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Kommer fra arkiv Grong Gruber AS	Ekstern rapport nr Devico P.nr. 148	Oversendt fra Grong Gruber a.s.	Fortrolig pga	Fortrolig fra dato:

Titel

Avviksmålinger Skiftemyr og Godejord

Forfatter By, Edvind	Dato År 13.11 1992	Bedrift (oppdragsgiver og/eller oppdragstaker) Grong Gruber A/S
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Kommune Røyrvik	Fylke Nord-Trøndelag	Bergdistrikt 1: 50 000 kartblad 1924 1	1: 250 000 kartblad Grong
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Fagområde Boring	Dokument type	Forekomster (forekomst, gruvefelt, undersøkelsesfelt) Grong feltet
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Råstoffgruppe Malm/metall	Råstofftype Cu, Zn
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Sammendrag, innholdsfortegnelse eller innholdsbeskrivelse

Avviksmålinger

DEVICO

NORWAY

Nedre Ila 39 - Boks 3571, Ilevollen
7002 Trondheim

Oversendes/Forwarded

16 NOV. 1992

Rapporter & koordinatlist
fra avviksmåling Skiftesmyr
og Godegjord Høsten -92

Trondheim, den 13/11-92

Edvin By

Underskrift

Norsulfid AS
Brøsetv. 168
P.boks 1954 Moholt
7002 Trondheim

☐ Ifølge avtale
As agreed

☐ I.h.t. Deres/vårt brev
Ref. your/our letter

☐ Til orientering
For your information

☐ Til uttalelse
Your comments, please

☐ Takk for lånet
Returned with compliments

☐ Til godkjenning
For approval

☐ Bes returnert
Please return

☐

RAPPORT

AVVIKSMÅLING

SKIFTESMYR OG GODEJORD

HØSTEN -- 92

PROSJ. NR: 148



DIRECTIONAL DRILLING

DEVIATION MEASUREMENT



Rapportnummer

Gradering

Fortrolig

Nedre Ila 39
Boks 3571, Ilevollen
7002 Trondheim

Telefon: 47- 7 52 90 06
Telefax: 47- 7 52 83 70

Mobiltilf. 090 26 204 Bankgiro:
3601.06.28565

Rapportens tittel	Dato
AVVIKSMÅLING SKIFTESMYR OG GODEJORD	09.11.92
	Antall sider og bilag
	3 + 36
Saksbehandler/forfatter	Ansv. sign.
Siv.ing. Edvind By	Edvind By
Avviksmåling	Prosjektnummer
	148
ISBN nr.	Prisgruppe

Oppdragsgiver	Oppdragers ret.
Norsulfid AS	M. Rostad

Ekstrakt
Avviksmåling og beregning av:
SKF 114 SKF 141 GDJ 111
" 118 " 142 " 112
" 123 " " 113
" 133 " " 114
" 134 " " 115
" 135 " " 116
" 136 " " 117
" 137
" 139

Stikkord på norsk

Indexing Terms: English

Gruppe 1

Gruppe 2

Egenvalgte
stikkord

Avviksmåling

FORORD

Devico AS har utført avviksmåling i borehull for Norsulfid AS. Denne rapporten omfatter måling av 11 borehull på Skiftesmyr og 7 borehull på Godejord. Målingene ble gjennomført 10. og 11. september 1992.

Koordinatsystem.

Det er ikke oppgitt startkoordinater for noen av borehullene. I våre beregninger er derfor hvert hull beskrevet i et lokalt koordinatsystem hvor toppen av borehullet er valgt som referansepunkt ($X=Y=0$). Høydekoordinat for topp borehull er blitt oppgitt for de fleste hull. Der hvor dette ikke er tilfelle er topp borehull angitt som $Z=0$.

Koordinatsystemet er orientert med den positive X-akse mot nord og den positive Y-akse mot øst.

Avviksmåling.

Selve målingen er utført for hver 5. meter ned til 15.5 meter. Deretter er det målt for hver tiende meter så langt ned det er mulig å komme i hullet.

Avviksmålingene er utført med Eastman Multiple Shot Survey Instrument, som er et filmbasert kompass-, inklinometerinstrument for bestemmelse av borehullets retning og fall i bestemte dybdeintervall.

Målesonden ligger i en pressure barrel føres ned i borehullet ved hjelp av wire og vinsj. Nærmest selve måleinstrumentet benyttes en wire som ikke påvirker det magnetiske kompasset.

Følgende utstyr er benyttet:

Kamera	: No. 1745 / 1911
Batteri	: No. NOK 014
Vinkelenhet, 90-graders	: No. 50A

Databehandling.

Bearbeiding og analyse av måleresultater er utført av Siv. ing. Edvind By, Devico AS.

Alle beregninger er utført på Devico Software.

Da det ikke er oppgitt addisjonskonstant for magnetisk misvisning er avviksmålingene ikke korrigert for dette.

Presentasjon av måleresultater.

Alle hull er presentert i to tabeller hvor den første gir borehullets koordinater i de målte stasjoner og den andre viser avvik fra et tenkt hull uten avvik.

SAMMENDRAG AV MÅLERESULTATER:

Koordinater ved oppgitt hulldybde.

Hull nr.	Oppgitt hulldybde	Siste måling	X	Y	Z
SKF 114	190.00 m	183.90 m	-102.31	39.14	79.18
SKF 118	230.00 m	189.70 m	22.85	155.86	69.09
SKF 123	411.00 m	284.00 m	-286.58	102.99	-39.86
SKF 133	150.00 m	119.50 m	-96.55	26.54	-110.81
SKF 134	153.00 m	145.50 m	-88.87	23.54	-121.46
SKF 135	140.00 m	132.10 m	-89.21	21.19	163.75
SKF 136	130.75 m	123.50 m	-74.58	20.91	-104.87
SKF 137	130.00 m	121.50 m	-72.23	24.92	140.65
SKF 139	250.00m	213.50m	-191.38	57.17	-138.40
SKF 141	248.40 m	235.50 m	-166.67	44.52	58.07
SKF 142	213.40 m	203.90 m	-132.57	50.10	80.56
GDJ 111	285.50 m	268.00 m	-108.34	23.89	52.24
GDJ 112	185.70 m	174.00 m	-109.02	23.97	165.94
GDJ 113	130.00 m	144.50 m	-61.09	8.66	196.04
GDJ 114	130.00 m	141.50 m	-61.61	0.76	187.32
GDJ 115	130.00 m	123.00 m	-56.01	1.90	194.57
GDJ 116	138.60 m	128.50 m	-94.02	16.51	-84.59
GDJ 117	157.30 m	105.50 m	-80.85	2.06	194.16

Avviksanalyse.

Tabellen under viser horisontalt og vertikalt avvik sammenlignet med et tenkt hull som har beholdt startretningen til oppgitt hulldybde.

