

SYLVESTER GRID

SURFACE DIAMOND DRILLHOLE : SY011

OBJECT IDEN : SYLVESTER START DATE : 18 OCT 91 COMPLETION DATE : 29 OCT 91 LOGGED BY: DAVID JOHN CROSSING
 COLLAR NORTHING: 60534.00 COLLAR EASTING : 58616.00 COLLAR ELEVATION: 300.82 GRID AZIMUTH : 0.00
 DRILLED BY : LONGYEAR TOTAL LENGTH : 218.00 CORE/HOLE SIZE : HQNQ

SURVEY FLAG	SURVEY POINT LOCATION	FORESIGHT	AZIMUTH (DEGREES)	VERTICAL ANGLE (DEGREES)	NORTHING	EASTING	ELEVATION
	0.00		180.00	-55.00	60534.00	58616.00	300.82
	68.00		180.00	-54.50			
	100.00		182.00	-53.00			
	127.00		178.00	-53.20			
	160.00		177.50	-54.00			
	193.00		179.00	-54.00			

ED This hole was drilled from the comstock tramway north of the
 ED old Britannia mine. It was sited to test for base metal
 ED mineralisation in the footwall of the Balstrup fault beneath a
 ED large c-horizon soil geochemical anomaly. The area is
 ED interpreted to have potential for base metal replacement
 ED deposits hosted by upper Onah carbonates. The distal
 ED equivalent of the mineralisation encountered by SY005.

ED The hole traversed Crimson creek turbidites and gabbroic
 ED intrusives to 104.9m where a broad melange zone was entered and
 ED traversed to 122.1m. A number of shear zones in the melange
 ED probably represent the Balstrup fault (eg 104.9 - 108m) in the
 ED immediate footwall of the melange. upper Onah psammo-pelites
 ED host a stockwork of quartz-pyrite and carbonate-pyrite-
 ED sphalerite veins in a zone of incipient brecciation. The
 ED remainder of the hole encountered psammo-pelites and calcareous
 ED siltstones and conglomerates which were relatively unaltered.

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SYLVESTER GRID
SURFACE DIAMOND DRILLHOLE : SY011 (CONTINUED)

Interval From (m) To (m)	Rec. (m)	ROD (m)	Description	Unit
0.00	27.00		PRECOLLAR.	
27.00	65.80		LITHIC ARENITE: grey-green, slightly weathered, medium bedded, coarse bedded, graded bedding, fine sand, closed structure, bedding: ca 50, uphole facing, microfault: ca 45, firm, highly broken core, 0.3% disseminations of chlorite, 1% disseminations = veins of pyrite.	CAMBRIAN CRIMSON CK FOR
27.00	65.80		Lithic-arenite varies from fine to occasionally coarse grained, consisting of sub-rounded labile lithic fragments which appear to be composed principally of decomposed feldspars. Quartz is rare. Transected by micro-faults. NB: Due to extremely broken condition of core, recoveries could not be accurately determined, but appear to be close to 100%.	
27.00	65.80		27.00 65.80 50% MUDSTONE: light grey, irregularly interbedded, medium bedded, microfaults, 1% disseminations = veins of pyrite.	
35.00	35.40		100% CLAY: medium grey.	
38.20	46.00		40% LITHIC ARENITE: grey-green, slightly weathered, disrupted bedding, vuggy, brecciated, sheared, fine sand, closed structure, bedding: ca 50, uphole facing, microfault: ca 45, firm, highly broken core, 3 % veins of quartz, 0.3% disseminations of chlorite, 1% disseminations = veins of pyrite.	CAMBRIAN CRIMSON CK FOR
65.80	72.60		GABBRO: grey-green, slightly weathered, massive, coarse grained, decussate, basal contact: ca 05, intrusive contacts, firm, highly broken core, 3 % disseminations of chlorite.	CAMBRIAN CRIMSON CK FOR
72.60	79.20		MUDSTONE: grey-green, medium bedded, bedding: ca 55, microfault: ca 35, firm, highly broken core.	CAMBRIAN CRIMSON CK FOR
72.60	79.20		40% LITHIC ARENITE: grey-green, irregularly interbedded, medium bedded.	
72.60	77.00		100% MUDSTONE: grey-green, medium bedded, disrupted bedding, bedding: ca 55, microfault: ca 35, firm, highly broken core, 0.3% disseminations of pyrite.	CAMBRIAN CRIMSON CK FOR
79.20	84.30		GABBRO: grey-green, massive, medium grained, equigranular, spotted, basal contact: ca 35, intrusive contacts, 3 % disseminations of chlorite.	
79.20	84.30		Spotting is possibly due to xenoliths stoped from country rocks.	
79.20	84.30			
84.30	86.40		MUDSTONE: light grey, medium bedded, slightly folded, microfaults, bedding: ca 60, microfault: ca 35, hard, highly	CAMBRIAN CRIMSON CK FOR

