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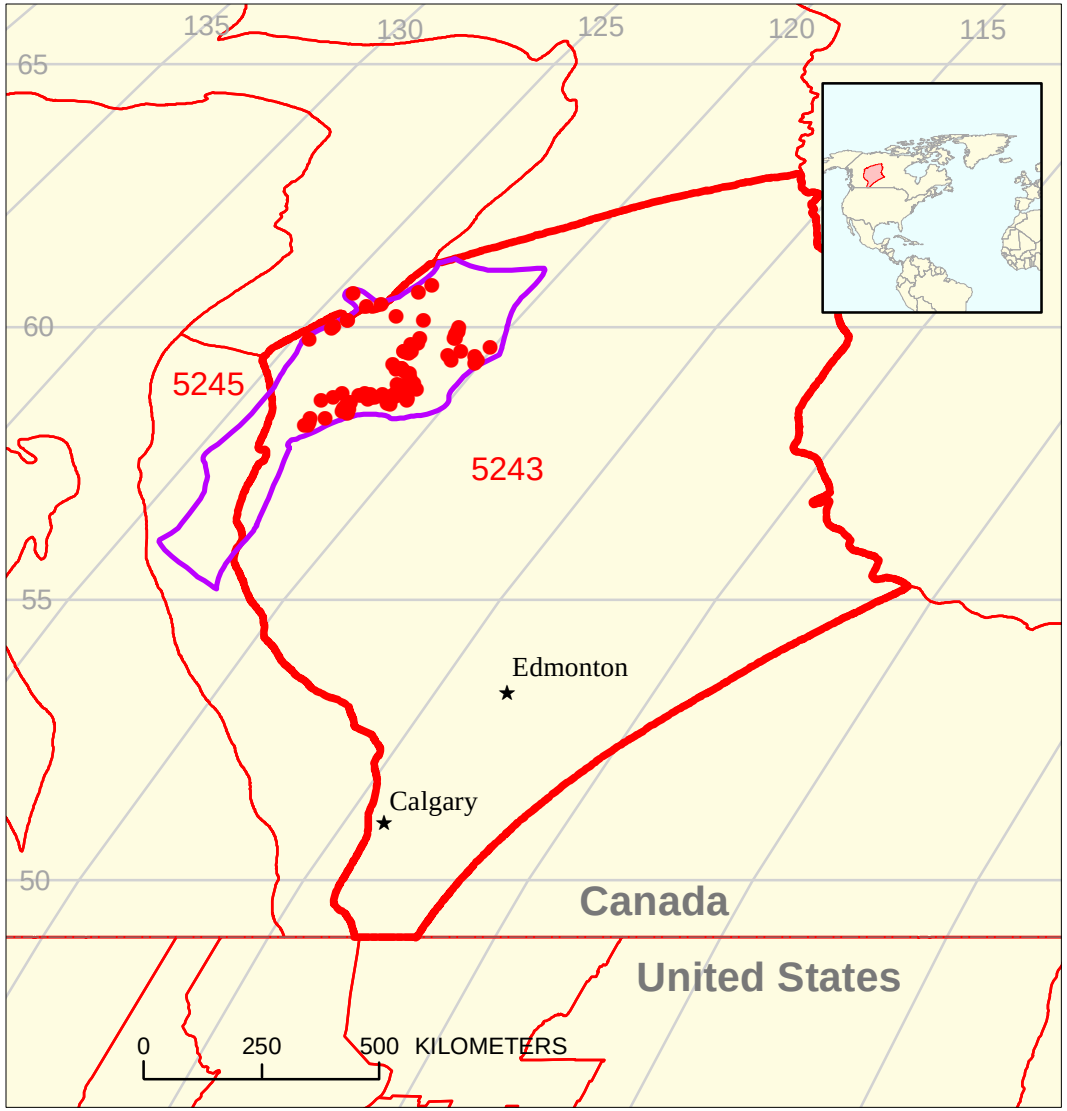
Keg River Gas
Assessment Unit 52430101



