

Hole Number: ES2005-28

Units: METRIC

Project Name: Norway - Espedalen	Primary Coordinates Grid: UTM84-32N	Destination Coordinates Grid: UTM:	Collar Dip: -69.67
Project Number: 201	North: 6800932.70	North: 61.34	Collar Az: 232.50
Location: Surface	East: 535783.10	East: 9.67	Length: 105.80 (m)
	Elev: 960.72	Elev: 960.72	Start Depth: 0.00 (m)
Date Started: Apr 11, 2005	Collar Survey: Y	Plugged: N	Contractor: Arctic Drilling A/S
Date Completed: Apr 12, 2005	Multishot Survey: Y	Hole Size: TT46	Core Storage: Strand Fjellstue
Logged By: Lars Weiershaeuser	Pulse EM Survey: Y	Casing: Left in Hole, capped	Final Depth: 105.80 (m)

Comments: Purpose: Test UTEM conductor on L12100E, within centre of interpreted plate (conductance = 1315 Siemens).

Result: Intersected several cm to dm scale remobilized massive sulphide (po-pn-cpy) veinlets within ultramafic intrusives from 71.45-71.84m (0.39m) and 74.35-74.83m (0.48m). A massive sulphide (po-pn-cpy) veinlet was intersected along the footwall contact of a mafic dyke from 73.39-73.54m (0.15m).

Assays: 1.65%Ni, 0.78%Cu, 0.04%Co / 0.36m (71.45-71.84m); 2.97%Ni, 2.16%Cu, 0.09%Co / 0.29m (73.25-73.54m) and 1.10%Ni, 0.53%Cu, 0.03%Co / 0.48m (74.35-74.83m).

Borehole UTEM: In-hole response centered @ 72m & 76m. Correlates with intersected mineralization.

Sample Averages

Average Type	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
WEIGHTED	71.45	74.83	3.38	0.6341	0.3734	0.0232

Survey Data

Depth (m)	Azimuth Decimal	Dip Decimal	Test Type	Flag	Comments	Depth (m)	Azimuth Decimal	Dip Decimal	Test Type	Flag	Comments
0.00	232.50	-69.67	MShot	OK		5.00	232.50	-69.45	MShot	OK	
10.00	232.49	-69.24	MShot	OK		15.00	232.61	-69.15	MShot	OK	
20.00	232.78	-69.38	MShot	OK		25.00	233.52	-69.39	MShot	OK	
30.00	234.30	-69.33	MShot	OK		35.00	234.43	-69.33	MShot	OK	
40.00	234.18	-69.22	MShot	OK		45.00	234.07	-69.77	MShot	OK	
50.00	234.15	-69.63	MShot	OK		55.00	233.44	-69.71	MShot	OK	
60.00	233.41	-69.83	MShot	OK		65.00	233.66	-69.88	MShot	OK	
70.00	233.88	-69.83	MShot	OK		75.00	233.86	-70.11	MShot	OK	
80.00	233.43	-70.20	MShot	OK		85.00	233.17	-69.87	MShot	OK	
90.00	232.51	-69.97	MShot	OK		95.00	232.35	-70.02	MShot	OK	
104.00	231.79	-70.09	MShot	OK							

Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
0	10.20	C, Casing RQD 0.00 - 10.20 : 100.00 % RQD 100.00 % Core CASING							

DETAILED LOG

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Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		<p>MINOR INTERVALS: Minor Interval: 28.89 - 29.95 MD, Mafic Dike Fine to medium-grained, medium gray, non-magnetic, foliated mafic subunit; the upper contact is sharp but irregular and the lower contact is sharp at ~90 degrees tca. The unit is weakly epidote altered.</p> <p>This unit is not mineralized. Structure 29.65 - 29.66 : S1 First Foliation, 70 Deg to CA</p>							

