fractures ╢13.43-13.57╟ «10% py»	
14.36 TO 19.55	«QTZ VEIN S ILICF'D BX»	Colour: white grey Grain Size: f.gr to m.gr. This is similar to the qtz vein in previous interval but also similar to zones of silicif-ication described in previous holes (TM-16,19). Sections of the interval strongly fractured (50-60%) while others are massive, structureless. A small brecciated zone near the base of this interval and this is cemented by milky white opaline silica. The bottom contact is oriented @	30	Alteration through the interval is silicification and in areas that are strongly fractured chlorite occurs along fractures 16.5 -2 cm wide chlorite vein oriented at 28 deg to c.a. ╢14.36-17.0╟ «5% chlorite vnlts»	Pyrite occurs associated only with zones of strong fracturing as vnlts along these fractures generally from 5-10% ╢14.36-17.0╟ «5-10% py»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
19.55 TO 23.65	«ALTERED DIORITE»	Colour: grey green Grain Size: m.gr. to c.gr. Similar to the diorite described from 11.24-14.36 but coarser grained. Fsp are euhedral, altered to clay and chlorite. A weak structural fabric is formed @	40	Chlorite and clay alteration is dominant throughout. This is weakly overprinted locally by silicification Leucoxene is present in trace amounts carbonate alteration of matrix occurs to 5%	Pyrite is present only in trace amounts with one small zone of 5-10% py from 20.36-20.7. Pyrite occurs as fine disseminations, vnlts and amorphous masses up to 6 cm in dimension. Pyrite is oxidized	
23.65 TO 39.90	«DEBRIS BX/ ALT. ZONE»	Colour: grey green Grain Size: variable Similar to debris breccia seen in hole TM-24. This is a grey green brecciated interval. Some sections contain angular frags in a f.gr. grey green matrix Other sections are frag. supported. Most frags are clay or chlorite altered. Stockwork qtz carbonate vnlts occur through the interval. Small intervals of fault gouge occur through the interval as do small intervals of silicification. 30.91-31.09 -broken core suggesting fault zone 31.7-32.00 -broken core suggesting fault zone 34.86-35.05 -clay fault gouge 36.8-36.9 -clay fault gouge Possible orientation of fault @	32	Alteration is predominantly clay and chlorite with occasional zones of silicification. Occasional stkwrk qtz carb vnlts crosscut the interval ╢26.9-27.02╟ «Sil» ╢27.9-28.04╟ «Sil» ╢28.6-29.54╟ «Silicif'd Bx» 30.3-30.43 -small milky white qtz vnlts at 10 deg to c.a. with hematite cores ╢33.4-33.80╟ «Silicif'd Bx» ╢35.9-39.49╟ «Silicif'n»	Pyrite content rarely exceeds 2% and more commonly occurs only in trace amounts where core is silicified. Pyrite occurs up to 5% as vnlts along stkwrk fractures	
39.90 TO 52.73	«DIORITE»	Colour: dark to light green Grain Size: f.gr. to m.gr. This diorite contains a greater proportion of mafic minerals to felsics in comparison with diorite seen from 19.55-23.65 39.9-41.0 -the diorite is leucocratic and m.gr. with randomly oriented fsp grains		39.9-43.7 -alteration is primarily clay, chlorite and carbonate. Chlorite occurs as vnlts	39.9-52.73 -pyrite occurs from 3-5% as vnlts and disseminations	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		40.55-41.0 -core is broken and rubbly suggesting a fault zone 41.0-43.7 -the unit is very f.gr. appearing chilled 42.5-42.57 «Calcite Vein» -the vein is 2 cm wide true width oriented @ -brecciated frags occur in the vein which is vuggy having euhedral calcite crystals growing into open cavities 43.1-43.59 -clay fault gouge @ 43.6-49.76 -diorite becomes dark green, fine grained 49.76-52.73 -the diorite becomes leucocratic and medium grained again	10 28	43.05-43.1 -a zone of hematite alteration or vein oriented at 60 deg to c.a. 43.6-49.76 -chlorite alteration is common with silicification overprinting this 49.76-52.73 -chlorite, clay and carbonate alter'n becomes dominant again		
52.73 TO 60.35	«SHEAR BX VN ZONE»	Colour: grey to black Grain Size: variable This interval consists of a sequence of brecciated segments, sheared segments and veined segments some within brecciated zones 52.73-53.57 -a v.f.gr. to aphanitic stkwrk fractured altered segment. Alt'n may be albite. Stkwrk fracturing with silica infilling to 40% 53.57-54.5 -shear fabric oriented @ -this zone containing vein pyrite along fabric 54.5-56.17 -a strongly silicified f.gr. dyke 56.17 -clay fault gouge	56	Alteration varies throughout from silicification in the form of stkwrk vnlts and massive vns to chloritic alteration and possible albite alteration and veining 52.73-53.57 -30-40% stkwrk silica vns and possible albite alteration 53.57-54.5 -silicification and chloritic alt'n 54.5-56.17 -strong silicification 56.17-57.6 -chlorite laminae	Sulphides occur throughout as f.gr. disseminations vnlts and vns assoc. with qtz vns or silica introduction. Arsenopyrite and pyrite are most common with minor cp 52.73-53.57 -5% stkwrk and disseminated pyrite 53.57-54.5 -30% py as veins along shear fabric with minor arsenopyrite 54.5-56.17 -5-10% f.gr. disseminated py 56.17-57.6 -5-10% vein pyrite	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		56.17-57.6 -a brecciated zone containing brecciated frags of a possible albite-qtz vein, fabric @	60			
		The core is broken and rubbly from 57.6-57.91 suggesting a fault zone				57.91-60.05 -60% core recovery
		58.3-58.7 -a silica/sulphide vein @ approximately	70	58.3-58.7 -silicification	58.3-58.7 -40-50% sulphide, primarily pyrite with 5-10% arsenopyrite and trace chalcopyrite	60.05-60.96 -50% core recovery
		60.05-60.35 -core is broken and rubbly suggesting fault zone at end of this interval				
60.35 TO 93.57	«INTERBED SILTSTONE, SANDSTONE, CONGLOM»	Colour: white, grey, grey-green These sediments vary from v.f.gr. grey-green chloritic siltstone or tuff, to grey qtz rich sandstone to white qtz pebble conglomerate. The entire interval is strongly faulted and fractured throughout and both upper and lower contacts are faulted. These are similar to sediments intersected in hole TM-28 with the conglomerate units unoxidized		60.35-61.2 -strongly silicified (40%)	60.35-61.2 -2-3% dissem. pyrite, tr cp	Extremely poor core recovery throughout
		63.70 -fault		Alteration of f.gr. units consists of chlorite. Conglomerate units have some secondary silica introduction	Pyrite to 2% and trace amounts of chalcopyrite occur as vnlts and disseminations throughout the interval most commonly associated with conglom. units	60.96-62.48: 95% 62.48-63.70: 100% 63.7-64.92: 50% 64.92-65.83: 33% 65.83-66.14: 100% 66.14-67.06: 29% 67.06-68.28: 30% 68.28-69.19: 0% 69.19-69.49: 100% 69.49-70.10: 50% 70.10-70.71: 50% 70.71-71.02: 100% 71.02-71.93: 55% 71.93-72.39: 100%
		64.92-72.5 -broken, rubbly core most likely fault zone				Remainder of interval is moderate to good recovery
		73.46 -fault 76.50 -fault 85.65 -fault 86.56-87.48 -fault 92.96-93.57 -fault gouge				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
93.57 TO 175.56	«TERTIARY DYKE»	Colour: buff beige to dark green Grain Size: m.gr. This dyke is similar to the Tertiary dyke described in hole TM-24. 93.57-105.77 -dyke is buff to beige coloured 105.77- -dyke is dark grey green Compositionally the dyke is fsp and pyroxene phyric with aphanitic matrix. Pyroxene are altered to chlorite fsp to clays and carbonate. 93.57-107.59 -core is strongly pitted indicating weathering out of minerals. Strong faulting occurs through the upper 20-25 m 93.57-94.00 -fault 96.32-96.5 -fault 97.0-97.54 -fault 98.2 -fault 98.8 -fault 101.04 -fault 102.61-104.6 -fault 105.77-106.38 -fault 107.59 -fault 107.9 -fault 121.31-121.92 -fault 122.83 -fault 123.5-123.75 -fault 128.26 -fault 130.53-134.5		Alteration consists of strong chlorite clay and carbonate. Altered fsp are weatheredout giving pitted appearance. Occasional qtz carbonate vns cut the interval. Occasional banded qtz carbonate vns are sen through the interval. These are barren		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-fault zone 140.9-141.12 -fault 151.25-151.57 -breccia	40			
		151.57-161.7 -a finer grained, chill zone and is strongly bleached and clay altered. A number of qtz carbonate veins cut the intervals		156.7-157.18 -a strongly oxidized zone 157.8-158.9 -a strongly oxidized zone		
		152.0 -fault				
		161.7-165.5 -an inclusion of qtz pebble conglomerate				
		165.5-175.56 -a number of banded qtz carbonate vns cut the interval				
		173.9 -fault zone				
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %ppm	S %	Aug/t g/t	Auopt oz/t	COMMENTS
BCD41653	2.44	5.44	3.00	0.1	28	74	238	1	12	3	126	180	.	60230	.		.	
BCD41654	5.44	8.44	3.00	0.1	59	33	110	1	3	1	49	305	.	53980	.		.	
BCD41655	8.44	11.24	2.80	0.1	46	26	169	1	97	1	354	209	.	59540	.		.	
BCD41656	11.24	14.36	3.12	0.1	1	171	73	1	25	1	181	23	.	69210	.		.	
BCD41657	14.36	17.36	3.00	0.1	36	53	89	5	14	5	60	93	.	35850	.		.	
BCD41658	17.36	19.55	2.19	0.1	18	51	31	11	5	2	22	21	.	13940	.		.	
BCD41659	19.55	22.55	3.00	0.1	32	126	130	1	20	4	188	270	.	83950	.		.	
BCD41660	22.55	23.65	1.10	0.1	5	82	35	1	1	1	76	27	.	60920	.		.	
BCD41661	23.65	26.65	3.00	0.1	14	74	38	1	7	1	90	15	.	46530	.		.	
BCD41662	26.65	29.65	3.00	0.1	11	21	94	1	20	1	181	19	.	63320	.		.	
BCD41663	29.65	32.65	3.00	0.1	15	38	63	1	1	1	104	71	.	79460	.		.	
BCD41664	32.65	35.65	3.00	0.3	25	281	54	4	102	3	369	40	.	44280	.		.	
BCD41665	35.65	39.90	4.25	0.1	21	62	106	1	1	1	56	45	.	57920	.		.	
BCD41666	39.90	42.90	3.00	0.1	12	56	124	1	1	1	76	83	.	72450	.		.	
BCD41667	42.90	45.90	3.00	2.5	1	77	66	1	1	1	61	149	.	70310	.		.	
BCD41668	45.90	48.90	3.00	2.5	1	64	81	1	1	1	74	42	.	83760	.		.	
BCD41669	48.90	51.90	3.00	0.1	4	73	79	1	1	1	71	95	.	74580	.		.	
BCD41670	51.90	52.73	0.83	0.1	11	33	165	1	1	1	80	130	.	87570	.		.	
BCD41671	52.73	56.17	3.44	0.1	80	70	552	1	48	1	210	660	.	72950	.		.	
BCD41672	56.17	57.60	1.43	0.6	396	38	341	1	3	1	68	1580	.	80490	.		.	
BCD41673	57.60	58.30	0.70	0.1	1	29	92	1	1	1	105	43	.	65730	.		.	
BCD41674	58.30	58.70	0.40	0.1	1519	9	1931	1	4	10	57	3300	.	127670	.		.	
BCD41675	58.70	60.35	1.65	0.1	3833	10	573	1	1	1	127	1290	.	101430	.		.	
BCD41676	60.35	63.35	3.00	0.1	97	63	81	1	1	1	105	54	.	51920	.		.	
BCD41677	63.35	66.35	3.00	0.1	59	75	60	1	1	1	98	16	.	51480	.		.	
BCD41678	66.35	69.35	3.00	0.1	35	85	149	1	1	2	100	27	.	55460	.		.	
BCD41679	69.35	72.35	3.00	0.1	54	97	203	5	40	5	136	37	.	52420	.		.	
BCD41680	72.35	75.35	3.00	0.1	44	70	115	3	23	3	129	24	.	44820	.		.	
BCD41681	75.35	78.35	3.00	0.1	43	61	128	1	7	3	95	23	.	47090	.		.	
BCD41682	78.35	81.35	3.00	0.1	42	25	124	1	7	4	46	25	.	36310	.		.	
BCD41683	81.35	84.35	3.00	0.1	61	82	89	1	7	2	103	57	.	49040	.		.	
BCD41684	84.35	87.35	3.00	0.1	92	76	100	3		3	113	50	.	48640	.		.	
BCD41685	87.35	90.35	3.00	0.1	42	71	124	1		4	84	26	.	47680	.		.	
BCD41686	90.35	93.57	3.22	0.2	38	69	36	5		4	81	16	.	28870	.		.	
BCD41687	93.57	96.57	3.00	0.1	18	81	31	1		2	283	5	.	78890	.		.	
BCD41688	96.57	99.57	3.00	0.1	15	110	30	1		1	76	3	.	39340	.		.	
BCD41689	99.57	102.57	3.00	0.2	16	109	30	1		1	70	7	.	34560	.		.	
BCD41690	102.57	105.57	3.00	0.1	1	510	32	1		1	127	8	.	52180	.		.	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %ppm	S %	Aug/t g/t	Auopt oz/t
BCD41691	105.57	108.57	3.00	0.1	6	384	25	1		1	227	6	.	61260	.		.
BCD41692	111.57	114.57	3.00	0.1	1	119	26	1		1	125	10	.	52580	.		.
BCD41693	117.57	120.57	3.00	0.2	3	68	25	1		1	84	4	.	42430	.		.
BCD41694	123.57	126.57	3.00	1.4	1	155	28	1		1	70	2	.	41290	.		.
BCD41695	129.57	132.57	3.00	1.6	1	180	28	1		1	74	5	.	46810	.		.
BCD41696	135.57	138.57	3.00	1.7	1	209	28	1		1	75	6	.	47800	.		.
BCD41697	141.57	144.57	3.00	1.4	1	163	28	1		1	72	2	.	47840	.		.
BCD41698	147.57	150.57	3.00	1.7	1	232	27	1		1	73	4	.	47660	.		.
BCD41699	153.57	156.57	3.00	0.2	3	743	21	1		1	78	2	.	40620	.		.
BCD41700	159.57	162.57	3.00	0.1	20	357	34	1	46	1	189	1	.	44140	.		.
BCD41701	165.57	168.57	3.00	0.1	1	1353	29	1	7	1	79	1	.	45090	.		.
BCD41702	171.57	174.57	3.00	0.5	1	491	29	1	2	1	73	2	.	43450	.		.

FILE COPY

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: TM92-31 IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER:
LOCATION: GREENWOOD

PLOTTING COORDS GRID: DEADWOOD 1992
NORTH: 212.00N
EAST: 822.00W
ELEV: 1400.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0N
EAST: 0+ 0E
ELEV: 1400.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 254.80m
START DEPTH: 0.00m
FINAL DEPTH: 254.80m

COLLAR GRID AZIMUTH: 190° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: April 16, 1992
DATE COMPLETED: April 18, 1992
DATE LOGGED: 0, 0

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

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

CONTRACTOR: ATLAS DRILLING
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
76.20	-	-45° 0'	ACID	OK	
151.20	-	-45° 0'	ACID	OK	
254.00	-	-45° 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 3.05	«CASING»					
3.05 TO 10.97	«DIORITE/HORNBLENDE DIORITE»	Colour: dark green Grain Size: m.gr. to c.gr. This is a dark green medium to coarse grained diorite to hornblende diorite. Fsp are euhedral comprising 60-70% of matrix. A number of small banded qtz carbonate veins crosscut the interval as do small pyrite, chlorite, epidote veinlets. The core is weakly magnetic 914-10.97 -the core is bleached, clay altered Bottom contact is faulted		0.00-9.14 -the core is moderately silicified. Minor banded qtz carbonate and epidote chlorite vnlts cross cut core. Trace amounts of leucoxene are seen. Minor magnetite is present. Matrix of interval is carbonate altered	Pyrite is present in concentrations of 2-5% as disseminations and veinlets	
10.97 TO 32.15	«GREY GREEN CHERT»	Colour: grey green Grain Size: f.gr. This is a f.gr., grey green cherty unit, rather non-descript. Weak conchoidal fracture is seen in areas. Small pyrite veinlets are seen in areas 18.8 -.5 cm wide pyrite vein @ 21.34 -relict bedding @ 25.5-25.8 -breccia	 18 32	Minor chloritic and clay altered laminae occur through the interval	Pyrite veinlets and disseminations occur through the interval to 2%	
32.15 TO 50.44	«ANDESITE VOLCANICS»	Colour: dark green Grain Size: f.gr. This interval consists of f.gr., dark green propylitically altered andesite (subvolcanic) bordering on diorite. Flow banding is seen in areas while other areas are massive and structureless. In areas this is similar to chlorite-magnetite alteration seen at north end of property Small epidote, chlorite pyrite veinlets are seen 37.8 -fault 45.6	 50	Alteration through the interval is pre-dominantly silicification over-printing chlorite. Magnetite is present in trace amounts. Epidote is present in veinlets associated with carbonate and pyrite vnlts. Possible albite veins and vnlts are seen locally.	Pyrite occurs disseminated throughout generally in concentrations of 5% with local concentrations up to 10% associated with high carbonate concen. Trace chalcopyrite.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-2 cm wide banded chalcedonic vein @ 50.2-50.44 -fault zone	63			
50.44 TO 62.48	«STKWRK SIL /CHT»	Colour: white, grey-white Grain Size: f.gr. 50.44-52.00 -v.f.gr. grey green chert similar to interval 10.97-32.15. 52.00-62.48 -strongly fractured and brecciated and silica sealed interval. Fracturing comprises 60-70% of core. Breccias occur at irregular intervals throughout and these are cemented by silica. Vuggy drusy qtz lined cavities and fracturing occur throughout. Bottom contact is faulted		The interval is completely silicified throughout. Oxidation along cavities and fractures is common. Some chlorite fractures are seen.	Pyrite occurs from 1-2% throughout along fractures. Trace amounts of chalcopyrite and arsenopyrite are seen along some fractures	
62.48 TO 67.00	«ANDESITIC VOLCANIC»	Colour: dark green Grain Size: f.gr. See description of interval 32.15-50.44 Bottom contact is @ -strong silicification	 70	Propylitic alteration. Minor banded qtz carbonate vnlts. Primarily chloritic alteration with minor silica overprint 66.70-67.00 -strong silicification giving bleached appearance	Trace pyrite as disseminations	
67.00 TO 84.30	«STKWRK SIL /CHT»	Colour: white, grey-white Grain Size: variable This is a highly fractured and silicified interval similar to the interval 50.44-62.48. Fractures are filled by f.gr. silica 69.1-69.49 -fault 71.46-71.93 -fault 71.93-74.98 -a short sequence of grey green, fine grained cherty tuffaceous material. 74.47-74.98 -core is rubbly broken suggesting fault zone		Silicification 100% along fractures chloritic vnlts are seen along fracs. Sericite is also present along fracs.	Pyrite and trace amounts of chalco-pyrite occur along fractures. Pyrite occurs from 2-5%	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		77.75-78.11 -silicified breccia, fragments are up to several centimetres dimension is finer chloritized matrix 82.61-84.30 -the core is brecciated, silicified and chloritized. A small fault zone cuts the core at 83.21 and 84.19. Tectonic fabric is @	58			
84.30 TO 220.20	«DIORITE»	Colour: dark green, light green Grain Size: v.f. - m. - c.gr. This is a very fine grained to medium grained, dark green, weakly magnetic propylitically altered diorite. the core is very competent in general. A nubmer of small fault zones cut the interval, as do minor qtz carbonate epidote veins 85.04 -fault 85.6-86.92 -fault zone 109.42 -fault gogue 109.9 -fault 110.2 -fault Grain size varies from v.f.gr. to c. gr. Where coarse grained fsp are strongly altered to clay minerals and colour is light green. 117.5-119.48 -core is broken and fragmental, possible fault 122.0 -strong clay altered fault gouge 125.20 -banded qtz carbonate hematite vein with pyritic selvages	38	Propylitic alteration is seen throughout in the form of epidote veins veinlets and disseminations and minor qtz carbonate veins and veinlets. Some veins are banded. Minor hematite is seen associated with carbonate vnlts. 85.6-86.92 -is a very strong clay altered segment carbonate alteration of matrix is prevalent throughout. Minor magnetite is present. Leucoxene is present in trace amounts to 5%. 92.76-93.3 -clay alteration 107.4-108.8 -clay alteration 108.85-111.56 -clay alteration Banded qtz carbonate vnlts from 114.61-117.65 Several wide zones of silicification/ quartz veining occur through the interval. 117.5-122.05 -chlorite, clay sericite carbonate alteration of feldspars	Pyrite occurs disseminated and as veins and veinlets averaging 5% throughout with local highs upt o 10% around vein selvages. Trace amounts of chalcopyrite are seen associated with vein material 91.6-91.66 -5 cm wide pyrite vein at 50 deg to c.a. with tracecp 100.47-100.6 -py, cp qtz carbonate vein	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		125.5-127.10 -the diorite becomes lighter coloured and med. to coarse grained ╣127.10-133.0╠ «SILICIF'N QTZ VN» -this segment consists of massive grey white silica, areas of chlorite alteration overprinted by silica and areas of silica stokwork. The core is broken and rubbly in areas suggesting some faulting through the zone. Weak fabric seen @ 141.7-141.9 -qtz vein 141.9-142.04 -clay gouge 146.5-147.0 -silicified breccia ╣147.0-151.18╠ «SILICIF'N QTZ VN» Again this interval is completely silicified showing good stockwork silicification (70% fracture density). Some chalcedonic veins are seen as are vuggy drusy qtz lined fractures. Stockwork fracturing contain clear, translucent qtz and fragments are milky white qtz	28	125.5-127.10 -diorite is strongly altered to clay minerals 127.10-133.0 -silicification qtz vein 133.0-141.7 -clay carbonate alteration 142.04-146.55 -clay, carb. sil	╣127.1-127.4╠ «15% py stkwrk» 127.1-133.0 -3-5% py veinlets stockwork and disseminations 131.1-131.2 -10-15% py stkwrk Trace cp seen through this section 140.3 -pyrite vein, 2 cm wide with trace cp associated with qtz carbonate vein. Orientation @ 38 deg 147.0-151.18 -2% stkwrk pyrite and trace cp, possible bornite	
		151.18-154.6 -m. to c.gr. clay sericite carbonate altered light green diorite		151.18-154.6 -clay, sericite carbonate alteration -clay and sericite alteration of fsp, carbonate in veinlets	151.18-154.6 -tr py	
		156.7-170.38 -light green to dark green medium to coarse grained diorite 163.5 -fault gouge		156.7-158.1 -clay sericite alteration of fsp, weak silica overprint 158.1-163.4 -moderate to strong silicification, patchy magnetite alteration to 5% 163.4-170.38 -carbonate sericite clay possible	156.7-170.38 -trace to 3%, f.gr. disseminated py trace cp	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
				erythrite (soft pink mineral) mod. silic.		
		163.9 -shear fabric	30	163.9 -1 cm wide carbonate vein along shearing fabric		
		164.94-165.3 -qtz carbonate cemented breccia		164.94-165.3 -qtz carbonate vein, possible andularia		
		170.38-176.2 -stkwrk and massive grey white silicification 60-705 stkwrk fracturing filled by translucent silica		170.38-176.2 -100% silicification	170.38-176.2 -10-15% py, tr cp, tr. VG -sulphides occur along fractures assoc. with translucent silica and as disseminations.	
		176.2-208.67 -light green to dark green mdedium grained to coarse grained diorite. Dark green segments tend to be silicfied while lighter coloured segments are clay, chlorie, sericite and carbonate altered		176.2-187.74 -20-30% silicification, some small qtz carbonate vnlts crosscut the interval having hematite and epidote selvages	176.2-187.74 -tr py	
		187.74-195.0 -some dilational tension gashes are seen		187.74-195.0 -soft core primarily chlorite, clay sericite alteration with some banded qtz carbonate (adularia?) veins cutting the interval	187.74-195.0 -3-55 disseminated py, occasional py vnlts are seen	
		188.0-188.5 -fault zone 191.5-191.9 -brecciated shear zone		195.0-208.67 -20-30% silicification; some qtz carbonate pyrite epidote hematite vnlts crosscut interval	195.0-208.67 -1-2% disseminated and vein pyrite	
		208.67-209.54 -stkwrk and massive grey white silicification 70% stkwrk fracturing filled by translucent silica		208.67-209.54 -100% silicification	208.67-209.54 -10-15% py stkwrk, tr cp, possible VG	
		209.54-219.79 -dark green, fine to medium grained variably altered diorite. A number of small qtz vnlts adn 1-2 cm wide veins crosscut the interval		209.54-219.79 -alternating intervals of chlorite, sericite, clay alteration and 20-30% silicification	209.54-211.74 -1-2% pyrite	
		210.26 -1 cm wide qtz pyrite vein	40			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		210.9-211.23 -broken core, possible fault 211.74-212.14 -qtz vein 212.14 -fault			211.74-212.14 -30% pyrite 212.54-212.58 -py vein at 50 deg to c.a.	
		213.05-214.08 -translucent 2 cm wide qtz veins cutting interval @ -vein stockwork in areas	10		213.05-214.08 -translucent silica, possible sericite alteration chlorite vein, selvages are seen	213.05-214.08 -2-3% py, trace VG, gold occurs platelike along fractures and as vnlts. A dark metallic mineral along fractures acicular, also occurs
		214.1-214.2 -vein breccia, qtz adularia @	44	214.08-220.2 -carbonate alteration with small qtz carbonate veinlets cutting interval	214.08-220.2 -1-2% pyrite, tr cp	
		214.63-214.82 -vein-shear primarily qtz carbonate, possible adularia	44			
		219.79-220.2 -vein breccia and fault gouge. The vein breccia is creamy white in colour, possibly qtz carbonate adularia	40			
220.20 TO 221.90	«STOCKWORK SILICIF'N»	Colour: grey white Grain Size: f.gr. This interval consists of a f.gr. grey white zone of high density (70%) stkwrk fracturing filled by translucent silica. Some fragments within the interval are angular blocks of chloritic, f.gr. tuffs		220.2-221.9 -complete silicification, minor creamy white veins possible andularia are seen	220.2-221.9 -2-3% stockwork pyrite	
221.90 TO 240.12	«CHERTY ASH TUFF»	Colour: grey green Grain Size: f.gr. This is a sequence of variably altered grey green f.gr. cherty ash tuffs. Relict bedding is seen in areas @ Within this interval are segments of grey, sugary siliceous material, possibly hornfelsed material. Associated with these are stkwrk stringer zones of py and cp Occasional small qtz carb veinlets cut across the interval	38	Alteration through the interval is chlorite alteration overprinted by silicification. A bright green micaeous mineral occurs along some fractures possible fuchsite or green sericite Light brown sericite also occurs through the interval. Some areas are characterized by sugary silicification to 100%	Minor py and cp vnlts occur through the interval. Within the sugary hornfelsed zones, sulphide content rises to 30% as stkwrk stringers along fractures	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		227.08-227.25 -silicification @	60	224.33-226.6 -sugary qtz hornfels 227.08-227.25 -silicification 228.1-229.64 -sugary qtz hornfels 232.84-233.96 -sugary qtz hornfels	224.33-226.6 -30% py, tr cp in stkwrk fractures 227.08-227.25 -30% py stkwrk, tr cp 228.1-229.64 -15-20% py stkwrk, tr cp	
240.12 TO 254.80	«ANDESITIC VOLCANICS»	Colour: dark green Grain Size: m.gr. 240.18-248.72 -interval is highly strained with strongly convoluted areas as well as shear fabrics @ fragments in tis zone are generally rounded and rotated. Locally, f.gr. carbonate filled gas vesicles are seen 248.72-254.80 -the unit is less strained	38	Alteration through the interval is predominantly chloritic overprinted by weak to moderate silicification	240.12-254.8 -2-3% py, cp as disseminations and veins	

