DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-01**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	673171E 5523414N						
ELEVATION	480m						
AZIMUTH	000°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 16-08-10	Depth: 56' Pullback: 20'	Azi: 006.8° Dip: -45.2°	2:	Date: 17-08-10	Depth: 246' Pullback: 20'	Azi: 008.5° Dip: -41.8°
CASING	1.43m						
LENGTH OF HOLE	190.80m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	17-Aug-10						
DATE COMPLETED	20-Aug-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description (vtr. = very trace, tr. = trace)
18.75	25.10	Sulphide Stringers, overall 7-10% Sulphide (po+py with tr. local cpy)

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	1.43		Intermediate Tuff
1.43	18.75		Intermediate to Dacite Tuff
18.75	25.10		Sulphide Stringer Zone
25.10	34.04		Intermediate Tuff
34.04	38.41		Intermediate to Dacite Tuff
38.41	40.12		Lithic/Lapilli Tuff
40.12	41.35		Intermediate/Dacite Layered Tuff
41.35	44.00	45°/60°	Spotted Mafic Intrusion
44.00	59.96		Intermediate Tuff Sequence (w/ a fault)
59.96	60.45		Mafic Tuff
60.45	68.73		Intermediate to Dacite Layered Tuff
68.73	69.31		Felsic Tuff
69.31	71.33		Intermediate to Dacite Tuff
71.33	74.95		Mafic to Dacite Tuff
74.95	93.93		Intermediate Tuff w/ Dacite Crystal Tuff
93.93	126.80		Intermediate Tuff Sequence
126.80	157.23		Intermediate Tuff
157.23	158.45		Dacite Porphyry
158.45	159.43		Intermediate Tuff
159.43	159.72		Dacite Porphyry
159.72	190.80		Intermediate Tuff
	EOH		

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	1.43	**Casing**
1.43	13.27	**Intermediate Tuff** Lithology Very fine grained, laminated/foliated intermediate tuff sequences, mm-cm scale banding. >5% quartz-quartz/carbonate veining, parallel to foliation. Structure Shearing sub-parallel to parallel to bedding. Local minor fragmentation. Foliation/bedding average approximately 39° to core axis. Alteration Bands, 1 mm-30 cm, of amphibole + garnet + biotite ± chlorite in varying proportions, 5-10% of unit. Local minor silicification and sericitization. Mineralization Trace sulphide, mostly along veining, trace limonite along some fractures.
13.27	18.75	**Intermediate to Dacite Tuff** Lithology Similar to preceding tuff unit, but slightly coarser (very fine to fine grained), and slightly more felsic (dacitic) composition overall. Same mm-cm scale laminations/foliations. Structure Foliations similar to previous unit, approximately 47° to core axis. Minor fine orthogonal fracture perpendicular to foliation. Alteration Bands with disseminated biotite, moderate silicification, minor amphibole ± chlorite. Mineralization Trace to minor pyrite/pyrrhotite veinlets disseminated with trace chalcopyrite.
18.75	25.10	**Sulphide Stringer Zone** Lithology Laminated tuff sequence similar to previous units, but increasing silicification/felsic content. Same mm-cm scale banding/foliation. Structure Foliation/shearing sub-parallel to bedding. Minor local soft sediment deformations. Local cross-cutting orthogonal fractures. One 3cm micropegmatitic vein comprised of quartz, K feldspar, mica. Sub-parallel to foliation. Alteration Moderate bleaching/silicification and sericitization throughout. Moderate amounts of very fine grained biotite + amphibole in mm-cm scale bands throughout the unit. <5% quartz vein fragments subparallel to foliation. Mineralization Overall approximately 7-10% sulphide (pyrite+pyrrhotite) in stringers and disseminations subparallel to main foliation. Local cm-scale bands with up to 70% pyrite+pyrrhotite. 5cm pebble sulphide bands @ 20.0m/22.7m/22.92m with 50% pyrrhotite+pyrite: possible durchbewegan (penetrative melt deformation fabric). Trace chalcopyrite locally.

From (m):	To (m):	Description:
25.10	34.04	**Intermediate Tuff** Lithology Very fine-grained intermediate tuff with mm-cm scale laminations/foliations. <5% quartz-carbonate veining subparallel to foliation. Structure Foliation ~47° to core axis. Localized soft-sediment deformation, local minor orthogonal fracture. Alteration Local minor silicification, sericitization, mm-scale stringers of biotite+amphibole±chlorite. Local garnet zones up to 15% 1-5mm garnets. Mineralization Trace sulphides, mostly stringers throughout, until 29.08-30.25 which has pyrite+pyrrhotite with trace chalcopyrite, disseminated and stringers, 5-10%. Afterwards trace-2% disseminated sulphide to end of unit.
34.04	38.41	**Intermediate to Dacite Tuff** Lithology Very fine to fine grained laminated/foliated intermediate tuff with 5-10cm bands of dacite porphyry (1-2mm subrounded feldspar crystals in dacitic matrix) throughout. Structure Fault-fracture zone from 35.60-36.00m, ~47° to core axis, subparallel to foliation, with orthogonal fractures throughout. Minor local orthogonal fracture elsewhere in unit. Minor veining subparallel to foliation throughout. Alteration Weak to moderate bleaching/silicification throughout, especially on dacite layers and in fault zone, and veins. Biotite+Amphibole±chlorite alteration bands/stringers throughout. 35.10-36.20 silicified fracture/fault zone. Mineralization Trace pyrrhotite+pyrite
38.41	40.12	**Lithic/Lapilli Tuff** Lithology Fine to medium grained intermediate flow with lithic fragments. Faint lamination/foliation throughout, fairly massive otherwise. Structure Foliation approximately 45° to core axis Alteration Moderate to strong silicification throughout. Minor biotite alteration, disseminated. Few local quartz veins. Mineralization Trace sulphides disseminated (mostly pyrrhotite).

From (m):	To (m):	Description:
40.12	41.35	**Intermediate/Dacite Layered Tuff** Lithology Dacite crystal tuffs interlayered with very fine grained greenish intermediate tuffs. Layers 0.5-10 cm thick. Bedding ~36° to core axis. Structure Foliation subparallel to bedding. Alteration Dacite layers show moderate bleaching/silicification, especially on margins. Intermediate layers have amphibole+biotite+sericite±chlorite alteration. Mineralization Trace sulphides in intermediate layers.
41.35	44.00	**Spotted Mafic Intrusion** Lithology Coarse grained mafic dike, mainly biotite+amphibole, possible phlogopite, actinolite. In the centre of the intrusion, lithology stays the same but becomes fine-grained (possibly a later dike). Contact between coarse and fine-grained rock very sharp. Structure Upper contact with country rock @ 45° to core axis, lower contact @ 60° to core axis. Fine grained contacts: 26° to core axis / 31° to core axis. Local minor orthogonal fractures and cm-scale quartz carbonate veins. Alteration Biotite+actinolite±chlorite throughout, but may be primary. Several local quartz-carbonate veinlets (cm-scale) and biotite+sericite veinlets. Mineralization Trace sulphides local.
44.00	59.96	**Intermediate Tuff Sequence (with a fault)** Lithology Fine to very fine grained intermediate layered tuff, with local bands of dacitic porphyry (up to 30cm wide) near the top of the unit, grading to slightly more mafic units near the bottom of the unit. Layers/bedding mm-cm scale. Structure Foliation subparallel to bedding @ 52.00-52.63m, ~46° to core axis with slickensides and strong sericitization. Local strong soft sediment deformation. Local quartz carbonate veins up to 5cm wide. Subparallel to bedding. Alteration Moderate to strong bands of biotite+amphibole±chlorite throughout, aligned with bedding. Dacite layers have moderate silicification. Some local patches of sericitization, especially around shear and veins. Some local green carbonate veins. Rare local garnets up to 4 mm. Mineralization Trace pyrrhotite/pyrite specks throughout, some local stringers and clots. Rare chalcopyrite specks.

From (m):	To (m):	Description:
59.96	60.45	**Mafic Tuff** Lithology Fine grained mafic tuff unit. Structure Faint bedding/foliation, same orientation as surrounding units. One small cross cutting quartz veinlet. Alteration Strong biotite+amphibole alteration throughout. Mineralization <1% sulphides (pyrite+pyrrhotite) disseminated.
60.45	68.73	**Intermediate to dacite layered tuff** Lithology Very fine to fine grained interlayered intermediate to dacitic tuff. Gradual increase in the proportion of more felsic units toward the bottom of the unit, up to 50-60% of bands. Layering is mm-cm scale. Structure Foliation/bedding @ approximately 46° to core axis throughout the unit. Sparse cm-scale quartz veins subparallel to bedding. Alteration Bands of biotite+amphibole alteration throughout, generally 0.5-2.0cm wide. Some patches appear slightly silicified. Sparse garnets up to 0.5cm. Mineralization One patch of pyrite (~3%) 16cm in length near the top of the unit, trace sulphide specks elsewhere.
68.73	69.31	**Felsic Tuff** Lithology Very fine to fine grained felsic tuff (dacitic) with mm-cm scale bedding, average ~45° to core axis. Structure Foliation subparallel to bedding. Few minor orthogonal fractures. Alteration mm-scale garnet throughout, with stringers of biotite ± amphibole along bedding planes. Mineralization Trace sulphides.
69.31	71.33	**Intermediate to Dacite Tuff** Interlayered fine to very fine grained intermediate to dacitic tuff beds, mm-cm scale. Bedding @ ~45° to core axis, with foliation parallel to bedding. ~2% mm-scale quartz veining parallel to bedding. mm-cm scale bands of biotite + amphibole alteration throughout, with sparse tiny (1-2mm) garnets. Trace sulphide specks

From (m):	To (m):	Description:
71.33	74.95	**Mafic to Dacite tuff** Lithology Interbedded fine to very fine grained mafic tuff and dacite tuff to crystal tuff. Beds mm-cm scale. Structure Foliation subparallel to bedding @ ~45° to core axis. Some quartz veins parallel to bedding with possible serpentine inclusions. Alteration Bands of biotite+amphibole throughout, moderate to strong alteration. Mineralization Trace sulphide throughout.
74.95	93.93	**Intermediate tuff with dacite crystal tuff** Lithology Fine to very fine grained intermediate laminated/foliated tuffs with local felsic (dacite) porphyry units up to 10cm wide. Laminations/beds mm-cm scale. Structure Overall fabric subparallel to bedding ~47° to core axis. Some local weak orthogonal fracture. Some minor local soft sediment deformations. One moderate to strong shear zone/fault @ 84.89-85.11m 50°CA. Some sericitization along slickensides, with pyrite mineralized fractures. Also contains a large (4cm) fractured fine-grained felsic block. Few local quartz veins subparallel to fabric. Alteration Bands of moderate to strong biotite+amphibole±garnet alteration throughout. Minor sericitization along fractures. Some minor carbonate alteration along some quartz veins. Mineralization Trace sulphide specks. Local bands of sulphide stringers up to 3% pyrite+pyrrhotite ±chalcopyrite.
93.93	126.8	**Intermediate Tuff Sequence** Lithology Very fine grained intermediate laminated/foliated tuff. Laminations mm-cm scale/thickness. Structure Laminations/foliations approximately 45° to core axis throughout. Local orthogonal fractures, sparse local soft sediment deformations, some quartz veining. Weak cross-cutting fault @ 122.02-122.20m, ~44° to core axis, with associated brecciation. Alteration Weak to moderate bands of biotite+amphibole alteration bands (mm-cm scale) throughout unit, generally oriented parallel to foliation. Carbonate alteration along most fractures and some veins. Sparse patches of garnet, usually associated with biotite bands. Mineralization Trace specks of sulphides, usually pyrrhotite+pyrite but some chalcopyrite. Some pyrrhotite stringers associated with biotite bands near the top of the unit.

From (m):	To (m):	Description:
126.8	134.75	**Intermediate Tuff** Lithology Laminated fine to very fine grained intermediate tuffs, with local cm-scale dacite porphyry beds. Structure One strong fracture zone with moderate silicification and (1-2%) pyrrhotite+pyrite mineralization @ 131.10-131.35m showing orthogonal fracture with no obvious preferred orientation. Sparse local mm-cm scale quartz veining mostly subparallel to foliation (~45° to core axis). Alteration Moderate to strong mm-cm bands of amphibole±biotite±garnet alteration throughout. Mineralization Mostly trace sulphides with local mm-scale stringers of pyrrhotite+pyrite, usually associated with biotite or garnet alteration.
134.75	141.7	**Intermediate tuff with quartz veins/garnet alteration** Lithology Fine to very fine grained laminated intermediate tuff with one 40cm dacite porphyry near the top of the unit. Structure Strongly foliated and veined (quartz) throughout @ approximately 47° to core axis some minor local soft sediment deformations. Some orthogonal fracture mineralized with pyrite. Alteration Strong biotite+amphibole+garnet alteration throughout. Mineralization Trace specks of pyrrhotite±pyrite, mostly associated with garnet alteration.
141.7	157.23	**Intermediate tuff** Lithology Laminated very fine to fine grained intermediate tuff. Structure Weak to moderate foliation @ ~47° to core axis throughout. Moderate mm-cm scale quartz veining subparallel to foliation. One large (14cm) quartz vein @ 150.01m. Alteration Overall weak to locally strong biotite+amphibole alteration bands/stringers. Trace local garnet alteration. Very minor carbonate alteration around some veins. Mineralization Trace to very trace sulphide specks.

From (m):	To (m):	Description:
157.23	158.45	**Dacite porphyry** Lithology Fairly massive fine grained dacitic porphyry with mm-scale subrounded white feldspar crystals throughout. Slightly purplish coloured groundmass. Same as previously noted "dacite porphyry", Possibly a dike/sill. Structure Very faint foliation/lamination subparallel to surrounding units (~45° to core axis). Few cm-scale quartz veins. Alteration Minor silicification on unit contacts, may be dike selvages. Mineralization No obvious sulphides.
158.45	159.43	**Intermediate tuff** Lithology Fine to very fine grained intermediate tuff with lamination parallel to foliation (~45° to core axis). Structure Moderate foliation throughout. Minor quartz veining parallel to foliation. One 2cm wide quartz vein cross cutting foliation @ 25° to core axis. Alteration Moderate to strong banded biotite+amphibole alteration. Mineralization Trace sulphide specks.
159.43	159.72	**Dacite porphyry** See description of previous Dacite Porphyry (157.23-158.45m)
159.72	190.8	**Intermediate tuff** Lithology Fine to very fine grained intermediate laminated tuff. Few local dacitic or mafic beds, cm-scale, parallel to surrounding bedding (~45° to core axis). Structure Moderate to strong foliation throughout, parallel to bedding/lamination. Local weak to moderate cross cutting orthogonal fracture with carbonate infill, no preferred orientation. Alteration Banded biotite+amphibole±garnet alteration zones throughout unit, moderate to strongly altered. Banding parallel to lamination. Local mm-cm scale quartz/quartz-carbonate veining, also parallel to lamination. Both banding and veining locally boudinaged, especially in presence of garnets. Mineralization Trace sulphides throughout, some stringers and disseminations of pyrrhotite+pyrite, usually in association with alteration banding.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-02**			
COMPANY	Excalibur Resources			
PROPERTY	Sturgeon Lake			
LOCATION (UTM)	673762E 5524442N			
ELEVATION	486m			
AZIMUTH	000°			
DIP	-45°			
REFLEX EZ-SHOT 1:	Date: 20-08-10	Depth: 36' Pullback: 20'	Azi: 000° Dip: -42.7°	
CASING	0.70m			
LENGTH OF HOLE	142.04m			
DRILL CONTRACTOR	Distinctive Drilling			
DATE STARTED	22-Aug-10			
DATE COMPLETED	29-Aug-10			
LOGGED BY	A. Mumin			
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N			

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
23.89	25.49	6-15% po+py with tr. cpy+sph
117.54	119.4	15-20% py+po

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	0.70		Casing
0.70	23.89		Mixed Mafic Lapilli and Ash Tuff
23.89	25.49		Sulphide Rich Graphitic Tuff
25.49	28.80		Intermediate to Mafic Lapilli and Ash Tuff
28.80	31.40		Interbedded Intermediate Ash Tuff and Sulphide-Rich Graphitic Tuff
31.40	34.41		Dacitic Ash Tuff
34.51	36.73		Interbedded Intermediate Ash Tuff and Graphitic Tuff
36.73	42.47		Intermediate Ash Tuff
42.47	45.56		Altered Intermediate Ash Tuff
45.56	46.66		Interbedded Intermediate Ash Tuff and Sulphide Rich Graphitic Tuff
46.66	48.85		Intermediate Tuff
48.85	49.70		Interbedded Intermediate Tuff and Sulphide Rich Graphitic Tuff
49.70	51.89		Intermediate Tuff
51.89	53.56		Interbedded Intermediate Tuff and Graphitic Tuff
53.56	54.60		Intermediate Tuff
54.60	56.49		Lapilli Crystal Tuff
56.49	65.12		Intermediate Tuff
65.12	73.67		Banded Iron Formation
73.67	75.98		Intermediate Tuff
75.98	78.14		Dacite Ash Tuff with Sulphide Rich Graphitic Tuff Intervals
78.14	103.99		Mixed Mafic Lapilli and Ash Tuff
103.99	110.66		Interbedded Dacitic Tuff and Graphitic Tuff
110.66	117.54		Intermediate Tuff
117.54	119.40		Sulphide Rich Intermediate Tuff
119.40	134.73		Interbedded Mafic and Intermediate Ash Tuffs
134.73	142.04		Mafic Intrusive

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	0.70	**Casing**
0.70	23.89	**Mixed Mafic Lapilli and Ash Tuff** Lithology Finely laminated unit which becomes finer grained towards the bottom of the hole. Fine grained biotite-amphibole matrix. Structure Finely laminated pervasive foliation @ 47° to core axis. 5-10% subparallel to foliation quartz-carbonate veining, mm- to ~3cm scale. Minor amount of fine quartz-carbonate veining orthogonal to foliation. Local quartz veining up to 10cm. Alteration Unit pervasively metamorphosed to amphibole+biotite±chlorite, local fine grained biotite banding (mm-cm scale). Localized garnet+amphibole banding toward end of unit. Mineralization mm to cm scale bands of finely disseminated bands of pyrrhotite+chalcopyrite+pyrite±sphalerite throughout section. Up to 25% sulphide in individual bands. Overall section contains 0.5-1.0% sulphide. Local quartz-carbonate veins, parallel and cross-cutting, with very fine grained sulphide (pyrrhotite, chalcopyrite±pyrite), <1cm.
23.89	25.49	**Sulphide Rich Graphitic Tuff** Lithology Very fine grained graphitic tuff unit interbedded with ash tuff. ~60% of unit is graphitic. Ash tuff is dacitic, up to 23cm in size. Structure Abundant soft sediment deformation, local minor fracturing. Bedding is 45° to core axis. Shear foliation at 30° to core axis. Alteration ±10% quartz-carbonate veining Mineralization Graphitic units 10-25% pyrrhotite+pyrite with trace chalcopyrite+sphalerite. Ash tuff units ~1-5% pyrrhotite+pyrite. Local 1-3cm durchbewegan.

From (m):	To (m):	Description:
25.49	28.80	**Intermediate to Mafic Lapilli and Ash Tuff** Lithology Medium to fine grained intermediate tuff layers, similar to 0.70-23.73m. Structure Finely laminated pervasive foliation. Foliation @ 47° to core axis. Minor orthogonal fracture sets (quartz-carbonate veining) (2-3%). Alteration Unit pervasively metamorphosed to amphibole+biotite±chlorite. Local pervasive quartz-carbonate alteration, up to 10cm. Local sericite alteration up to 2cm wide (?). Mineralization 0.5-1% pyrrhotite throughout section, trace chalcopyrite. Minor pyrrhotite-carbonate veining, containing up to 50% pyrrhotite locally. Up to 1cm in width.
28.80	31.40	**Interbedded Intermediate Ash Tuff and Sulphide-Rich Graphitic Tuff** Lithology Interbedded finely laminated intermediate ash tuffs and graphitic tuffs. Structure Foliation is 45° to core axis. Soft sediment deformation visible in some graphite beds. 1-5% quartz carbonate veining up to 0.3m, quartz vein up to 6cm. Alteration Ash tuff units pervasively metamorphosed to biotite+amphibole±chlorite. Mineralization 1-2% pyrrhotite with minor pyrite+chalcopyrite throughout section. Locally up to 15-20% pyrrhotite in graphitic tuffs. Durchbewegan textures visible in graphitic tuffs.
31.40	34.41	**Dacitic Ash Tuff** Lithology Finely laminated medium-fine to very fine dacitic ash tuff beds. very fine grained mm-cm scale graphitic tuff interbeds <1% throughout section. Structure Laminations 45° to core axis. Minor fracturing parallel and orthogonal to foliation. Alteration Minor local silicification. Minor cm-scale quartz veins/quartz-carbonate veins. Mineralization <1% pyrrhotite+pyrite, disseminated and in fine bands.

