

Project: FWZ

Hole: NB20-006

Property:	NIDD	Survey Type:	GPS	Logged By:	L.Gibbard	Hole Type:	DDH
Prospect:	Boundary	Survey By:	J.Milton	Date Started:	2020-09-19	Company:	Fireweed Zinc
UTM Grid:	NAD83_09	Date Surveyed:		Date Completed:	2020-09-23	Core Size:	HQ3
UTM East:	422277	Survey Accuracy:	GPS_GLO +/- dm	Drill Company:	NewAge	Casing Status:	Left in hole
UTM North:	7010313	Grid Convergence:	-1.03	Drill Rig:	A5_2	Casing Depth (m):	27
Elev. CGVD28 (m):	1129	Declination:	19.5	Drill Started:	2020-09-17	Reduced (m):	
Hole Status:	Complete	Dip:	-80	Drill Completed:	2020-09-21	Reduced Size:	
Hole Purpose:	EXPL	Length (m):	205	Approved By:		Oriented?:	Oriented
		Comments:				Grouted?:	No

Hole sealed with plugs. Casing to 31.5 m. Rest of hole was massive black carbonaceous mudstone with 1-3 m scale bands of densely stacked dolomitic (+/- pyritic) laminae. Some thin 0.5-1 m scale beds of volcanoclastic rocks (tuffs, lapilli tuffs) were present around 135 m depth. Stratigraphic unit unclear (Steel Formation potentially). In and out of fault zone or fracture zone for much of the hole. Very minor vein hosted sphalerite mineralization observed from 115 m onwards.

Depth (m)	Survey Method	Survey By	Date Surveyed	Dip	TN Azimuth	Mag. Azimuth	Grid Azimuth	Mag. Field	Roll	Accuracy	Confidence	Accept Values?	Comments
0	COLLAR		2020-09-19	-80	213.97	194.47	215					☒	
47	DOWNHOLE		2020-09-18	-80.3	213.7	194.2	214.73	57045				☒	
77	DOWNHOLE		2020-09-19	-80.4	211.7	192.2	212.73	56690	78.6			☒	
107	DOWNHOLE		2020-09-19	-80.6	209.2	189.7	210.23	56759				☒	
167	DOWNHOLE		2020-09-19	-81.5	207.1	187.6	208.13	56687				☒	
197	DOWNHOLE		2020-09-19	-81.3	195.4	175.9	196.43	56541	78.4			☒	

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	ZnEquiv pct	Pb Best pct	Zn Best pct	Cu Best ppm	Ag Best ppm
0.00	31.50	CASE Casing									
Casing to 31.5 m. Rubble in core boxes contains conglomerate clasts at the very top of hole, before transitioning to 100% black mudstone rubble (fault zone).											
31.50	64.00	BMST Black mudstone	32.00	35.00	3.00	3205374					
Variably fractured black carbonaceous mudstone with minor beds of tuff. Very poor recovery in the first 15 m of this interval. Black carbonaceous mudstone rubble is massive to slightly bedded, hard, and relatively cherty. Disseminated radiolaria are found throughout. The intense fracturing at the beginning of this interval could be evidence of a fault zone close to surface. Bedding angles in this interval are generally low to very low, with bedding running parallel to the core axis at times. Bedding alpha angles have a range of 8-36, but are generally closer to 10-20. Some rare quartz (+/- Fe carb) veins and diffuse pyrite veins/bands are present throughout. No mineralization was observed. The interval ends at the beginning of a minor light gray dolomite bearing band of rock.											
<<Min: 53 - 112: 1% Pyrite>> Minor rare pyrite veins. Additional minor pyrite occurs in bedding parallel bands, disseminations, and patches.											
<<Struc: 53.49 - 53.49: Bedding>>											
<<Struc: 55.71 - 55.71: Bedding>>											
<<Struc: 57.69 - 57.69: Bedding>>											
<<Struc: 59.89 - 59.89: Bedding>>											
<<Struc: 61.71 - 61.71: Bedding>>											
			35.00	38.00	3.00	3205375					
			38.00	40.00	2.00	3205376					
			40.00	41.00	1.00	3205377					
			41.00	42.00	1.00	3205378					
			42.00	43.00	1.00	3205379					
			43.00	44.00	1.00	3205381					
			44.00	44.96	0.96	3205383					
			44.96	46.00	1.04	3205384					
			46.00	47.00	1.00	3205385					
			47.00	48.00	1.00	3205386					
			48.00	49.00	1.00	3205387					
			49.00	50.00	1.00	3205388					
			50.00	51.00	1.00	3205389					
			51.00	52.00	1.00	3205390					
			52.00	53.00	1.00	3205391					
			53.00	54.00	1.00	3205392					
			54.00	55.00	1.00	3205393					
			55.00	56.00	1.00	3205394					
			56.00	57.00	1.00	3205395					
			57.00	57.77	0.77	3205396					

