

DETAILED LOG

Hole Number: ES07-66

Units: METRIC

Project Name: Norway - Espedalen	Primary Coordinates Grid: UTM84-32N	Destination Coordinates Grid: UTM:	Collar Dip: -50.10
Project Number: 201	North: 6803965.96	North: 61.37	Collar Az: 51.70
Location: Trona	East: 536448.92	East: 9.68	Length: 128.31 (m)
	Elev: 825.16	Elev: 825.16	Start Depth: 0.00 (m)
Date Started: Jun 08, 2007	Collar Survey: Y	Plugged: N	Contractor: Geo Drilling A/S
Date Completed: Jun 10, 2007	Multishot Survey: N	Hole Size: TT46	Core Storage:
Logged By: jdnor	Pulse EM Survey: N	Casing: Left in Hole, capped.	Final Depth: 128.31 (m)

Comments: Target: Surface UTEM conductor on Line 10200E (northern end of conductor).

Results: Two mineralized mafic dykes were intersected, the first from 39.55 to 40.37m and the second from 47.85 to 51.12m. Both dykes? carry from 10% to 20% Po and 1% to 3% Cpy.

A thin faulted Ultramafic was intersected from 63.20 to 65.85m, much thinner than that noted on surface.

Sample Averages

Average Type	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
WEIGHTED	48.10	51.12	3.02	0.2433	0.1927	0.0415

Detailed Lithology			Assay Data						
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
0	3.50	O/B, Overburden Casing to 3.50m							

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Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
3.50	37.15	GAB, Gabbro ANORTHOSITIC GABBRO Variable unit in bot colour and grain size. Colour varies from medium green to dark green to pale green/white (feldspar rich phases). Medium to coarse grained. Feldspathic portion weakly to moderately sericitic, while mafic component has been altered to chlorite. Minor patchy brownish-red masses - garnet?? Local anorthositic sections - dykes?, with grey interiors and white fractured margins. Fractured/faulted throughout. Local blebby or fracture controlled sulphides. 7.85 - 8.30 Coarse feldspar rich section with 20 to 25% masses (remobilized?) Po and 1% to 3% Cpy Partially broken - due to flat fracturing. 13.68 - 37.00 Predominantly a coarse grained phase of gabbro. Mafic content varies from 20 to 60% and colour from medium green to dark green. Locally broken. 18.35 - 18.90 Broken core - possible fault zone? 19.22 - 19.50 Badly broken core. 27.15 - 27.32 Badly broken core - probable fault zone. 27.75 - 28.00 Badly broken core - due to flat fracturing at 10 to 40 deg. to CA. 30.11 - 30.30 Badly broken core - possible fault zone. Mineralization 15.41 - 15.56 : PO Pyrrhotite, F Fracture Controlled, 6% Tr Cpy 7.85 - 8.30 : Cpy Chalcopyrite, BL Blebby, 2% 7.85 - 8.30 : PO Pyrrhotite, BL Blebby, 20% Structure 9.35 - 9.35 : SHR Shear, 20 Deg to CA 26.93 - 26.93 : FLT Fault, 45 Deg to CA gouge	PG07458	6.85	7.85	1.00	0.0130	0.0025	0.0080
			PG07459	7.85	8.30	0.45	0.2170	0.2630	0.0570
			PG07461	8.30	9.30	1.00	0.0090	0.0025	0.0080

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Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		<p>MINOR INTERVALS:</p> <p>Minor Interval: 4 - 4.67 ANOR, Anorthosite Anorthosite Dyke? Upper contact irregular and faulted. Pale grey interior with white fractured margins - coarse grained? 5% mafic component - chloritic blebs and on fracture surfaces. Lower contact irregular.</p> <p>Alteration 4.00 - 4.67 :Ser Sericite, P Pervasive, W Weak</p> <p>Minor Interval: 11.55 - 13.68 ANOR, Anorthosite Anorthosite Dyke? Upper contact appears gradational. Medium grey to dark grey-green and fine grained? Weakly fractured - chlorite and carbonate filled. Lower contact fractured with 15 to 20% fine Po over 3cm.</p> <p>Minor Interval: 24.26 - 25.17 MD, Mafic Dike Mafic Dyke Upper contact at 45 deg. to CA, marked by 3 to 12mm quartz-carbonate vein. Medium to dark green and fine grained. Moderately well foliated at 4 deg. to CA. 5% to 10% thin, often irregular carbonate stringers. Lower contact sharp at 60 deg. to CA.</p> <p>Alteration 24.26 - 25.17 :CHL Chlorite, P Pervasive, M Moderate</p> <p>Structure 24.26 - 24.26 : UC Upper Contact, 45 Deg to CA 25.17 - 25.17 : LC Lower Contact, 60 Deg to CA</p>							

