

DETAILED LOG

Hole Number: ES2004-12

Units: METRIC

| | | | |
|----------------------------------|-------------------------------------|------------------------------------|--------------------------------|
| Project Name: Norway - Espedalen | Primary Coordinates Grid: UTM84-32N | Destination Coordinates Grid: UTM: | Collar Dip: -70.00 |
| Project Number: 201 | North: 6810011.09 | North: 61.42 | Collar Az: 225.00 |
| Location: Surface | East: 530576.48 | East: 9.57 | Length: 136.00 (m) |
| | Elev: 1212.87 | Elev: 1212.87 | Start Depth: 0.00 (m) |
| Date Started: Sep 08, 2004 | Collar Survey: Y | Plugged: N | Contractor: Geo Drilling A/S |
| Date Completed: Sep 11, 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: 136.00 (m) |

Comments: Purpose: To test UTEM conductor ESP_11_10. Two modelled conductive plates tested, one of 150 siemens and the other of 70 siemens conductance.

Result: Intersected mineralized peridotite between 25.40-28.70m containing semi-massive sulphide bands, stringers and disseminations. Dominant sulphide mineral is pyrrhotite and interval between 25.4m and 27.7m is more conductive than predicted by UTEM modelling (C-200-300S). Magnetic peridotite containing zones of weak disseminated sulphides intersected between 47.00-87.05m.

Assays: 0.48% Ni, 0.43% Cu, 0.04% Co / 1.20m (25.40-26.60m) (best)

Lithological interpretation: Intersected thick sequence of alternating norites and ultramafic rocks. Majority of norites appear to be related to the ultramafic rocks.

Sample Averages

| Average Type | From (m) | To (m) | Length (m) | Ni% | Cu% | Co% |
|--------------|----------|--------|------------|--------|--------|--------|
| WEIGHTED | 25.40 | 27.70 | 2.30 | 0.4083 | 0.3200 | 0.0352 |
| WEIGHTED | 48.00 | 54.00 | 6.00 | 0.2400 | 0.1067 | 0.0217 |

| Detailed Lithology | | | Assay Data | | | | | | |
|--------------------|--------|-----------|---------------|----------|--------|------------|-----|-----|-----|
| From (m) | To (m) | Lithology | Sample Number | From (m) | To (m) | Length (m) | Ni% | Cu% | Co% |
| 0 | 1.50 | 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% |
| 1.50 | 25.40 | 6f, Norite Foliated, fine grained grey norite comprised of 60-70% plagioclase and 30-40% mafic minerals (pale green amphibole + minor chlorite). Fine grain size maybe due in part to tectonism. Strongly sheared to mylonitized between 1.5m and 3m; possible pseudotachylite at 8.4m. 1-3% mm scale dark green serpentine veinlets. Locally contains cm to dm scale bands of medium grained, grey, siliceous, garnet-bearing rock which could either be silicified norite (Heim's "hybrid rocks"?) or inclusions of metasediment (eg. 5.9m, 6.4m, 6.6m, 7.15m). Magnetic Susceptibility: Typically < 0.5 Conductivity: Non-conductive Interpretation: Norite related to ultramafic rocks but finer grained than in hole ES2004-11. Mineralization 24.50 - 25.40 : Po Pyrrhotite, F Fracture Controlled, 0.5% Structure 2.40 - 2.41 : Sm General Foliation, 35 Deg to CA 11.60 - 11.61 : Sm General Foliation, 55 Deg to CA 24.55 - 24.56 : Sm General Foliation, 55 Deg to CA RQD 1.50 - 3.00 : 7.00 % RQD 100.00 % Core 3.00 - 6.00 : 42.00 % RQD 100.00 % Core 6.00 - 9.00 : 39.00 % RQD 100.00 % Core 9.00 - 12.00 : 44.00 % RQD 100.00 % Core 12.00 - 15.00 : 17.00 % RQD 100.00 % Core 15.00 - 18.00 : 59.00 % RQD 100.00 % Core 18.00 - 21.00 : 71.00 % RQD 100.00 % Core 21.00 - 24.00 : 44.00 % RQD 100.00 % Core 24.00 - 27.00 : 63.00 % RQD 100.00 % Core MINOR INTERVALS: Minor Interval: 14.8 - 15.05 FGN, Felsic Gneiss Interval consisting of alternating fine grained, grey siliceous bands and fine to medium grained, pink garnet-rich bands. Banding on mm to cm scale. Uphole contact sharp at 55 degrees to CA; downhole contact gradational over 25cm where siliceous unit is intermixed with norite. Interpretation: Metasedimentary raft or Heim's "hybrid rocks". | PG03063 | 24.50 | 25.40 | 0.90 | 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% |
| 25.40 | 28.70 | PRDT, Peridotite Foliated, medium grained dark grey to green mineralized ultramafic containing SMS bands, stringers and disseminations decreasing in abundance downhole. Uphole contact sharp at 30 degrees to CA; 5cm wide zone of chlorite schist at uphole contact; downhole contact gradational over several cms. Magnetic susceptibility: 0.35-5.2 Conductivity: 15-790, averages approx. 200 siemens Mineralization 26.60 - 27.70 : Po Pyrrhotite, F Fracture Controlled, 8% 5-10% po remobilized along fractures 27.70 - 28.70 : Po Pyrrhotite, F Fracture Controlled, 1% Po along fractures and rare disseminations 26.60 - 27.70 : Cpy Chalcopyrite, BB Blebby, 1% Intermixed with po 25.40 - 26.60 : Cpy Chalcopyrite, D Disseminated, 2% Cp locally intermixed with SM po 25.40 - 26.60 : Po Pyrrhotite, SM Semi-Massive, 25% SM po bands, stringers and net-textures Structure 26.20 - 26.21 : Sm General Foliation, 10 Deg to CA 27.70 - 27.71 : Sm General Foliation, 25 Deg to CA RQD 27.00 - 30.00 : 53.00 % RQD 100.00 % Core | PG03064 | 25.40 | 26.60 | 1.20 | 0.4800 | 0.4300 | 0.0400 |
| | | | PG03065 | 26.60 | 27.70 | 1.10 | 0.3300 | 0.2000 | 0.0300 |
| | | | PG03066 | 27.70 | 28.70 | 1.00 | 0.0800 | 0.0250 | 0.0100 |

