Bergvesenet
Postboks 3021, N-7441 Trondheim

Rapportarkivet

Bergvesenet rapport nr	Intern Journal nr	Internt arkiv nr	Rapport lokalisering	Gradering
BV 4852	06/00131-12			**Fortrolig**
Kommer fra ..arkiv	Ekstern rapport nr 06009	Oversendt fra Sulfidmalm a.s.	Fortrolig pga Muting	Fortrolig fra dato:

Tittel

Fugro Airborne Surveys: Dighem Survey for Sulfidmalm AS, Norway, Map volume 2 of 3

Forfatter	Dato År	Bedrift (Oppdragsgiver og/eller oppdragstaker)
Garrie, Douglas	01.06 2006	Sulfidmalm A/S Dighem Fugro Airborne Survey

Kommune	Fylke	Bergdistrikt	1: 50 000 kartblad	1: 250 000 kartblad
Ringerike Bamble Evje	Aust-Agder Buskerud Telemark		17141 17144 17151 17152 18153 18154	Arendal Telemark Mandal

Fagområde	Dokument type	Forekomster (forekomst, gruvefelt, undersøkelsesfelt)
Geofysikk		Ertelien Bamble Evje
Råstoffgruppe	**Råstofftype**	
Malm/metall	Ni	

Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

MAPS
for
FUGRO Report #06009

2006 DIGHEM Survey,
REF: 1714 I, IV; 1715 I, II; 1815 III, IV
Norway

2 of 3

TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM^V

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	<1 siemens
–	✳	Questionable anomaly

Anomaly identifier

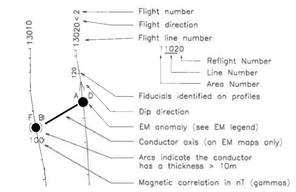
Interpretive symbol

Inphase and Quadrature of coaxial coil is greater than
- . 5 ppm
- .. 10 ppm
- ... 15 ppm
- .... 20 ppm

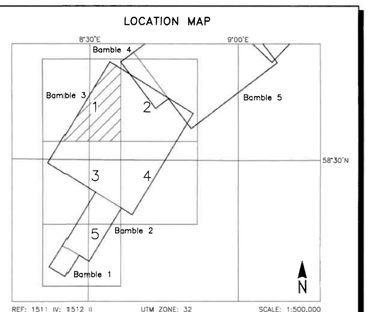
Depth is greater than
- : 15 m
- : 30 m
- : 45 m
- : 60 m