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Detailed Lithology		Assay Data							
From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
37.15	47.85	MD, Mafic Dike	PG07462	37.70	38.70	1.00	0.0190	0.0100	0.0100
		MAFIC DYKE/GABBRO (MIXED)	PG07463	38.70	39.10	0.40	0.0720	0.1330	0.0530
		Predominantly a dark green chloritic section (mafic dykes) with patches and sections of medium to coarse mottled gabbro.	PG07464	39.10	39.55	0.45	0.0230	0.0150	0.0070
		Often difficult to place contacts - mottled gabbro sections - wall rock inclusions? 10 to 20% feldspathic component overall - moderately sericitic.	PG07465	39.55	40.00	0.45	0.2530	0.2020	0.0460
		Moderately to strongly chloritic throughout.	PG07466	40.00	40.40	0.40	0.1330	0.0940	0.0320
		Mafic dykes often have 2% to 5% thin irregular carbonate stringers.	PG07467	40.40	41.40	1.00	0.0420	0.0310	0.0120
		Local Py/Po masses - fracture controlled.	PG07468	41.40	42.00	0.60	0.0280	0.0260	0.0110
		Weakly magnetic - Mag Sus readings vary from 0.30 to 1.50.	PG07469	42.00	43.00	1.00	0.0210	0.0090	0.0080
		Locally sheared/ractured.	PG07470	43.00	43.40	0.40	0.0560	0.0520	0.0150
		38.17 - 39.30 Section with 2% to 5% masses Py/Po - in part fracture controlled.	PG07471	43.40	44.40	1.00	0.0200	0.0110	0.0080
		Locally more pyritic sections occur with gabbroic wall-rock inclusions.	PG07472	46.35	47.35	1.00	0.0200	0.0110	0.0080
		40.66 - 41.22 Dark green medium grained section with 2% to 3% fracture controlled Py, 1% to 2% disseminated Po and Tr Cpy.	PG07473	47.35	47.85	0.50	0.0180	0.0110	0.0090
		41.85 - 42.00 Mottled section with 5% to 10% masses (fracture controlled) Po and Tr Cpy.							
		Mineralization							
		42.80 - 44.35 : PY Pyrite, F Fracture Controlled, 1%							
		42.80 - 44.35 : PO Pyrrhotite, F Fracture Controlled, 2% Tr Cpy							
		41.85 - 42.00 : PO Pyrrhotite, F Fracture Controlled, 8% Tr Cpy							
		40.66 - 41.22 : PO Pyrrhotite, DIS Disseminated, 1% Tr Cpy							
		40.66 - 41.22 : PY Pyrite, F Fracture Controlled, 2%							
		38.17 - 39.30 : PY Pyrite, F Fracture Controlled, 3%							
		38.17 - 39.30 : PO Pyrrhotite, F Fracture Controlled, 2%							
		Alteration							
		37.15 - 47.85 :Ser Sericite, F Fracture Controlled, W Weak							
		37.15 - 47.85 :CHL Chlorite, P Pervasive, M Moderate							

