GeoSpark: Drill Hole Report

Project: FWZ

Hole: TS18-004

Prospect:	Tom East	**Survey Type:**	DGPS	**Logged By:**	C.Allessandrini	**Hole Type:**	DDH
UTM Grid:	NAD83_09	**Survey By:**	J.Lewis	**Date Started:**	2018-07-11	**Hole Diameter:**	
UTM East:	442254.987	**Date Surveyed:**	2018-08-25	**Date Completed:**	2018-07-25	**Core Size:**	HQ3
UTM North:	7004494.088	**Survey Accuracy:**		**Drill Company:**	New Age	**Casing Pulled?:**	☐
UTM Elevation (m):	1682.921	**Grid Convergence:**	-1.03	**Drill Rig:**		**Casing Depth (m):**	4.5
Local Grid:		**Azimuth:**		**Drill Started:**		**Reduced (m):**	
Local East:		**Dip:**	-65	**Drill Completed:**		**Reduceed Size:**	
Local North:		**Length (m):**	422	**Approved By:**		**Oriented?:**	☐
Local Elevation (m):		**Comments:**				**Geotech?:**	☐
Hole Status:	Completed						
Hole Purpose:							

Depth (m)	Survey Method	Survey By	Date Surveyed	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Mag. Field	Accept Values?	Comments
0	COLL	J.Lewis	2018-08-25	-65	236				☑	
3	GYRO	Ateam	2018-07-25	-68.48	232.62				☑	
6	GYRO	Ateam	2018-07-25	-68.64	232.13				☑	
9	GYRO	Ateam	2018-07-25	-68.69	231.73				☑	
12	GYRO	Ateam	2018-07-25	-68.71	233.96				☑	
15	GYRO	Ateam	2018-07-25	-68.6	231.38				☑	
18	GYRO	Ateam	2018-07-25	-68.47	232.17				☑	
21	GYRO	Ateam	2018-07-25	-68.38	231.5				☑	
24	GYRO	Ateam	2018-07-25	-68.34	231.76				☑	
27	GYRO	Ateam	2018-07-25	-68.37	231.12				☑	

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Depth (m)	Survey Method	Survey By	Date Surveyed	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Mag. Field	Accept Values?	Comments
30	GYRO	Ateam	2018-07-25	-68.36	232.61				☑	
33	GYRO	Ateam	2018-07-25	-68.37	230.3				☑	
36	GYRO	Ateam	2018-07-25	-68.33	231.37				☑	
39	GYRO	Ateam	2018-07-25	-68.26	231.1				☑	
42	GYRO	Ateam	2018-07-25	-68.29	232.78				☑	
45	GYRO	Ateam	2018-07-25	-68.34	233.37				☑	
48	GYRO	Ateam	2018-07-25	-68.37	234.84				☑	
51	GYRO	Ateam	2018-07-25	-68.29	235.16				☑	
54	GYRO	Ateam	2018-07-25	-68.28	234.4				☑	
57	GYRO	Ateam	2018-07-25	-68.3	234.11				☑	
60	GYRO	Ateam	2018-07-25	-68.35	234.53				☑	
63	GYRO	Ateam	2018-07-25	-68.34	234.63				☑	
66	GYRO	Ateam	2018-07-25	-68.35	236.31				☑	
69	GYRO	Ateam	2018-07-25	-68.36	236.56				☑	
72	GYRO	Ateam	2018-07-25	-68.3	234.71				☑	
75	GYRO	Ateam	2018-07-25	-68.25	237.09				☑	
78	GYRO	Ateam	2018-07-25	-68.29	236.38				☑	
81	GYRO	Ateam	2018-07-25	-68.34	235.85				☑	
84	GYRO	Ateam	2018-07-25	-68.43	234.68				☑	
87	GYRO	Ateam	2018-07-25	-68.52	236.96				☑	
90	GYRO	Ateam	2018-07-25	-68.46	236.32				☑	
93	GYRO	Ateam	2018-07-25	-68.47	235.84				☑	
96	GYRO	Ateam	2018-07-25	-68.44	236.5				☑	