From (m):	To (m):	Description:
34.51	36.73	**Interbedded Intermediate Ash Tuff and Graphitic Tuff** Similar to 28.76-31-40m, but with fewer sulphides. ~1-2% sulphides across section (pyrite+pyrrhotite), locally 10-15% in some graphite interbeds. 35.37-35.39m: Quartz-carbonate fracture breccia, ~ 1-2cm wide, followed by 27cm silicified zone.
36.73	42.47	**Intermediate Ash Tuff** Very fine grained to fine grained ash tuff sequence. Minor narrow graphitic bands. Soft sediment deformation visible in ash tuff. Minor quartz-carbonate veining parallel-orthogonal to foliation. 5cm wide quartz vein. Minor sulphides (pyrite+pyrrhotite), up to 5% locally, <0.5% across section.
42.47	45.56	**Altered Intermediate Ash Tuff** Weakly to moderately silicified intermediate ash tuff. 43.74-43.98m: Strong quartz-carbonate-sericite alteration, including an 8cm section with 3-5% pyrite. Disseminated pyrrhotite+pyrite throughout section, <0.5% throughout.
45.56	46.66	**Interbedded Intermediate Ash Tuff and Sulphide Rich Graphitic Tuff** Similar to 28.76-31.40m. 2-15% pyrrhotite throughout section.
46.66	48.85	**Intermediate Tuff** Similar to preceding intermediate tuffs. Garnet+amphibole alteration for last 0.60m. ±1% disseminated pyrrhotite throughout.
48.85	49.70	**Interbedded Intermediate Tuff and Sulphide Rich Graphitic Tuff** Similar to 45.56-46.66m. Graphitic zones contain up to 15-20% pyrrhotite. Small scale durchbewegan textures observed. ~5-7% sulphide throughout section.
49.70	51.89	**Intermediate Tuff** Similar to 46.66-48.85m. mm-sized garnets throughout section. Quartz-carbonate veining (cm-scale). Minor (<0.5%) sulphide (pyrite+pyrrhotite) throughout section in filaments, locally 15% in clots.
51.89	53.56	**Interbedded Intermediate Tuff and Graphitic Tuff** Similar to 48.85-49.70m. Quartz fragments, up to 5cm across, "en-echelon". Up to 15-20% pyrrhotite+pyrite in graphitic zones. 3-5% throughout section.
53.56	54.60	**Intermediate Tuff** Similar to 49.70-51.89m. Minor (0.5%) sulphide disseminated and in filaments throughout section.

From (m):	To (m):	Description:
54.60	56.49	**Lapilli Crystal Tuff** Lithology Medium grained to coarse grained crystal fragments with ~10-15% lithic fragments in very fine grained dark matrix. Structure Weak foliation @ ~42° to core axis. Possible soft sediment deformation. Alteration Plagioclase crystal fragments altered to sericite. Upper greenschist/lower amphibolite metamorphism. Mineralization Minor pyrrhotite+pyrite (<0.5%) disseminated thoughout.
56.49	65.12	**Intermediate Tuff** Similar to 49.70-51.89m. 3-5% mm-scale garnets with local cm-scale bands of garnet+amphibole alteration which may contain >50-60% garnets. <0.5% sulphide throughout (pyrrhotite+pyrite) in "filaments" and stringers.
65.12	73.67	**Banded Iron Formation** Lithology Alternating bands (<1cm to 8cm wide) of chert and garnet/amphibole/very fine grained magnetite. Garnet+amphibole zones can contain up to 70-80% garnets with dark green amphibole+ magnetite±biotite Intermediate tuff interbeds. Structure Bands are ~43° to core axis. Soft sediment deformation visible in some bands. 69.07-70.14m: Fault. Alteration Magnetite-rich bands altered to garnet+amphibole+magnetite due to lower amphibolite alteration. Mineralization Mafic bands contain minor (<0.5%) to abundant (~20-25%) pyrite+pyrrhotite. Chert bands contain trace pyrite±pyrrhotite. 1-2% sulphide across section.
73.67	75.98	**Intermediate Tuff** Similar to 53.56-54-60m. No garnets present. 2-3% sulphide (pyrrhotite+pyrite) in clots across section.

From (m):	To (m):	Description:
75.98	78.14	**Dacite Ash Tuff with Sulphide Rich Graphitic Tuff Intervals** Very fine grained dacitic ash tuff with very fine grained aphanitic graphitic interbeds. Soft sediment deformation visible in graphitic interbeds. Contacts between interbeds @ ~45° to core axis. cm-scale to 10cm bands of intermediate tuff. Dacitic tuff bands can contain locally up to 40-50% sulphide (pyrrhotite), with percentage decreasing down hole. Graphitic tuff can contain up to 50-60% over 10cm pyrrhotite with durchbewegan textures. Overall 3-5% sulphide (pyrrhotite±pyrite) across section.
78.14	103.99	**Mixed Mafic Lapilli and Ash Tuff** Medium grained to coarse grained mafic lapilli tuff intermixed with very fine grained mafic ash tuff, minor intermediate beds. Foliation ~45° to core axis. Abundant quartz and quartz-carbonate veining parallel to foliation. Trace to minor pyrrhotite+pyrite disseminated throughout, with local clots and veinlets. 96.59-96.62m: quartz-carbonate vein with 3-5% pyrrhotite + trace chalcopyrite 97.34-97.54m: quartz-carbonate-amphibole(?) clot with 5-10% pyrrhotite+pyrite stringers. 97.87-97.90m: quartz-carbonate vein with 10-15% sulphide (pyrrhotite+pyrite+chalcopyrite).
103.99	110.66	**Interbedded Dacitic Tuff and Graphitic Tuff** Finely laminated very fine grained siliceous tuff with graphitic interbeds. Foliations @ ~42° to core axis. Soft sediment deformation visible in graphitic zones. 5-10% sulphide throughout section, mainly pyrrhotite+pyrite with minor arsenopyrite+chalcopyrite. Locally up to 50% sulphide with durchbewegan textures. Possible pentlandite. mm-cm scale quartz-carbonate veins parallel to foliation.
110.66	117.54	**Intermediate Tuff** Finely laminated intermediate rock, similar to 56.49-65.12m. Fewer garnets towards bottom of hole. Soft sediment deformation visible in some sections. Quartz and quartz-carbonate veining present subparallel to foliation. 0.5%-1% sulphide (pyrrhotite+pyrite) disseminated and in stringers across section. Up to 5% locally.
117.54	119.40	**Sulphide Rich Intermediate Tuff** Similar to 110.66-117.54m, except with 5-10% sulphide across section. Minor chalcopyrite. Local durchbewegan textures. 117.94-118.60m: 15-20% sulphide (pyrite+pyrrhotite) across section.
119.40	134.73	**Interbedded Mafic and Intermediate Ash Tuffs** Fine grained mafic ash tuffs (biotite+amphibole) interbedded with fine grained intermediate tuffs. mm-cm scale quartz and quartz-carbonate veining throughout. Intermittent garnetiferous sections in both mafic and intermediate zones. Minor sulphide (pyrrhotite+pyrite±chalcopyrite) throughout section. 128.44-128.71m: Ultramafic dike, altered to talc schist. 0.5% pyrrhotite+pyrite.

From (m):	To (m):	Description:
134.73	142.04	**Mafic Intrusive** Medium grained amphibole+biotite rich intrusive rock. Weak foliation @ ~51° to core axis. Quartz and quartz-carbonate veining throughout (mm-scale to ~22cm wide). Minor pyrrhotite±pyrite disseminated thoughout. 3.5cm massive pyrrhotite band with durchbewegan texture at start of unit. 137.48-137.63m: quartz-carbonate-chlorite vein with massive angular fragments of chlorite schist(?), possible tourmaline present. ~1% pyrrhotite in small clots.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-03**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	664968E 5522127N						
ELEVATION	472m						
AZIMUTH	180°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 23-08-10	Depth: 10.97m Pullback: 6.10m	Azi: 186.8° Dip: -47°	2:	Date: 24-08-10	Depth: 123.75m Pullback: 6.10m	Azi: 193.6° Dip: -43.7°
CASING	3.05m						
LENGTH OF HOLE	123.75m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	30-Aug-10						
DATE COMPLETED	01-Sep-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
81.08	81.41	50-60% py+po+cpy, possible sph

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	3.05		Casing
3.05	6.14		Mafic Tuff
6.14	9.70		Intermediate Tuff
9.70	15.94		Mafic Intrusive
15.94	16.70		Mafic Dike
16.70	24.54		Mafic Intrusive
24.54	44.00		Intermediate Tuff
44.00	44.75		Dacite Tuff
44.75	59.80		Intermediate Tuff
59.80	77.24		Intermediate to Dacite Tuff with Disseminated Sulphide
77.24	80.35		Intermediate to Dacite Tuff
80.35	86.12		Intermediate Tuff with Massive Sulphide Zone
86.12	87.61		Ultramafic Dike
87.61	123.75		Massive Intermediate Tuff
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	3.05	**Casing**
3.05	6.14	**Mafic Tuff** Lithology Fine to medium grained mafic tuff with faint bedding 44°-55° to core axis. Structure Weak foliation subparallel to bedding. Few minor quartz-carbonate veinlets/clots. Alteration Amphibole alteration pervasive, ±moderate to very strong biotite, chlorite in bands and patches, especially near veins. Mineralization Trace sulphides, specks.
6.14	9.70	**Intermediate Tuff** Lithology Fine grained andesite tuff, bedded/laminated @~45° to core axis, mm-cm scale bedding. Structure Weak to moderate pervasive foliation, parallel to bedding. Alteration Pervasive banded biotite±amphibole alteration throughout unit. Minor mm-scale quartz-carbonate veining. Weak silicification @ bottom of unit. Mineralization Trace disseminated sulphides, one 2.5cm wide quartz-carbonate vein with 3-5% pyrite+ pyrrhotite+chalcopyrite mineralization.
9.70	15.94	**Mafic Intrusive** Lithology Medium grained green mafic intrusion, fairly massive. Structure Weak to moderate foliation pervasive @~40° to core axis. Minor mm-scale quartz-carbonate veining, some cross-cutting but most subparallel to foliation. Alteration Pervasive amphibole alteration, with patches of strong biotite alteration. Possible pervasive chlorite alteration, may be due to retrograde metamorphism? Strong carbonatization around veins. Mineralization Trace disseminated sulphides with mm-scale clots of pyrite+pyrrhotite. Sparse specks of chalcopyrite.

From (m):	To (m):	Description:
15.94	16.70	**Mafic Dike** Very fine to fine grained mafic dike with contacts @ 35° to core axis. mm-scale quartz veinlets. Very weak foliation ~35° to core axis. No visible mineralization
16.70	24.54	**Mafic Intrusive** Same description as previous Mafic Intrusive (9.70-15.94m).
24.54	44.00	**Intermediate Tuff** <u>Lithology</u> Very fine to fine grained andesitic laminated bedded tuff. Bedding ~46° to core axis, mm-cmm scale. <u>Structure</u> Weak to moderate pervasive foliation parallel to bedding. Moderate amount of quartz-carbonate and quartz veining throughout, generally mm-scale and parallel to foliation. Several larger (cm-scale) quartz veins with slight boudinage or brecciation texture, some of which slightly cross-cut foliation. <u>Alteration</u> Bands of moderate to strong biotite±amphibole alteration throughout. Sparse patches/bands of mm-cm scale garnets. Moderate to strong silicified zone from 24.54-28.70m. Several smaller, weaker silicified areas further down unit. Weak to moderate carbonatization zones. <u>Mineralization</u> Sparse mm-scale stringers of pyrrhotite+pyrite±chalcopyrite mineralization, with larger (up to 1cm) clots occurring especially around veins. Trace disseminations/specks of sulphide elsewhere.
44.00	44.75	**Dacite Tuff** <u>Lithology</u> Fine grained dacitic tuff with very faint bedding/foliation @ ~50° to core axis. <u>Structure</u> Fairly massive except for a strong cross-cutting fracture that offsets a 2cm quartz vein (31° to core axis). Weak foliation. <u>Alteration</u> Weak but pervasive silicification, with biotite. One patch 0.7cm x 3.0cm that may be fine-grained chlorite. <u>Mineralization</u> None visible.

From (m):	To (m):	Description:
44.75	59.80	**Intermediate Tuff** Lithology Fine to very fine grained laminated/bedded intermediate tuff. Bedding mm-cm scale. Structure Moderate to strong foliation throughout unit, @ 45-50° to core axis. Two large quartz veins (23 and 30cm) @ 48.72m and 55.00m respectively. Both are slightly brecciated with apparent cm-scale beds of country rock within them. Both cross-cutting foliation @ 56° and 55° to core axis respectively. Alteration Weak to moderate (though locally very strong) biotite±amphibole alteration bands throughout. Sparse cm-scale patches of strong garnet alteration with one local 16cm patch of garnet+ magnetite alteration. Some moderately silicified zones, with apparent chlorite. Alteration of all types strongest around strongly mineralized sections. Mineralization Several zones of relatively strong sulphide mineralization (pyrrhotite+pyrite±chalcopyrite) in stringers, clots, and disseminations, associated with strong veining and alteration, locally up to 15-20% (over 30cm). Elsewhere trace to <1%.
59.80	77.24	**Intermediate to Dacite Tuff with Disseminated Sulphide** Lithology Fine grained intermediate tuff interbedded with fine to very fine grained dacite tuff. Intermediate beds are cm- 10's of cm scale, while dacite beds are cm-scale. Structure Weak to moderate foliation parallel to bedding @ ~45° to core axis. Local apparent soft sediment deformation, could also be minor folding. Several large (up to 15cm wide) quartz veins throughout, slightly cross-cutting foliation. Local boudinage of some veins. Alteration Bands and stringers of biotite±amphibole alteration throughout. Higher concentrations (up to 10%) of larger (up to 1.5cm) subhedral to irregular garnets than previously in this hole. Dacite beds slightly silicified. Common quartz, quartz-carbonate, and carbonate veinlets throughout unit, generally subparallell to foliation. Possible chlorite alteration around some veins. Mineralization Much stronger sulphide (pyrrhotite+pyrite±chalcopyrite) mineralization with possible sphalerite than previously in the hole, in stringers, specks, and disseminations. Locally 5-7%, overall probably 1-2%. Few local stringers up to 3.0cm wide. Strongest concentrations of sulphide around veins and strongest shears.
77.24	80.35	**Intermediate to Dacite Tuff** Very similar lithology and structure to previous unit. Alteration Banded biotite±amphibole alteration as in preceding unit, but garnet concentration grades from moderate to very high towards bottom of the unit. Silica/carbonate alteration similar/same as previous unit. Mineralization Much less sulphide mineralization than preceding unit, with only minor stringers and specks.

From (m):	To (m):	Description:
80.35	86.12	**Intermediate Tuff with Massive Sulphide Zone** Lithology Fine grained andesite tuff with very faint bedding @ ~44° to core axis. Structure Very weak foliation parallel to bedding. Minor local orthogonal fracture. Massive sulphide zone is highly brecciated/sheared, with very vuggy texture (durchbewegan?). Alteration Above massive sulphide zone, strong biotite stringer alteration. Below massive sulphide zone is minor to moderate amphibole±biotite banded alteration, with moderate quartz-carbonate veining. Mineralization Massive sulphide zone from 81.08-81.41m, 50-60% pyrite+pyrrhotite+chalcopyrite (possible sphalerite?), clotted around apparent country rock with pebbly, silicified texture. mm-scale sulphide stringers continue into rock for several cm's on either side of zone. Apart from massive sulphide zone, mineralization quickly (within cm's) grades back to trace levels on both sides.
86.12	87.61	**Ultramafic Dike** Apparent ultramafic dike, coarse grained, massive, with very weak foliation, but talc (or serpentine) alteration very strong. No visible mineralization.
87.61	123.75	**Massive Intermediate Tuff** Lithology Very fine to fine grained massive andesite tuff (ash tuff). Possibly a massive flow, but no flow structures evident. Structure Weakly- to non-foliated. Minor local fracture/veining. Alteration Minor to moderate quartz-carbonate and carbonate veining throughout. Minor biotite± amphibole stringers, few with moderate to strong garnet alteration. Local large (10cm) quartz veins. Mineralization Very trace specks of sulphide.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-04**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	664542E 5521744N						
ELEVATION	464m						
AZIMUTH	180°						
DIP	-50°						
REFLEX EZ-SHOT 1:	Date:	Depth: Pullback:	Azi: Dip:	2:	Date:	Depth: Pullback:	Azi: Dip:
CASING	6.50m						
LENGTH OF HOLE	35.36m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	30-Aug-10						
DATE COMPLETED	30-Aug-10						
LOGGED BY	A. Mumin						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0	6.5		Casing
6.5	35.36		Intermediate Tuffs
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	6.50	**Casing**
6.50	35.36	**Intermediate Tuffs** Lithology Fine grained, finely laminated tuffs. mm to cm scale fine grained biotite bands. Minor local mm- to 0.5cm sized garnets in patches. Structure Foliations range from 43° to core axis near top of hole to 34-37° to core axis midway to 45° at bottom of hole. 7.92-8.43m: Fault, iron oxide staining and pitting, sulphide weathering. 10.97-13.96: Fault zone. 4 small faults, ~10's cm wide each. ~85° to foliation. 22.21-22.77m: Unit becomes highly strained, with S fold axis visible in core. Alteration mm-cm scale quartz and quartz-carbonate veinlets throughout unit. 18.60-20.76m: Garnet+biotite+chlorite+amphibole+carbonate alteration zone Very fine grained chlorite/medium grained amphibole matrix. Coarse grained red garnets up to 2cm in size. Fine grained biotite banding and masses. Abundant quartz/quartz-carbonate veining. Grades into unaltered country rock. No original textures preserved. 23.58-24.43m: garnet+chlorite+carbonate+amphibole alteration zone, similar to 18.60-20.76m, but without the biotite, and not as intense. 26.21-35.36m: Intermittent garnet±biotite±chlorite+amphibole+carbonate alteration. Mineralization Trace to minor pyrrhotite±pyrite±chalcopyrite throughout hole with higher concentrations at alteration zones. 19.87-20.47m: garnet+biotite+chlorite+amphibole+carbonate alteration zone with ~0.5-1% pyrrhotite with minor pyrite.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-04A**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	664542E 5521744N						
ELEVATION	464m						
AZIMUTH	180°						
DIP	-50°						
REFLEX EZ-SHOT 1:	Date: 28-08-10	Depth: 41.45m Pullback:	Azi: 141.4° Dip: -49.4°	2:	Date: 29-08-10	Depth: 121.92m Pullback: 9.14m	Azi: 184.6° Dip: -44.3°
CASING	3.66m						
LENGTH OF HOLE	122.53m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	02-Sep-10						
DATE COMPLETED	16-Sep-10						
LOGGED BY	A. Mumin						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
88.92	91.2	~10% po + minor cpy±py

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	3.66		Casing
3.66	16.50		Intermediate Tuff
16.50	47.29		Intermediate Ash Tuff with Alteration
47.29	50.23		Mafic Dike
50.23	86.00		Intermediate Tuff with Alteration
86.00	94.55		Pelitic Sediments
94.55	100.02		Mafic Ash Tuff
100.02	122.53		Intermediate Tuff

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	3.66	**Casing**
3.66	16.50	**Intermediate Tuff** Lithology very fine grained finely laminated tuffs, coarsening to fine grained-medium grained towards bottom of hole. ~3-5% biotite banding. Minor medium grained anhedral-euhedral garnet porphyroblasts. Structure Foliations ~38° to core axis. Several faults up to 0.53m throughout zone. Faults ~ perpendicular to foliation at ~42° to core axis. Minor annealed faults at 10° to core axis with dextral movement. 9.97-10.67m: fracture breccia. Rock broken by hairline fractures infilled with quartz-carbonate. Alteration Quartz-carbonate alteration (veining parallel to foliation) throughout hole. Mineralization Trace chalcopyrite+pyrrhotite±pyrite throughout section (disseminated).
16.50	47.29	**Intermediate Ash Tuff with Alteration** Lithology Very fine grained intermediate ash tuff. Finely laminated. Occasional dacite interbeds. Structure Foliation typically 35°-45° to core axis. Soft sediment deformation visible in some spots. Alteration Unit is predominantly garnet+chlorite+amphibole+biotite+carbonate+quartz+sericite altered. Garnets range in size from mm-scale to 1-2cm's in size. Minor unaltered intermediate and dacite sections, up to ~1m in length. Pyrophyllite in small sections. Mineralization Trace to minor pyrrhotite±chalcopyrite±pyrite throughout section.
47.29	50.23	**Mafic Dike** Medium grained, hepidiomorphic granular. Chlorite, amphiboles pseudomorphing after pyroxenes. Minor to moderate garnet+chlorite+biotite+amphibole+carbonate+quartz alteration across unit. Contacts are at 60° and 20° to core axis. Minor to 0.5% pyrrhotite±pyrite±chalcopyrite across section disseminated and in clots.

From (m):	To (m):	Description:
50.23	86.00	**Intermediate Tuff with Alteration** Similar to 16.50-47.29m, except with higher sulphide content. 5-7% pyrrhotite with minor chalcopyrite across section. Local semi-massive to massive patches ~10-15cm long. 50.54-84.93m: Magnetite alteration zone. 2-5% magnetite in bands and clots across zone. BIF?
86.00	94.55	**Pelitic Sediments** <u>Lithology</u> Fine grained to medium grained biotite schist. Finely laminated. <u>Structure</u> Foliations @ 49°-55° to core axis. Soft sediment deformation features visible. Minor fine hairline fractures. Gradational contacts with upper and lower units. <u>Alteration</u> Abundant quartz veining up to 5-6cm in size. Minor quartz-carbonate. Minor amphibole alteration. 87.73-88.72m: Silicified Zone. Abundant quartz veining and silicification of rock. -includes 8cm quartz+sericite+tourmaline. Greenish sericite in amorphous masses along edge of vein. Black acicular needles, possibly tourmaline (very hard), may be hornblende. <u>Mineralization</u> 1-2% pyrrhotite+trace chalcopyrite±pyrite across section. Local massive to semi-massive patches with durchbewegan textures up to 20cm in size. 88.92-91.20m: intensely mineralized section with ~10% pyrrhotite+minor chalcopyrite±pyrite. Decreasing mineralization toward bottom of the hole.
94.55	100.02	**Mafic Ash Tuff** <u>Lithology</u> Very fine grained mafic ash tuff. Minor biotite banding. <u>Structure</u> Very fine laminations @ ~35° to core axis. Almost massive appearance. Fine hairline fractures @ ~75-90° to foliation. <u>Alteration</u> Quartz and quartz-carbonate veining throughout section. Minor chlorite+amphibole+quartz+carbonate alteration at end of section. Possible minor iron-carbonate veining. <u>Mineralization</u> 95.87-96.07m: 1-2% pyrrhotite with minor to 0.5% chalcopyrite. Trace sulphides through the rest of the section (pyrrhotite+pyrite).

