

Development of SRU Definition Guidelines and a Reserve Reporting Code

Dr. Carlos D. Espejel Garcia

Ispace, University of Luxembourg,
University of New South Wales, European Space Agency

Supervisors: Julien-Alexandre Lamamy, Serkan Saydam, Tonie Van Dam

External Supervisor: James Carpenter

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Sophia C. Casanova

University of New South Wales

Supervisors: Serkan Saydam & Andrew Dempster

External Supervisors: Graziella Caprarelli, Robert Anderson

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Resource and Reserve Statements and Public Reporting

Public Reports:

- Prepared for the purpose of informing investors or potential investors on *exploration results, resource* and *reserve estimates*
- May also be prepared to satisfy regulatory requirements
- Include (but not limited to) annual and quarterly reporting, press releases, technical papers, website posting and public presentations
- Contain all *relevant information* required for the reader to make a *reasoned* and *balanced judgement*
- Compliant with relevant listing rules and reporting codes

Reporting Codes Provide:

- The minimum standards for public reporting
- A *framework* for resource and reserve classification
- A consistent approach to evaluate development projects and present results
- An agreed upon set of *definitions / glossary* of commonly used terms
- Recommendations and guidance for *transparent, consistent* and *comparable* reporting

Resource and Reserve Statements:

- Benchmark for company performance and outlook
- Inform internal company business strategy and decision-making

Examples of Existing Terrestrial Reporting Codes

- Joint Ore Reserves Committee (JORC -2012)
- Committee for Mineral Reserves International Reporting Standards (CRIRSCO 2013)
- Petroleum Resources Management System (PRMS 2018)
- United Nations Framework Classification For Fossil Energy And Mineral Reserves And Resources 2009 (UNFC – 2009)

Joint Ore Reserve Committee (JORC)

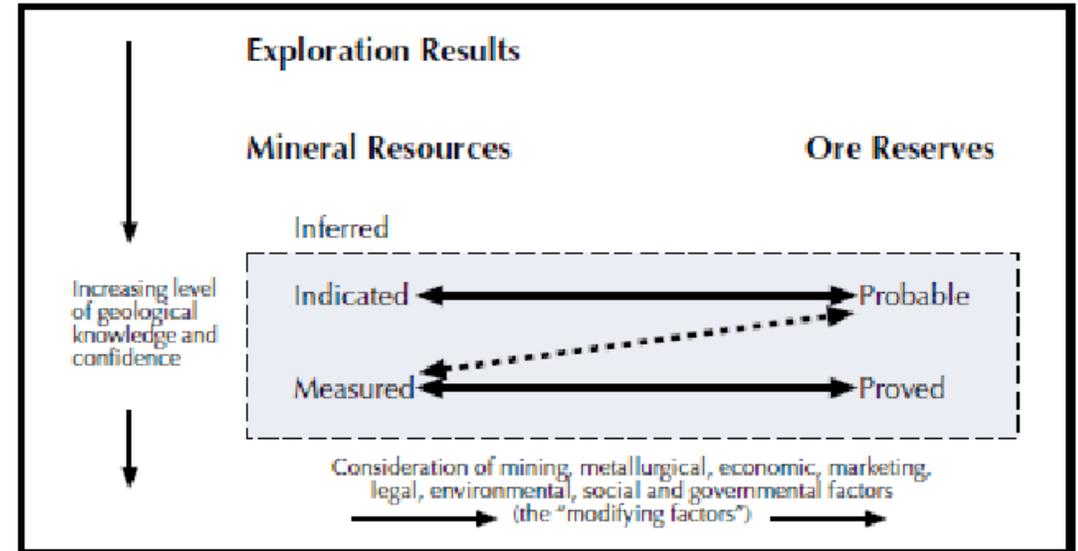


Governing principals: transparency, materiality and competence

Incremental risk - based classification

Classification categories:

