

Hole Number: ES2005-35

Units: METRIC

Project Name: Norway - Espedalen	Primary Coordinates Grid: UTM84-32N	Destination Coordinates Grid: UTM:	Collar Dip: -55.00
Project Number: 201	North: 6803899.48	North: 61.37	Collar Az: 50.00
Location: Trona	East: 536517.72	East: 9.68	Length: 80.40 (m)
	Elev: 825.07	Elev: 825.07	Start Depth: 0.00 (m)
Date Started: Jul 15, 2005	Collar Survey: Y	Plugged: N	Contractor: Arctic Drilling A/S
Date Completed: Jul 20, 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: 80.40 (m)

Comments: Purpose: Test UTEM conductor ESP_13_13, within the centre of interpreted plate (Conductivity = 125 Siemens).

Result: Intersected oikocrystic pyroxenite from 12.5-32.12m, which contained up to 50% net textured sulphides (po-pn-cpy) on a dm scale. Remobilized sulphides (up to 20%) were also intersected within footwall gabbronorite (non-nickel bearing).

Assays: 1.73% Ni, 0.29% Cu, 0.09% Co / 1.53m (14.65-16.18m)

Borehole UTEM: Survey to be conducted in November 2005.

Lithological interpretation: Heim's rock suite 3 (gabbronoritic bodies) which contains local concentrations of sulphides (primarily pyrrhotite) proximal to contact with ultramafic body (oikocrystic pyroxenite). Ni-bearing sulphides occur within the ultramafic.

Sample Averages

Average Type	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
WEIGHTED	14.65	16.18	1.53	1.7322	0.2943	0.0903

Detailed Lithology			Assay Data						
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
0	12.50	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%
12.50	32.12	6c, Oikocrystic Pyroxenite	PG03917	12.50	14.65	2.15	0.1300	0.1000	0.0100
		This unit consists of a dark black, fine grained, moderately to strongly magnetic, very weakly foliated rock. It contains oikocrysts (likely pyroxenes, now alteration minerals) and is homogeneous.	PG03918	14.65	15.56	0.91	1.2500	0.2700	0.0700
		Between 16.18m and 17.08m a light colored, feldspar-rich raft/xenolith is found. The upper contact is sharp at 70 degrees tca, the lower contact is sharp but irregular.	PG03919	15.56	16.18	0.62	2.4400	0.3300	0.1200
		The unit contains fairly abundant sulfide mineralization; see "Mineralization" section for details.	PG03920	16.18	17.08	0.90	0.0800	0.0250	0.0100
		The rock/drill core is fractured and broken-up	PG03921	17.08	18.48	1.40	0.2000	0.0500	0.0100
		Mineralization	PG03922	18.48	20.00	1.52	0.1600	0.0250	0.0100
		12.50 - 14.65 : Po Pyrrhotite, TR Trace, 0.5% at 14.26m, 5mm remobilized veinlet with trace cpy	PG03923	20.00	21.42	1.42	0.1500	0.0250	0.0300
		14.65 - 15.30 : Cpy Chalcopyrite, NT Net-Textured, 1% locally remobilized	PG03924	29.54	31.00	1.46	0.0700	0.0250	0.0100
		14.65 - 15.30 : Pn Pentlandite, EY Eyes, 0.5% possibly py - very small (max 1mm)	PG03926	31.00	32.12	1.12	0.0900	0.0250	0.0100
		14.65 - 15.30 : Po Pyrrhotite, NT Net-Textured, 4% locally remobilized							
		15.56 - 16.18 : Cpy Chalcopyrite, NT Net-Textured, 2%							
		15.56 - 16.18 : Pn Pentlandite, EY Eyes, 0.5% possibly py - very small (max 1mm)							
		15.56 - 16.18 : Po Pyrrhotite, NT Net-Textured, 48%							
		16.18 - 31.00 : Po Pyrrhotite, D Disseminated, 0.5% locally remobilized							
		31.00 - 32.12 : Cpy Chalcopyrite, TR Trace, 0.5%							
		31.00 - 32.12 : Po Pyrrhotite, NT Net-Textured, 5% locally remobilized							
		Structure							
		21.61 - 21.62 : S1 First Foliation, 55 Deg to CA							
		RQD							
		12.50 - 15.00 : 24.00 % RQD 100.00 % Core							
		15.00 - 18.00 : 56.00 % RQD 100.00 % Core							
		18.00 - 21.00 : 35.00 % RQD 100.00 % Core							
		21.00 - 24.00 : 35.00 % RQD 100.00 % Core							
		24.00 - 27.00 : 28.00 % RQD 100.00 % Core							
		27.00 - 30.00 : 34.00 % RQD 100.00 % Core							
		30.00 - 33.00 : 31.00 % RQD 100.00 % Core							