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Interval From (m) To (m)	Rec. (m)	RQD (m)	Description	Unit
			broken core. 0.3% veins of pyrite.	
86.40	89.80		GABBRO: fine grained, massive, equigranular, basal contact: ca 20, hard, moderately broken core.	
89.80	104.90		MUDSTONE: grey-black, medium bedded, microfaults, microfault: ca 25, hard, moderately broken core. 89.80 104.90 30% LITHIC ARENITE: grey-green, irregularly interbedded, medium bedded, graded bedding, uphole facing, diffuse base. 100.80 104.89 100% MUDSTONE: grey-black, slightly altered, medium bedded, microfaults, microfault: ca 05, fibre: ca 65, hard, moderately broken core. 3 % veins of carbonate.	
101.99	102.00		There are three sets of micro-faults with well developed fibres.	
101.99	102.00		101.99 102.00 100% MUDSTONE: microfault: ca 20, fibre: ca 55. 101.99 102.00 100% MUDSTONE: microfault: ca 30, fibre: ca 30.	
104.90	108.00		SHEAR (ZONE): shear: ca gradational base, 45, firm, highly broken core, 1% patches of quartz, 10% disseminations = veins of carbonate. 3 % patches of pyrite.	
104.90	108.00		The contacts of the fault are gradational, passing downward from increasingly sheared Crimson creek turbidites into a puggy shear with a calcareous brecciated core. Toward the base it grades into non-calcareous melange.	
104.90	108.00			
104.90	108.00			
104.90	108.00			
108.00	122.10		MELANGE: dark grey, moderately carbonated, massive, sheared, shear: ca 45, firm, highly broken core, 10% disseminations = veins of quartz, 1% disseminations of pyrite.	UPPER OONAH
108.00	122.10		Typical Oonah melange consisting of sub-angular to lenticular boudins mostly composed of sandstone or quartz in a carbonaceous matrix. The matrix usually displays a well developed tectonic fabric with orientation varying from 30 - 50 degrees to core axis. Lenticular boudins are aligned with this fabric, which wraps around them. Numerous graphitised slickensided fault surfaces occur sub-parallel to this fabric, and some boudins are truncated by them, suggesting displacement post-dating melange formation, quartz boudins are formed by boudinaging of early formed veins. The zone exhibits a complex history of deformation, with overprinting of early fabric by later (?Devonian) tectonic fabric, the latter decreasing in intensity toward base of interval.	
108.00	122.10			
108.00	122.10			
108.00	122.10			
108.00	122.10			
108.00	122.10			
108.00	122.10			
108.00	122.10			
108.00	122.10			
108.00	122.10			
108.00	122.10			
122.10	122.50		FAULT: clayey, puggy, soft, exceptionally broken core, 3 %	

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 SURFACE DIAMOND DRILLHOLE : SY011 (CONTINUED)

