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The Slow Drift to Disaster: Preventing the Normalisation of Risk through Critical Controls Management

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ABSTRACT

Major accident investigations across the global process industries consistently demonstrate that catastrophic events rarely occur due to the absence of safety systems. Instead, incidents often arise when critical safeguards gradually degrade or are bypassed while remaining unnoticed or unchallenged within normal operations. Over time, deviations from design intent or operating limits can become accepted as routine practice, a phenomenon commonly described as the normalisation of risk.

Recent industry incidents have once again highlighted how failures in barrier integrity and inadequate verification of safeguards can lead to serious consequences, even in facilities with long operating histories and established safety management systems. These events reinforce the importance of ensuring that critical controls designed to prevent catastrophic outcomes remain visible, understood, and actively managed throughout the operational lifecycle. Critical Controls Management (CCM) has emerged as a structured approach to strengthen the prevention of major accident events. However, many organisations still struggle to translate hazard analysis and risk assessments into practical operational controls that are consistently understood and verified in the field.

This presentation explores how the normalisation of risk can gradually undermine critical controls within complex operating environments. Drawing on practitioner experience across high hazard industries including mining, utilities, logistics, and chemical manufacturing, the paper examines common patterns observed in industry where operational pressures, competing priorities, and organisational culture contribute to the erosion of safety barriers over time.

Particular attention will be given to recognising early warning signals that indicate weakening barrier integrity. These signals may include increasing reliance on temporary workarounds, recurring equipment impairments, alarm suppression, reduced adherence to operating limits, or verification activities that focus on documentation rather than the real condition of safeguards. The presentation outlines practical strategies for strengthening critical controls management, including clearer identification of critical controls, development of control performance standards, improved verification processes, and

stronger leadership accountability for maintaining barrier integrity. By recognising early warning signals and intervening before risk becomes normalised, organisations can significantly strengthen their ability to prevent catastrophic events.

KEY WORDS

Critical Controls Management, Normalisation of Risk, Early Warning Signals, Major Hazard Facilities, Process Safety Leadership

BIOGRAPHY

Ardi Sastrohartoyo is a Chartered Chemical Engineer (CEng MIChemE) and Certified OHS Professional with over 20 years of experience across the mining, utilities, logistics, and chemical manufacturing industries. He currently serves as the Manufacturing and EHSQ Manager for Kemira Australia and also holds a regional role as Manager APAC – Process Safety and Risk Management. His work focuses on major hazard facility safety, operational risk management, and strengthening process safety leadership and organisational capability. Ardi is a Board Director of the Australian Organisation for Quality and a Guest Lecturer teaching Safety Management Systems in the postgraduate program at Monash University.

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