

Hole Number: ES2005-31

Units: METRIC

Project Name: Norway - Espedalen	Primary Coordinates Grid: UTM84-32N	Destination Coordinates Grid: UTM:	Collar Dip: -56.94
Project Number: 201	North: 6801151.65	North: 61.34	Collar Az: 232.90
Location: Surface	East: 535421.83	East: 9.66	Length: 131.53 (m)
	Elev: 968.98	Elev: 968.98	Start Depth: 0.00 (m)
Date Started: Apr 16, 2005	Collar Survey: Y	Plugged: N	Contractor: Arctic Drilling A/S
Date Completed: Apr 17, 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: 131.53 (m)

Comments: Purpose: Test 20m down-dip toe on mineralization intersected in hole ES2005-24 (1.19%Ni, 0.42%Cu, 0.05%Co / 8.91m).

Result: Intersected several cm to dm scale remobilized massive sulphide (po-pn-cpy) veinlets within host anorthosite from 92.70-93.15m (0.45m), 94.03-94.50m (0.47m), 95.56-95.91m (0.35m) and 113.25-113.70m (0.45m).

Assays: 0.80%Ni, 0.50%Cu, 0.03%Co / 1.88m (94.03-95.91m) including 1.43%Ni, 1.52%Cu, 0.05%Co / 0.47m (94.03-94.50m) and 2.17%Ni, 0.51%Cu, 0.06%Co / 0.35m (95.56-95.91m).

Borehole UTEM: In-hole response @ 94m, off-hole responses @ 102m & 114m. In-hole response correlates with intersected mineralization. Sulphide veinlets observed between 113.25-113.70m.

Sample Averages

Average Type	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
WEIGHTED	92.70	95.91	3.21	0.5930	0.3570	0.0227

Survey Data

Depth (m)	Azimuth Decimal	Dip Decimal	Test Type	Flag	Comments	Depth (m)	Azimuth Decimal	Dip Decimal	Test Type	Flag	Comments
0.00	232.90	-56.94	MShot	OK		5.00	232.90	-57.09	MShot	OK	
10.00	232.90	-56.94	MShot	OK		15.00	232.91	-56.91	MShot	OK	
20.00	232.16	-56.99	MShot	OK		25.00	231.75	-57.18	MShot	OK	
30.00	231.57	-57.35	MShot	OK		35.00	231.16	-57.57	MShot	OK	
40.00	230.59	-57.83	MShot	OK		45.00	230.35	-57.91	MShot	OK	
50.00	230.28	-58.02	MShot	OK		55.00	230.12	-58.18	MShot	OK	
60.00	230.02	-58.19	MShot	OK		65.00	230.02	-58.38	MShot	OK	
70.00	230.02	-58.50	MShot	OK		75.00	229.88	-58.69	MShot	OK	
80.00	229.88	-58.85	MShot	OK		85.00	229.90	-58.70	MShot	OK	
90.00	229.84	-58.87	MShot	OK		95.00	229.62	-58.71	MShot	OK	
100.00	229.88	-58.98	MShot	OK		105.00	229.81	-59.00	MShot	OK	
110.00	229.72	-59.24	MShot	OK		115.00	229.74	-59.25	MShot	OK	
120.00	229.67	-59.60	MShot	OK		125.00	229.41	-59.62	MShot	OK	
130.00	229.40	-59.60	MShot	OK							

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%
0	14.25	C, Casing RQD 0.00 - 14.25 : 100.00 % RQD 100.00 % Core CASING							

