LISTING OF POSSIBLE GROUNDINGS BY ICEBERGS ON THE GRAND BANKS OF NEWFOUNDLAND BETWEEN 1983 and 1989.

SUBMITTED TO:
THE ATLANTIC GEOSCIENCE CENTRE AT THE BEDFORD INSTITUTE OF OCEANOGRAPHY, DARTMOUTH, NOVA SCOTIA.

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ABSTRACT

In a previous study of definite groundings of icebergs on the Grand Banks of Newfoundland, a total of 27 grounded icebergs were identified. This information allowed a minimum scour rate to be calculated for the area, but it is considered that a more realistic estimate of the rate of scouring could be made with information of both the definite groundings and possible groundings identified in this study. Twenty-one possible groundings by 20 icebergs have been identified from iceberg drift tracks collected by the oil industry on the Grand Banks of Newfoundland from 1983 to 1989.

1. Introduction

In an earlier report by Banke (1989), iceberg drift data were analyzed in order to infer "definite groundings" on the Grand Banks. Definite groundings were defined by a minimum of 12 hours of stationarity in water depths less than 200m. Iceberg drift data were originally collected by oil companies during drilling operations on the Grand Banks from 1983 to 1989. The question of burial depth of pipelines and well-heads depends largely on the depths of scours created in the seabed by keel-dragging icebergs, and the number of groundings determines the probability of scouring icebergs crossing buried pipelines. It is therefore necessary to derive a realistic estimate of the number of scouring/grounding events in a given data observation period. In the previous study of definite groundings, a total of 27 icebergs were inferred to have grounded a total of 44 times, partly through multiple groundings by some bergs. Stringent criteria for inferring definite groundings were applied and a scour rate was derived. This was a minimum scour rate, and it was thought that a more realistic estimate could be derived by including "possible groundings". In this study of possible groundings, the 1983 to 1989 iceberg drift data were analyzed. The criteria used to infer possible groundings are as follows: a minimum of 6 hours of stationarity, or very minimal movement, or notation in supply vessel logs to the effect that a grounding was suspected; water depth less than 270m. Using these criteria in screening the drift data, a realistic estimate of 21 possible groundings by 20 icebergs was obtained. These groundings can now be added to the "definite groundings" and a more realistic estimate of the rate of scour generation on the Grand Banks can be made. It is possible that a few marginally possible groundings have escaped detection and some others were not noted by the operators; nevertheless it is the opinion of the author that the extracted cases of possible groundings and definite groundings represent the vast majority of groundings that occurred from 1983 to 1989 on the Grand Banks of Newfoundland.

Note regarding iceberg drafts and water depths at the possible grounding locations.

The iceberg drafts presented in this report are considered to be subject to large errors, having been estimated by supply vessel captains. Their estimates of draft are less reliable than the reported positions and entries in logs referring to lack of movement of icebergs. In some cases, the water depth noted at the inferred possible grounding site exceeds the given iceberg draft, but strong evidence such as very slow drift or stationarity overrides what are considered to be suspect draft estimates and possible groundings are inferred.

Note regarding the number of iceberg drift tracks in Husky Oil, Mobil Oil and Petro-Canada iceberg drift data sets.

A count of individual iceberg drift tracks reveals a total of 1174 tracks observed from 1983 to 1989.

2. Possible groundings extracted from Husky Oil iceberg drift data, 1984 to 1989.

A review of Husky Oil iceberg drift data reveals that a total of eight bergs qualify as possible groundings. For a description of the Husky Oil iceberg drift trajectory data set, see Banke, 1989. In addition to the eight possible groundings, another three definite groundings were identified and these have been incorporated in the report on definite groundings (Banke, 1989). The eight possible groundings from the Husky Oil data set are listed in Table 2.1 and the drift track data are presented in Appendix A.

Table 2.1 Possible groundings extracted from Husky Oil iceberg drift data (DATA APPENDIX A)

Berg #	Date Day-Month-Year	Remarks/reason for possible grounding	Location °N	°W	Water depth (m)	Berg draft (m)
061	15-04-1984	10 hours of stationarity	46°-24'	48°-10'	106	94
152	22-04-1984	very slow movement while under tow	46°-23'	48°-24'	96	73
204	15-05-1984	6 hours of stationarity	47°-34'	48°-41'	168	NA
208	19-05-1984	10 hours of stationarity	45°-59'	48°-11'	110	NA
009	03-12-1984	6 hours of stationarity	47°-08'	49°-05'	76	72
074	02-06-1985	1.9 nm drift in 9 hours	47°-22'	48°-21'	158	NA
104	03-06-1985	2 nm movement in 14 hours	46°-34'	47°-48'	130	NA
145	15-07-1985	6 hours of stationarity	46°-16'	47°-33	220	95

Note: NA implies that data are not available

3. Possible groundings extracted from Petro-Canada iceberg drift data, 1984 and 1985.

A review of Petro-Canada iceberg drift data reveals that only 5 icebergs qualify as possible grounding candidates; three occurred in 1984 and three possible groundings were inferred in 1985 and associated with the drift of 2 bergs. One berg, 85S035, apparently experienced 2 possible groundings. These possible groundings are listed in Table 3.1, and the drift data are presented in Appendix B and C.

Table 3.1 Possible groundings extracted from Petro-Canada iceberg drift data, 1984 and 1985 (Appendix B and C)

Berg #	Date Day-Month-Year	Remarks/reason for possible grounding	Location °N	°W	Water depth (m)	Berg draft (m)
84TN010	21-04-1984	7 hours of slow drift	46°-39'	48°-27'	97	NA
84TN011	21-04-1984	19 hours of stationarity or slow drift	46°-38'	48°-41'	80	NA
84TN054	13-05-1984	"berg grounded for entire track dura'n"	46°-22'	48°-04'	112	NA
85S035	01-06-1985	5 to 6 hours of slow drift	46°-34'	47°-34'	155	165
"	06-06-1985	9 hours of slow drift	46°-48'	47°-36'	178	165
85S050	30-05-1985	1.2 nm drift in 24 hours	45°-55'	48°-14'	110	NA

4. Possible groundings extracted from Mobil Oil iceberg drift data, 1983 and 1984.

A review of Mobil Oil iceberg drift data for 1984 reveals that the following icebergs grounded as noted by remarks in iceberg logs or by periods of stationarity: T-037, T-040, T-049, T-050, T-052, T-055, T-056, T-057, T-058, T-059, No-name berg and 1381. In the report on definite groundings (Banke, 1989), the following grounded bergs are included: 037/1984 which incorporates T-037 and T-040 above; 014/1984 which incorporates T-049 above; 050/1984 which incorporates T-050 above; 036/1984 which incorporates T-052 and T-056 above; 015/1984 which incorporates T-057 above and 1381/1984 which incorporates 1381 above.

By elimination, the possible groundings from the Mobil Oil iceberg drift data set include only icebergs T-055, T-058, T-059 and No-name berg. Relevant data for these four possible groundings are presented in Table 4.1 and the drift data are presented in Appendix E.

In 1983, only three of the icebergs observed by Mobil Oil qualify as possible groundings. These are icebergs 36, 433 and 722. The drift data for these three inferred possible groundings are listed in Appendix D.

Table 4.1 Possible groundings extracted from Mobil Oil iceberg drift data, 1983 and 1984 (Data Appendix D & E)

Berg #	Date Day-Month-Year	Remarks/reason for possible groundings	Location °N	°W	Water depth (m)	Berg draft (m)
36	04-02-1983	6 hours of stationarity	47°-11'	47°-39'	200	NA
433	17-05-1983	12 " " "	47°-08'	48°-24'	130	90
722	24-06-1983	12 " " "	47°-26'	47°-30'	270	NA
T-055	05-05-1984	"berg still seems to be grounded"	46°-36'	49°-04'	71	76
T-058	06-05-1984	"berg grounded"	46°-26'	48°-52'	68	NA
T-059	07-05-1984	"berg grounded"	46°-28'	48°-42'	76	NA
No-Name	15-05-1984	"seems to be grounded"	47°-33'	48°-42'	165	90

Note: NA implies that data are not available.

5. Summary

This review of iceberg drift data for possible groundings indicates that a total of 21 possible groundings occurred and were affected by 20 bergs. Husky Oil data contributed 8 possible groundings; Petro-Canada data yielded 6 possible groundings by 5 bergs and Mobil Oil data provided 7 possible groundings by 7 bergs. The total is 21 possible groundings by 20 icebergs which are summarized in Table 5.1. The water depths at the possible grounding sites varied from a high of 270m to a low of 71m.

Table 5.1 Summary listing of 21 possible groundings by 20 icebergs.

From Husky Oil iceberg drift data, 1984 to 1989

Berg #	Day-Month-Year	Lat. (°-'N)	Long. (°-')
061	15-04-1984	46-24	48-10
152	22-04-1984	46-23	48-24
204	15-05-1984	47-34	48-41
208	19-05-1984	45-59	48-11
009	02-12-1984	47-08	49-05
074	02-06-1985	47-22	48-21
104	03-06-1985	46-34	47-48
145	15-07-1985	46-16	47-33

From Petro-Canada iceberg drift data, 1984 and 1985

84TN010	21-04-1984	46-39	48-27
84Tn011	21-04-1984	46-38	48-41
84TN054	13-05-1984	46-22	48-04
85S035	01-06-1985	46-34	47-34
"	06-06-1985	46-48	47-36
85S050	30-05-1985	45-55	48-14

From Mobil Oil iceberg drift data 1983 and 1984.

36	04-02-1983	47-11	47-39
433	17-05-1983	47-08	48-24
722	24-06-1983	47-26	47-30
T-055	05-05-1984	46036	49-04
T-058	06-05-1984	46-26	48-52
T-059	07-05-1984	46-28	48-42
No-Name	15-05-1984	47-33	48-42

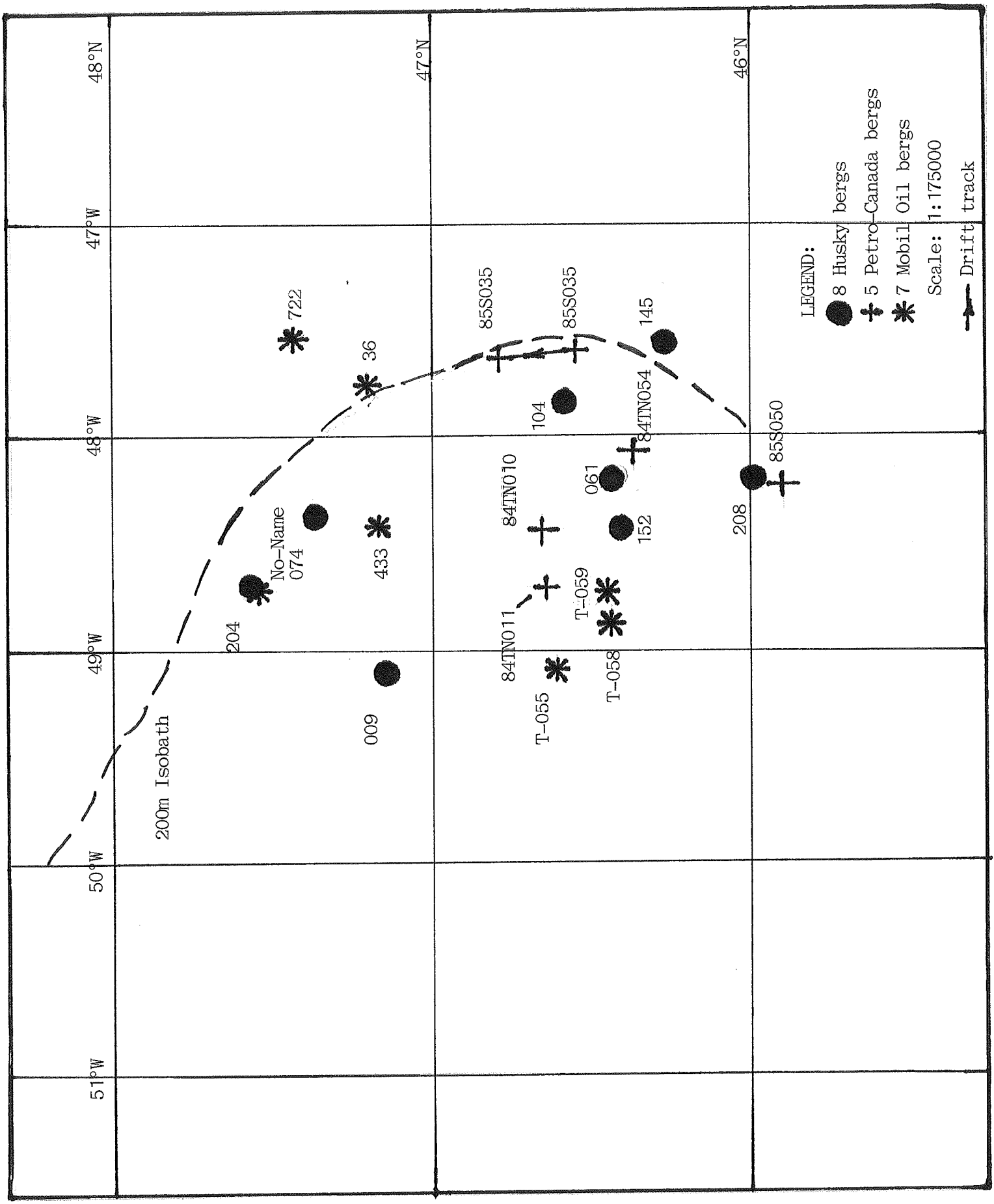

Figure 5.1 Locations of 21 possible groundings on the Grand Banks of Newfoundland

References

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REPORT APPENDIX

Drift tracks of 20 icebergs with 21 possible groundings.

APPENDIX A Husky Oil iceberg drift data.

APPENDIX B Petro-Canada iceberg drift data, 1984.

APPENDIX C Petro-Canada iceberg drift data, 1985.

APPENDIX D Mobil Oil iceberg drift data, 1983.

APPENDIX E Mobil Oil iceberg drift data, 1984.

APPENDIX A

Husky Oil iceberg drift data

Iceberg 061

Iceberg 061 was a large tabular berg. The water-line length was 228m and the width was 90m. The sail height was 17m and the draft was calculated as 94m. This is considered as a low estimate of the actual draft since the berg grounded in a water depth of 106m for a period of 10 hours. The mass was about 1.2 million tonnes. While the berg was under tow on May 15, 1984, 10 hours of stationarity is evident in the Individual Iceberg Observations (hereafter referred to as IIO's). It is inferred that a possible grounding occurred at 46°-24'N by 48°-10'W in a depth of 106m, despite the draft estimated as less than 106m. The drift track is presented in the attached plot and the 47 position observations are listed in the attached IIO's.