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe % ppm	S %	Aug/t g/t	Auopt oz/t	COMMENTS
BCD41703	0.00	3.00	3.00	0.8	1	290	103	1	1	1	40	48	.	5492	.		.	
BCD41704	3.00	6.00	3.00	0.1	2	234	94	1	1	1	45	15	.	5169	.		.	
BCD41705	6.00	9.00	3.00	0.8	1	516	125	1	1	1	42	26	.	5588	.		.	
BCD41706	9.00	10.97	1.97	0.1	1	146	466	1	1	1	125	26	.	7329	.		.	
BCD41707	10.97	13.97	3.00	0.1	5	64	80	1	6	1	97	34	.	4441	.		.	
BCD41708	13.97	16.97	3.00	0.1	11	108	91	7	7	1	40	27	.	2586	.		.	
BCD41709	16.97	19.97	3.00	0.7	10	188	186	2	72	1	147	23	.	1994	.		.	
BCD41710	19.97	22.97	3.00	0.2	15	84	117	3	28	1	264	27	.	2574	.		.	
BCD41711	22.97	25.97	3.00	0.1	9	67	37	1	14	1	96	6	.	2470	.		.	
BCD41712	25.97	28.97	3.00	0.2	16	94	68	4	39	1	200	17	.	2435	.		.	
BCD41713	28.97	32.15	3.18	0.1	7	49	59	2	10	1	91	29	.	2871	.		.	
BCD41714	32.15	35.15	3.00	0.7	1	133	120	1	1	1	48	73	.	7400	.		.	
BCD41715	35.15	38.15	3.00	0.2	1	97	127	1	1	1	65	85	.	8529	.		.	
BCD41716	38.15	41.15	3.00	1.4	1	154	122	1	1	1	44	69	.	7837	.		.	
BCD41717	41.15	44.15	3.00	1.8	1	138	108	1	1	1	34	43	.	7643	.		.	
BCD41718	44.15	47.15	3.00	1.2	1	183	161	1	1	1	27	102	.	7307	.		.	
BCD41719	47.15	50.44	3.29	0.2	1	186	103	1	1	1	53	61	.	6818	.		.	
BCD41720	50.44	53.44	3.00	0.3	27	38	63	3	6	2	33	18	.	1918	.		.	
BCD41721	53.44	56.44	3.00	0.5	26	51	79	3	15	2	22	13	.	1406	.		.	
BCD41722	56.44	59.44	3.00	0.6	31	50	105	4	21	3	28	22	.	1463	.		.	
BCD41723	59.44	62.48	3.04	0.5	29	30	72	3	9	2	23	48	.	1229	.		.	
BCD41724	62.48	65.48	3.00	0.1	13	119	156	5	9	1	42	50	.	4431	.		.	
BCD41725	65.48	67.00	1.52	0.1	10	107	120	1	6	1	26	33	.	4281	.		.	
BCD41726	67.00	70.00	3.00	0.7	30	31	52	6	10	2	22	14	.	1082	.		.	
BCD41727	70.00	72.00	2.00	0.6	12	19	27	1	4	1	17	18	.	1033	.		.	
BCD41728	72.00	75.00	3.00	0.4	14	470	131	4	12	1	46	33	.	3554	.		.	
BCD41729	75.00	78.00	3.00	0.3	31	21	85	1	6	1	26	26	.	1716	.		.	
BCD41730	78.00	81.00	3.00	0.9	21	20	47	4	13	2	74	7	.	1437	.		.	
BCD41731	81.00	84.30	3.30	0.1	16	23	88	2	11	1	85	23	.	3186	.		.	
BCD41732	84.30	87.30	3.00	0.7	1	92	81	1	1	1	183	19	.	8123	.		.	
BCD41733	87.30	90.30	3.00	2	7	407	98	1	1	1	58	12	.	4754	.		.	
BCD41734	90.30	93.30	3.00	2.3	1	108	108	1	1	1	47	14	.	5791	.		.	
BCD41735	93.30	96.30	3.00	1.6	9	236	164	1	1	1	81	106	.	5990	.		.	
BCD41736	96.30	99.30	3.00	2.3	1	270	80	1	1	1	61	16	.	5867	.		.	
BCD41737	99.30	102.30	3.00	1.8	8	162	179	1	1	1	52	27	.	6099	.		.	
BCD41738	102.30	105.30	3.00	2.5	1	298	55	1	1	1	46	11	.	5529	.		.	
BCD41739	105.30	108.30	3.00	1.1	1	424	70	1	1	1	68	25	.	6710	.		.	
BCD41740	108.30	111.30	3.00	0.1	38	139	38	1	1	1	164	23	.	7285	.		.	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe % ppm	S %	Aug/t g/t	Auopt oz/t
BCD41741	111.30	114.30	3.00	0.3	1	182	46	1	1	1	99	23	.	66990	.		.
BCD41742	114.30	117.30	3.00	0.1	1	280	84	1	1	1	53	19	.	59740	.		.
BCD41743	117.30	120.30	3.00	0.1	1	17	98	1	1	1	160	32	.	75840	.		.
BCD41744	120.30	123.30	3.00	0.1	1	198	52	1	1	1	68	34	.	65500	.		.
BCD41745	123.30	127.10	3.80	0.7	1	328	66	1	1	1	73	56	.	53550	.		.
BCD41746	127.10	130.10	3.00	0.2	13	18	49	6	6	1	45	27	.	26090	.		.
BCD41747	130.10	133.00	2.90	0.1	8	37	66	2	2	1	33	60	.	35140	.		.
BCD41748	133.00	136.00	3.00	0.1	1	60	112	1	1	1	49	69	.	66430	.		.
BCD41749	136.00	139.00	3.00	0.1	1	78	133	1	1	1	50	99	.	64090	.		.
BCD41750	139.00	142.00	3.00	0.1	1	99	39	1	1	1	43	25	.	60460	.		.
BCD41751	142.00	146.50	4.50	0.1	1	199	77	1	1	1	40	54	.	61630	.		.
BCD41752	146.50	149.50	3.00	0.3	20	45	34	8	8	1	23	32	.	22080	.		.
BCD41753	149.50	151.18	1.68	0.1	24	21	82	5	5	1	20	38	.	20060	.		.
BCD41754	151.18	154.60	3.42	0.1	1	68	217	1	1	1	52	45	.	73630	.		.
BCD41755	154.60	156.70	2.10	1.1	1	136	138	4	1	1	30	63	.	60540	.		.
BCD41756	156.70	159.70	3.00	0.8	1	106	59	1	1	1	38	48	.	71950	.		.
BCD41757	159.70	162.70	3.00	1.9	1	200	82	1	1	1	30	36	.	73080	.		.
BCD41758	162.70	165.70	3.00	0.1	1	235	69	1	1	1	44	45	.	74270	.		.
BCD41759	165.70	168.70	3.00	0.1	1	60	63	1	1	1	48	41	.	73790	.		.
BCD41760	168.70	170.38	1.68	0.1	1	165	67	1	1	1	41	58	.	80700	.		.
BCD41761	170.38	173.38	3.00	0.1	11	30	56	7	3	1	21	38	.	32210	.		.
BCD41762	173.38	176.20	2.82	0.1	13	18	22	8	3	1	8	17	.	24700	.		.
BCD41763	176.20	179.20	3.00	1.4	1	261	126	1	1	1	32	134	.	71510	.		.
BCD41764	179.20	182.20	3.00	2.3	1	142	92	1	1	1	32	23	.	74770	.		.
BCD41765	182.20	185.20	3.00	1.9	1	344	88	1	1	1	37	70	.	73740	.		.
BCD41766	185.20	188.50	3.30	1.3	1	228	74	1	1	1	49	21	.	70110	.		.
BCD41767	188.50	191.50	3.00	0.1	1	55	419	1	1	1	56	41	.	66470	.		.
BCD41768	191.50	194.50	3.00	0.1	1	173	71	1	1	1	55	19	.	66550	.		.
BCD41769	194.50	197.50	3.00	2.4	1	215	58	1	1	1	34	20	.	55840	.		.
BCD41770	197.50	200.50	3.00	1.8	1	161	51	1	1	1	40	79	.	61520	.		.
BCD41771	200.50	203.50	3.00	1	1	50	125	1	1	1	46	35	.	69060	.		.
BCD41772	203.50	206.50	3.00	1.6	1	45	108	1	1	1	37	37	.	62670	.		.
BCD41773	206.50	208.67	2.17	1	1	97	167	1	1	1	40	106	.	68650	.		.
BCD41774	208.67	209.54	0.87	0.1	12	48	119	22	7	1	15	113	.	46920	.		.
BCD41775	209.54	213.05	3.51	1	1	65	171	1	1	1	45	87	.	72390	.		.
BCD41776	213.05	214.08	1.03										.		.	25.10	0.732
BCD41777	214.08	217.08	3.00	0.2	1	123	65	1	1	1	40	146	.	70560	.		.
BCD41778	217.08	220.20	3.12	0.1	1	84	124	1	1	1	48	40	.	73610	.		.

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t
BCD41779	220.20	221.90	1.70	0.5	14	35	71	9	6	1	13	38	.	22290	.		.
BCD41780	221.90	224.90	3.00	0.1	14	40	186	3	4	1	11	273	.	32850	.		.
BCD41781	224.90	227.90	3.00	0.2	9	60	525	5	5	1	13	90	.	31780	.		.
BCD41782	227.90	230.90	3.00	0.1	12	59	201	10	5	1	11	39	.	40120	.		.
BCD41783	230.90	233.90	3.00	0.5	16	67	79	16	6	2	10	12	.	18600	.		.
BCD41784	233.90	236.90	3.00	0.2	15	77	225	7	5	2	15	41	.	27030	.		.
BCD41785	236.90	240.12	3.22	0.3	6	129	72	3	4	1	20	38	.	39150	.		.
BCD41786	240.12	243.12	3.00	1.1	1	84	136	1	1	1	25	67	.	70580	.		.
BCD41787	243.12	246.12	3.00	1.2	1	117	152	1	1	1	21	68	.	78260	.		.
BCD41788	246.12	249.12	3.00	1.5	1	156	110	1	1	1	27	83	.	73320	.		.
BCD41789	249.12	252.12	3.00	0.8	1	40	104	1	1	1	27	182	.	56560	.		.
BCD41790	252.12	254.80	2.68	1.1	3	41	148	1	1	1	27	219	.	55130	.		.

Sample	From (m)	To (m)	Length (m)	
	0.00	0.00	0.00	

FILE COPY

HOLE NUMBER: TM92-32

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER:
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID: DEADWOOD
NORTH: 25.00S
EAST: 796.00W
ELEV: 1375.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1375.00

COLLAR DIP: -68° 0' 0"
LENGTH OF THE HOLE: 150.00m
START DEPTH: 0.00m
FINAL DEPTH: 150.00m

COLLAR GRID AZIMUTH: 190° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 230° 0' 0"

DATE STARTED: October 16, 1992
DATE COMPLETED: October 17, 1992
DATE LOGGED: October 16, 1992

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

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

CONTRACTOR: ATLAS DRILLING LTD.
CASING:
CORE STORAGE: GREENWOOD

PURPOSE: TO TEST THE WILDROSE STRUCTURE 50 M BENEATH THE INTERSECTION IN HOLE TM92-28

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
65.80	-	-68° 0'	ACID	OK		-	-	-	-	-	
150.00	-	-67° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.70	«CASING»					
3.70 TO 8.90	«DIORITE»	Colour: dark green/black Grain Size: f.gr. -rusty fractures -intrusive FW contact	40		«2% med. py» as narow stringers and disseminations	
8.90 TO 9.30	«CHERT»	Colour: light grey Grain Size: -moderately fractured -1-2 mm qtz-chl? veinlets, approx 1 per 2 cm	70			
9.30 TO 17.50	«DIORITE»	Colour: dark green/black Grain Size: f.gr. -weakly fractured (commonly rusty) -qtz veinlets 1-3 mm wide approx 1 per 15 cm @ 30-60 deg TCA -narrow chert intervals <10 cm wide approx 1 per 2 meters -intrusive FW contact @	50	╢13.4-14.7╟ «mod carb.»	«3% med. py» -as disseminations, stringers (with or w/o qtz) and clusters up to 5 mm	
17.50 TO 19.00	«CHERT»	Colour: light to dark grey Grain Size: -rusty fractures, moderate, fine fracture network		╢17.5-18.6╟ «wk silica» ╢18.6-19.0╟ «i silica»	«2% med. py»	
19.00 TO 19.50	«DIORITE»	Colour: light green Grain Size: f.gr. -intrusive HW contact -net texture of fine (<1 mm wide) veinlets (filled by qtz?) approx 1 per 1 cm	50	«mod carb»	«3% med. py»	
19.50 TO 20.60	«CHERT»	Colour: dark green Grain Size: -intense fine fracture network -qtz and py stringers 2-12 mm wide, 1 per 20 cm @ 30-90 deg TCA			«3% med. py» -as disseminations with qtz in stringers	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
20.60 TO 59.30	«DIORITE»	Colour: light to dark green Grain Size: f.gr. -qtz stringers, 1-5 mm wide, approx 1 per 50 cm @ 10-90 deg TCA Fault: ╢22.3-32.4╟ «wk. flt» ╢34.5-35.7╟ «wk. flt» -this fault is exploited by a 1 cm wide Qstr with 20% py -one 4 cm Qstr @ 37.2 m contains 1% pyrite ╢45.3-48.0╟ «i broken» ╢47.4-47.7╟ «mod. flt» -with a 3 cm Qstr containing 1% py	 75 0 75	 ╢33.3-35.7╟ «wk carb» ╢37.0-38.4╟ «mod. carb» ╢38.4-50.9╟ «i carb, mod. silica» ╢50.9-52.6╟ «wk. carb»	 ╢20.6-38.4╟ «2% py» ╢38.4-50.9╟ «4% py» ╢50.9-59.3╟ «3% py»	
59.30 TO 65.80	«CHERTY TUFF»	Colour: med. grey Grain Size: Local, moderate foliation, intensely fractured (filled by qtz, chl, pyrite» ╢65.6-65.8╟ «mod flt» -intensely broken		 ╢63.1-63.4╟ «i silica» ╢63.4-65.3╟ «wk. silica» ╢65.3-65.6╟ «i. silica» ╢65.6-65.8╟ «mod. silica»	╢59.3-65.3╟ «4% py» ╢65.3-65.6╟ «4% py, 0.5% chalco» -pyrite occurs as disseminations and clusters, fine chalco. occurs in some of the clusters ╢65.6-65.8╟ «3% py»	Possible specks of native Cu on fracs @ 64.7 m
65.80 TO 69.70	«FSP PORPH. DIORITE»	Colour: med. green Grain Size: m.gr. -porphyritic, grades from coarse @ the HW contact to fine @ the FW contact -10-30% plag phenocrysts decrease away from the HW contact -fine (<1 mm wide) silica/chlorite partings may be a cleavage @ 40-60 deg. TCA -FW contact is gradational		«local wk. argillica» -local yellowish intervals may be sericite alteration	«1% fine py» -as disseminations	
69.70 TO 70.70	«DIORITE»	Colour: dark green Grain Size: f.gr. -occasional hairline fractures @ -moderate foliation @ the FW contact (+ parallel to it)	60		«2% fine py» -as disseminations	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
70.70 TO 73.90	«TUFFACEOUS CHERT»	Colour: med. grey Grain Size: 70.7-72.7 MOD. SILICA ALTERED -moderately fractured -tuff layers (yellowish), 1-3 cm thick @ 70 72.7-73.9 INTENSELY SILICA ALTERED -intense fine fracture network, pyrite hairline fractures may be stylolites/solution cleavage		╢70.7-72.7╟ «mod. silica» ╢72.7-73.9╟ «i. silica»	«1% fine py» ╢72.7-73.9╟ «3% fine py, tr, chalco»	
73.90 TO 87.80	«DIORITE»	Colour: light grey Grain Size: f.gr. 73.9-75.2 MODERATE ARGILLIC ALTERED -chalcedony + fluorite(?) stringers, 1-3 cm wide, approx 1 per 15 cm with comb textures -mod foliation @ 40-50 TCA 75.2-87.8 UNALTERED DIORITE -dark green, fine -calcite and qtz/calcite stringers 2-15 mm wide, approx 1 per 30 cm @ 20-70 deg TCA		╢73.9-75.2╟ «mod. argillic»	╢73.9-75.2╟ «2% fine py» -trace pyrite in the chalcedony stringers along with a black sulphide (?) (<0.5%) ╢75.2-87.8╟ «1% py» -as stringers (with or without qtz and calcite) and disseminations	
87.80 TO 91.00	«FSP PORPH. DIORITE»	Colour: med. grey Grain Size: med.gr. -10-30% m.gr. plag. phenocrysts oriented in no preferred direction -qtz and qtz/calcite stringers, 2-8 mm wide, approx 1 per 30 cm @ 20-40 TCA		«weak argillic»	«1% py» -as fine disseminations and in the qtz/calcite stringers	
91.00 TO 92.30	«CHERTY TUFF»	Colour: buff/light green Grain Size: -moderate foliation @ 70 -qtz/calcite stringers, 1-5 mm wide approx. 1 per 15 cm, parallel and crosscutting the foliation @ 20-70 deg TCA			«1% py»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
92.30 TO 99.30	«DIORITE»	Colour: med. green Grain Size: f.gr. to m.gr. Several short intervals of cherty tuff and fsp porph. diorite -qtz and qtz/calcite stringers, 2-8 mm wide, approx 1 per 30 cm @ 20-70 deg TCA			«2% py» -occasionally forms 30% of qtz stringers	
99.30 TO 101.20	«TUFF?»	Colour: light green/grey Grain Size: v.f.gr. «qtz stringer zone» -qtz stringers 1-8 mm wide approx 1 per 3cm, commonly parallel to an intense foliation @ 40-60 deg TCA		«mod. sil»	«4% py» -pyrite occurs as disseminations and clusters in an out of Qstrs.	
101.20 TO 103.20	«SERPENTINITE»	Colour: dark gree/black Grain Size: v.f.gr. Massive texture, totally aphanitic «qtz stringer zone» @ 60-80 deg TCA -qtz stringers, 2-15 cm wide approx 1 per 10 cm (35% of the core is qtz)		«i serpentine?»	«2% py, tr arseno.» -py most commonly within the Qstrs, along with one speck of arsenopyrite(?)	
103.20 TO 106.00	«DIORITE?»	Colour: light grey Grain Size: f.gr. 103.2-105.1 -massive, locally porphyritic -intense network of fine (1-3 mm wide) qtz stringers approx. 1 per cm @ all orientations ╣105.1-106.0╠ «i broken major flt» -local siliceous clasts in a clay and pyrite rich gouge		 «i. arg»	 ╣103.2-105.1╠ «1% pyrite» «20% fine, submassive py»	
106.00 TO 109.00	«SILTSTONE»	Colour: med. grey Grain Size: f.gr. -moderately fractured and fractures are often rusty -qtz stringers 2-10 mm wide, approx 1 per 10 cm @ 10-50 deg TCA -one qtz stringer @ 107.8 m inhabits a moderate fault ╣107.8-108.0╠ «mod flt» -massive, no bedding	 20			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
109.00 TO 115.00	«SILTSTONE & SANDSTONE »	Colour: med. grey Grain Size: Moderately fractured, seds 2-8 mm wide @ 60-80 deg TCA, very fine network of dark fracturing (may be a cleavage?)		Local, minor silicification	«2% fine pyrite»	
115.00 TO 115.60	«QTZ VEIN»	Colour: yellow Grain Size: f.gr. -qtz vein breccia with 30% subangular wall rock (siltstone) clasts supported in rusty yellow qtz clasts are 0.5-3 cm in diameter, vuggy	25		«<0.5% py» -as fine, disseminations within the qtz	
115.60 TO 129.50	«SILTSTONE & SANDSTONE »	Colour: Grain Size: 115.6-119.2 -RUSTY AND FRACTURED -moderately fractured, rusty and locally vuggy -bedding (layers 2-20 mm thick) with approx 70/30 siltstone/sandstone, @ 10-60 deg TCA -is locally folded 119.2-127.4 -not as rusty or fractured as the above interal ╢123.7-123.8╟ «wk. flt»		╢115.6-119.2╟ «oxidized»	╢115.6-129.5╟ «1% fine py»	
129.50 TO 129.80	«CHERT PEBB LE CONGLOM»	Colour: grey Grain Size: med. -massive, polymict conglomerate			«2% py»	
129.80 TO 144.70	«SILTSTONE & SANDSTONE »	Colour: med. grey Grain Size: fine -small intervals of chert pebble conglomerate -beds commonly 3-10 mm wide @ 20-70 deg TCA			«0.5% py»	
144.70 TO 147.90	«CHERT PEBB LE CONGLOM»	Colour: light grey Grain Size: m.gr. to c.gr. -polymict conglomerate with clasts up to 1 cm in diameter -dark grey qtz stringers approx 1 per 10 cm	50		«0.5% py»	Trace Fuchsite?

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
147.90 TO 150.00	«SILTSTONE & SANDSTONE »	Colour: med. grey Grain Size: f.gr. Beds 2-10 mm wide @	25		«0.5% py»	

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t		COMMENTS
17367	3.70	6.70	3.00	0.1	100	272	172	.	23	14	28	18	5	5.51	1.27				
17368	6.70	8.30	1.60	1.1	67	146	110	.	10	7	31	73	15	7.07	2.35				
15176	8.30	8.90	0.60	4.4	1	65	374	1	1	1	31	208	35	9.72	.		.		
15177	8.90	9.30	0.40	0.1	1	150	113	1	17	3	28	155	25	5.08	.		.		
15178	9.30	9.90	0.60	1.1	1	128	93	1	12	1	30	445	35	10.08	.		.		
17369	9.90	12.90	3.00	0.8	70	86	220	.	14	7	35	33	10	7.98	2.43				
17370	12.90	15.90	3.00	0.1	78	79	158	.	13	9	37	48	5	7.47	2.96				
17371	15.90	18.60	2.70	0.1	64	183	50	.	20	8	41	382	20	6.55	3.08				
15179	18.60	19.00	0.40	0.1	2	92	97	4	18	5	17	59	45	3.57	.		.		
15180	19.00	19.50	0.50	0.3	1	66	129	1	11	1	26	34	10	7.86	.		.		
15181	19.50	20.60	1.10	0.1	1	134	86	1	14	1	20	189	30	4.8	2.15		.		
17372	20.60	23.60	3.00	0.1	76	153	140	.	17	10	46	221	5	7.03	2.78				
17373	23.60	26.60	3.00	0.2	116	390	195	.	184	135	46	33	10	5	3.47				
17374	26.60	29.60	3.00	0.1	73	112	263	.	19	12	43	24	10	7.19	3.04				
17375	29.60	32.60	3.00	0.1	136	46	314	.	22	17	65	43	5	8.33	3.25				
17376	32.60	34.50	1.90	0.1	135	54	403	.	25	19	75	130	10	8.45	3.02				
15182	34.50	35.70	1.20	0.1	57	30	366	42	20	4	82	121	25	9.54	3.59		.		
17377	35.70	37.00	1.30	0.1	149	48	494	.	19	17	42	69	25	9.21	5.64				
15183	37.00	37.30	0.30	0.1	1	51	105	12	18	6	23	155	20	3.73	0.8		.		
17378	37.30	38.40	1.10	0.1	141	50	574	.	33	20	61	73	10	9.01	3.82				
15184	38.40	40.40	2.00	0.1	1	75	409	5	23	8	32	84	20	5.11	1.98		.		
15185	40.40	42.40	2.00	0.1	23	115	227	5	10	4	13	122	10	1.47	0.44		.		
15186	42.40	44.40	2.00	0.1	11	135	219	3	11	4	20	1710	25	2.29	0.7	1.62	0.047		
15187	44.40	46.40	2.00	0.1	26	120	331	4	16	6	35	351	10	3.41	1.26		.		
15188	46.40	48.40	2.00	0.8	69	155	634	10	13	4	39	126	15	3.16	1.94		.		
15189	48.40	50.40	2.00	1.9	73	117	836	17	10	2	40	104	15	4.38	2.91		.		
15190	50.40	52.60	2.20	0.8	92	112	755	5	17	5	32	108	25	5.96	3.98		.		
17379	52.60	55.60	3.00	0.4	83	96	739	.	17	9	16	68	40	6.6	5.21				
17380	55.60	58.60	3.00	0.1	82	73	732	.	16	9	31	61	20	4.7	3.52				
17381	58.60	61.60	3.00	0.1	59	105	496	.	18	9	26	55	15	3.4	2.30				
17382	61.60	64.00	2.40	.1	64	174	242	.	16	9	31	4000	10	2.92	1.87		3.33		0.097
15191	64.00	65.00	1.00	0.1	25	134	569	7	23	5	32	296	20	4.11	2.54		.		
15192	65.00	65.30	0.30	0.1	20	118	424	5	20	4	33	480	20	5.61	3.36		.		
15193	65.30	65.60	0.30	0.1	31	90	505	4	32	6	29	398	15	7.11	4		.		
15194	65.60	66.40	0.80	0.1	1	88	640	1	18	4	46	128	10	6.38	2.87		.		
15195	66.40	68.00	1.60	0.1	1	93	549	1	27	5	52	212	10	7.94	4.03		.		
15196	68.00	69.70	1.70	0.1	1	79	239	1	16	3	66	54	25	8.11	3.41		.		
15197	69.70	70.70	1.00	0.1	1	121	290	1	11	2	50	121	15	8.59	3.36		.		

