

Survey Report for this plan is recorded as number F.B.33707 C.L.S.R.

CANADA LANDS SURVEYS RECORDS
7 3 0 6 7
DATE 5 JUNE 1990

PLAN AND FIELD NOTES

OF SURVEY OF OFFSHORE
EXPLORATORY WELL LOCATION

TEXACO et al
SOUTH MERASHEEN K-55

LATITUDE 47° 04' 41.20" N

LONGITUDE 47° 53' 22.78" W

GRID AREA 47° 10' N 47° 45' W

SURVEYED OCTOBER 20 TO OCTOBER 28, 1988

BY: McELHANNEY OFFSHORE SURVEYS LTD.

FOR: TEXACO CANADA ENTERPRISES LTD.

CANADA OIL AND GAS LAND REGULATIONS
EXPLORATION LICENCE No.290

NOTES:

The final position was determined by Doppler satellite translocation between the base station JMR (offset) in St. John's, Newfoundland and the drilling platform Bow Drill 3. The tie between Geodetic Surveys of Canada station SATANT No.730100 and station JMR (offset) is shown on the Plan and Field Notes of Survey of Exploratory Well Location Canterra P-01 et al Beothuk H-05 C.L.S.R. No. 70618 and given in the associated Survey Report recorded as No. F.B. 33508 C.L.S.R. Magnavox MX 1502 satellite receivers were used. The post - processing of the combined data from both stations was carried out using the GEODOP program, documentation for which is available from Geodetic Surveys of Canada.

The final position was confirmed by the survey vessel M.V. Maersk Gabarus using an Argo DM - 54 / Motorola Mini-Ranger II positioning system with shore stations on the coast of Newfoundland. Information about the Argo DM - 54 can be obtained from Cubic Precision, Tullahoma, Tennessee. Documentation for McElhanney's navigation programs can be obtained from McElhanney Offshore Surveys Ltd. Monuments at Cape Race and Cape St. Francis are shown on Survey Control Plan C.L.S.R.67818. Ties to the Argo stations are shown on Plan of Survey Offshore Exploratory Well Location Mobil et al Sheridan J-87 (C.L.S.R. No.67825). The monument at Cape Freels is shown on Survey Control Plan (C.L.S.R. No.70182). The monument at Maberly is shown on Survey Control Plan (C.L.S.R. No.68468). The Argo stations at both Cape Freels and Maberly are located on the monuments.

Coordinates and distances shown on the Unit Detail are UTM plane referred to Zone 22, Central Meridian 51° W, using a false easting of 500 000 m.

All other distances are ellipsoidal distances (in metres) and are not reduced to the UTM plane unless indicated.

(c) indicates calculated distances.

All geographic coordinates are referred to 1927 North American Datum (1927 NAD).

Water depth at the location is approximately 167 metres as determined by echo sounding during the site survey.

I HEREBY CERTIFY THAT THE SURVEY REPRESENTED ON THIS PLAN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

Sury Palmatary
C.S.
N. Andrew Power
WITNESS

7 FEB 89

DATE

TEXACO CANADA ENTERPRISES LTD.

