

APPENDIX A:

PROVINCIAL OFFSHORE EXPLORATION PERMITS

A. Introduction

1. All of the East Coast Provinces have issued offshore exploration permits, under provincial legislation, for work to be conducted by private oil and gas companies in areas adjacent to their coasts. Nova Scotia and Newfoundland began issuing permits in the early 1960s, but have not done so since the conclusion of their respective offshore agreements with the federal government in the 1980s. Since that time, all new permits have been issued through the Boards established to administer the two Provinces' respective offshore areas, and all prior provincial permits were terminated.¹ Prince Edward Island and New Brunswick both maintain current legislation governing permit issuance, and Québec has issued permits as recently as within the last year.²
2. The records on the early permits are not complete, but with respect to conduct in the area of the boundaries established in the *1964 Agreement*, there has never been any doubt that Nova Scotia, Prince Edward Island, Québec and New Brunswick scrupulously respected their agreed boundaries. Newfoundland as well, so far as is known from the records available for the period from 1964 to 1971 (when the last known provincial permits in the area of the agreed boundaries were issued), also clearly recognised and applied its boundaries as established in the *1964 Agreement*.

¹ Former Nova Scotia permits were terminated by s. 62(1) of the *Offshore Oil and Gas Act*, R.S.N.S. 1989, c. 325 (formerly S.N.S. 1984, c. 8, in force 28-07-84, repealed by S.N.S. 1987, c.3, in force 05-01-90. This Act was passed in implementation of the *1982 Canada – Nova Scotia Oil and Gas Agreement*. See Part II F ii, note 105). For Newfoundland, section 124 of the *Canada – Newfoundland Atlantic Accord Implementation (Newfoundland) Act*, R.S.N. 1990, c. 2, provided for the termination of former permits (*Annex 1*).

² See above, Part II G.

3. During the 1960s and 1970s, some, but not all, of the permits issued by the Provinces were issued so as to “mirror” federal permits, so that oil companies could be assured of their rights regardless of the outcome of the federal-provincial jurisdictional dispute.³ It will be recalled that during the same period, and until the 1977 *MOU* was signed, the Government of Canada did not recognise the boundaries agreed between the Provinces, with the result that some federal permits were issued that straddled the agreed boundaries. This contradictory system of dual permit issuance was repaired by the signing of the 1982 *Canada-Nova Scotia Agreement* (superseded by the 1986 *Canada-Nova Scotia Accord*) and the 1985 *Canada-Newfoundland Accord*. Since the conclusion of those federal-provincial Accords, **no permits have been issued** by the jointly-administered offshore Boards that do not **entirely respect the boundary** dividing the offshore areas of Nova Scotia and Newfoundland.

4. The only remaining federal permits that straddle the Nova Scotia-Newfoundland boundary are those within the so-called “Moratorium Block” south of Saint-Pierre-and-Miquelon. These permits were placed under moratorium in 1967, pursuant to an agreement between Canada and France not to undertake drilling in the area pending determination of the Canada-France boundary.⁴ As a result, the permits within the moratorium block were exempted from provisions in the Newfoundland and Nova Scotia *Accord Acts* that would have provided either for their termination or their re-negotiation as **Board** permits, divided according to

³ See, for example, Annex 118: “Situation Concerning Mineral Rights Off-shore from Newfoundland” attached to memorandum from D. Crosby, Director, Resource Development Branch to Deputy Minister, Energy, Mines and Resources Canada (11 February 1966) at para. 6, respecting duplicate permit coverage obtained by Pan American Petroleum Company from Newfoundland and Canada. See also Annex 119: “1971 Budget Speech by the Honourable Joseph Smallwood, Premier and Minister of Finance (Acting)”.

⁴ See Annex 120: *Memorial Submitted By Canada, Court of Arbitration, Delimitation of the Maritime Areas between Canada and France*, June 1, 1990, at para. 242, where the original cessation in drilling operations is noted.

the legislated boundary.⁵ This exercise was not completed prior to Newfoundland's initiation of the present dispute, so that these old federal permits are still shown as active, but under suspension.

