

## DETAILED LOG

Hole Number: ES2005-48

Units: METRIC

Project Name: Norway - Espedalen	Primary Coordinates Grid: UTM84-32N	Destination Coordinates Grid: UTM:	Collar Dip: -50.00
Project Number: 201	North: 6801800.11	North: 61.35	Collar Az: 231.50
Location: Surface	East: 534803.63	East: 9.65	Length: 330.25 (m)
	Elev: 991.61	Elev: 991.61	Start Depth: 0.00 (m)
Date Started: Sep 11, 2005	Collar Survey: Y	Plugged: N	Contractor: Arctic Drilling A/S
Date Completed: Sep 17, 2005	Multishot Survey: N	Hole Size: TT46	Core Storage: Strand Fjellstue
Logged By: larsw	Pulse EM Survey: N	Casing: Left in Hole, capped	Final Depth: 330.25 (m)

Comments: Purpose: Hole proposed to test the interpreted extension of the Stormyra zone, below a vertical depth of 200m (surface geophysical penetration depths), with a coincident magnetic body. This hole will also be used as a geophysical platform (BHEM) to search for conductors at depth along the interpreted Stormyra trend.

Result: The hole intersected a thick package of intermixed anorthosites and mafic metavolcanics from 4.30m to 318.64m. Volcaniclastic rocks were intersected from 318.64m to 330.25m, which are interpreted by M. Heim to lie outside of the Espedalen Complex but within the Jøtun Nappe.

Assays: No significant results returned, all samples <0.05%Ni.

Borehole UTEM: Survey to be conducted in November 2005.

Lithological interpretation: Anorthositic terrain locally crosscut by mafic dykes, which overly a thick package of volcaniclastic rocks (thought to lie outside of the Espedalen Complex but within the Jøtun Nappe).

## Sample Averages

Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
0	4.30	C, 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%
4.30	18.80	<p>4s, Saussuritized/Tectonized Anorthosite</p> <p>This unit consists of fine to medium-grained, white to greenish-white, well foliated, homogeneous, non-magnetic anorthosite. The main mineral is plagioclase; alteration minerals (chlorite, epidote) are common. The lower contact is sharp at 55 degree tca. This unit is not mineralized.</p> <p>Structure</p> <p>5.20 - 5.21 : S1 First Foliation, 65 Deg to CA</p> <p>10.25 - 10.26 : S1 First Foliation, 60 Deg to CA</p> <p>RQD</p> <p>4.30 - 6.00 : 29.00 % RQD 100.00 % Core</p> <p>6.00 - 9.00 : 47.00 % RQD 100.00 % Core</p> <p>9.00 - 12.00 : 47.00 % RQD 100.00 % Core</p> <p>12.00 - 15.00 : 32.00 % RQD 100.00 % Core</p> <p>15.00 - 18.00 : 43.00 % RQD 100.00 % Core</p> <p>18.00 - 21.00 : 72.00 % RQD 100.00 % Core</p> <p>MINOR INTERVALS:</p> <p>Minor Interval:</p> <p>15.69 - 16.12 MV, Mafic Volcanic</p> <p>The upper and lower contacts of this unit are sharp at 60 and 50 degrees to the ca, respectively.</p> <p>The upper contact is epidote altered. Throughout the unit schlierin epidote alteration occurs.</p> <p>This unit contains trace amounts of sulfide (pyrite).</p>							



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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: 24.65 - 25.32 4s, Sausseritized/Tectonized Anorthosite The upper and lower contacts of this unit are sharp at 50 and 55 degrees to the ca, respectively. The unit is locally well foliated; alteration minerals are not very abundant.</p> <p>Minor Interval: 44.25 - 45.89 4s, Sausseritized/Tectonized Anorthosite The upper contact is sharp but somewhat irregular at 60 degrees tca. The lower contact is sharp but irregular. This unit is only locally well-foliated; the other parts are non-foliated and appear to be recrystallized. Locally, alteration minerals are abundant.</p> <p>Minor Interval: 56.61 - 58.41 4s, Sausseritized/Tectonized Anorthosite The upper and lower contacts are sharp; the former at 90 degrees tca, the latter is irregular. This unit is only in lower part weakly foliated; the majority is non-foliated and appears to be recrystallized. Quartz is a common alteration mineral.</p>							
60.90	69.79	<p>4s, Sausseritized/Tectonized Anorthosite This unit consists of white to slightly greenish, homogeneous, locally well-foliated, non-mineralized anorthosite. Alteration minerals are not very common, but locally fuchsite and chlorite can be seen. The lower contact is very sharp at 65 degrees tca.</p> <p>Structure 64.60 - 64.61 : S1 First Foliation, 70 Deg to CA RQD 63.00 - 66.00 : 89.00 % RQD 100.00 % Core 66.00 - 69.00 : 85.00 % RQD 100.00 % Core 69.00 - 72.00 : 76.00 % RQD 100.00 % Core</p> <p>MINOR INTERVALS: Minor Interval: 63.8 - 65.09 MV, Mafic Volcanic The upper and lower contacts of this unit are poorly defined and irregular. The unit is moderately well-foliated and contains ?garnets?. Epidote alteration is abundant.</p>							