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Depth (m)	Survey Method	Survey By	Date Surveyed	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Mag. Field	Accept Values?	Comments
99	GYRO	Ateam	2018-07-25	-68.45	238.34				☑	
102	GYRO	Ateam	2018-07-25	-68.51	237.66				☑	
105	GYRO	Ateam	2018-07-25	-68.58	238.13				☑	
108	GYRO	Ateam	2018-07-25	-68.64	237.73				☑	
111	GYRO	Ateam	2018-07-25	-68.72	238.78				☑	
114	GYRO	Ateam	2018-07-25	-68.71	238.47				☑	
117	GYRO	Ateam	2018-07-25	-68.7	238.92				☑	
120	GYRO	Ateam	2018-07-25	-68.68	239.49				☑	
123	GYRO	Ateam	2018-07-25	-68.69	238.37				☑	
126	GYRO	Ateam	2018-07-25	-68.71	238.14				☑	
129	GYRO	Ateam	2018-07-25	-68.75	240.47				☑	
132	GYRO	Ateam	2018-07-25	-68.77	238.87				☑	
135	GYRO	Ateam	2018-07-25	-68.83	238.65				☑	
138	GYRO	Ateam	2018-07-25	-68.82	239.35				☑	
141	GYRO	Ateam	2018-07-25	-68.81	239.86				☑	
144	GYRO	Ateam	2018-07-25	-68.86	239.3				☑	
147	GYRO	Ateam	2018-07-25	-68.86	239.91				☑	
150	GYRO	Ateam	2018-07-25	-68.86	239.13				☑	
153	GYRO	Ateam	2018-07-25	-68.88	240.35				☑	
156	GYRO	Ateam	2018-07-25	-68.93	239.68				☑	
159	GYRO	Ateam	2018-07-25	-68.98	240.57				☑	
162	GYRO	Ateam	2018-07-25	-69.03	241.35				☑	
165	GYRO	Ateam	2018-07-25	-68.99	240.2				☑	

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Depth (m)	Survey Method	Survey By	Date Surveyed	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Mag. Field	Accept Values?	Comments
168	GYRO	Ateam	2018-07-25	-69.04	238.77				☑	
171	GYRO	Ateam	2018-07-25	-69.04	240.43				☑	
174	GYRO	Ateam	2018-07-25	-69.1	240.55				☑	
177	GYRO	Ateam	2018-07-25	-69.15	242.92				☑	
180	GYRO	Ateam	2018-07-25	-69.16	241.04				☑	
183	GYRO	Ateam	2018-07-25	-69.19	241.51				☑	
186	GYRO	Ateam	2018-07-25	-69.19	242.46				☑	
189	GYRO	Ateam	2018-07-25	-69.21	241.73				☑	
192	GYRO	Ateam	2018-07-25	-69.18	241.4				☑	
195	GYRO	Ateam	2018-07-25	-69.15	243.38				☑	
198	GYRO	Ateam	2018-07-25	-69.16	242.23				☑	
201	GYRO	Ateam	2018-07-25	-69.18	243.82				☑	
204	GYRO	Ateam	2018-07-25	-69.11	242.84				☑	
207	GYRO	Ateam	2018-07-25	-69.1	243.56				☑	
210	GYRO	Ateam	2018-07-25	-69.06	242.06				☑	
213	GYRO	Ateam	2018-07-25	-69.02	242.23				☑	
216	GYRO	Ateam	2018-07-25	-69.06	242.32				☑	
219	GYRO	Ateam	2018-07-25	-69.07	242.52				☑	
222	GYRO	Ateam	2018-07-25	-69.08	243.25				☑	
225	GYRO	Ateam	2018-07-25	-68.94	242.53				☑	
228	GYRO	Ateam	2018-07-25	-68.84	241.18				☑	
231	GYRO	Ateam	2018-07-25	-68.74	242.42				☑	
234	GYRO	Ateam	2018-07-25	-68.74	242.17				☑	

