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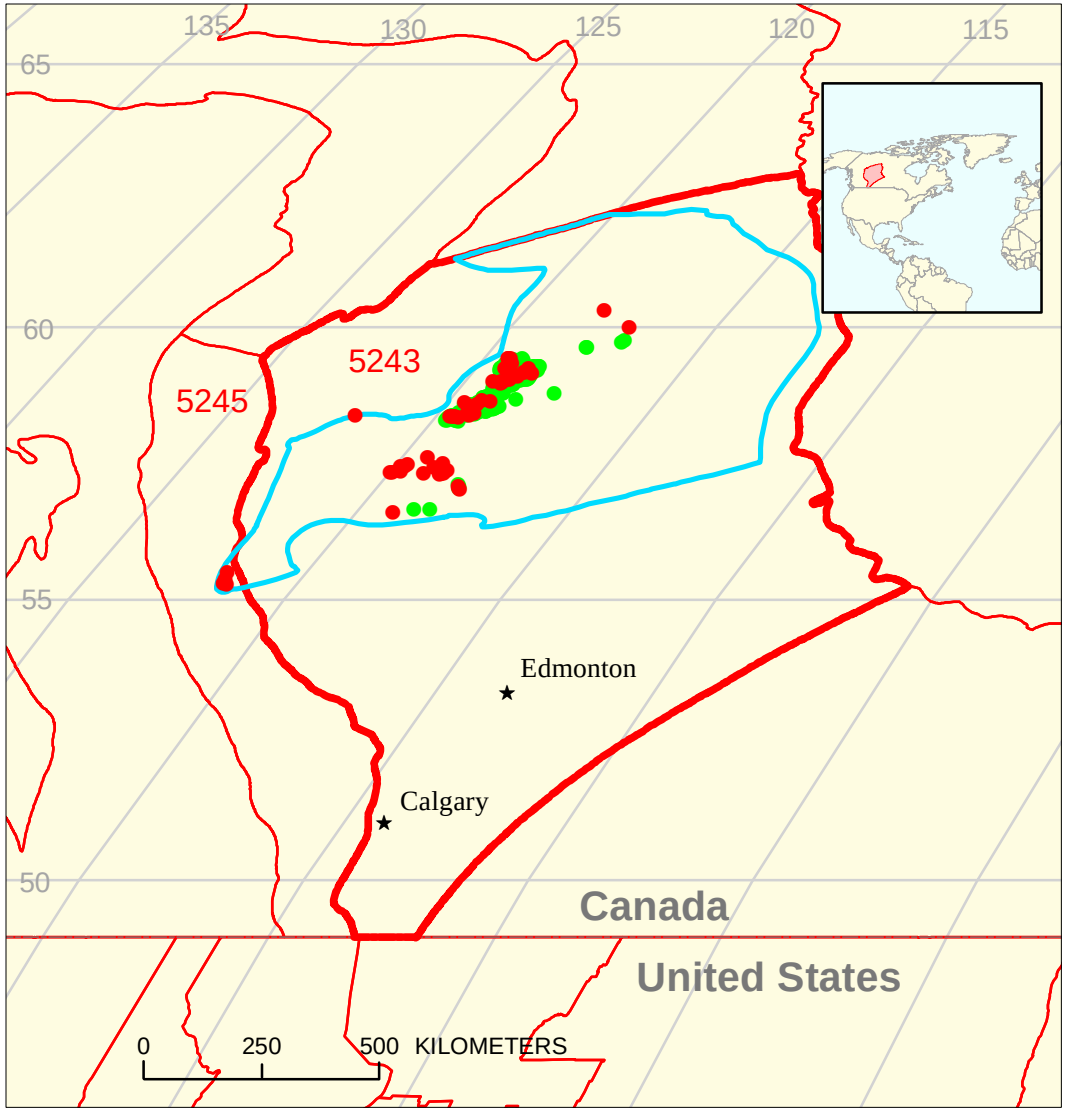
Keg River Oil and Gas Assessment Unit 52430102



Keg River Oil and Gas Assessment Unit 52430102
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 Oil and Gas (52430102)

DESCRIPTION: This oil and gas assessment unit includes the northwestern part of the Alberta Basin and a small part of the east-central deformed belt. The area is generally bounded by the Tathlina High to the north and the Peace River Arch to the south. The eastern boundary is the estimated extent of potential reservoir rocks and the western boundary is the Keg River Gas assessment unit.