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From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		<p>RQD</p> <p>126.00 - 129.00 : 95.00 % RQD 100.00 % Core</p> <p>129.00 - 132.00 : 88.00 % RQD 100.00 % Core</p> <p>132.00 - 135.00 : 100.00 % RQD 100.00 % Core</p> <p>MINOR INTERVALS:</p> <p>Minor Interval:</p> <p>77.5 - 78.92 MD, Mafic Dike</p> <p>The upper and lower contacts of this unit are sharp; the former irregular, the latter at 60 degrees tca.</p> <p>This unit is well-foliated and non-mineralized.</p> <p>Minor Interval:</p> <p>88.84 - 92.38 MD, Mafic Dike</p> <p>The upper contact of this unit is sharp but brecciated, the lower contact appears digested over 10cm. This unit is well-foliated and not mineralized.</p> <p>Minor Interval:</p> <p>98.23 - 99.87 MD, Mafic Dike</p> <p>The upper and lower contact of this unit are sharp; the former at 65 degrees tca, the latter is irregular. This unit is well-foliated and not mineralized.</p> <p>Minor Interval:</p> <p>113.88 - 123.68 MD, Mafic Dike</p> <p>The upper and lower contacts are sharp at 70 and 60 degrees tca, respectively. This unit contains anorthosite "rafts" at 117.66 - 118.13m and 119.18 - 120.16m. The contacts are finer-grained and show evidence of digestion.</p> <p>This unit is not mineralized.</p>							

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From (m)	To (m)		Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
132.18	165.56	<p>MD, Mafic Dike</p> <p>This unit consists of a very homogeneous, well-foliated, gray, fine - to medium-grained, non-magnetic, plagioclase and pyroxene-bearing mafic rock. The lower contact is sharp at 60 degrees tca. The rock is somewhat finer-grained along the footwall contact.</p> <p>Apart from the minor units, a small anorthositic "raft" is located between 162.98 and 163.46m.</p> <p>This unit is not mineralized.</p> <p>Structure</p> <p>132.81 - 132.82 : S1 First Foliation, 60 Deg to CA  138.70 - 138.71 : S1 First Foliation, 60 Deg to CA  146.09 - 146.10 : S1 First Foliation, 50 Deg to CA  152.11 - 152.12 : S1 First Foliation, 45 Deg to CA  159.56 - 159.57 : S1 First Foliation, 65 Deg to CA  165.26 - 165.27 : S1 First Foliation, 70 Deg to CA</p> <p>RQD</p> <p>135.00 - 138.00 : 83.00 % RQD 100.00 % Core  138.00 - 141.00 : 99.00 % RQD 100.00 % Core  141.00 - 144.00 : 100.00 % RQD 100.00 % Core  144.00 - 147.00 : 97.00 % RQD 100.00 % Core  147.00 - 150.00 : 94.00 % RQD 100.00 % Core  150.00 - 153.00 : 100.00 % RQD 100.00 % Core  153.00 - 156.00 : 100.00 % RQD 100.00 % Core  156.00 - 159.00 : 96.00 % RQD 100.00 % Core  159.00 - 162.00 : 94.00 % RQD 100.00 % Core  162.00 - 165.00 : 92.00 % RQD 100.00 % Core  165.00 - 168.00 : 93.00 % RQD 100.00 % Core</p> <p>MINOR INTERVALS:</p> <p>Minor Interval:  144.75 - 145.63 4s, Sausseritized/Tectonized Anorthosite  Well-foliated, sheared anorthosite; alteration minerals are common. The upper and lower contacts are sharp at 50 and 70 degrees tca, respectively.</p> <p>Minor Interval:  149.23 - 155.04 4s, Sausseritized/Tectonized Anorthosite  Well-foliated, sheared anorthosite; alteration minerals are common. The upper and lower contacts are sharp at 55 and 65 degrees tca, respectively.</p>							





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From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		RQD 201.00 - 204.00 : 79.00 % RQD 100.00 % Core 204.00 - 207.00 : 88.00 % RQD 100.00 % Core 207.00 - 210.00 : 85.00 % RQD 100.00 % Core  MINOR INTERVALS: Minor Interval: 175.48 - 178.65 MD, Mafic Dike Well-foliated, fine- to medium-grained mafic subunit. The upper and lower contacts are sharp at 70 and 80 degrees tca, respectively. Minor Interval: 187.12 - 191.08 MD, Mafic Dike Well-foliated, fine- to medium-grained mafic subunit. The upper and lower contacts are sharp; the upper is irregular, the lower at 80 degrees tca. Minor Interval: 193.98 - 194.49 MD, Mafic Dike Well-foliated, fine- to medium-grained mafic subunit. The upper contact is sharp at 80 degrees tca; the lower contact appears digested over 5cm.. Minor Interval: 199.69 - 202.1 MD, Mafic Dike Well-foliated, fine- to medium-grained mafic subunit. The upper and lower contacts are sharp; the upper is slightly brecciated, the lower at 35 degrees tca.							



