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**Reserves and Resource Reporting Guidelines:
Russian Federation Classification (Proposed 2005) vs
SPE/WPC/AAPG/SPEE Petroleum Resources Management
System (2007 PRMS)**

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Object of This Paper

- Introduce those familiar with the Russian Federation Classification as proposed in 2005 (RF-2005) to the terminology, similarity and differences in the classification scheme and overall structure of the SPE/WPC/AAPG/SPEE Petroleum Resources Management System (SPE-PRMS 2007)

Why We All Need to Gain a Better Understanding of the SPE-PRMS 2007

In October 2001, the FASB and the IASB announced their formal commitment to convergence of U.S. and International accounting standards.

The IASB participated as an observer to the Oil and Gas Reserves Committee that drafted the 2007 SPE Definitions. Most observers believe the 2007 SPE Definitions will be adopted in some form as part of the resulting accounting standards as a result of the convergence.



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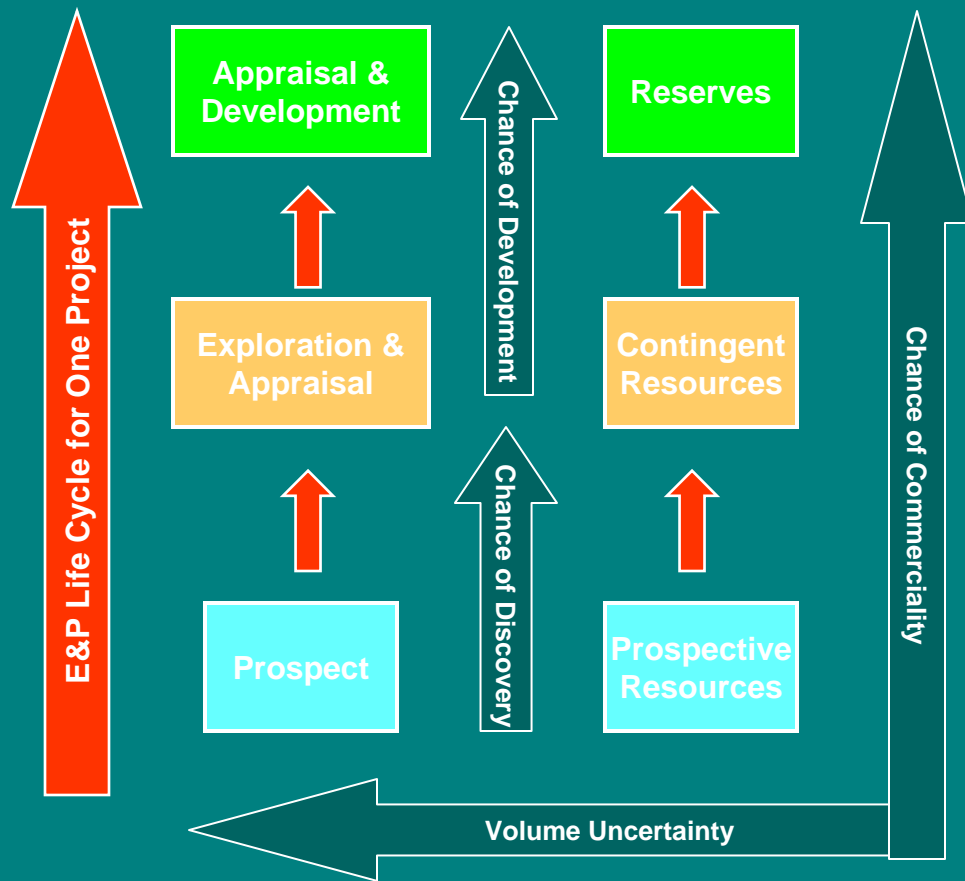
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The London-based International Accounting Standards Board is committed to developing a single set of high quality, understandable and enforceable global accounting standards.

The goal of the IASB to set one global standard for financial reporting and is leaning toward the Adoption of the SPE-PRMS 2007 to guide oil and gas accounting.