J. Spooner

88-01-19

DATE

McELHANNEY OFFSHORE SURVEYS LTD. 20600319

Examined by RWM 90-05-31
File 5361-141 Item WS-88 NL

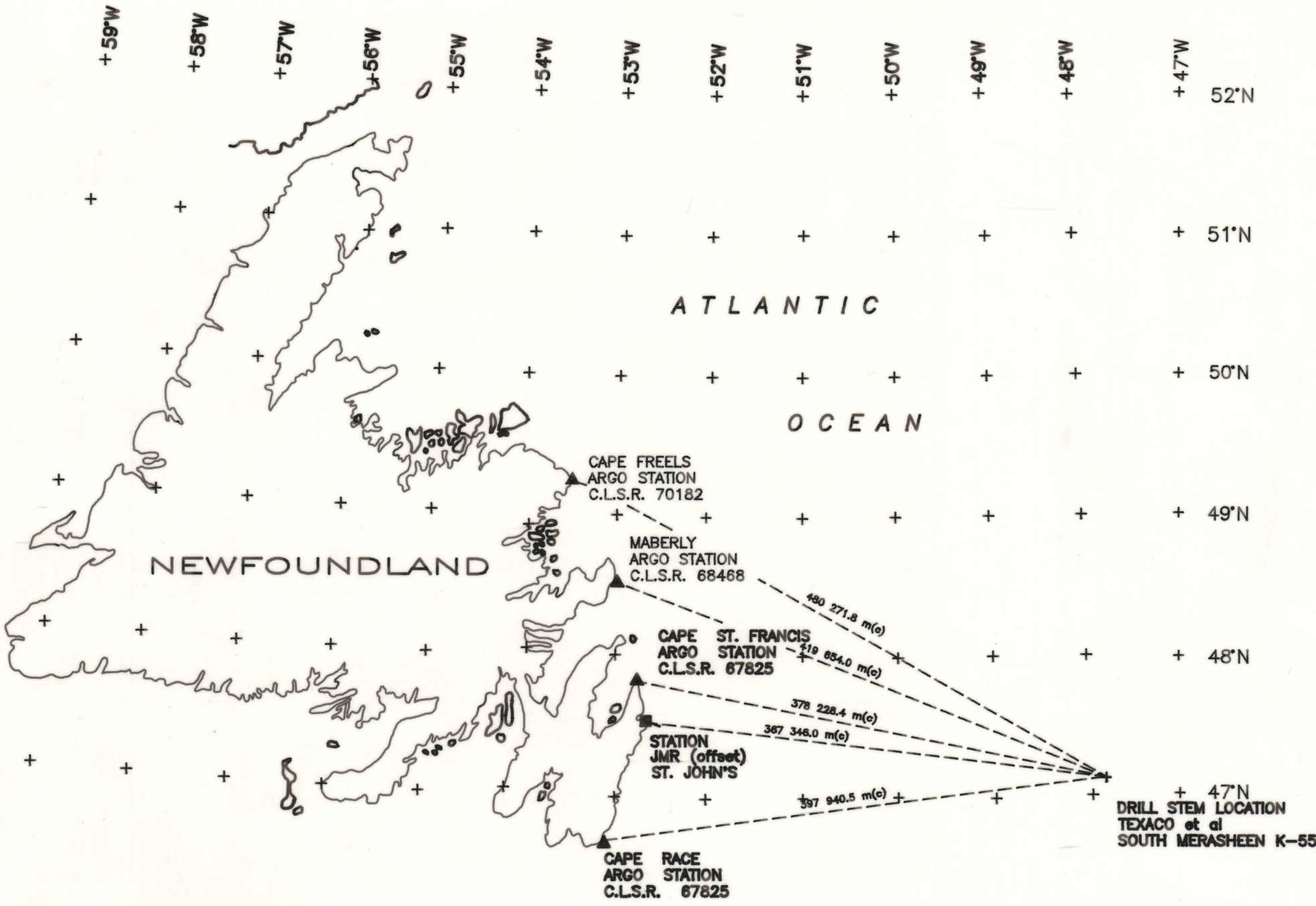
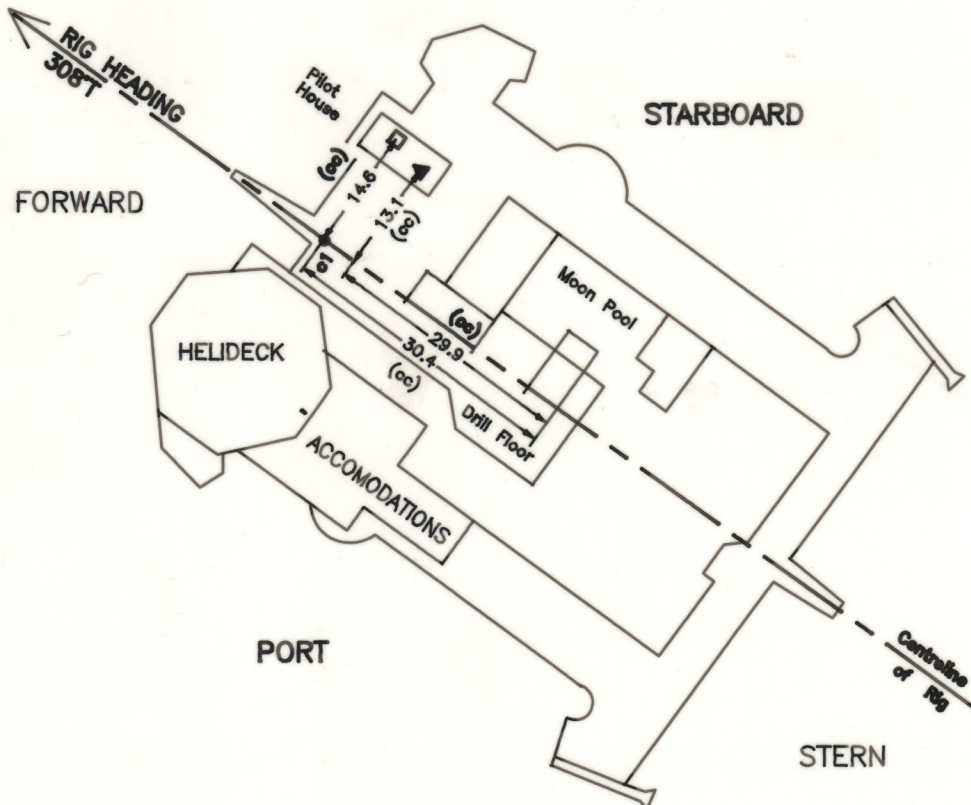


