NORTHWEST TERRITORIES
Hydrocarbon Potential and Exploration Play Trends
Focus on Oil & Gas
NORTHWEST TERRITORIES
Calgary, Alberta
June 7, 2004

G. E. Reinson and K. J. Drummond
ACKNOWLEDGEMENT

This presentation is based in part on the following multi-client study by Sproule Associates Ltd.

HYDROCARBON POTENTIAL AND EXPLORATION PLAY TRENDS NORTHWEST TERRITORIES AND YUKON
A Technical Inventory and Geological Review
July, 2000

The authors would like to acknowledge and thank Sproule Associates Limited for permission to present this paper.
OBJECTIVES

➤ TO COMPARE HYDROCARBON PROSPECTIVITY AND RESOURCE POTENTIAL OF THE DIFFERENT REGIONS

➤ TO HIGHLIGHT THOSE REGIONS THAT ALREADY CONTAIN SUBSTANTIAL DISCOVERED RESOURCES

➤ TO HIGHLIGHT THOSE REGIONS OR BASINS THOUGHT TO HAVE SIGNIFICANT UPSIDE RESOURCE POTENTIAL - NOT YET DISCOVERED
ULTIMATE CONVENTIONAL MARKETABLE GAS

675 TCF

Adapted from Drummond, 1998
CONVENTIONAL MARKETABLE GAS
CANADA (DECEMBER 31, 2002)

UNDISCOVERED
438 (65%)

RESERVES
56 (8%)

RESOURCES
47 (7%)

ULTIMATE RESOURCE (675 TCF)

- WCSB 286 (43%)
- ARCTIC 111 (16%)
- OTHER EAST COAST 131 (19%)
- MACKENZIE-BEAUFORT 59 (9%)
- OFFSHORE BC 30 (4%)
- SCOTIAN SHELF 19 (3%)
- OTHER 27 (4%)
- MAINLAND NWT 12 (2%)
SEDIMENTARY BASINS OF THE YUKON - NORTHWEST TERRITORIES

BEAUFORT-MACKENZIE
ANDERSON - HORTON PLAIN
COLVILLE HILLS
PRE-CAMBRIAN SHIELD
GREAT BEAR PLAIN
SOUTHERN TERRITORIES
EIARD
MACKENZIE PLAIN
BONNET PLUME
KANDIK
EAGLE PLAIN
OLD CROW
WHITEHORSE TROUGH
PEEL
LIARD
SEDIMENTARY BASINS OF THE YUKON - NORTHWEST TERRITORIES
YUKON AND NORTHWEST TERRITORIES
NUMBER EXPLORATION WELLS BY AREA

TOTAL = 891 WELLS

SUSP
DRY
OIL/GAS
GAS
OIL

359
41
97
21
19
29
75
33
3
138
73

South Terr
Liard Plain
Mckenzie Pl
Great Bear
Anderson
Colville Hills
Peel Plain
Eagle Pl
Kandik
Mack Delta
Beaufort Sea
YUKON/ NORTHWEST TERRITORIES
ANNUAL GAS PRODUCTION

CUM. 667 BCF
DEC 31, 2003

BILLION CUBIC FEET

- CAMERON HILLS
- IKHILL
- LIARD
- KOTANEELEE
- POINTED MOUNTAIN

ANNUAL GAS PRODUCTION
YUKON / NORTHWEST TERRITORIES
DISCOVERED RESOURCES BY STRATIGRAPHIC SYSTEM

MILLION BOE

0 500 1000 1500

MIOCENE
OLIGOCENE
EOCENE
PRE-TERTIARY
EAGLE PLAIN
PERMO-CARB
MACKENZIE PL.
DEVONIAN
LIARD PL./PLATEAU
DEVONIAN
COLVILLE HILLS
CAMBRIAN