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Detailed Lithology		Lithology	Assay Data						
From (m)	To (m)		Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
14.25	40.65	<p>4s, Sausseritized/Tectonized Anorthosite</p> <p>This unit consists of fine-grained, white to light gray, non-magnetic, fairly homogeneous anorthosite. Major minerals are plagioclase and alteration minerals (quartz, chlorite, hematite, ?sericite). Depending on the abundance of alteration minerals and degree of foliation, the rock appears mottled white to light gray, reddish where hematite is abundant; changes in appearance occur on a meter-scale. The unit is well-foliated. Mafic dykes/sills hve intruded this unit. The lower contact is sharp at ~70 degrees tca.</p> <p>This unit is not mineralized</p> <p>For a description of the intrusive rock, see comments of subunit.</p> <p>Alteration 28.00 - 28.75 :HM Hematite, P Pervasive, W Weak</p> <p>Structure 15.48 - 15.49 : S1 First Foliation, 70 Deg to CA 32.40 - 32.41 : S1 First Foliation, 70 Deg to CA 38.61 - 38.62 : S1 First Foliation, 75 Deg to CA</p> <p>RQD 14.25 - 18.00 : 57.00 % RQD 100.00 % Core 18.00 - 21.00 : 59.00 % RQD 100.00 % Core 21.00 - 24.00 : 46.00 % RQD 100.00 % Core 24.00 - 27.00 : 12.00 % RQD 100.00 % Core 27.00 - 30.00 : 53.00 % RQD 100.00 % Core 30.00 - 33.00 : 85.00 % RQD 100.00 % Core 33.00 - 36.00 : 76.00 % RQD 100.00 % Core 36.00 - 39.00 : 80.00 % RQD 100.00 % Core 39.00 - 42.00 : 91.00 % RQD 100.00 % Core</p> <p>MINOR INTERVALS: Minor Interval: 16.24 - 21.34 MD, Mafic Dike Fine to medium-grained, medium gray, non-magnetic, foliated mafic subunit; the upper and lower contacts are sharp at ~75 and ~80 degrees tca, respectively. The unit is finer-grained within ~2 - 5 cm of the upper and lower contacts.</p> <p>This unit is not mineralized.</p> <p>Structure 21.10 - 21.11 : S1 First Foliation, 75 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: 24.2 - 27.42 MD, Mafic Dike Fine-grained dark gray to greenish-black, non-magnetic, homogeneous, well foliated mafic subunit. The upper contact is complex showing weak brecciation and a cm-scale anorthosite raft; and lower contact is sharp at ~50 degrees tca</p> <p>This unit contains trace hematite.</p> <p>Structure 26.63 - 26.64 : S1 First Foliation, 60 Deg to CA</p> <p>Minor Interval: 35 - 37.52 MD, Mafic Dike Fine to medium-grained, medium gray, non-magnetic, foliated mafic subunit; the upper and lower contacts are sharp at ~90 degrees tca. The unit is finer-grained within ~2 - 10cm of the upper and lower contacts. An anorthosite xenolith/raft is located between 37.05 and 37.30 m; the contacts are recrystallized/digested.</p> <p>This unit is not mineralized.</p>							
40.65	52.54	<p>MD, Mafic Dike Fine-grained dark gray to greenish-black, non-magnetic, homogeneous, well foliated mafic rock, composed of amphibole/pyroxene, chlorite, and alteration minerals. The upper and lower contacts are sharp at ~70 degrees tca</p> <p>This unit contains trace po, locally parallel to the foliation.</p> <p>Structure 44.86 - 44.87 : S1 First Foliation, 80 Deg to CA</p> <p>RQD 42.00 - 45.00 : 70.00 % RQD 100.00 % Core 45.00 - 48.00 : 80.00 % RQD 100.00 % Core 48.00 - 51.00 : 64.00 % RQD 100.00 % Core 51.00 - 54.00 : 85.00 % RQD 100.00 % Core</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%
52.54	131.53	4s, Sausseritized/Tectonized Anorthosite	PG03871	91.70	92.70	1.00	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 (quartz, chlorite, epidote, hematite, fuchsite ?sericite). Depending on the abundance of alteration minerals and degree of foliation, the rock appears mottled white to light gray, or reddish where hematite is abundant; changes in appearance occur on a meter-scale. Where quartz alteration is abundant no foliation is apparent; elsewhere, the unit is well-foliated. Dm-scale mafic dykelets/small sills have intruded this unit at 55.97 - 56.27 m, 62.75 - 63.04 m, 72.87 - 73.17 m. The contacts are sharp between 40 and 90 degrees tca. A ~7cm wide quartz vein cuts the second dyke (62.75 - 63.04m).</p> <p>Mineralization occurs in dm-wide, chlorite altered intervals. Brecciation, faulting and folding is spatially associated with the mineralization and chlorite alteration. Locally, quartz fills tension gashes, joints, or small faults. Mineralized sections are shown as subunits.</p> <p>For a description of the intrusive rock, see comments of subunit.</p> <p>Alteration 62.50 - 80.43 :Q Quartz, P Pervasive, W Weak weak to moderate, locally with epidote and/or fuchsite</p> <p>Structure 56.75 - 56.76 : S1 First Foliation, 80 Deg to CA 62.14 - 62.15 : S1 First Foliation, 65 Deg to CA 72.11 - 72.12 : S1 First Foliation, 60 Deg to CA 77.55 - 77.56 : S1 First Foliation, 60 Deg to CA 81.38 - 81.39 : S1 First Foliation, 70 Deg to CA 86.22 - 86.23 : S1 First Foliation, 75 Deg to CA 94.82 - 94.83 : S1 First Foliation, 65 Deg to CA 100.52 - 100.53 : S1 First Foliation, 55 Deg to CA 106.29 - 106.30 : S1 First Foliation, 60 Deg to CA 113.81 - 113.82 : S1 First Foliation, 60 Deg to CA 118.87 - 118.88 : S1 First Foliation, 65 Deg to CA 126.76 - 126.77 : S1 First Foliation, 60 Deg to CA</p> <p>RQD 54.00 - 57.00 : 92.00 % RQD 100.00 % Core 57.00 - 60.00 : 69.00 % RQD 100.00 % Core 60.00 - 63.00 : 87.00 % RQD 100.00 % Core 63.00 - 66.00 : 85.00 % RQD 100.00 % Core 66.00 - 69.00 : 65.00 % RQD 100.00 % Core 69.00 - 72.00 : 76.00 % RQD 100.00 % Core 72.00 - 75.00 : 74.00 % RQD 100.00 % Core 75.00 - 78.00 : 79.00 % RQD 100.00 % Core 78.00 - 81.00 : 71.00 % RQD 100.00 % Core</p>	PG03872	92.70	93.15	0.45	0.6100	0.2100	0.0200
			PG03873	93.15	94.03	0.88	0.1400	0.1500	0.0100
			PG03874	94.03	94.50	0.47	1.4300	1.5200	0.0500
			PG03876	94.50	95.56	1.06	0.0700	0.0250	0.0100
			PG03877	95.56	95.91	0.35	2.1700	0.5100	0.0600
			PG03878	95.91	97.00	1.09	0.0250	0.0250	0.0100
			PG03879	112.00	113.25	1.25	0.0250	0.0250	0.0100
			PG03880	113.25	113.70	0.45	0.7200	0.3000	0.0400
			PG03881	113.70	115.00	1.30	0.0250	0.0250	0.0100

