SOLO Pre-Application Meeting #1

May 7th 2025 | USNRC HQ

Cesare Frepoli, COO & SOLO™ Licensing Director, Terra Innovatum

SOLO Pre-Submittal Meeting #1

- On January 17, 2025, Terra Innovatum formally submitted Regulatory Engagement Plan to the USNRC to begin initial activities in preparation of the submittal for a license application for the SOLO Micro Modular Reactor
- This meeting is the first in a series of meetings scheduled during the pre-submittal phase

SOLO Pre-Submittal Meeting #1: Topics

1. Update and discuss with the Staff licensing strategy and engagement plan
2. Provide updates on SOLO design and design principles
3. Discuss anticipated and applicable content for the PSAR
4. Provide an overview of SOLO Principal Design Criteria (PDC)
5. Present rationale for the use of standard LWR fuel (LEU, UO2, Zircaloy clad) in the SOLO reactor
6. Introduce SOLO Safeguards-by-design approach
7. Discuss with the Staff issues associated with transportation logistics and licensing

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Update on SOLO Pre-Application Engagement to Date

May 7th 2025 | USNRC HQ

Cesare Frepoli, COO & SOLO™ Licensing Director, Terra Innovatum

Outline

- Recap on SOLO Reactor Design
- Considered licensing path
- Q&A
- Update on anticipated timeline and resources

SOLO Micro Modular Reactor Key Features

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SOLO Micro Modular Reactor: Fuel and Moderator Assembly

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Licensing Strategy

- Seeking an application for non-power reactor, or Research Test Reactor (RTR) – NUREG-1537
- Terra Innovatum like to leverage risk-informed aspects where applicable and beneficial to streamline the process to define the safety case (NEI 18-04, NEI 21-07, RG 1.233, RG 1.253)
- Key attributes of the SOLO reactor appear to justify such an approach for the First of a Kind (FOAK):
  - Low power level (< 5 MWth)
  - Suited for Research Test Reactor (RTR) for training, research and development
  - Ability to be used as commercial medical isotope production reactor
  - Off-grid application/use cases
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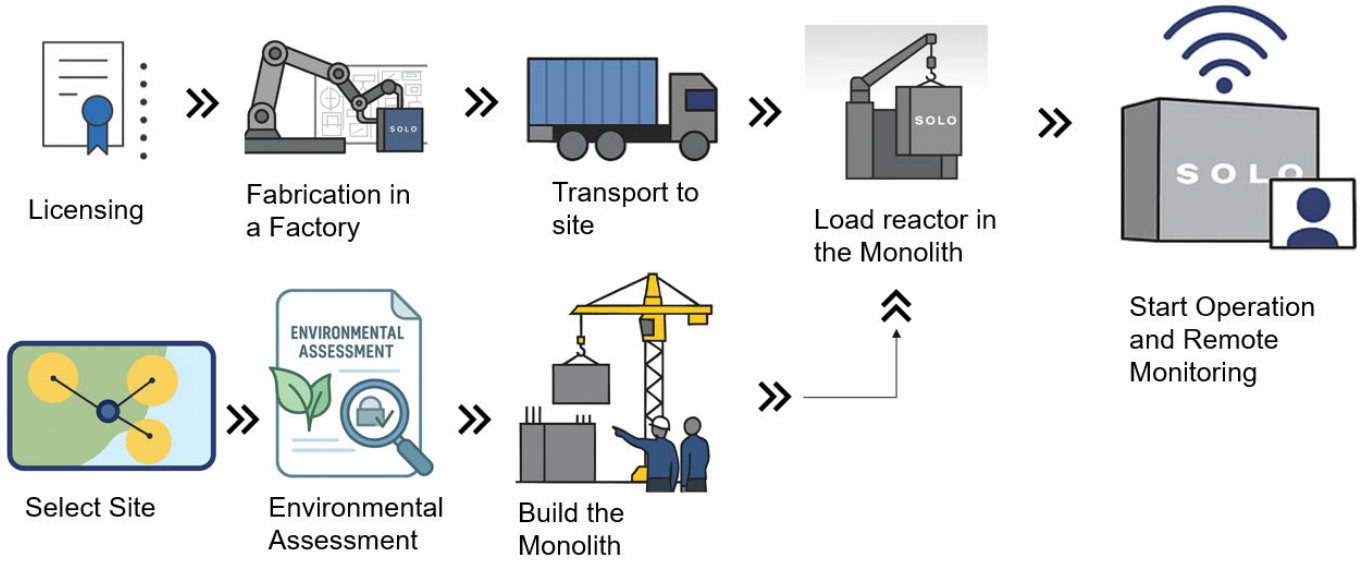
Siting and Construction Approach



- For the procurement of key SSCs and fabrication, TINN has established MOU with relevant suppliers
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- Excerpt from NUREG-15337:

Sections 50.20 through 50.22 of Title 10 specify two classes of reactor licenses to be issued to applicants by the NRC: Class 104 (medical therapy and research and development facilities) and Class 103 (commercial and industrial facilities). These classes derive from definitions in the AEA. Non-power reactors are designed and operated for medical therapy, research, development, and education. Non-power reactors consist of testing facilities (also called "test reactors" in some regulations) which are defined in 10 CFR 50.2, and research reactors, which are defined in 10 CFR 170.3.

Currently, all non-power reactors are licensed as Class 104 facilities. However, NRC recognizes that a non-power reactor for commercial purposes could be licensed as a Class 103 facility, and thus, 10 CFR 50.22 contains criteria for judging if a non-power reactor is a Class 103 facility.

A Class 104 non-power reactor can be licensed as a Class 104a facility for conducting medical therapy or as a Class 104c facility for conducting research and development. One non-power reactor is licensed as both a Class 104a and 104c facility. All other non-power reactors are licensed as Class 104c facilities.