Major Elements Reserves and Resources Classification Systems



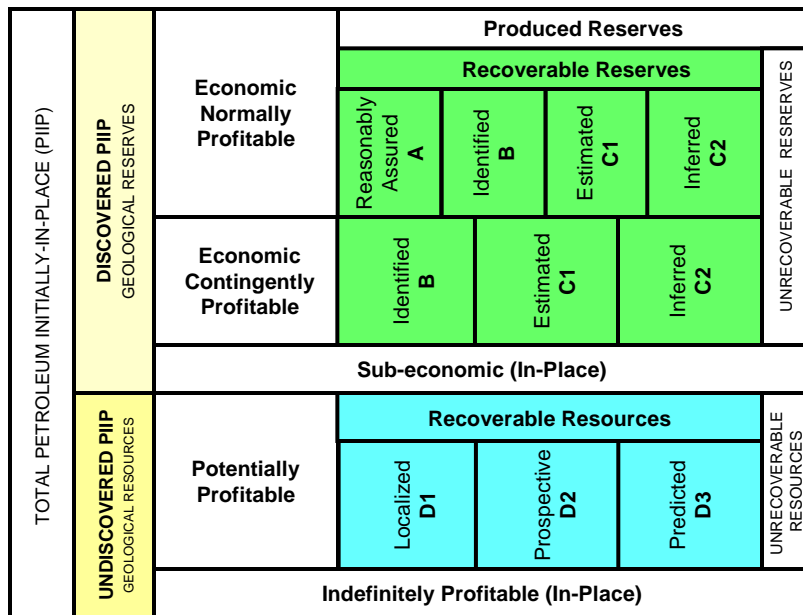
Follow Progression of Changes In E&P Life Cycle of a Reservoir, Field or Project as We Obtain More Technical Data or as a Result of a Change in Economic Status

Address Chance of Discovery and Chance of Development

Incorporate a Scheme to Address Technical Uncertainty in the Volumes and Increasing Levels of Commerciality or Project Maturity

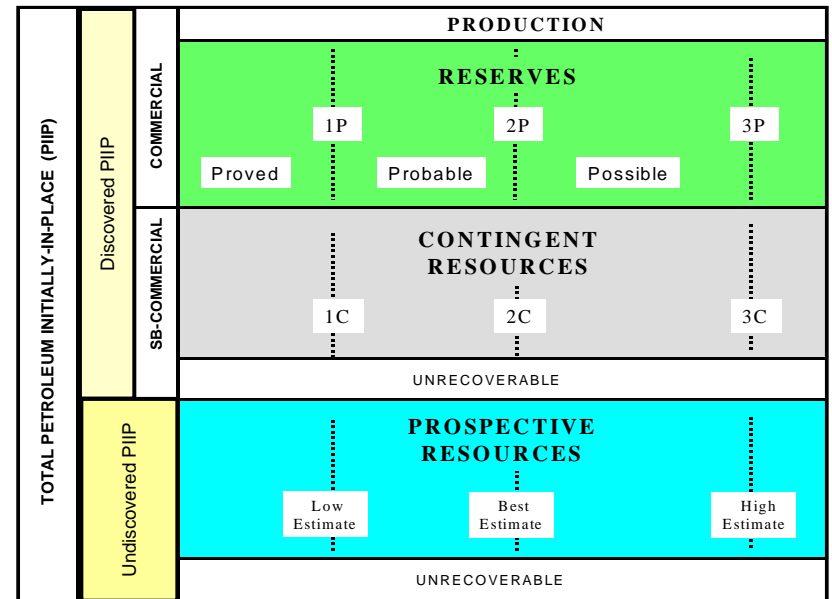
Correlation of Russian Federation 2005 and SPE-PRMS 2007 Classifications

Although the terminology varies, there is a high degree of commonality with both classification systems sharing a similar overall structure denoting petroleum initially in-place, recoverable and unrecoverable volumes, resources and reserves.