Interval From (m) To (m)	Rec. (m)	ROD (m)	Description	Unit
			disseminations of pyrite.	
122.50	124.90		MUDSTONE: pale grey, medium bedded, lensoid-banded, firm, highly broken core.	UPPER OONAH
122.50	124.90		Resembles Crimson creek mudstones.	
124.90	127.60		SILTSTONE: dark grey, medium bedded, indistinctly bedded, disrupted bedding, firm, moderately broken core, 3 % veins of carbonate, 3 % disseminations > veins of pyrite.	
			126.60 127.30 100% SILTSTONE: dark grey, medium bedded, indistinctly bedded, disrupted bedding, brecciated, firm, moderately broken core, 5% veins of carbonate, 3 % disseminations > veins of pyrite, 3 % breccia fillings of carbonates.	
			127.30 127.60 100% VEIN: 30% veins of carbonate, 3 % disseminations of chlorite, 10% disseminations of pyrite, 1% disseminations of sphalerite, 30% veins of barite.	
127.60	131.10		SHEAR (ZONE): very dark grey, carbonated, sheared, brecciated, slickensided, basal contact: ca 30. shear: ca 05, crumbly, highly broken core, 5% disseminations = veins of siderite, 3 % disseminations = veins of pyrite.	
131.10	133.60		DOLOMITE: light grey, massive, stylolitic, hard, moderately broken core, 10% veins of carbonate, 1% disseminations = veins of pyrite.	
			131.10 131.40 100% MASSIVE SULPHIDES: 70% interstitial quartz, 20% disseminations of pyrite, 3 % disseminations of galena, 3 % disseminations of sphalerite.	
133.60	145.10		MELANGE: grey-black, slightly carbonaceous, massive, brecciated, basal contact: ca 20, firm, highly broken core, 0.3% disseminations = veins of pyrite.	UPPER OONAH
			135.80 137.10 100% SILTSTONE: dark grey, fine bedded, moderately folded, fissile.	
			137.10 138.30 100% SANDSTONE: medium grey, massive, medium grained.	
141.50	145.09		Below 141.5m the melange is highly strained and strongly graphitised, fine quartz veins have been tightly folded into contorted discordant folds. Several slickensided fault surfaces cut these earlier structures at 0-40 degrees to core axis.	
141.50	145.09		Pyritic veins are also folded. Sheared at 0-50 degrees to core axis.	
141.50	145.09		141.50 145.09 100% MELANGE: grey-black, highly graphitic,	UPPER OONAH

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 SYLVESTER GRID
 SURFACE DIAMOND DRILLHOLE : SY011 (CONTINUED)