From (m):	To (m):	Description:
100.02	122.53	**Intermediate Tuff** Same as 50.23-86.00m except with lesser amounts of alteration and sulphides. Abundant quartz-carbonate veining. 109.51-110.14m: 112.10-113.11m-garnet+chlorite+amphibole±biotite+quartz+carbonate alteration. Typical. 120.27-120.54m: 104.50-105.21m: Diorite dike. Fine grained to medium grained, quartz+plagioclase+mafics (biotite +amphibole). Appears to be late, low grade metamorphism compared to surrounding rock. 0.5% pyrrhotite+chalcopyrite in stringers. <u>Mineralization</u> trace to minor pyrrhotite+chalcopyrite throughout section, increases to 0.5-1% pyrrhotite+minor chalcopyrite at alteration zones.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-05**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	664160E 5521980N						
ELEVATION							
AZIMUTH	000°						
DIP	-47°						
REFLEX EZ-SHOT 1:	Date: 31-08-10	Depth: 11m Pullback: 6m	Azi: 001.3° Dip: -49°	2:	Date: 02-09-10	Depth: 142.04m Pullback: 6m	Azi: 000.7° Dip: -46.3°
CASING	1.52m						
LENGTH OF HOLE	142.04m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	02-Sep-10						
DATE COMPLETED	04-Sep-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
37.21	39.67	10-15% po±py±cpy, pervasive mm-scale bands/stringers
68.30	68.75	10-15% po±py with minor cpy in stringers and clots
70.86	73.08	10-15% po±py with minor cpy in stringers and clots

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	1.52		Casing
1.52	37.09		Intermediate Tuff
37.09	41.47		Intermediate Tuff with Sulphide Mineralization
41.47	59.83		Intermediate Tuff
59.83	62.12	54°/56°	Intermediate Intrusion
62.12	67.57		Intermediate Tuff
67.57	80.81		Mixed Tuff with Stringer Sulphide Mineralization
80.81	94.98		Intermediate Tuff, Highly Altered
94.98	104.60		Mafic Intrusion
104.60	125.94		Bleached Mixed Tuff
125.94	130.23		Bleached Mafic Tuff
130.23	142.04		Intermediate Crystal Tuff

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	1.52	**Casing**
1.52	37.09	**Intermediate Tuff** Lithology Very fine to fine grained andesite tuff. Faint bedding @35° to core axis where visible. Structure Minor weak foliations visible, usually around alteration patches, parallel to bedding. Several large (~20cm) faults near top of hole, @ 6.00m, 7.00m, 10.15m; appear to be very strong, similar to faults present near the top of holes 4 and 4A. Alteration Minor patches/bands of biotite±amphibole throughout unit, associated with foliation. Trace garnets present along few of these bands. Minor to moderate quartz-carbonate veining and alteration throughout, with local large (7-10cm) quartz veins. Mineralization Trace specks of sulphide (pyrite+pyrrhotite±chalcopyrite), some small mm-scale clots, generally associated with alteration banding.
37.09	41.47	**Intermediate Tuff with Sulphide Mineralization** Lithology Fine grained andesite tuff, bedded @ 40°-45° to core axis. Structure Moderate to strong foliation throughout, subparallel to bedding. Minor brecciation present in some veins. Alteration Strong biotite+amphibole±garnet±chlorite alteration bands throughout. Moderate to minor quartz veining, minor carbonate veining. Mineralization Strongly mineralized with mm-scale bands/stringers of pyrrhotite±pyrite±chalcopyrite. Local 2-3cm thick massive pyrrhotite veins. From 37.21-39.67m, pervasive sulphide stringers 10-15%; 2-7% sulphide elsewhere in unit.
41.47	59.83	**Intermediate Tuff** Lithology Fine to very fine grained andesite tuff. Fairly massive, bedding faint where visible. Some faint relict porphyry visible; especially higher in the unit. Structure Very faint/weak foliation, visible only where veined or altered (~50° to core axis). Local large (5-10cm wide) quartz veins, no preferred orientation, some subparallel to core axis. Alteration Sparse but fairly strong (coarser-grained) bands of biotite±amphible alteration. Quartz-carbonate veining common throughout unit. Rare small garnets in association with veins or bands. Mineralization Trace specks of pyrrhotite, pyrite, chalcopyrite throughout. Some sulphide (or sphalerite?) stringers in association with veining or alteration bands.

From (m):	To (m):	Description:
59.83	62.12	**Intermediate Intrusion** Lithology Fairly massive intermediate medium-grained dike. Structure Upper and lower contacts @ 54° and 56° to core axis respectively. Minor weak local fracture. Very weak foliation visible. Alteration Local biotite alteration patches. Fairly strong carbonate alteration, especially on contacts. Minor quartz/silicification around some carbonate veins. Mineralization Trace sulphide specks.
62.12	67.57	**Intermediate Tuff** Lithology Fine to very fine grained andesite tuff, very faint bedding. Structure Weak foliation visible mostly around/within alteration patches, @ 30-40° to core axis. Some minor fracture. Alteration Minor stringers of biotite alteration, few quartz-carbonate veinlets. Local patches slightly silicified/bleached. Mineralization Local very minor sulphide stringers associated with biotite alteration. Trace specks otherwise.
67.57	80.81	**Mixed Tuff with Stringer Sulphide Mineralization** Lithology Mixed fine to very fine grained intermediate to dacite bedded tuff. Local minor mafic beds present. Bedding cm-scale, with division between composition cm- to tens of cm-scale. Bedding @ ~45° to core axis throughout. Structure Pervasive moderate to strong foliation parallel to bedding. Alteration Nearly pervasive banded biotite alteration, with minor amphibole. Minor mm-cm scale quartz-carbonate veining. Some areas (preferentially dacite beds) slightly silicified/bleached. Mineralization Several zones strongly (10-15%) mineralized with pyrrhotite±pyrite and minor chalcopyrite in stringers and clots: 68.30-68.75m, 70.86-73.08m. Elsewhere in unit, mineralization is somewhat more sparse, in mm-scale stringers, clots, and disseminations, <1-2%.

From (m):	To (m):	Description:
80.81	94.98	**Intermediate Tuff, Highly Altered** Lithology Fine grained intermediate/andesite tuff, bedded (mm-cm scale). Few very local beds that appear to be dacitic, may just be silicification. Structure Strong pervasive foliation ranging from 30°-50° to core axis. Some boudinage texture. One large clear "S"/"Z" fold hinge @ 83.50-83.65m. Several large quartz veins. Alteration Amphibole alteration much stronger than previously in this hole. Biotite alteration bands still strong, though slightly less pervasive than preceding unit. Several local large (10-30cm) patches of garnet alteration, with garnets up to 2cm wide, irregular to subhedral. Mineralization Mostly trace to minor sulphides, with few bands of slightly elevated amounts (up to 3% over 20cm).
94.98	104.60	**Mafic Intrusion** Lithology Medium to coarse grained, fairly massive mafic intrusive unit. Mostly amphibole-plagioclase. Some large (0.5-2.0cm) relict but mostly-altered clasts, subhedral, round, hexagonal. Structure Weakly foliated ~45° to core axis. Sparse minor fractures. Alteration Sparse weak biotite alteration patches. Very minor quartz-carbonate veining. Mineralization No visible sulphides.
104.60	125.94	**Bleached Mixed Tuff** Lithology Intermediate to dacitic to mafic fine to medium grained bedded tuff, with bedding @ 45-50° to core axis throughout, cm-scale. Structure Moderate to weak foliation subparallel to bedding. Sparse fractures. Alteration Moderate to strong bands and disseminations of biotite±amphibole alteration. Moderate to major garnet alteration, with few patches that nearly overprint entire rock. Garnets much clearer than previously in this hole, though still irregular to subhedral. Nearly pervasive moderate to strong bleaching/silicification overprinting entire unit. Few possible clots of chlorite. Mineralization Mostly trace sulphide, though some stronger patches (up to 2% locally) usually associated with alteration bands.

From (m):	To (m):	Description:
125.94	130.23	**Bleached Mafic Tuff** Lithology Fine grained mafic bedded tuff. Structure Strongly foliated @ 45°-50° to core axis, subparallel to bedding. Alteration Bands/stringers of strong biotite±amphibole alteration pervasive. Strong bands of sericite alteration present. Mineralization Trace sulphides throughout, though some local stringer zones up to 10%.
130.23	142.04	**Intermediate Crystal Tuff** Lithology Fine to medium-grained intermediate/andesite tuff. Bedding faint, @ ~50° to core axis. Structure Weak to moderate foliation subparallel to bedding. Alteration Strong, pervasive amphibole+sericite alteration. Bands/stringers of biotite±chlorite. Much quartz-carbonate veining throughout. Mineralization None visible.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-06**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	664160E 5522030N						
ELEVATION							
AZIMUTH	000°						
DIP	-47°						
REFLEX EZ-SHOT 1:	Date: 02-09-10	Depth: 11m Pullback: 6m	Azi: 001° Dip: -46.5°	2:	Date: 03-09-10	Depth: 130m Pullback: 6m	Azi: 001.3° Dip: -44.9°
CASING	3.00m						
LENGTH OF HOLE	129.84m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	05-Sep-10						
DATE COMPLETED	08-Sep-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
		No strong mineralization.

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	3.00		Casing
3.00	10.50		Mafic Tuff
10.50	12.83		Alteration Zone
12.83	28.40		Intermediate to Dacite Tuff
28.40	41.45		Intermediate Tuff
41.45	41.90		Mafic Intrusive
41.90	46.29		Intermediate Tuff
46.29	63.60		Mafic Intrusive
63.60	64.10	50°/50°	Silicified Dike
64.10	70.38		Mafic Intrusive
70.83	81.80		Intermediate Tuff (biotite+amphibole altered)
81.80	102.72		Intermediate Tuff (weakly brecciated)
102.72	115.71		Intermediate Tuff (weak brecciation, weakly bleached)
115.71	129.84		Intermediate Tuff (biotite altered, bleached)
	EOH		

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	3.00	**Casing**
3.00	10.50	**Mafic Tuff** Lithology Fine to medium grained bedded mafic tuff. Bedding mm-cm scale, 38°-42° to core axis. Structure Strong foliation, parallel to bedding, pervasive. Minor brecciation of some veins. Fault (ground core) @ 4.44m. Alteration Banded biotite alteration with nearly pervasive stong amphibole alteration. Common quartz-carbonate veins, mostly mm-cm scale with few local up to 20cm. Strong chlorite alteration around veins. Several patches of large (1-2cm) irregular-shaped garnets. Mineralization Few local pyrrhotite+pyrite stringers and disseminations, usually in association with quartz-carbonate veining.
10.50	12.83	**Alteration Zone** Lithology Almost completely overprinted by alteration, probably mafic tuff. Structure Highly brecciated, veined, and foliated throughout, with angles from 60°-40° to core axis. Alteration Very strongly altered with biotite, amphibole, garnet, chlorite, quartz-carbonate, and bleaching. Alteration mostly banded, but also veins and clots. Mineralization Minor pyrrhotite+pyrite sulphide mineralization, up to 1%, in stringers and mm-scale clots.
12.83	28.40	**Intermediate to Dacite Tuff** Lithology Fine grained bedded andesite tuff interbedded with fine to medium grained dacite tuff, with cm-10's of cm scale beds. Contacts between andesite and dacite difficult to determine due to degree of alteration. Structure Strong, pervasive foliation, parallel to bedding @ 32°-42° to core axis. Minor local othogonal fracture. Alteration Strong, pervasive banded to disseminated biotite alteration, with less common but very stong amphibole alteration. Common quartz-carbonate veining with local chlorite alteration patches. Very sparse garnets. Few moderate silicified/bleached zones around quartz veining. Mineralization Very minor to trace stringers and disseminations of pyrrhotite±pyrite sulphide mineralization, though few local disseminations up to 1%. Trace chalcopyrite specks.

From (m):	To (m):	Description:
28.40	41.45	**Intermediate Tuff** Lithology Fine grained laminated/bedded intermediate (andesite) tuff. Some possible mafic beds, but difficult to determine due to strong alteration. Structure Strong, pervasive 45°-50° to core axis foliation. Minor local orthogonal fracture. Alteration Strong biotite±amphibole alteration in bands and stringers. Local strongly chloritized quartz-carbonate veins. Local garnetiferous patches. Few weakly bleached areas. Mineralization Local sub-mm specks of pyrrhotite/pyrite/chalcopyrite, very trace.
41.45	41.90	**Mafic Intrusive** Medium-grained mafic intrusive unit, weakly foliated, amphibole, carbonate alteration. No mineralization.
41.90	46.29	**Intermediate Tuff** Same description as "Intermediate Tuff" unit from 28.40-41.45m.
46.29	63.60	**Mafic Intrusive** Lithology Medium to coarse grained massive mafic intrusive unit, mostly amphibole and feldspar. Structure Weakly foliated @ 45°-50° to core axis. Alteration Patches of strong biotite alteration. Minor quartz veining, moderate carbonate veining (~2-3% overall), both with some chlorite. Mineralization No visible sulphide.
63.60	64.10	**Silicified Dike** Small, fine grained mafic(?) dike, massive texture, showing weak to moderate bleaching/ silicification. Sharp contacts @ 50° to core axis.
64.10	70.38	**Mafic Intrusive** Same description as "Mafic Intrusive" from 46.29-63.60m, but foliation appears stronger toward bottom of the unit.

From (m):	To (m):	Description:
70.83	81.80	**Intermediate Tuff (biotite+amphibole altered)** Lithology Fine grained intermediate bedded tuff, bedding mm-cm scale, ~47° to core axis. Structure Moderate to strong foliation throughout. Local soft sediment deformation present. Minor local orthogonal fracture. Alteration Strong, pervasive biotite alteration, grading to banded alteration after the first metre from the top of the unit. Moderate to weak amphibole alteration in association with biotite bands. Fairly strong quartz-carbonate veining throughout, with associated chlorite. Mineralization Trace specks of pyrrhotite, pyrite, chalcopyrite. One spot with a visible intergrowth of pyrrhotite +chalcopyrite in cubic and diamond form, possibly replacing pyrite?
81.80	102.72	**Intermediate Tuff (weakly brecciated)** Lithology Same as preceding unit, except for finer grained and slightly less visible bedding. Structure Same foliation as preceding unit, except weaker, possibly due to silicification. Local grading to pervasive brittle fracture (weak brecciation?) down unit, often association with quartz veining, @ shallow angles to core axis (25° to parallel). 102.15-102.72m: large brittle fault @ ~41° to core axis, silicified/bleached strongly with orthogonal fracture throughout. Alteration Much weaker but still banded biotite alteration. Much weaker amphibole. Strongly veined with quartz-carbonate throughout, with moderate bleaching along veins and fractures, some veins brecciated. Chlorite and epidote in association with some veins and fractures. Mineralization Local specks of trace pyrrhotite, chalcopyrite, pyrite, often associated with veins and brecciation.
102.72	115.71	**Intermediate Tuff (weak brecciation, weakly bleached)** Lithology Same fine grained bedded andesite tuff as preceding unit. Structure Same weak foliation as preceding unit, but nearly pervasive weak fracture. Alteration Local/minor but fairly strong biotite±amphibole alteration bands. Nearly pervasive weak bleaching, probably associated with brecciation and veining. Quartz-carbonate veining slightly more common than in preceding unit. Minor local garnet patches. Mineralization Still trace pyrrhotite, pyrite, chalcopyrite specks, but slightly higher amounts than preceding unit. Sulphides mostly occurring around veins.

From (m):	To (m):	Description:
115.71	129.84	**Intermediate Tuff (biotite altered, bleached)** Lithology Same composition/bedding as preceding tuff units, but slightly coarser-grained (fine to medium grained). Structure Slightly stronger foliation than preceding tuffs, but almost no brittle fracture. Still @ ~45° to core axis. Alteration Moderate to strong banded biotite+amphibole alteration throughout unit, minor local garnets. Strong mm-cm scale quartz-carbonate veining, with chlorite alteration on most vein edges. In last ~3m of hole, biotite+amphibole becomes strong and pervasive, with larger (up to 15cm) quartz-carbonate veins with associated chlorite. Mineralization Trace specks of pyrrhotite±chalcopyrite with some specks showing previously-mentioned intergrowths.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-07**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	665573E 5522932N						
ELEVATION	454m						
AZIMUTH	000°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 06-09-10	Depth: 23.16m Pullback: 9.14m	Azi: 359.1° Dip: -47°	2:	Date: 07-09-10	Depth: 170m Pullback: 6m	Azi: 001.3° Dip: -41.6°
CASING	13.72m						
LENGTH OF HOLE	166.42m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	09-Sep-10						
DATE COMPLETED	12-Sep-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
44.64	45.35	10-15% po+py+cpy in stringers, veinlets, clots, and disseminations
136.34	137.5	40-60% po with minor pyrite and specks of cpy. Durchbewegan texture.
137.90	139.00	~10% po, clots and stringers
139.00	139.45	~30% po with minor pyrite and specks of cpy. Durchbewegan texture.
140.93	141.51	~10% po±cpy, in clots, stringers, and disseminations

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	13.72		Casing
13.72	44.64		Intermediate Tuff
44.64	45.35		Mineralized Vein
45.35	72.20		Intermediate Tuff
72.20	109.14		Intermediate Tuff
109.14	112.21		Brecciated Zone
112.21	114.11		Intermediate Tuff
114.11	115.25	12°/24°	Mafic Dike
115.25	135.80		Mixed Tuff (Mafic-Intermediate)
135.80	136.34		Brecciated Zone
136.34	137.50	60°/22°	Massive Sulphide Zone
137.50	137.90		Intermediate Tuff
137.90	139.00	23°/60°	Intermediate Dike with Mineralization
139.00	139.45		Veined Sulphide Zone
139.45	140.93		Mixed Tuff (Andesite-Dacite)
140.93	141.51	50°/40°	Intermediate Dike with Mineralization
141.51	144.66		Mixed Tuff (Andesite-Dacite)
144.66	155.00		Bleached Dacite Tuff
155.00	155.94		Mixed Tuff
155.94	157.52		Dacite Tuff
157.52	160.34		Mixed Tuff
160.34	166.42		Dacite Tuff

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	13.72	**Casing** Mainly gravel (pebble-cobble) sized rubble. Constituents mainly plutonic glacially-deposited material (syenite, granite, gneiss). Some larger (10's cm scale) slabs of rock from more proximal source (andesite tuff).
13.72	44.64	**Intermediate Tuff** <u>Lithology</u> Fine grained, bedded/laminated andesite tuff. Bedding @ ~35°-45° to core axis. <u>Structure</u> Fairly strong, pervasive foliation parallel to bedding. Minor local brittle fracture, from parallel to perpendicular to core axis. Local apparent soft sediment deformation. <u>Alteration</u> Fairly stong alteration throughout, including pervasive amphibole±biotite stringers and bands, patches of strong garnet+chlorite alteration, and high concentration of quartz carbonate veining (mm-cm scale). Very minor local bleaching present. All alteration types increase in strength gradually down the unit. <u>Mineralization</u> Trace specks of sulphide (pyrrhotite, pyrite, chalcopyrite), generally <mm-mm scale, most often associated with more highly altered sections.
44.64	45.35	**Mineralized Vein** <u>Lithology</u> Fine grained andesite tuff, but largely overprinted by mineralization and alteration, so difficult to determine. <u>Structure</u> Brittle-ductile fracturing/faulting throughout. The dominant orientation of structure appears to be ~55° to core axis, but fracturing can also be orthogonal to other structures. <u>Alteration</u> Strong to very strong silicification throughout, especially on main quartz vein in the centre. Strong carbonatization along veinlets and fractures. Strong biotite+amphibole+garnet throughout, with minor chlorite, but all have been strongly overprinted by silica and mineralization. <u>Mineralization</u> Strongly mineralized with (pyrrhotite+pyrite+chalcopyrite) sulphide, especially strong proximal to main quartz vein. Mineralization present in stringers, veinlets, clots, and disseminations, 10-15%.

From (m):	To (m):	Description:
45.35	72.20	**Intermediate Tuff** Lithology Fine to medium grained andesite tuff, bedded. Possible minor mafic beds present, but these may just be alteration. Bedding @ ~45-50° to core axis. Structure Weak to moderate foliation, subparallel to bedding. Much weak brittle fracture throughout, most parallel but some orthogonal to foliation. Most larger fractures appear to have "healed scar" texture, probably due to silicification. Alteration Mainly weak patches/bands of biotite, though some stronger local stringers present. Moderate amphibole alteration. Nearly pervasive weak- grading to moderate silicification/bleaching. Moderate quartz-carbonate (bleaching) throughout, slightly stronger on fractures and veinlets. Minor chlorite present in most veins. Mineralization Trace to locally minor sulphide mineralization, mostly pyrrhotite. Generally specks, though tiny stringers and disseminations also present, gradually increasing down hole.
72.20	109.14	**Intermediate Tuff** Lithology Fine grained bedded andesite tuff. Bedding generally very faint due to grain size and alteration (bleaching), but @ ~50° to core axis. Structure Weak but locally strong foliation, subparallel to bedding. Weakly to moderately brittle-fractured, fractures often orthogonal, with "healed scar" texture: outer edge silicified, chlorite±biotite infill. Local soft-sediment deformations. Fractures have preferred direction: cross cutting foliation @ 20°-30° to core axis. Rare large (>10cm) quartz veins present. ~98.00m: strong, silicified, biotitized, mineralized (slight), fault @ 40° to core axis. Alteration Weak to moderate bleaching pervasive. Very weak biotite+amphibole bands, (possibly weak due to bleaching overprint), except in fractures. Fairly sparse cm-scale patches of strong garnet alteration, with irregular, mm to cm scale garnets. Quartz-carbonate veinlets fairly common. Veins, fractures, and alteration patches have strong but very local chlorite alteration. Mineralization Minor mineralized sulphide disseminations associated with strongly altered (usually garnetiferous) zones and quartz veins. Trace sulphide overall.