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| Detailed Lithology | | Lithology | Assay Data | | | | | | |
|--------------------|--------|---|---------------|----------|--------|------------|--------|--------|--------|
| From (m) | To (m) | | Sample Number | From (m) | To (m) | Length (m) | Ni% | Cu% | Co% |
| 28.70 | 47.00 | 6f, Norite | PG03067 | 28.70 | 29.70 | 1.00 | 0.0250 | 0.0250 | 0.0100 |
| | | Fine to medium grained grey norite as 1.5-25.4m. Ranges from massive to foliated and is locally sheared (36.55m, 37.6m, 39.4m, 42.55m, 44.65-44.80m). Shearing typically consists of 1-3cm wide zones of mylonitization. Pseudotachylite at 41.45m. 10cm wide zone of shearing at 36.55m containing very fine grained laminated semi-massive pyrrhotite. 1-3% serpentine along fractures, trace quartz-carbonate fracture fillings. Magnetic Susceptibility: Typically < 0.5 Conductivity: Non-conductive Interpretation: Norite related to ultramafic rocks. Mineralization 41.80 - 42.55 : Po Pyrrhotite, F Fracture Controlled, 2% 2-3% po along fractures and disseminated 36.40 - 36.70 : Po Pyrrhotite, SM Semi-Massive, 20% One 5 cm wide band of laminated SMS po Structure 36.40 - 36.41 : Sm General Foliation, 60 Deg to CA RQD 30.00 - 33.00 : 60.00 % RQD 100.00 % Core 33.00 - 36.00 : 28.00 % RQD 100.00 % Core 36.00 - 39.00 : 38.00 % RQD 100.00 % Core 39.00 - 42.00 : 51.00 % RQD 100.00 % Core 42.00 - 45.00 : 60.00 % RQD 100.00 % Core 45.00 - 48.00 : 70.00 % RQD 100.00 % Core | PG03068 | 35.80 | 36.40 | 0.60 | 0.0250 | 0.0250 | 0.0100 |
| | | | PG03069 | 36.40 | 36.70 | 0.30 | 0.0250 | 0.0700 | 0.0100 |
| | | | PG03070 | 36.70 | 37.70 | 1.00 | 0.0250 | 0.0250 | 0.0100 |
| | | | PG03071 | 41.80 | 42.55 | 0.75 | 0.0800 | 0.0800 | 0.0100 |
| | | | PG03072 | 46.00 | 47.00 | 1.00 | 0.1400 | 0.0700 | 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% |
| 47.00 | 87.05 | PRDT, Peridotite | PG03073 | 47.00 | 48.00 | 1.00 | 0.1800 | 0.1700 | 0.0100 |
| | | Foliated, medium grained mottled, strongly magnetic oikocrystic peridotite. Typically consists of 60-75% dark grey medium grained olivine-rich (?) groundmass, 25-40% 0.5-2.5cm light grey pyroxene (now altered to amphibole) oikocrysts and 3% very fine grained magnetite. Locally mineralized containing trace to 10% disseminated pyrrhotite. Ultramafic is pyroxenitic adjacent to uphole contact and to a depth of 50.25m. | PG03074 | 48.00 | 49.00 | 1.00 | 0.2500 | 0.1200 | 0.0200 |
| | | | PG03076 | 49.00 | 50.00 | 1.00 | 0.2100 | 0.0800 | 0.0300 |
| | | | PG03077 | 50.00 | 51.00 | 1.00 | 0.2000 | 0.0700 | 0.0100 |
| | | | PG03078 | 51.00 | 52.00 | 1.00 | 0.3200 | 0.1300 | 0.0400 |
| | | | PG03079 | 52.00 | 53.00 | 1.00 | 0.2300 | 0.1300 | 0.0200 |
| | | | PG03080 | 53.00 | 54.00 | 1.00 | 0.2300 | 0.1100 | 0.0100 |
| | | Uphole contact is gradational over several cms. Downhole contact is sharp at 80 degrees to CA and UM appears to be cross-cut by a younger leuco-norite. | PG03081 | 54.00 | 55.00 | 1.00 | 0.1100 | 0.0250 | 0.0200 |
| | | | PG03082 | 55.00 | 56.00 | 1.00 | 0.1100 | 0.0250 | 0.0100 |
| | | Magnetic susceptibility: 47-50.25m: 1-16; 50.25-87.05m: typically between 20 and 50, locally up to 97. | PG03083 | 56.00 | 56.50 | 0.50 | 0.1600 | 0.0250 | 0.0100 |
| | | Conductivity: Non-conductive except where po-bearing; weakly to strongly conductive over po mineralization when tested with ohm-meter; 30-40 siemens between 51m and 54m. | PG03084 | 56.50 | 57.00 | 0.50 | 0.1100 | 0.0250 | 0.0200 |
| | | | PG03085 | 77.20 | 77.70 | 0.50 | 0.1100 | 0.0250 | 0.0100 |
| | | Interpretation: Large magnetic UM body with zones of weak disseminated mineralization. | PG03086 | 77.70 | 78.00 | 0.30 | 0.2900 | 0.0900 | 0.0300 |
| | | Mineralization | PG03087 | 78.00 | 78.50 | 0.50 | 0.1300 | 0.0250 | 0.0100 |
| | | 86.50 - 87.05 : Po Pyrrhotite, D Disseminated, 5% 5-7% disseminated po | PG03088 | 86.00 | 86.50 | 0.50 | 0.1400 | 0.0250 | 0.0200 |
| | | 77.70 - 78.00 : Po Pyrrhotite, D Disseminated, 5% | PG03089 | 86.50 | 87.05 | 0.55 | 0.2900 | 0.0800 | 0.0300 |
| | | 56.00 - 56.50 : Po Pyrrhotite, D Disseminated, 3% | | | | | | | |
| | | 51.00 - 54.00 : Po Pyrrhotite, D Disseminated, 5% 3-7% disseminated po | | | | | | | |
| | | 47.00 - 51.00 : Po Pyrrhotite, D Disseminated, 2% 1-3% disseminated po | | | | | | | |
| | | Structure | | | | | | | |
| | | 47.50 - 47.51 : Sm General Foliation, 55 Deg to CA | | | | | | | |
| | | 48.50 - 48.51 : Sm General Foliation, 50 Deg to CA | | | | | | | |
| | | 65.60 - 65.61 : Sm General Foliation, 50 Deg to CA | | | | | | | |
| | | 71.60 - 71.61 : Sm General Foliation, 50 Deg to CA | | | | | | | |
| | | 76.70 - 76.71 : Sm General Foliation, 50 Deg to CA | | | | | | | |
| | | 84.50 - 84.51 : Sm General Foliation, 50 Deg to CA | | | | | | | |
| | | RQD | | | | | | | |
| | | 48.00 - 51.00 : 82.00 % RQD 100.00 % Core | | | | | | | |
| | | 51.00 - 54.00 : 77.00 % RQD 100.00 % Core | | | | | | | |
| | | 54.00 - 57.00 : 80.00 % RQD 100.00 % Core | | | | | | | |
| | | 57.00 - 60.00 : 79.00 % RQD 100.00 % Core | | | | | | | |
| | | 60.00 - 63.00 : 78.00 % RQD 100.00 % Core | | | | | | | |
| | | 63.00 - 66.00 : 89.00 % RQD 100.00 % Core | | | | | | | |
| | | 66.00 - 69.00 : 93.00 % RQD 100.00 % Core | | | | | | | |
| | | 69.00 - 72.00 : 90.00 % RQD 100.00 % Core | | | | | | | |