Interval From (m) To (m)	Rec. (m)	RQD (m)	Description	Unit
			moderately calcareous, massive, sheared, very strongly folded. shear: ca 40, fault: ca 05, firm, highly broken core, 5% veins of quartz, 10% disseminations = veins of carbonate, 3 % disseminations = veins of pyrite, 0.1% disseminations of sphalerite.	
145.10	147.00		SEMI-MASSIVE SULPHIDES: yellow-white, basal contact: ca sharp irregular base, 50, hard, slightly broken core, 80% massive/ semi - massive quartz, 1% disseminations of carbonate, 3 % veins of siderite, 1% interstitial chlorite, 10% stockwork of pyrite, 0.3% disseminations of galena, 1% disseminations of sphalerite.	
145.10	147.00		Possibly a vein, with contacts concordant to bedding.	
147.00	157.50		SANDSTONE: light grey, moderately altered, medium bedded, fine bedded, disrupted bedding, brecciated, gradational base, hard, moderately broken core, 10% disseminations (veins of quartz, 1% disseminations = veins of carbonate, 1% veins of chlorite, 10% disseminations = veins of pyrite, 1% disseminations (veins of galena, 3 % disseminations (veins of sphalerite.	UPPER OONAH
147.00	157.50		An incipient breccia with stockwork veining and pervasive quartz-pyrite alteration associated with stockwork veins.	
147.00	157.50		Intensity of alteration is proportional to intensity of veins.	
147.00	157.50		Near top of intervals veins are dominantly quartz-pyrite (sphalerite-galena) identical to the interval 145.1 - 147m.	
147.00	157.50		These veins become progressively more carbonate and base metal rich downwards becoming carbonate-pyrite-sphalerite (galena-quartz) veins below about 152m. Near the top the veins are dominantly concordant, lenticular/boudinaged, passing downward into a stockwork of irregular veins related to incipient brecciation.	
147.00	157.50		147.00 157.50 40% SILTSTONE: light grey, irregularly interbedded, moderately altered, fine bedded, light to moderately folded, 10% disseminations (veins of quartz, 1% disseminations = veins of carbonate, 1% veins of chlorite, 10% disseminations = veins of pyrite, 1% disseminations (veins of galena, 3 % disseminations (veins of sphalerite.	
147.00	148.60	100%	SANDSTONE: light grey, moderately altered, medium bedded, fine bedded, disrupted bedding, brecciated, bedding: ca 45, vein: ca gradational base, 45, hard, moderately broken core, 10% disseminations (veins of quartz, 1% disseminations = veins of carbonate, 1% veins of chlorite, 10% disseminations = veins of pyrite, 0.1% disseminations (veins of galena, 1% disseminations (veins of sphalerite.	UPPER OONAH

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 SYLVESTER GRID
 SURFACE DIAMOND DRILLHOLE : SY011 (CONTINUED)

Interval From (m) To (m)	Rec. (m)	RCD (m)	Description	Unit
			148.60 149.00 100% SANDSTONE: black, moderately graphitic, medium bedded, fine bedded, strongly foliated, strongly folded, gradational base, hard, moderately broken core, 10% disseminations < veins of quartz, 1% disseminations = veins of carbonate, 1% veins of chlorite, 10% disseminations = veins of pyrite, 0.1% disseminations < veins of galena, 3 % disseminations < veins of sphalerite.	UPPER OONAH
			149.00 152.20 100% SANDSTONE: light grey, moderately altered, medium bedded, fine bedded, disrupted bedding, brecciated, basal contact: ca gradational base, 30, hard, moderately broken core, 10% disseminations < veins of quartz, 1% disseminations = veins of carbonate, 1% veins of chlorite, 10% disseminations = veins of pyrite, 1% disseminations < veins of galena, 3 % disseminations < veins of sphalerite.	UPPER OONAH
152.20	154.65		Vein is approximately concordant with bedding. 152.20 154.65 100% VEIN: vein: ca 25, basal contact: ca 20, 1% patches of quartz, 30% massive/ semi - massive carbonate, 3 % veins of chlorite, 30% massive/ semi - massive pyrite, 3 % veins of galena, 30% massive/ semi - massive sphalerite.	
157.50	165.00		SANDSTONE: medium light grey, limey, fine bedded, medium bedded, graded bedding, coarse sand, bedding: ca 65, uphole facing, hard, moderately broken core, 3 % disseminations > veins of pyrite.	UPPER OONAH
157.50	165.00		Sandstone varies from light grey/very calcareous to dark grey/slightly calcareous.	
157.50	165.00		157.50 165.00 30% SILTSTONE: grey-brown, inter bedded, fine bedded, laminated, 1% veins of quartz, 3 % veins of carbonate, 3 % disseminations > veins of pyrite.	
			157.50 159.40 100% SANDSTONE: medium light grey, limey, fine bedded, medium bedded, graded bedding, coarse sand, bedding: ca 65, uphole facing, hard, moderately broken core, 3 % disseminations > veins of pyrite, 1% disseminations < veins of galena, 1% disseminations < veins of sphalerite.	UPPER OONAH
			163.50 164.50 100% SANDSTONE: limey, moderately altered, bedding: ca 50, 20% replacive quartz, 3 % veins of chlorite, 3 % disseminations > veins of pyrite, 1% disseminations > veins of galena, 1% disseminations > veins of sphalerite.	
165.00	172.30		SANDSTONE WITH SILTSTONE: dark grey, inter bedded, fine bedded, laminated, strongly folded, soft sediment slumping, 3 % veins of quartz, 3 % veins of carbonate, 1% veins of chlorite, 3 % disseminations of pyrite. 165.00 172.30 10% MELANGE: near base of interval, massive,	

