DETAILED LOG

Hole Number: ES2004-02A

Units: METRIC

Project Name:	Norway - Espedalen	Primary Coordinates	Grid: UTM84-32N	Destination Coordinates	Grid: UTM:	Collar Dip:	-45.00
Project Number:	201	North:	6805506.83	North:	61.38	Collar Az:	50.00
Location:	Andreasburg	East:	535162.74	East:	9.66	Length:	93.40 (m)
		Elev:	1001.62	Elev:	1001.62	Start Depth:	0.00 (m)
Date Started:	Aug 02, 2004	Collar Survey:	Y	Plugged:	N	Contractor:	Geobor-Salag A/S	Final Depth:	93.40 (m)
Date Completed:	Aug 12, 2004	Multishot Survey:	N	Hole Size:	T246	Core Storage:	Strand Fjellstue		
Logged By:	Trevor Blair	Pulse EM Survey:	N	Casing:	Left in Hole, capped				

Comments: Purpose: Test UTEM conductor ESP_05_04. Conductivity = 500 Siemens

Result: Hole intersected oikocrystic pyroxenite and weakly mineralized norite bounded uphole and downhole by anorthosite/anorthositic gabbro. Two zones of weak mineralization were intersected:

1) 31.50-36.66m (gabbro): 5-15% sulphides (disseminations & cm scale remobilized veinlets); best nickel value was 0.17% Ni / 1.08m (35.19-36.27m)
2) 61.30-68.03m (norite): 10-15% sulphides (mm to cm scale remobilized veinlets, disseminations and patches); all nickel values <0.10%.

Lithological nterpretation: Intersected mineralized and unmineralized noritic and ultramafic rocks (coincident with M. Heim's rock suite 2b) bounded by anorthosites / anorthositic gabbros (Heim's rock suite 2a).

Sample Averages

Detailed Lithology			Assay Data						
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
0	3.00	C, Casing 0.00-1.50m of OVB 1.50-3.00m cement from lost hole ES2004-02. Redrill of hole ES2004-02 deviated from cement and rock was cored from 3.00m and beyond.							

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Detailed Lithology

From (m)	To (m)	Lithology
3.00	37.65	4, Anorthosite / Anorthosite Gabbro Medium grained, white and dark green, non-magnetic, anorthosite / anorthositic gabbro composed of 70-75% plagioclase, 20-25% pyroxene, 5% biotite and trace to 3% garnets. This unit contains 5-10% mm scale, dark green to black, amorphous veinlets which are at irregular angles to the ca, resulting in a brecciated texture. Proximal to these veinlets the plagioclase has a light green hue (sausseritized). Pyroxene content within the rock unit increases downhole towards the lower contact resulting in a gabbroic composition. Melanocratic and leucocratic constituents appear to be segregated in dm to m scale horizons with gradational contacts between the two (compositional banding?). This unit is crosscut by dm to m scale, fine grained, non-magnetic, black and white, homogenous gabbronorite dykes. Contact relationships are sharp but irregular (see minor units). These dykes contain 50-60% pyroxenes (light green to black) and 40-50% plagioclase. The upper portion of this unit locally contains fine grained disseminated pyrrhotite (non-magnetic) with sulphide content increasing below 30.50m to 3-5%. These sulphides appear as fine grained disseminations as well as cm scale remobilized veinlets (with chalcopyrite). The lower contact of this unit is lost within broken core but is obvious as plagioclase within the groundmass is absent, as well as an increased magnetic susceptibility. Interpretation: Consistent with Heim's Rock Suite 2a (Anorthosite - Anorthositic Gabbro), crosscut by late gabbronorite bodies (Rock Suite 3). Mineralization 31.50 - 32.65 : Po Pyrrhotite, VN Veins, 7% 5 individual cm scale remobilized veinlets 36.27 - 36.66 : Cpy Chalcopyrite, D Disseminated, 1% 36.27 - 36.66 : Po Pyrrhotite, D Disseminated, 15% remobilized Structure 28.20 - 28.21 : Sm General Foliation, 70 Deg to CA 29.50 - 29.51 : Sm General Foliation, 70 Deg to CA RQD 3.00 - 6.00 : 11.00 % RQD 72.00 % Core 6.00 - 9.00 : 45.00 % RQD 93.00 % Core 9.00 - 12.00 : 61.00 % RQD 78.00 % Core 12.00 - 15.00 : 54.00 % RQD 100.00 % Core 15.00 - 18.00 : 62.00 % RQD 100.00 % Core 18.00 - 21.00 : 69.00 % RQD 95.00 % Core 21.00 - 24.00 : 33.00 % RQD 100.00 % Core 24.00 - 27.00 : 29.00 % RQD 93.00 % Core