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|--------------------|--------|--|---------------|----------|--------|------------|--------|--------|--------|
| From (m) | To (m) | Lithology | Sample Number | From (m) | To (m) | Length (m) | Ni% | Cu% | Co% |
| | | RQD 72.00 - 75.00 : 71.00 % RQD 100.00 % Core 75.00 - 78.00 : 86.00 % RQD 100.00 % Core 78.00 - 81.00 : 67.00 % RQD 100.00 % Core 81.00 - 84.00 : 67.00 % RQD 100.00 % Core 84.00 - 87.00 : 84.00 % RQD 100.00 % Core 87.00 - 90.00 : 78.00 % RQD 100.00 % Core MINOR INTERVALS: Minor Interval: 79.6 - 80.1 6f, Norite Fine grained, light grey, altered (?) norite containing up to 10% garnet flattened along foliation planes. Block in ultramafic? | | | | | | | |
| 87.05 | 90.25 | GAB, Gabbro Medium grained, massive to weakly foliated, light grey leuco-gabbro. Consists of 65-70% plagioclase, 30-35% pyroxene and 1-2% chlorite. Very fine grained at uphole contact; downhole contact sharp and possibly sheared at 70 degrees to CA. Magnetic susceptibility: 0.1 Conductivity: non-conductive Interpretation: Leuconorite younger and cross-cutting ultramafic rocks. Heim's series "3" rocks? RQD 90.00 - 93.00 : 76.00 % RQD 100.00 % Core | PG03090 | 87.05 | 87.60 | 0.55 | 0.0600 | 0.0700 | 0.0100 |