Keg River Gas Assessment Unit 52430101
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
- Assessment Unit Summary
- Detailed Assessment Results
- Undiscovered Field-Size Distributions

USGS PROVINCES: Alberta Basin and Rocky Mountain Deformed Belt (5243 and 5245)

GEOLOGIST: M.E. Henry

TOTAL PETROLEUM SYSTEM: Keg River-Keg River (524301)

ASSESSMENT UNIT: Keg River Gas (52430101)

DESCRIPTION: This gas assessment unit includes the northwestern part of the Alberta Basin and the northeastern part of the deformed belt. The northern, eastern, and southern boundary is the estimated position of a line separating rocks at thermal maturity levels for liquid petroleum generation to the east from rocks overmature for liquid petroleum generation to the west and the western boundary represents the estimated extent of potential source rocks.

SOURCE ROCKS: The principal source rocks are probably bituminous shales of the Middle to Upper Devonian Horn River Formation, deposited basinward of the Presqu'ile barrier complex, with some contributions from Middle Devonian Keg River sources also likely.

MATURATION: This unit lies entirely within the area where probable source rocks are expected to be overmature with respect to liquid petroleum generation.

MIGRATION: The distribution of gas pools assigned to this unit in relation to the estimated distribution of mature source rocks indicates that long distance lateral migration is not required.

RESERVOIR ROCKS: Virtually all reservoirs occur in carbonate rocks and based on their distribution are probably developed in dolomitized reef buildups.

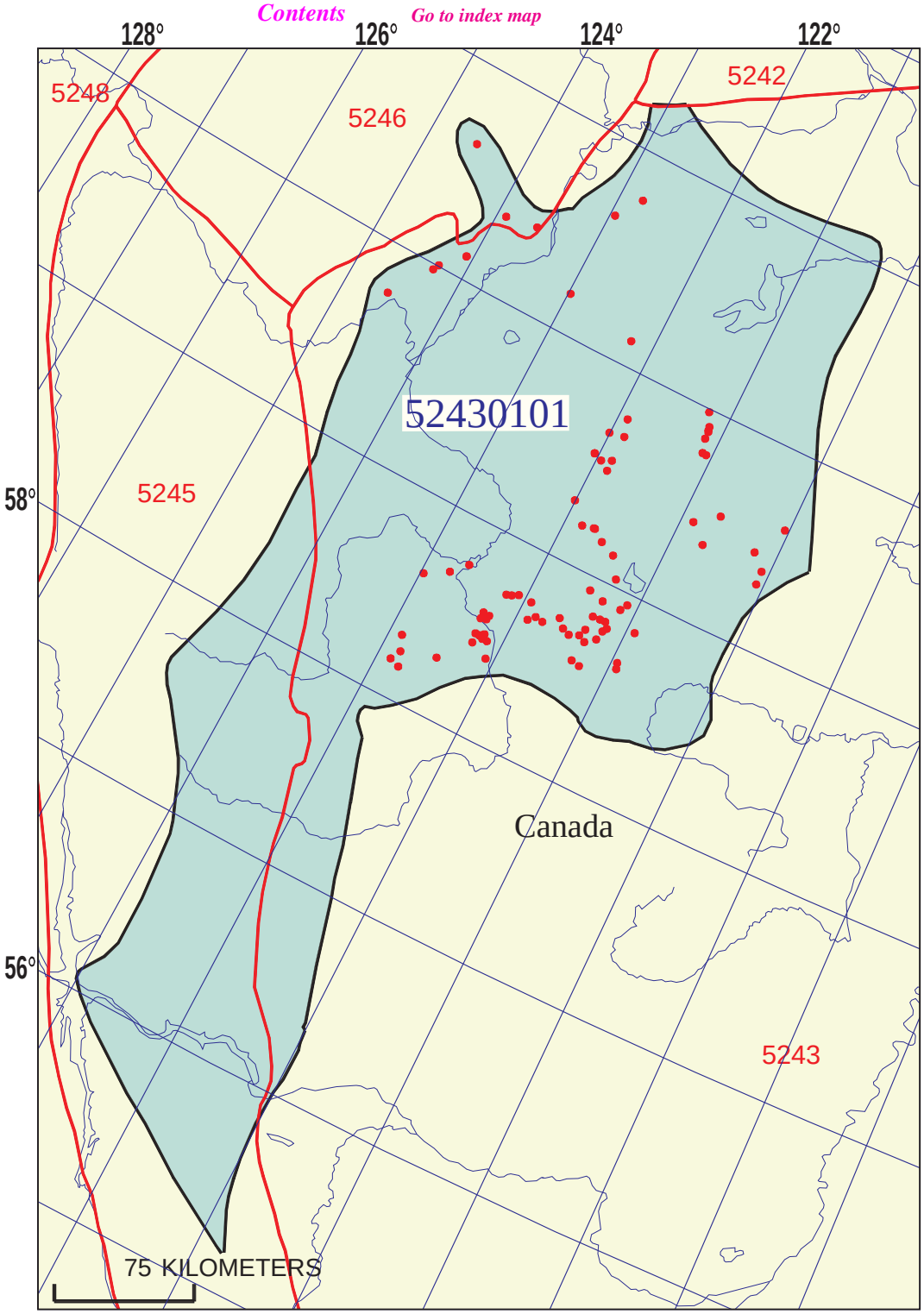
TRAPS AND SEALS: The most common trap types are stratigraphic followed by structural and combination in the approximate proportion of 116 to 10 to one, respectively. Seals result from overlying shales and dense carbonates.