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP



SULFIDMALM A/S

BAMBLE 1-3 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

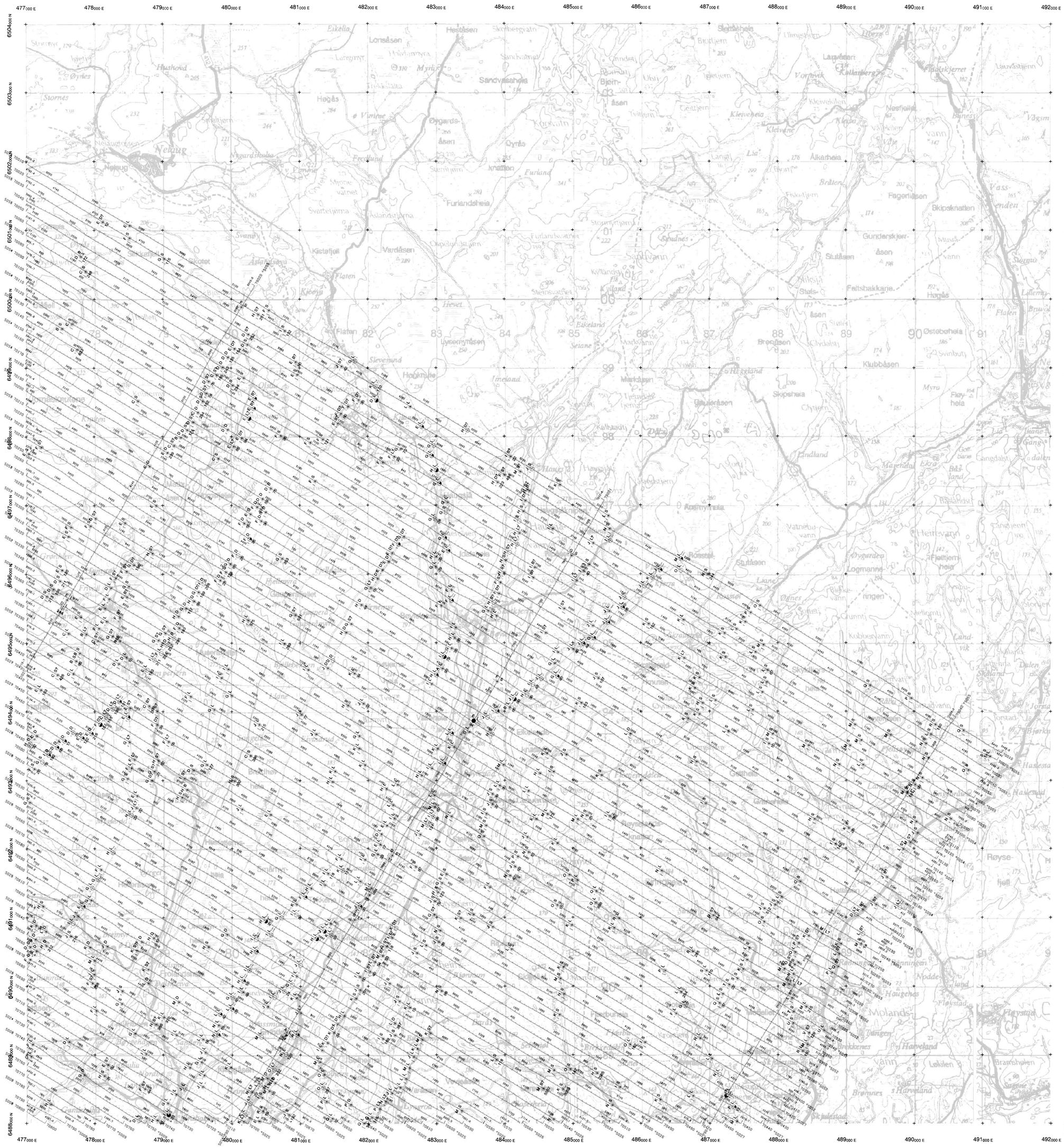
FUGRO DIGHEM^V SURVEY	REF: see location map	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 1
Fugro Airborne Surveys		

0 1 2 Km

0 1 Mi

Scale 1:20 000

FUGRO AIRBORNE SURVEYS



TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

ELECTROMAGNETIC ANOMALIES

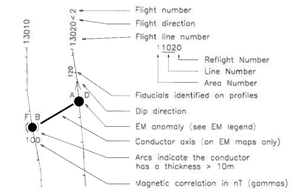
Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50-100 siemens
5	◒	20-50 siemens
4	◔	10-20 siemens
3	◍	5-10 siemens
2	○	1-5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

Anomaly identifier
Interpretive symbol
Depth is greater than
- 15 m
- 30 m
- 45 m
- 60 m

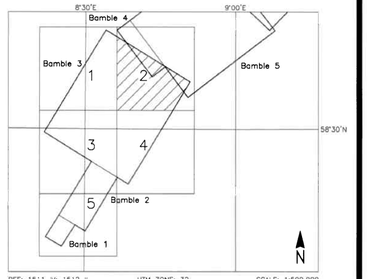
Inphase and Quadrature of coaxial coil is greater than
- 5 ppm
- 10 ppm
- 15 ppm
- 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP



