

Any one of these analysis methods can be used to drive operational improvements to the organization. The ISO 14224 standard does cover what data is required to perform each analysis but does not cover the analysis itself.

Benefits of ISO 14224

There are many benefits of implementing or adopting ISO 14224. Typically, the benefits will materialize in one of four ways:

Economic – Improved economic performance through improved designs, reduced life cycle cost, reduced downtime and through reduced cost of insurance.

General – Operation / Regulatory license, life extension of existing assets, improved quality and improved resource planning.

Safety and Environmental – Improved safety, reduced failures, reduced environmental impact through reduced incidents and improved operations and improved compliance.

Analytical – Higher quality data, data-driven decision making, improved acceptance of decisions, the ability to benchmark, the improved predictability of performance and the ability to utilize risk-based inspections.

The benefits mentioned above are not exhaustive, and there is much overlap in these benefits. All in all, by implementing a strong data capture system and utilizing the data through meaningful analysis any organization can drive significant improvements. Remember, to find success you must first solve the problem, then achieve the implementation of the solution, and finally sustain winning results.

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White Paper

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**Understanding ISO
14224: Your Guide to
Sustainable Defect
Elimination**





APPLIED SKILLS

- GRAPHICAL ANALYSIS.
- PROJECT CHARTERS.
- BUSINESS CASE DEVELOPMENT.
- ROOT CAUSE ANALYSIS.
- FAILURE MODE & EFFECTS ANALYSIS.
- PROCESS MAPPING.
- WORK PLANNING & SCHEDULING.
- BACKLOG MANAGEMENT.
- STANDARD WORK INSTRUCTIONS.
- PM EVALUATION & OPTIMIZATION.
- RELIABILITY MODELING.



Abstract

In the petroleum, natural gas and petrochemical industries, great attention is being paid to safety, reliability, and maintainability of equipment. This is true in any industry, and as such, the learnings and information found within ISO 14224 can be applied to any industry.

When implemented, the right data can be gathered to not only eliminate defects from the current assets but be used to design more efficient and reliable equipment. Remember the equipment will only operate at the inherent level of reliability, which is established in the design phase. So, by learning from the existing equipment and its performance, the designs can be improved to increase the level of inherent reliability. Utilizing a standard such as this in a single plant will provide some value, but when utilizing the ISO 14224 approach across multiple sites the benefits are truly realized. This realization occurs because the amount of data captured grows at a much quicker pace, allowing the analysis to become more meaningful and accurate.

Understanding ISO 14224: Your Guide to Sustainable Defect Elimination

Costs of Implementing ISO 14224

Let's face it, data collection is an investment. It takes time and resources to develop the right framework, data points, relationships, and analysis methods. These costs should not be undertaken lightly. They are significant and can drive substantial improvement in any operation. However, what data and how the data is captured, must be defined by the organization. There is no point in capturing certain data if the organization does and will not have the means to analyze the data. The data captured must be fit for purpose and reflect the needs of the organization.

Capturing the Right Data

ISO 14224 breaks down the requirements into 3 primary types of data;

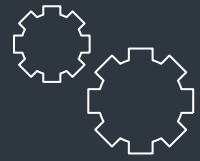
- Equipment Data is the description of the equipment level data (level 6 in the taxonomy).
- Maintenance Data is the record of corrective and preventive maintenance actions.
- Failure Data is the detailed description of the failure that occurred.

These three types of data are critical to understanding the impact of the maintenance strategies being deployed along with the ability to analyze the failures.

Using the Failure Data

Armed with the maintenance and failure data, many different types of analysis can be performed depending on the severity of the failure. While not exhaustive, the following analysis can be performed once the data has been collected:

- Pareto Graphical Analysis,
- Root Cause Analysis,
- Weibull Analysis,
- Reliability Growth Analysis (Crow-AMSAA), and
- Monte Carlo Simulation



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