DETAILED LOG

Hole Number: ES2004-15 Units: METRIC

Project Name:	Norway - Espedalen	Primary Coordinates	Grid: UTM84-32N	Destination Coordinates	Grid: UTM:	Collar Dip:	-50.00
Project Number:	201	North:	6809422.71	North:	61.42	Collar Az:	230.00
Location:	Surface	East:	532813.31	East:	9.61	Length:	123.25 (m)
		Elev:	1282.99	Elev:	1282.99	Start Depth:	0.00 (m)
Date Started:	Sep 19, 2004	Collar Survey:	Y	Plugged:	N	Contractor:	Geo Drilling A/S	Final Depth:	123.25 (m)
Date Completed:	Sep 22, 2004	Multishot Survey:	N	Hole Size:	TT46	Core Storage:	Strand Fjellstue		
Logged By:	Yannick Beaudoin	Pulse EM Survey:	N	Casing:	Left in Hole, capped				

Comments: Purpose: To further test UTEM conductor ESP_10_08. Two conductive plates modelled, each with a conductance of 375 siemens. This hole is a 85m step-out grid east of hole ES2004-14.

Result: Intersected variably mineralized norite and pyroxenites between 39.00m and 76.30m. Sulphides consist of pyrrhotite ± pyrite± chalcopyrite as disseminations, blebs and local remobilized veinlets/stringers. Intersected 10-15% fracture-controlled pyrrhotite in siliceous metasediments from 79.60-80.50m.

Assays: 0.44% Ni, 0.22% Cu, 0.04% Co / 4.95m (49.85-54.80m) (avg.)
0.68% Ni, 0.40% Cu, 0.04% Co / 0.50m (63.00-63.50m)
0.70% Ni, 0.19% Cu, 0.05% Co / 0.30m (76.00-76.30m)
0.44% Ni, 0.19% Cu, 0.02% Co / 0.90m (79.60-80.50m)

Borehole UTEM: Survey to be conducted in November 2005.

Lithological interpretation: Similar to hole ES2004-14. Sequence of norites and pyroxenites which have intruded siliceous metasediments and are cross-cut by magnetic, mafic alkaline (?) dykes.

Sample Averages

Average Type	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
WEIGHTED	49.85	54.80	4.95	0.4396	0.2169	0.0396
WEIGHTED	68.20	80.50	12.30	0.2393	0.1024	0.0180

Detailed Lithology

From (m)	To (m)	Lithology	Assay Data: Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
0	2.00	C, Casing RQD 0.00 - 2.00 : 0.00 % RQD 0 % Core 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%
2.00	29.35	6f, Norite Medium grained, white and grey, equigranular massive to weakly foliated norite. Consists of 50-60% altered mafic minerals (pyroxene ?) and 40-50% plagioclase. Mafic minerals are extensively altered to biotite and chlorite. Similar to norites in hole ES2004-14 but more leucocratic and not as extensively altered. Norite is locally in contact with dm scale intervals of medium grained, green, chloritized pyroxenite (eg. 12.4-12.95m, 17.85-18.8m, 23.15-25.05m). Contacts between the two rock types are abrupt but diffuse. Pyroxenites locally contain trace finely disseminated pyrrhotite and/or pyrite. Conductivity: Non-conductive Magnetic susceptibility: Typically between 0.l and 1. Pyroxenites more magnetic and variabe from 1-20. Interpretation: Gabbroic/noritic unit related to ultramafic rocks based on contact relationships and correlation with hole ES2004-14. Structure 8.85 - 8.86 : Sm General Foliation, 60 Deg to CA 17.80 - 17.81 : Sm General Foliation, 65 Deg to CA RQD 2.00 - 5.00 : 84.00 % RQD 100.00 % Core 5.00 - 8.00 : 80.00 % RQD 100.00 % Core 8.00 - 11.00 : 57.00 % RQD 100.00 % Core 11.00 - 14.00 : 65.00 % RQD 100.00 % Core 14.00 - 17.00 : 66.00 % RQD 100.00 % Core 17.00 - 20.00 : 79.00 % RQD 100.00 % Core 20.00 - 23.00 : 69.00 % RQD 100.00 % Core 23.00 - 26.00 : 68.00 % RQD 100.00 % Core 26.00 - 29.00 : 54.00 % RQD 100.00 % Core 29.00 - 32.00 : 67.00 % RQD 100.00 % Core						