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From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
32.12	80.40	7, Undivided Mafic Intrusive	PG03927	32.12	33.95	1.83	0.0250	0.0250	0.0100
		<p>This unit consists of a fine-grained, weakly to non-magnetic, locally moderately well foliated rock. White feldspar and melanocratic minerals give it a mottled appearance. The rock seems to have undergone at least localized anatexis. Locally, trace to moderate sulfide mineralization occurs in melanocratic sections of the rock.</p> <p>Overall, the texture of the rock is fairly inhomogeneous.</p> <p>This unit is intruded by an anorthosite (unit 4), a mafic dyke (unit 10f) and a late dolerite (diabase) dyke (unit 8a).</p> <p>See minor units for detailed descriptions.</p> <p>The total thickness of this unit is unknown as the hole was shut down.</p> <p>Mineralization</p> <p>32.12 - 38.54 : Cpy Chalcopyrite, PAT Patchy, 0.5% remob'd in melanocratic sections</p> <p>32.12 - 38.54 : Po Pyrrhotite, PAT Patchy, 2% remob'd in melanocratic sections</p> <p>38.54 - 43.70 : Po Pyrrhotite, TR Trace, 0.5% locally remob'd into small stringers</p> <p>44.71 - 46.35 : Po Pyrrhotite, STR Stringers, 3% po remob'd, locally plebby or patchy as well</p> <p>48.35 - 52.40 : Po Pyrrhotite, TR Trace, 0.5% very localized at 48.35, 51.1, and 52.4; plebby</p> <p>60.50 - 64.50 : Cpy Chalcopyrite, TR Trace, 0.5% flecks associated with po</p> <p>60.50 - 64.50 : Po Pyrrhotite, STR Stringers, 5% remob'd into stringers; locally patchy</p> <p>60.50 - 64.80 : Cpy Chalcopyrite, PAT Patchy, 1% associated with po</p> <p>60.50 - 64.80 : Po Pyrrhotite, PAT Patchy, 20% remob'd</p> <p>70.90 - 71.20 : Cpy Chalcopyrite, PAT Patchy, 1% associated with po</p> <p>70.90 - 71.20 : Po Pyrrhotite, PAT Patchy, 20% remob'd</p> <p>Structure</p> <p>33.58 - 33.59 : S1 First Foliation, 60 Deg to CA</p> <p>40.69 - 40.70 : S1 First Foliation, 70 Deg to CA</p> <p>52.20 - 52.21 : S1 First Foliation, 70 Deg to CA</p> <p>63.29 - 63.30 : S1 First Foliation, 40 Deg to CA</p> <p>76.55 - 76.56 : S1 First Foliation, 65 Deg to CA</p> <p>RQD</p> <p>33.00 - 36.00 : 62.00 % RQD 100.00 % Core</p> <p>36.00 - 39.00 : 54.00 % RQD 100.00 % Core</p> <p>39.00 - 42.00 : 42.00 % RQD 100.00 % Core</p> <p>42.00 - 45.00 : 57.00 % RQD 100.00 % Core</p>	PG03928	33.95	34.80	0.85	0.1600	0.1200	0.0400
			PG03929	34.80	35.80	1.00	0.1200	0.1200	0.0300
			PG03930	35.80	37.23	1.43	0.0600	0.0700	0.0100
			PG03931	37.23	38.56	1.33	0.0250	0.0250	0.0100
			PG03932	43.70	44.70	1.00	0.0250	0.0250	0.0100
			PG03933	44.70	46.35	1.65	0.0250	0.0250	0.0100
			PG03934	46.35	48.00	1.65	0.0250	0.0250	0.0100
			PG03935	59.00	60.50	1.50	0.0250	0.0250	0.0100
			PG03936	60.50	61.80	1.30	0.1000	0.1300	0.0300
			PG03937	61.80	63.15	1.35	0.0250	0.0600	0.0100
			PG03938	63.15	64.50	1.35	0.0250	0.0250	0.0100
			PG03939	64.50	64.80	0.30	0.1100	0.1100	0.0300
			PG03940	64.80	66.00	1.20	0.0250	0.0250	0.0100
			PG03941	69.55	70.90	1.35	0.0250	0.0250	0.0100
			PG03942	70.90	71.20	0.30	0.3300	0.1400	0.0700
			PG03943	71.20	72.55	1.35	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							
		45.00 - 48.00 : 68.00 % RQD 100.00 % Core							
		48.00 - 51.00 : 59.00 % RQD 100.00 % Core							
		51.00 - 54.00 : 42.00 % RQD 100.00 % Core							
		54.00 - 57.00 : 38.00 % RQD 100.00 % Core							
		57.00 - 60.00 : 43.00 % RQD 100.00 % Core							
		60.00 - 63.00 : 75.00 % RQD 100.00 % Core							
		63.00 - 66.00 : 54.00 % RQD 100.00 % Core							
		66.00 - 69.00 : 68.00 % RQD 100.00 % Core							
		69.00 - 72.00 : 58.00 % RQD 100.00 % Core							
		72.00 - 75.00 : 78.00 % RQD 100.00 % Core							
		75.00 - 78.00 : 51.00 % RQD 100.00 % Core							
		78.00 - 80.40 : 58.00 % RQD 100.00 % Core							
		MINOR INTERVALS:							
		Minor Interval:							
		57.51 - 60.5 DIA, Diabase							
		This unit consists of a fine grained, very homogeneous, non-magnetic, plagioclase and amphibole/pyroxene-bearing rock. The texture is typical of diabase/dolerite (ophitic). The upper contact of this unit is sharp but irregular, while the lower contact is sharp and shows indications of being chilled. The lack of a foliation and a possible chilled margin supports the interpretation that this dyke intruded late.							
		Minor Interval:							
		71.2 - 74.26 4, Anorthosite / Anorthosite Gabbro							
		This unit consists of medium-grained, "dirty" anorthosite. The rock is non-magnetic, fairly inhomogeneous, non-foliated, and contains abundant dark ?alteration? minerals. The upper contact is sharp but irregular; abundant sulfides occur in the immediate hanging wall. The lower contact is sharp but irregular; it shows crosscutting relationships with unit 7 (mafic intrusive) and possibly cuts the mafic dyke in the immediate footwall.							
		This unit contains a "raft" of altered mafic intrusive rock between 71.88 and 72.18m							
		Minor Interval:							
		74.26 - 76.43 MD, Mafic Dike							
		Fine-grained, homogeneous, non-magnetic, dark gray to greenish-gray, non-foliated mafic dyke.							

Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type	ASSAY				
PG03917	12.50	14.65	0.1300	0.1000	0.0100
PG03918	14.65	15.56	1.2500	0.2700	0.0700

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Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type	ASSAY				
PG03919	15.56	16.18	2.4400	0.3300	0.1200
PG03920	16.18	17.08	0.0800	0.0250	0.0100
PG03921	17.08	18.48	0.2000	0.0500	0.0100
PG03922	18.48	20.00	0.1600	0.0250	0.0100
PG03923	20.00	21.42	0.1500	0.0250	0.0300
PG03924	29.54	31.00	0.0700	0.0250	0.0100
PG03926	31.00	32.12	0.0900	0.0250	0.0100
PG03927	32.12	33.95	0.0250	0.0250	0.0100
PG03928	33.95	34.80	0.1600	0.1200	0.0400
PG03929	34.80	35.80	0.1200	0.1200	0.0300
PG03930	35.80	37.23	0.0600	0.0700	0.0100
PG03931	37.23	38.56	0.0250	0.0250	0.0100
PG03932	43.70	44.70	0.0250	0.0250	0.0100
PG03933	44.70	46.35	0.0250	0.0250	0.0100
PG03934	46.35	48.00	0.0250	0.0250	0.0100
PG03935	59.00	60.50	0.0250	0.0250	0.0100
PG03936	60.50	61.80	0.1000	0.1300	0.0300
PG03937	61.80	63.15	0.0250	0.0600	0.0100
PG03938	63.15	64.50	0.0250	0.0250	0.0100
PG03939	64.50	64.80	0.1100	0.1100	0.0300
PG03940	64.80	66.00	0.0250	0.0250	0.0100
PG03941	69.55	70.90	0.0250	0.0250	0.0100
PG03942	70.90	71.20	0.3300	0.1400	0.0700
PG03943	71.20	72.55	0.0250	0.0250	0.0100