↑ Geological Exploration Knowledge & Degree of Maturity for Economic Development

← Degree of Geological Exploration Knowledge And Maturity for Production (field project status) →



↑ Increasing Chance of Commerciality

← Range of Uncertainty →

Not to scale

Correlation of Status Categories Different Terminology

In-Place	SPE-PRMS 2007	RF-2005
Total Petroleum Initially In-Place	Total Petroleum Initially In-Place	Total Petroleum Initially In-Place
<u>Discovered</u> Petroleum Initially In-Place	Discovered Petroleum Initially In-Place	Geological Reserves
<u>Undiscovered</u> Petroleum Initially In-Place	Undiscovered Petroleum Initially In-Place	Geological Resources
Recoverable	SPE-PRMS 2007	RF-2005
<u>Produced</u>	Production	Produced Reserves
<u>Discovered</u> Commercial	Reserves (Recoverable)	Economic Normally Profitable Reserves
<u>Discovered</u> Sub-commercial	Contingent (Recoverable) Resources	Economic Contingently (Recoverable) & Sub-economic (In-Place) Reserves
<u>Undiscovered</u>	Prospective (Recoverable) Resources	Potentially Profitable (Recoverable) & Indefinitely Profitable (In-Place) Resources
Unrecoverable	SPE-PRMS 2007	RF-2005
<u>Discovered</u> Unrecoverable	(Discovered) Unrecoverable	Unrecoverable Reserves
<u>Undiscovered</u> Unrecoverable	(Undiscovered) Unrecoverable	Unrecoverable Resources

SPE-PRMS 2007 TERMS

Prospective Resources (Undiscovered)

- Defined as “those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations by future development projects.
- The evaluator must address the chance of discovery as part of assessing the chance of the project’s commerciality.

SPE-PRMS 2007 TERMS

Contingent Resources (Discovered Sub-Commercial)

- Defined as “those quantities of petroleum estimated, as of a given date, to be potentially recoverable from known accumulations, but which are not currently considered commercially recoverable.
- May include
 - Projects with no viable market
 - Projects depending on technology under development
 - Projects in the early stage of evaluation

SPE-PRMS 2007 TERMS

Reserves (Discovered Commercial)

- Defined as “those quantities of petroleum anticipated to be commercially recoverable from known accumulations from a given date forward under defined conditions.
- Reserves must satisfy four criteria:
 1. Must be discovered
 2. Must be recoverable
 3. Must be commercial
 4. Must be remaining as of a given date as well as associated with an identified development project

Greatest Level of Divergence in Terminology Occurs Within the Class Categories for Technical Certainty

- SPE-PRMS 2007 reserves and resource categories are based on the uncertainty of the hydrocarbon sales volumes associated with a project (Example Proved-Probable-Possible Reserve Categories).
- This uncertainty includes technical uncertainty for the reservoir in-place volumes plus the uncertainty of the project recovery efficiency, plus commercial uncertainty for such conditions as timetable of development, assessment of future economic conditions, expectation of a market, facilities are or will be available, legal, contractual, social, environmental and economic concerns will be met, commitment by the company, partners, and government approvals and assurance that the project is economic according to the criteria defined by the evaluator. Failure to meet any of these criteria also will be the difference between in classification as a reserve or as a contingent resource under the SPE-PRMS 2007 guidelines.

Correlation of Certainty Classes for Recoverable Volumes

Recoverable	SPE-PRMS 2007	RF-2005
<u>Produced</u>	Production	Produced Reserves
<u>Discovered Commercial</u>	Reserves	Economic Normally Profitable Reserves
Incremental Volumes	Reserve Categories Proved Probable Possible	Reserves Categories A, B, C1 C2 C2
Cumulative Volumes Low Estimate-P90 Best Estimate-P50 High Estimate-P10	Reserve Categories 1P-Proved 2P-Proved + Probable 3P-Proved+Probable+Possible	Reserve Categories A + B + C1 A + B + C1 + C2 A + B + C1 + C2
<u>Discovered Sub-commercial</u>	Contingent Resources	Economic Contingently Profitable & Sub-economic* Reserves
Cumulative Volumes Low Estimate-P90 Best Estimate-P50 High Estimate-P10	Resource Categories Cumulative 1C Cumulative 2C Cumulative 3C	Economic Contingently Profitable Reserves Categories** Incremental B Incremental C1 Incremental C2
<u>Undiscovered</u>	Prospective Resources	Potentially Profitable Recoverable & Indefinitely Profitable* Resources
Cumulative Volumes Low Estimate-P90 Best Estimate-P50 High Estimate-P10	Resource Categories Cumulative Low Estimate Cumulative Best Estimate Cumulative High Estimate	Potentially Profitable Resources Categories** Incremental Localized D1 Incremental Prospective D2 Incremental Predicted D3