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Detailed Lithology

From (m)	To (m)	Lithology
29.35	39.00	8f, Aphantic UM Dyke Very fine grained, dark grey, massive, equigranular magnetic ultramafic dyke similar to those observed in ES2004-14 but slightly coarser grained. Core of dyke is slightly coarser grained and looks like a pyroxenite consisting of 85-90% pyroxene, 5-10% biotite and 1-2% very fine grained magnetite. Rare trace disseminated pyrite. Margins of dyke are finer grained and downhole contact is chilled. 15cm wide zone adjacent to donwhole contact containing 10% rounded, diffuse, white grains 2-4mm in diameter. Uphole contact at 40° to CA; broken core at downhole contact but estimated at 60° to CA. Conductivity: Non-conductive Magnetic susceptibility: 9-30 Interpretation: Post-dates mineralized UM bodies but genetic relationship unclear. NOTE: A whole rock analysis from a similar dyke in hole ES2004-16 yielded a composition similar to an alkaline olivine basalt suggesting that these dykes are mafic (versus ultramafic) and of alkaline affinity. RQD 32.00 - 35.00 : 70.00 % RQD 100.00 % Core 35.00 - 38.00 : 71.00 % RQD 100.00 % Core 38.00 - 41.00 : 66.00 % RQD 100.00 % Core
39.00	49.85	PYXT, Pyroxenite Medium grained, green, massive to weakly foliated, chloritized pyroxenite containing trace to 10% disseminated and blebby pyrrhotite (esp. downhole of 41m). Conductivity: Locally conductive where po blebs are interconnected. Magnetic susceptibility: 0.2-2 Mineralization 41.00 - 49.85 : Po Pyrrhotite, D Disseminated, 3% 2-5% po disseminations & blebs throughout Structure 42.80 - 42.81 : Sm General Foliation, 60 Deg to CA 48.10 - 48.11 : Sm General Foliation, 60 Deg to CA RQD 41.00 - 44.00 : 35.00 % RQD 100.00 % Core 44.00 - 47.00 : 72.00 % RQD 100.00 % Core 47.00 - 50.00 : 70.00 % RQD 100.00 % Core

Assay Data

Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
PG03153	41.00	42.00	1.00	0.1500	0.1600	0.0100
PG03154	42.00	43.00	1.00	0.1600	0.1000	0.0300
PG03155	43.00	44.00	1.00	0.1600	0.1500	0.0300
PG03156	44.00	45.00	1.00	0.1100	0.0250	0.0100
PG03157	45.00	46.00	1.00	0.1700	0.0900	0.0100
PG03158	46.00	47.00	1.00	0.1100	0.0600	0.0100
PG03159	47.00	48.00	1.00	0.0900	0.0250	0.0100
PG03160	48.00	49.00	1.00	0.0600	0.0250	0.0100
PG03161	49.00	49.85	0.85	0.0700	0.0700	0.0100

