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Special Issue on Decommissioning and Life Extension of Complex Industrial Assets (SI048B)

The final phase of the operational life of complex industrial systems leads to a very significant business decision: to engage in life extension or to decommission the asset. Decommissioning is the last stage of the lifecycle of an industrial system, comprising the removal and the disposal of equipment and structures, environmental recovery, and post-decommissioning monitoring of the area. It involves many challenges and opportunities, in order to make safe and cost-effective decommissioning an achievable objective. For example, the decommissioning of offshore oil & gas assets in Brazil is expected to cost US\$5 billion between 2020 and 2024.

Life extension of engineering systems that have reached the end of their original design life has the potential to push back decommissioning costs. However, it requires advanced reliability and integrity management techniques and an improved understanding of system behavior to sustain a safe extended operation.

This Special Issue aims to focus on how new structural health monitoring technologies, digital transformation and improved goal-setting safety regulations can support economic decisions and engineering strategies to safely operate aging assets. To achieve the best outcomes, automation and conversion of manned into unmanned facilities, the usage of digital twins as an effective tool for asset management from the design to decommissioning, big data analytics, and machine learning and artificial intelligence should be considered to anticipate critical issues and manage risks.

Topic Areas:

- Life extension and decommissioning of complex industrial systems
- Factors influencing decision-making to decommission or extend the life of industrial assets
- Use of digital twins and computational strategies to predict system behavior
- Decentralization, remote operations, and facilities adaptation from manned to unmanned
- Regulatory approaches to safety & reliability analysis, life extension, and decommissioning
- Qualitative and quantitative models for assessing risk of aging assets
- Data collection and sharing challenges

Publication Target Dates

Paper submission deadline	November 31, 2021
Initial review completed	February 2022
Special Issue publication date	July 2022

Submission Instructions

Papers should be submitted electronically to the journal at journaltool.asme.org. If you already have an account, log in as author and select **Submit Paper** at the bottom of the page. If you do not have an account, select **Submissions** and follow the steps. In either case, at the **Paper Submittal** page, select the [ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering](#) and then select the Special Issue **Decommissioning and Life Extension of Complex Industrial Assets (SI048B)**. Papers received after the deadline or papers not selected for inclusion in the Special Issue may be accepted for publication in a regular issue.

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