The SPE-PRMS 2007 includes both incremental volumes such as Proved, Probable and Possible And cumulative volumes such as 1P for Proved, 2P for Proved+Probable and 3P for Proved+Probable+Possible volumes. The SPE-PRMS 2007 includes cumulative volumes for each of the reserve and Resource class.

The SPE-PRMS 2007 also allows for the use of probabilistic volumes.

*Discovered Sub-economic Reserves and Indefinitely Profitable Resources are expressed as in-place volumes only
 **Discovered Economic Contingently Profitable Reserves and Undiscovered Potentially Profitable Resources are expressed as incremental volumes only

Notable Difference Between SPE-PRMS 2007 Prospective Resources and RF-2005 Potentially Profitable Resources

- RF-2005 classification splits the Undiscovered Recoverable Resources into three subdivisions by geological or project maturity:
 - D1-Prospects
 - D2-Leads
 - D3-Plays
- SPE-PRMS 2007 classification encompasses these variations in project maturity within the single classification of Prospective Resources but addresses uncertainty in the volumes with low, mid and high estimates.

Correlation of Reserves and Producing Status Categories

		SPE-PRMS 2007				
		Recoverable Reserves Categories				
Commercial	Proved (Pv) Reasonable Certainty			Probable (Pb) More Likely Than Not	Possible (Ps) Less Likely Than Not	
	Producing Status					
	PvDP Proved Developed Producing	PvNP Proved Developed Non-Producing	PvUD Proved Undeveloped	PbDP, PbNP, PbUD	PsDP, PsNP, PsUD	
	Cumulative Volumes Pv-1P Low Estimate P90			Cumulative Volumes Pv + Pb-2P Best Estimate P50	Cumulative Volumes Pv + Pb + Ps-3P High Estimate P10	
		RF-2005				
		Recoverable Reserves Categories				
Economic Normally Profitable	A Reasonably Assured	B Identified	C1 Estimated	C2 Inferred		
	Producing Status					
	Similar to Developed Producing	Similar to Developed Non-Producing	Similar to Undeveloped	Similar to Undeveloped		
	Cumulative Volumes A+B+C1+C2 Similar to 1P Low Estimate P90			Cumulative Volumes A+B+C1+C2 Similar to 2P Best Estimate P50	Cumulative Volumes A+B+C1+C2 Similar to 3P High Estimate P10	

Unconventional Hydrocarbons

- SPE-PRMS 2007 allows for the inclusion of certain unconventional hydrocarbons as both resources and reserves
 - Tight Gas
 - Coal Bed Methane
 - Shale Gas
 - Gas Hydrates
 - Natural Bitumen (Including Mined Volumes)
 - Oil Shales

Conclusion

By comparing and contrasting the overall structure, terminology and key principals evaluators can begin to develop a better understanding of the comparability between the two hydrocarbon classification systems.

Acknowledgements

The comparisons made by the author rely primarily on the work contained in the SPE Oil and Gas Reserves Committee (OGRC) Mapping Subcommittee Final Report of December 2005 and the final PRMS guidelines. The author is grateful to Mr. Dmitri P. Zabrodin, Ph.D and the staff of FDP Engineering, LLP, Moscow for the critical review and the revisions relating to the SPE's interpretation of the RF-2005. This paper is intended to provide a generalized comparison and does not purport to represent the authoritative version of these agencies' guidelines. Readers should obtain official copies of the guidelines directly from the issuing agencies.

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