Hull nr.	Hulldybde	dX	dY	dZ	Totalt avvik [m]
SKF 114	190.00 m	12.76	-7.43	-9.91	17.79
SKF 118	230.00 m	2.42	-41.89	-34.18	54.12
SKF 123	411.00 m	83.33	-56.06	-90.27	135.04
SKF 133	150.00 m	23.78	-8.39	-19.10	31.63
SKF 134	153.00 m	17.20	-9.61	-13.00	23.61
SKF 135	140.00 m	20.38	-8.44	-16.68	27.65
SKF 136	130.75 m	11.73	-2.89	-8.36	14.70
SKF 137	130.00 m	10.77	-3.76	-7.71	13.77
SKF 139	250.00m	68.68	-33.32	-78.10	109.21
SKF 141	248.40 m	44.35	-22.95	-40.27	64.15
SKF 142	213.40 m	33.64	-10.13	-28.05	44.96
GDJ 111	285.50 m	49.22	1.20	-17.47	52.24
GDJ 112	185.70 m	33.20	1.39	-20.67	39.14
GDJ 113	130.00 m	7.07	1.36	-3.56	8.03
GDJ 114	130.00 m	17.82	8.48	-8.17	21.36
GDJ 115	130.00 m	14.26	2.32	-6.50	15.84
GDJ 116	138.60 m	16.32	5.52	-16.01	23.52
GDJ 117	157.30 m	27.34	3.57	14.77	31.28

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogn
 PROJECT: SKF114 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf114

DEPTH	DIR.	INCL.	X	Y	Z
.00	160.50	30.00	.00	.00	233.81
5.50	160.50	30.00	-2.59	.92	229.05
10.50	160.50	30.00	-4.95	1.75	224.72
15.50	160.00	30.50	-7.32	2.60	220.40
25.50	160.00	31.00	-12.12	4.35	211.80
35.50	160.00	31.50	-17.00	6.13	203.25
45.50	162.00	32.00	-21.97	7.84	194.75
55.50	158.50	32.00	-26.96	9.63	186.27
65.50	156.00	33.00	-31.91	11.71	177.84
75.50	160.00	33.50	-36.99	13.76	169.47
85.50	157.00	34.50	-42.20	15.81	161.18
95.50	157.00	35.00	-47.44	18.04	152.96
105.50	159.00	35.00	-52.76	20.19	144.77
115.50	158.00	35.00	-58.10	22.29	136.58
125.50	156.00	36.00	-63.44	24.56	128.44
135.50	158.00	36.50	-68.88	26.87	120.37
145.50	158.00	38.50	-74.53	29.15	112.44
155.50	162.00	40.00	-80.47	31.31	104.70
165.50	160.00	41.00	-86.61	33.42	97.09
175.50	160.00	43.00	-92.90	35.71	89.66
183.90	160.00	44.00	-98.33	37.69	83.57
190.00	160.00	44.00	-102.31	39.14	79.18

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogn
 PROJECT: SKF114 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf114

DEPTH	dX	dY	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.00	.00	.00	.00	.00	.00	.0
15.50	.01	-.02	-.01	.02	.00	.62	.1
25.50	.11	-.10	-.08	.16	.01	.56	.0
35.50	.27	-.20	-.19	.38	.01	.56	.0
45.50	.53	-.24	-.34	.68	.01	1.29	.1
55.50	.80	-.37	-.52	1.02	.02	2.06	.2
65.50	1.04	-.78	-.75	1.50	.02	1.86	.1
75.50	1.41	-1.16	-1.05	2.10	.03	2.50	.2
85.50	1.90	-1.54	-1.42	2.82	.03	2.17	.2
95.50	2.43	-2.10	-1.86	3.71	.04	.56	.0
105.50	3.04	-2.58	-2.33	4.61	.04	1.27	.1
115.50	3.66	-3.01	-2.80	5.50	.05	.64	.0
125.50	4.29	-3.61	-3.32	6.51	.05	1.70	.1
135.50	5.02	-4.25	-3.91	7.65	.06	1.43	.1
145.50	5.95	-4.86	-4.64	8.98	.06	2.22	.2
155.50	7.18	-5.35	-5.55	10.54	.07	3.27	.3
165.50	8.61	-5.80	-6.61	12.30	.07	1.82	.1
175.50	10.18	-6.42	-7.84	14.36	.08	2.22	.2
183.90	11.66	-7.00	-9.02	16.31	.09	1.11	.1
190.00	12.76	-7.43	-9.91	17.79	.09	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: SKF118 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf118

DEPTH	DIR.	INCL.	X	Y	Z
.00	77.50	30.50	.00	.00	233.09
5.50	77.50	30.50	.60	2.73	228.35
10.50	77.50	31.00	1.16	5.22	224.05
15.50	78.00	31.50	1.71	7.76	219.78
25.50	77.00	32.00	2.85	12.89	211.28
35.50	75.00	33.00	4.15	18.11	202.84
45.50	77.00	35.00	5.50	23.53	194.55
55.50	77.00	35.50	6.80	29.15	186.39
65.50	76.50	38.00	8.17	34.98	178.37
75.50	76.00	40.00	9.66	41.09	170.60
85.50	78.00	41.00	11.12	47.42	163.00
95.50	82.00	41.50	12.27	53.91	155.48
105.50	80.00	43.00	13.32	60.55	148.08
115.50	80.00	45.00	14.53	67.39	140.88
125.50	80.50	45.00	15.72	74.36	133.81
135.50	85.00	46.50	16.62	81.46	126.83
145.50	82.00	48.00	17.46	88.75	120.04
155.50	86.00	49.50	18.24	96.23	113.45
165.50	89.00	51.00	18.57	103.91	107.05
175.50	85.00	53.00	18.99	111.77	100.90
185.50	85.00	54.00	19.69	119.78	94.95
189.70	85.00	54.50	19.99	123.18	92.49
230.00	85.00	54.50	22.85	155.86	69.09

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: SKF118 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf118

DEPTH	dX	dY	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	-.00	-.02	-.01	.02	.00	.56	.1
15.50	-.01	-.08	-.04	.09	.01	.63	.1
25.50	-.05	-.26	-.16	.31	.01	.81	.0
35.50	-.25	-.51	-.34	.66	.02	1.63	.1
45.50	-.50	-.99	-.67	1.29	.03	2.55	.2
55.50	-.70	-1.65	-1.12	2.11	.04	.56	.0
65.50	-.97	-2.52	-1.72	3.20	.05	2.80	.2
75.50	-1.37	-3.68	-2.57	4.69	.06	2.25	.2
85.50	-1.73	-5.05	-3.58	6.43	.08	1.82	.1
95.50	-1.78	-6.59	-4.67	8.27	.09	2.98	.3
105.50	-1.73	-8.27	-5.89	10.30	.10	2.24	.2
115.50	-1.84	-10.16	-7.31	12.65	.11	2.22	.2
125.50	-1.94	-12.17	-8.86	15.18	.12	.39	.0
135.50	-1.74	-14.32	-10.49	17.84	.13	3.95	.3
145.50	-1.47	-16.66	-12.32	20.77	.14	2.96	.3
155.50	-1.16	-19.18	-14.34	23.97	.15	3.73	.3
165.50	-.39	-21.90	-16.56	27.46	.17	3.06	.3
175.50	.29	-24.81	-19.02	31.27	.18	4.15	.4
185.50	.69	-27.86	-21.69	35.32	.19	1.11	.1
189.70	.85	-29.18	-22.85	37.07	.20	.56	.1
230.00	2.42	-41.89	-34.18	54.12	.24	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grong
 PROJECT: SKF123 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: skf123