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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: 220.16 - 220.7 4s, Sausseritized/Tectonized Anorthosite As described in major unit.</p> <p>The upper and lower contacts of this unit are sharp at 65 and 80 degrees to the ca, respectively.</p> <p>Minor Interval: 221.2 - 221.75 4s, Sausseritized/Tectonized Anorthosite As described in major unit.</p> <p>The upper and lower contacts of this unit are both sharp at 75 degrees to the ca.</p> <p>Minor Interval: 240.8 - 243.5 4s, Sausseritized/Tectonized Anorthosite As described in major unit.</p> <p>The upper and lower contacts of this unit are sharp at 60 and 70 degrees to the ca, respectively.</p> <p>Structure 242.70 - 242.71 : S1 First Foliation, 70 Deg to CA</p> <p>Minor Interval: 246.6 - 248.49 4s, Sausseritized/Tectonized Anorthosite As described in major unit.</p> <p>The upper and lower contacts of this unit are sharp at 60 and 70 degrees to the ca, respectively.</p> <p>Minor Interval: 261.47 - 261.55 4s, Sausseritized/Tectonized Anorthosite As described in major unit.</p> <p>The upper and lower contacts of this unit are sharp at 70 and 80 degrees to the ca, respectively.</p> <p>Minor Interval: 261.76 - 261.87 4s, Sausseritized/Tectonized Anorthosite As described in major unit.</p> <p>The upper and lower contacts of this unit are both sharp at 80 degrees to the ca.</p>							



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From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		<p>RQD</p> <p>312.00 - 315.00 : 80.00 % RQD 100.00 % Core</p> <p>315.00 - 318.00 : 100.00 % RQD 100.00 % Core</p> <p>318.00 - 321.00 : 83.00 % RQD 100.00 % Core</p> <p>MINOR INTERVALS:</p> <p>Minor Interval:</p> <p>273.49 - 274.34 PRDT, Peridotite</p> <p>The upper contact is sharp at 90 degrees tca, the lower contact is gradational over ca. 10cm.</p> <p>The unit is fine-grained and well-foliated.</p> <p>Minor Interval:</p> <p>293.75 - 295 MD, Mafic Dike</p> <p>The upper and lower contacts are sharp at 90 and 55 degrees tca, respectively. This unit is moderately well-foliated.</p> <p>Trace pyrrhotite within about 20cm of the lower contact.</p> <p>Minor Interval:</p> <p>296.86 - 299.25 MD, Mafic Dike</p> <p>The upper and lower contacts are sharp at 70 and 80 degrees tca, respectively.</p> <p>Minor Interval:</p> <p>300.33 - 303.1 MD, Mafic Dike</p> <p>The upper contact of this unit is gradational over about 30cm; the lower contact is sharp at 90 degrees tca. This unit is fine-grained and well-foliated.</p> <p>Minor Interval:</p> <p>306.9 - 307.51 MD, Mafic Dike</p> <p>The upper contact is sharp at 90 degrees tca; the lower contact appears digested and "fuzzy" with abundant quartz and epidote.</p> <p>This unit contains trace pyrrhotite.</p> <p>Minor Interval:</p> <p>310.04 - 316.06 MD, Mafic Dike</p> <p>The upper and lower contacts are sharp at 90 and 80 degrees tca, respectively. This unit is fine-to medium-grained and well foliated.</p>							

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From (m)	To (m)		Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
318.64	330.25	10d, Volcaniclastics	PG00411	326.17	327.52	1.35	0.0250	0.0250	0.0100
		Medium gray, fine to medium-grained, non-magnetic, fairly inhomogeneous, plagioclase, pyroxene, and chlorite-bearing rock.	PG00412	327.52	327.82	0.30	0.0250	0.0700	0.0100
		The unit is locally well-foliated. Locally, minor amounts of biotite can be found. The lower contact of this unit is unknown as the hole was shut down.	PG00413	327.82	329.00	1.18	0.0250	0.0250	0.0100
		Minor pyrrhotite and chalcopyrite mineralization between 326.66 and 326.70m.							
		Mineralization							
		326.66 - 326.70 : Cpy Chalcopyrite, STR Stringers, 1% likely remobilized							
		326.66 - 326.70 : Po Pyrrhotite, STR Stringers, 4% likely remobilized							
		Structure							
		324.40 - 324.41 : S1 First Foliation, 70 Deg to CA							
		RQD							
		321.00 - 324.00 : 96.00 % RQD 100.00 % Core							
		324.00 - 327.00 : 87.00 % RQD 100.00 % Core							
		327.00 - 330.25 : 100.00 % RQD 100.00 % Core							

## Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type	ASSAY				
PG00411	326.17	327.52	0.0250	0.0250	0.0100
PG00412	327.52	327.82	0.0250	0.0700	0.0100
PG00413	327.82	329.00	0.0250	0.0250	0.0100