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| Detailed Lithology | | Lithology | Assay Data | | | | | | |
|--------------------|--------|---|---------------|----------|--------|------------|--------|--------|--------|
| From (m) | To (m) | | Sample Number | From (m) | To (m) | Length (m) | Ni% | Cu% | Co% |
| 90.25 | 136.00 | PYXT, Pyroxenite | PG03091 | 109.30 | 109.90 | 0.60 | 0.0700 | 0.0250 | 0.0200 |
| | | Medium grained dark green ultramafic ranging from oikocrystic peridotite to pyroxenite. Similar to 47.00-87.05m but with increasing pyroxene content downhole. Locally contains up to 5% disseminated po. | PG03092 | 109.90 | 110.40 | 0.50 | 0.3000 | 0.1500 | 0.0200 |
| | | 90.25-93.40m: Fine grained, pale grey, bleached/altered pyroxenite forming contact zone with uphole norite. Mag susceptibility = <1 | PG03093 | 110.40 | 111.00 | 0.60 | 0.0800 | 0.0250 | 0.0300 |
| | | 93.40-99.40m: Oikocrystic peridotite as uphole. Mag susceptibility = 30-80 | | | | | | | |
| | | 99.40-136m: Pyroxenite. Magnetic susceptibility highly variable from <1-50; averages 10-15. | | | | | | | |
| | | Non- conductive. | | | | | | | |
| | | Mineralization | | | | | | | |
| | | 109.90 - 110.40 : Po Pyrrhotite, CO Coated, 5% | | | | | | | |
| | | Structure | | | | | | | |
| | | 96.70 - 96.71 : Sm General Foliation, 45 Deg to CA | | | | | | | |
| | | 104.60 - 104.61 : Sm General Foliation, 55 Deg to CA | | | | | | | |
| | | 115.70 - 115.71 : Sm General Foliation, 52 Deg to CA | | | | | | | |
| | | 125.60 - 125.61 : Sm General Foliation, 55 Deg to CA | | | | | | | |
| | | 131.60 - 131.61 : Sm General Foliation, 50 Deg to CA | | | | | | | |
| | | RQD | | | | | | | |
| | | 93.00 - 96.00 : 86.00 % RQD 100.00 % Core | | | | | | | |
| | | 96.00 - 99.00 : 74.00 % RQD 100.00 % Core | | | | | | | |
| | | 99.00 - 102.00 : 79.00 % RQD 100.00 % Core | | | | | | | |
| | | 102.00 - 105.00 : 77.00 % RQD 100.00 % Core | | | | | | | |
| | | 105.00 - 108.00 : 72.00 % RQD 100.00 % Core | | | | | | | |
| | | 108.00 - 111.00 : 74.00 % RQD 100.00 % Core | | | | | | | |
| | | 111.00 - 114.00 : 72.00 % RQD 100.00 % Core | | | | | | | |
| | | 114.00 - 117.00 : 92.00 % RQD 100.00 % Core | | | | | | | |
| | | 117.00 - 120.00 : 84.00 % RQD 100.00 % Core | | | | | | | |
| | | 120.00 - 123.00 : 53.00 % RQD 100.00 % Core | | | | | | | |
| | | 123.00 - 126.00 : 86.00 % RQD 100.00 % Core | | | | | | | |
| | | 126.00 - 129.00 : 75.00 % RQD 100.00 % Core | | | | | | | |
| | | 129.00 - 132.00 : 97.00 % RQD 100.00 % Core | | | | | | | |
| | | 132.00 - 135.00 : 88.00 % RQD 100.00 % Core | | | | | | | |
| | | 135.00 - 136.00 : 31.00 % RQD 100.00 % Core | | | | | | | |
| | | MINOR INTERVALS: | | | | | | | |
| | | Minor Interval: | | | | | | | |
| | | 118.9 - 119.5 6f, Norite | | | | | | | |