5. The following Parts of this Appendix provide historical and technical background on the exploration permits issued by Nova Scotia and Newfoundland (discussed in Part II H, above) during the period between the conclusion of the *1964 Agreement* and the establishment of the offshore Boards, in the 1980s. The method by which the Provinces defined their permits is explained, and the relevant Newfoundland permits are examined in greater detail, including a consideration of the inadequacies of the Newfoundland permit issuance system of the 1960s and 1970s.

B. The Nova Scotia Offshore Permits Respected The 1964 Agreement Boundary

6. Prior to the *1982 Canada-Nova Scotia Agreement*, Nova Scotia issued offshore exploration permits under the authority of the *Petroleum and Natural Gas Act*.⁶ Over 400 individual permits were issued between 1965 and 1972, for areas encompassing much of the offshore area adjacent to Nova Scotia (see **Figure A-1**, which reproduces **Figure 16** above). An examination of these permits and of the published map depicting them as reproduced in **Figure A-1** (Nova Scotia Offshore Exploration Permits 1965-1971), reveals that all permits in the area of the Nova Scotia-Newfoundland boundary were drafted and issued so as to **abut and not cross** that boundary. In order to demonstrate this fact, it is necessary to

⁵ See, for example, the *Canada - Nova Scotia Offshore Petroleum Resources Accord Act*, *supra* Part I A, s. 135, which permits the extension of time limits for conversion of pre-Accord permits to the new regime, where the permits have not been converted "for any reason not attributable to the interest owner" (Annex 2).

⁶ R.S.N.S. 1967, c. 228, s. 3; repealed by *Petroleum Resources Act*, S.N.S. 1980 c. 12 (proclaimed 26/7/84, in force 28/7/84). This Act was first enacted as the *Petroleum and Natural Gas Act*, S.N.S. 1942, c. 5.

review briefly how permits under the *Petroleum and Natural Gas Act* were described, identified and located.

i) Description And Location Of Nova Scotia Permits

7. All permits issued under the *Petroleum and Natural Gas Act*, examples of which are provided in **Annex 76**, contained two fundamental limitations. First, it was stated in each permit that the permit applied to “all Submarine Lands of the Province of Nova Scotia” within an identified block defined by longitude and latitude. Thus, no grant of rights was to be implied for any lands falling outside the area defined as within the Nova Scotia’s offshore area. Second, the permits referred to submarine lands which were “described as follows on a plan filed in the office of the Minister of Mines”, and the description that followed included alphanumeric indicators based on a topographical grid system. Reference to this grid system permitted detailed identification of the area assigned under a permit, and in cases of boundary-area permits it also showed the applicable limits of Nova Scotia “submarine lands”.

8. The applicable grid system for Nova Scotia, which is used in the permit map that is the basis of **Figure A-1**,⁷ was specified by regulation under the *Petroleum and Natural Gas Act*.⁸ The grid system worked from the more generalised reference map shown on **Figure A-1**, down to a large-scale, precise map showing the actual area of the claim. The manner in which this system operated may be demonstrated by reference to Nova Scotia Permit No. 276 (found in **Annex 76**), which abutted the boundary with Newfoundland. This permit describes the relevant lands by means of the following descriptors:

⁷ A copy of the original map is found in **Annex 77**.

⁸ See **Annex 121: Regulations Made Under The Authority of Chapter 5 of the Acts of 1942, 11/3/43**, S.N.S. 1943, Rules and Regulations, p. 261. Section 3 of these regulations provided for application of the 108 mi.² grid system defined by the *Mines Act*. For the relevant version of the *Mines Act*, see R.S.N.S. 1967, c. 185, Schedule II, which establishes the standard grid system.

Reservation(s)	Reference Map(s)
RSTUVW	11 O 5 A
RSTUVW	11 O 5 B
RSTUVW	11 O 5 C
ST	11 O 5 D

9. The procedure for reading the description of the permit is set out below, and each step is graphically demonstrated in **Figure A-2** (Sample Application of the Nova Scotia Offshore Permit Grid Reference System).

Under Reference Maps, “11” refers to section 11 as shown on the overall Nova Scotia Permit Map. Section 11 contains 16 Map Sheets, designated “A” through “P”.