INDIVIDUAL ICEBERG OBSERVATIONS

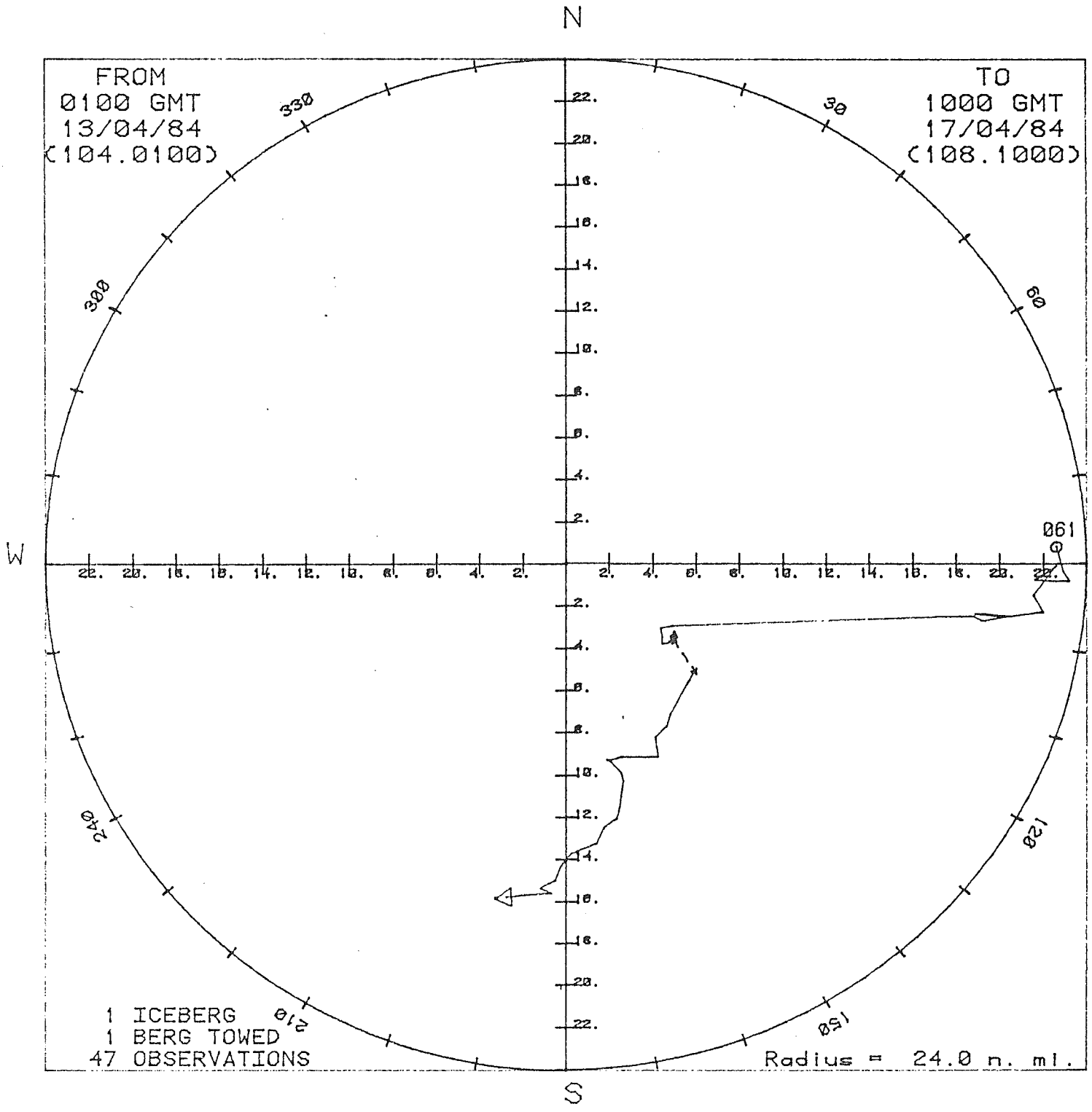
LOCATION: VOYAGER J-18
DRILL RIG: SEDCO 706

BERG 061

DATE (GMT)	TIME (GMT)	RANGE (n.mi.)	BEARING (deg.T)	SPEED (Knots)	COURSE (deg.T)	E.T. (h)	E.D. (n.mi.)	
13/04/84	0100	22.60	88.0	0.00	0.0	0.00	0.00	
13/04/84	0200	22.90	91.0	1.23	165.4	1.00	1.23	
13/04/84	0300	23.20	92.0	0.50	144.8	2.00	1.73	
13/04/84	0400	21.60	91.9	1.60	273.4	3.00	3.33	
13/04/84	0500	22.60	90.3	1.18	59.4	4.00	4.51	
13/04/84	0600	21.60	94.0	1.74	217.2	5.00	6.25	
13/04/84	0700	22.10	96.0	0.91	151.8	6.00	7.16	
13/04/84	0800	20.60	97.0	1.55	262.5	7.00	8.71	
13/04/84	0900	19.00	97.0	1.60	277.0	8.00	10.31	
13/04/84	1000	20.50	97.0	1.50	97.0	9.00	11.81	
13/04/84	1100	19.50	98.0	1.06	258.3	10.00	12.86	
13/04/84	1200	19.00	97.5	0.53	296.3	11.00	13.39	
15/04/84	1145	5.70	121.0	0.29	268.1	58.75	27.35	
15/04/84	1300	5.30	125.0	0.44	259.2	60.00	27.91	
15/04/84	1400	5.60	128.0	0.41	170.1	61.00	28.32	
15/04/84	1500	5.80	130.5	0.32	180.5	62.00	28.64	
15/04/84	1600	6.10	126.0	0.56	70.9	63.00	29.19	
15/04/84	1700	6.00	124.0	0.23	9.7	64.00	29.43	
15/04/84	2055	6.00	124.0	0.00	0.0	67.92	29.43	[UNDER TOW]
15/04/84	2200	6.10	126.0	0.22	189.7	69.00	29.66	[UNDER TOW]
15/04/84	2300	6.10	126.0	0.00	0.0	70.00	29.66	[UNDER TOW]
16/04/84	0000	6.10	126.0	0.00	0.0	71.00	29.66	[UNDER TOW]
16/04/84	0100	6.10	126.0	0.00	0.0	72.00	29.66	[UNDER TOW]
16/04/84	0200	6.10	126.0	0.00	0.0	73.00	29.66	[UNDER TOW]
16/04/84	0300	7.80	130.5	1.78	146.1	74.00	31.44	[UNDER TOW]
16/04/84	0420	7.90	134.0	0.37	210.5	75.33	31.93	[UNDER TOW]
16/04/84	0600	8.60	146.0	1.12	208.0	77.00	33.79	
16/04/84	0700	9.00	149.0	0.61	196.5	78.00	34.40	
16/04/84	0800	9.20	153.5	0.74	225.6	79.00	35.15	
16/04/84	0900	10.10	155.0	0.93	169.9	80.00	36.08	
16/04/84	1100	9.50	164.5	0.86	270.0	82.00	37.81	
16/04/84	1200	9.50	167.5	0.50	256.0	83.00	38.31	
16/04/84	1300	9.40	168.5	0.19	289.2	84.00	38.50	
16/04/84	1500	10.20	165.5	0.48	134.3	86.00	39.45	
16/04/84	1600	10.60	165.5	0.40	165.5	87.00	39.85	
16/04/84	1700	11.00	166.5	0.44	191.2	88.00	40.29	
16/04/84	1800	11.80	168.0	0.85	187.7	89.00	41.15	
16/04/84	1900	12.30	169.0	0.54	191.3	90.00	41.69	
16/04/84	2000	12.60	172.0	0.72	235.8	91.00	42.41	
16/04/84	2100	13.30	174.0	0.83	205.9	92.00	43.24	
17/04/84	0000	13.70	179.0	0.41	247.8	95.00	44.48	
17/04/84	0300	14.30	181.0	0.26	219.2	98.00	45.26	
17/04/84	0600	15.00	182.0	0.25	201.6	101.00	46.00	
17/04/84	0700	15.40	184.5	0.77	242.2	102.00	46.78	
17/04/84	0800	15.60	182.5	0.58	113.8	103.00	47.35	
17/04/84	0900	15.80	187.0	1.25	265.5	104.00	48.60	
17/04/84	1000	16.00	190.0	0.86	265.0	105.00	49.46	

Wellsite: VOYAGER J-18, 1984 Vessel: SEDCO 706
Iceberg: 84V0061

Time Tracked (h)	Distance Tracked (n.mi)	CPA (n.mi)	Mean Speed (kts)	Maximum Speed (kts)	Mean Direction (to ,T)
105.00	49.46	5.30	0.69	1.78	237°



Voyager J-18 (Sedco 706)
(46 27.54' N 48 17.01' W)

Iceberg Dimensions: Size = L Shape = TAB
Length = M228 Width = M90 Height = M17
Draft = C94 Mass = 1241870

DATE	TIME L	Range (n.mi)	Brng. (T)	Lat. (dd mm)	Long. (dd mm)	Call Sign	Speed (kts)	Dir. (T)	E.T. (h)	E.D. (n.mi)	Tow Type	Tow Hdg.	To For
17/04/84	0330	15.4	184.5	46 12.2	48 18.8	XXXX	0.77	242	102.0	47.1			
17/04/84	0430	15.6	182.5	46 12.0	48 18.0	XXXX	0.58	114	103.0	47.6			
17/04/84	0530	15.8	187.0	46 11.9	48 19.8	XXXX	1.25	266	104.0	48.9			
17/04/84	0630	16.0	190.0	46 11.8	48 21.0	XXXX	0.86	265	105.0	49.7			

15/04/84 0930 5.30 125.0 (CPA)
12/04/84 2330 23.20 92.0 (MDR)

SPEEDS (knots)

Min.	Max.	Mean	MadeGood	
0.00	1.78	0.69	0.29	(towards 237 deg T)

TOTAL NUMBER OF OBSERVATIONS = 47

Iceberg 152

Iceberg 152 was a medium size drydock berg with a water-line length of 107m, a width of 58m and a sail height of 32m. The draft was calculated as 73m and the mass as 0.2 million tonnes. The estimated draft is considered to be in error because the given draft is only 2.3 times the sail height. The berg drifted very slowly during towing and is therefore inferred to be a possible grounding case. The water depth at 46°-22.5'N by 48°-23.5'W, the possible grounding site, is 96m. The water depth is greater than the given iceberg draft, but a possible grounding is inferred nevertheless, because the estimates or calculations of draft are not accurate.

INDIVIDUAL ICEBERG OBSERVATIONS

LOCATION: VOYAGER J-18
DRILL RIG: SEDCO 706

BERG 152

DATE (GMT)	TIME (GMT)	RANGE (n.mi.)	BEARING (deg.T)	SPEED (knots)	COURSE (deg.T)	E.T. (h)	E.D. (n.mi.)	
20/04/84	1409	9.20	4.0	0.00	0.0	0.00	0.00	
20/04/84	1700	8.70	3.0	0.18	200.9	2.85	0.52	[UNDER TOW]
20/04/84	1900	8.50	3.0	0.10	183.0	4.85	0.72	[UNDER TOW]
20/04/84	2000	7.60	6.0	0.99	159.4	5.85	1.72	[UNDER TOW]
20/04/84	2100	7.00	2.7	0.73	219.4	6.85	2.45	[UNDER TOW]
20/04/84	2200	6.20	2.0	0.80	188.1	7.85	3.25	[UNDER TOW]
20/04/84	2300	6.00	1.5	0.21	196.7	8.85	3.46	[UNDER TOW]
21/04/84	0005	5.30	357.0	0.76	211.6	9.93	4.29	[UNDER TOW]
21/04/84	0100	5.10	357.0	0.22	177.0	10.85	4.49	[UNDER TOW]
21/04/84	0206	4.60	351.0	0.65	219.5	11.95	5.20	[UNDER TOW]
21/04/84	0300	4.50	352.6	0.18	120.0	12.85	5.36	[UNDER TOW]
21/04/84	0400	4.10	352.0	0.40	178.7	13.85	5.77	[UNDER TOW]
21/04/84	0500	4.10	352.2	0.01	82.1	14.85	5.78	[UNDER TOW]
21/04/84	0600	4.00	352.9	0.11	146.2	15.85	5.89	[UNDER TOW]
21/04/84	0700	3.40	344.5	0.81	210.9	16.85	6.70	[UNDER TOW]
21/04/84	0800	3.10	334.8	0.63	221.1	17.85	7.32	[UNDER TOW]
21/04/84	0900	2.80	334.8	0.30	154.8	18.85	7.62	[UNDER TOW]
21/04/84	1000	2.70	327.0	0.39	226.0	19.85	8.01	[UNDER TOW]
21/04/84	1205	2.20	323.0	0.25	163.9	21.93	8.54	[UNDER TOW]
21/04/84	1300	2.10	318.0	0.23	202.5	22.85	8.75	[UNDER TOW]
21/04/84	1400	1.90	314.0	0.24	170.9	23.85	9.00	[UNDER TOW]
21/04/84	1500	1.80	316.0	0.12	102.1	24.85	9.11	[UNDER TOW]
21/04/84	1615	1.40	316.0	0.32	136.0	26.10	9.51	[UNDER TOW]
21/04/84	1713	1.40	316.0	0.00	46.0	27.07	9.51	[UNDER TOW]
21/04/84	1800	1.50	309.6	0.24	254.5	27.85	9.71	[UNDER TOW]
21/04/84	1900	1.70	325.3	0.48	23.1	28.85	10.18	[UNDER TOW]
21/04/84	1926	1.70	322.2	0.21	233.8	29.28	10.28	[UNDER TOW]
21/04/84	2000	1.80	316.5	0.35	259.2	29.85	10.48	[UNDER TOW]
21/04/84	2025	1.40	325.7	1.14	108.3	30.27	10.95	[UNDER TOW]
21/04/84	2100	1.50	318.3	0.36	260.0	30.85	11.16	[UNDER TOW]
21/04/84	2130	1.50	318.8	0.03	48.6	31.35	11.18	[UNDER TOW]
21/04/84	2300	1.40	305.0	0.24	206.0	32.85	11.54	[UNDER TOW]
22/04/84	0000	1.70	285.0	0.61	233.8	33.85	12.15	[UNDER TOW]
22/04/84	0100	2.00	281.0	0.33	259.7	34.85	12.48	[UNDER TOW]
22/04/84	0140	2.30	266.5	0.93	212.5	35.52	13.10	[UNDER TOW]
22/04/84	0300	3.00	251.0	0.75	212.9	36.85	14.09	[UNDER TOW]
22/04/84	0600	3.60	254.0	0.21	268.6	39.85	14.72	[UNDER TOW]
22/04/84	0700	3.80	255.9	0.23	286.5	40.85	14.95	[UNDER TOW]
22/04/84	0727	3.90	266.9	1.65	343.7	41.30	15.70	[UNDER TOW]
22/04/84	0800	4.10	266.5	0.37	258.8	41.85	15.90	[UNDER TOW]
22/04/84	0900	4.10	264.3	0.16	175.4	42.85	16.06	[UNDER TOW]
22/04/84	1100	4.30	269.0	0.20	326.5	44.85	16.46	[UNDER TOW]
22/04/84	1209	3.70	271.0	0.54	76.9	46.00	17.07	[UNDER TOW]
22/04/84	1400	3.80	279.0	0.29	354.2	47.85	17.60	[UNDER TOW]
22/04/84	1500	3.80	280.0	0.07	9.5	48.85	17.67	[UNDER TOW]
22/04/84	1600	3.30	282.5	0.52	84.0	49.85	18.19	[UNDER TOW]
22/04/84	1700	3.30	280.2	0.13	191.4	50.85	18.33	[UNDER TOW]
22/04/84	1800	3.10	288.7	0.51	37.3	51.85	18.84	[UNDER TOW]

INDIVIDUAL ICEBERG OBSERVATIONS

LOCATION: VOYAGER J-18
DRILL RIG: SEDCO 706

BERG 152 (Cont'd)

DATE (GMT)	TIME (GMT)	RANGE (n.mi.)	BEARING (deg.T)	SPEED (Knots)	COURSE (deg.T)	E.T. (h)	E.D. (n.mi.)	
22/04/84	1900	3.20	284.1	0.27	218.0	52.85	19.11	[UNDER TOW]
22/04/84	2000	3.30	281.2	0.19	223.9	53.85	19.30	[UNDER TOW]
22/04/84	2108	2.30	282.0	0.88	99.4	54.98	20.31	[UNDER TOW]
22/04/84	2210	2.00	266.0	0.65	157.6	56.02	20.97	[UNDER TOW]
22/04/84	2300	2.00	259.0	0.29	172.5	56.85	21.22	[UNDER TOW]
23/04/84	0000	1.90	238.0	0.72	150.6	57.85	21.94	[UNDER TOW]
23/04/84	0120	2.70	227.0	0.68	203.5	59.18	22.85	[UNDER TOW]
23/04/84	0300	3.60	216.0	0.65	187.5	60.85	23.93	[UNDER TOW]
23/04/84	0503	4.40	215.0	0.39	210.5	62.90	24.73	
23/04/84	0600	5.30	215.0	0.95	215.0	63.85	25.63	
23/04/84	0635	5.60	216.0	0.54	233.1	64.43	25.94	
23/04/84	0820	6.00	209.0	0.46	151.9	66.18	26.76	
23/04/84	0900	6.70	205.5	1.20	178.2	66.85	27.56	
21/04/84	1615	1.40	316.0	CLOSEST POINT OF APPROACH (CPA)				
20/04/84	1409	9.20	4.0	MAXIMUM DETECTION RANGE (MDR)				