DEPTH	DIR.	INCL.	X	Y	Z
.00	167.00	30.50	.00	.00	224.00
5.50	167.00	30.50	-2.72	.63	219.26
10.50	170.00	30.50	-5.21	1.13	214.95
15.50	167.50	31.00	-7.71	1.63	210.66
25.50	170.00	32.00	-12.84	2.65	202.13
35.50	170.00	33.50	-18.16	3.59	193.72
45.50	170.00	34.00	-23.64	4.55	185.40
55.50	165.00	34.50	-29.13	5.77	177.14
65.50	168.00	35.00	-34.67	7.10	168.92
75.50	165.00	35.00	-40.24	8.44	160.73
85.50	164.00	36.50	-45.87	10.00	152.61
95.50	164.50	37.00	-51.63	11.63	144.60
105.50	161.00	38.50	-57.47	13.45	136.69
115.50	160.50	40.00	-63.45	15.53	128.95
145.50	162.00	43.00	-82.27	21.91	106.48
155.50	160.00	44.00	-88.78	24.15	99.23
165.50	160.00	45.00	-95.36	26.55	92.09
175.50	156.00	47.00	-102.03	29.25	85.15
185.50	158.00	49.00	-108.87	32.15	78.46
195.50	158.00	50.00	-115.92	35.00	71.96
205.50	155.50	50.50	-122.98	38.03	65.57
215.50	156.50	52.50	-130.13	41.22	59.34
225.50	155.00	53.50	-137.41	44.50	53.32
235.50	156.00	55.00	-144.80	47.86	47.48
245.50	158.00	56.00	-152.38	51.08	41.82
255.50	157.50	57.00	-160.10	54.24	36.30
265.50	158.50	58.80	-167.95	57.41	30.98
275.50	159.00	60.00	-175.98	60.53	25.89
284.00	159.00	61.00	-182.88	63.18	21.71
411.00	159.00	61.00	-286.58	102.99	-39.86

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grong
 PROJECT: SKF123 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: skf123

DEPTH	dX	dY	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.01	.07	.00	.07	.01	1.69	.3
15.50	.05	.14	-.01	.15	.01	1.52	.3
25.50	.23	.26	-.10	.36	.01	1.83	.1
35.50	.61	.46	-.31	.82	.02	1.67	.1
45.50	1.13	.64	-.61	1.44	.03	.56	.0
55.50	1.68	.56	-.96	2.01	.04	3.17	.3
65.50	2.27	.38	-1.36	2.67	.04	1.98	.2
75.50	2.91	.18	-1.78	3.41	.05	1.91	.1
85.50	3.59	-.24	-2.28	4.26	.05	1.79	.1
95.50	4.40	-.72	-2.88	5.31	.06	.65	.0
105.50	5.30	-1.40	-3.59	6.56	.06	2.91	.2
115.50	6.33	-2.34	-4.47	8.09	.07	1.70	.1
145.50	10.32	-5.30	-7.85	14.00	.10	3.51	.1
155.50	11.88	-6.40	-9.21	16.34	.11	1.89	.1
165.50	13.52	-7.66	-10.69	18.86	.11	1.11	.1
175.50	15.24	-9.21	-12.36	21.68	.12	3.89	.3
185.50	17.13	-10.97	-14.29	24.86	.13	2.77	.2
195.50	19.24	-12.68	-16.41	28.29	.14	1.11	.1
205.50	21.36	-14.57	-18.63	31.87	.16	2.21	.2
215.50	23.56	-16.61	-21.02	35.68	.17	2.39	.2
225.50	25.90	-18.75	-23.62	39.75	.18	1.73	.1
235.50	28.34	-20.97	-26.39	44.04	.19	1.89	.1
245.50	30.98	-23.05	-29.35	48.50	.20	2.14	.2
255.50	33.75	-25.07	-32.44	53.10	.21	1.20	.1
265.50	36.66	-27.10	-35.75	57.93	.22	2.21	.2
275.50	39.73	-29.08	-39.27	62.98	.23	1.42	.1
284.00	42.44	-30.76	-42.41	67.42	.24	1.11	.1
411.00	83.33	-56.06	-90.27	135.04	.33	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogm
 PROJECT: SKF133 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf133

DEPTH	DIR.	INCL.	X	Y	Z
.00	166.00	30.00	.00	.00	.00
5.50	166.00	30.00	-2.67	.67	-4.76
10.50	165.00	33.00	-5.20	1.32	-9.03
15.50	165.00	35.00	-7.90	2.04	-13.17
25.50	164.00	36.00	-13.49	3.60	-21.31
35.50	165.50	38.00	-19.30	5.18	-29.30
45.50	165.00	39.50	-25.35	6.77	-37.10
55.50	165.00	40.50	-31.56	8.43	-44.76
65.50	165.50	42.00	-37.94	10.11	-52.28
75.50	165.00	43.50	-44.50	11.84	-59.62
85.50	165.00	44.00	-51.18	13.63	-66.84
95.50	165.00	45.50	-57.98	15.45	-73.94
105.50	165.00	46.50	-64.93	17.32	-80.89
115.50	164.00	47.50	-71.98	19.27	-87.71
119.50	163.50	48.00	-74.82	20.10	-90.40
150.00	163.50	48.00	-96.55	26.54	-110.81

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogm
 PROJECT: SKF133 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf133

DEPTH	dx	dy	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.10	-.05	-.07	.13	.01	3.38	.6
15.50	.38	-.17	-.25	.48	.03	2.22	.4
25.50	1.12	-.51	-.77	1.45	.06	1.28	.1
35.50	2.08	-.88	-1.45	2.68	.08	2.44	.2
45.50	3.28	-1.27	-2.31	4.20	.09	1.70	.1
55.50	4.63	-1.72	-3.31	5.95	.11	1.11	.1
65.50	6.16	-2.19	-4.45	7.91	.12	1.71	.1
75.50	7.87	-2.71	-5.77	10.13	.13	1.71	.1
85.50	9.70	-3.29	-7.20	12.52	.15	.56	.0
95.50	11.65	-3.90	-8.76	15.09	.16	1.67	.1
105.50	13.75	-4.55	-10.48	17.87	.17	1.11	.1
115.50	15.94	-5.30	-12.32	20.83	.18	1.38	.1
119.50	16.84	-5.64	-13.09	22.07	.18	.69	.1
150.00	23.78	-8.39	-19.10	31.63	.21	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.BY DATE: 92-10-12 LOCATION: Grogn
 PROJECT: SKF134 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf134

DEPTH	DIR.	INCL.	X	Y	Z
.00	169.00	28.50	.00	.00	.00
5.50	169.00	29.00	-2.60	.50	-4.82
10.50	165.00	30.00	-4.99	1.06	-9.17
15.50	168.00	30.50	-7.44	1.65	-13.49
25.50	168.00	32.50	-12.55	2.73	-22.02
35.50	171.00	33.00	-17.87	3.72	-30.43
45.50	167.00	33.50	-23.25	4.76	-38.79
55.50	169.00	35.00	-28.76	5.93	-47.06
65.50	165.00	35.00	-34.34	7.22	-55.25
75.50	164.00	35.50	-39.90	8.77	-63.42
85.50	165.00	37.00	-45.60	10.34	-71.48
95.50	164.00	38.50	-51.50	11.98	-79.39
105.50	160.00	40.00	-57.51	13.94	-87.14
115.50	165.00	42.00	-63.77	15.90	-94.68
125.50	160.00	43.00	-70.21	17.94	-102.06
135.50	164.00	44.50	-76.78	20.07	-109.28
145.50	164.00	46.50	-83.64	22.04	-116.29
153.00	164.00	46.50	-88.87	23.54	-121.46

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.BY DATE: 92-10-12 LOCATION: Grogm
 PROJECT: SKF134 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf134