Within section 11, the permit refers to Map sheet “O”,⁹ which covers an area corresponding to 16 National Topographic Survey map sheets, numbered 1 through 16. **Sheet number 11 O also shows the 1964 Agreement boundary crossing through the identified permit area.** Any area within the designated reservations but lying beyond the Nova Scotia-Newfoundland boundary would not be considered “submarine lands in the Province of Nova Scotia”.

The permit then refers to sheet number 5, within Sheet O. Sheet 5 is subdivided into 4 sections, A through D. This permit extends over sections B and C only.

Each section A through D is subdivided into six “reservations”, identified as R through W. The reservations affected by the permit are listed on the

⁹ A copy of the original map is found in **Annex 122: Nova Scotia Reservation Grid System for Petroleum Licenses.**

left of the permit, to correspond to the map reference. Thus, on the list above, all or part of the six reservations (R,S,T,U,V,W) from section A through C, and parts of two reservations (S and T) from section D, are included in the permit.

10. All of the boundary permits shown on **Figure A-1** were defined in a similar manner, and all respected the Nova Scotia-Newfoundland boundary in the same way.

ii) **Summary: Nova Scotia Permits**

11. Nova Scotia, in issuing its own offshore exploration permits in the period 1965-1971, consistently respected the agreed boundary with Newfoundland, established in the *1964 Agreement*. There can be no doubt that Nova Scotia was, in good faith and with great precision, fulfilling its obligations under the *1964 Agreement* in an open manner. The official, published Petroleum Grid System Map showing all of Nova Scotia's permits, well-documented and with the "Mineral Rights Boundary Line" clearly marked, made this abundantly clear.

C. Newfoundland's Offshore Permits Also Applied The 1964 Agreement

i) **The Technical Inadequacies Of The Newfoundland Permit System**

12. Newfoundland provided for the issuance of offshore exploration permits in the *Petroleum and Natural Gas Act*, enacted in April 1965.¹⁰ The Act, as amended in February of 1966, allowed for the issuance of interim permits in the absence of detailed regulations,¹¹ but provided **no criteria by which such permits should be issued, located or identified on official maps**. Regulations under the Act,

¹⁰ *The Petroleum and Natural Gas Act, 1965*, S.N. 1965, No. 56.

¹¹ *Annex 123: The Petroleum and Natural Gas (Amendment) Act, 1966*, S.N. 1966, No. 2, s. 2.

including provision for a grid system for permit issuance, were not promulgated until 1978.¹² As a result, most of the permits issued during the period relevant to this arbitration were issued on an *ad hoc* basis without reference to any established system for the definition of permits, as was in place in other Provinces. One result of this, is that the Newfoundland permits considered below were not summarised or depicted on any standard, publicly available map, as were the Nova Scotia permits. In order to assess those permits, therefore, one would have had to see the actual permit documents with their attached maps. As discussed below, in 1972 even the Government of Newfoundland had difficulty determining what permits had been issued in previous years.

13. The lack of any general awareness of the details of these permits is highlighted by the fact that they were still being treated as confidential as of this year (2000), and access to the permits would have required an application under access to information legislation.¹³
14. The inadequacy of Newfoundland's permit legislation, and the fact that some permits appear to have been issued without any public knowledge of their contents, led to a great deal of confusion with respect to the status of permits issued in the 1960s and early 1970s. The lack of knowledge, in fact, extended to the Government of Newfoundland itself. Upon the defeat of Premier Smallwood's government and the election of Premier Frank Moores in March,

¹² *The Newfoundland and Labrador Petroleum Regulations, 1977, supra* Part IV, note 31, (Annex 109).

¹³ On October 20, 2000, L. Yves Fortier, C.C., Q.C., Agent for the Province of Nova Scotia, wrote Donald M. McRae, Agent for the Province of Newfoundland and Labrador, to request certain documents, namely, certain Newfoundland permits and corresponding Orders-in-Council, pursuant to the discovery provisions of Article 9.1 of the *Terms of Reference* (Annex 124). On October 30, Professor McRae replied, *inter alia*, that "appropriate steps have been put in place to try to locate the documents and information requested in your letter. Further, because the request relates to Executive Council materials special approval has to be obtained for their release" (Annex 125). The letter also stated that, prior to the establishment of special procedures in the context of this arbitration, access to these permits would be subject to "the normal access to information process." It took 19 days for the requested documents to be located, approved for release and provided to Nova Scotia. Annex 126: Letter from Deborah Paquette, Deputy Agent for the Province of Newfoundland and Labrador to L. Yves Fortier, C.C., Q.C. (8 November 2000).