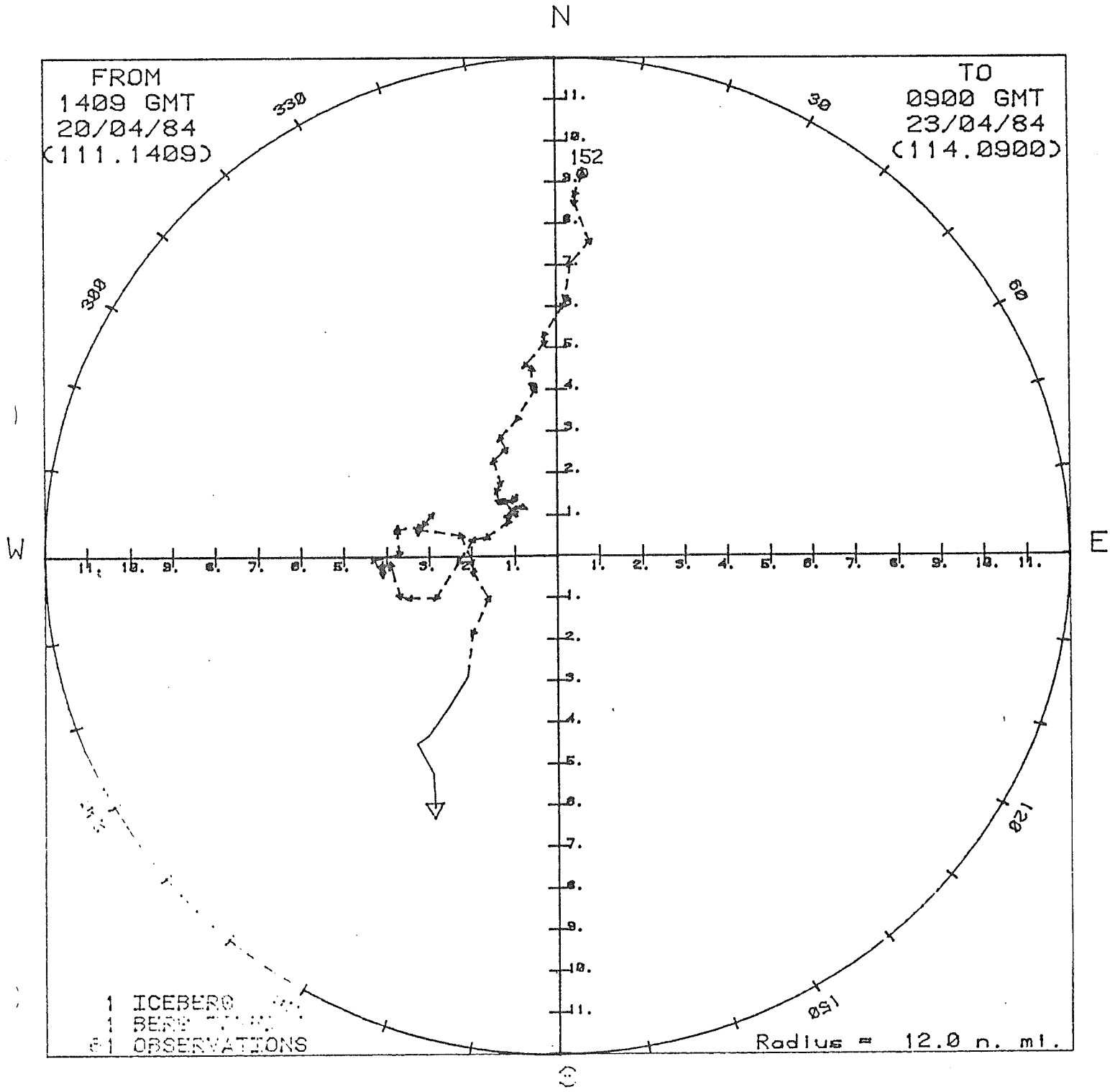
SPEEDS (knots)

MIN.	MAX.	MEAN	S.L.	
0.00	1.65	0.45	0.23	(to 193 T; Drift Ratio = 0.57)

TOTAL NO. OF OBSERVATIONS = 61

Wellsite: VOYAGER J-18, 1984 Vessel: SEDCO 706
Iceberg: 84V0152

Time Tracked (h)	Distance Tracked (n.mi)	CPA (n.mi)	Mean Speed (kts)	Maximum Speed (kts)	Mean Direction (to ,T)
66.85	27.56	1.40	0.45	1.65	193°



Iceberg 204

No dimensions at all are available for this berg and only 4 positions were taken as shown in the attached IIO and drift plot. The reason for inferring a possible grounding is 6 hours of stationarity during part of May 15 and 16, 1984 at 47°-34'N by 48°-41'W. The water depth at this location is 168m.

INDIVIDUAL ICEBERG OBSERVATIONS

LOCATION: VOYAGER J-18
DRILL RIG: SEDCO 706

BERG 204

DATE (GMT)	TIME (GMT)	RANGE (n.mi.)	BEARING (deg.T)	SPEED (Knots)	COURSE (deg.T)	E.T. (h)	E.D. (n.mi.)
15/05/84	2045	68.50	345.0	0.00	0.0	0.00	0.00
15/05/84	2345	68.50	346.0	0.40	75.5	3.00	1.20
16/05/84	0245	68.50	346.0	0.00	256.0	6.00	1.20
16/05/84	0545	68.50	346.0	0.00	0.0	9.00	1.20
15/05/84	2045	68.50	345.0	CLOSEST POINT OF APPROACH (CPA)			
15/05/84	2045	68.50	345.0	MAXIMUM DETECTION RANGE (MDR)			

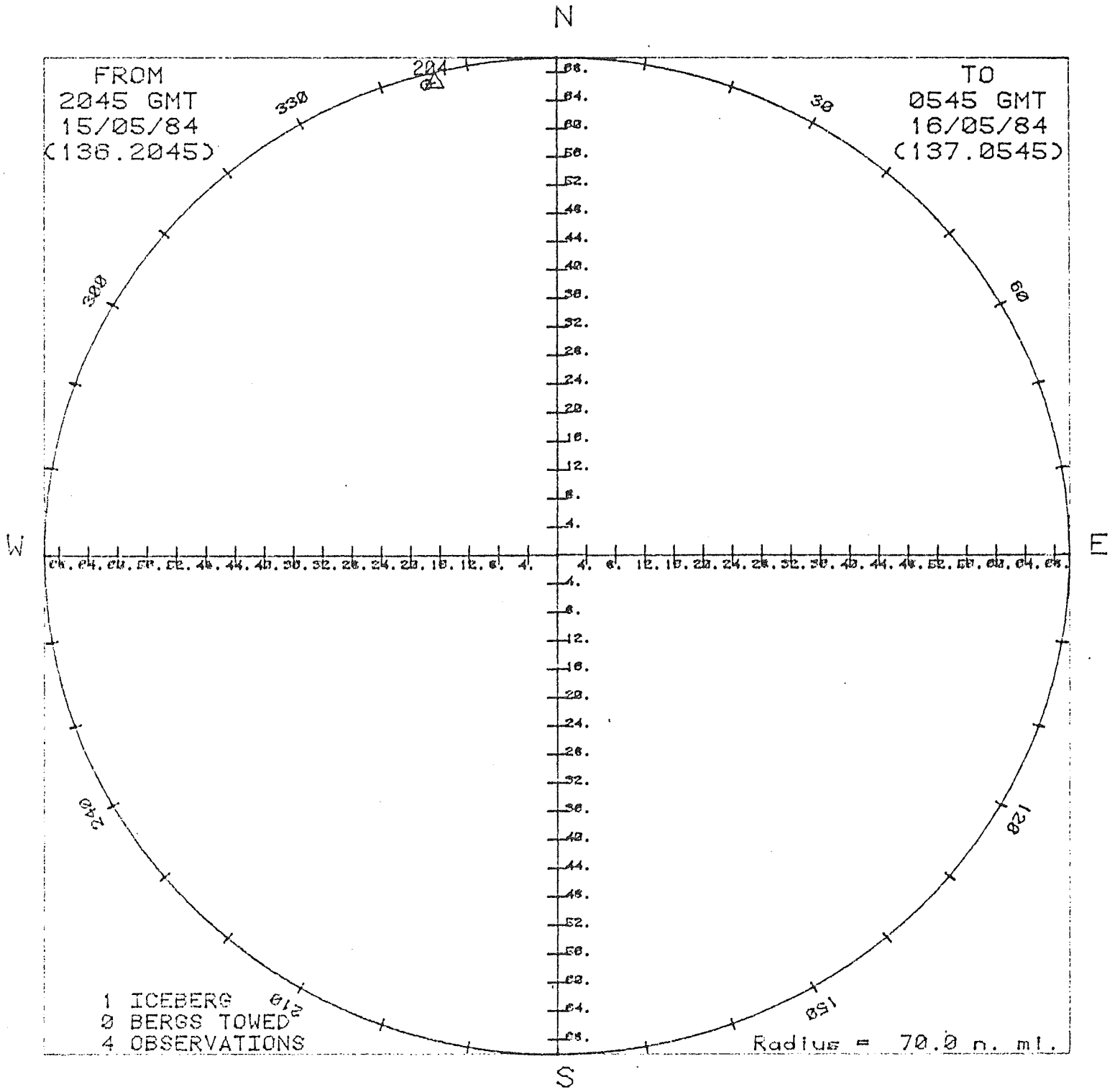
SPEEDS (Knots)

MIN.	MAX.	MEAN	S.L.	
0.00	0.40	0.13	0.13	(to 75 T; Drift Ratio = 1.00)

TOTAL NO. OF OBSERVATIONS = 4

Wellsite: VOYAGER J-18, 1984 Vessel: SEDCO 706
Iceberg: 84V0204

Time Tracked (h)	Distance Tracked (n.mi)	CPA (n.mi)	Mean Speed (kts)	Maximum Speed (kts)	Mean Direction (to ,T)
9.00	1.20	68.50	0.13	0.40	76°



Iceberg 208

No dimensional data are available for this berg. On the 19 of May, 1984, the berg was stationary for about 10 hours at 45°-59'N by 48°-11'W at the 110m isobath. For this reason, berg 208 qualifies as a possible grounding case , even though the draft of the berg is unknown. The drift track data are presented in the attached IIO and drift plot.

INDIVIDUAL ICEBERG OBSERVATIONS

LOCATION: VOYAGER J-18
DRILL RIG: SEDCO 706

BERG 208

DATE (GMT)	TIME (GMT)	RANGE (n.mi.)	BEARING (deg.T)	SPEED (Knots)	COURSE (deg.T)	E.T. (h)	E.D. (n.mi.)	
18/05/84	1855	29.50	169.0	0.00	0.0	0.00	0.00	
18/05/84	1954	29.60	169.0	0.10	169.0	0.98	0.10	
18/05/84	2150	29.40	170.0	0.29	280.7	2.92	0.65	
18/05/84	2353	28.80	171.0	0.38	310.3	4.97	1.44	
19/05/84	0203	28.50	171.0	0.14	351.0	7.13	1.74	
19/05/84	0400	28.50	171.0	0.00	0.0	9.08	1.74	
19/05/84	0600	28.50	171.0	0.00	0.0	11.08	1.74	
19/05/84	0800	28.90	170.0	0.32	119.1	13.08	2.38	
19/05/84	1000	28.70	171.0	0.27	282.2	15.08	2.92	
19/05/84	1200	28.20	172.0	0.35	306.7	17.08	3.63	
19/05/84	1400	27.30	173.0	0.51	324.2	19.08	4.65	
19/05/84	1553	26.70	172.0	0.41	30.6	20.97	5.41	
19/05/84	1758	26.10	171.0	0.36	29.0	23.05	6.17	
19/05/84	1940	24.00	168.0	1.46	21.5	24.75	8.64	[UNDER TOW]
19/05/84	2200	27.20	163.0	1.67	130.6	27.08	12.54	[UNDER TOW]
20/05/84	0000	29.00	159.0	1.33	113.5	29.08	15.20	[UNDER TOW]
20/05/84	0200	29.60	159.0	0.30	159.0	31.08	15.80	[UNDER TOW]
20/05/84	0400	31.10	156.0	1.09	110.8	33.08	17.99	[UNDER TOW]
20/05/84	0600	32.70	154.0	0.97	120.2	35.08	19.94	[UNDER TOW]
20/05/84	0800	34.00	153.0	0.71	129.4	37.08	21.36	[UNDER TOW]
20/05/84	1000	36.50	151.0	1.39	125.8	39.08	24.15	[UNDER TOW]
20/05/84	1255	36.00	155.0	0.88	254.2	42.00	26.73	

19/05/84 1940 24.00 168.0 CLOSEST POINT OF APPROACH (CPA)

20/05/84 1000 36.50 151.0 MAXIMUM DETECTION RANGE (MDR)

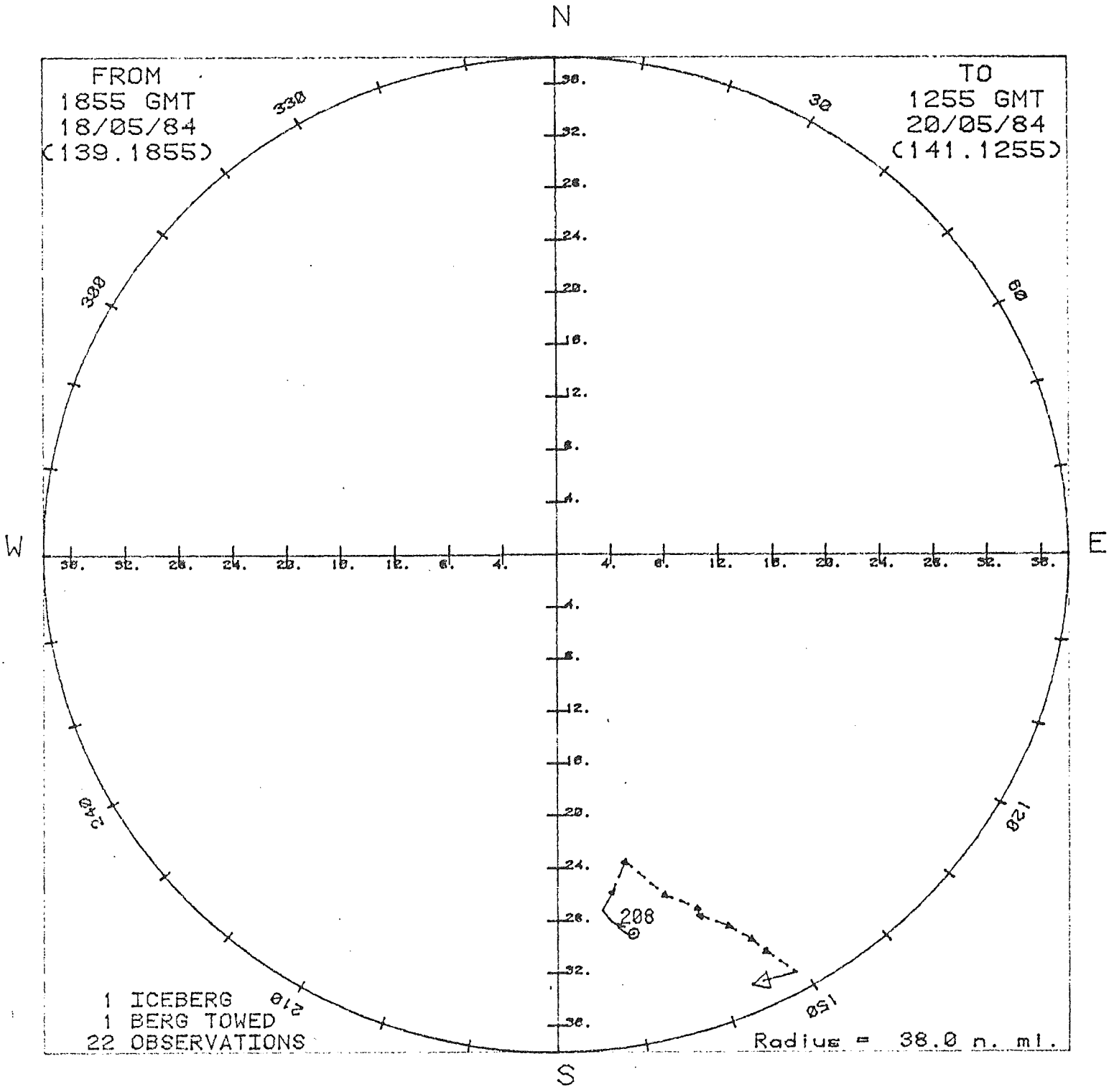
SPEEDS (Knots)

MIN.	MAX.	MEAN	S.L.	
0.00	1.67	0.62	0.24	(to 110 T; Drift Ratio = 0.38)

TOTAL NO. OF OBSERVATIONS = 22

Wellsite: VOYAGER J-18, 1984 Vessel: SEDCO 706
Iceberg: 84V0208

Time Tracked (h)	Distance Tracked (n.mi)	CPA (n.mi)	Mean Speed (kts)	Maximum Speed (kts)	Mean Direction (to ,T)
42.00	26.73	24.00	0.62	1.67	111°



Iceberg 009

This iceberg was a medium size drydock berg. The water-line length was 90m and the width was 70m. The sail height was 35m and the draft was estimated as 72m. The mass was 0.2 million tonnes. The berg was towed into a possible grounding position at 47°-08'N by 49°-05'W in a water depth of 76m. The berg was possibly grounded for about six hours on Dec 2, 1984. It subsequently drifted off towards the south-east. It was still under tow as shown in the attached IIO and the plotted drift track.