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	Zn Equiv pct	Pb Best pct	Zn Best pct	Cu Best ppm	Ag Best ppm
			57.77	59.00	1.23	3205397					
			59.00	60.00	1.00	3205398					
			60.00	61.00	1.00	3205399					
			61.00	62.00	1.00	3205401					
			62.00	63.00	1.00	3205403					
			63.00	64.00	1.00	3205404					
			64.00	65.00	1.00	3205405					
64.00	116.65	BMST Black mudstone									
		Black VF									
Black carbonaceous mudstone with sections of closely stacked white dolomitic laminae. Black mudstone is generally massive to faintly bedded. Some radiolaria are found within the interval. Some isolated sections of mudstone are calcareous and react with 10% HCl, these sections are otherwise indistinguishable from the rest of the unreactive black mudstone in the interval. Several 1-4 m scale dolomite (reacts with 10% HCl when powdered) bearing zones grade gently in and out of the black mudstone, appearing light grey to white from a distance (depending on the density of the stacked white dolomitic laminae). Bedding alpha angles in this interval are generally steeper than in the previous unit on the order of 45-55 degrees. Beta angles show angles of ~ 250-320 (n=3). Foliation within this interval varied, with angles of 30-55 occurring up hole of foliation subparallel to the core axis (alphas of 0-2). Some rare quartz (+/- Fe carb) veins and diffuse pyrite veins/bands are present throughout. No mineralization was observed until the last few meters of the interval, where a single thin red sphalerite bearing quartz vein was found. The interval ends at the beginning of a minor layer of tuff. <<Min: 112 - 140: 1% Pyrite / 0.01% Sphalerite>> Minor rare pyrite veins. Additional minor pyrite occurs in bedding parallel bands, disseminations, and patches. Very minor sphalerite bearing quartz (+/- pyrite veins). <<Struc: 64.69 - 64.69: Bedding>> <<Struc: 67.74 - 67.74: Bedding>> <<Struc: 71.16 - 71.16: Bedding>> <<Struc: 74.92 - 74.92: Bedding>> <<Struc: 81.88 - 81.88: Bedding>> <<Struc: 82.55 - 82.55: Foliation>> High angle to bedding. <<Struc: 82.65 - 82.65: Foliation>> <<Struc: 82.67 - 82.67: Foliation>> <<Struc: 82.71 - 82.71: Bedding>> <<Struc: 90.35 - 90.35: Foliation>> High angle to bedding <<Struc: 90.37 - 90.37: Bedding>> <<Struc: 90.59 - 90.59: Foliation>> <<Struc: 90.9 - 90.9: Foliation>>											
			65.00	66.00	1.00	3205406					
			66.00	67.00	1.00	3205407					
			67.00	68.00	1.00	3205408					
			68.00	69.00	1.00	3205409					
			69.00	70.00	1.00	3205410					
			70.00	71.00	1.00	3205411					
			71.00	72.00	1.00	3205412					
			72.00	73.00	1.00	3205413					
			73.00	75.00	2.00	3205414					
			75.00	76.00	1.00	3205415					
			76.00	77.00	1.00	3205416					
			77.00	78.00	1.00	3205417					
			78.00	79.00	1.00	3205418					
			79.00	80.00	1.00	3205419					