1972, it became apparent that the system of offshore permits was in disarray.¹⁴ The government decided to defer the issuance of permits so as to undertake a review to examine the status of existing rights.¹⁵

15. By October 1972, the review was complete and the Government of Newfoundland issued an Order-in-Council revoking some permits and rationalising the remainder.¹⁶ Some permits were renewed, and were categorised either as Class A (with exploration and possible production rights) or Class B (with exploration rights only); Class C permits were rescinded and Class D “applications” were left undecided. In addition, the government announced that it would put in place appropriate regulations (although this did not happen until 1978), and that it would not issue new rights so long as negotiations were proceeding with the federal government.¹⁷ In 1973, the government published a small sketch map summarising the identified permits, but this map did not specify a scale or map projection, making it effectively useless for determining the precise location of the permits.¹⁸

ii) Overview Of Permits Issued By Newfoundland

16. Newfoundland began issuing permits for exploration of submarine lands as early as 1963, but mainly for enclosed bays. The issuance of permits for areas further offshore appears to have begun in earnest in early 1965. In January 1965, rights were issued to Kuna Corporation for areas off the west coast of Newfoundland. Then, under two Orders-In-Council dated February 4, 1965, Newfoundland issued permits covering approximately 30 million acres. These permits were granted to

¹⁴ See above, Part II H ii, note 122, Annex 78 at 39-40.

¹⁵ *Ibid.* at 41 (Annex 78).

¹⁶ Annex 127: Newfoundland Order in Council 1125-72, 23 November 1972.

¹⁷ *Ibid.* at 2. See also Annex 128: “Newfoundland clarifies offshore permits status”, *Oilweek* (30 October 1972) 16.

¹⁸ The sketch was incorporated in Annex 129: *A White Paper Respecting the Administration and Disposition of Petroleum Belonging to Her Majesty in Right of the Province of Newfoundland*, Government of Newfoundland and Labrador (May 1977).

Alberta Export Refining and Shaheen Oil Company, and conflicted with federal permits issued in the area. Finally, Newfoundland issued a series of permits to Pan American Petroleum in May 1965, covering areas of the Grand Banks up to **300 miles** from shore. These permits were intended to provide “duplicate” coverage with federal permits issued to the same company. All of these permits are shown in **Figure A-3**, which is drawn from a federal summary map prepared at the time and attached to a report on the permit situation.¹⁹

17. Of these early permits, only the Pan American Petroleum Corporation permits were sanctioned by legislation, in that Newfoundland did not pass its *Petroleum and Natural Gas Act* until April, 1965. Even with the Pan American permits, the provision allowing for interim permits in the absence of regulations (as issued to Pan American in May 1965) was not enacted until an amendment of February 1966.²⁰
18. The 1972 review of permits undertaken by the newly-elected government revealed that additional permits had been issued in 1966 and 1967. However, most of these appear to duplicate the earlier permits issued in 1965, and may have been extensions. The one exception of relevance to the present dispute was a permit issued to Mobil Oil on September 15, 1967 (designated as Class A), covering parts of the South Western St. Pierre Bank. Then, on May 19, 1971, permits covering 16,500,000 acres on the Southeast Grand Banks and Burgeo Bank, and in the Gulf of St. Lawrence were issued to Katy Industries Ltd. (all designated Class B), of which the Gulf of St. Lawrence and Grand Banks portions were in the vicinity of the boundaries established in the *1964 Agreement*²¹. These permits are examined in the following section.

¹⁹ **Figure A-3:** Newfoundland and Labrador Offshore Exploration Permits to 1965. *Supra* note 4 at paras. 1-6. A copy of the original map reproduced in **Figure A-3** is found at Annex 79.

²⁰ *Supra* note 12, Annex 123.