- Exploration Targets and Results
- Mineral Resources
- Ore Reserves



Source: JORC 2012

PETROLEUM RESOURCES MANAGEMENT SYSTEM (PRMS 2018) - SPE



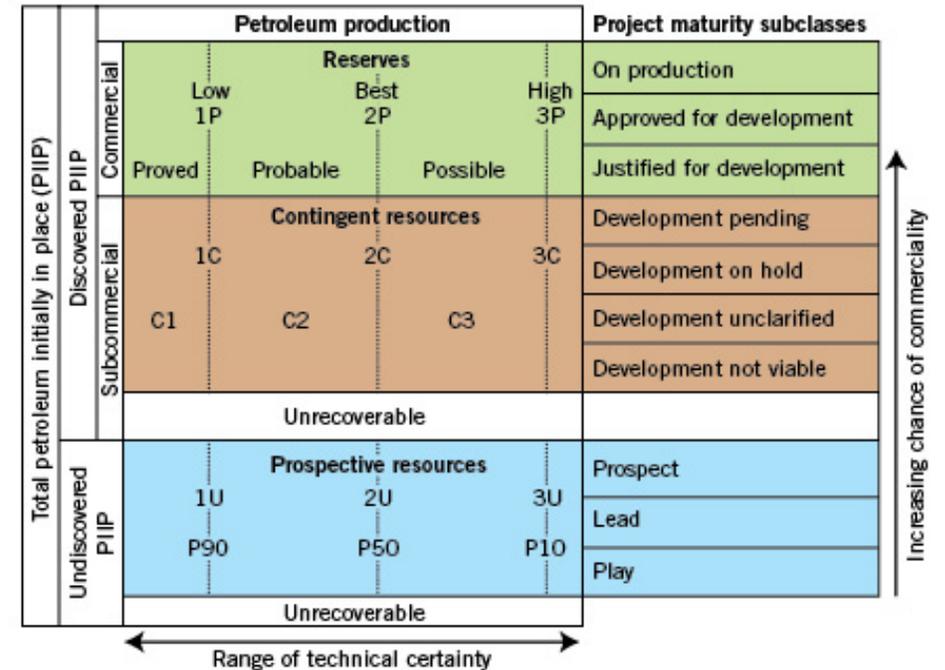
The most widely used reporting code by the Oil and Gas (O&G) industry

Project based system

Probabilistic or deterministic volume modelling

Classification based on project maturity

- Prospective Resources (1U,2U,3U)
- Contingent Resources (1C,2C,3C)
- Reserves (1P, 2P, 3P)



Source: PRMS 2017, SPE

Horizontal axis: Recoverable volume - range of uncertainty

Vertical axis: Chance of commercial development

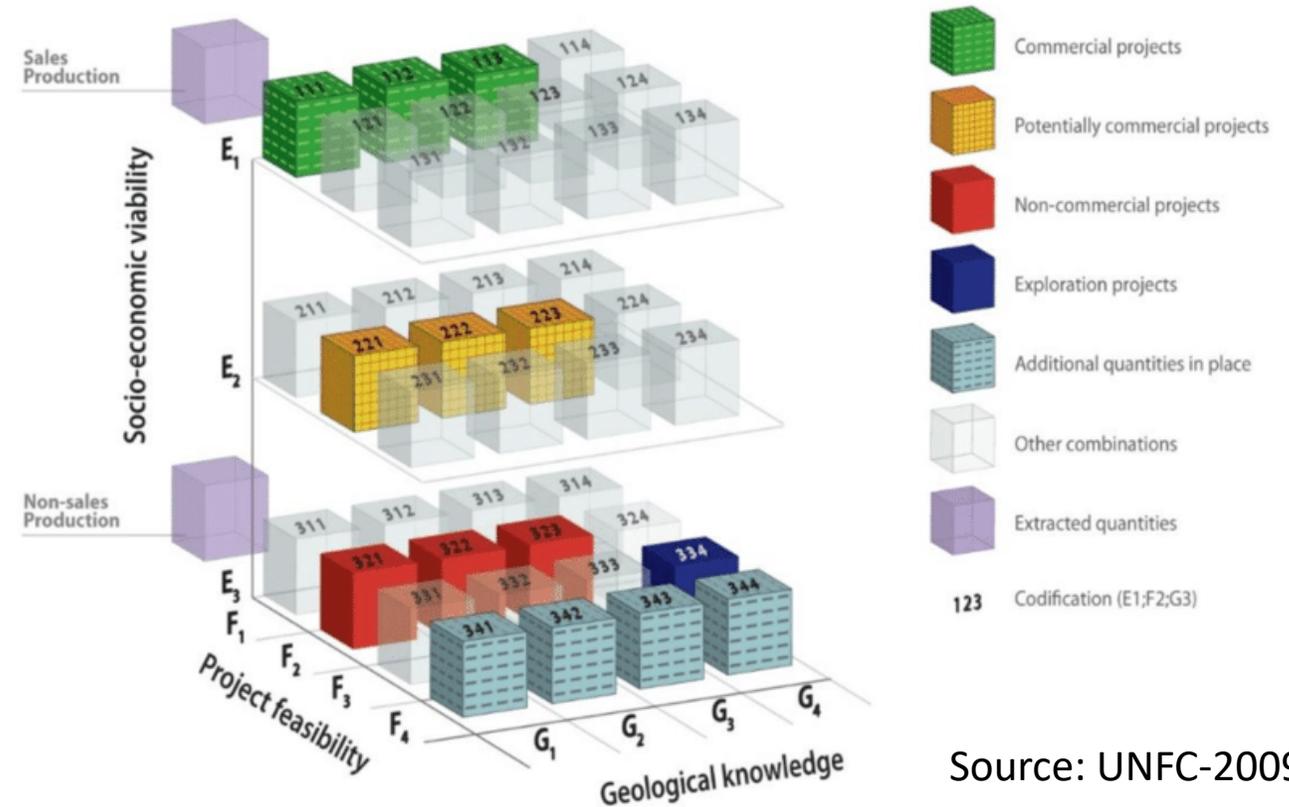
UNITED NATIONS FRAMEWORK CLASSIFICATION FOR FOSSIL ENERGY AND MINERAL RESERVES AND RESOURCES 2009 (UNFC – 2009)



