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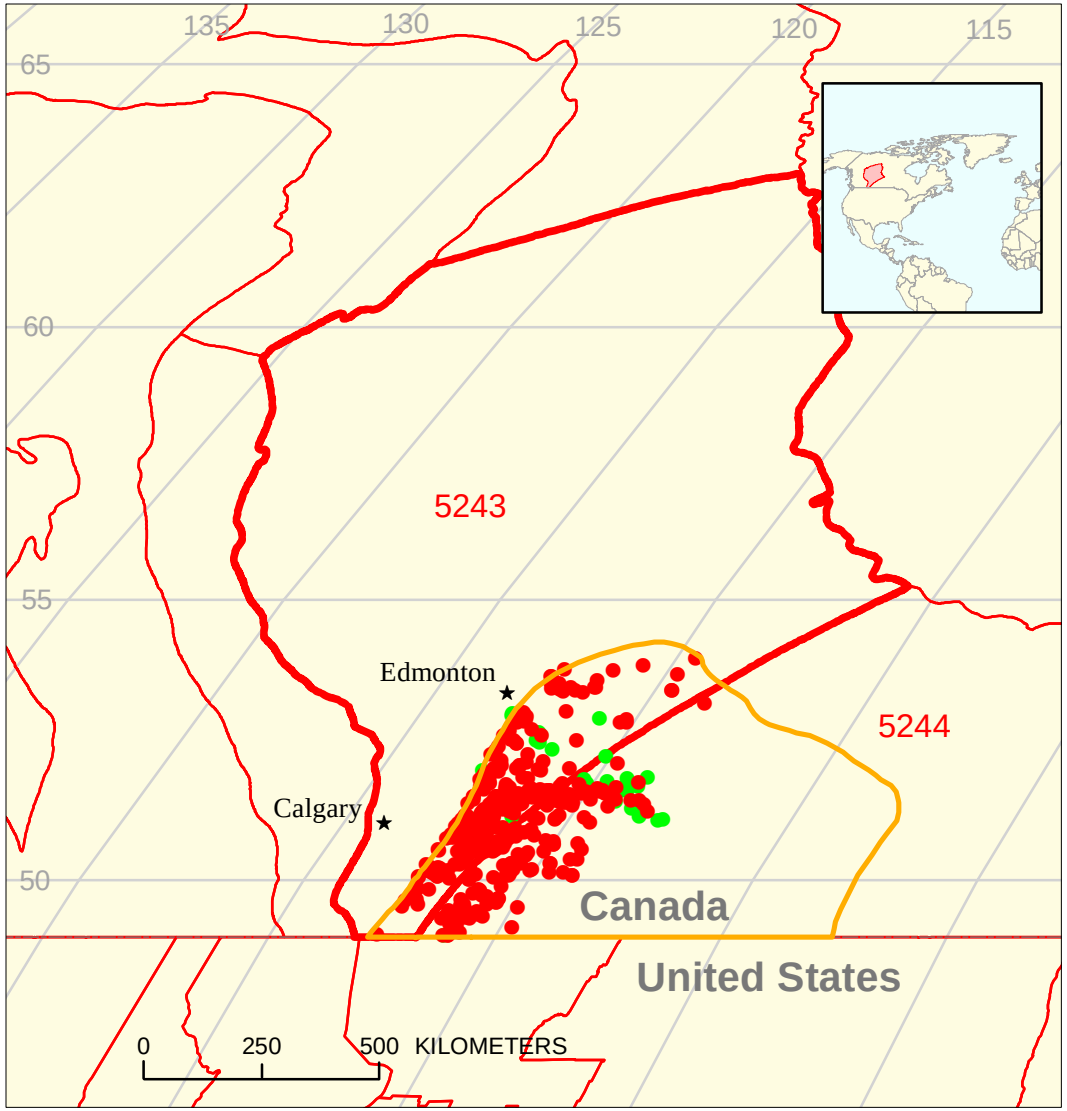
Upper Cretaceous Eastern Shallow Gas Assessment Unit 52430603



Upper Cretaceous Eastern Shallow Gas Asssessment Unit 52430603
Alberta Basin Geologic Province 5243
Other geologic province boundary

Geologic Summary

Detailed map of this assessment unit

Exploration/Discovery-History Data
- Plots of Known Field Sizes
- Tables

Assessment Input Data

Assessment Results
- This assessment unit was not
- assessed quantitatively.

USGS PROVINCES: Alberta Basin and Williston Basin (5243 and 5244)

GEOLOGIST: M.E. Henry

TOTAL PETROLEUM SYSTEM: Second White Specks-Cardium (524306)

ASSESSMENT UNIT: Upper Cretaceous Eastern Shallow Gas (52430603)

DESCRIPTION: This gas assessment unit includes much of the southeastern part of the Alberta Basin and southwestern part of the Williston Basin. The area is bounded to the west by the Second White Specks-Cardium Oil and Gas assessment unit, the Canadian-United States International Boundary to the south and on the north and east by an approximate line that includes much of the extent of the Viking Formation and joins with the boundary of the Northern Great Plains Biogenic Gas Play in the United States.

