

Marsh Specialty

Power Deep Dive: Emergency Systems

Energy & Power Risk Engineering





A suite of in-depth surveys conducted by specially qualified and experienced Marsh Specialty engineers, designed to provide a better understanding of risk quality and considered insights that result in risk recommendations that deliver real value to your business.

Transforming risk recommendation programs to ensure clients understand their risks and make informed decisions about mitigation and transfer.

What is an emergency systems deep dive?

Developed in 2019, the deep dive survey is a focused, targeted (towards known areas of improvement) and collaborative exploration of a key issue in systems or processes. Focused critical thinking, beyond that applied during a standard risk engineering survey, emphasizes strengths and opportunities for improvement.

The Marsh Specialty risk engineers who conduct these surveys are professionally qualified and experts in the specific area they conduct deep dive surveys.

Their knowledge and skill has been gained through significant practical experience in the power industry including an in depth understanding of the criticality of asset integrity and reliability across the major asset classes integral to the power industry.

Deep dives can be conducted as a stand-alone review or integrated with a general survey visit.

Generally, the in-depth examination takes one day, involving specific departments, field visits, and structured interview sessions.

Case study: An event, external to the site, resulted in tripping of three large steam turbines and essentially a station blackout. Emergency power supplies activated on two machines, the third suffered “failure on demand” of its emergency power supplies resulting in the steam turbine running down without emergency oil supply to the bearings.

The result; substantial damage and loss with an estimated value of USD35 million.

Why is an emergency systems deep dive important?

Emergency systems are the foremost barrier to loss should an undesirable event occur. Emergency systems enable safe shutdown of plant, containment or safe release of energy, and prevention of harm to individuals and the environment when the unforeseen occurs.

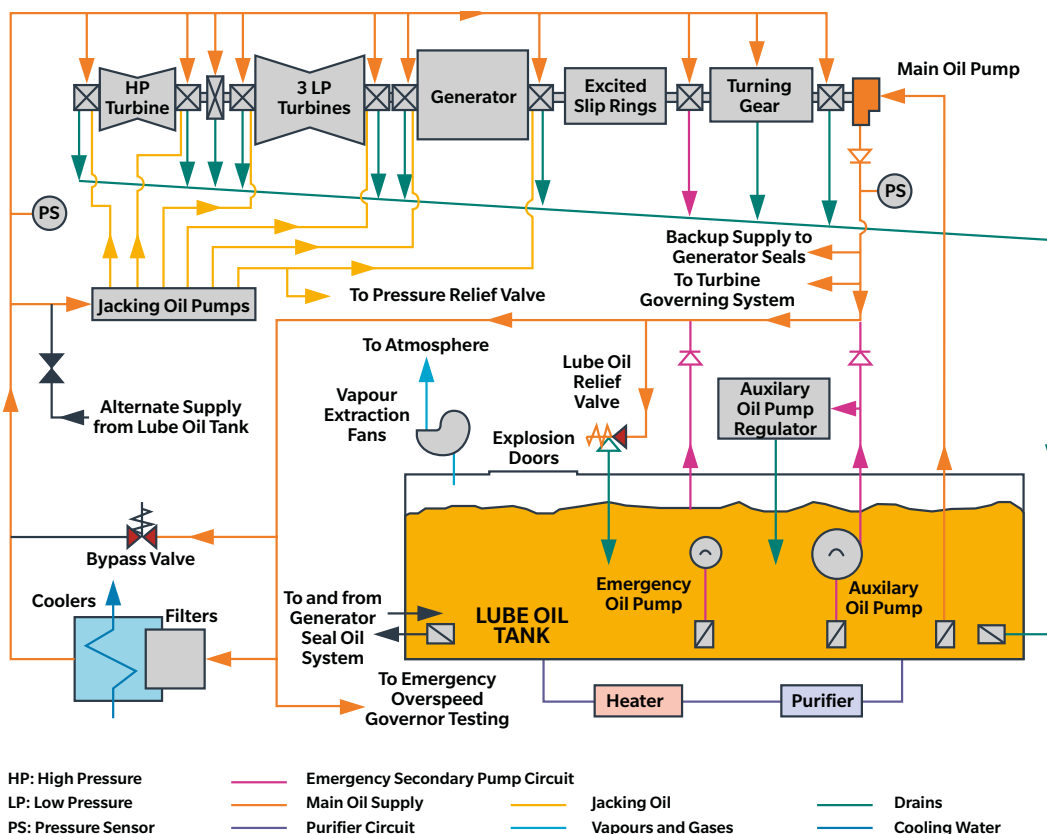
Failure on demand of an emergency system most often has catastrophic consequences. Losses are usually attributed to the initiating event or immediate cause. The majority of loss would have been avoidable if the integrity and functionality of the emergency system was intact.

