

Hole Number: ES2004-11

Units: METRIC

Project Name: Norway - Espedalen	Primary Coordinates Grid: UTM84-32N	Destination Coordinates Grid: UTM:	Collar Dip: -82.00
Project Number: 201	North: 6810482.77	North: 61.43	Collar Az: 50.00
Location: Surface	East: 529575.27	East: 9.55	Length: 86.00 (m)
	Elev: 1065.14	Elev: 1065.14	Start Depth: 0.00 (m)
Date Started: Sep 06, 2004	Collar Survey: Y	Plugged: N	Contractor: Geo Drilling A/S
Date Completed: Sep 08, 2004	Multishot Survey: N	Hole Size: TT46	Core Storage: Strand Fjellstue
Logged By: P. Tirschmann	Pulse EM Survey: N	Casing: Left in Hole, capped	Final Depth: 86.00 (m)

Comments: Purpose: To test UTEM conductor ESP\_12\_12. Three (3) conductive plates modelled, each with a conductivity of 150 siemens.

Result: Mineralized peridotite was intersected from 48.45m-54.75m, which contains an average of 5-10% pyrrhotite with minor pyrite and chalcopyrite. A nine cm wide semi-massive sulphide vein marks the lower contact of this mineralized unit.

Assays: 0.62% Ni, 0.40% Cu, 0.03% Co / 0.65m (53.10-53.75m) (best)

Lithological interpretation: Mineralized ultramafic (peridotite) grading to gabbroic / pyroxenitic rocks which have intruded banded to laminated quartzofeldspathic country rocks which may be either metasediments or tectonized/silicified anorthositic country rocks (equivalent to M. Heim's "hybrid rocks").

## Sample Averages

Average Type	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
WEIGHTED	43.55	54.75	11.20	0.2582	0.1698	0.0175
WEIGHTED	52.10	54.75	2.65	0.4615	0.2491	0.0262

Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
0	2.00	C, Casing							
2.00	5.95	5, Undivided Metasediments Banded to laminated, grey and green quartzofeldspathic rock consisting of 70% quartz+feldspar, 25-29% biotite+chlorite, 0-1% garnet, 0-1% magnetite and trace pyrite. Intruded downhole by gabbroic unit, contact sharp but irregular at 40-50 degrees to CA.  Magnetic susceptibility: Highly variable from <1 to 18. Conductivity: Non-conductive.  Interpretation: Equivalent to M. Heims "hybrid rocks"? Tectonized, silicified anorthositic rocks. Does not look as much like siliceous metasediments as units observed in Andreasberg drillholes ES2004-01 and ES2004-02.  Structure 3.50 - 3.51 : Sm General Foliation, 80 Deg to CA  RQD 2.00 - 5.00 : 15.00 % RQD 90.00 % Core 5.00 - 8.00 : 65.00 % RQD 95.00 % Core							

Hole Number: ES2004-11

Units: METRIC

Detailed Lithology		Lithology	Assay Data						
From (m)	To (m)		Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
5.95	48.45	6f, Norite	PG03037	37.00	37.50	0.50	0.0250	0.0250	0.0100
		<p>Well foliated to locally banded, medium grained inhomogeneous dark green to green and white, amphibole-rich unit ranging from amphibolitic gabbro/norite to pyroxenite. Locally contains cm to dm scale grey, feldspar-rich bands (silicified anorthosite?) similar to 2-5.95m (eg. 9.95-10.2m, 16.4-16.6m, 17.45-19.1m, 20.9-21.25m, 25.05-25.95m) and decreasing in abundance downhole. Unit contains trace to 10% po downhole from 37.50m and increasing in abundance downhole. Pyrrhotite occurs as disseminations and blebs locally forming a net texture. One 3 cm wide semi-massive band at 46.92m.</p> <p>Downhole contact interpreted at sharp transition to more homogenous, dark green to black mineralized ultramafic; irregular, estimated at 55-60 degrees to CA.</p> <p>Magnetic susceptibility: Highly variable from &lt; 1 to 42; body as a whole would form a mag high; average estimated as 10-15. Conductivity: Non-conductive to locally conductive where po-bearing (20-120). Interpretation: Gabbro-norite and pyroxenite related to mineralized ultramafic. Mineralization 37.50 - 37.80 : Po Pyrrhotite, BB Blebby, 3% 3-4% po blebs strung out parallel to foliation 41.55 - 46.50 : Po Pyrrhotite, D Disseminated, 2% Trace - 5% po 46.50 - 47.50 : Po Pyrrhotite, STR Stringers, 7% 5-10% po as stringers and one 3cm wide semi-massive band at 47.92m; 1% cp with po 47.50 - 48.45 : Po Pyrrhotite, D Disseminated, 0.5%</p> <p>Structure 8.60 - 8.61 : Sm General Foliation, 68 Deg to CA 14.25 - 14.26 : Sm General Foliation, 72 Deg to CA 19.75 - 19.76 : Sm General Foliation, 60 Deg to CA 26.65 - 26.66 : Sm General Foliation, 65 Deg to CA 36.50 - 36.51 : Sm General Foliation, 60 Deg to CA 46.40 - 46.41 : Sm General Foliation, 55 Deg to CA</p> <p>RQD 8.00 - 11.00 : 61.00 % RQD 95.00 % Core 11.00 - 14.00 : 39.00 % RQD 97.00 % Core 14.00 - 17.00 : 71.00 % RQD 100.00 % Core 17.00 - 20.00 : 54.00 % RQD 100.00 % Core 20.00 - 23.00 : 53.00 % RQD 100.00 % Core 23.00 - 26.00 : 69.00 % RQD 100.00 % Core 26.00 - 29.00 : 67.00 % RQD 100.00 % Core 29.00 - 32.00 : 81.00 % RQD 100.00 % Core 32.00 - 35.00 : 66.00 % RQD 100.00 % Core</p>	PG03038	37.50	37.80	0.30	0.3500	0.2300	0.0200
			PG03039	37.80	38.50	0.70	0.0500	0.0250	0.0100
			PG03040	40.55	41.55	1.00	0.2500	0.1600	0.0200
			PG03041	41.55	42.55	1.00	0.1000	0.0900	0.0100
			PG03042	42.55	43.55	1.00	0.0700	0.0500	0.0100
			PG03043	43.55	44.55	1.00	0.2100	0.2100	0.0100
			PG03044	44.55	45.55	1.00	0.2300	0.1700	0.0100
			PG03045	45.55	46.50	0.95	0.2300	0.0800	0.0100
			PG03046	46.50	47.50	1.00	0.3000	0.2400	0.0100
			PG03047	47.50	48.45	0.95	0.0250	0.0500	0.0100