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Detailed Lithology

From (m)	To (m)	Lithology
49.85	65.10	6f, Norite Inhomogenous interval of heavily mineralized, locally silicified (?) norite containing 15% mm to cm scale white feldspathic bands/schlieren which may represent partially digested anorthosite. Mineralization consists of stringers and veins of massive pyrrhotite±pyrite as well as pyrrhotite disseminations and blebs. Trace cp locally. Heaviest mineralization occurs between 49.85 and 55.35m. Contact with uphole pyroxenite marked by first appearance of massive po and transition to more feldspathic composition. Conductivity: Strongly conductive between 49.85 and 55.35m (2200-3400 siemens) and between 63 and 63.5m (approx. 2000 siemens). Magnetic susceptibility: Typically between 0.2 and 2; massive po only weakly magnetic (<1 to 5). Interpretation: Interpreted to be norite but locally looks quite siliceous, possibly due to contamination from adjacent metasediments. Mineralization 49.85 - 52.80 : Po Pyrrhotite, M Massive, 20% Avg. of 20% po occurring as cm scale massive bands and stringers as well as disseminations 49.85 - 52.80 : Py Pyrite, D Disseminated, 5% Intermixed with po, trace cp locally 52.80 - 54.00 : Po Pyrrhotite, F Fracture Controlled, 10% 10% po as blebs, disseminations and fracture fillings 54.00 - 54.80 : Po Pyrrhotite, NT Net-Textured, 15% 12% po, 3% py heavily disseminated to net-textured 54.80 - 55.35 : Po Pyrrhotite, D Disseminated, 8% 55.35 - 63.00 : Po Pyrrhotite, D Disseminated, 2% 1-3% disseminated po 63.00 - 63.50 : Po Pyrrhotite, SM Semi-Massive, 30% 30% po, 1% cp net-textured to semi-massive Structure 58.50 - 58.51 : Sm General Foliation, 65 Deg to CA 62.60 - 62.61 : Sm General Foliation, 62 Deg to CA RQD 50.00 - 53.00 : 64.00 % RQD 100.00 % Core 53.00 - 56.00 : 62.00 % RQD 100.00 % Core 56.00 - 59.00 : 54.00 % RQD 100.00 % Core 59.00 - 62.00 : 63.00 % RQD 100.00 % Core 62.00 - 65.00 : 50.00 % RQD 100.00 % Core 65.00 - 68.00 : 69.00 % RQD 100.00 % Core

Assay Data

Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
PG03162	49.85	50.60	0.75	0.4800	0.1700	0.0400
PG03163	50.60	51.60	1.00	0.7000	0.2900	0.0700
PG03164	51.60	52.80	1.20	0.4500	0.1700	0.0400
PG03165	52.80	54.00	1.20	0.1800	0.2500	0.0200
PG03166	54.00	54.80	0.80	0.4500	0.1900	0.0300
PG03167	54.80	55.35	0.55	0.2000	0.1600	0.0100
PG03168	55.35	56.50	1.15	0.0700	0.0900	0.0100
PG03169	56.50	57.50	1.00	0.1500	0.1300	0.0100
PG03170	57.50	58.50	1.00	0.1000	0.0250	0.0200
PG03171	58.50	59.50	1.00	0.0900	0.0700	0.0100
PG03172	59.50	60.50	1.00	0.1200	0.0800	0.0100
PG03173	60.50	61.50	1.00	0.0900	0.0600	0.0200
PG03174	61.50	62.50	1.00	0.0700	0.0250	0.0100
PG03176	62.50	63.00	0.50	0.1900	0.2000	0.0100
PG03178	63.00	63.50	0.50	0.6800	0.4000	0.0400
PG03179	63.50	64.00	0.50	0.1400	0.3300	0.0100