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t		
15198	70.70	72.70	2.00	0.1	1	115	93	2	18	3	19	68	15	3	0.97		.		
15199	72.70	73.90	1.20	0.6	27	96	201	5	13	2	12	70	5	2.37	1.87		.		
15200	73.90	75.20	1.30	0.1	1	208	266	1	28	3	45	132	15	6.23	3.28		.		
14951	75.20	76.80	1.60	0.1	1	106	294	1	25	5	37	923	25	7.28	3.88	0.82	0.024		
17383	76.80	79.80	3.00	0.1	82	247	443	.	23	12	37	414	10	6.33	2.39				
17384	79.80	82.80	3.00	0.1	67	284	110	.	25	11	36	143	5	6.25	2.34				
17385	82.80	84.80	2.00	0.1	65	244	247	.	24	13	36	192	15	6.53	3.00				
17386	84.80	86.80	2.00	0.1	72	147	487	.	22	14	38	256	10	6.64	2.87				
14952	86.80	87.80	1.00	0.1	1	154	121	1	20	7	33	258	35	7.13	2.8		.		
14953	87.80	88.80	1.00	0.1	1	137	213	1	19	9	30	113	25	6.97	3.21		.		
17387	88.80	91.80	3.00	0.1	94	387	414	.	27	15	33	122	5	6.74	3.34				
17388	91.80	94.80	3.00	0.1	103	1655	137	.	29	17	62	265	10	6.33	1.63				
17389	94.80	98.10	3.30	0.1	88	677	118	.	24	16	50	80	5	6.07	1.84				
14954	98.10	99.30	1.20	0.1	1	563	256	1	22	11	53	76	30	7.29	3.17		.		
14955	99.30	101.20	1.90	0.1	107	85	194	1	6	2	88	40	35	7.37	4.67		.		
14956	101.20	103.20	2.00	0.1	1210	98	238	5	28	11	55	332	10	4.85	1.14		.		
14957	103.20	105.10	1.90	0.1	1	256	531	3	30	8	37	55	45	4.54	0.9		.		
14958	105.10	106.00	0.90	1.3	116	112	2388	1	26	10	50	3240	25	14.1	10.6	3.36	0.098		
14959	106.00	107.50	1.50	0.1	52	232	398	2	21	4	23	139	35	6.19	3.1		.		
14960	107.50	109.00	1.50	0.1	21	117	294	7	13	3	20	111	40	5.13	2.97		.		
14961	109.00	112.00	3.00	0.1	1	125	155	2	18	4	22	250	25	4.88	1.48		.		
14962	112.00	115.00	3.00	0.1	1	823	143	4	18	5	17	47	30	4.36	0.89		.		
14963	115.00	115.60	0.60	0.1	8	168	52	8	12	2	15	20	45	1.95	0.22		.		
14964	115.60	117.70	2.10	0.1	3	260	85	5	17	5	23	42	25	3.23	0.25		.		
17390	117.70	120.70	3.00	0.1	80	260	109	.	28	12	23	37	10	4.01	0.70				
17391	120.70	123.70	3.00	0.1	66	498	133	.	21	11	22	218	5	3.96	0.52				
17392	123.70	126.70	3.00	0.1	185	25	12	.	18	15	84	303	5	6.25	0.92				
17393	126.70	129.70	3.00	0.1	111	119	91	.	24	11	56	123	20	5.12	1.13				
17394	129.70	132.70	3.00	0.1	112	1801	105	.	54	11	168	722	5	5.4	0.45		0.79	0.023	
17395	132.70	135.70	3.00	0.1	59	358	10	.	34	7	85	101	15	4.42	0.76				
17396	135.70	138.70	3.00	0.1	57	243	12	.	35	8	81	224	20	3.02	1.34				
17397	138.70	141.70	3.00	0.1	127	260	45	.	29	14	151	206	5	5.41	1.06				
17398	141.70	144.70	3.00	0.1	78	210	262	.	26	10	20	28	10	4.17	1.08				
14965	144.70	146.20	1.50	0.4	42	89	416	5	16	3	13	107	45	2.82	1.74		.		
14966	146.20	147.90	1.70	0.1	20	157	207	8	15	4	14	32	50	1.89	0.65		.		
17399	147.90	150.00	2.10	0.1	64	219	110	.	18	9	22	38	5	4.08	0.60				

FILE COPY

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER:
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID: DEADWOOD
NORTH: 70.00S
EAST: 967.00W
ELEV: 1335.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1335.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 71.30m
START DEPTH: 0.00m
FINAL DEPTH: 71.30m

COLLAR GRID AZIMUTH: 180° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: October 17, 1992
DATE COMPLETED: October 18, 1992
DATE LOGGED: October 18, 1992

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

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

CONTRACTOR: ATLAS DRILLING LTD
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
71.30	-	-46° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 6.70	«CASING»					
6.70 TO 40.00	«DIORITE»	6.7-13.8 -INTENSELY OXIDIZED -very rusty, fine grained -one 2 cm white qtz stringer @ -local, moderate foliation @	 30 80	╡6.7-13.7╞ «i. oxidized» -pervasive oxidation		
		13.8-21.0 -WEAKLY OXIDIZED -local, moderate foliation @ 30-60 deg TCA		╡13.8-21.0╞ «wk oxidized» -rusty fractures	╡13.8-21.0╞ «3% py» -as m.gr. disseminations and common stringers 2-4 mm wide	
		21.0-29.2 -RELATIVELY UNALTERED -dark green, f.gr. -local moderate foliation @ 40-80 deg TCA			╡29.2-30.7╞ «3% py» -as disseminations and forming 20-80% of the qtz/pyrite stringers	
		29.2-30.7 -MODERATELY ARGILLIZED -light green, f.gr. ╡29.2-30.7╞ «qtz stringer zone» -sheeted qtz and pyrite stringers, 2-7 mm wide, approx 1 per 8 cm @ 30-60 deg TCA		╡29.2-30.7╞ «mod. arg»		
		29.2-38.9 -WEAKLY ARGILLIZED -med. green -local fractured zones (fractures filled by qtz and chlorite) -local moderate foliation @	 70	╡29.2-38.9╞ «wk arg»	╡29.2-38.9╞ «2% py»	
		38.9-40.0 -INTENSELY FOLIATED -med. green, f.gr. ╡38.9-39.9╞ «i foliation» @ 70-90 deg TCA ╡39.9-40.0╞ «mod flt» -10 cm of fault gouge -Qstrs 1- 5 mm wide occur every 10 cm @ 50-70 deg TCA		╡38.9-39.9╞ «mod. arg» ╡39.9-40.0╞ «i. arg»	╡38.9-40.0╞ «3% py» -as fine disseminations and clusters	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
40.00 TO 42.00	«QTZ VEIN»	Colour: white and med. grey Grain Size: -50% white qtz crosscuts -50% medium grey fuchsitic qtz (may be an intensely silicified ultramafic?) -the white qtz occurs in bands 10-20 cm wide with irregular contacts -stylolites are common in both phases of qtz @ all orientations -one 6 cm band of massive pyrite @ 90 deg TCA @ 40.7-40.8 m -the FW contact is oriented @	40		╢40.0-40.7╟ «0.5% py» -as fine disseminations and along stylolites ╢40.7-40.8╟ «80% pyrite» -massive band (6 cm wide) ╢40.8-42.0╟ «0.5% pyrite» -as fine disseminations and along stylolites	
42.00 TO 43.60	«DIORITE?»	Colour: dark grey Grain Size: f.gr. -Intensely fractured and sheared «qtz stringers» @ 50-70 deg. TCA -qtz stringers and lenses up to 10 cm wide approx 1 per 20 cm (15% qtz in total) ╢42.3-42.4╟ «wk flt» @ -with a 10 cm qtz stringer	65	«mod silica»	╢42.0-43.6╟ «4% py» -as m.gr. stringers and clusters	
43.60 TO 45.40	«QTZ VEIN»	Colour: white and grey Grain Size: f.gr. -locally broken, HW contact is broken, but FW contact oriented @ 45 deg TCA, parallel to sulphide bands and stylolites. -black stylolites are common approx 1 per 3 cm			«5% py, 2% chalco» -as fine to medium lenses and irregular bands up to 1 cm wide, often localized along stylolites	
45.40 TO 47.00	«MAFIC DYKE»	Colour: light to dark green Grain Size: f.gr. -intensely, foliated near the FW contact (maybe a short interval of diorite) ╢46.3-46.5╟ «wk flt» -3% fine, dark green chlorite altered phenocrysts (pyroxene?)		╢45.4-46.3╟ «wk. arg» «int. arg.» ╢46.3-46.5╟ «i. arg» ╢46.5-47.0╟ «wk. arg»	«<0.5% py»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
47.00 TO 48.10	«DIORITE»	Colour: dark grey Grain Size: f.gr. -intensely sheared @ 60-70 deg to c.a. -15% qtz as lenses and stringers up to 1 cm wide @ 60-70 deg to c.a.		«mod silica»	«3% py»	
48.10 TO 48.40	«QTZ VEIN»	Colour: white and grey Grain Size: f.gr. -moderately broken, maybe a weak fault -common stylolites @ 60 deg TCA (probably parallel to the contacts)			«0.5% pyrite» -as fine disseminations and along stylolites	
48.40 TO 48.80	«DIORITE»	Colour: dark grey Grain Size: f.gr. -intensely foliated, 1 cm wide qtz stringers @	60	«mod silica»	«1% pyrite» -as medium disseminated	
48.80 TO 49.30	«QUARTZ VN»	Colour: white and grey Grain Size: f.gr. -20% white, quartz crosscuts, older grey and white qtz. No sulphides in the late quartz, stylolites and color banding @ 60 deg TCA			«5% py, <0.5% chalco» -as fine bands and lenses up to 6 mm wide	
49.30 TO 59.40	«SILTSTONE»	Colour: light grey Grain Size: v.f.gr. -the first 0.3 meters is intensely foliated and may be a sliver of ultramafics -occasional sandstone intervals <0.3 m wide, that are weakly argillized ╢49.3-49.6╟ «i foliation» -qtz stringers <1 cm wide, approx 1 per 0.5 m (decrease away from the HW contact) ╢50.7-50.8╟ «wk flt»		«local weak argillic»	«0.5% pyrite» -as fine disseminations and minor stringers	
59.40 TO 60.70	«CHERT PEBBLE CONGLOM»	Colour: light grey Grain Size: Monomict (white chert) pebble conglomerate. Moderately fractured FW contact @	60			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
60.70 TO 71.30	«SILTSTONE»	Colour: light green Grain Size: fine -5% chert pebble conglomerate as thin beds up to 20 cm thick -the siltstone is finely interbedded with slightly coarser sediments -local weak chloritic crackle breccia	50	«weak argillic»	╢60.7-71.3╟ «0.5% py» -as fine dissem -one 5 cm band of 30% fine, submassive pyrite @ 68.0 m ╢68.0-68.1╟ «30% pyrite»	
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
14967	7.90	10.90	3.00	0.1	1	132	312	1	17	5	32	174	40	5.48	0.29		.	
17551	10.90	13.90	3.00	0.1	84	181	489	.	24	14	46	470	5	7.54	0.67			
17552	13.90	16.00	2.10	0.1	86	125	394	.	26	15	64	36	5	8.35	1.50			
14968	16.00	19.00	3.00	0.1	1	199	403	1	9	3	44	223	35	8.33	2.17		.	
17553	19.00	22.00	3.00	0.1	76	185	427	.	27	14	61	66	15	8.12	2.43			
17554	22.00	25.00	3.00	0.1	71	131	501	.	25	14	42	264	10	7.8	2.50			
17555	25.00	28.00	3.00	0.1	69	174	563	.	24	13	40	998	10	7.85	2.87	1.06	0.031	
17556	28.00	29.20	1.20	0.1	61	180	302	.	20	12	44	110	5	7.94	2.34			
14969	29.20	30.70	1.50	0.1	1	1195	319	1	17	7	45	53	45	7.96	2.26		.	
17557	30.70	33.70	3.00	0.1	74	130	295	.	24	14	49	43	10	7.56	1.71			
17558	33.70	36.70	3.00	0.1	76	128	325	.	24	13	42	383	35	6.88	2.03			
17559	36.70	37.90	1.20	0.1	91	125	464	.	31	16	50	82	10	7.32	2.12			
14970	37.90	38.90	1.00	0.1	1	416	343	1	15	10	53	3005	25	6.45	1.22	3.15	0.092	
14971	38.90	40.00	1.10	0.1	73	36	451	1	13	1	55	2370	15	10.01	3.23	2.42	0.071	
14972	40.00	42.00	2.00	2.8	591	21	1310	2	38	3	48	3850	30	5.49	3.6	3.58	0.104	
14973	42.00	43.60	1.60	0.4	4	210	943	2	30	11	47	147	25	6.39	2.09		.	
14974	43.60	45.40	1.80	18.3	569	19	10000	1	34	20	285	429	45	5.66	7.16		.	
14975	45.40	47.00	1.60	2.6	76	2304	1716	1	40	10	84	93	15	10.99	2.38		.	
14976	47.00	48.10	1.10	0.8	405	154	613	2	17	1	37	77	40	5.17	1.87		.	
14977	48.10	48.40	0.30	1.7	1075	63	589	8	22	6	42	987	15	4.22	2.35	0.92	0.027	
14978	48.40	48.80	0.40	0.1	593	28	343	1	8	1	59	104	10	5.78	3.77		.	
14979	48.80	49.30	0.50	2.1	230	31	900	1	21	1	32	300	30	6.02	.		.	
14980	49.30	51.30	2.00	0.1	1	920	411	1	10	8	25	324	15	5.48	1.9		.	
17560	51.30	54.30	3.00	0.1	89	1318	313	.	28	17	37	302	5	5.49	1.46			
17561	54.30	57.30	3.00	0.1	70	60	300	.	20	11	23	244	10	4.56	1.86			
17562	57.30	60.30	3.00	0.1	74	110	398	.	27	12	22	109	15	5.07	2.46			
17563	60.30	63.30	3.00	0.1	97	318	249	.	21	14	30	34	10	4.85	0.93			
17564	63.30	66.30	3.00	0.1	51	62	270	.	14	6	15	100	5	2.84	0.92			
17565	66.30	67.70	1.40	0.1	87	58	110	.	19	13	24	26	5	4.6	0.52			
14981	67.70	68.70	1.00	0.1	32	956	294	21	15	6	18	77	35	6.21	2.39		.	
17566	68.70	71.30	2.60	0.1	82	68	154	.	21	13	25	33	10	5.04	0.99			

HOLE NUMBER: TM92-34 FILE COPY

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER: TAM
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID: DEADWOOD
NORTH: 75.00S
EAST: 1080.00W
ELEV: 1300.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1300.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 71.00m
START DEPTH: 0.00m
FINAL DEPTH: 71.00m

COLLAR GRID AZIMUTH: 180° 0' 0"   COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: October 18, 1992
DATE COMPLETED: October 19, 1992
DATE LOGGED: October 20, 1992

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

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

CONTRACTOR: ATLAS DRILLING LTD.
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
56.70	-	-44° 0'	ACID			-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	«CASING»					
3.00 TO 45.80	«DIORITE»	3.0-4.8: Possible Boulders? -moderately broken core, mixed lithologies (black, f.gr., aphanitic and light grey light grey intensely, silicified pyritic diorite) -light grey, f.gr.		╢3.0-4.8╟ «i silic, wk ox»	«0.5% py» -med. grain, disseminated	
		4.8-7.9: Intense Silicification -light grey, f.gr. -weak, broken core, weak fine fracture network filled by qtz and pyrite		╢4.8-7.9╟ «i silica»	«2% py» -as fine to med, clusters and stringers up to 3 mm wide	
		7.9-31.6: fine, black, Diorite -dark grey/black -local weak foliation -calcite and qtz stringers 2-6 mm wide, approx 1 per 30 cm -gradational contact with the porphyritic diorite below			╢7.9-31.6╟ «2% pyrite» -as fine to med. disseminations, clusters and stringers (with and without qtz and calcite»	
		31.6-32.8: Porphyritic Diorite -light grey, m.gr. -20% medium grained plagioclase phenocrysts that appear to be randomly oriented. Local narrow shears (mylonites) @ 30 -qtz stringers 1-8 mm wide, approx 1 per 10 cm		╢31.6-32.8╟ «wk. arg»	«2% py» -as med. grained stringers (with and without qtz, up to 3 mm wide)	
		32.8-42.8: Weakly Argillic -moderately broken -occasional clay rich slips @ 20-40 deg TCA (may be wk. faults, but no slickensides) -one 2 cm Qstr @ 60 deg TCA inhabits a moderate fault ╢40.5-40.7╟ «mod flt» 40.5-40.7: Intensely Argillic -this whole interval is a major fault zone		╢32.8-42.8╟ «mod arg»	╢32.8-42.8╟ «2% pyrite» -as disseminations and stringers up to 4 mm wide The Qstr contains 2% pyrite	
		╢42.8-45.8╟ «major flt»		╢42.8-45.8╟ «i arg»	╢42.8-45.8╟ «8% fine pyrite» -as fine disseminations	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
45.80 TO 61.20	«ULTRAMAFIC»	Colour: dark green Grain Size:				
		45.8-57.1: mod talc alt'd Serpentinite -intense foliation @ 70-80 deg -locally magnetic -hairline qtz stringers 1-2 mm wide, approx 1 per 20 cm		«i serpentine, mod talc» -the talc is pervasive and in narrow massive lenses	«0.5% py» -as fine dissem.	
		╣48.8-50.6╠ «mod flt»				
		57.1-59.0: Weakly siliceous serpentinite -light grey -intense foliation @	80	╣57.1-59.0╠ «wk silica, wk talc, wk serp»	«1% py» -as fine disseminations	
		59.0-61.2: Fault Zone -med. grey -intensely broken, clay gouge, intense foliation	80	╣59.0-61.2╠ «wk sil, wk talc, wk serp, i arg»	╣59.0-61.1╠ «1% py» ╣61.1-61.2╠ «2% py, 2% chalco»	59.7-62.2: 60% recovery
		-one 6 cm qtz stringer contain 2% pyrite and 25 chalcopyrite @ 61.2 m				
61.20 TO 71.00	«SILTSTONE»	Colour: light green Grain Size: -finely bedded siltstones with minor (<1%) sand-stone intervals (<1%) sandstone intervals <10 cm wide -occasional chloritic crackle breccia -minor qtz stringers 1-10 mm wide approx. 1 per 0.5 m			╣61.2-71.0╠ «<0.5% py» -as fine disseminations	
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
14982	3.00	4.80	1.80	0.1	25	1137	116	1	13	3	21	210	35	4.39	0.73		.	
14983	4.80	7.90	3.10	0.1	18	108	146	1	10	3	15	84	30	3.57	2.09		.	
14984	7.90	9.90	2.00	0.5	1	135	276	1	6	1	18	212	25	6.62	1.65		.	
17567	9.90	12.90	3.00	0.1	64	102	306	.	17	11	32	304	5	6.5	1.68			
17568	12.90	15.90	3.00	0.6	54	317	218	.	17	8	21	178	5	5.97	2.49			
17569	15.90	18.90	3.00	0.1	79	45	728	.	185	14	415	190	5	7.69	2.52			
17570	18.90	21.90	3.00	0.1	77	85	322	.	26	13	32	359	10	7.44	2.75			
17571	21.90	24.90	3.00	0.5	52	76	135	.	18	8	26	126	10	4.94	1.88			
17572	24.90	26.80	1.90	0.2	53	251	125	.	19	6	26	32	15	4.57	1.58			
17573	26.80	28.60	1.80	0.1	59	378	193	.	17	8	32	41	5	5.21	1.61			
14985	28.60	31.60	3.00	0.1	1	165	345	1	13	1	28	471	15	6	2.23		.	
14986	31.60	32.80	1.20	0.1	1	161	542	1	16	7	47	319	20	5.68	0.91		.	
14987	32.80	35.80	3.00	0.1	1	60	888	1	18	6	51	128	20	6.6	1.58		.	
14988	35.80	38.80	3.00	0.1	1	444	592	1	18	7	46	555	20	7.35	2.11	0.54	0.016	
14989	38.80	40.80	2.00	0.1	28	585	984	1	20	7	52	225	15	8.53	2.61		.	
14990	40.80	42.80	2.00	0.1	24	194	548	1	16	9	52	222	30	8.02	2.18		.	
14991	42.80	45.80	3.00	2.4	191	59	4290	4	25	1	127	301	5	8.32	4.48		.	
14992	45.80	48.80	3.00	0.1	52	319	421	1	14	1	36	59	25	5.59	1.29		.	
14993	48.80	50.60	1.80	0.1	67	22	120	1	20	1	33	21	25	4.1	1.71		.	
14994	50.60	53.60	3.00	0.1	22	2093	50	1	10	1	19	9	20	3.99	1.43		.	
14995	53.60	57.10	3.50	0.6	50	240	971	1	17	1	19	33	20	4.37	2.23		.	
14996	57.10	59.00	1.90	0.1	6	21	90	1	17	1	19	8	80	5.43	0.84		.	
14997	59.00	61.20	2.20	0.1	45	12	832	2	20	1	22	128	55	5.58	2.24		.	
14998	61.20	64.20	3.00	0.1	1	94	244	3	14	4	21	23	40	4.64	1.18		.	
17574	64.20	67.20	3.00	0.1	75	495	266	.	25	10	32	16	10	4.64	1.13			
17575	67.20	69.10	1.90	0.1	73	1003	165	.	31	10	58	13	30	4.63	1.16			
17400	69.10	71.00	1.90	0.1	68	898	142	.	17	9	24	13	10	3.98	1.14			

FILE COPY

HOLE NUMBER: TM92-35

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER: TAM
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID: DEADWOOD
NORTH: 290.00N
EAST: 790.00W
ELEV: 1348.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1348.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 117.00m
START DEPTH: 0.00m
FINAL DEPTH: 117.00m

COLLAR GRID AZIMUTH: 180° 0' 0"   COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: 0, 0
DATE COMPLETED: 0, 0
DATE LOGGED: 0, 0