Hole Number: ES2004-11

Units: METRIC

Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		RQD 35.00 - 38.00 : 62.00 % RQD 100.00 % Core 38.00 - 41.00 : 82.00 % RQD 100.00 % Core 41.00 - 44.00 : 78.00 % RQD 100.00 % Core 44.00 - 47.00 : 92.00 % RQD 100.00 % Core 47.00 - 50.00 : 77.00 % RQD 100.00 % Core  MINOR INTERVALS: Minor Interval: 11.9 - 12.15 PYXT, Pyroxenite Dark grey/green aphanitic magnetic ultramafic dyke cross-cutting gabbronorite. Trace pyrite along fractures. Uphole contact sharp at 55 degrees to CA; downhole contact not as sharp and difficult to see as it is in contact with a slightly coarser pyroxenite. Minor Interval: 37.5 - 37.8 PYXT, Pyroxenite Foliated, fine grained, dark green pyroxenite containing 3-4% pyrrhotite blebs. Highly sheared along uphole contact. Moderately conductive. Mineralization 37.50 - 37.80 : Po Pyrrhotite, BB Blebby, 3%							

Hole Number: ES2004-11

Units: METRIC

Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
48.45	54.75	PRDT, Peridotite	PG03048	48.45	49.60	1.15	0.1400	0.1200	0.0200
		Medium grained, dark green, weakly foliated peridotite transitional downhole of 53.10m to pyroxenite. Unit is mineralized and contains an average of 5-10% sulphides (po, minor py, minor cp) as disseminations, blebs and narrow semi-massive bands; one 9cm wide SM po band at downhole contact.  Downhole contact at 70 degrees to CA.  Magnetic susceptibility: Strongly magnetic (10-82) except for pyroxenite along donwhole contact (2.6). Conductivity: 20-40 between 48.45m and 52.8m; 50-290 between 52.8m and 54.75m; 1400 over MS vein at downhole contact.  Interpretation: Mineralized ultramafic related to bounding gabbronorites and pyroxenites. Mineralization 48.45 - 51.10 : Po Pyrrhotite, BB Blebby, 2% 51.10 - 53.10 : Po Pyrrhotite, BB Blebby, 4% Blebs and stringers 53.10 - 54.75 : Po Pyrrhotite, STR Stringers, 12% 10-15% sulphide (8-10po, 3-4py,1cp); stringers, one 9cm wide SMS band at downhole contact Structure 53.30 - 53.31 : Sm General Foliation, 60 Deg to CA RQD 50.00 - 53.00 : 78.00 % RQD 100.00 % Core 53.00 - 56.00 : 42.00 % RQD 100.00 % Core	PG03049	49.60	50.10	0.50	0.1500	0.3400	0.0100
			PG03051	50.10	51.10	1.00	0.2400	0.0900	0.0200
			PG03052	51.10	52.10	1.00	0.2100	0.1000	0.0300
			PG03053	52.10	53.10	1.00	0.3500	0.1600	0.0100
			PG03054	53.10	53.75	0.65	0.6200	0.4000	0.0300
			PG03055	53.75	54.75	1.00	0.4700	0.2400	0.0400