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	ZnEquiv pct	Pb Best pct	Zn Best pct	Cu Best ppm	Ag Best ppm
<<Struc: 91.05 - 91.05: Bedding>>			80.00	81.00	1.00	3205421					
<<Struc: 95.91 - 95.91: Bedding>>			81.00	82.00	1.00	3205423					
<<Struc: 105.81 - 105.81: Foliation>>			82.00	83.00	1.00	3205424					
<<Struc: 111.89 - 111.89: Bedding>>			83.00	84.00	1.00	3205425					
<<Struc: 112.47 - 112.47: Bedding>>			84.00	85.00	1.00	3205426					
			85.00	86.00	1.00	3205427					
			86.00	87.00	1.00	3205428					
			87.00	88.00	1.00	3205429					
			88.00	90.00	2.00	3205430					
			90.00	91.00	1.00	3205431					
			91.00	92.00	1.00	3205432					
			92.00	93.00	1.00	3205433					
			93.00	94.00	1.00	3205434					
			94.00	95.00	1.00	3205435					
			95.00	96.00	1.00	3205436					
			96.00	97.00	1.00	3205437					
			97.00	98.00	1.00	3205438					
			98.00	99.00	1.00	3205439					
			99.00	100.00	1.00	3205441					
			100.00	101.00	1.00	3205443					
			101.00	103.00	2.00	3205444					
			103.00	104.00	1.00	3205445					
			104.00	105.00	1.00	3205446					
			105.00	106.00	1.00	3205447					
			106.00	107.00	1.00	3205448					
			107.00	108.00	1.00	3205449					
			108.00	109.00	1.00	3205450					
			109.00	110.00	1.00	3205451					
			110.00	111.00	1.00	3205452					

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	Zn Equiv pct	Pb Best pct	Zn Best pct	Cu Best ppm	Ag Best ppm
			111.00	112.00	1.00	3205453					
			112.00	113.00	1.00	3205454					
			113.00	114.00	1.00	3205455					
			114.00	116.00	2.00	3205456					
			116.00	116.65	0.65	3205457					
			116.65	117.86	1.21	3205458					
			117.86	119.00	1.14	3205459					
116.65	146.00	BMST Black mudstone									
Black carbonaceous mudstone with minor beds of tuff. Black mudstone is generally massive to faintly bedded. Some radiolaria are found within the interval. A subtle m scale band of mudstone containing thin white laminae of dolomitic material is found within this unit, similar to the more distinct beds of dolomitic material in the interval directly up hole, though less intense. Tuff beds are 10 cm to 1 m scale, light grey, weakly-moderately magnetic, dense, occasionally bedded, and occasionally containing lapilli. The interval is quite rubbly, overlapping with a fracture zone and a fault zone. Bedding angles are consistently moderate to steep, at 45-70 degrees. No distinct foliation was observed in this interval. Some rare quartz (+/- Fe carb) veins and diffuse pyrite veins/bands are present throughout. Minor mm scale red sphalerite bearing veins are found within the interval. A stockwork of thin Fe carb - pyrite - red sphalerite veins is found around 142 m. The interval ends at the beginning of an especially gouge rich interval of faulted rock. <<Min: 140 - 143: 3% Pyrite / 1% Sphalerite / 2% Siderite>> Stockwork of thin Fe carb - pyrite - sphalerite veins. Veins slightly brecciate mudstone at times. <<Min: 143 - 153: 3% Pyrite / 0.01% Sphalerite>> Minor rare pyrite veins. Common bedding parallel pyrite nodules. Additional minor pyrite occurs in continuous bedding parallel bands, disseminations, and patches. Very minor sphalerite bearing quartz (+/- pyrite veins). <<Struc: 116.82 - 116.82: Bedding>> <<Struc: 117.53 - 117.53: Bedding>> <<Struc: 118.63 - 118.63: Bedding>> <<Struc: 121.43 - 121.43: Bedding>> <<Struc: 134.71 - 134.71: Bedding>>											
			119.00	120.00	1.00	3205461					
			120.00	121.00	1.00	3205463					
			121.00	122.00	1.00	3205464					
			122.00	123.00	1.00	3205465					
			123.00	125.00	2.00	3205466					
			125.00	126.50	1.50	3205467					
			126.50	128.00	1.50	3205468					
			128.00	129.00	1.00	3205469					
			129.00	131.00	2.00	3205470					
			131.00	132.00	1.00	3205471					
			132.00	133.00	1.00	3205472					
			133.00	134.00	1.00	3205473					
			134.00	135.50	1.50	3205474					
			135.50	137.00	1.50	3205475					