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From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
		<p>MINOR INTERVALS: Minor Interval: 39.55 - 40.37 MD, Mafic Dike Mineralized Dyke Upper contact at 75 deg. to CA - appears gradational. Medium to dark grey and fine to medium grained. Distinct feldspathic component - wall rock inclusions? Carries from 15% to 20% disseminated/masss Po, 1% fracture controlled Cpy and minor Py. 5% rounded (1 to 2mm) grey quartz phenocrysts? Lower contact appears gradational with a colour change and loss of sulphides. Mineralization 39.55 - 40.37 : Cpy Chalcopyrite, TR Trace, 0.5% 39.55 - 40.37 : PO Pyrrhotite, BL Blebby, 15% Structure 39.55 - 39.55 : UC Upper Contact, 75 Deg to CA</p>							
47.85	51.12	<p>MD, Mafic Dike MINERALIZED MAFIC DYKE Upper contact sharp at 75 deg. to CA. Medium to dark grey to grey-green and fine to medium grained. Relatively massive. 2% to 5% rounded bluish quartz phenocrysts? 20% medium grained feldspathic component. 10% to 20% fracture controlled and net textured Po and 1% fracture controlled Cpy. 5% mottled gabbroic inclusions - adjacent to contacts. Minor chloritic filled fractures. Lower contact sheared at 45 to 60 deg. to CA. Mineralization 47.85 - 51.12 : Cpy Chalcopyrite, F Fracture Controlled, 1% 47.85 - 51.12 : PO Pyrrhotite, Net Net Textured, 15% Structure 47.85 - 47.85 : UC Upper Contact, 75 Deg to CA sharp 51.12 - 51.12 : LC Lower Contact, 50 Deg to CA sheared</p>	PG07474	47.85	48.10	0.25	0.0680	0.0630	0.0140
			PG07475	48.10	48.50	0.40	0.1820	0.1090	0.0350
			PG07476	48.50	49.00	0.50	0.2570	0.3290	0.0400
			PG07477	49.00	49.50	0.50	0.2340	0.1600	0.0410
			PG07478	49.50	50.00	0.50	0.3260	0.2530	0.0530
			PG07479	50.00	50.50	0.50	0.2800	0.1870	0.0440
			PG07481	50.50	51.12	0.62	0.1830	0.1190	0.0360

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From (m)	To (m)	Lithology	Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
51.12	58.40	MD, Mafic Dike	PG07482	51.12	51.50	0.38	0.0260	0.0220	0.0080
		MAFIC DYKE/Gabbr (MIXED)	PG07483	51.50	52.00	0.50	0.0330	0.0200	0.0100
		Similar to unit from 37.15 to 47.85m	PG07484	52.00	53.00	1.00	0.0400	0.0320	0.0150
		Predominantly a dark green fine grained chloritic mafic dyke with patches and sections of mottled gabbro (wall rock inclusions?).	PG07485	53.00	54.00	1.00	0.0200	0.0160	0.0090
		Local patchy masses sulphides - predominantly fracture controlled and locally associated with gabbroic inclusions.	PG07486	54.00	54.75	0.75	0.0100	0.0050	0.0050
		Moderately to strongly chloritic.	PG07487	54.75	55.25	0.50	0.0340	0.0240	0.0130
		2% to 3% thin carbonate stringers or "gashes"	PG07488	55.25	55.80	0.55	0.0850	0.0530	0.0210
		Local, but very minor masses brown-red garnet.	PG07489	55.80	56.80	1.00	0.0190	0.0100	0.0060
			PG07490	56.80	57.50	0.70	0.0290	0.0160	0.0090
		52.20 - 52.85 Section with 1% to 2% masses Po (fracture controlled) and 2% to 3% masses Py - associated with gabbroic inclusions.							
		53.90 - 55.15 Predominantly a mottled gabbro with local, but minor fracture controlled Py.							
		55.15 - 55.80 Medium to dark green mafic dyke with 2% to 5% disseminated and fracture controlled Po.							
		58.02 - 58.40 Contorted Mafic dyke - with 10% to 15% quartz carbonate veining. 2% to 3% masses Py.							
		Mineralization							
		58.02 - 58.40 : PY Pyrite, F Fracture Controlled, 2%							
		56.80 - 57.20 : PY Pyrite, BL Blebby, 1%							
		56.80 - 57.20 : PO Pyrrhotite, BL Blebby, 2%							
		55.15 - 55.80 : PO Pyrrhotite, F Fracture Controlled, 3%							
		52.20 - 52.85 : PY Pyrite, BL Blebby, 3%							
		52.20 - 52.85 : PO Pyrrhotite, F Fracture Controlled, 2%							
		51.12 - 51.85 : PO Pyrrhotite, DIS Disseminated, 2%							
		Tr Cpy							
		Alteration							
		51.12 - 58.40 :CHL Chlorite, P Pervasive, M Moderate							