CONQUEST K-09 (BOW DRILL 2), 1985

DATE	TIME GMT	Range (n.mi)	Brng. (T)	TT (h)	Speed (kts)	Dir. (T)	E.T. (h)	E.D. (n.mi)	
26/11/84	1525	67.20	306.3	21	0.00	000	0.0	0.0	
27/11/84	1232	69.10	302.0	21	0.26	235	21.1	5.5	
27/11/84	1400	69.00	301.0	21	0.82	207	22.6	6.7	
27/11/84	1500	69.00	301.0	21	0.00	000	23.6	6.7	
28/11/84	1311	65.50	302.4	21	0.17	097	45.8	10.5	
01/12/84	1624	45.20	282.4	21	0.37	156	121.0	38.3	
01/12/84	2250	38.80	281.9	21	1.00	105	127.4	44.7	
02/12/84	0420	35.90	281.1	21	0.54	112	132.9	47.6	
02/12/84	0605	37.40	279.1	21	1.13	240	134.7	49.6	
02/12/84	0905	36.60	277.4	21	0.45	152	137.7	51.0	
02/12/84	1051	36.40	277.1	21	0.16	141	139.4	51.2	
02/12/84	1230	35.90	274.2	21	1.15	170	141.1	53.1	
02/12/84	1254	35.60	273.9	21	0.88	126	141.5	53.5	
02/12/84	1651	35.10	269.0	21	0.78	172	145.4	56.5	[LINE TOW]
02/12/84	1741	35.40	269.1	21	0.37	281	146.3	56.8	[LINE TOW]
02/12/84	2000	35.40	266.6	21	0.67	178	148.6	58.4	[LINE TOW]
02/12/84	2132	35.10	266.5	21	0.20	098	150.1	58.7	[LINE TOW]
03/12/84	0001	35.40	265.4	21	0.30	200	152.6	59.4	[LINE TOW]
03/12/84	0300	34.90	262.5	21	0.62	158	155.6	61.3	[LINE TOW]
03/12/84	0357	35.00	260.5	21	1.29	176	156.5	62.5	[LINE TOW]
03/12/84	0704	36.50	256.9	21	0.87	202	159.7	65.2	[LINE TOW]
03/12/84	0908	37.70	255.6	21	0.71	221	161.7	66.7	[LINE TOW]
03/12/84	1200	39.40	253.8	21	0.73	219	164.6	68.8	
03/12/84	1500	40.90	251.7	21	0.70	208	167.6	70.9	
03/12/84	1745	41.70	249.2	21	0.72	184	170.3	72.8	
03/12/84	2100	41.80	248.7	21	0.12	174	173.6	73.2	
04/12/84	0000	41.70	247.2	21	0.37	153	176.6	74.3	
04/12/84	0300	41.70	247.2	21	0.00	000	179.6	74.3	
04/12/84	0517	41.70	247.2	21	0.00	000	181.9	74.3	
04/12/84	0900	41.70	247.2	21	0.00	000	185.6	74.3	[LINE TOW]
04/12/84	1250	41.70	247.2	21	0.00	000	189.4	74.3	[LINE TOW]
04/12/84	1500	41.70	247.2	21	0.00	000	191.6	74.3	
04/12/84	2130	40.10	247.7	21	0.25	055	198.1	76.0	
05/12/84	0030	39.50	250.1	21	0.59	359	201.1	77.7	
05/12/84	0330	38.20	252.7	21	0.73	018	204.1	79.9	[LINE TOW]
05/12/84	0630	36.70	253.1	21	0.51	063	207.1	81.4	[LINE TOW]
05/12/84	0930	35.70	251.9	21	0.42	110	210.1	82.7	[LINE TOW]
05/12/84	1230	34.70	252.2	21	0.34	062	213.1	83.7	[LINE TOW]
05/12/84	1330	35.00	250.7	21	0.96	180	214.1	84.7	[LINE TOW]
05/12/84	1530	35.00	250.9	21	0.06	341	216.1	84.8	[LINE TOW]
05/12/84	1630	33.10	251.6	21	1.94	059	217.1	86.7	[LINE TOW]
05/12/84	1807	33.10	251.6	21	0.00	000	218.7	86.7	[LINE TOW]
05/12/84	2130	30.10	252.4	21	0.90	064	222.1	89.8	[LINE TOW]
06/12/84	0045	27.00	252.2	21	0.95	074	225.3	92.9	[LINE TOW]
06/12/84	0330	23.50	245.9	21	1.62	108	228.1	97.3	[LINE TOW]

CONQUEST K-09 (BOW DRILL 2), 1985

DATE	TIME GMT	Range (n.mi)	Brng. (T)	TT (h)	Speed (kts)	Dir. (T)	E.T. (h)	E.D. (n.mi)	
06/12/84	0500	22.00	242.8	21	1.29	104	229.6	99.3	[LINE TOW]
06/12/84	0630	21.30	237.7	21	1.37	130	231.1	101.3	[LINE TOW]
06/12/84	0730	20.80	236.8	21	0.60	091	232.1	101.9	[LINE TOW]
06/12/84	0830	19.90	234.7	21	1.17	095	233.1	103.1	[LINE TOW]
06/12/84	0930	19.80	232.7	21	0.70	135	234.1	103.8	[LINE TOW]
06/12/84	1030	19.00	229.9	21	1.24	101	235.1	105.0	[LINE TOW]
06/12/84	1130	17.90	225.5	21	1.79	100	236.1	106.8	[LINE TOW]
06/12/84	1230	17.80	221.9	21	1.13	129	237.1	107.9	[LINE TOW]
06/12/84	1325	17.20	218.5	21	1.31	100	238.0	109.1	[LINE TOW]
06/12/84	1430	17.20	213.9	21	1.27	126	239.1	110.5	[LINE TOW]
06/12/84	1530	17.30	209.5	21	1.33	126	240.1	111.9	[LINE TOW]
06/12/84	1630	17.60	204.8	21	1.46	129	241.1	113.3	[LINE TOW]
06/12/84	1730	18.70	202.0	21	1.41	165	242.1	114.7	[LINE TOW]
06/12/84	1830	19.70	199.5	21	1.30	161	243.1	116.0	[LINE TOW]
06/12/84	1933	20.50	199.2	21	0.77	192	244.1	116.8	[LINE TOW]
06/12/84	2027	21.30	198.6	21	0.92	184	245.0	117.7	[LINE TOW]
06/12/84	2129	21.50	198.0	21	0.29	150	246.1	118.0	[LINE TOW]
06/12/84	2230	21.60	197.2	21	0.31	126	247.1	118.3	[LINE TOW]
06/12/84	2329	22.10	195.2	21	0.93	139	248.1	119.2	[LINE TOW]
07/12/84	0027	22.10	193.2	21	0.80	104	249.0	120.0	[LINE TOW]
07/12/84	0232	22.30	188.3	21	0.92	107	251.1	121.9	[LINE TOW]
07/12/84	0345	23.20	184.2	21	1.53	125	252.3	123.7	[LINE TOW]
07/12/84	0430	23.70	182.4	21	1.19	127	253.1	124.6	[LINE TOW]
07/12/84	0530	24.10	180.2	21	1.00	115	254.1	125.6	[LINE TOW]
07/12/84	0630	24.70	177.7	21	1.21	119	255.1	126.8	[LINE TOW]
07/12/84	0900	26.00	174.9	21	0.73	132	257.6	128.7	[LINE TOW]
07/12/84	0930	26.40	174.4	21	0.90	147	258.1	129.1	[LINE TOW]
07/12/84	1030	26.90	174.6	21	0.51	185	259.1	129.6	[LINE TOW]
07/12/84	1300	27.40	176.9	21	0.48	241	261.6	130.8	[LINE TOW]
07/12/84	1400	27.40	177.7	21	0.38	267	262.6	131.2	[LINE TOW]
07/12/84	1430	27.20	177.7	21	0.40	358	263.1	131.4	[LINE TOW]
07/12/84	1730	26.30	178.0	21	0.30	349	266.1	132.3	[LINE TOW]
07/12/84	1830	24.30	179.0	21	2.05	346	267.1	134.4	[LINE TOW]
07/12/84	1930	23.00	177.7	21	1.41	021	268.1	135.8	[LINE TOW]
07/12/84	2010	21.10	178.6	21	2.90	348	268.8	137.7	[LINE TOW]
07/12/84	2130	20.70	178.6	21	0.30	359	270.1	138.1	[LINE TOW]
07/12/84	2230	19.80	176.7	21	1.12	034	271.1	139.2	[LINE TOW]
07/12/84	2330	18.60	175.3	21	1.29	017	272.1	140.5	[LINE TOW]
08/12/84	0030	18.00	172.0	21	1.21	054	273.1	141.7	[LINE TOW]
08/12/84	0130	17.70	166.9	21	1.62	069	274.1	143.3	[LINE TOW]
08/12/84	0230	17.70	164.5	21	0.74	076	275.1	144.1	[LINE TOW]
08/12/84	0330	17.80	163.0	21	0.48	086	276.1	144.6	[LINE TOW]
08/12/84	0530	17.70	156.6	21	0.99	067	278.1	146.5	[LINE TOW]
08/12/84	0744	15.90	165.0	21	1.36	287	280.3	149.6	[LINE TOW]
08/12/84	0830	15.30	163.5	21	0.95	018	281.1	150.3	[LINE TOW]
08/12/84	0901	14.90	162.2	21	1.02	023	281.6	150.8	[LINE TOW]
08/12/84	0932	14.50	160.9	21	1.01	021	282.1	151.4	[LINE TOW]
08/12/84	1000	14.10	159.3	21	1.21	025	282.6	151.9	[LINE TOW]
08/12/84	1033	13.60	157.7	21	1.15	016	283.1	152.6	[LINE TOW]
08/12/84	1100	13.10	155.2	21	1.71	026	283.6	153.3	[LINE TOW]
08/12/84	1130	12.60	152.9	21	1.44	020	284.1	154.0	[LINE TOW]

CONQUEST K-09 (BOW DRILL 2), 1985

DATE	TIME GMT	Range (n.mi)	Brng. (T)	TT (h)	Speed (kts)	Dir. (T)	E.T. (h)	E.D. (n.mi)	
08/12/84	1200	12.20	150.5	21	1.31	024	284.6	154.7	[LINE TOW]
08/12/84	1230	11.90	146.7	21	1.71	038	285.1	155.5	[LINE TOW]
08/12/84	1300	11.50	143.1	21	1.67	026	285.6	156.4	[LINE TOW]
08/12/84	1330	11.30	138.3	21	1.95	039	286.1	157.4	[LINE TOW]
08/12/84	1400	11.30	135.0	21	1.30	047	286.6	158.0	[LINE TOW]
08/12/84	1430	11.40	130.4	21	1.83	049	287.1	158.9	[LINE TOW]
08/12/84	1500	11.60	126.3	21	1.69	052	287.6	159.8	[LINE TOW]
08/12/84	1630	12.50	116.0	21	1.56	054	289.1	162.1	[LINE TOW]
08/12/84	1743	14.20	110.0	21	1.81	074	290.3	164.3	[LINE TOW]
08/12/84	1830	15.20	109.0	21	1.32	095	291.1	165.3	[LINE TOW]
08/12/84	2004	17.60	109.0	21	1.53	109	292.7	167.7	[LINE TOW]
08/12/84	2030	18.20	109.0	21	1.38	109	293.1	168.3	[LINE TOW]
08/12/84	2130	20.00	108.0	21	1.83	098	294.1	170.2	[LINE TOW]
08/12/84	2230	21.60	110.0	21	1.76	133	295.1	171.9	[LINE TOW]
08/12/84	2330	22.80	106.0	21	1.96	056	296.1	173.9	[LINE TOW]
09/12/84	0030	24.10	108.0	21	1.54	139	297.1	175.4	[LINE TOW]
09/12/84	0130	24.40	105.0	21	1.30	030	298.1	176.7	[LINE TOW]
09/12/84	0230	25.20	107.0	21	1.18	153	299.1	177.9	[LINE TOW]
09/12/84	0320	26.00	107.0	21	0.96	107	299.9	178.7	[LINE TOW]
09/12/84	0429	27.20	104.2	21	1.54	058	301.1	180.5	[LINE TOW]
09/12/84	0630	30.00	97.2	21	2.22	049	303.1	185.0	

08/12/84	1400	11.30	135.0	(CPA)
27/11/84	1232	69.10	302.0	(MDR)

SPEEDS (knots)

Min.	Max.	Mean	MadeGood	
0.00	2.90	0.97	0.31	(to 117 T; DRIFT RATIO = 0.51)

TOTAL NUMBER OF OBSERVATIONS = 117

TIME TRACKED (h)	DISTANCE TRACKED (n.mi)	CPA (n.mi.)	MEAN SPEED (kts)	MAX. SPEED (kts)	MEAN DIR. (to, T)
303.1	185.0	11.3	1.0	2.9	117

SITE SPECIFIC TARGET PLOT

SURROUNDING Area w.r.t.

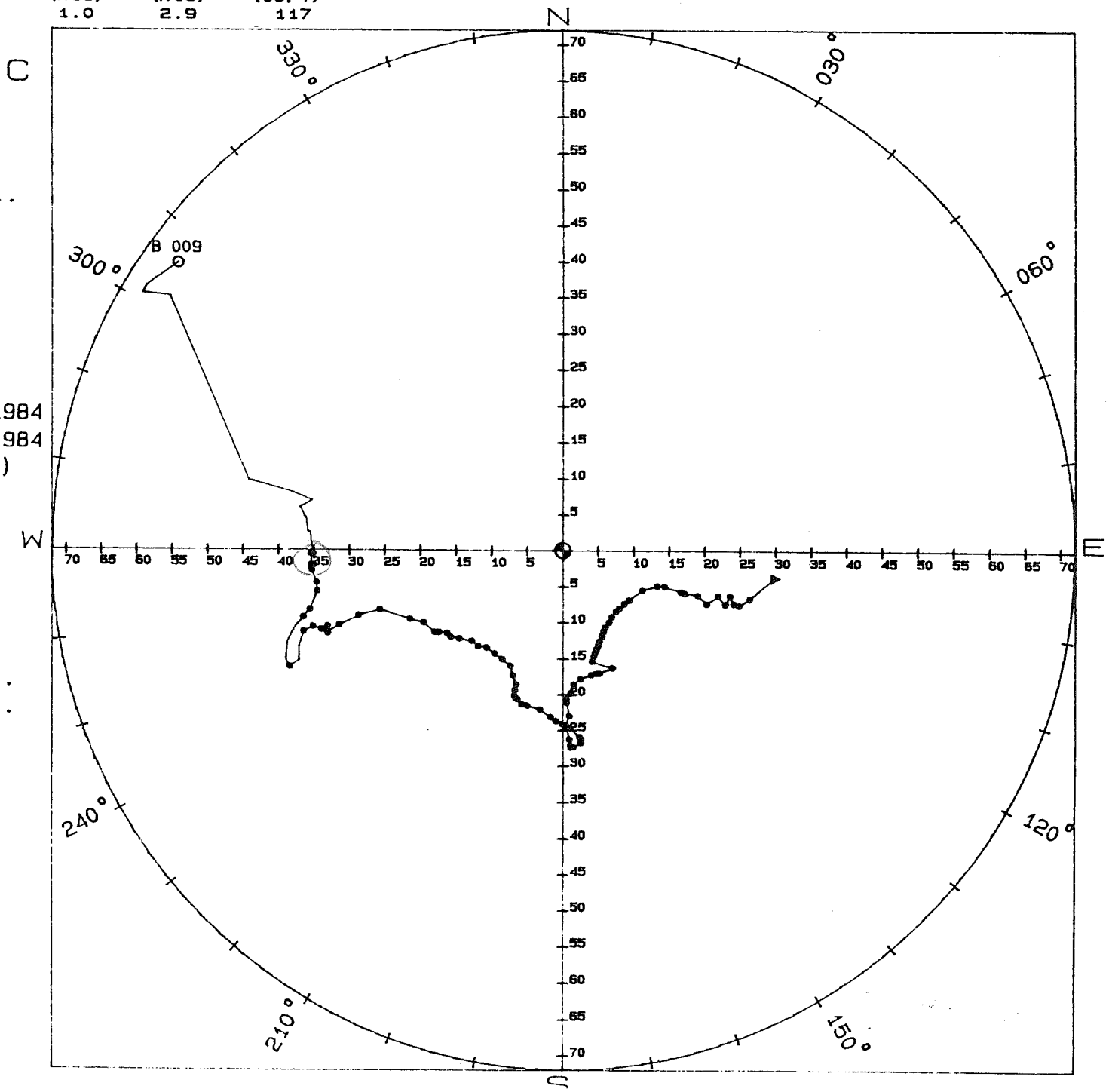
CONQUEST K-09
(BOW DRILL 2)
47 8' 34.00" N
48 15' 44.00" W

From 1525 GMT Nov. 26, 1984
to 0630 GMT Dec. 09, 1984
(12 days, 15.08 hours)

1 Target Tracked.
117 Observations.
1 Target Towed.

Radius = 72.0 n. mi.
Tic Interval = 5.0 n. mi.

CONQUEST K-09 is at the Center of Plot.



Iceberg 074

No information is available for the berg itself. The berg was observed during June 2, 1985 and experienced a displacement of only 1.9 nm during 9 hours in the area of 47°-22'N by 48°-21'W. The water depth at this location is 158m. Owing to the slow drift rate, a possible grounding is inferred for this berg.

CONQUEST K-09 (BOW DRILL 2), 1985

DATE	TIME GMT	Range (n.mi)	Brng. (T)	TT (h)	Speed (kts)	Dir. (T)	E.T. (h)	E.D. (n.mi)
02/06/85	0030	13.20	348.0	7	0.00	000	0.0	0.0
02/06/85	0130	13.10	347.0	7	0.25	234	1.0	0.3
02/06/85	0330	12.80	345.7	7	0.21	211	3.0	0.7
02/06/85	0430	13.30	342.6	7	0.87	289	4.0	1.5
02/06/85	0530	13.40	343.3	7	0.19	041	5.0	1.7
02/06/85	0630	13.60	342.3	7	0.31	293	6.0	2.0
02/06/85	0830	13.80	340.2	7	0.27	273	8.0	2.6
02/06/85	0930	13.70	341.7	7	0.37	086	9.0	2.9
02/06/85	1030	13.60	341.8	7	0.10	148	10.0	3.1
02/06/85	1130	13.50	344.0	7	0.53	084	11.0	3.6
02/06/85	1230	13.50	344.0	7	0.00	000	12.0	3.6
02/06/85	1330	13.50	344.0	7	0.00	000	13.0	3.6
02/06/85	1430	13.50	344.0	7	0.00	000	14.0	3.6
02/06/85	1530	13.80	338.0	7	1.46	263	15.0	5.0

02/06/85 0330 12.80 345.7 (CPA)
02/06/85 1530 13.80 338.0 (MDR)

SPEEDS (Knots)

Min.	Max.	Mean	MadeGood	
0.00	1.46	0.35	0.16	(to 267 T; DRIFT RATIO = 0.48)

TOTAL NUMBER OF OBSERVATIONS = 14

TIME TRACKED (h)	DISTANCE TRACKED (n.mi)	CPA (n.mi.)	MEAN SPEED (kts)	MAX. SPEED (kts)	MEAN DIR. (to. T)
15.0	5.0	12.8	0.4	1.5	267

SITE SPECIFIC TARGET PLOT

SURROUNDING Area w.r.t.