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- TINN developed a WP to address the issue of fabrication abroad and transportation to US site – discussed at this meeting in separate presentation
- For the site permit, we like to resolve uncertainties on the timeline and the process
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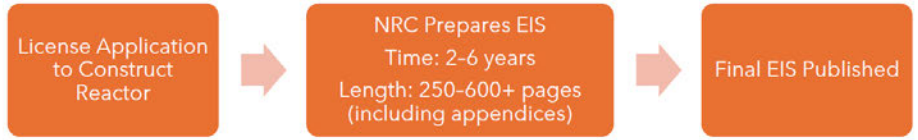
Figure 1: Options for NEPA Compliance at the NRC

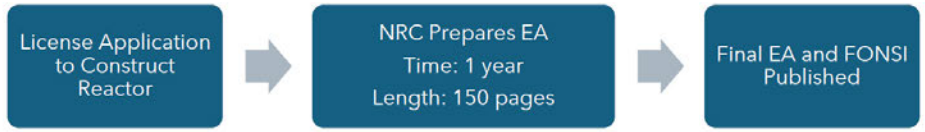
Environmental Impact Statements: Traditional Environmental Review

- Required by NEPA for major federal actions with significant environmental impacts
- Currently required by the NRC for all new reactors
- Recently used for Vogtle 3 & 4, Kairos Hermes 1, and TerraPower Kemmerer Power Station



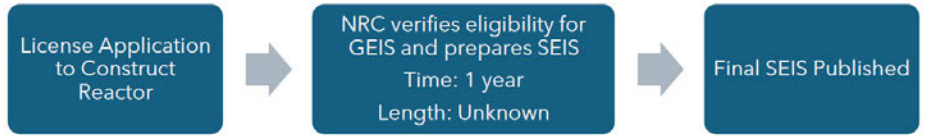
Environmental Assessments: Recently Tested Environmental Review

- Allowed under NEPA for actions with insignificant or unknown environmental impacts
- Requires regulatory exemption under 10 C.F.R. § 51.20
- Used for Kairos Hermes 2 reactor and ACU MSRR



Generic Environmental Impact Statement: Ongoing Rulemaking

- Final rulemaking expected June 2026



Categorical Exclusion: Recommended Path for Microreactors

- Allowed under NEPA for categories of actions with insignificant environmental impacts
- Would allow use of EA or EIS in the presence of potentially significant impacts

Pre-Application Regulatory Engagements

- TINN plans to coordinate routine project management discussions and technical meetings with the NRC staff on specific topics throughout 2025 and 2026
- Topical Reports or White Papers are submitted periodically in ‘waves’ (see next slides)
- During the routine project management meetings, the NRC project managers and TINN will determine the necessity and value-add of holding additional topical meetings as needed
- For each WP and TR, Terra Innovatum will propose a desired date for SE (TRs) and effort for the Staff to provide feedbacks (WPs)

Pre-Application Engagement Plan

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Pre-Submittal Phase [[

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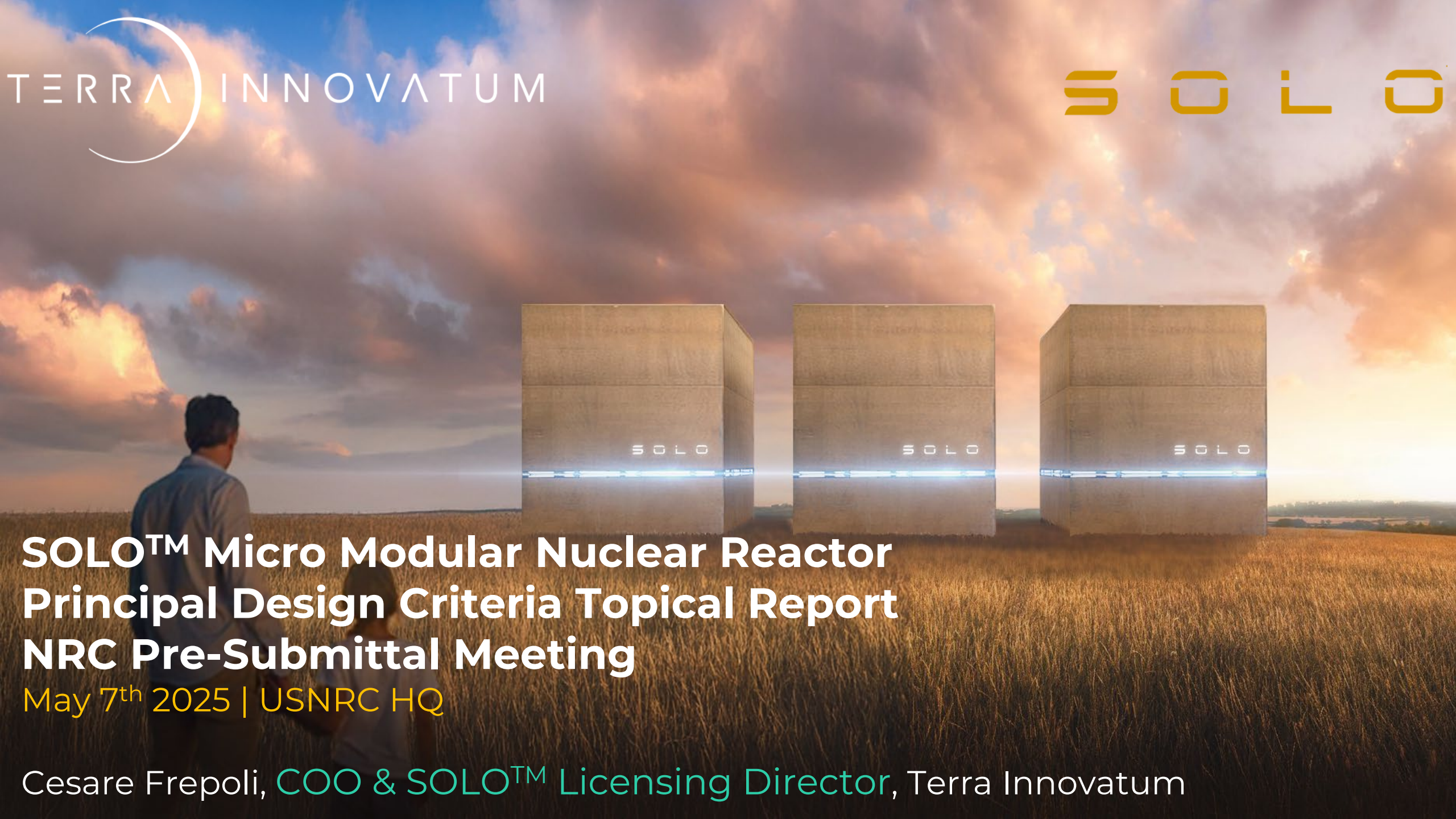