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 SURFACE DIAMOND DRILLHOLE : SY011 (CONTINUED)

Interval From (m) To (m)	Rec. (m)	RQD (m)	Description	Unit
			strongly foliated. 3 % disseminations of pyrite.	
172.30	173.20		CONGLOMERATE: grey-green, limey, massive. 3 % veins of quartz, 5% veins of carbonate, 3 % disseminations of chlorite, 3 % disseminations of pyrite.	
172.30	173.20		Distinguishable from tectonic melange by following features;	
172.30	173.20		1) Polymict with dominantly calcareous pebbles, also mudstone etc.	
172.30	173.20		2) Matrix is coarse grained, compositionally similar and lacks foliation.	
172.30	173.20		3) Clasts have high sphericity (none are lenticular).	
172.30	173.20		Clasts are mostly idenytical in composition and texture to underlying limey siltstones.	
173.20	185.40		SILTSTONE: grey-tan, limey, fine bedded, well bedded, slightly folded, bedding: ca 30, basal contact: ca faulted base, 60, hard, moderately broken core, 3 % veins of carbonate, 0.1% veins of pyrite.	
173.20	185.40		Localised strong folding with variable hinge line orientation suggesting slump structures. Otherwise BCA's vary 0-45 degrees.	
176.20	176.50	100%	STRUCTURAL MEASUREMENT: grey-tan, limey, fine bedded, well bedded, slightly folded, bedding: 034 / 80, bedding: 026 / faulted base, 78, hard, moderately broken core, 3 % veins of carbonate, 0.1% veins of pyrite.	
177.10	177.11	100%	STRUCTURAL MEASUREMENT: grey-tan, limey, fine bedded, well bedded, slightly folded, bedding: 040 / 75, basal contact: ca faulted base, 60, hard, moderately broken core, 3 % veins of carbonate, 0.1% veins of pyrite.	
177.35	177.36	100%	STRUCTURAL MEASUREMENT: grey-tan, limey, fine bedded, well bedded, slightly folded, bedding: 020 / 86, basal contact: ca faulted base, 60, hard, moderately broken core, 3 % veins of carbonate, 0.1% veins of pyrite.	
177.70	177.71	100%	STRUCTURAL MEASUREMENT: grey-tan, limey, fine bedded, well bedded, slightly folded, bedding: 209 / 74, basal contact: ca faulted base, 60, hard, moderately broken core, 3 % veins of carbonate, 0.1% veins of pyrite.	
178.10	178.11	100%	STRUCTURAL MEASUREMENT: grey-tan, limey, fine bedded, well bedded, slightly folded, bedding: 360 / 78, basal contact: ca faulted base, 60, hard, moderately broken core, 3 % veins of carbonate, 0.1% veins of pyrite.	
178.80	178.81	100%	STRUCTURAL MEASUREMENT: grey-tan, limey, fine bedded, well bedded, slightly folded, bedding: 225 / 80, basal contact: ca faulted base, 60, hard, moderately broken core, 3 % veins of carbonate, 0.1% veins of pyrite.	