From (m):	To (m):	Description:
109.14	112.21	**Brecciated Zone** Lithology Fine grained andesite tuff, with faint bedding mostly obscured by fracture. Structure Weakly foliated. Brittle fracture/brecciation grading from moderate to strong, back to moderate within unit, centred (strongest) @ ~110.10m. No preferred direction of fracture. Fractures generally hairline to 2mm width, often cross-cutting eachother. Alteration Moderate pervasive bleaching throughout, strong silicification in fractures. Minor carbonate concentrated in some fractures and veins. Minor, weak biotite+amphibole, but mostly overprinted by bleaching and brecciation. Mineralization Local strongly mineralization (sulphide) pyrrhotite+chalcopyrite stringers with the brecciation. Minor to trace overall.
112.21	114.11	**Intermediate Tuff** Very fine grained andesite, faint bedding, weak foliation (parallel to bedding @ ~45° to core axis). Pervasive weak bleaching, with minor but strong biotite+amphibole stringers. Moderate amount of quartz-carbonate veining subparallel to foliation. Fairly strong local stringers and disseminations of sulphide, trace overall.
114.11	115.25	**Mafic Dike** Lithology Medium to fine grained, fairly massive, mafic dike. Bluish feldspar (?) clasts, <1mm to 1mm, with matrix of black amphibole. Structure Very clear upper and lower contacts @ 12° to core axis and 24° to core axis respectively. Massive throughout with only local weak fractures and veinlets. Alteration Possibly very weakly bleached on contacts. Mineralization None visible.
115.25	135.80	**Mixed Tuff (Mafic-Intermediate)** Lithology Fine to very fine grained bedded tuff, mafic to intermediate compositions interbedded on cm to 10's cm scale. Bedding and contacts fairly faint due to alteration overprint. Structure Foliation very faint where visible, except on patches with stronger biotite+amphibole alteration. Very common but relatively weak brittle fracture throughout unit, no preferred orientation, but generally cross cutting stratigraphy. Sometimes strongly bleached, locally. Alteration Much of unit appears relatively unaltered, with infrequent weakly bleached patches, and frequent patches (usually 1-5cm scale width) of strong amphibole±biotite±garnet alteration. Strongly veined with quartz-carbonate, generally in association with otehr alterations or fracturing.

From (m):	To (m):	Description:
		Mixed Tuff (Mafic-Intermediate) (continued) Mineralization Relatively elevated (locally up to 1%, minor overall) sulphide mineralization, in stringers, clots (~1mm), and disseminations of pyrrhotite, chalcopyrite, pyrite. One brecciated vein of nearly massive pyrrhotite @ 135.47m, 9cm wide with minor chalcopyrite+pyrite.
135.80	136.34	**Brecciated Zone** Apparent fine grained andesite tuff with strong fracturing/brecciation. Strong bleaching/ silicification in fractures. Trace sulphide mineralization.
136.34	137.50	**Massive Sulphide Zone** Lithology Same andesite/mafic tuff as surrounding units, but mostly obscured by mineralization and brecciation. Structure Very strong brittle-ductile deformation throughout, with sulphide injection-melt texture (Durchbewegan). Apparent upper and lower contacts @ 60° to core axis and 22° to core axis respectively. Alteration Minor, weak quartz carbonate veining visible, but other alterations obscured by mineralization. Mineralization Strongly veined to massive sulphide mineralization throughout. Mostly pyrrhotite, with minor pyrite and visible specks of chalcopyrite. Two large (6cm to 11cm) zones of >70% sulphide, elsewhere 40-60%.
137.50	137.90	**Intermediate Tuff** Fine grained, no visible bedding, minor sulphide mineralization. No obvious alteration.
137.90	139.00	**Intermediate Dike with Mineralization** Lithology Medium to fine grained, fairly massive, andesitic in appearance. Structure Upper and lower contacts sharp @ 23° and 60° to core axis respectively. Within a few cm of upper contact is a zone ~18cm in width with strong foliation and mineralized stringers and veins. Possibly an inclusion of country rock? Some fairly strong foliations in dike, may be syn-formational flow structures: very curved (sinuous). Alteration Possible weak pyrophyllite/talc alteration pervasive, relatively soft. "Inclusion" shows similar alteration to surrounding rocks. Mineralization Fairly large (~0.5cm wide) clots and stringers of pyrrhotite, sparse. "Inclusion" has larger and higher concentrated clots and stringers, ~10% overall.
139.00	139.45	**Veined Sulphide Zone** Apparent "end" of "Massive Sulphide Zone" described previously. Same lithology, structure, alteration, and mineralization style, only slightly less concentrated (~30% overall).

From (m):	To (m):	Description:
139.45	140.93	**Mixed Tuff (Andesite-Dacite)** Lithology Very fine grained andesitic to dacitic interbedded tuff. Bedding cm-scale, ~45° to core axis. Structure Fairly strong brittle fracture, no preferred orientation. Apparent foliation largely overprinted by alteration. Alteration Intermediate beds altered to amphibole+garnet. Dacite beds strongly silicified. Often thin graphite stringers present between beds, within beds. Some garnets boudinaged and few present in dacite beds. Mineralization Minor disseminated sulphides.
140.93	141.51	**Intermediate Dike with Mineralization** Very similar to previously described mineralized dike in lithology and structure, with upper and lower contacts @ 50° and 40° to core axis respectively. Several large (cm-scale) clots, some stringers and disseminations of pyrrhotite±chalcopyrite. ~10% overall.
141.51	144.66	**Mixed Tuff (Andesite-Dacite)** Same description as previous mixed tuff from 139.45-140.93m.
144.66	155.00	**Bleached Dacite Tuff** Lithology Very fine grained dacitic bedded tuff. Bedding very faint. Several apparent medium-fine grained mafic dikes @ 146.08-146.38m, 147.24-147.39m, 147.57-147.86m, with slightly mineralized quartz-carbonate-amphibole veins. Very minor graphite. Structure Some minor local fracture and shearing. Alteration Strongly bleached throughout. Sparse quartz carbonate veining. Mineralization Trace specks of sulphide.
155.00	155.94	**Mixed Tuff** Same description as preceding "Mixed Tuff"
155.94	157.52	**Dacite Tuff** Same description as preceding "Dacite Tuff"
157.52	160.34	**Mixed Tuff** Same description as preceding "Mixed Tuff"
160.34	166.42	**Dacite Tuff** Same description as preceding "Dacite Tuff", except strongly altered to pyrophyllite/talc as well as bleached.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-08**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	665571E 5523116N						
ELEVATION	458m						
AZIMUTH	180°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 08-09-10	Depth: 30m Pullback: 6m	Azi: 184.3° Dip: -46.6°	2:	Date: 09-08-10	Depth: 102.41m Pullback: 6m	Azi: 185.1° Dip: -46.4°
CASING	12.80m						
LENGTH OF HOLE	102.41m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	14-Sep-10						
DATE COMPLETED	15-Sep-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
46.87	47.91	>70% durchbewegan sulphide, mainly py with po+cpy

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	12.80		Casing
12.80	23.16		Intermediate Tuff with Strong Alteration
23.16	40.00		Dacite Tuff
40.00	46.87		Mixed Tuff, Silicified/Bleached
46.87	47.91		Massive Sulphide Zone
47.91	54.05		Bleached Tuff
54.05	54.77		Intermediate Tuff
54.77	56.50		Brecciated Silicified Tuff
56.50	84.05		Intermediate Tuff
84.05	102.41		Intermediate Tuff (Garnetiferous to siliceous)

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	12.80	**Casing** Much boulders/rubble, mostly granite/syenite. Rock mostly slabs of fine grained andesite, some fairly strong stringers of pyrrhotite+chalcopyrite mineralization. Stringers of carbonate and biotite+amphibole.
12.80	23.16	**Intermediate Tuff with Strong Alteration** <u>Lithology</u> Fine to medium grained andesitic bedded tuff. Bedding mm-cm scale. <u>Structure</u> Fairly strong foliation, ranging from 20° to core axis to 45° to core axis. Locally very strong foliation. Fairly sparse brittle-ductile/brecciated quartz-carbonate veins, orientation ranging from parallel to perpendicular to core axis. Sparse brittle fracture in weaker quartz infill. <u>Alteration</u> Fairly strong amphibole±biotite alteration throughout, generally in cm-scale bands. Biotite generally very fine grained, but sparse stringers of coarser-grained flakes. Some minor silicification and quartz veining. Strong pervasive carbonate stringers. <u>Mineralization</u> Trace to very locally moderate (up to 1% over 1-3cm) pyrrhotite±chalcopyrite sulphide mineralization, in mm-scale clots and disseminations.
23.16	40.00	**Dacite Tuff** <u>Lithology</u> Fine to very fine grained dacitic to intermediate tuff. Fairly massive in appearance, but weak bedding visible in some areas. <u>Structure</u> Minor, fairly weak foliation, generally in association with alteration patches. Weak-looking but nearly pervasive brittle fracture, often cross-cutting. <u>Alteration</u> Pervasive but fairly weak blue silicification? (may be original texture/lithology). Biotite+amphibole alteration fairly weak overall, but with patches and stringers of moderate alteration. Strong carbonate alteration in cm-scale patches, along veins, and in fractures. <u>Mineralization</u> Fairly trace strong disseminations of pyrrhotite with minor specks of chalcopyrite in association with stronger alteration patches.

From (m):	To (m):	Description:
40.00	46.87	**Mixed Tuff, Silicified/Bleached** Lithology Mixed andesite to dacite tuff, bedded, fine to medium grained. Lithology cm to 10's of cm width, dacite beds generally thicker, but they may be just large alteration patches. Structure Strong quartz veining in the first 50cm of the unit, with associated alteration and mineralization. Moderate to strong foliation, 30°-45° to core axis. Strongly fractured patches throughout. Alteration Strong stringers of biotite+amphibole alteration on andesite beds; strong, fairly coarse-grained silicification/bleaching on dacite beds. Fairly weak but pervasive carbonate veining. Local chlorite alteration on veins. Mineralization Sparse specks and clots of sulphide, trace overall.
46.87	47.91	**Massive Sulphide Zone** Brecciated/pebbly massive sulphide melt injection texture (Durchbewegan). Small (generally 0.5-1.0cm "pebbles", with one larger 5cm inclusion of andesite tuff) inclusions of country rock. >70% sulphide mineralization, mainly pyrite with pyrrhotite+chalcopyrite in smaller concentrations.
47.91	54.05	**Bleached Tuff** Lithology Fine grained tuff, probably andesite/dacite, but pervasive alteration overprint masks lithology. Structure Strong, pervasive foliation, ~35° to core axis. Local strong fracture. Alteration Strong, pervasive silicification overprinting nearly everything. Relatively high concentration (1-2% overall) of biotite stringers, parallel to foliation, with amphibole alteration association. Fairly sparse mm-cm scale garnets, especially in first 3m of unit. Mineralization Fairly strongly mineralized (5-7%) with clots and minor stringers of sulphide in the first 3 metres of the unit, grading to trace afterwards. Mainly pyrrhotite with chalcopyrite+pyrite associated.
54.05	54.77	**Intermediate Tuff** Same description as previous unit, except very little bleaching present. Instead, stronger amphibole+biotite alteration present, with fairly common irregular-shaped garnets. Only trace sulphide present.
54.77	56.50	**Brecciated Silicified Tuff** Same tuff as preceding units, but with strong brittle fracturing/brecciation. Highly siliceious, only trace sulphide. Moderate biotite stringers present.

From (m):	To (m):	Description:
56.50	84.05	**Intermediate Tuff** Lithology Fine to very fine grained, weakly bedded, intermediate tuff. Some beds with slightly coarser clasts (up to medium-grained), but always matrix-supported. Small (68.15-68.40m) mafic dike present. Structure Very weak foliation where present. Local strongly silicified fracture, often with quartz-mica infill (possible tourmaline). Alteration Weak but locally very strong silicification. Minor biotite present, generally stringers along foliation. Minor carbonate veining. Local weakly garnetiferous patches. Mineralization One patch of weakly sulphide mineralized veining @ ~59.50m. Trace to non-visible elsewhere.
84.05	102.41	**Intermediate Tuff (Garnetiferous to siliceous)** Lithology Same lithology as preceding unit. Structure Weak to locally strong foliation. Local strong fracture. Alteration Strongly grading to weakly garnetiferous (~1cm irregular garnets). Weakly grading to moderate silicification. Minor quartz-carbonate veining. Moderate biotite alteration, stringers following foliation. Mineralization Trace sulphide specks.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-09**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	665570E 5523200N						
ELEVATION	460m						
AZIMUTH	180°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 11-09-10	Depth: 17m Pullback: 6m	Azi: 194.4° Dip: -46.7°	2:	Date: 11-09-10	Depth: 120.7m Pullback: 6m	Azi: 196.0° Dip: -45.1°
CASING	12.19m						
LENGTH OF HOLE	120.70m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	16-Sep-10						
DATE COMPLETED	18-Sep-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
		No significant intervals.

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	12.19		Casing
12.19	15.92		Intermediate Crystal Tuff
15.92	18.63		Intermediate Tuff
18.63	21.41		Intermediate Crystal Tuff
21.41	24.07		Intermediate Tuff
24.07	28.94		Intermediate Crystal Tuff
28.94	35.20		Intermediate Tuff
35.20	36.01	61°/52°	Mafic Dike
36.01	37.30		Intermediate Tuff
37.30	38.11	60°/50°	Intermediate Dike
38.11	44.80		Intermediate Tuff
44.80	48.26		Altered Dacite Tuff
48.26	49.02		Mafic Dike
49.02	51.00		Altered Intermediate Tuff
51.00	51.93	40°/40°	Intermediate Dike
51.93	53.64		Altered Intermediate Tuff
53.64	56.73		Brecciated Siliceous Tuff
56.73	81.90		Altered Mixed Tuff
81.9	82.56		Intermediate Dike
82.56	86.51		Altered Mixed Tuff
86.51	95.12		Mixed Tuff
95.12	96.91		Dacite Tuff Sequence
96.91	120.70		Altered Mixed Tuff
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	12.19	**Casing** Pebbles, cobbles, mostly granite/syenite.
12.19	15.92	**Intermediate Crystal Tuff** <u>Lithology</u> Medium grained feldspar crystals in fine grained ash matrix. Slightly visible bedding. <u>Structure</u> Weakly foliated locally 30°-40°. One large fault @ 15.24-15.43m, strongly sheared and altered. <u>Alteration</u> Patchy, fairly weak biotite±amphibole alteration present. Fairly common but weak/small carbonate veining. <u>Mineralization</u> Trace specks of sulphide (pyrrhotite) mineralization, generally associated with biotite/carbonate-altered patches.
15.92	18.63	**Intermediate Tuff** <u>Lithology</u> Fine-grained intermediate tuff with minor bedding. Rare medium grained layers. <u>Structure</u> Very weak foliation 30°-40° to core axis. <u>Alteration</u> Patchy strong amphibole+biotite alteration, with chlorite. Weak carbonate veining. <u>Mineralization</u> Fairly strong (but minor) sulphide (pyrrhotite specks/clots) associated with alteration, but trace specks elsewhere.
18.63	21.41	**Intermediate Crystal Tuff** <u>Lithology</u> Medium-grained crystal tuff with minor/weak visible bedding. <u>Structure</u> Weakly foliated, not always visible. <u>Alteration</u> Patches of strong amphibole+biotite alteration like previous unit. Pervasive sericite alteration, showing felspar crystals clearly. <u>Mineralization</u> Fairly strong sulphide (pyrrhotite specks/clots) associated with strong alteration patches, but trace specks elsewhere.
21.41	24.07	**Intermediate Tuff** Same description as "Intermediate Tuff" from 15.92-18.63m, except less-strong biotite+amphibole alteration patches, and slightly stronger carbonate veining. No visible mineralization.

From (m):	To (m):	Description:
24.07	28.94	**Intermediate Crystal Tuff** Same description as "Intermediate Crystal Tuff" from 18.63-21.41m, except with a small (10cm) fine-grained felsic dike @ 26.21m with contacts @50° and 55° to core axis.
28.94	35.20	**Intermediate Tuff** Same description as "Intermediate Tuff" from 15.92-18.63m.
35.20	36.01	**Mafic Dike** <u>Lithology</u> Very fine grained mafic dike, with fairly strongly brecciated/silicified contacts with country rock, @61° and 52° to core axis. Medium grained amphibole throughout. <u>Structure</u> Fairly massive, but amphibole crystals have moderate imbrication @ same axis as contacts. <u>Alteration</u> Minor quartz-carbonate veining. <u>Mineralization</u> Very sparse pyrrhotite clots.
36.01	37.30	**Intermediate Tuff** Same description as "Intermediate Tuff" from 15.92-18.63m. 36.66-36.76m: Mafic Dike, same description as 35.20-36.01m, but non brecciated contacts @ 62° and 60° to core axis.
37.30	38.11	**Intermediate Dike** Fine to medium grained dike, fairly massive, with fairly well-imbricated biotite and amphibole. Contacts with fairly fine-grained cooled margins @ 60° and 50°. Very trace pyrrhotite clot near lower margin.
38.11	44.80	**Intermediate Tuff** <u>Lithology</u> Very fine to fine grained intermediate tuff, fairly massive. <u>Structure</u> Weak to fairly strong silicified fracture, generally 35°-45° to core axis with some orthogonal. <u>Alteration</u> Relatively unaltered, though minor silicification in some areas that may be dacite layers. Minor quartz-carbonate veining, some with biotite+chlorite (fairly weak) alteration rims. <u>Mineralization</u> Trace sulphide (pyrrhotite, chalcopyrite) specks.

From (m):	To (m):	Description:
44.80	48.26	**Altered Dacite Tuff** Lithology Weakly bedded medium-grained dacite tuff. Structure Weak foliation and local weak fracture. Alteration Strong, but slightly patchy amphibole+biotite alteration. Fairly common carbonate veining, some with chlorite associated bluish silicification present. Mineralization Minor sulphide disseminations (<1%) in association with stronger-alteration patches.
48.26	49.02	**Mafic Dike** Lithology Medium-grained, mafic dike, with contacts @ 36° and 46° to core axis. Structure Fairly strong brittle fracture. Weak-looking foliation shown by imbrication of amphibole/biotite crystals. Alteration Strongly silicified contacts, weak carbonate alteration. Mineralization No visible mineralization.
49.02	51.00	**Altered Intermediate Tuff** Medium-grained intermediate bedded tuff, fairly strong foliation, strongly fractured with silicification. Strongly altered biotite+amphibole patches. Trace to minor sulphide mineralized stringers and clots.
51.00	51.93	**Intermediate Dike** Fairly massive medium grained dike with silicified contacts @ ~40° to core axis. Minor quartz-carbonate veining.
51.93	53.64	**Altered Intermediate Tuff** Same description as "Altered Intermediate Tuff" from 49.02-51.00m.
53.64	56.73	**Brecciated Siliceous Tuff** Strongly grading to very strongly brecciated tuff, with fractures strongly to very strongly silicified. Quartz-carbonate veining with strong biotite+amphibole alteration. Only trace visible sulphides.

From (m):	To (m):	Description:
56.73	81.90	**Altered Mixed Tuff** Lithology Fine to medium grained intermediate to dacite tuff. Weak bedding visible in some areas. Some possible soft-sediment deformation, may be alteration. Structure Moderate foliation throughout, 30°-40° to core axis. Alteration Moderate to strong amphibole+biotite alteration patches/bands. Amphibole nearly pervasive. Local but strong chlorite patches, especially on quartz veins. Strong quartz-carbonate and carbonate veining throughout. Moderate bluish silicification, may be original dacite. Mineralization Fairly strong mineralization throughout; stringers, clots, and disseminations; up to 2%, but minor overall. Mostly pyrrhotite with minor pyrite and chalcopyrite.
81.9	82.56	**Intermediate Dike** Fine grained massive intermediate dike, with contacts @ 44° and 45° to core axis. Fairly large (~2cm) but sparse-clots of pyrrhotite (trace) mineralization. No visible alteration or structure.
82.56	86.51	**Altered Mixed Tuff** Same description as "Altered Mixed Tuff" from 56.73-81.90m.
86.51	95.12	**Mixed Tuff** Same description as "Altered Mixed Tuff" from 56.73-81.90m, except weaker alteration overall, with weak fracturing throughout. Only trace sulphides visible.
95.12	96.91	**Dacite Tuff Sequence** Medium-grained massive dacite crystal tuff, to fine-grained bedded dacite tuff, to another bed of massive crystal- grading to finer grained tuff. Weak foliation subparallel to bedding. Fairly strong biotite in medium-grained units, could be either alteration or syn-depositional. Minor carbonate veining in fine grained areas. Only trace specks of pyrrhotite.
96.91	120.70	**Altered Mixed Tuff** Same description as "Altered Mixed Tuff" from 56.73-81.90m, except much less mineralization: minor disseminations present, over several cm's but trace overall. Mostly pyrite+pyrrhotite. Strong silicified fault present @ 105.32-105.40m, ~33° to core axis; and 113.97-114.18, ~42° to core axis. Last 5 metres much less carbonate, but much more quartz-carbonate veining, some with minor mineralization (minor overall). Sparse strong silicified fractures.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-10**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	663875E 5523269N						
ELEVATION	453m						
AZIMUTH	000°						
DIP	-50°						
REFLEX EZ-SHOT 1:	Date: 14-09-10	Depth: 12.2m Pullback: 6m	Azi: 008.8° Dip: -51.4°	2:	Date: 16-09-10	Depth: 142m Pullback: 6m	Azi: 003.6° Dip: -46°
3:	Date: 18-09-10	Depth: 267m Pullback: 6m	Azi: 005.8° Dip: -42.1°				
CASING	3.05m						
LENGTH OF HOLE	267.00m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	20-Sep-10						
DATE COMPLETED	24-Sep-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
8.15	9.72	7-10% sulphide, mostly po with minor py+cpy. Stringers, clots, some durchbewegan.
11.33	13.59	~5% sulphide overall, po±cpy. Mostly clots, some small durchbewegan patches.
15.73	21.45	~1-5% po±py±cpy, mostly clots and disseminations, some stringers,veinlets. Possible sph.
38.85	42.06	~5% overall, py+po, minor cpy, possible sph, clotted/disseminated.
48.33	61.80	~5% overall, py+po, minor cpy, possible sph, clotted/disseminated.
100.37	118.60	~5% overall, py+po, possible sph, clots, stringers, and disseminations.