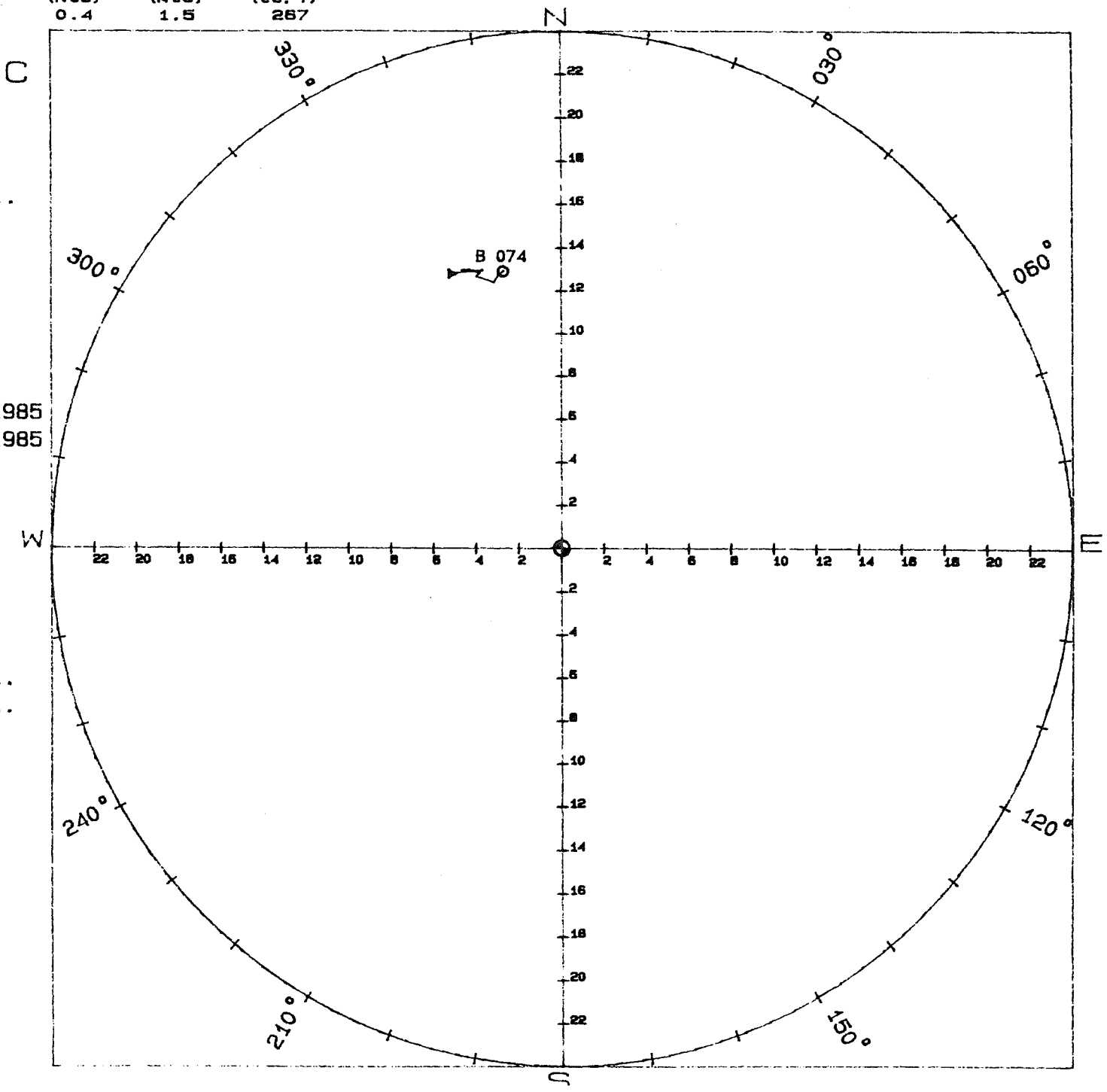
CONQUEST K-09
(BOW DRILL 2)
47 8' 34.00" N
48 15' 44.00" W

From 0030 GMT June 02, 1985
to 1530 GMT June 02, 1985
(15.00 hours)

1 Target Tracked.
14 Observations.

Radius = 24.0 n. mi.
Tic Interval = 2.0 n. mi.

CONQUEST K-09 is at the Center of Plot.



Iceberg 104

Information on dimensions of this berg is missing. Between 1600 hours on June 3, 1985 and 0630 hours on June 4, the berg moved about 2 nm at a drift speed of 0.1 knot. The water depth at this inferred possible grounding site (46°-34'N by 47°-48'W) is 130m. The attached IIO and drift plot indicates 3.2 nm total drift during 26 hours of observation. Therefore it is considered safe to assume that a possible grounding occurred.

BERG 104

NORTH BEN NEVIS P-93 (BOW DRILL 3), 1985

DATE	TIME GMT	Range (n.mi)	Brng. (T)	TT (h)	Speed (kts)	Dir. (T)	E.T. (h)	E.D. (n.mi)
03/06/85	0430	30.30	110.0	8	0.00	000	0.0	0.0
03/06/85	1600	29.18	109.8	8	0.10	295	11.5	1.1
03/06/85	2230	29.70	110.0	8	0.08	121	18.0	1.7
04/06/85	0630	28.60	108.0	8	0.19	332	26.0	3.2

04/06/85	0630	28.60	108.0	(CPA)
03/06/85	0430	30.30	110.0	(MDR)

SPEEDS (knots)

Min.	Max.	Mean	MadeGood	
0.08	0.19	0.12	0.08	(to 320 T; DRIFT RATIO = 0.63)

TOTAL NUMBER OF OBSERVATIONS = 4

TIME TRACKED (h)	DISTANCE TRACKED (n.mi)	CPA (n.mi.)	MEAN SPEED (kts)	MAX. SPEED (kts)	MEAN DIR. (to, T)
26.0	3.2	28.6	0.1	0.2	320

SITE SPECIFIC TARGET PLOT

SURROUNDING Area w.r.t.

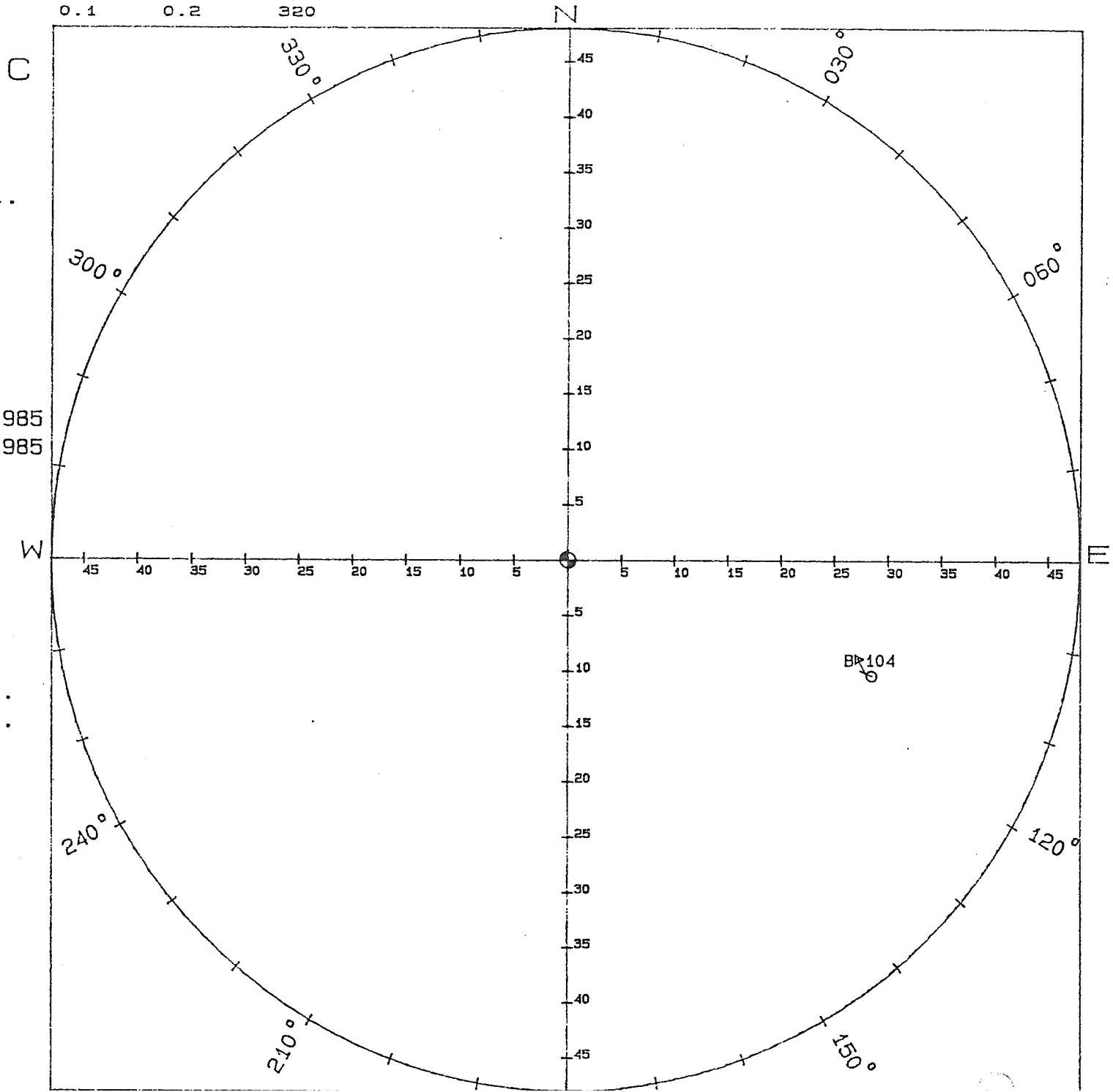
NORTH BEN NEVIS P-93
(BOW DRILL 3)
46 42' 48.10" N
48 28' 34.24" W

From 0430 GMT June 03, 1985
to 0630 GMT June 04, 1985
(1 days, 2.00 hours)

1 Target Tracked.
4 Observations.

Radius = 48.0 n. mi.
Tic Interval = 5.0 n. mi.

NORTH BEN NEVIS P-93 is at the Center of Plot.



Iceberg 145

Fortunatly, berg dimensions are available for this berg. The water-line length was 200m, the width was 100m and the sail height was 45m. The mass was estimated as 2.7 million tonnes and the draft was estimated as 95m. This estimate is considered as in error, being only 2 times the sail height. A period of 6.5 hours of observations are indicated and the displacement was zero. This suggests a possible grounding at 46°-16'N by 47°-33'W in 220m of water. Considering the sail height and the mass of this berg, it is reasonable to infer a possible grounding even though the water depth is 220m.

NORTH BEN NEVIS P-93 (BOW DRILL 3), 1985

DATE	TIME GMT	Range (n.mi)	Brng. (T)	TT (h)	Speed (kts)	Dir. (T)	E.T. (h)	E.D. (n.mi)
15/07/85	1230	38.90	125.0	25	0.00	000	0.0	0.0
15/07/85	1900	38.90	125.0	25	0.00	000	6.5	0.0

15/07/85 1900 38.90 125.0 (CPA)
15/07/85 1900 38.90 125.0 (MDR)

SPEEDS (knots)

Min.	Max.	Mean	MadeGood
0.00	0.00	0.00	0.00

(to 000 T; DRIFT RATIO = %0.10D+64)

TOTAL NUMBER OF OBSERVATIONS = 2

TIME TRACKED (h)	DISTANCE TRACKED (n.mi)	CPA (n.mi.)	MEAN SPEED (kts)	MAX. SPEED (kts)	MEAN DIR. (to, T)
6.5	0.0	38.9	0.0	0.0	000

SITE SPECIFIC TARGET PLOT

SURROUNDING Area w.r.t.

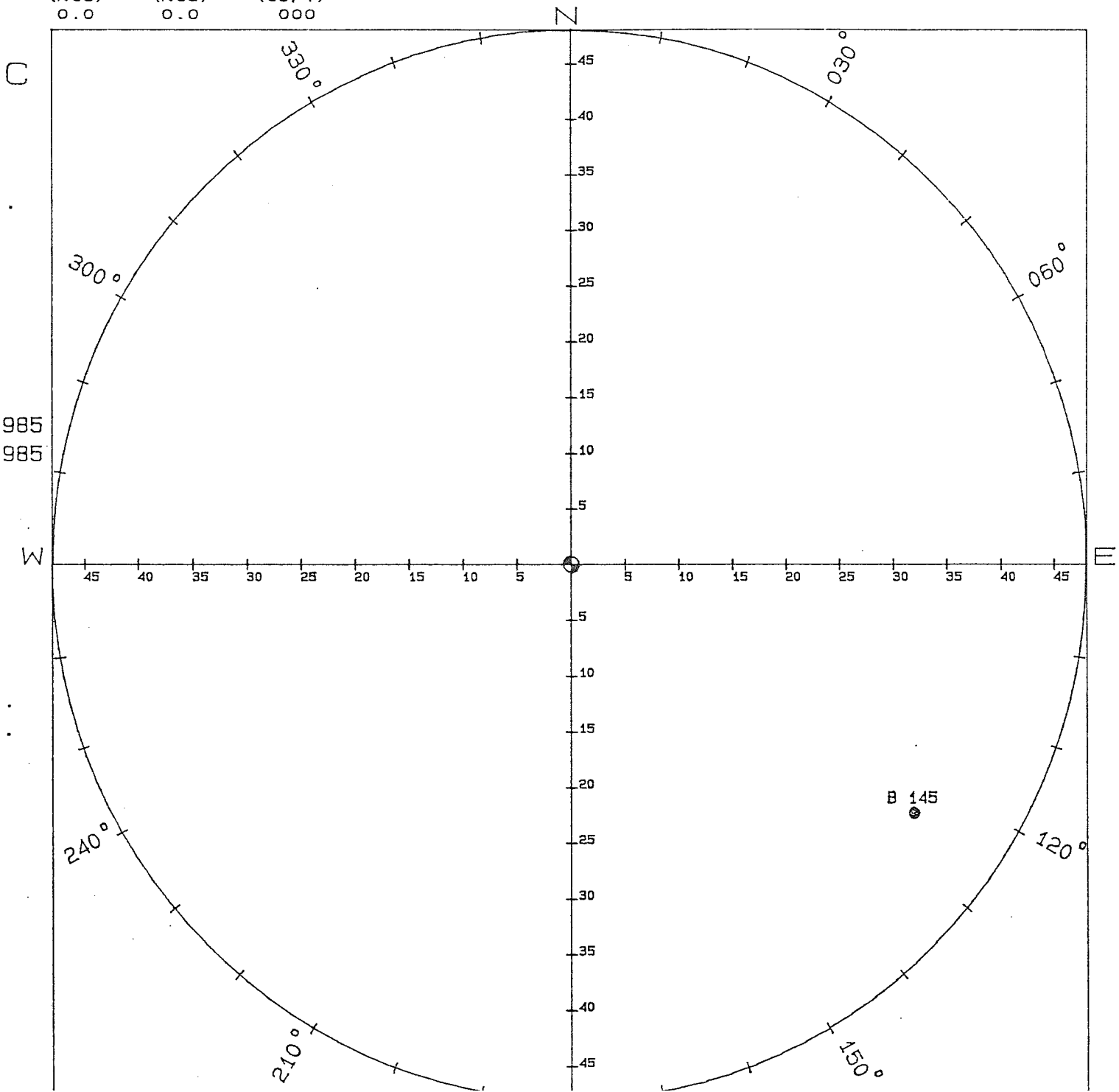
NORTH BEN NEVIS P-93
(BOW DRILL 3)
46 42' 48.10" N
48 28' 34.24" W

From 1230 GMT July 15, 1985
to 1900 GMT July 15, 1985
(6.50 hours)

1 Target Tracked.
2 Observations.

Radius = 48.0 n. mi.
Tic Interval = 5.0 n. mi.

NORTH BEN NEVIS P-93 is at the Center of Plot.