SOURCE ROCKS: The principal source rocks are organic-rich, fine-grained rocks of the Middle Devonian Keg River Formation.

MATURATION: The western half of this unit lies in the area where probable source rocks are expected to be mature with respect to liquid petroleum generation.

MIGRATION: The distribution of oil and 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 dolomite, the majority of which developed in pinnacle reefs and many in patch reefs.

TRAPS AND SEALS: The most common trap types are stratigraphic followed by structural and combination in the approximate proportion of 20 to five to one respectively. Evaporite deposits are the primary seals for pools in this assessment unit.

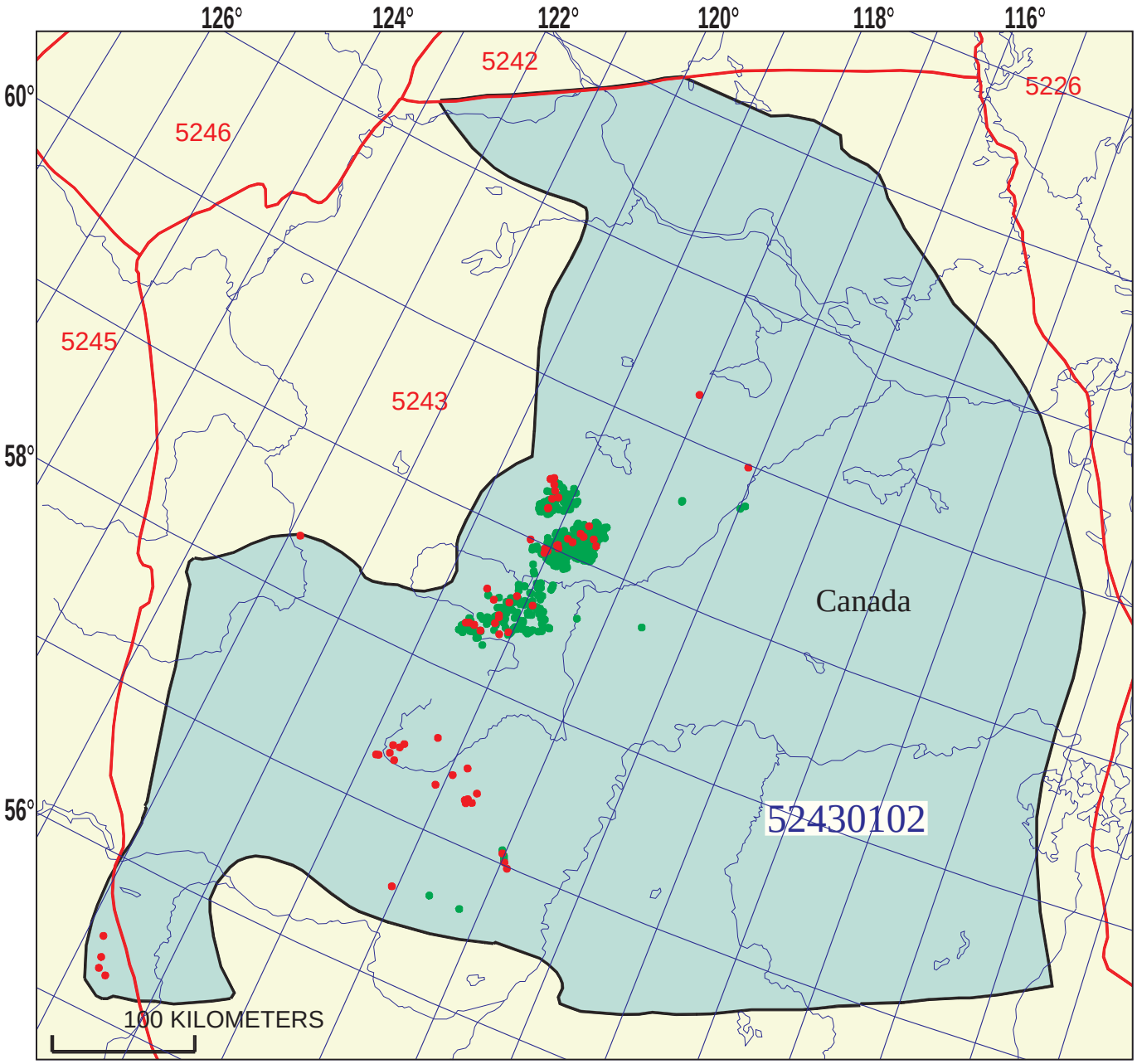
REFERENCES:

Allen, J., and Creaney, S., 1991, Oil families of the Western Canada Basin: Bulletin of Canadian Petroleum Geology, v. 39, no. 2, p. 107-122.

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.

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 Oil and Gas Assessment Unit - 52430102

EXPLANATION

- Hydrography
- Shoreline
- 5243 Geologic province code and boundary
- Country boundary
- Gas pool centerpoint
- Oil pool centerpoint
- 52430102 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 Oil and Gas	Number:	52430102
* 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):… Oil

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: 198 Gas: 56

Established (>13 fields) X Frontier (1-13 fields) _____ Hypothetical (no fields) _____

Median size (grown) of discovered oil fields (mmboe):
1st 3rd 1.7 2nd 3rd 0.7 3rd 3rd 1

Median size (grown) of discovered gas fields (bcfg):
1st 3rd 5.5 2nd 3rd 4.9 3rd 3rd 8.2

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)	10	median no.	40	max no.	100
Gas fields:……min. no. (>0)	10	median no.	50	max no.	100

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	0.5	median size	1	max. size	50
Gas in gas fields (bcfg):……min. size	3	median size	8	max. size	400

Assessment Unit (name, no.)
Keg River Oil and Gas, 52430102

AVERAGE RATIOS FOR UNDISCOVERED FIELDS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

Oil Fields:	minimum	median	maximum
Gas/oil ratio (cfg/bo)……	500	1000	1500
NGL/gas ratio (bngl/mmcfg)……	30	60	90

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)……	26	37	55
Sulfur content of oil (%)……	0.5	1	2
Drilling Depth (m) ……	1300	1600	3000
Depth (m) of water (if applicable)……			

Gas Fields:	minimum	median	maximum
Inert gas content (%)……	0.1	2	17
CO_2 content (%)……	0	3	19
Hydrogen-sulfide content(%)……	0	0.6	15
Drilling Depth (m)……	800	1800	3400
Depth (m) of water (if applicable)……			

Assessment Unit (name, no.)
Keg River Oil and Gas, 52430102

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):…		100	
Portion of volume % that is offshore (0-100%)……		0	

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 98 areal % of the total assessment unit

Oil in Oil Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		98	
Portion of volume % that is offshore (0-100%)……		0	