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

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

CONTRACTOR: ATLAS DRILLING LTD.
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
117.00	-	-49° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	«CASING»					
3.00 TO 14.30	«DIORITE»	Colour: dark green Grain Size: f.gr. -massive, relatively featureless, qtz/calcite stringers 1-4 mm wide, approx 1 per 30 cm 2 20-40 deg TCA -occasional rusty, vuggy openings increasing towards the qtz vein below		╣3.0-5.8╠ «wk ox»	╣3.0-14.3╠ «1% py» -as fine clusters and stringers	
14.30 TO 15.20	«QTZ VEIN»	Colour: buff and grey Grain Size: m.gr. -contacts @ -40% white and grey qtz commonly as clasts in a finer grey qtz matrix. Buff carbonate altered diorite(?) clasts (20%) as well -very vuggy, vugs are rusty, pyrite occurs in the fine, grey qtz matrix	15	╣14.3-15.2╠ «carb. alt wall rock clasts »	╣14.3-15.2╠ «4% pyrite» -as fine disseminations and clusters within the silica matrix	
15.20 TO 34.00	«DIORITE»	Colour: dark green Grain Size: f.gr. 15.2-25.8: Relatively Unaltered -quartered calcite veinlets 1-7 mm wide @ 10-90 TCA approx. 1 per 5-10 cm. (increasing toward the intense silica altered diorite below) -minor broken, rusty core @ 25.3 m 25.8-30.3: Intensely Silica Altered -light grey, f.gr. -the upper contact is sharp and is bracketed by a thin, pyritic qtz breccia stringer 3 cm wide @ 05 deg TCA Moderate fine fracture network (approx 1 per 2 cm) @ all orientations, filled by pyrite and qtz 30.3-32.5: Weak Silica Altered -med. green, f.gr. -rusty fractures, med. foliation @ 20-30 deg TCA 32.5-33.2: Intensely Silica Altered		╣15.2-25.8╠ «major weak oxidation» ╣25.8-30.3╠ «i silica» ╣30.3-32.5╠ «wk silica» ╣32.5-33.2╠ «i silica»	«15.2-25.8╠ «<0.5% pyrite» ╣25.8-30.3╠ «2% py» -as med. grained dissem., clusters and filling hairline fractures ╣30.3-32.5╠ «1% py» -as fine to med. dissem and stringers ╣32.5-33.2╠ «2% py»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-light grey, f.gr. to m.gr. -sharp contacts @ 40-50 deg TCA -moderate fine fracture network with qtz and pyrite filling 1-2 mm wide fractures approx 1 per cm @ all orientations			-as fine disseminations and in hairline fractures	
		33.2-34.0: weak silica altered -light green, f.gr. -20% cherty tuff bands 5-10 cm wide -weakly fractured -FW contact @ 60 deg TCA	80	╢33.2-34.0╟ «wk silica»	╢33.2-34.0╟ «1.5% py»	
34.00 TO 37.40	«CHERTY TUFF»	Colour: med. green Grain Size: v.f.gr. Moderately fractured, mottled texture, weakly broken			╢34.0-37.4╟ «1.5% py»	
37.40 TO 51.60	«DIORITE»	Colour: med. green Grain Size: 37.4-51.0 -local broken and rusty sections -late fractures and vugs filled by tuff carbonate (H= 3.5, doesn't fizz even when powdered) 3% overall Local weak foliation @ 70-80 deg TCA ╢49.6-49.7╟ «wk. flt»		╢43.1-43.7╟ «mod oxd'n» ╢49.7-50.2╟ «mod oxd'n»		
		51.0-51.6: moderate fault zone @ -dusty -30% qtz peices in a broken and gouged fault zone -HW contact (occupied by a 1 cm qtz stringer @	60 60	╢51.0-51.6╟ «i arg, mod oxd'n»	«0.55 py» -as fine disseminations in the qtz and wallrock	
51.60 TO 117.00	«PORPHYRITIC DIORITE»	51.6-53.8: weakly argillic alt'd -mottled texture, weak pervasive argillic alt'n -the intensity of argillic alteration seem to be directly proportional to the grain size. -weak foliation (@ the HW contact only) ╢53.3-53.4╟ «wk flt»		╢51.6-53.8╟ «wk. arg»	«0.5% py» -as fine disseminations and rare stringers	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		53.8-58.2: moderate argillic -light grey, m.gr. -massive, porphyritic with 20-30% m.gr. altered plagioclase phenocrysts. -no foliation and only very weak fractured (lodes much younger than other diorites)		╢53.8-58.2╟ «mod. arg»	«3% py» -throughout as fine disseminations	
		58.2-59.0: mod argillic, weak silica alt'n -light grey, m.gr. -massive, perasively altered. -moderate fracture network filled by pyrite and quartz (1-3 mm wide veinlets approx 1 per 3 cm) -vuggy		╢58.2-59.0╟ «mod arg, wk silica»	«4% py» -as fine dissem and med. stringers	
		59.0-67.5: moderate argillic alteration -light grey, m.gr. -massive, porphyritic with 20-30% m.gr. altered plagioclase, no foliation -rare qtz stringers (<1 per 2 meters), <1 cm wide		╢59.0-67.5╟ «mod arg»	╢59.0-67.5╟ «3% py» -throughout as fine disseminations	
		67.5-71.5: intensely argillized -light grey, m.gr. -massive, porphyritic with 20-30% med. plagioclase phenos		╢67.5-71.5╟ «i arg»	«4% py» -as fine disseminations	
		╢71.2-71.5╟ «possible wk flt»				
		71.5-80.7: weakly argillic -med. grey, f.gr. to m.gr. -more mafic phase of diorite -only 15% fine to med. plagioclase phenos -mottled texture with 5% green "spots" 2-5 mm in diameter (chlorite?) -rare qtz stringers 2-5 mm wide (one is 10 cm wide @ 76.1 m) approx 1 per meter -minor rusty, f.gr. intervals (<15 cm wide)				
		80.7-82.4: Rusty, fine grained -50% of the interval is f.gr. and rusty with 6% pyrite -the rest of the interval is mottled, porphyritic m.gr. diorite		╢80.7-82.4╟ «wk. arg, wk oxd'n»	╢80.7-82.4╟ «4% py» -as fine to med. disseminations	
		82.4-86.5: weakly argillic -light grey/green, m.gr. -mottled texture with 5% dark green chlorite		╢82.4-86.5╟ «wk arg»	╢82.4-86.5╟ «1% py» -as fine disseminations and in stringers with quartz	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		spots -minor qtz and pyrite stringers @ 60-70 deg TCA approx 1 per 40 cm, 2-5 mm wide				
		86.5-92.9: weak silica alteration -white, irregular calcite/qtz stringers 1-8 mm wide approx one per 4 cm @ all orientations -med. green, m.gr.		╢86.5-92.9╟ «wk silica, wk epi» -epidote is replacing fsp phenos and it may be apple green sericite	«1% py» -as fine disseminations	
		╢86.5-92.9╟ «calcite/qtz stringer zone»				
		92.9-95.1: mod silica alteration -med. grey, m.gr. -minor calcite/qtz stringers, 1-4 mm wide, approx 1 per 50 cm -common epidote (?) (may be sericite) stringers 1-4 mm wide, approx 1 per 20 cm @ 30-90 deg TCA		╢92.9-95.1╟ «mod silica, wk epi» -epidote replaces fsp and also occurs in stringers (it may be sericite)	«1% py» -as medium disseminations	
		╢95.1-96.8╟: intense silica alteration -light grey, m.gr. -dark grey and white qtz stringers @ 20-90 deg TCA, 2-5 mm wide, approx 1 per 10 cm «qtz stringer zone»		«i silica» -the alteration grades outwards as haloes away from the qtz stringers	«1.5% py» -as med. disseminations, more commonly within the qtz stringers	
		96.8-112.0: weakly silicified -med. grey/green -massive, with qtz/calcite stringers, 1-8 mm wide approx one per 15 cm @ 0-70 deg TCA -epidote stringers (local) 1-8 mm wide, approx 1 per 30 cm		╢96.8-112.0╟ «wk silica & epi alt»	╢96.8-112.0╟ «3% py» -as medium disseminations, stringer and clusters up to 5 mm wide, commonly within the qtz stringers	
		112.0-113.7: relatively unaltered -dark green -qtz calcite stringers 1-6 mm wide approx one per 20 cm, crosscut earlier qtz and pyrite stringers 3-8 mm wide, approx one per 30 cm		╢112.0-113.7╟ «wk epi alt'n»	╢112.0-113.7╟ «2% py» -as fine to medium disseminations in the diorite and qtz stringers	
		113.7-114.4: intensely silicified -white/light grey -sharp contacts @ 40 TCA, parallel to color banding, some of the extremely white bands are probably qtz stringers with siliceous haloes of varying intensity (approx 205 qtz stringers)		╢113.7-114.4╟ «i silica»	╢113.7-114.4╟ «4% py» -as med. disseminations and clusters up to 1 cm in diameter	
		114.4-117.0: wk silica, altered -dark green		╢114.4-117.0╟ «wk silica» -one 10 cm interval of moderate silica	╢114.4-117.0╟ «1% py» -as fine disseminations	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-massive, porphyritic, with sections of coarse, hallow, elongate, plagioclase laths. (up to 30%) -rare qtz stringers, 1-4 mm wide approx 1 per 30 cm @ 30-60 deg TCA		alteration		

HOLE NUMBER: TM92-35 | ASSAY SHEET | DATE: 24-March-1993

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
14999	11.30	14.30	3.00	0.1	1	59	112	1	21	4	84	21	70	8.34	0.93		.	
15000	14.30	15.20	0.90	0.1	1	32	75	4	24	3	48	30	45	7.58	2.54		.	
15001	15.20	18.20	3.00	0.1	1	55	117	1	21	5	55	21	45	8	1.32		.	
15002	18.20	21.20	3.00	0.1	1	100	55	2	15	4	50	18	35	6.65	1.08		.	
15003	21.20	24.00	2.80	0.1	1	149	53	1	7	1	75	13	35	6.53	0.7		.	
15004	24.00	25.80	1.80	0.1	1	82	33	1	14	1	119	11	40	8.02	0.46		.	
15005	25.80	28.10	2.30	0.1	15	52	69	4	15	1	35	23	30	3.82	1.8		.	
15006	28.10	30.30	2.20	0.1	5	34	35	2	12	1	35	16	30	2.88	0.89		.	
15007	30.30	32.50	2.20	0.1	12	116	32	4	10	2	25	16	20	2.78	1.08		.	
15008	32.50	33.20	0.70	0.1	20	25	16	4	9	1	15	13	25	2.37	1.85		.	
15009	33.20	34.00	0.80	0.1	7	65	30	5	14	2	27	15	30	3.2	1.76		.	
15010	34.00	37.40	3.40	0.1	9	92	75	2	17	4	37	16	35	3.47	0.94		.	
15011	37.40	40.40	3.00	0.1	1	50	130	4	19	5	99	9	30	7.96	0.81		.	
15012	40.40	43.40	3.00	0.1	1	77	117	1	19	6	116	23	50	7.05	1.1		.	
15013	43.40	46.40	3.00	0.1	6	75	72	1	14	4	123	36	45	8.6	1.4		.	
15014	46.40	49.40	3.00	0.1	1	88	65	1	20	3	123	10	25	7.3	1.14		.	
15015	49.40	51.00	1.60	0.1	1	42	56	2	23	12	132	18	40	5.16	0.69		.	
15016	51.00	51.60	0.60	0.1	7	59	28	5	24	7	135	15	45	3.24	0.49		.	
15017	51.60	53.80	2.20	0.1	1	156	120	2	22	12	80	30	30	4.73	1.55		.	
15018	53.80	56.80	3.00	0.1	1	112	123	3	19	7	44	95	40	4.99	3.99		.	
15019	56.80	58.20	1.40	0.1	1	102	286	2	24	10	54	47	30	4.52	2.85		.	
15020	58.20	59.00	0.80	0.2	8	133	394	5	23	8	60	44	45	3.45	2.54		.	
15021	59.00	62.00	3.00	0.1	1	87	138	3	23	9	35	23	20	4.04	2.89		.	
15022	62.00	65.00	3.00	0.1	1	108	138	1	29	11	44	128	50	4.37	2.93		.	
15023	65.00	67.50	2.50	0.1	1	88	479	2	21	9	24	66	35	3.79	2.54		.	
15024	67.50	70.50	3.00	0.1	1	84	95	2	18	8	22	94	50	3.95	3.08		.	
15025	70.50	71.50	1.00	0.1	3	110	78	2	21	10	24	49	30	3.6	2.97		.	
15026	71.50	74.50	3.00	0.1	22	156	111	3	18	12	27	120	40	3.56	1.1		.	
15027	74.50	77.50	3.00	0.1	20	128	104	4	22	12	24	215	35	3.64	1.53		.	
15028	77.50	80.70	3.20	0.1	12	124	105	3	21	14	23	55	45	3.92	1.39		.	
15029	80.70	82.40	1.70	0.1	1	117	51	3	16	15	26	40	130	4.14	1.16		.	
15030	82.40	85.40	3.00	0.1	1	311	44	2	25	15	27	40	55	4.41	1.25		.	
15031	85.40	86.50	1.10	0.1	1	2043	33	2	21	12	18	17	35	3.71	1.23		.	
15032	86.50	89.50	3.00	0.1	1	296	21	1	20	11	16	27	25	3.65	1.23		.	
15033	89.50	92.90	3.40	0.1	1	847	66	2	23	14	18	33	25	3.7	1.37		.	
15034	92.90	95.10	2.20	0.1	1	173	86	2	19	11	16	36	15	3.4	1.78		.	
15035	95.10	96.80	1.70	0.1	1	97	15	2	17	9	12	20	25	2.06	1.26		.	
15036	96.80	99.80	3.00	0.1	1	166	76	1	18	10	15	33	30	3.47	2.56		.	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	
15037	99.80	102.80	3.00	0.1	1	174	267	2	18	11	17	30	20	3.49	2.54		.	
15038	102.80	105.80	3.00	0.1	2	198	29	1	27	12	47	23	25	2.94	2.08		.	
15039	105.80	108.80	3.00	0.1	1	588	128	2	23	13	30	32	15	3.32	2.11		.	
15040	108.80	112.00	3.20	0.1	1	138	152	1	22	10	20	20	25	3.68	2.23		.	
15041	112.00	113.70	1.70	0.1	1	254	247	1	16	14	62	17	10	6.14	1.14		.	
15042	113.70	114.40	0.70	0.1	1	189	15	2	34	8	17	31	15	4.56	2.32		.	
15043	114.40	117.00	2.60	0.1	1	967	38	1	22	15	44	25	25	5.06	1.31		.	

FILE COPY

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: TM92-36 IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER: TAM
LOCATION:

PLOTTING COORDS GRID:
NORTH: 160.00N
EAST: 620.00W
ELEV: 1337.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1337.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 126.80m
START DEPTH: 0.00m
FINAL DEPTH: 126.80m

COLLAR GRID AZIMUTH: 180° 0' 0" COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: 0, 0
DATE COMPLETED: 0, 0
DATE LOGGED: 0, 0

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

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

CONTRACTOR: ATLAS DRILLING LTD.
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
92.10	-	-49° 0'	ACID			-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	«CASING»					
3.00 TO 13.20	«DIORITE»	3.0-9.9: moderately argillized -mottled texture, local contorted foliation @ 20-60 deg TCA -one 8 cm white and rusty qtz/chalcedony stringer @ 8.0 m -the lower contact is sharp and marked by a 5 mm qtz stringer ╢8.0-8.1╟ «qtz/chalcedony stringer» 9.9-12.2: relatively unaltered -dark green -local rusty fractures -rare chalcedony stringers 1-3 mm wide, approx one per 30 cm 12.2-13.2 -moderately argillized -moderate foliation @ 40-50 deg TCA, rare qtz and chalcedony stringers 1-3 mm wide, approx 1 per 15 cm	60	╢3.0-9.9╟ «mod arg, wk oxd'n» ╢12.2-13.2╟ «mod arg»	╢3.0-8.0╟ «<0.5% py» -as fine disseminations ╢8.0-8.1╟ «3% py» -in one m.gr. cluster ╢8.1-9.9╟ «0.55 py» -as fine disseminations ╢9.9-12.2╟ «0.5% py» -as fine disseminations ╢12.2-13.2╟ «0.5% py» -as fine disseminations	
13.20 TO 13.50	«QUARTZ/ CHALCEDONY VEIN»	Colour: white and rusty Grain Size: v.f.gr. Massive, white, very fine grained qtz (almost chalcedonic) with a one cm band of grey chalcedony @ the FW contact -<15 round fragments of cherty tuff <1 cm in diam.	60		╢13.2-13.5╟ « <0.5% py» -as very fine disseminations	
13.50 TO 23.90	«DIORITE»	Colour: med. green Grain Size: f.gr. Moderately foliated @ 20-50 deg TCA, often marked by very fine, rusty, discontinuous hairline fractures		╢13.5-23.9╟ «wk. arg»	«0.5% py» -as very fine disseminations	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		Common qtz and/or chalcedony stringers 1-2 mm wide approx 1 per 15 cms @ 50-70 deg TCA Common rusty fractures ╢12.2-21.3╟ «wk flt» -slickensides	 30			
23.90 TO 26.10	«CHERTY TUFF»	Colour: light and grey green Grain Size: v.f.gr. Weak, crackle breccia (hairline, randomly oriented chloritic(?) cracks) -weakly fractured and occasionally vuggy		╢23.9-26.1╟ «wk arg»	╢23.9-26.1╟ «<0.5% py» -as very fine disseminations	
26.10 TO 47.50	«DIORITE»	Colour: light grey Grain Size: f.gr. Intensely foliated, commonly around "horses" of less foliated cherty tuff (xenoliths?), 20% cherty tuff clasts @ 40-70 deg TCA -calcite stringers and qtz stringers are commonly 1 mm - 2 cm wide approx 1 per 15 cm -local vugs (especially @ the FW contact) -possible weak fault @ the FW contact (i-foliation vugs)		╢26.1-47.5╟ «wk arg» -local zones of moderate argillite	«1% py» -as fine disseminations and small clusters up to 1 cm in diameter	
47.50 TO 65.90	«CHERTY TUFF»	Colour: light buff/grey Grain Size: 47.5-52.9: moderately silicified -weakly broken @ the top -local moderate foliation @ 40-60 deg TCA -moderate fine, chloritic fracture network (crackle breccia) 52.9-57.8 -weakly silicified -common vugs (2% of the core), mottled texture local moderate foliation -weak chloritic fracture network ╢57.5-57.8╟ «possible wk flt» 57.8-65.9: moderately silicified + sericitized -buff/grey -moderately foliated @ 40-50 TCA		╢47.5-52.9╟ «mod sil, wk ser» ╢52.9-57.5╟ «wk sil, wk ser, wk arg» ╢57.5-57.8╟ «i arg» ╢57.8-65.9╟ «mod sil + ser»	«<0.5% py» -as fine disseminations and rare small clusters ╢52.9-57.8╟ «0.5% py» -as medium disseminations ╢57.8-65.9╟ «0.5% py» -as fine disseminations and rare stringers 1-3 mm wide	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-local color banding (bedding) @ 60-70 TCA Common "clasts" of cherty tuff in an intensely foliated matrix (probably lithic lapilli) (up to 5% lapilli 3-10 mm in diameter) ╢63.5-63.6╟ «wk fault»	75			
65.90 TO 74.10	«DIORITE»	Colour: light grey green Grain Size: m.gr. Porphyritic with 30% m.gr. white plagioclase phenocrysts HW contact @ 70 deg TCA Common small shears @ 40-60 deg, 1-4 cm wide containing qtz and pyrite		╢65.9-74.1╟ «mod arg»	╢65.9-74.1╟ «2% py» as fine, disseminations and stringers 1-3 mm wide	
74.10 TO 92.30	«CHERTY TUFF»	Colour: light green/grey Grain Size: 74.1-77.5: weakly silicified -moderately foliation 20-40 deg TCA -moderate fine, chloritic fracture network -moderately broken @ the lower contact ╢77.4-77.5╟ «possible wk flt» -occasionally vuggy 77.5-92.3: intensely silicified -white/light grey -intense fine fracture network filled by silica and pyrite (fractures 1-2 mm wide, approx 2 per cm, @ all orientations) -occasional vugs -one 2 cm coarse fluoride vein @ 89.5 m (pale purple and green, cubic crystals) @	20	╢74.1-77.5╟ «wk silica» ╢77.5-92.3╟ «i silica»	╢74.1-77.5╟ «1% py» -as fine disseminations ╢77.5-92.1╟ «1% jpy» -as med. disseminations and clusters up to 1 cm in diameter ╢92.1-92.3╟ «5% pyrite» -as coarse clusters 3 cm in diameter	
92.30 TO 92.60	«FLUORITE BRECCIA VEIN»	Colour: white/light grey Grain Size: -30% angular, silicified cherty tuff clasts, 1-30 mm in diameter supported by fine to coarse, clear fluorite. 3% large vugs are med. to coarse	25		╢92.3-92.6╟ «3% py» -as coarse disseminations and clusters up to 1.5 cm in diameter	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		fluorite				
92.60 TO 114.60	«CHERTY TUFF»	Colour: white/light grey Grain Size: 92.6-93.0: intensely silicified -intense fine fracture network filled by silica med pyrite -one 6 mm wide qtz stringer 93.0-94.9: intensely sericitized + silicified -buff, light grey -this interval contains about 50% fine, buff tuffaceous material irregularly mixed with chert clasts and layers -the top contact is weakly broken, white the lower contact is gradational -the moderate chaotic foliation -3% irregular distribution vugs 94.9-114.6: intensely silicified -white, light grey -intense fine fracture network infilled by qtz and pyrite -occasional narrow breccia intervals <3 cm wide with chert clasts in a fine, clear, fluorite(?) matrix. -lower contact is intrusive (stringers of diorite within the cherty tuff)		╣92.6-93.0╠ «i silica» ╣93.0-94.9╠ «i sericite, silica» ╣94.9-114.6╠ «i silica»	╣92.6-93.0╠ «3% py» -as fine to med. disseminations and small clusters up to 4 mm in diameter ╣93.0-94.9╠ «3% py» -as fine to med. disseminations and small clusters up to 4 mm in diameter «93.0-94.9╠ «3% py» -as the fine to med. disseminations and clusters up to 4 mm in diameter	
114.60 TO 125.90	«DIORITE»	Colour: med. green Grain Size: f.gr. 114.6-124.1: weakly argillic altered -weak fine fracture network -common xenoliths(?) of cherty tuff (3% overall) up to 10 cm wide -local moderate foliation @ 60-80 TCA -occasional qtz/calcite stringers up to 1 cm wide, approx. 1 per 40 cm -one short interval (20 cm) of qtz/calcite breccia containing 40% diorite clasts @ 116.1 m (calcite		╣114.6-124.1╠ «wk argillic»	╣114.6-124.1╠ «<0.5% py» -as fine to med. disseminations usually in the cherty tuff clasts	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		lines drusy vugs) ╢122.9-123.0╟ «mod flt» 124.1-125.9 -dark green, m.gr. -relatively unaltered -massive, with 1-7 mm qtz/calcite stringers approx 1 per 20 cm @ 10-80 deg TCA			╢124.1-125.9╟ «0.5% py as fine dissem»	
125.90 TO 126.30	«CHERTY TUF F»	Colour: white, light grey Grain Size: Intense fine fracture network infilled by silica pyrite and chlorite -both contacts are intrusive		╢125.9-126.3╟ «i silica»	╢125.9-126.3╟ «35 py» -as medium disseminations	
126.30 TO 126.80 E.O.H.	«DIORITE»	Colour: med. green Grain Size: Quartz/calcite stringers 1 cm wide approx. one per 25 cm		╢126.3-126.8╟ «weak sericite» -as haloes around qtz stringers	╢126.3-126.8╟ «1% py» -as fine disseminations, within the sericitic haloes	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
15044	3.00	6.40	3.40	0.1	89	90	71	1	64	19	300	9	65	8.93	0.29		.	
15045	6.40	9.90	3.50	0.1	76	92	50	1	39	13	143	18	130	9.71	0.43		.	
15046	9.90	12.20	2.30	0.1	1	95	72	1	29	14	47	8	20	6.37	0.87		.	
15047	12.20	13.20	1.00	0.1	9	39	71	1	45	16	118	17	60	7.37	0.95		.	
15048	13.20	13.50	0.30	0.1	12	14	16	2	15	4	24	2	25	1.03	0.12		.	
15049	13.50	16.50	3.00	0.1	1	83	39	1	29	17	60	9	45	6.23	0.38		.	
15050	16.50	19.50	3.00	0.1	1	210	55	1	48	22	157	33	50	8.96	0.69		.	
15051	19.50	22.50	3.00	0.1	150	14	100	7	691	30	3368	173	95	9.2	0.84		.	
15052	22.50	23.90	1.40	0.1	85	28	154	2	465	27	1423	167	45	7.89	1.85		.	
15053	23.90	26.90	3.00	0.1	625	27	85	9	758	37	2915	344	45	5.13	0.57		.	
15054	26.90	29.90	3.00	0.1	99	37	96	7	406	22	2375	314	65	3.9	0.59		.	
15055	29.90	32.90	3.00	0.1	115	33	109	5	218	22	639	103	30	6.3	1.01		.	
15056	32.90	35.90	3.00	0.1	453	60	240	7	369	34	2256	92	85	4.83	1.39		.	
15057	35.90	38.90	3.00	0.1	478	35	177	6	417	35	1426	368	50	5.24	1.48		.	
15058	38.90	41.90	3.00	1	78	712	508	7	240	26	1057	314	55	7.06	2.6		.	
15059	41.90	44.90	3.00	0.1	23	1349	138	2	91	21	206	146	35	5.72	1.3		.	
15060	44.90	47.50	2.60	0.1	19	1321	142	2	87	20	194	698	40	5.86	1.23		.	
15061	47.50	50.50	3.00	0.1	19	67	71	6	51	12	97	79	35	1.69	0.17		.	
15062	50.50	52.90	2.40	0.1	25	89	76	5	41	13	90	66	25	1.84	0.17		.	
15063	52.90	55.90	3.00	0.1	19	304	113	5	33	11	59	35	25	1.95	0.5		.	
15064	55.90	57.80	1.90	0.1	14	242	54	8	35	16	52	20	20	2.36	0.37		.	
15065	57.80	60.80	3.00	0.1	17	544	75	4	47	14	112	11	15	1.89	0.52		.	
15066	60.80	63.80	3.00	0.1	24	124	67	5	26	13	29	16	25	2.25	0.47		.	
15067	63.80	65.90	2.10	0.1	17	130	153	9	34	17	55	20	35	3.44	0.93		.	
15068	65.90	68.90	3.00	0.1	8	95	277	3	75	22	299	65	60	6.17	2.47		.	
15069	68.90	71.90	3.00	0.1	12	121	186	1	32	19	39	46	35	7.12	4.24		.	
15070	71.90	74.10	2.20	0.1	1	109	232	2	30	16	34	42	25	5.94	2.85		.	
15071	74.10	77.50	3.40	0.1	2	142	823	5	36	15	42	70	45	4.97	1.7		.	
15072	77.50	80.50	3.00	0.1	24	107	168	3	18	6	22	22	25	1.9	0.58		.	
15073	80.50	83.50	3.00	0.1	8	65	39	3	9	3	13	13	25	1.19	0.57		.	
15074	83.50	86.50	3.00	0.1	19	63	49	2	14	3	27	26	30	0.89	0.35		.	
15075	86.50	89.50	3.00	0.1	74	63	100	2	9	2	17	27	35	0.82	0.4		.	
15076	89.50	92.30	2.80	0.1	78	24	97	3	13	1	32	38	25	0.85	0.39		.	
15077	92.50	92.60	0.30	1.3	45	26	40	5	24	11	18	28	100	1.24	0.53		.	
15078	92.60	94.90	2.30	0.1	18	197	254	6	27	14	27	41	40	4.09	2.09		.	
15079	94.90	97.90	3.00	0.1	6	141	53	3	9	5	10	26	20	1.26	0.73		.	
15080	97.90	100.90	3.00	0.1	8	89	66	3	11	3	12	29	30	1.39	0.61		.	
15081	100.90	103.90	3.00	0.1	10	89	91	4	16	6	14	122	35	2.12	1.11		.	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t
15082	103.90	106.90	3.00	0.1	41	53	165	10	19	6	10	393	25	2.56	1.46		.
15083	106.90	109.90	3.00	0.1	25	28	172	11	18	4	12	589	30	2.21	1.25	0.63	0.018
15084	109.90	112.90	3.00	0.1	22	66	480	6	21	3	14	471	25	2.57	1.77		.
15085	112.90	114.60	1.70	0.1	3	47	189	6	16	1	21	330	15	2.99	2.03		.
15086	114.60	117.60	3.00	0.1	1	49	89	1	38	10	74	299	50	6.43	2.08		.
15087	117.60	120.60	3.00	0.1	1	35	47	1	31	14	55	74	30	5.57	0.96		.
15088	120.60	124.10	3.50	0.1	1	586	22	2	32	12	62	96	65	7.27	2		.
15089	124.10	125.90	1.80	0.1	1	146	18	1	21	6	42	92	35	6.38	2.3		.
15090	125.90	126.30	0.40	0.1	12	41	11	1	36	2	36	164	25	3.3	2.93		.
15091	126.30	126.80	0.50	0.1	1	134	11	1	35	13	55	61	35	5.48	2.47		.