OIL
GAS (BOE)
(6 MCF/BOE)
YUKON - NORTHWEST TERRITORIES
ULTIMATE RECOVERABLE GAS RESOURCES

MACKENZIE - BEAUFORT: 63.0 TCF
MAINLAND: 23.0 TCF
TOTAL: 86.0 TCF

UNDISCOVERED:
74.1 TCF

DISCOVERED:
11.9 TCF
YUKON - NORTHWEST TERRITORIES
ULTIMATE OIL RESOURCES

- MACKENZIE - 1.3 BB
- BEAUFORT - 6.4 BB
- MAINLAND - 0.6 BB
- TOTAL - 7.0 BB

DISCOVERED - 1.3 BB
UNDISCOVERED - 5.7 BB
RESOURCES
DISCOVERED
1.3 TCF
UNDISCOVERED
4.1 TCF
Fort Liard, NWT

Production to Apr. 30, 2004

<table>
<thead>
<tr>
<th>K-29</th>
<th>43.8 bcf</th>
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<tbody>
<tr>
<td>M-25</td>
<td>29.1 bcf</td>
</tr>
<tr>
<td>F-25A</td>
<td>5.2 bcf</td>
</tr>
<tr>
<td>2K-29</td>
<td>5.9 bcf</td>
</tr>
</tbody>
</table>

Total: 84.0 bcf (sales)

Gross raw gas to date: 120.0 bcf

PEL current production: ~12 mmcf/d (sales)

M-25 presently shut in pending tubing change and repairs to gas/water line

3K-29 to be side-tracked summer, 2004
FORT LIARD CROSS SECTION

- Water traveling vertically up M-25 fractures and entering well bore
- M-25 successful recompletion in August 2003 increased rate to over 15 mmcf/d raw gas
- M-25 has sidetrack potential
- 3K-29 & 2M-29 to be drilled during 2004

From: Purcellenergy.com
CHEVRON FORT LIARD GAS FIELD PRODUCTION

CUM. PRODUCTION = 120 BCF

BILLION CUBIC FEET

Apr-00 Jul-00 Oct-00 Jan-01 Apr-01 Jul-01 Oct-01 Jan-02 Apr-02 Jul-02 Oct-02 Jan-03 Apr-03 Jul-03 Oct-03 Jan-04 Apr-04

2K-29
F-25A
M-25
K-29
MACKENZIE PLAIN BASIN

- FRANKLIN MOUNTAINS
- KEELE ARCH
- GREAT BEAR BASIN
- NORMAN WELLS: 302 MMB
- UNDISCOVERED RESOURCES:
  - 107 MMB OIL
  - 1.5 TCF GAS

Modified from NOGD, 1995
Mackenzie Plain - Schematic Section

- Mackenzie Mts.
- Mackenzie Plain
- Norman Wells
- Franklin Mts.
- Great Bear Basin
- Keele Arch

Layers:
- Cambrian
- Precambrian
- Cretaceous

Modified from NOGD, 1995
COLVILLE HILLS, NWT SHOWING LOCATION OF CAMBRIAN SANDSTONE GAS DISCOVERIES

DISCOVERED - 620 BCF
UNDISCOVERED - 4586 BCF

Adapted from: NOGD, 1995
EAGLE PLAIN BASIN

DISCOVERED
OIL - 11.7 MMB
GAS - 83.7 BCF

UNDISCOVERED
OIL - 28.2 MMB
GAS - 1.0 TCF

Modified from Yukon Ec. Dev., NEB, 1994
EAGLE PLAIN BASIN - POTENTIAL RESERVOIRS AND TRAPS

Modified From: Hambelin, 1990
PEEL BASIN AND PLATEAU

ANDERSON PLAIN

PEEL PLAIN

PEEL PLATEAU

BONNET PLUME BASIN

MACKENZIE PLAIN

MACKENZIE MOUNTAINS

RICHARDSON FAULT

TREVOR ARCH

LIMIT OF CRETACEOUS

100 Km

UNDISCOVERED
45 MMB OIL
3.1 TCF GAS

Modified from NOGD, 1995
CENTRAL PEEL PLAIN

Modified from Yukon Ec. Dev., NEB, 1999
BEAUFORT - MACKENZIE BASIN
DISCOVERED OIL AND GAS FIELDS