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Depth (m)	Survey Method	Survey By	Date Surveyed	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Mag. Field	Accept Values?	Comments
237	GYRO	Ateam	2018-07-25	-68.68	243.01				☑	
240	GYRO	Ateam	2018-07-25	-68.61	244.97				☑	
243	GYRO	Ateam	2018-07-25	-68.66	244.32				☑	
246	GYRO	Ateam	2018-07-25	-68.78	244.62				☑	
249	GYRO	Ateam	2018-07-25	-68.74	243.44				☑	
252	GYRO	Ateam	2018-07-25	-68.72	243.35				☑	
255	GYRO	Ateam	2018-07-25	-68.68	245.99				☑	
258	GYRO	Ateam	2018-07-25	-68.64	245.27				☑	
261	GYRO	Ateam	2018-07-25	-68.62	243.96				☑	
264	GYRO	Ateam	2018-07-25	-68.67	243.94				☑	
267	GYRO	Ateam	2018-07-25	-68.63	243.46				☑	
270	GYRO	Ateam	2018-07-25	-68.64	244.72				☑	
273	GYRO	Ateam	2018-07-25	-68.61	243.26				☑	
276	GYRO	Ateam	2018-07-25	-68.64	245.08				☑	
279	GYRO	Ateam	2018-07-25	-68.7	244.81				☑	
282	GYRO	Ateam	2018-07-25	-68.67	245.86				☑	
285	GYRO	Ateam	2018-07-25	-68.67	244.14				☑	
288	GYRO	Ateam	2018-07-25	-68.6	244.91				☑	
291	GYRO	Ateam	2018-07-25	-68.52	244.31				☑	
294	GYRO	Ateam	2018-07-25	-68.44	244.49				☑	
297	GYRO	Ateam	2018-07-25	-68.39	244.05				☑	
300	GYRO	Ateam	2018-07-25	-68.41	245.3				☑	
303	GYRO	Ateam	2018-07-25	-68.37	244.4				☑	

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Depth (m)	Survey Method	Survey By	Date Surveyed	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Mag. Field	Accept Values?	Comments
306	GYRO	Ateam	2018-07-25	-68.35	245.48				☑	
309	GYRO	Ateam	2018-07-25	-68.32	244.84				☑	
312	GYRO	Ateam	2018-07-25	-68.26	244.9				☑	
315	GYRO	Ateam	2018-07-25	-68.21	244.37				☑	
318	GYRO	Ateam	2018-07-25	-68.15	245.12				☑	
321	GYRO	Ateam	2018-07-25	-68.2	245.15				☑	
324	GYRO	Ateam	2018-07-25	-68.23	245.52				☑	
327	GYRO	Ateam	2018-07-25	-68.24	245.49				☑	
330	GYRO	Ateam	2018-07-25	-68.27	245.25				☑	
333	GYRO	Ateam	2018-07-25	-68.31	244.59				☑	
336	GYRO	Ateam	2018-07-25	-68.28	243.91				☑	
339	GYRO	Ateam	2018-07-25	-68.29	242.36				☑	
342	GYRO	Ateam	2018-07-25	-68.36	243				☑	
345	GYRO	Ateam	2018-07-25	-68.34	244.96				☑	
348	GYRO	Ateam	2018-07-25	-68.36	245.28				☑	
351	GYRO	Ateam	2018-07-25	-68.3	245.47				☑	
354	GYRO	Ateam	2018-07-25	-68.22	245.79				☑	
357	GYRO	Ateam	2018-07-25	-68.15	244.53				☑	
360	GYRO	Ateam	2018-07-25	-68.06	245.49				☑	
363	GYRO	Ateam	2018-07-25	-68.08	245.78				☑	
366	GYRO	Ateam	2018-07-25	-68	246.87				☑	
369	GYRO	Ateam	2018-07-25	-67.84	245.91				☑	
372	GYRO	Ateam	2018-07-25	-67.8	245.67				☑	

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Depth (m)	Survey Method	Survey By	Date Surveyed	Dip	Measured Azimuth	Correction Factor	Corrected Azimuth	Mag. Field	Accept Values?	Comments
375	GYRO	Ateam	2018-07-25	-67.74	246.02				☑	
378	GYRO	Ateam	2018-07-25	-67.68	245.76				☑	
381	GYRO	Ateam	2018-07-25	-67.64	246.6				☑	
384	GYRO	Ateam	2018-07-25	-67.57	246.46				☑	
387	GYRO	Ateam	2018-07-25	-67.49	246.27				☑	
390	GYRO	Ateam	2018-07-25	-67.43	247.32				☑	
393	GYRO	Ateam	2018-07-25	-67.4	246.19				☑	
396	GYRO	Ateam	2018-07-25	-67.39	247.03				☑	
399	GYRO	Ateam	2018-07-25	-67.37	247.04				☑	
402	GYRO	Ateam	2018-07-25	-67.36	246.17				☑	
405	GYRO	Ateam	2018-07-25	-67.38	247.06				☑	
408	GYRO	Ateam	2018-07-25	-67.34	246.81				☑	
411	GYRO	Ateam	2018-07-25	-67.36	247.33				☑	