DEPTH	dx	dy	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.02	-.00	-.01	.02	.00	.56	.1
10.50	.08	-.10	-.05	.14	.01	2.45	.4
15.50	.18	-.24	-.13	.32	.02	1.77	.3
25.50	.61	-.41	-.39	.83	.03	2.22	.2
35.50	1.24	-.49	-.77	1.54	.04	1.89	.1
45.50	1.94	-.62	-1.19	2.36	.05	2.50	.2
55.50	2.76	-.88	-1.71	3.37	.06	2.08	.2
65.50	3.66	-1.26	-2.31	4.51	.07	2.55	.2
75.50	4.54	-1.89	-2.93	5.72	.08	.85	.0
85.50	5.55	-2.56	-3.66	7.12	.08	1.79	.1
95.50	6.77	-3.29	-4.54	8.79	.09	1.80	.1
105.50	8.10	-4.33	-5.58	10.75	.10	3.27	.3
115.50	9.67	-5.39	-6.82	13.00	.11	4.27	.4
125.50	11.42	-6.51	-8.23	15.51	.12	3.91	.3
135.50	13.31	-7.73	-9.80	18.25	.13	3.50	.3
145.50	15.48	-8.79	-11.58	21.24	.15	2.22	.2
153.00	17.20	-9.61	-13.00	23.61	.15	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogm
 PROJECT: SKF135 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: SKF135

DEPTH	DIR.	INCL.	X	Y	Z
.00	169.50	30.00	.00	.00	268.31
5.50	169.50	30.00	-2.70	.50	263.55
10.50	168.00	30.00	-5.16	.99	259.22
15.50	168.00	30.50	-7.62	1.51	254.90
25.50	167.00	32.50	-12.72	2.64	246.37
35.50	165.50	35.50	-18.15	3.98	238.08
45.50	168.50	40.00	-24.11	5.34	230.18
55.50	169.00	41.50	-30.52	6.62	222.60
65.50	169.50	42.00	-37.06	7.86	215.14
75.50	166.00	43.00	-43.66	9.29	207.77
85.50	168.00	44.00	-50.36	10.84	200.51
95.50	164.50	46.00	-57.23	12.53	193.44
105.50	165.00	47.00	-64.23	14.43	186.56
115.50	164.50	48.00	-71.34	16.37	179.80
125.50	165.00	48.50	-78.54	18.33	173.14
127.20	165.00	49.00	-79.77	18.67	172.02
132.10	165.00	49.90	-83.37	19.63	168.84
140.00	165.00	49.90	-89.21	21.19	163.75

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: SKF135 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: SKF135

DEPTH	dX	dY	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	-.01	-.03	.00	.03	.00	.83	.1
15.50	-.00	-.10	-.01	.10	.01	.56	.1
25.50	.18	-.32	-.15	.40	.02	2.30	.2
35.50	.70	-.74	-.52	1.14	.03	3.46	.3
45.50	1.74	-1.20	-1.27	2.47	.05	5.40	.5
55.50	3.23	-1.56	-2.36	4.29	.08	1.71	.1
65.50	4.86	-1.89	-3.55	6.31	.10	.67	.0
75.50	6.54	-2.42	-4.84	8.49	.11	2.85	.2
85.50	8.33	-3.05	-6.25	10.85	.13	1.89	.1
95.50	10.28	-3.82	-7.84	13.48	.14	3.53	.3
105.50	12.36	-4.82	-9.61	16.38	.16	1.18	.1
115.50	14.56	-5.85	-11.52	19.46	.17	1.18	.1
125.50	16.84	-6.90	-13.52	22.67	.18	.69	.0
127.20	17.24	-7.08	-13.87	23.23	.18	.56	.3
132.10	18.42	-7.59	-14.93	24.90	.19	1.00	.2
140.00	20.38	-8.44	-16.68	27.65	.20	.00	.0

DEV = Total offset from planned hole

DEV/L = Total deviation/depth

ANG = Angel between two points in Degrees

ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogn
 PROJECT: SKF136 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf136

DEPTH	DIR.	INCL.	X	Y	Z
.00	164.00	30.00	.00	.00	.00
5.50	164.00	30.00	-2.64	.76	-4.76
10.50	165.00	30.50	-5.07	1.43	-9.08
15.50	165.00	31.00	-7.54	2.09	-13.38
25.50	164.50	31.50	-12.55	3.46	-21.93
35.50	162.50	33.00	-17.66	4.97	-30.39
45.50	164.50	34.50	-22.99	6.55	-38.70
55.50	164.50	35.00	-28.48	8.07	-46.92
65.50	163.00	37.00	-34.12	9.72	-55.01
75.50	163.00	38.00	-39.94	11.50	-62.94
85.50	162.00	38.00	-45.81	13.35	-70.82
95.50	164.00	39.00	-51.77	15.17	-78.65
105.50	165.00	40.00	-57.90	16.87	-86.36
115.50	165.00	43.00	-64.30	18.58	-93.85
123.50	168.00	44.00	-69.65	19.87	-99.66
130.75	168.00	44.00	-74.58	20.91	-104.87

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: SKF136 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf136

DEPTH	dx	dy	dz	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.02	.02	-.01	.03	.00	.79	.1
15.50	.09	.04	-.04	.11	.01	.56	.1
25.50	.29	.06	-.16	.33	.01	.63	.0
35.50	.60	-.08	-.36	.70	.02	2.05	.2
45.50	1.12	-.28	-.70	1.35	.03	2.07	.2
55.50	1.80	-.42	-1.15	2.18	.04	.56	.0
65.50	2.64	-.69	-1.72	3.22	.05	2.43	.2
75.50	3.66	-1.09	-2.44	4.53	.06	1.11	.1
85.50	4.72	-1.57	-3.22	5.93	.07	.68	.0
95.50	5.87	-2.01	-4.06	7.41	.08	1.77	.1
105.50	7.19	-2.33	-5.00	9.06	.09	1.32	.1
115.50	8.78	-2.67	-6.17	11.06	.10	3.33	.3
123.50	10.29	-2.85	-7.30	12.93	.10	2.55	.3
130.75	11.73	-2.89	-8.36	14.70	.11	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogn
 PROJECT: SKF137 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf137

DEPTH	DIR.	INCL.	X	Y	Z
.00	161.00	30.00	.00	.00	245.52
5.50	161.00	30.50	-2.62	.90	240.77
10.50	160.50	31.00	-5.03	1.74	236.47
15.50	160.50	31.50	-7.48	2.61	232.20
25.50	163.00	32.50	-12.51	4.27	223.72
35.50	160.00	34.00	-17.71	6.01	215.35
45.50	160.00	34.50	-23.00	7.94	207.09
55.50	160.00	35.00	-28.35	9.88	198.87
65.50	158.50	35.50	-33.75	11.93	190.70
75.50	160.00	37.00	-39.28	14.02	182.64
85.50	160.50	37.50	-44.98	16.07	174.68
95.50	161.50	39.00	-50.83	18.08	166.83
105.50	162.00	40.00	-56.87	20.07	159.11
115.50	163.50	40.50	-63.04	21.99	151.48
121.50	162.00	42.00	-66.82	23.16	146.97
130.00	162.00	42.00	-72.23	24.92	140.65

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: SKF137 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf137

DEPTH	dx	dy	dz	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.02	-.01	-.01	.02	.00	.56	.1
10.50	.07	-.04	-.05	.09	.01	.62	.1
15.50	.15	-.09	-.10	.20	.01	.56	.1
25.50	.46	-.12	-.28	.55	.02	1.84	.1
35.50	.92	-.23	-.58	1.11	.03	2.47	.2
45.50	1.49	-.53	-.97	1.85	.04	.56	.0
55.50	2.11	-.85	-1.42	2.68	.05	.56	.0
65.50	2.78	-1.27	-1.91	3.61	.06	1.11	.1
75.50	3.59	-1.73	-2.51	4.70	.06	1.94	.1
85.50	4.55	-2.15	-3.21	5.97	.07	.65	.0
95.50	5.68	-2.54	-4.01	7.40	.08	1.80	.1
105.50	6.99	-2.90	-4.96	9.05	.09	1.17	.1
115.50	8.44	-3.19	-5.98	10.82	.09	1.21	.1
121.50	9.38	-3.39	-6.67	12.00	.10	2.00	.3
130.00	10.77	-3.76	-7.71	13.77	.11	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogn
 PROJECT: SKF139 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: SKF139