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Detailed Lithology		Lithology	Assay Data						
From (m)	To (m)		Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
50.38	105.80	4s, Sausseritized/Tectonized Anorthosite	PG03858	70.00	71.08	1.08	0.0250	0.0250	0.0100
		<p>This unit consists of fine-grained, white to light gray, non-magnetic, fairly homogeneous anorthosite. Major minerals are plagioclase and alteration minerals (chlorite, ?sericite). Depending on the abundance of alteration minerals and degree of foliation, the rock appears mottled white to light gray; changes in appearance occur on a meter-scale. Where the unit is quartz (+fuchsite) altered, no foliation is apparent; elsewhere, the unit is well-foliated. Mafic and ultramafic dykes/sills have intruded this unit. The upper contact is sharp at 80 degrees tca. Between 52.30 and 56.4 m numerous cm-scale mafic and ultramafic xenoliths/dycklets, locally with trace po, occur.</p> <p>The total thickness of this unit is not known as the hole was shut down.</p> <p>This unit is not mineralized</p> <p>For a description of the intrusive rocks, see comments of subunits.</p> <p>Alteration</p> <p>65.50 - 71.00 :Q Quartz, P Pervasive, M Moderate weak to moderate, locally with fuchsite</p> <p>92.56 - 97.39 :EP Epidote, P Pervasive, W Weak</p> <p>79.35 - 105.80 :Q Quartz, P Pervasive, W Weak weak to moderate, locally with fuchsite and/or epidote</p> <p>Structure</p> <p>54.69 - 54.70 : S1 First Foliation, 75 Deg to CA</p> <p>62.05 - 62.06 : S1 First Foliation, 70 Deg to CA</p> <p>65.41 - 65.42 : S1 First Foliation, 80 Deg to CA</p> <p>78.55 - 78.56 : S1 First Foliation, 80 Deg to CA</p> <p>81.78 - 81.79 : S1 First Foliation, 70 Deg to CA</p> <p>91.21 - 91.22 : S1 First Foliation, 60 Deg to CA</p> <p>102.80 - 102.81 : S1 First Foliation, 60 Deg to CA</p> <p>RQD</p> <p>51.00 - 54.00 : 78.00 % RQD 100.00 % Core</p> <p>54.00 - 57.00 : 89.00 % RQD 100.00 % Core</p> <p>57.00 - 60.00 : 86.00 % RQD 100.00 % Core</p> <p>60.00 - 63.00 : 67.00 % RQD 100.00 % Core</p> <p>63.00 - 66.00 : 75.00 % RQD 100.00 % Core</p> <p>66.00 - 69.00 : 78.00 % RQD 100.00 % Core</p> <p>69.00 - 72.00 : 79.00 % RQD 100.00 % Core</p> <p>72.00 - 75.00 : 70.00 % RQD 100.00 % Core</p> <p>75.00 - 78.00 : 71.00 % RQD 100.00 % Core</p> <p>78.00 - 81.00 : 29.00 % RQD 100.00 % Core</p> <p>81.00 - 84.00 : 63.00 % RQD 100.00 % Core</p> <p>84.00 - 87.00 : 69.00 % RQD 100.00 % Core</p> <p>87.00 - 90.00 : 70.00 % RQD 100.00 % Core</p>	PG03859	71.08	71.45	0.37	0.0250	0.0250	0.0100
			PG03860	71.45	71.84	0.39	1.6500	0.7800	0.0400
			PG03861	71.84	72.32	0.48	0.0800	0.0700	0.0100
			PG03862	72.32	73.25	0.93	0.0250	0.0250	0.0100
			PG03863	73.25	73.54	0.29	2.9700	2.1600	0.0900
			PG03864	73.54	74.35	0.81	0.0600	0.0250	0.0100
			PG03865	74.35	74.83	0.48	1.1000	0.5300	0.0300
			PG03866	74.83	76.00	1.17	0.0250	0.0250	0.0100