DIAGRAM SHOWING LOCATION OF WELLSITE

SCALE 1 : 4 000 000
100 000m 0 200 000m
UNIVERSAL TRANSVERSE MERCATOR PROJECTION
CENTRAL MERIDIAN 51° W ZONE 22



ANTENNA OFFSETS FROM
DRILL STEM ON BOW DRILL 3

- - MINI - RANGER II ANTENNA
- ▲ - MX 1502 ANTENNA
- cc - CHECK CHAINED (DISTANCES IN METRES)
- RIG HEADING 306° DETERMINED BY RIG'S GYRO
- RIG HEADING 310° DETERMINED BY SURVEY VESSEL
- MEAN OF 306° T USED

CONFIRMATION SURVEY

ARGO SHORE STATION COORDINATES, NAD 27

STATION	GEOGRAPHICS	UTM, ZONE 22 C.M. 51° W	ELLIPSOIDAL DISTANCE TO DRILL STEM (C)
CAPE RACE ARGO STATION C.L.S.R. 67825	46° 39' 34.353" N 53° 04' 26.883" W	5 189 202.51 N 341 311.02 E	397 940.5 m.
CAPE ST. FRANCIS ARGO STATION C.L.S.R. 67825	47° 48' 23.049" N 52° 47' 19.583" W	5 296 113.41 N 366 085.44 E	378 228.4 m.
MABERLY ARGO STATION C.L.S.R. 68468	48° 36' 56.732" N 53° 00' 42.012" W	5 386 477.25 N 351 731.95 E	419 654.0 m
CAPE FREELS ARGO STATION C.L.S.R. 67825	49° 15' 02.671" N 53° 28' 20.516" W	5 458 052.87 N 320 076.83 E	480 271.8 m.