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	Au Best ppm	Ag Best ppm	Cu Best ppm	Pb Best ppm	Zn Best ppm
0.00	**58.92**	**CONG Conglomerate** Grey matrix-supported rubbly conglomerate with large sandstone clasts or beds. Matrix is silty/sandy, with grit-pebble angular-rounded unsorted polymictic grey/black chert and lesser black mudstone fragments. Large clasts or intervals (?) of sandstone up to meter-scale display thin bedding; orientation is variable but generally low angle to core axis. Unit is very fractured/rubbly near surface, with powdery light green weathering mineral changing to rusty orange downhole on some broken surfaces. <0.5% mm-cm-scale quartz veins cut both conglomerate and sandstone at random angles. Graded bedding developed from ~31-36m fining uphole (right way up). Interval ends at fault zone, with last few meters showing weathered orange ankerite alteration of matrix in conglomerate. <<Alt: 56.37 - 58.92: Moderate Fe Carbonate>> Fe carb has replaced matrix of chert pebble conglomerate in the hanging wall of a fault zone..rusty orange and pitted <<Struc: 32.75 - 32.75: not recorded>> At least three distinct graded bedding events fining uphole from 31.5 to ~ 36m									
58.92	**67.33**	**CONG Conglomerate** Rubbly/highly fractured chert pebble conglomerate with variably-oriented cm-scale barren quartz veins. Minor gouge on fracture surfaces, predominately following long fracture running parallel to core axis. Gouge is rusty orange, suspect Fe carb (ankorite or siderite?). Matrix of conglomerate is pitteed/rotten throughout.									
67.33	**123.95**	**CONG Conglomerate** Grey clast-supported rubbly conglomerate with large sandstone clasts or beds. Matrix is silty/sandy, with grit-pebble angular-rounded poorly sorted polymictic grey/black chert and lesser black angular mudstone fragments. Bedding orientation not obvious or very weakly developed. Sandstone interbeds less prevalent than above fracture zone. <0.1% mm-cm-scale quartz veins cut both conglomerate and sandstone at random angles. Graded bedding is difficult to discern, with no certain indicator of direction due to poorly sorted nature. Weak-moderate patchy- Fe carb replacement of matrix from ~ 92m downhole. Small black drill chatter marks visible in chert pebbles on drill core surface. <<Alt: 92 - 101: Weak Fe Carbonate>> Fe carb has selectively replaced matrix of chert pebble conglomerate. Patchy and erratic. <<Struc: 67.95 - 67.95: vein>> Barren quartz vein in sandstone-rich conglomerate <<Struc: 109.9 - 109.9: shear>>									
123.95	**134.00**	**CONG Conglomerate** Altered polymictic clast-supported chert pebble/mudstone conglomerate. Grey-white-black grit to pebble subangular to rounded chert clasts dominate, with minor subangular to rounded black siliceous mudstone. Matrix has been completely replaced with light beige powdery soft mineral (ankerite?), with up to 5-7% pervasive fine grained to medium grained euhedral pyrite. A 15 cm monomictic clast-supported hydrothermal breccia occurs at 130.88. The matrix is milky white quartz, with strongly silicified milky grey rounded clasts of unknown protolith. 1% mm-cm scale milky white quartz veins generally at low angles to core axis. Interval is overall pitted/"rotton" in appearence, thought to be action of drill bit on very soft matrix material. <<Alt: 123.95 - 134: Strong Fe Carbonate>> Strong Fe carb-pyrite matrix replacement									