FILE COPY

HOLE NUMBER: TM92-37

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER: TAM
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID: DEADWOOD
NORTH: 75.00N
EAST: 660.00W
ELEV: 1347.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1347.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 163.70m
START DEPTH: 0.00m
FINAL DEPTH: 163.70m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: 0, 0
DATE COMPLETED: 0, 0
DATE LOGGED: 0, 0

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

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

CONTRACTOR: ATLAS DRILLING LTD
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
79.60	-	-48° 0'	ACID	OK		-	-	-	-	-	
134.70	-	-47° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 3.00	«CASING»					
3.00 TO 7.90	«CHERTY TUFF»	Colour: med. grey Grain Size: -intensely foliated @ 40-60 deg TCA -moderately broken -10% chert clasts up to 1 cm in diam. (they resemble augens) ╢7.7-7.9╟ «mod flt»		╢3.0-7.9╟ «mod arg + ox»	«1% py» -as fine disseminations and small stringers	
7.90 TO 12.00	«SERPENTINITE»	Colour: dark green/black Grain Size: -mottled texture, rusty at the top -intense chaotic foliation @ 30-70 deg TCA -qtz stringers 1-10 mm wide approx 1 per 50 cm are fractured and boudinaged @ 40-60 deg TCA			«2% py» -as med. disseminations and in stringers with qtz (up to 50% of the stringer)	
12.00 TO 144.60	«DIORITE»	12.0-14.8: weakly argillized diorite -med. green/grey, f.gr. 10% intensely silicified cherty tuff xenoliths(?) up to 20 cm wide, occasionally porphyritic ╢14.7-14.8╟ «wk flt»		╢12.0-14.8╟ «wkly argillized»	«0.5% py» -as fine disseminations	
		14.8-19.3: moderately sericitized and silicified diorite -mottled and banded texture -qtz stringers 1-3 cm wide, approx 1 per 20 cm ╢14.8-19.3╟ «qtz stringers» -3% vugs		╢14.8-19.3╟ «mod ser + silica»	╢14.8-19.3╟ «2% py» -med. clusters, stringers and disseminations	
		19.3-21.2: very coarse porphyritic diorite -buff/grey, v.c.gr. -15% very coarse, yellow-buff plagioclase phenocrysts -rare vuggy, rusty qtz stringers <1 cm wide approx 1 per meter -mottled texture, -rare, small textures of cherty tuff		╢19.3-21.2╟ «mod ser + wk sil»	╢19.3-21.2╟ «1% py» -as fine disseminations and clusters	
		21.2-27.2: moderately sericitic diorite		╢21.2-27.2╟ «mod ser»	«2% py»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-buff grey/med. -15% medium plagioclase phenocrysts -local weak banded textures			-as med. clusters up to 1 cm, in diameter and fine disseminations	
		27.2-30.4: fragmental diorite -buff/grey, c.gr. -10% angular buff cherty tuff (may be very coarse plagioclase?) and 10% grey cherty tuff clasts in a diorite matrix -rare vugs -contacts are sharp and may be intrusive in nature		╢27.2-30.4╟ «mod ser»	«2% py» -as fine disseminations, clusters and stringers <2 mm wide	
		30.4-34.0: moderately sericitic diorite -buff/grey, m.gr. -variable alteration intensity gives a banded texture -hairline chloritic fractures <1 mm wide approx 1 per 3-4 cm		╢30.4-34.0╟ «mod ser»	«2% py» -as fine dissem, clusters and stringers 1-2 mm wide	
		34.0-39.1: relatively unaltered diorite -calcite stringer, 1-7 mm wide approx 1 per 20 cm @ all orientations -one calcite lens is 8 cm wide and contains 30% coarse pyrite -lower contact is gradational			╢34.0-39.1╟ «3% py» -as coarse disseminations and clusters (especially with calcite lenses)	
		39.1-43.1: fragmental diorite -grey/buff, v.f.gr. -20% variably coloured cherty tuff clasts 0.5-2 cm in diameter supported by a fine to aphanitic diorite (?) matrix -qtz and clacite stringers 1-15 mm wide approx one per 20 cm @ all orientations -lower contact is broken and is probably a weak flt. ╢42.6-43.1╟ «wk flt»		╢39.1-43.1╟ «wk ser»	«0.55 py» -as fine disseminations	
		43.1-47.0: massive argillite diorite -light grey, f.gr. -massive, igneous textures were present but obscured by the argillic alteration -sharp lower contact (intrusive)		╢43.1-47.0╟ «mod arg»	«3% py» -as fine disseminations, locally up to 30% over a few cms	
		47.0-60.2: fragmental diorite		╢47.0-55.3╟ «wk arg»	╢47.0-55.3╟ «1% py»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-med. green, f.gr. -15% cherty tuff and 5% diorite (m.gr.) clasts in a diorite matrix -clasts are 1-10 cm in diameter -rare pyrite qtz/calcite stringers 3-12 mm wide approx one per meter ╣55.1-55.2╠ «possible weak flt»		-occasionally clasts are epidote rich	-as med. disseminations and small clusters <5 mm wide	
		60.2-85.0: weakly argillic diorite -med. green, m.gr. -dominantly massive diorite with qtz and qtz/calcite stringers 1-8 mm wide approx one per meter @ all orientations -porphyritic with 5-10% med. plagioclase phenocrysts -qtz/chalcedony stringer zone @ 83.9-84.3 m with 1-3 cm wide qtz + chalcedony stringers approx one per 5 cm @ all orientations ╣83.9-84.3╠ «qtz/chalcedony stringer zone»		╣60.2-85.0╠ «wk arg, wk epi»	╣60.2-85.0╠ «15 py» -as fine dissem. and rare, small clusters	
		85.0-95.4: relatively unaltered diorite -massive texture -calcite and qtz/calcite stringers 1-15 mm wide approx 1 per 10 cm -locally forming a matrix around diorite clasts -up to 5% med. plagioclase phenos.		╣85.0-95.4╠ «very wk epi»	╣85.0-95.4╠ «0.5% py» -as fine to coarse disseminations -common red hematite in calcite stringers	
		95.4-116.1: fragmental diorite -med. green, f.gr. -15% diorite and 15% cherty tuff clasts 0.5-10 cm in diameter, supported by an aphanitic to f.gr. diorite matrix -minor (<5%) intervals of massive porphyritic diorite with m.gr. diorite with m.gr. plagioclase phenos (5-20 cm wide) contacts are gradational -calcite stringers 1-8 mm wide approx one per 50 cm @ all orientations		╣95.4-101.5╠ «wk epi» -always within the clasts ╣101.5-110.7╠ «wk arg, wk epi»	╣95.4-116.1╠ «2% py» -as fine to med. disseminations and common chlorite rimmed clusters up to 6 mm in diameter	
		116.1-118.8: massive diorite -dark grey/green, f.gr.		╣116.1-118.8╠ «local wk arg»	╣116.1-118.8╠ «2% py» -as fine clusters 2-12 mm wide	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-calcite stringer, 1-12 mm wide approx. one per 50 cm @ -upper contact is a weak fault	70			
		╣116.1-116.2╠ «wk flt»				
		118.8-125.4: fragmental diorite -med. grey, f.gr. -15% cherty tuff and minor diorite clasts 0.5-10 cm in diameter supporte by an aphanitic diorite matrix -calcite stringers 1-10 mm wide, approx 1 per 20 cm @ all orientations -contacts are gradational -contacts are gradational		╣118.8-125.4╠ «local wk arg»	╣118.4-125.4╠ «3% py + tr cpy» -as fine clusters and stringers up to 2 cm in diameter -the chalco occurs within a large lens of pyrite 20 m in diameter within the diorite @ 119.6m	
		125.4-133.2: porphyritic diorite -m.gr. -15% m.gr. plagioclase phenocrysts -occasional (3%) clast of intensely silicified cherty tuff, 1-10 cm in diameter -several generations of stringers 2-10 mm wide, all of which contain calcite, but the latest also contains thin selvages of chalcedony		╣125.4-133.2╠ «local wk arg»	╣125.4-133.2╠ «2% py + tr cpy» -as fine disseminations and clusters -the cpy occurs with pyrite in qtz stringer	
		133.2-135.3: fragmental diorite -5% angular, black diorite(?) and 55 angular cherty tuff clasts in a mottled and foliated, aphanitic diorite matrix		╣133.2-135.3╠ «wk arg»	╣133.2-135.3╠ «2% py» -as fine disseminations and stringers up to 5 mm wide	
		135.3-137.8: massive porphyritic -med. grey, m.gr. -porphyritic diorite with 20% med. plagioclase phenos -rare qtz and calcite stringers 1-3 mm wide, approx one per 60 cm -HW contact is intrusive		╣135.3-137.8╠ «wk argillic»	╣135.3-137.8╠ «1% py» -as fine disseminatinos and stringers 1-2 mm wide	
		137.8-144.6: massive, fine to aphanitic diorite -dark grey/green, aphanitic to fine -2% buff, fine, euhedral leucoxene? -calcite stringers (commonly with 5% py), 1-8 mm wide approx one per 5 cm @ all orientations		╣137.8-144.6╠ «local wk arg»	«137.8-144.6╠ «2% py» -as fine disseminations and clusters up to 5 mm in diameter, with or without calcite stringers	
		╣137.8-144.6╠ «calcite strgr zone»				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-5% black/dark green chlorite speckles 1-2 mm in diameter				
144.60 TO 147.20	«QUARTZ VN»	144.6-145.1 -dark grey, maybe intensely silicified v/m (?) -angular dark grey clasts 1-3 cm in diameter support a matrix of 10% white qtz veinlets, moderately broken 145.1-146.8: white quartz -white, m.gr. -moderately fractured white qtz with occasional dark grey qtz filled fractures and common chloritic stylolites @ 60-90 deg TCA -stylolites commonly separate 5-10 mm bands of variably coloured qtz 146.8-147.2: fault gouge -dark grey -30% white qtz clasts 2-20 mm in diameter in a clay, chlorite and pyrite gouge ╢146.8-147.2╟ «major flt»		╢146.8-147.2╟ «i arg»	╢144.6-145.1╟ «2% py, 0.5% chromite» -py occurs as fine clusters up to 5 mm wide -chromite (?) occurs as fine, black disseminations ╢145.1-146.8╟ «1% py, <0.5% cpy» -as fine disseminations and concentrations along the stylolites ╢146.8-147.2╟ «2% py + tr cpy» -as fine disseminations in the qtz and gouge	75% recovery
147.20 TO 155.50	«DIORITE»	147.2-148.7: massive, porphyritic diorite -leucocratic diorite with 20% m.gr. white plag. phenos -fine chloritic fracture network 148.7-149.7: mylonitic shear (xenolith?) -banded, intensely foliated, with sharp contacts (HW is a wk fault) ╢148.7-148.8╟ «wk flt» 149.7-155.5: porphyritic massive diorite -med. grey, f.gr. to m.gr. -50% of the interval is porphyritic with 20% white m.gr., plag phenos -the other 50% of the interval is aphanitic -the lower contact with the sediments is sharp and parallel to bedding in the sediments		╢147.2-147.7╟ «i arg» ╢147.7-148.7╟ «wk arg» ╢148.7-149.7╟ «wk arg» ╢149.7-155.5╟ «wk arg»	╢147.2-148.7╟ «2% py» -as med. disseminations ╢148.7-149.7╟ «<0.5% py» -as fine disseminations ╢149.7-155.5╟ «2% py» -as med. disseminations and rare, chloritic stringers 2-3 mm wide	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
155.50 TO 163.70	«SILTSTONE»	Colour: Grain Size: -70% light green siltstone in beds 1-20 cm thick bedded with coarser sandstone layers 0.5-1.0 cm thick -bedding is oriented @ 70-90 deg TCA -one chalcedony and pyrite matrix breccia 4 cm wide @ 158.2 m -common hairline, en-echelon or subparallel silica and pyrite filled fractures <1 mm wide, up to 2 cm long		╡155.5-163.7╞ «possible wk ser alt'n»	╡155.5-163.7╞ «1% py» -as fine to med. disseminations most commonly within the coarse layers	
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
15092	3.00	7.90	4.90	0.1	1	638	109	1	16	9	30	61	25	5.73	0.65		.	
15093	7.90	10.90	3.00	0.1	1	41	147	1	11	1	17	44	55	8.39	4.32		.	
15094	10.90	12.00	1.10	0.1	1	46	102	1	9	1	18	34	65	6.79	1.78		.	
15095	12.00	14.80	2.80	0.1	1	63	145	2	22	11	53	6	45	3.87	0.71		.	
15096	14.80	17.80	3.00	0.1	1	110	284	5	23	8	61	40	50	4.64	1.87		.	
15097	17.80	19.30	1.50	0.1	1	107	224	1	25	13	43	41	40	5.01	2		.	
15098	19.30	21.20	1.90	0.1	3	70	307	1	18	13	38	23	60	5.92	2.17		.	
15099	21.20	24.20	3.00	0.1	28	104	480	3	19	17	27	109	160	7.42	4.63		.	
15100	24.20	27.20	3.00	0.1	1	94	555	1	22	17	42	49	125	9.49	5.38		.	
15101	27.20	30.40	3.20	0.1	16	104	392	12	27	16	29	68	50	7.7	2.93		.	
15102	30.40	34.00	3.60	0.5	51	82	289	13	46	12	94	112	90	5.11	2.07		.	
15103	34.00	37.00	3.00	0.1	7	92	419	3	39	13	101	85	25	4.55	1.7		.	
15104	37.00	39.10	2.10	0.1	1	91	199	1	18	8	21	40	20	6.6	6.13		.	
15105	39.10	42.10	3.00	0.1	1	771	47	1	18	8	31	33	25	6.88	5.2		.	
15106	42.10	43.10	1.00	0.1	1	81	33	1	19	4	26	24	25	8.57	7.29		.	
15107	43.10	45.10	2.00	0.1	1	107	28	1	17	7	22	28	25	7.5	6.44		.	
15108	45.10	47.00	1.90	0.1	1	42	36	1	26	10	40	66	20	9.67	7.36		.	
15109	47.00	50.00	3.00	0.1	1	123	39	1	176	8	159	65	20	7.68	5.53		.	
15110	50.00	53.00	3.00	0.1	1	246	31	1	42	8	70	51	25	7.78	3.16		.	
15111	53.00	55.30	2.30	0.1	1	691	30	1	24	9	41	47	35	6.22	1.57		.	
15112	55.30	58.30	3.00	0.1	1	201	23	1	12	3	26	23	15	5.54	0.64		.	
15113	58.30	60.20	1.90	0.1	1	149	26	1	14	4	22	17	10	5.08	1.7		.	
15114	60.20	63.20	3.00	0.1	1	81	140	1	26	11	32	49	25	6.9	4.22		.	
15115	63.20	66.20	3.00	0.1	1	97	97	1	21	11	29	36	25	6.33	1.93		.	
15116	66.20	69.20	3.00	0.1	1	104	126	1	24	11	35	47	20	5.18	2.15		.	
15117	69.20	72.20	3.00	0.1	1	287	480	2	22	13	27	67	30	4.82	1.89		.	
15118	72.20	75.20	3.00	0.1	1	247	357	2	24	16	30	74	60	5.13	2.25		.	
15119	75.20	78.20	3.00	0.1	11	268	254	6	30	21	34	136	100	5.34	2.08		.	
15120	78.20	81.20	3.00	0.1	1	309	68	1	24	14	39	17	25	6.5	1.16		.	
15121	81.20	83.90	2.70	0.1	1	870	31	1	25	14	46	26	30	5.15	1.1		.	
15122	83.90	84.30	0.40	0.1	14	1141	11	2	26	12	32	48	25	4.71	1.94		.	
15123	84.30	85.00	0.70	0.1	1	207	10	2	28	16	42	43	30	6.2	2.2		.	
15124	85.00	88.00	3.00	0.1	1	1135	9	2	24	14	34	17	15	4.51	0.83		.	
15125	88.00	91.00	3.00	0.1	1	1345	6	1	25	13	26	35	25	4.56	1		.	
15126	91.00	94.00	3.00	0.1	1	1266	11	1	31	18	33	28	20	5.23	0.76		.	
15127	94.00	95.40	1.40	0.1	1	1024	14	2	32	17	48	5	15	5.18	0.32		.	
15128	95.40	98.40	3.00	0.1	1	310	75	2	30	15	39	20	10	5.5	0.79		.	
15129	98.40	101.50	3.10	0.1	1	154	68	2	29	17	38	16	25	4.95	0.68		.	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t
15130	101.50	104.50	3.00	0.1	1	193	75	2	28	18	37	665	20	5.31	1.23	0.72	0.021
15131	104.50	107.50	3.00	0.1	20	287	175	4	160	15	654	124	30	5.59	3.2		.
15132	107.50	110.70	3.20	0.7	19	103	242	2	38	12	51	420	20	3.62	1.37		.
15133	110.70	113.70	3.00	2.5	295	133	512	2	352	28	1330	853	35	5.29	3.04		0.98
15134	113.70	116.10	2.40	2.3	144	109	584	8	171	20	483	740	30	4.85	2.56		0.8
15135	116.10	119.10	3.00	0.1	67	141	460	3	33	19	45	307	45	5.8	2.4		.
15136	119.10	122.10	3.00	0.1	36	132	563	4	78	19	238	480	20	5.79	2.32		.
15137	122.10	125.40	3.30	0.1	1	153	345	1	25	17	35	132	25	8.49	2.85		.
15138	125.40	128.40	3.00	0.7	21	488	514	4	35	15	39	503	15	5.39	3.8	0.60	0.018
15139	128.40	131.40	3.00	1.5	43	149	517	4	145	16	429	189	35	5.02	3.54		.
15140	131.40	133.20	1.80	8.5	27	105	623	2	443	19	1957	360	25	6.54	4.75		.
15141	133.20	135.30	2.10	0.1	1	176	204	1	28	17	59	515	15	5.62	1.52	0.59	0.017
15142	135.30	137.80	2.50	0.1	5	308	340	2	26	17	45	346	35	7.11	3.5		.
15143	137.80	140.80	3.00	0.1	1	132	249	1	67	18	144	326	25	6.6	1.92		.
15144	140.80	142.70	1.90	0.1	1	300	262	1	39	19	75	165	25	6.05	1.86		.
15145	142.70	144.60	1.90	0.1	1	96	223	1	29	17	50	993	30	5.87	2.04	0.98	0.029
15146	144.60	145.10	0.50	0.1	158	533	447	4	31	1	26	314	35	5.3	3.01		.
15147	145.10	146.80	1.70	0.1	219	100	814	8	37	4	38	153	25	4.87	1.48		.
15148	146.80	147.20	0.40	0.5	74	90	832	10	54	16	54	136	30	5.06	2.72		.
15149	147.20	148.70	1.50	0.1	1	990	476	3	28	19	50	86	25	3.64	2.17		.
15150	148.70	149.70	1.00	0.1	79	21	134	1	11	3	62	30	175	6.25	1.28		.
15151	149.70	152.70	3.00	0.1	1	94	507	3	25	19	31	59	30	6.44	3.75		.
15152	152.70	155.50	2.80	0.1	1	270	229	1	24	18	52	23	35	5.76	1.73		.
15153	155.50	158.50	3.00	0.1	1	1500	187	4	23	13	50	61	25	4.67	1.62		.
15154	158.50	161.50	3.00	0.1	95	126	186	.	34	21	60	13	40	4.21			
15155	161.50	163.70	2.20	0.1	74	2192	106	.	31	18	38	15	30	3.45			

FILE COPY

HOLE NUMBER: TM92-38

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER: TAM
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID: DEADWOOD 1992
NORTH: 30.00S
EAST: 660.00W
ELEV: 1360.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1360.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 90.20m
START DEPTH: 0.00m
FINAL DEPTH: 90.20m

COLLAR GRID AZIMUTH: 180° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: 0, 0
DATE COMPLETED: 0, 0
DATE LOGGED: 0, 0

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

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

CONTRACTOR: ATLAS DRILLING LTD.
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
43.00	-	-46° 0'	ACID	OK		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 2.10	«CASING»					
2.10 TO 56.60	«DIORITE»	2.1-11.0: aphanitic to fine, massive diorite -dark green/black, aphanitic to fine -rusty fractures -calcite stringers, 1-4 mm wide approx 1 per 50 cm @ all orientations		╣2.1-11.0╠ «wk oxd'n»	╣2.1-11.0╠ «1% py» -as med. to coarse disseminations	
		╣10.7-11.0╠ «mod. broken»				
		11.0-18.1: porphyritic diorite -light grey/green, m.gr. -15-25% med. plagioclase phenos -vuggy qtz stringers 2-7 mm wide approx one per meter @ all orientations		╣11.0-18.1╠ «wk arg, wk oxd'n» -local moderate argillic zones <30 cm wide	╣11.0-18.1╠ «0.5% py» -as fine disseminations	
		18.1-30.9: aphanitic to fine massive diorite -locally weakly broken -occasional patches up to .5 m wide contain 5% fine, buff leucoxene(?) -rare calcite stringers 1-2 mm wide, approx one per 2 meters @ all orientations		╣18.1-27.2╠ «wk arg» ╣27.2-29.7╠ «mod arg» ╣29.7-30.9╠ «wk arg»	╣18.1-30.9╠ «1% py» -as med. disseminations and stringers 1-2 mm wide	
		30.9-32.7: intensely argillic altered diorite -light grey/buff, f.gr. -faint, fine porphyritic textures are barely visible through the alteration		╣30.9-32.7╠ «i arg, wk ser»	╣30.9-32.7╠ «1% py» -as fine disseminations	
		32.7-47.9: massive, aphanitic to fine diorite -dark grey, aphanitic to f.gr. -moderately broken throughout -occasionally vuggy -local fine, chloritic fracture network (fracture <1 mm wide, approx one per 2 cm)		╣32.7-47.9╠ «wk arg alt'n» -local narrow zones of moderate arg alteration	╣32.7-47.9╠ «1% py» -as fine disseminations	
		47.9-49.2: massive, porphyritic diorite -light grey, m.gr. -sharp upper contract may be a weak fault -205 med. plagioclase phenocrysts -rare xenoliths of cherty tuff up to 3 cm in diameter	35	╣47.9-49.2╠ «moderate argillite»	╣47.9-49.2╠ «1% py» -as med. to coarse disseminations	
		49.2-56.6: very mixed lithologies		╣49.2-56.6╠ «wk arg»	«1% py»	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-med. grey/green, f.gr. -50% f.gr. diorite, with 20% cherty tuff, 20% siltstone/tuff and 10% serpentine? -all of the lithologica units are <30 cm wide -they may all be xenoliths witin the diorite -one 2 cm qtz stringer @ 54.4 m -bedding in the siltstone/tuff @	60 50		-as fine to med. disseminations and fine stringers 1-2 mm wide	
56.60 TO 57.00	«SERPENTINITE»	Colour: med. grey green Grain Size: -upper contact is gradational and hard to discern -the lower contact is a moderate fault @ 57.0 m -intense chaotic foliation @ 60-80 deg TCA ╢56.9-57.0╟ «mod flt»			«0.5% py» -as fine disseminations	
57.00 TO 83.00	«SILTSTONE»	Colour: light to dark grey Grain Size: v.f.gr. -massive siltstone with no visible bedding @40-60 deg. TCA, fine hairline cleavage(?) consisting of black sulphidic stringers <1 mm wide in en echelon or subparallel sets -occasional rusty fractures		╢57.0-83.0╟ «wk arg and mod ser»	╢57.0-83.0╟ «1% py» -as narrow stringers <2 mm wide and fine disseminations	
83.00 TO 90.20 E.O.H.	«SILTSTONE AND SANDSTONE»	Colour: light green/grey Grain Size: v.f.gr. to m.gr. -70% siltstone in beds 1-20 cm wide with 30% @40-70 deg coarser layers in beds up to 15 cm wide -very fine cleavage forming discontinuous en-echelon or subparallel sets of black fractures @ 10-50 deg TCA -common rusty fractures		╢83.0-90.2╟ «wk to mod ser(?)»	«1% py -as common fine stringers 1-2 mm wide and fine disseminations	
90.20 TO 97.40						

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
15156	2.10	5.10	3.00	0.1	71	120	102	.	25	16	42	115	25	7.89				
15157	5.10	8.10	3.00	0.1	76	91	125	.	28	18	42	147	20	8.4				
15158	8.10	11.00	2.90	0.1	78	85	187	.	26	19	43	94	20	9.2				
15159	11.00	14.00	3.00	0.1	117	76	170	.	42	33	78	120	40	10.29				
15160	14.00	17.00	3.00	0.1	105	64	124	.	39	27	59	76	25	8.31				
15161	17.00	18.10	1.10	0.1	102	37	147	.	43	27	49	153	20	8.4				
15162	18.10	21.10	3.00	0.1	88	63	147	.	36	24	43	130	30	7.9				
15163	21.10	24.10	3.00	0.1	96	122	170	.	37	25	55	147	30	9.14				
15164	24.10	27.20	3.10	0.1	69	65	71	.	30	21	47	205	15	7.89				
15165	27.20	29.70	2.50	0.1	249	59	111	.	43	30	72	170	60	9.65				
15166	29.70	30.90	1.20	0.1	62	412	80	.	23	19	43	43	20	7.39				
15167	30.90	32.70	1.80	0.1	113	51	127	.	45	30	67	61	60	9.58				
15168	32.70	35.70	3.00	0.1	90	96	99	.	32	21	56	120	25	8.82				
15169	35.70	38.70	3.00	0.1	62	120	125	.	18	14	39	51	35	8.89				
15170	38.70	41.70	3.00	0.1	94	122	49	.	28	26	62	54	15	10.38				
15171	41.70	44.70	3.00	0.1	101	63	66	.	40	25	62	129	30	9.35				
15172	44.70	47.90	3.20	0.1	110	78	122	.	35	27	56	58	25	9.93				
15173	47.90	49.20	1.30	0.1	88	136	180	.	32	23	29	209	55	6.04				
15174	49.20	52.20	3.00	0.1	120	118	168	.	36	22	32	461	20	6.3				
15175	52.20	55.20	3.00	0.1	115	89	185	.	44	29	87	192	15	6.94				
17101	55.20	56.60	1.40	0.1	114	144	151	.	40	28	66	311	25	6.41				
17102	56.60	57.00	0.40	0.1	163	84	148	.	36	31	106	33	20	5.86				
17103	57.00	60.00	3.00	0.1	84	103	53	.	38	22	65	72	60	4.31				
17104	60.00	63.00	3.00	0.1	103	74	182	.	42	30	57	51	65	6.32				
17105	63.00	66.00	3.00	0.1	84	128	171	.	36	23	34	454	40	4.96				
17106	66.00	69.00	3.00	0.1	81	122	76	.	35	21	34	138	35	4.83				
17107	69.00	72.00	3.00	0.1	79	110	57	.	36	21	31	127	35	4.08				
17108	72.00	75.00	3.00	0.1	116	160	97	.	37	25	38	158	40	4.88				
17109	75.00	78.00	3.00	0.1	88	138	81	.	38	24	32	78	45	4.37				
17110	78.00	81.00	3.00	0.1	96	144	201	.	40	27	30	549	25	5				
17111	81.00	84.00	3.00	0.1	133	257	201	.	40	27	36	271	55	5.71				
17112	84.00	87.00	3.00	0.1	102	406	128	.	31	22	34	149	30	3.83				
17113	87.00	90.20	3.20	0.1	117	330	122	.	40	23	41	99	35	4.81				