SOLO™ Micro Modular Nuclear Reactor Principal Design Criteria Topical Report NRC Pre-Submittal Meeting

May 7th 2025 | USNRC HQ

Cesare Frepoli, COO & SOLO™ Licensing Director, Terra Innovatum

Meeting Outline

- Purpose and Review Request
- SOLO Micro Modular Nuclear Reactor Design Overview
- SOLO Deployment Model Overview
- Overview of Principal Design Criteria (PDC) Topical Report
- Topical Report Submittal Schedule
- NRC Review Request
- Q&A

Purpose and Review Request

- To engage NRC staff in a pre-submittal meeting for the PDC Topical Report for the SOLO Microreactor
  - Provide an overview of the SOLO reactor design and deployment model
  - Provide an overview of the PDC Topical Report for which Terra Innovatum (TINN) is requesting NRC approval
  - Provide NRC staff with a schedule for topical report submittal
  - Provide NRC staff with TINN's review requests
- Elicit NRC staff early feedbacks
- **TINN is requesting NRC review and approval on the set of PDC for the SOLO Micro Modular Reactor, including the list of and justification for the General Design Criteria (GDC) identified as not applicable to our design.**

SOLO Micro Modular Reactor Key Features

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SOLO Micro Modular Reactor: Fuel and Moderator Assembly

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SOLO: The Monolith

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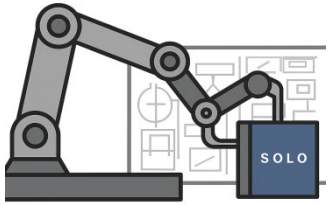
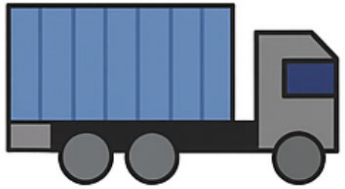
SOLO: Deployment Model

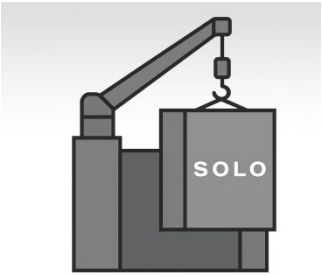
Licensing



Fabrication in a Factory

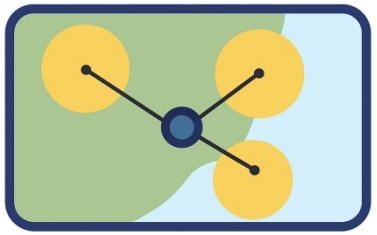


Transport to site



Load reactor in the Monolith

Start Operation and Remote Monitoring



Select Site

Environmental Assessment

Build the Monolith

SOLO Design Philosophy

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SOLO Design Philosophy: Fuel Design

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SOLO Design Philosophy: Core Cooling

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SOLO Design Philosophy: [[

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SOLO Design Philosophy: [[

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SOLO Design Philosophy: Operating Conditions

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SOLO Design Philosophy: Containment

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SOLO Design Philosophy: Reactivity Control Systems

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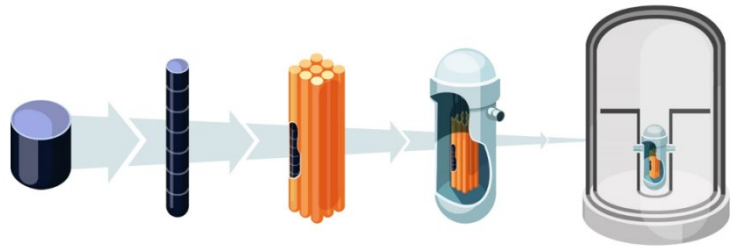
SOLO Defense-in-Depth



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Principal Design Criteria Topical Report Overview

Section 1.0 - Introduction

- Structure follows similar licensing applications with added considerations for non-power reactors (NREG-1537) and risk-informed approach in licensing (NEI 18-04)
- Purpose
  - Topical report documents the PDC for the SOLO MMR design and the basis for their selection
  - The PDC includes the Design Criteria for expected SR and NSRST SSCs that will be considered in the SOLO MMR design
  - Terra Innovatum is submitting this topical report for NRC review and approval in support of the future licensing application (Construction Permit Application) for the SOLO MMR
- Applicable Regulations and Regulatory Guidance for the derivation of SOLO PDCs are based on:
  - GDC in Title 10 of the Code of Federal Regulations (CFR) Part 50 Appendix A
  - Guidance for design criteria provided in Regulatory Guide (RG) 1.232
  - Incorporates risk-informed considerations following Nuclear Energy Institute (NEI) 18-04 roadmap, endorsed by NRC in RG 1.233, and NEI 21-07, endorsed in RG 1.253

Section 2.0 – SOLO Reactor Systems Overview

- See intro slides 4-16

Section 3.0 – PDC Development Methodology

- The definition of the PDCs started from the GDC (10 CFR Part 50 Appendix A) and ARDC in RG 1.232
- Each of the GDC and ARDC contained in RG 1.232 were reviewed for applicability to the design and were either kept as-is, edited, or determined to be not applicable in its entirety
- The description for the corresponding SOLO PDC was then adapted considering SOLO specific design
- Few additional PDC were developed when key unique aspects were not covered by either the GDC or RG 1.232 (ARDC)
- The nomenclature was adapted to follow more consistently risk-informed attributes as described NEI 18-04 and NEI 21-07
  - From that standpoint SOLO PDC are function-based and not structure, system, and component (SSC) specific