53 DISCOVERIES
1.0 BB OIL
9.7 TCF GAS

UNDISCOVERED RESOURCES
5.4 BB OIL
53.3 TCF GAS

PARSONS
IKHIL CUM 2,291 MMCF

TAGLU
BEAUFORT MACKENZIE - STRUCTURAL SETTING

Modified from Dixon, et al, 1992
Adapted from: Hitcheon, et al, 1990
PARSONS GAS FIELD

GAS FIELD

1259 BCF

OIL FIELD

KAMIK
1.2 MMB

5 Km

Adapted from: G.R MORRELL, 1996
PARSONS LAKE GAS FIELD

Adapted from: R.A. Meneley, 1986
TAGLU FIELD
2,080 BCF

Adapted from: G.R MORRELL, 1996
IKHIL GAS FIELD PRODUCTION

CUM. PRODUCTION = 2,291 MMCF

MILLION CUBIC FEET

J-35
K-35
MACKENZIE DELTA / BEAUFORT SEA
ULTIMATE RECOVERABLE GAS RESOURCE
63.0 TCF

- UNDISCOVERED BEAUFORT SEA: 40.4 TCF (64.1%)
- UNDISCOVERED ONSHORE/NEARSHORE: 12.9 TCF (20.5%)
- DISCOVERED BEAUFORT SEA: 4.4 TCF (6.9%)
- DISCOVERED ONSHORE/NEARSHORE: 5.3 TCF (8.4%)

SOURCE: DISCOVERED - NEB, 1988, UNDISCOVERED - GSC, 1994
<table>
<thead>
<tr>
<th>Area</th>
<th>DISCOV OIL (MMB)</th>
<th>UNDISCOV OIL (MMB)</th>
<th>DISCOV GAS (BCF)</th>
<th>UNDISCOV GAS (BCF)</th>
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<tr>
<td>LIARD/S. NWT</td>
<td>0</td>
<td>0</td>
<td>1,371</td>
<td>7,292</td>
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<tr>
<td>MACKENZIE PLAIN</td>
<td>302</td>
<td>107</td>
<td>156</td>
<td>1,500</td>
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<td>COLVILLE HILLS</td>
<td>0</td>
<td>28</td>
<td>620</td>
<td>4,586</td>
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<td>PEEL BASIN</td>
<td>0</td>
<td>45</td>
<td>0</td>
<td>3,149</td>
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<td>EAGLE PLAINS</td>
<td>12</td>
<td>28</td>
<td>84</td>
<td>1,103</td>
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<tr>
<td>MACKENZIE DELTA</td>
<td>248</td>
<td>1,050</td>
<td>5,319</td>
<td>12,600</td>
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<td>BEAUFORT SEA</td>
<td>767</td>
<td>4,350</td>
<td>4,376</td>
<td>40,700</td>
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<td>TOTAL (+ OTHERS)</td>
<td>1,329</td>
<td>5,736</td>
<td>11,925</td>
<td>74,119</td>
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CONCLUSIONS

- DISCOVERED OIL AND GAS OCCUR IN CAMBRIAN, DEVONIAN, PERMO-CARBONIF, CRETACEOUS AND TERTIARY AGE STRATA.

- MAJOR OIL DISCOVERIES IN MACKENZIE PLAIN AND THE MACKENZIE/BEAUFORT.

- MAJOR GAS DISCOVERIES IN LIARD, COLVILLE HILLS & MACKENZIE/ BEAUFORT.

- FUTURE DISCOVERIES EXPECTED IN LIARD, COLVILLE HILLS, MACKENZIE PLAIN, PEEL BASIN, EAGLE PLAIN AND MACK/ BEAUFORT.