Assay Data

Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
PG00084	30.50	31.50	1.00	0.0250	0.0250	0.0100
PG00085	31.50	32.65	1.15	0.0250	0.0250	0.0100
PG00086	32.65	34.09	1.44	0.0250	0.0250	0.0200
PG00087	34.09	35.19	1.10	0.0250	0.0250	0.0100
PG00088	35.19	36.27	1.08	0.1700	0.0500	0.0400
PG00089	36.27	36.66	0.39	0.1200	0.1700	0.0200
PG00090	36.66	37.65	0.99	0.0250	0.0600	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%
		RQD 27.00 - 30.00 : 55.00 % RQD 100.00 % Core 30.00 - 33.00 : 70.00 % RQD 100.00 % Core 33.00 - 36.00 : 33.00 % RQD 100.00 % Core 36.00 - 39.00 : 30.00 % RQD 100.00 % Core MINOR INTERVALS: Minor Interval: 3 - 5.6 4, Anorthosite / Anorthosite Gabbro Drill core is incomplete as cement from ES2004-02 acted as a wedge. The drill core is virtually a semi-barrel with the final scallop appearing at 5.60m. At this point, ES2004-02A has deviated 46mm from hole ES2004-02. Minor Interval: 5.6 - 7 GAB, Gabbro See major unit for rock description. The upper contact of this unit is sharp at approximately 65 degrees tca with the lower contact at 50 degrees tca. Minor Interval: 12 - 12.67 GAB, Gabbro See major unit for rock description. The upper contact is sharp but lost within broken core with the lower contact sharp but irregular.								

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Units: METRIC

Detailed Lithology

From (m)	To (m)	Lithology
37.65	56.55	6c, Oikocrystic Pyroxenite Fine grained, weakly foliated, strongly magnetic, dark grey, moderately serpentinized oikocrystic pyroxenite. This unit contains 10-20% mm scale dark green to black serpentine veinlets at ~60 degrees to the core axis. Pyroxenes occur as mm scale, light to dark grey oikocrysts which are partially replaced by serpentine and magnetite. Unit is likely a transitional unit between a 'good' oikocrystic pyroxenite and a 'good' peridotite. This unit contains trace disseminated sulphides The lower contact of this unit was based on the percentage of plagioclase within the matrix but is lost within broken core. Interpretation: Consistent with Heim's Rock Suite 2b (Peridotite - Pyroxenite). Alteration 37.65 - 51.82 :SERP Serpentine, P Pervasive, M Moderate Structure 42.85 - 42.86 : Sm General Foliation, 60 Deg to CA 44.73 - 44.74 : Sm General Foliation, 55 Deg to CA RQD 39.00 - 42.00 : 70.00 % RQD 100.00 % Core 42.00 - 45.00 : 84.00 % RQD 100.00 % Core 45.00 - 48.00 : 49.00 % RQD 100.00 % Core 48.00 - 51.00 : 53.00 % RQD 100.00 % Core 51.00 - 54.00 : 38.00 % RQD 100.00 % Core 54.00 - 57.00 : 82.00 % RQD 100.00 % Core MINOR INTERVALS: Minor Interval: 51.82 - 56.06 6f, Norite Fine grained, moderately magnetic, massive, homogenous norite containing 10% mm scale, subhedral, white plagioclase crystals within a dark green pyroxenitic groundmass (differentiated horizon to ultramafic body intersected uphole). This unit is unmineralized. The unit contains gradational contacts and were based on the percentage of plagioclase.

Assay Data

Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
PG00091	42.48	43.48	1.00	0.1000	0.0250	0.0300

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Units: METRIC

Detailed Lithology

From (m)	To (m)	Lithology
56.55	68.03	6f, Norite Fine to locally medium grained, dark to light blue-grey, weakly magnetic, weakly foliated norite composed of 55-70% pyroxenes and 30-45% plagioclase (within groundmass as well as mm to cm scale remelt bands). From 64.95-68.03m, mafic mineral content increases and unit is a melano-norite grading downhole to an ultramafic. This unit contains dm to m scale horizons of anorthosite / anorthositic gabbro (rafts?) which are fine to medium grained, white-dark brown, non-magnetic, weakly foliated and composed of ~50% plagioclase and ~50% pyroxenes (see minor units for contact relationships and lengths). Sulphides (10-15% pyrrhotite, pyrite +-chalcopyrite) occur as fine grained disseminations and mm scale amoeboid patches which appear to have been locally remobilized resulting in mm to cm scale massive and semi-massive veinlets. Mm scale semi-angular to semi-rounded clasts of mafic (norite) to felsic (anorthosite) composition occur within larger sulphide veinlets. Non-magnetic pyrrhotite is the prominent sulphide, although local concentrations of brassy-yellow pyrite are generally located within thicker sulphide veinlets, and mm scale local veinlets of chalcopyrite. The lower contact of this unit is sharp at 35 degrees tca along an anorthosite unit. Mineralization 61.30 - 68.03 : Cpy Chalcopyrite, F Fracture Controlled, 0.5% 61.30 - 68.03 : Po Pyrrhotite, STR Stringers, 12.5% 10-15% disseminated, patchy, semi-massive veinlets, massive veinlets 61.30 - 68.03 : Py Pyrite, MG Medium Grained, 2% RQD 57.00 - 60.00 : 62.00 % RQD 100.00 % Core 60.00 - 63.00 : 72.00 % RQD 100.00 % Core 63.00 - 66.00 : 83.00 % RQD 100.00 % Core 66.00 - 69.00 : 73.00 % RQD 100.00 % Core MINOR INTERVALS: Minor Interval: 58.41 - 59.7 4, Anorthosite / Anorthosite Gabbro See major units for rock description. The upper and lower contacts of this unit are sharp at 65 and 45 degrees tca, respectively.