Section 3.0 – PDC Development Methodology

- Notes:
  - A more formal identification of Required Safety Function (RSF) is subject of future analysis and not included in the PDC scope
  - A formal Defense-in-Depth analysis will be included in a future Topical Report

Section 3.0 – SOLO PDC Crosswalk

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Section 4.0 – SOLO PDC: GDC Exclusions

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Section 4.0 – SOLO PDCs Structure

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Section 4.0 – SOLO PDC Example: Same as GDC

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Section 4.0 – SOLO PDC Example: Modified GDC

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Section 4.0 – SOLO PDC Example: Modified GDC

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Section 4.0 – SOLO PDC Example: Modified ARDC

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Section 4.0 – SOLO PDC Example: Modified ARDC

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Section 4.0 – SOLO PDC Example: Modified ARDC

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Section 4.0 – SOLO PDC Example: N/A PDC

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Section 4.0 – SOLO PDC: Other patterns

- In some instances, the report contains PDCs that adopted fully the ARDC definitions, and the basis for its applicability to SOLO
- As Terra Innovatum complete the report, there is the possibility that for completeness, SOLO-specific PDC will be added and those will be numbered 70+

Topical Report Submittal Schedule

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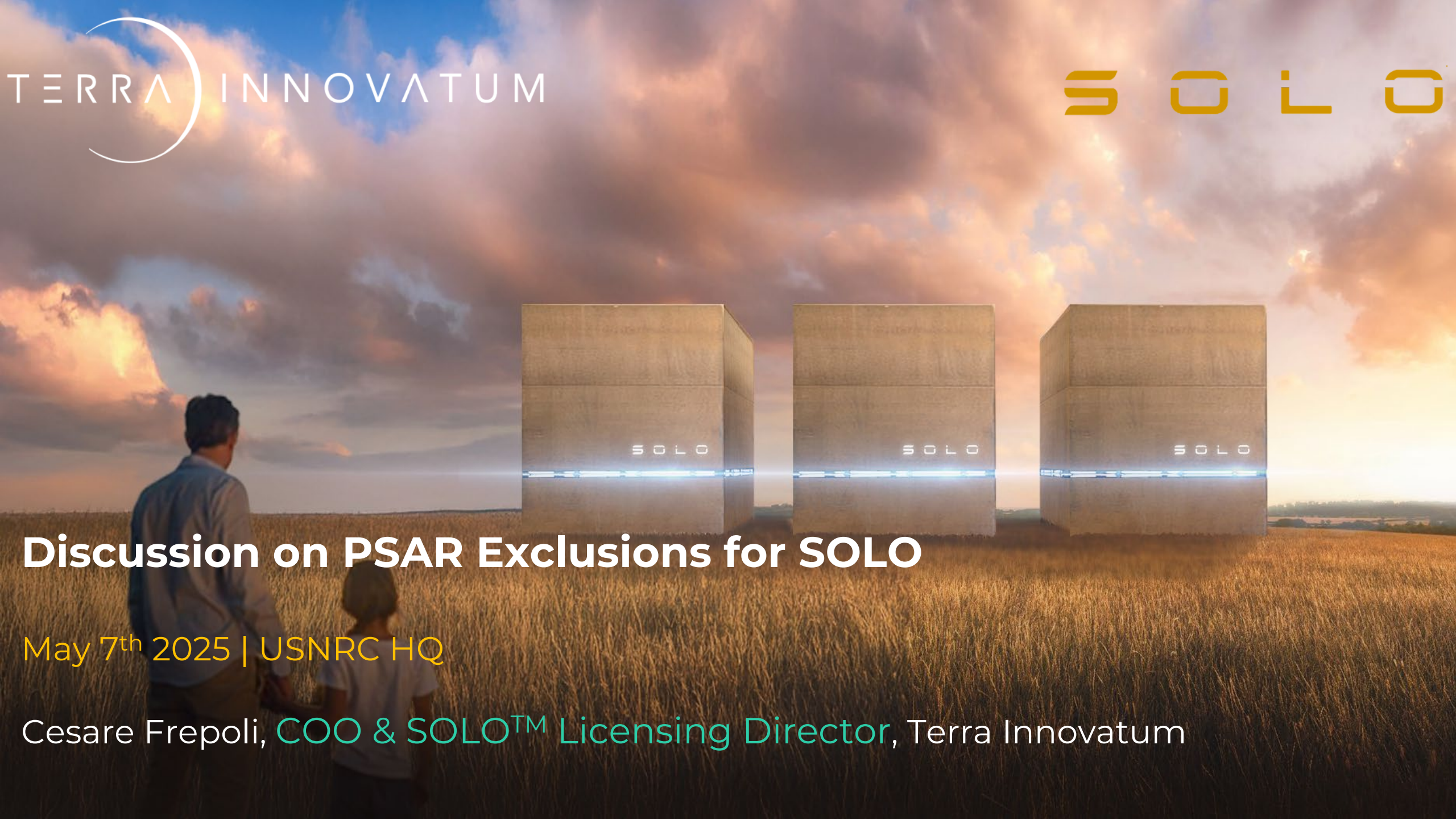

Discussion on PSAR Exclusions for SOLO

May 7th 2025 | USNRC HQ

Cesare Frepoli, COO & SOLO™ Licensing Director, Terra Innovatum

Outline

- Purpose of the White Paper
- Recap on SOLO Reactor Design
- NUREG-1537 PSAR Exclusions Considerations and Anticipated PSAR content
- Update on anticipated timeline and resources for Staff review and feedbacks

Purpose and Review Request

- To engage NRC staff in a pre-submittal meeting to support Terra Innovatum (TINN) decisions on acceptable PSAR content
  - Provide an overview of the SOLO reactor design and deployment model
  - Provide an overview of the white paper for which Terra Innovatum is requesting NRC review and feedbacks
  - Provide NRC staff with a schedule for white paper submittal
  - Provide NRC staff with TINN's review requests
- Elicit NRC staff early feedbacks
- **TINN is requesting NRC review and feedbacks on the TINN interpretation of NUREG-1537 and expected PSAR content considering SOLO Reactor features**