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	Au Best ppm	Ag Best ppm	Cu Best ppm	Pb Best ppm	Zn Best ppm
134.00	**148.85**	**CONG Conglomerate** Typical chert pebble conglomerate as described from 67.33-123.95 with dm-scale sandstone interbeds associated with cm-scale shearing fabric. Shearing is defined by hairline-mm-scale wavy graphitic laminae +/- pyrite with quartz veining at low angles to core axis. Singluar stylolite @ ~50 ° to core axis at 147 m ...unoriented drill run. Weak patchy beige-tan powdery ankerite alteration of matrix in conglomerate. <<Struc: 138.08 - 138.08: shear>>									
148.85	**170.90**	**CONG Conglomerate** Broken and rubbly weakly altered typical chert pebble conglomerate. Weak fabric is developed in small sections with alpha angles ~40°. Interval is strongly fractured, with cm-scale sections of gritty gouge, <1% mm-scale chaotic quartz veining, and grey-tan-beige powdery coated joints. Weak patchy but pervasive beige-tan ankerite alteration of matrix in conglomerate over m-scale intervals. Interval terminates in fault gouge with abrupt lithological change. <<Alt: 161 - 163.35: Moderate Fe Carbonate>> Weak-moderate pervasive alteration of conglomerate matrix to Fe-carb, assumed ankerite due to slight effervescence of powdered mineral. <<Alt: 166.34 - 168.89: Moderate Fe Carbonate>> Weak-moderate pervasive alteration of conglomerate matrix to Fe-carb, assumed ankerite due to slight effervescence of powdered mineral. <<Struc: 160.94 - 160.94: bedding>> Best guess is bedding…regular thin veinlets of soft white mineral on edge of rubble zone <<Struc: 168 - 168: foliation>> Regular deformity continuous through chert pebbles and matrix as hairline cracks. <<Struc: 169.38 - 169.38: foliation>> Regular deformity continuous through chert pebbles and matrix as hairline cracks.									
170.90	**217.34**	**MDST Mudstone** "Pinstriped" dark grey very fine well bedded mudstone with parallel silty/sandy/chert grit-pebble conglomerate interbeds. Beds range from mm-dm scale @ 5-44° to core axis, gently steepening and shallowing throughtout interval, with much rubble and breakage. Way up indicators are not apparent, although flame structures exists on portions of unoriented core. Soft sediment deformation, in the form of disrupted bedding and gentle open microfolds, exists throughout interval. Upper contact against overlying conglomerate is weakly silicified downhole for 5m, evidenced by signifcant hardness versus subsequent rock. <1% mm-cm scale milky white-beige quartz ankerite veins follow bedding planes up to ~190m, after which veins decrease in size and become erratic, generally cross cutting bedding planes. Minor cm-scale gritty to clay-rich gouge present at numerous points throughout interval, as are rubble zones, healed faults, minor vein breccias and possible shearing, described under "Structure Events" tab. <0.5% pyrite within silty-sandy laminae and beds as fine grained-coarse grained sub-euhedral crystals following bedding plane. <0.1% pyrite as very fine grained dull brassy laminae. <0.1% pyrite in veins. Interval ends in 6m rubble zone. <<Alt: 170.9 - 176: Weak Quartz>> Weak pervasive silicification of pinstripe mudstone unit near contact with overlying conglomerate. <<Struc: 179.58 - 179.58: bedding>> <<Struc: 184.65 - 184.65: bedding>>									

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	Au Best ppm	Ag Best ppm	Cu Best ppm	Pb Best ppm	Zn Best ppm
		<<Struc: 192.16 - 192.16: foliation>>									
		<<Struc: 193.13 - 193.13: bedding>>									
		<<Struc: 203.49 - 203.49: bedding>>									
		<<Struc: 209.81 - 209.81: bedding>>									
		<<Struc: 212.51 - 212.51: bedding>> Competent sandstone unit in rubble zone									
217.34	**219.15**	**CONG Conglomerate**									
		White-grey polymictic chert grit-pebble clast-hosted conglomerate. White-grey subangular-rounded chert grit to pebbles dominate, with <10% angular -rounded mm-cm scale siliceous mudstone hosted in silica-sandy matrix. Microfractures and veinlets cut both matrix and clasts at erratic angles. Matrix is altered in patches by beige-tan powdery ankerite (weakly effervescent). Where altered, rock is weathered/pitted (drill action??) and porous (absorbs water like a sponge and dries out very slowly). Minor (<1%) medium-grained euhedral brassy pyrite associated with beige alteration patches and within some mudstone fragments.									
		<<Alt: 217.34 - 219.15: Weak Fe Carbonate>> Weak patchy fe-carb alteration of silica matrix in conglomerate unit.									
219.15	**248.00**	**MDST Mudstone**									
		"Pinstriped" grey-dark grey very fine mudstone with regular light grey silty-sandy laminae/thin beds. <5% dm-scale interbeds of white-grey chert grit-pebble conglomerate with minor angular-rounded black mudstone fragments. Bedding planes are near parallel to core axis, gently shallowing and steepening over interval. Coarser grained sandy beds are variably beige Fe-carb altered, and can contain up to 10% fine grained-coarse grained euhedral pyrite roughly aligned with bedding. <0.5% mm-scale milky-white-beige quartz-ankerite veins (weakly effervescent) roughly parallel bedding in places.									
		<<Struc: 220.75 - 220.75: bedding>>									
		<<Struc: 222.75 - 222.75: bedding>>									
		<<Struc: 224.89 - 224.89: bedding>>									
		<<Struc: 229 - 229: bedding>>									
		<<Struc: 232.48 - 232.48: bedding>>									
		<<Struc: 238.23 - 238.23: bedding>>									
		<<Struc: 244.49 - 244.49: bedding>>									