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.

Feinstein, S., Williams, G.K., Snowden, L.R., Brooks, P.W., Fowler, M.G., Goodarzi, F., and Gentzis, T., 1991, Organic geochemical characterization and hydrocarbon generation potential of mid-Late Devonian Horn River bituminous shales, southern Northwest Territories: Bulletin of Canadian Petroleum Geology, v. 39, no. 2, p. 192-202.

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.



Keg River Gas
Assessment Unit - 52430101

EXPLANATION

- Hydrography
- Shoreline
- 5243 Geologic province code and boundary
- Country boundary
- Gas pool centerpoint
- Oil pool centerpoint
- 52430101 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:……..	7/14/99		
Assessment Geologist:……..	M.E. Henry		
Region:……..	North America	Number:	5
Province:……..	Alberta Basin	Number:	5243
Priority or Boutique……	Priority		
Total Petroleum System:……	Keg River-Keg River	Number:	524301
Assessment Unit:……..	Keg River Gas	Number:	52430101
* Notes from Assessor	Combined Keg River and Horn River Basin petroleum systems into one system.		
	Data were not grown. Assessing pools, not fields to conform to NRG data set.		

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum field size?……. 0.5 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: 0 Gas: 107
Established (>13 fields) X 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 12.9 2nd 3rd 12.6 3rd 3rd 11.2

Assessment-Unit Probabilities:

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

Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):…….. 1.0

4. **ACCESSIBILITY:** Adequate location to allow exploration for an undiscovered field ≥ minimum size…… 1.0

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)	15	median no.	60	max no.	130

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	3	median size	8	max. size	250

Assessment Unit (name, no.)
Keg River Gas, 52430101

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)……	10	20	30
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 (%)……	0	0.02	3.2
CO_2 content (%)……	0	10	29
Hydrogen-sulfide content(%)……	0	0.6	10
Drilling Depth (m)……	450	2000	4400
Depth (m) of water (if applicable)……			

Assessment Unit (name, no.)
Keg River Gas, 52430101

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

1. Canada represents 100 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):...		100	
Portion of volume % that is offshore (0-100%).....		0	

2. Province 5243 represents 70 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):...		80	
Portion of volume % that is offshore (0-100%).....		0	

3. Province 5245 represents 28 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):...		15	
Portion of volume % that is offshore (0-100%).....		0	

4. Province 5246 represents 2 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):...		5	
Portion of volume % that is offshore (0-100%).....		0	

Keg River Gas, AU 52430101
Undiscovered Field-Size Distribution