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From (m)	To (m)		Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
58.40	63.20	FLT, Fault FAULT ZONE Mixed section, composed primarily of mottled gabbro and mafic dyking. Sheared throughout, with several zones of fault gouge. Mafic dyking sheared and partially replaced by Ca-carbonate flooding and locally fine Po. 58.40 - 59.10 Mottled gabbro - partially tectonized. 59.10 - 59.60 Fault gouge - originally mottled gabbro, now a fault breccia. 59.60 - 61.95 Mixed mottled gabbro/ mafic dyking - tectonized throughout. Fabrc - shearing at 40 to 45 deg. to CA. Local bands - fracture controlled Po and/or Py 61.95 - 63.20 Mafic dyke with 10% to 60% white to pale grey Ca-carbonate stringers and masses. Local fine disseminated Po. Structure 62.15 - 62.15 : G Gouge, 75 Deg to CA 63.18 - 63.18 : G Gouge, 70 Deg to CA	PG07491	60.70	61.70	1.00	0.0500	0.0350	0.0140
			PG07492	61.70	62.17	0.47	0.0430	0.0320	0.0090
			PG07493	62.17	62.60	0.43	0.1080	0.0870	0.0250
			PG07494	62.60	63.20	0.60	0.0890	0.0200	0.0120
63.20	65.85	UM, Ultramafic ULTRAMAFIC Upper contact faulted. Dark grey to very dark grey-blue and medium to coarse grained. Pyroxenite? Strongly magnetic - Mag Sus readings vary from 20.0 to 37.0. Moderately serpentinous. 1% to 3% thin (to 1.5cm) carbonate veining. 1% fine disseminated Po. @ 63.20, A 15 to 20mm massive sulphide band at 70 to 75 deg. to CA. 60% Po, 5% to 10% Cpy and 1% Pn? - remainder rounder ultramafic fragments. Alteration 63.20 - 65.85 :SERP Serpentine, P Pervasive, M Moderate	PG07495	63.20	63.50	0.30	0.2130	0.2120	0.0190

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From (m)	To (m)		Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
75.13	100.05	ANOR, Anorthosite ANORTHOSITE Pale grey to grey-green and fine grained? Local short mottled gabbro sections. Minor mafic dyking. Moderately fractured throughout - with chloritic surfaces. Moderately sericitic - fracture controlled. Mafic component - chloritite blebs, varies from 5% to 15% increasing down hole. 92.10 to 100.05 Predominantly a very coarse grained mottled anorthositic gabbro to anorthosite. Predominantly medium grey in colour. Alteration 75.13 - 100.05 :CHL Chlorite, H Patchy, W Weak 75.13 - 100.05 :Ser Sericite, F Fracture Controlled, W Weak							

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From (m)	To (m)		Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
100.05	121.30	GAB, Gabbro	PG07496	102.70	103.70	1.00	0.0090	0.0050	0.0050
		ANORTHOSITIC GABBRO	PG07497	103.70	104.00	0.30	0.5590	0.4390	0.0730
		Variable unit ranging from a very coarse grained mottled grey/dark green gabbro to a medium grained mottled gabbro.	PG07498	104.00	105.00	1.00	0.0420	0.0230	0.0080
		Feldspathic component - weakly sericitic.	PG07499	105.00	106.00	1.00	0.0220	0.0150	0.0080
		10% to 40% mafic component - all altered to chlorite.							
		Local bands massive sulphide, varying from 1.0cm to 10cm in core length.							
		weak fabric (foliation) at 70 to 75 deg. to CA.							
		Moderately fractured throughout.							
		101.30 - 101.30 Section with 2% to 3% Cpy and 2% to 3% Po - remobilized stringer.							
		@ 101.95, A 5 to 15mm massive Po stringer at approximately 60 deg. to CA with Tr Cpy.							
		104.78 - 104.90 Massive sulphide breccia							
		Upper contact at 40 to 45 deg. to CA - sheared.							
		80% Po, 2% to 3% Py? and 1% to 2% Cpy with 15 rounded wall rock inclusions.							
		Lower contact irregular.							
		104.90 - 106.12 Section with 15% to 20% dark grey-black bands and patches - pyroxenitic?							
		Carry 1% to 2% disseminated Po.							
		@114.50m A 20mm massive sulphide band (breccia) within 40 to 50mm pyroxenitic dyke.							
		Overall 20% to 30% Po and Tr Cpy.							
		114.55 - 119.00 Section with patches/bands dark grey pyroxenite, which carry 2% to 3% disseminated/blebby Po.							
		Mineralization							
		104.78 - 104.90 : PY Pyrite, M Massive, 3%							
		104.78 - 104.90 : Cpy Chalcopyrite, M Massive, 2%							
		104.78 - 104.90 : PO Pyrrhotite, M Massive, 60%							
		101.30 - 101.40 : PO Pyrrhotite, F Fracture Controlled, 2%							
		101.30 - 101.40 : Cpy Chalcopyrite, F Fracture Controlled, 2%							
		Alteration							
		100.05 - 121.30 :CHL Chlorite, H Patchy, M Moderate							
		100.05 - 121.30 :Ser Sericite, F Fracture Controlled, W Weak							