DEPTH	DIR.	INCL.	X	Y	Z
.00	169.00	30.00	.00	.00	.00
5.50	169.00	30.00	-2.70	.52	-4.76
15.50	169.00	32.50	-7.79	1.51	-13.31
25.50	166.00	34.50	-13.18	2.71	-21.65
35.50	165.00	36.50	-18.80	4.17	-29.79
45.50	167.50	38.50	-24.71	5.61	-37.73
55.50	169.00	41.50	-31.00	6.92	-45.38
65.50	165.00	44.50	-37.64	8.46	-52.70
75.50	165.50	46.00	-44.51	10.26	-59.74
85.50	166.50	47.00	-51.55	12.02	-66.62
95.50	165.00	50.50	-58.83	13.87	-73.21
105.50	165.50	54.50	-66.51	15.89	-79.30
115.50	165.00	58.50	-74.57	18.01	-84.82
125.50	162.00	62.00	-82.89	20.48	-89.78
135.50	160.00	63.50	-91.29	23.38	-94.36
145.50	164.00	65.00	-99.86	26.16	-98.71
155.50	161.00	65.50	-108.52	28.89	-102.89
165.50	160.50	67.00	-117.16	31.91	-106.92
175.50	161.50	67.00	-125.86	34.90	-110.83
185.50	160.50	67.00	-134.56	37.90	-114.74
195.50	160.50	67.50	-143.26	40.98	-118.60
205.50	161.50	68.00	-152.01	43.99	-122.39
213.50	161.50	69.00	-159.07	46.35	-125.32
250.00	161.50	69.00	-191.38	57.17	-138.40

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: SKF139 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: SKF139

DEPTH	dX	dY	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
15.50	.18	-.04	-.11	.22	.01	2.78	.2
25.50	.66	-.28	-.43	.84	.03	2.88	.2
35.50	1.37	-.78	-.95	1.85	.05	2.31	.2
45.50	2.38	-1.27	-1.68	3.18	.07	2.79	.2
55.50	3.76	-1.62	-2.68	4.90	.09	3.50	.3
65.50	5.50	-2.21	-4.03	7.16	.11	4.50	.4
75.50	7.46	-3.06	-5.65	9.84	.13	1.71	.1
85.50	9.59	-3.86	-7.42	12.72	.15	1.37	.1
95.50	11.96	-4.76	-9.49	15.99	.17	4.09	.4
105.50	14.72	-5.83	-12.06	19.91	.19	4.47	.4
115.50	17.88	-6.99	-15.21	24.49	.21	4.47	.4
125.50	21.29	-8.51	-18.90	29.72	.24	4.85	.4
135.50	24.79	-10.45	-22.99	35.38	.26	2.58	.2
145.50	28.44	-12.28	-27.30	41.29	.28	4.34	.4
155.50	32.20	-14.05	-31.77	47.37	.30	3.08	.3
165.50	35.93	-16.12	-36.41	53.63	.32	1.74	.1
175.50	39.72	-18.16	-41.16	60.01	.34	1.02	.1
185.50	43.52	-20.20	-45.91	66.41	.36	1.02	.1
195.50	47.30	-22.33	-50.70	72.85	.37	.56	.0
205.50	51.15	-24.39	-55.58	79.37	.39	1.17	.1
213.50	54.28	-25.99	-59.57	84.68	.40	1.11	.1
250.00	68.68	-33.32	-78.10	109.21	.44	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogm
 PROJECT: SKF141 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf141

DEPTH	DIR.	INCL.	X	Y	Z
.00	170.00	30.00	.00	.00	232.92
5.50	170.00	30.00	-2.71	.48	228.16
10.50	170.00	30.50	-5.19	.91	223.84
15.50	165.50	31.00	-7.69	1.46	219.54
25.50	166.00	32.00	-12.75	2.74	211.01
35.50	165.50	33.00	-17.96	4.07	202.58
45.50	165.00	34.00	-23.29	5.47	194.24
55.50	166.50	35.50	-28.82	6.87	186.02
65.50	167.00	37.50	-34.61	8.24	177.99
75.50	167.00	39.50	-40.67	9.64	170.16
85.50	165.00	40.50	-46.91	11.19	162.50
95.50	165.00	41.50	-53.25	12.89	154.95
105.50	160.00	43.00	-59.65	14.91	147.55
115.50	161.00	45.00	-66.20	17.23	140.36
125.50	164.00	46.00	-73.00	19.38	133.35
135.50	163.00	48.00	-80.01	21.45	126.53
145.50	165.00	49.00	-87.21	23.52	119.90
155.50	164.50	50.00	-94.55	25.52	113.41
165.50	164.00	51.50	-102.00	27.62	107.08
175.50	164.50	52.00	-109.56	29.75	100.89
185.50	166.50	53.00	-117.24	31.74	94.80
195.50	165.00	53.00	-124.98	33.70	88.78
205.50	165.00	54.00	-132.75	35.78	82.83
215.50	166.00	54.00	-140.58	37.81	76.96
225.50	165.50	54.50	-148.44	39.81	71.11
235.50	165.50	55.50	-156.37	41.86	65.38
248.40	165.50	55.50	-166.67	44.52	58.07

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogm
 PROJECT: SKF141 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf141

DEPTH	dX	dY	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.02	-.00	-.01	.02	.00	.56	.1
15.50	.05	-.11	-.04	.13	.01	2.62	.5
25.50	.19	-.53	-.18	.59	.02	1.15	.1
35.50	.48	-.98	-.40	1.17	.03	1.15	.1
45.50	.89	-1.52	-.73	1.91	.04	1.15	.1
55.50	1.49	-2.05	-1.17	2.79	.05	1.92	.1
65.50	2.36	-2.55	-1.79	3.91	.06	2.25	.2
75.50	3.50	-3.08	-2.63	5.35	.07	2.22	.2
85.50	4.81	-3.77	-3.63	7.10	.08	1.81	.1
95.50	6.22	-4.60	-4.74	9.07	.10	1.11	.1
105.50	7.70	-5.75	-5.99	11.33	.11	4.09	.4
115.50	9.33	-7.20	-7.46	13.95	.12	2.35	.2
125.50	11.21	-8.48	-9.11	16.75	.13	2.62	.2
135.50	13.29	-9.69	-10.95	19.76	.15	2.37	.2
145.50	15.57	-10.88	-12.99	23.01	.16	2.00	.2
155.50	17.98	-12.02	-15.15	26.41	.17	1.19	.1
165.50	20.51	-13.25	-17.49	30.03	.18	1.72	.1
175.50	23.14	-14.51	-19.96	33.83	.19	.71	.0
185.50	25.90	-15.63	-22.53	37.72	.20	2.08	.2
195.50	28.72	-16.73	-25.17	41.69	.21	1.33	.1
205.50	31.56	-17.94	-27.88	45.77	.22	1.11	.1
215.50	34.46	-19.10	-30.66	49.93	.23	.90	.0
225.50	37.41	-20.23	-33.48	54.12	.24	.72	.0
235.50	40.41	-21.41	-36.41	58.45	.25	1.11	.1
248.40	44.35	-22.95	-40.27	64.15	.26	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogn
 PROJECT: SKF142 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf142