SOLO Micro Modular Reactor Key Features

SOLO Micro Modular Reactor: Fuel and Moderator Assembly

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Review of NUREG-1537

- TINN performed a walkthrough of NUREG-1537 to define scope and content for SOLO Licensing Application
- Also, TINN wants to leverage risk-informed aspects where applicable and beneficial to streamline the process to define the safety case (NEI 18-04, NEI 21-07, RG 1.233, RG 1.253)
- TINN identified few sections/topic which should be N/A to SOLO Safety Case and would like Staff concurrence that those conclusions are warranted

Anticipated Analyses to Support PSAR

Sample of Hazards Analyses to Support PSAR

Identified Exceptions or Limited Applicability to SOLO Safety Case

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Review of RG 1.253

- TINN is evaluating RG 1.253 which provides a reduced 12-chapter PSAR structure (TICAP approach):
  - Chapter 1, “General Plant and Site Description, and Overview of the Safety Analysis”
  - Chapter 2, “Methodologies, Analyses, and Site Evaluations”5
  - Chapter 3, “Licensing-Basis Events”
  - Chapter 4, “Integrated Evaluations”
  - Chapter 5, “Safety Functions, Design Criteria, and Structure, System, and Component Safety Classifications”
  - Chapter 6, “Safety-Related (SR) Structure, System, and Component Criteria and Capabilities”
  - Chapter 7, “Non-Safety-Related with Special Treatment (NSRST) Structure, System, and Component Criteria and Capabilities”
  - Chapter 8, “Plant Programs”
  - Chapter 9, “Control of Routine Plant Radioactive Effluents, Plant Contamination, and Solid Waste”
  - Chapter 10, “Control of Occupational Dose”
  - Chapter 11, “Organization and Human-System Considerations”
  - Chapter 12, “Post-Construction Inspections, Testing, and Analysis Programs”
  - Other documents incorporated by reference into the SAR (e.g., emergency plan)
- Question: is it possible to streamline the process (PSAR) by combining aspects of NUREG-1537 with the efficiency of RG 1.253 considering SOLO attributes?

White Paper Submittal Schedule

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Design Considerations on Reactor Core (Fuel) at Nominal Conditions

May 5th | USNRC HQ

Marco Cherubini, CTO & SOLO™ Product Director, Terra Innovatum

Outline

- Purpose and Review Request
- Overview of Core layout
- Predicted fuel behavior in baseline-nominal conditions
- Predicted fuel behavior in stretched-nominal conditions
- Conclusions

Purpose and Review Request

- To engage NRC staff in a pre-submittal meeting for the White Paper related to the SOLO Microreactor fuel behavior
  - Provide an overview of the SOLO reactor core layout and key features
  - Provide an overview of the White Paper on fuel behavior for which Terra Innovatum (TINN) is requesting NRC feedbacks
  - Provide NRC staff with TINN's review requests
- TINN is requesting NRC review and feedbacks
  - On the use of LWR fuel type in SOLO considering Baseline- and Stretched- Nominal conditions
  - To rely on the LWR fuel type qualification studies
  - To justify applicability of LWR fuel products pre-existing licensing basis for SOLO implementation

SOLO Micro Modular Reactor Key Features

- Power class: 1 MWe / 4.5 MWth
- Fuel Rods: [
  ]
- Operating cycle: 15-years w/o refueling (EOL)
- Moderator: [ ]
- Coolant: [ ]
- Assembled in a factory and transportable by track, train, ship - total weight less than [ ].
- Off-grid use case (behind the meter application)
- Constant reactor power
  - Load follow possible through dispatch mechanisms from the secondary side

SOLO Micro Modular Reactor: Fuel and Moderator Assembly

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SOLO: The Reactor Core

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SOLO: The Reactor Core Key Features

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Code and Methods for the Fuel Behavior Analyses

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Code and Methods for the Analyses - BC

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Predicted Fuel Behavior in Baseline-Nominal Conditions

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Predicted Fuel Behavior in Baseline-Nominal Conditions

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Predicted Fuel Behavior in Baseline-Nominal Conditions

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Predicted Fuel Behavior in Baseline-Nominal Conditions

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Predicted Fuel Behavior in Baseline-Nominal Conditions

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Investigation on Stretched-Nominal Conditions

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Predicted Fuel Behavior in Stretched-Nominal Conditions

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Predicted Fuel Behavior in Stretched-Nominal Conditions

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Predicted Fuel Behavior in Stretched-Nominal Conditions

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SOLO Summary of Fuel Performance Analysis

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Material Compatibility

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Conclusions

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White Paper Submittal Schedule

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SOLO SAFEGUARDS & Safeguards by Design

May 7th | USNRC HQ

Massimo Morichi, CSO & SOLO™ Safeguard Director, Terra Innovatum

Meeting Outline

- Purpose and Review Request
- SOLO Safeguards Purpose, Scope and Background
- SOLO Safeguards Implementation Phases
- SOLO Real Time Core Monitoring Features
- Topical Report Submittal Schedule
- NRC Review Request
- Q&A

Purpose and Review Request

- To engage NRC staff in a pre-submittal meeting for the Safeguards Topical Report for the SOLO Microreactor
  - Provide an overview of the SOLO Safeguards by design and deployment model
  - Provide an overview of the SOLO Safeguards Topical Report for which Terra Innovatum (TINN) is requesting NRC approval
  - Provide NRC staff with a schedule for topical report submittal
  - Provide NRC staff with TINN's review requests
- Elicit NRC staff early feedbacks
- **TINN is requesting NRC review and approval on the Safeguards by Design approach adopted in the SOLO Micro Modular Reactor, including the identified phases and methods.**