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From (m)	To (m)	Rock Type & Description
248.00	**261.60**	**MDST Mudstone**
		Typical pinstriped mudstone as seen in previous interval within structurally-disrupted zone containing up to 30% dm-m scale sections of dark grey-black diamictite. Where unbroken, dark grey pinstriped mudstone contains light grey silty-sandy beds aligned roughly parallel to core axis. Diamictite sections are dark grey-black, having muddy matrix-supported angular to rounded mm-cm scale clasts of pinstriped mudstone and rotated/fractured silty-sandy beds; patchy Fe-carb alteration is apparent in some coarser grained clasts. Gouge and broken rubble generally define lithofacies change through interval. <1% fine grained-coarse grained sub-euhedral pyrite, contained in altered clasts, rare cm-scale nodules and in variably deformed sandy beds. <1% mm-cm scale erratic milky white quartz veins in more faulted sections, rarely comprising cement in healed cm-scale faults or breccias.
		<<Struc: 250.12 - 250.12: bedding>>
		<<Struc: 256.55 - 256.55: bedding>>
261.60	**277.62**	**MDST Mudstone**
		Pinstriped grey-dark grey very fine mudstone with light grey-grey silty to sandy laminae/thin beds. Bedding planes are near parallel to axis, and laminae/beds pinch and swell along core surface, with minor folding and deformation. Thickness of sandy-silty beds increases going downhole. M-scale fault zone has resulted in broken and rubbly core leading to end of interval. Sinistral mm-scale offset observed in microfaulting at 263.60. Sandy interbeds contain up to 10% medium-coarse grained sub-euhedral pyrite aligned along bedding plane. <1% quartz-ankerite mm-scale veinlets roughly follow bedding planes.
		<<Struc: 263.62 - 263.62: bedding>>
		<<Struc: 266.05 - 266.05: bedding>> beta is best guess, alpha angle very low
277.62	**299.16**	**CONG Conglomerate**
		Light grey-grey chert pebble clast-supported conglomerate. Subangular-rounded white and grey chert grit to pebbles in a silica-sand matrix, with rare (<1%) siliceous mm-cm scale black angular-rounded mudstone clasts. Cm-scale vuggy white quartz veins throughout in two sets, one at ~25° to core axis, the other at 65°. 1% pyrite, mostly as medium grained to coarse grained euhedral crystals in veins.
299.16	**312.15**	**DIAM Diamictite**
		Grey-dark grey polymictic matrix-supported muddy diamictite. Clasts are angular-rounded, variable in size, and comprised of grey/white chert, black mudstone, beige ash tuff (?), and remnant silty/sandy beds as seen in above pinstripe unit; chert pebbles are absent in diamictite from 297.12 downhole. Matrix is very fine grained black mud. Interval is structurally complex, showing soft sediment deformation, sinistral microfaulting, alignment (bedding?) of some clasts and instances of cm-scale chaotic quartz-ankerite veining. Within last meter of interval, silty/sandy clasts have been partially to fully replaced with fine grained-medium grained pyrite and quartz. 1-2% pyrite as fine-grained to coarse grained (up to 5mm) crystals in veins, remnant sandy beds, and disseminations near bottom of interval.

From (m)	To (m)	Length	Sample #	Au Best ppm	Ag Best ppm	Cu Best ppm	Pb Best ppm	Zn Best ppm
303.10	304.60	1.50	3207049	0.012	1.1	197.3	50	50
304.60	306.10	1.50	3207050	0.012	3	101.4	900	50
306.10	307.60	1.50	3207051	0.009	5.5	144.2	2000	50
307.60	309.10	1.50	3207052	0.008	4	134.4	1700	50

Hole: TS18-004

From (m)	To (m)	Rock Type & Description
312.15	323.27	**LSGB** **Laminated: sphalerite-galena-barite>mudstone-chert** Mm-cm scale laminae/bands of sphalerite and galena, with lesser barite and pyrite, interbedded amongst dark-grey to black very fine hard siliceous mudstone. Laminae/beds are parallel or at low angles to core axis, rarely exceeding 25°, and exhibit open folding in sulphide-rich sections; silice5ous mudstone beds are fractured or microfaulted, with mm tension gashes infilled by sulphide or quartz. Very fine grained-medium grained anhedral pink/red/brown sphalerite is contained predominately in laminae and beds, with minor brown amorphous disseminations in more massive sections of black mudstone. <1% of sphalerite occurs in mm-scale quartz veinlets as red medium-grained anhedral crystals. Very fine grained-medium grained sub-euhedral silver-blue galena occurs as parallel laminae and beds (generally associated with sphalerite), as fine interstitial grains within some sphalerite bands, as small clots and masses in silica-rich sections, and as minor vein mineral. Barite presents as very fine grained dull white-grey laminae/bedding, mm wisps aligned normal within sulphide-rich bedding, and masses within higher-grade galena and pyrite sections. <<Min: 312.15 - 323.27: >> See Lithology tab <<Struc: 312.6 - 312.6: bedding>> <<Struc: 319.95 - 319.95: bedding>> <<Struc: 322.9 - 322.9: bedding>>