SOURCE ROCKS: The Upper Cretaceous First White Speckled Shale may be a more important source for this particular unit than the Second White Speckled Shale.

MATURATION: None of the potential source rock for this assessment unit lies in the zone of thermal maturity for liquid or gas generation.

MIGRATION: Pools assigned to this unit are in the same area where the expected, although immature, source rocks exist. Lateral migration may have occurred, aided by subsurface water movement but its extent is difficult to evaluate.

RESERVOIR ROCKS: Reservoir rocks are generally marine and marginal marine sandstones of the Viking Formation, Bow Island Formation, and Belly River Formation.

TRAPS AND SEALS: Stratigraphic traps are most common for discovered accumulations. Interbedded mudstones and shales generally form seals for these traps.

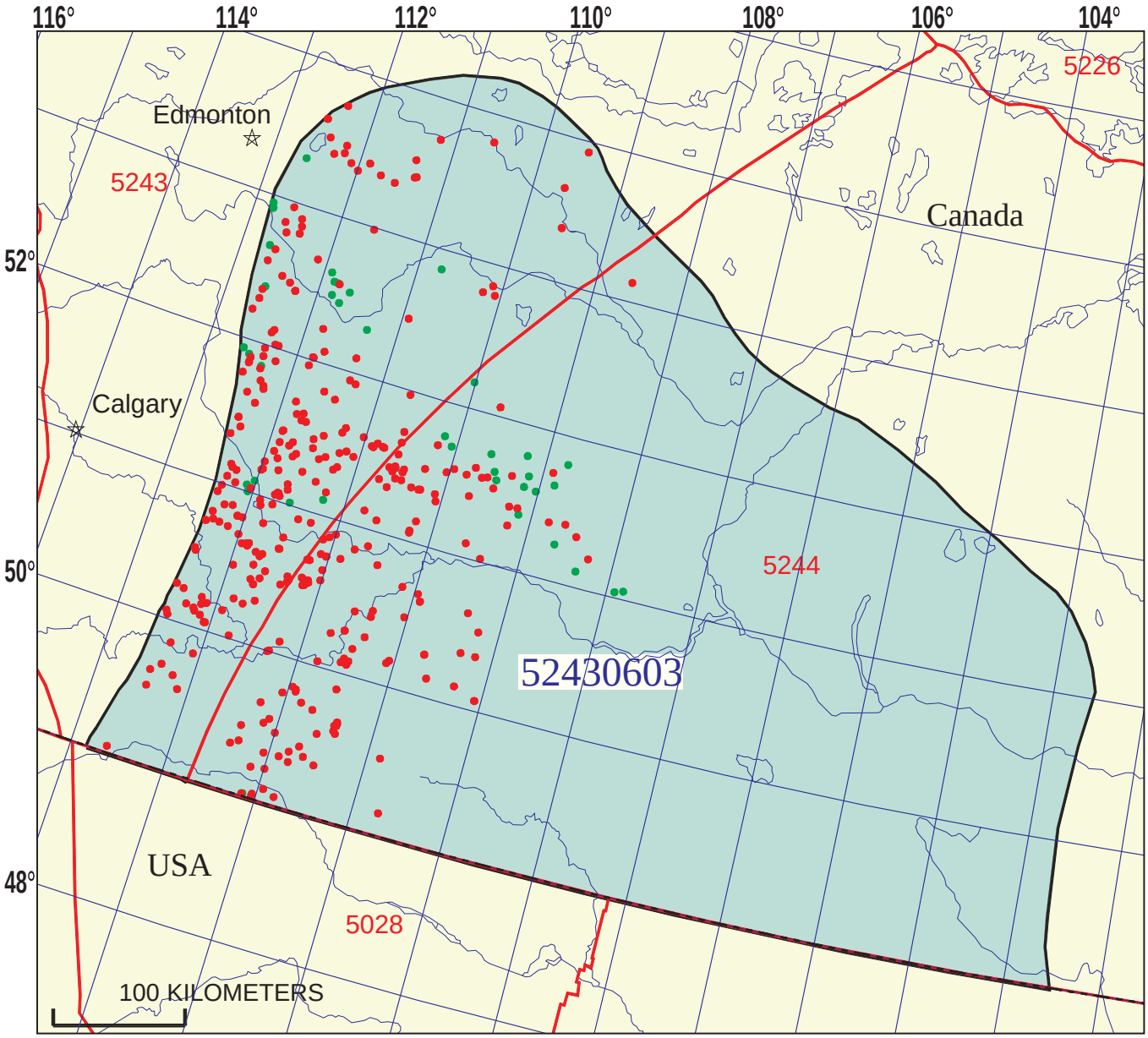
REFERENCES:

Creaney, S. and Allen, J., 1990, Hydrocarbon generation and migration in the Western Canada sedimentary basin, *in* Brooks, J., ed., Classic petroleum provinces: Geological Society of London Special Publication No. 50, p. 189-202.