FILE COPY

HOLE NUMBER: TM92-39

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER: TAM
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID: DEADWOOD GRID
NORTH: 300.00N
EAST: 540.00W
ELEV: 1313.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1313.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 190.50m
START DEPTH: 0.00m
FINAL DEPTH: 190.50m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: 0, 0
DATE COMPLETED: 0, 0
DATE LOGGED: 0, 0

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

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

CONTRACTOR: ATLAS DRILLING LTD.
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
65.80	-	-45° 0'	ACID	OK	
123.80	-	-46° 0'	ACID	OK	
181.40	-	-47° 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 2.10	«CASING»					
2.10 TO 17.70	«CHERTY TUFF»	2.1-5.3: moderately silicified -banded with light buff, tuffaceous layers 2-8 mm thick approx one per 10 cm -rusty fractures -med. grey 5.3-12.3: intensely silicified -white/light -fine, rusty fracture network overprints a fine, pyritic silica filled fracture network (fractures 1-2 mm wide approx one per cm) -rare rusty vugs <1 cm wide 12.3-14.8: moderately silicified -rusty, med grey -tuffaceous bands (5-10 mm thick) occur approx one per 10 cm @ 80-90 deg TCA -fine rusty and pyritic fracture network fractures <1 mm wide, approx 1 per cm) 14.8-17.7: relatively unaltered cherty tuff -dark grey/green -vaguely mottled texture (due to very weak silicification?) -fine rusty fracture network (fractures 1-2 mm wide, approx 1 per 2 cm, often @ 20-30 deg TCA) -upper contact is gradational -lower contact is intrusive @	60	╢2.1-5.3╟ «mod sil, wk ox» ╢5.3-12.3╟ «i sil, wk ox» ╢12.3-14.8╟ «mod sil, wk ox»	«0.5 py» -as fine disseminations «2% py» -as medium disseminations, stringers 1-3 mm wide and clusters up to 1 cm in diameter ╢12.3-14.8╟ «1% py» -as fine to med. disseminations, often along rusty fractures ╢14.8-17.7╟ «0.5% py» -as fine disseminations	
17.70 TO 38.70	«DIORITE»	17.7-21.4: coarsely porphyritic diorite -dark green, f.gr. to c.gr. -massive, occasionally mottled and banded diorite -1-10% dark grey to white coarse plagioclase phenocrysts -1-4 mm wide qtz and chalcedony stringers approx one per 70 cm @ -lower contact may be a weak fault - ╢21.3-21.4╟ «wk flt»	30	╢17.7-21.4╟ «local wk arg»	«1% py» -as med. disseminations and clusters up to 1 cm in diameter	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		21.4-25.7: aphanitic diorite -med. to dark grey, aphanitic -massive with fine, subparallel chloritic(?) fractures @ 30-60 deg TCA -2% cherty tuff (light grey) xenoliths up to 5 cm wide		ǂ21.4-25.7ǂ «local wk arg»	ǂ21.4-25.7ǂ «0.5% py» -as fine to med. dissem	
		25.7-26.4: moderately argillic shear? -fine to med., light green/grey -intensely mottled -10% pyrite, 10% magnetite(?) (no magnet), 10% chlorite in a light grey argillic matrix		ǂ25.7-26.4ǂ «mod arg»	ǂ25.7-26.4ǂ «10% py» -as fine clusters 2-10 mm in diameter	
		-sharp contactS @	30			
		26.4-38.7: aphanitic to fine diorite -aphanitic to fine, med. to dark green -faintly, irregularly banded -calcite stringers 1-3 mm wide apporx one per 20 cm @ all orientations -rare chloritic stringers 2-10 mm wide, approx one per 2 meters contain chalcopyrite		ǂ26.4-38.7ǂ «local wk arg, wk epi»	«2% py/tr cpy» -pyrite occurs as fine to med. dissem and clusters and stringers up 8 mm wide -chalcopyrite occurs with chlorite(?) in stringers	
38.70 TO 42.20	«CHERTY TUFF»	Colour: light grey to med. green Grain Size: -banded and mottled textures -contorted and irregular tuffaceous beds 1-10 cm wide (approx 25%) -both contacts are probably intrusive -qtz/calcite stringers 1-10 mm wide approx. one per 50 cm @ 30-80 deg TCA		ǂ38.7-42.2ǂ «wk sil»	«4% py» -as medium clusters 5-10 mm wide and disseminations	
42.20 TO 52.00	«DIORITE»	Colour: dark to light green Grain Size: f.gr. -occasionally banded and mottled 20% cherty tuff xenoliths(?) up to 15 cm wide, with irregular contacts -calcite and dolomite stringers 3-15 mm wide occur every 10 cm in the argillic altered section ǂ46.5-119.3ǂ «carb stringers» -in the same interval one 1 cm fluorite (clear doesn't fizz H=approx 4)		ǂ46.5-49.3ǂ «wk arg»	«2% py» -as fine disseminations, clusters and with calcite in narrow stringers throughout	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-calcite stringers 1-3 mm wide approx 1 per 20 cm, occur throughout the interval				
52.00 TO 53.40	«CHERTY TUFF»	Colour: med. grey Grain Size: -mottled and banded -30% buff, tuffaceous beds 1-10 mm thick @ 30-70 deg TCA -qtz and calcite stringers 1-2 mm wide approx 1 per 30 cm @ 30-70 deg TCA -contacts are intrusive			╣52.0-53.4╠ «0.5% py» -as fine dissem.	
53.40 TO 58.60	«DIORITE»	Colour: med. to dark green Grain Size: f.gr. -mottled diorite containing 10% banded cherty tuff xenoliths(?) up to 10 cm in diametre -mineralized calcite stringers 1-3 mm wide approx 1 per 15 cm @ 10-40 deg TCA			╣53.4-58.6╠ «3% py, tr cpy» -py as fine dissemination and clusters and common stringers 1-10 mm wide, approx 1 per 20 cm (with and without calcite) -chalcopyrite occurs with pyrite in occasional calcite stringers	
58.60 TO 59.70	«CHERTY TUFF»	Colour: med. grey/green Grain Size: -massive, aphanitic, siliceous tuff(?) -fine network of chlorite and pyrite filled fractures 1-4 mm wide, apporx 1 per 2 cm -contacts are intrusive and irregular			╣58.6-59.7╠ «0.5% py» -as fine disseminations, commonly within fine chlorite stringers	
59.70 TO 62.30	«DIORITE»	Colour: light to dark grey Grain Size: f.gr. -massive diorite, occasionally motted. -calcite stringer 1-2 mm wide approx 1 per 20 cm -one qtz stringer (banded) 10 cm wide @ 61.2 m @	60	╣60.2-61.5╠ «wk arg»	╣59.7-62.3╠ «1% py» -as fine disseminations throughout and clusters up to 1.5 cm in diameter	
62.30 TO 62.90	«CHERTY TUFF»	Colour: med. grey/brown Grain Size: -massive, aphanitic tuff (?) with a fine network of chloritic fractures 1-3 mm wide approx 1 per 1 cm -contacts are irregular and intrusive			╣62.3-62.9╠ «tr py» -as fine disseminations	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
62.90 TO 84.70	«DIORITE»	Colour: light grey to dark green/grey Grain Size: f.gr. -massive, locally mottled diorite -white and occasionally light brown calcite stringers 1-20 mm wide, approx 1 per 20 cm @ all orientations -two (2 cm and 4 cm wide) chalcedony (and minor calcite) stringers @ 60 deg TCA @ 63.6 m are surrounded by a moderate argillic alteration envelope from 63.3-63.9 -one 3 cm wide band of porphyritic crowded fsp diorite @ 74.9 m		╢63.3-63.9╟ «mod arg» ╢73.7-75.4╟ «wk arg»	╢62.9-84.7╟ «0.5% py» -as fine to med. dissem.	
84.70 TO 86.90	«CHERTY TUFF»	Colour: med. grey/green -massive, siliceous tuff(?) -from black chloritic fracture network, sometimes containing calcite and fine red hematite			╢84.7-86.9╟ «2% py» -as fine to med. clusters and stringers up to 5 mm wide and occasionally in the chlorite stringers	
86.90 TO 190.50	«DIORITE»	Colour: dark green, locally light grey Grain Size: f.gr. 86.9-134.8: massive diorite with minor argillic sections -calcite stringers 1-20 mm wide, approx 1 per 25 cm @ all orientations -common cherty tuff xenoliths from 93.2-97.8 (approx 10% overall) up to 20 cm in diameter ╢91.3-91.4╟ «possible wk flt» -rare pyritic qtz stringers up ot 3 cm wide (approx 1 per 3 meters) -rare pyritic banded chalcedony stringers, usually associated with argillic alteration haloes (especially 115.0-117.5) 134.8-145.9: moderately argillic altered -buff/grey, f.gr. -weakly broken -calcite and qtz/calcite stringers are common (approx 1 per 10 cm) 1-20 mm long usually 60-90 deg TCA		╢111.3-113.0╟ «mod arg» ╢115.0-117.5╟ «mod arg» ╢121.1-121.4╟ «mod arg» ╢121.9-122.6╟ «mod arg» ╢124.9-125.7╟ «mod arg» ╢134.8-145.9╟ «mod arg, possible wk ser»	╢86.9-134.8╟ «1% py» -as med. disseminations, clusters up to 1 cm in diameter and stringers up to 5 mm wide (with and without calcite) ╢134.8-145.9╟ «15 py» -as fine to med. disseminations both within and out of the calcite and qtz/c calcite stringers	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		╢141.4-141.5╟ «wk flt»				
		145.9-147.6: relatively unaltered diorite -dark green, f.gr. -10% cherty tuff xenoliths(?), 2-15 cm in diam. -calcite stringers 1-3 mm wide, approx 1 per 25 cm			╢145.9-147.6╟ «1% py» -as medium disseminations and with calcite in stringers	
		147.6-153.4: moderately argillic altered -buff, f.gr. -mottled and irregularly banded. -calcite stringers 3-7 mm wide, approx 1 per 20 cm @ 50-70 TCA -rare banded chalcedony and dolomite(?) stringers <1 cm wide, approx 1 per 2 meters		╢147.6-153.4╟ «mod arg» -possible wk ser	╢147.6-153.4╟ «4% py» -as fine to med. disseminations clusters and stringers up to 1 cm wide	
		153.4-156.7: relatively unaltered diorite -dark green, f.gr. -massive diorite with white calcite stringers 1-6 mm wide approx 1 per 20 cm @ 30-90 deg TCA			╢153.4-156.7╟ «1% py» -as fine to med. disseminations and stringers 1-6 mm wide (with & without calcite)	
		156.7-160.8: moderately argillic altered -buff, f.gr. -white clay stringers 1-4 mm wide, approx 1 per 30 cm -rare qtz stringers 4-8 mm wide, approx 1 per meter		╢156.7-160.8╟ «mod arg» -pervasive and clay stringers	«0.5% py» -as fine clusters, dominantly within the rare qtz stringers	
		160.8-190.5: weakly, argillic, diorite -buff and green, f.gr. -5% cherty tuff xenoliths(?), 2-10 cm wide -yellow and white calcite stringers 2-20 cm wide approx 1 per 30 cm, occasionally forming narrow breccias		╢160.8-190.5╟ «wk arg» -minor interval of moderate arg or relatively unaltered diorite (<0.3 m wide) -occasional red clay patches, 10 om wide	╢160.8-190.5╟ «1% py» -as fine disseminations and stringers up to 3 mm wide, and with calcite in stringers	
		╢165.7-165.8╟ «possible wk flt»				
		╢182.1-182.2╟ «possible wk flt»				
		╢183.6-183.7╟ «possible wk. flt»				
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
17114	2.10	5.30	3.20	0.1	39	133	97	.	26	10	40	16	25	1.71				
17115	5.30	8.30	3.00	0.2	11	21	115	3	7	1	21	23	15	0.85	0.45		.	
17116	8.30	10.30	2.00	0.3	8	22	64	6	21	1	22	34	20	1.01	0.43		.	
17117	10.30	12.30	2.00	0.2	10	41	79	5	6	1	36	48	15	2.05	2.03		.	
17118	12.30	14.80	2.50	0.2	1	90	99	2	88	1	217	24	25	2.25	1.02		.	
17119	14.80	17.70	2.90	0.1	1	557	42	1	7	1	87	10	10	3.96	0.21		.	
17120	17.70	19.60	1.90	0.6	1	437	126	1	8	2	54	48	25	6.64	3.88		.	
17121	19.60	21.40	1.80	0.1	1	116	113	1	18	1	93	90	20	6.26	1.28		.	
17122	21.40	24.40	3.00	0.4	1	118	69	1	5	1	34	47	15	5.06	1.02		.	
17123	24.40	25.70	1.30	0.1	1	72	25	1	1	1	24	15	15	4.74	0.27		.	
17124	25.70	26.40	0.70	0.1	1	79	169	1	8	3	33	70	10	7.83	5.6		.	
17125	26.40	29.40	3.00	0.6	1	142	319	1	9	1	54	68	35	7.01	2.97		.	
17126	29.40	32.40	3.00	0.8	1	226	227	1	27	1	101	127	15	6.38	1.38		.	
17127	32.40	35.70	3.30	0.3	1	227	32	1	19	1	76	38	35	5.72	1.64		.	
17128	35.70	38.70	3.00	3	1	144	105	1	1	1	35	56	15	5.93	0.85		.	
17129	38.70	40.50	1.80	0.3	1	71	87	1	1	1	22	36	25	3.91	2.02		.	
17130	40.50	42.20	1.70	0.1	1	74	105	1	3	2	14	30	20	4.12	2.46		.	
17131	42.20	45.20	3.00	.1	1	491	53	1	1	2	26	135	15	7.29	1.59		.	
17132	45.20	46.50	1.30	2.1	1	689	47	1	1	1	21	27	15	7.61	0.72		.	
17133	46.50	49.30	2.80	0.1	1	104	43	1	1	1	42	236	25	7.99	2.16		.	
17134	49.30	52.00	2.70	1	1	184	108	1	1	1	31	57	20	7.01	1.83		.	
17135	52.00	53.40	1.40	0.3	1	81	37	1	1	1	17	27	15	4.16	2.25		.	
17136	53.40	56.40	3.00	1.3	1	402	89	1	1	1	24	148	20	7.1	1.28		.	
17137	56.40	58.60	2.20	2.3	1	532	484	1	1	1	28	95	25	7.79	2.26		.	
17138	58.60	59.70	1.10	0.1	1	179	53	1	1	1	14	9	15	3.89	0.3		.	
17139	59.70	62.30	2.60	0.1	1	141	103	1	1	1	57	49	25	7.22	1.42		.	
17140	62.30	62.90	0.60	0.1	1	64	13	1	1	1	23	8	15	2.74	0.32		.	
17141	62.90	63.90	1.00	0.1	1	116	30	1	1	1	36	20	15	5.68	0.8		.	
17142	63.90	66.90	3.00	2.4	1	153	47	1	1	1	25	17	25	5.63	0.67		.	
17143	66.90	69.90	3.00	2.8	1	1296	65	1	1	1	24	14	20	5.47	0.48		.	
17144	69.90	71.80	1.90	2.4	1	370	62	1	1	1	28	5	10	5.66	0.49		.	
17145	71.80	73.70	1.90	0.3	1	490	36	1	1	1	44	6	10	6.38	0.27		.	
17146	73.70	75.40	1.70	0.1	1	92	58	1	2	1	44	22	35	7.57	1.04		.	
17147	75.40	78.40	3.00	0.9	1	85	113	1	1	1	36	19	30	5.65	0.96		.	
17148	78.40	81.40	3.00	0.9	1	95	51	1	6	1	68	17	15	6.1	0.97		.	
17149	81.40	84.70	3.30	2.2	1	293	45	1	1	1	37	44	10	6.35	0.51		.	
17150	84.70	86.90	2.20	0.9	1	628	77	1	1	1	42	38	15	4.59	0.71		.	
17151	86.90	89.90	3.00	2.2	1	214	36	1	1	1	32	11	15	5.08	0.38		.	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t
17152	89.90	92.90	3.00	1.9	1	138	67	1	3	1	47	24	15	6.05	1.01		.
17153	92.90	95.90	3.00	2.1	1	461	62	1	38	1	132	8	10	6.09	0.96		.
17154	95.90	98.90	3.00	2.3	1	105	284	1	1	1	26	37	25	6.4	2.44		.
17155	98.90	101.90	3.00	1.6	1	115	79	1	1	1	30	23	10	6.02	1.03		.
17156	101.90	104.90	3.00	0.1	1	114	151	1	6	1	47	38	25	5.39	.		.
17157	104.90	107.90	3.00	2.2	1	77	202	1	3	1	45	39	15	6.39	.		.
17158	107.90	111.30	3.40	2	1	101	107	1	1	1	34	10	25	7.06	.		.
17159	111.30	113.00	1.70	0.1	1	109	123	1	4	3	48	32	30	7.71	.		.
17160	113.00	115.00	2.00	1.6	1	66	82	1	1	1	46	17	25	5.99	.		.
17161	115.00	117.50	2.50	0.1	1	42	204	1	4	3	73	13	40	7.74	.		.
17162	117.50	120.50	3.00	2.6	1	88	95	1	110	1	334	18	50	6.32	.		.
17163	120.50	123.50	3.00	1.1	1	387	105	1	1	1	68	32	35	6.42	.		.
17164	123.50	126.50	3.00	0.9	1	1058	84	1	10	1	33	15	20	5.47	.		.
17165	126.50	129.50	3.00	1.7	1	380	52	1	93	2	275	13	40	4.32	.		.
17166	129.50	132.50	3.00	1.7	1	529	60	1	16	2	46	4	20	4.42	.		.
17167	132.50	134.80	2.30	1.5	1	60	52	1	5	1	36	1	10	5.36	.		.
17168	134.80	137.80	3.00	0.1	1	56	123	1	49	1	242	20	25	6.63	.		.
17169	137.80	140.80	3.00	0.1	1	49	85	5	233	5	681	17	145	6.47	.		.
17170	140.80	143.80	3.00	0.1	1	137	192	2	9	4	54	20	40	7.03	.		.
17171	143.80	145.90	2.10	0.1	1	48	110	1	34	4	203	25	75	7.56	.		.
17172	145.90	147.60	1.70	1.2	1	91	135	1	93	1	560	13	55	6.62	.		.
17173	147.60	150.60	3.00	0.1	1	43	115	1	1	4	61	38	80	8.85	.		.
17174	150.60	153.40	2.80	0.1	1	57	196	1	2	3	52	35	50	7.39	.		.
17175	153.40	156.70	3.30	1.4	1	119	50	1	2	1	35	13	20	4.36	.		.
17176	156.70	158.80	2.10	0.1	1	55	19	1	5	2	54	23	40	6.48	.		.
17177	158.80	160.80	2.00	0.1	1	30	30	1	56	2	218	26	45	8.26	.		.
17178	160.80	163.80	3.00	0.1	1	49	112	3	6	4	36	44	45	6.05	.		.
17179	163.80	166.80	3.00	0.1	1	92	54	1	4	2	53	23	70	7.7	.		.
17180	166.80	169.80	3.00	0.1	112	56	139	4	51	13	180	41	65	6.67	0.78		.
17181	169.80	172.80	3.00	0.1	90	367	83	3	53	11	139	17	30	7.07	0.8		.
17182	172.80	175.80	3.00	0.1	87	66	122	4	54	14	242	27	35	8.78	1.69		.
17183	175.80	178.80	3.00	0.1	68	101	128	3	28	12	112	22	25	8.16	1.51		.
17184	178.80	181.80	3.00	0.1	65	53	139	2	33	9	104	19	30	8.1	1.4		.
17185	181.80	184.80	3.00	0.1	73	161	99	3	28	13	59	46	10	8.01	1.71		.
17186	184.80	187.80	3.00	0.1	65	123	66	3	17	8	44	63	10	7.6	2.35		.
17187	187.80	190.50	2.70	0.1	81	317	293	4	26	9	59	538	5	8.39	3.69	0.50	0.015

FILE COPY

HOLE NUMBER: TM92-40

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD	PLOTTING COORDS GRID: DEADWOOD GRID	ALTERNATE COORDS GRID:	COLLAR DIP: -45° 0' 0"
PROJECT NUMBER: 661	NORTH: 25.00N	NORTH: 0+ 0	LENGTH OF THE HOLE: 71.90m
CLAIM NUMBER: WILDROSE	EAST: 250.00W	EAST: 0+ 0	START DEPTH: 0.00m
LOCATION: DEADWOOD ZONE	ELEV: 1265.00	ELEV: 1265.00	FINAL DEPTH: 71.90m

COLLAR GRID AZIMUTH: 180° 0' 0"   COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: 0, 0	COLLAR SURVEY: NO	PULSE EM SURVEY: NO	CONTRACTOR: ATLAS DRILLING LTD.
DATE COMPLETED: 0, 0	MULTISHOT SURVEY: NO	PLUGGED: NO	CASING:
DATE LOGGED: 0, 0	RQD LOG: NO	HOLE SIZE: NQ	CORE STORAGE: GREENWOOD

PURPOSE:

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 2.70	«CASING»					
2.70 TO 14.30	«ULTRAMAFIC »	Colour: dark rusty green Grain Size: Speckled texture with 10% black, serpentine specks (replacing pyroxenes?) -common white calcite stringers 1-12 mm wide, approx 1 per 40 cm -moderately broken @ the top of the interval ╣2.7-7.8╠ «moderately broken» -the interval is less speckled from 11.7-14.3 -one 15 cm qtz stringer @ the lower contact @ 50 deg TCA within a moderate fault ╣14.1-14.3╠ «mod flt, qtz strngr» ╣13.8-13.9╠ «mod flt»	50	╣2.7-14.3╠ «wk carb»	╣2.7-14.3╠ «0.5% py» -as fine disseminations	
14.30 TO 18.10	«SILTSTONE & SANDSTONE »	Colour: light to med. grey/green Grain Size: aphanitic to fine -weakly broken -50% of the interval is aphanitic and may be a siltstone (xenoliths?) -the rest of the interval is f.gr. and siliceous (sandstone?) -fine, pyritic cleavage(?) developed in the siltstone (<1 mm wide, discontinuous fractures @ 10-30 deg TCA		╣14.3-18.1╠ «mod arg»	╣14.3-18.1╠ «2% py» -fine stringer and clusters up to 1 cm in diameter	
18.10 TO 25.70	«CHERTY TUF F»	Colour: light grey/green Grain Size: -bedded tuffaceous layers up to 10 cm wide and cherty layers up to 20 cm wide (approx 60/40 chert/tuff) -the nature of the upper contact is unclear -the lower contact is intrusive -fine, pyritic fracture network		╣18.7-25.7╠ «wk arg»	«2% py» -as fine fracture filling (dominant in the cherty beds)	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
25.70 TO 26.50	«PORPHYRITIC DIORITE»	Colour: light grey Grain Size: m.gr. -massive, porphyritic dyke with 10% altered fine to med. fsp phenocrysts -contacts	 70	╢25.7-26.5╟ «wk arg»	╢25.7-26.5╟ «0.5% py» -as fine disseminations	
26.50 TO 30.10	«CHERTY TUFF»	Colour: light grey Grain Size: -bedded tuffaceous layers up to 10 cm, wide (approx 50%) and cherty layers (approx 50%) -fine, black, pyritic fracture network -weakly, broken throughout		╢26.5-30.1╟ «wk arg»	╢26.5-30.1╟ «0.5% py» -as fine disseminations and fracture fillings	
30.10 TO 45.30	«DIORITE»	Colour: light green Grain Size: m.gr. 30.1-30.4: porphyritic diorite -10% altered medium plagioclase phenocrysts -the lower contact is sharp (intrusive) and oriented @ 30.4-44.0: fine to aphanitic diorite -med. grey/green, f.gr. -mottled, locally moderately broken ╢36.2-36.3╟ «wk flt» -minor calcite stringers 1-5 mm wide, approx 1 per meter 44.0-45.3: quartz stringer zone -dark grey, f.gr. -moderate foliation @ 70-90 deg TCA, parallel to 2-5 mm wide qtz stringers approx 1 per 10 cm	 90	╢30.1-30.4╟ «wk arg» ╢30.4-44.0╟ «wk arg» ╢44.0-45.3╟ «wk sil»	«0.5% py» -as fine disseminations «0.5% py» -as fine disseminations ╢44.0-45.3╟ «2% py» -as fine to med. disseminations, small clusters with and without qtz	
45.30 TO 46.10	«QUARTZ VEIN»	Colour: white and dark grey Grain Size: f.gr. -40% white fractured qtz in stringers and lenses 1-2 cm wide, cutting a mixture of dark grey qtz(25%), diorite (25%) and pyrite(10%) -the white qtz stringers are parallel to stylolites and an intense foliation @ 60-90 deg TCA				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-the lower contact is weakly broken ╢46.0-46.1╟ «probable wk flt»				
46.10 TO 66.70	«SILTSTONE»	Colour: dull med. green Grain size: 46.1-55.7: massive siltstone -rare bedding (occasional coarser beds <1cm thick) -fine, chloritic fracture network (cleavage?) of subparallel discontinuous stringers < 1mm wide @ 40-90 deg tCA -fine calcite stringers 1-3 mm wide, approx 1 per 15 cm @ all orientations 55.7-58.0: intensely foliated siltstone (shear?) -dull med. green -banded texture parallel to an intense foliation @ 60-70 deg TCA -5% "augens" of unfoliated siliceous material up to 2 cm in diameter ╢55.7-58.0╟ «i shear?» 58.0-61.4: massive siltstone -dull med. green -minor faint bedding -weakly broken 61.4-62.6: intensely foliated siltstone (shear?) -dark grey -20% broken and boudinaged qtz and qtz/calcite lenses up to 1 cm wide parallel to an intense foliation @ 70-90 deg TCA ╢61.4-62.6╟ «i shear» 62.6-66.7: massive siltstone -dull med. green -moderately broken throughout -10% chert (dark grey) in small lenses -local vugs up to 1 cm in diameter		╢46.1-66.7╟ «possible wk ser»	╢46.1-55.7╟ «0.5% py» -as fine disseminations and fracture fillings ╢58.0-61.4╟ «0.5% py» -as fine disseminations ╢61.4-62.6╟ «2% py» -as fine disseminations ╢62.6-66.7╟ «0.5% py» -as fine disseminations	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
66.70 TO 71.90	«CHERT PEBBLE CONGLOM»	Colour: light grey Grain Size: m.gr. -polymictic chert pebble conglomerate with 20% siltstone beds up to 30 cm wide -locally broken				
	E.O.H.					