APPENDIX B

Petro-Canada iceberg drift data, 1984

84TN011.TRK

17 84TN011

112	0625	332.0	12.90	0.00	0.0	R
112	0700	327.0	12.70	1.94	229.4	R
112	0800	327.0	12.70	0.00	0.0	R
112	0900	327.0	12.70	0.00	0.0	R
112	1000	327.0	12.70	0.00	0.0	R
112	1100	327.0	12.70	0.00	0.0	R
112	1200	327.0	12.70	0.00	0.0	R
112	1300	327.0	12.70	0.00	0.0	R
112	1400	330.0	12.00	0.95	105.8	R
112	1900	327.0	12.70	0.19	285.8	R
112	2000	327.0	12.70	0.00	0.0	R
112	2100	327.0	12.70	0.00	0.0	R
112	2200	327.0	12.70	0.00	0.0	R
112	2300	327.0	12.70	0.00	0.0	R
113	0000	328.0	12.80	0.24	33.3	R
113	0100	327.0	13.10	0.38	290.5	R
113	0200	327.0	12.70	0.40	147.0	R

ICEBERG TRACK – 84TN010

SITE: TERRA NOVA K-08 **VESSEL: SEDCO 710**

PERIOD: APR 21 0615Z – APR 21 2200Z

NUMBER OF HOURS MONITORED : 15.9

C.P.A. (n.mi.) :11.7

MEAN DIRECTION FROM DEG. TRUE : 181.4

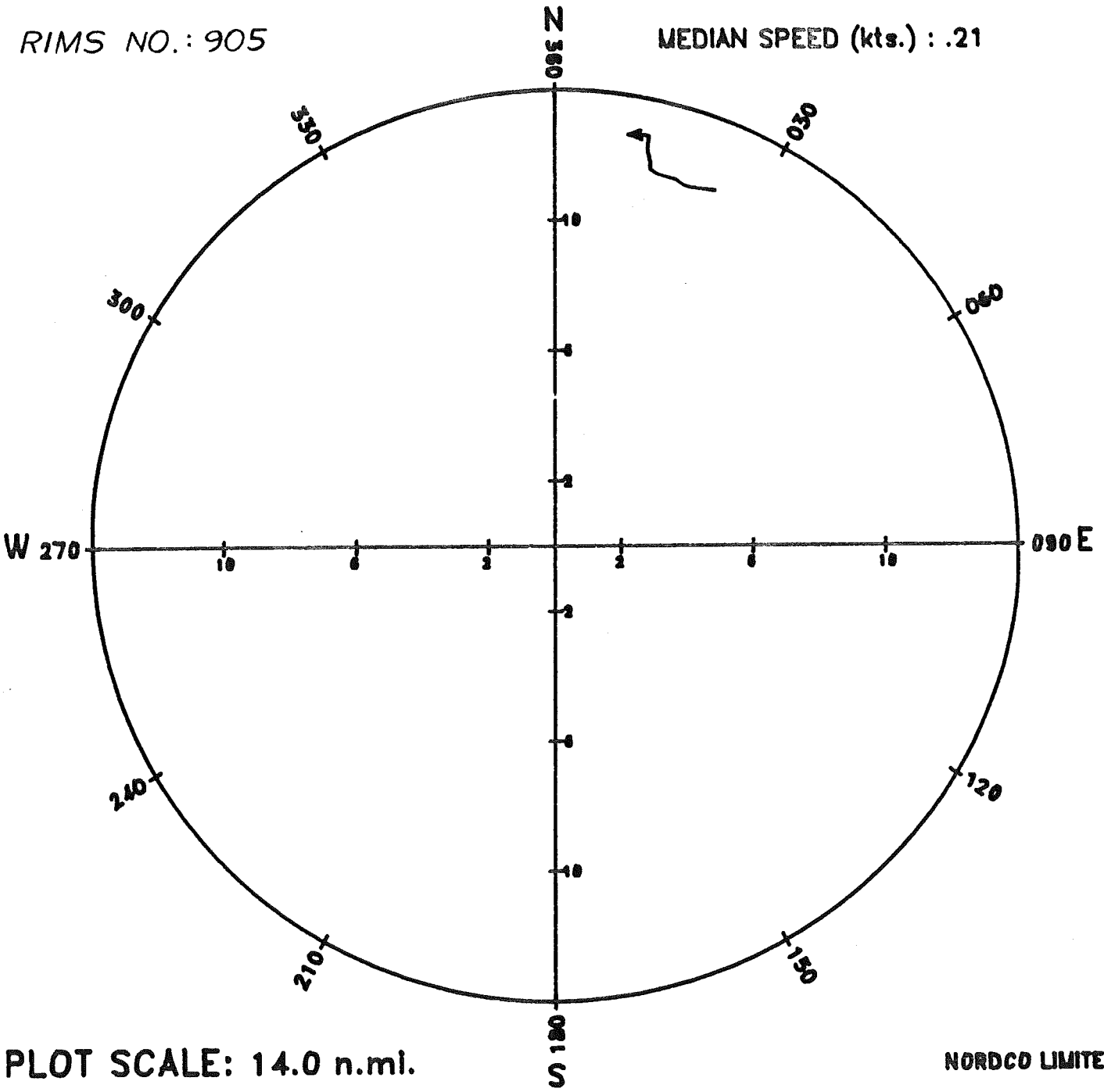
RIMS NO.: 905

MINIMUM SPEED (kts.) : .00

MAXIMUM SPEED (kts.) : 1.13

MEAN SPEED (kts.) : .26

MEDIAN SPEED (kts.) : .21



PLOT SCALE: 14.0 n.mi.

NORDCO LIMITED

84TN010.TRK

16 84TN010

112	0615	24.0	11.90	0.00	0.0	R
112	0700	20.0	11.70	1.13	278.4	R
112	0800	19.0	11.70	0.20	289.5	R
112	0900	18.0	11.80	0.23	314.5	R
112	1000	17.0	11.80	0.21	287.5	R
112	1100	15.0	11.80	0.41	286.0	R
112	1200	14.0	11.90	0.23	310.3	R
112	1300	14.0	12.10	0.20	14.0	R
112	1400	14.0	12.10	0.00	0.0	R
112	1500	13.0	12.40	0.37	338.0	R
112	1600	13.0	12.50	0.10	13.0	R
112	1700	13.0	12.60	0.10	13.0	R
112	1800	13.0	12.80	0.20	13.0	R
112	1900	13.0	12.90	0.10	13.0	R
112	2000	12.0	12.90	0.23	282.5	R
112	2200	10.0	12.80	0.23	268.4	R

Iceberg 84TN011

This iceberg experienced 19 hours of stationarity or miniscule drift on days 112 and 113, 1984. No dimensional data are available for the berg; all that is known is that it experienced a possible grounding at 46°-38'N by 48°-41'W in 80m of water. The drift data are contained in the attached IIO and drift plot.

ICEBERG TRACK – 84TN011

SITE: TERRA NOVA K-08 **VESSEL: SEDCO 710**

PERIOD: APR 21 0625Z – APR 22 0200Z

NUMBER OF HOURS MONITORED : 19.7

C.P.A. (n.mi.) :12.0

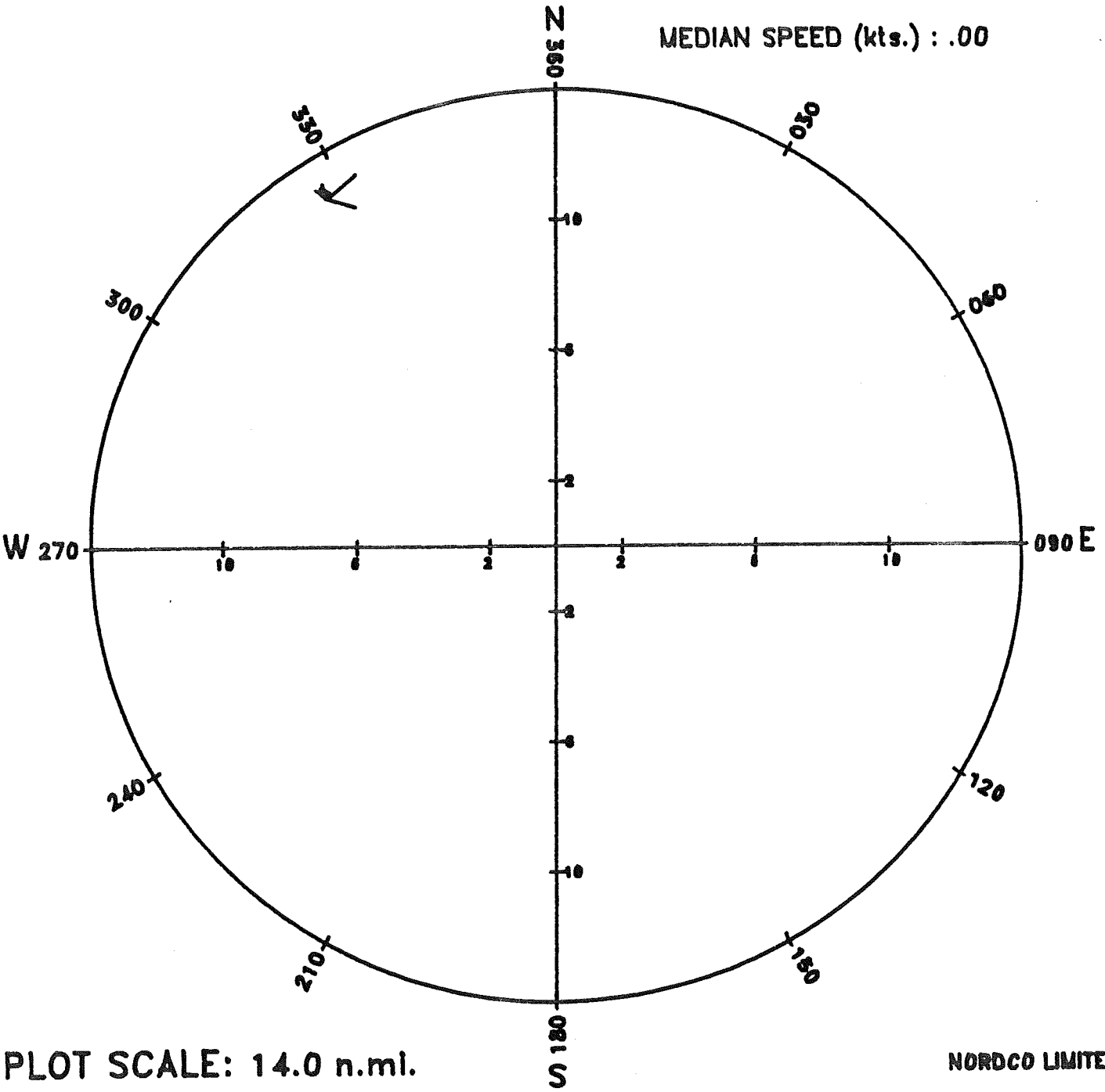
MEAN DIRECTION FROM DEG. TRUE : 68.2

MINIMUM SPEED (kts.) : .00

MAXIMUM SPEED (kts.) : 1.94

MEAN SPEED (kts.) : .26

MEDIAN SPEED (kts.) : .00



PLOT SCALE: 14.0 n.mi.

NORDCO LIMITED

Iceberg 84TN054

Only 4 hours of drift observations were made of this berg as shown in the attached IIO. The track plot indicates "iceberg grounded for entire tracking period". The possible grounding occurred at 46°-22'N by 48°-04'W in 112m of water depth. Nothing else is known.

```
84TN054.TRK
   4 84TN054
134 0400 107.0 20.00  0.00   0.0 R
134 0510 107.0 20.00  0.00   0.0 R
134 0610 107.0 20.00  0.00   0.0 R
134 0800 107.0 20.00  0.00   0.0 R
```

Iceberg 84TN010

This iceberg was not measured and all that is known is its drift on Julian day 112 in 1984. As shown in the attached IIO, 7 hours of slow drift occurred in the area of 46°-39'N by 48°-27'W, where the water depth is 97m. Owing to the slow drift and drift duration and the relatively shallow water depth, this berg qualifies as a possible grounding.

Iceberg 85S035

This iceberg was a large drydock berg about 172m long by 136m wide. The mass was about 1.1 million tonnes. The sail height was 55m and the draft was estimated as 165m. Considering the inferred possible grounding in greater water depths, the given estimated draft is taken to be in error. The berg drift during day 153 indicates 5 to 6 hours of slow drift at 46°-34'N by 47°-34'W where the water depth is 155m. During Julian day 158, the berg experienced another period of slow drift at 46°-48'N by 47°-36'W in 178m of water. Therefore, two occasions of possible grounding have been assigned to this iceberg.

APPENDIX C

Petro-Canada iceberg drift data, 1985

ICEBERG TRACK – 84TN054

SITE: TERRA NOVA K-08 **VESSEL: SEDCO 710**

PERIOD: MAY 13 0400Z – MAY 13 0800Z

NUMBER OF HOURS MONITORED : 4.0

C.P.A. (n.mi.) :20.0

MEAN DIRECTION FROM DEG. TRUE : .0

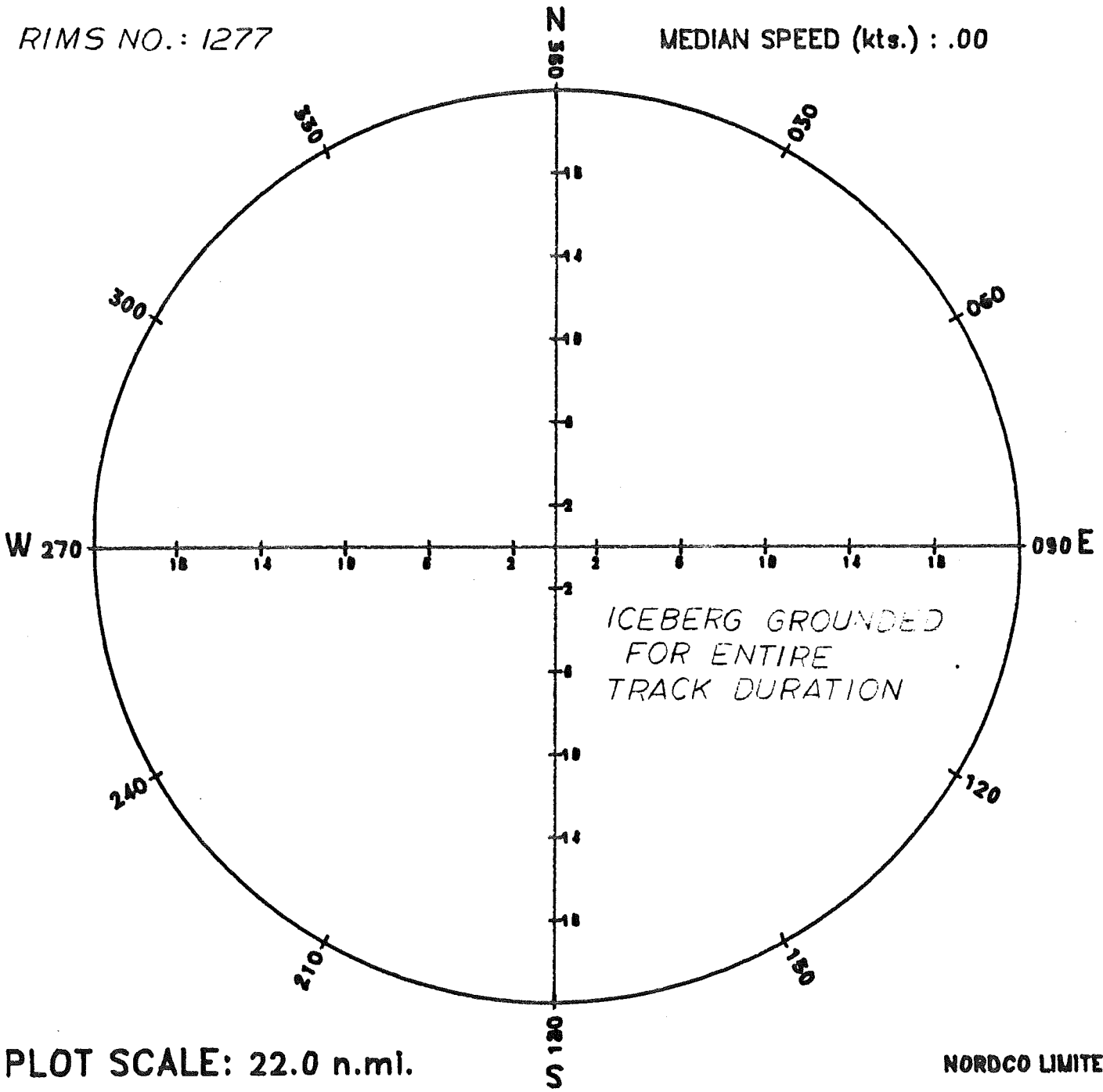
RIMS NO.: 1277

MINIMUM SPEED (kts.) : .00

MAXIMUM SPEED (kts.) : .00

MEAN SPEED (kts.) : .00

MEDIAN SPEED (kts.) : .00



PLOT SCALE: 22.0 n.mi.

