DETAILED LOG

Hole Number: ES2004-17

Units: METRIC

Project Name:	Norway - Espedalen	Primary Coordinates	Grid: UTM84-32N		Destination Coordinates	Grid: UTM:	Collar Dip: -46.00
Project Number:	201	North: 6805293.92			North: 61.38		Collar Az: 230.00
Location:	Surface	East: 530243.62			East: 9.57		Length: 94.20 (m)
		Elev: 1118.54			Elev: 1118.54		Start Depth: 0.00 (m)
Date Started:	Sep 23, 2004	Collar Survey: Y		Plugged: N	Contractor: Geo Drilling A/S		Final Depth: 94.20 (m)
Date Completed:	Sep 26, 2004	Multishot Survey: N		Hole Size: TT46	Core Storage: Strand Fjellstue		
Logged By:	P. Tirschmann	Pulse EM Survey: Y		Casing: Left in Hole, capped			

Comments: Purpose: Test UTEM conductor ESP_04_01. Conductivity = 2000 Siemens

Result: Intersected mm to cm scale veins and stringers of massive po±pn,py,cpy between 57m and 60m. Ultramafic clasts/groundmass is locally associated with the mineralization.

Assays: 0.38% Ni, 0.35% Cu, 0.03% Co / 0.30m (58.80-59.10m)
0.68% Ni, 0.30% Cu, 0.08% Co / 0.30m (59.65-59.95m)

Borehole UTEM: Symmetric in-hole response centered at 60m, high conductance (Ch1) anomaly.

Lithological interpretation: Anorthositic terrain intruded by narrow, locally mineralized, ultramafic bodies as well as mafic dykes.

Sample Averages

Average Type	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
WEIGHTED	58.80	59.95	1.15	0.3148	0.2078	0.0335

Detailed Lithology

From (m)	To (m)	Lithology	Assay Data: Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
0	1.50	C, Casing							

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Detailed Lithology			Assay Data						
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
1.50	20.20	PRDT, Peridotite Medium grained, massive to weakly foliated, dark grey to black peridotite. Consists of 60-80% dark green olivine, 20-40% light grey (altered?) intercumulusand locally oikocrystic pyroxene, 1-3% very fine grained magnetite and trace fine grained sulphide. Unit is transitional to pyroxenite downhole of 17m and is highly chloritized and schistose adjacent to downhole contact (18.7-20.2m). Downhole contact sharp at 75° to CA. Conductivity: Non-conductive Magnetic susceptibility: 15-85, average = 30; becomes less magnetic downhole; approx. =2.5 in schistose UM near downhole contact. Structure 12.85 - 12.86 : Sm General Foliation, 55 Deg to CA 18.95 - 18.96 : Sm General Foliation, 45 Deg to CA RQD 1.50 - 4.00 : 41.00 % RQD 100.00 % Core 4.00 - 7.00 : 48.00 % RQD 100.00 % Core 7.00 - 10.00 : 52.00 % RQD 100.00 % Core 10.00 - 13.00 : 37.00 % RQD 95.00 % Core 13.00 - 16.00 : 41.00 % RQD 100.00 % Core Badly broken core: 13.5m; broken core: 14.3 - 14.7m 16.00 - 19.00 : 57.00 % RQD 100.00 % Core 19.00 - 22.00 : 49.00 % RQD 100.00 % Core	PG03194	9.20	9.33	0.13	0.1000	0.0250	0.0100
20.20	24.05	MD, Mafic Dike Fine grained, dark green, equigranular mafic dyke. Consists of 70-80% green mafic minerals and 20-30% interstitial light green micaceous mineral (sericite/sausserite?). Trace sulphides along fractures. Uphole and downhole contacts very fine grained to chilled; small UM clast obeserved in dyke near uphole contact; downhole contact at 85° to CA. Non-conductive. Magnetic susceptibility: 0.8-1.9 RQD 22.00 - 25.00 : 63.00 % RQD 100.00 % Core							
24.05	27.35	6, Undivided Ultramafic Intrusive Fine grained, dark green, serpentinized, chloritized phlogopite-bearing ultramafic. Trace fine grained sulphides. Downhole contact gradational over several cms. Magnetic susceptibility <0.5. RQD 25.00 - 28.00 : 39.00 % RQD 100.00 % Core							