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	3.05		Casing
3.05	8.15		Mixed Tuff
8.15	9.72		Mineralized Bleached Tuff
9.72	11.33		Mixed Tuff
11.33	13.59		Mineralized Tuff
13.59	15.73		Mixed Tuff
15.73	21.45		Mineralized Weakly Bleached Tuff
21.45	29.42		Strongly Bleached Tuff with Minor Sulphide Mineralization
29.42	29.70	41°/45°	Mafic Dike
29.70	38.85		Bleached Tuff
38.85	42.06		Mineralized Silicified Tuff
42.06	48.33	40°/12°	Mafic Intrusion
48.33	61.80		Mineralized Silicified Tuff
61.80	63.95		Mafic Intrusion
63.95	64.88		Mixed Crystal Tuff
64.88	65.40		Mafic Intrusion
65.40	86.32		Mixed Crystal Tuff
86.32	100.37		Mixed Tuff
100.37	118.60		Mineralized Silicified Tuff
118.60	120.63		Strongly Bleached Tuff
120.63	122.95	44°/35°	Mafic Dike
122.95	140.38		Strongly Bleached Tuff
140.38	143.25		Garnetiferous Bedded Tuff
143.25	143.59		Intermediate Tuff

From (m):	To (m):	Contacts: U/L	Description
143.59	144.43	51°/56°	Mafic Dike
144.43	152.23		Mixed Tuff with Patchy Alteration
152.23	152.64	32°/50°	Mafic Dike
152.64	169.82		Mixed Tuff with Patchy Alteration
169.82	186.30		Massive Intermediate Unit
186.30	212.90		Bedded Mixed Tuff
212.90	213.68	22°/30°	Mafic Dike
213.68	267.00		Intermediate Tuff
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	3.05	**Casing** Rubble and mixed tuff, minor sulphide stringers, weak orthogonal fracture and weak biotite+ amphibole alteration.
3.05	8.15	**Mixed Tuff** <u>Lithology</u> Interbedded intermediate and dacitic fine-grained tuffs. Bedding @ 50°-55°. Some rubble from casing @ beginning of unit, mostly felsic plutonic rock, with slightly ground core. <u>Structure</u> Minor weak fracture, much subparallel to core axis. 4.35-4.64m: very strong silicified/brecciated zone, probably a fault. Strongest direction apparently 54° to core axis. Weak foliation parallel to bedding. <u>Alteration</u> Weak bands of amphibole±biotite alteration. Minor quartz-carbonate veining, some with minor chlorite alteration patches local. Trace garnets. <u>Mineralization</u> Trace specks of sulphide.
8.15	9.72	**Mineralized Bleached Tuff** <u>Lithology</u> Mostly overprinted by silicification and mineralization, but probably the same mixed tuff described previously in hole. <u>Structure</u> Foliation in same ~50° to core axis direction as previously described, but slightly stronger in this unit. Durchbewegan (sulphide melt injection) texture present @ 8.91-9.00m. <u>Alteration</u> Fairly weak biotite, overprinted by pervasive strong silicification/bleaching. <u>Mineralization</u> Fairly strong mineralization throughout (7-10% sulphide) mostly in veins and stringers, but with some clots and disseminations. Mostly pyrrhotite with minor pyrite and chalcopyrite. Possible very finely grained sphalerite. Previously mentioned Durchbewegan texture with nearly-massive pyrrhotite >50%.
9.72	11.33	**Mixed Tuff** Same description as "Mixed Tuff" from 3.05-8.15m, except no fault present.
11.33	13.59	**Mineralized Tuff** Similar lithology and structure to "Mineralized Bleached Tuff" from 8.15-9.72m, but no bleaching except for minor, weak patches. Weak to moderate patches of biotite±amphibole alteration present. Mineralization much patchier than previous, mostly clots but few small patches of durchbewegan. Elsewhere disseminated. Up to 25% locally, but ~5% overall. Pyrrhotite±chalcopyrite.

From (m):	To (m):	Description:
13.59	15.73	**Mixed Tuff** Same description as "Mixed Tuff" from 3.05-8.15m, except no rubble. Stronger fractures (siliceous) subparallel to core axis. Slightly more garnet, but still trace.
15.73	21.45	**Mineralized Weakly Bleached Tuff** <u>Lithology</u> Bedded tuff, entirely overprinted by alteration and mineralization. Possible massive mafic dike @ 20.39-20.73m. <u>Structure</u> Strong, nearly pervasive foliation, @ 45°-50° to core axis. Minor weak, silicified fracture throughout. <u>Alteration</u> Weak to moderate near-pervasive silicification/bleaching. Few strong quartz-carbonate veins, with local strong chlorite. Banded biotite+amphibole alteration throughout, but weak-looking due to bleaching. Mostly trace garnets, except for a very strongly garnetiferous patch @ 18.80-19.25m. This patch also appears to have strong graphite stringers. <u>Mineralization</u> Moderate mineralization (pyrrhotite±pyrite±chalcopyrite) overall ~1-5%, mostly in clots and disseminations with some stringers and veinlets. Possible fine-grained sphalerite.
21.45	29.42	**Strongly Bleached Tuff with Minor Sulphide Mineralization** <u>Lithology</u> Largely overprinted by alteration, but probably mixed intermediate and dacite tuff beds. Sparse blue quartz eyes present. <u>Structure</u> Patchy, but fairly strong foliation 45°-50° to core axis. Sparse, weak orthogonal fracture. <u>Alteration</u> Pervasive moderate to strong bleaching/silicification, with associated quartz-veining (no preferred orientation, much cross-cutting). Patchy sericite±biotite alteration present. <u>Mineralization</u> Relatively minor mineralization, probably <1% overall. Mostly pyrrhotite±pyrite±chalcopyrite, mainly mm-scale clots and fine disseminations.
29.42	29.70	**Mafic Dike** Massive, medium grained mafic dike with contacts @ 41° and 45° to core axis. Upper contact shows minor fracture. No visible mineralization.

From (m):	To (m):	Description:
29.70	38.85	**Bleached Tuff** Lithology Probably bedded tuff, but strongly overprinted by bleaching. Structure Minor local silicified fracture. Alteration Strong bleaching overprints nearly everything. Some strong quartz veining. Mineralization Trace specks of pyrite, generally associated with veining.
38.85	42.06	**Mineralized Silicified Tuff** Lithology Probably dacite tuff, but strongly overprinted by bleaching. High concentration of rounded, 2-4mm, blue quartz eyes throughout. Structure Fairly strong, near-pervasive foliation, 50°-55° to core axis. Weak, local orthogonal fracture. Alteration Strong, pervasive bleaching/silicification. Patchy sericitization. Much quartz veining. Moderately garnetiferous. Mineralization Clotted to disseminated pyrite+pyrrhotite with minor chalcopyrite, possible fine-grained sphalerite. Up to 10% locally, ~5% overall.
42.06	48.33	**Mafic Intrusion** Lithology Fine-grained massive mafic intrusion, with upper and lower contacts @ ~40° to core axis and ~12° to core axis respectively. Minor inclusion of mineralized country rock @ 44.84-45.21m, apparently edge of dike subparallel to core axis. Structure Mostly massive, but with sparse weak fracture @ ~12° to core axis. Alteration None apparent. Mineralization None except for previously-mentioned "inclusion".
48.33	61.80	**Mineralized Silicified Tuff** Same description as "Mineralized Silicified Tuff" from 38.85-42.06m, except for large quartz vein from 55.36-55.84m, @ ~35° to core axis; and weakly brecciated zone from 59.95-60.50m.
61.80	63.95	**Mafic Intrusion** Similar description as "Mafic Intrusion" from 42.06-48.33m, except for fairly strong local fracture, carbonate altered, also with quartz-carbonate vein, altered with amphibole and slightly mineralized, running subparallel to core axis. Very minor clots of pyrrhotite.

From (m):	To (m):	Description:
63.95	64.88	**Mixed Crystal Tuff** Lithology Fine to medium grained crystal tuff, with interbedded intermediate and dacite layers. Structure Fairly strong foliation, subparallel to bedding, 50°-65° to core axis. Weak but very common fracture with strong carbonate alteration. Alteration Previously-mentioned carbonate near-pervasive in veinlets. Moderate biotite+amphibole alteration, only in minor stringers along foliations. Mineralization Minor to trace clots and disseminations of pyrrhotite, pyrite.
64.88	65.40	**Mafic Intrusion** Same description as "Mafic Intrusion" from 61.80-63.95m, including mineralized vein running subparallel to core axis.
65.40	86.32	**Mixed Crystal Tuff** Similar description as "Mixed Crystal Tuff" from 63.95-64.88m, except some layers/beds have slightly coarser crystals. Strong, but sparse, patches of varying alteration throughout, from quartz-carbonate, to silicified, to biotite+amphibole, to garnetiferous. Minor to trace clots of sulphide, especially associated with more strongly altered patches.
86.32	100.37	**Mixed Tuff** Lithology Mostly fine-grained intermediate and dacitic interbedded tuff, with minor beds of crystal tuff. Bedding ~50° to core axis. Structure Weak local fractured patches, carbonate-altered. Alteration Weak patches of biotite+amphibole, and quartz-carbonate veining with chlorite. Minor bleached patches toward bottom of the unit. Mineralization Very trace specks of sulphide.

From (m):	To (m):	Description:
100.37	118.60	**Mineralized Silicified Tuff** Lithology Interbedded fine to medium grained intermediate and dacite tuff. Bedding ~50° to core axis. Sparse blue quartz eyes. Fine grained massive mafic dike present @ 112.68-112.96m, contacts @ 30° to core axis. Structure Foliation nearly-pervasive, but ranges from strong to weak. S/Z fold axis present @ 101.05-101.35m. Alteration Pervasive moderate silicification. Fairly sparse quartz-carbonate veining, with chlorite. Patchy biotite± alteration, some sericite. Rare garnetiferous zones. Mineralization Fairly strong clots, stringers, and disseminations of pyrite+pyrrhotite sulphide. ~5% overall, some local patches up to 15%. Some areas only trace/minor sulphide. Possible local sphalerite.
118.60	120.63	**Strongly Bleached Tuff** Probably dacite tuff, but everything overprinted by very strong bleaching. Minor bands of sericite. Minor brittle fracture. Trace sulphide clots.
120.63	122.95	**Mafic Dike** Massive mafic dike with fine and medium grained sections. Upper and lower contacts @ 44° to core axis and 35° to core axis respectively. Few minor pyrite specks visible. Sparse quartz veins.
122.95	140.38	**Strongly Bleached Tuff** Same description as "Strongly Bleached Tuff" from 118.60-120.63m, except with sparse quartz veining, and minor biotite alteration. Still only trace specks/clots of sulphide, though some large veins with larger clots.
140.38	143.25	**Garnetiferous Bedded Tuff** Lithology Fine-grained bedded tuff, mostly andesite/intermediate, but with some beds that may be metasediments (ie: greywacke), which would indicate hiatuses in volcanic activity with deposition. Structure Moderate foliation subparallel to bedding (~55° to core axis). Alteration Nearly pervasive large (0.5-1.0cm) irregular-shaped garnets, with concentrations in "metasediment" beds. These beds also contain fairly high concentrations of euhedral, mm-scale magnetite. Moderate biotite±amphibole alteration patches/bands throughout unit. Minor quartz-carbonate veining present. Mineralization Trace sulphide.
143.25	143.59	**Intermediate Tuff** Same tuff as preceding unit, but no garnet present.
143.59	144.43	**Mafic Dike** Fine grained, massive mafic dike with sparse fracture. No visible sulphide. Contacts @ 51° to core axis and 56° to core axis.

From (m):	To (m):	Description:
144.43	152.23	**Mixed Tuff with Patchy Alteration** Lithology Fine to medium grained interbedded andesite/intermediate and dacite tuffs, with minor mafic beds present. Some small (cm-scale) beds that may be metasedimentary, with coarse-grained euhedral magnetite (possibly an alteration). Fairly sparse clusters of mm-cm scale graphitic layers. Patchy mm-scale quartz eyes present, both blue and white. Structure Weak to moderate foliation subparallel to bedding (~50° to core axis), generally weaker in bleached patches. Local soft-sediment deformations. Minor local fracture. Alteration Patches of strong bleaching/silicification up to a metre wide, interspersed with areas with dominantly biotite+amphibole alteration (moderate to strong, generally in stringers/bands). Trace to weakly garnetiferous zones, generally associated with areas of minimal bleaching. Quartz carbonate veining present throughout. Some sericite patches. Mineralization Several 10's of cm scale zones of stringer and disseminated pyrrhotite+pyrite sulphide mineralization, locally up to 10%. Generally present in unbleached areas. Bleached zones mineralized with trace to minor clots of pyrrhotite.
152.23	152.64	**Mafic Dike** Medium-grained massive mafic dike with cross-cutting contacts @ 32° and 50° to core axis. No visible mineralization.
152.64	169.82	**Mixed Tuff with Patchy Alteration** Same description as "Mixed Tuff with Patchy Alteration" from 144.43-152.23m.
169.82	186.30	**Massive Intermediate Unit** Lithology Very fine to fine grained massive intermediate rock may be massive tuff or flow. Structure Any foliations very weak where visible. Minor/weak local fracture with carbonate infill. No preferred orientation. Alteration Mostly unaltered, but few samll patches of biotite+amphibole+chlorite with minor quartz-carbonate veining/clots. Rare garnet. Mineralization Very trace sulphide specks, usually in carbonatized fractures. Trace to minor sulphide disseminations in altered patches.
186.30	212.90	**Bedded Mixed Tuff** Preceding unit grades slowly into a weakly bedded interbedded intermediate-dacitic fine to medium grained tuff. Some patchy-style alteration, though gradually becomes more common, until weak-moderate pervasive. ~200m (biotite+amphibole±chlorite±garnet). Trace to minor disseminated sulphide patches, especially associated with alteration. Quartz-carbonate veining present throughout.

From (m):	To (m):	Description:
212.90	213.68	**Mafic Dike** Fine grained massive mafic dike, with a quartz-filled joint. Sharp contacts @ 22° and 30° to core axis.
213.68	267.00	**Intermediate Tuff** <u>Lithology</u> Mostly fine-grained with sparse beds of medium-grained intermediate tuff, bedding oriented ~45° to core axis. <u>Structure</u> Largely non-foliated. Some fairly minor brittle-ductile fracture with siliceous infill. Two predominant orientations: 45° to core axis and subparallel to core axis. <u>Alteration</u> Relatively sparse cm-scale patches of biotite+amphibole alteration. Fairly common quartz veins and clots. Trace garnets. <u>Mineralization</u> Trace specks and very minor disseminations of sulphide.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-11**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	664064E 5523650N						
ELEVATION	449m						
AZIMUTH	000°						
DIP	-50°						
REFLEX EZ-SHOT 1:	Date: 18-09-10	Depth: 20.4m Pullback: 6m	Azi: 008.6° Dip: -45.7°	2:	Date: 19-09-10	Depth: 20.4m Pullback: 6m	Azi: 001° Dip: -43.7°
CASING	11.28m						
LENGTH OF HOLE	68.88m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	24-Sep-10						
DATE COMPLETED	26-Sep-10						
LOGGED BY	A. Mumin						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
10.96	14.02	10-15% po, with local (over 25-30cm) up to 30-40%. 0.5% sph, minor asp±cpy
14.02	15.82	~1-2% disseminated po with minor cpy
15.82	17.82	5-10% po, with sections up to 20-25% po+minor sph (up to 30cm)
17.37	24.04	15-20% po in stringers and clots. Minor sph+py.
24.04	32.2	5-10% po, with minor sph+cpy. Local massive sections.

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	11.28		Casing
11.28	17.37		Interbedded Intermediate Tuff and Graphitic Tuff
17.37	24.04		Sulphide Rich Graphitic Tuff
24.04	32.20		Dacitic Tuff
32.20	68.88		Mafic Intrusive
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	11.28	**Casing** Includes 0.32m mineralized section: see below.
11.28	17.37	**Interbedded Intermediate Tuff and Graphitic Tuff** Lithology Very fine grained finely laminated andesite tuff. Sulphide rich graphitic tuff interbeds. Structure Abundant quartz-carbonate veining with small scale (up to 15cm) brecciation. Soft sediment deformation in places. Foliations @ 56°-63° to core axis. Alteration Silicified section from 14.02-14.81m. Minor chlorite+amphibole clots in silicified zone. Possible pervasive potassic alteration. Mineralization 10.96-14.02m: 10-15% pyrrhotite across section with localized up to 30-40% over ~25-30cm's. 14.02-15.82m: ~1-2% disseminated pyrrhotite with minor chalcopyrite. 15.82-17.37m: 5-10% pyrrhotite with sections up to 20-25% pyrrhotite+minor sphalerite (up to 30 cm's).
17.37	24.04	**Sulphide Rich Graphitic Tuff** Lithology Very fine grained graphitic tuff with minor intermediate tuff interbeds. Structure Soft sediment deformation in patches throughout section. Foliations in Intermediate tuff interbeds and sulphide stringers 46°-50° to core axis. Alteration Minor cm scale carbonate±quartz veining. Mineralization 15-20% pyrrhotite in stringers and clots across section. Minor sphalerite pyrite.
24.04	32.20	**Dacitic Tuff** Lithology Very fine grained finely laminated dacitic tuff. Structure Foliations @ ~59-68° to core axis. Soft sediment deformation visible. Alteration Abundant quartz-carbonate veining throughout, up to ~30cm in size. Minor patch of garnet alteration up to 30cm wide. 30.88-31.20m: silicified zone. Mineralization 5-10% pyrrhotite throughout, with local massive sections up to 25cm in size. Minor sphalerite+chalcopyrite throughout, includes 2-3cm chalcopyrite clot.

From (m):	To (m):	Description:
32.20	68.88	**Mafic Intrusive** Lithology Medium grained equigranular amphibole (dark green to black) ± chlorite (retrograde?), pseudomorphing after pyroxenes. Structure Grades from weakly to moderately foliated at top of hole to massive towards bottom of hole. Alteration Quartz-carbonate ±biotite up to 15cm across throughout section. 47.66-48.00m: Quartz+sericite±carbonate±tourmaline zone. 66.90-68.28m: spotted biotite alteration. Biotite clots up to ~3mm in size. (~2-3% clots in section). Mineralization Trace pyrrhotite±pyrite±chalcopyrite throughout. Local minor pyrrhotite in zones 5-10cm across.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-12**		
COMPANY	Excalibur Resources		
PROPERTY	Sturgeon Lake		
LOCATION (UTM)	664068E 5523590N		
ELEVATION	456m		
AZIMUTH	000°		
DIP	-45°		
REFLEX EZ-SHOT 1:	Date: 20-09-10	Depth: 23.16m Pullback: 6m	Azi: 356.7° Dip: -47.4
CASING	14.26m		
LENGTH OF HOLE	23.16m		
DRILL CONTRACTOR	Distinctive Drilling		
DATE STARTED	28-Sep-10		
DATE COMPLETED	28-Sep-10		
LOGGED BY	A. Mumin		
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N		

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
14.26	21.46	5-7% po+py in stringers and clots.

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	14.26		Casing
14.26	23.16		Intermediate Tuff
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	14.26	**Casing**
14.26	23.16	**Intermediate Tuff** Lithology Very fine grained intermediate ash tuff, finely laminated. Minor interbedded lithic tuff with mm-scale lithic frags. Structure Foliations @ ~50°-56° to core axis. Minor soft sediment deformations visible in small patches. Quartz-carbonate veining @ ~23°-30° to core axis and subparallel to core axis. Alteration 14.26-14.77m: Amphibole+chlorite+magnetite+carbonate alteration. Bands of dark green 17.48-20.12m:-- amphibole and fine grained chlorite + carbonate. mm-scale euhedral magnetite crystals throughout (~3-5%) 20.12-21.48m: Silicified Zone. Mineralization 14.26-21.46m: 5-7% pyrrhotite+pyrite in stringers and clots.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-12A**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	664068E 5523590N						
ELEVATION	456m						
AZIMUTH	000°						
DIP	-47°						
REFLEX EZ-SHOT 1:	Date: 22-09-10	Depth: 130m Pullback: 6m	Azi: 004.7° Dip: -41.2°	2:	Date: 22-09-10	Depth: 130m Pullback: 6m	Azi: 004.7° Dip: -41.2°
CASING	14.26m						
LENGTH OF HOLE	129.84m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	28-Sep-10						
DATE COMPLETED	03-Oct-10						
LOGGED BY	A. Mumin						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
17.07	23.68	5-7% po+py in stringers and clots.
81.14	93.87	5-20% po±py±minor cpy and sph

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
			Split from SL-10-12 @ 17.07m.
17.07	28.66		Intermediate Tuff
28.66	30.87		Mafic Intrusive
30.87	64.02		Dacitic Tuff
64.02	80.48		Intermediate Tuff
80.48	81.14		Silicified Breccia Zone
81.14	93.87		Interbedded Graphitic Tuff and Intermediate-Dacite Tuff
93.87	129.84		Mafic Intrusive
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
		Split from SL-10-12 @ 17.07m.
17.07	28.66	**Intermediate Tuff** Lithology Very fine grained intermediate ash tuff, finely laminated. Structure Foliations @ ~45-48° to core axis. Minor soft-sediment deformation visible in places. Quartz veins @ subparallel to foliation to ~26° to core axis. Alteration 20.47-23.07m: Amphibole+chlorite+biotite+magnetite+carbonate alteration zone. Bands of amphibole+biotite+fine grained chlorite+carbonate. mm-scale euhedral magnetite crystals (3-5%). 27.95-28.65m: Quartz+carbonate+amphibole+chlorite zone. May be large quartz vein @ 44° to core axis. Mineralization 17.07-23.68m: 5-7% pyrrhotite+pyrite in stringers and clots. Minor pyrrhotite+pyrite throughout rest of the hole with local patches up to 5% (up to 8cm wide).
28.66	30.87	**Mafic Intrusive** Lithology Fine grained to medium grained mafic intrusive. Equigranular amphibole±chlorite pseudomorphing after pyroxene. Structure Massive throughout. Upper and lower contacts at 44° to core axis. No visible alteration or mineralization.
30.87	64.02	**Dacitic Tuff** Lithology Interbedded dacite ash and lapilli tuffs. Lapilli sized fragments ~1-2mm to 0.5cm in size. Comprised of quartz and/or carbonate. Matrix is aphanitic, grey, siliceous. Minor intermediate interbeds. Structure Weak to moderate foliations ranging from 49° to core axis, near top of unit to ~59° to core axis near the bottom. mm-cm scale quartz-carbonate veins ranging from subparallel to foliation to 14° to core axis. Alteration Localized small patches of amphibole±chlorite±biotite±magnetite±garnet+carbonate alteration. Mineralization Minor to 0.5-1.0% pyrrhotite+pyrite throughout unit. Locally massive sections up to 5-6cm wide with durchbewegan textures. Mineralization lessening to trace pyrrhotite±pyrite towards end of unit.