SOLO Safeguards Purpose

- SOLO microreactor safeguards and its fabrication have been conceived to:
  - **Maintains the integrity of nuclear materials**
  - **Provides reliable evidence of nuclear activity compliance**
  - **Enhances authority's ability to detect and verify potential diversions of nuclear materials**
  - **Guaranty of loaded fuel presence in reactor core in real time and with secure remote data transmission**
- This presentation and the Topical Report document addresses all the above points and describes the different technologies and systems that are expected to be implemented in SOLO Microreactor in the different steps of its fabrication and operation

SOLO Safeguards Scope

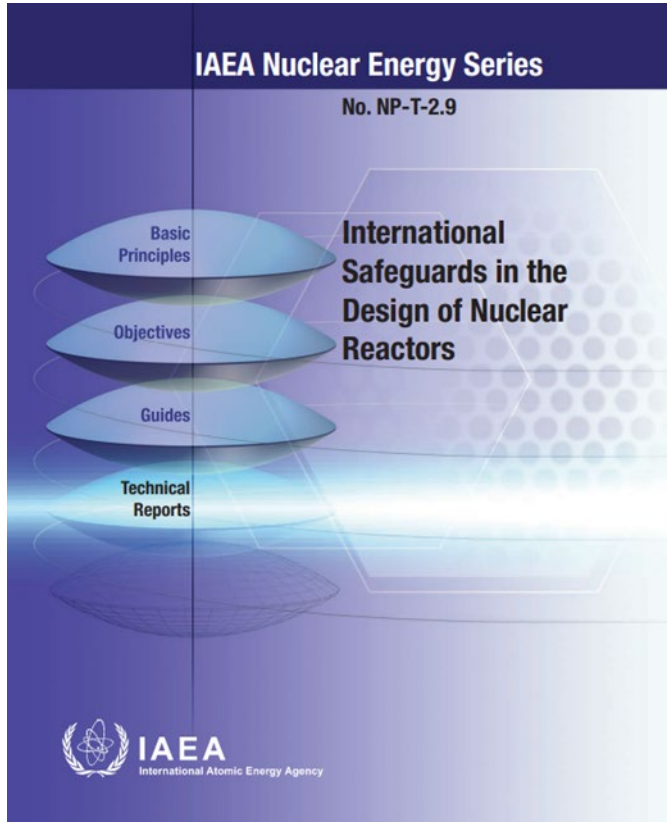
- The scope of the SOLO Microreactor Safeguards is holistic and addresses all the phases from the Fresh Fuel verification to the Reactor operation activities
- This document addresses the different steps where Safeguards are planned for implementation in the SOLO micro reactor project:
  1. **SOLO Fresh Fuel Safeguards Verification**
  2. **Safeguards of SOLO Fresh Fuel Core Loading**
  3. **SOLO Transportation Safeguards**
  4. **SOLO in operation Safeguards (RTCMS Real Time Core Monitoring System)**

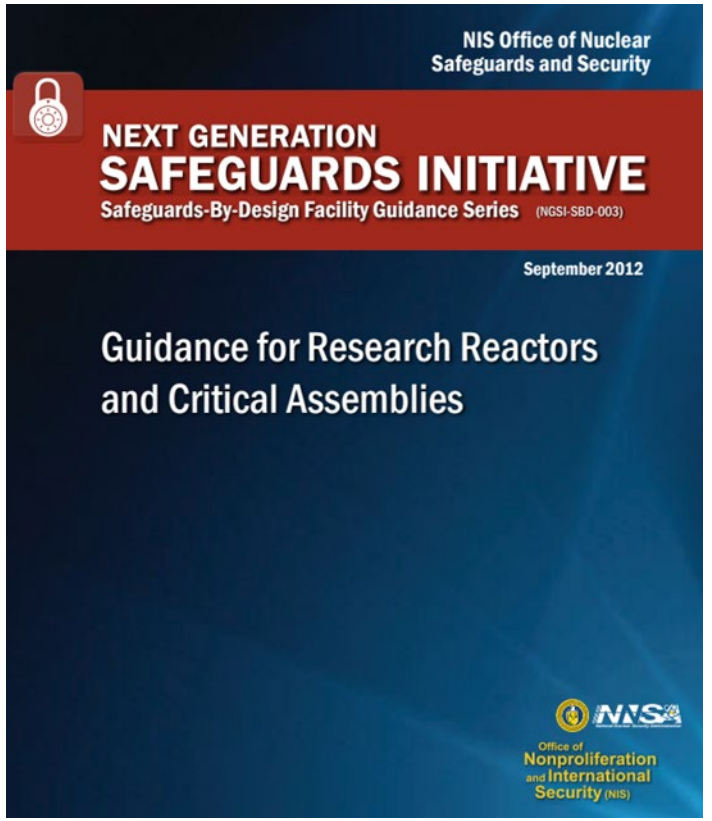
SOLO Safeguards: Applicable Regulatory Guidance

REGULATORY GUIDANCE

The SOLO Safeguards By Design (SBD) has been conceived with specific reference to Safeguards in the:

- Design of Nuclear Reactors Guide series N0.NP-T-2.9 (IAEA Nuclear Energy Series) and
- Next Gen. Safeguards Initiative, Guidance for Research Reactors and Critical Assemblies (NNSA)





Background and Terra Innovatum Specific Competences for the SOLO Safeguards Project

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SOLO Safeguards General Aspects

- SOLO reactor could be presented in two configurations:
  - Experimental microreactor and/or Radioisotopes production and/or Research Test Reactor with associated energy production
  - Commercial microreactor for energy production
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SOLO Safeguards General Aspects

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SOLO Safeguards General Aspects

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SOLO Safeguards General Aspects

1. **SOLO Fresh Fuel Safeguards Verification**
2. **Safeguards of SOLO Fresh Fuel Core Loading**
3. **SOLO Transportation Safeguards**
4. **SOLO in Operation SAFEGUARDS [(**

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1. SOLO Fresh Fuel Verification 1/4

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1. SOLO Fresh Fuel Verification 2/4

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1. SOLO Fresh Fuel Verification 3/4

Design features for fresh fuel storage areas that assist in implementing safeguards include:

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1. SOLO Fresh Fuel Verification 4/4