DEPTH	DIR.	INCL.	X	Y	Z
.00	158.00	30.00	.00	.00	237.32
5.50	158.00	31.00	-2.59	1.05	232.58
10.50	165.00	31.50	-5.04	1.87	228.31
15.50	157.00	32.00	-7.53	2.72	224.05
25.50	158.00	33.00	-12.49	4.78	215.62
35.50	160.50	33.50	-17.62	6.72	207.25
45.50	160.00	34.50	-22.88	8.61	198.96
55.50	158.50	35.00	-28.21	10.63	190.75
65.50	154.50	35.50	-33.50	12.93	182.58
75.50	156.50	36.00	-38.82	15.35	174.46
85.50	160.00	38.00	-44.40	17.58	166.48
95.50	155.50	39.00	-50.16	19.94	158.65
105.50	156.00	40.00	-55.96	22.55	150.93
115.50	158.50	43.00	-62.07	25.11	143.44
125.50	161.00	45.50	-68.62	27.52	136.28
135.50	159.50	46.50	-75.39	29.95	129.33
145.50	160.00	48.00	-82.28	32.49	122.55
155.50	159.50	49.50	-89.33	35.09	115.95
165.50	159.50	50.00	-96.48	37.77	109.49
175.50	160.00	51.00	-103.72	40.44	103.13
185.50	160.50	52.00	-111.08	43.08	96.91
195.50	161.00	54.00	-118.62	45.71	90.89
203.90	163.00	55.00	-125.13	47.82	86.01
213.40	163.00	55.00	-132.57	50.10	80.56

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogm
 PROJECT: SKF142 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 10/9-92 HOLE: Skf142

DEPTH	dx	dy	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.04	-.02	-.02	.05	.01	1.11	.2
10.50	.18	.10	-.08	.22	.02	4.07	.8
15.50	.34	.18	-.15	.42	.03	4.71	.9
25.50	.67	-.00	-.38	.77	.03	1.26	.1
35.50	1.16	-.07	-.68	1.35	.04	1.62	.1
45.50	1.79	-.09	-1.05	2.07	.05	1.15	.1
55.50	2.48	-.23	-1.49	2.90	.05	1.10	.1
65.50	3.13	-.66	-1.98	3.77	.06	2.62	.2
75.50	3.81	-1.21	-2.53	4.73	.06	1.41	.1
85.50	4.77	-1.56	-3.20	5.95	.07	3.23	.3
95.50	5.89	-2.05	-4.03	7.43	.08	3.30	.3
105.50	7.05	-2.79	-4.98	9.07	.09	1.17	.1
115.50	8.53	-3.47	-6.15	11.07	.10	3.81	.3
125.50	10.44	-4.01	-7.65	13.55	.11	3.39	.3
135.50	12.57	-4.57	-9.36	16.33	.12	1.63	.1
145.50	14.82	-5.24	-11.23	19.32	.13	1.72	.1
155.50	17.24	-5.97	-13.30	22.58	.15	1.72	.1
165.50	19.76	-6.77	-15.50	26.01	.16	.56	.0
175.50	22.36	-7.56	-17.80	29.56	.17	1.19	.1
185.50	25.09	-8.34	-20.23	33.29	.18	1.19	.1
195.50	27.99	-9.09	-22.88	37.28	.19	2.27	.2
203.90	30.60	-9.63	-25.27	40.84	.20	2.12	.2
213.40	33.64	-10.13	-28.05	44.96	.21	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: GDJ111 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ111

DEPTH	DIR.	INCL.	X	Y	Z
.00	157.00	13.00	.00	.00	312.95
5.50	157.00	13.50	-1.16	.49	307.60
10.50	155.00	13.50	-2.23	.97	302.73
15.50	157.00	13.50	-3.29	1.44	297.87
25.50	157.00	14.00	-5.48	2.37	288.16
35.50	158.00	14.00	-7.72	3.30	278.46
45.50	165.00	15.00	-10.09	4.08	268.77
55.50	160.00	15.00	-12.55	4.86	259.11
65.50	158.00	16.00	-15.05	5.82	249.48
75.50	164.00	18.00	-17.81	6.76	239.92
85.50	164.00	19.00	-20.86	7.64	230.43
95.50	164.50	20.00	-24.07	8.54	221.01
105.50	165.00	20.00	-27.37	9.44	211.61
115.50	165.00	20.00	-30.68	10.33	202.21
125.50	168.00	21.00	-34.08	11.14	192.84
135.50	168.00	22.00	-37.67	11.91	183.54
145.50	168.00	22.50	-41.37	12.69	174.29
155.50	167.50	24.00	-45.23	13.53	165.10
165.50	170.00	25.00	-49.29	14.34	156.00
175.50	169.50	25.00	-53.45	15.09	146.93
185.50	170.00	26.00	-57.69	15.86	137.91
195.50	167.00	27.00	-62.06	16.75	128.96
205.50	169.50	28.00	-66.58	17.69	120.09
215.50	169.00	29.00	-71.27	18.58	111.30
225.50	169.00	30.50	-76.14	19.52	102.62
235.50	168.00	31.00	-81.15	20.54	94.03
245.50	169.00	32.00	-86.27	21.58	85.50
255.50	172.00	33.00	-91.57	22.47	77.06
265.50	175.00	34.00	-97.05	23.09	68.73
268.00	176.00	34.50	-98.45	23.20	66.66
285.50	176.00	34.50	-108.34	23.89	52.24

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogn
 PROJECT: GDJ111 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ111

DEPTH	dx	dy	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.02	-.01	-.01	.02	.00	.56	.1
10.50	.05	-.04	-.02	.07	.01	.52	.1
15.50	.08	-.08	-.03	.12	.01	.52	.1
25.50	.20	-.13	-.06	.24	.01	.56	.0
35.50	.36	-.18	-.10	.42	.01	.27	.0
45.50	.67	-.09	-.16	.69	.02	2.24	.2
55.50	1.06	.02	-.24	1.09	.02	1.44	.1
65.50	1.48	-.06	-.35	1.53	.02	1.26	.1
75.50	2.18	-.13	-.53	2.24	.03	2.95	.3
85.50	3.16	-.12	-.79	3.26	.04	1.11	.1
95.50	4.30	-.15	-1.11	4.44	.05	1.13	.1
105.50	5.53	-.17	-1.45	5.72	.05	.19	.0
115.50	6.76	-.18	-1.80	7.00	.06	.00	.0
125.50	8.09	-.11	-2.18	8.38	.07	1.61	.1
135.50	9.61	.00	-2.62	9.96	.07	1.11	.1
145.50	11.24	.10	-3.11	11.66	.08	.56	.0
155.50	13.03	.14	-3.66	13.53	.09	1.68	.1
165.50	15.02	.21	-4.31	15.63	.09	1.60	.1
175.50	17.11	.34	-4.99	17.83	.10	.23	.0
185.50	19.28	.45	-5.70	20.11	.11	1.14	.1
195.50	21.58	.44	-6.50	22.54	.12	1.86	.1
205.50	24.03	.38	-7.37	25.14	.12	1.70	.1
215.50	26.64	.37	-8.33	27.92	.13	1.14	.1
225.50	29.44	.30	-9.39	30.91	.14	1.67	.1
235.50	32.38	.16	-10.54	34.06	.14	.79	.0
245.50	35.43	-.01	-11.76	37.33	.15	1.25	.1
255.50	38.66	-.01	-13.07	40.81	.16	2.11	.2
265.50	42.07	.25	-14.47	44.49	.17	2.15	.2
268.00	42.96	.35	-14.84	45.45	.17	.84	.3
285.50	49.22	1.20	-17.47	52.24	.18	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: GDJ112 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ112