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
17188	2.70	5.70	3.00	0.1	50	495	35	3	25	7	69	1	5	4.66	0.01		.	
17189	5.70	8.70	3.00	0.1	71	908	35	3	32	11	76	1	5	4.69	0.01		.	
17190	8.70	11.70	3.00	0.1	75	766	33	5	39	13	81	4	5	4.58	0.02		.	
17191	11.70	14.30	2.60	0.1	101	2034	76	4	73	14	185	50	10	5.97	1.02		.	
17192	14.30	16.20	1.90	0.8	51	938	42	5	443	7	1197	105	10	2.86	1.05		.	
17193	16.20	18.10	1.90	1	86	142	118	1	31	9	95	98	15	3.98	2.43		.	
17194	18.10	21.10	3.00	0.2	44	169	53	4	17	6	24	47	10	2.63	1.37		.	
17195	21.10	23.40	2.30	0.4	41	115	36	3	18	6	23	91	15	2.09	0.56		.	
17196	23.40	25.70	2.30	0.3	59	119	53	7	31	6	52	104	5	2.82	1.43		.	
17197	25.70	26.50	0.80	0.1	114	117	97	4	74	17	176	101	5	9.03	2.82		.	
17198	26.50	28.30	1.80	0.1	52	192	57	3	24	7	34	43	10	3.06	1.22		.	
17199	28.30	30.10	1.80	0.1	48	85	104	2	18	6	28	67	10	3.29	1.44		.	
17200	30.10	33.10	3.00	0.1	108	308	92	4	34	18	114	15	45	7.66	0.58		.	
17201	33.10	36.10	3.00	0.1	132	803	134	3	27	16	100	11	15	8.36	0.23		.	
17202	36.10	39.10	3.00	0.1	141	709	60	3	77	16	289	47	20	8.01	0.4		.	
17203	39.10	42.10	3.00	0.1	110	110	91	3	61	15	184	17	10	7	0.56		.	
17204	42.10	44.00	1.90	0.1	171	104	196	5	93	15	305	121	5	7.35	2.06		.	
17205	44.00	45.30	1.30	0.1	104	148	266	3	54	11	101	408	10	5.45	2.47		.	
17206	45.30	46.10	0.80	2.9	9052	39	1984	2	73	32	157	3285	5	13.61	11.5	3.41	0.099	
17207	46.10	49.10	3.00	0.1	147	154	50	4	28	12	81	39	15	4.4	0.35		.	
17208	49.10	52.10	3.00	0.1	129	163	56	5	60	14	169	38	10	4.65	0.36		.	
17209	52.10	55.70	3.60	0.1	117	215	54	4	30	13	93	16	25	5.08	0.34		.	
17210	55.70	58.00	2.30	0.1	127	791	87	5	31	15	117	15	15	4.94	0.27		.	
17211	58.00	61.40	3.40	0.1	52	1857	38	3	17	7	51	7	20	2.99	0.1		.	
17212	61.40	62.60	1.20	0.1	79	155	34	5	29	11	98	10	10	3.69	0.13		.	
17213	62.60	64.70	2.10	0.1	72	79	62	3	20	8	193	14	5	3.32	0.4		.	
17214	64.70	66.70	2.00	0.1	74	174	55	5	24	12	99	24	5	4.13	0.43		.	
17215	66.70	71.90	5.20	0.1	59	195	35	3	17	8	163	22	10	3.21	0.26		.	

FILE COPY

HOLE NUMBER: TM92-41

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER: WILDROSE
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID:
NORTH: 170.00N
EAST: 175.00W
ELEV: 1230.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1230.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 129.80m
START DEPTH: 0.00m
FINAL DEPTH: 129.80m

COLLAR GRID AZIMUTH: 180° 0' 0"
COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: 0, 0
DATE COMPLETED: 0, 0
DATE LOGGED: 0, 0

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

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

CONTRACTOR: ATLAS DRILLING LTD.
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
32.30	-	-45° 0'	ACID	OK		-	-	-	-	-	
90.20	-	-45° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
0.00 TO 1.20	«CASING»					
1.20 TO 19.40	«DIORITE»	Colour: light to med. green Grain Size: f.gr. 1.2-16.8: weakly argillic diorite -mottled and banded textures -locally broken ╢2.2-5.0╟ «i broken» -white and grey calcite and qtz/calcite stringers 1-6 mm wide approx 1 per 25 cm, occasionally forming a matrix around angular diorite clasts -@ 10-70 deg TCA -moderate speckled texture @ 1.2-5.0 16.8-19.4: relatively unaltered diorite -dark green, f.gr. -massive, weakly mottled diorite -minor qtz/calcite stringers -4-12 mm wide approx 1 per meter @ 30-60 deg TCA		╢1.2-16.8╟ «wk arg» -decreases in intensity away from qtz and calcite stringers ╢16.8-19.4╟ «local wk arg intervals» -as a 30 cm halo around a qtz stringer and at the lower contact	╢1.2-16.8╟ «1% py» -as fine to med. disseminations, commonly within the qtz/calcite stringers ╢16.8-19.4╟ «0.5% py» -as med. disseminations and within the qtz/calcite stringers	
19.40 TO 23.90	«FSP PORPHYRY DYKE»	Colour: light green/grey Grain Size: porph. -3% coarse white plagioclase phenocrysts in a grey, aphanitic matrix -the phenocrysts are totally replaced by clay and/or calcite -1% dark green chlorite altered pyroxene(?) phenocrysts -faint bands parallel to the upper contact @ 50 deg TCA -minor calcite and qtz/calcite stringers (one is banded) 3-15 mm wide, approx 1 per meter @ 40-50 deg TCA		╢19.4-23.9╟ «mod arg + carb»	╢19.4-23.9╟ «0.5% py» -as fine disseminations	
23.90 TO 25.60	«DIORITE»	Colour: med. to dark green Grain Size: f.gr. -moderately broken throughout -this may be a large xenolith within the porphyry dyke		╢23.9-25.6╟ «wk arg»	╢23.9-25.6╟ «0.5% py» -as fine disseminations	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-calcite stringers 2-4 mm wide, approx 1 per 50 cm -rusty				
25.60 TO 26.40	«FSP PORPH. DYKE»	Colour: med. buff/grey Grain Size: c.gr. -3% medium to coarse plagioclase phenocrysts totally replaced by clay and calcte, trachytically aligned -lower contact is oriented @ 20 TCA not parallel to the trachytic orientation		╣25.6-26.4╠ «mod arg + mod arg»		
26.40 TO 35.90	«DIORITE»	Colour: light to dark green Grain Size: f.gr. 26.4-33.6 -weakly argillic diorite -massive, mottled texture -white calcite and grey qtz/calcite stringers 2-25 mm, approx 1 per 50 cm @ 0-70 deg TCA 33.6-34.2: moderately, foliated diorite -light green, f.gr. -moderate foliation @ 70-90 deg TCA ╣33.6-34.2╠ «possible moderate shear» -mottled and banded texture -5% green chlorite speckles, 2-5 mm 34.2-35.9: weakly argillic diorite -med. green, f.gr. -mottled texture -white calcite stringers 2-4 mm wide approx 1 per 50 cm @ 10-20 deg TCA		╣26.4-33.6╠ «wk arg» -highly variable alteration ╣33.6-34.2╠ «mod arg, mod ser»	╣26.4-33.6╠ «0.5% py» -as fine to med. disseminations -no visible sx	
35.90 TO 37.00	«CHERTY TUFF»	Colour: light grey Grain Size: Fine, chlorite and silica filled fracture network <1 mm wide, approx 1 per cm -calcite stringers 1-3 mm wide, approx 1 per 30 cm -the contacts are irregular and intrusive(?)			╣35.9-37.0╠ «1% py» -as stringers 1-3 mm wide @ all orientations	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
37.00 37.00 TO TO 42.40 42.40	«DIORITE» «DIORITE»	Colour: light to dark grey Colour: light to dark grey Grain Size: f.gr. Grain Size: f.gr. -local weak foliation @ 70-80 deg TCA -local weak foliation @ 70-80 deg TCA -white calcite stringers 1-8 mm wide approx -white calcite stringers 1-8 mm wide, approx 1 per 20 cm @ 10-70 deg TCA 1 per 20 cm @ 10-70 deg TCA -one 20 cm interval of crowded fsp diorite with gradational contacts (@ 40.6-40.8 m)		╣37.0-42.4╠ «local weak arg» ╣37.0-42.4╠ «local weak arg»	╣37.0-42.4╠ «0.5% py» ╣37.0-42.4╠ «0.5% py» -as fine disseminations and within -as fine dissem. and within the calcite stringers	
42.40 TO 52.80	«CHERTY TUFF»	Colour: med. grey Grain Size: Moderately fractured (with chlorite, clay and silica filled fractures <1 mm wide, approx 1 per 20 cm) -local fragmental textures (cherty tuff clasts up to 1 cm in diameter in a dark grey silica matrix) -occasional moderate foliation -calcite and qtz/calcite stringers 0.5-2 cm wide are commonly @ 0-10 deg TCA -contacts are intrusive (?) and 70 deg TCA		╣42.8-52.8╠ «local weak silica»	╣42.8-52.8╠ «1% py» -as fine stringers and dissem. and within the calcite and qtz/calcite stringers (up to 30% of the stringer)	
52.80 TO 63.90	«DIORITE»	Colour: med. yellow green Grain Size: f.gr. 52.8-62.0: moderately foliated diorite -mottled and banded common chaotic, moderate foliation @ 0-80 deg TCA -white and grey qtz chalcedony and qtz-calcite stringers 2-10 mm wide, approx 1 per 20 cm @ 30-60 deg -minor xenoliths(?) of cherty tuff <10 cm wide 62.0-63.9: massive, unfoliated diorite -medium grey, f.gr. -very finely speckled with 3% black chlorite(?) speckles -sharp intrusive contacts @ -rare calcite stringers <1 cm wide, approx	70	╣52.8-62.0╠ «mod ser, wk arg»	╣52.8-62.0╠ «2% py» -as fine to med. clusters and stringers up to 1 cm in diameter -commonly within the various qtz stringers ╣62.0-63.9╠ «1% py» -as fine to med. disseminated + rare thin stringers <1 mm wide	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		1 per 80 cm				
63.90 TO 66.60	«CHERTY TUFF»	Colour: buff and grey Grain Size: -irregular lenses (40%) up to 20 cm wide of tuffaceous material are mixed with layers of grey chert -the contacts are intrusive -fine, chloritic and silica filled fracture network (with fractures <1 mm wide approx 1 per 2 cm) -one pyrite-chlorite stringer 8 mm wide @	0		╢63.9-66.6╟ «1% py» -as fine to med. dissem. and stringers -one chlorite-pyrite stringer 8 mm wide contains 30% pyrite	
66.60 TO 71.50	«DIORITE»	Colour: light to med. grey/green Grain Size: f.gr. -banded and mottled textures 10% xenoliths(?) of cherty tuff up to 10 cm wide. -local moderate foliation		╢66.6-71.5╟ «wk arg and wk ser»	╢66.6-71.5╟ «1% py» -as fine dissem. and small clusters up to 8 mm in diameter	
71.50 TO 72.60	«CHERTY TUF F»	Colour: white and light grey Grain Size: -intensely fractures, with <1 mm wide fractures, approx 3 per cm filled by silica and pyrite -contracts are intrusive (?) @	50	╢71.5-72.6╟ «i silica»	«1% py» -as med. dissem, clusters and stringers up to 3 mm wide	
72.60 TO 89.60	«PORPHYRITI C DIORITE»	Colour: dark grey/green Grain Size: m.gr. -massive, porphyritic diorite with 20% m.gr. plagioclase laths, mod. foliation @ the upper contact @ 70-80 deg TCA ╢72.6-73.0╟ «mod fol» ╢72.8-72.9╟ «wk flt» @ -associated with 1 cm of massive pyrite -calcite stringers 1-4 mm wide approx 1 per 30 cm @ all orientations -one chalcedony and pyrite stringers 2 cm wide at 74.5-74.9	80 0		╢72.6-89.6╟ «0.5% py» -as med. disseminations and small clusters <5 mm wide -also within the calcite stringers and 20% of the chalcedony stringer	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
89.60 TO 93.00	«CHERTY TUF F»	89.6-91.6 -banded and bedded cherty tuff, parallel to the upper contact @ 60-80 deg TCA -30% irregular tuffaceous layers up to 15 cm wide 91.6-92.2: massive and stringer sulphidic zone -banded (bedded?) with 20 cm of massive sulphide @ 91.6-91.8 m containing 70% pyrrhotite(?) (no magnet) and 5% pyrite and 25% qtz -the rest of the interval is intensely foliated parallel to the sulphide and qtz banding @ 70-90 deg with 20% pyrite and pyrrhotite, 40% qtz and 40% fine diorite 92.2-93.0 -finely fractured, cherty tuff with <1 mm wide black pyritic siliceous fractures approx 2 per cm -approx 50/50 tuff/chert			╢89.6-91.6╟ «0.5% py» -as fine disseminations and rare stringers <1 cm wide, parallel to the banding ╢91.6-91.8╟ «70% pyrr 5% py» -in a 20 cm wide massive band ╢91.8-92.2╟ «20% py and pyrr» -as fine to coarse stringers 1-15 mm wide ╢92.2-93.0╟ «0.5% py» -as fine clusters ans stringers and minor disseminations	
93.00 TO 96.00	«DIORITE»	Colour: light to dark green Grain Size: f.gr. -banded and mottled texture -weak to moderate foliation @ 60-80 deg TCA -the contacts are intrusive		╢93.0-96.0╟ «local sk ser»	╢93.0-96.0╟ «0.5% py» -as rare clusters up to 7 mm in diameter	
96.00 TO 97.40	«CHERTY TUF F»	Colour: light grey to buff Grain Size: -roughly 50/50 grey chert and intensely foliated tuffaceous(?) layers (foliation @ 40-60 deg) -the cherty layers are finely fractured and silicified ╢96.0-97.4╟ «i foliated» -minor white qtz stringers 1-3 mm wide approx 1 per 40 cm		«mod sil»	«0.5% py» -as fine disseminations	
97.40 TO 99.60	«DIORITE»	Colour: buff/yellow green Grain Size: f.gr. -intensely foliated @ 40-70 deg TCA -mottled by sulphide clusters 3-5 mm in diameter		╢97.4-99.6╟ «mod ser»	«5% pyrrhotite» -as fine clusters 3-5 mm in diameter	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-qtz stringers 1-8 mm wide approx 1 per 15 cm, usually across the foliation, but occasionally parallel to it				
99.60 TO 106.80	«CHERTY TUFF»	Colour: light to med. grey Grain Size: -60% white to grey chert layers up to 60 cm wide bedded with 40% tuffaceous layers -intense fine fracture network filled by silica and pyrite, with fractures <1 mm wide approx 2 per cm, dominantly within the chert layers		╣99.6-106.8╠ «mod sil»	╣99.6-106.8╠ «1% py» -as fine stringers and clusters up to 1 cm in diameter -occasional occurrences of a fine, disseminated black sulphide? that has the appearance of chromite (within the white, chert layers)	
106.80 TO 119.90	«DIORITE»	106.8-118.9: argillic and sericitic diorite -light to med. green -aphanitic to f.gr. -local weak foliation @ 60-90 deg TCA -locally intensely broken and gouged over fairly wide intervals ╣107.7-108.4╠ «mod flt» ╣109.3-109.5╠ «mod flt» -qtz and calcite stringers 4-20 mm wide approx 1 per cm @ all orientations 118.9-119.9: i. foliated and altered diorite -yellowish grey, f.gr. -intense foliation @ 70-80 deg TCA -qtz and qtz/calcite stringers, 2-20 mm wide, 1 per 20 cm, parallel to and crosscutting the foliation	70	╣106.8-107.7╠ «wk arg, wk ser» ╣107.7-109.5╠ «i arg» ╣109.5-118.9╠ «mod ser» -alteration intensity increases with depth ╣118.9-119.9╠ «i sericite»	╣106.8-118.9╠ «1% py» -as fine clusters up to 1 cm in diameter and fine to med. dissemination -also within the qtz/calcite stringers (5%) -sulphide content increases with depth ╣118.9-119.9╠ «1% py, <0.5% cpy» -pyrite as fine to coarse dissem. often within qtz stringers and coarse stringers up to 5 mm wide -cpy occurs as fine disseminations with pyrite	
119.90 TO 121.20	«QTZ & SULPHIDE SHEAR»	Colour: white and grey Grain Size: f.gr. 119.9-120.5: sheared qtz and sulphide -60% white qtz in narrow, irregular bands 5-10 cm wide, @ 60-70 deg TCA with 20% sulphides and 20% wallrock(?) clasts			╣119.5-120.5╠ «20% py» -in fine to med. submassive bands up to 2 cm wide	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-common stylolites parallel to the qtz and sulphide bands 120.5-120.9: sulphide stringer zone -intensely foliated @ 60-80 deg TCA parallel to bands of pyrite (30% overall) -10% qtz in narrow white bands and the rest of the interval is intensely sericitic and foliated diorite 120.9-121.2: massive sulphide -banded massive sulphide with 70% fine pyrrhotite(?) (brassy) and 20% coarse pyrite 0.5% chalcopyrite -10% qtz, locallized along the lower contact @ 90 -some vuggy and net textures		╢120.5-120.9╟ «i sericite»	«30% py» -pyrrhotite? (no magnet) in fine bands up to 1 cm wide, parallel to an intense foliation ╢120.9-121.2╟ «70% pyrrhotite» -20% pyrite, 0.5% chalcopyrite -the pyrrhotite is f.gr. and is banded with 1-2 cm wide bands of coarse pyrite -the chalcopyrite is finely disseminated within the coarse pyrite bands	
121.20 TO 126.60	«ALTERED ULTRAMAFIC»	Colour: dark grey Grain Size: f.gr. -web textured (stringered) with 5% white carbonate (some fizz) filled fractures @ all orientations 0.5-1 mm wide, approx 1 per cm -narrow unstringered (massive) intervals may be diorite (?) -wider crosscutting calcite stringers 0.5-2 cm wide occur 1 per 25 cm -locally weakly broken ╢122.3-122.4╟ «wk flt»		╢121.2-126.6╟ «mod carb, wk sil»	«0.5% py» -as fine dissem., except one 3 cm band of massive pyrite and pyrrhotite @ 121.5 m -sulphide decrease overall away from the shear zone	
126.60 TO 129.80	«SILTSTONE»	Colour: dull green, grey Grain Size: f.gr. -beded green siltstone (70%) with 30% darker, coarser layers 3-10 mm wide -common, tiny offsets of bedding are probably a solution cleavage -dolomite(?) (white, soft, doesn't fizz) stringers 1-5 mm wide approx 1 per 30 cm @ 10-50 deg TCA			╢126.6-129.8╟ «0.5% py» -as fine dissem. and clusters <5 mm wide	

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
17216	1.20	5.00	3.80	0.1	67	363	58	2	17	9	51	14	5	5.91	0.62		.	
17217	5.00	8.00	3.00	0.3	68	306	48	8	16	9	51	24	10	5.36	0.41		.	
17218	8.00	11.00	3.00	0.1	85	132	82	3	32	17	66	69	15	7.2	1.19		.	
17219	11.00	14.00	3.00	0.1	152	163	102	5	32	23	69	45	10	6.82	1.04		.	
17220	14.00	16.80	2.80	0.1	136	104	101	4	33	22	75	67	35	7.08	1.15		.	
17221	16.80	19.40	2.60	0.1	90	285	62	2	24	13	54	11	10	6.48	0.48		.	
17222	19.40	22.40	3.00	0.1	59	2141	12	5	35	11	75	8	10	3.65	0.23		.	
17223	22.40	23.90	1.50	0.1	57	7908	12	5	47	11	78	10	15	4.31	0.17		.	
17224	23.90	25.60	1.70	0.1	184	10000	15	7	46	29	103	9	30	7.62	0.25		.	
17225	25.60	26.40	0.80	0.1	51	6849	11	5	35	10	62	11	25	3.62	0.16		.	
17226	26.40	29.40	3.00	0.1	154	4042	19	5	30	21	87	6	15	6.79	0.32		.	
17227	29.40	32.40	3.00	0.1	123	330	24	3	32	18	69	28	10	5.86	0.26		.	
17228	32.40	33.60	1.20	0.1	171	118	26	3	26	19	79	37	15	6.67	0.45		.	
17229	33.60	34.20	0.60	0.1	323	142	23	4	26	20	86	24	25	6.81	0.07		.	
17230	34.20	35.90	1.70	0.1	143	393	43	4	27	17	72	244	20	6.81	1.18		.	
17231	35.90	37.00	1.10	0.1	74	77	42	3	20	9	29	20	15	3.56	0.86		.	
17232	37.00	40.00	3.00	0.1	98	458	48	3	21	14	71	43	20	7.12	0.76		.	
17233	40.00	42.40	2.40	0.1	179	211	68	4	35	22	73	39	5	6.89	0.95		.	
17234	42.40	45.40	3.00	0.1	87	461	135	4	21	13	20	166	10	4.07	2.04		.	
17235	45.40	48.40	3.00	0.1	70	307	68	3	19	10	24	47	10	3.56	1.25		.	
17236	48.40	51.40	3.00	0.1	105	177	126	6	29	14	32	121	5	5.89	2.77		.	
17237	51.40	52.80	1.40	0.1	128	498	137	8	32	16	45	127	15	6.25	2.53		.	
17238	52.80	55.80	3.00	0.1	104	189	157	.	26	15	66	100	15	7.42	2.56			
17239	55.80	58.80	3.00	0.1	145	644	239	.	36	23	70	164	5	9.6	4.1			
17240	58.80	62.00	3.20	0.1	86	1469	161	.	29	17	64	92	10	7.3	2.26			
17241	62.00	63.90	1.90	0.1	86	211	161	.	26	18	40	58	20	6.66	2.87			
17242	63.90	66.60	2.70	0.1	75	362	130	.	25	13	29	46	10	4.49	1.64			
17243	66.60	69.60	3.00	0.1	103	187	171	.	30	21	61	44	15	7.78	2.37			
17244	69.60	71.50	1.90	0.1	86	178	125	.	28	17	43	35	10	5.64	2			
17245	71.50	72.60	1.10	0.1	62	564	65	.	18	9	16	71	10	2.34	0.83			
17246	72.60	75.60	3.00	0.1	116	199	143	.	38	18	96	134	5	7.64	2.6			
17247	75.60	78.60	3.00	0.1	64	523	167	.	30	16	57	56	10	6.73	2.06			
17248	78.60	81.60	3.00	0.1	78	785	128	.	37	16	103	135	10	6.98	1.66			
17249	81.60	84.60	3.00	0.1	77	152	84	.	27	17	62	208	5	8.31	1.95			
17250	84.60	87.60	3.00	0.1	53	411	93	.	24	13	53	55	15	7.29	1.74			
17251	87.60	89.60	2.00	0.1	64	244	99	.	31	16	61	53	15	6.88	2.04			
17252	89.60	91.60	2.00	0.1	55	584	57	.	31	13	56	32	5	2.87	0.56			
17253	91.60	92.20	0.60	0.5	336	27	895	.	26	55	62	2790	10	15	14.8	3.05	0.089	

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t
17254	92.20	93.00	0.80	0.1	138	99	195	.	36	22	49	173	5	7.2	2.87		
17255	93.00	96.00	3.00	0.1	127	134	84	.	28	18	75	48	5	6.11	1.15		
17256	96.00	97.40	1.40	0.1	199	58	38	.	31	20	62	24	5	4.56	0.31		
17257	97.40	99.60	2.20	2	474	23	615	.	427	36	1371	117	20	7.67	2.52		
17258	99.60	102.60	3.00	0.1	116	486	133	.	33	16	59	48	10	4.32	0.94		
17259	102.60	105.60	3.00	0.1	68	147	116	.	30	12	45	63	10	3.69	1.3		
17260	105.60	106.80	1.20	0.1	98	323	192	.	270	14	871	107	20	5.02	2.34		
17261	106.80	107.70	0.90	0.1	138	182	180	.	43	25	125	35	15	8.35	2.08		
17262	107.70	109.50	1.80	0.1	173	1077	260	.	276	22	727	98	30	8.88	3.36		
17263	109.50	112.50	3.00	0.1	104	1346	95	.	32	17	84	80	10	7.19	1.04		
17264	112.50	115.50	3.00	0.1	139	561	38	.	33	17	85	13	15	6.51	0.49		
17265	115.50	118.90	3.40	0.1	111	198	196	.	37	19	61	41	15	7.9	2.65		
17266	118.90	119.90	1.00	0.1	247	313	488	.	42	22	59	114	20	8.03	2.67		
17267	119.90	120.50	0.60	2.1	920	174	687	1	14	33	44	290	15	8.51	5.41		.
17268	120.50	120.90	0.40	1.2	363	27	491	1	3	24	59	1060	15	14.34	4.96	1.16	0.034
17269	120.90	121.20	0.30	9.5	359	13	2642	1	1	11	3	10000	20	15	25.3	58.46	1.700
17270	121.20	124.20	3.00	0.1	374	2095	230	.	32	27	82	156	5	6.41			
17271	124.20	126.60	2.40	0.1	123	1508	76	.	28	16	78	25	10	5.17	0.41		
17272	126.60	129.80	3.20	0.1	114	1099	61	.	26	13	103	21	15	5.02	0.26		