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2. SOLO Fresh Fuel Loading in the Core and Sealing

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2. SOLO Fresh Fuel Loading in the Core and Sealing

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2. SOLO Fresh Fuel Loading in the Core and Sealing

SOLO C/S Safeguards & NDA

Dual C/S Containment & Surveillance Components foresee:

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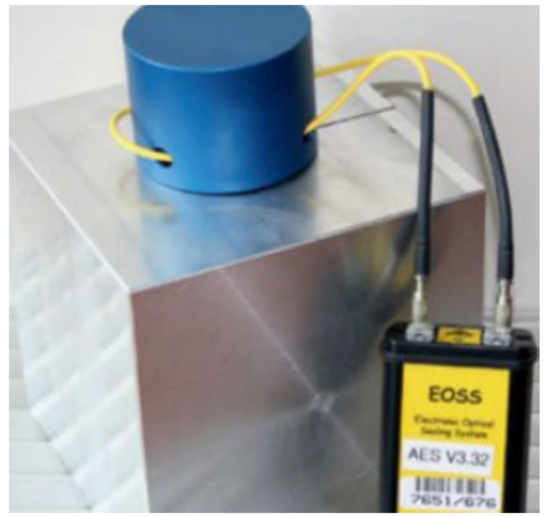

3. SOLO Transportation Safeguards

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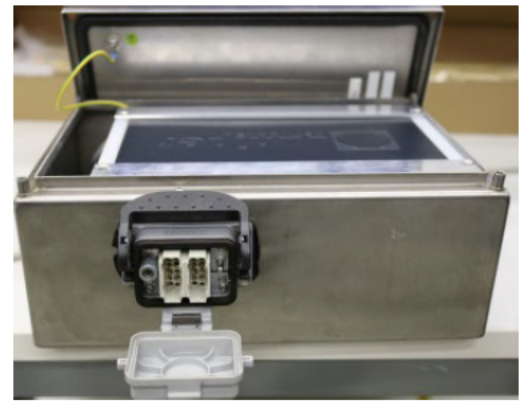

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4. SOLO in Operation Safeguards

Safeguards Verification of Reactor Core material

Neutron Noise Analysis Techniques for Improved Verification of Critical and Subcritical Cores

Andriy Berlizov[1], Vladimir Nizhnik[1], Gabriella Racz[1], Marita Mosconi[2], Alfonso Santagata[3], Luca Falconi[3]

[1]International Atomic Energy Agency, Austria

[2]European Atomic Energy Community (Euratom), Luxemburg

[3]ENEA Casaccia Research Centre, Italy

Safeguards verifications at research reactors and (sub)critical assemblies are often challenged by the limited access to or complete inaccessibility of in-core material. Additional difficulties are related to the significant impact of reactor design and its operation history on the emitted radiation. In recent years, the IAEA has expanded a standard toolkit of its in-core material verification techniques, which were traditionally based on total neutron counting, towards application of advanced approaches involving detection of correlated neutrons and Monte Carlo modelling. These new verification techniques improved the confidence level for verification of direct use nuclear materials, while reducing the burden on the facility operator.

4. SOLO in Operation Safeguards

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4. SOLO in Operation Safeguards

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4. SOLO in Operation Safeguards

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4. SOLO in Operation Safeguards

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SOLO Micro Reactor

Flux distributions for SOLO

Montecarlo Code Application: Source Production

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Source Characteristics: n-total flux

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Source Characteristics: γ-Dose

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Shielding Calculation

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Shielding Calculation: n-flux

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Shielding Calculation: n-Dose

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Shielding Calculation: γ-Dose

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Practical examples of SOLO Safeguards design features to help make diversion more difficult

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Approach to missuse and diversion scenarios in SOLO

Safeguards Instrumentation by Phases

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Topical Report Submittal Schedule

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Transportation and logistics for SOLO RTR

May 8th | USNRC HQ

Guillaume Moyen, CFO, Terra Innovatum
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Meeting Outline

- Purpose and background
- Proposed action
- Application of risk informed methodology for transport activities in the US
- Impacts to be evaluated

Note: all pictures presented in this presentation were found from public information available on the internet

Purpose

- SOLO micro-reactor is expected to be produced in a factor and assembled on-site. This process requires the fuel to be loaded in the reactor core at the factory before being transported to the assembly site.
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- This paper is looking at evaluating the frameworks applicable to the risks assessment of:
  - the Transport of the fuel to the factory for assembly
  - the Transport of the core after the fuel will be loaded to the FOAK final assembly site
- In this analysis, transport comprises all operations and conditions associated with and involved in the movement of radioactive material, including the design, manufacture, maintenance and repair of packaging, the preparation, consignment, loading and carriage, including in-transit storage; and the unloading and receipt at final destination of loads of radioactive material and packages.
- The report will address the approaches to be retained for SOLO FOAK as expected to be classified as a non-power research and test reactor.

Background

- The cross borders transport of fresh fuel is regulated by several level of instruments, laws and regulations including notably:
  - International Maritime Dangerous Goods (IMDG) Code published by the International Maritime Organization (IMO)
  - International Civil Aviation Organization (ICAO) Technical Instructions
  - ADR Agreement concerning the International Carriage of Dangerous Goods by Road
  - RID Regulations concerning the International Carriage of Dangerous Goods by Rail
  - ADN Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
  - IAEA Regulations for the Safe Transport of Radioactive Material
- The countries of origin and of delivery of the transported fuel (before loading and after loading of the reactor core) are expected to require compliance with their own regulations and with the international regulations.

Background

- The approaches retained leverage on the experience gained transporting fresh fuels (notably MOX) and nuclear wastes between Europe and the USA.
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Request for NRC based on the submitted White Paper

- Terra Innovatum is providing this white paper to the NRC to facilitate discussions regarding the SOLO micro reactor FOAK related transport operations.
- Specifically, Terra Innovatum (TINN) has the following goals for submitting this white paper and is requesting the following from NRC:
  - To keep NRC informed of the process TINN is following to identify and evaluate risks and maintain compliance with the international and US regulatory requirements
  - Based on the review of the contents of this white paper, and subsequent pre-application discussions, TINN is requesting NRC feedback and observations on the approach and information discussed herein.
  - In addition, TINN is looking for feedback from NRC on the following specific questions:

    ✓ Does NRC find the process described herein an acceptable way to identify risks related to the transport operations ?