DEPTH	DIR.	INCL.	X	Y	Z
.00	161.50	25.50	.00	.00	312.88
5.50	161.50	25.50	-2.25	.75	307.92
10.50	162.00	25.50	-4.29	1.43	303.40
15.50	163.00	26.00	-6.36	2.08	298.90
25.50	164.00	28.50	-10.75	3.38	290.01
35.50	165.00	30.50	-15.50	4.69	281.31
45.50	166.50	31.50	-20.49	5.96	272.73
55.50	168.00	34.00	-25.76	7.15	264.33
65.50	166.50	36.50	-31.39	8.43	256.16
75.50	166.50	37.50	-37.24	9.83	248.17
85.50	167.00	38.00	-43.20	11.23	240.27
95.50	165.00	39.00	-49.24	12.74	232.44
105.50	167.00	40.00	-55.41	14.28	224.72
115.50	168.50	40.50	-61.73	15.65	217.09
125.50	169.50	41.00	-68.14	16.89	209.52
135.50	169.50	41.50	-74.62	18.10	202.00
145.50	168.50	42.00	-81.15	19.37	194.54
155.50	170.50	43.50	-87.83	20.60	187.19
165.50	172.00	45.00	-94.72	21.66	180.03
174.00	170.50	46.00	-100.72	22.58	174.07
185.70	170.50	46.00	-109.02	23.97	165.94

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: GDJ112 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ112

DEPTH	dX	dY	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.00	.01	.00	.01	.00	.24	.0
15.50	.03	.04	-.01	.05	.00	.74	.1
25.50	.34	.11	-.15	.39	.02	2.82	.2
35.50	1.00	.16	-.47	1.12	.03	2.29	.2
45.50	1.91	.26	-.92	2.14	.05	1.40	.1
55.50	3.11	.43	-1.54	3.49	.06	2.92	.2
65.50	4.65	.52	-2.40	5.26	.08	2.94	.2
75.50	6.42	.48	-3.44	7.30	.10	1.11	.1
85.50	8.30	.45	-4.56	9.48	.11	.65	.0
95.50	10.25	.31	-5.76	11.76	.12	1.77	.1
105.50	12.34	.13	-7.07	14.22	.13	1.80	.1
115.50	14.57	.13	-8.46	16.85	.15	1.21	.1
125.50	16.90	.25	-9.91	19.59	.16	.91	.0
135.50	19.30	.41	-11.42	22.43	.17	.56	.0
145.50	21.75	.51	-12.98	25.34	.17	.93	.0
155.50	24.34	.64	-14.66	28.43	.18	2.25	.2
165.50	27.16	.95	-16.53	31.80	.19	2.03	.2
174.00	29.68	1.18	-18.24	34.86	.20	1.63	.1
185.70	33.20	1.39	-20.67	39.14	.21	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogna
 PROJECT: GDJ113 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ113

DEPTH	DIR.	INCL.	X	Y	Z
.00	169.50	25.00	.00	.00	310.30
5.50	169.50	25.00	-2.29	.42	305.32
10.50	170.50	25.00	-4.37	.79	300.78
15.50	170.00	25.00	-6.45	1.15	296.25
25.50	172.00	25.50	-10.66	1.81	287.21
35.50	174.50	26.00	-14.98	2.32	278.20
45.50	173.00	26.50	-19.37	2.81	269.23
55.50	172.00	27.50	-23.87	3.40	260.32
65.50	171.00	28.00	-28.48	4.09	251.47
75.50	167.00	29.00	-33.16	5.00	242.68
85.50	164.50	30.00	-37.93	6.21	233.98
95.50	174.00	30.50	-42.86	7.15	225.34
105.50	174.00	31.50	-47.99	7.69	216.76
115.50	171.00	32.00	-53.20	8.37	208.26
125.50	173.00	33.00	-58.52	9.12	199.83
135.50	174.00	34.00	-64.01	9.74	191.49
144.50	166.00	34.00	-68.95	10.62	184.02
130.00	166.00	34.00	-61.09	8.66	196.04

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogm
 PROJECT: GDJ113 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.

CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ113

DEPTH	dx	dy	dz	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.00	.02	.00	.02	.00	.47	.0
15.50	.01	.05	.00	.05	.00	.23	.0
25.50	.07	.15	-.02	.16	.01	1.10	.1
35.50	.22	.41	-.07	.47	.01	1.33	.1
45.50	.46	.70	-.17	.85	.02	.92	.0
55.50	.81	.87	-.32	1.23	.02	1.22	.1
65.50	1.26	.96	-.53	1.67	.03	.76	.0
75.50	1.78	.81	-.81	2.12	.03	2.39	.2
85.50	2.40	.37	-1.17	2.70	.03	1.76	.1
95.50	3.18	.21	-1.59	3.56	.04	5.34	.5
105.50	4.15	.44	-2.08	4.66	.04	1.11	.1
115.50	5.21	.52	-2.64	5.86	.05	1.84	.1
125.50	6.37	.54	-3.27	7.18	.06	1.63	.1
135.50	7.70	.69	-3.99	8.70	.06	1.27	.1
144.50	8.91	.51	-4.68	10.08	.07	4.97	.5
130.00	7.07	1.36	-3.56	8.03	.06	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: GDJ114 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 11/98-92 HOLE: Gdj114

DEPTH	DIR.	INCL.	X	Y	Z
.00	170.00	20.00	.00	.00	301.31
5.50	170.00	20.00	-1.85	.33	296.14
10.50	170.00	21.50	-3.60	.63	291.47
15.50	175.00	22.00	-5.43	.88	286.82
25.50	180.00	24.00	-9.33	1.04	277.62
35.50	178.00	26.50	-13.60	1.12	268.57
45.50	176.00	28.00	-18.17	1.36	259.68
55.50	180.00	28.50	-22.90	1.52	250.87
65.50	190.00	30.00	-27.75	1.09	242.14
75.50	185.00	30.00	-32.70	.44	233.48
85.50	185.00	30.00	-37.68	-.00	224.82
95.50	183.00	31.00	-42.74	-.35	216.20
105.50	181.00	33.00	-48.04	-.54	207.72
115.50	181.00	33.50	-53.52	-.63	199.36
125.50	181.50	35.00	-59.15	-.75	191.10
135.50	183.50	36.00	-64.95	-1.01	182.95
141.50	184.00	37.00	-68.51	-1.24	178.13
130.00	184.00	37.00	-61.61	-.76	187.32

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogm
 PROJECT: GDJ114 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 11/98-92 HOLE: Gdj114

DEPTH	dX	dY	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.06	-.01	-.02	.07	.01	1.67	.3
15.50	.21	.05	-.08	.23	.01	2.13	.4
25.50	.74	.48	-.27	.92	.04	3.10	.3
35.50	1.64	.99	-.62	2.01	.06	2.93	.2
45.50	2.84	1.34	-1.13	3.34	.07	1.95	.2
55.50	4.20	1.77	-1.72	4.87	.09	2.18	.2
65.50	5.69	2.80	-2.38	6.77	.10	5.67	.5
75.50	7.27	4.05	-3.12	8.89	.12	2.78	.2
85.50	8.88	5.08	-3.85	10.93	.13	.00	.0
95.50	10.58	6.03	-4.63	13.03	.14	1.58	.1
105.50	12.50	6.80	-5.55	15.28	.14	2.51	.2
115.50	14.62	7.49	-6.59	17.70	.15	.56	.0
125.50	16.88	8.21	-7.72	20.29	.16	1.70	.1
135.50	19.31	9.06	-8.97	23.14	.17	1.70	.1
141.50	20.85	9.65	-9.79	24.97	.18	1.16	.1
130.00	17.82	8.48	-8.17	21.36	.16	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: e:by DATE: 92-10-12 LOCATION: Grogm
 PROJECT: GDJ115 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ115