Hole Number: ES2004-11

Units: METRIC

Detailed Lithology		Lithology	Assay Data						
From (m)	To (m)		Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
54.75	86.00	6f, Norite	PG03056	54.75	55.55	0.80	0.0250	0.0800	0.0100
		Weakly to moderately foliated, medium grained, dark green pyroxenite and white and green gabbro-norite as between 5.95m and 48.45m. Contains trace to several percent disseminated sulphides (py, po). Cross-cut, between 54.75m and 66m, by 2-3% mm scale white feldspar-carbonate-quartz veinlets. Pale green, bleached halos adjacent to some veins and around networks of veinlets. Foliation decreases downhole.  Magnetic susceptibility: Highly variable from < 1 to 120; body as a whole would form a mag high; 0.5-2 from 54.75-72m; 4-15 from 72m-82.7m; 30-120 from 82.7m-84.2m; 0.5-1.5 from 84.2-86m.  Conductivity: Typically non-conductive; locally conductive when tested with ohm-meter where po-bearing (eg. 70.3m & 82.9m).  Interpretation: Gabbro-norite and pyroxenite related to mineralized ultramafic. Mineralization 67.80 - 71.60 : Po Pyrrhotite, D Disseminated, 1% 67.80 - 71.60 : Py Pyrite, D Disseminated, 1% 81.75 - 83.25 : Po Pyrrhotite, D Disseminated, 2% 81.75 - 83.25 : Py Pyrite, D Disseminated, 1% Structure 59.40 - 59.41 : Sm General Foliation, 48 Deg to CA 61.40 - 61.41 : Sm General Foliation, 50 Deg to CA 67.25 - 67.26 : Sm General Foliation, 50 Deg to CA 73.45 - 73.46 : Sm General Foliation, 50 Deg to CA 81.50 - 81.51 : Sm General Foliation, 40 Deg to CA 85.10 - 85.11 : Sm General Foliation, 45 Deg to CA RQD 56.00 - 59.00 : 46.00 % RQD 100.00 % Core 59.00 - 62.00 : 81.00 % RQD 100.00 % Core 62.00 - 65.00 : 80.00 % RQD 100.00 % Core 65.00 - 68.00 : 81.00 % RQD 100.00 % Core 68.00 - 71.00 : 78.00 % RQD 100.00 % Core 71.00 - 74.00 : 76.00 % RQD 100.00 % Core 74.00 - 77.00 : 90.00 % RQD 100.00 % Core 77.00 - 80.00 : 83.00 % RQD 100.00 % Core 80.00 - 83.00 : 85.00 % RQD 100.00 % Core 83.00 - 86.00 : 75.00 % RQD 100.00 % Core	PG03057	67.80	68.80	1.00	0.0250	0.0250	0.0100
			PG03058	68.80	69.60	0.80	0.0250	0.0250	0.0100
			PG03059	69.60	70.60	1.00	0.0250	0.0500	0.0100
			PG03060	70.60	71.60	1.00	0.0250	0.0250	0.0100
			PG03061	81.75	82.75	1.00	0.0250	0.0250	0.0100
			PG03062	82.75	83.25	0.50	0.0250	0.0250	0.0100

Hole Number: ES2004-11

Units: METRIC

## Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type	ASSAY				
PG03037	37.00	37.50	0.0250	0.0250	0.0100
PG03038	37.50	37.80	0.3500	0.2300	0.0200
PG03039	37.80	38.50	0.0500	0.0250	0.0100
PG03040	40.55	41.55	0.2500	0.1600	0.0200
PG03041	41.55	42.55	0.1000	0.0900	0.0100
PG03042	42.55	43.55	0.0700	0.0500	0.0100
PG03043	43.55	44.55	0.2100	0.2100	0.0100
PG03044	44.55	45.55	0.2300	0.1700	0.0100
PG03045	45.55	46.50	0.2300	0.0800	0.0100
PG03046	46.50	47.50	0.3000	0.2400	0.0100
PG03047	47.50	48.45	0.0250	0.0500	0.0100
PG03048	48.45	49.60	0.1400	0.1200	0.0200
PG03049	49.60	50.10	0.1500	0.3400	0.0100
PG03051	50.10	51.10	0.2400	0.0900	0.0200
PG03052	51.10	52.10	0.2100	0.1000	0.0300
PG03053	52.10	53.10	0.3500	0.1600	0.0100
PG03054	53.10	53.75	0.6200	0.4000	0.0300
PG03055	53.75	54.75	0.4700	0.2400	0.0400
PG03056	54.75	55.55	0.0250	0.0800	0.0100
PG03057	67.80	68.80	0.0250	0.0250	0.0100
PG03058	68.80	69.60	0.0250	0.0250	0.0100
PG03059	69.60	70.60	0.0250	0.0500	0.0100
PG03060	70.60	71.60	0.0250	0.0250	0.0100
PG03061	81.75	82.75	0.0250	0.0250	0.0100
PG03062	82.75	83.25	0.0250	0.0250	0.0100