NORDCO LIMITED

Iceberg Id: S35

Julian Day	Time	Bearing (Deg.T)	Range (N.Mi)	Speed (Knots)	Course (Deg.T)
153	1525	84.0	36.40	0.00	0.0
153	1800	84.0	35.30	0.43	264.0
153	2045	84.0	35.60	0.11	84.0
153	2230	84.0	36.00	0.23	84.0
154	530	85.0	34.00	0.30	247.5
154	730	87.0	34.10	0.60	171.2
154	930	87.0	34.30	0.10	87.0
155	230	81.0	30.80	0.29	308.3
155	630	80.0	30.50	0.15	321.2
155	1030	78.0	29.80	0.32	315.4
155	1730	82.0	31.70	0.41	128.5
155	1800	81.0	31.50	1.17	331.6
156	0	84.0	33.70	0.46	120.3
156	400	74.0	28.60	1.86	305.9
156	740	73.0	29.50	0.28	44.1
156	1200	72.0	28.80	0.20	288.5
156	1527	70.0	28.50	0.30	324.3
156	1930	70.0	28.10	0.10	250.0
157	0	67.0	26.50	0.48	290.3
157	433	65.0	27.30	0.27	16.4
157	1500	63.0	30.10	0.28	44.3
157	1830	66.0	32.10	0.74	103.7
157	2240	69.0	33.20	0.49	124.7
158	230	69.0	33.80	0.16	69.0
158	1147	65.0	35.30	0.31	8.9
158	1351	64.0	35.60	0.33	0.4
158	1627	63.0	36.10	0.31	12.1
158	1820	63.0	37.10	0.53	63.0
158	2203	63.0	38.00	0.24	63.0
159	0	63.0	38.20	0.10	63.0
159	100	63.0	38.30	0.10	63.0
159	348	62.0	38.00	0.26	308.2
159	604	62.0	38.50	0.22	62.0
159	744	63.0	39.10	0.54	111.0
159	911	61.0	38.70	0.98	315.6

ICEBERG TRACK – S35

SITE: NORTH TRINITY H–71 VESSEL: VINLAND

PERIOD: JUN 2 1525Z – JUN 8 0911Z

NUMBER OF HOURS MONITORED : 137.9

C.P.A. (n.mi.) :26.5

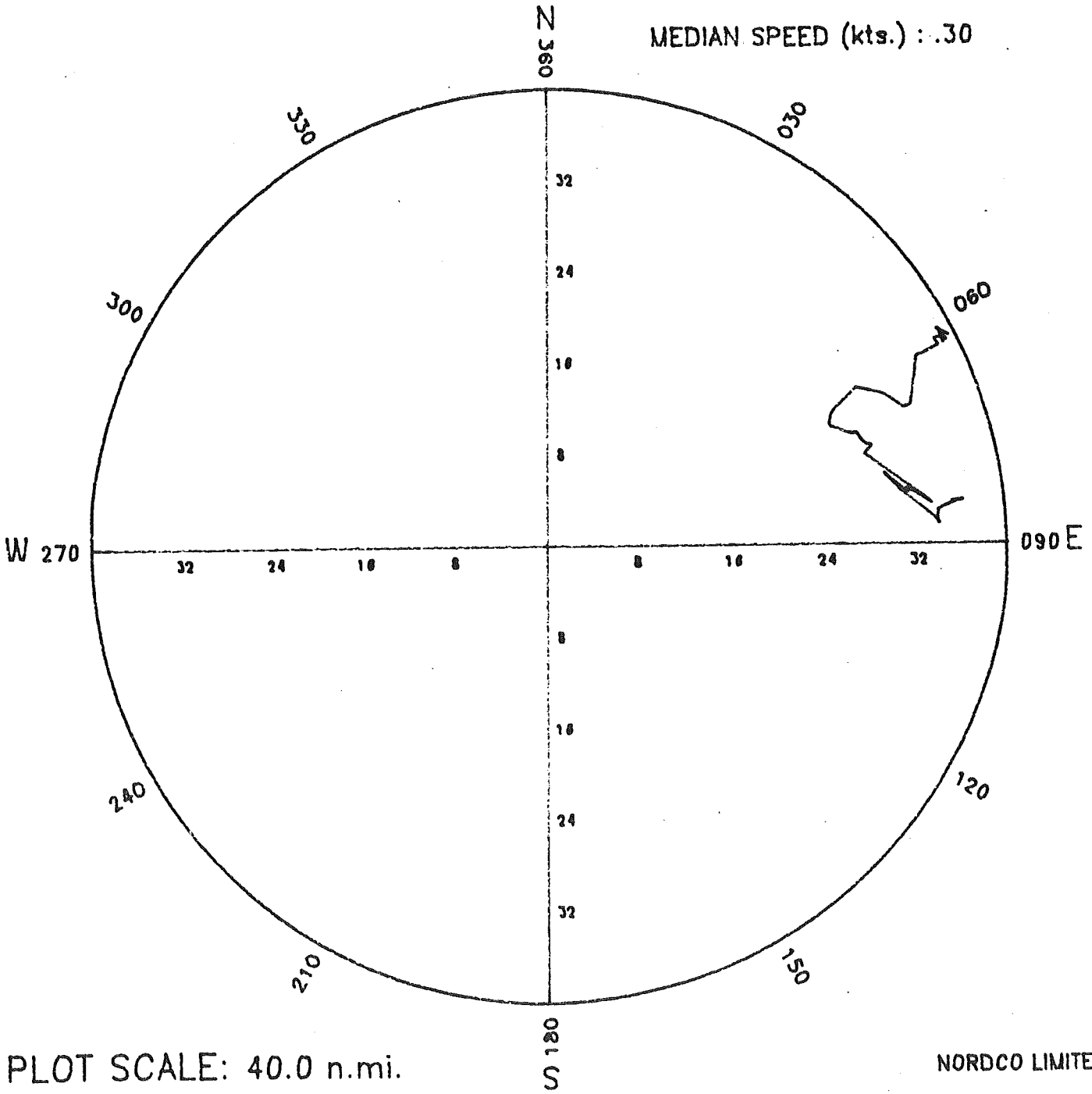
MEAN DIRECTION FROM DEG. TRUE : 158.7

MINIMUM SPEED (kts.) : .10

MAXIMUM SPEED (kts.) : 1.86

MEAN SPEED (kts.) : .40

MEDIAN SPEED (kts.) : .30



PLOT SCALE: 40.0 n.mi.

NORDCO LIMITED

Iceberg 85S050

This iceberg was observed on Julian day 161 and 162 in 1985. It experienced only 1.2 nm of displacement in 24 hours at 45°-55'N by 48°-14'W in 110m of water. No data are available concerning the dimensions or shape of this berg. Owing to the small displacement, this berg is inferred to have experienced a possible grounding.

Iceberg Id: S50

Julian Day	Time	Bearing (Deg.T)	Range (N.Mi)	Speed (Knots)	Course (Deg.T)
161	930	167.0	37.30	0.00	0.0
162	930	167.0	36.10	0.05	347.0

ICEBERG TRACK – S50

SITE: NORTH TRINITY H–71

VESSEL: VINLAND

PERIOD: JUN 10 0930Z – JUN 11 0930Z

NUMBER OF HOURS MONITORED : 24.0

C.P.A. (n.mi.) :36.1

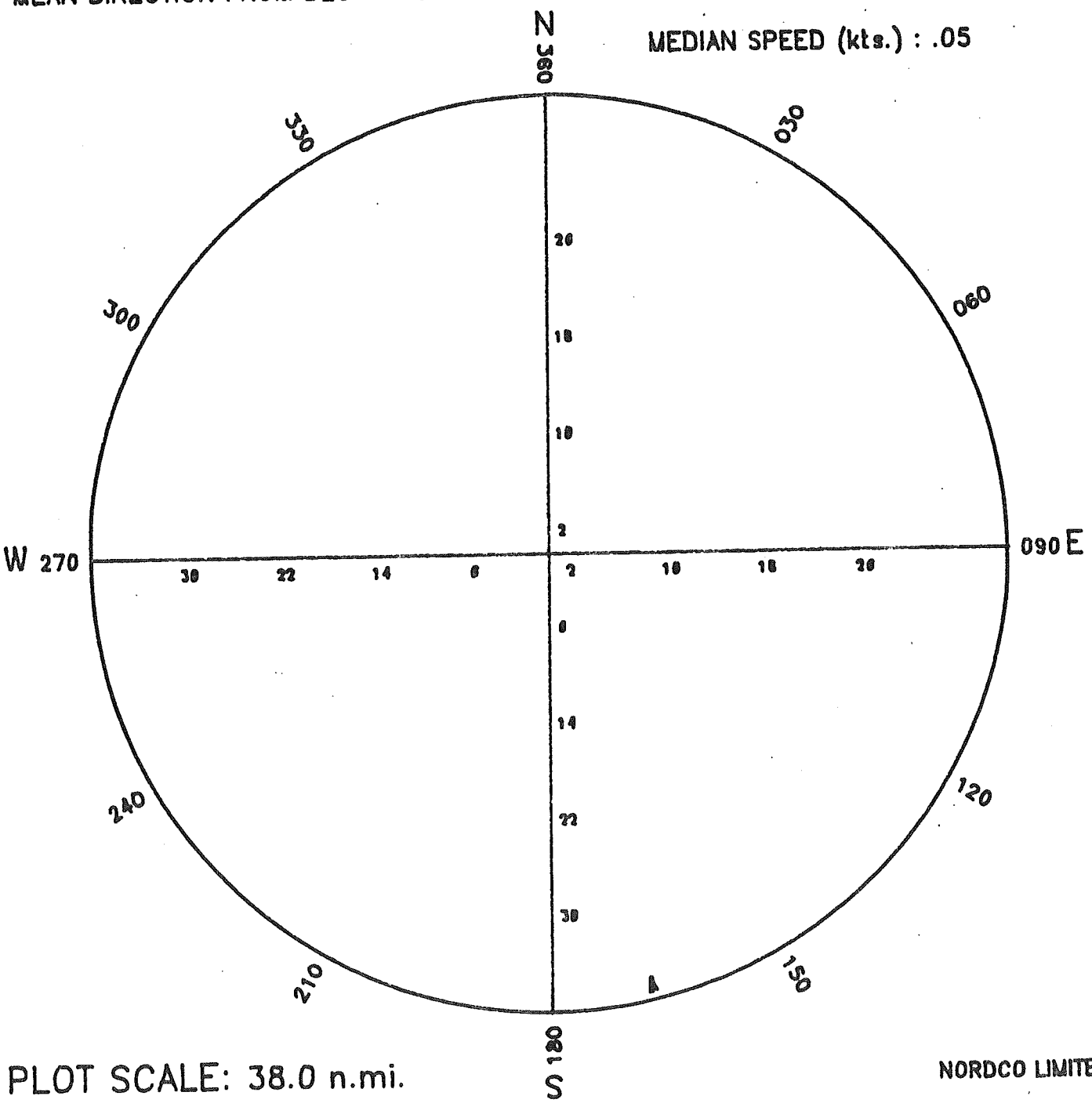
MEAN DIRECTION FROM DEG. TRUE : 347.0

MINIMUM SPEED (kts.) : .05

MAXIMUM SPEED (kts.) : .05

MEAN SPEED (kts.) : .05

MEDIAN SPEED (kts.) : .05



PLOT SCALE: 38.0 n.mi.

NORDCO LIMITED

APPENDIX D

Mobil Oil iceberg drift data, 1983

Iceberg 36

This iceberg experienced 6 hours of stationarity in a water depth of 200m at 47°-11'N by 47°-39'W on Feb. 4, 1983. Information is not available concerning the berg size but the hourly positions are shown in the attached listing.

Iceberg 433

This iceberg was 113m long, 103m wide and had a sail height of 30m. About 12 hours of stationarity was experienced on May 17, 1983 at 47°-08'N by 48°-24'W in 130m of water.

Iceberg 722

Absolutely nothing is known about this berg except its drift track presented in the attached listing. A period of 12 hours of stationarity was experienced on June 24, 1983 at 47°-26'N by 47°-29'W at the 270m isobath. It is possible that environmental conditions combined to create stationarity, but it is also possible that if this berg had sufficient draft, it might have grounded. Unfortunately, iceberg dimensions are not available.

83	2	7	2145	34		47	57.8	47	43.8	3	3					0	0	0
83	2	8	340	34		47	54.0	47	46.6	3	3					0	0	0
83	28		20	34		47	57.8	47	41.2	3	3					0	0	0
83	2	3	1519	35	017	47	46.6	48	39.4	2	6		180	120	60	0	0	0
83	2	3	1400	36		47	27.0	47	42.1	2	2					0	0	0
83	2	3	1610	36		47	28.0	47	42.5	3	2		010	010	04	0	0	0
83	2	4	100	36		47	21.0	47	39.2	1	3					0	0	0
83	2	4	200	36		47	20.2	47	38.7	1	3					0	0	0
83	2	4	300	36		47	19.7	47	38.3	1	3					0	0	0
83	2	4	400	36		47	19.1	47	37.6	1	3					0	0	0
83	2	4	500	36		47	17.7	47	37.2	3	2					0	0	0
83	2	4	600	36		47	16.2	47	40.0	3	2					0	0	0
83	2	4	700	36		47	17.1	47	36.8		3					0	0	0
83	2	4	800	36		47	15.9	47	36.6	3	2					0	0	0
83	2	4	900	36		47	15.5	47	36.4	3	2					0	0	0
83	2	4	1030	36		47	15.1	47	36.1	3	2					0	0	0
83	2	4	1200	36		47	14.1	47	35.5	1	2					0	0	0
83	2	4	1253	36		47	13.6	47	36.0	3	2					0	0	0
83	2	4	1400	36		47	13.2	47	36.4	1	2					0	0	0
83	2	4	1505	36		47	12.7	47	37.1	1	2					0	0	0
83	2	4	1600	36		47	13.0	47	37.9	1	3					0	0	0
83	2	4	1700	36		47	12.1	47	38.2	3	2					0	0	0
83	2	4	1800	36		47	11.8	47	38.6	1	2					0	0	0
83	2	4	1852	36		47	11.8	47	38.9	1	2					0	0	0
83	2	4	2000	36		47	11.5	47	39.1	1	2					0	0	0
83	2	4	2100	36		47	11.4	47	39.3	1	2					0	0	0
83	2	4	2200	36		47	11.3	47	39.3	1	2					0	0	0
83	2	4	2300	36		47	11.3	47	39.4	1	2					0	0	0
83	2	5	0	36		47	11.3	47	39.5	1	2					0	0	0
83	2	5	100	36		47	11.3	47	39.6	1	2					0	0	0
83	2	5	200	36		47	11.1	47	40.3	1	2					0	0	0
83	2	5	300	36		47	11.5	47	40.8	4	3					0	0	0
83	2	5	330	36		47	10.8	47	40.7	1	2					0	0	0
83	2	5	400	36		47	11.4	47	41.2	1	3					0	0	0
83	2	5	500	36		47	10.3	47	41.3	1	2					0	0	0
83	2	5	600	36		47	11.0	47	41.8	1	3					0	0	0
83	2	5	700	36		47	09.9	47	41.5	1	2					0	0	0
83	2	5	730	36		47	09.7	47	41.4	1	2					0	0	0
83	2	5	800	36		47	10.4	47	41.8	1	3					0	0	0
83	2	5	830	36		47	09.4	47	41.8	1	2					0	0	0
83	2	5	900	36		47	10.2	47	42.0	1	3					0	0	0
83	2	5	930	36		47	08.9	47	41.9	1	2					0	0	0
83	2	5	1000	36		47	9.7	47	42.0	1	3					0	0	0
83	2	5	1011	36		47	9.8	47	42.2	1	3					0	0	0
83	2	3	1458	37	014	47	45.4	47	36.8	2	2					0	0	0
83	2	3	1137	38	001	48	20.6	49	44.4	2	6		080	040	10	0	0	0
83	2	3	1140	39	002	48	22.1	49	41.6	2	9		080	050	30	0	0	0
83	2	3	1203	41	004	48	54.3	50	12.9	2	8		120	070	60	0	0	0
83	2	3	1914	41	007	49	14.6	49	26.9	2	6	L				0	0	0
83	2	3	1204	42	005	48	56.8	50	14.9	2	5		120	080	40	0	0	0
83	2	3	1208	43	007	48	59.5	50	06.0	2	5		150	100	60	0	0	0
83	2	3	1211	44	008	48	55.3	50	03.6	2	5		120	080	50	0	0	0
83	2	3	1217	45	009	49	00.0	49	46.1	2	5		120	150	80	0	0	0
83	2	3	1218	46	010	49	03.0	49	44.8	2	5		080	060	25	0	0	0