REF: 1511 IV; 1512 II
1611 IV; 1612 III

UTM ZONE: 32
WGS84

SCALE: 1:500,000

SULFIDMALM A/S
BAMBLE 1-3 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM+ SURVEY	REF: see location map	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 2

Fugro Airborne Surveys

0 1 2 Km
0 1 MI
Scale 1:20 000

FUGRO AIRBORNE SURVEYS

TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM⁴

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊖	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

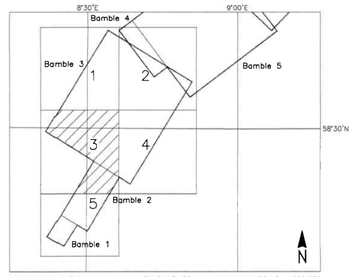
Anomaly identifier; Interpretive symbol; Depth is greater than: 15 m, 30 m, 45 m, 60 m; Inphase and Quadrature of coaxial coil is greater than: 5 ppm, 10 ppm, 15 ppm, 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES

Flight number; Flight direction; Flight line number: 1020 (Reflight Number, Line Number, Area Number); Fiducials identified on profiles; Dip direction; EM anomaly (see EM legend); Conductor axis (on EM maps only); Arcs indicate the conductor has a thickness > 10m; Magnetic correlation in nT (gammas)

LOCATION MAP



SULFIDMALM A/S
BAMBLE 1–3 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM⁴ SURVEY	REF: see location map	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 3
Fugro Airborne Surveys		

0 2 Km
0 1 Mi
Scale 1:20 000

FUGRO

FUGRO AIRBORNE SURVEYS

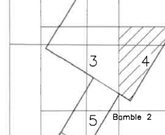
TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM^V

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

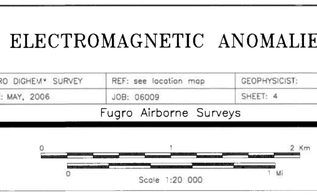
ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊖	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly



Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP

SULFIDMALM A/S
BAMBLE 1–3 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM^V SURVEY	REF: see location map	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 4

Fugro Airborne Surveys

0 1 2 Km
0 1 Mi
Scale 1:20 000

FUGRO AIRBORNE SURVEYS

462000 E 463000 E 464000 E 465000 E 466000 E 467000 E 468000 E 469000 E 470000 E 471000 E 472000 E 473000 E 474000 E 475000 E 476000 E 477000 E

6472000 N 6471000 N 6470000 N 6469000 N 6468000 N 6467000 N 6466000 N 6465000 N 6464000 N 6463000 N 6462000 N 6461000 N 6460000 N

TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM^V

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

N

ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	<1 siemens
–	✳	Questionable anomaly

Anomaly identifier

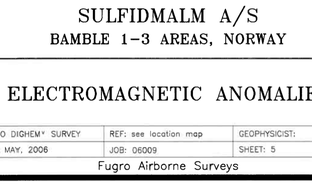
Interpretive symbol

Depth is greater than
: 15 m
: 30 m
: 45 m
: 60 m

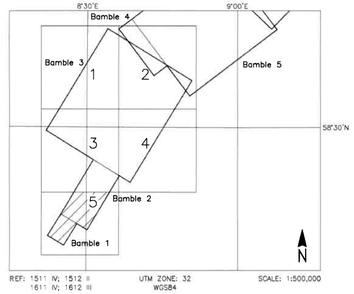
Inphase and Quadrature of coaxial coil is greater than
.. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP



SULFIDMALM A/S
BAMBLE 1-3 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM^V SURVEY	REF: see location map	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 5

Fugro Airborne Surveys

0 1 2 Km
0 1 MI
Scale 1:20 000

FUGRO

FUGRO AIRBORNE SURVEYS

TECHNICAL SUMMARY

Navigation . . . . . Differentially-corrected GPS
Data reduction grid interval . . . 30 metres
Terrain clearance . . . . . Helicopter 57 m
Electromagnetic sensor 30 m
Magnetometer 30 m
Data sampling interval . . . . . 0.1 second
Magnetics system / separation . . Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity . . . . Cesium / 0.01 nT
Electromagnetic system . . . . DIGHEM^V