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From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		RQD							
		81.00 - 84.00 : 89.00 % RQD 100.00 % Core							
		84.00 - 87.00 : 53.00 % RQD 100.00 % Core							
		87.00 - 90.00 : 85.00 % RQD 100.00 % Core							
		90.00 - 93.00 : 74.00 % RQD 100.00 % Core							
		93.00 - 96.00 : 88.00 % RQD 100.00 % Core							
		96.00 - 99.00 : 94.00 % RQD 100.00 % Core							
		99.00 - 102.00 : 97.00 % RQD 100.00 % Core							
		102.00 - 105.00 : 77.00 % RQD 100.00 % Core							
		105.00 - 108.00 : 68.00 % RQD 100.00 % Core							
		108.00 - 111.00 : 100.00 % RQD 100.00 % Core							
		111.00 - 114.00 : 89.00 % RQD 100.00 % Core							
		114.00 - 117.00 : 78.00 % RQD 100.00 % Core							
		117.00 - 120.00 : 70.00 % RQD 100.00 % Core							
		120.00 - 123.00 : 89.00 % RQD 100.00 % Core							
		123.00 - 126.00 : 88.00 % RQD 100.00 % Core							
		126.00 - 129.00 : 96.00 % RQD 100.00 % Core							
		129.00 - 131.53 : 89.00 % RQD 100.00 % Core							
		MINOR INTERVALS:							
		Minor Interval:							
		92.7 - 93.15 4s, Sausseritized/Tectonized Anorthosite							
		Mineralized anorthositic subunit. The unit is characterized by abundant chlorite alteration, remobilized sulfides, local brecciation, small-scale faulting, and folding. The upper and lower contacts are gradational over ~5cm.							
		Mineralization							
		92.70 - 93.15 : Cpy Chalcopyrite, VN Veins, 9% remobilized "veinlets"							
		92.70 - 93.15 : Pn Pentlandite, VN Veins, 2% remobilized "veinlets"							
		92.70 - 93.15 : Po Pyrrhotite, VN Veins, 9% remobilized "veinlets"							
		Alteration							
		92.70 - 93.15 :CH Chlorite, P Pervasive, M Moderate associated with remobilized sulfides							

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From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		<p>MINOR INTERVALS:</p> <p>Minor Interval:</p> <p>113.25 - 113.7 4s, Saussuritized/Tectonized Anorthosite</p> <p>Mineralized anorthositic subunit. The unit is characterized by abundant chlorite alteration, remobilized sulfides, local brecciation, small-scale faulting, and folding. The upper and lower contacts are gradational over ~5cm.</p> <p>Mineralization</p> <p>113.25 - 113.70 : Cpy Chalcopyrite, VN Veins, 1% remobilized "veinlets"</p> <p>113.25 - 113.70 : Pn Pentlandite, VN Veins, 1% remobilized "veinlets"</p> <p>113.25 - 113.70 : Po Pyrrhotite, VN Veins, 3% remobilized "veinlets"</p> <p>Alteration</p> <p>113.25 - 113.70 :CH Chlorite, P Pervasive, M Moderate associated with remobilized sulfides</p>							

Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type	ASSAY				
PG03871	91.70	92.70	0.0250	0.0250	0.0100
PG03872	92.70	93.15	0.6100	0.2100	0.0200
PG03873	93.15	94.03	0.1400	0.1500	0.0100
PG03874	94.03	94.50	1.4300	1.5200	0.0500
PG03876	94.50	95.56	0.0700	0.0250	0.0100
PG03877	95.56	95.91	2.1700	0.5100	0.0600
PG03878	95.91	97.00	0.0250	0.0250	0.0100
PG03879	112.00	113.25	0.0250	0.0250	0.0100
PG03880	113.25	113.70	0.7200	0.3000	0.0400
PG03881	113.70	115.00	0.0250	0.0250	0.0100