²¹ *Supra* Part II H ii, note 124, Annex 80.

iii) **Newfoundland Permits In The Area Of Its Agreed Boundaries**

19. Of the permits known to have been issued by Newfoundland, those immediately adjacent to the provincial boundaries agreed in 1964, are as shown on **Figure A-4**, the Mobil Oil permit of September 15, 1967 on the Southwestern St. Pierre Bank,²² and the Katy Industries permits of May 19, 1971 in the Gulf of St. Lawrence and on the Grand Banks.²³
20. The Katy Industries permit in the Gulf of St. Lawrence, as shown on **Figure A-4**, respects the Newfoundland-Québec boundary. The permit areas run along the boundary, at times **abutting but not crossing** it, and were obviously issued so as to respect the *1964 Agreement*. The Mobil Oil permit and the Katy Industries permit on the Grand Banks require more detailed analysis, as they are of particular relevance to the present dispute, lying as they did along the Newfoundland-Nova Scotia boundary.

a) Mobil Oil Permit Of September 15, 1967

21. The Mobil Oil permit tracks the Newfoundland-Nova Scotia boundary along the 135° azimuth line, in the outer segment of the boundary. The construction of this permit is shown on **Figure A-5** (Construction of the Mobil Oil Permit of September 15, 1967 in Conformity with the 1964 Agreement Boundary), which is reproduced from the plan attached to the permit, with additional explanatory notes in red. The western limit of the permit, along the boundary with Nova Scotia, began at a defined point at the Southwestern corner of the permit (45° 00' 00" N 56° 15' 00" W, shown as Point A on **Figure A-5**). From this point, the western boundary was defined as running northwesterly to the intersection with latitude 46° 00' 00" N (Point B on **Figure A-5**). The direction of this line was specified as

²² Annex 80: Newfoundland Interim Permit issued September 15, 1971 to Mobil Oil Canada Ltd. and attached sketch map.

²³ **Figure A-4**: Newfoundland and Labrador Exploration Permits Issued Along the 1964 Agreement Boundary 1967 and 1971. Annex 80: Newfoundland Interim Permit issued May 19, 1971 to Katy Industries Inc. and attached sketch map.

“a line which, if produced northwesterly, would intersect the point of intersection of the 47° parallel of North Latitude with the 59° 08' meridian of West Longitude.” (Point D on **Figure A-5**)

22. This point of reference for the direction of the line is, as noted above, shown as Point D on **Figure A-5**. The line drawn between A and D passes within a mere **244 metres** of the final turning point of the Newfoundland-Nova Scotia boundary, shown as Point C on **Figure A-5** (identified as point 2017 when later defined by the *JMRC* in 1972). On the chart utilised, this effectively depicts a line passing directly through this turning point. The beginning azimuth of the line joining point D and Point A on **Figure A-5** (i.e. on the original permit plan) is for all practical purposes the same as 135°, given the scale and other limitations of the chart. When the points are plotted on a Mercator chart, the azimuth of the line is 134° 52' 6.8971", or less than one-seventh of a degree variation from 135°, a difference that is meaningless on the scale of chart utilised.

23. It is clear that the draughtsman of this permit was attempting to define a western boundary for the permit in accordance with the *1964 Agreement*. The permit boundary, extended to the northwest, passes directly along the *1964 Agreement* boundary, effectively meeting the final boundary turning point, and is on an azimuth that is virtually identical. There is no other explanation for why the limit of this permit should be defined by a directional line in the same location as the agreed Newfoundland-Nova Scotia boundary, and within one seventh of a degree of the 135° azimuth that defined this segment of the agreed boundary. The permit was obviously issued so as to conform to the metes and bounds description in the *1964 Agreement*, and in particular the description of the outer segment of the Newfoundland-Nova Scotia boundary.

b) Katy Industries Permit Of May 19, 1971: Grand Banks To The South Of Saint-Pierre-And-Miquelon