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

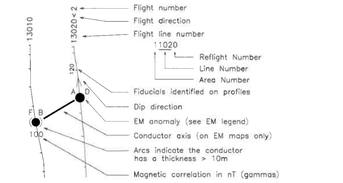
ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7		>100 siemens
6		50–100 siemens
5		20–50 siemens
4		10–20 siemens
3		5–10 siemens
2		1–5 siemens
1		<1 siemens
–		Questionable anomaly

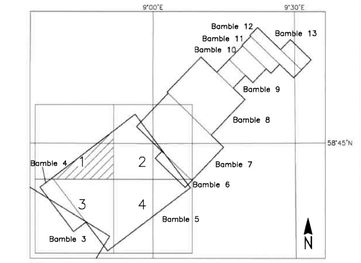
Anomaly identifier — Interpretive symbol — Depth is greater than: . 15 m; : 30 m; ¦ 45 m; ¦ 60 m — Inphase and Quadrature of coaxial coil is greater than: . 5 ppm; .. 10 ppm; ... 15 ppm; .... 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP



SULFIDMALM A/S
BAMBLE 4–5 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM^V SURVEY	REF: 1612 I,II,III,IV	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 1

Fugro Airborne Surveys

0 1 2 Km
0 1 MI
Scale 1:20 000

FUGRO AIRBORNE SURVEYS

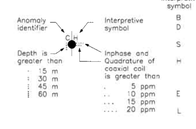
TECHNICAL SUMMARY

Navigation . . . . . Differentially-corrected GPS
Data reduction grid interval . . . . 30 metres
Terrain clearance . . . . . Helicopter 57 m
Electromagnetic sensor 30 m
Magnetometer 30 m
Data sampling interval . . . . . 0.1 second
Magnetics system / separation . . Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity . . . . Cesium / 0.01 nT
Electromagnetic system . . . . . DIGHEM⁵

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

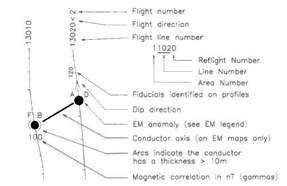
ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	◌	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

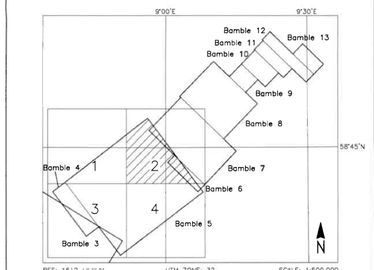


Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP



SULFIDMALM A/S

BAMBLE 4–5 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM⁵ SURVEY	REF: 1612 I,II,III,IV	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 2

Fugro Airborne Surveys

0 1 2 Km
0 1 Mi
Scale 1:20 000

FUGRO AIRBORNE SURVEYS

TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m
	Electromagnetic sensor 30 m
	Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM*

Frequency	Sensitivity	Coil Orientation
1000 Hz	.05 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

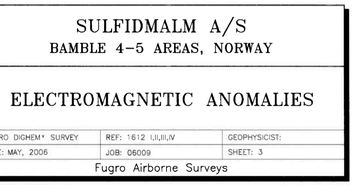
ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
?	◌	< 1 siemens
–	✳	Questionable anomaly

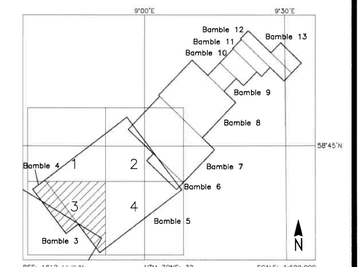
Anomaly identifier
Depth is greater than
: 15 m
: 30 m
: 45 m
: 60 m
Interpretive symbol
Inphase and Quadrature of coaxial coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
C	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP



SULFIDMALM A/S
BAMBLE 4–5 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM* SURVEY	REF: 1612 I,II,III,IV	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 3

Fugro Airborne Surveys

0 1 2 Km
0 1 Mi
Scale 1:20 000

FUGRO

FUGRO AIRBORNE SURVEYS

TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m
	Electromagnetic sensor 30 m
	Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM⁵

Frequency	Sensitivity	Coil Orientation
1000 Hz	.05 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

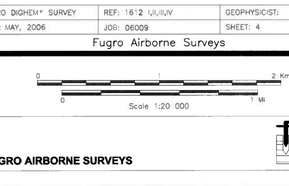
ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊞	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

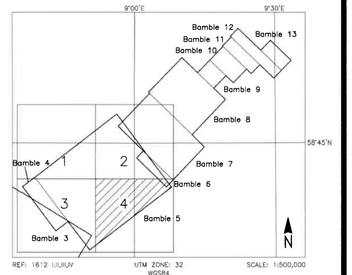
Anomaly identifier
Interpretive symbol
Depth is greater than
: 15 m
: 30 m
: 45 m
: 60 m
Inphase and Quadrature of coaxial coil is greater than
. 5 ppm
.. 10 ppm
... 15 ppm
.... 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP



SULFIDMALM A/S
BAMBLE 4–5 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM⁵ SURVEY	REF: 1612 I,II,III,IV	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 4

Fugro Airborne Surveys

0 1 2 Km
0 1 Mi
Scale 1:20 000

FUGRO AIRBORNE SURVEYS

TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM⁴

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

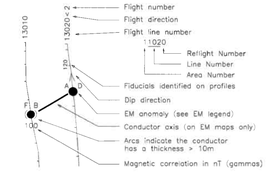
ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	×	Questionable anomaly

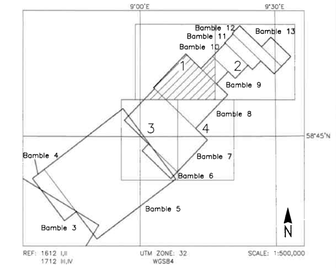


Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP



SULFIDMALM A/S

BAMBLE 6–13 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM⁴ SURVEY	REF: 1612 I,II; 1712 III,IV	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 1
Fugro Airborne Surveys		

Scale 1:20 000

FUGRO AIRBORNE SURVEYS

TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM*

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊖	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

Anomaly identifier

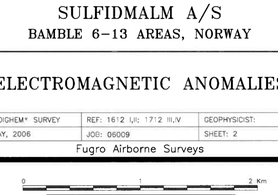
Interpretive symbol

Depth is greater than
- . 15 m
- : 30 m
- ⁞ 45 m
- ⁝ 60 m

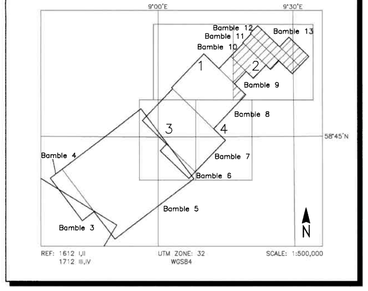
Inphase and Quadrature of coaxial coil is greater than
- . 5 ppm
- .. 10 ppm
- ... 15 ppm
- .... 20 ppm

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP



SULFIDMALM A/S

BAMBLE 6–13 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM* SURVEY	REF: 1612 I,II; 1712 III,IV	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 2
Fugro Airborne Surveys		

0 1 2 Km
0 1 MI
Scale 1:20 000

FUGRO AIRBORNE SURVEYS

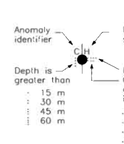
TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM⁴