Hole Number: ES2004-17

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Detailed Lithology			Assay Data						
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
27.35	30.05	4, Anorthosite / Anorthosite Gabbro Strongly foliated, sheared anorthositic gabbro consisting of 50-55 % white plagioclase, 30-35% green mafic minerals and 5-15% pale green sericite (?). Locally contains mm to cm scale bands of altered UM as immediately uphole. Non-conductive. Magnetic susceptibility: <0.5 Interpretation: Lithology is difficult to identify in drillcore, but transition from more massive to progressively more sheared anorthositic gabbro can be seen in outcrop at surface in immediate area of drillhole. Structure 29.80 - 29.81 : Sm General Foliation, 80 Deg to CA RQD 28.00 - 31.00 : 49.00 % RQD 100.00 % Core								
30.05	41.35	MD, Mafic Dike Fine grained, light green, highly foliated (sheared) mafic dyke similar to 20.2-24.05m but more tectonized. Quartz veining at 40.5m. Contacts are concordant to foliation and downhole contact with anorthositic gabbro is very difficult to distinguish due to shearing and similar composition. Non-conductive. Magnetic susceptibility: <0.5 Structure 38.20 - 38.21 : Sm General Foliation, 87 Deg to CA RQD 31.00 - 34.00 : 47.00 % RQD 100.00 % Core 34.00 - 37.00 : 76.00 % RQD 100.00 % Core 37.00 - 40.00 : 90.00 % RQD 100.00 % Core 40.00 - 43.00 : 87.00 % RQD 100.00 % Core MINOR INTERVALS: Minor Interval: 31.65 - 32.1 4, Anorthosite / Anorthosite Gabbro Block of anorthositic gabbro in mafic dyke? Mafic unit is fine grained and appears chilled against uphole contact of anorthositic gabbro.								

Hole Number: ES2004-17

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Detailed Lithology

From (m)	To (m)	Lithology
41.35	76.70	4, Anorthosite / Anorthosite Gabbro Fine to medium grained, foliated, white and green anorthositic gabbro with "striped" appearance due to shearing. Consists of 50-55% white plagioclase, 30-35% green mafic minerals, 5-15% pale green sericite and 1-3 % dark green chlorite. Locally cross-cut by fine grained, green mafic dykes but contacts are concordant to foliation/shearing (eg. 45.1-45.25m, 46.3-46.85m, 46.95-47.10m). 57-60m: mm to cm scale veins and stringers of massive po ± pn,py and cp cross-cut the anorthositic gabbros and locally contain a small amount of ultramafic as groundmass or clasts (see mineralization). 59.3m: 1cm wide zone of fault gouge NOTE: Degree of shearing decreases downhole. Most intense zone of shearing appears to be between 50m and 51.3m. Non-conductive. Magnetic susceptibility: <0.5. Mineralization 57.85 - 58.30 : Po Pyrrhotite, VN Veins, 8% 5-10% po in veinlets up to 6mm in width 58.80 - 59.10 : Po Pyrrhotite, VN Veins, 35% Massive po veins/stringers up to 3cm wide; cp locally; tr pn (?) as 0.5 mm rounded eyes in massive po at 58.93m. 59.10 - 59.65 : Po Pyrrhotite, STR Stringers, 5% 5% po, tr py in 1-3mm wide foliation parallel stringers 59.65 - 59.95 : Po Pyrrhotite, VN Veins, 65% 60-65% po in massive veins/stringers up to 10cm wide; 3-4% pn as 0.5-1mm eyes and as fine grained margins to massive po vein from 59.85m-59.95m; 1-2% py as individual grains up to several mm in diameter. 59.95 - 60.50 : Po Pyrrhotite, STR Stringers, 2% 2% po in 1-3mm wide foliation parallel stringers. Structure 49.55 - 49.56 : Sm General Foliation, 78 Deg to CA 54.30 - 54.31 : Sm General Foliation, 82 Deg to CA 63.40 - 63.41 : Sm General Foliation, 65 Deg to CA 74.35 - 74.36 : Sm General Foliation, 75 Deg to CA RQD 43.00 - 46.00 : 77.00 % RQD 100.00 % Core 46.00 - 49.00 : 78.00 % RQD 100.00 % Core 49.00 - 52.00 : 36.00 % RQD 100.00 % Core 52.00 - 55.00 : 32.00 % RQD 100.00 % Core 55.00 - 58.00 : 29.00 % RQD 100.00 % Core 58.00 - 61.00 : 13.00 % RQD 100.00 % Core