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	ZnEquiv pct	Pb Best pct	Zn Best pct	Cu Best ppm	Ag Best ppm
			137.00	138.50	1.50	3205476					
			138.50	140.00	1.50	3205477					
			140.00	141.00	1.00	3205478					
			141.00	142.00	1.00	3205479					
			142.00	143.00	1.00	3205481					
			143.00	144.00	1.00	3205483					
			144.00	146.00	2.00	3205484					
			146.00	147.45	1.45	3205485					
146.00	147.45	CATA Cataclasite									
		Black									
		FC									
Interval of significant cohesive gouge, damaged rock, and minor rubble. Fault affected material is generally ground up black mudstone but also contains pyrite plus some quartz and Fe carb vein fragments.											
147.45	205.00	BMST Black mudstone									
		Black									
		VF									
Black carbonaceous mudstone with sections of closely stacked white dolomitic laminae and wispy laminated dolomite. Black mudstone is generally massive to faintly bedded. Some radiolaria are found within the interval. Some isolated sections of mudstone are calcareous and react with 10% HCl, these sections are otherwise indistinguishable from the rest of the unreactive black mudstone in the interval. Two subtle m scale dolomite (reacts with 10% HCl when powdered) bearing zones grade gently in and out of the black mudstone. A fracture/fault zone occurs in this interval between 185 and 199 m. Bedding alpha angles in this interval are generally on the order of 40-60 degrees. A alpha of 24, with a beta of 178 was taken from a wispy dolomitic bed near the end of hole, otherwise no oriented core measurements were able to be taken. No foliation was observed in this interval. Some rare quartz (+/- Fe carb) veins and diffuse pyrite veins and nodular bands are present throughout. Veins appear less planer and more irregular in this interval. No sphalerite mineralization was observed in this interval. The interval ends at the end of hole at 205 m.											
<<Min: 153 - 205: 3% Pyrite>> Minor rare pyrite veins. Common bedding parallel pyrite nodules. Additional minor pyrite occurs in continous bedding parallel bands, disseminations, and patches.											
<<Struc: 156.85 - 156.85: Bedding>>											
<<Struc: 159.31 - 159.31: Bedding>>											
<<Struc: 164.06 - 164.06: Bedding>>											
<<Struc: 167.31 - 167.31: Bedding>>											
<<Struc: 167.62 - 167.62: Bedding>>											
<<Struc: 185.39 - 185.39: Bedding>>											
<<Struc: 199.91 - 199.91: Bedding>> Taken in wispy laminated dolomitic bed.											
			147.45	149.00	1.55	3205486					
			149.00	150.00	1.00	3205487					
			150.00	151.00	1.00	3205488					

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	ZnEquiv pct	Pb Best pct	Zn Best pct	Cu Best ppm	Ag Best ppm
			151.00	152.00	1.00	3205489					
			152.00	153.00	1.00	3205490					
			153.00	154.00	1.00	3205491					
			154.00	155.00	1.00	3205492					
			155.00	156.00	1.00	3205493					
			156.00	157.00	1.00	3205494					
			157.00	158.00	1.00	3205495					
			158.00	159.00	1.00	3205496					
			159.00	160.00	1.00	3205497					
			160.00	161.00	1.00	3205498					
			161.00	162.00	1.00	3205499					
			162.00	163.00	1.00	3205501					
			163.00	164.00	1.00	3205503					
			164.00	165.00	1.00	3205504					
			165.00	166.00	1.00	3205505					
			166.00	167.00	1.00	3205506					
			167.00	168.00	1.00	3205507					
			168.00	169.00	1.00	3205508					
			169.00	170.00	1.00	3205509					
			170.00	171.02	1.02	3205510					
			171.02	172.00	0.98	3205511					
			172.00	173.00	1.00	3205512					
			173.00	174.00	1.00	3205513					
			174.00	175.00	1.00	3205514					
			175.00	176.00	1.00	3205515					
			176.00	177.00	1.00	3205516					
			177.00	178.00	1.00	3205517					
			178.00	179.00	1.00	3205518					
			179.00	180.00	1.00	3205519					

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	ZnEquiv pct	Pb Best pct	Zn Best pct	Cu Best ppm	Ag Best ppm
			180.00	181.00	1.00	3205521					
			181.00	182.00	1.00	3205523					
			182.00	183.00	1.00	3205524					
			183.00	184.00	1.00	3205525					
			184.00	185.00	1.00	3205526					
			185.00	186.07	1.07	3205527					
			186.07	188.00	1.93	3205528					
			188.00	189.00	1.00	3205529					
			189.00	190.00	1.00	3205530					
			190.00	191.00	1.00	3205531					
			191.00	192.00	1.00	3205532					
			192.00	194.00	2.00	3205533					
			194.00	197.00	3.00	3205534					
			197.00	199.00	2.00	3205535					
			199.00	200.00	1.00	3205536					
			200.00	201.00	1.00	3205537					
			201.00	203.00	2.00	3205538					
			203.00	204.00	1.00	3205539					
			204.00	205.00	1.00	3205541					

End of Hole @ 205