From (m)	To (m)	Length	Sample #	Au Best ppm	Ag Best ppm	Cu Best ppm	Pb Best ppm	Zn Best ppm
309.10	310.60	1.50	3207053	0.01	6.8	470.9	3100	50
310.60	312.15	1.55	3207054	0.011	12.2	149.5	5800	3500
312.15	313.00	0.85	3207055	0.055	91.2	453.6	40000	244000
313.00	314.00	1.00	3207056	0.047	97.3	93.6	44100	159800
314.00	315.00	1.00	3207058	0.039	158.4	363.6	79900	147800
315.00	316.00	1.00	3207059	0.04	219.5	278	117900	208000
316.00	317.00	1.00	3207060	0.027	158.2	212.7	75000	263000
317.00	318.00	1.00	3207061	0.023	216.5	95.7	113300	147800
318.00	319.00	1.00	3207062	0.033	50.9	349.5	17700	153400
319.00	320.00	1.00	3207063	0.042	401	161.4	246000	369000
320.00	321.10	1.10	3207064	0.042	400.9	128.3	235000	386000
321.10	322.00	0.90	3207066	0.035	106.8	149.7	50000	307000
322.00	323.37	1.37	3207068	0.04	166.9	110.4	92300	197600

Hole: TS18-004

From (m)	To (m)	Rock Type & Description
323.27	325.21	**SMSX Semi-massive sulphide** Semi-massive weakly bedded sulphides and barite with thin muddy/graphitic laminae and larger disrupted muddy sections. Bedding is weakly apparent within interval, ranging between 15-25° to core axis, and is often obscured in sections of massive galena/sphalerite. Where apparent, sulphide beds and muddy laminae are wavy/undulating, displaying instances of open to tight microfolding with fold axis roughly paralleling bedding planes. Mudstone component resembles diamictite, with pyrite-silica (hard white mineral)- replaced clasts rotated and aligned roughly in bedding planes amongst disrupted sulphides; trace pyrhottite in muddy sections evidenced by weak patchy magnetism. Very fine grained to fine grained tan-pink-brown sphalerite is contained in disrupted beds and masses throughout interval, often heavily pockmarked/pitted as seen in previous interval. <1% of sphalerite is anhedral and dark red, contained only in mm-scale quartz-pyrite veinlets. Fine grained to medium grained sub-euhedral silver-blue galena is in cm-scale beds, cm-scale masses associated with white wispy (assumed) white-grey barite, and as mm-cm scale clots/laminae within muddy facies.. Galena has mm-cm scale broken/brecciated sphalerite beds as rotated angular-subangular clasts in more massive sections, as well as mm-scale angular fragments of black siliceous mudstone. Pyrite, as in previous interval, is medium grained to coarse grained and abundant, but 85-90% confined to muddy sections within altered clasts and disseminations. <2% quartz-pyrite veinlets meander through and along visible bedding planes and bordering more massive sections of galena. Trace chalcopyrite on some broken surfaces in pyrite-rich sections. Estimate 15-20% galena, concentrated in sections. Estimate ~12% sphalerite. <<Min: 323.27 - 325.21: >> See Lithology tab <<Struc: 324.26 - 324.26: bedding>>
325.21	326.74	**MXSX Massive Sulphide** Massive galena, sphalerite and pyrite, with minor barite. Trace remnant bedding is apparent, gently undulating and trending roughly 13° to core axis. Dm-scale siliceous dark grey-black pitted mudstone is interbedded within sulphides, showing microfractures and elongation on core surface roughly paralleling apparent bedding plane. Light brown/red brown very fine grained to fine grained sphalerite occurs in disrupted laminae/beds within pyrite-rich sections and as folded beds/crackle-brecciated mm-scale clasts in massive galena. Galena is fine-medium grained and generally massive or in weakly apparent cm-scale beds, occurring with mm-scale beds/clots of dull white moderately hard mineral (assumed barite). Galena surrounds and penetrates S-folded mm-cm scale sphalerite beds at 325.90, appearing as interstitial grains or minute crackle-breccia matrix. Estimate 7-10% sphalerite (hard to distinguish from very fine pyrite in massive sections) and 45% galena <<Min: 325.21 - 326.74: >> See Lithology tab <<Struc: 326.28 - 326.28: bedding>>