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

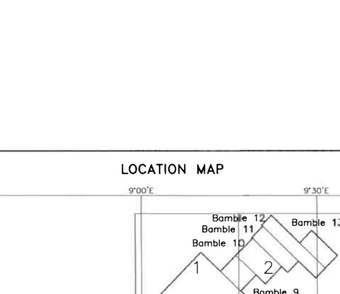
ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly



Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



SULFIDMALM A/S

BAMBLE 6–13 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM⁴ SURVEY	REF: 1612 I,II; 1712 III,IV	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 3
Fugro Airborne Surveys		

0 1 2 Km
0 1 Mi
Scale 1:20 000

FUGRO AIRBORNE SURVEYS

TECHNICAL SUMMARY

Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM^V

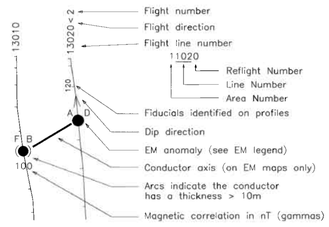
Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

ELECTROMAGNETIC ANOMALIES

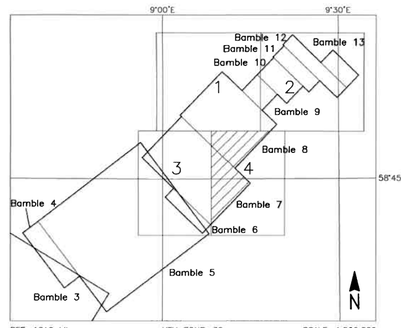
Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

Interpretive symbol	Conductor ("model")
B	Bedrock conductor
D	Narrow bedrock conductor ("thin dike")
S	Conductive cover ("horizontal thin sheet")
H	Broad conductive rock unit, deep conductive weathering, thick conductive cover ("half space")
E	Edge of broad conductor ("edge of half space")
L	Culture, e.g. power line, metal building or fence

FLIGHT LINES WITH EM ANOMALIES



LOCATION MAP



SULFIDMALM A/S

BAMBLE 6–13 AREAS, NORWAY

ELECTROMAGNETIC ANOMALIES

FUGRO DIGHEM^V SURVEY	REF: 1612 I,II; 1712 III,IV	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 4

Fugro Airborne Surveys

0 1 2 Km
0 1 Mi
Scale 1:20 000

FUGRO AIRBORNE SURVEYS

TECHNICAL SUMMARY

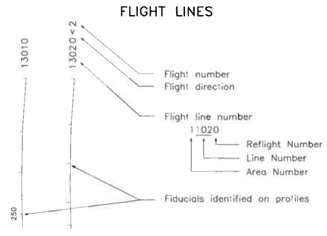
Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM^V

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

FLIGHT LINES

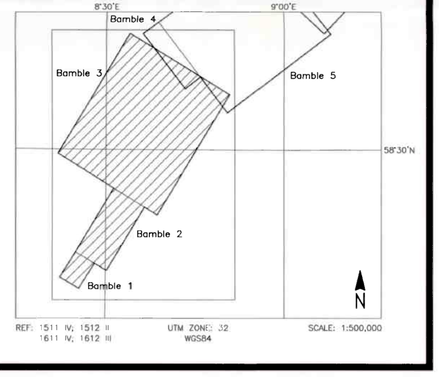


EM INPHASE & QUADRATURE PROFILES

Coaxial inphase 5 ppm/mm

Coaxial quadrature 5 ppm/mm

LOCATION MAP



SULFIDMALM A/S

BAMBLE 1–3 AREAS, NORWAY

EM COLOUR PROFILES (1000 Hz Coaxial)

FUGRO DIGHEM^V SURVEY	REF: see location map	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 1