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Detailed Lithology

From (m)	To (m)	Lithology
65.10	68.20	FGN, Felsic Gneiss Inhomogeneous interval consisting of 70% fine grained, dark siliceous metasediment (?) and 30% medium grained white to grey cm scale plagioclase-rich bands (norite/anorthosite?). Trace to 2% disseminated po. Uphole contact gradational; downhole contact abrupt, estimated at 70° to CA. Conductivity: Locally conductive where po is interconnected. Magnetic susceptibility: <1 Structure 66.50 - 66.51 : Sm General Foliation, 70 Deg to CA RQD 68.00 - 71.00 : 71.00 % RQD 100.00 % Core
68.20	76.30	PYXT, Pyroxenite Medium grained, light to dark green, weakly foliated pyroxenite as uphole. Contains 1-5% disseminated pyrrhotite throughout. Conductivity: Conductive where po is interconnected Magnetic Susceptibility: 0.2-7.3; center of unit most magnetic. Mineralization 68.20 - 76.00 : Po Pyrrhotite, D Disseminated, 3% 1-5% po disseminated throughout 76.00 - 76.30 : Po Pyrrhotite, D Disseminated, 10% Heavier mineralization at downhole contact of UM Structure 72.40 - 72.41 : Sm General Foliation, 60 Deg to CA 75.60 - 75.61 : Sm General Foliation, 67 Deg to CA RQD 71.00 - 74.00 : 74.00 % RQD 100.00 % Core 74.00 - 77.00 : 69.00 % RQD 100.00 % Core

Assay Data

Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
PG03180	68.20	69.00	0.80	0.2400	0.0900	0.0100
PG03181	69.00	70.00	1.00	0.2100	0.0700	0.0300
PG03182	70.00	71.00	1.00	0.3400	0.2900	0.0300
PG03183	71.00	72.00	1.00	0.2500	0.1300	0.0100
PG03184	72.00	73.00	1.00	0.3100	0.1200	0.0200
PG03185	73.00	74.00	1.00	0.3700	0.1100	0.0200
PG03186	74.00	75.00	1.00	0.3100	0.0900	0.0400
PG03187	75.00	76.00	1.00	0.2400	0.0900	0.0200
PG03188	76.00	76.30	0.30	0.7000	0.1900	0.0500

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Detailed Lithology

From (m)	To (m)	Lithology
76.30	123.25	FGN, Felsic Gneiss Interval is dominated by fine grained, foliated and bedded grey and pink siliceous and garnet-bearing metasediments similar to metasediments intersected in ES2004-14 between 100.2 and 131.4m. Rare trace disseminated or fracture-controlled po and/or py. Metasediments are cross-cut by 10% dm scale, fine grained, dark green amphibolitic mafic/ultramafic dykes which are concordant to bedding and foliation in the metasediments (eg. 84.6-84.95m, 93.15-93.75m, 94.1-94.7m, 103.9-105.5m, 107.3-107.6, 119.05-119.9, 122.25-122.65m). 85-98m: Fine to medium grained , dark grey, foliated quartzo-feldspathic unit consisting of variably amounts of feldspar, quartz, biotite, muscovite ± very fine grained magnetite. ("dirty" recrystallized psammitic metasediments?). Conductivity: Non-conductive Magnetic susceptibility: Typically < 1; mafic dykes variably magnetic ranging from 1-40; quartzofeldspathic metasediments typically between 1 and 6. Interpretation: Large raft of supracrustal rocks entrained within anorthositic complex? Mineralization 80.00 - 80.50 : Po Pyrrhotite, F Fracture Controlled, 10% pyrrhotite remobilized (?) in sheared metasediments 102.20 - 102.70 : Py Pyrite, F Fracture Controlled, 3% 2% py, 1% po in fracture-controlled blebs, stringers Structure 81.60 - 81.61 : Sm General Foliation, 67 Deg to CA 99.90 - 99.91 : Sm General Foliation, 60 Deg to CA 109.50 - 109.51 : Sm General Foliation, 60 Deg to CA 112.45 - 112.46 : Sm General Foliation, 67 Deg to CA 121.70 - 121.71 : Sm General Foliation, 55 Deg to CA RQD 77.00 - 80.00 : 67.00 % RQD 100.00 % Core 80.00 - 83.00 : 73.00 % RQD 100.00 % Core 83.00 - 86.00 : 60.00 % RQD 100.00 % Core 86.00 - 89.00 : 64.00 % RQD 100.00 % Core 89.00 - 92.00 : 77.00 % RQD 100.00 % Core 92.00 - 95.00 : 62.00 % RQD 100.00 % Core 95.00 - 98.00 : 74.00 % RQD 100.00 % Core 98.00 - 101.00 : 70.00 % RQD 100.00 % Core 101.00 - 104.00 : 62.00 % RQD 100.00 % Core 104.00 - 107.00 : 65.00 % RQD 100.00 % Core 107.00 - 110.00 : 72.00 % RQD 100.00 % Core 110.00 - 113.00 : 64.00 % RQD 100.00 % Core