83	5	15	1745	433		47	04.4	48	25.0	3	3						0	0	0
83	5	15	1845	433		47	04.5	48	25.0	3	3						0	0	0
83	5	15	2045	433		47	05.5	48	26.2	3	3						0	0	0
83	5	15	2350	433		47	05.5	48	26.2	3	3						0	0	0
83	5	16	300	433		47	05.8	48	26.3	3	3						0	0	0
83	5	16	355	433		47	06.5	48	25.0	3	3						0	0	0
83	5	16	600	433		47	08.0	48	24.0	3	3						0	0	0
83	5	16	918	433		47	05.8	48	26.3	3	3						0	0	0
83	5	16	1200	433		47	05.8	48	26.3	3	3						0	1	0
83	5	16	1500	433		47	05.9	48	27.3	3	3						0	0	0
83	5	16	1800	433		47	08.4	48	22.2	3	3						0	0	0
83	5	17	0	433		47	07.0	48	25.2	3	3						0	0	0
83	5	17	530	433		47	08.4	48	23.5	3	3						0	0	0
83	5	17	1130	433		47	08.4	48	23.5	3	3						0	0	0
83	5	17	1500	433		47	08.4	48	23.5	3	3		087	021			0	0	0
83	5	17	1800	433		47	08.4	48	23.5	3	3						0	1	0
83	5	18	1840	433		47	12.2	48	19.0	3	3						0	0	0
83	5	18	2350	433		47	11.9	48	19.0	3	3						0	0	0
83	5	19	600	433		47	12.6	48	19.0	3	3						0	0	0
83	5	19	1150	433		47	12.7	48	14.3	3	3						0	0	0
83	5	19	1500	433		47	12.1	48	12.9	3	3						0	0	0
83	5	19	1731	433	001	47	11.6	48	11.2	2	5	M					0	0	0
83	5	19	1800	433		47	12.3	48	11.9	3	3						0	0	0
83	5	19	2045	433		47	12.5	48	10.6	3	3						0	0	0
83	5	20	0	433		47	12.5	48	10.6	3	3						0	0	0
83	5	20	300	433		47	13.3	48	08.0	3	3						0	0	0
83	5	20	600	433		47	11.8	48	10.5	3	3						0	0	0
83	5	20	1200	433		47	15.0	48	05.0	3	3						0	0	0
83	5	20	1626	433	001	47	15.2	48	05.9	2	8	M					0	0	0
83	5	20	1800	433		47	15.2	48	03.9	3	3		113	103	30	090	0	0	0
83	5	21	0	433		47	14.3	48	02.5	3	3						0	0	0
83	5	21	300	433		47	18.2	47	59.5	3	3						0	0	0
83	5	21	600	433		47	14.6	48	03.0	3	3						0	0	0
83	5	21	900	433		47	15.0	48	04.1	3	3						0	0	0
83	5	21	1200	433		47	15.1	48	04.9	3	3						0	4	0
83	5	21	1534	433		47	16.5	48	00.8	3	3						0	0	0
83	5	21	1800	433		48	00.8	48	00.8	3	3						0	0	0
83	5	21	2100	433		47	16.1	48	00.0	3	3						0	0	0
83	5	22	0	433		47	16.0	47	58.9	3	3						0	0	0
83	5	22	300	433		47	17.0	47	59.6	3	3						0	0	0
83	5	22	600	433		47	18.2	47	55.3	3	3						0	0	0
83	5	22	1200	433		47	16.8	47	54.0	3	3						0	0	0
83	5	22	1500	433		47	18.7	47	50.6	3	3						0	0	0
83	5	22	1800	433		47	12.2	47	44.1	3	3						0	0	0
83	5	22	1906	433		47	17.2	47	45.0	3	3						0	0	0
83	5	22	2253	433		47	15.8	47	40.0	3	3						0	0	0
83	5	23	0	433		47	15.3	47	40.0	3	3						0	0	0
83	5	23	322	433		47	15.2	47	40.0	3	3						0	0	0
83	5	23	600	433		47	14.5	47	39.7	3	3						0	0	0
83	5	23	900	433		47	13.5	47	35.9	3	3						0	0	0
83	5	8	1301	434	002	47	26.5	47	10.5	2	7	S					0	0	0
83	5	8	2100	434		47	27.0	47	08.0	3	3	3					0	0	1
83	5	8	1250	435	001	47	32.6	47	40.2	2	5	S					0	0	0
83	5	8	1312	436	003	47	45.6	46	59.7	2	5	S					0	0	0

83	6	23	555	722		47	28.5	47	44.5	3	3						0	0	0
83	6	23	836	722		47	28.2	47	45.2	3	3						0	0	0
83	6	23	900	722		47	28.5	47	45.5	1	3						0	0	0
83	6	23	1530	722		47	28.6	47	45.6	1	3						0	0	0
83	6	23	2100	722		47	28.4	47	41.5	2	1	3					0	0	0
83	6	24	120	722		47	28.2	47	36.5	1	3						0	0	0
83	6	24	200	722		47	28.2	47	36.1	1	3						0	0	0
83	6	24	300	722		47	28.0	47	34.2	1	3						0	0	0
83	6	24	400	722		47	27.9	47	32.6	1	3						0	0	0
83	6	24	500	722		47	27.6	47	31.1	1	3						0	0	0
83	6	24	600	722		47	27.4	47	30.0	5	1	3					0	0	0
83	6	24	700	722		47	27.0	47	28.9	1	3						0	0	0
83	6	24	800	722		47	26.5	47	27.6	1	3						0	0	0
83	6	24	1100	722		47	25.6	47	28.1	1	3						0	0	0
83	6	24	1200	722		47	25.6	47	28.5	1	3						0	0	0
83	6	24	1300	722		47	25.6	47	29.6	1	3						0	0	0
83	6	24	1400	722		47	25.9	47	30.2	1	3						0	0	0
83	6	24	1500	722		47	26.0	47	30.2	2	1	3					0	0	0
83	6	24	1600	722		47	25.7	47	29.6	1	3						0	0	0
83	6	24	1700	722		47	26.3	47	29.7	1	3						0	0	0
83	6	24	1800	722		47	26.0	47	29.0	5	1	3					0	0	0
83	6	24	1900	722		47	26.3	47	28.9	1	3						0	0	0
83	6	24	2000	722		47	26.2	47	28.1	1	3						0	0	0
83	6	24	2100	722		47	25.7	47	28.0	5	1	3					0	0	0
83	6	24	2200	722		47	25.3	47	27.1	1	3						0	0	0
83	6	24	2300	722		47	25.1	47	28.4	2	1	3					0	0	0
83	6	25	1000	722		47	25.7	47	33.8	1	3						0	0	0
83	6	25	1100	722		47	25.1	47	33.6	1	3						0	0	0
83	6	25	1150	722		47	25.5	47	33.8	3	3						0	0	0
83	6	25	1200	722		47	25.0	47	33.6	1	3						0	0	0
83	6	25	1300	722		47	25.1	47	33.6	1	3						0	0	0
83	6	25	1400	722		47	25.2	47	33.6	1	3						0	0	0
83	6	25	1500	722		47	25.0	47	33.0	3	3						0	0	0
83	6	25	1600	722		47	25.1	47	32.6	1	3						0	0	0
83	6	25	1700	722		47	24.6	47	32.1	1	3						0	0	0
83	6	25	1800	722		47	24.0	47	33.0	3	2						0	0	0
83	6	25	1900	722		47	23.8	47	33.6	1	2						0	0	0
83	6	25	2000	722		47	23.4	47	33.1	1	2						0	0	0
83	6	25	2100	722		47	23.2	47	34.0	3	1						4	3	0
83	6	25	2200	722		47	23.7	47	33.4	1	1						0	0	0
83	6	25	2300	722		47	23.2	47	33.4	1	1						0	0	0
83	6	26	0	722		47	23.0	47	35.8	3	1						0	0	0
83	6	26	100	722		47	23.4	47	34.8	1	1						0	0	0
83	6	26	200	722		47	23.7	47	34.7	1	1						0	0	0
83	6	26	300	722		47	23.5	47	36.0	3	1						0	0	0
83	6	26	400	722		47	24.2	47	34.1	1	1						0	0	0
83	6	26	600	722		47	23.8	47	33.0	3	1						0	0	0
83	6	26	600	722		47	23.8	47	33.0	3	1						0	0	0
83	6	26	700	722		47	24.2	47	33.2	1	1						0	0	0
83	6	26	800	722		47	23.8	47	31.5	1	1						0	0	0
83	6	26	900	722		47	23.7	47	32.4	3	1						0	0	0
83	6	26	1000	722		47	23.0	47	30.3	1	1						0	0	0
83	6	26	1100	722		47	22.6	47	30.5	1	1						0	0	0
83	6	26	1725	723		47	51.0	47	20.0	3	3		037	037	18		0	3	0

APPENDIX E

Mobil Oil iceberg drift data, 1984

Iceberg T-055

In the attached towing log, there is a note "berg still seems to be grounded". If a grounding did occur on May 5, 1984, it would have been of short duration. The berg was estimated as 116m long and 65m wide. The sail was about 47m high and the draft was estimated as 76m. Considering the fact that grounding or keel dragging occurred at the 71m isobath, and the fact that the berg was thought to be grounded by the crew of the towing vessel, it is safe to assume that this berg experienced a possible grounding.

LONG RANGE BERG LOG

1277
BERG NO. T-055 RIG NAME West Venture RIG LOCATION H-C-96 DATE 04 May '8

DATE / TIME	LATITUDE	LONGITUDE	RANGE	BEARING	SOURCE	NOTES
04 May 1750	46 35.5	49 05.8	17.5	236	Neutor	
04 May 2130					"	2130- Neutor b...
						tow of # 1277. See
						tow log.
07 May 1445	46 56.8	48 36.7	12.6	025	"	Tow Ends
1745	46 55.8	48 35.6	12.3	030	W/V RADAR	
2045	46 57.2	48 31.5	14.8	038	"	
08 May 0000	46 57.5	48 30.8	15.2	040	"	
0300	46 57.9	48 30.4	15.2	036	"	
0600	46 58.0	48 28.5	16.8	041	"	
0900	46 47.7	48 26.1	17.4	045	"	

		est. or measured
HEIGHT	47	M
LENGTH	116	m
WIDTH	6.5	m
MASS	378,400T	M
DRAFT	76	E

NOTES AND COMMENTS

Medium Drydock

1445Z- 07 May Neutor Ends Tow See tow log.

0900Z / 08 May Lost RADAR contact

TOWING LOG

(1)

DRILLING VESSEL West Venture

LOCATION 4645N4845W Hibernia C-9(

TOWING VESSEL Neutor

DATE 05 May 84

T-055

TOW NO. 12 BERG NO. 1277

TOWING SYSTEM USED Tow Rope

TIME THAT VESSEL IS INSTRUCTED TO TOW 1800Z

TIME THAT TOW COMMENCED 2130Z

TIME THAT ICEBERG RELEASED

TIME OF COMPLETION OF REQUIRED MAINTENANCE AND STORAGE

ESTIMATED ICEBERG PARAMETERS:

Mass E ~~600000~~ 378,400 tonnes

Waterline length M 116 metres

Height M 47 metres

Width M 65 metres

Draught E 76 metres

NOTES & COMMENTS ON TOWING OPERATION

2110Z - Neutor paying out tow wire.

2130 - NEUTOR STARTING TO PULL

Date (GMT)	Time (GMT)	Range (n. mi.)	Bearing (deg T)	Tow Heading (deg T)	Tow Force (tonne)	Power Input (%)	CHRONOLOGY
24/05/84	2130	15.9	237	120	N/A	N/A	NEUTOR STARTED PULLING
5/05/84	2215	16.0	235	120			
4/05/84	2345	15.8	235	120	M 33	N/A	
5/05/84	0245	15.2	234	120	M 33	N/A	BERG STILL SEEMS TO BE GROUNDED.
"	0545	14.1	230	120	M 33	N/A	
"	0845	13.6	223	120	—	N/A	
"	1145	13.6	221	120	—	N/A	course 0.5 kts, 131°
"	1445	13.5	220	120	—	N/A	
"	1745	12.5	220	120	E 40	E 45	Position is given by Neutor
"	2045	13.0	215				Position " " " "
"	2345	13.2	216	120	M 33	E 40	BERG SET WNW
6-05-84	0245	12.8	222	130	M 33	E 40	" " "
"	0545	11.5	226	130	M 33	E 40	BERG SET North.
"	0845	10.3	226	130	M 33	E 40	0.6 kts 010°

ESTIMATED

FENCO NEWFOUNDLAND LIMITED

TOWING LOG

(2)

DRILLING VESSEL West Venture

LOCATION Hibernia C-96

TOWING VESSEL Newton

ATE 06 may 84

TOW No. 14 BERG No. T-055 1277

TOWING SYSTEM USED Tow Rope

TIME THAT VESSEL IS INSTRUCTED TO TOW

TIME THAT TOW COMMENCED 2130Z / 05 MAY

TIME THAT ICEBERG RELEASED 1445 - instructed

TIME OF COMPLETION OF REQUIRED MAINTENANCE AND STORAGE 1625 / 07 May

NOTES & COMMENTS ON TOWING OPERATION

14452 End of tow.
Newton instructed to patrol 10 NM W to S from 46 47N 48=

ESTIMATED ICEBERG PARAMETERS:

Mass _____ tonnes
Waterline length M 99 metres
Height M 13 metres
Width M 51 metres
Draught E 69 metres

Date (GMT)	Time (GMT)	Range (n. mi.)	Bearing (deg T)	Tow Heading (deg T)	Tow Force (tonne)	Power Input (%)	CHRONOLOGY
06/05	1145	9.9	229	220	M 33	E 40	1145 - Tow Heading now 220°
06/05	1325	Approx 10.0	pos. 230				1325 - Tow lost Rope 2/105 over berg
06/05	1708						1808 - Newton has cleared Tow Rope
							And is hooked up again.
06/05/84	1745	6.5	254	360	M 30	E 40	1745 Posn. is base on Sat Nav posn from
"	2045	5.5	240	360	M 30	E 35	Newton. Suspect Accuracy of above.
"	2345	4.4	249	360	M 30	E 35	
07-05-84	0245	3.4	302	360	M 30	E 35	BERG SET 018° SPEED 1 kt.
"	0545	3.1	330	360	M 30	E 35	
"	0845	5.2	001	360	M 30	E 35	Berg set 1.0 kts 020°
"	1145	8.7	011	360			Berg set 1.5 kts 032°
"	1445	12.5	026				" " 1.4 045°

E ESTIMATED

Iceberg T-058

This iceberg was noted as "berg grounded" at 46°-26'N by 48°-52'W on May 6, 1984 at 2045 hours. The water depth at this location is 68m. By 0300 hours on May 7, the berg was adrift and it is not possible to find out how long the berg was grounded. However, the berg grounded notation and the water depth leads to the conclusion that this berg experienced a possible grounding.

#1283

LONG RANGE BERG LOG

BERG NO. I-058 RIG NAME WEST VENTURE RIG LOCATION H C-96 DATE 06 MAY 84

DATE / TIME	LATITUDE	LONGITUDE	RANGE	BEARING	SOURCE	NOTES
06 / 2045	46 25.5	48 51.5	21.6	193	W.V. RADAR	BERG GROUNDED
07 / 0300	46 27.4	48 46.5	18.2	184	"	BERG DRIFTING
07 / 0630	46 27.9	48 42.0	16.4	175	"	
07 / 0845	46 30.0	48 40.6	15.4	171	"	
07 / 1245	46 32.9	48 39.5	12.8	163	"	
07 / 1800	46 35.6	48 31.0	13.6	135	"	
07 / 2100	46 36.0	48 28.0	14.6	131	"	
08 / 0000	46 36.3	48 26.4	15.4	126	"	
08 / 0600	46 37.2	48 23.0	16.9	117	"	
08 / 0900	46 38.1	48 20.6	17.9	114	"	LOST RADAR CONTACT

		est. or measured
HEIGHT	N/A	
LENGTH	"	
WIDTH	"	
MASS	"	
DRAFT	"	

NOTES AND COMMENTS

Iceberg T-059

This iceberg was noted "berg grounded" at 46°-28'N by 48°-42'W in 76m of water on May 7, 1984. No other information is available concerning this berg. Considering the 76m water depth and the noted grounding, this berg is taken to have experienced a possible grounding.

1242

LONG RANGE BERG LOG

BERG NO. I-059 RIG NAME WEST VENTURE RIG LOCATION 14 C-56 DATE 7 MAY 84

DATE / TIME	LATITUDE	LONGITUDE	RANGE	BEARING	SOURCE	NOTES
07 / 0630	46 27.9	48 42.1	17.5	175	W.V. RADAR	BERG GROUNDED
07 / 0840	46 29.5	48 39.5	16.4	168	"	BERG DRIFTING
07 / 1600	46 30.3	48 37.7	15.7	163	"	
08 / 0000	46 33.4	48 28.9	16.0	138	"	
08 / 0600	46 35.1	48 25.8	16.5	129	"	
08 / 0900	46 35.9	48 22.6	17.6	122	"	LOST RADAR CONTACT

		est. or measured
HEIGHT	N/A	
LENGTH	"	
WIDTH	"	
MASS	"	
DRAFT		

NOTES AND COMMENTS

No-name iceberg

This unidentified iceberg was noted "seems to be grounded" on May 15, 1984 at 47°-30.5'N by 48°-42'W in 160m of water. The draft was estimated as 90m but this was probably an underestimate considering the 50m sail height. The length was 100m and the width was 75m. The mass was 1.3 million tonnes. The berg broke up during the morning of May 16. Owing to the noted grounding, this berg is considered to qualify as a possible grounding, despite the estimated draft being less than the water depth at the inferred possible grounding location.