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Samples

| Sample Number | From (m) | To (m) | Ni% | Cu% | Co% |
|---------------|----------|--------|--------|--------|--------|
| Sample Type | ASSAY | | | | |
| PG03063 | 24.50 | 25.40 | 0.0250 | 0.0250 | 0.0100 |
| PG03064 | 25.40 | 26.60 | 0.4800 | 0.4300 | 0.0400 |
| PG03065 | 26.60 | 27.70 | 0.3300 | 0.2000 | 0.0300 |
| PG03066 | 27.70 | 28.70 | 0.0800 | 0.0250 | 0.0100 |
| PG03067 | 28.70 | 29.70 | 0.0250 | 0.0250 | 0.0100 |
| PG03068 | 35.80 | 36.40 | 0.0250 | 0.0250 | 0.0100 |
| PG03069 | 36.40 | 36.70 | 0.0250 | 0.0700 | 0.0100 |
| PG03070 | 36.70 | 37.70 | 0.0250 | 0.0250 | 0.0100 |
| PG03071 | 41.80 | 42.55 | 0.0800 | 0.0800 | 0.0100 |
| PG03072 | 46.00 | 47.00 | 0.1400 | 0.0700 | 0.0100 |
| PG03073 | 47.00 | 48.00 | 0.1800 | 0.1700 | 0.0100 |
| PG03074 | 48.00 | 49.00 | 0.2500 | 0.1200 | 0.0200 |
| PG03076 | 49.00 | 50.00 | 0.2100 | 0.0800 | 0.0300 |
| PG03077 | 50.00 | 51.00 | 0.2000 | 0.0700 | 0.0100 |
| PG03078 | 51.00 | 52.00 | 0.3200 | 0.1300 | 0.0400 |
| PG03079 | 52.00 | 53.00 | 0.2300 | 0.1300 | 0.0200 |
| PG03080 | 53.00 | 54.00 | 0.2300 | 0.1100 | 0.0100 |
| PG03081 | 54.00 | 55.00 | 0.1100 | 0.0250 | 0.0200 |
| PG03082 | 55.00 | 56.00 | 0.1100 | 0.0250 | 0.0100 |
| PG03083 | 56.00 | 56.50 | 0.1600 | 0.0250 | 0.0100 |
| PG03084 | 56.50 | 57.00 | 0.1100 | 0.0250 | 0.0200 |
| PG03085 | 77.20 | 77.70 | 0.1100 | 0.0250 | 0.0100 |
| PG03086 | 77.70 | 78.00 | 0.2900 | 0.0900 | 0.0300 |
| PG03087 | 78.00 | 78.50 | 0.1300 | 0.0250 | 0.0100 |
| PG03088 | 86.00 | 86.50 | 0.1400 | 0.0250 | 0.0200 |
| PG03089 | 86.50 | 87.05 | 0.2900 | 0.0800 | 0.0300 |
| PG03090 | 87.05 | 87.60 | 0.0600 | 0.0700 | 0.0100 |
| PG03091 | 109.30 | 109.90 | 0.0700 | 0.0250 | 0.0200 |
| PG03092 | 109.90 | 110.40 | 0.3000 | 0.1500 | 0.0200 |
| PG03093 | 110.40 | 111.00 | 0.0800 | 0.0250 | 0.0300 |