Three-dimensional system :

- **Economic and social viability (E),**
- **Field project status and feasibility (F) and**
- **Geological knowledge (G)**

Uses a numerical classification coding scheme



Source: UNFC-2009

Requirements for Developing a Reserve Reporting Code

- *Clear* and *consistent* definition and classification system
- Take into account the unique environment in which SRU activities considering application to *differing resource types, extraction methods, data collection constraints, operational / market conditions*
- *Inclusive* – developed in co-operation/collaboration with *private sector, governmental bodies* and *agencies, researchers, professional associations* and *expert individuals*
- Reflect differing stakeholder requirements

Lunar Ore Reserves Standards (LORS-101)

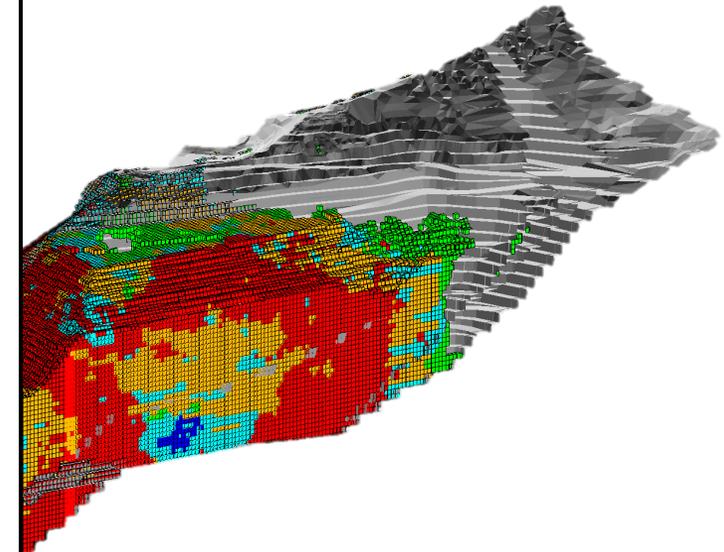
Dr. Carlos D. Espejel Garcia

Lunar Ore Reserves Standards LORS 101

Dr. Carlos Daniel Espejel Garcia

ispace

University of Luxembourg
University of New South Wales
European Space Agency
University of Queensland



OBJECTIVES OF LORS 101

LORS will be designed to provide the first guidelines to future *private companies, space agencies, and other entities* that would like to *prospect / explore, extract* and *use* space resources (**Moon**, Mars, Asteroids, etc.) in a clear and responsible manner.

The guidelines will focus mainly (but not limited to) on how to report the following:

1. **Exploration Results**
2. **Mineral and Volatiles Resources**
3. **Mineral and Volatiles Reserves**

LORS will also include:

- **Licensing and Leases**
- **Social and Environmental Responsibility**
- **Glossary of SRU and LRU definitions**

LORS will be based on existing standards currently used on Earth by the *Mining industry, Oil and Gas industry* and the *United Nations*.

LORS-101 SUGGESTED COMMITTEE – ORGANISATIONS

- ESA
- LSA (Luxembourg Space Agency)
- Luxembourg National Research Fund (FNR)
- University of Luxembourg
- University of New South Wales - Australia
- University of Queensland (SMI) - Australia
- JORC
- AusImm (Australian Institute of Mining and Metallurgy)
- Industry: World Top 3 – Mining Company
- The Hague Space Resources International Working Group
- CRIRSCO (Committee for Mineral Reserves International Reporting Standards)
- SPE (Society of Petroleum Engineers)
- UN

LORS COMMITTEE – EXPERT INDIVIDUALS

Dr. Carlos Espejel (FNR, UNSW, ispace, Mining Industry) – LORS Structure Definition, and Author of Identified Chapters.

Professor Alice Clarks (JORC & SMI) – LORS Peer Review

Sophia Casanova (UNSW and Oil & Gas Industry) – Volatiles Exploration and Resources

Rhonda Sullivan (Mining Industry) – Minerals Exploration

Dr. Abigail Calzada (Space Science) – Lunar Geology and Lunar Exploration, Environment (Science)

Professor Rick Valenta (Mining Industry) – Reporting of Exploration and Mineral Resources

Professor Serkan Saydam (Mining Industry) – Peer Review on Reserves Estimation

Tonie Van Dam (Space Science) – Exploration Technology

Julien-Alexandre Lamamy (Space Engineering) – Space and SRU Technology

LORS – STEPS FORWARD

- LORS preliminary framework – available end of October
- Develop the SRU and LRU glossary of definitions
- LORS Committee – Continue to coordinate work with the expert individuals and seek involvement from additional expert individuals and organisations
- Investigate where to house LORS (i.e. existing entity or create new entity)
- Present LORS 101 and glossary of SRU and LRU at key conferences



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