From (m):	To (m):	Description:
64.02	80.48	**Intermediate Tuff** Similar to 17.07-28.66m Weak-moderate foliation, at ~42° to core axis. Trace pyrrhotite±chalcopyrite. Pervasive carbonate alteration throughout section. 77.50-80.48m: Silicified Zone, pervasive quartz+carbonate±sericite. Minor to 1% pyrrhotite± arsenopyrite±chalcopyrite disseminated and in clots.
80.48	81.14	**Silicified Breccia Zone** Highly silicified breccia zone with subangular to subrounded fragments of silicified intermediate tuff/dacitic tuff, chert, up to 5cm in size. Fragments also include a previous anastamosing breccia zone with finer fragments (mm-1cm scale). 5-10% sulphide (pyrrhotite±pyrite) with minor to 0.5% chalcopyrite ± trace sulphide.
81.14	93.87	**Interbedded Graphitic Tuff and Intermediate-Dacite Tuff** <u>Lithology</u> Very fine grained laminated graphitic tuff with 0.5m-3.5m interbeds of intermediate to dacitic tuff. <u>Structure</u> Foliations in both graphitic tuffs and intermediate dacite tuffs @ 30-37° to core axis. Locally @ 26° to core axis. Upper and lower contacts @ 25° and 44° respectively. Quartz carbonate veining subparallel to foliation. 87.90-88.21m: quartz vein. Upper and lower contacts @ 32° and 41° respectively. Minor to 1% pyrrhotite. <u>Alteration</u> Abundant quartz-carbonate veining. 82.51-82.76m: Intense carbonate+biotite alteration zone. 86.27-86.83m: Silicified zone. Minor pyrrhotite ± sphalerite. Minor manganese clots in intermediate tuff zones. <u>Mineralization</u> 81.14-83.94m: 15-20% pyrrhotite with local sections up to 30% sulphide. 0.5-1% sphalerite+trace chalcopyrite. 86.27-86.83m: minor to 0.5% pyrrhotite+trace arsenopyrite. 87.00-88.39m: 5-10% pyrrhotite+pyrite+minor chalcopyrite±sphalerite. 88.39-90.39m: 10-15% pyrrhotite+~0.5% sphalerite±pyrite. 90.39-92.80m: 3-5% pyrrhotite+minor chalcopyrite. 92.80-93.87m: 15-20% pyrrhotite+0.5-1% sphalerite.

From (m):	To (m):	Description:
93.87	129.84	**Mafic Intrusive** <u>Lithology</u> Medium-grained equigranular dark green amphiboles±chlorite pseudomorphing after pyroxenes. Minor amounts of biotite throughout. <u>Structure</u> Predominantly massive with weak to moderate foliations locally. Foliations strongest @ top of unit, ~45-52° to core axis. 30-40° to core axis toward bottom of unit. Quartz-carbonate veins @ 8° to core axis to 64° to core axis. <u>Alteration</u> Abundant mm-scale to cm-scale quartz-carbonate veining. 124.21-125.83m: zone of quartz-carbonate+chlorite+amphibole veining, ranging from 5cm to ~16cm in size. Minor quartz-carbonate-sericite veining up to 9cm across. <u>Mineralization</u> Trace pyrrhotite+pyrite±chalcopyrite throughout section.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-13**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	664375E 5523273N						
ELEVATION	452m						
AZIMUTH	000°						
DIP	-50°						
REFLEX EZ-SHOT 1:	Date: 22-09-10	Depth: 14m Pullback: 6m	Azi: 002.1° Dip: -52.6°	2:	Date: 23-09-10	Depth: 154.23m Pullback: 6m	Azi: 005.4° Dip: -46.3°
3:	Date: 26-09-10	Depth: 340.16m Pullback: 6m	Azi: 002.1° Dip: -45.5°				
CASING	4.27m						
LENGTH OF HOLE	343.20m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	04-Oct-10						
DATE COMPLETED	09-Oct-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
19.64	35.79	2-4% stringers/clots, mostly po, minor py+sph+cpy
159.83	171.96	~5% overall sulphide, mostly po+py with minor cpy
178.10	192.82	5-10% intergrown po+py stringers and clots. Some sph, trace cpy
201.92	205.45	5-10% intergrown po+py stringers and clots. Some sph, trace cpy

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	4.27		Casing
4.27	19.64		Intermediate Tuff
19.64	35.79		Altered Intermediate Tuff with Stringer Mineralization and Graphitic Horizons
35.79	45.23		Altered Intermediate Tuff
45.23	64.23		Mafic Intrusion
64.23	89.43		Mafic Tuff
89.43	115.23		Intermediate Tuff
115.23	145.35		Mafic Tuff with Minor Stringer Sulphides
145.35	158.73		Mafic Tuff
158.73	159.83	25°/45°	Mafic Dike
159.83	171.96		Mafic Tuff with Stringer Sulphides
171.96	178.10		Silicified Mafic Tuff
178.10	192.82		Mafic Tuff with Strong Sulphide Stringers/Clots
192.82	201.92		Mafic Tuff with Patchy Sulphide Mineralization
201.92	205.45		Mafic Tuff with Strong Sulphide Stringers/Clots
205.45	256.30		Mafic Tuff with Patchy Alteration
256.30	257.79	46°/44°	Mafic Dike
257.79	259.85		Mafic Tuff
259.85	328.73		Mafic to Intermediate Tuff with Mixed Strong Alteration, Sulphide Stringers
328.73	343.20		Mixed Tuff with Moderate Alteration
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	4.27	**Casing** Rubble.
4.27	19.64	**Intermediate Tuff** Lithology Very fine to fine grained intermediate tuff. Minor/faint bedding visible, 40°-47° to core axis. Structure Minor weak brittle fracture, no preferred orientation. Alteration Sparse patches/bands of fine-grained biotite±amphibole alteration. Fairly common carbonate veining throughout. Several small clots of fairly coarse (mm-scale) mica (biotite/phlogopite). Mineralization Trace specks of sulphide. Minor disseminations (pyrrhotite) visible on some altered patches.
19.64	35.79	**Altered Intermediate Tuff with Stringer Mineralization and Graphitic Horizons** Lithology Fine-grained, bedded intermediate tuff. Several graphitic beds, from cm-scale to 10's of cm scale. Some soft sediment deformation, especially on graphitic beds. Structure Local brittle-ductile fracture. Local weak foliation subparallel to bedding. Alteration Moderate biotite+amphibole alteration bands throughout, except for graphitic beds. Weak to moderate bleached patches. Mineralization Stringers and clots of sulphide, especially around graphitic horizons. Mostly pyrrhotite, with minor pyrite, sphalerite, chalcopyrite. Few patches, (10's of cm scale) especially bleached areas, with no visible sulphide. 2-4% mineralization overall.
35.79	45.23	**Altered Intermediate Tuff** Lithology Fine-grained bedded tuff. From 38.53-39.55m: possible intermediate dike with sharp contacts @ 54° and 51° to core axis. Strong biotite pervasive, with visible imbrication @ ~50° to core axis. "Dike" also has strong carbonate alteration in clots. Structure Gradual increase in brittle-ductile fracture down hole, from very minor @ the top to strong with carbonate @ bottom of the unit. Only minor foliation visible except in 'dike'. Alteration Gradual increase in biotite+amphibole alteration from top to bottom of unit, from fairly weak, banded to strong, near-pervasive. Only minor carbonate veining present until last 2 metres of unit. Mineralization Trace sulphide specks present.

From (m):	To (m):	Description:
45.23	64.23	**Mafic Intrusion** Lithology Medium to coarse grained fairly massive mafic intrusion. Structure Moderate amount of brittle-ductile fracture throughout, with few local sheared/foliated areas. Alteration Very strong carbonate alteration in first ~1 metre, then moderate carbonate veining present. Some visible biotite-amphibole around local shears. Mineralization Mostly trace sulphide, with some areas with disseminations/clots up to 1% sulphide locally.
64.23	89.43	**Mafic Tuff** Lithology Fine to medium grained mafic tuff with faint bedding. From 75.40-75.60m: fine-grained mafic dike with contacts @ ~30° to core axis, with an altered quartz-carbonate vein off the upper contact @ ~45° to core axis. Structure Some local weak foliation subparallel to bedding. Weak brittle-ductile fracture throughout, no preferred direction (perpendicular to parallel to core axis). One 15cm quartz-filled joint/fracture @ 88.10m, subparallel to bedding. Alteration Locally pervasive to banded/patchy, moderate biotite±amphibole alteration throughout unit. Sparse quartz-carbonate veining, but with fairly common carbonate veining. Local weak garnet alteration, especially in first 5 metres of unit (trace afterward). Mineralization Mostly trace specks of sulphide, with sparse local clots and stringers, generally associated with quartz-carbonate/carbonate veining. Mostly pyrrhotite.
89.43	115.23	**Intermediate Tuff** Lithology Fine grained intermediate, fainly bedded tuff. Bedding @ ~50° to core axis. Beds of 1-2mm rounded blue quartz eyes present, up to 5% locally. Structure Very sparse brittle fracture. Alteration Strong, banded biotite alteration, minor amphibole present. Sparse quartz-carbonate veining present. Mineralization Trace specks and disseminations, mainly pyrrhotite.

From (m):	To (m):	Description:
115.23	145.35	**Mafic Tuff with Minor Stringer Sulphides** Lithology Very fine-grained bedded mafic tuff. Sparse beds with quartz eyes (1-2mm). Very sparse mm-scale graphitic beds. Structure Minor local altered shearing, subparallel to bedding. Local brittle fracture. Alteration Strong but local banded garnet±magnetite±biotite±sericite alteration, usually in association with graphitic beds. Beds with quartz eyes often have strong sericite alteration. Some patches with minor bluish bleaching/silicification. Minor/weak quartz-carbonate veining throughout. Mineralization Pyrrhotite sulphide stringers associated with altered zones. 1-5% suphide locally, minor overall.
145.35	158.73	**Mafic Tuff** Same lithology and structure as preceding unit. Same alteration types/frequency as preceding unit, but much weaker. Trace specks of pyrrhotite±pyrite. Rare stringers present.
158.73	159.83	**Mafic Dike** Fine-grained massive mafic dike, no visible alteration or mineralization. Sharp upper and lower contacts @ 25° and 45° to core axis.
159.83	171.96	**Mafic Tuff with Stringer Sulphides** Same lithology as Mafic Tuff with Minor Stringer Sulphides from 115.23-145.35m. Stronger shearing than previously, still subparallel to bedding. Local brittle fracture. Patchy to banded, strong garnet+magnetite±amphibole±sericite, much stronger/more alteration than previous stringer zone. Stronger sulphide stringers/clots/disseminations than previous stringer zone, with sparse sulphide veins. Mostly pyrrhotite+pyrite, with minor chalcopyrite. ~5% sulphide overall.
171.96	178.10	**Silicified Mafic Tuff** Lithology Fine-grained mafic tuff, bedded, but faint due to silicification. Structure Moderate shearing present, some minor brittle fracture. Alteration Strong silicification, near-pervasive, though some spots without alteration. Some weak amphibole, but overprinted by silicification. Mineralization Trace sulphide.

From (m):	To (m):	Description:
178.10	192.82	**Mafic Tuff with Strong Sulphide Stringers/Clots** Lithology Fine-grained bedded mafic tuff. Very trace graphitic? Stringers locally, <0.5mm width. (Possibly very fine-grained biotite). mm-scale blue quartz eyes common, throughout. Structure Fairly massive, bedding very faint. Some very minor local shearing. Local weak brittle fracture. Alteration Local but fairly strong sericite alteration. Near-pervasive magnetite+garnet alteration in rounded to subhedral crystals 1-3mm, disseminated to clotted, locally up to 15%. Minor local patches of amphibole+biotite alteration present. Minor quartz-carbonate veining. Mineralization Strongly mineralized with intergrown pyrrhotite+pyrite stringers and clots throughout, 5-10% overall, with local bands up to 30% sulphide. Relatively strong sphalerite with the mineralization. Trace chalcopyrite.
192.82	201.92	**Mafic Tuff with Patchy Sulphide Mineralization** Same lithology and structure as preceding unit. Alteration Patchy but strong sericite bands. Minor quartz-carbonate veining. Moderate local amphibole+ biotite banding and/or garnet±magnetite patches, coincident with mineralization. Mineralization Local but strong pyrrhotite+pyrite sulphide stringers with minor sphalerite @ 195.14-195.46m, 195.50-197.34m. Trace to minor disseminations, clots elsewhere.
201.92	205.45	**Mafic Tuff with Strong Sulphide Stringers/Clots** Same description as unit from 178.10-192.82m.
205.45	256.30	**Mafic Tuff with Patchy Alteration** Same lithology and structure as preceding units, but with strong patchy, (cm-m scale patches), banded sericite+amphibole+biotite±carbonate alteration. Patchy weak bleaching. One 4cm vein of sulphide (pyrrhotite+pyrite) mineralization @ 205.77m. Trace elsewhere. Sparse, but fairly large (15-20cm) quartz veins present, with minor pyrrhotite mineralization.
256.30	257.79	**Mafic Dike** Fine grading to medium-grained massive mafic dike, with contacts @ 46° and 44° to core axis.
257.79	259.85	**Mafic Tuff** Same description as "Mafic Tuff with Patchy Alteration" from 205.45-256.30m, except no discernable alteration or mineralization.

From (m):	To (m):	Description:
259.85	328.73	**Mafic to Intermediate Tuff with Mixed Strong Alteration, Sulphide Stringers** <u>Lithology</u> Fine to medium-grained mixed (mafic and intermediate) bedded tuff. Bedding ~45° to core axis. Few beds with white (5-8mm) quartz eyes. Very minor graphite stringers. <u>Structure</u> Weak to moderate shearing present, especially in more altered sections. <u>Alteration</u> Mixed layers of alteration, moderate to very strong, garnet+magnetite+amphibole±biotite±sericite± carbonate, or sericite+bleaching. Minor quartz-carbonate veining present. <u>Mineralization</u> Fairly strong sulphide (pyrrhotite±minor sphalerite) stringers/clots, except in sericite/bleached layers. Locally 5-15% sulphide, ~2% overall.
328.73	343.20	**Mixed Tuff with Moderate Alteration** Same lithology and structure as preceding unit. Same alteration types as preceding unit, but much weaker. Only trace sulphide.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-14**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	665572E 5523193N						
ELEVATION	453m						
AZIMUTH	180°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 27-09-10	Depth: 11m Pullback: 6m	Azi: 184° Dip: -46.1°	2:	Date: 28-09-10	Depth: 29.26m Pullback: 6m	Azi: 185.3° Dip: -44.6°
3:	Date: 29-09-10	Depth: 157.28m Pullback: 6m	Azi: 198.8° Dip: -39.7°	4:	Date: 29-09-10	Depth: 160.32m Pullback: 6m	Azi: 197.9° Dip: -39.6°
5:	Date: 01-10-10	Depth: 288.34m Pullback: 6m	Azi: 222.7° Dip: 37.1°	6:	Date: 02-10-10	Depth: 334m Pullback: 9.14m	Azi: 199.1° Dip: -36.2°
7:	Date: 03-10-10	Depth: 343.20m Pullback: 9.14m	Azi: 216° Dip: -35.7°				
CASING	19.20m						
LENGTH OF HOLE	343.30m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	11-Oct-10						
DATE COMPLETED	14-Oct-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
72.48	75.38	~2% sulphide, mostly po with sparse py
248.04	248.25	Massive/injection texture po. >50%
249.84	250.00	Massive/injection texture po. >50%
252.06	252.34	Massive/injection texture po. >50%
254.30	255.20	Massive/injection texture po. >50%

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	19.20		Casing
19.20	35.65		Intermediate Tuff
35.65	36.32		Mafic Dike
36.32	76.15		Intermediate Tuff
76.15	77.92		Intermediate Dike
77.92	182.50		Intermediate Tuff
182.50	183.35		Intermediate Tuff with Clotted/Banded Sulphide
183.35	240.22		Bleached Mixed Tuff
240.22	268.60		Bleached Mixed Tuff with Sulphide Injection Texture
268.60	343.30		Weakly Bleached Mixed Tuff
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	19.20	**Casing** Boulder rubble and intermediate tuff.
19.20	35.65	**Intermediate Tuff** Lithology Fine-grained, bedded intermediate tuff, bedding 40°-50° to core axis. One small fine-grained purplish-grey dike @ 26.76-26.91m with contacts @ 40° and 62° to core axis. Structure Minor brittle fracture, sparse weakly sheared beds. Alteration Strong carbonate veining throughout. Local moderate to strong biotite+amphibole alteration. Mineralization Trace to minor local specks/stringers of sulphide (pyrrhotite/pyrite).
35.65	36.32	**Mafic Dike** Very fine-grained fairly massive mafic dike with possible fault @ 48° to core axis on upper contact. Lower contact @ 60° to core axis. Moderate silicification, especially @ contacts. Minor sulphide clots.
36.32	76.15	**Intermediate Tuff** Lithology Fine to medium grained bedded intermediate tuff, bedding ~50° to core axis. Structure Strong silicified fracture from ~46.50-54.00m, weak fracture elsewhere. No preferred orientation. Some faulting present. Minor shear present locally. Alteration Moderate, banded biotite+amphibole alteration patches throughout. Strong quartz-carbonate and carbonate veining throughout. Local strong silicification, especially around fractured zones. Local magnetite patches, local chlorite patches. Mineralization Minor specks, (mm-cm scale) clots, and weak disseminations present, generally in association with biotite+amphibole alteration banding. Mostly pyrrhotite, with sparse intergrowths of pyrite. From 72.48-75.38m, ~2% sulphide, with chlorite-actinolite (?) alteration.
76.15	77.92	**Intermediate Dike** Fine to medium-grained massive dike, with a patch of weakly mineralized tuff in the middle (~40cm wide) with sharp contacts @45° and 50° to core axis.

From (m):	To (m):	Description:
77.92	182.50	**Intermediate Tuff** Lithology Fine-grained bedded intermediate tuff. 91.95-92.38m: Possible graded bedding, from medium to fine grained down the hole. Possibly sediment. 98.18-98.67m: Fine grained, either bedded sediment or slightly sheared dike. Sharp, silicified contacts @ 42° to core axis. Structure Weak to moderate shearing present throughout. Minor local strong fracture/faulting, few with bleaching/silica alteration. Alteration Patchy/banded amphibole±biotite, mostly weak to locally very strong. Some with local magnetite +chlorite. Strong carbonate veining throughout. Trace local quartz veining. Trace garnet patches. Mineralization Trace clots and disseminations of pyrite+pyrrhotite.
182.50	183.35	**Intermediate Tuff with Clotted/Banded Sulphide** Lithology Fine-grained, bedded intermediate tuff. Structure Moderate shearing present. Alteration Banded amphibole+biotite, with strong patch of bleaching. Mineralization Banded, clotted pyrrhotite+pyrite, intergrown. ~15% sulphide overall.
183.35	240.22	**Bleached Mixed Tuff** Lithology Fine-grained, mixed-bedded (intermediate to felsic) tuff. Beds cm-m scale. Fine-grained mafic dikes with sharp contacts: 226.98-227.24m, 228.43-228.79m, 229.55-229.90m, 233.52-234.54m, 235.10-236.52m Structure Minor local fracture. Alteration Moderate to strong near-pervasive bleaching. Common patches of amphibole±biotite±garnet alteration, somewhat overprinted by bleaching. Minor quartz-carbonate veining. Mineralization Trace patches of pyrrhotite+pyrite, specks and disseminations. Rare clots, especially in larger quartz veins.

From (m):	To (m):	Description:
240.22	268.60	**Bleached Mixed Tuff with Sulphide Injection Texture** Lithology Mostly intermediate bedded tuff, with minor felsic/mafic beds. Fine-grained beds generally cm-scale. Structure Minor local fracture. From 251.76-255.20m: Sheared fold axis. Alteration Patchy, banded amphibole±biotite±chlorite±garnet alteration, moderate. Minor carbonate and quartz-carbonate veining. Near-pervasive bleaching throughout. Mineralization Overall mostly disseminated/clotted pyrrhotite mineralization, with few patches with massive/ injection texture (Durchbewegan) pyrrhotite: 248.04-248.25m, 249.84-250.00m, 252.06-252.34m, 254.30-255.20m.
268.60	343.30	**Weakly Bleached Mixed Tuff** Same lithology and structure as preceding unit, except no fold axis present. Weak, but near-pervasive bleaching, grading slowly to unbleached. Patchy, banded amphibole±biotite±garnet alteration. Trace magnetite. Trace sulphide disseminations.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-15**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	667668E 5522369N						
ELEVATION	464m						
AZIMUTH	180°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 03-10-10	Depth: 14m Pullback: 6m	Azi: 198.6° Dip: -47.2°	2:	Date: 04-10-10	Depth: 154.23m Pullback: 6m	Azi: 185.9° Dip: -42.7°
CASING	2.15m						
LENGTH OF HOLE	154.23m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	16-Oct-10						
DATE COMPLETED	18-Oct-10						
LOGGED BY	A. Mumin						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
62.7	64.81	30-40% po+py. Trace cpy.