From (m)	To (m)	Length	Sample #	Au Best ppm	Ag Best ppm	Cu Best ppm	Pb Best ppm	Zn Best ppm
323.37	324.26	0.89	3207069	0.053	451.4	237.5	248000	153000
324.26	325.21	0.95	3207070	0.099	242.8	461	106800	180700
325.21	326.15	0.94	3207071	0.092	272.8	1086.7	142100	199200
326.15	326.94	0.79	3207072	0.056	518.7	83.2	381000	142000

Hole: TS18-004

From (m)	To (m)		Rock Type & Description
326.74	**328.56**	**SMSX**	**Semi-massive sulphide**

Semi-massive laminae to thinly bedded sphalerite, galena, barite and siliceous black mudstone. Bedding is at low angles to core axis, not exceeding 22° over interval, and ranges from parallel planes to complexly folded. Major fold axes trend parallel to bedding, with structurally complex sections exhibiting a second set of peaks and troughs offset from obvious core surface folding. These peaks and troughs are defined by closed ovals in regular periods within obvious tight folds. Mudstone beds are internally fractured, exhibiting mm-scale tension gashes infilled with milky white quartz and minor dull brassy pyrite. Sphalerite is very fine grained red-brown, changing to light brown-tan by end of interval. Red-brown sphalerite is contained in deformed and disrupted laminae/beds, with interstitial growths of mm-scale dull white wispy barite. Transition to light brown-tan sphalerite occurs around 327.75, still in laminae/beds but now with interstitial fine grained galena and pockmarked "honeycomb" lattice texture as seen in previous intervals. Fine grained to medium grained subhedral-euhedral silver blue galena forms in cm-scale beds/masses and within tan sphalerite laminae/beds. Larger beds of galena contain rotated angular mm-scale fragments of siliceous black mudstone roughly aligned with bedding planes. Barite is dull white and generally associated with galena beds or in cm-scale near massive sections containing distinct laminae. Witherite (effervescent white-grey mineral amongst galena and pyrite) present in minor amounts. Less pyrite than in previous intervals, mostly occurring in quartz veins as fine grained-coarse grained brassy anhedral-euhedral crystals and masses. Estimate 9-10% sphalerite and 15-17% galena.

<<Min: 326.74 - 328.56: >> See Lithology tab

<<Alt: 328 - 340: Moderate Quartz>> Silica rimmed pyrite replacement of silty-sandy clasts in diamictite contacting mineralized horizon

From (m)	To (m)	Length	Sample #	Au Best ppm	Ag Best ppm	Cu Best ppm	Pb Best ppm	Zn Best ppm
326.94	327.70	0.76	3207073	0.094	566.5	108.9	331000	178000
327.70	328.56	0.86	3207074	0.139	127.9	549.4	60400	121300

From (m)	To (m)		Rock Type & Description
328.56	**361.40**	**DIAM**	**Diamictite**

<<Struc: 332.4 - 332.4: bedding>>

<<Struc: 350.4 - 350.4: bedding>>

From (m)	To (m)	Length	Sample #	Au Best ppm	Ag Best ppm	Cu Best ppm	Pb Best ppm	Zn Best ppm
328.56	330.00	1.44	3207075	0.038	8	41.8	3000	50
330.00	331.50	1.50	3207076	0.04	32.8	57.4	18800	50
331.50	333.00	1.50	3207077	0.023	15	55.5	7900	50
333.00	334.50	1.50	3207078	0.024	5.3	64	2600	50
334.50	336.00	1.50	3207080	0.029	3.5	51.6	1500	700
336.00	337.50	1.50	3207081	0.033	3.2	39.9	1300	300

From (m)	To (m)		Rock Type & Description
361.40	**422.00**	**MDST**	**Mudstone**

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From (m)	To (m)	Rock Type & Description	From (m)	To (m)	Length	Sample #	Au Best ppm	Ag Best ppm	Cu Best ppm	Pb Best ppm	Zn Best ppm

End of Hole @ 422