    ✓ Does NRC find the process described herein an acceptable way to manage compliance with US regulatory requirements ?
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Proposed actions

FOAK Core Reactor Assembled in [ ]

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Shipping to Assembly Site

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- The final selection of the site for the assembly of the FOAK remains to be confirmed. To that effect, the transport modalities (roads, rail, waterway) remain to be confirmed.
- The engagements with Federal, States and local regulatory bodies will be considered to ensure compliance.
- This will notably include the safety and security regulations and directives of the U.S. Nuclear Regulatory Commission, the U.S. Department of Energy, the U.S. Department of Transportation and the U.S. Environmental Protection Agency.

Global Commons

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- The approach will consist in evaluating the impacts – if any - of accidents on the social, environmental and economic components of the global commons.

Overview of FOAK Logistic Flows (illustrative examples)

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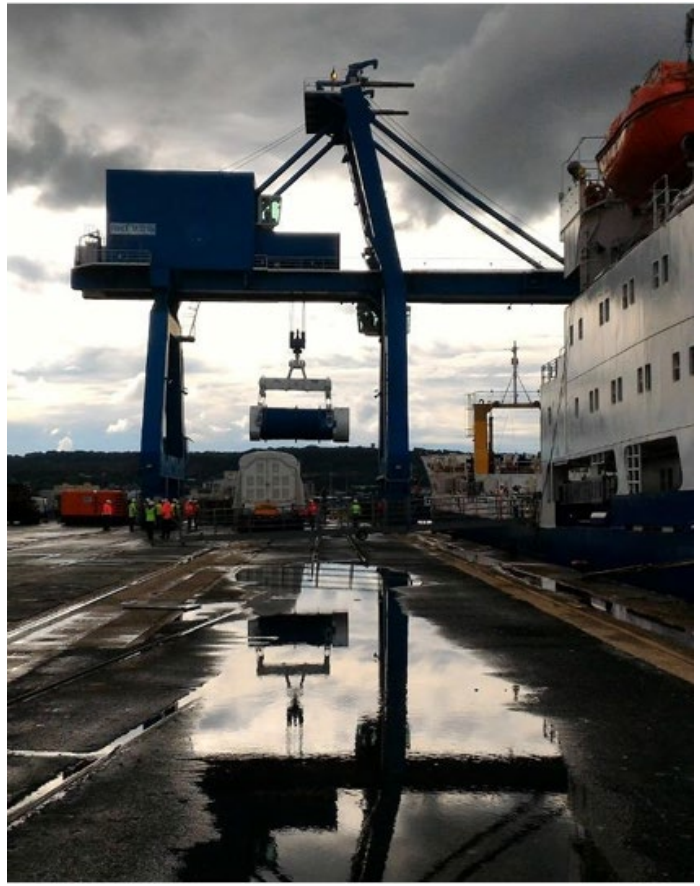

Application of risk informed methodology for transport activities in the US

Leveraging on the Assessment of the Defense Project Pele Design

- We are planning to leverage on the determination made by the U.S. NRC staff that a risk-informed methodology is appropriate for use in developing the safety basis for a Title 10 of the Code of Federal Regulations (CFR) Part 71 "Packaging and Transportation of Radioactive Material," application for a transportable microreactor similarly to the U.S. Department of Defense Project Pele design.
- TINN plans to follow risk-informed methodology and guidelines
- Risk metrics will be used to assess the likelihood and impact of bounding representative accidents and determines their radiological consequences and total effective dose equivalent to workers and the public.
- The goal of the risk-informed methodology is to inform the package design relative to the risk significance of containment and shielding features and to identify the need for compensatory measures during transportation.

Impacts to be evaluated

Description of Transportation Activities

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Risks to be Evaluated (1/2)

- The risks associated with incident-free transportation as well as accidents will be performed for:
  - The truck transportation between fuel plant and assembly plant and from assembly plant to port by leveraging RADTRAN 5 code (or similar code) based solutions.
  - The radiological and non radiological risks related to Italian port operations and US ports operations estimates by using cask-handling information and accident frequency statistics for existing UF6 and spent fuel casks port operations.
  - Incident free maritime transportation risks estimating exposure to members of the ship's crew during the voyage.
  - Severe ship collision and fire scenario under 10 CFR Part 71 employing a systematic evaluation of accident environments, containment integrity, and radiological consequences.
  - Overland truck transport between US seaport to assembly site risks by evaluating the impacts of incident-free transportation as well as accidents for all overland shipments– notably using the RADTRAN 5 code (or similar code) based solution

Risks to be Evaluated (2/2)

- The risks associated with incident-free transportation as well as accidents will be performed for eventual impacts on global commons.
- The risks associated with sabotage or terrorists' attacks will also be assessed along the transportation routes considered.

Safeguard risk management approach

Safeguard Risk Management Approach

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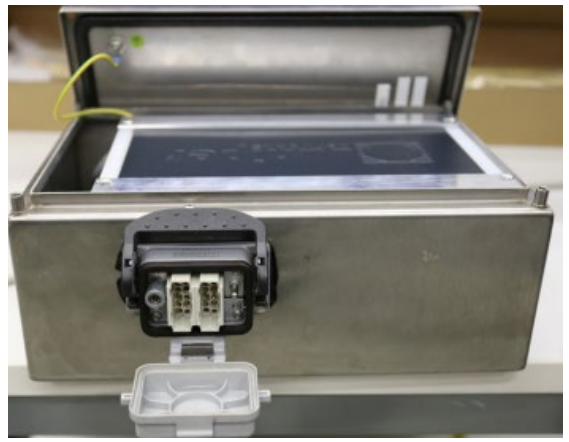

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White Paper Submittal Schedule

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Questions


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Thank You!
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