FILE COPY

HOLE NUMBER: TM92-42

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER: WILDROSE
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID:
NORTH: 255.00N
EAST: 100.00W
ELEV: 1220.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1220.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 128.90m
START DEPTH: 0.00m
FINAL DEPTH: 128.90m

COLLAR GRID AZIMUTH: 180° 0' 0"

COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: 0, 0
DATE COMPLETED: 0, 0
DATE LOGGED: November 6, 1992

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

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

CONTRACTOR: ATLAS DRILLING LTD.
CASING:
CORE STORAGE: GREENWOOD

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
56.10	-	-48° 0'	ACID	OK	
93.30	-	-45° 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 2.70	«CASING»					
2.70 TO 16.00	«DIORITE»	2.7-10.7: sericitic and argillic diorite -massive, mottled textures -white calcite stringers (coarse grained), 2-30 mm wide, approx 1 per 40 cm @ all orientations -light to med. green, f.gr. 10.7-11.9: calcite stringer zone -white and green, f.gr. -25% white, banded calcite stringers, 3-15 mm wide, locally coalescing to form a matrix around 1-3 cm, diorite clasts -stringers are usually 0-30 deg tCA ╢10.7-11.9╟ «calcite stringer zone» 11.9-16.0: sericitic diorite -yellowish green, f.gr. -massive, locally mottled diorite, cut by 2-10 mm wide calcite and quartz/calcite stringers approx 1 per 30 cm @ all orientations		╢2.7-10.7╟ «wk arg, wk ser» ╢10.7-11.9╟ «wk arg, wk ser» ╢11.9-16.0╟ «mod ser, mod carb»	╢2.7-10.7╟ «0.5% py» -as fine dissemin. and clusters up to 1 cm in diameter, occasionally within the calcite stringers ╢10.7-11.9╟ «1% py» -as med. dissem. within and outside of the calcite stringers ╢11.9-16.0╟ «0.5% py» -as rare dissem and fine clusters up to 1 cm in diameter	
16.00 TO 41.10	«CHERTY TUFF»	Colour: light to med. grey Grain Size: -locally, moderately broken and rusty -moderate fine fracture network filled by chlorite (?) and silica -fractures <1 mm wide, approx 1 per cm @ all orientations -approx 50/50 tuffaceous/chert layers commonly 10-40 cm wide -occasional fine bedding within the tuffaceous layers		╢16.0-41.1╟ «local wk arg»	╢16.0-41.1╟ «0.5% py» -as fine to coarse disseminations	
41.10 TO 43.10	«LAPILLI TUFF»	Colour: med. grey Grain Size: f.gr. -sandy texture, massive concordant with banding (bedding?) in the cherty tuff above. -contacts @ -white, calcite stringers 3-5 mm wide approx.	60		╢41.1-43.1╟ «1% py» -as fine disseminations and stringers <1 mm wide	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		1 per 30 cm @ 20-40 deg				
43.10 TO 45.20	«CHERTY TUFF»	Colour: med. grey Grain Size: aphanitic -massive, weakly banded cherty tuff -weak, fine fracture network			╢43.1-45.2╟ «0.5% py» -as fine to med. disseminations	
45.20 TO 49.30	«LAPILLI TUFF»(?)	Colour: med. grey Grain Size: f.gr. -massive, sandy textured tuff containing anhedral crystals and lithic frags(?) up to 2 mm in diameter -two narrow intervals (0.7 m + 0.3 m) of cherty tuff. -contacts are conformable and 50-60 deg TCA			╢45.2-49.3╟ «0.5% py» -as fine to med. disseminations and minor clusters up to 1 cm in diameter	
49.30 TO 55.70	«MIXED CHERTY TUFF & LAP TUFF»	Colour: med. grey Grain Size: aphanitic to fine -approx 50:50 cherty tuff layers up to 0.8 m, wide bedded with layers of lapilli tuff up to 0.8 m layers of lapilli tuff up to 0.8 m wide -bedding is usually apporx 60 deg TCA -occasionally, weakly broken		╢49.3-55.7╟ «wk arg, wk ser»		
55.70 TO 56.00	«FSP PORPH DYKE»	Colour: med. grey Grain Size: porph. -5% m.gr., euhedral plagioclase phenocrysts in a dull grey, aphanitic matrix -upper contact is a wk flt @ ╢55.7-55.8╟ «wk flt» -lower contact is weakly broken and parallel to an intense foliation in the immediate footwall @	70 50	╢55.7-56.0╟ «i arg»		
56.00 TO 64.60	«MIXED CHERTY TUFF & ASH TUFF»	Colour: buff/grey Grain Size: f.gr./aphanitic -very mixed, mottled sometimes banded interval of aphanitic cherty tuffs grading in and out of f.gr. ash tuff -white calcite stringers 1-5 mm wide, approx 1 per 30 cm @ 10-40 deg TCA -brecciated, intrusive lower contact		╢56.0-56.4╟ «wk arg, med. ser»	╢56.0-56.4╟ «4% py, tr cpy» -as fine to med. clusters and stringers up to 1 cm in diameter -some of the pyrite may be pyrrhotite (no magnet)	This unit may be Mt. Atwood Group (seds(?))

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
64.60 TO 65.00	«FSP & BIOTITE PORPH. DYKE»	Colour: med. green Grain Size: porph. -8% m.gr., white plagioclase phenocrysts and 8% black, coarse grained biotite phenocrysts in an aphanitic green matrix -contacts @ 40 deg TCA, upper one is a 10 cm breccia				marron feeder?
65.00 TO 104.60	«MIXED CHERTY TUFF & ASH TUFFS»	Colour: light green to med. grey Grain Size: aphanitic to fine -very mixed interval of fine ash tuffs and aphanitic cherty tuffs with gradational contacts -occasional bedding and sharp contacts @ 50-90 deg TCA -rare calcite stringers 3-10 mm wide approx 1 per meter @ all orientations		╡65.0-104.6╞ «wk arg, wk ser»	╡65.0-104.6╞ «1% py» -as fine disseminations and occasional clusters < 5 mm in diameter	This unit may be Mt. Atwood Group seds?
104.60 TO 105.00	«FSP PORPH DYKE»	Colour: med. green Grain Size: porph. -5% white to light brown, med. grained plagioclase laths and 10% dark green chloritic speckles in a green, aphanitic matrix -the contacts are intrusive @	60			This may be a feeder to marron volcanics(?)
105.00 TO 113.40	«CHERTY TUFF»	105.0-108.0: moderately silicified cherty tuff -finely bedded tuffaceous layers <2 cm wide @ 70-90 deg TCA -fine silica fracture fills in the cherty layers @ 10-30 deg TCA 108.0-113.4: intensely silicified cherty tuff -white/light grey -very fine fracture network filled by silica and pyrite (fractures <1 mm wide approx 1 per cm)		╡105.0-108.0╞ «mod. sil» ╡108.0-113.4╞ «i silica»	«1% py» -as fine disseminations and stringers up to 1 mm wide ╡108.0-113.4╞ «3% py» -as fine fracture fillings (discontinuous hairline fractures) and med. stringer and clusters up to 5 mm wide	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
113.40 TO 115.60	«DIORITE»	Colour: med. green/grey Grain Size: f.gr. -massive, f.gr. diorite, minor intervals with 10% fine, white plagioclase pheno's		╢113.4-115.6╟ «wk arg»	╢113.4-115.6╟ «1% py» -as fine disseminations	
115.60 TO 116.90	«CHERTY TUF F»					
116.90 TO 120.80	«DIORITE»					
120.80 TO 128.90	«CHERTY TUF F»					

HOLE NUMBER: TM92-42 | ASSAY SHEET | DATE: 24-March-1993

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t	COMMENTS
17273	2.70	5.70	3.00	0.1	102	134	19	.	27	15	109	12	5	7.38	0.08			
17274	5.70	8.70	3.00	0.1	95	370	48	.	28	12	81	6	15	6.00	0.33			
17275	8.70	10.70	2.00	0.1	114	204	40	.	23	12	79	5	50	6.04	0.27			
17276	10.70	11.90	1.20	0.1	138	110	14	.	29	19	97	4	30	6.84	0.31			
17277	11.90	14.90	3.00	0.1	168	249	31	.	33	17	102	6	10	6.24	0.08			
17278	14.90	16.00	1.10	0.1	249	244	99	.	28	22	168	72	5	8.48	0.76			
17279	16.00	19.00	3.00	0.1	47	1955	39	.	12	5	29	24	10	2.29	0.34			
17280	19.00	22.00	3.00	0.1	49	138	42	.	18	6	35	10	5	2.65	0.20			
17281	22.00	25.00	3.00	0.1	37	2997	16	.	18	5	33	11	10	2.68	0.18			
17282	25.00	28.00	3.00	0.1	50	246	49	.	16	5	26	41	20	2.70	0.60			
17283	28.00	31.00	3.00	0.1	57	303	28	.	17	5	28	28	25	2.67	0.17			
17284	31.00	34.00	3.00	0.1	52	418	57	.	21	7	30	48	5	3.34	0.63			
17285	34.00	37.00	3.00	0.1	54	2208	29	.	21	9	60	38	5	3.78	0.96			
17286	37.00	39.10	2.10	0.8	92	428	68	.	21	10	17	144	10	4.50	2.82			
17287	39.90	41.10	2.00	0.1	75	258	94	.	22	9	15	150	5	4.89	3.30			
17288	41.10	43.10	2.00	0.1	55	152	67	.	22	9	22	56	15	4.37	2.28			
17289	43.10	45.20	2.10	0.1	47	1090	43	.	18	7	18	34	5	2.89	1.00			
17290	45.20	47.30	2.10	0.1	59	182	80	.	22	10	20	80	10	3.52	1.56			
17291	47.30	49.30	2.00	0.1	47	182	42	.	16	6	13	37	10	2.39	0.80			
17292	49.30	52.30	3.00	0.8	78	293	153	.	19	12	15	140	20	4.01	1.95			
17293	52.30	55.70	3.40	0.6	80	425	193	.	20	13	13	1610	10	4.45	3.43	1.68	0.049	
17294	55.70	56.00	0.30	0.1	58	3585	18	.	28	11	63	44	65	3.47	0.27			
17295	56.00	59.00	3.00	0.1	66	170	42	.	13	5	14	67	10	2.75	0.92			
17296	59.00	62.00	3.00	0.1	59	114	108	.	17	8	19	54	5	3.51	1.28			
17297	62.00	64.60	2.60	0.8	237	243	260	.	168	17	197	298	25	6.25	4.43			
17298	64.60	65.00	0.40	0.1	98	115	135	.	29	15	91	41	5	5.66	0.22			
17299	65.00	68.00	3.00	0.1	69	152	122	.	17	10	17	60	5	3.77	1.78			
17300	68.00	71.00	3.00	0.1	66	139	76	.	70	11	212	48	15	3.99	1.56			
17301	71.00	74.00	3.00	0.3	73	145	158	.	18	10	18	125	50	3.77	2.26			
17302	74.00	77.00	3.00	0.1	36	127	19	.	12	6	21	18	5	2.15	0.25			
17303	77.00	80.00	3.00	0.1	51	110	15	.	27	7	52	23	5	2.78	0.28			
17304	80.00	83.00	3.00	0.1	52	158	15	.	13	7	29	11	10	3.16	0.26			
17305	83.00	86.00	3.00	0.1	45	111	54	.	29	7	56	33	15	2.47	0.88			
17306	86.00	89.00	3.00	0.1	62	1437	49	.	22	8	42	20	5	3.39	0.91			
17307	89.00	92.00	3.00	0.1	51	109	71	.	16	5	19	29	10	2.62	1.09			
17308	92.00	95.00	3.00	3.4	223	571	269	.	340	15	1183	951	5	6.42	4.00	0.92	0.027	
17309	95.00	98.00	3.00	0.4	55	172	73	.	164	7	637	85	10	3	1.27			
17310	98.00	101.30	3.30	0.1	53	201	38	.	28	7	59	18	15	2.73	0.53			

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t
17311	101.30	104.60	3.30	0.1	68	367	23	.	118	8	347	15	10	2.92	0.27		
17312	104.60	105.00	0.40	0.1	96	384	101	.	29	16	104	8	25	6.39	0.26		
17313	105.00	108.00	3.00	0.1	70	248	51	.	11	5	19	35	5	2.07	0.72		
17314	108.00	110.70	2.70	0.1	2395	126	87	.	11	7	8	399	10	2.02	1.44		
17315	110.40	113.40	3.00	0.1	71	55	115	.	9	6	8	146	10	2.14	1.89		
17316	113.40	115.60	2.20	0.1	153	74	293	.	36	23	45	177	25	10	5.64		
17317	115.60	116.90	1.30	0.8	116	59	228	.	123	16	723	329	10	5.32	4.60		
17318	116.90	118.90	2.00	0.1	135	214	241	.	33	18	79	91	10	8.08	3.43		
17319	118.90	120.80	1.90	0.1	138	139	148	.	35	20	99	55	5	8.01	3.04		
17320	120.80	123.80	3.00	0.1	67	58	120	.	20	4	13	204	10	2.46	2.00		
17321	123.80	126.80	3.00	0.1	63	969	106	.	12	6	15	91	10	2.87	1.65		
17322	126.80	128.90	2.10	0.1	48	83	93	.	15	6	18	50	5	2.84	1.36		

HOLE NUMBER: TM92-43 FILE COPY MINNOVA INC. DRILL HOLE RECORD IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: DEADWOOD
PROJECT NUMBER: 661
CLAIM NUMBER: TAM
LOCATION: DEADWOOD ZONE

PLOTTING COORDS GRID:
NORTH: 30.00N
EAST: 495.00W
ELEV: 1317.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 1317.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 109.70m
START DEPTH: 0.00m
FINAL DEPTH: 109.70m

COLLAR GRID AZIMUTH: 180° 0' 0" COLLAR ASTRONOMIC AZIMUTH: 220° 0' 0"

DATE STARTED: 0, 0
DATE COMPLETED: 0, 0
DATE LOGGED: November 19, 1992

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

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

CONTRACTOR: ATLAS DRILLING
CASING:
CORE STORAGE:

PURPOSE:

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
66.10	-	-48° 0'	ACID	OK		-	-	-	-	-	
108.50	-	-49° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		-minor qtz/chalcedony and calcite stringers up to 1 cm wide, approx 1 per 60 cm @ 10-70 deg TCA			4 mm wide	
12.50 TO 20.80	«CHERTY TUFF»	Colour: medium to light grey green Grain Size: -finely fractured and filled by chlorite or silica/pyrite (fractures <1 mm wide approx 2 per cm) -quartz and quartz/calcite stringers 2-8 mm wide a approx 1 per meter @ 10-60 deg TCA -2 narrow intervals of intense silicification one of which is @ the lower contact		╢18.8-19.3╟ «i silica» ╢19.3-20.2╟ «wk silica» ╢20.2-20.8╟ «i silica»	╢12.5-18.8╟ «0.5% py» «3% py» «<0.5% py» «1% py»	
20.80 TO 36.50	«DIORITE»	Colour: med. green Grain Size: f.gr. -massive, fine diorite -white and dark green calcite/chlorite stringers 1-8 mm wide, approx 1 per 50 cm @ 20-40 deg TCA -one 4 cm quartz stringer @ 28.9 m @ contains 1% pyrite -one 3 cm quartz and amethyst stringer @ 32.9 m contains 5% pyrite ╢28.7-29.0╟ «qtz stringer» -minor crowded feldspar intervals near the qstr @ 28.9 m	10	20.8-36.5╟ «local wk arg»	╢20.8-36.5╟ «1% py» -as fine to med. dissem. and clusters up to 2 cm in diameter	
36.50 TO 37.20	«CHERTY TUFF»	Colour: med. grey Grain Size: -moderately foliated with chlorite filling -intrusive contacts @ 60-70 deg tCA			╢36.5-37.2╟ «0.5% py» -as fine dissem.	
37.20 TO 41.70	«DIORITE»	Colour: dark green Grain Size: f.gr. -dark green, occasional intervals of 20% fine plagioclase phenos -one 10 cm xenolith of cherty tuff			╢37.2-41.7╟ «0.5% py» -as fine dissem.	
41.70 TO 42.50	«CHERTY TUFF»	Colour: light grey Grain Size: -weakly fractured with chlorite infilling -intrusive contacts @ 70-90 deg TCA			╢41.7-42.5╟ «0.5% py» -as fine disseminations	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
42.50 TO 44.10	«DIORITE»	Colour: dark green Grain Size: f.gr. -massive, diorite with local concentrations (20%) of fine plagioclase phenos			╢42.5-44.1╟ «0.5% py» -as fine dissem.	
44.10 TO 44.90	«CHERTY TUFF»	Colour: light grey Grain Size: -weakly fractured with chlorite and silica filling -intrusive contacts @ 70-90 deg TCA		╢44.1-44.9╟ «wk sil»	╢44.1-44.9╟ «0.5% py» -as fine dissem.	
44.90 TO 53.50	«DIORITE»	Colour: med. to light grey/green Grain Size: -massive and mottled diorite qtz/calcite and calcite stringers 1-5 mm wide, approx 1 per 30 cm @ 30-60 deg TCA -local, moderate foliation parallel to the quartz calcite stringers		╢44.9-46.5╟ «wk arg» ╢46.5-53.5╟ «mod arg, mod ser»	╢44.9-53.5╟ «2% py» -as fine dissem. and clusters up to 1 cm in diameter and rare stringers 1-2 mm	
53.50 TO 56.70	«CHERTY TUFF»	Colour: med. grey Grain Size: -moderately, fractured and broken -white calcite stringers and lenses 2-8 mm wide, locally form a matrix around clsts of cherty tuff. (approx 1 stringer/lens per 20 cm)			╢53.5-56.7╟ «0.5% py» -as fine dissem.	
56.70 TO 89.60	«DIORITE»	Colour: dark green Grain Size: f.gr. -massive, fine diorite with occasional finely porphyritic intervals (plagioclase concentrations) -minor white calcite stringers 3-12 mm wide, approx 1 per meter can contain up to 10% pyrite -the interval becomes increasingly broken and foliated toward the lower contact ╢76.4-76.5╟ «wk flt» -minor xenoliths (?) of cherty tuff up 0.4 m wide		╢56.7-71.6╟ «local wk ser» ╢71.6-87.0╟ «wk ser, wk arg» ╢87.0-87.2╟ «i talc» ╢87.2-89.6╟ «wk ser, wk arg»	╢56.7-89.6╟ «0.5% py» -as fine to med. dissem. and very rare stringers up to 3 mm wide	
89.60 TO 94.00	«SERPENTINITE»	Colour: dark to med. green Grain Size: f.gr. -locally, intensely foliated @ -locally intensely broken (possible fault) ╢89.7-90.0╟ «i broken»	60	╢89.6-94.0╟ «wk talc»	╢89.6-94.0╟ «1% py» -as fine dissem. and clusters up to 2 cm in diameter	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALIZATION	REMARKS
		╡90.2-90.6╞ «i broken» -commonly speckled and mottled				
94.00 TO 98.80	«SILTSTONE»	Colour: light grey/green Grain Size: f.gr. -rare fine beddingf @ 60-90 deg TCA -pyritic filled fractures (cleavage?) @ 10-50 deg TCA (fractures are <1 mm wide apporx 1-4 cm long and 1 per cm) -moderate fault @ the lower contact ╡98.7-98.8╞ «mod flt»		╡94.0-98.8╞ «mod ser» ╡98.7-98.8╞ «i arg»	╡94.0-98.8╞ «3% py» -as fine, discontinuous fracture fillings and occasional stringers up to 4 mm wide	
98.80 TO 103.80	«FSP PORPH. DYKE»	Colour: buff/yellow Grain Size: porph. -massive, porphyritic dyke with 10% intensely altered med. grained plagioclase phenocrysts (totally replaced by sericite) -both contacts are faults -rare quartz stringers and rusty carbonate stringers, approx 1 per meter @ 30-40 deg TCA, 2-6 mm wide ╡103.7-103.8╞ «wk flt»		╡98.8-103.8╞ «i ser» ╡103.7-103.8╞ «i arg»	╡98.8-103.8╞ «<0.5% py» -as very fine dissem.	
103.80 TO 109.70	«SILTSTONE & SANDSTONE » E.O.H.	Colour: light dull green Grain Size: f.gr. -70/30 siltstone/sandstone with sandstone beds up to 10 cm wide -bedding @ 60-70 deg TCA		╡103.8-109.7╞ «wk ser»	╡103.8-109.7╞ «0.5% py» -as fine dissem.	

Sample	From (m)	To (m)	Length (m)	ASSAYS Ag ppm	As ppm	GEOCHEMICAL Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t		COMMENTS
17323	2.70	5.70	3.00	0.1	111	247	263	.	45	15	127	700	5	7.06	2.52	0.71	0.021		
17324	5.70	8.70	3.00	0.1	91	220	191	.	24	16	57	416	10	8.14	3.06				
17325	8.70	10.60	1.90	0.1	126	257	106	.	34	21	76	613	5	7.21	1.49	0.57	0.017		
17326	10.60	12.50	1.90	0.4	74	117	109	.	19	12	49	295	5	7.14	1.69				
17327	12.50	15.50	3.00	0.1	82	242	60	.	28	14	38	63	10	5.64	0.72				
17328	15.50	18.80	3.30	0.1	67	218	42	.	16	10	29	122	5	3.39	0.23				
17329	18.80	19.30	0.50	0.1	61	43	145	.	20	8	18	317	15	3.47	2.00				
17330	19.30	20.20	0.90	0.1	40	100	9	.	18	6	21	3	10	1.65	0.06				
17331	20.20	20.80	0.60	0.1	64	65	64	.	14	8	39	67	10	4.46	0.64				
17332	20.80	23.80	3.00	0.1	74	128	414	.	17	11	48	190	10	8.74	3.08				
17333	23.80	26.80	3.00	0.1	75	218	145	.	23	12	48	145	15	7.57	1.79				
17334	26.80	29.80	3.00	0.1	90	386	100	.	25	16	63	50	10	7.24	0.69				
17335	29.80	32.80	3.00	0.1	55	108	114	.	18	9	45	314	5	5.58	1.31				
17336	32.80	34.70	1.90	0.8	84	162	91	.	102	11	411	187	10	5.99	1.12				
17337	34.70	36.50	1.80	0.1	96	109	86	.	17	11	60	30	15	7.28	0.89				
17338	36.50	37.20	0.70	0.2	43	25	40	.	8	5	21	19	5	2.31	0.40				
17339	37.20	39.50	2.30	0.9	78	100	54	.	14	9	51	34	10	6.14	0.38				
17340	39.50	41.70	2.20	0.5	73	118	68	.	11	10	56	61	10	6.63	0.51				
17341	41.70	42.50	0.80	0.1	64	136	48	.	24	10	34	57	5	4.71	0.70				
17342	42.50	44.10	1.60	0.1	54	115	81	.	18	9	47	55	5	6.42	1.15				
17343	44.10	44.90	0.80	0.1	50	139	56	.	14	7	25	77	5	3.02	0.60				
17344	44.90	47.90	3.00	0.1	121	108	77	.	21	17	64	56	10	8.14	2.09				
17345	47.90	50.90	3.00	0.1	145	271	104	.	30	18	73	110	10	7.73	2.00				
17346	50.90	53.50	2.60	0.1	102	124	109	.	28	16	58	119	5	7.48	2.27				
17347	53.50	56.70	3.20	0.1	70	117	63	.	24	11	41	50	5	3.98	0.43				
17348	56.70	59.70	3.00	0.1	100	202	79	.	21	14	64	10	10	7.11	1.92				
17349	59.70	62.70	3.00	0.2	74	97	78	.	19	10	59	25	15	7.16	1.78				
17350	62.70	65.70	3.00	1.3	70	96	95	.	15	8	47	53	5	8.38	2.95				
17351	65.70	68.70	3.00	0.9	84	89	166	.	270	12	1493	463	5	8.78	3.08				
17352	68.70	71.60	2.90	1.4	80	85	161	.	594	11	2359	115	15	8.11	2.93				
17353	71.60	74.60	3.00	0.1	137	292	188	.	148	18	1053	106	30	9.67	4.69				
17354	74.60	77.60	3.00	0.1	98	427	86	.	23	15	78	98	5	7.62	2.82				
17355	77.60	80.60	3.00	0.1	79	196	61	.	22	11	71	146	10	7.04	2.17				
17356	80.60	83.60	3.00	0.1	111	130	44	.	29	17	88	61	10	7.24	1.16				
17357	83.60	86.60	3.00	0.1	112	76	81	.	142	18	366	108	25	7.23	1.57				
17358	86.60	89.60	3.00	0.1	181	136	112	.	78	20	200	58	10	9.15	1.81				
17359	89.60	91.80	2.20	0.1	354	48	331	.	22	22	107	2420	10	10.18	4.34		2.4	0.07	
17360	91.80	94.00	2.20	0.1	97	348	102	.	65	13	284	9	10	5.29	0.04				

Sample	From (m)	To (m)	Length (m)	Ag ppm	As ppm	Ba ppm	Cu ppm	Mo ppm	Pb ppm	Sb ppm	Zn ppm	Au ppb	Hg ppb	Fe %	S %	Aug/t g/t	Auopt oz/t
17361	94.00	96.40	2.40	1.3	96	198	79	.	17	12	61	179	35	9.1	0.94		
17362	96.40	98.80	2.40	0.1	94	203	162	.	15	14	28	115	15	5.13	1.95		
17363	98.80	101.80	3.00	0.1	87	173	204	.	23	13	26	15	5	5.06	0.38		
17364	101.80	103.80	2.00	0.1	97	190	70	.	26	14	39	19	10	5.06	0.35		
17365	103.80	106.80	3.00	0.1	99	259	73	.	24	15	47	194	5	5.55	0.47		
17366	106.80	109.70	2.90	0.1	87	208	170	.	24	12	28	128	15	5.6	1.32		