DEPTH	DIR.	INCL.	X	Y	Z
.00	175.00	20.50	.00	.00	303.83
5.50	175.00	20.50	-1.92	.17	298.68
10.50	173.00	21.00	-3.68	.35	294.00
15.50	175.00	22.00	-5.50	.54	289.35
25.50	175.50	24.00	-9.40	.87	280.15
35.50	180.00	26.50	-13.66	1.03	271.10
45.50	175.50	28.00	-18.23	1.21	262.21
55.50	180.00	28.00	-22.92	1.40	253.38
65.50	175.50	29.00	-27.68	1.59	244.59
75.50	180.00	29.00	-32.52	1.78	235.84
85.50	180.00	29.00	-37.37	1.78	227.10
95.50	177.00	29.50	-42.25	1.90	218.37
105.50	180.00	30.00	-47.21	2.03	209.69
115.50	180.00	30.00	-52.21	2.03	201.03
123.00	184.00	31.00	-56.01	1.90	194.57
130.00	184.00	31.00	-59.61	1.65	188.57

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: e:by DATE: 92-10-12 LOCATION: Grogm
 PROJECT: GDJ115 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ115

DEPTH	dx	dy	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.02	-.03	-.01	.04	.00	.96	.1
15.50	.09	-.07	-.04	.12	.01	1.38	.2
25.50	.50	-.09	-.20	.55	.02	2.23	.2
35.50	1.27	.06	-.52	1.38	.04	3.50	.3
45.50	2.35	.18	-1.00	2.56	.06	2.83	.2
55.50	3.55	.30	-1.54	3.88	.07	2.35	.2
65.50	4.83	.41	-2.11	5.29	.08	2.63	.2
75.50	6.18	.53	-2.73	6.78	.09	2.42	.2
85.50	7.54	.83	-3.35	8.29	.10	.00	.0
95.50	8.94	1.01	-3.99	9.84	.10	1.72	.1
105.50	10.41	1.19	-4.68	11.47	.11	1.74	.1
115.50	11.92	1.49	-5.38	13.16	.11	.00	.0
123.00	13.10	1.86	-5.95	14.51	.12	2.51	.3
130.00	14.26	2.32	-6.50	15.84	.12	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogne
 PROJECT: GDJ116 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ116

DEPTH	DIR.	INCL.	X	Y	Z
.00	165.00	40.00	.00	.00	.00
5.50	165.00	40.00	-3.41	.92	-4.21
10.50	165.00	40.00	-6.52	1.75	-8.04
15.50	165.00	40.00	-9.62	2.58	-11.87
25.50	160.00	41.00	-15.81	4.53	-19.48
35.50	170.00	41.50	-22.16	6.23	-27.01
45.50	168.00	44.00	-28.83	7.53	-34.35
55.50	167.00	48.00	-35.85	9.09	-41.29
65.50	169.00	50.00	-43.23	10.66	-47.86
75.50	174.00	52.00	-50.91	11.80	-54.15
85.50	172.00	53.50	-58.81	12.77	-60.20
95.50	175.00	55.00	-66.87	13.69	-66.05
105.50	175.50	55.50	-75.06	14.37	-71.75
115.50	173.00	56.00	-83.28	15.20	-77.38
125.50	173.00	56.50	-91.54	16.21	-82.93
128.50	173.00	56.50	-94.02	16.51	-84.59
138.60	173.00	56.50	-102.38	17.54	-90.16

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogm
 PROJECT: GDJ116 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.

CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ116

DEPTH	dX	dY	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.00	.00	.00	.00	.00	.00	.0
15.50	.00	.00	.00	.00	.00	.00	.0
25.50	-.02	-.29	-.05	.30	.01	3.77	.3
35.50	.12	-.33	-.19	.40	.01	7.34	.7
45.50	.58	.04	-.51	.77	.02	3.16	.3
55.50	1.39	.14	-1.22	1.85	.03	4.52	.4
65.50	2.56	.24	-2.32	3.46	.05	2.78	.2
75.50	4.03	.76	-3.69	5.52	.07	4.85	.4
85.50	5.72	1.45	-5.29	7.93	.09	2.43	.2
95.50	7.58	2.20	-7.11	10.62	.11	3.18	.3
105.50	9.56	3.18	-9.07	13.56	.13	.72	.0
115.50	11.57	4.02	-11.10	16.53	.14	2.36	.2
125.50	13.62	4.67	-13.21	19.54	.16	.56	.0
128.50	14.24	4.86	-13.85	20.45	.16	.00	.0
138.60	16.32	5.52	-16.01	23.52	.17	.00	.0

DEV = Total offset from planned hole

DEV/L = Total deviation/depth

ANG = Angel between two points in Degrees

ANG/L = ANG/depth

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogm
 PROJECT: GDJ117 FILELOCATION: C:\avvik\ber_fil

CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ117

DEPTH	DIR.	INCL.	X	Y	Z
.00	174.00	20.00	.00	.00	327.21
5.50	174.00	20.00	-1.87	.20	322.04
10.50	174.00	20.00	-3.57	.38	317.34
15.50	174.50	20.00	-5.27	.55	312.64
25.50	174.50	20.50	-8.72	.88	303.26
35.50	175.00	22.00	-12.33	1.21	293.94
45.50	179.00	23.00	-16.15	1.41	284.70
55.50	179.50	24.50	-20.17	1.46	275.55
65.50	179.00	30.00	-24.75	1.52	266.66
75.50	178.00	33.50	-30.01	1.66	258.16
85.50	177.00	35.00	-35.63	1.91	249.90
93.50	179.50	36.00	-40.27	2.05	243.38
97.50	180.00	36.00	-42.63	2.06	240.15
105.50	180.00	40.00	-47.55	2.06	233.84
157.30	180.00	40.00	-80.85	2.06	194.16

Direction in Degrees , inclination in Degrees , zero down

D E V BOREHOLE SURVEY DEVICO Version - 2.00 1991-06
 OPERATOR: E.By DATE: 92-10-12 LOCATION: Grogn
 PROJECT: GDJ117 FILELOCATION: C:\avvik\ber_fil

DEVIATION ANALYSE COMPARED TO HOLE WITHOUT DEV.
 CLIENT: Norsulfid AS DATE: 11/9-92 HOLE: GDJ117

DEPTH	dX	dY	dZ	DEV	DEV/L	ANG	ANG/L
.00	.00	.00	.00	.00	.00	.00	.0
5.50	.00	.00	.00	.00	.00	.00	.0
10.50	.00	.00	.00	.00	.00	.00	.0
15.50	.00	.01	.00	.01	.00	.19	.0
25.50	.04	.03	-.02	.06	.00	.56	.0
35.50	.25	.06	-.09	.27	.01	1.68	.1
45.50	.67	.22	-.25	.75	.02	2.03	.2
55.50	1.30	.53	-.49	1.48	.03	1.68	.1
65.50	2.47	.82	-1.00	2.79	.04	6.12	.6
75.50	4.33	1.04	-1.90	4.84	.06	3.93	.3
85.50	6.55	1.15	-3.03	7.31	.09	1.78	.1
93.50	8.47	1.29	-4.03	9.47	.10	1.96	.2
97.50	9.46	1.43	-4.56	10.60	.11	.33	.0
105.50	11.66	1.71	-5.77	13.13	.12	4.44	.5
157.30	27.34	3.57	-14.77	31.28	.20	.00	.0

DEV = Total offset from planned hole
 DEV/L = Total deviation/depth
 ANG = Angel between two points in Degrees
 ANG/L = ANG/depth

- Avviksmåling i borehull / Deviation Measurement**
- Retningsstyrt boring / Directional Drilling**



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