Assay Data

Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
PG03189	76.30	76.80	0.50	0.2200	0.1200	0.0200
PG03190	79.60	80.00	0.40	0.4400	0.2000	0.0100
PG03191	80.00	80.50	0.50	0.4500	0.1800	0.0300
PG03192	80.50	81.00	0.50	0.0250	0.0250	0.0100
PG03193	102.20	102.70	0.50	0.0250	0.0250	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 113.00 - 116.00 : 63.00 % RQD 100.00 % Core 116.00 - 119.00 : 62.00 % RQD 100.00 % Core 119.00 - 122.00 : 64.00 % RQD 100.00 % Core 122.00 - 123.25 : 58.00 % RQD 100.00 % Core							

Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type ASSAY					
PG03153	41.00	42.00	0.1500	0.1600	0.0100
PG03154	42.00	43.00	0.1600	0.1000	0.0300
PG03155	43.00	44.00	0.1600	0.1500	0.0300
PG03156	44.00	45.00	0.1100	0.0250	0.0100
PG03157	45.00	46.00	0.1700	0.0900	0.0100
PG03158	46.00	47.00	0.1100	0.0600	0.0100
PG03159	47.00	48.00	0.0900	0.0250	0.0100
PG03160	48.00	49.00	0.0600	0.0250	0.0100
PG03161	49.00	49.85	0.0700	0.0700	0.0100
PG03162	49.85	50.60	0.4800	0.1700	0.0400
PG03163	50.60	51.60	0.7000	0.2900	0.0700
PG03164	51.60	52.80	0.4500	0.1700	0.0400
PG03165	52.80	54.00	0.1800	0.2500	0.0200
PG03166	54.00	54.80	0.4500	0.1900	0.0300
PG03167	54.80	55.35	0.2000	0.1600	0.0100
PG03168	55.35	56.50	0.0700	0.0900	0.0100
PG03169	56.50	57.50	0.1500	0.1300	0.0100
PG03170	57.50	58.50	0.1000	0.0250	0.0200
PG03171	58.50	59.50	0.0900	0.0700	0.0100
PG03172	59.50	60.50	0.1200	0.0800	0.0100
PG03173	60.50	61.50	0.0900	0.0600	0.0200
PG03174	61.50	62.50	0.0700	0.0250	0.0100
PG03176	62.50	63.00	0.1900	0.2000	0.0100
PG03178	63.00	63.50	0.6800	0.4000	0.0400
PG03179	63.50	64.00	0.1400	0.3300	0.0100
PG03180	68.20	69.00	0.2400	0.0900	0.0100
PG03181	69.00	70.00	0.2100	0.0700	0.0300
PG03182	70.00	71.00	0.3400	0.2900	0.0300
PG03183	71.00	72.00	0.2500	0.1300	0.0100

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Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type ASSAY					
PG03184	72.00	73.00	0.3100	0.1200	0.0200
PG03185	73.00	74.00	0.3700	0.1100	0.0200
PG03186	74.00	75.00	0.3100	0.0900	0.0400
PG03187	75.00	76.00	0.2400	0.0900	0.0200
PG03188	76.00	76.30	0.7000	0.1900	0.0500
PG03189	76.30	76.80	0.2200	0.1200	0.0200
PG03190	79.60	80.00	0.4400	0.2000	0.0100
PG03191	80.00	80.50	0.4500	0.1800	0.0300
PG03192	80.50	81.00	0.0250	0.0250	0.0100
PG03193	102.20	102.70	0.0250	0.0250	0.0100