This emphasis is to ensure the **functionality, availability, reliability, and independence** of emergency systems.

An emergency systems deep dive allows businesses to improve their understanding of performance against key metrics that are correlated to losses. These include maintenance and testing, training and competence, audit and improvement of emergency systems, and the processes that ensure their integrity and reliability on demand.

Following the deep dive, Marsh Specialty will provide tailored insights and advice on industry best practices to positively impact the risk profile of the plant.

Turbine Lube Oil System



How is a deep dive structured?

An emergency systems deep dive is a focused review, drawing on the **plan-do-check-act** philosophy, assessing system maturity across seven key performance parameters:

The topics included in the deep dive are ranked and mapped on the basis of system and process maturity to provide a visual representation of our findings.

REVIEW

Review provides the mechanism for organizational learning and continuous improvement. Review and audit key performance indicators (KPIs) are established, tracked, and reported. Closing the loop is deemed critical to the success of learning.

DOCUMENTATION

Documentation not only supports a systematic approach to work but provides auditable evidence of the activity. It underpins audits and is a key element in retaining organizational knowledge.

COMPETENCY

Competency is a core strength of the organization; response to emergencies are instinctive, well-rehearsed, and regularly refreshed. Competency assurance is inherent to all position qualification requirements.

TRAINING AND AWARENESS

Training and awareness are integrated into the organization's strategic fabric, the approach is pro-active and student-centric, with rich content. Training and awareness effectiveness KPIs defined, monitored, and reported.

SYSTEMS

Systems provide structured and controlled means of achieving certainty of outcome. Risk thrives in uncertainty.

PROCEDURES

Current, regularly reviewed, controlled documents, available and used. The value of procedures is understood, use of procedures is normal operating behavior and no critical activity occurs without a procedure.

IMPLEMENTATION

Systems and processes are fully implemented, maintained, controlled, and audited. Evidence of implementation should be widespread and implementation effectiveness is a KPI.



It provides your business with an understanding of your resilience to loss as a result of emergency systems, and delivers practical insights to allow you to:



Mitigate against potential losses and associated costs, including loss of production.



Protect against exposure of company personnel or third parties.



Reduce the risk of loss of containment of energy.



Reduce property damage and business interruption exposure.



Demonstrate the corporate approach to 'tolerance of risk' and enhance positive safety culture.

What is the output of an emergency systems deep dive?

Undertaking an emergency systems deep dive provides a risk-based approach to assess the system, documentation, and people aspects involved in ensuring the **functionality, availability, reliability, and independence** of emergency systems.

On completion of a deep dive, the plant will receive a detailed report describing the strength of the emergency systems of the site, including tailored risk rankings and specific recommendations to address identified exposures.

This service can be customized according to the requirements in terms of both depth and length of assessment.

Site risk resilience and strengthening barriers to loss are just two of the immediate benefits from an emergency systems deep dive. In addition, it strengthens the underwriting information providing an improved, risk engineering focused understanding of the site capabilities, which supports insurance placement.

For further information, please contact: riskengineering@marsh.com
or visit the [risk engineering page](#) on our website.

KANCHAN SHERE

Vice President
Power & Property Risks
Marsh (Bahrain) Company SPC



+973 6671 0698
kanchan.shere@marsh.com

SYLVAIN ANDRAUD

Engagement Lead
Risk Consulting
Energy & Power
Marsh Specialty



+336 2098 6271
sylvain.andraud@marsh.com

IAN HENDERSON

Managing Director
Risk Engineering
Energy & Power
Marsh Specialty



+971 50551 2178
ian.henderson@marsh.com



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