Creaney, S., Allen, J., Cole, K.S., Fowler, M.G., Brooks, P.W., Osadetz, K.G., Macqueen, R.W., Snowden, L.R., and Riediger, C.L., 1994, Petroleum generation and migration in the Western Canada sedimentary basin, *in* Mossop, G.D. and Shetsen, I., comps., Geological atlas of the Western Canada sedimentary basin: Calgary, Canadian Society of Petroleum Geologists and Alberta Research Council, p. 455-468.

Dyman, T.S., 1995, North-central Montana province (028), *in* Gautier, D.L., Dolton, G.L., Takashi, K.I., and Varnes, K.L., Results, methodology, and supporting data for the 1995 National Assessment of United States oil and gas resources: U.S. Geological Survey Digital Data Series DDS-30.

NRG Associates, Inc., 1994, The significant oil and gas pools of Canada: Colorado Springs, Colo., NRG Associates, Inc. Database available from NRG Associates, Inc., P.O. Box 1655, Colorado Springs, CO 80901.



Upper Cretaceous Eastern Shallow Gas Assessment Unit - 52430603

EXPLANATION

- Hydrography
- Shoreline
- 5243 Geologic province code and boundary
- Country boundary
- Gas pool centerpoint
- Oil pool centerpoint
- 52430603 Assessment unit code and boundary

Projection: Lambert. Standard parallels: 49 and 77. Central meridian: -92

USGS science for a changing world

SEVENTH APPROXIMATION
NEW MILLENNIUM WORLD PETROLEUM ASSESSMENT
DATA FORM FOR CONVENTIONAL ASSESSMENT UNITS

Date:…….. 8/10/99
Assessment Geologist:…….. M.E. Henry
Region:…….. North America Number: 5
Province:…….. Alberta Basin Number: 5243
Priority or Boutique…… Priority
Total Petroleum System:…… Second White Specks-Cardium Number: 524306
Assessment Unit:…… Upper Cretaceous Eastern Shallow Gas Number: 52430603
* Notes from Assessor Possibly not conventional.

CHARACTERISTICS OF ASSESSMENT UNIT

Oil (<20,000 cfg/bo overall) **or** Gas (≥20,000 cfg/bo overall):… _____

What is the minimum field size?……. _____ mmboe grown (≥1mmboe)
(the smallest field that has potential to be added to reserves in the next 30 years)

Number of discovered fields exceeding minimum size:…… Oil: _____ Gas: _____
Established (>13 fields) _____ Frontier (1-13 fields) _____ Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmboe):
1st 3rd _____ 2nd 3rd _____ 3rd 3rd _____
Median size (grown) of discovered gas fields (bcfg):
1st 3rd _____ 2nd 3rd _____ 3rd 3rd _____

Assessment-Unit Probabilities:

Attribute	Probability of occurrence (0-1.0)
1. **CHARGE:** Adequate petroleum charge for an undiscovered field ≥ minimum size……	
2. **ROCKS:** Adequate reservoirs, traps, and seals for an undiscovered field ≥ minimum size……	
3. **TIMING OF GEOLOGIC EVENTS:** Favorable timing for an undiscovered field ≥ minimum size	

Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):…….. _____

4. **ACCESSIBILITY:** Adequate location to allow exploration for an undiscovered field ≥ minimum size…… _____

UNDISCOVERED FIELDS

Number of Undiscovered Fields: How many undiscovered fields exist that are ≥ minimum size?:
(uncertainty of fixed but unknown values)

Oil fields:……min. no. (>0) _____ median no. _____ max no. _____
Gas fields:……min. no. (>0) _____ median no. _____ max no. _____

Size of Undiscovered Fields: What are the anticipated sizes (**grown**) of the above fields?:
(variations in the sizes of undiscovered fields)

Oil in oil fields (mmbo)……min. size _____ median size _____ max. size _____
Gas in gas fields (bcfg):……min. size _____ median size _____ max. size _____

Assessment Unit (name, no.)
Upper Cretaceous Eastern Shallow Gas, 52430603

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……			
NGL/gas ratio (bngl/mmcfg)……			

Gas fields:	minimum	median	maximum
Liquids/gas ratio (bngl/mmcfg)……			
Oil/gas ratio (bo/mmcfg)……			

SELECTED ANCILLARY DATA FOR UNDISCOVERED FIELDS

(variations in the properties of undiscovered fields)

Oil Fields:	minimum	median	maximum
API gravity (degrees)……			
Sulfur content of oil (%)……			
Drilling Depth (m) ……			
Depth (m) of water (if applicable)……			

Gas Fields:	minimum	median	maximum
Inert gas content (%)……			
CO_2 content (%)……			
Hydrogen-sulfide content(%)……			
Drilling Depth (m)……			
Depth (m) of water (if applicable)……			

Assessment Unit (name, no.)
Upper Cretaceous Eastern Shallow Gas, 52430603

ALLOCATION OF UNDISCOVERED RESOURCES IN THE ASSESSMENT UNIT TO COUNTRIES OR OTHER LAND PARCELS (uncertainty of fixed but unknown values)

1. _____ represents _____ areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…			
Portion of volume % that is offshore (0-100%)……			

Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…			
Portion of volume % that is offshore (0-100%)……			