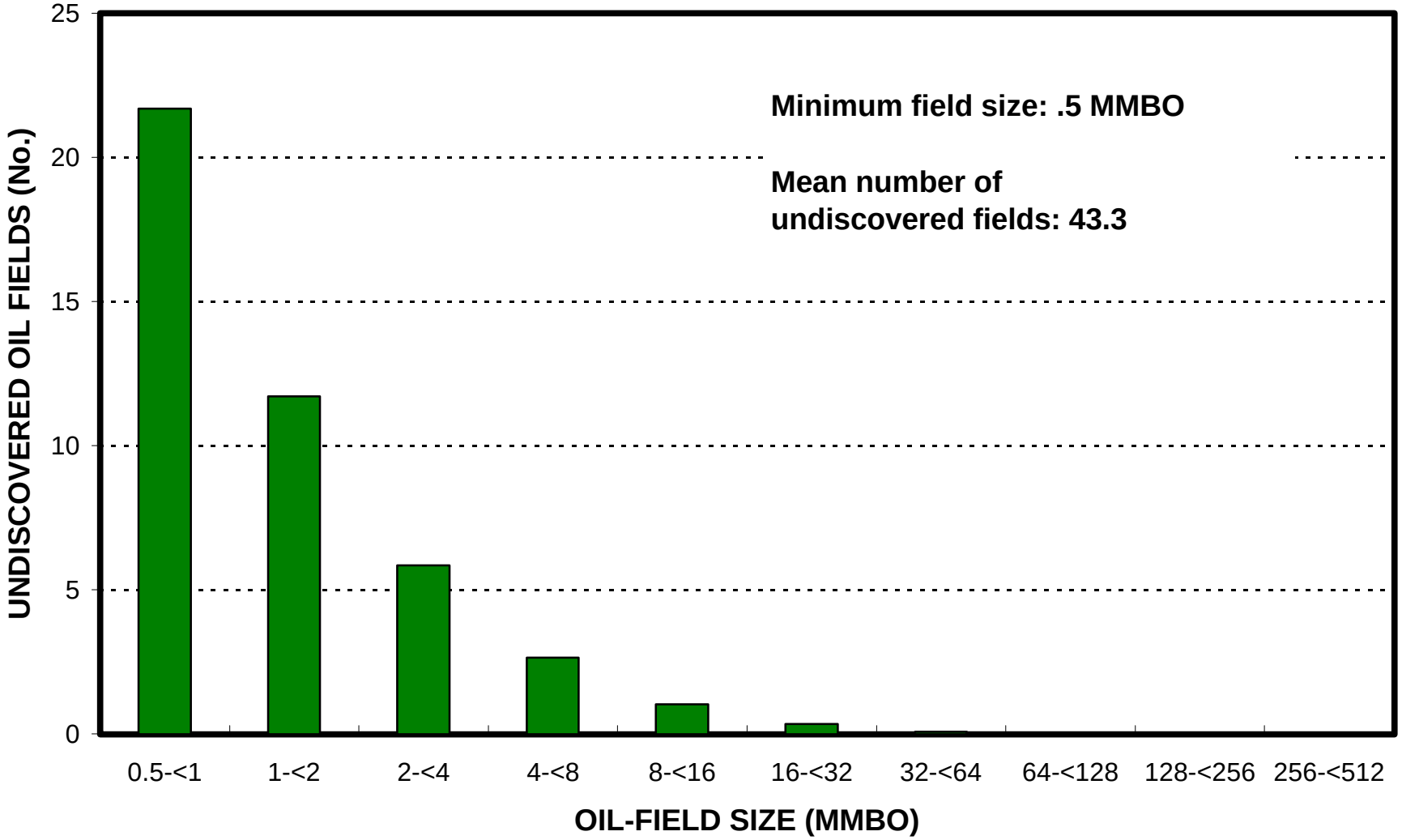
Gas in Gas Fields:	minimum	median	maximum
Richness factor (unitless multiplier):……			
Volume % in parcel (areal % x richness factor):…		95	
Portion of volume % that is offshore (0-100%)……		0	

3. Province 5245 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):…		2	
Portion of volume % that is offshore (0-100%)……		0	

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 Oil and Gas, AU 52430102
Undiscovered Field-Size Distribution



Keg River Oil and Gas, AU 52430102
Undiscovered Field-Size Distribution