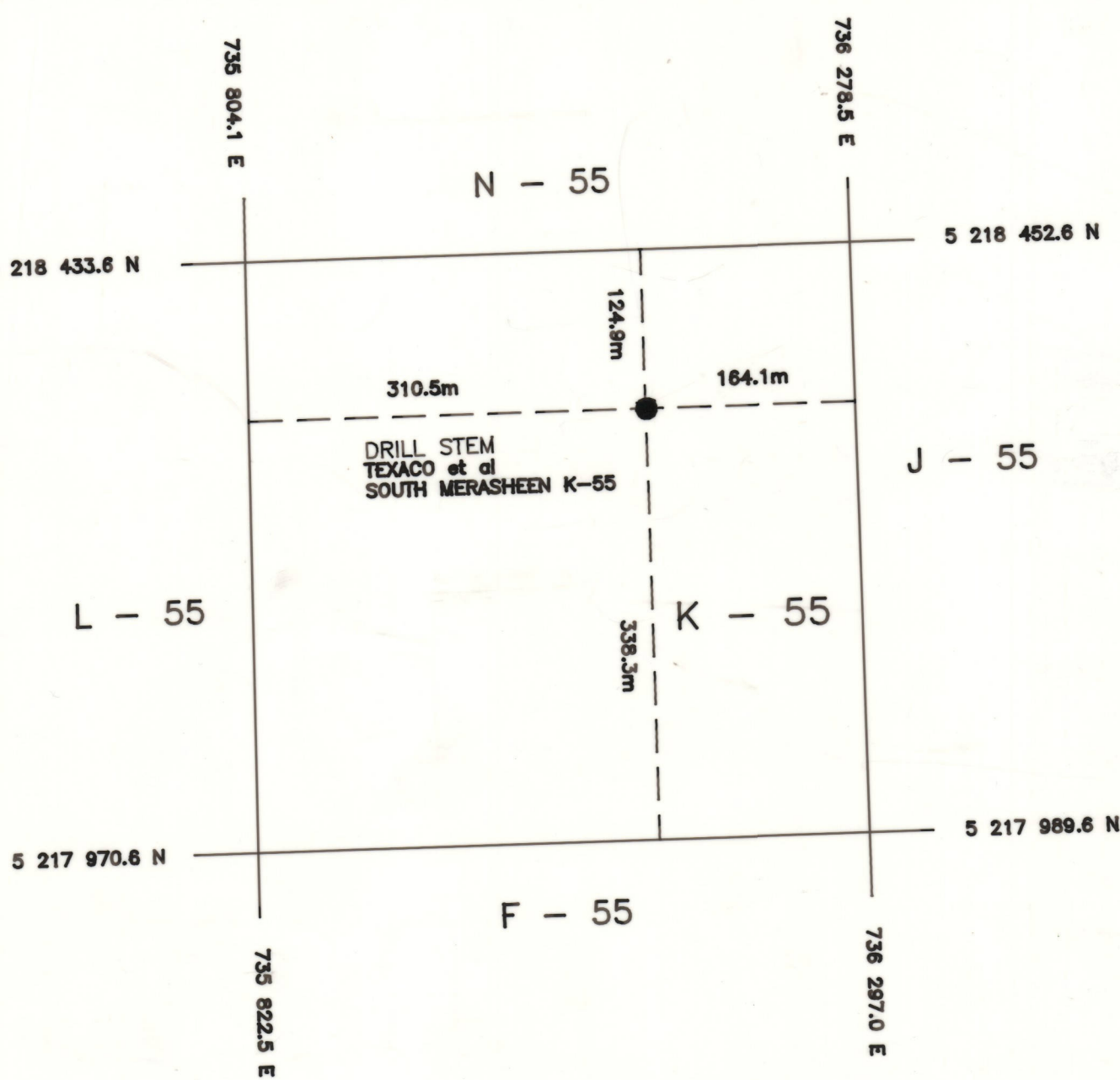
ARGO CONFIRMATION POSITION

MINI RANGER II ANTENNA	47° 04' 42.69" N 47° 53' 23.91" W	5 218 366.2 N 736 093.9 E	
DRILL STEM POSITION BY ARGO RESECTION (CONFIRMATION ONLY)	47° 04' 41.71" N 47° 53' 23.20" W	5 218 336.6 N 736 110.0 E	

ARGO DM - 54 INFORMATION

FREQUENCY	1 759.0 kHz
PROPAGATION VELOCITY (ASSUMED)	299 650 km/sec
LANE WIDTH (COMPUTED)	85.176 237 m.