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 SURFACE DIAMOND DRILLHOLE : SY011 (CONTINUED)

Interval From (m) To (m)	Rec. (m)	RQD (m)	Description	Unit	
			182.70 184.00 100% FAULT: black, moderately graphitic, basal contact: ca 60, 3 % veins of quartz, 10% veins of carbonate, 3 % disseminations = veins of pyrite.		
185.40	186.60		FAULT: black, moderately graphitic, 3 % veins of carbonate, 3 % disseminations = veins of pyrite.		
186.60	189.30		CONGLOMERATE: grey-green, limey, slightly altered, massive, coarse bedded, coarse sand, small pebble, 20% coarse, extremely well sorted, angular, low sphericity shape, open structure, sharp irregular base, hard, moderately broken core, 3 % veins of carbonate, 5% disseminations of pyrite.		
187.00	188.00		Core was mixed up from about 187 - 190.5m. It has been restored to "best fit" core either side.		
187.00	188.00			187.00 188.00 100% SILTSTONE: grey-green, limey, fine bedded, 3 % disseminations of chlorite.	
189.30	189.90		FAULT: black, moderately graphitic, basal contact: ca 45, hard, moderately broken core, 3 % disseminations of chlorite, 3 % disseminations of pyrite.		
189.90	206.90		SANDSTONE WITH SILTSTONE: medium dark grey, inter bedded, fine bedded, medium bedded, soft sediment slumping, bedding: ca 45, cleavage: ca 80, hard, moderately broken core, 1% veins of carbonate, 1% veins of talc, 1% disseminations > veins of pyrite.		
189.90	206.90		BCA's vary 35-60 degrees, minor localised small-scale slump structures, weakly developed cleavage is sometimes present in siltstones at 45 degrees to bedding (80 degrees to CA).		
189.90	206.90			193.40 193.41 100% STRUCTURAL MEASUREMENT: medium dark grey, inter bedded, fine bedded, medium bedded, soft sediment slumping, bedding: 004 / 30, cleavage: ca 80, hard, moderately broken core, 1% veins of carbonate, 1% veins of talc, 1% disseminations > veins of pyrite.	
189.90	206.90			193.65 193.66 100% STRUCTURAL MEASUREMENT: medium dark grey, inter bedded, fine bedded, medium bedded, soft sediment slumping, bedding: 350 / 30, cleavage: ca 80, hard, moderately broken core, 1% veins of carbonate, 1% veins of talc, 1% disseminations > veins of pyrite.	
206.90	211.40		CONGLOMERATE: grey-green, limey, slightly altered, massive, strained, basal contact: ca 30, hard, slightly broken core, 1% veins of carbonate, 1% veins of talc, 5% disseminations of chlorite, 5% disseminations of pyrite, .03% disseminations =		

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Interval From (m) To (m)	Rec. (m)	R00 (m)	Description	Unit
206.90	211.40		veins of sphalerite.	
206.90	211.40		Highly strained (?sheered) at 45 degrees to core axis, causing elongation of clasts, giving foliated appearance. Decreases in intensity downward.	
206.90	211.40			
211.40	216.30		SANDSTONE: light grey, medium bedded, coarse bedded, hard, slightly broken core, 3 % veins of carbonate, 1% disseminations of pyrite.	
		211.40 216.30	30% SILTSTONE: light brown, irregularly interbedded, fine bedded, medium bedded, bedding: ca 40, cleavage: ca 20.	
		211.40 213.20	100% SANDSTONE: light grey, slightly altered, medium bedded, coarse bedded, hard, slightly broken core, 3 % veins of carbonate, 5% disseminations of pyrite.	
216.30	218.00		SHALE: black, moderately graphitic, coarse bedded, indistinctly bedded, moderately foliated, hard, slightly broken core, 3 % disseminations of pyrite.	
216.30	218.00		Possesses well developed folded cleavage in shale beds, and contorted folding.	
216.30	218.00		216.30 218.00 30% SANDSTONE: medium grey, irregularly interbedded, fine bedded, medium bedded, moderate to strongly folded, disrupted bedding, 3 % disseminations of pyrite.	

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