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Detailed Lithology		Lithology	Assay Data						
From (m)	To (m)		Sample Number	From (m)	To (m)	Length (m)	Ni%	Cu%	Co%
121.30	128.30	ANOR, Anorthosite ANORTHOSITE Medium to dark grey to grey-green and fine grained. 5% to 15% mafic component - altered to chlorite. Feldspathic component weakly sericitic. Moderately fractured - with chloritic surfaces. Minor carbonate filled gashes. Local, but very minor blebby Po. Alteration 121.30 - 128.30 :CHL Chlorite, H Patchy, M Moderate 121.30 - 128.30 :Ser Sericite, F Fracture Controlled, W Weak							
128.30	128.31	EOH, End of Hole							

Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type	ASSAY				
PG07458	6.85	7.85	0.0130	0.0025	0.0080
PG07459	7.85	8.30	0.2170	0.2630	0.0570
PG07461	8.30	9.30	0.0090	0.0025	0.0080
PG07462	37.70	38.70	0.0190	0.0100	0.0100
PG07463	38.70	39.10	0.0720	0.1330	0.0530
PG07464	39.10	39.55	0.0230	0.0150	0.0070
PG07465	39.55	40.00	0.2530	0.2020	0.0460
PG07466	40.00	40.40	0.1330	0.0940	0.0320
PG07467	40.40	41.40	0.0420	0.0310	0.0120
PG07468	41.40	42.00	0.0280	0.0260	0.0110
PG07469	42.00	43.00	0.0210	0.0090	0.0080
PG07470	43.00	43.40	0.0560	0.0520	0.0150
PG07471	43.40	44.40	0.0200	0.0110	0.0080
PG07472	46.35	47.35	0.0200	0.0110	0.0080
PG07473	47.35	47.85	0.0180	0.0110	0.0090
PG07474	47.85	48.10	0.0680	0.0630	0.0140
PG07475	48.10	48.50	0.1820	0.1090	0.0350
PG07476	48.50	49.00	0.2570	0.3290	0.0400
PG07477	49.00	49.50	0.2340	0.1600	0.0410
PG07478	49.50	50.00	0.3260	0.2530	0.0530
PG07479	50.00	50.50	0.2800	0.1870	0.0440
PG07481	50.50	51.12	0.1830	0.1190	0.0360
PG07482	51.12	51.50	0.0260	0.0220	0.0080

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Samples

Sample Number	From (m)	To (m)	Ni%	Cu%	Co%
Sample Type	ASSAY				
PG07483	51.50	52.00	0.0330	0.0200	0.0100
PG07484	52.00	53.00	0.0400	0.0320	0.0150
PG07485	53.00	54.00	0.0200	0.0160	0.0090
PG07486	54.00	54.75	0.0100	0.0050	0.0050
PG07487	54.75	55.25	0.0340	0.0240	0.0130
PG07488	55.25	55.80	0.0850	0.0530	0.0210
PG07489	55.80	56.80	0.0190	0.0100	0.0060
PG07490	56.80	57.50	0.0290	0.0160	0.0090
PG07491	60.70	61.70	0.0500	0.0350	0.0140
PG07492	61.70	62.17	0.0430	0.0320	0.0090
PG07493	62.17	62.60	0.1080	0.0870	0.0250
PG07494	62.60	63.20	0.0890	0.0200	0.0120
PG07495	63.20	63.50	0.2130	0.2120	0.0190
PG07496	102.70	103.70	0.0090	0.0050	0.0050
PG07497	103.70	104.00	0.5590	0.4390	0.0730
PG07498	104.00	105.00	0.0420	0.0230	0.0080
PG07499	105.00	106.00	0.0220	0.0150	0.0080