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	2.15		Casing
2.15	62.70		Mixed Intermediate and Mafic Tuffs
62.70	64.81		Sulphide Rich Mafic Tuff
64.81	98.67		Mixed Intermediate and Mafic Tuffs
98.67	103.19		Mafic Intrusion
103.19	118.57		Mafic Tuff
118.57	154.23		Mixed Intermediate and Mafic Tuff
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	2.15	**Casing**
2.15	62.70	**Mixed Intermediate and Mafic Tuffs** Lithology Interbedded fine grained intermediate tuffs and fine grained to medium grained mafic tuffs. (Mafic much greater quantity than intermediate). Strong foliation throughout. Structure Foliations on tuffs range from 40° to core axis to 50° to core axis. Soft sediment deformation visible in places. 23.32-23.65m: quartz vein. Upper/lower contacts @ 50° & 62° respectively. Abundant mm-cm scale quartz and quartz-carbonate veining. @ 28° - 60° to core axis. Alteration Patches of garnet±chlorite±amphibole±biotite±quartz±carbonate alteration typically 10's of cm's in scale. 7.96-8.88m: garnet+chlorite+amphibole+biotite+quartz+carbonate alteration. Mineralization Trace pyrrhotite±pyrite in locally minor patches throughout unit. Trace chalcopyrite.
62.70	64.81	**Sulphide Rich Mafic Tuff** Mafic tuff similar to previous. 30-40% pyrrhotite+pyrite across zone including 1.13m section of massive (>70%) pyrrhotite+pyrite (pyrrhotite>>pyrite). Trace chalcopyrite. Minor carbonate veining. Minor chlorite alteration in unmineralized spots.
64.81	98.67	**Mixed Intermediate and Mafic Tuffs** Similar to 2.15-62.70m, but less sulphides (trace pyrite). Garnets abundant (up to 5-10%) near top of unit, grading out towards bottom. Foliations @ 44°-50° to core axis.
98.67	103.19	**Mafic Intrusion** Lithology Medium grained moderately foliated, comprised primarily of biotite+amphibole+chlorite (possible pseudomorphs after pyroxene). Structure Upper/lower contacts @ 44° & 41° to core axis. Foliations @ ~52° to core axis. Minor quartz±carbonate veining @ 60°-25° to core axis. Alteration Upper greenschist facies metamorphic effects. Alteration of pyroxene to chlorite. Minor mm-scale garnets. Mineralization Minor chalcopyrite disseminated in distinct patches.

From (m):	To (m):	Description:
103.19	118.57	**Mafic Tuff** Similar to 2.15-62.70m, with minor intermediate interbeds. Foliations from 41° to 55° to core axis. Abundant mm scale to cm scale quartz veining, up to ~16cm across. 114.90-115.70m: quartz-carbonate alteration zone, includes 16cm quartz±carbonate vein. Upper/ lower contact of quartz-carbonate vein @ 44° & 21° to core axis. Small scale patches of chlorite+amphibole. 103.49-103.69m: fault zone. Trace sulphides (pyrite+chalcopyrite).
118.57	154.23	**Mixed Intermediate and Mafic Tuff** Similar to 2.15-62.70m: few mafic bands. 143.14-144.92m: Intermediate lapilli tuff band. 0.5-1.0cm lapilli frags (~50-60%) in fine grained mafic-rich groundmass. Foliations range from 51° to 55° to core axis. Abundant quartz veining at top of unit (up to 30-40%), decreasing to minor veining towards bottom of the unit. Minor garnets throughout. Quartz-carbonate alteration/veining in mafic units. Soft sediment deformation visible. Trace pyrrhotite+pyrite+chalcopyrite disseminated throughout.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-16**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	671171E 5524542N						
ELEVATION	499m						
AZIMUTH	000°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 05-10-10	Depth: 11m Pullback: 6m	Azi: 004.9° Dip: -47.6°	2:	Date: 06-10-10	Depth: 169.47m Pullback: 6m	Azi: 004.6° Dip: -47.4°
CASING	1.52m						
LENGTH OF HOLE	169.47m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	17-Oct-10						
DATE COMPLETED	17-Oct-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
59.60	60.02	10-15% stringer/clotted po
62.00	63.62	5-10% stringer sulphide
63.62	63.78	Massive sulphide, durchbewegan

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	1.52		Casing
1.52	26.21		Intermediate Tuff
26.21	38.86		Mafic Tuff
38.86	51.94		Mixed Tuff
51.94	68.43		Mixed Tuff with Fracture Breccia and Minor Sulphide
68.43	84.33		Mafic Tuff, with Moderate Fracture
84.33	169.47		Intermediate Tuff with Moderate Fracture
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	1.52	**Casing** Granitic boulder rubble.
1.52	26.21	**Intermediate Tuff** Lithology Fine-grained, bedded intermediate tuff. Bedding @ 51° to core axis. cm-m scale beds of purple-blue quartz eyes, grading to near-pervasive. Very minor, sub-mm width graphite stringers, sparse. Structure Weak foliation subparallel to bedding. Sparse brittle fracture. Minor altered vugs near top of hole. Alteration Minor cm-scale siliceous/carbonate veining. Patches of mm-scale garnet, cm-m scale beds. Mineralization Trace specks of pyrrhotite+pyrite.
26.21	38.86	**Mafic Tuff** Lithology Very fine to fine grained, weakly bedded mafic tuff. Very common ~2-3mm blue quartz eyes. Structure Minor brittle fracture present. Alteration Weak, but near-pervasive bleaching. Minor quartz-carbonate veining present. Minor garnet patches, minor sericite patches. Mineralization Minor cm-scale sulphide (pyrrhotite+pyrite with minor chalcopyrite) veins @ ~29.15m and ~29.60m, with minor disseminations around them. Trace specks of sulphide elsewhere.
38.86	51.94	**Mixed Tuff** Lithology Interbedded, intermediate and mafic, fine to medium grained tuff. Bedding @ 30° - 45° to core axis. Upper contact strongly veined, sheared, altered. Structure Sparse shearing present. Sparse brittle fracture. Alteration Upper contact: moderate biotite+amphibole alteration, with carbonate veining. Moderate amphibole±biotite±chlorite alteration zones/patches throughout. Strong quartz veining present, minor carbonate veining throughout. Mineralization Trace specks/clots of pyrrhotite±pyrite, generally in association with alteration patches.

From (m):	To (m):	Description:
51.94	68.43	**Mixed Tuff with Fracture Breccia and Minor Sulphide** Lithology Interbedded intermediate and mafic tuffs, fine grained. Structure Strongly silicified brittle fracture zones present, with strongest fracture subparallel to bedding/ foliation, but other orientations common. Weak foliation intermittent, subparallel to bedding, ~45°-50° to core axis. 63.00-63.82m: fold axis. Alteration Minor weak garnet patches present. Common quartz-carbonate veining, generally subparallel to bedding. Weak to moderate patchy amphibole±biotite bands. Mineralization Minor disseminations/stringers of pyrrhotite with minor pyrite in patches throughout. 59.60-60.02m: 10-15% stringer/clotted pyrrhotite sulphide. ~62.00-63.62m: 5-10% stringer sulphide. 63.62-63.78m: Sulphide injection (durchbewegan), massive.
68.43	84.33	**Mafic Tuff, with Moderate Fracture** Lithology Very fine-grained mafic tuff, weakly bedded to massive. Structure Common strong silicified brittle fracture, mainly oriented ~45° to core axis, with some cross-cutting fracture @ various angles. Alteration Trace biotite or garnet present. Minor carbonate veining. Mineralization Trace specks of sulphide.
84.33	169.47	**Intermediate Tuff with Moderate Fracture** Same description as preceding unit, except lighter in colour (intermediate composition). Some local units slightly coarser grain size (fine to medium grained) with more obvious bedding. Local crystal tuff beds. @ ~131m, trace pyrite disseminations present to ~154m.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-17**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	674572E 5524827N						
ELEVATION	483m						
AZIMUTH	0°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 08-10-10	Depth: 14m Pullback: 6m	Azi: 000.4° Dip: -49°	2:	Date: 09-10-10	Depth: 169.5m Pullback: 6m	Azi: 021.4° Dip: -46.1°
3:	Date: 10-10-10	Depth: 251.76° Pullback: 6m	Azi: 008.9° Dip: -45°	4:	Date: 13-10-10	Depth: 401.12m Pullback: 9.14m	Azi: 010.1° Dip: -43.5°
CASING	3.05m						
LENGTH OF HOLE	401.12m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	22-Oct-10						
DATE COMPLETED	07-Nov-10						
LOGGED BY	A. Mumin						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
56.3	56.99	10-15% po+py±cpy, finely disseminated and in large clots
118.8	120.36	25-30% mt, 1-2% py+po
159.24	159.42	10-15% py, minor mt

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	3.05		Casing
3.05	4.10		Syenite Dike
4.10	39.91		Intermediate Tuff/Mafic Tuff
39.91	50.60	35°/48°	Sulphide Rich Quartz Vein
50.60	90.54		Intermediate Tuff
90.54	96.35		Iron Formation
96.35	97.60	40°/42°	Diorite Dike
97.60	110.06		Syenite Dike
110.06	114.06		Iron Formation
114.06	159.24		Intermediate Tuff
159.24	161.15		Mafic Lapilli Tuff
161.15	167.15		Syenite Dike
167.15	174.72		Intermediate Tuff
174.72	213.65		Monzodiorite Stock
213.65	216.07	57°/45°	Syenite Dike
216.07	220.81		Intermediate Tuff
220.81	233.30		Monzodiorite Dike
233.30	300.50		Intermediate Tuff
300.50	311.65		Porphyritic Andesite/Crystal Tuff
311.65	389.27		Iron Formation
389.27	401.12		Syenite Diking/Potassic-Epidote Alteration Zone
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	3.05	**Casing**
3.05	4.10	**Syenite Dike** Lithology Fine to medium grained massive to weakly foliated, quartz-poor intrusive. cm-scale magnetite+ pyrite veining. Structure Foliation @ 50° to core axis. Irregular upper/lower contacts. Magnetite-pyrite subparallel (<5°) to core axis. Alteration Fracture surfaces heavily weathered with red iron-oxide staining. Possible iron-oxide alteration along fractures. Mineralization 1-2% pyrite in magnetite+pyrite vein and in stringers throughout.
4.10	39.91	**Intermediate Tuff/Mafic Tuff** Lithology Very fine grained to medium grained moderate-strongly foliated andesitic tuffs and mafic tuffs. Moderate diking. Minor magnetite veining. Structure Foliations range from 35°-42° to core axis. 9.29-10.00m: Fault zone. Core broken into angular fragments ranging from <1cm to 8cm in size. Fracture surfaces strongly weathered with reddish-brown iron-oxides and lichen. Core adjacent to either side of fault zone is pitted and weathered out 1-2cm yellow, pitted sulphide band visible 30cm uphole from upper contact. May be remnant of sulphide-rich zone. Alteration Moderate-abundant quartz veining with minor quartz-carbonate veining. Veining ranges from subparallel to 52° to core axis. Minor garnet±epidote sections. 10.97-11.10m: carbonate+biotite alteration zone, ~10% coarse grained biotite masses in large calcite clot. Mineralization 0.5-1.0% pyrite±pyrrhotite in stringers. Diking 19.92-20.86m: Monzonite Dike. Medium-grained, massive, ~40-50% K-feldspar, 25-30% plagioclase, 25-30% mafics. Minor to 0.5% pyrite. Minor magnetite veins. Could be potassic-altered syenite. 25.70-28-61m: Monzodiorite Dike. Medium-grained to coarse-grained. 60-70% mafics, ~30-40% plagioclase and K-feldspar. Minor pyrite. Potassic-altered diorite? 29.96-30.35m: Monzonite Dike with minor to moderate epidote alteration. 36.22-37.96m: Diorite Dike. Greenish alteration (epidote±chlorite?) + minor to moderate potassic alteration. Includes 30cm syenite dike. Trace pyrite.

From (m):	To (m):	Description:
39.91	50.60	**Sulphide Rich Quartz Vein** Massive quartz vein with 20-25% pyrrhotite+pyrite, ~10-15%(?) magnetite. Includes 2 massive pyrrhotite zones (durchbewegan textures). 25cm & 14cm respectively. Upper/lower contacts of quartz vein @ 35° & 48° to core axis. Quartz vein is brecciated in places, with angular quartz fragments up to 5cm in size, and pyrrhotite+ magnetite matrix. Minor garnet zones, including 2cm wide massive garnet band.
50.60	90.54	**Intermediate Tuff** <u>Lithology</u> Very fine grained to fine grained intermediate tuff, weakly to strongly foliated. Minor dacitic interbeds. <u>Structure</u> Foliations @ 35°-43° to core axis. Minor localized soft sediment deformations. <u>Alteration</u> cm scale garnetiferous bands within top 8cm of unit. Minor mm-scale quartz-carbonate veining, ranging from subparallel to 40° to core axis. Minor barren quartz veining up to 18cm in width. Local silicified zones, up to ~0.5m wide. <u>Mineralization</u> 50.60-50.70m: 10cm zone of garnet-pyrite intergrowth, with up to 10-15% pyrite at contact with sulphide rich quartz vein. 56.30-56.99m: sulphide zone, 10-15% pyrrhotite+pyrite+chalcopyrite, finely disseminated and in large clots. Pyrrhotite is non-magnetic. 74.84-75.76m: Garnetiferous zone. 60-70% garnets. 2-3% pyrrhotite+pyrite. Moderate magnetite. 75.76-76.58m: Magnetite zone. Strongly magnetic throughout zone. 1-2% pyrrhotite+pyrite. Trace pyrite+pyrrhotite throughout rest of unit, with local patches up to 2-3% pyrite±pyrrhotite.
90.54	96.35	**Iron Formation** Finely laminated, very fine to fine grained magnetite bands with dark, very fine to fine grained interbeds. Minor siliceous/cherty sections. Minor cm scale felsic diking. ~30-40% magnetite (?) 0.5-1.0% pyrite+pyrrhotite throughout unit, finely disseminated and in stringers. Foliations @ 55°-65° to core axis.
96.35	97.60	**Diorite Dike** Massive, hypideomorphic granular, medium grained intermediate intrusive. Very dark grey. Minor pinkish cm-scale diking @ 24°-77° to core axis. Upper contact with iron formation @ 40° to core axis. Minor 0.5% pyrite, finely disseminated throughout.
97.60	110.06	**Syenite Dike** Massive, hypidiomorphic granular, medium grained pink intrusive. ~50-60% K-feldspar, ~30% mafics, 10-20% plagioclase. Upper contact with diorite dike @ 42° to core axis. Trace to minor pyrite, finely disseminated throughout with local clots up to ~1%. Minor magnetite-rich bands. Minor hairline epidote+carbonate veining.

From (m):	To (m):	Description:
110.06	114.06	**Iron Formation** Similar to 88.54-96.35m. Minor syenite diking, up to 25cm wide. 0.5-1.0% pyrite, finely disseminated and in stringers.
114.06	159.24	**Intermediate Tuff** Similar to 50.60-90.54m. Magnetite-rich interbeds, up to 1.5m in size. Minor to 0.5% pyrite±pyrrhotite in fine stringers and finely disseminated. Abundant garnetiferous zones. 118.80-120.36m: Magnetite rich zone. 25-30% magnetite(?). 1-2% pyrite+pyrrhotite. 127.50-128.70m: Garnet+chlorite+amphibole+biotite±quartz alteration zone. 2-3% pyrite+ pyrrhotite across zone. 132.86-134.25m: Silicified Zone. Trace pyrite. 138.57-139.09m: Potassic + epidote alteration zone. Trace to minor pyrite. 139.79-141.85m: Potassic + epidote alteration zone surrounding 40cm quartz-syenite dike. Minor pyrite.
159.24	161.15	**Mafic Lapilli Tuff** Lithology Dark, weakly foliated, very fine to fine grained groundmass with mm sized (up to 1cm) angular-subangular black/dark green lithic and crystal fragments. Structure Foliations @ 44° to core axis. Minor mm scale quartz-carbonate veining @ 15° to subperpendicular to core axis. <u>Alteration</u> 19cm section of minor to moderate potassic alteration (possible syenite dike). Mineralization 159.24-159.42m: 18cm section at top of unit with 10-15% pyrite+minor magnetite. Minor pyrite throughout rest of unit.
161.15	167.15	**Syenite Dike** Similar to 97.60-110.06m. 161.15-163.70m: higher % of mafics, fine grained, near top of unit, may be monzodiorite dike. 162.80-163.42m: 7-10% pyrite, possibly in raft. 1-3% pyrite throughout rest of unit.
167.15	174.72	**Intermediate Tuff** Similar to 114.06-159.24m. Minor feldspathic diking/veining. Minor to 0.5% pyrite throughout zone. 170.13-171.28m: minor magnetite zone. Weak to moderate magnetite.

From (m):	To (m):	Description:
174.72	213.65	**Monzodiorite Stock** Lithology Medium grained, weakly to moderately foliated, ~50-60% mafics, 25-30% K-feldspar, ~15-20% plagioclase. Equigranular. Minor syenite veining/diking. Structure foliations range from 39°-49° to core axis, steepening down hole. Syenite diking @ 35°-68° to core axis. Alteration May be potassic altered diorite. Syenite diking up to moderately magnetic. Potassic alteration zones around bigger dikes. Minor carbonate veining/clots. Mineralization Minor pyrite throughout section. Disseminated, rarely in bands and clots. Locally up to 1%.
213.65	216.07	**Syenite Dike** Similar to 97.60-110.06m. Moderate magnetite throughout, with local strong magnetite clots, banding. Localized strong epidote alteration. ~0.5% pyrite throughout, with 40cm band of 2-3% disseminated pyrite (Epidote alteration zone). Upper/lower contacts @ 57° & 45° to core axis.
216.07	220.81	**Intermediate Tuff** Similar to 167.15-174.72m. Strong magnetite alteration+syenite diking from contact with previous syenite dike unit to 2.57m from contact. Foliations range from 48° to core axis to 10° to core axis. Syenite diking up to ~30cm wide, all diking within magnetite altered zone. 0.5m garnetiferous zone @ lower contact with monzodiorite dike. mm-scale garnets. Magnetite alteration zone has up to 1-2% pyrite, in fine stringers.
220.81	233.30	**Monzodiorite Dike** Similar to 174.72-213.65m. Minor pyrite in stringers and fine disseminations. Minor weak to moderately magnetic, dark, subangular to subrounded lithic frags, up to 5cm in size. 222.22-222.44m: Epidote±actinolite±chlorite+carbonate clots. Up to 7cm in size. Minor pyrite. 223.15-224.14m: Potassic alteration zone. Moderately magnetic. Minor pyrite. 231.70-233.02m: Potassic alteration zone. Trace pyrite. Weak to moderately magnetic.
233.30	300.50	**Intermediate Tuff** Similar to 167.15-174.72m. 10cm wide strong magnetite banding, up to 1% pyrite at upper contact with monzodiorite dike. Weak to strong magnetite-rich bands, up to 7cm near top of unit. Minor pyrite across section, up to 1-2% @ magnetite rich bands. 267.97-268.57m: Potassic altered zone. Includes 6cm strong magnetite bands+8cm zone with potassic and talc (?) alteration. Occasional bleached zones.