Assay Data

Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
PG00092	56.55	57.03	0.48	0.0250	0.0250	0.0200
PG00093	57.03	57.67	0.64	0.0500	0.0250	0.0100
PG00094	57.67	58.41	0.74	0.0250	0.0250	0.0100
PG00095	60.80	61.30	0.50	0.0250	0.0250	0.0300
PG00096	61.30	62.30	1.00	0.0800	0.0800	0.0200
PG00097	62.30	63.30	1.00	0.0600	0.1100	0.0300
PG00098	63.30	64.30	1.00	0.0700	0.0800	0.0100
PG00099	64.30	65.30	1.00	0.0600	0.0800	0.0200
PG00101	65.30	66.30	1.00	0.0700	0.0800	0.0200
PG00102	66.30	67.30	1.00	0.0500	0.0700	0.0100
PG00103	67.30	68.03	0.73	0.0250	0.0250	0.0100

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Detailed Lithology

From (m)	To (m)	Lithology
68.03	93.40	4, Anorthosite / Anorthosite Gabbro Fine to medium grained, green to grey to white, non-magnetic, weakly to moderately foliated anorthositic gabbro composed of 30-45% plagioclase (greenish hue - sausseritized) and 55-70% pyroxenes. This unit contains dm scale compositional segregation between mafic and felsic horizons. The unit contains local trace disseminated pyrrhotite. The lower contact of this unit is unknown as the hole was completed. Early completion due to broken casing in the hole. Structure 91.40 - 91.41 : Sm General Foliation, 65 Deg to CA RQD 69.00 - 72.00 : 63.00 % RQD 100.00 % Core 72.00 - 75.00 : 89.00 % RQD 100.00 % Core 75.00 - 78.00 : 80.00 % RQD 100.00 % Core 78.00 - 81.00 : 88.00 % RQD 100.00 % Core 81.00 - 84.00 : 86.00 % RQD 100.00 % Core 84.00 - 87.00 : 67.00 % RQD 100.00 % Core 87.00 - 90.00 : 55.00 % RQD 100.00 % Core 90.00 - 93.40 : 74.00 % RQD 100.00 % Core EOH at 93.40m

Assay Data

Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
PG00104	68.03	68.73	0.70	0.0250	0.0250	0.0200
PG00105	68.73	69.33	0.60	0.0250	0.0250	0.0100

Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type ASSAY					
PG00084	30.50	31.50	0.0250	0.0250	0.0100
PG00085	31.50	32.65	0.0250	0.0250	0.0100
PG00086	32.65	34.09	0.0250	0.0250	0.0200
PG00087	34.09	35.19	0.0250	0.0250	0.0100
PG00088	35.19	36.27	0.1700	0.0500	0.0400
PG00089	36.27	36.66	0.1200	0.1700	0.0200
PG00090	36.66	37.65	0.0250	0.0600	0.0100
PG00091	42.48	43.48	0.1000	0.0250	0.0300
PG00092	56.55	57.03	0.0250	0.0250	0.0200
PG00093	57.03	57.67	0.0500	0.0250	0.0100
PG00094	57.67	58.41	0.0250	0.0250	0.0100
PG00095	60.80	61.30	0.0250	0.0250	0.0300
PG00096	61.30	62.30	0.0800	0.0800	0.0200
PG00097	62.30	63.30	0.0600	0.1100	0.0300

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Units: METRIC

Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type ASSAY					
PG00098	63.30	64.30	0.0700	0.0800	0.0100
PG00099	64.30	65.30	0.0600	0.0800	0.0200
PG00101	65.30	66.30	0.0700	0.0800	0.0200
PG00102	66.30	67.30	0.0500	0.0700	0.0100
PG00103	67.30	68.03	0.0250	0.0250	0.0100
PG00104	68.03	68.73	0.0250	0.0250	0.0200
PG00105	68.73	69.33	0.0250	0.0250	0.0100