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RESEARCH DESIGN STRATEGY TO ESTABLISH PROCESS SAFETY KPI FOR MANAGING AGEING AND LIFE EXTENSION FACILITIES IN INDONESIA'S UPSTREAM OIL & GAS OPERATIONS

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Abstract

A substantial number of production facilities in the upstream oil and gas industry worldwide are facing ageing operations and beyond their original design life, which requires extended service life key performance indicators (KPI). Nowadays, the Indonesia's upstream oil & gas operations dealing with 70% ageing and life extension (ALE) facilities which have specific characteristics, factors, and criteria of process safety KPI. A systematic literature review confirms that there is not yet a fully sufficient process safety performance management system (PMS) framework for managing ALE facilities. Therefore, this paper demonstrates the selection of the most suitable research design strategy for developing a fit-for-purpose PMS framework by considering Saunders' research onion model.

The contextual framework will enrich a knowledge-based performance measurement system and be developed by applying the pragmatism paradigm combined with deductive and inductive reasoning approaches. The chosen research strategy will examine statistical and longitudinal case studies with a mixed method of System Dynamics and Multi Criteria Decision Analysis applied to upstream oil & gas companies operating ALE facilities in Indonesia. Data are collected by distributing questionnaires, conducting observations, focus group discussions, and in-depth interviews among key personnel and decision-makers pertaining to the aspects of process safety.

***Keywords*:** Key Performance Indicators, Performance Management System, Process Safety, Ageing and Life Extension (ALE).