24. Unlike the Mobil Oil permit, the Katy Industries permit to the south of St. Pierre-and-Miquelon, and adjacent to the Mobil Oil permit, provided **no detailed coordinates** for its definition. Instead, it merely incorporated an attached plan of the permit area. This plan, the relevant portion of which is reproduced as **Figure A-6,**²⁴ is severely flawed from a cartographic perspective, both because of the lack of coordinates and because no map projection or scale are identified, making the accurate calculation of directions extremely difficult.²⁵ There is no indication of the criteria or coordinates for the limits of the permit. The map has also apparently been folded and copied in such a way that distortions are created for any distance calculations.
25. Within the technical limits of the map, however, it is nonetheless clear that the Katy Industries permit was a further attempt to implement the *1964 Agreement*, but in a manner which creates the false impression, on the permit plan, that the western limit of the permit crossed the Newfoundland-Nova Scotia boundary, in the southern section of the permit. The errors underlying the draughtsman's representation of the permit limits on the plan can best be understood by a consideration of the manner in which the permit was drawn.
26. The line shown on the permit plan as the western limit of the Katy Industries permit is drawn as a straight line on the chart. It is not stated whether this line was intended to be a loxodrome or a geodesic. A loxodrome is a line on the surface of the earth, which maintains a constant azimuth throughout its entire course, and which appears as a straight line when plotted on a chart with a Mercator map projection. A geodesic is a line which is the shortest distance

²⁴ **Figure 6:** Newfoundland Permit Issued to Katy Industries to the South of St. Pierre: May 19, 1971. The plan of the permit area is found in Annex 80, together with the permit issued to Katy Industries.

²⁵ The permit plan for the Mobil Permit was also depicted on an inadequate map, but the permit description included coordinates as a basis for location of the permit. The Katy Industries and Mobil Oil permit maps are found in Annex 80.

between two points on the surface of the earth as represented by a reference ellipsoid, and appears on map projections as a curved line (except in the case of meridians of longitude, for which geodesics can appear in some instances as straight lines).²⁶

27. The chart on which the permit plan is shown does not identify the map projection used, but it is clear that it is **not** a Mercator projection. The draughtsman, therefore, simply drew a long straight line on a chart which was not a Mercator projection, with resulting distortions in the direction of the line that make it appear to extend into the Nova Scotia offshore area. It is, however, possible to determine the means by which the line was drawn and apply the result to an appropriate chart on a Mercator map projection.
28. **Figure A-7** (Construction of the Katy Industries Permit of May 19, 1971 in Accordance with the 1964 Agreement Boundary) illustrates how the Katy Industries permit line must have been constructed, using a reproduction of the original chart with its imperfections. If the “straight line” shown as the western limit of the permit (line A-B on **Figure A-7**) is extended to the northwest, it is apparent that the extended line either intersects or comes extremely close to three points: Points C, D and E on **Figure A-7**. Point C is the midpoint between Flint Island and Grand Bruit, the last seaward turning point in the *1964 Agreement* boundary. (defined as point 2017 by the Joint Mineral Resources Committee, at 46° 54' 50" N 59° 00' 30" W). Point D is the point defined as the northwestern reference point for the Mobil Oil permit (47° N 59° 08' W). Point E is the midpoint between St. Paul Island and Cape Ray, the next turning point from the *1964 Agreement* (defined as point 2016 by the Joint Mineral Resources Committee, at 47° 25' 28" N 59° 43' 33" W).

²⁶ Annex 130: M. Thamsborg, *Geodetic Hydrography as Related to Maritime Boundary Problems*, (1974) International Hydrographic Review LI (1), 157 at 157.

29. Allowing for the fact that the thickness of the pencil line defining the boundary of the permit on **Figure A-7** represents a distance of approximately 1 kilometre, and recognising that the precise coordinates utilised for the turning points shown by Points C and E may not have been available to the permit draughtsman, it is clear that a line drafted manually on this chart, similar to that used to define the limits of this permit, would have effectively intersected all three points (C, D and E) on this chart. Points C and E, as noted, are both turning points along the Nova Scotia-Newfoundland boundary established in the *1964 Agreement*, and Point D (the reference point from the Mobil permit), is so close as to be well within the range of manual error.

30. The fact that the a straight line extension of the Katy Industries permit western limit would have effectively passed through three points on the *1964 Agreement* boundary is more than mere coincidence. When the line E-D-C-B-A on **Figure A-7** is considered, the general method by which the western limit of the Katy Industries permit must have been determined is apparent. Allowing for a manually-drafted line on this chart, and for the fact that the draughtsman may have located the two midpoints even **slightly** at variance from the coordinates applied here, one conclusion is clear: if the draughtsman joined Point E with either or both of Points C and D, and extended that line in a straight line on the chart used for the permit, the result would be the permit boundary. In other words, the draughtsman took two or three points that would, on this chart, effectively reflect the boundary in the *1964 Agreement*, joined them and extended them to form the western limit of the permit.