1 Ellipsoid distances were calculated from the drillstem position established by the primary survey.



DETAIL OF UNIT K SECTION 55

SCALE 1:5000
100m 0 100m 200m
METRES

OIL AND GAS GRID COORDINATES, NAD 27

GRID AREA	CORNER	GEOGRAPHIC		UTM, ZONE 22, C.M. 51° W	
		LATITUDE, N	LONGITUDE, W	NORTHING (m)	EASTING (m)
UNIT K SECTION 55	NE	47° 10'	47° 45'	5 228 592.4	748 311.5
	NW	47° 10'	48° 00'	5 227 833.9	727 365.8
	SE	47° 00'	47° 45'	5 210 073.3	747 081.6
	SW	47° 00'	48° 00'	5 209 314.4	728 076.6
UNIT K SECTION 55	NE	47° 04' 41.20"	47° 53' 22.78"	5 218 452.6	736 278.5
	NW	47° 04' 41.20"	47° 53' 22.78"	5 218 433.6	736 804.1
	SE	47° 04' 41.20"	47° 53' 22.78"	5 217 989.6	736 287.0
	SW	47° 04' 41.20"	47° 53' 22.78"	5 217 970.6	735 822.5

FINAL WELLSITE COORDINATES, NAD 27

	GEOGRAPHIC		UTM ZONE 22, C.M. 51° W	
	LATITUDE, N	LONGITUDE, W	NORTHING (m)	EASTING (m)
MAGNAVOX MX 1502 ANTENNA	47° 04' 42.13"	47° 53' 23.52"	5218 349.3	736 102.7
PLATFORM C1	47° 04' 41.80"	47° 53' 23.90"	5218 338.8	736 095.1
BOW DRILL 3 DRILL STEM AS DETERMINED BY TRANSLOCATION SURVEY	47° 04' 41.20"	47° 53' 22.78"	5218 321.2	736 119.5

PRIMARY SURVEY

SUMMARY OF
DOPPLER SATELLITE POSITION - DIFFERENCE SURVEY

	1927 NAD COORDINATES	CONTROL STATION JMR (offset) 30 common passes observed between 15:00 h. G.M.T. day 299 and 11:00 h. G.M.T. day 302		DERIVED STATION MAGNAVOX MX 1502 ANTENNA 30 common passes observed between 15:00 h. G.M.T. day 299 and 11:00 h. G.M.T. day 302	
		OBSERVED GEOCENTRIC COORDINATES ① (broadcast ephemeris datum)	DERIVED DATUM SHIFT (Geocentric minus NAD)	OBSERVED GEOCENTRIC COORDINATES ① (broadcast ephemeris datum)	DERIVED 1927 NAD COORDINATES (Geocentric minus Datum shift)
cartesian coordinates	x y z	+2 612 816.33 m -3 429 226.76 m +4 684 757.99 m	+2 612 778.72 m -3 429 074.41 m +4 684 950.83 m	- 37.61 m +192.35 m +192.84 m	+2 917 890.05 m -3 228 034.16 m +4 847 546.43 m
Latitude	φ	47° 34' 18.174" N			47° 04' 42.13" N
Longitude	λ	52° 41' 43.041" W			47° 53' 23.52" W
Ht. above sea level	H	78.30 m			26.73 m ②
Geoid ht.	N	32.00 m ③			41.88 m ④
Ht. above ellipsoid	h	110.30 m			68.61 m ⑤

① Coordinates are on the geocentric N.W.L. IOD System as provided by the satellite broadcast ephemeris.

② Ht. above sea level is to the electrical centre of the antenna.

③ Geoid ht. given in 'Surveying Offshore Canada Lands for Mineral Resource Development' Third Edition (Energy, Mines and Resources Canada, Surveys and Mapping Branch, December 1982) for station SATANT 730100.

④ Geoid ht. from GEM 10 B coefficients. GEM 10 B is the Goddard Earth Model of the geoid for which the given height is computed relative to an eccentric 1927 NAD ellipsoid. The eccentricity used was from datum shifts supplied by the Geodetic Survey of Canada. $X_0 = -41$, $Y_0 = +41$, $Z_0 = +181$ given in 'Surveying Offshore Canada Lands for Mineral Resource Development' Third Edition (Energy, Mines and Resources Canada, Surveys and Mapping Branch, December 1982) for station SATANT 730100.