Fugro Airborne Surveys

0 1 2 3 4 5 Km

0 1 2 3 Mi

Scale 1:50 000

FUGRO AIRBORNE SURVEYS

TECHNICAL SUMMARY

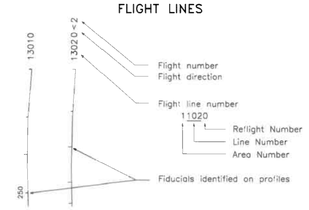
Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM^V

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50-100 siemens
5	◑	20-50 siemens
4	◔	10-20 siemens
3	⊕	5-10 siemens
2	○	1-5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

FLIGHT LINES

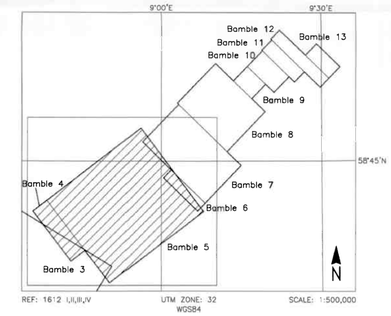


EM INPHASE & QUADRATURE PROFILES

Coaxial inphase 5 ppm/mm

Coaxial quadrature 5 ppm/mm

LOCATION MAP



SULFIDMALM A/S

BAMBLE 4-5 AREAS, NORWAY

EM COLOUR PROFILES (1000 Hz Coaxial)

FUGRO DIGHEM^V SURVEY	REF: 1612 I,II,III,IV	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 1

Fugro Airborne Surveys

0 1 2 3 4 5 Km

0 1 2 3 Mi

Scale 1:50 000

FUGRO AIRBORNE SURVEYS

TECHNICAL SUMMARY

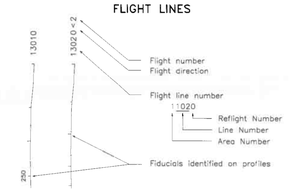
Navigation	Differentially-corrected GPS
Data reduction grid interval	30 metres
Terrain clearance	Helicopter 57 m Electromagnetic sensor 30 m Magnetometer 30 m
Data sampling interval	0.1 second
Magnetics system / separation	Dual sensor horizontal gradiometer / 5 m
Magnetometer / sensitivity	Cesium / 0.01 nT
Electromagnetic system	DIGHEM⁴

Frequency	Sensitivity	Coil Orientation
1000 Hz	.06 ppm	Vertical coaxial
5500 Hz	.12 ppm	Vertical coaxial
900 Hz	.12 ppm	Horizontal coplanar
7200 Hz	.24 ppm	Horizontal coplanar
56000 Hz	.60 ppm	Horizontal coplanar

ELECTROMAGNETIC ANOMALIES

Grade	Anomaly	Conductance
7	●	>100 siemens
6	◕	50–100 siemens
5	◑	20–50 siemens
4	◔	10–20 siemens
3	⊕	5–10 siemens
2	○	1–5 siemens
1	◌	< 1 siemens
–	✳	Questionable anomaly

FLIGHT LINES

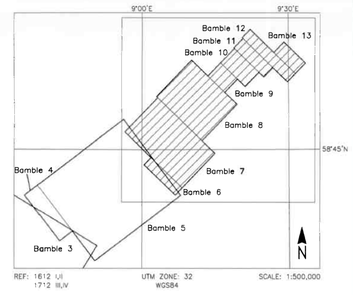


EM INPHASE & QUADRATURE PROFILES

Coaxial inphase 5 ppm/mm

Coaxial quadrature 5 ppm/mm

LOCATION MAP



SULFIDMALM A/S

BAMBLE 6–13 AREAS, NORWAY

EM COLOUR PROFILES (1000 Hz Coaxial)

FUGRO DIGHEM⁴ SURVEY	REF: 1612 I,II; 1712 III,IV	GEOPHYSICIST:
DATE: MAY, 2006	JOB: 06009	SHEET: 1

Fugro Airborne Surveys

0 1 2 3 4 5 Km

0 1 2 3 Mi

Scale 1:50 000

FUGRO AIRBORNE SURVEYS