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Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		<p>RQD</p> <p>90.00 - 93.00 : 90.00 % RQD 100.00 % Core</p> <p>93.00 - 96.00 : 72.00 % RQD 100.00 % Core</p> <p>96.00 - 99.00 : 61.00 % RQD 100.00 % Core</p> <p>99.00 - 102.00 : 57.00 % RQD 100.00 % Core</p> <p>102.00 - 105.80 : 62.00 % RQD 100.00 % Core</p> <p>MINOR INTERVALS:</p> <p>Minor Interval:</p> <p>71.08 - 71.84 6, Undivided Ultramafic Intrusive</p> <p>Fine-grained dark gray to greenish-black, non-magnetic, homogeneous, well foliated ultramafic subunit. The upper contact is sharp at 60 degrees tca, the lower contact is sharp but irregular. The upper ~35 cm of this unit are characterized by mm-scale fibrous ?serpentine minerals that appear as 1 - 2 mm long white grains on the cut core surface. The lower ~40 cm of this unit contains ~15% remobilized sulfide veinlets (po, cpy, pn, py).</p> <p>Mineralization</p> <p>71.45 - 71.84 : Cpy Chalcopyrite, VN Veins, 4% remobilized veinlets</p> <p>71.45 - 71.84 : Pn Pentlandite, VN Veins, 3% remobilized veinlets</p> <p>71.45 - 71.84 : Po Pyrrhotite, VN Veins, 8% remobilized veinlets</p> <p>71.45 - 71.84 : Py Pyrite, VN Veins, 2% remobilized veinlets</p> <p>Minor Interval:</p> <p>72.32 - 73.54 MD, Mafic Dike</p> <p>Fine to medium-grained, medium gray, non-magnetic, foliated mafic subunit; the upper and lower contact are sharp but irregular. An anorthositic xenolith occurs between 73.25 and 73.35 m. This unit contains trace sulfides in its upper portion. The lower contact is characterized by an ~9cm remobilized massive sulfide veinlet, consisting of po, cpy, and pn (eyes). Cpy is more abundant along the lower contact within the massive sulfide.</p> <p>Mineralization</p> <p>73.39 - 73.54 : Cpy Chalcopyrite, M Massive, 10%</p> <p>73.39 - 73.54 : Pn Pentlandite, EY Eyes, 5%</p> <p>73.39 - 73.54 : Po Pyrrhotite, M Massive, 75%</p> <p>Structure</p> <p>72.75 - 72.76 : S1 First Foliation, 70 Deg to CA</p>							

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Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		<p>MINOR INTERVALS:</p> <p>Minor Interval: 74.35 - 74.83 6, Undivided Ultramafic Intrusive Fine-grained dark gray to greenish-black, non-magnetic, homogeneous, well foliated ultramafic subunit. The upper contact is sharp at ~90 degrees tca, the lower contact is sharp at 80 degrees tca. This unit contain ~15% remobilized sulfide veinlets (po, cpy, pn). The lower ~15 cm contains black mm -scale ?chlorite-bearing bands that are softer than the rest of the rock.</p> <p>Mineralization 74.35 - 74.83 : Cpy Chalcopyrite, VN Veins, 4% remobilized veinlets 74.35 - 74.83 : Pn Pentlandite, VN Veins, 3% remobilized veinlets 74.35 - 74.83 : Po Pyrrhotite, VN Veins, 8% remobilized veinlets</p> <p>Minor Interval: 92.5 - 97.39 MD, Mafic Dike Fine to medium-grained dark gray to greenish-black, non-magnetic, homogeneous, foliated mafic dyke/sill. The upper and lower contact are sharp but irregular and sharp at 50 degrees tca, respectively. This unit is weakly pervasively epidote altered.</p> <p>This unit is not mineralized.</p> <p>Structure 96.73 - 96.74 : S1 First Foliation, 65 Deg to CA</p> <p>Minor Interval: 104.72 - 105.8 MD, Mafic Dike Fine to medium-grained dark gray to greenish-black, non-magnetic, homogeneous, foliated mafic dyke/sill. The lower contact is sharp but irregular; the lower contact is not known as the hole was shut down.</p> <p>This unit is not mineralized.</p>							

Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type	ASSAY				
PG03858	70.00	71.08	0.0250	0.0250	0.0100
PG03859	71.08	71.45	0.0250	0.0250	0.0100
PG03860	71.45	71.84	1.6500	0.7800	0.0400
PG03861	71.84	72.32	0.0800	0.0700	0.0100
PG03862	72.32	73.25	0.0250	0.0250	0.0100
PG03863	73.25	73.54	2.9700	2.1600	0.0900
PG03864	73.54	74.35	0.0600	0.0250	0.0100
PG03865	74.35	74.83	1.1000	0.5300	0.0300

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Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type ASSAY PG03866	74.83	76.00	0.0250	0.0250	0.0100