Assay Data

Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
PG03195	56.00	57.00	1.00	0.0250	0.0250	0.0100
PG03196	57.00	57.85	0.85	0.0250	0.0250	0.0200
PG03197	57.85	58.30	0.45	0.0900	0.0250	0.0100
PG03198	58.30	58.80	0.50	0.0250	0.0500	0.0100
PG03199	58.80	59.10	0.30	0.3800	0.3500	0.0300
PG03201	59.10	59.65	0.55	0.0800	0.0800	0.0100
PG03202	59.65	59.95	0.30	0.6800	0.3000	0.0800
PG03203	59.95	60.50	0.55	0.0250	0.0250	0.0100
PG03204	60.50	61.50	1.00	0.0250	0.0250	0.0100

Hole Number: ES2004-17

Units: METRIC

Detailed Lithology			Assay Data						
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		RQD 61.00 - 64.00 : 3.00 % RQD 100.00 % Core Badly broken core: 63.7 - 64.85m (photos) 64.00 - 67.00 : 14.00 % RQD 100.00 % Core Badly broken core: 65.5 - 65.7m 67.00 - 70.00 : 36.00 % RQD 100.00 % Core 70.00 - 73.00 : 37.00 % RQD 100.00 % Core 73.00 - 76.00 : 38.00 % RQD 100.00 % Core 76.00 - 79.00 : 71.00 % RQD 100.00 % Core MINOR INTERVALS: Minor Interval: 67.2 - 67.9 PYXT, Pyroxenite Medium grained green pyroxenite dyke containing trace po. Uphole contact sheared; downhole contact gradational over several cms.							
76.70	78.30	PYXT, Pyroxenite Medium grained, green, foliated, chloritized pyroxenite containing 1-2% phlogopite and trace -1% pyrite. Uphole contact at 75° to CA; downhole contact at 80° to CA.	PG03205	77.30	78.30	1.00	0.0800	0.0250	0.0300
78.30	88.55	MD, Mafic Dike Fine to medium grained, foliated, equigranular, mafic dyke as 20.2-24.05m and 30.05-41.35m. Consists of 60-70% chloritized pyroxene 30-40% interstitial light green micaceous mineral (sericite/sausserite?). Clast of gabbroic anorthosite from 84.8-85m. Interfingered with gabbroic anorthosite at downhole contact which is concordant with foliation. Non-conductive: Magnetic susceptibility: <0.5 Structure 79.30 - 79.31 : Sm General Foliation, 67 Deg to CA 87.05 - 87.06 : Sm General Foliation, 70 Deg to CA RQD 79.00 - 82.00 : 87.00 % RQD 100.00 % Core 82.00 - 85.00 : 76.00 % RQD 100.00 % Core 85.00 - 88.00 : 95.00 % RQD 100.00 % Core 88.00 - 91.00 : 96.00 % RQD 100.00 % Core							

Hole Number: ES2004-17

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Detailed Lithology			Assay Data						
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
88.55	94.20	4, Anorthosite / Anorthosite Gabbro Medium grained, foliated green and white gabbroic anorthosite. Narrow Um dyke containing 2% po between 88.8 and 88.9m. Mineralization 88.80 - 88.90 : Po Pyrrhotite, F Fracture Controlled, 2% 2-3% po in foliation parallel fractures in UM. Structure 93.80 - 93.81 : Sm General Foliation, 60 Deg to CA RQD 91.00 - 94.20 : 82.00 % RQD 100.00 % Core	PG03206	88.80	88.90	0.10	0.0250	0.0250	0.0100

Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type ASSAY					
PG03194	9.20	9.33	0.1000	0.0250	0.0100
PG03195	56.00	57.00	0.0250	0.0250	0.0100
PG03196	57.00	57.85	0.0250	0.0250	0.0200
PG03197	57.85	58.30	0.0900	0.0250	0.0100
PG03198	58.30	58.80	0.0250	0.0500	0.0100
PG03199	58.80	59.10	0.3800	0.3500	0.0300
PG03201	59.10	59.65	0.0800	0.0800	0.0100
PG03202	59.65	59.95	0.6800	0.3000	0.0800
PG03203	59.95	60.50	0.0250	0.0250	0.0100
PG03204	60.50	61.50	0.0250	0.0250	0.0100
PG03205	77.30	78.30	0.0800	0.0250	0.0300
PG03206	88.80	88.90	0.0250	0.0250	0.0100