From (m):	To (m):	Description:
300.50	311.65	**Porphyritic Andesite/Crystal Tuff** Lithology 2-3% subhedral to euhedral plagioclase phenocrysts, typically 0.5cm in size, up to 1cm in fine grained matrix. Includes 1.06m section where phenocrysts increase in size (to ~1cm average) and frequency (15-20%). Occasional intermediate tuff interbeds. Syenite diking up to 1.5m in length. May contain lithic frags of dike material (possible alteration?). Structure Andesite bands show weak foliation @ 42° to core axis. Alteration Minor localized potassic alteration. Apparent sausseritization of plag phenocrysts. Mineralization Trace to minor pyrite±pyrrhotite finely disseminated throughout zone. Minor weak to moderate magnetite bands. Some dikes contain magnetite rich lithic fragments.
311.65	389.27	**Iron Formation** Similar to 88.54-96.35m Appears to be hosted in intermediate volcanic rocks. Up to 10-15% of unit appears to be diorite/syenite diking. Abundant magnetite in volcanic rock (strongly magnetic). Minor to 0.5% pyrite in stringers, locally up to 1-2%. Important Mineralization/Alteration/Diking Intervals
328.40	337.27	Syenite porphyry dike. Coarse grained K-feldspar phenocrysts in fine grained to
341.73	343.49	medium grained matrix comprised of K-feldspar, biotite, amphibole, titanite, and other fine grained mafic minerals. Unit is weakly magnetic throughout. Trace to minor pyrite, finely disseminated throughout.
352.80	353.72	Fine grained diorite dike. 2-3% mm-cm scale K-feldspar + epidote veining in fine grained potassic +epidote altered host rock. Very weakly magnetic except at lower contact with syenite dike. Minor to 0.5% pyrite within 10cm of lower contact.
353.72	354.35	Syenite Dike. Minor mm-scale pyrite+magnetite veinlets.
361.33	362.33	5-10% specular hematite clots (2-3mm in size) in magnetite bands.
367.69	368.47	Highly foliated diorite dike. Gneissic texture, non-magnetic, very trace pyrite, minor potassic alteration.
369.85	370.43	Intermediate tuff. No magnetism. Minor syenite diking/potassic alteration.
374.87	376.87	Mafic Dike. ~5-10% K-feldspar veining. Patchy magnetism with local strong sections.
389.27	401.12	**Syenite Diking/Potassic-Epidote Alteration Zone** Mixed syenite diking + potassic-epidote alteration zones, with minor intermittent (up to 0.95m) intermediate tuff zones. cm-scale quartz-potassic veining throughout section, fine grained to coarse grained 24°-75° to core axis. Moderate to moderate-strong magnetism in tuffs, weak magnetism elsewhere. Minor carbonate alteration, carbonate+biotite clotting, primarily in epidote alteration. Trace to minor disseminated pyrite throughout, locally up to 2-3% over 17cm.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-18**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	673682E 5524832N						
ELEVATION	450m						
AZIMUTH	000°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 16-10-10	Depth: 17m Pullback: 6m	Azi: 004.6° Dip: -48.9°	2:	Date: 17-10-10	Depth: 200m Pullback: 6m	Azi: 352.6° Dip: -46.3°
3:	Date: 19-10-10	Depth: 334m Pullback: 9.14m	Azi: 304.9° Dip: -45.4°				
CASING	1.52m						
LENGTH OF HOLE	334.06m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	18-Oct-10						
DATE COMPLETED	24-Oct-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS

From (m):	To (m):	Description
105.32	106.2	~10% po, disseminated, with ~1% 1-3mm asp grains
106.3	113.39	2-3% po disseminations, stringers, 5-10% mt
219.33	228.28	Strong mt, minor to 1% py
230.6	245.86	Up to 50% mt, trace py stringers/disseminations
251.66	273.42	Banded strong mt

STRATIGRAPHY and STRUCTURAL INTERVALS

From (m):	To (m):	Contacts: U/L	Description
0.00	1.52		Casing
1.52	19.85		Intermediate Tuff
19.85	20.18	47°/47°	Intermediate Dike
20.18	34.00		Intermediate Tuff with Moderate Alteration
34.00	44.30		Intermediate Tuff
44.30	47.40		Dacite Tuff
47.40	90.20		Intermediate Tuff with Moderate to Weak Alteration
90.20	96.19		Bleached Dacite Tuff with Minor Sulphide
96.19	101.30		Metasediment with Sparse Sulphide
101.30	106.30		Metasediment with Moderate to Strong Alteration and Mineralized Zone
106.30	113.39		Magnetite Iron Formation
113.39	117.43		Metasediment with Moderate to Strong Alteration
117.43	134.24		Bleached Metasediment
134.24	136.25	54°/36°	Bleached Mafic Dike
136.25	152.38		Bleached Metasediment
152.38	175.11		Altered Metasediment with Common Diorite Dikes
175.11	183.65		Diorite Intrusion
183.65	186.44		Metasediment Inclusion
186.44	198.22		Diorite Intrusion
198.22	219.33		Weak Magnetite Iron Formation
219.33	228.28		Strong Magnetite Iron Formation
228.28	230.60		Metasediment
230.60	245.86		Strong Magnetite Iron Formation
245.86	251.66		Weak Magnetite Iron Formation
251.66	273.42		Strong Magnetite Iron Formation
273.42	313.91		Diorite Intrusion
313.91	334.06		Syenite Intrusion
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	1.52	**Casing** Granitic Rubble.
1.52	19.85	**Intermediate Tuff** <u>Lithology</u> Very fine to fine grained strongly bedded/laminated intermediate tuff. Bedding @ ~46° to core axis, mm-cm scale. <u>Structure</u> Minor brittle fracture throughout. Weak foliation present, subparallel to bedding. <u>Alteration</u> Minor quartz-carbonate veining. Fairly sparse garnet±amphibole alteration bands, generally restricted to single beds. <u>Mineralization</u> None visible.
19.85	20.18	**Intermediate Dike** Massive, medium-grained intermediate dike, with sharp contacts @ 47° to core axis.
20.18	34.00	**Intermediate Tuff with Moderate Alteration** <u>Lithology</u> Fine to fine grained bedded/laminated intermediate tuff. Bedding @ 45°-55° to core axis. <u>Structure</u> Minor/weak foliation subparallel to bedding. Weak to moderate patches of fracture, some with weak offset. <u>Alteration</u> Moderate-strength bands of garnet±amphibole±biotite with minor chlorite. Common quartz-carbonate veining, generally along bedding/laminations or along fractures. <u>Mineralization</u> Trace specks/stringers of pyrrhotite, generally associated with stronger alteration patches.
34.00	44.30	**Intermediate Tuff** <u>Lithology</u> Very fine-grained laminated tuff. <u>Structure</u> Moderate to weak brittle fracture/brecciation. No preferred orientation. <u>Alteration</u> Trace quartz-carbonate veining along bedding/fractures. <u>Mineralization</u> Trace specks/stringers of pyrite, generally along bedding planes/fracture planes (probably post-formational).

From (m):	To (m):	Description:
44.30	47.40	**Dacite Tuff** Lithology Very fine to fine grained laminated purplish dacite tuff, with sparse intermediate interbeds. Bedding ~50° to core axis. Structure Trace brittle fracture. Alteration Trace carbonate stringers. Mineralization Minor clots and specks of pyrrhotite.
47.40	90.20	**Intermediate Tuff with Moderate to Weak Alteration** Lithology Very fine grained bedded/laminated intermediate tuff, 50-55° to core axis. Sparse dacite beds (85.87-86.79m). Structure Weak to moderate, fairly common brittle fracture. Minor foliation subparallel to bedding present. Alteration Sparse bleached patches present. Moderate to fairly strong carbonate veining parallel to bedding/ fracture. Weak to moderate very fine grained biotite+amphibole±garnet patches throughout, generally within beds. Mineralization Trace clots/specks and stringers, mainly pyrrhotite, pyrite.
90.20	96.19	**Bleached Dacite Tuff with Minor Sulphide** Lithology Very fine to fine grained laminated dacite tuff, bedding @ 45°-50° to core axis. Structure Strong foliation parallel to bedding. Very strong brittle fracture throughout. Slight deformation around veins. Alteration Strongly bleached/silicified throughout, except for small (~10cm) patches slightly less bleaching. Bleaching also contains sericite alteration along foliations. Fairly weak patches of biotite± amphibole alteration. 95.77-96.19m: Strong quartz vein cross-cutting @ 47° to core axis, with massive durchbewegan sulphide injection zone along lower edge. Mineralization Trace specks/clots of sulphide overall.

From (m):	To (m):	Description:
96.19	101.30	**Metasediment with Sparse Sulphide** Lithology Fine-grained bedded metasediment with slightly variable bedding, from 25°-50° to core axis. Structure Minor soft-sediment deformations. Alteration Minor biotite±amphibole alteration in beds. Fairly strong garnet+biotite+amphibole from ~100.00-100.80m. Sparse quartz-carbonate veining. Mineralization Sparse stringers/disseminations from 96.19-96.87m. Trace specks elsewhere.
101.30	106.30	**Metasediment with Moderate to Strong Alteration and Mineralized Zone** Lithology Fine grained bedded metasediment, bedding usually ~45° to core axis. Structure Local soft-sediment deformations. Local minor fracture. Alteration Patches and bands of strong biotite+amphibole±garnet throughout. Mineralization Minor stringers/disseminations. 105.32-106.20m: ~10% disseminated sulphide, mostly pyrrhotite with ~1% 1-3mm arsenopyrite grains.
106.30	113.39	**Magnetite Iron Formation** Lithology Fine grained bedded/laminated "metasediments", 45°-50° to core axis. Very fine grained strong bands of magnetite throughout unit, except for a bare patch @ 108.30-108.76m. Magnetite bands present along bedding planes and brittle-ductile fractures. Structure Common soft-sediment deformation. Very common brittle-ductile fracturing, often cross-cutting bedding and other fractures. Alteration Banded to patchy (within bedding) biotite+amphibole±garnet alteration, from weak to very strong. Banded bleaching in some beds. Mineralization Mainly disseminations and stringers of pyrrhotite, with minor to trace amounts of pyrite and arsenopyrite. Some cm-scale veins of pyrrhotite. 2-3% sulphide mineralization overall. 5-10% magnetite overall.
113.39	117.43	**Metasediment with Moderate to Strong Alteration** Same description as "Metasediment" from 101.30-106.30m, except mineralization in disseminations and clots throughout, ~1% overall, mostly pyrrhotite with minor arsenopyrite.

From (m):	To (m):	Description:
117.43	134.24	**Bleached Metasediment** Lithology Fine-grained, bedded metasediment, bedding 50°-55° to core axis. 129.28-129.61m: massive mafic dike, sharp contacts @ 30° and 38° to core axis. Structure Moderate brittle fracture throughout, no preferred orientation. Alteration Moderate to strong banded bleaching, near pervasive, overprinting everything. Biotite+amphibole+garnet alteration bands common. 131.11-131.92m: Fractured quartz-carbonate vein with black amphibole grains, cross-cutting. Mineralization Minor sulphide mineralization, in veinlets, clots, and disseminations, mainly pyrrhotite+pyrite with trace chalcopyrite and arsenopyrite.
134.24	136.25	**Bleached Mafic Dike** Lithology Fine-grained, massive dike, with sharp upper and lower contacts @ 54° and 36° to core axis, respectively. Structure Brittle fracture throughout, fairly weak. No preferred direction. Alteration Moderate pervasive bleaching. Mineralization None visible.
136.25	152.38	**Bleached Metasediment** Lithology Fine-grained, bedded metasediment, 50°-60° to core axis. Two small syenite dikes @ 149.49-149.52m and 149.60-149.62m. Structure Minor to moderate brittle fracture throughout. Brittle-ductile fracture/faulting present locally: @ ~137.40m, ~137.90m, 142.90m. Alteration Moderate to strong banded bleaching, near pervasive. Biotite+amphibole+garnet alteration bands throughout. Mineralization Minor sulphide mineralization, in veinlets, clots, and disseminations, mainly pyrrhotite+pyrite with trace chalcopyrite and arsenopyrite.

From (m):	To (m):	Description:
152.38	175.11	**Altered Metasediment with Common Diorite Dikes** Lithology Fine-grained, bedded metasediment, bedding ~40°-50° to core axis. Common fine to medium grained diorite dikes throughout, cm- 10's of cm scale. Various cross-cutting orientations, often forking and curving through country rock. Structure Local soft-sediment deformations. Local shearing and brittle-ductile deformation throughout. Alteration Local strong chlorite alteration. Fairly strong biotite+amphibole alteration, banded/patchy, with associated carbonate and quartz veining. Around dikes, some 'cooking' around edges. Mineralization Minor, fine grained disseminations of sulphide (pyrrhotite+pyrite with minor arsenopyrite), both in metasediments and dikes.
175.11	183.65	**Diorite Intrusion** Lithology Medium to coarse grained, massive diorite intrusion. Structure Sparse brittle fracture. Local shearing present, possibly syn-formational. Alteration Common potassic-altered veins throughout, cm to 10's of cm scale. Potassic alteration throughout, but much stronger in veins. Rock type is possibly monzodiorite. Mineralization Trace to minor pyrite±pyrrhotite disseminations.
183.65	186.44	**Metasediment Inclusion** Lithology Fine grained, bedded/laminated metasediment. Some small inclusions of potassic-altered intrusion. "Cooked" contacts, grading between the units. Structure Minor local brittle-ductile fracture. Alteration Moderate amphibole+biotite±chlorite bands. Mineralization Stringers, clots, and disseminations of pyrite±pyrrhotite, ~1% overall.
186.44	198.22	**Diorite Intrusion** Same description as "Diorite Intrusion" from 175.11-183.65m, except some patches fine-grained.

From (m):	To (m):	Description:
198.22	219.33	**Weak Magnetite Iron Formation** Lithology Fine grained to very fine grained, bedded/laminated metasediment, with very fine grained weak to moderate bands of magnetite along bedding planes. Bedding oriented from 45°-60° to core axis. Common cm to 10's of cm scale diorite dikes, commonly with angular inclusions of country rock, moderately magnetic throughout. Contacts may be sharp or graded. Structure Minor local brittle fractures. Alteration Some of the diorite dikes show weak potassic alteration. Metasediment beds have sparse amphibole±biotite±garnet alteration bands. Mineralization Minor disseminations/stringers of sulphide throughout both the metasediments and the dacite dikes, pyrite±pyrrhotite, with trace arsenopyrite. Up to 1% sulphide locally, minor overall.
219.33	228.28	**Strong Magnetite Iron Formation** Same lithology description as preceding unit, except much stronger magnetite throughout. Same potassic-altered diorite dikes, cm to 10's of cm scale. Same structure as preceding unit. Same alteration description as preceding unit. Mineralization Minor disseminations/stringers of sulphide throughout, stringers mainly in metasediments. Mainly pyrite, with trace amounts of other sulphide. Up to 5% locally, minor to 1% overall.
228.28	230.60	**Metasediment** Same overall description as preceding unit, including lithology, structure, and alteration, but almost no magnetite and only trace sulphide.
230.60	245.86	**Strong Magnetite Iron Formation** Lithology Fine grained, bedded/laminated metasediment, with very strong, very fine-grained magnetite in bands along bedding. Fairly sparse diorite dikes, mostly subparallel to bedding, but with some cross-cutting. Bedding @ 30°-55° to core axis. Local soft sediment deformations. Structure None visible. Alteration Very minor, sparse bands of garnet. Dikes show potassic alteration. Mineralization Sparse stringers/disseminations of pyrite. Trace overall. Up to 50% magnetite.
245.86	251.66	**Weak Magnetite Iron Formation** Same overall description as preceding unit, including lithology, structure, and alteration, but much less magnetite present. Same sulphide mineralization type and amount as preceding unit.

From (m):	To (m):	Description:
251.66	273.42	**Strong Magnetite Iron Formation** Lithology Fine grained, bedded/laminated metasediment, with very strong, very fine-grained magnetite bands along bedding. Bedding @ 40°-55° to core axis. Fairly common syenite dikes throughout, cm to 10's of cm scale, both parallel to and cross-cutting bedding angles. Non-magnetic. Some larger dikes with cooling margins. Structure Some local soft sediment deformations. Alteration Some patches in metasediment with garnet±amphibole alteration. Somewhat vuggy around the dikes. Mineralization Minor sulphide (pyrite) disseminations present.
273.42	313.91	**Diorite Intrusion** Lithology Medium to coarse grained massive diorite intrusion. Some fine to coarse syenite dikes (cm-m scale) often with fairly fine grained contacts (both sides of contacts, cooling margins). Structure Minor brittle-ductile fracture, no preferred orientation. Alteration Strong veins of potassic alteration, with fairly weak to moderate potassic alteration near-pervasive. Mineralization Minor clots and stringers of pyrite.
313.91	334.06	**Syenite Intrusion** Lithology Coarse grained massive syenite intrusion. Minor bands, cm-m scale, finer-grained. Structure Minor brittle fracture. Alteration Some carbonate veining. Mineralization Trace to minor pyrite mineralization.
EOH		

DIAMOND DRILL HOLE LOG

HOLE NUMBER	**SL-10-19**						
COMPANY	Excalibur Resources						
PROPERTY	Sturgeon Lake						
LOCATION (UTM)	674555E 5525007N						
ELEVATION	457m						
AZIMUTH	000°						
DIP	-45°						
REFLEX EZ-SHOT 1:	Date: 21-10-10	Depth: 17m Pullback: 27.4m	Azi: 005.1° Dip: 48.9°	2:	Date: 22-10-10	Depth: 212.14m Pullback: 6m	Azi: 020.2° Dip: -44.4°
CASING	6.10m						
LENGTH OF HOLE	273.93m						
DRILL CONTRACTOR	Distinctive Drilling						
DATE STARTED	25-Oct-10						
DATE COMPLETED	28-Oct-10						
LOGGED BY	R. Moody						
CORE STORAGE	Sturgeon Lake Camp 15 U 671128E 5523824N						

MINERALIZATION INTERVALS		
From (m):	To (m):	Description
82.00	139.88	30-40% mt in bands, ~1% py in specks and disseminations
190.06	200.89	~20% mt in bands

STRATIGRAPHY and STRUCTURAL INTERVALS			
From (m):	To (m):	Contacts: U/L	Description
0.00	6.10		Casing
6.10	16.66		Syenite Intrusion
16.66	66.00		Metasediment with Minor Magnetite Bands
66.00	82.00		Weak to Moderate Magnetite Iron Formation
82.00	139.88		Strong Magnetite Iron Formation
139.88	182.20		Syenite Intrusion
182.20	190.06		Metasediment with Minor Magnetite Bands
190.06	200.89		Strong Magnetite Iron Formation
200.89	223.68		Metasediment with Weak to Moderate Disseminated Magnetite
223.68	230.43		Coarse Syenite Intrusion
230.43	242.19		Metasediment with Weak Magnetite, Large Syenite Dikes
242.19	264.05		Diorite/Monzodiorite with Syenite Dikes
264.05	273.93		Syenite Intrusion
EOH			

Diamond Drill Hole Log Details:		
From (m):	To (m):	Description:
0.00	6.10	**Casing** Mixed gravel, mostly syenite.
6.10	16.66	**Syenite Intrusion** Lithology Medium to coarse grained syenite intrusion. Small inclusion of strong Magnetite Iron Formation @ 9.08-9.42m. Structure Weak foliation/imbrication present, usually ~45° to core axis. Local brittle-ductile fracture present. Alteration Local minor chlorite present on some fractures. Mineralization Trace disseminations of pyrite present, throughout syenite. Magnetite Iron Formation inclusion has ~1% pyrite.
16.66	66.00	**Metasediment with Minor Magnetite Bands** Lithology Bedded/laminated fine to very fine grained metasediment, with bedding @ 38°-50° to core axis. Sparse felsic dikes throughout, large ones @ 20.62-22.25m, 49.03-50.55m, 52.94-54.49m. Structure Minor local fracture present, sometimes with carbonate. Alteration Strong patches of 1-3mm garnets present, trace ~5mm. Patches 10's of cm's scale width. Minor quartz-carbonate veining. Mineralization Trace sulphide disseminations present. Minor cm-scale magnetite bands throughout, some in local clusters 10's of cm's thick. Bands of moderate to strong magnetite.
66.00	82.00	**Weak to Moderate Magnetite Iron Formation** Lithology Fine grained, bedded/laminated metasediment. Sparse felsic dikes. Structure Minor brittle fractures. Alteration Patchy, strong, garnet alteration. Mineralization Strong bands of magnetite throughout, grading from common to fairly sparse. (~5% overall) Trace sulphide specks (mostly pyrite).

From (m):	To (m):	Description:
82.00	139.88	**Strong Magnetite Iron Formation** Lithology Fine grained, bedded/laminated metasediment, bedding @ 30°-60° to core axis, very variable. Very common non-magnetic syenite dikes, cm-m scale, often cross-cutting bedding. Structure Local soft sediment deformations, local brecciations. Alteration Trace chlorite present, especially around syenite dikes. Mineralization 30-40% magnetite overall, in bands cm-10's of cm thickness. Fine grained, along bedding. ~1% sulphide (mainly pyrite) overall, in specks and disseminations.
139.88	182.20	**Syenite Intrusion** Coarse to locally fine-grained, fairly massive syenite intrusion. Local, small, fine grained mafic dikes. Minor local fracture present. Minor overall sulphide (mainly pyrite), disseminated, sparse stringers. 157.07-160.40m ~50% fine-grained mafic dikes, some with sharp contacts, some graded/partially 164.00-166.30m melted.
182.20	190.06	**Metasediment with Minor Magnetite Bands** Lithology Fine-grained, bedded/laminated, metasediment. Bedding very faint, 40°-50° to core axis. Common felsic dikes, from parallel to perpendicular to core axis. cm-scale width. Structure Common brittle fracture, no preferred orientation, often with strong chlorite alteration. Alteration Minor quartz-carbonate veining. Mineralization Trace sulphide specks. Minor bands of magnetite.
190.06	200.89	**Strong Magnetite Iron Formation** Lithology Fine-grained, bedded/laminated metasediment. Bedding highly variable, from 40°-70° to core axis. Fairly common, coarse grained felsic dikes, sharp contacts, no preferred orientation. Structure Local brittle fracture. Local soft-sediment deformations. Alteration Small patches of mm-scale garnets. Minor quartz-carbonate veining. Minor chlorite around some fractures and veins. Mineralization ~20% magnetite overall, in fine grained bands mm-cm thickness. Minor sulphide stringers throughout (pyrite/pyrrhotite).

From (m):	To (m):	Description:
200.89	223.68	**Metasediment with Weak to Moderate Disseminated Magnetite** Lithology Fine grained metasediment, fairly massive. Small (0.5-1.0 cm scale) felsic dikes. Rare 10's of cm felsic dikes. Structure Local brittle fracture. Local soft-sediment deformation. Alteration Minor/weak fine-grained biotite alteration. Mineralization Trace stringers of pyrrhotite+pyrite. Weak to moderate magnetite disseminations and bands.
223.68	230.43	**Coarse Syenite Intrusion** Lithology Very coarse grained massive syenite. Local cm-scale "veins" fine-grained, most K-feldspar grains euhedral to sub-euhedral. Groundmass is mainly amphibole/biotite, finer-grained and irregular-shaped. Structure Mainly massive, with very minor local brittle fracture. Alteration Very minor quartz veining present. Mineralization Trace local clots of pyrite.
230.43	242.19	**Metasediment with Weak Magnetite, Large Syenite Dikes** Fine grained, fairly massive metasediment, with few large (10's of cm scale) medium to coarse grained felsic dikes. Minor local fracture. Disseminated fine grained biotite alteration. Strong chlorite patches. Weakly-disseminated magnetite, very fine-grained. Minor sulphide clots, mostly pyrite.
242.19	264.05	**Diorite/Monzodiorite with Syenite Dikes** Lithology Medium to coarse-grained massive diorite and/or monzodiorite with cm-scale to (rare) m-scale, fine to medium grained syenite dikes. Minor inclusions of metasediment. Structure Minor brittle fracture. Alteration Minor epidote alteration present. Near pervasive potassic alteration. Mineralization Trace to minor sulphide, generally in clots, mostly pyrite.

From (m):	To (m):	Description:
264.05	273.93	**Syenite Intrusion** Coarse grained, fairly massive, syenite intrusion. Minor diorite dikes. Minor brittle fracture. Minor epidote patches. Trace to minor pyrite, generally in clots.
EOH		