31. The western limit of the permit, therefore, was an attempt to match the outer segment of the *1964 Agreement* boundary, seaward of the final turning point. However, this “straight” line was drawn on an inappropriate chart projection (i.e. not a Mercator), with the result that the azimuth (direction) of the permit line is not constant over the length of the line, but rather variable, producing a clearly anomalous result on the outer segment.

32. In order to reproduce the intent of the draughtsman on an appropriate Mercator chart, the coordinates for the defining points must be transferred to a Mercator projection chart, and the intended straight line shown on that chart. **Figure A-8** demonstrates the outcome when the method described above is implemented on an appropriate Mercator chart.²⁷ The result is a western limit for the Katy Industries permit which appears to extend very slightly over the Nova Scotia-Newfoundland boundary, but which, given that it was originally produced manually with no specified coordinates, effectively traces the agreed boundary. The azimuth of this line is $136^{\circ} 25' 55.8365''$, which, on the chart used for the permit plan, virtually corresponds to the agreed 135° azimuth.
33. It should be noted that the simple extension to the seaward of the line between the last two turning points, as was done for the Katy Industries permit, would not be fully consistent with the *1964 Agreement*. The *1964 Agreement* specifies a Southeast, or 135° , azimuth for this last segment of the boundary; that azimuth is, of course, slightly different from the one defined by the last two turning points along the agreed boundary ($136^{\circ} 13' 1.4543''$). It must be remembered, however, that a difference of approximately $1^{\circ} 13'$, shown on a map of the scale used in the Katy Industries permit, would be **minuscule**, and well within the range of normal manual error in drafting.
34. On the chart used for the permit, a line drawn from the St. Paul Island-Cape Ray midpoint toward the Flint Island-Grand Bruit midpoint at 135° , and a line drawn at $136^{\circ} 13' 1.4543''$, would be approximately **0.7 mm.** apart at the Flint Island-Grand Bruit line, about **the thickness of an average pencil line**. At this level of variation, a technician could easily have assumed that the line drawn from

²⁷ **Figure A-8:** The Katy Industries Permit of May 19, 1971 As Applied to a Mercator Projection Chart. On **Figure A-7**, the western limit of the permit is shown as the extension of the straight line generated by joining Point E (the midpoint between St. Paul Island and Cape Ray) and Point D (the Mobil Oil reference point) as shown on **Figure A-7**. Point D was used as the second point because it is known to have been previously used in the Mobil Oil permit. However, the result would be the same for practical purposes if the midpoint between Flint Island and Grand Bruit (Point C on **Figure A-7**) were used, in that the three points are virtually aligned on the Mercator chart.

midpoint to midpoint was, in fact, the Southeast, or 135° line, and then used that line as the “135°” direction for the remaining seaward segment of the line.

35. In sum, the Katy Industries permit was a clear, though flawed, effort to apply the *1964 Agreement* in defining the western limit of the permit, which would have been issued with the intent of following the agreed boundary with Nova Scotia. There is no other identifiable boundary or other feature in the area of this permit that could explain the line as drawn. On the plan attached to the permit, the resulting line was drawn as a “straight” line, despite the fact that this was not a Mercator projection chart on which such a line would be possible. When the relevant coordinates are transferred to an appropriate Mercator projection chart, it is evident that the intention was to produce a line that would precisely match the 135° azimuth line on the outer segment of the Newfoundland-Nova Scotia boundary established in the *1964 Agreement*.

iv) Summary: Newfoundland Permits

36. The known permits issued by Newfoundland under the *Petroleum and Natural Gas Act* conformed entirely to the Province’s agreed boundary with Nova Scotia. The one apparent inconsistency, the plan attached to the Katy Industries permit, was the product of cartographic error. Transferring the line to the appropriate chart makes it clear that the aim was to issue a permit in full conformity with the *1964 Agreement*.

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